# Monthly EM&A Report (September 2021)

0120/20/ED/0398 02

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

Ref.: DSDYLSTWEM00_0_0209L.21

18 October 2021

By E-mail and by Hand

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

Attention: Mr YEUNG H. M. Simon

Dear Mr YEUNG,

**Re: Contract No. SPW 08/2020**
**Independent Environmental Checker for**
**Construction of Yuen Long Effluent Polishing Plant Stage 1**

**Verification of the Monthly EM&A Report (September 2021)**

Reference is made to the Monthly EM&A Report (September 2021) by the ET with Fugro Document No. 0120/20/ED/0398 02 (the Report), which was received via e-mail dated 18 October 2021.

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

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

Yours sincerely,

For and on behalf of
Ramboll Hong Kong Limited

WONG Fu Nam
Independent Environmental Checker

c.c.

| | |
|---|---|
| DSD | Mr LAM Yu Wang |
| Fugro | Mr YU Lap Bong |

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# Document Control

## Document Information

| | |
|---|---|
| Project Title | Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1 |
| Document Title | Monthly EM&A Report (September 2021) |
| Fugro Project No. | 0120/20 |
| Fugro Document No. | 0120/20/ED/0398 |
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## Client Information

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

## Environmental Team

| Initials | Name | Role | Signature |
|---|---|---|---|
| **LB** | **Alvin L.B. Yu** | **Environmental Team Leader** |  |
| **CY** | **Cyrus C.Y. Lai** | **Senior Environmental Consultant** |  |
| **KH** | **Toby K.H. Wan** | **Assistant Environmental Consultant** |  |

# EXECUTIVE SUMMARY

i. This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1". Drainage Services Department (DSD) has appointed Fugro Technical Services Limited (FTS) to undertake the Environmental Team services for the project and implement the EM&A works.

ii. This is the 6th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 September 2021 to 30 September 2021. As informed by the Contractor, major activities in the reporting month were:

- Site formation works at PST no. 7 & 8;
- Removal of existing pipes at PST no. 7 & 8;
- Driven H-pile at IW stage 1 by 4 rigs;
- Demolition of Workshop and Detritor 3C by crusher and breaker;
- Trial pit for Zone 2A & 3 diversion; and
- Removal of sludge at FST no. 7 & 8.

**Breaches of Action and Limit Levels**

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

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

v. No Action / Limit exceedance was recorded for noise levels at stations (NMS1 and NMS2) in close proximity to the active ardeid night roost. One active ardeid night roost site (ANR1) was observed within the Survey Area during the September 2021 monitoring period, while the other night roost site (ANR2) was not currently used by the ardeids.

vi. One exceedance in Action Level was recorded for the ecological monitoring of birds in the reporting month. This was the significant decline in species abundance of all avifauna species (point count method). However, the exceedance was not project-related.

**Land Contamination**

vii. Regular site inspection was carried out to ensure the recommended mitigation measures are properly implemented.

**Complaint Log**

viii. No complaints were received in the reporting period.

**Notifications of any Summons and Successful Prosecutions**

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

**Reporting Change**

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

**Future Key Issues**

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

- Demolition of FST no. 5-8 Changing Room & Waste Storage Area;
- Demolition of carpark;
- Sheet pile installation at IW & PST;
- Driven H-pile at IW & PST;
- Zone 2A, 2B & 3 diversion work; and
- Enviro. GI at workshop & Air Floatation Thickener.

# Contents

# Tables

# Figures



# Appendices

# 1. INTRODUCTION

## 1.1 Background

1.1.1 The existing Yuen Long Sewage Treatment Works (YLSTW) is a secondary sewage treatment works, located at Yuen Long Industrial Estate serves Yuen Long Town, Yuen Long Industrial Estate and Kam Tin areas with a design capacity of 70,000 $m^3$ per day. Based on the latest planning data, the volume of sewage generation from the YLSTW catchment is estimated to increase to 150,000 $m^3$ per day after 20 years. In addition, since YLSTW has been operating for over 30 years and most of its facilities are of out-dated design and reaching the end of their design life, the environmental facilities of the plant will also be upgraded and hence improving the adjacent environment through upgrading the YLSTW to Yuen Long Effluent Polishing Plant (YLEPP). The Location of Proposed Yuen Long Effluent Polishing Plant is given in **Figure 1.**

1.1.2 YLSTW will be reconstructed in two stages to increase its capacity to 150,000 $m^3$ per day. The proposed works, as Stage 1 of the project, will firstly increase the treatment capacity to 100,000 $m^3$ per day. In the course of Stage 1 construction, about half of the existing facilities of YLSTW would be demolished, while the other half would be kept in operation to maintain the sewage treatment service for Yuen Long area.

1.1.3 The Project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) for which Environmental Impact Assessment (EIA) report and Environmental Monitoring and Audit (EM&A) Manual was approved by EPD (Register No.: AEIAR-220/2019) on 25 April 2019. The Environmental Permit (EP) (EP No. EP-565/2019) was issued by EPD on 26 April 2019.

1.1.4 Fugro Technical Services Limited (FTS) has been appointed as the Environmental Team (ET) by Drainage Services Department (DSD) to undertake the Environmental Team services for the Project and implement the EM&A works under the Contract No. DC/2019/10 Yuen Long Effluent Polishing Plant -Main Works for Stage 1 (hereinafter referred as "the Contract").

1.1.5 This is the 6th Monthly EM&A report to document the findings of site inspection activities and EM&A programme for this project from 1 September 2021 to 30 September 2021 (reporting period) and is submitted to fulfil Condition 3.4 of the EP and Section 12.4.1 of the EM&A Manual. According to Condition 4 of the EP, electronic reporting is provided on the internet website to facilitate public inspection of the report.

## 1.2 Project Organization

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

Table 1.1 – Contact Information of Key Personnel

| Party | Position | Name | Telephone |
|---|---|---|---|
| Project Proponent (Drainage Services Department) | Engineer | Mr. Lam Yu Wang | 2594 7473 |
| Engineer's Representative (AECOM Asia Co. Ltd.) | Chief Resident Engineer | Mr. Simon Yeung | 9075 7172 |
| | Senior Resident Engineer | Mr. Patrick Leung | 6124 8838 |
| Independent Environmental Checker (Ramboll Hong Kong Limited) | Independent Environmental Checker (IEC) | Mr. F.N. Wong | 3465 2805 |
| Contractor (Paul Y. - CREC Joint Venture) | Environmental Officer | Ms. Iris Ho | 5490 5271 |
| Environmental Team (Fugro Technical Services Limited) | Environmental Team Leader (ETL) | Mr. Alvin Yu | 3565 4373 |

## 1.3 Construction Programme and Activities

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

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

## 1.4 Works undertaken during the month

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

- Site formation works at PST no. 7 & 8;
- Removal of existing pipes at PST no. 7 & 8;
- Driven H-pile at IW stage 1 by 4 rigs;
- Demolition of Workshop and Detritor 3C by crusher and breaker;
- Trial pit for Zone 2A & 3 diversion; and
- Removal of sludge at FST no. 7 & 8.

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

## 1.5 Status of Environmental Licences, Notification and Permits

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

Table 1.2 – Environmental Licenses, Notification and Permits Summary

| Permit/ Notification/ License | Reference No | Valid From | Valid Till |
|---|---|---|---|
| Environmental Permit | EP-565/2019 | 26-Apr-2019 | NA |
| Notification of Works under APCO | 461616 | 6-Nov-2020 | NA |
| Construction Waste Disposal Billing Account | 7038933 | 20-Nov-2020 | NA |
| Registration as Chemical Waste Producer under WDO | WPN5213-528-P2796-03 | 4-Feb-2021 | NA |
| Construction Noise Permit | GW-RN0218-21 | 18-Apr-2021 | 17-Oct-2021 |
| Construction Noise Permit | GW-RN0529-21 | 1-Aug-2021 | 31-Oct-2021 |
| Construction Noise Permit (Percussive Pilling) | PP-RN0051-21 | 1-Sep-2021 | 30-Oct-2021 |
| Construction Noise Permit | GW-RN0720-21 | 18-Oct-2021 | 17-Apr-2022 |
| Admission Ticket for Disposal of Special Waste at Landfill | Admission Ticket No. 16225 | 3-May-2021 | 2-Nov-2021 (Superseded by Admission Ticket No. 16485) |
| Admission Ticket for Disposal of Special Waste at Landfill | Admission Ticket No. 16331 | 25-Jun-2021 | 31-Oct-2021 (Superseded by Admission Ticket No. 16485) |
| Admission Ticket for Disposal of Special Waste at Landfill | Admission Ticket No. 16485 | 18-Sep-2021 | 15-Oct-2021 |
| Water Pollution Control Ordinance (CAP. 358) Licence pursuant to Section 20 | WT00038102-2021 | 4-Aug-2021 | 31-Aug-2026 |
| Marine Dumping Permit | Ref. Number: 468850, 468851 and 468852 | Under Application | NA |

# 2. AIR QUALITY

## 2.1 Monitoring Requirement

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

## 2.2 Monitoring Equipment

2.2.1 A portable direct reading dust meter was used to carry out the 1-hour TSP monitoring at the designated monitoring stations.

2.2.2 Wind data monitoring equipment is provided at the conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. The equipment installation location is agreed with the ER and the IEC.

2.2.3 The model of the air quality monitoring equipment used is summarized in **Table 2.1**.

Table 2.1 – Air Quality Monitoring Equipment

| Item | Location | Brand | Model | Equipment | Serial No. |
|---|---|---|---|---|---|
| 1 | AM1 | Sibata | Model LD-5R | SIBATA LD-5R Digital Dust Indicator | 761105 |
| 2 | AM2 | | Model LD-5R | | 882149 |
| 3 | | Global Water | GL500-7-2 | Wind Station | 2012000974 |

## 2.3 Monitoring Methodology for Direct Reading Dust Meter

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

Measuring Procedures

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

Equipment Calibration

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

## 2.4 Maintenance and Calibration for Direct Reading Dust Meter

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

## 2.5 Monitoring Locations

2.5.1 In accordance with the EM&A Manual, two air quality monitoring locations, namely AM1, AM2 are covered under Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1".

2.5.2 The most updated locations are summarized in **Table 2.2** and the locations of the air monitoring stations shown in **Figure 2**.

Table 2.2 – Air Quality Monitoring Location

| Monitoring Station | Location |
|---|---|
| AM1 | Topfine Machinery (China) Co. Ltd |
| AM2 | Squatter house at the west of YLSTW |

## 2.6 Monitoring Results

2.6.1 The schedule of air quality monitoring in reporting month is provided in **Appendix E**.

2.6.2 No Action / Limit Level exceedance was recorded for 1-hr TSP at AM1 and AM2.

2.6.3 No effect that arose from the other special phenomena and work progress of the concerned site was noted during the current monitoring month.

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

2.6.5 The monitoring data of 1-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 – Summary of Air Quality Monitoring Results

| Monitoring Station | Average ($\mu g/m^3$) | Range ($\mu g/ m^3$) | Action Level ($\mu g/ m^3$) | Limit Level ($\mu g/ m^3$) |
|---|---|---|---|---|
| 1-hour TSP | | | | |
| AM1 | 42 | 24-59 | 291 | 500 |
| AM2 | 48 | 21-63 | 296 | |

2.6.6 The Action and Limit Levels for air quality monitoring have been set and are presented in **Appendix C**.

2.6.7 The Event and Action Plan for air quality is given in **Appendix H**.

2.6.8 The wind data obtained from the on-site wind station during the reporting period is provided in **Appendix G**.

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

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

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

| Monitoring Station | EIA ID | Predicted Maximum Hourly Average TSP Concentration (µg/ $m^3$) | Maximum 1-hr TSP Monitoring Results in September 2021 (µg/ $m^3$) |
|---|---|---|---|
| 1-hour TSP | | | |
| AM1 | ASR09 | 205-451 | 59 |
| AM2 | ASR11 | | 63 |

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 model of the noise monitoring equipment used is summarized in **Table 3.1**.

Table 3.1 – Construction Noise Monitoring Equipment

| Item | Brand | Model | Equipment | Serial No. |
|---|---|---|---|---|
| 1 | Casella | CEL-63X Series | Casella 63x Digital Sound Level Meter | 0873599 |
| 2 | Casella | CEL-63X Series | Casella 63x Digital Sound Level Meter | 1488304 |
| 3 | Casella | CEL-120/1 | Casella 120 Acoustic Calibrator | 4358251 |
| 4 | Casella | CEL-120/1 | Casella 120 Acoustic Calibrator | 2383707 |
| 5 | SENSOR | AR816 | Anemometer | 2136513 |

## 3.3 Monitoring Parameters and Frequency

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

Table 3.2 – Monitoring Parameters and Frequencies of Noise Monitoring

| Parameter | Frequency |
|---|---|
| LAeq (30 min)<br>(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 considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s. Calibration certificate of the anemometer is provided in **Appendix D**.

## 3.5 Maintenance and Calibration

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

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

## 3.6 Monitoring Locations

3.6.1 In accordance with the EM&A Manual, three noise monitoring locations, namely CM1, CM2 and CM3 are covered under Contract No. SPW 07/2020 "Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1".

3.6.2 The most updated locations are summarized in **Table 3.3** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 3.3 – Construction Noise Monitoring Location

| Monitoring Station ID | Location | Measurements |
|---|---|---|
| CM1 | Squatter house at the north of YLSTW | Free Field |
| CM2 | Squatter house at the west of YLSTW | Free Field |
| CM3 | Squatter house at the east of YLSTW | Free Field |

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

## 3.7 Monitoring Results

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix E**.

3.7.2 No Action / Limit Level exceedance of location CM1, CM2 and CM3 was recorded for construction noise in the reporting month.

3.7.3 During the monitoring month, at CM2, road traffic from the squatter house at the west of Yuen Long STW was observed, at CM3, road traffic from the Nam Sang Wai Road was observed. No effect that arose from the other special phenomena and work progress of the concerned site for CM1 was noted during the current monitoring month.

3.7.4 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix K**.

3.7.5 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix F**.

Table 3.4 – Summary of Construction Noise Monitoring Results

| Time Period | Noise Monitoring Stations | $L_{eq}$ (30min) dB(A) (Range) | Action Level | Limit Level dB(A) |
|---|---|---|---|---|
| 0700-1900 hrs on normal weekdays | CM1 | 53-55 | When one documented complaint is received | 75 |
| | CM2 | 59-64 | | 75 |
| | CM3 | 59-70 | | 75 |

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

3.7.6 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.

3.7.7 The Event and Action Plan for noise is given in **Appendix H**.

## 3.8 Comparison of Noise Monitoring data with EIA Predictions

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

Table 3.5 – Comparison of Noise monitoring data with EIA predictions

| Monitoring Station | EIA ID | Maximum Predicted Mitigated Construction Noise Level $L_{eq}$ (30min) dB(A) | Maximum Construction Noise Level in September 2021 $L_{eq}$ (30min) dB(A) |
|---|---|---|---|
| CM1 | NSR1 | 72 | 55 |
| CM2 | NSR2 | 74 | 64 |
| CM3 | NSR3 | 75 | 70 |

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

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

# 4. WATER QUALITY

## 4.1 Monitoring Requirement

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

## 4.2 Monitoring Equipment

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

Table 4.1 – Water Quality Monitoring and Sampling Equipment

| Parameter | Equipment | Model | Range | Equipment Accuracy | Serial No. |
|---|---|---|---|---|---|
| Temperature, Dissolved Oxygen, Salinity, pH, Turbidity | YSI Water Quality Multiparameter Sonde | Xylem EXO 3 | Temp: -5 to 50°C<br>DO: 0-50mg/L<br>DO%: 0-500%<br>Sal: 0 to 70ppt<br>pH: 0 to 14 pH units<br>Turb: 0-4000NTU | Temp: ±0.2°C<br>DO: ±0.1mg/L or 1% for 0-20mg/L;<br>±5% for 20-50mg/L<br>Sal: ±2% of the reading or 0.2 ppt (whichever greater)<br>pH: ±0.2 units<br>Turb: ±3% or 0.3NTU (FNU)<br>(whichever greater) | 19A105807 |
| | | | | | 19A105808 |
| | | | | | 19E100633 |
| | | | | | 19E100634 |
| Current Velocity and Direction | Current Meter | Valeport Model 106 | Speed: 0.03 to 5 m/s<br>Direction: 0 to 360 | Speed: ± 1.5% of reading above 0.15m/s, ± 0.004 m/s below 0.15m/s<br>Direction: ± 2.5o | 67738 |
| | | River Surveyor M9 | Water Depth: 0-80m | Water Depth: 1%<br>Current speed: ±0.25% of measured velocity or ±0.2cm/s<br>Current direction: ±2degree magnetic | 5906 |
| Water Sampling | Water Sampler | Acrylic Beta Water Bottle Kit, | NA | NA | NA |

| Parameter | Equipment | Model | Range | Equipment Accuracy | Serial No. |
|---|---|---|---|---|---|
| | | Horizontal, 3.2L / 4.2L | | | |
| Positioning | DGPS | Simrad MX521B Smart Antenna with Simrad MX610 CDU | NA | GPS: ±1m | NA |
| Water Depth | Echo Sounder | Garmin ECHO 101 | Maximum depth: 457.2 m | 0.1 m | NA |

## 4.3 Equipment Calibration

4.3.1 All in-situ monitoring instruments shall be checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

4.3.2 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring is uninterrupted even when some equipment is under maintenance or calibration etc.

## 4.4 Monitoring Parameters

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

Table 4.2 – Monitoring Parameters and Frequency

| Parameters | Monitoring Frequency |
|---|---|
| In-situ Measurement<br>Turbidity (in NTU), pH, DO (in mg/L and % of saturation), Temperature (in ˚C), Salinity (in ppt)<br>Laboratory Analysis<br>Suspended Solids | 3 days per week, at mid-flood and mid-ebb tides<br>(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 Fugro Technical Services Limited (HOKLAS Reg: No.015) has been appointed to conduct the laboratory measurement or analysis of water sample in this project.

Quality Assurance / Quality Control

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

For each batch of 20 samples:

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

## 4.7 Monitoring Locations

4.7.1 In accordance with the EM&A Manual, water quality monitoring should be carried out at 3 designated monitoring locations.

4.7.2 The coordinates of the monitoring location stated in the EM&A Manual is summarised in **Table 4.3** and the locations of the water quality monitoring stations shown in **Figure 4**.

Table 4.3 – Coordinates of Water Quality Monitoring Locations

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

| Sampling Location | | Easting | Northing |
|---|---|---|---|
| M3 | Serve as the impact station at downstream location of construction site (Flood Tide) / Serve as the control station at upstream location of construction site (Ebb Tide) | 820 645 | 836 335 |

## 4.8 Monitoring Results

4.8.1 The schedule of water quality monitoring in reporting month is provided in **Appendix E**.

4.8.2 Impact water quality monitoring was conducted at all designated monitoring stations in the reporting month. Impact water quality monitoring results and graphical presentations are provided in **Appendix F**.

4.8.3 The weather conditions during the monitoring are provided in **Appendix K**.

4.8.4 Number of exceedance recorded in the reporting month at each impact stations is summarized in **Table 4.4**.

Table 4.4 – Summary of Water Quality Exceedance

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

4.8.5 During the reporting period, no Action and Limit Level exceedance was recorded for water quality monitoring.

4.8.6 The Event and Action Plan for water quality is given in **Appendix H**.

# 5. ECOLOGY MONITORING

## 5.1 Ardeid Night Roost Monitoring

### 5.1.1 Monitoring Requirement

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

The survey was conducted with the following objectives :

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

### 5.1.2 Monitoring Methodology

#### 5.1.2.1 Monitoring Area

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

#### 5.1.2.2 Monitoring Activity

##### 5.1.2.2.1 Active Ardeid Night Roost

Current Survey focused on the two active night roosts within the Survey Area that were previously confirmed during the pre-construction Survey. These roosts include one that was approximately 40 m east of the Project boundary and another one around 45 m northeast of the mentioned boundary (**Section 3 of the approved Pre-construction Survey Report of Ardeid Night Roost**). Primary data collection with the use of 7x and 10x binoculars; and field guides including the Avifauna of Hong Kong (Carey et al., 2001) and The Birds of Hong Kong and South China (Viney et al., 2005), was from about one hour before sunset time until one hour after sunset with reference to **Section 7.3.10 of the approved EM&A Manual**. Sunset time was according to Hong Kong Observatory (HKO). The survey was conducted on 20 September 2021.

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

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

5.1.2.2.2 Noise Monitoring

**Monitoring Locations, Frequency, Time and Parameters**

The noise monitoring locations were established at 22°28'4.25"N, 114°1'41.32"E; and 22°28'10.43"N, 114°1'42.17"E for NMS1 and NMS2 stations, respectively. Monitoring frequency was only once a month in concurrence with the construction phase monthly monitoring of the active night roosts for correlation. Monitoring time for both stations started around 18:26, the earliest final night roost period recorded during the survey, and lasted for 30 minutes. **Table 5.1** presents the monitoring parameters.

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

| Parameter | Frequency and Period |
|---|---|
| LAeq (30 min)<br>(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 20 September 2021 and started around 17:22 (one hour before sunset) on a low tide condition. During the pre-roost period (PRP), the period when avian individuals (ind.) gather first before flying into a night roost, individuals of Little Egret *Egretta garzetta* (13 ind.) were observed in pre-roost aggregate (PRA) around 17:28 on the exposed mudflat east side (ANR1) of the Project boundary. No PRA was noted at the exposed mudflat northeast (ANR2) of the Project boundary during the period (**Table 5.2**). For the final night roost at around 18:26, Chinese Pond Heron (9 ind.) were observed at ANR1 while no night roost was observed at ANR2. No disturbances (construction related and/or otherwise) to the active night roost areas was observed during the period. Bird droppings were observed within the vicinity of the roosting area located east of the Project boundary.

Table 5.2 – Active Ardeid Night Roost Survey Findings

<table>
<tr><td colspan="3">Date: 20 September 2021</td><td colspan="3">Sunset Time: 18:22<br>Tidal Condition: Low Tide</td></tr>
<tr><td colspan="3">Pre-roost Period</td><td colspan="3">Final roost Period</td></tr>
<tr><td>Time of Return:</td><td colspan="2">Little Egret Egretta garzetta (17:28)</td><td>Time of Return:</td><td colspan="2">Chinese Pond Heron Ardeola bacchus (18:26)</td></tr>
<tr><td rowspan="2">Parameters</td><td colspan="2">Location</td><td rowspan="2">Parameters</td><td colspan="2">Location</td></tr>
<tr><td>ANR1</td><td>ANR2</td><td>ANR1</td><td>ANR2</td></tr>
<tr><td>Pre-roost Aggregation (Y/N):</td><td>Y</td><td>N</td><td>Substrate Species:</td><td>Sonneratia apetala and S. caseolaris</td><td>Sonneratia apetala and S. caseolaris</td></tr>
<tr><td>Substrate Species:</td><td>Sonneratia apetala and S. caseolaris</td><td>Sonneratia apetala and S. caseolaris</td><td rowspan="2">Substrate Height (m):</td><td rowspan="2">Approx. 5 m.</td><td rowspan="2">Approx. 3-4 m.</td></tr>
<tr><td>Substrate Height (m):</td><td>Approx. 5 m.</td><td>Approx. 3-4 m.</td></tr>
<tr><td rowspan="2">Ardeid Species Composition</td><td colspan="2">Abundance (individuals)</td><td rowspan="2">Ardeid Species Composition</td><td colspan="2">Abundance (individuals)</td></tr>
<tr><td>ANR1</td><td>ANR2</td><td>ANR1</td><td>ANR2</td></tr>
<tr><td>Little Egret Egretta garzetta*</td><td>13</td><td>-</td><td>Chinese Pond Heron Ardeola bacchus</td><td>9</td><td>-</td></tr>
<tr><td rowspan="2">Breeding Activity (Y/N):</td><td>ANR1</td><td colspan="4">N</td></tr>
<tr><td>ANR2</td><td colspan="4">N</td></tr>
</table>

Notes:
Pre-roost Period: Period when avian individuals gather first before flying into a night roost
ANR1: Active ardeid night roost area east of the Project boundary
ANR2: Active ardeid night roost area northeast of the Project boundary
*: individuals aggregated on the exposed mudflat
-: not recorded

#### 5.1.3.2 Noise Monitoring

Noise monitoring activities were conducted on 20 September 2021 in concurrence with the construction phase monthly monitoring of the pre-identified active night roosts. Noise monitoring started at 18:26 and lasted for 30 minutes, until 18:56.

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

Table 5.3 – Noise Monitoring Results

| Frequency and Period | Location | Start Time | $L_{Aeq}$ (30 min.) | Action Level | Limit Level |
|---|---|---|---|---|---|
| Monthly in concurrence with the construction phase monthly monitoring of the active night roosts | NMS1 | 18:26 | 51.6 | 65.5 dB(A)[1] | 72.2 dB(A)[2] |
| | NMS2 | 18:26 | 42.4 | | |

Notes:
NMS1= Noise monitoring station 1 located east of the Project boundary
NMS2= Noise monitoring station 2 located northeast of the Project boundary
1= Behavioural response of some kind more likely to occur (Wright et al. 2010)
2= Flight with abandonment of the site becomes the most likely outcome of the disturbance (Wright et al. 2010)

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

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

### 5.1.5 Summary

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

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

#### 5.1.5.2 Noise Monitoring Results

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

## 5.2 Ecological Monitoring of Birds

### 5.2.1 Monitoring Requirement

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

### 5.2.2 Monitoring Methodology

#### 5.2.2.1 Monitoring Area

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

#### 5.2.2.2 Monitoring Activity

Avifauna survey on the different wetland habitats using the transect count and point count methods was conducted on 15 September 2021 (day time survey) which started around 07:30 while the night time survey was conducted on 20 September 2021 starting around 18:25. The survey overlooking the mudflats and mangroves in the Shan Pui River was concurrently conducted on the same date with the day time survey during the low tide (generally 1.5m or below) period at around 11:05. The methodology for the monitoring activity followed **Sections 8.3.3.6** and **8.3.3.7** of the **EIA Report (AEIAR-220/2019)** and as detailed below.

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

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

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

Table 5.4 - Noise Monitoring Parameters

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

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

#### 5.2.2.3 Data Analysis

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

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

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

To check the presence of variation in bird abundance between baseline and impact monitoring, t-test was applied (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; $P_i$ = proportion of the population of species; i; number of species in sample; ln = natural logarithm. Shannon diversity index is used as it accounts the proportion (relative abundance) of each species; thus, it gives a better description of diversity than a plain number of species (species richness).

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

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

### 5.2.3 Monitoring Results

Results of the avifauna survey on the different habitats within the monitoring area using the transect count and point count methods as conducted last 15 September 2021 (day time survey) and 20 September 2021 (night time survey) 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 day time survey during the low tide (generally 1.5m or below) period which started around 11:05 had results presented in **Section 5.2.3.3.**

#### 5.2.3.1 Abundance

##### 5.2.3.1.1 All Avifauna Species

An overall total of 202 avifauna ind. was recorded in the monitoring area during the September 2021 monitoring period, of which 99 ind. were recorded from the point count method and 103 ind. from the transect walk method. Relative to the September 2016 baseline data, a significant current decrease in total abundance from point count method (t-value = 2.40; p-value = 0.02;

α = 0.05) was noted while an insignificant decrease in transect walk method (t-value = -0.09; p-value = 0.93; α = 0.05) was also observed. These findings are summarized in **Table 5.5.**

Table 5.5 – Abundance of all Avifauna Species

| Abundance of all Avifauna Species | | | | |
|---|---|---|---|---|
| **Point Count Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| P1 | FLW1 | 0 | 8 | + |
| P2 | FLW2 | 3 | 5 | + |
| P3 | FLW3 | 12 | 2 | - |
| P4 | FLW4 | 18 | 4 | - |
| P5 | FLW5 | 29 | 7 | - |
| P6 | FLW6 | 16 | 11 | - |
| P7 | FLW7 | 14 | 13 | - |
| P9 | SP/NSW3 | 71 | 14 | - |
| P10 | SP/NSW2 | 50 | 6 | - |
| P11 | NSW1 | 0 | 13 | + |
| P12 | SP/NSW1 | 9 | 16 | + |
| | **Total** | **222** | **99** | - |
| | **Mean** | **20.18** | **9** | - |
| | | | | |
| **Transect Walk Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| Fung Lok Wai | FLW | 109 | 57 | - |
| Nam Sang Wai | NSW | 2 | 26 | + |
| YLIE-CW | YLIE-CW | 8 | 20 | + |
| | **Total** | **119** | **103** | - |
| | **Mean** | **39.67** | **34.33** | - |

#### 5.2.3.1.2 Avifauna Species of Conservation Importance

Of the 202 avifauna individuals recorded in the monitoring area during the September 2021 monitoring period, 106 ind. (point count method = 47 ind.; transect walk method = 59 ind.) were of conservation importance. With reference to September 2016 data, current results showed an insignificant decrease in total abundance of point count method (t-value = 1.27; p-value = 0.21; α = 0.05) while an increase transect walk method was noted. These findings are summarized in **Table 5.6**.

Table 5.6 – Abundance of Species of Conservation Importance

| Abundance of Species of Conservation Importance | | | | |
|---|---|---|---|---|
| **Point Count Method** | | | | |

| Abundance of Species of Conservation Importance | | | | |
|---|---|---|---|---|
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| P1 | FLW1 | 0 | 4 | + |
| P2 | FLW2 | 1 | 2 | + |
| P3 | FLW3 | 5 | 0 | - |
| P4 | FLW4 | 7 | 0 | - |
| P5 | FLW5 | 3 | 0 | - |
| P6 | FLW6 | 10 | 5 | - |
| P7 | FLW7 | 4 | 6 | + |
| P9 | SP/NSW3 | 64 | 12 | - |
| P10 | SP/NSW2 | 22 | 3 | - |
| P11 | NSW1 | 0 | 1 | + |
| P12 | SP/NSW1 | 3 | 14 | + |
| | **Total** | **119** | **47** | - |
| | **Mean** | **10.82** | **5.88** | - |
| | | | | |
| **Transect Walk Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| Fung Lok Wai | FLW | 36 | 24 | - |
| Nam Sang Wai | NSW | 1 | 17 | + |
| YLIE-CW | YLIE-CW | 8 | 18 | + |
| | **Total** | **45** | **59** | + |
| | **Mean** | **15** | **19.67** | + |

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

#### 5.2.3.2.1 All Avifauna Species

A total of 29 avifauna species (species richness) was recorded during the September 2021 monitoring period, of which, 25 spp. were recorded by the point count method while 21 spp. were noted by the transect walk method. Relative to the baseline data (point count method = 34 spp.; transect walk method = 27 spp.), decreases in total species richness were noted. In terms of Shannon diversity index (H'), insignificant decreases from baseline reference values were also observed both in point count method (t-value = 0.42; t-crit = 1.97; p-value = 0.67; $\alpha$ = 0.05), and transect walk method (t-value = 1.72; t-crit = 1.97; p-value = 0.09; $\alpha$ = 0.05). Details of these findings are summarized in **Table 5.7** and **Appendix F.8.**

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

Table 5.7 – Shannon Diversity Index Value of all Avifauna Species

| Shannon Diversity Index Value of all Avifauna Species | | | | |
|---|---|---|---|---|
| **Point Count Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| P1 | FLW1 | ** | 1.32 | + |
| P2 | FLW2 | 1.10 | 1.61 | + |
| P3 | FLW3 | 1.14 | 0.69 | - |
| P4 | FLW4 | 2.11 | 1.04 | - |
| P5 | FLW5 | 1.48 | 1.28 | - |
| P6 | FLW6 | 1.91 | 2.15 | + |
| P7 | FLW7 | 1.83 | 1.50 | - |
| P9 | SP/NSW3 | 2.23 | 0.90 | - |
| P10 | SP/NSW2 | 1.98 | 1.01 | - |
| P11 | NSW1 | ** | 1.82 | + |
| P12 | SP/NSW1 | 1.68 | 1.73 | + |
| | **Overall H'** | **3.01** | **2.97** | - |
| | **Species Richness** | **34** | **25** | - |
| | | | | |
| **Transect Walk Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| Fung Lok Wai | FLW | 2.62 | 2.37 | - |
| Nam Sang Wai | NSW | 0.69 | 1.98 | + |
| YLIE-CW | YLIE-CW | 1.49 | 1.68 | + |
| | **Overall H'** | **2.95** | **2.77** | - |
| | **Species Richness** | **27** | **21** | - |

Note:
** no species recorded

#### 5.2.3.2.2 Avifauna Species of Conservation Importance

Of the 9 species of avifauna identified during the September 2021 monitoring period, seven species of conservation importance were identified from the point count method, while eight species from the transect walk method. Relative to the baseline values in September 2016, decreases in the number of species with conservation importance were both recorded from the point count method and transect walk method. In terms of H', no significant decline (t-value = 1.98; t-crit = 1.98; p-value =0.05; $\alpha$ = 0.05) was observed from the point count method, from H' = 2.04 in September 2016 to H'=1.83 of the current period while an increase in the current H' was noted from the transect walk method with respect to the baseline value of H'= 1.79. Details of these findings are summarized in **Table 5.8** and **Appendix F.8.**

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

| Shannon Diversity Index Value of Species with Conservation Importance | | | | |
|---|---|---|---|---|
| **Point Count Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| P1 | FLW1 | ** | 0.69 | + |
| P2 | FLW2 | 0 | 0.69 | + |
| P3 | FLW3 | 0 | ** | - |
| P4 | FLW4 | 1.28 | ** | - |
| P5 | FLW5 | 0.64 | ** | - |
| P6 | FLW6 | 1.61 | 1.05 | - |
| P7 | FLW7 | 0.56 | 0.64 | + |
| P9 | SP/NSW3 | 1.92 | 0.45 | - |
| P10 | SP/NSW2 | 1.21 | 0.64 | - |
| P11 | NSW1 | ** | 0 | + |
| P12 | SP/NSW1 | 1.10 | 1.55 | + |
| | **Overall H'** | **2.04** | **1.83** | - |
| | **Species Richness** | **12** | **7** | - |
| | | | | |
| **Transect Walk Method** | | | | |
| **EIA Report ID** | **EM&A Manual ID** | **Sept-16** | **Sept-21** | **Remarks** |
| Fung Lok Wai | FLW | 1.37 | 1.34 | - |
| Nam Sang Wai | NSW | 0 | 1.35 | + |
| YLIE-CW | YLIE-CW | 1.49 | 1.43 | - |
| | **Overall H'** | **1.79** | **1.87** | + |
| | **Species Richness** | **9** | **8** | - |

Note:
** no species recorded

### 5.2.3.3 Wetland Habitat Utilization

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

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

#### 5.2.3.3.1 All Avifauna Species

During the current monitoring period, all of the wetland habitats were less utilized by avifauna communities as evident with the very low (VL) abundances in these areas. With regards to species richness, generally very low (VL) number of species was also noted in the different wetland habitats except in the Active Ponds adjacent to Project site in Fung Lok Wai and Active

Ponds North to Nullah 2 in Fung Lok Wai with low to moderate (L-M) species richness; and Upper course of Shan Pui River along YLIE with very low to low (VL-L) species richness (**Table 5.9**).

Table 5.9 – Wetland habitat utilization of all avifauna species

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

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

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

| Wetland Habitats | Area Description | Abundance[1] | Species Richness[2] |
|---|---|---|---|
| Modified Watercourse | Confluence of Shan Pui River and Kam Tin River | VL | VL |
| | Shan Pui River adjacent to Project site | VL | VL |
| | Upper course of Shan Pui River along YLIE | VL | VL-L |

| | | | |
|---|---|---|---|
| Ponds | Active Ponds adjacent to Project site in Fung Lok Wai | VL | VL |
| | Active Ponds North to Nullah 2 in Fung Lok Wai | VL | VL |
| | Inactive Ponds in Fung Lok Wai | VL | VL |
| | Active and Inactive Ponds in Nam Sang Wai | VL | VL |
| Mangrove | Mangrove within Assessment Area | - | - |
| 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) of conservation important species amongst wetland habitats within the assessment area:
   VL = Very Low (≤5 species); L = Low (~10 species); M = Moderate (~15 species); H = High (~20 species), VH = Very High (>25 species)

-: no recorded individuals

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

#### 5.2.3.3.3 Overwintering Avifauna Species

Two winter visitor species including the Pied Avocet *Recurvirostra avosetta* and Grey Heron *Ardea cinerea* were observed during this monitoring period. Very low (VL) abundances and species richness of overwintering avifauna species were observed in the different wetland habitats (**Table 5.11**) which could imply the start of their migration to the area relative to the coming dry season.

Table 5.11 – Wetland habitat utilization of overwintering avifauna species

| 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 | - | - |
| | Upper course of Shan Pui River along YLIE | VL | VL |
| Ponds | Active Ponds adjacent to Project site in Fung Lok Wai | VL | VL |
| | Active Ponds North to Nullah 2 in Fung Lok Wai | VL | VL |
| | Inactive Ponds in Fung Lok Wai | - | - |
| | Active and Inactive Ponds in Nam Sang Wai | - | - |
| Mangrove | Mangrove within Assessment Area | - | - |
| 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) of conservation important species amongst wetland habitats within the assessment area:
   VL = Very Low (≤5 species); L = Low (~10 species); M = Moderate (~15 species); H = High (~20 species), VH = Very High (>25 species)

-: no recorded individuals

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

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

### 5.2.3.4 Noise Levels

Noise levels $L_{Aeq}$ (30 min) recorded on 15 September 2021 (daytime) and 20 September 2021 (night time) from each of the point count locations during the ecological bird monitoring are shown in **Table 5.12**.

Table 5.12 – Noise Monitoring Results (For Ecological Monitoring of Birds)

| Frequency and Period | Location | Daytime (15/09/2021) | | Night time (20/09/2021) | |
|---|---|---|---|---|---|
| | | Start Time | $L_{Aeq}$ (30 min) dB(A) | Start Time | $L_{Aeq}$ (30 min) dB(A) |
| Monthly in concurrence with the ecological monitoring of birds | FLW1 | 07:50 | 51.9 | 18:36 | 42.3 |
| | FLW2 | 07:35 | 49.4 | 18:25 | 42.1 |
| | FLW3 | 07:35 | 56.3 | 18:25 | 45.2 |
| | FLW4 | 08:30 | 47.2 | 18:45 | 48.3 |
| | FLW5 | 08:45 | 43.7 | 18:52 | 46.2 |
| | FLW6 | 09:50 | 55.9 | 18:59 | 48.8 |
| | FLW7 | 09:50 | 54.8 | 19:14 | 52.4 |
| | SP/NSW3 | 11:05 | 46.1 | 20:27 | 61.1 |
| | SP/NSW2 | 11:17 | 52.6 | 20:10 | 59.9 |
| | NSW1 | 11:17 | 46.7 | 20:17 | 56 |
| | SP/NSW1 | 11:01 | 56.6 | 20:05 | 61.5 |

Note:
1. Close to the roadsides with low to moderate traffic. Passing vehicles, barking dogs, and noisy insects were noted during the monitoring period.

# 6. LANDSCAPE AND VISUAL

## 6.1 Audit Requirements

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

## 6.2 Results and Observations

6.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, five weekly landscape and visual site audits were carried out on 1, 8, 14, 23 and 29 September 2021.

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

# 7. Land Contamination

## 7.1 Contamination Assessment Report

7.1.1 Risk-Based Remediation Goals (RBRGs) for Industrial have been adopted for the "Main Storeroom & Workshops" and the laboratory results for the sampling works (conducted between 30 June 2021 to 16 July 2021) show that there are no exceedances of the adopted RBRGs for the "Main Storeroom & Workshops". As no contaminated soil and groundwater was found within the "Main Storeroom & Workshops", no remediation actions are required for contaminated soil and groundwater for the scheduled land use of the "Main Storeroom & Workshops". Their findings are summarized in Contamination Assessment Report (CAR) and submitted to EPD on 13 August 2021. EPD had comments on 9 Sep 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 27 September 2021.

# 8. SITE INSPECTION AND AUDIT

## 8.1 Site Inspection

8.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.

8.1.2 In the reporting month, five site inspections were carried out on 1, 8, 16, 23 and 29 September 2021.

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 waste generated by the construction and disposal ground is presented in **Table 8.1**.

Table 8.1 – Waste Generated by the Construction and Disposal Ground

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

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 containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

# 9. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

## 9.1 Environmental Exceedance

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.

9.1.5 One exceedance in Action Level was recorded for the ecological monitoring of birds in the reporting month. This was the significant decline in species abundance of all avifauna species for the point count method. However, the exceedance was not project-related.

## 9.2 Complaints, Notification of Summons and Prosecution

9.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

9.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L**.

# 10. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

## 10.1 Implementation Status

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

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

Table 10.1 – Summary of EP Submissions Status

| EP Condition (EP-565/2019) | Submission | Submission Date | Required submissions under the EP |
|---|---|---|---|
| Condition 2.14 | Contamination Assessment Report (CAR) for Main Storeroom & Workshops | The CAR for Main Storeroom & Workshops was submitted to EPD on 13 Aug 2021. EPD had comments on 9 Sep 2021. | CAR for Main Storeroom & Workshops will upload to the Project Website and the submission information will show in the internet website for public inspection when EPD's comments are addressed and approved. |
| Condition 2.14 | Contamination Assessment Report (CAR) for Mechanical Workshop | The CAR for Mechanical Workshop was submitted to EPD on 27 Sep 2021. | CAR for Mechanical Workshop will upload to the Project Website and the submission information will show in the internet website for public inspection when EPD approved. |

# 11. FUTURE KEY ISSUES

## 11.1 Construction Programme for the Next Three Month

- Demolition of FST no. 5-8 Changing Room & Waste Storage Area;
- Demolition of carpark;
- Sheet pile installation at IW & PST;
- Driven H-pile at IW & PST;
- Zone 2A, 2B & 3 diversion work; and
- Enviro. GI at workshop & Air Floatation Thickener.

## 11.2 Key Issues for the Coming Month

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

## 11.3 Monitoring Schedules for the Next Three Month

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

# 12. CONCLUSION AND RECOMMENDATION

## 12.1 Conclusions

12.1.1 1-hour TSP impact monitoring were carried out in the reporting month. No Action / Limit Level exceedance at AM1 and AM2 was recorded during the period.

12.1.2 Construction noise monitoring were carried out in the reporting month. No Action / Limit Level exceedance at CM1, CM2 and CM3 was recorded during the period.

12.1.3 No Action and Limit Level exceedance were 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. Of the two confirmed ardeid night roosts during the pre-construction survey, only ANR 1 was observed to be active. No Action / Limit Level exceedance at NMS1 and NMS2 was recorded during the period.

12.1.5 Ecological bird monitoring was carried out in the reporting month. One exceedance in Action Level was recorded for the ecological monitoring of birds on 15 & 20 September 2021. This was the significant decline in species abundance of all avifauna species for the point count method. However, the exceedance was not project-related.

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

12.1.7 Five landscape and visual site audits were carried out in the reporting month. Recommendations on mitigation measures for Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.

12.1.8 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

## 12.2 Comment and Recommendations

12.2.1 The recommended environmental mitigation measures, as proposed in the EIA report and EM&A Manual shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

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

Air Quality Impact

- The Contractor is reminded to cover the excavated soil properly with tarpaulin sheets to prevent dust emission for trial pit.
- Wind blown dust is observed when the truck is leaving at site exit. The Contractor should provide mitigation measures to prevent dust emission from vehicle wheel & body.
- The Contractor is required to improve the mitigation at present wheel wash area at southern exit (e.g. provide better bedding of aggregates for preventing muddy water).

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- The Contractor is reminded to provide MSDS information at WetSep.
- Mitigation measures should be provided to intercept silty runoff from the piling area.

Chemical and Waste Management

- The Contractor is reminded to provide drip tray for the chemicals to prevent accidental spillage.
- The Contractor is reminded to cover the excavated soil properly with tarpaulin sheets to prevent dust emission.

