



Monthly EM&A Report (July 2021)

0120/20/ED/0368 04

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1 Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Ref.: DSDYLSTWEM00_0_0161L.21

13 August 2021

By Hand and by E-mail

AECOM
12/F Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, Hong Kong.

Attention: Mr YEUNG H. M. Simon

Dear Mr YEUNG,

Re: Contract No. SPW 08/2020
Independent Environmental Checker for
Construction of Yuen Long Effluent Polishing Plant Stage 1
Verification of the Monthly EM&A Report (July 2021)

Reference is made to the Monthly EM&A Report (July 2021) by the ET with Fugro Document No. 0120/20/ED/0368 04 (the Report), which was received via e-mail dated 13 August 2021.

Having reminded that, in accordance with the Condition 3.6 of the EP-565/2019, it is the ET's responsibility to ensure all submitted EM&A data shall be true, valid and correct, we have no further comments and herewith verify that the Report has fulfilled the EP Condition 3.4 as having complied with the requirements set out in the EM&A Manual.

Please contact the undersigned or our Mr. Y.H. HUI should you have any questions on the matter.

Yours sincerely,

For and on behalf of
Ramboll Hong Kong Limited



WONG Fu Nam
Independent Environmental Checker

c.c.
DSD Mr LAM Yu Wang By E-mail
Fugro Mr HUNG David By E-mail

Document Control

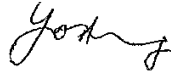

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Client Information

Client	Drainage Services Department
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Client Contact	Mr. LAM Yu Wang

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EXECUTIVE SUMMARY

- i. This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1". Drainage Services Department (DSD) has appointed Fugro Technical Services Limited (FTS) to undertake the Environmental Team services for the project and implement the EM&A works.
- ii. This is the 4th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 July 2021 to 31 July 2021. As informed by the Contractor, major activities in the reporting month were:
 - Pre-drill work at Primary Sedimentation Tanks (PST) by 3 drill rigs;
 - Site formation works at Primary Sedimentation Tanks (PST) no. 7 & 8;
 - Breaking of Primary Sedimentation Tanks (PST) no. 8;
 - Sheet pile installation works for Zone 2A diversion;
 - Driven H-pile at Inlet Works (IW) stage 1, 2 and Primary Sedimentation Tanks by 3 rigs;
 - Demolition of workshop and changing room by crusher and breaker;
 - Demolition of carparks
 - Trial pit for Zone 2B & 3 diversion;
 - Removal of sludge from sludge holding tanks; and
 - Overhaul work at Final Sedimentation Tanks (FST).

Breaches of Action and Limit Levels

- iii. No Action and Limit Level exceedance was recorded for air quality monitoring and construction noise monitoring in the reporting month.
- iv. Three Limit Level exceedance were recorded for water quality in the reporting month. The exceedance were recorded at M1 on 3, 6 and 27 July 2021. It was found that these exceedances were not project-related.
- v. No Action / Limit exceedance was recorded for noise levels at stations (NMS1 and NMS2) in close proximity to the active ardeid night roost. One active ardeid night roost site (ANR1) was observed within the Survey Area during the July 2021 monitoring period, while the other night roost site (ANR2) was not currently used by the ardeids.
- vi. One exceedance in Action Level was recorded for the ecological monitoring of birds on 09 & 13 July 2021. This was the significant decline in species diversity of species with conservation importance only. However, the exceedance was not project-related.

Complaint Log

vii. No complaints were received in the reporting period.

Notifications of any Summons and Successful Prosecutions

viii. No notifications of summons and prosecutions were received in the reporting period.

Reporting Change

ix. There were no reporting changes during the reporting month.

Future Key Issues

x. The main works will be anticipated in the next three months are as follow:

- Pre-drill work at Zone 2;
- Demolition of Sludge Holding Tanks, Detritor 3C & Flow Meter Chamber;
- Demolition of carpark;
- Demolition of Final Sedimentation Tanks (FST) no. 7&8;
- Demolition of Primary Sedimentation Tanks (PST) no. 5&6;
- Demolition of waste storage area;
- Sheet pile installation at Aeration Tank, Inlet Works (IW) & Primary Sedimentation Tanks (PST);
- Driven H-pile at Inlet Works (IW) & Primary Sedimentation Tanks (PST);
- Zone 2 & 3 diversion work;
- Enviro. GI at Waste Storage Area & Air Floatation Thickener;
- Removal of Sonneratia; and
- Installation of instrumentation at Zone 2 & 3.

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1. INTRODUCTION

1.1 Background

- 1.1.1 The existing Yuen Long Sewage Treatment Works (YLSTW) is a secondary sewage treatment works, located at Yuen Long Industrial Estate serves Yuen Long Town, Yuen Long Industrial Estate and Kam Tin areas with a design capacity of 70,000 m³ per day. Based on the latest planning data, the volume of sewage generation from the YLSTW catchment is estimated to increase to 150,000 m³ per day after 20 years. In addition, since YLSTW has been operating for over 30 years and most of its facilities are of out-dated design and reaching the end of their design life, the environmental facilities of the plant will also be upgraded and hence improving the adjacent environment through upgrading the YLSTW to Yuen Long Effluent Polishing Plant (YLEPP). The Location of Proposed Yuen Long Effluent Polishing Plant is given in **Figure 1**.
- 1.1.2 YLSTW will be reconstructed in two stages to increase its capacity to 150,000 m³ per day. The proposed works, as Stage 1 of the project, will firstly increase the treatment capacity to 100,000 m³ per day. In the course of Stage 1 construction, about half of the existing facilities of YLSTW would be demolished, while the other half would be kept in operation to maintain the sewage treatment service for Yuen Long area.
- 1.1.3 The Project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) for which Environmental Impact Assessment (EIA) report and Environmental Monitoring and Audit (EM&A) Manual was approved by EPD (Register No.: AEIAR-220/2019) on 25 April 2019. The Environmental Permit (EP) (EP No. EP-565/2019) was issued by EPD on 26 April 2019.
- 1.1.4 Fugro Technical Services Limited (FTS) has been appointed as the Environmental Team (ET) by Drainage Services Department (DSD) to undertake the Environmental Team services for the Project and implement the EM&A works under the Contract No. DC/2019/10 Yuen Long Effluent Polishing Plant -Main Works for Stage 1 (hereinafter referred as “the Contract”).
- 1.1.5 This is the 4th Monthly EM&A report to document the findings of site inspection activities and EM&A programme for this project from 1 July 2021 to 31 July 2021 (reporting period) and is submitted to fulfil Condition 3.4 of the EP and Section 12.4.1 of the EM&A Manual. According to Condition 4 of the EP, electronic reporting is provided on the internet website to facilitate public inspection of the report.

1.2 Project Organization

1.2.1 The Project Organization structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 – Contact Information of Key Personnel

Party	Position	Name	Telephone
Project Proponent (Drainage Services Department)	Engineer	Mr. Lam Yu Wang	2594 7473
Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. Simon Yeung	9075 7172
	Senior Resident Engineer	Mr. Patrick Leung	6124 8838
Independent Environmental Checker (Ramboll Hong Kong Limited)	Independent Environmental Checker (IEC)	Mr. F.N. Wong	3465 2805
Contractor (Paul Y. - CREC Joint Venture)	Environmental Officer	Ms. Iris Ho	5490 5271
Environmental Team (Fugro Technical Services Limited)	Environmental Team Leader (ETL)	Mr. David Hung	3565 4371

1.3 Construction Programme and Activities

1.3.1 The site layout plan of the project is shown in **Figure 1**.

1.3.2 The construction programme of this project is shown in **Appendix A**.

1.4 Works undertaken during the month

1.4.1 The main construction works carried out in the reporting period were as follow:

- Pre-drill work at Primary Sedimentation Tanks (PST) by 3 drill rigs;
- Site formation works at Primary Sedimentation Tanks (PST) no. 7 & 8;
- Breaking of Primary Sedimentation Tanks (PST) no. 8;
- Sheet pile installation works for Zone 2A diversion;
- Driven H-pile at Inlet Works (IW) stage 1, 2 and Primary Sedimentation Tanks by 3 rigs;
- Demolition of workshop and changing room by crusher and breaker;
- Demolition of carparks
- Trial pit for Zone 2B & 3 diversion;
- Removal of sludge from sludge holding tanks; and
- Overhaul work at Final Sedimentation Tanks (FST).

1.4.2 The environmental protection and mitigation measures corresponding to the main construction works implemented in the reporting period can be referred to **Appendix J**.

1.5 Status of Environmental Licences, Notification and Permits

- 1.5.1 A summary of the relevant permits, licenses and/or notifications on environmental protection for this project is presented in Table 1.2.

Table 1.2 – Environmental Licenses, Notification and Permits Summary

Permit/ Notification/ License	Reference No	Valid From	Valid Till
Environmental Permit	EP-565/2019	26-Apr-2019	NA
Notification of Works under APCO	461616	6-Nov-2020	NA
Construction Waste Disposal Billing Account	7038933	20-Nov-2020	NA
Registration as Chemical Waste Producer under WDO	WPN5213-528-P2796-03	4-Feb-2021	NA
Construction Noise Permit	GW-RN0218-21	18-Apr-2021	17-Oct-2021
Construction Noise Permit (Percussive Pilling)	PP-RN0034-21	02-Jul-2021	31-Aug-2021
Admission Ticket for Disposal of Special Waste at Landfill	Admission Ticket No. 16225	3-May-2021	2-Nov-2021
Admission Ticket for Disposal of Special Waste at Landfill	Admission Ticket No. 16331	25-Jun-2021	31-Oct-2021
Wastewater Discharge License	Ref. Number: 463531	Under Application	NA
Marine Dumping Permit	Ref. Number: 468851, 468850 and 468852	Under Application	NA

2. AIR QUALITY

2.1 Monitoring Requirement

- 2.1.1 In accordance with the EM&A Manual, 1-hour Total Suspended Particulates (TSP) levels should be measured at the designated air quality monitoring stations to ensure that any deteriorating air quality could be readily detected and timely action shall be undertaken to rectify such situation. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days when the highest dust impact occurs.

2.2 Monitoring Equipment

- 2.2.1 A portable direct reading dust meter was used to carry out the 1-hour TSP monitoring at the designated monitoring stations.
- 2.2.2 Wind data monitoring equipment is provided at the conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. The equipment installation location is agreed with the ER and the IEC.
- 2.2.3 The model of the air quality monitoring equipment used is summarized in **Table 2.1**.

Table 2.1 – Air Quality Monitoring Equipment

Item	Location	Brand	Model	Equipment	Serial No.
1	AM1	Sibata	Model LD-5R	Sibata Portable TSP Monitors	761105
2	AM2		Model LD-5R		882149
3		Global Water	GL500-7-2	Wind Station	2012000974

2.3 Monitoring Methodology for Direct Reading Dust Meter

- 2.3.1 Portable Laser Particle Photometer Monitors (Sibata Model LD-3B / 5R) complete with appropriate sampling inlets are employed for 1-hour TSP measurement.

Measuring Procedures

- Pulling up the air sampling inlet cover
- Changing the Mode 0 to BG
- Pressing Start/Stop switch
- Turning the knob to SENSI.ADJ and press it
- Pressing Start/Stop switch again
- Returning the knob to the position MEASURE slowly
- Pressing the timer set switch to set measuring time
- Removing the cap and start the measurement

Equipment Calibration

1-hour dust meter should be calibrated at 1 year intervals. The calibration certificates are presented in **Appendix D**.

2.4 Maintenance and Calibration for Direct Reading Dust Meter

- 2.4.1 ET shall submit sufficient information to the IEC to prove that the instrument is capable of achieving comparable results to the HVS. The instrument should also be calibrated regularly, and the 1-hour sampling shall be determined periodically by the HVS to check the validity and accuracy of the results measured by direct reading method. The calibration certificate for the direct reading dust meter is provided in **Appendix D**.

2.5 Monitoring Locations

- 2.5.1 In accordance with the EM&A Manual, two air quality monitoring locations, namely AM1, AM2 are covered under Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1".
- 2.5.2 The most updated locations are summarized in **Table 2.2** and the locations of the air monitoring stations shown in **Figure 2**.

Table 2.2 – Air Quality Monitoring Location

Monitoring Station	Location
AM1	Topfine Machinery (China) Co. Ltd
AM2	Squatter house at the west of Yuen Long STW

2.6 Monitoring Results

- 2.6.1 The schedule of air quality monitoring in reporting month is provided in **Appendix E**.
- 2.6.2 No Action / Limit Level exceedance was recorded for 1-hr TSP at AM1 and AM2.
- 2.6.3 No effect that arose from the other factors was noted during the current monitoring month.
- 2.6.4 The weather conditions during the monitoring are provided in **Appendix K**.
- 2.6.5 The monitoring data of 1-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 – Summary of Air Quality Monitoring Results

Monitoring Station	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
1-hour TSP				
AM1	43	32-56	291	500
AM2	42	27-54	296	

- 2.6.6 The Action and Limit Levels for air quality monitoring have been set and are presented in **Appendix C**.
- 2.6.7 The Event and Action Plan for air quality is given in **Appendix H**.
- 2.6.8 The wind data obtained from the on-site wind station during the reporting period is provided in **Appendix G**.

2.7 Comparison of 1-hr TSP Monitoring Results with EIA Predictions

2.7.1 The monitoring data of 1-hr TSP was compared with the EIA predictions as summarized in **Table 2.4**.

Table 2.4 – Comparison of 1-hr TSP data with EIA predictions

Monitoring Station	EIA ID	Predicted Maximum Hourly Average TSP Concentration ($\mu\text{g}/\text{m}^3$)	Maximum 1-hr TSP Monitoring Results in July ($\mu\text{g}/\text{m}^3$)
1-hour TSP			
AM1	ASR09	205-451	56
AM2	ASR11		54

Notes:

Predicted TSP Concentration extracted from Table 3.20 of EIA Report, AEIAR-220/2019

2.7.2 The 1-hr TSP monitoring results at AM1 and AM2 were below the Predicted Maximum Hourly Average TSP Concentration in the approved Environmental Impact Assessment (EIA) Report.

3. NOISE

3.1 Monitoring Requirement

- 3.1.1 In accordance with the EM&A Manual, Leq (30min) monitoring is conducted at least once a week when there are Project-related construction activities being undertaken within a radius of 300 m from the monitoring stations. The monitoring is conducted during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

- 3.2.1 As referred to the requirements of the Technical Memorandum (TM) issued under the NCO, the sound level meters in compliance with the International Electro technical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications should be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement is less than 1.0 dB (94 dB \pm 0.1 dB).
- 3.2.2 The model of the noise monitoring equipment used is summarized in **Table 3.1**.

Table 3.1 – Construction Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial No.
1	Casella	CEL-63X Series	Integrating Sound Level Meter	0873599
2	Casella	CEL-63X Series	Integrating Sound Level Meter	1488304
3	Casella	CEL-120/1	Calibrator	4358251
4	Casella	CEL-120/1	Calibrator	5230736
5	SENSOR	AR816	Anemometer	2136513

3.3 Monitoring Parameters and Frequency

- 3.3.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 3.2**.

Table 3.2 – Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency
L _{Aeq} (30 min) (L ₁₀ and L ₉₀ will be recorded for reference)	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week when construction activities are underway

3.4 Monitoring Methodology

3.4.1 Noise measurement should be conducted as the following procedures:

- The monitoring station will set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground. (In case façade measurement is not feasible on-site, a free field correction of +3dB(A) will be applied.)
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time will set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time: 30 minutes
- Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement will considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s. Calibration certificate of the anemometer is provided in **Appendix D**.

3.5 Maintenance and Calibration

3.5.1 Maintenance and calibration procedures should also be carried out, including:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory.
- Relevant calibration certificates are provided in **Appendix D**.

3.6 Monitoring Locations

- 3.6.1 In accordance with the EM&A Manual, three noise monitoring locations, namely CM1, CM2 and CM3 are covered under Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1".
- 3.6.2 The most updated locations are summarized in **Table 3.3** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 3.3 – Construction Noise Monitoring Location

Monitoring Station ID	Location	Measurements
CM1	Squatter house at the north of Yuen Long STW	Free Field
CM2	Squatter house at the west of Yuen Long STW	Free Field
CM3	Squatter house at the east of Yuen Long STW	Free Field

Note: Correction of +3 dB(A) shall be made to the free field measurements.

3.7 Monitoring Results

- 3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix E**.
- 3.7.2 No Action / Limit Level exceedance of location CM1, CM2 and CM3 was recorded for construction noise in the reporting month.
- 3.7.3 During the monitoring month, at CM2, road traffic from the squatter house at the west of Yuen Long STW was observed, at CM3, road traffic from the Nam Sang Wai Road was observed. No effect that arose from the other factors for CM1 was noted during the current monitoring month.
- 3.7.4 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix K**.
- 3.7.5 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix F**.

Table 3.4 – Summary of Construction Noise Monitoring Results

Time Period	Noise Monitoring Stations	L_{eq} (30min) dB(A) (Range)	Action Level	Limit Level dB(A)
0700-1900 hrs on normal weekdays	CM1	54-68	When one documented complaint is received	75
	CM2	62-64		75
	CM3	59-66		75

Remark:

CM1, CM2 and CM3: Free-field measurement (+3 dB(A) correction has been applied).

- 3.7.6 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.
- 3.7.7 The Event and Action Plan for noise is given in **Appendix H**.

3.8 Comparison of Noise Monitoring data with EIA Predictions

3.8.1 The noise monitoring data was compared with the EIA predictions as summarized in **Table 3.5**.

Table 3.5 – Comparison of Noise monitoring data with EIA predictions

Monitoring Station	EIA ID	Maximum Predicted Mitigated Construction Noise Level L_{eq} (30min) dB(A)	Maximum Construction Noise Level in July L_{eq} (30min) dB(A)
CM1	NSR1	72	68
CM2	NSR2	74	64
CM3	NSR3	75	66

Notes:

Predicted TSP Concentration extracted from Table 4.9 of EIA Report, AEIAR-220/2019

3.8.2 The construction noise monitoring results at CM1, CM2 and CM3 were below the Maximum Predicted mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-220/2019).

4. WATER QUALITY

4.1 Monitoring Requirement

- 4.1.1 In accordance with the EM&A Manual, impact monitoring is conducted for three days per week at mid-flood and mid-ebb with sampling and measurement at the designated monitoring stations.

4.2 Monitoring Equipment

- 4.2.1 Equipment used for in-situ measurement and water sampling during impact water quality monitoring is summarised in **Table 4.1**. The equipment is in compliance with the requirements set out in the EM&A Manual. All in-situ monitoring instruments were calibrated by a HOKLAS-accredited laboratory. Calibration of temperature, DO, salinity, pH and turbidity is conducted in three month interval. Calibration certificates for the water quality monitoring equipment are attached in **Appendix D**.

Table 4.1 – Water Quality Monitoring and Sampling Equipment

Parameter	Equipment	Model	Range	Equipment Accuracy	Serial No.
Temperature, Dissolved Oxygen, Salinity, pH, Turbidity	Water Quality Monitoring Device	Xylem EXO 3	Temp: -5 to 50°C DO: 0-50mg/L DO%: 0-500% Sal: 0 to 70ppt pH: 0 to 14 pH units Turb: 0-4000NTU	Temp: $\pm 0.2^{\circ}\text{C}$ DO: $\pm 0.1\text{mg/L}$ or 1% for 0-20mg/L; $\pm 5\%$ for 20-50mg/L Sal: $\pm 2\%$ of the reading or 0.2 ppt (whichever greater) pH: ± 0.2 units Turb: $\pm 3\%$ or 0.3NTU (FNU) (whichever greater)	19A105807
					19A105808
Current Velocity and Direction	Current Meter	Valeport Model 106	Speed: 0.03 to 5 m/s Direction: 0 to 360	Speed: $\pm 1.5\%$ of reading above 0.15m/s, ± 0.004 m/s below 0.15m/s Direction: $\pm 2.5^{\circ}$	67738
		River Surveyor M9	Water Depth: 0-80m	Water Depth: 1% Current speed: $\pm 0.25\%$ of measured velocity or $\pm 0.2\text{cm/s}$ Current direction: $\pm 2^{\circ}$ magnetic	5906
Water Sampling	Water Sampler	Acrylic Beta Water Bottle Kit, Horizontal, 3.2L / 4.2L	NA	NA	NA

Parameter	Equipment	Model	Range	Equipment Accuracy	Serial No.
Positioning	DGPS	Simrad MX521B Smart Antenna with Simrad MX610 CDU	NA	GPS: $\pm 1\text{m}$	NA
Water Depth	Echo Sounder	Garmin ECHO 101	Maximum depth: 457.2 m	0.1 m	NA

4.3 Equipment Calibration

- 4.3.1 All in-situ monitoring instruments shall be checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.
- 4.3.2 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring is uninterrupted even when some equipment is under maintenance or calibration etc.

4.4 Monitoring Parameters

The monitoring parameters and frequency for both in-situ measurement and laboratory analysis are summarised in **Table 4.2**.

Table 4.2 – Monitoring Parameters and Frequency

Parameters	Monitoring Frequency
<u>In-situ Measurement</u> Turbidity (in NTU), pH, DO (in mg/L and % of saturation), Temperature (in °C), Salinity (in ppt)	3 days per week, at mid-flood and mid-ebb tides (The interval between two sets of monitoring shall not be less than 36 hours.)
<u>Laboratory Analysis</u> Suspended Solids	

4.5 Monitoring Operation

- 4.5.1 The position of water monitoring station will be located by the Differential Global Positioning System (DGPS) or equivalent. The water depth of water monitoring station will be determined by the echo sounder affixed to the bottom of the monitoring vessel or a portable echo sounder depth detector.
- 4.5.2 Once the location and water depth are confirmed, water samples shall be collected at 3 depths (1m below the surface, mid-depth, and 1m above the seabed) of the water column at each location, except where water depth is less than 6m, the mid-depth will be omitted and if the water depth is less than 3m only the mid-depth station will be monitored. Duplicate marine samples will be collected in each sampling event. The water samples are decanted from the water sampler into the water sample bottles. The bottles are labelled, tightly sealed, placed into a cool-box and packed with ice ready for delivery to the laboratory.

- 4.5.3 Two consecutive measurements of water quality data, including pH, salinity, dissolved oxygen and turbidity will be recorded according to the monitoring locations. Separate deployment of the monitoring instruments and water samplers will be conducted for the consecutive measurements or samplings. The monitoring location / position, time, water depth, sampling depth, tidal stages, weather conditions, sea condition and any special phenomena or work underway nearby shall also be recorded. If the difference in value between the first and second measurement of DO or turbidity parameters is more than 25% of the value of the first reading, the reading shall be discarded and further readings should be taken.

4.6 Laboratory Measurement / Analysis

Background

- 4.6.1 Fugro Technical Services Limited (HOKLAS Reg: No.015) has been appointed to conduct the laboratory measurement or analysis of water sample in this project.

Quality Assurance / Quality Control

- 4.6.2 The laboratory incorporates a variety of QA/QC monitoring programme into their testing system. Where applicable or available, the quality of the analysis will be monitored by conducting the following QC analysis:

For each batch of 20 samples:

- A minimal of 1 laboratory method blank will be analyzed;
- A minimal of 1 sample duplicate will be analyzed;
- A minimal of 1 sample matrix spike will be analyzed.

4.7 Monitoring Locations

- 4.7.1 In accordance with the EM&A Manual, water quality monitoring should be carried out at 3 designated monitoring locations.
- 4.7.2 The coordinates of the monitoring location stated in the EM&A Manual is summarised in **Table 4.3** and the locations of the water quality monitoring stations shown in **Figure 4**.

Table 4.3 – Coordinates of Water Quality Monitoring Locations

Sampling Location		Easting	Northing
M1	Serve as the control station at upstream location of construction site (Flood Tide) / Serve as the impact station at downstream location of construction site (Ebb Tide)	821 086	836 656
M2	Serve as the impact station at downstream location of construction site (Flood Tide)/ Serve as the control station at upstream location of construction site (Ebb Tide)	820 996	836 246
M3	Serve as the impact station at downstream location of construction site (Flood Tide) / Serve as the control station at upstream location of construction site (Ebb Tide)	820 645	836 335

4.8 Monitoring Results

- 4.8.1 The schedule of water quality monitoring in reporting month is provided in **Appendix E**.
- 4.8.2 Impact water quality monitoring was conducted at all designated monitoring stations in the reporting month. Impact water quality monitoring results and graphical presentations are provided in **Appendix F**.
- 4.8.3 Typhoon Signal No. 3 was hoisted on 20 July 2021. Due to safety concerns, the water quality monitoring on 20 July 2021 has been cancelled.
- 4.8.4 The weather conditions during the monitoring are provided in **Appendix K**.
- 4.8.5 Number of exceedance recorded in the reporting month at each impact stations is summarized in **Table 4.4**.

Table 4.4 – Summary of Water Quality Exceedance

Sampling Location	Exceedance Level	DO		Turbidity		Suspended Solids		Total	
		Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb
M1	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	3	0	3
M2	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
M3	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
Total	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	3	3	3

- 4.8.6 During the reporting period, 3 Limit Level exceedances for Suspended Solids were recorded.
- 4.8.7 Based on the finding from the investigation on the recorded case of exceedances, the cause was found not related to the project. The exceedances may be caused by influences in the vicinity of the station or changes of the ambient conditions.
- 4.8.8 The details of Notification of Exceedance can be referred to **Appendix Q**.
- 4.8.9 The Event and Action Plan for water quality is given in **Appendix H**.

5. ECOLOGY MONITORING

5.1 Ardeid Night Roost Monitoring

5.1.1 Monitoring Requirement

With reference to the Pre-construction Ardeid Night Roost survey (January 2021) findings that identified two active ardeid night roosts within 100 m from the Project boundary (one approximately 40 m east of the Project boundary and the other one approximately 45 m northeast of the Project boundary), consequent monthly monitoring of these active ardeid night roosts was done in accordance to the **EM&A Manual Sections 7.3.10 and 7.3.11**; and **EIA Report Section 8.12.1.3**.

The survey was conducted with the following objectives:

- Check the status and location of any active ardeid night roosts within 100 m from the Project boundary with reference to **EM&A Manual Section 7.3.10**;
- Monitor the effectiveness of proposed mitigation measures and detect any unpredicted indirect ecological impacts arising from the proposed Project as specified in **EIA Report Section 8.12.1.3**; and
- Recommend remedial actions, where appropriate, based on the impact monitoring results (**EIA Report Section 8.12.1.3**) for the implementation of the contractor as only necessary.

5.1.2 Monitoring Methodology

5.1.2.1 Monitoring Area

With reference from **Section 7.3.10 of the approved EM&A Manual**, the monitoring was conducted in areas within 100 m from the Project boundary. The monitoring area and vantage points for direct observation of any active night roosts are shown in **Appendix O**.

5.1.2.2 Monitoring Activity

5.1.2.2.1 Active Ardeid Night Roost

Current Survey focused on the two active night roosts within the Survey Area that were previously confirmed during the pre-construction Survey. These roosts include one that was approximately 40 m east of the Project boundary and another one around 45 m northeast of the mentioned boundary (**Section 3 of the approved Pre-construction Survey Report of Ardeid Night Roost**). Primary data collection with the use of 7x and 10x binoculars; and field guides including the Avifauna of Hong Kong (Carey et al., 2001) and The Birds of Hong Kong and South China (Viney et al., 2005), was from about one hour before sunset time until one hour after sunset with reference to **Section 7.3.10 of the approved EM&A Manual**. Sunset time was according to Hong Kong Observatory (HKO). The survey was conducted on 09 July 2021.

Species composition, abundance and locations of night roosts were recorded. Species composition, abundance and location of pre-roosting aggregations (PRA) were also noted. PRAs are gatherings of avian individuals prior to flying into a night roost (Moore and Switzer, 1998). The time of return of the ardeids to the pre-roost and the final night roost were also recorded. Direct observations were made from vantage points adjacent the Project site with clear and unobstructed view of any active roosting location (s) within the Survey Area. However, aside from the established vantage points for the focused mangrove strips along Shan Pui River, observations were also conducted throughout the whole 100 m study site to cover other areas aside from the mangrove strips.

Observations such any changes in site condition or disturbances detected or observed at the monitoring locations, including both construction and non-construction related activities, during the monitoring activity was recorded with reference to **Section 7.3.10 of the approved EM&A Manual**. Additionally, other observations such as bird droppings on the ground which may possibly indicate presence of night roosts were noted in addition to noting of the roosting substrate (i.e. substrate species and approximate height). Any breeding activity usage of the roosting locations within the Survey Area was also noted.

5.1.2.2.2 Noise Monitoring

Monitoring Locations, Frequency, Time and Parameters

The noise monitoring locations were established at 22°28'4.25"N, 114°1'41.32"E; and 22°28'10.43"N, 114°1'42.17"E for NMS1 and NMS2 stations, respectively. Monitoring frequency was only once a month in concurrence with the construction phase monthly monitoring of the active night roosts for correlation. Monitoring time for both stations started around 18:50, the earliest final night roost period recorded during the survey, and lasted for 30 minutes. **Table 5.1** presents the monitoring parameters.

Table 5.1 – Noise Monitoring Parameters (For Active Ardeid Night Roost Survey)

Parameter	Frequency and Period
LAeq (30 min) (L10 and L90 will be recorded for reference)	Monthly in concurrence with the construction phase monthly monitoring of the active night roosts

The Action and Limit Levels for Active Ardeid Night Roost Survey have been set and are presented in **Appendix C**.

However, exceedances to the limit level were endeavoured to be prevented by the full implementation of mitigation measures (**Section 4.2 of the approved Pre-construction Survey Report of Ardeid Night Roost** and **Sections 5.2.1-5.2.2 of this Report**) during the construction phase.

Event and Action Plan

In instances of exceedance/s in the action and/or limit levels, the different measures as specified in **Table 3.3 Event and Action Plan for Construction Noise** of the approved EM&A

Manual and likewise presented in **Appendix H** of this report shall be implemented as responses.

5.1.3 Monitoring Results

5.1.3.1 Active Ardeid Night Roost

The monitoring activity was conducted on 09 July 2021 and started around 18:11 (one hour before sunset) on a low tide condition. During the pre-roost period (PRP), the period when avian individuals (ind.) gather first before flying into a night roost, two individuals of Chinese Pond Heron *Ardeola bacchus* were observed in pre-roost aggregate (PRA) around 18:31 on the exposed mudflat northeast (ANR2) of the Project boundary. Additionally, individuals of Eastern Cattle Egret *Bubulcus coromandus* (3 ind.) and Little Egret *Egretta garzetta* (4 ind.) were also noted to exhibit PRA around 18:50 at the exposed mudflat east side (ANR1) of the Project boundary (**Table 5.2**). For the final night roost at around 19:04, Chinese Pond Heron (3 ind.) and Little Egret (2 ind.) were observed at ANR1 while no night roost was observed at ANR2. No disturbances (construction related and/or otherwise) to the active night roost areas were observed during the period. Bird droppings were observed within the vicinity of the roosting area located east of the Project boundary.

Table 5.2 – Active Ardeid Night Roost Survey Findings

Date: 09 July 2021			Sunset Time: 19:11		
Tidal Condition: Low Tide					
Pre-roost Period			Final roost Period		
Time of Return:	Chinese Pond Heron <i>Ardeola bacchus</i> (18:31); Eastern Cattle Egret <i>Bubulcus coromandus</i> and Little Egret <i>Egretta garzetta</i> (18:50)		Time of Return:	Chinese Pond Heron <i>Ardeola bacchus</i> (19:04); Little Egret <i>Egretta garzetta</i> (19:07)	
Parameters	Location		Parameters	Location	
	ANR1	ANR2		ANR1	ANR2
Pre-roost Aggregation (Y/N):	Y	Y	Substrate Species:	<i>Sonneratia apetala</i> and <i>S. caseolaris</i>	<i>Sonneratia apetala</i> and <i>S. caseolaris</i>
Substrate Species:	<i>Sonneratia apetala</i> and <i>S. caseolaris</i>	<i>Sonneratia apetala</i> and <i>S. caseolaris</i>	Substrate Height (m):	Approx. 5 m.	Approx. 3-4 m.
Substrate Height (m):	Approx. 5 m.	Approx. 3-4 m.			
Ardeid Species Composition	Abundance (individuals)		Ardeid Species Composition	Abundance (individuals)	
	ANR1	ANR2		ANR1	ANR2
Chinese Pond Heron <i>Ardeola bacchus</i>		2	Chinese Pond Heron <i>Ardeola bacchus</i>	3	-
Eastern Cattle Egret <i>Bubulcus coromandus</i>	3		Little Egret <i>Egretta garzetta</i>	2	-
Little Egret <i>Egretta garzetta</i>	4				
Breeding Activity (Y/N):	ANR1	N			
	ANR2	N			

Notes:

Pre-roost Period: Period when avian individuals gather first before flying into a night roost

ANR1: Active ardeid night roost area east of the Project boundary

ANR2: Active ardeid night roost area northeast of the Project boundary

*: individuals aggregated on the exposed mudflat contiguous to their final mangrove roosting substrate

-: not recorded

5.1.3.2 Noise Monitoring

Noise monitoring activities were conducted on 09 July 2021 in concurrence with the construction phase monthly monitoring of the pre-identified active night roosts. Noise monitoring started at 19:04 and lasted for 30 minutes, until 19:34.

Current survey results showed noise levels (L_{Aeq} (30 min.)) at both monitoring stations to be well below the action and limit levels as presented in **Table 5.3**.

Table 5.3 – Noise Monitoring Results

Frequency and Period	Location	Start Time	L_{Aeq} (30 min.)	Action Level	Limit Level
Monthly in concurrence with the construction phase monthly monitoring of the active night roosts	NMS1	19:04	49.4	65.5 dB(A) ¹	72.2 dB(A) ²
	NMS2	19:04	48.8		

Notes:

NMS1= Noise monitoring station 1 located east of the Project boundary

NMS2= Noise monitoring station 2 located northeast of the Project boundary

1= Behavioural response of some kind more likely to occur (Wright et al. 2010)

2= Flight with abandonment of the site becomes the most likely outcome of the disturbance (Wright et al. 2010)

5.1.4 Detection of Any Unpredicted Indirect Ecological Impacts Arising from the Project

No unpredicted indirect ecological impacts that arose from the project was noted during the current monitoring period.

5.1.5 Summary

5.1.5.1 Status and Location of Any Active Ardeid Night Roost

One active ardeid night roost site (ANR1) was observed within the Survey Area during the July 2021 monitoring period. This roost was located at the mangrove strip in the east portion of the Project boundary. This was used by individuals of Chinese Pond Heron and Little Egret. The other night roost site (ANR2) was not used during the period.

5.1.5.2 Noise Monitoring Results

Both noise levels at each of the monitoring stations were below the action and limit levels.

5.2 Ecological Monitoring of Birds

5.2.1 Monitoring Requirement

With reference to **Section 7.3.6** of the **EM&A Manual**, monthly ecological monitoring of birds, focusing on avifauna species of conservation interest, and overwintering waterbirds utilising wetland habitats in Fung Lok Wai and Nam Sang Wai as well as along Shan Pui River and Kam Tin River within the monitoring area (500 m from the Project Boundary) in addition to monitoring on the utilization of wetland habitats by birds also within the same monitoring area as required by **Section 7.3.1** of the **EM&A Manual**.

5.2.2 Monitoring Methodology

5.2.2.1 Monitoring Area

The monitoring area include wetland habitats in Fung Lok Wai and Nam Sang Wai as well as along Shan Pui River and Kam Tin River within 500m from the Project boundary with reference to **Section 7.3.6** of the **EM&A Manual**. The location of point count sites and transect routes is shown in **Appendix P**.

5.2.2.2 Monitoring Activity

Avifauna survey on the different wetland habitats using the transect count and point count methods was conducted on 09 July 2021 (night time survey) which started around 19:11; and on 13 July 2021 (day time survey) around 07:30. The survey overlooking the mudflats and mangroves in the Shan Pui River was concurrently conducted on 13 July 2021 during the low tide (generally 1.5m or below) period which also started around 07:30. The methodology for the monitoring activity followed **Sections 8.3.3.6** and **8.3.3.7** of the **EIA Report (AEIAR-220/2019)** and as detailed below.

For the transect count and point count methods, the presence and relative abundance of avifauna species at various wetland habitats were recorded visually and aurally.

Avifauna species were detected either by direct sighting or by their call and identified to species level. Any notable behaviours such as feeding, roosting and breeding were also recorded. Bird species encountered outside the point count locations and walk transects were also recorded. A comprehensive list of species recorded from the Assessment Area was prepared, with wetland-dependence, conservation and/or protection status indicated. Ornithological nomenclature in this report follows Carey et al. (2001), Viney et al. (2005) and the most recent updated list from Hong Kong Bird Watching Society (HKBWS).

Noise levels were recorded with the methodology and equipment as mentioned in **Section 3.4 and Section 3.2**, respectively, of this EM&A report. The parameter as shown in was recorded at each of the point count locations.

Table 5.4 - Noise Monitoring Parameters

Parameter	Frequency and Location
LAeq (30 min) (L10 and L90 will be recorded for reference)	Monthly in concurrence with the monthly ecological bird monitoring at the different point count locations

In addition to recording of noise levels, any changes in site condition or disturbances detected or observed at the monitoring locations, including both construction and non-construction related activities with reference to **Section 7.3.7** of the **EM&A Manual** were also noted.

5.2.2.3 Data Analysis

For the bird communities, the monitoring results were compared to pre-construction baseline condition during the dry and wet seasons as summarized in the Baseline Bird Survey Report

with reference to **Section 7.3.8** of the **EM&A Manual**. However, to further account the seasonality, monitoring results of the current month was compared to the results of the corresponding month of the baseline data.

The data for point count method and transect walk method were presented separately to account for the difference in the survey effort of the two methods. For each method, abundance and species composition of the avifauna communities during the monitoring month were summarized.

To check the presence of variation in bird abundance between baseline and impact monitoring, t-test was applied ($\alpha = 0.05$). Moreover, to check the presence of variation in bird species diversity, the two-sided Hutcheson t-test was also used. The two-sided Hutcheson t-test was developed as a method to compare the diversity of two community samples using the Shannon diversity index (Hutcheson 1970). Shannon diversity index will be computed using the formula,

$$H' = - \sum_{i=1}^s p_i \ln p_i$$

where, H' = Shannon Diversity Index; P_i = proportion of the population of species; i ; number of species in sample; \ln = natural logarithm. Shannon diversity index is used as it accounts the proportion (relative abundance) of each species; thus, it gives a better description of diversity than a plain number of species (species richness).

The Action and Limit Levels for ecological monitoring of birds have been set and are presented in **Appendix C**.

Wetland habitat utilization during the construction phase monitoring shall only be compared seasonally, hence the comparison shall only be done after all the data (dry season and wet season) were collected with reference to **Appendix 8.5** of the approved **EIA Report**.

5.2.3 Monitoring Results

Results of the avifauna survey on the different habitats within the monitoring area using the transect count and point count methods as conducted last 09 July 2021 (night time survey) which started around 19:11; and on 13 July 2021 (day time survey) are presented in **Sections 5.2.3.1** and **5.2.3.2** while results for the surveys overlooking the mudflats and mangroves in the Shan Pui River, with monitoring activities conducted on 13 July 2021 during the low tide (generally 1.5m or below) period which also started around 07:30 had results presented in **Section 5.2.3.3**.

5.2.3.1 Abundance

5.2.3.1.1 All Avifauna Species

A total 190 avifauna ind. was recorded in the monitoring area during the July 2021 monitoring period, of which 142 ind. were recorded from the point count method and 48 ind. from the transect walk method. Relative to the July 2017 baseline data, no significant decrease (p -value = 0.94; $\alpha = 0.05$) in total abundance was observed. In June 2017, a total of 201 ind. was

recorded, of which 165 ind. were from point count method and 36 ind. from transect walk method. These findings are summarized in **Table 5.5**.

Table 5.5 – Abundance of all Avifauna Species

Abundance of all Avifauna Species				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	0	23	+
P2	FLW2	4	8	+
P3	FLW3	0	5	+
P4	FLW4	10	5	-
P5	FLW5	21	11	-
P6	FLW6	6	8	+
P7	FLW7	10	12	+
P9	SP/NSW3	42	25	-
P10	SP/NSW2	23	8	-
P11	NSW1	43	18	-
P12	SP/NSW1	6	19	+
Total		165	142	-
Mean		15	13	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	35	26	-
Nam Sang Wai	NSW	1	15	+
YLIE-CW	YLIE-CW	0	7	+
Total		36	48	+
Mean		12	16	+

5.2.3.12 Avifauna Species of Conservation Importance

Of the 190 avifauna individuals recorded in the monitoring area during the July 2021 monitoring period, 76 ind. were of conservation importance. A total of 52 ind. was recorded from point count method and 24 ind. were from transect walk method. With reference to July 2017 data (80 ind. from point count method and 8 ind. from transect walk method), a current decrease in abundance from the point count method was noted. However, this decrease was not significant ($p\text{-value} = 0.95$; $\alpha = 0.05$). These findings are summarized in **Table 5.6**.

Table 5.6 – Abundance of Species of Conservation Importance

Abundance of Species of Conservation Importance				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	0	16	+
P2	FLW2	2	1	-
P3	FLW3	0	0	=
P4	FLW4	2	2	=
P5	FLW5	3	1	-
P6	FLW6	3	7	+
P7	FLW7	4	6	+
P9	SP/NSW3	35	7	-
P10	SP/NSW2	15	1	-
P11	NSW1	10	1	-
P12	SP/NSW1	6	10	+
Total		80	52	-
Mean		7	5	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	8	15	+
Nam Sang Wai	NSW	0	3	+
YLIE-CW	YLIE-CW	0	6	+
Total		8	24	+
Mean		3	8	+

5.2.3.2 Diversity (Species Richness¹ and Shannon Diversity Index²)

5.2.3.2.1 All Avifauna Species

A total of 30 avifauna species (species richness) was recorded during the July 2021 monitoring period, of which 27 species were identified using point count method and also 14 species using transect walk method. Relative to the July 2017 baseline data, a decrease in the total species richness from 31 species in July 2017 to 30 species in the current monitoring period was noted. However, in terms of Shannon diversity index (H'), increases from baseline reference values were observed in point count method (from $H'=2.73$ in July 2017 to $H'=2.75$ in July 2021) and transect walk method (from $H'=0.93$ in July 2017 to $H'=2.13$ in July 2021). The increase in H' noted for the transect walk method was significant (t -value = 4.08; t -crit = 1.99; p -value =

¹ actual number of species

² use to account the proportion (in terms of relative abundance) of each species

0.0001; $\alpha = 0.05$). Details of these findings are summarized in **Table 5.7** and are further discussed in **Appendix F.1.2**.

Table 5.7 – Shannon Diversity Index Value of all Avifauna Species

Shannon Diversity Index Value of all Avifauna Species				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	**	1.03	+
P2	FLW2	0.35	1.91	+
P3	FLW3	**	1.05	+
P4	FLW4	1.56	0.67	-
P5	FLW5	1.82	1.67	-
P6	FLW6	1.79	0.97	-
P7	FLW7	1.7	1.42	-
P9	SP/NSW3	1.5	1.86	+
P10	SP/NSW2	1.9	1.21	-
P11	NSW1	1.98	2.11	+
P12	SP/NSW1	0.87	1.94	+
Overall H'		2.73	2.75	+
Species Richness		26	27	+
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	2.54	1.46	-
Nam Sang Wai	NSW	0	1.86	+
YLIE-CW	YLIE-CW	**	1.28	+
Overall H'		0.93	2.13	+
Species Richness		18	14	-

Note:

** no species recorded

5.2.3.2.2 Avifauna Species of Conservation Importance

Of the 30 species of avifauna identified during the July 2021 monitoring period, five species of conservation importance were identified from the point count method and four species from the transect walk method. Relative to the baseline values in July 2017, the number of species with conservation importance recorded from the point count method remained the same while an increase by one species from the transect walk method was noted. In terms of H', a significant decline (t-value = 3.46; t-crit = 1.99; p-value = 0.0009; $\alpha = 0.05$) was observed from the point count method, from H' = 1.36 in July 2017 to H' = 0.85 of the current period. However, the significant decline was observed to be due to other factors and not project-related. i.e. dominance of Chinese Pond Heron. On the other hand, no significant decline

(t-value = 0.60; t-crit = 2.09; p-value = 0.5543; α = 0.05) in transect walk method was noted during this period. Details of these findings are summarized in **Table 5.8** and are further discussed in **Appendix F.1.2**.

Table 5.8 – Shannon Diversity Index Value of Species with Conservation Importance

Shannon Diversity Index Value of Species with Conservation Importance				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	**	0	+
P2	FLW2	0	0	=
P3	FLW3	**	**	=
P4	FLW4	0	0	=
P5	FLW5	0.64	0	-
P6	FLW6	1.1	0.68	-
P7	FLW7	1.04	0.45	-
P9	SP/NSW3	1	0.36	-
P10	SP/NSW2	0.99	0	-
P11	NSW1	1.37	0	-
P12	SP/NSW1	0.87	0.80	-
Overall H'		1.36	0.85	-
Species Richness		5	5	=
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	0.90	0.24	-
Nam Sang Wai	NSW	**	0	+
YLIE-CW	YLIE-CW	**	1.01	+
Overall H'		0.90	0.71	-
Species Richness		3	4	+

Note:

** no species recorded

5.2.3.3 Wetland Habitat Utilization

Avifauna communities were observed during the current monitoring period in the different wetland habitats, i.e. modified watercourse, ponds and mangrove.

With reference to **Section 7.3.1** of the **EM&A Manual**, the utilization of the wetland habitats by birds within the monitoring area was recorded and monitored.

