


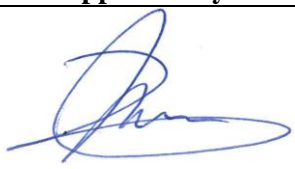
JOB No.: TCS01216/21

**WSD Contract No.: 3/WSD/20 -
Reclaimed Water Supply to Sheung Shui and Fanling**

**MONTHLY ENVIRONMENTAL MONITORING & AUDIT
REPORT (NO.40) – MARCH 2025**

**PREPARED FOR
WATER SUPPLIES DEPARTMENT**

Quality Index

Date	Reference No.	Prepared By	Approved By
9 April 2025	TCS01216/21/600/R0126v1	 Martin Li Environmental Consultant	 TW Tam Environmental Team Leader

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1	9 April 2025	First Submission



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Date: 14th April 2025

Project Manager
Water Supplies Department
Immigration Tower, 7 Gloucester Road,
Wan Chai, Hong Kong
Attn: Mr. Tim Wong

Dear Sir,

Agreement No. CE67/2017(W.S.)
Reclaimed Water Supply to Sheung Shi and Fanling – Investigation, Design and Construction
Independent Environmental Checker (IEC) Services for
Shek Wu Hui Water Reclamation Plant under Contract No. 3/WSD/20

Monthly EM&A Monitoring Report for March 2025

We refer to the monthly EM&A Report for March 2025 for WSD Contract No.: 3/WSD/20 – Reclaimed Water Supply to Sheung Shui and Fanling certified by the Environmental Team Leader on 9th April 2025. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 3.4 of Environmental Permit No. FEP-01/470/2013.

Should you have any query, please feel free to contact the undersigned at 8493 5543.

Yours Sincerely,


Vega Wong
Independent Environmental Checker

- c.c.
- ET Leader — AUES (Attn: Mr. T.W. Tam) [by Email: twtam@fordbusiness.com]
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EXECUTIVE SUMMARY

- ES.01 Water Supplies Department (WSD) is the Project Proponent and the Permit Holder of **Reclaimed Water Supply to Sheung Shui and Fanling** (hereinafter referred as “the Contract Works”), which is a Designated Project to be implemented under Further Environmental Permit number FEP-01/470/2013 (hereinafter referred as “the FEP-01/470/2013” or “the FEP”).
- ES.02 In according with the Updated EM&A Manual stipulation and the location of Contract Works, only construction noise monitoring and waterbird of ecological monitoring are required during the construction phase of the Contract Works.
- ES.03 As part of the EM&A programme, Baseline Monitoring Report which determined Action and Limit Levels (A/L Levels) based on the baseline data, has been verified by Independent Environmental Checker (IEC) and submitted to EPD endorsement on **24 November 2021**. Also, construction activities under the Contract Works were commenced on **7 December 2021**.
- ES.04 This is the **40th** monthly EM&A report presenting the monitoring results and inspection findings for the reporting period from **1** to **31 March 2025** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES.06 Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Table ES-1 Environmental monitoring activities in the Reporting Period

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Total Occasions during Reporting Period
Construction Noise	$L_{eq(30min)}$ Daytime	4
Ecology	Waterbirds	4
Site Inspection / Audit	ET, the Contractor and RE joint site Environmental Inspection	4

BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES.07 In the Reporting Period, no construction noise limit level exceedance construction noise was recorded and no noise complaint (i.e. Action Level) was received. No action and limit level exceedance for waterbirds survey was recorded in the Reporting Period. No Notifications of Exceedances (NOEs) was issued to the Resident Engineer (RE), IEC and the Main Contractor. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Table ES-2 Breach of Action and Limit (A/L) Levels in the Reporting Period

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	0	0
Ecology	Waterbirds Abundance	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

- ES.08 No environmental complaint was recorded or received in this Reporting Month. The statistics of environmental complaint are summarized in the following table.

Table ES-3 Environmental Complaint Summaries in the Reporting Month

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

- ES.09 In addition, no complaint received and emergency events relating to violation of environmental legislation for illegal dumping and landfilling were received.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- ES.10 No environmental summons or successful prosecution was recorded in this Reporting Month. The statistics of summons or successful prosecutions are summarized in the following tables.

Table ES-4 Environmental Summons Summaries in the Reporting Month

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

Table ES-5 Environmental Prosecution Summaries in the Reporting Month

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

REPORTING CHANGE

- ES.11 No report change in the reporting period.

SITE INSPECTION

- ES.12 Weekly site inspections to evaluate the site environmental performance have been carried out by the RE, ET and the Main Contractor on *5, 12, 20 and 27 March 2025*. No non-compliance was noted during the site inspection.
- ES.13 IEC inspection was conducted on *5 March 2025*.

FUTURE KEY ISSUES

- ES.14 E&M work will be the major construction work in the coming month. The Contractor should pay attention to waste impact from E&M work, and implement mitigation measures according to the ISEMM.
- ES.15 As the coming month will be wet season, the Contractor was general reminded to paid attention to water quality mitigation measures such as ensure sufficient wastewater treatment facilities capacity is provided on site and keep review on the temporary drainage system to avoid water quality impact arise from the Project.
- ES.16 Details of the future issues in the coming month are described in Section 9.4.

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	REPORT STRUCTURE	2
2.	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS	3
2.1	PROJECT ORGANIZATION	3
2.2	CONSTRUCTION PROGRESS	4
2.3	SUMMARY OF ENVIRONMENTAL SUBMISSIONS	4
3.	SUMMARY OF IMPACT MONITORING REQUIREMENTS	6
3.1	GENERAL	6
3.2	REQUIREMENT OF CONSTRUCTION NOISE MONITORING	6
3.3	LOCATION OF CONSTRUCTION NOISE IMPACT MONITORING	6
3.4	ACTION AND LIMIT LEVEL FOR CONSTRUCTION NOISE	6
3.5	NOISE MONITORING METHODOLOGY	7
3.6	MONITORING PROCEDURE	7
3.7	DATA MANAGEMENT AND DATA QA/QC CONTROL	7
3.8	REQUIREMENT OF WATERBIRDS ECOLOGICAL IMPACT MONITORING	8
3.9	MONITORING METHODOLOGY FOR WATERBIRDS ECOLOGICAL IMPACT MONITORING	8
3.10	EVENT ACTION PLAN	9
4.	CONSTRUCTION NOISE MONITORING	11
4.1	GENERAL	11
4.2	RESULTS OF NOISE MONITORING	11
5.	ECOLOGY WATERBIRD MONITORING	12
5.1	GENERAL	12
5.2	RESULTS OF WATERBIRDS SURVEY	12
6.	WASTE MANAGEMENT	14
6.1	GENERAL WASTE MANAGEMENT	14
6.2	RECORDS OF WASTE QUANTITIES	14
7.	SITE INSPECTION	15
7.1	REQUIREMENTS	15
7.2	FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH	15
8.	ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE	16
8.1	ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION	16
9.	IMPLEMENTATION STATUS OF MITIGATION MEASURES	17
9.1	GENERAL REQUIREMENTS	17
9.2	IMPLEMENTATION STATUS OF THE MITIGATION MEASURES IN THE REPORTING PERIOD	17
9.3	TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH	17
9.4	KEY ISSUES FOR THE COMING MONTH	18
10.	CONCLUSIONS AND RECOMMENDATIONS	19
10.1	CONCLUSIONS	19
10.2	RECOMMENDATIONS	19

LIST OF TABLES

TABLE 2-3-1	STATUS OF ENVIRONMENTAL LICENSES AND PERMITS
TABLE 3-4-1	ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE
TABLE 3-5-1	EQUIPMENT OF NOISE IMPACT MONITORING
TABLE 3-8-1	MONITORING OF MEASURES TO MINIMIZE DISTURBANCE TO WATERBIRDS ON THE NG TUNG, SHEUNG YUE AND SHEK SHEUNG RIVERS
TABLE 3-9-1	ECOLOGICAL MONITORING STATIONS
TABLE 3-10-1	EVENT AND ACTION PLAN FOR CONSTRUCTION NOISE MONITORING
TABLE 3-10-2	EVENT AND ACTION PLAN OF ECOLOGICAL (WATERBIRDS) MONITORING
TABLE 4-2-1	SUMMARIES OF NOISE MONITORING RESULTS OF CP-KTN-NMS5
TABLE 5-1-1	REPRESENTATIVE WATERBIRDS
TABLE 5-2-1	TOTAL BIRD SPECIES AND ABUNDANCE AT POINT COUNT LOCATIONS IN THE REPORTING MONTH
TABLE 5-2-2	ABUNDANCE OF REPRESENTATIVE WATERBIRDS AT POINT COUNT LOCATIONS IN THE REPORTING MONTH
TABLE 6-2-1	SUMMARY OF QUANTITIES OF INERT C&D MATERIALS
TABLE 6-2-2	SUMMARY OF QUANTITIES OF C&D WASTES
TABLE 7-2-1	SITE OBSERVATIONS
TABLE 8-1-1	STATISTICAL SUMMARY OF ENVIRONMENTAL COMPLAINTS
TABLE 8-1-2	STATISTICAL SUMMARY OF ENVIRONMENTAL SUMMONS
TABLE 8-1-3	STATISTICAL SUMMARY OF ENVIRONMENTAL PROSECUTION
TABLE 9-1-1	ENVIRONMENTAL MITIGATION MEASURES IMPLEMENTED IN THE REPORTING PERIOD

LIST OF APPENDICES

APPENDIX A	LOCATION OF SHEK WU HUI WATER RECLAMATION PLANT
APPENDIX B	PROJECT ORGANIZATION
APPENDIX C	MASTER CONSTRUCTION PROGRAM AND SITE OVERVIEW PHOTO IN THE REPORTING PERIOD
APPENDIX D	DESIGNATED NOISE MONITORING STATION LOCATION
APPENDIX E	VALID CALIBRATION CERTIFICATES OF MONITORING EQUIPMENT
APPENDIX F	MONITORING SCHEDULE OF THE REPORTING MONTH AND COMING MONTH
APPENDIX G	DATABASE OF MONITORING RESULT
APPENDIX H	GRAPHICAL PLOTS FOR MONITORING RESULT
APPENDIX I	MONTHLY SUMMARY WASTE FLOW TABLE
APPENDIX J	IMPLEMENTATION SCHEDULE FOR ENVIRONMENTAL MITIGATION MEASURES (ISEMM)
APPENDIX K	AS-BUILT DRAWING OF SITE TEMPORARY DRAINAGE
APPENDIX L	WATERBIRDS SURVEY REPORT FOR THE REPORTING MONTH

1. INTRODUCTION

1.1 BACKGROUND

- 1.1.1 Water Supplies Department (WSD) is the Project Proponent of Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works. On 30th July 2021, China Geo-Engineering Corporation (hereinafter named as “the Main-Contractor”) was awarded WSD Contract Works 3/WSD/20 - Reclaimed Water Supply to Sheung Shui and Fanling (hereinafter referred as “the Contract Works”).
- 1.1.2 The reclaimed water supply to Sheung Shui and Fanling (SSF) comprises a Shek Wu Hui Water Reclamation Plant (SWHWRP), part of pumping water mains to Table Hill Reclaimed Water Service Reservoir (TBHRWSR), and Kwu Tung North (KTN) New Development Area (NDA) and distribution water mains to SSF area.
- 1.1.3 The SWHWRP, which comprises Hypo-Chlorination Facilities (HCF) and Reclaimed Water Pumping Station (ReWPS), will be located at a long-stripped area between Ng Tung River and Sheung Shui Slaughter House at the northwest of the Shek Wu Hui Sewage Treatment Works (SWHSTW).
- 1.1.4 The HCF, which consists of a hypo-chlorination dosing plant, a chlorine contact tank, dye dosing system, water refilling station, other post-treatment facilitates and storage areas for chemicals, would produce reclaimed water by further treatment of the treated sewage effluent (TSE) pumped from the discharge outlet of the SWHSTW. The treatment capacity of the SWHWRP will be 73,000m³/day.
- 1.1.5 The Reclaimed Water P/S, which will be located at the northwest of the HCF, will receive reclaimed water by gravity from the HCF and deliver to the TBHRWSR serving SSF areas, Kwu Tung North Flushing Water Service Reservoir (KTN FLWSR) serving KTN NDA and Fanling North Flushing Water Service Reservoir (FLN FLWSR) serving Fanling North (FLN) NDA
- 1.1.6 This Work Contract mainly comprise construction of Shek Wu Hui Water Reclamation Plant and laying of the associated water main to produce reclaimed water for supply to the Northeast New Territories areas for non-potable used. It is estimated that about 22 million cubic metres of fresh water can be saved each year ultimately.
- 1.1.7 The construction of Shek Wu Hui Water Reclamation Plant under the Work Contract is a Designated Project to be implemented under Further Environmental Permit number FEP-01/470/2013 (hereinafter referred as “the FEP-01/470/2013” or “the FEP”). Location of Shek Wu Hui Water Reclamation Plant is shown in [Appendix A](#).
- 1.1.8 The major work of the Work Contract under FEP included:
- Civil engineering construction works, including structures, foundations and earthworks for the SWHWRP and ancillary buildings;
 - Electrical and mechanical (E&M), building services, fire services installations, and treatment process system engineering work;
 - Other associated systems and facilities for the SWHWRP.
- 1.1.9 Pursuant to the FEP stipulation, the Main Contractor has commissioned Action-United Environmental Services & Consulting (hereinafter referred as “AUES”) as Environmental Team (hereinafter referred as “ET”) perform relevant EM&A programme and as well as the associated duties.
- 1.1.10 As part of the EM&A programme, Baseline Monitoring Report which determined Action and Limit Levels (A/L Levels) based on the baseline data, has been verified by Independent Environmental Checker (IEC) and submitted to EPD endorsement on **24 December 2021**. Also, construction activities of the Contract were commencement on **7 December 2021**.

- 1.1.11 This is 40th monthly EM&A report to presenting the monitoring results and inspection findings from 1 to 31 March 2025 of the Reporting Period.

1.2 REPORT STRUCTURE

- 1.2.1 The report was structured into the following sections:-

Section 1	<i>Introduction</i>
Section 2	<i>Project Organization and Construction Progress</i>
Section 3	<i>Summary of Impact Monitoring Requirements</i>
Section 4	<i>Construction Noise Monitoring</i>
Section 5	<i>Ecology Waterbirds Monitoring</i>
Section 6	<i>Waste Management</i>
Section 7	<i>Site Inspections</i>
Section 8	<i>Environmental Complaints and Non-Compliance</i>
Section 9	<i>Implementation Status of Mitigation Measures</i>
Section 10	<i>Conclusions and Recommendations</i>

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 PROJECT ORGANIZATION

- 2.1.1 The project organization is shown in [Appendix B](#). The roles and responsibilities of the various parties involved in the EM&A process and the organizational structure of the organizations responsible for implementing the EM&A programme are outlined below.

Water Supplies Department (WSD)

- 2.1.2 WSD is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by WSD to audit the results of the EM&A works carried out by the ET.

Environmental Protection Department (EPD)

- 2.1.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Engineer or Engineers Representative (ER)

- 2.1.4 The ER is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:

- Supervise the Contractor's activities and ensure that the requirements in the Contract Works Specific EM&A Manual are fully complied with;
- Inform the Contractor when action is required to reduce impacts in accordance with the Event and Action Plans;
- Employ an IEC to audit the results of the EM&A works carried out by the ET; and
- Comply with the agreed Event Contingency Plan in the event of any exceedance.

The Main Contractor

- 2.1.5 The Main Contractor is responsible perform construction works and for ensuring that the works are undertaken compliance with the specification and contract requirements. The duties and responsibilities of the Main Contractor with respect to EM&A are:

- Employ an Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of environmental monitoring and audit;
- Provide assistance to ET in carrying out monitoring and auditing;
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event and Action Plans;
- Implement measures to reduce impact where Action and Limit levels are exceeded; and
- Adhere to the agreed procedures for carrying out compliant investigation.

Environmental Team (ET)

- 2.1.6 The ET is responsible perform implementation EM&A programmes of the Contract Works as stipulated in the Updated EM&A Manual ensure the works are fully compliance with environmental regulations. The duties and responsibilities of the ET with respect to EM&A are:

- Set up all the required environmental monitoring stations;
- Monitor various environmental parameters as required in the EM&A Manual;
- Analyze the EM&A data and review the success of EM&A programme to cost effectively confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify any adverse environmental impacts arising;
- Carry out site inspection to investigate and audit the Contractors' site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and take proactive actions to pre-empt problems;
- Audit and prepare audit reports on the environmental monitoring data and site environmental conditions;
- Report on the EM&A results to the IEC, Contractor, the ER and EPD or its delegated representative;
- Recommend suitable mitigation measures to the Contractor in the case of exceedance of

- Action and Limit levels in accordance with the Event and Action Plans;
- Undertake regular and ad-hoc on-site audits / inspections and report to the Contractor and the ER of any potential non-compliance; and
- Follow up and close out non-compliance actions.

Independent Environmental Checker (IEC)

2.1.7 The duties and responsibilities of IEC with respect to EM&A are:

- Review the EM&A works performed by the ET (at not less than monthly intervals);
- Audit the monitoring activities and results (at not less than monthly intervals);
- Report the audit results to the ER and EPD in parallel;
- Review the EM&A reports (monthly summary reports) submitted by the ET;
- Review the proposal on mitigation measures submitted by the Contractor in accordance with the Event and Action Plans;
- Check the mitigation measures submitted by the Contractor in accordance with the Event and Action Plans;
- Check the mitigation measures that have been recommended in the EIA and this Manual, and ensure they are properly implemented in a timely manner, when necessary;
- Report the findings of site inspections and other environmental performance reviews to ER and EPD;
- Coordinate the monitoring and auditing works for all the on-going contracts in the area in order to identify possible sources / causes of exceedances and recommend suitable remedial actions where appropriate; and
- Coordinate the assessment and response to complaints / enquires from locals, green groups, district councils or the public at large.

2.2 CONSTRUCTION PROGRESS

2.2.1 In the Reporting Period, the major construction activities of the Contract Works under FEP are listed in below. Moreover, the master construction program and site overview photo in the reporting period are enclosed in [Appendix C](#).

- HCF Roof – Landscape Soft works
- HCF Ground –Installation of Aluminum RHS Canopy, Curb Reposition of Footpath (near Fire Hydrant)
- Promenade - Laying of Concrete on Outer Fence Wall, Fine Wash Grano Wall Finish
- Main Gate 1&2 –Installation of Main Gate 1 & 2

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 To according with the FEP stipulation, the required documents has submitted to EPD for retention as listed below:

- Project Location Plans;
- Updated Environmental Monitoring and Audit Manual of Project Specific (TCS01176/21/600/R0012v2); and
- Baseline Monitoring Report (TCS01216/21/600/R0017v3) for the Project.

2.3.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project is presented in **Table 2-3-1**.

