Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Monthly EM&A Report (August 2023)

Drainage Services Department

2023-09-14

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Attn: Mr. Simon H.M. YEUNG – CRE(C)

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Contract No. SPW 03/2023

Independent Environmental Checker for Construction of Yuen Long Effluent Polishing Plant Stage 1 (2023-2024)

Environmental Permit No. EP-565/2019

EP Condition 3.4 – Monthly EM&A Report for August 2023

14 September 2023

By Hand and By Email

Dear Sir,

I refer to the captioned Monthly EM&A Report for August 2023 (Revision 2) which was received via e-mail and certified by the Environmental Team Leader on 14 September 2023 (ref.: PL-202309004).

I have no comment on the captioned report and hereby verify that this submission has complied with the requirements set out in the EM&A Manual for the captioned project, in accordance with Condition 3.4 of Environmental Permit No. EP-565/2019.

Should you have any queries regarding the captioned or require any further information, please contact the undersigned at 2828 5875.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

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c.c.	DSD	Mr. Wallace CHENG – E/SP 16	By Email
	Aurecon Hong Kong Limited	Mr. Vincent LU – ET Leader	By Email
	Paul Y – CREC Joint Venture	Mr. Sam TSANG – Acting EO	By Email

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Ref: PL-202309004

By Email

14 September 2023

Mott MacDonald
3/F Manulife Tower,
348 Kwun Tong Road,
Kwun Tong, Kowloon,
Hong Kong

Attn: Mr. Brandon Wong, IEC

Dear Sir,

Contract No. SPW 02/2023
Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Environmental Permit No. EP-565/2019
EP Condition 3.4 – Monthly EM&A Report for August 2023

Pursuant to Clause 3.4 of Further Environmental Permit No. EP-565/2019 for the captioned project, we are pleased to submit the certified Monthly EM&A Report for August 2023 (Rev.2) for your verification.

Should you have any queries regarding the captioned or require any further information, please contact the undersigned at 2531 0243.

Yours faithfully,
For and on behalf of
Aurecon Hong Kong Limited

Vincent M. J. Lu
Environmental Team Leader

Encl.

cc. AECOM – Mr. Patrick Leung (patrick.leung@ylepp-aecom.com)
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Approval			
Reviewer's signature		Approver's signature	
Name	Joe Ho	Name	Vincent Lu
Title	Senior Environmental Consultant	Title	Environmental Team Leader

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EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. SPW 02/2023 “Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1”. Drainage Services Department (DSD) has appointed Aurecon Hong Kong Limited (Aurecon) to undertake the Environmental Team services for the project and implement the EM&A works.

This is the 29th Monthly EM&A Report for the construction phase which summaries findings of the EM&A programme during the reporting period from 1 August 2023 to 31 August 2023. As informed by the Contractor, major activities in the reporting month were:

- Ground investigation at SDB
- Laying cable ducts and construction of cable draw pits near entrance of YLSTW
- ABWF and E&M works at CLP substation
- ELS works and RC structure works at IW & PST
- Installation of 813mm pipe pile at North of AGS
- Installation of King Post at AGS
- Installation of observation wells and dewatering well at AGS
- Installation of sheet pile at TTS
- Installation of King post at TTS
- Installation of observation wells and dewatering well at TTS
- Installation of sheet pile at STB
- Demolition of underground structure at pump room of AFT
- ELS works at UC5
- Sheet piling installation around Sludge digester no. 1 – 3
- Installation of sheet pile at Biogas Holder no. 1
- Construction of temporary 200m3 sludge holding tanks
- Construction of temp. haul road in front of central Control Room
- Disposal of construction waste as indicated in **Appendix I**.

Breaches of Environmental Quality Performance Limits (AL levels)

No Action and Limit Level exceedance was recorded for air quality monitoring and construction noise monitoring in the reporting month.

No Action and Limit Level exceedance was recorded for water quality monitoring in the reporting month.

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.

No Action / Limit exceedance for the ecological monitoring of birds in the reporting month.

No corrective actions were required according to the Event and Action Plans for the Monitoring Parameters.

Land Contamination

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", "Waste Storage Area", "SAS Thickener House-1" and "SAS Thickener House-2" were submitted to EPD respectively on 1st November 2021, 23rd November 2021, 29th April 2022, 6th July 2022 and 19th June 2023. No contaminated soil and ground water was found within the Main Storeroom & Workshop, Mechanical Workshop, Waste Storage Area, SAS Thickener House-1 and SAS Thickener House-2, and no remedial action is required for these locations.

Complaint Log

No complaints were received in the reporting period.

Notifications of Summons and Successful Prosecutions

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

Reporting Change

There were no reporting changes during the reporting month.

Future Key Issues

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

- Ground investigation at SDB, AGS & TTS.
- Ground investigation and footing construction works at Walkway (Portion 5)
- ABWF work and fixing GRC panel at CLP Substation
- ELS work and RC structure at IW & PST
- Installation of King Post at AGS
- Installation of observation wells and dewatering well at AGS
- Erection temp. loading platform at AGS
- ELS work at AGS
- Demolition of underground structure at A. tank no. 5-8
- Installation of Sheet pile at TTS
- Installation of King post at TTS
- Installation of observation wells and dewatering well at TTS
- Erection temp. loading platform at TTS
- ELS work at TTS
- Demolition of Mixed Liquor Distribution & sludge Draw-off Chamber at FST no. 5-8
- Demolition of underground structure at pump room of AFT

- Driven pile works at STB (17nos.)
- Installation of sheet pile at STB
- ELS work at STB
- Installation of observation wells and dewatering well at STB
- ELS and construction of UC no.5
- Sheet piling work around Sludge digester no. 1-3
- ELS work at Sludge Digester no. 1-3
- Installation of observation wells and dewatering well at Sludge Digester no. 1-3
- Installation of sheet pile at Biogas Holder no. 1
- ELS work at Biogas Holder no. 1
- Driven pile works at SDB (24nos.)
- Construction of temp. haul road in front of central Control Room

1 INTRODUCTION

1.1 Background

1.1.1 The existing Yuen Long Sewage Treatment Works (YLSTW) is a secondary sewage treatment works, located at Yuen Long Industrial Estate serves Yuen Long Town, Yuen Long Industrial Estate and Kam Tin areas with a design capacity of 70,000 m³ per day. Based on the latest planning data, the volume of sewage generation from the YLSTW catchment is estimated to increase to 150,000 m³ per day after 20 years. In addition, since YLSTW has been operating for over 30 years and most of its facilities are of out-dated design and reaching the end of their design life, the environmental facilities of the plant will also be upgraded and hence improving the adjacent environment through upgrading the YLSTW to Yuen Long Effluent Polishing Plant (YLEPP). The Location of Proposed Yuen Long Effluent Polishing Plant is given in **Figure 1**.

1.1.2 YLSTW will be reconstructed in two stages to increase its capacity to 150,000 m³ per day. The proposed works, as Stage 1 of the project, will firstly increase the treatment capacity to 100,000 m³ per day. In the course of Stage 1 construction, about half of the existing facilities of YLSTW would be demolished, while the other half would be kept in operation to maintain the sewage treatment service for Yuen Long area. 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 was 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”) for the period from July 2020 to 6 July 2023.

1.1.5 Aurecon Hong Kong Limited (Aurecon) 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 from July 2023. Air quality, noise, water quality and ecological monitoring, site inspections and auditing (as scheduled) under EM&A programme with effect from 7 July 2023 was conducted by Aurecon. Aurecon is undertaking the preparation (including reporting of monitoring results), certification by ET Leader and submission of this report to EPD.

1.1.6 This is the 29th Monthly EM&A report to document the findings of site inspection activities and EM&A programme for this project from 1 August 2023 to 31 August 2023 (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**.

Table 1 Contact Information of Key Personnel

Party	Position	Name	Telephone
Project Proponent (Drainage Services Department)	Engineer	Mr. Wallace Cheng	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 (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker (IEC)	Mr. Brandon Wong	2828 5875
Contractor (Paul Y. - CREC Joint Venture)	Assistant Environmental Officer	Mr. Sam Tsang	4634 2581
Environmental Team (Aurecon Hong Kong Limited)	Environmental Team Leader (ETL)	Mr. Vincent Lu	6346 5908

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:

- Ground investigation at SDB
- Laying cable ducts and construction of cable draw pits near entrance of YLSTW
- ABWF and E&M works at CLP substation
- ELS works and RC structure works at IW & PST
- Installation of 813mm pipe pile at North of AGS
- Installation of King Post at AGS
- Installation of observation wells and dewatering well at AGS
- Installation of sheet pile at TTS
- Installation of King post at TTS
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- ELS works at UC5
- Sheet piling installation around Sludge digester no. 1 – 3
- Installation of sheet pile at Biogas Holder no. 1
- Construction of temporary 200m3 sludge holding tanks
- Construction of temp. haul road in front of central Control Room

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 2**.

Table 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 and operation period of the Project
Construction Waste Disposal Billing Account	7038933	20-Nov-2020	The whole construction and operation period of the Project
Registration as Chemical Waste Producer under WDO	WPN5213-528-P2796-03	4-Feb-2021	The whole construction and operation period of the Project
Construction Noise Permit	GW-RN0338-23	6-Apr-2023	5-Aug-2023
Construction Noise Permit	GW-RN0678-23	3-July-2023	2-Oct-2023
Construction Noise Permit	GW-RN0818-23	6-Aug-2023	5-Feb-2024
Construction Noise Permit	PP-RN0025-23	3-Jun-2023	2-Sep-2023
Water Pollution Control Ordinance (WPCO) (CAP. 358) Licence pursuant to Section 20 (Variation of Licence Pursuant to Section 28 of WPCO)	WT00038102-2021	4-Aug-2021 (Variation approved on 1-Dec-2022 with immediate effect)	31-Aug-2026
Marine Dumping Permit Type 1 – Open Sea Disposal	EP/MD/23-109	17-Apr-2023	16-Oct-2023
Marine Dumping Permit (Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal)	EP/MD/24-024	17-Jul-2023	16-Aug-2023
Marine Dumping Permit (Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal)	EP/MD/24-029	17-Aug-2023	16-Sep-2024
Disposal of Special waste at Landfills Admission Ticket (Pond Sediment)	Admission Ticket Number: 17423	30-Jun-2023	30-Sep-2023

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 3**.

Table 3 Air Quality Monitoring Equipment

Item	Location	Brand	Model	Equipment	Serial No.
1	AM1	Sibata	Model LD-5R	SIBATA LD-5R Digital Dust Indicator	2Y6548, 2Y6549
2	AM2				

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 02/2023 “Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1”.

2.5.2 The most updated locations are summarized in **Table 4** and the locations of the air monitoring stations shown in **Figure 2**.

Table 4 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 5**. Detailed monitoring data are presented in **Appendix F**.

Table 5 Summary of Air Quality Monitoring Results

Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
1-hour TSP				
AM1	64	54-71	291	500
AM2	65	57-71	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 6**.

Table 6 Comparison of 1-hr TSP data with EIA predictions

Monitoring Station	EIA ID	Predicted Maximum Hourly Average TSP Concentration (μg/ m^3)	Maximum 1-hr TSP Monitoring Results in July 2023 (μg/ m^3)
Content			
AM1	ASR A09	205-451	71
AM2	ASR A11		71

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 ± 0.1 dB).

3.2.2 The details of the noise monitoring equipment used are summarized in **Table 7**.

Table 7 Construction Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial No.
1	NTi Audio	XL2	NTi Audio XL2 Digital Sound Level Meter	A2A-13548-E0
2	NTi Audio	XL2	NTi Audio XL2 Digital Sound Level Meter	A2A-17638-E0
3	NTi Audio	XL2	NTi Audio XL2 Digital Sound Level Meter	A2A-13663-F0
4	RION	NC-74	RION NC-74 Acoustic Calibrator	34615222
5	SVANTEK	SV33B	SVANTEK SV33B Acoustic Calibrator	83042
6	RS PRO	RS-90	Anemometer	210722153

3.3 Monitoring Parameters and Frequency

3.3.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 8**.

Table 8 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency
LAeq (30 min) (L10 and L90 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 consider 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 02/2023 “Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1”.

3.6.2 The most updated locations are summarized in **Table 9** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 9 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 10**. Detailed monitoring data are presented in **Appendix F**.

Table 10 Summary of Construction Noise Monitoring Results

Time Period	Noise Monitoring Stations	Leq (30min) dB(A) (Range)	Action Level	Limit Level dB(A)
0700-1900 hrs on normal weekdays	CM1	65-68	When one documented complaint is received	75
	CM2	62-66		75
	CM3	64-67		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 11**.

Table 11 Comparison of Noise monitoring data with EIA predictions

Monitoring Station	EIA ID	Maximum Predicted Mitigated Construction Noise Level L_{eq} (30min) dB(A)	Maximum Construction Noise Level in July 2023 L_{eq} (30min) dB(A)
CM1	NSR1	72	68
CM2	NSR2	74	66
CM3	NSR3	75	67

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 12**. 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 12 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 ProDSS	Tem: -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; ±8% for 20-50mg/L Sal: ±1% of reading or 0.1 ppt (whichever is greater) pH: ±0.2 units Turb: ±3% or 0.3NTU (FNU) (whichever greater)	22D100436
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	N/A
Water Sampling	Water Sampler	Aquatic Research Instruments 2.2L Horizontal Water Sampler HWS2.2CP	N/A	N/A	N/A
Positioning	DGPS	GARMIN GPSMAP 78s	N/A	GPS: ±1m	N/A
Water Depth	Echo Sounder	Garmin ECHO 101	Maximum depth: 457.2 m	0.1 m	N/A

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 13**.

Table 13 Monitoring Parameters and Frequency

Parameters	Monitoring Frequency
In-situ Measurement Turbidity (in NTU), pH, DO (in mg/L and % of saturation), Temperature (in °C), Salinity (in ppt) Laboratory Analysis Suspended Solids	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.)

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 Acumen Laboratory and Testing Limited (HOKLAS Reg: No.241) 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 14** and the locations of the water quality monitoring stations shown in **Figure 4**.

Table 14 Coordinates of Water Quality Monitoring Locations

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

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 15**.

Table 15 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	0
	Limit	0	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

Three 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 (Variation of WPCO Discharge Licence was approved by EPD on 1 December 2022 with immediate effect).

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 31 August 2023.

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 18:42, the earliest final night roost period recorded during the survey and lasted for 30 minutes. **Table 16** presents the monitoring parameters.

Table 16 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 31 August 2023 and started around 17:42 (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, there was no observed pre-roost aggregate (PRA) in the east side (ANR1) of the Project boundary while individuals of Little Egret *Egretta garzetta* (3) and Chinese Pond Heron *Ardeola bacchus* (5) were noted at ANR2 of the Project boundary (**Table 17**).

For the final night roost at around 18:42, individuals of Little Egret *Egretta garzetta* (1) and Chinese Pond Heron (2) were observed at the roosting area ANR1 utilizing the understory to canopy layer of the roosting substrate *Sonneratia apetala* and *S. caseolaris*; while Little Egret *Egretta garzetta* (3), Grey Heron *Ardea cinerea* (2) and Chinese Pond Heron *Ardeola bacchus* (7) were noted at ANR2 that utilized the understory to 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 17 Active Ardeid Night Roost Survey Findings

Date: 31 August 2023			**Sunset Time: 18:42** **Tidal Condition: Low Tide**		
Pre-roost Period			**Final roost Period**		
Time of Return:	Little Egret *Egretta garzetta* and Chinese Pond Heron *Ardeola bacchus* (17:57)		**Time of Return:**	Little Egret *Egretta garzetta*, Chinese Pond Heron *Ardeola bacchus* and Grey Heron *Ardea cinerea* (18:42)	
Parameters	**Location**		**Parameters**	**Location**	
	ANR1	**ANR2**		**ANR1**	**ANR2**
Pre-roost Aggregation (Y/N):	N	Y	**Substrate Species:**	*Sonneratia apetala* and *S. caseolaris*	*Sonneratia apetala* and *S. caseolaris*
Substrate Species:	*Sonneratia apetala* and *S. caseolaris*	*Sonneratia apetala* and *S. caseolaris*	**Substrate Height (m):**	Approx. 5 m.	Approx. 3-4 m.
Substrate Height (m):	Approx. 5 m.	Approx. 3-4 m.			
Ardeid Species Composition	**Abundance (individuals)**		**Ardeid Species Composition**	**Abundance (individuals)**	
	ANR1	**ANR2**		**ANR1**	**ANR2**
Chinese Pond Heron *Ardeola bacchus*	-	5	Chinese Pond Heron *Ardeola bacchus*	2	7
Little Egret *Egretta garzetta*	-	3	Little Egret *Egretta garzetta*	1	3
Grey Heron *Ardea cinerea*	-	-	Grey Heron *Ardea cinerea*		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 31 August 2023 in concurrence with the construction phase monthly monitoring of the pre-identified active night roosts. Noise monitoring started at 18:42 and lasted for 30 minutes, until 19:12.

Current survey results showed noise levels (LAeq (30 min.)) at both monitoring stations to be well below the action and limit levels as presented in **Table 18**.

Table 18 Noise Monitoring Parameters (For Active Ardeid Night Roost Survey)

Frequency and Period	Location	Start Time	LAeq (30 min.)	Action Level	Limit Level
Monthly in concurrence with the construction phase monthly monitoring of the active night roosts	NMS1	18:42	61.3	65.5 dB(A)[1]	72.2 dB(A)[2]
	NMS2	18:42	58.2		

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)

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.

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 August 2023 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 *Ardeola bacchus,* Grey Heron *Ardea cinerea* and Little Egret *Egretta garzetta*.

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 were conducted last 25 August 2023 (daytime) which started at around 07:45. Additionally, the survey overlooking the mudflats and mangroves in the Shan Pui River was concurrently conducted on the same date with the daytime survey during the low tide (generally 1.5m or below) period, and also started at around 07:45. 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 19 Noise Monitoring Parameters

Parameter	Frequency and Period
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 (α = 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; *Pi* = 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 25 August 2023 (daytime), which started around 07:45, 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 07:45 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 683 avifauna individuals was recorded in the monitoring area during the August 2023 monitoring period, of which 440 individuals were recorded from the point count method and 243 individuals from the transect walk method. Relative to the August 2016 baseline data (point count method = 160; and transect walk = 140), increase in point count method and decrease in transect walk method was observed.

Details of these findings are summarized in **Table 20**.

Table 20 Abundance of all Avifauna Species

Abundance of all Avifauna Species				
EIA Report ID	**EM&A Manual ID**	**August-16**	**August-23**	**Remarks**
Point Count Method				
P1	FLW1	10	28	+
P2	FLW2	11	11	=
P3	FLW3	14	18	+
P4	FLW4	8	47	+
P5	FLW5	23	106	+
P6	FLW6	5	43	+
P7	FLW7	6	9	+
P9	SP/NSW3	16	58	-
P10	SP/NSW2	9	62	+
P11	NSW1	47	17	-
P12	SP/NSW1	11	41	+
Total		**160**	**440**	+
Mean		**15**	**40**	+
Transect Walk Method				
Fung Lok Wai	FLW	135	102	-
Nam Sang Wai	NSW	0	141	+
YLIE-CW	YLIE-CW	5	0	-
Total		**140**	**243**	+
Mean		**47**	**81**	+

Notes:
+ increased abundance;
- decreased abundance

No Action / Limit exceedance was recorded for the abundance of all avifauna species (including but not limited to overwintering waterbirds) for both the point-count and transect walk method.

5.2.3.1.2 Avifauna Species of Conservation Importance

Of the 683 avifauna individuals recorded in the monitoring area during the August 2023 monitoring period, 156 individuals (point count method = 95 individuals; transect walk method = 61 individuals) were of conservation importance. With reference to August 2016 data, (point count method = 66; and transect walk = 54), increase in both point count method and transect walk method were observed. Details of these findings are summarized in **Table 21**.

Table 21 Abundance of Species of Conservation Importance

Abundance of Species of Conservation Importance				
EIA Report ID	**EM&A Manual ID**	**August-16**	**August-23**	**Remarks**
Point Count Method				
P1	FLW1	5	5	+
P2	FLW2	1	0	-
P3	FLW3	5	0	-
P4	FLW4	5	6	+
P5	FLW5	11	11	=
P6	FLW6	5	14	+
P7	FLW7	1	2	+
P9	SP/NSW3	13	35	+
P10	SP/NSW2	3	11	+
P11	NSW1	7	2	-
P12	SP/NSW1	10	9	-
Total		**66**	**95**	+
Mean		**6**	**9**	+
Transect Walk Method				
Fung Lok Wai	FLW	49	13	-
Nam Sang Wai	NSW	0	48	+
YLIE-CW	YLIE-CW	5	0	-
Total		**54**	**61**	+
Mean		**18**	**20**	+

Notes:
+ increased abundance;
- decreased abundance

No Action / Limit exceedance was recorded for the abundance of avifauna species with conservation importance only for both the point-count and transect walk method.

5.2.3.2 Diversity (Species Richness[1] and Shannon Diversity Index[2])

5.2.3.2.1 All Avifauna Species

A total of 33 avifauna species (species richness) were recorded during the August 2023 monitoring period, of which, 31 species were recorded by the point count method while 27 species were also noted by the transect walk method. Relative to the baseline data (point count method = 26 species; transect walk method = 30 species), increase in total species richness for the point count method and decrease for transect walk method were noted. In terms of Shannon diversity index (H') values, current result in point count method showed an insignificant increase (t-value = 1.79; t-crit = 1.97; p-value =0.08; α = 0.05) relative to the baseline reference value. Conversely, current results in the transect walk method showed an insignificant decrease (t-value = 0.10; t-crit = 1.97; p-value =0.92; α = 0.05) from baseline reference value. Details of these findings are summarized in **Table 22**, **Appendix F.6.1**, and **Appendix F.6.2**.

[1] actual number of species

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

Table 22 Shannon Diversity Index Value of all Avifauna Species

Shannon Diversity Index Value of all Avifauna Species				
EIA Report ID	**EM&A Manual ID**	**August-16**	**August-23**	**Remarks**
Point Count Method				
P1	FLW1	1.75	0.88	-
P2	FLW2	1.24	1.17	-
P3	FLW3	1.97	0.69	-
P4	FLW4	1.91	1.73	-
P5	FLW5	1.13	2.18	+
P6	FLW6	1.05	2.03	+
P7	FLW7	1.24	1.00	-
P9	SP/NSW3	1.66	2.34	+
P10	SP/NSW2	1.89	2.26	+
P11	NSW1	1.57	2.07	+
P12	SP/NSW1	0.3	2.11	+
Overall H'		**2.80**	**2.96**	+
Species Richness		**26**	**31**	+
Transect Walk Method				
Fung Lok Wai	FLW	2.84	2.40	-
Nam Sang Wai	NSW	**	2.85	+
YLIE-CW	YLIE-CW	0.67	**	-
Overall H'		**2.87**	**2.88**	+
Species Richness		**30**	**27**	-

Notes:

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

No Action / Limit exceedance was recorded for the decline in species diversity of all avifauna species in the point count / transect walk method.

5.2.3.2.2 Avifauna Species of Conservation Importance

Of the 33 avifauna species identified during the August 2023 monitoring period, 9 species were of conservation importance (point count method = 8 species; transect walk method = 8 species). Meanwhile, relative to the baseline values in August 2016 (point count method = 7 species; transect walk method = 6 species), increase in the number of species with conservation importance were recorded from point count method and an increase was recorded in transect walk method. In terms of Shannon diversity index (H'), insignificant increase in point count method (t-value = 0.76; t-crit = 1.98; p-value =0.45; α = 0.05) and significant increase in transect walk method (t-value = 4.07; t-crit = 1.98; p-value =0; α = 0.05) was noted relative to the baseline reference values. Details of these findings are summarized in **Table 23**, and **Appendix F.6.3**.

Table 23 Shannon Diversity Index Value of Species with Conservation Importance

Shannon Diversity Index Value of Species with Conservation Importance				
EIA Report ID	**EM&A Manual ID**	**August-16**	**August-23**	**Remarks**
Point Count Method				
P1	FLW1	1.05	0.50	-
P2	FLW2	0	**	-
P3	FLW3	0.95	**	-
P4	FLW4	1.33	1.01	-
P5	FLW5	0.30	0.47	+
P6	FLW6	1.05	0.76	-
P7	FLW7	0	0.69	+
P9	SP/NSW3	1.20	1.65	+
P10	SP/NSW2	0.64	1.24	+
P11	NSW1	0.80	0	-
P12	SP/NSW1	0	1.22	+
Overall H'		**1.68**	**1.77**	+
Species Richness		**7**	**8**	+
Transect Walk Method				
Fung Lok Wai	FLW	1.10	1.41	+
Nam Sang Wai	NSW	**	1.79	+
YLIE-CW	YLIE-CW	0.67	**	-
Overall H'		**1.26**	**1.85**	+
Species Richness		**6**	**8**	+

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')

No Action / Limit exceedance was recorded for the decline in species diversity of avifauna species with conservation importance in the point count / transect walk method.

5.2.3.3 Wetland Habitat Utilization

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

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, different wetland habitats were generally observed with very low (VL) number of species (**Table 24**).

Table 24 Wetland habitat utilization of all avifauna species

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

Notes:

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

-: no recorded individuals

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

5.2.3.3.2 Avifauna Species of Conservation Importance

Majority of the different wetland habitats had very low (VL) abundance of avifauna species of conservation importance; and were also generally utilized by very low (VL) number of species (**Table 25**).

Table 25 Wetland habitat utilization of avifauna species of conservation importance

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

Notes:

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

-: no recorded individuals

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

5.2.3.4 Noise Levels

Noise levels LAeq (30 min) recorded on 25 August 2023 (daytime) from each of the point count locations during the ecological bird monitoring are shown in **Table 26**.

Table 26 Noise Monitoring Results (For Ecological Monitoring of Birds)

Frequency and Period	Location	Day time (25/8/2023)	
		Start Time	LAeq (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1/ P1	09:09	61.7
	FLW2/ P2	08:32	66.5
	FLW3/ P3	08:36	67.4
	FLW4/ P4	07:57	57.9
	FLW5/ P5	07:45	56.5
	FLW6/ P6	09:21	64.6
	FLW7/ P7	09:51	61.6
	SP/NSW3/ P9	11:40	57.5
	SP/NSW2/ P10	11:36	60.0
	NSW1/ P11	10:55	60.8
	SP/NSW1/ P12	10:57	61.8

No Action / Limit exceedance was recorded for noise levels at all stations for the ecological monitoring of birds in the reporting month.

6 LANDSCAPE AND VISUAL

6.1 Audit Requirements

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

To monitor and audit the implementation of landscape and visual mitigation measures, four weekly landscape and visual site audits were carried out on 2, 8, 16, 23 and 29 August 2023.

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”. As no contaminated soil and groundwater was found within the “SAS Thickener House-1”, no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the “SAS Thickener House-1” . Their findings are summarized in Contamination Assessment Report (CAR) and submitted to EPD on 6 July 2022.

7.1.5 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the “SAS Thickener House-2” and the laboratory results for the sampling works (conducted between 15 February 2023 to 23 February 2023) show that there are no exceedances of the adopted RBRGs for the “SAS Thickener House-2”. The laboratory results are compared against the adopted RBRGs and soil saturation limit (Csat) for soil samples and the adopted RBRGs and the solubility limits for groundwater samples. No exceedance of RBRG are recorded for both soil samples and groundwater samples. Furthermore, no exceedance of the soil saturation limit are recorded for soil samples. However, the exceedances of solubility limits for PCRs (C9-C16) are recorded for groundwater samples collected at BH-18, BH-19, BH-20 and BH-21; and also PCRs (C17-C35) for BH-21. As no non-aqueous phase liquid (NAPL) was observed during sampling, no further sampling and remediation are required. As no contaminated soil and groundwater is found within the

“SAS Thickener House-2”, no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the “SAS Thickener House-2”. Their findings are summarized in Contamination Assessment Report (CAR) which was certified by ET Leader and verified by IEC on 31 May 2023 and submitted to EPD on 19th June 2023.

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, four site inspections were carried out on 2, 8, 16, 23 and 29 August 2023.

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 27**.

Table 27 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 No Action / Limit exceedances was recorded for the ecological monitoring of birds on 25 August 2023 (daytime / night-time).

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 28**.

Table 28 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, finalised and 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, finalised and 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, finalised and 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, finalised and available for public inspection via the dedicated website.
Condition 2.14	Contamination Assessment Report for SAS Thickener House-1	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 2.14	Contamination Assessment Report for SAS Thickener House-2	Certified by ET Leader and verified by IEC on 31 May 2023 and submitted to EPD on 19 Jun 2023, 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.
Condition 3.4	Monthly EM&A Report (from April 2021 to July 2023)	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 June 2023)	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 July 2023	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 Months

- Ground investigation at SDB, AGS & TTS.
- Ground investigation and footing construction works at Walkway (Portion 5)
- ABWF work and fixing GRC panel at CLP Substation
- ELS work and RC structure at IW & PST
- Installation of King Post at AGS
- Installation of observation wells and dewatering well at AGS
- Erection temp. loading platform at AGS
- ELS work at AGS
- Demolition of underground structure at A. tank no. 5-8
- Installation of Sheet pile at TTS
- Installation of King post at TTS
- Installation of observation wells and dewatering well at TTS
- Erection temp. loading platform at TTS
- ELS work at TTS
- Demolition of Mixed Liquor Distribution & sludge Draw-off Chamber at FST no. 5-8
- Demolition of underground structure at pump room of AFT
- Driven pile works at STB (17nos.)
- Installation of sheet pile at STB
- ELS work at STB
- Installation of observation wells and dewatering well at STB
- ELS and construction of UC no.5
- Sheet piling work around Sludge digester no. 1-3
- ELS work at Sludge Digester no. 1-3
- Installation of observation wells and dewatering well at Sludge Digester no. 1-3
- Installation of sheet pile at Biogas Holder no. 1
- ELS work at Biogas Holder no. 1
- Driven pile works at SDB (24nos.)
- Construction of temp. haul road in front of central Control Room

11.2 Key Issues for the Coming Month

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

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. No Action / Limit exceedances was recorded for the ecological monitoring of birds during the period.

12.1.6 Four environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.

12.1.7 Four 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

- No specific observation was identified in the reporting month.

Construction Noise Impact

- The Contractor is reminded to maintain and reinstate the silentup at northern and western site boundary.

Water Quality Impact

- No specific observation was identified in the reporting month.

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

- No specific observation was identified in the reporting month.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

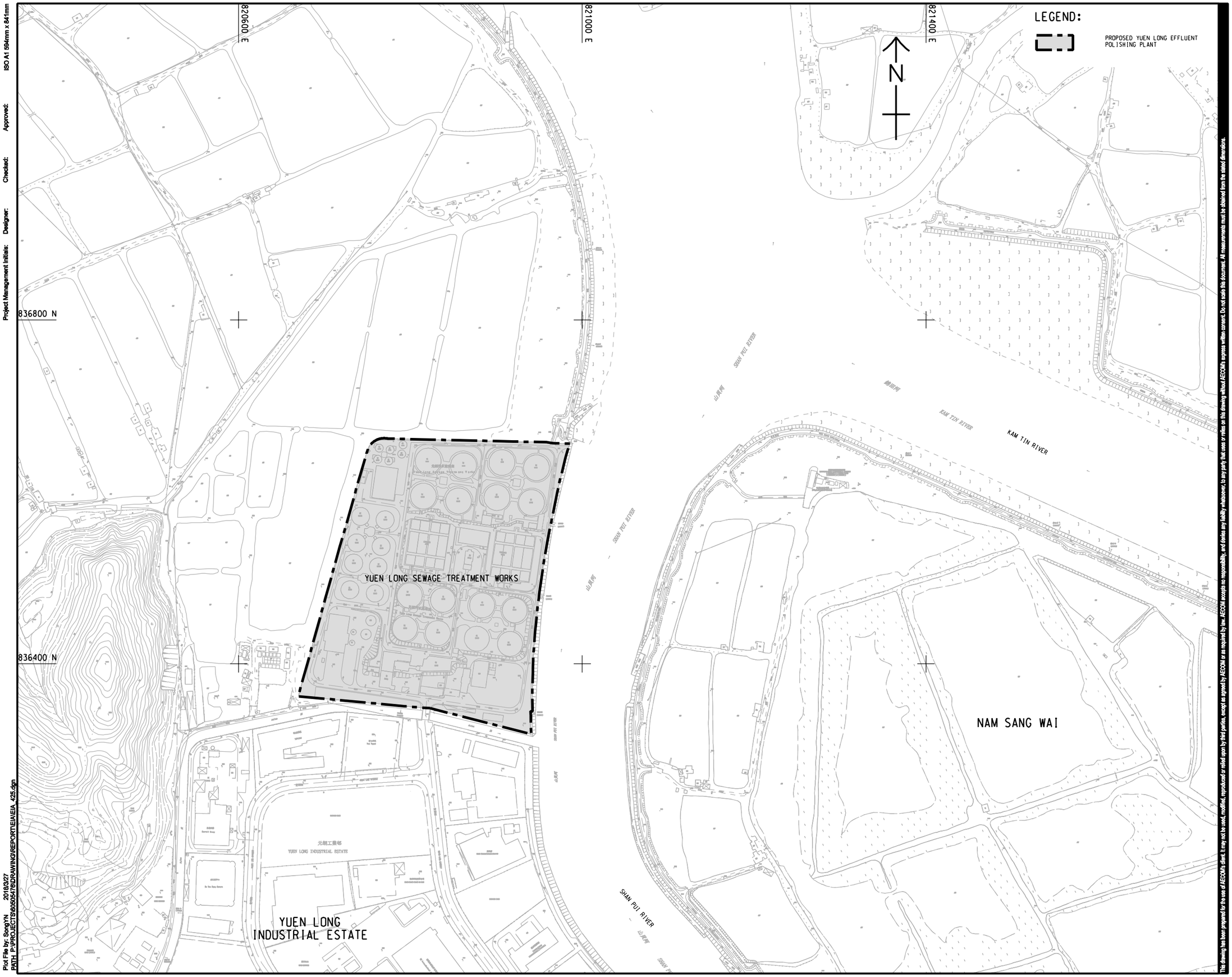
Hazard to Life

- No specific observation was identified in the reporting month.

Permit/ Licenses

- No specific observation was identified in the reporting month.

Figure 1 Location of Proposed Yuen Long Effluent Polishing Plant



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

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Drainage Services Department

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SCALE 比例
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DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60505476

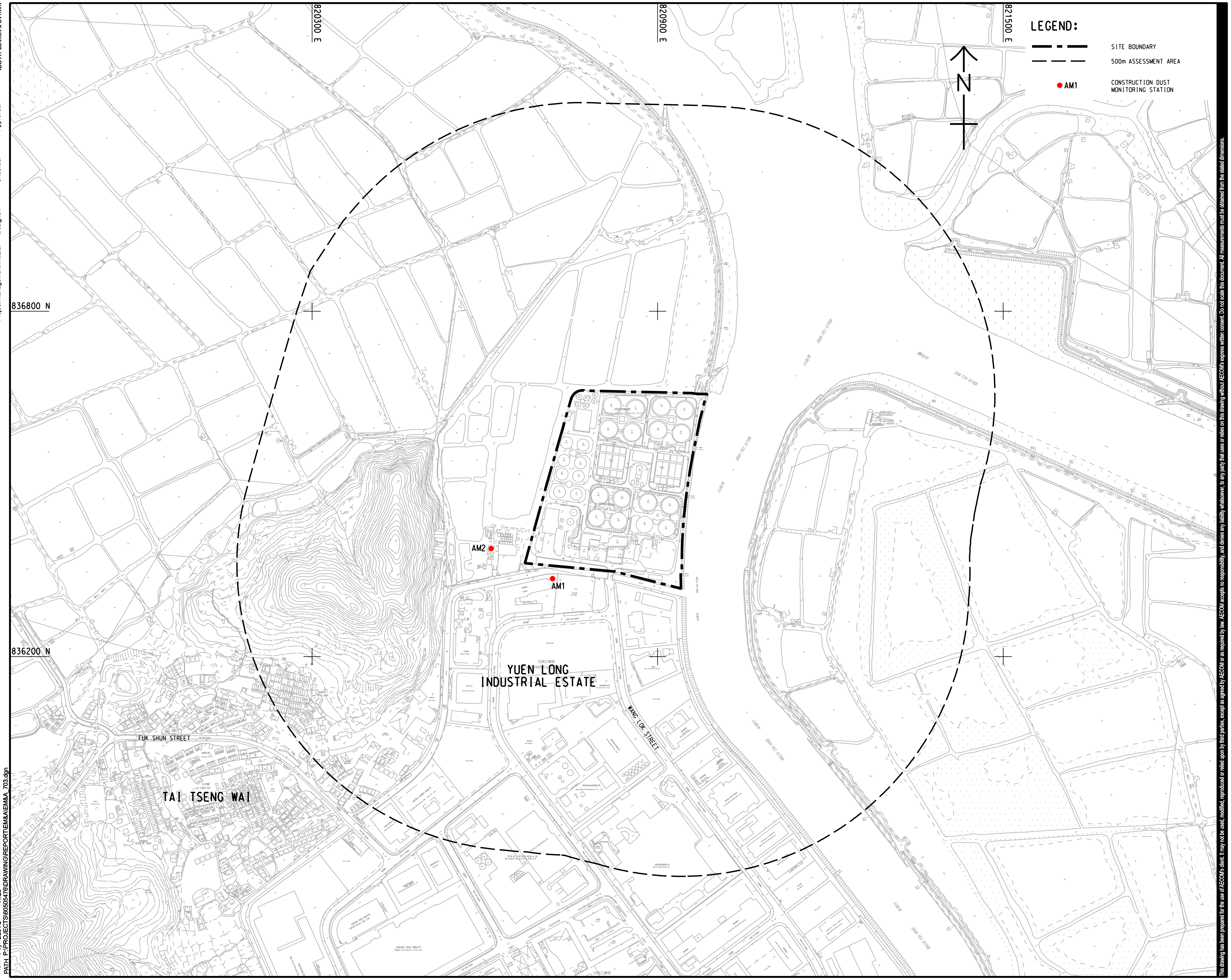
CONTRACT NO. 合約編號
CE 3/2015 (DS)

SHEET TITLE
圖紙名稱

LOCATION OF PROPOSED YUEN LONG EFFLUENT POLISHING PLANT

SHEET NUMBER
圖紙編號

Figure 2 Location of Construction Dust Monitoring Stations



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YUEN LONG EFFLUENT POLISHING PLANT - INVESTIGATION, DESIGN AND CONSTRUCTION

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KEY PLAN

PROJECT NO.	**CONTRACT NO.**
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SHEET TITLE

LOCATION OF CONSTRUCTION DUST MONITOING STATIONS

SHEET NUMBER

Figure 3 Noise Monitoring Locations

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

820500 E

820900 E

821300 E

836700 N

836300 N

CM1

CM2

CM3

LEGEND:

SITE BOUNDARY

300m ASSESSMENT AREA

NOISE MONITORING POINT

N

SHAN PUI RIVER

山貝河

KAM TIN RIVER

錦田河

元朗污水處理廠
Yuen Long Sewage Treatment Works

元朗工業邨
YUEN LONG INDUSTRIAL ESTATE

YUEN LONG
INDUSTRIAL ESTATE

WANG LOK STREET

WANG LEE STREET

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KEY PLAN
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PROJECT NO. 項目編號
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CONTRACT NO. 合約編號
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SHEET TITLE
圖紙名稱

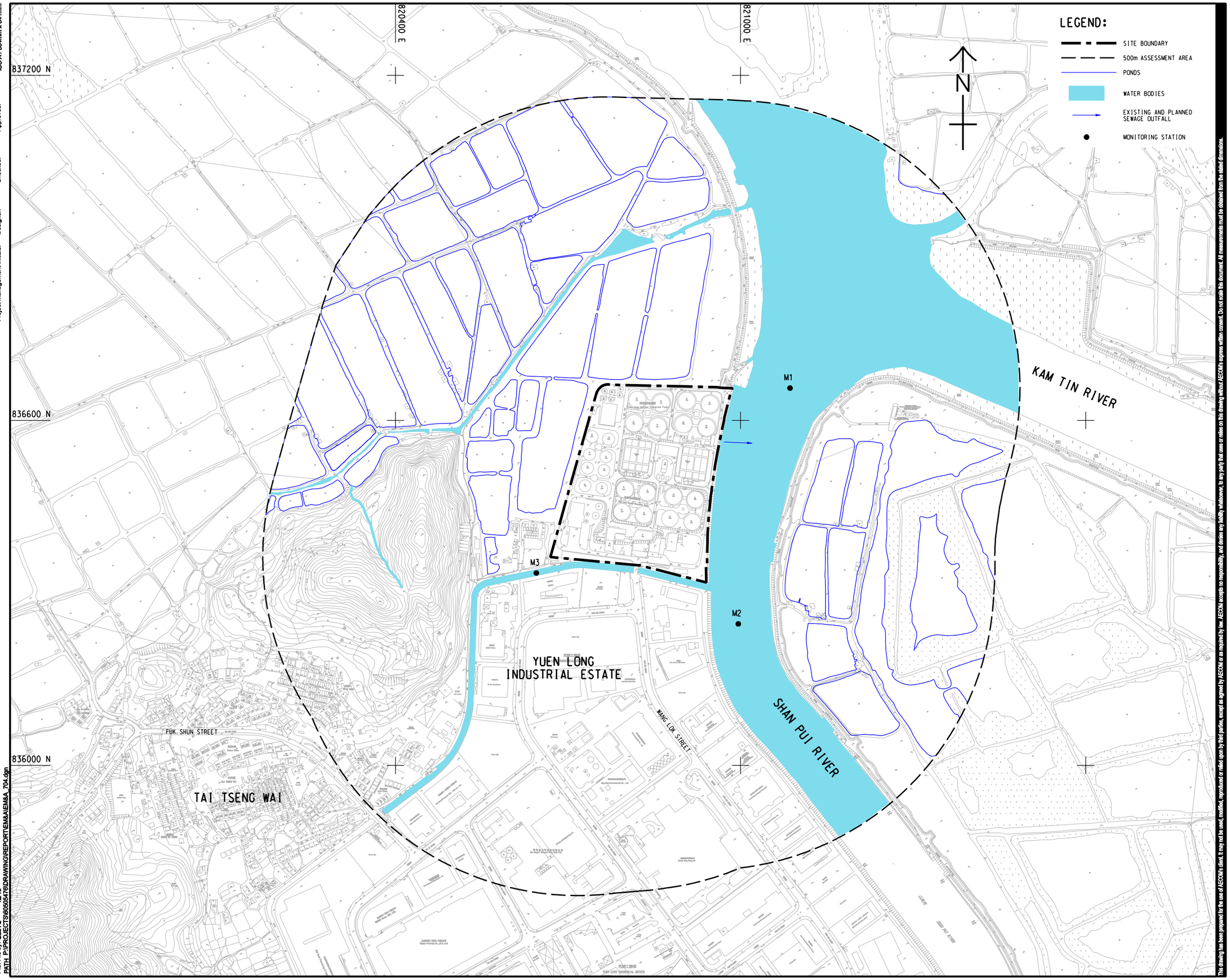
LOCATIONS OF NOISE MONITORING POINTS

SHEET NUMBER
圖紙編號

Figure 4 Water Quality Monitoring Locations

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:



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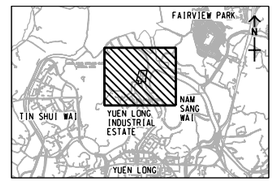

PROJECT NO. 項目編號
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CONTRACT NO. 合約編號
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SHEET TITLE 圖紙名稱

LOCATIONS OF WATER QUALITY MONITORING STATIONS FOR CONSTRUCTION PHASE

SHEET NUMBER 圖紙編號

Figure 5 Ecology Monitoring Locations

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

820300 E

820900 E

821500 E

836800 N

836200 N

LEGEND:

SITE BOUNDARY

500m ASSESSMENT AREA

SURVEY TRANSECTS

POINT COUNT LOCATIONS FOR AVIFAUNA SURVEY

N

FLW1

FLW2

FLW3

FLW4

FLW5

FLW6

FLW7

SP/NSW1

SP/NSW2

SP/NSW3

NSW1

FUNG LOK WAI

TAI SANG WAI

NAM SANG WAI

YUEN LONG SEWAGE TREATMENT WORKS

YUEN LONG INDUSTRIAL ESTATE

NG UK TSUEN

LEON COURT

TAI TSENG WAI

FUK SHUN STREET

WANG LOK STREET

SHAN PUI RIVER

KAM TIN RIVER

SHAN PUI ESTATE

SAN TIN ESTATE

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SCALE 比例
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DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
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PROJECT NO. 項目編號
60505476