5.2.3.3.1 All Avifauna Species

During the current monitoring period, all of the wetland habitats were less utilized by avifauna communities as evident with the very low (VL) abundances in these areas. With regards to species richness, generally very low (VL) number of species was noted in the different wetland habitats except in the Upper course of Shan Pui River along YLIE, Active Ponds North to Nullah 2 in Fung Lok Wai; and Active and Inactive Ponds in Nam Sang Wai (L-M, low to moderate) (Table 5.9).

Table 5.9 – Wetland habitat utilization of all avifauna species

Wetland Habitats	Area Description	Abundance ¹	Species Richness ²
Modified Watercourse	Confluence of Shan Pui River and Kam Tin River	VL	VL-L
	Shan Pui River adjacent to Project site	VL	VL
	Upper course of Shan Pui River along YLIE	VL	L-M
Ponds	Active Ponds adjacent to Project site in Fung Lok Wai	VL	L
	Active Ponds North to Nullah 2 in Fung Lok Wai	VL	L-M
	Inactive Ponds in Fung Lok Wai	VL	VL
	Active and Inactive Ponds in Nam Sang Wai	VL	L-M
Mangrove	Mangrove within Assessment Area	VL	VL
Reedbed	Reedbed in Nam Sang Wai	VL	VL

Notes:

1. Abundance of avifauna species of conservation importance amongst wetland habitats within the assessment area: VL = Very Low (~<50 individuals); L = Low (~100 individuals); M = Moderate (~300 individuals); H = High (~500 individuals), VH = Very High (>700 individuals)
2. Species richness (total number of species) amongst wetland habitats within the assessment area: VL = Very Low (≤5 species); L = Low (~10 species); M = Moderate (~15 species); H = High (~20 species), VH = Very High (>25 species)

Source: approved EIA Report (AEIAR-220/2019)

5.2.3.3.2 Avifauna Species of Conservation Importance

All of the wetland habitats were noted with very low abundances (VL) of species with conservation importance during the current monitoring period which then indicated subsequent very low utilization of these areas. In terms of species richness, all of the wetland habitats were also utilized by very low number (VL) of species (Table 5.10).

Table 5.10 – Wetland habitat utilization of avifauna species of conservation importance

Wetland Habitats	Area Description	Abundance ¹	Species Richness ²
Modified Watercourse	Confluence of Shan Pui River and Kam Tin River	VL	VL

	Shan Pui River adjacent to Project site	VL	VL
	Upper course of Shan Pui River along YLIE	VL	VL
Ponds	Active Ponds adjacent to Project site in Fung Lok Wai	VL	VL
	Active Ponds North to Nullah 2 in Fung Lok Wai	VL	VL
	Inactive Ponds in Fung Lok Wai	VL	VL
	Active and Inactive Ponds in Nam Sang Wai	VL	VL
Mangrove	Mangrove within Assessment Area	VL	VL
Reedbed	Reedbed in Nam Sang Wai	VL	VL

Notes:

1. Abundance of avifauna species of conservation importance amongst wetland habitats within the assessment area: VL = Very Low (~<50 individuals); L = Low (~100 individuals); M = Moderate (~300 individuals); H = High (~500 individuals), VH = Very High (>700 individuals)
2. Species richness (total number of species) of conservation important species amongst wetland habitats within the assessment area:
VL = Very Low (≤5 species); L = Low (~10 species); M = Moderate (~15 species); H = High (~20 species), VH = Very High (>25 species)

Source: approved EIA Report (AEIAR-220/2019)

5.2.3.3 Overwintering Avifauna Species

Several species with winter visitor and passage migrant (5 spp.) status; and winter visitor with resident (2 spp.) status were observed during this monitoring period. However, as the current monitoring period covered the summer season, it was likely that these individuals were just either passage migrants or residents. Hence, no overwintering species that utilized the different wetland habitats was recorded during the period.

5.2.3.4 Noise Levels

Noise levels L_{Aeq} (30 min) recorded on 09 July 2021 (night time) and 13 July 2021 (daytime) from each of the point count locations during the ecological bird monitoring are shown in Table 5.11.

Table 5.11 – Noise Monitoring Results (For Ecological Monitoring of Birds)

Frequency and Period	Location	Night time (09/07/2021)		Daytime (13/07/2021)	
		Start Time	L_{Aeq} (30 min) dB(A)	Start Time	L_{Aeq} (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1	22:01	51.4	09:25	46.1
	FLW2	22:15	54.9	09:40	52.6
	FLW3	22:15	57.4	09:40	46.1
	FLW4	22:45	54.9	11:05	47.5
	FLW5	22:40	50.0	11:20	49.3
	FLW6	22:30	49.3	10:38	47.9
	FLW7	22:30	50.8	10:38	47.7
	SP/NSW3	21:25	47.1	07:30	66.5 ¹
	SP/NSW2	21:25	55.4	07:45	57.5
	NSW1	21:15	54.9	08:15	55
	SP/NSW1	21:05	62.0	08:00	67.4 ¹

Frequency and Period	Location	Night time (09/07/2021)		Daytime (13/07/2021)	
		Start Time	L _{Aeq} (30 min) dB(A)	Start Time	L _{Aeq} (30 min) dB(A)
Note:					
1. Close to the roadsides with low to moderate traffic. Passing vehicles, barking dogs, and noisy insects were noted during the monitoring period.					

6. LANDSCAPE AND VISUAL

6.1 Audit Requirements

- 6.1.1 According to the EM&A Manual, site audits should be undertaken every week during the construction phase to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives.

6.2 Results and Observations

- 6.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, four weekly landscape and visual site audits were carried out on 7, 15, 21 and 28 July 2021.
- 6.2.2 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

7. SITE INSPECTION AND AUDIT

7.1 Site Inspection

- 7.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.
- 7.1.2 In the reporting month, four site inspections were carried out on 7, 15, 21 and 28 July 2021.
- 7.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

7.2 Advice on the Solid and Liquid Waste Management Status

- 7.2.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 7.2.2 The waste generated by the construction and disposal ground is presented in **Table 7.1**.

Table 7.1 – Waste Generated by the Construction and Disposal Ground

Types of Waste	Disposal Ground
Inert C&D Waste (Excluding slurry and bentonite)	Tuen Mun Area 38
Inert C&D Waste (For slurry and bentonite)	Tseung Kwan O Area 137
Non-inert C&D Materials	North East New Territories Landfill (NENT)

- 7.2.3 The monthly summary of waste flow table is detailed in **Appendix I**.
- 7.2.4 If off-site disposal is required, the excavated marine mud from the land-based works shall be disposed of at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee or other locations as agreed by the Director. The Contractor shall ensure no spilling and overflowing of materials during loading / unloading / transportation is allowed.
- 7.2.5 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

8.1 Environmental Exceedance

- 8.1.1 No Action / Limit Level exceedance was recorded for 1-hr TSP level at AM1 and AM2 in the reporting month.
- 8.1.2 No Action / Limit Level exceedance was recorded for construction noise at CM1, CM2 and CM3 in the reporting month.
- 8.1.3 No Action and Limit Level exceedance were recorded for water quality at M2 and M3 in the reporting month.
- 8.1.4 Three Limit Level exceedance were recorded for water quality in the reporting month. The exceedance were recorded at M1 on 3, 6 and 27 July 2021. It was found that these exceedances were not project-related.
- 8.1.5 No Action / Limit exceedance was recorded for noise levels at stations (NMS1 and NMS2) in close proximity to the active ardeid night roosts.
- 8.1.6 One exceedance in Action Level was recorded for the ecological monitoring of birds on 09 and 13 July 2021 which included significant decline in species diversity of species of conservation importance only. However, the exceedance was not project-related.

8.2 Complaints, Notification of Summons and Prosecution

- 8.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.
- 8.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L**.

9. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

9.1 Implementation Status

The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Report, the EP and EM&A Manual. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix J**.

10. FUTURE KEY ISSUES

10.1 Construction Programme for the Next Three Month

- Pre-drill work at Zone 2;
- Demolition of Sludge Holding Tanks, Detritor 3C & Flow Meter Chamber;
- Demolition of carpark;
- Demolition of Final Sedimentation Tanks (FST) no. 7&8;
- Demolition of Primary Sedimentation Tanks (PST) no. 5&6;
- Demolition of waste storage area;
- Sheet pile installation at Aeration Tank, Inlet Works (IW) & Primary Sedimentation Tanks (PST);
- Driven H-pile at Inlet Works (IW) & Primary Sedimentation Tanks (PST);
- Zone 2 & 3 diversion work;
- Enviro. GI at Waste Storage Area & Air Floatation Thickener;
- Removal of Sonneratia; and
- Installation of instrumentation at Zone 2 & 3.

10.2 Key Issues for the Coming Month

- 10.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, waste management, ecology, land contamination and landscape and visual impact issues.

10.3 Monitoring Schedules for the Next Three Month

- 10.3.1 The tentative schedule for environmental monitoring in the coming three month is provided in **Appendix E**.

11. CONCLUSION AND RECOMMENDATION

11.1 Conclusions

- 11.1.1 1-hour TSP impact monitoring were carried out in the reporting month. No Action / Limit Level exceedance at AM1 and AM2 was recorded during the period.
- 11.1.2 Construction noise monitoring were carried out in the reporting month. No Action / Limit Level exceedance at CM1, CM2 and CM3 was recorded during the period.
- 11.1.3 No Action and Limit Level exceedance were recorded for water quality at M2 and M3 in the reporting month.
- 11.1.4 Three Limit Level exceedance were recorded for water quality in the reporting month. The exceedance were recorded at M1 on 3, 6 and 27 July 2021. It was found that these exceedances were not project-related.
- 11.1.5 Ardeid night roost monitoring was carried out in the reporting month. Of the two confirmed ardeid night roosts during the pre-construction survey, only ANR 1 was observed to be active. No Action / Limit Level exceedance at NMS1 and NMS2 was recorded during the period.
- 11.1.6 Ecological bird monitoring was carried out in the reporting month. One exceedance in Action Level was recorded during this period's monitoring of birds including significant decline in species diversity of species of conservation importance only for the point count method. However, the exceedance was not project-related.
- 11.1.7 Four environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 11.1.8 Four landscape and visual site audits were carried out in the reporting month.
- 11.1.9 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

11.2 Comment and Recommendations

- 11.2.1 The recommended environmental mitigation measures, as proposed in the EIA report and EM&A Manual shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.
- 11.2.2 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

Air Quality Impact

- Stockpiling of excavated soil should be covered with impermeable sheeting and contained properly to prevent contaminated runoff and dust emission at main store area where SI works of SCAP is conducting.
- The contractor is reminded to cover the stockpiling of excavated soil with impermeable sheeting to prevent ingress of water during rainstorms and/ or prevent dust emission near the demolished PST.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- The contractor is reminded to provide mitigation measure to prevent silty runoff getting into the storm drain near main store area.
- Mitigation measure should be provided to prevent direct discharge of runoff at Zone 1 area near detritor.
- The contractor is reminded to de-silt the gullies near the main entrance to the piling area.

Chemical and Waste Management

- Stockpiling of excavated soil should be covered with impermeable sheeting and contained properly to prevent contaminated runoff and dust emission at main store area where SI works of SCAP is conducting.
- The contractor is reminded to cover the stockpiling of excavated soil with impermeable sheeting to prevent ingress of water during rainstorms and/ or prevent dust emission near the demolished PST.

Land Contamination

- No specific observation was identified in the reporting month.

Ecological Impact

- The contractor is reminded to maintain and reinstate the bird curtain at the northern site boundary.

Landscape and Visual Impact

- The contractor is reminded to closely monitor the three condition of Tree T028 for open cut too close to the tree near temporary administration building.

Hazard to Life

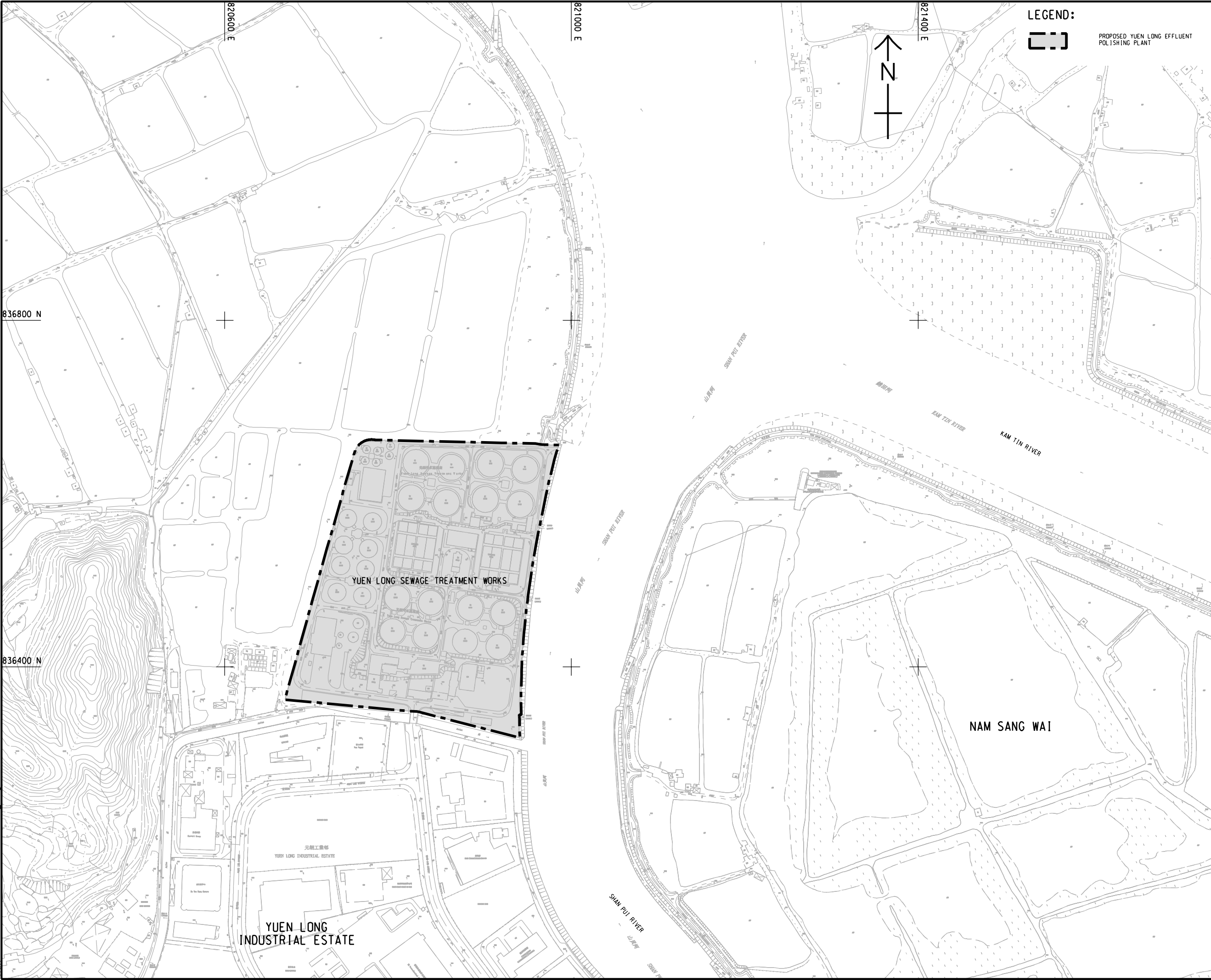
- No specific observation was identified in the reporting month.

Permit/ Licenses

- No specific observation was identified in the reporting month.

Figure 1

Location of Proposed Yuen Long Effluent
Polishing Plant



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**YUEN LONG EFFLUENT
POLISHING PLANT -
INVESTIGATION, DESIGN
AND CONSTRUCTION**

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業主

渠務署
Drainage Services Department

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STATUS
階段

SCALE
比例

A1 1: 2000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60505476

CONTRACT NO.
合約編號

CE 3/2015 (DS)

SHEET TITLE
圖紙名稱

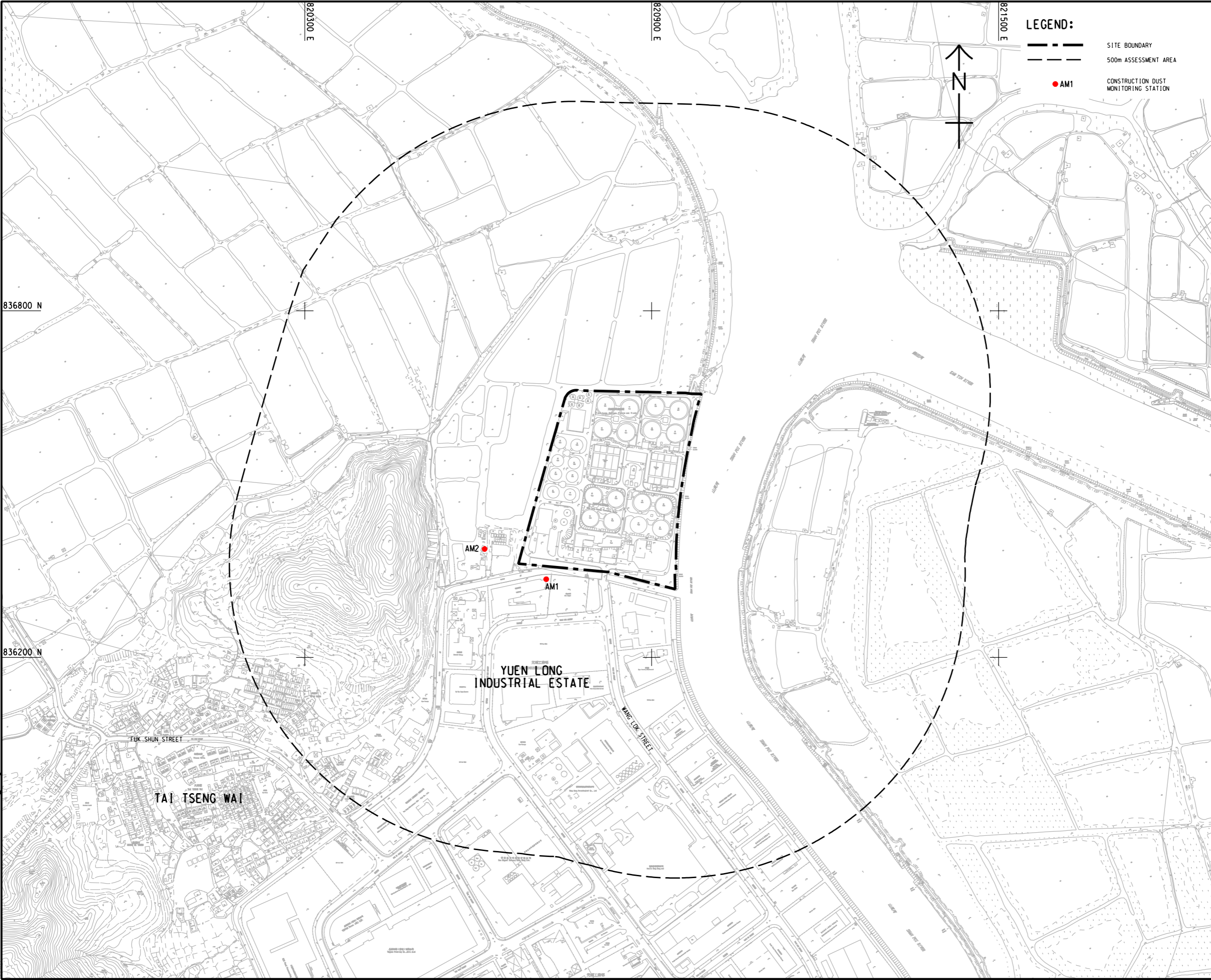
LOCATION OF PROPOSED
YUEN LONG EFFLUENT
POLISHING PLANT

SHEET NUMBER
圖紙編號

Figure 2

Air Quality Monitoring Locations

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Pld File by: GaoYU 11/29
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LEGEND:

- SITE BOUNDARY
- 500m ASSESSMENT AREA
- AM1 CONSTRUCTION DUST MONITORING STATION



PROJECT

YUEN LONG EFFLUENT POLISHING PLANT - INVESTIGATION, DESIGN AND CONSTRUCTION

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01	10/10/2015	Issue for comment	AM

STATUS

SCALE

A1 1:3000

DIMENSION UNIT

METRES

KEY PLAN

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60505476

CONTRACT NO.

CE 3/2015 (DS)

SHEET TITLE

LOCATION OF CONSTRUCTION DUST MONITOING STATIONS

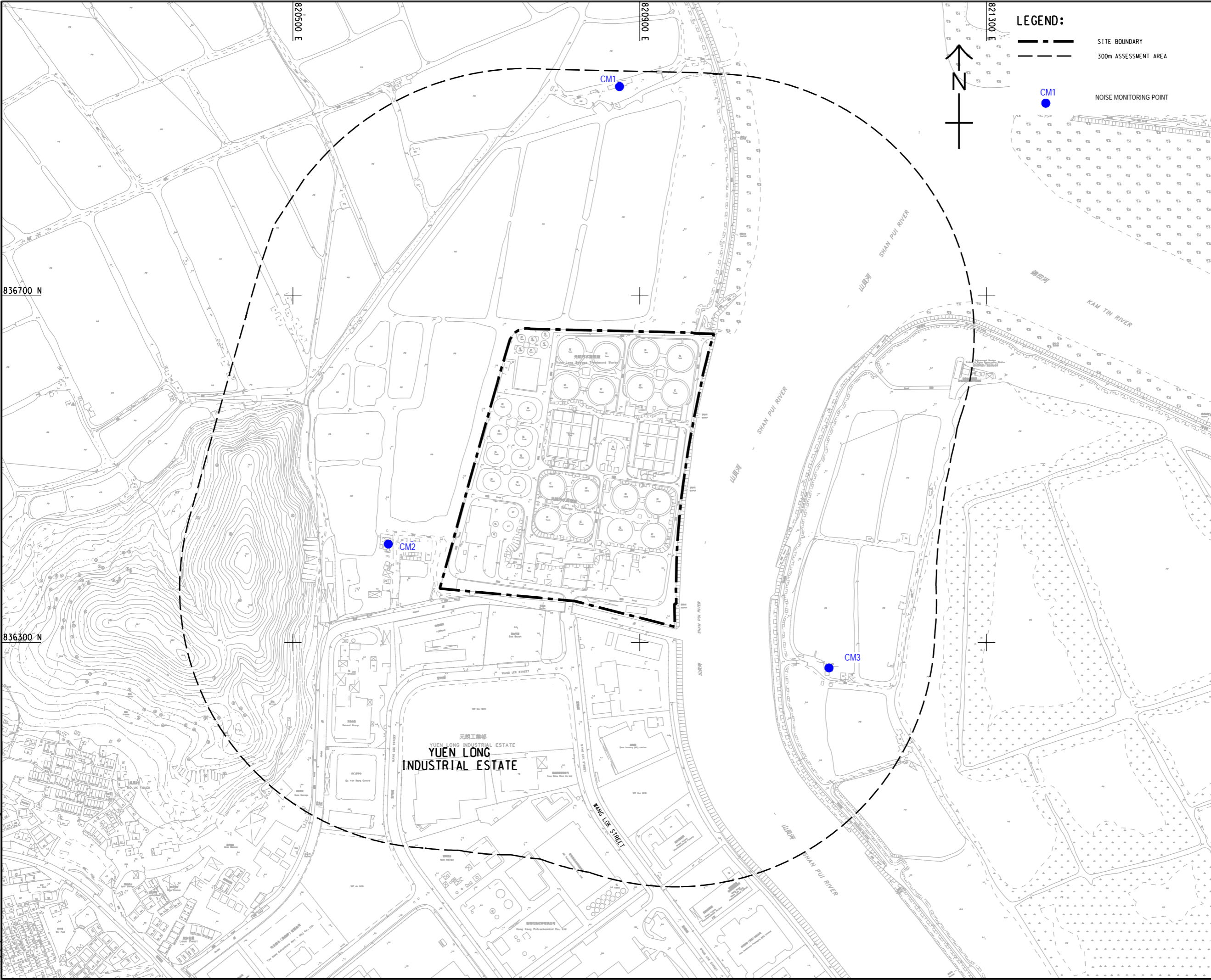
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Figure 3

Noise Monitoring Locations

ISO A1 594mm x 841mm
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Project Management Initials:
Pld File by: ZENGFX 2018/02/28
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**YUEN LONG EFFLUENT
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SCALE
比例

A1 1 : 2000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

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CONTRACT NO.
合約編號

CE 3/2015 (DS)

SHEET TITLE
圖紙名稱

LOCATIONS OF NOISE
MONITORING POINTS

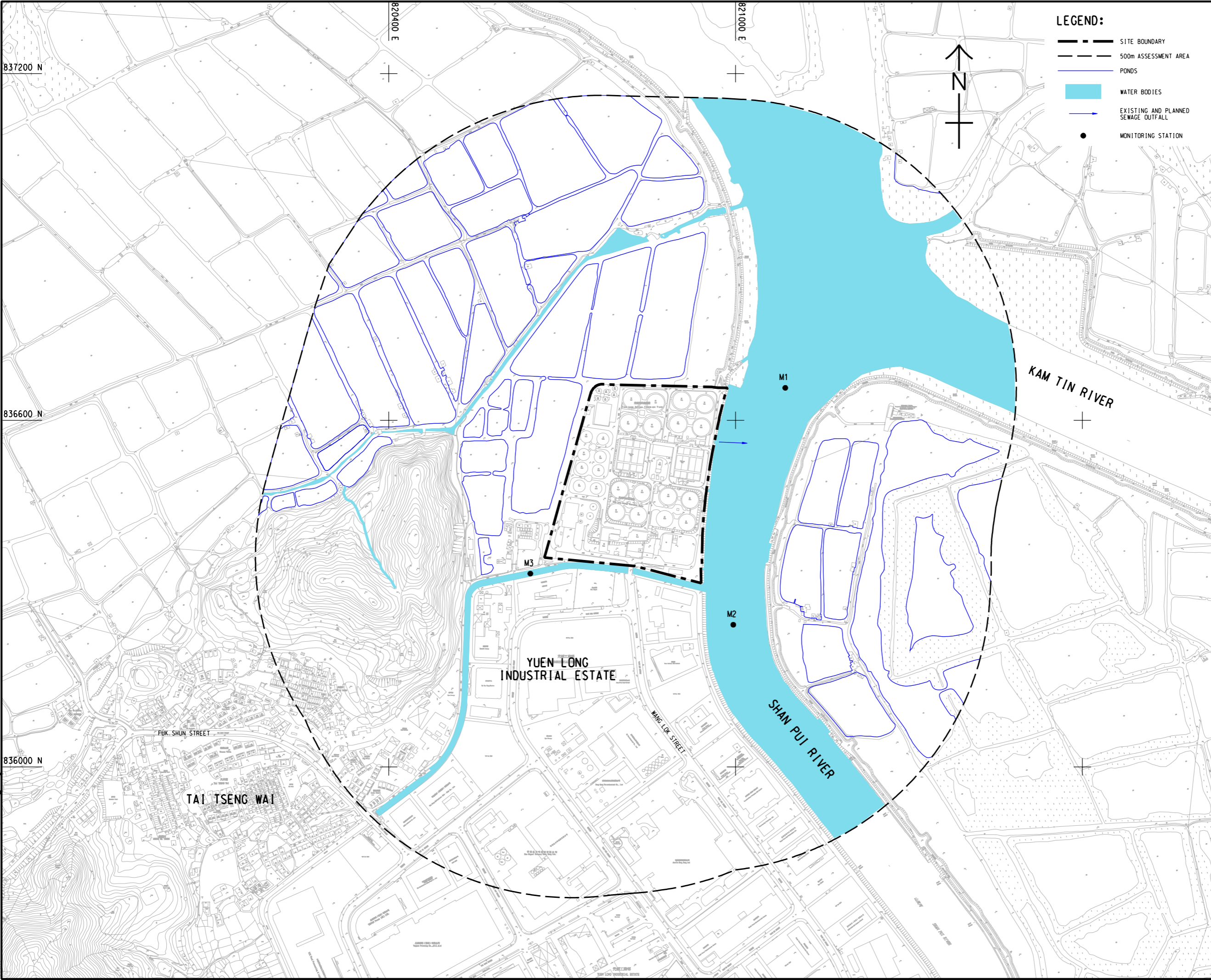
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圖紙編號

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Figure 4

Water Quality Monitoring Locations

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Project Management Initials:
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LEGEND:

- SITE BOUNDARY
- - - 500m ASSESSMENT AREA
- PONDS
- WATER BODIES
- EXISTING AND PLANNED SEWAGE OUTFALL
- MONITORING STATION

AECOM

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YUEN LONG EFFLUENT POLISHING PLANT - INVESTIGATION, DESIGN AND CONSTRUCTION

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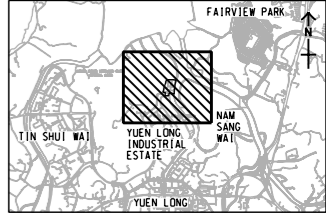
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A3 1: 6000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN A3 1: 180000



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項目編號

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CE 3/2015 (DS)

SHEET TITLE
圖紙名稱

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

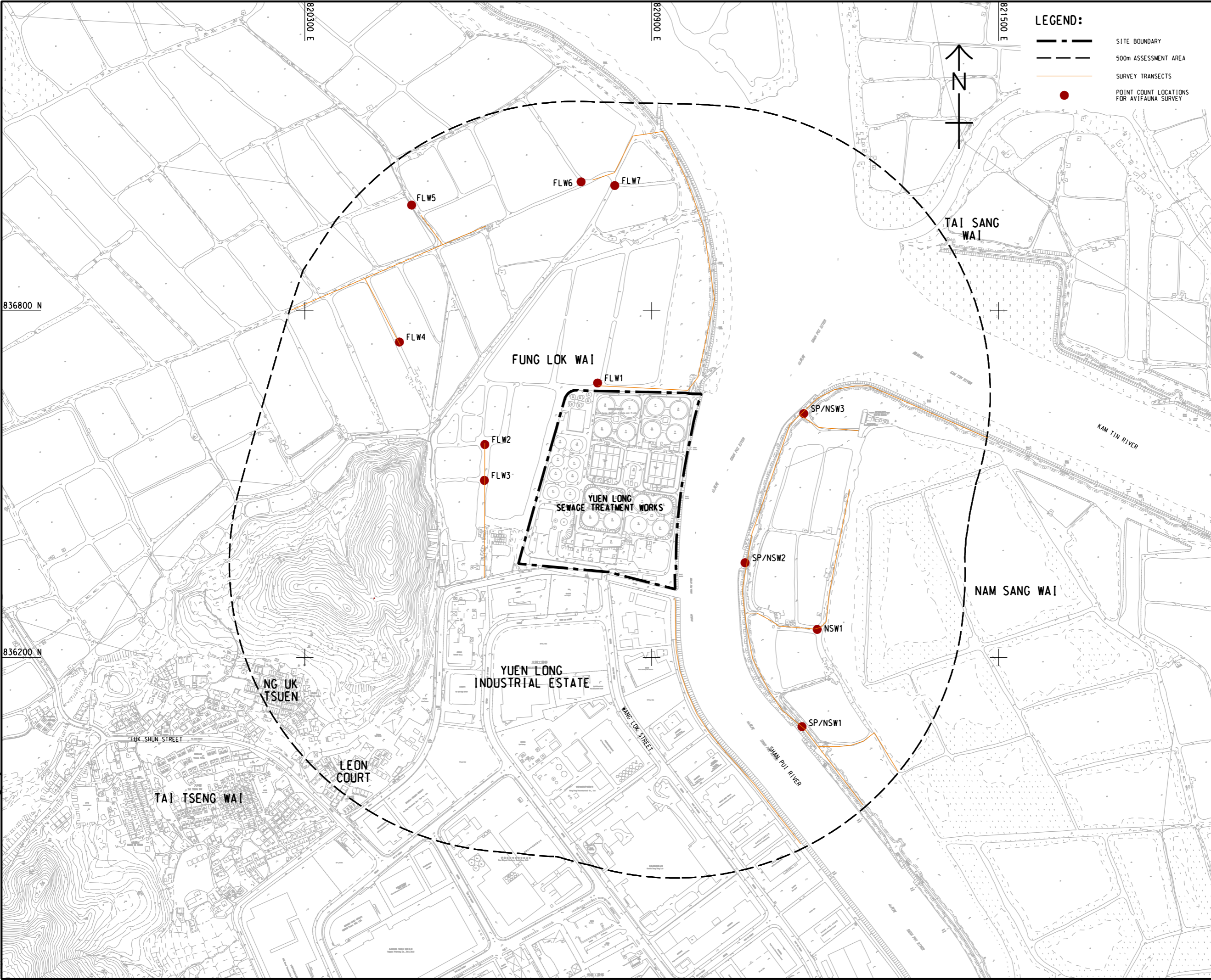
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Figure 5

Ecology Monitoring Locations

ISO A1 594mm x 841mm
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Designer:
Project Management Initials:
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836200 N
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STATUS
階段

SCALE
比例
A1 1:3000

DIMENSION UNIT
尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號
60505476


CONTRACT NO.
合約編號
CE 3/2015 (DS)



SHEET TITLE
圖紙名稱
ECOLOGICAL MONITORING
LOCATIONS

SHEET NUMBER
圖紙編號

Appendix A

Construction Programme

 <p>保華-中國中鐵聯營體 PAUL Y.-CREC JOINT VENTURE</p>	<p>Remaining Level of Effort</p> <p>DWP Re.3</p> <p>Actual Work</p> <p>Remaining Work</p> <p>Critical Remaining Work</p>	<p>Contract DC/2019/10 - YLEPP - Main Works for Stage 1</p> <p>Detailed Works Programme</p>	<p>Project ID : DWP.DPr4_210730</p> <p>Layout : DC201910 DWP rev.4</p> <p>Page 3 of 24</p>	Detailed Works Programme			
				Date	Revision	Checked	Approved
				31-Jul-21	Rev. 4		
				30-Jun-21	Rev. 3		
				31-May-21	Rev. 2		



保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

Remaining Level of Effort

DWP Re.3

Actual Work

Remaining Work

Critical Remaining Work






Contract DC/2019/10 - YLEPP - Main Works for Stage 1

Detailed Works Programme




Project ID :
DWP.DPr4_210730
Layout : DC201910 DWP rev.4
Page 7 of 24



Detailed Works Programme			
Date	Revision	Checked	Approved
31-Jul-21	Rev. 4		
30-Jun-21	Rev. 3		
31-May-21	Rev. 2		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	2022																														2023								2024								2025								2026								2027								2028																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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 <p>保華-中國中鐵聯營體 PAUL Y.-CREC JOINT VENTURE</p>	<p>  Remaining Level of Effort  DWP Re.3  Actual Work Remaining Work  Critical Remaining Work </p>	<h2 style="text-align: center;">Contract DC/2019/10 - YLEPP - Main Works for Stage 1</h2> <h3 style="text-align: center;">Detailed Works Programme</h3>	<p>Project ID : DWP.DPr4_210730</p> <p>Layout : DC201910 DWP rev.4</p> <p>Page 8 of 24</p>	Detailed Works Programme			
				Date	Revision	Checked	Approved
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保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

Remaining Level of Effort

DWP Re.3

Actual Work

Remaining Work

Critical Remaining Work


Contract

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Remaining Level of Effort

DWP Re.3

Actual Work

Remaining Work

Critical Remaining Work

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DWP Re.3

Actual Work

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Activity ID	Activity Name		Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Gantt Chart																																																																																									
									Q3 9	Q4 10	Q1 11	Q2 12	Q3 13	Q4 14	Q1 15	Q2 16	Q3 17	Q4 18	Q1 19	Q2 20	Q3 21	Q4 22	Q1 23	Q2 24	Q3 25	Q4 26	Q1 27	Q2 28	Q3 29	Q4 30	Q1 31	Q2 32	Q3 33	Q4 34	Q1 35	Q2 36	Q3 37	Q4 38	Q1 39	Q2 40	Q3 41	Q4 42	Q1 43	Q2 44	Q3 45	Q4 46	Q1 47	Q2 48	Q3 49	Q4 50	Q1 51	Q2 52	Q3 53	Q4 54	Q1 55	Q2 56	Q3 57	Q4 58	Q1 59	Q2 60	Q3 61	Q4 62	Q1 63	Q2 64	Q3 65	Q4 66	Q1 67	Q2 68	Q3 69	Q4 70	Q1 71	Q2 72	Q3 73	Q4 74	Q1 75	Q2 76	Q3 77	Q4 78	Q1 79	Q2 80	Q3 81	Q4 82	Q1 83	Q2 84	Q3 85	Q4 86	Q1 87	Q2 88	Q3 89	Q4 90								
	Z3TD1-4100	E&M Installation of Primary Sludge Pump for pipework & cabling	24	16-Oct-21	12-Nov-21	10-Feb-22	09-Mar-22	91																																																																																										
	Z3TD1-4110	T&C (Functional test for Pumping System)	11	13-Nov-21	25-Nov-21	10-Mar-22	22-Mar-22	91																																																																																										
	Gas Holder 2 (GH2)		96	03-Aug-21	25-Nov-21	31-Aug-21	23-Dec-21	24																																																																																										
	ATALZ3S1-1200	CGS - Method Statement Submission and Approval	71	03-Aug-21	27-Oct-21	31-Aug-21	24-Nov-21	24																																																																																										
	ATALZ3S1-1210	Examination Works for BH No.2 clw T&C	25	28-Oct-21	25-Nov-21	25-Nov-21	23-Dec-21	24																																																																																										
	Gas Holder 1 (GH1)		206	13-Nov-21	30-Jul-22	17-Mar-22	24-Jun-23	263																																																																																										
	ATALZ3S2-1000	Submission & Approval of Method Statement	60	13-Nov-21*	25-Jan-22	17-Mar-22	01-Jun-22	97																																																																																										
	ATALZ3S2-1010	Procurement of parts	72	26-Jan-22	30-Apr-22	02-Jun-22	26-Aug-22	97																																																																																										
	ATALZ3S2-1020	Overhaul works	20	03-May-22	26-May-22	27-Aug-22	20-Sep-22	97																																																																																										
	ATALZ3S3-1000	Overhaul works	39	27-May-22	13-Jul-22	20-Apr-23	06-Jun-23	263																																																																																										
	ATALZ3S3-1050	Re-commissioning	15	14-Jul-22	30-Jul-22	07-Jun-23	24-Jun-23	263																																																																																										
	Submissions		76	17-Jun-21 A	13-Sep-21	02-Aug-21	29-Nov-21	65																																																																																										
	Design Submission		15	17-Jun-21 A	05-Jul-21 A	02-Aug-21	29-Nov-21																																																																																											
	TDZ3S1-1140	Pipework Sizing Calculation for Zone 3 Temporary Diversion	15	17-Jun-21 A	05-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1150	Design of Temporary Water Heater House	15	17-Jun-21 A	05-Jul-21 A	21-Sep-21	21-Sep-21																																																																																											
	TDZ3S1-1180	Design of 400m3 for Sludge Holding Tank	15	17-Jun-21 A	05-Jul-21 A	29-Nov-21	29-Nov-21																																																																																											
	TDZ3S1-1190	Design of 400m3 for Sludge Thickening Tank	15	17-Jun-21 A	05-Jul-21 A	29-Nov-21	29-Nov-21																																																																																											
	Material Submission		19	06-Jul-21 A	27-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1200	Temp. Sludge Pipes, Fittings, Support and all Accessories	19	06-Jul-21 A	27-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1210	Temp. Water Pipes, Fittings, Support and all Accessories	19	06-Jul-21 A	27-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1220	Temp. Biogas Pipes, Fittings, Support and all Accessories	19	06-Jul-21 A	27-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	Method Statement Submissions		15	17-Jul-21 A	03-Aug-21	27-Aug-21	13-Sep-21	35																																																																																										
	TDZ3S1-1260	Installation works for Temporary Diversion Pipework	15	17-Jul-21 A	03-Aug-21	27-Aug-21	28-Aug-21	22																																																																																										
	TDZ3S1-1270	Construction of Temporary Water Heater House	15	17-Jul-21 A	03-Aug-21	27-Aug-21	28-Aug-21	22																																																																																										
	TDZ3S1-1280	Relocation of pipework including Biogas Pipe, Sludge Pipe, Heat Water Pipe	15	17-Jul-21 A	03-Aug-21	11-Sep-21	13-Sep-21	35																																																																																										
	Procurement		76	17-Jun-21 A	13-Sep-21	02-Aug-21	13-Sep-21	0																																																																																										
	TDZ3S1-1290	Advise of material availabilities and lead time for material	6	17-Jun-21 A	23-Jun-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1300	Review of material with DSD ST1/AECOM	6	24-Jun-21 A	30-Jun-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1310	Confirm material procurement	6	01-Jul-21 A	07-Jul-21 A	02-Aug-21	02-Aug-21																																																																																											
	TDZ3S1-1230	Temp. Sludge Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities)	50	17-Jul-21 A	13-Sep-21	02-Aug-21	13-Sep-21	0																																																																																										
	TDZ3S1-1240	Temp. Water Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities)	50	17-Jul-21 A	13-Sep-21	02-Aug-21	13-Sep-21	0																																																																																										
	TDZ3S1-1250	Temp. Biogas Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities)	50	17-Jul-21 A	13-Sep-21	02-Aug-21	13-Sep-21	0																																																																																										
	Overhaul Works At Existing SHT Footprint		202	09-Nov-20 A	21-Jul-21 A	27-Aug-21	09-Nov-27																																																																																											
	Z3S1a.7-40	Completion Overhaul SHT No. 3 and No. 4	0		21-Jul-21 A		09-Nov-27																																																																																											
	Overhaul at SHT		202	09-Nov-20 A	21-Jul-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2000	Method Statement / PMAC Submission and Approval for SHTs	67	09-Nov-20 A	28-Jan-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2010	Removal of Sludge at SHT 1	41	29-Jan-21 A	24-Mar-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2020	Removal of Sludge at SHT 2	36	09-Mar-21 A	23-Apr-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2030	Switch Duty to SHT 1 & 2 and Isolation of SHT 3 & 4	2	24-Apr-21 A	26-Apr-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2040	Removal of Sludge at SHT 3	38	27-Apr-21 A	11-Jun-21 A	27-Aug-21	27-Aug-21																																																																																											
	ATALZ3S1A-2050	Removal of Sludge at SHT 4	49	24-May-21 A	21-Jul-21 A	27-Aug-21	27-Aug-21																																																																																											
	Overhaul Works At Existing SDT Footprint		263	09-Nov-20 A	02-Oct-21	02-Aug-21	02-Oct-21	0																																																																																										
	Z3S1a.7-30	Completion Overhaul SDT No. 3 and No. 4	0		02-Oct-21*		02-Oct-21	0																																																																																										
	SDT No. 1 and 2		105	09-Nov-20 A	20-Mar-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1000	Method Statement / PMAC Submission and Approval for SDTs	40	09-Nov-20 A	24-Dec-20 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1010	Overhaul of Bell Valves, Air Relief Valves, Sludge Feed Valves for SDT No. 1 & 2	16	28-Dec-20 A	15-Jan-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1020	Water Filling and Purging of SDT 1 & 2	17	16-Jan-21 A	04-Feb-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1060	Recommissioning of SDT No. 1 & 2	14	05-Feb-21 A	27-Feb-21 A	02-Aug-21	02-Aug-21																																																																																											
	Z3S1A-2040	Temporary Sludge Pipework Connection to the Methane Compressor House at Existing SDT	18	01-Mar-21 A	20-Mar-21 A	02-Aug-21	02-Aug-21																																																																																											
	SDT No. 3 and 4		176	01-Mar-21 A	02-Oct-21	02-Aug-21	02-Oct-21	0																																																																																										
	ATALZ3S1-1070	Isolation of No. 3 & 4 and Conduct Water Filling and Purging	19	01-Mar-21 A	22-Mar-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1080	Removal of Tanks Cover and Set Up of Ventilation Fan for SDT No. 3 & 4	5	23-Mar-21 A	27-Mar-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1090	Modify Sludge Feed Pipe and Drain Sludge to Level Below the Side Access Manhole	32	29-Mar-21 A	10-May-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1100	Conline Space Assessment	4	11-May-21 A	14-May-21 A	02-Aug-21	02-Aug-21																																																																																											
	ATALZ3S1-1110	Manual Removal of Remaining Bottom Sediments for SDT 3 & 4 at Stage 1	96	15-May-21 A	07-Sep-21	02-Aug-21	07-Sep-21	0																																																																																										
	ATALZ3S1-1120	Tools Removal and Final Inspection	4	08-Sep-21	11-Sep-21	08-Sep-21	11-Sep-21	0																																																																																										
	ATALZ3S1-1130	Water Filling of SDT No. 3 & 4 with Purging for Recommissioning	16	13-Sep-21	02-Oct-21	13-Sep-21	02-Oct-21	0																																																																																										
	At Existing STB		155	17-Jun-21 A	18-Dec-21	30-Aug-21	17-May-22	113																																																																																										
	Stage 1: Trial Pits and Exposed Existing Pipeworks (STB)		41	17-Jun-21 A	04-Aug-21	30-Aug-21	11-Nov-21	82																																																																																										
	TDZ3S1-1010	Method Statement for Temporary Consolidation Tank and Polymer Dosing System	27	17-Jun-21 A	19-Jul-21 A	30-Aug-21	30-Aug-21																																																																																											
	TDZ3S1-1120	Trial Pits at Existing Consolidation Tanks - for pump pit depth and P.S. and S.A.S. Buffer Tank	14	20-Jul-21 A	04-Aug-21	09-Nov-21	11-Nov-21	82																																																																																										
	Stage 1: Laying of Diversion Pipeworks (STB)		143	02-Jul-21 A	18-Dec-21	30-Aug-21	17-May-22	113																																																																																										
	Z3S1A-2000	Method Statement for Waste Storage Area (40)	27	02-Jul-21 A	02-Aug-21	30-Aug-21	30-Aug-21	24																																																																																										
	TDZ3S1-1100	Laying of Diversion Pipework - Sludge Pipe Diversion	30	14-Sep-21	21-Oct-21	14-Sep-21	21-Oct-21	0																																																																																										
	Z3S1A-2010	Demolition of Waste Storage Area (40)	50	22-Oct-21	18-Dec-21	14-Mar-22	17-May-22	113																																																																																										
	At Existing SHT		120	30-Jul-21 A	20-Dec-21	02-Oct-21	13-Jan-22	18																																																																																										
	Stage 1: Laying of Diversion Pipeworks (SHT)-1		60	30-Jul-21 A	09-Oct-21	03-Dec-21	13-Jan-22	78																																																																																										
	TDZ3S1-1160	Trial Pits at Sludge Dewatering House - for pipe crossing	14	30-Jul-21 A	14-Aug-21	03-Dec-21	16-Dec-21	103																																																																																										
	TDZ3S1-1170	Laying of Diversion Pipework - Heating Water Return Pipe, Gas Pipe, Underground Pipework	21	14-Sep-21*	09-Oct-21	17-Dec-21	13-Jan-22	78																																																																																										
	Stage 1: Decommissioning of Existing UU Corridor		66	02-Oct-21	20-Dec-21	02-Oct-21	20-Dec-21	0																																																																																										
	Z3S2-3070	Completion Overhaul SDT No. 3 and No. 4	0		02-Oct-21		02-Oct-21	0																																																																																										
	Z3S1A-2020	Decommission Underground Utilities Corridor for Isolation of SHT 3 & 4	21	04-Oct-21	28-Oct-21	04-Oct-21	28-Oct-21	0																																																																																										
	Z3S1a.7-20	Switch Duty to SDT No. 1 and No. 2 (9) for SHT Demolition	7	29-Oct-21	05-Nov-21	29-Oct-21	05-Nov-21	0																																																																																										
	Z3S1A-2030	Demolition of SHT 3 & 4 (10) (method of construction and method to be reviewed)	38	06-Nov-21	20-Dec-21	06-Nov-21	20-Dec-21	0																																																																																										
	Stage 1A		181	17-Jun-21 A	13-Jan-22	13-Aug-21	27-Jan-22	12																																																																																										
	Z3S1A-3010	Completion of Stage 1A	0		13-Jan-22*		13-Jan-22	0																																																																																										
	Stage 1A: At Existing STB - Sludge Diversion		102	06-Jul-21 A	04-Nov-21	12-Nov-21	27-Jan-22	69																																																																																										
	Z3S1a.5-10	Temporary work design for RC works	15	06-Jul-21 A	22-Jul-21 A	29-Nov-21	29-Nov-21																																																																																											
	Z3S1a.5-20	Construction of Temporary Consolidation Tank and Polymer Dosing System	45	23-Jul-21 A	13-Sep-21	29-Nov-21	13-Jan-22	99																																																																																										
	TDZ3S1-1070	Construction of Temporary Consolidation Tank and Polymer Dosing System	53	20-Aug-21	23-Oct-21	12-Nov-21	15-Jan-22	69																																																																																										
	TDZ3S1-1330	Construct Temporary Gravity Holding Tank (400m3)	45	08-Sep-21	02-Nov-21	17-Nov-21	11-Jan-22	57																																																																																										
	TDZ3S1-1110	Sludge Divert to Consolidation Tank C3 & C4 as Buffer Tank	12	22-Oct-21	04-Nov-21	14-Jan-22	27-Jan-22	69																																																																																										
	TDZ3S1-1080	Systems Relocation of C1 & C2 and Sludge Thickening House	7	25-Oct-21	01-Nov-21	17-Jan-22	24-Jan-22	69																																																																																										
	Stage 1A: At Existing SHT - Temporary Sludge Holding Tank		129	17-Jun-21 A	13-Nov-21	13-Aug-21	13-Nov-21	0																																																																																										

Paul Y



保華-中國中鐵聯營體

PAUL Y.-CREC JOINT VENTURE

Remaining Level of Effort

DWP Re.3

Actual Work

Remaining Work

Critical Remaining Work

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Remaining Level of Effort

DWP Re.3

Actual Work

Remaining Work

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Appendix B

Project Organization Chart

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Appendix C

Action and Limit Level

Action / Limit Levels for Air Quality

Parameters	Action Level	Limit Level
1-hour TSP Level in $\mu\text{g}/\text{m}^3$	¹ For baseline level $\leq 384 \mu\text{g}/\text{m}^3$, Action level = $(\text{baseline level} * 1.3 + \text{Limit level})/2$; For baseline level $> 384 \mu\text{g}/\text{m}^3$, Action level = Limit level	500 $\mu\text{g}/\text{m}^3$

Notes:

1. The Action Level for 1-hour TSP Level:

a) AMS 2 = $(63 * 1.3 + 500) / 2 = 291 \mu\text{g}/\text{m}^3$;

b) AMS 3C = $(70 * 1.3 + 500) / 2 = 296 \mu\text{g}/\text{m}^3$.