Table 2-3-1 Status of Environmental Licenses and Permits

Item	Description	Licence/Permit Status		
		Ref. no.	Effective Date	Expiry Date
1	Air Pollution Control (Construction Dust) Regulation	Notification was made on 3 Aug 2021	3 Aug 2021	Till the Contract ends
2	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account No.: 7041397	8 Aug 2021	Till the Contract ends
3	Chemical Waste Producer Registration	Application was made on 3 Aug 2021	3 Aug 2021	Till the Contract ends

Item	Description	Licence/Permit Status		
		Ref. no.	Effective Date	Expiry Date
4	Water Pollution Control Ordinance – Discharge Licence	Discharge Licence No.: WT00039707-2021	17 Nov 2021	30 Nov 2026

3. SUMMARY OF IMPACT MONITORING REQUIREMENTS**3.1 GENERAL**

- 3.1.1 According to the Updated EM&A Manual and the location of the Contract Works, only construction noise monitoring and waterbirds ecological of environmental monitoring are related the Contract Works during the construction phase. Details requirement of noise and waterbirds ecological impact monitoring are presented sub-sections as below.

3.2 REQUIREMENT OF CONSTRUCTION NOISE MONITORING

- 3.2.1 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as “the restricted hours”), $L_{eq(5min)}$ measurement will be carried out in accordance with the CNP requirements. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

- 3.2.2 Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.3 LOCATION OF CONSTRUCTION NOISE IMPACT MONITORING

- 3.3.1 According to the Updated EM&A Manual of CEDD Contract No. NDO 14/2018 - *Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas*, four noise sensitive receivers are designated on Fanling North New Development Areas for construction noise monitoring.

- 3.3.2 According to the geographic location of proposed Shek Wu Hui Water Reclamation Plant and all the recommended designated construction noise monitoring stations, only the designated noise monitoring station CP-KTN-NMS5 (prior named “CP-NMS7”) shown in [Appendix D](#), is located near the proposed Shek Wu Hui Water Reclamation Plant within 300m (distance about 110m). Therefore, the designated noise monitoring station CP-KTN-NMS5 is recommended for the Contract Works to undertake construction noise monitoring. If the recommended noise monitoring location CP-KTN-NMS5 not available, the ET shall propose alternative monitoring locations/additional monitoring locations and seek approval from the Supervisor of the proposal. When alternative/new monitoring location is proposed, the monitoring location shall be chosen based on the following criteria:

- (i) at locations close to the major site activities which are likely to have noise impacts;
- (ii) close to the noise sensitive receivers; and
- (iii) for monitoring locations located in the vicinity of the sensitive receivers, care shall be taken to cause minimal disturbance to the occupants during monitoring.

- 3.3.3 The construction noise monitoring station shall normally be at a point 1 m from the exterior of the sensitive receivers building façade and be a position 1.2m above the ground. If there is problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made to the free field measurements. The ET shall agree with the Supervisor on the monitoring station that is chosen for impact monitoring.

3.4 ACTION AND LIMIT LEVEL FOR CONSTRUCTION NOISE

- 3.4.1 The Action and Limit levels for construction noise are defined in **Table 3-4-1**. Should non-compliance of the criteria occur, action in accordance with the Action Plan which shown in Section 4 of this report, shall be carried out.

Table 3-4-1 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
CP-KTN-NMS5	When one or more documented complaints are received	75 dB(A) ^{Note 1}

Note 1: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

3.5 NOISE MONITORING METHODOLOGY

Monitoring Equipment

- 3.5.1 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications was used for carrying out the noise monitoring. Noise equipment used for impact monitoring is listed in **Table 3-5-1**.

Table 3-5-1 Equipment of Noise Impact Monitoring

Equipment	Model
Integrating Sound Level Meter	Rion NL – 52
Calibrator	Rion NC – 73

Remark: Sound level meter IEC 60651:1979 (Type 1) was replaced by 60672 (Type 1) in 2002 (Ref: <https://webstore.iec.ch/publication/17086>)

- 3.5.2 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The valid calibration certificates of the monitoring equipment are shown in **Appendix E**.

3.6 MONITORING PROCEDURE

- 3.6.1 All noise measurements were performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq_(30min) in six consecutive Leq_(5min) measurements was used as the monitoring parameter for the time period between 07:00-19:00 hours during the baseline monitoring.
- 3.6.2 In general, the sound level meter would be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone was pointed to the site with the microphone facing perpendicular to the line of sight. The windshield would be fitted for all measurement. Where a measurement was to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement was to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.
- 3.6.3 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.
- 3.6.4 Noise measurements would not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed would be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.7 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.7.1 The monitoring data recorded in the equipment would be downloaded directly from the equipment at each monitoring day. The downloaded monitoring data would input into a computerized database properly maintained and handled by the ET's in-house data recording and management system.

3.8 REQUIREMENT OF WATERBIRDS ECOLOGICAL IMPACT MONITORING

3.8.1 Where development under the NDAs project is undertaken within 200m (the maximum distance at which it is predicted there may be some disturbance, and hence a reduction in numbers, of large waterbirds) of the Ng Tung, Sheung Yue and Shek Sheung Rivers and Long Valley the monitoring protocol detailed in the updated EM&A Manual Table 12.1 should be followed. A transect should be undertaken throughout the sections of the rivers where NDA construction activities are proposed; as the sensitive receivers (large waterbirds) are easily visible, the transect route needs only follow one bank of the rivers. The transect route should remain the same during the different phases in order to ensure that data are comparable. Monitoring of large waterbirds should be conducted in pre-construction, construction and operational phases of the concerned development.

3.8.2 The proposed Shek Wu Hui Water Reclamation Plant location is located less than 200m to Ng Tung River, Sheung Yue River and Shek Sheung River, waterbirds ecological monitoring included pre-construction (i.e. baseline), construction (i.e. impact) and post-construction (i.e. operating) should be requires. The detailed monitoring protocol is listed in *Table 3-8-1*.

Table 3-8-1 Monitoring of Measures to Minimize Disturbance to Waterbirds on the Ng Tung, Sheung Yue and Shek Sheung Rivers

Phase	Methodology
Pre-construction (baseline)	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels for 12 months prior to the commencement of construction.
Construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities throughout the construction period.
Post-construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to operational activities for 12 months following the completion of the construction period.

3.8.3 Waterbirds ecological baseline monitoring at Ng Tung River, Sheung Yue River and Shek Sheung River was conducted by DSD between *December 2017* and *June 2019* (total 19 months baseline monitoring), in compliance with the Updated EM&A Manual. Thus, the action and limit levels and responses to evidence of disturbance to waterbirds using in Ng Tung, Sheung Yue and Shek Sheung Rivers will be made reference during construction phase of the Project.

3.9 MONITORING METHODOLOGY FOR WATERBIRDS ECOLOGICAL IMPACT MONITORING

3.9.1 Three transects and seven point count locations were selected at the Ng Tung, Sheung Yue and Shek Sheung River. These locations are shown in Appendix L and summarized in *Table 3-9-1*.

Table 3-9-1 Ecological Monitoring Stations

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Transect T2		
Point Count Location P1		
Point Count Location P2		
Point Count Location P3		
Point Count Location P4		
Point Count Location P5	At Shek Sheung River (Low-flow Channel)	No
Transect T3	Along Shek Sheung River & Sheung Yue River	Yes
Point Count Location P6	At Shek Sheung River	Yes
Point Count Location P7	At Intersection between Sheung Yue and Shek Sheung River	Yes

- 3.9.2 Surveys will be conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station).
- 3.9.3 All avifauna species that were seen or heard would be identified and quantified along transects and at point count locations. Survey data would be recorded continuously by the surveyor as they walk along the transects, while survey data of each point count location would be collected for 5-minutes after surveyor reaches the designated point count location.
- 3.9.4 Noticeable behaviours such as breeding, nesting, roosting, feeding and presences of recently fledged juveniles were recorded and reported. In the case which such behaviours were observed for species of conservation importance, the Resident Engineer (RE), the Contractor and the Independent Environmental Checker (IEC) would be immediately notified after the survey such that the Contractor could review the current construction programme and minimize disturbances due to construction activities.

3.10 EVENT ACTION PLAN

Noise

- 3.10.1 Should non-compliance of the construction noise criteria occur, action in accordance with the Action Plan in **Table 3-10-1** shall be carried out.

Table 3-10-1 Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level Exceedance	1. Notify the IEC, ER and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the monitoring data submitted by the ET; 2. Review the construction methods and proposed remedial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify the Contractor; 3. Require the Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to the ER and IEC and copy to the ET; 2. Implement noise mitigation proposals.
Limit Level Exceedance	1. Identify sources. 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency; 5. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented; 6. Inform IEC, ER, EPD and Contractor the causes and	1. Discuss amongst the ER, ET and Contractor on the potential remedial actions; 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analyzed noise problems; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues,	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial action to the ER and IEC and copy to the ET within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit

Event	Action			
	ET	IEC	ER	Contractor
	actions taken for the exceedances; 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results; 8. If exceedance stops, cease additional monitoring.		consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	proposals if problems still not under control; stop the relevant portion of works as determined by the ER until the exceedance is abated.

Waterbird of Ecological

- 3.10.2 Should any exceedance encountered during construction phase, action in accordance with the Action Plan listed in **Table 3-10-2** shall be carried out.

Table 3-10-2 Event and Action Plan of Waterbirds of Ecological

Action Level	Response	Limit Level	Response
Construction Phase			
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to NDAs project instigate remedial action. Review and adjust LVNP management measures to improve conditions for affected species.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to NDAs project instigate remedial action. Review and adjust LVNP management measures to improve conditions for affected species.

(*) *Waterbird numbers refer to combined numbers using the channels*

4. CONSTRUCTION NOISE MONITORING

4.1 GENERAL

4.1.1 The noise monitoring schedule is presented in [Appendix F](#) and the monitoring results are presented in the following sections.

4.2 RESULTS OF NOISE MONITORING

4.2.1 In the Reporting Period, a total of **4** occasions noise monitoring were carried out at the designated location CP-KTN-NMS5. The sound level meter was set in free-field situation, and therefore, façade correction (+3dB) is added according to acoustical principles and EPD guidelines. The noise monitoring results at the designated locations are summarized in **Tables 4-2-1**. The detailed noise monitoring data is presented in [Appendix G](#) and the relevant graphical plot shown in [Appendix H](#).

Table 4-2-1 Summaries of Noise Monitoring Results of CP-KTN-NMS5

Date	Start Time	L _{Aeq30min} (dB(A))
5-Mar-25	14:45	63.0
11-Mar-25	17:00	62.2
17-Mar-25	9:23	63.5
28-Mar-25	14:31	53.8
Limit Level		75 dB(A)

Note: façade correction +3dB has added according to acoustical principles and EPD guidelines

4.2.2 During construction noise monitoring, no rain was encountered and wind speed is below 5m/s and gusts not exceeding 10m/s.

4.2.3 As shown in **Table 4-2-1**, the noise level measured at the designated monitoring location was below 75dB(A). Furthermore, there were no noise complaints (Action Level exceedance) received by the RE, Contractor, WSD or EPD in the Reporting Period. Therefore, no Action or Limit Level exceedance was triggered and no corrective action was therefore required.

4.2.4 During the reporting period, no construction work was carried out during restricted hours.

5. ECOLOGY WATERBIRD MONITORING**5.1 GENERAL**

- 5.1.1 Ecological monitoring for waterbirds shall be performed as transects and point count surveys along Ng Tung River, Sheung Yue River and Shek Sheung River in accordance with general surveying practices.
- 5.1.2 The surveying shall be undertaken by a qualified ecologist and he/she shall be a member of the ET. Throughout the construction period, weekly transect shall be conducted at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities.
- 5.1.3 Since occurrence of waterbirds has distinctive seasonal pattern, the construction phase data for all waterbirds and representative waterbirds shall be compared with the baseline data for the respective month and season. Total number of Waterbirds and six representative Waterbird species are used as an indicator of the level disturbance to water birds at each of the survey location. The representatives of waterbirds are listed in *Table 5-1-1*.

Table 5-1-1 Representative Waterbirds

Species Name	Common Name	Chinese Name
Egretta garzetta	Little Egret	小白鷺
Ardea alba	Great Egret	大白鷺
Ardea cinerea	Grey Heron	蒼鷺
Ardeola bacchus	Chinese Pond Heron	池鷺
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺
Phalacrocorax carbo	Great Cormorant	普通鸕鶿

5.2 RESULTS OF WATERBIRDS SURVEY

- 5.2.1 *Four (4)* occasion of waterbirds survey were conducted in the Reporting Month.
- 5.2.2 Abundance and diversity of total bird species and key waterbirds species in the Reporting Month are summarized in **Table 5-2-1** and **Table 5-2-2**.

Table 5-2-1 Total Bird Species and Abundance at Point Count Locations in the Reporting Month

Category	Number of Species	Abundance
All Avifauna	32	411
Waterbirds	13	215

Table 5-2-2 Abundance of Representative Waterbirds at Point Count Locations in the Reporting Month

Common Name	Species Name	Chinese Name	Abundance
Chinese Pond Heron	Ardeola bacchus	池鷺	13
Eastern Cattle Egret	Bubulcus coromandus	牛背鷺	35
Grey Heron	Ardea cinerea	蒼鷺	4
Great Egret	Ardea alba	大白鷺	32
Little Egret	Egretta garzetta	小白鷺	92
Great Cormorant	Phalacrocorax carbo	普通鸕鶿	17

- 5.2.3 The result was compared with the monthly and seasonal data, and decline in abundance of Chinese Pond Heron and Grey Heron were recorded. A table showing the waterbirds abundance comparison with baseline data was provided in **Appendix L**. (Appendix C of the waterbirds survey report).

- 5.2.4 As discussed in previous reporting period, the decline of individual waterbird species might not be the result of increased disturbances from the Project or its surrounding on-going projects, as increased disturbance would discourage multiple waterbird species from foraging near the transect and point count locations instead. Thus it is concluded that the decline of individual waterbird species are not related to the construction works of the Project.
- 5.2.5 It was noted since the survey on December 2024 that most stockpiles and machinery have been removed from the area near the site entrance of the current project. Other construction and anthropogenic activities around the survey transects are still active during the reporting month.
- 5.2.6 On the survey on February 2025, a total of 26 Eastern Cattle Egrets were recorded to rest on the trees next to P6. This behaviour was not observed again in the reporting month.
- 5.2.7 On the survey on March 2025, a shallow water environment formed at P2 due to sediment accumulation, which attracted numerous target waterbirds to forage at the location. A total of 26 Great Egrets and 41 Little Egrets were recorded. This behaviour was not observed again in the reporting month.
- 5.2.8 A playback device for bird calls has been found near the mitigation wetland in T1 next to P2 managed by AFCD since the survey in April 2023. Egret dummies have been observed being tied on the trees of the same pond since the survey in October 2023, which are assumed to attract roosting ardeids.
- 5.2.9 Road enhancement and sewerage system upgrade works by other Project along T2 near P3 was observed active throughout the surveying month and has extended to P4 during the survey in April 2024. The use of excavators and crane trucks were also observed on 23rd May 2024 at P4 and P3 respectively, resulting in the increased disturbance level at these count locations.
- 5.2.10 An extension of this sewerage system upgrade was observed to be in operation at the Eastern bank of Shek Sheung River near P5 since the survey in late August 2023. Machinery and stockpiles were observed within its construction area, which may be a potential source of disturbance that discourages birds from foraging near P5.
- 5.2.11 The construction work by other Project near P7 was also observed active throughout the entire reporting month. Piling works of the same construction was also observed at T3, roughly midway between P6 and P7, and since the survey on 11th September 2023, excavators were observed on the opposite bank to the survey transect. Additionally, concrete blocks attached by metal bars were placed in the river next to the piling site were observed during the survey on 29th November 2023.
- 5.2.12 The construction works by other Project, which located in a cleared area between Sheung Yue River and the Sheung Shui Slaughterhouse, was observed to have started since the early January 2024, and involved excavation and drilling works. The excavated pit was seen to be filled halfway during the survey on 31st May 2024.
- 5.2.13 The details of the waterbirds survey for the Reporting Month can be referred to the full waterbirds survey report provided in **Appendix L**.

6. WASTE MANAGEMENT**6.1 GENERAL WASTE MANAGEMENT**

- 6.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

6.2 RECORDS OF WASTE QUANTITIES

- 6.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

- 6.2.2 The quantities of waste for disposal in this Reporting Period are summarized in *Tables 6-2-1* and *6-2-2* and the Monthly Summary Waste Flow Table is shown in *Appendix I*. Whenever possible, materials were reused on-site as far as practicable.

Table 6-2-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (in '000m ³)	0.277	-
Reused in this Contract (Inert) (in '000 m ³)	0	-
Reused in other Contracts/ Projects (Inert) (in '000 m ³)	0	-
Disposal as Public Fill (Inert) (in '000 m ³)	0.277	TM38

Table 6-2-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal ('000kg)	0	-
Recycled Paper / Cardboard Packing ('000kg)	0	-
Recycled Plastic ('000kg)	0	-
Chemical Wastes ('000kg)	0	-
General Refuses ('000m ³)	0	-

7. SITE INSPECTION**7.1 REQUIREMENTS**

- 7.1.1 According to the approved Updated EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

7.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

- 7.2.1 In the Reporting Month, weekly regular site inspection by the RE, the Main Contractor and ET was carried out on **5, 12, 20 and 27 March 2025** to evaluate site environmental performance of the Contract Works. During the site inspections, no non-compliance was noted.

- 7.2.2 The findings/deficiencies of the Contract Works observed that during the weekly site inspection are listed in **Table 7-2-1**.

7.2.3

Table 7-2-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
5 March 2025	• No environmental issue was observed during site inspection.	NA
12 March 2025	• No environmental issue was observed during site inspection.	NA
20 March 2025	• No environmental issue was observed during site inspection.	NA
27 March 2025	• No environmental issue was observed during site inspection.	NA

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**8.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION**

- 8.1.1 For the Contract Works, no environmental complaint, summons and prosecution was received in the Reporting Period. The statistical summary table of environmental complaint is presented in *Tables 8-1-1, 8-1-2 and 8-1-3*.

Table 8-1-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

Table 8-1-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

Table 8-1-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 – 31 March 2025	0	0	NA

9. IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.1 GENERAL REQUIREMENTS

- 9.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved Updated EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in [Appendix J](#).

9.2 IMPLEMENTATION STATUS OF THE MITIGATION MEASURES IN THE REPORTING PERIOD

- 9.2.1 The Contract Works shall be implementing the required environmental mitigation measures according to the approved Updated EM&A Manual as subject to the site condition. Environmental mitigation measures implemented by the Main Contractor in this Reporting Month are summarized in **Table 9-1-1**. An as-built drawing of site temporary drainage is shown in [Appendix K](#).

