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# Monthly EM&A Report (June 2022)

0120/20/ED/0489 01

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

Ref.: DSDYLSTWEM00\_0\_0288L.22

16 July 2022

By E-mail and By Hand

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 (June 2022)**

Reference is made to the Monthly EM&A Report (June 2022) by the ET with Fugro Document No. 0120/20/ED/0489/01 (the Report), which was received via e-mail dated 15 July 2022.

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 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,



WONG Fu Nam  
Independent Environmental Checker

C.C.

DSD  
Fugro

Mr LAM Yu Wang  
Mr YU Lap Bong

By E-mail  
By E-mail

# Document Control

## Document Information

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

Client	Drainage Services Department
Client Address	45/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
Client Contact	Mr. LAM Yu Wang

## Environmental Team

Initials	Name	Role	Signature
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CY	Cyrus C.Y. Lai	Senior Environmental Consultant	
KH	Toby K.H. Wan	Assistant Environmental Consultant	

## 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 15th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 June 2022 to 30 June 2022. As informed by the Contractor, major activities in the reporting month were:
  - Sludge Digestion Tank by 1 rigs;
  - Installation of sheet pile at IW & PST;
  - Piling work at PST;
  - Piling work at Transformer House;
  - Drilling and installation of dewatering well and observation well at IW & PST;
  - ELS works at IW & PST;
  - Pipe laying for Zone 3 diversion;
  - Zone 3 Diversion works:
    - a. Temp. Gravity thickening tank – Pipe laying and E&M installation work;
    - b. Temp. Sludge Holding Tank – Pipe laying and E&M installation work;
    - c. Temp. Water heater house – Pipe laying and E&M installation work;
    - d. Temp. Primary Sludge Pumping Station – ELS work;
    - e. Temp. Digested sludge pump / Supernatant Pumping – ELS Work;
    - f. Ferrie Chloride and Chemical Dosing System – R.C. works;
    - g. Digested Sludge Pumping Station house – Pipe laying and E&M installation work;
  - Demolition of Sludge Holding Tank no. 1, 3 & 4;
  - Foundation works at CLP substation;
  - Installation of MIC unit at MIC office;
  - Backfill work at FST no. 5-8;
  - Backfill work at A. Tank 6-8;
  - Construction of RC chamber at Zone 2B;
  - Disposal of Pond Sediment excavated from PST; and
  - Disposal of construction waste as indicated in **Appendix I**.

### Breaches of Environmental Quality Performance Limits (AL levels)

- iii. No Action and Limit Level exceedance was recorded for air quality monitoring and construction noise monitoring in the reporting month.
- iv. No Action and Limit Level exceedance was recorded for water quality monitoring in the reporting month.
- v. No Action / Limit exceedance was recorded for noise levels at stations (NMS1 and NMS2) in close proximity to the two active ardeid night roosts (ANR1 and ANR2) observed within the Survey Area during the reporting month.

- vi. Two exceedances in Action Level were recorded for the ecological monitoring of birds on 13 & 17 June 2022. These include significant declines in point count method results for the species diversity of all avifauna species in the community; and species diversity of species of conservation importance only. However, the exceedances were not project-related.
- vii. No corrective actions were required according to the Event and Action Plans for the Monitoring Parameters.

### **Land Contamination**

- viii. Regular site inspection was carried out to ensure the recommended mitigation measures are properly implemented. The signed final Contamination Assessment Report (CAR) for "Main Storeroom & Workshops", "Mechanical Workshop" and "Waste Storage Area" were submitted to EPD respectively on 1<sup>st</sup> November 2021, 23<sup>rd</sup> November 2021 and 29<sup>th</sup> April 2022. No contaminated soil and ground water was found within the Main Storeroom & Workshop, Mechanical Workshop and the Waste Storage Area, and no remedial action is required for both locations. Part of the Site investigation (SI) work within the SAS Thickener House-1 (i.e. ENV-BH16, ENV-BH17, ENV-BH22 and ENV-BH23) was completed by 16<sup>th</sup> May 2022. While the laboratory results of sampling works show that there is no contaminated soil or groundwater within the SAS Thickener House-1, the findings are summarized in the draft CAR for the area which is under review and will be submitted to EPD.

### **Complaint Log**

- ix. No complaints were received in the reporting period.

### **Notifications of Summons and Successful Prosecutions**

- x. No notifications of summons and successful prosecutions were received in the reporting period.

### **Reporting Change**

- xi. There were no reporting changes during the reporting month.

### **Future Key Issues**

- xii. The main works will be anticipated in the next three months are as follow:
  - Demolition of Admin. Building, Settled Sewage Overflow Chamber, Sludge Holding Tanks no. 1, 3 & 4 (below ground), Water Heater House, Return Activated Sludge Screw Pump Pumping station, Air Flootation Thickener and Auxiliary Pumping Station (below ground);
  - Pipe Laying and construction of RC chamber at Zone 2B and subsequence diversion work;
  - ELS work and RC structure at IW & PST;
  - Installation of Sheet pile at TTB;
  - Piling work at PST;
  - Piling work at Sludge Thickening Building;
  - ELS works at IW & PST;
  - Construction of RC structure at 3 zone (Location D -Temp. Primary Sludge Pumping Station);
  - Pipe laying for Zone 3 diversion;
  - Backfilling work and installation of pipe pile wall for demolition of Aeration Tank no. 5-8 at AGS;
  - Construction of CLP Substation;
  - Construction of MiC office;
  - Demolition of PST no. 1 & 4;

- Ground investigation at AGS, SDB, SDT & STB;
- Sheet piling work around Sludge digester no. 1 – 3;
- Installation of brand drain at Biogas Holder no. 1;
- Installation of concrete blocks and soil Surcharge at Biogas Holder no. 1;
- Construction of temp. traffic road at north of SHT no. 3 & 4;
- Construction of PST structure;
- 3 zone diversion works:
  - a. E&M work at temp. Gravity thickening tank (Atal);
  - b. E&M work at temp. Sludge Holding Tank (Atal);
  - c. E&M work at temp. water heater house (Atal);
  - d. RC work at temp. Primary sludge pumping station;
  - e. ELS, RC construction and E&M work at Temp. digested sludge pump, Ferrie Chloride and Chemical Dosing System;
  - f. E&M work at Digested Sludge Pumping Station.
- Construction of RC chamber at Zone 2B.

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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 m<sup>3</sup> per day. Based on the latest planning data, the volume of sewage generation from the YLSTW catchment is estimated to increase to 150,000 m<sup>3</sup> 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 m<sup>3</sup> per day. The proposed works, as Stage 1 of the project, will firstly increase the treatment capacity to 100,000 m<sup>3</sup> 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. This 72-month works contract commenced on 9 November 2020. Demolition of existing YLSTW for construction of new treatment facilities are in progress.
- 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 15th Monthly EM&A report to document the findings of site inspection activities and EM&A programme for this project from 1 June 2022 to 30 June 2022 (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	2531 0247
Contractor (Paul Y. - CREC Joint Venture)	Assistant Environmental Officer	Mr. Sam Tsang	5490 5271
Environmental Team (Fugro Technical Services Limited)	Environmental Team Leader (ETL)	Mr. Alvin Yu	3565 4373

## 1.3 Construction Programme and Activities

1.3.1 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:

- Sludge Digestion Tank by 1 rigs;
- Installation of sheet pile at IW & PST;
- Piling work at PST;
- Piling work at Transformer House;
- Drilling and installation of dewatering well and observation well at IW & PST;
- ELS works at IW & PST;
- Pipe laying for Zone 3 diversion;
- Zone 3 Diversion works:
  - a. Temp. Gravity thickening tank – Pipe laying and E&M installation work;
  - b. Temp. Sludge Holding Tank – Pipe laying and E&M installation work;
  - c. Temp. Water heater house – Pipe laying and E&M installation work;
  - d. Temp. Primary Sludge Pumping Station – ELS work;
  - e. Temp. Digested sludge pump / Supernatant Pumping – ELS Work;
  - f. Ferrie Chloride and Chemical Dosing System – R.C. works;
  - g. Digested Sludge Pumping Station house – Pipe laying and E&M installation work;
- Demolition of Sludge Holding Tank no. 1, 3 & 4;
- Foundation works at CLP substation;
- Installation of MIC unit at MIC office;
- Backfill work at FST no. 5-8;
- Backfill work at A. Tank 6-8;
- Construction of RC chamber at Zone 2B;
- Disposal of Pond Sediment excavated from PST; and
- Disposal of construction waste as indicated in **Appendix I**.

1.4.2 The environmental 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 status 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	The whole construction and operation period of the Project
Notification of Works under APCO	461616	6-Nov-2020	The whole construction period of the Project
Construction Waste Disposal Billing Account	7038933	20-Nov-2020	The whole construction period of the Project
Registration as Chemical Waste Producer under WDO	WPN5213-528-P2796-03	4-Feb-2021	The whole construction period of the Project
Construction Noise Permit	GW-RN0935-21	20-Dec-2021	19-Jun-2022
Construction Noise Permit (Percussive Piling)	PP-RN0015-22	6-Apr-2022	5-Jul-2022
Construction Noise Permit	GW-RN0294-22	13-Apr-2022	4-Oct-2022
Construction Noise Permit	GW-RN0489-22	8-Jun-2022	7-Sep-2022
Water Pollution Control Ordinance (CAP. 358) Licence pursuant to Section 20	WT00038102-2021	4-Aug-2021	31-Aug-2026
Marine Dumping Permit Type 1 – Open Sea Disposal	EP/MD/22-030	10-Mar-2022	09-Sep-2022
Marine Dumping Permit Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal	EP/MD/23-007	10-May-2022	09-Jun-2022
Marine Dumping Permit Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal	EP/MD/23-013	10-Jun-2022	09-Jul-2022
Disposal of Special waste at Landfills Admission Ticket (Pond Sediment)	Admission Ticket Number: 16792	1-May-2022	30-May-2022, Extended till 8-Jul-2022
Disposal of Special waste at Landfills Admission Ticket (Sludge)	Admission Ticket Number: 16811	11-Apr-2022	10-Oct-2022

## 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 details of the air quality monitoring equipment used are 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 LD-5R Digital Dust Indicator	155716
2	AM2		Model LD-5R		155717
3		Global Water	GL500-7-2	Wind Station	2012000974

### 2.3 Monitoring Methodology for Direct Reading Dust Meter

2.3.1 SIBATA LD-5R Digital Dust Indicator complete with appropriate sampling inlets are employed for 1-hour TSP measurement.

#### Measuring Procedures

- a) Pulling up the air sampling inlet cover
- b) Changing the Mode 0 to BG
- c) Pressing Start/Stop switch
- d) Turning the knob to SENSI.ADJ and press it
- e) Pressing Start/Stop switch again
- f) Returning the knob to the position MEASURE slowly
- g) Pressing the timer set switch to set measuring time
- h) 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 YLSTW

## 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 special phenomena and work progress of the concerned site was noted during the current monitoring month.

2.6.4 The weather and meteorological conditions during the monitoring are provided in **Appendix K**.

2.6.5 The Air Quality Monitoring Results 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	78	60-102	291	500
AM2	86	60-109	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 June 2022 ( $\mu\text{g}/\text{m}^3$ )
1-hour TSP			
AM1	ASR09	205-451	102
AM2	ASR11		109

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 details of the noise monitoring equipment used are summarized in **Table 3.1**.

Table 3.1 – Construction Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial No.
1	Casella	CEL-63X Series	Casella 63x Digital Sound Level Meter	1488304
2	Casella	CEL-63X Series	Casella 63x Digital Sound Level Meter	1488272
3	Casella	CEL-120/1	Casella 120 Acoustic Calibrator	2383982
4	Casella	CEL-120/1	Casella 120 Acoustic Calibrator	2383707
5	SENSOR	AR816	Anemometer	N/A

### 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 <sub>Aeq</sub> (30 min) (L <sub>10</sub> and L <sub>90</sub> 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 YLSTW	Free Field
CM2	Squatter house at the west of YLSTW	Free Field
CM3	Squatter house at the east of YLSTW	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 special phenomena and work progress of the concerned site 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 and meteorological conditions during the monitoring month are provided in **Appendix K**.

3.7.5 The Construction Noise Monitoring Results 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	54-56	When one documented complaint is received	75
	CM2	61-64		75
	CM3	62-65		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 Construction Noise have been set and are presented in **Appendix C**.

3.7.7 The Event and Action Plan for Construction 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 June 2022 $L_{eq}$ (30min) dB(A)
CM1	NSR1	72	56
CM2	NSR2	74	64
CM3	NSR3	75	65

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	YSI Water Quality Multiparameter Sonde	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: ±0.2°C DO: ±0.1mg/L or 1% for 0-20mg/L; ±5% for 20-50mg/L Sal: ±2% of the reading or 0.2 ppt (whichever greater) pH: ±0.2 units Turb: ±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: ± 1.5% of reading above 0.15m/s, ± 0.004 m/s below 0.15m/s Direction: ± 2.5o	67738
		River Surveyor M9	Water Depth: 0-80m	Water Depth: 1% Current speed: ±0.25% of measured velocity or ±0.2cm/s Current direction: ±2degree magnetic	5906
Water Sampling	Water Sampler	Acrylic Beta Water Bottle Kit,	NA	NA	NA

Parameter	Equipment	Model	Range	Equipment Accuracy	Serial No.
		Horizontal, 3.2L / 4.2L			
Positioning	DGPS	Simrad MX521B Smart Antenna with Simrad MX610 CDU	NA	GPS: ±1m	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

Sampling Location		Easting	Northing
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 The weather and meteorological conditions during the monitoring are provided in **Appendix K**.
- 4.8.4 Number of Action/ Limit 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	0	0	0
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	
	Limit	0	0	0	0	0	0	0	

- 4.8.5 During the reporting period, no Action and Limit Level exceedance was recorded for water quality monitoring.
- 4.8.6 The Event and Action Plan for water quality is given in **Appendix H**.
- ## 4.9 WetSePs
- 4.9.1 Two WetSePs are deployed within the site for treatment of the site runoff prior to disposal in compliance with the conditions stipulated in the water discharge license.

## 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 Ardeid Night Roost Monitoring 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 (Survey Area) 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 Ardeid Night Roost Monitoring Survey focused on the two active night roosts within the Survey Area (100 m from the Project boundary) 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 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 17 June 2022.

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 as 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 19:21, 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 17 June 2022 and started around 18:09 (one hour before sunset) on a low tide condition. During the pre-roost period (PRP), the period when avian individuals gather first before flying into a night roost, two Little Egret *Egretta garzetta* individuals were observed in pre-roost aggregate (PRA) around 19:05 at the mudflat east side (ANR1) of the Project boundary while another two Little Egret individuals were also concurrently noted at the mudflat northeast side (ANR2) of the Project boundary during the period (**Table 5.2**).

For the final night roost at around 19:21, Chinese Pond Heron (1 individual) and Little Egret (1 individual) were observed at the roosting area ANR1 utilizing the understory layer of the roosting substrate *Sonneratia apetala* and *S. caseolaris*; concurrently, similar two species (Chinese Pond Heron with 3 individuals; and Little Egret with 2 individuals) were also noted at ANR2 that utilized the canopy layer of the aforementioned roosting substrate.

No disturbance (construction related and/or otherwise) to the active night roost areas was 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: 17 June 2022		Sunset Time: 19:09			
		Tidal Condition: Low Tide			
Pre-roost Period		Final roost Period			
Time of Return:	Little Egret <i>Egretta garzetta</i> (19:05)		Time of Return:	Chinese Pond Heron <i>Ardeola bacchus</i> , and Little Egret <i>Egretta garzetta</i> (19:21)	
Parameters	Location		Parameters	Location	
	ANR1	ANR2		ANR1	ANR2
Pre-roost Aggregation (Y/N):	N	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
Little Egret <i>Egretta garzetta</i>	2	2	Chinese Pond Heron <i>Ardeola bacchus</i>	1	3
			Little Egret <i>Egretta garzetta</i>	1	2
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

-: not recorded

### 5.1.3.2 Noise Monitoring

Noise monitoring activities were conducted on 17 June 2022 in concurrence with the construction phase monthly monitoring of the pre-identified active night roosts. Noise monitoring started at 19:21 and lasted for 30 minutes, until 19:51.

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	19:21	55.9	65.5 dB(A) <sup>1</sup>	72.2 dB(A) <sup>2</sup>
	NMS2	19:21	57.3		

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 were noted during the current monitoring period.

### 5.1.5 Summary

#### 5.1.5.1 Status and Location of Any Active Ardeid Night Roost

Two active ardeid night roost areas (ANR1 and ANR2) were observed within the Survey Area during the June 2022 monitoring period. These roosts were located at the mangrove strips in the east and northeast portions of the Project boundary. These were used by individuals of Chinese Pond Heron, and Little Egret.

#### 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) was conducted 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 included 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 surveys on the different wetland habitats using the transect count and point count methods was conducted on 13 June 2022 (daytime) and 17 June 2022 (night-time). The daytime survey started around 07:45 while the night-time survey started at 19:09. For the survey overlooking the mudflats and mangroves in the Shan Pui River that was concurrently conducted on the same date with the daytime survey during the low tide (generally 1.5m or below) period, it started at around 13:05. 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 were 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 13 June 2022 (daytime) which started around 07:45 and on 17 June 2022 (night-time) which started around 19:09, are presented in **Sections 5.2.3.1** and **5.2.3.2**. Meanwhile, results for the surveys overlooking the mudflats and mangroves in the Shan Pui River, with monitoring activities conducted on similar date with the daytime survey during the low tide (generally 1.5m or below) period around 13:05 had results presented in **Section 5.2.3.3**.

#### 5.2.3.1 Abundance

##### 5.2.3.1.1 All Avifauna Species

An overall total of 202 avifauna individuals was recorded in the monitoring area during the June 2022 monitoring period, of which 128 individuals were recorded from the point count method and 74 individuals from the transect walk method. Relative to the June 2017 baseline data (point count method = 121; and transect walk = 69), current increases in total abundance

for both the point count and transect walk methods were noted. Details of 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	June-17	June-22	Remarks
P1	FLW1	4	19	+
P2	FLW2	3	10	+
P3	FLW3	7	7	=
P4	FLW4	17	8	-
P5	FLW5	25	26	+
P6	FLW6	6	12	+
P7	FLW7	9	11	+
P9	SP/NSW3	14	14	=
P10	SP/NSW2	11	8	-
P11	NSW1	17	6	-
P12	SP/NSW1	8	7	-
<b>Total</b>		<b>121</b>	<b>128</b>	<b>+</b>
<b>Mean</b>		<b>11</b>	<b>12</b>	<b>+</b>
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June-17	June-22	Remarks
Fung Lok Wai	FLW	67	36	-
Nam Sang Wai	NSW	2	38	+
YLIE-CW	YLIE-CW	0	0	=
<b>Total</b>		<b>69</b>	<b>74</b>	<b>+</b>
<b>Mean</b>		<b>23</b>	<b>25</b>	<b>+</b>

Notes:

+ increased abundance; - decreased abundance; = similar abundance

#### 5.2.3.12 Avifauna Species of Conservation Importance

Of the 202 avifauna individuals recorded in the monitoring area during the June 2022 monitoring period, 92 individuals (point count method = 50 individuals; transect walk method = 42 individuals) were of conservation importance. With reference to June 2017 data, current results showed increases in total abundance of both point count and transect walk methods were noted. Details of 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	June-17	June-22	Remarks
P1	FLW1	2	15	+
P2	FLW2	0	0	=
P3	FLW3	0	0	=
P4	FLW4	3	4	+
P5	FLW5	5	2	-
P6	FLW6	5	12	+
P7	FLW7	1	7	+
P9	SP/NSW3	12	3	-
P10	SP/NSW2	10	6	-
P11	NSW1	1	1	=
P12	SP/NSW1	6	0	-
<b>Total</b>		<b>45</b>	<b>50</b>	<b>+</b>
<b>Mean</b>		<b>4</b>	<b>5</b>	<b>+</b>
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June-17	June-22	Remarks
Fung Lok Wai	FLW	40	22	-
Nam Sang Wai	NSW	0	20	+
YLIE-CW	YLIE-CW	0	0	=
<b>Total</b>		<b>40</b>	<b>42</b>	<b>+</b>
<b>Mean</b>		<b>13</b>	<b>14</b>	<b>+</b>

Notes:

+ increased abundance; - decreased abundance; = similar abundance

### 5.2.3.2 Diversity (Species Richness<sup>1</sup> and Shannon Diversity Index<sup>2</sup>)

#### 5.2.3.2.1 All Avifauna Species

A total of 19 avifauna species (species richness) were recorded during the June 2022 monitoring period, of which, 18 species were recorded by the point count method while 11 species were noted by the transect walk method. Relative to the baseline data (point count method = 25 species; transect walk method = 13 species), decreases in total species richness for both the point count and transect walk methods were noted. In terms of Shannon diversity

<sup>1</sup> actual number of species

<sup>2</sup> use to account the proportion (in terms of relative abundance) of each species

index ( $H'$ ), a significant decrease in point count method (t-value = 4.11; t-crit = 1.97; p-value = 0.00;  $\alpha = 0.05$ ) from baseline reference value was observed while an insignificant decrease (t-value = 0.65; t-crit = 1.98; p-value = 0.52;  $\alpha = 0.05$ ) in the transect walk method was additionally noted. Details of these findings are summarized in **Table 5.7 and Appendix F.6**.

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	June-17	June-22	Remarks
P1	FLW1	1.04	0.73	-
P2	FLW2	0.64	1.50	+
P3	FLW3	1.28	1.75	+
P4	FLW4	2.20	1.26	-
P5	FLW5	2.39	1.81	-
P6	FLW6	0.87	0.87	=
P7	FLW7	1.89	1.29	-
P9	SP/NSW3	1.09	1.30	+
P10	SP/NSW2	1.17	1.39	+
P11	NSW1	1.85	1.24	-
P12	SP/NSW1	1.49	1.35	-
Overall $H'$		2.87	2.38	-
Species Richness		25	18	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June -17	June-22	Remarks
Fung Lok Wai	FLW	1.99	1.93	-
Nam Sang Wai	NSW	0.69	1.59	+
YLIE-CW	YLIE-CW	**	**	=
Overall $H'$		2.09	1.99	-
Species Richness		13	11	-

Notes:

\*\* result when no species recorded; + increased Shannon diversity index ( $H'$ ); - decreased Shannon diversity index ( $H'$ ); = no change in Shannon diversity index ( $H'$ )

### 5.2.3.2.2 Avifauna Species of Conservation Importance

Of the 19 avifauna species of avifauna identified during the June 2022 monitoring period, four species were of conservation importance (point count method = 4 species; transect walk method = 3 species). Relative to the baseline values in June 2017, decrease in the number of species with conservation importance was recorded from the point count method while the number of species with conservation importance from the transect walk method remain

unchanged. In terms of Shannon diversity index ( $H'$ ), In terms of Shannon diversity index ( $H'$ ), a significant decrease in point count method (t-value = 4.36; t-crit = 1.99; p-value = 0.00;  $\alpha$  = 0.05) from baseline reference value was observed while an insignificant decrease (t-value = 1.02; t-crit = 1.99; p-value = 0.31;  $\alpha$  = 0.05) in the transect walk method was additionally noted. Details of these findings are summarized in **Table 5.8 and Appendix F.6**.

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	June-17	June-22	Remarks
P1	FLW1	0.69	0	-
P2	FLW2	**	**	=
P3	FLW3	**	**	=
P4	FLW4	0.64	0.56	-
P5	FLW5	0.95	0	-
P6	FLW6	0.50	0.87	+
P7	FLW7	0	0.41	+
P9	SP/NSW3	0.68	0	-
P10	SP/NSW2	0.95	0.87	-
P11	NSW1	0	0	=
P12	SP/NSW1	1.01	**	-
Overall $H'$		1.43	0.75	-
Species Richness		5	4	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June -17	June-22	Remarks
Fung Lok Wai	FLW	1.04	1.02	-
Nam Sang Wai	NSW	**	0.67	+
YLIE-CW	YLIE-CW	**	**	=
Overall $H'$		1.04	0.94	-
Species Richness		3	3	=

Notes:

\*\* result when no species recorded; 0 computation result from only one recorded species;

+ increased Shannon diversity index ( $H'$ ); - decreased Shannon diversity index ( $H'$ ); = similar Shannon diversity index ( $H'$ )

### 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, majority of the different wetland habitats were observed with very low (VL) abundance. In terms of species richness, majority of these wetland habitats were also observed with very low (VL) number of species (Table 5.9).

Table 5.9 – Wetland habitat utilization of all avifauna species

Wetland Habitats	Area Description	Abundance <sup>1</sup>	Species Richness <sup>2</sup>
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	L-M
	Active Ponds North to Nullah 2 in Fung Lok Wai	VL-L	L-M
	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	-	-

Notes:

- 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)
  - 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)
- : no recorded individuals

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

### 5.2.3.3.2 Avifauna Species of Conservation Importance

All of the different wetland habitats had very low (VL) abundance of avifauna species with conservation importance and were also utilized by very low (VL) number of these species (Table 5.10).

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

Wetland Habitats	Area Description	Abundance <sup>1</sup>	Species Richness <sup>2</sup>
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	-	-
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

Wetland Habitats	Area Description	Abundance <sup>1</sup>	Species Richness <sup>2</sup>
	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	-	-

Notes:

- 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)
  - 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)
- : no recorded individuals

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

### 5.2.3.4 Noise Levels

Noise levels  $L_{Aeq}$  (30 min) recorded on 13 June 2022 (daytime) and 17 June 2022 (night-time) 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	Day time (13/06/2022)		Night-time (17/06/2022)	
		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	09:26	52.3	23:06	50.4
	FLW2	08:59	53.4	22:35	52.2
	FLW3	08:55	58.4	22:40	53.9
	FLW4	07:45	52.5	20:50	51.5
	FLW5	07:50	48.2	21:28	55.4
	FLW6	08:20	49.8	21:25	49.3
	FLW7	08:28	53.8	22:01	49.7
	SP/NSW3	13:05	57.6	19:10	55.3
	SP/NSW2	13:09	57.7	19:14	64.5
	NSW1	13:40	55.6	19:43	51.8
	SP/NSW1	13:45	60.3	19:50	53.4

## 6. LANDSCAPE AND VISUAL

### 6.1 Audit Requirements

6.1.1 According to the EM&A Manual, a Landscape Architect or related professional shall be employed to audit the implementation of landscape construction works particularly during site clearance operations when the proposed tree felling and transplanting will take place and subsequent maintenance operations. 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. The mitigation measure recommended in the EIA Report as the audit requirements for landscape and visual, including: preservation of existing vegetation, transplanting of affected trees, compensatory tree planting, control of night-time lighting glare, erection of decorative screen hoarding and management of construction activities and facilities are summarized in **Appendix J**.

### 6.2 Results and Observations

6.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, five weekly landscape and visual site audits were carried out on 1, 10, 14, 22 and 29 June 2022.

6.2.2 No outstanding issues were reported during the reporting month. The ET Leader's Site Environmental Audit are summarized in **Appendix M**.

## 7. LAND CONTAMINATION

### 7.1 Contamination Assessment Report

- 7.1.1 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the “Main Storeroom & Workshops” and the laboratory results for the sampling works (conducted between 30 June 2021 to 16 July 2021) show that there are no exceedances of the adopted RBRGs for the “Main Storeroom & Workshops”. As no contaminated soil and groundwater was found within the “Main Storeroom & Workshops”, no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the “Main Storeroom & Workshops”. Their findings are summarized in Contamination Assessment Report (CAR) and submitted to EPD on 1 November 2021.
- 7.1.2 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the “Mechanical Workshop” and the laboratory results for the sampling works (conducted between 23 July 2021 to 4 August 2021) show that there are no exceedances of the adopted RBRGs for the “Mechanical Workshop”. As no contaminated soil and groundwater was found within the “Mechanical Workshop”, no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the “Mechanical Workshop”. Their findings are summarized in Contamination Assessment Report (CAR) and submitted to EPD on 23 November 2021.
- 7.1.3 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the “Waste Storage Area” and the laboratory results for the sampling works (conducted between 24 November 2021 to 6 January 2022) show that there are no exceedances of the adopted RBRGs for the “Waste Storage Area”. As no contaminated soil and groundwater was found within the “Waste Storage Area”, no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the “Waste Storage Area”. Their findings are summarized in Contamination Assessment Report (CAR) and submitted to EPD on 29 April 2022.
- 7.1.4 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the “SAS Thickener House-1” and the laboratory results for the sampling works (conducted between 13 April 2022 to 16 May 2022) show that there are no exceedances of the adopted RBRGs for the “SAS Thickener House-1”, hence no contaminated soil or groundwater is found within the “SAS Thickener House-1”. Their findings are summarized in draft Contamination Assessment Report (CAR) which is under review and will be submitted to EPD.

## 8. SITE INSPECTION AND AUDIT

### 8.1 Site Inspection

- 8.1.1 Site audits were carried out by ET on weekly basis at least once per week to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.
- 8.1.2 In the reporting month, five site inspections were carried out on 1, 10, 14, 22 and 29 June 2022.
- 8.1.3 No outstanding issues were reported during the reporting month. The ET Leader's Site Environmental Audit are summarized in **Appendix M**.

### 8.2 Advice on the Solid and Liquid Waste Management Status

- 8.2.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 8.2.2 The management of waste generated by the construction is presented in **Table 8.1**.

Table 8.1 – 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)
Sludge	West New Territories Landfill (WENT)
Marine Sediment	Type 1 – Open Sea Disposal: South Cheung Chau Open Sea Sediment Disposal Area Type 1 – Open Sea Disposal (Dedicate Site) and Type 2 – Confined Marine Disposal: Contaminated Mud Pit Vb of the Confined Marine Disposal Facilities to the East of Sha Chau

- 8.2.3 The monthly summary of waste flow table is detailed in **Appendix I**.
- 8.2.4 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.
- 8.2.5 The Contractor was reminded that chemical waste should be properly handled 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.

## 9. NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

### 9.1 Non-compliance (Exceedances of AL levels)

- 9.1.1 No Action / Limit Level exceedance was recorded for 1-hr TSP level at AM1 and AM2 in the reporting month.
- 9.1.2 No Action / Limit Level exceedance was recorded for construction noise at CM1, CM2 and CM3 in the reporting month.
- 9.1.3 No Action and Limit Level exceedance were recorded for water quality at M1, M2 and M3 in the reporting month.
- 9.1.4 No Action / Limit exceedance was recorded for noise levels at stations (NMS1 and NMS2) in close proximity to the active ardeid night roosts in the reporting month.
- 9.1.5 Two exceedances in Action Level were recorded for the ecological monitoring of birds on 13 & 17 June 2022 which included significant declines in point count method results for both species diversity of all avifauna species in the community; and species diversity of species of conservation importance. However, the exceedances were not project-related.
- 9.1.6 No corrective actions were required according to the Event and Action Plans for the Monitoring Parameters.

### 9.2 Complaints, Notification of Summons and Successful Prosecutions

- 9.2.1 No environmental complaints, notification of summons and successful prosecutions was recorded in the reporting month.
- 9.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L**.
- 9.2.3 No corrective actions were required.

## 10. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

### 10.1 Implementation Status of Environmental Protection and Pollution Control / Mitigation Measures

The Contractor had implemented environmental protection and pollution control / mitigation measures as stated in the EIA Report, the EP and EM&A Manual. **Appendix J summarized the Implementation Status of Environmental Mitigation Measures.**

The status of required submissions under the EP as of the reporting period are summarized in **Table 10.1.**

Table 10.1 – Status of submissions required under the EP

EP Condition (EP-565/2019)	Submission Title	Submission Status
Condition 2.9	Construction Phase Emergency Response Plan	Submitted to EPD with ET certification and IEC verification, to be finalised and made available for public inspection via the dedicated website.
Condition 2.11	Pre-construction Ardeid Night Roost Survey Report	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
EM&A Manual Sec. 7.3.3 & 7.3.4	Baseline Bird Survey Report	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 2.12	Noise Mitigation Measures Plan	Submitted to EPD with ET certification and IEC verification, to be finalised and made available for public inspection via the dedicated website.
Condition 2.13	Proposal for Minimization of Overspill Light to Ecological Sensitive Areas	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 2.14	Supplementary Contamination Assessment Plan	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 2.14	Contamination Assessment Report for Main Storeroom & Workshops	Submitted to EPD with ET certification and IEC verification, to be finalised and made available for public inspection via the dedicated website.
Condition 2.14	Contamination Assessment Report for Mechanical Workshop	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 2.14	Contamination Assessment Report for Waste Storage Area	Submitted to EPD with ET certification and IEC verification, to be finalised and made available for public inspection via the dedicated website.
Condition 2.15	Landscape and Visual Mitigation Plan	Submitted to EPD with ET certification and IEC verification, to be finalised and made available for public inspection via the dedicated website.
Condition 3.3	Baseline Monitoring Report	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.

EP Condition (EP-565/2019)	Submission Title	Submission Status
Condition 3.4	Monthly EM&A Report (from April 2021 to May 2022)	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 3.5	Quarterly EM&A Report (from April 2021 to March 2022)	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.
Condition 4.2	Environmental Monitoring Data from April 2021 to May 2022	Submitted to EPD with ET certification and IEC verification, finalised and available for public inspection via the dedicated website.

## 11. FUTURE KEY ISSUES

### 11.1 Construction Programme for the Next Three Month

- Demolition of Admin. Building, Settled Sewage Overflow Chamber, Sludge Holding Tanks no. 1, 3 & 4 (below ground), Water Heater House, Return Activated Sludge Screw Pump Pumping station, Air Flootation Thickener and Auxiliary Pumping Station (below ground);
- Pipe Laying and construction of RC chamber at Zone 2B and subsequence diversion work;
- ELS work and RC structure at IW & PST;
- Installation of Sheet pile at TTB;
- Piling work at PST;
- Piling work at Sludge Thickening Building;
- ELS works at IW & PST;
- Construction of RC structure at 3 zone (Location D -Temp. Primary Sludge Pumping Station);
- Pipe laying for Zone 3 diversion;
- Backfilling work and installation of pipe pile wall for demolition of Aeration Tank no. 5-8 at AGS;
- Construction of CLP Substation;
- Construction of MiC office;
- Demolition of PST no. 1 & 4;
- Ground investigation at AGS, SDB, SDT & STB;
- Sheet piling work around Sludge digester no. 1 – 3;
- Installation of brand drain at Biogas Holder no. 1;
- Installation of concrete blocks and soil Surcharge at Biogas Holder no. 1;
- Construction of temp. traffic road at north of SHT no. 3 & 4;
- Construction of PST structure;
- 3 zone diversion works:
  - a. E&M work at temp. Gravity thickening tank (Atal);
  - b. E&M work at temp. Sludge Holding Tank (Atal);
  - c. E&M work at temp. water heater house (Atal);
  - d. RC work at temp. Primary sludge pumping station;
  - e. ELS, RC construction and E&M work at Temp. digested sludge pump, Ferrie Chloride and Chemical Dosing System;
  - f. E&M work at Digested Sludge Pumping Station.
- Construction of RC chamber at Zone 2B:

## 11.2 Key Issues for the Coming Month

11.2.1 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.

## 11.3 Monitoring Schedules for the next three months

11.3.1 The tentative schedule for environmental monitoring in the next three months is provided in **Appendix E**.

## 12. CONCLUSION AND RECOMMENDATION

### 12.1 Conclusions

- 12.1.1 1-hour TSP impact monitoring was carried out in the reporting month. No Action / Limit Level exceedance at AM1 and AM2 was recorded during the period.
- 12.1.2 Construction noise monitoring was carried out in the reporting month. No Action / Limit Level exceedance at CM1, CM2 and CM3 was recorded during the period.
- 12.1.3 No Action and Limit Level exceedance was recorded for water quality at M1, M2 and M3 in the reporting month.
- 12.1.4 Ardeid night roost monitoring was carried out in the reporting month. Two active ardeid night roost areas (ANR1 and ANR2) were observed within the Survey Area. These roosts were located at the mangrove strips in the east and northeast portions of the Project boundary. No Action / Limit Level exceedance at NMS1 and NMS2 was recorded during the period.
- 12.1.5 Ecological bird monitoring was carried out in the reporting month. Two exceedances in Action Level were recorded during this period's monitoring of birds including significant declines in point count method results for species diversity of all avifauna species in the community; and species diversity of species of conservation importance. However, the exceedances were not project-related.
- 12.1.6 Five 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.
- 12.1.7 Five landscape and visual site audits 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.
- 12.1.8 No environmental complaint, notification of summons and successful prosecution was recorded in the reporting month.

## 12.2 Comment and Recommendations

12.2.1 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.

12.2.2 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

### Air Quality Impact

- The Contractor is reminded to provide water spraying for dust suppression at loading/unloading area and haul roads.

### Construction Noise Impact

- No specific observation was identified in the reporting month.

### Water Quality Impact

- The Contractor is reminded to provide sandbags to prevent silty runoff into the storm drain.

### Chemical Waste and Construction Waste Management

- No specific observation was identified in the reporting month.

### Land Contamination

- No specific observation was identified in the reporting month.

### Ecological Impact

- The Contractor is reminded to maintain and reinstate the bird curtains at the eastern and northern site boundary.

### Landscape and Visual Impact

- Provide maintenance check after rainstorms for possible broken branches or other possible damages to trees.

### Hazard to Life

- No specific observation was identified in the reporting month.