CONTRACT NO. 合約編號
CE 3/2015 (DS)

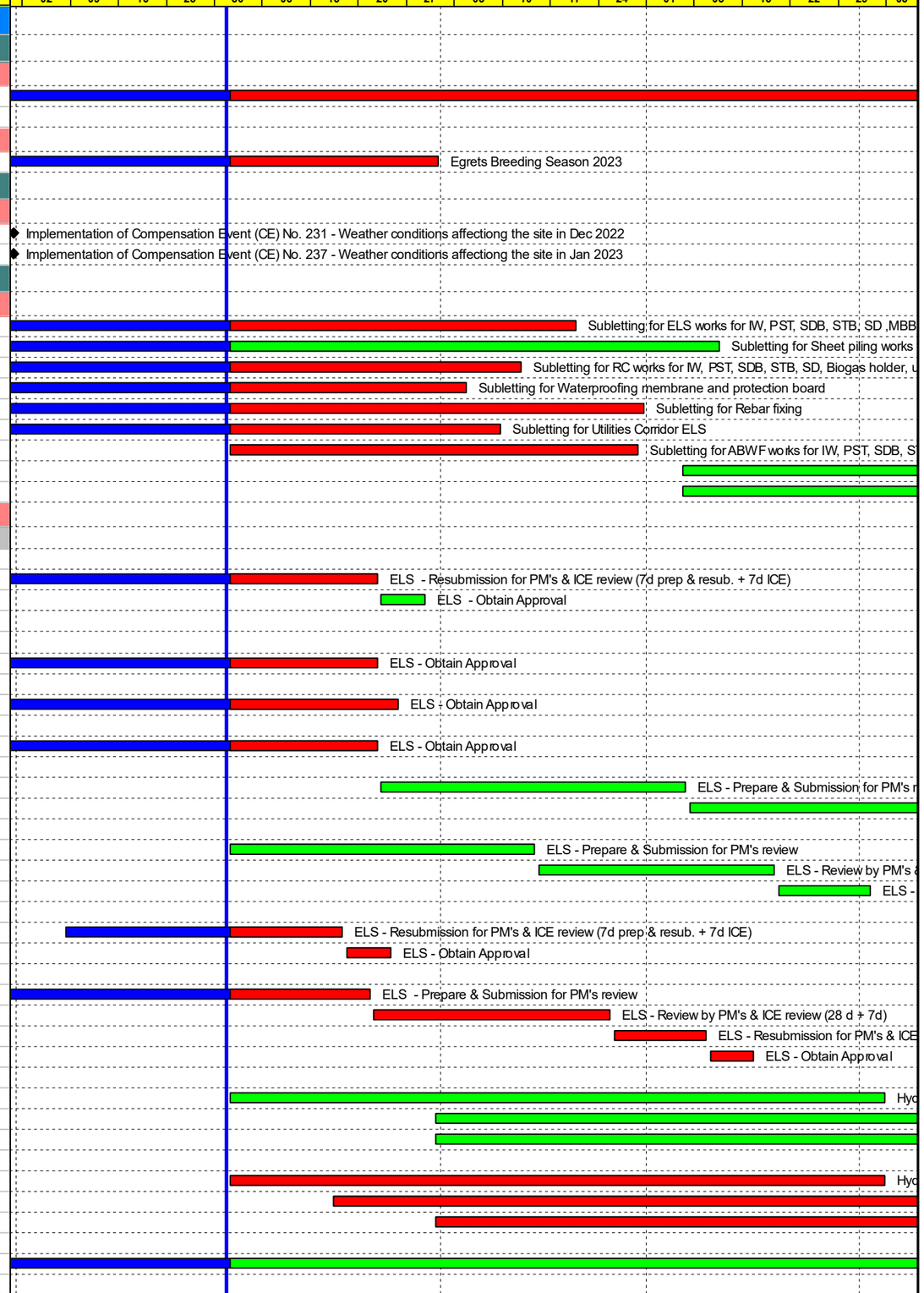
SHEET TITLE
圖紙名稱

ECOLOGICAL MONITORING LOCATIONS

SHEET NUMBER
圖紙編號

Appendix A
Construction Programme

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
YL Effluent Polishing Plant - Main Works Stage 1 - Detailed Works Programme DPv28 draft					
Contract Data Part 1					
Access Dates					
ADWA2	Work Area WA2 (sd) (new site possession) validity for 12 months and subject to renewal	757	05-Mar-21 A	22-Feb-24*	0
ADP5	Portion 5 (sd+944d)	0	11-Jun-23 A		
Environmental Constraints					
EBS-2165	Egrets Breeding Season 2023	184	01-Mar-23 A	31-Aug-23	0
Planned Completion					
Compensation Events					
CE231	Implementation of Compensation Event (CE) No. 231 - Weather conditions affectiong the site in Dec 2022	0		30-Jun-23 A	
CE237	Implementation of Compensation Event (CE) No. 237 - Weather conditions affectiong the site in Jan 2023	0		30-Jun-23 A	
Preliminary and Preparation Works					
Subletting					
SUB-270	Subletting for ELS works for IW, PST, SDB, STB, SD ,MBB, TTB, underpass and open cut for admin. bldg	312	12-Oct-21 A	20-Sep-23	-181
SUB-380	Subletting for Sheet piling works for remaining areas	333	12-Oct-21 A	11-Oct-23	208
SUB-280	Subletting for RC works for IW, PST, SDB, STB, SD, Biogas holder, underpass and admin. bldg	256	29-Nov-21 A	12-Sep-23	-237
SUB-350	Subletting for Waterproofing membrane and protection board	300	29-Nov-21 A	04-Sep-23	-48
SUB-360	Subletting for Rebar fixing	86	29-Nov-21 A	30-Sep-23	-237
SUB-310	Subletting for Utilities Corridor ELS	60	08-Aug-22 A	09-Sep-23	-203
SUB-290	Subletting for ABWF works for IW, PST, SDB, STB, MBR, TTB and admin. bldg	60	01-Aug-23	29-Sep-23	-129
SUB-300	Subletting for RC works for MBR and TTB	60	06-Oct-23	04-Dec-23	28
SUB-340	Subletting for Drainage, Sewage & waterworks	90	06-Oct-23	03-Jan-24	28
Design Submission					
Temporary Works Design					
Mainstream Bio-Reactor System					
TWD-240	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	20-Jun-22 A	22-Aug-23	-203
TWD-250	ELS - Obtain Approval	7	23-Aug-23	29-Aug-23	238
Sludge Thickening Building					
One-stage design					
TWD-210	ELS - Obtain Approval	7	10-Dec-22 A	22-Aug-23	-35
Tertiary Treatment System					
TWD-170	ELS - Obtain Approval	7	30-Dec-22 A	25-Aug-23	-190
Sludge Digester 1-3 & Utilities Corridor					
TWD-370	ELS - Obtain Approval	7	21-Dec-22 A	22-Aug-23	-125
Sludge Digester 4-6					
TWD-460	ELS - Prepare & Submission for PM's review	45	23-Aug-23	06-Oct-23	478
TWD-470	ELS - Review by PM's & ICE review (28 d + 7d)	35	07-Oct-23	10-Nov-23	478
Sludge Dewatering and Underpass					
TWD-260	ELS - Prepare & Submission for PM's review	45	01-Aug-23	14-Sep-23	179
TWD-270	ELS - Review by PM's & ICE review (28 d + 7d)	35	15-Sep-23	19-Oct-23	179
TWD-280	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	20-Oct-23	02-Nov-23	179
Modification of Existing Emergency Bypass Chamber					
TWD-670	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	08-Jul-23 A	17-Aug-23	-77
TWD-680	ELS - Obtain Approval	7	18-Aug-23	24-Aug-23	-77
Modification of Existing Inspection Chamber & Inlet Effluent Pipes from NSWSPS					
TWD-700	ELS - Prepare & Submission for PM's review	45	26-Oct-22 A	21-Aug-23	-61
TWD-710	ELS - Review by PM's & ICE review (28 d + 7d)	35	22-Aug-23	25-Sep-23	-61
TWD-720	ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	26-Sep-23	09-Oct-23	-61
TWD-730	ELS - Obtain Approval	7	10-Oct-23	16-Oct-23	-61
Temporary pipework between PST Stage 1 and A-Tank Inlet [Temporary pumping system]					
TWD-750	Hydraulic design - Prep(45d), Sub.&Review(30d), Comment&Resub (14d) & Approval (7d)	96	01-Aug-23	04-Nov-23	34
TWD-760	Civil structure design - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	96	31-Aug-23	04-Dec-23	34
TWD-770	ELS - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	96	31-Aug-23	04-Dec-23	34
Temporary pumping and pipeworks between exsiting Detroitor and PST Stage 1 [Temp. pumping system]					
TWD-780	Hydraulic design - Prep(45d), Sub.&Review(30d), Comment&Resub (14d) & Approval (7d)	96	01-Aug-23	04-Nov-23	-40
TWD-790	Civil structure design - Prep(45d), Sub.&Review(30d), Comment&Resub (14d) & Approval (7d)	96	16-Aug-23	19-Nov-23	-40
TWD-800	ELS - Prep(45d), Sub.&Review(30d), Comment&Resub (14d) & Approval (7d)	96	31-Aug-23	04-Dec-23	-40
Temporary Traffic Arrangement at Wang Lok Street for watermain works					
TWD-820	TTA - Prepare/submit/review/approve TTA design and drawings to PM and TMLG	120	12-Feb-22 A	28-Nov-23	912
Temporary Working Platform at ELS					



Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
	Temporary Working Platform at AGS ELS				
TWD-910	Temp. Working Platform - AGS ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	06-May-23 A	16-Aug-23	-185
TWD-920	Temp. Working Platform - AGS ELS - Obtain Approval	7	17-Aug-23	23-Aug-23	-185
	Temporary Working Platform at TTS ELS				
TWD-950	Temp. Working Platform - TTS ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE)	14	17-Apr-23 A	16-Aug-23	-191
TWD-960	Temp. Working Platform - TTS ELS - Obtain Approval	7	17-Aug-23	23-Aug-23	-191
	Temporary diversion scheme for Early commissioning of SD, BH1, H2S and STB				
TWD-970	Temp. pipe. for BH1 Early Comm.-Prep(90d),Sub.&Review(30d) Comment&Resub(14d)&Approval(7d)	141	30-Jun-23 A	19-Dec-23	13
TWD-1010	Temp. pipe. for SD1-2 Early Comm.-Prep(90d),Sub.&Review(30d) Comment&Resub(14d)&Approval(7d)	141	21-Oct-23	09-Mar-24	82
	Contractor 's Permanent Works Design (include ATAL)				
	AIP				
	Package 3A - Plant Service Water				
AIP-520	E&M AIP Report for Plant Service Water - Resubmission for further review	45	20-Dec-21 A	30-Aug-23	-4
AIP-530	E&M AIP Report for Plant Service Water - Obtain Approval	7	31-Aug-23	06-Sep-23	-4
	Package 23A - Security, Public Address and Communication System				
AIP-960	SPC - Review by PM's & ICE review (28 d + 7d)	45	19-Apr-23 A	16-Aug-23	9
AIP-970	SPC - Resubmission for further review	45	17-Aug-23	30-Sep-23	9
AIP-980	SPC - Obtain Approval	13	01-Oct-23	13-Oct-23	9
	DDA				
	Package 2 - Tertiary Treatment System				
DDA-170	Civil Req. for TTS (Foundation design) - Prepare(27d), Sub. & Review.(45d),Comment & Resub.(14d), GEO(28d)&	121	13-Jun-21 A	30-Aug-23	-5
DDA-150	Foundation for TTS - Prepare (90d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d), GEO (28d)	213	08-Oct-21 A	17-Sep-23	-20
DDA-180	Civil Req. for TTS (Superstruct. design) - Prepare (147d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approv	213	11-Oct-21 A	30-Aug-23	166
DDA-200	Mechanical for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	213	31-Dec-21 A	24-Nov-23	166
DDA-210	Electrical& Control for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	213	31-Dec-21 A	24-Nov-23	166
DDA-140	Architectural for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	126	17-Nov-22 A	24-Nov-23	94
DDA-160	Civil & Structural for TTS - Prepare (120d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	177	17-Nov-22 A	22-Nov-23	-89
DDA-220	Building Services (BS) for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	101	16-Aug-23*	24-Nov-23	166
	Package 3 - Mainstream Bio-Reactor System				
DDA-260	Civil Req. for MBS-AGS (Foundation design) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Ap	126	09-Jun-21 A	30-Aug-23	98
DDA-280	P&ID for MBS (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	126	08-Oct-21 A	18-Sep-23	315
DDA-290	Mechanical for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	126	08-Oct-21 A	18-Sep-23	315
DDA-300	Electrical& Control for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	405	08-Oct-21 A	18-Sep-23	315
DDA-270	Civil Req. for MBS-AGS (Superstruct. design) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Ap	126	01-Mar-22 A	30-Aug-23	98
DDA-240	Foundation for MBS - Prepare (97d), Sub. & Review.(45d) ,Comment & Resub.(14d),GEO (28d)& Approval (7d)	230	18-Mar-22 A	08-Nov-23	28
DDA-250	Civil & Structural for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	170	20-Jan-23 A	04-Dec-23	98
DDA-1530	VCAB for AGS&TTS - Prepare (30d), Sub. & Review (30d)	204	16-Jun-23 A	20-Feb-24	209
DDA-310	Building Services (BS) for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	122	31-Aug-23*	30-Dec-23	212
	Package 5A - Master Water Meter Room				
DDA-360	Foundation for Master WM Room- Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d),GEO(28d) & Ap	154	15-Feb-22 A	16-Oct-23	11
DDA-370	Civil & Struct. for WM Room- Prepare (90d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	156	15-Apr-22 A	16-Oct-23	11
DDA-380	General Arrangement & Civil Req. for MWMC - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Ap	100	14-Apr-23 A	16-Oct-23	11
DDA-390	P&ID for MWMC - MBS (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	64	01-Aug-23	03-Oct-23	24
DDA-400	Mechanical for MWMC - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	100	25-Sep-23	02-Jan-24	33
DDA-410	Electrical& Control for MWMC - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	100	25-Sep-23	02-Jan-24	33
	Package 5B - Plant Service Water (PSW)				
DDA-1050	Civil Requirement Drawings - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	126	12-Jun-21 A	29-Nov-23	-28
DDA-1040	Piping & Instrumentation Diagram (P&ID) - Prep(30d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d)	220	26-Jun-23 A	05-Jun-24	-28
DDA-1060	Electrical & Control for PSW - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	220	30-Oct-23	05-Jun-24	-28
DDA-1070	Mechanical for PSW - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d)	220	30-Oct-23	05-Jun-24	-28
	Package 6 - Sludge Thickening Chemical and Dosing System				
DDA-1120	P&ID for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	335	14-Aug-21 A	28-Feb-24	291
DDA-430	Found.for STCS,WasteGasBurner &Guard Hse- Prepare(60d),Sub.&Review.(45d),Comment & Resub.(14d),GEO(	96	09-Nov-21 A	30-Jan-24	883
DDA-440	Civil & Struct. for STCS, WGB & Guard Hse - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Ap	250	09-Nov-21 A	30-Jan-24	-196
DDA-440B	Civil Req. for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	300	15-Nov-21 A	30-Dec-23	351
DDA-1130	Mechanical for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	340	15-Nov-21 A	28-Feb-24	329
DDA-1140	Electrical & Control for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	315	30-Nov-21 A	01-Nov-23	1033
DDA-1520	Mechanical Ventilation and Air conditional System Design for Sludge Thickening Building (STB)	320	16-Jun-22 A	30-Mar-24	298
DDA-1510	Plumbing and Drainage System Design for Sludge Thickening Building (STB)	320	07-Jul-22 A	30-Mar-24	298
DDA-1500	Fire Services Design for Sludge Thickening Building (STB)	320	08-Jul-22 A	30-Mar-24	298
DDA-1150	Building Services for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	126	24-Oct-22 A	30-Mar-24	883

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
Package 7 - CLP Substation and 11kV Switchgear House					
DDA-490	BS for CLP Sub. &11kV Switchgear Hse - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Appro	78	01-Jun-21 A	30-Aug-23	-66
DDA-480	UPS System for CLPSub.&11kV Switchgear Hse - Prepare (102d), Sub. & Review.(45d),Comment & Resub.(14d)&	168	03-Jun-21 A	30-Sep-23	-104
DDA-1450	VCAB, FSD & WSD Design Report - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7(	78	02-Jul-21 A	30-Aug-23	-104
Package 9 - Inlet Work (IW)					
DDA-1190	Mechanical for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d)	120	09-Aug-21 A	30-Sep-23	-54
DDA-1200	Electrical & Control for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d)	120	30-Oct-21 A	30-Sep-23	-104
DDA-1210	Building Services for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d)	76	30-Mar-22 A	30-Sep-23	-104
Package 10 - Primary Sedimentation Tank (PST)					
DDA-1240	Mechanical for PST - Prepare (46d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d)	120	01-Jun-21 A	31-Aug-23	761
DDA-1250	Electrical & Control for PST - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d)	48	31-Aug-21 A	31-Aug-23	761
DDA-1260	Building Services for PST - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d)	90	01-Oct-21 A	31-Aug-23	761
Package 11 - Control and Monitoring System					
DDA-580	Power Quality & Energy Management System (PQEMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14d)	130	02-Oct-21 A	31-Aug-23	-6
DDA-550	Supervisory Control&Data Application (SCADA) System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) &	238	24-Apr-23 A	24-Nov-23	333
DDA-1270	Gas Detection System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d)	91	08-May-23 A	31-Aug-23	333
DDA-560	Computerised Mainatenance Mangement System (CMMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14	488	01-Sep-23	31-Dec-24	23
DDA-570	Information and Document mangement System (IDMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) &	488	01-Sep-23	31-Dec-24	23
DDA-1280	Data Collection, Management, Analysis,& Model System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d)	488	01-Sep-23	31-Dec-24	23
Package 12 - Chemical System for STB					
DDA-650	Chemical System for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) &	212	01-Aug-23	28-Feb-24	291
Package 13 - Pipework System					
DDA-660	Pipeworks System for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) &	126	01-Aug-23	04-Dec-23	410
DDA-1030	Pipeworks System for Sludge Digesters - Prep(60d),Sub.&Review(45d),Comment&Resub (14d) &Approval (7d)	126	01-Aug-23	04-Dec-23	107
Package 14 - Sludge Anaerobic Digestion System (SDT)					
DDA-1320	Electrical & Control for SDT & UC/PP - Prepare (55d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7	460	02-Jul-21 A	30-Mar-24	-10
DDA-1310	Mechanical for SDT & UC/PP - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	460	10-Jul-21 A	30-Sep-23	172
DDA-1340	Civil Req. Drawing for UC/PP - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d)	580	10-Jul-21 A	30-Sep-23	-10
DDA-1330	Building Services for SDT & UC/PP - Prepare (56d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d	182	01-Oct-23	30-Mar-24	-10
Package 15 - Biogas H2S Removal, Storage and Delivery System					
DDA-1350	Civil Req. Drawing for Biogas Storage&Delivery System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&	78	31-Aug-21 A	15-Aug-23	-134
DDA-1370	Mechanical for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval	78	05-Oct-21 A	15-Sep-23	-69
DDA-1400	Civil Req. Drawing for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Ap	78	07-Dec-21 A	15-Aug-23	-84
DDA-1390	Building Services for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Appr	137	31-May-23 A	30-Dec-23	-69
DDA-1380	Electrical & Control for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&A	137	16-Aug-23	30-Dec-23	-84
Package 16 - Deodorization Unit System					
DDA-1420	Mechanical for DOU No. 1 - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d)	78	04-Mar-22 A	31-Aug-23	27
DDA-1440	Mechanical for DOU No. 3 - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d)	300	17-Jul-22 A	04-Oct-23	477
DDA-1430	Mechanical for DOU No. 2A and 2B - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)& Approval (7d)	95	01-Aug-23	03-Nov-23	447
Package 17 - Sludge Dewatering Building (SDB)					
DDA-920	Fire Services System for SDB - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	332	01-Oct-23	27-Aug-24	-104
DDA-930	Mechanical for Sludge Dewatering Building (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Appr	424	01-Oct-23	27-Nov-24	532
DDA-940	Plumbing System for Sludge Dewatering Bldg (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub(14d) & Ap	424	01-Oct-23	27-Nov-24	532
DDA-950	BS for Sludge Dewatering Building (SDB) - Prep(118d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7(	424	01-Oct-23	27-Nov-24	-104
Package 20 - Trellis					
DDA-720	Civil & Structural for Trellis - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	207	05-Aug-23	27-Feb-24	728
Package 22 - Sampling System of YLEPP					
DDA-740	Sampling System for IW&PST - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	62	07-Jul-23 A	01-Oct-23	-104
DDA-1630	Sampling System for STB - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	128	01-Sep-23	06-Jan-24	-10
Package 23 - Security, Public Address and Communication System					
DDA-750	SPC sitewide ACS - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	98	21-Jun-23 A	06-Oct-23	8
Package 24 - Administration Building (ADB)					
DDA-0960	Architectural for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval	126	01-Aug-23	04-Dec-23	102
Design out of ATAL's Scope					
DDA-1540	Drainage systems at base slab / foundation levels - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Appr	126	01-Aug-23	04-Dec-23	432
DDA-1560	Street fire hydrant system - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d)	126	01-Aug-23	04-Dec-23	-84
Technical Submission					
Factory Acceptance Test Plans					
SUBM-1090	Submit/review/approval Factory Acceptance Test Plans - Inlet pumps	120	18-Apr-23 A	13-Sep-23	51
SUBM-1100	Submit/review/approval Factory Acceptance Test Plans - Thickening centrifuges	120	12-Jun-23 A	28-Oct-23	272
SUBM-1120	Submit/review/approval Factory Acceptance Test Plans - 11kV switchboards	120	16-Jun-23 A	28-Oct-23	-99

PaulY REC
保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

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. 33 - 3MRP (Jul 2023)

Project ID : DWPr28_230814r1
Layout : DC201910 MPR33-3MRP

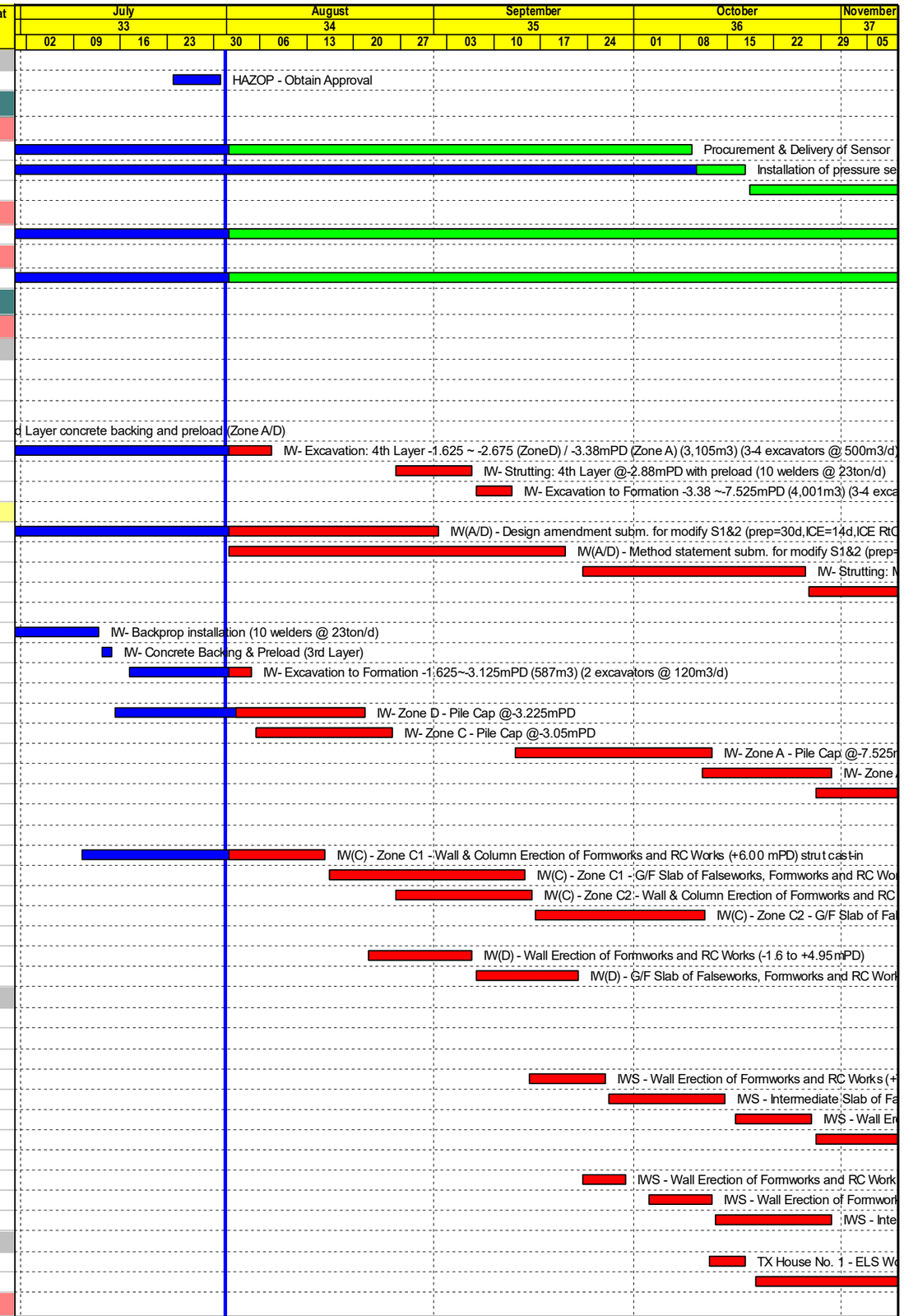
Monthly Progress Report - 3MRP

Date	Revision	Checked	Approved
31-Jul-23	Rev. 0		

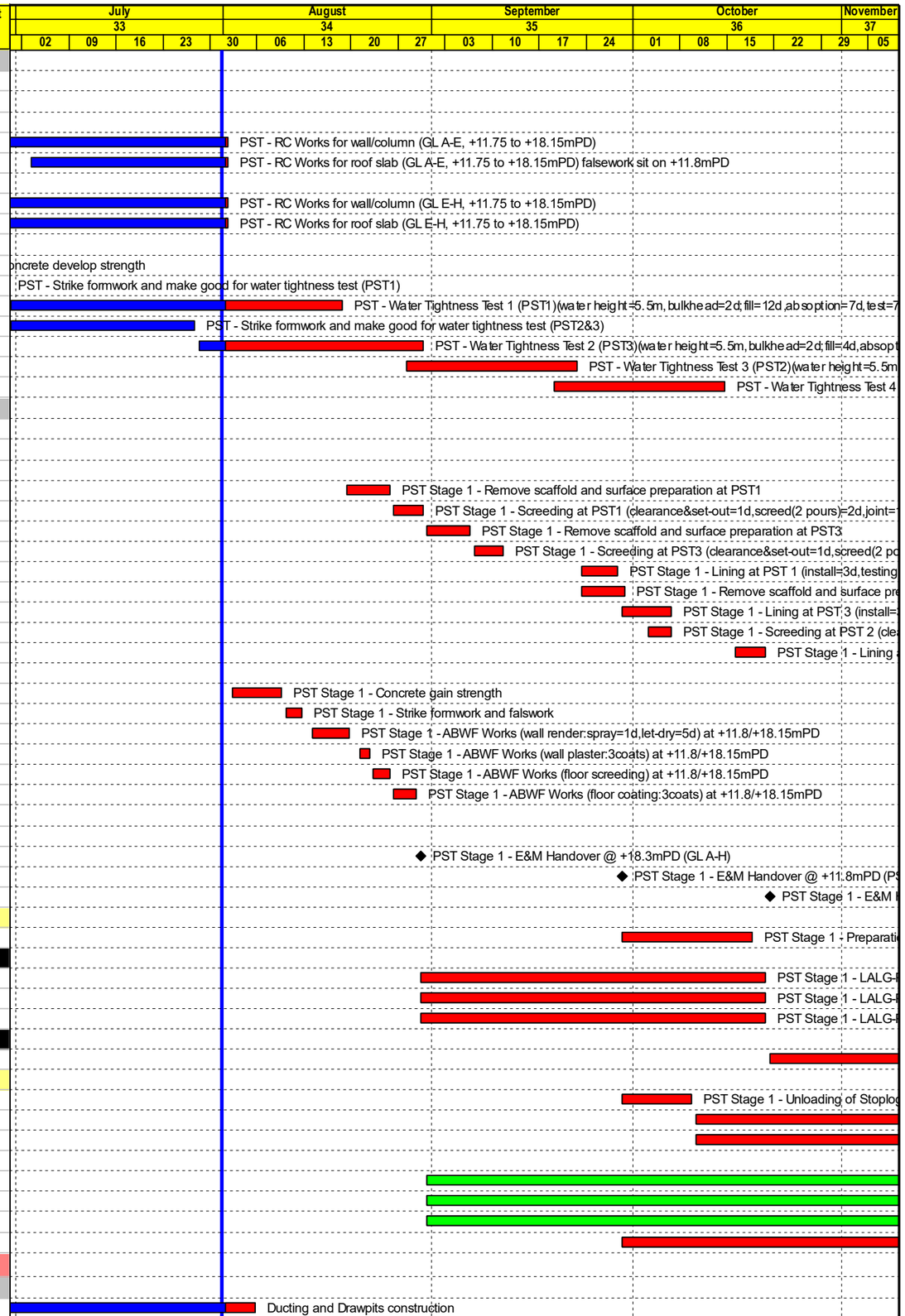
Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
SUBM-1110	Submit/review/approval Factory Acceptance Test Plans - Disc filter system	120	01-Aug-23	28-Nov-23	116
SUBM-1130	Submit/review/approval Factory Acceptance Test Plans - SCADA system	120	01-Aug-23	28-Nov-23	-13
Operation and Maintenance (O&M) Manuals and Installation Manuals (PS 34.20(11)(12)(13))					
Inlet Works and Primary Sedimentation Tank					
SUBM-1070	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	05-Jan-23 A	22-Aug-23	-120
SUBM-1200	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - revised draft	60	23-Aug-23	21-Oct-23	6
AGS and TTS system					
SUBM-1220	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	23-Aug-23	21-Oct-23	215
SUBM-1230	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - revised draft	60	22-Oct-23	20-Dec-23	722
Sludge Thickening System					
SUBM-1250	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	23-Aug-23	21-Oct-23	692
SUBM-1260	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - revised draft	60	22-Oct-23	20-Dec-23	692
Sludge Disgestion System					
SUBM-1310	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	23-Aug-23	21-Oct-23	-120
SUBM-1320	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - revised draft	60	22-Oct-23	20-Dec-23	331
Biogas H2S Removal System					
SUBM-1280	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	23-Aug-23	21-Oct-23	-120
SUBM-1290	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - revised draft	60	22-Oct-23	20-Dec-23	954
Deodourization System					
SUBM-1340	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	22-Oct-23	20-Dec-23	-120
Plant Service Water System					
SUBM-1370	Submit/review/approval Operation and Maintenance (O&M) Manuals and Installation Manuals - 1st draft	60	22-Oct-23	20-Dec-23	894
Commissioning Plan and Procedures (PS34.20(10))					
SUBM-1080	Employment of HOKLAS laboratory for commissiong test	60	23-May-22 A	19-Sep-23	-52
SUBM-1000	Submit/review/approval Commissioning Plan and Procedures - Early commissioning of IW	120	20-Sep-23	17-Jan-24	4
SUBM-1010	Submit/review/approval Commissioning Plan and Procedures - Early commissioning of PST	120	20-Sep-23	17-Jan-24	-52
SUBM-1020	Submit/review/approval Commissioning Plan and Procedures - AGS	120	20-Sep-23	17-Jan-24	194
SUBM-1030	Submit/review/approval Commissioning Plan and Procedures - TTS	120	20-Sep-23	17-Jan-24	619
SUBM-1040	Submit/review/approval Commissioning Plan and Procedures - STB	120	20-Sep-23	17-Jan-24	664
SUBM-1050	Submit/review/approval Commissioning Plan and Procedures - SDT	120	20-Sep-23	17-Jan-24	303
SUBM-1060	Submit/review/approval Commissioning Plan and Procedures - Biogas system	120	20-Sep-23	17-Jan-24	63
Material Submission, Procurement, Manufacturing and Delivery					
Inlet Works					
PRE-210	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - Screening system (fixed bar,coarse,fine)	300	16-Mar-21 A	31-Aug-23	12
PRE-700	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - Inlet pumps (HF,LF,Drainage)	330	05-Jan-22 A	30-Aug-23	51
PRE-290	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - Grit Trap and classifier	270	18-Feb-22 A	30-Jun-24	-224
PRE-280	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - Converyeor and compactor	270	12-Apr-22 A	01-Mar-24	-91
PRE-330	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - DOU-01	330	26-May-22 A	31-Jan-24	-109
PRE-300	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - LALG	270	28-Jul-22 A	21-Nov-23	-70
PRE-310	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - Penstocks and stoplogs	270	13-Sep-22 A	21-Nov-23	-70
PRE-320	Submit/Procure/Manufacture/Deliver New Inlet Works Equip. - MVAC-Ventilation Fan	211	10-Jan-23 A	01-Mar-24	-141
Primary Sedimentation Tanks					
PRE-380	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - LALG	180	25-Jul-22 A	15-Aug-23	-119
PRE-390	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - Penstocks and stoplogs	270	13-Aug-22 A	18-Sep-23	-58
PRE-340	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - Bottom scrapper	255	08-Sep-22 A	30-Nov-23	-11
PRE-350	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - IPS air scouring blower	255	27-Sep-22 A	30-Nov-23	-44
PRE-360	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - Scum pump and skimmer	255	29-Sep-22 A	30-Dec-23	-124
PRE-370	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - Primary sludge pump and grinder	255	29-Sep-22 A	30-Nov-23	-94
PRE-400	Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. - Pipeworks and valves	194	15-Oct-22 A	03-Oct-23	-89
Biogas Holder					
PRE-270	Submit/Procure/Manufacture/Deliver Biogas Holding Tanks (membrane, steel tank and parts, intrumentation)	660	09-Jun-21 A	31-Aug-23	-69
PRE-410	Submit/Procure/Manufacture/Deliver Waster Gas Burner	300	19-Aug-21 A	20-Oct-26	-86
PRE-420	Submit/Procure/Manufacture/Deliver H2S Removal System	510	25-Feb-22 A	28-Jun-25	-107
PRE-430	Submit/Procure/Manufacture/Deliver Biogas booster and transfer pumps	334	01-Aug-23*	29-Jun-24	-107
Sludge Digestor Tank					
PRE-750	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Flame Arresters	100	31-Oct-22 A	15-Aug-23	218
PRE-780	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Mixing System and Heat Exchanger for Sludge Anaer	420	22-Dec-22 A	10-Feb-24	129
PRE-720	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Inspection Windows for Sludge Anaerobic System	365	18-Jan-23 A	20-Feb-24	119
PRE-730	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Gas Take Off Dome for Sludge Anaerobic Digestion S	365	18-Jan-23 A	20-Feb-24	119
PRE-710	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Pressure and Vacuum Relief Valves	300	01-Mar-23 A	28-Dec-23	84
PRE-740	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Telescopic Valve for Sludge Anaerobic Digestion Syste	208	01-Aug-23	24-Feb-24	84
PRE-760	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Ferric Chloride Dosing Pump	151	29-Aug-23	26-Jan-24	84

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
PRE-770	Submit/Procure/Manufacture/Deliver Sludge Digester Tank - Ferric Chloride Trasnfer Pump	151	29-Aug-23	26-Jan-24	84
Sludge Thickening Building					
PRE-250	Submit/Procure/Manufacture/Deliver Sludge Thickening System - Thickening Centrifuges	360	12-Nov-21 A	20-Apr-24	272
PRE-500	Submit/Procure/Manufacture/Deliver Sludge Thickening System - Pump and jet mixer	300	07-Jan-22 A	20-Apr-24	272
PRE-510	Submit/Procure/Manufacture/Deliver Sludge Thickening System - LALG	256	28-Mar-23 A	20-Apr-24	269
PRE-480	Submit/Procure/Manufacture/Deliver Sludge Thickening System - Polymer preparation system	388	12-Apr-23 A	20-Apr-24	239
PRE-490	Submit/Procure/Manufacture/Deliver Sludge Thickening System - DOU-03	264	01-Aug-23*	20-Apr-24	269
PRE-520	Submit/Procure/Manufacture/Deliver Sludge Thickening System - MVAC	225	09-Sep-23*	20-Apr-24	272
Mainstream Bio-Reactor					
PRE-230	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip. - AGS system	480	09-Sep-22 A	03-Jul-24	26
PRE-530	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip. - Penstocks and stoplogs	345	31-Oct-22 A	11-Nov-24	-21
PRE-550	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip. - Sludge pre-thickening system	510	31-Oct-22 A	03-Jul-24	109
PRE-540	Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip. - Chemical storage and dosing system	270	18-Nov-22 A	03-Jul-24	26
Tertiary Treatment System					
PRE-610	Submit/Procure/Manufacture/Deliver TTS Equip. - Pumping system	495	19-Jul-22 A	05-Jul-24	116
PRE-600	Submit/Procure/Manufacture/Deliver TTS Equip. - UV disinfection system	510	08-Sep-22 A	05-Jul-24	116
PRE-240	Submit/Procure/Manufacture/Deliver TTS Equip. - Disc Filter	600	27-Sep-22 A	05-Jul-24	116
PRE-590	Submit/Procure/Manufacture/Deliver TTS Equip. - Chemical cleaning system	480	18-Nov-22 A	05-Jul-24	116
PRE-630	Submit/Procure/Manufacture/Deliver TTS Equip. - Penstocks and stoplogs	435	30-Nov-22 A	05-Jul-24	116
PRE-690	Submit/Procure/Manufacture/Deliver TTS Equip. - DOU-02	301	08-Aug-23*	03-Jun-24	148
Electrical and Control System					
PRE-680	Submit/Procure/Manufacture/Deliver Electrial and Control System - SCADA and instrumentation	420	30-Apr-22 A	31-Jan-24	-13
PRE-640	Submit/Procure/Manufacture/Deliver Electrial and Control System - HVSB and Tx	283	21-Dec-22 A	31-Jan-24	-99
PRE-650	Submit/Procure/Manufacture/Deliver Electrial and Control System - LVSB	300	21-Dec-22 A	31-Jan-24	-96
PRE-660	Submit/Procure/Manufacture/Deliver Electrial and Control System - UPS	300	21-Dec-22 A	04-Jan-24	-105
PRE-670	Submit/Procure/Manufacture/Deliver Electrial and Control System - Armoured Cable	203	21-Dec-22 A	27-Nov-23	149
Site Establishment Works					
Portion 5 - Walkway					
P5-100	Portion 5 - Initial Survey and Record, Underground Utilities Detection	12	12-Jun-23 A	14-Aug-23	755
P5-110	Portion 5 - Installation of Water Barriers, Clearance, Haul Road and Temp Facilities	12	12-Jun-23 A	14-Aug-23	755
Statutory Submission & Approval					
FSI, FSD and OP Requirements					
FSI Submission & Approval					
FSD-1200	Submission/Review/Approval by PM and FSD - Full GBP+GBP for TOP1 with DG - RtC & 3rd submission	120	30-May-23 A	25-Dec-23	-164
WSD Submission & Approval					
WSD-1000	WSD - Submit Form WWO542	0		31-Jul-23	-82
WSD-1010	WSD - Form WWO542 PM&WSD review and approval	90	01-Aug-23	29-Oct-23	-82
WSD-1020	WSD - Submit Form WWO46 Part 1 and 2	0		29-Oct-23	-82
WSD-1030	WSD - Form WWO46 Part 1 and 2 PM&WSD review and approval	90	30-Oct-23	27-Jan-24	-82
EMSD Submission & Approval					
Biogas System (ATAL)					
Phase 1					
ATAL-FS-0020	Form 105 for Biogas Holder Tank 1(Submission and Approval Period)	184	08-Nov-22 A	01-Dec-23	144
EPD Submission & Approval for VEP					
EPD-1000	EPD - VEP Review, prepare and submit to PM	60	24-May-23 A	15-Sep-23	136
EPD-1010	EPD - VEP RtC to PM and approval	7	16-Sep-23	22-Sep-23	136
EPD-1050	EPD - VEP consultation with HKBW	28	16-Sep-23	13-Oct-23	150
EPD-1020	EPD - VEP Submission to DSD and EPD	28	23-Sep-23	20-Oct-23	136
EPD-1030	EPD - VEP RtC to DSD and EPD	7	21-Oct-23	27-Oct-23	136
EPD-1060	EPD - VEP Gazette	28	28-Oct-23	24-Nov-23	136
HAZOP Study					
AGS System					
HAZOP-Z2-030	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	
TTS System					
HAZOP-Z2-50	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	
Biogas H2S Removal System					
HAZOP-Z3-030	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	
Sludge Thickening and Chemical System					
HAZOP-Z3-50	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	
Sludge Digestion System					
HAZOP-Z3-80	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	

