水務署
Water Supplies Department

Contract No. 13/WSD/17

Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Operation Phase Monthly EM&A Report No.4 (Period from 1 October to 31 October 2024)

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Date:	18 November 2024

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By Post and Email

Water Supplies Department
New Works Branch
Consultants Management Division
6/F, Sha Tin Government Offices,
1 Sheung Wo Che Road, Sha Tin,
New Territories

Attn: Mr. W F Cheung/ S K Wong

Dear Sirs,

Independent Environmental Checker (IEC) for Construction and Operation of the First Stage Desalination Plant at Tseung Kwan O (Quotation Ref. No. TKO1/IEC/003)

Verification of Operation Phase Monthly Environmental Monitoring and Audit (EM&A) Report for October 2024

Referring to the Operation Phase Monthly Environmental Monitoring and Audit Report (October 2024) Rev.3.0 as submitted by the Environmental Team on 18 November 2024, we hereby verify the captioned report for further submission to the Director's Representative of the Project according to Clause 3.5 of the Environmental Permit EP-503/2015/B and Further Environmental Permit FEP-01/503/2015/B.

Should you have any queries, please contact the undersigned at 61496683, or email at serenashek@lamenviro.com.

Yours sincerely,
For and On Behalf Of
Lam Environmental Services Limited

Serena Shek
Independent Environmental Checker

Binnies	(Attn.: Derek Lai)	By E-mail
Aurecon	(Attn.: Toby Wan)	By E-mail

REVISION HISTORY

REV.	DESCRIPTION OF MODIFICATION	DATE
1.	First Issue	11/11/2024
2.	Second Issue	14/11/2024
3.	Third Issue	18/11/2024

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EXECUTIVE SUMMARY

INTRODUCTION

A1. The Project, Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP), is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is currently governed by a Further Environmental Permit (EP No. FEP – 01/503/2015/B) for the operation phase of the Contract.

A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Contract, EM&A works for marine water quality, waste management and ecology should be carried out by Environmental Team (ET), Aurecon Hong Kong Limited (Aurecon), during the Tseung Kwan O Desalination Plant.

A3. The TKODP commenced the operation stage on 1 July 2024. This is the 4th Operation Phase Monthly EM&A Report, prepared by Aurecon, for the Contract summarizing the monitoring results and audit findings of the EM&A programme at and around Tseung Kwan O Area 137 (TKO 137) during first-year operation of Tseung Kwan O Desalination Plant in October 2024.

A4. The EM&A programme for this contract has covered environmental monitoring on water quality and Contractor's environmental performance auditing in the aspects of dust, landfill gas, water quality, waste management, Landscape and Visual and Ecology.

SUMMARY OF EXCEEDANCE & INVESTIGATION & FOLLOW-UP

WATER QUALITY MONITORING

A5. The EM&A works for operation phase marine water quality were conducted during the reporting period in accordance with the EM&A Manual. Seventeen (17) of SS obtained had exceeded the Action Level. Twenty-nine (29) of SS obtained during the reporting period had exceeded the Limit Level.

A6. The EM&A works for continuous monitoring of effluent quality were conducted during the reporting period in accordance with the EM&A Manual. No exceedance of the sampling was obtained during the reporting period.

ECOLOGY IMPACT MONITORING

A7. Monthly operation phase coral monitoring works was conducted on 21 October 2024. There is no AL/LL exceedance during the monitoring period.

A8. Operation phase fishery monitoring for wet season 2024 was carried out on 24 and 31 August 2024. The survey findings showed that the abundance and diversity of fish eggs and larvae are on the low side for the Study Area, and the abundance and diversity of juveniles are very low for the Study Area. Survey findings also showed that there was a very week relationship in recorded families between ichthyoplankton assemblages,

adult fish and juvenile fish in the Study Area, which implies that the Study Area does not appear to be an important spawning or nursery grounds for commercial fishes.

LANDFILL GAS MONITORING

A9. In this reporting period, monthly landfill gas monitoring was conducted on 9 and 10 October 2024. No exceedances of action level and limit level was observed.

WEEKLY SITE INSPECTIONS

A10. In this reporting period, site inspections were carried out by ET on 3, 8, 15, 22 and 28 October 2024. Joint site inspections of the operation work by ET were and IEC were carried out on 28 October 2024 to audit the mitigation measures implementation status.

COMPLAINT HANDLING AND PROSECUTION

A11. No environmental complaint, notification of summons and prosecution was received in the reporting period.

REPORTING CHANGE

A12. There was no change to be reported that may affect the on-going EM&A programme.

A13. According to the contractor's information, the works of TKODP were substantially completed on 30 June 2024 and the plant commenced the operation phase on 1 July 2024. The outstanding construction works were being carried out during this reporting period. Details of the construction phase monitoring will be presented in the Construction Phase Monthly EM&A Report.

1. BASIC CONTRACT INFORMATION

BACKGROUND

1.1. The Acciona Agua, S.A. Trading, Jardine Engineering Corporation, Limited and China State Construction Engineering (Hong Kong) Limited as AJC Joint Venture (AJCJV) is contracted to carry out the Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP) under Contract No. 13/WSD/17 (the Contract).

1.2. Aurecon Hong Kong Limited (Aurecon) is commissioned by AJCJV to undertake the Environmental Team (ET) services as required and/or implied, both explicitly and implicitly, in the Environmental Permit (EP), Environmental Impact Assessment Report (EIA Report) (Register No. AEIAR-192/2015) and Environmental Monitoring and Audit Manual (EM&A Manual) for the Contract; and to carry out the Environmental Monitoring and Audit (EM&A) programme in fulfillment of the EIA Report's EM&A requirements and Contract No. 13/WSD/17 Specification requirements.

1.3. Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Environmental Permit (No. EP-01/503/2015/B) to Water Supplies Department (WSD); and granted the Further Environmental Permit (No. FEP-01/503/2015/B) to AJCJV for the Contract.

THE REPORTING SCOPE

1.4. This is the 4th Operation Phase Monthly EM&A Report for the Contract which summarizes the key findings of the EM&A programme of the Tseung Kwan O Desalination Plant Operation phase during the reporting period from 1 October 2024 to 31 October 2024.

CONTRACT ORGANIZATION

1.5. The Contract Organization structure for Operation Phase is presented in **Figure 1.1**.

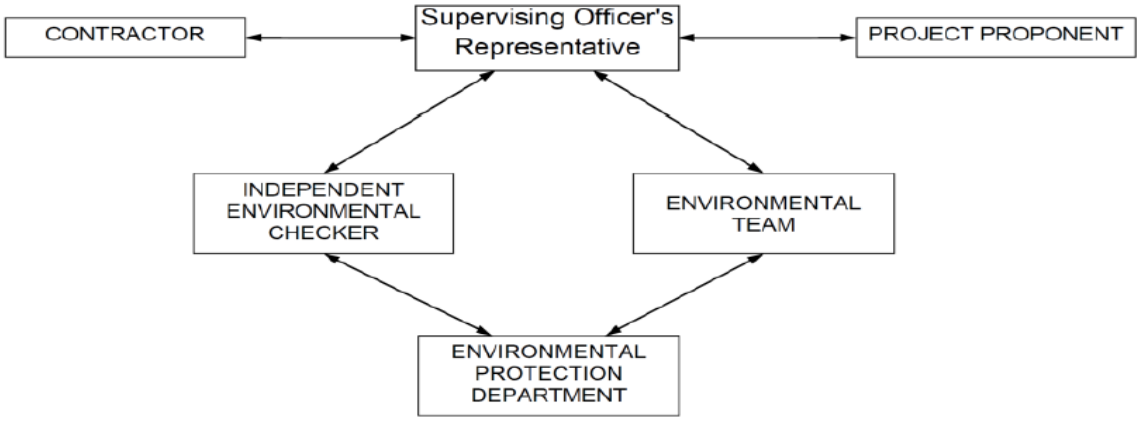


Figure 1.1 Contract Organization Chart

1.6. Contact details of the key personnel are presented in **Table 1.1** below:

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Telephone no.
Contract Proponent (Water Supplies Department)	SE/CM2	Milton Law	2634-3573
Supervising Officer (Binnies Hong Kong Limited)	Project Manager	Augustine Li	2608-7671
	Chief Resident Engineer	David Wong	5229-8638
The Jardine Engineering Corporation, Limited, China State Construction Engineering (Hong Kong) Limited and Acciona Agua, S.A. Trading	Project Manager	Stephen Yeung	2807-4665
	Environmental Monitoring Manager	Brian Kam	9456-9541
	Operation Manager	Arnes Parra, Victor	6468-6710
	Environmental Monitoring Manager	Tommy Law	6468-1782
Aurecon Hong Kong Limited	Environmental Team Leader	Toby Wan	9719-5422
Lam Environmental Services Limited	Independent Environmental Checker (IEC)	Serena Shek	6149-6683

SUMMARY OF OPERATION WORKS

1.7. Details of the major operation activities undertaken in this reporting period are shown below.

1.8. As informed by the Contractor, key activities carried out in this reporting period for the Contract included the followings:

- Potable Water Production

1.9. The key environmental mitigation measures implemented for the Contract in this reporting period associated with the above operation works include:

- Regularly monitoring of the effluent
- Sorting and storage of general refuse and operation waste

1.10. Summary of the valid permits, licences, and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Permit/ Licences	Valid Period		Status	Remark
	From	To		
Environmental Permit				
EP-503/2015/B	Throughout the Contract		Valid	-Issued on 3 April 2024
FEP – 01/503/2015/B	Throughout the Contract		Valid	-Issued on 3 April 2024
Billing Account for Disposal				
7036276	Throughout the Contract		Valid	-
Sludge (Special Waste) Disposal (Admission Ticket)				
17913	01/07/2024	24/12/2024	Valid	
17372	12/06/2024	31/12/2024	Valid	
Chemical Waste Producer Registration				
5213-839-A2987-01	Throughout the Contract		Valid	-
Wastewater Discharge Licence (Land and Marine works)				
WT00035775-2020	23/08/2021	31/07/2025	Valid	-
WT00044188-2023	16/06/2023	30/06/2028	Valid	- For Plant T&C and operation. - Variation sampling point S.P.1 is approved by the EPD on 25 June 2024 (EPD ref.: EP640/W3/D1358/ 462874). The variation of application of discharge license was submitted on 9 Sep 2024 and pending for EPD approval

1.11. The status for all environmental aspects is presented in **Table 1.3**.

Table 1.3 Summary of Status for Key Environmental Aspects under the EM&A Manual

Parameters	Status
Water Quality	
Baseline Monitoring under EM&A Manual	The baseline water quality monitoring was conducted between 12 May 2020 to 6 Jun 2020.
Operation phase Marine Impact Monitoring	On-going
Continuous Monitoring of Effluent Quality	On-going
Waste Management	
Mitigation Measures in Waste Management Plan	On-going
Landfill Gas	
Monthly Monitoring for buildings, manholes and utility pits within the Project Site and along the fresh water mains	On-going
Ecology (Coral)	
Operation phase Regular Coral Monitoring (Monthly)	On-going
Ecology (Fishery)	
Operation phase Regular Fishery Monitoring (Seasonally)	On-going
Landscape	
Operation phase Landscape and Visual Site Inspection	On-going
Environmental Audit	
Site Inspection covering Measures of Air Quality, Water Quality, Waste, Ecological Quality, Fisheries, Landscape and Visual	On-going

1.12. Other than the EM&A work by ET, environmental briefings, trainings, and regular environmental management meetings were conducted, in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.

1.13. The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the EM&A Manual. A summary of implementation status of the environmental mitigation measures for the operation phase of the Contract during the reporting period is provided in **Appendix B**.

2. WATER QUALITY

2.1. In accordance with the recommendations of the EIA, water quality monitoring is required during operation phase. The following Section provides details of the water quality monitoring to be undertaken by the Environmental Team (ET) to verify the distance of sediment and brine plume dispersion and to identify whether the potential exists for any indirect impacts to occur to ecological sensitive receivers.

2.2. The water quality monitoring programme was carried out to allow any deteriorating water quality to be readily detected and timely action taken to rectify the situation.

2.3. Water quality monitoring for the Contract can be divided into the following stages:

(a) Operation phase Marine Water Quality Monitoring – first year upon commissioning

(b)Continuous Monitoring of Effluent Quality

WATER QUALITY PARAMETERS

2.4. Parameters to be measured in the marine water quality monitoring and the Continuous Monitoring of Effluent Quality are listed in **Table 2.1** and **Table 2.2** respectively.

a) Operation phase Marine Water Quality Monitoring

2.5. The parameters for the marine water quality monitoring that have been selected for measurement in situ and in the laboratory are those that were either determined in the EIA to be those with the most potential to be affected by the operation works or are a standard check on water quality conditions.

Table 2.1 Parameters measured in the Marine Water Quality Monitoring

Parameters	Unit	Abbreviation
In-situ measurements		
Dissolved oxygen	mg/L	DO
Temperature	^{o}C	-
pH	-	-
Turbidity	NTU	-
Salinity	0/00	-
Total Residual Chlorine	mg/L	TRC
Laboratory measurements		
Suspended Solids	mg/L	SS
Iron-Soluble	mg/L	Fe
Anti-scalant as Reactive Phosphorus*	mg/L	PO4 as P-

*Remark: Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted.

b) Continuous Monitoring of Effluent Quality

2.6. The monitoring requirement for the continuous effluent quality monitoring shall be conducted in accordance with the effluent parameters and standards stipulated by the Water Pollution Control Ordinance Discharge License (No.: WT00044188-2023) conditions.

Table 2.2 Parameters measured in the Continuous Monitoring of Effluent Quality

Parameters	Unit	Abbreviation
In-situ measurements		
Temperature	°C	-
pH	pH	-
Salinity	0/00	-
Total Residual Chlorine	mg/L	TRC
Laboratory measurements		
Suspended Solids	mg/L	SS
Iron-Soluble	mg/L	Fe
Total Inorganic Nitrogen	mg/L	-
Total Phosphorus	mg/L	-
Sodium Metabisulphite	mg/L	SMBS
Anti-scalant as Reactive Phosphorus *	mg/L	PO4 as P-

*Remark: Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted.

2.7. In addition to the marine water quality parameters, other relevant data were also being measured and recorded in Water Quality Monitoring Logs, including the location of the sampling stations, water depth, time, weather conditions, sea conditions, tidal stage, current direction and velocity, special phenomena and work activities undertaken around the monitoring and works area that may influence the monitoring results.

MONITORING EQUIPMENT

a) Operation phase Marine Water Quality Monitoring

2.8. For water quality monitoring, the following equipment were used:

Dissolved Oxygen and Temperature Measuring Equipment - The instrument was a portable, weatherproof dissolved oxygen measuring instrument complete with cable, sensor, comprehensive operation manuals, and was operable from a DC power source. It was capable of measuring: dissolved oxygen levels in the range of 0 - 20 mg/L and 0 - 200% saturation; and a temperature of 0 - 45 degrees Celsius. It has a membrane electrode with automatic temperature compensation complete with a cable of not less than 35 m in length. Sufficient stocks of spare electrodes and cables were available for replacement where necessary (e.g. YSI model 59 DO meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

Turbidity Measurement Equipment - The instrument was a portable, weatherproof turbidity-measuring unit complete with cable, sensor and comprehensive operation manuals. The equipment was operated from a DC power source, it has a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU and complete with a cable with at least 35 m in length (for example Hach 2100P or an approved similar instrument).

Salinity Measurement Instrument - A portable salinometer capable of measuring salinity in the range of 0 - 40 ppt was provided for measuring salinity of the water at each monitoring location.

Water Depth Gauge – A portable, battery-operated echo sounder (for example Seafarer 700 or a similar approved instrument) was used for the determination of water depth at each designated monitoring station. This unit will preferably be affixed to the bottom of the work boat if the same vessel is to be used throughout the monitoring programme. The echo sounder was suitably calibrated.

Positioning Device – A Global Positioning System (GPS) was used during monitoring to allow accurate recording of the position of the monitoring vessel before taking measurements. The Differential GPS, or equivalent instrument, was suitably calibrated at appropriate checkpoint (e.g. Quarry Bay Survey Nail) to verify that the monitoring station is at the correct position before the water quality monitoring commence.

Water Sampling Equipment - A water sampler, consisting of a PVC or glass cylinder of not less than two litres, which can be effectively sealed with cups at both ends, was used. The water sampler has 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.

Total Residual Chlorine -Total residual chlorine (TRC) shall be measured in-situ using approved test kit.

b) Continuous Monitoring of Effluent Quality

2.9. The equipment to be used for the effluent quality monitoring was summarizes in **Table 2.3**.

Table 2.3 Parameters measured in the Continuous Monitoring of Effluent Quality

Equipment	Model
Refrigerated Sampler	Teledyne ISCO 5800
Online sampler for real-time monitoring (Xylem WTW IQ SensorNet system and sensors)	DIQ/S 284-PR: Universal Transmitter to operate up to 4 digital IQ sensors, with PROFIBUS-connection

Equipment	Model
	TetraCon® 700 IQ SW: Digital 4 electrode conductivity cell, in seawater design, suited for heavily polluted water, for use with the IQ SENSOR NET. With integrated temperature sensor
	VisoTurb® 700 IQ SW: Digital turbidity sensor for industrial and seawater applications (ultrasonic cleaning) for use with the IQ SENSOR NET system
	SensoLyt® 700 IQ SW: Robust digital pH/ORP sensor for SensoLyt® SEA/ DWA/ECA/PtA pH/ORP electrodes, in sea water design, for use with the IQ SENSOR NET. With built-in pre-amplifier and temperature sensor (NTC), with SensCheck function
	FDO®700 IQ SW: Digital calibration free optical D.O. sensor (universal use). Optimized for measuring and controlling the O2 input in seawater applications, for use with IQ SENSOR NET. Factory calibrated system composed of sensor FDO® 700 IQ SW, membrane cap SCFDO® 700 and protective cap MSK FDO®
	Chlorine 3017M: Online analyzer for photometric measurement of free and total chlorine, according to colorimetric DPD Method (ISO &US EPA); outputs (selectable): 4 to 20 mA or RS 485

Based on Section 5.1.3 of the EM&A Manual, the online sampler for real-time monitoring will be tested before use by HOKLAS-accredited laboratory and will be re-calibrated at monthly intervals throughout the stages of effluent quality monitoring.

SAMPLING / TESTING PROTOCOLS

2.10. All in situ monitoring instruments were checked, calibrated, and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently re-calibrated at monthly intervals throughout the stages of the water

quality monitoring. Responses of sensors and electrodes were checked with certified standard solutions before each use.

2.11. On-site calibration of field equipment was following the "*Guide to On-Site Test Methods for the Analysis of Waters*", BS 1427: 2009. Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was made available so that monitoring can proceed uninterrupted even when equipment is under maintenance, calibration etc.

LABORATORY MEASUREMENT AND ANALYSIS

a) Operation phase Marine Water Quality Monitoring

2.12. Sufficient volume of each water sample was collected for carrying out the laboratory analyses. Using chain of custody forms, collected water samples were transferred to a HOKLAS accredited laboratory (Acumen Laboratory and Testing Limit - HOKLAS 241) for immediate processing. The determination work was start within the next working day after collection of the water samples. Analytical methodology and sample preservation of other parameters were based on the latest edition of Standard Methods for the Examination of Waste and Wastewater published by APHA, AWWA and WPCF and methods by USEPA, or suitable method in accordance with requirements of HOKLAS or another internationally accredited scheme. The QA/QC details were in accordance with the requirements of HOKLAS or another internationally accredited scheme.

2.13. Parameters for laboratory measurements, standard methods and detection limits are presented in **Table 2.4**.

Table 2.4 Laboratory measurements, standard methods, and corresponding detection limits of marine water quality monitoring

Parameters	Standard Methods	Detection Limit	Reporting Limit	Precision
Dissolved oxygen	Instrumental, CTD	0.1	-	±25%
Temperature	Instrumental, CTD	0.1	-	±25%
pH	Instrumental, CTD	0.1	-	±25%
Turbidity	Instrumental, CTD	0.1	-	±25%
Salinity	Instrumental, CTD	0.1	-	±25%
Suspended Solids	APHA 23rd Ed 2540D	1.0	2.5	±17%
Iron	APHA 3111 B	0.2	-	±25%
Total residual chlorine	APHA 4500CL: G	0.01mg/L	-	±25%
Anti-scalant*	Content acrylic polymers determination method	5 mg/L	-	-

*Remark: A proposal for update anti-scalant monitoring under the operation phase EM&A programme is proposed via email on 27 May 2024. EPD has agreed to update the anti-scalant monitoring detection limit, action and limit level from 0.2 mg/L to 5.0 mg/L (EPD ref. ()In EP 2/N8/E/120 Pt.14).

b) Continuous Monitoring of Effluent Quality

2.14. Analyses of the sample shall be carried out using American Public Health Association Standard Method for the Examination of Water and Wastewater or other internationally accepted standard methods proposed by the Licensee and approved by the Authority which could achieve the monitoring requirement.

Table 2.5 Measurements Methods for Continuous Monitoring of Effluent Quality

Parameters	Standard Methods
Flow Rate (m3 / day)	In-house method
Temperature(°C)	Instrumental
Salinity ($^0/_{00}$)	Instrumental
pH (pH units)	Instrumental
Suspended Solids (mg / L)	APHA 2540E
Iron (mg / L)	APHA 3111 B
Total Inorganic Nitrogen (mg / L)	In-house method
Total Phosphorous (mg / L)	In-house method
Total Residual Chlorine	APHA 4500CL: G
Sodium Metabisulphite	--
Anti-scalant 'ACUMER' 4035*	

*Remark: Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted.

MONITORING LOCATION

a) Operation phase Marine Water Quality Monitoring

2.15. The operation phase water quality monitoring locations are in accordance with the EM&A Manual and detailed in **Table 2.6** below. A schedule for water quality monitoring was prepared by the ET and submitted to IEC and EPD prior to the commencement of the monitoring.

Table 2.6 Location of Water Quality Monitoring Stations

Station	Easting	Northing	Description
CE	843550	815243	Upstream control station at ebb tide
CF	846843	810193	Upstream control station at flood tide
WSR1	846864	812014	Ecological sensitive receiver at Tung Lung Chau
WSR2	847645	812993	Fisheries sensitive receiver at Tung Lung Chau
WSR3	848023	813262	Ecological sensitive receiver at Tung Lung Chau
WSR4	847886	814154	Ecological sensitive receiver at Tai Miu Wan
WSR16	845039	815287	Ecological sensitive receiver at Fat Tong Chau
WSR33	847159	814488	Ecological sensitive receiver at Tai Miu Wan
WSR36	846878	814081	Ecological sensitive receiver at Kwun Tsai
WSR37	846655	813810	Ecological sensitive receiver at Tit Cham Chau
NF1	846542	813614	Edge of Mixing zone, ~ 200m west of outfall diffuser
NF2	846942	813614	Edge of Mixing zone, ~ 200m east of outfall diffuser
NF3	846742	813414	Edge of Mixing zone, ~ 200m south of outfall diffuser

2.16. WSR1 to WSR37 were identified in accordance with Annex 14 of the EIAO-TM as well as Clause 3.4.4.2 of the Environmental Impact Assessment Study Brief for Desalination Plant at Tseung Kwan O (No. ESB-266/2013). WSR1 to WSR3 are sited near the Tung Lung Chau Fish Culture Zone; WSR16 and WSR36 are sited near the coral assemblages along the coastlines of Fat Tong Chau and Kwun Tsai respectively; WSR 4 and WSR33 are sited near the Coastal Protection Area and coral assemblages in waters of Tai Miu Wan; WSR37 is sited near the fisheries resource including spawning and nursery grounds at the coastal water of Tit Cham Chau. NF1 to NF3 are the Edge of Mixing zone.

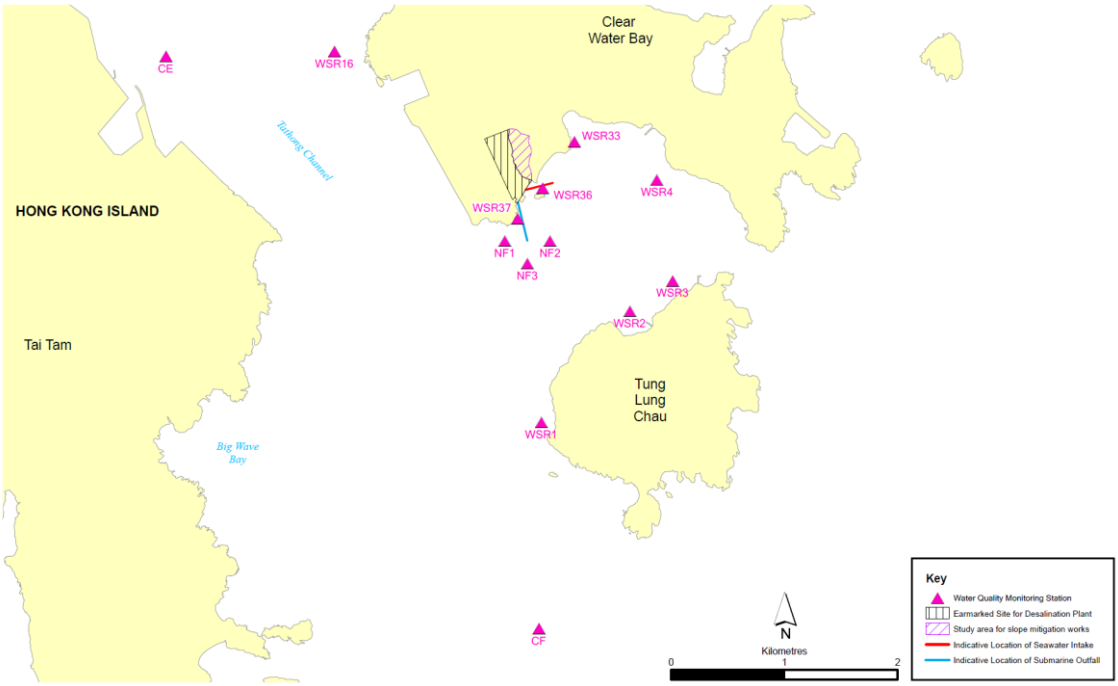


Figure 2.1 Water Quality Monitoring Locations under EM&A Manual

b) Continuous Monitoring of Effluent Quality

2.17. In accordance with the discharge license, the Continuous Monitoring shall be sampling at Brine Outfall Shaft.

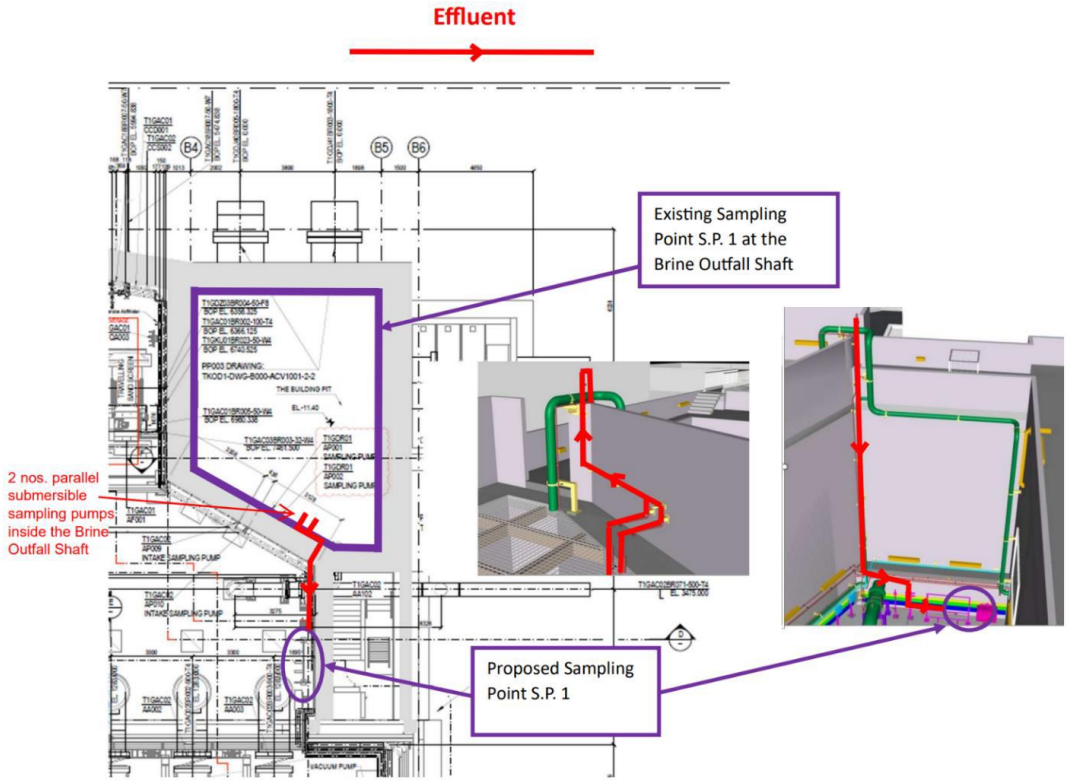


Figure 2.2 Continuous Monitoring locations

SAMPLING FREQUENCY

a) Impact Marine Water Quality Monitoring

2.18. Water quality monitoring was carried out three days per week during the operation phase. Monitoring at each station was undertaken once per day. The interval between two sets of monitoring was not less than 36 hours. The monitoring frequency would be increased in the case of exceedances of Action/Limit Levels if considered necessary by ET. Monitoring frequency would be maintained as far as practicable.

b) Continuous Monitoring of Effluent Quality

2.19. The effluent should be collected in a full 24-hour period. Twenty four-hour flow-weighted composite effluent sample for subsequent chemical analysis and testing should be prepared by the following procedures:

- Collect effluent sub-sample at bi-hourly interval over a 24 hour period
- Obtain flow record of the Project for the 24-hour sampling period
- Calculate the volume of each sub-sample for preparation of flow-weighted composite sample
- Transfer the appropriate volume of sub-samples to a clean container and mix thoroughly

SAMPLING DEPTHS & REPLICATION

a) Operation phase Marine Water Quality Monitoring

2.20. During water quality monitoring, each station was sampled, and measurements/ water samples were taken at three depths, 1 m below the sea surface, mid-depth, and 1 m above the seabed. For in situ measurements, duplicate readings were made at each water depth at each station. Duplicate water samples were collected at each water depth at each station.

b) Continuous Monitoring of Effluent Quality

2.21. The effluent sampling should be planned carefully to ensure appropriate volume of effluent sub-samples is collected to prepare sufficient amount of flow-weighted composite effluent sample for carrying out subsequent chemical analysis and testing.

ACTION AND LIMIT LEVELS

2.22. The Action and Limit Levels have been set based on the derivation criteria specified in the EM&A Manual. The Action/Limit Levels have been derived and are presented in **Table 2.7 and Table 2.8**.

a) Operation phase Marine Water Quality Monitoring

Table 2.7 Derived Action and Limit Levels for Water Quality

Parameters	Action	Limit
Operation phase Marine Water Quality Monitoring		
DO in mg/L	Surface and Middle 7.30 mg L^{-1} Bottom 7.31 mg L^{-1} Tung Lung Chau Fish Culture Zone 5.1 mgL^{-1} or level at control station (Whichever the lower)	Surface and Middle 4 mg L^{-1} Bottom 2 mg L^{-1} Tung Lung Chau Fish Culture Zone 5.0 mgL^{-1} or level at control station (Whichever the lower)
SS in mg/L (Depth-averaged)	5.00 mg L^{-1} or 20% exceedance of value at any impact station compared with corresponding data from control station	6.00 mg L^{-1} or 30% exceedance of value at any impact station compared with corresponding data from control station
Turbidity in NTU (Depth-averaged)	2.41 NTU or 20% exceedance of value at any impact station compared with corresponding data from control station	2.84 NTU or 30% exceedance of value at any impact station compared with corresponding data from control station
Salinity in PSU (Depth-averaged)	34.25 PSU or 9% exceedance of value at any impact station compared with corresponding data from control station	34.56 PSU or 10% exceedance of value at any impact station compared with corresponding data from control station
Iron in mg/L (Depth-averaged)	0.3 mg/L	0.3 mg/L
Total residual chlorine in mg/L	0.01 mg/L	0.01 mg/L
*Anti-scalant in mg/L (Depth-averaged)	5.0 mg/L	5.0 mg/L

Notes:
i."Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
ii.For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
iii.For Turbidity, SS, iron and Salinity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
iv.*A proposal for update anti-scalant monitoring under the operation phase EM&A programme is proposed via email on 27 May 2024. EPD has agreed to update the anti-scalant monitoring detection limit, action and limit level from 0.2 mg/L to 5.0 mg/L (EPD ref. ()In EP 2/N8/E/120 Pt.14).

b) Continuous Monitoring of Effluent Quality

Table 2.8 Derived Limit Levels for Water Quality

Parameters	Limit
Continuous Monitoring of Effluent Quality	
Flow Rate in m^3/day	216841
Temperature in °C	Maximum 40
Salinity	71347
SS in mg/L	13
pH	6-9
Iron in mg/L	0.6
Total residual chlorine in mg/L	0.1
Total Inorganic Nitrogen in mg/L	2
Total Phosphorous in mg/L	1
Sodium Metabisulphite in mg/L	0.5
Anti scalant in mg/L*	2.2

*Remark:
1. Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted.

MONITORING RESULTS AND OBSERVATIONS

a) Operation phase Marine Water Quality Monitoring

2.23. The operation phase of Tseung Kwan O Desalination Plant was commenced on 1 July 2024. Marine water quality monitoring for the operation phase of Tseung Kwan O Desalination Plant was conducted in the reporting period at the thirteen monitoring stations (CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2 and NF3). The Action and Limit Level would be referred to the approved EM&A Manual Table 2.7.

2.24. The marine water quality monitoring was conducted at the thirteen monitoring stations on 1, 3, 5, 8, 10, 12, 15, 17, 19, 22, 24, 26, 29 and 31 October 2024.

2.25. Seventeen (17) of the operation phase water quality monitoring results of SS obtained had exceeded the Action Level. Twenty-nine (29) of SS obtained during the reporting period had exceeded the Limit Level.

2.26. Investigation on the reason of exceedance has been carried out, where the exceedances of SS on 3, 5, 10, 12, 15, 17, 19, 22, 24, 26, 29 and 31 October 2024 were concluded to be unrelated to the Contract as detailed in the Incident Reports on Action Level or Limit Level Non-compliance along with supporting materials in **Appendix K**.

2.27. Monitoring results of 8 key parameters: Salinity, DO, turbidity, SS, pH, temperature, Total Residual Chlorine and Iron in this reporting, are summarized in **Table 2.9**, and detailed results are presented in **Appendix F**.

b) Continuous Monitoring of Effluent Quality

2.28. Continuous Monitoring of Effluent Quality was conducted sampling point in the reporting month. No exceedance of the sampling was obtained during the reporting period. The detailed results are summarized in **Table 2.10**, and presented in **Appendix F.**

Table 2.9 Summary of Impact Water Quality Monitoring Results

Locations		Parameters								
		Salinity (ppt)	Dissolved Oxygen (mg/L)		pH	Turbidity (NTU)	Suspended Solids (mg/L)	Temp. (°C)	TRC (mg/L)	Iron (mg/L)
			Surface & Middle	Bottom						
CE	Avg.	32.40	8.90	8.89	8.19	2.44	4.60	28.64	<0.01	<0.1
	Min.	30.94	7.90	7.89	8.08	2.01	2.50	27.78	<0.01	<0.1
	Max.	33.12	9.64	9.67	8.31	2.79	37.00	29.38	<0.01	<0.1
CF	Avg.	32.55	8.83	8.82	8.24	2.28	7.68	28.65	<0.01	<0.1
	Min.	31.71	7.98	7.80	8.09	1.86	2.50	27.81	<0.01	<0.1
	Max.	33.56	9.84	9.74	8.40	2.68	86.00	29.38	<0.01	<0.1
WSR1	Avg.	32.21	8.67	8.67	8.24	1.83	7.90	28.60	<0.01	<0.1
	Min.	31.41	7.70	7.72	8.05	1.30	2.50	27.73	<0.01	<0.1
	Max.	33.04	9.36	9.40	8.40	2.22	65.00	29.26	<0.01	<0.1
WSR2	Avg.	32.52	8.87	8.85	8.21	1.65	5.01	28.59	<0.01	<0.1
	Min.	31.59	7.99	7.95	8.04	1.34	2.50	27.69	<0.01	<0.1
	Max.	33.59	9.64	9.65	8.33	2.22	63.00	29.30	<0.01	<0.1
WSR3	Avg.	32.52	8.91	8.90	8.22	1.68	4.10	28.59	<0.01	<0.1
	Min.	31.52	8.16	8.13	8.03	1.22	2.50	27.91	<0.01	<0.1
	Max.	33.05	9.86	9.86	8.39	2.08	12.00	29.22	<0.01	<0.1
WSR4	Avg.	32.52	8.96	8.99	8.21	1.81	4.40	28.64	<0.01	<0.1
	Min.	31.56	7.75	7.78	8.00	1.31	2.00	27.93	<0.01	<0.1
	Max.	33.33	9.60	9.61	8.41	2.16	13.00	29.33	<0.01	<0.1
WSR16	Avg.	32.35	8.76	8.75	8.20	1.76	4.29	28.58	<0.01	<0.1
	Min.	31.24	8.14	8.12	8.06	1.44	2.50	27.72	<0.01	<0.1
	Max.	33.13	9.49	9.55	8.34	2.14	11.00	29.19	<0.01	<0.1

Locations		Parameters								
		Salinity (ppt)	Dissolved Oxygen (mg/L)		pH	Turbidity (NTU)	Suspended Solids (mg/L)	Temp. (°C)	TRC (mg/L)	Iron (mg/L)
			Surface & Middle	Bottom						
WSR33	Avg.	32.42	8.59	8.59	8.21	1.74	4.03	28.66	<0.01	<0.1
	Min.	30.89	7.82	7.89	8.03	1.32	2.50	28.01	<0.01	<0.1
	Max.	33.56	9.16	9.15	8.34	2.19	14.00	29.32	<0.01	<0.1
WSR36	Avg.	32.34	8.93	8.94	8.21	1.77	3.83	28.59	<0.01	<0.1
	Min.	31.31	7.73	7.75	8.09	1.34	2.50	27.82	<0.01	<0.1
	Max.	33.14	9.68	9.66	8.35	2.15	9.00	29.20	<0.01	<0.1
WSR37	Avg.	32.43	8.83	8.84	8.23	1.78	3.85	28.62	<0.01	<0.1
	Min.	31.23	7.90	7.93	8.12	1.37	2.00	28.05	<0.01	<0.1
	Max.	33.49	9.41	9.49	8.40	2.14	11.00	29.30	<0.01	<0.1
NF1	Avg.	32.35	8.76	8.75	8.21	1.77	4.19	28.64	<0.01	<0.1
	Min.	31.55	8.27	8.22	8.11	1.33	2.50	27.76	<0.01	<0.1
	Max.	33.36	9.28	9.22	8.39	2.18	13.00	29.38	<0.01	<0.1
NF2	Avg.	32.31	8.76	8.75	8.21	1.71	4.00	28.61	<0.01	<0.1
	Min.	31.34	8.19	8.19	8.05	1.25	2.00	27.75	<0.01	<0.1
	Max.	33.27	9.35	9.33	8.39	2.20	11.00	29.20	<0.01	<0.1
NF3	Avg.	32.25	8.75	8.73	8.24	1.83	3.64	28.60	<0.01	<0.1
	Min.	31.45	7.81	7.78	8.07	1.47	2.00	27.81	<0.01	<0.1
	Max.	33.08	9.61	9.55	8.36	2.22	11.00	29.30	<0.01	<0.1

Notes:

i. "Avg", "Min" and "Max" is the average, minimum and maximum respectively of the data from measurements conducted under mid-flood and mid-ebb tides at three water depths, except that of DO where the data for "Surface & Middle" and "Bottom" are calculated separately.

ii. Measurement data of Suspending Solids would be rounding to 2.5mg/L if the value was less than 2.5mg/L to facilitate data analysing.

Table 2.10 Summary of Continuous Effluent Monitoring Results

	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)	Suspended Solids (mg/L)	Total Inorganic Nitrogen (mg/L)	Total Phosphorus (mg/L)	*Sodium Metabisulphite (mg/L)	Iron (mg/L)
Avg.	55.19	7.55	27.77	0.04	3.00	0.54	0.01	<2	<0.1
Min.	51.05	7.14	24.50	0.01	<2	0.08	<0.01	<2	<0.1
Max.	58.26	7.86	31.15	0.07	2	0.49	0.02	<2	<0.1

* Remark: As confirmed by various laboratories in Hong Kong, the lowest detection limit for Sodium Metabisulphite is <2 mg/L. Due to the limitation of the laboratory, the lowest result for Sodium Metabisulphite will only be shown as < 2 mg/L.

3. WASTE

3.1. The waste generated from this Contract includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the Contract are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Contract, the quantities of different types of waste generated in the reporting month are summarized in **Table 3.1**. Details of cumulative waste management data are presented as a waste flow table in **Appendix G**.

Table 3.1 Quantities of Waste Generated from the Contract during the reporting period

Reporting Month	**Actual Quantities of Inert C&D Materials Generated Monthly**						**Actual Quantities of C&D Wastes Generated Monthly**				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (1)	Chemical Waste	Others, e.g., general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Oct 2024	78.140	0.000	0.000	0.000	78.140	0.000	0.000	0.000	0.000	0.000	71.810

Notes: (1) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

3.2. No dewatered sludge was generated by the operation in the reporting period.

4. LANDFILL GAS MONITORING

MONITORING REQUIREMENT

4.1. In accordance with Section 11 of the EM&A Manual, monthly monitoring of landfill gas is required for the first year of operation at buildings within the Project Site and consultation zone. Part of the desalination plant and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone; and part of the 1,200 mm diameter freshwater mains along Wan Po Road falls within the SENT Landfill and SENT Landfill Extension Consultation Zones, TKO Stage II/III Restored Landfill and TKO Stage I Restored Landfill Consultation Zones.

4.2. Routine monitoring is required at buildings within the Project Site and consultation zones. The monitoring frequency will be monthly for the first year of operation.

4.3. For the manholes and utility pits within the Project Site and along the fresh water mains, each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit and for each measurement.

4.4. Monitoring of oxygen, methane, carbon dioxide and barometric pressure would be performed monthly during the operation phase.

MONITORING LOCATION

4.5. The area required to be monitored for landfill gas in the reporting period is shown in **Figure 4.1, Figure 4.2 and Figure 4.3**.