### Permit/ Licenses

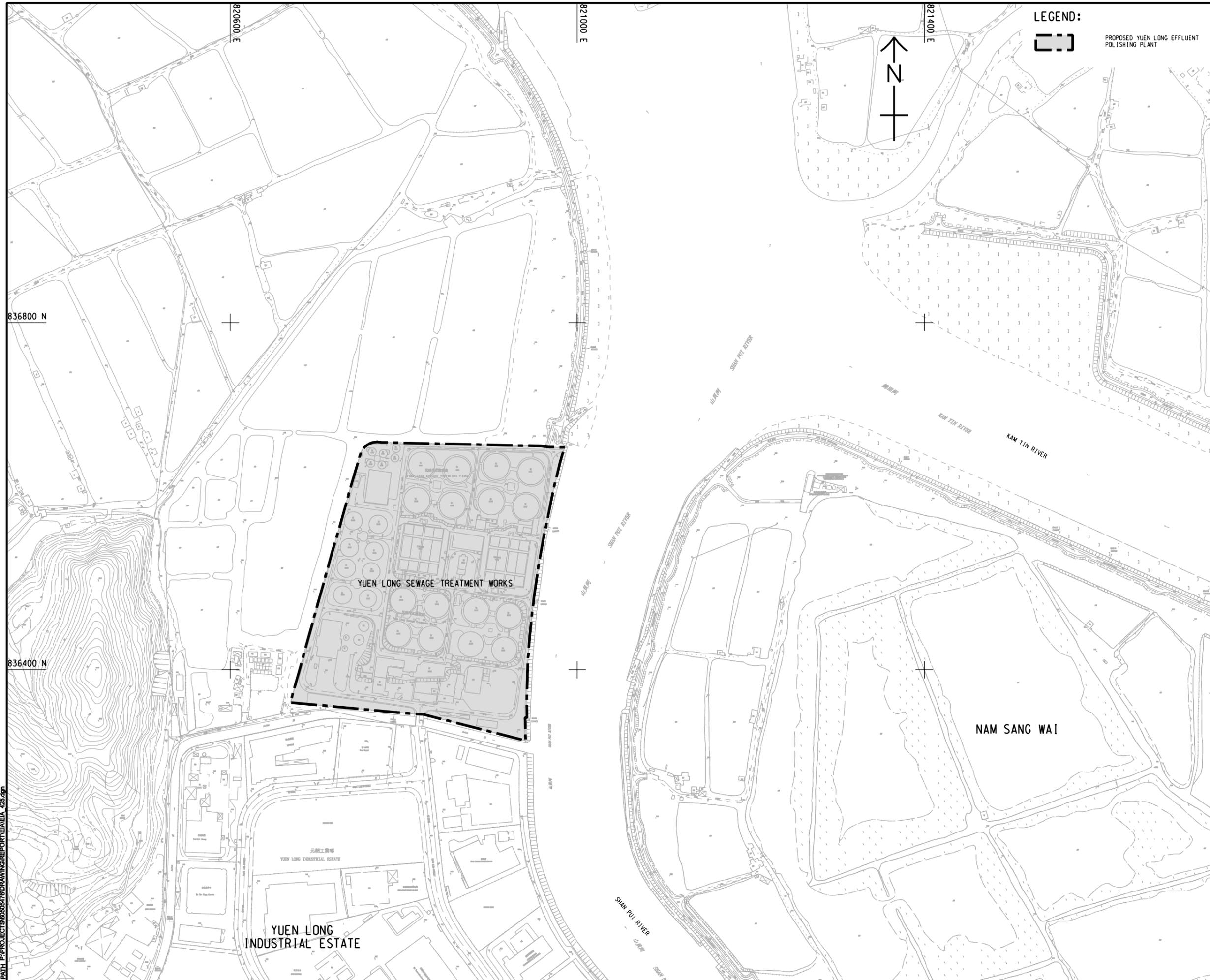
- No specific observation was identified in the reporting month.

# Figure 1

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Location of Proposed Yuen Long Effluent  
Polishing Plant

Plot File by: Song YN 2018/02/27  
 PATH: P:\PROJECTS\8060547\DRAWING\REPORT\EA\EA\_425.dgn  
 Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



**LEGEND:**  
 PROPOSED YUEN LONG EFFLUENT POLISHING PLANT

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

CLIENT  
 渠務署  
 Drainage Services Department

CONSULTANT  
 AECOM Asia Company Ltd.  
 www.aecom.com

SUB-CONSULTANTS  
 分判工程顧問公司

**ISSUE/REVISION**  
 批註

IR	DATE	DESCRIPTION	CHK.
批註	日期	內容摘要	核對

**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

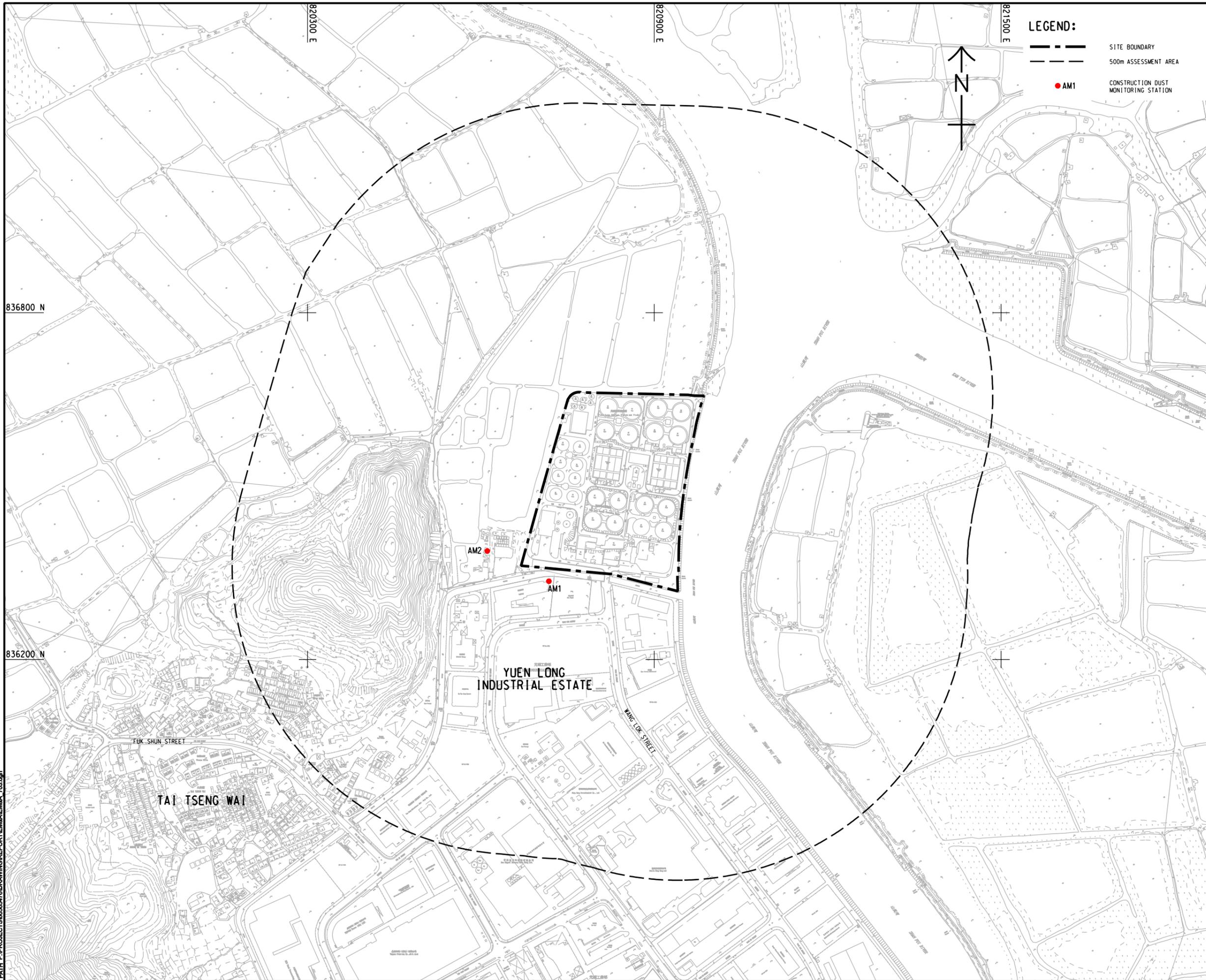
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## Figure 2

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Location of Construction Dust  
Monitoring Stations

ISO A1 594mm x 841mm  
 Approved:  
 Checked:  
 Designer:  
 Project Management Initials:  
 836800 N  
 836200 N  
 P:\PROJECTS\60565476\DRAWING\REPORT\EM\EA\EA\_703.dgn  
 11/29  
 P:\PROJECTS\60565476\DRAWING\REPORT\EM\EA\EA\_703.dgn



**LEGEND:**

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



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

**CLIENT**  
 業主  
**渠務署**  
 Drainage Services Department

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I/R	DATE	DESCRIPTION	CHK.
號	日期	內容摘要	核對

**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  
 LOCATION OF CONSTRUCTION DUST MONITORING STATIONS

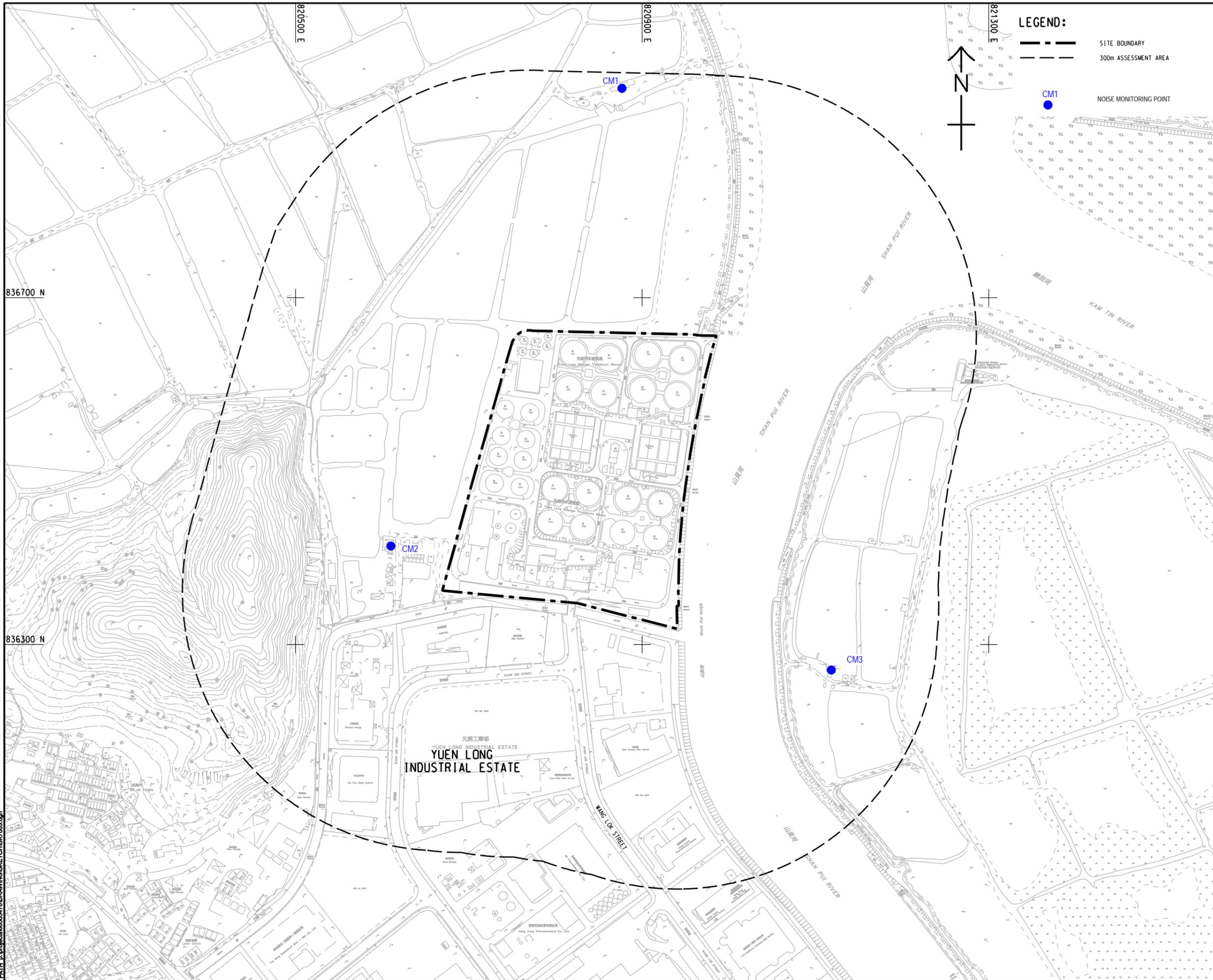
**SHEET NUMBER**  
 圖紙編號

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## Figure 3

---

Noise Monitoring Locations



LEGEND:

- SITE BOUNDARY
- 300m ASSESSMENT AREA
- NOISE MONITORING POINT

# AECOM

**PROJECT**  
項目

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

**CLIENT**  
業主

渠務署  
Drainage Services Department

**CONSULTANT**  
工程顧問公司

AECOM Asia Company Ltd.  
www.aecom.com

**SUB-CONSULTANTS**  
分判工程顧問公司

**ISSUE/REVISION**  
修訂

I/R	DATE	DESCRIPTION	CHK.

**STATUS**  
圖版

**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

LOCATIONS OF NOISE MONITORING POINTS

**SHEET NUMBER**  
圖紙編號

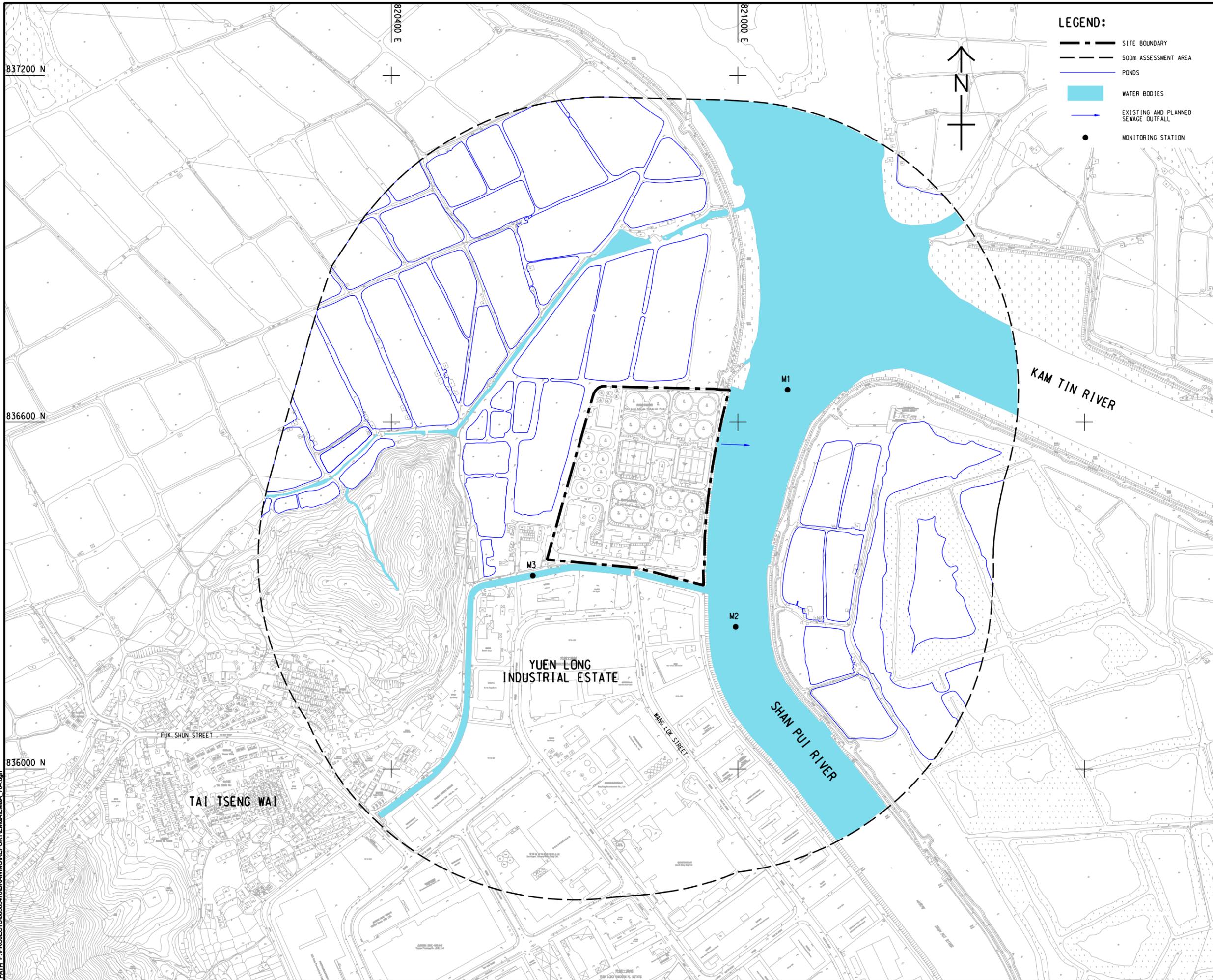
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# Figure 4

---

Water Quality Monitoring Locations

ISO A1 594mm x 841mm  
 Approved:  
 Checked:  
 Designer:  
 Project Management Initials:  
 12/18  
 P:\PROJECTS\60505476\DRAWING\REPORT\EM\EA\6\_704.dgn



**LEGEND:**

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



**AECOM**

**PROJECT**  
 項目

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

**CLIENT**  
 業主

**渠務署**  
 Drainage Services Department

**CONSULTANT**  
 工程顧問公司

AECOM Asia Company Ltd.  
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 分門工程顧問公司

**ISSUE/REVISION**  
 修訂

I/R	DATE	DESCRIPTION	CHK.

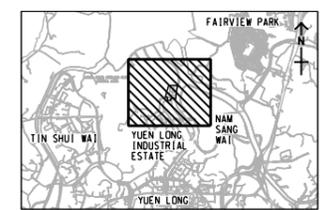
**STATUS**  
 階段

**SCALE**  
 比例

A3 1: 8000

**DIMENSION UNIT**  
 尺寸單位

METRES



**PROJECT NO.**  
 項目編號

60505476

**CONTRACT NO.**  
 合約編號

CE 3/2015 (DS)

**SHEET TITLE**  
 圖名

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

**SHEET NUMBER**  
 圖號

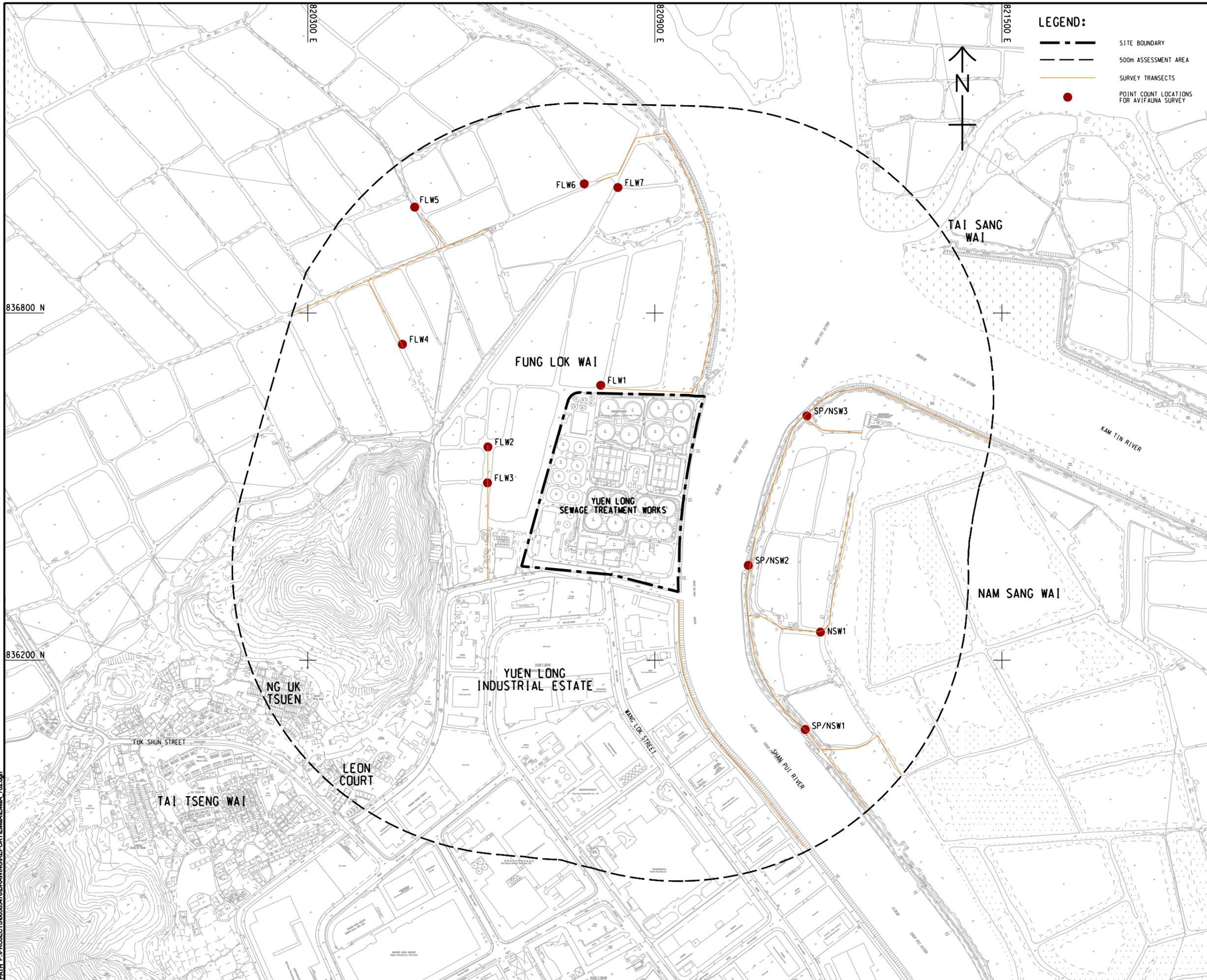
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# Figure 5

---

Ecology Monitoring Locations

ISO A1 594mm x 841mm  
 Approved:  
 Checked:  
 Designer:  
 Project Management Initials:  
 836800 N  
 836200 N  
 Pld File by: ZENGFY 2018/05/30  
 PATH: P:\PROJECTS\60505476\DRAWING\REPORT\EM\A1EM8A\_702.dgn



**LEGEND:**

- SITE BOUNDARY
- 500m ASSESSMENT AREA
- SURVEY TRANSECTS
- POINT COUNT LOCATIONS FOR AVIFAUNA SURVEY



**AECOM**

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

**CLIENT**  
 業主  
 渠務署  
 Drainage Services Department

**CONSULTANT**  
 工程顧問公司  
 AECOM Asia Company Ltd.  
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**SUB-CONSULTANTS**  
 分判工程顧問公司

**ISSUE/REVISION**  
 修訂

I/R	DATE	DESCRIPTION	CHK.

**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

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# Appendix A

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Construction Programme

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May					June				July				August				September		
						19	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	23	
<b>YL Effluent Polishing Plant - Main Works Stage 1 - Detailed Works Programme DPv14-20220616</b>																									
<b>Contract Data Part 1</b>																									
<b>Access Dates</b>																									
ADWA2	Work Area WA2 (sd) (new site possession) validity for 12 months and subject to renewal	757	05-Mar-21 A	31-Mar-23*	0																				
<b>Environmental Constraints</b>																									
EBS-2155	Egrets Breeding Season 2022	183	01-Mar-22 A	31-Aug-22*	-1																				
<b>Preliminary and Preparation Works</b>																									
<b>Subletting</b>																									
SUB-270	Subletting for ELS works for IW, PST, SDB, STB, SD, MBB, TTB, underpass and open cut for admin. bldg	250	12-Oct-21 A	20-Jul-22	16																				
SUB-280	Subletting for RC works for IW, PST, SDB, STB, SD, Biogas holder, underpass and admin. bldg	105	29-Nov-21 A	12-Jul-22	-47																				
SUB-290	Subletting for ABWF works for IW, PST, SDB, STB, MBR, TTB and admin. bldg	60	13-Jul-22	10-Sep-22	19																				
SUB-310	Subletting for Utilities Corridor ELS	59	31-May-22	28-Jul-22	123																				
SUB-350	Subletting for Waterproofing membrane and protection board	86	29-Nov-21 A	24-Aug-22	131																				
SUB-380	Subletting for Sheet piling works for remaining areas	150	12-Oct-21 A	10-Aug-22	-1																				
<b>Design Submission</b>																									
<b>Temporary Works Design</b>																									
<b>Mainstream Bio-Reactor System</b>																									
TWD-230	ELS - Review by PM's & ICE review (28 d + 7d)	35	16-Oct-21 A	15-Jun-22	-3																				
TWD-240	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	16-Jun-22	29-Jun-22	-3																				
TWD-250	ELS - Obtain Approval	7	25-Jun-22	01-Jul-22	-3																				
TWD-520	ELS - Submit to GEO (Dewatering Proposal)	28	30-Jun-22	27-Jul-22	72																				
<b>Sludge Thickening Building</b>																									
TWD-200	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	26-May-22 A	11-Jun-22	52																				
TWD-210	ELS - Obtain Approval	7	12-Jun-22	18-Jun-22	52																				
TWD-540	ELS - Submit to GEO (Dewatering Proposal)	28	12-Jun-22	09-Jul-22	79																				
<b>Tertiary Treatment System</b>																									
TWD-140	ELS - Prepare & Submission for PM's review	45	02-Dec-21 A	13-Jun-22	9																				
TWD-150	ELS - Review by PM's & ICE review (28 d + 7d)	35	14-Jun-22	18-Jul-22	9																				
TWD-160	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	19-Jul-22	01-Aug-22	9																				
TWD-170	ELS - Obtain Approval	7	02-Aug-22	08-Aug-22	9																				
TWD-550	ELS - Submit to GEO (Dewatering Proposal)	28	02-Aug-22	29-Aug-22	42																				
<b>Sludge Digester 1-3 &amp; Utilities Corridor</b>																									
TWD-350	ELS - Review by PM's & ICE review (28 d + 7d)	35	03-May-22 A	06-Jun-22	-4																				
TWD-360	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	31-May-22	13-Jun-22	-7																				
TWD-370	ELS - Obtain Approval	7	14-Jun-22	20-Jun-22	-5																				
TWD-560	ELS - Submit to GEO (Dewatering Proposal)	28	14-Jun-22	11-Jul-22	-7																				
<b>Sludge Digester 4-6</b>																									
TWD-460	ELS - Prepare & Submission for PM's review	45	21-Jun-22	04-Aug-22	886																				
TWD-470	ELS - Review by PM's & ICE review (28 d + 7d)	35	05-Aug-22	08-Sep-22	886																				
<b>Sludge Dewatering and Underpass</b>																									
TWD-260	ELS - Prepare & Submission for PM's review	45	02-Jul-22*	15-Aug-22	591																				
TWD-270	ELS - Review by PM's & ICE review (28 d + 7d)	35	16-Aug-22	19-Sep-22	591																				
<b>Contractor's Permanent Works Design (include ATAL)</b>																									
<b>AIP</b>																									
<b>Package 2A - Tertiary Treatment System (TTS)</b>																									
AIP-480	E&M AIP Report for Tertiary Treatment System (TTS) - Resubmission for further review	45	10-Mar-22 A	10-Jul-22	176																				
AIP-490	E&M AIP Report for Tertiary Treatment System (TTS) - Obtain Approval	7	11-Jul-22	17-Jul-22	176																				
<b>Package 3A - Plant Service Water</b>																									
AIP-520	E&M AIP Report for Plant Service Water - Resubmission for further review	45	20-Dec-21 A	14-Jul-22	487																				
AIP-530	E&M AIP Report for Plant Service Water - Obtain Approval	7	15-Jul-22	21-Jul-22	487																				
<b>Package 6A - Control &amp; Monitoring System</b>																									
AIP-200	Control & Monitoring System - Resubmission for further review	14	31-May-22*	13-Jun-22	52																				
AIP-620	Control & Monitoring System - Obtain Approval	7	14-Jun-22	20-Jun-22	52																				
<b>Package 7A - Building Services System</b>																									
AIP-240	BS System - Resubmission for further review	14	28-Mar-22 A	13-Jun-22	339																				
AIP-250	BS System - Obtain Approval	7	14-Jun-22	20-Jun-22	339																				
<b>Package 14A - E&amp;M AIP Report for Deodorization Unit System</b>																									
AIP-850	DEO - Resubmission for further review	45	25-Nov-21 A	14-Jul-22	372																				
AIP-860	DEO - Obtain Approval	7	15-Jul-22	21-Jul-22	372																				
<b>Package 22A - Sampling System of YLEPP</b>																									



- Remaining Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

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

### Monthly Progress Report No. 19 - 3MRP (May 2022)

Project ID : DWP.DPr14\_220616  
 Layout : DC201910 MPR19-3MRP  
 Page 1 of 9

Monthly Progress Report No. 19 - 3MRP			
Date	Revision	Checked	Approved
31-May-22	Rev. 0		





Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May				June				July				August				September		
						01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>Biogas Holders (BH)</b>																								
TS-1050	PID - Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	66	31-Aug-21 A	05-Jun-22	-73	PID - Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
TS-1060	Equipment Loading Summary - Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	66	31-Aug-21 A	05-Jun-22	-73	Equipment Loading Summary - Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
TS-780	Foundation for Biogas Holders (BH) - Prep(53d), Sub.&Review(45d), Comment&Resub (14d), GEO (28d) & Appro.	147	12-Jun-21 A	18-Jun-22	-190	Foundation for Biogas Holders (BH) - Prep(53d), Sub.&Review(45d), Comment&Resub (14d), GEO																		
TS-790	Civil & Structural for Biogas Holders (BH) - Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	66	12-Jun-21 A	30-Jun-22	-105	Civil & Structural for Biogas Holders (BH) - Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)																		
TS-800	General Arrangement & Civil Req. Drawings for BH - Prep(127d), Sub.&Review(45d), Comment&Resub (14d) & Ap	193	16-Sep-21 A	10-Oct-22	-105	General Arrangement & Civil Req. Drawings for BH - Prep(127d), Sub.&Review(45d), Comment&Resub (14d) & Ap																		
TS-810	Mechanical for Biogas Holders (BH) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	126	05-Nov-21 A	08-Sep-22	-73	Mechanical for Biogas Holders (BH) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)																		
<b>SCADA</b>																								
TS-1070	Layout and Wiring Diagram for YLEPP PLC Panel - Prep(144d), Sub.&Review(45d), Comment&Resub (14d)&App	210	21-Jun-22	16-Jan-23	52	Layout and Wiring Diagram for YLEPP PLC Panel - Prep(144d), Sub.&Review(45d), Comment&Resub (14d)&App																		
TS-1080	System Architecture for Existing YLSTW Temporary SCADA System - Prep(144d),Sub&Rev(45d),Comments&Resu	210	21-Jun-22	16-Jan-23	52	System Architecture for Existing YLSTW Temporary SCADA System - Prep(144d),Sub&Rev(45d),Comments&Resu																		
TS-1090	Layout and Wiring Diagram for Existing YLSTW Temp PLC Panel - Prep(144d),Sub&Rev(45d),Comments&Resub(	210	21-Jun-22	16-Jan-23	52	Layout and Wiring Diagram for Existing YLSTW Temp PLC Panel - Prep(144d),Sub&Rev(45d),Comments&Resub(																		
TS-1100	System Architecture for YLEPP SCADA System - Prep(144d), Sub.&Review(45d), Comment&Resub (14d)&Appro.	210	21-Jun-22	16-Jan-23	52	System Architecture for YLEPP SCADA System - Prep(144d), Sub.&Review(45d), Comment&Resub (14d)&Appro.																		
<b>Utility Corridor and Pipe Portal</b>																								
TS-1110	General Arrangement Drawing - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	210	21-Jun-22	16-Jan-23	463	General Arrangement Drawing - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
TS-1120	Civil Requirement Drawings (Superstructure) - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	210	21-Jun-22	16-Jan-23	463	Civil Requirement Drawings (Superstructure) - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
TS-1140	Equipment Loading Summary - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	210	21-Jun-22	16-Jan-23	463	Equipment Loading Summary - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
<b>Hazardous Area Classification and Fire Risk Assessment</b>																								
TS-1800	Hazardous Area Classification and Fire Risk Assessment Specialist - Submission & Approval	20	31-Aug-21 A	31-May-22	-8	Hazardous Area Classification and Fire Risk Assessment Specialist - Submission & Approval																		
TS-1810	Hazardous Area Classification Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	126	20-Sep-21 A	05-Jul-22	-8	Hazardous Area Classification Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
TS-1820	Fire Risk Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)	126	20-Sep-21 A	05-Jul-22	-8	Fire Risk Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d)																		
<b>Material Submission, Procurement, Manufacturing and Delivery</b>																								
PRE-230	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip.	270	09-Nov-20 A	11-Feb-23	333	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip.																		
PRE-240	Submit/Procure/Manufacture/Deliver TTS & Auxillary Facility Equip.	270	09-Nov-20 A	28-Jan-23	326	Submit/Procure/Manufacture/Deliver TTS & Auxillary Facility Equip.																		
PRE-250	Submit/Procure/Manufacture/Deliver Thickening System/Digestion/sludge holding Tanks	300	09-Nov-20 A	09-Feb-23	630	Submit/Procure/Manufacture/Deliver Thickening System/Digestion/sludge holding Tanks																		
<b>Site Establishment Works</b>																								
<b>Temporary Transformer 1600A</b>																								
P5-140	CLP Inspection & Energization of Temporary Transformer	18	25-Mar-22 A	09-Jun-22	-56	CLP Inspection & Energization of Temporary Transformer																		
P5-150	Comepletion of Temp Transformer 1600A	0		09-Jun-22*	-56	Comepletion of Temp Transformer 1600A																		
<b>PM and Contractor Accomodation</b>																								
<b>Project Manager's &amp; Contractor Site Accommodation</b>																								
<b>MIC Section</b>																								
PMCA-190	Installation of Green Roof	16	09-Nov-21 A	28-Jul-22	1655	Installation of Green Roof																		
<b>Caving System</b>																								
PMCA-240	Caving System Construction	33	03-May-22 A	02-Jul-22	0	Caving System Construction																		
PMCA-250	Caving System Installation (Set-Up & T&C)	60	04-Jul-22	12-Sep-22	0	Caving System Installation (Set-Up & T&C)																		
<b>FSI, FSD and OP Requirements</b>																								
<b>FSI Submission &amp; Approval</b>																								
FSD-1030	PM Review	31	12-Nov-21 A	20-Jul-22	178	PM Review																		
FSD-1040	Submission Period for FSD Review (Assumed 12 Months) - Full GBP+GBP for TOP1	367	21-Jul-22	22-Jul-23	178	Submission Period for FSD Review (Assumed 12 Months) - Full GBP+GBP for TOP1																		
<b>Application Form Schedule EMSD (ATAL)</b>																								
<b>Phase 1</b>																								
ATAL-FS-0010	Form 104 for Biogas Holder Tank 1(Submission and Approval Period)	184	02-May-22 A	12-Nov-22	1434	Form 104 for Biogas Holder Tank 1(Submission and Approval Period)																		
<b>HAZOP Study</b>																								
HAZOP-010	Engage Independent Consultant	20	31-May-22*	19-Jun-22	-60	Engage Independent Consultant																		
<b>Zone 1 (for PST(Stage1), others provide later)</b>																								
HAZOP-Z1-010	Review Design / Installation HAZOP for PST (Stage 1) by independent consultant	30	20-Jun-22	19-Jul-22	116	Review Design / Installation HAZOP for PST (Stage 1) by independent consultant																		
HAZOP-Z1-020	Re-submission of Design / Installation methodology	20	20-Jul-22	08-Aug-22	116	Re-submission of Design / Installation methodology																		
HAZOP-Z1-030	Obtain Approval	7	09-Aug-22	15-Aug-22	116	Obtain Approval																		
<b>Zone 2 (for MBR, others provide later)</b>																								
HAZOP-Z2-010	Review Design / Installation HAZOP for MBR by independent consultant	30	20-Jul-22	18-Aug-22	483	Review Design / Installation HAZOP for MBR by independent consultant																		
HAZOP-Z2-020	Re-submission of Design / Installation methodology	20	19-Aug-22	07-Sep-22	483	Re-submission of Design / Installation methodology																		
<b>Zone 3 (for BH No.1, others provide later)</b>																								
HAZOP-Z3-010	Review Design / Installation HAZOP for Biogas Holder No. 1 by independent consultant	30	20-Jun-22	19-Jul-22	-49	Review Design / Installation HAZOP for Biogas Holder No. 1 by independent consultant																		
HAZOP-Z3-020	Re-submission of Design / Installation methodology	20	20-Jul-22	08-Aug-22	-49	Re-submission of Design / Installation methodology																		
HAZOP-Z3-030	Obtain Approval	7	09-Aug-22	15-Aug-22	-49	Obtain Approval																		
<b>General Advance Works</b>																								
<b>NSWSPS Sensors</b>																								
ATALGA-1160	CGS - Method Statement for Installation	101	03-Aug-21 A	20-Jun-22	605	CGS - Method Statement for Installation																		
ATALGA-1170	Procurement & Delivery of Sensor	101	03-Aug-21 A	20-Jun-22	605	Procurement & Delivery of Sensor																		
ATALGA-1260	Installation of pressure sensors at NSWSPS	22	21-Jun-22	16-Jul-22	486	Installation of pressure sensors at NSWSPS																		