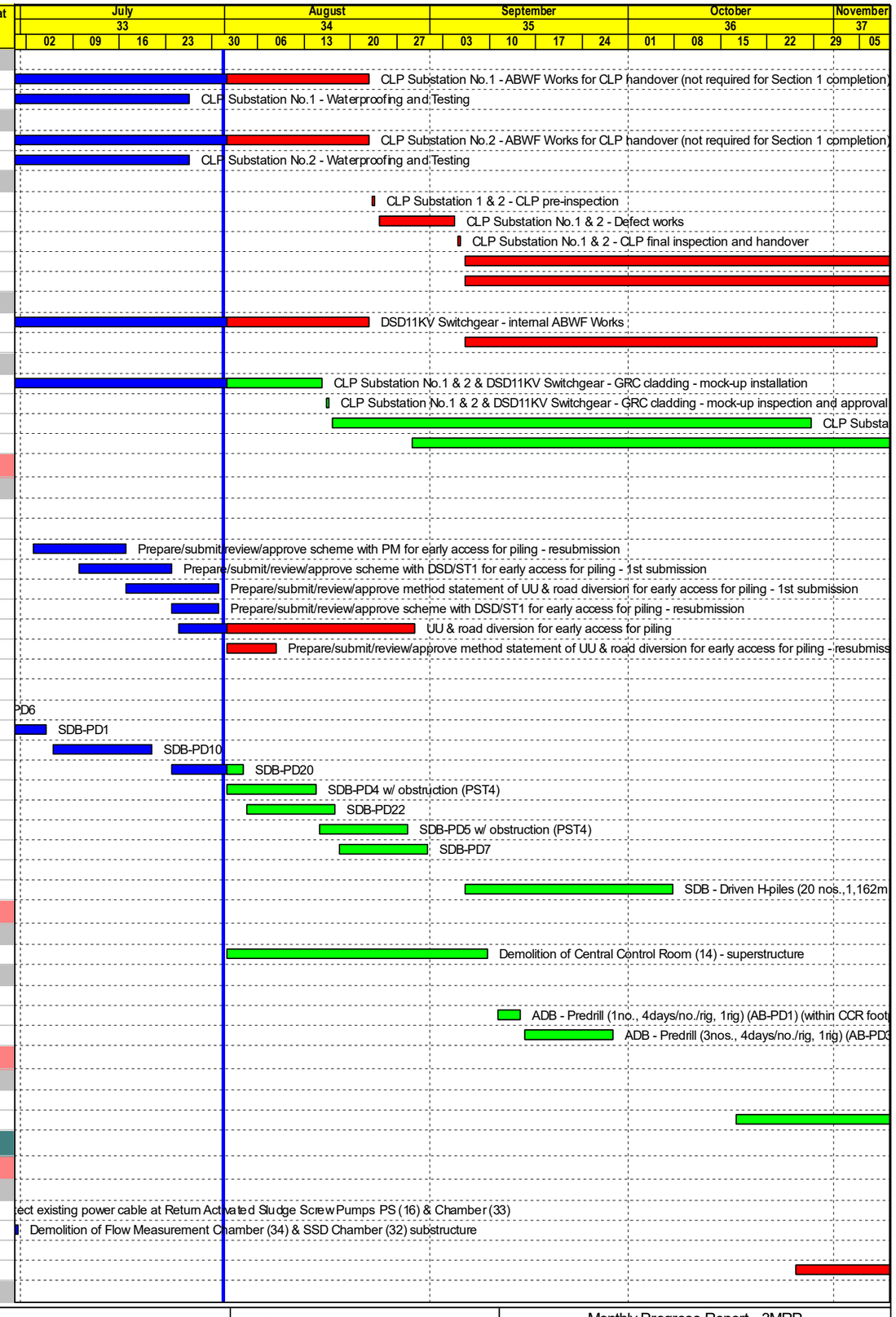
Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
DOU and PSW System					
HAZOP-Z3-110	HAZOP - Obtain Approval	7	24-Jul-23 A	31-Jul-23 A	
General Advance Works					
NSWSPS Sensors					
ATALGA-1170	Procurement & Delivery of Sensor	101	22-Dec-22 A	09-Oct-23	3
ATALGA-1260	Installation of pressure sensors at NSWSPS and T&C	7	21-Jan-23 A	17-Oct-23	3
ATALGA-1320	NSWSPS Senor - Recording, monitoring & data retrieval	180	18-Oct-23	14-Apr-24	3
Dissolved Air Flotation (DAF) Pilot Plant					
ATALGA-1220	Post-commissioning	128	20-May-23 A	27-Nov-23	196
Aerobic Granular Sludge (AGS) Pilot Plant					
ATALGA-1270	Post-commissioning	128	20-May-23 A	27-Nov-23	196
Zone 1 Construction					
Inlet Works (IW)					
IW Foundation & ELS Works					
IW Basement					
IW Excavation Works & ELS					
IW Zone A/D- ELS					
Z1-IW-6470	IW- Strutting: 3rd Layer concrete backing and preload (Zone A/D)	6	03-Jun-23 A	15-Jun-23 A	
Z1-IW-5820	IW- Excavation: 4th Layer -1.625 ~ -2.675 (ZoneD) / -3.38mPD (Zone A) (3,105m3) (3-4 excavators @ 500m3/d)	7	16-Jun-23 A	07-Aug-23	-185
Z1-IW-5830	IW- Strutting: 4th Layer @-2.88mPD with preload (10 welders @ 23ton/d)	10	26-Aug-23	06-Sep-23	-189
Z1-IW-5840	IW- Excavation to Formation -3.38 ~-7.525mPD (4,001m3) (3-4 excavators @ 500m3/d)	5	07-Sep-23	12-Sep-23	-189
Modification of Zone A/D Strut					
Z1-IW-6430	IW(A/D) - Design amendment subm. for modify S1&2 (prep=30d,ICE=14d,ICE RtC=14d,PM=14d,PM RtC=14d	86	21-Mar-23 A	01-Sep-23	-132
Z1-IW-6440	IW(A/D) - Method statement subm. for modify S1&2 (prep=30d,1st RtC=14d)	44	01-Aug-23	20-Sep-23	-136
Z1-IW-6400	IW- Strutting: Modify S1 and S2 strut and preload	26	23-Sep-23	26-Oct-23	-138
Z1-IW-6410	IW- Strutting: Remove backprop at PST	15	27-Oct-23	13-Nov-23	-138
IW Zone C - ELS					
Z1-IW-5700	IW- Backprop installation (10 welders @ 23ton/d)	12	23-Jun-23 A	12-Jul-23 A	
Z1-IW-6420	IW- Concrete Backing & Preload (3rd Layer)	4	13-Jul-23 A	14-Jul-23 A	
Z1-IW-5710	IW- Excavation to Formation -1.625~-3.125mPD (587m3) (2 excavators @ 120m3/d)	6	17-Jul-23 A	04-Aug-23	-189
IW Base Slab					
Z1-IW-6060	IW- Zone D - Pile Cap @-3.225mPD	24	15-Jul-23 A	21-Aug-23	-185
Z1-IW-6080	IW- Zone C - Pile Cap @-3.05mPD	18	05-Aug-23	25-Aug-23	-189
Z1-IW-6090	IW- Zone A - Pile Cap @-7.525mpD, -6.525mPD, -5.525mPD	24	13-Sep-23	12-Oct-23	-189
Z1-IW-6100	IW- Zone A/D - Pile Cap @-1.65/-1.55mpD (1st pour) and modify strut S4	16	11-Oct-23	30-Oct-23	-189
Z1-IW-6350	IW- Zone A/D - Pile Cap @-1.65/-1.55mpD (2nd pour) and remove part strut S4	14	28-Oct-23	13-Nov-23	-189
IW Basement RC Works					
IW Zone C					
Z1-IW-6290	IW(C) - Zone C1 - Wall & Column Erection of Formworks and RC Works (+6.00 mPD) strut cast-in	24	10-Jul-23 A	15-Aug-23	-157
Z1-IW-6330	IW(C) - Zone C1 - G/F Slab of Falseworks, Formworks and RC Works (+6.00 mPD)	26	16-Aug-23	14-Sep-23	-157
Z1-IW-6590	IW(C) - Zone C2 - Wall & Column Erection of Formworks and RC Works (+6.00 mPD) strut cast-in	18	26-Aug-23	15-Sep-23	-154
Z1-IW-6600	IW(C) - Zone C2 - G/F Slab of Falseworks, Formworks and RC Works (+6.00 mPD)	20	16-Sep-23	11-Oct-23	-154
IW Zone D early for PST early commissioning *					
Z1-IW-6450	IW(D) - Wall Erection of Formworks and RC Works (-1.6 to +4.95mPD)	14	22-Aug-23	06-Sep-23	-138
Z1-IW-6460	IW(D) - G/F Slab of Falseworks, Formworks and RC Works (+3.95/+4.95 mPD)	14	07-Sep-23	22-Sep-23	-138
IW Civil and Structural Works					
IW Superstructure					
RC Works					
Zone C					
Z1-IW-4140	IWS - Wall Erection of Formworks and RC Works (+7.48/+8.2mPD)	10	15-Sep-23	26-Sep-23	-157
Z1-IW-4150	IWS - Intermediate Slab of Falseworks, Formworks and RC Works(+7.48/+8.2mPD)	14	27-Sep-23	14-Oct-23	-157
Z1-IW-4170	IWS - Wall Erection of Formworks and RC Works (+11.8mPD)	10	16-Oct-23	27-Oct-23	-157
Z1-IW-4180	IWS - 1/F Slab of Falseworks, Formworks and RC Works (+11.8/+12.8mPD)	14	28-Oct-23	13-Nov-23	-157
Zone D					
Z1-IW-6480	IWS - Wall Erection of Formworks and RC Works (+6.00mPD)	6	23-Sep-23	29-Sep-23	-85
Z1-IW-6520	IWS - Wall Erection of Formworks and RC Works (+7.84/+8.2mPD)	9	03-Oct-23	12-Oct-23	-85
Z1-IW-6490	IWS - Intermediate Slab of Falseworks, Formworks and RC Works(+7.84/+8.2mPD)	14	13-Oct-23	30-Oct-23	-85
IW Transformer House No. 1					
IW-2930	TX House No. 1 - ELS Works and trim sheetpile	5	12-Oct-23	17-Oct-23	-121
IW-2790	TX House No. 1 - Structure Base slab at +3.8 mPD to +4.8 mPD (incl. earth mat installation)	21	19-Oct-23	13-Nov-23	-121
Primary Sedimentation Tank (PST)					



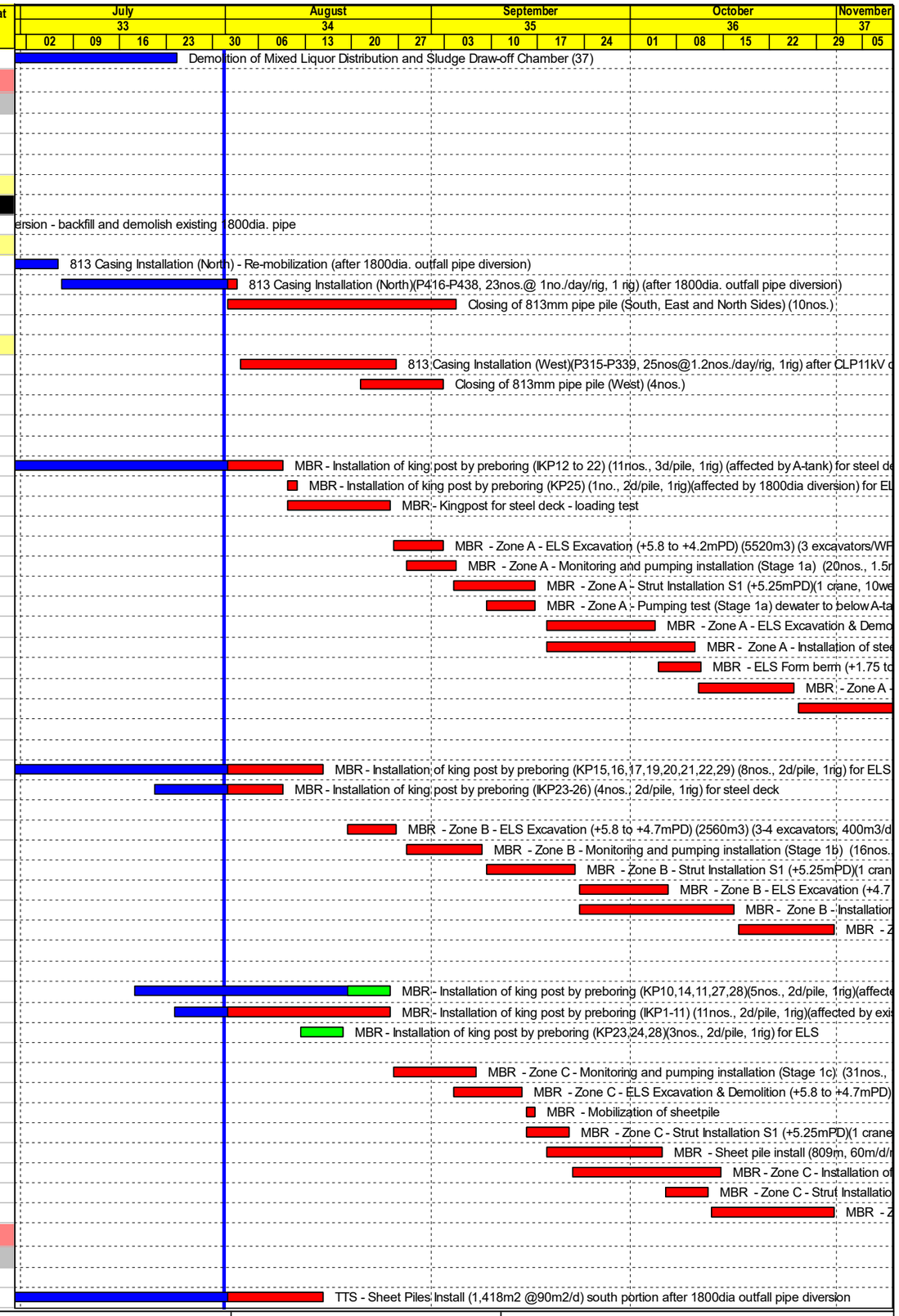
Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
PST Superstructure					
Stage 1					
RC Works					
PST Stage 1 - GL A-E (PST channel and outlet channel)					
Z1-PST-3750	PST - RC Works for wall/column (GL A-E, +11.75 to +18.15mPD)	12	14-Jun-23 A	01-Aug-23	-110
Z1-PST-3760	PST - RC Works for roof slab (GL A-E, +11.75 to +18.15mPD) falsework sit on +11.8mPD	17	03-Jul-23 A	01-Aug-23	-110
PST Stage 1 - GL E-H (PST channel)					
Z1-PST-4612	PST - RC Works for wall/column (GL E-H, +11.75 to +18.15mPD)	12	26-May-23 A	01-Aug-23	-110
Z1-PST-4602	PST - RC Works for roof slab (GL E-H, +11.75 to +18.15mPD)	17	20-Jun-23 A	01-Aug-23	-110
Water Tightness Test for PST					
Z1-PST-4732	PST - Concrete develop strength	7	13-Jun-23 A	21-Jun-23 A	
Z1-PST-4742	PST - Strike formwork and make good for water tightness test (PST1)	7	22-Jun-23 A	29-Jun-23 A	
Z1-PST-3770	PST - Water Tightness Test 1 (PST1)(water height=5.5m, bulkhead=2d; fill=12d ,absoption=7d, test=7d ,remove=3d)	31	30-Jun-23 A	18-Aug-23	-124
Z1-PST-4822	PST - Strike formwork and make good for water tightness test (PST2&3)	14	30-Jun-23 A	27-Jul-23 A	
Z1-PST-3780	PST - Water Tightness Test 2 (PST3)(water height=5.5m, bulkhead=2d; fill=4d,absoption=7d,test=7d ,remove=3d)	23	28-Jul-23 A	30-Aug-23	-124
Z1-PST-4802	PST - Water Tightness Test 3 (PST2)(water height=5.5m, bulkhead=2d; fill=4d,absoption=7d,test=7d ,remove=3d)	23	28-Aug-23	22-Sep-23	-124
Z1-PST-4812	PST - Water Tightness Test 4 (outlet)(water height=5.5m, bulkhead=2d; fill=3d,absoption=7d,test=7d ,remove=2d)	21	19-Sep-23	14-Oct-23	-110
PST ABWF, E&M & T&C					
PST Stage 1					
PST Stage 1 - ABWF Works					
PST1-3, Outlet channel					
PST-3275	PST Stage 1 - Remove scaffold and surface preparation at PST1	6	19-Aug-23	25-Aug-23	-104
PST-3115	PST Stage 1 - Screeding at PST1 (clearance&set-out=1d,screed(2 pours)=2d,joint=1d)	4	26-Aug-23	30-Aug-23	-104
PST-3295	PST Stage 1 - Remove scaffold and surface preparation at PST3	6	31-Aug-23	06-Sep-23	-88
PST-3305	PST Stage 1 - Screeding at PST3 (clearance&set-out=1d,screed(2 pours)=2d,joint=1d)	4	07-Sep-23	11-Sep-23	-88
PST-3095	PST Stage 1 - Lining at PST 1 (install=3d,testing=1d,clearance=1d)	5	23-Sep-23	28-Sep-23	-124
PST-3285	PST Stage 1 - Remove scaffold and surface preparation at PST2	6	23-Sep-23	29-Sep-23	-103
PST-3315	PST Stage 1 - Lining at PST 3 (install=3d,testing=1d,clearance=1d)	5	29-Sep-23	06-Oct-23	-103
PST-3125	PST Stage 1 - Screeding at PST 2 (clearance&set-out=1d,screed(2 pours)=2d,joint=1d)	4	03-Oct-23	06-Oct-23	-103
PST-3105	PST Stage 1 - Lining at PST 2 and outlet channel (install=3d,testing=1d,clearance=1d)	5	16-Oct-23	20-Oct-23	-110
GL A-H above +11.8mPD					
PST-3265	PST Stage 1 - Concrete gain strength	7	02-Aug-23	09-Aug-23	-110
PST-1370	PST Stage 1 - Strike formwork and falswork	3	10-Aug-23	12-Aug-23	-110
PST-3135	PST Stage 1 - ABWF Works (wall render:spray=1d,let-dry=5d) at +11.8/+18.15mPD	6	14-Aug-23	19-Aug-23	-110
PST-3165	PST Stage 1 - ABWF Works (wall plaster:3coats) at +11.8/+18.15mPD	2	21-Aug-23	22-Aug-23	-110
PST-3175	PST Stage 1 - ABWF Works (floor screeding) at +11.8/+18.15mPD	3	23-Aug-23	25-Aug-23	-110
PST-3185	PST Stage 1 - ABWF Works (floor coating:3coats) at +11.8/+18.15mPD	3	26-Aug-23	29-Aug-23	-110
PST Stage 1 - E&M Installation Works					
Phase 1 (GL A-H, PST 1-3, Outlet Channel)					
ATALPST-0100	PST Stage 1 - E&M Handover @ +18.3mPD (GL A-H)	0	30-Aug-23		-110
ATALPST-0000	PST Stage 1 - E&M Handover @ +11.8mPD (PST1)	0	29-Sep-23		-124
ATALPST-6540	PST Stage 1 - E&M Handover @ +11.8mPD (PST2, 3 & outlet)	0	21-Oct-23		-110
PST Stage 1 - E&M Installation Works at Setting Zone (PST 1-3)					
ATALPST-658	PST Stage 1 - Preparation Works (clearance, survey and setting out)	15	29-Sep-23	18-Oct-23	-108
PST 1-3 - LALG					
ATALPST-53	PST Stage 1 - LALG-PST1	43	30-Aug-23	20-Oct-23	-110
ATALPST-53	PST Stage 1 - LALG-PST2	43	30-Aug-23	20-Oct-23	-110
ATALPST-53	PST Stage 1 - LALG-PST3	43	30-Aug-23	20-Oct-23	-110
PST 1-3 - Inclined Plate Settling System					
ATALPST-53	PST Stage 1 - Installation of Lamella support beam and frame & inspection	17	21-Oct-23	10-Nov-23	-110
PST Stage 1 - Outlet Channel					
ATALPST-555	PST Stage 1 - Unloading of Stoplogs&Penstocks x 23 Nos	7	29-Sep-23	09-Oct-23	-122
ATALPST-556	PST Stage 1 - Installation of Penstocks x 3 Nos	41	10-Oct-23	27-Nov-23	-85
ATALPST-558	PST Stage 1 - Installation of Stoplogs x 20 Nos.	93	10-Oct-23	30-Jan-24	-121
External Pipeworks for Temp Pumping System					
Z2D-2170	Temporary Routing Between New PST and Existing Aeration Tank	90	31-Aug-23	16-Dec-23	27
Z2D-2180	Alternate Route to Switch Back to existing PST 1-3 (contingency for PST1-3 not fully operated)	90	31-Aug-23	16-Dec-23	27
Z2D-4340	Temporary Sludge & Scum Pipe from New PST Pump Room to Exisitng Consolidation Tank / New STB via Locatic	90	31-Aug-23	16-Dec-23	27
Z2D-4330	Temporary Pumping from Detritors to New PST while IW is still in progress	150	29-Sep-23	05-Apr-24	-59
CLP Substations No. 1 & 2					
Civil Provision for CLP (drawpits & ductings)					
CLP-1270	Ducting and Drawpits construction	30	13-Dec-22 A	05-Aug-23	-59



Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
CLP Substation No. 1					
CLP-1560	CLP Substation No.1 - ABWF Works for CLP handover (not required for Section 1 completion)	38	13-Feb-23 A	22-Aug-23	-85
CLP-1440	CLP Substation No.1 - Waterproofing and Testing	13	29-Jun-23 A	26-Jul-23 A	
CLP Substation No. 2					
CLP-1550	CLP Substation No.2 - ABWF Works for CLP handover (not required for Section 1 completion)	35	13-Feb-23 A	22-Aug-23	-85
CLP-1450	CLP Substation No.2 - Waterproofing and Testing	13	29-Jun-23 A	26-Jul-23 A	
CLP Substation No. 1 & 2 Handover Inspection and Installation					
CLP-1630	CLP Substation 1 & 2 - CLP pre-inspection	1	23-Aug-23	23-Aug-23	-85
CLP-1500	CLP Substation No.1 & 2 - Defect works	10	24-Aug-23	04-Sep-23	-85
CLP-1510	CLP Substation No.1 & 2 - CLP final inspection and handover	1	05-Sep-23	05-Sep-23	-85
CLP-1070	CLP Substation No.1 - CLP Installation	90	06-Sep-23	22-Dec-23	-85
CLP-1080	CLP Substation No.2 - CLP Installation	90	06-Sep-23	22-Dec-23	-85
DSD 11kV Switchgear					
CLP-1060	DSD11KV Switchgear - internal ABWF Works	36	25-Feb-23 A	22-Aug-23	-14
CLP-1110	DSD11KV Switchgear - E&M and BS Installation	51	06-Sep-23	07-Nov-23	-26
CLP Substation No. 1 & 2 & DSD 11kV Switchgear - GRC Cladding					
CLP-1610	CLP Substation No.1 & 2 & DSD11KV Switchgear - GRC cladding - mock-up installation	14	01-Jun-23 A	15-Aug-23	890
CLP-1620	CLP Substation No.1 & 2 & DSD11KV Switchgear - GRC cladding - mock-up inspection and approval	1	16-Aug-23	16-Aug-23	890
CLP-1590	CLP Substation No.1 & 2 & DSD11KV Switchgear - GRC cladding - fabrication	60	17-Aug-23	28-Oct-23	890
CLP-1600	CLP Substation No.1 & 2 & DSD11KV Switchgear - GRC cladding - installation	75	29-Aug-23	27-Nov-23	890
Sludge Dewatering Building (SDB)					
SDB Foundation & ELS - Stage 1					
SDB Preliminaries for Foundation Works					
Submisson and Advanced Works for Early Piling					
SDB-1750	Prepare/submit/review/approve scheme with PM for early access for piling - resubmission	7	03-Jul-23 A	17-Jul-23 A	
SDB-1760	Prepare/submit/review/approve scheme with DSD/ST1 for early access for piling - 1st submission	12	10-Jul-23 A	24-Jul-23 A	
SDB-1720	Prepare/submit/review/approve method statement of UU & road diversion for early access for piling - 1st submissic	12	17-Jul-23 A	31-Jul-23 A	
SDB-1770	Prepare/submit/review/approve scheme with DSD/ST1 for early access for piling - resubmission	7	24-Jul-23 A	31-Jul-23 A	
SDB-1730	UU & road diversion for early access for piling	29	25-Jul-23 A	29-Aug-23	-83
SDB-1780	Prepare/submit/review/approve method statement of UU & road diversion for early access for piling - resubmission	7	01-Aug-23	08-Aug-23	-83
SDB GI - Pre-drilling Works					
SDB At PST4 and Existing Road					
SDB-1250	SDB-PD6	12	12-Jun-23 A	23-Jun-23 A	
SDB-1230	SDB-PD1	12	24-Jun-23 A	05-Jul-23 A	
SDB-1010	SDB-PD10	12	06-Jul-23 A	21-Jul-23 A	
SDB-1040	SDB-PD20	12	24-Jul-23 A	03-Aug-23	206
SDB-1350	SDB-PD4 w/ obstruction (PST4)	12	01-Aug-23	14-Aug-23	185
SDB-1030	SDB-PD22	12	04-Aug-23	17-Aug-23	268
SDB-1360	SDB-PD5 w/ obstruction (PST4)	12	15-Aug-23	28-Aug-23	185
SDB-1290	SDB-PD7	12	18-Aug-23	31-Aug-23	268
SDB Foundation - PST 1-4 Footprint					
SDB-1700	SDB - Driven H-piles (20 nos.,1,162m @48m/d/rig, 1rig) early start along acess road	26	06-Sep-23	07-Oct-23	144
Administration Building (ADB)					
ADB Demolition					
ADB-1080	Demolition of Central Control Room (14) - superstructure	35	01-Aug-23	09-Sep-23	260
ADB Foundation Works					
ADB Early Access for Predrilling					
ADB-1390	ADB - Predrill (1no., 4days/no./rig, 1rig) (AB-PD1) (within CCR footprint)	4	11-Sep-23	14-Sep-23	260
ADB-1360	ADB - Predrill (3nos., 4days/no./rig, 1rig) (AB-PD3, PD8, PD11) (outside existing building footprint)	12	15-Sep-23	28-Sep-23	260
External Works					
Water Meter Cabinet					
Water Meter Cabinet - Structure					
CLP-1130	Master Meter Cabinet - Structure	30	17-Oct-23	21-Nov-23	9
Zone 2 Construction					
Demolition Works					
Other Existing Pumping Stations					
Z2T-230	Expose/slew/protect existing power cable at Return Activated Sludge Screw Pumps PS (16) & Chamber (33)	12	01-Jun-23 A	14-Jun-23 A	
Z2T-210	Demolition of Flow Measurement Chamber (34) & SSD Chamber (32) substructure	7	03-Jun-23 A	30-Jun-23 A	
Auxilliary Pumping Stations					
Z2T-150B20	Demolition of Auxiliary Pumping Station (19) below ground	30	26-Oct-23	29-Nov-23	-153
Final Sedimentation Tanks					



Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
Z2T-200	Demolition of Mixed Liquor Distribution and Sludge Draw-off Chamber (37)	20	10-Jun-23 A	24-Jul-23 A	
Mainstream Bio-Reactor & Auxillary Facility (MBR and AF)					
MBR and AF Structure					
MBR - ELS Excavation & Demolition stage 1					
Pipe Pile					
Northern Side					
UU Diversion					
Temporary Diversion of 1800dia. Outfall Pipe					
MBRAF-300	1800dia. outfall pipe diversion - backfill and demolish existing 1800dia. pipe	6	31-May-23 A	08-Jun-23 A	
Installation of 813mm casing					
MBRAF-3010	813 Casing Installation (North) - Re-mobilization (after 1800dia. outfall pipe diversion)	6	15-Jun-23 A	06-Jul-23 A	
MBRAF-2410	813 Casing Installation (North)(P416-P438, 23nos.@ 1no./day/rig, 1 rig) (after 1800dia. outfall pipe diversion)	23	07-Jul-23 A	02-Aug-23	-162
MBRAF-2100	Closing of 813mm pipe pile (South, East and North Sides) (10nos.)	30	01-Aug-23	04-Sep-23	-163
Western Side					
Installation of 813mm casing					
MBRAF-2290	813 Casing Installation (West)(P315-P339, 25nos@1.2nos./day/rig, 1rig) after CLP11kV diversion	21	03-Aug-23	26-Aug-23	-162
MBRAF-2280	Closing of 813mm pipe pile (West) (4nos.)	12	21-Aug-23	02-Sep-23	-162
MBR - ELS Excavation & Demolition stage 2					
MBR - ELS Zone A					
Kingpost and Working Platform					
MBRAF-2470	MBR - Installation of king post by preboring (IKP12 to 22) (11nos., 3d/pile, 1rig) (affected by A-tank) for steel deck	33	23-May-23 A	09-Aug-23	-172
MBRAF-2970	MBR - Installation of king post by preboring (KP25) (1no., 2d/pile, 1rig)(affected by 1800dia diversion) for ELS	2	10-Aug-23	11-Aug-23	-160
MBRAF-2990	MBR - Kingpost for steel deck - loading test	14	10-Aug-23	25-Aug-23	-172
Excavation and Demolition					
MBRAF-1610	MBR - Zone A - ELS Excavation (+5.8 to +4.2mPD) (5520m3) (3 excavators/WF, 2WFs, 400m3/d/WF)	7	26-Aug-23	02-Sep-23	-172
MBRAF-1460	MBR - Zone A - Monitoring and pumping installation (Stage 1a) (20nos., 1.5nos./d/rig, 2rigs)	7	28-Aug-23	04-Sep-23	-163
MBRAF-1620	MBR - Zone A - Strut Installation S1 (+5.25mPD)(1 crane, 10welders, 24ton/d)	12	04-Sep-23	16-Sep-23	-172
MBRAF-2430	MBR - Zone A - Pumping test (Stage 1a) dewater to below A-tank	7	09-Sep-23	16-Sep-23	-167
MBRAF-1630	MBR - Zone A - ELS Excavation & Demolition (+4.2 to +1.75mPD) (8453m3) (3 excavators/WF, 2WFs, 400m3/d/	13	18-Sep-23	04-Oct-23	-167
MBRAF-2490	MBR - Zone A - Installation of steel deck	18	18-Sep-23	10-Oct-23	-172
MBRAF-3270	MBR - ELS Form berm (+1.75 to +0.5mPD) for demolition A-tank structure (2000m3) (3-4 excavators, 400m3/d/)	6	05-Oct-23	11-Oct-23	-161
MBRAF-1640	MBR - Zone A - Strut Installation S2 (+2.3mPD)(1 crane, 10welders, 24ton/d)	12	11-Oct-23	25-Oct-23	-172
MBRAF-3280	MBR - Zone A - ELS Excavate berm & demolish remaining A-tank structure (3-4 excavators, 400m3/d) silent meth	30	26-Oct-23	29-Nov-23	-172
MBR - ELS Zone B					
Kingpost and Working Platform					
MBRAF-3340	MBR - Installation of king post by preboring (KP15,16,17,19,20,21,22,29) (8nos., 2d/pile, 1rig) for ELS	16	31-May-23 A	15-Aug-23	-164
MBRAF-3350	MBR - Installation of king post by preboring (IKP23-26) (4nos., 2d/pile, 1rig) for steel deck	8	21-Jul-23 A	09-Aug-23	-167
Excavation					
MBRAF-3020	MBR - Zone B - ELS Excavation (+5.8 to +4.7mPD) (2560m3) (3-4 excavators, 400m3/d)	7	19-Aug-23	26-Aug-23	-167
MBRAF-3370	MBR - Zone B - Monitoring and pumping installation (Stage 1b) (16nos., 1.5nos./d/rig, 1rig)	11	28-Aug-23	08-Sep-23	-167
MBRAF-3030	MBR - Zone B - Strut Installation S1 (+5.25mPD)(1 crane, 10welders, 24ton/d)	12	09-Sep-23	22-Sep-23	-131
MBRAF-3040	MBR - Zone B - ELS Excavation (+4.7 to +1.75mPD) (3920m3) (3-4 excavators, 400m3/d)	10	23-Sep-23	06-Oct-23	-123
MBRAF-3390	MBR - Zone B - Installation of steel deck	18	23-Sep-23	16-Oct-23	-131
MBRAF-3050	MBR - Zone B - Strut Installation S2 (+2.3mPD)(1 crane, 10welders, 24ton/d)	12	17-Oct-23	31-Oct-23	-131
MBR - ELS Zone C					
Kingpost and Working Platform					
MBRAF-2950	MBR - Installation of king post by preboring (KP10,14,11,27,28)(5nos., 2d/pile, 1rig)(affected by existing RAS) for E	10	18-Jul-23 A	25-Aug-23	1262
MBRAF-2480	MBR - Installation of king post by preboring (IKP1-11) (11nos., 2d/pile, 1rig)(affected by existing RAS) for steel deck	22	24-Jul-23 A	25-Aug-23	-166
MBRAF-2960	MBR - Installation of king post by preboring (KP23,24,28)(3nos., 2d/pile, 1rig) for ELS	6	12-Aug-23	18-Aug-23	1262
Excavation					
MBRAF-3380	MBR - Zone C - Monitoring and pumping installation (Stage 1c) (31nos., 1.5nos./d/rig, 2rigs)	11	26-Aug-23	07-Sep-23	-166
MBRAF-3130	MBR - Zone C - ELS Excavation & Demolition (+5.8 to +4.7mPD) (3840m3)(3-4 excavators, 400m3/d)	10	04-Sep-23	14-Sep-23	-140
MBRAF-2900	MBR - Mobilization of sheetpile	2	15-Sep-23	16-Sep-23	-140
MBRAF-3140	MBR - Zone C - Strut Installation S1 (+5.25mPD)(1 crane, 10welders, 24ton/d)	6	15-Sep-23	21-Sep-23	-140
MBRAF-2890	MBR - Sheet pile install (809m, 60m/d/rig, 1rig) early constructed sheetpile due to strut obstruction	14	18-Sep-23	05-Oct-23	-140
MBRAF-2500	MBR - Zone C - Installation of steel deck	18	22-Sep-23	14-Oct-23	-127
MBRAF-3400	MBR - Zone C - Strut Installation S1 (+5.25mPD)(1 crane, 10welders, 24ton/d) remain. strut after early sheetpile	6	06-Oct-23	12-Oct-23	-140
MBRAF-3150	MBR - Zone C - ELS Excavation & Demolition(+4.7 to +1.75mPD) (5880m3) (3-4 excavators, 400m3/d)	15	13-Oct-23	31-Oct-23	-140
Tertriary Treatment System (TTS)					
TTS Foundation and ELS					
Sheetpile					
TTS-1860	TTS - Sheet Piles Install (1,418m2 @90m2/d) south portion after 1800dia outfall pipe diversion	24	09-Jun-23 A	15-Aug-23	-124



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

保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

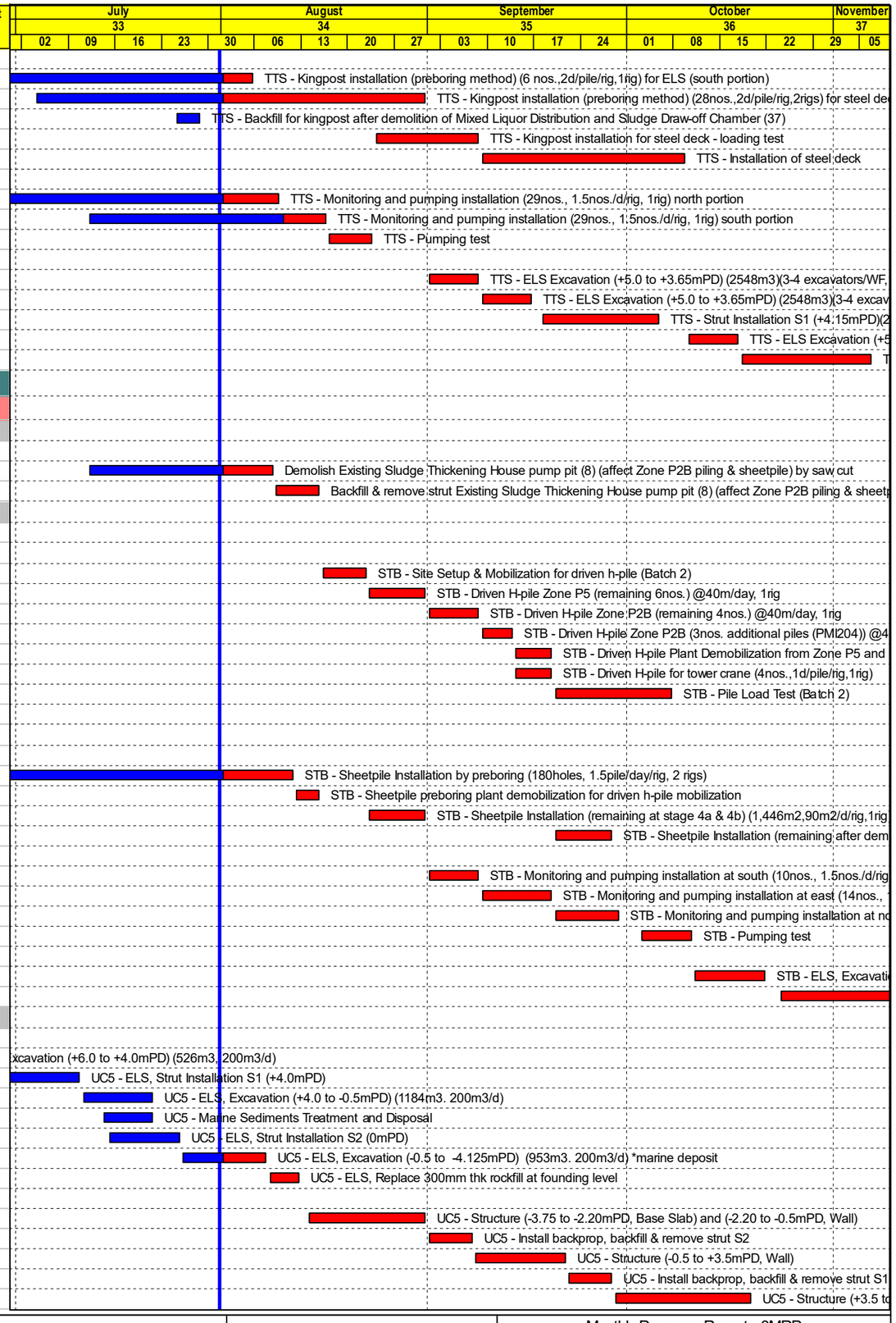
Contract DC/2019/10 - YLEPP - Main Works for Stage 1
Monthly Progress Report No. 33 - 3MRP (Jul 2023)

Project ID : DWPr28_230814r1
Layout : DC201910 MPR33-3MRP

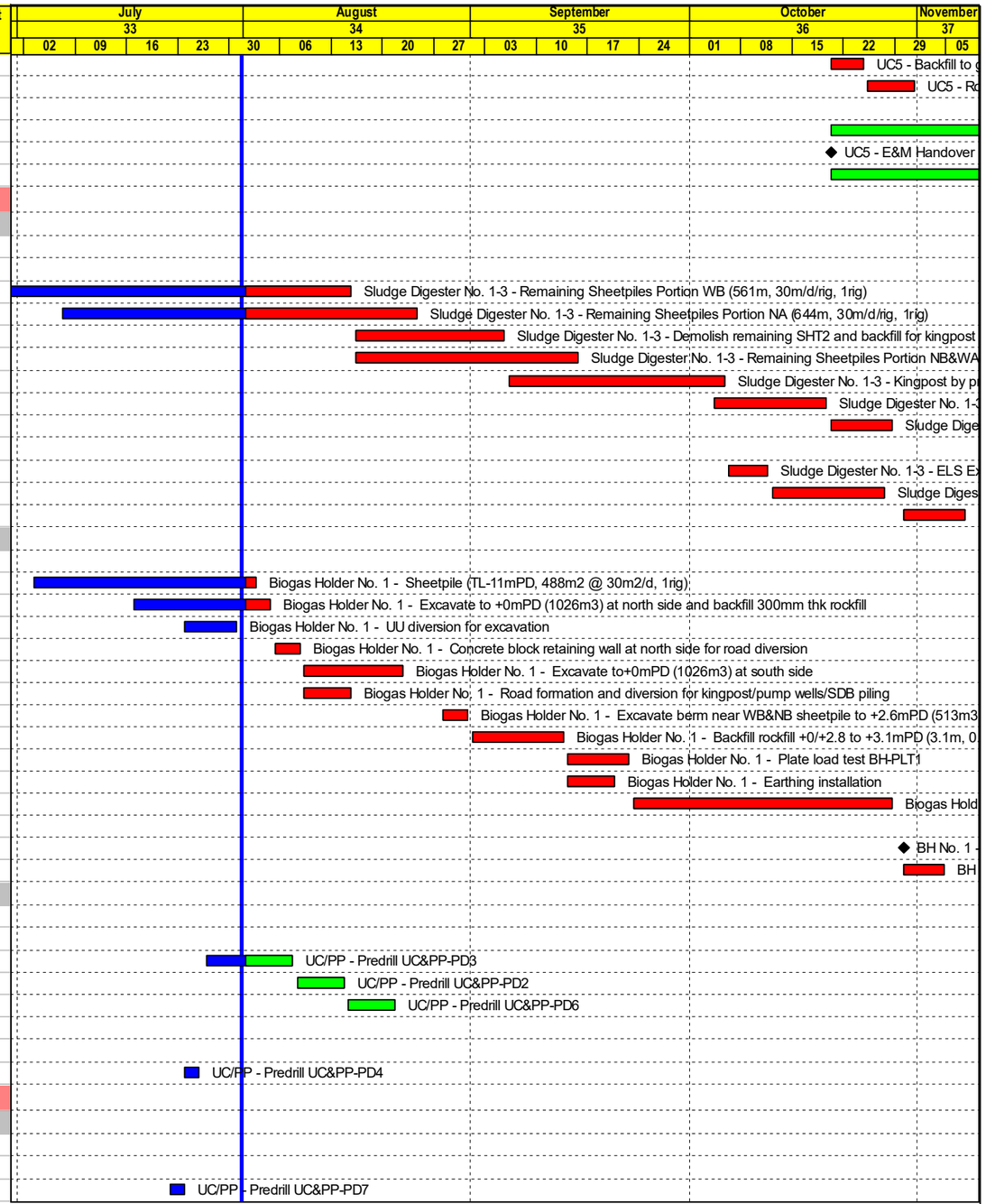
Monthly Progress Report - 3MRP

Date	Revision	Checked	Approved
31-Jul-23	Rev. 0		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
	Kingpost and Working Platform				
TTS-2010	TTS - Kingpost installation (preboring method) (6 nos.,2d/pile/rig,1rig) for ELS (south portion)	12	14-Jun-23 A	05-Aug-23	-137
TTS-1870	TTS - Kingpost installation (preboring method) (28nos.,2d/pile/rig,2rigs) for steel deck	28	04-Jul-23 A	31-Aug-23	-170
TTS-2020	TTS - Backfill for kingpost after demolition of Mixed Liquor Distribution and Sludge Draw-off Chamber (37)	4	25-Jul-23 A	28-Jul-23 A	
TTS-1990	TTS - Kingpost installation for steel deck - loading test	14	24-Aug-23	08-Sep-23	-170
TTS-1880	TTS - Installation of steel deck	24	09-Sep-23	09-Oct-23	-170
	Monitoring and Pumping				
TTS-2000	TTS - Monitoring and pumping installation (29nos., 1.5nos./d/rig, 1rig) north portion	21	06-Jun-23 A	09-Aug-23	-140
TTS-1230	TTS - Monitoring and pumping installation (29nos., 1.5nos./d/rig, 1rig) south portion	21	12-Jul-23 A	16-Aug-23	-140
TTS-1850	TTS - Pumping test	7	17-Aug-23	23-Aug-23	-155
	TTS Foundation and ELS Stage 2				
TTS-1020	TTS - ELS Excavation (+5.0 to +3.65mPD) (2548m3)(3-4 excavators/WF,1 WF, 400m3/d/WF)north	7	01-Sep-23	08-Sep-23	-160
TTS-2030	TTS - ELS Excavation (+5.0 to +3.65mPD) (2548m3)(3-4 excavators/WF,1 WF, 400m3/d/WF)south	7	09-Sep-23	16-Sep-23	-160
TTS-1030	TTS - Strut Installation S1 (+4.15mPD)(2 cranes, 10welders per WF, 2 WFs, 30ton/d)	14	18-Sep-23	05-Oct-23	-160
TTS-2040	TTS - ELS Excavation (+5.0 to +3.65mPD) (2548m3)(3-4 excavators/WF,1 WF, 400m3/d/WF)middle	7	10-Oct-23	17-Oct-23	-170
TTS-1040	TTS - ELS Excavation (+3.65 to +1.15mPD) (14,158m3)(3-4 excavators/WF, 2 WFs, 400m3/d/WF) *pond sedimer	16	18-Oct-23	06-Nov-23	-170
	Zone 3 Construction				
	Zone 3 North Portion (Z3N)				
	Demolition				
	Existing Sludge Thickening House (8, Air Floatation Thickener)				
Z3S2-2030b	Demolish Existing Sludge Thickening House pump pit (8) (affect Zone P2B piling & sheetpile) by saw cut	11	12-Jul-23 A	08-Aug-23	-258
Z3S2-2030d	Backfill & remove strut Existing Sludge Thickening House pump pit (8) (affect Zone P2B piling & sheetpile)	6	09-Aug-23	15-Aug-23	-258
	New Sudge Thickening Building (STB)				
	STB : Driven H-pile				
	Batch 2				
Z3S3-3950	STB - Site Setup & Mobilization for driven h-pile (Batch 2)	6	16-Aug-23	22-Aug-23	-258
Z3S3-3960	STB - Driven H-pile Zone P5 (remaining 6nos.) @40m/day, 1rig	8	23-Aug-23	31-Aug-23	-134
Z3S3-3970	STB - Driven H-pile Zone P2B (remaining 4nos.) @40m/day, 1rig	7	01-Sep-23	08-Sep-23	-134
Z3S3-5250	STB - Driven H-pile Zone P2B (3nos. additional piles (PMI204)) @40m/day, 1rig	4	09-Sep-23	13-Sep-23	-134
Z3S3-3740	STB - Driven H-pile Plant Demobilization from Zone P5 and P2B	5	14-Sep-23	19-Sep-23	-162
Z3S3-5240	STB - Driven H-pile for tower crane (4nos.,1d/pile/rig,1rig)	5	14-Sep-23	19-Sep-23	-146
Z3S3-5150	STB - Pile Load Test (Batch 2)	14	20-Sep-23	07-Oct-23	-160
	STB : Foundation and ELS				
	STB : ELS				
	Sheetpile and Preboring				
Z3S3-5140	STB - Sheetpile Installation by preboring (180holes, 1.5pile/day/rig, 2 rigs)	60	20-Feb-23 A	11-Aug-23	-258
Z3S3-5710	STB - Sheetpile preboring plant demobilization for driven h-pile mobilization	3	12-Aug-23	15-Aug-23	-258
Z3S3-5720	STB - Sheetpile Installation (remaining at stage 4a & 4b) (1,446m2,90m2/d/rig,1rig)	8	23-Aug-23	31-Aug-23	-162
Z3S3-3800	STB - Sheetpile Installation (remaining after demolition) (604m2, 90m2/d/rig, 1rig)	8	20-Sep-23	28-Sep-23	-161
	Monitoring and Pumping				
Z3S3-3340	STB - Monitoring and pumping installation at south (10nos., 1.5nos./d/rig, 1rig)	7	01-Sep-23	08-Sep-23	-162
Z3S3-5260	STB - Monitoring and pumping installation at east (14nos., 1.5nos./d/rig, 1rig)	9	09-Sep-23	19-Sep-23	-162
Z3S3-3805	STB - Monitoring and pumping installation at north (after piling) (13nos., 1.5nos./d/rig, 1rig)	9	20-Sep-23	29-Sep-23	-162
Z3S3-5080	STB - Pumping test	7	03-Oct-23	10-Oct-23	-162
	Excavation and Lateral Support				
Z3S3-2250	STB - ELS, Excavation (+6.0 to +3.5mPD, 1,759m3 @ 250m3/d)	10	11-Oct-23	21-Oct-23	-162
Z3S3-2290	STB - ELS, Strut Installation S1 (@ +4.0mPD)	18	24-Oct-23	13-Nov-23	-162
	Utility Corridor (UC5) (Connect to STB)				
	UC5 : Foundation and ELS Works				
Z3S2-3100	UC5 - ELS, Excavation (+6.0 to +4.0mPD) (526m3, 200m3/d)	3	08-Jun-23 A	17-Jun-23 A	
Z3S2-3110	UC5 - ELS, Strut Installation S1 (+4.0mPD)	10	19-Jun-23 A	10-Jul-23 A	
Z3S2-3130	UC5 - ELS, Excavation (+4.0 to -0.5mPD) (1184m3. 200m3/d)	6	11-Jul-23 A	21-Jul-23 A	
Z3S2-3120	UC5 - Marine Sediments Treatment and Disposal	14	14-Jul-23 A	21-Jul-23 A	
Z3S2-3140	UC5 - ELS, Strut Installation S2 (0mPD)	10	15-Jul-23 A	25-Jul-23 A	
Z3S2-3170	UC5 - ELS, Excavation (-0.5 to -4.125mPD) (953m3. 200m3/d) *marine deposit	5	26-Jul-23 A	07-Aug-23	-163
Z3S2-3440	UC5 - ELS, Replace 300mm thk rockfill at founding level	5	08-Aug-23	12-Aug-23	-163
	UC5 : Civil and Structural Works				
Z3S2-3180	UC5 - Structure (-3.75 to -2.20mPD, Base Slab) and (-2.20 to -0.5mPD, Wall)	16	14-Aug-23	31-Aug-23	-163
Z3S2-3520	UC5 - Install backprop, backfill & remove strut S2	6	01-Sep-23	07-Sep-23	-163
Z3S2-3200	UC5 - Structure (-0.5 to +3.5mPD, Wall)	12	08-Sep-23	21-Sep-23	-163
Z3S2-3530	UC5 - Install backprop, backfill & remove strut S1	6	22-Sep-23	28-Sep-23	-163
Z3S2-3210	UC5 - Structure (+3.5 to +4.2mPD, Wall and Roof)	16	29-Sep-23	19-Oct-23	-163