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

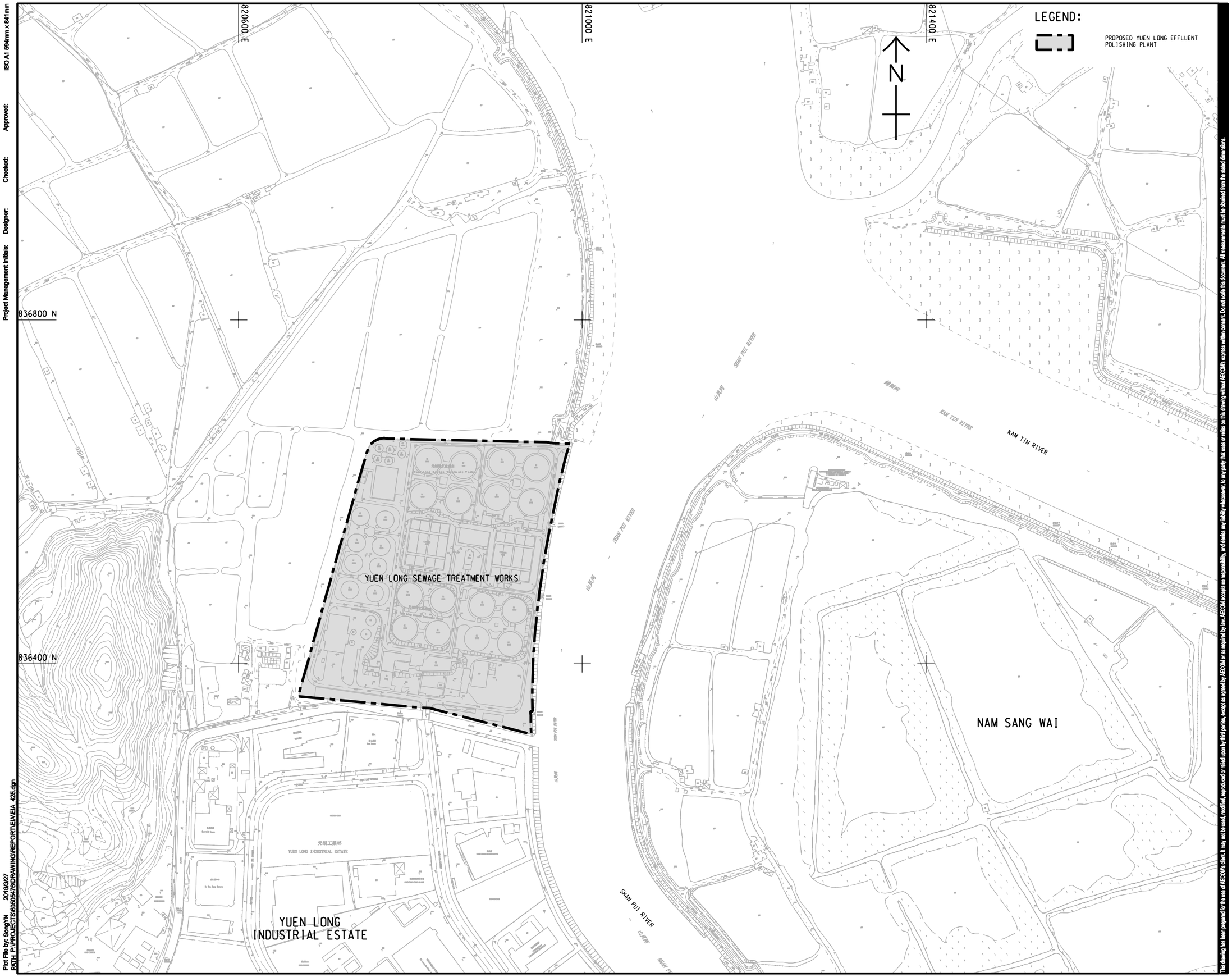
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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**PROJECT**
項目

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

**CLIENT**
業主

渠務署
Drainage Services Department

**CONSULTANT**
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**STATUS**
階段

**SCALE** 比例
A1 1 : 2000

**DIMENSION UNIT** 尺寸單位
METRES

**KEY PLAN**
索引圖

**PROJECT NO.** 項目編號
60505476

**CONTRACT NO.** 合約編號
CE 3/2015 (DS)

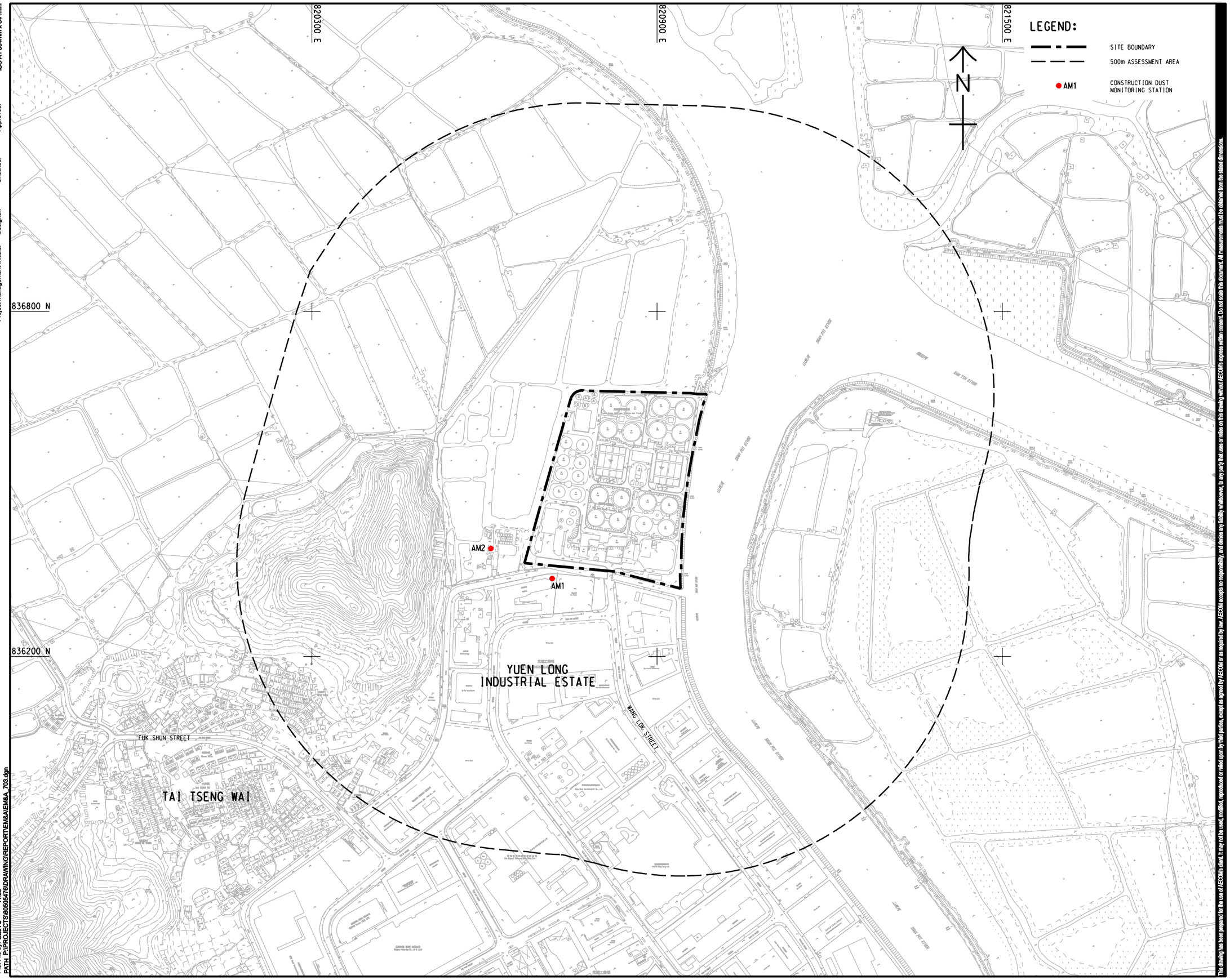
**SHEET TITLE**
圖紙名稱

LOCATION OF PROPOSED YUEN LONG EFFLUENT POLISHING PLANT

**SHEET NUMBER**
圖紙編號

# Figure 2

Air Quality Monitoring Locations




ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

Plot File by: GaoYU 11/29
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**PROJECT** 項目

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**STATUS** 用途

**SCALE** 比例
A1 1 : 3000

**DIMENSION UNIT** 尺寸單位
METRES

**KEY PLAN** 索引圖

**PROJECT NO.** 項目編號
60505476

**CONTRACT NO.** 合約編號
CE 3/2015 (DS)

**SHEET TITLE** 圖紙名稱

LOCATION OF CONSTRUCTION DUST MONITOING STATIONS

**SHEET NUMBER** 圖紙編號

# 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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**STATUS**
狀況

**SCALE** 比例
A1 1 : 2000

**DIMENSION UNIT** 尺寸單位
METRES

**KEY PLAN**
索引圖

**PROJECT NO.** 項目編號
60505476

**CONTRACT NO.** 合約編號
CE 3/2015 (DS)

**SHEET TITLE**
圖紙名稱

LOCATIONS OF NOISE MONITORING POINTS

**SHEET NUMBER**
圖紙編號

# Figure 4

Water Quality Monitoring Locations

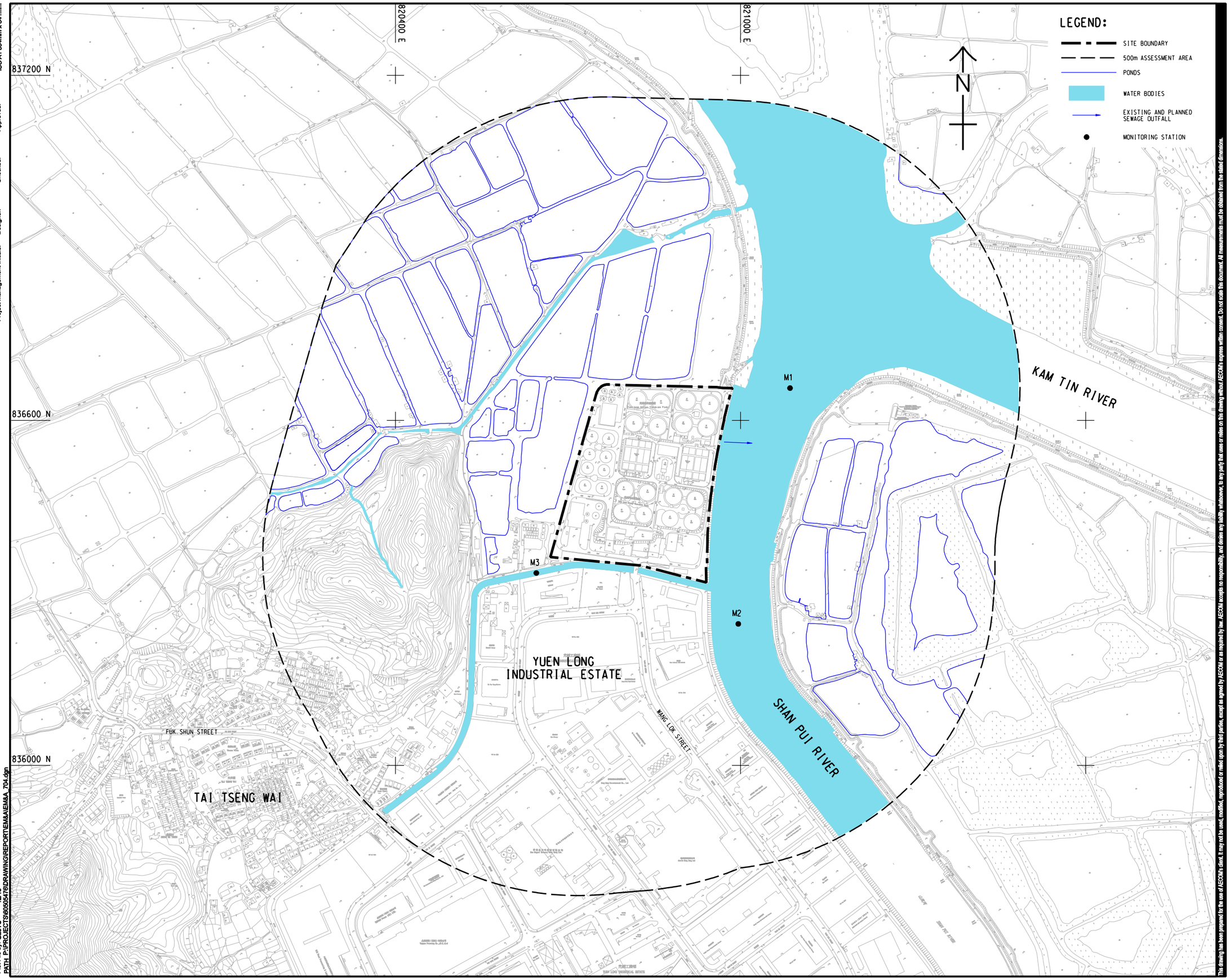
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

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**STATUS**
狀況

**SCALE** 比例
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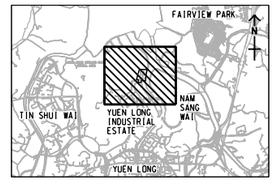
**DIMENSION UNIT** 尺寸單位
METRES

**KEY PLAN** 索引圖 A3 1 : 180000




**PROJECT NO.** 項目編號
60505476

**CONTRACT NO.** 合約編號
CE 3/2015 (DS)

**SHEET TITLE**
圖紙名稱

LOCATIONS OF 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

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**STATUS 狀況**

**SCALE 比例**

A1 1 : 3000

**DIMENSION UNIT 尺寸單位**

METRES

**KEY PLAN 索引圖**

**PROJECT NO. 項目編號**

60505476

**CONTRACT NO. 合約編號**

CE 3/2015 (DS)

**SHEET TITLE 圖紙名稱**

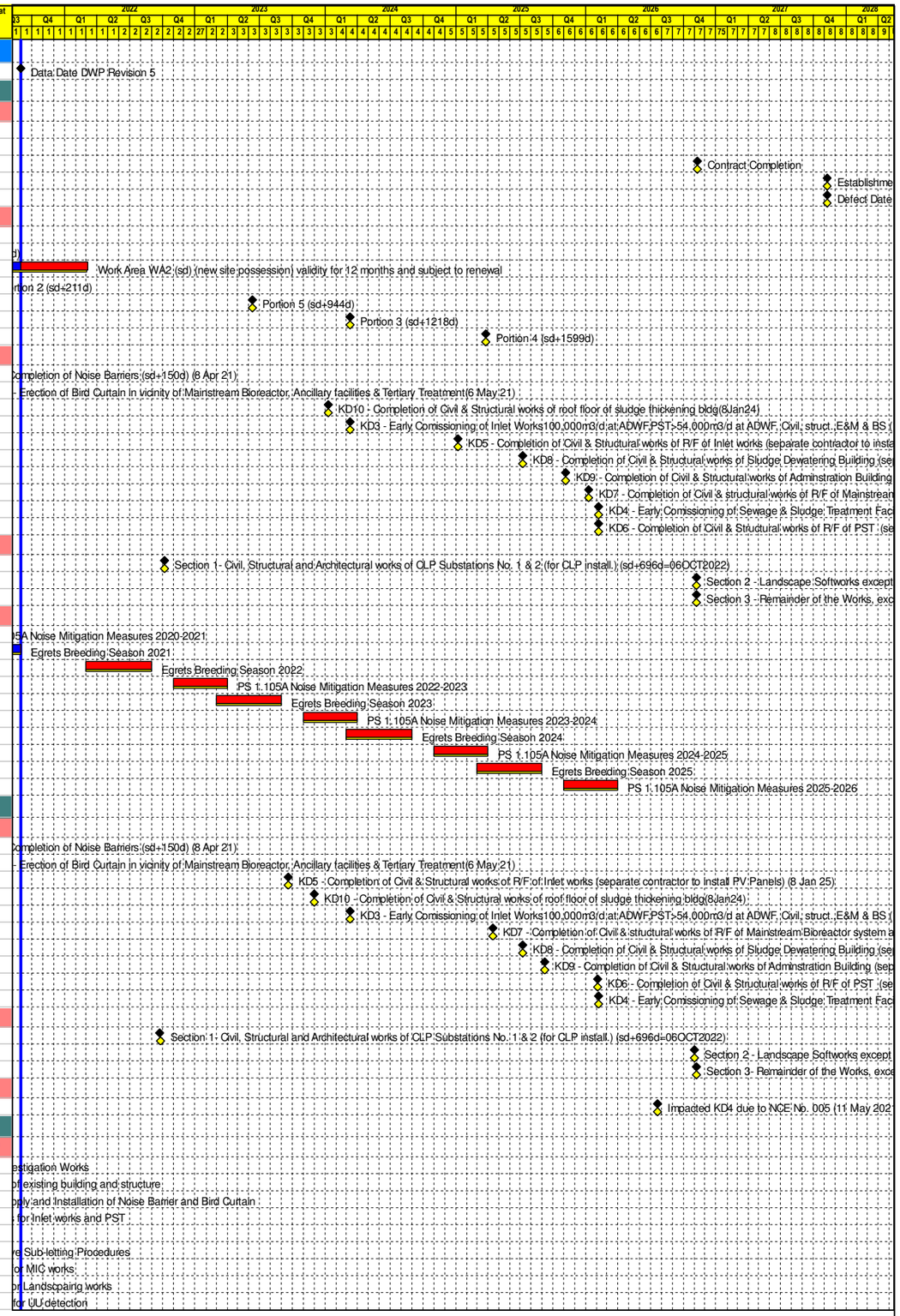
ECOLOGICAL MONITORING LOCATIONS

**SHEET NUMBER 圖紙編號**

# Appendix A

Construction Programme

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| **YL Effluent Polishing Plant - Main Works Stage 1 - Detailed Works Programme** | | 2202 | 27-Oct-20 A | 09-Nov-27 | 30-Aug-21 | 09-Nov-27 | 0 |
| UPDATE | Data Date DWP Revision 5 | 0 | | 31-Aug-21 A | | 07-Sep-21 | |
| **Contract Data Part 1** | | 2569 | 27-Oct-20 A | 09-Nov-27 | 30-Aug-21 | 09-Nov-27 | 0 |
| **Commencement Date** | | 2569 | 27-Oct-20 A | 09-Nov-27 | 31-Aug-21 | 09-Nov-27 | 0 |
| CD1 | Contract Date | 0 | 27-Oct-20 A | | 31-Aug-21 | | |
| CD2 | Starting Date | 0 | 09-Nov-20 A | | 31-Aug-21 | | |
| CD3 | Contract Completion | 0 | 09-Nov-26 | | 09-Nov-26 | | 0 |
| CD4 | Establishment Period (12 months) | 0 | 09-Nov-27 | | 09-Nov-27 | | 0 |
| CD5 | Defect Date (12 months) | 0 | 09-Nov-27 | | 09-Nov-27 | | 0 |
| **Access Dates** | | 1599 | 09-Nov-20 A | 27-Mar-25 | 30-Aug-21 | 04-Jun-27 | 799 |
| ADP1 | Portion 1 (sd) | 0 | 09-Nov-20 A | | 03-Sep-21 | | |
| ADWA1 | Work Area WA1 (sd) | 0 | 09-Nov-20 A | | 04-Jun-27 | | |
| ADWA2 | Work Area WA2 (sd) (new site possession) validity for 12 months and subject to renewal | 365 | 05-Mar-21 A | 05-Mar-22* | 30-Aug-21 | 04-Mar-22 | 0 |
| ADP2 | Portion 2 (sd+211d) | 0 | 08-Jun-21 A | | 08-Nov-21 | | |
| ADP5 | Portion 5 (sd+944d) | 0 | 11-Jun-23* | | 11-Jun-23 | | 0 |
| ADP3 | Portion 3 (sd+1218d) | 0 | 11-Mar-24* | | 10-Mar-24 | | 0 |
| ADP4 | Portion 4 (sd+1599d) | 0 | 27-Mar-25* | | 27-Mar-25 | | 0 |
| **Contract Key Dates** | | 1765 | 07-Apr-21 A | 05-Feb-26 | 08-Jan-24 | 09-Nov-27 | 641 |
| CKD1 | KD1 - Completion of Noise Barriers (sd+150d) (8 Apr 21) | 0 | | 07-Apr-21 A | | 09-Nov-27 | |
| CKD2 | KD2 - Erection of Bird Curtain in vicinity of Mainstream Bioreactor, Ancillary facilities & Tertiary Treatment(6 May 21) | 0 | | 06-May-21 A | | 09-Nov-27 | |
| CKD10 | KD10 - Completion of Civil & Structural works of roof floor of sludge thickening bldg(8Jan24) | 0 | | 08-Jan-24* | | 08-Jan-24 | 0 |
| CKD3 | KD3 - Early Comissioning of Inlet Works100,000m3/d at ADWF,PST>54,000m3/d at ADWF, Civil, struct.,E&M & BS (11Mar 24) | 0 | | 11-Mar-24* | | 11-Mar-24 | 0 |
| CKD5 | KD5 - Completion of Civil & Structural works of R/F of Inlet works (separate contractor to install PV Panels) (8 Jan 25) | 0 | | 08-Jan-25* | | 08-Jan-25 | 0 |
| CKD8 | KD8 - Completion of Civil & Structural works of Sludge Dewatering Building (separate contractor E&M, BS & PV) (8 Jul 25) | 0 | | 08-Jul-25* | | 08-Jul-25 | 0 |
| CKD9 | KD9 - Completion of Civil & Structural works of Adminstration Building (separate contractor E&M & BS)(6 Nov 25) | 0 | | 06-Nov-25* | | 06-Nov-25 | 0 |
| CKD7 | KD7 - Completion of Civil & structural works of R/F of Mainstream Bioreactor system and Ancillary facilties (8 Jan 26) | 0 | | 08-Jan-26* | | 08-Jan-26 | 0 |
| CKD4 | KD4 - Early Comissioning of Sewage & Sludge Treatment Facilities >60,000m3/d at AWDF (5 Feb 26) | 0 | | 05-Feb-26* | | 05-Feb-26 | 0 |
| CKD6 | KD6 - Completion of Civil & Structural works of R/F of PST (separate contractor to install PV Panels) (5 Feb 26) | 0 | | 05-Feb-26* | | 05-Feb-26 | 0 |
| **Contract Section Completion** | | 1494 | 06-Oct-22 | 08-Nov-26 | 06-Oct-22 | 08-Nov-26 | 0 |
| CSC1 | Section 1- Civil, Structural and Architectural works of CLP Substations No. 1 & 2 (for CLP install.) (sd+696d=06OCT2022) | 0 | | 06-Oct-22* | | 06-Oct-22 | 0 |
| CSC2 | Section 2 - Landscape Softworks except those Works under other sections (sd+2190d=08NOV2026) | 0 | | 08-Nov-26* | | 08-Nov-26 | 0 |
| CSC3 | Section 3 - Remainder of the Works, except Landscape Softworks & Establishment Works (sd+2190d=08NOV2026) | 0 | | 08-Nov-26* | | 08-Nov-26 | 0 |
| **Environmental Constraints** | | 1969 | 09-Nov-20 A | 31-Mar-26 | 31-Aug-21 | 09-Nov-27 | 587 |
| NMM-2135 | PS 1.105A Noise Mitigation Measures 2020-2021 | 143 | 09-Nov-20 A | 31-Mar-21 A | 09-Nov-27 | 09-Nov-27 | |
| EBS-2145 | Egrets Breeding Season 2021 | 184 | 01-Mar-21 A | 31-Aug-21 | 31-Aug-21 | 31-Aug-21 | 0 |
| EBS-2155 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| NMM-2155 | PS 1.105A Noise Mitigation Measures 2022-2023 | 151 | 01-Nov-22* | 31-Mar-23 | 01-Nov-22 | 31-Mar-23 | 0 |
| EBS-2165 | Egrets Breeding Season 2023 | 184 | 01-Mar-23* | 31-Aug-23 | 01-Mar-23 | 31-Aug-23 | 0 |
| NMM-2165 | PS 1.105A Noise Mitigation Measures 2023-2024 | 152 | 01-Nov-23* | 31-Mar-24 | 01-Nov-23 | 31-Mar-24 | 0 |
| EBS-2175 | Egrets Breeding Season 2024 | 184 | 01-Mar-24* | 31-Aug-24 | 01-Mar-24 | 31-Aug-24 | 0 |
| NMM-2175 | PS 1.105A Noise Mitigation Measures 2024-2025 | 151 | 01-Nov-24* | 31-Mar-25 | 01-Nov-24 | 31-Mar-25 | 0 |
| EBS-2185 | Egrets Breeding Season 2025 | 183 | 02-Mar-25* | 31-Aug-25 | 02-Mar-25 | 31-Aug-25 | 0 |
| NMM-2185 | PS 1.105A Noise Mitigation Measures 2025-2026 | 151 | 01-Nov-25* | 31-Mar-26 | 01-Nov-25 | 31-Mar-26 | 0 |
| **Planned Completion** | | 2041 | 07-Apr-21 A | 08-Nov-26 | 06-Oct-22 | 09-Nov-27 | 365 |
| **Planned Key Dates** | | 1765 | 07-Apr-21 A | 05-Feb-26 | 08-Jan-24 | 09-Nov-27 | 641 |
| PKD1 | KD1 - Completion of Noise Barriers (sd+150d) (8 Apr 21) | 0 | | 07-Apr-21 A | | 09-Nov-27 | |
| PKD2 | KD2 - Erection of Bird Curtain in vicinity of Mainstream Bioreactor, Ancillary facilities & Tertiary Treatment(6 May 21) | 0 | | 06-May-21 A | | 09-Nov-27 | |
| PKD5 | KD5 - Completion of Civil & Structural works of R/F of Inlet works (separate contractor to install PV Panels) (8 Jan 25) | 0 | | 19-Sep-23* | | 08-Jan-25 | 477 |
| PKD10 | KD10 - Completion of Civil & Structural works of roof floor of sludge thickening bldg(8Jan24) | 0 | | 01-Dec-23* | | 08-Jan-24 | 38 |
| PPKD3 | KD3 - Early Comissioning of Inlet Works100,000m3/d at ADWF,PST>54,000m3/d at ADWF, Civil, struct.,E&M & BS (11Mar 24) | 0 | | 11-Mar-24* | | 11-Mar-24 | 0 |
| PKD7 | KD7 - Completion of Civil & structural works of R/F of Mainstream Bioreactor system and Ancillary facilties (8 Jan 26) | 0 | | 16-Apr-25* | | 08-Jan-26 | 267 |
| PKD8 | KD8 - Completion of Civil & Structural works of Sludge Dewatering Building (separate contractor E&M, BS & PV) (8 Jul 25) | 0 | | 08-Jul-25* | | 08-Jul-25 | 0 |
| PKD9 | KD9 - Completion of Civil & Structural works of Adminstration Building (separate contractor E&M & BS)(6 Nov 25) | 0 | | 06-Sep-25* | | 06-Nov-25 | 61 |
| PKD6 | KD6 - Completion of Civil & Structural works of R/F of PST (separate contractor to install PV Panels) (5 Feb 26) | 0 | | 04-Feb-26* | | 05-Feb-26 | 1 |
| PPKD4 | KD4 - Early Comissioning of Sewage & Sludge Treatment Facilities >60,000m3/d at AWDF (5 Feb 26) | 0 | | 05-Feb-26* | | 05-Feb-26 | 0 |
| **Planned Section Completion** | | 1507 | 23-Sep-22 | 08-Nov-26 | 06-Oct-22 | 08-Nov-26 | 0 |
| PSC1 | Section 1- Civil, Structural and Architectural works of CLP Substations No. 1 & 2 (for CLP install.) (sd+696d=06OCT2022) | 0 | | 23-Sep-22* | | 06-Oct-22 | 13 |
| PSC2 | Section 2 - Landscape Softworks except those Works under other sections (sd+2190d=08NOV2026) | 0 | | 02-Nov-26* | | 08-Nov-26 | 6 |
| PSC3 | Section 3- Remainder of the Works, except Landscape Softworks & Establishment Works (sd+2190d=08NOV2026) | 0 | | 08-Nov-26* | | 08-Nov-26 | 0 |
| **Notificaton of Compensation Events** | | 0 | 22-Jul-26 | 22-Jul-26 | 22-Jul-26 | 22-Jul-26 | 0 |
| NCE5 | Impacted KD4 due to NCE No. 005 (11 May 2021) | 0 | | 22-Jul-26* | | 22-Jul-26 | 0 |
| **Preliminary and Preparation Works** | | 1443 | 27-Oct-20 A | 05-Jun-25 | 31-Aug-21 | 09-Nov-27 | 759 |
| **Subletting** | | 680 | 27-Oct-20 A | 06-Sep-22 | 31-Aug-21 | 09-Nov-27 | 1889 |
| SUB-110 | Prebid - Ground Investigation Works | 0 | | 27-Oct-20 A | | 03-Sep-21 | |
| SUB-120 | Prebid - Demolition of existing building and structure | 0 | | 27-Oct-20 A | | 06-Sep-21 | |
| SUB-130 | Prebid - Design, Supply and Installation of Noise Barrier and Bird Curtain | 0 | | 27-Oct-20 A | | 09-Nov-27 | |
| SUB-140 | Prebid - Piling works for Inlet works and PST | 0 | | 27-Oct-20 A | | 03-Sep-21 | |
| SUB-150 | Prebid - E&M works | 0 | | 27-Oct-20 A | | 04-Apr-22 | |
| SUB-160 | Submit/Approve Sub-letting Procedures | 60 | 09-Nov-20 A | 07-Jan-21 A | 31-Aug-21 | 31-Aug-21 | |
| SUB-180 | Subletting for MIC works | 40 | 08-Jan-21 A | 16-Feb-21 A | 23-Sep-21 | 23-Sep-21 | |
| SUB-190 | Subletting for Landscpaing works | 30 | 08-Jan-21 A | 06-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| SUB-200 | Subletting for UU detection | 44 | 08-Jan-21 A | 20-Feb-21 A | 08-Sep-21 | 08-Sep-21 | |

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Remaining Level of Effort
DWP Rev.4
Actual Work
Remaining Work
Critical Remaining Work

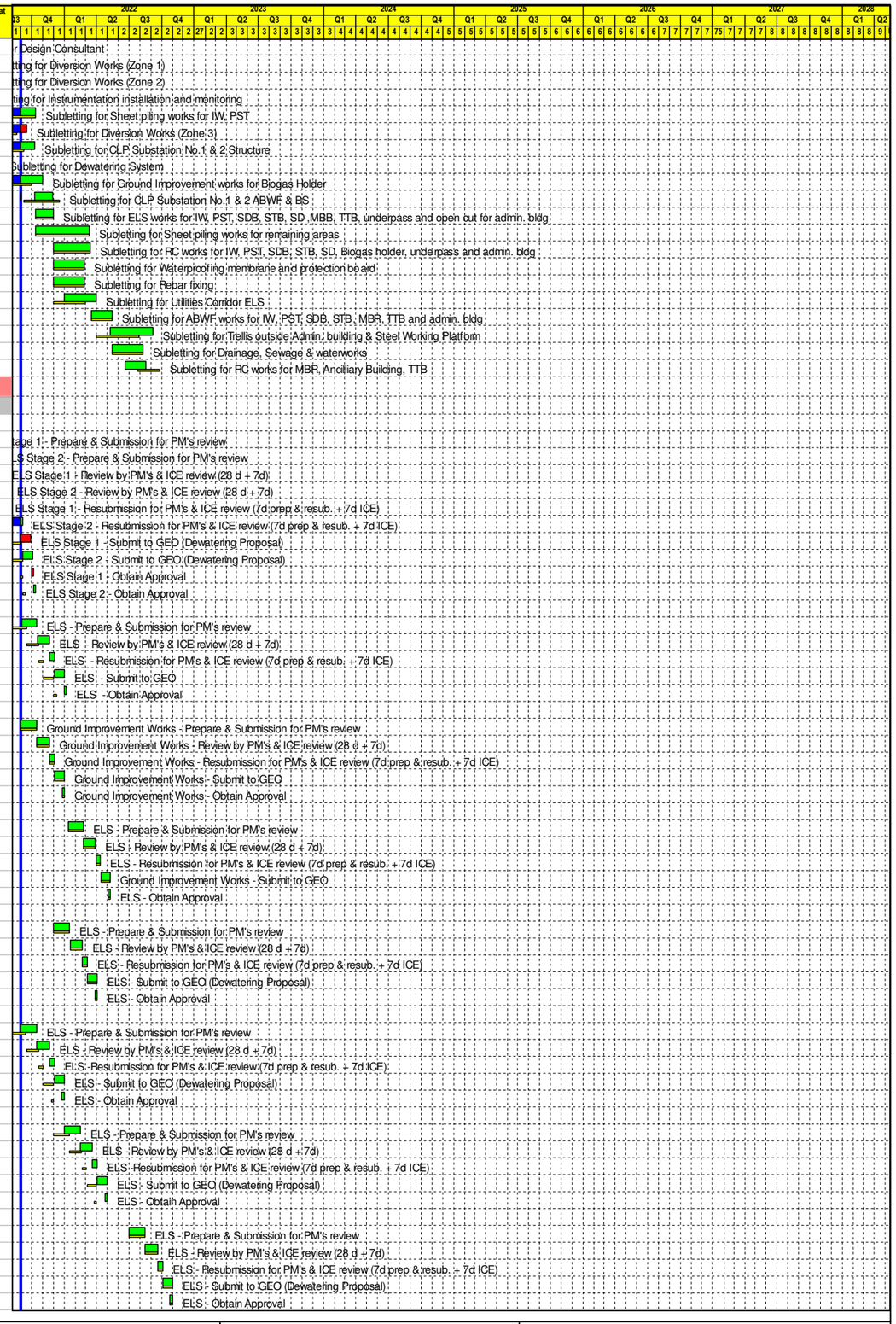
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| SUB-210 | Subletting for Design Consultant | 22 | 08-Jan-21 A | 29-Jan-21 A | 31-Aug-21 | 31-Aug-21 | |
| SUB-100 | Subletting for Diversion Works (Zone 1) | 84 | 30-Jan-21 A | 22-Apr-21 A | 15-Oct-21 | 15-Oct-21 | |
| SUB-170 | Subletting for Diversion Works (Zone 2) | 84 | 30-Jan-21 A | 23-Apr-21 A | 31-Aug-21 | 31-Aug-21 | |
| SUB-370 | Subletting for Instrumentation installation and monitoring | 67 | 11-Feb-21 A | 18-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| SUB-220 | Subletting for Sheet piling works for IW, PST | 150 | 15-May-21 A | 11-Oct-21 | 03-Sep-21 | 14-Oct-21 | 3 |
| SUB-260 | Subletting for Diversion Works (Zone 3) | 80 | 01-Jun-21 A | 16-Sep-21 | 31-Aug-21 | 16-Sep-21 | 0 |
| SUB-230 | Subletting for CLP Substation No.1 & 2 Structure | 100 | 01-Jun-21 A | 08-Oct-21 | 23-Oct-21 | 30-Nov-21 | 53 |
| SUB-330 | Subletting for Dewatering System | 30 | 02-Jun-21 A | 01-Jul-21 A | 03-Sep-21 | 03-Sep-21 | |
| SUB-250 | Subletting for Ground Improvement works for Biogas Holder | 86 | 07-Jul-21 A | 30-Oct-21 | 27-Dec-21 | 25-Feb-22 | 118 |
| SUB-240 | Subletting for CLP Substation No.1 & 2 ABWF & BS | 100 | 30-Aug-21 A | 27-Nov-21 | 02-Mar-22 | 20-Apr-22 | 144 |
| SUB-270 | Subletting for ELS works for IW, PST, SDB, STB, SD ,MBB, TTB, underpass and open cut for admin. bldg | 50 | 12-Oct-21 | 30-Nov-21 | 15-Oct-21 | 03-Dec-21 | 3 |
| SUB-380 | Subletting for Sheet piling works for remaining areas | 150 | 12-Oct-21 | 10-Mar-22 | 06-Nov-21 | 04-Apr-22 | 25 |
| SUB-280 | Subletting for RC works for IW, PST, SDB, STB, SD, Biogas holder, underpass and admin. bldg | 105 | 01-Dec-21 | 15-Mar-22 | 04-Dec-21 | 18-Mar-22 | 3 |
| SUB-350 | Subletting for Waterproofing membrane and protection board | 86 | 01-Dec-21 | 24-Feb-22 | 04-Dec-21 | 27-Feb-22 | 3 |
| SUB-360 | Subletting for Rebar fixing | 86 | 01-Dec-21 | 24-Feb-22 | 04-Dec-21 | 27-Feb-22 | 3 |
| SUB-310 | Subletting for Utilities Corridor ELS | 90 | 31-Dec-21 | 30-Mar-22 | 07-Jan-22 | 06-Apr-22 | 7 |
| SUB-290 | Subletting for ABWF works for IW, PST, SDB, STB, MBR, TTB and admin. bldg | 60 | 16-Mar-22 | 14-May-22 | 03-Jan-23 | 03-Mar-23 | 293 |
| SUB-320 | Subletting for Trellis outside Admin. building & Steel Working Platform | 120 | 10-May-22 | 06-Sep-22 | 09-Feb-25 | 08-Jun-25 | 1006 |
| SUB-340 | Subletting for Drainage, Sewage & waterworks | 86 | 15-May-22 | 08-Aug-22 | 20-Oct-25 | 13-Jan-26 | 1254 |
| SUB-300 | Subletting for RC works for MBR, Ancilliary Building, TTB | 60 | 19-Jun-22 | 17-Aug-22 | 18-Aug-22 | 16-Oct-22 | 60 |
| **Design Submission** | | 1562 | 30-Jan-21 A | 10-May-25 | 31-Aug-21 | 09-Nov-27 | 912 |
| **Temporary Works Design** | | 1269 | 02-Mar-21 A | 21-Aug-24 | 31-Aug-21 | 19-Aug-25 | 363 |
| **Inlet Work and Primary Sedimentation Tank** | | 225 | 02-Mar-21 A | 12-Oct-21 | 31-Aug-21 | 28-Oct-21 | 16 |
| TWD-100 | ELS Stage 1 - Prepare & Submission for PM's review | 46 | 02-Mar-21 A | 16-Apr-21 A | 31-Aug-21 | 31-Aug-21 | |
| TWD-420 | ELS Stage 2 - Prepare & Submission for PM's review | 72 | 05-Apr-21 A | 15-Jun-21 A | 16-Sep-21 | 16-Sep-21 | |
| TWD-110 | ELS Stage 1 - Review by PM's & ICE review (28 d + 7d) | 36 | 02-Jun-21 A | 07-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TWD-430 | ELS Stage 2 - Review by PM's & ICE review (28 d + 7d) | 36 | 16-Jun-21 A | 21-Jul-21 A | 16-Sep-21 | 16-Sep-21 | |
| TWD-120 | ELS Stage 1 - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 15 | 03-Jul-21 A | 17-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TWD-440 | ELS Stage 2 - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 15 | 22-Jul-21 A | 04-Sep-21 | 16-Sep-21 | 20-Sep-21 | 16 |
| TWD-500 | ELS Stage 1 - Submit to GEO (Dewatering Proposal) | 29 | 31-Aug-21 | 28-Sep-21 | 31-Aug-21 | 28-Sep-21 | 0 |
| TWD-510 | ELS Stage 2 - Submit to GEO (Dewatering Proposal) | 30 | 05-Sep-21 | 04-Oct-21 | 21-Sep-21 | 20-Oct-21 | 16 |
| TWD-130 | ELS Stage 1 - Obtain Approval | 8 | 29-Sep-21 | 06-Oct-21 | 29-Sep-21 | 06-Oct-21 | 0 |
| TWD-450 | ELS Stage 2 - Obtain Approval | 8 | 05-Oct-21 | 12-Oct-21 | 21-Oct-21 | 28-Oct-21 | 16 |
| **Mainstream Bio-Reactor System** | | 129 | 01-Sep-21 | 07-Jan-22 | 15-Nov-21 | 23-Mar-22 | 75 |
| TWD-220 | ELS - Prepare & Submission for PM's review | 45 | 01-Sep-21 | 15-Oct-21 | 15-Nov-21 | 29-Dec-21 | 75 |
| TWD-230 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Oct-21 | 19-Nov-21 | 30-Dec-21 | 02-Feb-22 | 75 |
| TWD-240 | ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 20-Nov-21 | 03-Dec-21 | 03-Feb-22 | 16-Feb-22 | 75 |
| TWD-520 | ELS - Submit to GEO | 28 | 04-Dec-21 | 31-Dec-21 | 17-Feb-22 | 16-Mar-22 | 75 |
| TWD-250 | ELS - Obtain Approval | 7 | 01-Jan-22 | 07-Jan-22 | 17-Mar-22 | 23-Mar-22 | 75 |
| **Biogas Holders** | | 124 | 31-Aug-21 | 01-Jan-22 | 01-Nov-21 | 04-Mar-22 | 62 |
| TWD-380 | Ground Improvement Works - Prepare & Submission for PM's review | 45 | 31-Aug-21* | 14-Oct-21 | 01-Nov-21 | 15-Dec-21 | 62 |
| TWD-390 | Ground Improvement Works - Review by PM's & ICE review (28 d + 7d) | 37 | 15-Oct-21 | 20-Nov-21 | 16-Dec-21 | 21-Jan-22 | 62 |
| TWD-400 | Ground Improvement Works - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 21-Nov-21 | 04-Dec-21 | 22-Jan-22 | 04-Feb-22 | 62 |
| TWD-530 | Ground Improvement Works - Submit to GEO | 28 | 05-Dec-21 | 01-Jan-22 | 05-Feb-22 | 04-Mar-22 | 62 |
| TWD-410 | Ground Improvement Works - Obtain Approval | 7 | 26-Dec-21 | 01-Jan-22 | 26-Feb-22 | 04-Mar-22 | 62 |
| **Sludge Thickening Building** | | 119 | 12-Jan-22 | 10-May-22 | 29-Mar-22 | 25-Jul-22 | 76 |
| TWD-180 | ELS - Prepare & Submission for PM's review | 42 | 12-Jan-22* | 22-Feb-22 | 29-Mar-22 | 09-May-22 | 76 |
| TWD-190 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 23-Feb-22 | 29-Mar-22 | 10-May-22 | 13-Jun-22 | 76 |
| TWD-200 | ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 30-Mar-22 | 12-Apr-22 | 14-Jun-22 | 27-Jun-22 | 76 |
| TWD-540 | Ground Improvement Works - Submit to GEO | 28 | 13-Apr-22 | 10-May-22 | 28-Jun-22 | 25-Jul-22 | 76 |
| TWD-210 | ELS - Obtain Approval | 7 | 04-May-22 | 10-May-22 | 19-Jul-22 | 25-Jul-22 | 76 |
| **Tertiary Treatment System** | | 122 | 02-Dec-21 | 02-Apr-22 | 28-Feb-22 | 29-Jun-22 | 88 |
| TWD-140 | ELS - Prepare & Submission for PM's review | 45 | 02-Dec-21* | 15-Jan-22 | 28-Feb-22 | 13-Apr-22 | 88 |
| TWD-150 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Jan-22 | 19-Feb-22 | 14-Apr-22 | 18-May-22 | 88 |
| TWD-160 | ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 20-Feb-22 | 05-Mar-22 | 19-May-22 | 01-Jun-22 | 88 |
| TWD-550 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 06-Mar-22 | 02-Apr-22 | 02-Jun-22 | 29-Jun-22 | 88 |
| TWD-170 | ELS - Obtain Approval | 7 | 27-Mar-22 | 02-Apr-22 | 23-Jun-22 | 29-Jun-22 | 88 |
| **Utilities Corridor** | | 122 | 31-Aug-21 | 30-Dec-21 | 07-Sep-21 | 06-Jan-22 | 7 |
| TWD-340 | ELS - Prepare & Submission for PM's review | 45 | 31-Aug-21 | 14-Oct-21 | 07-Sep-21 | 21-Oct-21 | 7 |
| TWD-350 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 15-Oct-21 | 18-Nov-21 | 22-Oct-21 | 25-Nov-21 | 7 |
| TWD-360 | ELS -Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 19-Nov-21 | 02-Dec-21 | 26-Nov-21 | 09-Dec-21 | 7 |
| TWD-560 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 03-Dec-21 | 30-Dec-21 | 10-Dec-21 | 06-Jan-22 | 7 |
| TWD-370 | ELS - Obtain Approval | 7 | 24-Dec-21 | 30-Dec-21 | 31-Dec-21 | 06-Jan-22 | 7 |
| **Sludge Digester** | | 122 | 31-Dec-21 | 01-May-22 | 24-Feb-23 | 25-Jun-23 | 420 |
| TWD-460 | ELS - Prepare & Submission for PM's review | 45 | 31-Dec-21 | 13-Feb-22 | 24-Feb-23 | 09-Apr-23 | 420 |
| TWD-470 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 14-Feb-22 | 20-Mar-22 | 10-Apr-23 | 14-May-23 | 420 |
| TWD-480 | ELS -Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 21-Mar-22 | 03-Apr-22 | 15-May-23 | 28-May-23 | 420 |
| TWD-570 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 04-Apr-22 | 01-May-22 | 29-May-23 | 25-Jun-23 | 420 |
| TWD-490 | ELS - Obtain Approval | 7 | 25-Apr-22 | 01-May-22 | 19-Jun-23 | 25-Jun-23 | 420 |
| **Sludge Dewatering and Underpass** | | 122 | 02-Jul-22 | 31-Oct-22 | 17-Mar-24 | 16-Jul-24 | 624 |
| TWD-260 | ELS - Prepare & Submission for PM's review | 45 | 02-Jul-22* | 15-Aug-22 | 17-Mar-24 | 30-Apr-24 | 624 |
| TWD-270 | ELS - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Aug-22 | 19-Sep-22 | 01-May-24 | 04-Jun-24 | 624 |
| TWD-280 | ELS - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 20-Sep-22 | 03-Oct-22 | 05-Jun-24 | 18-Jun-24 | 624 |
| TWD-580 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 04-Oct-22 | 31-Oct-22 | 19-Jun-24 | 16-Jul-24 | 624 |
| TWD-290 | ELS - Obtain Approval | 7 | 25-Oct-22 | 31-Oct-22 | 10-Jul-24 | 16-Jul-24 | 624 |

