



Contract No. 13/WSD/17

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

**Operation Phase Monthly EM&A Report No.23
(Period from 1 May to 31 May 2026)**

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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 23rd 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 operation of Tseung Kwan O Desalination Plant in May 2026.
- 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 first-year operation phase marine water quality monitoring was completed on 30 June 2025. No marine water quality monitoring was conducted during the reporting period.
- A6. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, continuous monitoring of effluent quality was discontinued and replaced with effluent water monitoring in compliance with discharge license requirements starting from 15 August 2025.

ECOLOGY IMPACT MONITORING

- A7. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, coral monitoring will be conducted on a quarterly basis starting from August 2025.
- A8. Coral monitoring was conducted on 21 May 2026 during the monitoring period. 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.

- A9. Operation phase fishery monitoring for dry season 2026 was carried out on 7 and 15 February 2026. 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 weak 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

- A10. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, landfill gas monitoring will be conducted on a six-month basis starting from August 2025.
- A11. No Landfill gas monitoring was conducted during the reporting period.

WEEKLY SITE INSPECTIONS

- A12. In this reporting period, bi-weekly site inspections were carried out by ET on 8 and 18 May 2026 to audit the mitigation measures implementation status.
- A13. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, site inspection will be conducted on a bi-weekly basis starting from 15 August 2025.

COMPLAINT HANDLING AND PROSECUTION

- A14. No environmental complaints, notification of summons and prosecution were received in the reporting period.

REPORTING CHANGE

- A15. The works of TKODP were substantially completed on 30 June 2024 and the plant commenced the operation phase on 1 July 2024. A Justification of Termination of the EM&A Programme for the Construction Phase was resubmitted to the EPD on 11 August 2025 and approved by the EPD on 15 August 2025.

A proposal to change the operation phase EM&A programme was submitted to the EPD on 11 August 2025 and approved by the EPD on 15 August 2025.

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 23rd 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 May to 31 May 2026.

CONTRACT ORGANIZATION

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

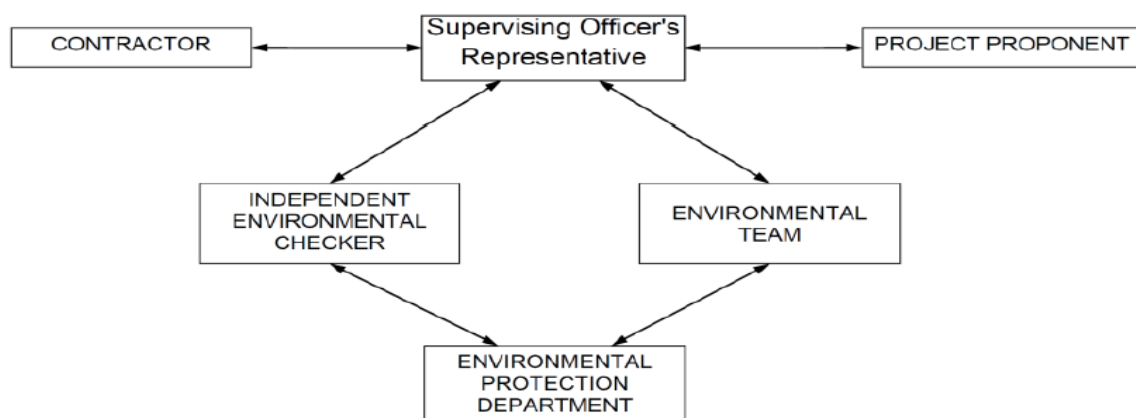


Figure 1.1 Contract Organization Chart

- 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
	Senior Resident Engineer	Mason Pau	6765-4131
The Jardine Engineering Corporation, Limited, China State Construction Engineering (Hong Kong) Limited and Acciona Agua, S.A. Trading	Project Manager (Acting)	Arnes Parra, Victor	6468-6710
	Environmental Monitoring Manager	Tommy Law	6468-1782
Aurecon Hong Kong Limited	Environmental Team Leader	Toby Wan	9719-5422
SGS Hong Kong Limited	Independent Environmental Checker (IEC)	Roy Hung	2774-7406

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	-
Admission Ticket for Disposal of Sludge Waste to WENT Landfill				
No.127432	2 April 2026	8 July 2026	Valid	-
Chemical Waste Producer Registration				
5213-839-A2987-01	Throughout the Contract		Valid	-
Wastewater Discharge Licence (Land and Marine works)				
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/D1358/46 2874). EPD advise that we can use the current discharge license for the anti-scalant dosing and discharge limit. They agreed that the report can show the 5PPM is the lowest detection limit. The variation of application was withdrawn on 13 Dec 2024.

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 Water Quality Monitoring	Completed on 30 June 2025
Continuous Monitoring of Effluent Quality Monitoring	According to the approved proposal to change the operation phase EM&A programme for the 2 nd to 10 th years, continuous monitoring of effluent quality was discontinued and replaced with effluent water monitoring in compliance with discharge license requirements starting from 15 August 2025.
Monthly Effluent Quality Monitoring (Discharge License Requirement)	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	According to the approved proposal to change the operation phase EM&A programme for the 2 nd to 10 th years, landfill gas monitoring will be conducted on a six-month basis starting from August 2025.
Six-month Basis 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)	According to the approved proposal to change the operation phase EM&A programme for the 2 nd to 10 th years, coral monitoring will be conducted on a quarterly basis starting from August 2025.
Operation phase Regular Coral Monitoring (Quarterly)	On-going
Ecology (Fishery)	
Operation phase Regular Fishery Monitoring (Seasonally)	On-going

Parameters	Status
Landscape	
Weekly Operation phase Landscape and Visual Site Inspection	According to the approved proposal to change the operation phase EM&A programme for the 2 nd to 10 th years, site inspection will be conducted on a bi-weekly basis starting from 15 August 2025.
Bi-Weekly Operation phase Landscape and Visual Site Inspection	On-going
Environmental Audit	
Weekly Site Inspection covering Measures of Air Quality, Water Quality, Waste, Ecological Quality, Fisheries, Landscape and Visual	According to the approved proposal to change the operation phase EM&A programme for the 2 nd to 10 th years, site inspection will be conducted on a bi-weekly basis starting from 15 August 2025.
Bi-Weekly 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 first-year operation phase marine water quality monitoring was completed on 30 June 2025. No marine water quality monitoring was conducted during the reporting period.
- 2.3. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th years, continuous monitoring of effluent quality was discontinued and replaced with effluent water monitoring in compliance with discharge license requirements starting from 15 August 2025.

WATER DISCHARGE LICENSE (WT00044188-2023 PART 1)

- 2.4. In accordance with the WT00044188-2023 Part 1, the sampling should be followed the specified frequency, and the parameters of the sample should not be exceeded the limit stated as the water discharge license. Details derived limit levels for water quality are presented in **Table 2.1**.

Table 2.1 Derived Limit Levels for Water Quality

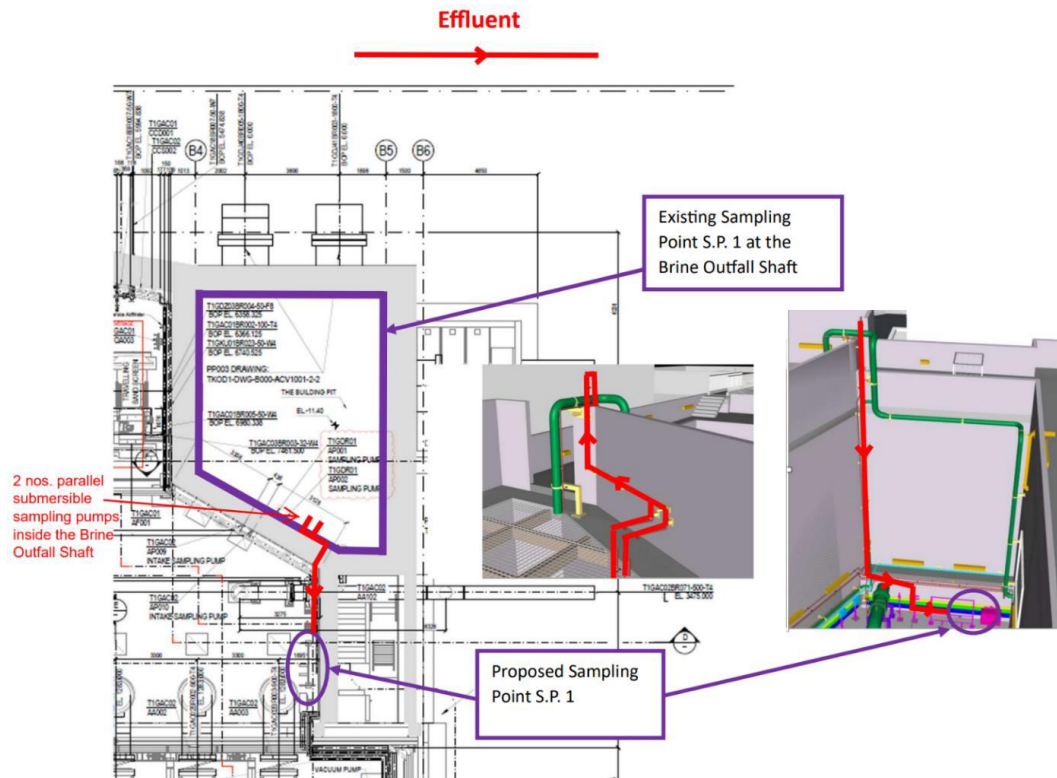
Parameters	Limit
Monitoring of Effluent Quality	
Flow Rate in m ³ /day	216841
Temperature in °C	Maximum 40
Salinity	71347
SS in mg/L	13
pH	6-9
Iron in mg/L	0.6
Total residual chlorine in mg/L	0.1
Total Inorganic Nitrogen in mg/L	2
Total Phosphorous in mg/L	1
Sodium Metabisulphite in mg/L	0.5
Anti scalant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

*Remark:

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

MONITORING LOCATION

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



MONITORING RESULTS AND OBSERVATIONS

- 2.6. According to the contractor's information, the Anti-scalant dosage commenced on 10 April 2025. The Anti-scalant water quality test was also conducted starting from the same date.
- 2.7. The weekly In-situ monitoring was carried out on 2, 8, 15, 22 and 29 April 2026 and the monthly laboratory measurement was carried out on 13 April 2026.
- 2.8. No exceedance of the results was obtained during the reporting period. The detailed results are summarized in **Table 2.2, 2.3 and 2.4.**

Table 2.2 Summary of In-situ Results for Discharge License (Weekly)

Date	Determinant	Results	Duplicate	Average
6 May 2026	Temp (°C)	26.0	26.2	26.1
	Salinity (ppm)	56662	56570	56616
	pH	8.0	7.8	7.9
	Total Residual Chlorine (mg/L)	0.04	0.03	0.04
13 May 2026	Temp (°C)	27.0	27.0	27.0
	Salinity (ppm)	56741	56746	56744
	pH	7.7	7.9	7.8
	Total Residual Chlorine (mg/L)	0.03	0.03	0.03

20 May 2026	Temp (°C)	27.7	27.7	27.0
	Salinity (ppm)	56580	56585	56583
	pH	7.9	7.9	7.9
	Total Residual Chlorine (mg/L)	0.03	0.04	0.04
27 Apr 2026	Temp (°C)	29.0	29.0	29.0
	Salinity (ppm)	56175	56177	56176
	pH	7.7	7.8	7.8
	Total Residual Chlorine (mg/L)	0.03	0.04	0.04

Table 2.3 Summary of Lab Results for Discharge License (Monthly)

Date	Determinant	Results
6 May 2026	Flow Rate (m ³ /day)	Shown in Table 2.4
	Suspended Solids (mg/L)	<2
	Total Inorganic Nitrogen (mg/L)	0.48
	Total Phosphorous (mg/L)	<0.01
	Iron (mg/L)	<0.1
	Sodium Metabisulphite (mg/L) ¹	<2
	ACUMER 4035 (mg/L) ²	N/A

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.
- As discussed and agreed with EPD on 12 December 2024, since the lowest detection limit of anti-scalant chemical(s) (ACUMER 4035) in Hong Kong is 5 mg/L due to the limitation of laboratory, the lowest measurement result of anti-scalant chemical(s) (ACUMER 4035) will only be shown as < 5mg/L.