- Remaining Level of Eff.
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

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

### Monthly Progress Report No. 19 - 3MRP (May 2022)

Project ID : DWP.DPr14\_220616  
 Layout : DC201910 MPR19-3MRP  
 Page 4 of 9

Monthly Progress Report No. 19 - 3MRP			
Date	Revision	Checked	Approved
31-May-22	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May					June				July				August				September
						19	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28
<b>Air Blower House</b>																							
ATALGA-1280	CMS - Air Blower System	128	01-Jun-22*	02-Nov-22	196																		
<b>Disc Filter (DF) Pilot Plant</b>																							
ATALGA-1140	E&M installation of DF Pilot Plant	51	10-Feb-22 A	04-Jul-22	475																		
ATALGA-1190	T&C	22	05-Jul-22	29-Jul-22	475																		
<b>Dissolved Air Flotation (DAF) Pilot Plant</b>																							
ATALGA-1110	Procurement & Delivery of Materials	97	28-Oct-21 A	09-Jun-22	388																		
ATALGA-1150	E&M installation of DAF Pilot Plant	51	10-Jun-22	09-Aug-22	311																		
ATALGA-1200	T&C	11	10-Aug-22	22-Aug-22	311																		
ATALGA-1220	Post-commissioning	144	23-Aug-22	20-Feb-23	311																		
<b>Aerobic Granular Sludge (AGS) Pilot Plant</b>																							
ATALGA-1180	E&M installation of AGS Pilot Plant	6	10-Feb-22 A	04-Jun-22	330																		
ATALGA-1210	Seeding, process start-up and T&C	52	06-Jun-22	05-Aug-22	330																		
ATALGA-1270	Post-commissioning	139	06-Aug-22	28-Jan-23	330																		
<b>Zone 1 Construction</b>																							
<b>Temporary Works Design</b>																							
<b>SDB</b>																							
TWD-1030	ELS for SDB(Sludge Dewatering Building) & Underpass (SDB) - ICE Period Submission	31	15-Aug-22*	14-Sep-22	540																		
<b>Inlet Works (IW)</b>																							
<b>IW Foundation &amp; ELS Works</b>																							
<b>IW Basement</b>																							
Z1-IW-3950	Pumping Test & Commissioning Period	14	06-Jun-22	21-Jun-22	-42																		
Z1-IW-4300	Submit to GEO (28d)	28	10-May-22 A	20-Jun-22	1687																		
<b>Sheet Piling (Total Length: 12104m)</b>																							
<b>Zone C (7140m)</b>																							
Z1-IW-4683	Remaining Sheet Piling Works (4946m, 140m/day/rig, 2rigs)	24	21-Feb-22 A	04-Jun-22	-42																		
<b>IW Excavation Works &amp; ELS</b>																							
<b>IW Zone A/D- ELS</b>																							
Z1-IW-5760	IW- Excavation: 1st Layer +5.5 ~ +3.5mPD	5	22-Jun-22	27-Jun-22	-42																		
Z1-IW-5770	IW- Strutting: 1st Layer @+4.0mPD	10	05-Jul-22	15-Jul-22	-47																		
Z1-IW-5780	IW- Excavation: 2nd Layer +3.5 ~ 1.0mPD	5	16-Jul-22	21-Jul-22	-47																		
Z1-IW-5790	IW- Strutting: 2nd Layer @+1.5mPD	10	22-Jul-22	02-Aug-22	-47																		
Z1-IW-5800	IW- Excavation: 3rd Layer +1.0 ~ -1.625mPD	8	03-Aug-22	11-Aug-22	-47																		
Z1-IW-5810	IW- Strutting: 3rd Layer @-1.125mPD	10	12-Aug-22	23-Aug-22	-47																		
Z1-IW-5820	IW- Excavation: 4th Layer -1.625 ~ -3.38mPD	7	24-Aug-22	31-Aug-22	-47																		
<b>IW Zone C - ELS</b>																							
Z1-IW-5650	IW- Excavation: 1st Layer +5.5~+3.5mPD	6	14-Jun-22	20-Jun-22	-41																		
Z1-IW-5660	IW- Strutting: 1st Layer @+4.35mPD	10	21-Jun-22	02-Jul-22	-35																		
Z1-IW-5670	IW- Excavation: 2nd layer +3.5~+1.0mPD	9	04-Jul-22	13-Jul-22	-35																		
Z1-IW-5680	IW- Strutting: 2nd Layer @+2.50mPD	10	14-Jul-22	25-Jul-22	-35																		
Z1-IW-5690	IW- Excavation: 3rd Layer +1.0~-1.625mPD	10	26-Jul-22	05-Aug-22	-35																		
Z1-IW-5700	IW- Backprop installation	7	30-Aug-22	06-Sep-22	-35																		
<b>IW Base Slab</b>																							
Z1-IW-6070	IW- Zone C - Pile Cap @-1.625mPD	20	06-Aug-22	29-Aug-22	-35																		
<b>IW Transformer House No. 1</b>																							
IW-2785	TX House No. 1 - Piling Works (8 nos.)	10	07-Jun-22	17-Jun-22	85																		
<b>Primary Sedimentation Tank (PST)</b>																							
<b>PST Stage 1 of Works</b>																							
<b>PST Stage 1 - Foundation (At First 3 Tanks, PST 7-8 Footprint)</b>																							
PST-1220	PST Stage 1 - Driven H-Pile (21nos. @ ave. 1.5no/d/rig, 1 rig)	14	03-May-22 A	06-Jun-22	8																		
PST-1230	PST Stage 1 - Time Risk Allowance for Driven H-Pile	2	07-Jun-22	08-Jun-22	8																		
PST-3020	PST Stage 1 - Submit to GEO (28d)	28	31-Mar-22 A	06-Jun-22	-40																		
<b>PST Stage 1</b>																							
<b>Excavation Works (Southern Trench), (Excavation Volume: 5,795m3)</b>																							
Z1-PST-3580	PST(S1) - Excavation S1 Level (+1.375mPD), (4942m3, 500-800m3/day, 2excavator, 8m3/truck,10-12tks/hr, 2mc	7	21-Apr-22 A	20-May-22 A																			
Z1-PST-3600	PST(S1) - Excavation FEL Level (-1.6-3.225mPD), (853m3, 300-400m3/day, 1excavator 8m3/truck, 5 trucks/hr, 1r	3	09-Jun-22	11-Jun-22	-47																		
Z1-PST-3810	PST (S1) - Time Risk Allowance for Excavation and ELS Installation	2	13-Jun-22	14-Jun-22	-47																		
<b>ELS Erection Works</b>																							
Z1-PST-3590	PST(S1) - Erection and Installation of S1 Strut & W1 Waling (+1.375 mPD, 1crane, 4welders, 2work fronts)	6	21-May-22 A	08-Jun-22	-47																		
<b>ELS for Northern Trench (Zone E1)</b>																							
Z1-PST-3591	Excavation S1 Level (+1.375mPD)	15	21-May-22 A	10-Jun-22	12																		



- Remaining Level of Effort
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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May					June					July					August					September
						19					20					21					22					23
						01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04		
Z1-PST-3601	Erection and Installation of S1 Strut & W1 Waling (+1.375 mPD)	10	11-Jun-22	22-Jun-22	12																					
Z1-PST-3611	Excavation FEL Level (-1.125mPD)	10	23-Jun-22	05-Jul-22	12																					
<b>Basement RC Works (Stage 1 - Southern Portion)</b>																										
<b>Southern Trench (Lower Portion)</b>																										
Z1-PST-3630	PST(S1) - Install Reprops R1	5	20-Jul-22	25-Jul-22	1658																					
Z1-PST-3640	PST(S1) - Wall Erection of Formworks and RC Works (Ground Level)	11	07-Jul-22	19-Jul-22	0																					
Z1-PST-3800	PST(S1) - Removal of S1	2	05-Jul-22	06-Jul-22	0																					
Z1-PST-3860	PST(S1) - Base Slab & Wall Erection of Formworks and RC Works (-1.625 to -3.225 mPD)	16	15-Jun-22	04-Jul-22	-47																					
<b>Northern Trench (Lower Portion)</b>																										
Z1-PST-3620	PST(S1) - Base Slab & Wall Erection of Formworks and RC Works (-1.125 mPD)	6	20-Jul-22	26-Jul-22	0																					
Z1-PST-4240	PST(S1) - Removal of S1	2	27-Jul-22	28-Jul-22	0																					
Z1-PST-4260	PST(S1) - Wall Erection of Formworks and RC Works (Ground Level)	6	29-Jul-22	04-Aug-22	0																					
<b>Excavation Works (North Portion), (Excavation Volume: 3,840m3)</b>																										
Z1-PST-4180	PST(S1) - Excavation F.E.L. Level (+1.875 mPD) (3,840m3, 1000m3/day) after stage 2 piling	4	05-Jul-22	08-Jul-22	7																					
<b>Basement RC Works (North Portion)</b>																										
Z1-PST-4190	PST(S1) - Base Slab & Wall Erection of Formworks and RC Works (+3.00 mPD) after stage 2 piling	10	09-Jul-22	20-Jul-22	7																					
Z1-PST-4200	PST(S1) - Wall Erection of Formworks and RC Works (Ground Level) after stage 2 piling	6	21-Jul-22	27-Jul-22	7																					
<b>PST Stage 2 of Works</b>																										
<b>PST Foundation - Stage 2 (At Remaining 2 Tanks, PST 5-6 Footprint)</b>																										
Z1-PST-3890	PST Stage 2 - Driven H-pile (Stage 2: 2,332m, incl. 30% increment)(60m/day, 1 rig) (54nos.)	40	08-Apr-22 A	09-Jun-22	7																					
Z1-PST-3980	PST Stage 2 - Pile Loading Test (Batch 2 Completion at PST: 75nos.+8 nos. of piles at TX1)	20	10-Jun-22	04-Jul-22	7																					
Z1-PST-4230	PST Stage 2 - Submit to GEO (28d)	28	25-Jun-22	22-Jul-22	332																					
<b>PST Superstructure</b>																										
<b>Stage 1</b>																										
<b>RC Works</b>																										
Z1-PST-3650	PST - Wall Erection of Formworks and RC Works (+5.85mPD)	6	05-Aug-22	11-Aug-22	0																					
Z1-PST-3660	PST - Wall Erection of Formworks and RC Works (+7.5mPD)	6	12-Aug-22	18-Aug-22	0																					
Z1-PST-3670	PST - Intermediate Slab (+7.88mPD) and Wall Erection (+9mPD) of Falseworks, Formworks and RC Works	10	19-Aug-22	30-Aug-22	0																					
<b>CLP Substations No. 1 &amp; 2</b>																										
<b>Foundation</b>																										
CLP-1200	Raft Foundation	24	20-May-22 A	06-Jun-22	0																					
<b>Civil Provision for CLP (drawpits &amp; ductings)</b>																										
CLP-1270	Ducting and Drawpits construction	45	25-Jul-22	15-Sep-22	47																					
<b>CLP Substation No. 1</b>																										
CLP-1010	CLP Substation No.1 - Structure	76	07-Jun-22	03-Sep-22	0																					
CLP-1040	CLP Substation No.1 - BS and ABWF Works	48	10-Aug-22	07-Oct-22	0																					
<b>CLP Substation No. 2</b>																										
CLP-1020	CLP Substation No.2 - Structure	76	07-Jun-22	03-Sep-22	0																					
CLP-1050	CLP Substation No.2 - BS and ABWF Works	48	10-Aug-22	07-Oct-22	0																					
<b>DSD 11kV Switchgear</b>																										
CLP-1030	DSD11KV Switchgear - Structure	78	07-Jun-22	06-Sep-22	0																					
CLP-1060	DSD11KV Switchgear - BS and ABWF Works	48	10-Aug-22	07-Oct-22	0																					
<b>Administration Building (ADB)</b>																										
<b>Temporary Admin Office and Control Room</b>																										
ADB-1040	Handover of Temp. Admin Office and Control Room	20	30-Jul-22	22-Aug-22	478																					
ADB-1050	Demolition of Admin Bldg (23) and Document Centre (24)	20	24-Aug-22	16-Sep-22	478																					
ADB-1250	Relocation of Existing SCADA System of Admin Bldg (23) and Document Centre (24)	21	30-Jul-22	23-Aug-22	478																					
<b>Temp Admin Office - MIC Section</b>																										
ADB-1020A100	Fabrication and Delivery of MiC Unit	36	20-May-22 A	30-Jun-22	478																					
ADB-1020A20	Construction/Installation	41	11-Jun-22	29-Jul-22	478																					
ADB-1020A30	E&M Installation and T&C	24	02-Jul-22	29-Jul-22	478																					
ADB-1020A40	Relocation of Admin Office (MiC)	18	30-Jul-22	19-Aug-22	480																					
ADB-1020A90	Completion of Admin Office (MiC)	0		19-Aug-22	481																					
<b>Zone 2 Construction</b>																										
<b>Temporary Works Design</b>																										
<b>MBS Building (AGS)</b>																										
TWD-1200	ELS for MBS(Mainstream Bio-Reactor System) Building(AGS) - ICE Review Period	31	16-May-22 A	21-Jun-22	-8																					
TWD-1210	ELS for MBS(Mainstream Bio-Reactor System) Building(AGS) - PM Review Period	46	16-May-22 A	06-Jul-22	-8																					
TWD-1220	ELS for MBS(Mainstream Bio-Reactor System) Building(AGS) - Consent Date	0		06-Jul-22	-8																					
<b>TTS Building</b>																										
TWD-1150	ELS for TTS(Tertiary Treatment System) Building - ICE Period Submission	31	16-Dec-21 A	02-Jun-22	-26																					



- Remaining Level of Eff...
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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May					June				July				August				September			
						01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04		
TWD-1160	ELS for TTS(Tertiary Treatment System) Building - ICE Review Period	31	03-Jun-22	03-Jul-22	-26																					
TWD-1170	ELS for TTS(Tertiary Treatment System) Building - PM Review Period	46	04-Jul-22	18-Aug-22	-26																					
<b>Temporary Diversion</b>																										
<b>Zone 2B : FST, Temporary RAS to Aeration Tanks</b>																										
<b>Temporary RAS</b>																										
Z2B-1030	Construction of Temp RAS	21	17-May-22 A	23-Jun-22	-21																					
Z2B-1040	Temp RAS E&M installation	25	15-Jun-22	14-Jul-22	-21																					
Z2B-1200	Laying of pipes from temp. RAS to Consolidation tanks & Aeration tanks	25	07-Jun-22	06-Jul-22	-14																					
Z2B-1210	T&C	40	15-Jul-22	30-Aug-22	-21																					
Z2B-1230	Watertightness test to temp. RAS pumping station	7	24-Jun-22	02-Jul-22	-21																					
<b>Demolition Works</b>																										
<b>Advance Works</b>																										
MBR-1480	MBR - Relocation of Noise barrier/ bird curtain	58	24-Jun-22	31-Aug-22	4																					
MBR-1490	MBR - Decommission of Auxiliary PS & Associated pipes and Modification of Washwater PS	20	04-Apr-22 A	19-Apr-22 A																						
MBR-1520	MBR - Design submission of Relocation of Noise barrier/ bird curtain	20	30-Dec-21 A	23-Jun-22	4																					
MBR-1530	MBR- G.I. Works batch 1 (3 nos., 1rig, nos. of G.I. subject to GEO Further Comment)	73	03-Jan-22 A	04-Jun-22	20																					
MBR-1540	MBR- G.I. Works batch 2 (4 nos., 1rig, nos. of G.I. subject to GEO Further Comment)	60	15-Jul-22	23-Sep-22	10																					
Z2D-4280	Submit/Approve Method Statement for Sheetpiling Works	15	11-Sep-21 A	31-May-22	30																					
Z2D-4290	Submit/Approve Design for Sheetpiles	55	01-Jun-21 A	04-Jun-22	20																					
Z2D-4310	Procurement and Delivery of Sheetpiles	21	04-Sep-21 A	31-May-22	30																					
<b>Other Existing Pumping Stations</b>																										
Z2T-154B	Demolition of Settled Sewage Overflow Chamber (31)	25	02-Jul-22*	30-Jul-22	31																					
<b>Auxiliary Pumping Stations</b>																										
Z2T-150B	Demolition of Auxiliary Pumping Station (19) above ground	4	20-Apr-22 A	23-Apr-22 A																						
<b>Mainstream Bio-Reactor &amp; Auxiliary Facility (MBR and AF)</b>																										
<b>MBR Stage 1 and AF Structure</b>																										
<b>A-Tanks Demolition and ELS Works</b>																										
MBRAF-1010	MBR - Sheet Piles Install (approx. 391m, 9,390m2 @ 120m2/d) After Advance works (zone 2A)	58	12-Jul-22	17-Sep-22	-10																					
MBRAF-1500	MBR - Decommissioning & Demolition of PST 4	31	01-Aug-22*	05-Sep-22	0																					
MBRAF-1540	MBR - Backfilling, advance coring for king post installation & wells installation	25	15-Jun-22*	14-Jul-22	10																					
MBRAF-1550	MBR - King post installation at AT footprint	30	15-Jul-22	18-Aug-22	10																					
<b>Tertiary Treatment System (TTS)</b>																										
<b>Foundation and ELS</b>																										
EBS-2135	Egrets Breeding Season 2022	184	01-Mar-22 A	31-Aug-22*	-2																					
TTS-1000	TTS - Site Clearance	15	11-May-22 A	14-Jun-22	54																					
<b>Zone 3 Construction</b>																										
<b>Temporary Works Design</b>																										
<b>UC (Utilities Corridor)</b>																										
TWD-1250	ELS for Utilities Corridor (UC) - PM Review Period	49	04-Mar-22 A	04-Jul-22	147																					
TWD-1260	ELS for Utilities Corridor (UC) - Consent Date	0		04-Jul-22	147																					
<b>Sludge Thickening Building (STB)</b>																										
TWD-1290	ELS for Sludge Thickening Building (STB) - PM Review Period	49	04-Mar-22 A	29-Jun-22	41																					
TWD-1300	ELS for Sludge Thickening Building (STB) - Consent Date	0		29-Jun-22	41																					
<b>Sludge Digester (SD)</b>																										
TWD-1350	ELS for Sludge Digesters (SD) - ICE Period Submission	30	26-Apr-22 A	25-May-22 A																						
TWD-1360	ELS for Sludge Digesters (SD) - ICE Review Period	28	26-May-22 A	22-Jun-22	-56																					
TWD-1370	ELS for Sludge Digesters (SD) - PM Review Period	49	23-Jun-22	10-Aug-22	-56																					
TWD-1380	ELS for Sludge Digesters (SD) - Consent Date	0		10-Aug-22	-56																					
<b>Stage 1</b>																										
<b>Stage 1 - Advance Works</b>																										
<b>Zone 3A (at SHT)</b>																										
<b>240m3 Temporary Sludge Holding Tank(SHT) (Location B)</b>																										
<b>Sludge Forward Pump Station</b>																										
Z3A-000070	E&M Installation and T&C (ATAL)	24	10-Mar-22 A	14-Jun-22	-61																					
<b>Relocation of Heater Room (Location C)</b>																										
Z3A-000180	E&M Installation	24	31-Mar-22 A	07-Jun-22	-140																					
Z3A-000320	Temp. Water Heater House Structural Completion	0		31-Mar-22 A																						
Z3A-000550	Relocation and T&C (ATAL)	24	09-Jun-22	07-Jul-22	-141																					
<b>Digested Sludge Pumping Station (Location F)</b>																										
Z3B-330	T&C Works (ATAL)	8	31-May-22	09-Jun-22	1679																					



- Remaining Level of Ef...
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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May				June				July				August				September		
						01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04
<b>Micro Turbine Relocation</b>																								
Z3A-000540	E&M Installation and T&C(ATAL)	24	10-Mar-22 A	14-Jun-22	-62	E&M Installation and T&C(ATAL)																		
<b>Pipe Laying</b>																								
Z3A-000210	Pipe Installation between SDT and Temp. SHT & SDB (Batch 1 & 4 - DN200 Sludge)	30	17-Dec-21 A	10-Jun-22	1678	Pipe Installation between SDT and Temp. SHT & SDB (Batch 1 & 4 - DN200 Sludge)																		
Z3A-000330	Pipe Installation between Compressor House and Gas Holders (Batch 3 - DN300 Gas, SS316L)	34	19-Jan-22 A	15-Jun-22	-36	Pipe Installation between Compressor House and Gas Holders (Batch 3 - DN300 Gas, SS316L)																		
Z3A-000340	Pipe Installation between Compressor House and Temp. Water Heater House (Batch 4 - DN200 Hotwater)	30	17-Dec-21 A	06-Jun-22	-141	Pipe Installation between Compressor House and Temp. Water Heater House (Batch 4 - DN200 Hotwater)																		
<b>Pipe Connection</b>																								
Z3A-000370	240m3 Temp SHT Completion (Location B)	0		14-Jun-22	1675	◆ 240m3 Temp SHT Completion (Location B)																		
Z3A-000390	Digested Sludge Pumping Station Completion (Location F)	0		09-Jun-22	1679	◆ Digested Sludge Pumping Station Completion (Location F)																		
Z3A-000400	Temp. Water Heater House Completion (Location C)	0		07-Jul-22	-80	◆ Temp. Water Heater House Completion (Location C)																		
Z3A-000410	Completion of Zone 3A Dversion	0		29-Jul-22	1642	◆ Completion of Zone 3A Dversion																		
<b>Sludge/Supernatant DI Pipe</b>																								
Z3A-000360	Connection between SDT and Temp. SHT & SDB	5	15-Jun-22	20-Jun-22	1675	Connection between SDT and Temp. SHT & SDB																		
<b>Gas Pipe - SS316L</b>																								
<b>DN300 from Gas Holders to Compressor House</b>																								
Z3A-000380	Connection at Gas Holders	10	31-May-22	11-Jun-22	1682	Connection at Gas Holders																		
Z3A-000420	Connection at Compressor House	5	16-Jun-22	21-Jun-22	1674	Connection at Compressor House																		
<b>DN300 from SDT, Compressor House to Gas Holders</b>																								
Z3A-000450	Connection at Gas Holders	10	16-Jun-22	27-Jun-22	1669	Connection at Gas Holders																		
Z3A-000460	Gas Purging of SDT No.2 (YLEPP)	21	16-Jun-22	06-Jul-22	2013	Gas Purging of SDT No.2 (YLEPP)																		
Z3A-000470	Connection at SDT No.2,3 & 4	1	07-Jul-22	07-Jul-22	1642	Connection at SDT No.2,3 & 4																		
Z3A-000480	Gas Purging of SDT No.1 (YLEPP)	21	08-Jul-22	28-Jul-22	2013	Gas Purging of SDT No.1 (YLEPP)																		
Z3A-000490	Connection at SDT No.1	1	29-Jul-22	29-Jul-22	1642	Connection at SDT No.1																		
<b>DN200 from Gas Holder to Temp. Water Heater House</b>																								
Z3A-000440	Connection at Gas Holders	10	25-May-22 A	07-Jun-22	-140	Connection at Gas Holders																		
<b>Hotwater DI Pipe</b>																								
Z3A-000500	Connection between Compressor House and Temp. Water Heater House	2	07-Jun-22	08-Jun-22	-141	Connection between Compressor House and Temp. Water Heater House																		
<b>Zone 3B (at STB)</b>																								
<b>Gravity Thickening Tank (Location A)</b>																								
Z3B-000110	T&C Works (North & South Tank) (ATAL)	22	31-May-22	25-Jun-22	-73	T&C Works (North & South Tank) (ATAL)																		
Z3B-000260	Temp. Gravity Thickening Tank (Location A) Completion	0		25-Jun-22	-73	◆ Temp. Gravity Thickening Tank (Location A) Completion																		
<b>Temporary Primary Sludge Pumping Station (Location D)</b>																								
Z3A-290	Civil and Structural Works Construction	27	25-Mar-22 A	16-Jun-22	-99	Civil and Structural Works Construction																		
Z3A-300	E&M Installation (ATAL)	18	17-Jun-22	08-Jul-22	-99	E&M Installation (ATAL)																		
Z3A-310	T&C Works (ATAL)	16	09-Jul-22	27-Jul-22	-99	T&C Works (ATAL)																		
Z3A-430	Temp. Primary Sludge Pumping Station (Location D) Completion	0		27-Jul-22	-99	◆ Temp. Primary Sludge Pumping Station (Location D) Completion																		
<b>Temporary Thickened Sludge / Supernatant Pumping Station (Location E1)</b>																								
Z3B-000150	E&M Works (ATAL) & T&C (ATAL)	45	23-Jun-22	15-Aug-22	-115	E&M Works (ATAL) & T&C (ATAL)																		
Z3B-000160	ELS Works	9	04-Apr-22 A	07-Jun-22	-115	ELS Works																		
Z3B-000270	Temp. Thickening Sludge/Supernatant Pumping Station (Location E1) Completion	0		15-Aug-22	-115	◆ Temp. Thickening Sludge/Supernatant Pumping Station (Location E1) Completion																		
Z3B-000450	Civil and Structural Works Construction	20	08-Jun-22	30-Jun-22	-115	Civil and Structural Works Construction																		
<b>Relocation of Ferric Chloride (FeCl3) Dosing System &amp; LV Switchboard (Location E2)</b>																								
Z3B-000170	Design Consent	0		11-Apr-22 A		Design Consent																		
Z3B-000180	Method Statement Approval	0		11-Apr-22 A		Method Statement Approval																		
Z3B-000190	Civil and Structural Works Construction	35	12-Apr-22 A	08-Jun-22	-98	Civil and Structural Works Construction																		
Z3B-000200	E&M Works (ATAL) & T&C Works (ATAL)	40	09-Jun-22	26-Jul-22	-98	E&M Works (ATAL) & T&C Works (ATAL)																		
Z3B-000280	FeCl3 Relocation (Location E2) Completion	0		26-Jul-22	-98	◆ FeCl3 Relocation (Location E2) Completion																		
<b>Pipe Laying</b>																								
Z3B-000240	Pipe Installation from CT to MH2 (Batch 1 - DN250 Supernatant)	20	18-Dec-21 A	23-Jun-22	-70	Pipe Installation from CT to MH2 (Batch 1 - DN250 Supernatant)																		
Z3B-000350	Pipe Installation from Location A to Location E (Batch 6 - DN250 Supernatant)	36	31-Dec-21 A	13-Jul-22	-87	Pipe Installation from Location A to Location E (Batch 6 - DN250 Supernatant)																		
Z3B-000360	Pipe Installation from Location A to Location E & SDT (Batch 7 - DN200 Sludge)	36	17-Jan-22 A	13-Jul-22	-87	Pipe Installation from Location A to Location E & SDT (Batch 7 - DN200 Sludge)																		
Z3B-000370	Pipe Installation from Temp. Primary Sludge Pumping Station (Location D) to CT (Batch 7 - DN200 Sludge)	20	17-Jan-22 A	23-Jun-22	-71	Pipe Installation from Temp. Primary Sludge Pumping Station (Location D) to CT (Batch 7 - DN200 Sludge)																		
<b>Pipe Connection</b>																								
Z3B-000380	Connection at Temp. Thickened Sludge/ Supernatant Pumping Station (Location E)	1	16-Aug-22	16-Aug-22	-115	Connection at Temp. Thickened Sludge/ Supernatant Pumping Station (Location E)																		
Z3B-000390	Temp. Gravity Thickening Tank (Location A) Completion	0		25-Jun-22	-73	◆ Temp. Gravity Thickening Tank (Location A) Completion																		
Z3B-000400	Temp. Primary Sludge Pumping Station (Location D) Completion	0		27-Jul-22	-99	◆ Temp. Primary Sludge Pumping Station (Location D) Completion																		
Z3B-000410	Connection at Temp. Primary Sludge Pumping Station (Location D)	1	28-Jul-22	28-Jul-22	-99	Connection at Temp. Primary Sludge Pumping Station (Location D)																		
Z3B-000420	FeCl3 System (Location E) Relocation Completion	0		26-Jul-22	-98	◆ FeCl3 System (Location E) Relocation Completion																		
Z3B-000430	Temp. Thickened Sludge/ Supernatant Pumping Station (Location E) Completion	0		15-Aug-22	-115	◆ Temp. Thickened Sludge/ Supernatant Pumping Station (Location E) Completion																		
Z3B-000440	Completion of Zone 3B Diversion	0		16-Aug-22	-115	◆ Completion of Zone 3B Diversion																		
<b>Advance Works</b>																								
Z3S1A-3010	Completion of Stage 1 (Construction & E&M for Temporary facilities)	0		07-Jul-22	-80	◆ Completion of Stage 1 (Construction & E&M for Temporary facilities)																		



- Remaining Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

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

### Monthly Progress Report No. 19 - 3MRP (May 2022)

Project ID : DWP.DPr14\_220616  
 Layout : DC201910 MPR19-3MRP  
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Monthly Progress Report No. 19 - 3MRP			
Date	Revision	Checked	Approved
31-May-22	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	May				June				July				August				September
						19				20				21				22				23
						01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21
<b>Stage 1 Demolition Works</b>																						
<b>SHT 3&amp;4 Demolition Works below ground</b>																						
Z3A-00030	Demolition Works for Sludge Holding Tank No. 4 (below ground) portion 1 open cut	25	10-Jun-22	09-Jul-22	651																	
Z3A-000130	Demolition Works for Sludge Holding Tank No. 3 (below ground)	20	10-Mar-22 A	09-Jun-22	-151																	
Z3A-000140	Backfill to Ground Level	7	10-Jun-22	17-Jun-22	-151																	
<b>UC Decommission Works</b>																						
Z3A-000110	Decommission Works for Existing Utilities Gallery	12	30-Jul-22	12-Aug-22	1642																	
<b>Stage 2</b>																						
<b>Stage 2 : New Sludge Thickening Building (STB)</b>																						
<b>Stage 2 - Demolition Works</b>																						
ATALZ3S1-1050	Switching Duty from SDT No.1 & 2 to SDT No.1 & 3 (9) for STB Demolition and Utility Corridor Construction	23	16-Jun-22	13-Jul-22	-36																	
ATALZ3S1-2210	Switching Duty from SDT No.1 & 3 to SDT No. 3 & 4 (9) for STB Construction	23	08-Jul-22	03-Aug-22	-54																	
Z3S2-2030	Demolition of Existing Sludge Thickening House (8, Air Floatation Thickener)	40	17-Aug-22	05-Oct-22	-67																	
Z3S2-2040	Demolition of Consolidation Tank (7) C1 & C2	24	17-Aug-22	14-Sep-22	-57																	
Z3S2-2050	Submission of Demolition Plan for STB, Review by PM(28d), Resubmission(14d), Obtain Approval(7d)	49	15-Mar-22 A	30-Jun-22	-28																	
Z3S2-2310	Submission of Method Statement for demolition of STB, Review by PM(28d), Resubmission(14d), Obtain Approva	26	31-May-22	30-Jun-22	-28																	
<b>Stage 2 : STB Pre-drilling Works</b>																						
Z3S3-3400	Environment GI (4 nos., 7d/no., 2 rigs)	37	12-Apr-22 A	12-May-22 A																		
Z3S3-3480	Predrilling Works (2 nos. STB-PD7,9)	10	29-Aug-22	08-Sep-22	-26																	
<b>Stage 2 : Existing Sludge Holding Tanks</b>																						
Z3S1a.7-60	Completion Connection to Temporary SHT & Dewatering House	0		07-Jul-22	-80																	
Z3S2-2010	Demolition of SHT 2 (10)	35	18-Aug-22	28-Sep-22	-115																	
Z3S2-2015	Demolition of SHT 1 (10)	26	06-Jun-22*	06-Jul-22	-151																	
Z3S2.5-10	Demolition of Existing Water Heater House	25	24-Jun-22	23-Jul-22	-141																	
<b>Stage 2 : Biogas Holder No. 1</b>																						
Z3BH-0995	Biogas Holder No. 1 - GI Works	21	16-May-22 A	17-Jun-22	-151																	
Z3BH-1000	Biogas Holder No. 1 - Band drain Installation for Ground Improvement	25	18-Jun-22	18-Jul-22	-151																	
Z3BH-1040	Biogas Holder No. 1 - Surcharge	18	30-Jul-22	19-Aug-22	-151																	
Z3BH-1050	Biogas Holder No. 1 - Consolidation test	70	20-Aug-22	12-Nov-22	-151																	
Z3BH-1060	Biogas Holder No. 1 - Band drain Installation for Ground Improvement @ SHT 1 and existing water heater house f	10	19-Jul-22	29-Jul-22	-151																	
<b>Stage 2 : Utility Corridor Construction</b>																						
ATALZ3S1-2230	Switching Duty from SDT No.1 to No. 4 (9)	23	04-Aug-22	30-Aug-22	64																	
Z3S2-2350	Switching Duty from SDT No.2 to No. 3 (9)	0		13-Jul-22	105																	
<b>Stage 3</b>																						
<b>Stage 3 : New Sludge Thickening Building (STB) (Continued)</b>																						
<b>Stage 3 : STB - Driven H-pile</b>																						
Z3S3-3500	STB - Driven H-pile Start	0	06-Jul-22		-59																	
Z3S3-3510	STB - Driven H-pile Zone P1 (23 nos., 1219m)	30	06-Jul-22	09-Aug-22	-59																	
Z3S3-3550	STB - Driven H-pile Zone P4A&B (21 nos., 1113m)	37	10-Aug-22	22-Sep-22	-59																	
<b>Stage 3 : STB Foundation and ELS</b>																						
Z3S3-3010	STB - Site Setup & Mobilization	9	24-Jun-22	05-Jul-22	-59																	
<b>Stage 3 : New Sludge Digester No. 1 and 2 (Continued)</b>																						
<b>Stage 3 : SD 1,2 Pre-drilling Works</b>																						
Z3S3-2010	Sludge Digester No. 1-2 - Pre-drill (2 nos. SD-BH08A/11 )	16	11-Apr-22 A	19-May-22 A																		
<b>Stage 4</b>																						
<b>Stage 4 : New Sludge Digester No. 3 (Continued)</b>																						
<b>Stage 4 : SD 3 Foundation and ELS Works</b>																						
Z3S3-2080	Sludge Digester No. 3 - Pre-drill (1 no. SD-BH7)	16	04-Apr-22 A	18-May-22 A																		
<b>Stage 7</b>																						
<b>Stage 7 : New Sludge Digester No. 4</b>																						
<b>Stage 7 : SD 4 Foundation and ELS Works</b>																						
Z3S8SD-2000	Sludge Digester No. 4 - Pre-drill (1 no. SD-BH6)	14	16-May-22 A	07-Jun-22	664																	



- Remaining Level of Ef...
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

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

### Monthly Progress Report No. 19 - 3MRP (May 2022)

Project ID : DWP.DPr14\_220616  
 Layout : DC201910 MPR19-3MRP  
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Monthly Progress Report No. 19 - 3MRP			
Date	Revision	Checked	Approved
31-May-22	Rev. 0		

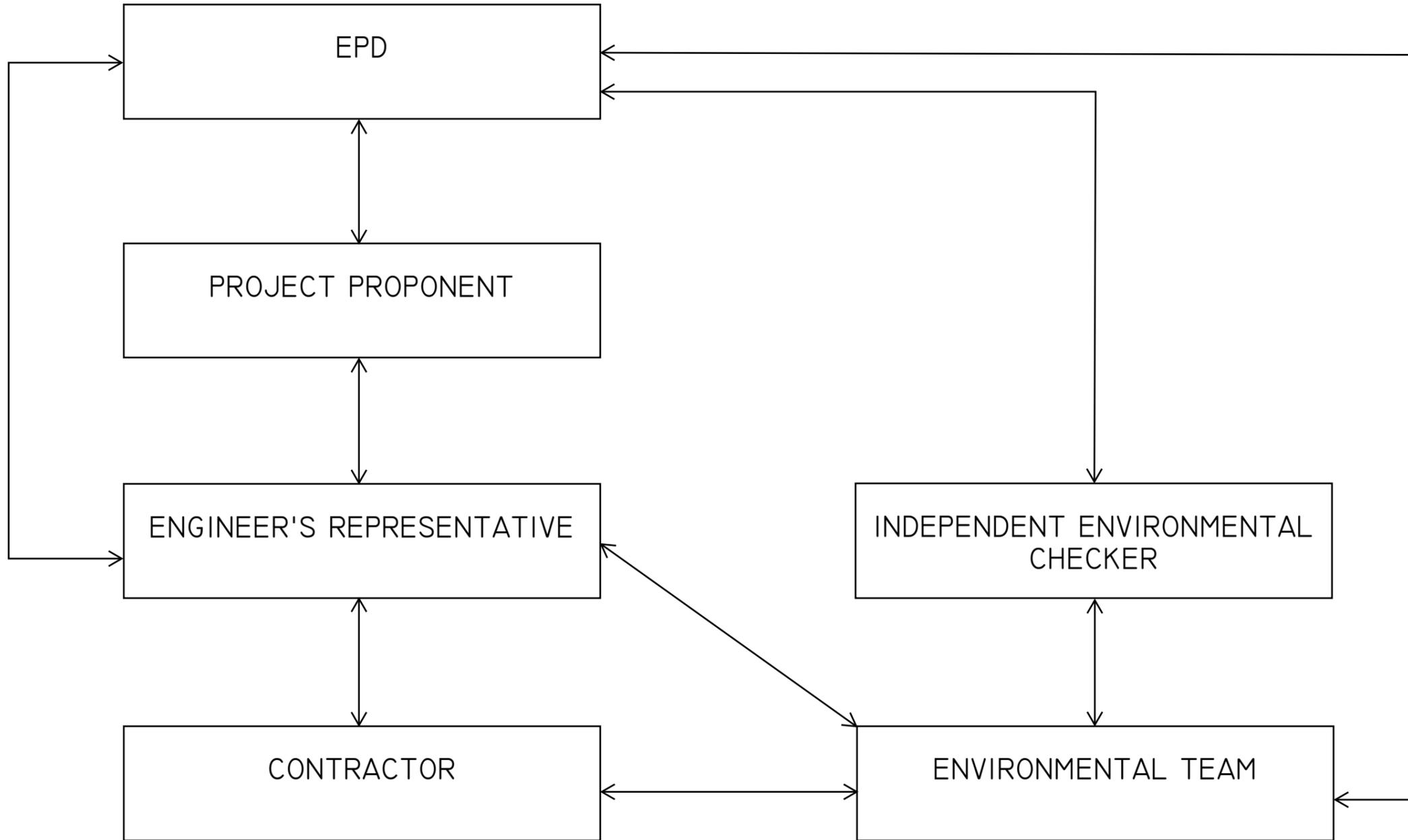
# Appendix B

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## Project Organization Chart

LEGEND:

↔ LINE OF COMMUNICATION



PROJECT

YUEN LONG EFFLUENT  
POLISHING PLANT -  
INVESTIGATION, DESIGN  
AND CONSTRUCTION

CLIENT



CONSULTANT

AECOM Asia Company Ltd.  
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE

A3 1 : 40000

DIMENSION UNIT

METRES

KEY PLAN

PROJECT NO.