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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

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

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| **Administration Building** | | 122 | 22-Apr-24 | 21-Aug-24 | 02-Jul-24 | 31-Oct-24 | 71 |
| TWD-300 | Open Cut Design - Prepare & Submission for PM's review | 45 | 22-Apr-24 | 05-Jun-24 | 02-Jul-24 | 15-Aug-24 | 71 |
| TWD-310 | Open Cut Design - Review by PM's & ICE review (28 d + 7d) | 35 | 06-Jun-24 | 10-Jul-24 | 16-Aug-24 | 19-Sep-24 | 71 |
| TWD-320 | Open Cut Design - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 11-Jul-24 | 24-Jul-24 | 20-Sep-24 | 03-Oct-24 | 71 |
| TWD-590 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 25-Jul-24 | 21-Aug-24 | 04-Oct-24 | 31-Oct-24 | 71 |
| TWD-330 | Open Cut Design - Obtain Approval | 7 | 15-Aug-24 | 21-Aug-24 | 25-Oct-24 | 31-Oct-24 | 71 |
| **Walkway** | | 122 | 22-Apr-24 | 21-Aug-24 | 20-Apr-25 | 19-Aug-25 | 363 |
| TWD-600 | Walkway - Prepare & Submission for PM's review | 45 | 22-Apr-24 | 05-Jun-24 | 20-Apr-25 | 03-Jun-25 | 363 |
| TWD-610 | Walkway - Review by PM's & ICE review (28 d + 7d) | 35 | 06-Jun-24 | 10-Jul-24 | 04-Jun-25 | 08-Jul-25 | 363 |
| TWD-620 | Walkway - Resubmission for PM's & ICE review (7d prep & resub. + 7d ICE) | 14 | 11-Jul-24 | 24-Jul-24 | 09-Jul-25 | 22-Jul-25 | 363 |
| TWD-630 | ELS - Submit to GEO (Dewatering Proposal) | 28 | 25-Jul-24 | 21-Aug-24 | 23-Jul-25 | 19-Aug-25 | 363 |
| TWD-640 | Walkway - Obtain Approval | 7 | 15-Aug-24 | 21-Aug-24 | 13-Aug-25 | 19-Aug-25 | 363 |
| **Contractor 's Permanent Works Design (include ATAL)** | | 1562 | 30-Jan-21 A | 10-May-25 | 31-Aug-21 | 09-Nov-27 | 912 |
| **AIP** | | 359 | 30-Jan-21 A | 25-Oct-21 | 31-Aug-21 | 09-Nov-27 | 2205 |
| **Package 1A - Mainstream Bio-Reactor System (AGS)** | | 101 | 30-Jan-21 A | 28-May-21 A | 30-Nov-21 | 30-Nov-21 | |
| AIP-420 | E&M AIP Report for Mainstream Bio-Reactor System (AGS) - Prepare & Submission for PM's review | 45 | 30-Jan-21 A | 15-Mar-21 A | 30-Nov-21 | 30-Nov-21 | |
| AIP-430 | E&M AIP Report for Mainstream Bio-Reactor System (AGS) - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Mar-21 A | 19-Apr-21 A | 30-Nov-21 | 30-Nov-21 | |
| AIP-440 | E&M AIP Report for Mainstream Bio-Reactor System (AGS) - Resubmission for further review | 14 | 20-Apr-21 A | 03-May-21 A | 30-Nov-21 | 30-Nov-21 | |
| AIP-450 | E&M AIP Report for Mainstream Bio-Reactor System (AGS) - Obtain Approval | 7 | 04-May-21 A | 28-May-21 A | 30-Nov-21 | 30-Nov-21 | |
| **Package 2A - Tertiary Treatment System (TTS)** | | 80 | 28-Apr-21 A | 16-Jul-21 A | 19-Jan-22 | 19-Jan-22 | |
| AIP-460 | E&M AIP Report for Tertiary Treatment System (TTS) - Prepare & Submission for PM's review | 45 | 28-Apr-21 A | 11-Jun-21 A | 19-Jan-22 | 19-Jan-22 | |
| AIP-470 | E&M AIP Report for Tertiary Treatment System (TTS) - Review by PM's & ICE review (28 d + 7d) | 35 | 19-May-21 A | 22-Jun-21 A | 19-Jan-22 | 19-Jan-22 | |
| AIP-480 | E&M AIP Report for Tertiary Treatment System (TTS) - Resubmission for further review | 14 | 26-Jun-21 A | 09-Jul-21 A | 19-Jan-22 | 19-Jan-22 | |
| AIP-490 | E&M AIP Report for Tertiary Treatment System (TTS) - Obtain Approval | 7 | 10-Jul-21 A | 16-Jul-21 A | 19-Jan-22 | 19-Jan-22 | |
| **Package 3A - Plant Service Water** | | 105 | 03-Apr-21 A | 16-Jul-21 A | 03-Jun-22 | 16-Aug-23 | |
| AIP-500 | E&M AIP Report for Plant Service Water - Prepare & Submission for PM's review | 45 | 03-Apr-21 A | 17-May-21 A | 03-Jun-22 | 03-Jun-22 | |
| AIP-510 | E&M AIP Report for Plant Service Water - Review by PM's & ICE review (28 d + 7d) | 35 | 19-May-21 A | 22-Jun-21 A | 03-Jun-22 | 03-Jun-22 | |
| AIP-520 | E&M AIP Report for Plant Service Water - Resubmission for further review | 14 | 26-Jun-21 A | 09-Jul-21 A | 16-Aug-23 | 16-Aug-23 | |
| AIP-530 | E&M AIP Report for Plant Service Water - Obtain Approval | 7 | 10-Jul-21 A | 16-Jul-21 A | 16-Aug-23 | 16-Aug-23 | |
| **Package 4A - E&M Report for Temp. Diversion Chamber and Pumping Station** | | 67 | 23-Feb-21 A | 28-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| AIP-540 | Advance Works - E&M Report for Temporary Diversion Chamber and Pumping Station - Prepare & Submission for PM's review | 35 | 23-Feb-21 A | 29-Mar-21 A | 15-Oct-21 | 15-Oct-21 | |
| AIP-550 | Advance Works - E&M Report for Temporary Diversion Chamber and Pumping Station - Review by PM's & ICE review (28 d + 7d) | 35 | 06-Mar-21 A | 09-Apr-21 A | 15-Oct-21 | 15-Oct-21 | |
| AIP-560 | Advance Works - E&M Report for Temporary Diversion Chamber and Pumping Station - Resubmission for further review | 14 | 10-Apr-21 A | 23-Apr-21 A | 15-Oct-21 | 15-Oct-21 | |
| AIP-570 | Advance Works - E&M Report for Temporary Diversion Chamber and Pumping Station - Obtain Approval | 7 | 24-Apr-21 A | 28-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| **Package 4B - E&M Report for SCADA Relocation** | | 119 | 30-Jan-21 A | 28-May-21 A | 17-Jan-22 | 17-Jan-22 | |
| AIP-580 | E&M AIP Report for Advance Works (SCADA Relocation) - Prepare & Submission for PM's review | 63 | 30-Jan-21 A | 02-Apr-21 A | 17-Jan-22 | 17-Jan-22 | |
| AIP-590 | E&M AIP Report for Advance Works (SCADA Relocation) - Review by PM's & ICE review (28 d + 7d) | 35 | 03-Apr-21 A | 07-May-21 A | 17-Jan-22 | 17-Jan-22 | |
| AIP-600 | E&M AIP Report for Advance Works (SCADA Relocation) - Resubmission for further review | 14 | 08-May-21 A | 21-May-21 A | 17-Jan-22 | 17-Jan-22 | |
| AIP-610 | E&M AIP Report for Advance Works (SCADA Relocation) - Obtain Approval | 7 | 22-May-21 A | 28-May-21 A | 17-Jan-22 | 17-Jan-22 | |
| **Package 4C - E&M Report for AGS Pilot Plant** | | 89 | 01-Mar-21 A | 28-May-21 A | 24-Jun-23 | 24-Jun-23 | |
| AIP-630 | E&M AIP Report for Advance Works (AGS) - Prepare & Submission for PM's review | 33 | 01-Mar-21 A | 02-Apr-21 A | 24-Jun-23 | 24-Jun-23 | |
| AIP-640 | E&M AIP Report for Advance Works (AGS) - Review by PM's & ICE review (28 d + 7d) | 35 | 03-Apr-21 A | 07-May-21 A | 24-Jun-23 | 24-Jun-23 | |
| AIP-650 | E&M AIP Report for Advance Works (AGS) - Resubmission for further review | 14 | 08-May-21 A | 21-May-21 A | 24-Jun-23 | 24-Jun-23 | |
| AIP-660 | E&M AIP Report for Advance Works (AGS) - Obtain Approval | 7 | 22-May-21 A | 28-May-21 A | 24-Jun-23 | 24-Jun-23 | |
| **Package 5A - Electrical Power Supply System for Advance Works** | | 98 | 20-Feb-21 A | 28-May-21 A | 31-Oct-21 | 31-Oct-21 | |
| AIP-100 | Electrical Power Supply System for Advance Works - Prepare & Submission for PM's review | 42 | 20-Feb-21 A | 02-Apr-21 A | 31-Oct-21 | 31-Oct-21 | |
| AIP-110 | Electrical Power Supply System for Advance Works - Review by PM's & ICE review (28 d + 7d) | 35 | 03-Apr-21 A | 07-May-21 A | 31-Oct-21 | 31-Oct-21 | |
| AIP-120 | Electrical Power Supply System for Advance Works - Resubmission for further review | 14 | 08-May-21 A | 21-May-21 A | 31-Oct-21 | 31-Oct-21 | |
| AIP-130 | Electrical Power Supply System for Advance Works - Obtain Approval | 7 | 22-May-21 A | 28-May-21 A | 31-Oct-21 | 31-Oct-21 | |
| **Package 5B - Electrical Power Supply System for YLEPP** | | 39 | 20-Apr-21 A | 28-May-21 A | 08-Dec-23 | 08-Dec-23 | |
| AIP-140 | Electrical Power Supply System for YLEPP - Prepare & Submission for PM's review | 11 | 20-Apr-21 A | 30-Apr-21 A | 08-Dec-23 | 08-Dec-23 | |
| AIP-150 | Electrical Power Supply System for YLEPP - Review by PM's review | 14 | 01-May-21 A | 14-May-21 A | 08-Dec-23 | 08-Dec-23 | |
| AIP-160 | Electrical Power Supply System for YLEPP - Resubmission for PM's review | 14 | 08-May-21 A | 21-May-21 A | 08-Dec-23 | 08-Dec-23 | |
| AIP-170 | Electrical Power Supply System for YLEPP - Obtain Approval | 7 | 22-May-21 A | 28-May-21 A | 08-Dec-23 | 08-Dec-23 | |
| **Package 6A - Control & Monitoring System** | | 143 | 01-May-21 A | 20-Sep-21 | 10-Feb-23 | 02-Mar-23 | 528 |
| AIP-180 | Control & Monitoring System - Prepare & Submission for PM's review | 36 | 01-May-21 A | 05-Jun-21 A | 10-Feb-23 | 10-Feb-23 | |
| AIP-190 | Control & Monitoring System - Review by PM's & ICE review (28 d + 7d) | 35 | 06-Jun-21 A | 10-Jul-21 A | 10-Feb-23 | 10-Feb-23 | |
| AIP-200 | Control & Monitoring System - Resubmission for further review | 14 | 12-Jul-21 A | 13-Sep-21 | 10-Feb-23 | 23-Feb-23 | 528 |
| AIP-620 | Control & Monitoring System - Obtain Approval | 7 | 14-Sep-21 | 20-Sep-21 | 24-Feb-23 | 02-Mar-23 | 528 |
| **Package 7A - Building Services System** | | 60 | 30-Mar-21 A | 28-May-21 A | 22-Jan-22 | 22-Jan-22 | |
| AIP-220 | BS System - Prepare & Submission for PM's review | 7 | 30-Mar-21 A | 05-Apr-21 A | 22-Jan-22 | 22-Jan-22 | |
| AIP-230 | BS System - Review by PM's & ICE review (28 d + 7d) | 35 | 06-Apr-21 A | 10-May-21 A | 22-Jan-22 | 22-Jan-22 | |
| AIP-240 | BS System - Resubmission for further review | 14 | 08-May-21 A | 21-May-21 A | 22-Jan-22 | 22-Jan-22 | |
| AIP-250 | BS System - Obtain Approval | 7 | 22-May-21 A | 28-May-21 A | 22-Jan-22 | 22-Jan-22 | |
| **Package 8A - E&M AIP Report for Sludge Thickening Building & Chemical System** | | 102 | 01-Mar-21 A | 10-Jun-21 A | 29-Oct-22 | 29-Oct-22 | |
| AIP-260 | STB - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 29-Oct-22 | 29-Oct-22 | |
| AIP-270 | STB - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 29-Oct-22 | 29-Oct-22 | |
| AIP-280 | STB - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 29-Oct-22 | 29-Oct-22 | |
| AIP-290 | STB - Obtain Approval | 7 | 04-Jun-21 A | 10-Jun-21 A | 29-Oct-22 | 29-Oct-22 | |
| **Package 9A - E&M AIP Report for Inlet Work (IW)** | | 102 | 01-Mar-21 A | 10-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-670 | IW - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-680 | IW - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-690 | IW - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-700 | IW - Obtain Approval | 7 | 04-Jun-21 A | 10-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Package 10A - E&M AIP Report for Primary Sedimentation Tank (PST)** | | 113 | 01-Mar-21 A | 21-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |


保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

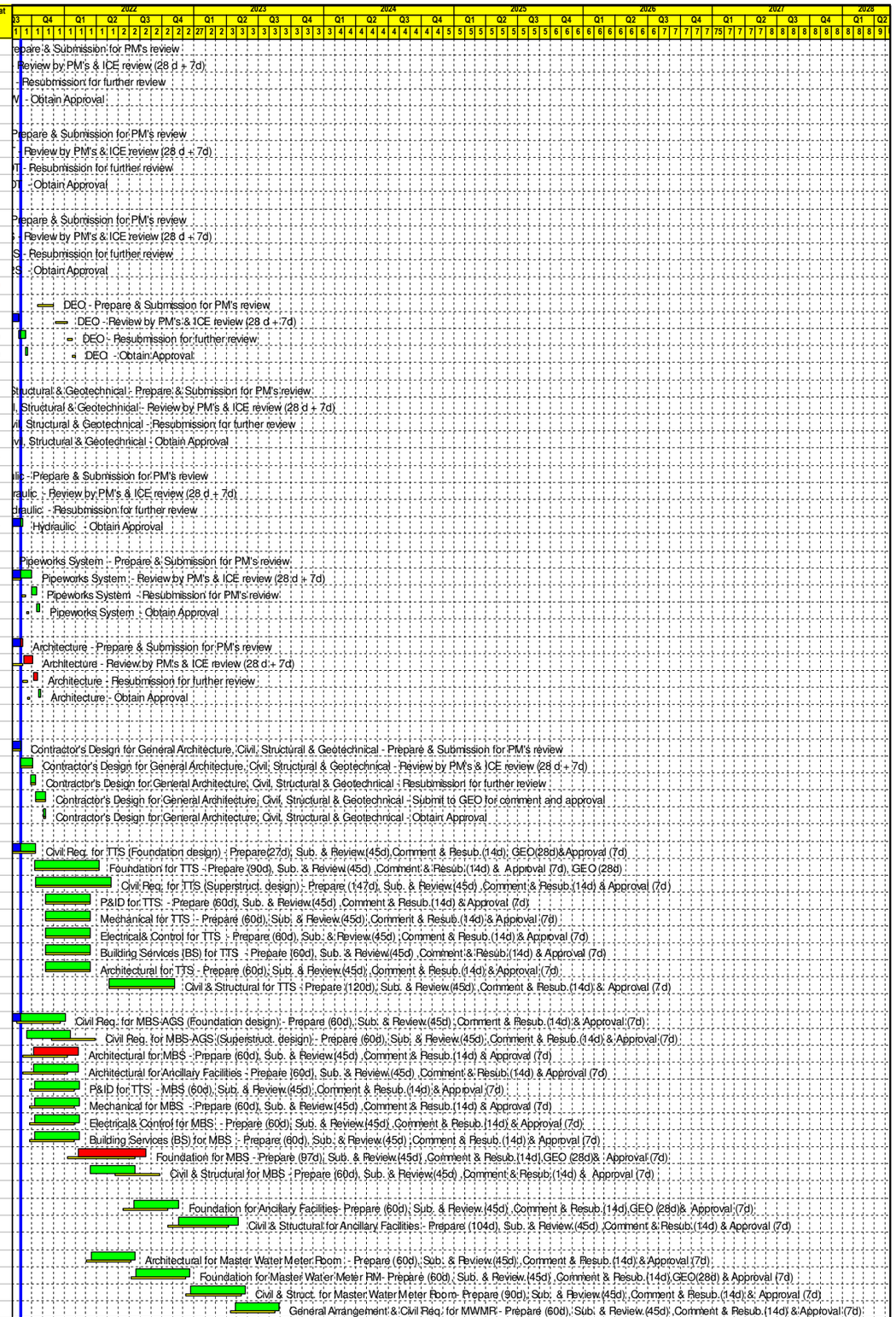
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

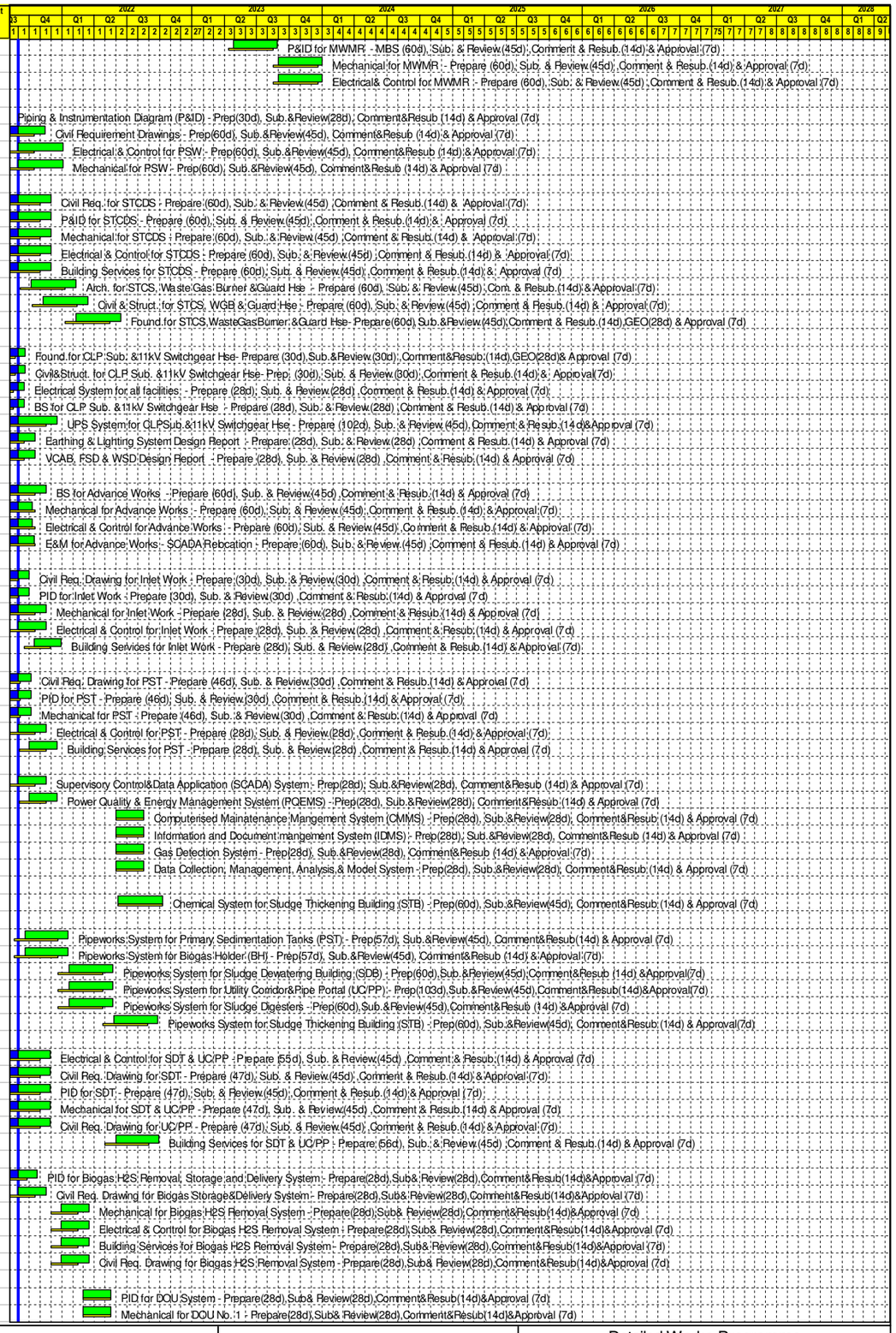

Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| AIP-710 | IW - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-720 | IW - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-730 | IW - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-740 | IW - Obtain Approval | 7 | 15-Jun-21 A | 21-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Package 11A - E&M AIP Report for Sludge Anaerobic Digestion System (SDT)** | | 102 | 01-Mar-21 A | 10-Jun-21 A | 17-Dec-21 | 09-Nov-27 | |
| AIP-750 | SDT - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 17-Dec-21 | 17-Dec-21 | |
| AIP-760 | SDT - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 17-Dec-21 | 17-Dec-21 | |
| AIP-770 | SDT - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-780 | SDT - Obtain Approval | 7 | 04-Jun-21 A | 10-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Package 13A - E&M AIP Report for Biogas H2S Removal, Storage and Delivery System** | | 102 | 01-Mar-21 A | 10-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-790 | H2S - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-800 | H2S - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-810 | H2S - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| AIP-820 | H2S - Obtain Approval | 7 | 04-Jun-21 A | 10-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Package 14A - E&M AIP Report for Deodorization Unit System** | | 198 | 23-Jun-21 A | 20-Sep-21 | 19-Oct-27 | 08-Nov-27 | 2240 |
| AIP-830 | DEO - Prepare & Submission for PM's review | 46 | 23-Jun-21 A | 09-Jul-21 A | 19-Oct-27 | 19-Oct-27 | |
| AIP-840 | DEO - Review by PM's & ICE review (28 d + 7d) | 46 | 10-Jul-21 A | 24-Aug-21 A | 19-Oct-27 | 19-Oct-27 | |
| AIP-850 | DEO - Resubmission for further review | 14 | 25-Aug-21 A | 13-Sep-21 | 19-Oct-27 | 01-Nov-27 | 2240 |
| AIP-860 | DEO - Obtain Approval | 7 | 14-Sep-21 | 20-Sep-21 | 02-Nov-27 | 08-Nov-27 | 2240 |
| **Package 15A - Civil, Structural & Geotechnical** | | 81 | 30-Mar-21 A | 18-Jun-21 A | 14-Oct-21 | 28-Nov-21 | |
| AIP-380 | Civil, Structural & Geotechnical - Prepare & Submission for PM's review | 25 | 30-Mar-21 A | 23-Apr-21 A | 14-Oct-21 | 14-Oct-21 | |
| AIP-390 | Civil, Structural & Geotechnical - Review by PM's & ICE review (28 d + 7d) | 35 | 24-Apr-21 A | 28-May-21 A | 14-Oct-21 | 14-Oct-21 | |
| AIP-400 | Civil, Structural & Geotechnical - Resubmission for further review | 14 | 29-May-21 A | 11-Jun-21 A | 14-Oct-21 | 14-Oct-21 | |
| AIP-410 | Civil, Structural & Geotechnical - Obtain Approval | 7 | 12-Jun-21 A | 18-Jun-21 A | 28-Nov-21 | 28-Nov-21 | |
| **Package 16A - E&M AIP Report for Hydraulic Design** | | 160 | 01-Mar-21 A | 06-Sep-21 | 02-Nov-27 | 08-Nov-27 | 2254 |
| AIP-870 | Hydraulic - Prepare & Submission for PM's review | 46 | 01-Mar-21 A | 15-Apr-21 A | 02-Nov-27 | 02-Nov-27 | |
| AIP-880 | Hydraulic - Review by PM's & ICE review (28 d + 7d) | 35 | 16-Apr-21 A | 20-May-21 A | 02-Nov-27 | 02-Nov-27 | |
| AIP-890 | Hydraulic - Resubmission for further review | 14 | 21-May-21 A | 03-Jun-21 A | 02-Nov-27 | 02-Nov-27 | |
| AIP-900 | Hydraulic - Obtain Approval | 38 | 01-Jul-21 A | 06-Sep-21 | 02-Nov-27 | 08-Nov-27 | 2254 |
| **Pipeworks System** | | 143 | 01-Jun-21 A | 21-Oct-21 | 31-Jul-22 | 20-Sep-22 | 334 |
| AIP-300 | Pipeworks System - Prepare & Submission for PM's review | 57 | 01-Jun-21 A | 27-Jul-21 A | 31-Jul-22 | 31-Jul-22 | |
| AIP-310 | Pipeworks System - Review by PM's & ICE review (28 d + 7d) | 35 | 28-Jul-21 A | 30-Sep-21 | 31-Jul-22 | 30-Aug-22 | 334 |
| AIP-320 | Pipeworks System - Resubmission for PM's review | 14 | 01-Oct-21 | 14-Oct-21 | 31-Aug-22 | 13-Sep-22 | 334 |
| AIP-330 | Pipeworks System - Obtain Approval | 7 | 15-Oct-21 | 21-Oct-21 | 14-Sep-22 | 20-Sep-22 | 334 |
| **Architecture** | | 117 | 01-Jul-21 A | 25-Oct-21 | 31-Aug-21 | 11-Jun-24 | 960 |
| AIP-340 | Architecture - Prepare & Submission for PM's review | 38 | 01-Jul-21 A | 06-Sep-21 | 31-Aug-21 | 06-Sep-21 | 0 |
| AIP-350 | Architecture - Review by PM's & ICE review (28 d + 7d) | 28 | 07-Sep-21 | 04-Oct-21 | 07-Sep-21 | 04-Oct-21 | 0 |
| AIP-360 | Architecture - Resubmission for further review | 14 | 05-Oct-21 | 18-Oct-21 | 05-Oct-21 | 18-Oct-21 | 0 |
| AIP-370 | Architecture - Obtain Approval | 7 | 19-Oct-21 | 25-Oct-21 | 05-Jun-24 | 11-Jun-24 | 960 |
| **DDA** | | 1475 | 27-Apr-21 A | 10-May-25 | 05-Oct-21 | 08-Nov-27 | 912 |
| **Package 1 - General Architecture, Civil, Structural & Geotechnical** | | 143 | 19-Jun-21 A | 08-Nov-21 | 11-Dec-21 | 19-Feb-22 | 103 |
| DDA-100 | Contractor's Design for General Architecture, Civil, Structural & Geotechnical - Prepare & Submission for PM's review | 73 | 19-Jun-21 A | 31-Aug-21 | 11-Dec-21 | 11-Dec-21 | 103 |
| DDA-110 | Contractor's Design for General Architecture, Civil, Structural & Geotechnical - Review by PM's & ICE review (28 d + 7d) | 35 | 31-Aug-21 | 04-Oct-21 | 12-Dec-21 | 15-Jan-22 | 103 |
| DDA-120 | Contractor's Design for General Architecture, Civil, Structural & Geotechnical - Resubmission for further review | 14 | 28-Sep-21 | 11-Oct-21 | 09-Jan-22 | 22-Jan-22 | 103 |
| DDA-1080 | Contractor's Design for General Architecture, Civil, Structural & Geotechnical - Submit to GEO for comment and approval | 28 | 12-Oct-21 | 08-Nov-21 | 23-Jan-22 | 19-Feb-22 | 103 |
| DDA-130 | Contractor's Design for General Architecture, Civil, Structural & Geotechnical - Obtain Approval | 7 | 02-Nov-21 | 08-Nov-21 | 13-Feb-22 | 19-Feb-22 | 103 |
| **Package 2 - Tertiary Treatment System** | | 514 | 13-Jun-21 A | 08-Nov-22 | 19-Jan-22 | 19-Dec-23 | 406 |
| DDA-170 | Civil Req. for TTS (Foundation design) - Prepare(27d), Sub. & Review.(45d),Comment & Resub.(14d), GEO(28d)&Approval (7d) | 121 | 13-Jun-21 A | 11-Oct-21 | 27-Apr-22 | 07-Jun-22 | 240 |
| DDA-150 | Foundation for TTS - Prepare (90d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d), GEO (28d) | 184 | 08-Oct-21 | 09-Apr-22 | 19-Jan-22 | 21-Jul-22 | 103 |
| DDA-180 | Civil Req. for TTS (Superstruct. design) - Prepare (147d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 213 | 11-Oct-21 | 12-May-22 | 08-Jun-22 | 06-Jan-23 | 240 |
| DDA-190 | P&ID for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 07-Nov-21 | 13-Mar-22 | 16-Aug-23 | 19-Dec-23 | 647 |
| DDA-200 | Mechanical for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 07-Nov-21 | 13-Mar-22 | 16-Aug-23 | 19-Dec-23 | 647 |
| DDA-210 | Electrical& Control for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 07-Nov-21 | 13-Mar-22 | 16-Aug-23 | 19-Dec-23 | 647 |
| DDA-220 | Building Services (BS) for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 07-Nov-21 | 13-Mar-22 | 16-Aug-23 | 19-Dec-23 | 647 |
| DDA-140 | Architectural for TTS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 09-Nov-21 | 14-Mar-22 | 20-Feb-22 | 25-Jun-22 | 103 |
| DDA-160 | Civil & Structural for TTS - Prepare (120d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 186 | 07-May-22 | 08-Nov-22 | 18-Aug-22 | 19-Feb-23 | 103 |
| **Package 3 - Mainstream Bio-Reactor System** | | 352 | 09-Jun-21 A | 17-Aug-22 | 05-Oct-21 | 27-Oct-23 | 436 |
| DDA-260 | Civil Req. for MBS-AGS (Foundation design) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 09-Jun-21 A | 03-Jan-22 | 30-Nov-21 | 04-Apr-22 | 91 |
| DDA-270 | Civil Req. for MBS-AGS (Superstruct. design) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 15-Sep-21 | 18-Jan-22 | 15-Dec-21 | 19-Apr-22 | 91 |
| DDA-230 | Architectural for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 05-Oct-21 | 07-Feb-22 | 05-Oct-21 | 07-Feb-22 | 0 |
| DDA-1090 | Architectural for Ancillary Facilities - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 05-Oct-21 | 07-Feb-22 | 17-Mar-22 | 20-Jul-22 | 163 |
| DDA-280 | P&ID for TTS - MBS (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 08-Oct-21 | 10-Feb-22 | 24-Jun-23 | 27-Oct-23 | 624 |
| DDA-290 | Mechanical for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 08-Oct-21 | 10-Feb-22 | 24-Jun-23 | 27-Oct-23 | 624 |
| DDA-300 | Electrical& Control for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 08-Oct-21 | 10-Feb-22 | 24-Jun-23 | 27-Oct-23 | 624 |
| DDA-310 | Building Services (BS) for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 08-Oct-21 | 10-Feb-22 | 24-Jun-23 | 27-Oct-23 | 624 |
| DDA-240 | Foundation for MBS - Prepare (97d), Sub. & Review.(45d) ,Comment & Resub.(14d),GEO (28d)& Approval (7d) | 191 | 08-Feb-22 | 17-Aug-22 | 08-Feb-22 | 17-Aug-22 | 0 |
| DDA-250 | Civil & Structural for MBS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 14-Mar-22 | 17-Jul-22 | 13-Jun-22 | 16-Oct-22 | 91 |
| **Package 4 - Ancillary Facilities** | | 296 | 15-Jul-22 | 06-May-23 | 21-Jul-22 | 12-May-23 | 6 |
| DDA-1100 | Foundation for Ancillary Facilities- Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d),GEO (28d)& Approval (7d) | 126 | 15-Jul-22 | 17-Nov-22 | 21-Jul-22 | 23-Nov-22 | 6 |
| DDA-1110 | Civil & Structural for Ancillary Facilities - Prepare (104d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 170 | 18-Nov-22 | 06-May-23 | 24-Nov-22 | 12-May-23 | 6 |
| **Package 5A - Master Water Meter Room** | | 658 | 16-Mar-22 | 02-Jan-24 | 12-Jun-24 | 31-Mar-26 | 819 |
| DDA-350 | Architectural for Master Water Meter Room - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 16-Mar-22 | 19-Jul-22 | 12-Jun-24 | 15-Oct-24 | 819 |
| DDA-360 | Foundation for Master Water Meter RM- Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d),GEO(28d) & Approval (7d) | 154 | 20-Jul-22 | 20-Dec-22 | 16-Oct-24 | 18-Mar-25 | 819 |
| DDA-370 | Civil & Struct. for Master Water Meter Room- Prepare (90d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 156 | 21-Dec-22 | 25-May-23 | 19-Mar-25 | 21-Aug-25 | 819 |
| DDA-380 | General Arrangement & Civil Req. for MWMR - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 26-Apr-23 | 29-Aug-23 | 26-Nov-25 | 31-Mar-26 | 945 |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| DDA-390 | P&ID for MWMR - MBS (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 26-Apr-23 | 29-Aug-23 | 23-Jul-25 | 25-Nov-25 | 819 |
| DDA-400 | Mechanical for MWMR - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 30-Aug-23 | 02-Jan-24 | 26-Nov-25 | 31-Mar-26 | 819 |
| DDA-410 | Electrical& Control for MWMR - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 30-Aug-23 | 02-Jan-24 | 26-Nov-25 | 31-Mar-26 | 819 |
| **Package 5B - Plant Service Water (PSW)** | | 252 | 27-Apr-21 A | 03-Jan-22 | 03-Jun-22 | 19-Dec-23 | 715 |
| DDA-1040 | Piping & Instrumentation Diagram (P&ID) - Prep(30d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 96 | 27-Apr-21 A | 31-Jul-21 A | 16-Aug-23 | 16-Aug-23 | |
| DDA-1050 | Civil Requirement Drawings - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 12-Jun-21 A | 14-Nov-21 | 03-Jun-22 | 17-Aug-22 | 276 |
| DDA-1060 | Electrical & Control for PSW - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 31-Aug-21 | 03-Jan-22 | 16-Aug-23 | 19-Dec-23 | 715 |
| DDA-1070 | Mechanical for PSW - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 31-Aug-21 | 03-Jan-22 | 16-Aug-23 | 19-Dec-23 | 715 |
| **Package 6 - Sludge Thickening Chemical and Dosing System** | | 351 | 28-Jun-21 A | 13-Jun-22 | 26-Mar-22 | 21-Feb-23 | 253 |
| DDA-440B | Civil Req. for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 28-Jun-21 A | 30-Nov-21 | 22-Nov-22 | 21-Feb-23 | 448 |
| DDA-1120 | P&ID for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 28-Jun-21 A | 30-Nov-21 | 22-Nov-22 | 21-Feb-23 | 448 |
| DDA-1130 | Mechanical for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 28-Jun-21 A | 30-Nov-21 | 22-Nov-22 | 21-Feb-23 | 448 |
| DDA-1140 | Electrical & Control for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 28-Jun-21 A | 30-Nov-21 | 22-Nov-22 | 21-Feb-23 | 448 |
| DDA-1150 | Building Services for STCDS - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 28-Jun-21 A | 30-Nov-21 | 22-Nov-22 | 21-Feb-23 | 448 |
| DDA-420 | Arch. for STCS, Waste Gas Burner &Guard Hse - Prepare (60d), Sub. & Review.(45d) ,Com. & Resub.(14d) & Approval (7d) | 126 | 05-Oct-21 | 07-Feb-22 | 26-Mar-22 | 29-Jul-22 | 172 |
| DDA-440 | Civil & Struct. for STCS, WGB & Guard Hse - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 09-Nov-21 | 14-Mar-22 | 19-Oct-22 | 21-Feb-23 | 344 |
| DDA-430 | Found.for STCS,WasteGasBurner &Guard Hse- Prepare(60d),Sub.&Review.(45d),Comment & Resub.(14d),GEO(28d) & Approval (7d | 126 | 08-Feb-22 | 13-Jun-22 | 30-Jul-22 | 02-Dec-22 | 172 |
| **Package 7 - CLP Substation and 11kV Switchgear House** | | 170 | 01-Jun-21 A | 17-Dec-21 | 14-Oct-21 | 19-Jun-22 | 184 |
| DDA-450 | Found.for CLP Sub. &11kV Switchgear Hse- Prepare (30d),Sub.&Review.(30d) ,Comment&Resub.(14d),GEO(28d)& Approval (7d) | 82 | 01-Jun-21 A | 20-Sep-21 | 14-Oct-21 | 03-Nov-21 | 44 |
| DDA-460 | Civil&Struct. for CLP Sub. &11kV Switchgear Hse- Prep. (30d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval(7d) | 82 | 01-Jun-21 A | 20-Sep-21 | 14-Oct-21 | 03-Nov-21 | 44 |
| DDA-470 | Electrical System for all facilities - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 01-Jun-21 A | 16-Sep-21 | 14-Oct-21 | 30-Oct-21 | 44 |
| DDA-490 | BS for CLP Sub. &11kV Switchgear Hse - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 01-Jun-21 A | 16-Sep-21 | 21-Apr-22 | 07-May-22 | 233 |
| DDA-480 | UPS System for CLPSub.&11kV Switchgear Hse - Prepare (102d), Sub. & Review.(45d),Comment & Resub.(14d)&Approval (7d) | 168 | 03-Jun-21 A | 17-Dec-21 | 03-Mar-22 | 19-Jun-22 | 184 |
| DDA-1160 | Earthing & Lighting System Design Report - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 02-Jul-21 A | 17-Oct-21 | 14-Oct-21 | 30-Nov-21 | 44 |
| DDA-1450 | VCAB, FSD & WSD Design Report - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 02-Jul-21 A | 17-Oct-21 | 14-Oct-21 | 30-Nov-21 | 44 |
| **Package 8 - Advance Works and SCADA Relocation** | | 78 | 04-May-21 A | 16-Nov-21 | 31-Oct-21 | 16-Jan-22 | 61 |
| DDA-520 | BS for Advance Works - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 04-May-21 A | 16-Nov-21 | 31-Oct-21 | 16-Jan-22 | 61 |
| DDA-500 | Mechanical for Advance Works - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 22-May-21 A | 08-Oct-21 | 09-Dec-21 | 16-Jan-22 | 100 |
| DDA-510 | Electrical & Control for Advance Works - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 04-Jun-21 A | 08-Oct-21 | 09-Dec-21 | 16-Jan-22 | 100 |
| DDA-530 | E&M for Advance Works - SCADA Relocation - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 76 | 24-Jun-21 A | 15-Oct-21 | 02-Dec-21 | 16-Jan-22 | 93 |
| **Package 9 - Inlet Work (IW)** | | 203 | 10-Jun-21 A | 29-Dec-21 | 29-Jan-22 | 03-Mar-23 | 429 |
| DDA-1170 | Civil Req. Drawing for Inlet Work - Prepare (30d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d) | 82 | 10-Jun-21 A | 29-Sep-21 | 29-Jan-22 | 27-Feb-22 | 151 |
| DDA-1180 | PID for Inlet Work - Prepare (30d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d) | 82 | 10-Jun-21 A | 29-Sep-21 | 29-Jan-22 | 27-Feb-22 | 151 |
| DDA-1190 | Mechanical for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 09-Aug-21 A | 16-Nov-21 | 25-Sep-22 | 11-Dec-22 | 390 |
| DDA-1200 | Electrical & Control for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 31-Aug-21 | 16-Nov-21 | 25-Sep-22 | 11-Dec-22 | 390 |
| DDA-1210 | Building Services for Inlet Work - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 76 | 15-Oct-21 | 29-Dec-21 | 18-Dec-22 | 03-Mar-23 | 429 |
| **Package 10 - Primary Sedimentation Tank (PST)** | | 200 | 01-Jun-21 A | 17-Dec-21 | 27-Feb-23 | 15-Jun-23 | 545 |
| DDA-1220 | Civil Req. Drawing for PST - Prepare (46d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d) | 98 | 01-Jun-21 A | 06-Oct-21 | 27-Feb-23 | 04-Apr-23 | 545 |
| DDA-1230 | PID for PST - Prepare (46d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d) | 98 | 01-Jun-21 A | 06-Oct-21 | 27-Feb-23 | 04-Apr-23 | 545 |
| DDA-1240 | Mechanical for PST - Prepare (46d), Sub. & Review.(30d) ,Comment & Resub.(14d) & Approval (7d) | 98 | 01-Jun-21 A | 06-Oct-21 | 27-Feb-23 | 04-Apr-23 | 545 |
| DDA-1250 | Electrical & Control for PST - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 31-Aug-21 | 16-Nov-21 | 27-Feb-23 | 15-May-23 | 545 |
| DDA-1260 | Building Services for PST - Prepare (28d), Sub. & Review.(28d) ,Comment & Resub.(14d) & Approval (7d) | 78 | 01-Oct-21 | 17-Dec-21 | 30-Mar-23 | 15-Jun-23 | 545 |
| **Package 11 - Control and Monitoring System** | | 352 | 31-Aug-21 | 17-Aug-22 | 21-Aug-23 | 07-Dec-23 | 477 |
| DDA-550 | Supervisory Control&Data Application (SCADA) System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 31-Aug-21 | 16-Nov-21 | 21-Aug-23 | 06-Nov-23 | 720 |
| DDA-580 | Power Quality & Energy Management System (PQEMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 01-Oct-21 | 17-Dec-21 | 21-Sep-23 | 07-Dec-23 | 720 |
| DDA-560 | Computerised Mainatenance Mangement System (CMMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 01-Jun-22* | 17-Aug-22 | 21-Sep-23 | 07-Dec-23 | 477 |
| DDA-570 | Information and Document mangement System (IDMS) - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 01-Jun-22 | 17-Aug-22 | 21-Sep-23 | 07-Dec-23 | 477 |
| DDA-1270 | Gas Detection System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 01-Jun-22 | 17-Aug-22 | 21-Sep-23 | 07-Dec-23 | 477 |
| DDA-1280 | Data Collection, Management, Analysis,& Model System - Prep(28d), Sub.&Review(28d), Comment&Resub (14d) & Approval (7d) | 78 | 01-Jun-22 | 17-Aug-22 | 21-Sep-23 | 07-Dec-23 | 477 |
| **Package 12 - Chemical System for STB** | | 126 | 07-Jun-22 | 10-Oct-22 | 29-Oct-22 | 03-Mar-23 | 144 |
| DDA-650 | Chemical System for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 07-Jun-22 | 10-Oct-22 | 29-Oct-22 | 03-Mar-23 | 144 |
| **Package 13 - Pipework System** | | 375 | 18-Sep-21 | 27-Sep-22 | 21-May-22 | 16-May-24 | 597 |
| DDA-670 | Pipeworks System for Primary Sedimentation Tanks (PST) - Prep(57d), Sub.&Review(45d), Comment&Resub(14d) & Approval (7d) | 123 | 18-Sep-21 | 18-Jan-22 | 21-May-22 | 20-Sep-22 | 245 |
| DDA-680 | Pipeworks System for Biogas Holder (BH) - Prep(57d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 123 | 18-Sep-21 | 18-Jan-22 | 21-May-22 | 20-Sep-22 | 245 |
| DDA-690 | Pipeworks System for Sludge Dewatering Building (SDB) - Prep(60d),Sub.&Review(45d),Comment&Resub (14d) &Approval(7d) | 126 | 19-Jan-22 | 24-May-22 | 08-Nov-22 | 13-Mar-23 | 293 |
| DDA-700 | Pipeworks System for Utility Corridor&Pipe Portal (UC/PP) - Prep(103d),Sub.&Review(45d),Comment&Resub(14d)&Approval(7d) | 126 | 19-Jan-22 | 24-May-22 | 08-Nov-22 | 13-Mar-23 | 293 |
| DDA-1030 | Pipeworks System for Sludge Digesters - Prep(60d),Sub.&Review(45d),Comment&Resub (14d) &Approval (7d) | 126 | 19-Jan-22 | 24-May-22 | 08-Sep-23 | 11-Jan-24 | 597 |
| DDA-660 | Pipeworks System for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 25-May-22 | 27-Sep-22 | 12-Jan-24 | 16-May-24 | 597 |
| **Package 14 - Sludge Anaerobic Digestion System (SDT)** | | 456 | 02-Jul-21 A | 30-Sep-22 | 17-Dec-21 | 25-Sep-24 | 726 |
| DDA-1320 | Electrical & Control for SDT & UC/PP - Prepare (55d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 121 | 02-Jul-21 A | 29-Nov-21 | 26-Feb-24 | 26-May-24 | 909 |
| DDA-1290 | Civil Req. Drawing for SDT - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 113 | 10-Jul-21 A | 29-Nov-21 | 17-Dec-21 | 17-Mar-22 | 108 |
| DDA-1300 | PID for SDT - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 113 | 10-Jul-21 A | 29-Nov-21 | 30-Oct-23 | 28-Jan-24 | 790 |
| DDA-1310 | Mechanical for SDT & UC/PP - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 113 | 10-Jul-21 A | 29-Nov-21 | 30-Oct-23 | 28-Jan-24 | 790 |
| DDA-1340 | Civil Req. Drawing for UC/PP - Prepare (47d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 113 | 10-Jul-21 A | 29-Nov-21 | 27-Aug-23 | 25-Nov-23 | 726 |
| DDA-1330 | Building Services for SDT & UC/PP - Prepare (56d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 122 | 01-Jun-22 | 30-Sep-22 | 27-May-24 | 25-Sep-24 | 726 |
| **Package 15 - Biogas H2S Removal, Storage and Delivery System** | | 248 | 13-Jul-21 A | 17-Mar-22 | 17-Dec-21 | 20-Sep-22 | 187 |
| DDA-1360 | PID for Biogas H2S Removal, Storage and Delivery System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 75 | 13-Jul-21 A | 22-Oct-21 | 11-Jan-22 | 04-Mar-22 | 134 |
| DDA-1350 | Civil Req. Drawing for Biogas Storage&Delivery System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 31-Aug-21 | 16-Nov-21 | 17-Dec-21 | 04-Mar-22 | 108 |
| DDA-1370 | Mechanical for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 30-Dec-21 | 17-Mar-22 | 05-Jul-22 | 20-Sep-22 | 187 |
| DDA-1380 | Electrical & Control for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 30-Dec-21 | 17-Mar-22 | 05-Jul-22 | 20-Sep-22 | 187 |
| DDA-1390 | Building Services for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 30-Dec-21 | 17-Mar-22 | 05-Jul-22 | 20-Sep-22 | 187 |
| DDA-1400 | Civil Req. Drawing for Biogas H2S Removal System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 30-Dec-21 | 17-Mar-22 | 05-Jul-22 | 20-Sep-22 | 187 |
| **Package 16 - Deodorization Unit System** | | 78 | 28-Feb-22 | 16-May-22 | 23-Aug-27 | 08-Nov-27 | 2002 |
| DDA-1410 | PID for DOU System - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 28-Feb-22* | 16-May-22 | 23-Aug-27 | 08-Nov-27 | 2002 |
| DDA-1420 | Mechanical for DOU No. 1 - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 28-Feb-22 | 16-May-22 | 23-Aug-27 | 08-Nov-27 | 2002 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