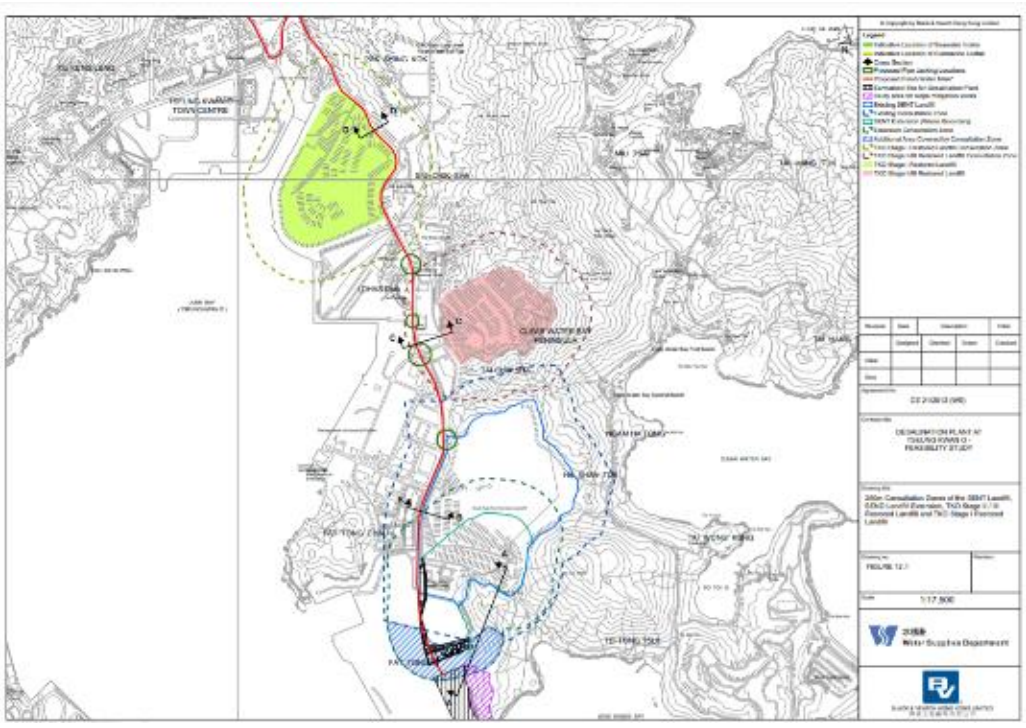


Figure 4.1 Overview of the SENT Extension Consultation Zone and the Contract Site Area

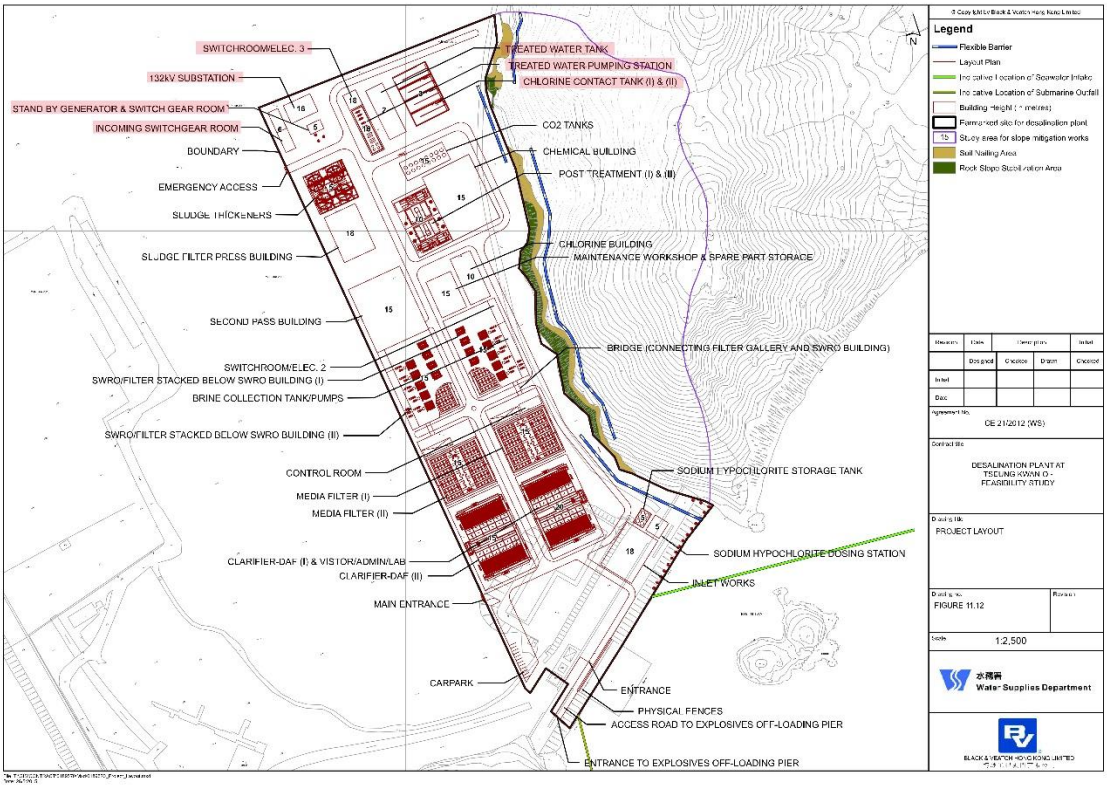


Figure 4.2 Landfill Gas Monitoring Location For Building

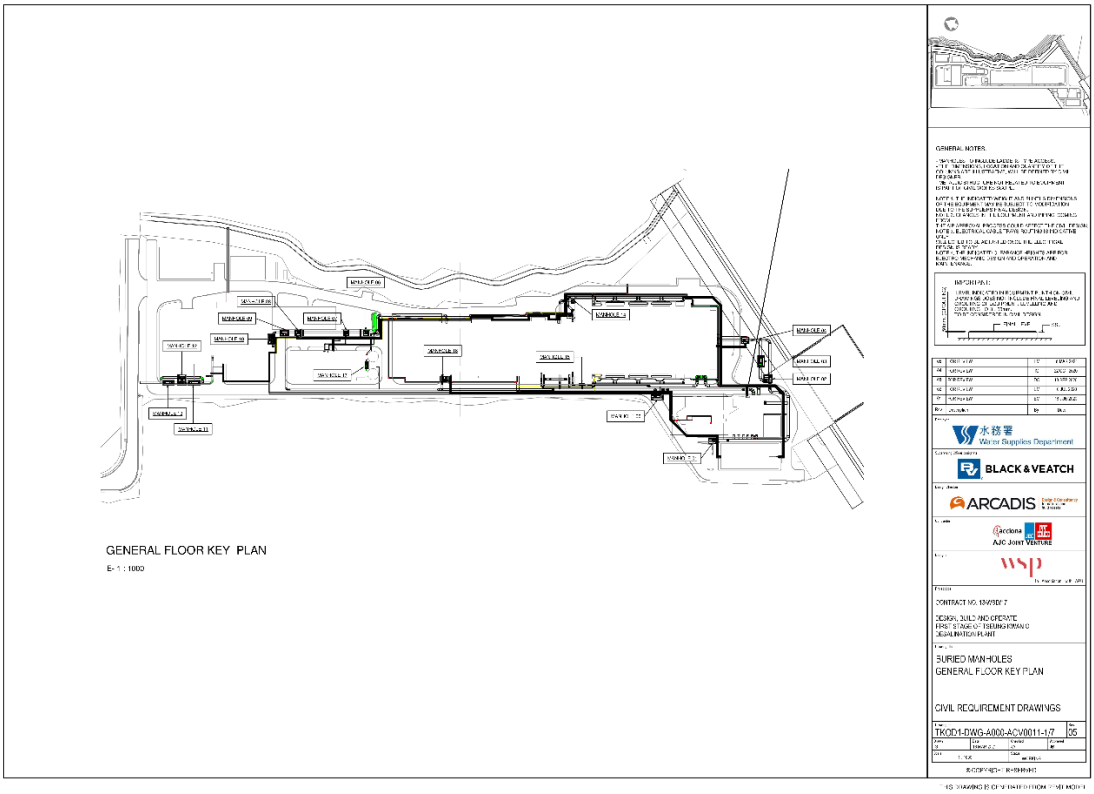


Figure 4.3 Landfill Gas Monitoring Location For Manholes/Pits

MONITORING PARAMETERS

4.6. The landfill gas monitoring parameters and the action and limit level are summarized in **Table 4.1**.

Table 4.1 Action and Limit Level for Landfill Gas Monitoring Equipment

Parameters	Action Level	Limit Level
Oxygen (O_2)	<19% O_2	<19% O_2
Methane (CH_4)	>10% LEL	>20% LEL
Carbon Dioxide (CO_2)	>0.5% CO_2	>1.5% CO_2

MONITORING EQUIPMENT

4.7. Landfill Gas monitoring was carried out using intrinsically-safe, portable multi-gas monitoring instruments. The gas monitoring equipment is:

- Complying with the Landfill Gas Hazard Assessment Guidance Note as intrinsically safe;
- Capable of continuous barometric pressure and gas pressure measurements;
- Normally operated in diffusion mode unless required for spot sampling, when it should be capable of operating by means of an aspirator or pump;
- Having low battery, fault and over range indication incorporated;
- Capable of storing monitoring data, and shall be capable of being downloaded directly;
- Measure in the following ranges:

methane	0-100% LOWER EXPLOSION LIMIT (LEL) AND 0-100% V/V;
oxygen	0-25% V/V;
carbon dioxide	0-5% v/v; and
barometric pressure	mBar (absolute)

- alarm (both audibly and visually) in the event that the concentrations of the following are exceeded:

methane	>10% LEL;
oxygen	<19%
carbon dioxide	>0.5% by volume
barometric pressure	mBar (absolute)

4.8. Monitoring equipment used in the reporting period are summarized in **Table 4.2**. The Landfill Gas monitoring equipment calibration certificate is presented in **Appendix E**.

Table 4.2 Landfill Gas Monitoring Equipment

Equipment	Brand and Model	Calibration Expiry Date
Portable Gas Detector	Altair 5X	22 April 2025

MONITORING RESULTS AND OBSERVATIONS

4.9. In this reporting period, monthly landfill gas monitoring was conducted on 9 and 10 October 2024. No exceedances of action level and limit level was observed. The detail of result was presented in **Appendix F**.

5. LANDSCAPE

MONITORING REQUIREMENTS

5.1. In accordance with Section 8.1 of the EM&A Manual, weekly site audit shall be carried out by the ET include checking whether good site practices are being properly implemented by the Contractor and the extent of the works area within the Clear Water Bay Country Park should be checked by the ET during the weekly site audit.

SITE INSPECTION

5.2. Weekly site audit was carried out by the ET in the reporting month, no trespass by the Contractor outside the works area of the Project and Clear Water Bay Country Park, and no damage to the vegetation and rocky shore outside the Project area was observed in the reporting month. All plants were observed to be in satisfactory condition in the reporting month.

5.3. If non-compliance were found during the operation phase, the actions in accordance with the Event and Action Plan will be carried out according to **Appendix D.**

6. ECOLOGY (CORAL MONITORING)

6.1. Under the approval conditions of the EIA Report for the Project, an EM&A programme on coral for the operation phase of the Project is recommended. Pursuant to these EIA approval conditions and Condition 3.1 of the EP and FEP, details of the regular coral monitoring programme have been proposed based on the baseline coral monitoring results in the Report on operation Baseline Coral Monitoring and Regular Coral Monitoring Methodology.

MONITORING LOCATION

6.2. In accordance with Appendix B Section 5.1 of the approved supplementary EM&A Manual, two indirect impact sites (C2 and C3) and one control site (C8) as shown in **Figure 6.1** should be monitored during the operation Phase. Operation coral survey should be conducted at the indirect impact and control sites. Ten selected hard coral colonies with similar species should be tagged at each of the control and indirect impact sites before commencement of the operation phase. Tagged hard coral colonies should be monitored in open waters during the operation phase.

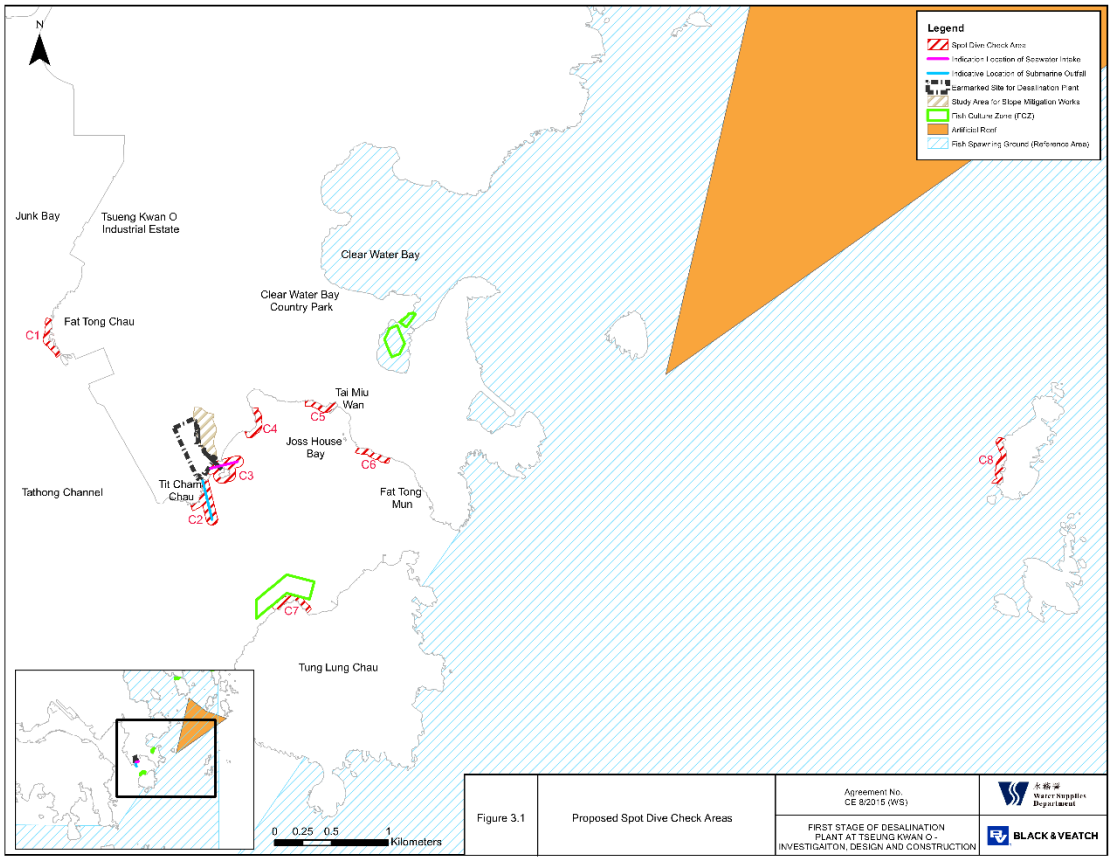


Figure 6.1 Spot Dive Check Areas Two Proposed Indirect Impact Sites (C2 and C3) and one control site (C8) during Operation Phase

ACTION AND LIMIT LEVELS

6.3. The Action and Limit Levels have been set based on the derivation criteria specified in the EM&A Manual. The Action/Limit Levels have been derived and are presented in **Table 6.1**.

Table 6.1 Action and Limit Level for Coral Monitoring Equipment

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Action Level is exceeded	If during Impact Monitoring a 25% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Limit Level is exceeded

Note: If the defined Action Level or Limit Level for coral monitoring is exceeded, the actions as set out in **Table E3** will be implemented.

6.4. If non-compliance were found during the opertaion works, the actions in accordance with the Event and Action Plan will be carried out according to **Appendix D.**

MONITORING FREQUENCY

6.5. Operation phase coral monitoring shall be monitored once per month as the requirement of the first year of operational phase.

MONITORING RESULT AND OBSERVATION

6.6. Operation phase coral monitoring works was conducted on 21 October 2024. A total of 30 tagged coral colonies (10 at control site and 20 and two indirect impact sites) were monitored. All coral colonies were good in general. The detail of the monitoring is presented in **Appendix H**.

7. ECOLOGY (FISHERY MONITORING)

7.1. The purpose of the operation phase regular fisheries monitoring programme is to monitor the potential impacts on fisheries resources in the vicinity of the project site. Apart from the regular fisheries monitoring programme, a water quality monitoring programme in addition to the water quality monitoring programme in the approved EM&A Manual is also described in Section 2.4 to (i) provide supplementary information in the interpretation of the findings of the fisheries monitoring and (ii) assist the monitoring of the potential impact on the Tung Lung Chau Fish Culture Zone (FCZ) in Joss House Bay.

MONITORING LOCATION

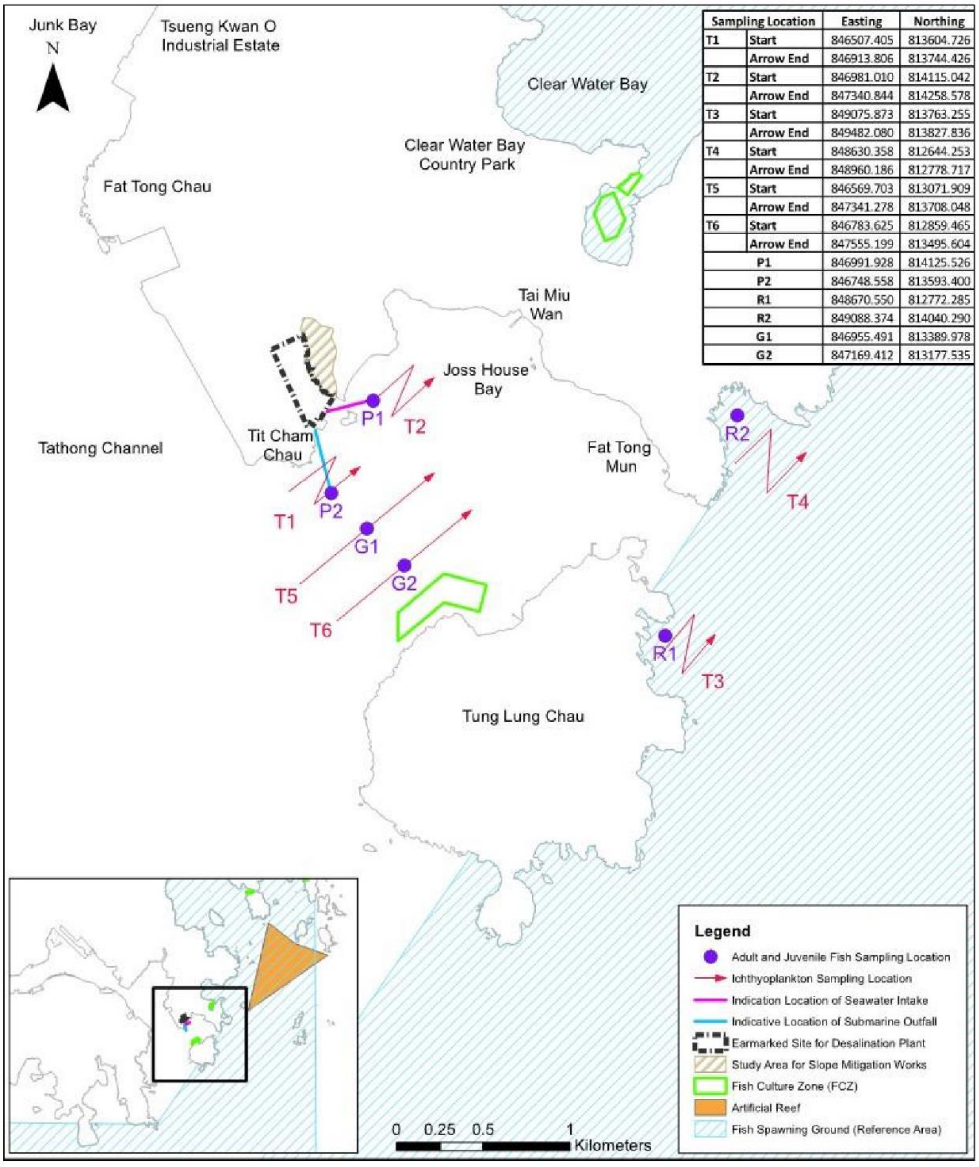
7.2. In accordance with Section 2.3 of the approved Methodology Paper on Regular Fisheries Monitoring, it is recommended to set up six (6) fisheries monitoring locations in Joss House Bay and its vicinity to monitor the fisheries resources.

7.3. Two (2) sampling locations are set up in close proximity of the direct footprint of the proposed submarine utilities around TKO Area 137. These sampling locations represent the potential Project impact zones (i.e. areas at and in close proximity to the footprint of the proposed submarine utilities that will be directly affected by the Project works).

7.4. Two (2) gradient locations are proposed between the proposed submarine utilities and Tung Lung Chau FCZ to assist in the interpretation and identification of any potential fisheries impact in the vicinity of the FCZ.

7.5. Two (2) reference locations are proposed in the outer Joss House Bay between the waters of Tung Lung Chau and Fat Tong Mun. These reference locations are further away and will not be affected by the Project discharge (based on the EIA prediction) and will serve as control stations. Any significant fisheries impact identified at the reference locations should be caused by other natural factors or non-Project activities. The trends of fisheries conditions recorded in the reference locations will be used to assist in the interpretation of the trends of fisheries impact identified in the impact and gradient locations.

7.6. The coordinates of the proposed monitoring locations are shown in **Figure 7.1.**



Sampling Location		Easting	Northing
T1	Start	846507.405	813604.726
	Arrow End	846913.806	813744.426
T2	Start	846981.010	814115.042
	Arrow End	847340.844	814258.578
T3	Start	849075.873	813763.255
	Arrow End	849482.080	813827.836
T4	Start	848630.358	812644.253
	Arrow End	848960.186	812778.717
T5	Start	846569.703	813071.909
	Arrow End	847341.278	813708.048
T6	Start	846783.625	812859.465
	Arrow End	847555.199	813495.604
	P1	846991.928	814125.526
	P2	846748.558	813593.400
	R1	848670.550	812772.285
	R2	849088.374	814040.290
	G1	846955.491	813389.978
	G2	847169.412	813177.535

Figure 7.1 Monitoring Location of Regular Fishery Monitoring during Operation Phase

MONITORING FREQUENCY

7.7. Operation phase fishery monitoring shall be carried out 2 times in wet season (April to October) and 2 times in dry season (November to March) to examine the following:

- Fish species composition;
- Abundance: number of fish captured;
- Diversity of fish resources: species diversity and evenness;
- Size: range of total length; Biomass in weight; and
- Values of catches of commercial species: catch per unit effort (CPUE) and yield per unit effort (YPUE).

MONITORING RESULT AND OBSERVATION

7.8. Operation phase fishery monitoring for wet season 2024 was carried out on 24 and 31 August 2024. The survey findings showed that the abundance and diversity of fish eggs and larvae are on the low side for the Study Area, and the abundance and diversity of juveniles are very low for the Study Area. Survey findings also showed that there was a very week relationship in recorded families between ichthyoplankton assemblages, adult fish and juvenile fish in the Study Area, which implies that the Study Area does not appear to be an important spawning or nursery grounds for commercial fishes. The detail of the monitoring is presented in **Appendix H**.

8. SUMMARY OF EXCEEDANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

8.1. The Environmental Complaint Handling Procedure is shown in below **Figure 9.1**:

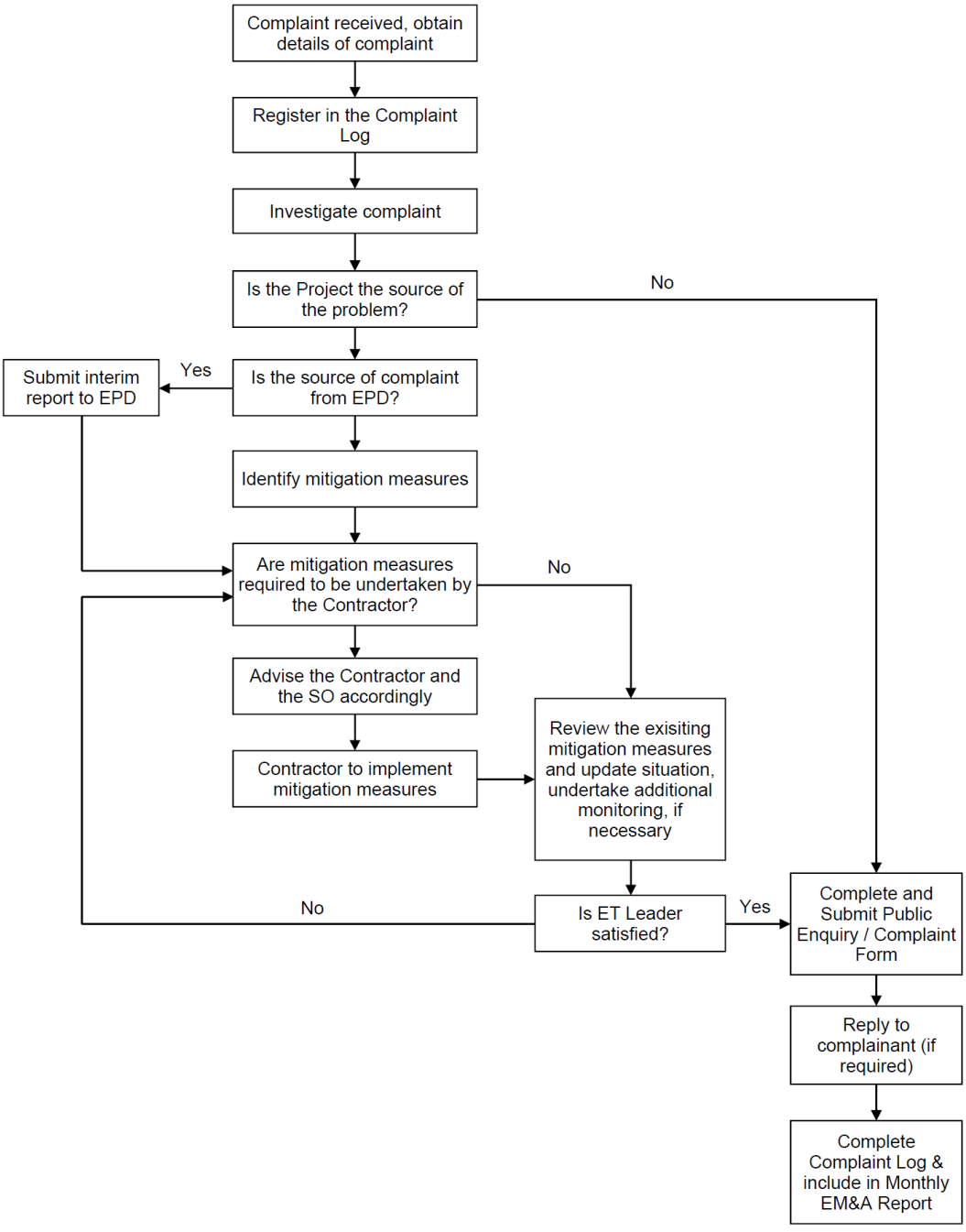


Figure 9.1 Environmental Complaint Handling Procedures

8.2. Operation phase EM&A works for water quality were conducted at the thirteen monitoring stations (CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37 NF1, NF2 and NF3) during the reporting period in accordance with the EM&A Manual

8.3. The marine water quality monitoring was conducted at the thirteen monitoring stations on 1, 3, 5, 8, 10, 12, 15, 17, 19, 22, 24, 26, 29 and 31 October 2024. Seventeen (17) of SS obtained had exceeded the Action Level. Twenty-nine (29) of SS obtained during the reporting period had exceeded the Limit Level. After investigation, all exceedances were concluded unrelated to the Project.

8.4. Continuous Monitoring of Effluent Quality was conducted sampling point in the reporting month. No exceedance of the sampling was obtained during the reporting period.

8.5. Operation phase coral monitoring works was conducted on 21 October 2024. There is no AL/LL exceedance during the monitoring period. The detail of the monitoring was presented in **Appendix H**.

8.6. Operation phase fishery monitoring for wet season 2024 was carried out on 24 and 31 August 2024. The survey findings showed that the abundance and diversity of fish eggs and larvae are on the low side for the Study Area, and the abundance and diversity of juveniles are very low for the Study Area. Survey findings also showed that there was a very week relationship in recorded families between ichthyoplankton assemblages, adult fish and juvenile fish in the Study Area, which implies that the Study Area does not appear to be an important spawning or nursery grounds for commercial fishes.

8.7. In this reporting period, monthly landfill gas monitoring was conducted on 9 and 10 October 2024. No exceedances of action level and limit level was observed.

8.8. No environmental complaint, notification of summons and prosecution Statistics on complaint and notification of summons and prosecution are summarized in **Appendix J**.

9. EM&A SITE INSPECTION

9.1. Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out on 3, 8, 15, 22 and 28 October 2024 at the site portions listed in **Table 10.1** below.

Table 10.1 Summaries of Site Inspection Record

Date	Inspected Site Portion	Time
3 October 2024	TKO Area 137	14:30 – 15:30
8 October 2024	TKO Area 137	14:30 – 15:30
15 October 2024	TKO Area 137	14:30 – 15:30
22 October 2024	TKO Area 137	14:30 – 15:30
28 October 2024	TKO Area 137	09:15 – 12:30

9.2. Joint site inspections with IEC were carried out on 28 October 2024.

9.3. Environmental deficiencies were observed during weekly site inspection. Key observations during the site inspections and during the reporting period are summarized in **Table 10.2**.

Table 10.2 Site Observations

Date	Environmental Observations	Follow-up Status
3 October 2024	No major environmental deficiency was observed.	N/A
8 October 2024	No major environmental deficiency was observed.	N/A
15 October 2024	No major environmental deficiency was observed.	N/A
22 October 2024	No major environmental deficiency was observed.	N/A
28 October 2024	No major environmental deficiency was observed.	N/A

9.4. According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents should be implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix B**. Site inspection proforma of the reporting period is provided in **Appendix I**.

10. FUTURE KEY ISSUES

10.1. Works to be undertaken in the next reporting month are:

- Potable Water Production

10.2. The major environmental impacts brought by the above operation works include:

- Effluent of the water production work and system cleaning works;
- Waste generation from the operation activities

10.3. The key environmental mitigation measures implemented for the Contract in this reporting period associated with the above operation works include:

- Regularly monitoring of the effluent
- Sorting and storage of general refuse and operation waste

11. CONCLUSIONS AND RECOMMENDATIONS

11.1. This is the 4th Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 October 2024 to 31 October 2024, in accordance with the EM&A Manual and the requirement under FEP-01/503/2015/B.

11.2. The EM&A works for operation phase water quality were conducted during the reporting period in accordance with the EM&A Manual. Seventeen (17) of SS obtained had exceeded the Action Level. Twenty-nine (29) of SS obtained during the reporting period had exceeded the Limit Level. After investigation, all exceedances were concluded unrelated to the Project.

11.3. Continuous Monitoring of Effluent Quality was conducted sampling point in the reporting month. No exceedance of the sampling was obtained during the reporting period.

11.4. Operation phase coral monitoring works was conducted on 21 October 2024. There is no AL/LL exceedance during the monitoring period.

11.5. Operation phase fishery monitoring for wet season 2024 was carried out on 24 and 31 August 2024. The survey findings showed that the abundance and diversity of fish eggs and larvae are on the low side for the Study Area, and the abundance and diversity of juveniles are very low for the Study Area. Survey findings also showed that there was a very week relationship in recorded families between ichthyoplankton assemblages, adult fish and juvenile fish in the Study Area, which implies that the Study Area does not appear to be an important spawning or nursery grounds for commercial fishes.

11.6. In this reporting period, monthly landfill gas monitoring was conducted on 9 and 10 October 2024. No exceedances of action level and limit level was observed.

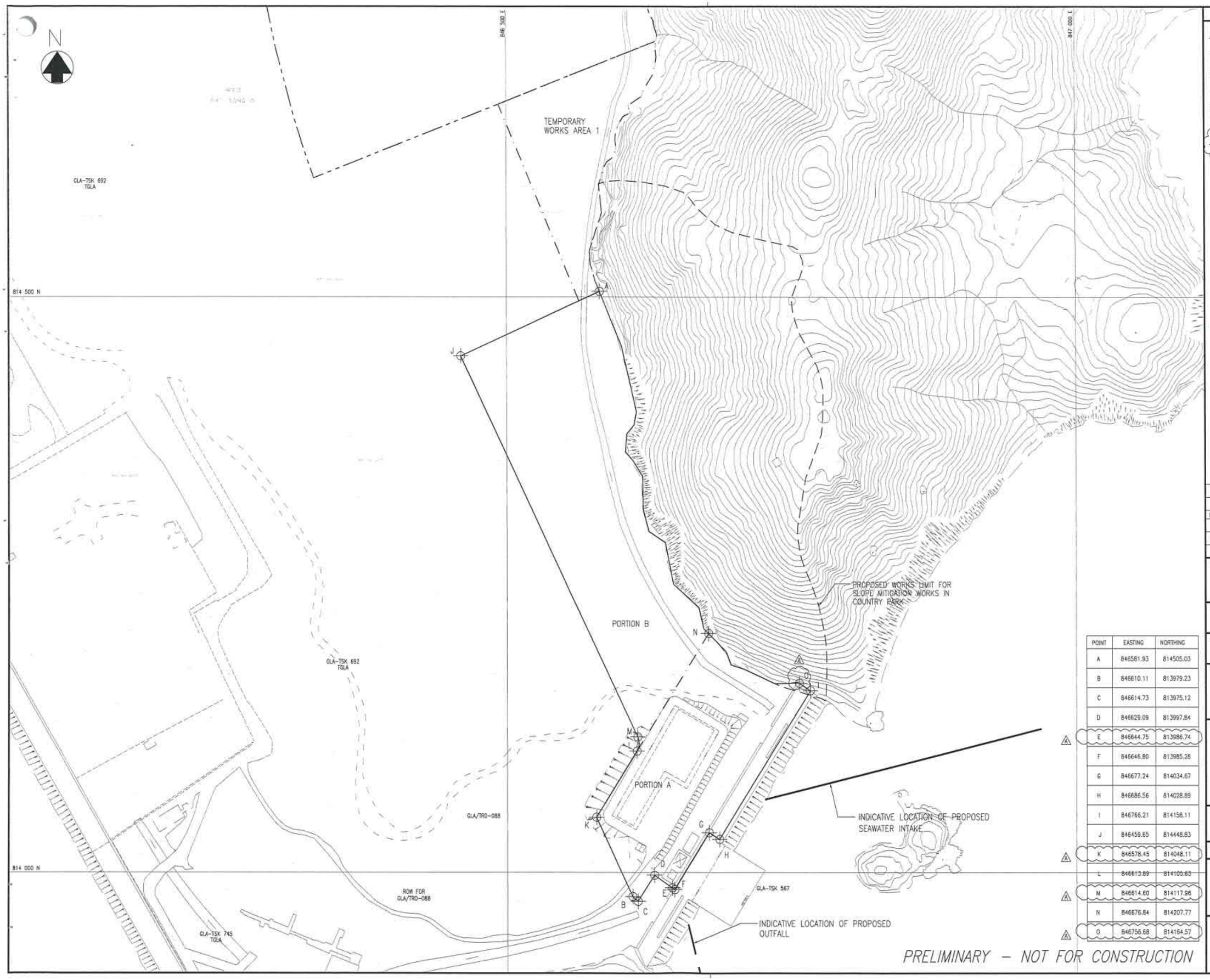
11.7. Weekly environmental site inspections were conducted during the reporting period. Observations and reminders were reported during the site inspections. All items are rectified within the reporting period. The environmental performance of the project was therefore considered satisfactory.

11.8. No environmental complaint, notification of summons and prosecution was received in the reporting period.

11.9. The ET will keep track on the operation works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A

Overview of Desalination Plant in Tseung Kwan O



LEGEND:

- BOUNDARY OF SENT LANDFILL EXTENSION
- BOUNDARY OF WORKS AREA FOR TKO DESALINATION PLANT
- SITE PHASING
- ALLOCATED LAND BOUNDARIES

GLA-TSK 692 TGLA

NOTE:

TEMPORARY WORKS AREA 1 WILL BE HANDED OVER AT +6 MPD WITH A TOLERANCE OF ±500mm.

POINT	EASTING	NORTHING
A	846581.93	814505.03
B	846610.11	813979.23
C	846614.73	813975.12
D	846629.09	813997.84
E	846644.75	813986.74
F	846646.80	813985.28
G	846677.24	814034.67
H	846686.56	814028.89
I	846766.21	814158.11
J	846459.65	814448.83
K	846578.45	814048.11
L	846813.89	814105.63
M	846814.60	814117.96
N	846676.84	814207.77
O	846756.68	814164.57

Revision	Date	Description	Initial
B	10/03	UPDATE NOTES	YLC
A	07/18	UPDATE COORDINATES	YLC

	Designed	Checked	Drawn	Checked
Initial	YLC	CKH	SZ	WLS
Date	02/18	02/18	02/18	02/18

Approved

Agreement No.
CE 8/2015 (WS)

Contract No.
13/WSD/17

Contract Title
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing Title
SITE HANDOVER WORKS AREAS

Drawing No.
190495/K/TEND/10/0003

Revision
B

Scale
A1 1 : 1500
A3 1 : 3000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

PRELIMINARY – NOT FOR CONSTRUCTION

BUILDINGS IN FIRST STAGE

CODE	NAME OF BUILDING	TOTAL G.F.A. (m^2)	SITE COVERAGE (m^2)
B	COMBINE SHAFT	759,876	759,876
C	ACTIDAFF	10027,547	5455,346
G	REVERSE OSMOSIS BUILDING AND ELECTRICAL BUILDING	4511,455	5367,935
H	CO2 TANKS AREA	-	-
J	PRODUCT WATER STORAGE TANK, PUMP STATION AND ELECTRICAL BUILDING	1974,610	2833,980
K	SLUDGE TREATMENT BUILDING, TANK AND PUMP ROOM	2531,044	1228,361
M	ADMINISTRATION BUILDING & ELECTRICAL BUILDING C	2459,713	1114,062
N	MAIN ELECTRICAL AND CENTRAL CHILLER PLANT BUILDING	-	459,893
R1	ELECTROCHLORINATION BUILDING & ELECTRICAL BUILDING A	657,992	525,776
S	132 kV SUBSTATION	-	943,560
T	IRRIGATION WATER TANK AND PUMP ROOM	-	156,148
R2	CHEMICAL BUILDING	813,056	813,056
V	VISITOR GALLERY	1330,410	1330,410
X1	GUARD HOUSE AND FS CONTROL ROOM	39,585	39,585
X2	GUARD HOUSE	22,035	22,035
Y	R + D OUTDOOR	-	-
Z	WASTE WATER TREATMENT PLANT	48,000	48,000
	TOTAL =	25175,323	21498,023

LEGEND / ABBREVIATION

HL WINDOW	HIGH LEVEL WINDOW
M.L.	METAL LOUVRES
C.L.	CAT LADDER
A.U.T.	ACCESSIBLE UNISEX TOILET
⌖	PROPOSED FINISH FLOOR LEVEL IN METER ABOVE P.D.
⌖	STRUCTURAL FLOOR LEVEL IN METER ABOVE P.D.
MV/AL	MECHANICAL VENTILATION & ARTIFICIAL LIGHTING
F.E.	4.5kg CO^2 FIRE EXTINGUISHER
H.R.	HOSE REEL
Ⓐ	FIREMAN'S LIFT
Ⓓ	LIFT FOR THE BARRIER FREE ACCESS
P.D.	PIPE DUCT

PLOT RATIO & SITE COVERAGE CALCULATION:

SITE AREA OF THE FIRST STAGE = [illegible]

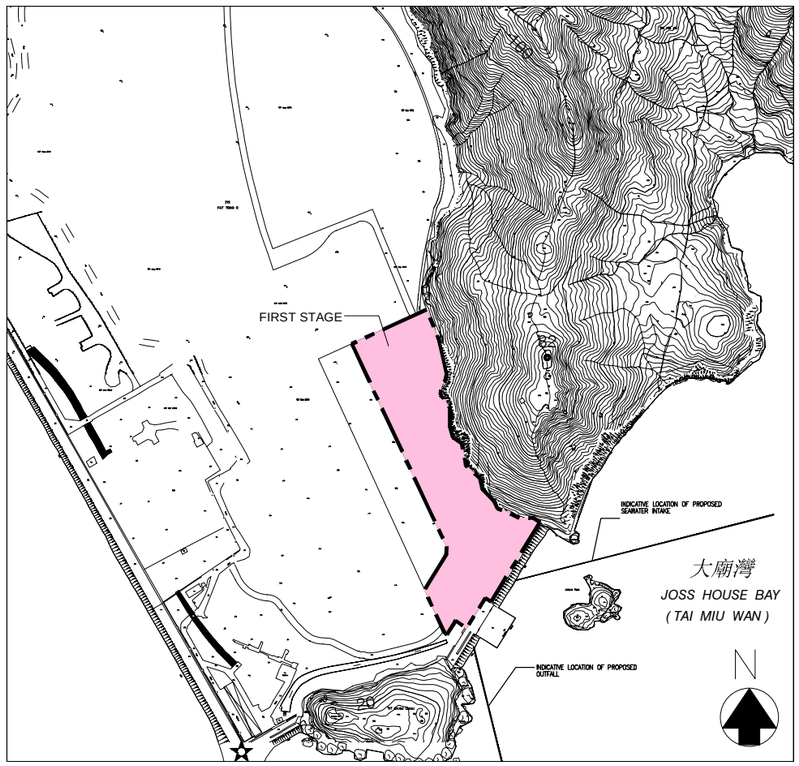
TOTAL G.F.A. = [illegible]
TOTAL SITE COVERAGE = [illegible]

PLOT RATIO = 25092.141 / 56108
= 0.447 < PERMITTED

SITE COVERAGE = 21414.841 / 56108 x 100
= 38.167%

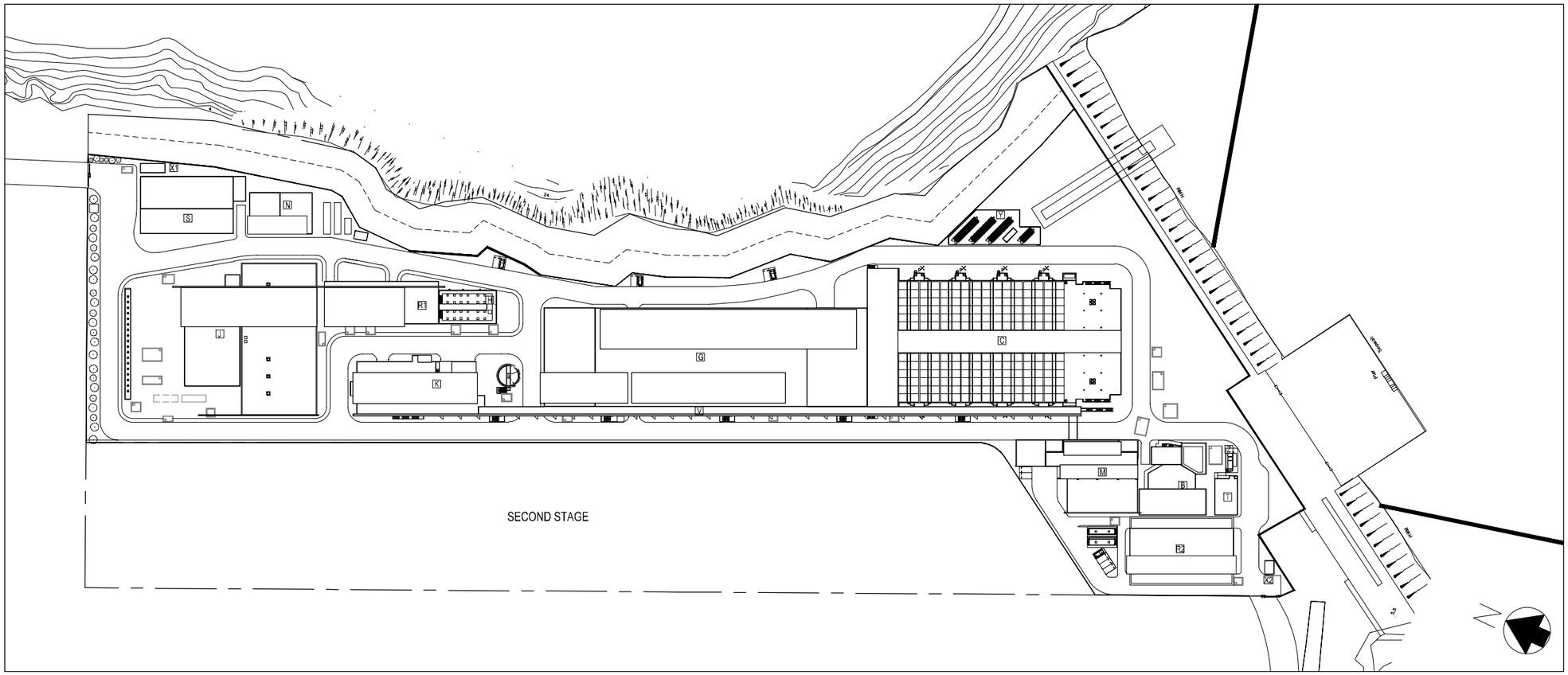
SITE LOCATION PLAN

1 : 5000



FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

1 : 1000



Rev	Description	By	Date
0	TENDER SUBMISSION	CAD	JAN 19

Employer
水務署
Water Supplies Department

Employer's Consultant
BLACK & VEATCH

Tenderer
acciona JEC CRCC
AJC JOINT VENTURE

Designer
wsp

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ARCHITECTURAL –
PLOT RATIO AND SITE COVERAGE CALCULATION, LEGEND ABBREVIATION

Drawing no.	Rev.
TKO/AJC/W/A000/AR/001	0

Drawn	Date	Checked	Approved
CKAL	JAN 19	S.C.	T.C.