60505476

CONTRACT NO.

CE 3/2015 (DS)

SHEET TITLE

PROJECT ORGANISATION

SHEET NUMBER

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# Appendix C

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Action and Limit Levels

## Action and Limit Levels for Air Quality

Parameters	Action Level	Limit Level
1-hour TSP Level in $\mu\text{g}/\text{m}^3$	<sup>1</sup> 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) <sup>2</sup>	<p><u>Surface &amp; Middle</u> 5%-ile of baseline data for surface and middle layer.</p> <p><u>Bottom</u> 5%-ile of baseline data for bottom layer.</p>	<p><u>Surface &amp; Middle</u> 4 mg/L or 1%-ile of baseline data for surface and middle layer.</p> <p><u>Bottom</u> 2 mg/L or 1%-ile of baseline data for bottom layer.</p>
SS in mg/L (depth-averaged <sup>1</sup> ) <sup>3</sup>	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 <sup>1</sup> ) <sup>3</sup>	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) <sup>1</sup>	72.2 dB(A) <sup>2</sup>

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 <sup>3</sup>	Limit Level <sup>3</sup>
Transect	Abundance of all avifauna species (including but not only limited to overwintering waterbirds) in the community	Significant decline <sup>1,2</sup> 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

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Calibration Certificates/ reports of  
Monitoring Equipments

# Air Quality Monitoring Equipments

Report no. : 940891CA212394(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. : 155716  
 Specification Limit : NA  
 Next Calibration Date : 02-Sep-2022

### Laboratory Information

Description : 1. Balance                      2. TSP high volume air sampler  
 Equipment ID. / Serial no. : 1. C-065-9                      2. 4350  
 Date of Calibration : 03-Sep-2021                      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 <sup>3</sup> )	Total count for 1 hour	CPM (Count per minute)
0.0416	631	10.52
0.0388	626	10.43
0.0266	598	9.97

### Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The interpolation equation : Concentration (mg/m<sup>3</sup>) = K x [ UUT reading (CPM) ], where K = 0.003460
3. Correlation coefficient (r) : 0.9992

Checked by :                      Date : 28-9-2021 Certified by :                      Date : 28-9-2021  
 CA-R-297 (22/07/2009) Chan Chun Wai (Manager)

\*\* End of Report \*\*

Report no. : 940891CA212394

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. : 155717  
 Specification Limit : NA  
 Next Calibration Date : 02-Sep-2022

### Laboratory Information

Description : 1. Balance 2. TSP high volume air sampler  
 Equipment ID. / Serial no. : 1. C-065-9 2. 4350  
 Date of Calibration : 03-Sep-2021 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 <sup>3</sup> )	Total count for 1 hour	CPM (Count per minute)
0.0416	672	11.20
0.0388	650	10.83
0.0266	597	9.95

### Remarks:

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The interpolation equation : Concentration (mg/m<sup>3</sup>) = K x [ UUT reading (CPM) ], where K = 0.003345
3. Correlation coefficient (r) : 0.9940

Checked by : Cenny Date : 28-9-2021 Certified by : Chan Chun Wai Date : 28-9-2021  
 CA-R-297 (22/07/2009) Chan Chun Wai (Manager)

\*\* End of Report \*\*



**TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

Location : MaWTF, Ma Wan	Date of Calibration: 26-Jul-21
Location ID: A1 Site Boundary	Next Calibration Date: 30-Oct-21
	Technician: Herman Wang

**CONDITIONS**

Sea Level Pressure (hPa):	998.1	Corrected Pressure (mm Hg):	749
Temperature (°C):	34.0	Temperature (K):	307

**CALIBRATION ORIFICE**

Make:	Tisch	Qstd Slope:	2.11508
Model:	TE-5025A	Qstd Intercept:	-0.02962
Calibration Date:	11-Sep-20	Expiry Date:	11-Sep-21

**CALIBRATIONS**

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m <sup>3</sup> /min)	I (chart)	IC (corrected)	LINEAR REGRESSION
18	5.50	-6.50	12.000	1.616	57.00	55.74	Slope = 28.3811 Intercept = 9.9481 Corr. coeff.= 0.9979
13	4.30	-5.40	9.700	1.454	52.00	50.85	
10	2.90	-4.50	7.400	1.272	48.00	46.94	
7	1.90	-2.80	4.700	1.016	39.00	38.14	
5	1.00	-2.00	3.000	0.815	34.00	33.25	

**Calculations:**

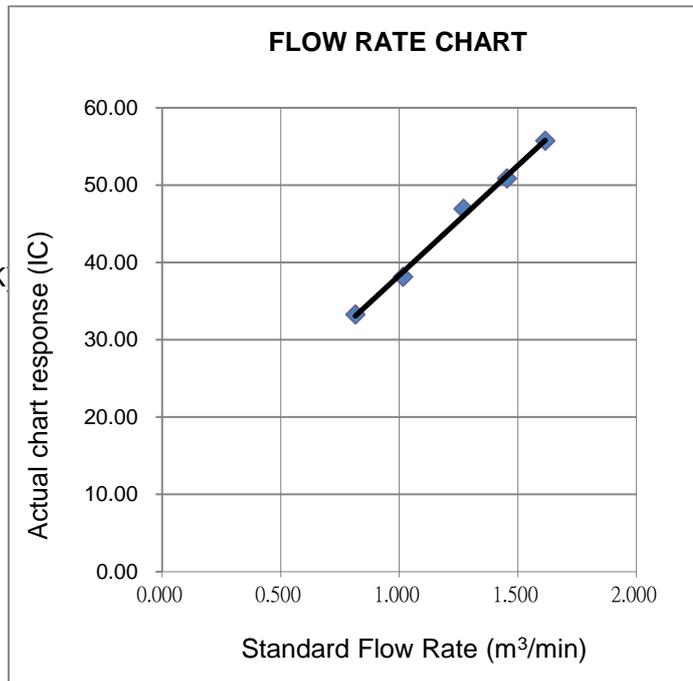
$Qstd = 1/m[\text{sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$   
 $IC = I[\text{sqrt}(Pa/Pstd)(Tstd/Ta)]$

- 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

**For subsequent calculation of sampler flow:**

$1/m((I)[\text{sqrt}(298/Tav)(Pav/760)]-b)$

- m = sampler slope
- b = sampler intercept
- I = chart response
- Tav = daily average temperature
- Pav = daily average pressure



## CALIBRATION REPORT OF WIND METER

<b>Project:</b> Contract No. SPW 07/2020 <b>Location:</b> Yuen Long Sewage Treatment Works	<b>Date of Calibration:</b> 26-Mar-2022 <b>Next Calibration Date:</b> 25-Sep-2022 <b>Technician:</b> Sam Fong
<b>Brand:</b> Global Water <b>Model:</b> GL500-7-2	<b>Serial No:</b> 2012000974
<b>Anemometer</b>	
<b>Brand:</b> Benetech <b>Model:</b> GM816	<b>Equipment ID:</b> 08
<b>Procedures:</b>	
1. <b>Wind Still Test:</b>	The wind speed sensor was held by hand until stabilized.
2. <b>Wind Speed Test:</b>	The wind meter was calibrated in-situ and compared with the Anemometer.
3. <b>Wind Direction Test:</b>	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)
1.4	1.2
2.1	2.3
2.9	2.8

**Wind Direction Test:**

	Marine Compass (o)
348	352
206	208
267	265
293	290



**Wan Ka Ho**  
 Project Consultant

**Report Date:** 28/3/2022

# Noise Monitoring Equipments



Report no.: 212769CA220043

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. :  
 Serial No. :  
 Equipment ID : N-62  
 Next Calibration Date : 05-Jan-2023  
 Specification Limit : EN 61672-1: 2003 Class 1

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No.	1488304	03456	002850

### 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 : 06-Jan-2022  
 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	2.0	2.6 to -0.6
	2000Hz	1.0	2.8 to -0.4
	1000Hz	-0.5	1.1 to -1.1
	500Hz	-3.9	-1.8 to -4.6
	250Hz	-9.3	-7.2 to -10.0
	125Hz	-16.8	-14.6 to -17.6
	63Hz	-26.9	-24.7 to -27.7
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.1	± 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 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 : Cuny      Date : 10-1-2022      Certified by : K.H. Leung      Date : 11-1-2022  
 CA-R-297 (22/07/2009)      Leung Kwok Tai (Assistant Manager)

\*\* End of Report \*\*

Report no.: 212769CA212069(3)

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. : 2383707  
 Equipment ID : N/A

Next Calibration Date : 25-Aug-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 : 26-Aug-2021

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

Method Used : By direct comparison      Relative Humidity : &lt;80% R.H.

### Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.4 dB	±0.4dB
114dB	-0.3 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 : Canny Date : 27-8-2021 Certified by : K. Leung Date : 27-8-2021  
 CA-R-297 (22/07/2009)      Leung Kwok Tai (Assistant Manager)

\*\* End of Report \*\*

Report no.: 212769CA220043(1)

Page 1 of 1

**CALIBRATION CERTIFICATE OF SOUND CALIBRATOR****Client Supplied Information**

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Calibrator  
Manufacturer : Casella (Model CEL-120/1)  
Serial No. : 2383982  
Equipment ID : N/A  
Next Calibration Date : 05-Jan-2023  
Specification Limit : EN 60942: 2003 Class 1

**Laboratory Information**

Description : Reference Sound level meter  
Equipment ID. : R-119-1  
Date of Calibration : 06-Jan-2022 Ambient Temperature : 22 °C  
Calibration Location : Calibration Laboratory of FTS Relative Humidity : <80% R.H.  
Method Used : By direct comparison

**Calibration Results :**

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	0.0 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 equipment does comply with the specification limit.
4. 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 :  Date : 10-1-2022 Certified by :  Date : 11-1-2022  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)

**\*\* End of Report \*\***

Report No. : 212769CA220614

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 : Smart Sensor

Model No. : AR816

Serial No. : N/A

Equipment ID. : AM-001

Next Calibration Date : 28-Mar-2023

**Laboratory Information**

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 29-Mar-2022 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)
2.1	2.0	-0.1
3.6	4.0	0.4
5.4	6.0	0.6
7.0	8.0	1.0
8.8	10.0	1.2

**Remarks :**

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

Checked by : Cenny Date : 31-3-2022 Certified by : K. T. Leung Date : 1-4-2022  
CA-R-297 (22/07/2009) Leung Kwok Tai (Assistant Manager)**\*\* End of Report \*\***

# Water Quality Monitoring Equipments

Report No. : 142626WA220952



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 : 13/F, Fugro House – KCC2, No. 1 Kwai On Road, Kwai Chung, N.T., H.K.

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 : WA220952/1

Date sample received : 10/05/2022

Date of calibration : 26/05/2022

Next calibration date : 25/08/2022

Test method used : In-house comparison method

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

Report No. : 142626WA220952

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	9.21	+0.03
6.86	6.85	-0.01

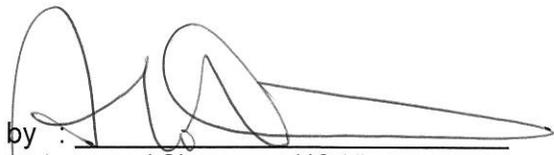
**B. Salinity calibration**

Salinity, ppt			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
1	1.00	0.00	± 0.1
10	10.03	+0.03	± 0.5
20	19.98	-0.02	± 1.0
30	29.97	-0.07	± 1.5
40	40.00	0.00	± 2.0

**C. Dissolved Oxygen calibration**

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	8.01	8.06
2	8.01	8.04
3	7.91	8.02
Average	7.97	8.04

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

Certified by :   
 Approved Signatory : HO Kin Man, John  
 Assistant General Manager – Laboratories

Date : 16/2/2022

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

Report No. : 142626WA220952

Page 3 of 3

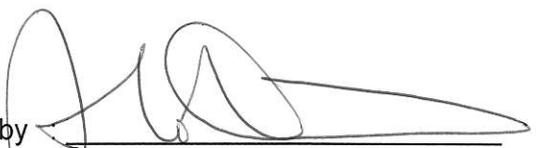
**Results :**

**D. Temperature calibration**

Thermometer reading, °C	Meter reading, °C
22.7	22.856

**E. Turbidity calibration**

Turbidity, N.T.U.			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
4	4.23	+0.23	± 0.6
8	8.50	+0.50	± 0.8
40	39.81	-0.19	± 3.0
80	79.98	-0.02	± 4.0

Certified by   
 Approved Signatory : HO Kin Man, John  
 Assistant General Manager – Laboratories

Date : 16/2022  
 \*\* End of Report \*\*

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

Report No. : 142626WA220593



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 : 13/F, Fugro House – KCC2, No. 1 Kwai On Road, Kwai Chung, N.T., H.K.

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 : WA220593/1

Date sample received : 28/03/2022

Date of calibration : 06/04/2022

Next calibration date : 05/07/2022

Test method used : In-house comparison method

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

Report No. : 142626WA220593

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	9.08	-0.10
6.86	6.86	0.00

**B. Salinity calibration**

Salinity, ppt			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
1	1.00	0.00	± 0.1
10	9.95	-0.05	± 0.5
20	19.08	-0.20	± 1.0
30	30.03	+0.03	± 1.5
40	40.03	+0.03	± 2.0

**C. Dissolved Oxygen calibration**

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	8.44	8.42
2	8.39	8.36
3	8.21	8.36
Average	8.35	8.38

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

Certified by :   
 Approved Signatory : HO Kin Man, John  
 Assistant General Manager – Laboratories

Date : 13/4/2022

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

Report No. : 142626WA220593

Page 3 of 3

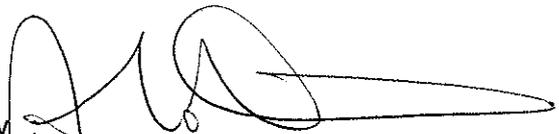
**Results :**

**D. Temperature calibration**

Thermometer reading, °C	Meter reading, °C
19.8	19.892

**E. Turbidity calibration**

Turbidity, N.T.U.			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
4	4.15	+0.15	± 0.6
8	7.50	-0.50	± 0.8
40	38.20	-1.80	± 3.0
80	79.66	-0.34	± 4.0

Certified by :   
 Approved Signatory : HO Kin Man, John  
 Assistant General Manager – Laboratories

Date : 13/4/2022

**\*\* End of Report \*\***

*Note : This report refers only to the sample(s) tested and the result(s) applied to the sample(s) as received.*

# 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:**

**11<sup>TH</sup> NOVEMBER 2019**

**Signed:**

*N. Paddon*

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 icon above the '0'.

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

+44 (0) 1803 869292  
sales@valeport.co.uk  
[www.valeport.co.uk](http://www.valeport.co.uk)

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 <sup>TM</sup>	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

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## Environmental Monitoring Schedule

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

**Environmental Monitoring Schedule (June 2022)**

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1	2 <b>WQM</b> Mid Flood(7:53) Mid Ebb(15:23)	3	4 <b>AQM</b> <b>WQM</b> Mid Flood(9:02) Mid Ebb(16:41)
5	6	7 <b>WQM</b> Mid Flood(11:43) Mid Ebb(6:58)	8	9 <b>WQM</b> Mid Flood(14:58) Mid Ebb(9:40)	10 <b>AQM, NM</b>	11 <b>WQM</b> Mid Flood(17:35) Mid Ebb(11:08)
12	13 <b>EMB</b> (Day Time)	14 <b>WQM</b> Mid Flood(6:24) Mid Ebb(13:26)	15	16 <b>AQM, NM</b> <b>WQM</b> Mid Flood(7:42) Mid Ebb(15:08)	17 <b>ANRM,</b> <b>EMB</b> (Night Time)	18 <b>WQM</b> Mid Flood(9:14) Mid Ebb(16:43)
19	20	21 <b>WQM</b> Mid Flood(12:46) Mid Ebb(7:56)	22 <b>AQM, NM</b>	23 <b>WQM</b> Mid Flood(15:43) Mid Ebb(10:05)	24	25 <b>WQM</b> Mid Flood(18:06) Mid Ebb(11:25)
26	27	28 <b>AQM, NM</b> <b>WQM</b> Mid Flood(5:52) Mid Ebb(13:19)	29	30 <b>WQM</b> Mid Flood(6:58) Mid Ebb(14:34)		

**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



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

**Environmental Monitoring Schedule (August 2022)**

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2 <b>AQM, NM</b> <b>WQM</b> Mid Flood(9:49) Mid Ebb(16:34)	3	4 <b>WQM</b> Mid Flood(11:24) Mid Ebb(17:42)	5	6 <b>WQM</b> Mid Flood(13:39) Mid Ebb(7:21)
7	8 <b>AQM, NM</b>	9 <b>WQM</b> Mid Flood(19:02) Mid Ebb(11:12)	10	11 <b>WQM</b> Mid Flood(20:36) Mid Ebb(13:11)	12	13 <b>AQM</b> <b>WQM</b> Mid Flood(21:49) Mid Ebb(14:47)
14	15	16 <b>WQM</b> Mid Flood(10:12) Mid Ebb(16:35)	17	18 <b>WQM</b> Mid Flood(11:42) Mid Ebb(17:34)	19 <b>AQM, NM</b>	20 <b>WQM</b> Mid Flood(14:59) Mid Ebb(7:27)
21	22	23 <b>WQM</b> Mid Flood(19:00) Mid Ebb(11:13)	24	25 <b>AQM, NM</b> <b>WQM</b> Mid Flood(19:56) Mid Ebb(12:45)	26	27 <b>WQM</b> Mid Flood(20:47) Mid Ebb(14:00)
28	29	30 <b>WQM</b> Mid Flood(9:07) Mid Ebb(15:36)	31 <b>AQM, NM</b>			

**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**

**Environmental Monitoring Schedule (September 2022)**

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1 <b>WQM</b> Mid Flood(10:29) Mid Ebb(16:36)	2	3 <b>WQM</b> Mid Flood(12:13) Mid Ebb(17:55)
4	5 <b>AQM, NM</b>	6 <b>WQM</b> Mid Flood(17:57) Mid Ebb(9:40)	7	8 <b>WQM</b> Mid Flood(19:31) Mid Ebb(12:05)	9	10 <b>AQM</b> <b>WQM</b> Mid Flood(20:33) Mid Ebb(13:43)
11	12	13 <b>WQM</b> Mid Flood(9:15) Mid Ebb(15:29)	14	15 <b>WQM</b> Mid Flood(10:38) Mid Ebb(16:23)	16 <b>AQM, NM</b>	17 <b>WQM</b> Mid Flood(12:46) Mid Ebb(17:49)
18	19	20 <b>WQM</b> Mid Flood(18:00) Mid Ebb(9:24)	21	22 <b>AQM, NM</b> <b>WQM</b> Mid Flood(18:47) Mid Ebb(11:34)	23	24 <b>WQM</b> Mid Flood(19:33) Mid Ebb(12:54)
25	26	27 <b>WQM</b> Mid Flood(8:21) Mid Ebb(14:38)	28 <b>AQM, NM</b>	29 <b>WQM</b> Mid Flood(9:44) Mid Ebb(15:41)	30	

**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

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## Environmental Monitoring Results

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Air Quality Monitoring Results

**Air Quality Monitoring Results for**

**Contract No. SPW 07/2020**

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

**AM1 - Topfine Machinery (China) Co. Ltd.**

Date	Weather Condition	Start Time	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )			Action Level ( $\text{ug}/\text{m}^3$ )	Limit Level ( $\text{ug}/\text{m}^3$ )
			1st Measurement	2nd Measurement	3rd Measurement		
4-Jun-22	Cloudy	8:33	98	102	84	291	500
10-Jun-22	Cloudy	8:30	63	70	81		
16-Jun-22	Cloudy	8:43	77	67	84		
22-Jun-22	Cloudy	8:30	60	60	74		
28-Jun-22	Fine	8:31	91	77	81		
		Min	60				
		Max	102				
		Average	78				

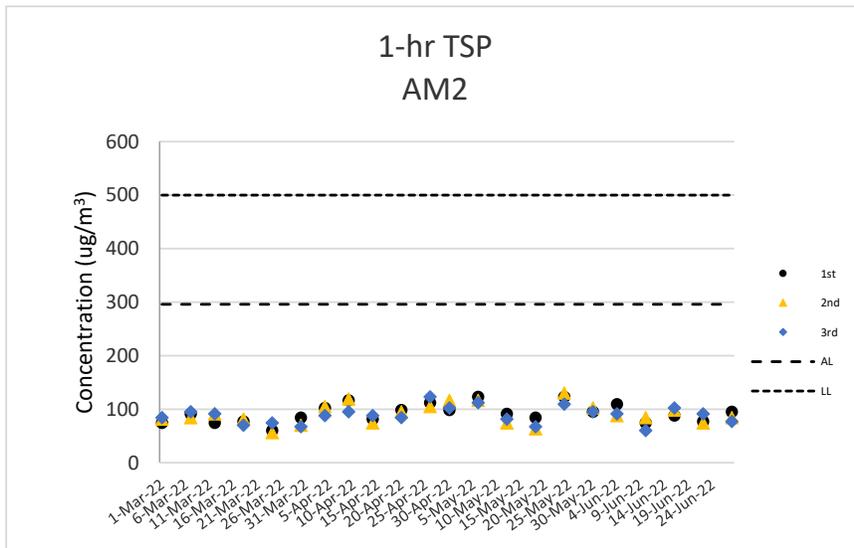
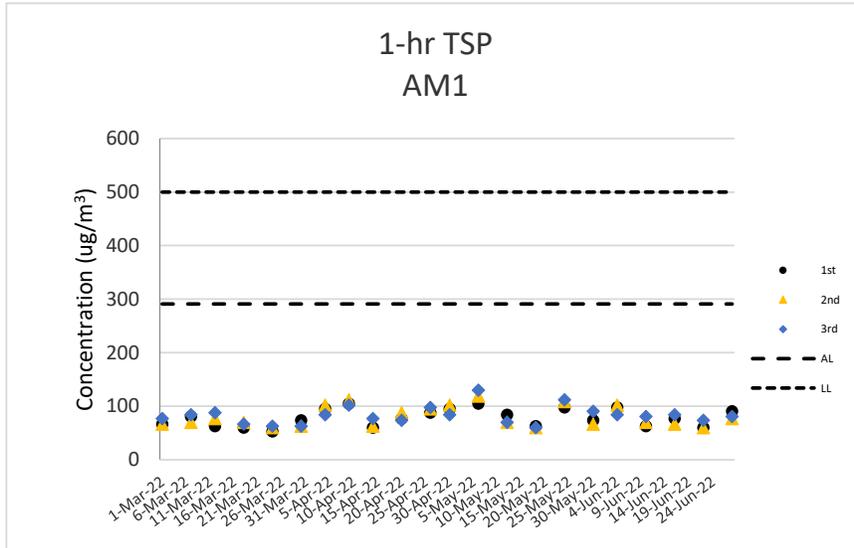
**AM2 - Squatter house at the west of Yuen Long STW**

Date	Weather Condition	Start Time	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )			Action Level ( $\text{ug}/\text{m}^3$ )	Limit Level ( $\text{ug}/\text{m}^3$ )
			1st Measurement	2nd Measurement	3rd Measurement		
4-Jun-22	Cloudy	8:47	109	88	91	296	500
10-Jun-22	Cloudy	8:41	74	84	60		
16-Jun-22	Cloudy	8:31	88	98	102		
22-Jun-22	Cloudy	8:41	77	74	91		
28-Jun-22	Fine	8:41	95	84	77		
		Min	60				
		Max	109				
		Average	86				

Note:

Underline: Exceedance of Action Level

**Underline and Bold**: Exceedance of Limit Level



**Air Quality Monitoring Results**

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## Noise Monitoring Results

**Noise Monitoring Results 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 <sub>eq</sub> 30min dB(A)	L <sub>10</sub> dB(A)	L <sub>90</sub> dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
10-Jun-22	10:09	55	58	51	0.1	Cloudy	75
16-Jun-22	11:04	56	59	51	0.3	Cloudy	75
22-Jun-22	10:04	55	58	50	0.1	Cloudy	75
28-Jun-22	10:01	54	57	51	0.1	Fine	75
	<b>Max</b>	56					
	<b>Min</b>	54					

**CM2 - Squatter house to the west of YLSTW**

Date	Start Time	L <sub>eq</sub> 30min dB(A)	L <sub>10</sub> dB(A)	L <sub>90</sub> dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
10-Jun-22	8:46	64	66	56	0.1	Cloudy	75
16-Jun-22	13:08	62	64	56	0.4	Cloudy	75
22-Jun-22	8:46	62	64	55	0.1	Cloudy	75
28-Jun-22	8:45	61	64	54	0.2	Fine	75
	<b>Max</b>	64					
	<b>Min</b>	61					

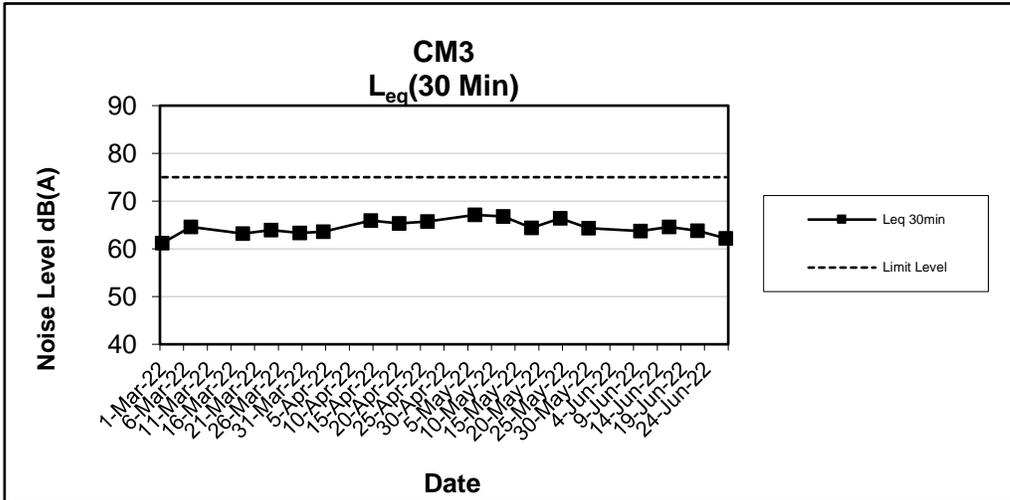
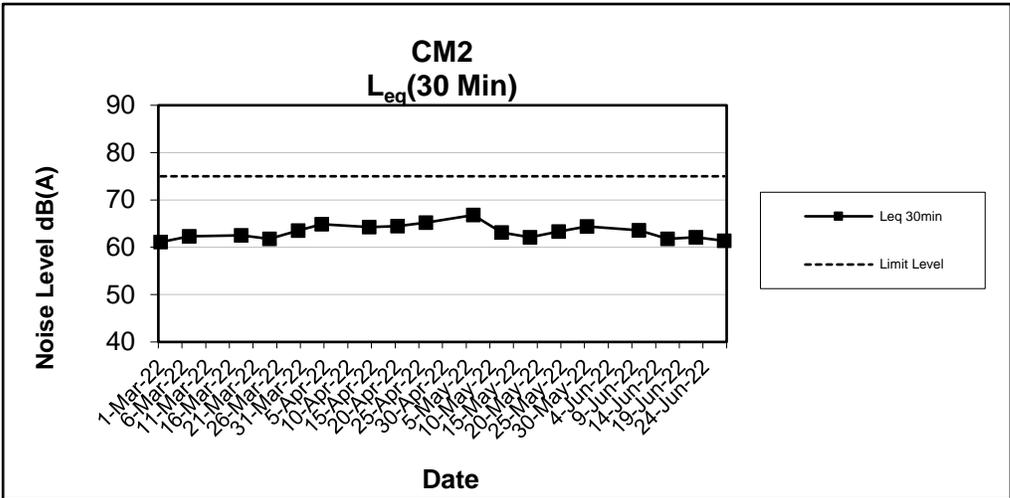
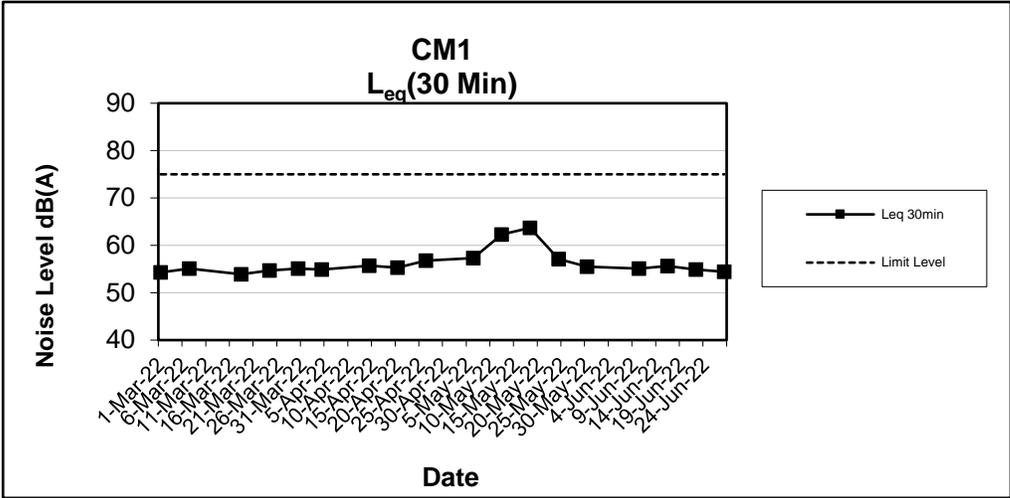
**CM3 - Squatter house to the east of YLSTW**

Date	Start Time	L <sub>eq</sub> 30min dB(A)	L <sub>10</sub> dB(A)	L <sub>90</sub> dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
10-Jun-22	11:28	64	66	56	0.2	Cloudy	75
16-Jun-22	9:33	65	67	57	0.3	Cloudy	75
22-Jun-22	11:29	64	67	56	0.2	Cloudy	75
28-Jun-22	11:22	62	65	54	0.1	Fine	75
	<b>Max</b>	65					
	<b>Min</b>	62					

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.



**Noise Monitoring Results**

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## Water Quality Monitoring Results

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

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.
M1	2/6/2022	Mid-Flood	Fine	Moderate	8:05	1.1	M	0.55	1	0.082	104	7.50	7.51	4.89	4.88	28.93	28.95	80.1	80.2	6.00	6.01	29.5	29.5	44	44
M1	2/6/2022	Mid-Flood	Fine	Moderate	8:05	1.1	M	0.55	2			7.51		4.87		28.97		80.3		6.02		29.4		43	
M2	2/6/2022	Mid-Flood	Fine	Moderate	8:24	0.9	M	0.45	1	0.064	92	7.38	7.36	4.72	4.73	28.41	28.42	77.3	77.3	5.81	5.81	28.3	28.3	35	36
M2	2/6/2022	Mid-Flood	Fine	Moderate	8:24	0.9	M	0.45	2			7.34		4.73		28.42		77.2		5.80		28.4		37	
M3	2/6/2022	Mid-Flood	Cloudy	Calm	8:02	0.8	M	0.4	1	0.294	88	7.29	7.30	3.39	3.39	27.09	27.10	67.5	67.7	5.13	5.14	29.9	29.4	34	36
M3	2/6/2022	Mid-Flood	Cloudy	Calm	8:02	0.8	M	0.4	2			7.30		3.39		27.10		67.8		5.15		28.9		38	
M1	2/6/2022	Mid-Ebb	Fine	Moderate	15:46	1	M	0.5	1	0.054	76	7.09	7.11	6.12	6.13	29.14	29.14	60.8	60.5	4.83	4.82	27.8	27.8	31	32
M1	2/6/2022	Mid-Ebb	Fine	Moderate	15:46	1	M	0.5	2			7.13		6.14		29.13		60.1		4.81		27.8		32	
M2	2/6/2022	Mid-Ebb	Fine	Moderate	15:24	0.9	M	0.45	1	0.048	165	7.24	7.25	5.81	5.77	29.77	29.75	64.1	64.2	5.27	5.28	27.1	27.2	34	33
M2	2/6/2022	Mid-Ebb	Fine	Moderate	15:24	0.9	M	0.45	2			7.26		5.72		29.73		64.3		5.29		27.2		32	
M3	2/6/2022	Mid-Ebb	Cloudy	Calm	15:26	0.6	M	0.3	1	0.321	259	7.58	7.57	2.55	2.55	29.87	29.88	84.5	84.7	6.35	6.36	24.5	24.1	24	23
M3	2/6/2022	Mid-Ebb	Cloudy	Calm	15:26	0.6	M	0.3	2			7.56		2.54		29.88		84.8		6.37		23.6		21	

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
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

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

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.
M1	4/6/2022	Mid-Flood	Fine	Moderate	9:03	1.2	M	0.6	1	0.066	123	7.70	7.71	2.53	2.54	29.46	29.48	77.1	76.8	5.82	5.78	30.4	30.5	41	41
M1	4/6/2022	Mid-Flood	Fine	Moderate	9:03	1.2	M	0.6	2			7.72		7.71		2.54		29.49		76.4		5.73		30.5	
M2	4/6/2022	Mid-Flood	Fine	Moderate	9:21	1	M	0.5	1	0.098	75	7.81	7.82	2.64	2.65	28.72	28.73	70.4	70.4	5.60	5.61	31.2	31.2	35	34
M2	4/6/2022	Mid-Flood	Fine	Moderate	9:21	1	M	0.5	2			7.83		7.82		2.66		28.73		70.3		5.62		31.1	
M3	4/6/2022	Mid-Flood	Cloudy	Smooth	9:05	0.8	M	0.4	1	0.306	84	7.21	7.22	3.36	3.37	28.31	28.32	51.4	51.3	3.93	3.92	25.5	25.3	41	40
M3	4/6/2022	Mid-Flood	Cloudy	Smooth	9:05	0.8	M	0.4	2			7.22		7.22		3.38		28.32		51.1		3.91		25.0	
M1	4/6/2022	Mid-Ebb	Fine	Moderate	17:00	1	M	0.5	1	0.046	55	7.08	7.08	3.26	3.25	28.19	28.21	60.9	60.9	5.01	5.01	26.9	26.9	40	39
M1	4/6/2022	Mid-Ebb	Fine	Moderate	17:00	1	M	0.5	2			7.07		7.08		3.24		28.23		60.8		5.00		26.9	
M2	4/6/2022	Mid-Ebb	Fine	Moderate	16:41	0.7	M	0.35	1	0.052	72	7.09	7.08	3.11	3.15	27.73	27.72	64.3	64.4	5.32	5.34	27.7	27.7	36	38
M2	4/6/2022	Mid-Ebb	Fine	Moderate	16:41	0.7	M	0.35	2			7.06		7.08		3.18		27.71		64.5		5.35		27.6	
M3	4/6/2022	Mid-Ebb	Cloudy	Smooth	16:43	0.6	M	0.3	1	0.343	270	7.43	7.43	2.44	2.44	29.92	29.93	71.7	72.0	5.45	5.47	33.6	33.2	31	30
M3	4/6/2022	Mid-Ebb	Cloudy	Smooth	16:43	0.6	M	0.3	2			7.42		7.43		2.44		29.93		72.2		5.49		32.9	

Remark

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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
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

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

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.
M1	7/6/2022	Mid-Flood	Cloudy	Smooth	12:07	2.2	M	1.1	1	0.235	131	7.43	7.44	3.57	3.58	29.37	29.38	56.1	56.3	4.41	4.43	29.5	29.7	22	21
M1	7/6/2022	Mid-Flood	Cloudy	Smooth	12:07	2.2	M	1.1	2			7.45		3.59		29.38		56.5		4.44		29.8		20	
M2	7/6/2022	Mid-Flood	Cloudy	Smooth	11:48	1.2	M	0.6	1	0.221	196	7.30	7.31	3.36	3.37	29.09	29.09	53.6	53.3	4.22	4.20	25.9	25.8	19	18
M2	7/6/2022	Mid-Flood	Cloudy	Smooth	11:48	1.2	M	0.6	2			7.31		3.37		29.09		53.0		4.17		25.7		17	
M3	7/6/2022	Mid-Flood	Fine	Moderate	12:10	1.2	M	0.6	1	0.092	72	7.33	7.34	0.36	0.36	27.94	27.95	64.2	64.5	5.07	5.07	43.4	43.5	22	21
M3	7/6/2022	Mid-Flood	Fine	Moderate	12:10	1.2	M	0.6	2			7.34		0.36		27.96		64.8		5.06		43.6		20	
M1	7/6/2022	Mid-Ebb	Cloudy	Smooth	7:15	2	M	1	1	0.21	280	7.12	7.13	1.25	1.26	26.05	26.06	43.5	43.2	3.44	3.42	28.6	28.4	19	21
M1	7/6/2022	Mid-Ebb	Cloudy	Smooth	7:15	2	M	1	2			7.13		1.26		26.06		42.9		3.39		28.2		22	
M2	7/6/2022	Mid-Ebb	Cloudy	Smooth	7:33	1.2	M	0.6	1	0.197	252	7.23	7.22	1.62	1.63	26.31	26.32	48.8	48.5	3.85	3.82	30.5	31.1	20	20
M2	7/6/2022	Mid-Ebb	Cloudy	Smooth	7:33	1.2	M	0.6	2			7.21		1.64		26.33		48.2		3.79		31.7		19	
M3	7/6/2022	Mid-Ebb	Fine	Moderate	7:10	0.9	M	0.45	1	0.062	126	7.05	7.06	0.40	0.40	27.79	27.79	41.7	41.7	4.26	4.19	48.3	48.2	34	35
M3	7/6/2022	Mid-Ebb	Fine	Moderate	7:10	0.9	M	0.45	2			7.06		0.39		27.78		41.6		4.11		48.1		35	

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. 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
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	51.5	59	68