Table 2.4 Summary of Daily Flow Rate of Reporting Period

Date	Outfall (m ³ /day)
1-May-26	26.5
2-May-26	3,177.21
3-May-26	93.5
4-May-26	17,304.94
5-May-26	0.00
6-May-26	14,780.23
7-May-26	0.00
8-May-26	13,533.96
9-May-26	0.00
10-May-26	626
11-May-26	16,214.95
12-May-26	0.00
13-May-26	11,337.48
14-May-26	0.00
15-May-26	14,526.63
16-May-26	0.00
17-May-26	635
18-May-26	16,183.19
19-May-26	0.00
20-May-26	12,637.53
21-May-26	0.00
22-May-26	20,359.00
23-May-26	0.00

24-May-26	0.00
25-May-26	191.50
26-May-26	12,490.41
27-May-26	12,618.50
28-May-26	0.00
29-May-26	14,101.94
30-May-26	0.00
31-May-26	0.00

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 E**.

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)
May 2026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.890

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

3.2. No dewater 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 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.**

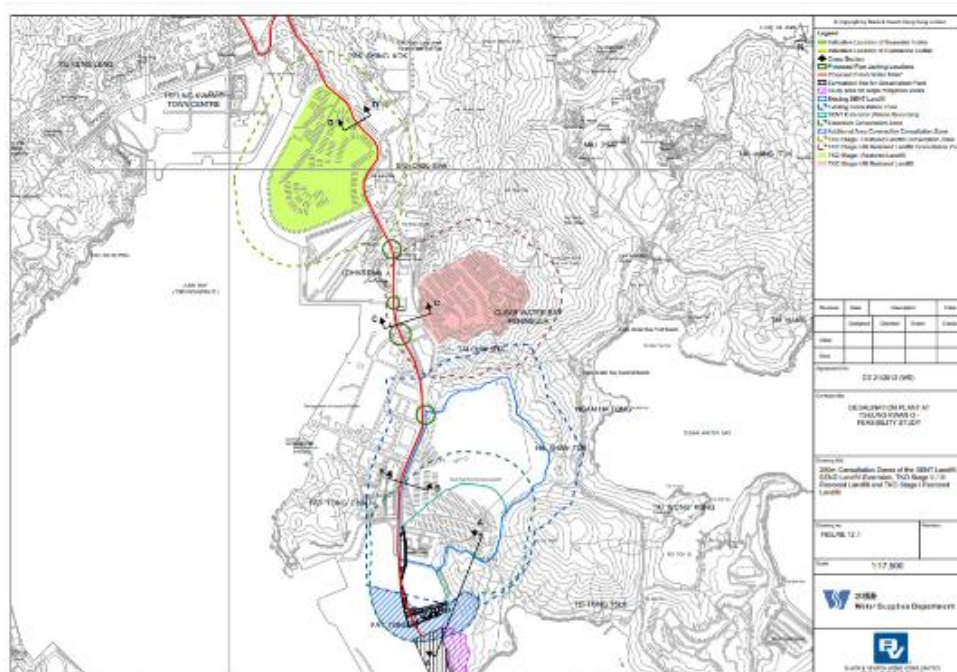


Figure 4.1 Overview of the SENT Extension Consultation Zone and the Contract Site Area

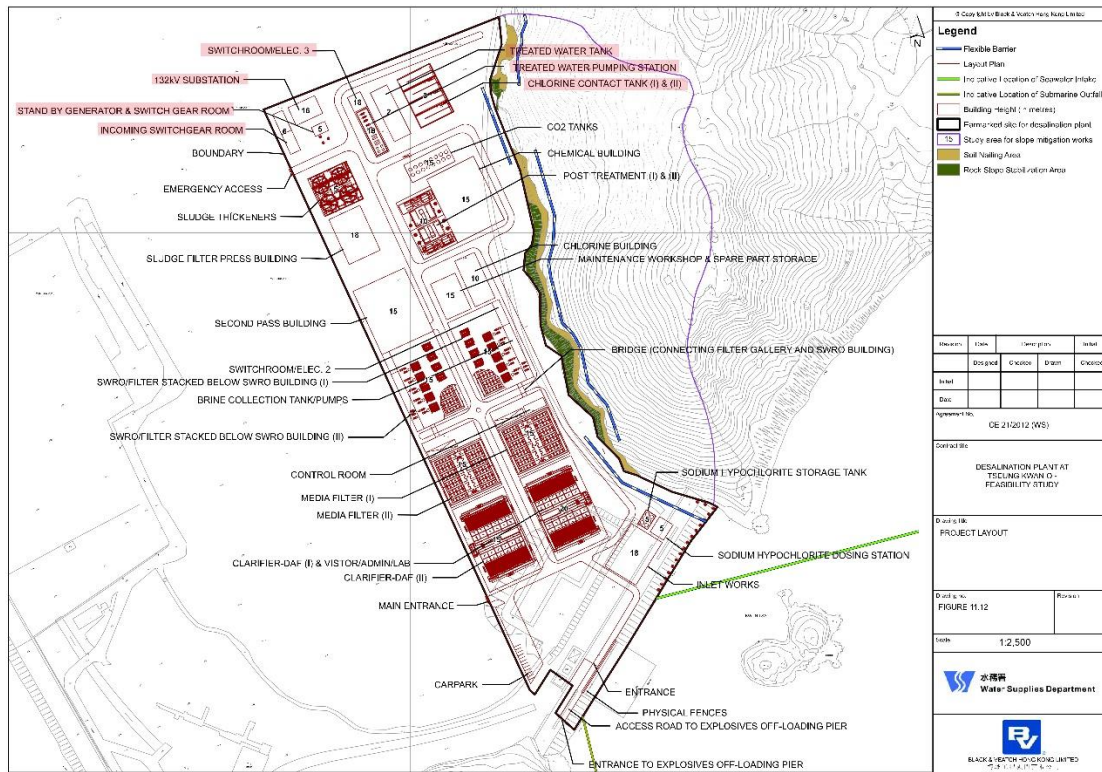


Figure 4.2 Landfill Gas Monitoring Location For Building

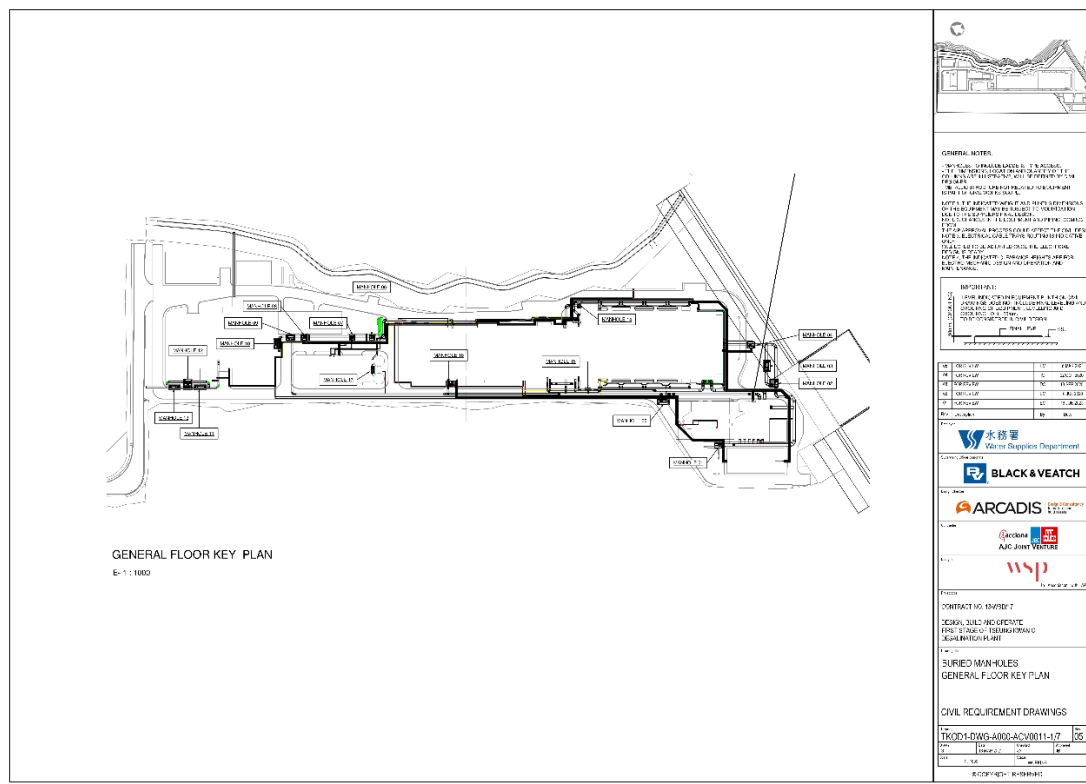


Figure 4.3 Landfill Gas Monitoring Location For Manholes/Pits

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)

MONITORING RESULTS AND OBSERVATIONS

- 4.8. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, landfill gas monitoring will be conducted on a six-month basis starting from August 2025.
- 4.9. No Landfill gas monitoring was conducted during the reporting period.

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 including 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. Bi-Weekly site audit was carried out by the ET in the reporting month. Health conditions were concerned with trees. The contractor has been reminded to provide proper maintenance.
- 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.