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

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| DDA-1430 | Mechanical for DOU No. 2A and 2B - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 28-Feb-22 | 16-May-22 | 23-Aug-27 | 08-Nov-27 | 2002 |
| DDA-1440 | Mechanical for DOU No. 3 - Prepare(28d),Sub& Review(28d),Comment&Resub(14d)&Approval (7d) | 78 | 28-Feb-22 | 16-May-22 | 23-Aug-27 | 08-Nov-27 | 2002 |
| **Package 17 - Sludge Dewatering Building (SDB)** | | 688 | 07-Jun-21 A | 25-Apr-23 | 19-Jun-23 | 10-Feb-25 | 657 |
| DDA-890 | Architectural for Sludge Dewatering Building (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 07-Jun-21 A | 09-Nov-21 | 19-Jun-23 | 28-Aug-23 | 657 |
| DDA-900 | Found. for Sludge Dewatering Building (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d), GEO (28d)& Approval (7d) | 154 | 10-Nov-21 | 12-Apr-22 | 29-Aug-23 | 29-Jan-24 | 657 |
| DDA-950 | BS for Sludge Dewatering Building (SDB) - Prep(118d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 184 | 31-Mar-22 | 30-Sep-22 | 11-Aug-24 | 10-Feb-25 | 864 |
| DDA-910 | Civil & Struct. for Sludge Dewatering Building (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub (21d) & Approval(7d) | 126 | 13-Apr-22 | 16-Aug-22 | 30-Jan-24 | 03-Jun-24 | 657 |
| DDA-920 | General Arrangement & Civil Req. Drawings for SDB - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 17-Aug-22 | 20-Dec-22 | 04-Jun-24 | 07-Oct-24 | 657 |
| DDA-930 | Mechanical for Sludge Dewatering Building (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 21-Dec-22 | 25-Apr-23 | 08-Oct-24 | 10-Feb-25 | 657 |
| DDA-940 | Electrical & Control for Sludge Dewatering Bldg (SDB) - Prep(60d), Sub.&Review(45d), Comment&Resub(14d) & Approval (7d) | 126 | 21-Dec-22 | 25-Apr-23 | 08-Oct-24 | 10-Feb-25 | 657 |
| **Package 18 - Miscellaneous** | | 126 | 13-Jul-24 | 15-Nov-24 | 03-Mar-25 | 06-Jul-25 | 233 |
| DDA-540 | Civil & Structural for Misc, Manholes,DrawPits,FenceWall - Prep(60d),Sub.&Review(45d),Comment&Resub(14d) & Approval(7d) | 126 | 13-Jul-24* | 15-Nov-24 | 03-Mar-25 | 06-Jul-25 | 233 |
| **Package 19 - Elevated Walkways** | | 154 | 04-Jan-22 | 06-Jun-22 | 06-Oct-24 | 08-Mar-25 | 1006 |
| DDA-710 | Civil & Structural for Elevated Walkways - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d), GEO(28d) | 154 | 04-Jan-22 | 06-Jun-22 | 06-Oct-24 | 08-Mar-25 | 1006 |
| **Package 20 - Trellis** | | 126 | 31-Aug-21 | 03-Jan-22 | 02-Jun-24 | 05-Oct-24 | 1006 |
| DDA-720 | Civil & Structural for Trellis - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 31-Aug-21 | 03-Jan-22 | 02-Jun-24 | 05-Oct-24 | 1006 |
| **Package 21 - Steel Working Platform** | | 126 | 04-Jan-22 | 09-May-22 | 06-Oct-24 | 08-Feb-25 | 1006 |
| DDA-730 | Civil & Structural for Steel Working Platform - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 04-Jan-22 | 09-May-22 | 06-Oct-24 | 08-Feb-25 | 1006 |
| **Administration Building (ADB)** | | 784 | 19-Mar-23 | 10-May-25 | 26-Sep-23 | 06-Jan-26 | 241 |
| DDA-0960 | Architectural for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 19-Mar-23 | 22-Jul-23 | 26-Sep-23 | 29-Jan-24 | 191 |
| DDA-0970 | Found. for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d), GEO (28d) & Approval (7d) | 154 | 23-Jul-23 | 23-Dec-23 | 30-Jan-24 | 01-Jul-24 | 191 |
| DDA-0980 | Civil & Structural for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 24-Dec-23 | 27-Apr-24 | 26-Jul-24 | 28-Nov-24 | 215 |
| DDA-0990 | General Arrangement & Civil Req. Drawings for ADB - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 28-Apr-24 | 31-Aug-24 | 25-Dec-24 | 29-Apr-25 | 241 |
| DDA-1000 | Mechanical for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 01-Sep-24 | 04-Jan-25 | 03-Sep-25 | 06-Jan-26 | 367 |
| DDA-1010 | Electrical & Control for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 01-Sep-24 | 04-Jan-25 | 30-Apr-25 | 02-Sep-25 | 241 |
| DDA-1020 | BS for Administration Building (ADB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 05-Jan-25 | 10-May-25 | 03-Sep-25 | 06-Jan-26 | 241 |
| **Building Services** | | 402 | 31-Aug-21 | 06-Oct-22 | 18-Feb-22 | 03-Mar-23 | 148 |
| DDA-590 | BS for Inlet Works (IW) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 31-Aug-21 | 03-Jan-22 | 29-Oct-22 | 03-Mar-23 | 424 |
| DDA-600 | BS for Sludge Thickening Building (STB) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 31-Aug-21 | 03-Jan-22 | 21-Jun-22 | 24-Oct-22 | 294 |
| DDA-620 | BS for Biogas Holder (BH) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 31-Aug-21 | 03-Jan-22 | 21-Apr-22 | 24-Aug-22 | 233 |
| DDA-610 | BS for Primary Sedimentation Tanks (PST) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 27-Sep-21 | 30-Jan-22 | 18-Feb-22 | 23-Jun-22 | 144 |
| DDA-630 | BS for Sludge Dewatering Building (SDB) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 03-Apr-22 | 06-Aug-22 | 25-Aug-22 | 28-Dec-22 | 144 |
| DDA-640 | BS for Utility Corridor&Pipe Portal (UC/PP) - Prepare (60d), Sub. & Review.(45d) ,Comment & Resub.(14d) & Approval (7d) | 126 | 03-Jun-22 | 06-Oct-22 | 25-Oct-22 | 27-Feb-23 | 144 |
| **Technical Submission** | | 564 | 30-May-21 A | 14-Dec-22 | 28-Nov-21 | 22-May-25 | 890 |
| **Inlet Works (IW)** | | 162 | 30-May-21 A | 07-Nov-21 | 09-May-22 | 21-Jul-22 | 256 |
| TS-910 | General Arrangement Drawing - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 30-May-21 A | 02-Sep-21 | 09-May-22 | 11-May-22 | 251 |
| TS-920 | Civil Requirement Drawings (Superstructure) - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 30-May-21 A | 02-Sep-21 | 09-May-22 | 11-May-22 | 251 |
| TS-890 | PID - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 03-Sep-21 | 07-Nov-21 | 17-May-22 | 21-Jul-22 | 256 |
| TS-900 | Equipment Loading Summary - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 03-Sep-21 | 07-Nov-21 | 12-May-22 | 16-Jul-22 | 251 |
| **Primary Sedimentation Tank (PST)** | | 137 | 03-Sep-21 | 17-Jan-22 | 12-May-22 | 25-Sep-22 | 251 |
| TS-940 | PID - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 03-Sep-21 | 07-Nov-21 | 17-May-22 | 21-Jul-22 | 256 |
| TS-930 | Equipment Loading Summary - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 03-Sep-21 | 07-Nov-21 | 12-May-22 | 16-Jul-22 | 251 |
| TS-950 | General Arrangement Drawing - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 13-Nov-21 | 17-Jan-22 | 22-Jul-22 | 25-Sep-22 | 251 |
| TS-960 | Civil Requirement Drawings (Superstructure) - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 13-Nov-21 | 17-Jan-22 | 22-Jul-22 | 25-Sep-22 | 251 |
| **Sludge Thickening Building (STB)** | | 556 | 01-Jun-21 A | 08-Dec-22 | 14-Feb-22 | 16-May-24 | 525 |
| TS-820 | Architectural for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 01-Jun-21 A | 03-Nov-21 | 24-Jul-22 | 26-Sep-22 | 327 |
| TS-830 | Found. for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d), GEO(28d) & Approval(7d) | 154 | 01-Jun-21 A | 01-Dec-21 | 14-Feb-22 | 17-May-22 | 167 |
| TS-840 | Civil & Structural for Sludge Thickening Bldg (STB) - Prep(27d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 93 | 29-Dec-21 | 31-Mar-22 | 21-Nov-22 | 21-Feb-23 | 327 |
| TS-850 | General Arrangement & Civil Req. Drawings for STB - Prep(27d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 93 | 29-Dec-21 | 31-Mar-22 | 07-Jun-23 | 07-Sep-23 | 525 |
| TS-970 | PID - Prep(27d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 93 | 29-Dec-21 | 31-Mar-22 | 21-Nov-22 | 21-Feb-23 | 327 |
| TS-980 | Equipment Loading Summary - Prep(27d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 93 | 29-Dec-21 | 31-Mar-22 | 22-Nov-23 | 22-Feb-24 | 693 |
| TS-860 | Mechanical for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 01-Apr-22 | 04-Aug-22 | 08-Sep-23 | 11-Jan-24 | 525 |
| TS-880 | BS for Sludge Thickening Building (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 01-Apr-22 | 04-Aug-22 | 12-Jan-24 | 16-May-24 | 651 |
| TS-870 | Electrical & Control for Sludge Thickening Bldg (STB) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 05-Aug-22 | 08-Dec-22 | 12-Jan-24 | 16-May-24 | 525 |
| **H2S Removal System (H2S)** | | 228 | 01-May-22 | 14-Dec-22 | 07-Oct-24 | 22-May-25 | 890 |
| TS-1000 | Civil Requirement Drawings H2S (Superstructure) - Prep(25d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 91 | 01-May-22 | 30-Jul-22 | 07-Oct-24 | 05-Jan-25 | 890 |
| TS-1020 | PID H2S - Prep(25d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 91 | 01-May-22 | 30-Jul-22 | 07-Oct-24 | 05-Jan-25 | 890 |
| TS-1010 | Equipment Loading Summary H2S - Prep(25d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 91 | 01-May-22 | 30-Jul-22 | 07-Oct-24 | 05-Jan-25 | 890 |
| TS-990 | General Arrangement Drawing H2S - Prep(26d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 92 | 14-Sep-22 | 14-Dec-22 | 20-Feb-25 | 22-May-25 | 890 |
| **Sludge Digesters (SD)** | | 252 | 25-Sep-21 | 03-Jun-22 | 08-Dec-22 | 25-Sep-24 | 845 |
| TS-740 | Found. for Sludge Digesters (SD) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d), GEO (28d)& Approval (7d) | 126 | 25-Sep-21 | 28-Jan-22 | 08-Dec-22 | 12-Apr-23 | 439 |
| TS-750 | Civil & Structural for Sludge Digesters (SD) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 25-Sep-21 | 28-Jan-22 | 25-Sep-23 | 28-Jan-24 | 730 |
| TS-760 | General Arrangement & Civil Req. Drawings for SD - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 25-Sep-21 | 28-Jan-22 | 18-Jan-24 | 22-May-24 | 845 |
| TS-1030 | PID - Prep(60d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 126 | 25-Sep-21 | 28-Jan-22 | 23-May-24 | 25-Sep-24 | 971 |
| TS-1040 | Equipment Loading Summary - Prep(60d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 126 | 25-Sep-21 | 28-Jan-22 | 23-May-24 | 25-Sep-24 | 971 |
| TS-770 | Mechanical for Sludge Digesters (SD) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 126 | 29-Jan-22 | 03-Jun-22 | 23-May-24 | 25-Sep-24 | 845 |
| **Biogas Holders (BH)** | | 289 | 12-Jun-21 A | 27-Mar-22 | 28-Nov-21 | 20-Sep-22 | 177 |
| TS-780 | Foundation for Biogas Holders (BH) - Prep(53d), Sub.&Review(45d), Comment&Resub (14d), GEO (28d) & Approval(7d) | 147 | 12-Jun-21 A | 05-Dec-21 | 28-Nov-21 | 04-Mar-22 | 89 |
| TS-790 | Civil & Structural for Biogas Holders (BH) - Sub.&Review(45d), Comment&Resub (14d) & Approval(7d) | 66 | 12-Jun-21 A | 15-Sep-21 | 24-Feb-22 | 11-Mar-22 | 177 |
| TS-1050 | PID - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 31-Aug-21 | 04-Nov-21 | 13-Mar-22 | 17-May-22 | 194 |
| TS-1060 | Equipment Loading Summary - Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 66 | 31-Aug-21 | 04-Nov-21 | 13-Mar-22 | 17-May-22 | 194 |
| TS-800 | General Arrangement & Civil Req.Drawings for BH - Prep(127d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 193 | 16-Sep-21 | 27-Mar-22 | 12-Mar-22 | 20-Sep-22 | 177 |
| TS-810 | Mechanical for Biogas Holders (BH) - Prep(60d), Sub.&Review(45d), Comment&Resub (14d) & Approval (7d) | 126 | 05-Nov-21 | 10-Mar-22 | 18-May-22 | 20-Sep-22 | 194 |
| **SCADA** | | 210 | 30-Nov-21 | 27-Jun-22 | 12-May-23 | 07-Dec-23 | 528 |
| TS-1070 | Layout and Wiring Diagram for YLEPP PLC Panel - Prep(144d), Sub.& Review(45d), Comment &Resub (14d)&Approval (7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-May-23 | 07-Dec-23 | 528 |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Remaining Level of Effort
DWP Rev.4
Actual Work
Remaining Work
Critical Remaining Work

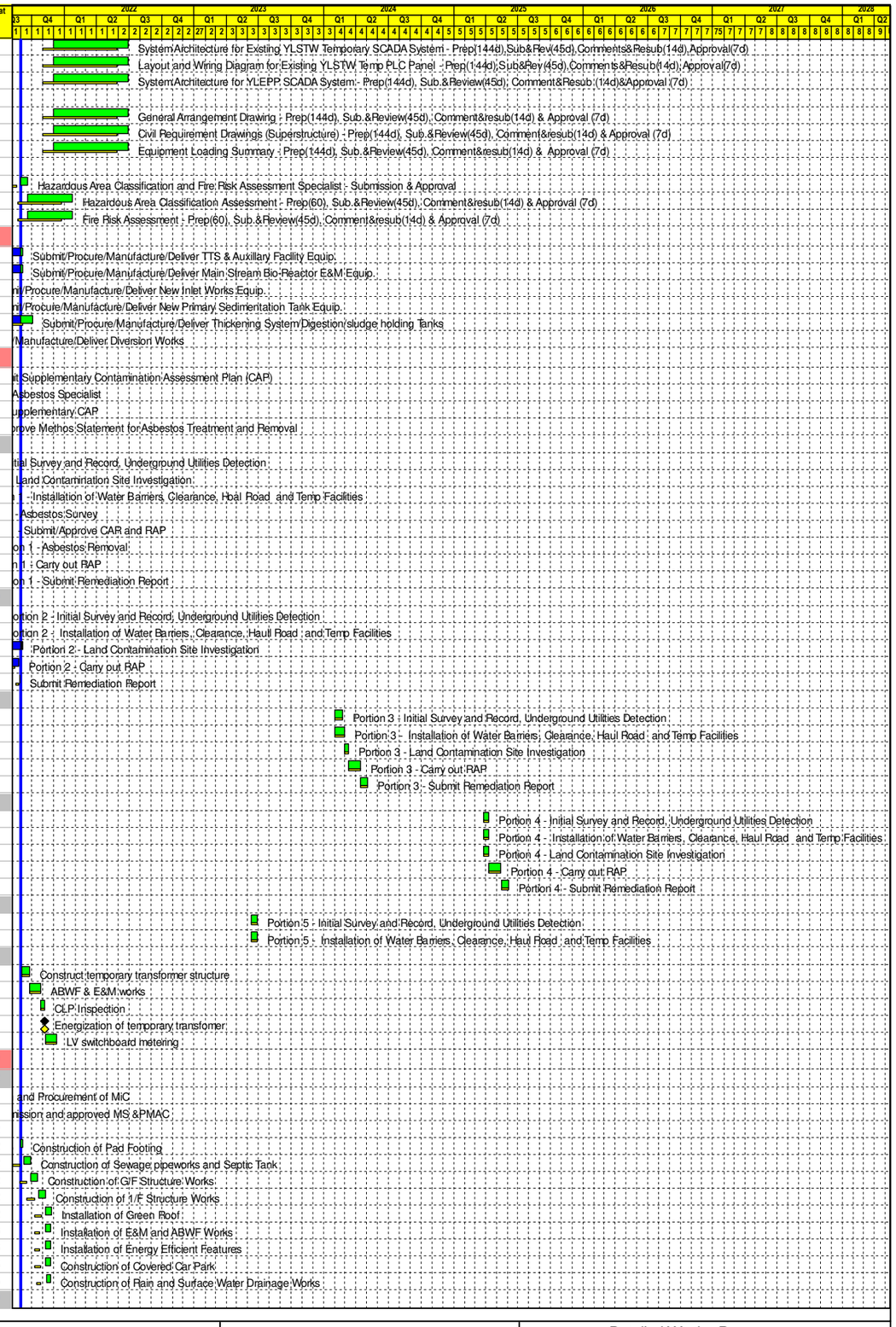
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| TS-1080 | System Architecture for Exsting YLSTW Temporary SCADA System - Prep(144d),Sub&Rev(45d),Comments&Resub(14d),Approval(7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-May-23 | 07-Dec-23 | 528 |
| TS-1090 | Layout and Wiring Diagram for Existing YLSTW Temp PLC Panel - Prep(144d),Sub&Rev(45d),Comments&Resub(14d),Approval(7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-May-23 | 07-Dec-23 | 528 |
| TS-1100 | System Architecture for YLEPP SCADA System - Prep(144d), Sub.&Review(45d), Comment&Resub (14d)&Approval (7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-May-23 | 07-Dec-23 | 528 |
| **Utility Corridor and Pipe Portal** | | 210 | 30-Nov-21 | 27-Jun-22 | 12-Oct-23 | 08-May-24 | 681 |
| TS-1110 | General Arrangement Drawing - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-Oct-23 | 08-May-24 | 681 |
| TS-1120 | Civil Requirement Drawings (Superstructure) - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-Oct-23 | 08-May-24 | 681 |
| TS-1140 | Equipment Loading Summary - Prep(144d), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 210 | 30-Nov-21 | 27-Jun-22 | 12-Oct-23 | 08-May-24 | 681 |
| **Hazardous Area Classification and Fire Risk Assessment** | | 146 | 31-Aug-21 | 23-Jan-22 | 28-Apr-22 | 20-Sep-22 | 240 |
| TS-1800 | Hazardous Area Classification and Fire Risk Assessment Specialist - Submission & Approval | 20 | 31-Aug-21 | 19-Sep-21 | 28-Apr-22 | 17-May-22 | 240 |
| TS-1810 | Hazardous Area Classification Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 126 | 20-Sep-21 | 23-Jan-22 | 18-May-22 | 20-Sep-22 | 240 |
| TS-1820 | Fire Risk Assessment - Prep(60), Sub.&Review(45d), Comment&resub(14d) & Approval (7d) | 126 | 20-Sep-21 | 23-Jan-22 | 18-May-22 | 20-Sep-22 | 240 |
| **Material Submission, Procurement, Manufacturing and Delivery** | | 300 | 09-Nov-20 A | 04-Oct-21 | 31-Aug-21 | 22-Feb-24 | 871 |
| PRE-240 | Submit/Procure/Manufacture/Deliver TTS & Auxillary Facility Equip. | 270 | 09-Nov-20 A | 04-Sep-21 | 15-Dec-23 | 19-Dec-23 | 836 |
| PRE-230 | Submit/Procure/Manufacture/Deliver Main Stream Bio-Reactor E&M Equip. | 270 | 09-Nov-20 A | 04-Sep-21 | 23-Oct-23 | 27-Oct-23 | 783 |
| PRE-210 | Submit/Procure/Manufacture/Deliver New Inlet Works Equip. | 180 | 09-Nov-20 A | 07-May-21 A | 12-Dec-22 | 12-Dec-22 | |
| PRE-220 | Submit/Procure/Manufacture/Deliver New Primary Sedimentation Tank Equip. | 180 | 09-Nov-20 A | 07-May-21 A | 26-Sep-22 | 26-Sep-22 | |
| PRE-250 | Submit/Procure/Manufacture/Deliver Thickening System/Digestion/sludge holding Tanks | 300 | 09-Nov-20 A | 04-Oct-21 | 19-Jan-24 | 22-Feb-24 | 871 |
| PRE-260 | Submit/Procure/Manufacture/Deliver Diversion Works | 44 | 09-Nov-20 A | 22-Dec-20 A | 31-Aug-21 | 31-Aug-21 | |
| **Site Establishment Works** | | 1432 | 09-Nov-20 A | 05-Jun-25 | 03-Sep-21 | 08-Nov-27 | 759 |
| PG-100 | Prepare/Submit Supplementary Contamination Assessment Plan (CAP) | 12 | 21-Dec-20 A | 06-Jan-21 A | 03-Sep-21 | 03-Sep-21 | |
| PG-120 | Procurement Asbestos Specialist | 30 | 21-Dec-20 A | 19-Jan-21 A | 08-Nov-21 | 08-Nov-21 | |
| PG-110 | Approved Supplementary CAP | 30 | 07-Jan-21 A | 05-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| PG-130 | Submit/Approve Methos Statement for Asbestos Treatment and Removal | 30 | 20-Jan-21 A | 18-Feb-21 A | 08-Nov-21 | 08-Nov-21 | |
| **Portion 1 - IW Stage 1, PST, MBR, AF, TTS, STCS, Utilities Corridor, Pipe Portal** | | 147 | 09-Nov-20 A | 14-May-21 A | 03-Sep-21 | 08-Nov-21 | |
| P1-100 | Portion 1 - Initial Survey and Record, Underground Utilities Detection | 60 | 09-Nov-20 A | 20-Jan-21 A | 03-Sep-21 | 03-Sep-21 | |
| P1-120 | Portion 1 - Land Contamination Site Investigation | 13 | 06-Feb-21 A | 27-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| P1-110 | Portion 1 - Installation of Water Barriers, Clearance, Hoal Road and Temp Facilities | 48 | 08-Feb-21 A | 15-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| P1-200 | Portion 1 - Asbestos Survey | 18 | 19-Feb-21 A | 11-Mar-21 A | 08-Nov-21 | 08-Nov-21 | |
| P1-130 | Portion 1 - Submit/Approve CAR and RAP | 18 | 01-Mar-21 A | 20-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| P1-210 | Portion 1 - Asbestos Removal | 48 | 12-Mar-21 A | 12-May-21 A | 08-Nov-21 | 08-Nov-21 | |
| P1-140 | Portion 1 - Carry out RAP | 24 | 22-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| P1-150 | Portion 1 - Submit Remediation Report | 18 | 23-Apr-21 A | 14-May-21 A | 03-Sep-21 | 03-Sep-21 | |
| **Portion 2 - IW Stage 2** | | 92 | 08-Jun-21 A | 04-Sep-21 | 08-Nov-21 | 08-Nov-27 | 1830 |
| P2-100 | Portion 2 - Initial Survey and Record, Underground Utilities Detection | 12 | 08-Jun-21 A | 22-Jun-21 A | 08-Nov-21 | 08-Nov-21 | |
| P2-110 | Portion 2 - Installation of Water Barriers, Clearance, Haull Road and Temp Facilities | 12 | 08-Jun-21 A | 22-Jun-21 A | 08-Nov-21 | 08-Nov-21 | |
| P2-120 | Portion 2 - Land Contamination Site Investigation | 18 | 14-Jul-21 A | 04-Sep-21 | 11-Nov-21 | 12-Nov-21 | 56 |
| P2-140 | Portion 2 - Carry out RAP | 24 | 19-Jul-21 A | 26-Aug-21 A | 08-Nov-27 | 08-Nov-27 | |
| P2-150 | Submit Remediation Report | 7 | 27-Aug-21 A | 27-Aug-21 A | 08-Nov-27 | 08-Nov-27 | |
| **Portion 3 - PST, SDB, Admin. Bldg** | | 69 | 02-Feb-24 | 04-May-24 | 17-Feb-24 | 13-May-24 | 7 |
| P3-100 | Portion 3 - Initial Survey and Record, Underground Utilities Detection | 12 | 02-Feb-24 | 22-Feb-24 | 17-Feb-24 | 01-Mar-24 | 7 |
| P3-110 | Portion 3 - Installation of Water Barriers, Clearance, Haul Road and Temp Facilities | 17 | 02-Feb-24 | 28-Feb-24 | 17-Feb-24 | 07-Mar-24 | 7 |
| P3-120 | Portion 3 - Land Contamination Site Investigation | 10 | 29-Feb-24 | 11-Mar-24 | 08-Mar-24 | 19-Mar-24 | 7 |
| P3-140 | Portion 3 - Carry out RAP | 24 | 12-Mar-24 | 12-Apr-24 | 20-Mar-24 | 20-Apr-24 | 7 |
| P3-150 | Portion 3 - Submit Remediation Report | 18 | 13-Apr-24 | 04-May-24 | 22-Apr-24 | 13-May-24 | 7 |
| **Portion 4 - EVA** | | 54 | 27-Mar-25 | 05-Jun-25 | 16-Apr-26 | 20-Jun-26 | 307 |
| P4-100 | Portion 4 - Initial Survey and Record, Underground Utilities Detection | 12 | 27-Mar-25 | 10-Apr-25 | 06-Jun-26 | 20-Jun-26 | 349 |
| P4-110 | Portion 4 - Installation of Water Barriers, Clearance, Haul Road and Temp Facilities | 12 | 27-Mar-25 | 10-Apr-25 | 06-Jun-26 | 20-Jun-26 | 349 |
| P4-120 | Portion 4 - Land Contamination Site Investigation | 12 | 27-Mar-25 | 10-Apr-25 | 16-Apr-26 | 29-Apr-26 | 307 |
| P4-140 | Portion 4 - Carry out RAP | 24 | 11-Apr-25 | 14-May-25 | 30-Apr-26 | 29-May-26 | 307 |
| P4-150 | Portion 4 - Submit Remediation Report | 18 | 15-May-25 | 05-Jun-25 | 30-May-26 | 20-Jun-26 | 307 |
| **Portion 5 - Walkway** | | 12 | 12-Jun-23 | 26-Jun-23 | 06-Aug-25 | 19-Aug-25 | 633 |
| P5-100 | Portion 5 - Initial Survey and Record, Underground Utilities Detection | 12 | 12-Jun-23 | 26-Jun-23 | 06-Aug-25 | 19-Aug-25 | 633 |
| P5-110 | Portion 5 - Installation of Water Barriers, Clearance, Haul Road and Temp Facilities | 12 | 12-Jun-23 | 26-Jun-23 | 06-Aug-25 | 19-Aug-25 | 633 |
| **Temporary Transformer 1600A** | | 84 | 01-Sep-21 | 10-Dec-21 | 06-Sep-21 | 15-Dec-21 | 4 |
| P5-120 | Construct temporary transformer structure | 20 | 01-Sep-21* | 24-Sep-21 | 06-Sep-21 | 29-Sep-21 | 4 |
| P5-130 | ABWF & E&M works | 24 | 25-Sep-21 | 25-Oct-21 | 30-Sep-21 | 29-Oct-21 | 4 |
| P5-140 | CLP Inspection | 11 | 26-Oct-21 | 06-Nov-21 | 30-Oct-21 | 11-Nov-21 | 4 |
| P5-150 | Energization of temporary transfomer | 0 | | 06-Nov-21 | | 11-Nov-21 | 4 |
| P5-160 | LV switchboard metering | 29 | 08-Nov-21 | 10-Dec-21* | 12-Nov-21 | 15-Dec-21 | 4 |
| **PM and Contractor Accomodation** | | 293 | 18-Feb-21 A | 17-Feb-22 | 04-Jun-27 | 08-Nov-27 | 1700 |
| **Project Manager's & Contractor Site Accommodation** | | 231 | 18-Feb-21 A | 26-Nov-21 | 04-Jun-27 | 08-Nov-27 | 1762 |
| PMCA-110 | Design and Procurement of MiC | 45 | 18-Feb-21 A | 15-Apr-21 A | 04-Jun-27 | 04-Jun-27 | |
| PMCA-140 | Submission and approved MS &PMAC | 18 | 16-Apr-21 A | 07-May-21 A | 04-Jun-27 | 04-Jun-27 | |
| **MiC Section** | | 73 | 31-Aug-21 | 26-Nov-21 | 16-Aug-27 | 08-Nov-27 | 1762 |
| PMCA-150 | Construction of Pad Footing | 6 | 31-Aug-21* | 06-Sep-21 | 16-Aug-27 | 21-Aug-27 | 1762 |
| PMCA-160 | Construction of Sewage pipeworks and Septic Tank | 17 | 07-Sep-21 | 27-Sep-21 | 23-Aug-27 | 10-Sep-27 | 1762 |
| PMCA-170 | Construction of G/F Structure Works | 16 | 28-Sep-21 | 18-Oct-21 | 11-Sep-27 | 29-Sep-27 | 1762 |
| PMCA-180 | Construction of 1/F Structure Works | 18 | 19-Oct-21 | 08-Nov-21 | 30-Sep-27 | 20-Oct-27 | 1762 |
| PMCA-190 | Installation of Green Roof | 16 | 09-Nov-21 | 26-Nov-21 | 21-Oct-27 | 08-Nov-27 | 1762 |
| PMCA-210 | Installation of E&M and ABWF Works | 12 | 09-Nov-21 | 22-Nov-21 | 26-Oct-27 | 08-Nov-27 | 1766 |
| PMCA-220 | Installation of Energy Efficient Features | 12 | 09-Nov-21 | 22-Nov-21 | 26-Oct-27 | 08-Nov-27 | 1766 |
| PMCA-200 | Construction of Covered Car Park | 13 | 09-Nov-21 | 23-Nov-21 | 25-Oct-27 | 08-Nov-27 | 1765 |
| PMCA-230 | Construction of Rain and Surface Water Drainage Works | 10 | 12-Nov-21 | 23-Nov-21 | 28-Oct-27 | 08-Nov-27 | 1765 |
| **Caving System** | | 135 | 31-Aug-21 | 17-Feb-22 | 04-Jun-27 | 08-Nov-27 | 1700 |

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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

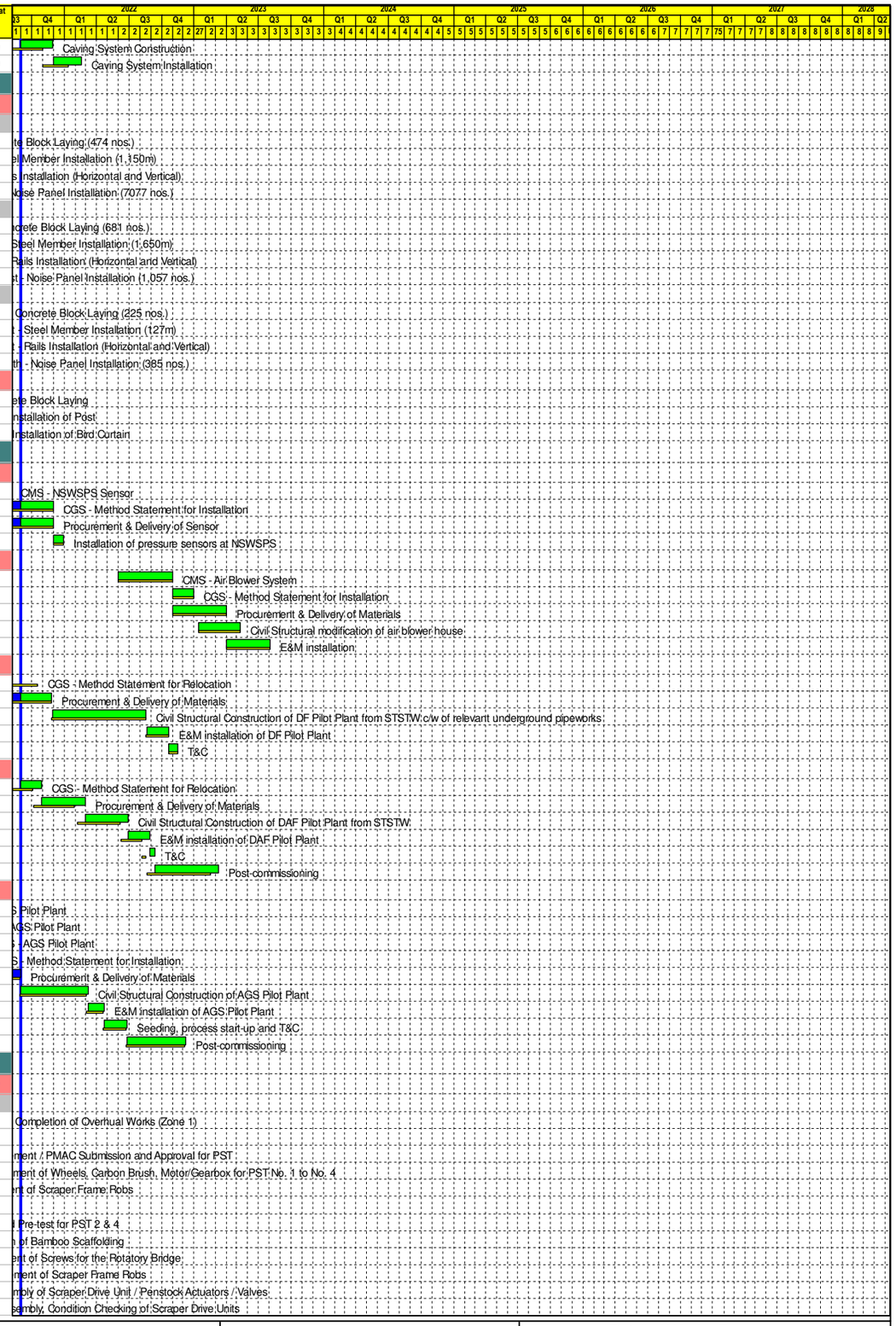
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| PMCA-240 | Caving System Construction | 75 | 31-Aug-21* | 29-Nov-21 | 04-Jun-27 | 30-Aug-27 | 1700 |
| PMCA-250 | Caving System Installation | 60 | 30-Nov-21 | 17-Feb-22 | 31-Aug-27 | 08-Nov-27 | 1700 |
| **Environmental Mitigation Measures for KD1 & 2** | | 129 | 09-Nov-20 A | 06-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Noise Barrier** | | 117 | 09-Nov-20 A | 08-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| **NB Northern Side** | | 75 | 09-Nov-20 A | 06-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBN-00 | NB North - Concrete Block Laying (474 nos.) | 12 | 09-Nov-20 A | 21-Nov-20 A | 09-Nov-27 | 09-Nov-27 | |
| NBN-10 | NB North - Steel Member Installation (1,150m) | 30 | 23-Nov-20 A | 29-Dec-20 A | 09-Nov-27 | 09-Nov-27 | |
| NBN-20 | NB North - Rails Installation (Horizontal and Vertical) | 30 | 23-Nov-20 A | 29-Dec-20 A | 09-Nov-27 | 09-Nov-27 | |
| NBN-30 | NB North - Noise Panel Installation (7077 nos.) | 33 | 30-Dec-20 A | 06-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| **NB Eastern Side** | | 75 | 30-Dec-20 A | 08-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBE-00 | NB East - Concrete Block Laying (681 nos.) | 12 | 30-Dec-20 A | 13-Jan-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBE-10 | NB East - Steel Member Installation (1,650m) | 30 | 14-Jan-21 A | 24-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBE-20 | NB East - Rails Installation (Horizontal and Vertical) | 30 | 14-Jan-21 A | 24-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBE-30 | NB East - Noise Panel Installation (1,057 nos.) | 33 | 25-Feb-21 A | 08-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| **NB Western Side** | | 42 | 08-Feb-21 A | 08-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBW-00B | NB West - Concrete Block Laying (225 nos.) | 12 | 08-Feb-21 A | 27-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBW-10 | NB West - Steel Member Installation (127m) | 20 | 01-Mar-21 A | 23-Mar-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBW-20 | NB West - Rails Installation (Horizontal and Vertical) | 20 | 01-Mar-21 A | 23-Mar-21 A | 09-Nov-27 | 09-Nov-27 | |
| NBW-30 | NB North - Noise Panel Installation (385 nos.) | 10 | 24-Mar-21 A | 08-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| **Bird Curtain** | | 75 | 30-Dec-20 A | 06-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| BC-10 | BC - Concrete Block Laying | 24 | 30-Dec-20 A | 18-Feb-21 A | 09-Nov-27 | 09-Nov-27 | |
| BC-20 | BC - Installation of Post | 32 | 18-Mar-21 A | 29-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| BC-30 | BC - Installation of Bird Curtain | 19 | 26-Apr-21 A | 06-May-21 A | 09-Nov-27 | 09-Nov-27 | |
| **General Advance Works** | | 720 | 18-Feb-21 A | 03-Aug-23 | 31-Aug-22 | 11-Mar-24 | 178 |
| **NSWSPS Sensors** | | 177 | 01-Jun-21 A | 28-Dec-21 | 08-Nov-23 | 11-Mar-24 | 642 |
| ATALGA-1130 | CMS - NSWSPS Sensor | 51 | 01-Jun-21 A | 02-Aug-21 A | 08-Nov-23 | 08-Nov-23 | |
| ATALGA-1160 | CGS - Method Statement for Installation | 101 | 03-Aug-21 A | 30-Nov-21 | 08-Nov-23 | 07-Feb-24 | 642 |
| ATALGA-1170 | Procurement & Delivery of Sensor | 101 | 03-Aug-21 A | 30-Nov-21 | 08-Nov-23 | 07-Feb-24 | 642 |
| ATALGA-1260 | Installation of pressure sensors at NSWSPS | 22 | 01-Dec-21 | 28-Dec-21 | 08-Feb-24 | 11-Mar-24 | 642 |
| **Air Blower House** | | 345 | 01-Jun-22 | 03-Aug-23 | 04-Jan-23 | 11-Mar-24 | 178 |
| ATALGA-1280 | CMS - Air Blower System | 127 | 01-Jun-22* | 02-Nov-22 | 04-Jan-23 | 14-Jun-23 | 178 |
| ATALGA-1290 | CGS - Method Statement for Installation | 49 | 02-Nov-22 | 31-Dec-22 | 06-Sep-23 | 04-Nov-23 | 247 |
| ATALGA-1300 | Procurement & Delivery of Materials | 121 | 02-Nov-22 | 03-Apr-23 | 15-Jun-23 | 08-Nov-23 | 178 |
| ATALGA-1020 | Civil Structural modification of air blower house | 90 | 13-Jan-23* | 11-May-23 | 17-Nov-23 | 11-Mar-24 | 247 |
| ATALGA-1310 | E&M installation | 97 | 03-Apr-23 | 03-Aug-23 | 09-Nov-23 | 11-Mar-24 | 178 |
| **Disc Filter (DF) Pilot Plant** | | 357 | 15-Jul-21 A | 16-Nov-22 | 31-Aug-22 | 11-Mar-24 | 383 |
| ATALGA-1080 | CGS - Method Statement for Relocation | 63 | 15-Jul-21 A | 03-Aug-21 A | 31-Aug-22 | 31-Aug-22 | |
| ATALGA-1090 | Procurement & Delivery of Materials | 97 | 04-Aug-21 A | 26-Nov-21 | 17-Dec-22 | 23-Mar-23 | 383 |
| ATALGA-1000 | Civil Structural Construction of DF Pilot Plant from STSTW c/w of relevant underground pipeworks | 211 | 27-Nov-21* | 19-Aug-22 | 23-Mar-23 | 07-Dec-23 | 383 |
| ATALGA-1140 | E&M installation of DF Pilot Plant | 51 | 20-Aug-22 | 21-Oct-22 | 07-Dec-23 | 07-Feb-24 | 383 |
| ATALGA-1190 | T&C | 22 | 21-Oct-22 | 16-Nov-22 | 08-Feb-24 | 11-Mar-24 | 383 |
| **Dissolved Air Flotation (DAF) Pilot Plant** | | 447 | 31-Aug-21 | 11-Mar-23 | 31-Aug-22 | 11-Mar-24 | 293 |
| ATALGA-1100 | CGS - Method Statement for Relocation | 47 | 31-Aug-21 | 27-Oct-21 | 31-Aug-22 | 27-Oct-22 | 293 |
| ATALGA-1110 | Procurement & Delivery of Materials | 97 | 28-Oct-21 | 28-Feb-22 | 28-Oct-22 | 28-Feb-23 | 293 |
| ATALGA-1070 | Civil Structural Construction of DAF Pilot Plant from STSTW | 97 | 01-Mar-22* | 29-Jun-22 | 01-Mar-23 | 29-Jun-23 | 293 |
| ATALGA-1150 | E&M installation of DAF Pilot Plant | 51 | 30-Jun-22 | 29-Aug-22 | 30-Jun-23 | 29-Aug-23 | 293 |
| ATALGA-1200 | T&C | 11 | 30-Aug-22 | 12-Sep-22 | 30-Aug-23 | 11-Sep-23 | 293 |
| ATALGA-1220 | Post-commissioning | 144 | 13-Sep-22 | 11-Mar-23 | 12-Sep-23 | 11-Mar-24 | 293 |
| **Aerobic Granular Sludge (AGS) Pilot Plant** | | 535 | 18-Feb-21 A | 09-Dec-22 | 24-Nov-22 | 11-Mar-24 | 363 |
| ATALGA-1030 | AIP - AGS Pilot Plant | 20 | 18-Feb-21 A | 12-Mar-21 A | 24-Nov-22 | 24-Nov-22 | |
| ATALGA-1040 | DDA - AGS Pilot Plant | 21 | 13-Mar-21 A | 10-Apr-21 A | 05-Jun-23 | 05-Jun-23 | |
| ATALGA-1050 | CMS - AGS Pilot Plant | 48 | 13-Mar-21 A | 13-May-21 A | 24-Nov-22 | 24-Nov-22 | |
| ATALGA-1060 | CGS - Method Statement for Installation | 47 | 25-Mar-21 A | 25-May-21 A | 05-Jun-23 | 05-Jun-23 | |
| ATALGA-1120 | Procurement & Delivery of Materials | 100 | 28-Apr-21 A | 31-Aug-21 A | 24-Nov-22 | 24-Nov-22 | |
| ATALGA-1010 | Civil Structural Construction of AGS Pilot Plant | 150 | 31-Aug-21* | 07-Mar-22 | 24-Nov-22 | 03-Jun-23 | 363 |
| ATALGA-1180 | E&M installation of AGS Pilot Plant | 36 | 08-Mar-22 | 22-Apr-22 | 05-Jun-23 | 18-Jul-23 | 363 |
| ATALGA-1210 | Seeding, process start-up and T&C | 52 | 23-Apr-22 | 25-Jun-22 | 19-Jul-23 | 16-Sep-23 | 363 |
| ATALGA-1270 | Post-commissioning | 139 | 27-Jun-22 | 09-Dec-22 | 18-Sep-23 | 11-Mar-24 | 363 |
| **Zone 1 Construction** | | 1878 | 09-Nov-20 A | 08-Nov-26 | 31-Aug-21 | 09-Nov-27 | 313 |
| **Demolition and Temporary Modification/Diversion Works** | | 286 | 09-Nov-20 A | 07-Oct-21 | 06-Sep-21 | 09-Nov-27 | 1905 |
| **PST Overhaul Works** | | 199 | 09-Nov-20 A | 17-Jul-21 A | 04-Apr-22 | 09-Nov-27 | |
| ATALPST-5130 | Completion of Overhual Works (Zone 1) | 0 | | 17-Jul-21 A | | 09-Nov-27 | |
| **PST Existing Primary Sedimentation Tanks (PST)** | | 199 | 09-Nov-20 A | 14-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1000 | Method Statement / PMAC Submission and Approval for PST | 55 | 09-Nov-20 A | 14-Jan-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1030 | Procurement of Wheels, Carbon Brush, Motor/Gearbox for PST No. 1 to No. 4 | 60 | 15-Jan-21 A | 01-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1040 | Procurement of Scraper Frame Robs | 32 | 15-Jan-21 A | 27-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| **PST No. 2 & 4** | | 84 | 15-Jan-21 A | 13-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1020 | Isolation and Pre-test for PST 2 & 4 | 14 | 15-Jan-21 A | 30-Jan-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1070 | Construction of Bamboo Scaffolding | 7 | 01-Feb-21 A | 08-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1090 | Replacement of Screws for the Rotatory Bridge | 11 | 09-Feb-21 A | 27-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1120 | Replacement of Scraper Frame Robs | 25 | 01-Mar-21 A | 29-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1160 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 3 | 30-Mar-21 A | 01-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1170 | Disassembly, Condition Checking of Scraper Drive Units | 17 | 07-Apr-21 A | 26-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |




Remaining Level of Effort
DWP Rev.4
Actual Work
Remaining Work
Critical Remaining Work

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

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| ATALPST-1180 | Removal of Centre Bearing from PST 2 | 17 | 07-Apr-21 A | 26-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1190 | Reconditioning and Replacement of Scraper Drive Units | 17 | 07-Apr-21 A | 26-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1230 | Return of all Drive Units and Centre Bearing for Reassembly | 4 | 27-Apr-21 A | 30-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1260 | Power Reconnection and Testing | 3 | 03-May-21 A | 13-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| **PST No. 1** | | 52 | 01-Mar-21 A | 13-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1440 | Isolation and Conduct Pre-test for PST No. 1 | 4 | 01-Mar-21 A | 04-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1450 | Construction of Access and Tank Cleaning of PST No. 1 | 3 | 05-Mar-21 A | 08-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1460 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 21 | 09-Mar-21 A | 01-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1470 | Construction of Bamboo Scaffolding | 5 | 09-Mar-21 A | 13-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1480 | Replacement of Screws for Rotatory Bridge | 12 | 15-Mar-21 A | 27-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1490 | Replacement of Scraper Frame Robs | 8 | 29-Mar-21 A | 10-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1500 | Reconditioning and Replacement of Scraper Drive Units | 13 | 12-Apr-21 A | 26-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1510 | Return of all Drive Units and Centre Bearing for Reassembly | 4 | 27-Apr-21 A | 30-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1520 | Power Reconnection and Testing | 3 | 03-May-21 A | 13-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| **PST No. 3** | | 53 | 14-May-21 A | 14-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1280 | Switch Duty from PST 3 to PST 2 or 4 | 2 | 14-May-21 A | 15-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1300 | Isolation and Pre-test for PST 3 | 1 | 17-May-21 A | 17-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1310 | Drain Sewage and Tank Cleaning for PST 3 | 4 | 18-May-21 A | 22-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1320 | Construction of Bamboo Scaffolding | 6 | 24-May-21 A | 29-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1360 | Replacement of Scraper Frambe Robs | 18 | 26-May-21 A | 16-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1330 | Replacement of Screws for the Rotatory Bridge | 7 | 31-May-21 A | 07-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1380 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 3 | 24-Jun-21 A | 26-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1390 | Reconditioning and Replacement of Scraper Drive Units | 14 | 24-Jun-21 A | 10-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1400 | Disassembly, Condition Checking of Scraper Drive Units | 11 | 28-Jun-21 A | 10-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1430 | Power Reconnection and Testing | 3 | 07-Jul-21 A | 07-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1420 | Return of all Drive Units and Centre Bearing for Reassembly | 3 | 12-Jul-21 A | 14-Jul-21 A | 04-Apr-22 | 04-Apr-22 | |
| **Detritors 1 & 2** | | 178 | 09-Nov-20 A | 22-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1010 | Method Statement / PMAC Submission and Approval for Detritor | 57 | 09-Nov-20 A | 16-Jan-21 A | 04-Apr-22 | 04-Apr-22 | |
| **Detritor No. 2** | | 73 | 18-Jan-21 A | 23-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1050 | Isolation of Detritor No. 2 and Conduct Pre-test | 17 | 18-Jan-21 A | 05-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1080 | Pump out sewage and tank cleaning | 6 | 06-Feb-21 A | 19-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1100 | Condition checking for Scrapers/ Classifiers/ Mixer/ Penstocks/ Valves | 2 | 20-Feb-21 A | 22-Feb-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1110 | Disassembly of Unit and transfer Workshop for Overhaul | 8 | 23-Feb-21 A | 03-Mar-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1140 | Condition Checking, Replacement of Parts, and Reassembly | 29 | 04-Mar-21 A | 10-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1150 | Reconditioning at YLSTW and Replacement of Parts | 29 | 04-Mar-21 A | 10-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1200 | Final Surface Treatment | 8 | 12-Apr-21 A | 20-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1210 | Power Reconnection and Testing | 3 | 21-Apr-21 A | 23-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| **Detritor No. 1** | | 48 | 24-Apr-21 A | 22-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1220 | Switch Duty to Detritor No. 2 and Isolate Detritor No. 1 | 2 | 24-Apr-21 A | 26-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1240 | Pre-test for Detritor No. 1 | 1 | 27-Apr-21 A | 27-Apr-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1250 | Pump out sewage and tank cleaning | 4 | 28-Apr-21 A | 03-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1270 | Condition Checking | 3 | 04-May-21 A | 06-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1290 | Disassembly of Unit and Transfer Workshop for Overhaul | 8 | 07-May-21 A | 15-May-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1340 | Reconditioning at YLSTW and Replacement of Parts | 21 | 17-May-21 A | 10-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1350 | Condition Checking, Replacement of Parts, and Reassembly | 21 | 17-May-21 A | 10-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1370 | Final Surface Treatment | 8 | 10-Jun-21 A | 19-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| ATALPST-1410 | Power Reconnection and Testing | 2 | 21-Jun-21 A | 22-Jun-21 A | 04-Apr-22 | 04-Apr-22 | |
| **PST Temporary Diversion** | | 122 | 11-May-21 A | 09-Sep-21 | 15-Oct-21 | 09-Nov-27 | 1826 |
| PSTD-00A | Method Statement for Cutting of Existing Cantilever Walkway and Detritor Top Slab | 22 | 01-Jun-21 A | 26-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| PSTD-00B | Method Statement for Cutting of Detritor wall | 22 | 01-Jun-21 A | 26-Jun-21 A | 09-Nov-27 | 09-Nov-27 | |
| **PST Temporary Diversion 1 - Detritor to PST** | | 115 | 11-May-21 A | 09-Sep-21 | 15-Oct-21 | 09-Nov-27 | 1826 |
| PSTTD1-00 | Concrete Paving Removal and Planter Removal | 7 | 11-May-21 A | 19-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTD105 | Trial Trench for Sheetpile | 6 | 20-May-21 A | 26-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTD100 | Pipe Material Procurement | 50 | 20-May-21 A | 19-Jul-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-45 | Divert Sewage Flow to PST 5,6 (PST 1-4 Standby) | 1 | 27-May-21 A | 27-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-10 | Sheetpile Installation | 12 | 12-Jun-21 A | 26-Jun-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-60 | Concrete Slab Cutting No. 1 and 2 | 8 | 28-Jun-21 A | 07-Jul-21 A | 09-Nov-27 | 09-Nov-27 | |
| PSTTD1-15B | Inlet Manhole and Flow Meter Chamber Construction (Base Slab) | 4 | 03-Jul-21 A | 07-Jul-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-15A | Excavation and Blinding | 7 | 13-Jul-21 A | 20-Jul-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-20 | Pipe Installation (Inlet Manhole to Section Before Connection) | 10 | 22-Jul-21 A | 03-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-25 | Pipe Installation and Existing Pipe Cutting (Pipe Connection Section) | 8 | 04-Aug-21 A | 12-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-15B2 | Inlet Manhole and Flow Meter Chamber Construction (Wall) | 8 | 11-Aug-21 A | 13-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-30A | Flowmeter Installation | 4 | 13-Aug-21 A | 17-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-35 | 1st Night Work (Seal Up Channel to Detroiter 3C) | 1 | 18-Aug-21 A | 20-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-50 | Disable Detroiter 3C and Divert Sewage to PST 1-4 | 1 | 18-Aug-21 A | 20-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-30B | Flowmeter Calibration and Function Test | 7 | 18-Aug-21 A | 20-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-40A | Pipe Installation & Existing Pipe Cutting (Pipe Connection Section) | 3 | 18-Aug-21 A | 19-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-30 | Pipe Hydraulic Testing | 3 | 18-Aug-21 A | 20-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-40 | Wall Opening at Inlet Manhole | 3 | 19-Aug-21 A | 20-Aug-21 A | 15-Oct-21 | 15-Oct-21 | |
| PSTTD1-61 | Temporary Diversion Zone 1 Complete | 0 | | 20-Aug-21 A | | 03-Nov-21 | |
| PSTTD1-15C | Backfill Pipeline to Ground Level | 6 | 21-Aug-21 A | 09-Sep-21 | 03-Nov-21 | 12-Nov-21 | 52 |
| **Temporary Flowmeter Chamber (F)** | | 116 | 11-May-21 A | 31-Aug-21 A | 03-Nov-21 | 03-Nov-21 | |
| PSTTD1-4020 | CMS - Electromagnetic Flowmeter (EMF) & Valves | 24 | 11-May-21 A | 08-Jun-21 A | 03-Nov-21 | 03-Nov-21 | |
| PSTTD1-4030 | Procurement and Delivery of Materials | 40 | 12-May-21 A | 29-Jun-21 A | 03-Nov-21 | 03-Nov-21 | |
| PSTTD1-4040 | Flow Meter Chamber Base Slab | 6 | 16-Jul-21 A | 22-Jul-21 A | 03-Nov-21 | 03-Nov-21 | |


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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

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

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| PSTTD1-4050 | E&M installation of EMF & valves & cabling | 19 | 23-Jul-21 A | 20-Aug-21 A | 03-Nov-21 | 03-Nov-21 | |
| PSTTD1-4070 | T&C (Functional test for EMF) | 12 | 21-Aug-21 A | 31-Aug-21 A | 03-Nov-21 | 03-Nov-21 | |
| **PST Demolition Stage 1** | | 140 | 07-Apr-21 A | 16-Sep-21 | 06-Sep-21 | 30-Oct-21 | 38 |
| PSTTD1-55 | Demolish Detritor 3C | 14 | 01-Sep-21* | 16-Sep-21 | 15-Oct-21 | 30-Oct-21 | 35 |
| PSTTD1-56 | Demolish Screened Sewage/Return Effluent Chamber(30), Flow Measurement Chamber(34),Covered Car Parks(28) | 14 | 01-Sep-21 | 16-Sep-21 | 15-Oct-21 | 30-Oct-21 | 35 |
| **Demolition of PST 7 and 8** | | 127 | 07-Apr-21 A | 25-Aug-21 A | 06-Sep-21 | 08-Sep-21 | |
| PST-1121 | Purchasing Air Plug/End Cap | 11 | 07-Apr-21 A | 19-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1122 | Subletting Work for rench Excavation for Plug 800mm | 12 | 12-Apr-21 A | 24-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1124 | Trial Pit for 800mm Pipe | 4 | 13-Apr-21 A | 16-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1126 | Diversion Lighting Cable | 1 | 15-Apr-21 A | 15-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1127 | Termination of Signal Cable | 1 | 15-Apr-21 A | 15-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1125 | Excavate Trench for Plug 800mm and Plug 350mm and 300m Pipe | 8 | 17-Apr-21 A | 26-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1123 | Plug 350mm and 300mm Pipe Inside Chamber | 3 | 20-Apr-21 A | 22-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1128 | Mobilisation and Setup of Plants | 2 | 20-Apr-21 A | 21-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-1129 | Commencement of Breaking Works | 1 | 26-Apr-21 A | 26-Apr-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-3021 | Demolish PST No. 7 | 28 | 26-Apr-21 A | 29-May-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-3023 | Demolish PST No. 8 | 24 | 30-Apr-21 A | 29-May-21 A | 06-Sep-21 | 06-Sep-21 | |
| PST-3022 | Site Formation works for PST no. 7 | 4 | 09-Jul-21 A | 13-Jul-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-3024 | Site Formation works for PST no. 8 | 4 | 26-Jul-21 A | 29-Jul-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-3025 | Demolish Primary Sludge Draw-off Chamber "34D" | 6 | 03-Aug-21 A | 25-Aug-21 A | 06-Sep-21 | 06-Sep-21 | |
| **PST Demolition Stage 2** | | 30 | 01-Sep-21 | 07-Oct-21 | 04-Apr-22 | 14-May-22 | 172 |
| PSTTD1-4080 | Demolition of Existing PST 6 | 30 | 01-Sep-21* | 07-Oct-21 | 04-Apr-22 | 14-May-22 | 172 |
| PSTTD1-4090 | Demolition of Existing PST 5 | 30 | 01-Sep-21* | 07-Oct-21 | 04-Apr-22 | 14-May-22 | 172 |
| **Inlet Works (IW)** | | 1045 | 09-Nov-20 A | 11-Mar-24 | 31-Aug-21 | 09-Nov-27 | 1146 |
| **IW Temporary Workshop, Storage Facil. and Haul Road** | | 78 | 15-Dec-20 A | 25-Mar-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2010 | Submit/Approve Method Statement | 48 | 15-Dec-20 A | 18-Feb-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2020 | Equipment and Material Procurement | 78 | 15-Dec-20 A | 25-Mar-21 A | 14-Sep-21 | 14-Sep-21 | |
| **IW Footprint Demolition Works** | | 87 | 16-Apr-21 A | 02-Sep-21 | 03-Sep-21 | 10-Nov-21 | 56 |
| IW-2350 | Inlet Work Stage 1 - Site Clearance | 7 | 16-Apr-21 A | 23-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2950 | Demolition of Main Store (26) | 6 | 18-Jun-21 A | 24-Jun-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2410 | Demolition of Workshop (25) | 10 | 20-Jul-21 A | 02-Sep-21 | 08-Nov-21 | 10-Nov-21 | 56 |
| **IW Foundation & ELS Works** | | 438 | 09-Nov-20 A | 02-Apr-22 | 31-Aug-21 | 09-Nov-27 | 1753 |
| IW-2000 | IW - Predrilling Works Method Statement Preparation | 44 | 09-Nov-20 A | 31-Dec-20 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2030 | IW - Predrilling Works Method Statement Submission and Approval | 12 | 02-Jan-21 A | 15-Jan-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2050 | IW - GI Monitoring Points Installation Method Statement Submission and Approval | 45 | 16-Jan-21 A | 16-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2060 | IW - GI Piezometer and Standpipe Installation Method Statement Submission and Approval | 42 | 16-Jan-21 A | 12-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| **IW GI - Monitoring Points Installation** | | 29 | 16-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2230 | IW - Piezometer and Standpipe (PS6) | 9 | 16-Mar-21 A | 25-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2240 | IW - Ground Settlement Markers Installation | 28 | 17-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2250 | IW - Vibration Monitoring Points Installation | 28 | 17-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2260 | IW - Building Settlement Monitoring Points Installation | 28 | 17-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2270 | IW - Tilting Monitoring Points Installation | 28 | 17-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2280 | IW - Utility Monitoring Points Installation | 28 | 17-Mar-21 A | 22-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2290 | IW - Piezometer and Standpipe (PS7) | 9 | 26-Mar-21 A | 09-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2330 | IW - Piezometer and Standpipe (PS8) | 9 | 26-Mar-21 A | 09-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2340 | IW - Piezometer and Standpipe (PS9) | 10 | 10-Apr-21 A | 21-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2360 | IW - Piezometer and Standpipe (PS10) | 10 | 10-Apr-21 A | 21-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2370 | IW - Monitoring Points Installation Complete | 0 | | 22-Apr-21 A | | 03-Sep-21 | |
| **IW GI - Predrilling Works** | | 118 | 16-Jan-21 A | 14-Jul-21 A | 03-Sep-21 | 09-Nov-27 | |
| IW-2040 | IW - Predrilling Preparation, Drill Rig A | 2 | 16-Jan-21 A | 18-Jan-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2070 | IW - PD10 | 18 | 19-Jan-21 A | 08-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2080 | IW - Predrilling Preparation, Drill Rig B | 15 | 25-Jan-21 A | 10-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2100 | IW - PD1 | 15 | 06-Feb-21 A | 02-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2110 | IW - Predrilling Preparation, Drill Rig C | 5 | 06-Feb-21 A | 18-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2090 | IW - PD11 | 5 | 09-Feb-21 A | 20-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2130 | IW - PD12 | 14 | 19-Feb-21 A | 06-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2140 | IW - PD6 | 15 | 19-Feb-21 A | 08-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2150 | IW - Predrilling Preparation, Drill Rig D | 5 | 19-Feb-21 A | 24-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2160 | IW - PD13 | 14 | 25-Feb-21 A | 12-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2170 | IW - Predrilling Preparation, Drill Rig E | 2 | 25-Feb-21 A | 26-Feb-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2180 | IW - PD8 | 15 | 27-Feb-21 A | 16-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2190 | IW - Predrilling Preparation, Drill Rig F | 6 | 27-Feb-21 A | 05-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2200 | IW - PD7 | 18 | 03-Mar-21 A | 23-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2210 | IW - PD9 | 15 | 08-Mar-21 A | 24-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2220 | IW - PD5 | 13 | 09-Mar-21 A | 23-Mar-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2300 | IW - PD2 | 14 | 24-Mar-21 A | 13-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2320 | IW - PD3 | 14 | 24-Mar-21 A | 13-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2940 | IW - Additional Predrills (7 nos.) | 14 | 24-Mar-21 A | 13-Apr-21 A | 09-Nov-27 | 09-Nov-27 | |
| IW-2890 | IW - Pre-drilling Works Complete | 0 | | 13-Apr-21 A | | 03-Sep-21 | |
| IW-2310 | IW - PD4 | 14 | 01-Jun-21 A | 14-Jul-21 A | 14-Sep-21 | 14-Sep-21 | |
| **IW GI - Environmental** | | 62 | 03-Jul-21 A | 03-Sep-21 | 12-Nov-21 | 12-Nov-21 | 58 |
| IW-2460 | ENV-BH35 | 7 | 03-Jul-21 A | 07-Jul-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2490 | ENV-BH36 | 7 | 08-Jul-21 A | 10-Jul-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2510 | ENV-BH37 | 7 | 10-Jul-21 A | 12-Jul-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2440 | ENV-BH34 | 7 | 12-Jul-21 A | 13-Jul-21 A | 12-Nov-21 | 12-Nov-21 | |


Remaining Level of Effort
DWP Rev.4
Actual Work
Remaining Work
Critical Remaining Work

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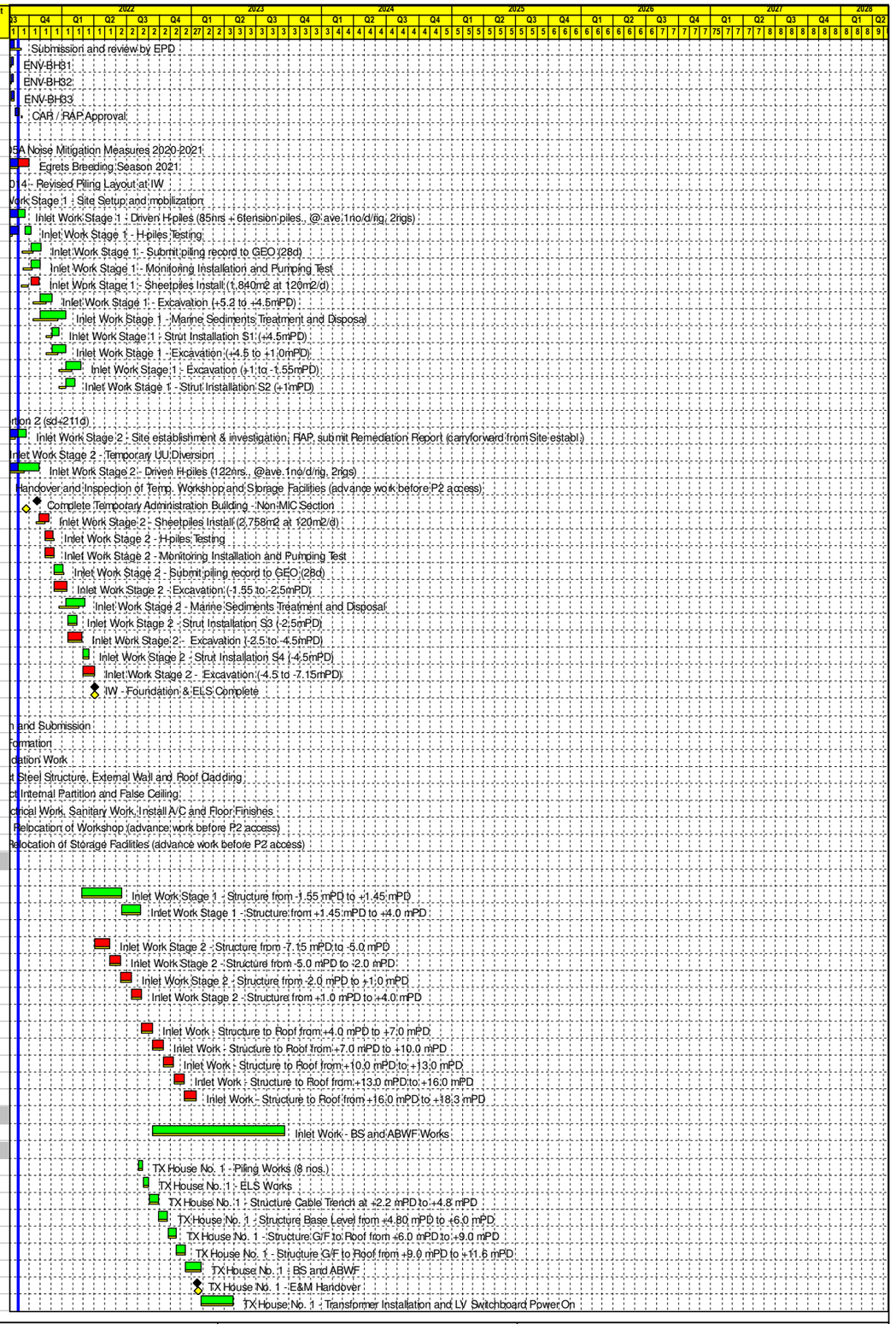
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| IW-2900 | Submission and review by EPD | 44 | 20-Jul-21 A | 20-Aug-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2430 | ENV-BH31 | 7 | 12-Aug-21 A | 18-Aug-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2450 | ENV-BH32 | 7 | 12-Aug-21 A | 18-Aug-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2480 | ENV-BH33 | 7 | 12-Aug-21 A | 19-Aug-21 A | 12-Nov-21 | 12-Nov-21 | |
| IW-2910 | CAR / RAP Approval | 1 | 21-Aug-21 A | 03-Sep-21 | 12-Nov-21 | 12-Nov-21 | 58 |
| **IW Foundation & ELS Stage 1** | | 404 | 09-Nov-20 A | 23-Feb-22 | 31-Aug-21 | 09-Nov-27 | 1787 |
| NMM-2020 | PS 1.105A Noise Mitigation Measures 2020-2021 | 143 | 09-Nov-20 A | 31-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| EBS-2021 | Egrets Breeding Season 2021 | 184 | 01-Mar-21 A | 30-Sep-21 | 31-Aug-21 | 30-Sep-21 | 0 |
| PMI014 | PMI No. 014 - Revised Piling Layout at IW | 0 | 15-Mar-21 A | | 09-Nov-27 | | |
| IW-2850 | Inlet Work Stage 1 - Site Setup and mobilization | 7 | 14-Apr-21 A | 21-Apr-21 A | 03-Sep-21 | 03-Sep-21 | |
| IW-2380 | Inlet Work Stage 1 - Driven H-piles (85nrs + 6tension piles., @ ave.1no/d/rig, 2rigs) | 65 | 04-May-21 A | 18-Sep-21 | 03-Sep-21 | 23-Sep-21 | 4 |
| IW-2470 | Inlet Work Stage 1 - H-piles Testing | 21 | 22-Jul-21 A | 05-Oct-21 | 24-Sep-21 | 08-Oct-21 | 4 |
| IW-2880 | Inlet Work Stage 1 - Submit piling record to GEO (28d) | 30 | 05-Oct-21 | 04-Nov-21 | 29-Jan-22 | 27-Feb-22 | 116 |
| IW-2920 | Inlet Work Stage 1 - Monitoring Installation and Pumping Test | 21 | 05-Oct-21 | 30-Oct-21 | 09-Oct-21 | 03-Nov-21 | 4 |
| IW-2420 | Inlet Work Stage 1 - Sheetpiles Install (1,840m2 at 120m2/d) | 18 | 07-Oct-21 | 28-Oct-21 | 07-Oct-21 | 28-Oct-21 | 0 |
| IW-2520 | Inlet Work Stage 1 - Excavation (+5.2 to +4.5mPD) | 30 | 30-Oct-21 | 04-Dec-21 | 04-Nov-21 | 08-Dec-21 | 4 |
| IW-2500 | Inlet Work Stage 1 - Marine Sediments Treatment and Disposal | 60 | 30-Oct-21 | 12-Jan-22 | 27-Nov-21 | 15-Feb-22 | 24 |
| IW-2540 | Inlet Work Stage 1 - Strut Installation S1 (+4.5mPD) | 16 | 04-Dec-21 | 23-Dec-21 | 07-Feb-22 | 24-Feb-22 | 46 |
| IW-2550 | Inlet Work Stage 1 - Excavation (+4.5 to +1.0mPD) | 30 | 04-Dec-21 | 12-Jan-22 | 09-Dec-21 | 15-Jan-22 | 4 |
| IW-2570 | Inlet Work Stage 1 - Excavation (+1 to -1.55mPD) | 30 | 12-Jan-22 | 23-Feb-22 | 17-Jan-22 | 26-Feb-22 | 4 |
| IW-2580 | Inlet Work Stage 1 - Strut Installation S2 (+1mPD) | 16 | 12-Jan-22 | 07-Feb-22 | 25-Feb-22 | 15-Mar-22 | 32 |
| **IW Foundation & ELS Stage 2** | | 320 | 02-Feb-21 A | 02-Apr-22 | 14-Sep-21 | 09-Nov-27 | 1753 |
| PP2 | Portion 2 (sd+211d) | 0 | 08-Jun-21 A | | 18-Oct-27 | | |
| IW-2860 | Inlet Work Stage 2 - Site establishment & investigation, RAP, submit Remediation Report (carryforward from Site establ.) | 53 | 22-Jun-21 A | 21-Sep-21 | 18-Oct-27 | 08-Nov-27 | 1214 |
| IW-2861 | Inlet Work Stage 2 - Temporary UU Diversion | 14 | 22-Jun-21 A | 08-Jul-21 A | 09-Nov-27 | 09-Nov-27 | |
| IW-2530 | Inlet Work Stage 2 - Driven H-piles (122nrs., @ave.1no/d/rig, 2rigs) | 61 | 09-Jul-21 A | 29-Oct-21 | 14-Sep-21 | 12-Nov-21 | 12 |
| IW-2400 | Handover and Inspection of Temp. Workshop and Storage Facilities (advance work before P2 access) | 8 | 16-Jul-21 A | 24-Jul-21 A | 08-Nov-21 | 08-Nov-21 | |
| IW-2125 | Complete Temporary Administration Building - Non-MiC Section | 0 | | 23-Oct-21 | | 15-Oct-27 | 1771 |
| IW-2560 | Inlet Work Stage 2 - Sheetpiles Install (2,758m2 at 120m2/d) | 23 | 29-Oct-21 | 24-Nov-21 | 29-Oct-21 | 24-Nov-21 | 0 |
| IW-2590 | Inlet Work Stage 2 - H-piles Testing | 21 | 13-Nov-21 | 07-Dec-21 | 13-Nov-21 | 07-Dec-21 | 0 |
| IW-2591 | Inlet Work Stage 2 - Monitoring Installation and Pumping Test | 22 | 13-Nov-21 | 08-Dec-21 | 13-Nov-21 | 08-Dec-21 | 0 |
| IW-2870 | Inlet Work Stage 2 - Submit piling record to GEO (28d) | 28 | 08-Dec-21 | 04-Jan-22 | 31-Jan-22 | 27-Feb-22 | 54 |
| IW-2610 | Inlet Work Stage 2 - Excavation (-1.55 to -2.5mPD) | 30 | 09-Dec-21 | 15-Jan-22 | 09-Dec-21 | 15-Jan-22 | 0 |
| IW-2620 | Inlet Work Stage 2 - Marine Sediments Treatment and Disposal | 40 | 12-Jan-22 | 07-Mar-22 | 16-Feb-22 | 02-Apr-22 | 24 |
| IW-2630 | Inlet Work Stage 2 - Strut Installation S3 (-2.5mPD) | 16 | 17-Jan-22 | 10-Feb-22 | 25-Feb-22 | 15-Mar-22 | 28 |
| IW-2640 | Inlet Work Stage 2 - Excavation (-2.5 to -4.5mPD) | 30 | 17-Jan-22 | 26-Feb-22 | 17-Jan-22 | 26-Feb-22 | 0 |
| IW-2650 | Inlet Work Stage 2 - Strut Installation S4 (-4.5mPD) | 16 | 28-Feb-22 | 17-Mar-22 | 16-Mar-22 | 02-Apr-22 | 14 |
| IW-2660 | Inlet Work Stage 2 - Excavation (-4.5 to -7.15mPD) | 30 | 28-Feb-22 | 02-Apr-22 | 28-Feb-22 | 02-Apr-22 | 0 |
| IW-2670 | IW - Foundation & ELS Complete | 0 | | 02-Apr-22 | | 02-Apr-22 | 0 |
| **Temporary Workshop and Storage** | | 91 | 02-Feb-21 A | 19-Jul-21 A | 14-Sep-21 | 08-Nov-21 | |
| IW-2120A | Design and Submission | 7 | 02-Feb-21 A | 24-Apr-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2120B | Site Formation | 10 | 26-Apr-21 A | 03-May-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2120C | Foundation Work | 7 | 04-May-21 A | 08-May-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2120D | Erect Steel Structure, External Wall and Roof Cladding | 10 | 10-May-21 A | 17-May-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2120E | Erect Internal Partition and False Ceiling | 6 | 18-May-21 A | 24-May-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2120F | Electrical Work, Sanitary Work, Install A/C and Floor Finishes | 10 | 18-May-21 A | 29-May-21 A | 14-Sep-21 | 14-Sep-21 | |
| IW-2390 | Relocation of Workshop (advance work before P2 access) | 20 | 25-Jun-21 A | 19-Jul-21 A | 08-Nov-21 | 08-Nov-21 | |
| IW-2390B | Relocation of Storage Facilities (advance work before P2 access) | 5 | 25-Jun-21 A | 30-Jun-21 A | 14-Sep-21 | 14-Sep-21 | |
| **IW Civil and Structural Works** | | 262 | 25-Feb-22 | 12-Jan-23 | 28-Feb-22 | 12-Jan-23 | 0 |
| **IW Structure Stage 1 (to G/F +4.0mPD)** | | 135 | 25-Feb-22 | 10-Aug-22 | 28-Feb-22 | 12-Aug-22 | 2 |
| IW-2600 | Inlet Work Stage 1 - Structure from -1.55 mPD to +1.45 mPD | 90 | 25-Feb-22 | 17-Jun-22 | 28-Feb-22 | 20-Jun-22 | 2 |
| IW-2690 | Inlet Work Stage 1 - Structure from +1.45 mPD to +4.0 mPD | 45 | 18-Jun-22 | 10-Aug-22 | 21-Jun-22 | 12-Aug-22 | 2 |
| **IW Structure Stage 2 (to G/F +4.0mPD)** | | 105 | 04-Apr-22 | 12-Aug-22 | 04-Apr-22 | 12-Aug-22 | 0 |
| IW-2680 | Inlet Work Stage 2 - Structure from -7.15 mPD to -5.0 mPD | 30 | 04-Apr-22 | 14-May-22 | 04-Apr-22 | 14-May-22 | 0 |
| IW-2700 | Inlet Work Stage 2 - Structure from -5.0 mPD to -2.0 mPD | 25 | 16-May-22 | 14-Jun-22 | 16-May-22 | 14-Jun-22 | 0 |
| IW-2710 | Inlet Work Stage 2 - Structure from -2.0 mPD to +1.0 mPD | 25 | 15-Jun-22 | 14-Jul-22 | 15-Jun-22 | 14-Jul-22 | 0 |
| IW-2720 | Inlet Work Stage 2 - Structure from +1.0 mPD to +4.0 mPD | 25 | 15-Jul-22 | 12-Aug-22 | 15-Jul-22 | 12-Aug-22 | 0 |
| **IW Structure to Roof (+4.0mPD to +18.3mPD)** | | 125 | 13-Aug-22 | 12-Jan-23 | 13-Aug-22 | 12-Jan-23 | 0 |
| IW-2730 | Inlet Work - Structure to Roof from +4.0 mPD to +7.0 mPD | 25 | 13-Aug-22 | 12-Sep-22 | 13-Aug-22 | 12-Sep-22 | 0 |
| IW-2740 | Inlet Work - Structure to Roof from +7.0 mPD to +10.0 mPD | 25 | 13-Sep-22 | 13-Oct-22 | 13-Sep-22 | 13-Oct-22 | 0 |
| IW-2750 | Inlet Work - Structure to Roof from +10.0 mPD to +13.0 mPD | 25 | 14-Oct-22 | 11-Nov-22 | 14-Oct-22 | 11-Nov-22 | 0 |
| IW-2760 | Inlet Work - Structure to Roof from +13.0 mPD to +16.0 mPD | 25 | 12-Nov-22 | 10-Dec-22 | 12-Nov-22 | 10-Dec-22 | 0 |
| IW-2770 | Inlet Work - Structure to Roof from +16.0 mPD to +18.3 mPD | 25 | 12-Dec-22 | 12-Jan-23 | 12-Dec-22 | 12-Jan-23 | 0 |
| **IW ABWF and BS Works** | | 300 | 13-Sep-22 | 19-Sep-23 | 04-Mar-23 | 11-Mar-24 | 137 |
| IW-2780 | Inlet Work - BS and ABWF Works | 300 | 13-Sep-22 | 19-Sep-23 | 04-Mar-23 | 11-Mar-24 | 137 |
| **IW Transformer House No. 1** | | 227 | 05-Aug-22 | 26-Apr-23 | 20-Oct-22 | 11-Mar-24 | 274 |
| IW-2785 | TX House No. 1 - Piling Works (8 nos.) | 10 | 05-Aug-22 | 16-Aug-22 | 20-Oct-22 | 31-Oct-22 | 62 |
| IW-2930 | TX House No. 1 - ELS Works | 14 | 17-Aug-22 | 01-Sep-22 | 30-Jan-23 | 14-Feb-23 | 130 |
| IW-2790 | TX House No. 1 - Structure Cable Trench at +2.2 mPD to +4.8 mPD | 21 | 03-Sep-22 | 28-Sep-22 | 16-Feb-23 | 11-Mar-23 | 130 |
| IW-2800 | TX House No. 1 - Structure Base Level from +4.80 mPD to +6.0 mPD | 21 | 29-Sep-22 | 25-Oct-22 | 13-Mar-23 | 06-Apr-23 | 130 |
| IW-2810 | TX House No. 1 - Structure G/F to Roof from +6.0 mPD to +9.0 mPD | 21 | 26-Oct-22 | 18-Nov-22 | 11-Apr-23 | 05-May-23 | 130 |
| IW-2820 | TX House No. 1 - Structure G/F to Roof from +9.0 mPD to +11.6 mPD | 21 | 19-Nov-22 | 13-Dec-22 | 06-May-23 | 31-May-23 | 130 |
| IW-2830 | TX House No. 1 - BS and ABWF | 30 | 14-Dec-22 | 27-Jan-23 | 03-Nov-23 | 07-Dec-23 | 258 |
| IW-2831 | TX House No. 1 - E&M Handover | 0 | 16-Jan-23 | | 08-Dec-23 | | 263 |
| IW-2840 | TX House No. 1 - Transformer Installation and LV Switchboard Power On | 72 | 28-Jan-23 | 26-Apr-23 | 08-Dec-23 | 11-Mar-24 | 258 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