Scale	Status
N.T.S.	–

Appendix B

Summary of Implementation Status of Environmental Mitigation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Air Quality								
S4.8.1	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Land site/ During construction/ During Operation	Contractor(s)		✓	✓	Implemented	Environment, Transport and Works Bureau Technical Circular (ETWB- TC(W)) No 19/2005 on Environmental Management on Construction Sites
Water Quality								
S6.9 and S6.12	The sterilization water should be dechlorinated with total residual chlorine (TRC) level below 1 mg/L before discharge to public sewer. In situ testing of TRC should also be conducted for the discharge of chlorinated water for pipeline disinfection to ensure sufficient dechlorination before discharge to public sewer.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	N/A	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	The cleaning and flushing water should also be treated and desilted to the relevant discharge requirement stipulated in TM-DSS before discharging.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	Implemented	
S6.9	Site drainage should be well maintained, and good construction practices should be observed to ensure that oil, fuels, solvents, and other chemicals are managed, stored and handled properly and do not enter the nearby water streams.	Land site & drainage/ During construction/ During operation	Contractor(s)		✓	✓	Implemented	-
Waste Management								
S8.5	Provision of sufficient waste disposal points and regular collection for disposal.	All area/ During construction/ During operation	Contractor(s)		✓	✓	Implemented	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	Chemical waste container shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Chemical waste container shall have a capacity of less than 450 L unless the specifications have been approved by the EPD.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	A label in English and Chinese shall be displayed on the chemical container in accordance with instructions prescribed in Schedule 2 of the Regulations.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Storage areas for chemical waste shall be enclosed on at least 3 sides.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall have adequate ventilation.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary).	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	Storage areas for chemical waste shall be arranged so that incompatible materials are appropriately separated.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	
S8.5	General refuse will be stored in enclosed bins or compaction units separately from construction and chemical wastes.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented after reminder	
S8.5	Adequate number of waste containers will be provided to avoid over-spillage of waste.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	DEVB TC(W) No. 8/2010 Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A reputable waste collector will be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
S8.5	Recycling bins will be provided at strategic locations within the Site to facilitate recovery of recyclable materials (including aluminum can, wastepaper, glass bottles and plastic bottles) from the Site. Materials recovered will be sold for recycling.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
Landscape & Visual								
S11.10 & 11.11	The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum. (MM1)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S11.10 & 11.11	At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements. (MM2)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to: - green roofs where practical (i.e. without equipment on the roof); - roadside planting; - aesthetic treatment of all structures; - vertical greening; - screen planting along application site; and - landscape enhancement with amenity planting where practical including planting along the edge (site boundary) fence with native shrubs where feasible, to reduce their visual impact and blend them into the surrounding landscape. (MM3)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
S11.10 & 11.11	All trees within the Project Site or the potential slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 10/2013 – Tree Preservation (MM4)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	ETWB TCW No. 3/2006 - Tree Preservation.
S11.10 & 11.11	No tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where necessary and practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments. A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 10/2013. (MM5)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	DEVB TC(W) No. 10/2013
S11.10 & 11.11	Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation. (MM6)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	
S11.10 & 11.11	Dredging works for the installation of intake structures and outfall diffusers should be minimized to avoid or reduce any potential environmental impacts to as low as reasonably practicable (ALARP). The intake and outfall structures (e.g. intake openings and diffuser heads) will be prefabricated and transferred to site for	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
	installation. (MM7)							
S11.10 & 11.11	All night-time lighting will be reduced to a practical minimum both in terms of number of level and will be hooded and directional. (MM8) units and lux level and will be hooded and directional. (MM8)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented	-
Landfill Gas Hazard								
S12.7	During all works, safety procedures should be implemented to minimize the risks of fires and explosions, asphyxiation of workers and toxicity effects resulting from contact with contaminated soil and groundwater.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	During trenching and excavation as well as creation of confined spaces at near to or below ground level, precautions should be clearly laid down and rigidly Gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1 meter.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	The Contractor should make the workers are aware of potential hazards of working in confined spaces (any chamber, manhole or culvert which is large enough to permit access to personnel). Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Safety officers, specifically trained with regard to landfill gas and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on the site throughout the works, in particular, when works are undertaken below grade.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Monitoring for landfill gas should be undertaken in all excavations, manholes, chambers (particularly during pipe jacking) and any confined spaces through the use of an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the concentrations of methane. carbon dioxide and oxygen.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Monitoring frequency and areas to be monitored should be specified prior to commencement of groundwork, either by the Safety Officer, or by an appropriately qualified person. All measurements should be recorded and documented.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S12.7	Proceed drilling with adequate care and precautions against the potential hazards which may be encountered.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Prior to the commencement of the site works, the drilling contractor should devise a 'method-of- working' statement covering all normal and emergency procedures (including but not limited to number of operatives, experience and special skills of operatives, normal method of operations, emergency procedures, *supervisors* responsibilities, storage and use of safety equipment, safety procedures and signs, barriers and guarding). The site *supervisor* and all operatives must be familiar with this statement.	All area/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	Where below ground service entries are necessary to the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II), the entry point should be sealed to prevent gas entry. In addition, any below grade cable trenches entering the Incoming Switchgear Room and 132 kV Substation can become the pathway for landfill gas and hence grilled metal covers should be used.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	N/A	
S12.7	It is recommended regular landfill gas monitoring should be carried out at the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II). The monitoring frequency will be monthly for the first year of operation. If the monitoring results show no sign of landfill gas migration, reduce the monitoring frequency to once every six months.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	N/A	
S12.7	The manholes and utility pits within the Project Site and along the fresh water mains. Each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit and for each measurement. The need for venting the manhole/ utility pit and further monitoring will be reviewed after the initial monitoring.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	
S12.7	All construction, operation and maintenance personnel working on-site as well as visitors should be made aware of the hazards of landfill gas and its possible presence on-site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimized on-site.	All area/ Detailed design/ During construction/operation	Contractor(s)	✓	✓	✓	Implemented	

Note: D – Design stage C – Construction O – Operation

Appendix C

Impact Monitoring Schedule

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Water Quality Monitoring Schedule (October 2024)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:9:50-13:20		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:10:54 - 14:24		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood:08:00 - 10:48
6	7	8	9	10	11	12
		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood:08:13 - 11:43		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:08:00 - 08:27		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:10 - 11:40
13	14	15	16	17	18	19
		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:08:29 - 11:59		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:10:06 - 13:36		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood:08:00 - 10:36
20	21	22	23	24	25	26
		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood: 08:45-12:15		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:00 - 09:13		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:00 - 11:23
27	28	29	30	31		
		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:39 - 12:09		Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 09:51 - 13:21		

Remarks:
1. Monitoring Parameters: Dissolved oxygen, Temperature, pH, Turbidity, Salinity, Suspended Solids, Iron, Total Residual Chlorine
Note:
- Due to safety concern of vessel transportation earlier than 0700, Water Quality Monitoring would start at 0800.
- Prioritized routing: Mid-ebb: CE→WSR16→WSR37→WSR36→WSR33→Remaining stations and Mid-flood: CF→WSR1→WSR2→WSR3→WSR4→Remaining stations

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Water Quality Monitoring Schedule (November 2024)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:08:00 - 09:54
3	4	5 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood:08:00 - 10:50	6	7 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood:08:53 - 12:23	8	9 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:00 - 09:12
10	11	12 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:08:00 - 10:35	13	14 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:08:54 - 12:24	15	16 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb:10:30 - 14:00
17	18	19 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood: 08:00-11:11	20	21 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-flood: 09:38 - 13:08	22	23 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:00 - 09:15
24	25	26 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:00 - 10:38	27	28 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 08:38 - 12:08	29	30 Impact Water Quality monitoring for CE, CF, WSR1, WSR2, WSR3, WSR4, WSR16, WSR33, WSR36, WSR37, NF1, NF2, NF3 Monitoring Period: Mid-ebb: 09:51 - 13:21

Remarks:
1. Monitoring Parameters: Dissolved oxygen, Temperature, pH, Turbidity, Salinity, Suspended Solids, Iron, Total Residual Chlorine
Note:
- Due to safety concern of vessel transportation earlier than 0700, Water Quality Monitoring would start at 0800.
- Prioritized routing: Mid-ebb: CE→WSR16→WSR37→WSR36→WSR33→Remaining stations and Mid-flood: CF→WSR1→WSR2→WSR3→WSR4→Remaining stations

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Landfill Gas Monitoring Schedule (October 2024)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
			Landfill Gas Monitoring	Landfill Gas Monitoring		
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Remarks:
1. Monitoring Parameters: Oxygen, Methane, Carbon Dioxide and Barometric Pressure

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Landfill Gas Monitoring Schedule (November 2024)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
			Landfill Gas Monitoring	Landfill Gas Monitoring		
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Remarks:
1. Monitoring Parameters: Oxygen, Methane, Carbon Dioxide and Barometric Pressure

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Ecological Monitoring Schedule

Oct-24						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
	Regular Operation Phase Coral Monitoring					
27	28	29	30	31		

The schedule may change due to unforeseen circumstances (adverse weather, etc.)

Contract No. 13/WSD/17
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Tentative Ecological Monitoring Schedule

Nov-24

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
	Regular Operation Phase Coral Monitoring					
24	25	26	27	28	29	30

The schedule may change due to unforeseen circumstances (adverse weather, etc.)

Appendix D

Event / Action Plan

Table D1 Event and Action Plan for Water Quality Monitoring

Event	Action			
	ET	IEC	Contractor(s)	ER
Action Level being exceeded by one sampling day	1. Repeat *in situ* measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice	1. Confirm receipt of notification of exceedance in writing.
Action Level being exceeded by two or more consecutive sampling days	1. Repeat *in situ* measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Consider changes of working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented.
Limit Level being exceeded by one sampling day	1. Repeat *in situ* measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods.
Limit Level being exceeded by two or more consecutive sampling days	1. Repeat *in situ* measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures. 6. As directed by ER, slow down or stop all or part of the marine construction works/ production volume of the desalination plant until no exceedance of Limit Level.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods; 5. Consider and instruct, if necessary, the Contractor(s) to slow down or to stop all or part of the marine construction works/ production volume of the desalination plant until no exceedance of Limit Level.

Notes : ET = Environmental Team, IEC = Independent Environmental Checker; ER = Engineering Representatives
The above actions should be taken within 1 working day after the exceedance is identified during operation phase.

Table D2 Event and Action Plan for Ecology during Operation Phase

Event	Action			
	ET	IEC	Contractor(s)	ER
Non-conformity on one occassion	1. Identify source 2. Inform IEC and ER 3. Discuss remedial actions with IEC, the ER and the Contractor 4. Monitor/ audit/ review remedial actions until rectification has been completed	1. Check monitoring/ auditing results 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Check the implementation of remedial measures	1. Take immediate action to avoid further problem 2. Amend working methods if needed 3. Submit proposals for remedial actions to ET, ER and IEC 4. Rectify damage and implement the agreed remedial actions	1. Notify Contractor 2. Ensure remedial measures are properly implemented 3. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in case of serious non-conformity until situation is rectified
Repeated Non-comformity	1. Identify source 2. Inform IEC, ER, EPD and AFCD 3. Increase monitoring and audit frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor/ audit/ review remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring/ auditing	1. Check monitoring/ auditing results 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Supervise the implementation of remedial measures 5. Advise the ER on effectiveness of proposed remedial measures and keep EPD and AFCD informed	1. Take immediate action to avoid further problem 2. Amend working methods if needed 3. Submit proposals for remedial actions to ET, ER and IEC 4. Rectify damage and implement the agreed remedial actions	1. Notify Contractor 2. Ensure remedial measures are properly implemented 3. Consider and instruct, if necessary, the Contactor to slow down or to stop all or part of the works in the case of serious non-conformity until situation is rectified

Notes : ET = Environmental Team, IEC = Independent Environmental Checker; ER = Engineering Representatives

Table D3 Event and Action Plan for Operation Phase Coral Monitoring

Event	Action			
	ET Leader	IEC	SOR **	Contractor
Action Level Exceedance	1. Check monitoring data 2. Inform the IEC, SOR and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the SOR accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.
Limit Level Exceedance	1. Undertake Steps 1-4 as in the Action Level Exceedance. If further exceedance of Limit Level, propose enhancement measures for consideration.	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the SOR accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.

*Remark: ** The "SOR" is equivalent to the "ER" as defined in the EM&A Manual of the Project*

Table D4 Event and Action Plan for Operation Phase LFG Hazard

Parameters	Level	Action
Oxygen (O_2)	Action Level < 19% O_2	Ventilate trench/void to restore O_2 to > 19%
	Limit Level < 19% O_2	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O_2 to > 19%
Methane (CH_4)	Action Level >10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH_4 to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH_4 to<10% LEL
Carbon Dioxide (CO_2)	Action Level >0.5% CO_2 Limit Level >1.5% CO_2	Ventilate to restore CO_2 to < 0.5% Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CO_2 to <0.5%

Appendix E

Water Quality Monitoring Equipment and Landfill Gas Equipment Calibration Certification

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD090078
Date of Issue : 02 October 2024

PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

PART B - SAMPLE INFORMATION

Name of Equipment :	YSI ProDSS Multi Parameters
Manufacturer :	YSI
Serial Number :	22C106561
Date of Received :	26 September 2024
Date of Calibration :	27 September 2024
Date of Next Calibration :	26 December 2024
Request No. :	D-BD090078

PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Test Parameter	Reference Method
pH value	APHA 21e 4500-H^+ B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure
Salinity	APHA 21e 2520 B
Dissolved oxygen	APHA 23e 4500-O G (Membrane Electrode Method)
Turbidity	APHA 21e 2130 B (Nephelometric Method)

PART D - CALIBRATION RESULT

(1) pH value

Target (pH unit)	Display Reading (pH unit)	Tolerance	Result
4.00	4.03	0.03	Satisfactory
7.42	7.49	0.07	Satisfactory
10.01	10.07	0.06	Satisfactory

Tolerance of pH value should be less than ± 0.2 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
17.0	15.6	-1.4	Satisfactory
28.0	26.2	-1.8	Satisfactory
32.5	30.7	-1.8	Satisfactory

Tolerance of Temperature should be less than ± 2.0 (°C)

(3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	10.11	1.10	Satisfactory
20	20.59	2.95	Satisfactory
30	31.25	4.17	Satisfactory

Tolerance of Salinity should be less than ± 10.0 (%)

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED SIGNATORY:

LEE Chun-ning
Assistant Manager

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 5/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
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REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BD090078
Date of Issue : 02 October 2024

(4) Dissolved oxygen

Expected Reading (mg/L)	Display Reading (mg/L)	Tolerance	Result
7.37	7.35	-0.02	Satisfactory
5.56	5.49	-0.07	Satisfactory
2.30	2.58	0.28	Satisfactory
0.20	0.39	0.19	Satisfactory

Tolerance of Dissolved oxygen should be less than ± 0.5 (mg/L)

(5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result [a]
0	0.75	--	Satisfactory
10	10.92	9.2	Satisfactory
20	21.08	5.4	Satisfactory
100	102.32	2.3	Satisfactory
800	786.90	-1.6	Satisfactory

[a] For 0 NTU, Display Reading should be less than 1 NTU

Remark(s)

·The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.

·The results relate only to the calibrated equipment as received

·The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

·"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.

·The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

--- END OF REPORT ---

ALS Technichem (HK) Pty Ltd
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www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	JOE HO	**WORK ORDER:**	HK2435509
CLIENT:	AURECON HONG KONG LIMITED		
ADDRESS:	FLAT E, 12/F, FORD GLORY PLAZA, NO. 37-39 WING HONG STREET, LAI CHI KOK	**SUB-BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	03-Sep-2024
		DATE OF ISSUE:	10-Sep-2024

GENERAL COMMENTS

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.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Chlorine Meter
Service Nature:	Performance Check
Scope:	Free Chlorine and Total Residual Chlorine
Brand Name/ Model No.:	[LOVIBOND]/ [MD200]
Serial No./ Equipment No.:	[19/82456]/ [N/A]
Date of Calibration:	09-September-2024

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2435509

SUB-BATCH: 0
DATE OF ISSUE: 10-Sep-2024
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Chlorine Meter
Brand Name/ Model No.: [LOVIBOND]/ [MD200]
Serial No./ Equipment No.: [19/82456]/ [N/A]
Date of Calibration: 09-September-2024 Date of Next Calibration: 09-December-2024

PARAMETERS:

Free Chlorine

Method Ref: APHA (23rd edition), 4500Cl: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (%)
0.2	0.19	-5.0
1.0	1.01	+1.0
2.0	2.00	+0.0
	Tolerance Limit (%)	±10.0

Total Residual Chlorine

Method Ref: APHA (23rd edition), 4500Cl: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (%)
0.2	0.19	-5.0
1.0	0.90	-10.0
2.0	1.95	-2.5
	Tolerance Limit (%)	±10.0

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

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

-------- END OF REPORT --------

ALS Technichem (HK) Pty Ltd
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR. TOBY WAN	**WORK ORDER:**	HK2439499
CLIENT:	AURECON HONG KONG LIMITED		
ADDRESS:	UNIT 1608, 16/F, TOWER B, MANULIFE FINANCIAL CENTRE, 223-231 WAI YIP STREET, KWUN TONG, HONG KONG	**SUB-BATCH:**	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	27-Sep-2024
		DATE OF ISSUE:	08-Oct-2024

GENERAL COMMENTS

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.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	pH meter
Service Nature:	Performance Check
Scope:	pH Value
Brand Name/ Model No.:	[Xylem]/ [SensoLyt®700IQ SW, SensoLyt® SEA]
Serial No./ Equipment No.:	[23462251/24111620]/ [N/A]
Date of Calibration:	27-September-2024

Mr Chan Siu Ming, Vico
Assistant Laboratory Manager
Environmental

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2439499

SUB-BATCH: 0
DATE OF ISSUE: 08-Oct-2024
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: pH meter
Brand Name/ Model No.: [Xylem]/ [SensoLyt®700IQ SW, SensoLyt® SEA]
Serial No./ Equipment No.: [23462251/24111620]/ [N/A]
Date of Calibration: 27-September-2024 Date of Next Calibration: 27-December-2024

PARAMETERS:

pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.03	+0.03
7.0	7.05	+0.05
10.0	9.92	-0.08
	Tolerance Limit (pH unit)	±0.20

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

Mr Chan Siu Ming, Vico
Assistant Laboratory Manager
Environmental

--------- END OF REPORT --------

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR. TOBY WAN	**WORK ORDER:**	HK2439499
CLIENT:	AURECON HONG KONG LIMITED		
ADDRESS:	UNIT 1608, 16/F, TOWER B, MANULIFE FINANCIAL CENTRE, 223-231 WAI YIP STREET, KWUN TONG, HONG KONG	**SUB-BATCH:**	1
		LABORATORY:	HONG KONG
		DATE RECEIVED:	27-Sep-2024
		DATE OF ISSUE:	08-Oct-2024

GENERAL COMMENTS

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.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Salinity Meter
Service Nature:	Performance Check
Scope:	Salinity
Brand Name/ Model No.:	[Xylem]/ [TetraCon® 700 IQ SW]
Serial No./ Equipment No.:	[24141069/24110178]/ [N/A]
Date of Calibration:	27-September-2024

Mr Chan Siu Ming, Vico
Assistant Laboratory Manager
Environmental

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2439499

SUB-BATCH: 1
DATE OF ISSUE: 08-Oct-2024
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Salinity Meter
Brand Name/ Model No.: [Xylem]/ [TetraCon® 700 IQ SW]
Serial No./ Equipment No.: [24141069/24110178]/ [N/A]
Date of Calibration: 27-September-2024 Date of Next Calibration: 27-December-2024

PARAMETERS:

Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
20	19.8	-1.0
	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
Assistant Laboratory Manager
Environmental

-------- END OF REPORT --------

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR. TOBY WAN	**WORK ORDER:**	HK2439499
CLIENT:	AURECON HONG KONG LIMITED		
ADDRESS:	UNIT 1608, 16/F, TOWER B, MANULIFE FINANCIAL CENTRE, 223-231 WAI YIP STREET, KWUN TONG, HONG KONG	**SUB-BATCH:**	4
		LABORATORY:	HONG KONG
		DATE RECEIVED:	27-Sep-2024
		DATE OF ISSUE:	08-Oct-2024

GENERAL COMMENTS

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.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Thermometer
Service Nature:	Performance Check
Scope:	Temperature
Brand Name/ Model No.:	[Xylem]/ [TetraCon® 700IQ SW, SensoLyt®700IQ SW]
Serial No./ Equipment No.:	[23462251]/ [N/A]
Date of Calibration:	27-September-2024

Mr Chan Siu Ming, Vico
Assistant Laboratory Manager
Environmental

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2439499

SUB-BATCH: 4
DATE OF ISSUE: 08-Oct-2024
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Thermometer
Brand Name/ Model No.: [Xylem]/ [TetraCon® 700IQ SW, SensoLyt®700IQ SW]
Serial No./ Equipment No.: [23462251]/ [N/A]
Date of Calibration: 27-September-2024 Date of Next Calibration: 27-December-2024

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)
20.5	20.1	-0.4
	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
Assistant Laboratory Manager
Environmental

-------- END OF REPORT --------

ALS Technichem (HK) Pty Ltd
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T: +852 2610 1044
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www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR. TOBY WAN	**WORK ORDER:**	HK2439499
CLIENT:	AURECON HONG KONG LIMITED		
ADDRESS:	UNIT 1608, 16/F, TOWER B, MANULIFE FINANCIAL CENTRE, 223-231 WAI YIP STREET, KWUN TONG, HONG KONG	**SUB-BATCH:**	5
		LABORATORY:	HONG KONG
		DATE RECEIVED:	27-Sep-2024
		DATE OF ISSUE:	08-Oct-2024

GENERAL COMMENTS

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.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type:	Chlorine Meter
Service Nature:	Performance Check
Scope:	Total Residual Chlorine
Brand Name/ Model No.:	[Xylem]/ [Chlorine 3017M]
Serial No./ Equipment No.:	[21D102738]/ [N/A]
Date of Calibration:	27-September-2024

Mr Chan Siu Ming, Vico
Assistant Laboratory Manager
Environmental

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK2439499

SUB-BATCH: 5
DATE OF ISSUE: 08-Oct-2024
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Chlorine Meter
Brand Name/ Model No.: [Xylem]/ [Chlorine 3017M]
Serial No./ Equipment No.: [21D102738]/ [N/A]
Date of Calibration: 27-September-2024 Date of Next Calibration: 27-December-2024

PARAMETERS:

Total Residual Chlorine

Method Ref: APHA (23rd edition), 4500Cl: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (%)
1.01	0.955	-5.4
	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
Assistant Laboratory Manager
Environmental

-------- END OF REPORT --------

MSA Hong Kong Ltd.
25/F Jupiter Tower, 9 Jupiter Street, Hong Kong
The Safety Company Tel 852-22587588 Fax 25478780 Email info.hk@msasafety.com Website www.msasafety.com

Ref. 2024/04/014 Date: 23-Apr-24
Customer Aurecon Hong Kong Ltd.

CERTIFICATE FOR CALIBRATION CHECK TEST

Model	Serial No.	Calibration Check Gas	Regulator	Full Scale	Response
Altair 5X	221165	1.45% Methane,	.25litre/min	100% LEL	29% LEL
		15% Oxygen		30% Vol	15% O2
		60ppm Carbon Monoxide		1999 ppm	60 ppm CO
		20ppm Hydrogen Sulfide		200 ppm	20 ppm H2S
		10% Vol Carbon Dioxide		10% Vol	3% CO2

Remarks: Regular inspection completed. Calibration passed

MSA Hong Kong Ltd. certify that instrument/s listed above has/have been calibrated check tested on:
23-Apr-24

This instrument was calibrated in accordance with all requirements of the specifications of MSA.

This instrument must be calibration checked prior to use in accordance with the instruction manual.

This instrument was calibrated using NIST traceable equipment and was in accordance with all requirements of the drawings and specifications of MSA.

For and on behalf of
MSA Hong Kong Ltd.