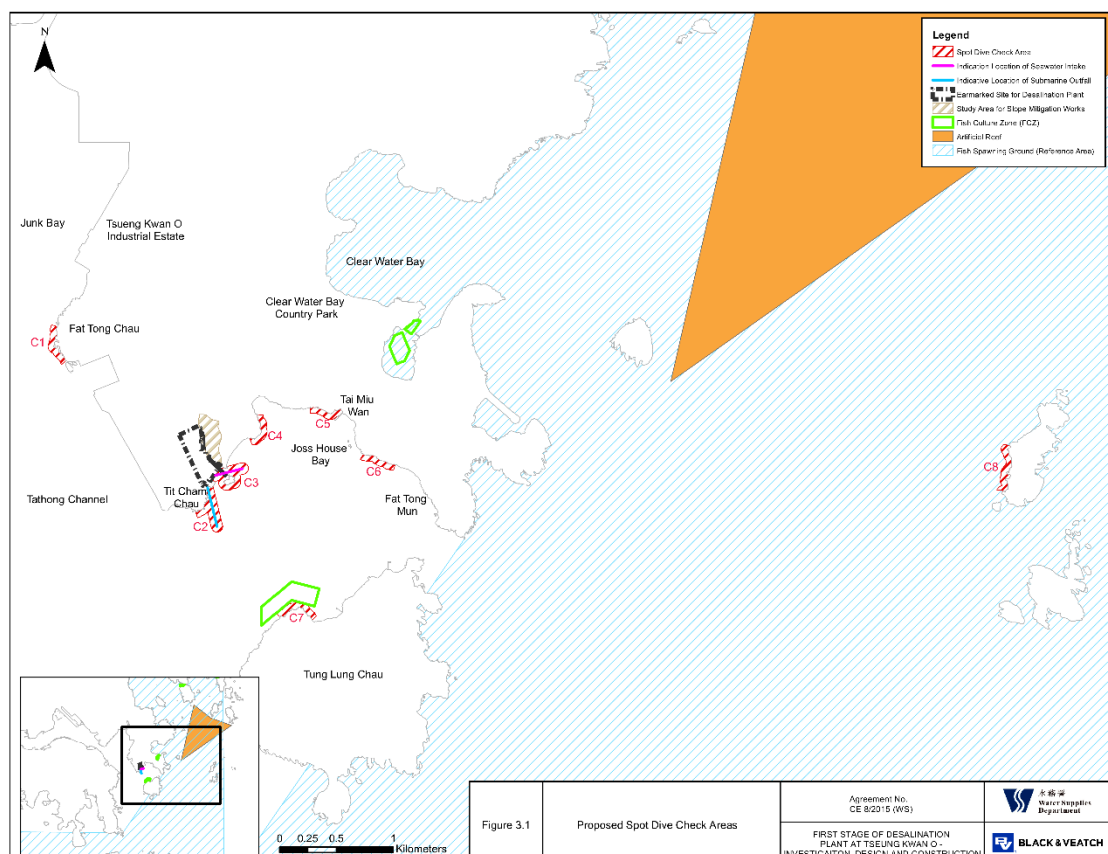


Figure 6.1 Spot Dive Check Areas Two Proposed Indirect Impact Sites (C2 and C3) and one control site (C8) during Operation Phase

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 **Appendix D, Table D3** will be implemented.

- 6.4. If non-compliance were found during the operation 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. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th year, coral monitoring will be conducted on a quarterly basis starting from August 2025.
- 6.7. Coral monitoring was conducted on 21 May 2026 during the reporting period. 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. Details of the monitoring results 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**.

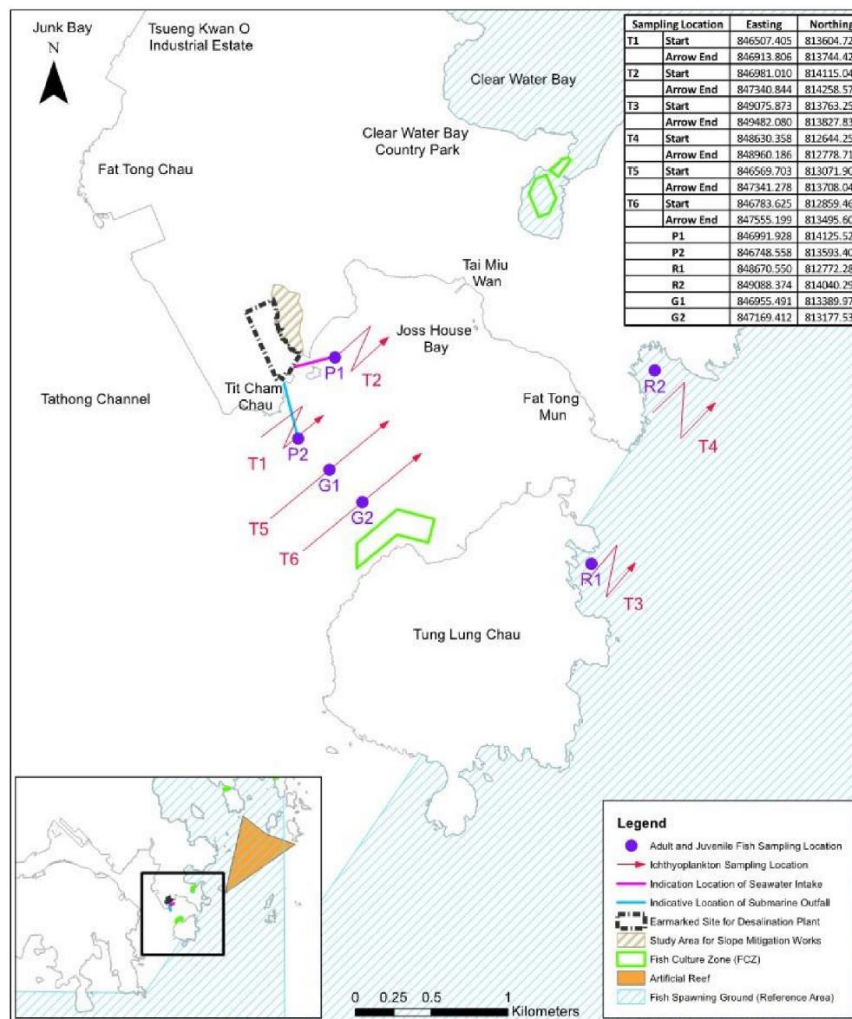


Figure 7.1 Monitoring Location of Regular Fishery Monitoring during Operation Phase

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 (December 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 dry season 2026 was carried out on 7 and 15 February 2026. 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 weak 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. Details of the survey finding is presented in **Appendix I**.

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

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

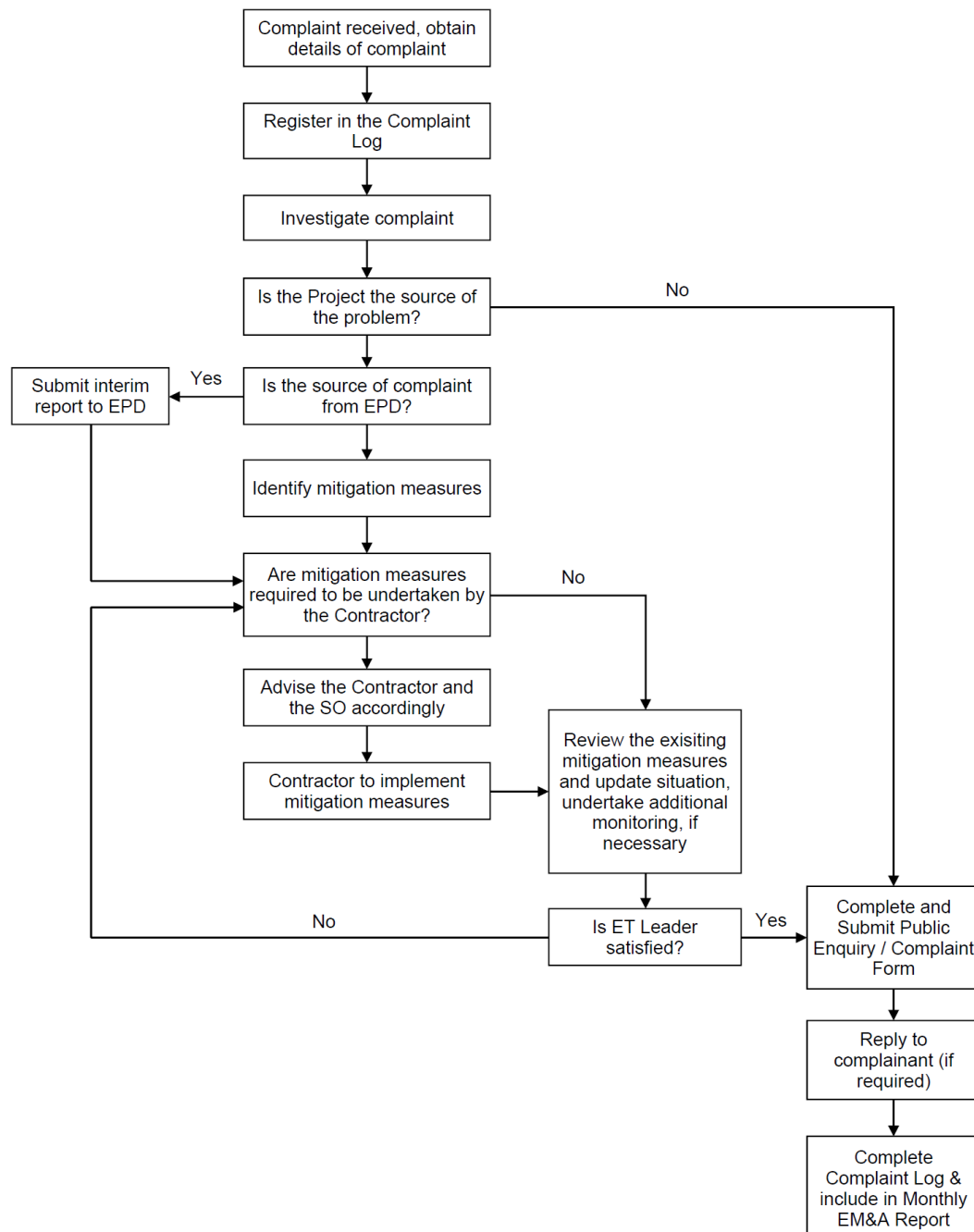


Figure 9.1 Environmental Complaint Handling Procedures

- 8.2. The first-year operation phase marine water quality monitoring was completed on 30 June 2025. No marine water quality monitoring was conducted during the reporting period.
- 8.3. Effluent Quality was conducted sampling point in the reporting month. No exceedance of the results was obtained during the reporting period.
- 8.4. Coral monitoring was conducted on 21 May 2026 during the reporting period. 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.
- 8.5. Operation phase fishery monitoring for dry season 2026 was carried out on 7 and 15 February 2026. 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 weak 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.
- 8.6. No Landfill gas monitoring was conducted during the reporting period.
- 8.7. No environmental complaint, notification of summons and prosecution Statistics on complaint and notification of summons and prosecution are summarized in **Appendix G**.

9. EM&A SITE INSPECTION

- 9.1. According to the approved proposal to change the operation phase EM&A programme for the 2nd to 10th years, site inspection will be conducted on a bi-weekly basis starting from 15 August 2025.
- 9.2. Site inspections were carried out 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 5 and 24 March 2026 at the site portions listed in **Table 9.1** below.
- 9.3.

Table 9.1 Summaries of Site Inspection Record

Date	Inspected Site Portion	Time
8 May 2026	TKO Area 137	14:00 – 15:00
18 May 2026	TKO Area 137	13:30 – 14:30

- 9.4. No Environmental deficiencies were observed during site inspection. The site inspections during the reporting period are summarized in **Table 9.2**.