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700 - 1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) *

Notes:

- If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
- Correction of +3 dB(A) shall be made to the free field measurements.

Action and Limit Levels for Water Quality

Parameters	Action Levels	Limit Levels
<i>Construction Phase Water Quality Monitoring</i>		
DO in mg/L (Surface, Middle & Bottom) ²	<u>Surface & Middle</u> 5%-ile of baseline data for surface and middle layer. <u>Bottom</u> 5%-ile of baseline data for bottom layer.	<u>Surface & Middle</u> 4 mg/L or 1%-ile of baseline data for surface and middle layer. <u>Bottom</u> 2 mg/L or 1%-ile of baseline data for bottom layer.
SS in mg/L (depth-averaged ¹) ³	95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day	99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day
Turbidity in NTU (depth-averaged ¹) ³	95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day	99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day

Notes:

- "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths;
- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits;
- For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Action and Limit Levels for Ecology

Active Ardeid Night Roost Survey

As there are no specific guidelines on noise thresholds for roosting ardeids, the Action and Limit levels specified in below table were based on study conducted on exploring behavioural responses of shorebirds to impulsive noise (Wright et al. 2010).

Time Period	Action Level	Limit Level
after 17:30 during dry season after 18:00 during wet season	65.5 dB(A) ¹	72.2 dB(A) ²

Notes:

1. Behavioural response of some kind more likely to occur
2. Flight with abandonment of the site becomes the most likely outcome of the disturbance

Ecological Monitoring of Birds

Method	Parameters	Action Level ³	Limit Level ³
Transect	Abundance of all avifauna species (including but not only limited to overwintering waterbirds) in the community	Significant decline ^{1,2} in any of these parameters during the current monitoring month relative to the corresponding month during the baseline survey.	Significant decline in any of these parameters for three consecutive months.
	Species diversity of all avifauna species (including but not only limited to overwintering waterbirds) in the community		
	Abundance of species with conservation importance only		
	Species diversity of species with conservation importance only		
Point Count	Abundance of all avifauna species (including but not only limited to overwintering waterbirds) in the community		
	Species diversity of all avifauna species (including but not only limited to overwintering waterbirds) in the community		
	Abundance of species with conservation importance only		
	Species diversity of species with conservation importance only		

Notes:

1. Significant decline in abundance will be determined using two-tailed t-test, $\alpha = 0.05$.
2. Significant decline in species diversity will be determined using the Hutcheson t-test, two tailed.
3. Response will be triggered if any of the above level is reached for each parameter.

Appendix D

Calibration Certificate of Monitoring Equipment

Air Quality Monitoring Equipment

Report no. : 940891CA202730(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description : Laser dust monitor
Manufacturer : SIBATA
Model No. : LD-5R
Serial No. : 761105
Specification Limit : NA
Next Calibration Date : 22-Nov-2021

Laboratory Information

Description : 1. Balance 2. TSP high volume air sampler
Equipment ID. / Serial no. : 1. C-065-9 2. 4350
Date of Calibration : 23-Nov-2020 Ambient Temperature : 25 ± 10 °C
Calibration Location : General Chemical Laboratory of FTS and Ma Wan A1 Site Boundary
Method Used : By direct comparison the weight of dust particle trapped in a filter paper using high volume sampler (TSP method) for a certain period, with the reading of the UUT. They should be placed at the same location and powered on and off at the same time.

Calibration Results :

Reference concentration (mg/m ³)	Total count for 1 hour	CPM (Count per minute)
0.0915	3647	60.78
0.0469	3027	50.45
0.1172	3861	64.35

Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The interpolation equation : Concentration (mg/m³) = K x [UUT reading (CPM)], where K = 0.001456
3. Correlation coefficient (r) : 0.9928

Checked by : Canny Date : 15-12-2020 Certified by : K.T. Leung Date : 15-12-2020

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report no. : 940891CA202730(6)

Page 1 of 1

CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description : Laser dust monitor
Manufacturer : SIBATA
Model No. : LD-5R
Serial No. : 882149
Specification Limit : NA
Next Calibration Date : 22-Nov-2021

Laboratory Information

Description : 1. Balance 2. TSP high volume air sampler
Equipment ID. / Serial no. : 1. C-065-9 2. 4350
Date of Calibration : 23-Nov-2020 Ambient Temperature : 25 ± 10 °C
Calibration Location : General Chemical Laboratory of FTS and Ma Wan A1 Site Boundary
Method Used : By direct comparison the weight of dust particle trapped in a filter paper using high volume sampler (TSP method) for a certain period, with the reading of the UUT. They should be placed at the same location and powered on and off at the same time.

Calibration Results :

Reference concentration (mg/m ³)	Total count for 1 hour	CPM (Count per minute)
0.0915	3526	58.77
0.0469	2720	45.33
0.1172	3776	62.93

Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The interpolation equation : Concentration (mg/m³) = K x [UUT reading (CPM)], where K = 0.001530
3. Correlation coefficient (r) : 0.9901

Checked by : Canny Date : 15-12-2020 Certified by : KT Leung Date : 15-12-2020
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**** End of Report ****

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : MaWTF, Ma Wan				Date of Calibration: 23-Oct-20			
Location ID: A1 Site Boundary				Next Calibration Date: 22-Jan-21			
				Technician: Felix			
CONDITIONS							
Sea Level Pressure (hPa):		1011.40		Corrected Pressure (mm Hg):		759	
Temperature (°C):		24		Temperature (K):		297	
CALIBRATION ORIFICE							
Make:		Tisch		Qstd Slope:		2.11508	
Model:		TE-5025A		Qstd Intercept:		-0.02962	
Calibration Date:		11/9/2020		Expiry Date:		11/9/2021	
CALIBRATIONS							
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m ³ /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	5.40	-6.00	11.400	1.613	61.00	61.10	Slope = 32.5454 Intercept = 8.0074 Corr. coeff.: 0.9991
13	4.30	-4.70	9.000	1.435	54.00	54.09	
10	3.30	-3.70	7.000	1.267	49.00	49.08	
7	2.00	-2.50	4.500	1.019	41.00	41.07	
5	1.10	-1.60	2.700	0.792	34.00	34.05	
Calculations: $Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$ $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$ <p> Qstd = standard flow rate IC = corrected chart response I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pa = actual pressure during calibration (mm Hg) Tstd = 298 deg K Pstd = 760 mm Hg </p> <p>For subsequent calculation of sampler flow:</p> $1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$ <p> m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure </p>							

FLOW RATE CHART

Standard Flow Rate (m ³ /min)	Actual chart response (IC)
0.792	34.05
1.019	41.07
1.267	49.08
1.435	54.09
1.613	61.10

**CALIBRATION REPORT OF WIND METER**

Project: Contract No. SPW 07/2020		Date of Calibration: 28-Mar-2021
Location: Yuen Long Sewage Treatment Works		Next Calibration Date: 27-Sep-2021
Brand: Global Water	Serial No: 2012000974	
Model: GL500-7-2		
		Technician: Sam Fong

Anemometer

Brand: Benetech
Model: GM816
Equipment ID: 08

Procedures:

- Wind Still Test:** The wind speed sensor was held by hand until stabilized.
- Wind Speed Test:** The wind meter was calibrated in-situ and compared with the Anemometer.
- Wind Direction Test:** The wind meter was calibrated in-situ and compared with a marine compass from four directions.

Wind Still Test:**Wind Speed (m/s)**

0.00

Wind Speed Test:

Global Water (m/s)	Anemometer (m/s)
1.2	1.0
1.5	1.4
2.8	3.0

Wind Direction Test:

	Marine Compass (o)
358	358
266	264
154	150
243	244

Wan Ka Ho
Project Consultant

Report Date: 1/4/2021

Noise Monitoring Equipment

Report no.: 203258CA211142

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No.	0873599	02374	003916

Equipment ID : N-45

Next Calibration Date : 27-May-2022

Specification Limit : EN 61672-1: 2003 Class 1

Laboratory Information

Details of Reference Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 28-May-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	1.4	2.6 to -0.6
	2000Hz	1.3	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.3	-1.8 to -4.6
	250Hz	-8.8	-7.2 to -10.0
	125Hz	-16.2	-14.6 to -17.6
	63Hz	-26.2	-24.7 to -27.7
	31.5Hz	-39.2	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to unit under test and the values measured at the time of the test. Any uncertainties 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.

Checked by : K. T. Leung Date : 1-6-2021 Certified by : K. T. Leung Date : 1-6-2021
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

** End of Report **

Report no.: 203258CA202302(2)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

Model No. :

CEL-63X

Serial No. :

1488304

Equipment ID :

N-62

Next Calibration Date :

29-Oct-2021

Specification Limit :

EN 61672-1: 2003 Class 1

Meter	Microphone	Preamplifier
CEL-63X	CE-251	CEL-495
1488304	03876	002752

Laboratory Information

Details of Reference Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 30-Oct-2020

Calibration Location : Calibration Laboratory of FTS

Ambient Temperature : 20±2 °C

Method Used : By direct comparison

Relative Humidity : <80% R.H.

Calibration Results :

Parameters	Mean Value (dB)	Specification Limit(dB)
A-weighting frequency response	4000Hz	1.5
	2000Hz	1.3
	1000Hz	-0.1
	500Hz	-3.5
	250Hz	-8.9
	125Hz	-16.4
	63Hz	-26.4
Differential level linearity	94dB-104dB	0.0
	104dB-114dB	0.0

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast.
4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties 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.

Checked by : Leung Kwok Tai Date : 4-11-2020 Certified by : K.T. Leung Date : 4-11-2020
 CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report no.: 203258CA210891

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description : Sound Calibrator
Manufacturer : Casella (Model CEL-120/1)
Serial No. : 4358251
Equipment ID : N-34

Next Calibration Date : 10-May-2022

Specification Limit : EN 60942: 2003 Class 1

Laboratory Information

Details of Calibration Equipment

Description : Reference Sound level meter
Equipment ID. : R-119-2

Date of Calibration : 11-May-2021

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.1 dB	±0.4dB
114dB	-0.1 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The unit under test complies with the specification limit.
4. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 12-5-2021 Certified by : R. T. Leung Date : 12-5-2021

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report no.: 203258CA201871(1)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT

Description : Sound Calibrator
 Manufacturer : Casella (Model CEL-120/1)
 Serial No. : 5230736
 Equipment ID : N-18

Next Calibration Date : 07-Sep-2021

Specification Limit : EN 60942: 2003 Class 1

Laboratory Information

Details of Calibration Equipment

Description : Reference Sound level meter
 Equipment ID. : R-119-1

Calibration Date : 08-Sep-2020

Calibration Location : Calibration Laboratory of FTS Ambient Temperature : 20±2 °C

Method Used : By direct comparison Relative Humidity : <80% R.H.

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	0.1 dB	±0.4dB
114dB	0.2 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The unit under test complies with the specification limit.
4. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties quoted will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 10-9-2020 Certified by : K. T. Leung Date : 12-9-2020
 CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**** End of Report ****

Report No. : 212769CA211145

Page 1 of 1

CALIBRATION CERTIFICATE OF ANEMOMETER**Client Supplied Information**

Client : Fugro Technical Services Limited

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : SENSOR

Model No. : AR816

Serial No. : 2136513

Equipment ID.: NA

Next Calibration Date : 30-May-2022

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID.: R-101-4

Date of Calibration : 31-May-2021 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : In-house Method R-C-279

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.99	2.0	0.0
4.00	4.3	0.3
6.01	6.3	0.3
7.99	8.2	0.2
10.03	9.9	-0.1

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The reported readings in this calibration are an average from 10 trials.
3. The expanded uncertainty is 0.5 m/s with a coverage factor of 2 at a confidence level of 95%.

Checked by : Lillian Date : 2-6-2021 Certified by : P.T. Leung Date : 2-6-2021

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

Water Quality Monitoring Equipment

Report No. : 142626WA211145(1)



Page 1 of 3

Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter**Information Supplied by Client**

Client : Fugro Technical Services Limited (MCL)

Client's address : Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15,
Kwai Fung Crescent, Kwai Chung, N.T.

Sample description : One YSI EXO-3 Multi-parameter Water Quality Meter

Client sample ID : Serial No. 19A105808

Test required : Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter

Laboratory Information

Lab. sample ID : WA211145/2

Date sample received : 08/06/2021

Date of calibration : 21/06/2021

Next calibration date : 20/09/2021

Test method used : In-house comparison method

Note : This report refers only to the sample(s) tested.

Report No. : 142626WA211145(1)

Page 2 of 3

Results :
A. pH calibration

pH reading at 25°C for Q.C. solution(6.86) and at 25°C for Q.C. solution(9.18)		
Theoretical	Measured	Deviation
9.18	9.10	-0.08
6.86	6.80	-0.06

B. Salinity calibration

Salinity, ppt			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
10	10.04	+0.04	± 0.5
20	20.00	0.00	± 1.0
30	30.22	+0.22	± 1.5
40	40.15	+0.15	± 2.0

C. Dissolved Oxygen calibration

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	7.59	7.60
2	7.59	7.75
3	7.57	7.60
Average	7.58	7.65

Differences of D.O. Content between Winkler Titration and D.O. meter should be less than 0.2 mg/L

Certified by : 
Approved Signatory : CHAN Hoi Yan, Winnie
Assistant Manager

Date : 

Note : This report refers only to the sample(s) tested.

Report No. : 142626WA211145(1)

Page 3 of 3

Results :

D. Temperature calibration

Thermometer reading, °C	Meter reading, °C
23.2	23.102

E. Turbidity calibration

Turbidity, N.T.U.			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
0	-	-	± 0.5
4	4.32	+0.32	± 0.6
8	8.12	+0.12	± 0.8
40	41.06	+1.06	± 3.0
80	79.39	-0.61	± 4.0

Certified by

: Chan Hoi Yan

Approved Signatory : CHAN Hoi Yan, Winnie
Assistant Manager

Date

: 08-07-2011

**** End of Report ****

Note : This report refers only to the sample(s) tested.

Report No. : 142626WA211145



Page 1 of 3

Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter**Information Supplied by Client**

Client : Fugro Technical Services Limited (MCL)

Client's address : Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15,
Kwai Fung Crescent, Kwai Chung, N.T.

Sample description : One YSI EXO-3 Multi-parameter Water Quality Meter

Client sample ID : Serial No. 19A105807

Test required : Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter

Laboratory Information

Lab. sample ID : WA211145/1

Date sample received : 08/06/2021

Date of calibration : 21/06/2021

Next calibration date : 20/09/2021

Test method used : In-house comparison method

Note : This report refers only to the sample(s) tested.

Report No. : 142626WA211145

Page 2 of 3

Results :
A. pH calibration

pH reading at 25°C for Q.C. solution(6.86) and at 25°C for Q.C. solution(9.18)		
Theoretical	Measured	Deviation
9.18	9.16	-0.02
6.86	6.87	+0.01

B. Salinity calibration


Salinity, ppt			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
10	9.99	-0.01	± 0.5
20	19.72	-0.28	± 1.0
30	29.84	-0.16	± 1.5
40	39.86	-0.14	± 2.0

C. Dissolved Oxygen calibration

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	7.44	7.61
2	7.44	7.60
3	7.62	7.65
Average	7.50	7.62

Differences of D.O. Content between Winkler Titration and D.O. meter should be less than 0.2 mg/L

Certified by

: 
Approved Signatory : CHAN Hoi Yan, Winnie
Assistant Manager

Date

: 08.07.2011

Note : This report refers only to the sample(s) tested.

Report No. : 142626WA211145

Page 3 of 3

Results :

D. Temperature calibration

Thermometer reading, °C	Meter reading, °C
23.2	23.452

E. Turbidity calibration

Turbidity, N.T.U.			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
0	-	-	± 0.5
4	4.36	+0.36	± 0.6
8	8.64	+0.64	± 0.8
40	41.25	+1.25	± 3.0
80	80.40	+0.40	± 4.0

Certified by

: Chan Hoi Yan
Approved Signatory : CHAN Hoi Yan, Winnie
Assistant Manager

Date

: 08-07-2021
** End of Report **

Note : This report refers only to the sample(s) tested.

CALIBRATION CERTIFICATE

This document certifies that the instrument detailed below has been calibrated according to Valeport Limited's Standard Procedures, using equipment with calibrations traceable to UKAS or National Standards.

Calibration Certificate Number:

61134

Instrument Type:

MODEL 106

Instrument Serial Number:

67738

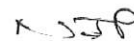
Calibrated By:

N.PADDON

Date:

11TH NOVEMBER 2019

Signed:

A handwritten signature in black ink, appearing to read 'N. Paddon', is written over the signature line.

Full details of the results from the calibration procedure applied to each fitted sensor are available, on request, via email. This summary certificate should be kept with the instrument.

A large, stylized number '50' in a bold, sans-serif font, with a small square graphic element at the top right of the '0'.

Valeport Limited
St. Peter's Quay, Totnes,
Devon TQ9 5EW UK

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VAT No: CB 165 8753 67
Registered in England No: 1950444





a xylem brand

9940 Summers Ridge Road
San Diego, CA 92121
Tel: (858) 546-8327
support@sontek.com

Certificate of Calibration

TEST REPORT

Serial Number	5906
System Type	M9
System Orientation	Down
Compass Type	Sontek
Compass Offset (degrees)	N/A
Communications Output	RS232
Recorder Size (GB)	14.9
Firmware Version	4.02
Date Tested	05/23/2017

POWER TEST

Command Mode (W):	0.17	Range : 0.00 – 0.30
Sleep Mode (W):	N/A	Range : N/A
Ping Mode - 18V (W):	2.67	Range : 1.50 – 3.50
Power Check		PASS

NOISE TEST

Beam 1 – 3.0 MHz (counts)	95
Beam 2 – 1.0 MHz (counts)	96
Beam 3 – 3.0 MHz (counts)	95
Beam 4 – 1.0 MHz (counts)	101
Beam 5 – 3.0 MHz (counts)	93
Beam 6 – 1.0 MHz (counts)	95
Beam 7 – 3.0 MHz (counts)	91
Beam 8 – 1.0 MHz (counts)	100
Beam Vertical – 500KHz (counts)	88
Noise Test	PASS

VERIFICATION

Velocity Check	PASS
Transmit Output	PASS
Sensitivity	PASS
Temperature Sensor	PASS
Compass Heading Check	PASS
Compass Level Check	PASS
Burn-in (24 hrs)	PASS
Load Default Parameters	DONE

OPTIONS

Bottom Track	Installed
SmartPulse HD TM	Enabled
Stationary	Disabled
GPS Compass Integration	Disabled
RiverSurveyor	Enabled
HydroSurveyor	Disabled

Verified by: **ainthasane**

This report was generated on 5/24/2017.

ATTENTION: New Warranty Terms as of March 4, 2013:

This system is covered under a two year limited warranty that extends to all parts and labor for any malfunction due to workmanship or errors in the manufacturing process. The warranty is valid only if you properly maintain and operate this system under normal use as outlined in the User's Manual. The warranty does not cover shortcomings that are due to the design, or any incidental damages as a result of errors in the measurements.

SonTek will repair and/or replace, at its sole option, any product established to be defective with a product of like type. CLAIMS FOR LABOR COSTS AND/OR OTHER CHARGES RESULTING FROM THE USE OF SonTek GOODS AND/OR PRODUCTS ARE NOT COVERED BY THIS LIMITED WARRANTY.

SonTek DISCLAIMS ALL EXPRESS WARRANTIES OTHER THAN THOSE CONTAINED ABOVE AND ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE. SonTek DISCLAIMS AND WILL NOT BE LIABLE, UNDER ANY CIRCUMSTANCE, IN CONTRACT, TORT OR WARRANTY, FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOST PROFITS, BUSINESS INTERRUPTION LOSSES, LOSS OF GOODWILL, OR LOSS OF BUSINESS OR CUSTOMER RELATIONSHIPS.

If your system is not functioning properly, first try to identify the source of the problem. If additional support is required, we encourage you to contact us immediately. We will work to resolve the problem as quickly as possible.

If the system needs to be returned to the factory, please contact SonTek to obtain a Service Request (SR) number. We reserve the right to refuse receipt of shipments without SRs. We require the system to be shipped back in the original shipping container using the original packing material with all delivery costs covered by the customer (including all taxes and duties). If the system is returned without appropriate packing, the customer will be required to cover the cost of a new packaging crate and material.

The warranty for repairs performed at an authorized SonTek Service Center is one year.

Appendix E

Environmental Monitoring Schedule

Project: Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Impact Monitoring Schedule (July 2021)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1 WQM Mid Flood(11:55) Mid Ebb(07:03)	2	3 AQM WQM Mid Flood(14:24) Mid Ebb(09:13)
4	5	6 WQM Mid Flood(18:27) Mid Ebb(11:26)	7	8 WQM Mid Flood(05:23) Mid Ebb(12:46)	9 AQM, NM, ANRM, EMB (Night Time)	10 WQM Mid Flood(06:35) Mid Ebb(14:06)
11	12	13 EMB (Day Time), WQM Mid Flood(08:36) Mid Ebb(16:00)	14	15 AQM, NM, WQM Mid Flood(10:18) Mid Ebb(17:16)	16	17 WQM Mid Flood(06:47) Mid Ebb(12:21)
18	19	20 *WQM (Cancelled)	21 AQM, NM	22 WQM Mid Flood(04:59) Mid Ebb(12:11)	23	24 WQM Mid Flood(06:34) Mid Ebb(13:56)
25	26	27 AQM, NM WQM Mid Flood(09:03) Mid Ebb(16:04)	28	29 WQM Mid Flood(10:37) Mid Ebb(17:10)	30	31 WQM Mid Flood(12:16) Mid Ebb(06:32)

Remarks

1. Air Quality Monitoring (**AQM**): 3 x 1-hour TSP Monitoring per 6 days.
2. Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
3. Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
4. Ecological Monitoring of Birds (**EMB**): Once per month.
5. Ardeid Night Roost Monitoring (**ANRM**): Once per month.
6. Air Quality Location: AM1 and AM2
7. Noise Monitoring Location: CM1, CM2 and CM3
8. Water Quality Monitoring Location: M1, M2, M3
9. *Typhoon Signal No. 3 was hoisted on 20 July 2021. Due to safety concerns, the water quality monitoring on 20 July 2021 has been cancelled.

Project: Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Impact Monitoring Schedule (August 2021)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2 AQM, NM	3 WQM Mid Flood(17:23) Mid Ebb(09:55)	4	5 WQM Mid Flood(19:10) Mid Ebb(11:42)	6	7 AQM, WQM Mid Flood(05:41) Mid Ebb(13:09)
8	9	10 WQM Mid Flood(07:58) Mid Ebb(15:07)	11	12 WQM Mid Flood(09:36) Mid Ebb(16:17)	13 AQM, NM	14 WQM Mid Flood(05:15) Mid Ebb(11:12)
15	16	17 WQM Mid Flood(16:14) Mid Ebb(08:19)	18	19 AQM, NM, WQM Mid Flood(18:51) Mid Ebb(10:58)	20	21 WQM Mid Flood(05:48) Mid Ebb(12:55)
22	23	24 WQM Mid Flood(08:19) Mid Ebb(15:02)	25 AQM, NM	26 WQM Mid Flood(09:39) Mid Ebb(16:02)	27	28 WQM Mid Flood(11:00) Mid Ebb(16:55)
29	30	31 AQM, NM WQM Mid Flood(12:59) Mid Ebb(06:14)				

Remarks

- Actual monitoring may be subjected to change due to any safety concern or adverse weather condition.
- Air Quality Monitoring (**AQM**): 3 x 1-hour TSP Monitoring per 6 days.
- Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
- Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
- Ecological Monitoring of Birds (**EMB**): Once per month.
- Ardeid Night Roost Monitoring (**ANRM**): Once per month.
- Air Quality Location: AM1 and AM2
- Noise Monitoring Location: CM1, CM2 and CM3
- Water Quality Monitoring Location: M1, M2, M3

Project: Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Impact Monitoring Schedule (September 2021)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1	2 WQM Mid Flood(18:14) Mid Ebb(10:13)	3	4 WQM Mid Flood(04:44) Mid Ebb(12:02)
5	6 AQM, NM	7 WQM Mid Flood(07:19) Mid Ebb(14:07)	8	9 WQM Mid Flood(08:52) Mid Ebb(15:19)	10	11 AQM WQM Mid Flood(10:20) Mid Ebb(04:07)
12	13	14 WQM Mid Flood(14:43) Mid Ebb(06:33)	15	16 WQM Mid Flood(17:45) Mid Ebb(09:27)	17 AQM, NM	18 WQM Mid Flood(04:59) Mid Ebb(11:50)
19	20	21 WQM Mid Flood(07:28) Mid Ebb(13:58)	22	23 AQM, NM WQM Mid Flood(08:47) Mid Ebb(14:58)	24	25 WQM Mid Flood(10:03) Mid Ebb(15:51)
26	27	28 WQM Mid Flood(13:04) Mid Ebb(05:23)	29 AQM, NM	30 WQM Mid Flood(20:31) Mid Ebb(07:23)		

Remarks

- Actual monitoring may be subjected to change due to any safety concern or adverse weather condition.
- Air Quality Monitoring (**AQM**): 3 x 1-hour TSP Monitoring per 6 days.
- Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
- Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
- Ecological Monitoring of Birds (**EMB**): Once per month.
- Ardeid Night Roost Monitoring (**ANRM**): Once per month.
- Air Quality Location: AM1 and AM2
- Noise Monitoring Location: CM1, CM2 and CM3
- Water Quality Monitoring Location: M1, M2, M3

Project: Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Impact Monitoring Schedule (October 2021)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2 WQM Mid Flood(18:00) Mid Ebb(10:33)
3	4	5 AQM, NM WQM Mid Flood(06:26) Mid Ebb(12:58)	6	7 WQM Mid Flood(08:01) Mid Ebb(14:17)	8	9 WQM Mid Flood(09:36) Mid Ebb(15:32)
10	11 AQM, NM	12 WQM Mid Flood(13:09) Mid Ebb(05:15)	13	14 WQM Mid Flood(16:26) Mid Ebb(07:31)	15	16 AQM WQM Mid Flood(18:02) Mid Ebb(10:34)
17	18	19 WQM Mid Flood(06:35) Mid Ebb(12:52)	20	21 WQM Mid Flood(07:58) Mid Ebb(13:57)	22 AQM, NM	23 WQM Mid Flood(09:20) Mid Ebb(14:55)
24 31	25	26 WQM Mid Flood(11:51) Mid Ebb(16:43)	27	28 AQM, NM WQM Mid Flood(18:07) Mid Ebb(05:43)	29	30 WQM Mid Flood(16:30) Mid Ebb(07:57)

Remarks

- Actual monitoring may be subjected to change due to any safety concern or adverse weather condition.
- Air Quality Monitoring (**AQM**): 3 x 1-hour TSP Monitoring per 6 days.
- Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
- Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
- Ecological Monitoring of Birds (**EMB**): Once per month.
- Ardeid Night Roost Monitoring (**ANRM**): Once per month.
- Air Quality Location: AM1 and AM2
- Noise Monitoring Location: CM1, CM2 and CM3
- Water Quality Monitoring Location: M1, M2, M3

Appendix F

Monitoring Results

Air Quality Monitoring Results

1-hour TSP Monitoring Result for

Contract No. SPW 07/2020

Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

AM1 - Topfine Machinery (China) Co. Ltd.

			1-hour TSP (µg/m³)				
Date	Weather Condition	Start Time	1st Measurement	2nd Measurement	3rd Measurement	Action Level (ug/m³)	Limit Level (ug/m³)
3-Jul-21	Fine	10:02	38	50	33	291	500
9-Jul-21	Fine	10:44	47	44	38		
15-Jul-21	Fine	10:57	33	36	32		
21-Jul-21	Cloudy	12:23	45	42	48		
27-Jul-21	Cloudy	13:06	48	51	56		
		Min	32				
		Max	56				
		Average	43				

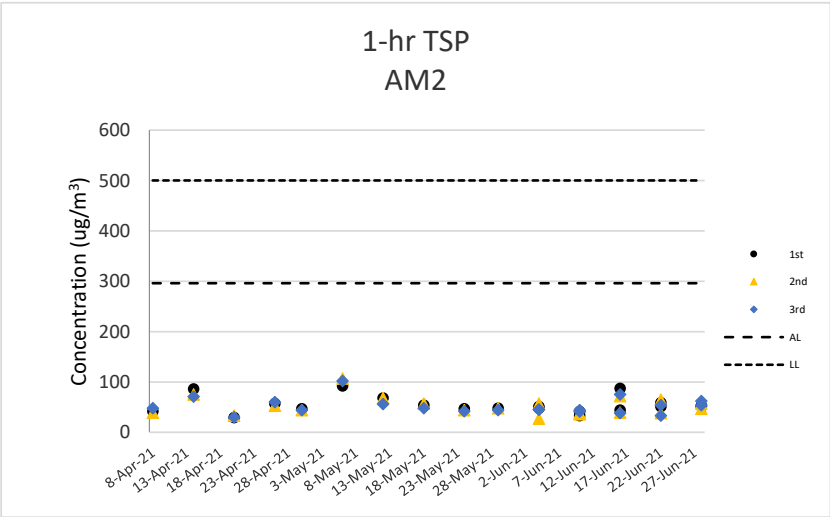
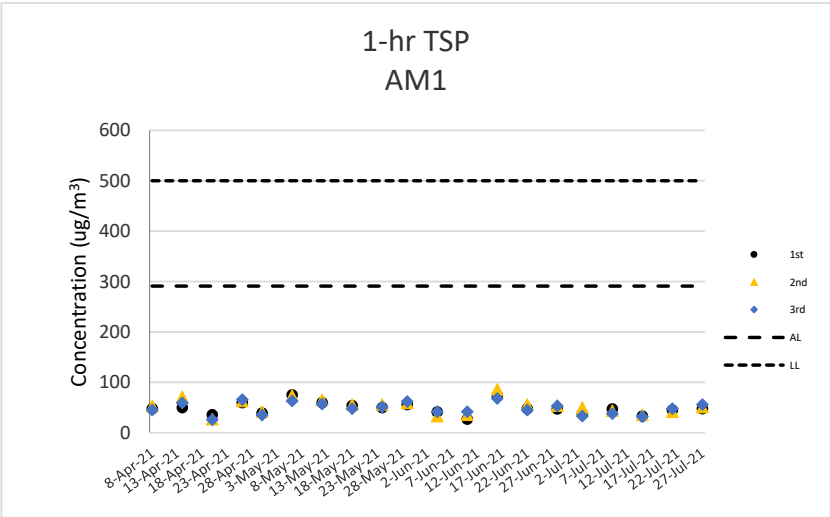
AM2 - Squatter house at the west of Yuen Long STW

			1-hour TSP (µg/m³)				
Date	Weather Condition	Start Time	1st Measurement	2nd Measurement	3rd Measurement	Action Level (ug/m³)	Limit Level (ug/m³)
4-Jun-21	Fine	09:44	48	27	45	296	500
10-Jun-21	Fine	10:08	33	38	41		
16-Jun-21	Fine	11:20	44	39	38		
22-Jun-21	Cloudy	11:34	51	38	33		
28-Jun-21	Cloudy	13:27	53	47	54		
		Min	27				
		Max	54				
		Average	42				

Note:

Underline: Exceedance of Action Level

Underline and Bold: Exceedance of Limit Level



Noise Monitoring Results

Noise Impact Monitoring Result for
Contract No. SPW 07/2020
Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

CM1 - Squatter house to the north of YLSTW

Date	Start Time	L _{eq} 30min dB(A)	L ₁₀ dB(A)	L ₉₀ dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
9-Jul-21	10:57	65	67	61	0.8	Fine	75
15-Jul-21	11:49	54	57	51	0.1	Fine	75
21-Jul-21	14:58	68	71	64	0.9	Cloudy	75
27-Jul-21	11:19	55	58	51	0.1	Cloudy	75
	Max	68					
	Min	54					

CM2 - Squatter house to the west of YLSTW

Date	Start Time	L _{eq} 30min dB(A)	L ₁₀ dB(A)	L ₉₀ dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
9-Jul-21	09:58	64	67	60	0.7	Fine	75
15-Jul-21	10:03	63	66	60	0.2	Fine	75
21-Jul-21	13:17	62	67	56	0.7	Cloudy	75
27-Jul-21	09:38	64	67	60	0.2	Cloudy	75
	Max	64					
	Min	62					

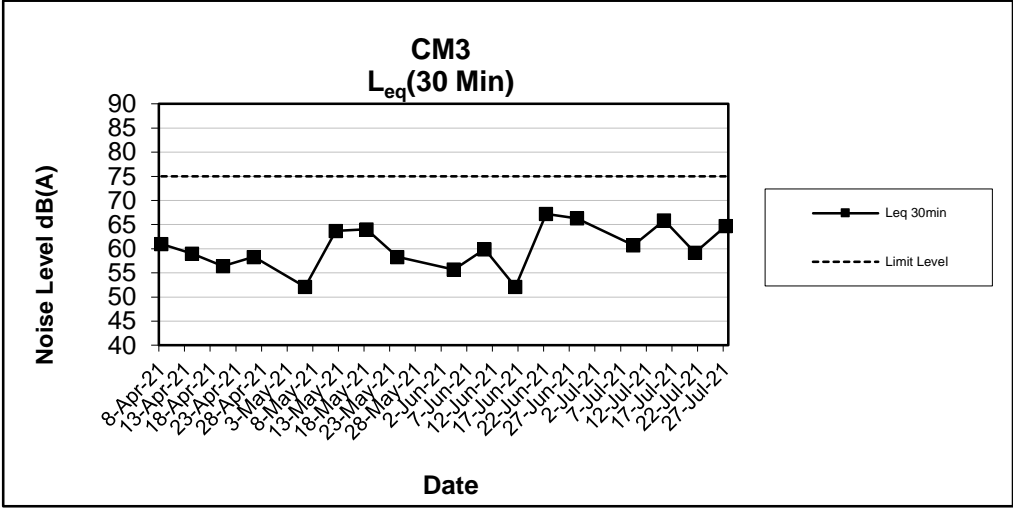
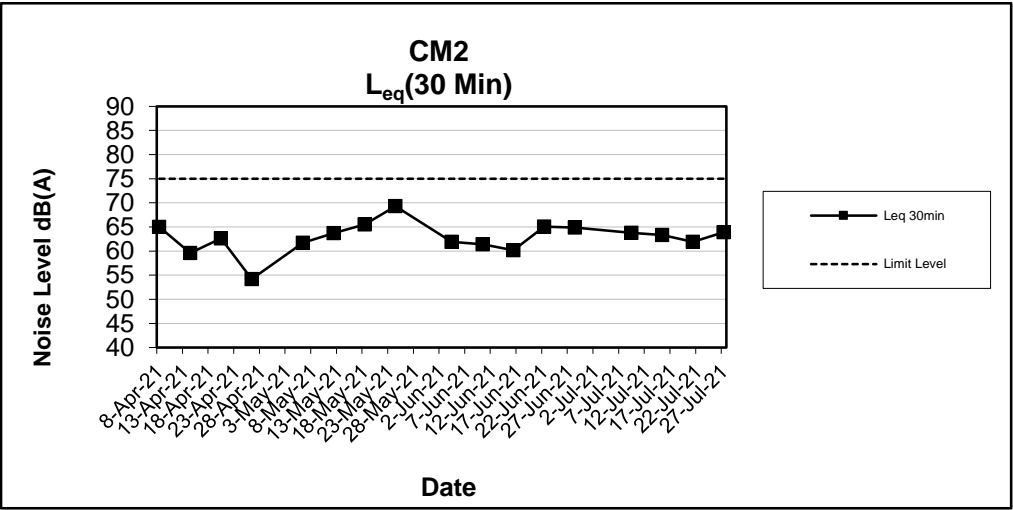
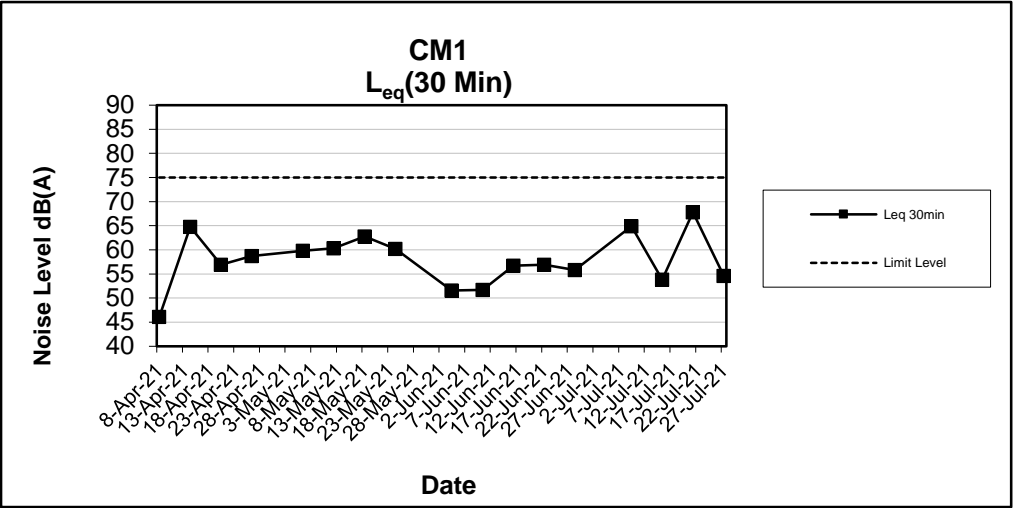
CM3 - Squatter house to the east of YLSTW

Date	Start Time	L _{eq} 30min dB(A)	L ₁₀ dB(A)	L ₉₀ dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
9-Jul-21	11:41	61	63	56	0.7	Fine	75
15-Jul-21	13:38	66	70	61	0.2	Fine	75
21-Jul-21	13:59	59	61	57	0.7	Cloudy	75
27-Jul-21	14:03	65	69	60	0.2	Cloudy	75
	Max	66					
	Min	59					

Note:

CM1, CM2 and CM3: Free-field measurement (+3dB(A) correction has been applied).

No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.