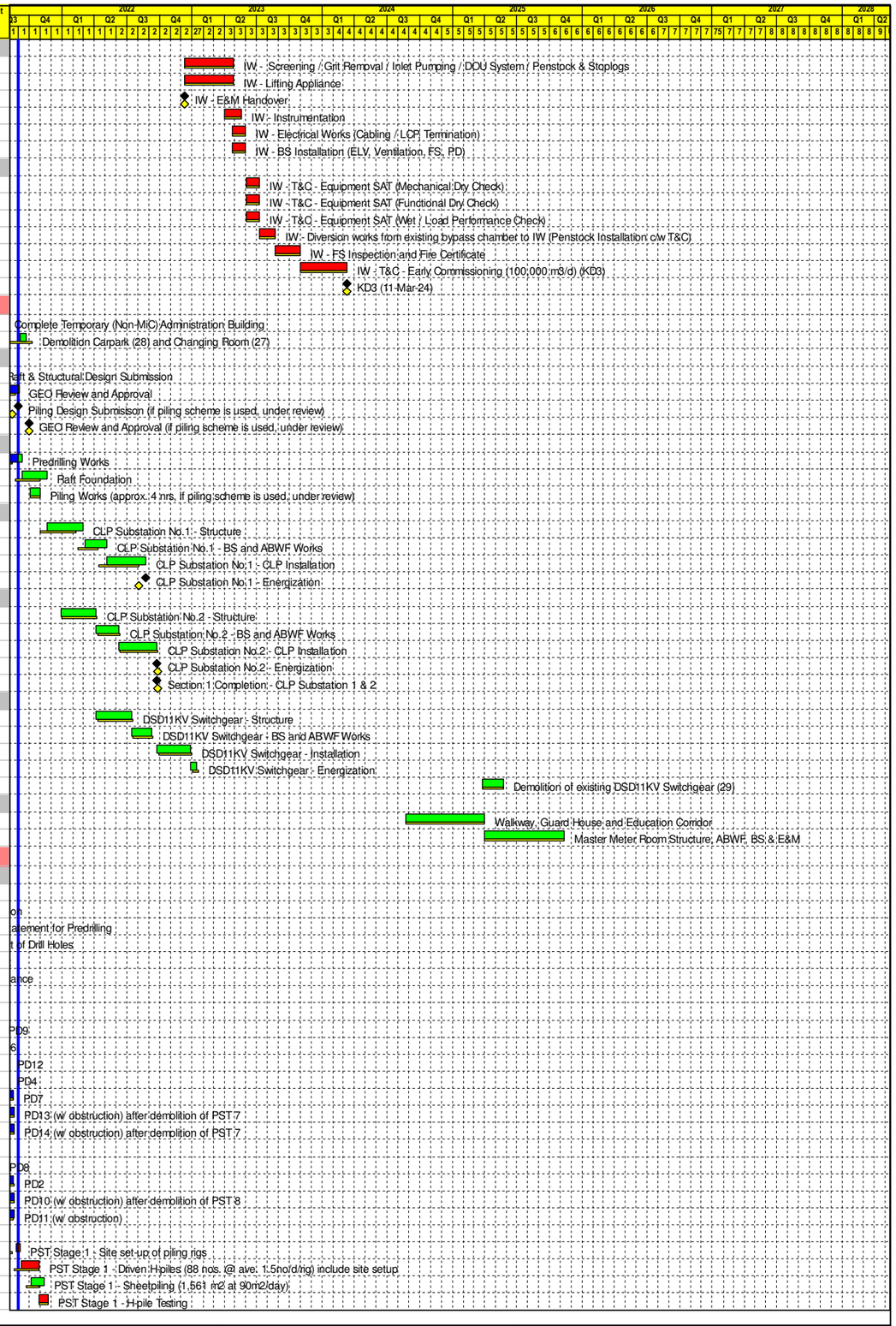
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| **IW E&M Works** | | 132 | 12-Dec-22 | 31-May-23 | 12-Dec-22 | 31-May-23 | 0 |
| ATAL-1000 | IW - Screening / Grit Removal / Inlet Pumping / DOU System / Penstock & Stoplogs | 105 | 12-Dec-22 | 27-Apr-23 | 12-Dec-22 | 27-Apr-23 | 0 |
| ATAL-1010 | IW - Lifting Appliance | 105 | 12-Dec-22 | 27-Apr-23 | 12-Dec-22 | 27-Apr-23 | 0 |
| ATAL-0000 | IW - E&M Handover | 0 | 12-Dec-22 | | 12-Dec-22 | | 0 |
| ATAL-1020 | IW - Instrumentation | 36 | 03-Apr-23 | 19-May-23 | 03-Apr-23 | 19-May-23 | 0 |
| ATAL-1030 | IW - Electrical Works (Cabling / LCP, Termination) | 30 | 25-Apr-23 | 31-May-23 | 25-Apr-23 | 31-May-23 | 0 |
| ATAL-1040 | IW - BS Installation (ELV, Ventilation, FS, PD) | 30 | 25-Apr-23 | 31-May-23 | 25-Apr-23 | 31-May-23 | 0 |
| **IW E&M T&C** | | 244 | 01-Jun-23 | 11-Mar-24 | 01-Jun-23 | 11-Mar-24 | 0 |
| ATAL-1050 | IW - T&C - Equipment SAT (Mechanical Dry Check) | 30 | 01-Jun-23 | 07-Jul-23 | 01-Jun-23 | 07-Jul-23 | 0 |
| ATAL-1060 | IW - T&C - Equipment SAT (Functional Dry Check) | 30 | 01-Jun-23 | 07-Jul-23 | 01-Jun-23 | 07-Jul-23 | 0 |
| ATAL-1070 | IW - T&C - Equipment SAT (Wet / Load Performance Check) | 30 | 01-Jun-23 | 07-Jul-23 | 01-Jun-23 | 07-Jul-23 | 0 |
| ATAL-1090 | IW - Diversion works from existing bypass chamber to IW (Penstock Installation c/w T&C) | 39 | 08-Jul-23 | 22-Aug-23 | 08-Jul-23 | 22-Aug-23 | 0 |
| ATAL-1080 | IW - FS Inspection and Fire Certificate | 57 | 23-Aug-23 | 31-Oct-23 | 23-Aug-23 | 31-Oct-23 | 0 |
| ATAL-1100 | IW - T&C - Early Commissioning (100,000 m3/d) (KD3) | 104 | 01-Nov-23 | 11-Mar-24 | 01-Nov-23 | 11-Mar-24 | 0 |
| IW-995 | KD3 (11-Mar-24) | 0 | | 11-Mar-24* | | 11-Mar-24 | 0 |
| **CLP Substations No. 1 & 2** | | 1392 | 01-Jun-21 A | 10-Nov-25 | 10-Sep-21 | 07-Nov-26 | 311 |
| CLP-0900 | Complete Temporary (Non-MiC) Administration Building | 0 | | 22-Jul-21 A | | 15-Oct-21 | |
| CLP-1000 | Demolition Carpark (28) and Changing Room (27) | 14 | 06-Sep-21* | 21-Sep-21 | 15-Oct-21 | 30-Oct-21 | 31 |
| **Submissions** | | 102 | 01-Jun-21 A | 30-Sep-21 | 10-Sep-21 | 02-Nov-21 | 26 |
| CLP-1180 | Raft & Structural Design Submission | 25 | 01-Jun-21 A | 30-Jun-21 A | 10-Sep-21 | 10-Sep-21 | |
| CLP-1190 | GEO Review and Approval | 44 | 02-Jul-21 A | 02-Sep-21 | 18-Sep-21 | 21-Sep-21 | 17 |
| CLP-1150 | Piling Design Submisison (if piling scheme is used, under review) | 0 | | 31-Aug-21* | | 02-Nov-21 | 52 |
| CLP-1160 | GEO Review and Approval (if piling scheme is used, under review) | 0 | | 30-Sep-21* | | 02-Nov-21 | 26 |
| **Foundation** | | 106 | 16-Jul-21 A | 19-Nov-21 | 10-Sep-21 | 30-Nov-21 | 9 |
| CLP-1210 | Predrilling Works | 24 | 16-Jul-21 A | 10-Sep-21 | 10-Sep-21 | 21-Sep-21 | 9 |
| CLP-1200 | Raft Foundation | 57 | 11-Sep-21 | 19-Nov-21 | 23-Sep-21 | 30-Nov-21 | 9 |
| CLP-1170 | Piling Works (approx. 4 nrs, if piling scheme is used, under review) | 24 | 02-Oct-21 | 30-Oct-21 | 03-Nov-21 | 30-Nov-21 | 26 |
| **CLP Substation No. 1** | | 220 | 20-Nov-21 | 23-Aug-22 | 01-Dec-21 | 06-Oct-22 | 35 |
| CLP-1010 | CLP Substation No.1 - Structure | 78 | 20-Nov-21 | 01-Mar-22 | 01-Dec-21 | 11-Mar-22 | 9 |
| CLP-1040 | CLP Substation No.1 - BS and ABWF Works | 48 | 07-Mar-22 | 06-May-22 | 21-Apr-22 | 18-Jun-22 | 35 |
| CLP-1070 | CLP Substation No.1 - CLP Installation | 90 | 07-May-22 | 23-Aug-22 | 20-Jun-22 | 06-Oct-22 | 35 |
| CLP-1090 | CLP Substation No.1 - Energization | 0 | | 23-Aug-22 | | 06-Oct-22 | 35 |
| **CLP Substation No. 2** | | 216 | 28-Dec-21 | 23-Sep-22 | 08-Jan-22 | 06-Oct-22 | 9 |
| CLP-1020 | CLP Substation No.2 - Structure | 78 | 28-Dec-21 | 06-Apr-22 | 08-Jan-22 | 20-Apr-22 | 9 |
| CLP-1050 | CLP Substation No.2 - BS and ABWF Works | 48 | 07-Apr-22 | 08-Jun-22 | 21-Apr-22 | 18-Jun-22 | 9 |
| CLP-1080 | CLP Substation No.2 - CLP Installation | 90 | 09-Jun-22 | 23-Sep-22 | 20-Jun-22 | 06-Oct-22 | 9 |
| CLP-1100 | CLP Substation No.2 - Energization | 0 | | 23-Sep-22 | | 06-Oct-22 | 9 |
| CLP-1140 | Section 1 Completion - CLP Substation 1 & 2 | 0 | | 23-Sep-22 | | 06-Oct-22 | 9 |
| **DSD 11kV Switchgear** | | 917 | 07-Apr-22 | 24-May-25 | 06-May-22 | 20-Jun-26 | 316 |
| CLP-1030 | DSD11KV Switchgear - Structure | 78 | 07-Apr-22 | 14-Jul-22 | 06-May-22 | 08-Aug-22 | 21 |
| CLP-1060 | DSD11KV Switchgear - BS and ABWF Works | 48 | 15-Jul-22 | 08-Sep-22 | 09-Aug-22 | 06-Oct-22 | 21 |
| CLP-1110 | DSD11KV Switchgear - Installation | 78 | 24-Sep-22 | 28-Dec-22 | 19-Aug-23 | 21-Nov-23 | 263 |
| CLP-1220 | DSD11KV Switchgear - Energization | 14 | 29-Dec-22 | 14-Jan-23 | 22-Nov-23 | 07-Dec-23 | 263 |
| CLP-1230 | Demolition of existing DSD11KV Switchgear (29) | 45 | 27-Mar-25 | 24-May-25 | 27-Apr-26 | 20-Jun-26 | 316 |
| **Walkway & Master Meter Room** | | 360 | 22-Aug-24 | 10-Nov-25 | 20-Aug-25 | 07-Nov-26 | 292 |
| CLP-1120 | Walkway, Guard House and Education Corridor | 180 | 22-Aug-24 | 01-Apr-25 | 20-Aug-25 | 31-Mar-26 | 292 |
| CLP-1130 | Master Meter Room Structure, ABWF, BS & E&M | 180 | 02-Apr-25 | 10-Nov-25 | 01-Apr-26 | 07-Nov-26 | 292 |
| **Primary Sedimentation Tank (PST)** | | 1878 | 09-Nov-20 A | 08-Nov-26 | 31-Aug-21 | 08-Nov-26 | 0 |
| **PST Stage 1 of Works** | | 1045 | 09-Nov-20 A | 11-Mar-24 | 31-Aug-21 | 24-Jun-24 | 90 |
| PST-1000 | Preparation | 44 | 09-Nov-20 A | 31-Dec-20 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1010 | UU Detection | 3 | 22-Feb-21 A | 24-Feb-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1020 | Method Statement for Predrilling | 1 | 25-Feb-21 A | 25-Feb-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1030 | Setting out of Drill Holes | 2 | 26-Feb-21 A | 27-Feb-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1040 | UU Report | 1 | 01-Mar-21 A | 01-Mar-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1050 | Site Clearance | 6 | 02-Mar-21 A | 08-Mar-21 A | 08-Sep-21 | 08-Sep-21 | |
| **PST Stage 1 - GI - Proposed Predrilling for Piling Works** | | 144 | 10-May-21 A | 19-Aug-21 A | 08-Sep-21 | 28-Oct-21 | |
| **Predrilling at Existing PST 8 (including Trial Pit Excavation, Level Checking, Core Inspection, SPT)** | | 144 | 10-May-21 A | 19-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1090 | PD9 | 14 | 10-May-21 A | 22-May-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1080 | PD6 | 14 | 26-May-21 A | 02-Jun-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1110 | PD12 | 14 | 14-Jul-21 A | 29-Jul-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1060 | PD4 | 14 | 16-Jul-21 A | 31-Jul-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1070 | PD7 | 14 | 02-Aug-21 A | 17-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1150 | PD13 (w/ obstruction) after demolition of PST 7 | 14 | 04-Aug-21 A | 19-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1160 | PD14 (w/ obstruction) after demolition of PST 7 | 14 | 04-Aug-21 A | 19-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| **Predrilling at Existing PST 7 (including Trial Pit Excavation, Level Checking, Core Inspection, SPT)** | | 107 | 11-May-21 A | 19-Aug-21 A | 08-Sep-21 | 28-Oct-21 | |
| PST-1190 | PD8 | 49 | 11-May-21 A | 09-Jul-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1140 | PD2 | 14 | 02-Aug-21 A | 17-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| PST-1200 | PD10 (w/ obstruction) after demolition of PST 8 | 14 | 04-Aug-21 A | 19-Aug-21 A | 28-Oct-21 | 28-Oct-21 | |
| PST-1130 | PD11 (w/ obstruction) | 14 | 04-Aug-21 A | 19-Aug-21 A | 08-Sep-21 | 08-Sep-21 | |
| **PST Stage 1 - Foundation (At First 3 Tanks, PST 7-8 Footprint)** | | 314 | 24-Aug-21 A | 31-Aug-22 | 31-Aug-21 | 07-Sep-22 | 6 |
| PST-1175 | PST Stage 1 - Site set-up of piling rigs | 12 | 24-Aug-21 A | 06-Sep-21 | 31-Aug-21 | 06-Sep-21 | 0 |
| PST-1180 | PST Stage 1 - Driven H-piles (88 nos. @ ave. 1.5no/d/rig) include site setup | 41 | 08-Sep-21 | 28-Oct-21 | 08-Sep-21 | 28-Oct-21 | 0 |
| PST-1170 | PST Stage 1 - Sheetpiling (1,561 m2 at 90m2/day) | 30 | 07-Oct-21 | 11-Nov-21 | 19-Oct-21 | 22-Nov-21 | 9 |
| PST-1210 | PST Stage 1 - H-pile Testing | 21 | 29-Oct-21 | 22-Nov-21 | 29-Oct-21 | 22-Nov-21 | 0 |

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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

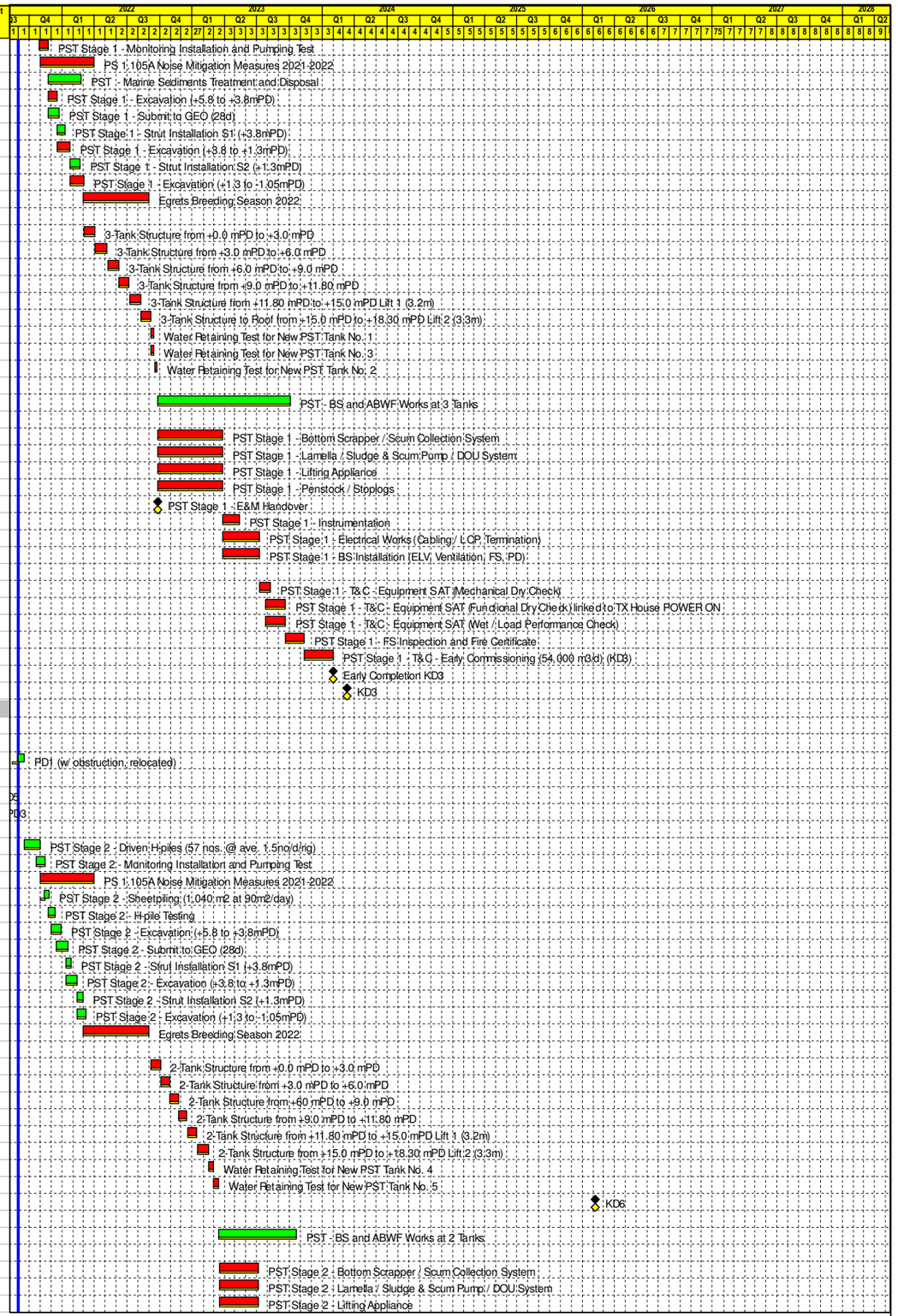
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| PST-1211 | PST Stage 1 - Monitoring Installation and Pumping Test | 21 | 29-Oct-21 | 22-Nov-21 | 29-Oct-21 | 22-Nov-21 | 0 |
| NMM-2021 | PS 1.105A Noise Mitigation Measures 2021-2022 | 151 | 01-Nov-21* | 31-Mar-22 | 01-Nov-21 | 31-Mar-22 | 0 |
| PST-1230 | PST - Marine Sediments Treatment and Disposal | 70 | 23-Nov-21 | 22-Feb-22 | 17-Jun-22 | 07-Sep-22 | 161 |
| PST-1220 | PST Stage 1 - Excavation (+5.8 to +3.8mPD) | 21 | 23-Nov-21 | 16-Dec-21 | 23-Nov-21 | 16-Dec-21 | 0 |
| PST-3020 | PST Stage 1 - Submit to GEO (28d) | 28 | 23-Nov-21 | 24-Dec-21 | 24-Jan-22 | 03-Mar-22 | 50 |
| PST-1240 | PST Stage 1 - Strut Installation S1 (+3.8mPD) | 18 | 17-Dec-21 | 10-Jan-22 | 14-Jan-22 | 10-Feb-22 | 21 |
| PST-1250 | PST Stage 1 - Excavation (+3.8 to +1.3mPD) | 29 | 17-Dec-21 | 22-Jan-22 | 17-Dec-21 | 22-Jan-22 | 0 |
| PST-1260 | PST Stage 1 - Strut Installation S2 (+1.3mPD) | 18 | 24-Jan-22 | 19-Feb-22 | 11-Feb-22 | 03-Mar-22 | 10 |
| PST-1270 | PST Stage 1 - Excavation (+1.3 to -1.05mPD) | 28 | 24-Jan-22 | 03-Mar-22 | 24-Jan-22 | 03-Mar-22 | 0 |
| EBS-2022 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| **PST Stage 1 - Structure (At First 3 Tanks, PST 7-8 Footprint)** | | 167 | 04-Mar-22 | 24-Sep-22 | 04-Mar-22 | 24-Sep-22 | 0 |
| PST-1280 | 3-Tank Structure from +0.0 mPD to +3.0 mPD | 26 | 04-Mar-22 | 02-Apr-22 | 04-Mar-22 | 02-Apr-22 | 0 |
| PST-1290 | 3-Tank Structure from +3.0 mPD to +6.0 mPD | 25 | 04-Apr-22 | 07-May-22 | 04-Apr-22 | 07-May-22 | 0 |
| PST-1300 | 3-Tank Structure from +6.0 mPD to +9.0 mPD | 25 | 10-May-22 | 08-Jun-22 | 10-May-22 | 08-Jun-22 | 0 |
| PST-1310 | 3-Tank Structure from +9.0 mPD to +11.80 mPD | 25 | 09-Jun-22 | 08-Jul-22 | 09-Jun-22 | 08-Jul-22 | 0 |
| PST-1320 | 3-Tank Structure from +11.80 mPD to +15.0 mPD Lift 1 (3.2m) | 26 | 09-Jul-22 | 08-Aug-22 | 09-Jul-22 | 08-Aug-22 | 0 |
| PST-1330 | 3-Tank Structure to Roof from +15.0 mPD to +18.30 mPD Lift 2 (3.3m) | 26 | 09-Aug-22 | 07-Sep-22 | 09-Aug-22 | 07-Sep-22 | 0 |
| PST-1340 | Water Retaining Test for New PST Tank No. 1 | 7 | 08-Sep-22 | 16-Sep-22 | 08-Sep-22 | 16-Sep-22 | 0 |
| PST-1350 | Water Retaining Test for New PST Tank No. 3 | 7 | 08-Sep-22 | 16-Sep-22 | 08-Sep-22 | 16-Sep-22 | 0 |
| PST-1360 | Water Retaining Test for New PST Tank No. 2 | 7 | 17-Sep-22 | 24-Sep-22 | 17-Sep-22 | 24-Sep-22 | 0 |
| **PST Stage 1 - ABWF & BS Works** | | 300 | 26-Sep-22 | 04-Oct-23 | 16-Jun-23 | 24-Jun-24 | 209 |
| PST-1370 | PST - BS and ABWF Works at 3 Tanks | 300 | 26-Sep-22 | 04-Oct-23 | 16-Jun-23 | 24-Jun-24 | 209 |
| **PST Stage 1 - E&M Installation Works at New PST 1,2,3** | | 226 | 26-Sep-22 | 07-Jul-23 | 26-Sep-22 | 07-Jul-23 | 0 |
| ATALPST-3000 | PST Stage 1 - Bottom Scrapper / Scum Collection System | 146 | 26-Sep-22 | 27-Mar-23 | 26-Sep-22 | 27-Mar-23 | 0 |
| ATALPST-3010 | PST Stage 1 - Lamella / Sludge & Scum Pump / DOU System | 146 | 26-Sep-22 | 27-Mar-23 | 26-Sep-22 | 27-Mar-23 | 0 |
| ATALPST-3020 | PST Stage 1 - Lifting Appliance | 146 | 26-Sep-22 | 27-Mar-23 | 26-Sep-22 | 27-Mar-23 | 0 |
| ATALPST-3030 | PST Stage 1 - Penstock / Stoplogs | 146 | 26-Sep-22 | 27-Mar-23 | 26-Sep-22 | 27-Mar-23 | 0 |
| ATALPST-0000 | PST Stage 1 - E&M Handover | 0 | 26-Sep-22 | | 26-Sep-22 | | 0 |
| ATALPST-3040 | PST Stage 1 - Instrumentation | 36 | 28-Mar-23 | 13-May-23 | 28-Mar-23 | 13-May-23 | 0 |
| ATALPST-3050 | PST Stage 1 - Electrical Works (Cabling / LCP, Termination) | 80 | 28-Mar-23 | 07-Jul-23 | 28-Mar-23 | 07-Jul-23 | 0 |
| ATALPST-3060 | PST Stage 1 - BS Installation (ELV, Ventilation, FS, PD) | 80 | 28-Mar-23 | 07-Jul-23 | 28-Mar-23 | 07-Jul-23 | 0 |
| **PST Stage 1 - Testing and Commissioning at New PST 1,2,3** | | 212 | 08-Jul-23 | 11-Mar-24 | 08-Jul-23 | 11-Mar-24 | 0 |
| ATALPST-3070 | PST Stage 1 - T&C - Equipment SAT (Mechanical Dry Check) | 28 | 08-Jul-23 | 09-Aug-23 | 08-Jul-23 | 09-Aug-23 | 0 |
| ATALPST-3080 | PST Stage 1 - T&C - Equipment SAT (Functional Dry Check) linked to TX House POWER ON | 48 | 26-Jul-23 | 19-Sep-23 | 26-Jul-23 | 19-Sep-23 | 0 |
| ATALPST-3090 | PST Stage 1 - T&C - Equipment SAT (Wet / Load Performance Check) | 48 | 26-Jul-23 | 19-Sep-23 | 26-Jul-23 | 19-Sep-23 | 0 |
| ATALPST-3100 | PST Stage 1 - FS Inspection and Fire Certificate | 42 | 20-Sep-23 | 10-Nov-23 | 20-Sep-23 | 10-Nov-23 | 0 |
| ATALPST-3110 | PST Stage 1 - T&C - Early Commissioning (54,000 m3/d) (KD3) | 68 | 11-Nov-23 | 01-Feb-24 | 11-Nov-23 | 01-Feb-24 | 0 |
| PKD3 | Early Completion KD3 | 0 | | 01-Feb-24 | | 15-Feb-24 | 14 |
| CDKD3 | KD3 | 0 | | 11-Mar-24* | | 11-Mar-24 | 0 |
| **PST Stage 2 of Works** | | 1700 | 04-Jun-21 A | 08-Nov-26 | 01-Nov-21 | 08-Nov-26 | 0 |
| **PST GI - Propose Predrilling for Piling Works** | | 87 | 04-Jun-21 A | 15-Sep-21 | 23-Apr-22 | 21-Jun-22 | 220 |
| **Pre-drilling @ Existing PST 6 (including Trial Pit Excavation, Level Checking, Core Inspection, SPT)** | | 14 | 31-Aug-21 | 15-Sep-21 | 06-Jun-22 | 21-Jun-22 | 220 |
| PST-2000 | PD1 (w/ obstruction, relocated) | 14 | 31-Aug-21 | 15-Sep-21 | 06-Jun-22 | 21-Jun-22 | 220 |
| **Pre-drilling @ Existing PST 5 (including Trial Pit Excavation, Level Checking, Core Inspection, SPT)** | | 21 | 04-Jun-21 A | 29-Jun-21 A | 23-Apr-22 | 23-Apr-22 | |
| PST-2020 | PD5 | 7 | 04-Jun-21 A | 11-Jun-21 A | 23-Apr-22 | 23-Apr-22 | |
| PST-2010 | PD3 | 14 | 12-Jun-21 A | 29-Jun-21 A | 23-Apr-22 | 23-Apr-22 | |
| **PST Foundation - Stage 2 (At Remaining 2 Tanks, PST 5-6 Footprint)** | | 300 | 16-Sep-21 | 31-Aug-22 | 01-Nov-21 | 07-Sep-22 | 6 |
| PST-2030 | PST Stage 2 - Driven H-piles (57 nos. @ ave. 1.5no/d/rig) | 36 | 16-Sep-21 | 30-Oct-21 | 23-Apr-22 | 07-Jun-22 | 51 |
| PST-2061 | PST Stage 2 - Monitoring Installation and Pumping Test | 21 | 21-Oct-21 | 13-Nov-21 | 27-May-22 | 21-Jun-22 | 172 |
| NMM-2105 | PS 1.105A Noise Mitigation Measures 2021-2022 | 151 | 01-Nov-21* | 31-Mar-22 | 01-Nov-21 | 31-Mar-22 | 0 |
| PST-2040 | PST Stage 2 - Sheetpiling (1,040 m2 at 90m2/day) | 12 | 12-Nov-21 | 25-Nov-21 | 08-Jun-22 | 21-Jun-22 | 162 |
| PST-2060 | PST Stage 2 - H-pile Testing | 18 | 23-Nov-21 | 13-Dec-21 | 27-Jun-22 | 18-Jul-22 | 169 |
| PST-2050 | PST Stage 2 - Excavation (+5.8 to +3.8mPD) | 22 | 01-Dec-21 | 28-Dec-21 | 22-Jun-22 | 18-Jul-22 | 158 |
| PST-3035 | PST Stage 2 - Submit to GEO (28d) | 28 | 14-Dec-21 | 18-Jan-22 | 06-Aug-22 | 07-Sep-22 | 185 |
| PST-2070 | PST Stage 2 - Strut Installation S1 (+3.8mPD) | 14 | 11-Jan-22 | 26-Jan-22 | 19-Jul-22 | 03-Aug-22 | 148 |
| PST-2080 | PST Stage 2 - Excavation (+3.8 to +1.3mPD) | 22 | 11-Jan-22 | 11-Feb-22 | 19-Jul-22 | 12-Aug-22 | 148 |
| PST-2090 | PST Stage 2 - Strut Installation S2 (+1.3mPD) | 14 | 12-Feb-22 | 28-Feb-22 | 23-Aug-22 | 07-Sep-22 | 156 |
| PST-2100 | PST Stage 2 - Excavation (+1.3 to -1.05mPD) | 22 | 12-Feb-22 | 09-Mar-22 | 13-Aug-22 | 07-Sep-22 | 148 |
| EBS-2115 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| **PST Stage 2 - Structure (At Remaining 2 Tanks,PST 5-6 Footprint)** | | 1069 | 08-Sep-22 | 05-Feb-26 | 08-Sep-22 | 05-Feb-26 | 0 |
| PST-2110 | 2-Tank Structure from +0.0 mPD to +3.0 mPD | 21 | 08-Sep-22 | 05-Oct-22 | 08-Sep-22 | 05-Oct-22 | 0 |
| PST-2120 | 2-Tank Structure from +3.0 mPD to +6.0 mPD | 21 | 06-Oct-22 | 29-Oct-22 | 06-Oct-22 | 29-Oct-22 | 0 |
| PST-2130 | 2-Tank Structure from +60 mPD to +9.0 mPD | 21 | 31-Oct-22 | 23-Nov-22 | 31-Oct-22 | 23-Nov-22 | 0 |
| PST-2140 | 2-Tank Structure from +9.0 mPD to +11.80 mPD | 21 | 24-Nov-22 | 17-Dec-22 | 24-Nov-22 | 17-Dec-22 | 0 |
| PST-2150 | 2-Tank Structure from +11.80 mPD to +15.0 mPD Lift 1 (3.2m) | 21 | 19-Dec-22 | 14-Jan-23 | 19-Dec-22 | 14-Jan-23 | 0 |
| PST-2160 | 2-Tank Structure from +15.0 mPD to +18.30 mPD Lift 2 (3.3m) | 21 | 16-Jan-23 | 15-Feb-23 | 16-Jan-23 | 15-Feb-23 | 0 |
| PST-2170 | Water Retaining Test for New PST Tank No. 4 | 13 | 16-Feb-23 | 02-Mar-23 | 16-Feb-23 | 02-Mar-23 | 0 |
| PST-2180 | Water Retaining Test for New PST Tank No. 5 | 13 | 03-Mar-23 | 17-Mar-23 | 03-Mar-23 | 17-Mar-23 | 0 |
| CDKD6 | KD6 | 0 | | 05-Feb-26* | | 05-Feb-26 | 0 |
| **PST Stage 2 - ABWF & BS Works** | | 180 | 15-Mar-23 | 21-Oct-23 | 16-Jun-23 | 20-Jan-24 | 74 |
| PST-2190 | PST - BS and ABWF Works at 2 Tanks | 180 | 15-Mar-23 | 21-Oct-23 | 16-Jun-23 | 20-Jan-24 | 74 |
| **PST Stage 2 - E&M Installation Works at New PST 4,5** | | 159 | 18-Mar-23 | 28-Sep-23 | 18-Mar-23 | 11-Mar-24 | 129 |
| ATALPST-5000 | PST Stage 2 - Bottom Scrapper / Scum Collection System | 87 | 18-Mar-23 | 06-Jul-23 | 18-Mar-23 | 06-Jul-23 | 0 |
| ATALPST-5010 | PST Stage 2 - Lamella / Sludge & Scum Pump / DOU System | 87 | 18-Mar-23 | 06-Jul-23 | 18-Mar-23 | 06-Jul-23 | 0 |
| ATALPST-5020 | PST Stage 2 - Lifting Appliance | 87 | 18-Mar-23 | 06-Jul-23 | 18-Mar-23 | 06-Jul-23 | 0 |

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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

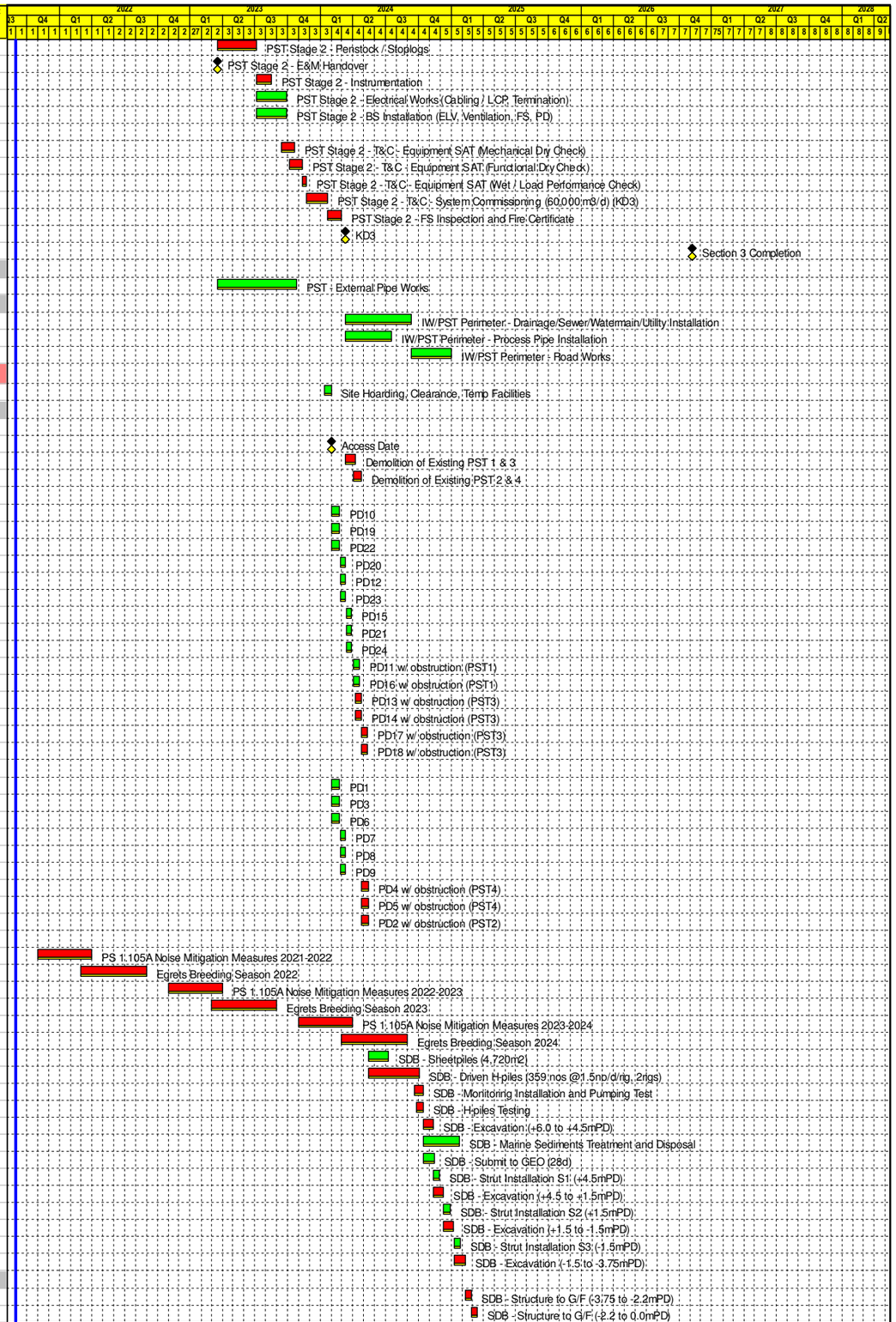
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
## Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| ATALPST-5030 | PST Stage 2 - Penstock / Stoplogs | 87 | 18-Mar-23 | 06-Jul-23 | 18-Mar-23 | 06-Jul-23 | 0 |
| ATALPST-0001 | PST Stage 2 - E&M Handover | 0 | 18-Mar-23 | | 18-Mar-23 | | 0 |
| ATALPST-5040 | PST Stage 2 - Instrumentation | 36 | 07-Jul-23 | 17-Aug-23 | 07-Jul-23 | 17-Aug-23 | 0 |
| ATALPST-5050 | PST Stage 2 - Electrical Works (Cabling / LCP, Termination) | 72 | 07-Jul-23 | 28-Sep-23 | 08-Dec-23 | 11-Mar-24 | 129 |
| ATALPST-5060 | PST Stage 2 - BS Installation (ELV, Ventilation, FS, PD) | 72 | 07-Jul-23 | 28-Sep-23 | 08-Dec-23 | 11-Mar-24 | 129 |
| **PST Stage 2 - Testing and Commissioning at New PST 4,5** | | 986 | 15-Sep-23 | 08-Nov-26 | 15-Sep-23 | 08-Nov-26 | 0 |
| ATALPST-5070 | PST Stage 2 - T&C - Equipment SAT (Mechanical Dry Check) | 30 | 15-Sep-23 | 21-Oct-23 | 15-Sep-23 | 21-Oct-23 | 0 |
| ATALPST-5080 | PST Stage 2 - T&C - Equipment SAT (Functional Dry Check) | 30 | 07-Oct-23 | 11-Nov-23 | 07-Oct-23 | 11-Nov-23 | 0 |
| ATALPST-5090 | PST Stage 2 - T&C - Equipment SAT (Wet / Load Performance Check) | 9 | 13-Nov-23 | 22-Nov-23 | 13-Nov-23 | 22-Nov-23 | 0 |
| ATALPST-5100 | PST Stage 2 - T&C - System Commissioning (60,000 m3/d) (KD3) | 48 | 23-Nov-23 | 20-Jan-24 | 23-Nov-23 | 20-Jan-24 | 0 |
| ATALPST-5110 | PST Stage 2 - FS Inspection and Fire Certificate | 28 | 22-Jan-24 | 29-Feb-24 | 22-Jan-24 | 29-Feb-24 | 0 |
| CDKD3a | KD3 | 0 | | 11-Mar-24* | | 11-Mar-24 | 0 |
| CS3 | Section 3 Completion | 0 | | 08-Nov-26* | | 08-Nov-26 | 0 |
| **PST External Pipeworks** | | 180 | 18-Mar-23 | 26-Oct-23 | 19-Apr-23 | 22-Nov-23 | 23 |
| ATALPST-5120 | PST - External Pipe Works | 180 | 18-Mar-23 | 26-Oct-23 | 19-Apr-23 | 22-Nov-23 | 23 |
| **External Works - Inlet Work and Primary Sedimentation Tank Perimeter** | | 240 | 12-Mar-24 | 31-Dec-24 | 14-Jan-26 | 07-Nov-26 | 544 |
| EW-1080 | IW/PST Perimeter - Drainage/Sewer/Watermain/Utility Installation | 150 | 12-Mar-24 | 11-Sep-24 | 14-Jan-26 | 22-Jul-26 | 544 |
| EW-1050 | IW/PST Perimeter - Process Pipe Installation | 102 | 12-Mar-24 | 17-Jul-24 | 18-Mar-26 | 22-Jul-26 | 592 |
| EW-1090 | IW/PST Perimeter - Road Works | 90 | 12-Sep-24 | 31-Dec-24 | 23-Jul-26 | 07-Nov-26 | 544 |
| **Sludge Dewatering Building (SDB)** | | 1485 | 01-Nov-21 | 29-Jul-26 | 01-Nov-21 | 07-Nov-26 | 87 |
| SDB-1000 | Site Hoarding, Clearance, Temp Facilities | 17 | 13-Jan-24 | 01-Feb-24 | 20-Jan-24 | 08-Feb-24 | 6 |
| **SDB Foundation & ELS - Stage 1** | | 1027 | 01-Nov-21 | 10-Feb-25 | 01-Nov-21 | 10-Feb-25 | 0 |
| **SDB GI - Pre-drilling Works** | | 87 | 02-Feb-24 | 13-May-24 | 16-Feb-24 | 13-May-24 | 0 |
| SDB-1220 | Access Date | 0 | 02-Feb-24 | | 16-Feb-24 | | 14 |
| SDB-1100 | Demolition of Existing PST 1 & 3 | 20 | 12-Mar-24 | 08-Apr-24 | 12-Mar-24 | 08-Apr-24 | 0 |
| SDB-1320 | Demolition of Existing PST 2 & 4 | 20 | 02-Apr-24 | 25-Apr-24 | 02-Apr-24 | 25-Apr-24 | 0 |
| **SDB At PST 1,3 Footprint** | | 75 | 02-Feb-24 | 11-May-24 | 16-Feb-24 | 13-May-24 | 1 |
| SDB-1010 | PD10 | 14 | 02-Feb-24 | 24-Feb-24 | 20-Mar-24 | 09-Apr-24 | 34 |
| SDB-1020 | PD19 | 14 | 02-Feb-24 | 24-Feb-24 | 20-Mar-24 | 09-Apr-24 | 34 |
| SDB-1030 | PD22 | 14 | 02-Feb-24 | 24-Feb-24 | 16-Feb-24 | 02-Mar-24 | 6 |
| SDB-1040 | PD20 | 14 | 26-Feb-24 | 12-Mar-24 | 10-Apr-24 | 25-Apr-24 | 34 |
| SDB-1050 | PD12 | 14 | 26-Feb-24 | 12-Mar-24 | 10-Apr-24 | 25-Apr-24 | 34 |
| SDB-1060 | PD23 | 14 | 26-Feb-24 | 12-Mar-24 | 04-Mar-24 | 19-Mar-24 | 6 |
| SDB-1070 | PD15 | 14 | 13-Mar-24 | 28-Mar-24 | 26-Apr-24 | 13-May-24 | 34 |
| SDB-1080 | PD21 | 14 | 13-Mar-24 | 28-Mar-24 | 26-Apr-24 | 13-May-24 | 34 |
| SDB-1090 | PD24 | 14 | 13-Mar-24 | 28-Mar-24 | 20-Mar-24 | 09-Apr-24 | 6 |
| SDB-1110 | PD11 w/ obstruction (PST1) | 14 | 02-Apr-24 | 18-Apr-24 | 10-Apr-24 | 25-Apr-24 | 6 |
| SDB-1140 | PD16 w/ obstruction (PST1) | 14 | 02-Apr-24 | 18-Apr-24 | 10-Apr-24 | 25-Apr-24 | 6 |
| SDB-1120 | PD13 w/ obstruction (PST3) | 14 | 09-Apr-24 | 24-Apr-24 | 10-Apr-24 | 25-Apr-24 | 1 |
| SDB-1130 | PD14 w/ obstruction (PST3) | 14 | 09-Apr-24 | 24-Apr-24 | 10-Apr-24 | 25-Apr-24 | 1 |
| SDB-1150 | PD17 w/ obstruction (PST3) | 14 | 25-Apr-24 | 11-May-24 | 26-Apr-24 | 13-May-24 | 1 |
| SDB-1160 | PD18 w/ obstruction (PST3) | 14 | 25-Apr-24 | 11-May-24 | 26-Apr-24 | 13-May-24 | 1 |
| **SDB At PST 2,4 Footprint** | | 76 | 02-Feb-24 | 13-May-24 | 20-Mar-24 | 13-May-24 | 0 |
| SDB-1230 | PD1 | 14 | 02-Feb-24 | 24-Feb-24 | 10-Apr-24 | 25-Apr-24 | 48 |
| SDB-1240 | PD3 | 14 | 02-Feb-24 | 24-Feb-24 | 20-Mar-24 | 09-Apr-24 | 34 |
| SDB-1250 | PD6 | 14 | 02-Feb-24 | 24-Feb-24 | 10-Apr-24 | 25-Apr-24 | 48 |
| SDB-1290 | PD7 | 14 | 26-Feb-24 | 12-Mar-24 | 26-Apr-24 | 13-May-24 | 48 |
| SDB-1260 | PD8 | 14 | 26-Feb-24 | 12-Mar-24 | 10-Apr-24 | 25-Apr-24 | 34 |
| SDB-1300 | PD9 | 14 | 26-Feb-24 | 12-Mar-24 | 10-Apr-24 | 25-Apr-24 | 34 |
| SDB-1350 | PD4 w/ obstruction (PST4) | 14 | 26-Apr-24 | 13-May-24 | 26-Apr-24 | 13-May-24 | 0 |
| SDB-1360 | PD5 w/ obstruction (PST4) | 14 | 26-Apr-24 | 13-May-24 | 26-Apr-24 | 13-May-24 | 0 |
| SDB-1370 | PD2 w/ obstruction (PST2) | 14 | 26-Apr-24 | 13-May-24 | 26-Apr-24 | 13-May-24 | 0 |
| **SDB Foundation - PST 1-4 Footprint** | | 1027 | 01-Nov-21 | 10-Feb-25 | 01-Nov-21 | 10-Feb-25 | 0 |
| NMM-2095 | PS 1.105A Noise Mitigation Measures 2021-2022 | 151 | 01-Nov-21* | 31-Mar-22 | 01-Nov-21 | 31-Mar-22 | 0 |
| EBS-2105 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| NMM-2022 | PS 1.105A Noise Mitigation Measures 2022-2023 | 151 | 01-Nov-22 | 31-Mar-23 | 01-Nov-22 | 31-Mar-23 | 0 |
| EBS-2023 | Egrets Breeding Season 2023 | 184 | 01-Mar-23 | 31-Aug-23 | 01-Mar-23 | 31-Aug-23 | 0 |
| NMM-2023 | PS 1.105A Noise Mitigation Measures 2023-2024 | 152 | 01-Nov-23* | 31-Mar-24 | 01-Nov-23 | 31-Mar-24 | 0 |
| EBS-2024 | Egrets Breeding Season 2024 | 184 | 01-Mar-24* | 31-Aug-24 | 01-Mar-24 | 31-Aug-24 | 0 |
| SDB-1190 | SDB - Sheetpiles (4,720m2) | 45 | 14-May-24 | 08-Jul-24 | 17-Jul-24 | 06-Sep-24 | 52 |
| SDB-1170 | SDB - Driven H-piles (359 nos @1.5no/d/rig, 2rigs) | 120 | 14-May-24 | 05-Oct-24 | 14-May-24 | 05-Oct-24 | 0 |
| SDB-1610 | SDB - Monitoring Installation and Pumping Test | 21 | 19-Sep-24 | 15-Oct-24 | 19-Sep-24 | 15-Oct-24 | 0 |
| SDB-1180 | SDB - H-piles Testing | 14 | 27-Sep-24 | 15-Oct-24 | 27-Sep-24 | 15-Oct-24 | 0 |
| SDB-1200 | SDB - Excavation (+6.0 to +4.5mPD) | 24 | 16-Oct-24 | 12-Nov-24 | 16-Oct-24 | 12-Nov-24 | 0 |
| SDB-1210 | SDB - Marine Sediments Treatment and Disposal | 83 | 16-Oct-24 | 23-Jan-25 | 28-Oct-24 | 10-Feb-25 | 10 |
| SDB-1620 | SDB - Submit to GEO (28d) | 28 | 16-Oct-24 | 16-Nov-24 | 03-Jan-25 | 10-Feb-25 | 65 |
| SDB-1270 | SDB - Strut Installation S1 (+4.5mPD) | 16 | 13-Nov-24 | 30-Nov-24 | 07-Dec-24 | 27-Dec-24 | 21 |
| SDB-1280 | SDB - Excavation (+4.5 to +1.5mPD) | 23 | 13-Nov-24 | 09-Dec-24 | 13-Nov-24 | 09-Dec-24 | 0 |
| SDB-1330 | SDB - Strut Installation S2 (+1.5mPD) | 16 | 10-Dec-24 | 30-Dec-24 | 28-Dec-24 | 16-Jan-25 | 14 |
| SDB-1340 | SDB - Excavation (+1.5 to -1.5mPD) | 23 | 10-Dec-24 | 08-Jan-25 | 10-Dec-24 | 08-Jan-25 | 0 |
| SDB-1390 | SDB - Strut Installation S3 (-1.5mPD) | 16 | 09-Jan-25 | 27-Jan-25 | 17-Jan-25 | 10-Feb-25 | 7 |
| SDB-1400 | SDB - Excavation (-1.5 to -3.75mPD) | 23 | 09-Jan-25 | 10-Feb-25 | 09-Jan-25 | 10-Feb-25 | 0 |
| **SDB Structure** | | 127 | 11-Feb-25 | 08-Jul-25 | 11-Feb-25 | 08-Jul-25 | 0 |
| SDB-1510 | SDB - Structure to G/F (-3.75 to -2.2mPD) | 14 | 11-Feb-25 | 26-Feb-25 | 11-Feb-25 | 26-Feb-25 | 0 |
| SDB-1530 | SDB - Structure to G/F (-2.2 to 0.0mPD) | 14 | 27-Feb-25 | 14-Mar-25 | 27-Feb-25 | 14-Mar-25 | 0 |