Table 9.2 Site Observations

Date	Environmental Observations	Follow-up Status
8 May 2026	No major environmental deficiency was observed.	N/A
18 May 2026	No major environmental deficiency was observed.	N/A

- 9.5. 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 F**.

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:

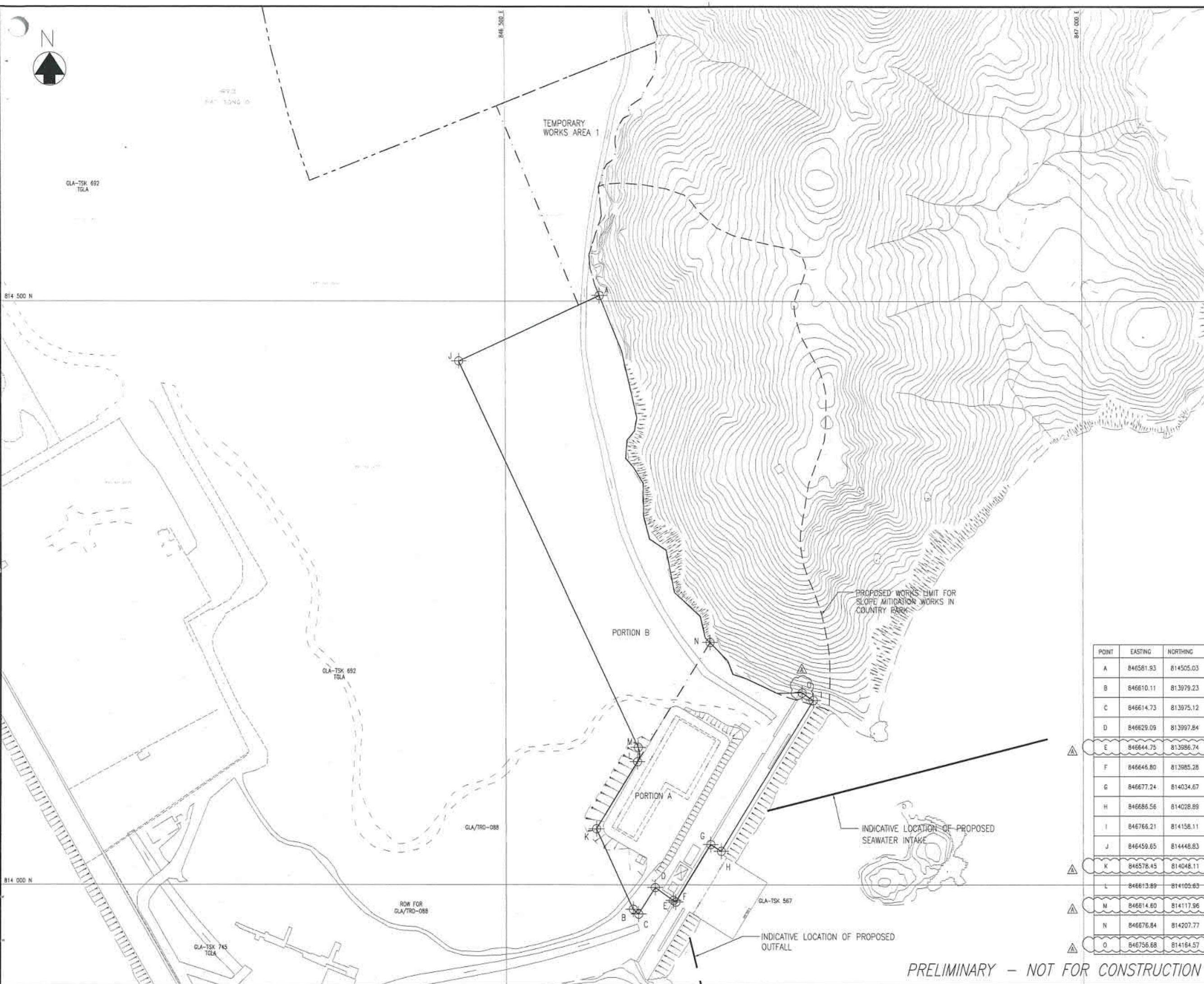
- Regularly monitoring of the effluent
- Sorting and storage of general refuse and operation waste

11. CONCLUSIONS AND RECOMMENDATIONS

- 11.1. This is the 23rd Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 May to 31 May 2026, in accordance with the EM&A Manual and the requirement under FEP-01/503/2015/B.
- 11.2. The first-year operation phase marine water quality monitoring was completed on 30 June 2025. No marine water quality monitoring was conducted during the reporting period.
- 11.3. Effluent Quality was conducted sampling point in the reporting month. No exceedance of the results was obtained during the reporting period.
- 11.4. Coral monitoring was conducted on 21 May 2026 during the reporting period. 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.
- 11.5. Operation phase fishery monitoring for dry season 2026 was carried out on 7 and 15 February 2026. 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 weak 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. No Landfill gas monitoring was conducted during the reporting period.
- 11.7. 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 complaints, notification of summons and prosecution were 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



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LEGEND:

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

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

Revision	Date	Description	Initial
B	10/03	UPDATE NOTES	YLC
A	07/18	UPDATE COORDINATES	YLC
	Designed	Checked	Drawn
Initial	YLC	CKH	SZ
Date	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.	Revision
190495/K/TEND/10/0003	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

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	846613.89	814105.63
M	846614.60	814117.96
N	846676.84	814207.77
O	846756.68	814164.57

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	ACT/DIAFF	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	2933,980
K	SLUDGE TREATMENT BUILDING, TANK AND PUMP ROOM	2531,044	1228,361
M	ADMINISTRATION BUILDING & ELECTRICAL BUILDING C	2450,713	1114,062
N	MAIN ELECTRICAL AND CENTRAL CHILLER PLANT BUILDING	-	409,893
R1	ELECTROCHLORINATION BUILDING & ELECTRICAL BUILDING A	657,992	825,776
S	132 KV SUBSTATION	-	943,590
T	IRRIGATION WATER TANK AND PUMP ROOM	-	156,148
R2	CHEMICAL BUILDING	813,056	613,056
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	21490,023

LEGEND / ABBREVIATION

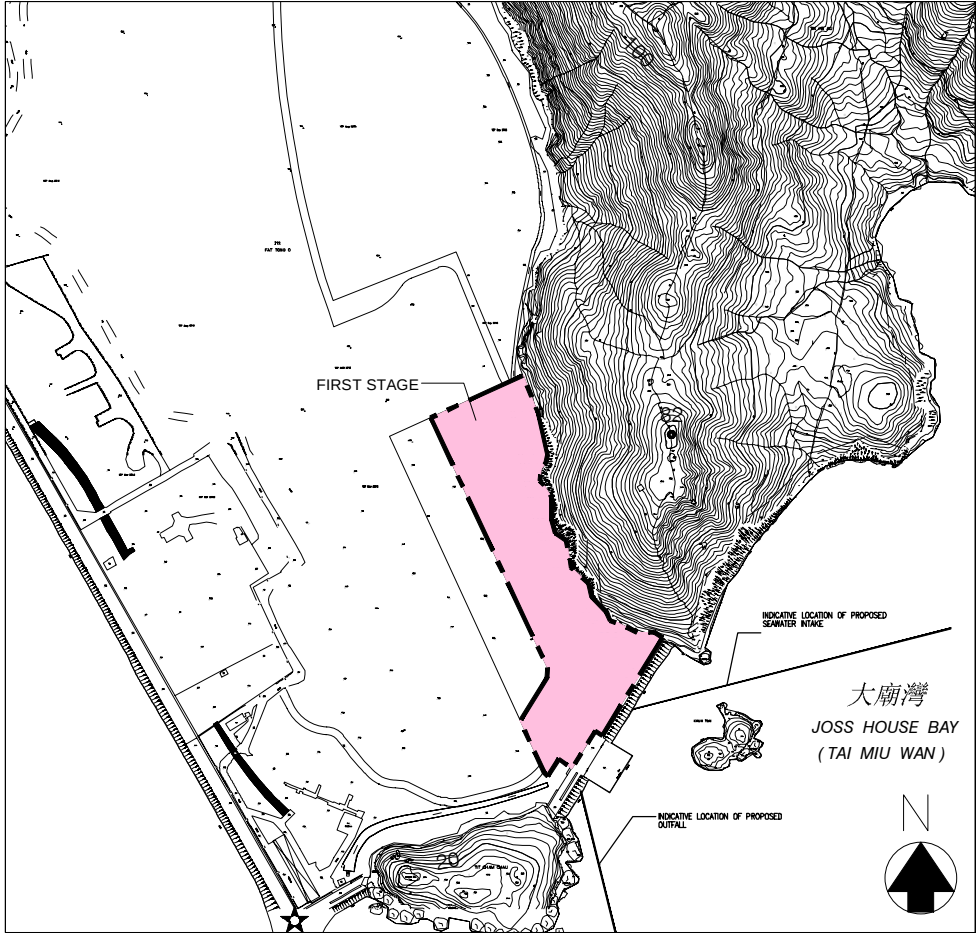
H/L WINDOW	HIGH LEVEL WINDOW
M.L.	METAL LOUVRES
C.L.	CAT LADDER
A.U.T.	ACCESSIBLE UNISEX TOILET
+	PROPOSED FINISH FLOOR LEVEL IN METER ABOVE P.D.
+	STRUCTURAL FLOOR LEVEL IN METER ABOVE P.D.
M.V.I.A.L.	MECHANICAL VENTILATION & ARTIFICIAL LIGHTING
F.E.	4.5kg CO ₂ FIRE EXTINGUISHER
H.R.	HOSE REEL
Ⓐ	FIREMAN'S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

PLOT RATIO & SITE COVERAGE CALCULATION:

SITE AREA OF THE FIRST STAGE	= 56108 m ²
TOTAL G.F.A.	= 25175.323 m ²
TOTAL SITE COVERAGE	= 21490.023 m ²
PLOT RATIO	= 25092.141 / 56108
	= 0.447 < PERMITTED
SITE COVERAGE	= 21414.841 / 56108 x 100
	= 38.167%