Water Quality Monitoring Results

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	1/7/2021	Mid-Flood	Cloudy	Calm	12:15	2.2	M	1.1	1	0.304	193	7.30	7.31	0.84	0.84	30.85	30.86	45.1	45.0	3.35	3.35	38.7	38.7	27	29
M1	1/7/2021	Mid-Flood	Cloudy	Calm	12:15	2.2	M	1.1	2			7.31		0.84		30.86		44.9		3.34		38.6		30	
M2	1/7/2021	Mid-Flood	Cloudy	Calm	12:00	1.4	M	0.7	1	0.231	180	7.17	7.17	0.82	0.82	30.26	30.26	42.9	42.7	3.23	3.22	27.8	27.9	27	30
M2	1/7/2021	Mid-Flood	Cloudy	Calm	12:00	1.4	M	0.7	2			7.17		0.82		30.25		42.5		3.20		28.0		32	
M3	1/7/2021	Mid-Flood	Cloudy	Calm	12:31	0.6	M	0.3	1	0.019	66	7.16	7.16	0.81	0.82	30.98	30.98	47.9	47.9	3.55	3.55	25.9	25.9	33	30
M3	1/7/2021	Mid-Flood	Cloudy	Calm	12:31	0.6	M	0.3	2			7.15		0.82		30.98		47.8		3.54		25.8		26	
M1	1/7/2021	Mid-Ebb	Cloudy	Calm	07:26	1.8	M	0.9	1	0.026	279	7.12	7.12	0.74	0.74	29.97	29.90	42.0	41.8	3.18	3.17	17.9	18.1	12	13
M1	1/7/2021	Mid-Ebb	Cloudy	Calm	07:26	1.8	M	0.9	2			7.11		0.74		29.82		41.6		3.16		18.2		13	
M2	1/7/2021	Mid-Ebb	Cloudy	Calm	07:42	1.2	M	0.6	1	0.13	104	7.10	7.10	0.64	0.64	30.41	30.40	35.3	35.8	2.66	2.70	17.3	17.3	15	14
M2	1/7/2021	Mid-Ebb	Cloudy	Calm	07:42	1.2	M	0.6	2			7.10		0.64		30.38		36.2		2.73		17.2		13	
M3	1/7/2021	Mid-Ebb	Cloudy	Calm	07:50	0.7	M	0.35	1	0.024	122	7.12	7.13	0.67	0.67	28.90	28.90	30.2	29.5	2.31	2.26	26.3	25.7	13	13
M3	1/7/2021	Mid-Ebb	Cloudy	Calm	07:50	0.7	M	0.35	2			7.13		0.67		28.90		28.7		2.20		25.1		13	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	46.4	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
												Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	1	0.025	230	7.24	7.23	0.68	0.68	31.76	31.80	46.0	45.9	3.30	3.29	45.8	45.9	33	36
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	2			7.22		0.68		31.83		45.8		3.28		45.9		38	
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	1	0.016	220	6.96	6.96	0.65	0.65	32.40	32.40	32.5	32.5	2.55	2.55	45.8	45.8	31	33
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	2			6.96		0.65		32.40		32.5		2.55		45.8		35	
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	1	0.019	261	7.09	7.10	0.64	0.64	32.01	32.01	63.9	63.8	4.65	4.65	39.8	39.4	34	33
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	2			7.10		0.64		32.00		63.7		4.64		38.9		32	
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	1	0.054	179	7.05	7.05	0.71	0.71	31.64	31.64	35.7	35.5	2.56	2.55	46.9	45.9	72	72
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	2			7.05		0.71		31.64		35.3		2.53		44.9		71	
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	1	0.037	164	6.99	6.99	0.65	0.65	31.28	31.34	36.5	35.7	2.78	2.76	49.6	49.6	42	43
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	2			6.99		0.65		31.39		34.9		2.73		49.6		43	
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	1	0.038	77	7.15	7.16	0.65	0.65	31.22	31.21	36.2	38.6	2.67	2.85	49.8	49.8	31	31
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	2			7.16		0.65		31.19		40.9		3.02		49.7		31	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	55.0	59.6	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	59.6	64.6	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis		
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)		
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	1	0.043	271	7.28	7.28	0.91	0.91	32.62	32.63	66.8	67.2	4.82	4.86	4.84	49.8	48.9	50	54
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	2			7.28		0.91		32.63		67.5		4.86		4.84		48.0	48.9	
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	1	0.043	257	7.29	7.29	0.82	0.82	32.64	32.64	68.8	69.0	4.95	4.96	4.96	45.7	45.8	62	64
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	2			7.29		0.82		32.64		69.2		4.97		4.96		45.9	45.8	
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	1	0.014	221	7.19	7.19	0.53	0.53	30.11	30.11	78.7	78.8	5.62	5.62	5.62	54.2	54.1	49	47
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	2			7.19		0.53		30.11		78.8		5.62		5.62		54.0	54.1	
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	1	0.262	138	7.24	7.24	1.05	1.05	32.26	32.26	47.7	47.6	3.45	3.43	3.44	58.7	58.8	64	68
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	2			7.24		1.04		32.25		47.4		3.43		3.44		58.9	58.8	
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	1	0.05	124	7.26	7.26	0.90	0.90	32.23	32.24	55.9	56.0	4.05	4.06	4.06	52.7	52.7	54	57
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	2			7.26		0.90		32.24		56.1		4.06		4.06		54.8	53.8	
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	1	0.008	129	7.26	7.26	0.93	0.93	32.11	32.11	50.5	50.3	3.67	3.67	3.67	46.1	46.1	44	43
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	2			7.26		0.93		32.11		50.0		3.67		3.67		46.1	46.1	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	58.7	63.6	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	59.9	64.9	60	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	8/7/2021	Mid-Flood	Fine	Calm	05:51	1.2	M	0.6	1	0.015	114.1	7.33	7.37	2.12	2.16	31.04	31.04	53.7	53.8	3.94	3.95	24.8	24.8	31	32
M1	8/7/2021	Mid-Flood	Fine	Calm	05:51	1.2	M	0.6	2			7.41		2.19		31.04		53.8		3.95		24.8		32	
M2	8/7/2021	Mid-Flood	Fine	Calm	06:04	1.1	M	0.55	1	0.024	83.3	7.29	7.29	1.76	1.77	29.97	29.98	46.1	46.2	3.37	3.36	35.2	35.2	38	41
M2	8/7/2021	Mid-Flood	Fine	Calm	06:04	1.1	M	0.55	2			7.28		1.78		29.99		46.2		3.35		35.2		44	
M3	8/7/2021	Mid-Flood	Fine	Calm	06:24	1.1	M	0.55	1	0.118	257	7.16	7.16	1.34	1.34	31.01	31.02	44.5	44.7	3.27	3.29	30.0	29.8	37	36
M3	8/7/2021	Mid-Flood	Fine	Calm	06:24	1.1	M	0.55	2			7.15		1.34		31.03		44.9		3.30		29.5		35	
M1	8/7/2021	Mid-Ebb	Fine	Calm	13:04	0.8	M	0.4	1	0.017	312	7.37	7.37	1.68	1.69	29.85	29.86	52.8	52.7	3.94	3.92	29.2	29.2	57	57
M1	8/7/2021	Mid-Ebb	Fine	Calm	13:04	0.8	M	0.4	2			7.36		1.69		29.87		52.6		3.89		29.2		56	
M2	8/7/2021	Mid-Ebb	Fine	Calm	12:50	1.1	M	0.55	1	0.019	221	7.29	7.27	1.64	1.66	30.79	30.78	56.8	56.8	4.08	4.08	32.5	32.6	54	51
M2	8/7/2021	Mid-Ebb	Fine	Calm	12:50	1.1	M	0.55	2			7.24		1.68		30.76		56.8		4.07		32.6		48	
M3	8/7/2021	Mid-Ebb	Fine	Calm	13:05	0.6	M	0.3	1	0.1	99	7.25	7.25	1.00	1.00	31.70	31.71	56.3	56.2	4.11	4.11	20.6	20.6	20	22
M3	8/7/2021	Mid-Ebb	Fine	Calm	13:05	0.6	M	0.3	2			7.25		1.00		31.71		56.1		4.10		20.6		24	

Remark

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3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	43.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	10/7/2021	Mid-Flood	Fine	Calm	06:55	2.4	M	1.2	1	0.143	213	7.32	7.32	4.05	4.06	30.06	30.06	57.2	57.2	4.08	4.08	20.6	20.7	22	20
M1	10/7/2021	Mid-Flood	Fine	Calm	06:55	2.4	M	1.2	2			7.32		4.06		30.05		57.1		4.08		20.7		18	
M2	10/7/2021	Mid-Flood	Fine	Calm	07:10	1.4	M	0.7	1	0.102	75	7.46	7.46	3.62	3.62	29.44	29.44	58.3	58.3	4.14	4.14	26.6	26.6	24	24
M2	10/7/2021	Mid-Flood	Fine	Calm	07:10	1.4	M	0.7	2			7.45		3.61		29.43		58.2		4.14		26.5		24	
M3	10/7/2021	Mid-Flood	Fine	Calm	06:47	0.8	M	0.4	1	0.006	151	7.13	7.13	1.86	1.86	31.58	31.58	50.4	50.3	3.67	3.66	43.3	43.3	33	33
M3	10/7/2021	Mid-Flood	Fine	Calm	06:47	0.8	M	0.4	2			7.13		1.86		31.58		50.2		3.65		43.3		33	
M1	10/7/2021	Mid-Ebb	Fine	Calm	14:24	2	M	1	1	0.215	241	7.53	7.53	3.40	3.40	32.34	32.35	64.7	64.7	4.61	4.61	25.7	25.8	31	30
M1	10/7/2021	Mid-Ebb	Fine	Calm	14:24	2	M	1	2			7.53		3.39		32.35		64.7		4.61		25.8		28	
M2	10/7/2021	Mid-Ebb	Fine	Calm	14:09	1.2	M	0.6	1	0.189	148	7.48	7.48	3.21	3.22	31.77	31.78	63.9	63.8	4.56	4.56	29.9	29.8	29	28
M2	10/7/2021	Mid-Ebb	Fine	Calm	14:09	1.2	M	0.6	2			7.48		3.23		31.78		63.6		4.55		29.7		27	
M3	10/7/2021	Mid-Ebb	Fine	Calm	14:10	0.5	M	0.25	1	0.014	249	7.26	7.26	7.95	7.95	32.41	32.41	73.6	73.6	3.28	3.28	26.4	26.4	31	30
M3	10/7/2021	Mid-Ebb	Fine	Calm	14:10	0.5	M	0.25	2			7.26		7.95		32.41		73.6		3.28		26.4		28	

Remark

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6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	43.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	13/7/2021	Mid-Flood	Fine	Calm	08:50	1.3	M	0.65	1	0.023	257	7.35	7.35	6.46	6.47	31.16	31.17	51.3	51.3	3.66	3.66	34.0	37.5	55	57
M1	13/7/2021	Mid-Flood	Fine	Calm	08:50	1.3	M	0.65	2			7.35	6.47	31.18	31.17	51.3	3.66	3.66	41.0	37.5	59				
M2	13/7/2021	Mid-Flood	Fine	Calm	09:15	0.8	M	0.4	1	0.016	215	7.36	7.36	6.33	6.33	31.20	31.21	49.9	49.4	3.47	3.44	38.3	38.4	50	53
M2	13/7/2021	Mid-Flood	Fine	Calm	09:15	0.8	M	0.4	2			7.36	6.33	31.22	31.21	48.8	3.40	3.44	38.5	38.4	56				
M3	13/7/2021	Mid-Flood	Fine	Calm	08:52	1.1	M	0.55	1	0.109	263	7.37	7.37	4.55	4.55	31.11	31.12	48.8	49.1	3.53	3.55	42.2	41.9	51	51
M3	13/7/2021	Mid-Flood	Fine	Calm	08:52	1.1	M	0.55	2			7.37	4.54	31.12	31.12	49.4	3.56	3.55	41.5	41.9	50				
M1	13/7/2021	Mid-Ebb	Fine	Calm	16:17	1.2	M	0.6	1	0.008	152	7.47	7.44	5.79	5.79	31.43	31.44	54.0	53.9	3.84	3.83	24.0	23.5	30	28
M1	13/7/2021	Mid-Ebb	Fine	Calm	16:17	1.2	M	0.6	2			7.41	5.79	31.44	31.44	53.8	3.81	3.83	23.0	23.0	25				
M2	13/7/2021	Mid-Ebb	Fine	Calm	16:00	0.7	M	0.35	1	0.012	169	7.37	7.37	4.98	4.98	31.54	31.55	52.2	52.2	3.74	3.74	24.0	24.0	15	16
M2	13/7/2021	Mid-Ebb	Fine	Calm	16:00	0.7	M	0.35	2			7.37	4.98	31.55	31.55	52.2	3.74	3.74	24.0	24.0	17				
M3	13/7/2021	Mid-Ebb	Fine	Calm	16:20	1.2	M	0.6	1	0.096	109	6.57	6.58	2.30	2.30	32.64	32.64	92.0	92.2	6.57	6.57	19.4	19.6	28	27
M3	13/7/2021	Mid-Ebb	Fine	Calm	16:20	1.2	M	0.6	2			6.59	2.30	32.64	32.64	92.4	6.59	6.58	19.7	19.6	26				

Remark

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5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	45.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	15/7/2021	Mid-Flood	Fine	Calm	10:40	1.2	M	0.6	1	0.038	121	7.33	7.34	2.77	2.76	31.81	31.81	57.8	57.9	4.17	4.18	44.3	44.1	70	72
M1	15/7/2021	Mid-Flood	Fine	Calm	10:40	1.2	M	0.6	2			7.34	2.74	31.80	31.81	57.9	57.9	4.19	4.18	43.9	44.1	74	70		
M2	15/7/2021	Mid-Flood	Fine	Calm	10:55	1.1	M	0.55	1	0.039	113	7.31	7.33	2.89	2.89	31.12	31.37	58.1	58.2	4.18	4.19	40.2	40.3	60	61
M2	15/7/2021	Mid-Flood	Fine	Calm	10:55	1.1	M	0.55	2			7.34	2.88	31.62	31.37	58.2	58.2	4.20	4.19	40.3	40.3	61	60		
M3	15/7/2021	Mid-Flood	Fine	Calm	10:20	0.8	M	0.4	1	0.205	74	7.38	7.38	1.52	1.53	31.65	31.64	62.7	62.6	4.57	4.56	44.2	44.2	52	50
M3	15/7/2021	Mid-Flood	Fine	Calm	10:20	0.8	M	0.4	2			7.38	1.53	31.62	31.64	62.4	62.4	4.55	4.56	44.1	44.2	48	50		
M1	15/7/2021	Mid-Ebb	Fine	Calm	17:35	0.6	M	0.3	1	0.043	87	7.37	7.38	3.50	3.54	31.20	31.20	60.2	60.2	4.29	4.29	40.7	40.4	52	56
M1	15/7/2021	Mid-Ebb	Fine	Calm	17:35	0.6	M	0.3	2			7.38	3.58	31.20	31.20	60.1	60.1	4.28	4.28	40.1	40.4	59	56		
M2	15/7/2021	Mid-Ebb	Fine	Calm	17:20	0.9	M	0.45	1	0.038	122	7.40	7.35	3.07	3.08	31.47	31.45	55.0	54.9	4.01	3.99	42.8	42.8	46	44
M2	15/7/2021	Mid-Ebb	Fine	Calm	17:20	0.9	M	0.45	2			7.30	3.08	31.43	31.45	54.8	54.8	3.96	3.99	42.8	42.8	42	44		
M3	15/7/2021	Mid-Ebb	Fine	Calm	17:18	0.4	M	0.2	1	0.100	249	7.27	7.27	1.28	1.28	32.75	32.76	67.6	67.5	4.93	4.92	48.2	47.9	61	63
M3	15/7/2021	Mid-Ebb	Fine	Calm	17:18	0.4	M	0.2	2			7.27	1.28	32.76	32.76	67.3	67.3	4.91	4.92	47.6	47.9	64	63		

Remark

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3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
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5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	52.9	57.3	86	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	54.4	59.0	64	69
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	17/7/2021	Mid-Flood	Cloudy	Calm	12:21	1.1	M	0.55	1	0.007	276	7.84	7.84	0.97	0.97	30.15	30.15	30.8	30.8	2.98	2.99	30.1	30.4	31	33
M1	17/7/2021	Mid-Flood	Cloudy	Calm	12:21	1.1	M	0.55	2			7.84		0.97		30.15		30.8		2.98		30.7		34	
M2	17/7/2021	Mid-Flood	Cloudy	Calm	12:40	0.8	M	0.4	1	0.015	238	7.63	7.63	0.98	0.98	30.45	30.45	29.1	29.1	2.10	2.09	34.7	34.6	7	8
M2	17/7/2021	Mid-Flood	Cloudy	Calm	12:40	0.8	M	0.4	2			7.63		0.98		30.45		29.0		2.07		34.4		9	
M3	17/7/2021	Mid-Flood	Cloudy	Calm	12:26	0.6	M	0.3	1	0.151	81	7.54	7.54	1.34	1.34	30.29	30.25	55.3	55.6	3.95	3.97	37.3	37.1	25	25
M3	17/7/2021	Mid-Flood	Cloudy	Calm	12:26	0.6	M	0.3	2			7.53		1.33		30.21		55.8		3.99		36.9		24	
M1	17/7/2021	Mid-Ebb	Cloudy	Calm	06:47	0.9	M	0.45	1	0.007	153	7.39	7.41	1.01	1.01	30.13	30.13	29.2	29.2	2.77	2.77	27.1	27.0	10	9
M1	17/7/2021	Mid-Ebb	Cloudy	Calm	06:47	0.9	M	0.45	2			7.42		1.01		30.13		29.1		2.77		26.9		8	
M2	17/7/2021	Mid-Ebb	Cloudy	Calm	07:00	0.7	M	0.35	1	0.008	158	7.44	7.44	0.99	0.99	30.15	30.29	31.4	31.6	2.88	2.88	39.4	39.4	12	11
M2	17/7/2021	Mid-Ebb	Cloudy	Calm	07:00	0.7	M	0.35	2			7.44		0.99		30.42		31.8		2.87		39.3		10	
M3	17/7/2021	Mid-Ebb	Cloudy	Calm	07:21	0.4	M	0.2	1	0.175	259	7.48	7.48	0.93	0.92	29.79	29.81	52.4	52.6	3.77	3.78	29.9	29.9	17	19
M3	17/7/2021	Mid-Ebb	Cloudy	Calm	07:21	0.4	M	0.2	2			7.48		0.91		29.83		52.7		3.79		29.8		20	

Remark

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3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
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5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	43.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	22/7/2021	Mid-Flood	Cloudy	Calm	05:15	2.2	M	1.1	1	0.232	184	7.21	7.22	2.06	2.08	28.35	28.34	47.6	47.4	3.65	3.63	18.2	18.3	15	15
M1	22/7/2021	Mid-Flood	Cloudy	Calm	05:15	2.2	M	1.1	2			7.23		2.09		28.32		47.2		3.61		18.3		14	
M2	22/7/2021	Mid-Flood	Cloudy	Calm	05:32	1.2	M	0.6	1	0.191	29	7.17	7.17	1.81	1.81	28.04	28.04	41.1	41.0	3.11	3.11	16.1	16.1	13	14
M2	22/7/2021	Mid-Flood	Cloudy	Calm	05:32	1.2	M	0.6	2			7.16		1.80		28.04		40.9		3.10		16.1		14	
M3	22/7/2021	Mid-Flood	Cloudy	Calm	05:24	1.3	M	0.65	1	0.096	115	6.99	6.99	0.99	0.99	28.51	28.52	45.0	44.9	3.43	3.42	22.4	22.4	20	21
M3	22/7/2021	Mid-Flood	Cloudy	Calm	05:24	1.3	M	0.65	2			6.99		0.98		28.52		44.7		3.41		22.3		22	
M1	22/7/2021	Mid-Ebb	Cloudy	Calm	12:44	1.8	M	0.9	1	0.326	271	7.16	7.17	1.98	1.98	28.64	28.66	42.1	42.2	3.23	3.23	24.7	24.8	29	29
M1	22/7/2021	Mid-Ebb	Cloudy	Calm	12:44	1.8	M	0.9	2			7.17		1.98		28.67		42.2		3.23		24.8		28	
M2	22/7/2021	Mid-Ebb	Cloudy	Calm	12:26	1	M	0.5	1	0.289	203	7.58	7.59	2.02	2.02	28.70	28.70	46.1	45.7	3.53	3.50	29.5	29.9	31	32
M2	22/7/2021	Mid-Ebb	Cloudy	Calm	12:26	1	M	0.5	2			7.59		2.02		28.70		45.3		3.46		30.2		32	
M3	22/7/2021	Mid-Ebb	Cloudy	Calm	12:31	1.2	M	0.6	1	0.108	271	7.00	7.00	0.98	0.98	28.72	28.72	43.5	43.7	3.23	3.24	23.5	23.5	24	24
M3	22/7/2021	Mid-Ebb	Cloudy	Calm	12:31	1.2	M	0.6	2			7.00		0.98		28.71		43.8		3.25		23.4		24	

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	43.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	24/7/2021	Mid-Flood	Fine	Calm	06:44	1.3	M	0.65	1	0.064	161	7.29	7.29	4.32	4.33	30.99	31.00	42.1	41.9	3.02	3.01	11.7	11.8	12	13
M1	24/7/2021	Mid-Flood	Fine	Calm	06:44	1.3	M	0.65	2			7.29		4.33		31.00		41.7		3.00		11.8		13	
M2	24/7/2021	Mid-Flood	Fine	Calm	07:00	1	M	0.5	1	0.057	270	7.44	7.45	4.81	4.81	31.41	31.41	46.0	45.6	3.29	3.27	10.9	11.1	12	12
M2	24/7/2021	Mid-Flood	Fine	Calm	07:00	1	M	0.5	2			7.45		4.80		31.41		45.2		3.24		11.2		12	
M3	24/7/2021	Mid-Flood	Fine	Calm	07:00	1.4	M	0.7	1	0.018	82	7.28	7.29	2.97	2.98	31.70	31.70	46.3	46.4	3.37	3.36	14.7	14.8	12	13
M3	24/7/2021	Mid-Flood	Fine	Calm	07:00	1.4	M	0.7	2			7.29		2.98		31.70		46.4		3.35		14.8		13	
M1	24/7/2021	Mid-Ebb	Fine	Calm	14:20	1.2	M	0.6	1	0.034	124	7.33	7.35	6.18	6.18	31.24	31.24	40.2	39.9	2.87	2.86	11.0	11.1	9	10
M1	24/7/2021	Mid-Ebb	Fine	Calm	14:20	1.2	M	0.6	2			7.36		6.18		31.24		39.6		2.84		11.1		10	
M2	24/7/2021	Mid-Ebb	Fine	Calm	14:01	0.8	M	0.4	1	0.049	130	7.47	7.48	5.49	5.49	31.36	31.36	43.3	42.7	3.10	3.06	11.3	11.3	11	11
M2	24/7/2021	Mid-Ebb	Fine	Calm	14:01	0.8	M	0.4	2			7.48		5.49		31.36		42.0		3.01		11.3		11	
M3	24/7/2021	Mid-Ebb	Fine	Calm	14:00	0.7	M	0.35	1	0.025	126	7.31	7.32	3.14	3.15	31.78	31.85	45.8	45.9	3.24	3.25	14.9	14.9	19	20
M3	24/7/2021	Mid-Ebb	Fine	Calm	14:00	0.7	M	0.35	2			7.32		3.15		31.92		45.9		3.25		14.9		20	

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	43.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement																Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)			
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	1	0.021	116	7.21	7.22	2.40	2.41	32.52	32.52	54.2	54.2	3.83	3.82	20.0	20.5	24	24		
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	2			7.22		2.41		32.52		54.1		3.81		21.0		23			
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	1	0.165	123	7.19	7.19	2.39	2.39	32.30	32.65	50.7	50.7	3.64	3.64	19.4	19.4	30	29		
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	2			7.18		2.38		33.00		50.6		3.63		19.4		27			
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	1	0.224	76	7.21	7.21	2.36	2.36	31.50	31.49	59.7	59.5	4.25	4.24	20.9	20.9	9	10		
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	2			7.20		2.35		31.48		59.3		4.23		20.8		10			
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	1	0.234	233	7.24	7.24	2.31	2.31	33.01	33.01	58.9	58.8	4.18	4.17	19.9	19.9	68	70		
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	2			7.24		2.30		33.00		58.7		4.16		19.9		72			
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	1	0.019	244	7.25	7.25	2.40	2.40	32.22	32.23	62.7	62.6	4.46	4.44	21.8	21.8	51	53		
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	2			7.24		2.40		32.24		62.4		4.41		21.8		55			
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	1	0.136	257	7.14	7.14	2.11	2.12	32.67	32.68	51.2	51.0	3.69	3.68	39.0	38.4	42	44		
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	2			7.13		2.12		32.68		50.8		3.66		37.8		45			

Remark

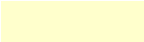
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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
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M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167



Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
												Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	29/7/2021	Mid-Flood	Fine	Calm	10:46	2.7	M	1.35	1	0.122	228	8.59	8.59	1.58	1.58	30.71	30.72	53.4	53.3	3.96	3.95	46.8	46.8	53	52
M1	29/7/2021	Mid-Flood	Fine	Calm	10:46	2.7	M	1.35	2			8.59		1.58		30.73		53.1		3.94		46.8		51	
M2	29/7/2021	Mid-Flood	Fine	Calm	11:04	1.5	M	0.75	1	0.155	250	8.30	8.30	1.57	1.57	30.93	30.94	45.1	45.0	3.33	3.32	35.6	35.7	80	76
M2	29/7/2021	Mid-Flood	Fine	Calm	11:04	1.5	M	0.75	2			8.30		1.57		30.94		44.9		3.31		35.7		72	
M3	29/7/2021	Mid-Flood	Fine	Calm	10:50	1.2	M	0.6	1	0.015	185	7.18	7.16	1.13	1.14	31.28	31.28	44.8	44.8	3.46	3.44	35.7	35.7	30	32
M3	29/7/2021	Mid-Flood	Fine	Calm	10:50	1.2	M	0.6	2			7.14		1.14		31.28		44.7		3.42		35.7		33	
M1	29/7/2021	Mid-Ebb	Fine	Calm	17:46	2.4	M	1.2	1	0.12	188	8.85	8.85	1.29	1.29	30.83	30.85	39.3	39.2	2.91	2.90	34.7	34.1	47	48
M1	29/7/2021	Mid-Ebb	Fine	Calm	17:46	2.4	M	1.2	2			8.84		1.29		30.87		39.1		2.89		33.4		48	
M2	29/7/2021	Mid-Ebb	Fine	Calm	17:22	1.2	M	0.6	1	0.095	171	8.60	8.60	1.12	1.12	31.01	31.02	36.9	36.8	2.72	2.71	41.3	41.7	54	56
M2	29/7/2021	Mid-Ebb	Fine	Calm	17:22	1.2	M	0.6	2			8.59		1.12		31.03		36.6		2.70		42.1		58	
M3	29/7/2021	Mid-Ebb	Fine	Calm	17:40	0.9	M	0.45	1	0.026	93	7.19	7.19	1.03	1.04	31.08	31.06	46.2	46.5	3.58	3.56	41.5	41.5	55	58
M3	29/7/2021	Mid-Ebb	Fine	Calm	17:40	0.9	M	0.45	2			7.18		1.04		31.04		46.7		3.54		41.5		60	

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	56.2	60.8	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	49.9	54.1	68	74
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	31/7/2021	Mid-Flood	Fine	Calm	12:36	1.2	M	0.6	1	0.027	216	7.44	7.43	0.31	0.32	32.10	32.10	41.7	41.3	3.21	3.20	36.7	36.7	40	39
M1	31/7/2021	Mid-Flood	Fine	Calm	12:36	1.2	M	0.6	2			7.42		0.32		32.09		40.8		3.19		36.7		38	
M2	31/7/2021	Mid-Flood	Fine	Calm	12:21	1.1	M	0.55	1	0.034	128	7.54	7.55	0.54	0.55	30.96	30.96	48.7	48.6	3.57	3.58	37.2	37.2	29	30
M2	31/7/2021	Mid-Flood	Fine	Calm	12:21	1.1	M	0.55	2			7.55		0.55		30.96		48.4		3.58		37.2		30	
M3	31/7/2021	Mid-Flood	Fine	Calm	12:27	1.4	M	0.7	1	0.121	129	7.26	7.26	1.73	1.73	31.27	31.27	60.9	61.3	4.10	4.13	18.5	18.6	17	16
M3	31/7/2021	Mid-Flood	Fine	Calm	12:27	1.4	M	0.7	2			7.26		1.73		31.27		61.7		4.15		18.6		15	
M1	31/7/2021	Mid-Ebb	Fine	Calm	06:55	0.9	M	0.45	1	0.025	172	7.34	7.35	0.53	0.54	30.28	30.28	42.7	42.8	3.41	3.42	35.9	35.9	18	20
M1	31/7/2021	Mid-Ebb	Fine	Calm	06:55	0.9	M	0.45	2			7.36		0.54		30.28		42.9		3.42		35.9		22	
M2	31/7/2021	Mid-Ebb	Fine	Calm	07:08	0.8	M	0.4	1	0.018	86	7.39	7.36	0.42	0.42	30.35	30.34	45.9	45.9	3.51	3.52	37.2	36.8	36	36
M2	31/7/2021	Mid-Ebb	Fine	Calm	07:08	0.8	M	0.4	2			7.32		0.42		30.33		45.8		3.52		36.3		36	
M3	31/7/2021	Mid-Ebb	Fine	Calm	07:06	1.3	M	0.65	1	0.099	270	7.31	7.32	1.68	1.69	31.14	31.15	53.7	54.0	3.71	3.73	16.0	16.1	14	14
M3	31/7/2021	Mid-Ebb	Fine	Calm	07:06	1.3	M	0.65	2			7.32		1.69		31.15		54.2		3.74		16.2		14	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

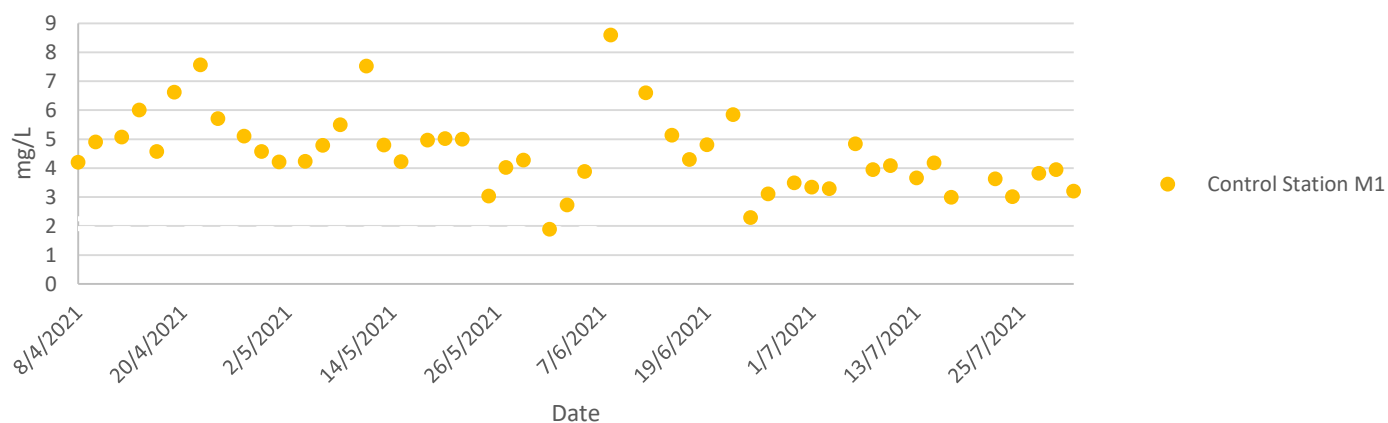
For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Control Station)	2.25	1.91	48.4	50.4	59	68
M2(Impact Station)	1.88	1.79	44.0	52.4	81	112
M3(Impact Station)	3.28	3.14	74.3	78.0	104	167

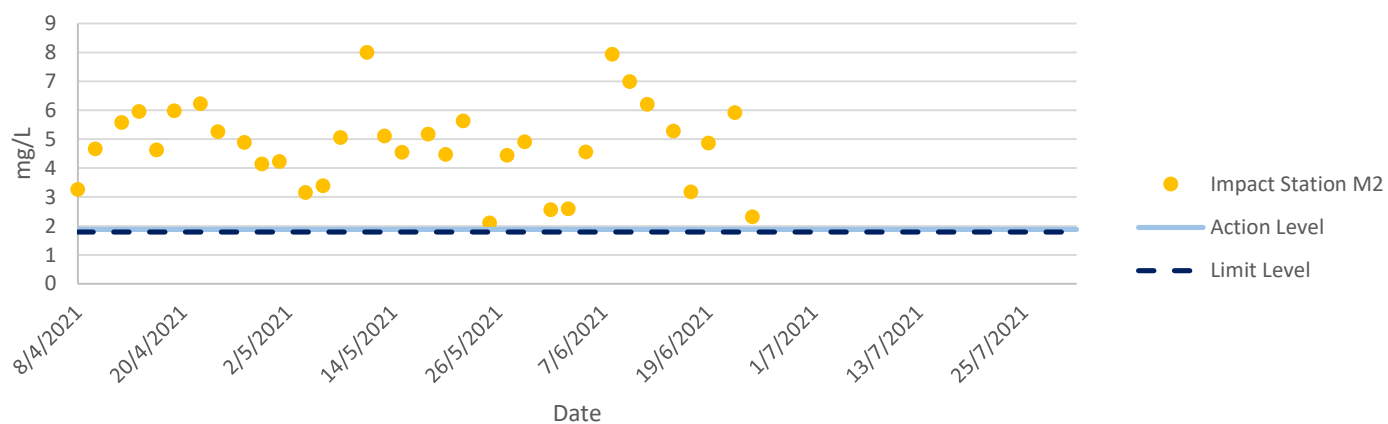
For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68
M2(Control Station)	1.88	1.79	43.0	52.4	81	112
M3(Control Station)	3.28	3.14	74.3	78.0	104	167

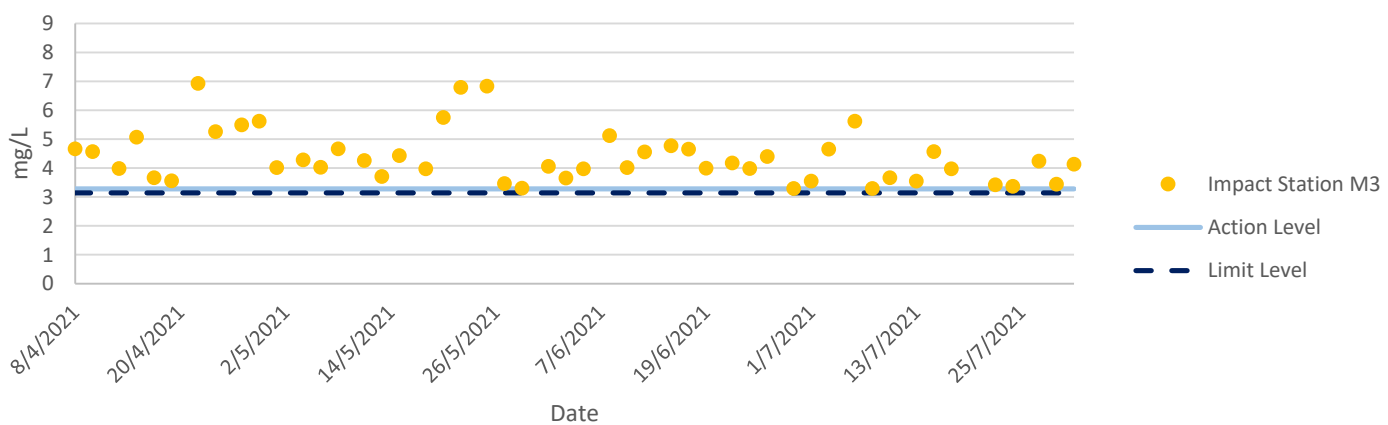
Dissolved Oxygen at Mid-Flood Tide



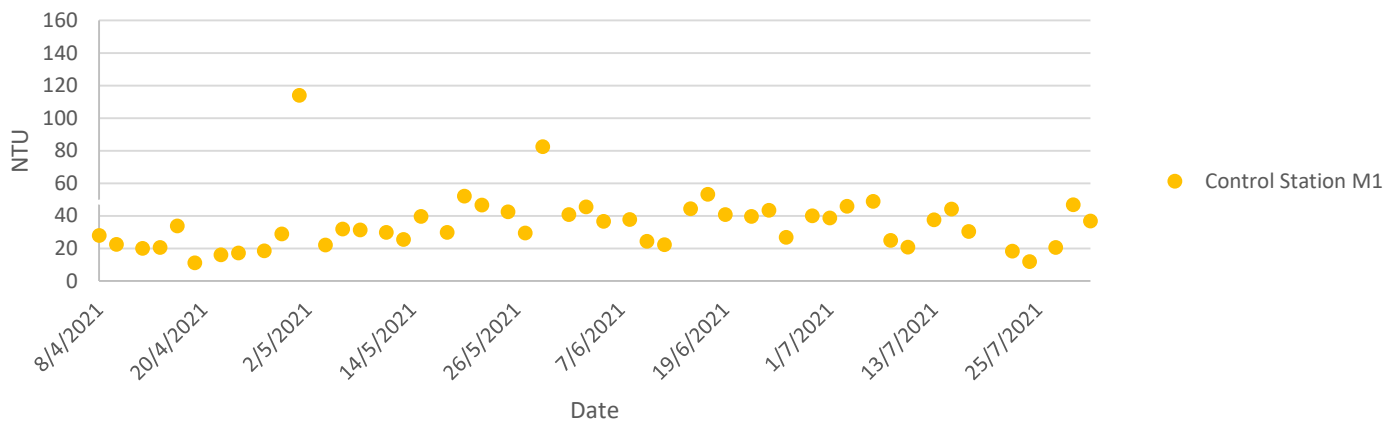
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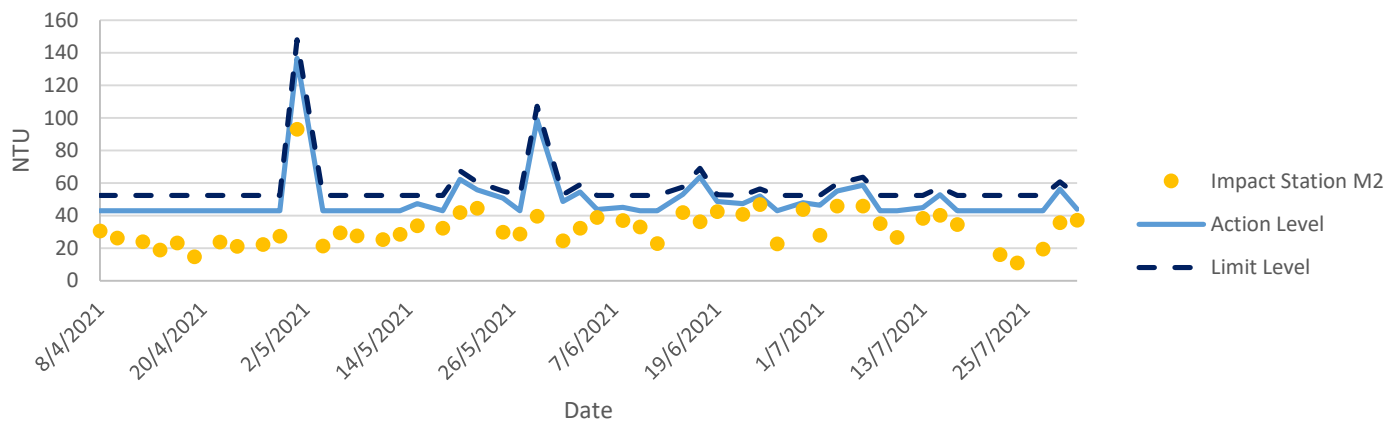
Dissolved Oxygen at Mid-Flood Tide



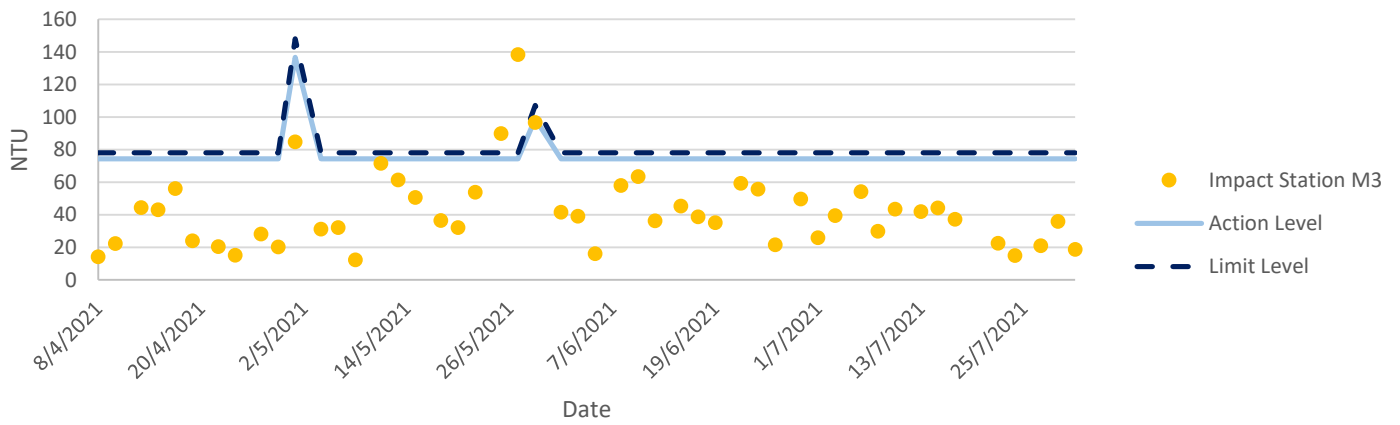
Turbidity at Mid-Flood Tide

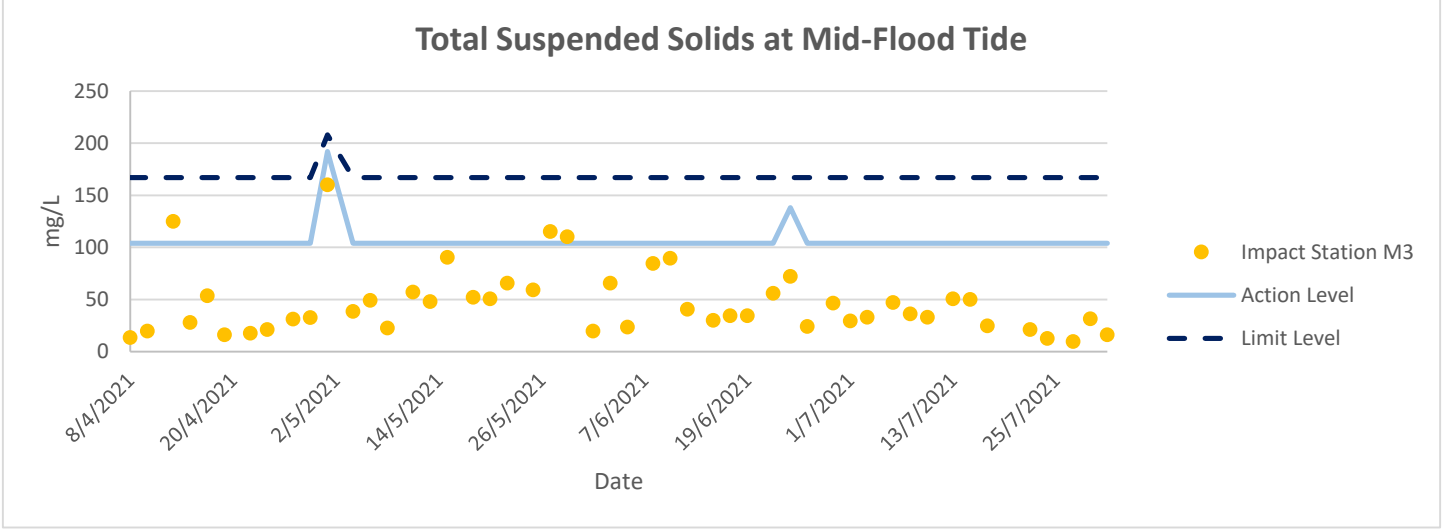
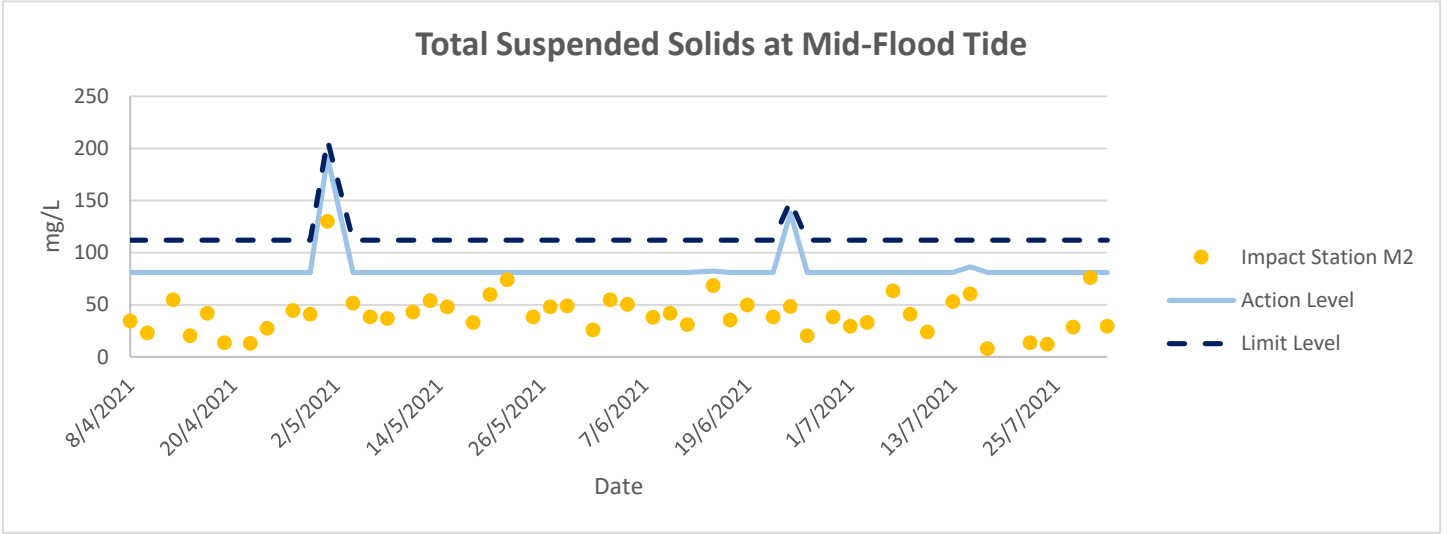
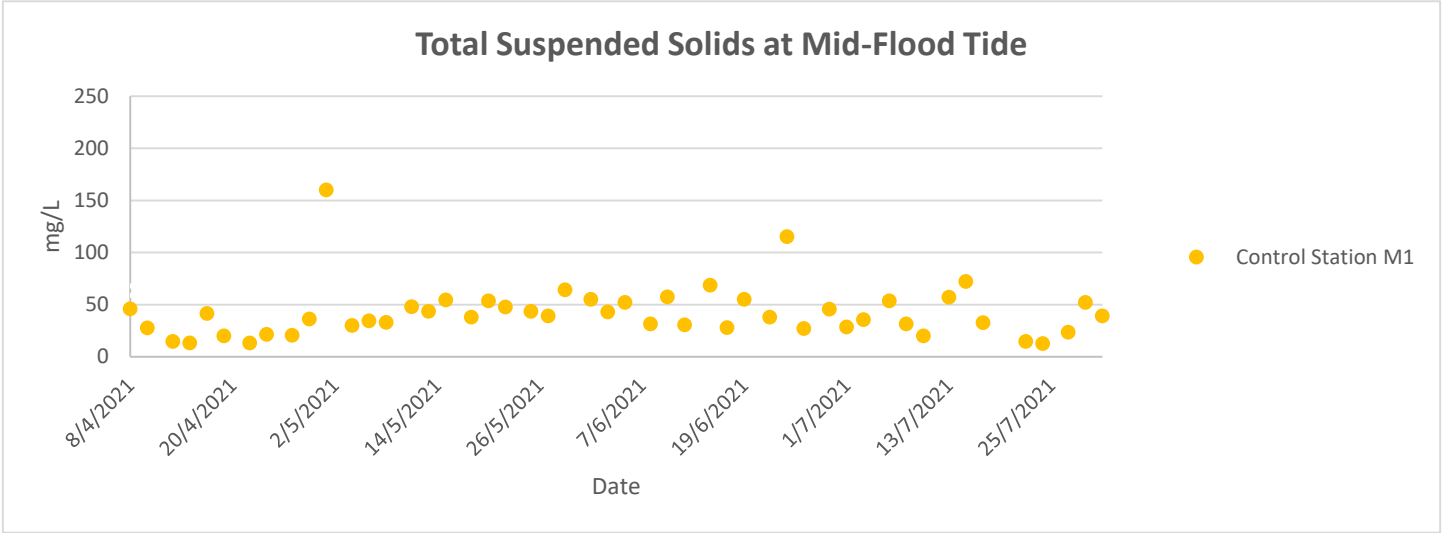