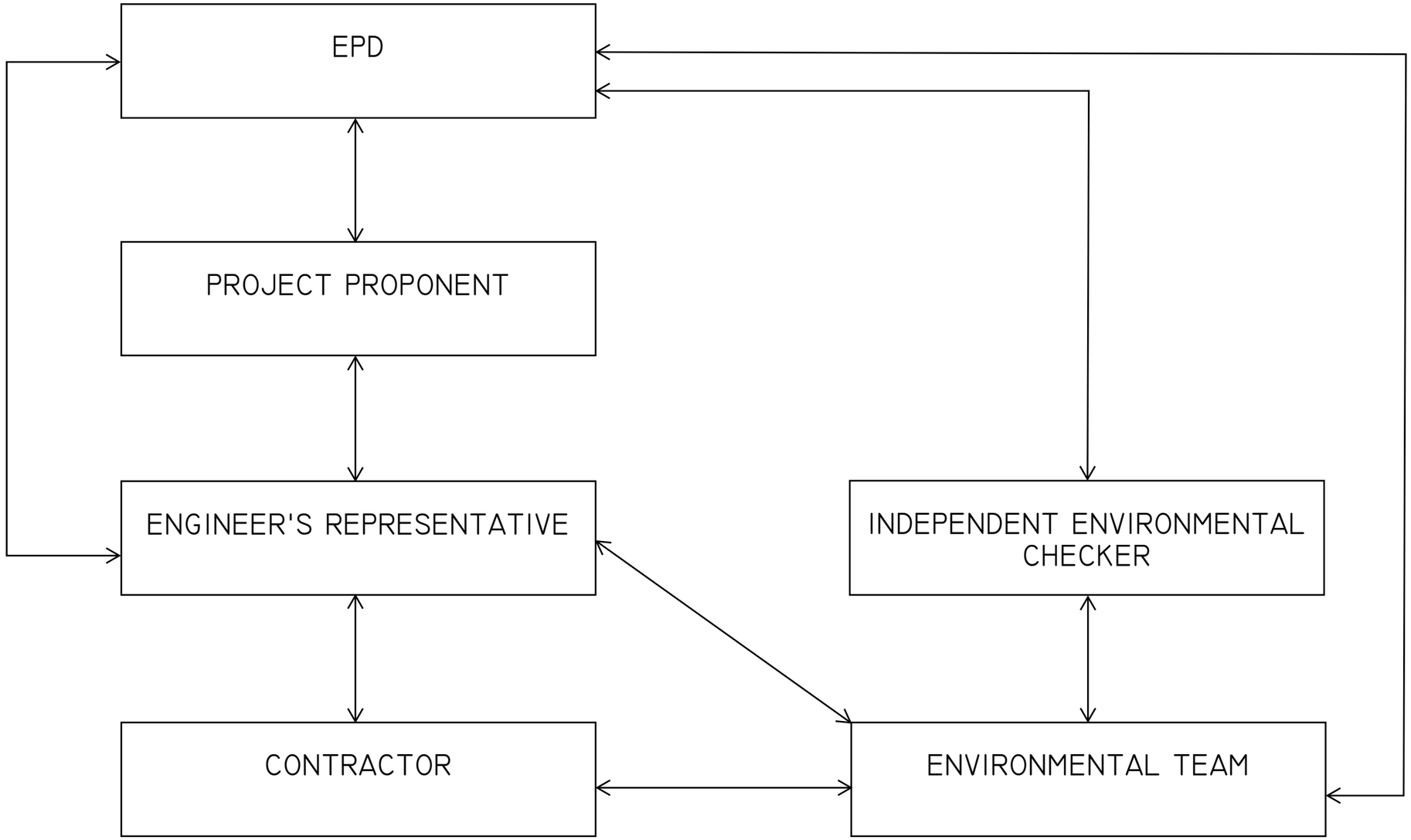
Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float
Z3S2-3610	UC5 - Backfill to ground level	3	20-Oct-23	24-Oct-23	-163
Z3S2-3480	UC5 - Road Diversion on Completed UC5	6	25-Oct-23	31-Oct-23	-163
UC5 : E&M Installation					
Z3S2-3220	UC5 - BS Works	50	20-Oct-23	18-Dec-23	792
Z3S2-3230	UC5 - E&M Handover	0	20-Oct-23		792
Z3S2-3240	UC5 - E&M Installation and Pipeworks	50	20-Oct-23	18-Dec-23	792
Zone 3 South Portion (Z3S)					
Sludge Digestor No. 1-3 (SD1-3)					
SD1-3 : Foundation and ELS					
SD1-3 : Sheetpiling, Kingpost, Monitoring and pumping					
Z3S3-2063	Sludge Digester No. 1-3 - Remaining Sheetpiles Portion WB (561m, 30m/d/rig, 1rig)	20	01-Jun-23 A	15-Aug-23	-140
Z3S3-2061	Sludge Digester No. 1-3 - Remaining Sheetpiles Portion NA (644m, 30m/d/rig, 1rig)	21	07-Jul-23 A	24-Aug-23	-105
Z3S3-5670	Sludge Digester No. 1-3 - Demolish remaining SHT2 and backfill for kingpost	18	16-Aug-23	05-Sep-23	-140
Z3S3-2062	Sludge Digester No. 1-3 - Remaining Sheetpiles Portion NB&WA (247+185m, 30m/d/rig, 2rigs) after BH1 surcharg	27	16-Aug-23	15-Sep-23	-140
Z3S3-4810	Sludge Digester No. 1-3 - Kingpost by preboring (19nos. @ 2.5d/pile/rig, 2rigs)	24	06-Sep-23	05-Oct-23	-140
Z3S3-3350	Sludge Digester No. 1-3 - Monitoring and pumping installation (42nos., 1.5nos./d/rig, 2rigs)	14	04-Oct-23	19-Oct-23	-140
Z3S3-5100	Sludge Digester No. 1-3 - Pumping test	7	20-Oct-23	28-Oct-23	-140
SD1-3 : Excavation and Strut Installation					
Z3S3-2110	Sludge Digester No. 1-3 - ELS Excavation (+5.0 to +4.3mPD, 4168m3 @ 750m3/d)	5	06-Oct-23	11-Oct-23	-139
Z3S3-2140	Sludge Digester No. 1-3 - Strut Installation S1 (+4.8mPD)	13	12-Oct-23	27-Oct-23	-139
Z3S3-2150	Sludge Digester No. 1-3 - ELS Excavation (+4.3 to +1.8mPD, 6130m3 @ 750m3/d) after BH1 footing backfilled	8	30-Oct-23	07-Nov-23	-140
Biogas Holder No. 1 (BH1)					
BH1 : Foundation					
Z3BH-1180	Biogas Holder No. 1 - Sheetpile (TL-11mPD, 488m2 @ 30m2/d, 1rig)	17	03-Jul-23 A	02-Aug-23	-132
Z3BH-1280	Biogas Holder No. 1 - Excavate to +0mPD (1026m3) at north side and backfill 300mm thk rockfill	12	17-Jul-23 A	04-Aug-23	-132
Z3BH-1290	Biogas Holder No. 1 - UU diversion for excavation	12	24-Jul-23 A	31-Jul-23 A	
Z3BH-1310	Biogas Holder No. 1 - Concrete block retaining wall at north side for road diversion	3	05-Aug-23	08-Aug-23	-132
Z3BH-1190	Biogas Holder No. 1 - Excavate to+0mPD (1026m3) at south side	12	09-Aug-23	22-Aug-23	-132
Z3BH-1320	Biogas Holder No. 1 - Road formation and diversion for kingpost/pump wells/SDB piling	6	09-Aug-23	15-Aug-23	-122
Z3BH-1330	Biogas Holder No. 1 - Excavate berm near WB&NB sheetpile to +2.6mPD (513m3)	4	28-Aug-23	31-Aug-23	-140
Z3BH-1200	Biogas Holder No. 1 - Backfill rockfill +0/+2.8 to +3.1mPD (3.1m, 0.3m/layer/d)	11	01-Sep-23	13-Sep-23	-140
Z3BH-1160	Biogas Holder No. 1 - Plate load test BH-PLT1	8	14-Sep-23	22-Sep-23	-140
Z3BH-1300	Biogas Holder No. 1 - Earthing installation	6	14-Sep-23	20-Sep-23	-138
Z3BH-1010	Biogas Holder No. 1 - 800 Thick Base Slab and retaining wall (from +3.1mPD to +6mPD) and backfill	28	23-Sep-23	28-Oct-23	-140
BH1 : E&M Installation					
ATALZ3BH-0900	BH No. 1 - E&M Handover	0	30-Oct-23		-130
ATALZ3BH-2425	BH No. 1 - Material delivery and base preparation (plinth leveling and bitumen coating, drainage)	6	30-Oct-23	04-Nov-23	-130
Utility Corridor and Pipe Portal (UC/PP)					
Utility Corridor No. 1 (UC1)					
UC1 : Predrilling Works					
Z3S5UC1-2190	UC/PP - Predrill UC&PP-PD3	6	27-Jul-23 A	07-Aug-23	125
Z3S5UC1-2180	UC/PP - Predrill UC&PP-PD2	6	08-Aug-23	14-Aug-23	125
Z3S5UC1-2200	UC/PP - Predrill UC&PP-PD6	6	15-Aug-23	21-Aug-23	125
Utility Corridor No. 2 (UC2)					
UC2 : Predrilling Works					
Z3S2-2240	UC/PP - Predrill UC&PP-PD4	6	24-Jul-23 A	26-Jul-23 A	
Zone 3 Middle Portion (Z3M)					
Utility Corridor and Pipe Portal (UC/PP)					
Pipe Portal No. 2 (PP2)					
PP2 : Predrilling Works					
Z3S2-3410	UC/PP - Predrill UC&PP-PD7	6	22-Jul-23 A	24-Jul-23 A	



Appendix B
Project Organization Chart

LEGEND:

LINE OF COMMUNICATION



Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: Chanwa 5/28/2018
PATH: p:\projects\60505476\drawing\report\EM&A\EM&A_702.dgn

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 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
狀況

SCALE 比例: A3 1 : 40000

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

PROJECT ORGANISATION

SHEET NUMBER
圖紙編號

Appendix C
Action and Limit Levels

Action and Limit Levels for Air Quality

Parameters	Action Level	Limit Level
1-hour TSP Level in µg/m^3	[1]For baseline level $\leqslant$ 384 µg/m^3, Action level = (baseline level * 1.3 + Limit level)/2; For baseline level > 384 µg/m^3, Action level = Limit level	500 µg/m^3

Notes:
1. The Action Level for 1-hour TSP Level:
a) AM1 = (63*1.3 + 500) / 2 = 291 µg/m^3;
b) AM2 = (70*1.3 + 500) / 2 = 296 µg/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:
1. 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.
2. 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
Construction Phase Water Quality Monitoring		
DO in mg/L (Surface, Middle & Bottom) [2]	Surface & Middle 5%-ile of baseline data for surface and middle layer. Bottom 5%-ile of baseline data for bottom layer.	Surface & Middle 4 mg/L or 1%-ile of baseline data for surface and middle layer. Bottom 2 mg/L or 1%-ile of baseline data for bottom layer.
SS in mg/L (depth-averaged [1]) [3]	95%-ile of baseline data or 120% of upstream control station's SS recorded on the same day	99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day
Turbidity in NTU (depth-averaged [1]) [3]	95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day	99%-ile of baseline data or 130% of upstream control station's turbidity recorded on the same day

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

Action and Limit Levels for Ecology

Active Ardeid Night Roost Survey

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

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

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

Ecological Monitoring of Birds

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

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

Air Quality Monitoring Equipment

SIBATA
innovation for the Next 100

SIBATA SCIENTIFIC TECHNOLOGY LTD.
1-1-62, Nakane, Soka, Saitama, 340-0005 Japan
TEL. +81-48-933-1582 FAX. +81-48-933-1591

Date: January 23th, 2023

CALIBRATION CERTIFICATE

Equipment Name	:	Digital Dust Indicator, Model LD-5R
Code No.	:	080000-73
Quantity	:	1 unit
Serial No.	:	2Y6548
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	545 CPM
Scale Setting	:	November 15th, 2022.

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

(Signature) Tong Zhang

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Tong Zhang
Overseas & New Business Group
Overseas Sales Department

Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

Information of Calibrated Equipement

Verification Test Date:	**8-Apr-23**	to	**9-Apr-23**	Next Verification Test Date:	**8-Apr-24**
Unit-under-Test- Model No.:	Sibata LD-5R				
Unit-under-Test Serial No.:	2Y6548				
Our Report Refrence No.:	RPT-23-HVS-0045				
Calibration Location:	Emax				

Standard Equipment Information

Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5028A
Equipment serial no.:	1049	3702
Last Calibration Date:	8-Apr-23	31-Mar-23
Next Calibration Date:	7-Jun-23	30-Mar-24

Equipement Vertification Result

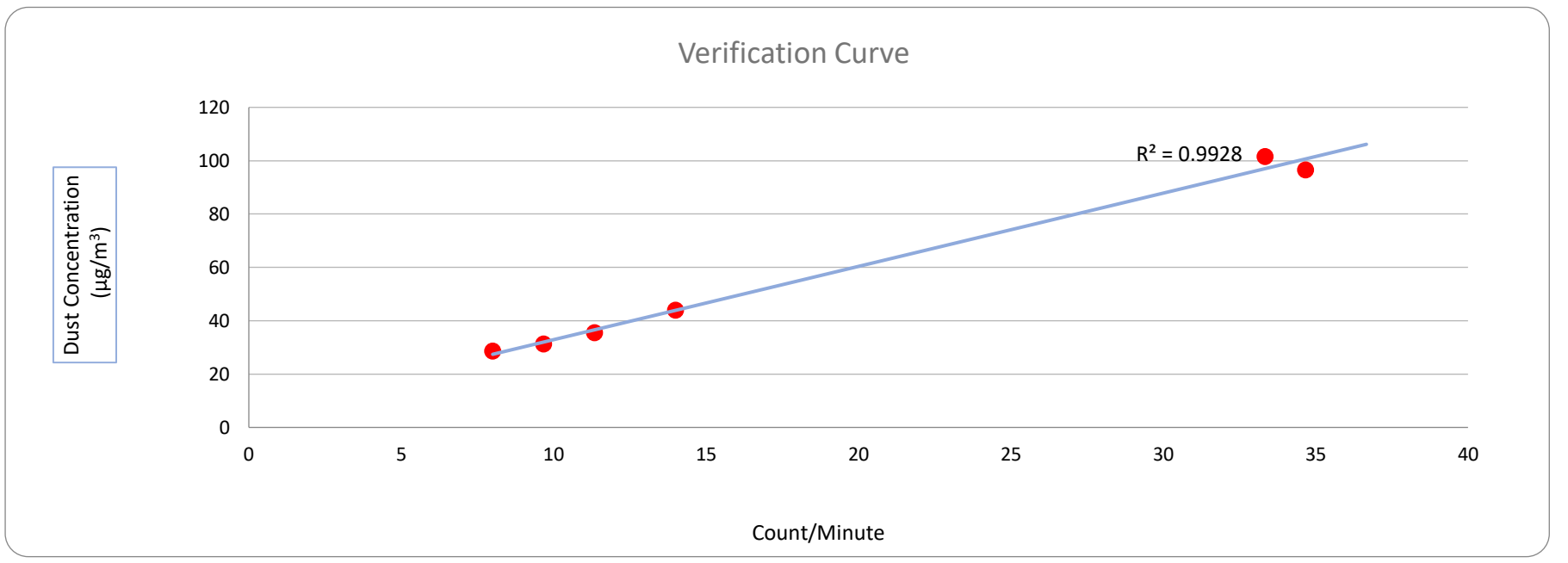
Verification Test No.	Date	Duration			Results from Calibrated Equipement		Results from Standard Equipment
		Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration (µg/m^3) y-axis
1	8/4/2023	7339.85	7342.85	180.00	2520	14	44
2	8/4/2023	7342.85	7345.85	180.00	2040	11	36
3	8/4/2023	7345.85	7348.85	180.00	6240	35	97
4	9/4/2023	7349.74	7352.74	180.00	1440	8	29
5	9/4/2023	7352.76	7355.76	180.00	1740	10	31
6	9/4/2023	7355.77	7358.77	180.00	6000	33	102

Linear Regression of y on x

Slope, K factor: **2.7466** Intercept: **5.4440** *Correlation Coefficient,R: **0.9964**

Verification Test Result: Strong Correlation, Results were accepted.

* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Operated By: Andy Li — Project Technician, Environmental — Date: 10-04-2023

Checked By: Tandy Tse — Senior Consultant, Environmental — Date: 10-04-2023

SIBATA
innovation for the Next 100

SIBATA SCIENTIFIC TECHNOLOGY LTD.
1-1-62, Nakane, Soka, Saitama, 340-0005 Japan
TEL. +81-48-933-1582 FAX. +81-48-933-1591

Date: January 23th, 2023

CALIBRATION CERTIFICATE

Equipment Name	:	Digital Dust Indicator, Model LD-5R
Code No.	:	080000-73
Quantity	:	1 unit
Serial No.	:	2Y6549
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	549 CPM
Scale Setting	:	November 15th, 2022.

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

(Signature) Tong Zhang

Tong Zhang
Overseas & New Business Group
Overseas Sales Department

Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

Information of Calibrated Equipement

Verification Test Date:	**8-Apr-23**	to	**9-Apr-23**	Next Verification Test Date:	**8-Apr-24**
Unit-under-Test- Model No.:	Sibata LD-5R				
Unit-under-Test Serial No.:	2Y6549				
Our Report Refrence No.:	RPT-23-HVS-0046				
Calibration Location:	Emax				

Standard Equipment Information

Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5028A
Equipment serial no.:	1049	3702
Last Calibration Date:	8-Apr-23	31-Mar-23
Next Calibration Date:	7-Jun-23	30-Mar-24

Equipement Vertification Result

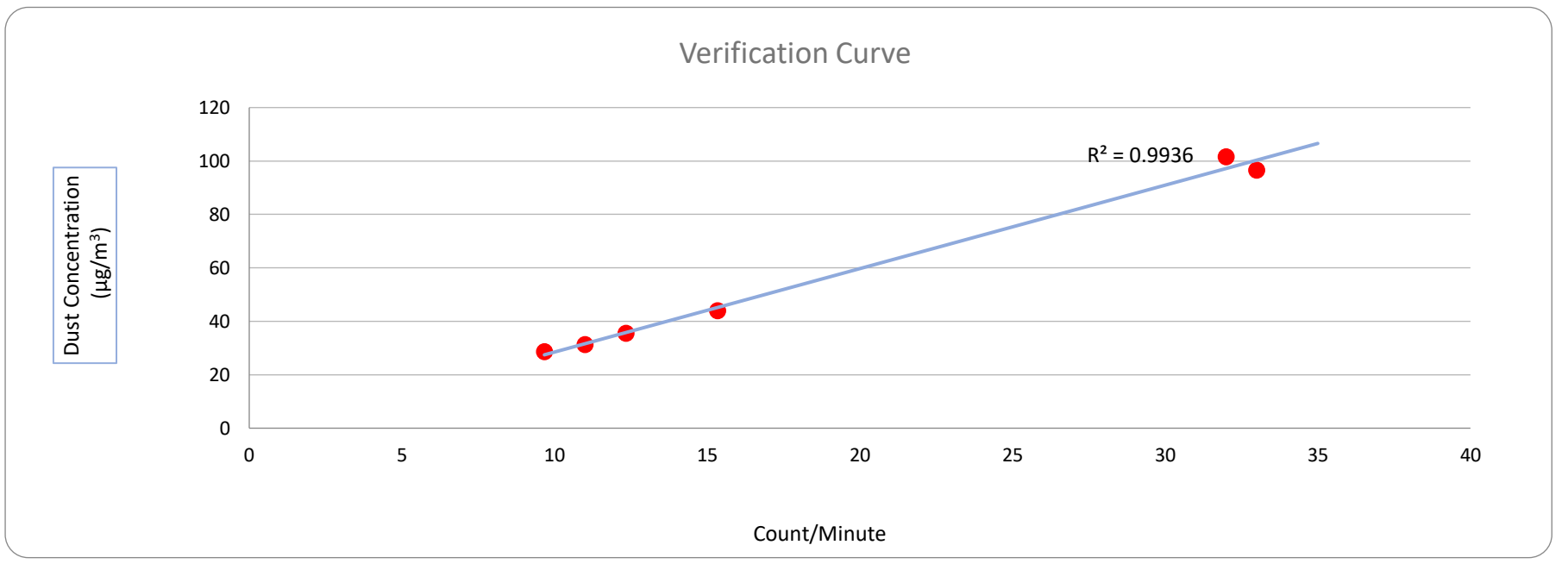
Verification Test No.	Date	Duration			Results from Calibrated Equipement		Results from Standard Equipment
		Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration (µg/m^3) y-axis
1	8/4/2023	7339.85	7342.85	180.00	2760	15	44
2	8/4/2023	7342.85	7345.85	180.00	2220	12	36
3	8/4/2023	7345.85	7348.85	180.00	5940	33	97
4	9/4/2023	7349.74	7352.74	180.00	1740	10	29
5	9/4/2023	7352.76	7355.76	180.00	1980	11	31
6	9/4/2023	7355.77	7358.77	180.00	5760	32	102

Linear Regression of y on x

Slope, K factor: **3.1227** Intercept: **-2.7291** *Correlation Coefficient,R: **0.9968**

Verification Test Result: Strong Correlation, Results were accepted.

* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Operated By: Andy Li
Project Technician, Environmental

Date: 10-04-2023

Checked By: Tandy Tse
Senior Consultant, Environmental

Date: 10-04-2023

Noise Quality Monitoring Equipment

Certificate of Calibration

for

Description:	***Sound Level Calibrator***
Manufacturer:	***RION***
Type No.:	***NC-74***
Serial No.:	***34615222***

Submitted by:

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

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 16 March 2023

Date of calibration: 21 March 2023

Date of NEXT calibration: 20 March 2024

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 21 March 2023

Certificate No.: APJ22-157-CC004

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A)*L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precautions:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Specifications:*

Calibration check

3. *Calibration Conditions:*

Air Temperature:	22.1 **°C**
Air Pressure:	1006 **hPa**
Relative Humidity:	61.7 **%**

4. *Calibration Equipment:*

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV220120	HOKLAS

5. *Calibration Results*

5.1 Sound Pressure Level

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	93.9

Note:
The values given in this certification only related to the values measured at the time of the calibration.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Cal Lab Limited 校正實驗室有限公司
Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

ACCREDITED
Certifiate #3815.01

Calibration Certificate No.: CC0292304

Customer Information

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

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.
Air Velocity Monitor	RS PRO	RS-90	210722153	ASCL-EQ-110

Certificate Information

Date of Receipt:	24 April 2023	Calibration Condition:	23.3°C, 57%RH, 1002hPa
Date of Calibration:	5 May 2023	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	SOP-112	Remark:	N/A

Reference Equipment Identification

Equipment Description	Model	Serial No.	Expiration Date
Hot Wire Anemometer	9535	T95351316004	11 August 2024

Result of Calibration

Air flow rate

Reference reading (m/s)	Measured reading (m/s)	Error (%)	Uncertainty (%FS)	Technical Requirement (m/s)	Technical Reference Doc.
1.02	1.03	1.0	3.6	± 0.33	Mfr's Spec.
2.99	2.97	-0.7	3.6	± 0.39	Mfr's Spec.
5.03	4.92	-2.2	3.6	± 0.45	Mfr's Spec.
6.98	6.86	-1.7	3.6	± 0.51	Mfr's Spec.
9.97	9.76	-2.1	3.6	± 0.60	Mfr's Spec.

CT-AFR-01

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an internal estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.
Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.
Note4: The result shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated By: Wing Cheng

Checked and Approved By: Warren Yeung

Company Chop: Cal Lab Limited 校正實驗室有限公司

Certificate Issue Date: 5 May 2023

CT-BEG-03

***** End of Certificate *****

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd.
聲學及空氣測試實驗室有限公司

Certificate of Calibration

for

Description:	***Sound Level Calibrator***
Manufacturer:	***SVANTEK***
Type No.:	***SV33B***
Serial No.:	***83042***

Submitted by:

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

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 2 May 2023

Date of calibration: 9 May 2023

Date of NEXT calibration: 8 May 2024

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 9 May 2023

Certificate No.: APJ22-157-CC005

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precautions:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Specifications:*

Calibration check

3. *Calibration Conditions:*

Air Temperature:	22.4 **°C**
Air Pressure:	1006 **hPa**
Relative Humidity:	60.9 **%**

4. *Calibration Equipment:*

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV220120	HOKLAS

5. *Calibration Results*

5.1 Sound Pressure Level

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
114.0	113.6	114.4	114.2

Note:
The values given in this certification only related to the values measured at the time of the calibration.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Certificate of Calibration

for

Description:	***Sound Level Meter***
Manufacturer:	***NTi Audio***
Type No.:	***XL2 (Serial No.: A2A-13548-E0)***
Microphone:	***ACO 7052 (Serial No.:73912)***
Preamplifier:	***NTi Audio M2211 MA220 (Serial No.:5735)***

Submitted by:

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

Upon receipt for calibration, the instrument was found to be:

☑ **Within (31.5Hz – 8kHz)**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 2 February 2023

Date of calibration: 6 February 2023

Date of NEXT calibration: 5 February 2024

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: **6 February 2023**

Certificate No.: APJ22-124-CC001

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	23.9 °C
Air Pressure:	1006 hPa
Relative Humidity:	47.9 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	Ref
			104		104.1	±0.3
			114		114.1	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	Ref
		Slow			94.1	±0.3

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB SPL	Fast	94	31.5	94.1	±2.0
				63	94.2	±1.5
				125	94.1	±1.5
				250	94.1	±1.4
				500	94.2	±1.4
				1000	94.1	Ref
				2000	94.5	±1.6
				4000	95.2	±1.6
				8000	94.9	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	31.5	54.8	-39.4 ±2.0
				63	68.0	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.5	-8.6 ±1.4
				500	91.0	-3.2 ±1.4
				1000	94.1	Ref
				2000	95.7	+1.2 ±1.6
				4000	96.2	+1.0 ±1.6
				8000	93.9	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBC SPL	Fast	94	31.5	91.2	-3.0 ±2.0
				63	93.4	-0.8 ±1.5
				125	94.0	-0.2 ±1.5
				250	94.1	-0.0 ±1.4
				500	94.2	-0.0 ±1.4
				1000	94.1	Ref
				2000	94.3	-0.2 ±1.6
				4000	94.4	-0.8 ±1.6
				8000	92.0	−3.0 +2.1: −3.1

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Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.10
	125 Hz	± 0.10
	250 Hz	± 0.05
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

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Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Manufacturer Calibration Certificate

The following instrument has been tested and calibrated to the manufacturer specifications.
The calibration is traceable in accordance with ISO/IEC 17025 covering all instrument functions.

- Device Type: **XL2 Audio and Acoustic Analyzer**
- Serial Number: **A2A-13663-F0**

- Certificate Issued: **15 February 2023**
- Certificate Number: **44972-A2A-13663-F0**
- Results: **PASSED**
  (for detailed report see next page)

Tested by: M. Frick

Signature:

Stamp:

NTi Audio AG
Im alten Riet 102
LI - 9494 Schaan
www.nti-audio.com

Calibration of: XL2 Audio and Acoustic Analyzer
Serial Number: A2A-13663-F0
Date: 15 February 2023

- Detailed Calibration Test Results:

		reference	actual	unit	actual error	XL2 tolerance	calibration uncertainty[2]
RMS Level @ 1kHz, XLR Input		0.1	**0.100**	V	≤0.1%	±0.5%	±0.10%
		1	**0.999**	V	-0.1%	±0.5%	±0.09%
		10	**9.982**	V	-0.2%	±0.5%	±0.09%
Flatness, XLR Input[1]	20 Hz	1	**0.995**	V	-0.5%	±1.1%	±0.09%
	20 kHz	1	**1.003**	V	0.3%	±1.1%	±0.09%
Frequency		1000	**1000.00**	Hz	≤0.003%	±0.003%	±0.01%
Residual Noise	XLR		**< 2 uV**			<2 uV	±0.50%
THD+N @ 0 dBu, 1 kHz, XLR Input			**-100.5**	dB		typ. -100 dB	±0.50%

- Test Conditions:

Temperature:	**24.9**	°C
Relative Humidity:	**19.8**	%

- Calibration Equipment Used:

- Agilent Multimeter, Typ 34401A, Serial No. MY 5300 4607
  Last calibration: 15.09.2022, Next calibration: 15.09.2023
  Calibrated by ELCAL to the national standards maintained
  at Swiss Federal Office of Metrology. SCS 0002

- FX100 Audio Analyzer, Serial No. 10408
  Last Calibration: 11.10.2022, Next Calibration: 11.10.2023
  Manufacturer calibration based on Agilent 34410, Serial No. MY47014254,
  Last Calibration: 26.05.2022, Next Calibration: 26.05.2023
  which is calibrated by ELCAL to national standards maintained
  at Swiss Federal Office of Metrology. SCS 002

[1] The specified tolerance +/-0.1 dB @ 1V = +/- 1.1%

[2] The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with the regulations of the GUM.

Certificate of Calibration

for

Description:	*Sound Level Meter*
Manufacturer:	*NTi Audio*
Type No.:	*XL2 (Serial No.: A2A-17638-E0)*
Microphone:	*ACO 7052 (Serial No.:84413)*
Preamplifier:	*NTi Audio M2211 MA220 (Serial No.:7014)*

Submitted by:

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

Upon receipt for calibration, the instrument was found to be:

☑ **Within (31.5Hz – 8kHz)**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 30 March 2023

Date of calibration: 04 April 2023

Date of NEXT calibration: 03 April 2024

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 04 April 2023

Certificate No.: APJ22-164-CC001

ACOUSTICS AND AIR TESTING LABORATORY CO LTD (A+A)*L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	21.6 °C
Air Pressure:	1005 hPa
Relative Humidity:	71.6 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	Ref
			104		104.1	±0.3
			114		114.1	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.1	Ref
		Slow			94.1	±0.3

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Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB SPL	Fast	94	31.5	94.1	±2.0
				63	94.1	±1.5
				125	94.1	±1.5
				250	94.0	±1.4
				500	94.1	±1.4
				1000	94.1	Ref
				2000	94.3	±1.6
				4000	94.9	±1.6
				8000	93.9	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	31.5	54.7	-39.4 ±2.0
				63	67.9	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.4	-8.6 ±1.4
				500	90.9	-3.2 ±1.4
				1000	94.1	Ref
				2000	95.5	+1.2 ±1.6
				4000	95.9	+1.0 ±1.6
				8000	92.8	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBC SPL	Fast	94	31.5	91.0	-3.0 ±2.0
				63	93.3	-0.8 ±1.5
				125	93.9	-0.2 ±1.5
				250	94.1	-0.0 ±1.4
				500	94.2	-0.0 ±1.4
				1000	94.1	Ref
				2000	94.2	-0.2 ±1.6
				4000	94.1	-0.8 ±1.6
				8000	90.9	−3.0 +2.1: −3.1

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
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Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

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Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Water Quality Monitoring Equipment

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

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BC060078
Date of Issue : 21 June 2023

PART A - CUSTOMER INFORMATION

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

PART B - SAMPLE INFORMATION

Name of Equipment :	YSI ProDSS (Multi-Parameters)
Manufacturer :	YSI (a xylem brand)
Serial Number :	22D100436
Date of Received :	19 June 2023
Date of Calibration :	19 June 2023
Date of Next Calibration :	18 September 2023
Request No. :	D-BC060078

PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

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

PART D - CALIBRATION RESULT

(1) pH value

Target (pH unit)	Display Reading (pH unit)	Tolerance	Result
4.00	4.11	0.11	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	9.99	-0.02	Satisfactory

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

(2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
36	35.8	-0.2	Satisfactory
26	25.1	-0.9	Satisfactory
17	16.8	-0.2	Satisfactory

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

(3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.36	-6.40	Satisfactory
20	19.09	-4.55	Satisfactory
30	29.55	-1.50	Satisfactory

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

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED SIGNATORY:

LEE Chun-ning
Assistant Manager (Chemical Testing)

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

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No. : R-BC060078
Date of Issue : 21 June 2023

(4) Dissolved oxygen

Expected Reading (mg/L)	Display Reading (mg/L)	Tolerance	Result
7.84	8.11	0.27	Satisfactory
6.87	6.71	-0.16	Satisfactory
4.89	4.36	-0.53	Satisfactory
1.00	0.96	-0.04	Satisfactory

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

(5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.10	--	Satisfactory
10	9.91	-0.90	Satisfactory
20	20.09	0.40	Satisfactory
100	105.37	5.40	Satisfactory
800	799.11	-0.10	Satisfactory

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

Remark(s)

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

·The results relate only to the calibrated equipment as received

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

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

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

--- END OF REPORT ---

Appendix E
Environmental Monitoring Schedule

Project: Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Environmental Monitoring Schedule (August 2023)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1 **AQM, NM, WQM** Mid Flood (19:00) Mid Ebb (13:00)	2	3 **WQM** Mid Flood (10:00) Mid Ebb (16:00)	4	5 **WQM** Mid Flood (10:00) Mid Ebb (17:00)
6	7 **AQM, NM, WQM** Mid Flood (11:38) Mid Ebb (17:30)	8	9 **WQM** Mid Flood (13:30) Mid Ebb (9:03)	10	11 **WQM** Mid Flood (18:00) Mid Ebb (10:03)	12 **AQM, NM**
13	14 **WQM** Mid Flood (19:00) Mid Ebb (13:03)	15	16 **WQM** Mid Flood (7:38) Mid Ebb (14:30)	17	18 **AQM, NM, WQM** Mid Flood (8:38) Mid Ebb (15:03)	19
20	21 **WQM** Mid Flood (10:38) Mid Ebb (16:03)	22	23 **WQM** Mid Flood (11:38) Mid Ebb (17:03)	24 **AQM, NM**	25 **EMB (Day), WQM** Mid Flood (15:00) Mid Ebb (8:03)	26
27	28 **WQM** Mid Flood (19:38) Mid Ebb (11:03)	29	30 **AQM, NM, WQM** Mid Flood (7:00) Mid Ebb (13:30)	31 **ANRM**		

Remarks:

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

Project: Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Environmental Monitoring Schedule (September 2023)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1 **WQM** Mid Flood (8:38) Mid Ebb (15:03)	2
3	4 **WQM** Mid Flood (10:30) Mid Ebb (16:30)	5 **AQM, NM**	6 **WQM** Mid Flood (12:00) Mid Ebb (7:03)	7	8 **WQM** Mid Flood (18:00) Mid Ebb (9:03)	9
10	11 **AQM, NM, WQM** Mid Flood (18:00) Mid Ebb (12:00)	12	13 **WQM** Mid Flood (7:00) Mid Ebb (13:03)	14	15 **WQM** Mid Flood (8:38) Mid Ebb (16:03)	16 **AQM**
17	18 **WQM** Mid Flood (9:38) Mid Ebb (16:03)	19	20 **WQM** Mid Flood (11:00) Mid Ebb (16:03)	21 **ANRM,** **EMB** (Day and Night)	22 **AQM, NM, WQM** Mid Flood (13:00) Mid Ebb (7:03)	23
24	25 **WQM** Mid Flood (18:00) Mid Ebb (10:03)	26	27 **WQM** Mid Flood (19:00) Mid Ebb (12:03)	28 **AQM, NM**	29 **WQM** Mid Flood (8:38) Mid Ebb (15:03)	30

Remarks:

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

Project: Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

Environmental Monitoring Schedule (October 2023)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	2 **WQM** Mid Flood (11:25) Mid Ebb (17:36)	3	4 **AQM, NM, WQM** Mid Flood (6:59) Mid Ebb (14:29)	5	6 **WQM** Mid Flood (8:38) Mid Ebb (16:03)	7
8	9 **WQM** Mid Flood (11:25) Mid Ebb (17:36)	10 **AQM, NM**	11 **WQM** Mid Flood (13:51) Mid Ebb (8:20)	12	13 **WQM** Mid Flood (17:05) Mid Ebb (10:06)	14
15	16 **AQM, NM, WQM** Mid Flood (11:25) Mid Ebb (17:36)	17	18 **WQM** Mid Flood (8:09) Mid Ebb (13:47)	19	20 **WQM** Mid Flood (8:01) Mid Ebb (15:03)	21 **AQM**
22	23 **WQM** Mid Flood (11:25) Mid Ebb (17:36)	24	25 **WQM** Mid Flood (11:25) Mid Ebb (17:36)	26	27 **AQM, NM , WQM** Mid Flood (14:40) Mid Ebb (8:08)	28
29	30 **WQM** Mid Flood (11:25) Mid Ebb (17:36)					

Remarks:

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

Air Quality Monitoring Results

Air Quality Monitoring Results for

Contract No. SPW 02/2023

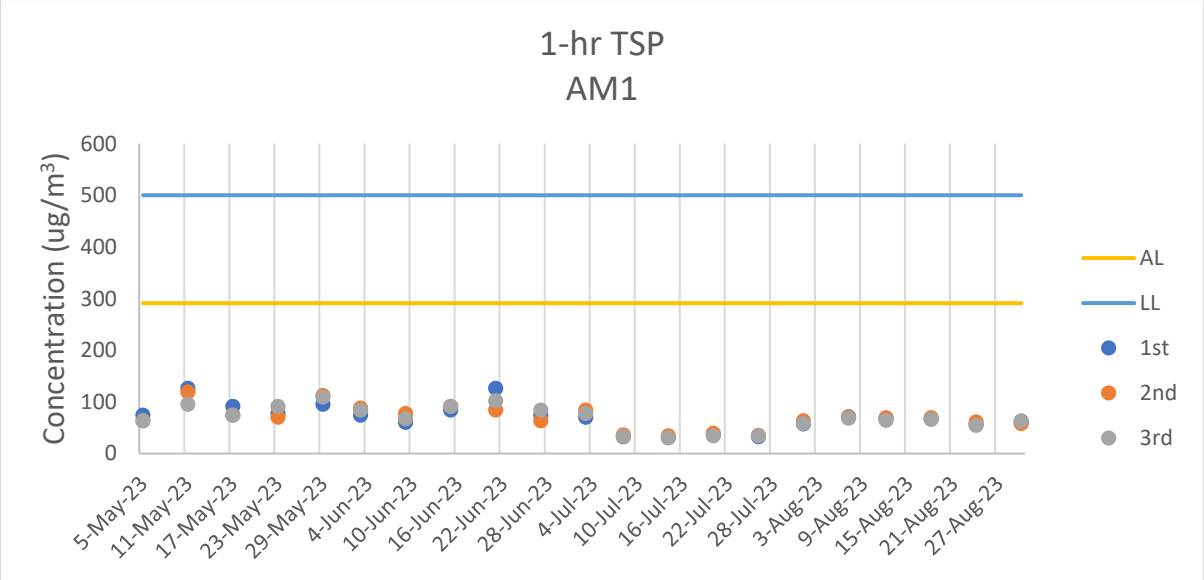
Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1

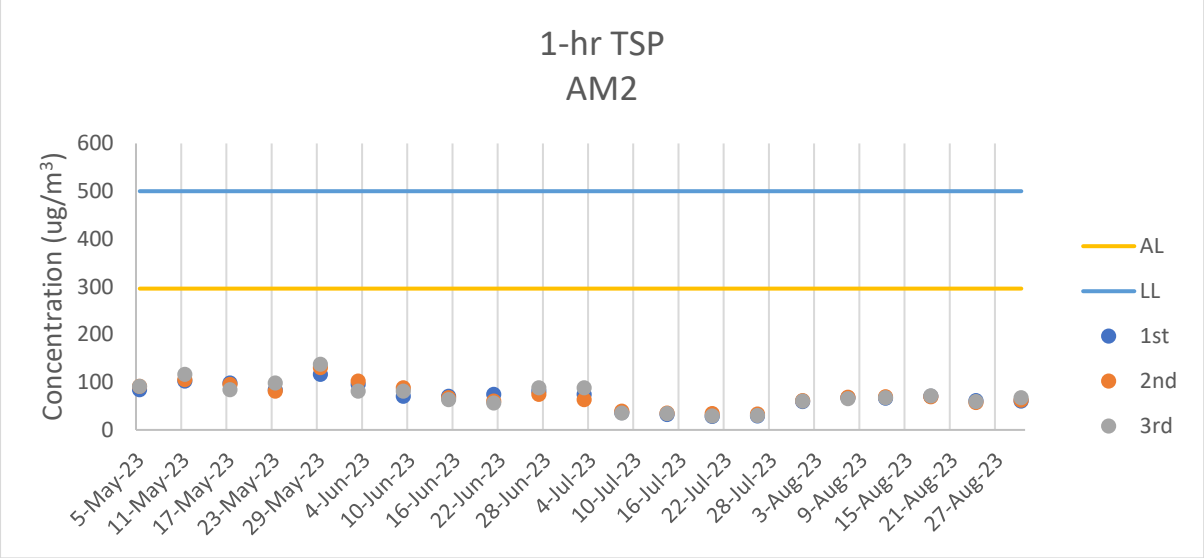
AM1 - Topfine Machinery (China) Co. Ltd.