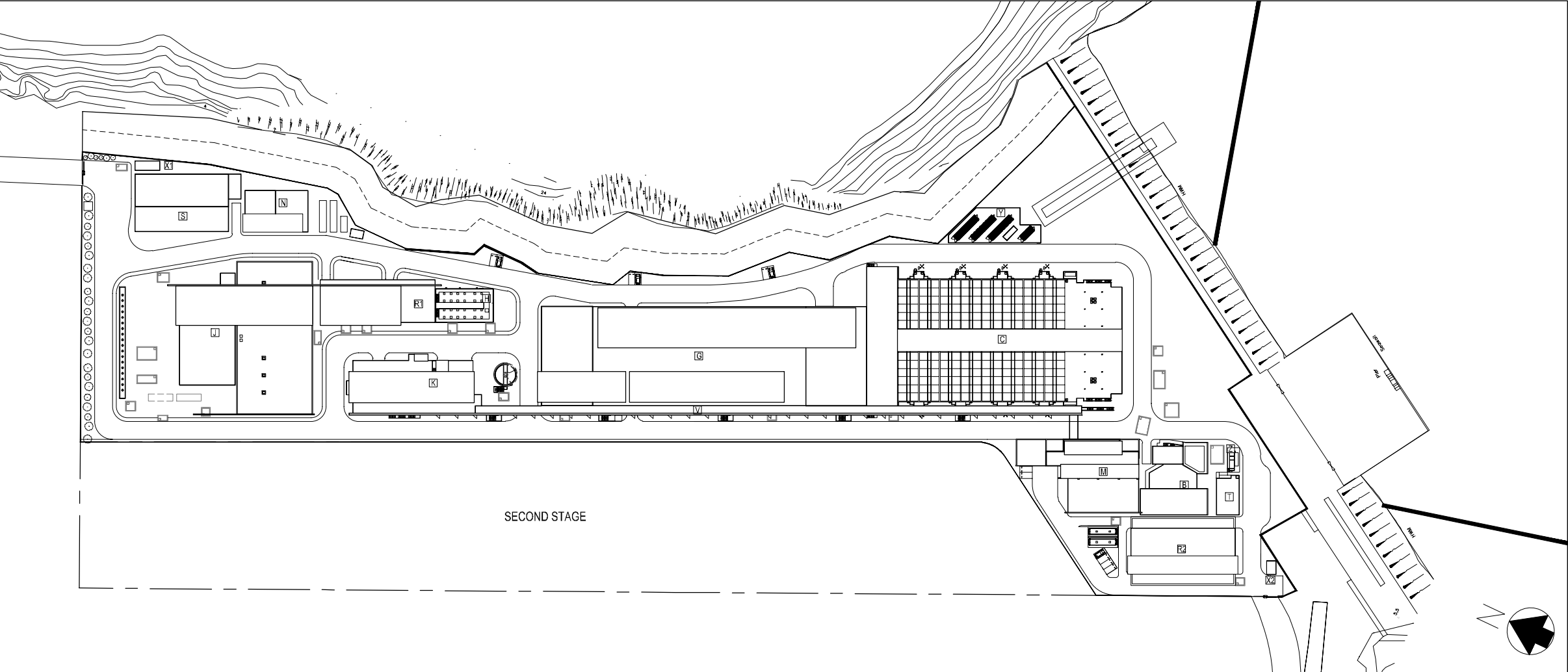
SITE LOCATION PLAN

1 : 5000



FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

1 : 1000



0	TENDER SUBMISSION	CAD	JAN 19
Rev	Description	By	Date
Employer			
			
Employer's Consultant			
			
Tenderer			
			
Designer			
			
Project title			
CONTRACT NO. 13/WS/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. TKO/AJC/W/A000/AR/001			Rev. 0
Drawn OKAL	Date JAN 19	Checked S.C.	Approved T.C.
Scale N.T.S.	Status —		

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)		✓	✓	Implemented	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)	✓	✓	✓	Implemented	
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)	✓	✓	✓	Implemented	
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

2nd Year Operation Monitoring Programme

Monitoring	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26
Effluent Quality ⁽²⁾	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Landfill Gas ⁽³⁾	✓	✓						✓				
Coral ⁽⁴⁾	✓	✓			✓			✓			✓	
Fishery ⁽⁵⁾		✓						✓				

Remark:

- (1) A proposal to change the operation phase EM&A programme was submitted to the EPD on 11 August 2025 and approved by the EPD on 15 August 2025.
- (2) In accordance with the discharge license, in-situ effluent quality monitoring will be conducted on a weekly basis and laboratory measurement will be conducted on a monthly basis.
- (3) Landfill gas monitoring will be conducted on a six-month basis.
- (4) Coral monitoring will be conducted on a quarterly basis.
- (5) Fishery monitoring will be conducted two times in wet season and two times in dry season in an annual basis.

Appendix D

Event / Action Plan

Table D2 Event and Action Plan for Ecology during Operation Phase

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

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	Ventilate to restore CO ₂ to < 0.5%
	Limit Level >1.5% CO ₂	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CO ₂ to <0.5%

Appendix E

Waste Flow Table

Name of Department: WSD

Contract No.: 13/WSD/17

Monthly Summary Waste Flow Table for 2026 (year)

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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.300
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.070
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.120
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	88.530
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.890
Jun											
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	200.910
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	200.910

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 F

Site Inspection Proforma

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 08/5/2026 Inspected by: ET: Toby Wan SO: Image Yeung WSD: _____
 Contractor: Tommy Law IEC: _____
 Inspection Time: 14:00

Weather	
Condition	☐ Sunny ☒ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy
Temperature	26.9 °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?	☐	☒	☐	

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:

No major observation was found during site inspection.

Signatures:

ET
Representative

(Name: Toby Wan)

Contractor's
Representative

(Name: Tong)

Supervising Officer's
Representative

(Name: Angie Yung)

IEC's
Representative

(Name:)

WSD's
Representative

(Name:)

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

WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Inspection Date: 18/05/2026 Inspected by: ET: Jacky Leung SO: Image Yeung WSD: David Ling
 Contractor: Tommy Law IEC: Roy Hung
 Inspection Time: 13:30

Weather	
Condition	☐ Sunny ☒ Fine ☐ Overcast ☐ Drizzle ☐ Rain ☐ Storm ☐ Hazy
Temperature	25.4 °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?	☐	☒	☐	

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:

No special remark from the site inspection today

Signatures:

ET
Representative

(Name: *Sam Ho*)
18/5/2026

Contractor's
Representative

(Name: *Mr. W*)
18/5/26

Supervising Officer's
Representative

(Name: *Image Yang*)

IEC's
Representative

(Name: *Roy Hung*)

WSD's
Representative

(Name: *Daniel*)

Appendix G

Complaint Log

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 May 2026	0	2	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 – 31 May 2026	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 – 31 May 2026	0	0	N/A

Appendix H

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 previous 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 May 2026 operation phase monitoring were performed on 21st May 2026 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 May 2026 Operation Phase Monitoring

Date	Condition	Average Underwater Visibility
21 st May 2026	- Southwest 4 to 5 - Sunny	0.5 – 1 m

- 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 other tagged coral colonies showed good health condition during the February 2026 Monitoring survey.

Table 3.2 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Control Site C8 during May 2026 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-May	Baseline	21-May	Baseline	21-May
1	<i>Favites pentagona</i>	82	Good	0	0	0	0	0	0
2	<i>Porites lutea</i>	66	Good	0	0	0	0	0	0
3	<i>Plesiastrea versipora</i>	43	Good	0	0	0	0	0	0
4	<i>Platygyra carnosus</i>	36	Good	0	0	0	0	0	0
5	<i>Acropora solitaryensis</i>	42	Good	0	0	0	0	0	0
6	<i>Acropora solitaryensis</i>	55	Good	0	0	0	0	0	0
7	<i>Bernardopora stutchburyi</i>	25	Good	0	0	0	0	0	0
8	<i>Favites pentagona</i>	26	Good	0	0	0	0	0	0
9	<i>Platygyra carnosus</i>	34	Good	0	0	0	0	0	0
10	<i>Acropora solitaryensis</i>	39	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 May 2026 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-May	Baseline	21-May	Baseline	21-May
1#	<i>Dipsastraea speciosa</i>	23	Good	0	0	0	0	0	0

2	<i>Favites abdita</i>	45	Good	0	0	0	0	0	0
3	<i>Duncanopsammia peltata</i>	52	Good	0	0	0	0	0	0
4	<i>Platygyra carnosus</i>	23	Good	0	0	0	0	0	0
5	<i>Favites pentagona</i>	25	Good	0	0	0	0	0	0
6	<i>Plesiastrea versipora</i>	26	Good	0	0	0	0	0	0
7	<i>Dipsastraea rotumana</i>	32	Good	0	0	0	0	0	0
8	<i>Dipsastraea speciosa</i>	22	Good	0	0	0	0	0	0
9	<i>Porites lutea</i>	44	Good	0	0	0	0	0	0
10	<i>Porites lutea</i>	48	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 May 2026 Coral Monitoring Survey

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	21-May	Baseline	21-May	Baseline	21-May
11	<i>Acropora solitaryensis</i>	45	Fair	0	40	0	0	0	0
12	<i>Platygyra carnosa</i>	35	Good	0	0	0	0	0	0
13	<i>Favites pentagona</i>	36	Good	0	0	0	0	0	0
14	<i>Platygyra carnosa</i>	28	Good	0	0	0	0	0	0
15	<i>Dipsastraea veroni</i>	32	Fair	0	0	0	0	0	0
16	<i>Favites flexuosa</i>	24	Good	0	0	0	0	0	0
17	<i>Favites chinensis</i>	63	Good	0	10	0	0	0	0
18	<i>Plesiastrea versipora</i>	26	Good	0	10	0	0	0	0
19	<i>Duncanopsammia peltata</i>	37	Good	0	0	0	0	0	0
20	<i>Platygyra carnosus</i>	29	Good	0	0	0	0	0	0

4. Discussion and Conclusion

- 4.1 The May 2026 coral monitoring survey were carried out in the indirect impact area (C2 and C3) and control site (C8) on 21st May 2026. A total of 30 tagged coral colonies (10 at control site and 20 and two indirect impact sites) were monitored.
- 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