Turbidity at Mid-Flood Tide

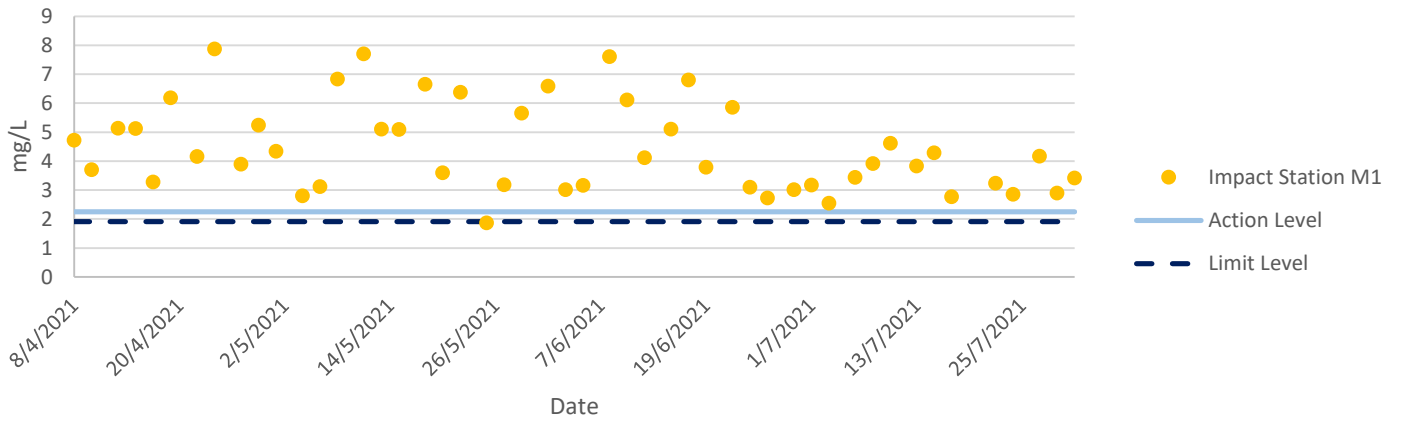


Turbidity at Mid-Flood Tide

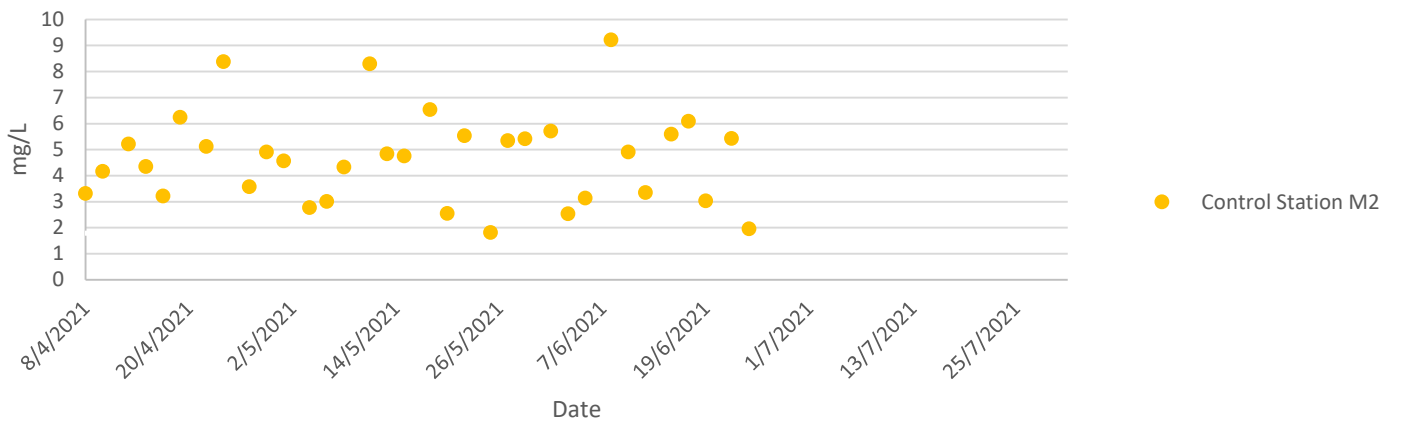




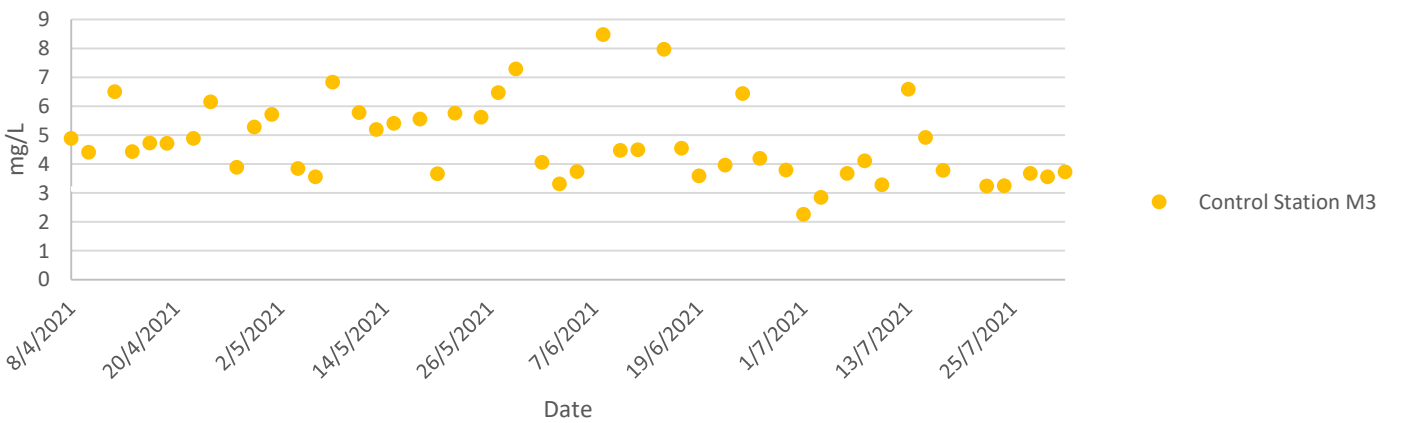
Dissolved Oxygen at Mid-Ebb Tide



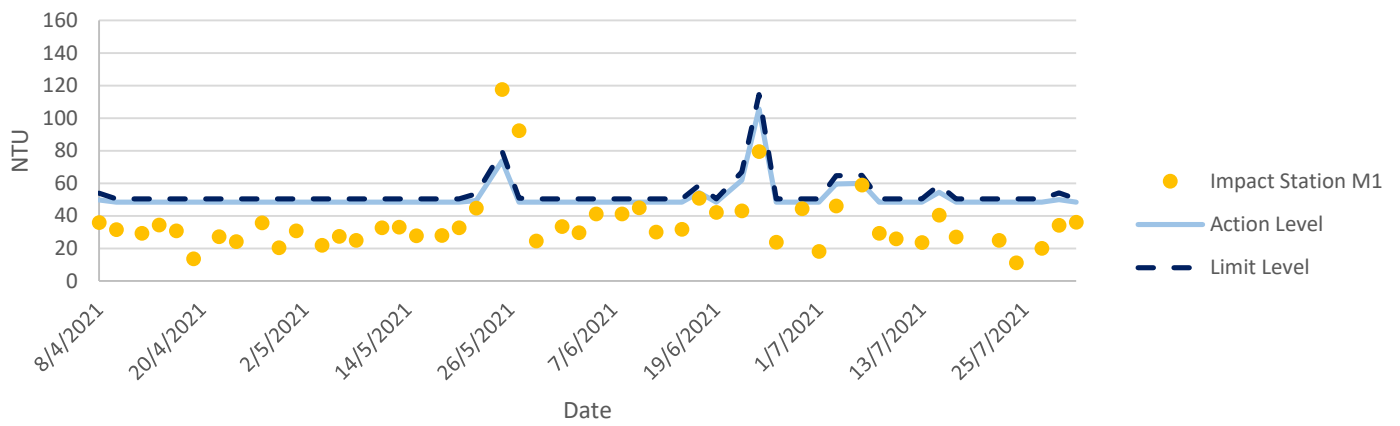
Dissolved Oxygen at Mid-Ebb Tide



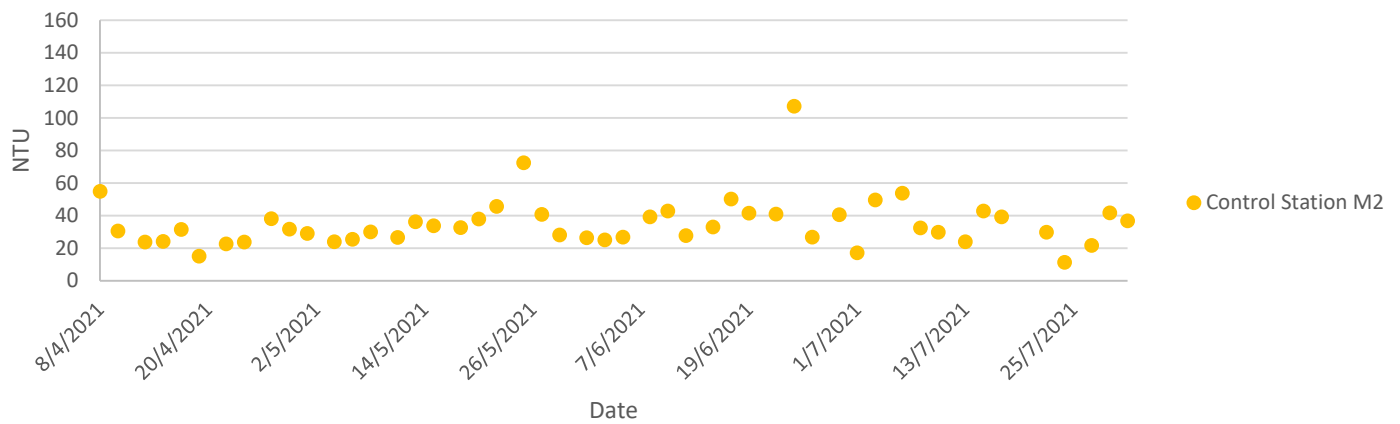
Dissolved Oxygen at Mid-Ebb Tide



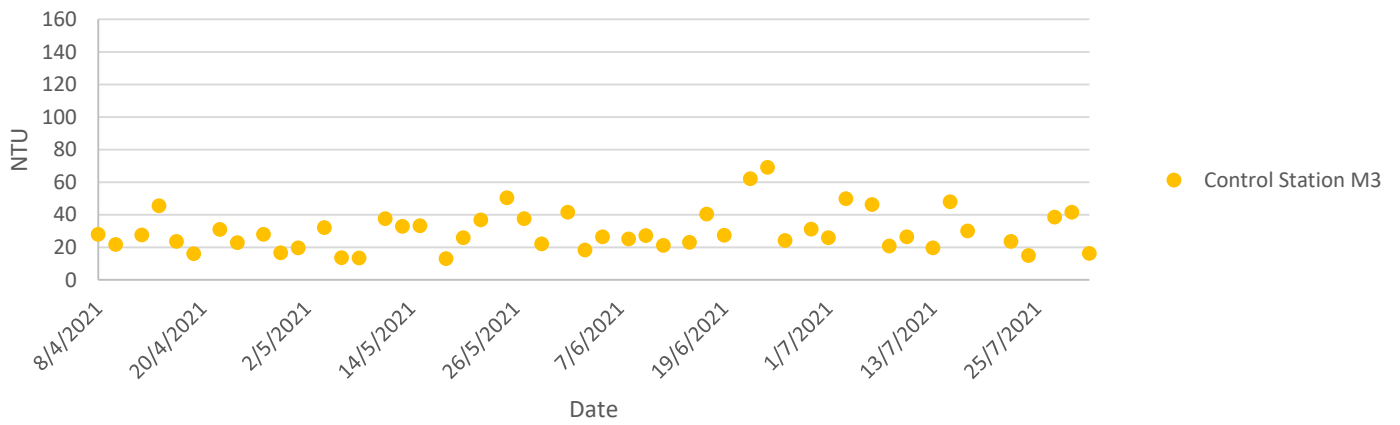
Turbidity at Mid-Ebb Tide



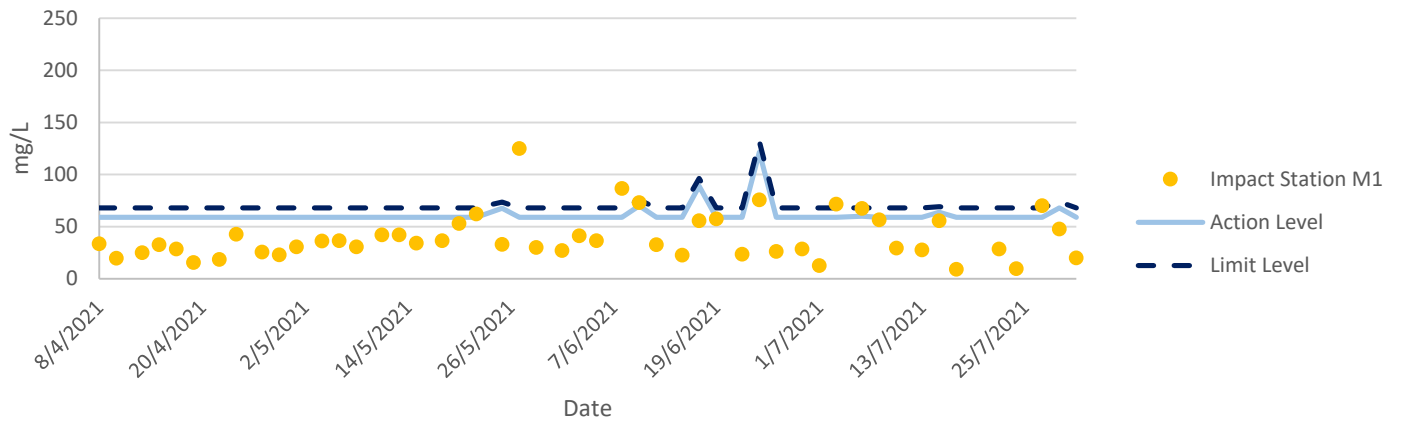
Turbidity at Mid-Ebb Tide



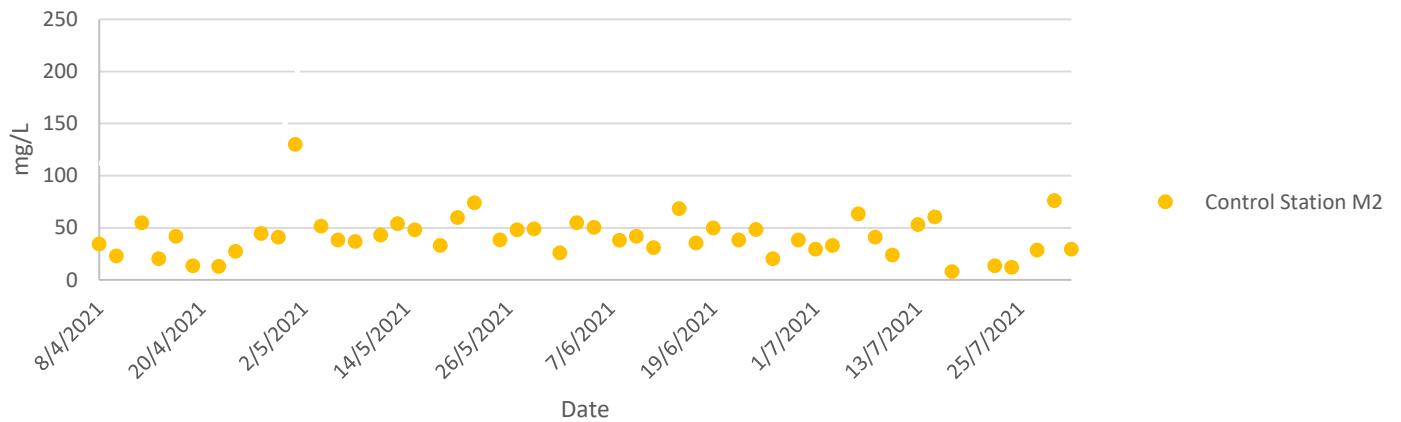
Turbidity at Mid-Ebb Tide



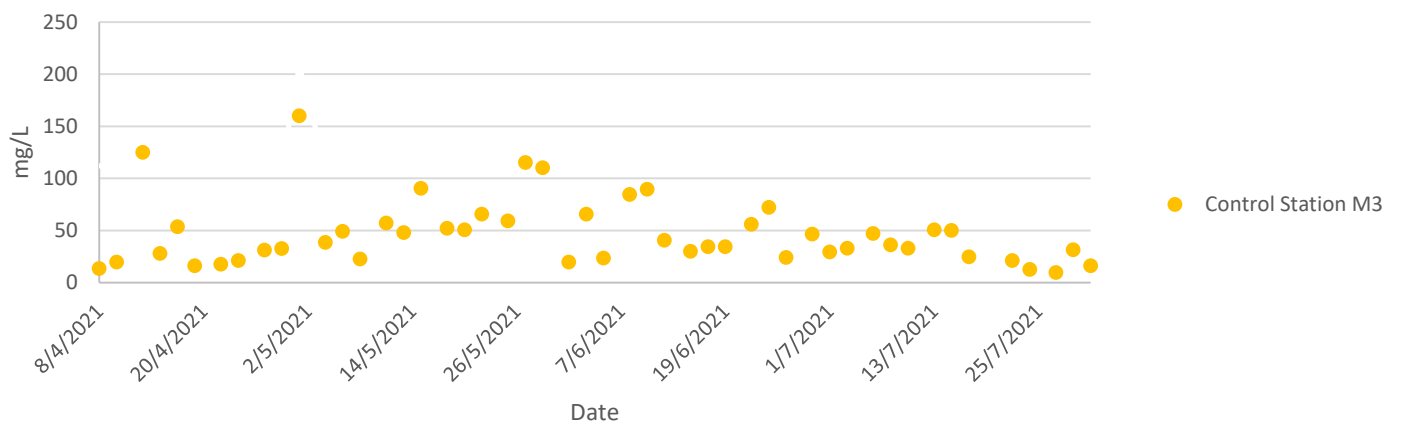
Total Suspended Solids at Mid-Ebb Tide



Total Suspended Solids at Mid-Ebb Tide



Total Suspended Solids at Mid-Ebb Tide



Ecology Monitoring Results

Appendix F.1 Supplemental Discussion

F.1.1 Active Ardeid Night Roost

For the final night roost, a total of 5 individuals (3 Chinese Pond Heron and 2 Little Egret) utilized the understory to canopy layers of the roosting substrate *Sonneratia apetala* and *S. caseolaris*. The night roost (ANR2) located at the northeast of the Project boundary, as noted to be active last April 2021, was not used by the ardeids during the current monitoring period, similar with the June 2021 results. This was, however, not caused by the Project's construction activities as the recorded noise level ((48.8 dB(A)) near ANR2 was lower with respect to the action limit level of 65.5 dB(A) which more likely to cause behavioural responses of some kind by the ardeids (Wright et al. 2010). Furthermore, ardeid night roosts are known for their highly changeable locations and roosting population. These roosting locations can change in temporal basis and even change from day to day on a small scale. In Hong Kong, fluctuation of roosting population, abandonment or change in locations of roosting site without major nearby environmental change has been observed in roosts and locations (HKJC, 2005; Lee et al., 2004; MTRC, 2010).

F.1.2 Ecological Monitoring of Birds

F.1.2.1 Abundance

F.1.2.1.1 All Avifauna Species

Point Count

Among the different species recorded, the Chinese Pond Heron *Ardeola bacchus* was noted with the highest abundance (37 ind.), followed by Barn Swallow *Hirundo rustica* (12 ind.); and Little Egret *Egretta garzetta* (11 ind.) and Crested Myna *Acridotheres cristatellus* (11 ind.) The high abundance of Chinese Pond Heron was due to its concurrent breeding period. On the other hand, several species were noted with low abundances (only one ind.), these include the Greater Coucal *Centropus sinensis* and White-breasted Waterhen *Amaurornis phoenicurus*, among others.

Transect Walk

Among the different species recorded, the Chinese Pond Heron was noted with the highest abundance (19 ind.), followed by Eurasian Tree Sparrow *Passer montanus* (5 ind.) and Azure-winged Magpie *Cyanopica cyanus* (4 ind.).

F.1.2.1.2 Avifauna Species of Conservation Importance

Point Count

Among the different species recorded, the Chinese Pond Heron was noted with the highest abundance (37 ind.), followed by Little Egret (11 ind.). On the other hand, the remaining species such as the Great Egret *Ardea alba* (2 ind.), Common Redshank *Tringa totanus* (1 ind.) and Greater Coucal (1 ind.) and were all noted with low abundances.

Transect Walk

Among the different species recorded, the Chinese Pond Heron was noted with the highest abundance (19 ind.). The remaining species such as the Little Egret (3 ind.), Great Egret (1 ind.) and Greater Coucal (1 ind.) were noted with low abundances.

F.1.2.2 Diversity (Species Richness and Shannon Diversity Index)

F.1.2.2.1 Avifauna Species of Conservation Importance

Point Count

A significant current decline in the Shannon diversity index was noted relative to the baseline results of $H' = 1.36$ at $\alpha = 0.05$. However, the significant decline was not caused by the construction works of the Project as noise levels (46.1 to 67.4 dB(A)) recorded from the different point count locations during the ecological bird monitoring are mostly low. The generally low noise levels are unlikely to cause significant impact to birds as behavioural response of some kind are more likely to occur at above 65.5 dB(A) (Wright et al. 2010). Only two stations, SP/NSW1 with 67.4 dB(A) and SP/NSW3 with 66.5 dB(A), have readings slightly above 65.5 dB(A). These stations are located across the Shan Pui River, relatively far from the construction works area; and are close to the roadsides with low to moderate traffic. During the monitoring period passing vehicles, barking dogs, and noisy insects were noted. The lower diversity during this period with respect to the baseline data could be due to the current dominance of Chinese Pond Heron in the community. The current dominance of this species was due to its concurrent breeding period. This dominant species could have decreased the performance of co-occurring species (Gilbert et al. 2009) and forced them to utilize other areas outside the survey area, thus, made the area less diverse. Furthermore, low diversity index usually results from high dominance in the community as these are inversely related (Shaukat et al., 1978).

Appendix F.2 Ecological Bird Monitoring Results (09 & 13 July 2021)

Date (dd/mm/yyyy)	Daytime/Night time	Season	Area	Transect/Point Count	Point Count (Location)/ Transect Impact	Common Name	Scientific Name	Abundance	Habitat	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020- 3)	Species of Conservation Importance	Wetland Dependent	Remarks
09/07/2021	Nighttime	Wet	NSW	Transect	NSW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	Roosting
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	14	Developed Area (Chinese Banyan Trees)	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Azure-winged Magpie	<i>Cyanopica cyanus</i>	4	Developed Area (Chinese Banyan Trees)	Introduced	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Grey Wagtail	<i>Motacilla cinerea</i>	1	Plantation-FLW	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Spotted Dove	<i>Spilopelia chinensis</i>	2	Plantation-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Plantation-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Greater Coucal	<i>Centropus sinensis</i>	1	Pond-FLW	Common	R	-	Class II	Vulnerabl e	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Eurasian Tree Sparrow	<i>Passer montanus</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Crested Myna	<i>Acridotheres cristatellus</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	16	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Oriental Magpie Robin	<i>Copsychus saularis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Spotted Dove	<i>Spilopelia chinensis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Plain Prinia	<i>Prinia inornata</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Crested Myna	<i>Acridotheres cristatellus</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Barn Swallow	<i>Hirundo rustica</i>	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	1	Pond-FLW	Uncommon	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Plain Prinia	<i>Prinia inornata</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Chinese Bulbul	<i>Pycnonotus sinensis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	

13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Plain Prinia	<i>Prinia inornata</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Barn Swallow	<i>Hirundo rustica</i>	3	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Oriental Magpie Robin	<i>Copsychus saularis</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	White Wagtail	<i>Motacilla alba</i>	2	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eastern Yellow Wagtail	<i>Motacilla tschutschensis</i>	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Little Egret	<i>Egretta garzetta</i>	4	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Crested Myna	<i>Acridotheres cristatellus</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Chinese Pond Heron	<i>Ardeola bacchus</i>	5	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Greater Coucal	<i>Centropus sinensis</i>	1	Pond-FLW	Common	R	-	Class II	Vulnerabl e	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Barn Swallow	<i>Hirundo rustica</i>	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Red-throated Flycatcher	<i>Ficedula albicilla</i>	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Long-tailed Shrike	<i>Lanius schach</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	2	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Japanese White-eye	<i>Zosterops japonicus</i>	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	

13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Crested Myna	<i>Acridotheres cristatellus</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-NSW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	5	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White Wagtail	<i>Motacilla alba</i>	1	Pond-NSW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White-shouldered Starling	<i>Sturnia sinensis</i>	1	Pond-NSW	Common	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	<i>Egretta garzetta</i>	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Redshank	<i>Tringa totanus</i>	1	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Crested Myna	<i>Acridotheres cristatellus</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	<i>Egretta garzetta</i>	4	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Long-tailed Shrike	<i>Lanius schach</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Spotted Dove	<i>Spilopelia chinensis</i>	2	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Sandpiper	<i>Actitis hypoleucos</i>	1	Modified Watercourse	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Crested Myna	<i>Acridotheres cristatellus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	

13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	4	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Chinese Pond Heron	<i>Ardeola bacchus</i>	5	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Crested Myna	<i>Acridotheres cristatellus</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Great Egret	<i>Ardea alba</i>	2	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Red-throated Flycatcher	<i>Ficedula albicilla</i>	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Barn Swallow	<i>Hirundo rustica</i>	7	Modified Watercourse	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Modified Watercourse	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	<i>Zosterops japonicus</i>	3	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	<i>Zosterops japonicus</i>	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Great Egret	<i>Ardea alba</i>	1	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Little Egret	<i>Egretta garzetta</i>	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Common Moorhen	<i>Gallinula chloropus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	

Notes:

- (1) All wild birds are protected under Wild Animals Protection Ordinance (Cap. 170).
- (2) AFCD (2021). Hong Kong Biodiversity Database.
- (3) Carey et al. (2001): R=resident; WV=winter visitor; SV=summer visitor; PM=passage migrant; Sp=spring; A=autumn;
- (4) Fellowes et al. (2002): GC=Global Concern; LC=Local Concern; RC=Regional Concern; PRC=Potential Regional Concern; PGC: Potential Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in nesting and/or roosting sites rather than in general occurrence.
- (5) List of Wild Animals Under State Protection (promulgated by State Forestry Administration and Ministry of Agriculture on 14 January, 1989).
- (6) Zheng, G. M. and Wang, Q. S. (1998). China Red Data Book
- (7) IUCN 2021. The IUCN Red List of Threatened Species. Version 2020-3.
- (9) Wetland-dependent species (including wetland-dependent species and waterbirds).
- (10) Jiang et al. (2016). Red List of China's Vertebrates

Appendix F.3.1 Ecological Bird Monitoring Diversity (All avifauna species in Point Count Method) in All Habitats (09 & 13 July 2021)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) ²
<i>Acridotheres cristatellus</i>	11	0.077465	-2.55793	-0.19815	0.506853
<i>Actitis hypoleucos</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Amaurornis phoenicurus</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Ardea alba</i>	2	0.014085	-4.26268	-0.06004	0.255922
<i>Ardeola bacchus</i>	37	0.260563	-1.34491	-0.35043	0.471302
<i>Centropus sinensis</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Copsychus saularis</i>	6	0.042254	-3.16407	-0.13369	0.423014
<i>Egretta garzetta</i>	11	0.077465	-2.55793	-0.19815	0.506853
<i>Ficedula albicilla</i>	2	0.014085	-4.26268	-0.06004	0.255922
<i>Garrulax perspicillatus</i>	8	0.056338	-2.87639	-0.16205	0.466118
<i>Gracupica nigricollis</i>	2	0.014085	-4.26268	-0.06004	0.255922
<i>Hirundo rustica</i>	12	0.084507	-2.47092	-0.20881	0.515953
<i>Lanius schach</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Motacilla alba</i>	3	0.021127	-3.85721	-0.08149	0.314326
<i>Motacilla tschutschensis</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Nycticorax nycticorax</i>	3	0.021127	-3.85721	-0.08149	0.314326
<i>Orthotomus sutorius</i>	6	0.042254	-3.16407	-0.13369	0.423014
<i>Passer montanus</i>	6	0.042254	-3.16407	-0.13369	0.423014
<i>Prinia flaviventris</i>	2	0.014085	-4.26268	-0.06004	0.255922
<i>Prinia inornata</i>	4	0.028169	-3.56953	-0.10055	0.358917
<i>Pycnonotus jocosus</i>	6	0.042254	-3.16407	-0.13369	0.423014
<i>Pycnonotus sinensis</i>	2	0.014085	-4.26268	-0.06004	0.255922
<i>Spilopelia chinensis</i>	6	0.042254	-3.16407	-0.13369	0.423014
<i>Streptopelia tranquebarica</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Sturnia sinensis</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Tringa totanus</i>	1	0.007042	-4.95583	-0.0349	0.172959
<i>Zosterops japonicus</i>	5	0.035211	-3.34639	-0.11783	0.394307
Total	142	1	-103.219	-2.74681	8.627308
Richness	27				
SS	8.627308				
SQ	7.544967				
H	2.74681				
S ² _H	0.008267				

Appendix F.3.2 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Point Count Method) in All Habitats (09 & 13 July 2021)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) ²
<i>Ardea alba</i>	2	0.038462	-3.2581	-0.12531	0.408277
<i>Ardeola bacchus</i>	37	0.711538	-0.34033	-0.24215	0.082412
<i>Centropus sinensis</i>	1	0.019231	-3.95124	-0.07599	0.300237
<i>Egretta garzetta</i>	11	0.211538	-1.55335	-0.32859	0.510419
<i>Tringa totanus</i>	1	0.019231	-3.95124	-0.07599	0.300237

Total	52	1	-13.0543	-0.84803	1.601582
Richness	5				
SS	1.601582				
SQ	0.719155				
H	0.84803				
S ² _H	0.017709				

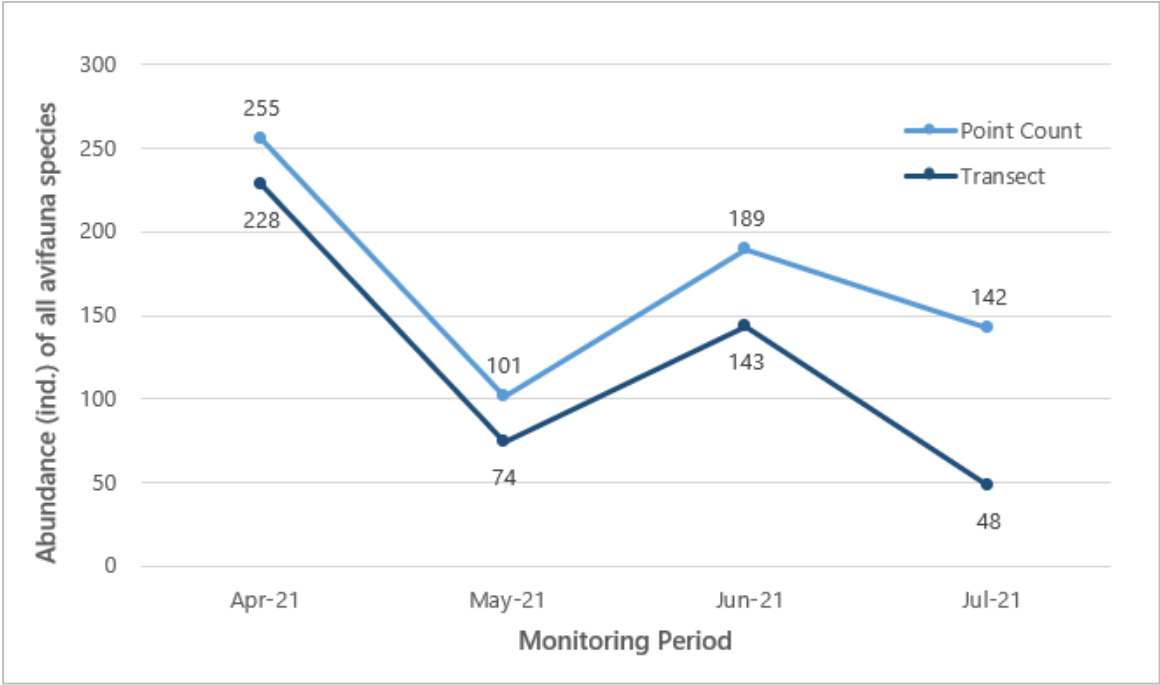
Appendix F.3.3 Appendix F.2c Ecological Bird Monitoring Diversity (All avifauna species in Transect Walk Method) in All Habitats (09 & 13 July 2021)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) ²
<i>Acridotheres cristatellus</i>	2	0.041667	-3.17805	-0.13242	0.420834
<i>Ardea alba</i>	1	0.020833	-3.8712	-0.08065	0.312212
<i>Ardeola bacchus</i>	19	0.395833	-0.92676	-0.36684	0.339976
<i>Centropus sinensis</i>	1	0.020833	-3.8712	-0.08065	0.312212
<i>Cyanopica cyanus</i>	4	0.083333	-2.48491	-0.20708	0.514563
<i>Egretta garzetta</i>	3	0.0625	-2.77259	-0.17329	0.480453
<i>Ficedula albicilla</i>	2	0.041667	-3.17805	-0.13242	0.420834
<i>Gallinula chloropus</i>	1	0.020833	-3.8712	-0.08065	0.312212
<i>Garrulax perspicillatus</i>	2	0.041667	-3.17805	-0.13242	0.420834
<i>Lanius schach</i>	1	0.020833	-3.8712	-0.08065	0.312212
<i>Passer montanus</i>	5	0.104167	-2.26176	-0.2356	0.532872
<i>Spilopelia chinensis</i>	3	0.0625	-2.77259	-0.17329	0.480453
<i>Zosterops japonicus</i>	3	0.0625	-2.77259	-0.17329	0.480453
<i>Motacilla cinerea</i>	1	0.020833	-3.8712	-0.08065	0.312212
Total	48	1	-42.8814	-2.12989	5.652337
Richness	14				
SS	5.652337				
SQ	4.536416				
H	2.12989				
S ² _H	0.02607				

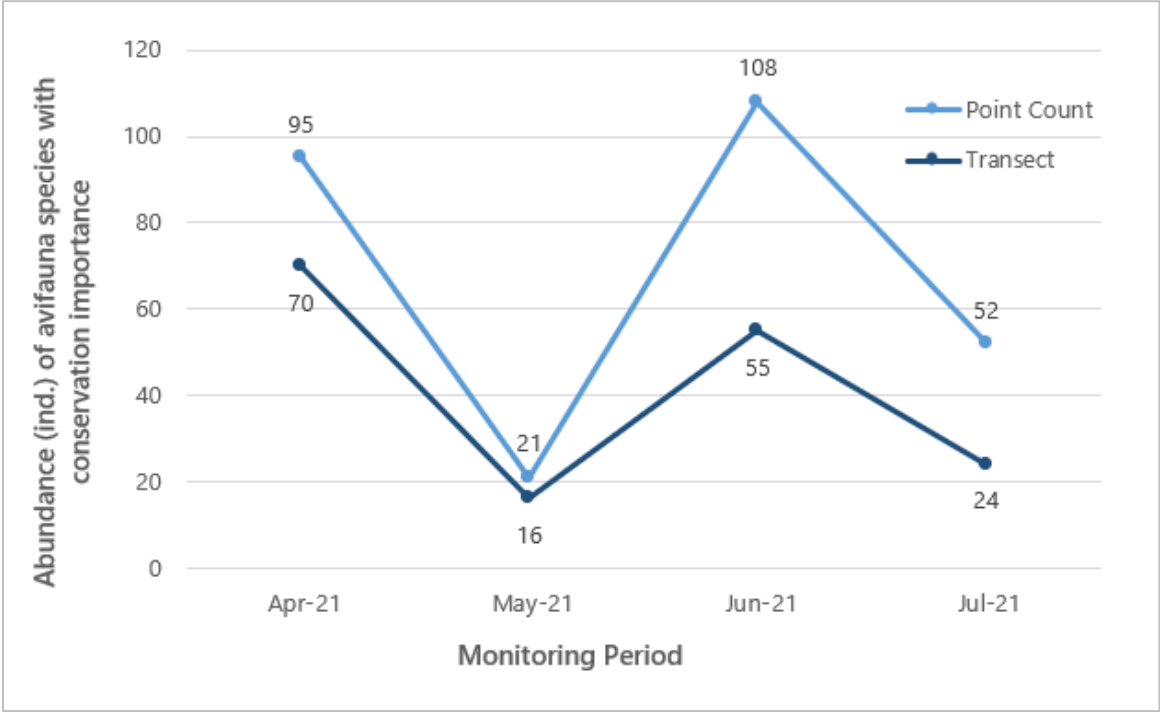
Appendix F.3.4 Appendix F.2d Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Transect Walk Method) in All Habitats (09 & 13 July 2021)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) ²
<i>Ardea alba</i>	1	0.041667	-3.17805	-0.13242	0.420834
<i>Ardeola bacchus</i>	19	0.791667	-0.23361	-0.18495	0.043206
<i>Centropus sinensis</i>	1	0.041667	-3.17805	-0.13242	0.420834
<i>Egretta garzetta</i>	3	0.125	-2.07944	-0.25993	0.54051
Total	24	1	-8.66916	-0.70971	1.425384
Richness	4				
SS	1.425384				
SQ	0.503693				
H	0.70971				
S ² _H	0.041008				

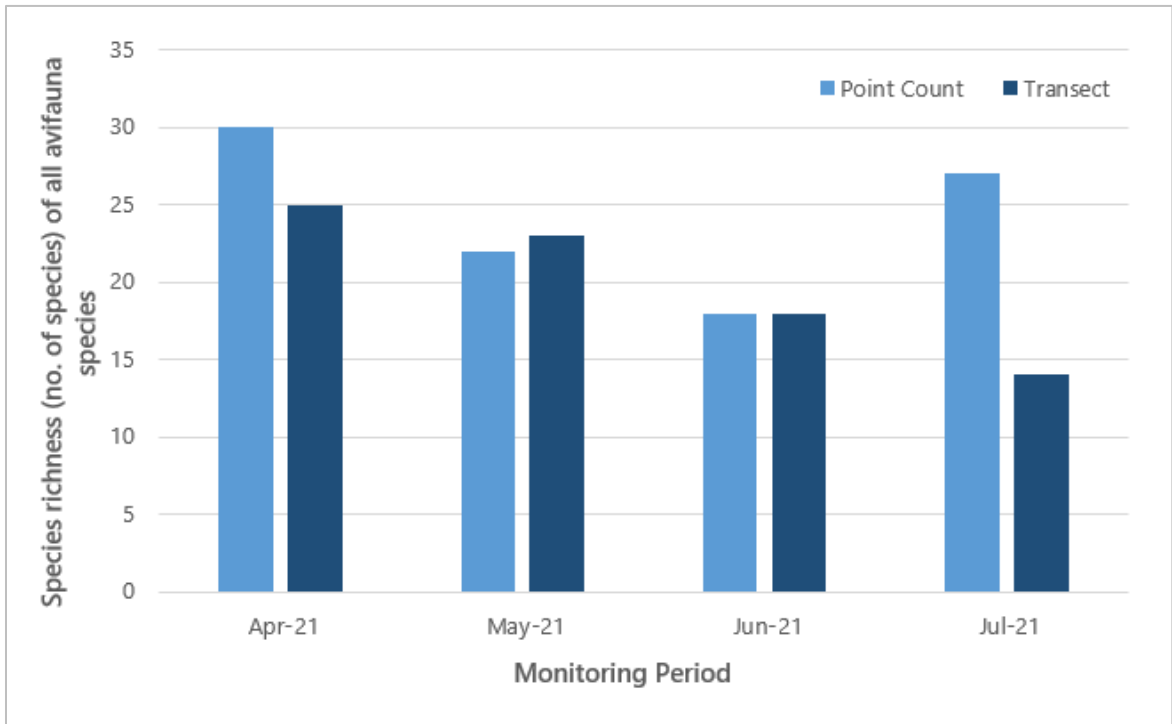
Appendix F.4.1 Abundance of all avifauna species throughout the monitoring period



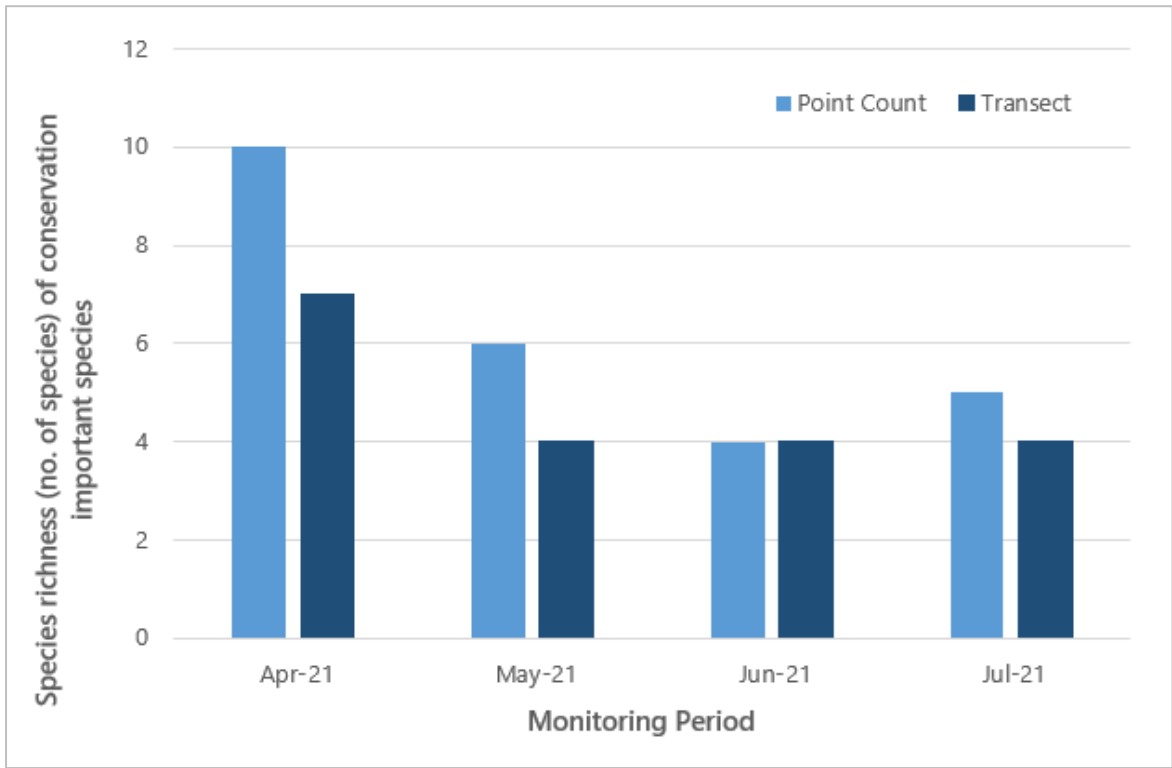
Appendix F.4.2 Abundance of avifauna species with conservation importance throughout the monitoring period



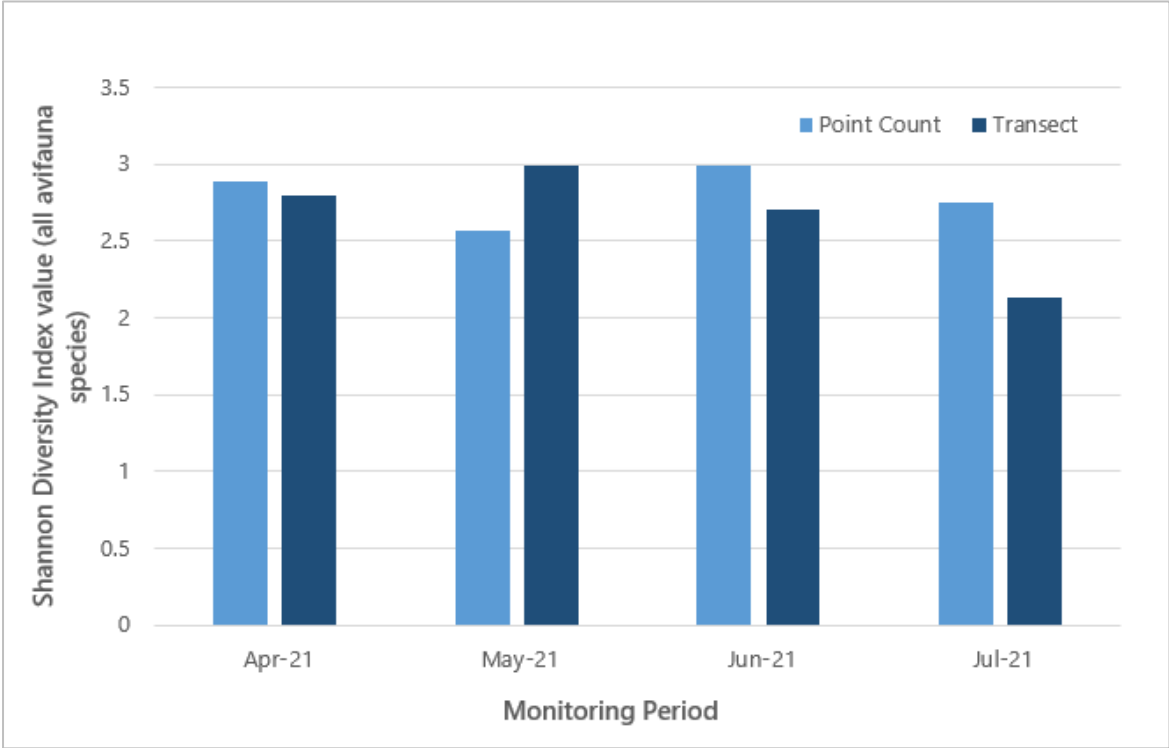
Appendix F.5.1 Species richness of all avifauna species throughout the monitoring period