Authorised Signature

Appendix F

Water Quality Monitoring Data & Landfill Gas Monitoring Data

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:50:00 AM	9.11	8.27	31.04	28.69	2.45	2.50	<0.1	<0.01
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:50:00 AM	9.05	8.27	30.94	28.67	2.51	2.50	<0.1	<0.01
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	M	12	9:51:00 AM	9.05	8.26	30.98	28.67	2.62	2.50	<0.1	<0.01
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	M	12	9:51:00 AM	9.21	8.26	30.96	28.68	2.57	3.00	<0.1	<0.01
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	B	24	9:52:00 AM	9.16	8.25	30.97	28.64	2.55	2.50	<0.1	<0.01
CE	1/10/2024	Sunny	Mid-Ebb	Moderate	B	24	9:52:00 AM	9.19	8.28	30.95	28.68	2.46	2.50	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:10:00 PM	8.98	8.39	32.24	28.71	1.86	3.00	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:10:00 PM	8.87	8.39	32.29	28.63	1.93	2.50	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	M	10	1:11:00 PM	9.00	8.40	32.35	28.70	1.86	2.50	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	M	10	1:11:00 PM	8.97	8.39	32.35	28.72	1.93	2.50	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	B	20	1:12:00 PM	8.92	8.39	32.33	28.71	1.90	2.50	<0.1	<0.01
CF	1/10/2024	Sunny	Mid-Ebb	Moderate	B	20	1:12:00 PM	8.83	8.37	32.27	28.65	1.91	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:44:00 PM	8.56	8.30	32.13	28.62	1.89	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:44:00 PM	8.71	8.27	32.12	28.66	1.91	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:45:00 PM	8.70	8.27	32.16	28.59	1.89	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:45:00 PM	8.69	8.30	32.05	28.63	1.84	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	B	8	12:46:00 PM	8.58	8.26	32.11	28.64	1.91	2.50	<0.1	<0.01
WSR01	1/10/2024	Sunny	Mid-Ebb	Moderate	B	8	12:46:00 PM	8.70	8.26	32.11	28.65	1.85	3.00	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:23:00 PM	8.89	8.22	31.86	28.66	1.61	2.50	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:23:00 PM	8.95	8.25	31.95	28.66	1.65	2.50	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	M	5	12:24:00 PM	8.87	8.22	31.98	28.66	1.60	3.00	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	M	5	12:24:00 PM	8.85	8.25	31.90	28.72	1.64	2.50	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	B	9	12:25:00 PM	8.88	8.25	31.99	28.73	1.58	2.50	<0.1	<0.01
WSR02	1/10/2024	Sunny	Mid-Ebb	Moderate	B	9	12:25:00 PM	8.99	8.25	31.93	28.73	1.59	2.50	<0.1	<0.01
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:05:00 PM	9.36	8.36	32.45	28.40	1.54	2.50	<0.1	<0.01
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:05:00 PM	9.31	8.36	32.54	28.44	1.61	2.50	<0.1	<0.01
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:06:00 PM	9.34	8.39	32.45	28.45	1.37	2.50	<0.1	<0.01
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:06:00 PM	9.17	8.39	32.46	28.38	1.37	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	B	7	12:07:00 PM	9.28	8.36	32.52	28.44	1.38	2.50	<0.1	<0.01
WSR03	1/10/2024	Sunny	Mid-Ebb	Moderate	B	7	12:07:00 PM	9.23	8.37	32.50	28.43	1.37	4.00	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:50:00 AM	8.46	8.14	32.34	28.71	2.05	2.50	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:50:00 AM	8.59	8.15	32.43	28.72	2.03	2.50	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:51:00 AM	8.50	8.18	32.34	28.64	2.02	2.50	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:51:00 AM	8.51	8.17	32.37	28.70	1.97	2.50	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:52:00 AM	8.57	8.16	32.40	28.70	2.04	2.50	<0.1	<0.01
WSR04	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:52:00 AM	8.52	8.16	32.35	28.66	2.04	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:15:00 AM	8.76	8.24	31.34	28.57	1.68	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:15:00 AM	8.73	8.27	31.31	28.62	1.73	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	M	8	10:16:00 AM	8.73	8.24	31.24	28.55	1.72	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	M	8	10:16:00 AM	8.76	8.24	31.28	28.53	1.68	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	B	16	10:17:00 AM	8.72	8.25	31.24	28.57	1.61	2.50	<0.1	<0.01
WSR16	1/10/2024	Sunny	Mid-Ebb	Moderate	B	16	10:17:00 AM	8.66	8.25	31.25	28.55	1.68	3.00	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:33:00 AM	9.12	8.31	30.94	28.71	1.84	2.50	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:33:00 AM	9.11	8.30	30.89	28.72	1.78	2.50	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:34:00 AM	9.20	8.32	31.02	28.74	1.79	2.50	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:34:00 AM	9.13	8.31	30.98	28.71	1.79	2.50	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:35:00 AM	9.07	8.32	30.93	28.69	1.80	3.00	<0.1	<0.01
WSR33	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:35:00 AM	9.04	8.30	30.98	28.76	1.76	3.00	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:17:00 AM	9.65	8.16	31.37	28.68	1.90	2.50	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:17:00 AM	9.68	8.19	31.46	28.66	1.82	2.50	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:18:00 AM	9.64	8.19	31.44	28.68	1.87	2.50	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:18:00 AM	9.64	8.18	31.43	28.67	1.87	2.50	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:18:00 AM	9.62	8.18	31.49	28.67	1.90	2.50	<0.1	<0.01
WSR36	1/10/2024	Sunny	Mid-Ebb	Moderate	B	6	11:18:00 AM	9.66	8.20	31.43	28.63	1.85	2.50	<0.1	<0.01
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:11:00 AM	9.26	8.20	31.26	28.64	1.51	2.50	<0.1	<0.01
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:11:00 AM	9.22	8.24	31.29	28.63	1.55	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:12:00 AM	9.26	8.24	31.36	28.61	1.50	2.50	<0.1	<0.01
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:12:00 AM	9.40	8.21	31.33	28.63	1.54	2.50	<0.1	<0.01
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	B	7	11:13:00 AM	9.32	8.20	31.35	28.58	1.51	2.50	<0.1	<0.01
WSR37	1/10/2024	Sunny	Mid-Ebb	Moderate	B	7	11:13:00 AM	9.36	8.22	31.23	28.66	1.55	4.00	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:39:00 AM	8.67	8.21	31.55	28.87	1.36	2.50	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:39:00 AM	8.68	8.22	31.56	28.82	1.34	2.50	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	M	7	10:40:00 AM	8.72	8.22	31.56	28.85	1.36	2.50	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	M	7	10:40:00 AM	8.73	8.22	31.63	28.78	1.33	2.50	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	B	13	10:41:00 AM	8.83	8.19	31.63	28.78	1.38	3.00	<0.1	<0.01
NF1	1/10/2024	Sunny	Mid-Ebb	Moderate	B	13	10:41:00 AM	8.71	8.21	31.57	28.87	1.37	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:56:00 AM	9.29	8.39	31.34	28.57	1.41	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:56:00 AM	9.35	8.39	31.44	28.59	1.43	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	M	5	10:57:00 AM	9.23	8.39	31.36	28.64	1.50	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	M	5	10:57:00 AM	9.31	8.37	31.45	28.65	1.49	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	B	10	10:58:00 AM	9.26	8.35	31.35	28.61	1.36	2.50	<0.1	<0.01
NF2	1/10/2024	Sunny	Mid-Ebb	Moderate	B	10	10:58:00 AM	9.33	8.39	31.34	28.61	1.43	2.50	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:04:00 AM	9.52	8.14	31.58	28.81	1.68	2.50	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:04:00 AM	9.61	8.15	31.68	28.76	1.72	2.50	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	M	6	11:05:00 AM	9.45	8.16	31.68	28.76	1.76	2.50	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	M	6	11:05:00 AM	9.62	8.14	31.66	28.81	1.76	3.00	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	B	11	11:06:00 AM	9.45	8.16	31.67	28.75	1.75	2.50	<0.1	<0.01
NF3	1/10/2024	Sunny	Mid-Ebb	Moderate	B	11	11:06:00 AM	9.55	8.17	31.67	28.74	1.70	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:54:00 AM	8.90	8.20	32.00	28.95	2.62	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:54:00 AM	8.91	8.18	32.04	28.96	2.55	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	M	11	10:55:00 AM	8.97	8.17	31.94	28.96	2.51	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	M	11	10:55:00 AM	8.95	8.17	32.04	28.91	2.48	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	B	21	10:56:00 AM	8.89	8.18	31.92	28.94	2.49	2.50	<0.1	<0.01
CE	3/10/2024	Sunny	Mid-Ebb	Moderate	B	21	10:56:00 AM	8.90	8.16	32.04	28.93	2.44	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	2:19:00 PM	9.71	8.20	32.72	29.09	2.32	2.50	<0.1	<0.01
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	2:19:00 PM	9.84	8.19	32.65	29.07	2.33	2.50	<0.1	<0.01
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	M	11	2:20:00 PM	9.77	8.18	32.64	29.12	2.33	2.50	<0.1	<0.01
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	M	11	2:20:00 PM	9.74	8.21	32.68	29.12	2.30	2.50	<0.1	<0.01
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	B	20	2:21:00 PM	9.74	8.17	32.73	29.09	2.35	2.50	<0.1	<0.01
CF	3/10/2024	Sunny	Mid-Ebb	Moderate	B	20	2:21:00 PM	9.73	8.18	32.74	29.07	2.34	4.00	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:53:00 PM	9.27	8.22	31.55	29.00	2.07	3.00	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:53:00 PM	9.18	8.20	31.57	29.03	2.09	2.50	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:54:00 PM	9.13	8.24	31.55	29.01	2.09	3.00	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:54:00 PM	9.19	8.22	31.58	29.03	2.07	2.50	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:55:00 PM	9.14	8.20	31.64	29.04	2.07	2.50	<0.1	<0.01
WSR01	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:55:00 PM	9.18	8.21	31.66	29.02	2.09	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:32:00 PM	8.57	8.12	32.21	28.90	1.51	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:32:00 PM	8.56	8.11	32.27	28.83	1.48	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	M	5	1:33:00 PM	8.48	8.10	32.30	28.91	1.52	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	M	5	1:33:00 PM	8.59	8.12	32.24	28.87	1.46	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:34:00 PM	8.56	8.12	32.27	28.84	1.47	2.50	<0.1	<0.01
WSR02	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:34:00 PM	8.42	8.12	32.26	28.86	1.49	2.50	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:14:00 PM	9.86	8.27	32.83	29.14	1.22	2.50	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	1:14:00 PM	9.78	8.26	32.86	29.19	1.27	2.50	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:15:00 PM	9.78	8.25	32.90	29.21	1.28	2.50	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:15:00 PM	9.75	8.26	32.83	29.22	1.22	3.00	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:16:00 PM	9.74	8.26	32.82	29.17	1.28	2.50	<0.1	<0.01
WSR03	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	1:16:00 PM	9.86	8.22	32.87	29.16	1.29	2.50	<0.1	<0.01
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:59:00 PM	9.46	8.16	32.61	28.79	1.95	4.00	<0.1	<0.01
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:59:00 PM	9.60	8.21	32.49	28.75	1.95	3.00	<0.1	<0.01
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:00:00 PM	9.48	8.21	32.55	28.76	1.95	2.50	<0.1	<0.01
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	1:00:00 PM	9.52	8.17	32.61	28.81	1.90	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	B	7	1:01:00 PM	9.61	8.16	32.51	28.77	1.92	2.50	<0.1	<0.01
WSR04	3/10/2024	Sunny	Mid-Ebb	Moderate	B	7	1:01:00 PM	9.56	8.19	32.60	28.81	1.88	2.50	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	9.21	8.16	31.94	29.01	2.02	2.50	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	9.15	8.15	32.02	29.04	2.10	2.50	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	M	8	11:20:00 AM	9.10	8.14	32.04	29.06	2.09	3.00	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	M	8	11:20:00 AM	9.09	8.13	32.03	29.05	2.06	3.00	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	B	14	11:21:00 AM	9.11	8.13	32.00	29.01	2.04	2.50	<0.1	<0.01
WSR16	3/10/2024	Sunny	Mid-Ebb	Moderate	B	14	11:21:00 AM	9.05	8.13	31.93	29.03	2.02	2.50	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:42:00 PM	9.09	8.12	32.59	28.89	1.78	2.50	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:42:00 PM	9.16	8.11	32.54	28.91	1.75	2.50	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:43:00 PM	9.05	8.12	32.55	28.89	1.77	2.50	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:43:00 PM	9.01	8.15	32.62	28.88	1.76	2.50	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	B	6	12:44:00 PM	9.15	8.10	32.64	28.93	1.77	3.00	<0.1	<0.01
WSR33	3/10/2024	Sunny	Mid-Ebb	Moderate	B	6	12:44:00 PM	9.07	8.13	32.61	28.89	1.77	2.50	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:25:00 PM	9.56	8.20	31.36	28.93	1.40	2.50	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:25:00 PM	9.56	8.22	31.38	28.88	1.36	2.50	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:26:00 PM	9.60	8.18	31.31	28.93	1.34	4.00	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:26:00 PM	9.61	8.21	31.32	28.91	1.40	2.50	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	B	6	12:26:00 PM	9.58	8.20	31.36	28.89	1.36	2.50	<0.1	<0.01
WSR36	3/10/2024	Sunny	Mid-Ebb	Moderate	B	6	12:26:00 PM	9.58	8.20	31.32	28.87	1.35	4.00	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:19:00 PM	8.74	8.16	32.08	29.00	1.57	5.00	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:19:00 PM	8.83	8.13	32.11	29.03	1.56	2.50	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:20:00 PM	8.70	8.12	32.03	29.06	1.63	2.50	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	M	4	12:20:00 PM	8.71	8.13	32.07	29.00	1.60	3.00	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	12:21:00 PM	8.74	8.17	32.09	29.05	1.55	2.50	<0.1	<0.01
WSR37	3/10/2024	Sunny	Mid-Ebb	Moderate	B	8	12:21:00 PM	8.85	8.17	31.99	29.02	1.62	3.00	<0.1	<0.01
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:43:00 AM	8.67	8.24	32.11	29.02	1.70	4.00	<0.1	<0.01
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:43:00 AM	8.80	8.28	32.13	29.08	1.68	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	M	7	11:44:00 AM	8.69	8.23	32.10	29.06	1.64	2.50	<0.1	<0.01
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	M	7	11:44:00 AM	8.76	8.25	32.19	29.00	1.69	3.00	<0.1	<0.01
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	B	13	11:45:00 AM	8.63	8.27	32.06	29.03	1.64	12.00	<0.1	<0.01
NF1	3/10/2024	Sunny	Mid-Ebb	Moderate	B	13	11:45:00 AM	8.79	8.28	32.14	29.03	1.63	4.00	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:00:00 PM	9.25	8.10	32.60	28.91	2.02	4.00	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:00:00 PM	9.31	8.10	32.68	28.92	2.10	6.00	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	M	5	12:01:00 PM	9.21	8.15	32.58	28.88	2.05	2.50	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	M	5	12:01:00 PM	9.27	8.10	32.70	28.90	2.05	3.00	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	B	9	12:02:00 PM	9.31	8.13	32.64	28.91	2.10	3.00	<0.1	<0.01
NF2	3/10/2024	Sunny	Mid-Ebb	Moderate	B	9	12:02:00 PM	9.23	8.15	32.68	28.92	2.02	4.00	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:10:00 PM	8.98	8.27	31.81	29.04	1.92	3.00	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:10:00 PM	9.03	8.27	31.85	29.04	1.96	3.00	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	M	6	12:11:00 PM	8.95	8.28	31.80	29.00	1.96	3.00	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	M	6	12:11:00 PM	9.06	8.26	31.75	29.01	1.99	2.50	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	B	11	12:12:00 PM	9.01	8.28	31.79	29.02	1.82	3.00	<0.1	<0.01
NF3	3/10/2024	Sunny	Mid-Ebb	Moderate	B	11	12:12:00 PM	9.04	8.27	31.76	29.04	1.84	4.00	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:15:00 AM	9.08	8.19	32.99	29.07	2.24	2.50	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:15:00 AM	9.07	8.21	33.05	29.08	2.25	2.50	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	M	11	11:16:00 AM	9.06	8.16	32.96	29.09	2.31	2.50	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	M	11	11:16:00 AM	9.08	8.15	32.97	29.04	2.32	13.00	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	B	20	11:17:00 AM	9.10	8.15	33.03	29.06	2.41	2.50	<0.1	<0.01
CE	5/10/2024	Sunny	Mid-Flood	Moderate	B	20	11:17:00 AM	9.04	8.17	32.97	29.11	2.42	2.50	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:03:00 AM	9.34	8.27	33.37	28.84	2.54	4.00	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:03:00 AM	9.40	8.25	33.34	28.91	2.58	5.00	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	M	11	8:04:00 AM	9.36	8.26	33.35	28.85	2.68	5.00	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	M	11	8:04:00 AM	9.35	8.24	33.40	28.89	2.61	2.50	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	B	21	8:05:00 AM	9.37	8.25	33.29	28.88	2.66	3.00	<0.1	<0.01
CF	5/10/2024	Sunny	Mid-Flood	Moderate	B	21	8:05:00 AM	9.33	8.27	33.28	28.89	2.68	5.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:29:00 AM	8.62	8.33	32.43	28.88	1.72	6.00	<0.1	<0.01
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:29:00 AM	8.66	8.34	32.41	28.87	1.76	9.00	<0.1	<0.01
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	8:30:00 AM	8.61	8.30	32.37	28.86	1.81	6.00	<0.1	<0.01
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	8:30:00 AM	8.61	8.32	32.39	28.84	1.75	9.00	<0.1	<0.01
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:31:00 AM	8.60	8.29	32.38	28.85	1.77	7.00	<0.1	<0.01
WSR01	5/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:31:00 AM	8.64	8.31	32.44	28.88	1.73	3.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:50:00 AM	8.48	8.15	32.55	29.12	1.74	3.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:50:00 AM	8.51	8.17	32.57	29.11	1.77	7.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	8:51:00 AM	8.48	8.16	32.60	29.12	1.75	6.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	8:51:00 AM	8.49	8.15	32.57	29.11	1.72	5.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:52:00 AM	8.48	8.19	32.52	29.08	1.79	3.00	<0.1	<0.01
WSR02	5/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:52:00 AM	8.54	8.14	32.58	29.11	1.78	7.00	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:06:00 AM	8.96	8.30	32.43	29.01	1.93	8.00	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:06:00 AM	8.92	8.35	32.32	29.04	1.92	6.00	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:07:00 AM	8.92	8.32	32.40	29.04	1.98	4.00	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:07:00 AM	8.92	8.34	32.38	29.00	1.93	8.00	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	9:08:00 AM	8.95	8.32	32.43	29.04	1.88	2.50	<0.1	<0.01
WSR03	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	9:08:00 AM	8.90	8.36	32.40	29.00	1.88	5.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:22:00 AM	9.24	8.35	32.68	29.09	2.02	10.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:22:00 AM	9.21	8.38	32.69	29.04	2.09	5.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:23:00 AM	9.24	8.34	32.73	29.08	2.03	8.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:23:00 AM	9.20	8.36	32.69	29.06	2.09	6.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:24:00 AM	9.23	8.37	32.64	29.03	2.09	9.00	<0.1	<0.01
WSR04	5/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:24:00 AM	9.26	8.33	32.71	29.11	2.00	9.00	<0.1	<0.01
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:52:00 AM	8.43	8.20	32.89	29.16	1.94	8.00	<0.1	<0.01
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:52:00 AM	8.50	8.16	32.85	29.14	1.87	6.00	<0.1	<0.01
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	M	8	10:53:00 AM	8.46	8.19	32.95	29.19	1.86	8.00	<0.1	<0.01
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	M	8	10:53:00 AM	8.49	8.15	32.88	29.19	1.92	5.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	B	16	10:54:00 AM	8.44	8.20	32.86	29.11	1.91	7.00	<0.1	<0.01
WSR16	5/10/2024	Sunny	Mid-Flood	Moderate	B	16	10:54:00 AM	8.50	8.15	32.91	29.18	1.94	5.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:39:00 AM	8.68	8.20	33.01	29.06	1.41	14.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:39:00 AM	8.65	8.15	32.94	29.06	1.46	5.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:40:00 AM	8.68	8.19	32.91	29.10	1.49	8.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:40:00 AM	8.61	8.16	32.93	29.08	1.44	7.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:41:00 AM	8.65	8.20	32.92	29.10	1.42	4.00	<0.1	<0.01
WSR33	5/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:41:00 AM	8.68	8.15	32.91	29.04	1.49	4.00	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:56:00 AM	9.35	8.15	33.09	29.12	1.81	5.00	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:56:00 AM	9.37	8.19	33.08	29.08	1.87	2.50	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:57:00 AM	9.32	8.20	33.14	29.05	1.86	3.00	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:57:00 AM	9.39	8.16	33.13	29.13	1.82	9.00	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	9:57:00 AM	9.32	8.17	33.04	29.07	1.86	8.00	<0.1	<0.01
WSR36	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	9:57:00 AM	9.35	8.14	33.04	29.12	1.86	6.00	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:13:00 AM	9.10	8.18	33.47	29.12	1.45	2.50	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:13:00 AM	9.05	8.15	33.41	29.10	1.43	2.50	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	10:14:00 AM	9.07	8.18	33.48	29.12	1.38	7.00	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	M	4	10:14:00 AM	9.04	8.18	33.49	29.06	1.37	6.00	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	10:15:00 AM	9.06	8.17	33.49	29.08	1.43	7.00	<0.1	<0.01
WSR37	5/10/2024	Sunny	Mid-Flood	Moderate	B	7	10:15:00 AM	9.05	8.16	33.42	29.10	1.38	2.50	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:37:00 AM	8.59	8.14	33.36	29.02	1.76	5.00	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:37:00 AM	8.64	8.15	33.27	28.94	1.74	6.00	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	M	7	10:38:00 AM	8.63	8.15	33.31	28.98	1.75	7.00	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	M	7	10:38:00 AM	8.60	8.18	33.29	28.97	1.84	6.00	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	B	13	10:39:00 AM	8.65	8.19	33.28	28.96	1.80	6.00	<0.1	<0.01
NF1	5/10/2024	Sunny	Mid-Flood	Moderate	B	13	10:39:00 AM	8.60	8.18	33.33	28.95	1.78	3.00	<0.1	<0.01
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:29:00 AM	8.75	8.35	33.22	28.91	1.65	3.00	<0.1	<0.01
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:29:00 AM	8.73	8.32	33.15	28.92	1.58	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	10:30:00 AM	8.77	8.34	33.14	28.91	1.61	4.00	<0.1	<0.01
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	M	5	10:30:00 AM	8.73	8.32	33.21	28.92	1.60	6.00	<0.1	<0.01
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	B	9	10:31:00 AM	8.73	8.33	33.16	28.97	1.63	6.00	<0.1	<0.01
NF2	5/10/2024	Sunny	Mid-Flood	Moderate	B	9	10:31:00 AM	8.77	8.31	33.10	28.91	1.60	3.00	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:22:00 AM	8.45	8.26	32.39	28.86	1.94	2.50	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:22:00 AM	8.40	8.31	32.29	28.93	1.86	3.00	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	M	6	10:23:00 AM	8.38	8.27	32.35	28.91	1.84	2.50	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	M	6	10:23:00 AM	8.44	8.30	32.33	28.88	1.89	3.00	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	B	12	10:24:00 AM	8.38	8.31	32.37	28.88	1.88	4.00	<0.1	<0.01
NF3	5/10/2024	Sunny	Mid-Flood	Moderate	B	12	10:24:00 AM	8.42	8.31	32.39	28.91	1.84	7.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:39:00 AM	9.00	8.15	32.60	29.13	2.08	4.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:39:00 AM	9.01	8.20	32.54	29.12	2.04	4.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	M	12	11:40:00 AM	9.01	8.20	32.61	29.18	2.03	3.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	M	12	11:40:00 AM	9.06	8.19	32.56	29.17	2.05	3.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	B	23	11:41:00 AM	9.05	8.18	32.63	29.18	2.01	4.00	<0.1	<0.01
CE	8/10/2024	Sunny	Mid-Flood	Moderate	B	23	11:41:00 AM	9.02	8.16	32.58	29.11	2.07	4.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:19:00 AM	9.07	8.28	32.20	29.03	2.44	5.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:19:00 AM	9.10	8.28	32.23	29.03	2.36	3.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	M	10	8:20:00 AM	9.09	8.30	32.23	29.07	2.39	4.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	M	10	8:20:00 AM	9.14	8.31	32.22	29.01	2.42	3.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	B	19	8:21:00 AM	9.07	8.31	32.18	29.09	2.43	8.00	<0.1	<0.01
CF	8/10/2024	Sunny	Mid-Flood	Moderate	B	19	8:21:00 AM	9.07	8.29	32.18	29.06	2.42	3.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:45:00 AM	8.56	8.21	32.80	28.78	1.55	3.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	8:45:00 AM	8.55	8.21	32.84	28.77	1.58	10.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	8:46:00 AM	8.53	8.21	32.89	28.79	1.62	3.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	8:46:00 AM	8.53	8.21	32.83	28.79	1.59	3.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:47:00 AM	8.52	8.20	32.85	28.82	1.54	4.00	<0.1	<0.01
WSR01	8/10/2024	Sunny	Mid-Flood	Moderate	B	8	8:47:00 AM	8.49	8.23	32.82	28.74	1.56	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:06:00 AM	9.17	8.29	33.59	28.87	1.57	3.00	<0.1	<0.01
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:06:00 AM	9.18	8.28	33.51	28.85	1.55	6.00	<0.1	<0.01
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	M	5	9:07:00 AM	9.11	8.32	33.53	28.88	1.65	4.00	<0.1	<0.01
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	M	5	9:07:00 AM	9.14	8.30	33.47	28.85	1.68	3.00	<0.1	<0.01
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	B	9	9:08:00 AM	9.11	8.30	33.49	28.90	1.72	2.50	<0.1	<0.01
WSR02	8/10/2024	Sunny	Mid-Flood	Moderate	B	9	9:08:00 AM	9.12	8.28	33.49	28.90	1.63	6.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:22:00 AM	9.05	8.33	32.99	28.77	1.94	3.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:22:00 AM	9.06	8.32	32.96	28.81	1.99	7.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:23:00 AM	9.03	8.35	33.04	28.80	2.01	5.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:23:00 AM	9.01	8.35	33.02	28.80	1.99	7.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:24:00 AM	9.07	8.34	32.95	28.82	1.99	3.00	<0.1	<0.01
WSR03	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:24:00 AM	9.06	8.31	33.05	28.76	2.00	4.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:38:00 AM	9.15	8.25	32.26	28.89	1.78	3.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:38:00 AM	9.17	8.25	32.22	28.93	1.76	4.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:39:00 AM	9.10	8.21	32.26	28.93	1.76	3.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:39:00 AM	9.16	8.22	32.21	28.91	1.86	3.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:40:00 AM	9.15	8.22	32.29	28.94	1.84	3.00	<0.1	<0.01
WSR04	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:40:00 AM	9.12	8.26	32.26	28.89	1.76	7.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:16:00 AM	8.35	8.12	33.08	28.91	1.99	3.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	11:16:00 AM	8.35	8.15	33.04	28.92	2.06	3.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	M	9	11:17:00 AM	8.40	8.11	33.08	28.90	2.07	3.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	M	9	11:17:00 AM	8.42	8.16	33.02	28.92	2.04	3.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	B	16	11:18:00 AM	8.40	8.11	33.02	28.93	2.01	6.00	<0.1	<0.01
WSR16	8/10/2024	Sunny	Mid-Flood	Moderate	B	16	11:18:00 AM	8.35	8.13	33.10	28.94	2.00	3.00	<0.1	<0.01
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:55:00 AM	8.71	8.33	32.40	28.80	2.06	2.50	<0.1	<0.01
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	9:55:00 AM	8.72	8.32	32.51	28.77	2.01	4.00	<0.1	<0.01
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:56:00 AM	8.71	8.34	32.49	28.77	2.17	3.00	<0.1	<0.01
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	9:56:00 AM	8.71	8.32	32.46	28.74	2.19	4.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:57:00 AM	8.66	8.30	32.43	28.76	2.03	3.00	<0.1	<0.01
WSR33	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	9:57:00 AM	8.68	8.30	32.50	28.78	2.06	2.50	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:12:00 AM	9.15	8.14	31.90	29.18	1.65	5.00	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:12:00 AM	9.15	8.11	31.83	29.11	1.62	3.00	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	M	3	10:13:00 AM	9.14	8.15	31.86	29.17	1.66	8.00	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	M	3	10:13:00 AM	9.17	8.12	31.86	29.11	1.71	3.00	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	10:13:00 AM	9.15	8.15	31.88	29.19	1.71	2.50	<0.1	<0.01
WSR36	8/10/2024	Sunny	Mid-Flood	Moderate	B	6	10:13:00 AM	9.14	8.16	31.89	29.17	1.61	4.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:29:00 AM	8.66	8.25	32.55	29.05	1.72	5.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:29:00 AM	8.64	8.26	32.60	29.03	1.71	3.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	10:30:00 AM	8.60	8.29	32.60	29.10	1.77	4.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	M	4	10:30:00 AM	8.62	8.27	32.57	29.06	1.79	4.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	B	7	10:31:00 AM	8.63	8.24	32.56	29.04	1.72	3.00	<0.1	<0.01
WSR37	8/10/2024	Sunny	Mid-Flood	Moderate	B	7	10:31:00 AM	8.63	8.30	32.56	29.07	1.73	5.00	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:58:00 AM	8.46	8.15	32.38	29.06	1.69	3.00	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:58:00 AM	8.44	8.18	32.33	29.02	1.64	2.50	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	M	7	10:59:00 AM	8.49	8.17	32.45	29.06	1.59	5.00	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	M	7	10:59:00 AM	8.51	8.19	32.45	29.08	1.61	4.00	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	B	12	11:00:00 AM	8.50	8.16	32.36	29.03	1.57	7.00	<0.1	<0.01
NF1	8/10/2024	Sunny	Mid-Flood	Moderate	B	12	11:00:00 AM	8.49	8.20	32.33	29.01	1.54	5.00	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:47:00 AM	8.42	8.32	32.72	28.89	1.34	6.00	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:47:00 AM	8.40	8.31	32.74	28.85	1.28	3.00	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	M	5	10:48:00 AM	8.40	8.32	32.69	28.91	1.37	3.00	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	M	5	10:48:00 AM	8.40	8.31	32.74	28.88	1.31	2.00	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	B	10	10:49:00 AM	8.41	8.34	32.69	28.87	1.33	2.50	<0.1	<0.01
NF2	8/10/2024	Sunny	Mid-Flood	Moderate	B	10	10:49:00 AM	8.46	8.31	32.66	28.89	1.34	3.00	<0.1	<0.01
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:38:00 AM	8.91	8.33	33.04	28.77	1.59	3.00	<0.1	<0.01
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	S	1	10:38:00 AM	8.93	8.35	32.99	28.79	1.58	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	M	6	10:39:00 AM	8.90	8.30	33.07	28.80	1.56	3.00	<0.1	<0.01
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	M	6	10:39:00 AM	8.93	8.32	33.08	28.82	1.57	3.00	<0.1	<0.01
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	B	12	10:40:00 AM	8.93	8.30	33.05	28.77	1.53	3.00	<0.1	<0.01
NF3	8/10/2024	Sunny	Mid-Flood	Moderate	B	12	10:40:00 AM	8.90	8.31	33.02	28.78	1.54	11.00	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:05:00 AM	9.63	8.12	32.78	28.84	2.41	2.50	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:05:00 AM	9.64	8.08	32.77	28.88	2.44	2.50	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	M	12	8:06:00 AM	9.51	8.08	32.80	28.90	2.48	2.50	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	M	12	8:06:00 AM	9.66	8.13	32.82	28.82	2.45	3.00	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	B	24	8:07:00 AM	9.57	8.10	32.82	28.90	2.42	3.00	<0.1	<0.01
CE	10/10/2024	Sunny	Mid-Ebb	Moderate	B	24	8:07:00 AM	9.61	8.09	32.81	28.82	2.48	3.00	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	9.38	8.16	32.42	29.08	1.95	3.00	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	9.25	8.19	32.42	29.02	1.91	2.50	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	M	10	11:20:00 AM	9.31	8.18	32.37	29.07	1.94	4.00	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	M	10	11:20:00 AM	9.33	8.17	32.49	29.00	1.95	4.00	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	B	20	11:21:00 AM	9.29	8.21	32.48	29.01	1.95	2.50	<0.1	<0.01
CF	10/10/2024	Sunny	Mid-Ebb	Moderate	B	20	11:21:00 AM	9.42	8.19	32.39	29.03	1.94	3.00	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:55:00 AM	8.44	8.26	31.42	29.03	1.66	3.00	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:55:00 AM	8.50	8.24	31.43	28.97	1.64	2.50	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:56:00 AM	8.57	8.27	31.51	29.01	1.65	2.50	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:56:00 AM	8.57	8.25	31.41	29.04	1.67	3.00	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	B	8	10:57:00 AM	8.42	8.26	31.50	29.03	1.66	5.00	<0.1	<0.01
WSR01	10/10/2024	Sunny	Mid-Ebb	Moderate	B	8	10:57:00 AM	8.57	8.25	31.46	29.04	1.68	3.00	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:34:00 AM	8.59	8.25	32.68	28.94	1.43	3.00	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:34:00 AM	8.53	8.24	32.67	28.92	1.47	3.00	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	M	5	10:35:00 AM	8.56	8.26	32.70	28.95	1.51	3.00	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	M	5	10:35:00 AM	8.50	8.26	32.72	28.96	1.45	2.50	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	B	8	10:36:00 AM	8.59	8.29	32.66	28.90	1.50	2.50	<0.1	<0.01
WSR02	10/10/2024	Sunny	Mid-Ebb	Moderate	B	8	10:36:00 AM	8.52	8.29	32.78	28.93	1.45	4.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:16:00 AM	8.72	8.10	32.58	29.01	2.05	5.00	<0.1	<0.01
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:16:00 AM	8.65	8.11	32.50	29.09	2.00	2.50	<0.1	<0.01
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:17:00 AM	8.69	8.08	32.53	29.01	2.05	2.50	<0.1	<0.01
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:17:00 AM	8.66	8.10	32.58	29.07	2.02	2.50	<0.1	<0.01
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:18:00 AM	8.61	8.09	32.55	29.08	1.99	2.50	<0.1	<0.01
WSR03	10/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:18:00 AM	8.74	8.08	32.55	29.07	2.00	3.00	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:00:00 AM	9.52	8.25	32.63	28.97	1.94	2.50	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:00:00 AM	9.59	8.24	32.63	29.02	1.95	2.50	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:01:00 AM	9.52	8.25	32.58	29.04	1.92	2.50	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:01:00 AM	9.50	8.25	32.62	29.05	1.97	2.50	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:02:00 AM	9.59	8.28	32.63	29.03	2.00	2.50	<0.1	<0.01
WSR04	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:02:00 AM	9.53	8.29	32.62	28.97	2.00	3.00	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:30:00 AM	8.80	8.13	31.91	29.05	1.80	2.50	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:30:00 AM	8.76	8.12	31.83	29.00	1.80	2.50	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	M	8	8:31:00 AM	8.86	8.13	31.81	29.04	1.83	3.00	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	M	8	8:31:00 AM	8.75	8.13	31.88	29.03	1.86	2.50	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	B	15	8:32:00 AM	8.74	8.11	31.80	29.08	1.82	2.50	<0.1	<0.01
WSR16	10/10/2024	Sunny	Mid-Ebb	Moderate	B	15	8:32:00 AM	8.76	8.12	31.90	29.07	1.84	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:44:00 AM	8.92	8.24	32.57	28.91	1.83	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:44:00 AM	8.95	8.24	32.51	28.98	1.87	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:45:00 AM	8.91	8.21	32.59	28.96	1.80	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:45:00 AM	9.04	8.20	32.56	28.91	1.81	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	9:46:00 AM	9.01	8.19	32.52	28.97	1.88	2.50	<0.1	<0.01
WSR33	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	9:46:00 AM	8.94	8.22	32.58	28.94	1.85	3.00	<0.1	<0.01
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:28:00 AM	8.54	8.09	32.52	29.15	1.39	2.50	<0.1	<0.01
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:28:00 AM	8.56	8.11	32.53	29.09	1.42	3.00	<0.1	<0.01
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:29:00 AM	8.60	8.14	32.54	29.16	1.40	3.00	<0.1	<0.01
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:29:00 AM	8.67	8.14	32.58	29.09	1.41	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	9:29:00 AM	8.69	8.14	32.55	29.09	1.38	2.50	<0.1	<0.01
WSR36	10/10/2024	Sunny	Mid-Ebb	Moderate	B	6	9:29:00 AM	8.64	8.10	32.62	29.16	1.40	3.00	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:22:00 AM	8.64	8.19	32.39	29.03	1.64	2.00	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:22:00 AM	8.68	8.18	32.35	29.11	1.62	2.50	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:23:00 AM	8.57	8.18	32.31	29.09	1.64	2.50	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:23:00 AM	8.65	8.16	32.38	29.08	1.60	3.00	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	B	7	9:24:00 AM	8.60	8.19	32.26	29.04	1.58	2.50	<0.1	<0.01
WSR37	10/10/2024	Sunny	Mid-Ebb	Moderate	B	7	9:24:00 AM	8.62	8.18	32.30	29.05	1.63	2.50	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:53:00 AM	9.15	8.20	32.08	29.01	1.49	2.50	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:53:00 AM	9.28	8.23	32.11	28.98	1.55	3.00	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	M	7	8:54:00 AM	9.24	8.25	32.11	28.97	1.53	5.00	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	M	7	8:54:00 AM	9.15	8.21	32.15	29.05	1.54	2.50	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	B	13	8:55:00 AM	9.16	8.20	32.12	29.04	1.69	4.00	<0.1	<0.01
NF1	10/10/2024	Sunny	Mid-Ebb	Moderate	B	13	8:55:00 AM	9.19	8.24	32.16	28.97	1.63	4.00	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:07:00 AM	8.86	8.12	31.49	29.16	1.74	3.00	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:07:00 AM	8.80	8.15	31.39	29.13	1.72	3.00	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:08:00 AM	8.80	8.12	31.48	29.15	1.76	2.50	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:08:00 AM	8.85	8.14	31.46	29.18	1.71	4.00	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:09:00 AM	8.85	8.15	31.47	29.13	1.74	3.00	<0.1	<0.01
NF2	10/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:09:00 AM	8.77	8.15	31.50	29.10	1.71	4.00	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:15:00 AM	9.30	8.13	31.53	29.01	1.85	2.50	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:15:00 AM	9.33	8.13	31.52	28.98	1.87	2.50	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:16:00 AM	9.32	8.16	31.49	28.97	1.85	2.50	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:16:00 AM	9.29	8.13	31.52	29.01	1.91	3.00	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:17:00 AM	9.29	8.14	31.45	28.94	1.85	2.50	<0.1	<0.01
NF3	10/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:17:00 AM	9.43	8.16	31.48	28.94	1.85	2.50	<0.1	<0.01
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:26:00 AM	9.60	8.26	32.41	28.19	2.51	3.00	<0.1	<0.01
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:26:00 AM	9.59	8.30	32.37	28.22	2.49	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	M	11	8:27:00 AM	9.67	8.26	32.38	28.13	2.48	2.50	<0.1	<0.01
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	M	11	8:27:00 AM	9.66	8.26	32.43	28.19	2.55	4.00	<0.1	<0.01
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	B	21	8:28:00 AM	9.67	8.30	32.37	28.18	2.49	3.00	<0.1	<0.01
CE	12/10/2024	Sunny	Mid-Ebb	Moderate	B	21	8:28:00 AM	9.59	8.29	32.46	28.22	2.62	4.00	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:44:00 AM	9.37	8.25	32.43	28.30	2.26	2.50	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:44:00 AM	9.35	8.24	32.49	28.29	2.28	4.00	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	M	11	11:45:00 AM	9.36	8.29	32.41	28.18	2.26	2.50	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	M	11	11:45:00 AM	9.34	8.29	32.44	28.20	2.30	3.00	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	B	20	11:46:00 AM	9.32	8.27	32.50	28.24	2.34	2.50	<0.1	<0.01
CF	12/10/2024	Sunny	Mid-Ebb	Moderate	B	20	11:46:00 AM	9.28	8.29	32.47	28.21	2.30	2.50	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:20:00 AM	9.26	8.19	32.26	28.37	1.83	6.00	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:20:00 AM	9.36	8.15	32.27	28.40	1.78	2.50	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:21:00 AM	9.39	8.21	32.31	28.43	1.83	5.00	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:21:00 AM	9.24	8.18	32.24	28.39	1.78	2.50	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:22:00 AM	9.40	8.19	32.22	28.37	1.80	2.50	<0.1	<0.01
WSR01	12/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:22:00 AM	9.30	8.17	32.26	28.36	1.80	3.00	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:01:00 AM	9.59	8.10	31.86	28.30	1.50	2.50	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:01:00 AM	9.64	8.13	31.84	28.39	1.50	4.00	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:02:00 AM	9.53	8.10	31.88	28.35	1.46	2.50	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:02:00 AM	9.60	8.12	31.86	28.30	1.48	2.50	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:03:00 AM	9.65	8.14	31.79	28.39	1.50	4.00	<0.1	<0.01
WSR02	12/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:03:00 AM	9.55	8.12	31.85	28.33	1.51	2.50	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:45:00 AM	8.64	8.15	32.78	28.34	1.55	2.50	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:45:00 AM	8.64	8.11	32.73	28.37	1.60	2.50	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:46:00 AM	8.68	8.15	32.80	28.33	1.57	3.00	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:46:00 AM	8.79	8.13	32.72	28.32	1.56	3.00	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:47:00 AM	8.79	8.11	32.78	28.41	1.60	2.50	<0.1	<0.01
WSR03	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:47:00 AM	8.66	8.12	32.79	28.34	1.57	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:32:00 AM	9.22	8.14	32.09	28.42	1.53	2.50	<0.1	<0.01
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:32:00 AM	9.11	8.14	32.14	28.39	1.47	2.50	<0.1	<0.01
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:33:00 AM	9.17	8.15	32.14	28.39	1.52	2.50	<0.1	<0.01
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:33:00 AM	9.13	8.15	32.15	28.32	1.51	3.00	<0.1	<0.01
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:34:00 AM	9.20	8.18	32.16	28.34	1.54	8.00	<0.1	<0.01
WSR04	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:34:00 AM	9.19	8.12	32.09	28.43	1.50	2.50	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:51:00 AM	9.18	8.21	32.57	28.30	1.61	6.00	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:51:00 AM	9.23	8.22	32.65	28.32	1.63	11.00	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	M	8	8:52:00 AM	9.24	8.20	32.64	28.34	1.68	2.50	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	M	8	8:52:00 AM	9.14	8.23	32.64	28.31	1.68	3.00	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	B	15	8:53:00 AM	9.17	8.18	32.60	28.22	1.63	4.00	<0.1	<0.01
WSR16	12/10/2024	Sunny	Mid-Ebb	Moderate	B	15	8:53:00 AM	9.13	8.21	32.62	28.24	1.63	2.50	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:15:00 AM	8.63	8.07	32.26	28.41	1.82	2.50	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:15:00 AM	8.58	8.09	32.25	28.45	1.78	2.50	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:16:00 AM	8.64	8.09	32.25	28.38	1.79	6.00	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:16:00 AM	8.59	8.09	32.32	28.47	1.80	2.50	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:17:00 AM	8.64	8.09	32.33	28.40	1.79	3.00	<0.1	<0.01
WSR33	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:17:00 AM	8.58	8.03	32.26	28.37	1.82	3.00	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:59:00 AM	9.35	8.27	32.40	28.27	1.53	4.00	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:59:00 AM	9.41	8.29	32.40	28.25	1.54	6.00	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	M	3	10:00:00 AM	9.38	8.27	32.41	28.30	1.61	2.50	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	M	3	10:00:00 AM	9.36	8.30	32.46	28.22	1.62	2.50	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:00:00 AM	9.35	8.30	32.40	28.26	1.66	3.00	<0.1	<0.01
WSR36	12/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:00:00 AM	9.33	8.27	32.43	28.28	1.63	2.50	<0.1	<0.01
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:51:00 AM	9.38	8.19	32.24	28.22	1.71	6.00	<0.1	<0.01
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:51:00 AM	9.41	8.25	32.22	28.21	1.68	2.50	<0.1	<0.01
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:52:00 AM	9.44	8.19	32.29	28.15	1.74	2.50	<0.1	<0.01
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	M	4	9:52:00 AM	9.45	8.23	32.29	28.17	1.68	4.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	9:53:00 AM	9.38	8.20	32.20	28.20	1.60	2.50	<0.1	<0.01
WSR37	12/10/2024	Sunny	Mid-Ebb	Moderate	B	7	9:53:00 AM	9.49	8.24	32.27	28.13	1.62	3.00	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:15:00 AM	8.89	8.24	32.76	28.13	1.92	2.50	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:15:00 AM	8.88	8.20	32.72	28.06	1.93	2.50	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	M	7	9:16:00 AM	8.82	8.22	32.71	28.10	1.96	2.50	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	M	7	9:16:00 AM	8.84	8.21	32.76	28.14	1.95	2.50	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	B	13	9:17:00 AM	8.82	8.21	32.77	28.17	1.90	2.50	<0.1	<0.01
NF1	12/10/2024	Sunny	Mid-Ebb	Moderate	B	13	9:17:00 AM	8.77	8.20	32.71	28.10	1.97	3.00	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:32:00 AM	8.82	8.11	31.75	28.41	1.52	3.00	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:32:00 AM	8.80	8.12	31.76	28.36	1.49	3.00	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:33:00 AM	8.74	8.16	31.81	28.40	1.50	2.50	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:33:00 AM	8.79	8.16	31.77	28.39	1.50	2.50	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:34:00 AM	8.74	8.12	31.81	28.44	1.50	5.00	<0.1	<0.01
NF2	12/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:34:00 AM	8.76	8.11	31.81	28.43	1.56	4.00	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:42:00 AM	9.17	8.24	32.28	28.51	1.47	3.00	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:42:00 AM	9.26	8.27	32.28	28.42	1.54	3.00	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:43:00 AM	9.12	8.25	32.22	28.50	1.49	3.00	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:43:00 AM	9.20	8.23	32.22	28.45	1.48	3.00	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:44:00 AM	9.26	8.23	32.24	28.42	1.48	2.50	<0.1	<0.01
NF3	12/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:44:00 AM	9.14	8.25	32.31	28.44	1.52	2.50	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:36:00 AM	8.60	8.22	33.07	29.19	2.57	5.00	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	8:36:00 AM	8.65	8.23	33.06	29.19	2.53	4.00	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	M	12	8:37:00 AM	8.59	8.24	33.05	29.19	2.57	4.00	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	M	12	8:37:00 AM	8.59	8.24	33.08	29.21	2.56	2.50	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	B	23	8:38:00 AM	8.61	8.21	33.03	29.20	2.55	4.00	<0.1	<0.01
CE	15/10/2024	Sunny	Mid-Ebb	Moderate	B	23	8:38:00 AM	8.59	8.24	33.04	29.18	2.51	2.50	<0.1	<0.01
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:08:00 PM	9.09	8.18	32.29	29.22	2.16	3.00	<0.1	<0.01
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	12:08:00 PM	9.15	8.19	32.26	29.20	2.11	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	M	10	12:09:00 PM	9.11	8.18	32.26	29.19	2.19	3.00	<0.1	<0.01
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	M	10	12:09:00 PM	9.16	8.17	32.19	29.19	2.06	5.00	<0.1	<0.01
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	B	18	12:10:00 PM	9.17	8.15	32.25	29.18	2.08	5.00	<0.1	<0.01
CF	15/10/2024	Sunny	Mid-Ebb	Moderate	B	18	12:10:00 PM	9.15	8.16	32.28	29.23	2.13	3.00	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:40:00 AM	8.77	8.31	33.04	29.22	1.31	4.00	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:40:00 AM	8.78	8.34	33.00	29.22	1.36	2.50	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:41:00 AM	8.70	8.32	33.02	29.22	1.32	4.00	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:41:00 AM	8.65	8.30	33.04	29.23	1.36	7.00	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:42:00 AM	8.77	8.30	33.04	29.21	1.35	7.00	<0.1	<0.01
WSR01	15/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:42:00 AM	8.69	8.32	33.00	29.26	1.30	4.00	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	8.88	8.31	32.83	29.30	1.56	3.00	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:19:00 AM	8.92	8.31	32.86	29.27	1.55	2.50	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:20:00 AM	9.02	8.26	32.94	29.27	1.54	2.50	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	11:20:00 AM	8.91	8.31	32.95	29.26	1.55	4.00	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	B	9	11:21:00 AM	8.86	8.26	32.93	29.30	1.58	2.50	<0.1	<0.01
WSR02	15/10/2024	Sunny	Mid-Ebb	Moderate	B	9	11:21:00 AM	8.97	8.29	32.92	29.29	1.60	2.50	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:02:00 AM	8.37	8.21	32.71	29.11	1.51	2.50	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	11:02:00 AM	8.41	8.23	32.61	29.06	1.53	2.50	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:03:00 AM	8.34	8.23	32.65	29.11	1.51	2.50	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	11:03:00 AM	8.32	8.21	32.69	29.13	1.47	5.00	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:04:00 AM	8.42	8.20	32.65	29.10	1.51	2.50	<0.1	<0.01
WSR03	15/10/2024	Sunny	Mid-Ebb	Moderate	B	8	11:04:00 AM	8.28	8.23	32.68	29.12	1.56	6.00	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:47:00 AM	8.97	8.29	32.49	29.28	2.06	2.50	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:47:00 AM	8.90	8.29	32.49	29.31	2.04	2.00	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:48:00 AM	8.86	8.28	32.44	29.27	1.99	3.00	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:48:00 AM	8.86	8.28	32.46	29.26	2.07	2.50	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:49:00 AM	8.92	8.27	32.53	29.33	2.11	3.00	<0.1	<0.01
WSR04	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:49:00 AM	8.91	8.28	32.45	29.27	2.05	3.00	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:01:00 AM	8.53	8.26	32.34	29.07	1.56	4.00	<0.1	<0.01
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:01:00 AM	8.55	8.26	32.34	29.14	1.60	4.00	<0.1	<0.01
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	M	8	9:02:00 AM	8.65	8.23	32.40	29.14	1.59	5.00	<0.1	<0.01
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	M	8	9:02:00 AM	8.55	8.24	32.37	29.08	1.53	3.00	<0.1	<0.01
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	B	15	9:03:00 AM	8.63	8.23	32.41	29.14	1.55	3.00	<0.1	<0.01
WSR16	15/10/2024	Sunny	Mid-Ebb	Moderate	B	15	9:03:00 AM	8.63	8.25	32.43	29.08	1.62	4.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:30:00 AM	8.73	8.18	32.85	29.28	1.42	5.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:30:00 AM	8.79	8.16	32.87	29.30	1.36	8.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:31:00 AM	8.80	8.20	32.80	29.25	1.43	8.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:31:00 AM	8.77	8.15	32.77	29.25	1.41	4.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:32:00 AM	8.72	8.17	32.81	29.29	1.45	6.00	<0.1	<0.01
WSR33	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:32:00 AM	8.85	8.19	32.83	29.26	1.39	3.00	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:14:00 AM	9.03	8.34	32.47	29.18	1.52	4.00	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:14:00 AM	9.05	8.33	32.49	29.19	1.54	5.00	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	M	3	10:15:00 AM	9.13	8.33	32.47	29.16	1.54	8.00	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	M	3	10:15:00 AM	9.08	8.30	32.41	29.20	1.58	2.50	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:15:00 AM	9.04	8.32	32.42	29.19	1.61	2.50	<0.1	<0.01
WSR36	15/10/2024	Sunny	Mid-Ebb	Moderate	B	6	10:15:00 AM	9.11	8.35	32.51	29.17	1.54	2.50	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:03:00 AM	8.66	8.25	32.39	29.26	1.55	2.50	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	10:03:00 AM	8.67	8.24	32.31	29.28	1.60	2.50	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:04:00 AM	8.64	8.28	32.36	29.30	1.60	5.00	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	M	4	10:04:00 AM	8.65	8.24	32.32	29.22	1.64	3.00	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:05:00 AM	8.64	8.29	32.35	29.26	1.58	2.50	<0.1	<0.01
WSR37	15/10/2024	Sunny	Mid-Ebb	Moderate	B	7	10:05:00 AM	8.66	8.28	32.43	29.25	1.63	3.00	<0.1	<0.01
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:24:00 AM	8.81	8.36	31.85	29.37	1.54	2.50	<0.1	<0.01
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:24:00 AM	8.92	8.35	31.88	29.30	1.48	3.00	<0.1	<0.01
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	M	7	9:25:00 AM	8.84	8.32	31.85	29.37	1.58	3.00	<0.1	<0.01
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	M	7	9:25:00 AM	8.91	8.34	31.78	29.33	1.54	2.50	<0.1	<0.01

Location	Date	Weather	Tide	Sea Condition	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp ((°C)	Turbidty (NTU)	SS (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	B	13	9:26:00 AM	8.89	8.34	31.83	29.38	1.49	2.50	<0.1	<0.01
NF1	15/10/2024	Sunny	Mid-Ebb	Moderate	B	13	9:26:00 AM	8.94	8.34	31.84	29.38	1.53	3.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:41:00 AM	8.94	8.15	33.27	29.04	1.44	6.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:41:00 AM	8.94	8.14	33.15	29.07	1.51	7.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:42:00 AM	8.97	8.16	33.23	29.01	1.44	4.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	M	5	9:42:00 AM	8.99	8.15	33.23	29.05	1.41	5.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:43:00 AM	8.86	8.16	33.17	29.03	1.52	3.00	<0.1	<0.01
NF2	15/10/2024	Sunny	Mid-Ebb	Moderate	B	10	9:43:00 AM	8.97	8.17	33.26	29.00	1.46	2.50	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:52:00 AM	8.97	8.22	32.37	29.28	1.88	4.00	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	S	1	9:52:00 AM	8.96	8.21	32.36	29.25	1.94	3.00	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:53:00 AM	8.90	8.22	32.29	29.28	1.95	2.50	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	M	6	9:53:00 AM	8.90	8.18	32.30	29.30	1.87	2.00	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:54:00 AM	9.04	8.23	32.29	29.23	1.91	5.00	<0.1	<0.01
NF3	15/10/2024	Sunny	Mid-Ebb	Moderate	B	11	9:54:00 AM	8.93	8.20	32.33	29.28	1.88	2.50	<0.1	<0.01

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/01/2024 01:00 AM	51.54	7.80	30.5	0.01
10/01/2024 03:00 AM	52.15	7.80	30.3	0.02
10/01/2024 05:00 AM	52.32	7.81	30.5	0.01
10/01/2024 07:00 AM	52.10	7.82	30.1	0.01
10/01/2024 09:00 AM	52.04	7.54	30.6	0.02
10/01/2024 11:00 AM	52.64	7.54	30.6	0.02
10/01/2024 01:00 PM	52.04	7.52	30.8	0.03
10/01/2024 03:00 PM	52.64	7.51	31.0	0.02
10/01/2024 05:00 PM	52.55	7.53	31.1	0.01
10/01/2024 07:00 PM	52.01	7.54	31.1	0.02
10/01/2024 09:00 PM	52.06	7.51	31.1	0.03
10/01/2024 11:00 PM	52.09	7.54	30.9	0.02
10/02/2024 01:00 AM	53.01	7.53	30.7	0.03
10/02/2024 03:00 AM	55.36	7.54	30.5	0.02
10/02/2024 05:00 AM	54.03	7.53	30.2	0.01
10/02/2024 07:00 AM	55.00	7.51	29.9	0.02
10/02/2024 09:00 AM	53.01	7.53	29.6	0.03
10/02/2024 11:00 AM	53.64	7.50	29.4	0.01
10/02/2024 01:00 PM	52.48	7.49	29.2	0.02
10/02/2024 03:00 PM	53.34	7.34	29.5	0.02
10/02/2024 05:00 PM	52.68	7.48	29.5	0.02
10/02/2024 07:00 PM	53.61	7.34	29.5	0.03
10/02/2024 09:00 PM	53.01	7.29	29.4	0.02
10/02/2024 11:00 PM	52.64	7.30	29.4	0.03
10/03/2024 01:00 AM	53.02	7.34	29.0	0.02
10/03/2024 03:00 AM	53.64	7.30	28.9	0.03
10/03/2024 05:00 AM	52.04	7.34	28.5	0.02
10/03/2024 07:00 AM	53.65	7.20	28.2	0.02
10/03/2024 09:00 AM	52.06	7.45	28.0	0.03
10/03/2024 11:00 AM	52.14	7.40	27.5	0.02
10/03/2024 01:00 PM	53.01	7.45	27.9	0.03
10/03/2024 03:00 PM	52.68	7.41	28.0	0.02
10/03/2024 05:00 PM	52.31	7.45	28.3	0.03
10/03/2024 07:00 PM	53.35	7.43	28.3	0.02
10/03/2024 09:00 PM	52.46	7.45	28.4	0.02
10/03/2024 11:00 PM	51.05	7.40	28.5	0.03
10/04/2024 01:00 AM	52.31	7.45	28.5	0.02
10/04/2024 03:00 AM	53.01	7.35	28.4	0.02
10/04/2024 05:00 AM	52.01	7.39	28.3	0.03
10/04/2024 07:00 AM	53.01	7.45	28.2	0.02
10/04/2024 09:00 AM	52.01	7.40	28.0	0.01
10/04/2024 11:00 AM	52.02	7.45	27.9	0.02
10/04/2024 01:00 PM	52.01	7.45	28.1	0.01
10/04/2024 03:00 PM	53.06	7.50	28.3	0.02
10/04/2024 05:00 PM	52.32	7.50	28.5	0.03
10/04/2024 07:00 PM	52.24	7.50	28.6	0.01
10/04/2024 09:00 PM	51.99	7.50	28.5	0.02
10/04/2024 11:00 PM	51.81	7.50	28.4	0.02

Contract No. 13/WSD/17.
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Continuous Effluent Monitoring (October 2024)

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/05/2024 01:00 AM	51.81	7.47	28.4	0.01
10/05/2024 03:00 AM	51.81	7.47	28.4	0.03
10/05/2024 05:00 AM	51.81	7.47	28.4	0.02
10/05/2024 07:00 AM	51.81	7.46	28.4	0.01
10/05/2024 09:00 AM	51.81	7.50	28.4	0.04
10/05/2024 11:00 AM	51.81	7.50	28.4	0.04
10/05/2024 01:00 PM	51.81	7.50	28.4	0.04
10/05/2024 03:00 PM	51.81	7.48	28.4	0.04
10/05/2024 05:00 PM	51.81	7.48	28.4	0.04
10/05/2024 07:00 PM	51.81	7.50	28.4	0.04
10/05/2024 09:00 PM	51.81	7.49	28.4	0.04
10/05/2024 11:00 PM	51.81	7.50	28.4	0.04
10/06/2024 01:00 AM	51.81	7.50	28.4	0.04
10/06/2024 03:00 AM	51.81	7.49	28.4	0.04
10/06/2024 05:00 AM	51.81	7.50	28.4	0.04
10/06/2024 07:00 AM	51.81	7.49	28.4	0.04
10/06/2024 09:00 AM	51.81	7.49	28.4	0.04
10/06/2024 11:00 AM	51.81	7.49	28.4	0.04
10/06/2024 01:00 PM	51.81	7.49	28.4	0.04
10/06/2024 03:00 PM	51.81	7.49	28.4	0.04
10/06/2024 05:00 PM	51.81	7.49	28.4	0.04
10/06/2024 07:00 PM	51.81	7.49	28.4	0.04
10/06/2024 09:00 PM	51.81	7.16	28.4	0.04
10/06/2024 11:00 PM	51.81	7.16	28.4	0.04
10/07/2024 01:00 AM	51.81	7.16	28.4	0.04
10/07/2024 03:00 AM	51.81	7.16	28.4	0.04
10/07/2024 05:00 AM	51.81	7.16	28.4	0.04
10/07/2024 07:00 AM	51.81	7.16	28.4	0.04
10/07/2024 09:00 AM	51.81	7.16	28.4	0.04
10/07/2024 11:00 AM	51.81	7.16	28.4	0.04
10/07/2024 01:00 PM	51.81	7.16	28.4	0.04
10/07/2024 03:00 PM	51.81	7.16	28.4	0.04
10/07/2024 05:00 PM	51.81	7.16	28.4	0.04
10/07/2024 07:00 PM	51.81	7.16	28.4	0.04
10/07/2024 09:00 PM	51.81	7.16	28.4	0.04
10/07/2024 11:00 PM	51.81	7.15	28.4	0.04
10/08/2024 01:00 AM	51.81	7.16	28.4	0.04
10/08/2024 03:00 AM	51.81	7.18	28.4	0.04
10/08/2024 05:00 AM	51.81	7.16	28.4	0.04
10/08/2024 07:00 AM	51.81	7.19	28.4	0.04
10/08/2024 09:00 AM	51.81	7.16	28.4	0.04
10/08/2024 11:00 AM	51.81	7.20	28.4	0.04
10/08/2024 01:00 PM	51.81	7.23	28.4	0.04
10/08/2024 03:00 PM	51.81	7.23	28.4	0.04
10/08/2024 05:00 PM	51.81	7.23	28.4	0.04
10/08/2024 07:00 PM	51.81	7.23	28.4	0.04
10/08/2024 09:00 PM	51.81	7.23	28.4	0.04
10/08/2024 11:00 PM	51.81	7.23	28.4	0.04

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/09/2024 01:00 AM	51.81	7.23	28.4	0.04
10/09/2024 03:00 AM	51.81	7.30	28.4	0.04
10/09/2024 05:00 AM	51.81	7.30	28.4	0.04
10/09/2024 07:00 AM	51.81	7.30	28.4	0.04
10/09/2024 09:00 AM	51.81	7.64	28.4	0.04
10/09/2024 11:00 AM	51.81	7.64	28.4	0.04
10/09/2024 01:00 PM	51.81	7.64	28.4	0.04
10/09/2024 03:00 PM	51.81	7.60	28.4	0.04
10/09/2024 05:00 PM	51.81	7.60	28.4	0.04
10/09/2024 07:00 PM	51.81	7.60	28.4	0.04
10/09/2024 09:00 PM	51.81	7.60	28.4	0.04
10/09/2024 11:00 PM	51.81	7.60	28.4	0.04
10/10/2024 01:00 AM	51.81	7.59	28.4	0.04
10/10/2024 03:00 AM	51.81	7.60	28.4	0.04
10/10/2024 05:00 AM	51.81	7.58	28.4	0.04
10/10/2024 07:00 AM	51.81	7.60	28.4	0.04
10/10/2024 09:00 AM	55.05	7.57	28.4	0.04
10/10/2024 11:00 AM	55.52	7.61	28.4	0.04
10/10/2024 01:00 PM	55.52	7.60	28.4	0.04
10/10/2024 03:00 PM	55.52	7.59	28.4	0.04
10/10/2024 05:00 PM	55.52	7.60	28.4	0.04
10/10/2024 07:00 PM	55.51	7.55	28.4	0.02
10/10/2024 09:00 PM	55.55	7.60	28.4	0.06
10/10/2024 11:00 PM	55.55	7.56	28.4	0.06
10/11/2024 01:00 AM	55.55	7.25	28.4	0.06
10/11/2024 03:00 AM	55.55	7.25	28.4	0.06
10/11/2024 05:00 AM	55.55	7.25	28.4	0.06
10/11/2024 07:00 AM	55.55	7.36	28.4	0.06
10/11/2024 09:00 AM	55.55	7.31	28.4	0.06
10/11/2024 11:00 AM	55.38	7.31	28.4	0.02
10/11/2024 01:00 PM	55.27	7.26	28.4	0.02
10/11/2024 03:00 PM	55.22	7.31	28.4	0.02
10/11/2024 05:00 PM	55.28	7.35	28.4	0.03
10/11/2024 07:00 PM	55.43	7.35	28.4	0.03
10/11/2024 09:00 PM	55.43	7.35	28.4	0.07
10/11/2024 11:00 PM	55.43	7.40	28.4	0.07
10/12/2024 01:00 AM	55.43	7.40	28.4	0.07
10/12/2024 03:00 AM	55.43	7.40	28.4	0.07
10/12/2024 05:00 AM	55.43	7.40	28.4	0.07
10/12/2024 07:00 AM	55.44	7.50	28.4	0.07
10/12/2024 09:00 AM	55.48	7.50	28.4	0.07
10/12/2024 11:00 AM	55.48	7.50	28.4	0.07
10/12/2024 01:00 PM	55.48	7.50	28.4	0.07
10/12/2024 03:00 PM	55.47	7.50	28.4	0.07
10/12/2024 05:00 PM	55.48	7.50	28.4	0.07
10/12/2024 07:00 PM	55.59	7.85	28.4	0.07
10/12/2024 09:00 PM	55.56	7.85	28.4	0.07
10/12/2024 11:00 PM	55.56	7.85	28.4	0.07