Table 9-1-1 Environmental Mitigation Measures Implemented in the Reporting Period

Issues	Environmental Mitigation Measures
Air Quality	<ul style="list-style-type: none"> All vehicles must be washed before leaving the site; Sprayed water during excavation works; Stockpile of dusty material was covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; Water spraying on haul road and dry site area was provided regularly; and Where a vehicle leaving the works site is carrying a load of dusty materials, the load has covered entirely with clean impervious sheeting;
Constriction Noise	<ul style="list-style-type: none"> Keep all vehicles/plants in good condition to minimize noise impact; Shut down the plants when not in used; Provided quiet powered mechanical equipment to use onsite; Avoided using multiple vehicles at the same time as far as practicable
Water Quality	<ul style="list-style-type: none"> All the surface runoff are collected to sedimentation pit and tanks for sedimentation prior discharged Sand bag bund was provided along the boundary of the site area near Ng Tung River to divert the surface runoff to sedimentation pit and avoid direct discharge of surface runoff. Standby water pumps were provided on site to pump the runoff water collected at pit to the sedimentation tank for sedimentation. Standby sedimentation tanks were provided on site to ensure sufficient sedimentation capacity. Complied with the requirement under the discharge license. Avoid spilt concrete during concreting works Haul road was hard paved to reduce muddy runoff during rainy days.
Waste and Chemical Management	<ul style="list-style-type: none"> Disposal of C&D wastes to any designated public filling facility and/or landfill followed a trip ticket system; Debris and refuse generated on-site collected regularly; Oils and fuels were stored in designated areas; Kept the site tidy and clean.

9.3 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 9.3.1 The tentative construction works schedule of the Contract Works under FEP in the coming month are listed below:
- HCF Roof – Landscape Softworks
 - HCF Ground –Installation of Aluminum RHS Canopy, Curb Reposition of Footpath (near Fire Hydrant)
 - Promenade - Laying of Concrete on Outer Fence Wall, Fine Wash Grano Wall Finish
 - Main Gate 1&2 –Installation of Main Gate 1 & 2

9.4 KEY ISSUES FOR THE COMING MONTH

9.4.1 Key issues to be considered in the coming month for the Contract Works under FEP include:

General

- Ensure the sand bag bund at site boundary near the Ng Tung River is properly maintained to avoid muddy discharge during heavy rain;
- Ensure sufficient capacity of sedimentation pit and tanks for wastewater sedimentation;
- Ensure all surface runoff are diverted to sedimentation pit and tanks properly;
- Sufficient stock of standby pump should be available on site for pumping the runoff water/wastewater to the sedimentation tank.
- Cover the dusty stockpile on site to reduce potential fugitive dust quality impact;
- Spraying water at dry haul road more frequently to reduce dust generation;
- All the vehicles should be properly washed prior leaving the site;
- Use Quiet powered mechanical equipment (QPME) whenever applicable;
- Minimize the number of plants used at the same time to reduce cumulative noise impact;
- Proper management of general refuse and chemical waste generated on site.
- Keep review the temporary drainage system on site during rainy reason
- Chemical label for chemical container should be regularly checked and provided.
- Sufficient secondary containment for chemical containers should be provided at work area.
- Restrict operation time of PME from 07:00 to 19:00 on any working day.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

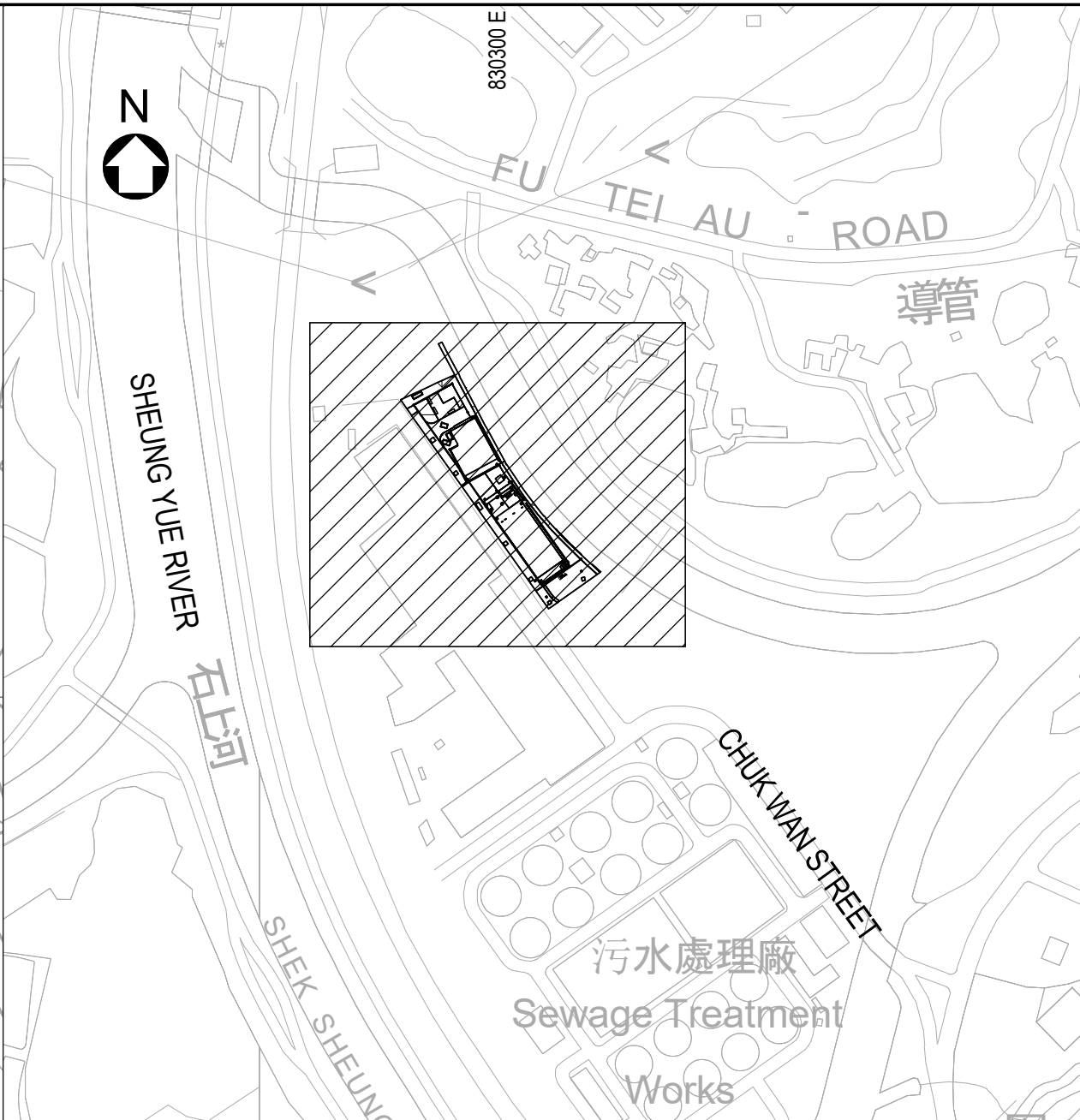
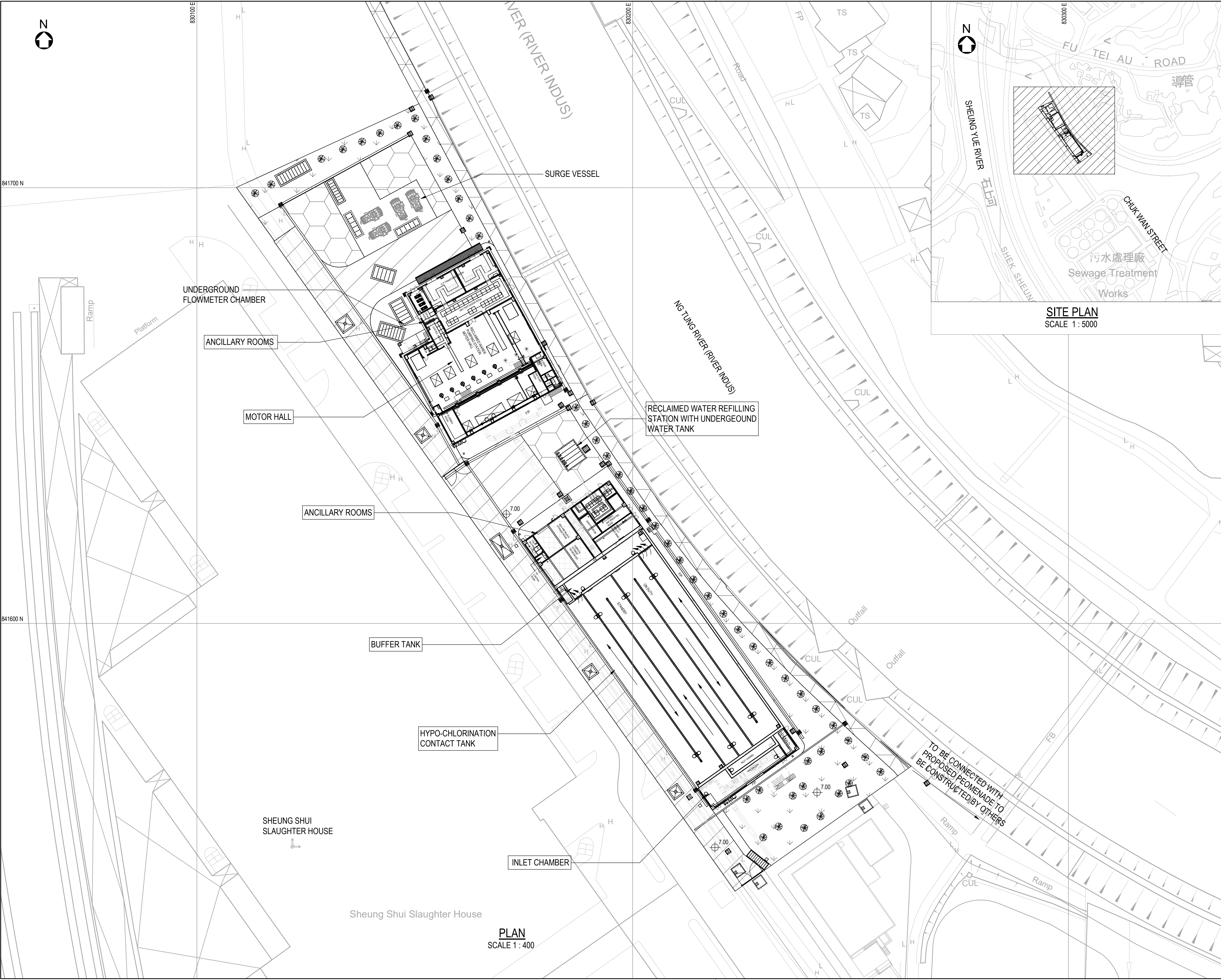
- 10.1.1 This is **40th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1** to **31 March 2025**.
- 10.1.2 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.
- 10.1.3 Four (4) occasions of the weekly waterbirds survey has been taken in the Reporting Period. Although decline in waterbirds were recorded in the Reporting Period, the cause of decline was considered unlikely due to the Project. No action and limit level exceedance was considered triggered in the Reporting Month.
- 10.1.4 No documented complaint, notification of summons or successful prosecution was received by either the RE or WSD or the Main Contractor.
- 10.1.5 Weekly site inspection by the RE, ET and the Main Contractor had carried out on **5, 12, 20 and 27 March 2025**. The mitigation measures implemented was considered satisfactory. No non-compliance observed during the site inspection.

10.2 RECOMMENDATIONS

- 10.2.1 E&M work will be the major construction work in the coming month. The Contractor should pay attention to potential air quality and noise impact from the work, and implement mitigation measures according to the ISEMM.
- 10.2.2 As the coming month will be wet season, the Contractor was general reminded to paid attention to water quality mitigation measures such as ensure sufficient wastewater treatment facilities capacity is provided on site and keep review on the temporary drainage system to avoid water quality impact arise from the Project.
- 10.2.3 The Contractor was reminded to pay attention to the key issues for the coming month mentioned in Section 9.4.

Appendix A

Location of Shek Wu Hui Water Reclamation Plant



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NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
- THE BASE PLAN IS EXTRACTED FROM SURVEY SHEET NOS. 2-SE ADN 3-SW.
- TOP SLABS OF STRUCTURES ARE NOT SHOWN FOR CLARITY.

LEGEND:

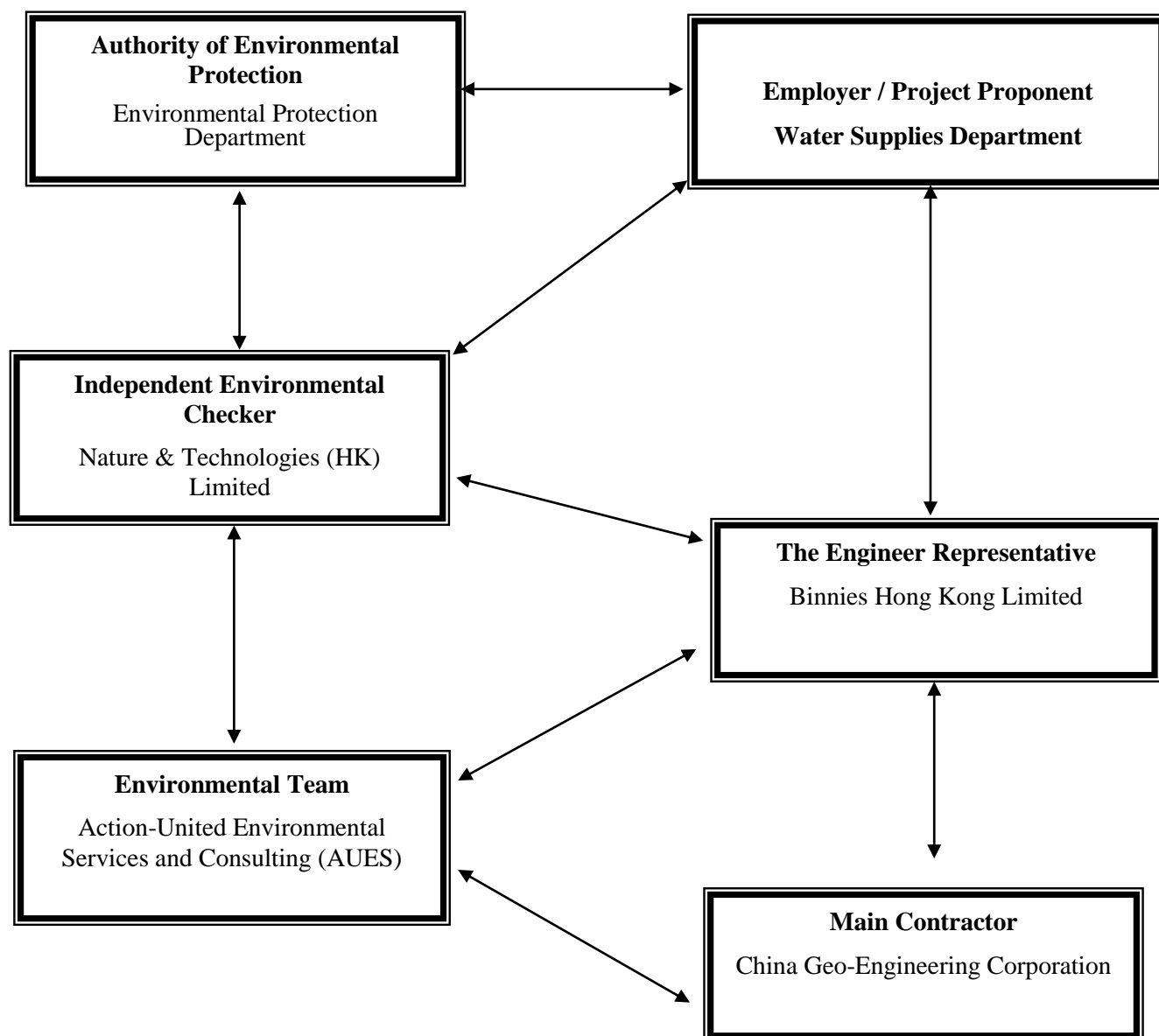
- SITE BOUNDARY OF SWHWRP
- FENCING
- EVA
- PLANTER GREENING AREA
- GRASSCRETE
- RIVERSIDE PROMENADE
- GROUND LEVEL
- TREE (INDICATIVE)
- F/P FOOTPATH
- MANHOLE/CABLE PIT
- ACCESS GATE

Revision	Date	Description	Initial
	Designed	Checked	Drawn
Initial	CWC	GC	SZ
Date	02/21	02/21	02/21
Approved			
Contract No. 3 / WSD / 20			
Contract Title			
RECLAIMED WATER SUPPLY TO SHEUNG SHUI AND FANLING			
Drawing Title			
GENERAL ARRANGEMENT OF SWHWRP - GENERAL PLAN			
Drawing No. 401582/B&V/WRP/GA/101			Revision -
Scale AS SHOWN			
BINNIES HONG KONG LIMITED 賓尼斯工程顧問有限公司			

Appendix B

Project Organization

Project Organization Chart



Contact Details of Key Personnel for the Project

Organization	Project Role	Name of Key Staff	Tel No.	Email
WSD	Project Proponent	Clayton Lei	3427 5120	clayton_lei@wsd.gov.hk
Binnies	Senior Resident Engineer	Anny Yuen	2608 7380	sre.3wsd20@gmail.com
Binnies	Resident Engineer	Chester Chan	2608 7380	chancw@binnies.com
N&T	Independent Environmental Checker	Vega Wong	2877 3122	vegawong@nt.com.hk
CGC	Site Agent	Wong Fai	9785 2545	3wsd20@gmail.com
CGC	Environmental Officer	Edward Tse	9612 5536	3wsd20@gmail.com
AUES	Environmental Team Leader	T. W. Tam	2959 6059	twtam@fordbusiness.com
AUES	Environmental Consultant	Martin Li	2959 6059	martinli@fordbusiness.com

Legend:

WSD (Employer) – Water Supplies Department

Binnies (Engineer Representative) – Binnies Hong Kong Limited

CGC (Main Contractor) –China Geo-Engineering Corporation






















N&T (IEC) –Nature & Technologies (HK) Limited

AUES (ET) – Action-United Environmental Services and Consulting (AUES)