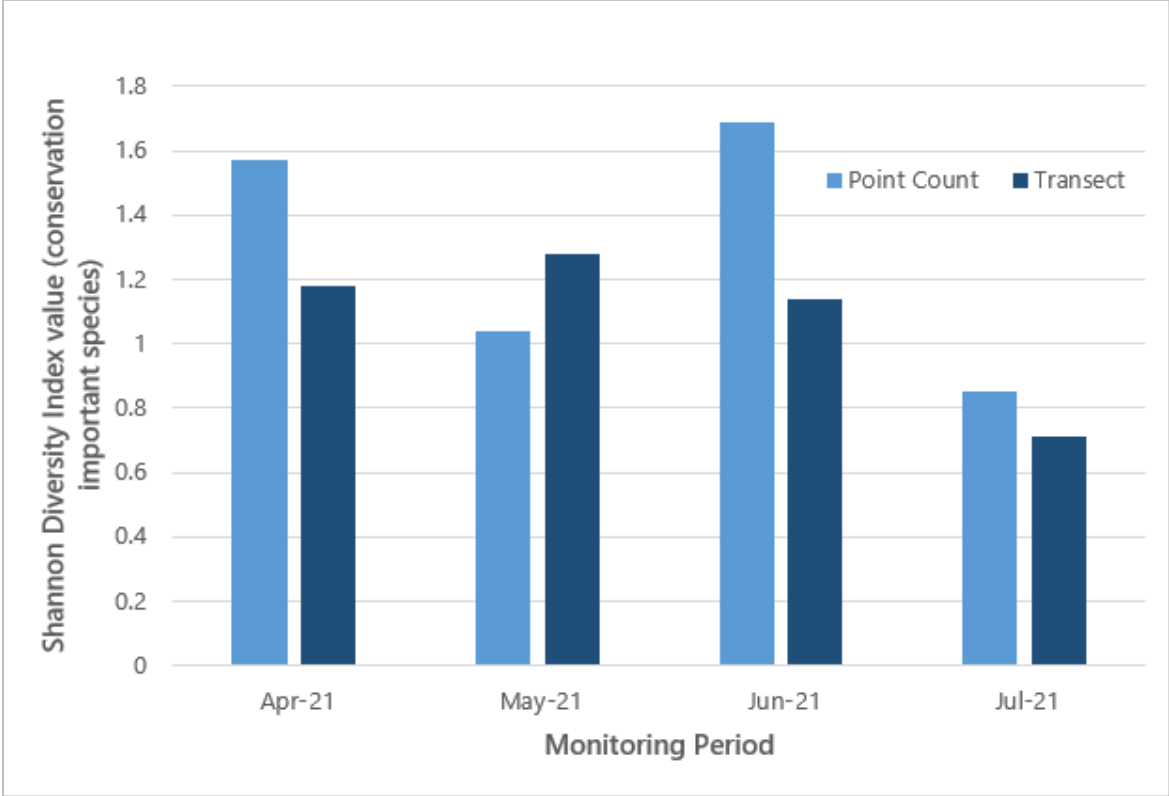
Appendix F.5.2 Species richness of avifauna species with conservation importance throughout the monitoring period



Appendix F.6.1 Shannon Diversity Index values of all avifauna species throughout the monitoring period



Appendix F.6.2 Shannon Diversity Index values of avifauna species with conservation importance throughout the monitoring period



Appendix F.7.1 T-test output table for abundance of avifauna species with conservation importance – Point Count Method

Months	July 2017	July 2021
N	24	16
df	23	15
M	3.33	3.25
SS	363.33	205
s ²	15.8	13.67
t-value	0.07	
p-value	0.95	

Appendix F.7.2 Hutcheson t-test testing method and output

Formula:

$$t = \frac{H_a - H_b}{\sqrt{s_{H_a}^2 + s_{H_b}^2}}$$

Appendix F.7.2.1 Species diversity of all avifauna species – Transect Walk Method

Months	July 2017	July 2021
Total	36	48
N	18	14
H	0.93	2.13
S ² _H	0.059876	0.02607
t	4.084457	
df	65	
Crit	1.99773	
p	0.000125	
CI	0.489393	0.322921

Appendix F.7.2.2 Species diversity of avifauna species with conservation importance – Point Count Method

Months	July 2017	July 2021
Total	80	52
N	5	5
H	1.3642	0.8480
S ² _H	0.004471	0.017709
t	3.465844	

Months	July 2017	July 2021
df	78	
Crit	1.990847	
p	0.000862	
CI	0.133728	0.266153

Appendix F.7.2.3 Species diversity of avifauna species with conservation importance – Transect Walk Method

Months	July 2017	July 2021
Total	8	24
N	3	4
H	0.90	0.71
S ² _H	0.059196	0.041008
t	0.601937	
df	20	
Crit	2.093024	
p	0.554332	
CI	0.486604	0.405009

Appendix G

Wind Data

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
01/07/2021 00:00	0.1	NEE
01/07/2021 01:00	0.1	SEE
01/07/2021 02:00	0.1	SES
01/07/2021 03:00	0.8	SES
01/07/2021 04:00	0.0	SE
01/07/2021 05:00	0.0	NEN
01/07/2021 06:00	0.0	SE
01/07/2021 07:00	0.3	NE
01/07/2021 08:00	0.1	NEN
01/07/2021 09:00	0.2	NEE
01/07/2021 10:00	0.4	NE
01/07/2021 11:00	0.0	E
01/07/2021 12:00	0.1	NEN
01/07/2021 13:00	0.1	E
01/07/2021 14:00	0.0	SE
01/07/2021 15:00	0.1	SEE
01/07/2021 16:00	0.1	NE
01/07/2021 17:00	0.0	NE
01/07/2021 18:00	0.0	NEN
01/07/2021 19:00	0.0	SEE
01/07/2021 20:00	0.1	N
01/07/2021 21:00	0.3	SEE
01/07/2021 22:00	0.0	SEE
01/07/2021 23:00	0.2	SES
01/07/2021 00:00	0.4	SES
02/07/2021 01:00	0.0	SEE
02/07/2021 02:00	0.7	SES
02/07/2021 03:00	0.1	SE
02/07/2021 04:00	0.6	SES
02/07/2021 05:00	0.1	SE
02/07/2021 06:00	0.8	SES
02/07/2021 07:00	0.0	E
02/07/2021 08:00	0.0	NEE
02/07/2021 09:00	0.0	NE
02/07/2021 10:00	0.1	NE
02/07/2021 11:00	0.1	NEN
02/07/2021 12:00	0.0	NEN
02/07/2021 13:00	0.0	E

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
02/07/2021 14:00	0.0	E
02/07/2021 15:00	0.0	SEE
02/07/2021 16:00	0.0	SEE
02/07/2021 17:00	0.0	SEE
02/07/2021 18:00	0.0	E
02/07/2021 19:00	0.1	SE
02/07/2021 20:00	0.1	SE
02/07/2021 21:00	0.0	S
02/07/2021 22:00	0.1	E
02/07/2021 23:00	0.2	SE
02/07/2021 00:00	0.1	SWS
03/07/2021 01:00	0.3	SES
03/07/2021 02:00	0.4	SWS
03/07/2021 03:00	0.4	SES
03/07/2021 04:00	0.1	SEE
03/07/2021 05:00	0.1	SE
03/07/2021 06:00	0.5	SES
03/07/2021 07:00	0.2	SE
03/07/2021 08:00	0.0	SES
03/07/2021 09:00	0.1	S
03/07/2021 10:00	0.0	SEE
03/07/2021 11:00	0.1	NEE
03/07/2021 12:00	0.0	SES
03/07/2021 13:00	0.0	NEE
03/07/2021 14:00	0.0	NEE
03/07/2021 15:00	0.0	NEE
03/07/2021 16:00	0.0	NE
03/07/2021 17:00	0.0	NE
03/07/2021 18:00	0.0	NE
03/07/2021 19:00	0.0	E
03/07/2021 20:00	0.0	NE
03/07/2021 21:00	0.2	NEN
03/07/2021 22:00	0.1	SE
03/07/2021 23:00	0.0	SEE
03/07/2021 00:00	0.4	N
04/07/2021 01:00	0.9	NWW
04/07/2021 02:00	0.1	NW
04/07/2021 03:00	0.1	SW

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
04/07/2021 04:00	0.3	SW
04/07/2021 05:00	0.1	S
04/07/2021 06:00	0.3	SWS
04/07/2021 07:00	0.0	S
04/07/2021 08:00	0.6	S
04/07/2021 09:00	0.2	SES
04/07/2021 10:00	0.1	SES
04/07/2021 11:00	0.1	S
04/07/2021 12:00	0.0	NEE
04/07/2021 13:00	0.0	NEE
04/07/2021 14:00	0.0	SE
04/07/2021 15:00	0.0	E
04/07/2021 16:00	0.0	E
04/07/2021 17:00	0.0	E
04/07/2021 18:00	0.0	E
04/07/2021 19:00	0.0	SEE
04/07/2021 20:00	0.0	SEE
04/07/2021 21:00	0.0	SEE
04/07/2021 22:00	0.0	NEE
04/07/2021 23:00	0.0	NEN
04/07/2021 00:00	0.1	NEN
05/07/2021 01:00	0.1	W
05/07/2021 02:00	0.1	SWW
05/07/2021 03:00	0.3	SWW
05/07/2021 04:00	0.4	SWW
05/07/2021 05:00	0.2	SW
05/07/2021 06:00	0.0	W
05/07/2021 07:00	0.0	SE
05/07/2021 08:00	0.1	E
05/07/2021 09:00	0.1	SE
05/07/2021 10:00	0.0	SE
05/07/2021 11:00	0.0	SE
05/07/2021 12:00	0.0	NEE
05/07/2021 13:00	0.0	NEN
05/07/2021 14:00	0.0	NEN
05/07/2021 15:00	0.0	NEN
05/07/2021 16:00	0.0	NE
05/07/2021 17:00	0.0	NE

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Date	Wind Speed	Wind Direction
05/07/2021 18:00	0.0	NE
05/07/2021 19:00	0.0	NE
05/07/2021 20:00	0.0	NWW
05/07/2021 21:00	0.0	NEE
05/07/2021 22:00	0.0	E
05/07/2021 23:00	0.1	N
06/07/2021 00:00	0.1	SEE
06/07/2021 01:00	0.0	NEE
06/07/2021 02:00	0.1	NW
06/07/2021 03:00	0.1	NW
06/07/2021 04:00	0.2	SE
06/07/2021 05:00	0.0	NWW
06/07/2021 06:00	0.1	S
06/07/2021 07:00	0.0	SWS
06/07/2021 08:00	0.0	NWN
06/07/2021 09:00	0.1	SE
06/07/2021 10:00	0.3	SES
06/07/2021 11:00	0.0	S
06/07/2021 12:00	0.0	SE
06/07/2021 13:00	0.0	SE
06/07/2021 14:00	0.0	NE
06/07/2021 15:00	0.0	NE
06/07/2021 16:00	0.0	NE
06/07/2021 17:00	0.0	NE
06/07/2021 18:00	0.0	NE
06/07/2021 19:00	0.0	NE
06/07/2021 20:00	0.0	NEN
06/07/2021 21:00	0.0	NEN
06/07/2021 22:00	0.0	NEN
06/07/2021 23:00	0.1	NE
07/07/2021 00:00	0.2	NEE
07/07/2021 01:00	0.0	SEE
07/07/2021 02:00	0.0	SWS
07/07/2021 03:00	0.2	SE
07/07/2021 04:00	0.0	SE
07/07/2021 05:00	0.1	SWW
07/07/2021 06:00	0.3	S
07/07/2021 07:00	1.0	SES

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Date	Wind Speed	Wind Direction
07/07/2021 08:00	0.3	SE
07/07/2021 09:00	0.7	S
07/07/2021 10:00	0.1	SEE
07/07/2021 11:00	0.5	S
07/07/2021 12:00	0.1	SEE
07/07/2021 13:00	0.3	SES
07/07/2021 14:00	0.1	SES
07/07/2021 15:00	0.0	E
07/07/2021 16:00	0.1	SES
07/07/2021 17:00	0.3	SES
07/07/2021 18:00	0.1	SES
07/07/2021 19:00	0.0	SES
07/07/2021 20:00	0.0	SES
07/07/2021 21:00	0.0	SEE
07/07/2021 22:00	0.0	SES
07/07/2021 23:00	0.0	S
08/07/2021 00:00	0.0	SEE
08/07/2021 01:00	0.0	SEE
08/07/2021 02:00	0.0	SEE
08/07/2021 03:00	0.0	SEE
08/07/2021 04:00	0.0	SEE
08/07/2021 05:00	0.0	SEE
08/07/2021 06:00	0.0	SEE
08/07/2021 07:00	0.0	E
08/07/2021 08:00	0.0	NEE
08/07/2021 09:00	0.1	NWN
08/07/2021 10:00	0.0	SW
08/07/2021 11:00	0.2	W
08/07/2021 12:00	0.8	NWW
08/07/2021 13:00	0.1	SWW
08/07/2021 14:00	0.0	NWW
08/07/2021 15:00	0.2	N
08/07/2021 16:00	0.1	N
08/07/2021 17:00	0.0	SWW
08/07/2021 18:00	0.3	NWN
08/07/2021 19:00	0.0	NWN
08/07/2021 20:00	0.0	NWW
08/07/2021 21:00	0.3	SW

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Date	Wind Speed	Wind Direction
08/07/2021 22:00	0.1	N
08/07/2021 23:00	0.0	SES
09/07/2021 00:00	0.4	SE
09/07/2021 01:00	0.2	S
09/07/2021 02:00	0.4	SES
09/07/2021 03:00	0.4	SES
09/07/2021 04:00	0.5	SES
09/07/2021 05:00	0.1	SES
09/07/2021 06:00	0.8	S
09/07/2021 07:00	0.1	SEE
09/07/2021 08:00	0.0	SE
09/07/2021 09:00	0.1	SES
09/07/2021 10:00	0.2	SES
09/07/2021 11:00	0.1	SES
09/07/2021 12:00	0.1	SE
09/07/2021 13:00	0.0	S
09/07/2021 14:00	0.1	SES
09/07/2021 15:00	0.0	SE
09/07/2021 16:00	0.0	SES
09/07/2021 17:00	0.0	SE
09/07/2021 18:00	0.0	SES
09/07/2021 19:00	0.0	SES
09/07/2021 20:00	0.0	SES
09/07/2021 21:00	0.0	NEE
09/07/2021 22:00	0.0	NEE
09/07/2021 23:00	0.0	NEE
10/07/2021 00:00	0.0	NE
10/07/2021 01:00	0.0	NE
10/07/2021 02:00	0.3	NE
10/07/2021 03:00	0.0	NW
10/07/2021 04:00	0.1	SWW
10/07/2021 05:00	0.2	W
10/07/2021 06:00	0.1	NE
10/07/2021 07:00	0.0	SE
10/07/2021 08:00	0.0	SE
10/07/2021 09:00	0.4	SW
10/07/2021 10:00	0.5	SES
10/07/2021 11:00	0.1	SE

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Date	Wind Speed	Wind Direction
10/07/2021 12:00	0.3	SES
10/07/2021 13:00	0.4	SE
10/07/2021 14:00	0.2	SES
10/07/2021 15:00	0.1	SES
10/07/2021 16:00	0.0	SEE
10/07/2021 17:00	0.0	NE
10/07/2021 18:00	0.0	NE
10/07/2021 19:00	0.0	W
10/07/2021 20:00	0.0	N
10/07/2021 21:00	0.0	N
10/07/2021 22:00	0.0	NEN
10/07/2021 23:00	0.0	NEE
11/07/2021 00:00	0.0	SES
11/07/2021 01:00	0.0	NEE
11/07/2021 02:00	0.1	NEE
11/07/2021 03:00	0.1	NEE
11/07/2021 04:00	0.1	S
11/07/2021 05:00	0.0	W
11/07/2021 06:00	0.1	NEN
11/07/2021 07:00	0.0	SWS
11/07/2021 08:00	0.4	SE
11/07/2021 09:00	0.0	SWS
11/07/2021 10:00	0.2	SEE
11/07/2021 11:00	0.4	SES
11/07/2021 12:00	0.2	SWS
11/07/2021 13:00	0.7	SWS
11/07/2021 14:00	0.2	SES
11/07/2021 15:00	0.3	SES
11/07/2021 16:00	0.1	SE
11/07/2021 17:00	0.0	E
11/07/2021 18:00	0.0	SES
11/07/2021 19:00	0.0	SEE
11/07/2021 20:00	0.2	SES
11/07/2021 21:00	0.0	S
11/07/2021 22:00	0.0	SES
11/07/2021 23:00	0.0	NE
12/07/2021 00:00	0.0	NE
12/07/2021 01:00	0.0	NE

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Date	Wind Speed	Wind Direction
12/07/2021 02:00	0.0	NE
12/07/2021 03:00	0.1	SWW
12/07/2021 04:00	0.2	SES
12/07/2021 05:00	0.0	SE
12/07/2021 06:00	0.0	N
12/07/2021 07:00	0.8	N
12/07/2021 08:00	0.0	N
12/07/2021 09:00	0.0	SEE
12/07/2021 10:00	0.0	SE
12/07/2021 11:00	0.0	SE
12/07/2021 12:00	0.0	N
12/07/2021 13:00	0.0	NEE
12/07/2021 14:00	0.1	NE
12/07/2021 15:00	0.1	N
12/07/2021 16:00	0.1	NE
12/07/2021 17:00	0.0	NEE
12/07/2021 18:00	0.0	NEE
12/07/2021 19:00	0.0	NEE
12/07/2021 20:00	0.0	NE
12/07/2021 21:00	0.0	NE
12/07/2021 22:00	0.0	NE
12/07/2021 23:00	0.0	NE
13/07/2021 00:00	0.0	NE
13/07/2021 01:00	0.0	NE
13/07/2021 02:00	0.0	SES
13/07/2021 03:00	0.0	E
13/07/2021 04:00	0.0	N
13/07/2021 05:00	0.0	SEE
13/07/2021 06:00	0.1	SE
13/07/2021 07:00	0.1	NEN
13/07/2021 08:00	0.2	NE
13/07/2021 09:00	0.2	SEE
13/07/2021 10:00	0.7	NEN
13/07/2021 11:00	0.1	NEE
13/07/2021 12:00	0.5	NE
13/07/2021 13:00	0.1	NE
13/07/2021 14:00	0.1	NEE
13/07/2021 15:00	0.3	NEN

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Date	Wind Speed	Wind Direction
13/07/2021 16:00	0.0	NEE
13/07/2021 17:00	0.0	NE
13/07/2021 18:00	0.0	NEN
13/07/2021 19:00	0.1	N
13/07/2021 20:00	0.0	E
13/07/2021 21:00	0.1	NEE
13/07/2021 22:00	0.0	NEN
13/07/2021 23:00	0.2	NEN
14/07/2021 00:00	0.0	NE
14/07/2021 01:00	0.0	NEE
14/07/2021 02:00	0.0	NE
14/07/2021 03:00	0.0	NEE
14/07/2021 04:00	0.0	SWW
14/07/2021 05:00	0.1	SEE
14/07/2021 06:00	0.0	SES
14/07/2021 07:00	0.1	SES
14/07/2021 08:00	0.1	SES
14/07/2021 09:00	0.4	NE
14/07/2021 10:00	0.1	NEE
14/07/2021 11:00	0.6	NE
14/07/2021 12:00	0.4	NE
14/07/2021 13:00	0.3	SEE
14/07/2021 14:00	0.1	SEE
14/07/2021 15:00	0.1	NE
14/07/2021 16:00	0.3	NEE
14/07/2021 17:00	0.1	NEE
14/07/2021 18:00	0.2	NE
14/07/2021 19:00	0.3	NEE
14/07/2021 20:00	0.5	NE
14/07/2021 21:00	0.2	N
14/07/2021 22:00	0.0	NEE
14/07/2021 23:00	0.0	E
15/07/2021 00:00	0.2	NE
15/07/2021 01:00	0.0	SE
15/07/2021 02:00	1.1	NEE
15/07/2021 03:00	0.0	NE
15/07/2021 04:00	0.1	NE
15/07/2021 05:00	0.1	NEE

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Date	Wind Speed	Wind Direction
15/07/2021 06:00	0.2	NEE
15/07/2021 07:00	0.1	NE
15/07/2021 08:00	0.6	NE
15/07/2021 09:00	0.2	E
15/07/2021 10:00	0.1	NEE
15/07/2021 11:00	0.2	NEE
15/07/2021 12:00	0.0	SE
15/07/2021 13:00	0.2	NEN
15/07/2021 14:00	0.1	NEE
15/07/2021 15:00	0.6	NE
15/07/2021 16:00	0.3	NE
15/07/2021 17:00	0.7	NE
15/07/2021 18:00	0.4	NE
15/07/2021 19:00	0.1	NEE
15/07/2021 20:00	0.1	NE
15/07/2021 21:00	0.6	NE
15/07/2021 22:00	0.2	NEN
15/07/2021 23:00	0.3	NE
16/07/2021 00:00	0.5	NEN
16/07/2021 01:00	0.2	NEN
16/07/2021 02:00	0.1	NEE
16/07/2021 03:00	0.1	NE
16/07/2021 04:00	0.2	NEE
16/07/2021 05:00	0.1	NEE
16/07/2021 06:00	0.1	NEN
16/07/2021 07:00	0.0	NEN
16/07/2021 08:00	0.2	NEE
16/07/2021 09:00	0.1	SWW
16/07/2021 10:00	0.1	N
16/07/2021 11:00	0.0	NEN
16/07/2021 12:00	0.1	NEN
16/07/2021 13:00	0.0	E
16/07/2021 14:00	0.0	SES
16/07/2021 15:00	0.0	NE
16/07/2021 16:00	0.2	NE
16/07/2021 17:00	0.4	NE
16/07/2021 18:00	0.1	NE
16/07/2021 19:00	0.1	NE

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Date	Wind Speed	Wind Direction
16/07/2021 20:00	0.1	NE
16/07/2021 21:00	0.1	NE
16/07/2021 22:00	0.0	NEE
16/07/2021 23:00	0.2	NE
17/07/2021 00:00	0.0	N
17/07/2021 01:00	0.0	SES
17/07/2021 02:00	0.0	NE
17/07/2021 03:00	0.0	NEE
17/07/2021 04:00	0.0	NEE
17/07/2021 05:00	0.0	NE
17/07/2021 06:00	0.0	SEE
17/07/2021 07:00	0.0	NEE
17/07/2021 08:00	0.0	NE
17/07/2021 09:00	0.1	NE
17/07/2021 10:00	0.2	NEN
17/07/2021 11:00	0.0	NE
17/07/2021 12:00	0.2	NE
17/07/2021 13:00	0.3	NEE
17/07/2021 14:00	0.3	NE
17/07/2021 15:00	0.4	NE
17/07/2021 16:00	0.1	NE
17/07/2021 17:00	0.6	NE
17/07/2021 18:00	0.2	NEE
17/07/2021 19:00	0.1	SEE
17/07/2021 20:00	0.1	SE
17/07/2021 21:00	0.0	SEE
17/07/2021 22:00	0.1	NE
17/07/2021 23:00	0.0	NE
18/07/2021 00:00	0.0	NE
18/07/2021 01:00	0.0	NE
18/07/2021 02:00	0.0	NE
18/07/2021 03:00	0.0	NE
18/07/2021 04:00	0.0	NE
18/07/2021 05:00	0.0	NE
18/07/2021 06:00	0.0	NE
18/07/2021 07:00	0.0	NE
18/07/2021 08:00	0.1	NEN
18/07/2021 09:00	0.1	NEN

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Date	Wind Speed	Wind Direction
18/07/2021 10:00	0.1	NE
18/07/2021 11:00	0.3	E
18/07/2021 12:00	0.1	NEN
18/07/2021 13:00	0.3	SWS
18/07/2021 14:00	0.1	S
18/07/2021 15:00	0.1	N
18/07/2021 16:00	0.0	SW
18/07/2021 17:00	0.3	NW
18/07/2021 18:00	0.1	NW
18/07/2021 19:00	0.0	SWW
18/07/2021 20:00	0.2	W
18/07/2021 21:00	0.0	W
18/07/2021 22:00	0.1	S
18/07/2021 23:00	0.0	SWS
19/07/2021 00:00	0.2	S
19/07/2021 01:00	0.0	S
19/07/2021 02:00	0.0	S
19/07/2021 03:00	0.0	S
19/07/2021 04:00	0.0	S
19/07/2021 05:00	0.0	SWS
19/07/2021 06:00	0.0	N
19/07/2021 07:00	0.0	SW
19/07/2021 08:00	0.0	SWW
19/07/2021 09:00	0.0	SE
19/07/2021 10:00	0.0	NWW
19/07/2021 11:00	0.0	SW
19/07/2021 12:00	0.1	N
19/07/2021 13:00	0.0	NEE
19/07/2021 14:00	0.0	NWW
19/07/2021 15:00	0.6	NWW
19/07/2021 16:00	0.0	SWW
19/07/2021 17:00	0.2	NWN
19/07/2021 18:00	0.1	S
19/07/2021 19:00	0.3	W
19/07/2021 20:00	0.0	NWW
19/07/2021 21:00	0.1	SES
19/07/2021 22:00	0.2	SES
19/07/2021 23:00	0.0	SWS

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Date	Wind Speed	Wind Direction
20/07/2021 00:00	0.0	SES
20/07/2021 01:00	0.1	SWS
20/07/2021 02:00	0.0	NEE
20/07/2021 03:00	0.0	NE
20/07/2021 04:00	0.0	SES
20/07/2021 05:00	0.0	NE
20/07/2021 06:00	0.0	SES
20/07/2021 07:00	0.0	NWN
20/07/2021 08:00	0.0	SEE
20/07/2021 09:00	0.0	SEE
20/07/2021 10:00	0.0	E
20/07/2021 11:00	0.0	E
20/07/2021 12:00	0.0	NW
20/07/2021 13:00	0.0	SWW
20/07/2021 14:00	0.0	SWW
20/07/2021 15:00	0.1	W
20/07/2021 16:00	0.0	W
20/07/2021 17:00	0.6	W
20/07/2021 18:00	0.1	NWW
20/07/2021 19:00	0.0	SES
20/07/2021 20:00	0.3	SW
20/07/2021 21:00	0.9	NE
20/07/2021 22:00	0.1	SES
20/07/2021 23:00	0.0	NE
21/07/2021 00:00	0.0	NEN
21/07/2021 01:00	0.0	SEE
21/07/2021 02:00	0.1	NEN
21/07/2021 03:00	0.0	NE
21/07/2021 04:00	0.1	NWN
21/07/2021 05:00	0.0	E
21/07/2021 06:00	0.1	S
21/07/2021 07:00	0.0	SE
21/07/2021 08:00	0.0	NEE
21/07/2021 09:00	0.0	NE
21/07/2021 10:00	0.0	E
21/07/2021 11:00	0.0	NE
21/07/2021 12:00	0.0	E
21/07/2021 13:00	0.0	SEE

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Date	Wind Speed	Wind Direction
21/07/2021 14:00	0.0	NWN
21/07/2021 15:00	0.1	SWS
21/07/2021 16:00	0.0	W
21/07/2021 17:00	0.0	NWW
21/07/2021 18:00	0.0	SEE
21/07/2021 19:00	0.3	SWW
21/07/2021 20:00	0.0	SES
21/07/2021 21:00	0.1	SE
21/07/2021 22:00	0.1	SES
21/07/2021 23:00	0.1	SES
22/07/2021 00:00	0.7	SES
22/07/2021 01:00	0.3	S
22/07/2021 02:00	0.1	SES
22/07/2021 03:00	0.0	SES
22/07/2021 04:00	0.0	SES
22/07/2021 05:00	0.0	SES
22/07/2021 06:00	0.0	SW
22/07/2021 07:00	0.0	SWS
22/07/2021 08:00	0.0	E
22/07/2021 09:00	0.0	SWS
22/07/2021 10:00	0.0	SWS
22/07/2021 11:00	0.0	SES
22/07/2021 12:00	0.0	SES
22/07/2021 13:00	0.0	NW
22/07/2021 14:00	0.0	NWN
22/07/2021 15:00	0.1	SWW
22/07/2021 16:00	0.0	SWW
22/07/2021 17:00	0.1	W
22/07/2021 18:00	0.0	NW
22/07/2021 19:00	0.0	SES
22/07/2021 20:00	0.3	NWW
22/07/2021 21:00	0.0	SWS
22/07/2021 22:00	0.0	SW
22/07/2021 23:00	0.5	S
23/07/2021 00:00	0.3	SE
23/07/2021 01:00	0.3	SES
23/07/2021 02:00	0.1	SE
23/07/2021 03:00	0.1	SES

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Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
23/07/2021 04:00	0.3	S
23/07/2021 05:00	0.1	S
23/07/2021 06:00	0.0	SES
23/07/2021 07:00	0.0	SES
23/07/2021 08:00	0.0	SES
23/07/2021 09:00	0.0	SES
23/07/2021 10:00	0.0	SES
23/07/2021 11:00	0.0	SES
23/07/2021 12:00	0.0	SES
23/07/2021 13:00	0.0	SES
23/07/2021 14:00	0.1	NW
23/07/2021 15:00	0.0	NWW
23/07/2021 16:00	0.1	NWW
23/07/2021 17:00	0.1	S
23/07/2021 18:00	0.1	NWW
23/07/2021 19:00	0.3	SWW
23/07/2021 20:00	0.0	SW
23/07/2021 21:00	0.1	W
23/07/2021 22:00	0.0	NWN
23/07/2021 23:00	0.1	SE
24/07/2021 00:00	0.1	SE
24/07/2021 01:00	0.1	SE
24/07/2021 02:00	0.1	SES
24/07/2021 03:00	1.7	N
24/07/2021 04:00	0.0	NE
24/07/2021 05:00	0.0	S
24/07/2021 06:00	0.0	SES
24/07/2021 07:00	0.0	SW
24/07/2021 08:00	0.0	NWN
24/07/2021 09:00	0.0	NW
24/07/2021 10:00	0.1	SES
24/07/2021 11:00	0.0	SWS
24/07/2021 12:00	0.0	S
24/07/2021 13:00	0.0	S
24/07/2021 14:00	0.1	SWS
24/07/2021 15:00	0.2	NWW
24/07/2021 16:00	0.2	SW
24/07/2021 17:00	0.1	S

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
24/07/2021 18:00	0.0	W
24/07/2021 19:00	0.2	NWW
24/07/2021 20:00	0.1	NWW
24/07/2021 21:00	0.0	S
24/07/2021 22:00	0.2	NWW
24/07/2021 23:00	0.8	SWS
25/07/2021 00:00	0.9	SES
25/07/2021 01:00	0.0	NEE
25/07/2021 02:00	0.0	SE
25/07/2021 03:00	0.1	NE
25/07/2021 04:00	0.0	NE
25/07/2021 05:00	0.0	SEE
25/07/2021 06:00	0.0	NEE
25/07/2021 07:00	0.0	NEE
25/07/2021 08:00	0.0	W
25/07/2021 09:00	0.0	SW
25/07/2021 10:00	0.0	S
25/07/2021 11:00	0.0	SE
25/07/2021 12:00	0.0	SE
25/07/2021 13:00	0.0	SWW
25/07/2021 14:00	0.0	SWW
25/07/2021 15:00	0.0	N
25/07/2021 16:00	0.0	NE
25/07/2021 17:00	0.0	N
25/07/2021 18:00	0.0	S
25/07/2021 19:00	0.3	NWW
25/07/2021 20:00	0.3	W
25/07/2021 21:00	0.6	NEN
25/07/2021 22:00	0.1	SES
25/07/2021 23:00	1.7	SES
26/07/2021 00:00	0.3	SES
26/07/2021 01:00	0.0	SES
26/07/2021 02:00	0.0	NE
26/07/2021 03:00	0.0	S
26/07/2021 04:00	0.0	NE
26/07/2021 05:00	0.0	E
26/07/2021 06:00	0.0	E
26/07/2021 07:00	0.0	E

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
26/07/2021 08:00	0.0	SES
26/07/2021 09:00	0.0	SE
26/07/2021 10:00	0.1	SW
26/07/2021 11:00	0.0	SW
26/07/2021 12:00	0.0	SE
26/07/2021 13:00	0.1	SES
26/07/2021 14:00	0.0	SES
26/07/2021 15:00	0.0	SEE
26/07/2021 16:00	0.0	SE
26/07/2021 17:00	0.0	SEE
26/07/2021 18:00	0.0	SE
26/07/2021 19:00	0.0	NE
26/07/2021 20:00	0.0	S
26/07/2021 21:00	0.1	W
26/07/2021 22:00	0.3	SWS
26/07/2021 23:00	0.7	SWS
27/07/2021 00:00	0.1	SW
27/07/2021 01:00	0.6	SES
27/07/2021 02:00	0.0	SWW
27/07/2021 03:00	0.1	SES
27/07/2021 04:00	0.1	SE
27/07/2021 05:00	0.2	SES
27/07/2021 06:00	0.1	SWS
27/07/2021 07:00	0.0	SES
27/07/2021 08:00	0.0	SES
27/07/2021 09:00	0.0	NE
27/07/2021 10:00	0.0	NE
27/07/2021 11:00	0.0	NE
27/07/2021 12:00	0.0	SWS
27/07/2021 13:00	0.1	S
27/07/2021 14:00	0.0	NEN
27/07/2021 15:00	0.0	SE
27/07/2021 16:00	0.0	SE
27/07/2021 17:00	0.0	SE
27/07/2021 18:00	0.0	SE
27/07/2021 19:00	0.0	W
27/07/2021 20:00	0.3	SWW
27/07/2021 21:00	0.1	NWW

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
27/07/2021 22:00	0.6	SWW
27/07/2021 23:00	0.3	SE
28/07/2021 00:00	0.6	S
28/07/2021 01:00	0.1	SES
28/07/2021 02:00	0.3	SWS
28/07/2021 03:00	0.4	SW
28/07/2021 04:00	0.1	SW
28/07/2021 05:00	0.0	W
28/07/2021 06:00	0.0	SW
28/07/2021 07:00	0.1	SE
28/07/2021 08:00	0.0	SES
28/07/2021 09:00	0.0	SWS
28/07/2021 10:00	0.1	SES
28/07/2021 11:00	0.0	SWS
28/07/2021 12:00	0.0	SE
28/07/2021 13:00	0.0	N
28/07/2021 14:00	0.0	NW
28/07/2021 15:00	0.0	SES
28/07/2021 16:00	0.0	SWS
28/07/2021 17:00	0.0	SW
28/07/2021 18:00	0.1	SW
28/07/2021 19:00	0.2	S
28/07/2021 20:00	0.0	SES
28/07/2021 21:00	0.1	W
28/07/2021 22:00	0.1	NWW
28/07/2021 23:00	0.3	NWW
29/07/2021 00:00	0.0	N
29/07/2021 01:00	0.0	S
29/07/2021 02:00	0.5	S
29/07/2021 03:00	0.7	S
29/07/2021 04:00	0.0	SES
29/07/2021 05:00	0.4	NE
29/07/2021 06:00	0.0	NWW
29/07/2021 07:00	0.0	NEE
29/07/2021 08:00	0.0	NE
29/07/2021 09:00	0.0	NEE
29/07/2021 10:00	0.0	NEE
29/07/2021 11:00	0.0	N

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
29/07/2021 12:00	0.0	SWS
29/07/2021 13:00	0.0	SW
29/07/2021 14:00	0.0	SES
29/07/2021 15:00	0.0	SE
29/07/2021 16:00	0.0	SWW
29/07/2021 17:00	0.0	SWW
29/07/2021 18:00	0.0	SWW
29/07/2021 19:00	0.0	NEN
29/07/2021 20:00	0.1	NEN
29/07/2021 21:00	0.0	N
29/07/2021 22:00	0.0	NWW
29/07/2021 23:00	0.1	SWW
30/07/2021 00:00	0.0	N
30/07/2021 01:00	0.1	SES
30/07/2021 02:00	0.1	SES
30/07/2021 03:00	0.1	SES
30/07/2021 04:00	0.1	SE
30/07/2021 05:00	0.0	SES
30/07/2021 06:00	0.1	NE
30/07/2021 07:00	0.0	NE
30/07/2021 08:00	0.0	E
30/07/2021 09:00	0.0	E
30/07/2021 10:00	0.1	SES
30/07/2021 11:00	0.0	SE
30/07/2021 12:00	0.1	SES
30/07/2021 13:00	0.1	SES
30/07/2021 14:00	0.0	SES
30/07/2021 15:00	0.0	SE
30/07/2021 16:00	0.0	SES
30/07/2021 17:00	0.0	SE
30/07/2021 18:00	0.0	SE
30/07/2021 19:00	0.0	NWN
30/07/2021 20:00	0.0	SE
30/07/2021 21:00	0.0	SE
30/07/2021 22:00	0.0	NEN
30/07/2021 23:00	0.0	SW
31/07/2021 00:00	0.0	SES
31/07/2021 01:00	1.7	SEE

Wind Data for
Contract No. SPW 07/2020 Environmental Team for Construction of
Yuen Long Effluent Polishing Plant Stage 1

Date	Wind Speed	Wind Direction
31/07/2021 02:00	0.3	SES
31/07/2021 03:00	0.2	SES
31/07/2021 04:00	0.0	S
31/07/2021 05:00	0.0	SES
31/07/2021 06:00	0.1	SES
31/07/2021 07:00	0.3	SES
31/07/2021 08:00	0.0	S
31/07/2021 09:00	0.0	SES
31/07/2021 10:00	0.0	NE
31/07/2021 11:00	0.0	NE
31/07/2021 12:00	0.0	NE
31/07/2021 13:00	0.0	NE
31/07/2021 14:00	0.1	SES
31/07/2021 15:00	0.0	S
31/07/2021 16:00	0.0	NW
31/07/2021 17:00	0.0	SE
31/07/2021 18:00	0.0	SE
31/07/2021 19:00	0.0	SE
31/07/2021 20:00	0.2	SWS
31/07/2021 21:00	0.4	SWW
31/07/2021 22:00	0.4	SWW
31/07/2021 23:00	0.8	NW
01/08/2021 00:00	0.0	SW

Appendix H

Event and Action Plan

Event and Action Plan for Air Quality (Construction Dust)

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

Event and Action Plan for Noise (Construction)

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

Event and Action Plan for Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Consider changes of working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.

EVENT	ACTION			
	ET	IEC	ER	Contractor
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.

Event and Action Plan for Ecology Monitoring

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

Appendix I

Waste Flow Table

Waste Flow Table for Year 2021											
Monthly Ending	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
		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 2)	Chemical Waste	Others, e.g. general refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2021 Jan	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2021 Feb	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2021 Mar	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2021 Apr	216.92	Nil	Nil	Nil	152.94	Nil	Nil	Nil	Nil	Nil	63.98
2021 May	277.74	Nil	Nil	Nil	268.92	Nil	Nil	0.11	Nil	Nil	8.71
2021 Jun	715.93	Nil	Nil	Nil	551.41	Nil	146.74	0.11	Nil	Nil	17.67
2021 Jul	1521.38	Nil	Nil	Nil	1466.15	Nil	32.46	Nil	Nil	Nil	22.77
2021 Aug											
2021 Sep											
2021 Oct											
2021 Nov											
2021 Dec											
Total	2731.97	0	0	0	2439.42	0	179.2	0.22	0	0	113.13

Note:

- 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 materials.