Contract No. 13/WSD/17.
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Continuous Effluent Monitoring (October 2024)

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/13/2024 01:00 AM	55.56	7.85	28.4	0.07
10/13/2024 03:00 AM	55.55	7.85	28.4	0.07
10/13/2024 05:00 AM	55.56	7.85	28.4	0.07
10/13/2024 07:00 AM	55.64	7.85	28.4	0.07
10/13/2024 09:00 AM	55.63	7.75	28.4	0.07
10/13/2024 11:00 AM	55.63	7.73	28.4	0.07
10/13/2024 01:00 PM	55.63	7.70	28.4	0.07
10/13/2024 03:00 PM	55.63	7.71	28.4	0.07
10/13/2024 05:00 PM	55.63	7.64	28.4	0.07
10/13/2024 07:00 PM	55.63	7.69	28.4	0.07
10/13/2024 09:00 PM	55.62	7.63	28.4	0.07
10/13/2024 11:00 PM	55.70	7.59	28.4	0.07
10/14/2024 01:00 AM	55.70	7.61	28.4	0.07
10/14/2024 03:00 AM	55.70	7.78	28.4	0.07
10/14/2024 05:00 AM	55.70	7.81	28.4	0.07
10/14/2024 07:00 AM	55.70	7.83	28.4	0.07
10/14/2024 09:00 AM	55.70	7.81	28.4	0.07
10/14/2024 11:00 AM	55.70	7.80	28.4	0.05
10/14/2024 01:00 PM	55.74	7.60	28.4	0.05
10/14/2024 03:00 PM	55.74	7.82	28.4	0.05
10/14/2024 05:00 PM	55.74	7.81	28.4	0.02
10/14/2024 07:00 PM	55.71	7.80	28.4	0.05
10/14/2024 09:00 PM	55.74	7.77	28.4	0.05
10/14/2024 11:00 PM	55.74	7.79	28.4	0.05
10/15/2024 01:00 AM	55.74	7.78	28.4	0.05
10/15/2024 03:00 AM	55.74	7.72	28.4	0.05
10/15/2024 05:00 AM	55.74	7.76	28.4	0.05
10/15/2024 07:00 AM	55.76	7.71	27.9	0.04
10/15/2024 09:00 AM	55.76	7.80	27.9	0.04
10/15/2024 11:00 AM	55.76	7.76	27.9	0.04
10/15/2024 01:00 PM	55.76	7.71	28.0	0.04
10/15/2024 03:00 PM	55.76	7.76	28.1	0.04
10/15/2024 05:00 PM	55.76	7.70	28.2	0.04
10/15/2024 07:00 PM	55.76	7.85	28.3	0.04
10/15/2024 09:00 PM	55.76	7.74	28.3	0.04
10/15/2024 11:00 PM	55.76	7.73	28.3	0.04
10/16/2024 01:00 AM	55.76	7.85	28.3	0.04
10/16/2024 03:00 AM	55.76	7.71	28.2	0.04
10/16/2024 05:00 AM	55.75	7.72	28.2	0.04
10/16/2024 07:00 AM	55.75	7.85	28.2	0.04
10/16/2024 09:00 AM	55.85	7.70	28.1	0.04
10/16/2024 11:00 AM	55.77	7.81	28.1	0.04
10/16/2024 01:00 PM	55.80	7.85	28.2	0.04
10/16/2024 03:00 PM	55.79	7.80	28.3	0.04
10/16/2024 05:00 PM	55.78	7.85	28.3	0.04
10/16/2024 07:00 PM	55.79	7.81	28.3	0.04
10/16/2024 09:00 PM	55.79	7.85	28.3	0.04
10/16/2024 11:00 PM	55.79	7.80	28.3	0.04

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/17/2024 01:00 AM	55.79	7.85	28.2	0.04
10/17/2024 03:00 AM	55.78	7.80	28.2	0.04
10/17/2024 05:00 AM	55.78	7.85	28.1	0.04
10/17/2024 07:00 AM	55.81	7.79	28.0	0.04
10/17/2024 09:00 AM	55.89	7.85	27.9	0.04
10/17/2024 11:00 AM	55.98	7.77	27.9	0.04
10/17/2024 01:00 PM	55.98	7.76	28.0	0.04
10/17/2024 03:00 PM	55.98	7.71	28.1	0.04
10/17/2024 05:00 PM	55.98	7.85	28.1	0.04
10/17/2024 07:00 PM	55.98	7.75	28.1	0.04
10/17/2024 09:00 PM	55.98	7.71	28.1	0.04
10/17/2024 11:00 PM	55.98	7.85	28.1	0.04
10/18/2024 01:00 AM	55.96	7.81	28.1	0.05
10/18/2024 03:00 AM	55.96	7.85	28.1	0.05
10/18/2024 05:00 AM	55.96	7.80	28.1	0.05
10/18/2024 07:00 AM	55.96	7.85	28.1	0.05
10/18/2024 09:00 AM	55.96	7.83	28.1	0.05
10/18/2024 11:00 AM	55.96	7.82	28.1	0.05
10/18/2024 01:00 PM	55.96	7.85	28.1	0.05
10/18/2024 03:00 PM	55.96	7.82	28.1	0.05
10/18/2024 05:00 PM	55.96	7.85	28.1	0.05
10/18/2024 07:00 PM	55.96	7.80	28.1	0.05
10/18/2024 09:00 PM	55.96	7.85	28.1	0.05
10/18/2024 11:00 PM	55.96	7.81	28.1	0.05
10/19/2024 01:00 AM	55.96	7.85	28.1	0.05
10/19/2024 03:00 AM	55.96	7.85	28.1	0.05
10/19/2024 05:00 AM	55.96	7.85	28.1	0.05
10/19/2024 07:00 AM	55.96	7.80	28.1	0.05
10/19/2024 09:00 AM	55.96	7.85	28.1	0.05
10/19/2024 11:00 AM	55.96	7.81	28.1	0.05
10/19/2024 01:00 PM	55.96	7.85	28.1	0.05
10/19/2024 03:00 PM	55.96	7.83	28.1	0.05
10/19/2024 05:00 PM	55.96	7.85	28.1	0.05
10/19/2024 07:00 PM	55.96	7.79	28.1	0.05
10/19/2024 09:00 PM	55.96	7.85	28.1	0.05
10/19/2024 11:00 PM	55.96	7.86	28.1	0.05
10/20/2024 01:00 AM	55.96	7.85	28.1	0.05
10/20/2024 03:00 AM	55.96	7.83	28.1	0.05
10/20/2024 05:00 AM	55.96	7.85	28.1	0.05
10/20/2024 07:00 AM	55.96	7.82	28.1	0.05
10/20/2024 09:00 AM	55.96	7.85	28.1	0.05
10/20/2024 11:00 AM	55.96	7.81	28.1	0.05
10/20/2024 01:00 PM	55.96	7.85	28.1	0.05
10/20/2024 03:00 PM	55.96	7.83	28.1	0.05
10/20/2024 05:00 PM	55.96	7.85	28.1	0.05
10/20/2024 07:00 PM	55.96	7.80	28.1	0.05
10/20/2024 09:00 PM	55.96	7.85	28.1	0.05
10/20/2024 11:00 PM	55.96	7.79	28.1	0.05

Contract No. 13/WSD/17.
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Continuous Effluent Monitoring (October 2024)

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/21/2024 01:00 AM	55.96	7.85	28.1	0.05
10/21/2024 03:00 AM	55.96	7.85	28.1	0.05
10/21/2024 05:00 AM	55.96	7.85	28.1	0.05
10/21/2024 07:00 AM	55.96	7.70	28.1	0.05
10/21/2024 09:00 AM	55.96	7.71	28.1	0.05
10/21/2024 11:00 AM	55.96	7.85	28.1	0.05
10/21/2024 01:00 PM	55.96	7.85	28.1	0.05
10/21/2024 03:00 PM	55.96	7.85	28.1	0.05
10/21/2024 05:00 PM	55.96	7.76	28.1	0.05
10/21/2024 07:00 PM	55.96	7.85	28.1	0.05
10/21/2024 09:00 PM	55.96	7.85	28.1	0.05
10/21/2024 11:00 PM	55.96	7.85	28.1	0.05
10/22/2024 01:00 AM	55.96	7.75	28.1	0.05
10/22/2024 03:00 AM	55.96	7.85	28.1	0.05
10/22/2024 05:00 AM	55.96	7.85	28.1	0.05
10/22/2024 07:00 AM	55.96	7.85	28.1	0.05
10/22/2024 09:00 AM	55.96	7.71	28.1	0.05
10/22/2024 11:00 AM	55.96	7.85	28.1	0.05
10/22/2024 01:00 PM	55.96	7.85	28.1	0.05
10/22/2024 03:00 PM	55.96	7.71	28.1	0.05
10/22/2024 05:00 PM	55.96	7.85	28.1	0.05
10/22/2024 07:00 PM	55.96	7.85	28.1	0.05
10/22/2024 09:00 PM	56.28	7.85	28.8	0.04
10/22/2024 11:00 PM	56.29	7.85	28.6	0.04
10/23/2024 01:00 AM	56.32	7.85	28.4	0.03
10/23/2024 03:00 AM	56.39	7.85	28.1	0.02
10/23/2024 05:00 AM	56.39	7.85	27.8	0.03
10/23/2024 07:00 AM	56.39	7.85	27.5	0.05
10/23/2024 09:00 AM	56.49	7.85	27.3	0.05
10/23/2024 11:00 AM	56.49	7.85	27.1	0.05
10/23/2024 01:00 PM	56.51	7.85	27.1	0.02
10/23/2024 03:00 PM	56.51	7.85	27.2	0.03
10/23/2024 05:00 PM	56.55	7.85	27.3	0.02
10/23/2024 07:00 PM	56.55	7.85	27.2	0.07
10/23/2024 09:00 PM	56.58	7.85	27.0	0.01
10/23/2024 11:00 PM	56.59	7.85	26.6	0.01
10/24/2024 01:00 AM	56.68	7.85	26.3	0.01
10/24/2024 03:00 AM	56.68	7.85	25.9	0.01
10/24/2024 05:00 AM	56.78	7.85	25.6	0.01
10/24/2024 07:00 AM	56.78	7.85	25.3	0.01
10/24/2024 09:00 AM	56.85	7.85	25.1	0.01
10/24/2024 11:00 AM	56.85	7.85	24.9	0.02
10/24/2024 01:00 PM	56.94	7.85	24.9	0.01
10/24/2024 03:00 PM	56.93	7.85	25.1	0.03
10/24/2024 05:00 PM	56.93	7.85	25.3	0.02
10/24/2024 07:00 PM	56.93	7.85	25.4	0.01
10/24/2024 09:00 PM	56.73	7.85	25.6	0.02
10/24/2024 11:00 PM	56.94	7.85	25.5	0.01

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/25/2024 01:00 AM	56.93	7.85	25.5	0.02
10/25/2024 03:00 AM	56.95	7.85	25.5	0.01
10/25/2024 05:00 AM	57.04	7.85	25.4	0.03
10/25/2024 07:00 AM	57.04	7.85	25.2	0.05
10/25/2024 09:00 AM	57.12	7.85	25.0	0.05
10/25/2024 11:00 AM	57.12	7.85	25.0	0.05
10/25/2024 01:00 PM	57.11	7.85	25.3	0.05
10/25/2024 03:00 PM	57.11	7.85	25.6	0.05
10/25/2024 05:00 PM	57.11	7.85	25.9	0.05
10/25/2024 07:00 PM	57.18	7.85	26.0	0.05
10/25/2024 09:00 PM	57.18	7.85	26.1	0.05
10/25/2024 11:00 PM	57.18	7.85	26.1	0.05
10/26/2024 01:00 AM	57.25	7.85	26.1	0.05
10/26/2024 03:00 AM	57.19	7.85	26.1	0.05
10/26/2024 05:00 AM	57.19	7.85	26.0	0.05
10/26/2024 07:00 AM	57.19	7.85	25.9	0.05
10/26/2024 09:00 AM	57.22	7.85	25.9	0.05
10/26/2024 11:00 AM	57.24	7.85	25.9	0.05
10/26/2024 01:00 PM	57.32	7.85	26.2	0.05
10/26/2024 03:00 PM	57.32	7.85	26.3	0.05
10/26/2024 05:00 PM	57.32	7.14	26.5	0.05
10/26/2024 07:00 PM	57.31	7.14	26.6	0.05
10/26/2024 09:00 PM	57.32	7.14	26.7	0.05
10/26/2024 11:00 PM	57.30	7.14	26.6	0.05
10/27/2024 01:00 AM	57.23	7.14	26.6	0.05
10/27/2024 03:00 AM	57.23	7.14	26.6	0.05
10/27/2024 05:00 AM	57.22	7.14	26.6	0.05
10/27/2024 07:00 AM	57.31	7.14	26.6	0.05
10/27/2024 09:00 AM	57.25	7.14	26.6	0.05
10/27/2024 11:00 AM	57.31	7.14	26.7	0.05
10/27/2024 01:00 PM	56.99	7.14	27.1	0.05
10/27/2024 03:00 PM	57.08	7.14	27.3	0.05
10/27/2024 05:00 PM	57.11	7.14	27.2	0.05
10/27/2024 07:00 PM	57.13	7.14	27.3	0.05
10/27/2024 09:00 PM	57.13	7.14	27.3	0.05
10/27/2024 11:00 PM	57.14	7.14	27.3	0.05
10/28/2024 01:00 AM	57.14	7.14	27.2	0.05
10/28/2024 03:00 AM	57.21	7.14	27.0	0.05
10/28/2024 05:00 AM	57.21	7.14	26.8	0.05
10/28/2024 07:00 AM	57.21	7.20	26.6	0.05
10/28/2024 09:00 AM	57.23	7.20	26.4	0.05
10/28/2024 11:00 AM	57.24	7.20	26.3	0.05
10/28/2024 01:00 PM	57.23	7.20	26.3	0.05
10/28/2024 03:00 PM	57.29	7.20	26.4	0.02
10/28/2024 05:00 PM	57.29	7.20	26.5	0.02
10/28/2024 07:00 PM	57.29	7.20	26.5	0.02
10/28/2024 09:00 PM	57.29	7.20	26.5	0.03
10/28/2024 11:00 PM	57.29	7.20	26.5	0.01

Contract No. 13/WSD/17.
Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant
Continuous Effluent Monitoring (October 2024)

Date & Time	Sal (ppt)	pH	Temp (°C)	Total Residual Chlorine (mg/L)
10/29/2024 01:00 AM	57.38	7.20	26.3	0.03
10/29/2024 03:00 AM	57.37	7.20	26.1	0.02
10/29/2024 05:00 AM	57.37	7.20	25.9	0.02
10/29/2024 07:00 AM	57.37	7.20	25.7	0.01
10/29/2024 09:00 AM	57.48	7.20	25.6	0.01
10/29/2024 11:00 AM	57.37	7.20	25.6	0.01
10/29/2024 01:00 PM	57.83	7.20	25.6	0.01
10/29/2024 03:00 PM	57.84	7.20	25.7	0.01
10/29/2024 05:00 PM	57.84	7.22	25.8	0.01
10/29/2024 07:00 PM	57.86	7.22	25.9	0.01
10/29/2024 09:00 PM	57.89	7.22	25.9	0.01
10/29/2024 11:00 PM	57.89	7.22	26.0	0.01
10/30/2024 01:00 AM	57.62	7.22	26.0	0.01
10/30/2024 03:00 AM	57.76	7.22	26.0	0.01
10/30/2024 05:00 AM	57.90	7.22	25.9	0.01
10/30/2024 07:00 AM	57.90	7.22	25.7	0.01
10/30/2024 09:00 AM	57.90	7.22	25.7	0.01
10/30/2024 11:00 AM	57.90	7.22	25.7	0.01
10/30/2024 01:00 PM	57.91	7.22	25.9	0.01
10/30/2024 03:00 PM	57.91	7.22	26.1	0.01
10/30/2024 05:00 PM	57.94	7.22	26.3	0.01
10/30/2024 07:00 PM	57.95	7.26	26.4	0.01
10/30/2024 09:00 PM	57.96	7.26	26.4	0.01
10/30/2024 11:00 PM	57.97	7.26	26.4	0.03
10/31/2024 01:00 AM	58.06	7.26	26.3	0.03
10/31/2024 03:00 AM	58.08	7.26	26.2	0.03
10/31/2024 05:00 AM	58.10	7.26	26.0	0.03
10/31/2024 07:00 AM	58.10	7.26	25.8	0.03
10/31/2024 09:00 AM	58.10	7.26	25.7	0.03
10/31/2024 11:00 AM	58.10	7.26	25.8	0.03
10/31/2024 01:00 PM	58.12	7.26	26.2	0.06
10/31/2024 03:00 PM	58.12	7.26	26.6	0.06
10/31/2024 05:00 PM	58.21	7.26	27.0	0.06
10/31/2024 07:00 PM	58.11	7.26	27.2	0.06
10/31/2024 09:00 PM	58.25	7.26	27.4	0.06
10/31/2024 11:00 PM	58.26	7.26	27.4	0.06

Date & Time	Suspended Solids (mg/L)	Total Inorganic Nitrogen (mg/L)	Total Phosphorus (mg/L)	*Sodium Metabisulphite (mg/L)	Iron (mg/L)
1/10/2024	<2	0.11	<0.01	<2	<0.1
2/10/2024	3	0.10	0.01	<2	<0.1
3/10/2024	<2	0.10	0.02	<2	<0.1
4/10/2024	<2	0.11	<0.01	<2	<0.1
5/10/2024	3	0.13	0.01	<2	<0.1
6/10/2024	<2	0.13	<0.01	<2	<0.1
7/10/2024	<2	0.06	<0.01	<2	<0.1
8/10/2024	<2	0.09	0.01	<2	<0.1
9/10/2024	<2	0.07	0.01	<2	0.13
10/10/2024	<2	0.06	<0.01	<2	<0.1
11/10/2024	<2	0.09	0.01	<2	<0.1
12/10/2024	<2	0.06	0.01	<2	<0.1
13/10/2024	<2	0.06	0.01	<2	<0.1
14/10/2024	<2	0.08	<0.01	<2	<0.1
15/10/2024	<2	0.09	<0.01	<2	0.12
16/10/2024	<2	0.08	0.01	<2	<0.1
17/10/2024	<2	0.05	<0.01	<2	<0.1
18/10/2024	<2	0.11	<0.01	<2	<0.1
19/10/2024	<2	0.11	<0.01	<2	<0.1
20/10/2024	<2	0.11	<0.01	<2	<0.1
21/10/2024	<2	0.03	<0.01	<2	<0.1
22/10/2024	<2	0.06	<0.01	<2	<0.1
23/10/2024	<2	0.04	<0.01	<2	<0.1
24/10/2024	<2	0.03	<0.01	<2	<0.1
25/10/2024	<2	0.03	0.01	<2	<0.1
26/10/2024	<2	0.06	0.01	<2	<0.1
27/10/2024	<2	0.06	0.01	<2	<0.1
28/10/2024	<2	0.04	<0.01	<2	<0.1
29/10/2024	<2	0.05	0.01	<2	<0.1
30/10/2024	<2	0.05	0.01	<2	<0.1
31/10/2024	<2	0.06	0.01	<2	<0.1

*Remark:

As confirmed by various laboratories in Hong Kong, the lowest detection limit for Sodium Metabisulphite is <2 mg/L.

Due to the limitation of the laboratory, the lowest result for Sodium Metabisulphite will only be shown as < 2 mg/L.

Contract No. 13/WSD/17
Tseung Kwan O Desalination Plant Phase 1

acciona JEC
AJC JOINT VENTURE

Landfill Gas Monitoring – Field Measurement Recording Sheet

Name of site: Tseung Kwan O Desalination Plant Phase 1

Sampling equipment used:	Dates calibrated
AMairox, 22165	23/4/24

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission							
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp °C	Pressure mBar	Remark
MH1-Mid	9/10/2024	0700	Sunny	0	0	0.01	20.8	28	1008	
MH1-Base	9/10/2024	0738	Sunny	0	0	0.01	20.6	28	1004	
MH2-Mid	9/10/2024	0810	Sunny	0	0	0.02	20.7	28	1007	
MH2-Base	9/10/2024	0850	sunny	0	0	0.01	20.6	28	1005	
MH3-Base	9/10/2024	0930	Sunny	0	0	0.01	20.5	28	1005	
MH3-Mid	9/10/2024	10:10	Sunny	0	0	0.01	20.8	28	1004	
MH4-Base	9/10/2024	10:50	sunny	0	0	0.01	20.4	28	1005	
MH4-Mid	9/10/2024	11:20	sunny	0	0	0.02	20.5	28	1005	
MH5-Base	9/10/2024	11:58	Sunny	0	0	0.01	20.5	28	1006	
MH5-Mid	9/10/2024	12:40	sunny	0	0	0.02	20.4	28	1005	
MH6-Mid	9/10/2024	13:18	Sunny	0	0	0.01	20.5	28	1005	

	Name & Designation	Signature	Date
Prepared by field operator:	Naman Kwok, FO	[signature]	9/10/24
Checked by:	Tommy Lau, EM	[signature]	9/10/2024

Contract No. 13/WSD/17
Tseung Kwan O Desalination Plant Phase 1

acciona JEC
AJC JOINT VENTURE

Landfill Gas Monitoring – Field Measurement Recording Sheet

Name of site: Tseung Kwan O Desalination Plant Phase 1

Sampling equipment used:	Dates calibrated
AHawk5X,22165	23/4/24

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission							
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp °C	Pressure mBar	Remark
MH6-Base	9/10/2024	13:50	Sunny	0	0	0.01	20.8	28	1004	
MH7-Mid	9/10/2024	14:18	Sunny	0	0	0.02	20.7	28	1004	
MH7-Base	9/10/2024	14:48	Sunny	0	0	0.01	20.8	28	1005	
MH8-Base	9/10/2024	15:20	Sunny	0	0	0.01	20.8	28	1004	
MH8-Mid	9/10/2024	15:40	Sunny	0	0	0.01	20.8	28	1005	
MH9-Mid	9/10/2024	16:28	Sunny	0	0	0.02	20.8	28	1004	
MH9-Base	9/10/2024	16:57	Sunny	0	0	0.01	20.7	28	1005	
MH10-Base	9/10/2024	17:25	Sunny	0	0	0.02	20.8	28	1004	
MH10-Mid	9/10/2024	17:58	Sunny	0	0	0.01	20.7	28	1004	
MH11-Mid	9/10/2024	18:28	Sunny	0	0	0.01	20.8	28	1004	
MH11-Base	9/10/2024	19:00	Sunny	0	0	0.01	20.7	28	1004	

	Name & Designation	Signature	Date
Prepared by field operator:	Norman kwok, ZO	[signature]	9/10/24
Checked by:	Tommy Lau / EM	[signature]	9/10/2024

Contract No. 13/WSD/17
Tseung Kwan O Desalination Plant Phase 1

acciona JEC
AJC JOINT VENTURE

Landfill Gas Monitoring – Field Measurement Recording Sheet

Name of site: Tseung Kwan O Desalination Plant Phase 1

Sampling equipment used:	Dates calibrated
AMaireX, 22165	23/4/24

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission							
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp °C	Pressure mBar	Remark
MH12-Base	9/10/2024	1930	Sunny	0	0	0.01	20.7	28	1005	
MH12-Mid	9/10/24	20:05	Sunny	0	0	0.02	20.6	28	1004	
MH13-Mid	9/10/24	20:40	Sunny	0	0	0.02	20.7	28	1005	
MH13-Base	9/10/24	21:20	Sunny	0	0	~~0.02~~ 0.01	20.6	28	1004	
MH14-Base	9/10/24	21:38	Sunny	0	0	0.02	20.7	28	1008	
MH14-Mid	9/10/24	22:08	Sunny	0	0	0.01	20.6	28	1005	
MH15-Mid	9/10/24	22:40	Sunny	0	0	0.02	20.5	28	1006	
MH15-Base	10/10/24	08:00	Sunny	0	0	0.01	20.6	28	1005	
MH16-Base	10/10/24	0830	Sunny	0	0	0.02	20.5	28	1004	
MH16-Mid	10/10/24	0900	Sunny	0	0	0.01	20.5	28	1005	
MH17-Mid	10/10/24	0930	Sunny	0	0	0.02	20.7	28	1004	

	Name & Designation	Signature	Date
Prepared by field operator:	Norman Lauk, ZO	[signature]	10/10/24
Checked by:	Tommy Lau / ZM	[signature]	10/10/24

Contract No. 13/WSD/17
Tseung Kwan O Desalination Plant Phase 1

Landfill Gas Monitoring – Field Measurement Recording Sheet

acciona JEC AJC JOINT VENTURE

Name of site: Tseung Kwan O Desalination Plant Phase 1

Sampling equipment used:	Dates calibrated
AMairsX, 22168	23/4/24

Sample location	Date of measurement	Sampling time	Monitoring wells / Surface Gas Emission							
			Weather condition	Balance gas (%)	Flammable gas (methane %)	Carbon dioxide (%)	Oxygen (%)	Temp °C	Pressure mBar	Remark
MH17-Base	10/10/24	1000	Sunny	0	0	0.02	20.6	28	1008	
132 Sub station	10/10/24	1030	Sunny	0	0	0.01	20.7	28	1006	
Treated water Pumping station	10/10/24	1100	Sunny	0	0	0.02	20.6	28	1008	
Treat Water Tank	10/10/24	11:30	Sunny	0	0	0.01	20.7	28	1008	
Chlorine contact Tank	10/10/24	12:30	Sunny	0	0	0.02	20.6	28	1004	
Switch Room	10/10/24	13:30	Sunny	0	0	0.01	20.5	28	1008	
Standby generator & Switch Room	10/10/24	14:30	Sunny	0	0	0.01	20.6	28	1008.	

	Name & Designation	Signature	Date
Prepared by field operator:	Norman Kuta, EO	[signature]	~~10~~ 10/10/24
Checked by:	Tony Lau, PM	[signature]	10/10/24.

Appendix G

Waste Flow Table

Contract No. 13/WSD/17
Environmental Management Plan for Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Appendix F - Monthly Summary Waste Flow Table

Name of Department: WSD Contract No.: 13/WSD/17

Monthly Summary Waste Flow Table for 2024 (year)

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Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Jan	4978.345	0.000	0.000	4667.745	310.600	0.000	0.000	0.000	0.000	0.000	77.800
Feb	22561.796	0.000	0.000	21883.006	678.790	0.000	0.000	0.000	0.000	0.000	53.480
Mar	81.140	0.000	0.000	0.000	81.140	0.000	0.000	0.000	0.000	0.000	52.260
Apr	57.130	0.000	0.000	0.000	57.130	0.000	0.000	0.000	0.000	0.000	47.390
May	91.370	0.000	0.000	0.000	91.370	0.000	0.000	0.000	0.000	0.000	77.260
Jun	61.590	0.000	0.000	0.000	61.590	0.000	0.000	0.000	0.002	0.000	59.320
Sub-total	27831.371	0.000	0.000	26550.751	1280.620	0.000	0.000	0.000	0.002	0.000	367.510
Jul	60378.440	0.000	0.000	0.000	60378.440	0.000	0.000	0.000	0.000	0.000	66.800
Aug	163.330	0.000	0.000	0.000	163.330	0.000	0.000	0.000	0.000	2.460	42.260
Sep	834.890	0.000	0.000	0.000	834.890	0.000	0.000	0.000	0.000	0.805	27.020
Oct	78.140	0.000	0.000	0.000	78.140	0.000	0.000	0.000	0.000	0.000	71.810
Nov											
Dec											
Total	89286.171	0.000	0.000	26550.751	62735.420	0.000	0.000	0.000	0.002	3.265	575.400

Notes:
(1) The performance targets are given in Section 1.69 of Specification B
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging material

Appendix H

Ecology (Coral & Fishery) Survey Report

Appendix H-1

Ecology (Coral Survey Report)

1 INTRODUCTION

1.1 Background

1.1.1 The Project, Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP), is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is currently governed by a Further Environmental Permit (EP No. FEP – 01/503/2015/B) for the construction and operation of the Project.

1.1.2 The Jardine Engineering Corporation, Limited, China State Construction Engineering (Hong Kong) Limited and Acciona Agua, S.A. Trading As AJC Joint Venture (AJCJV) is contracted to carry out the Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (TKODP) under Contract No. 13/WSD/17 (the Project).

1.1.3 Acuity Sustainability Consulting Limited (ASCL) is commissioned by AJCJV to undertake the Environmental Team (ET) services as required and/or implied, both explicitly and implicitly, in the Environmental Permit (EP), Environmental Impact Assessment Report (EIA Report) (Register No. AEIAR-192/2015) and Environmental Monitoring and Audit Manual (EM&A Manual) for the Project; and to carry out the Environmental Monitoring and Audit (EM&A) programme in fulfillment of the EIA Report's EM&A requirements and Contract No. 13/WSD/17 Specification requirements.

1.1.4 The proposed Desalination Plant at Tseung Kwan O (TKODP) will produce potable water with an initial capacity of 135 million litres per day (MLD), expandable to an ultimate capacity of 270 MLD in the future to provide a secure and alternative fresh water resource complying with the World Health Organization (WHO) standards. The plant will adopt the Seawater Reverse Osmosis (SWRO) technology, which dominates the market due to its reliability and progressive reduction in cost as the technology advances.

1.1.5 A baseline coral survey was conducted in October 2023 to verify the validity of the pervious EIA findings as well as to provide updated coral data for impact monitoring during the construction and operation phases. Two indirect impact sites and one control site were identified during the baseline coral survey for impact monitoring.

2 Methodology

2.1 All tagged coral colonies in C2, C3 and C8 will be monitored monthly during the first year of Project operation. The monitoring team will record the following parameters (using the same methodology adopted during the pre-construction phase survey): size, presence, survival, health conditions (percentage of mortality) and percentage of sediment of each tagged coral colonies. The general environmental conditions during the survey date will also be monitored.

2.2 Photographic records of the tagged coral colonies will be taken as far as possible maintaining the same aspect and orientation as photographs taken for the pre-translocation surveys. All the tags for marking coral colonies will be removed / retrieved once the monitoring programme is completed.

2.3 The results of the operation phase monitoring surveys should be reviewed with reference to findings of the baseline survey.

2.4 If, during the operation phase monitoring, observations of any die-off / abnormal conditions of the tagged corals are made, the ET will inform the Contractor, Independent Environmental Checker (IEC)/ Environmental Project Office (ENPO), Agriculture, Fisheries and Conservation Department (AFCD) and in liaison with AFCD investigate any measures needed.

2.5 Monitoring result will be reviewed and be compared against the Action Level and Limit Level (AL/LL) as set out in Table 2-1. Actions specified on Table 2-2 will be taken by ET, IEC, SOR and Contractor shall there be exceedance of AL/LL

Table 2-1 Action and Limit Levels for Operation Phase Coral Monitoring

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Action Level is exceeded	If during Impact Monitoring a 25% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Limit Level is exceeded

Note: If the defined Action Level or Limit Level for coral monitoring is exceeded, the actions as set out in Table 5-4 will be implemented.

Table 2-2 Event and Action Plan for Operation Phase Monitoring

Event	Action			
	ET Leader	**IEC**	**SOR**	**Contractor**
Action Level Exceedance	1. Check monitoring data 2. Inform the IEC, SOR and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the SOR accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.

Remark: ** The "SOR" is equivalent to the "ER" as defined in the EM&A Manual of the Project

3. Result

3.1 The October 2024 operation phase monitoring were performed on 21st October 2024 for both Indirect Impact Sites and Control Site (Figure 1 and 2); and the weather conditions were summarized in Table 3.1.

Table 3.1 Weather Condition for the October 2024 Operation Phase Monitoring

Date	Condition	Average Underwater Visibility
21st October 2024	- Northeast force 5 to 6, - Sunny	Less than 0.5

3.2 Ten (10) hard coral colonies in C2, C3 and C8 were monitored at each site of Control and Indirect Impact sites as suggested in the Operation Phase Monitoring Plan. The general health conditions (size, mortality, bleaching and sediment) were recorded and summarized in Table 3.2, Table 3.3 and Table 3.4 Photos of each tagged coral colonies were taken during the monitoring activities and shown in Appendix A (Photo Plate A, B and C).

3.3 All tagged coral colonies showed good health condition during the October 2024 Monitoring survey. There was not increased level of mortality, bleaching and sediment in other tagged coral colonies when compared with the baseline results.

Table 3.2 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Control Site C8 during October 2024 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-Oct	Baseline	21-Oct	Baseline	21-Oct
1	*Favites pentagona*	66	Good	0	0	0	0	0	0
2	*Porites lutea*	58	Good	0	0	0	0	0	0
3	*Plesiastrea versipora*	31	Good	0	0	0	0	0	0
4	*Platygyra carnosus*	30	Good	0	0	0	0	0	0
5	*Acropora solitaryensis*	32	Good	0	0	0	0	0	0
6	*Plesiastrea versipora*	27	Good	0	0	0	0	0	0
7	*Porites lutea*	39	Good	0	0	0	0	0	0
8	*Favites pentagona*	20	Good	0	0	0	0	0	0
9	*Platygyra carnosus*	26	Good	0	0	0	0	0	0
10	*Acropora solitaryensis*	28	Good	0	0	0	0	0	0

Table 3.3 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Indirect Impact Site C2 during October 2024 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-Oct	Baseline	21-Oct	Baseline	21-Oct
1	*Porites lutea*	21	Good	0	0	0	0	0	0
2	*Favites abdita*	43	Good	0	0	0	0	0	0
3	*Duncanopsammia peltata*	45	Good	0	0	0	0	0	0
4	*Dipsastraea veroni*	20	Good	0	0	0	0	0	0
5	*Favites pentagona*	19	Good	0	0	0	0	0	0
6	*Plesiastrea versipora*	21	Good	0	0	0	0	0	0
7	*Dipsastraea rotumana*	21	Good	0	0	0	0	0	0
8	*Dipsastraea speciosa*	20	Good	0	0	0	0	0	0
9	*Porites lutea*	37	Good	0	0	0	0	0	0
10	*Porites lutea*	38	Good	0	0	0	0	0	0

Table 3.4 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Indirect Impact Site C3 during October 2024 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-Oct	Baseline	21-Oct	Baseline	21-Oct
11	*Acropora solitaryensis*	37	Good	0	0	0	0	0	0
12	*Platygyra carnosa*	30	Good	0	0	0	0	0	0
13	*Favites pentagona*	33	Good	0	0	0	0	0	0
14	*Platygyra carnosa*	22	Good	0	0	0	0	0	0
15	*Dipsastraea veroni*	20	Fair	0	0	0	0	0	0
16#	*Favites flexuosa*	20	Good	0	0	0	0	0	0
17	*Favites chinensis*	51	Good	0	0	0	0	0	0

18	*Plesiastrea versipora*	22	Good	0	0	0	0	0	0
19	*Duncanopsammia peltata*	29	Good	0	0	0	0	0	0
20	*Platygyra carnosus*	23	Good	0	0	0	0	0	0

#newly tagged coral colony

4. Discussion and Conclusion

4.1 The **October** 2024 coral monitoring survey were carried out in the indirect impact area (C2 and C3) and control site (C8) on 21st **October** 2024. A total of 30 tagged coral colonies (10 at control site and 20 and two indirect impact sites) were monitored. All coral colonies were good in general.

4.2 No sediment, bleaching or increased mortality in the general condition of all other tagged coral colonies were observed during the monthly operation phase monitoring period. No deterioration of the coral community was observed in the ecological monitoring results when compared with the baseline ecological monitoring results. There is no AL/LL exceedance during the monitoring period. Photos of each tagged corals colonies were taken and shown in Appendix A (Photo Plates A, B and C).

Figure 1 Two Proposed Indirect Impact Sites (C2 and C3) during Operation Phase

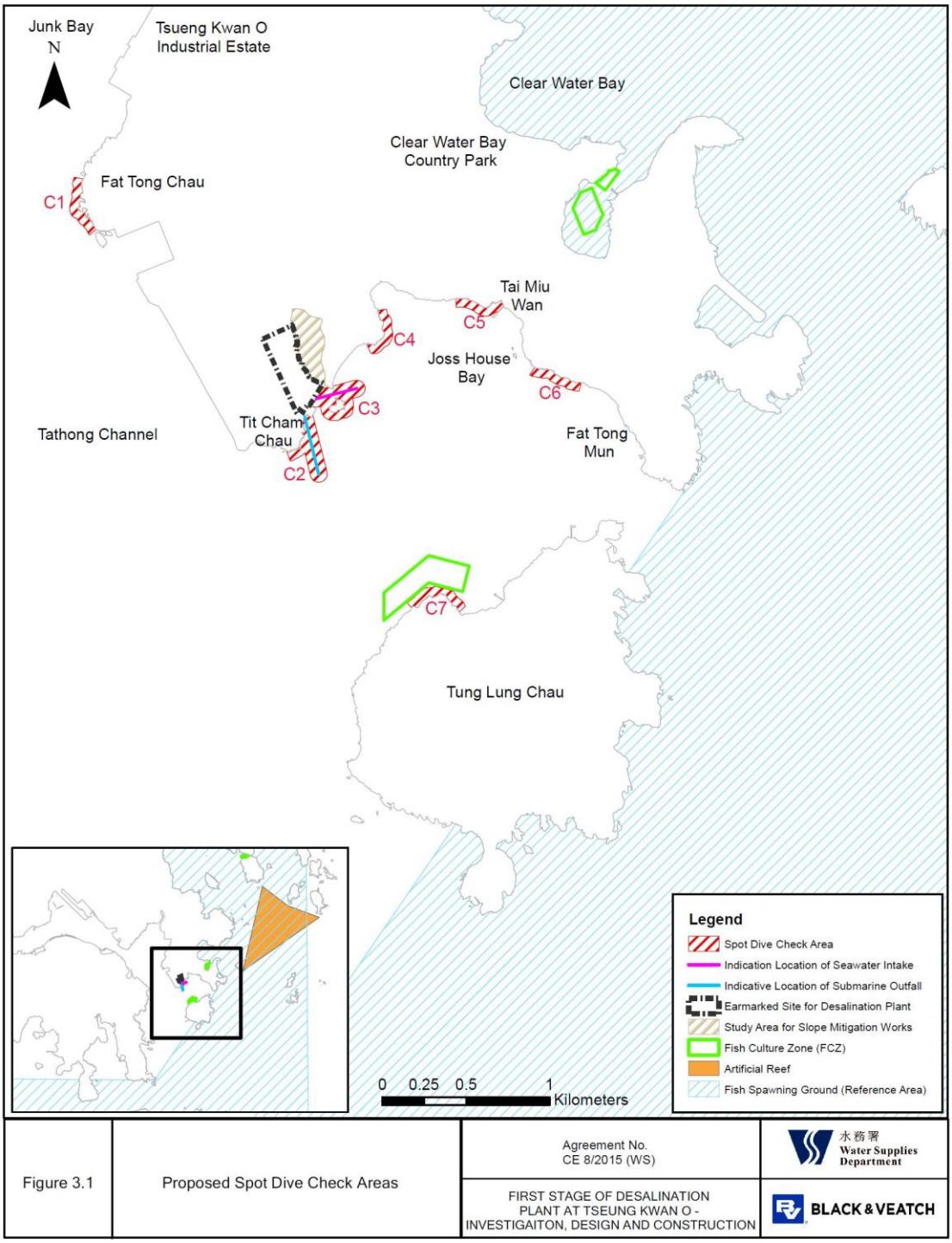
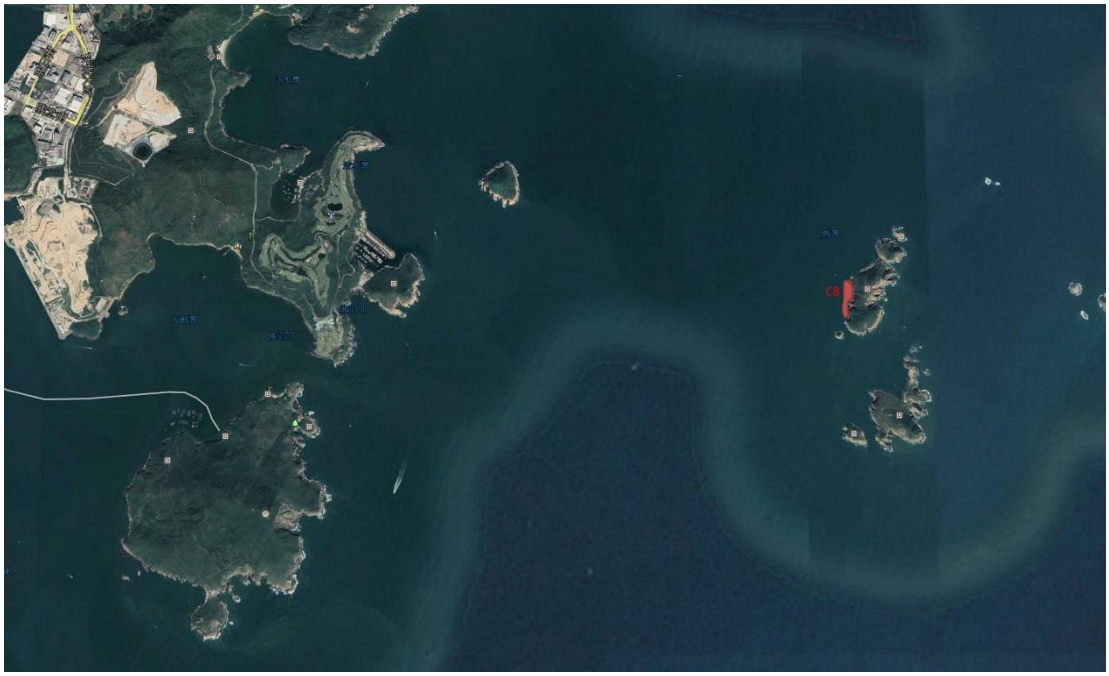


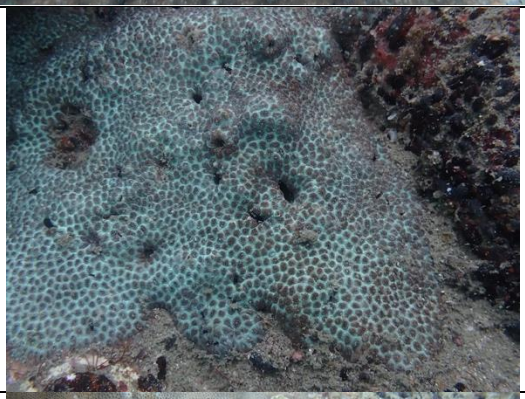
Figure 2 Proposed Control Site (C8) during Operation Phase



APPENDIX A
TAGGED CORAL PHOTO

Photo Plate A Tagged Corals at Control Site C8

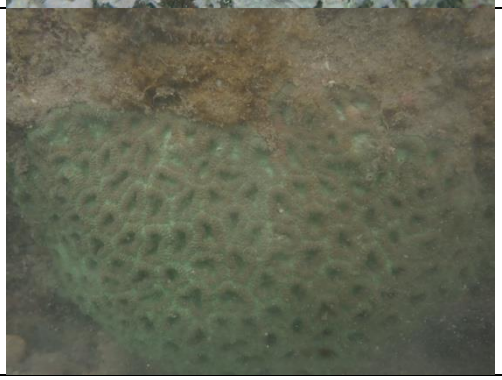
Tag #	21st October 2024
#1	
#2	
#3	
#4	

#5		
#6		
#7		
#8		

#9			
#10			

Photo Plate B Tagged Corals at Indirect Impact Site C2

Tag #	21st October 2024
#1	
#2	
#3	
#4	

#5			
#6			
#7			
#8			

#9			
#10			

Photo Plate C Tagged Corals at Indirect Impact Site C3

Tag #	21st October 2024
#11	
#12	
#13	
#14	

#15			
#16			
#17			
#18			

#19			
#20			

THE END

Appendix H-2
Ecology (Fishery Survey Report)

1 Introduction

1.1 Background

1.1.1 Water Supplies Department (WSD) appointed Black & Veatch Hong Kong Limited (B&V) to undertake the consultancy "Agreement No. CE 8/2015 (WS) First Stage of Desalination Plantat Tseung Kwan O – Investigation, Design, and Construction" on 16 November 2015.