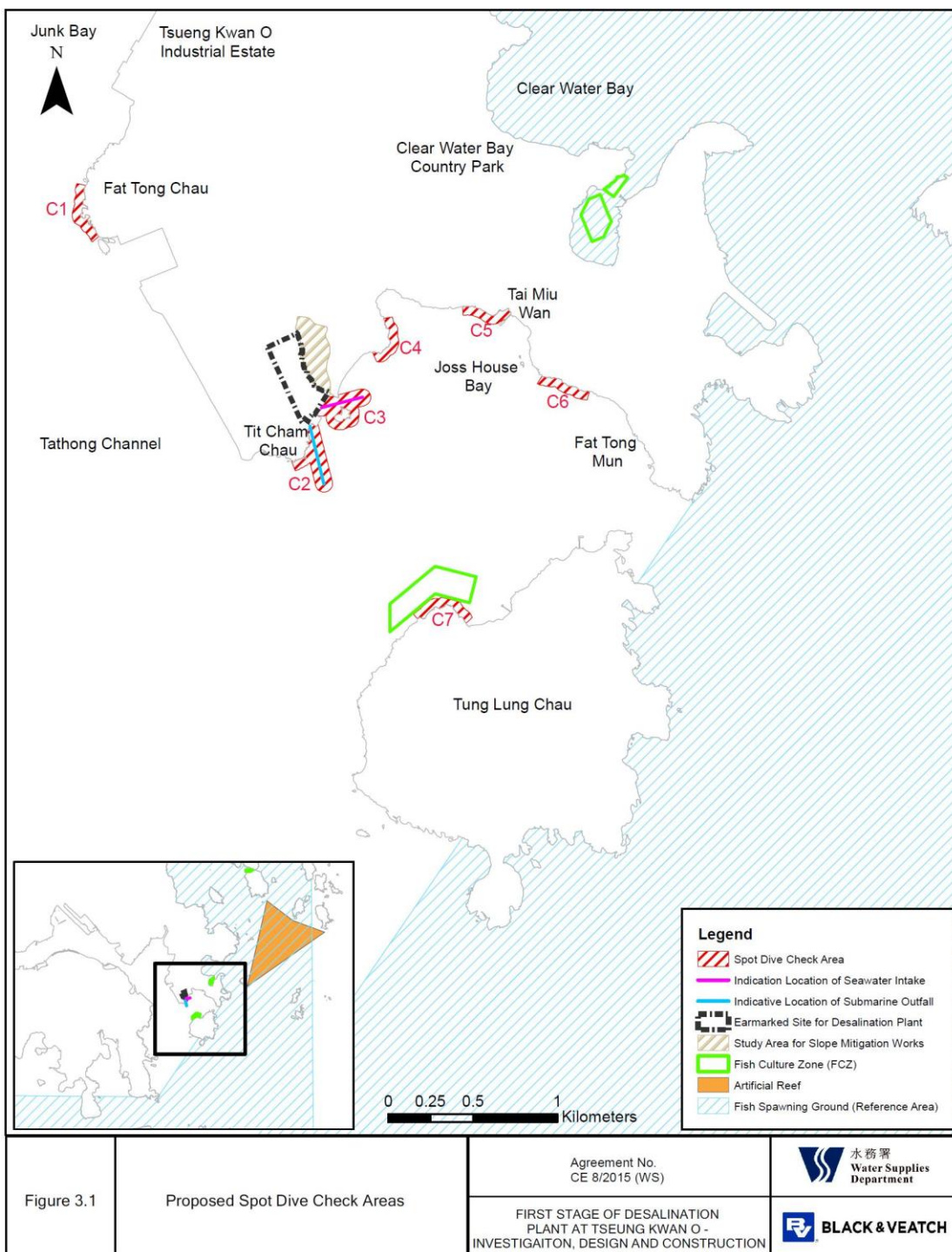


Figure 2 Proposed Control Site (C8) during Operation Phase



APPENDIX A
TAGGED CORAL PHOTO

Photo Plate A Tagged Corals at Control Site C8

Tag #	21 May 2026		
#1			
#2			
#3			
#4			

#5			
#6			
#7			
#8			

#9			
#10			

Photo Plate B Tagged Corals at Indirect Impact Site C2

Tag #	21 May 2026		
#1			
#2			

#3			
#4			
#5			
#6			
#7			

#8			
#9			
#10			

Photo Plate C Tagged Corals at Indirect Impact Site C3

Tag #	21 May 2026		
#11			
#12			
#13			
#14			

#15			
#16			
#17			
#18			
#19			

#20			
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THE END

Appendix I

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 Plant at 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 (m³) per day with provision for future expansion to the ultimate capacity up to 270,000 m³ 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 on 4 December 2015. The EP for this Project was subsequently amended and the amended EP (No. EP-503/2015/A) was granted on 26 January 2018 under the EIAO. Baseline fisheries monitoring was conducted 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 monitoring is 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 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 operational works were subsequently carried out on 7th and 15th February 2026. This Report is prepared to present the progress of the operational 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 fisheries resources 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 of the 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 are presented in the “*Consultancy Services for Updated Fisheries Survey for Tseung Kwan O Desalination 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 baseline fisheries monitoring programme is to update the information on fisheries resources in Joss House Bay and nearby water during the project operation. Under the monitoring programme, survey on adult fish, juvenile fish and ichthyoplankton 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 fisheries monitoring programme is provided in table below.

Table 3-1: Fisheries Monitoring Programme

Monitoring	Method	Fisheries Monitoring Dates	
		Dry Season	
		Event 1	Event 2
Adult Fish Survey	Gill Netting and Cage Trapping	7 February 2026	15 February 2026
Juvenile Fish Survey	Purse-seining	7 February 2026	15 February 2026
Ichthyoplankton Survey	Plankton Towing	7 February 2026	15 February 2026

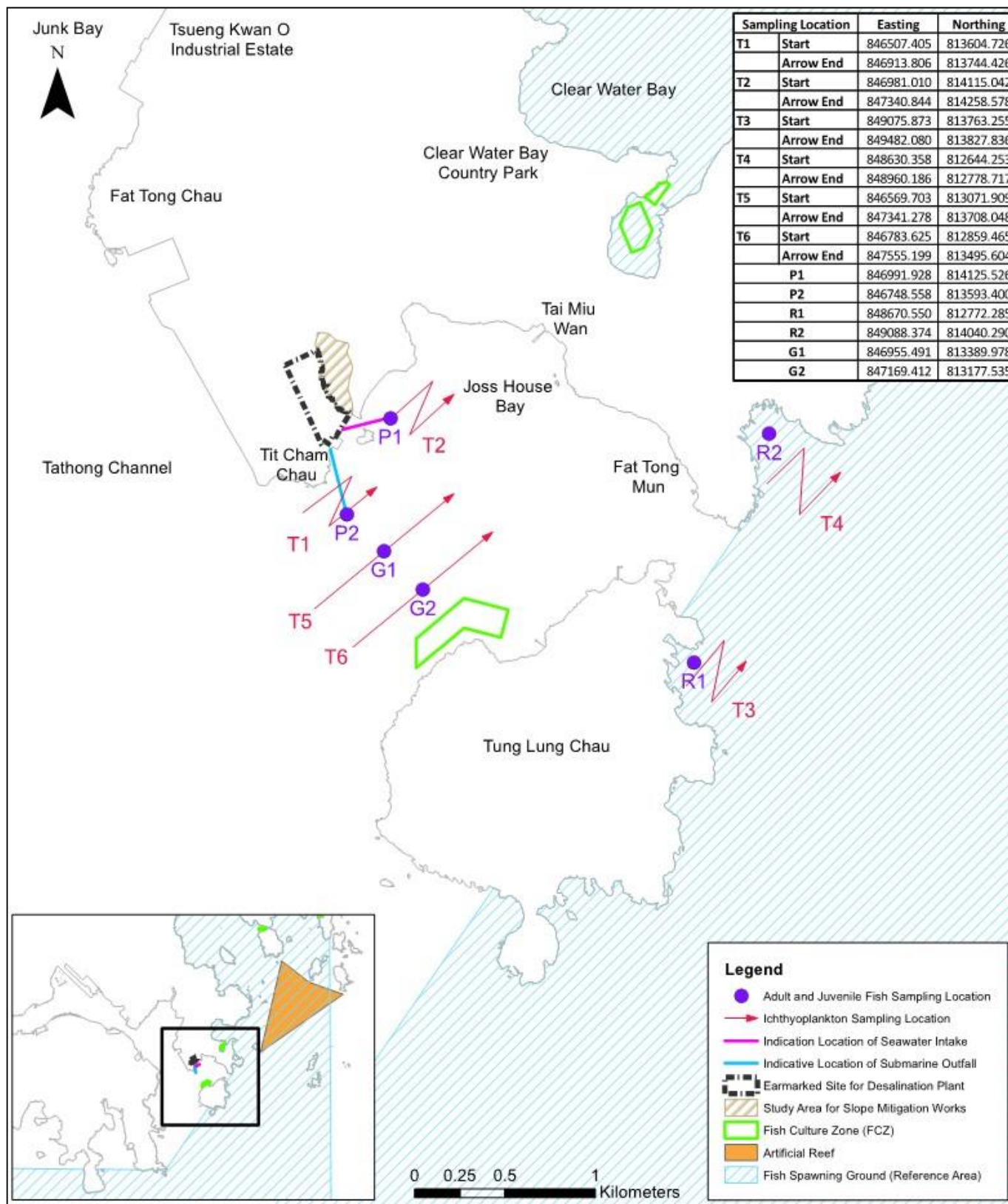
3.2 Fisheries Resource Sampling Locations

- 3.2.1 Six (6) fisheries sampling locations were set up in Joss House Bay and its vicinity to monitor the 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 fisheries resource sampling locations are summarized in **Table 3-2** and shown in **Figure 3.1**.

Table 3-2: Fisheries Resource Sampling Locations

Monitoring	Sampling Location or Transect ID (see Figure 2.1)		
	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
Ichthyoplankton Survey	T1, T2	T5, T6	T3, T4

Figure 3.1 Fisheries Resources Monitoring Locations



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 m³ 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 deployed to 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 (weight of fish per survey time and number of nets or cages).

4 Supplementary Water Quality Monitoring Methodology

4.1 Monitoring Parameters and Programme

4.1.1 Supplementary water quality monitoring (in addition to those specified in the EM&A Manual) was carried out at the same frequency and locations of the 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)

4.1.2 Four water quality monitoring events covering dry and wet seasons were carried out. Under each 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	Dry Season	7 February 2026	Mid-ebb and mid-flood
Event 2	Dry Season	15 February 2026	Mid-ebb and mid-flood

4.2 Monitoring Locations

4.2.1 Supplementary water quality monitoring was conducted at all the six (6) adult and juvenile 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 **Table 4-3**.

Table 4-3: Monitoring Equipment

Equipment	Model
Water Sampler	Kahlsico Water Samplers
Multi-parameter Water Quality System	YSI ProDSS

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 samples for 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 ETS-Testconsult LTD. (HOKLAS Registration No. 022). Quality assurance and control procedures were implemented to ensure quality and consistency in results. The testing methods and corresponding reporting limits are provided in **Table 4-4**.

Table 4-4: Analytical Methods

Parameter	Analytical Method	Reporting Limit
Suspended solids	In house method TPE/006/W	1 mg/L
Iron	In house method TPE/012/W & TPE/029/W	0.2 mg/L
Total residual chlorine	In house method TPE/033/W	0.2 mg/L

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 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 7102 g of 166 individuals comprising 9 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 R1 had the highest biomass and the highest number of species of adult fish resources. The size of collected fish species ranged from 6.1 to 16.5 cm (total length) and no fish species reached marketable size (≥ 25 cm).