Appendix J

Implementation Status of Environment

Mitigation Measures

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
Air Quality Impact			
Construction Phase			
3.6.1.6	Watering once per every two hours on active works areas to reduce dust emission.	All active works areas during construction phase	Implemented
3.8.1.1	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below shall be carried out to further minimize construction dust impact:	Construction Sites	
	<ul style="list-style-type: none"> • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. 		Implemented
	<ul style="list-style-type: none"> • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. 		Implemented
	<ul style="list-style-type: none"> • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. 		Implemented
	<ul style="list-style-type: none"> • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. 		Partially Implemented
	<ul style="list-style-type: none"> • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. 		N/A
	<ul style="list-style-type: none"> • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. 		N/A
	<ul style="list-style-type: none"> • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. 		N/A
	<ul style="list-style-type: none"> • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. 		Implemented
	<ul style="list-style-type: none"> • Imposition of speed controls for vehicles on site haul roads. 		Implemented
	<ul style="list-style-type: none"> • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. 		Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	<ul style="list-style-type: none">• Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.		Implemented
Noise Impact			
Construction Phase			
4.8.1	Movable noise barriers are recommended for hydraulic breakers mounted on excavators to be adopted during construction.	Construction Sites	N/A
	Good site practices listed below and the noise control requirements stated in EPD’s “Recommended Pollution Control Clauses for Construction Contracts” should be included in the Contract Specification for the Contractors to follow and should be implemented to further minimize the potential noise impacts during the construction phase of the Project.		N/A
	<ul style="list-style-type: none">• Quiet PME, such that those listed in EPD’s Quality Powered Mechanical Equipment, should be considered for construction works to further minimize the potential construction noise impact.		Implemented
	<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.		Implemented
	<ul style="list-style-type: none">• Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme.		N/A
	<ul style="list-style-type: none">• Mobile plant, if any, should be sited as far away from noise sensitive receivers (NSRs) as possible.		N/A
	<ul style="list-style-type: none">• Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.		N/A
	<ul style="list-style-type: none">• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs		N/A
	<ul style="list-style-type: none">• Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.		N/A
Water Quality Impact			
Construction Phase			
5.8.1.2	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities	Construction Sites / Construction Phase	Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
5.8.1.3	All vehicles and plant should be cleaned before they leave a construction site to minimise the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Construction Sites / Construction Phase	Implemented
5.8.1.4	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	Construction Sites / Construction Phase	N/A
5.8.1.5 – 5.8.1.6	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be followed where applicable to minimise surface run-off and the chance of erosion. Surface run-off from construction sites should be discharged into storm drains via adequately designed sand / silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided as necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	Construction Sites / Construction Phase	Implemented
5.8.1.7	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly (as well as at the onset of and after each rainstorm) to prevent overflows and localised flooding.	Construction Sites / Construction Phase	Implemented
5.8.1.8	Construction works should be programmed to minimise soil excavation in the wet season (i.e. April to September). If soil excavation cannot be avoided in these months or at any time of year when rainstorms are likely, temporarily exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm run-off from washing across exposed soil surfaces.	Construction Sites / Construction Phase	N/A
5.8.1.9	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion	Construction Sites / Construction Phase	N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary		
5.8.1.10	Measures should be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in the wet season is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Construction Sites / Construction Phase	N/A
5.8.1.11	Construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms	Construction Sites / Construction Phase	Implemented
5.8.1.12	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Construction Sites / Construction Phase	Partially Implemented
5.8.1.13	The practices outlined in Environment, Transport and Works Bureau (ETWB) TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should also be adopted where applicable to minimise the water quality impacts upon any natural streams or surface water systems.	Construction Sites / Construction Phase	N/A
5.8.1.14	Sufficient chemical toilets should be provided in the works areas. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	Construction Sites / Construction Phase	Implemented
5.8.1.15	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment.	Construction Sites / Construction Phase	Implemented
5.8.1.16	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The WDO (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes.	Construction Sites / Construction Phase	Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
5.8.1.17	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Construction Sites / Construction Phase	N/A
5.8.1.18	Disposal of chemical wastes should be carried out in compliance with the WDO. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the WDO should be followed to avoid leakage or spillage of chemicals.	Construction Sites / Construction Phase	N/A
5.8.1.19	All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS).	Construction Sites / Construction Phase	N/A
5.8.2.11	Chemical should be stored on site at bunded area and separate drainage system as appropriate should be provided to avoid any spilled chemicals from entering the storm drain in case of accidental spillage. Also, adequate tools for cleanup of spilled chemicals should be stored on site and appropriate training shall be provided to staffs to further prevent potential adverse water quality impacts from happening.	Project site / Design and Operation Phase	Implemented

Waste Management Implication
Construction Phase

6.6.1.3	<u>Good Site Practices</u> Recommendations for good site practices during the construction phase include:	Construction Sites	
	• Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility;		Implemented
	• Training of site personnel in proper waste management and chemical waste handling procedures;		Implemented
	• Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter;		N/A
	• Arrangement for regular collection of waste for transport off-site and final disposal;		Implemented
	• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;		Implemented
	• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;		N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.5	<ul style="list-style-type: none"> • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; and 		Implemented
	<ul style="list-style-type: none"> • A WMP should be prepared and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 19/2005 for details. 		Implemented
	Waste Reduction Measures Recommendations to achieve waste reduction include:	Construction Sites	
	<ul style="list-style-type: none"> • Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; 		Implemented
	<ul style="list-style-type: none"> • Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors; 		Implemented
	<ul style="list-style-type: none"> • Any unused chemicals or those with remaining functional capacity shall be recycled; 		N/A
	<ul style="list-style-type: none"> • Maximising the use of reusable steel formwork to reduce the amount of C&D material; 		N/A
	<ul style="list-style-type: none"> • Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; 		Implemented
	<ul style="list-style-type: none"> • Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials; 		Implemented
	<ul style="list-style-type: none"> • Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated; 		N/A
	<ul style="list-style-type: none"> • Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and 		N/A
	<ul style="list-style-type: none"> • Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering. 		N/A
6.6.1.7	<u>Storage of Waste</u> Recommendations to minimise the impacts include:	Construction Sites	
	<ul style="list-style-type: none"> • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution; 		N/A
	<ul style="list-style-type: none"> • Maintain and clean storage areas routinely; 		N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	<ul style="list-style-type: none"> • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and 		Implemented
	<ul style="list-style-type: none"> • Different locations should be designated to stockpile each material to enhance reuse. 		N/A
6.6.1.8	<p><u>Collection of Waste</u> Licensed waste haulers should be employed for the collection and transportation of waste generated. The following measures should be enforced to minimise the potential adverse impacts:</p> <ul style="list-style-type: none"> • Remove waste in timely manner; • Waste collectors should only collect wastes prescribed by their permits; • Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the WDO (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Waste should be disposed of at licensed waste disposal facilities; and • Maintain records of quantities of waste generated, recycled and disposed. 	Construction Sites	
			Implemented
			Implemented
			Implemented
			Implemented
			Implemented
6.6.1.10	<p><u>Transportation of Waste</u></p> <p>In order to monitor the disposal of C&D materials at PFRFs and landfills and to control fly-tipping, a trip-ticket system should be established in accordance with DEVB TCW No. 6/2010. A recording system for the amount of waste generated, recycled and disposed, including the disposal sites, should also be set up. Warning signs should be put up to remind the designated disposal sites. CCTV should be installed at the vehicular entrance and exit of the site as additional measures to prevent fly-tipping.</p>	Transportation Route of Waste / Construction Phase	N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.12	<u>Construction and Demolition Material</u> Careful design, planning together with good site management can reduce over-ordering and generation of C&D materials such as concrete, mortar and cement grouts. Formwork should be designed to maximize the use of standard wooden panels, so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse	Construction Sites	N/A
6.6.1.13	The excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below:	Construction Sites	N/A
	<ul style="list-style-type: none"> • A WMP, which becomes part of the EMP, should be prepared in accordance with ETWB TCW No.19/2005; 		Implemented
	<ul style="list-style-type: none"> • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and 		N/A
	<ul style="list-style-type: none"> • In order to monitor the disposal of C&D materials at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to DEVB TCW 06/2010). 		Implemented
6.6.1.14	It is recommended that specific areas should be provided by the Contractors for sorting and to provide temporary storage areas (if required) for the sorted materials. Control measures for temporary stockpiles on-site should be taken in order to minimise the noise, generation of dust and pollution of water. These measures include:	Construction Sites	
	<ul style="list-style-type: none"> • Surface of stockpiled soil should be regularly wetted with water especially during dry season; 		N/A
	<ul style="list-style-type: none"> • Disturbance of stockpile soil should be minimised; 		N/A
	<ul style="list-style-type: none"> • Stockpiled soil should be properly covered with tarpaulin especially when heavy storms are predicted; and 		Partially Implemented
	<ul style="list-style-type: none"> • Stockpiling areas should be enclosed where space is available. 		N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.15	The Contactor should prepare and implement an EMP in accordance with ETWB TCW No.19/2005, which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from construction activities. Such a management plan should incorporate site-specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor, preferably on a monthly basis.	Construction Sites	Implemented
6.6.1.16	The Contractor would be responsible for devising a system to work for on-site sorting of C&D materials and promptly removing all sorted and process materials arising from the construction activities to minimise temporary stockpiling on-site. The system should be included in the EMP identifying the source of generation, estimated quantity, arrangement for on-site sorting, collection, temporary storage areas and frequency of collection by recycling Contractors or frequency of removal off-site.	Construction Sites	Implemented
6.6.1.17 – 6.6.1.18	The sediment should be excavated, handled, transported and disposed of in a manner that would minimise adverse environmental impacts. To minimise sediment disposal, it is proposed to reuse the Type 1 sediment generated (e.g. as backfilling materials) as far as possible. Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of the sediment.	Construction Sites	N/A
6.6.1.19	Workers shall, if necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	Construction Sites	N/A
6.6.1.20	For off-site disposal, the basic requirements and procedures specified under ETWB TC(W) No. 34/2002 shall be followed.	Transportation Route of Waste / Construction Phase	N/A
6.6.1.24	Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiles should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).	Construction Sites	N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.25	In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.	Construction sites & transportation route of waste / Construction phase	N/A
6.6.1.26	The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.	Transportation route of waste / Construction phase	N/A
6.6.1.27	Suitable containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to the licensed CWTC, or other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Construction and Operation Phases	N/A
6.6.1.28	It is recommended to place clearly labelled recycling bins at designated locations with convenient access. Other general refuse should be separated from chemical and industrial waste by providing separated bins or skips for storage to maximise the recyclable volume. A reputable licensed waste collector should be employed to remove general refuse on a daily basis to minimise odour, pest and litter impacts.	Construction and Operation Phases	Implemented
6.6.1.29	Should buildings are found with potential ACM, sufficient and reasonable lead time shall be allowed for preparation, vetting and implementation of Asbestos Investigation Report and Asbestos Abatement Plan in accordance with Air Pollution Control Ordinance before commencement of any demolition or site clearance work.	Demolition	N/A
Land Contamination			

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EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
7.8.1.2 - 7.8.1.3;7.8.2.1	<p>Prior to the commencement of the SI works, a review of the Contamination Assessment Plan (CAP) should be conducted to confirm whether the proposed SI works (e.g. sampling locations, testing parameters etc.) are still valid. Supplementary CAP(s), presenting findings of the review, the latest site conditions and updated sampling strategy and testing protocol, should be submitted to EPD for endorsement. The SI works should be carried out according to EPD's agreed supplementary CAP(s). SI works should be carried out according to the supplementary CAP endorsed by EPD. Following completion of SI works and receipt of laboratory test results, Contamination Assessment Report(s) ((CAR)(s)) should be prepared to present the findings of the SI works and to discuss the presence, nature and extent of contamination. If contamination is identified, Remedial Action Plan(s) ((RAP)(s)) which provides details of the remedial actions for the identified contaminated soil and / or groundwater should be endorsed by EPD. The possible remediation methods are detailed in Section 5.2 of the CAP provided in Appendix 7.1 of the EIA Report. Remediation action, if necessary, will be carried out according to EPD endorsed RAP(s) and Remediation Report(s) (RR(s)) will be submitted after completion of the remediation action. The RR(s) should be endorsed by EPD prior to the commencement of construction works at the respective identified contaminated areas (if any).</p>	Existing YLSTW /Construction Phase (after decommissioning of the concerned facilities / areas but prior to the construction works at the concerned facilities / areas)	Implemented
7.8.3.1	The mitigation measures will be recommended in the RAP and would typically include the following:	Project Site / Construction Phase	
	<ul style="list-style-type: none"> Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; 		Implemented
	<ul style="list-style-type: none"> Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material (or treated soil) after excavation; 		N/A
	<ul style="list-style-type: none"> Stockpiling site(s) shall be lined with impermeable sheeting and bunded. Stockpiles shall be fully covered by impermeable sheeting to reduce dust emission. If this is not practicable due to frequent usage, regular watering shall be applied. However, watering shall be avoided on stockpiles of contaminated soil to minimise contaminated runoff. 		Partially Implemented
	<ul style="list-style-type: none"> Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; 		N/A
	<ul style="list-style-type: none"> Speed control for the trucks carrying contaminated materials shall be enforced; 		N/A

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EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	• Vehicle wheel and body washing facilities at the site’s exist points shall be established and used; and		N/A
	• Pollution control measures for air emissions (e.g. from biopile blower and handling of cement), noise emissions (e.g. from blower or earthmoving equipment), and water discharges (e.g. runoff control from treatment facility) shall be implemented and complied with relevant regulations and guidelines.		N/A
Ecological Impact (Terrestrial and Aquatic)			
Construction Phase			
8.10.2.1	<u>Avoidance of Recognised Site of Conservation Importance</u> Construction works are designed to be confined to the boundary of the existing YLSTW that direct impacts on all other sites of conservation importance within the assessment area, including the Ramsar Site, Priority Site, WCA, WBA, SSSI and CA would be avoided.	Project site / Construction Phase	Implemented
8.10.2.3 – 8.10.2.4	<u>Avoidance of Demolition Works Using Breakers Mounted on Excavators and Percussive Piling during Dry Season</u> In order to minimise the construction noise disturbance on overwintering waterbirds, the noisy construction works, i.e. all percussive piling works and demolition using breakers mounted on excavators, would therefore be scheduled outside the dry season (i.e. November to March, which is the peak overwintering period of waterbirds).	Construction sites /Construction Phase	Implemented
8.10.2.5	<u>Restriction of Construction Hours</u> No construction activities with the use of PME should be conducted within 100m from any night roost confirmed by the pre-construction survey after 18:00 during wet season and 17:30 during dry season to avoid disturbance to the nearby ardeids night roosts.	Construction sites / Construction Phase	Implemented
8.10.3.2 – 8.10.3.3	<u>Minimising Construction Noise Disturbance Impacts through Consideration of Alternative Construction Methods</u> Demolition using concrete crusher is quieter than demolition using breaker that its construction noise level is comparable to other general construction activities and concrete crusher would be used for demolition works to be undertaken during dry season months. The quieter foundation methods, including bored piling, raft foundation and shallow foundation, would be adopted as far as possible.	Construction sites / Construction Phase	Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
8.10.3.4 – 8.10.3.5	<p><u>Minimising Construction Noise Disturbance Impacts Through Careful Phasing of Construction Activities</u></p> <p>Percussive piling works and demolition using breakers mounted on excavators would typically be completed over two wet seasons and not be undertaken in the same construction zone at the same time to localise the construction disturbance and to reduce the duration of high level of disturbances on sensitive wetland habitats and associated waterbirds nearby each construction zone.</p> <p>Facilities in the eastern side of the Project site (i.e. Phase 1A and Phase 1B) are scheduled to be developed first that the new structures could screen the works in the middle and western parts of the site in later stage of the construction phase after the structures in Phase 1A and Phase 1B are completed, hence minimising the construction noise and human disturbance on sensitive wetland habitats adjacent to the Project site in Shan Pui River, including the confluence of Shan Pui River and Kam Tin River and ardeid night roost to the immediate east of the Project site.</p>	Project site / Construction Phase	Implemented
8.10.3.6 – 8.10.3.8	<p><u>Minimising Construction Noise Disturbance Impacts through Use of Noise Barriers</u></p> <p>Noise barriers with absorptive materials of about 4m high will be erected along the northern, eastern and western sides of the site, throughout the construction phase to screen the construction noise and human disturbance to the waterbirds foraging in ponds in Fung Lok Wai and Shan Pui River during construction phase.</p> <p>Adequate noise barriers should also be provided for demolition works using breakers mounted on excavators and percussive piling works, to further minimise the construction noise disturbance from these construction activities. Movable noise barriers should be provided to breaker mounted on excavator used for demolition works as discussed in Section 4.8 and acoustic mat should be provided to the piling plants around the rig.</p> <p>The contractor should provide enclosure for construction equipment, especially static plants, as appropriate to minimise the noise disturbance as far as practicable.</p>	Construction sites / Construction Phase	Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
8.10.3.9	<u>Use of Quality Powered Mechanical Equipment</u> The contractor should source QPMEs for construction as far as practicable to further minimise the overall construction noise and other disturbance to the nearby wetland habitats and associated waterbirds to the maximum practical extent.	Construction sites / Construction Phase	Implemented
Ecology & Fisheries Impact			
8.12.1.4, 9.7	Groundwater observation wells and recharge wells will be provided at the northern and western side of the site. Groundwater table will be closely monitored at the observation well. In case of any unlikely events of abnormal drawdown of groundwater table near the excavation area, groundwater dewatering will stop and water will be pumped into the recharge wells to recover the normal groundwater table as necessary.	Construction Phase	N/A
Fisheries Impact			
9.7	The implementation of good site practices during construction could minimise the potential water quality impacts from the land-based construction works. Mitigation measures recommended in the Water Quality Impact Assessment (Section 5) for controlling water quality impact would also serve to protect fisheries resources and activities from indirect impacts.	Construction and Operation Phase	N/A
Landscape and Visual Impact			
Table 10.11	<u>Preservation of Existing Vegetation (CM1)</u> All the existing Trees to be retained and not to be affected by the Project shall be carefully protected during construction accordance with DEVB TCW No. 7/2015 - Tree Preservation and the latest Guidelines on Tree Preservation during Development issued by GLTM Section of DevB. Any existing vegetation in landscaped areas and natural terrain not to be affected by the Project shall be carefully preserved.	Project site / Construction Phase	Implemented
Table 10.11	<u>Transplanting of Affected Trees (CM2)</u> Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with DEVB TCW No. 7/2015 - Tree Preservation and the latest Guidelines on Tree Transplanting issued by GLTM Section of DevB.	Project site / Construction Phase	Implemented

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
Table 10.11	<u>Compensatory Tree Planting (CM3)</u> Any trees to be felled under the Project shall be compensated in accordance with DEVB TCW No. 7/2015 - Tree Preservation. For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed.	Project site / Construction Phase	N/A
Table 10.11	<u>Control of Night-time Lighting Glare (CM4)</u> All the night time lighting shall be avoided except for safety purpose. No light glare shall illuminate directly outside the site.	Project site / Construction Phase	Implemented
Table 10.11	<u>Erection of Decorative Screen Hoarding (CM5)</u> Site hoardings, if any, shall be painted in dull green colour	Project site / Construction Phase	Implemented
Table 10.11	<u>Management of Construction Activities and Facilities (CM6)</u> Construction activities shall be well scheduled and avoid powered mechanical equipment's operating simultaneously. All stockpiling areas and idled area shall be covered by tarpaulin sheet or hydroseeded as far as possible.	Project site / Construction Phase	Implemented
Hazard to Life			
Construction Phase			
11.5.6.9- 11.5.6.12	• Implementation of those major construction works and movement of plants and vehicles would be stringently controlled to have a setback of at least 15m clear distance, or physical barrier with an empty digester / gas holder from the digesters / gas holders in operation;	Project site / Construction Phase	N/A
	• For those construction works to be carried out in close proximity to the 15m zone from digesters / gas holders in operation, the height of plants for those major construction shall be limited to 15m such that the plants would not damage digesters /gas holders in such incident as plant collapse or overturning;		N/A
	• Whenever practicable, the construction sequence shall be arranged with empty unit(s) for separating the major construction works from these digesters / gas holders in use; and		N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	<ul style="list-style-type: none"> Physical barriers such as concrete blocks shall be set up at the 15m zone in order to avoid those construction plants or vehicles from colliding to the digester / gas holder units in use. 		N/A
11.5.8	<ul style="list-style-type: none"> Method statements and risk assessments shall be prepared and safety control measures shall be in place before commencement of work 	Project site / Construction Phase	Implemented
	<ul style="list-style-type: none"> All work procedures shall be complied with the operating plant procedures or guidelines and regulatory requirements; 		Implemented
	<ul style="list-style-type: none"> Work permit system, on-site pre-work risk assessment and emergency response procedure shall be in place before commencement of work; 		Implemented
	<ul style="list-style-type: none"> All construction workers shall equip with appropriate personal protective equipment (PPE) when working at the Project Site; 		Implemented
	<ul style="list-style-type: none"> Safety training and briefings shall be provided to all construction workers; 		Implemented
	<ul style="list-style-type: none"> Regular site safety inspections shall be conducted during the construction phase of the Project; 		Implemented
11.9.1.2	<ul style="list-style-type: none"> Ensure speed limit enforcement is specified in the contractor's method statement to limit the speed of construction vehicles onsite; 	Project site / ConstructionPhase	N/A
	<ul style="list-style-type: none"> Conduct speed checks to ensure enforcement of speed limits and to ensure adequate site access control ; 		N/A
	<ul style="list-style-type: none"> A lifting plan, with detailed risk assessment, should be prepared and endorsed for heavy lifting of large equipment; 		Implemented
	<ul style="list-style-type: none"> Vehicle crash barriers should be provided between the construction site and the operating biogas facilities; 		N/A
	<ul style="list-style-type: none"> Ensure that a hazardous are classification study is conducted and hazardous area maps are updated before the start of the construction activities to ensure ignition sources are controlled during both construction and operation phases; 		Implemented
	<ul style="list-style-type: none"> Ensure work permit system for hot work activities within the Project Site is specified in the contractor's method statement to minimize and control the ignition sources during the construction phase; 		Implemented
	<ul style="list-style-type: none"> Ensure effective communication system / protocol is in place between the contractors and the operation staff; 		Implemented
	<ul style="list-style-type: none"> Ensure the Project Construction Emergency Response Plan is integrated with the Emergency Response Plan for the YLEPP during construction phase. The plan should address stop work instructions to be promptly communicated to all construction workers performing hot works in case a confirmed biogas detection at the Project Site; 		N/A

Construction of Yuen Long Effluent Polishing Plant Stage 1

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	<ul style="list-style-type: none">• Ensure that the construction activities do not impede the functions of fire and gas detection system, fire protection system, muster areas, fire-fighting vehicle access and escape routes;		N/A
	<ul style="list-style-type: none">• Ensure a Job Safety Analysis is conducted for construction activities of the Project during the construction phase, to identify and analyze hazards associated with the construction activities (e.g. lifting operations by cranes) onto the operating biogas facilities.		N/A
	Potential risks of the construction activities shall be assessed, and risk precautionary measures shall be implemented in Contractor's works procedures.		N/A

Note:

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable (N/A)

Appendix K

Weather and Meteorological
Conditions

June 2021 Weather

Station: Wetland Park

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
June 2021						
01	1006.2	31.3#	26.4	23.9#	95	45.0
02	1006.7	31.2	27.6	24.3	92	4.5
03	1006.1	33.4	29.6	26.2	84	0.0
04	1004.7	30.3#	27.4	25.6#	90	11.5
05	1004.4	30.2	26.9	24.1	76	0.0
06	1004.4	32.1	27.9	24.4	78	0.0
07	1007.0	32.5#	28.3	25.8#	80	0.0
08	1007.7	33.5	28.6	25.4	81	0.0
09	1007.0	31.4#	27.7	25.8#	89	1.0
10	1005.4	33.6#	28.9	25.4#	82	0.0
11	1005.3	33.4#	28.8	26.0#	85	7.0
12	1007.3	30.9#	27.1	25.4#	94	24.0
13	1008.2	32.5#	28.2	25.0#	89	4.5
14	1005.8	32.2#	29.0	27.2#	85	0.5
15	1004.1	32.0#	29.1	26.6#	84	0.0
16	1005.9	33.5	29.9	26.9	81	0.5
17	1007.2#	34.8#	30.2#	27.3#	81#	0.0#
18	1006.3	34.2	31.3	29.1	77	0.0
19	1004.2	35.0	31.6	29.0	78	0.0
20	1002.4	35.4	31.7	29.4	77	0.0
21	1002.6	34.0	30.3	26.1	85	3.5
22	1004.6	31.6#	27.7	24.7#	92	42.5
23	1005.5	30.9	26.6	24.9	96	18.0
24	1005.6	27.0	25.7	24.8	99	61.5
25	1005.8	30.9	27.1	25.1	93	0.5
26	1006.7	31.4	28.2	25.9	94	19.5
27	1005.9	32.6	29.1	25.5	90	10.5
28	1004.6	30.5	27.5	24.4	96	68.5
29	1004.5	31.2#	28.7	26.0#	90	22.5
30	1005.4	33.0	29.6	26.9	85	0.0

Note (From Hong Kong Observatory):

1. # Data incomplete
2. Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Source: Hong Kong Observatory

July 2021 Weather

Station: Hong Kong Observatory

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
July 2021						
01	1006.3	32.4	30.3	29.2	78	88
02	1006.7	32.8	30.6	29.3	77	87
03	1006.4	33.0	30.4	29.1	79	85
04	1007.2	33.2	30.4	28.9	79	81
05	1007.4	33.8	30.2	28.0	79	68
06	1006.4	32.7	29.4	26.7	80	74
07	1009.1	33.1	29.4	26.6	81	73
08	1011.4	32.8	29.8	28.4	79	49
09	1010.3	34.8	30.5	28.2	76	28
10	1010.4	34.0	30.5	28.2	76	60
11	1011.1	33.6	30.6	28.8	77	84
12	1010.2	34.8	30.9	28.7	75	73
13	1008.5	35.3	31.1	28.8	72	55
14	1008.3	34.1	30.7	29.1	75	47
15	1008.9	35.4	31.3	28.9	71	41
16	1008.5	30.9	29.6	28.7	78	81
17	1005.8	31.2	28.8	26.9	80	88
18	1003.3	28.8	26.9	24.9	90	88
19	1002.3	27.9	26.5	25.0	93	93
20	1002.6	27.1	26.2	25.3	94	95
21	1003.0	27.8	26.8	25.3	94	88
22	1001.0	32.8	29.3	26.9	80	66
23	998.3	34.1	30.3	27.4	77	40
24	998.0	33.2	29.8	26.5	82	70
25	999.4	33.6	29.6	25.9	81	55
26	998.1	33.9	30.7	28.7	78	53
27	996.8	35.3	31.3	29.5	75	67
28	997.5	34.1	30.8	29.1	79	76
29	1000.1	32.3	29.5	28.3	82	84
30	1001.4	30.5	28.8	26.5	83	85
31	1000.3	32.2	29.7	27.0	84	88

Note (From Hong Kong Observatory):
Trace means rainfall less than 0.05 mm

Source: Hong Kong Observatory

Remark: The corresponding weather station at Wetland Park were unavailable at the time of preparation of this report. The corresponding month's weather will be provided in the next reporting month.

Appendix L

Cumulative Statistics on Environmental
Complaints, Notifications of Summons and
Successful Prosecutions

Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Appendix M

Summary of Observations and Findings in the
Report Month

Summary of Observations and Findings in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	7 July 2021	Observation: Stockpiling of excavated soil should be covered with impermeable sheeting and contained properly to prevent contaminated runoff and dust emission at main store area where SI works of SCAP is conducting. (Portion 1 – YLSTW)	8 July 2021
	15 July 2021	Reminder 1: The contractor is reminded to cover the stockpiling of excavated soil with impermeable sheeting to prevent ingress of water during rainstorms and/ or prevent dust emission near the demolished PST. (Portion 1 – YLSTW)	NA
Noise	NA		
Water Quality	7 July 2021	Reminder: The contractor is reminded to provide mitigation measure to prevent silty runoff getting into the storm drain near main store area. (Portion 1 – YLSTW)	8 July 2021
	28 July 2021	Observation: Mitigation measure should be provided to prevent direct discharge of runoff at Zone 1 area near detritor. (Portion 1 – YLSTW)	29 July 2021
	28 July 2021	Reminder: The contractor is reminded to de-silt the gullies near the main entrance to the piling area. (Portion 1 – YLSTW)	NA
Chemical and Waste Management	7 July 2021	Observation: Stockpiling of excavated soil should be covered with impermeable sheeting and contained properly to prevent contaminated runoff and dust emission at main store area where SI works of SCAP is conducting. (Portion 1 – YLSTW)	8 July 2021
	15 July 2021	Reminder 1: The contractor is reminded to cover the stockpiling of excavated soil with impermeable sheeting to prevent ingress of water during rainstorms and/ or prevent dust emission near the demolished PST. (Portion 1 – YLSTW)	NA
Land Contamination	NA		
Ecological Impact	15 July 2021	Reminder 2: The contractor is reminded to maintain and reinstate the bird curtain at the northern site boundary. (Portion 1 – YLSTW)	NA
Landscape and Visual Impact	15 July 2021	Reminder 3: The contractor is reminded to closely monitor the three condition of Tree T028 for open cut too close to the tree near temporary administration building. (Portion 1 – YLSTW)	
Permit / Licenses	NA		
Others	NA		

Appendix N

Outstanding Issues and Deficiencies

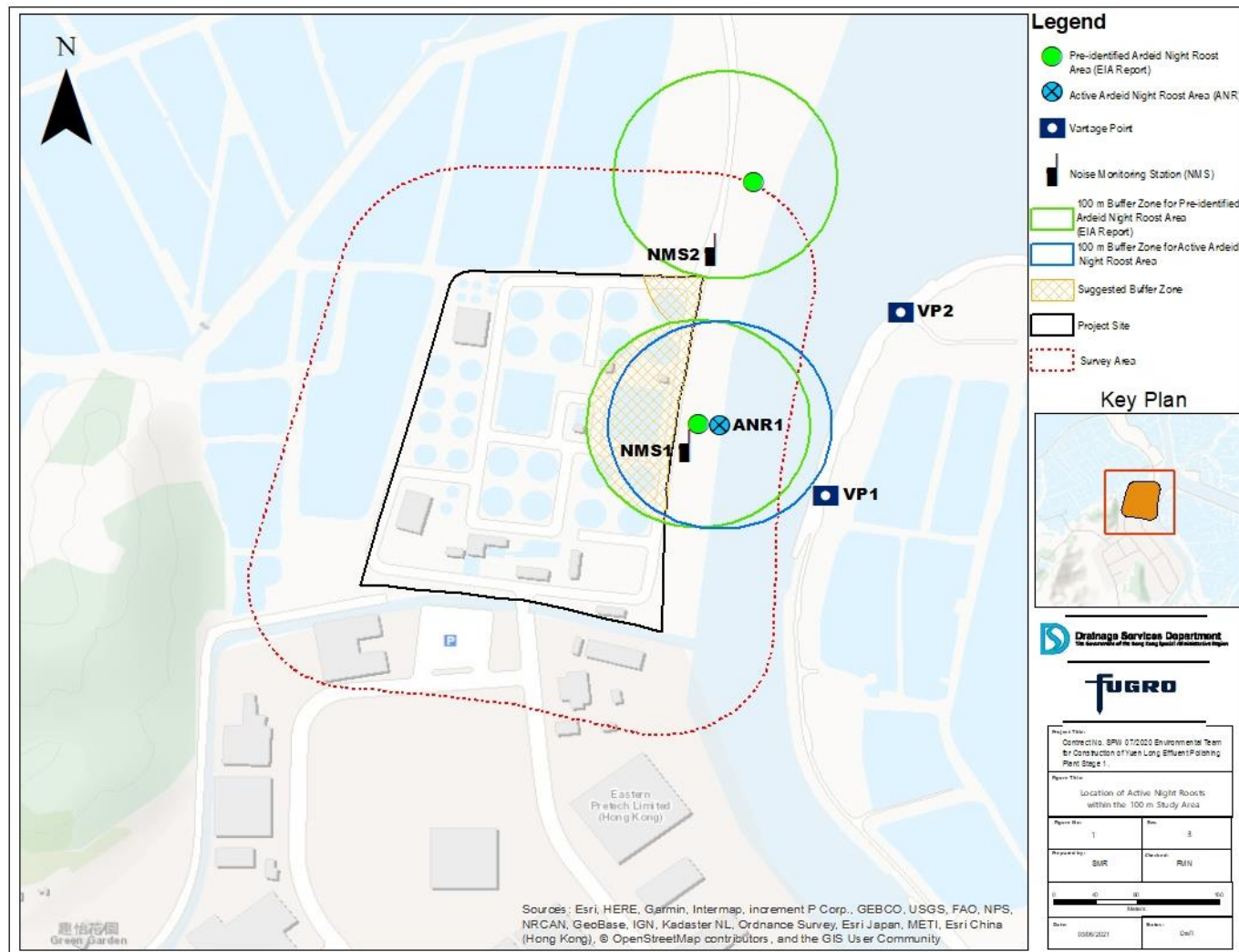
Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to Appendix M .
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
Permit / Licenses	NA	
Others	NA	

Appendix O

Active Night Roost Monitoring Area and Vantage
Points; and Noise Monitoring Stations

O.1 Map of the Monitoring Area, Vantage Points for Observation of Active Night Roost and Noise Monitoring Stations



Appendix O.1: Monitoring Area, Vantage Points for Observation of Active Night Roost and Noise Monitoring Stations

O.2 Survey Photos

O.2.1 Pre-roosting Aggregate

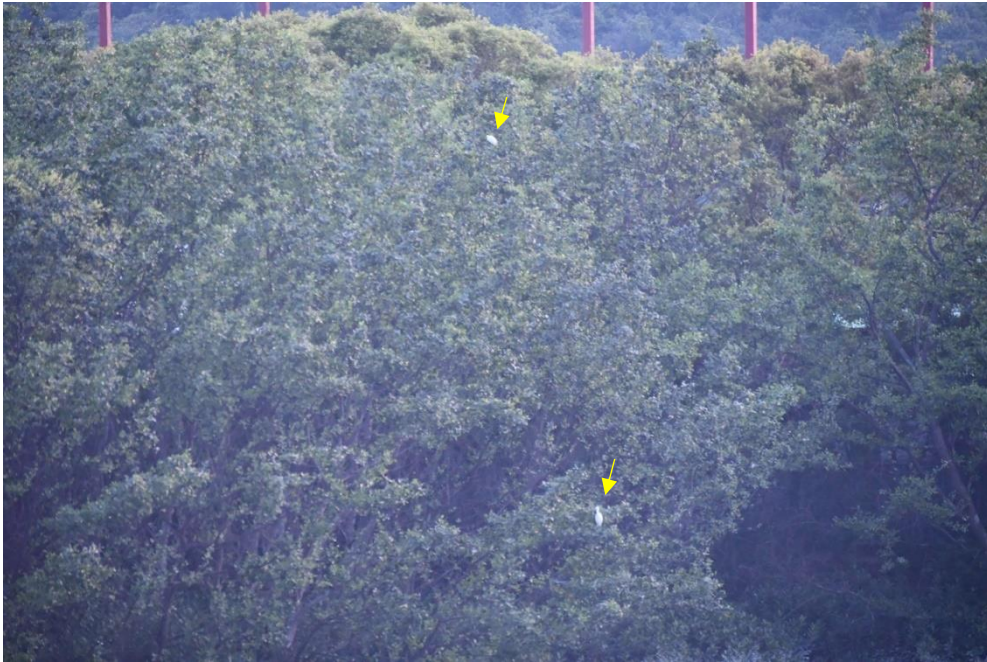


Appendix O.2.1a: Pre-roost aggregate of the Chinese Pond Heron in the mudflat area northeast of the Project boundary observed on 09 July 2021 around 18:31



Appendix O.2.1b: Pre-roost aggregate of the Eastern Cattle Egret *Bubulcus coromandus* and Little Egret *Egretta garzetta* in the mudflat area east of the Project boundary observed on 09 July 2021 around 18:50

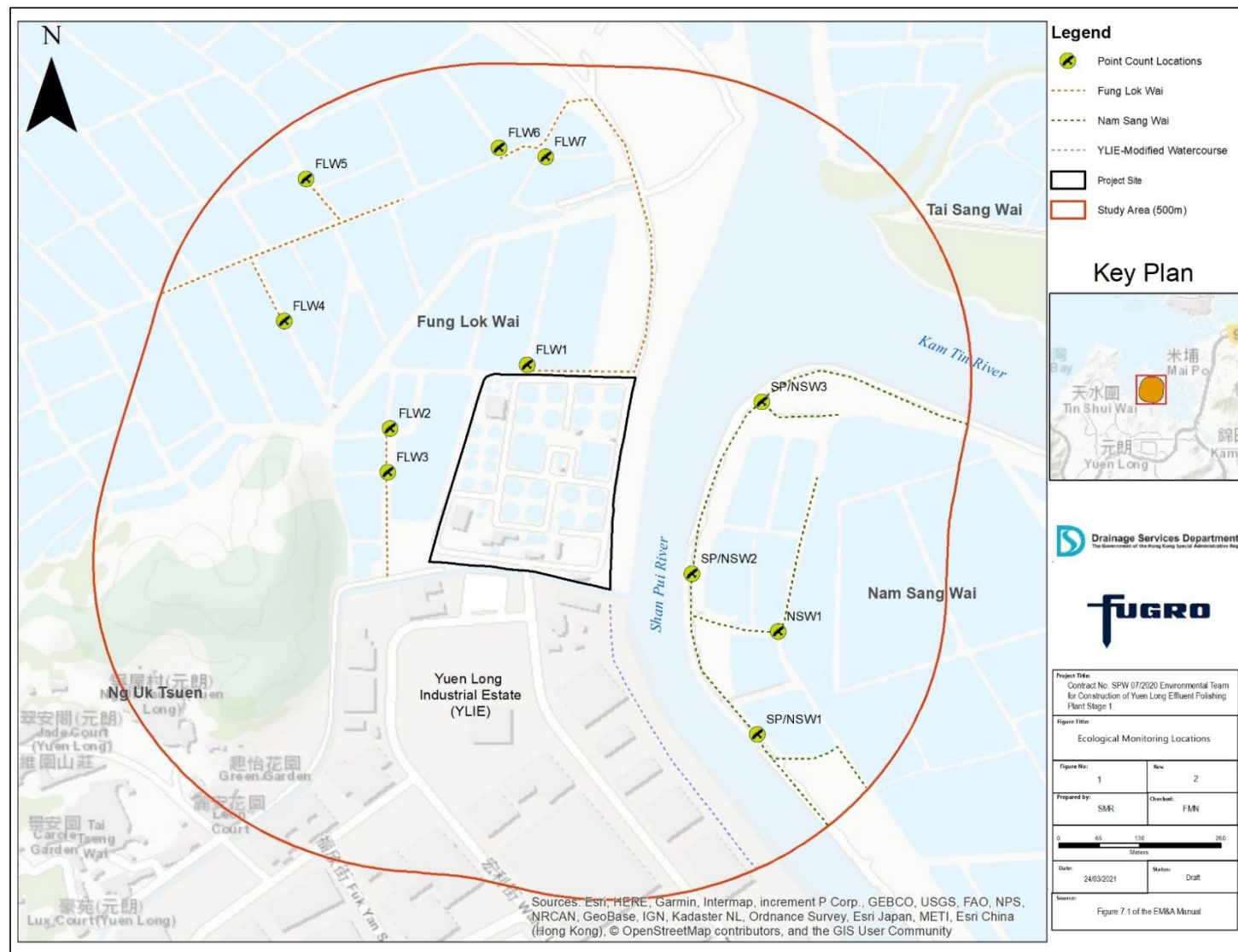
O.2.2 Active Night Roosting Site and Roosting Substrates



Appendix O.2.2: Active night roost on *Sonneratia apetala* and *S. caseolaris* mangrove roosting substrate located east of the Project boundary observed on 09 July 2021 around 19:04

Appendix P

Ecological Bird Monitoring Area with Locations
of Point Count Sites and Transect Routes



Appendix P: Ecological bird monitoring area with the locations of point count sites and transect routes

Appendix Q

Notification of Exceedance

Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210703_M1_SS						
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1						
Date:	2021/07/03						
Time: (hh:mm)	(Ebb Tide) M1: <u>9:20</u> M2: M3:						
Action level / Limit level: (For Flood Tide)		DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
		AL	LL	AL	LL	AL	LL
	M1	2.25	1.91	59.6	64.6	59	68
	M2	1.88	1.79	43.0	52.4	81	112
	M3	3.28	3.14	74.3	78.0	104	167
Measured level of exceeded parameter: (fill in / circle as appropriate)	M1	DO (AL / LL) : _____		M3	DO (AL / LL) : _____		
		NTU (AL / LL) : _____			NTU (AL / LL) : _____		
		SS (AL / LL) : <u>72</u>			SS (AL / LL) : _____		
	M2	DO (AL / LL) : _____			_____		
		NTU (AL / LL) : _____			_____		
		SS (AL / LL) : _____			_____		
Action taken / to be taken: (tick / circle / fill in as appropriate)	Inspection : <input checked="" type="checkbox"/> ER / IEC / Contractor is/are informed. <input checked="" type="checkbox"/> Monitoring equipment & monitoring data are checked and confirmed without problem. <input type="checkbox"/> In-situ measurement is repeated. <input type="checkbox"/> Other _____						

Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)			DO	Turbidity	SS		
	Finding / Evidences						
	<input type="checkbox"/> Upstream Control Station exceeded AL/LL						
	<input type="checkbox"/> Station was polluted by the inflow of other construction site						
	<input type="checkbox"/> Station was polluted by the inflow of residential discharge						
	<input type="checkbox"/> Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage						
	<input checked="" type="checkbox"/> No construction activities were carried out in the vicinity of station					M1	
	<input type="checkbox"/> Other _____						

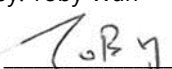
Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210703_M1_SS			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Date:	2021/07/03			
Conclusion:	<input checked="" type="checkbox"/> Due to change or/and influences of ambient condition in the vicinity, not Project related	DO	Turbidity	SS
	<input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related			M1
Mitigation Measures:	<p>The following mitigation measures have been taken:</p> <ol style="list-style-type: none"> Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities; The surfaces of construction site areas near the drainages were paved; Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and; Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding. 			
Remarks: (tick / fill in as appropriate)	<input type="checkbox"/> Repeat in-situ measurement was done.			
	M1	DO : _____ NTU : _____	M3	DO : _____ NTU : _____
Attachment	M2	DO : _____ NTU : _____		
	<input checked="" type="checkbox"/> No major observation of upstream area was found Annex A – Location of Water Quality Monitoring Stations Annex B – Water Quality Monitoring Results Annex C – Photo of Investigation			

Note: The box is checked ☒ to represent the statement is applicable, and vice versa.

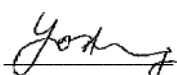
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Notes:

- Abbreviation:

DO – Dissolved Oxygen

NTU – Turbidity

SS – Suspended Solids

AL – Action Level

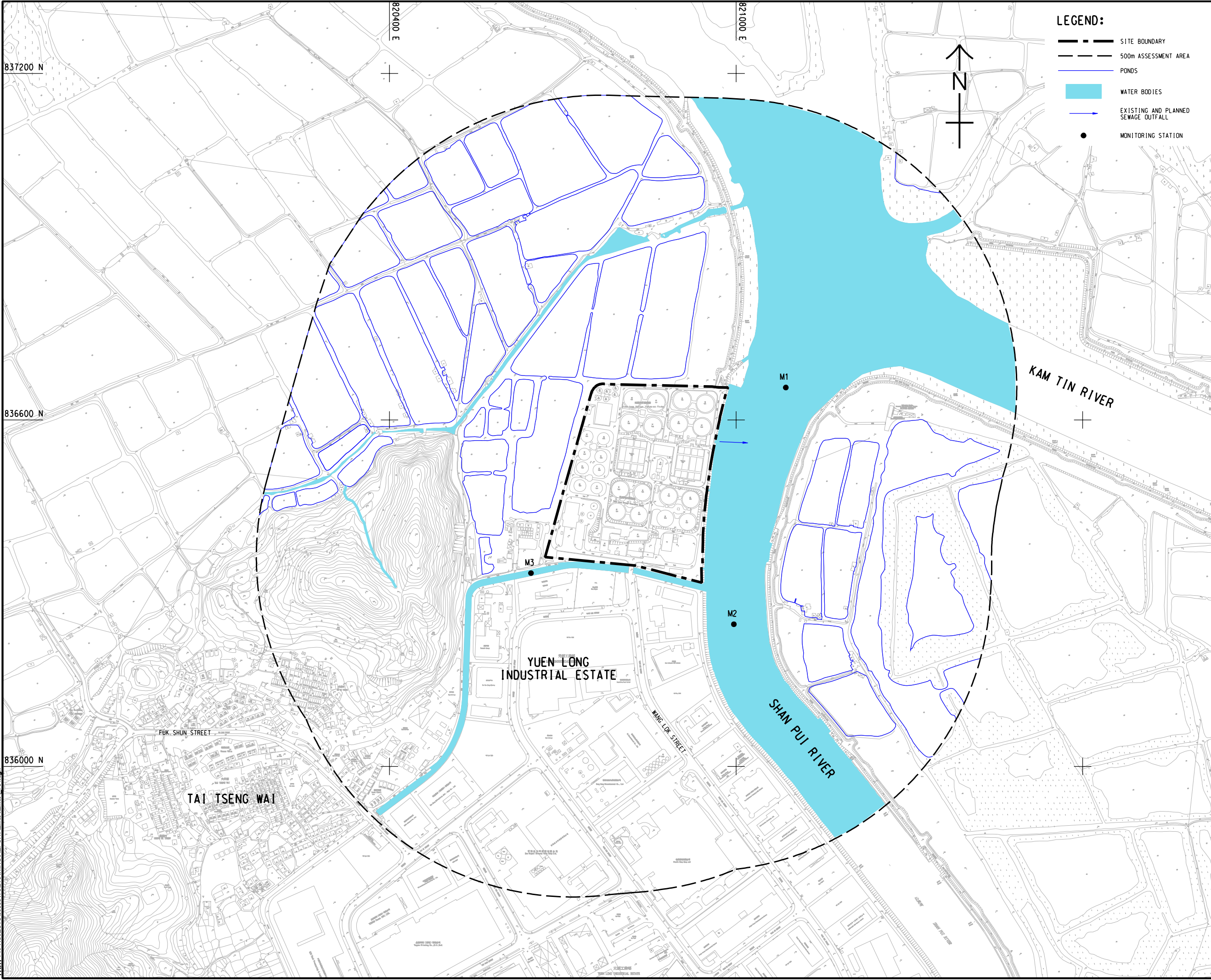
LL – Limit Level

ER – Engineer's Representative

IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Plot File by: GeoYU 12/18
PATH: P:\PROJECTS\6050578\DRAWING\REPORT\EM&EM&A_704.dgn



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CLIENT
渠務署
Drainage Services Department

SHEET TITLE
LOCATIONS OF WATER QUALITY
MONITORING STATIONS FOR
CONSTRUCTION PHASE

Annex B – Water Quality Monitoring Results

Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
												Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	1	0.025	230	7.24	7.23	0.68	0.68	31.76	31.80	46.0	45.9	3.30	3.29	45.8	45.9	33	36
M1	3/7/2021	Mid-Flood	Fine	Calm	14:50	1.2	M	0.6	2			7.22		0.68		31.83		45.8		3.28		45.9		38	
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	1	0.016	220	6.96	6.96	0.65	0.65	32.40	32.40	32.5	32.5	2.55	2.55	45.8	45.8	31	33
M2	3/7/2021	Mid-Flood	Fine	Calm	14:30	0.8	M	0.4	2			6.96		0.65		32.40		32.5		2.55		45.8		35	
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	1	0.019	261	7.09	7.10	0.64	0.64	32.01	32.01	63.9	63.8	4.65	4.65	39.8	39.4	34	33
M3	3/7/2021	Mid-Flood	Fine	Calm	14:46	0.5	M	0.25	2			7.10		0.64		32.00		63.7		4.64		38.9		32	
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	1	0.054	179	7.05	7.05	0.71	0.71	31.64	31.64	35.7	35.5	2.56	2.55	46.9	45.9	72	72
M1	3/7/2021	Mid-Ebb	Fine	Calm	09:20	1	M	0.5	2			7.05		0.71		31.64		35.3		2.53		44.9		71	
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	1	0.037	164	6.99	6.99	0.65	0.65	31.28	31.34	36.5	35.7	2.78	2.76	49.6	49.6	42	43
M2	3/7/2021	Mid-Ebb	Fine	Calm	09:40	0.8	M	0.4	2			6.99		0.65		31.39		34.9		2.73		49.6		43	
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	1	0.038	77	7.15	7.16	0.65	0.65	31.22	31.21	36.2	38.6	2.67	2.85	49.8	49.8	31	31
M3	3/7/2021	Mid-Ebb	Fine	Calm	09:32	0.8	M	0.4	2			7.16		0.65		31.19		40.9		3.02		49.7		31	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limit Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limit Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	55.0	59.6	81	112
M3	3.28	3.14	74.3	78.0	104	167

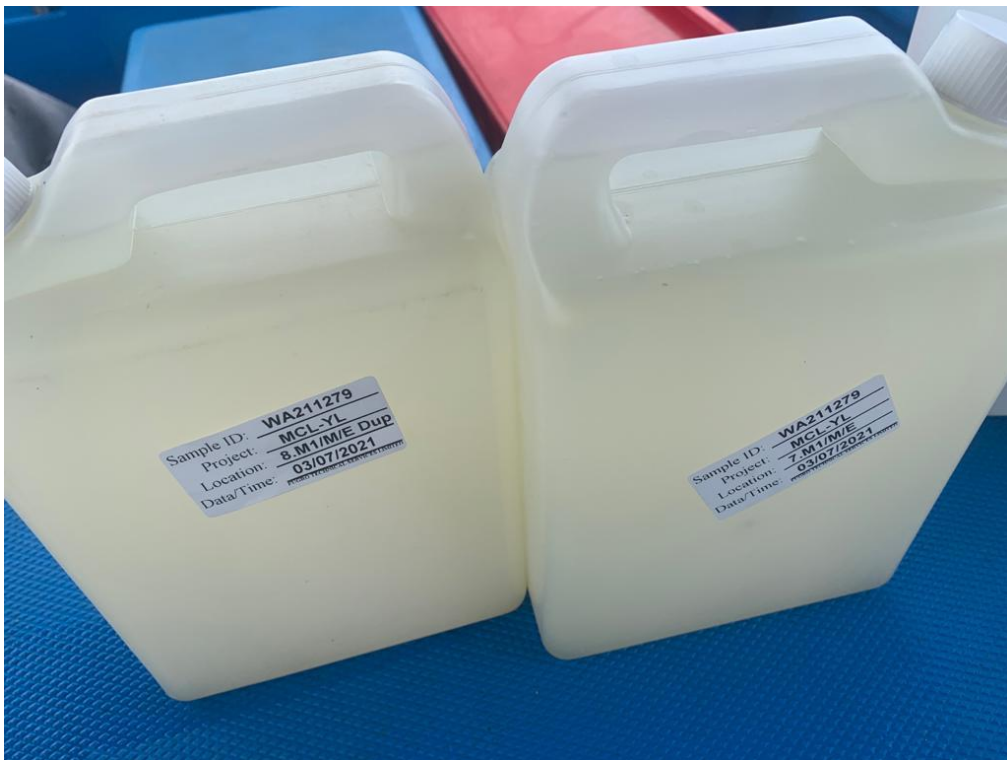
For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	59.6	64.6	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Annex C – Photo of investigation

Date of investigation: 3 July 2021 (**Ebb Tide**)

Monitoring Station: M1



Annex D – Site Inspection



Date of site inspection: 7 July 2021

Gullies were bunded by sand bags to prevent surface runoff.