1.1.2 The purpose of the Project is to construct a sea water reverse osmosis (SWRO) desalination plant at Tseung Kwan O (TKO) Area 137, together with all ancillary facilities and the slope mitigation works in the adjoining Clear Water Bay Country Park.

1.1.3 The first stage of the proposed SWRO desalination plant will have a water production capacity of 135,000 cubic meters (m^3) per day with provision for future expansion to the ultimate capacity up to 270,000 m^3 per day when necessary.

1.1.4 The Project is classified as a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO). An Environmental Impact Assessment (EIA) was completed in accordance with the EIAO under the Feasibility Study (FS) stage of the Project. The EIA Report for the Project (Register No.: AEIAR-192/2015) was approved with conditions on 4 November 2015 under the EIAO. Following the approval of the EIA Report, the Environmental Permit (EP) (No: EP- 503/2015), covering the construction and operation of Project, was granted on4 December 2015. The EP for this Project was subsequently amended and the amended EP (No. EP-503/2015/B) was granted on 3 April 2024 under the EIAO. Baseline fisheries monitoring was conduction in September 2018 to February 2019

1.2 Purpose of this Report

1.2.1 An Environmental Monitoring and Audit (EM&A) programme of regular fisheries monitoringis recommended under the approval conditions of the EIA Report for the Project. The purpose of the EM&A programme is to monitor the fisheries impact of the Project. Pursuant to these EIA approval conditions, details of the regular fisheries monitoring programme shall be submitted to the Director of Environmental Protection (DEP) for prior approval.

1.2.2 The regular fisheries monitoring programme including the methodologies for carrying out adult fish survey, juvenile fish survey, ichthyoplankton survey and supplementary water quality monitoring during the pre-construction (or baseline period), construction, pre-operation and operational stages of the Project are presented in the "*Final Methodology Paper on Regular Fisheries Monitoring*" issued by B&V on 31 August 2018. The dry season of the first year construction works were subsequently carried out in 29th and 30th March 2021. This Report is prepared to present the progress of the regular operation phase fisheries monitoring.

2 Summary of EIA Findings and Updated Fisheries Survey

2.1.1 This Project comprises submarine utilities including a seawater intake and a submarine outfall in Joss House Bay. The approved EIA Report predicted that the potential impacts on fisheriesresources would be confined within close proximity of these submarine utilities. No important fish spawning and nursery grounds were identified near the proposed submarine utilities with reference to the findings of literature review undertaken during the EIA stage. The EIA Report concluded that no significant fisheries impact would arise from construction and operation of the proposed submarine utilities.

2.1.2 In accordance with Condition 2.9 of the EP, an Updated Fisheries Survey was carried out in 2015 to 2016 to verify if any significant fish spawning and nursery grounds in the vicinity ofthe proposed submarine utilities. The Updated Fisheries Survey revealed no important fish spawning and nursery grounds near the proposed submarine utilities and affirmed the conclusion made in the approved EIA Report. The results of the Updated Fisheries Survey arepresented in the "*Consultancy Services for Updated Fisheries Survey for Tseung Kwan ODesalination Plant Final Report"* issued by ERM on 6 June 2017.

3 Monitoring Methodology

3.1 Monitoring Parameters and Programme

3.1.1 The purpose of this fisheries monitoring programme is to update the information on fisheries resources in Joss House Bay and nearby water during Tseung Kwan O Desalination Plant operation. Under the monitoring programme, survey on adult fish, juvenile fish and ichtyoplankton were carried out 2 times in wet season and 2 times in dry season to examine the following:

- Fish species composition;
- Abundance: number of fish captured;
- Diversity of fish resources: species diversity and evenness;
- Size: range of total length;
- Biomass in weight; and
- Values of catches of commercial species: catch per unit effort (CPUE) and yield per unit effort (YPUE).

3.1.2 A summary of the baseline fisheries monitoring programme is provided in table below.

Table 3-1: Operation Phase Fisheries Monitoring Programme

Monitoring	Method	Operation Phase Fisheries Monitoring Dates	
		Wet Season	
		Event 1	Event 2
Adult Fish Survey	Gill Netting and Cage Trapping	24 August 2024	31 August 2024
Juvenile Fish Survey	Purse-seining	24 August 2024	31 August 2024
Ichtyoplankton Survey	PlanktonTowing	24 August 2024	31 August 2024

3.2 Fisheries Resource Sampling Locations

3.2.1 Six (6) fisheries sampling locations were set up in Joss House Bay and its vicinity to monitor the baseline fisheries resources.

3.2.2 Two (2) sampling locations were set up in the Impact Area (IPA) in close proximity of the direct footprint of the proposed submarine utilities around TKO Area 137.

3.2.3 Two (2) sampling locations were set up in the Gradient Area (GDA) between the proposed submarine utilities and Tung Lung Chau Fish Culture Zone (FCZ).

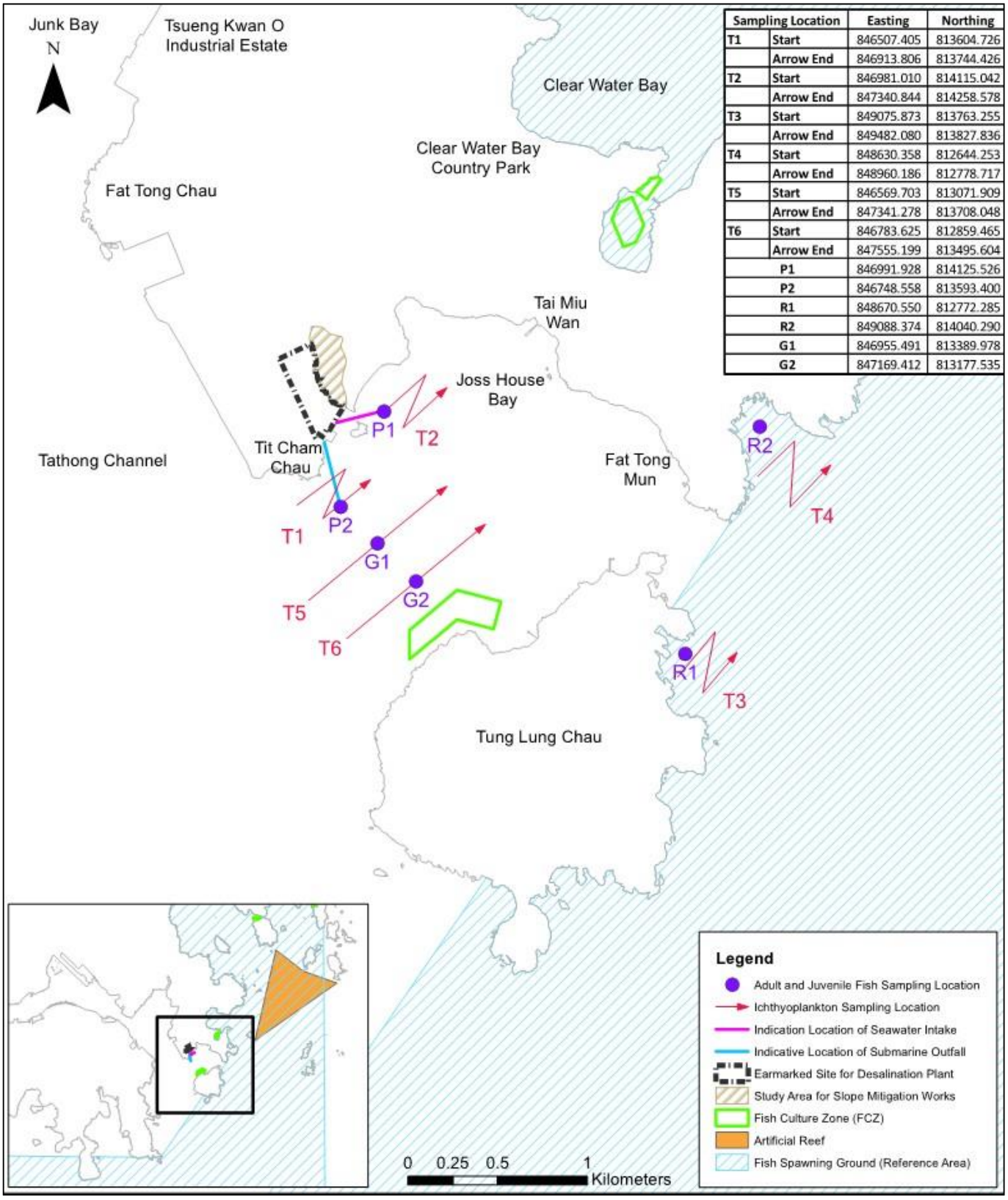
3.2.4 Two (2) reference locations were set up in the Control Area (CLA) in outer Joss House Bay between the waters of Tung Lung Chau and Fat Tong Mun. These reference locations are further away from the Project discharge (based on the EIA prediction) and will serve as control stations.

3.2.5 The baseline fisheries resource sampling locations are summarized in **Table 3-2** and shown in **Figure 3.1**.

Table 3-2: Baseline Fisheries Resource Sampling Locations

Monitoring	Sampling Location or Transect ID (see Figure 3.1)		
	Impact Area (IPA)	Gradient Area (GDA)	Control Area (CLA)
Adult Fish Survey	P1, P2	G1, G2	R1, R2
Juvenile Fish Survey	P1, P2	G1, G2	R1, R2
Ichtyoplankton Survey	T1, T2	T5, T6	T3, T4

Figure 3.1 Fisheries Resources Monitoring Locations



Sampling Location		Easting	Northing
T1	Start	846507.405	813604.726
	Arrow End	846913.806	813744.426
T2	Start	846981.010	814115.042
	Arrow End	847340.844	814258.578
T3	Start	849075.873	813763.255
	Arrow End	849482.080	813827.836
T4	Start	848630.358	812644.253
	Arrow End	848960.186	812778.717
T5	Start	846569.703	813071.909
	Arrow End	847341.278	813708.048
T6	Start	846783.625	812859.465
	Arrow End	847555.199	813495.604
	P1	846991.928	814125.526
	P2	846748.558	813593.400
	R1	848670.550	812772.285
	R2	849088.374	814040.290
	G1	846955.491	813389.978
	G2	847169.412	813177.535

3.3 Adult Fish Survey Methodology

3.3.1 Two fishing methods, gill netting and cage trapping, were used to sample pelagic and demersal adult fish resources at each sampling location. These methods are also commonly used by local fishermen in Hong Kong waters.

Pelagic Fish Survey – Gill Netting

3.3.2 Under each sampling event, a pair of trammel (gill) nets was deployed for one (1) hour at each sampling location. The nets were 1 m deep, 30 m in length and comprised of three (3) layers, with two 20 cm mesh stretches sandwiching a 5 cm mesh stretch. All fish species captured were recorded and identified to species level as far as practicable. Each gill netting survey was analysed for species composition, abundance, size (total length), biomass in weight and diversity of adult fish.

Demersal Fish Survey – Cage Trapping

3.3.3 Two sets of four metal wire cage traps, each ranged from 0.8 to 0.9 m^3 in volume and mesh size of 25 mm, were deployed for one (1) hour at each sampling location. Distance between the traps was about 10 m, and the distance between each set of traps was about 100 m. Bread or other suitable fish bait was used as bait for cage trapping. All species caught in the cage trapping survey were identified to species level as far as practical. Each cage trapping survey was analysed for species composition, abundance, size (total length), biomass in weight and diversity of adult fish.

3.4 Juvenile Fish Survey Methodology

3.4.1 A typical purse-seine fishing method was used to sample juvenile fish at each sampling location. The nets adopted in the survey ranged from 5 to 15 m deep (depending on the water depth) and were 50 m in length, and with 6 mm mesh size (maximum stretched). For each sampling event, both a mother boat and a P4 sampan were deploy the seine net for approximately 30 to 45 minutes, with each boat holding one end of the net. The nets were pulled towards the fish resources in the form of a semi-circle. Fish catches were concentrated and lifted onto the mother boat. All fishes captured were recorded and identified to species level as far as practicable.

3.5 Ichthyoplankton Survey Methodology

3.5.1 To investigate spatial and seasonal or temporal variation of fish egg and fish larvae composition, ichthyoplankton survey was conducted at each sampling transect using plankton towing to collect representative samples.

3.5.2 A bongo plankton net, of 50 cm mouth diameter and with 0.5 mm mesh size, was deployed to collect ichthyoplankton. A flow meter was fitted at mouth of the net to record the volume of water filtered.

3.5.3 At each site, three (3) replicate tows were conducted, and each tow with a duration of 15 minutes. The net was deployed in a single oblique tow to a depth of 2m off the seabed and towed at a speed of 1-2 knots. Consequently, the net was gradually winched up towards the water surface in order to sample the entire water column.

3.5.4 The plankton was immediately fixed in 70% ethanol. The ichthyoplankton was sorted, number counted and size range measured in the laboratory. All fish egg and fish larvae captured were recorded and identified to the lowest taxonomic level, where possible. Larval fish individual without distinctive morphological features for taxonomic identification were examined with the aid of DNA sequencing if deemed necessary. Species composition, abundance and diversity of species were measured to describe and compare temporal and spatial changes.

3.6 Data Analysis

3.6.1 Data collected under each fisheries monitoring event were analyzed to assess the spatial and temporal variations of species abundance and total biomass (for adult and juvenile fish)/ density (for ichthyoplankton). Temporal (wet vs. dry) and spatial (e.g. Impact Area vs. Control Area) differences in fish abundance were compared using descriptive statistics and/ or inferential statistics (Microsoft Excel and/or Statistical Package for the Social Sciences (SPSS)), followed by multiple comparison procedures, as appropriate. Diversity of fish resources was presented as species richness, Shannon-Weiner diversity (H') and Pielou's evenness (J'). Patterns of fish species composition are presented and subject to statistical analyses as above. Values of catches of commercial species for adult and juvenile fishes are presented in terms CPUE (number of individuals per fishing

time and number of nets or cages) and YPUE (weightof fish per survey time and number of nets or cages).

4 Supplementary Baseline Water Quality MonitoringMethodology

4.1 Monitoring Parameters and Programme

4.1.1 Supplementary baseline water quality monitoring (in addition to those specified in the EM&A Manual) was carried out at the same frequency and locations of the baseline fisheries monitoring programme. The water quality monitoring parameters include the following:

In-situ measurements:

- Water Depth (m)
- Temperature (°C)
- pH
- Dissolved Oxygen (DO) (mg/L)
- Turbidity (NTU)
- Salinity (ppt)

Laboratory Analysis:

- Suspended Solid (SS) (mg/L)
- Iron (Fe) (mg/L)
- Total Residual Chlorine (TRC) (mg/L)
- Anti-scalant 'ACUMER' 4035
  (Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted)

4.1.2 Two water quality monitoring events covering wet seasons were carried out. Undereach event, *in-situ* measurements and water sampling were taken at both mid-flood and mid-ebb tides. A summary of the water quality monitoring programme is provided in **Table 4-1** below.

Table 4-1: Supplementary Water Quality Monitoring Programme

Monitoring Event	Season	Date	Tidal Status
Event 1	Wet Season	24 August 2024	Mid-ebb and Mid-flood
Event 2	Wet Season	31 August 2024	Mid-ebb and Mid-flood

4.2 Monitoring Locations

4.2.1 Supplementary water quality monitoring was conducted at all the six (6) adult andjuvenile fish sampling locations as shown in **Figure 2.1** and summarized in **Table 4-2**.

Table 4-2: Supplementary Water Quality Monitoring Locations

Monitoring Location ID (see Figure 2.1)		
Impact Area (IPA)	**Gradient Area (GDA)**	**Control Area (CLA)**
P1, P2	G1, G2	R1, R2

4.2.2 At each location, water quality was monitored at 3 water depths (i.e. 1m below sea surface, mid-depth and 1 m above seabed).

4.3 Monitoring Methodology

Monitoring Equipment

4.3.1 The equipment used in the supplementary water quality monitoring is summarized in **Table4-3**.

Table 4-3: Monitoring Equipment

Equipment	Model
Water Sampler	Kahlsico Water Samplers
Multi-parameter Water Quality System	YSI ProDSS (S/N : 24G101660)

Sampling Procedures

4.3.2 Water depth was measured at each monitoring location and the levels of the three monitoring depths were then determined. At each monitoring depth, two replicate measurements of temperature, pH, DO, turbidity and salinity were taken *in-situ* and two replicate water samples were collected for laboratory analysis of SS, Fe and TRC. Following collection, water samplesfor laboratory analysis were stored in high density polythene bottles with no preservatives added, packed in ice (cooled to 4°C without being frozen) and kept in dark during both on- temporary storage and delivery to the testing laboratory.

Laboratory Analytical Methods

4.3.3 The testing of SS, Fe and TRC were conducted by HOKLAS laboratory. (ALS Technichem (HK) Pty Ltd and/or Acumen Laboratory and Testing Limited). Quality assurance and control procedures were implemented to ensure quality and consistency in results. The testing methods and corresponding reporting limits are providedin **Table 4-4**.

Table 4-4: Analytical Methods

Parameter	Analytical Method	Reporting Limit
Suspended solids	APHA 23rd Ed 2540D	2.5 mg/L
Iron	APHA 3111 B	0.1 mg/L
Total residual chlorine	Test Kit	0.01 mg/L
Anti-scalant*	In-house method	5 mg/L

*Remark:
Anti-scalant water quality testing will only be conducted whenever anti-scalant dosage is adopted.

5 Site Records

5.1.1 For all the above survey methods, monitoring locations were recorded using global positioning system (GPS). During each monitoring event, the field conditions and observations (e.g. weather conditions, water depth (m) and temperature (°C) etc.) were recorded at each monitoring location. All field surveys were conducted during daytime.

6 Baseline Adult Fish Survey Results

6.1 Overall Adult Fish Resources

6.1.1 For adult fish survey using cage trapping and gill netting, a total 18413 g of 230 individuals comprising 11 fish species from 9 families was recorded. The dominant species in terms of abundance were Pearl-spot chromis (*Chromis notata*) and this species has low commercial value.

6.1.2 The overall adult fish resources in the Study Area are summarized in **Table 6-1**. Location G1 had the highest biomass number of species of adult fish resources. The size of collected fishspecies ranged from 6.5 to 22.4 cm (total length) and no fish species reached marketable size (≥ 25cm).

Table 6-1: Overall Adult Fish Resources in the Study Area during the Wet Season Survey

Monitoring location	Total no. of species	Total biomass (g)	Total no. of individual	Mean no. of species (±SD)	Mean biomass (g ± SD)	Mean no. of individual (± SD)	Dominant species
P1 (IPA)	4	2538	30	2	1269	15	*Evynnis cardinalis*
P2 (IPA)	6	3314	42	3	1657	21	*Takifugu poecilonotus*
G1 (GDA)	7	3998	34	3.5	1999	17	*Evynnis cardinalis*
G2 (GDA)	4	2736	38	2	1368	19	*Evynnis cardinalis*
R1 (CLA)	8	3085	41	4	1542.5	20.5	*Chromis notata*
R2 (CLA)	4	2742	45	2	1371	22.5	*Chromis notata*
Overall total	13	18413	230	6.5	9206.5	115	*Chromis notata*

*SD will be calculated in the final report after wet season monitoring

6.1.3 The adult fish resources captured by different gear types are summarized in **Table 6-2**. A total of 8265g of 130 individuals comprising 10 species of 8 families was recorded during cage trapping. Location R1 had the highest biomass and R1 and P2 had the highest number of species of adult fish resources recorded. For gill-netting, 9939 g of 101 individuals comprising 10 species of 9 families were recorded. Location G1 had the highest biomass and location P2 had highest number of species of adult fish resources recorded.

Table 6-2: Overall Adult Fish Resources by Different Fishing Gears

Sampling location	Total no. of species	Total biomass (g)	Total no. of individual	Mean no. of species (±SD)	Mean biomass (g ± SD)	Mean no. of individual (± SD)	Dominant species
Gill netting							
P1 (IPA)	4	1841	22	2	920.5	11	*Evynnis cardinalis*
P2 (IPA)	5	2153	24	2.5	1076.5	12	*Trachinotus blochii*
G1 (GDA)	3	2524	10	1.5	1262	5	*Trachinotus blochii*
G2 (GDA)	3	1229	16	1.5	614.5	8	*Evynnis cardinalis*
R1 (CLA)	4	1128	15	2	564	7.5	*Chromis notata*
R2 (CLA)	3	1064	14	1.5	532	7	*Chromis notata*
Overall total	10	9939	101	5	4969.5	50.5	*Chromis notata*
Cage trapping							
P1 (IPA)	2	514	20	1	257	10	*Evynnis cardinalis*
P2 (IPA)	6	1451	24	3	725.5	12	*Takifugu poecilonotus*
G1 (GDA)	4	1474	7	2	737	3.5	*Evynnis cardinalis*
G2 (GDA)	3	1507	22	1.5	753.5	11	*Evynnis cardinalis*
R1 (CLA)	6	1957	26	3	978.5	13	*Chromis notata*
R2 (CLA)	4	1362	31	2	681	15.5	*Chromis notata*
Overall total	10	8265	130	5	4132.5	65	*Chromis notata*

*SD will be calculated in the final report after wet season monitoring

6.2 Commercial Value of Adult Fish Resources

6.2.1 According the method used in "*EIA Report for Expansion of Hong Kong Airport into a Three-Runway System (AAHK 2012)"* and "*Provision of Consultancy* Services *for Updated Fisheries Survey for Tseung Kwan O Desalination Plant Final Report (ERM 2017)*", commercial value of adult fish resources was estimated based on Fish Marketing Organisation's (FMO) wholesaleprice in 2018 and subsequently ranked into three classes including: High (> 70 HK$/ kg); Medium (60 - 70 HK$/ kg); and Low (< 60 HK$/ kg) [(1)]. Top ten species of commercial importance are summarized in **Table 6-3**.

6.2.2 Among the 13 fish species recorded, 11 species are classified as commercial species, which accounted for about 89.1% of the total biomass and 88.6% of the total abundance from thecaptured adult fish species. Most of these commercial species are of medium to high commercial value (68.5% of total abundance). However, high commercial value fishes showed only 51.2% in terms of total biomass. The dominant species in terms of abundance were Threadfin porgy (*Evynnis cardinalis*) which accounting for 22.0 % of total abundance. In terms of abundance, most of the adult fish resources in the Study Area are of low to medium commercial value, accounting for 57.1% of total abundance of overall adult fish resources.

Table 6-3: Species Recorded with Commercial Value in the Study Area

Family	Species	Level of Commercial Value*	Biomass (g)	% of Total Biomass (Rank)	Abundance	% of Total Abundance (Rank)
Carangidae	*Trachinotus blochii*	H	4308.0	22.2(1)	35	13.8(3)
Serranidae	*Cephalopholis boenak*	H	4169.0	21.5(2)	34	13.4(4)
Pomacentridae	*Chromis notata*	L	2050.0	10.6(3)	54	21.3(1)
Sparidae	*Evynnis cardinalis*	M-H	1924.0	9.9(4)	56	22.0(2)
Siganidae	*Siganus canaliculatus*	L	1116.0	5.8(6)	18	7.1(6)
Monacanthidae	*Monacanthus chinensis*	M	761.0	3.9(7)	9	3.5(7)
Drepaneidae	*Drepane punctata*	H	724.0	3.7(8)	2	0.8(11)
Serranidae	*Epinephelus awoara*	H	722.0	3.7(9)	3	1.2(10)
Platycephalidae	*Inegocia japonica*	M-H	654.0	3.4(10)	2	0.8(11)
Scorpaenidae	*Sebastiscus marmoratus*	L	593.0	3.1(11)	6	2.4(10)
*Notes: H = High (> 70 HK$/ kg; M = Medium (60 – 70 HK$/ kg); L = Low (< 60 HK$/ kg);						

(1) Three classes of wholesale prices were defined under ERM 2017 to indicate the commercial value of the fish resources. With reference to the Fish Marketing Organization Annual Report 2016 / 2017 (https://www.fmo.org.hk/download?path=15_58&id=15), there has been an increasing trend of wholesale prices over the years. As such, the ranges of wholesale prices established under ERM 2017 have been adjusted under this Studyto reflect the increases in the market prices over the years.

6.3 Catch per Unit Effort

6.3.1 The following equation is adopted to calculate Catch per Unit Effort (CPUE):

$$\text{CPUE} = \frac{\text{No.of individual of fish}}{\text{Fishing time (hour) x (Number of net and cage)}}, \text{ where}$$

Fishing time = 1 hour; Number of net = 2; Number of cage = 8.

6.3.2 The CPUE was variable with locations, mean CPUE of each monitoring location rangedbetween 1.5 and 2.2 no. hour^{-1} cage&net^{-1} (**Table 6-4**).

Table 6-4: Mean Catch per Unit Effort of Adult Fish Resources at each Monitoring Location

Monitoring location	Mean CPUE (no. hour^{-1} cage&net^{-1} ± SD)
P1 (IPA)	1.5
P2 (IPA)	2.1
G1 (GDA)	1.7
G2 (GDA)	1.9
R1 (CLA)	2.1
R2 (CLA)	2.2
Overall total	11.5

*SD will be calculated in the final report after wet season monitoring

6.4 Yield per Unit Effort

6.4.1 The following equation is adopted to calculate Yield per Unit Effort (YPUE):

$$\text{YPUE} = \frac{\text{biomass (g) of fish}}{\text{Fishing time (hour) x (Number of net and cage)}}, \text{ where}$$

Fishing time = 1 hour; Number of net = 2; Number of cage = 8.

6.4.2 The YPUE was variable with locations, the mean YPUE of each monitoring location ranged between 126.9 g and 199.9 g no. hour^{-1} cage&net^{-1} (**Table 6-5**). The YPUE at locations P1 and P2 (i.e. the Impact Area) were moderate amongst all the locations.

Table 6-5: Mean Yield per Unit Effort of Adult Fish Resources at each Monitoring Location

Monitoring location	Mean YPUE (g hour^{-1} cage&net^{-1} ± SD)
P1 (IPA)	126.9
P2 (IPA)	165.7
G1 (GDA)	199.9
G2 (GDA)	136.8
R1 (CLA)	154.2
R2 (CLA)	137.1
Overall total	920.6

6.5 Species Composition

6.5.1 The abundant and biomass of fish species recorded in the Study Area are listed in **Table 6-6** and **Table 6-7**, with percentages of total abundance and biomass listed in descending order. In CLA (i.e. Locations R1 and/ or R2), the percentage of total abundance was dominated by fish family Pomacentridae (*Chromis notata*); while biomass was dominated by fish family Serranidae (*Cephalopholis boenak*).

6.5.2 In GDA, only few species were captured, the most abundant species was Threadfin porgy (*Evynnis cardinalis*), (50% abundance at G1) and the highest biomass was Serranidae (*Cephalopholis boenak*). In IPA, the most abundant and highest biomass species was Threadfin porgy (*Evynnis cardinalis*) (>23% P1). In wetseason, the species composition at different locations were generally variable. (Table 6-7 and 6-8)

Table 6-6: Abundance data of Adult Fish Species Recorded Wet Season in the Study Area

Wet season					
Location	**Family**	**Species**	**Commercial value**	**Mean Abundance**	**Mean % Abundance**
P1	Sparidae	*Evynnis cardinalis*	M-H	10	66.67
	Siganidae	*Siganus canaliculatus*	L	4.5	30.00
	Serranidae	*Cephalopholis boenak*	H	2.5	16.67
	Carangidae	*Trachinotus blochii*	M-H	4	26.67
P2	Apogonidae	*Apogon cathetogramma*	L	3	12.50
	Tetraodontidae	*Takifugu poecilonotus*	X	5.5	22.92
	Monacanthidae	*Monacanthus chinensis*	M	3	12.50
	Serranidae	*Cephalopholis boenak*	H	3	12.50
	Scorpaenidae	*Sebastiscus marmoratus*	L	2	8.33
	Carangidae	*Trachinotus blochii*	M	4.5	18.75
	Siganidae	*Siganus canaliculatus*	L	3	12.50
G1	Platycephalidae	*Inegocia japonica*	M-H	1	5.88
	Pomacentridae	*Chromis notata*	L	3.5	20.59
	Sparidae	*Evynnis cardinalis*	M-H	6.5	38.24
	Serranidae	*Cephalopholis boenak*	H	1.5	8.82
	Serranidae	*Epinephelus awoara*	H	0.5	2.94
	Drepaneidae	*Drepane punctata*	M	1	5.88
	Carangidae	*Trachinotus blochii*	M	3	17.65
G2	Tetraodontidae	*Takifugu poecilonotus*	X	1.5	7.89
	Sparidae	*Evynnis cardinalis*	L	11.5	60.53
	Serranidae	*Cephalopholis boenak*	H	3	15.79
	Carangidae	*Trachinotus blochii*	H	3	15.79
R1	**Pomacentridae**	*Chromis notata*	L	9.5	46.34
	Tetraodontidae	*Takifugu poecilonotus*	X	1	4.88
	Scorpaenidae	*Sebastiscus marmoratus*	L	1	4.88
	Serranidae	*Cephalopholis boenak*	H	4	19.51
	Monacanthidae	*Monacanthus chinensis*	M	1.5	7.32
	Siganidae	*Siganus canaliculatus*	L	1.5	7.32
	Serranidae	*Epinephelus awoara*	H	1	4.88
	Labridae	*Halichoeres nigrescens*	X	1	4.88
R2	Pomacentridae	*Chromis notata*	L	14	62.22
	Tetraodontidae	*Takifugu poecilonotus*	X	4	17.78
	Serranidae	*Cephalopholis boenak*	H	3	13.33
	Labridae	*Halichoeres nigrescens*	X	1.5	6.67

Note: L- Low; M – Medium; H – High; X – No commercial value

Table 6-7: Biomass data of Adult Fish Species Recorded in Wet Season in the Study Area

Wet season					
Location	**Family**	**Species**	**Commercial value**	**Mean Biomass(g)**	**Mean % Biomass**
P1	Sparidae	*Evynnis cardinalis*	M-H	359	28.29
	Siganidae	*Siganus canaliculatus*	L	321	25.30
	Serranidae	*Cephalopholis boenak*	H	265	20.88
	Carangidae	*Trachinotus blochii*	M-H	551	43.42
P2	Apogonidae	*Apogon cathetogramma*	L	118	6.58
	Tetraodontidae	*Takifugu poecilonotus*	X	283	15.79
	Monacanthidae	*Monacanthus chinensis*	M	198	11.05
	Serranidae	*Cephalopholis boenak*	H	323	18.02
	Scorpaenidae	*Sebastiscus marmoratus*	L	169.5	9.46
	Carangidae	*Trachinotus blochii*	M	565.5	31.55
	Siganidae	*Siganus canaliculatus*	L	135.5	7.56
G1	Platycephalidae	*Inegocia japonica*	M-H	327	16.36
	Pomacentridae	*Chromis notata*	L	125	6.25
	Sparidae	*Evynnis cardinalis*	M-H	244	12.21
	Serranidae	*Cephalopholis boenak*	H	219	10.96
	Serranidae	*Epinephelus awoara*	H	149	7.45
	Drepaneidae	*Drepane punctata*	M	362	18.11
	Carangidae	*Trachinotus blochii*	M	573	28.66
G2	Tetraodontidae	*Takifugu poecilonotus*	X	287.5	21.02
	Sparidae	*Evynnis cardinalis*	L	359	26.24
	Serranidae	*Cephalopholis boenak*	H	375	27.41
	Carangidae	*Trachinotus blochii*	H	346.5	25.33
R1	**Pomacentridae**	*Chromis notata*	L	305	19.77
	Tetraodontidae	*Takifugu poecilonotus*	X	53	3.44
	Scorpaenidae	*Sebastiscus marmoratus*	L	127	8.23
	Serranidae	*Cephalopholis boenak*	H	504.5	32.71
	Monacanthidae	*Monacanthus chinensis*	M	182.5	11.83
	Siganidae	*Siganus canaliculatus*	L	101.5	6.58
	Serranidae	*Epinephelus awoara*	H	212	13.74
	Labridae	*Halichoeres nigrescens*	X	57	3.70
R2	Pomacentridae	*Chromis notata*	L	595	43.40
	Tetraodontidae	*Takifugu poecilonotus*	X	306.5	22.36
	Serranidae	*Cephalopholis boenak*	H	398	29.03
	Labridae	*Halichoeres nigrescens*	X	71.5	5.22

Note: L- Low; M – Medium; H – High; X – No commercial value

7 Baseline Juvenile Fish Survey Results

7.1 Overall Juvenile Fish Resources

7.1.1 For juvenile fish survey using purse-seining, a total of 144.1 g of 86 individuals comprising 1 species was recorded. The only species recorded in terms of biomass and abundance was mullet *Stolephorus sp*., which is of low commercial value.

7.1.2 The overall juvenile fish resources in the Study Area are summarized in **Table 7-1**. Location R1 had the highest biomass and number of juvenile fish resources, contributed by only single genus *Stolephorus sp.* The size of this dominant species ranged from 2.9 to 4.5 cm (total length).

Table 7-1: Overall Juvenile Fish Resources in the Study Area during Wet Season Monitoring

Monitoring location	Total no. of species	Total biomass (g)	Total no. of individual	Mean no. of species (±SD)	Mean biomass (g ± SD)	Mean no. of individual (± SD)	Dominant species
P1 (IPA)	1	44	25	0.5	22	12.5	*Stolephorus sp.*
P2 (IPA)	1	22.1	13	0.5	11.05	6.5	*Stolephorus sp.*
G1 (GDA)	--	--	--	--	--	--	--
G2 (GDA)	--	--	--	--	--	--	--
R1 (CLA)	1	78	48	0.5	39	24	*Stolephorus sp.*
R2 (CLA)	--	--	--	--	--	--	--
Overall total	1	144.1	86	0.5	72.05	43	*Stolephorus sp.*

7.2 Commercial Value

7.2.1 The commercial value of juvenile fish is also estimated using the same approach for adult fish resources as described in **Section 6.2**. The only species recorded in the Study Area was of low commercial value (**Appendix C**).

7.3 Catch per Unit Effort

7.3.1 The following equation is adopted to calculate Catch per Unit Effort (CPUE):

$$\text{CPUE} = \frac{\text{No.of individual of fish}}{\text{Fishing time (hour) x (Number of net)}}, \text{ where}$$

Fishing time = 15 minutes = 0.25 hour; Number of net = 2

7.3.2 The mean CPUE of each monitoring location ranged between 13 and 48 no. hour^{-1} net^{-1} (**Table 7-2**). Locations G1, G2 and R2 had the lowest CPUE amongst all the locations.

Table 7-2: Mean Catch per Unit Effort of Juvenile Fish Resources at each Monitoring Location

Monitoring location	Mean CPUE (no. hour^{-1} net^{-1} ± SD)
P1 (IPA)	15
P2 (IPA)	13
G1 (GDA)	0
G2 (GDA)	0
R1 (CLA)	48
R2 (CLA)	0
Overall total	86

7.4 Yield per Unit Effort

7.4.1 The following equation is adopted to calculate Yield per Unit Effort (YPUE):

$$\text{YPUE} = \frac{\text{Biomass (g) of fish}}{\text{Fishing time (hour) x (Number of net)}}, \text{ where}$$

Fishing time = 15 minutes = 0.25 hour; Number of net = 2.

7.4.2 The mean YPUE of each sampling location ranged between 44 and 78 g hour^{-1} net^{-1} (**Table7-3**). Locations G1, G2 and R2 had the lowest YPUE amongst all the locations.

Table 7-3: Mean Yield per Unit Effort of Juvenile Fish Resources at each Monitoring Location

Monitoring Location	Mean YPUE (g hour^{-1} net^{-1} ± SD)
P1 (IPA)	44
P2 (IPA)	22.1
G1 (GDA)	0.0
G2 (GDA)	0.0
R1 (CLA)	78
R2 (CLA)	0.0
Overall total	144.1

7.5 Species Composition

7.5.1 Amongst all the locations, *Stolephorus sp*. was the only one species recorded in the Study Area.

8 Baseline Ichthyoplankton Survey Results

8.1 Overall Ichthyoplankton Assemblages

8.1.1 In the ichthyoplankton survey, a total of 10 species from 10 families (including both fish egg and fish larvae) were recorded in the Study Area, comprising 4 fish egg species from 4 families, and 6 fish larvae species from 5 families. The dominant species of fish egg and fish larvae were Spotted sicklefish *Drepane punctata* and and Silver sillago *Sillago sihama* respectively, accounting for 44.4 % of total density in egg and 34.7 % of total density fish larvae. These dominant species are considered of medium to high commercial value. The overall ichthyoplankton collected in the Study Area is summarized in **Table 8-1**. Full list of ichthyoplankton is presented in **Appendix D**.

Table 8-1: Overall Ichthyoplankton Assemblages in the Study Area during Wet Season Monitoring

Monitoring location	Total no. of species	Total density (no./ 1000 m^3)	Mean no. of species (± SD)	Mean density (no./ 1000 m^3 ± SD)	Dominant species
Fish Egg					
T1 (IPA)	4	171.15	2	85.58	*Drepane punctata*
T2 (IPA)	3	93.13	1.5	46.57	*Drepane punctata*
T3 (CLA)	3	141.1	1.5	70.55	*Mullidae sp.*
T4 (CLA)	3	57.02	1.5	28.51	*Drepane punctata*
T5 (GDA)	0	0	0	-	-
T6 (GDA)	0	0	0	-	-
Overall total	6	462.4	3	231.20	*Drepane punctata*
Fish Larvae					
T1 (IPA)	2	37.56	1	18.78	*Sillago sihama*
T2 (IPA)	4	69.42	2	34.71	*Abudefduf sordidus*
T3 (CLA)	4	64.56	2	32.28	*Abudefduf sordidus*
T4 (CLA)	3	31.73	1.5	15.87	*Nibea albiflora*
T5 (GDA)	0	0	0	-	-
T6 (GDA)	0	0	0	-	-
Overall total	5	203.27	3	101.64	*Sillago sihama*

8.2 Species Composition of Ichthyoplankton Assemblages

Fish Egg Composition

8.2.1 The most abundant fish egg species recorded in the Study Area are listed in **Table 8-2**, with percentages of total density listed in descending order. The species composition at all locations were generally variable.

8.2.2 In wet season, the species composition of fish egg was more variable with locations/ areas. IPA (Site T1 and T2) was dominated by *Drepane punctata*. CLA (Site T3 and T4) was dominated by *Mullidae sp.* and *Drepane punctata*. No fish egg was collected in GLA (Site T5 and T6).

Fish Larvae Composition

8.2.3 The most abundant fish larvae species recorded in the Study Area are listed in **Table 8-3**, with percentages of total density listed in descending order. The species composition at all locations were generally variable.

8.2.4 In wet season, the species composition of fish larvae was more variable with locations/ areas. IPA (Site T1 and T2) was dominated by *Sillago sihama* and *Abudefduf sordidus*. CLA (Site T3 and T4) was dominated by *Abudefduf sordidus* and *Nibea albiflora.* No fish larvae was collected in GLA (Site T5 and T6).

Table 8-2: Most Dominant Fish Egg Species Recorded at the six Sampling Locations in Wet Season

Dry season					
Location	**Family**	**Species**	**Commercial value**	**Mean Density (no. per 1000 m³)**	**Mean % Density**
T2	Drepaneidae	*Drepane punctata*	M	78.56	45.90
	Platycephalidae	*Inegocia japonica*	M	45.23	26.43
	Mullidae	*Mullidae sp.*	L	32.12	18.77
	Cynoglossidae	Cynoglossidae spp.	M	15.24	8.90
T2	Drepaneidae	*Drepane punctata*	M	46.25	49.66
	Platycephalidae	*Inegocia japonica*	M	25.63	27.52
	Mullidae	*Mullidae sp.*	L	21.25	22.82
T3	Mullidae	Mullidae *sp.*	L	85.56	60.64
	Drepaneidae	*Drepane punctata*	M	45.25	32.07
	Soleidae	Soleidae sp.	M	10.29	7.29
T4	Drepaneidae	*Drepane punctata*	M	35.25	61.82
	Platycephalidae	*Inegocia japonica*	M	15.23	26.71
	Mullidae	*Mullidae sp.*	L	6.54	11.47
T5	-	-	-	-	-
T6	-	-	-	-	-

Note: L- Low; M – Medium; H – High; X – No commercial value

Table 8-3: Most Dominant Fish Larvae Species Recorded at the six Sampling Locations in Wet Season

Dry season					
Location	**Family**	**Species**	**Commercial value**	**Mean Density (no. per 1000 m³)**	**Mean % Density**
T1	Sillaginidae	*Sillago sihama*	M	25.32	67.41
	Monacanthidae	*Monacanthus chinensis*	M	12.24	32.59
T2	Pomacentridae	*Abudefduf sordidus*	L	32.65	47.03
	Sillaginidae	*Sillago sihama*	M	19.54	28.15
	Sciaenidae	*Nibea albiflora*	L	10.25	14.77
	Monacanthidae	*Monacanthus chinensis*	M	6.98	10.05
T3	Pomacentridae	*Abudefduf sordidus*	L	36.25	56.15
	Sillaginidae	*Sillago sihama*	M	14.52	22.49
	Sciaenidae	*Nibea albiflora*	L	9.58	14.84
	Monacanthidae	*Monacanthus chinensis*	M	4.21	6.52
T4	Sciaenidae	*Nibea albiflora*	L	16.25	51.21
	Sillaginidae	*Sillago sihama*	M	11.23	35.39
	Ambassidae	*Ambassis marianus*	L	4.25	13.39
T5	-	-	-	-	-
T6	-	-	-	-	-

Note: L- Low; M – Medium; H – High; X – No commercial value

9 Supplementary Water Quality Monitoring Results

9.1 The statistical summary of the water quality monitoring parameters during dry are tabulated in **Table 9-1**. The detailed *in-situ* and laboratory measurement result are shown in **Appendix E** and **Appendix F** respectively.

9.2 The measured water temperature values ranged from about 28.11 °C to about 29.77 °C in wet season. No absolute Water Quality Objective (WQO) on marine water temperature is available. Seasonal variation of water temperatures was recorded from the monitoring as expected.

9.3 The sea is a large pH buffering system with high capacity to resist changes in pH. The pH of seawater is normally very stable. Localized changes of pH in seawater may occur due to industrial discharge or episodic event such as algal bloom. All the pH values are within the normal natural range in seawater and complied with the relevant WQO of 7.78 to 8.39 in wet season. No seasonal trend of pH is observed.

9.4 Dissolved oxygen (DO) is essential to fish and an important health indicator of the marine ecosystem. Higher water temperature would tend to decrease the solubility of DO in seawater. The measured DO levels are generally lower in wet season as compared to the values measured in dry season but all the measured DO values are considered high. The depth-averaged DO and bottom DO values measured during the dry season are all over 7 mg/L. Thus, the DO levels are good in both dry.

9.5 Unlike the north western water of Hong Kong, which is subject to strong seasonal influence from the freshwater discharges from Pearl River Delta with high suspended solids (SS) content, the monitoring stations of this Study are located in the eastern water of Hong Kong with much more stable salinity and lower SS contents. No absolute SS and turbidity objectives in marine water are available. The average SS and turbidity levels are below 5 mg/L and 3 NTU with highest measured values of about 9 mg/L and 2.55 NTU respectively. No obvious seasonal variation of SS and turbidity levels can be identified.

9.6 The average salinity levels measured during wet season are lower than 32 ppt, which indicated that the water is purely oceanic water with no significant freshwater dilution during the monitoring periods. No seasonal variation of salinity levels can be identified from the monitoring results.

9.7 All the measured iron (Fe) and total residual chlorine (TRC) values were non-detected. No indication of industrial or trade effluent discharge is identified in the Study Area.