			1-hour TSP (ug/m^3)				
Date	Weather Condition	Star Time	1st Measurement	2nd Measurement	3rd Measurement	Action Level (ug/m^3)	Limit Level (ug/m3)
1/08/2023	sunny	8:30	57	63	58	291	500
7/08/2023	sunny	13:10	71	70	68		
12/08/2023	sunny	9:02	67	69	64		
18/08/2023	sunny	10:21	67	69	66		
24/08/2023	sunny	8:45	56	61	54		
30/08/2023	sunny	10:11	61	58	63		
		Min	54				
		Max	71				
		Average	64				

AM2 - Squatter house at the west of Yuen Long STW

			1-hour TSP (ug/m^3)				
Date	Weather Condition	Star Time	1st Measurement	2nd Measurement	3rd Measurement	Action Level (ug/m^3)	Limit Level (ug/m3)
1/08/2023	sunny	9:38	59	61	60	296	500
7/08/2023	sunny	13:54	67	68	65		
12/08/2023	sunny	10:21	66	69	67		
18/08/2023	sunny	11:23	70	69	71		
24/08/2023	sunny	9:56	61	57	59		
30/08/2023	sunny	13:10	60	62	67		
		Min	57				
		Max	71				
		Average	65				





Air Quality Monitoring Results

Noise Monitoring Results

Noise Monitoring Results for

Contract No. SPW 02/2023

CM1 - Squatter house to the north of YLSTW

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
1/08/2023	9:12	66	67	61	2.1	sunny	75
7/08/2023	10:28	67	68	63	1.7	sunny	75
18/08/2023	14:09	66	68	61	1.1	sunny	75
24/08/2023	9:21	68	71	64	2.2	sunny	75
30/08/2023	10:10	65	67	62	1.7	sunny	75
	Max	68					
	Min	65					

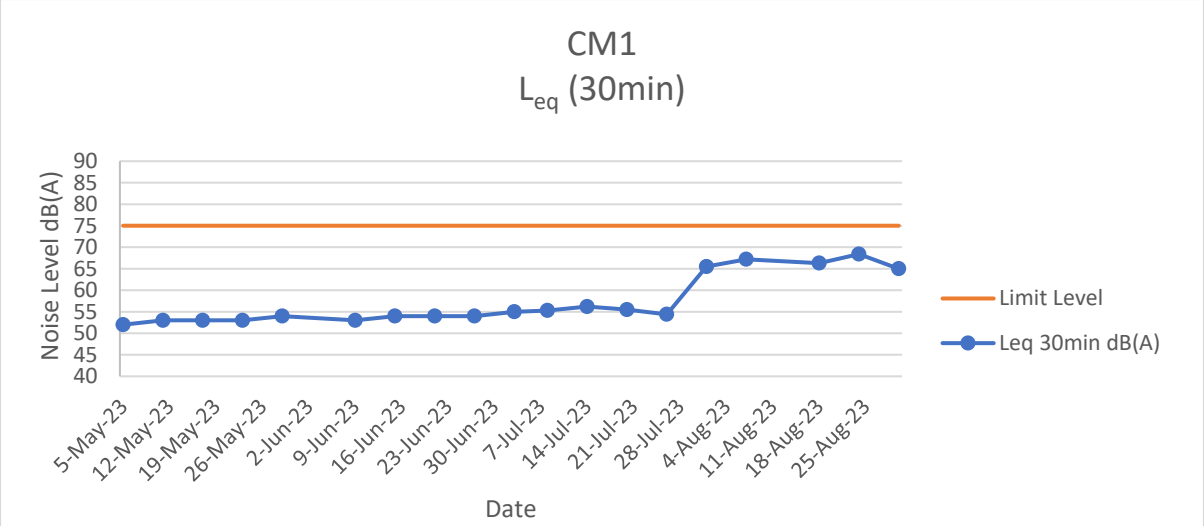
CM2 - Squatter house to the west of YLSTW

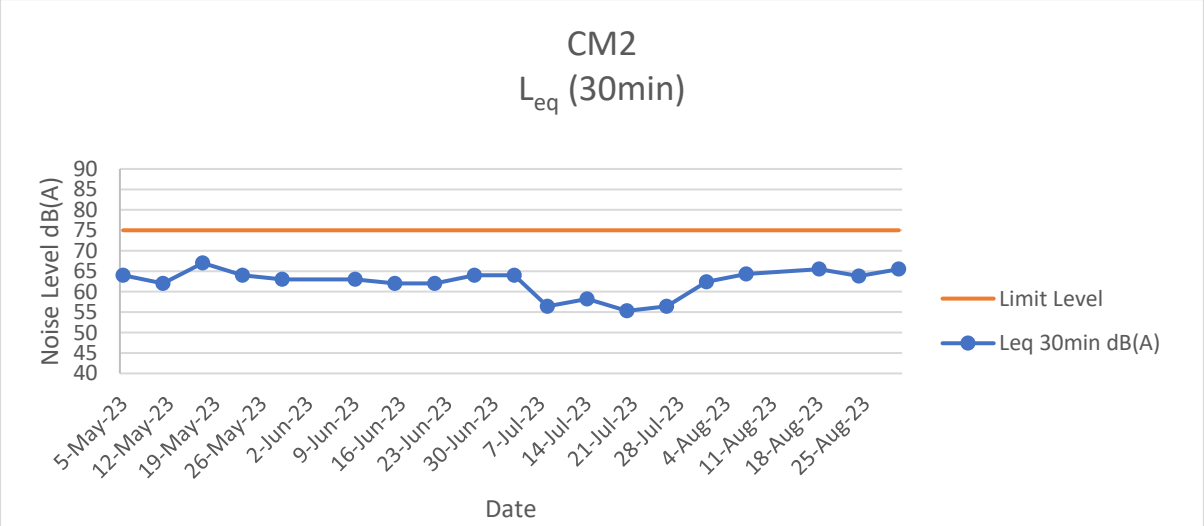
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
1/08/2023	10:10	62	65	58	1.7	sunny	75
7/08/2023	11:55	64	69	59	1.9	sunny	75
18/08/2023	15:10	66	69	57	0.9	sunny	75
24/08/2023	10:34	64	66	59	1.4	sunny	75
30/08/2023	11:50	66	69	55	1.8	sunny	75
	Max	66					
	Min	62					

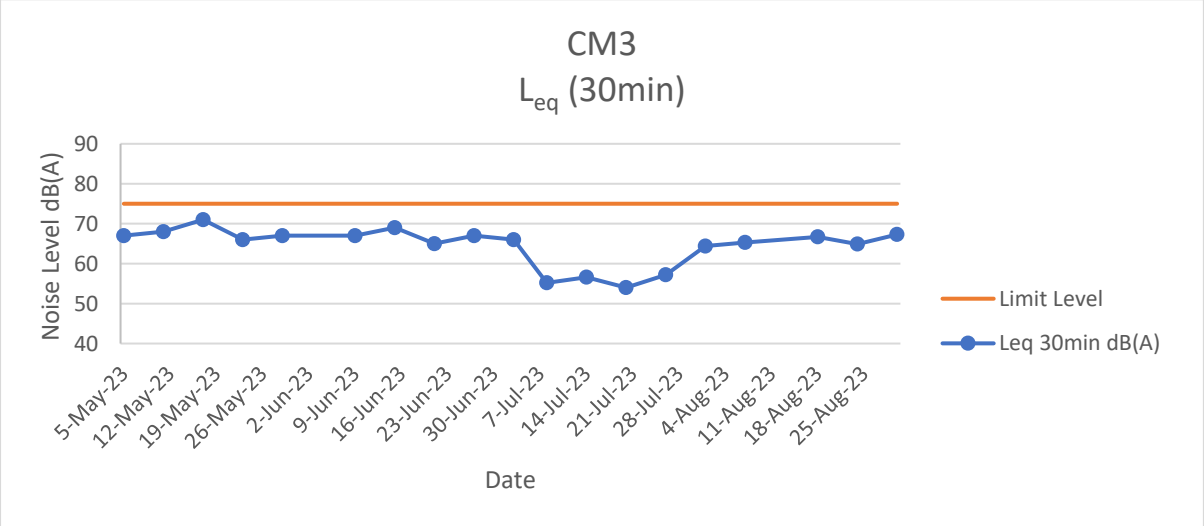
CM3 - Squatter house to the east of YLSTW

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather	Limit Level dB(A)
1/08/2023	13:21	64	67	61	1.9	sunny	75
7/08/2023	14:11	65	68	60	1.5	sunny	75
18/08/2023	16:17	67	69	60	2.2	sunny	75
24/08/2023	13:33	65	68	63	1.2	sunny	75
30/08/2023	14:22	67	69	64	1.8	sunny	75
	Max	67					
	Min	64					

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

Water Quality Monitoring Results

Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	1/8/2023	Mid-Flood	Sunny	Low	8:03	2.6	M	1.30	1	0.066	164.214	7.08	7.08	1.54	1.545	30.00	30.05	41.4	41.55	3.11	3.125	22.46	22.395	12	12
M1	1/8/2023	Mid-Flood	Sunny	Low	8:04	2.6	M	1.30	2			7.08		1.55		30.10		41.7		3.14		22.33		12	
M2	1/8/2023	Mid-Flood	Sunny	Low	8:24	2.8	M	1.40	1	0.087	190.794	7.18	7.18	0.04	0.035	29.50	29.50	63.1	63.15	6.88	6.89	12.9	13	13	12
M2	1/8/2023	Mid-Flood	Sunny	Low	8:25	2.8	M	1.40	2			7.17		0.03		29.50		63.2		6.9		13.1		11	
M3	1/8/2023	Mid-Flood	Sunny	Low	8:47	2.1	M	1.05	1	0.092	267.986	7.12	7.12	1.1	1.1	30.3	30.25	45.7	44.75	3.45	3.38	34.4	34.65	16	17
M3	1/8/2023	Mid-Flood	Sunny	Low	8:48	2.1	M	1.05	2			7.11		1.1		30.2		43.8		3.31		34.9		18	
M1	1/8/2023	Mid-Ebb	Sunny	Low	13:33	2	M	1.00	1	0.105	284.19	7.17	7.17	2.77	2.565	30.50	30.50	35.0	35.20	2.63	2.645	38.35	38.405	6	8
M1	1/8/2023	Mid-Ebb	Sunny	Low	13:35	2	M	1.00	2			7.17		2.36		30.50		35.4		2.66		38.46		9	
M2	1/8/2023	Mid-Ebb	Sunny	Low	13:08	2.4	M	1.20	1	0.083	296.007	7.12	7.12	2.84	2.94	29.80	29.75	46.0	46.60	3.46	3.505	36.87	37.93	41	40
M2	1/8/2023	Mid-Ebb	Sunny	Low	13:09	2.4	M	1.20	2			7.12		3.04		29.70		47.2		3.55		38.99		38	
M3	1/8/2023	Mid-Ebb	Sunny	Low	12:51	1.99	M	1.00	1	0.079	84.767	7.23	7.24	0.87	0.875	30.4	30.40	46	46.05	3.69	3.695	40.3	40.9	42	44
M3	1/8/2023	Mid-Ebb	Sunny	Low	12:53	1.9	M	0.95	2			7.25		0.88		30.4		46.1		3.7		41.5		45	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
2. Red and Bold: Limit Level Exceedance (For Impact Station Only)
3. Action Level for Turbidity: 95%-ile of baseline data or 120% of upstream control station's turbidity recorded on the same day.
4. 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	45.5	52.4	81	112
M3(Impact Station)	3.28	3.14	74	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	3/8/2023	Mid-Flood	Sunny	Low	9:33	1.7	M	0.85	1	0.093	179.09	7.05	7.06	1.77	1.805	29.00	29.00	31.4	30.65	2.36	2.305	41.85	42.045	17	18
M1	3/8/2023	Mid-Flood	Sunny	Low	9:33	1.7	M	0.85	2			7.06		1.84		29.00		29.9		2.25		42.24		19	
M2	3/8/2023	Mid-Flood	Sunny	Low	9:54	1.8	M	0.90	1	0.1	174.639	7.19	7.21	1.89	1.875	29.30	29.30	31.0	31.85	2.33	2.395	39.55	39.605	26	25
M2	3/8/2023	Mid-Flood	Sunny	Low	9:55	1.8	M	0.90	2			7.22		1.86		29.30		32.7		2.46		39.66		24	
M3	3/8/2023	Mid-Flood	Sunny	Low	9:08	1.7	M	0.85	1	0.11	261.746	7.35	7.38	0.88	0.835	29.3	29.30	52.2	53.55	3.98	4.08	39.5	39.475	18	18
M3	3/8/2023	Mid-Flood	Sunny	Low	9:08	1.7	M	0.85	2			7.4		0.79		29.3		54.9		4.18		39.45		17	
M1	3/8/2023	Mid-Ebb	Sunny	Low	14:57	2.3	M	1.15	1	0.082	277.486	7.02	7.02	1.77	1.76	29.40	29.40	33.0	33.15	2.48	2.49	32.9	33.02	20	22
M1	3/8/2023	Mid-Ebb	Sunny	Low	14:58	2.3	M	1.15	2			7.02		1.75		29.40		33.3		2.5		33.14		23	
M2	3/8/2023	Mid-Ebb	Sunny	Low	14:37	2	M	1.00	1	0.079	295.789	7.05	7.05	1.63	1.645	29.50	29.50	32.1	32.30	2.41	2.425	32.43	33	28	29
M2	3/8/2023	Mid-Ebb	Sunny	Low	14:37	2	M	1.00	2			7.05		1.66		29.50		32.5		2.44		33.57		30	
M3	3/8/2023	Mid-Ebb	Sunny	Low	14:13	1.7	M	0.85	1	0.066	81.324	7.33	7.34	1.3	1.35	29.3	29.30	57.4	57.70	4.31	4.335	34.5	34.95	38	39
M3	3/8/2023	Mid-Ebb	Sunny	Low	14:13	1.7	M	0.85	2			7.35		1.4		29.3		58		4.36		35.4		40	

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	50.5	54.7	81	112
M3(Impact Station)	3.28	3.14	74	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	5/8/2023	Mid-Flood	Sunny	Low	9:19	1.6	M	0.80	1	0.101	174.06	7.12	7.13	2.44	2.395	28.90	28.90	32.3	32.45	2.43	2.44	38.8	38.725	115	113
M1	5/8/2023	Mid-Flood	Sunny	Low	9:20	1.6	M	0.80	2			7.13		2.35		28.90		32.6		2.45		38.65		110	
M2	5/8/2023	Mid-Flood	Sunny	Low	9:48	1.8	M	0.90	1	0.075	181.1	7.18	7.18	2.29	2.275	29.40	29.40	33.6	33.80	2.53	2.545	37.45	37.39	113	112
M2	5/8/2023	Mid-Flood	Sunny	Low	9:51	1.8	M	0.90	2			7.17		2.26		29.40		34.0		2.56		37.33		110	
M3	5/8/2023	Mid-Flood	Sunny	Low	10:20	1.6	M	0.80	1	0.069	272.584	7.33	7.34	1.3	1.3	30.1	30.10	43.6	43.50	3.81	3.8	41.4	41.95	112	114
M3	5/8/2023	Mid-Flood	Sunny	Low	10:20	1.6	M	0.80	2			7.34		1.3		30.1		43.4		3.79		42.5		116	
M1	5/8/2023	Mid-Ebb	Sunny	Low	15:55	2.1	M	1.05	1	0.095	296.581	7.04	7.04	2.17	2.16	29.20	29.20	35.6	35.75	2.68	2.69	36.9	36.65	56	56
M1	5/8/2023	Mid-Ebb	Sunny	Low	15:57	2.1	M	1.05	2			7.04		2.15		29.20		35.9		2.7		36.4		55	
M2	5/8/2023	Mid-Ebb	Sunny	Low	16:29	2.2	M	1.10	1	0.081	309.378	7.06	7.06	2.03	2.045	29.50	29.50	34.7	34.90	2.61	2.625	34.45	34.515	19	21
M2	5/8/2023	Mid-Ebb	Sunny	Low	16:31	2.2	M	1.10	2			7.06		2.06		29.50		35.1		2.64		34.58		22	
M3	5/8/2023	Mid-Ebb	Sunny	Low	17:00	1.8	M	0.90	1	0.08	77.993	7.11	7.13	1	1	29.44	29.45	42.3	42.35	3.68	3.675	35.1	35.25	36	35
M3	5/8/2023	Mid-Ebb	Sunny	Low	17:00	1.8	M	0.90	2			7.14		1		29.45		42.4		3.67		35.4		34	

Remark

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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

30

Monitoring Location	DO		30		SS	
	AL	LL	AL	LL	AL	LL
M2(Impact Station)	1.88	1.79	46.5	52.4	135	146
M3(Impact Station)	3.28	3.14	74	78	135	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	7/8/2023	Mid-Flood	Sunny	Low	10:56	2.1	M	1.05	1	0.075	164.307	7.08	7.08	1.64	1.595	29.30	29.30	32.3	32.45	2.43	2.44	4.92	4.955	46	46
M1	7/8/2023	Mid-Flood	Sunny	Low	10:56	2.1	M	1.05	2			7.08		1.55		29.30		32.6		2.45		4.99		45	
M2	7/8/2023	Mid-Flood	Sunny	Low	11:21	1.9	M	0.95	1	0.092	185.769	7.13	7.13	1.49	1.425	30.00	30.00	33.6	33.80	2.53	2.545	23.16	23.285	47	48
M2	7/8/2023	Mid-Flood	Sunny	Low	11:22	1.9	M	0.95	2			7.13		1.36		30.00		34.0		2.56		23.41		48	
M3	7/8/2023	Mid-Flood	Sunny	Low	11:59	1.8	M	0.90	1	0.101	268.729	7.22	7.19	0.96	0.975	29.8	29.75	44.4	43.80	4.01	3.955	34.5	34.8	29	29
M3	7/8/2023	Mid-Flood	Sunny	Low	11:59	1.8	M	0.90	2			7.15		0.99		29.7		43.2		3.9		35.1		28	
M1	7/8/2023	Mid-Ebb	Sunny	Low	17:36	2.3	M	1.15	1	0.066	303.499	7.14	7.15	1.87	1.81	29.10	29.10	35.6	35.75	2.68	2.69	37.72	37.06	10	12
M1	7/8/2023	Mid-Ebb	Sunny	Low	17:37	2.3	M	1.15	2			7.15		1.75		29.10		35.9		2.7		36.4		13	
M2	7/8/2023	Mid-Ebb	Sunny	Low	17:07	2.4	M	1.20	1	0.071	287.205	7.11	7.12	1.73	1.695	29.90	29.90	34.7	34.90	2.61	2.625	25.11	25.16	11	11
M2	7/8/2023	Mid-Ebb	Sunny	Low	17:08	2.4	M	1.20	2			7.12		1.66		29.90		35.1		2.64		25.21		10	
M3	7/8/2023	Mid-Ebb	Sunny	Low	16:33	2	M	1.00	1	0.082	84.771	7.23	7.27	1	1	29.7	29.65	43.3	43.05	3.79	3.765	33.3	33.7	13	14
M3	7/8/2023	Mid-Ebb	Sunny	Low	16:33	2	M	1.00	2			7.31		1		29.6		42.8		3.74		34.1		14	

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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	9/8/2023	Mid-Flood	Cloudy	Low	13:33	2	M	1.00	1	0.076	192.566	7.07	7.07	1.21	1.22	29.10	29.10	32.3	32.65	2.43	2.455	19.62	19.905	15	14
M1	9/8/2023	Mid-Flood	Cloudy	Low	13:34	2	M	1.00	2			7.07		1.23		29.10		33.0		2.48		20.19		13	
M2	9/8/2023	Mid-Flood	Cloudy	Low	13:58	1.6	M	0.80	1	0.103	189.885	7.12	7.12	1.44	1.465	29.60	29.60	37.0	36.90	2.78	2.775	17.77	17.915	15	15
M2	9/8/2023	Mid-Flood	Cloudy	Low	13:59	1.6	M	0.80	2			7.11		1.49		29.60		36.8		2.77		18.06		14	
M3	9/8/2023	Mid-Flood	Cloudy	Low	14:33	1.5	M	0.75	1	0.111	271.662	7.23	7.23	1.23	1.235	29.44	29.50	49	49.15	4.26	4.275	22.45	22.84	13	14
M3	9/8/2023	Mid-Flood	Cloudy	Low	14:33	1.5	M	0.75	2			7.22		1.24		29.55		49.3		4.29		23.23		15	
M1	9/8/2023	Mid-Ebb	Cloudy	Low	10:11	2.1	M	1.05	1	0.094	301.349	7.12	7.12	1.77	1.73	28.80	28.80	33.1	33.35	2.49	2.51	27.36	27.235	13	13
M1	9/8/2023	Mid-Ebb	Cloudy	Low	10:12	2.1	M	1.05	2			7.12		1.69		28.80		33.6		2.53		27.11		13	
M2	9/8/2023	Mid-Ebb	Cloudy	Low	9:43	1.8	M	0.90	1	0.063	312.077	7.14	7.14	1.70	1.69	28.90	28.90	38.3	37.30	2.88	2.805	27.65	27.765	23	22
M2	9/8/2023	Mid-Ebb	Cloudy	Low	9:44	1.8	M	0.90	2			7.14		1.68		28.90		36.3		2.73		27.88		20	
M3	9/8/2023	Mid-Ebb	Cloudy	Low	9:15	1.7	M	0.85	1	0.057	84.129	7.43	7.39	1.22	1.205	29.1	29.15	57	57.05	4.86	4.875	28.8	28.3	18	20
M3	9/8/2023	Mid-Ebb	Cloudy	Low	9:15	1.7	M	0.85	2			7.35		1.19		29.2		57.1		4.89		27.8		21	

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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	11/8/2023	Mid-Flood	Cloudy	Low	17:29	2	M	1.00	1	0.083	178.727	7.12	7.12	2.33	2.38	29.20	29.20	35.2	35.75	2.65	2.69	26.82	26.795	12	13
M1	11/8/2023	Mid-Flood	Cloudy	Low	17:30	2	M	1.00	2			7.12		2.43		29.20		36.3		2.73		26.77		13	
M2	11/8/2023	Mid-Flood	Cloudy	Low	17:55	1.6	M	0.80	1	0.095	174.228	7.19	7.19	2.54	2.515	29.40	29.40	37.5	37.70	2.82	2.835	27.59	27.325	8	8
M2	11/8/2023	Mid-Flood	Cloudy	Low	17:56	1.6	M	0.80	2			7.19		2.49		29.40		37.9		2.85		27.06		8	
M3	11/8/2023	Mid-Flood	Cloudy	Low	18:23	1.6	M	0.80	1	0.098	268.796	7.11	7.12	0.78	0.83	29.6	29.60	42.1	42.30	3.31	3.33	31.8	31.3	9	8
M3	11/8/2023	Mid-Flood	Cloudy	Low	18:23	1.6	M	0.80	2			7.13		0.88		29.6		42.5		3.35		30.8		7	
M1	11/8/2023	Mid-Ebb	Cloudy	Low	9:57	2.1	M	1.05	1	0.092	299.47	7.21	7.21	2.17	2.2	28.70	28.70	35.1	34.75	2.64	2.615	27.11	27.08	5	6
3.31	11/8/2023	Mid-Ebb	Cloudy	Low	9:58	2.1	M	1.05	2			7.21		2.23		28.70		34.4		2.59		27.05		6	
M2	11/8/2023	Mid-Ebb	Cloudy	Low	9:26	1.8	M	0.90	1	0.096	307.952	7.24	7.24	2.31	2.295	28.90	28.90	37.0	36.80	2.78	2.765	27.79	27.84	30	31
M2	11/8/2023	Mid-Ebb	Cloudy	Low	9:28	1.8	M	0.90	2			7.24		2.28		28.90		36.6		2.75		27.89		32	
M3	11/8/2023	Mid-Ebb	Cloudy	Low	9:03	1.7	M	0.85	1	0.097	84.354	7.33	7.37	0.98	0.985	29.1	29.10	44.6	44.85	3.51	3.53	35.7	35.8	16	17
M3	11/8/2023	Mid-Ebb	Cloudy	Low	9:04	1.7	M	0.85	2			7.4		0.99		29.1		45.1		3.55		35.9		18	

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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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	14/8/2023	Mid-Flood	Cloudy	Low	17:28	2.8	M	1.40	1	0.075	183.996	7.12	7.12	2.86	2.795	29.20	29.20	33.9	33.50	2.55	2.52	26.8	26.955	16	15
M1	14/8/2023	Mid-Flood	Cloudy	Low	17:29	2.8	M	1.40	2			7.12		2.73		29.20		33.1		2.49		27.11		14	
M2	14/8/2023	Mid-Flood	Cloudy	Low	17:53	2.7	M	1.35	1	0.105	175.489	7.18	7.18	1.56	1.57	29.20	29.20	33.0	33.45	2.48	2.515	19.53	19.795	7	7
M2	14/8/2023	Mid-Flood	Cloudy	Low	17:54	2.7	M	1.35	2			7.18		1.58		29.20		33.9		2.55		20.06		6	
M3	14/8/2023	Mid-Flood	Cloudy	Low	18:30	2	M	1.00	1	0.113	266.387	7.44	7.45	0.67	0.72	29.2	29.20	52.8	52.35	4.46	4.42	24.6	24.75	20	21
M3	14/8/2023	Mid-Flood	Cloudy	Low	18:30	2	M	1.00	2			7.45		0.77		29.2		51.9		4.38		24.9		22	
M1	14/8/2023	Mid-Ebb	Cloudy	Low	12:38	2.4	M	1.20	1	0.082	307.269	7.17	7.18	1.40	1.44	29.10	29.10	35.0	34.45	2.63	2.59	17.06	17.195	23	22
M1	14/8/2023	Mid-Ebb	Cloudy	Low	12:39	2.4	M	1.20	2			7.18		1.48		29.10		33.9		2.55		17.33		21	
M2	14/8/2023	Mid-Ebb	Cloudy	Low	12:11	2.2	M	1.10	1	0.085	311.795	7.15	7.15	1.72	1.75	29.20	29.20	41.0	40.10	3.08	3.015	19.75	19.815	25	27
M2	14/8/2023	Mid-Ebb	Cloudy	Low	12:12	2.2	M	1.10	2			7.15		1.78		29.20		39.2		2.95		19.88		28	
M3	14/8/2023	Mid-Ebb	Cloudy	Low	11:09	1.5	M	0.75	1	0.087	84.985	7.65	7.61	0.71	0.74	29.21	29.21	47.5	47.60	4.22	4.225	27.6	27.2	26	25
M3	14/8/2023	Mid-Ebb	Cloudy	Low	11:09	1.5	M	0.75	2			7.56		0.77		29.21		47.7		4.23		26.8		24	

Remark

c

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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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	16/8/2023	Mid-Flood	Sunny	Low	8:24	2.6	M	1.30	1	0.077	195.283	7.15	7.15	1.29	1.31	29.60	29.60	37.1	36.25	2.79	2.725	17.86	17.935	27	27
M1	16/8/2023	Mid-Flood	Sunny	Low	8:24	2.6	M	1.30	2			7.15		1.33		29.60		35.4		2.66		18.01		26	
M2	16/8/2023	Mid-Flood	Sunny	Low	8:49	2.4	M	1.20	1	0.082	192.489	7.18	7.18	1.48	1.57	29.60	29.60	34.3	34.75	2.58	2.615	19.75	19.65	18	20
M2	16/8/2023	Mid-Flood	Sunny	Low	8:51	2.4	M	1.20	2			7.18		1.66		29.60		35.2		2.65		19.55		22	
M3	16/8/2023	Mid-Flood	Sunny	Low	9:30	2	M	1.00	1	0.089	264.995	7.22	7.27	1.02	1.025	30.2	30.20	44.2	44.20	3.95	3.95	24	24.3	19	20
M3	16/8/2023	Mid-Flood	Sunny	Low	9:30	2	M	1.00	2			7.31		1.03		30.2		44.2		3.95		24.6		21	
M1	16/8/2023	Mid-Ebb	Sunny	Low	13:55	2.5	M	1.25	1	0.082	291.518	7.15	7.15	1.28	1.305	29.40	29.40	40.3	39.75	3.03	2.99	21.06	21.195	24	24
M1	16/8/2023	Mid-Ebb	Sunny	Low	13:55	2.5	M	1.25	2			7.15		1.33		29.40		39.2		2.95		21.33		23	
M2	16/8/2023	Mid-Ebb	Sunny	Low	13:29	2.1	M	1.05	1	0.086	309.826	7.19	7.19	1.65	1.675	29.40	29.40	38.3	37.85	2.88	2.845	22.86	23.73	25	25
M2	16/8/2023	Mid-Ebb	Sunny	Low	13:30	2.1	M	1.05	2			7.19		1.70		29.40		37.4		2.81		24.6		25	
M3	16/8/2023	Mid-Ebb	Sunny	Low	13:05	1.4	M	0.70	1	0.088	87.943	7.35	7.35	1.1	1.2	29.4	29.40	50	50.75	4.2	4.26	30.2	30.7	28	29
M3	16/8/2023	Mid-Ebb	Sunny	Low	13:05	1.4	M	0.70	2			7.34		1.3		29.4		51.5		4.32		31.2		30	

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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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	18/8/2023	Mid-Flood	Sunny	Low	9:40	2.4	M	1.20	1	0.084	200.455	7.08	7.09	1.55	1.59	29.40	29.40	38.3	37.50	2.88	2.82	27.88	28.255	9	10
M1	18/8/2023	Mid-Flood	Sunny	Low	9:42	2.4	M	1.20	2			7.09		1.63		29.40		36.7		2.76		28.63		11	
M2	18/8/2023	Mid-Flood	Sunny	Low	10:15	2.1	M	1.05	1	0.092	192.293	7.11	7.12	1.78	1.82	29.70	29.70	33.0	32.80	2.48	2.465	29.12	29.63	7	7
M2	18/8/2023	Mid-Flood	Sunny	Low	10:16	2.1	M	1.05	2			7.13		1.86		29.70		32.6		2.45		30.14		6	
M3	18/8/2023	Mid-Flood	Sunny	Low	10:50	1.5	M	0.75	1	0.101	276.528	7.23	7.22		0	29.3	29.30	48.6	49.35	3.76	3.705	34	34.25	18	19
M3	18/8/2023	Mid-Flood	Sunny	Low	10:50	1.5	M	0.75	2			7.2				29.3		50.1		3.65		34.5		20	
M1	18/8/2023	Mid-Ebb	Sunny	Low	14:36	1.8	M	0.90	1	0.068	289.923	7.14	7.15	1.48	1.505	30.10	30.10	39.0	38.50	2.93	2.895	28	27.725	10	11
M1	18/8/2023	Mid-Ebb	Sunny	Low	14:37	1.8	M	0.90	2			7.15		1.53		30.10		38.0		2.86		27.45		11	
M2	18/8/2023	Mid-Ebb	Sunny	Low	15:05	1.7	M	0.85	1	0.086	274.59	7.21	7.22	1.99	2.03	29.90	29.90	37.0	36.40	2.78	2.735	24.55	24.325	11	11
M2	18/8/2023	Mid-Ebb	Sunny	Low	15:07	1.7	M	0.85	2			7.23		2.07		29.90		35.8		2.69		24.1		10	
M3	18/8/2023	Mid-Ebb	Sunny	Low	15:45	1.6	M	0.80	1	0.089	80.857	7.34	7.34	1.08	1.085	29.7	29.70	38.6	38.40	3.39	3.38	35.5	35.7	21	21
M3	18/8/2023	Mid-Ebb	Sunny	Low	15:45	1.6	M	0.80	2			7.33		1.09		29.7		38.2		3.37		35.9		21	

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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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	21/8/2023	Mid-Flood	Sunny	Low	9:38	2.8	M	1.40	1	0.089	187.718	7.21	7.22	1.78	1.805	29.80	29.80	34.0	34.70	2.56	2.61	33.16	33.22	13	14
M1	21/8/2023	Mid-Flood	Sunny	Low	9:39	2.8	M	1.40	2			7.22		1.83		29.80		35.4		2.66		33.28		14	
M2	21/8/2023	Mid-Flood	Sunny	Low	10:10	2.6	M	1.30	1	0.074	174.366	7.19	7.19	1.91	1.95	29.70	29.70	33.4	33.25	2.51	2.5	31.66	31.72	19	20
M2	21/8/2023	Mid-Flood	Sunny	Low	10:11	2.6	M	1.30	2			7.19		1.99		29.70		33.1		2.49		31.78		21	
M3	21/8/2023	Mid-Flood	Sunny	Low	10:40	2.1	M	1.05	1	0.071	267.672	7.43	7.45	1	1	29.5	29.50	62.2	62.55	5.18	5.185	35.9	36.05	26	27
M3	21/8/2023	Mid-Flood	Sunny	Low	10:40	2.1	M	1.05	2			7.47		1		29.5		62.9		5.19		36.2		28	
M1	21/8/2023	Mid-Ebb	Sunny	Low	16:28	2.1	M	1.05	1	0.064	272.535	7.18	7.18	2.08	2.055	29.50	29.50	35.0	35.60	2.63	2.675	29.94	29.355	24	23
M1	21/8/2023	Mid-Ebb	Sunny	Low	16:30	2.1	M	1.05	2			7.18		2.03		29.50		36.2		2.72		28.77		22	
M2	21/8/2023	Mid-Ebb	Sunny	Low	15:55	1.9	M	0.95	1	0.079	290.776	7.22	7.23	1.99	2.015	29.30	29.30	33.4	34.00	2.51	2.555	28.55	28.725	28	29
M2	21/8/2023	Mid-Ebb	Sunny	Low	15:57	1.9	M	0.95	2			7.23		2.04		29.30		34.6		2.6		28.9		30	
M3	21/8/2023	Mid-Ebb	Sunny	Low	15:09	1.6	M	0.80	1	0.083	83.932	7.55	7.59	1	1	29.4	29.40	63.2	63.05	5.29	5.275	37	37.75	27	27
M3	21/8/2023	Mid-Ebb	Sunny	Low	15:09	1.6	M	0.80	2			7.63		1		29.4		62.9		5.26		38.5		26	

Remark

1. Orange and Bold: Action Level Exceedance (For Impact Station Only)
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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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	23/8/2023	Mid-Flood	Sunny	Low	11:05	2.8	M	1.40	1	0.09	175.178	7.24	7.24	2.22	2.2	29.70	29.70	37.1	37.50	2.79	2.82	34.55	34.62	21	21
M1	23/8/2023	Mid-Flood	Sunny	Low	11:06	2.8	M	1.40	2			7.23		2.18		29.70		37.9		2.85		34.69		20	
M2	23/8/2023	Mid-Flood	Sunny	Low	11:41	2.6	M	1.30	1	0.081	168.026	7.2	7.20	1.99	2.02	29.50	29.50	36.8	36.30	2.77	2.73	35.66	35.735	18	18
M2	23/8/2023	Mid-Flood	Sunny	Low	11:42	2.6	M	1.30	2			7.2		2.05		29.50		35.8		2.69		35.81		17	
M3	23/8/2023	Mid-Flood	Sunny	Low	12:09	2	M	1.00	1	0.077	264.293	7.6	7.55	1.02	1.025	30	30.00	64.4	63.95	4.89	4.855	48.9	48.5	22	21
M3	23/8/2023	Mid-Flood	Sunny	Low	12:09	2	M	1.00	2			7.5		1.03		30		63.5		4.82		48.1		20	
M1	23/8/2023	Mid-Ebb	Sunny	Low	17:21	2.1	M	1.05	1	0.073	279.929	7.25	7.25	2.08	2.105	29.40	29.40	33.9	34.35	2.55	2.585	40.12	39.95	18	19
M1	23/8/2023	Mid-Ebb	Sunny	Low	17:23	2.1	M	1.05	2			7.25		2.13		29.40		34.8		2.62		39.78		19	
M2	23/8/2023	Mid-Ebb	Sunny	Low	16:57	1.9	M	0.95	1	0.096	275.512	7.28	7.28	2.05	2.05	29.00	29.00	32.5	33.00	2.44	2.48	38.12	38.29	29	28
M2	23/8/2023	Mid-Ebb	Sunny	Low	16:58	1.9	M	0.95	2			7.28		2.05		29.00		33.5		2.52		38.46		27	
M3	23/8/2023	Mid-Ebb	Sunny	Low	16:32	1.7	M	0.85	1	0.099	77.693	7.3	7.30	0.99	0.98	30	30.00	64.2	64.05	4.97	4.975	49.8	49.65	36	36
M3	23/8/2023	Mid-Ebb	Sunny	Low	16:33	1.7	M	0.85	2			7.29		0.97		30		63.9		4.98		49.5		35	

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	78	104	167

For Ebb Tide

Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	52.8	57.2	59	68

Contract No. SPW 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	25/8/2023	Mid-Flood	Cloudy	Low	17:08	2.4	M	1.20	1	0.099	173.295	7.16	7.16	1.28	1.305	29.70	29.70	37.1	34.85	2.79	2.62	9.42	9.875	14	14
M1	25/8/2023	Mid-Flood	Cloudy	Low	17:08	2.4	M	1.20	2			7.16		1.33		29.70		32.6		2.45		10.33		13	
M2	25/8/2023	Mid-Flood	Cloudy	Low	17:42	2.2	M	1.10	1	0.081	200.291	7.14	7.15	0.94	0.94	30.30	30.30	32.9	33.40	2.47	2.51	12.09	12.27	13	12
M2	25/8/2023	Mid-Flood	Cloudy	Low	17:43	2.2	M	1.10	2			7.15		0.94		30.30		33.9		2.55		12.45		10	
M3	25/8/2023	Mid-Flood	Cloudy	Low	18:10	1.8	M	0.90	1	0.076	273.641	7.11	7.14	0.67	0.72	29.9	29.85	73.1	73.65	6.04	6.075	35.6	35.85	11	11
M3	25/8/2023	Mid-Flood	Cloudy	Low	18:10	1.8	M	0.90	2			7.16		0.77		29.8		74.2		6.11		36.1		10	
M1	25/8/2023	Mid-Ebb	Cloudy	Low	10:36	2	M	1.00	1	0.067	279.042	7.11	7.11	1.47	1.51	30.10	30.10	35.0	35.90	2.63	2.7	10.33	10.48	10	10
M1	25/8/2023	Mid-Ebb	Cloudy	Low	10:37	2	M	1.00	2			7.1		1.55		30.10		36.8		2.77		10.63		10	
M2	25/8/2023	Mid-Ebb	Cloudy	Low	9:58	1.8	M	0.90	1	0.079	288.812	7.12	7.12	1.21	1.195	30.40	30.40	33.8	34.25	2.54	2.575	14.48	14.79	26	28
M2	25/8/2023	Mid-Ebb	Cloudy	Low	9:59	1.8	M	0.90	2			7.12		1.18		30.40		34.7		2.61		15.1		29	
M3	25/8/2023	Mid-Ebb	Cloudy	Low	9:40	1.9	M	0.95	1	0.073	77.988	7.32	7.33	0.8	0.785	30	30.00	62.1	62.10	5.18	5.185	45	45.55	32	33
M3	25/8/2023	Mid-Ebb	Cloudy	Low	9:41	1.9	M	0.95	2			7.34		0.77		30		62.1		5.19		46.1		34	

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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	28/8/2023	Mid-Flood	Cloudy	Low	16:11	2.7	M	1.35	1	0.087	176.613	7.16	7.16	3.83	3.8	29.90	29.90	33.0	32.80	2.48	2.465	14.8	14.7	23	22
M1	28/8/2023	Mid-Flood	Cloudy	Low	16:12	2.7	M	1.35	2			7.16		3.77		29.90		32.6		2.45		14.6		21	
M2	28/8/2023	Mid-Flood	Cloudy	Low	16:45	2.5	M	1.25	1	0.078	164.338	7.14	7.14	3.62	3.585	29.80	29.80	33.9	33.65	2.55	2.53	15.12	15.225	30	30
M2	28/8/2023	Mid-Flood	Cloudy	Low	16:45	2.5	M	1.25	2			7.14		3.55		29.80		33.4		2.51		15.33		29	
M3	28/8/2023	Mid-Flood	Cloudy	Low	17:09	1.6	M	0.80	1	0.071	264.327	7.21	7.22	0.56	0.595	29.3	29.30	55.6	30.37	4.53	4.565	34.7	35.25	28	28
M3	28/8/2023	Mid-Flood	Cloudy	Low	17:09	1.5	M	0.75	2			7.22		0.63		29.3		56.2		4.6		35.8		27	
M1	28/8/2023	Mid-Ebb	Cloudy	Low	11:28	2.3	M	1.15	1	0.071	286.177	7.12	7.12	3.34	3.295	29.90	29.90	32.3	32.70	2.43	2.46	16.79	16.945	33	34
M1	28/8/2023	Mid-Ebb	Cloudy	Low	11:30	2.3	M	1.15	2			7.12		3.25		29.90		33.1		2.49		17.1		35	
M2	28/8/2023	Mid-Ebb	Cloudy	Low	10:53	2.2	M	1.10	1	0.076	318.604	7.1	7.10	3.21	3.195	29.60	29.60	32.1	32.55	2.41	2.445	20.33	20.745	20	22
M2	28/8/2023	Mid-Ebb	Cloudy	Low	10:53	2.2	M	1.10	2			7.1		3.18		29.60		33.0		2.48		21.16		23	
M3	28/8/2023	Mid-Ebb	Cloudy	Low	10:25	1.4	M	0.70	1	0.079	83.772	7.43	7.46	0.66	0.685	30	30.00	65.7	65.80	5.6	5.64	32.8	33.35	60	62
M3	28/8/2023	Mid-Ebb	Cloudy	Low	10:25	1.4	M	0.70	2			7.48		0.71		30		65.9		5.68		33.9		63	

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	78	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 02/2023 Environmental Team for Construction of Yuen Long Effluent Polishing Plant
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	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.	Value	Ave.
M1	30/8/2023	Mid-Flood	Cloudy	Low	17:49	2.8	M	1.40	1	0.094	187.722	7.21	7.21	2.23	2.225	28.30	28.30	40.4	39.90	3.04	3	42.21	42.035	62	61
M1	30/8/2023	Mid-Flood	Cloudy	Low	17:50	2.8	M	1.40	2			7.2		2.22		28.30		39.4		2.96		41.86		59	
M2	30/8/2023	Mid-Flood	Cloudy	Low	18:18	2.6	M	1.30	1	0.084	198.44	7.19	7.19	2.29	2.325	28.30	28.35	37.9	37.37	2.85	2.81	42.92	42.735	64	65
M2	30/8/2023	Mid-Flood	Cloudy	Low	18:20	2.6	M	1.30	2			7.19		2.36		28.40		36.8		2.77		42.55		66	
M3	30/8/2023	Mid-Flood	Cloudy	Low	18:45	2	M	1.00	1	0.079	272.952	7.44	7.47	0.88	0.875	28	28.00	38.6	38.40	3.39	3.375	50.23	49.715	65	66
M3	30/8/2023	Mid-Flood	Cloudy	Low	18:44	2	M	1.00	2			7.5		0.87		28		38.2		3.36		49.2		67	
M1	30/8/2023	Mid-Ebb	Cloudy	Low	13:09	2.5	M	1.25	1	0.084	299.326	7.16	7.16	2.31	2.3	28.90	28.90	35.6	35.18	2.68	2.645	40.69	40.28	52	54
M1	30/8/2023	Mid-Ebb	Cloudy	Low	13:10	2.5	M	1.25	2			7.16		2.29		28.90		34.7		2.61		39.87		55	
M2	30/8/2023	Mid-Ebb	Cloudy	Low	12:45	2.4	M	1.20	1	0.076	281.594	7.16	7.16	2.41	2.445	28.80	28.80	34.2	33.65	2.57	2.53	36.66	37.035	29	30
M2	30/8/2023	Mid-Ebb	Cloudy	Low	12:45	2.4	M	1.20	2			7.16		2.48		28.80		33.1		2.49		37.41		31	
M3	30/8/2023	Mid-Ebb	Cloudy	Low	12:21	1.7	M	0.85	1	0.072	79.683	7.23	7.28	1	1	29	29.00	50.1	49.35	3.76	3.705	40.2	40.65	26	25
M3	30/8/2023	Mid-Ebb	Cloudy	Low	12:21	1.7	M	0.85	2			7.33		1		29		48.6		3.65		41.1		24	