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

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.
M1	9/6/2022	Mid-Flood	Fine	Moderate	15:16	1.3	M	0.65	1	0.045	324	7.49	7.49	3.62	3.63	27.83	27.84	81.2	81.3	6.44	6.46	25.3	25.3	24	25
M1	9/6/2022	Mid-Flood	Fine	Moderate	15:16	1.3	M	0.65	2			7.48		3.63		27.84		81.4		6.48		25.4		25	
M2	9/6/2022	Mid-Flood	Fine	Moderate	14:59	1.1	M	0.55	1	0.105	77	7.32	7.34	3.45	3.47	27.30	27.27	80.5	80.7	6.32	6.35	24.2	24.2	27	27
M2	9/6/2022	Mid-Flood	Fine	Moderate	14:59	1.1	M	0.55	2			7.36		3.48		27.24		80.9		6.37		24.2		27	
M3	9/6/2022	Mid-Flood	Cloudy	Calm	15:02	0.4	M	0.2	1	0.199	93	7.37	7.38	2.53	2.54	27.82	27.82	54.6	55.0	4.30	4.34	34.5	34.8	31	30
M3	9/6/2022	Mid-Flood	Cloudy	Calm	15:02	0.4	M	0.2	2			7.38		2.55		27.82		55.3		4.37		35.1		29	
M1	9/6/2022	Mid-Ebb	Fine	Moderate	9:52	0.9	M	0.45	1	0.065	313	7.29	7.29	2.96	2.95	25.77	25.76	64.7	64.8	5.27	5.28	29.2	29.2	30	30
M1	9/6/2022	Mid-Ebb	Fine	Moderate	9:52	0.9	M	0.45	2			7.28		2.94		25.74		64.8		5.29		29.2		29	
M2	9/6/2022	Mid-Ebb	Fine	Moderate	10:10	0.8	M	0.4	1	0.055	72	7.34	7.36	2.73	2.74	24.81	24.82	61.2	61.3	4.82	4.83	27.3	27.3	31	32
M2	9/6/2022	Mid-Ebb	Fine	Moderate	10:10	0.8	M	0.4	2			7.38		2.75		24.83		61.3		4.83		27.3		33	
M3	9/6/2022	Mid-Ebb	Cloudy	Calm	9:42	0.4	M	0.2	1	0.185	267	7.20	7.20	1.37	1.37	27.06	27.07	51.0	50.6	4.03	4.00	31.0	30.6	20	20
M3	9/6/2022	Mid-Ebb	Cloudy	Calm	9:42	0.4	M	0.2	2			7.19		1.36		27.07		50.1		3.96		30.2		19	

Remark

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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
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

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

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.
M1	11/6/2022	Mid-Flood	Fine	Moderate	17:50	0.9	M	0.45	1	0.106	106	7.11	7.12	4.31	4.32	26.45	26.47	59.7	59.7	3.89	3.88	26.5	26.4	15	16
M1	11/6/2022	Mid-Flood	Fine	Moderate	17:50	0.9	M	0.45	2			7.12		4.32		26.49		59.6		3.87		26.4		16	
M2	11/6/2022	Mid-Flood	Fine	Moderate	17:35	0.8	M	0.4	1	0.093	99	7.04	7.05	3.18	3.16	27.16	27.14	62.3	62.2	4.09	4.08	25.2	25.2	13	13
M2	11/6/2022	Mid-Flood	Fine	Moderate	17:35	0.8	M	0.4	2			7.05		3.14		27.12		62.1		4.07		25.2		12	
M3	11/6/2022	Mid-Flood	Cloudy	Calm	17:36	0.4	M	0.2	1	0.242	79	7.37	7.37	2.27	2.28	25.17	25.17	54.7	55.2	4.29	4.33	24.2	24.4	11	13
M3	11/6/2022	Mid-Flood	Cloudy	Calm	17:36	0.4	M	0.2	2			7.36		2.28		25.16		55.6		4.37		24.6		14	
M1	11/6/2022	Mid-Ebb	Fine	Moderate	11:15	1.1	M	0.55	1	0.066	175	7.07	7.08	2.11	2.12	27.56	27.50	49.1	48.9	3.47	3.40	26.6	26.6	44	44
M1	11/6/2022	Mid-Ebb	Fine	Moderate	11:15	1.1	M	0.55	2			7.09		2.13		27.44		48.6		3.32		26.6		43	
M2	11/6/2022	Mid-Ebb	Fine	Moderate	11:32	0.9	M	0.45	1	0.047	76	7.21	7.22	2.41	2.44	28.14	28.17	51.2	51.9	3.63	3.67	29.8	29.9	21	21
M2	11/6/2022	Mid-Ebb	Fine	Moderate	11:32	0.9	M	0.45	2			7.23		2.46		28.19		52.6		3.70		29.9		20	
M3	11/6/2022	Mid-Ebb	Cloudy	Calm	11:10	0.6	M	0.3	1	0.286	269	7.19	7.19	1.30	1.31	27.59	27.60	47.7	48.1	3.77	3.80	20.5	20.3	11	12
M3	11/6/2022	Mid-Ebb	Cloudy	Calm	11:10	0.6	M	0.3	2			7.18		1.32		27.60		48.4		3.83		20.2		13	

Remark

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

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

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.
M1	14/6/2022	Mid-Flood	Cloudy	Smooth	6:31	2.4	M	1.2	1	0.299	206	7.49	7.48	2.58	2.58	26.90	26.91	58.0	57.6	4.50	4.46	21.9	22.2	22	21
M1	14/6/2022	Mid-Flood	Cloudy	Smooth	6:31	2.4	M	1.2	2			7.47		2.57		26.91		57.1		4.42		22.5		20	
M2	14/6/2022	Mid-Flood	Cloudy	Smooth	6:49	1.4	M	0.7	1	0.314	236	7.60	7.61	2.05	2.06	27.05	27.06	69.0	68.7	5.34	5.32	26.2	26.4	11	12
M2	14/6/2022	Mid-Flood	Cloudy	Smooth	6:49	1.4	M	0.7	2			7.61		2.06		27.07		68.4		5.29		26.7		13	
M3	14/6/2022	Mid-Flood	Cloudy	Smooth	6:39	1.4	M	0.7	1	0.063	62	7.54	7.55	1.54	1.57	28.15	28.16	66.6	67.9	5.16	5.22	25.7	25.8	16	16
M3	14/6/2022	Mid-Flood	Cloudy	Smooth	6:39	1.4	M	0.7	2			7.56		1.59		28.16		69.1		5.27		25.9		15	
M1	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:50	2	M	1	1	0.391	324	7.33	7.34	2.11	2.12	28.33	28.34	45.5	45.6	3.54	3.55	30.4	30.0	7	7
M1	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:50	2	M	1	2			7.34		2.13		28.34		45.7		3.55		29.6		7	
M2	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:31	1	M	0.5	1	0.407	272	7.37	7.37	2.18	2.19	28.01	28.01	51.0	50.9	3.96	3.95	25.2	25.1	7	8
M2	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:31	1	M	0.5	2			7.36		2.19		28.01		50.8		3.94		24.9		8	
M3	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:30	1.2	M	0.6	1	0.106	91	7.31	7.33	1.29	1.28	28.09	28.08	44.5	44.7	3.45	3.48	27.2	27.3	12	14
M3	14/6/2022	Mid-Ebb	Cloudy	Smooth	13:30	1.2	M	0.6	2			7.34		1.27		28.07		44.8		3.51		27.3		15	

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
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

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

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.
M1	16/6/2022	Mid-Flood	Cloudy	Smooth	7:48	2.4	M	1.2	1	0.371	176	7.72	7.72	2.66	2.67	26.02	26.03	79.6	79.0	6.15	6.11	30.9	30.6	29	30
M1	16/6/2022	Mid-Flood	Cloudy	Smooth	7:48	2.4	M	1.2	2			7.71		2.67		26.04		78.4		6.06		30.4		30.6	
M2	16/6/2022	Mid-Flood	Cloudy	Smooth	8:06	1.4	M	0.7	1	0.382	215	7.79	7.79	2.49	2.49	26.33	26.34	81.3	81.1	6.26	6.25	28.4	28.5	15	14
M2	16/6/2022	Mid-Flood	Cloudy	Smooth	8:06	1.4	M	0.7	2			7.78		2.48		26.34		80.9		6.23		28.7		28.5	
M3	16/6/2022	Mid-Flood	Fine	Moderate	7:51	1.2	M	0.6	1	0.065	215	7.62	7.62	1.89	1.89	28.02	28.02	71.1	71.0	5.50	5.48	36.3	36.2	45	46
M3	16/6/2022	Mid-Flood	Fine	Moderate	7:51	1.2	M	0.6	2			7.61		1.88		28.02		70.9		5.46		36.1		36.2	
M1	16/6/2022	Mid-Ebb	Cloudy	Smooth	15:28	2.2	M	1.1	1	0.41	227	7.46	7.45	3.06	3.06	29.41	29.42	83.2	83.5	6.44	6.47	32.7	32.4	42	41
M1	16/6/2022	Mid-Ebb	Cloudy	Smooth	15:28	2.2	M	1.1	2			7.44		3.05		29.42		83.8		6.49		32.0		32.0	
M2	16/6/2022	Mid-Ebb	Cloudy	Smooth	15:08	1.2	M	0.6	1	0.427	340	7.32	7.33	3.52	3.51	29.10	29.10	81.9	82.2	6.31	6.34	27.8	27.4	21	21
M2	16/6/2022	Mid-Ebb	Cloudy	Smooth	15:08	1.2	M	0.6	2			7.33		3.50		29.09		82.5		6.36		27.0		27.0	
M3	16/6/2022	Mid-Ebb	Fine	Moderate	15:21	0.9	M	0.45	1	0.093	206	7.66	7.64	2.41	2.42	28.24	28.25	73.6	73.5	5.70	5.67	33.3	33.2	37	38
M3	16/6/2022	Mid-Ebb	Fine	Moderate	15:21	0.9	M	0.45	2			7.61		2.42		28.26		73.4		5.64		33.1		33.1	

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. 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
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

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

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.
M1	18/6/2022	Mid-Flood	Fine	Moderate	9:29	1.2	M	0.6	1	0.066	196	7.98	7.96	0.91	0.92	28.33	28.33	93.1	93.3	7.23	7.25	31.0	30.9	33	35
M1	18/6/2022	Mid-Flood	Fine	Moderate	9:29	1.2	M	0.6	2			7.94		0.93		28.33		93.4		7.26		30.9		36	
M2	18/6/2022	Mid-Flood	Fine	Moderate	9:47	1	M	0.5	1	0.092	183	7.87	7.88	1.04	1.05	28.01	28.02	92.1	92.3	7.16	7.15	31.0	31.0	29	30
M2	18/6/2022	Mid-Flood	Fine	Moderate	9:47	1	M	0.5	2			7.89		1.05		28.02		92.4		7.14		31.0		30	
M3	18/6/2022	Mid-Flood	Cloudy	Smooth	9:21	1.2	M	0.6	1	0.263	82	7.17	7.18	2.72	2.72	28.22	28.23	51.2	50.8	3.95	3.92	39.2	39.4	47	47
M3	18/6/2022	Mid-Flood	Cloudy	Smooth	9:21	1.2	M	0.6	2			7.18		2.72		28.23		50.3		3.88		39.5		46	
M1	18/6/2022	Mid-Ebb	Fine	Moderate	17:09	1	M	0.5	1	0.067	296	7.84	7.83	1.08	1.09	28.74	28.73	94.2	94.4	7.21	7.22	24.4	24.4	33	34
M1	18/6/2022	Mid-Ebb	Fine	Moderate	17:09	1	M	0.5	2			7.82		1.09		28.71		94.6		7.23		24.4		35	
M2	18/6/2022	Mid-Ebb	Fine	Moderate	16:51	0.8	M	0.4	1	0.043	265	7.96	7.95	1.03	1.04	28.92	28.93	95.5	95.5	7.36	7.37	24.2	24.2	32	31
M2	18/6/2022	Mid-Ebb	Fine	Moderate	16:51	0.8	M	0.4	2			7.94		1.04		28.93		95.4		7.38		24.2		30	
M3	18/6/2022	Mid-Ebb	Cloudy	Smooth	16:46	0.8	M	0.4	1	0.321	247	7.33	7.33	1.56	1.57	28.97	28.97	54.4	54.8	4.20	4.23	42.8	42.5	40	39
M3	18/6/2022	Mid-Ebb	Cloudy	Smooth	16:46	0.8	M	0.4	2			7.32		1.58		28.96		55.1		4.26		42.3		38	

Remark

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

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

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.
M1	21/6/2022	Mid-Flood	Fine	Moderate	13:11	0.9	M	0.45	1	0.054	91	7.39	7.39	2.44	2.45	28.44	28.43	50.2	50.3	3.86	3.87	26.0	26.0	22	21
M1	21/6/2022	Mid-Flood	Fine	Moderate	13:11	0.9	M	0.45	2			7.38		2.46		28.41		50.4		3.87		26.0		20	
M2	21/6/2022	Mid-Flood	Fine	Moderate	12:47	0.8	M	0.4	1	0.093	77	7.32	7.33	2.14	2.15	28.41	28.35	34.6	34.4	2.97	2.94	30.6	30.7	9	9
M2	21/6/2022	Mid-Flood	Fine	Moderate	12:47	0.8	M	0.4	2			7.33		2.16		28.29		34.1		2.91		30.7		8	
M3	21/6/2022	Mid-Flood	Cloudy	Calm	12:49	0.6	M	0.3	1	0.225	74	7.14	7.15	2.17	2.18	29.69	29.69	51.7	52.3	3.99	4.03	37.0	36.6	12	12
M3	21/6/2022	Mid-Flood	Cloudy	Calm	12:49	0.6	M	0.3	2			7.16		2.18		29.69		52.8		4.07		36.6		12	
M1	21/6/2022	Mid-Ebb	Fine	Moderate	8:09	1.2	M	0.6	1	0.064	203	7.35	7.36	1.54	1.54	28.59	28.59	36.1	36.4	2.84	2.85	25.4	25.5	10	11
M1	21/6/2022	Mid-Ebb	Fine	Moderate	8:09	1.2	M	0.6	2			7.36		1.53		28.58		36.7		2.86		25.5		11	
M2	21/6/2022	Mid-Ebb	Fine	Moderate	8:27	1	M	0.5	1	0.049	189	7.12	7.13	1.81	1.82	28.17	28.16	41.2	41.3	3.41	3.43	31.1	31.2	11	12
M2	21/6/2022	Mid-Ebb	Fine	Moderate	8:27	1	M	0.5	2			7.14		1.83		28.14		41.4		3.44		31.2		12	
M3	21/6/2022	Mid-Ebb	Cloudy	Calm	8:02	0.4	M	0.2	1	0.201	255	6.75	6.76	1.46	1.46	27.55	27.56	44.5	45.0	3.44	3.48	27.2	27.0	13	13
M3	21/6/2022	Mid-Ebb	Cloudy	Calm	8:02	0.4	M	0.2	2			6.76		1.46		27.56		45.4		3.51		26.8		13	

Remark

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

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

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.
M1	23/6/2022	Mid-Flood	Fine	Calm	16:08	2	M	1	1	0.235	162	7.34	7.35	1.83	1.84	31.98	31.98	56.6	56.4	4.34	4.32	28.9	28.6	33	33
M1	23/6/2022	Mid-Flood	Fine	Calm	16:08	2	M	1	2			7.35		1.84		31.97		56.1		4.29		28.3		32	
M2	23/6/2022	Mid-Flood	Fine	Calm	15:48	1	M	0.5	1	0.223	185	7.48	7.49	2.01	2.02	31.69	31.70	49.4	49.6	3.78	3.80	25.0	24.5	30	30
M2	23/6/2022	Mid-Flood	Fine	Calm	15:48	1	M	0.5	2			7.49		2.02		31.70		49.8		3.81		24.1		29	
M3	23/6/2022	Mid-Flood	Fine	Moderate	15:52	1.4	M	0.7	1	0.049	97	7.45	7.47	2.47	2.44	29.18	29.16	53.8	53.6	4.14	4.13	37.1	37.1	40	41
M3	23/6/2022	Mid-Flood	Fine	Moderate	15:52	1.4	M	0.7	2			7.48		2.41		29.14		53.4		4.11		37.1		41	
M1	23/6/2022	Mid-Ebb	Fine	Calm	10:13	2.2	M	1.1	1	0.243	270	7.61	7.61	1.41	1.42	29.47	29.48	63.0	63.2	4.86	4.88	32.5	33.1	27	28
M1	23/6/2022	Mid-Ebb	Fine	Calm	10:13	2.2	M	1.1	2			7.60		1.42		29.48		63.3		4.89		28			
M2	23/6/2022	Mid-Ebb	Fine	Calm	10:32	1.2	M	0.6	1	0.257	294	7.72	7.73	1.60	1.61	29.95	29.96	59.8	59.5	4.60	4.57	26.4	26.3	26	28
M2	23/6/2022	Mid-Ebb	Fine	Calm	10:32	1.2	M	0.6	2			7.74		1.61		29.96		59.1		4.53		26.3		29	
M3	23/6/2022	Mid-Ebb	Fine	Moderate	10:21	1.1	M	0.55	1	0.032	175	7.57	7.57	2.34	2.34	29.62	29.63	66.9	66.9	5.08	5.07	39.5	39.5	39	38
M3	23/6/2022	Mid-Ebb	Fine	Moderate	10:21	1.1	M	0.55	2			7.56		2.33		29.63		66.8		5.06		39.4		36	

Remark

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

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

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.
M1	25/6/2022	Mid-Flood	Fine	Calm	18:26	2	M	1	1	0.276	186	7.57	7.57	2.42	2.42	32.66	32.67	64.7	64.4	4.84	4.81	32.1	31.7	30	33
M1	25/6/2022	Mid-Flood	Fine	Calm	18:26	2	M	1	2			7.56		2.41		32.67		64.0		4.78		31.2		35	
M2	25/6/2022	Mid-Flood	Fine	Calm	18:09	1.2	M	0.6	1	0.247	203	7.51	7.52	2.09	2.09	32.39	32.40	67.2	67.0	4.96	4.95	27.2	27.0	24	25
M2	25/6/2022	Mid-Flood	Fine	Calm	18:09	1.2	M	0.6	2			7.52		2.09		32.40		66.8		4.93		26.7		25	
M3	25/6/2022	Mid-Flood	Fine	Calm	18:10	0.4	M	0.2	1	0.227	84	7.45	7.45	2.18	2.19	32.10	32.10	60.8	61.2	4.50	4.53	40.6	40.9	33	31
M3	25/6/2022	Mid-Flood	Fine	Calm	18:10	0.4	M	0.2	2			7.44		2.19		32.09		61.5		4.56		41.2		28	
M1	25/6/2022	Mid-Ebb	Fine	Calm	11:37	2.2	M	1.1	1	0.288	285	7.35	7.35	1.33	1.34	31.22	31.23	55.7	55.5	4.15	4.14	33.9	33.4	43	41
M1	25/6/2022	Mid-Ebb	Fine	Calm	11:37	2.2	M	1.1	2			7.34		1.34		31.23		55.2		4.12		33.0		38	
M2	25/6/2022	Mid-Ebb	Fine	Calm	11:55	1.2	M	0.6	1	0.314	268	7.26	7.26	1.63	1.63	31.91	31.92	59.3	59.5	4.39	4.41	28.7	29.1	33	32
M2	25/6/2022	Mid-Ebb	Fine	Calm	11:55	1.2	M	0.6	2			7.25		1.62		31.93		59.7		4.43		29.6		30	
M3	25/6/2022	Mid-Ebb	Fine	Calm	11:27	0.6	M	0.3	1	0.269	241	7.30	7.30	1.47	1.47	30.69	30.70	58.0	57.7	4.29	4.27	36.9	37.2	33	32
M3	25/6/2022	Mid-Ebb	Fine	Calm	11:27	0.6	M	0.3	2			7.29		1.47		30.71		57.4		4.24		37.5		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
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

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

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.
M1	28/6/2022	Mid-Flood	Fine	Moderate	6:14	1.4	M	0.7	1	0.066	175	8.70	8.65	1.61	1.61	31.46	31.46	72.3	72.4	5.29	5.30	33.3	33.3	30	30
M1	28/6/2022	Mid-Flood	Fine	Moderate	6:14	1.4	M	0.7	2			8.60		8.60		1.61		31.47		72.4		5.31		33.3	
M2	28/6/2022	Mid-Flood	Fine	Moderate	6:32	1.1	M	0.55	1	0.092	86	8.81	8.82	1.64	1.66	31.19	31.17	70.4	70.5	5.14	5.16	35.1	35.2	16	16
M2	28/6/2022	Mid-Flood	Fine	Moderate	6:32	1.1	M	0.55	2			8.82		8.82		1.67		31.14		70.6		5.18		35.2	
M3	28/6/2022	Mid-Flood	Fine	Calm	5:59	0.8	M	0.4	1	0.285	92	7.39	7.40	1.80	1.81	27.09	27.10	83.9	83.5	6.24	6.21	41.1	40.7	20	19
M3	28/6/2022	Mid-Flood	Fine	Calm	5:59	0.8	M	0.4	2			7.40		7.40		1.81		27.10		83.1		6.17		40.3	
M1	28/6/2022	Mid-Ebb	Fine	Moderate	13:38	1	M	0.5	1	0.058	76	8.76	8.75	2.09	2.08	31.27	31.27	82.4	82.3	5.84	5.83	32.2	32.2	34	34
M1	28/6/2022	Mid-Ebb	Fine	Moderate	13:38	1	M	0.5	2			8.74		8.74		2.07		31.27		82.1		5.81		32.2	
M2	28/6/2022	Mid-Ebb	Fine	Moderate	13:19	0.9	M	0.45	1	0.047	105	8.34	8.36	2.08	2.09	30.88	30.84	86.2	86.5	6.19	6.22	32.7	32.8	12	13
M2	28/6/2022	Mid-Ebb	Fine	Moderate	13:19	0.9	M	0.45	2			8.37		8.37		2.09		30.79		86.8		6.24		32.8	
M3	28/6/2022	Mid-Ebb	Fine	Calm	13:19	0.6	M	0.3	1	0.311	275	7.63	7.63	1.55	1.55	32.88	32.88	86.9	87.2	6.43	6.46	30.2	29.8	24	25
M3	28/6/2022	Mid-Ebb	Fine	Calm	13:19	0.6	M	0.3	2			7.62		7.62		1.54		32.88		87.5		6.48		29.5	

Remark

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For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

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

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.
M1	30/6/2022	Mid-Flood	Fine	Moderate	7:21	1.1	M	0.55	1	0.063	143	7.57	7.58	2.32	2.33	30.04	30.05	48.1	48.2	3.59	3.61	30.4	30.5	28	29
M1	30/6/2022	Mid-Flood	Fine	Moderate	7:21	1.1	M	0.55	2			7.58		2.34		30.05		48.3		3.62		30.5		30.5	
M2	30/6/2022	Mid-Flood	Fine	Moderate	7:00	0.9	M	0.45	1	0.102	75	7.56	7.55	2.58	2.59	30.09	30.11	44.8	45.1	3.40	3.42	31.2	31.2	30	31
M2	30/6/2022	Mid-Flood	Fine	Moderate	7:00	0.9	M	0.45	2			7.54		2.59		30.13		45.3		3.44		31.2		31.2	
M3	30/6/2022	Mid-Flood	Cloudy	Smooth	7:06	1	M	0.5	1	0.278	84	7.45	7.46	1.79	1.78	26.17	26.18	59.1	58.7	4.45	4.42	36.9	36.6	34	36
M3	30/6/2022	Mid-Flood	Cloudy	Smooth	7:06	1	M	0.5	2			7.46		1.77		26.18		58.3		4.38		36.2		36.2	
M1	30/6/2022	Mid-Ebb	Fine	Moderate	14:53	0.9	M	0.45	1	0.084	246	7.92	7.93	1.97	1.98	29.14	29.13	77.5	77.5	5.83	5.83	29.6	29.7	29	29
M1	30/6/2022	Mid-Ebb	Fine	Moderate	14:53	0.9	M	0.45	2			7.93		1.98		29.12		77.4		5.82		29.7		29.7	
M2	30/6/2022	Mid-Ebb	Fine	Moderate	14:37	0.7	M	0.35	1	0.093	206	7.89	7.89	1.93	1.94	29.54	29.54	80.4	80.4	6.06	6.06	29.7	29.8	30	30
M2	30/6/2022	Mid-Ebb	Fine	Moderate	14:37	0.7	M	0.35	2			7.88		1.94		29.54		80.3		6.05		29.8		29.8	
M3	30/6/2022	Mid-Ebb	Cloudy	Smooth	14:39	0.6	M	0.3	1	0.319	262	7.57	7.58	1.01	1.02	27.04	27.05	63.4	63.8	4.77	4.80	38.6	38.9	32	32
M3	30/6/2022	Mid-Ebb	Cloudy	Smooth	14:39	0.6	M	0.3	2			7.58		1.02		27.06		64.2		4.83		39.1		39.1	

Remark

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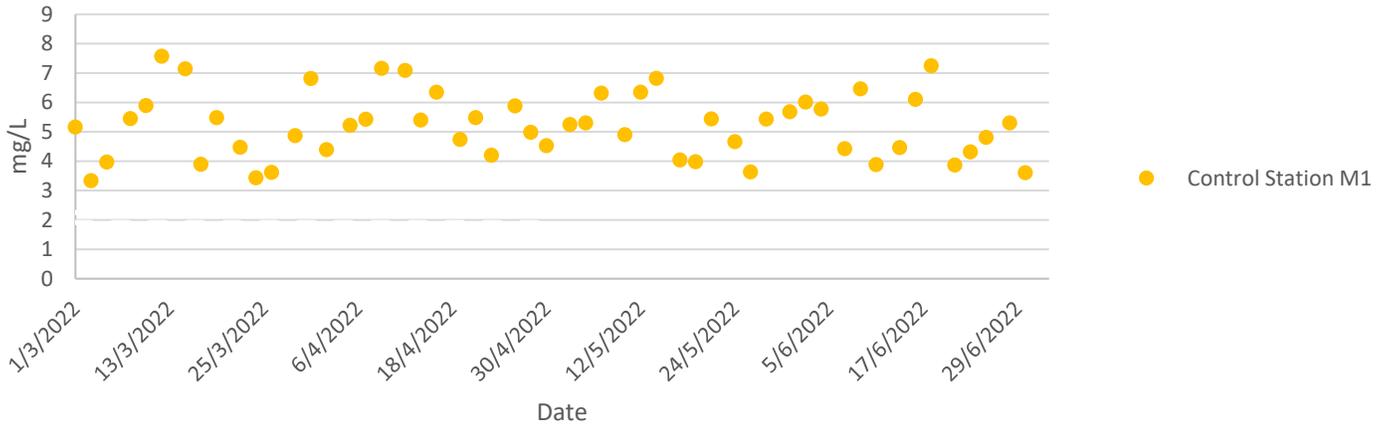
For Flood Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
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

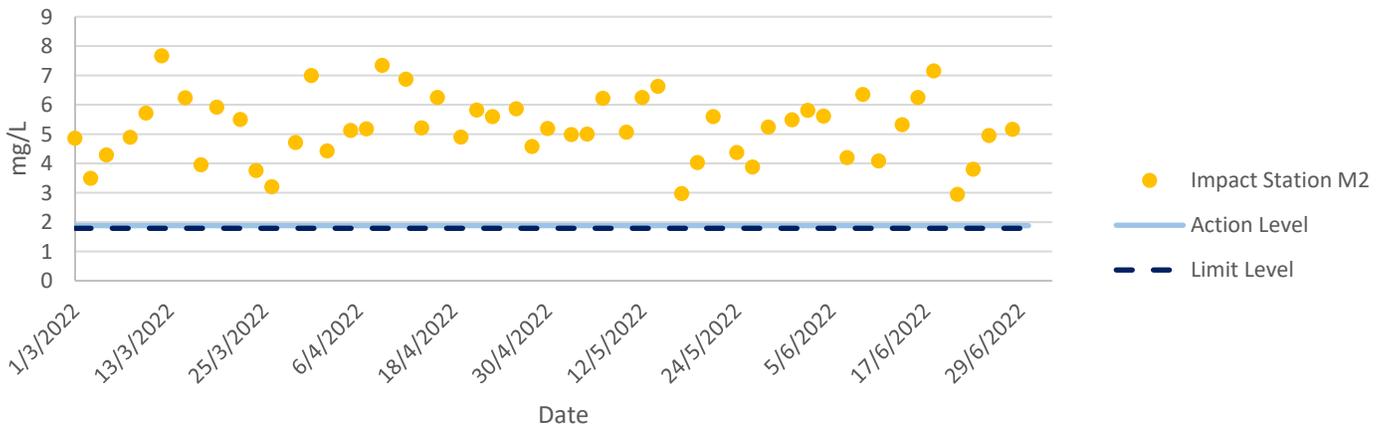
For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.4	59	68

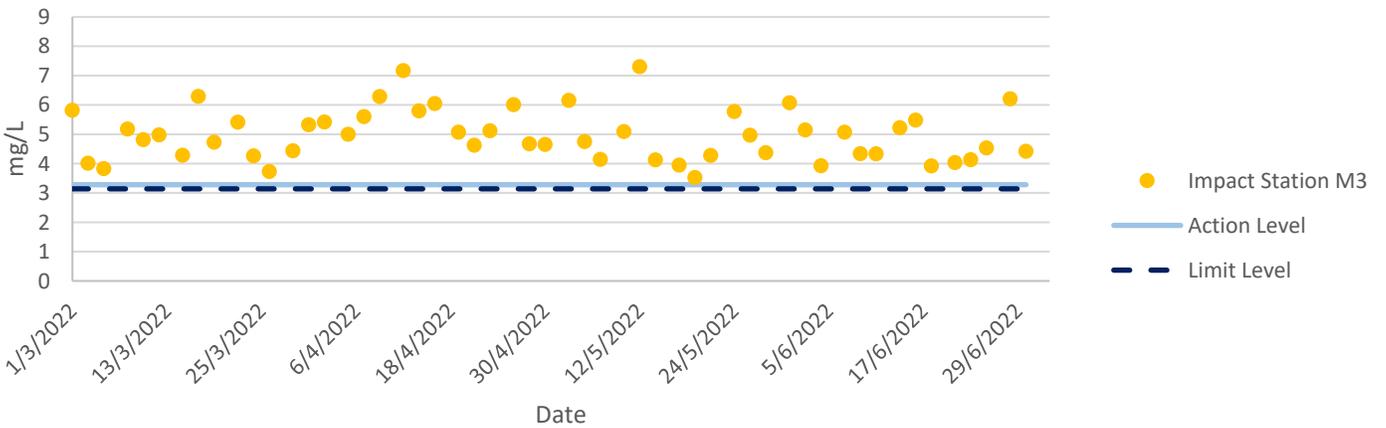
### Dissolved Oxygen at Mid-Flood Tide



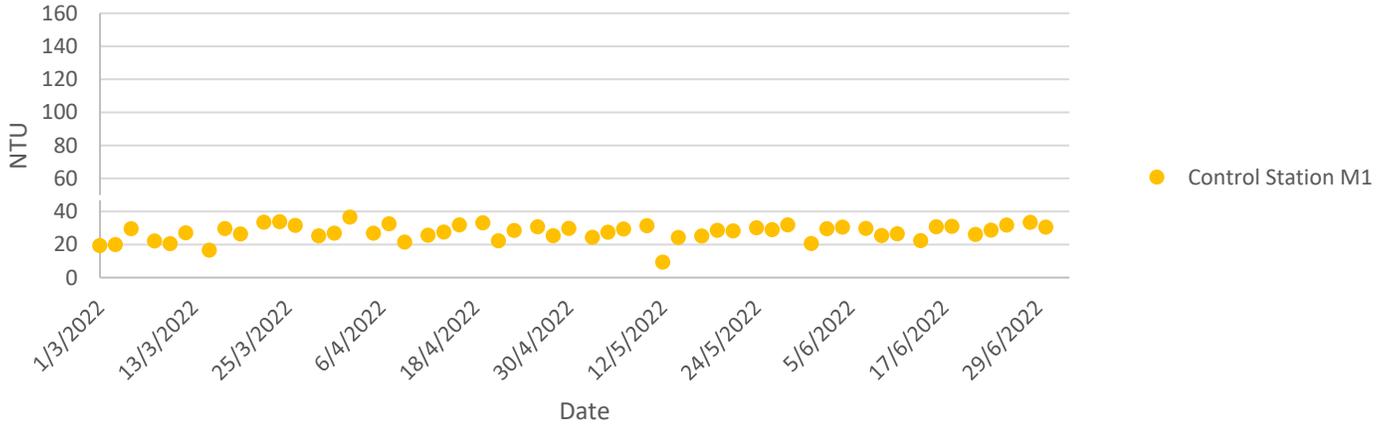
### Dissolved Oxygen at Mid-Flood Tide



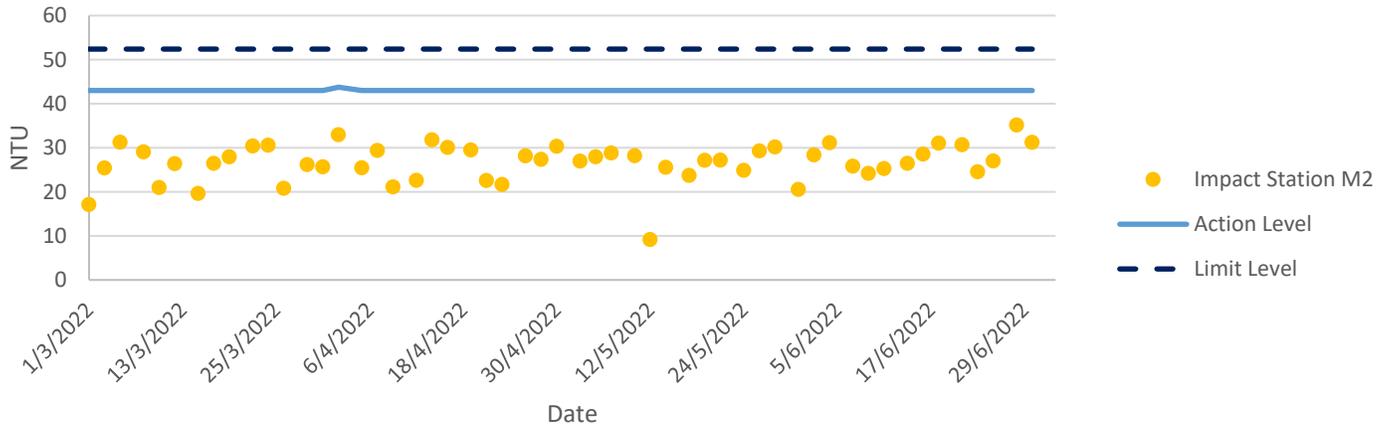
### Dissolved Oxygen at Mid-Flood Tide



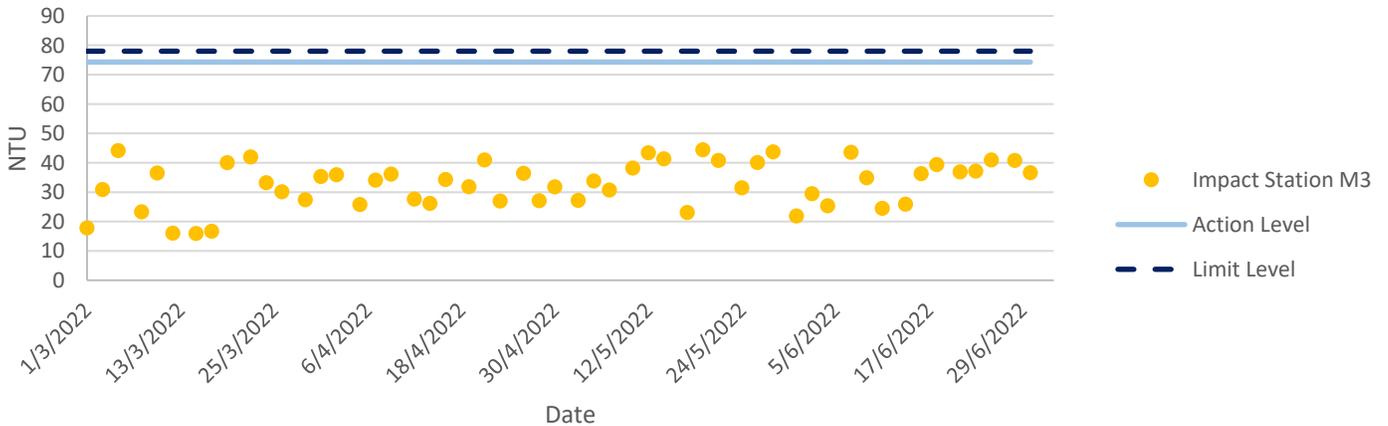
### Turbidity at Mid-Flood Tide



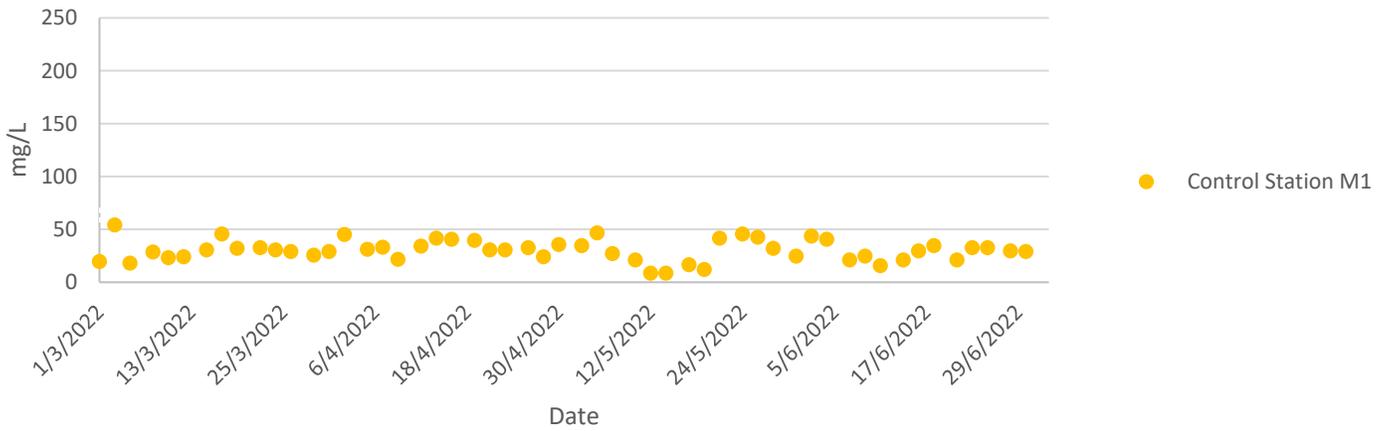
### Turbidity at Mid-Flood Tide



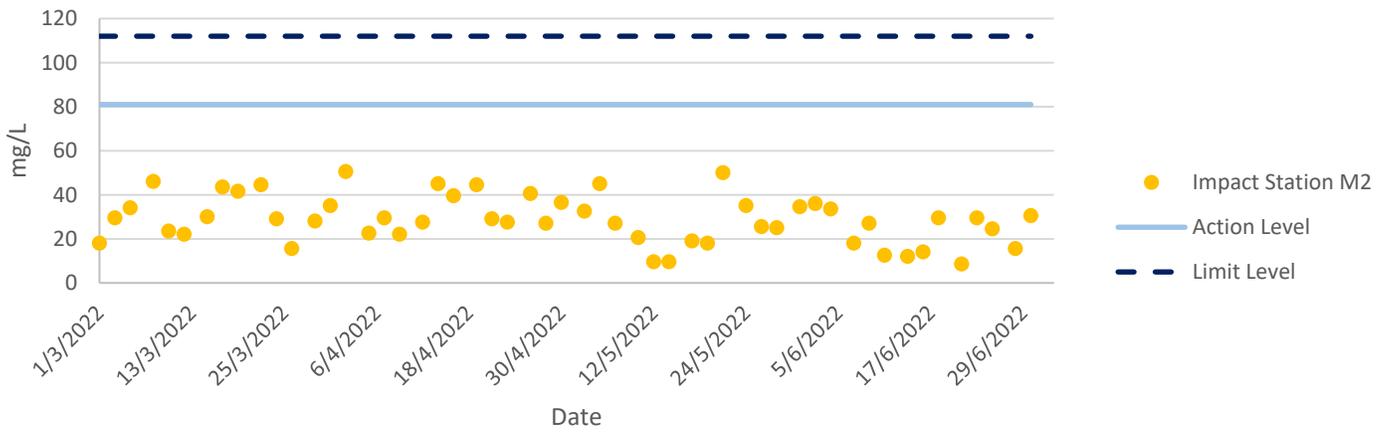
### Turbidity at Mid-Flood Tide



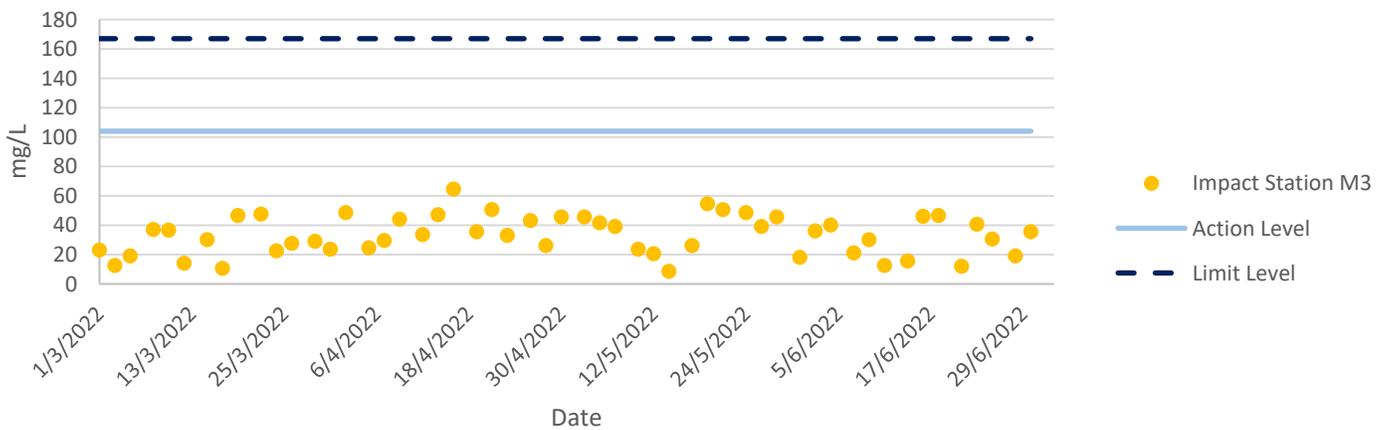
### Total Suspended Solids at Mid-Flood Tide