Date of site inspection: 7 July 2021

The surrounding of the construction site areas were covered by impermeable sheeting to prevent surface runoff.

Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210706_M1_SS						
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1						
Date:	2021/07/06						
Time: (hh:mm)	(Ebb Tide) M1: <u>11:49</u> M2: M3:						
Action level / Limit level: (For Flood Tide)		DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
		AL	LL	AL	LL	AL	LL
	M1	2.25	1.91	59.9	64.9	60	68
	M2	1.88	1.79	43.0	52.4	81	112
	M3	3.28	3.14	74.3	78.0	104	167
Measured level of exceeded parameter: (fill in / circle as appropriate)	M1	DO (AL / LL) : _____		M3	DO (AL / LL) : _____		
		NTU (AL / LL) : _____			NTU (AL / LL) : _____		
		SS (AL / LL) : <u>68</u>			SS (AL / LL) : _____		
	M2	DO (AL / LL) : _____			_____		
		NTU (AL / LL) : _____			_____		
		SS (AL / LL) : _____			_____		
Action taken / to be taken: (tick / circle / fill in as appropriate)	Inspection : <input checked="" type="checkbox"/> ER / IEC / Contractor is/are informed. <input checked="" type="checkbox"/> Monitoring equipment & monitoring data are checked and confirmed without problem. <input type="checkbox"/> In-situ measurement is repeated. <input type="checkbox"/> Other _____						

Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)			DO	Turbidity	SS		
	Finding / Evidences						
	<input type="checkbox"/> Upstream Control Station exceeded AL/LL						
	<input type="checkbox"/> Station was polluted by the inflow of other construction site						
	<input type="checkbox"/> Station was polluted by the inflow of residential discharge						
	<input type="checkbox"/> Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage						
	<input checked="" type="checkbox"/> No construction activities were carried out in the vicinity of station					M1	
	<input type="checkbox"/> Other _____						

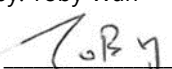
Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210706_M1_SS			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Date:	2021/07/06			
Conclusion:		DO	Turbidity	SS
	<input checked="" type="checkbox"/> Due to change or/and influences of ambient condition in the vicinity, not Project related <input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related			M1
Mitigation Measures:	The following mitigation measures have been taken: 1. Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities; 2. The surfaces of construction site areas near the drainages were paved; 3. Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and; 4. Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding.			
Remarks: (tick / fill in as appropriate)	<input type="checkbox"/> Repeat in-situ measurement was done.			
	M1 DO : _____ NTU : _____	M3 DO : _____ NTU : _____		
Attachment	M2 DO : _____ NTU : _____			
	<input checked="" type="checkbox"/> No major observation of upstream area was found Annex A – Location of Water Quality Monitoring Stations Annex B – Water Quality Monitoring Results Annex C – Photo of Investigation			

Note: The box is checked ☒ to represent the statement is applicable, and vice versa.

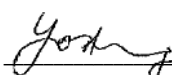
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 22/7/2021

Notes:

- Abbreviation:

DO – Dissolved Oxygen

NTU – Turbidity

SS – Suspended Solids

AL – Action Level

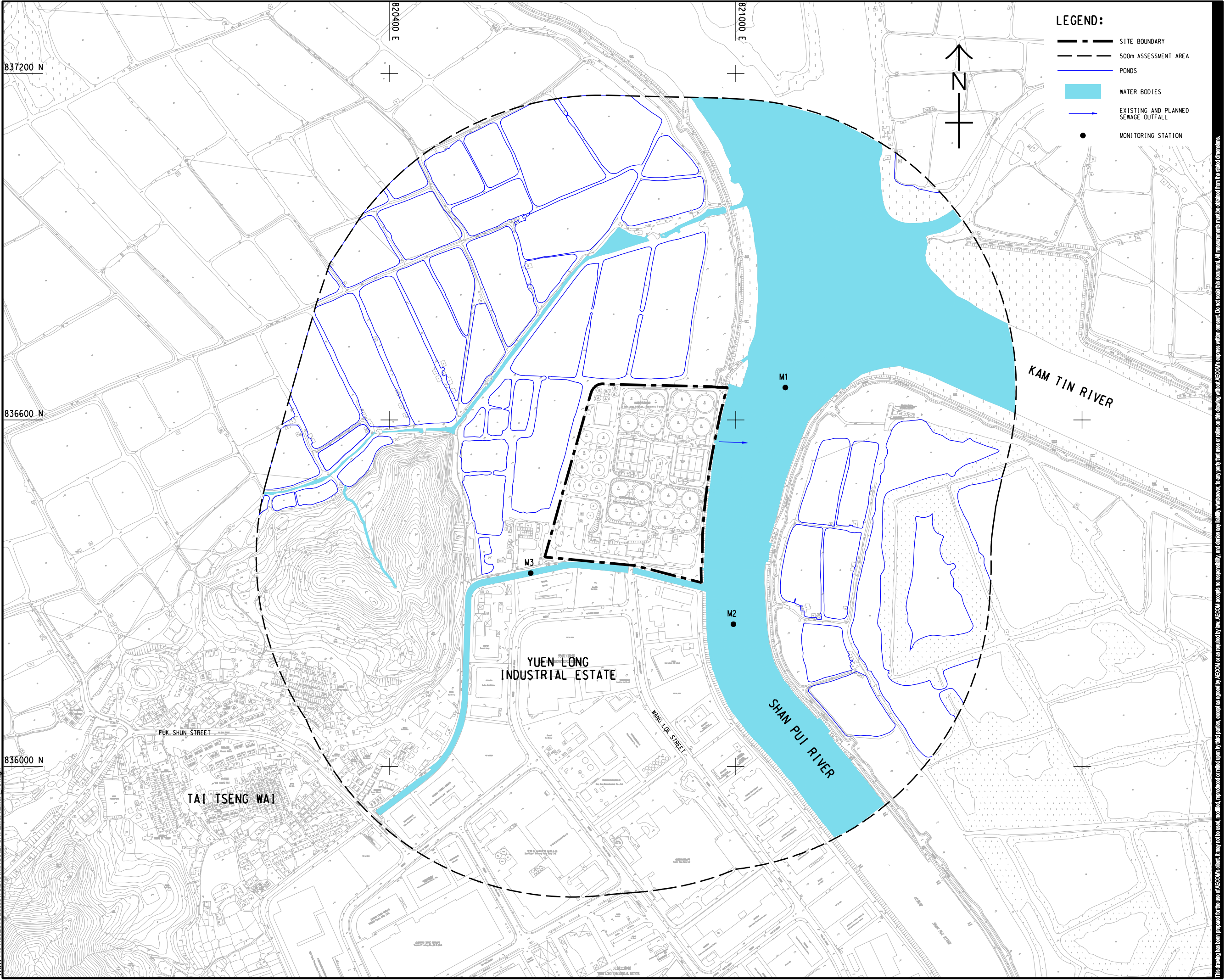
LL – Limit Level

ER – Engineer's Representative

IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Plot File by: GeoYU 12/18
PATH: P:\PROJECTS\6050578\DRAWING\REPORT\EM&EM&A_704.dgn



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CLIENT
渠務署
Drainage Services Department

SHEET TITLE
LOCATIONS OF WATER QUALITY
MONITORING STATIONS FOR
CONSTRUCTION PHASE

Annex B – Water Quality Monitoring Results

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	1	0.043	271	7.28	7.28	0.91	0.91	32.62	32.63	66.8	67.2	4.82	4.84	49.8	48.9	50	54
M1	6/7/2021	Mid-Flood	Fine	Calm	18:52	1.3	M	0.65	2			7.28		0.91		32.63		67.5		4.86		48.0		57	
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	1			7.29	7.29	0.82	0.82	32.64	32.64	68.8		4.95	4.96	45.7	45.8	62	64
M2	6/7/2021	Mid-Flood	Fine	Calm	18:32	0.7	M	0.35	2	0.043	257	7.29		0.82		32.64		69.2		4.97		45.9		65	
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	1			7.19	7.19	0.53	0.53	30.11	30.11	78.7	78.8	5.62	5.62	54.2	54.1	49	47
M3	6/7/2021	Mid-Flood	Fine	Calm	18:30	0.8	M	0.4	2			7.19		0.53		30.11		78.8		5.62		54.0		45	
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	1	0.262	138	7.24	7.24	1.05	1.05	32.26	32.26	47.7	47.6	3.45	3.44	58.7	58.8	64	68
M1	6/7/2021	Mid-Ebb	Fine	Calm	11:50	1.2	M	0.6	2			7.24		1.04		32.25		47.4		3.43		58.9		71	
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	1			7.26	7.26	0.90	0.90	32.23	32.24	55.9	56.0	4.05	4.06	52.7	53.8	54	57
M2	6/7/2021	Mid-Ebb	Fine	Calm	12:05	0.9	M	0.45	2	0.05	124	7.26		0.90		32.24		56.1		4.06		54.8		60	
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	1			7.26	7.26	0.93	0.93	32.11	32.11	50.5	50.3	3.67	3.67	46.1	46.1	44	43
M3	6/7/2021	Mid-Ebb	Fine	Calm	11:35	0.3	M	0.15	2			7.26		0.93		32.11		50.0		3.67		46.1		42	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limti Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	58.7	63.6	81	112
M3	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	59.9	64.9	60	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

Annex C – Photo of investigation

Date of investigation: 6 July 2021 (**Ebb Tide**)

Monitoring Station: M1



Annex D – Site Inspection



Date of site inspection: 15 July 2021

Gullies were bunded by sand bags to prevent surface runoff.



Date of site inspection: 15 July 2021

The surrounding of the construction site areas were covered by impermeable sheeting to prevent surface runoff.

Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210727_M1_SS													
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1													
Date:	2021/07/27													
Time: (hh:mm)	(Ebb Tide) M1: <u>16:34</u> M2: M3:													
Action level / Limit level: (For Flood Tide)		DO (mg/L)		Turbidity (NTU)		SS (mg/L)								
		AL	LL	AL	LL	AL	LL							
	M1	2.25	1.91	48.4	50.4	59	68							
	M2	1.88	1.79	43.0	52.4	81	112							
	M3	3.28	3.14	74.3	78.0	104	167							
Measured level of exceeded parameter: (fill in / circle as appropriate)	M1	DO (AL / LL) : _____			M3	DO (AL / LL) : _____								
		NTU (AL / LL) : _____				NTU (AL / LL) : _____								
		SS (AL / LL) : <u>70</u>				SS (AL / LL) : _____								
	M2	DO (AL / LL) : _____												
		NTU (AL / LL) : _____												
		SS (AL / LL) : _____												
Action taken / to be taken: (tick / circle / fill in as appropriate)	Inspection : <input checked="" type="checkbox"/> ER / IEC / Contractor is/are informed. <input checked="" type="checkbox"/> Monitoring equipment & monitoring data are checked and confirmed without problem. <input type="checkbox"/> In-situ measurement is repeated. <input type="checkbox"/> Other _____													
Possible reason for action or Limit level Non-compliance: (tick / fill in as appropriate)				DO	Turbidity	SS								
	Finding / Evidences													
	<input type="checkbox"/> Upstream Control Station exceeded AL/LL													
	<input type="checkbox"/> Station was polluted by the inflow of other construction site													
	<input type="checkbox"/> Station was polluted by the inflow of residential discharge													
	<input type="checkbox"/> Station was polluted by the inflow of surface runoff from rainstorm and storm water drainage													
	<input checked="" type="checkbox"/> No construction activities were carried out in the vicinity of station					M1								
	<input type="checkbox"/> Other _____													

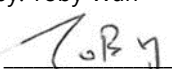
Notification of Water Quality Monitoring Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20210727_M1_SS			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Date:	2021/07/27			
Conclusion:		DO	Turbidity	SS
	<input checked="" type="checkbox"/> Due to change or/and influences of ambient condition in the vicinity, not Project related <input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related			M1
Mitigation Measures:	The following mitigation measures have been taken: 1. Channels, earth bunds or sand bag barriers were provided on site to properly direct stormwater to silt removal facilities; 2. The surfaces of construction site areas near the drainages were paved; 3. Manholes were adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and; 4. Channels and manholes were maintained and the deposited silt and grit were removed after rainstorm to prevent overflows and localised flooding.			
Remarks: (tick / fill in as appropriate)	<input type="checkbox"/> Repeat in-situ measurement was done.			
	M1 DO : _____ NTU : _____	M3 DO : _____ NTU : _____		
Attachment	M2 DO : _____ NTU : _____			
	<input checked="" type="checkbox"/> No major observation of upstream area was found Annex A – Location of Water Quality Monitoring Stations Annex B – Water Quality Monitoring Results Annex C – Photo of Investigation			

Note: The box is checked ☒ to represent the statement is applicable, and vice versa.

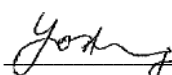
Prepared by: Toby Wan

Signature: 

Date (dd/mm/yyyy): 6/8/2021

Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 6/8/2021

Notes:

- Abbreviation:

DO – Dissolved Oxygen

NTU – Turbidity

SS – Suspended Solids

AL – Action Level

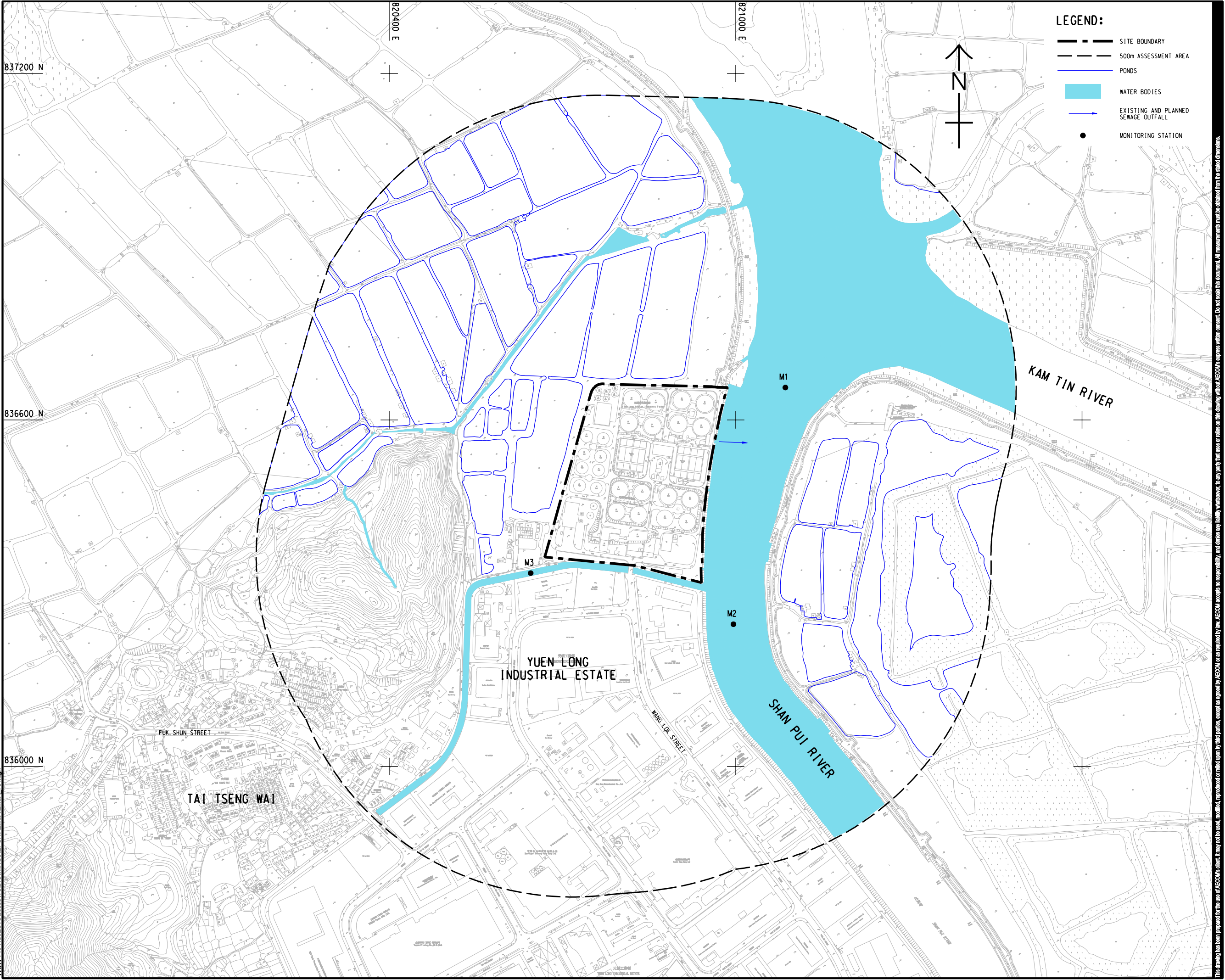
LL – Limit Level

ER – Engineer's Representative

IEC – Independent Checker

Annex A – Location of Water Quality Monitoring Stations

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:
Plot File by: GeoYU 12/18
PATH: P:\PROJECTS\6050578\DRAWING\REPORT\EM&EM&A_704.dgn



- LEGEND:**
- SITE BOUNDARY
 - 500m ASSESSMENT AREA
 - PONDS
 - WATER BODIES
 - EXISTING AND PLANNED SEWAGE OUTFALL
 - MONITORING STATION

CLIENT
渠務署
Drainage Services Department

SHEET TITLE
LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

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Annex B – Water Quality Monitoring Results

Monitoring Location	Date	Tide Mode	Weather	Sea Condition	Time	Water Depth (m)	Monitoring Level	Monitoring Level (m)	Replicate	In-situ Measurement														Laboratory Analysis	
										Current Speed (m/s)	Current Direction (°)	pH		Salinity (ppt)		Temperature (degree C)		DO Saturation (%)		DO (mg/L)		Turbidity (NTU)		Total Suspended Solids (mg/L)	
										Value	Value	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	1	0.021	116	7.21	7.22	2.40	2.41	32.52	32.52	54.2	54.2	3.83	3.82	20.0	20.5	24	24
M1	27/7/2021	Mid-Flood	Cloudy	Calm	09:12	1.4	M	0.7	2			7.22		2.41		32.52		54.1		3.81		21.0		23	
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	1			7.19	7.19	2.39	2.39	32.30	32.65	50.7	50.7	3.64	3.64	19.4	19.4	30	29
M2	27/7/2021	Mid-Flood	Cloudy	Calm	09:27	1.1	M	0.55	2	0.165	123	7.18		2.38		33.00		50.6		3.63		19.4		27	
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	1			7.21	7.21	2.36	2.36	31.50	31.49	59.7	59.5	4.25	4.24	20.9	20.9	9	10
M3	27/7/2021	Mid-Flood	Cloudy	Calm	09:10	1	M	0.5	2	0.224	76	7.20		2.35		31.48		59.3		4.23		20.8		10	
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	1			7.24	7.24	2.31	2.31	33.01	33.01	58.9	58.8	4.18	4.17	19.9	19.9	68	70
M1	27/7/2021	Mid-Ebb	Cloudy	Calm	16:34	0.8	M	0.4	2	0.234	233	7.24		2.30		33.00		58.7		4.16		19.9		72	
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	1			7.25	7.25	2.40	2.40	32.22	32.23	62.7	62.6	4.46	4.44	21.8	21.8	51	53
M2	27/7/2021	Mid-Ebb	Cloudy	Calm	16:15	0.9	M	0.45	2	0.019	244	7.24		2.40		32.24		62.4		4.41		21.8		55	
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	1			7.14	7.14	2.11	2.12	32.67	32.68	51.2	51.0	3.69	3.68	39.0	38.4	42	44
M3	27/7/2021	Mid-Ebb	Cloudy	Calm	16:08	0.8	M	0.4	2			7.13		2.12		32.68		50.8		3.66		37.8		45	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. Limti Level for Turbidity: 99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day.
5. Action Level for SS: 95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day.
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1	2.25	1.91	48.4	50.4	59	68
M2	1.88	1.79	43.0	52.4	81	112
M3	3.28	3.14	74.3	78.0	104	167



Annex C – Photo of investigation

Date of investigation: 27 July 2021 (**Ebb Tide**)

Monitoring Station: M1



Annex D – Site Inspection



Date of site inspection: 28 July 2021

Gullies were bunded by sand bags to prevent surface runoff.

Notification of Ecological Monitoring of Birds Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR202107_Species Diversity			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Survey Date:	09/07/2021 (Night time survey) and 13/07/2021 (Daytime survey)			
Action level / Limit level: (For Avifauna Communities)	Method	Parameters	Action Level	Limit Level
	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	Significant decline ^{1,2} in any of these parameters during the current monitoring month relative to the corresponding month during the baseline survey	Significant decline in any of these parameters for three consecutive months
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
		Species diversity of species with conservation importance only		
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
		Species diversity of species with conservation importance only		
Measured significant decline in abundance and/or species diversity (fill in as appropriate)	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Action taken / to be taken ³ : (tick / circle / fill in as appropriate)	Responses: <input checked="" type="checkbox"/> Informed IEC, ER, and Contractor. <input checked="" type="checkbox"/> Reviewed monitoring data. <input checked="" type="checkbox"/> Investigated possible causes of decline and identified possible source (s) of impact. Recorded in notification. <input checked="" type="checkbox"/> Check Contractor's working methods.			

	<input type="checkbox"/> Other
Possible reason/s ⁴ for action or limit level Non-compliance: (tick / fill in as appropriate)	Findings / Evidences <input type="checkbox"/> Construction noise disturbance <input type="checkbox"/> Vibration disturbance from potential percussive piling works <input type="checkbox"/> Construction lighting/glare disturbance <input type="checkbox"/> Increased human activities <input type="checkbox"/> Construction dust disturbance <input checked="" type="checkbox"/> Others: The lower diversity during this period with respect to the baseline data could be due to the current dominance of Chinese Pond Heron in the community. The current dominance of this species was due to its concurrent breeding period. This dominant species could have decreased the performance of co-occurring species (Gilbert et al. 2009) ⁵ and forced them to utilize other areas outside the survey area, thus, made the area less diverse. Furthermore, low diversity index usually results from high dominance in the community as these are inversely related (Shaukat et al., 1978) ⁶ .
Observations	<input checked="" type="checkbox"/> Noise levels (46.1 to 67.4 dB(A)) recorded from the different point count locations during the ecological bird monitoring are mostly low. The generally low noise levels are unlikely to cause significant impact to birds as behavioral response of some kind are more likely to occur at above 65.5 dB(A) (Wright et al. 2010) ⁷ . Only two stations, SP/NSW3 with 66.5 dB(A) and SP/NSW1 with 67.4 dB(A), have readings slightly above 65.5. dB(A). These stations are located across the Shan Pui River, relatively far from the construction works area; and are close to the roadsides with low to moderate traffic. During the monitoring period, passing vehicles, barking dogs, and noisy insects were noted. <input checked="" type="checkbox"/> Environmental site audits indicated that the recommended environmental protection measures/mitigation measures to mitigate ecological impacts have been implemented. <input checked="" type="checkbox"/> No significant decrease in abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> Significant increase in species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> No significant decrease in abundance of species with conservation importance only was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> Increase in number and dominance of Chinese Pond Heron due to breeding activities
Conclusion	<input checked="" type="checkbox"/> Due to influences of external factors/ other threats, not Project related <input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related
Mitigation measures	<input checked="" type="checkbox"/> Avoidance of recognized site of conservation importance <input checked="" type="checkbox"/> Restriction of construction hours <input checked="" type="checkbox"/> Minimizing construction noise disturbance impacts through the use of noise barriers <input checked="" type="checkbox"/> Establishment of bird curtain
Attachment	Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations (July 2021) Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations (July 2021) Annex D – Hutcheson T-test Analysis (July 2021) Annex E – Abundance Tables Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (July 2021) Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (July 2021)
Notes: 1. Significant decline in abundance determined using two-tailed t-test, $\alpha = 0.05$ 2. Significant decline in species diversity determined using the Hutcheson t-test, two-tailed 3. In accordance with Table 4.2 “Responses to Alert and Action Level for Avifauna Communities” of the Baseline Bird Survey Report 4. With reference to Table 8.34 “Summary of Potential Impacts and Mitigation Measures Requirements of the Construction of the Project” of the approved EIA Report	


5. Benjamin, G., Turkington, R. and Diane S. Srivastava, D.S. 2009. Dominant Species and Diversity: Linking Relative Abundance to Controls of Species Establishment. Am. Nat. 174: 850–862.
6. Shaukat, S.S, Khairi. M.A and Khan M.A. 1978. The relationship amongst dominance, diversity and community maturity in a desert vegetation. Pak. J. Bot. 10(2):183-196
7. Wright, M.D., Goodman, P. and Cameron, T. 2010. Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl. 60:150-167

The box is checked ☒ to represent the statement is applicable, and vice versa

Abbreviation: ER – Engineer's Representative, IEC – Independent Checker

Prepared by: Fenelyn Nabuab

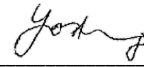
Designation: Ecologist

Signature: 

Date (dd/mm/yyyy): 23/07/2021

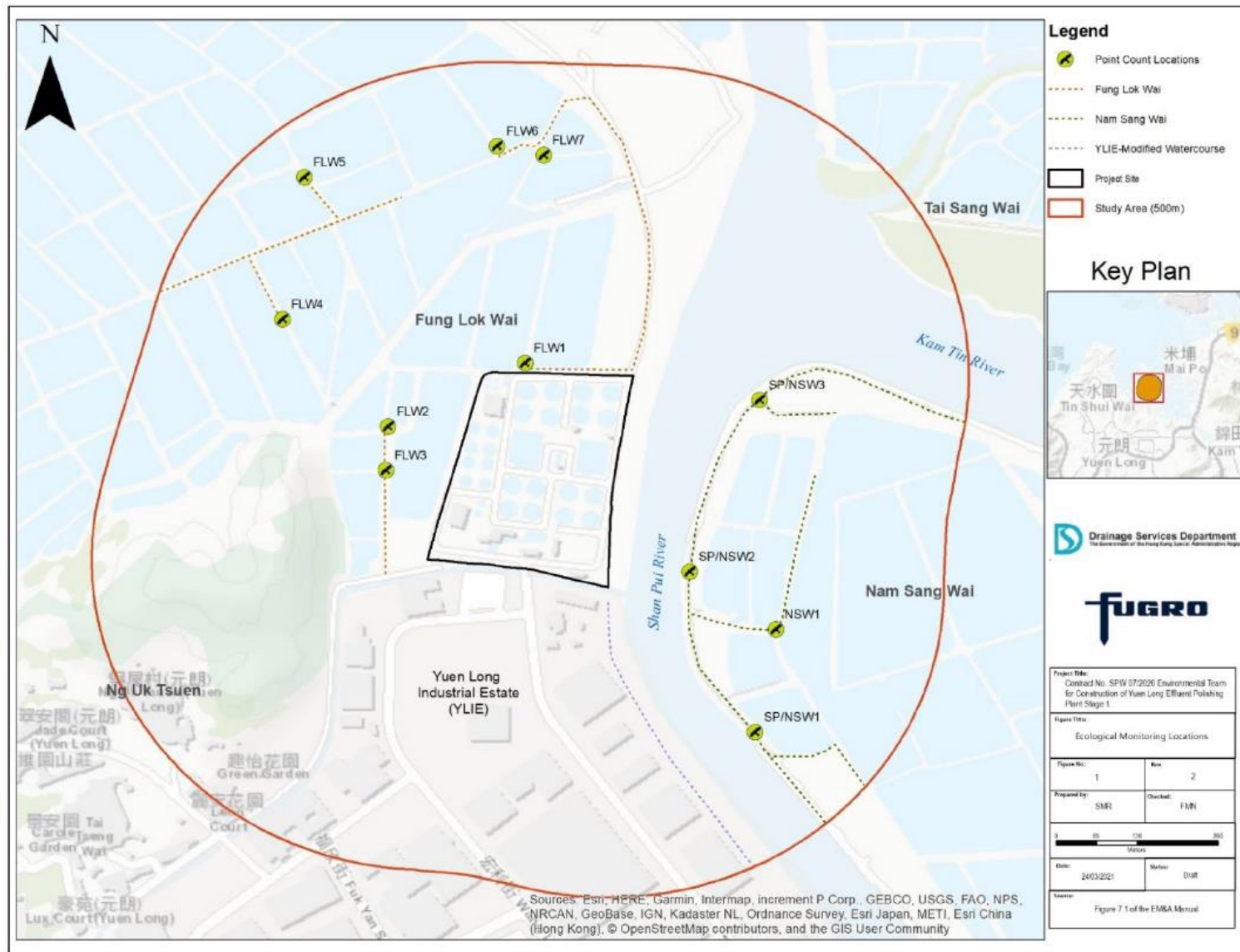
Certified by: David Hung

Designation: Environmental Team Leader

Signature: 

Date (dd/mm/yyyy): 23/07/2021

Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations



Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations
(July 2021)

Date (dd/mm/yyyy)	Daytime/Night time	Season	Area	Transect/Point Count	Point Count (Location)/ Transect Impact	Common Name	Scientific Name	Abundance	Habitat	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020- 3)	Species of Conservation Importance	Wetland Dependent	Remarks
09/07/2021	Nighttime	Wet	NSW	Transect	NSW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	Roosting
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	14	Developed Area (Chinese Banyan Trees)	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Azure-winged Magpie	<i>Cyanopica cyanus</i>	4	Developed Area (Chinese Banyan Trees)	Introduced	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Grey Wagtail	<i>Motacilla cinerea</i>	1	Plantation-FLW	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Spotted Dove	<i>Spilopelia chinensis</i>	2	Plantation-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Plantation-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Greater Coucal	<i>Centropus sinensis</i>	1	Pond-FLW	Common	R	-	Class II	Vulnerabl e	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Transect	FLW	Eurasian Tree Sparrow	<i>Passer montanus</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Crested Myna	<i>Acridotheres cristatellus</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	16	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Oriental Magpie Robin	<i>Copsychus saularis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Spotted Dove	<i>Spilopelia chinensis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW1	Plain Prinia	<i>Prinia inornata</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Crested Myna	<i>Acridotheres cristatellus</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Barn Swallow	<i>Hirundo rustica</i>	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	1	Pond-FLW	Uncommon	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Plain Prinia	<i>Prinia inornata</i>	1	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW2	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Chinese Bulbul	<i>Pycnonotus sinensis</i>	2	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Spotted Dove	<i>Spilopelia chinensis</i>	1	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW3	Plain Prinia	<i>Prinia inornata</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW4	Barn Swallow	<i>Hirundo rustica</i>	3	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Oriental Magpie Robin	<i>Copsychus saularis</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	White Wagtail	<i>Motacilla alba</i>	2	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eastern Yellow Wagtail	<i>Motacilla tschutschensis</i>	1	Pond-FLW	Common	PM,WV	-	-	-	LC	LC	N	N	

13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW5	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Little Egret	<i>Egretta garzetta</i>	4	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW6	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Pond-FLW	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Crested Myna	<i>Acridotheres cristatellus</i>	2	Pond-FLW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Chinese Pond Heron	<i>Ardeola bacchus</i>	5	Pond-FLW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Greater Coucal	<i>Centropus sinensis</i>	1	Pond-FLW	Common	R	-	Class II	Vulnerabl e	LC	LC	Y	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	3	Pond-FLW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Point Count	FLW7	Barn Swallow	<i>Hirundo rustica</i>	1	Pond-FLW	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Red-throated Flycatcher	<i>Ficedula albicilla</i>	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Long-tailed Shrike	<i>Lanius schach</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	2	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Plantation-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Transect	NSW	Japanese White-eye	<i>Zosterops japonicus</i>	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Crested Myna	<i>Acridotheres cristatellus</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Pond-NSW	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	5	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White Wagtail	<i>Motacilla alba</i>	1	Pond-NSW	Common	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	White-shouldered Starling	<i>Sturnia sinensis</i>	1	Pond-NSW	Common	PM	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	NSW1	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Pond-NSW	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	<i>Egretta garzetta</i>	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Redshank	<i>Tringa totanus</i>	1	Modified Watercourse	Common	PM	RC	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Crested Myna	<i>Acridotheres cristatellus</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	

13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Little Egret	<i>Egretta garzetta</i>	4	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Long-tailed Shrike	<i>Lanius schach</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Spotted Dove	<i>Spilopelia chinensis</i>	2	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Sandpiper	<i>Actitis hypoleucos</i>	1	Modified Watercourse	Common	PM,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW1	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Crested Myna	<i>Acridotheres cristatellus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Common Tailorbird	<i>Orthotomus sutorius</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW2	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	4	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Chinese Pond Heron	<i>Ardeola bacchus</i>	5	Mangrove	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Crested Myna	<i>Acridotheres cristatellus</i>	2	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Great Egret	<i>Ardea alba</i>	2	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Red-throated Flycatcher	<i>Ficedula albicilla</i>	2	Modified Watercourse	Uncommon	PM,WV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Barn Swallow	<i>Hirundo rustica</i>	7	Modified Watercourse	Abundant	PM,SV	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	1	Modified Watercourse	Common	R,WV	-	-	-	LC	LC	N	Y	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	<i>Zosterops japonicus</i>	3	Modified Watercourse	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	NSW	Point Count	SP/NSW3	Japanese White-eye	<i>Zosterops japonicus</i>	2	Pond-NSW	Abundant	R	-	-	-	LC	LC	N	N	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Great Egret	<i>Ardea alba</i>	1	Modified Watercourse	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Little Egret	<i>Egretta garzetta</i>	3	Modified Watercourse	Common	R	PRC (RC)	-	-	LC	LC	Y	Y	
13/07/2021	Daytime	Wet	FLW	Transect	YLIE-CW	Common Moorhen	<i>Gallinula chloropus</i>	1	Modified Watercourse	Common	R	-	-	-	LC	LC	N	Y	

Notes:

(1) All wild birds are Protected under Wild Animals Protection Ordinance (Cap. 170).

(2) AFCD (2021). Hong Kong Biodiversity Database.

(3) Carey et al. (2001): R=resident; WV=winter visitor; SV=summer visitor; PM=passage migrant; Sp=spring; A=autumn;

(4) Fellowes et al. (2002): GC=Global Concern; LC=Local Concern; RC=Regional Concern; PRC=Potential Regional Concern; PGC: Potential Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in nesting and/or roosting sites rather than in general occurrence.

(5) List of Wild Animals Under State Protection (promulgated by State Forestry Administration and Ministry of Agriculture on 14 January, 1989).

(6) Zheng, G. M. and Wang, Q. S. (1998). China Red Data Book

(7) IUCN 2021. The IUCN Red List of Threatened Species. Version 2020-3.

(9) Wetland-dependent species (including wetland-dependent species and waterbirds).

(10) Jiang et al. (2016). Red List of China’s Vertebrates

Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations
(July 2021)

Annex C.1. Shannon Diversity Index Values of Avifauna Species with Conservation Importance in the Different Transect Routes and Point Count Locations

Shannon Diversity Index Value of Species with Conservation Importance				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
P1	FLW1	**	0	+
P2	FLW2	0	0	=
P3	FLW3	**	**	=
P4	FLW4	0	0	=
P5	FLW5	0.64	0	-
P6	FLW6	1.1	0.68	-
P7	FLW7	1.04	0.45	-
P9	SP/NSW3	1	0.36	-
P10	SP/NSW2	0.99	0	-
P11	NSW1	1.37	0	-
P12	SP/NSW1	0.87	0.80	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jul-17	Jul-21	Remarks
Fung Lok Wai	FLW	0.90	0.24	-
Nam Sang Wai	NSW	**	0	+
YLIE-CW	YLIE-CW	**	1.01	+

Note:

** no species recorded

Annex D – Summary of Hutcheson T-test Analysis (July 2021)

Hutcheson T-test formula:

$$t = \frac{H_a - H_b}{\sqrt{s_{H_a}^2 + s_{H_b}^2}}$$

Annex D.1 Species Diversity of Avifauna Species with Conservation Importance – Point Count Method

Months	July 2017	July 2021
Total	80	52
N	5	5
H	1.3642	0.8480
S^2_H	0.004471	0.017709
t	3.465844	
df	78	
Crit	1.990847	
p	0.000862	
CI	0.133728	0.266153

Annex E – Abundance Tables

Annex E.1 Baseline (July 2017) consolidated abundance data of all avifauna species for point count method

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	7
<i>Alcedo atthis</i>	2
<i>Ardea alba</i>	24
<i>Ardeola bacchus</i>	18
<i>Bubulcus coromandus</i>	2
<i>Caprimulgus affinis</i>	2
<i>Ceryle rudis</i>	6
<i>Copsychus saularis</i>	3
<i>Dicrurus macrocercus</i>	2
<i>Egretta garzetta</i>	30
<i>Garrulax perspicillatus</i>	1
<i>Gracupica nigricollis</i>	5
<i>Hirundo rustica</i>	7
<i>Lanius schach</i>	2
<i>Milvus migrans</i>	4
<i>Motacilla alba</i>	1
<i>Orthotomus sutorius</i>	1
<i>Passer montanus</i>	20
<i>Prinia flaviventris</i>	4
<i>Prinia inornata</i>	4
<i>Pycnonotus jocosus</i>	4
<i>Pycnonotus sinensis</i>	1
<i>Spilopelia chinensis</i>	8
<i>Streptopelia decaocto</i>	1
<i>Tachybaptus ruficollis</i>	4
<i>Zosterops japonicus</i>	2
Grand Total	165

Annex E.2 Impact monitoring (July 2021) consolidated abundance data of all avifauna species for point count method

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	11
<i>Actitis hypoleucos</i>	1
<i>Amaurornis phoenicurus</i>	1
<i>Ardea alba</i>	2
<i>Ardeola bacchus</i>	37
<i>Centropus sinensis</i>	1

Scientific Name	Abundance
<i>Copsychus saularis</i>	6
<i>Egretta garzetta</i>	11
<i>Ficedula albicilla</i>	2
<i>Garrulax perspicillatus</i>	8
<i>Gracupica nigricollis</i>	2
<i>Hirundo rustica</i>	12
<i>Lanius schach</i>	1
<i>Motacilla alba</i>	3
<i>Motacilla tschutschensis</i>	1
<i>Nycticorax nycticorax</i>	3
<i>Orthotomus sutorius</i>	6
<i>Passer montanus</i>	6
<i>Prinia flaviventris</i>	2
<i>Prinia inornata</i>	4
<i>Pycnonotus jocosus</i>	6
<i>Pycnonotus sinensis</i>	2
<i>Spilopelia chinensis</i>	6
<i>Streptopelia tranquebarica</i>	1
<i>Sturnia sinensis</i>	1
<i>Tringa totanus</i>	1
<i>Zosterops japonicus</i>	5
Grand Total	142

Annex E.3 Baseline (July 2017) consolidated abundance data of conservation important avifauna species for point count method

Scientific Name	Abundance
<i>Ardea alba</i>	24
<i>Ardeola bacchus</i>	18
<i>Egretta garzetta</i>	30
<i>Milvus migrans</i>	4
<i>Tachybaptus ruficollis</i>	4
Grand Total	80

Annex E.4 Impact monitoring (July 2021) consolidated abundance data of conservation important avifauna species for point count method

Scientific Name	Abundance
<i>Ardea alba</i>	2
<i>Ardeola bacchus</i>	37
<i>Centropus sinensis</i>	1
<i>Egretta garzetta</i>	11
<i>Tringa totanus</i>	1
Grand Total	52

Annex E.5 Baseline (July 2017) consolidated abundance data of all avifauna species for transect walk method

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	1
<i>Amaurornis phoenicurus</i>	2
<i>Ardeola bacchus</i>	5
<i>Bubulcus coromandus</i>	1
<i>Copsychus saularis</i>	1
<i>Cyanopica cyanus</i>	1
<i>Dicrurus macrocercus</i>	1
<i>Egretta garzetta</i>	2
<i>Eudynamys scolopaceus</i>	1
<i>Gracupica nigricollis</i>	1
<i>Orthotomus sutorius</i>	3
<i>Otus lettia</i>	1
<i>Parus cinereus</i>	1
<i>Passer montanus</i>	3
<i>Prinia flaviventris</i>	2
<i>Pycnonotus jocosus</i>	1
<i>Spilopelia chinensis</i>	1
<i>Zosterops japonicus</i>	8
Grand Total	36

Annex E.6 Impact monitoring (July 2021) consolidated abundance data of all avifauna species for transect walk method

Scientific Name	Abundance
<i>Acridotheres cristatellus</i>	2
<i>Ardea alba</i>	1
<i>Ardeola bacchus</i>	19
<i>Centropus sinensis</i>	1
<i>Cyanopica cyanus</i>	4
<i>Egretta garzetta</i>	3
<i>Ficedula albicilla</i>	2
<i>Gallinula chloropus</i>	1
<i>Garrulax perspicillatus</i>	2
<i>Lanius schach</i>	1
<i>Passer montanus</i>	5
<i>Spilopelia chinensis</i>	3
<i>Zosterops japonicus</i>	3
<i>Motacilla cinerea</i>	1
Grand Total	48

Annex E.7 Baseline (July 2017) consolidated abundance data of conservation important avifauna species for transect walk method

Scientific Name	Abundance
<i>Ardeola bacchus</i>	5
<i>Egretta garzetta</i>	2
<i>Otus lettia</i>	1
Grand Total	8

Annex E.8 Impact monitoring (July 2021) consolidated abundance data of conservation important avifauna species for transect walk method

Scientific Name	Abundance
<i>Ardea alba</i>	1
<i>Ardeola bacchus</i>	19
<i>Centropus sinensis</i>	1
<i>Egretta garzetta</i>	3
Grand Total	24

Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds
(July 2021)

Frequency and Period	Location	Night time (09/07/2021)		Daytime (13/07/2021)	
		Start Time	L _{Aeq} (30 min) dB(A)	Start Time	L _{Aeq} (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1	22:01	51.4	09:25	46.1
	FLW2	22:15	54.9	09:40	52.6
	FLW3	22:15	57.4	09:40	46.1
	FLW4	22:45	54.9	11:05	47.5
	FLW5	22:40	50.0	11:20	49.3
	FLW6	22:30	49.3	10:38	47.9
	FLW7	22:30	50.8	10:38	47.7
	SP/NSW3	21:25	47.1	07:30	66.5 ¹
	SP/NSW2	21:25	55.4	07:45	57.5
	NSW1	21:15	54.9	08:15	55
	SP/NSW1	21:05	62.0	08:00	67.4 ¹
Note:					
1. Close to the roadsides with low to moderate traffic. Passing vehicles, barking dogs, and noisy insects were noted during the monitoring period.					

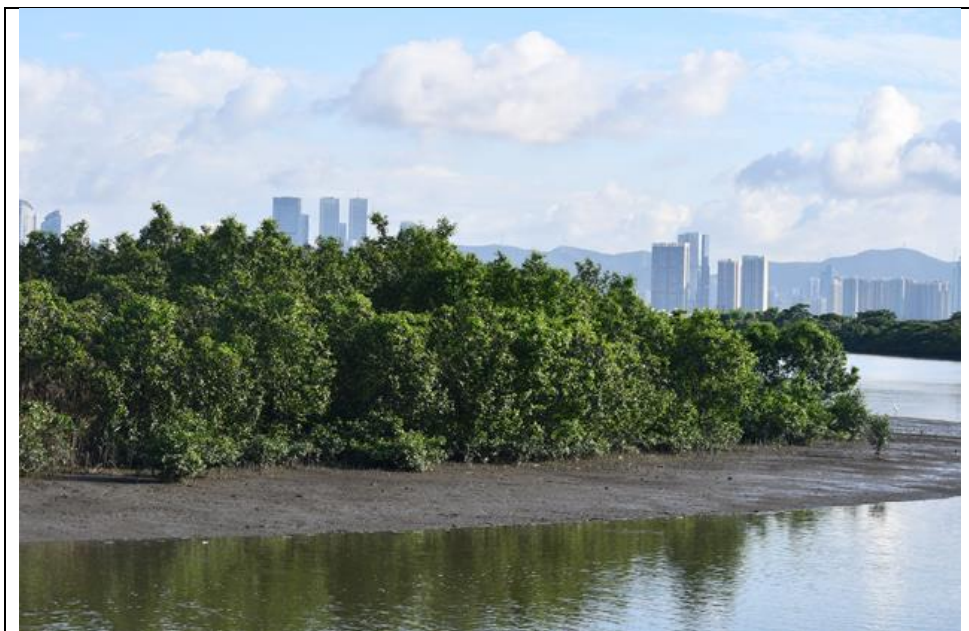
Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds
(July 2021)



Annex F.1. Active Pond at Fung Lok Wai, north of the Project Site



Annex F.2. Modified Watercourse, southeast of the Project Site



Annex F.3. Mangrove habitat and modified watercourse,
northeast of the Project Site



Annex F.4. Active Pond at Nam Sang Wai, far east of the Project Site



Annex F.5. Fishing activity at a portion of the modified watercourse, east of the Project Site