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

Monitoring location	Total no. of species	Total biomass (g)	Total no. of individual	Mean no. of species ($\pm$ SD)	Mean biomass (g $\pm$ SD)	Mean no. of individual ($\pm$ SD)	Dominant species
P1 (IPA)	3	1692	38	1.5	846	19	<i>Chromis notata</i>
P2 (IPA)	4	816	24	2	408	12	<i>Chromis notata</i>
G1 (GDA)	2	289	6	1	144.5	3	<i>Chromis notata</i>
G2 (GDA)	3	1134	25	1.5	567	12.5	<i>Chromis notata</i>
R1 (CLA)	5	1444	27	2.5	722	13.5	<i>Chromis notata</i>
R2 (CLA)	4	1727	46	2	863.5	23	<i>Chromis notata</i>
Overall total	9	7102	166	4.5	3551	83	<i>Chromis notata</i>

*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**. Over 71% biomass of the adult fish resources were captured by cage trapping, that a total of 5052g of 120 individuals comprising 8 species of 7 families was recorded. Location P1 had the highest biomass while location R1 had the highest number of species of adult fish resources recorded. For gill-netting, 2050 g of 46 individuals comprising 4 species of 4 families were recorded. Location P1 had the highest biomass and 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 ($\pm$ SD)	Mean biomass (g $\pm$ SD)	Mean no. of individual ($\pm$ SD)	Dominant species
Gill netting							
P1 (IPA)	2	436	12	1	218	6	<i>Chromis notata</i>
P2 (IPA)	2	287	5	1	143.5	2.5	<i>Chromis notata</i>
G1 (GDA)	1	79	2	0.5	39.5	1	<i>Chromis notata</i>
G2 (GDA)	2	359	6	1	179.5	3	<i>Chromis notata</i>
R1 (CLA)	2	292	7	1	146	3.5	<i>Chromis notata</i>
R2 (CLA)	2	597	14	1	298.5	7	<i>Chromis notata</i>
Overall total	4	2050	46	2	1025	23	<i>Chromis notata</i>
Cage trapping							
P1 (IPA)	3	1256	26	1.5	628	13	<i>Chromis notata</i>
P2 (IPA)	4	529	19	2	264.5	9.5	<i>Chromis notata</i>
G1 (GDA)	2	210	4	1	105	2	<i>Chromis notata</i>
G2 (GDA)	3	775	19	1.5	387.5	9.5	<i>Chromis notata</i>
R1 (CLA)	5	1152	20	2.5	576	10	<i>Chromis notata</i>
R2 (CLA)	4	1130	32	2	565	16	<i>Chromis notata</i>
Overall total	8	5052	120	4	2526	60	<i>Chromis notata</i>

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) wholesale price 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 9 fish species recorded, 7 species are classified as commercial species, which accounted for about 91.1% of the total biomass and 90.1% of the total abundance from the captured adult fish species. Most of these commercial species are of medium to low commercial value (95% of total abundance). However, high commercial value fishes showed only 3.1% in terms of total biomass. The dominant species in terms of abundance were Pearl-spot chromis (*Chromis notata*) which accounting for 71.1% of total abundance. In terms of abundance, most of the adult fish resources in the Study Area are of low to no commercial value, accounting for > 80% of total abundance of overall adult fish resources. However, in term of biomass, most of the adult fish resources in the Study Area are also of low to no commercial value, accounting for > 75% of total biomass 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)
Pomacentridae	<i>Chromis notata</i>	L	4431	70.1% (1)	128	79.5% (1)
Serranidae	<i>Cephalopholis boenak</i>	H	688	10.9% (2)	8	5.0% (2)
Scorpaenidae	<i>Sebastiscus marmoratus</i>	L	365	5.8% (3)	6	3.7% (3)
Monacanthidae	<i>Monacanthus chinensis</i>	M	299	4.7% (4)	5	3.1% (4)
Siganidae	<i>Siganus canaliculatus</i>	L	235	3.7% (5)	4	2.5% (7)
Sparidae	<i>Evynnis cardinalis</i>	L	168	2.7% (6)	5	3.1% (4)
Apogonidae	<i>Apogon cathetogramma</i>	L	135	2.1% (7)	5	3.1% (4)

*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 Study to 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):

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

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 ranged between 0.2 and 1.44 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)	1.2
P2 (IPA)	0.75
G1 (GDA)	0.2
G2 (GDA)	0.78
R1 (CLA)	0.84
R2 (CLA)	1.44
Overall total	5.19

*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):

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

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 9.03 g and 221.94 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)	52.88
P2 (IPA)	25.50
G1 (GDA)	9.03
G2 (GDA)	35.44
R1 (CLA)	45.13
R2 (CLA)	53.97
Overall total	221.94

6.5 Species Composition

- 6.5.1 The abundant and biomass of fish species recorded in the Study Area are listed in **Table 6-7** and **Table 6-8**, 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 also dominated by fish family Pomacentridae (*Chromis notata*).
- 6.5.2 In GDA, only few species were captured, the most abundant species was pearl-spot chromis *Chromis notata* over 81% biomass at G1). In IPA, the most abundant and highest biomass species was also the family Pomacentridae (*Chromis notata*); (>76% in P1). In dry season, the species composition at different locations were generally variable. (Table 6-7 and 6-8)

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

Dry season					
Location	Family	Species	Commercial value	Mean Abundance	Mean % Abundance
P1	Pomacentridae	<i>Chromis notata</i>	L	14.5	76.32
	Labridae	<i>Halichoeres nigrescens</i>	X	2.5	13.16
	Siganidae	<i>Siganus canaliculatus</i>	L	2	10.53
P2	Pomacentridae	<i>Chromis notata</i>	L	7	58.33
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	2.5	20.83
	Apogonidae	<i>Apogon cathetogramma</i>	L	1.5	12.5
	Monacanthidae	<i>Monacanthus chinensis</i>	M	1	8.33
G1	Pomacentridae	<i>Chromis notata</i>	L	2	66.67
	Serranidae	<i>Cephalopholis boenak</i>	H	1	33.33
G2	Pomacentridae	<i>Chromis notata</i>	L	10.5	84
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	1.5	12
	Serranidae	<i>Cephalopholis boenak</i>	H	0.5	4
R1	Pomacentridae	<i>Chromis notata</i>	L	7.5	55.56
	Scorpaenidae	<i>Sebastiscus marmoratus</i>	L	3	22.22
	Monacanthidae	<i>Monacanthus chinensis</i>	M	1.5	11.11
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	1	7.41
	Serranidae	<i>Cephalopholis boenak</i>	H	0.5	3.7
R2	Pomacentridae	<i>Chromis notata</i>	L	17.5	76.1
	Sparidae	<i>Evynnis cardinalis</i>	L	2.5	10.9
	Serranidae	<i>Cephalopholis boenak</i>	H	2	8.7
	Tetraodontidae	<i>Takifugu poecilonotus</i>	M	1	4.3

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

Table 6-8: Biomass data of Adult Fish Species Recorded in Dry Season in the Study Area

Dry season					
Location	Family	Species	Commercial value	Mean Biomass (g)	Mean % Biomass
P1	Pomacentridae	<i>Chromis notata</i>	L	579.5	68.5
	Labridae	<i>Halichoeres nigrescens</i>	X	149	17.61
	Siganidae	<i>Siganus canaliculatus</i>	L	117.5	13.89
P2	Pomacentridae	<i>Chromis notata</i>	L	179.5	44
	Apogonidae	<i>Apogon cathetogramma</i>	L	99	24.26
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	67.5	16.54
	Monacanthidae	<i>Monacanthus chinensis</i>	M	62	15.2
G1	Pomacentridae	<i>Chromis notata</i>	L	77	53.3
	Serranidae	<i>Cephalopholis boenak</i>	H	67.5	46.7
G2	Pomacentridae	<i>Chromis notata</i>	L	382.5	67.5
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	117	20.6
	Serranidae	<i>Cephalopholis boenak</i>	H	67.5	11.9
R1	Pomacentridae	<i>Chromis notata</i>	L	313.5	43.4
	Scorpaenidae	<i>Sebastiscus marmoratus</i>	L	182.5	25.3
	Monacanthidae	<i>Monacanthus chinensis</i>	M	87.5	12.1
	Tetraodontidae	<i>Takifugu poecilonotus</i>	X	78.5	10.9
	Serranidae	<i>Cephalopholis boenak</i>	H	60	8.3
R2	Pomacentridae	<i>Chromis notata</i>	L	563	65.2
	Serranidae	<i>Cephalopholis boenak</i>	H	149	17.3
	Sparidae	<i>Evynnis cardinalis</i>	L	84	9.7
	Tetraodontidae	<i>Takifugu poecilonotus</i>	M	67.5	7.8

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

7 Juvenile Fish Survey Results

7.1 Overall Juvenile Fish Resources

- 7.1.1 For juvenile fish survey using purse-seining, a total of 975.2g of 610 individuals comprising 1 species was recorded. The only species recorded in terms of biomass and abundance was mullet *Mugil* 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 *Mugil* sp. The size of this dominant species ranged from 3.7 to 5.1 cm (total length).

Table 7-1: Overall Juvenile Fish Resources in the Study Area during Dry 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	68.9	135	0.5	34.45	67.5	<i>Mugil</i> sp.
P2 (IPA)	1	365.4	203	0.5	182.7	101.5	<i>Mugil</i> sp.
G1 (GDA)	--	--	--	--	--	--	--
G2 (GDA)	1	125.6	59	0.5	62.8	29.5	<i>Mugil</i> sp.
R1 (CLA)	1	415.3	213	0.5	207.65	106.5	<i>Mugil</i> sp.
R2 (CLA)	--	--	--	--	--	--	--
Overall total	1	975.2	610	0.5	487.6	305	<i>Mugil</i> sp.

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

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):

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

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

- 7.3.2 The mean CPUE of each monitoring location ranged between 14.75 and 53.25 no. hour⁻¹ net⁻¹ (**Table 7-2**). Locations P2 (i.e. Impact Area, IPA) 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)	33.75
P2 (IPA)	50.75
G1 (GDA)	0
G2 (GDA)	14.75
R1 (CLA)	53.25
R2 (CLA)	0
Overall total	152.5

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

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 17.23 and 103.83 g hour⁻¹ net⁻¹ (**Table 7-3**). Locations P2 (i.e. Impact Area, IPA) 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)	17.23
P2 (IPA)	91.35
G1 (GDA)	0
G2 (GDA)	31.40
R1 (CLA)	103.83
R2 (CLA)	0
Overall total	243.80

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

7.5 Species Composition

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

8 Ichthyoplankton Survey Results

8.1 Overall Ichthyoplankton Assemblages

8.1.1 In the ichthyoplankton survey, a total of 7 species from 7 families (including both fish egg and fish larvae) were recorded in the Study Area, comprising 3 fish egg species from 3 families, and 4 fish larvae species from 4 families. The dominant species of fish egg and fish larvae were Threadfin porgy *Evynnis cardinalis* and Marbled rockfish *Sebastiscus marmoratus*, respectively, accounting for 63.76 % of total density in egg and 44.64 % 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 Dry 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)	1	35.24	0.5	17.62	<i>Evynnis cardinalis</i>
T2 (IPA)	0	0	0	0	-
T3 (CLA)	2	40.48	1	20.24	<i>Mullidae</i> sp.
T4 (CLA)	1	12.54	0.5	6.27	<i>Evynnis cardinalis</i>
T5 (GDA)	1	23.45	0.5	11.725	<i>Evynnis cardinalis</i>
T6 (GDA)	0	0	0	0	-
Overall total	3	111.71	1.5	55.855	<i>Evynnis cardinalis</i>
Fish Larvae					
T1 (IPA)	2	31.86	1	15.93	<i>Sebastiscus marmoratus</i>
T2 (IPA)	0	0	0	0	-
T3 (CLA)	0	0	0	0	-
T4 (CLA)	1	9.21	0.5	4.605	<i>Sebastiscus marmoratus</i>
T5 (GDA)	0	0	0	0	-
T6 (GDA)	1	15.65	0.5	7.825	-
Overall total	4	56.72	2	28.36	<i>Sebastiscus marmoratus</i>

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

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 dry season, the species composition of fish egg was more variable with locations/ areas. IPA (Site T1) was dominated by *Evynnis cardinalis*. CLA (Site T3 and T4) was dominated by *Evynnis cardinalis*. While no fish egg was recorded in site T2 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 dry season, at all locations, the percentage of total density of fish larvae was dominated by common rockfish *Sebastiscus marmoratus*, which was of high commercial value, contributing to 44.64 % total fish larvae density at the survey area (**Table 8-4**).