### Total Suspended Solids at Mid-Flood Tide

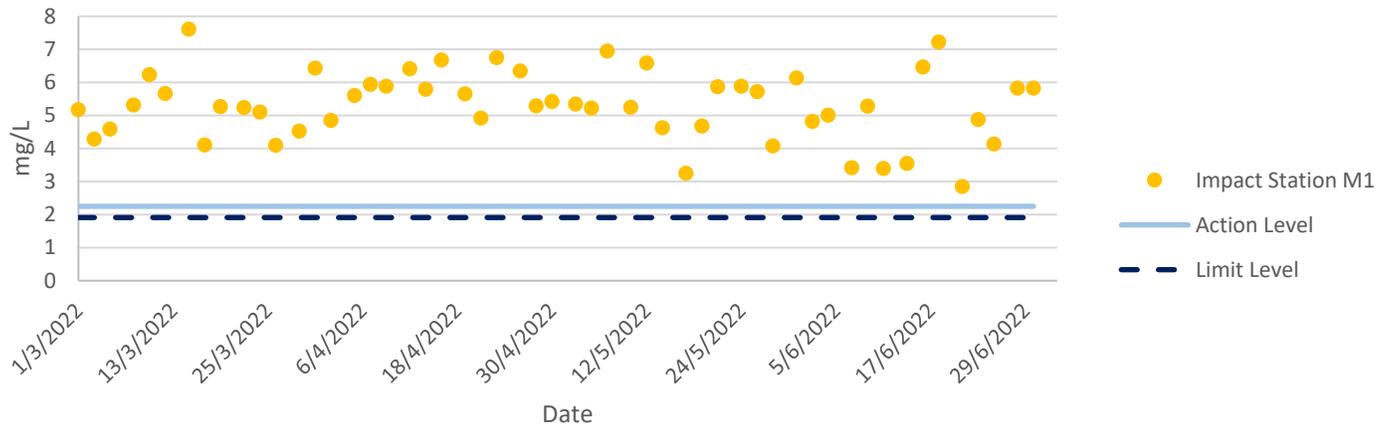


### Total Suspended Solids at Mid-Flood Tide

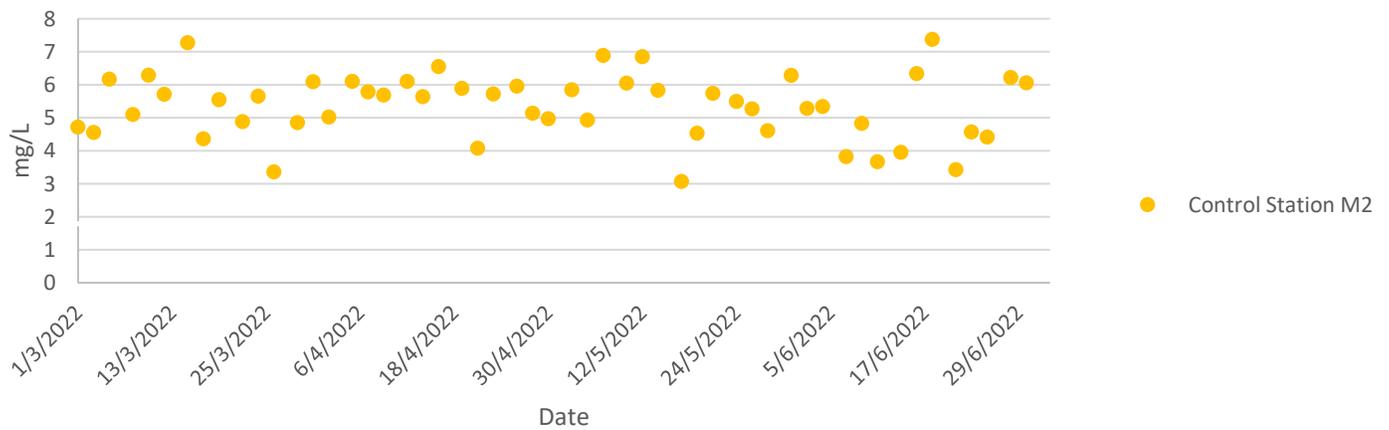


## Water Quality Monitoring Results

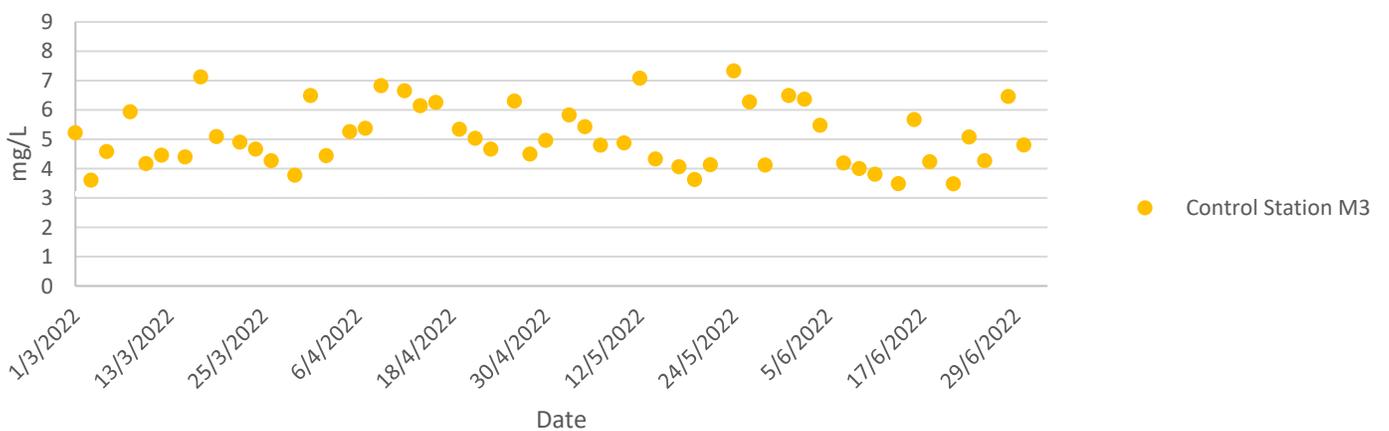
### Dissolved Oxygen at Mid-Ebb Tide



### Dissolved Oxygen at Mid-Ebb Tide

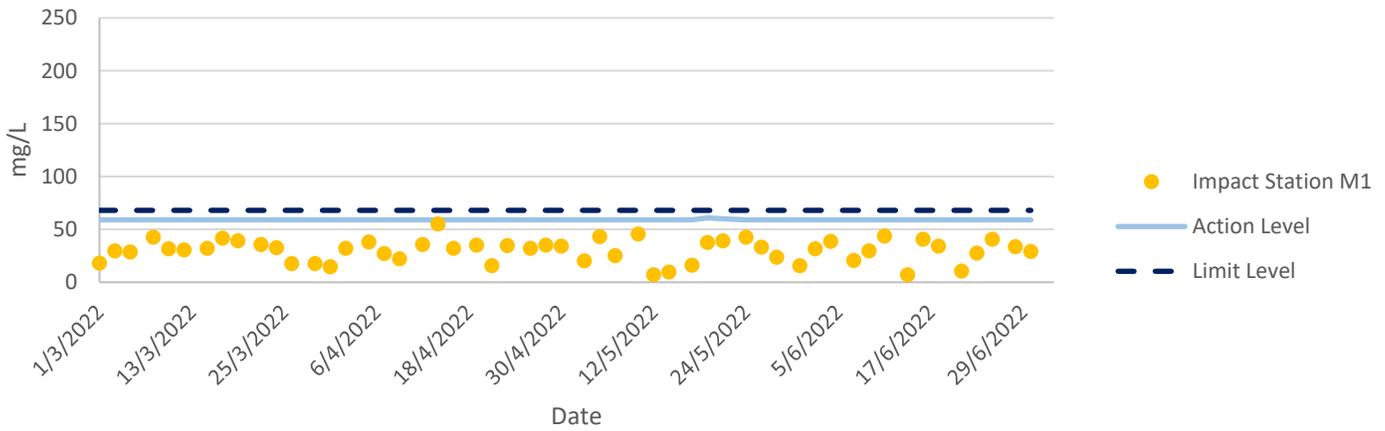


### Dissolved Oxygen at Mid-Ebb Tide

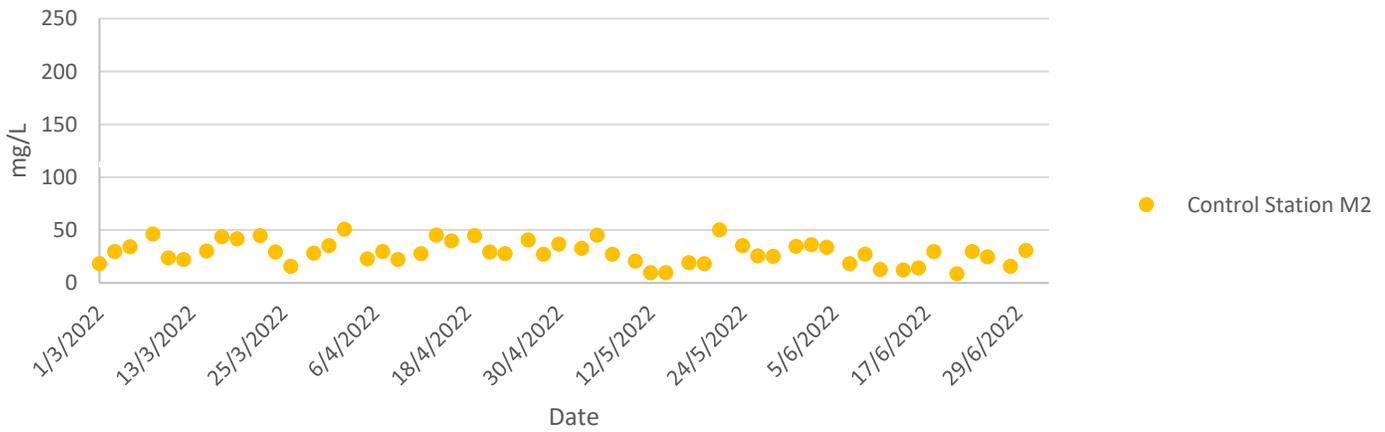




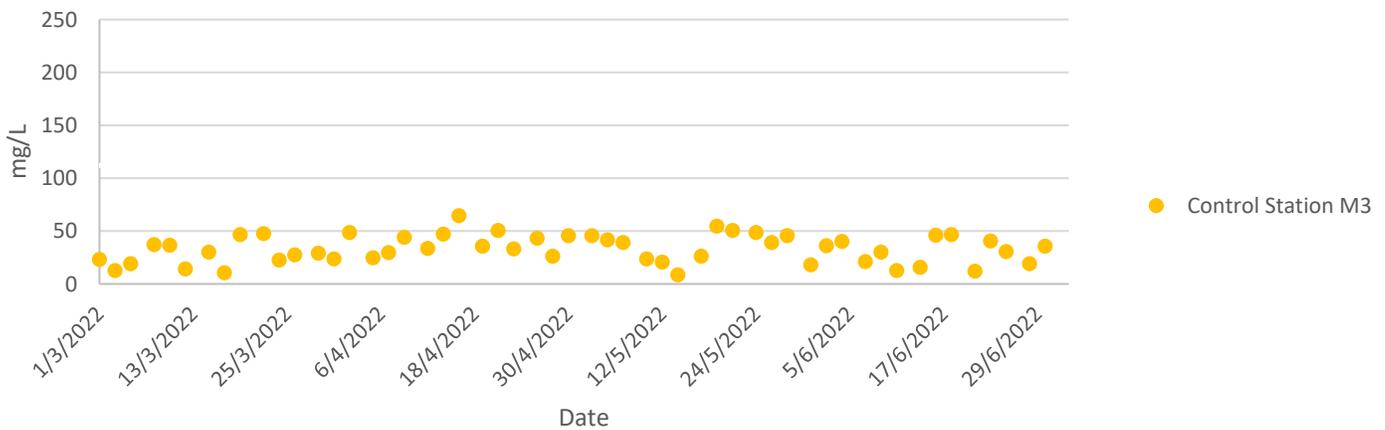
### Total Suspended Solids at Mid-Ebb Tide



### Total Suspended Solids at Mid-Ebb Tide



### Total Suspended Solids at Mid-Ebb Tide



## Water Quality Monitoring Results

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## Ecology Monitoring Results

Ecology Monitoring Results for

Contract No. SPW 07/2020

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

Appendix F.1 Ecological Bird Monitoring Result (13 & 17 June 2022)

Date (dd/mm/yyyy)	Daytime/Night time	Season	Area	Transect/Point Count	Point Count (Location)/Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong <sup>2</sup>	Principal Status <sup>3</sup>	Level of Concern <sup>4</sup>	Protection Status in China <sup>5</sup>	China Red Data Book <sup>6</sup>	Red List of China's Vertebrates <sup>10</sup>	IUCN Red List <sup>7</sup> (v.2020-3)	Species of Conservation Importance	Wetland Dependent
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	4	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	In flight	House Swift	<i>Apus nipalensis</i>	2	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Great Egret	<i>Ardea alba</i>	4	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	11	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	4	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	15	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Pied Kingfisher	<i>Ceryle rudis</i>	1	Uncommon	R	-	-	-	LC	LC	N	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	2	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	3	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	House Swift	<i>Apus nipalensis</i>	1	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Black Drongo	<i>Dicrurus macrocercus</i>	1	Common	SV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y

13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Little Grebe	<i>Tachybaptus ruficollis</i>	1	Common	R	LC	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	7	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Eurasian Tree Sparrow	<i>Passer montanus</i>	9	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	White-shouldered Starling	<i>Sturnia sinensis</i>	2	Common	PM	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Great Egret	<i>Ardea alba</i>	2	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	8	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	6	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	In flight	Crested Myna	<i>Acridotheres cristatellus</i>	4	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	In flight	House Swift	<i>Apus nipalensis</i>	2	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Mangrove	Chinese Pond Heron	<i>Ardeola bacchus</i>	8	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Mangrove	Little Egret	<i>Egretta garzetta</i>	5	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y

13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Eurasian Tree Sparrow	<i>Passer montanus</i>	2	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	In flight	House Swift	<i>Apus nipalensis</i>	1	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Chinese Pond Heron	<i>Ardeola bacchus</i>	4	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	In flight	House Swift	<i>Apus nipalensis</i>	6	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Great Egret	<i>Ardea alba</i>	3	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
17/06/2022	Night-time	Wet Season	NSW	Transect	NSW	Plantation-NSW	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	10	Abundant	R	-	-	-	LC	LC	N	N

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.2.1 Ecological Bird Monitoring Diversity (All avifauna species in Point Count Method) in All Habitats (13 & 17 June 2022)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) <sup>2</sup>
<i>Acridotheres cristatellus</i>	14	0.109375	-2.21297	-0.24204	0.535637
<i>Apus nipalensis</i>	8	0.0625	-2.77259	-0.17329	0.480453
<i>Ardea alba</i>	8	0.0625	-2.77259	-0.17329	0.480453
<i>Ardeola bacchus</i>	38	0.296875	-1.21444	-0.36054	0.437853
<i>Ceryle rudis</i>	1	0.007813	-4.85203	-0.03791	0.183923
<i>Copsychus saularis</i>	1	0.007813	-4.85203	-0.03791	0.183923
<i>Dicrurus macrocercus</i>	1	0.007813	-4.85203	-0.03791	0.183923
<i>Egretta garzetta</i>	3	0.023438	-3.75342	-0.08797	0.330191
<i>Gracupica nigricollis</i>	3	0.023438	-3.75342	-0.08797	0.330191
<i>Motacilla alba</i>	5	0.039063	-3.24259	-0.12666	0.410719
<i>Passer montanus</i>	14	0.109375	-2.21297	-0.24204	0.535637
<i>Prinia flaviventris</i>	5	0.039063	-3.24259	-0.12666	0.410719
<i>Prinia inornata</i>	12	0.09375	-2.36712	-0.22192	0.525307
<i>Pycnonotus sinensis</i>	5	0.039063	-3.24259	-0.12666	0.410719
<i>Spilopelia chinensis</i>	4	0.03125	-3.46574	-0.1083	0.375354
<i>Streptopelia decaocto</i>	3	0.023438	-3.75342	-0.08797	0.330191
<i>Sturnia sinensis</i>	2	0.015625	-4.15888	-0.06498	0.270255
<i>Tachybaptus ruficollis</i>	1	0.007813	-4.85203	-0.03791	0.183923
<b>Total</b>	128	1	-61.5735	-2.38193	6.599372
<b>Richness</b>	18				
<b>SS</b>	6.6				
<b>SQ</b>	5.67				
<b>H</b>	<b>2.38</b>				
<b>S<sup>2</sup><sub>H</sub></b>	0.01				

Appendix F.2.2 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Point Count Method) in All Habitats (13 & 17 June 2022)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) <sup>2</sup>
<i>Ardea alba</i>	8	0.16	-1.83258	-0.29321	0.537337
<i>Ardeola bacchus</i>	38	0.76	-0.27444	-0.20857	0.05724
<i>Egretta garzetta</i>	3	0.06	-2.81341	-0.1688	0.474917
<i>Tachybaptus ruficollis</i>	1	0.02	-3.91202	-0.07824	0.306078
<b>Total</b>	50	1	-8.83245	-0.74883	1.375572
<b>Richness</b>	4				
<b>SS</b>	1.38				
<b>SQ</b>	0.56				
<b>H</b>	<b>0.75</b>				
<b>S<sup>2</sup><sub>H</sub></b>	0.02				

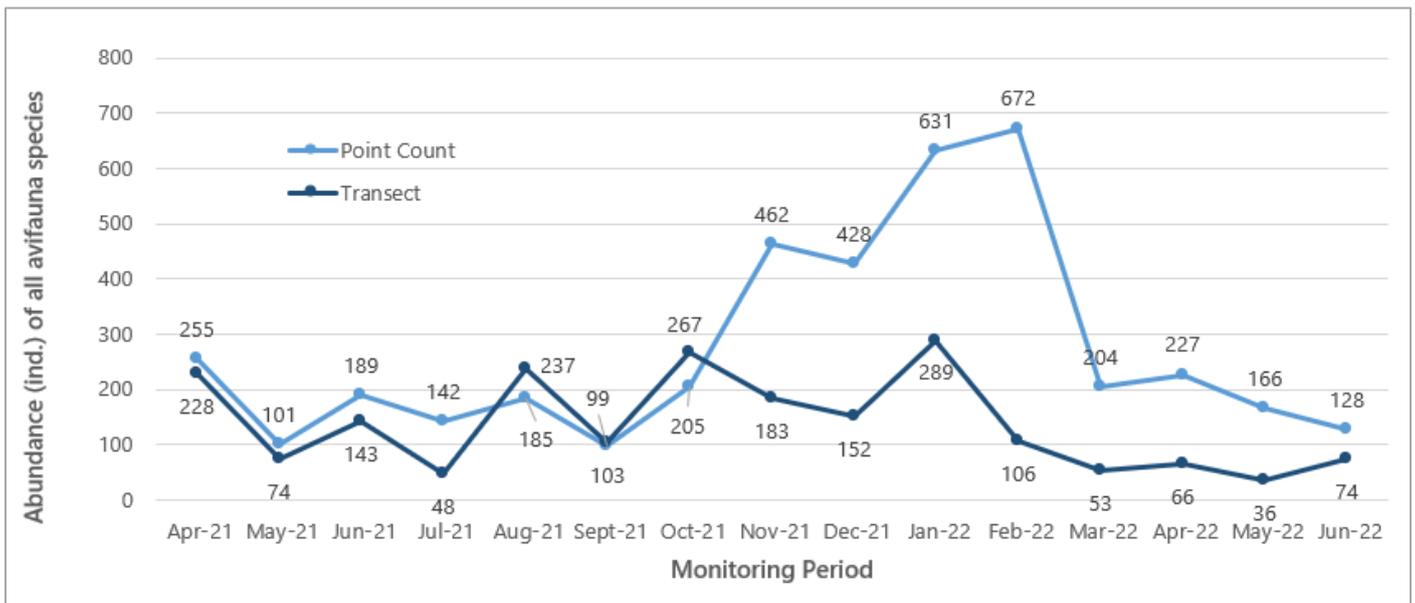
Appendix F.2.3 Ecological Bird Monitoring Diversity (All avifauna species in Transect Walk Method) in All Habitats (13 & 17 June 2022)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) <sup>2</sup>
<i>Acridotheres cristatellus</i>	8	0.108108	-2.22462	-0.2405	0.535022
<i>Apus nipalensis</i>	4	0.054054	-2.91777	-0.15772	0.460183
<i>Ardea alba</i>	4	0.054054	-2.91777	-0.15772	0.460183
<i>Ardeola bacchus</i>	19	0.256757	-1.35963	-0.34909	0.474636
<i>Egretta garzetta</i>	19	0.256757	-1.35963	-0.34909	0.474636
<i>Garrulax perspicillatus</i>	10	0.135135	-2.00148	-0.27047	0.541341
<i>Gracupica nigricollis</i>	1	0.013514	-4.30407	-0.05816	0.250338
<i>Motacilla alba</i>	2	0.027027	-3.61092	-0.09759	0.352398
<i>Prinia inornata</i>	2	0.027027	-3.61092	-0.09759	0.352398
<i>Pycnonotus sinensis</i>	4	0.054054	-2.91777	-0.15772	0.460183
<i>Spilopelia chinensis</i>	1	0.013514	-4.30407	-0.05816	0.250338
<b>Total</b>	74	1	-31.5286	-1.99382	4.611655
<b>Richness</b>	11				
<b>SS</b>	4.611655				
<b>SQ</b>	3.975316				
<b>H</b>	1.993819				
<b>S<sup>2</sup><sub>H</sub></b>	0.009512				

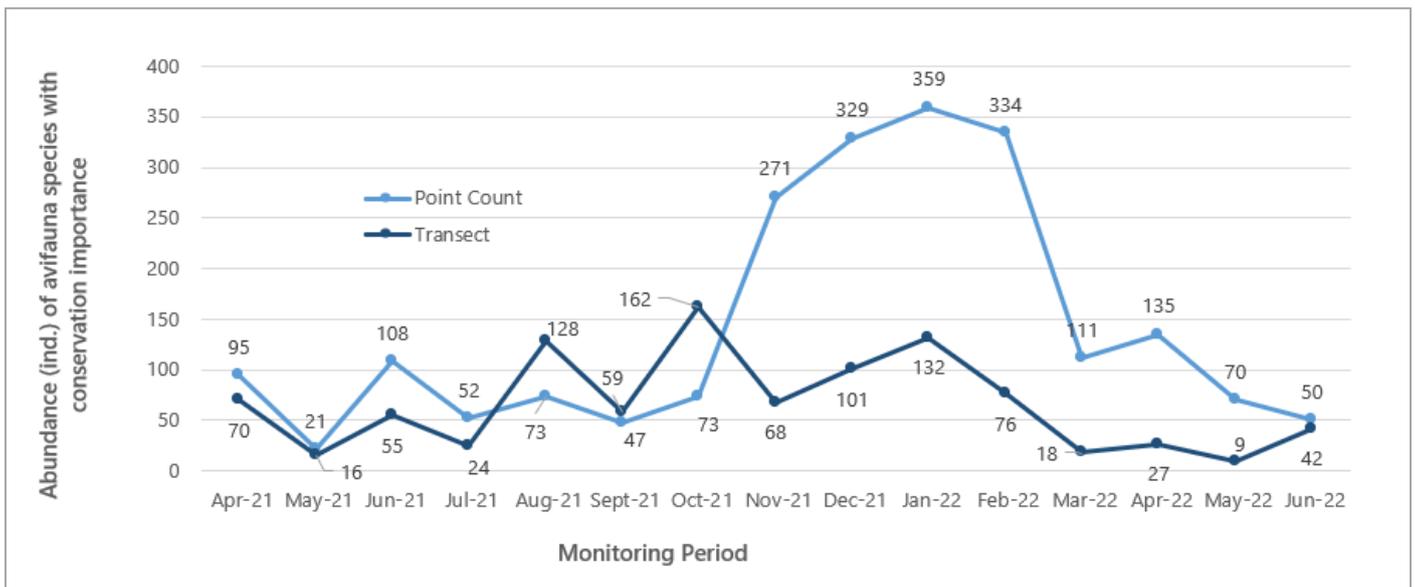
**Appendix F.2.4 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Transect Walk Method) in All Habitats (13 & 17 June 2022)**

Scientific Name	Count	P	Ln(P)	P*Ln(P)	P*Ln(P) <sup>2</sup>
<i>Ardea alba</i>	4	0.095238	-2.35138	-0.22394	0.526568
<i>Ardeola bacchus</i>	19	0.452381	-0.79323	-0.35884	0.284645
<i>Egretta garzetta</i>	19	0.452381	-0.79323	-0.35884	0.284645
<b>Total</b>	42	1	-3.93784	-0.94163	1.095858
<b>Richness</b>	3				
<b>SS</b>	1.095858				
<b>SQ</b>	0.886658				
<b>H</b>	0.941625				
<b>S<sup>2</sup><sub>H</sub></b>	0.005548				

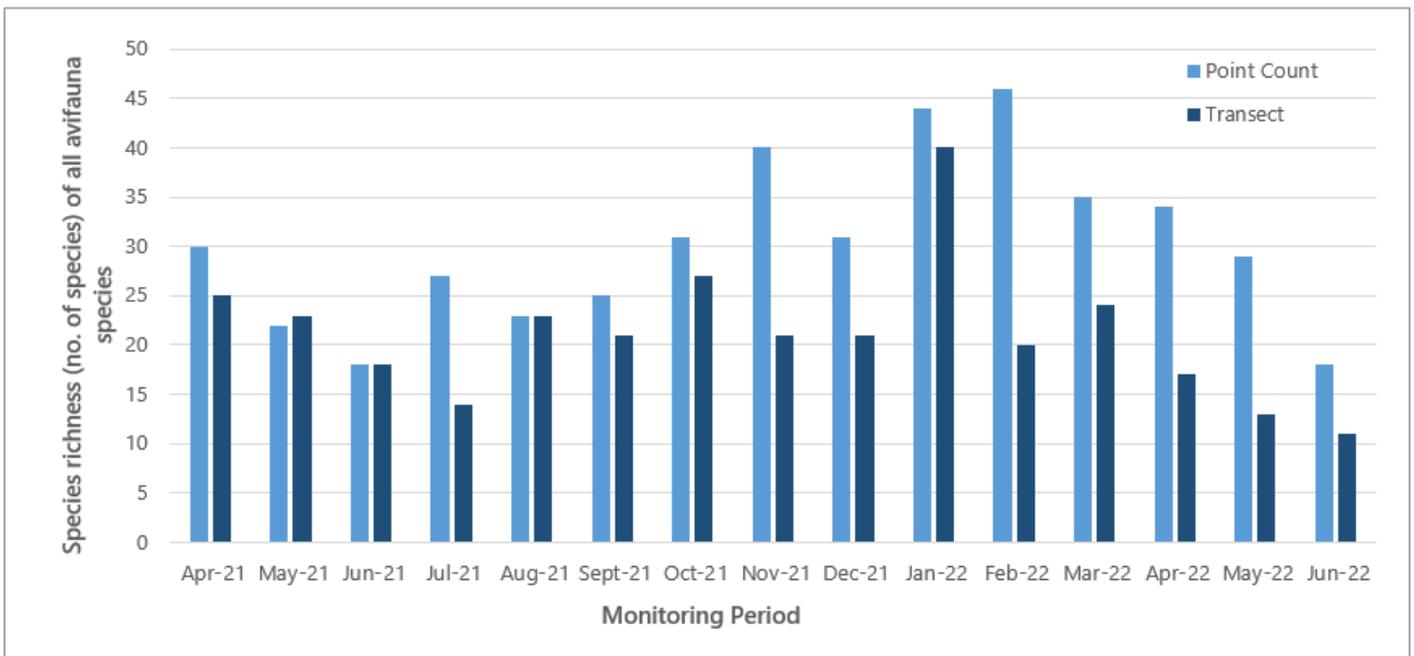
### Appendix F.3.1 Abundance of all avifauna species throughout the monitoring period



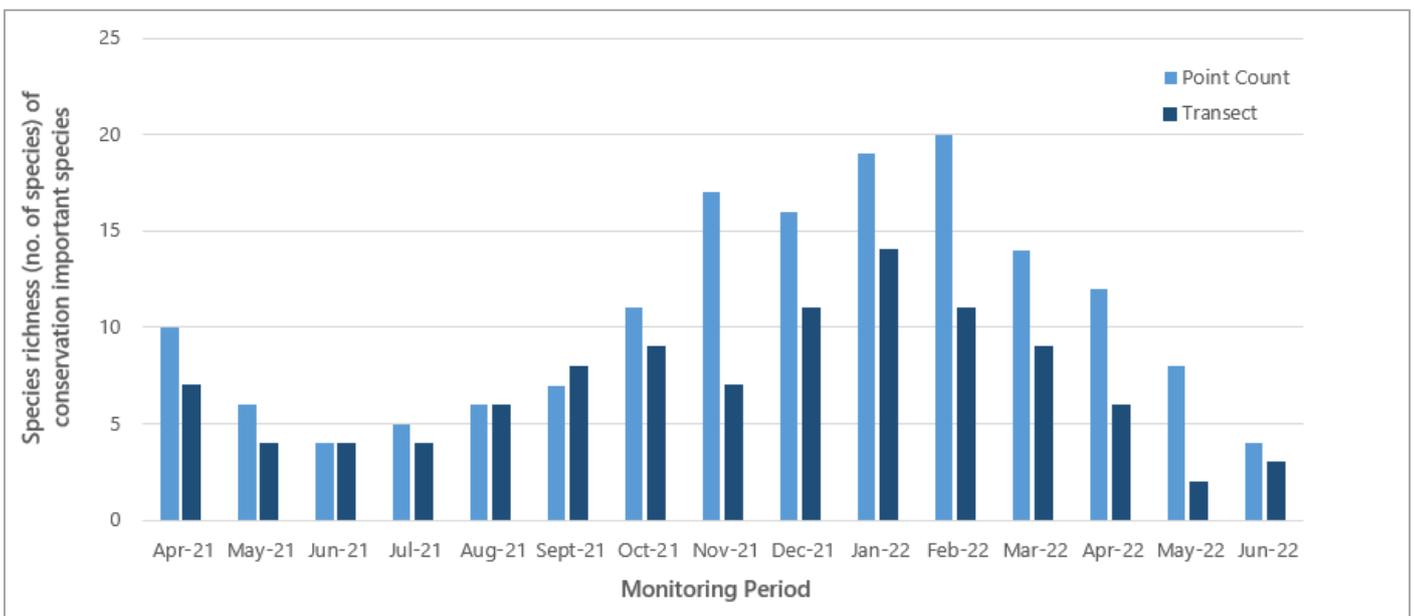
### Appendix F.3.2 Abundance of avifauna species with conservation importance throughout the monitoring period



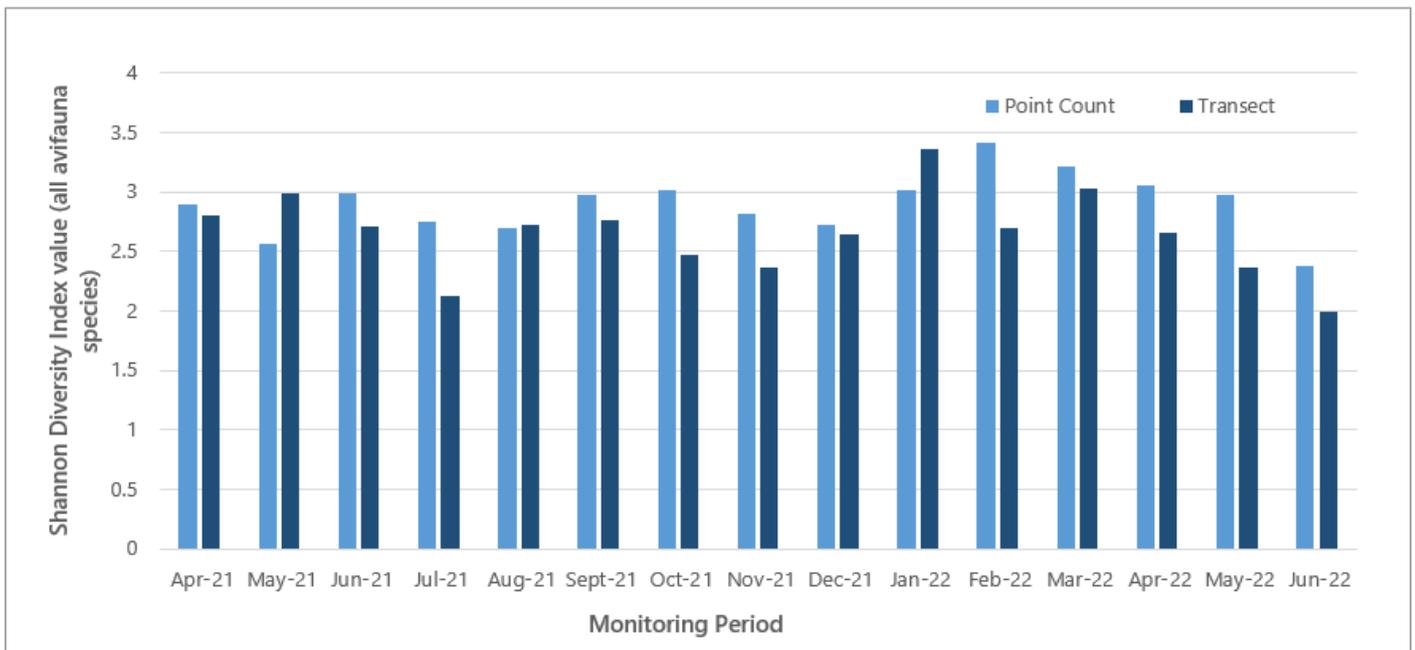
Appendix F.4.1 Species richness of all avifauna species throughout the monitoring period