Appendix C

Master Construction Program and Site Overview Photo in the Reporting Period

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete		H2	2022		H2	2023		H2	2024		H2	2025		H2	2026
										H1			H1			H1			H1			H1
1	Key Dates	1735 days	30/7/21	29/4/26			0%															
2	Contract Date	1 day	30/7/21	30/7/21			0%															
3	Starting Date	1 day	30/7/21	30/7/21		5,6,7,8,9,10,11	0%															
4	Contract Period	1734 days	31/7/21	29/4/26			0%															
5	Section 1 - Shek Wu Hui Water Reclamation Plant (SWHWRP)	930 days	31/7/21	15/2/24	3	14FF	0%															
6	Section 2 - Landscaping works of SWHWRP	930 days	31/7/21	15/2/24	3	14FF	0%															
7	Section 3 - Modification of Table Hill Reclaimed Water Service Reservoir	831 days	31/7/21	8/11/23	3	14FF	0%															
8	Section 4 - Mainlaying works in part 3 of the Site	892 days	31/7/21	8/1/24	3	14FF	0%															
9	Section 5 - Mainlaying works in part 4 of the Site	1151 days	31/7/21	23/9/24	3	14FF	0%															
10	Section 6 - Mainlaying works in part 5 of the Site	1309 days	31/7/21	28/2/25	3	14FF	0%															
11	Section 7 - Mainlaying works in part 6 of the Site	1571 days	31/7/21	17/11/25	3	14FF	0%															
12	Section 8 - Mainlaying works in part 7 of the Site & remaining WM works	1734 days	31/7/21	29/4/26	3	14FF	0%															
13	Section 9 - Conversion works of reclaimed water	1734 days	31/7/21	29/4/26	3	14FF	0%															
14	Contract Completion date	0 days	29/4/26	29/4/26	5FF,6FF,7FF,8F		0%															
15																						
16	Preliminary & General	1675 days	30/7/21	28/2/26		14FF	100%															
104																						
105	Section 1 & 2 - Construction of SWHWRP and Landscaping Works	1671 days	27/8/21	24/3/26			99%															
106	Access Date (part 1 of the Site)	1 day	27/8/21	27/8/21		107	100%															
107	Site clearance	7 days	28/8/21	3/9/21	106	108	100%															
108	Initial survey	7 days	4/9/21	10/9/21	107		100%															
109	Installation of monitoring instruments and take initial readings	28 days	1/11/21	28/11/21			100%															
110	Environmental baseline monitoring by ET	33 days	4/11/21	6/12/21		118	100%															
111	Foundation Works - ReWPS	318 days	31/8/21	14/7/22		182	100%															
146	Foundation Works - HCF	330.5 days	2/10/21	28/8/22		320FS+60 days	100%															
174																						
175	Construction of SWHWRP	811 days	1/5/22	19/7/24			100%															
176	Submission and acceptance of DfMA proposal	120 days	9/6/22	6/10/22		177	100%															
177	Selection of Designer & Supplier for DfMA	30 days	7/10/22	5/11/22	176	178	100%															
178	Manufacture of DfMA Precast Segments	45 days	6/11/22	20/12/22	177	179	100%															
179	Installation of DfMA segments	90 days	21/12/22	20/3/23	178		100%															
180	Submission and acceptance of method statement for construction of ReWPS and HCF	30 days	3/5/22	1/6/22		182	100%															
181	Construction of RC structure of ReWPS	336.5 days	15/7/22	16/6/23		312,632,551	100%															
285	Roof Works	125 days	13/6/23	16/10/23		689	100%															
290	Detailed Design for Internal Façade Treatment for Access Road and Interior Fitting for Internal Rooms	60 days	20/2/23	20/4/23			100%															
291	Fitting out Works for Motor Hall & Maintenance Room	33 days	5/6/23	7/7/23	284		100%															
292	Waterproofing & Fitting out Works for Pump Hall	21 days	25/4/23	16/5/23	284	539	100%															
293	Fitting out Works for Other Rooms	20 days	5/6/23	24/6/23	284		100%															
294	Steelworks and Staircases	193 days	10/7/23	18/1/24			100%															
309	Flooding Event on 8 September 2023	54 days	8/9/23	31/10/23			100%															
310	Water Pumping and Cleaning of Flooded Pump Hall	14 days	8/9/23	21/9/23		311	100%															
311	Remedial Works for Damaged Fitting out at Pump Hall due to Flooding	40 days	22/9/23	31/10/23	310	579	100%															
312	Civil Works in Pump Sump	152 days	16/6/23	15/11/23	181		100%															
319	Construction of RC structure of HCF	252.5 days	28/8/22	7/5/23		632,551	100%															
320	Construction of Superstructure (above ground) - Grid Line 1-3	192.5 days	27/10/22	7/5/23	146FS+60 days		100%															
349	Construction of Superstructure (above ground) - Grid Line 3-7	208 days	28/8/22	24/3/23	146	392,406,402	100%															
392	Backfilling of general fill material up to +7.2mPD, and removal of ELS	90 days	24/3/23	22/6/23	349	440,438	100%															

Project: 3WSD20 Programme Programme Rev. 35 (up to 28 February 2025)	Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
	Split		Inactive Milestone		Manual Summary		Deadline			
	Milestone		Inactive Summary		Start-only		Critical			
	Summary		Manual Task		Finish-only		Critical Split			
	Project Summary		Duration-only		External Tasks		Progress			

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete	H2	2022	H1	H2	2023	H1	H2	2024	H1	H2	2025	H1	H2	2026	H1
393	Roof Works	281.5 days	13/6/23	20/3/24			100%															
401	Civil Works in Contact Tank	251.5 days	24/3/23	30/11/23		407	100%															
405	Detailed Design for Internal Façade Treatment for Assess Road and Interior Fitting for Internal Rooms	60 days	19/6/23	17/8/23			100%															
406	Fitting out Works for Rooms	180 days	24/3/23	20/9/23	349		100%															
407	Construction of Reclaimed Water Refilling Station	60 days	1/12/23	29/1/24	401	552	100%															
408	Riverside Promenade	60 days	21/5/24	19/7/24		650	100%															
409	PMI-259 for Provision of Concrete Pavement (Stage 1)	1 day	21/5/24	21/5/24		410	100%															
410	Make Good Soil Surface	45 days	22/5/24	5/7/24	409	411	100%															
411	Cast Concrete Pavement	14 days	6/7/24	19/7/24	410		100%															
412	Steelworks	194 days	7/8/23	16/2/24			100%															
425	Flooding Event on 8 September 2023	54 days	8/9/23	31/10/23			100%															
426	Water Pumping and Cleaning of Flooded Pipe Gallery	14 days	8/9/23	21/9/23		427	100%															
427	Remedial Works for Damaged Fitting out at Pipe Gallery due to Flooding	40 days	22/9/23	31/10/23	426		100%															
428	Re-Ordering of Flooded Waterproofing Materials for Contact Tank	31 days	1/10/23	31/10/23		404	100%															
429	Additional Corridor at Chemical Room	45 days	1/10/23	15/11/23	439		100%															
430	Provision of Fire Services, Flushing and Fresh Water Supply by WSD	664 days	1/5/22	23/2/24			100%															
431	WWO542 design submission for Fire Service, Flushing and Fresh Water Supply	60 days	1/5/22	29/6/22		432	100%															
432	Withhold Acceptance of WWO542 submission by WSD due to DSD EVA Issue	304 days	30/6/22	29/4/23	431	433	100%															
433	Re-Submission of WWO542	90 days	30/4/23	28/7/23	432	434	100%															
434	Acceptance of WWO542 by WSD	90 days	29/7/23	26/10/23	433		100%															
435	Submission of WWO46 Part I, II & III for Fire Services Water Supply	120 days	27/10/23	23/2/24			100%															
436	Construction of roadworks	242 days	22/6/23	19/2/24			100%															
437	Construction of underground utilities	242 days	22/6/23	19/2/24		687FS-60 days	100%															
460	E&M Works of SWHWRP	1660 days	7/9/21	24/3/26			99%															
461	Design and Submission Stage	391 days	7/9/21	2/10/22			100%															
498	Procurement and Delivery of Equipment	727 days	26/1/22	22/1/24			100%															
535	Major Installation Works for Operation of SWHWRP except Main Pumps	594.5 days	16/6/23	30/1/25	245,284	811FS-90 days	100%															
536	Installation of FS Equipment	270 days	16/6/23	12/3/24	526	718	100%															
537	Installation of MVAC Equipment	77 days	4/1/24	20/3/24	528,296,414	744,719	100%															
538	Installation of Lifting Appliance at Motor Hall of RWPS	21 days	28/6/23	18/7/23	512,245	553,722	100%															
539	Installation of Lifting Appliance at Pump Hall of RWPS	49 days	1/2/24	20/3/24	292	722	100%															
540	Installation of Lifting Appliance at Pipe Gallery of HCF	60 days	16/6/23	15/8/23		722	100%															
541	Installation of Penstocks at HCF	150 days	16/6/23	13/11/23	504	403,702	100%															
542	Installation of Penstocks at RWPS	45 days	15/11/23	30/12/23	318		100%															
543	Installation of Stoplogs at RWPS	45 days	15/11/23	30/12/23	318	703	100%															
544	Installation of Surge Vessel (4 Nos.) & Air Compressor (2 Nos.)	116 days	29/10/23	21/2/24	502	706	100%															
545	Installation of Air Blower (2 Nos.) & Air Diffuser (1 set)	130 days	20/9/23	27/1/24	510	704,705,732	100%															
546	Installation of tanks (14 nos.) & Chemical Pumps (12 nos.)	135 days	9/9/23	21/1/24	508	598,707,729,732	100%															
547	Installation of Pipeworks (DI, Chemical pipe, Air pipe)	140 days	16/6/23	3/11/23	516		100%															
548	Installation of Cabling, MCC & DCS	254 days	11/7/23	20/3/24	532	708	100%															
549	Installation of Instrumentation and Monitoring Stations	135 days	11/9/23	23/1/24	522	709,727,728	100%															
550	Installation of LV Switchborad / MCC	128 days	14/11/23	20/3/24	518	715	100%															
551	Installation of BEMS System	365 days	1/2/24	30/1/25	181,319	713	100%															
552	Installation of Equipment for Reclaimed Water Refilling Station	300 days	30/1/24	24/11/24	407	725,726	100%															
553	Installation of Reclaimed Water Pumps (6 Nos.)	162 days	8/9/23	16/2/24	500,538	600	100%															
554	Flooding Event on 8 September 2023	1 day	8/9/23	8/9/23		555	100%															
555	Preliminary Investigation on the Flooded Pumps (5 Nos.)	13 days	9/9/23	21/9/23	554	556	100%															

Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete	H2	2022 H1	H2	2023 H1	H2	2024 H1	H2	2025 H1	H2	2026 H1
556	Ordering of Parts for Repairing based on Investigation Results	3 days	22/9/23	24/9/23	555	557,563	100%										
557	Delivery of Parts	60 days	25/9/23	23/11/23	556		100%										
562	Detailed Investigation	34 days	25/9/23	28/10/23			100%										
566	KTN Pump Repairing	48 days	29/10/23	15/12/23			100%										
571	TBH Pump Repairing	64 days	15/12/23	16/2/24			100%										
578	KTN Pump Installation	94 days	1/11/23	2/2/24			100%										
579	Installation of Pump No.1 (Good Condition)	28 days	1/11/23	28/11/23	311	580,581	100%										
580	SAT for Pump No.1	18 days	13/1/24	30/1/24	579,585		100%										
581	Installation of Pump No.2 (Repaired)	28 days	29/11/23	26/12/23	568,579	582	100%										
582	SAT for Pump No.2	18 days	27/12/23	13/1/24	581		100%										
583	Installation of Pump No.3 (Repaired)	28 days	16/12/23	12/1/24	570	584,693	100%										
584	SAT for Pump No.3	21 days	13/1/24	2/2/24	583		100%										
585	Power Energization Related Items	446 days	24/10/22	12/1/24		580,600	100%										
592	FS / DG Inspection Related Items	542 days	1/8/22	24/1/24			100%										
600	Operation of SWHWRP to Supply Reclaimed Water	0 days	20/3/24	20/3/24	553,585,535	601	100%										
601	Planned completion for section 1	0 days	20/3/24	20/3/24	600	814	100%										
602	Planned completion for section 2	0 days	24/3/26	24/3/26	663FF		70%										
603	Remaining Works	1731 days	30/7/21	25/4/26			65%										
604	External Works	834 days	15/8/23	25/11/25			65%										
605	Construction of fence wall except near SSSH	124.5 days	20/2/24	23/6/24		633SS	100%										
609	Fabrication of Entrance Gates and Logo Feature	60 days	20/4/24	19/6/24	631SF		100%										
610	Fabrication of steelworks	60 days	20/2/24	20/4/24	611SF		100%										
611	Installation of wall finishes and steelworks	70 days	20/4/24	29/6/24		610SF	100%										
612	Construction of fence wall near SSSH	156 days	21/12/24	25/5/25			62%										
613	PMI-354 for Revised Fence Wall Details and Associated Rectification Works at Boundary Wall of SSSH	0 days	21/12/24	21/12/24		616,618,615	100%										
614	Preparation Work	130 days	21/12/24	29/4/25			75%										
615	Subletting of the Associated Works	100 days	21/12/24	30/3/25	613	617,619	80%										
616	Submission and Approval of Shop Drawings for Revised Fence Wall	100 days	21/12/24	30/3/25	613		80%										
617	Steelwork Modification in Factory	30 days	31/3/25	29/4/25	615		0%										
618	Material Submission for SSSH Fence Wall Painting	75 days	21/12/24	5/3/25	613	619	100%										
619	Site Trial for SSSH Fence Wall Rectification	7 days	31/3/25	6/4/25	618,615	621,622	0%										
620	Site Work	49 days	7/4/25	25/5/25			0%										
621	SSSH Fence Wall Rectification	21 days	7/4/25	27/4/25	619		0%										
622	Breaking of Concrete for Embedment of Fixing Plates	21 days	7/4/25	27/4/25	619	623	0%										
623	Installation of Steel Fence	21 days	28/4/25	18/5/25	622	624	0%										
624	Make Good Concrete Pavement Surface	7 days	19/5/25	25/5/25	623		0%										
625	Finishing Works of EVA	74 days	28/8/24	10/11/24			100%										
626	Breaking of Temporary Bitumen Pavement	14 days	28/8/24	11/9/24	759	627,630,628,631	100%										
627	Pavement Works of EVA	60 days	11/9/24	10/11/24	626	631	100%										
628	Installation of Multipart Covers	60 days	11/9/24	10/11/24	626		100%										
629	Installation of Matching Covers	60 days	11/9/24	10/11/24	626		100%										
630	Construction of Walls and Columns for Gate 1 and Gate 2	60 days	11/9/24	10/11/24	626	631	100%										
631	Installation of Gate 1 and Gate 2	7 days	10/11/24	17/11/24	630,627	609SF	100%										
632	Installation of architectural works	317.5 days	15/8/23	27/6/24	181,319		100%										
633	Design submission and fabrication of steelwork system for the aluminum fin	90 days	1/10/23	30/12/23	605SS		100%										
639	Installation of architectural works for RWPS	270 days	1/10/23	27/6/24			100%										
644	Installation of architectural works for HCF	315 days	15/8/23	24/6/24			100%										

Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

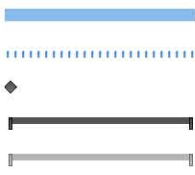
Manual Progress

Page 3

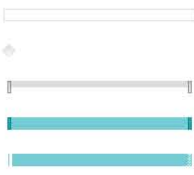
ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete		H2	2022		H2	2023		H2	2024		H2	2025		H2	2026
										H1			H1			H1			H1			H1
649	Riverside Promenade (Stage 2)	494 days	20/7/24	25/11/25			0%															
663	Landscape works	1714 days	30/7/21	8/4/26		602FF	74%															
664	Civil Works	279 days	21/3/24	24/12/24			100%															
665	Roof of HCF	94 days	21/3/24	22/6/24		681	100%															
666	Laying of Root Barrier	14 days	21/3/24	3/4/24	400	667	100%															
667	Deposition of Aggregates	14 days	4/4/24	17/4/24	666	668	100%															
668	Construction of Other Footpaths	38 days	18/4/24	25/5/24	667	669	100%															
669	Laying of Geotextile and Drainage Layer	7 days	26/5/24	1/6/24	668	670	100%															
670	Deposition of Planting Soil	21 days	2/6/24	22/6/24	669	677	100%															
671	Ground Floor	7 days	18/12/24	24/12/24		681	100%															
672	Revision of Landscape Plan at G/F (PMI-350)	0 days	18/12/24	18/12/24		673,678	100%															
673	Deposition of Planting Soil	7 days	18/12/24	24/12/24	672		100%															
674	Irrigation System	1359 days	30/7/21	18/4/25			96%															
675	Preliminary Design of Irrigation System	365 days	30/7/21	29/7/22		676	100%															
676	Detailed Design of Irrigation System	680 days	30/7/22	8/6/24	675	677	100%															
677	Installation of Irrigation System on Roof of HCF	300 days	23/6/24	18/4/25	676,670		90%															
678	Revised Detailed Design of Irrigation System due to PMI-350	30 days	18/12/24	16/1/25	672	679	100%															
679	Installation of Irrigation System at G/F	30 days	17/1/25	15/2/25	678	680	100%															
680	SAT of Irrigation System	30 days	16/2/25	17/3/25	679		0%															
681	Landscape works within SWHWRP	105 days	25/12/24	8/4/25	665,671	682	0%															
682	Establishment Works	365 days	9/4/25	8/4/26	681		0%															
683	E&M Works	1211 days	1/1/23	25/4/26			64%															
684	Installation of E&M Works	691.5 days	16/6/23	7/5/25			75%															
685	Installation of Internal BS/lighting Equipment	519 days	1/8/23	31/12/24	524	720	0%															
686	Installation of External Lighting for EVA	210 days	1/11/23	28/5/24	439,640FS-42 c	721	100%															
687	Installation of ELV System (CCTV & Access Control)	262 days	13/4/24	31/12/24	437FS-60 days	710,711	100%															
688	Installation of Plumbing & Drainage Equipment	564 days	16/6/23	31/12/24	514	712	100%															
689	Installation of PV Panels	240 days	16/10/23	12/6/24	524,285	714	100%															
690	Installation of Flowmeter and BV for DN450 Overflow Pipe	344 days	23/1/24	31/12/24	534	716,717,733	100%															
691	Provurement and Installation of Additional Sensors at RWPS (PMI-185 and PMI-186)	330 days	12/6/24	7/5/25			50%															
692	TBH Pump Installation	101 days	13/1/24	22/4/24			100%															
693	Installation of Pump No.1 (Repaired)	45 days	13/1/24	26/2/24	573,583	694	100%															
694	Installation of Pump No.2 (Repaired but Defective)	28 days	27/2/24	25/3/24	693	695,697	100%															
695	Installation of Pump No.3 (Repaired)	28 days	26/3/24	22/4/24	694	724	100%															
696	Defective TBH Pump No.2 due to Flooding on 8 September 2023	334 days	26/3/24	22/2/25		723	87%															
697	Investigation of Defective TBH Pump No.2	109 days	26/3/24	12/7/24	694	698	100%															
698	Ordering and Delivery of Parts for Repairing Work	120 days	13/7/24	9/11/24	697	699	100%															
699	Off-Site Pump Repairing Work	45 days	10/11/24	24/12/24	698	700	100%															
700	Pump Installation	60 days	25/12/24	22/2/25	699		30%															
701	SAT for E&M Works	1012 days	19/7/23	25/4/26			62%															
702	Penstocks	530 days	13/11/23	26/4/25	541		31%															
703	Stoplogs	480 days	30/12/23	23/4/25	543		33%															
704	Air Blower	400 days	28/1/24	2/3/25	545		90%															
705	Air Diffuser	429 days	28/1/24	31/3/25	545		20%															
706	Surge Vessel & Air Compressor	400 days	22/2/24	27/3/25	544		50%															
707	Chemical Pumps	420 days	22/1/24	16/3/25	546		80%															
708	MCC & DCS	400 days	21/3/24	24/4/25	548		10%															
709	Instrumentation and Monitoring Stations	430 days	24/1/24	28/3/25	549		80%															

Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

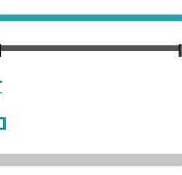
Task
Split
Milestone
Summary
Project Summary



Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only



Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks



External Milestone
Deadline
Critical
Critical Split
Progress



Manual Progress



ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete	H2	2022 H1	H2	2023 H1	H2	2024 H1	H2	2025 H1	H2	2026 H1
710	Electrical System	90 days	31/12/24	31/3/25	687		78%										
711	ELV System	90 days	31/12/24	31/3/25	687		20%										
712	Plumbing & Drainage Equipment	90 days	31/12/24	26/4/25	688		20%										
713	BEMS System	90 days	31/1/25	30/4/25	551		30%										
714	PV Panels	14 days	12/6/24	26/6/24	689		100%										
715	LV Switchborad / MCC	330 days	21/3/24	22/3/25	550		85%										
716	Flowmeter for DN450 Overflow Pipe	120 days	1/1/25	30/4/25	690		0%										
717	BV for DN450 Overflow Pipe	90 days	1/1/25	31/3/25	690		50%										
718	FS Equipment	365 days	12/3/24	12/3/25	536		100%										
719	MVAC Equipment	365 days	21/3/24	20/3/25	537		58%										
720	Internal BS/lighting Equipment	90 days	1/1/25	31/3/25	685		75%										
721	External Lighting for EVA	300 days	29/5/24	24/3/25	686	745	75%										
722	Lifting Appliance	380 days	19/7/23	16/3/25	538,539,540		95%										
723	TBH Pump No.2	60 days	23/2/25	23/4/25	696		0%										
724	TBH Pump No.3	21 days	23/4/24	13/5/24	695		100%										
725	Reclaimed Water Refilling Station	150 days	25/11/24	23/4/25	552		51%										
726	Reclaimed Water Pumping System	150 days	25/11/24	23/4/25	552		70%										
727	Inlet Pumping Control System	450 days	24/1/24	17/4/25	549		73%										
728	Inlet By-pass System	450 days	24/1/24	17/4/25	549		78%										
729	Primary Dosing System	450 days	22/1/24	15/4/25	546		88%										
730	Secondary Dosing System	450 days	22/1/24	15/4/25	546		83%										
731	Supplementary Dosing System	450 days	22/1/24	15/4/25	546		20%										
732	Aeration	450 days	28/1/24	21/4/25	545		68%										
733	Emergency By-pass System	480 days	1/1/25	25/4/26	690		81%										
734	SAT for Digital Twin	242 days	1/2/25	30/9/25			20%										
735	Provision of Flushing and Fresh Water Supply by WSD	488 days	21/12/23	21/4/25			80%										
736	PMI-184 for Master Meter Room Detail	0 days	21/12/23	21/12/23		738	100%										
737	Clarification on Ambiguities and Inconsistencies of Sanitary Items	0 days	12/4/24	12/4/24		738	100%										
738	Submission of WWO46 Part I, II & III for Fresh Water and Flushing Water Supply	109 days	12/4/24	29/7/24	736,737		100%										
739	PMI-327 for Engagement of RPE for Fresh Water and Flushing Water Supply	0 days	9/10/24	9/10/24		740	100%										
740	Submission of WWO46 Part IV for Fresh Water and Flushing Water Supply	150 days	9/10/24	7/3/25	739	741	90%										
741	WSD Inspection and Associated Testing	45 days	8/3/25	21/4/25	740	742	0%										
742	Granting of Water Supply by WSD	0 days	21/4/25	21/4/25	741		0%										
743	FS Inspection	421 days	30/11/23	24/1/25			100%										
744	Completion of MVAC	0 days	2/4/24	2/4/24	537	757	100%										
745	Completion of EVA Lighting	0 days	18/6/24	18/6/24	721	757	100%										
746	Direct Link Cabling to FSD Laid by HKT	200 days	30/11/23	17/6/24	455	757	100%										
747	FS Water Supply	199 days	22/1/24	8/8/24			100%										
748	Excavation & Installation of Watermains into Water Meter Room	21 days	29/1/24	19/2/24	452		100%										
749	Falsework Dismantling inside Water Meter Room	10 days	22/1/24	1/2/24	451	750	100%										
750	FS Pipe Installation inside Water Meter Room	30 days	1/2/24	2/3/24	749	751	100%										
751	Plumbing and BS Installation inside Water Meter Room	60 days	2/3/24	1/5/24	750	752	100%										
752	WWO46 Part IV and WSD Inspection	22 days	1/5/24	23/5/24	751	753	100%										
753	FS Water Pipe Connection	30 days	23/5/24	22/6/24	752	754	100%										
754	Handover Inspection	30 days	22/6/24	22/7/24	753	755	100%										
755	Water Sterilization Test	14 days	22/7/24	5/8/24	754	756	100%										
756	Approval Letter from WSD (FSCA)	3 days	5/8/24	8/8/24	755	757	100%										
757	Submission of FSI 314 & 501	1 day	8/8/24	9/8/24	596,756,744,757	758	100%										

Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete	H2	2022 H1	H2	2023 H1	H2	2024 H1	H2	2025 H1	H2	2026 H1
758	Document Review by FSD and Meeting with FSD	18 days	9/8/24	27/8/24	757	759	100%										
759	Withdrawal of FS Inspection Application	1 day	27/8/24	28/8/24	758	760,626	100%										
760	PMI-311 for Review of GBP based on Revised Layout of SWHWRP	7 days	28/8/24	4/9/24	759	761	100%										
761	Revise VAC Drawings based on Revised Layout	26 days	4/9/24	30/9/24	760	762	100%										
762	Submission of AP Endorsed FSI314 for VAC Drawings to FSD	0 days	30/9/24	30/9/24	761	763	100%										
763	Review and Approval of VAC Drawings by FSD	30 days	30/9/24	30/10/24	762	764	100%										
764	FS Inspection Application	20 days	30/10/24	19/11/24	763	765	100%										
765	FS Inspection	0 days	19/11/24	19/11/24	764	766	100%										
766	Defect Rectification	45 days	19/11/24	3/1/25	765	767	100%										
767	Application for FS Re-Inspection	7 days	3/1/25	10/1/25	766	768	100%										
768	FS Re-Inspection	0 days	10/1/25	10/1/25	767	769	100%										
769	Obtain FSD approval letter (Form FS172 Fire Certificate)	14 days	10/1/25	24/1/25	768		100%										
770	Interface Works	1153 days	1/1/23	26/2/26			56%										
771	SWHWRP	684 days	1/1/23	14/11/24			89%										
772	Liaison with PCCW	524 days	1/1/23	7/6/24		773	100%										
773	Installation of Workstations	6 days	8/6/24	13/6/24	772	774	100%										
774	5G Wireless Network	1 day	14/6/24	14/6/24	773	775	100%										
775	Fibre Megalink Network	153 days	15/6/24	14/11/24	774		50%										
776	Tai Po Tau No. 4 Raw Water Pumping Station	591 days	1/1/23	13/8/24			95%										
777	Liaison with PCCW	524 days	1/1/23	7/6/24		778	100%										
778	Installation of Workstations	6 days	8/6/24	13/6/24	777	779	100%										
779	5G Wireless Network	1 day	14/6/24	14/6/24	778	780	100%										
780	Fibre Megalink Network	60 days	15/6/24	13/8/24	779		50%										
781	Table Hill Reclaimed Water Service Reservoir	684 days	1/1/23	14/11/24			100%										
782	Liaison with PCCW	500 days	1/1/23	14/5/24		783	100%										
783	Installation of Workstations	30 days	15/5/24	13/6/24	782	784	100%										
784	5G Wireless Network	1 day	14/6/24	14/6/24	783	785	100%										
785	Fibre Megalink Network	153 days	15/6/24	14/11/24	784		100%										
786	UV Building in DSD SWHSTW	182 days	1/5/24	29/10/24			0%										
787	Installation of 3 Additional Water Quality Monitoring Sensors	180 days	1/5/24	27/10/24			0%										
788	Liaison with PCCW and DSD	180 days	1/5/24	27/10/24		789	0%										
789	Installation of Workstations	1 day	28/10/24	28/10/24	788	790	0%										
790	5G Wireless Network	1 day	29/10/24	29/10/24	789		0%										
791	WSD Kowloon Bay Office	737 days	1/1/23	6/1/25			99%										
792	Liaison with PCCW and WSD	709 days	1/1/23	9/12/24		793	100%										
793	Installation of Workstations	21 days	10/12/24	30/12/24	792	794	90%										
794	Megalink Network	7 days	31/12/24	6/1/25	793		0%										
795	WSD Kowloon Laboratory	667 days	1/1/23	28/10/24			0%										
796	Liaison with PCCW and WSD	660 days	1/1/23	21/10/24		797	0%										
797	Installation of Workstations	6 days	22/10/24	27/10/24	796	798	0%										
798	5G Wireless Network	1 day	28/10/24	28/10/24	797		0%										
799	DSD- Zone B Control Building	667 days	1/5/24	26/2/26			0%										
800	Liaison with PCCW and DSD	660 days	1/5/24	19/2/26		801	0%										
801	Installation of Workstations	6 days	20/2/26	25/2/26	800	802	0%										
802	5G Wireless Network	1 day	26/2/26	26/2/26	801		0%										
803	DSD- Zone C Workshop No.2	187 days	1/5/24	3/11/24			0%										
804	Liaison with PCCW and DSD	180 days	1/5/24	27/10/24		805	0%										
805	Installation of Workstations	6 days	28/10/24	2/11/24	804	806	0%										

Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

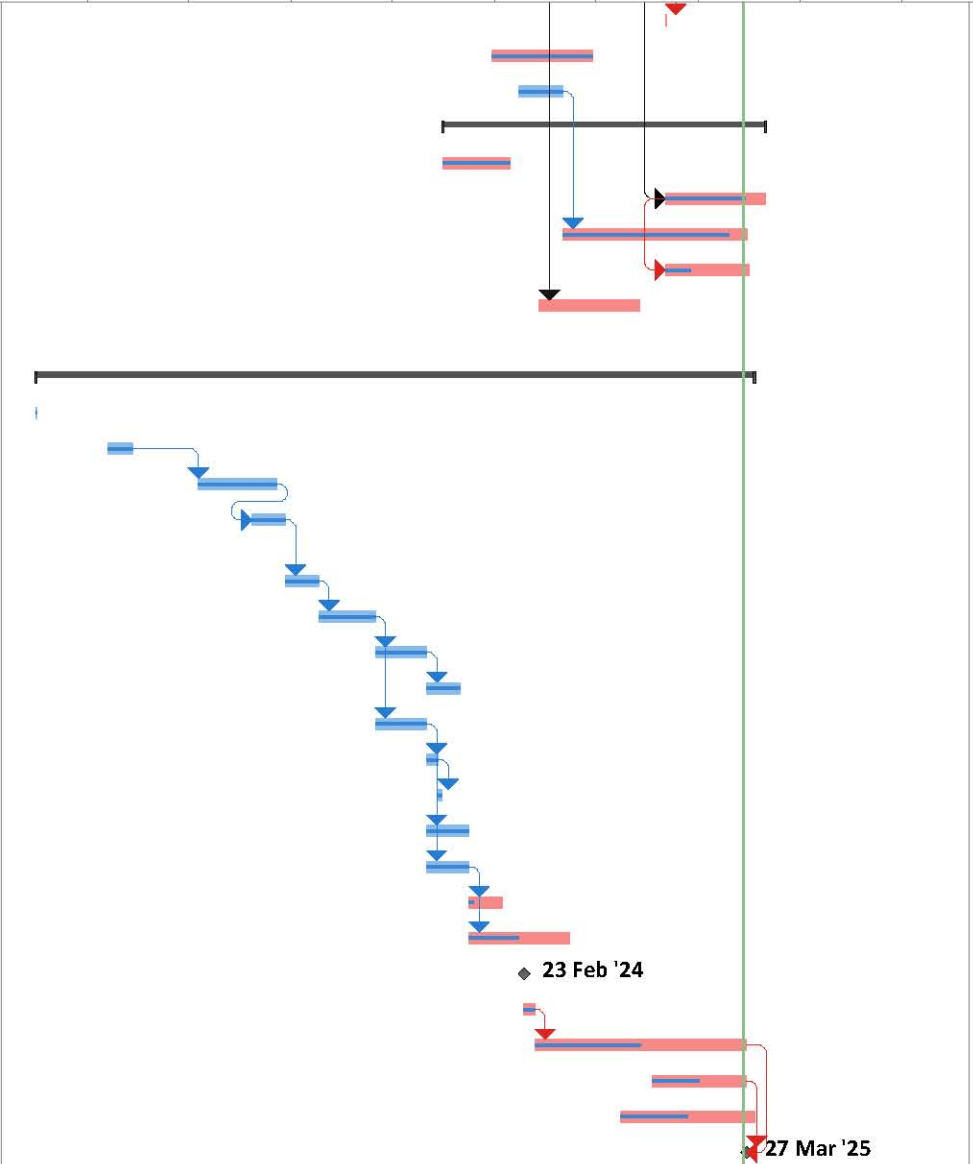
Critical

Critical Split

Progress

Manual Progress

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	% Complete	H2	2022 H1	H2	2023 H1	H2	2024 H1	H2	2025 H1	H2	2026 H1
806	5G Wireless Network	1 day	3/11/24	3/11/24	805		0%										
807	System Commissioning Test	180 days	27/12/23	23/6/24			100%										
808	Evaluation Period	79 days	14/2/24	2/5/24		812	100%										
809	Handover Document Submission and Approval	578 days	1/10/23	30/4/25			78%										
810	Testing Procedures & Commissioning Plan	120 days	1/10/23	28/1/24			100%										
811	As Fitted Drawings	180 days	2/11/24	30/4/25	535FS-90 days	813SS	80%										
812	O&M Manual	330 days	3/5/24	28/3/25	808		90%										
813	Training Material	150 days	2/11/24	31/3/25	811SS		30%										
814	Operator Expertise Transfer Period (OETP)	180 days	21/3/24	16/9/24	601		0%										
815																	
816	Section 3 - Modification of Table Hill Reclaimed Water Service Reservoir	1288 days	1/10/21	10/4/25			72%										
817	Access Date (part 2 of the Site)	1 day	1/10/21	1/10/21			100%										
818	Initial survey and condition survey	45 days	7/2/22	23/3/22		819FS+117 day	100%										
819	Design submission and acceptance of the supplementary dosing and dyeing system (E&M)	141 days	19/7/22	6/12/22	818FS+117 day	820FS-45 days	100%										
820	Submission and acceptance of method statement for supplementary dosing and dyeing system	60 days	23/10/22	21/12/22	819FS-45 days	821	100%										
821	Selection of sub-contractor	60 days	22/12/22	19/2/23	820	822	100%										
822	Construction of Chemical Dosing Room	101 days	20/2/23	31/5/23	821	823,825	100%										
823	Hole Coring and Installation of Pipes into Service Reservoir	92 days	1/6/23	31/8/23	822	824	100%										
824	Construction of Pipe Trough from Dosing Room to Service Reservoir	60 days	1/9/23	30/10/23	823		100%										
825	Fitting out Works	92 days	1/6/23	31/8/23	822	826,828,829	100%										
826	Watertightness Test of Roof Slab	21 days	1/9/23	21/9/23	825	827	100%										
827	Waterproofing Application on Roof Slab	7 days	22/9/23	28/9/23	826		100%										
828	Installation of Steelworks	76 days	1/9/23	15/11/23	825		100%										
829	Installation of supplementary dosing and dyeing system	76 days	1/9/23	15/11/23	825	830,831	100%										
830	SAT of E&M equipment	60 days	16/11/23	14/1/24	829		15%										
831	Permanent Power Connection for Supplementary Dosing Room	180 days	16/11/23	13/5/24	829		50%										
832	Receive PMI-153 for Provision of Sampling Water Collection System	0 days	23/2/24	23/2/24			100%										
833	Construction of Water Tank Structure	21 days	21/2/24	12/3/24		834	100%										
834	Procurement and Installation of Water Pumps and Associated Pipeworks	380 days	13/3/24	27/3/25	833	837FF	50%										
835	Installation and Calibration of TRC and AB9 Sensors at S6 (PMI-181)	170 days	9/10/24	27/3/25		837	50%										
836	Relocation of Temporary Outlet AB-9 Dosing System (PMI-296)	240 days	14/8/24	10/4/25			50%										
837	Planned completion for section 3	0 days	27/3/25	27/3/25	834FF,835		0%										
838																	
839	Section 4 - Water main laying works in part 3 of the Site	880 days	30/7/21	26/12/23			0%										
1283																	
1284	Section 5 - Water main laying works in part 4 of the Site	1096 days	30/7/21	29/7/24			0%										
1510																	
1511	Section 6 - Water main laying works in part 5 of the Site	1280 days	30/7/21	29/1/25			0%										
1567																	
1568	Section 7 - Water main laying works in part 6 of the Site	1523 days	30/7/21	29/9/25			0%										
1719																	
1720	Section 8 - Water main laying works in part 7 of the Site	1676 days	30/7/21	1/3/26			0%										
1899																	
1900	Section 9 - Conversion works to effect the supply of reclaimed water	1676 days	30/7/21	1/3/26			0%										



Project: 3WSD20 Programme
Programme Rev. 35
(up to 28 February 2025)

Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
Split		Inactive Milestone		Manual Summary		Deadline			
Milestone		Inactive Summary		Start-only		Critical			
Summary		Manual Task		Finish-only		Critical Split			
Project Summary		Duration-only		External Tasks		Progress			

SITE OVERVIEW PHOTO IN THE REPORTING PERIOD



Landscape Softworks at HCF Ground



Installation of Main Gate

Appendix D

Location of Designated Noise Monitoring Station CP-KTN-NMS5

Appendix E

Valid Calibration Certificates of Monitoring Equipment

Certificate of Calibration

校正證書

Certificate No. : C242242
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC24-0561)

Date of Receipt / 收件日期 : 28 March 2024

Description / 儀器名稱 : Sound Level Meter (EQ018)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00809405
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(50 \pm 25)\%$

TEST SPECIFICATIONS / 測試規範

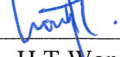
Calibration check


DATE OF TEST / 測試日期 : 20 April 2024

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed specified limits.
These limits refer to manufacturer's published tolerances as requested by the customer.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Hottinger Brüel & Kjær Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By : 
測試 H T Wong
Assistant Engineer

Certified By : 
核證 K C Lee
Engineer

Date of Issue : 22 April 2024
簽發日期

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C242242
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C240212
CL281	Multifunction Acoustic Calibrator	CDK2302738

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L _A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.1
				114.00		114.0

IEC 61672 Class 1 Limit : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號四樓

Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C242242
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					16 kHz	86.0	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Limit (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

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c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

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Website/網址: www.suncreation.com



Certificate of Calibration

校正證書

Certificate No. : C242242
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 16463

- Mfr's Limit : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號四樓

Tel/電話: (852) 2927 2606

Fax/傳真: (852) 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



Calibration Certificate

Certificate No. **411107**

Page 1 of 2 Pages

Customer : Action-Unltod Environmental Services & consulting

Address : Unit A, 20/F, Gold King Industrial Building, 35-41 Tai Lin Pai Road, Kwai Chung, New Territories, Hong Kong

Order No. : Q44140

Date of receipt : 25-Oct-24

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

I.D. : EQ085

Model : NC-73

Serial No. : 10655561

Test Conditions

Date of Test : 8-Nov-24

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02, IEC 60942:2017.