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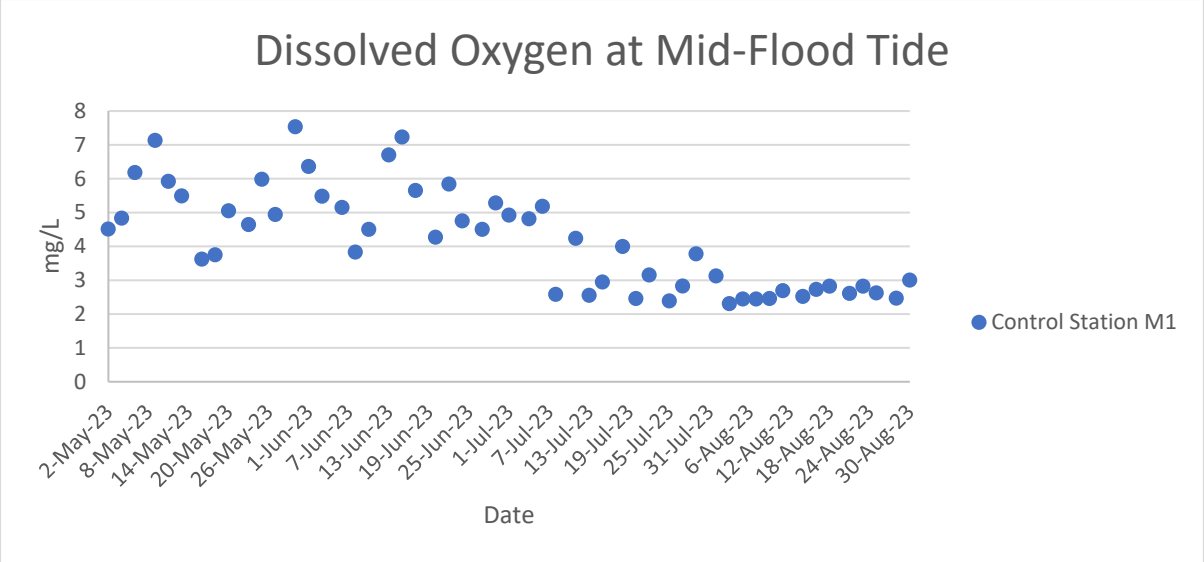
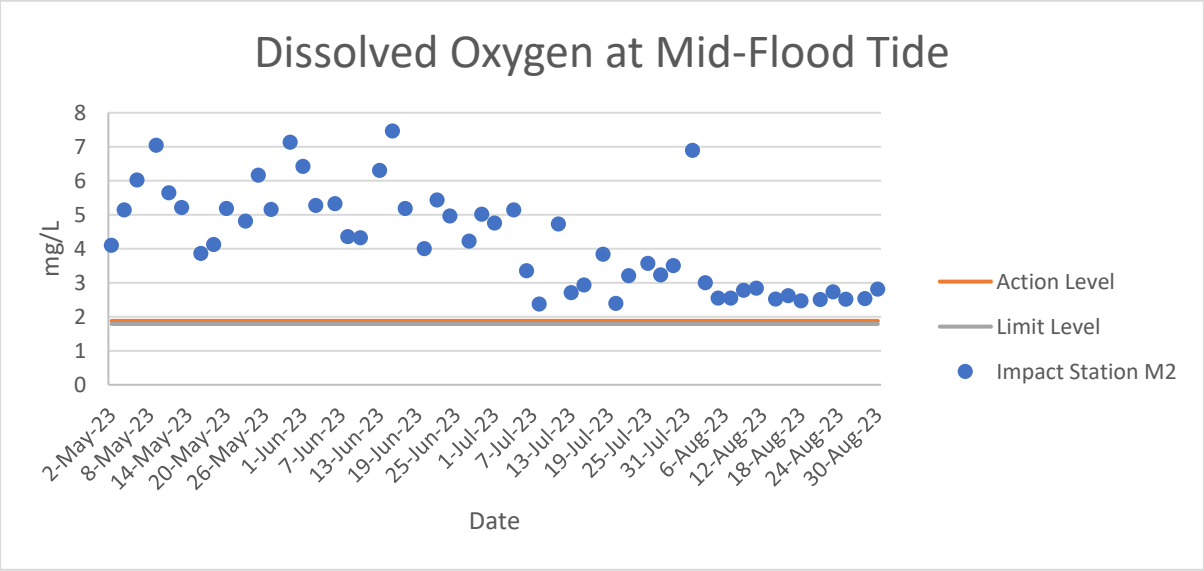
For Flood Tide

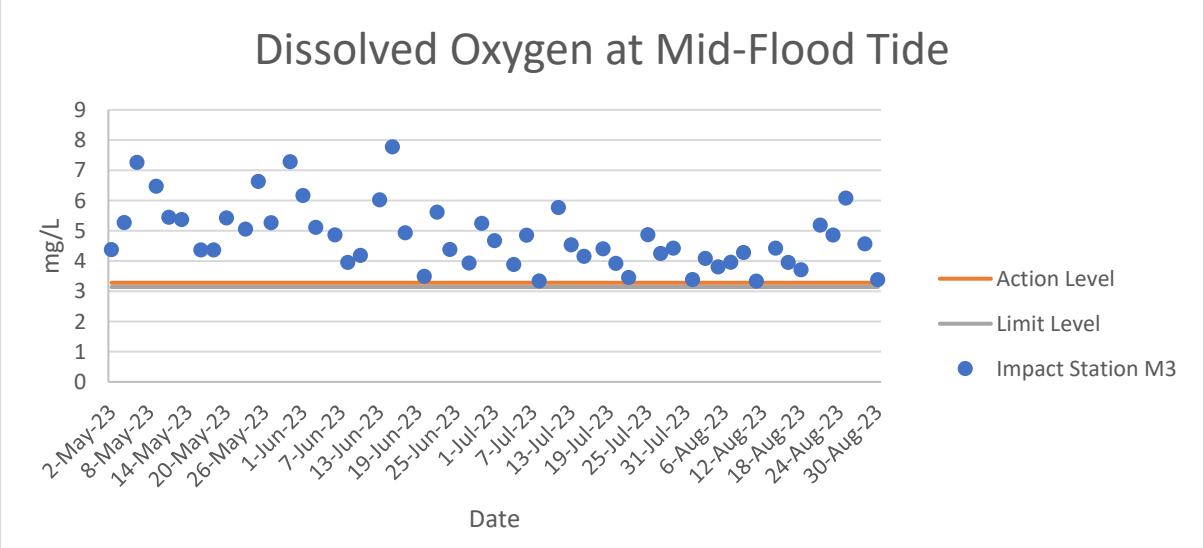
Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M2(Impact Station)	1.88	1.79	50.4	54.6	81	112
M3(Impact Station)	3.28	3.14	74	78	104	167

For Ebb Tide

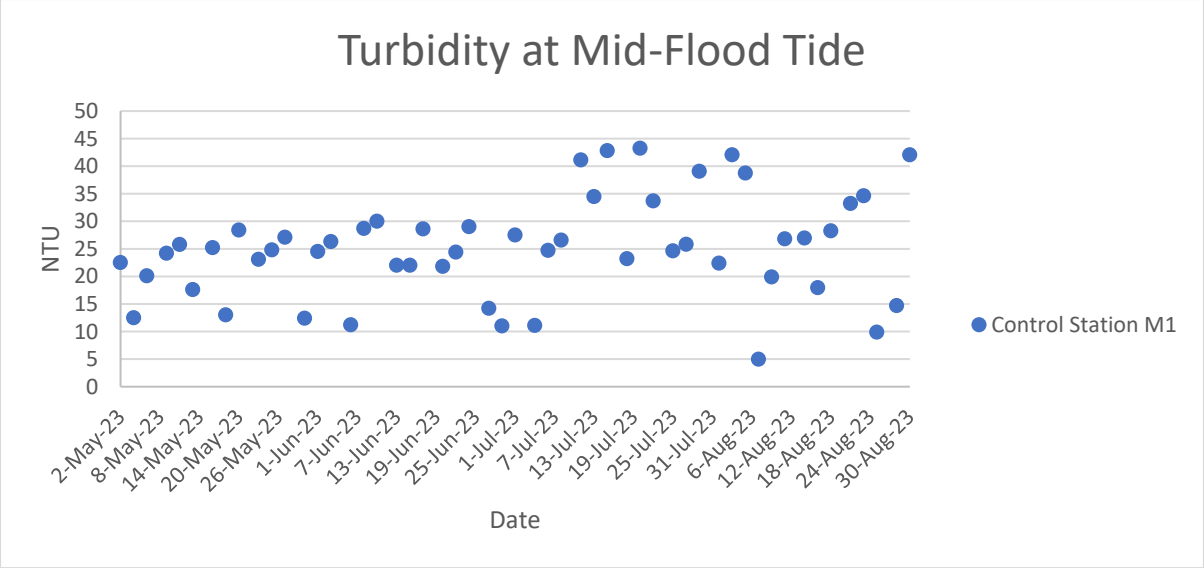
Monitoring Location	DO		NTU		SS	
	AL	LL	AL	LL	AL	LL
M1(Impact Station)	2.25	1.91	48.4	50.5	59	68

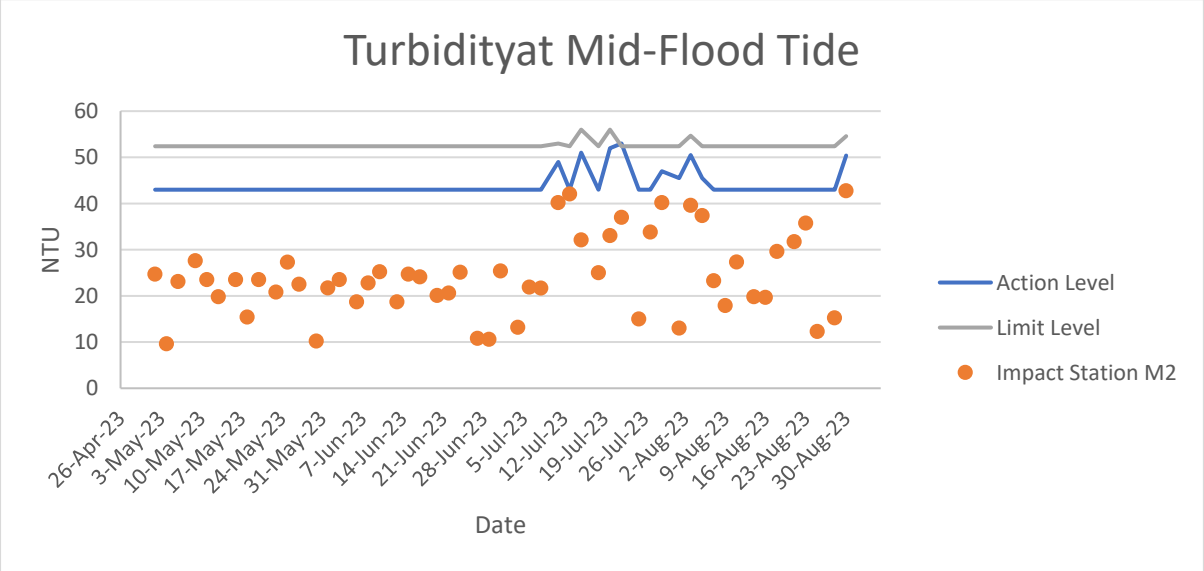


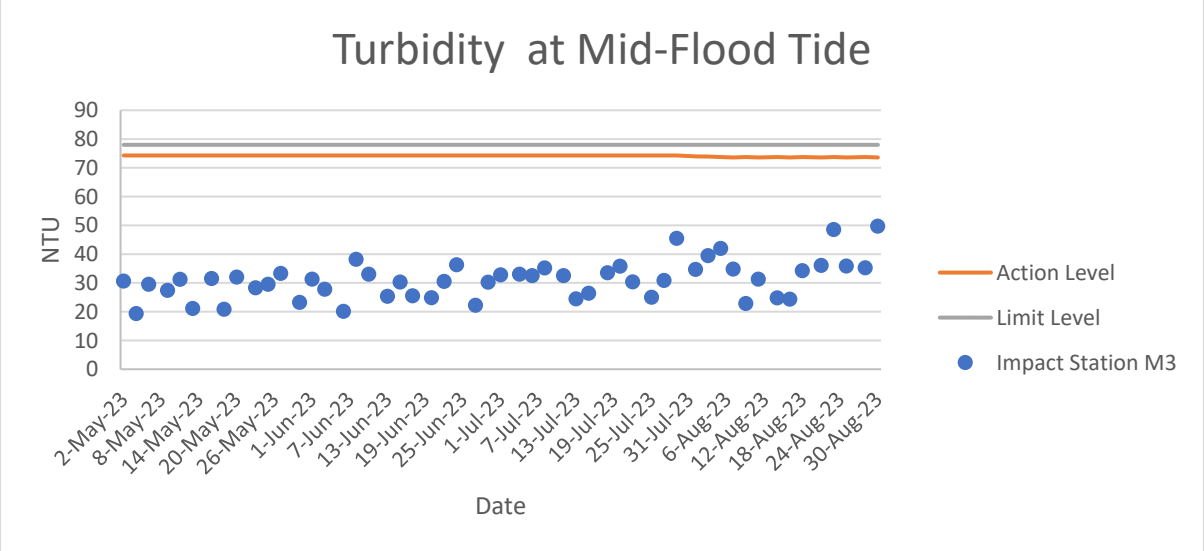




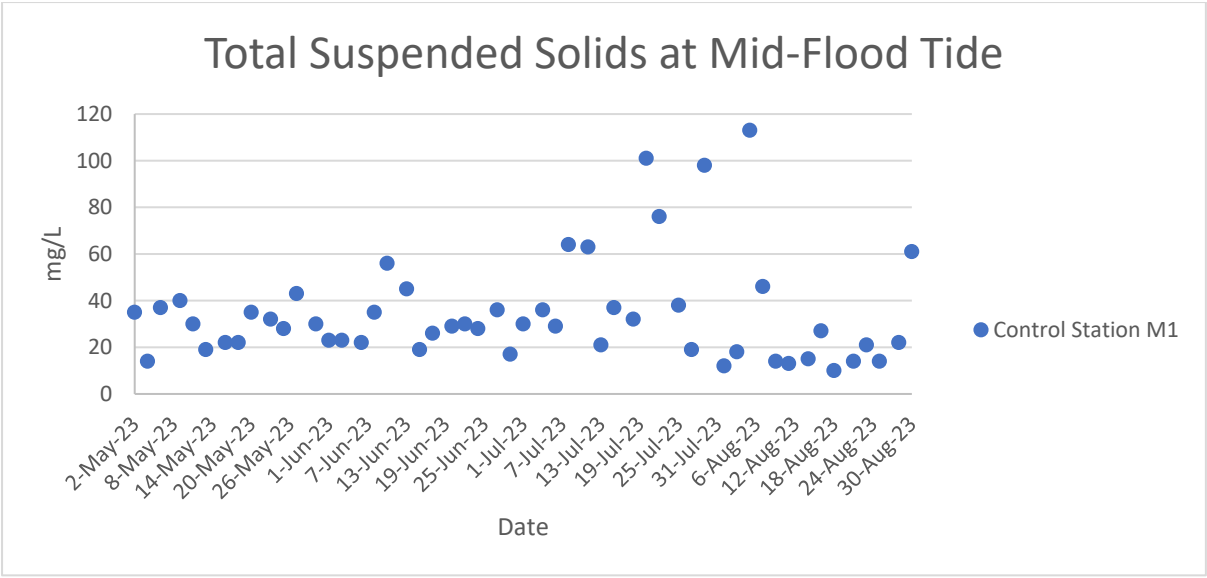
Water Quality Monitoring Results

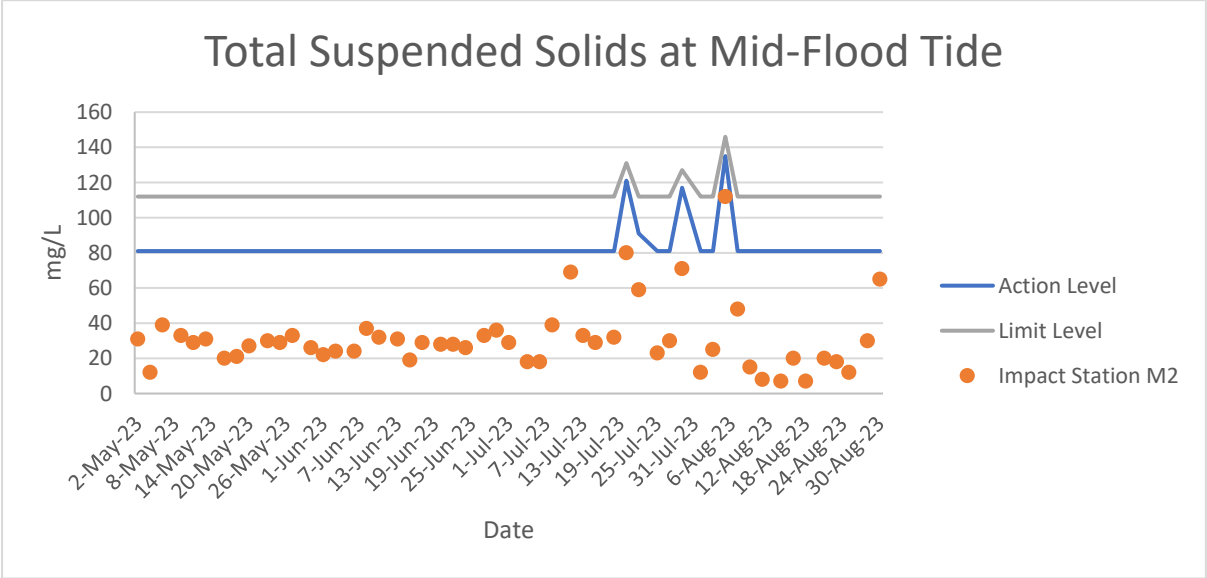


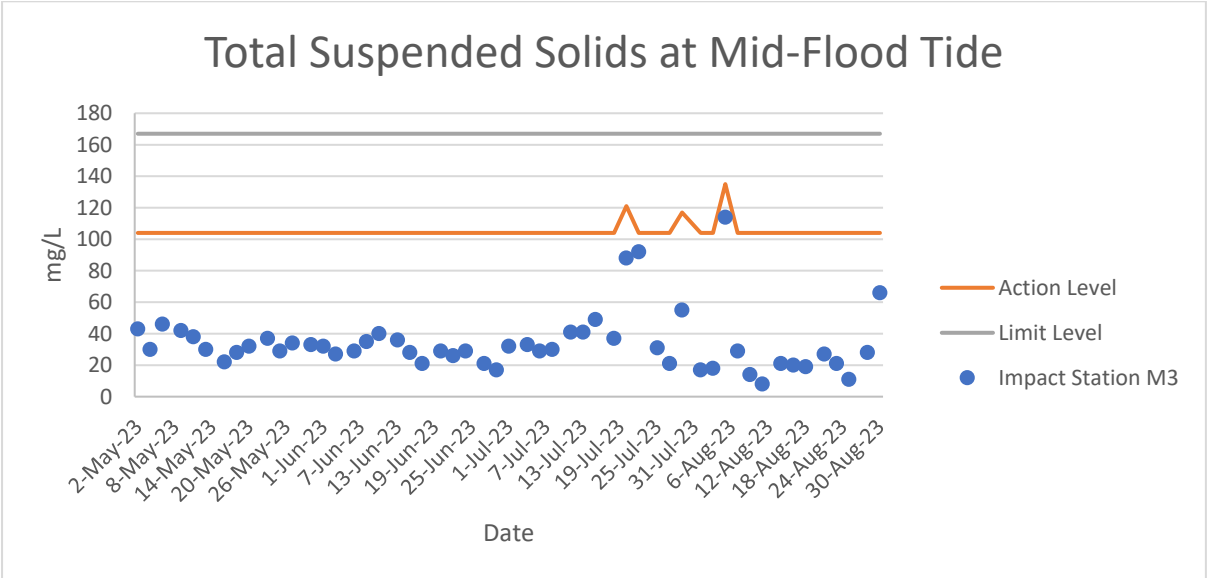




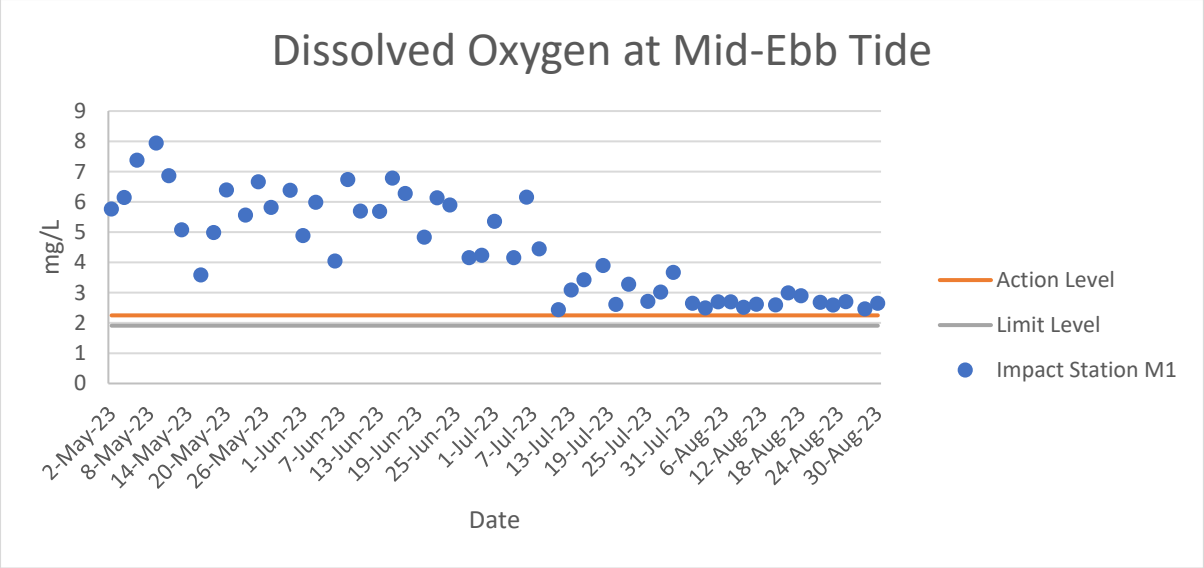
Water Quality Monitoring Results

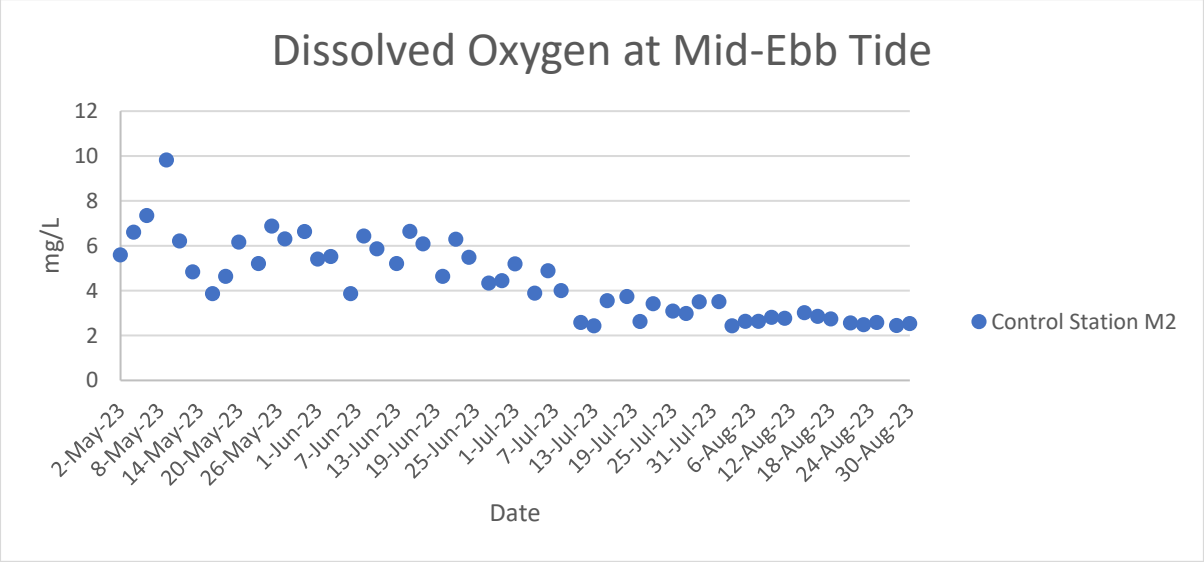


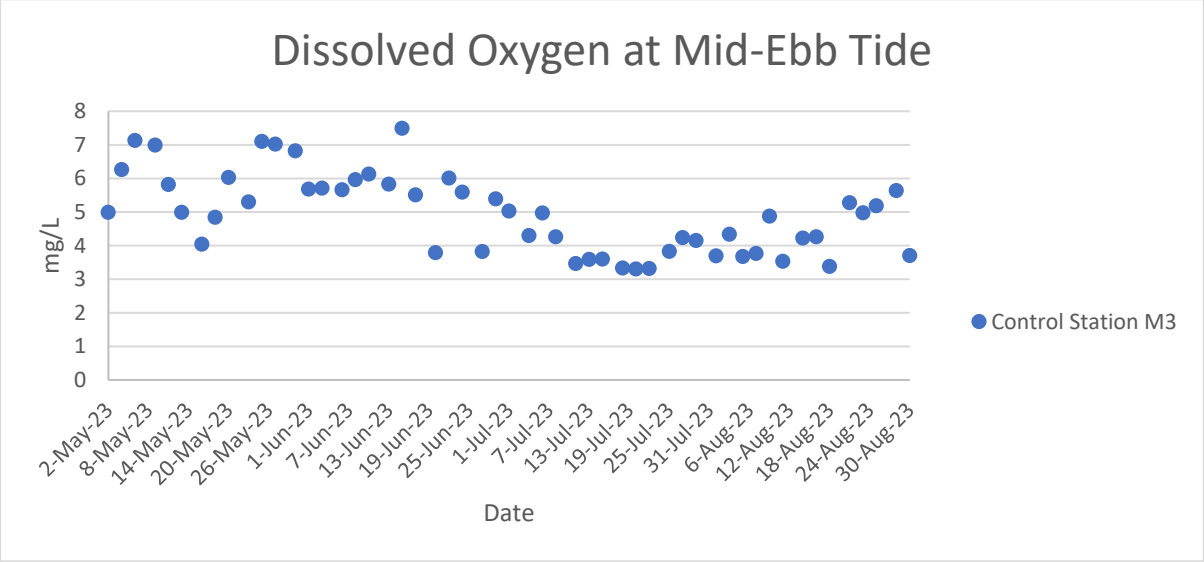




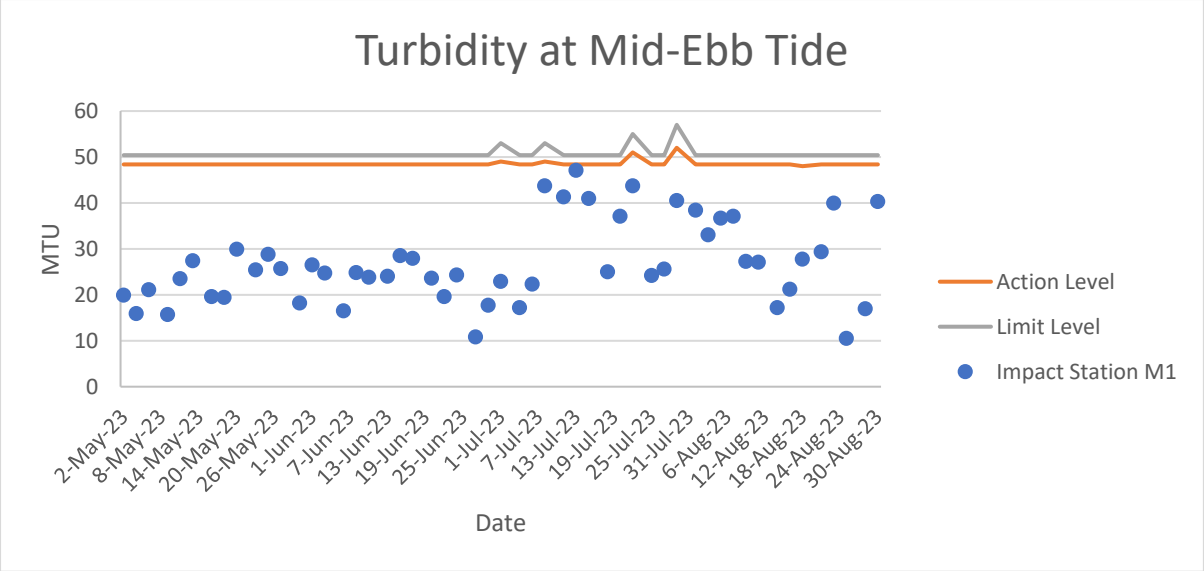
Water Quality Monitoring Results

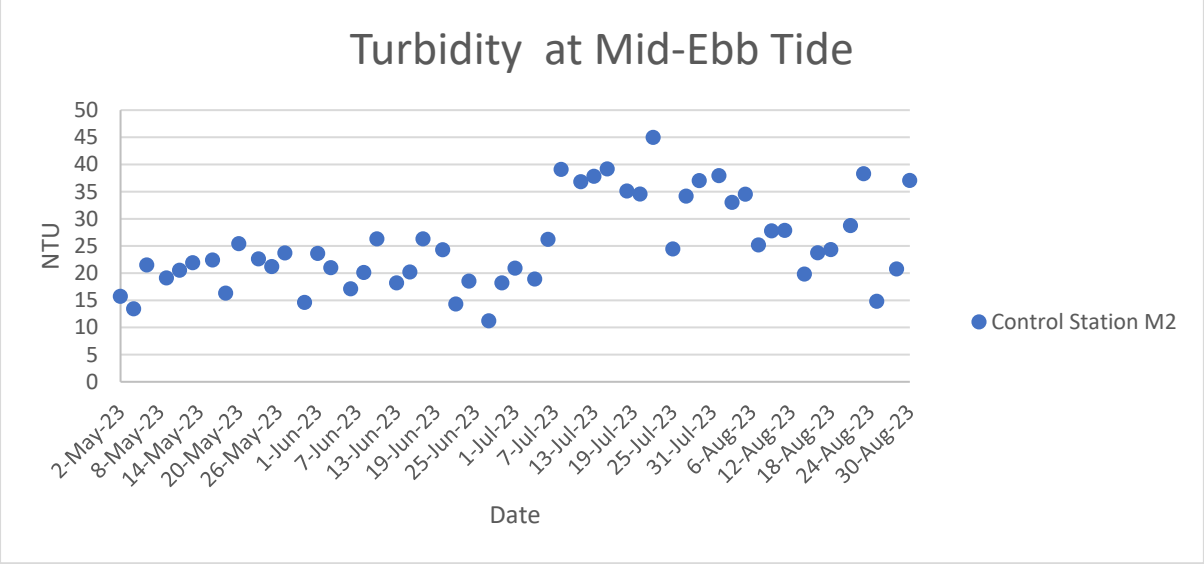


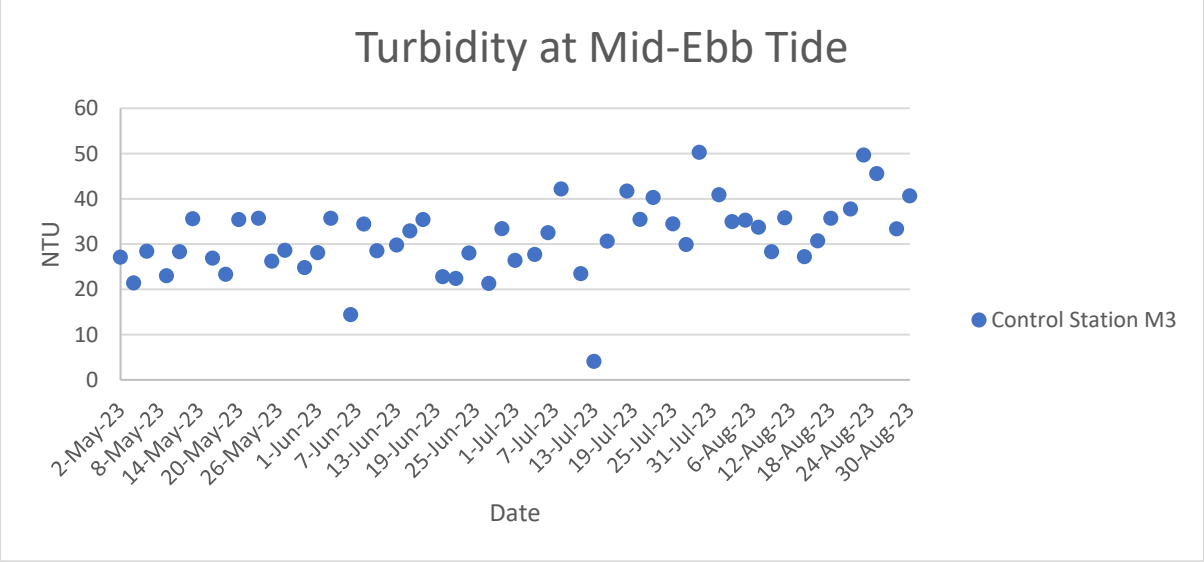




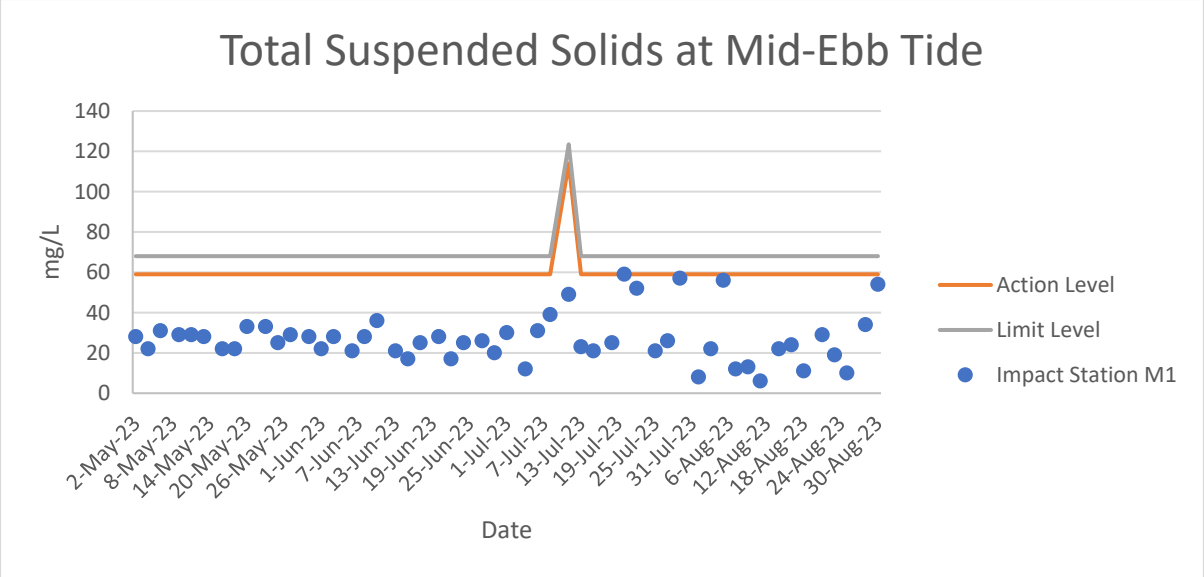
Water Quality Monitoring Results

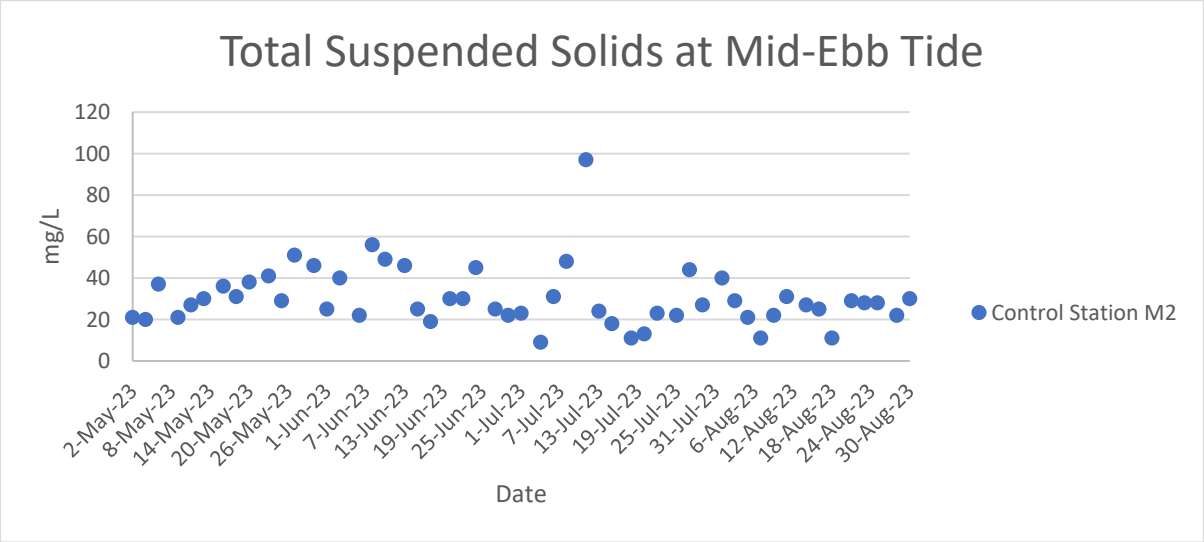


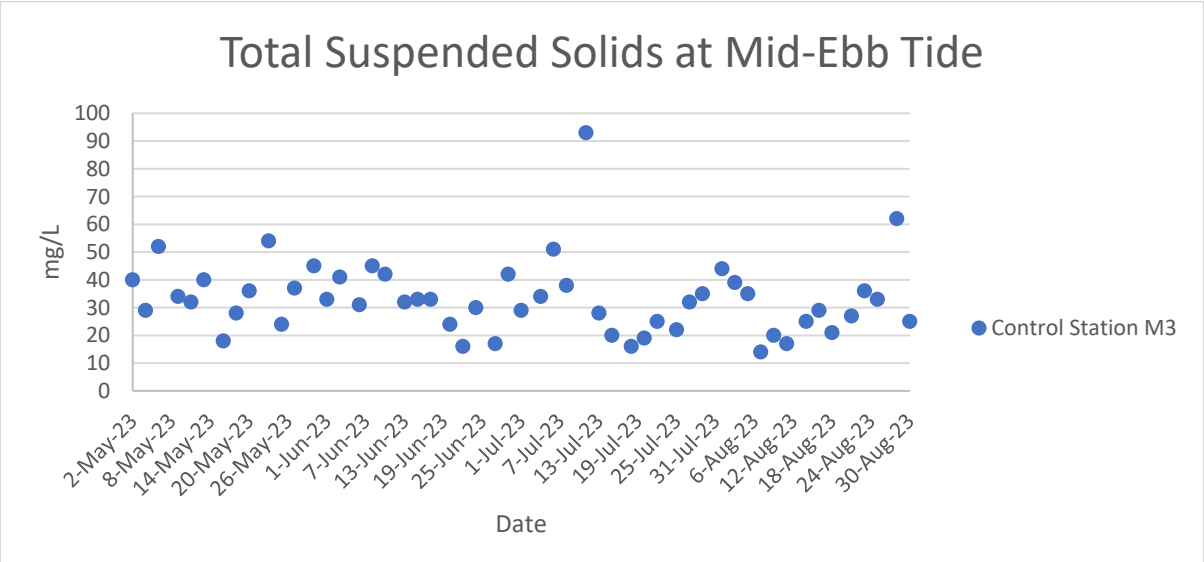




Water Quality Monitoring Results







Water Quality Monitoring Results

Ecology Monitoring Results for

Contract No. SPW 02/2023

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

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Spotted Dove	*Spilopelia chinensis*	3	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	White-breasted Waterhen	*Amaurornis phoenicurus*	1	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Little Egret	*Egretta garzetta*	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Chinese Pond Heron	*Ardeola bacchus*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Common Sandpiper	*Actitis hypoleucos*	2	Common	PM,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Greater Coucal	*Centropus sinensis*	1	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Great Egret	*Ardea alba*	1	Common	R, WV	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Black-collared Starling	*Gracupica nigricollis*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Plain Prinia	*Prinia flaviventris*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Marsh Sandpiper	*Tringa stagnatilis*	2	Common	PM,WV	-	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	White Wagtail	*Motacilla alba*	5	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Plain Prinia	*Prinia flaviventris*	5	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Common Moorhen	*Gallinula chloropus*	1	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Common Redshank	*Tringa totanus*	2	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Modified Watercourse	Eurasian Tree Sparrow	*Passer montanus*	13	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Red-whiskered Bulbul	*Pycnonotus jocosus*	15	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Spotted Dove	*Spilopelia chinensis*	5	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Crested Myna	*Acridotheres cristatellus*	5	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Grey Heron	*Ardea cinerea*	1	Common	WV	PRC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Chinese Pond Heron	*Ardeola bacchus*	4	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Swinhoe's white-eye	*Zosterops simplex*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Black-collared Starling	*Gracupica nigricollis*	3	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Plain Prinia	*Prinia flaviventris*	3	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Japanese tit	*Parus minor*	15	Abundant	R	-	-	-	LC	LC	N	N

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Plain Prinia	*Prinia flaviventris*	4	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Pond-NSW	Oriental Magpie Robin	*Copsychus saularis*	2	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	White-breasted Waterhen	*Amaurornis phoenicurus*	1	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Little Egret	*Egretta garzetta*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Black-crowned Night Heron	*Nycticorax nycticorax*	1	Common	R,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Chinese Pond Heron	*Ardeola bacchus*	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Common Sandpiper	*Actitis hypoleucos*	3	Common	PM,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Marsh Sandpiper	*Tringa stagnatilis*	5	Common	PM,WV	-	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	White Wagtail	*Motacilla alba*	2	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Common Moorhen	*Gallinula chloropus*	1	Common	R		-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Common Redshank	*Tringa totanus*	11	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	NSW	Mangrove-NSW	Black-winged Stilt	*Himantopus himantopus*	4	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Red-whiskered Bulbul	*Pycnonotus jocosus*	25	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Spotted Dove	*Spilopelia chinensis*	12	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Crested Myna	*Acridotheres cristatellus*	4	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Little Egret	*Egretta garzetta*	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Barn Swallow	*Hirundo rustica*	10	Abundant	PM, SV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Azure-winged Magpie	*Cyanopica cyanus*	3	Introduced	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Large-billed Crow	*Corvus macrorhynchos*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Chinese Pond Heron	*Ardeola bacchus*	5	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Greater Coucal	*Centropus sinensis*	4	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Black-collared Starling	*Gracupica nigricollis*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Plain Prinia	*Prinia flaviventris*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Masked laughingthrush	*Pterorhinus perspicillatus*	3	Abundant	R	-	-	-	LC	LC	N	N

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Marsh Sandpiper	*Tringa stagnatilis*	1	Common	PM,WV	-	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	White Wagtail	*Motacilla alba*	1	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Plain Prinia	*Prinia flaviventris*	15	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Oriental Magpie Robin	*Copsychus saularis*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Black-winged Stilt	*Himantopus himantopus*	2	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Transect	FLW	Pond-FLW	Eurasian Tree Sparrow	*Passer montanus*	10	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Common Kingfisher	*Alcedo atthis*	1	Common	PM,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Red-whiskered Bulbul	*Pycnonotus jocosus*	4	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Spotted Dove	*Spilopelia chinensis*	2	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	White-breasted Waterhen	*Amaurornis phoenicurus*	2	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Large-billed Crow	*Corvus macrorhynchos*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Chinese Pond Heron	*Ardeola bacchus*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Hair-crested Drongo	*Dicrurus hottentottus*	1	Common	PM, SV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	White Wagtail	*Motacilla alba*	1	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	NSW1	Pond-FLW	Oriental Magpie Robin	*Copsychus saularis*	3	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Crested Myna	*Acridotheres cristatellus*	9	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Little Egret	*Egretta garzetta*	4	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Chinese Pond Heron	*Ardeola bacchus*	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Greater Coucal	*Centropus sinensis*	1	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Black-collared Starling	*Gracupica nigricollis*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Plain Prinia	*Prinia flaviventris*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Black Kite	*Milvus migran*	1	Common	R,WV	(RC)	Class II	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Modified Watercourse	White Wagtail	*Motacilla alba*	8	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pond-NSW	Red-whiskered Bulbul	*Pycnonotus jocosus*	5	Abundant	R	-	-	-	LC	LC	N	N