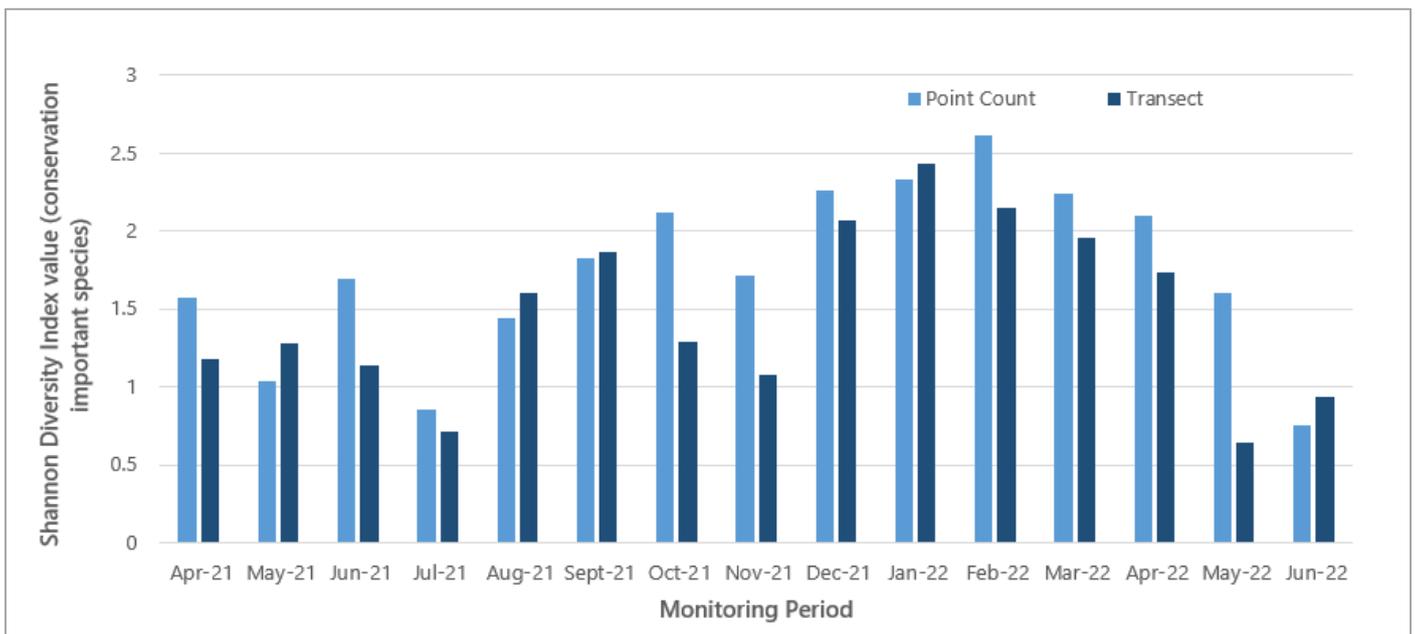
Appendix F.4.2 Species richness of avifauna species with conservation importance throughout the monitoring period



### Appendix F.5.1 Shannon Diversity Index values of all avifauna species throughout the monitoring period



### Appendix F.5.2 Shannon Diversity Index values of avifauna species with conservation importance throughout the monitoring period



### Appendix F.6. 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.6.1 Species diversity of all avifauna species – Point Count Method

Months	June 2017	June 2022
Total	121	128
Richness	25	18
H	2.87	2.38
S <sup>2</sup> <sub>H</sub>	0.006	0.008
t	4.11	
df	247.13	
Crit	1.97	
p	0.00	
CI	0.16	0.18

### Appendix F.6.2 Species diversity of all avifauna species – Transect Walk Method

Months	June 2017	June 2022
Total	69	74
Richness	13	11
H	2.09	1.99
S <sup>2</sup> <sub>H</sub>	0.012	0.009512
t	0.648708151	
df	140	
Crit	1.97705372	
p	0.517589712	
CI	0.216340838	0.195062

### Appendix F.6.3 Species diversity of avifauna species with conservation importance – Point Count Method

Months	June 2017	June 2022
Total	45	50
Richness	5	4
H	1.43	0.75
S <sup>2</sup> <sub>H</sub>	0.007	0.017
t	4.36	
df	85.28	
Crit	1.99	
p	0.00	
CI	0.17	0.26

### Appendix F.6.4 Species diversity of avifauna species with conservation importance – Transect Walk Method

Months	June 2017	June 2022
Total	40	42

Months	June 2017	June 2022
Richness	3	3
H	1.04	0.94
$S^2_H$	0.004	0.005548
t	1.024070648	
df	79	
Crit	1.99045021	
p	0.308927543	
CI	0.120462963	0.148968

# Appendix G

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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
01/06/2022 00:00	1.9	NEN
01/06/2022 01:00	0.0	E
01/06/2022 02:00	1.4	SE
01/06/2022 03:00	4.6	SES
01/06/2022 04:00	6.6	SE
01/06/2022 05:00	1.4	SES
01/06/2022 06:00	0.1	SES
01/06/2022 07:00	0.5	SES
01/06/2022 08:00	0.1	S
01/06/2022 09:00	0.3	SES
01/06/2022 10:00	0.1	SES
01/06/2022 11:00	1.5	SES
01/06/2022 12:00	0.7	E
01/06/2022 13:00	0.7	SE
01/06/2022 14:00	1.9	SW
01/06/2022 15:00	3.1	SES
01/06/2022 16:00	0.2	SEE
01/06/2022 17:00	0.6	SES
01/06/2022 18:00	0.3	SES
01/06/2022 19:00	0.0	SES
01/06/2022 20:00	0.5	S
01/06/2022 21:00	1.9	S
01/06/2022 22:00	0.1	SWS
01/06/2022 23:00	0.1	S
02/06/2022 00:00	0.1	S
02/06/2022 01:00	0.1	S
02/06/2022 02:00	0.1	SES
02/06/2022 03:00	0.1	S
02/06/2022 04:00	4.7	S
02/06/2022 05:00	0.1	SE
02/06/2022 06:00	2.1	SEE
02/06/2022 07:00	0.1	S
02/06/2022 08:00	0.1	S
02/06/2022 09:00	0.1	SES
02/06/2022 10:00	0.1	S
02/06/2022 11:00	0.0	S
02/06/2022 12:00	0.1	S
02/06/2022 13:00	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
02/06/2022 14:00	0.1	S
02/06/2022 15:00	0.1	S
02/06/2022 16:00	0.1	S
02/06/2022 17:00	0.1	S
02/06/2022 18:00	0.1	S
02/06/2022 19:00	0.1	S
02/06/2022 20:00	0.1	E
02/06/2022 21:00	0.1	NE
02/06/2022 22:00	0.1	NE
02/06/2022 23:00	1.5	SES
03/06/2022 00:00	1.5	SES
03/06/2022 01:00	0.2	SES
03/06/2022 02:00	2.4	SES
03/06/2022 03:00	0.4	SE
03/06/2022 04:00	0.2	SEE
03/06/2022 05:00	0.4	S
03/06/2022 06:00	3.8	SE
03/06/2022 07:00	0.0	SE
03/06/2022 08:00	3.2	S
03/06/2022 09:00	13.9	S
03/06/2022 10:00	0.4	SWS
03/06/2022 11:00	5.0	SES
03/06/2022 12:00	1.9	SES
03/06/2022 13:00	2.0	SWS
03/06/2022 14:00	0.3	SES
03/06/2022 15:00	0.0	SE
03/06/2022 16:00	0.1	S
03/06/2022 17:00	0.1	SES
03/06/2022 18:00	1.9	SE
03/06/2022 19:00	4.1	SWS
03/06/2022 20:00	0.1	SW
03/06/2022 21:00	0.1	SES
03/06/2022 22:00	0.1	SEE
03/06/2022 23:00	0.1	SEE
04/06/2022 00:00	0.1	SEE
04/06/2022 01:00	0.1	SEE
04/06/2022 02:00	0.1	SEE
04/06/2022 03:00	0.1	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
04/06/2022 04:00	0.1	SEE
04/06/2022 05:00	0.0	SE
04/06/2022 06:00	0.1	SES
04/06/2022 07:00	0.0	SES
04/06/2022 08:00	0.1	SWS
04/06/2022 09:00	0.1	S
04/06/2022 10:00	2.6	SWS
04/06/2022 11:00	1.4	SWS
04/06/2022 12:00	1.9	SW
04/06/2022 13:00	0.1	SES
04/06/2022 14:00	0.1	SES
04/06/2022 15:00	0.1	SES
04/06/2022 16:00	0.1	SE
04/06/2022 17:00	0.0	SE
04/06/2022 18:00	0.0	SE
04/06/2022 19:00	0.0	S
04/06/2022 20:00	0.0	SES
04/06/2022 21:00	0.1	SE
04/06/2022 22:00	0.1	NEE
04/06/2022 23:00	0.1	NEE
05/06/2022 00:00	0.1	SEE
05/06/2022 01:00	0.1	SEE
05/06/2022 02:00	1.2	S
05/06/2022 03:00	0.2	SES
05/06/2022 04:00	0.1	SW
05/06/2022 05:00	7.3	SE
05/06/2022 06:00	0.1	SWS
05/06/2022 07:00	2.4	SES
05/06/2022 08:00	10.4	NW
05/06/2022 09:00	19.3	SWS
05/06/2022 10:00	0.0	NW
05/06/2022 11:00	0.1	NEN
05/06/2022 12:00	0.1	N
05/06/2022 13:00	0.0	SW
05/06/2022 14:00	0.2	SWW
05/06/2022 15:00	1.1	SWW
05/06/2022 16:00	0.1	SWS
05/06/2022 17:00	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
05/06/2022 18:00	0.1	E
05/06/2022 19:00	0.1	E
05/06/2022 20:00	0.1	E
05/06/2022 21:00	0.1	E
05/06/2022 22:00	0.1	SE
05/06/2022 23:00	0.1	SES
06/06/2022 00:00	0.1	S
06/06/2022 01:00	0.9	SE
06/06/2022 02:00	2.1	SES
06/06/2022 03:00	0.3	SES
06/06/2022 04:00	0.3	SE
06/06/2022 05:00	0.1	S
06/06/2022 06:00	0.1	SE
06/06/2022 07:00	0.6	SES
06/06/2022 08:00	0.0	SES
06/06/2022 09:00	0.1	SES
06/06/2022 10:00	0.1	SES
06/06/2022 11:00	0.5	SES
06/06/2022 12:00	0.1	S
06/06/2022 13:00	0.1	SES
06/06/2022 14:00	0.1	SES
06/06/2022 15:00	0.6	SWW
06/06/2022 16:00	0.1	NE
06/06/2022 17:00	0.1	NE
06/06/2022 18:00	0.0	S
06/06/2022 19:00	0.0	S
06/06/2022 20:00	0.1	S
06/06/2022 21:00	0.1	SWS
06/06/2022 22:00	0.1	SWS
06/06/2022 23:00	0.1	S
07/06/2022 00:00	0.1	SW
07/06/2022 01:00	0.7	SWS
07/06/2022 02:00	4.1	SWS
07/06/2022 03:00	6.3	S
07/06/2022 04:00	0.3	S
07/06/2022 05:00	6.6	SE
07/06/2022 06:00	0.1	SES
07/06/2022 07:00	7.2	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
07/06/2022 08:00	4.9	S
07/06/2022 09:00	14.0	S
07/06/2022 10:00	4.1	SWS
07/06/2022 11:00	11.4	SW
07/06/2022 12:00	9.1	SES
07/06/2022 13:00	1.4	SW
07/06/2022 14:00	4.5	S
07/06/2022 15:00	1.4	SWS
07/06/2022 16:00	4.2	SE
07/06/2022 17:00	1.8	S
07/06/2022 18:00	0.1	SWW
07/06/2022 19:00	0.1	SWW
07/06/2022 20:00	0.1	S
07/06/2022 21:00	0.1	SES
07/06/2022 22:00	0.2	S
07/06/2022 23:00	0.1	S
08/06/2022 00:00	1.6	S
08/06/2022 01:00	0.2	SES
08/06/2022 02:00	0.0	SES
08/06/2022 03:00	0.1	S
08/06/2022 04:00	0.4	SE
08/06/2022 05:00	0.1	SW
08/06/2022 06:00	0.1	SES
08/06/2022 07:00	0.1	S
08/06/2022 08:00	0.1	S
08/06/2022 09:00	2.6	S
08/06/2022 10:00	0.1	SES
08/06/2022 11:00	0.1	SES
08/06/2022 12:00	0.0	SES
08/06/2022 13:00	0.1	SE
08/06/2022 14:00	0.1	S
08/06/2022 15:00	0.1	S
08/06/2022 16:00	0.8	SES
08/06/2022 17:00	1.3	SES
08/06/2022 18:00	0.5	SE
08/06/2022 19:00	0.6	SES
08/06/2022 20:00	0.1	SWS
08/06/2022 21:00	1.5	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
08/06/2022 22:00	2.4	S
08/06/2022 23:00	6.3	SWS
09/06/2022 00:00	0.6	S
09/06/2022 01:00	5.4	SWS
09/06/2022 02:00	12.1	W
09/06/2022 03:00	2.7	SWS
09/06/2022 04:00	12.9	SWS
09/06/2022 05:00	9.8	SWS
09/06/2022 06:00	15.6	SWS
09/06/2022 07:00	16.8	SWS
09/06/2022 08:00	20.9	SWS
09/06/2022 09:00	2.8	SES
09/06/2022 10:00	11.3	SW
09/06/2022 11:00	0.8	S
09/06/2022 12:00	5.4	SEE
09/06/2022 13:00	0.0	SEE
09/06/2022 14:00	3.5	S
09/06/2022 15:00	5.8	S
09/06/2022 16:00	2.1	SWS
09/06/2022 17:00	2.7	S
09/06/2022 18:00	15.2	SES
09/06/2022 19:00	0.9	S
09/06/2022 20:00	1.8	SES
09/06/2022 21:00	0.0	SWS
09/06/2022 22:00	1.2	S
09/06/2022 23:00	5.4	SWW
10/06/2022 00:00	9.8	SWW
10/06/2022 01:00	4.2	SW
10/06/2022 02:00	0.9	S
10/06/2022 03:00	0.1	S
10/06/2022 04:00	2.5	SES
10/06/2022 05:00	1.3	SW
10/06/2022 06:00	1.6	SES
10/06/2022 07:00	0.0	S
10/06/2022 08:00	1.8	S
10/06/2022 09:00	0.1	SES
10/06/2022 10:00	0.1	S
10/06/2022 11:00	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
10/06/2022 12:00	2.1	S
10/06/2022 13:00	1.1	SWS
10/06/2022 14:00	0.1	SES
10/06/2022 15:00	0.0	S
10/06/2022 16:00	0.1	S
10/06/2022 17:00	0.1	SES
10/06/2022 18:00	0.1	SES
10/06/2022 19:00	0.7	S
10/06/2022 20:00	1.0	SES
10/06/2022 21:00	0.1	SES
10/06/2022 22:00	0.6	SES
10/06/2022 23:00	3.8	SWS
11/06/2022 00:00	0.1	SWS
11/06/2022 01:00	4.4	S
11/06/2022 02:00	12.3	S
11/06/2022 03:00	0.0	SWS
11/06/2022 04:00	1.1	SW
11/06/2022 05:00	2.8	SW
11/06/2022 06:00	5.7	SW
11/06/2022 07:00	0.7	SW
11/06/2022 08:00	11.8	SWS
11/06/2022 09:00	2.7	S
11/06/2022 10:00	0.0	S
11/06/2022 11:00	0.5	SWS
11/06/2022 12:00	0.0	S
11/06/2022 13:00	0.0	SWS
11/06/2022 14:00	0.1	SW
11/06/2022 15:00	0.0	SES
11/06/2022 16:00	0.1	SES
11/06/2022 17:00	0.1	NEE
11/06/2022 18:00	0.1	NEE
11/06/2022 19:00	0.1	NEE
11/06/2022 20:00	0.1	NEE
11/06/2022 21:00	0.1	NW
11/06/2022 22:00	0.1	NEE
11/06/2022 23:00	0.1	NEE
12/06/2022 00:00	0.1	NEE
12/06/2022 01:00	0.1	NEE

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
12/06/2022 02:00	0.1	NEE
12/06/2022 03:00	0.1	NEE
12/06/2022 04:00	0.1	NEE
12/06/2022 05:00	0.0	E
12/06/2022 06:00	0.1	S
12/06/2022 07:00	0.1	SWS
12/06/2022 08:00	1.1	S
12/06/2022 09:00	1.1	S
12/06/2022 10:00	0.0	SES
12/06/2022 11:00	0.1	S
12/06/2022 12:00	0.0	SES
12/06/2022 13:00	0.1	NEE
12/06/2022 14:00	0.1	NEE
12/06/2022 15:00	0.1	NEE
12/06/2022 16:00	0.1	NEE
12/06/2022 17:00	0.1	NEE
12/06/2022 18:00	0.1	NEE
12/06/2022 19:00	0.1	NEE
12/06/2022 20:00	0.0	NEE
12/06/2022 21:00	0.1	NEN
12/06/2022 22:00	0.1	NWN
12/06/2022 23:00	2.4	NEN
13/06/2022 00:00	0.1	N
13/06/2022 01:00	0.7	NEN
13/06/2022 02:00	0.1	NW
13/06/2022 03:00	0.4	NW
13/06/2022 04:00	0.6	NW
13/06/2022 05:00	3.4	SW
13/06/2022 06:00	1.6	SES
13/06/2022 07:00	1.1	W
13/06/2022 08:00	1.1	SWW
13/06/2022 09:00	8.7	SWS
13/06/2022 10:00	5.0	SWS
13/06/2022 11:00	2.1	S
13/06/2022 12:00	3.2	SE
13/06/2022 13:00	0.6	SE
13/06/2022 14:00	0.1	SEE
13/06/2022 15:00	8.2	SE

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
13/06/2022 16:00	2.2	S
13/06/2022 17:00	0.1	SE
13/06/2022 18:00	0.3	SES
13/06/2022 19:00	0.8	SE
13/06/2022 20:00	5.4	SE
13/06/2022 21:00	0.1	SES
13/06/2022 22:00	3.5	S
13/06/2022 23:00	0.1	SES
14/06/2022 00:00	0.1	S
14/06/2022 01:00	0.0	SES
14/06/2022 02:00	0.1	S
14/06/2022 03:00	0.1	S
14/06/2022 04:00	0.1	NE
14/06/2022 05:00	0.1	NE
14/06/2022 06:00	0.0	SEE
14/06/2022 07:00	0.1	SES
14/06/2022 08:00	0.0	SES
14/06/2022 09:00	0.1	SES
14/06/2022 10:00	0.1	SES
14/06/2022 11:00	0.1	SES
14/06/2022 12:00	0.0	SES
14/06/2022 13:00	0.1	SES
14/06/2022 14:00	0.0	S
14/06/2022 15:00	0.1	S
14/06/2022 16:00	0.0	SE
14/06/2022 17:00	0.6	S
14/06/2022 18:00	0.1	SES
14/06/2022 19:00	0.1	SES
14/06/2022 20:00	0.1	SES
14/06/2022 21:00	0.1	SES
14/06/2022 22:00	0.1	SES
14/06/2022 23:00	0.5	SWS
15/06/2022 00:00	1.1	W
15/06/2022 01:00	0.1	SW
15/06/2022 02:00	2.5	SWS
15/06/2022 03:00	3.3	SW
15/06/2022 04:00	5.5	S
15/06/2022 05:00	9.6	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
15/06/2022 06:00	6.9	SWS
15/06/2022 07:00	7.1	SWS
15/06/2022 08:00	4.1	SE
15/06/2022 09:00	0.7	S
15/06/2022 10:00	3.8	SW
15/06/2022 11:00	1.5	S
15/06/2022 12:00	5.0	SWS
15/06/2022 13:00	5.1	SES
15/06/2022 14:00	4.7	SES
15/06/2022 15:00	0.2	SW
15/06/2022 16:00	0.1	SWS
15/06/2022 17:00	0.2	SES
15/06/2022 18:00	0.1	SES
15/06/2022 19:00	0.1	SWS
15/06/2022 20:00	0.6	SES
15/06/2022 21:00	3.4	SES
15/06/2022 22:00	0.2	S
15/06/2022 23:00	0.3	SES
16/06/2022 00:00	0.0	S
16/06/2022 01:00	0.1	SES
16/06/2022 02:00	0.1	SES
16/06/2022 03:00	0.1	S
16/06/2022 04:00	0.1	SWS
16/06/2022 05:00	0.1	NEE
16/06/2022 06:00	0.1	SES
16/06/2022 07:00	0.1	SES
16/06/2022 08:00	4.1	SES
16/06/2022 09:00	0.0	SE
16/06/2022 10:00	0.1	SES
16/06/2022 11:00	0.8	S
16/06/2022 12:00	0.1	SES
16/06/2022 13:00	6.2	SES
16/06/2022 14:00	0.1	S
16/06/2022 15:00	3.9	SES
16/06/2022 16:00	0.1	S
16/06/2022 17:00	0.1	SES
16/06/2022 18:00	2.0	SES
16/06/2022 19:00	0.1	SES

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
16/06/2022 20:00	2.7	SE
16/06/2022 21:00	0.3	S
16/06/2022 22:00	0.0	SES
16/06/2022 23:00	7.4	SWS
17/06/2022 00:00	2.5	SE
17/06/2022 01:00	4.1	S
17/06/2022 02:00	7.5	SES
17/06/2022 03:00	7.4	S
17/06/2022 04:00	3.3	SWS
17/06/2022 05:00	2.1	S
17/06/2022 06:00	0.0	SWS
17/06/2022 07:00	1.4	SE
17/06/2022 08:00	6.9	S
17/06/2022 09:00	4.9	SWS
17/06/2022 10:00	0.8	SW
17/06/2022 11:00	8.8	SW
17/06/2022 12:00	3.8	SES
17/06/2022 13:00	5.0	SES
17/06/2022 14:00	0.6	S
17/06/2022 15:00	9.0	SWS
17/06/2022 16:00	4.5	SWW
17/06/2022 17:00	6.0	SW
17/06/2022 18:00	0.1	SWS
17/06/2022 19:00	2.3	S
17/06/2022 20:00	5.9	S
17/06/2022 21:00	0.2	SE
17/06/2022 22:00	1.4	S
17/06/2022 23:00	1.2	SE
18/06/2022 00:00	0.1	SWS
18/06/2022 01:00	6.8	SW
18/06/2022 02:00	0.1	SE
18/06/2022 03:00	0.1	SES
18/06/2022 04:00	0.1	SES
18/06/2022 05:00	0.0	SES
18/06/2022 06:00	0.1	SES
18/06/2022 07:00	1.8	SES
18/06/2022 08:00	0.1	SES
18/06/2022 09:00	2.0	SES

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
18/06/2022 10:00	0.0	S
18/06/2022 11:00	1.6	SES
18/06/2022 12:00	6.2	S
18/06/2022 13:00	2.3	SE
18/06/2022 14:00	0.4	SES
18/06/2022 15:00	0.1	SES
18/06/2022 16:00	0.8	S
18/06/2022 17:00	0.1	SES
18/06/2022 18:00	0.0	SES
18/06/2022 19:00	1.3	SES
18/06/2022 20:00	1.1	SE
18/06/2022 21:00	2.7	S
18/06/2022 22:00	0.2	SEE
18/06/2022 23:00	5.7	SWW
19/06/2022 00:00	0.3	SE
19/06/2022 01:00	9.3	S
19/06/2022 02:00	0.3	SES
19/06/2022 03:00	5.7	SES
19/06/2022 04:00	0.5	SES
19/06/2022 05:00	0.3	SES
19/06/2022 06:00	7.2	SES
19/06/2022 07:00	3.8	SWS
19/06/2022 08:00	12.2	SES
19/06/2022 09:00	3.1	S
19/06/2022 10:00	4.8	SWS
19/06/2022 11:00	8.7	SES
19/06/2022 12:00	8.0	SWS
19/06/2022 13:00	1.1	NEE
19/06/2022 14:00	0.3	S
19/06/2022 15:00	12.9	SES
19/06/2022 16:00	2.2	SES
19/06/2022 17:00	2.4	SES
19/06/2022 18:00	0.2	SE
19/06/2022 19:00	0.2	SES
19/06/2022 20:00	0.3	SE
19/06/2022 21:00	0.0	SES
19/06/2022 22:00	0.6	SES
19/06/2022 23:00	1.2	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
20/06/2022 00:00	0.6	S
20/06/2022 01:00	0.1	SE
20/06/2022 02:00	7.6	SES
20/06/2022 03:00	0.2	SE
20/06/2022 04:00	2.0	SE
20/06/2022 05:00	0.1	SES
20/06/2022 06:00	0.4	SES
20/06/2022 07:00	0.1	SES
20/06/2022 08:00	3.3	S
20/06/2022 09:00	1.7	SES
20/06/2022 10:00	0.4	SES
20/06/2022 11:00	0.1	SE
20/06/2022 12:00	0.1	SES
20/06/2022 13:00	3.1	SES
20/06/2022 14:00	0.1	SES
20/06/2022 15:00	0.6	SE
20/06/2022 16:00	0.1	S
20/06/2022 17:00	0.1	SE
20/06/2022 18:00	0.2	SES
20/06/2022 19:00	0.1	SE
20/06/2022 20:00	0.4	SE
20/06/2022 21:00	3.4	SES
20/06/2022 22:00	0.1	SW
20/06/2022 23:00	2.0	SWS
21/06/2022 00:00	0.2	SE
21/06/2022 01:00	2.4	SES
21/06/2022 02:00	1.3	SWW
21/06/2022 03:00	3.4	SES
21/06/2022 04:00	2.3	SWS
21/06/2022 05:00	0.0	SWS
21/06/2022 06:00	1.9	SE
21/06/2022 07:00	3.1	SES
21/06/2022 08:00	6.7	SES
21/06/2022 09:00	0.0	SWS
21/06/2022 10:00	4.6	S
21/06/2022 11:00	0.1	SE
21/06/2022 12:00	0.6	SEE
21/06/2022 13:00	2.9	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
21/06/2022 14:00	4.0	SE
21/06/2022 15:00	15.7	SES
21/06/2022 16:00	7.3	S
21/06/2022 17:00	0.1	SE
21/06/2022 18:00	2.0	SE
21/06/2022 19:00	0.1	SE
21/06/2022 20:00	0.1	S
21/06/2022 21:00	3.6	SES
21/06/2022 22:00	0.9	SE
21/06/2022 23:00	0.5	SE
22/06/2022 00:00	0.1	SES
22/06/2022 01:00	0.8	S
22/06/2022 02:00	0.1	SEE
22/06/2022 03:00	0.1	SES
22/06/2022 04:00	1.0	SES
22/06/2022 05:00	0.1	SES
22/06/2022 06:00	0.1	SE
22/06/2022 07:00	0.8	SE
22/06/2022 08:00	0.1	SE
22/06/2022 09:00	0.3	SES
22/06/2022 10:00	0.1	SES
22/06/2022 11:00	0.1	S
22/06/2022 12:00	2.1	SWS
22/06/2022 13:00	3.0	SES
22/06/2022 14:00	5.7	SES
22/06/2022 15:00	1.5	SEE
22/06/2022 16:00	0.1	S
22/06/2022 17:00	0.1	SES
22/06/2022 18:00	0.3	SES
22/06/2022 19:00	0.1	SES
22/06/2022 20:00	8.6	SES
22/06/2022 21:00	2.6	SE
22/06/2022 22:00	0.2	SES
22/06/2022 23:00	2.0	SES
23/06/2022 00:00	9.0	SE
23/06/2022 01:00	0.4	SEE
23/06/2022 02:00	0.3	SE
23/06/2022 03:00	2.7	SE

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
23/06/2022 04:00	0.2	SES
23/06/2022 05:00	1.3	SWS
23/06/2022 06:00	1.7	SE
23/06/2022 07:00	0.8	SE
23/06/2022 08:00	9.0	S
23/06/2022 09:00	0.7	SES
23/06/2022 10:00	5.7	SES
23/06/2022 11:00	1.2	SWS
23/06/2022 12:00	21.2	S
23/06/2022 13:00	4.2	SWS
23/06/2022 14:00	0.2	SES
23/06/2022 15:00	3.8	SEE
23/06/2022 16:00	0.1	SES
23/06/2022 17:00	0.5	S
23/06/2022 18:00	1.8	SE
23/06/2022 19:00	4.1	SE
23/06/2022 20:00	9.9	SES
23/06/2022 21:00	0.1	S
23/06/2022 22:00	0.1	SES
23/06/2022 23:00	0.1	SES
24/06/2022 00:00	0.1	SES
24/06/2022 01:00	0.1	SES
24/06/2022 02:00	6.3	SES
24/06/2022 03:00	1.5	SES
24/06/2022 04:00	1.2	SES
24/06/2022 05:00	1.0	SES
24/06/2022 06:00	0.1	S
24/06/2022 07:00	4.7	SES
24/06/2022 08:00	4.2	S
24/06/2022 09:00	0.5	SE
24/06/2022 10:00	0.1	SES
24/06/2022 11:00	0.5	SES
24/06/2022 12:00	0.1	SE
24/06/2022 13:00	0.8	SES
24/06/2022 14:00	0.1	E
24/06/2022 15:00	0.3	SES
24/06/2022 16:00	0.1	SES
24/06/2022 17:00	0.1	SE

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
24/06/2022 18:00	0.1	SES
24/06/2022 19:00	3.1	SES
24/06/2022 20:00	0.5	SE
24/06/2022 21:00	0.9	S
24/06/2022 22:00	1.7	SEE
24/06/2022 23:00	1.0	SE
25/06/2022 00:00	4.9	S
25/06/2022 01:00	4.2	SES
25/06/2022 02:00	1.8	SW
25/06/2022 03:00	0.1	SES
25/06/2022 04:00	1.9	SES
25/06/2022 05:00	1.4	S
25/06/2022 06:00	2.6	SWS
25/06/2022 07:00	9.9	S
25/06/2022 08:00	4.1	SES
25/06/2022 09:00	3.4	SES
25/06/2022 10:00	0.1	SE
25/06/2022 11:00	0.6	SES
25/06/2022 12:00	2.3	S
25/06/2022 13:00	0.9	SES
25/06/2022 14:00	2.8	S
25/06/2022 15:00	10.0	S
25/06/2022 16:00	7.2	S
25/06/2022 17:00	4.2	SES
25/06/2022 18:00	0.0	SE
25/06/2022 19:00	0.1	SE
25/06/2022 20:00	0.4	SE
25/06/2022 21:00	2.3	SE
25/06/2022 22:00	0.1	E
25/06/2022 23:00	0.1	SES
26/06/2022 00:00	0.2	SES
26/06/2022 01:00	2.8	SES
26/06/2022 02:00	0.8	SES
26/06/2022 03:00	8.3	SES
26/06/2022 04:00	0.1	SE
26/06/2022 05:00	1.0	SE
26/06/2022 06:00	0.1	SES
26/06/2022 07:00	0.6	SES

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
26/06/2022 08:00	5.7	S
26/06/2022 09:00	0.4	SE
26/06/2022 10:00	2.0	SES
26/06/2022 11:00	0.1	SWS
26/06/2022 12:00	0.1	S
26/06/2022 13:00	0.0	SE
26/06/2022 14:00	0.0	SE
26/06/2022 15:00	0.1	SES
26/06/2022 16:00	1.1	SE
26/06/2022 17:00	0.1	S
26/06/2022 18:00	1.3	SE
26/06/2022 19:00	1.0	S
26/06/2022 20:00	0.1	SE
26/06/2022 21:00	0.1	S
26/06/2022 22:00	0.4	SES
26/06/2022 23:00	0.3	SES
27/06/2022 00:00	1.8	SWS
27/06/2022 01:00	4.9	SW
27/06/2022 02:00	2.7	SW
27/06/2022 03:00	3.0	SES
27/06/2022 04:00	0.6	SWW
27/06/2022 05:00	0.1	S
27/06/2022 06:00	0.5	SES
27/06/2022 07:00	0.2	S
27/06/2022 08:00	0.9	SES
27/06/2022 09:00	1.1	SE
27/06/2022 10:00	1.0	SES
27/06/2022 11:00	0.7	SES
27/06/2022 12:00	0.1	SWS
27/06/2022 13:00	0.1	SE
27/06/2022 14:00	0.1	SEE
27/06/2022 15:00	0.1	SEE
27/06/2022 16:00	1.2	SE
27/06/2022 17:00	1.0	SES
27/06/2022 18:00	0.1	SWS
27/06/2022 19:00	1.4	SE
27/06/2022 20:00	0.1	SES
27/06/2022 21:00	0.3	SES

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
27/06/2022 22:00	0.8	SES
27/06/2022 23:00	3.6	S
28/06/2022 00:00	0.5	SES
28/06/2022 01:00	0.9	SE
28/06/2022 02:00	1.1	SE
28/06/2022 03:00	0.6	SES
28/06/2022 04:00	2.6	SES
28/06/2022 05:00	0.1	SES
28/06/2022 06:00	0.0	SES
28/06/2022 07:00	0.1	SES
28/06/2022 08:00	0.1	SES
28/06/2022 09:00	0.1	S
28/06/2022 10:00	0.1	SES
28/06/2022 11:00	0.1	NEE
28/06/2022 12:00	0.1	NEE
28/06/2022 13:00	0.1	S
28/06/2022 14:00	1.1	SES
28/06/2022 15:00	0.1	SES
28/06/2022 16:00	0.1	SES
28/06/2022 17:00	0.3	SES
28/06/2022 18:00	0.3	SES
28/06/2022 19:00	1.4	S
28/06/2022 20:00	0.6	SWW
28/06/2022 21:00	0.1	S
28/06/2022 22:00	0.1	SE
28/06/2022 23:00	1.9	S
29/06/2022 00:00	0.1	SES
29/06/2022 01:00	0.1	NWW
29/06/2022 02:00	0.0	NWW
29/06/2022 03:00	0.1	NWW
29/06/2022 04:00	0.1	NWW
29/06/2022 05:00	0.5	SWW
29/06/2022 06:00	0.9	NW
29/06/2022 07:00	0.9	NW
29/06/2022 08:00	0.6	NWW
29/06/2022 09:00	2.8	NWN
29/06/2022 10:00	0.1	NW
29/06/2022 11:00	0.9	SES

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
29/06/2022 12:00	4.9	SES
29/06/2022 13:00	6.3	SWS
29/06/2022 14:00	0.6	SES
29/06/2022 15:00	0.1	SES
29/06/2022 16:00	0.1	SE
29/06/2022 17:00	0.1	SES
29/06/2022 18:00	1.6	SES
29/06/2022 19:00	9.1	SES
29/06/2022 20:00	1.5	SES
29/06/2022 21:00	1.5	SES
29/06/2022 22:00	0.0	S
29/06/2022 23:00	1.3	SEE
30/06/2022 00:00	0.0	SES
30/06/2022 01:00	0.1	S
30/06/2022 02:00	0.3	SES
30/06/2022 03:00	3.5	S
30/06/2022 04:00	0.9	SES
30/06/2022 05:00	0.1	SES
30/06/2022 06:00	0.1	S
30/06/2022 07:00	0.1	SES
30/06/2022 08:00	0.1	S
30/06/2022 09:00	0.1	S
30/06/2022 10:00	0.1	SWS
30/06/2022 11:00	0.1	SWS
30/06/2022 12:00	0.1	SWS
30/06/2022 13:00	0.1	E
30/06/2022 14:00	0.1	E
30/06/2022 15:00	0.1	E
30/06/2022 16:00	0.1	E
30/06/2022 17:00	0.1	NEN
30/06/2022 18:00	0.1	NEN
30/06/2022 19:00	0.1	NEN
30/06/2022 20:00	0.1	NEN
30/06/2022 21:00	0.1	NEN
30/06/2022 22:00	0.1	NW
30/06/2022 23:00	0.4	NWN
01/07/2022 00:00	0.8	NWN

Sources/ reference of the wind data: On-site wind station

# Appendix H

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

## Event and Action Plan for Noise (Construction)

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

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

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

## Event and Action Plan for Ecology Monitoring

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

# Appendix I

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## Waste Flow Table

Waste Flow Table for Year 2022											
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)
2022 Jan	243.88	Nil	Nil	Nil	215.24	Nil	17.46	0.04	Nil	Nil	11.14
2022 Feb	92.65	Nil	Nil	Nil	38.73	Nil	43.95	Nil	Nil	Nil	9.97
2022 Mar	398.96	Nil	Nil	Nil	312.08	Nil	76.31	Nil	Nil	Nil	10.57
2022 Apr	3619.84	Nil	Nil	Nil	3552.01	Nil	58.86	0.13	Nil	Nil	8.84
2022 May	2708.03	Nil	Nil	Nil	2692.75	Nil	8.61	Nil	Nil	Nil	6.67
2022 Jun	94.92	Nil	Nil	Nil	Nil	Nil	78.34	Nil	Nil	Nil	16.58
2022 Jul											
2022 Aug											
2022 Sep											
2022 Oct											
2022 Nov											
2022 Dec											
<b>Total</b>	<b>7158.28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6810.81</b>	<b>0</b>	<b>283.53</b>	<b>0.17</b>	<b>0</b>	<b>0</b>	<b>63.77</b>

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.