Table 9-1: Statistical Summary of Water Quality Parameters (Wet Season)

Location	Water Depth (m)	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	Bottom Dissolved Oxygen (mg/L)	Turbidity (NTU)	Salinity (ppt)	Suspended Solid (mg/L)	Iron (mg/L)	Total Residual Chlorine (mg/L)
P1	3.17 (1 – 6.4)	28.98 (28.34-29.77)	8.28 (8.21-8.37)	7.96 (7.40-8.71)	7.99 (7.50-8.71)	1.88 (1.37-2.47)	32.39 (31.91-32.81)	5.02 (<2.50-9.00)	<0.1 (<0.1)	<0.1 (<0.1)
P2	6.21 (1-13)	28.91 (28.60-29.26)	8.21 (8.04-8.31)	8.58 (8.34-8.73)	8.59 (8.35-8.73)	1.68 (1.36-2.43)	32.37 (31.82-33.01)	4.54 (<2.50-7.00)	<0.1 (<0.1)	<0.1 (<0.1)
G1	10.32 (1-24)	28.58 (28.15-29.64)	8.27 (8.17-8.37)	8.23 (7.80-8.68)	8.24 (7.81-8.66)	2.14 (1.94-2.42)	32.81 (32.24-33.28)	4.44 (<2.50-7.00)	<0.1 (<0.1)	<0.1 (<0.1)
G2	9.32 (1-20.7)	28.86 (28.26-29.43)	8.15 (8.05-8.30)	7.93 (7.62-8.19)	7.93 (7.62-8.19)	1.90 (1.42-2.55)	32.41 (31.55-33.29)	4.21 (<2.50-7.00)	<0.1 (<0.1)	<0.1 (<0.1)
R1	4.50 (1-8.5)	28.74 (28.11-29.41)	8.30 (8.20-8.39)	8.03 (7.68-8.81)	8.06 (7.68-8.71)	1.68 (1.36-2.13)	32.23 (31.65-32.82)	4.13 (3.00-7.00)	<0.1 (<0.1)	<0.1 (<0.1)
R2	4.34 (1-8.2)	28.95 (28.43-29.43)	8.23 (7.78-8.00)	8.05 (7.76-8.50)	8.04 (7.76-8.50)	1.99 (1.61-2.46)	32.90 (32.61-33.39)	4.58 (3.00-8.00)	<0.1 (<0.1)	<0.1 (<0.1)

Note: All data are averaged depth-averaged results except for the bottom dissolved oxygen which was measured at the bottom water layer only. Data in brackets indicate the ranges.

10 Conclusions

10.1 Operation fisheries monitoring works for the Project including adult fish, juvenile fish, ichthyoplankton and supplementary water quality surveys were completed in August 2024.

10.2 For adult fish survey using cage trapping and gill netting, a total 7182 g of 108 individuals comprising 11 fish species from 9 families was recorded. The dominant species in terms of biomass and abundance were Pearl-spot chromis (*Chromis notata*), and this species are of low commercial value. Within the Study Area, majority of commercial species recorded are of low commercial value with some species of medium to high commercial values also recorded. The overall commercial value of adult fish resources in the Study Area is low to moderate.

10.3 For juvenile fish survey, a total of 1420.3 g of 215 individuals comprising 1 species from 1 families was recorded. The dominant species in terms of biomass and abundance was *Mugil* sp., which is of low commercial value. The juvenile fish resources in the Study Area is considered to be of very low diversity and production level.

10.4 In the ichthyoplankton survey, a total of 13 species from 9 families (including both fish eggand fish larvae) were recorded in the Study Area, comprising 7 fish egg species from 4 families, and 6 fish larvae species from 5 families. The mean larvae density and total larvaefamily under the current Study are on the low side compared with the results reported in other areas of Hong Kong. The dominant species of fish egg and fish larvae were *Evynnis cardinalis* and Marbled rockfish *Sebastiscus marmoratus*, respectively. These dominant species are considered of medium to high commercial value.

10.5 The supplementary water quality monitoring showed that the dissolved oxygen (key water quality parameter for fish) and pH in the Study Area fully complied with the relevant water quality objectives. The suspended solids and turbidity in the Study Area were in generally low. Iron and total residual chlorine were not detected in the Study Area with no indication of industrial or trade effluent discharge. Overall, the baseline water quality was good in terms of the monitoring parameters.

10.6 Overall, the survey findings showed that the abundance and diversity of fish eggs and larvaeare on the low side for the Study Area, and the abundance and diversity of juveniles are verylow for the Study Area. Survey findings also showed that there was a very week relationshipin recorded families between ichthyoplankton assemblages, adult fish and juvenile fish in theStudy Area, which implies that the Study Area does not appear to be an important spawningor nursery grounds for commercial fishes.

11 References

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11.5 Situ Y (2007) Ichthyoplankton assemblages at Cape d' Aguilar: seasonal variability and family composition. MPhil Thesis. The University of Hong Kong.

APPENDIX E

IN-SITU WATER QUALITY MEASUREMENT DATA

Water Quality Monitoring Results on 24 August 2024 Mid Flood Condition

Location	Date	Weather	Sea Condition	Tidal	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp (ºC)	Turbidty (NTU)	Remark
G1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:26	8.51	8.19	32.30	29.64	1.99	Nil
G1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:26	8.53	8.18	32.31	29.63	2.02	Nil
G1	20240824	Cloudy	Moderate	Mid-Flood	Middle	11	16:25	8.47	8.17	32.24	29.60	2.04	Nil
G1	20240824	Cloudy	Moderate	Mid-Flood	Middle	11	16:25	8.49	8.19	32.33	29.54	1.99	Nil
G1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	21	16:24	8.54	8.22	32.30	29.58	2	Nil
G1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	21	16:24	8.53	8.2	32.27	29.53	2.04	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:41	8	8.27	31.81	29.40	2.05	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:41	7.95	8.3	31.85	29.42	2.08	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Middle	10	16:40	7.95	8.3	31.81	29.39	2.15	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Middle	10	16:40	7.98	8.25	31.83	29.38	2.05	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	19	16:39	8.01	8.29	31.80	29.39	2.19	Nil
G2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	19	16:39	7.98	8.29	31.85	29.43	2.11	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:57	8.7	8.28	32.26	29.68	1.77	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	16:57	8.67	8.29	32.23	29.77	1.68	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Middle	3	16:56	8.67	8.24	32.31	29.76	1.7	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Middle	3	16:56	8.71	8.25	32.27	29.73	1.74	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	6	16:55	8.69	8.29	32.30	29.72	1.71	Nil
P1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	6	16:55	8.64	8.27	32.33	29.74	1.66	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	17:18	8.72	8.24	32.44	29.14	1.4	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	17:18	8.7	8.23	32.54	29.17	1.36	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Middle	7	17:17	8.73	8.29	32.46	29.14	1.38	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Middle	7	17:17	8.68	8.23	32.55	29.14	1.42	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	13	17:16	8.71	8.28	32.44	29.20	1.41	Nil
P2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	13	17:16	8.73	8.27	32.45	29.26	1.43	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	15:30	7.89	8.34	31.89	29.41	1.36	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	15:30	7.94	8.34	31.83	29.40	1.41	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Middle	4	15:29	7.96	8.33	31.91	29.38	1.58	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Middle	4	15:29	7.84	8.36	31.82	29.41	1.41	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	8	15:28	7.86	8.33	31.82	29.33	1.44	Nil
R1	20240824	Cloudy	Moderate	Mid-Flood	Bottom	8	15:28	7.93	8.39	31.89	29.32	1.38	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	15:52	7.95	8.29	32.72	29.28	1.66	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Surface	1	15:52	7.99	8.25	32.72	29.35	1.65	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Middle	4	15:51	8	8.24	32.67	29.35	1.63	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Middle	4	15:51	8	8.26	32.70	29.37	1.68	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	8	15:50	7.99	8.28	32.69	29.37	1.61	Nil
R2	20240824	Cloudy	Moderate	Mid-Flood	Bottom	8	15:50	8.03	8.28	32.61	29.32	1.65	Nil

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results on 24 August 2024 Mid Ebb Condition

Location	Date	Weather	Sea Condition	Tidal	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU)	Remark
G1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:27	7.89	8.32	32.67	28.94	2.02	Nil
G1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:27	7.97	8.33	32.60	28.94	1.98	Nil
G1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	12	9:26	7.9	8.3	32.57	28.86	1.95	Nil
G1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	12	9:26	8	8.34	32.65	28.93	1.94	Nil
G1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	24	9:25	7.94	8.33	32.61	28.85	1.98	Nil
G1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	24	9:25	8.02	8.28	32.58	28.90	2.02	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:42	7.85	8.13	31.58	29.33	1.49	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:42	7.85	8.15	31.55	29.35	1.46	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	10	9:41	7.89	8.13	31.57	29.25	1.42	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	10	9:41	7.94	8.1	31.60	29.26	1.46	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	19	9:40	7.96	8.14	31.58	29.27	1.42	Nil
G2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	19	9:40	7.84	8.15	31.62	29.27	1.44	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:50	7.94	8.27	31.91	29.09	1.39	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	9:50	7.87	8.25	31.96	29.11	1.37	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	3	9:49	7.97	8.3	31.96	29.13	1.37	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	3	9:49	7.88	8.3	31.91	29.12	1.44	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	6	9:48	7.89	8.29	31.96	29.07	1.45	Nil
P1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	6	9:48	7.92	8.25	31.95	29.06	1.38	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	10:07	8.55	8.04	31.89	29.16	1.52	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	10:07	8.64	8.08	31.83	29.13	1.53	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	7	10:06	8.56	8.05	31.82	29.12	1.51	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	7	10:06	8.56	8.05	31.86	29.17	1.54	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	13	10:05	8.54	8.09	31.91	29.19	1.47	Nil
P2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	13	10:05	8.58	8.11	31.91	29.23	1.52	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	8:22	8.75	8.2	31.66	28.90	1.44	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	8:22	8.73	8.22	31.72	29.00	1.46	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	4.4	8:21	8.81	8.23	31.72	28.94	1.49	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Middle	4.4	8:21	8.66	8.24	31.70	28.91	1.5	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	7.8	8:20	8.7	8.2	31.65	28.89	1.49	Nil
R1	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	7.8	8:20	8.71	8.21	31.66	28.98	1.48	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	8:44	8.5	8.17	32.74	29.43	2.01	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Surface	1	8:44	8.43	8.16	32.72	29.39	1.98	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	4.5	8:43	8.48	8.2	32.75	29.37	1.98	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Middle	4.5	8:43	8.49	8.17	32.76	29.42	2.04	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	8	8:42	8.5	8.2	32.68	29.41	2.02	Nil
R2	20240824	Cloudy	Moderate	Mid-Ebb	Bottom	8	8:42	8.43	8.22	32.67	29.36	1.98	Nil

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results on 31 August 2024 Mid Flood Condition

Location	Date	Weather	Sea Condition	Tidal	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp (ºC)	Turbidty (NTU)	Remark
G1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:58	7.8	8.33	33.19	28.72	2.28	Nil
G1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:58	7.91	8.37	33.20	28.70	2.07	Nil
G1	20240831	Sunny	Moderate	Mid-Flood	Middle	10.55	10:57	7.87	8.37	33.14	28.67	2.39	Nil
G1	20240831	Sunny	Moderate	Mid-Flood	Middle	10.55	10:57	7.82	8.34	33.15	28.73	2.19	Nil
G1	20240831	Sunny	Moderate	Mid-Flood	Bottom	20.1	10:56	7.82	8.36	33.07	28.72	2.41	Nil
G1	20240831	Sunny	Moderate	Mid-Flood	Bottom	20.1	10:56	7.81	8.36	33.05	28.73	2.36	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:11	8.06	8.05	33.26	28.42	1.7	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:11	8.15	8.1	33.16	28.46	2.02	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Middle	10.15	11:10	8.19	8.09	33.20	28.47	2.22	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Middle	10.15	11:10	8.17	8.07	33.27	28.42	2.44	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Bottom	19.3	11:09	8.13	8.11	33.19	28.44	2.16	Nil
G2	20240831	Sunny	Moderate	Mid-Flood	Bottom	19.3	11:09	8.19	8.1	33.29	28.46	2.55	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:27	7.49	8.21	32.73	28.72	2.14	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:27	7.43	8.25	32.79	28.69	2.24	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Middle	3.7	11:26	7.42	8.21	32.77	28.74	2.33	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Middle	3.7	11:26	7.51	8.23	32.79	28.71	1.97	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Bottom	6.4	11:25	7.5	8.22	32.80	28.72	2.47	Nil
P1	20240831	Sunny	Moderate	Mid-Flood	Bottom	6.4	11:25	7.4	8.22	32.81	28.73	2.43	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:42	8.41	8.3	32.18	28.64	1.55	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	11:42	8.4	8.31	32.18	28.62	1.39	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Middle	6.85	11:41	8.34	8.31	32.17	28.65	1.49	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Middle	6.85	11:41	8.39	8.3	32.24	28.66	1.55	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Bottom	12.7	11:40	8.35	8.29	32.26	28.61	1.89	Nil
P2	20240831	Sunny	Moderate	Mid-Flood	Bottom	12.7	11:40	8.38	8.31	32.14	28.60	2.01	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:00	7.76	8.31	32.80	28.58	1.94	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:00	7.76	8.28	32.73	28.51	2.13	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Middle	4.75	9:59	7.7	8.26	32.82	28.51	2.09	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Middle	4.75	9:59	7.7	8.28	32.71	28.56	1.88	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Bottom	8.5	9:58	7.76	8.28	32.80	28.53	2.05	Nil
R1	20240831	Sunny	Moderate	Mid-Flood	Bottom	8.5	9:58	7.68	8.29	32.71	28.51	1.95	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:20	7.91	8.22	33.35	28.50	2.12	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Surface	1	10:20	7.88	8.2	33.39	28.44	2.38	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Middle	4.6	10:19	7.91	8.21	33.36	28.43	2.42	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Middle	4.6	10:19	7.96	8.26	33.30	28.49	2.06	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Bottom	8.2	10:18	7.93	8.24	33.37	28.43	2.26	Nil
R2	20240831	Sunny	Moderate	Mid-Flood	Bottom	8.2	10:18	7.89	8.21	33.28	28.47	2.17	Nil

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results on 31 August 2024

Mid Ebb Condition

Location	Date	Weather	Sea Condition	Tidal	Water Level	Depth (m)	Time	DO (mg/L)	pH	Sal (ppt)	Temp (ºC)	Turbidty (NTU)	Remark
G1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:05	8.6	8.25	33.14	28.21	2.42	Nil
G1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:05	8.6	8.21	33.28	28.19	2.02	Nil
G1	20240831	Sunny	Moderate	Mid-Ebb	Middle	10.1	16:04	8.68	8.27	33.22	28.15	2.33	Nil
G1	20240831	Sunny	Moderate	Mid-Ebb	Middle	10.1	16:04	8.63	8.27	33.20	28.19	2.36	Nil
G1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	19.2	16:03	8.66	8.2	33.23	28.22	2.25	Nil
G1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	19.2	16:03	8.58	8.21	33.10	28.20	2.26	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:16	7.68	8.11	32.94	28.31	2.03	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:16	7.64	8.11	32.94	28.26	1.81	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Middle	10.85	16:15	7.74	8.11	33.01	28.28	1.85	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Middle	10.85	16:15	7.73	8.08	32.90	28.30	1.6	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	20.7	16:14	7.62	8.08	33.11	28.34	1.97	Nil
G2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	20.7	16:14	7.73	8.06	33.02	28.32	1.94	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:28	7.83	8.33	32.51	28.37	2.14	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:28	7.79	8.33	32.50	28.34	2.05	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Middle	3.35	16:27	7.8	8.37	32.69	28.38	2.17	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Middle	3.35	16:27	7.76	8.32	32.54	28.36	2.13	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	5.7	16:26	7.78	8.33	32.67	28.38	2.27	Nil
P1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	5.7	16:26	7.79	8.32	32.51	28.36	2.03	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:44	8.6	8.2	32.92	28.64	2.4	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	16:44	8.61	8.21	32.98	28.69	2.43	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Middle	6.95	16:43	8.63	8.23	32.92	28.65	1.91	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Middle	6.95	16:43	8.59	8.24	32.93	28.65	1.81	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	12.9	16:42	8.72	8.19	32.89	28.69	2.01	Nil
P2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	12.9	16:42	8.69	8.26	33.01	28.62	2.28	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	15:18	7.8	8.35	32.51	28.11	1.64	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	15:18	7.9	8.34	32.59	28.11	1.53	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Middle	4.45	15:17	7.84	8.35	32.46	28.16	1.88	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Middle	4.45	15:17	7.96	8.34	32.55	28.12	2.07	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	7.9	15:16	7.89	8.32	32.55	28.17	1.71	Nil
R1	20240831	Sunny	Moderate	Mid-Ebb	Bottom	7.9	15:16	7.96	8.32	32.52	28.11	1.67	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	15:39	7.87	8.23	32.91	28.59	1.75	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Surface	1	15:39	7.86	8.28	32.82	28.61	2	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Middle	4.5	15:38	7.81	8.27	32.82	28.63	2.35	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Middle	4.5	15:38	7.79	8.26	32.86	28.60	2.46	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	8	15:37	7.76	8.23	32.83	28.59	2.05	Nil
R2	20240831	Sunny	Moderate	Mid-Ebb	Bottom	8	15:37	7.78	8.23	32.93	28.63	1.91	Nil

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

APPENDIX F

LABORATORY TEST REPORTS

Acumen Laboratory and Testing Limited
Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

HOKLAS 241
TEST

Test Report

Report Number	:	Q230003aR241996
Job Number	:	R241996
Issue Date	:	27/08/2024
Applicant Name	:	Acuity Sustainability Consulting Limited
Applicant Address	:	Unit C, 11/F, Ford Glory Plaza, No. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong
Project Name	:	13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant EM&A Water Quality - Fishery
Test Required	:	Total Suspended Solids (TSS)
Sampling Date	:	24/08/2024
Date Samples Received	:	24/08/2024
Sample Nature	:	Marine water
Number of Samples Received	:	72
Condition Received	:	Sample(s) arrived laboratory in chilled condition
Type of Container	:	HDPE Plastic Bottles
Laboratory ID	:	R241996/1 – 72
Test Period	:	24/08/2024 – 26/08/2024
Method Used	:	APHA 23ed 2540D for Total Suspended Solids
Test Result	:	Refer to the results on page 2-5.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature:

Hui Wai Fung, Huntington
Laboratory Manager
Chemical & Microbiological Division

Acumen Laboratory and Testing Limited
Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R241996/1	24/08/2024	G1/S/MID-FLOOD	<2.5
R241996/2	24/08/2024	G1/S/Duplicate MID-FLOOD	3
R241996/3	24/08/2024	G1/M/MID-FLOOD	7
R241996/4	24/08/2024	G1/M/Duplicate MID-FLOOD	6
R241996/5	24/08/2024	G1/B/MID-FLOOD	3
R241996/6	24/08/2024	G1/B/Duplicate MID-FLOOD	3
R241996/7	24/08/2024	G2/S/MID-FLOOD	3
R241996/8	24/08/2024	G2/S/Duplicate MID-FLOOD	<2.5
R241996/9	24/08/2024	G2/M/MID-FLOOD	3
R241996/10	24/08/2024	G2/M/Duplicate MID-FLOOD	3
R241996/11	24/08/2024	G2/B/MID-FLOOD	3
R241996/12	24/08/2024	G2/B/Duplicate MID-FLOOD	4
R241996/13	24/08/2024	R1/S/MID-FLOOD	8

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Lab ID	Date of Sampling	Client Sample ID	7
R241996/14	24/08/2024	R1/S/Duplicate MID-FLOOD	<2.5
R241996/15	24/08/2024	R1/M/MID-FLOOD	3
R241996/16	24/08/2024	R1/M/Duplicate MID-FLOOD	<2.5
R241996/17	24/08/2024	R1/B/MID-FLOOD	<2.5
R241996/18	24/08/2024	R1/B/Duplicate MID-FLOOD	3
R241996/19	24/08/2024	R2/S/MID-FLOOD	3
R241996/20	24/08/2024	R2/S/Duplicate MID-FLOOD	3
R241996/21	24/08/2024	R2/M/MID-FLOOD	4
R241996/22	24/08/2024	R2/M/Duplicate MID-FLOOD	<2.5
R241996/23	24/08/2024	R2/B/MID-FLOOD	3
R241996/24	24/08/2024	R2/B/Duplicate MID-FLOOD	4
R241996/25	24/08/2024	P1/S/MID-FLOOD	3
R241996/26	24/08/2024	P1/S/Duplicate MID-FLOOD	3

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Lab ID	Date of Sampling	Client Sample ID	3
R241996/27	24/08/2024	P1/M/MID-FLOOD	3
R241996/28	24/08/2024	P1/M/Duplicate MID-FLOOD	3
R241996/29	24/08/2024	P1/B/MID-FLOOD	4
R241996/30	24/08/2024	P1/B/Duplicate MID-FLOOD	5
R241996/31	24/08/2024	P2/S/MID-FLOOD	4
R241996/32	24/08/2024	P2/S/Duplicate MID-FLOOD	3
R241996/33	24/08/2024	P2/M/MID-FLOOD	3
R241996/34	24/08/2024	P2/M/Duplicate MID-FLOOD	3
R241996/35	24/08/2024	P2/B/MID-FLOOD	3
R241996/36	24/08/2024	P2/B/Duplicate MID-FLOOD	3
R241996/37	24/08/2024	G1/S/MID-EBB	3
R241996/38	24/08/2024	G1/S/Duplicate MID-EBB	5
R241996/39	24/08/2024	G1/M/MID-EBB	3

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Lab ID	Date of Sampling	Client Sample ID	3
R241996/40	24/08/2024	G1/M/Duplicate MID-EBB	5
R241996/41	24/08/2024	G1/B/MID-EBB	3
R241996/42	24/08/2024	G1/B/Duplicate MID-EBB	3
R241996/43	24/08/2024	G2/S/MID-EBB	3
R241996/44	24/08/2024	G2/S/Duplicate MID-EBB	<2.5
R241996/45	24/08/2024	G2/M/MID-EBB	3
R241996/46	24/08/2024	G2/M/Duplicate MID-EBB	3
R241996/47	24/08/2024	G2/B/MID-EBB	4
R241996/48	24/08/2024	G2/B/Duplicate MID-EBB	3
R241996/49	24/08/2024	R1/S/MID-EBB	<2.5
R241996/50	24/08/2024	R1/S/Duplicate MID-EBB	6
R241996/51	24/08/2024	R1/M/MID-EBB	5
R241996/52	24/08/2024	R1/M/Duplicate MID-EBB	5

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Lab ID	Date of Sampling	Client Sample ID	5
R241996/53	24/08/2024	R1/B/MID-EBB	3
R241996/54	24/08/2024	R1/B/Duplicate MID-EBB	4
R241996/55	24/08/2024	R2/S/MID-EBB	3
R241996/56	24/08/2024	R2/S/Duplicate MID-EBB	4
R241996/57	24/08/2024	R2/M/MID-EBB	8
R241996/58	24/08/2024	R2/M/Duplicate MID-EBB	7
R241996/59	24/08/2024	R2/B/MID-EBB	5
R241996/60	24/08/2024	R2/B/Duplicate MID-EBB	3
R241996/61	24/08/2024	P1/S/MID-EBB	9
R241996/62	24/08/2024	P1/S/Duplicate MID-EBB	7
R241996/63	24/08/2024	P1/M/MID-EBB	5
R241996/64	24/08/2024	P1/M/Duplicate MID-EBB	4
R241996/65	24/08/2024	P1/B/MID-EBB	3

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR241996

Job Number : R241996

Issue Date : 27/08/2024

Lab ID	Date of Sampling	Client Sample ID	4
R241996/66	24/08/2024	P1/B/Duplicate MID-EBB	5
R241996/67	24/08/2024	P2/S/MID-EBB	5
R241996/68	24/08/2024	P2/S/Duplicate MID-EBB	<2.5
R241996/69	24/08/2024	P2/M/MID-EBB	3
R241996/70	24/08/2024	P2/M/Duplicate MID-EBB	7
R241996/71	24/08/2024	P2/B/MID-EBB	6
R241996/72	24/08/2024	P2/B/Duplicate MID-EBB	3

Note:
1. mg/L indicates milligram per liter
2. < indicates less than.
3. NA indicates Not Applicable.
4. Reporting limit is 2.5mg/L for 1L sample
5. Reporting limit is 1 mg/L for 2.5L sample

End of Report

Acumen Laboratory and Testing Limited
Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon
Tel: (852) 2333 6823 Fax: (852) 2333 1316

HOKLAS 241
TEST

Test Report

Report Number	:	Q230003aR242155
Job Number	:	R242155
Issue Date	:	04/09/2024
Applicant Name	:	Acuity Sustainability Consulting Limited
Applicant Address	:	Unit 1608, 16/F, Tower B, Manulife Financial Centre, 223 – 231 Wai Yip Street, Kwun Tong, Kowloon Hong Kong S. A. R.
Project Name	:	13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant EM&A Water Quality - Fishery
Test Required	:	Total Suspended Solids (TSS)
Sampling Date	:	31/08/2024
Date Samples Received	:	31/08/2024
Sample Nature	:	Marine water
Number of Samples Received	:	72
Condition Received	:	Sample(s) arrived laboratory in chilled condition
Type of Container	:	HDPE Plastic Bottles
Laboratory ID	:	R242155/1 – 72
Test Period	:	02/09/2024 – 03/09/2024
Method Used	:	APHA 23ed 2540D for Total Suspended Solids
Test Result	:	Refer to the results on page 2-5.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature:

Hui Wai Fung, Huntington
Laboratory Manager
Chemical & Microbiological Division

Acumen Laboratory and Testing Limited
Workshop 04, 7/F, The Whitney, No. 183 Wai Yip Street, Kwun Tong, Kowloon
Tel: (852) 2333 6823 Fax: (852) 2333 1316

HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/1	31/08/2024	G1/S/MID-FLOOD	5
R242155/2	31/08/2024	G1/S/Duplicate MID-FLOOD	6
R242155/3	31/08/2024	G1/M/MID-FLOOD	4
R242155/4	31/08/2024	G1/M/Duplicate MID-FLOOD	4
R242155/5	31/08/2024	G1/B/MID-FLOOD	6
R242155/6	31/08/2024	G1/B/Duplicate MID-FLOOD	6
R242155/7	31/08/2024	G2/S/MID-FLOOD	5
R242155/8	31/08/2024	G2/S/Duplicate MID-FLOOD	6
R242155/9	31/08/2024	G2/M/MID-FLOOD	5
R242155/10	31/08/2024	G2/M/Duplicate MID-FLOOD	6
R242155/11	31/08/2024	G2/B/MID-FLOOD	5
R242155/12	31/08/2024	G2/B/Duplicate MID-FLOOD	5
R242155/13	31/08/2024	R1/S/MID-FLOOD	5

Acumen Laboratory and Testing Limited
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Tel: (852) 2333 6823 Fax: (852) 2333 1316

HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/14	31/08/2024	R1/S/Duplicate MID-FLOOD	5
R242155/15	31/08/2024	R1/M/MID-FLOOD	4
R242155/16	31/08/2024	R1/M/Duplicate MID-FLOOD	5
R242155/17	31/08/2024	R1/B/MID-FLOOD	4
R242155/18	31/08/2024	R1/B/Duplicate MID-FLOOD	4
R242155/19	31/08/2024	R2/S/MID-FLOOD	4
R242155/20	31/08/2024	R2/S/Duplicate MID-FLOOD	4
R242155/21	31/08/2024	R2/M/MID-FLOOD	7
R242155/22	31/08/2024	R2/M/Duplicate MID-FLOOD	5
R242155/23	31/08/2024	R2/B/MID-FLOOD	6
R242155/24	31/08/2024	R2/B/Duplicate MID-FLOOD	4
R242155/25	31/08/2024	P1/S/MID-FLOOD	4
R242155/26	31/08/2024	P1/S/Duplicate MID-FLOOD	4

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/27	31/08/2024	P1/M/MID-FLOOD	5
R242155/28	31/08/2024	P1/M/Duplicate MID-FLOOD	5
R242155/29	31/08/2024	P1/B/MID-FLOOD	6
R242155/30	31/08/2024	P1/B/Duplicate MID-FLOOD	4
R242155/31	31/08/2024	P2/S/MID-FLOOD	4
R242155/32	31/08/2024	P2/S/Duplicate MID-FLOOD	5
R242155/33	31/08/2024	P2/M/MID-FLOOD	4
R242155/34	31/08/2024	P2/M/Duplicate MID-FLOOD	7
R242155/35	31/08/2024	P2/B/MID-FLOOD	6
R242155/36	31/08/2024	P2/B/Duplicate MID-FLOOD	4
R242155/37	31/08/2024	G1/S/MID-EBB	5
R242155/38	31/08/2024	G1/S/Duplicate MID-EBB	5
R242155/39	31/08/2024	G1/M/MID-EBB	5

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/40	31/08/2024	G1/M/Duplicate MID-EBB	7
R242155/41	31/08/2024	G1/B/MID-EBB	4
R242155/42	31/08/2024	G1/B/Duplicate MID-EBB	5
R242155/43	31/08/2024	G2/S/MID-EBB	7
R242155/44	31/08/2024	G2/S/Duplicate MID-EBB	5
R242155/45	31/08/2024	G2/M/MID-EBB	6
R242155/46	31/08/2024	G2/M/Duplicate MID-EBB	4
R242155/47	31/08/2024	G2/B/MID-EBB	4
R242155/48	31/08/2024	G2/B/Duplicate MID-EBB	6
R242155/49	31/08/2024	R1/S/MID-EBB	3
R242155/50	31/08/2024	R1/S/Duplicate MID-EBB	7
R242155/51	31/08/2024	R1/M/MID-EBB	5
R242155/52	31/08/2024	R1/M/Duplicate MID-EBB	4

Acumen Laboratory and Testing Limited
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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/53	31/08/2024	R1/B/MID-EBB	3
R242155/54	31/08/2024	R1/B/Duplicate MID-EBB	4
R242155/55	31/08/2024	R2/S/MID-EBB	7
R242155/56	31/08/2024	R2/S/Duplicate MID-EBB	6
R242155/57	31/08/2024	R2/M/MID-EBB	3
R242155/58	31/08/2024	R2/M/Duplicate MID-EBB	3
R242155/59	31/08/2024	R2/B/MID-EBB	6
R242155/60	31/08/2024	R2/B/Duplicate MID-EBB	4
R242155/61	31/08/2024	P1/S/MID-EBB	4
R242155/62	31/08/2024	P1/S/Duplicate MID-EBB	4
R242155/63	31/08/2024	P1/M/MID-EBB	7
R242155/64	31/08/2024	P1/M/Duplicate MID-EBB	5
R242155/65	31/08/2024	P1/B/MID-EBB	8

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HOKLAS 241
TEST

Test Report

Report Number : Q230003aR242155

Job Number : R242155

Issue Date : 04/09/2024

Lab ID	Date of Sampling	Client Sample ID	Total Suspended Solids (TSS), mg/L
R242155/66	31/08/2024	P1/B/Duplicate MID-EBB	6
R242155/67	31/08/2024	P2/S/MID-EBB	7
R242155/68	31/08/2024	P2/S/Duplicate MID-EBB	5
R242155/69	31/08/2024	P2/M/MID-EBB	5
R242155/70	31/08/2024	P2/M/Duplicate MID-EBB	5
R242155/71	31/08/2024	P2/B/MID-EBB	5
R242155/72	31/08/2024	P2/B/Duplicate MID-EBB	4

Note:
1. mg/L indicates milligram per liter
2. < indicates less than.
3. NA indicates Not Applicable.
4. Reporting limit is 2.5mg/L for 1L sample
5. Reporting limit is 1 mg/L for 2.5L sample

End of Report

Appendix I

Site Inspection Proforma

ACUITY sustainability
Member of the Aurecon Group

aurecon

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 03/10/2024 **Inspected by:** ET: Toby Wan SO: Derek Lai WSD: _____
Contractor: Tommy Law IEC: _____
Inspection Time: 14:30

Weather

Condition ☑ Sunny ☐ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy

Temperature 26 °C **Humidity** ☑ High ☐ Moderate ☐ Low

Wind ☐ Calm ☑ Light ☐ Breeze ☐ Strong

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
0.00	**General**					
0.01		Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02		Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Air Quality**					
1.01	S4.8.2	Is the the treatment and storage of the chemical sludge enclosed inside building structure?	☐	☑	☐	
1.02	S4.8.2	Is the sludge treatment equipped Forced ventilation system with sufficient air change rate?	☑	☐	☐	
1.03	S4.8.2	Is the exhaust discharge directed away from ASRs as far as practicable?	☐	☑	☐	
1.04	S4.8.2	Is the chemical sludge produced at the desalination plant removed off-site regularly to avoid accumulation of potentially odourous materials on site?	☐	☑	☐	
1.05	S4.8.2	Is dewatered sludge to landfill handled and transported properly to minimise odour nuisance to nearby ASRs?	☐	☑	☐	
1.06	S4.8.2	Are the trucks fully enclosed during transporting the dewatered sludge to the landfill to minimise any off-site odour impact during the transportation process?	☐	☑	☐	
2.00	**Waste Management**					
2.02	S8.5.2	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
2.03	S8.5.2	Is a trip-ticket system implemented to monitor the disposal of solid wastes at public filling facilities and landfills?	☑	☐	☐	
2.04	S8.5.2	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
2.05	S8.5.2	Is chemical waste separated from other waste and collected by a licensed chemical waste collector?	☐	☑	☐	
2.06	S8.5.2	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
2.07	S8.5.2	Is drip tray provided for chemical storage?	☐	☑	☐	
2.08	S8.5.2	Are all containers for chemical waste properly labelled?	☐	☑	☐	
2.09	S8.5.2	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
2.10	S8.5.2	Are incompatible chemical wastes stored in different areas?	☐	✓	☐	
2.11	S8.5.2	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	✓	☐	
2.12	S8.5.2	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	✓	☐	
2.13	S8.5.2	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	✓	☐	
2.14	S8.5.2	Are sufficient general refuse disposal/collection points provided on site?	☐	✓	☐	
2.15	S8.5.2	Is general refuse disposed of properly and regularly?	☐	✓	☐	
2.16	S8.5.2	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	✓	☐	
2.17	S8.5.2	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	✓	☐	
2.18	S8.5.2	Is the dewatered sludge met the minimum dry solid content (30%) in the to be disposed of at landfills?	☐	✓	☐	
2.19	S8.5.2	Is a dumping license obtained to deliver public fill to public filling areas?	✓	☐	☐	
3.00	**Landscape and Visual**					
3.01	S11.10 & 11.11	Are Is site hoarding provided?	☐	✓	☐	
3.02	S11.10 & 11.11	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	✓	☐	
3.03	S11.10 & 11.11	Is construction light oriented away from the sensitive receivers?	☐	✓	☐	
3.04	S11.10 & 11.11	Is grass hydroseeding provided to slopes as soon as the completion of works?	☐	✓	☐	
3.05	S11.10 & 11.11	Are damages to trees outside site boundary due construction works avoided?	☐	✓	☐	
3.06	S11.10 & 11.11	Are excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓	☐	☐	
3.07	S11.10 & 11.11	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	✓	☐	
3.08	S11.10 & 11.11	Are surgery works carried out for damaged trees?	✓	☐	☐	
4.00		**Landfill Gas Hazard**				
4.01	S12.7	Are the safety procedures implemented to minimise the risks of fires and explosions, asphyxiation of works and toxicity effects during all works?	☐	✓	☐	
4.02	S12.7	Are the gas detection equipment and precautions being used during trenching and excavation as well as creation of confined spaces?	☐	✓	☐	
4.03	S12.7	Are the training with regard to the awareness of potential hazards of working in confined spaces provided from the Contractor to the workers?	☐	✓	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
4.04	S12.7	Are the safety officers trained with regard to landfill gas and leachate related hazards and presented on the site throughout the works undertaken below grade?	☐	✓	☐	
4.05	S12.7	Are the all personnel working on site and all visitor made aware of the possibility of ignition of gas, the possible presence of contaminated water and the need to avoid physical contact?	☐	✓	☐	
4.06	S12.7	Is the monitoring of landfill gas being undertaken in all excavations, manholes, chambers and any confined spaces?	✓	☐	☐	
4.07	S12.7	Are the monitoring frequency and areas being specified by the safety officers or appropriately qualified person? Are the all measurements being recorded and documented?	✓	☐	☐	
4.08	S12.7	Is the drilling proceeded with adequate care and precautions against the potential hazards?	☐	✓	☐	
4.09	S12.7	Is the method statement covering all normal and emergency procedures provided by the drilling contractor prior to the commencement of the site works?	✓	☐	☐	
4.10	S12.7	Are the below ground services entries being sealed to prevent gas entry? Are the grilled metal covers being used for below grade cable trenches?	☐	✓	☐	
4.11	S12.7	Is each manhole or utility pit monitored with two measurements (at mid-depth and base) for minimum of 10 minutes? Is the steady reading and peak reading recorded at each manhole or utility pit?	✓	☐	☐	
4.12	S12.7	Are the warning signs of the hazards of landfill gas and its possible presence on site posted in prominent places?	☐	✓	☐	
5.00		**Overall**				
5.01		Is the EM&A properly implemented in general?	☐	✓	☐	

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Site Inspection Date: 3 Oct 2024

No major observation was found during site inspection.

Signatures:

ET Representative	Contractor's Representative	Supervising Officer's Representative	IEC's Representative	WSD's Representative
(Name: Toby Hon)	(Name: Eng W)	(Name: Derek Lai)	(Name:)	(Name:)

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 08/10/2024 **Inspected by:** ET: Toby Wan SO: Derek Lai WSD: _____
Contractor: Tommy Law IEC: _____
Inspection Time: 14:30

Weather

Condition ☑ Sunny ☐ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy

Temperature 28 °C **Humidity** ☑ High ☐ Moderate ☐ Low

Wind ☐ Calm ☑ Light ☐ Breeze ☐ Strong

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
0.00	**General**					
0.01		Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02		Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Air Quality**					
1.01	S4.8.2	Is the the treatment and storage of the chemical sludge enclosed inside building structure?	☐	☑	☐	
1.02	S4.8.2	Is the sludge treatment equipped Forced ventilation system with sufficient air change rate?	☑	☐	☐	
1.03	S4.8.2	Is the exhaust discharge directed away from ASRs as far as practicable?	☐	☑	☐	
1.04	S4.8.2	Is the chemical sludge produced at the desalination plant removed off-site regularly to avoid accumulation of potentially odourous materials on site?	☐	☑	☐	
1.05	S4.8.2	Is dewatered sludge to landfill handled and transported properly to minimise odour nuisance to nearby ASRs?	☐	☑	☐	
1.06	S4.8.2	Are the trucks fully enclosed during transporting the dewatered sludge to the landfill to minimise any off-site odour impact during the transportation process?	☐	☑	☐	
2.00	**Waste Management**					
2.02	S8.5.2	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
2.03	S8.5.2	Is a trip-ticket system implemented to monitor the disposal of solid wastes at public filling facilities and landfills?	☑	☐	☐	
2.04	S8.5.2	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
2.05	S8.5.2	Is chemical waste separated from other waste and collected by a licensed chemical waste collector?	☐	☑	☐	
2.06	S8.5.2	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
2.07	S8.5.2	Is drip tray provided for chemical storage?	☐	☑	☐	
2.08	S8.5.2	Are all containers for chemical waste properly labelled?	☐	☑	☐	
2.09	S8.5.2	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
2.10	S8.5.2	Are incompatible chemical wastes stored in different areas?	☐	✓	☐	
2.11	S8.5.2	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	✓	☐	
2.12	S8.5.2	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	✓	☐	
2.13	S8.5.2	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	✓	☐	
2.14	S8.5.2	Are sufficient general refuse disposal/collection points provided on site?	☐	✓	☐	
2.15	S8.5.2	Is general refuse disposed of properly and regularly?	☐	✓	☐	
2.16	S8.5.2	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	✓	☐	
2.17	S8.5.2	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	✓	☐	
2.18	S8.5.2	Is the dewatered sludge met the minimum dry solid content (30%) in the to be disposed of at landfills?	☐	✓	☐	
2.19	S8.5.2	Is a dumping license obtained to deliver public fill to public filling areas?	✓	☐	☐	
3.00	**Landscape and Visual**					
3.01	S11.10 & 11.11	Are Is site hoarding provided?	☐	✓	☐	
3.02	S11.10 & 11.11	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	✓	☐	
3.03	S11.10 & 11.11	Is construction light oriented away from the sensitive receivers?	☐	✓	☐	
3.04	S11.10 & 11.11	Is grass hydroseeding provided to slopes as soon as the completion of works?	☐	✓	☐	
3.05	S11.10 & 11.11	Are damages to trees outside site boundary due construction works avoided?	☐	✓	☐	
3.06	S11.10 & 11.11	Are excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓	☐	☐	
3.07	S11.10 & 11.11	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	✓	☐	
3.08	S11.10 & 11.11	Are surgery works carried out for damaged trees?	✓	☐	☐	
4.00		**Landfill Gas Hazard**				
4.01	S12.7	Are the safety procedures implemented to minimise the risks of fires and explosions, asphyxiation of works and toxicity effects during all works?	☐	✓	☐	
4.02	S12.7	Are the gas detection equipment and precautions being used during trenching and excavation as well as creation of confined spaces?	☐	✓	☐	
4.03	S12.7	Are the training with regard to the awareness of potential hazards of working in confined spaces provided from the Contractor to the workers?	☐	✓	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
4.04	S12.7	Are the safety officers trained with regard to landfill gas and leachate related hazards and presented on the site throughout the works undertaken below grade?	☐	✓	☐	
4.05	S12.7	Are the all personnel working on site and all visitor made aware of the possibility of ignition of gas, the possible presence of contaminated water and the need to avoid physical contact?	☐	✓	☐	
4.06	S12.7	Is the monitoring of landfill gas being undertaken in all excavations, manholes, chambers and any confined spaces?	✓	☐	☐	
4.07	S12.7	Are the monitoring frequency and areas being specified by the safety officers or appropriately qualified person? Are the all measurements being recorded and documented?	✓	☐	☐	
4.08	S12.7	Is the drilling proceeded with adequate care and precautions against the potential hazards?	☐	✓	☐	
4.09	S12.7	Is the method statement covering all normal and emergency procedures provided by the drilling contractor prior to the commencement of the site works?	✓	☐	☐	
4.10	S12.7	Are the below ground services entries being sealed to prevent gas entry? Are the grilled metal covers being used for below grade cable trenches?	☐	✓	☐	
4.11	S12.7	Is each manhole or utility pit monitored with two measurements (at mid-depth and base) for minimum of 10 minutes? Is the steady reading and peak reading recorded at each manhole or utility pit?	✓	☐	☐	
4.12	S12.7	Are the warning signs of the hazards of landfill gas and its possible presence on site posted in prominent places?	☐	✓	☐	
5.00		**Overall**				
5.01		Is the EM&A properly implemented in general?	☐	✓	☐	

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Site Inspection Date : 8 Oct 2024

No major observation was during site inspection.