Test Results

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	405219	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	405380	NIM-PRC & SCL-HKSAR
S041	Universal Counter	402289	SCL-HKSAR
S206	Sound Level Meter	405379	SCL-HKSAR

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

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

Calibrated by : 
Elva Chong

Approved by : 
Kin Wong

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 8-Nov-24



Calibration Certificate

Certificate No. 411107

Page 2 of 2 Pages

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	Tolerance (Ref: IEC 60942 Class 2 Spec.)
94.0	94.1	± 0.4 dB

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB

Tolerance(Ref: IEC 60942 Class 2 Spec.) : ± 0.15 dB

Uncertainty : ± 0.05 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	Tolerance (Ref: IEC 60942 Class 2 Spec.)
1	*0.952	± 1.7 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. Total Distortion + Noise : < 0.1 %

Tolerance(Ref: IEC 60942 Class 2 Spec.) : < 3.0 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

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

3. Atmospheric Pressure : 1 008 hPa.

4. *Out of Tolerance.

----- END -----

Appendix F

Monitoring Schedule of the Reporting Month and Coming Month

The Reporting Monitoring Schedule (March 2025)

Date		Noise Monitoring (Leq30min)	Ecology Monitoring (Water Bird)
Sat	1-Mar-25		
Sun	2-Mar-25		
Mon	3-Mar-25		✓(High Tide)
Tue	4-Mar-25		✓(Low Tide)
Wed	5-Mar-25	✓	
Thu	6-Mar-25		
Fri	7-Mar-25		
Sat	8-Mar-25		
Sun	9-Mar-25		
Mon	10-Mar-25		✓(High Tide)
Tue	11-Mar-25	✓	
Wed	12-Mar-25		✓(Low Tide)
Thu	13-Mar-25		
Fri	14-Mar-25		
Sat	15-Mar-25		
Sun	16-Mar-25		
Mon	17-Mar-25	✓	✓(High Tide)
Tue	18-Mar-25		
Wed	19-Mar-25		✓(Low Tide)
Thu	20-Mar-25		
Fri	21-Mar-25		
Sat	22-Mar-25		
Sun	23-Mar-25		
Mon	24-Mar-25		✓(High Tide)
Tue	25-Mar-25		
Wed	26-Mar-25		
Thu	27-Mar-25		
Fri	28-Mar-25	✓	✓(Low Tide)
Sat	29-Mar-25		
Sun	30-Mar-25		
Mon	31-Mar-25		

✓	Monitoring Day
	Sunday or Public Holiday

The Coming Month Monitoring Schedule (April 2025)

Date		Noise Monitoring (Leq30min)	Ecology Monitoring (Water Bird)
Tue	1-Apr-25		✓
Wed	2-Apr-25		
Thu	3-Apr-25	✓	
Fri	4-Apr-25		
Sat	5-Apr-25		
Sun	6-Apr-25		
Mon	7-Apr-25		
Tue	8-Apr-25		
Wed	9-Apr-25	✓	
Thu	10-Apr-25		✓
Fri	11-Apr-25		
Sat	12-Apr-25		
Sun	13-Apr-25		
Mon	14-Apr-25		
Tue	15-Apr-25	✓	
Wed	16-Apr-25		
Thu	17-Apr-25		✓
Fri	18-Apr-25		
Sat	19-Apr-25		
Sun	20-Apr-25		
Mon	21-Apr-25		
Tue	22-Apr-25		✓
Wed	23-Apr-25		
Thu	24-Apr-25	✓	
Fri	25-Apr-25		
Sat	26-Apr-25		
Sun	27-Apr-25		
Mon	28-Apr-25		✓
Tue	29-Apr-25		
Wed	30-Apr-25	✓	

Note:

Ecology monitoring dates are tentative and are subject to change

✓	Monitoring Day
	Sunday or Public Holiday

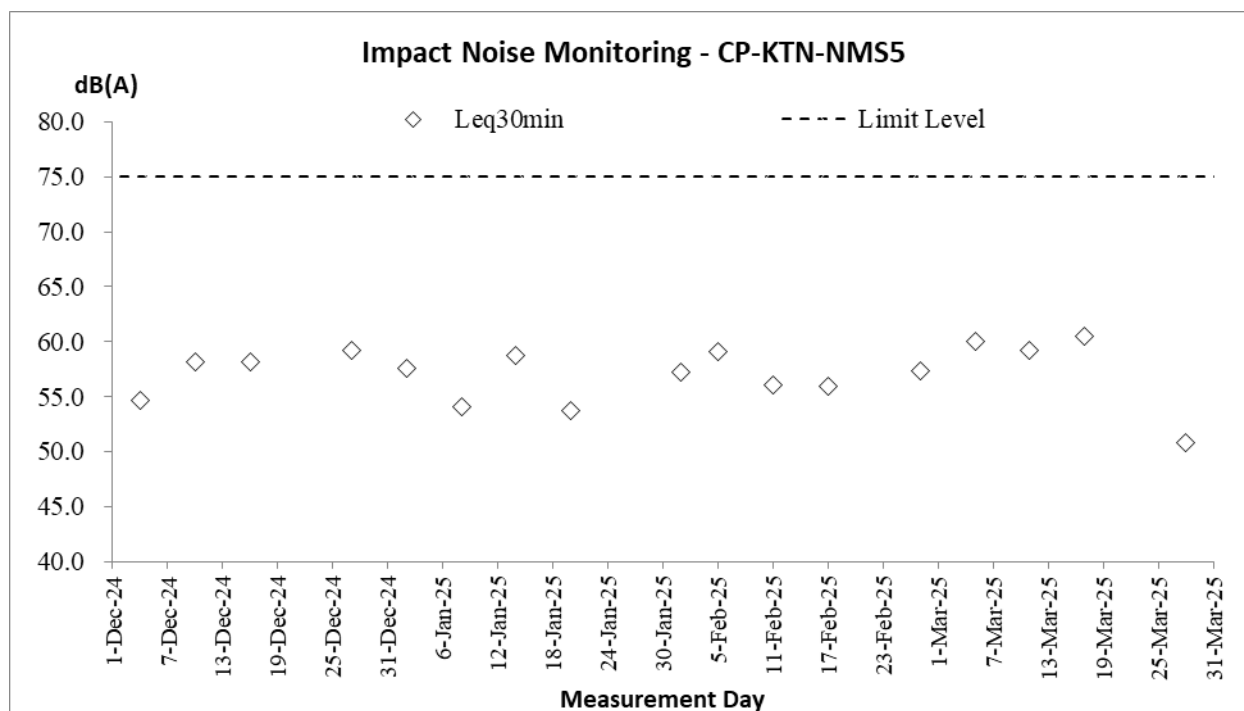
Appendix G

Database of Monitoring Result

Daytime Noise Measurement Results (dB) at CP-KTN-NMS5																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Corrected Leq30min dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
5-Mar-25	14:45	60.9	63.8	58.4	61.3	64.2	58.1	59.7	63.5	57.6	58.6	61.8	56.7	59.7	62.0	58.3	59.2	61.2	55.5	60.0	63.0
11-Mar-25	17:00	60.3	63.6	56.5	58.9	60.5	55.2	57.6	59.8	54.7	58.4	61.2	55.8	60.8	63.4	56.3	58.6	60.3	55.9	59.2	62.2
17-Mar-25	9:23	60.3	63.3	56.0	60.8	63.9	55.5	59.5	62.5	55.2	61.3	65.2	56.7	60.4	64.2	55.7	60.4	64.0	55.5	60.5	63.5
28-Mar-25	14:31	51.1	52.9	48.2	49.9	50.2	47.8	50.7	51.5	48.1	49.2	50.9	48.5	52.1	53.0	48.9	51.0	52.5	47.7	50.8	53.8

Appendix H

Graphical Plots for Monitoring Result



Appendix I

Monthly Summary Waste Flow Table

Contract No. : 3/WSD/20

Contact Name: Reclaimed Water Supply to Sheung Shui and Fanling**Monthly Summary Waste Flow Table for 2025**

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 '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0.092	0	0	0	0.092	0	0	0	0	0	0.00
Feb	0.358	0	0	0	0.358	0	0	0	0	0	0.00
Mar	0.277	0	0	0	0.277	0	0	0	0	0	0.00
Apr											
May											
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0.727	0	0	0	0.727	0	0	0	0	0	0.00

Data updated as of 26 March 2025

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
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 '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
25.472	5.386	0	0	25.472	0	0	0	0	0	0.3885

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 - (3) The quantities of C&D material indicated in the half-yearly status report should be in tonnes. If the project offices do not have information on the densities of the material for the time being, they could initially adopt the following conversion factors for reporting purpose: insitu densities of rock and soil to be 2.5 tonnes/m³ and 2.0 tonnes/m³ respectively; and densities of imported rock and soil to be 2.0 tonnes/m³ and 1.8 tonnes/m³ respectively.
 - (4) Broken concrete and bitumen = 2.4 tonnes/m³
 - (5) Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002

Appendix J

Implementation Schedule for Environmental Mitigation Measures (ISEMM)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
Common Mitigation Measures (Applicable to ALL Project Components, including DPs and Non-DPs)								
Construction Dust Impact								
S3.8	D1	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 92.1%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m ² to achieve the respective dust removal efficiencies.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO	V
S3.8	D2	The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO	V
S3.8	D3	<p>Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction phase:</p> <ul style="list-style-type: none"> Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hard cores; When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	APCO To control the dust impact to meet HKAQO and TM-EIAO	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<ul style="list-style-type: none"> The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; and Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. 						
Noise Impact (Construction Phase)								
S4.9	N1	Implement the following good site management practices: <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible and practicable; and material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO	V
S4.9	N2	Install temporary site hoarding (approx. 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
			zone of NSRs through partial screening.					
S4.9	N3	Install movable noise barriers, full enclosure and acoustic mat, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO	V
S4.9	N4	Use of "Quiet" Plant and Working Methods	Reduce the noise levels of plant items	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO	V
S4.9	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites	Construction phase	Annex 5, TM-EIAO	V
Water Quality Impact (Construction Phase)								
S5.7	W1	<p>Construction Runoff</p> <p>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures should be provided and the Storm Water Pollution Control Plan is given below.</p> <p>Storm Water Pollution Control Plan</p> <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications 	Control construction runoff	Contractor	All construction sites	Construction phase	WPCO, EIAO, TM-EIAO	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<p>where the influent is pumped.</p> <ul style="list-style-type: none"> The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the Contractor prior to the commencement of construction. Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. All open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff 						

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<p>during storm events.</p> <ul style="list-style-type: none"> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds. 						
S5.7	W2	<p>Sewage from Workforce</p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures. 	Handling of site sewage	Contractor	All construction sites	Construction phase	WPCO, EIAO, TM-EIAO	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
Waste Management (Construction Waste)								
S7.6	WM1	<p>Waste Reduction Measures</p> <p>Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:</p> <ul style="list-style-type: none"> • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 	Reduce waste generation	Contractor	All construction sites where practicable	Prior to the commencement of construction	Waste Disposal Ordinance	V
S7.6	WM2	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance	V
S7.6	WM3	<p><u>Good Site Practice</u></p> <p>The following good site practices are recommended throughout the construction activities:</p> <ul style="list-style-type: none"> • nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; 	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance	V
S7.6	WM4	<p><u>Storage of Waste</u></p> <p>The following recommendation should be implemented to minimize the impacts:</p>	Minimize waste from storage impacts	Contractor	All construction	Construction phase	Waste Disposal Ordinance	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<ul style="list-style-type: none"> waste such as soil should be handled and stored well to ensure secure containment; stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; different locations should be designated to stockpile each material to enhance reuse; 			sites			
S7.6	WM5	Collection and Transportation of Waste The following recommendation should minimize the impacts: <ul style="list-style-type: none"> remove waste in timely manner; employ the trucks with cover or enclosed containers for waste transportation; obtain relevant waste disposal permits from the appropriate authorities; and disposal of waste should be done at licensed waste disposal facilities. 	Minimize waste from storage impacts	Contractor	All construction sites	Construction phase	Waste Disposal Ordinance	V
S7.6	WM6	Excavated and C&D Material Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public filling areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: <ul style="list-style-type: none"> maintain temporary stockpiles and reuse excavated fill material for backfilling; carry out on-site sorting; deliver surplus artificial hard materials to Tuen Mun Area 38 recycling plant or its successor for recycling into subsequent useful products; make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; implement a recording system for the amount of waste generated, recycled and disposed of for checking; Standard formwork should be used as far as practicable in order to minimize the arising of C&D waste. The use of more durable formwork (e.g. metal hoarding) or plastic facing should be encouraged in order to enhance the possibility of recycling. The purchasing of construction materials should be carefully planned in order to avoid over ordering and wastage. Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area.	Minimize waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction phase	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	V
S7.6	WM8	Chemical Waste <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste Contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction phase	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) General) Regulation Code of 	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					Practice on the Packaging, Labelling and Storage of Chemical Waste	
S7.6	WM9	General Waste <ul style="list-style-type: none"> General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	<ul style="list-style-type: none"> Waste Disposal Ordinance 	V
S7.6	WM10	Sewage <ul style="list-style-type: none"> The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts. 	Minimize production of sewage impacts	Contractor	All construction sites	Construction phase	<ul style="list-style-type: none"> Waste Disposal Ordinance 	V
S7.6	WM11	Topsoil reuse – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. This is considered a general measure for good site practice.	Good site practice	Contractor / Project Proponent	Onsite	Construction Phase	<ul style="list-style-type: none"> ETWB Technical Circular (Works) No.29/2004 	V
Landscape and Visual (Construction)								
S.12.9 MM3	LV5	Open Space Provision - the principles adopted in the RODP planning ensure that public open space systems are incorporated. All requirements for open space areas stipulated in the planning documents for the formulation of the Preliminary Layout Plan should be adhered to.	Reprovision of open space. Enhance visual amenity of the area and improve the overall landscape character	Government Developer / Detailed Design Consultant / Contractor	Onsite as stipulated in the planning documents for the formulation of the Preliminary Layout Plan	Prior to Construction and Construction Phase	Hong Kong Planning Standards and Guidelines (HKPSG) issued by the Planning Department (As at Aug 2011); Sustainable Building Design Guidelines	NA
S.12.9 MM4	LV6	Tree Protection & Preservation – Existing trees to be retained within the Project Site should be carefully protected during construction. In particular OVTs will be	Protect and Preserve Trees	Government Developer /	Onsite as stipulated in	Prior to Construction	ETWB Technical Circular Works	V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<p>preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas.</p> <p>A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.</p>		Detailed Design Consultant / Contractor	the planning documents for the formulation of the Preliminary Layout Plan	and Construction Phase	(TCW) No. 29/2004 and 3/2006	
S.12.9 MM5	LV7	<p>Tree Transplantation – Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.</p> <p>A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC 2/2004 and 3/2006 and final locations of transplanted trees should be agreed prior to commencement of the work.</p> <p>For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.</p>	Transplant Trees where suitable for transplantation	Government Developer / Detailed Design Consultant / Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWB TCW 3/2006 and 2/2004 HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit	NA
S.12.9 MM7	LV9	<p>Compensatory Planting – Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under ETWBTC 3/2006.</p> <p>Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots.</p> <p>Compensatory planting for shrubs should be considered in suitable locations. Native species such as <i>Melastoma malabathricum</i>, <i>Diospyros vaccinioides</i>, <i>Gardenia jasminoides</i>, <i>Ixora chinensis</i>, <i>Ligustrum sinense</i>, <i>Litsea rotundifolia</i>,</p>	Compensate for trees and shrubs lost due to the Project.	Government Developer / Detailed Design Consultant / Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWB TCW 3/2006 and 2/2004	V

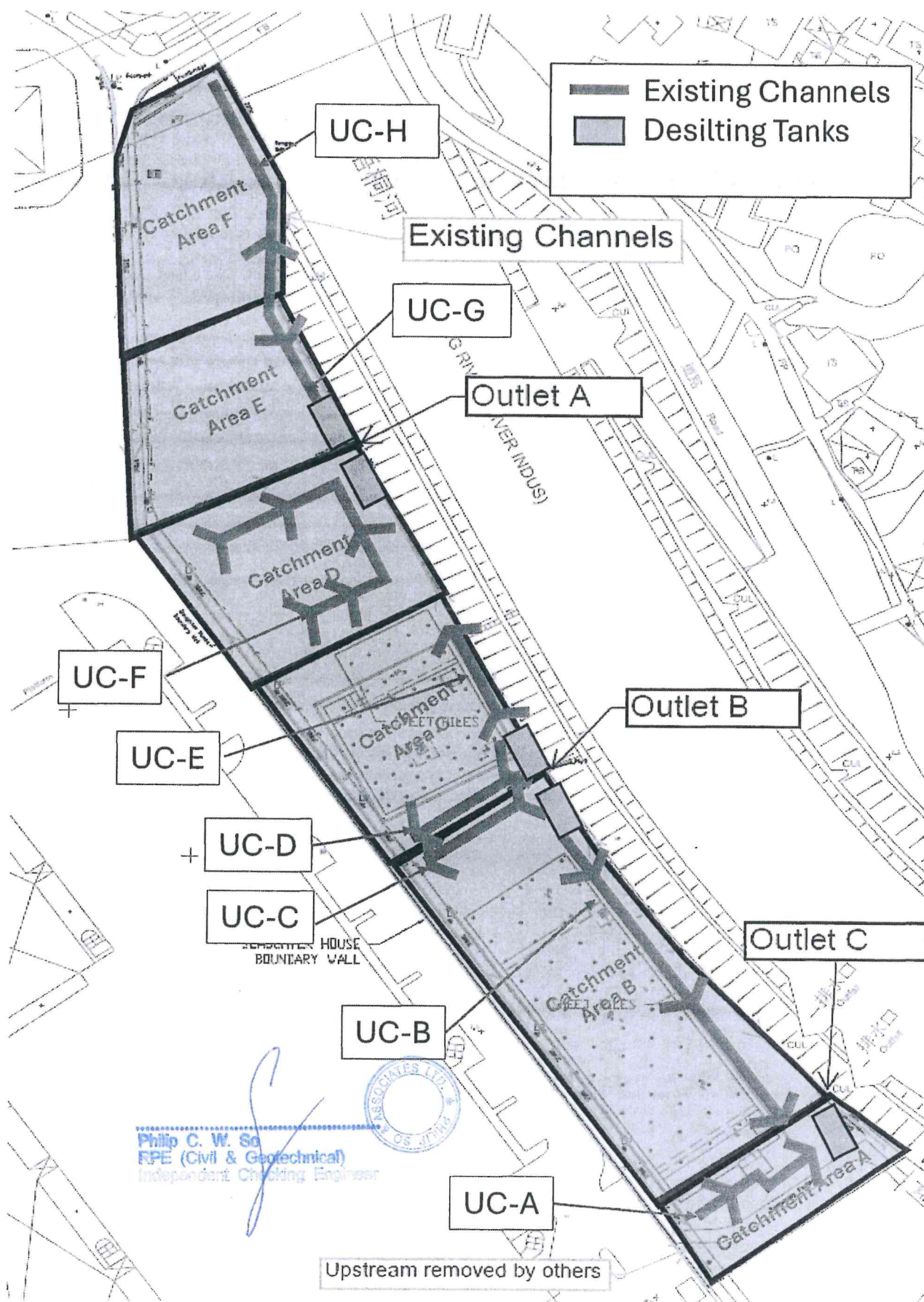
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		<i>Melastoma dodecandrum</i> , <i>Atalantia buxifolia</i> , <i>Rhodomyrtus tomentosa</i> , <i>Rhaphiolepis indica</i> , and <i>Rhododendron simsii</i> are suggested.						
S.12.9 MM9	LV11	Vertical Greening – Planting of climbers to grow up vertical surfaces were appropriate (e.g. building edges, piers).	Soften hard surfaces and facilities	Project Proponent / Detailed Design Consultant / Contractor / Maintenance Authority	On appropriate structures	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWB TCW No. 11/2004 – Cyber Manual for Greening	*
S.12.9 MM10	LV12	Green Roof – Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels. Provide greening.	Project Proponent / Detailed Design Consultant / Contractor / Maintenance Authority	On appropriate buildings	Prior to Construction, Construction Phase & Maintenance in Operation Phase	CIBSE HK Branch, Technical Guidelines for Green Roof Systems in Hong Kong (2011); ArchSD/Urbis Study on Green Roof Application in HK (2007)	*
S.12.9 MM11	LV13	Screen Planting – Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Government / Developer / Detailed Design Consultant / Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the NDA Maintenance and create a pleasant Contractor structures	Prior to Construction, Construction Phase & Maintenance in Operation Phase	ETWBTC 3/2006	*
S.12.9 MM14.5	LV20	Screen Hoarding – Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment	To screen undesirable views of the works site.	Contractor	Throughout NDAs	Construction Phase		V