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pond-NSW	Greater Coucal	*Centropus sinensis*	2	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pond-NSW	White Wagtail	*Motacilla alba*	1	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pond-NSW	Oriental Magpie Robin	*Copsychus saularis*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW1	Pond-NSW	Eurasian Tree Sparrow	*Passer montanus*	5	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Little Egret	*Egretta garzetta*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Chinese Pond Heron	*Ardeola bacchus*	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Great Egret	*Ardea alba*	3	Common	R, WV	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Plain Prinia	*Prinia flaviventris*	5	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Common Moorhen	*Gallinula chloropus*	2	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Red-whiskered Bulbul	*Pycnonotus jocosus*	7	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Crested Myna	*Acridotheres cristatellus*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Azure-winged Magpie	*Cyanopica cyanus*	5	Introduced	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Chinese Pond Heron	*Ardeola bacchus*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Common Sandpiper	*Actitis hypoleucos*		Common	PM,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Greater Coucal	*Centropus sinensis*	1	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Swinhoe's white-eye	*Zosterops simplex*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Black-collared Starling	*Gracupica nigricollis*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Plain Prinia	*Prinia flaviventris*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Masked laughingthrush	*Pterorhinus perspicillatus*	5	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW2	Pond-NSW	Eurasian Tree Sparrow	*Passer montanus*	20	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Spotted Dove	*Spilopelia chinensis*	6	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Crested Myna	*Acridotheres cristatellus*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Little Egret	*Egretta garzetta*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Chinese Pond Heron	*Ardeola bacchus*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Marsh Sandpiper	*Tringa stagnatilis*	1	Common	PM,WV	-	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Common Redshank	*Tringa totanus*	1	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Red-whiskered Bulbul	*Pycnonotus jocosus*	2	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	White-breasted Waterhen	*Amaurornis phoenicurus*	2	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Little Egret	*Egretta garzetta*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Chinese Pond Heron	*Ardeola bacchus*	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Common Sandpiper	*Actitis hypoleucos*	2	Common	PM,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Great Egret	*Ardea alba*	1	Common	R, WV	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Marsh Sandpiper	*Tringa stagnatilis*	7	Common	PM,WV	-	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Plain Prinia	*Prinia flaviventris*	8	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Common Redshank	*Tringa totanus*	7	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Black-winged Stilt	*Himantopus himantopus*	5	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	NSW	Point Count	SP/NSW3	Mangrove-NSW	Little Ringed Plover	*Charadrius dubius*	1	Common	WV, PM	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Greater Coucal	*Centropus sinensis*	1	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Scaly-breasted Munia	*Lonchura punctulata*	20	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Oriental Magpie Robin	*Copsychus saularis*	3	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW1	Pond-FLW	Black-winged Stilt	*Himantopus himantopus*	4	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Red-whiskered Bulbul	*Pycnonotus jocosus*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Spotted Dove	*Spilopelia chinensis*	2	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	Plain Prinia	*Prinia flaviventris*	6	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW2	Pond-FLW	White Wagtail	*Motacilla alba*	2	Common	PM, WV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Plain Prinia	*Prinia flaviventris*	8	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW3	Pond-FLW	Plain Prinia	*Prinia flaviventris*	10	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Red-whiskered Bulbul	*Pycnonotus jocosus*	3	Abundant	R	-	-	-	LC	LC	N	N

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Little Egret	*Egretta garzetta*	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Barn Swallow	*Hirundo rustica*	7	Abundant	PM, SV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Azure-winged Magpie	*Cyanopica cyanus*	8	Introduced	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Chinese Pond Heron	*Ardeola bacchus*	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Plain Prinia	*Prinia flaviventris*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Chinese Bulbul	*Pycnonotus sinensis*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Scaly-breasted Munia	*Lonchura punctulata*	20	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW4	Pond-FLW	Black-winged Stilt	*Himantopus himantopus*	3	Common	PM	RC	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Red-whiskered Bulbul	*Pycnonotus jocosus*	6	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Spotted Dove	*Spilopelia chinensis*	16	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Crested Myna	*Acridotheres cristatellus*	3	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	White-breasted Waterhen	*Amaurornis phoenicurus*	1	Common	R	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Barn Swallow	*Hirundo rustica*	4	Abundant	PM, SV	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Azure-winged Magpie	*Cyanopica cyanus*	5	Introduced	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Black-crowned Night Heron	*Nycticorax nycticorax*	2	Common	R,WV	-	-	-	LC	LC	N	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Large-billed Crow	*Corvus macrorhynchos*	6	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Chinese Pond Heron	*Ardeola bacchus*	9	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Greater Coucal	*Centropus sinensis*	2	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Black-collared Starling	*Gracupica nigricollis*	3	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Chinese Bulbul	*Pycnonotus sinensis*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Scaly-breasted Munia	*Lonchura punctulata*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Plain Prinia	*Prinia flaviventris*	12	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW5	Pond-FLW	Eurasian Tree Sparrow	*Passer montanus*	35	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Spotted Dove	*Spilopelia chinensis*	1	Abundant	R	-	-	-	LC	LC	N	N

Appendix F.1 Ecological Bird Monitoring Result (25 August 2023)

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[2]	Principal Status[3]	Level of Concern[4]	Protection Status in China[5]	China Red Data Book[6]	Red List of China's Vertebrates[10]	IUCN Red List[7] (v.2020-3)	Species of Conservation Importance	Wetland Dependent
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Crested Myna	*Acridotheres cristatellus*	8	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Little Egret	*Egretta garzetta*	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Azure-winged Magpie	*Cyanopica cyanus*	4	Introduced	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Chinese Pond Heron	*Ardeola bacchus*	11	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Greater Coucal	*Centropus sinensis*	1	Common	R	-	Class II	Vulnerable	LC	LC	Y	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Swinhoe's white-eye	*Zosterops simplex*	2	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Plain Prinia	*Prinia flaviventris*	1	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Chinese Bulbul	*Pycnonotus sinensis*	1	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Black Kite	*Milvus migran*	1	Common	R,WV	(RC)	Class II	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Oriental Magpie Robin	*Copsychus saularis*	2	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW6	Pond-FLW	Eurasian Tree Sparrow	*Passer montanus*	10	Abundant	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Little Egret	*Egretta garzetta*	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Great Egret	*Ardea alba*	1	Common	R, WV	PRC (RC)	-	-	LC	LC	Y	Y
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	Black-collared Starling	*Gracupica nigricollis*	6	Common	R	-	-	-	LC	LC	N	N
25/08/2023	Daytime	Wet Season	FLW	Point Count	FLW7	Pond-FLW	White Wagtail	*Motacilla alba*	1	Common	PM, WV	-	-	-	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 (25 August 2023)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	$P*Ln(P)^2$
Alcedo atthis	1	0.002272727	-6.086774727	-0.013833579	0.084201879
Pycnonotus jocosus	28	0.063636364	-2.754570217	-0.175290832	0.482850905
Spilopelia chinensis	27	0.061363636	-2.790937861	-0.171262096	0.477981868
Acridotheres cristatellus	24	0.054545455	-2.908720897	-0.158657503	0.461490396
Amaurornis phoenicurus	5	0.011363636	-4.477336814	-0.050878827	0.227801647
Egretta garzetta	14	0.031818182	-3.447717397	-0.109700099	0.37821494
Hirundo rustica	11	0.025	-3.688879454	-0.092221986	0.340195791
Cyanopica cyanus	22	0.05	-2.995732274	-0.149786614	0.448720593
Nycticorax nycticorax	2	0.004545455	-5.393627546	-0.024516489	0.13223281
Corvus macrorhynchos	7	0.015909091	-4.140864578	-0.065877391	0.272789355
Ardeola bacchus	38	0.086363636	-2.449188567	-0.211520831	0.518054401
Actitis hypoleucos	2	0.004545455	-5.393627546	-0.024516489	0.13223281
Centropus sinensis	8	0.018181818	-4.007333185	-0.072860603	0.291976714
Ardea alba	5	0.011363636	-4.477336814	-0.050878827	0.227801647
Zosterops simplex	4	0.009090909	-4.700480366	-0.04273164	0.200859233
Gracupica nigricollis	12	0.027272727	-3.601868077	-0.098232766	0.353821463
Prinia flaviventris	20	0.045454545	-3.091042453	-0.14050193	0.434297429
Pterorhinus perspicillatus	5	0.011363636	-4.477336814	-0.050878827	0.227801647
Tringa stagnatilis	8	0.018181818	-4.007333185	-0.072860603	0.291976714
Dicrurus hottentottus	1	0.002272727	-6.086774727	-0.013833579	0.084201879
Pycnonotus sinensis	3	0.006818182	-4.988162438	-0.034010198	0.169648394
Lonchura punctulata	41	0.093181818	-2.37320266	-0.221139339	0.524808467
Milvus migran	2	0.004545455	-5.393627546	-0.024516489	0.13223281
Motacilla alba	13	0.029545455	-3.521825369	-0.104053931	0.366459775
Prinia flaviventris	35	0.079545455	-2.531426665	-0.201363485	0.509736895
Gallinula chloropus	2	0.004545455	-5.393627546	-0.024516489	0.13223281
Copsychus saularis	9	0.020454545	-3.88955015	-0.07955898	0.309448644
Tringa totanus	8	0.018181818	-4.007333185	-0.072860603	0.291976714
Himantopus himantopus	12	0.027272727	-3.601868077	-0.098232766	0.353821463
Passer montanus	70	0.159090909	-1.838279485	-0.292453554	0.537611369
Charadrius dubius	1	0.002272727	-6.086774727	-0.013833579	0.084201879
Total	440	1	-124.6031614	-2.957380926	9.481683338
Richness	31				
SS	9.482				
SQ	8.746				
H	2.957				
S^2H	0.002				

Appendix F.2.2 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Point Count Method) in All Habitats (25 August 2023)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	$P*Ln(P)^2$
Egretta garzetta	14	0.147368421	-1.914819562	-0.282183935	0.54033132
Ardeola bacchus	38	0.4	-0.916290732	-0.366516293	0.335835482
Centropus sinensis	8	0.084210526	-2.47443535	-0.208373503	0.515606762
Ardea alba	5	0.052631579	-2.944438979	-0.154970473	0.4563011
Tringa stagnatilis	8	0.084210526	-2.47443535	-0.208373503	0.515606762
Milvus migran	2	0.021052632	-3.860729711	-0.08127852	0.313794398
Tringa totanus	8	0.084210526	-2.47443535	-0.208373503	0.515606762
Himantopus himantopus	12	0.126315789	-2.068970242	-0.261343609	0.540712151
Total	95	1	-19.12855528	-1.77141334	3.733794737
Richness	8				
SS	3.734				
SQ	3.138				
H	1.771				
S^2H	0.007				

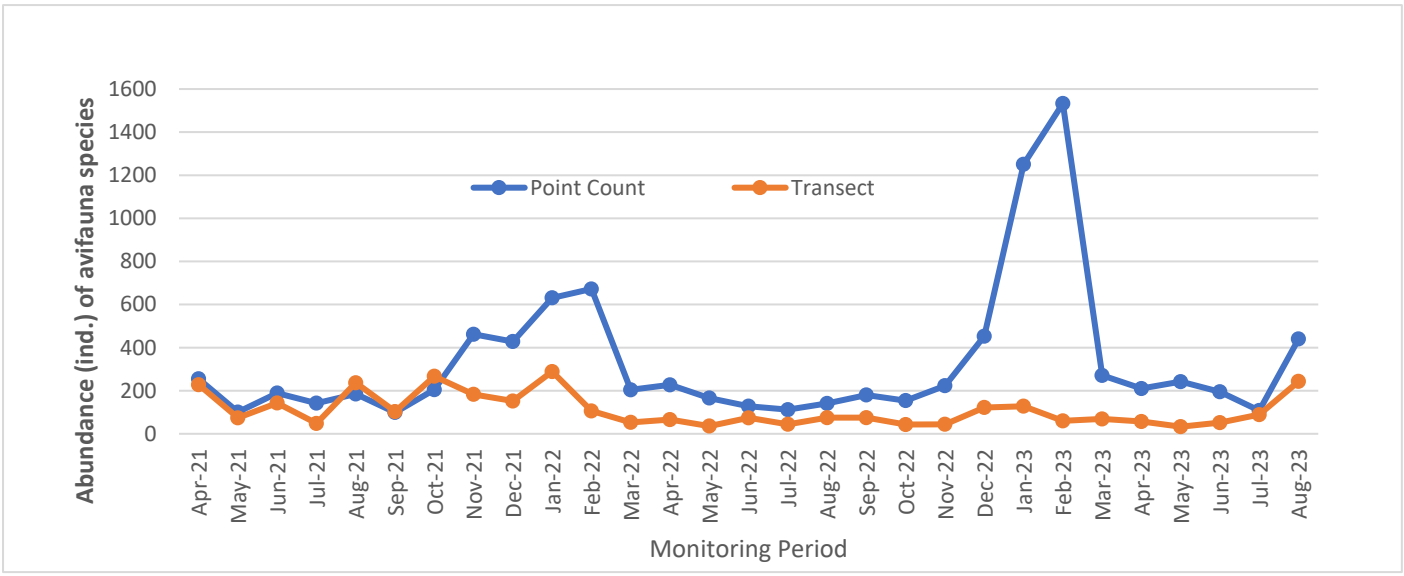
Appendix F.2.3 Ecological Bird Monitoring Diversity (All avifauna species in Transect Walk Method) in All Habitats (25 August 2023)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	$P*Ln(P)^2$
Pycnonotus jocosus	40	0.164609053	-1.804181989	-0.29698469	0.535814428
Spilopelia chinensis	20	0.082304527	-2.49732917	-0.205541495	0.513304772
Acridotheres cristatellus	9	0.037037037	-3.295836866	-0.122068032	0.40231632
Amaurornis phoenicurus	2	0.008230453	-4.799914263	-0.039505467	0.189622855
Egretta garzetta	7	0.028806584	-3.547151294	-0.102181313	0.362452577
Hirundo rustica	10	0.041152263	-3.19047635	-0.131295323	0.418894623
Cyanopica cyanus	3	0.012345679	-4.394449155	-0.054252459	0.238409671
Nycticorax nycticorax	1	0.004115226	-5.493061443	-0.022605191	0.124171704
Ardea cinerea	1	0.004115226	-5.493061443	-0.022605191	0.124171704
Corvus macrorhynchos	2	0.008230453	-4.799914263	-0.039505467	0.189622855
Ardeola bacchus	18	0.074074074	-2.602689685	-0.192791829	0.501777304
Actitis hypoleucos	5	0.020576132	-3.883623531	-0.079909949	0.310340159
Centropus sinensis	5	0.020576132	-3.883623531	-0.079909949	0.310340159
Ardea alba	3	0.012345679	-4.394449155	-0.054252459	0.238409671
Zosterops simplex	1	0.004115226	-5.493061443	-0.022605191	0.124171704
Gracupica nigricollis	6	0.024691358	-3.701301974	-0.091390172	0.338262625
Prinia flaviventris	5	0.020576132	-3.883623531	-0.079909949	0.310340159
Pterorhinus perspicillatus	3	0.012345679	-4.394449155	-0.054252459	0.238409671
Parus minor	15	0.061728395	-2.785011242	-0.171914274	0.478783186
Tringa stagnatilis	8	0.032921811	-3.413619902	-0.112382548	0.383631303
Motacilla alba	8	0.032921811	-3.413619902	-0.112382548	0.383631303
Prinia flaviventris	24	0.098765432	-2.315007613	-0.228642727	0.529309654
Gallinula chloropus	2	0.008230453	-4.799914263	-0.039505467	0.189622855
Copsychus saularis	3	0.012345679	-4.394449155	-0.054252459	0.238409671
Tringa totanus	13	0.053497942	-2.928112086	-0.156647972	0.458682819
Himantopus himantopus	6	0.024691358	-3.701301974	-0.091390172	0.338262625
Passer montanus	23	0.094650206	-2.357567227	-0.223144223	0.526077508
Total	243	1	-101.6608	-2.881829	8.997243887
Richness	27				
SS	8.997				
SQ	8.305				
H	2.882				
S^2H	0.003				

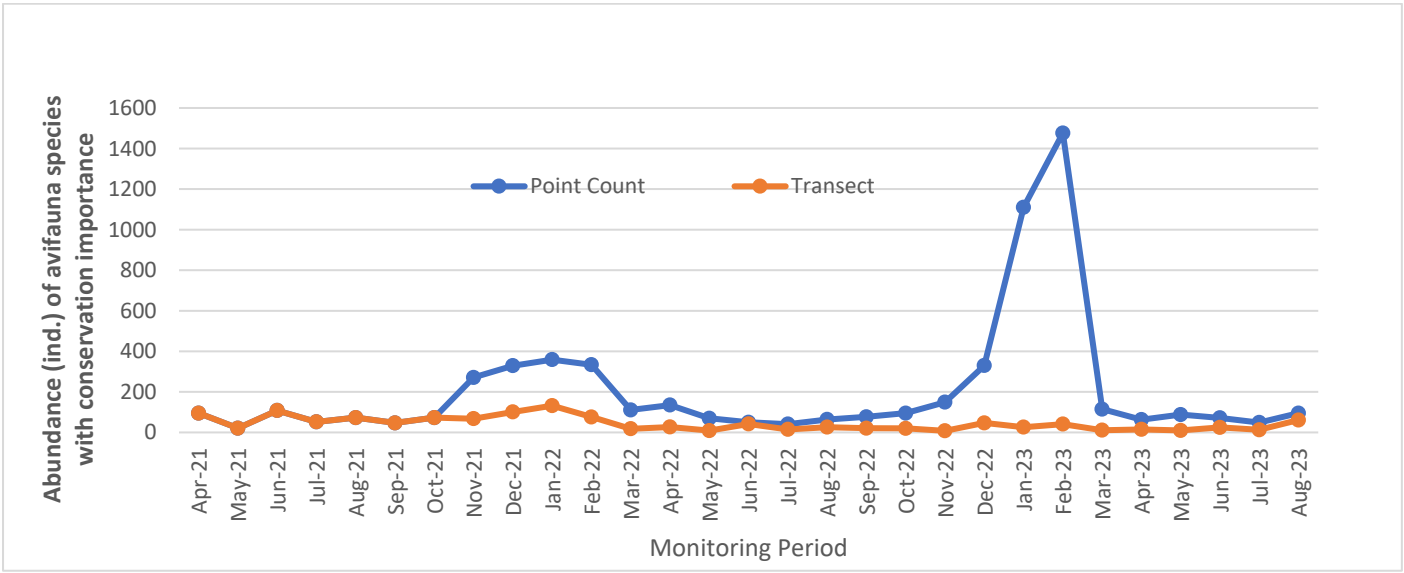
Appendix F.2.4 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Transect Walk Method) in All Habitats (25 August 2023)

Scientific Name	Count	P	Ln(P)	P*Ln(P)	$P*Ln(P)^2$
Egretta garzetta	7	0.114754098	-2.164963715	-0.248438459	0.537860249
Ardea cinerea	1	0.016393443	-4.110873864	-0.067391375	0.277037441
Ardeola bacchus	18	0.295081967	-1.220502106	-0.360148163	0.439561591
Centropus sinensis	5	0.081967213	-2.501435952	-0.205035734	0.512883756
Ardea alba	3	0.049180328	-3.012261576	-0.148144012	0.446248515
Tringa stagnatilis	8	0.131147541	-2.031432322	-0.266417354	0.541208824
Total	61	1	-18.90650844	-1.85314403	3.793131901
Richness	8				
SS	3.793				
SQ	3.434				
H	1.853				
S^2H	0.007				

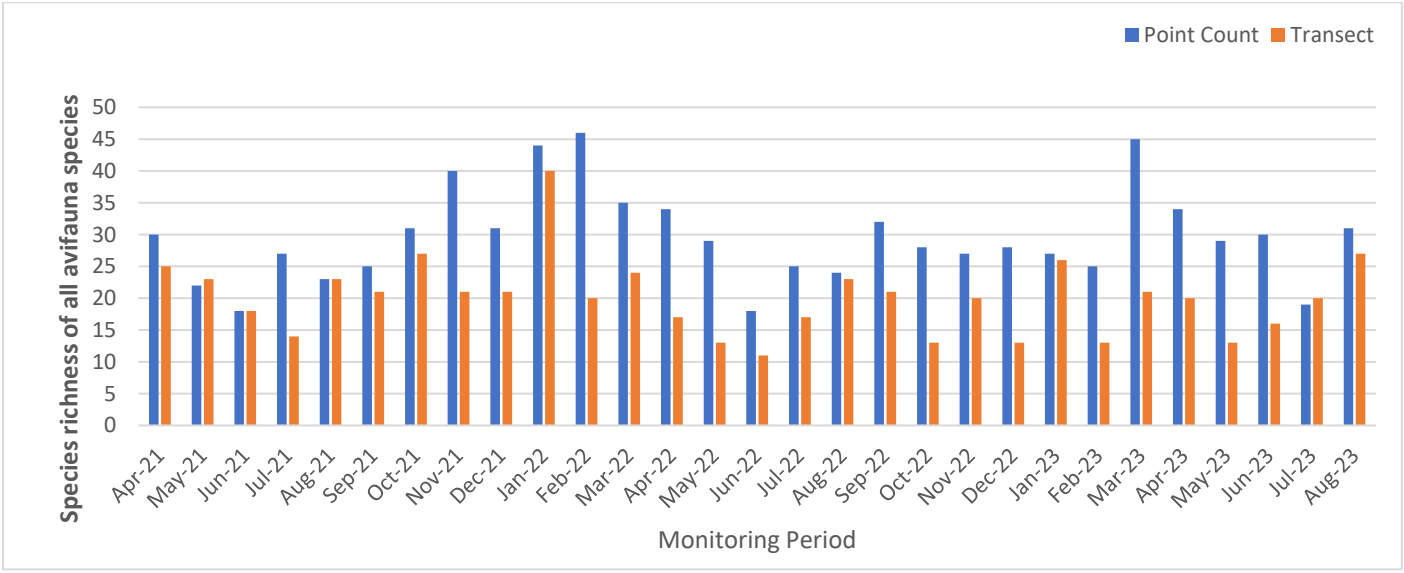
Appendix F.3.1 Abundance of all avifauna species throughout the monitoring period



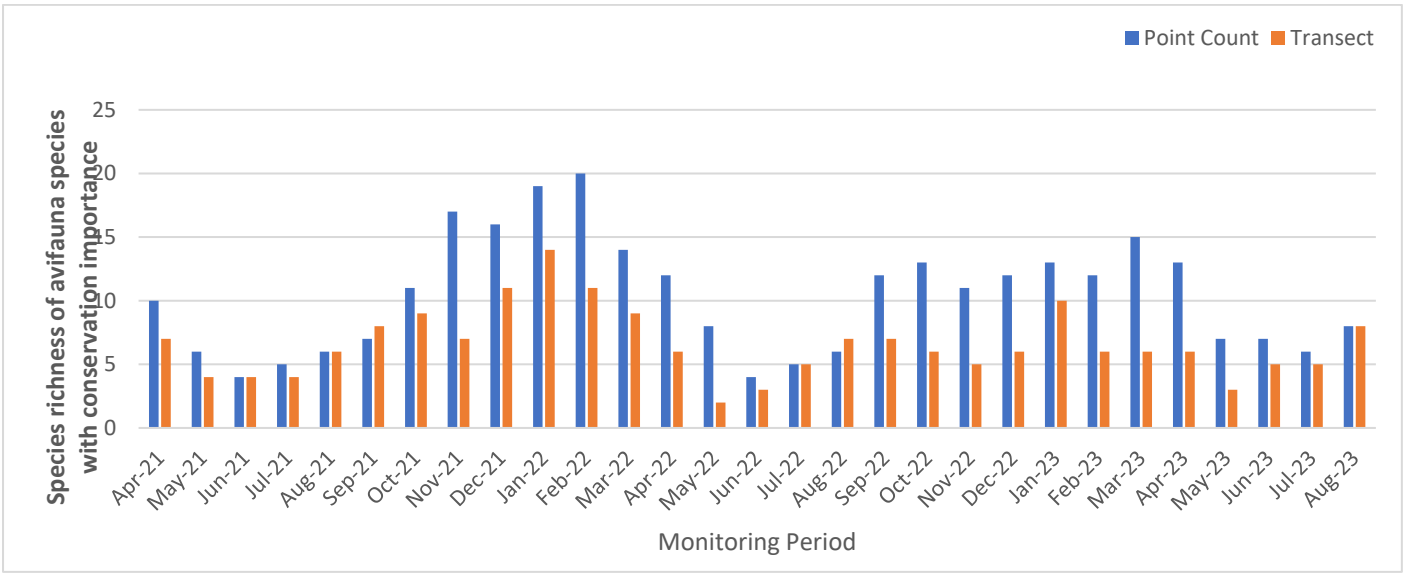
Appendix F.3.2 Abundance of avifauna species with conservation importance throughout the monitoring period



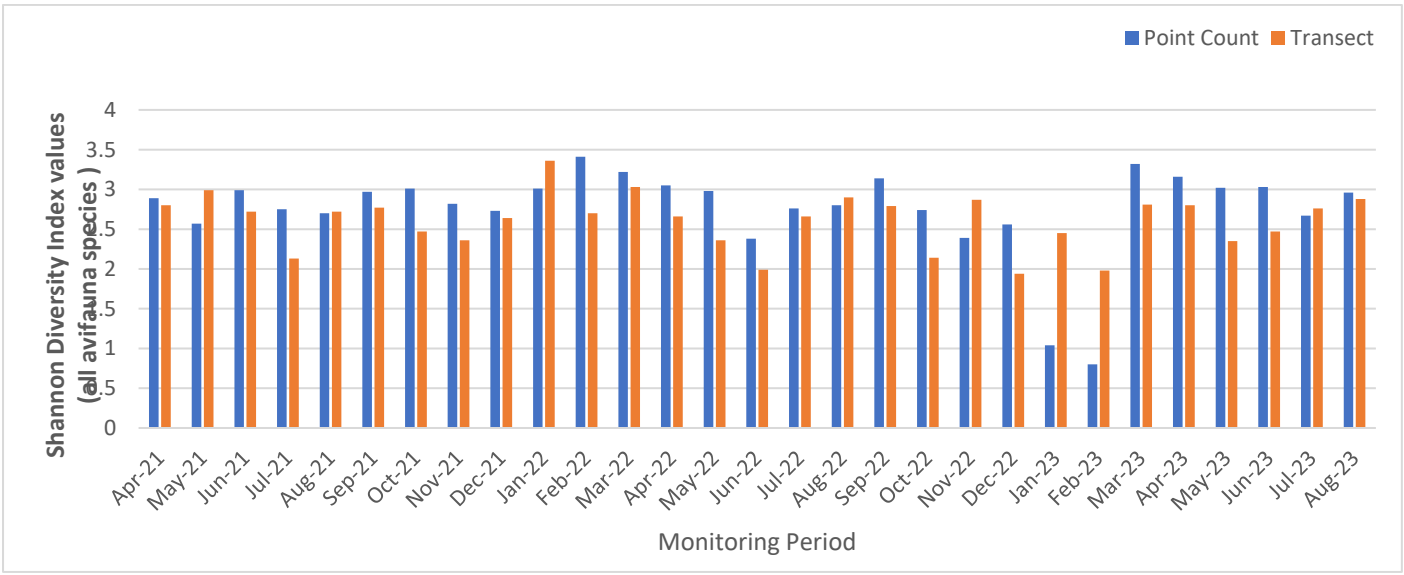
Appendix F.4.1 Species richness of all avifauna species throughout the monitoring period



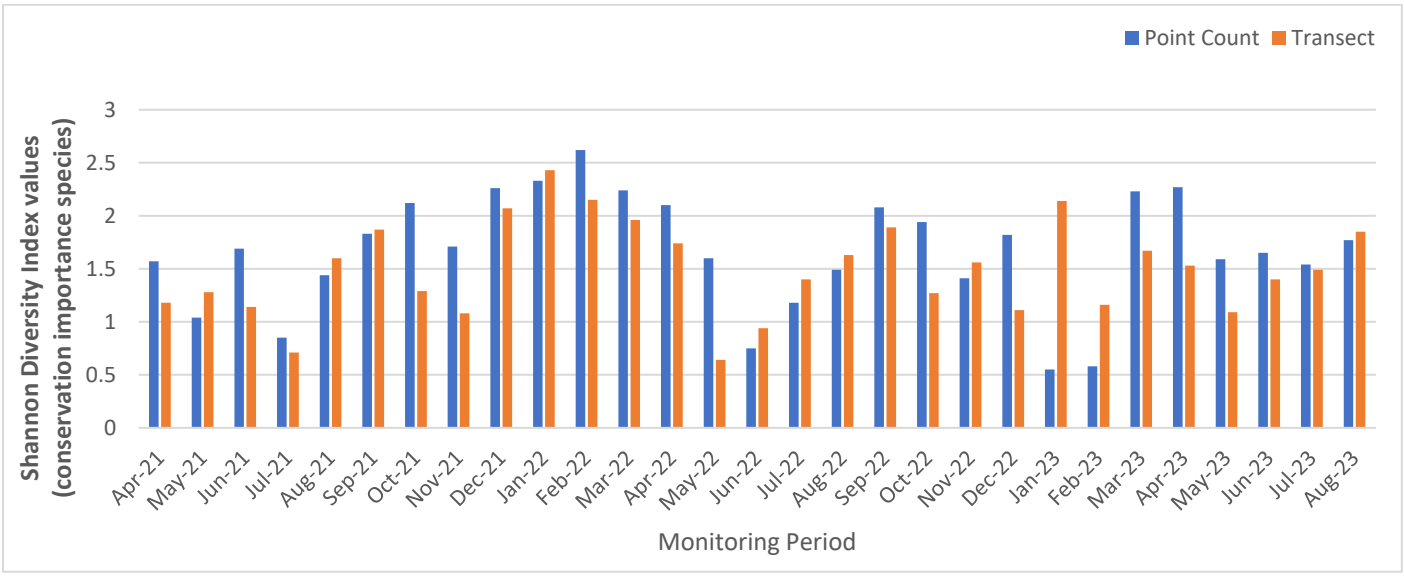
Appendix F.4.2 Species richness of avifauna species with conservation importance throughout the monitoring period



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:

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

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

Months	August 2016	August 2023
Total	160	440
Richness	26	31
H	2.80	2.96
S^2_H	0.006	0.002
t	1.789	
df	273.398	
Crit	1.969	
p	0.075	
CI	0.155	0.089

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

Months	August 2016	August 2023
Total	140	243
Richness	30	27
H	2.87	2.88
S^2_H	0.008	0.003
t	0.095	
df	244.85	
Crit	1.970	
p	0.924	
CI	0.179	0.110

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

Months	August 2016	August 2023
Total	66	95
Richness	7	8
H	1.68	1.77
S^2_H	0.007	0.007
t	0.761	
df	155.776	
Crit	1.975	
p	0.448	
CI	0.167	0.167

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

Months	August 2016	August 2023
Total	54	61
Richness	6	8
H	1.26	1.85
S^2_H	0.014	0.007
t	4.071	
df	99.483	
Crit	1.984	
p	0.000	
CI	0.237	0.167

Appendix G
Wind Data

Date	Wind Speed (m/s)	Wind Direction
1/8/2023 0:00	0.3	N
1/8/2023 1:00	0.3	NE
1/8/2023 2:00	0.0	N
1/8/2023 3:00	0.0	NW
1/8/2023 4:00	0.0	N
1/8/2023 5:00	0.0	N
1/8/2023 6:00	0.3	S
1/8/2023 7:00	0.3	NE
1/8/2023 8:00	1.1	NE
1/8/2023 9:00	0.8	NE
1/8/2023 10:00	0.8	NE
1/8/2023 11:00	1.4	SE
1/8/2023 12:00	2.6	SSE
1/8/2023 13:00	1.9	SSE
1/8/2023 14:00	1.9	SSE
1/8/2023 15:00	2.2	S
1/8/2023 16:00	2.2	SE
1/8/2023 17:00	2.5	S
1/8/2023 18:00	1.7	SE
1/8/2023 19:00	1.7	SSE
1/8/2023 20:00	1.4	SSE
1/8/2023 21:00	1.1	SSE
1/8/2023 22:00	0.8	SSE
1/8/2023 23:00	0.3	S
1/8/2023 0:00	0.3	NW
2/8/2023 1:00	0.3	NW
2/8/2023 2:00	0.0	SE

Date	Wind Speed (m/s)	Wind Direction
2/8/2023 3:00	0.3	S
2/8/2023 4:00	0.0	N
2/8/2023 5:00	0.0	N
2/8/2023 6:00	0.0	S
2/8/2023 7:00	0.0	NEE
2/8/2023 8:00	0.7	E
2/8/2023 9:00	0.3	N
2/8/2023 10:00	0.3	NE
2/8/2023 11:00	1.7	NEE
2/8/2023 12:00	2.1	NEE
2/8/2023 13:00	1.1	NE
2/8/2023 14:00	1.1	NNE
2/8/2023 15:00	0.6	SSE
2/8/2023 16:00	1.1	SWW
2/8/2023 17:00	1.4	NW
2/8/2023 18:00	2.2	S
2/8/2023 19:00	2.5	SSE
2/8/2023 20:00	1.9	SSE
2/8/2023 21:00	1.9	S
2/8/2023 22:00	1.9	SSE
2/8/2023 23:00	1.7	SSE
2/8/2023 0:00	1.4	SE
3/8/2023 1:00	1.1	SE
3/8/2023 2:00	1.1	SSE
3/8/2023 3:00	0.0	N
3/8/2023 4:00	0.0	E
3/8/2023 5:00	0.3	NW

Date	Wind Speed (m/s)	Wind Direction
3/8/2023 6:00	0.3	SE
3/8/2023 7:00	0.3	E
3/8/2023 8:00	0.3	E
3/8/2023 9:00	0.3	NE
3/8/2023 10:00	0.3	NNW
3/8/2023 11:00	1.1	NNW
3/8/2023 12:00	0.8	NW
3/8/2023 13:00	1.7	NWW
3/8/2023 14:00	1.4	NW
3/8/2023 15:00	1.7	SSW
3/8/2023 16:00	3.1	SSE
3/8/2023 17:00	2.8	S
3/8/2023 18:00	3.3	SSE
3/8/2023 19:00	3.1	SE
3/8/2023 20:00	3.1	S
3/8/2023 21:00	2.2	SSE
3/8/2023 22:00	1.8	SSE
3/8/2023 23:00	2.5	SSE
3/8/2023 0:00	1.4	SE
4/8/2023 1:00	1.4	SSE
4/8/2023 2:00	0.8	SEE
4/8/2023 3:00	0.0	E
4/8/2023 4:00	1.1	S
4/8/2023 5:00	1.4	S
4/8/2023 6:00	0.8	SE
4/8/2023 7:00	0.8	SSE
4/8/2023 8:00	0.3	N

Date	Wind Speed (m/s)	Wind Direction
4/8/2023 9:00	0.8	W
4/8/2023 10:00	1.4	W
4/8/2023 11:00	1.4	S
4/8/2023 12:00	1.5	W
4/8/2023 13:00	1.1	NW
4/8/2023 14:00	1.9	SSW
4/8/2023 15:00	2.8	S
4/8/2023 16:00	3.3	SSE
4/8/2023 17:00	3.2	SSE
4/8/2023 18:00	3.1	SSE
4/8/2023 19:00	2.2	SE
4/8/2023 20:00	2.2	SSE
4/8/2023 21:00	0.8	E
4/8/2023 22:00	1.1	SE
4/8/2023 23:00	1.1	SE
4/8/2023 0:00	1.9	S
5/8/2023 1:00	1.4	S
5/8/2023 2:00	0.8	SSE
5/8/2023 3:00	0.3	NE
5/8/2023 4:00	0.3	NW
5/8/2023 5:00	0.3	SSE
5/8/2023 6:00	0.3	SE
5/8/2023 7:00	0.3	E
5/8/2023 8:00	0.3	E
5/8/2023 9:00	1.1	S
5/8/2023 10:00	0.3	NEE
5/8/2023 11:00	0.8	SW

Date	Wind Speed (m/s)	Wind Direction
5/8/2023 12:00	0.8	NNW
5/8/2023 13:00	1.7	S
5/8/2023 14:00	2.2	S
5/8/2023 15:00	2.5	S
5/8/2023 16:00	3.3	SSW
5/8/2023 17:00	2.9	SW
5/8/2023 18:00	2.5	SW
5/8/2023 19:00	2.2	S
5/8/2023 20:00	0.8	SE
5/8/2023 21:00	2.8	SW
5/8/2023 22:00	2.4	S
5/8/2023 23:00	1.4	S
5/8/2023 0:00	0.8	SSW
6/8/2023 1:00	0.3	SSE
6/8/2023 2:00	0.8	SW
6/8/2023 3:00	1.1	SSE
6/8/2023 4:00	1.4	S
6/8/2023 5:00	0.6	SEE
6/8/2023 6:00	0.3	SW
6/8/2023 7:00	0.3	SEE
6/8/2023 8:00	0.6	NE
6/8/2023 9:00	0.8	NNW
6/8/2023 10:00	2.2	SWW
6/8/2023 11:00	0.8	NW
6/8/2023 12:00	0.7	NE
6/8/2023 13:00	3.1	S
6/8/2023 14:00	2.5	S

Date	Wind Speed (m/s)	Wind Direction
6/8/2023 15:00	3.1	S
6/8/2023 16:00	1.7	SW
6/8/2023 17:00	1.8	S
6/8/2023 18:00	2.8	SSW
6/8/2023 19:00	2.5	SSW
6/8/2023 20:00	1.1	SEE
6/8/2023 21:00	1.4	SSE
6/8/2023 22:00	1.4	SE
6/8/2023 23:00	1.4	SSW
6/8/2023 0:00	1.4	SSE
7/8/2023 1:00	1.4	S
7/8/2023 2:00	1.1	SE
7/8/2023 3:00	0.8	SE
7/8/2023 4:00	0.0	N
7/8/2023 5:00	0.0	N
7/8/2023 6:00	0.3	E
7/8/2023 7:00	0.0	NEE
7/8/2023 8:00	0.0	SSE
7/8/2023 9:00	1.1	SSE
7/8/2023 10:00	1.4	NWW
7/8/2023 11:00	0.3	E
7/8/2023 12:00	0.6	NNE
7/8/2023 13:00	0.8	NEE
7/8/2023 14:00	0.8	SW
7/8/2023 15:00	0.3	NW
7/8/2023 16:00	0.8	SEE
7/8/2023 17:00	1.9	S

Date	Wind Speed (m/s)	Wind Direction
7/8/2023 18:00	1.1	SSE
7/8/2023 19:00	2.2	SW
7/8/2023 20:00	1.9	SSE
7/8/2023 21:00	1.1	SE
7/8/2023 22:00	1.5	SSE
7/8/2023 23:00	1.4	SSE
7/8/2023 0:00	1.1	SE
8/8/2023 1:00	1.7	S
8/8/2023 2:00	1.7	S
8/8/2023 3:00	1.4	S
8/8/2023 4:00	0.6	SE
8/8/2023 5:00	0.8	S
8/8/2023 6:00	0.0	E
8/8/2023 7:00	0.3	S
8/8/2023 8:00	0.3	NE
8/8/2023 9:00	0.8	NE
8/8/2023 10:00	0.3	N
8/8/2023 11:00	1.1	NW
8/8/2023 12:00	1.5	W
8/8/2023 13:00	1.7	SSW
8/8/2023 14:00	1.4	NW
8/8/2023 15:00	1.4	SW
8/8/2023 16:00	1.4	NNW
8/8/2023 17:00	1.9	NW
8/8/2023 18:00	1.4	S
8/8/2023 19:00	1.4	SSE
8/8/2023 20:00	2.2	S

Date	Wind Speed (m/s)	Wind Direction
8/8/2023 21:00	0.8	SSE
8/8/2023 22:00	0.8	SSE
8/8/2023 23:00	1.1	S
8/8/2023 0:00	0.8	S
9/8/2023 1:00	0.3	S
9/8/2023 2:00	1.0	SE
9/8/2023 3:00	0.0	SE
9/8/2023 4:00	0.3	E
9/8/2023 5:00	1.4	S
9/8/2023 6:00	0.3	E
9/8/2023 7:00	0.3	W
9/8/2023 8:00	1.4	SW
9/8/2023 9:00	0.6	NNW
9/8/2023 10:00	0.6	NW
9/8/2023 11:00	0.3	W
9/8/2023 12:00	0.7	SW
9/8/2023 13:00	0.8	NW
9/8/2023 14:00	1.4	SWW
9/8/2023 15:00	0.8	W
9/8/2023 16:00	2.2	NW
9/8/2023 17:00	1.5	SW
9/8/2023 18:00	3.1	SSW
9/8/2023 19:00	1.1	SSW
9/8/2023 20:00	1.7	SSW
9/8/2023 21:00	1.4	S
9/8/2023 22:00	1.3	S
9/8/2023 23:00	1.7	SSE

Date	Wind Speed (m/s)	Wind Direction
9/8/2023 0:00	1.1	SE
10/8/2023 1:00	0.3	N
10/8/2023 2:00	1.0	S
10/8/2023 3:00	0.8	S
10/8/2023 4:00	0.8	NE
10/8/2023 5:00	1.1	SSE
10/8/2023 6:00	0.3	E
10/8/2023 7:00	0.0	SE
10/8/2023 8:00	0.3	SWW
10/8/2023 9:00	0.8	SW
10/8/2023 10:00	0.3	NW
10/8/2023 11:00	0.8	E
10/8/2023 12:00	1.1	NEE
10/8/2023 13:00	0.3	SE
10/8/2023 14:00	0.3	NNW
10/8/2023 15:00	1.1	N
10/8/2023 16:00	0.3	NW
10/8/2023 17:00	0.0	SSE
10/8/2023 18:00	0.3	NNE
10/8/2023 19:00	0.3	NNE
10/8/2023 20:00	0.1	SSE
10/8/2023 21:00	0.0	N
10/8/2023 22:00	0.1	SSE
10/8/2023 23:00	1.1	SSE
10/8/2023 0:00	1.1	S
11/8/2023 1:00	0.0	N
11/8/2023 2:00	1.7	SSE

Date	Wind Speed (m/s)	Wind Direction
11/8/2023 3:00	1.4	S
11/8/2023 4:00	1.7	S
11/8/2023 5:00	1.1	SSE
11/8/2023 6:00	0.3	S
11/8/2023 7:00	0.0	SEE
11/8/2023 8:00	0.3	SEE
11/8/2023 9:00	0.3	SSW
11/8/2023 10:00	1.7	S
11/8/2023 11:00	1.4	W
11/8/2023 12:00	0.3	NNW
11/8/2023 13:00	0.8	NNW
11/8/2023 14:00	1.1	S
11/8/2023 15:00	2.2	SE
11/8/2023 16:00	1.9	SSW
11/8/2023 17:00	2.6	SSW
11/8/2023 18:00	2.5	SW
11/8/2023 19:00	0.3	NEE
11/8/2023 20:00	1.1	SSW
11/8/2023 21:00	1.4	SEE
11/8/2023 22:00	1.1	SE
11/8/2023 23:00	0.0	N
11/8/2023 0:00	0.8	SE
12/8/2023 1:00	1.4	SSE
12/8/2023 2:00	0.1	SE
12/8/2023 3:00	1.4	NWW
12/8/2023 4:00	0.3	SEE
12/8/2023 5:00	0.8	SE

Date	Wind Speed (m/s)	Wind Direction
12/8/2023 6:00	0.3	SE
12/8/2023 7:00	0.0	NE
12/8/2023 8:00	0.8	NE
12/8/2023 9:00	0.6	SE
12/8/2023 10:00	1.4	NNW
12/8/2023 11:00	0.3	SSE
12/8/2023 12:00	1.1	S
12/8/2023 13:00	2.8	SSW
12/8/2023 14:00	2.2	SSW
12/8/2023 15:00	1.4	SWW
12/8/2023 16:00	1.1	S
12/8/2023 17:00	1.7	SE
12/8/2023 18:00	1.7	SE
12/8/2023 19:00	1.9	SSE
12/8/2023 20:00	1.1	SE
12/8/2023 21:00	1.1	SSE
12/8/2023 22:00	1.1	SSE
12/8/2023 23:00	1.4	SSE
12/8/2023 0:00	0.8	SE
13/8/2023 1:00	0.8	SE
13/8/2023 2:00	1.0	SE
13/8/2023 3:00	1.1	SE
13/8/2023 4:00	1.1	SSE
13/8/2023 5:00	1.4	S
13/8/2023 6:00	1.7	SSW
13/8/2023 7:00	0.8	SE
13/8/2023 8:00	0.3	SEE

Date	Wind Speed (m/s)	Wind Direction
13/8/2023 9:00	0.6	SE
13/8/2023 10:00	4.4	S
13/8/2023 11:00	0.3	SEE
13/8/2023 12:00	1.0	E
13/8/2023 13:00	1.1	SE
13/8/2023 14:00	2.2	SSW
13/8/2023 15:00	2.2	S
13/8/2023 16:00	1.7	S
13/8/2023 17:00	1.9	SSE
13/8/2023 18:00	1.7	SE
13/8/2023 19:00	1.7	SSE
13/8/2023 20:00	1.1	SSE
13/8/2023 21:00	0.3	SEE
13/8/2023 22:00	0.0	SE
13/8/2023 23:00	0.0	E
13/8/2023 0:00	0.0	SSE
14/8/2023 1:00	0.8	SE
14/8/2023 2:00	1.4	S
14/8/2023 3:00	0.8	SEE
14/8/2023 4:00	1.4	SE
14/8/2023 5:00	0.3	SEE
14/8/2023 6:00	0.0	N
14/8/2023 7:00	0.0	E
14/8/2023 8:00	0.3	NE
14/8/2023 9:00	1.1	SWW
14/8/2023 10:00	2.5	SW
14/8/2023 11:00	0.8	NEE