Sources/ reference of the waste flow data; From the Contractor

# Appendix J

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Implementation Status of

Environmental 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
<b>Air Quality Impact</b>			
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	<p>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:</p> <ul style="list-style-type: none"> <li>• Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li> <li>• Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li> <li>• 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.</li> <li>• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>• 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.</li> <li>• 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.</li> <li>• Imposition of speed controls for vehicles on site haul roads.</li> <li>• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.</li> </ul>	Construction Sites	<p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>N/A</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p>

**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"> <li>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.</li> </ul>		Implemented
<b>Noise Impact</b>			
Construction Phase			
4.8.1	<p>Movable noise barriers are recommended for hydraulic breakers mounted on excavators to be adopted during construction.</p> <p>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.</p> <ul style="list-style-type: none"> <li>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.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.</li> <li>Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme.</li> <li>Mobile plant, if any, should be sited as far away from noise sensitive receivers (NSRs) as possible.</li> <li>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.</li> <li>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</li> <li>Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	Construction Sites	<p>Implemented</p> <p>N/A</p> <p>Implemented</p> <p>Implemented</p> <p>N/A</p> <p>N/A</p> <p>Implemented</p> <p>N/A</p> <p>N/A</p>
<b>Water Quality Impact</b>			
Construction Phase			
5.8.1.2	<p>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</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
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	Implemented
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	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
	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	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	Implemented
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	
	<ul style="list-style-type: none"> <li>• 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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Training of site personnel in proper waste management and chemical waste handling procedures;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>• Arrangement for regular collection of waste for transport off-site and final disposal;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> </ul>		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"> <li>• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; and</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• 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.</li> </ul>		Implemented
	<p>Waste Reduction Measures Recommendations to achieve waste reduction include:</p>	Construction Sites	
	<ul style="list-style-type: none"> <li>• 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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• 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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Any unused chemicals or those with remaining functional capacity shall be recycled;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>• Maximising the use of reusable steel formwork to reduce the amount of C&amp;D material;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>• Prior to disposal of C&amp;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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated;</li> </ul>		N/A
<ul style="list-style-type: none"> <li>• Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and</li> </ul>	N/A		
<ul style="list-style-type: none"> <li>• Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering.</li> </ul>	N/A		
6.6.1.7	<p><u>Storage of Waste</u> Recommendations to minimise the impacts include:</p>	Construction Sites	
	<ul style="list-style-type: none"> <li>• Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Maintain and clean storage areas routinely;</li> </ul>		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"> <li>• Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>• Different locations should be designated to stockpile each material to enhance reuse.</li> </ul>		Implemented
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"> <li>• Remove waste in timely manner;</li> <li>• Waste collectors should only collect wastes prescribed by their permits;</li> <li>• Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers;</li> <li>• 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);</li> <li>• Waste should be disposed of at licensed waste disposal facilities; and</li> <li>• Maintain records of quantities of waste generated, recycled and disposed.</li> </ul>	Construction Sites	<p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p>
6.6.1.10	<p><u>Transportation of Waste</u></p> <p>In order to monitor the disposal of C&amp;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	<p><u>Construction and Demolition Material</u>            Careful design, planning together with good site management can reduce over-ordering and generation of C&amp;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</p>	Construction Sites	N/A
6.6.1.13	<p>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:</p> <ul style="list-style-type: none"> <li>• A WMP, which becomes part of the EMP, should be prepared in accordance with ETWB TCW No.19/2005;</li> <li>• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and</li> <li>• In order to monitor the disposal of C&amp;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).</li> </ul>	Construction Sites	<p>Implemented</p> <p>Implemented</p> <p>Implemented</p>
6.6.1.14	<p>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:</p> <ul style="list-style-type: none"> <li>• Surface of stockpiled soil should be regularly wetted with water especially during dry season;</li> <li>• Disturbance of stockpile soil should be minimised;</li> <li>• Stockpiled soil should be properly covered with tarpaulin especially when heavy storms are predicted; and</li> <li>• Stockpiling areas should be enclosed where space is available.</li> </ul>	Construction Sites	<p>Implemented</p> <p>Implemented</p> <p>Implemented</p> <p>Implemented</p>

**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
<b>Land Contamination</b>			

**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
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	<p>The mitigation measures will be recommended in the RAP and would typically include the following:</p> <ul style="list-style-type: none"> <li>• Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>• 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;</li> <li>• 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.</li> <li>• 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;</li> <li>• Speed control for the trucks carrying contaminated materials shall be enforced;</li> </ul>	Project Site / Construction Phase	<p>Implemented</p> <p>N/A</p> <p>Implemented</p> <p>N/A</p> <p>N/A</p>

**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"> <li>• Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and</li> <li>• 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.</li> </ul>		N/A
			N/A
<b>Ecological Impact (Terrestrial and Aquatic)</b>			
<b>Construction Phase</b>			
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>                      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>                      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
<b>Ecology &amp; Fisheries Impact</b>			
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
<b>Fisheries Impact</b>			
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
<b>Landscape and Visual Impact</b>			
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
<b>Hazard to Life</b>			
<b>Construction Phase</b>			
11.5.6.9-11.5.6.12	<ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• 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</li> </ul>	Project site / Construction Phase	N/A   N/A   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"> <li>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.</li> </ul>		N/A
11.5.8	<ul style="list-style-type: none"> <li>Method statements and risk assessments shall be prepared and safety control measures shall be in place before commencement of work</li> </ul>	Project site / Construction Phase	Implemented
	<ul style="list-style-type: none"> <li>All work procedures shall be complied with the operating plant procedures or guidelines and regulatory requirements;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>Work permit system, on-site pre-work risk assessment and emergency response procedure shall be in place before commencement of work;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>All construction workers shall equip with appropriate personal protective equipment (PPE) when working at the Project Site;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>Safety training and briefings shall be provided to all construction workers;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>Regular site safety inspections shall be conducted during the construction phase of the Project;</li> </ul>		Implemented
11.9.1.2	<ul style="list-style-type: none"> <li>Ensure speed limit enforcement is specified in the contractor's method statement to limit the speed of construction vehicles onsite;</li> </ul>	Project site / ConstructionPhase	Implemented
	<ul style="list-style-type: none"> <li>Conduct speed checks to ensure enforcement of speed limits and to ensure adequate site access control;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>A lifting plan, with detailed risk assessment, should be prepared and endorsed for heavy lifting of large equipment;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>Vehicle crash barriers should be provided between the construction site and the operating biogas facilities;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>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;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>Ensure effective communication system / protocol is in place between the contractors and the operation staff;</li> </ul>		Implemented
	<ul style="list-style-type: none"> <li>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;</li> </ul>		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"> <li>• 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;</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>• 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.</li> </ul>		Implemented
	Potential risks of the construction activities shall be assessed, and risk precautionary measures shall be implemented in Contractor's works procedures.		Implemented

Note:

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

Sources / reference of the Implementation Status: Appendix B of EIA Report, AEIAR-220/2019

# Appendix K

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Weather and Meteorological  
Conditions

# May 2022 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)		
May 2022						
1	1013.8	25.4	19.9	17.0	96	56.0
2	1015.7	21.1	18.7	16.4	86	19.5
3	1016.5	28.1	22.5	16.9	69	0
4	1014.8	30.6#	24.1	18.8#	71	0
5	1013.0	30.3#	24.9	20.5#	78	0
6	1012.7	30.9	25.4	20.9	80	0
7	1013.5	30.9#	25.4	22.7#	85	1.5
8	1013.8	27.4	24.9	22.4	74	0
9	1012.5	30.2	25.9	23.2	81	0
10	1010.0	29.8	26.4	24.4	90	5.0
11	1008.1	26.2	25.0	24.1	100	68.5
12	1006.6	25.8	24.6	23.9	100	139.0
13	1005.7	28.6	25.2	23.7	97	58.5
14	1008.7	26.4	24.2	22.9	97	3.0
15	1010.3	25.3#	22.7	20.7#	95	23.5
16	1013.3	20.7	19.6	18.6	90	5.5
17	1014.3	27.9	22.5	18.8	76	0
18	1014.3	29.4	24.4	18.8	56	0
19	1012.4	31.3	26.0	22.8	66	0
20	1009.6	31.8	27.1	23.7	79	0
21	1008.1	31.1	26.9	23.2	82	0
22	1007.5	28.5	25.7	24.1	84	0
23	1007.9	27.8	25.3	24.1	87	0
24	1009.4	28.9	25.9	24.5	91	0
25	1008.0	29.8	26.5	24.6	92	1.0
26	1005.0	31.1	27.3	24.8	90	0.5
27	1004.8	29.2	26.4	25.1	97	56.0
28	1005.7	31.9	28.5	26.2	89	2.0
29	1006.2	32.1	28.7	26.1	88	3.5
30	1006.4	32.1	28.2	26.4	89	10.0
31	1007.3	31.4	27.6	25.4	91	4.0

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

# June 2022 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)		
June 2022						
1	1007.1	30.9	28.7	27.0	81	1.2
2	1006.2	31.0	28.8	26.0	80	11.9
3	1005.6	31.2	29.2	28.0	81	1.6
4	1005.8	32.0	29.6	28.6	78	Trace
5	1004.7	32.0	29.6	28.7	78	Trace
6	1003.6	30.6	28.9	27.6	83	2.5
7	1004.5	29.6	27.4	24.6	86	33.8
8	1005.6	28.0	25.8	24.7	93	66.0
9	1005.5	27.9	26.3	25.0	90	28.7
10	1005.4	27.3	26.1	25.0	92	25.8
11	1006.6	29.1	26.8	25.3	89	47.5
12	1007.0	30.3	28.4	25.6	84	2.6
13	1006.4	30.6	28.9	28.1	80	0
14	1007.0	29.3	27.4	24.8	87	42.8
15	1009.2	30.5	26.7	24.0	88	11.0
16	1008.9	30.5	27.6	24.3	84	2.6
17	1007.6	31.0	29.0	28.0	79	1.0
18	1006.8	29.8	28.8	27.5	81	1.3
19	1006.1	30.9	29.3	28.0	81	0.1
20	1004.8	30.4	29.2	27.6	80	2.8
21	1005.9	30.5	29.4	28.6	80	Trace
22	1009.6	31.8	29.5	28.1	78	0
23	1010.4	33.8	30.0	27.9	74	0
24	1008.6	33.4	30.0	27.8	73	0
25	1007.8	32.8	29.6	27.7	74	0
26	1009.3	33.9	30.0	26.8	74	0.3
27	1008.1	33.4	30.1	27.8	73	0.1
28	1005.1	34.4	30.6	28.2	71	0
29	1002.8	33.9	30.2	28.1	78	0.7
30	1002.7	29.6	27.5	25.9	89	64.9

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

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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
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 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
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

# Appendix M

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ET Leader's Site Environmental Audit

### Summary of ET Leader's Site Environmental Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	29 Jun 2022	Reminder 1: The Contractor is reminded to provide water spraying for dust suppression at loading/unloading area and haul roads (Portion 1 - YLSTW).	NA
Noise		NA	
Water Quality	1 Jun 2022	Reminder 1: The Contractor is reminded to provide sandbags to prevent runoff into the storm drain (Portion 1 - YLSTW).	NA
	10 Jun 2022	Reminder 1: The Contractor is reminded to provide sandbags to prevent silty runoff into the storm drain (Portion 1 - YLSTW).	NA
Chemical and Waste Management		NA	
Land Contamination		NA	
Ecological Impact	1 Jun 2022	Reminder 1: The Contractor is reminded to maintain and reinstate the bird curtains at the eastern & northern site boundary (Portion 1 - YLSTW).	NA
	22 Jun 2022	Reminder 1: The Contractor is reminded to maintain and reinstate the bird curtains at the eastern and northern site boundary (Portion 1 - YLSTW).	NA
Landscape and Visual Impact	10 Jun 2022	Recommendation 1: Please provide maintenance check after rainstorms for possible broken branches or other possible damages to trees (Portion 1 - YLSTW).	NA
Permit / Licenses		NA	
Others		NA	

# Appendix N

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Outstanding Issues and Deficiencies

**Summary of Outstanding Issues and Deficiencies in the Reporting Month**

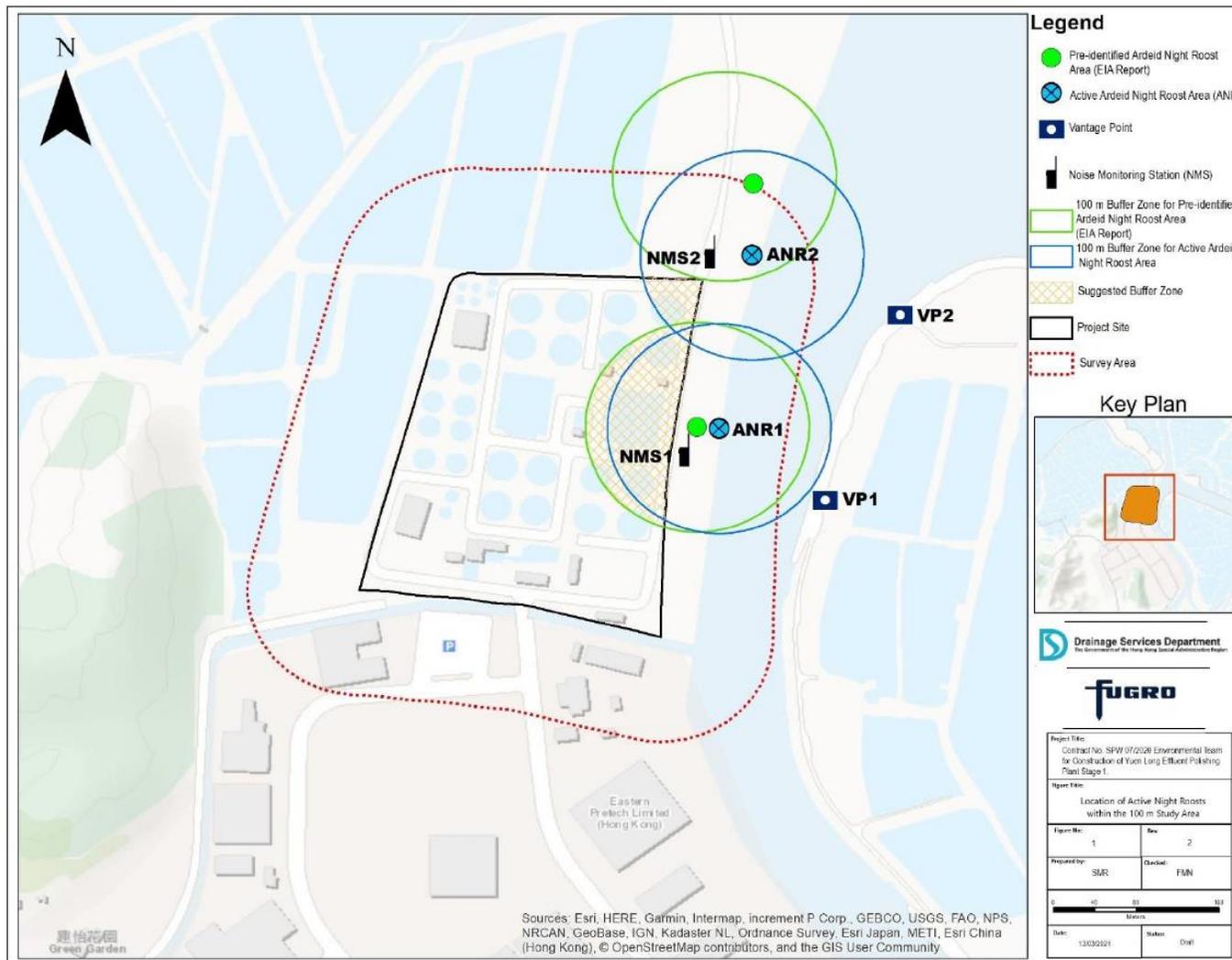
Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to <b>Appendix M</b> .
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
Permit / Licenses	NA	
Others	NA	

# Appendix O

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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 Roosts and Noise Monitoring Stations**



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

## O.2 Survey Photos

### O.2.1 Pre-roosting Aggregate



Appendix O.2.1a: Pre-roost aggregate of Little Egret *Egretta garzetta* in the mudflat area east of the Project boundary observed on 17 June 2022 around 19:05



Appendix O.2.1b: Pre-roost aggregate of Little Egret *Egretta garzetta* in the mudflat area northeast of the Project boundary observed on 17 June 2022 around 19:05

## O.2.2 Active Night Roosting Site and Roosting Substrates

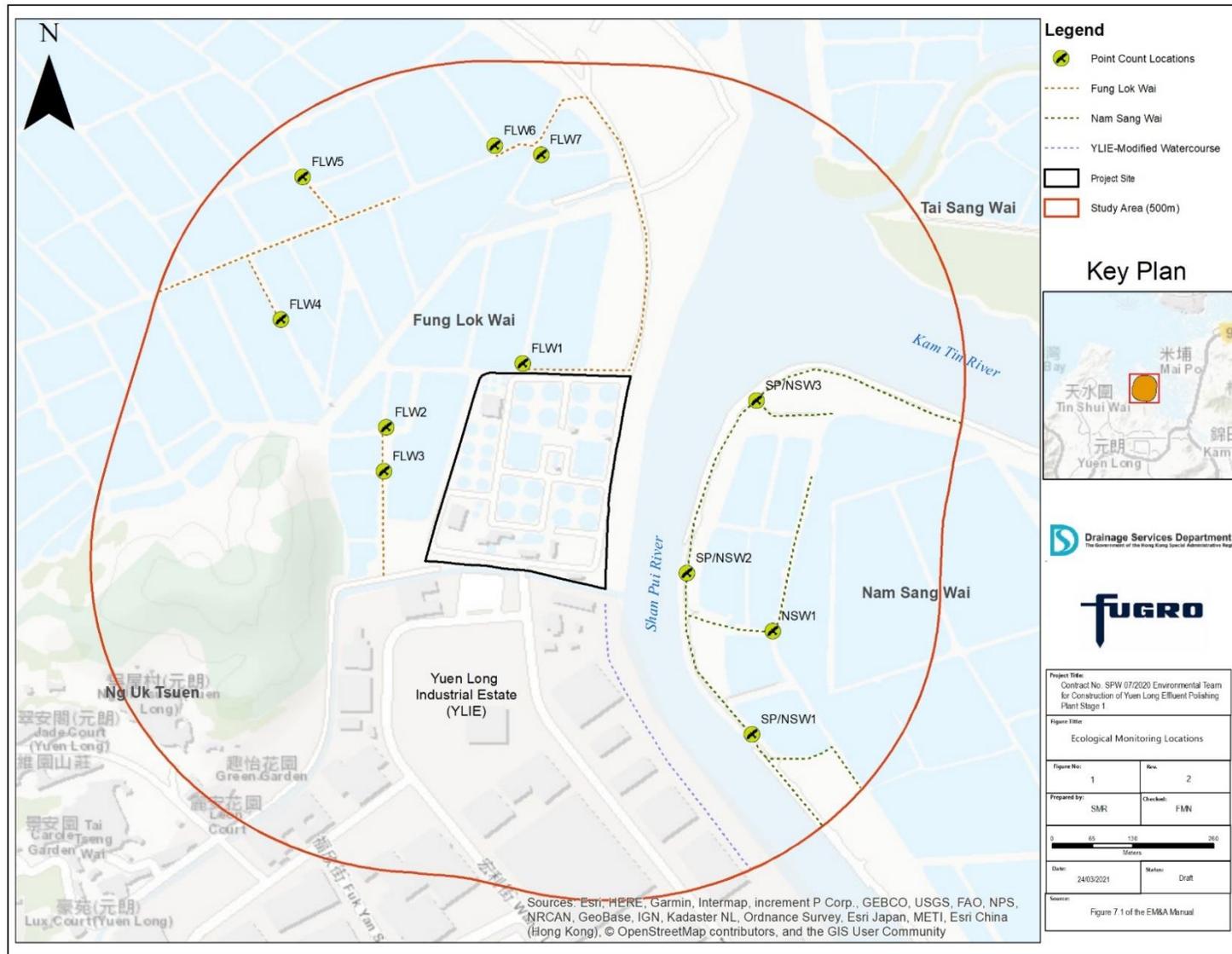


Appendix O.2.2a: Active night roost on *Sonneratia apetala* and *S. caseolaris* mangrove roosting substrate located east of the Project boundary observed on 17 June 2022 around 19:21

# Appendix P

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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

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Notification of Exceedance

# Notification of Ecological Monitoring of Birds Exceedance

## Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20220613&17_Species Diversity			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Survey Dates:	2022/06/13 (daytime) and 2022/06/17 (night-time)			
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 <sup>1,2</sup> 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 checked="" 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 <sup>3</sup> : (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 <sup>4</sup> for action or limit level Non-compliance: (tick / fill in as appropriate)	<b>Findings / Evidences</b> <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) <sup>5</sup> 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) <sup>6</sup> .
Observations	<input checked="" type="checkbox"/> Noise levels during the daytime survey (48.2 to 60.3 dB(A)); and night-time survey (49.3 to 64.5 dB(A)) recorded from the different point count locations during the ecological bird monitoring are low. These 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 dBA only (Wright et al. 2010) <sup>6</sup> . <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"/> Increase 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"/> Insignificant decrease 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"/> Increase in abundance of species with conservation importance only was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> Insignificant decrease in species diversity of species with conservation importance only was observed for <u>Transect/Point Count</u> survey.
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 (June 2022) Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations (June 2022) Annex D – Summary of Hutcheson T-test Analyses (June 2022) Annex E – Abundance Data per Point Count Location Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (June 2022) Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (June 2022)
Notes:	
<ol style="list-style-type: none"> <li>1. Significant decline in abundance determined using two-tailed t-test, <math>\alpha = 0.05</math></li> <li>2. Significant decline in species diversity determined using the Hutcheson t-test, two-tailed</li> <li>3. In accordance with Table 4.2 “Responses to Alert and Action Level for Avifauna Communities” of the Baseline Bird Survey Report</li> <li>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</li> <li>5. Sung, Y-H, Chun-chiu Pang, Tom Chung-hoi Li, Paulina Pui Yun Wong and Yat-tung Yu. 2021. Ecological Correlates of 20-Year Population Trends of Wintering Waterbirds in Deep Bay, South China. Front. Ecol. Evol. <a href="https://doi.org/10.3389/fevo.2021.658084">https://doi.org/10.3389/fevo.2021.658084</a></li> </ol>	

6. 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): 11/07/2022

Certified by: Alvin L.B. Yu

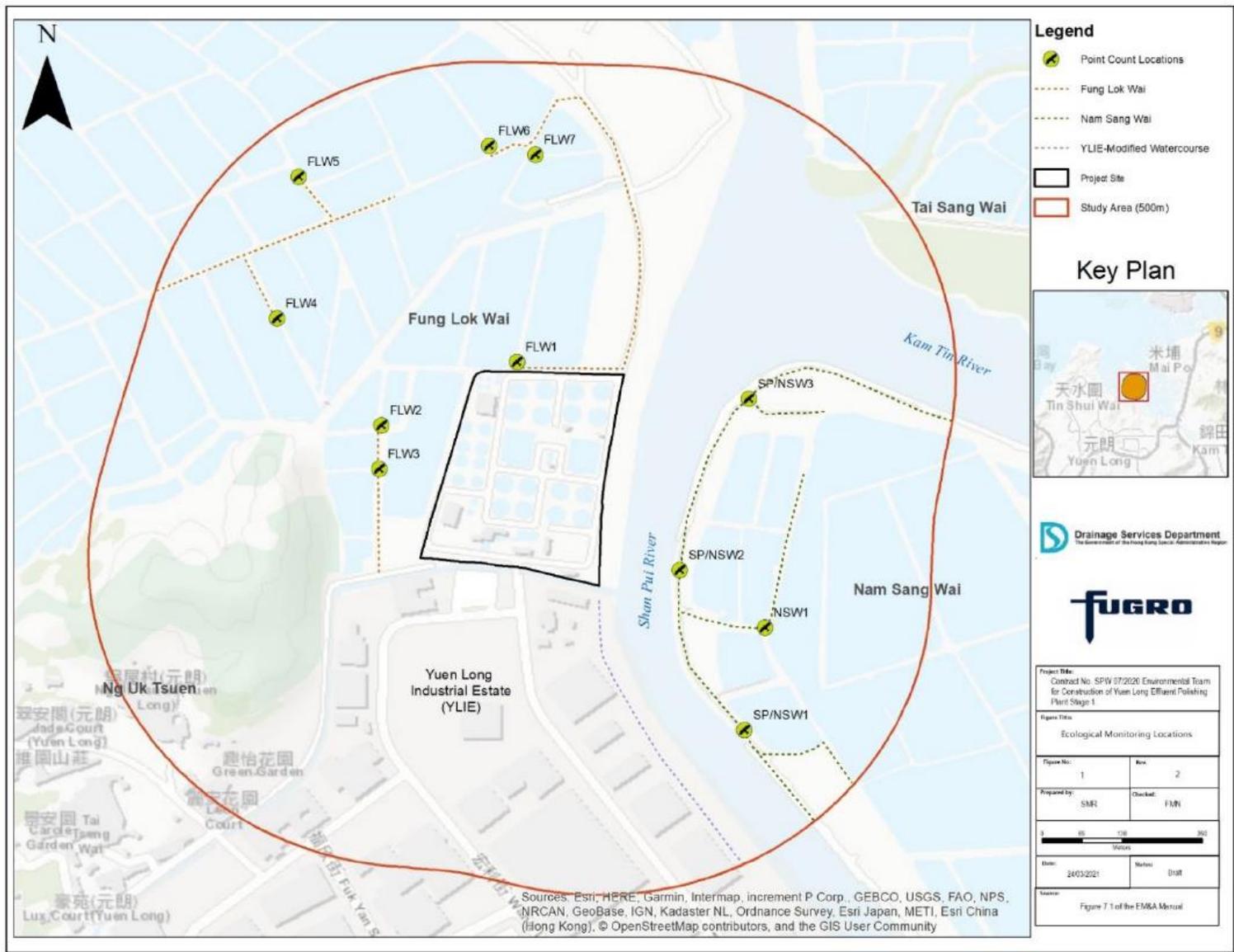
Designation: Environmental Team Leader



Signature:

Date (dd/mm/yyyy): 11/07/2022

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  
(June 2022)

Date (dd/mm/yyyy)	Daytime/ Night time	Season	Area	Transect/ Point Count	Point Count (Location)/ Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong <sup>2</sup>	Principal Status <sup>3</sup>	Level of Concern <sup>4</sup>	Protection Status in China <sup>5</sup>	China Red Data Book <sup>6</sup>	Red List of China's Vertebrates <sup>10</sup>	IUCN Red List <sup>7</sup> (v.2020-3)	Species of Conservation Importance	Wetland Dependent
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	4	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	In flight	House Swift	<i>Apus nipalensis</i>	2	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Great Egret	<i>Ardea alba</i>	4	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	11	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	4	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Transect	FLW	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	15	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Pied Kingfisher	<i>Ceryle rudis</i>	1	Uncommon	R	-	-	-	LC	LC	N	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	2	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	3	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	House Swift	<i>Apus nipalensis</i>	1	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Black Drongo	<i>Dicrurus macrocercus</i>	1	Common	SV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N

13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Little Grebe	<i>Tachybaptus ruficollis</i>	1	Common	R	LC	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	7	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Eurasian Tree Sparrow	<i>Passer montanus</i>	9	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	White-shouldered Starling	<i>Sturnia sinensis</i>	2	Common	PM	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Great Egret	<i>Ardea alba</i>	2	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	8	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	6	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	In flight	Crested Myna	<i>Acridotheres cristatellus</i>	4	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	In flight	House Swift	<i>Apus nipalensis</i>	2	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Mangrove	Chinese Pond Heron	<i>Ardeola bacchus</i>	8	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Mangrove	Little Egret	<i>Egretta garzetta</i>	5	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	3	Abundant	R	-	-	-	LC	LC	N	N

13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-NSW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Oriental Magpie Robin	<i>Copsychus saularis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	White Wagtail	<i>Motacilla alba</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Eurasian Tree Sparrow	<i>Passer montanus</i>	2	Abundant	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	1	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	In flight	House Swift	<i>Apus nipalensis</i>	1	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Chinese Pond Heron	<i>Ardeola bacchus</i>	4	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	In flight	House Swift	<i>Apus nipalensis</i>	6	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Great Egret	<i>Ardea alba</i>	3	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
13/06/2022	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
17/06/2022	Night-time	Wet Season	NSW	Transect	NSW	Plantation-NSW	Masked Laughingthrush	<i>Garrulax perspicillatus</i>	10	Abundant	R	-	-	-	LC	LC	N	N

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  
(June 2022)

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

Shannon Diversity Index Value of all Avifauna Species				
Point Count Method				
EIA Report ID	EM&A Manual ID	June-17	June-22	Remarks
P1	FLW1	1.04	0.73	-
P2	FLW2	0.64	1.50	+
P3	FLW3	1.28	1.75	+
P4	FLW4	2.20	1.26	-
P5	FLW5	2.39	1.81	-
P6	FLW6	0.87	0.87	=
P7	FLW7	1.89	1.29	-
P9	SP/NSW3	1.09	1.30	+
P10	SP/NSW2	1.17	1.39	+
P11	NSW1	1.85	1.24	-
P12	SP/NSW1	1.49	1.35	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June -17	June-22	Remarks
Fung Lok Wai	FLW	1.99	1.93	-
Nam Sang Wai	NSW	0.69	1.59	+
YLIE-CW	YLIE-CW	**	**	=

Notes:

0 = only one species recorded; \*\* no species recorded; - decreased; + increased; = no change

Annex C.2. 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	June-17	June-22	Remarks
P1	FLW1	0.69	0	-
P2	FLW2	**	**	=
P3	FLW3	**	**	=
P4	FLW4	0.64	0.56	-
P5	FLW5	0.95	0	-
P6	FLW6	0.50	0.87	+

Shannon Diversity Index Value of Species with Conservation Importance				
P7	FLW7	0	0.41	+
P9	SP/NSW3	0.68	0	-
P10	SP/NSW2	0.95	0.87	-
P11	NSW1	0	0	=
P12	SP/NSW1	1.01	**	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	June -17	June-22	Remarks
Fung Lok Wai	FLW	1.04	1.02	-
Nam Sang Wai	NSW	**	0.67	+
YLIE-CW	YLIE-CW	**	**	=

Notes:

0 = only one species recorded; \*\* no species recorded; - decreased; + increased; = no change

Annex D – Summary of Hutcheson T-test Analyses (June 2022)

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 All Avifauna Species – Point Count Method

Months	June 2017	June 2022
Total	121	128
Richness	25	18
H	2.87	2.38
S <sup>2</sup> <sub>H</sub>	0.006	0.008
t	4.11	
df	247.13	
Crit	1.97	
p	0.00	
CI	0.16	0.18

#### Annex D.2 Species Diversity of Avifauna Species with Conservation Importance – Point Count Method

Months	June 2017	June 2022
Total	45	50
Richness	5	4
H	1.43	0.75
S <sup>2</sup> <sub>H</sub>	0.007	0.017
t	4.36	
df	85.28	
Crit	1.99	
p	0.00	
CI	0.17	0.26

Annex E – Abundance Data per Point Count Location

Annex E.1. Baseline (June 2017) abundance data (all avifauna species) per point count location

Point count location	Common Name	Abundance
FLW1	<i>Ardea alba</i>	1
	<i>Egretta garzetta</i>	1
	<i>Prinia flaviventris</i>	2
FLW2	<i>Pycnonotus sinensis</i>	2
	<i>Spilopelia chinensis</i>	1
FLW3	<i>Prinia flaviventris</i>	1
	<i>Prinia inornata</i>	1
	<i>Pycnonotus sinensis</i>	3
	<i>Spilopelia chinensis</i>	2
FLW4	<i>Caprimulgus affinis</i>	1
	<i>Copsychus saularis</i>	1
	<i>Dicrurus macrocercus</i>	1
	<i>Hirundo rustica</i>	3
	<i>Milvus migrans</i>	1
	<i>Prinia flaviventris</i>	2
	<i>Prinia inornata</i>	1
	<i>Spilopelia chinensis</i>	3
	<i>Streptopelia decaocto</i>	2
	<i>Tachybaptus ruficollis</i>	2
FLW5	<i>Acridotheres cristatellus</i>	2
	<i>Amaurornis phoenicurus</i>	1
	<i>Ardea alba</i>	3
	<i>Ardeola bacchus</i>	1
	<i>Copsychus saularis</i>	1
	<i>Dicrurus macrocercus</i>	2
	<i>Hirundo rustica</i>	1
	<i>Nycticorax nycticorax</i>	1
	<i>Passer montanus</i>	3
	<i>Pycnonotus sinensis</i>	1
	<i>Spilopelia chinensis</i>	5
	<i>Sturnia sinensis</i>	3
<i>Tachybaptus ruficollis</i>	1	

Point count location	Common Name	Abundance
FLW6	<i>Lanius schach</i>	1
	<i>Milvus migrans</i>	1
	<i>Tachybaptus ruficollis</i>	4
FLW7	<i>Acridotheres cristatellus</i>	1
	<i>Bubulcus coromandus</i>	2
	<i>Dicrurus macrocercus</i>	1
	<i>Egretta garzetta</i>	1
	<i>Gracupica nigricollis</i>	1
	<i>Lanius schach</i>	2
	<i>Streptopelia decaocto</i>	1
SP/NSW3	<i>Ardeola bacchus</i>	5
	<i>Egretta garzetta</i>	7
	<i>Prinia flaviventris</i>	1
	<i>Pycnonotus sinensis</i>	1
SP/NSW2	<i>Ardea alba</i>	2
	<i>Ardeola bacchus</i>	2
	<i>Egretta garzetta</i>	6
	<i>Motacilla alba</i>	1
NSW1	<i>Alcedo atthis</i>	1
	<i>Amaurornis phoenicurus</i>	1
	<i>Ardeola bacchus</i>	1
	<i>Motacilla alba</i>	1
	<i>Nycticorax nycticorax</i>	1
	<i>Parus cinereus</i>	1
	<i>Passer montanus</i>	1
	<i>Prinia flaviventris</i>	8
	<i>Spilopelia chinensis</i>	1
	<i>Sturnia sinensis</i>	1
SP/NSW1	<i>Ardea alba</i>	1
	<i>Ardeola bacchus</i>	2
	<i>Egretta garzetta</i>	3
	<i>Prinia flaviventris</i>	1
	<i>Prinia inornata</i>	1
<b>Total</b>		<b>121</b>

Annex E.2. Impact monitoring (June 2022) abundance data (all avifauna species) per point count location

Point count location	Common Name	Abundance
FLW1	<i>Ardeola bacchus</i>	15
	<i>Ceryle rudis</i>	1
	<i>Pycnonotus sinensis</i>	1
	<i>Spilopelia chinensis</i>	2
FLW2	<i>Gracupica nigricollis</i>	1
	<i>Motacilla alba</i>	2
	<i>Prinia flaviventris</i>	1
	<i>Prinia inornata</i>	3
	<i>Pycnonotus sinensis</i>	3
FLW3	<i>Acridotheres cristatellus</i>	2
	<i>Apus nipalensis</i>	1
	<i>Dicrurus macrocercus</i>	1
	<i>Prinia flaviventris</i>	1
	<i>Prinia inornata</i>	1
	<i>Pycnonotus sinensis</i>	1
FLW4	<i>Ardeola bacchus</i>	3
	<i>Gracupica nigricollis</i>	1
	<i>Prinia inornata</i>	3
	<i>Tachybaptus ruficollis</i>	1
FLW5	<i>Acridotheres cristatellus</i>	7
	<i>Ardeola bacchus</i>	2
	<i>Gracupica nigricollis</i>	1
	<i>Motacilla alba</i>	1
	<i>Passer montanus</i>	9
	<i>Prinia flaviventris</i>	2
	<i>Spilopelia chinensis</i>	1
	<i>Streptopelia decaocto</i>	1
	<i>Sturnia sinensis</i>	2
FLW6	<i>Ardea alba</i>	2
	<i>Ardeola bacchus</i>	8
	<i>Egretta garzetta</i>	2
FLW7	<i>Acridotheres cristatellus</i>	2
	<i>Ardea alba</i>	1
	<i>Ardeola bacchus</i>	6
	<i>Prinia flaviventris</i>	1
	<i>Streptopelia decaocto</i>	1
SP/NSW3	<i>Acridotheres cristatellus</i>	2
	<i>Apus nipalensis</i>	6
	<i>Ardea alba</i>	3

Point count location	Common Name	Abundance
	<i>Prinia inornata</i>	3
SP/NSW2	<i>Acridotheres cristatellus</i>	1
	<i>Apus nipalensis</i>	1
	<i>Ardea alba</i>	1
	<i>Ardeola bacchus</i>	4
	<i>Egretta garzetta</i>	1
NSW1	<i>Ardea alba</i>	1
	<i>Passer montanus</i>	3
	<i>Spilopelia chinensis</i>	1
	<i>Streptopelia decaocto</i>	1
SP/NSW1	<i>Copsychus saularis</i>	1
	<i>Motacilla alba</i>	2
	<i>Passer montanus</i>	2
	<i>Prinia inornata</i>	2
<b>Total</b>		<b>128</b>

Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds  
(June 2022)

Frequency and Period	Location	Day time (13/07/2022)		Night-time (17/07/2022)	
		Start Time	L <sub>Aeq</sub> (30 min) dB(A)	Start Time	L <sub>Aeq</sub> (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1	09:26	52.3	23:06	50.4
	FLW2	08:59	53.4	22:35	52.2
	FLW3	08:55	58.4	22:40	53.9
	FLW4	07:45	52.5	20:50	51.5
	FLW5	07:50	48.2	21:28	55.4
	FLW6	08:20	49.8	21:25	49.3
	FLW7	08:28	53.8	22:01	49.7
	SP/NSW3	13:05	57.6	19:10	55.3
	SP/NSW2	13:09	57.7	19:14	64.5
	NSW1	13:40	55.6	19:43	51.8
	SP/NSW1	13:45	60.3	19:50	53.4

Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds  
(June 2022)



Annex G.1. Active Pond at Fung Lok Wai, west of the Project Site



Annex G.2. Active Pond and *Ficus microcarpa* Chinese Pond Heron nesting site at Fung Lok Wai, north of the Project Site



Annex G.3. Mangrove habitat at Nam Sang Wai, east of the Project Site



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