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the Measures?	Location of the measures	When to implement the Measures?	What requirements or standards for the measures to achieve?	Implement Status
		and where possible, nonreflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence. Details can refer to the ecological impact assessment (Chapter 13 of the EIA report).						
S12.9 MM14.6	LV21	Light Control – Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	To minimize glare impact to adjacent VSRs	Government / Developer / Contractor	Throughout NDAs	Construction and Operation Phases		V
Ecology (Construction Phase)								
S.13.9	E13	Review design and construction methods for bridges, especially those on the Sheung Yue and tidal Ng Tung Rivers, and adopt measures which minimize impacts on rivers and disturbance and fragmentation impacts on fauna. No construction during ardeid breeding season (1 March to 31 July) along Sheung Yue River north and east of KTN area D1-5 and east of D1-9 and C2-3 and restriction of working hours on new pedestrian bridges over the Sheung Yue River and tidal Ng Tung River to 09.00 to 17.30 during the ardeid breeding season (1 March to 31 July). Provision of alternative foraging habitat along main river channels for large waterbirds.	Minimize impacts on rivers and disturbance and fragmentation impacts on fauna.	Project Proponent / Detailed Design Consultant / Contractor	Along and within the Sheung Yue, Ng Tung and Shek Sheung Rivers	Detailed design and construction phases.	TM-EIAO.	NA
S.13.9	E16	Creation of Green Corridors along the Sheung Yue, Ng Tung and Shek Sheung Rivers, retention and provision of screen plantings where feasible; provision of Open Space areas and development areas along river corridors; Design and erection of 2m high solid dull green site barrier fence between river channel and any active works area along or adjacent to Ng Tung, Sheung Yue and Shek Sheung Rivers. Ng Tung, Sheung Yue and Shek Sheung Rivers screen planting.	Minimize disturbance to waterbirds using Ng Tung, Sheung Yue and Shek Sheung River channels.	Detailed Design Consultant / Contractor	Ng Tung, Sheung Yue and Shek Sheung Rivers	Detailed design and construction phases.	TM-EIAO.	V
S.13.9	E19	Use opaque, non-transparent, non-reflective noise barriers for all construction sites. Unnecessary lighting should be avoided.	Minimize mortality impacts on birds.	Contractor	All construction sites	Construction phase.	TM-EIAO.	V

Legend: V = implemented; x = not implemented; @ = partially implemented; * = pending to be implemented; N/A = not applicable

Appendix K

As-built Drawing of Site Temporary Drainage



Appendix L

Waterbirds Survey Report for the Reporting Month



**WSD Contract No. 3/WSD/20 - Reclaimed Water Supply to
Sheung Shui and Fanling - Provision of EM&A (Ecological)
Monitoring**

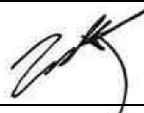

Monthly Report for March 2025
(Issue 1)

Job Ref.: 21/2063/582 AUES-SWHTSE
Date: 7th April 2025

WSD Contract No. 3/WSD/20 - Reclaimed Water Supply to Sheung Shui and Fanling - Provision of EM&A (Ecological) Monitoring

Monthly Report for March 2025

(Issue 1)

	Name	Signature
Prepared by:	Nicholas Tam	
Reviewed by:	Ida Yu	
Date:	7th April 2025	

Job Ref.: 21/2063/582 AUES-SWHTSE

CONTENTS

1	Introduction	1
2	Monitoring Methodology.....	1
3	Analytical methodology	2
4	Results.....	3
5	Analysis	4
6	Observations	5
7	References	6

LIST OF TABLES

Table 1	Ecological Monitoring Stations
Table 2	Representative Waterbirds
Table 3	Action and Limit Levels and Responses to Evidence of Disturbance to Waterbirds using Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase
Table 4	Weather Conditions and Tidal Information of Survey Dates in the Reporting Month
Table 5	Total Bird Species and Abundance at Point Count Locations in the Reporting Month
Table 6	Abundance of Representative Waterbirds at Point Count Locations in the Reporting Month
Table 7	T-test Result for Waterbirds in the Reporting Month
Table 8	Observations during the Ecological Monitoring in the Reporting Month

LIST OF APPENDICES

Appendix A	Recorded Bird Species and their Abundance in the Reporting Month
Appendix B	Total Waterbird Abundance from Point Count
Appendix C	Abundance of Representative Waterbirds from Point Count
Appendix D	Baseline Survey Data (Winter)
Appendix E	Survey Photos

LIST OF FIGURES

Figure 1	Transect and Point Count Locations
Figure 1a	Transect and Point Count Locations (Zoomed In)

1 INTRODUCTION

- 1.1 According to Section 12.3.2.5 of “Updated EM&A Manual for Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas”, monitor of measures to minimise disturbance to waterbirds on Ng Tung, Sheung Tue and Shek Sheung Rivers is required.
- 1.2 aec Ltd. has been appointed by Action-United Environmental Services & Consulting (AUES) to conduct weekly transect bird surveys at high and low tides along Ng Tung River, Sheung Yue River and Shek Sheung River; and identify sources of actual and potential disturbances to birds due to construction activities of WSD Contract No. 3/WSD/20 – Reclaimed Water Supply to Sheung Shui and Fanling. As instructed by the Contractor, the commencement date of the survey was in the week of 10 January 2022. This monthly report summarises the monitoring findings in March 2025.

2 MONITORING METHODOLOGY

- 2.1 The survey methodology references the methodology stated in approved Baseline Monitoring Report (Ecology) (Version 1) (prepared by Cinotech Consultants Limited (2019)) under “Contract No. SPW 08/2019 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1”. Three transects and seven point count locations were selected within the 500m boundary of Ng Tung, Sheung Yue and Shek Sheung River. These locations are shown in **Figure 1** and summarized in **Table 1**.

Table 1 Ecological Monitoring Stations

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Transect T2		
Point Count Location P1		
Point Count Location P2		
Point Count Location P3		
Point Count Location P4		
Point Count Location P5	At Shek Sheung River (Low-flow Channel)	No
Transect T3	Along Shek Sheung River & Sheung Yue River	Yes
Point Count Location P6	At Shek Sheung River	Yes
Point Count Location P7	At Intersection between Sheung Yue and Shek Sheung River	Yes

- 2.2 Surveys were conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal levels are below 1.5m at Tsim Bei Tsui Station).
- 2.3 All avifauna species that were seen or heard were identified and quantified along transects and at point count locations. Survey data would be recorded continuously by the surveyor as they walked along the transects, while survey data of each point count location would be collected for five minutes after surveyor reached the designated point count location. During the surveys, the utilisation of Ng Tung River, Sheung Yue River and Shek Sheung River and their immediate environs/habitats by waterbirds would be focused. For comparison and data analysis, the transect routes and point count locations followed Figure 1 of the approved Baseline Monitoring Report (Ecology) (Version 1). Locations of T1, T2, and P1 to P4 were adjusted to the opposite side of Ng Tung River as the original transects were inaccessible due to various construction projects.

- 2.4 Noticeable behaviours such as breeding, nesting, roosting, feeding and presence of recently fledged juveniles were recorded and reported. In the case which such behaviours were observed for species of conservation importance, the Resident Engineer (RE), the Contractor and the Independent Environmental Checker (IEC) would be immediately notified after the survey such that the Contractor could review the current construction programme and minimize disturbances due to construction activities.
- 2.5 Weather conditions, tidal information, time of the survey and other noticeable activities occurring within the vicinity of the survey area were recorded.

3 ANALYTICAL METHODOLOGY

- 3.1 Total numbers of waterbirds and six representative waterbird species (listed in **Table 2**) are used as an indicator of the level disturbance to waterbirds at each of the survey locations. Species listed as wetland-dependant according to Carey *et al.* (2001) are defined as waterbirds. A significant decline in the abundance of all or representative waterbirds would indicate a high level of disturbance.

Table 2 Representative Waterbirds

Common Name	Species Name	Chinese Name
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	牛背鷺
Grey Heron	<i>Ardea cinerea</i>	蒼鷺
Great Egret	<i>Ardea alba</i>	大白鷺
Little Egret	<i>Egretta garzetta</i>	小白鷺
Great Cormorant	<i>Phalacrocorax carbo</i>	普通鸕鶿

Survey data from each month is compared to the baseline monitoring data. Baseline monitoring data was downloaded and extracted from the Baseline Monitoring Report retrieved from the following hyperlink (the extracted summer dataset of the baseline monitoring data is shown in **Appendix D**): <https://www.epd.gov.hk/eia/register/english/permit/fep1792018/documents/blmrev1/pdf/blmrev1.pdf>. When a decline in the total number of Waterbirds or the number of the representative Waterbird species is recorded the survey data would be compared to the baseline data (from Shek Wu Hui Effluent Polishing Plant Baseline Monitoring Report (Ecology) by Cinotech Consultants Limited (2019)) using a two-sample one-tailed Student's t-test assuming unequal variance to analyse whether the decline is significant.

- 3.2 If the collected data for the reporting month shows a significant difference at the 95% confidence level, the action level will be triggered. If the collected data for the reporting month shows a significant difference at the 99% confidence level, the limit level is triggered and corresponding suggestions would be given to minimize the disturbances according to **Table 3**.

Table 3 Action and Limit Levels and Responses to Evidence of Disturbance to Waterbirds using Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Action Level	Response	Limit Level	Response
Decline in numbers of all waterbird species relative to numbers during Baseline	Investigate cause(s) and if cause(s) identified as related to NDAs project instigate remedial action	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the	Investigate cause(s) and if cause(s) identified as related to the NDAs project instigate remedial action.

Action Level	Response	Limit Level	Response
Monitoring such that the Action Level response is triggered.	to remove or reduce source of disturbance.	Limit Level response is triggered.	Review and adjust project's Long Valley Nature Park (LVNP) management measures to improve conditions for affected species.
Decline in numbers of any one Waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause(s) and if cause(s) identified as related to NDAs project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one Waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause(s) and if cause(s) identified as related to the NDAs project instigate remedial action. Review and adjust project's LVNP management measures to improve conditions for affected species.

Note: Whether numbers are significant depend on species and season after collection and evaluation of baseline survey data.

- 3.3 In order to increase the sample size and reduce the random error on each survey day, survey data would be collectively analysed on a monthly basis. The collective data of each month is also compared to the baseline data of the respective month and season instead of the entire data set, to account for the seasonal variation in the abundance of waterbirds. In this study, the winter season is defined as October to March, while the summer season is defined as April to September.

4 RESULTS

- 4.1 The weather conditions and tide levels on the survey dates are listed in the table below.

Table 4 Weather Conditions and Tidal Information of Survey Dates in the Reporting Month

High Tide				Low Tide			
Date	Time	Tide (m)	Weather	Date	Time	Tide (m)	Weather
03-Mar-25	15:00	1.89	Cloudy	04-Mar-25	10:00	1.35	Cloudy
10-Mar-25	15:00	1.76	Sunny	12-Mar-25	14:30	1.23	Sunny
17-Mar-25	10:30	1.8	Cloudy	19-Mar-25	09:30	1.19	Sunny
24-Mar-25	13:30	1.81	Sunny	28-Mar-25	14:15	1.2	Cloudy

- 4.2 Abundance and diversity of total bird species and representative waterbird species are summarized in **Tables 5** and **6** respectively. Detailed list of avifauna recorded is provided in **Appendix A**.

Table 5 Total Bird Species and Abundance at Point Count Locations in the Reporting Month

Category	Number of Species	Abundance
All Avifauna	32	411
Waterbirds	13	215

Table 6 Abundance of Representative Waterbirds at Point Count Locations in the Reporting Month

Common Name	Species Name	Chinese Name	Abundance
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	13
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	牛背鷺	35
Grey Heron	<i>Ardea cinerea</i>	蒼鷺	4
Great Egret	<i>Ardea alba</i>	大白鷺	32
Little Egret	<i>Egretta garzetta</i>	小白鷺	92
Great Cormorant	<i>Phalacrocorax carbo</i>	普通鸕鶿	17

5 ANALYSIS

- 5.1 The results of Student's t-test for all waterbirds and representative waterbirds are compiled in **Table 7** respectively. Further details are provided in **Appendices B** and **C**.

Table 7 T-test Result for Waterbirds in the Reporting Month

Category	Monthly					Seasonal				
	T-value	df	p	Action Level	Limit Level	T-value	df	p	Action Level	Limit Level
All Waterbirds	No decline					-0.437	3	0.345		
Chinese Pond Heron	-1.972	11	0.037	*		-3.206	4	0.016	*	
Eastern Cattle Egret	-0.086	7	0.467			No decline				
Grey Heron	-1.194	10	0.130			-8.487	41	0.000	*	*
Great Egret	No decline					No decline				
Little Egret	No decline					No decline				
Great Cormorant	No decline					-1.060	5	0.169		

* = level triggered

- 5.2 In this reporting month, the decline in Chinese Pond Heron has triggered the action level compared to both the monthly and seasonal data, while the decline in Grey Heron has triggered the limit level compared to the seasonal data.
- 5.3 As discussed in previous reports, the declines of individual waterbird species might not be the result of increased disturbances from the Project or surrounding on-going projects, as increased disturbance would discourage multiple waterbird species from foraging near the transects and point count locations instead. Chinese Pond Heron and Grey Heron were recorded with good numbers from transect surveys (see **Appendix A**). Also, findings of all waterbirds, Eastern Cattle Egret, Little Egret, Great Egret and Great Cormorant did not show a significant decline. As a result, it is suggested that construction of the current project did not directly cause the declines in waterbirds.
- 5.4 It was noted since the survey on 17 December 2024 that most stockpiles and machinery have been removed from the area near the site entrance of the current project. Currently, excavation is observed near the site entrance for the laying of drainage. Nevertheless, other construction and anthropogenic activities around the survey transects were still active during the reporting month and the following activities were noted (Photo 1 of **Appendix E**).
- 5.5 During the survey on 21 February 2025, a total of 26 Eastern Cattle Egrets were recorded perching on the trees next to P6. This behaviour was not observed again in the reporting month.
- 5.6 During the survey on 14 March 2025, a shallow water environment formed at P2 due to sediment accumulation, which attracted numerous target waterbirds to forage at the location. A total of 26

Great Egrets and 41 Little Egrets were recorded (Photo 2 of **Appendix E**). This situation was not seen in the following surveys in the reporting month.

- 5.7 A playback device for bird calls has been found near the mitigation wetland managed by Agriculture, Fisheries and Conservation Department (AFCD) along T1 next to P2 since 3 April 2023. Egret dummies, which are assumed to attract roosting ardeids, have been tied on the trees of the same pond since the survey on 17 October 2023.
- 5.8 Road enhancement and sewerage system upgrade works by Drainage Services Department (DSD) along T2 near P3 were observed active throughout the surveying month, this construction extended to P4 since the survey on 17 April 2024, where excavators have been in use. The current site condition is shown in Photo 3 of **Appendix E**, a new pipeline was laid in an excavated pit, which was mostly back filled.
- 5.9 An extension of the sewerage system upgrade works (Section 5.6) has been in operation at the eastern bank of Shek Sheung River near P5, since the survey on 23 August 2023. During the survey on 28 March 2025, it was observed that the construction extended to T1, where excavators and fencing were present (Photo 4 of **Appendix E**). The use of machinery and stockpiles could be a potential source of disturbance, discouraging birds from foraging near T1 and P5.
- 5.10 The construction by Civil Engineering and Development Department (CEDD) near P7 was active throughout the entire reporting month. A road widening construction also by CEDD was observed on the opposite side of the river to T3, roughly midway between P6 and P7, where the use of excavators was observed since 11 September 2023. Construction works on the riverbank were observed since 31 December 2024, while various portions of the riverbank were being backfilled since the survey on 10 March 2025. (Photo 5 of **Appendix E**).
- 5.11 Unknown construction works owned by Build King – Richwell Engineering Joint Venture (BKREJV) were observed since 9 January 2024. The construction was located in a cleared area between Sheung Yue River and the Sheung Shui Slaughterhouse, and it involved excavation and drilling works. Since the survey on 31 May 2024, the excavated pit was seen to be filled halfway.
- 5.12 Monitoring work will be continued next month to evaluate the construction impacts on waterbirds. The construction site should continue keeping the best site practice in noise control to minimize disturbance caused to waterbirds. No further action is advised at the moment.

6 OBSERVATIONS

- 6.1 The types of waterbird behavior observed during ecological monitoring are listed below:
- Flying
 - Resting
 - Foraging
- 6.2 The anthropogenic activities observed during ecological monitoring are listed in **Table 8**.