Date	Wind Speed (m/s)	Wind Direction
14/8/2023 12:00	0.8	SEE
14/8/2023 13:00	1.1	SSW
14/8/2023 14:00	1.7	NWW
14/8/2023 15:00	1.7	SSW
14/8/2023 16:00	0.3	NWW
14/8/2023 17:00	0.8	S
14/8/2023 18:00	1.7	SW
14/8/2023 19:00	0.8	SSE
14/8/2023 20:00	0.8	SSE
14/8/2023 21:00	1.1	SSE
14/8/2023 22:00	1.1	SSE
14/8/2023 23:00	0.0	E
14/8/2023 0:00	1.1	S
15/8/2023 1:00	1.4	SSE
15/8/2023 2:00	0.8	SSE
15/8/2023 3:00	0.6	SSE
15/8/2023 4:00	0.3	S
15/8/2023 5:00	0.3	SSE
15/8/2023 6:00	0.0	N
15/8/2023 7:00	0.1	SEE
15/8/2023 8:00	0.8	SE
15/8/2023 9:00	1.1	SE
15/8/2023 10:00	1.1	NNW
15/8/2023 11:00	0.6	N
15/8/2023 12:00	0.4	S
15/8/2023 13:00	1.9	W
15/8/2023 14:00	1.7	S

Date	Wind Speed (m/s)	Wind Direction
15/8/2023 15:00	1.7	S
15/8/2023 16:00	1.7	SE
15/8/2023 17:00	1.4	SSE
15/8/2023 18:00	2.5	S
15/8/2023 19:00	1.7	SSE
15/8/2023 20:00	1.4	SSE
15/8/2023 21:00	2.2	SSE
15/8/2023 22:00	1.7	SSE
15/8/2023 23:00	1.7	SSE
15/8/2023 0:00	1.4	SSE
16/8/2023 1:00	0.8	SSE
16/8/2023 2:00	0.8	SSE
16/8/2023 3:00	1.1	SSE
16/8/2023 4:00	0.0	SSE
16/8/2023 5:00	0.8	S
16/8/2023 6:00	0.3	S
16/8/2023 7:00	0.0	SSE
16/8/2023 8:00	1.1	W
16/8/2023 9:00	0.8	NNW
16/8/2023 10:00	1.1	SWW
16/8/2023 11:00	2.2	NWW
16/8/2023 12:00	0.8	NNW
16/8/2023 13:00	2.5	NWW
16/8/2023 14:00	1.4	NW
16/8/2023 15:00	1.9	NW
16/8/2023 16:00	1.4	SE
16/8/2023 17:00	1.5	S

Date	Wind Speed (m/s)	Wind Direction
16/8/2023 18:00	2.8	SW
16/8/2023 19:00	1.7	SE
16/8/2023 20:00	1.7	SSE
16/8/2023 21:00	2.5	S
16/8/2023 22:00	1.1	SSE
16/8/2023 23:00	1.4	S
16/8/2023 0:00	1.7	SSE
17/8/2023 1:00	1.7	SSW
17/8/2023 2:00	1.7	SSW
17/8/2023 3:00	1.4	S
17/8/2023 4:00	0.8	SW
17/8/2023 5:00	0.0	SSW
17/8/2023 6:00	0.3	W
17/8/2023 7:00	0.8	W
17/8/2023 8:00	1.4	SWW
17/8/2023 9:00	1.7	SW
17/8/2023 10:00	1.7	SWW
17/8/2023 11:00	1.4	W
17/8/2023 12:00	1.4	NW
17/8/2023 13:00	0.8	SSW
17/8/2023 14:00	0.3	N
17/8/2023 15:00	0.3	NEE
17/8/2023 16:00	0.8	SEE
17/8/2023 17:00	1.0	SSE
17/8/2023 18:00	0.3	NWW
17/8/2023 19:00	1.4	SW
17/8/2023 20:00	0.8	NNE

Date	Wind Speed (m/s)	Wind Direction
17/8/2023 21:00	1.1	SSE
17/8/2023 22:00	1.4	SE
17/8/2023 23:00	1.1	SSE
17/8/2023 0:00	1.4	SSE
18/8/2023 1:00	1.1	SE
18/8/2023 2:00	0.3	NE
18/8/2023 3:00	1.7	S
18/8/2023 4:00	1.1	S
18/8/2023 5:00	0.8	SE
18/8/2023 6:00	0.8	SSE
18/8/2023 7:00	0.3	NNE
18/8/2023 8:00	1.1	SWW
18/8/2023 9:00	1.7	W
18/8/2023 10:00	0.3	S
18/8/2023 11:00	1.4	N
18/8/2023 12:00	1.4	NNE
18/8/2023 13:00	0.6	SSE
18/8/2023 14:00	0.6	E
18/8/2023 15:00	0.3	NEE
18/8/2023 16:00	0.3	N
18/8/2023 17:00	1.0	W
18/8/2023 18:00	2.8	SSE
18/8/2023 19:00	1.4	S
18/8/2023 20:00	0.8	NE
18/8/2023 21:00	0.0	N
18/8/2023 22:00	0.0	N
18/8/2023 23:00	0.0	SE

Date	Wind Speed (m/s)	Wind Direction
18/8/2023 0:00	1.1	SSE
19/8/2023 1:00	0.8	SSE
19/8/2023 2:00	0.3	NEE
19/8/2023 3:00	0.3	E
19/8/2023 4:00	0.0	N
19/8/2023 5:00	0.3	NNE
19/8/2023 6:00	0.0	N
19/8/2023 7:00	0.0	NNE
19/8/2023 8:00	0.0	SE
19/8/2023 9:00	0.8	NE
19/8/2023 10:00	1.7	SSE
19/8/2023 11:00	2.5	SE
19/8/2023 12:00	5.3	SSE
19/8/2023 13:00	1.1	NE
19/8/2023 14:00	1.7	SSW
19/8/2023 15:00	0.3	S
19/8/2023 16:00	1.7	SSE
19/8/2023 17:00	1.5	SSE
19/8/2023 18:00	0.3	S
19/8/2023 19:00	2.2	SSE
19/8/2023 20:00	1.4	S
19/8/2023 21:00	1.4	SSE
19/8/2023 22:00	0.3	SSE
19/8/2023 23:00	1.7	S
19/8/2023 0:00	1.1	SE
20/8/2023 1:00	1.1	SSE
20/8/2023 2:00	0.3	NEE

Date	Wind Speed (m/s)	Wind Direction
20/8/2023 3:00	0.3	SEE
20/8/2023 4:00	0.3	SE
20/8/2023 5:00	0.8	E
20/8/2023 6:00	0.3	SSE
20/8/2023 7:00	1.4	SSE
20/8/2023 8:00	1.1	SEE
20/8/2023 9:00	0.3	NNW
20/8/2023 10:00	0.3	NNE
20/8/2023 11:00	0.6	W
20/8/2023 12:00	0.3	E
20/8/2023 13:00	1.7	S
20/8/2023 14:00	2.2	S
20/8/2023 15:00	1.9	SSE
20/8/2023 16:00	2.5	SE
20/8/2023 17:00	2.8	SSE
20/8/2023 18:00	1.1	SSE
20/8/2023 19:00	1.7	SSE
20/8/2023 20:00	1.7	SSE
20/8/2023 21:00	0.8	SSE
20/8/2023 22:00	0.3	NE
20/8/2023 23:00	0.0	SSE
20/8/2023 0:00	0.8	SSE
21/8/2023 1:00	0.0	NE
21/8/2023 2:00	0.0	E
21/8/2023 3:00	0.0	SSE
21/8/2023 4:00	0.0	NE
21/8/2023 5:00	0.0	N

Date	Wind Speed (m/s)	Wind Direction
21/8/2023 6:00	0.0	N
21/8/2023 7:00	0.0	N
21/8/2023 8:00	1.1	NEE
21/8/2023 9:00	0.6	NNE
21/8/2023 10:00	0.3	SEE
21/8/2023 11:00	0.3	SSE
21/8/2023 12:00	2.6	SSE
21/8/2023 13:00	3.3	SE
21/8/2023 14:00	3.3	SSE
21/8/2023 15:00	2.8	SSE
21/8/2023 16:00	3.3	S
21/8/2023 17:00	2.4	SE
21/8/2023 18:00	1.4	SSE
21/8/2023 19:00	1.1	SSE
21/8/2023 20:00	1.4	SSE
21/8/2023 21:00	1.1	SSE
21/8/2023 22:00	1.1	SSE
21/8/2023 23:00	1.1	SSE
21/8/2023 0:00	1.7	SEE
22/8/2023 1:00	0.3	SSE
22/8/2023 2:00	0.8	SEE
22/8/2023 3:00	0.8	SEE
22/8/2023 4:00	1.1	SSE
22/8/2023 5:00	0.0	SEE
22/8/2023 6:00	0.6	SE
22/8/2023 7:00	0.3	E
22/8/2023 8:00	1.1	SE

Date	Wind Speed (m/s)	Wind Direction
22/8/2023 9:00	1.9	S
22/8/2023 10:00	1.4	SEE
22/8/2023 11:00	1.1	NNW
22/8/2023 12:00	2.6	SSE
22/8/2023 13:00	0.6	NW
22/8/2023 14:00	0.8	NE
22/8/2023 15:00	1.1	SEE
22/8/2023 16:00	0.6	SEE
22/8/2023 17:00	2.2	SSE
22/8/2023 18:00	1.7	SSE
22/8/2023 19:00	2.5	SSE
22/8/2023 20:00	2.2	SSE
22/8/2023 21:00	1.7	SSE
22/8/2023 22:00	1.7	SSE
22/8/2023 23:00	1.4	SSE
22/8/2023 0:00	0.8	SSE
23/8/2023 1:00	1.1	SE
23/8/2023 2:00	1.1	SSE
23/8/2023 3:00	1.1	SE
23/8/2023 4:00	0.3	SE
23/8/2023 5:00	1.1	SE
23/8/2023 6:00	1.1	SSE
23/8/2023 7:00	0.6	SE
23/8/2023 8:00	1.1	SE
23/8/2023 9:00	1.1	SSE
23/8/2023 10:00	1.7	SE
23/8/2023 11:00	1.9	SE

Date	Wind Speed (m/s)	Wind Direction
23/8/2023 12:00	2.5	SSE
23/8/2023 13:00	2.2	SEE
23/8/2023 14:00	1.7	SSE
23/8/2023 15:00	2.5	SE
23/8/2023 16:00	2.5	SE
23/8/2023 17:00	1.7	SSE
23/8/2023 18:00	2.5	SSE
23/8/2023 19:00	1.7	SSE
23/8/2023 20:00	1.4	SEE
23/8/2023 21:00	0.6	SEE
23/8/2023 22:00	0.3	SEE
23/8/2023 23:00	0.3	NE
23/8/2023 0:00	0.0	SSW
24/8/2023 1:00	0.3	NNE
24/8/2023 2:00	0.0	NNE
24/8/2023 3:00	0.3	NE
24/8/2023 4:00	0.3	NEE
24/8/2023 5:00	1.1	NWW
24/8/2023 6:00	0.3	NE
24/8/2023 7:00	0.0	NE
24/8/2023 8:00	0.3	NNE
24/8/2023 9:00	0.0	NNE
24/8/2023 10:00	1.7	NE
24/8/2023 11:00	1.7	NE
24/8/2023 12:00	1.4	S
24/8/2023 13:00	0.6	S
24/8/2023 14:00	0.8	W

Date	Wind Speed (m/s)	Wind Direction
24/8/2023 15:00	0.8	SE
24/8/2023 16:00	1.7	SSE
24/8/2023 17:00	1.7	SSE
24/8/2023 18:00	0.8	S
24/8/2023 19:00	0.8	SSE
24/8/2023 20:00	0.3	SEE
24/8/2023 21:00	0.3	NEE
24/8/2023 22:00	0.3	SE
24/8/2023 23:00	0.0	N
24/8/2023 0:00	0.0	NNW
25/8/2023 1:00	0.0	NNW
25/8/2023 2:00	0.1	E
25/8/2023 3:00	0.0	SSE
25/8/2023 4:00	0.3	SEE
25/8/2023 5:00	0.0	N
25/8/2023 6:00	0.0	NNW
25/8/2023 7:00	0.1	SEE
25/8/2023 8:00	1.1	NEE
25/8/2023 9:00	0.8	NE
25/8/2023 10:00	0.8	NE
25/8/2023 11:00	0.6	NW
25/8/2023 12:00	0.3	NEE
25/8/2023 13:00	2.2	NWW
25/8/2023 14:00	2.5	SW
25/8/2023 15:00	0.3	NNW
25/8/2023 16:00	0.8	E
25/8/2023 17:00	0.8	NE

Date	Wind Speed (m/s)	Wind Direction
25/8/2023 18:00	0.3	NW
25/8/2023 19:00	0.3	E
25/8/2023 20:00	0.3	NE
25/8/2023 21:00	0.0	NEE
25/8/2023 22:00	0.0	NNE
25/8/2023 23:00	0.0	NNE
26/8/2023 0:00	0.3	NEE
26/8/2023 1:00	0.0	NEE
26/8/2023 2:00	0.0	N
26/8/2023 3:00	0.3	SSE
26/8/2023 4:00	0.0	N
26/8/2023 5:00	0.3	E
26/8/2023 6:00	0.0	E
26/8/2023 7:00	0.3	SEE
26/8/2023 8:00	0.3	E
26/8/2023 9:00	0.6	NNE
26/8/2023 10:00	0.3	N
26/8/2023 11:00	0.6	N
26/8/2023 12:00	1.4	SSE
26/8/2023 13:00	1.1	SSW
26/8/2023 14:00	2.5	SSE
26/8/2023 15:00	2.8	SSE
26/8/2023 16:00	2.8	SSE
26/8/2023 17:00	1.7	SSE
26/8/2023 18:00	1.7	SE
26/8/2023 19:00	1.4	SSE
26/8/2023 20:00	1.1	SSE

Date	Wind Speed (m/s)	Wind Direction
26/8/2023 21:00	0.8	E
26/8/2023 22:00	0.0	NE
26/8/2023 23:00	0.0	N
27/8/2023 0:00	0.3	NE
27/8/2023 1:00	0.0	N
27/8/2023 2:00	0.1	NNE
27/8/2023 3:00	0.0	N
27/8/2023 4:00	0.0	N
27/8/2023 5:00	0.0	E
27/8/2023 6:00	0.3	SEE
27/8/2023 7:00	0.3	SE
27/8/2023 8:00	0.8	SE
27/8/2023 9:00	0.3	S
27/8/2023 10:00	0.8	SEE
27/8/2023 11:00	0.3	NNW
27/8/2023 12:00	0.3	NEE
27/8/2023 13:00	1.1	SEE
27/8/2023 14:00	2.2	SSE
27/8/2023 15:00	2.8	SSE
27/8/2023 16:00	2.5	SSE
27/8/2023 17:00	2.2	SE
27/8/2023 18:00	1.7	SSE
27/8/2023 19:00	1.7	SE
27/8/2023 20:00	1.7	SSE
27/8/2023 21:00	0.3	E
27/8/2023 22:00	0.0	NNW
27/8/2023 23:00	0.8	NEE

Date	Wind Speed (m/s)	Wind Direction
28/8/2023 0:00	0.0	N
28/8/2023 1:00	0.0	NNW
28/8/2023 2:00	0.0	N
28/8/2023 3:00	0.0	N
28/8/2023 4:00	0.3	SSE
28/8/2023 5:00	0.3	SEE
28/8/2023 6:00	0.3	SSE
28/8/2023 7:00	0.4	SSE
28/8/2023 8:00	0.3	SSE
28/8/2023 9:00	0.3	S
28/8/2023 10:00	1.7	S
28/8/2023 11:00	1.1	SEE
28/8/2023 12:00	0.0	SEE
28/8/2023 13:00	1.4	SWW
28/8/2023 14:00	0.3	SEE
28/8/2023 15:00	1.9	SSE
28/8/2023 16:00	1.7	SSE
28/8/2023 17:00	2.1	SSE
28/8/2023 18:00	1.9	SSE
28/8/2023 19:00	1.4	SSE
28/8/2023 20:00	1.4	SSE
28/8/2023 21:00	0.3	SE
28/8/2023 22:00	1.1	SSE
28/8/2023 23:00	1.1	SE
29/8/2023 0:00	0.3	E
29/8/2023 1:00	0.0	N
29/8/2023 2:00	0.3	NEE

Date	Wind Speed (m/s)	Wind Direction
29/8/2023 3:00	0.0	N
29/8/2023 4:00	0.3	NE
29/8/2023 5:00	0.3	S
29/8/2023 6:00	0.0	SSE
29/8/2023 7:00	0.1	NEE
29/8/2023 8:00	1.1	NEE
29/8/2023 9:00	1.4	NNE
29/8/2023 10:00	1.7	NE
29/8/2023 11:00	0.3	NE
29/8/2023 12:00	3.1	NE
29/8/2023 13:00	0.8	S
29/8/2023 14:00	0.3	NNW
29/8/2023 15:00	0.3	NNE
29/8/2023 16:00	0.0	NNW
29/8/2023 17:00	0.3	N
29/8/2023 18:00	0.0	NNE
29/8/2023 19:00	0.0	N
29/8/2023 20:00	0.0	NNE
29/8/2023 21:00	0.0	N
29/8/2023 22:00	0.0	NEE
29/8/2023 23:00	0.0	NNW
30/8/2023 0:00	0.3	E
30/8/2023 1:00	1.1	NNE
30/8/2023 2:00	0.0	NNE
30/8/2023 3:00	0.0	N
30/8/2023 4:00	0.0	N
30/8/2023 5:00	0.0	N

Date	Wind Speed (m/s)	Wind Direction
30/8/2023 6:00	0.0	NNE
30/8/2023 7:00	0.0	N
30/8/2023 8:00	0.8	N
30/8/2023 9:00	0.6	NNW
30/8/2023 10:00	0.8	NNE
30/8/2023 11:00	2.2	NE
30/8/2023 12:00	1.5	N
30/8/2023 13:00	1.1	N
30/8/2023 14:00	1.4	NNW
30/8/2023 15:00	0.8	N
30/8/2023 16:00	0.3	N
30/8/2023 17:00	0.3	N
30/8/2023 18:00	0.3	NNW
30/8/2023 19:00	0.0	N
30/8/2023 20:00	0.3	NNW
30/8/2023 21:00	0.3	NNW
30/8/2023 22:00	0.4	NNW
30/8/2023 23:00	0.8	NNW
30/8/2023 0:00	0.0	N
31/8/2023 1:00	0.3	NNW
31/8/2023 2:00	0.4	NNW
31/8/2023 3:00	0.0	N
31/8/2023 4:00	0.0	NNW
31/8/2023 5:00	0.0	NNW
31/8/2023 6:00	0.0	NNW
31/8/2023 7:00	0.3	NNW
31/8/2023 8:00	0.3	NNW

Date	Wind Speed (m/s)	Wind Direction
31/8/2023 9:00	0.8	N
31/8/2023 10:00	0.3	NNW
31/8/2023 11:00	0.3	NNW
31/8/2023 12:00	0.8	NNW
31/8/2023 13:00	0.8	NNW
31/8/2023 14:00	1.1	NNW
31/8/2023 15:00	0.6	NNW
31/8/2023 16:00	0.8	NNW
31/8/2023 17:00	1.1	NNW
31/8/2023 18:00	0.0	NNW
31/8/2023 19:00	0.3	NNE
31/8/2023 20:00	0.0	NNE
31/8/2023 21:00	0.3	NNW
31/8/2023 22:00	0.8	NNW
31/8/2023 23:00	0.8	NNW
1/9/2023 0:00	0.8	NNW

Appendix H
Event and Action Plan

Event and Action Plan for Air Quality (Construction Dust)

Event	Action			
	ET	IEC	ER	Contractor
Action level being exceeded by	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform Contractor, IEC and ER; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Notify Contractor.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
Action level being exceeded by two or more consecutive sampling	1. Identify source; 2. Inform Contractor, IEC and ER; 3. Advise the Contractor and ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with Contractor, IEC and ER; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.
Limit level being exceeded by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; and 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; and 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 3. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 4. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Noise (Construction)

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; and 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; and 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; and 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; and 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure remedial measures properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; and 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action level being exceeded by one sampling	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD.	1. Confirm receipt of notification of exceedance in writing	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice
Action level being exceeded by two or more consecutive sampling	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Consider changes of working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling	1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures.	1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures.

Event and Action Plan for Ecology Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; and 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; and 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; and 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; and 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; and 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix I
Waste Flow Table

Waste Flow Table for Year 2023

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)
2023 Jan	2873.28	Nil	Nil	Nil	2831.62	Nil	28.90	0.18	Nil	Nil	12.58
2023 Feb	1469.44	Nil	Nil	Nil	1395.80	Nil	29.73	0.17	Nil	Nil	43.74
2023 Mar	1137.44	Nil	Nil	Nil	1109.76	Nil	5.86	0.16	Nil	Nil	21.66
2023 Apr	3495.26	Nil	Nil	Nil	3420.40	Nil	46.02	0.18	Nil	Nil	28.66
2023 May	2757.82	195.71	Nil	Nil	2529.95	Nil	9.84	Nil	Nil	Nil	22.32
2023 Jun	4784.60	Nil	Nil	Nil	4593.27	Nil	136.14	0.18	Nil	Nil	55.01
2023 Jul	6784.09	0.00	0.00	0.00	4981.66	1742.00	36.22	0.19	0.00	0.03	23.99
2023 Aug	8120.40	0.00	0.00	0.00	6771.53	1279.80	0.00	0.21	0.00	0.00	68.86
2023 Sep											
2023 Oct											
2023 Nov											
2023 Dec											
Total	31422.33	195.71	0	0	27633.99	3021.80	292.71	1.27	0	0.03	276.82

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
Implementation Status of Environmental Mitigation Measures

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	Air Quality Impact (Construction Phase)		
3.6.1.6	Watering once per every two hours on active works areas to reduce dust emission.	All active works areas during construction phase	Implemented
3.8.1.1	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below shall be carried out to further minimize construction dust impact:		
	• Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.	Construction Sites	Implemented
	• Use of frequent watering for particularly dusty construction areas and areas close to ASRs.		Implemented
	• Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.		Implemented
	• Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.		Implemented
	• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.		Implemented
	• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.		Implemented
	• Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.		N/A
	• Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.		Implemented
	• Imposition of speed controls for vehicles on site haul roads.		Implemented
	• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.		Implemented
	• Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	Noise Impact (Construction Phase)		
4.8.1	Movable noise barriers are recommended for hydraulic breakers mounted on excavators to be adopted during construction.	Construction Sites	N/A
	Good site practices listed below and the noise control requirements stated in EPD's "Recommended Pollution Control Clauses for Construction Contracts" should be included in the Contract Specification for the Contractors to follow and should be implemented to further minimize the potential noise impacts during the construction phase of the Project.		Implemented
	• Quiet PME, such that those listed in EPD's Quality Powered Mechanical Equipment, should be considered for construction works to further minimize the potential construction noise impact.		Implemented
	• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.		Implemented
	• Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme.		Implemented
	• Mobile plant, if any, should be sited as far away from noise sensitive receivers (NSRs) as possible.		N/A
	• 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.		Implemented
	• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs		N/A
	• Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.		N/A
	Water Quality Impact (Construction Phase)		
5.8.1.2	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities	Construction Sites / Construction Phase	Implemented
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

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
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	Implemented
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 caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary	Construction Sites / Construction Phase	Implemented
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	Implemented
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	Implemented
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
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	Implemented
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

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
Waste Management Implication (Construction Phase)			
6.6.1.3	Good Site Practices Recommendations for good site practices during the construction phase include:		
	• 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;	Construction Sites	Implemented
	• Training of site personnel in proper waste management and chemical waste handling procedures;		Implemented
	• Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter;		N/A
	• Arrangement for regular collection of waste for transport off-site and final disposal;		Implemented
	• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;		Implemented
	• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;		Implemented
	• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; and		Implemented
	• A WMP should be prepared and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 19/2005 for details.		Implemented
6.6.1.5	Waste Reduction Measures Recommendations to achieve waste reduction include:		
	• 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;	Construction Sites	Implemented
	• Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;		Implemented
	• Any unused chemicals or those with remaining functional capacity shall be recycled;		N/A
	• Maximising the use of reusable steel formwork to reduce the amount of C&D material;		Implemented
	• Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;		Implemented
	• Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials;		Implemented
	• Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated;		N/A
	• Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and		N/A
	• Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering.		N/A

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.7	Storage of Waste Recommendations to minimise the impacts include:		
	• Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution;	Construction Sites	Implemented
	• Maintain and clean storage areas routinely;		Implemented
	• Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and		Implemented
	• Different locations should be designated to stockpile each material to enhance reuse.		Implemented
6.6.1.8	Collection of Waste 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:		
	• Remove waste in timely manner;	Construction Sites	Implemented
	• Waste collectors should only collect wastes prescribed by their permits;		Implemented
	• Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers;		Implemented
	• 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);		Implemented
	• Waste should be disposed of at licensed waste disposal facilities; and		Implemented
	• Maintain records of quantities of waste generated, recycled and disposed.		Implemented
6.6.1.10	Transportation of Waste In order to monitor the disposal of C&D materials at PFRFs and landfills and to control fly-tipping, a trip-ticket system should be established in accordance with DEVB TCW No. 6/2010. A recording system for the amount of waste generated, recycled and disposed, including the disposal sites, should also be set up. Warning signs should be put up to remind the designated disposal sites. CCTV should be installed at the vehicular entrance and exit of the site as additional measures to prevent fly-tipping.	Transportation Route of Waste / Construction Phase	Implemented
6.6.1.12	Construction and Demolition Material Careful design, planning together with good site management can reduce over-ordering and generation of C&D materials such as concrete, mortar and cement grouts. Formwork should be designed to maximize the use of standard wooden panels, so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse	Construction Sites	N/A
6.6.1.13	The excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below:		
	• A WMP, which becomes part of the EMP, should be prepared in accordance with ETWB TCW No.19/2005;	Construction Sites	Implemented
	• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and		Implemented
	• In order to monitor the disposal of C&D materials at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to DEVB TCW 06/2010).		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
6.6.1.14	It is recommended that specific areas should be provided by the Contractors for sorting and to provide temporary storage areas (if required) for the sorted materials. Control measures for temporary stockpiles on-site should be taken in order to minimise the noise, generation of dust and pollution of water. These measures include:		
	• Surface of stockpiled soil should be regularly wetted with water especially during dry season;	Construction Sites	Implemented
	• Disturbance of stockpile soil should be minimised;		Implemented
	• Stockpiled soil should be properly covered with tarpaulin especially when heavy storms are predicted; and		Implemented
	• Stockpiling areas should be enclosed where space is available.		Implemented
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	Implemented
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	Implemented
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	Implemented
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

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
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	Implemented
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 be found with potential ACM, sufficient and reasonable lead time shall be allowed for preparation, vetting and implementation of Asbestos Investigation Report and Asbestos Abatement Plan in accordance with Air Pollution Control Ordinance before commencement of any demolition or site clearance work.	Demolition	N/A
Land Contamination			
7.8.1.2 - 7.8.1.3;7.8.2.1	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).	Existing YLSTW /Construction Phase (after decommissioning of the concerned facilities / areas but prior to the construction works at the concerned facilities / areas)	Implemented
7.8.3.1	The mitigation measures will be recommended in the RAP and would typically include the following:		
	• Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;	Project Site / Construction Phase	Implemented
	• Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material (or treated soil) after excavation;		N/A
	• 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.		Implemented
	• 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;		Implemented
	• Speed control for the trucks carrying contaminated materials shall be enforced;		Implemented
	• Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and		Implemented
	• 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.		Implemented

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
Ecological Impact (Terrestrial and Aquatic) (Construction Phase)			
8.10.2.1	Avoidance of Recognised Site of Conservation Importance 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	Avoidance of Demolition Works Using Breakers Mounted on Excavators and Percussive Piling during Dry Season 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	Restriction of Construction Hours 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	Minimising Construction Noise Disturbance Impacts through Consideration of Alternative Construction Methods 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
8.10.3.4 – 8.10.3.5	Minimising Construction Noise Disturbance Impacts Through Careful Phasing of Construction Activities 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. 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.	Project site / Construction Phase	Implemented
8.10.3.6 – 8.10.3.8	Minimising Construction Noise Disturbance Impacts through Use of Noise Barriers 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. 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. The contractor should provide enclosure for construction equipment, especially static plants, as appropriate to minimise the noise disturbance as far as practicable.	Construction sites / Construction Phase	Implemented
8.10.3.9	Use of Quality Powered Mechanical Equipment The contractor should source QPMEs for construction as far as practicable to further minimise the overall construction noise and other disturbance to the nearby wetland habitats and associated waterbirds to the maximum practical extent.	Construction sites / Construction Phase	Implemented
Ecology & Fisheries Impact			
8.12.1.4, 9.7	Groundwater observation wells and recharge wells will be provided at the northern and western side of the site. Groundwater table will be closely monitored at the observation well. In case of any unlikely events of abnormal drawdown of groundwater table near the excavation area, groundwater dewatering will stop and water will be pumped into the recharge wells to recover the normal groundwater table as necessary.	Construction Phase	N/A

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
	Fisheries Impact		
9.7	The implementation of good site practices during construction could minimise the potential water quality impacts from the land-based construction works. Mitigation measures recommended in the Water Quality Impact Assessment (Section 5) for controlling water quality impact would also serve to protect fisheries resources and activities from indirect impacts.	Construction and Operation Phase	N/A
	Landscape and Visual Impact		
Table 10.11	<u>Preservation of Existing Vegetation (CM1)</u> All the existing Trees to be retained and not to be affected by the Project shall be carefully protected during construction accordance with DEVB TCW No. 7/2015 - Tree Preservation and the latest Guidelines on Tree Preservation during Development issued by GLTM Section of DevB. Any existing vegetation in landscaped areas and natural terrain not to be affected by the Project shall be carefully preserved.	Project site / Construction Phase	Implemented
	<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
	<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
	<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
	<u>Erection of Decorative Screen Hoarding (CM5)</u> Site hoardings, if any, shall be painted in dull green colour	Project site / Construction Phase	Implemented
	<u>Management of Construction Activities and Facilities (CM6)</u> Construction activities shall be well scheduled and avoid powered mechanical equipment's operating simultaneously. All stockpiling areas and idled area shall be covered by tarpaulin sheet or hydroseeded as far as possible.	Project site / Construction Phase	Implemented
	Hazard to Life (Construction Phase)		
11.5.6.9-11.5.6.12	• Implementation of those major construction works and movement of plants and vehicles would be stringently controlled to have a setback of at least 15m clear distance, or physical barrier with an empty digester / gas holder from the digesters / gas holders in operation;	Project site / Construction Phase	N/A
	• For those construction works to be carried out in close proximity to the 15m zone from digesters / gas holders in operation, the height of plants for those major construction shall be limited to 15m such that the plants would not damage digesters /gas holders in such incident as plant collapse or overturning;		N/A
	• Whenever practicable, the construction sequence shall be arranged with empty unit(s) for separating the major construction works from these digesters / gas holders in use; and		N/A
	• Physical barriers such as concrete blocks shall be set up at the 15m zone in order to avoid those construction plants or vehicles from colliding to the digester / gas holder units in use.		N/A

EIA Ref.	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Status
11.5.8	• Method statements and risk assessments shall be prepared and safety control measures shall be in place before commencement of work	Project site / Construction Phase	Implemented
	• All work procedures shall be complied with the operating plant procedures or guidelines and regulatory requirements;		Implemented
	• Work permit system, on-site pre-work risk assessment and emergency response procedure shall be in place before commencement of work;		Implemented
	• All construction workers shall equip with appropriate personal protective equipment (PPE) when working at the Project Site;		Implemented
	• Safety training and briefings shall be provided to all construction workers;		Implemented
	• Regular site safety inspections shall be conducted during the construction phase of the Project;		Implemented
11.9.1.2	• Ensure speed limit enforcement is specified in the contractor's method statement to limit the speed of construction vehicles onsite;	Project site / Construction Phase	Implemented
	• Conduct speed checks to ensure enforcement of speed limits and to ensure adequate site access control;		N/A
	• A lifting plan, with detailed risk assessment, should be prepared and endorsed for heavy lifting of large equipment;		Implemented
	• Vehicle crash barriers should be provided between the construction site and the operating biogas facilities;		N/A
	• Ensure that a hazardous are classification study is conducted and hazardous area maps are updated before the start of the construction activities to ensure ignition sources are controlled during both construction and operation phases;		Implemented
	• Ensure work permit system for hot work activities within the Project Site is specified in the contractor's method statement to minimize and control the ignition sources during the construction phase;		Implemented
	• Ensure effective communication system / protocol is in place between the contractors and the operation staff;		Implemented
	• 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;		Implemented
	• 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;		Implemented
	• 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.		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
Weather and Meteorological Conditions

July 2023 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)		
July 2023						
1	1006.3	30.7	28.2	26.3	90	10
2	1007.5	30.6	27	26	96	8.5
3	1008.4	32.4	28.7	25.8	89	0.5
4	1008.4	32.2	28	25.5	92	11
5	1008.1	34.2	30.2	26.8	82	0
6	1008.6	33.9	30.2	27.4	80	2.5
7	1009.3	34.4	30.5	27.1	78	0
8	1010	34.8	30.7	27	78	0
9	1009.5	35	30.9	27.5	78	0
10	1008.1	35.3	30.9	27.7	78	0
11	1008.1	35.4	31.3	27.9	76	0
12	1007.9	35.4	30.7	27.3	79	0
13	1006.5	35.5	30.4	26	78	0
14	1004.2	36.4	31.4	26.8	76	0
15	1000.6	38.3	30.7	25.5	81	16.5
16	998	33.1	28.6	25.2	89	10.5
17	997.5	29.9#	28	25.7#	89	67
18	1004.1	31.4#	28.8	26.3#	87	9.5
19	1007.4#	30.8#	28.4#	25.8#	90#	1.5#
20	1008.2	33.7#	29.4	26.2#	83	0
21	1009.5	33.3	29.1	26	84	0
22	1010.6	33.4	29.5	26.3	83	0
23	1009.3	34.3	29.4	26	84	0
24	1007.5	34.1	29.6	26.1	83	0
25	1006.1	35.2#	30.3	26.3#	79	0
26	1002	37.6	32	27.7	78	0
27	997.6	38	31.8	28.1	77	1
28	996.6	37.2	32	27.6	76	0
29	1001.9	31	28.7	25.6	93	44
30	1005.2	31.5	28.1	26	93	10
31	1006	32.8	28.1	25.8	91	26

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

August 2023 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)		
August 2023						
1	1004.7	32.2	29.3	27.9	80	Trace
2	1003.7	34.6	30.4	27.9	70	0
3	1002.8	35.1	30.8	27.9	73	0
4	1004.7	33.5	30.5	28.3	77	2.6
5	1004.5	33	30.4	28.3	79	5.9
6	1002.4	33	30.3	29.2	78	Trace
7	1001.8	32.4	30.1	28	76	1.6
8	1003.6	33.3	30.3	28.9	74	0
9	1004.9	32.8	30.3	28.7	76	Trace
10	1004.7	32.1	29.2	27.5	82	11.1
11	1003.5	30.1	27.8	25.7	85	26.4
12	1003.5	32.1	29	26.6	79	0.9
13	1003.7	29.6	28.5	26.1	84	34.2
14	1005.2	32.2	29.4	27	82	3.6
15	1006.7	32.5	29.9	28.8	80	Trace
16	1006.8	34	30.6	28.8	78	0
17	1005.2	32	30	29	82	Trace
18	1004	30.6	29.2	27.2	86	9.3
19	1005.7	30.6	28.8	27.3	84	0.3
20	1007.7	31.5	29.7	28.4	80	0.6
21	1007.8	32.1	29.6	28.2	82	0.2
22	1006.1	33	30	28	79	0.3
23	1005.3	33.5	30.4	28.2	78	0.3
24	1006.7	31.4	29.1	27.5	85	5.7
25	1006.8	30.9	29.3	28.2	83	0.2
26	1005.2	32.8	29.7	27.9	83	0
27	1004.7	32.2	29.3	27.9	80	Trace
28	1003.7	34.6	30.4	27.9	70	0
29	1002.8	35.1	30.8	27.9	73	0
30	1004.7	33.5	30.5	28.3	77	2.6
31	1004.5	33	30.4	28.3	79	5.9

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

Environmental Complaints Log

Reference	Date of Complaint	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply

Cumulative Statistics on Complaints

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

Cumulative Statistics on Notification of Summons and Successful Prosecutions

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

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

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

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	NA		
Noise	NA		
Water Quality	NA		
Chemical and Waste Management	NA		
Land Contamination	NA		
Ecological Impact	NA		
Landscape and Visual Impact	NA		
Permit / Licenses	NA		
Others	NA		

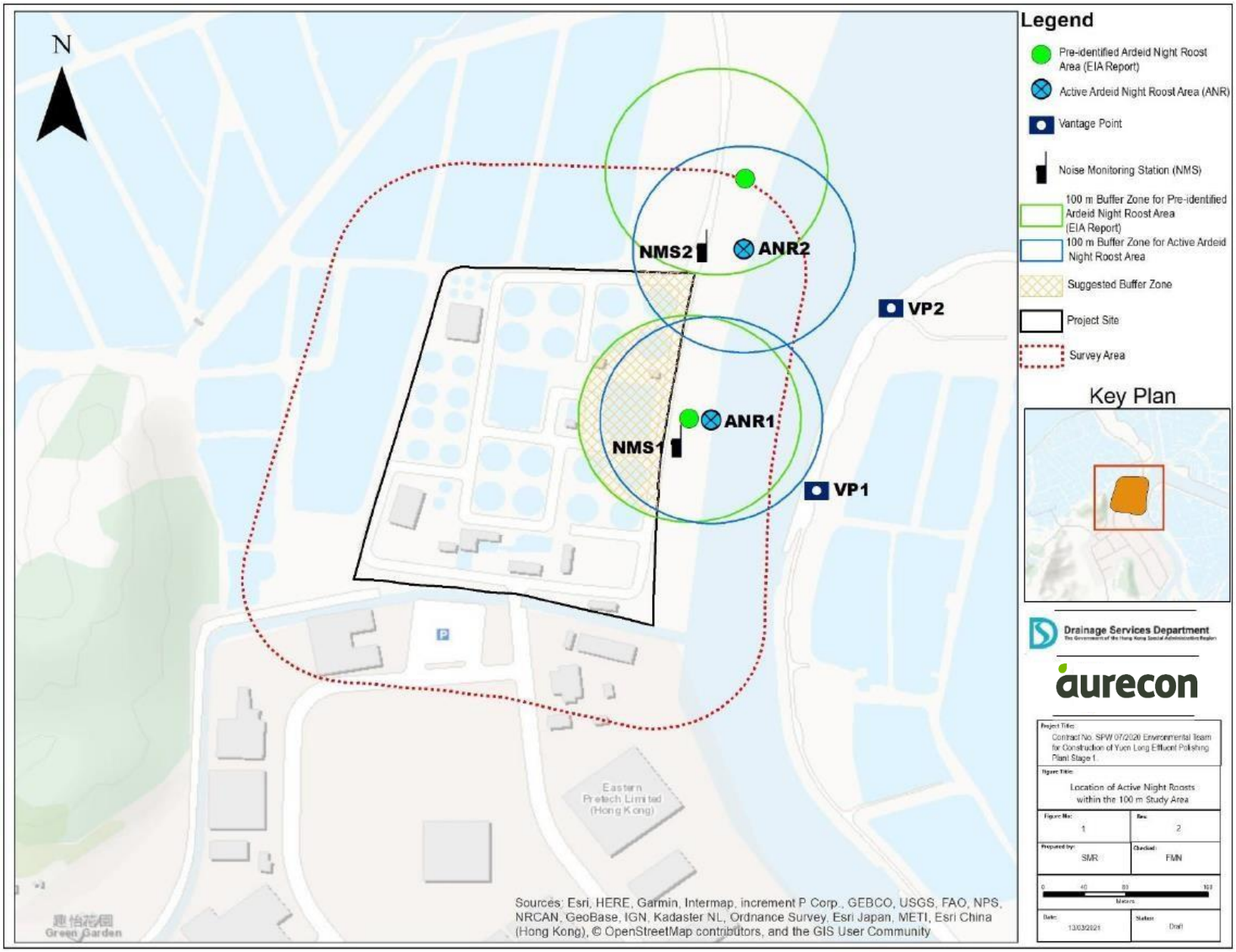
Appendix N
Outstanding Issues and Deficiencies

Summary of Outstanding Issues and Deficiencies in the Reporting Month

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

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

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



O.2 Survey Photos

O.2.1 Pre-roosting Aggregate

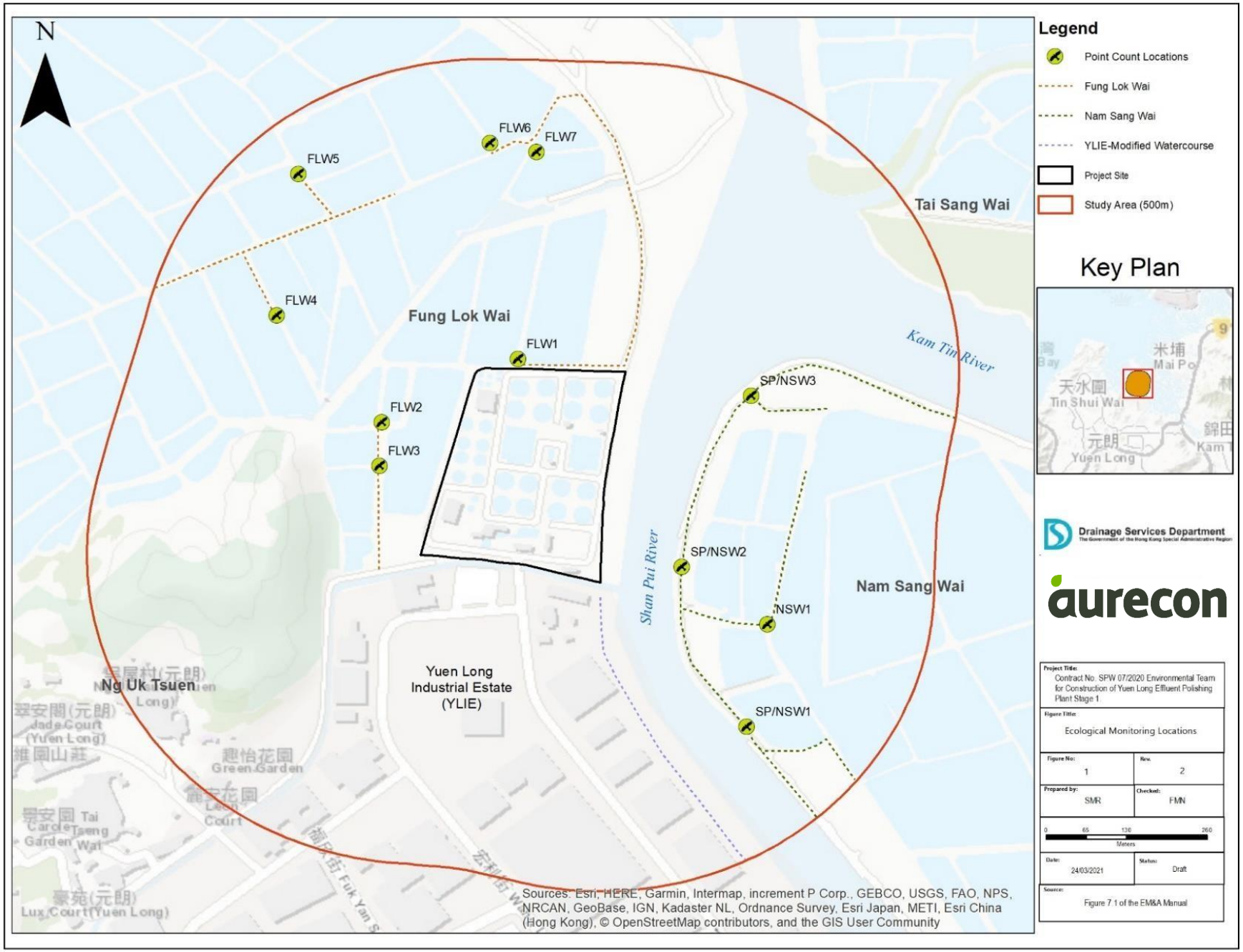
Appendix O.2.1a: Pre-roost aggregate of Great Egret *Ardea alba*, Little Egret *Egretta garzetta* and Chinese Pond Heron *Ardeola bacchus* located northeast of the Project boundary observed on 31 August 2023 around 18:15.

Appendix O.2.1b: Pre-roost aggregate of Grey Heron *Ardea cinerea* located northeast of the Project boundary observed on 31 August 2023 around 18:20.

O.2.2 Active Night Roosting Site and Roosting Substrates

Appendix O.2.2a: Active night roost of Little Egret *Egretta garzetta* located northeast of the Project boundary observed on 31 August 2023 around 18:42.

Appendix P
Ecological Bird Monitoring Area with Locations of Point Count Sites and Transect Route



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

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