保華-中國中鐵聯營體
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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

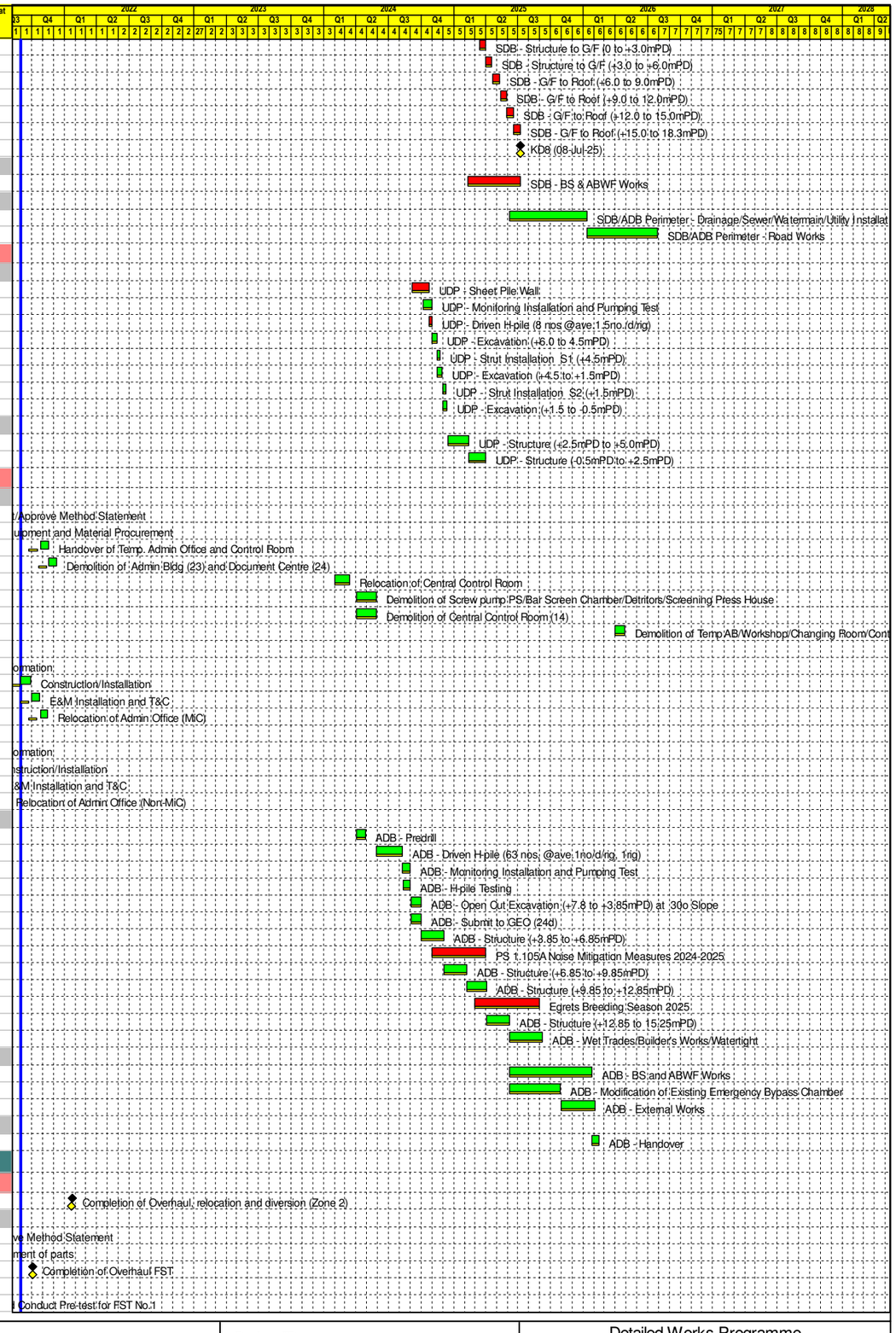
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| SDB-1540 | SDB - Structure to G/F (0 to +3.0mPD) | 14 | 15-Mar-25 | 31-Mar-25 | 15-Mar-25 | 31-Mar-25 | 0 |
| SDB-1550 | SDB - Structure to G/F (+3.0 to +6.0mPD) | 14 | 01-Apr-25 | 17-Apr-25 | 01-Apr-25 | 17-Apr-25 | 0 |
| SDB-1560 | SDB - G/F to Roof (+6.0 to 9.0mPD) | 15 | 22-Apr-25 | 10-May-25 | 22-Apr-25 | 10-May-25 | 0 |
| SDB-1570 | SDB - G/F to Roof (+9.0 to 12.0mPD) | 16 | 12-May-25 | 29-May-25 | 12-May-25 | 29-May-25 | 0 |
| SDB-1580 | SDB - G/F to Roof (+12.0 to 15.0mPD) | 16 | 30-May-25 | 18-Jun-25 | 30-May-25 | 18-Jun-25 | 0 |
| SDB-1590 | SDB - G/F to Roof (+15.0 to 18.3mPD) | 16 | 19-Jun-25 | 08-Jul-25 | 19-Jun-25 | 08-Jul-25 | 0 |
| SDB-1600 | KD8 (08-Jul-25) | 0 | | 08-Jul-25* | | 08-Jul-25 | 0 |
| **SDB ABWF Works** | | 119 | 11-Feb-25 | 08-Jul-25 | 11-Feb-25 | 08-Jul-25 | 0 |
| SDB-1520 | SDB - BS & ABWF Works | 119 | 11-Feb-25 | 08-Jul-25 | 11-Feb-25 | 08-Jul-25 | 0 |
| **External Works -Sludge Dewatering and Administration Buildings Perimeter** | | 338 | 07-Jun-25 | 29-Jul-26 | 15-Sep-25 | 07-Nov-26 | 84 |
| EW-1110 | SDB/ADB Perimeter - Drainage/Sewer/Watermain/Utility Installation | 180 | 07-Jun-25 | 10-Jan-26 | 15-Sep-25 | 29-Apr-26 | 84 |
| EW-1130 | SDB/ADB Perimeter - Road Works | 158 | 12-Jan-26 | 29-Jul-26 | 30-Apr-26 | 07-Nov-26 | 84 |
| **Underpass** | | 177 | 07-Sep-24 | 01-Apr-25 | 07-Sep-24 | 08-Jul-25 | 84 |
| **UDP Foundation and ELS Works** | | 85 | 07-Sep-24 | 14-Dec-24 | 07-Sep-24 | 22-Mar-25 | 84 |
| UDP-1000 | UDP - Sheet Pile Wall | 36 | 07-Sep-24 | 22-Oct-24 | 07-Sep-24 | 22-Oct-24 | 0 |
| UDP-1090 | UDP - Monitoring Installation and Pumping Test | 21 | 07-Oct-24 | 31-Oct-24 | 08-Jan-25 | 06-Feb-25 | 76 |
| UDP-1010 | UDP - Driven H-pile (8 nos @ave.1.5no./d/rig) | 8 | 23-Oct-24 | 31-Oct-24 | 23-Oct-24 | 31-Oct-24 | 0 |
| UDP-1020 | UDP - Excavation (+6.0 to 4.5mPD) | 12 | 01-Nov-24 | 14-Nov-24 | 07-Feb-25 | 20-Feb-25 | 76 |
| UDP-1030 | UDP - Strut Installation S1 (+4.5mPD) | 8 | 15-Nov-24 | 23-Nov-24 | 05-Mar-25 | 13-Mar-25 | 86 |
| UDP-1040 | UDP - Excavation (+4.5 to +1.5mPD) | 14 | 15-Nov-24 | 30-Nov-24 | 21-Feb-25 | 08-Mar-25 | 76 |
| UDP-1050 | UDP - Strut Installation S2 (+1.5mPD) | 8 | 02-Dec-24 | 10-Dec-24 | 14-Mar-25 | 22-Mar-25 | 80 |
| UDP-1060 | UDP - Excavation (+1.5 to -0.5mPD) | 12 | 02-Dec-24 | 14-Dec-24 | 10-Mar-25 | 22-Mar-25 | 76 |
| **UDP Structure** | | 84 | 16-Dec-24 | 01-Apr-25 | 24-Mar-25 | 08-Jul-25 | 76 |
| UDP-1070 | UDP - Structure (+2.5mPD to +5.0mPD) | 42 | 16-Dec-24 | 11-Feb-25 | 24-Mar-25 | 17-May-25 | 76 |
| UDP-1080 | UDP - Structure (-0.5mPD to +2.5mPD) | 42 | 12-Feb-25 | 01-Apr-25 | 19-May-25 | 08-Jul-25 | 76 |
| **Administration Building (ADB)** | | 1625 | 18-Feb-21 A | 28-Apr-26 | 23-Sep-21 | 08-Nov-27 | 479 |
| **Temporary Admin Office and Control Room** | | 1625 | 18-Feb-21 A | 28-Apr-26 | 23-Sep-21 | 08-Nov-27 | 479 |
| ADB-1000 | Submit/Approve Method Statement | 48 | 18-Feb-21 A | 19-Apr-21 A | 23-Sep-21 | 23-Sep-21 | |
| ADB-1010 | Equipment and Material Procurement | 88 | 18-Feb-21 A | 07-Jun-21 A | 15-Oct-21 | 15-Oct-21 | |
| ADB-1040 | Handover of Temp. Admin Office and Control Room | 20 | 25-Oct-21 | 16-Nov-21 | 16-Nov-21 | 08-Dec-21 | 19 |
| ADB-1050 | Demolition of Admin Bldg (23) and Document Centre (24) | 20 | 17-Nov-21* | 09-Dec-21 | 16-Oct-27 | 08-Nov-27 | 1751 |
| ADB-1060 | Relocation of Central Control Room | 30 | 02-Feb-24 | 14-Mar-24 | 25-Apr-24 | 31-May-24 | 61 |
| ADB-1070 | Demolition of Screw pump PS/Bar Screen Chamber/Detritors/Screening Press House | 45 | 02-Apr-24 | 27-May-24 | 01-Jun-24 | 25-Jul-24 | 49 |
| ADB-1080 | Demolition of Central Control Room (14) | 45 | 02-Apr-24 | 27-May-24 | 01-Jun-24 | 25-Jul-24 | 49 |
| ADB-1210 | Demolition of Temp AB/Workshop/Changing Room/Control Room | 21 | 01-Apr-26 | 28-Apr-26 | 14-Oct-26 | 07-Nov-26 | 159 |
| **Temp Admin Office - MiC Section** | | 172 | 20-Apr-21 A | 13-Nov-21 | 23-Sep-21 | 08-Dec-21 | 21 |
| ADB-1020A10 | Site Formation | 6 | 20-Apr-21 A | 26-Apr-21 A | 23-Sep-21 | 23-Sep-21 | |
| ADB-1020A20 | Construction/Installation | 24 | 31-Aug-21 | 28-Sep-21 | 23-Sep-21 | 22-Oct-21 | 19 |
| ADB-1020A30 | E&M Installation and T&C | 20 | 29-Sep-21 | 23-Oct-21 | 23-Oct-21 | 15-Nov-21 | 19 |
| ADB-1020A40 | Relocation of Admin Office (MiC) | 18 | 25-Oct-21 | 13-Nov-21 | 18-Nov-21 | 08-Dec-21 | 21 |
| **Temp Admin Office - Non-MiC Section** | | 74 | 20-Apr-21 A | 20-Jul-21 A | 15-Oct-21 | 15-Oct-21 | |
| ADB-1020A50 | Site Formation | 6 | 20-Apr-21 A | 26-Apr-21 A | 15-Oct-21 | 15-Oct-21 | |
| ADB-1020A60 | Construction/Installation | 24 | 27-Apr-21 A | 26-May-21 A | 15-Oct-21 | 15-Oct-21 | |
| ADB-1020A70 | E&M Installation and T&C | 20 | 01-Jun-21 A | 24-Jun-21 A | 15-Oct-21 | 15-Oct-21 | |
| ADB-1020A80 | Relocation of Admin Office (Non-MiC) | 20 | 25-Jun-21 A | 20-Jul-21 A | 15-Oct-21 | 15-Oct-21 | |
| **ADB Construction of New AB and Demolition** | | 449 | 02-Apr-24 | 06-Sep-25 | 02-Jul-24 | 06-Nov-25 | 52 |
| ADB-1220 | ADB - Predrill | 21 | 02-Apr-24 | 26-Apr-24 | 02-Jul-24 | 25-Jul-24 | 73 |
| ADB-1090 | ADB - Driven H-pile (63 nos, @ave.1no/d/rig, 1rig) | 63 | 28-May-24 | 10-Aug-24 | 26-Jul-24 | 09-Oct-24 | 49 |
| ADB-1230 | ADB - Monitoring Installation and Pumping Test | 21 | 08-Aug-24 | 31-Aug-24 | 07-Oct-24 | 31-Oct-24 | 49 |
| ADB-1100 | ADB - H-pile Testing | 18 | 12-Aug-24 | 31-Aug-24 | 10-Oct-24 | 31-Oct-24 | 49 |
| ADB-1110 | ADB - Open Cut Excavation (+7.8 to +3.85mPD) at 30o Slope | 24 | 02-Sep-24 | 30-Sep-24 | 01-Nov-24 | 28-Nov-24 | 49 |
| ADB-1240 | ADB - Submit to GEO (24d) | 24 | 02-Sep-24 | 30-Sep-24 | 01-Nov-24 | 28-Nov-24 | 49 |
| ADB-1120 | ADB - Structure (+3.85 to +6.85mPD) | 53 | 02-Oct-24 | 03-Dec-24 | 29-Nov-24 | 07-Feb-25 | 49 |
| NMM-2024 | PS 1.105A Noise Mitigation Measures 2024-2025 | 151 | 01-Nov-24* | 31-Mar-25 | 01-Nov-24 | 31-Mar-25 | 0 |
| ADB-1130 | ADB - Structure (+6.85 to +9.85mPD) | 48 | 04-Dec-24 | 06-Feb-25 | 08-Feb-25 | 04-Apr-25 | 49 |
| ADB-1140 | ADB - Structure (+9.85 to +12.85mPD) | 48 | 07-Feb-25 | 03-Apr-25 | 07-Apr-25 | 07-Jun-25 | 49 |
| EBS-2025 | Egrets Breeding Season 2025 | 184 | 01-Mar-25* | 31-Aug-25 | 01-Mar-25 | 31-Aug-25 | 0 |
| ADB-1150 | ADB - Structure (+12.85 to 15.25mPD) | 48 | 04-Apr-25 | 06-Jun-25 | 09-Jun-25 | 04-Aug-25 | 49 |
| ADB-1160 | ADB - Wet Trades/Builder's Works/Watertight | 78 | 07-Jun-25 | 06-Sep-25 | 05-Aug-25 | 06-Nov-25 | 49 |
| **ADB E&M Installation** | | 200 | 07-Jun-25 | 03-Feb-26 | 07-Jan-26 | 23-Sep-26 | 186 |
| ADB-1170 | ADB - BS and ABWF Works | 192 | 07-Jun-25 | 24-Jan-26 | 07-Jan-26 | 02-Sep-26 | 176 |
| ADB-1180 | ADB - Modification of Existing Emergency Bypass Chamber | 120 | 07-Jun-25 | 28-Oct-25 | 19-Jan-26 | 20-Jun-26 | 186 |
| ADB-1190 | ADB - External Works | 80 | 30-Oct-25 | 03-Feb-26 | 22-Jun-26 | 23-Sep-26 | 186 |
| **ADB Handover and Inspection** | | 18 | 26-Jan-26 | 14-Feb-26 | 03-Sep-26 | 23-Sep-26 | 176 |
| ADB-1200 | ADB - Handover | 18 | 26-Jan-26 | 14-Feb-26 | 03-Sep-26 | 23-Sep-26 | 176 |
| **Zone 2 Construction** | | 1642 | 09-Nov-20 A | 05-Feb-26 | 31-Aug-21 | 07-Nov-26 | 236 |
| **Overhaul, Relocation and Diversion Works** | | 355 | 09-Nov-20 A | 22-Jan-22 | 31-Aug-21 | 29-Jan-22 | 6 |
| Z2D-4240 | Completion of Overhaul, relocation and diversion (Zone 2) | 0 | | 22-Jan-22* | | 29-Jan-22 | 6 |
| **Overhaul Works for FST Nos.1, 2, 3 & 4** | | 264 | 09-Nov-20 A | 04-Oct-21 | 31-Aug-21 | 04-Oct-21 | 0 |
| Z2D-1000 | Submit/Approve Method Statement | 55 | 09-Nov-20 A | 14-Jan-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-1010 | Procurement of parts | 115 | 09-Nov-20 A | 01-Apr-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-4250 | Completion of Overhaul FST | 0 | | 04-Oct-21* | | 04-Oct-21 | 0 |
| **FST No. 1** | | 83 | 15-Jan-21 A | 04-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3000 | Isolation and Conduct Pre-test for FST No.1 | 14 | 15-Jan-21 A | 30-Jan-21 A | 31-Aug-21 | 31-Aug-21 | |

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PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

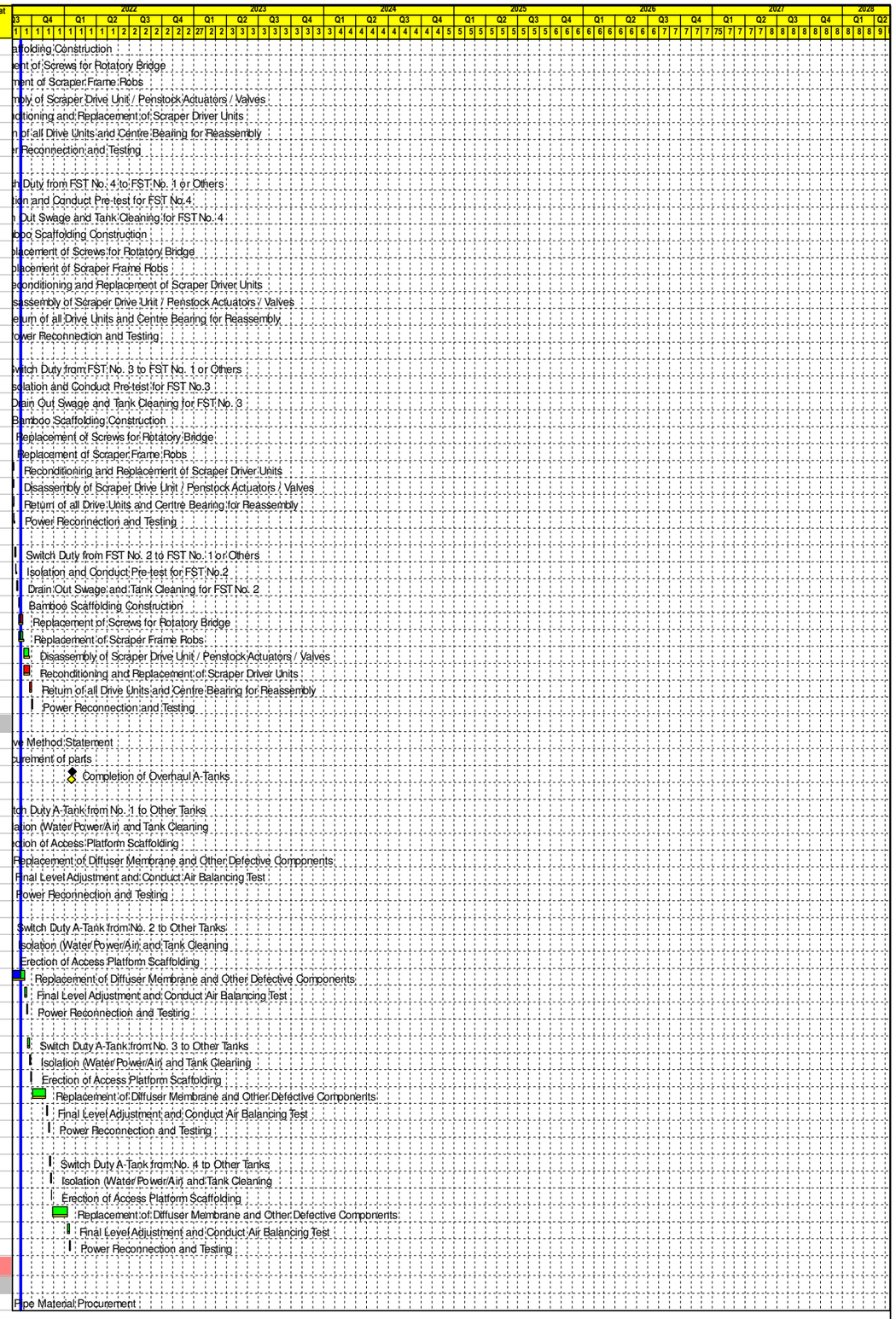
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