Signatures:

ET Representative	Contractor's Representative	Supervising Officer's Representative	IEC's Representative	WSD's Representative
(Name: Toby Wan)	(Name:)	(Name:)	(Name:)	(Name:)

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 15/10/2024 **Inspected by:** ET: Toby Wan SO: Derek Lai WSD: _____
Contractor: Tommy Law IEC: _____
Inspection Time: 14:30

Weather

Condition ☑ Sunny ☐ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy

Temperature 28 °C **Humidity** ☑ High ☐ Moderate ☐ Low

Wind ☐ Calm ☑ Light ☐ Breeze ☐ Strong

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
0.00	**General**					
0.01		Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02		Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Air Quality**					
1.01	S4.8.2	Is the the treatment and storage of the chemical sludge enclosed inside building structure?	☐	☑	☐	
1.02	S4.8.2	Is the sludge treatment equipped Forced ventilation system with sufficient air change rate?	☑	☐	☐	
1.03	S4.8.2	Is the exhaust discharge directed away from ASRs as far as practicable?	☐	☑	☐	
1.04	S4.8.2	Is the chemical sludge produced at the desalination plant removed off-site regularly to avoid accumulation of potentially odourous materials on site?	☐	☑	☐	
1.05	S4.8.2	Is dewatered sludge to landfill handled and transported properly to minimise odour nuisance to nearby ASRs?	☐	☑	☐	
1.06	S4.8.2	Are the trucks fully enclosed during transporting the dewatered sludge to the landfill to minimise any off-site odour impact during the transportation process?	☐	☑	☐	
2.00	**Waste Management**					
2.02	S8.5.2	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
2.03	S8.5.2	Is a trip-ticket system implemented to monitor the disposal of solid wastes at public filling facilities and landfills?	☑	☐	☐	
2.04	S8.5.2	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
2.05	S8.5.2	Is chemical waste separated from other waste and collected by a licensed chemical waste collector?	☐	☑	☐	
2.06	S8.5.2	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
2.07	S8.5.2	Is drip tray provided for chemical storage?	☐	☑	☐	
2.08	S8.5.2	Are all containers for chemical waste properly labelled?	☐	☑	☐	
2.09	S8.5.2	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
2.10	S8.5.2	Are incompatible chemical wastes stored in different areas?	☐	✓	☐	
2.11	S8.5.2	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	✓	☐	
2.12	S8.5.2	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	✓	☐	
2.13	S8.5.2	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	✓	☐	
2.14	S8.5.2	Are sufficient general refuse disposal/collection points provided on site?	☐	✓	☐	
2.15	S8.5.2	Is general refuse disposed of properly and regularly?	☐	✓	☐	
2.16	S8.5.2	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	✓	☐	
2.17	S8.5.2	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	✓	☐	
2.18	S8.5.2	Is the dewatered sludge met the minimum dry solid content (30%) in the to be disposed of at landfills?	☐	✓	☐	
2.19	S8.5.2	Is a dumping license obtained to deliver public fill to public filling areas?	✓	☐	☐	
3.00	**Landscape and Visual**					
3.01	S11.10 & 11.11	Are Is site hoarding provided?	☐	✓	☐	
3.02	S11.10 & 11.11	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	✓	☐	
3.03	S11.10 & 11.11	Is construction light oriented away from the sensitive receivers?	☐	✓	☐	
3.04	S11.10 & 11.11	Is grass hydroseeding provided to slopes as soon as the completion of works?	☐	✓	☐	
3.05	S11.10 & 11.11	Are damages to trees outside site boundary due construction works avoided?	☐	✓	☐	
3.06	S11.10 & 11.11	Are excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓	☐	☐	
3.07	S11.10 & 11.11	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	✓	☐	
3.08	S11.10 & 11.11	Are surgery works carried out for damaged trees?	✓	☐	☐	
4.00		**Landfill Gas Hazard**				
4.01	S12.7	Are the safety procedures implemented to minimise the risks of fires and explosions, asphyxiation of works and toxicity effects during all works?	☐	✓	☐	
4.02	S12.7	Are the gas detection equipment and precautions being used during trenching and excavation as well as creation of confined spaces?	☐	✓	☐	
4.03	S12.7	Are the training with regard to the awareness of potential hazards of working in confined spaces provided from the Contractor to the workers?	☐	✓	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
4.04	S12.7	Are the safety officers trained with regard to landfill gas and leachate related hazards and presented on the site throughout the works undertaken below grade?	☐	✓	☐	
4.05	S12.7	Are the all personnel working on site and all visitor made aware of the possibility of ignition of gas, the possible presence of contaminated water and the need to avoid physical contact?	☐	✓	☐	
4.06	S12.7	Is the monitoring of landfill gas being undertaken in all excavations, manholes, chambers and any confined spaces?	✓	☐	☐	
4.07	S12.7	Are the monitoring frequency and areas being specified by the safety officers or appropriately qualified person? Are the all measurements being recorded and documented?	✓	☐	☐	
4.08	S12.7	Is the drilling proceeded with adequate care and precautions against the potential hazards?	☐	✓	☐	
4.09	S12.7	Is the method statement covering all normal and emergency procedures provided by the drilling contractor prior to the commencement of the site works?	✓	☐	☐	
4.10	S12.7	Are the below ground services entries being sealed to prevent gas entry? Are the grilled metal covers being used for below grade cable trenches?	☐	✓	☐	
4.11	S12.7	Is each manhole or utility pit monitored with two measurements (at mid-depth and base) for minimum of 10 minutes? Is the steady reading and peak reading recorded at each manhole or utility pit?	✓	☐	☐	
4.12	S12.7	Are the warning signs of the hazards of landfill gas and its possible presence on site posted in prominent places?	☐	✓	☐	
5.00		**Overall**				
5.01		Is the EM&A properly implemented in general?	☐	✓	☐	

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Site Inspection Date : 15 Oct 2024

No major observation was found during site inspection.

Signatures:

ET Representative	Contractor's Representative	Supervising Officer's Representative	IEC's Representative	WSD's Representative
(Name: Toby Wan)	(Name:)	(Name:)	(Name:)	(Name:)

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 22/10/2024 **Inspected by:** ET: Toby Wan SO: Derek Lai WSD: _____

Contractor: Tommy Law IEC: _____

Inspection Time: 14:30

Weather

Condition ☑ Sunny ☐ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy

Temperature 28 °C **Humidity** ☑ High ☐ Moderate ☐ Low

Wind ☐ Calm ☑ Light ☐ Breeze ☐ Strong

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
0.00	**General**					
0.01		Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02		Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Air Quality**					
1.01	S4.8.2	Is the the treatment and storage of the chemical sludge enclosed inside building structure?	☐	☑	☐	
1.02	S4.8.2	Is the sludge treatment equipped Forced ventilation system with sufficient air change rate?	☑	☐	☐	
1.03	S4.8.2	Is the exhaust discharge directed away from ASRs as far as practicable?	☐	☑	☐	
1.04	S4.8.2	Is the chemical sludge produced at the desalination plant removed off-site regularly to avoid accumulation of potentially odourous materials on site?	☐	☑	☐	
1.05	S4.8.2	Is dewatered sludge to landfill handled and transported properly to minimise odour nuisance to nearby ASRs?	☐	☑	☐	
1.06	S4.8.2	Are the trucks fully enclosed during transporting the dewatered sludge to the landfill to minimise any off-site odour impact during the transportation process?	☐	☑	☐	
2.00	**Waste Management**					
2.02	S8.5.2	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
2.03	S8.5.2	Is a trip-ticket system implemented to monitor the disposal of solid wastes at public filling facilities and landfills?	☑	☐	☐	
2.04	S8.5.2	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
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2.08	S8.5.2	Are all containers for chemical waste properly labelled?	☐	☑	☐	
2.09	S8.5.2	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
2.10	S8.5.2	Are incompatible chemical wastes stored in different areas?	☐	✓	☐	
2.11	S8.5.2	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	✓	☐	
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2.17	S8.5.2	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	✓	☐	
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2.19	S8.5.2	Is a dumping license obtained to deliver public fill to public filling areas?	✓	☐	☐	
3.00	**Landscape and Visual**					
3.01	S11.10 & 11.11	Are Is site hoarding provided?	☐	✓	☐	
3.02	S11.10 & 11.11	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	✓	☐	
3.03	S11.10 & 11.11	Is construction light oriented away from the sensitive receivers?	☐	✓	☐	
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3.05	S11.10 & 11.11	Are damages to trees outside site boundary due construction works avoided?	☐	✓	☐	
3.06	S11.10 & 11.11	Are excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓	☐	☐	
3.07	S11.10 & 11.11	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	✓	☐	
3.08	S11.10 & 11.11	Are surgery works carried out for damaged trees?	✓	☐	☐	
4.00		**Landfill Gas Hazard**				
4.01	S12.7	Are the safety procedures implemented to minimise the risks of fires and explosions, asphyxiation of works and toxicity effects during all works?	☐	✓	☐	
4.02	S12.7	Are the gas detection equipment and precautions being used during trenching and excavation as well as creation of confined spaces?	☐	✓	☐	
4.03	S12.7	Are the training with regard to the awareness of potential hazards of working in confined spaces provided from the Contractor to the workers?	☐	✓	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
4.04	S12.7	Are the safety officers trained with regard to landfill gas and leachate related hazards and presented on the site throughout the works undertaken below grade?	☐	✓	☐	
4.05	S12.7	Are the all personnel working on site and all visitor made aware of the possibility of ignition of gas, the possible presence of contaminated water and the need to avoid physical contact?	☐	✓	☐	
4.06	S12.7	Is the monitoring of landfill gas being undertaken in all excavations, manholes, chambers and any confined spaces?	✓	☐	☐	
4.07	S12.7	Are the monitoring frequency and areas being specified by the safety officers or appropriately qualified person? Are the all measurements being recorded and documented?	✓	☐	☐	
4.08	S12.7	Is the drilling proceeded with adequate care and precautions against the potential hazards?	☐	✓	☐	
4.09	S12.7	Is the method statement covering all normal and emergency procedures provided by the drilling contractor prior to the commencement of the site works?	✓	☐	☐	
4.10	S12.7	Are the below ground services entries being sealed to prevent gas entry? Are the grilled metal covers being used for below grade cable trenches?	☐	✓	☐	
4.11	S12.7	Is each manhole or utility pit monitored with two measurements (at mid-depth and base) for minimum of 10 minutes? Is the steady reading and peak reading recorded at each manhole or utility pit?	✓	☐	☐	
4.12	S12.7	Are the warning signs of the hazards of landfill gas and its possible presence on site posted in prominent places?	☐	✓	☐	
5.00		**Overall**				
5.01		Is the EM&A properly implemented in general?	☐	✓	☐	

Member of the Aurecon Group

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Site Inspection Date = 22 Oct 2024

No major observation was found during site inspection.

Signatures:

ET Representative	Contractor's Representative	Supervising Officer's Representative	IEC's Representative	WSD's Representative
(Name: Toby Wan)	(Name: [illegible])	(Name: [illegible] Cai)	(Name:)	(Name:)

Member of the Aurecon Group

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 28/10/2024 **Inspected by:** ET: Toby Wan SO: Derek Lai WSD: W. P. Ho
Contractor: Tommy Law IEC: Serena Shek
Inspection Time: 09:15

Weather

Condition ☑ Sunny ☐ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy

Temperature 28 °C **Humidity** ☑ High ☐ Moderate ☐ Low

Wind ☐ Calm ☑ Light ☐ Breeze ☐ Strong

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
0.00	**General**					
0.01		Is the current Environmental Permit displayed conspicuously at all vehicle site entrances/exits for public's information at any time?	☐	☑	☐	
0.02		Is ET Leader's log-book kept readily available for inspections?	☐	☑	☐	
1.00	**Air Quality**					
1.01	S4.8.2	Is the the treatment and storage of the chemical sludge enclosed inside building structure?	☐	☑	☐	
1.02	S4.8.2	Is the sludge treatment equipped Forced ventilation system with sufficient air change rate?	☑	☐	☐	
1.03	S4.8.2	Is the exhaust discharge directed away from ASRs as far as practicable?	☐	☑	☐	
1.04	S4.8.2	Is the chemical sludge produced at the desalination plant removed off-site regularly to avoid accumulation of potentially odourous materials on site?	☐	☑	☐	
1.05	S4.8.2	Is dewatered sludge to landfill handled and transported properly to minimise odour nuisance to nearby ASRs?	☐	☑	☐	
1.06	S4.8.2	Are the trucks fully enclosed during transporting the dewatered sludge to the landfill to minimise any off-site odour impact during the transportation process?	☐	☑	☐	
2.00	**Waste Management**					
2.02	S8.5.2	Is a recording system implemented to record the amount of wastes generated, recycled and disposed of?	☐	☑	☐	
2.03	S8.5.2	Is a trip-ticket system implemented to monitor the disposal of solid wastes at public filling facilities and landfills?	☑	☐	☐	
2.04	S8.5.2	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	
2.05	S8.5.2	Is chemical waste separated from other waste and collected by a licensed chemical waste collector?	☐	☑	☐	
2.06	S8.5.2	Are trip tickets for chemical waste disposal available for inspection?	☑	☐	☐	
2.07	S8.5.2	Is drip tray provided for chemical storage?	☐	☑	☐	
2.08	S8.5.2	Are all containers for chemical waste properly labelled?	☐	☑	☐	
2.09	S8.5.2	Is chemical waste storage area used solely for storage of chemical waste and properly labelled?	☐	☑	☐	

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Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
2.10	S8.5.2	Are incompatible chemical wastes stored in different areas?	☐	✓	☐	
2.11	S8.5.2	Is the chemical waste storage area enclosed on at least 3 sides and adequately ventilated?	☐	✓	☐	
2.12	S8.5.2	Is an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or of 20% by volume of the chemical waste stored in that area, whichever is the greatest, provide?	☐	✓	☐	
2.13	S8.5.2	Are a routine cleaning and maintenance programme implemented for drainage systems, sump pits, and oil interceptors?	☐	✓	☐	
2.14	S8.5.2	Are sufficient general refuse disposal/collection points provided on site?	☐	✓	☐	
2.15	S8.5.2	Is general refuse disposed of properly and regularly?	☐	✓	☐	
2.16	S8.5.2	Are appropriate measures adopted to minimize windblown litter and dust during transportation of waste?	☐	✓	☐	
2.17	S8.5.2	Are individual collectors for aluminum cans, plastic bottles and packaging material and office paper provided to encourage waste segregation?	☐	✓	☐	
2.18	S8.5.2	Is the dewatered sludge met the minimum dry solid content (30%) in the to be disposed of at landfills?	☐	✓	☐	
2.19	S8.5.2	Is a dumping license obtained to deliver public fill to public filling areas?	✓	☐	☐	
3.00	**Landscape and Visual**					
3.01	S11.10 & 11.11	Are Is site hoarding provided?	☐	✓	☐	
3.02	S11.10 & 11.11	Are vegetation disturbance minimized or soil protected to reduce potential soil erosion?	☐	✓	☐	
3.03	S11.10 & 11.11	Is construction light oriented away from the sensitive receivers?	☐	✓	☐	
3.04	S11.10 & 11.11	Is grass hydroseeding provided to slopes as soon as the completion of works?	☐	✓	☐	
3.05	S11.10 & 11.11	Are damages to trees outside site boundary due construction works avoided?	☐	✓	☐	
3.06	S11.10 & 11.11	Are excavation works carried out manually instead of machinery operation within 2.5m vicinity of any preserved trees?	✓	☐	☐	
3.07	S11.10 & 11.11	Are the retained and transplanted tree(s) properly protected and in good conditions?	☐	✓	☐	
3.08	S11.10 & 11.11	Are surgery works carried out for damaged trees?	✓	☐	☐	
4.00		**Landfill Gas Hazard**				
4.01	S12.7	Are the safety procedures implemented to minimise the risks of fires and explosions, asphyxiation of works and toxicity effects during all works?	☐	✓	☐	
4.02	S12.7	Are the gas detection equipment and precautions being used during trenching and excavation as well as creation of confined spaces?	☐	✓	☐	
4.03	S12.7	Are the training with regard to the awareness of potential hazards of working in confined spaces provided from the Contractor to the workers?	☐	✓	☐	

Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Item No.	EIA ref.		N/A	Yes	No	Photo/Remarks
4.04	S12.7	Are the safety officers trained with regard to landfill gas and leachate related hazards and presented on the site throughout the works undertaken below grade?	☐	✓	☐	
4.05	S12.7	Are the all personnel working on site and all visitor made aware of the possibility of ignition of gas, the possible presence of contaminated water and the need to avoid physical contact?	☐	✓	☐	
4.06	S12.7	Is the monitoring of landfill gas being undertaken in all excavations, manholes, chambers and any confined spaces?	✓	☐	☐	
4.07	S12.7	Are the monitoring frequency and areas being specified by the safety officers or appropriately qualified person? Are the all measurements being recorded and documented?	✓	☐	☐	
4.08	S12.7	Is the drilling proceeded with adequate care and precautions against the potential hazards?	☐	✓	☐	
4.09	S12.7	Is the method statement covering all normal and emergency procedures provided by the drilling contractor prior to the commencement of the site works?	✓	☐	☐	
4.10	S12.7	Are the below ground services entries being sealed to prevent gas entry? Are the grilled metal covers being used for below grade cable trenches?	☐	✓	☐	
4.11	S12.7	Is each manhole or utility pit monitored with two measurements (at mid-depth and base) for minimum of 10 minutes? Is the steady reading and peak reading recorded at each manhole or utility pit?	✓	☐	☐	
4.12	S12.7	Are the warning signs of the hazards of landfill gas and its possible presence on site posted in prominent places?	☐	✓	☐	
5.00		**Overall**				
5.01		Is the EM&A properly implemented in general?	☐	✓	☐	

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Contract no. 13/WSD/17 Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

Remark / Follow up of Observation(s) and Non-compliance(s) of Last Weekly Site Inspection:

Site Inspection Date : 28 Oct 2024.

No major observation was found during site inspection.

Signatures:

ET Representative	Contractor's Representative	Supervising Officer's Representative	IEC's Representative	WSD's Representative
(Name: Toby Wan)	(Name: Tony Lu)	(Name: Derek Lau)	(Name: Serena Shek)	(Name: WAI PONG)

Appendix J

Complaint Log

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 Oct 2024	0	2	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 – 31 Oct 2024	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 – 31 Oct 2024	0	0	N/A

Appendix K

Exceedance Report (s)

Bi-Weekly Incident Report on Action Level or Limit Level Non-Compliance

Date of exceedance	Monitoring Station	Tide	Parameter	Measurement Result (mg/L)	Sampling depth	Depth Average Result (mg/L)	Action Level (mg/L)		Limit Level (mg/L)		Exceedance	Marine construction activities with contact with water (Y/N)	Exceedance related to Project (Y/N)	Reasons of non-project related exceedance						
							95%-ile	Control 120%	99%-ile	Control 130%				(1)	(2)	(3)	(4)	(5)	(6)	(7)
03/10/2024	NF1	Ebb	Suspended Solid (SS)	--	--	4.67	5.00	3.10	6.00	3.36	Limit Level	N	N		✓		✓	✓	✓	✓
	NF2	Ebb	Suspended Solid (SS)	--	--	3.75	5.00	3.10	6.00	3.36	Limit Level	N	N		✓		✓	✓	✓	✓
05/10/2024	WSR1	Flood	Suspended Solid (SS)	--	--	6.67	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR2	Flood	Suspended Solid (SS)	--	--	5.17	5.00	4.90	6.00	5.31	Action Level	N	N		✓		✓	✓	✓	✓
	WSR3	Flood	Suspended Solid (SS)	--	--	5.58	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR4	Flood	Suspended Solid (SS)	--	--	7.83	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR16	Flood	Suspended Solid (SS)	--	--	6.50	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR33	Flood	Suspended Solid (SS)	--	--	7.00	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR36	Flood	Suspended Solid (SS)	--	--	5.5	5.00	4.90	6.00	5.31	Limit Level	N	N		✓		✓	✓	✓	✓
	NF1	Flood	Suspended Solid (SS)	--	--	5.33	5.00	6.60	6.00	7.15	Action Level	N	N		✓		✓	✓	✓	✓
10/10/2024	NF1	Ebb	Suspended Solid (SS)	--	--	3.50	5.00	3.30	6.00	3.58	Action Level	N	N		✓		✓	✓	✓	✓
12/10/2024	WSR16	Ebb	Suspended Solid (SS)	--	--	4.83	5.00	3.80	6.00	4.12	Action Level	N	N		✓		✓	✓	✓	✓
15/10/2024	WSR1	Ebb	Suspended Solid (SS)	--	--	4.75	5.00	4.40	6.00	4.77	Action Level	N	N		✓		✓	✓	✓	✓
	WSR33	Ebb	Suspended Solid (SS)	--	--	5.67	5.00	4.40	6.00	4.77	Limit Level	N	N		✓		✓	✓	✓	✓
	NF2	Ebb	Suspended Solid (SS)	--	--	4.58	5.00	3.50	6.00	3.79	Action Level	N	N		✓		✓	✓	✓	✓

1) Control station value already exceed either the Action or Limit Level.
2) No silt plume or pollution discharge from site area was observed.
3) Rainfall was recorded at Tseung Kwan O during the monitoring period, rainfall may lead to release of SS content form the soil of the nearby lands (e.g., Country Park, fill bank).
4) No action and limit level exceedance observed at WSR37 (Outfall Shaft).
5) Marine construction activity was completed.
6) No operation activities related to the release of SS in the reporting period.
7) No exceedances of SS at S.P.1 in the daily continuous effluent monitoring.

Conclusion:

During water quality monitoring on 3,5, 10, 12, and 15 October 2024, two (2) Action Level and six (6) Limit Level exceedances were recorded during mid-flood tide and four (4) Action Level and three (3) Limit Level exceedances were recorded during mid-ebb. Total six (6) Action Level and nine (9) Limit Level exceedances for SS of impact water quality monitoring were recorded between 1 October to 15 October 2024.

The marine construction works were completed on 1 September 2023. The commissioning activities were shown in the table below.

The desalination plant and the outfall shaft work normally.

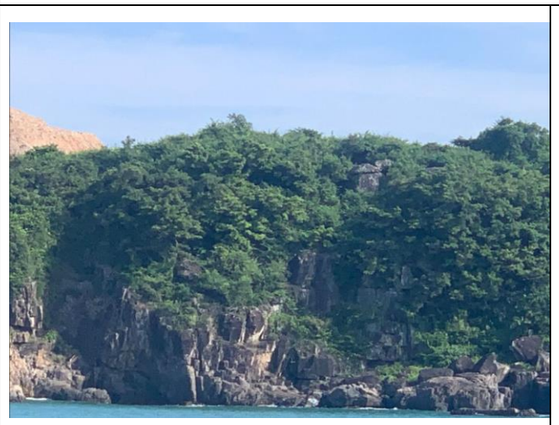
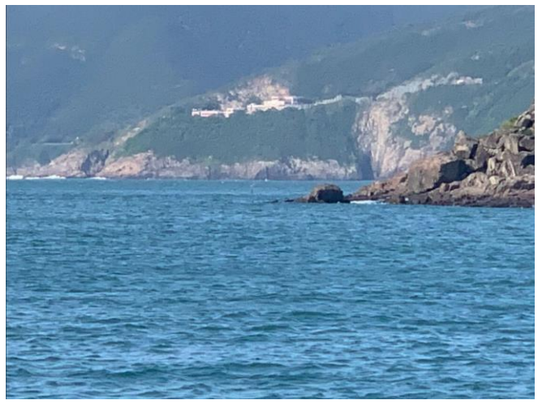
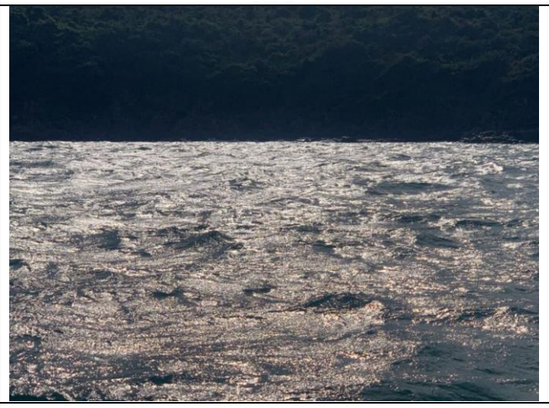
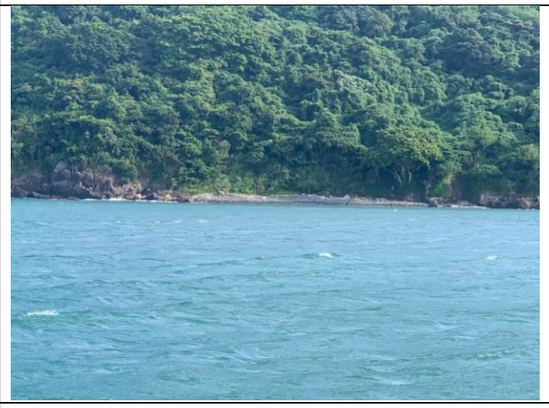
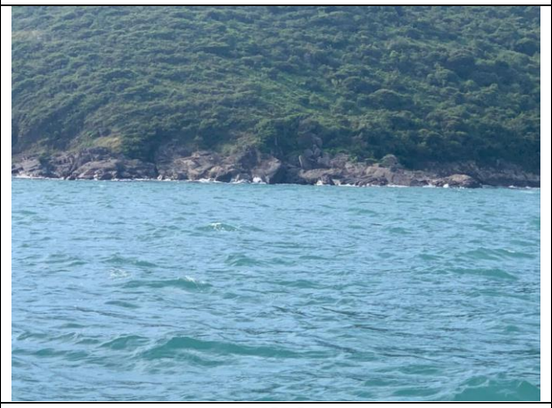
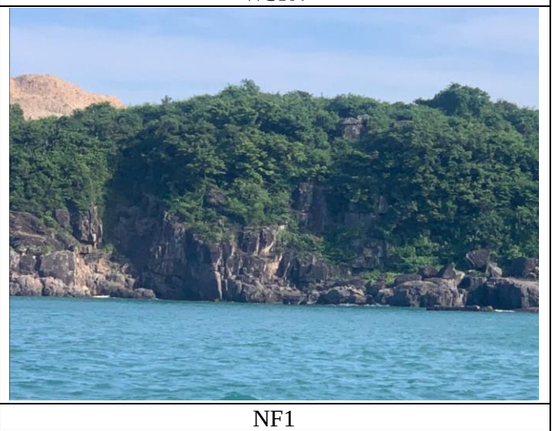
After investigation, all exceedances were considered non-project related.

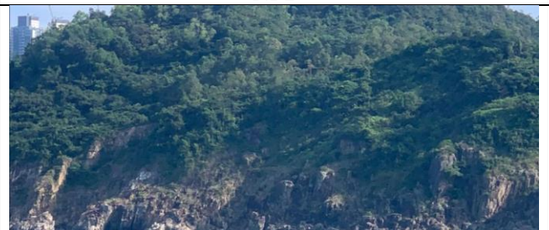
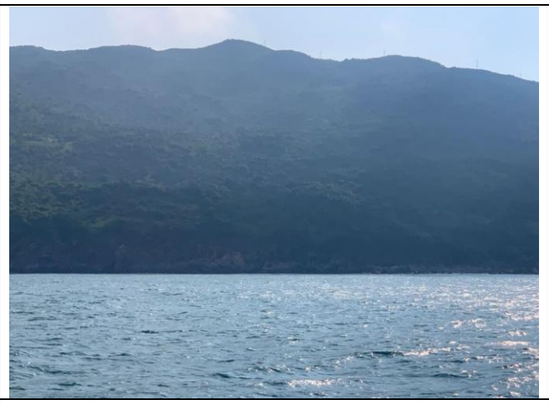
Operation Activities:

3 October 2024	5 October 2024
• Production of desalinated water • Water sampling and analysis • Actidaff backwash	• Production of desalinated water • Water sampling and analysis
10 October 2024	12 October 2024

• Production of desalinated water • Water sampling and analysis • Actidaff backwash	• Production of desalinated water • Water sampling and analysis
15 October 2024	
• Production of desalinated water • Water sampling and analysis	

Supporting Photo:

Date of exceedance	Monitoring station(s)			
03/10/2024				
	NF1	NF2		
05/10/2024				
	WSR1	WSR2	WSR3	WSR4
				
	WSR16	WSR33	WSR36	NF1

Date of exceedance	Monitoring station(s)			
10/10/2024				
	NF1			
12/10/2024				
	WSR16			
15/10/2024				
	WSR1	WSR33	NF2	

Bi-Weekly Incident Report on Action Level or Limit Level Non-Compliance

Date of exceedance	Monitoring Station	Tide	Parameter	Measurement Result (mg/L)	Sampling depth	Depth Av5000erage Result (mg/L)	Action Level (mg/L)		Limit Level (mg/L)		Exceedance	Marine construction activities with contact with water (Y/N)	Exceedance related to Project (Y/N)	Reasons of non-project related exceedance						
							95%-ile	Control 120%	99%-ile	Control 130%				(1)	(2)	(3)	(4)	(5)	(6)	(7)
17/10/2024	NF3	Ebb	Suspended Solid (SS)	--	--	5.17	5.00	4.70	6.00	5.09	Action Level	N	N		✓		✓	✓	✓	✓
19/10/2024	WSR1	Flood	Suspended Solid (SS)	--	--	52.67	5.00	65.40	6.00	70.85	Action Level	N	N		✓		✓	✓	✓	✓
	WSR2	Flood	Suspended Solid (SS)	--	--	18.67	5.00	65.40	6.00	70.85	Action Level	N	N		✓		✓	✓	✓	✓
22/10/2024	WSR4	Flood	Suspended Solid (SS)	--	--	3.25	5.00	3.10	6.00	3.36	Action Level	N	N		✓			✓	✓	✓
	WSR16	Flood	Suspended Solid (SS)	--	--	4.08	5.00	3.10	6.00	3.36	Limit Level	N	N		✓			✓	✓	✓
	WSR33	Flood	Suspended Solid (SS)	--	--	3.50	5.00	3.10	6.00	3.36	Limit Level	N	N		✓			✓	✓	✓
	WSR37	Flood	Suspended Solid (SS)	--	--	3.33	5.00	3.10	6.00	3.36	Limit Level	N	N		✓			✓	✓	✓
	NF2	Flood	Suspended Solid (SS)	--	--	3.25	5.00	3.10	6.00	3.36	Limit Level	N	N		✓			✓	✓	✓
24/10/2024	WSR1	Ebb	Suspended Solid (SS)	--	--	10.00	5.00	9.80	6.00	10.62	Limit Level	N	N		✓			✓	✓	✓
	WSR2	Ebb	Suspended Solid (SS)	--	--	8.67	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	WSR3	Ebb	Suspended Solid (SS)	--	--	10.67	5.00	9.80	6.00	10.62	Limit Level	N	N		✓			✓	✓	✓
	WSR4	Ebb	Suspended Solid (SS)	--	--	11.00	5.00	9.80	6.00	10.62	Limit Level	N	N		✓			✓	✓	✓
	WSR16	Ebb	Suspended Solid (SS)	--	--	7.75	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	WSR33	Ebb	Suspended Solid (SS)	--	--	6.83	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	WSR36	Ebb	Suspended Solid (SS)	--	--	6.08	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	WSR37	Ebb	Suspended Solid (SS)	--	--	8.00	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	NF1	Ebb	Suspended Solid (SS)	--	--	10.67	5.00	9.80	6.00	10.62	Limit Level	N	N		✓			✓	✓	✓
	NF2	Ebb	Suspended Solid (SS)	--	--	8.83	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
	NF3	Ebb	Suspended Solid (SS)	--	--	7.00	5.00	9.80	6.00	10.62	Action Level	N	N		✓			✓	✓	✓
26/10/2024	WSR1	Ebb	Suspended Solid (SS)	--	--	4.92	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
	WSR2	Ebb	Suspended Solid (SS)	--	--	5.17	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
	WSR4	Ebb	Suspended Solid (SS)	--	--	4.58	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
	WSR16	Ebb	Suspended Solid (SS)	--	--	5.42	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
	WSR37	Ebb	Suspended Solid (SS)	--	--	4.42	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
	NF2	Ebb	Suspended Solid (SS)	--	--	4.08	5.00	4.00	6.00	4.33	Limit Level	N	N		✓	✓		✓	✓	✓
29/10/2024	WSR1	Ebb	Suspended Solid (SS)	--	--	4.83	5.00	4.70	6.00	5.09	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR2	Ebb	Suspended Solid (SS)	--	--	4.83	5.00	4.70	6.00	5.09	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR4	Ebb	Suspended Solid (SS)	--	--	6.83	5.00	4.70	6.00	5.09	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR16	Ebb	Suspended Solid (SS)	--	--	6.00	5.00	4.70	6.00	5.09	Limit Level	N	N		✓		✓	✓	✓	✓

Date of exceedance	Monitoring Station	Tide	Parameter	Measurement Result (mg/L)	Sampling depth	Depth Av5000erage Result (mg/L)	Action Level (mg/L)		Limit Level (mg/L)		Exceedance	Marine construction activities with contact with water (Y/N)	Exceedance related to Project (Y/N)	Reasons of non-project related exceedance						
							95%-ile	Control 120%	99%-ile	Control 130%				(1)	(2)	(3)	(4)	(5)	(6)	(7)
31/10/2024	WSR16	Ebb	Suspended Solid (SS)	--	--	4.00	5.00	3.90	6.00	4.23	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR33	Ebb	Suspended Solid (SS)	--	--	4.50	5.00	3.90	6.00	4.23	Limit Level	N	N		✓		✓	✓	✓	✓
	WSR36	Ebb	Suspended Solid (SS)	--	--	3.92	5.00	3.90	6.00	4.23	Limit Level	N	N		✓		✓	✓	✓	✓
	NF1	Ebb	Suspended Solid (SS)	--	--	4.17	5.00	3.90	6.00	4.23	Limit Level	N	N		✓		✓	✓	✓	✓

1) Control station value already exceed either the Action or Limit Level.
2) No silt plume or pollution discharge from site area was observed.
3) Rainfall was recorded at Tseung Kwan O during the monitoring period, rainfall may lead to release of SS content form the soil of the nearby lands (e.g., Country Park, fill bank).
4) No action and limit level exceedance observed at WSR37 (Outfall Shaft).
5) Marine construction activity was completed.
6) No operation activities related to the release of SS in the reporting period.
7) No exceedances of SS at S.P.1 in the daily continuous effluent monitoring.

Conclusion:

During water quality monitoring on 17, 19, 22, 24, 26, 29 and 31 October 2024, three (3) Action Level and four (4) Limit Level exceedances were recorded during mid-flood tide and eight (8) Action Level and sixteen (16) Limit Level exceedances were recorded during mid-ebb. Total eleven (11) Action Level and twenty (20) Limit Level exceedances for SS of impact water quality monitoring were recorded between 16 October to 31 October 2024.

The marine construction works were completed on 1 September 2023. The commissioning activities were shown in the table below.

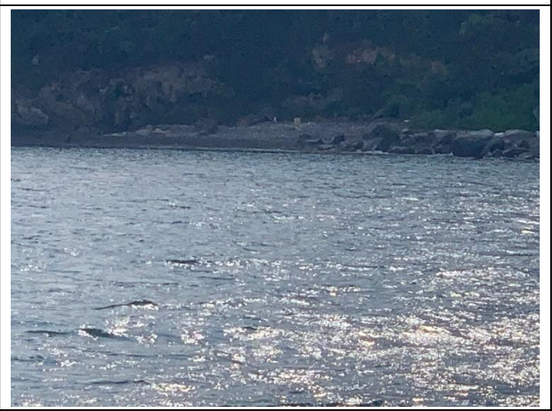
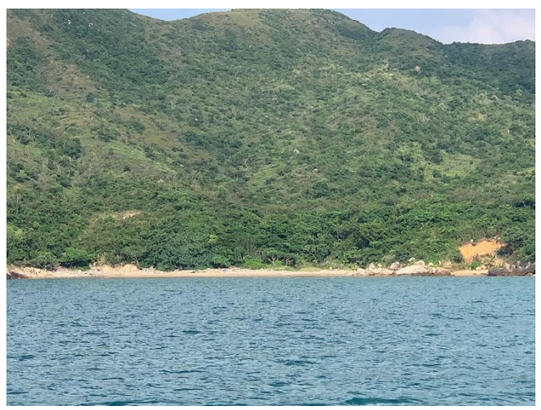
The desalination plant and the outfall shaft work normally.

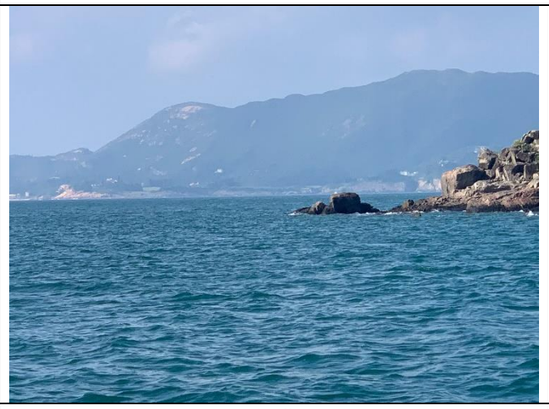
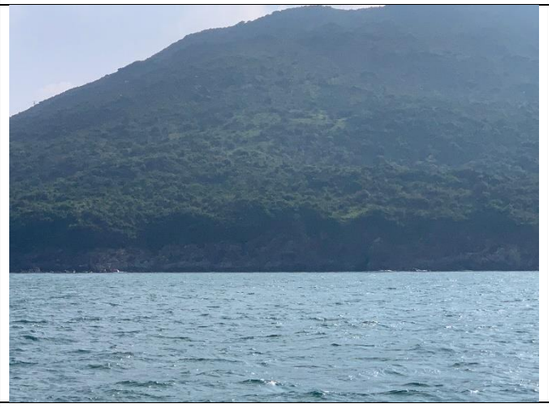
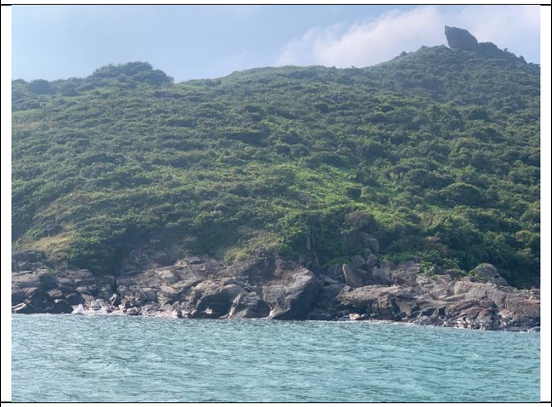
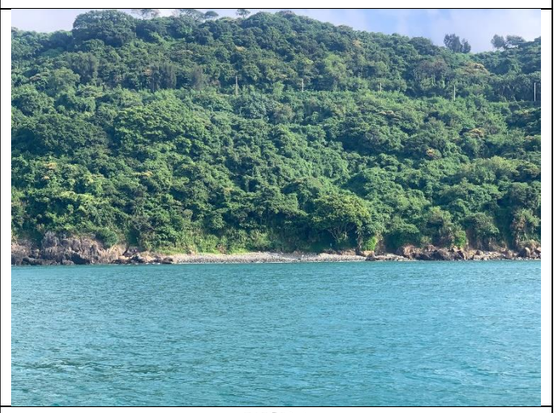
After investigation, all exceedances were considered non-project related.

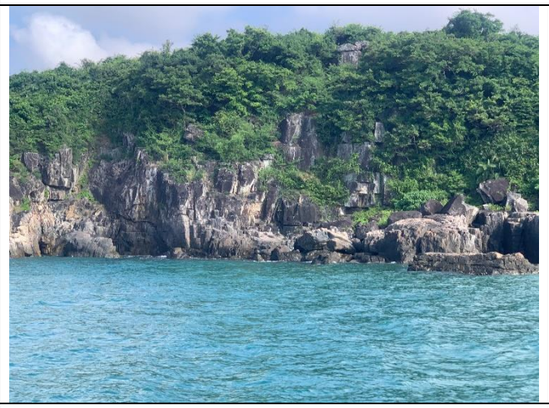
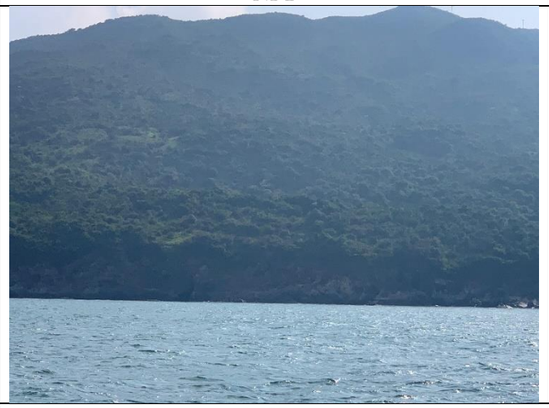
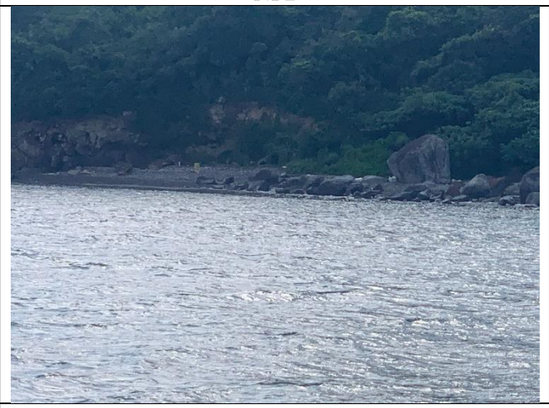
Operation Activities:

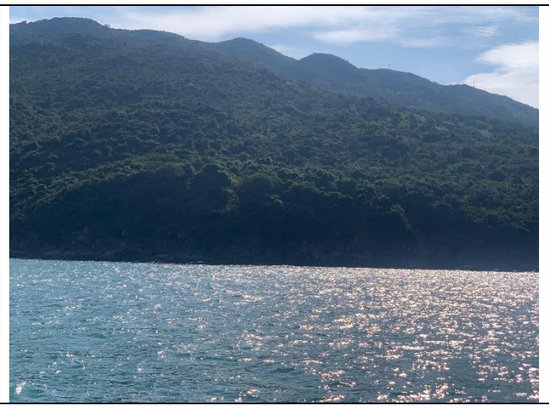
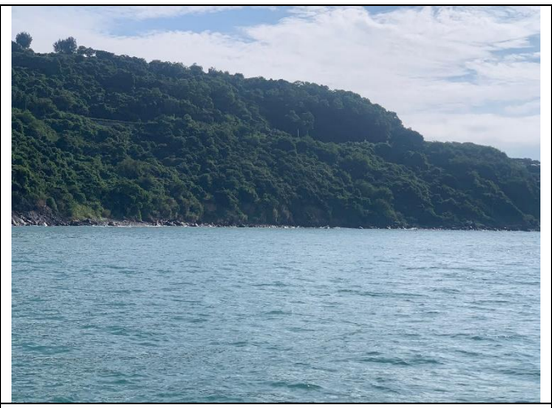
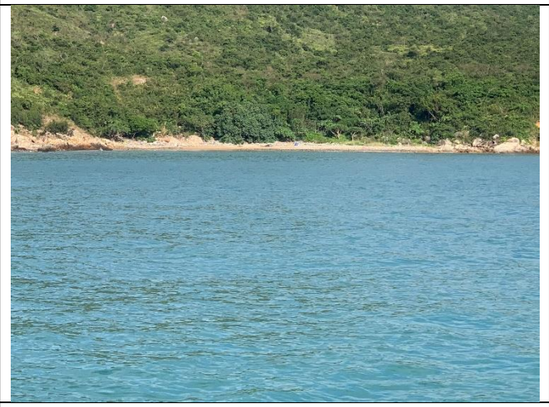
17 October 2024	19 October 2024
• Production of desalinated water • Water sampling and analysis • Actidaff backwash	• Production of desalinated water • Water sampling and analysis
22 October 2024	24 October 2024
• Production of desalinated water • Water sampling and analysis • Actidaff backwash	• Production of desalinated water • Water sampling and analysis • Actidaff backwash
26 October 2024	29 October 2024
• Production of desalinated water • Water sampling and analysis	• Production of desalinated water Water sampling and analysis
31 October 2024	
• Production of desalinated water • Water sampling and analysis	

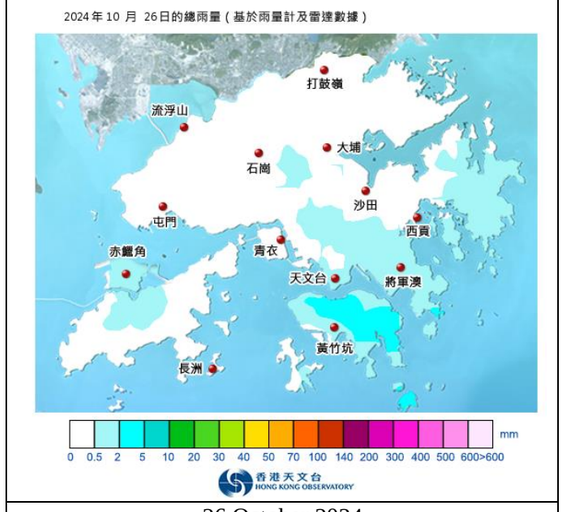
Supporting Photo:

Date of exceedance	Monitoring station(s)			
17/10/2024				
	NF3			
19/10/2024				
	WSR1	WSR2		
22/10/2024				
	WSR4	WSR16	WSR33	WSR37

Date of exceedance	Monitoring station(s)			
24/10/2024				
	NF2			
				
	WSR1	WSR2	WSR3	WSR4
				
	WSR16	WSR33	WSR36	WSR37

Date of exceedance	Monitoring station(s)			
26/10/2024				
	NF1	NF2	NF3	
				
	WSR1	WSR2	WSR4	WSR16
				
	WSR37	NF2		

Date of exceedance	Monitoring station(s)			
29/10/2024				
	WSR1	WSR2	WSR4	WSR16
31/10/2024				
	WSR16	WSR33	WSR36	NF1



26 October 2024