Table 8 Observations of the anthropogenic activities during the Ecological Monitoring in the Reporting Month

Location	Observations	
	Project Related	Non-project Related
T1 (PC1, PC2)	/	Fishing, placement of egret dummies at nearby pond (AFCD), road works by DSD
T2 (PC3, PC4)	Excavators, interior building works	Fishing, Sewerage system upgrade and road enhancement (DSD)
PC5	/	Placement of construction materials on riverbank (part of the sewerage system upgrade by DSD)
T3 (PC6, PC7)	/	Fishing, construction works at P7 and along T3 (CEDD), construction works (BKREJV)

7 REFERENCES

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Appendix A Recorded Bird Species and their Abundance in the Reporting Month

Common Name	Chinese Name	Scientific Name	Waterbird	Point Count Abundance	Transect Abundance
Black-crowned Night Heron	夜鷺	<i>Nycticorax nycticorax</i>	Y		+
Chinese Pond Heron	池鷺	<i>Ardeola bacchus</i>	Y	13	+++++
Eastern Cattle Egret	牛背鷺	<i>Bubulcus coromandus</i>	Y	35	++
Grey Heron	蒼鷺	<i>Ardea cinerea</i>	Y	4	++
Great Egret	大白鷺	<i>Ardea alba</i>	Y	32	+++++
Little Egret	小白鷺	<i>Egretta garzetta</i>	Y	92	+++++
Great Cormorant	普通鸕鶿	<i>Phalacrocorax carbo</i>	Y	17	+++
Black Kite	黑鷹	<i>Milvus migrans</i>	N	2	+
Eastern Buzzard	普通鵟	<i>Buteo japonicus</i>	N		+
White-breasted Waterhen	白胸苦惡鳥	<i>Amaurornis phoenicurus</i>	Y		+
Black-winged Stilt	黑翅長腳鷸	<i>Himantopus himantopus</i>	Y	4	
Common Sandpiper	磯鷸	<i>Actitis hypoleucos</i>	Y	4	+
Green Sandpiper	白腰草鷸	<i>Tringa ochropus</i>	Y	2	+
Common Greenshank	青腳鷸	<i>Tringa nebularia</i>	Y	8	+
Spotted Dove	珠頸斑鳩	<i>Spilopelia chinensis</i>	N	17	+++++
Greater Coucal	褐翅鴉鵂	<i>Centropus sinensis</i>	N		+
Asian Koel	噪鵲	<i>Eudynamis scolopaceus</i>	N	4	+++
Large Hawk-cuckoo	大鷹鵂	<i>Hierococcyx sparveriioides</i>	N		+
White-throated Kingfisher	白胸翡翠	<i>Halcyon smyrnensis</i>	Y	2	+
Common Kingfisher	普通翠鳥	<i>Alcedo atthis</i>	Y	1	
Pied Kingfisher	斑魚狗	<i>Ceryle rudis</i>	Y	1	
Alexandrine Parakeet	亞歷山大鸚鵡	<i>Psittacula eupatria</i>	N	4	+
Red-billed Blue Magpie	紅嘴藍鵲	<i>Urocissa erythroryncha</i>	N	1	+
Oriental Magpie	喜鵲	<i>Pica serica</i>	N		+
Collared Crow	白頸鴉	<i>Corvus torquatus</i>	Y		+
Japanese Tit	日本山雀	<i>Parus minor</i>	N	8	+
Red-whiskered Bulbul	紅耳鶇	<i>Pycnonotus jocosus</i>	N	6	++
Chinese Bulbul	白頭鶇	<i>Pycnonotus sinensis</i>	N	3	+++
Barn Swallow	家燕	<i>Hirundo rustica</i>	N		+
Yellow-browed Warbler	黃眉柳鶯	<i>Phylloscopus inornatus</i>	N		++
Pallas's leaf Warbler	黃腰柳鶯	<i>Phylloscopus proregulus</i>	N		+
Dusky Warbler	褐柳鶯	<i>Phylloscopus fuscatus</i>	N		+
Yellow-bellied Prinia	黃腹鷦鶯	<i>Prinia flaviventris</i>	N	2	+
Common Tailorbird	長尾縫葉鶯	<i>Orthotomus sutorius</i>	N	6	++
Masked Laughingthrush	黑臉噪鶇	<i>Pterorhinus perspicillatus</i>	N	2	+++++
Swinhoe's white-eye	暗綠繡眼鳥	<i>Zosterops simplex</i>	N	13	++
Crested Myna	八哥	<i>Acridotheres cristatellus</i>	N	61	+++++
Black-collared Starling	黑領棕鳥	<i>Gracupica nigricollis</i>	N	20	+++++
White-shouldered Starling	灰背棕鳥	<i>Sturnia sinensis</i>	N	30	
Oriental Magpie Robin	鵲鵒	<i>Copsychus saularis</i>	N	2	+
Red-throated Flycatcher	紅喉姬鶯	<i>Ficedula albicilla</i>	N		+

Common Name	Chinese Name	Scientific Name	Waterbird	Point Count Abundance	Transect Abundance
Stejneger's Stonechat	黑喉石(即鳥)	<i>Saxicola stejnegeri</i>	N	1	
Eurasian Tree Sparrow	樹麻雀	<i>Passer montanus</i>	N	4	+
White Wagtail	白鵲鴝	<i>Motacilla alba</i>	N	10	++
Olive-backed Pipit	樹鵲	<i>Anthus hodgsoni</i>	N		+
Total Point Count Abundance for All Avifauna				411	
Total Point Count Abundance for Waterbirds				215	

For transect abundance, +: 1-10, ++: 11-20, +++: 21-30, ++++: 31-40, +++++: >40

Appendix B Total Waterbird Abundance from Point Count

Survey Information				Number of Waterbirds	
Week	Date	Time	Tide Level	Individuals Recorded	Total
1	03-Mar-25	15:00	High	11	22
	04-Mar-25	10:00	Low	11	
2	10-Mar-25	15:00	High	14	48
	12-Mar-25	14:30	Low	34	
3	17-Mar-25	10:30	High	81	97
	19-Mar-25	09:30	Low	16	
4	24-Mar-25	13:30	High	15	48
	28-Mar-25	14:15	Low	33	
Survey Average					53.75
Baseline				Mar Average	50.22
				Winter Average	60.77

Appendix C Abundance of Representative Waterbirds from Point Count

Representative Species		Recorded Abundance (March 2025)						Baseline	
Common Name	Species Name	Week 1	Week 2	Week 3	Week 4		Average	Mar Average	Winter Average
Chinese Pond Heron	<i>Ardeola bacchus</i>	2	0	8	3		3.25	9.22	9.21
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	3	21	9	2		8.75	9.22	3.77
Grey Heron	<i>Ardea cinerea</i>	1	1	2	0		1	2.56	12.82
Great Egret	<i>Ardea alba</i>	2	1	27	2		8	3.89	5.15
Little Egret	<i>Egretta garzetta</i>	4	12	44	32		23	19	14.36
Great Cormorant	<i>Phalacrocorax carbo</i>	4	11	2	0		4.25	2.67	7.08

Appendix D Baseline Survey Data (Winter)

* Only include data from “All Waterbirds” and the six representative waterbird species for data analysis

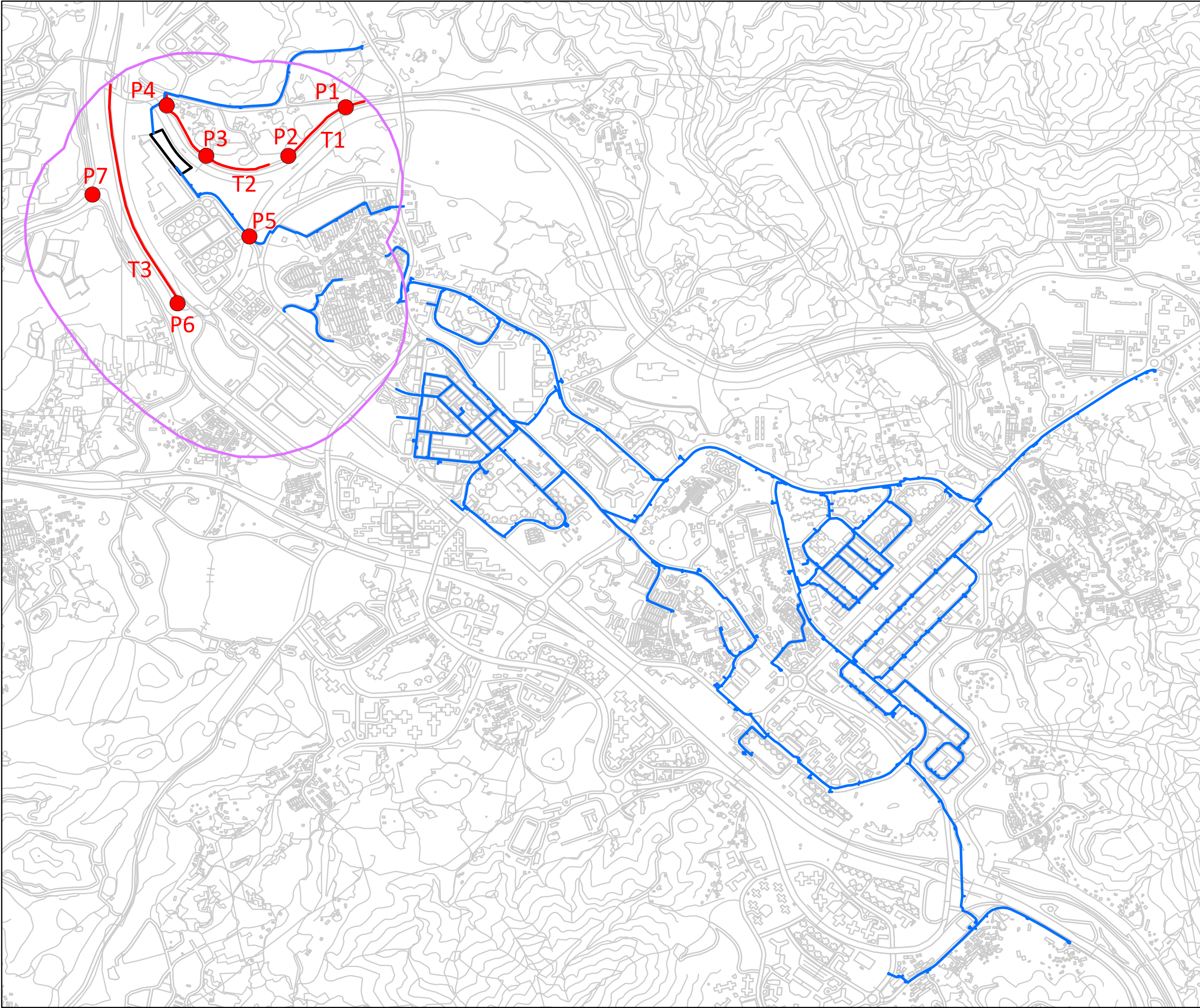
Representative Species		Recorded Abundance (Winter Baseline)							
Common Name	Species Name	21-12-17	29-12-17	04-01-18	09-01-18	19-01-18	26-01-18	01-02-18	09-02-18
All Waterbirds		91	31	50	82	44	87	99	47
Chinese Pond Heron	<i>Ardeola bacchus</i>	11	5	8	1	7	4	9	5
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	0	0	0	0	0	6	4	0
Grey Heron	<i>Ardea cinerea</i>	28	11	16	31	16	31	29	21
Great Egret	<i>Ardea alba</i>	7	2	3	5	5	11	7	6
Little Egret	<i>Egretta garzetta</i>	9	6	12	8	13	10	12	8
Great Cormorant	<i>Phalacrocorax carbo</i>	33	1	6	0	2	0	7	4
Representative Species		Recorded Abundance (Winter Baseline)							
Common Name	Species Name	14-02-18	22-02-18	02-03-18	09-03-18	12-03-18	22-03-18	28-03-18	05-10-18
All Waterbirds		26	30	18	86	38	81	83	36
Chinese Pond Heron	<i>Ardeola bacchus</i>	3	3	2	1	3	22	20	9
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	0	0	0	27	11	8	24	0
Grey Heron	<i>Ardea cinerea</i>	11	14	7	0	0	0	0	7
Great Egret	<i>Ardea alba</i>	3	3	3	12	5	7	2	7
Little Egret	<i>Egretta garzetta</i>	6	8	4	37	15	33	32	12
Great Cormorant	<i>Phalacrocorax carbo</i>	0	0	0	3	2	0	0	0
Representative Species		Recorded Abundance (Winter Baseline)							
Common Name	Species Name	08-10-18	15-10-18	25-10-18	05-11-18	12-11-18	22-11-18	30-11-18	07-12-18
All Waterbirds		46	58	63	75	82	70	85	77
Chinese Pond Heron	<i>Ardeola bacchus</i>	14	12	12	9	15	11	10	9
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	0	0	0	1	0	0	0	8
Grey Heron	<i>Ardea cinerea</i>	8	10	13	20	17	19	21	16
Great Egret	<i>Ardea alba</i>	6	9	4	8	8	3	10	8
Little Egret	<i>Egretta garzetta</i>	12	15	20	12	18	16	16	17
Great Cormorant	<i>Phalacrocorax carbo</i>	1	2	2	19	15	12	8	10
Representative Species		Recorded Abundance (Winter Baseline)							
Common Name	Species Name	10-12-18	17-12-18	27-12-18	02-01-19	09-01-19	17-01-19	25-01-19	08-02-19
All Waterbirds		75	62	77	54	59	51	75	83
Chinese Pond Heron	<i>Ardeola bacchus</i>	11	6	11	14	10	11	11	10
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	0	15	9	3	3	0	0	6
Grey Heron	<i>Ardea cinerea</i>	16	15	15	10	9	8	14	13
Great Egret	<i>Ardea alba</i>	7	6	8	2	2	4	6	4
Little Egret	<i>Egretta garzetta</i>	17	11	14	11	18	12	18	19
Great Cormorant	<i>Phalacrocorax carbo</i>	9	9	10	12	5	14	13	15
Representative Species		Recorded Abundance (Winter Baseline)							
Common Name	Species Name	14-02-19	22-02-19	25-02-19	08-03-19	15-03-19	22-03-19	25-03-19	
All Waterbirds		72	71	60	60	33	27	26	
Chinese Pond Heron	<i>Ardeola bacchus</i>	13	13	9	9	9	11	6	
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	7	2	0	3	3	0	7	
Grey Heron	<i>Ardea cinerea</i>	13	11	14	10	4	2	0	
Great Egret	<i>Ardea alba</i>	7	3	2	4	1	1	0	
Little Egret	<i>Egretta garzetta</i>	11	14	14	15	12	12	11	
Great Cormorant	<i>Phalacrocorax carbo</i>	13	13	17	15	4	0	0	

Appendix E Survey Photos

Photo 1 Site conditions of the project site at P4 (10/3/2025)	Photo 2 Egrets foraging at P2 (17/3/2025)
	
Photo 3 Road works at T2 by DSD (28/3/2025)	Photo 4 Extension of Construction at T1 (28/3/2025)
	
Photo 5 Riverbank being backfilled by CEDD at T3 (10/3/2025)	Photo 6 Great Egret at P3 (28/3/2025)
	

Figure 1

Transect and Point Count Location



- Proposed Shek Wu Hui Water Reclamation Plant
- 500m Survey Boundary
- Proposed Retained Water Mains
- Walk Transects
- Point Count Locations



Project Title:

WSD Contract No. 3/WSD/20 -
Reclaimed Water Supply to Sheung Shui and Fanling -
Provision of EM&A (Ecological) Monitoring

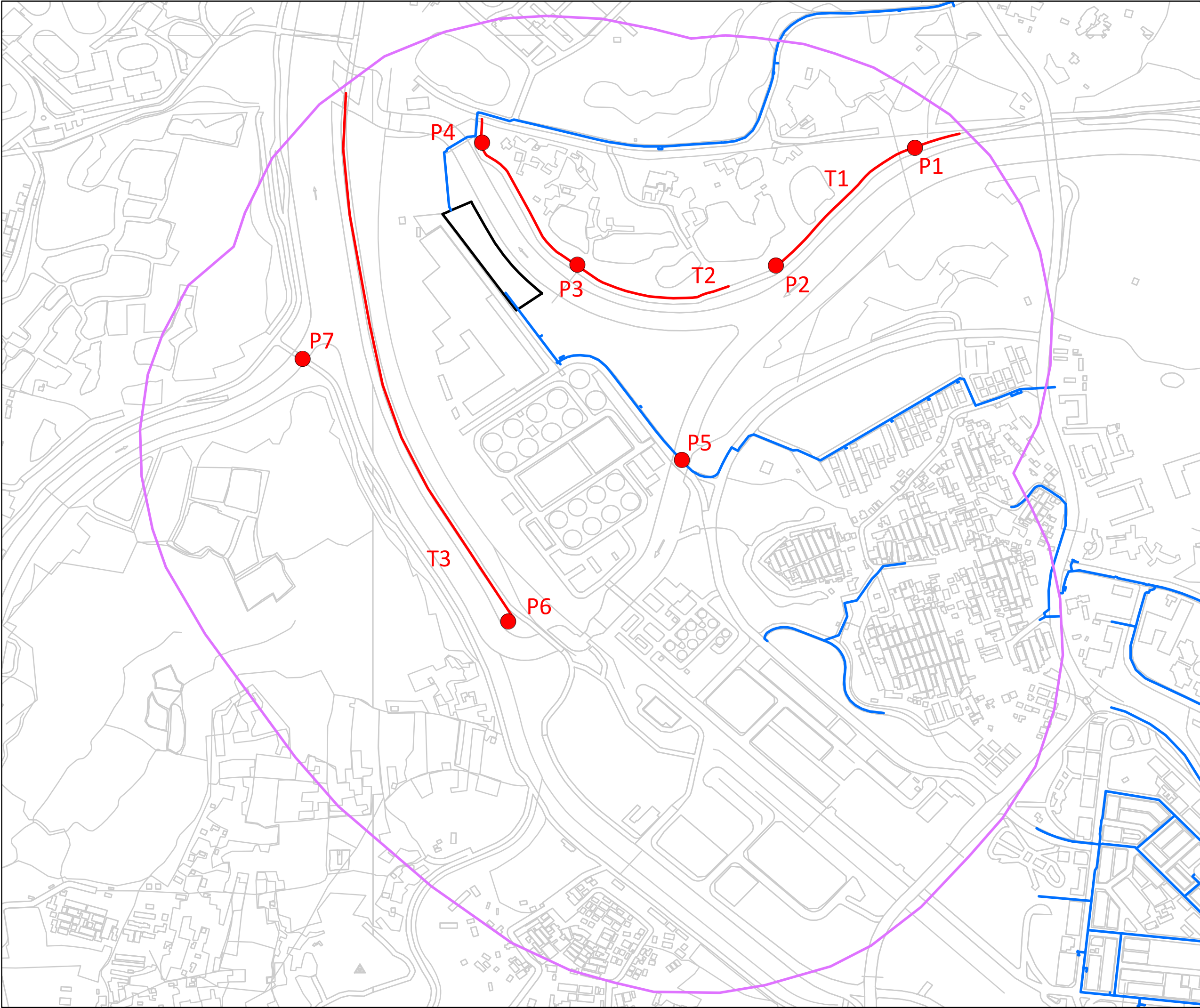
Figure Title:

Transect and Point Count Locations

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Checked By:	NT	Date:	5 July 2022	
Approved by:	IV			
Figure Number:	Figure 1			Revision: 2

Figure 1a

Transect and Point Count Location (Zoomed In)



Proposed Shek Wu Hui Water Reclamation Plant

500m Survey Boundary

Proposed Retained Water Mains

Walk Transect

Point Count Locations

ecology

biodiversity

landscape

aec

Project Title:

WSD Contract No. 3/WSD/20 -
Reclaimed Water Supply to Sheung Shui and Fanling -
Provision of EM&A (Ecological) Monitoring

Figure Title:

Transect and Point Count Locations (zoomed in)

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NT

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on A3

Checked By:

NT

Date:

5 July 2022

Approved by:

IY

Figure Number:

Figure 1a

Revision:

2