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

Dry season					
Location	Family	Species	Commercial value	Mean Density (no. per 1000 m³)	Mean % Density
T1	Sparidae	<i>Eynn timer cardinalis</i>	M	35.24	100.00%
T2	-	-	-	-	-
T3	Mullidae	<i>Mullidae</i> sp.	M	29.23	81.64%
	Soleidae	<i>Soleidae</i> sp.	M	11.25	18.36%
T4	Sparidae	<i>Eynn timer cardinalis</i>	M	12.54	100.00%
T5	Sparidae	<i>Eynn timer cardinalis</i>	M	23.45	100.00%
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 Dry Season

Dry season					
Location	Family	Species	Commercial value	Mean Density (no. per 1000 m³)	Mean % Density
T1	Scorpaenidae	<i>Sebastiscus marmoratus</i>	H	25.32	79.47%
	Sillaginidae	<i>Sillago sihama</i>	M	6.54	20.53%
T2	-	-	-	-	-
T3	-	-	-	-	-
T4	Monacanthidae	<i>Monacanthus chinensis</i>	H	9.21	100.00%
T5	-	-	-	-	-
T6	Platycephalidae	<i>Inegocia japonica</i>	M	15.65	100.00%

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 11.1**. The detailed *in-situ* and laboratory measurement result are shown in **Appendix E**.
- 9.2 The measured water temperature values ranged from about 20.83 °C to about 22.61 °C in dry 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 7.99 to 9.50 in both dry. 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 7 NTU with highest measured values of about 10 mg/L and 2.68 NTU respectively. No obvious seasonal variation of SS and turbidity levels can be identified.
- 9.6 The average salinity levels measured during the dry season are higher 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 11.1 Statistical Summary of Water Quality Parameters (Dry 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	4.44 (1 – 9)	26.15 (25.80-26.70)	8.03 (7.88-8.17)	8.65 (8.32-9.09)	8.65 (8.29-9.02)	2.40 (2.21-2.62)	32.31 (31.68-32.71)	3.46 (<2.50-10.00)	<0.1 (<0.1)	<0.1 (<0.1)
P2	4.73 (1.00-8.80)	25.85 (25.50-26.40)	8.05 (7.96-8.15)	8.91 (8.57-9.17)	8.97 (8.57-9.11)	2.74 (2.64-2.88)	32.02 (31.59-32.46)	3.02 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
G1	9.96 (1-23.7)	26.31 (25.9-26.6)	8.04 (7.91-8.16)	8.49 (8.40-8.57)	8.47 (8.40-8.53)	2.68 (2.25-2.89)	32.64 (31.99-33.37)	2.98 (<2.50-4.00)	<0.1 (<0.1)	<0.1 (<0.1)
G2	9.00 (1-20.4)	26.08 (25.7-26.4)	8.03 (7.93-8.11)	8.50 (8.17-8.92)	8.50 (8.17-8.92)	2.46 (2.18-3.05)	32.36 (31.49-33.13)	2.98 (<2.50-7.00)	<0.1 (<0.1)	<0.1 (<0.1)
R1	4.41 (1-8.5)	26.05 (25.8-26.3)	8.04 (7.94-8.13)	8.43 (8.08-8.90)	8.43 (8.10-8.90)	2.59 (2.32-2.85)	32.56 (31.90-33.19)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
R2	4.64 (1-8.59)	26.05 (25.8-26.6)	8.00 (7.90-8.10)	8.79 (7.79-9.50)	8.40 (7.84-9.41)	2.20 (1.95-2.63)	32.00 (31.14-32.89)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
CE	11.28 (1-23.4)	25.98 (25.3-26.2)	7.98 (7.86-8.06)	8.41 (8.02-8.81)	8.43 (8.02-8.79)	2.96 (2.65-3.27)	32.25 (31.96-32.45)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
CF	9.99 (1-19.6)	26.10 (25.8-26.4)	7.99 (7.84-8.16)	8.56 (7.87-9.31)	8.57 (7.94-9.28)	2.82 (2.48-3.22)	32.41 (31.98-32.86)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR01	4.48 (1-8.5)	25.88 (25.5-26.4)	7.98 (7.89-8.05)	8.74 (7.86-9.37)	8.74 (7.9-9.36)	2.40 (2.21-2.64)	32.42 (31.82-33.08)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR02	4.61 (1-8.3)	25.95 (25.6-26.7)	8.03 (7.91-8.14)	8.41 (7.91-8.88)	8.48 (7.92-8.88)	2.51 (2.17-2.88)	32.35 (31.71-33.01)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR03	3.95 (1-7.1)	25.98 (25.60-26.30)	7.98 (7.9-8.05)	8.38 (7.81-8.76)	8.38 (7.87-8.76)	2.37 (2.08-2.70)	32.55 (32.12-33.02)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR04	3.49 (1-6.3)	26.00 (25.4-26.5)	8.03 (7.96-8.10)	8.40 (7.84-9.39)	8.39 (7.87-9.31)	2.48 (2.08-2.89)	32.25 (31.89-32.77)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR16	8.21 (1-16.0)	25.88 (25.5-26.2)	7.99 (7.89-8.13)	8.76 (8.32-9.17)	8.76 (8.38-9.14)	2.47 (2.24-2.74)	32.53 (21.18-33.01)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR33	3.68 (1-6.7)	26.18 (26-26.5)	7.99 (7.86-8.16)	8.50 (7.93-9.55)	8.50 (7.94-9.50)	2.57 (2.13-2.87)	32.24 (31.85-32.88)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR36	3.50 (1-6.5)	26.03 (25.3-26.7)	7.99 (7.9-8.1)	8.47 (7.99-9.22)	8.43 (7.99-9.17)	2.49 (2.12-2.75)	32.58 (31.92-33.48)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
WSR37	4.04 (1-7.5)	26.13 (25.90-26.50)	8.10 (7.86-8.22)	8.54 (8.26-8.96)	8.52 (8.26-8.93)	2.61 (2.49-2.74)	32.25 (31.94-32.68)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
NF1	6.79 (1-12.9)	26.03 (25.7-26.6)	8.02 (7.96-8.10)	8.35 (8.05-8.76)	8.33 (8.05-8.76)	2.56 (2.11-2.92)	32.32 (31.68-33.12)	3.06 (<2.50-6.00)	<0.1 (<0.1)	<0.1 (<0.1)
NF2	5.33 (1-9.9)	26.23 (26-26.5)	7.99 (7.85-8.12)	8.73 (8.19-9.28)	8.72 (8.19-9.26)	2.75 (2.52-2.97)	32.00 (31.14-32.89)	3.44 (<2.50-3.00)	<0.1 (<0.1)	<0.1 (<0.1)
NF3	6.01 (1-11.3)	25.93 (25.3-26.3)	8.01 (7.89-8.12)	8.61 (9.30-8.97)	8.58 (8.33-8.95)	2.46 (2.16-2.66)	32.48 (31.96-33.09)	3.44 (<2.50-3.00)	<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 February 2026.
- 10.2 For adult fish survey using cage trapping and gill netting, a total 7102 g of 166 individuals comprising 9 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 975.2g of 610 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 7 species from 7 families (including both fish egg and fish larvae) were recorded in the Study Area, comprising 3 fish egg species from 3 families, and 4 fish larvae species from 4 families. The mean larvae density and total larvae family 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 *Evyinnis 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 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 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 weak 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 References

- 11.1 Airport Authority Hong Kong (2013) Expansion of Hong Kong International Airport into a Three-Runway System. Environmental Impact Assessment Report.
- 11.2 Castle Peak Power Company Limited (2006). Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities. Environmental Impact Assessment Report.
- 11.3 ERM-Hong Kong Limited (ERM) (2017) Consultancy Services for Updated Fisheries Survey for Tseung Kwan O Desalination Plant. Final Report.
- 11.4 Fok MSM (2008) Baseline Survey of Fish Juvenile Assemblages in Tolo Harbour and Channel, Hong Kong. MPhil Thesis. The University of Hong Kong.
- 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

APPENDIX F

CALIBRATION CERTIFICATE



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: JOE HO
CLIENT: AURECON HONG KONG LIMITED
ADDRESS: UNIT 1608, 16/F, TOWER B,
MANULIFE FINANCIAL CENTRE,
223-231 WAI YIP STREET,
KWUN TONG, HONG KONG

WORK ORDER: HK2604315
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 29-Jan-2026
DATE OF ISSUE: 04-Feb-2026

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: Multifunctional Meter

Service Nature: Performance Check

Scope: Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature

Brand Name/ Model No.: [YSI]/ [ProDSS]

Serial No./ Equipment No.: [24G101660]/ [N/A]

Date of Calibration: 30-January-2026

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

This report shall not be reproduced except in full without the written approval of the laboratory.

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2604315
SUB-BATCH: 0
DATE OF ISSUE: 04-Feb-2026
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Multifunctional Meter
Brand Name/Model No.: [YSI]/ [ProDSS]
Serial No.: [24G101660]/ [N/A]
Equipment No.:
Date of Calibration: 30-January-2026

Date of Next Calibration: 30-April-2026

PARAMETERS:

Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading ($\mu\text{S}/\text{cm}$)	Displayed Reading ($\mu\text{S}/\text{cm}$)	Tolerance (%)
146.9	152.8	+4.0
6667	6540	-1.9
12890	12636	-2.0
58670	56943	-2.9
	Tolerance Limit (%)	± 10.0

Dissolved Oxygen

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.50	2.60	+0.10
4.70	4.80	+0.10
7.22	7.14	-0.08
	Tolerance Limit (mg/L)	± 0.20

pH Value

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

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.90	-0.10
7.0	7.04	+0.04
10.0	9.94	-0.06
	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.

Ms. Cheng Sin Ying, May
Senior Chemist - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2604315
SUB-BATCH: 0
DATE OF ISSUE: 04-Feb-2026
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No.: [24G101660]/ [N/A]
Equipment No.:
Date of Calibration: 30-January-2026

Date of Next Calibration: 30-April-2026

PARAMETERS:

Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.10	--
4	3.89	-2.8
40	38.81	-3.0
80	83.16	+4.0
400	392.10	-2.0
800	803.77	+0.5
Tolerance Limit (%)		±10.0

Salinity

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.02	--
10	9.86	-1.4
20	19.54	-2.3
30	29.45	-1.8
Tolerance Limit (%)		±10.0

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

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Senior Chemist - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2604315
SUB-BATCH: 0
DATE OF ISSUE: 04-Feb-2026
CLIENT: AURECON HONG KONG LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [ProDSS]
Serial No.: [24G101660]/ [N/A]
Equipment No.:
Date of Calibration: 30-January-2026

Date of Next Calibration: 30-April-2026

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)
10.5	11.5	+1.0
22.0	22.3	+0.3
39.5	39.4	-0.1
	Tolerance Limit (°C)	±2.0

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

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