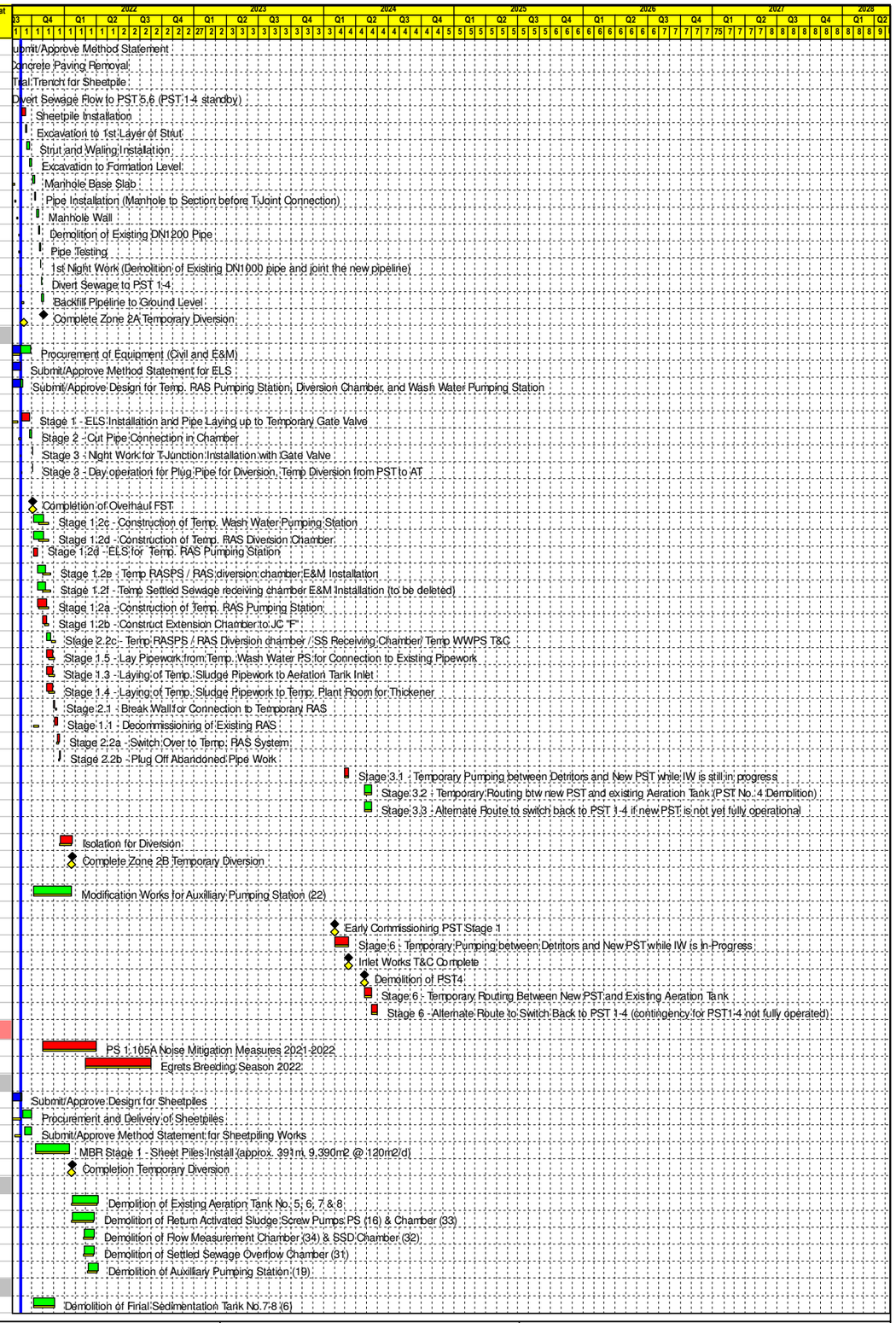

Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

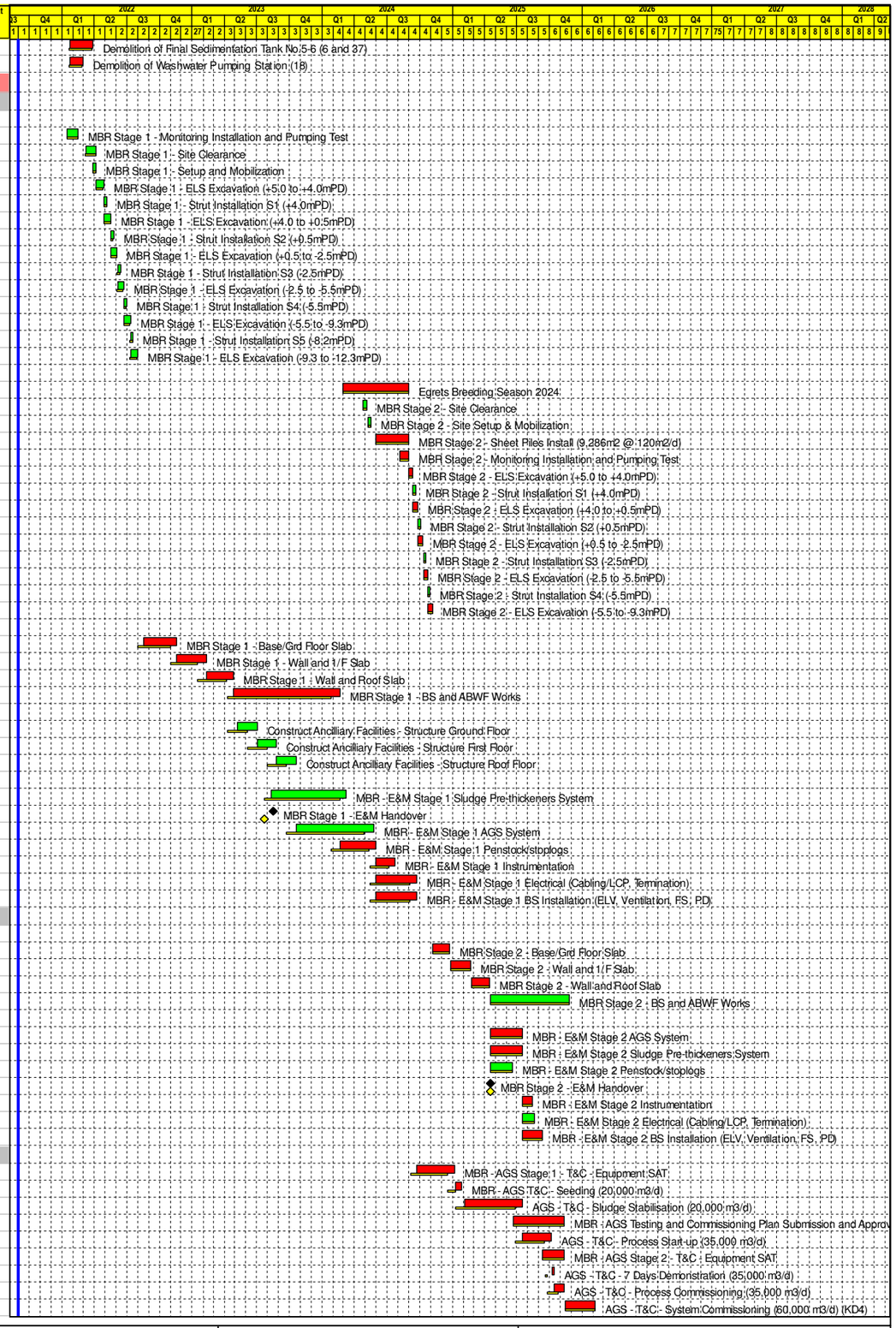
| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z2D-3010 | Bamboo Scaffolding Construction | 7 | 01-Feb-21 A | 08-Feb-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3020 | Replacement of Screws for Rotatory Bridge | 17 | 09-Feb-21 A | 06-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3030 | Replacement of Scraper Frame Robs | 12 | 08-Mar-21 A | 20-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3040 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 4 | 22-Mar-21 A | 25-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3050 | Reconditioning and Replacement of Scraper Driver Units | 22 | 26-Mar-21 A | 24-Apr-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3060 | Return of all Drive Units and Centre Bearing for Reassembly | 5 | 26-Apr-21 A | 30-Apr-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3070 | Power Reconnection and Testing | 2 | 03-May-21 A | 04-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| **FST No. 4** | | 42 | 05-May-21 A | 24-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3080 | Switch Duty from FST No. 4 to FST No. 1 or Others | 2 | 05-May-21 A | 06-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3085 | Isolation and Conduct Pre-test for FST No.4 | 2 | 07-May-21 A | 08-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3090 | Drain Out Swage and Tank Cleaning for FST No. 4 | 4 | 10-May-21 A | 13-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3095 | Bamboo Scaffolding Construction | 2 | 14-May-21 A | 15-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3100 | Replacement of Screws for Rotatory Bridge | 10 | 17-May-21 A | 28-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3110 | Replacement of Scraper Frame Robs | 12 | 17-May-21 A | 31-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3130 | Reconditioning and Replacement of Scraper Driver Units | 15 | 29-May-21 A | 16-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3120 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 13 | 01-Jun-21 A | 16-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3140 | Return of all Drive Units and Centre Bearing for Reassembly | 4 | 17-Jun-21 A | 21-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3150 | Power Reconnection and Testing | 3 | 22-Jun-21 A | 24-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| **FST No. 3** | | 67 | 25-Jun-21 A | 11-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3160 | Switch Duty from FST No. 3 to FST No. 1 or Others | 2 | 25-Jun-21 A | 26-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3240 | Isolation and Conduct Pre-test for FST No.3 | 2 | 28-Jun-21 A | 29-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3250 | Drain Out Swage and Tank Cleaning for FST No. 3 | 4 | 30-Jun-21 A | 05-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3170 | Bamboo Scaffolding Construction | 2 | 06-Jul-21 A | 07-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3180 | Replacement of Screws for Rotatory Bridge | 10 | 08-Jul-21 A | 19-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3190 | Replacement of Scraper Frame Robs | 12 | 08-Jul-21 A | 21-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3210 | Reconditioning and Replacement of Scraper Driver Units | 15 | 20-Jul-21 A | 11-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3200 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 13 | 22-Jul-21 A | 11-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3220 | Return of all Drive Units and Centre Bearing for Reassembly | 4 | 11-Aug-21 A | 11-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3230 | Power Reconnection and Testing | 3 | 11-Aug-21 A | 11-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| **FST No. 2** | | 28 | 14-Aug-21 A | 04-Oct-21 | 31-Aug-21 | 04-Oct-21 | 0 |
| Z2D-3260 | Switch Duty from FST No. 2 to FST No. 1 or Others | 2 | 14-Aug-21 A | 16-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3340 | Isolation and Conduct Pre-test for FST No.2 | 2 | 17-Aug-21 A | 18-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3350 | Drain Out Swage and Tank Cleaning for FST No. 2 | 4 | 19-Aug-21 A | 23-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3270 | Bamboo Scaffolding Construction | 2 | 24-Aug-21 A | 25-Aug-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z2D-3280 | Replacement of Screws for Rotatory Bridge | 10 | 26-Aug-21 A | 06-Sep-21 | 31-Aug-21 | 06-Sep-21 | 0 |
| Z2D-3290 | Replacement of Scraper Frame Robs | 12 | 26-Aug-21 A | 06-Sep-21 | 02-Sep-21 | 08-Sep-21 | 2 |
| Z2D-3300 | Disassembly of Scraper Drive Unit / Penstock Actuators / Valves | 13 | 07-Sep-21 | 21-Sep-21 | 09-Sep-21 | 24-Sep-21 | 2 |
| Z2D-3310 | Reconditioning and Replacement of Scraper Driver Units | 15 | 07-Sep-21 | 24-Sep-21 | 07-Sep-21 | 24-Sep-21 | 0 |
| Z2D-3320 | Return of all Drive Units and Centre Bearing for Reassembly | 4 | 25-Sep-21 | 29-Sep-21 | 25-Sep-21 | 29-Sep-21 | 0 |
| Z2D-3330 | Power Reconnection and Testing | 3 | 30-Sep-21 | 04-Oct-21 | 30-Sep-21 | 04-Oct-21 | 0 |
| **Overhaul Works for Aeration Tanks (A-Tank)** | | 355 | 09-Nov-20 A | 22-Jan-22 | 11-Sep-21 | 29-Jan-22 | 6 |
| Z2D-3360 | Submit/Approve Method Statement | 55 | 09-Nov-20 A | 14-Jan-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-3370 | Procurement of parts | 98 | 15-Jan-21 A | 22-May-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4260 | Completion of Overhaul A-Tanks | 0 | | 22-Jan-22* | | 29-Jan-22 | 6 |
| **A-Tank No. 1** | | 47 | 24-May-21 A | 19-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4000 | Switch Duty A-Tank from No. 1 to Other Tanks | 3 | 24-May-21 A | 26-May-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4010 | Isolation (Water/Power/Air) and Tank Cleaning | 3 | 27-May-21 A | 29-May-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4020 | Erection of Access Platform Scaffolding | 3 | 31-May-21 A | 02-Jun-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4030 | Replacement of Diffuser Membrane and Other Defective Components | 31 | 03-Jun-21 A | 10-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4040 | Final Level Adjustment and Conduct Air Balancing Test | 5 | 12-Jul-21 A | 16-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4050 | Power Reconnection and Testing | 2 | 17-Jul-21 A | 19-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| **A-Tank No. 2** | | 53 | 20-Jul-21 A | 18-Sep-21 | 11-Sep-21 | 02-Oct-21 | 10 |
| Z2D-4060 | Switch Duty A-Tank from No. 2 to Other Tanks | 3 | 20-Jul-21 A | 22-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4070 | Isolation (Water/Power/Air) and Tank Cleaning | 3 | 23-Jul-21 A | 26-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4080 | Erection of Access Platform Scaffolding | 3 | 27-Jul-21 A | 29-Jul-21 A | 11-Sep-21 | 11-Sep-21 | |
| Z2D-4090 | Replacement of Diffuser Membrane and Other Defective Components | 36 | 30-Jul-21 A | 09-Sep-21 | 11-Sep-21 | 21-Sep-21 | 10 |
| Z2D-4100 | Final Level Adjustment and Conduct Air Balancing Test | 5 | 10-Sep-21 | 15-Sep-21 | 23-Sep-21 | 28-Sep-21 | 10 |
| Z2D-4110 | Power Reconnection and Testing | 3 | 16-Sep-21 | 18-Sep-21 | 29-Sep-21 | 02-Oct-21 | 10 |
| **A-Tank No. 3** | | 49 | 20-Sep-21 | 18-Nov-21 | 04-Oct-21 | 30-Nov-21 | 10 |
| Z2D-4120 | Switch Duty A-Tank from No. 3 to Other Tanks | 3 | 20-Sep-21 | 23-Sep-21 | 04-Oct-21 | 06-Oct-21 | 10 |
| Z2D-4130 | Isolation (Water/Power/Air) and Tank Cleaning | 3 | 24-Sep-21 | 27-Sep-21 | 07-Oct-21 | 09-Oct-21 | 10 |
| Z2D-4140 | Erection of Access Platform Scaffolding | 3 | 28-Sep-21 | 30-Sep-21 | 11-Oct-21 | 13-Oct-21 | 10 |
| Z2D-4150 | Replacement of Diffuser Membrane and Other Defective Components | 32 | 02-Oct-21 | 09-Nov-21 | 15-Oct-21 | 20-Nov-21 | 10 |
| Z2D-4160 | Final Level Adjustment and Conduct Air Balancing Test | 5 | 10-Nov-21 | 15-Nov-21 | 22-Nov-21 | 26-Nov-21 | 10 |
| Z2D-4170 | Power Reconnection and Testing | 3 | 16-Nov-21 | 18-Nov-21 | 27-Nov-21 | 30-Nov-21 | 10 |
| **A-Tank No. 4** | | 49 | 19-Nov-21 | 18-Jan-22 | 01-Dec-21 | 29-Jan-22 | 10 |
| Z2D-4180 | Switch Duty A-Tank from No. 4 to Other Tanks | 3 | 19-Nov-21 | 22-Nov-21 | 01-Dec-21 | 03-Dec-21 | 10 |
| Z2D-4190 | Isolation (Water/Power/Air) and Tank Cleaning | 2 | 23-Nov-21 | 24-Nov-21 | 04-Dec-21 | 06-Dec-21 | 10 |
| Z2D-4200 | Erection of Access Platform Scaffolding | 2 | 25-Nov-21 | 26-Nov-21 | 07-Dec-21 | 08-Dec-21 | 10 |
| Z2D-4210 | Replacement of Diffuser Membrane and Other Defective Components | 34 | 27-Nov-21 | 08-Jan-22 | 09-Dec-21 | 20-Jan-22 | 10 |
| Z2D-4220 | Final Level Adjustment and Conduct Air Balancing Test | 5 | 10-Jan-22 | 14-Jan-22 | 21-Jan-22 | 26-Jan-22 | 10 |
| Z2D-4230 | Power Reconnection and Testing | 3 | 15-Jan-22 | 18-Jan-22 | 27-Jan-22 | 29-Jan-22 | 10 |
| **Temporary Diversion** | | 899 | 07-May-21 A | 30-May-24 | 01-Sep-21 | 16-Jul-24 | 38 |
| **Zone 2A : PST To Aeration Tanks** | | 149 | 07-May-21 A | 03-Nov-21 | 02-Sep-21 | 02-Dec-21 | 25 |
| Z2A-1000 | Pipe Material Procurement | 56 | 07-May-21 A | 14-Jul-21 A | 08-Nov-21 | 08-Nov-21 | |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z2A-1010 | Submit/Approve Method Statement | 18 | 01-Jun-21 A | 22-Jun-21 A | 02-Sep-21 | 02-Sep-21 | |
| Z2A-1020 | Concrete Paving Removal | 7 | 23-Jun-21 A | 30-Jun-21 A | 02-Sep-21 | 02-Sep-21 | |
| Z2A-1030 | Trial Trench for Sheetpile | 6 | 02-Jul-21 A | 08-Jul-21 A | 02-Sep-21 | 02-Sep-21 | |
| Z2A-1040 | Divert Sewage Flow to PST 5,6 (PST 1-4 standby) | 1 | 09-Jul-21 A | 09-Jul-21 A | 02-Sep-21 | 02-Sep-21 | |
| Z2A-1050 | Sheetpile Installation | 10 | 02-Sep-21* | 13-Sep-21 | 02-Sep-21 | 13-Sep-21 | 0 |
| Z2A-1060 | Excavation to 1st Layer of Strut | 2 | 14-Sep-21 | 15-Sep-21 | 16-Oct-21 | 18-Oct-21 | 25 |
| Z2A-1070 | Strut and Waling Installation | 7 | 16-Sep-21 | 24-Sep-21 | 19-Oct-21 | 26-Oct-21 | 25 |
| Z2A-1080 | Excavation to Formation Level | 5 | 25-Sep-21 | 30-Sep-21 | 27-Oct-21 | 01-Nov-21 | 25 |
| Z2A-1090 | Manhole Base Slab | 5 | 02-Oct-21 | 07-Oct-21 | 02-Nov-21 | 06-Nov-21 | 25 |
| Z2A-1100 | Pipe Installation (Manhole to Section before T-Joint Connection) | 4 | 08-Oct-21 | 12-Oct-21 | 08-Nov-21 | 11-Nov-21 | 25 |
| Z2A-1110 | Manhole Wall | 5 | 13-Oct-21 | 19-Oct-21 | 12-Nov-21 | 17-Nov-21 | 25 |
| Z2A-1120 | Demolition of Existing DN1200 Pipe | 2 | 20-Oct-21 | 21-Oct-21 | 18-Nov-21 | 19-Nov-21 | 25 |
| Z2A-1130 | Pipe Testing | 3 | 22-Oct-21 | 25-Oct-21 | 20-Nov-21 | 23-Nov-21 | 25 |
| Z2A-1140 | 1st Night Work (Demolition of Existing DN1000 pipe and joint the new pipeline) | 1 | 26-Oct-21 | 26-Oct-21 | 24-Nov-21 | 24-Nov-21 | 25 |
| Z2A-1150 | Divert Sewage to PST 1-4 | 1 | 27-Oct-21 | 27-Oct-21 | 25-Nov-21 | 25-Nov-21 | 25 |
| Z2A-1160 | Backfill Pipeline to Ground Level | 6 | 28-Oct-21 | 03-Nov-21 | 26-Nov-21 | 02-Dec-21 | 25 |
| Z2A-1170 | Complete Zone 2A Temporary Diversion | 0 | | 03-Nov-21 | | 02-Dec-21 | 25 |
| **Zone 2B : FST, Temporary RAS to Aeration Tanks** | | 894 | 13-May-21 A | 30-May-24 | 01-Sep-21 | 16-Jul-24 | 38 |
| Z2D-1110 | Procurement of Equipment (Civil and E&M) | 90 | 13-May-21 A | 28-Sep-21 | 23-Sep-21 | 22-Oct-21 | 19 |
| Z2D-1100 | Submit/Approve Method Statement for ELS | 52 | 01-Jun-21 A | 31-Aug-21 | 01-Sep-21 | 01-Sep-21 | 1 |
| Z2D-4300 | Submit/Approve Design for Temp. RAS Pumping Station, Diversion Chamber, and Wash Water Pumping Station | 56 | 01-Jun-21 A | 04-Sep-21 | 05-Oct-21 | 09-Oct-21 | 28 |
| **Temporary Settled Sewage Diversion Chamber** | | 26 | 02-Sep-21 | 04-Oct-21 | 02-Sep-21 | 09-Oct-21 | 5 |
| Z2D-2000 | Stage 1 - ELS Installation and Pipe Laying up to Temporary Gate Valve | 18 | 02-Sep-21* | 23-Sep-21 | 02-Sep-21 | 23-Sep-21 | 0 |
| Z2D-2010 | Stage 2 - Cut Pipe Connection in Chamber | 6 | 24-Sep-21 | 30-Sep-21 | 30-Sep-21 | 07-Oct-21 | 5 |
| Z2D-2020 | Stage 3 - Night Work for T-Junction Installation with Gate Valve | 1 | 02-Oct-21 | 02-Oct-21 | 08-Oct-21 | 08-Oct-21 | 5 |
| Z2D-2030 | Stage 3 - Day operation for Plug Pipe for Diversion, Temp Diversion from PST to AT | 1 | 04-Oct-21 | 04-Oct-21 | 09-Oct-21 | 09-Oct-21 | 5 |
| **Temporary Wash Water Pumping Station, RAS Pumping Station, RAS Diversion Chamber** | | 761 | 04-Oct-21 | 13-May-24 | 04-Oct-21 | 16-Jul-24 | 52 |
| Z2A-1190 | Completion of Overhaul FST | 0 | | 04-Oct-21 | | 04-Oct-21 | 0 |
| Z2D-2040 | Stage 1.2c - Construction of Temp. Wash Water Pumping Station | 25 | 05-Oct-21 | 03-Nov-21 | 11-Oct-21 | 09-Nov-21 | 5 |
| Z2D-2060 | Stage 1.2d - Construction of Temp. RAS Diversion Chamber | 25 | 05-Oct-21 | 03-Nov-21 | 11-Oct-21 | 09-Nov-21 | 5 |
| Z2D-4360 | Stage 1.2d - ELS for Temp. RAS Pumping Station | 10 | 05-Oct-21 | 16-Oct-21 | 05-Oct-21 | 16-Oct-21 | 0 |
| ATALZ2D-1150 | Stage 1.2e - Temp RASPS / RAS diversion chamber E&M Installation | 20 | 18-Oct-21 | 09-Nov-21 | 23-Oct-21 | 15-Nov-21 | 5 |
| ATALZ2D-1160 | Stage 1.2f - Temp Settled Sewage receiving chamber E&M Installation (to be deleted) | 20 | 18-Oct-21 | 09-Nov-21 | 23-Oct-21 | 15-Nov-21 | 5 |
| Z2D-2050 | Stage 1.2a - Construction of Temp. RAS Pumping Station | 22 | 18-Oct-21 | 11-Nov-21 | 18-Oct-21 | 11-Nov-21 | 0 |
| Z2D-2090 | Stage 1.2b - Construct Extension Chamber to JC "F" | 10 | 01-Nov-21 | 11-Nov-21 | 01-Nov-21 | 11-Nov-21 | 0 |
| ATALZ2D-1170 | Stage 2.2c - Temp RASPS / RAS Diversion chamber / SS Receiving Chamber/ Temp WWPS T&C | 12 | 10-Nov-21 | 23-Nov-21 | 16-Nov-21 | 29-Nov-21 | 5 |
| Z2D-2045 | Stage 1.5 - Lay Pipework from Temp. Wash Water PS for Connection to Existing Pipework | 15 | 12-Nov-21 | 29-Nov-21 | 12-Nov-21 | 29-Nov-21 | 0 |
| Z2D-2070 | Stage 1.3 - Laying of Temp. Sludge Pipework to Aeration Tank Inlet | 14 | 12-Nov-21 | 27-Nov-21 | 13-Nov-21 | 29-Nov-21 | 1 |
| Z2D-2080 | Stage 1.4 - Laying of Temp. Sludge Pipework to Temp. Plant Room for Thickener | 14 | 12-Nov-21 | 27-Nov-21 | 13-Nov-21 | 29-Nov-21 | 1 |
| Z2D-2100 | Stage 2.1 - Break Wall for Connection to Temporary RAS | 3 | 30-Nov-21 | 02-Dec-21 | 30-Nov-21 | 02-Dec-21 | 0 |
| Z2D-4320 | Stage 1.1 - Decommissioning of Existing RAS | 8 | 03-Dec-21 | 11-Dec-21 | 03-Dec-21 | 11-Dec-21 | 0 |
| Z2D-2110 | Stage 2.2a - Switch Over to Temp. RAS System | 5 | 13-Dec-21 | 17-Dec-21 | 13-Dec-21 | 17-Dec-21 | 0 |
| Z2D-2120 | Stage 2.2b - Plug Off Abandoned Pipe Work | 2 | 18-Dec-21 | 20-Dec-21 | 18-Dec-21 | 20-Dec-21 | 0 |
| Z2D-4330 | Stage 3.1 - Temporary Pumping between Detritors and New PST while IW is still in progress | 9 | 01-Mar-24 | 11-Mar-24 | 01-Mar-24 | 11-Mar-24 | 0 |
| Z2D-4340 | Stage 3.2 - Temporary Routing btw new PST and existing Aeration Tank (PST No. 4 Demolition) | 14 | 26-Apr-24 | 13-May-24 | 29-Jun-24 | 16-Jul-24 | 52 |
| Z2D-4350 | Stage 3.3 - Alternate Route to switch back to PST 1-4 if new PST is not yet fully operational | 14 | 26-Apr-24 | 13-May-24 | 29-Jun-24 | 16-Jul-24 | 52 |
| **FST Tank Nos. 5-8 Diversion** | | 26 | 21-Dec-21 | 22-Jan-22 | 21-Dec-21 | 22-Jan-22 | 0 |
| Z2D-2200 | Isolation for Diversion | 26 | 21-Dec-21 | 22-Jan-22 | 21-Dec-21 | 22-Jan-22 | 0 |
| Z2A-1180 | Complete Zone 2B Temporary Diversion | 0 | | 22-Jan-22 | | 22-Jan-22 | 0 |
| **Modification Works for Auxillary Pumping Station** | | 90 | 05-Oct-21 | 21-Jan-22 | 13-Oct-21 | 29-Jan-22 | 7 |
| Z2D-1050 | Modification Works for Auxilliary Pumping Station (22) | 90 | 05-Oct-21 | 21-Jan-22 | 13-Oct-21 | 29-Jan-22 | 7 |
| **Temporary Sewage Routing** | | 90 | 01-Feb-24 | 30-May-24 | 02-Feb-24 | 30-May-24 | 0 |
| Z2D-2140 | Early Commissioning PST Stage 1 | 0 | | 01-Feb-24 | | 11-Mar-24 | 27 |
| Z2D-2130 | Stage 6 - Temporary Pumping between Detritors and New PST while IW is In-Progress | 27 | 02-Feb-24 | 11-Mar-24 | 02-Feb-24 | 11-Mar-24 | 0 |
| Z2D-2150 | Inlet Works T&C Complete | 0 | | 11-Mar-24 | | 11-Mar-24 | 0 |
| Z2D-2160 | Demolition of PST4 | 0 | | 25-Apr-24 | | 25-Apr-24 | 0 |
| Z2D-2170 | Stage 6 - Temporary Routing Between New PST and Existing Aeration Tank | 14 | 26-Apr-24 | 13-May-24 | 26-Apr-24 | 13-May-24 | 0 |
| Z2D-2180 | Stage 6 - Alternate Route to Switch Back to PST 1-4 (contingency for PST1-4 not fully operated) | 14 | 14-May-24 | 30-May-24 | 14-May-24 | 30-May-24 | 0 |
| **Demolition Works** | | 392 | 01-Jun-21 A | 31-Aug-22 | 07-Oct-21 | 31-Aug-22 | 0 |
| NMM-2115 | PS 1.105A Noise Mitigation Measures 2021-2022 | 151 | 01-Nov-21* | 31-Mar-22 | 01-Nov-21 | 31-Mar-22 | 0 |
| EBS-2125 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| **Sheetpile Installation** | | 195 | 01-Jun-21 A | 22-Jan-22 | 07-Oct-21 | 15-Feb-22 | 14 |
| Z2D-4290 | Submit/Approve Design for Sheetpiles | 55 | 01-Jun-21 A | 03-Sep-21 | 07-Oct-21 | 11-Oct-21 | 30 |
| Z2D-4310 | Procurement and Delivery of Sheetpiles | 21 | 04-Sep-21 | 29-Sep-21 | 12-Oct-21 | 05-Nov-21 | 30 |
| Z2D-4280 | Submit/Approve Method Statement for Sheetpiling Works | 15 | 11-Sep-21 | 29-Sep-21 | 20-Oct-21 | 05-Nov-21 | 30 |
| MBR-1010 | MBR Stage 1 - Sheet Piles Install (approx. 391m, 9,390m2 @ 120m2/d) | 78 | 12-Oct-21 | 14-Jan-22 | 06-Nov-21 | 15-Feb-22 | 21 |
| Z2D-4270 | Completion Temporary Diversion | 0 | | 22-Jan-22* | | 29-Jan-22 | 6 |
| **Aeration Tanks** | | 55 | 24-Jan-22 | 04-Apr-22 | 16-Feb-22 | 26-Apr-22 | 15 |
| Z2T-150 | Demolition of Existing Aeration Tank No. 5, 6, 7 & 8 | 55 | 24-Jan-22 | 04-Apr-22 | 16-Feb-22 | 25-Apr-22 | 14 |
| Z2T-152 | Demolition of Return Activated Sludge Screw Pumps PS (16) & Chamber (33) | 47 | 24-Jan-22 | 25-Mar-22 | 26-Feb-22 | 26-Apr-22 | 23 |
| Z2T-154 | Demolition of Flow Measurement Chamber (34) & SSD Chamber (32) | 24 | 26-Feb-22 | 25-Mar-22 | 25-Mar-22 | 26-Apr-22 | 23 |
| Z2T-154B | Demolition of Settled Sewage Overflow Chamber (31) | 24 | 26-Feb-22 | 25-Mar-22 | 25-Mar-22 | 26-Apr-22 | 23 |
| Z2T-150B | Demolition of Auxilliary Pumping Station (19) | 24 | 08-Mar-22 | 04-Apr-22 | 24-Mar-22 | 25-Apr-22 | 14 |
| **Final Sedimentation Tanks** | | 141 | 05-Oct-21 | 29-Mar-22 | 23-Nov-21 | 29-Mar-22 | 0 |
| Z2T-190 | Demolition of Final Sedimentation Tank No.7-8 (6) | 50 | 05-Oct-21 | 02-Dec-21 | 23-Nov-21 | 22-Jan-22 | 41 |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z2T-180 | Demolition of Final Sedimentation Tank No.5-6 (6 and 37) | 50 | 24-Jan-22 | 29-Mar-22 | 24-Jan-22 | 29-Mar-22 | 0 |
| Z2T-180B | Demolition of Washwater Pumping Station (18) | 25 | 24-Jan-22 | 28-Feb-22 | 24-Jan-22 | 28-Feb-22 | 0 |
| **Mainstream Bio-Reactor & Auxillary Facility (MBR and AF)** | | 1271 | 15-Jan-22 | 05-Feb-26 | 24-Mar-22 | 07-Nov-26 | 236 |
| **MBR Stage 1 and AF Structure** | | 881 | 15-Jan-22 | 07-Nov-24 | 24-Mar-22 | 07-Nov-24 | 0 |
| **MBR Foundation and ELS Works** | | 156 | 15-Jan-22 | 01-Aug-22 | 24-Mar-22 | 17-Aug-22 | 14 |
| MBR-1460 | MBR Stage 1 - Monitoring Installation and Pumping Test | 21 | 15-Jan-22 | 15-Feb-22 | 29-Mar-22 | 26-Apr-22 | 56 |
| MBR-1000 | MBR Stage 1 - Site Clearance | 25 | 08-Mar-22 | 06-Apr-22 | 24-Mar-22 | 26-Apr-22 | 14 |
| MBR-1440 | MBR Stage 1 - Setup and Mobilization | 7 | 29-Mar-22 | 06-Apr-22 | 19-Apr-22 | 26-Apr-22 | 14 |
| MBR-1030 | MBR Stage 1 - ELS Excavation (+5.0 to +4.0mPD) | 15 | 07-Apr-22 | 27-Apr-22 | 27-Apr-22 | 16-May-22 | 14 |
| MBR-1040 | MBR Stage 1 - Strut Installation S1 (+4.0mPD) | 7 | 28-Apr-22 | 06-May-22 | 17-May-22 | 24-May-22 | 14 |
| MBR-1050 | MBR Stage 1 - ELS Excavation (+4.0 to +0.5mPD) | 15 | 28-Apr-22 | 17-May-22 | 17-May-22 | 02-Jun-22 | 14 |
| MBR-1060 | MBR Stage 1 - Strut Installation S2 (+0.5mPD) | 7 | 18-May-22 | 25-May-22 | 04-Jun-22 | 11-Jun-22 | 14 |
| MBR-1070 | MBR Stage 1 - ELS Excavation (+0.5 to -2.5mPD) | 15 | 18-May-22 | 04-Jun-22 | 04-Jun-22 | 21-Jun-22 | 14 |
| MBR-1080 | MBR Stage 1 - Strut Installation S3 (-2.5mPD) | 7 | 06-Jun-22 | 13-Jun-22 | 22-Jun-22 | 29-Jun-22 | 14 |
| MBR-1090 | MBR Stage 1 - ELS Excavation (-2.5 to -5.5mPD) | 15 | 06-Jun-22 | 22-Jun-22 | 22-Jun-22 | 09-Jul-22 | 14 |
| MBR-1100 | MBR Stage 1 - Strut Installation S4 (-5.5mPD) | 7 | 23-Jun-22 | 30-Jun-22 | 11-Jul-22 | 18-Jul-22 | 14 |
| MBR-1110 | MBR Stage 1 - ELS Excavation (-5.5 to -9.3mPD) | 15 | 23-Jun-22 | 11-Jul-22 | 11-Jul-22 | 27-Jul-22 | 14 |
| MBR-1120 | MBR Stage 1 - Strut Installation S5 (-8.2mPD) | 7 | 12-Jul-22 | 19-Jul-22 | 28-Jul-22 | 04-Aug-22 | 14 |
| MBR-1130 | MBR Stage 1 - ELS Excavation (-9.3 to -12.3mPD) | 18 | 12-Jul-22 | 01-Aug-22 | 28-Jul-22 | 17-Aug-22 | 14 |
| **MBR Foundation and ELS Works Stage 2** | | 216 | 01-Mar-24 | 07-Nov-24 | 01-Mar-24 | 07-Nov-24 | 0 |
| MBR-1240 | Egrets Breeding Season 2024 | 184 | 01-Mar-24* | 31-Aug-24 | 01-Mar-24 | 31-Aug-24 | 0 |
| MBR-1280 | MBR Stage 2 - Site Clearance | 9 | 26-Apr-24 | 07-May-24 | 11-May-24 | 22-May-24 | 12 |
| MBR-1450 | MBR Stage 2 - Site Setup & Mobilization | 7 | 08-May-24 | 16-May-24 | 23-May-24 | 30-May-24 | 12 |
| MBR-1290 | MBR Stage 2 - Sheet Piles Install (9,286m2 @ 120m2/d) | 77 | 31-May-24 | 30-Aug-24 | 31-May-24 | 30-Aug-24 | 0 |
| MBR-1470 | MBR Stage 2 - Monitoring Installation and Pumping Test | 21 | 07-Aug-24 | 30-Aug-24 | 07-Aug-24 | 30-Aug-24 | 0 |
| MBR-1300 | MBR Stage 2 - ELS Excavation (+5.0 to +4.0mPD) | 11 | 31-Aug-24 | 12-Sep-24 | 31-Aug-24 | 12-Sep-24 | 0 |
| MBR-1310 | MBR Stage 2 - Strut Installation S1 (+4.0mPD) | 5 | 13-Sep-24 | 19-Sep-24 | 16-Oct-24 | 21-Oct-24 | 25 |
| MBR-1320 | MBR Stage 2 - ELS Excavation (+4.0 to +0.5mPD) | 11 | 13-Sep-24 | 26-Sep-24 | 13-Sep-24 | 26-Sep-24 | 0 |
| MBR-1330 | MBR Stage 2 - Strut Installation S2 (+0.5mPD) | 5 | 27-Sep-24 | 03-Oct-24 | 22-Oct-24 | 26-Oct-24 | 19 |
| MBR-1340 | MBR Stage 2 - ELS Excavation (+0.5 to -2.5mPD) | 11 | 27-Sep-24 | 10-Oct-24 | 27-Sep-24 | 10-Oct-24 | 0 |
| MBR-1350 | MBR Stage 2 - Strut Installation S3 (-2.5mPD) | 5 | 12-Oct-24 | 17-Oct-24 | 28-Oct-24 | 01-Nov-24 | 13 |
| MBR-1360 | MBR Stage 2 - ELS Excavation (-2.5 to -5.5mPD) | 11 | 12-Oct-24 | 24-Oct-24 | 12-Oct-24 | 24-Oct-24 | 0 |
| MBR-1370 | MBR Stage 2 - Strut Installation S4 (-5.5mPD) | 5 | 25-Oct-24 | 30-Oct-24 | 02-Nov-24 | 07-Nov-24 | 7 |
| MBR-1380 | MBR Stage 2 - ELS Excavation (-5.5 to -9.3mPD) | 12 | 25-Oct-24 | 07-Nov-24 | 25-Oct-24 | 07-Nov-24 | 0 |
| **MBR Structure Stage 1** | | 441 | 18-Aug-22 | 20-Feb-24 | 18-Aug-22 | 20-Feb-24 | 0 |
| MBR-1140 | MBR Stage 1 - Base/Grd Floor Slab | 77 | 18-Aug-22 | 18-Nov-22 | 18-Aug-22 | 18-Nov-22 | 0 |
| MBR-1160 | MBR Stage 1 - Wall and 1/F Slab | 62 | 19-Nov-22 | 09-Feb-23 | 19-Nov-22 | 09-Feb-23 | 0 |
| MBR-1180 | MBR Stage 1 - Wall and Roof Slab | 62 | 10-Feb-23 | 27-Apr-23 | 10-Feb-23 | 27-Apr-23 | 0 |
| MBR-1200 | MBR Stage 1 - BS and ABWF Works | 240 | 28-Apr-23 | 20-Feb-24 | 28-Apr-23 | 20-Feb-24 | 0 |
| **Ancillary Facilities Structure Stage 1** | | 138 | 08-May-23 | 20-Oct-23 | 13-May-23 | 27-Oct-23 | 5 |
| MBR-1150 | Construct Ancilliary Facilities - Structure Ground Floor | 46 | 08-May-23 | 03-Jul-23 | 13-May-23 | 08-Jul-23 | 5 |
| MBR-1170 | Construct Ancilliary Facilities - Structure First Floor | 46 | 04-Jul-23 | 25-Aug-23 | 10-Jul-23 | 31-Aug-23 | 5 |
| MBR-1190 | Construct Ancilliary Facilities - Structure Roof Floor | 46 | 26-Aug-23 | 20-Oct-23 | 01-Sep-23 | 27-Oct-23 | 5 |
| **MBR Stage 1 E&M Installation** | | 331 | 10-Aug-23 | 23-Sep-24 | 28-Oct-23 | 23-Sep-24 | 0 |
| MBR-1220 | MBR - E&M Stage 1 Sludge Pre-thickeners System | 170 | 10-Aug-23 | 08-Mar-24 | 28-Oct-23 | 30-May-24 | 65 |
| MBR-1209 | MBR Stage 1 - E&M Handover | 0 | 18-Aug-23 | | 28-Oct-23 | | 58 |
| MBR-1210 | MBR - E&M Stage 1 AGS System | 170 | 21-Oct-23 | 24-May-24 | 28-Oct-23 | 30-May-24 | 5 |
| MBR-1230 | MBR - E&M Stage 1 Penstock/stoplogs | 80 | 21-Feb-24 | 30-May-24 | 21-Feb-24 | 30-May-24 | 0 |
| MBR-1250 | MBR - E&M Stage 1 Instrumentation | 45 | 31-May-24 | 24-Jul-24 | 31-May-24 | 24-Jul-24 | 0 |
| MBR-1260 | MBR - E&M Stage 1 Electrical (Cabling/LCP, Termination) | 96 | 31-May-24 | 23-Sep-24 | 31-May-24 | 23-Sep-24 | 0 |
| MBR-1270 | MBR - E&M Stage 1 BS Installation (ELV, Ventilation, FS, PD) | 96 | 31-May-24 | 23-Sep-24 | 31-May-24 | 23-Sep-24 | 0 |
| **MBR Stage 2 Structure** | | 308 | 08-Nov-24 | 24-Nov-25 | 08-Nov-24 | 05-Feb-26 | 60 |
| **MBR Structure Stage 2** | | 308 | 08-Nov-24 | 24-Nov-25 | 08-Nov-24 | 05-Feb-26 | 60 |
| MBR-1390 | MBR Stage 2 - Base/Grd Floor Slab | 40 | 08-Nov-24 | 24-Dec-24 | 08-Nov-24 | 24-Dec-24 | 0 |
| MBR-1400 | MBR Stage 2 - Wall and 1/F Slab | 44 | 27-Dec-24 | 22-Feb-25 | 27-Dec-24 | 22-Feb-25 | 0 |
| MBR-1420 | MBR Stage 2 - Wall and Roof Slab | 44 | 24-Feb-25 | 16-Apr-25 | 24-Feb-25 | 16-Apr-25 | 0 |
| MBR-1430 | MBR Stage 2 - BS and ABWF Works | 180 | 17-Apr-25 | 24-Nov-25 | 04-Jul-25 | 05-Feb-26 | 60 |
| **MBR Stage 2 E&M Installation** | | 118 | 17-Apr-25 | 09-Sep-25 | 17-Apr-25 | 05-Feb-26 | 122 |
| ATALMBR-1030 | MBR - E&M Stage 2 AGS System | 70 | 17-Apr-25 | 15-Jul-25 | 17-Apr-25 | 15-Jul-25 | 0 |
| ATALMBR-1040 | MBR - E&M Stage 2 Sludge Pre-thickeners System | 70 | 17-Apr-25 | 15-Jul-25 | 17-Apr-25 | 15-Jul-25 | 0 |
| ATALMBR-1050 | MBR - E&M Stage 2 Penstock/stoplogs | 48 | 17-Apr-25 | 18-Jun-25 | 19-May-25 | 15-Jul-25 | 22 |
| ATALMBR-1049 | MBR Stage 2 - E&M Handover | 0 | 17-Apr-25 | | 19-May-25 | | 22 |
| ATALMBR-1060 | MBR - E&M Stage 2 Instrumentation | 24 | 16-Jul-25 | 12-Aug-25 | 16-Jul-25 | 12-Aug-25 | 0 |
| ATALMBR-1070 | MBR - E&M Stage 2 Electrical (Cabling/LCP, Termination) | 30 | 16-Jul-25 | 19-Aug-25 | 02-Jan-26 | 05-Feb-26 | 140 |
| ATALMBR-1080 | MBR - E&M Stage 2 BS Installation (ELV, Ventilation, FS, PD) | 48 | 16-Jul-25 | 09-Sep-25 | 16-Jul-25 | 09-Sep-25 | 0 |
| **MBR and AF E&M T&C** | | 429 | 24-Sep-24 | 05-Feb-26 | 24-Sep-24 | 05-Feb-26 | 0 |
| ATALMBR-1000 | MBR - AGS Stage 1 - T&C - Equipment SAT | 87 | 24-Sep-24 | 08-Jan-25 | 24-Sep-24 | 08-Jan-25 | 0 |
| ATALMBR-1010 | MBR - AGS T&C - Seeding (20,000 m3/d) | 16 | 09-Jan-25 | 27-Jan-25 | 09-Jan-25 | 27-Jan-25 | 0 |
| ATALMBR-1020 | AGS - T&C - Sludge Stabilisation (20,000 m3/d) | 132 | 03-Feb-25 | 15-Jul-25 | 03-Feb-25 | 15-Jul-25 | 0 |
| ATALMBR-1150 | MBR - AGS Testing and Commissioning Plan Submission and Approval | 120 | 21-Jun-25 | 12-Nov-25 | 21-Jun-25 | 12-Nov-25 | 0 |
| ATALMBR-1090 | AGS - T&C - Process Start-up (35,000 m3/d) | 70 | 16-Jul-25 | 06-Oct-25 | 16-Jul-25 | 06-Oct-25 | 0 |
| ATALMBR-1100 | MBR - AGS Stage 2 - T&C - Equipment SAT | 52 | 10-Sep-25 | 12-Nov-25 | 10-Sep-25 | 12-Nov-25 | 0 |
| ATALMBR-1110 | AGS - T&C - 7 Days Demonstration (35,000 m3/d) | 6 | 08-Oct-25 | 14-Oct-25 | 08-Oct-25 | 14-Oct-25 | 0 |
| ATALMBR-1120 | AGS - T&C - Process Commissioning (35,000 m3/d) | 24 | 15-Oct-25 | 12-Nov-25 | 15-Oct-25 | 12-Nov-25 | 0 |
| ATALMBR-1130 | AGS - T&C - System Commissioning (60,000 m3/d) (KD4) | 70 | 13-Nov-25 | 05-Feb-26 | 13-Nov-25 | 05-Feb-26 | 0 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

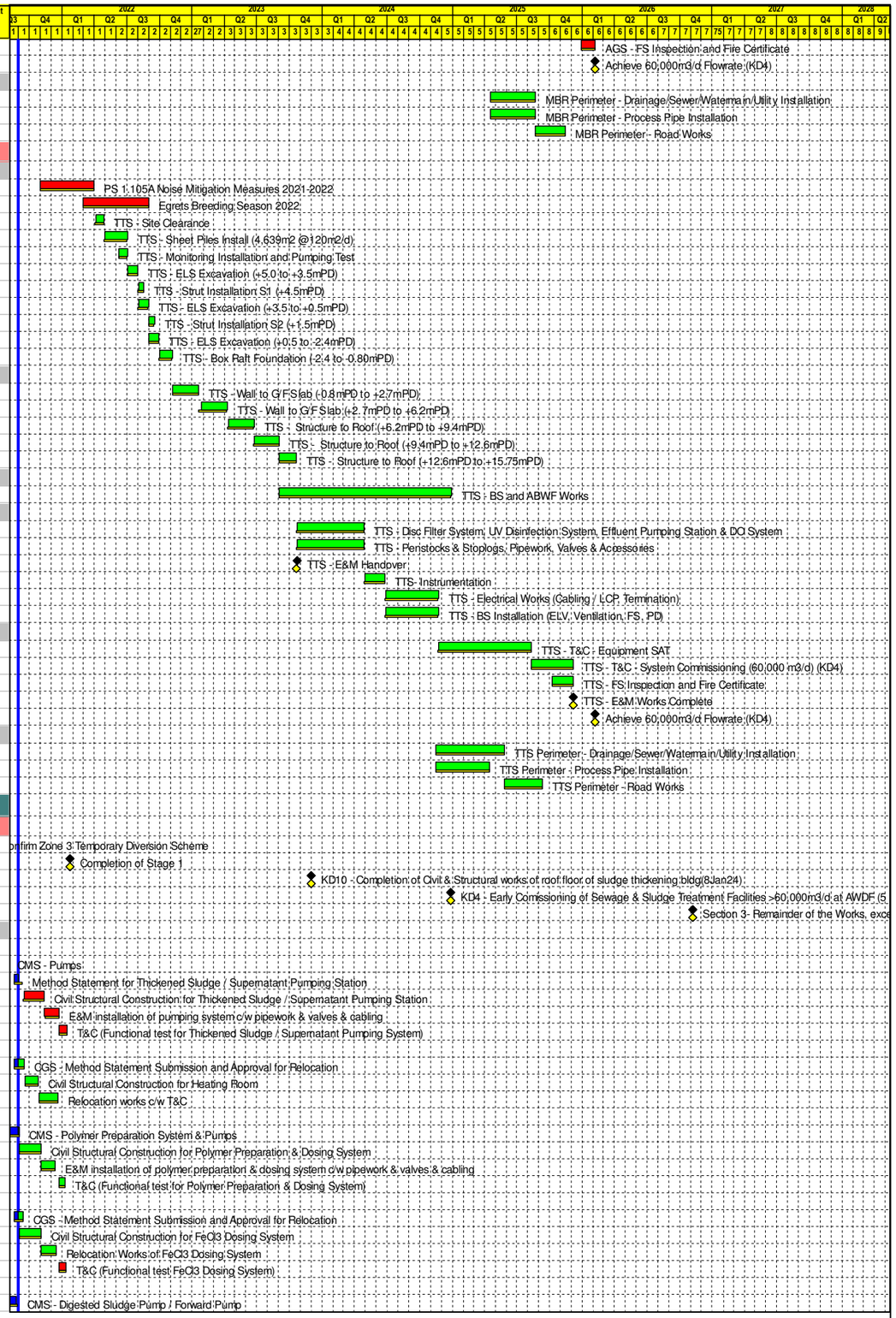
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

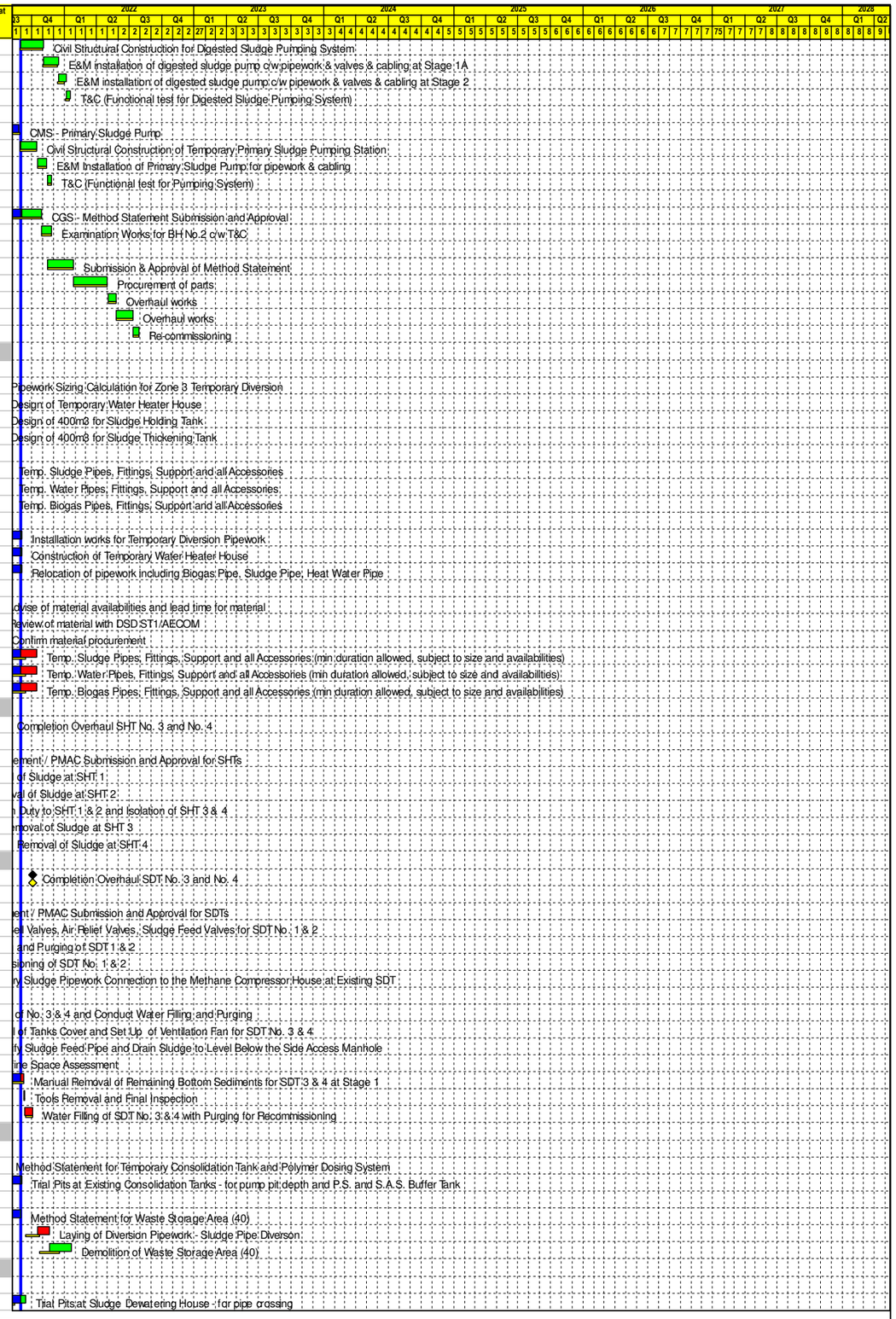

Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| ATALMBR-1140 | AGS - FS Inspection and Fire Certificate | 32 | 30-Dec-25 | 05-Feb-26 | 30-Dec-25 | 05-Feb-26 | 0 |
| PKD4 | Achieve 60,000m3/d Flowrate (KD4) | 0 | | 05-Feb-26 | | 05-Feb-26 | 0 |
| **External Works - Mainstream Bio-Reactor System Perimeter** | | 172 | 17-Apr-25 | 14-Nov-25 | 14-Apr-26 | 07-Nov-26 | 288 |
| EW-1000 | MBR Perimeter - Drainage/Sewer/Watermain/Utility Installation | 102 | 17-Apr-25 | 21-Aug-25 | 14-Apr-26 | 14-Aug-26 | 288 |
| EW-1010 | MBR Perimeter - Process Pipe Installation | 102 | 17-Apr-25 | 21-Aug-25 | 14-Apr-26 | 14-Aug-26 | 288 |
| EW-1030 | MBR Perimeter - Road Works | 70 | 22-Aug-25 | 14-Nov-25 | 15-Aug-26 | 07-Nov-26 | 288 |
| **Tertiary Treatment System (TTS)** | | 1336 | 01-Nov-21 | 05-Feb-26 | 01-Nov-21 | 29-Apr-26 | 71 |
| **Foundation and ELS** | | 319 | 01-Nov-21 | 07-Nov-22 | 01-Nov-21 | 06-Jan-23 | 52 |
| NMM-2125 | PS 1.105A Noise Mitigation Measures 2021-2022 | 151 | 01-Nov-21* | 31-Mar-22 | 01-Nov-21 | 31-Mar-22 | 0 |
| EBS-2135 | Egrets Breeding Season 2022 | 184 | 01-Mar-22* | 31-Aug-22 | 01-Mar-22 | 31-Aug-22 | 0 |
| TTS-1000 | TTS - Site Clearance | 18 | 06-Apr-22 | 29-Apr-22 | 09-Jun-22 | 29-Jun-22 | 49 |
| TTS-1010 | TTS - Sheet Piles Install (4,639m2 @120m2/d) | 52 | 30-Apr-22 | 04-Jul-22 | 30-Jun-22 | 30-Aug-22 | 49 |
| TTS-1230 | TTS - Monitoring Installation and Pumping Test | 21 | 09-Jun-22 | 04-Jul-22 | 06-Aug-22 | 30-Aug-22 | 49 |
| TTS-1020 | TTS - ELS Excavation (+5.0 to +3.5mPD) | 25 | 05-Jul-22 | 02-Aug-22 | 31-Aug-22 | 29-Sep-22 | 49 |
| TTS-1030 | TTS - Strut Installation S1 (+4.5mPD) | 14 | 03-Aug-22 | 18-Aug-22 | 28-Oct-22 | 12-Nov-22 | 71 |
| TTS-1040 | TTS - ELS Excavation (+3.5 to +0.5mPD) | 25 | 03-Aug-22 | 31-Aug-22 | 30-Sep-22 | 31-Oct-22 | 49 |
| TTS-1050 | TTS - Strut Installation S2 (+1.5mPD) | 14 | 01-Sep-22 | 17-Sep-22 | 14-Nov-22 | 29-Nov-22 | 60 |
| TTS-1060 | TTS - ELS Excavation (+0.5 to -2.4mPD) | 25 | 01-Sep-22 | 30-Sep-22 | 01-Nov-22 | 29-Nov-22 | 49 |
| TTS-1070 | TTS - Box Raft Foundation (-2.4 to -0.80mPD) | 30 | 03-Oct-22 | 07-Nov-22 | 30-Nov-22 | 06-Jan-23 | 49 |
| **Structure** | | 280 | 08-Nov-22 | 21-Oct-23 | 07-Jan-23 | 19-Dec-23 | 49 |
| TTS-1080 | TTS - Wall to G/F Slab (-0.8mPD to +2.7mPD) | 60 | 08-Nov-22 | 19-Jan-23 | 07-Jan-23 | 24-Mar-23 | 49 |
| TTS-1090 | TTS - Wall to G/F Slab (+2.7mPD to +6.2mPD) | 60 | 27-Jan-23 | 11-Apr-23 | 25-Mar-23 | 09-Jun-23 | 49 |
| TTS-1100 | TTS - Structure to Roof (+6.2mPD to +9.4mPD) | 60 | 12-Apr-23 | 23-Jun-23 | 10-Jun-23 | 21-Aug-23 | 49 |
| TTS-1110 | TTS - Structure to Roof (+9.4mPD to +12.6mPD) | 60 | 24-Jun-23 | 02-Sep-23 | 22-Aug-23 | 02-Nov-23 | 49 |
| TTS-1120 | TTS - Structure to Roof (+12.6mPD to +15.75mPD) | 40 | 04-Sep-23 | 21-Oct-23 | 03-Nov-23 | 19-Dec-23 | 49 |
| **BS & ABWF Works** | | 390 | 04-Sep-23 | 30-Dec-24 | 14-Oct-24 | 05-Feb-26 | 325 |
| TTS-1130 | TTS - BS and ABWF Works | 390 | 04-Sep-23 | 30-Dec-24 | 14-Oct-24 | 05-Feb-26 | 325 |
| **E&M Installation Works** | | 320 | 24-Oct-23 | 22-Nov-24 | 20-Dec-23 | 22-Jan-25 | 49 |
| TTS-1140 | TTS - Disc Filter System, UV Disinfection System, Effluent Pumping Station & DO System | 148 | 24-Oct-23 | 27-Apr-24 | 20-Dec-23 | 27-Jun-24 | 49 |
| TTS-1150 | TTS - Penstocks & Stoplogs, Pipework, Valves & Accessories | 148 | 24-Oct-23 | 27-Apr-24 | 20-Dec-23 | 27-Jun-24 | 49 |
| TTS-1139 | TTS - E&M Handover | 0 | 24-Oct-23 | | 20-Dec-23 | | 49 |
| TTS-1160 | TTS- Instrumentation | 48 | 29-Apr-24 | 26-Jun-24 | 28-Jun-24 | 23-Aug-24 | 49 |
| TTS-1170 | TTS - Electrical Works (Cabling / LCP, Termination) | 124 | 27-Jun-24 | 22-Nov-24 | 24-Aug-24 | 22-Jan-25 | 49 |
| TTS-1180 | TTS - BS Installation (ELV, Ventilation, FS, PD) | 124 | 27-Jun-24 | 22-Nov-24 | 24-Aug-24 | 22-Jan-25 | 49 |
| **Testing and Commissioning (T&C) - KD4** | | 377 | 23-Nov-24 | 05-Feb-26 | 23-Jan-25 | 05-Feb-26 | 0 |
| TTS-1190 | TTS - T&C - Equipment SAT | 208 | 23-Nov-24 | 11-Aug-25 | 23-Jan-25 | 09-Oct-25 | 49 |
| TTS-1200 | TTS - T&C - System Commissioning (60,000 m3/d) (KD4) | 98 | 12-Aug-25 | 06-Dec-25 | 10-Oct-25 | 05-Feb-26 | 49 |
| TTS-1210 | TTS - FS Inspection and Fire Certificate | 50 | 09-Oct-25 | 06-Dec-25 | 06-Dec-25 | 05-Feb-26 | 49 |
| TTS-1220 | TTS - E&M Works Complete | 0 | | 06-Dec-25 | | 05-Feb-26 | 49 |
| PKD4a | Achieve 60,000m3/d Flowrate (KD4) | 0 | | 05-Feb-26 | | 05-Feb-26 | 0 |
| **External Works -Tertiary Treatment System Perimeter** | | 240 | 16-Nov-24 | 10-Sep-25 | 07-Jul-25 | 29-Apr-26 | 183 |
| EW-1100 | TTS Perimeter - Drainage/Sewer/Watermain/Utility Installation | 150 | 16-Nov-24 | 26-May-25 | 07-Jul-25 | 03-Jan-26 | 183 |
| EW-1070 | TTS Perimeter - Process Pipe Installation | 120 | 16-Nov-24 | 15-Apr-25 | 07-Jul-25 | 26-Nov-25 | 183 |
| EW-1120 | TTS Perimeter - Road Works | 90 | 27-May-25 | 10-Sep-25 | 05-Jan-26 | 29-Apr-26 | 183 |
| **Zone 3 Construction** | | 1878 | 09-Nov-20 A | 08-Nov-26 | 31-Aug-21 | 09-Nov-27 | 313 |
| **Stage 1** | | 1878 | 09-Nov-20 A | 07-Nov-26 | 31-Aug-21 | 09-Nov-27 | 313 |
| Z3S1 | Confirm Zone 3 Temporary Diversion Scheme | 0 | | 16-Jun-21 A | | 31-Aug-21 | |
| Z3S1-3000 | Completion of Stage 1 | 0 | | 24-Jan-22* | | 24-Jan-22 | 0 |
| PKD20 | KD10 - Completion of Civil & Structural works of roof floor of sludge thickening bldg(8Jan24) | 0 | | 01-Dec-23* | | 08-Jan-24 | 38 |
| PPKD14 | KD4 - Early Comissioning of Sewage & Sludge Treatment Facilities >60,000m3/d at AWDF (5 Feb 26) | 0 | | 27-Dec-24* | | 05-Feb-26 | 405 |
| PSC13 | Section 3- Remainder of the Works, except Landscape Softworks & Establishment Works (sd+2190d=08NOV2026) | 0 | | 07-Nov-26* | | 07-Nov-26 | 0 |
| **Advance Works** | | 318 | 02-Jul-21 A | 30-Jul-22 | 01-Sep-21 | 24-Jun-23 | 263 |
| **Temporary Thickened Sludge / Supernatant Pumping Station** | | 162 | 02-Jul-21 A | 13-Jan-22 | 01-Sep-21 | 13-Jan-22 | 0 |
| ATALZ3S1-2000 | CMS - Pumps | 24 | 02-Jul-21 A | 29-Jul-21 A | 01-Sep-21 | 01-Sep-21 | |
| ATALZ3S1-2060 | Method Statement for Thickened Sludge / Supernatant Pumping Station | 20 | 20-Aug-21 A | 31-Aug-21 | 01-Sep-21 | 01-Sep-21 | 2 |
| Z3S1-2070 | Civil Structural Construction for Thickened Sludge / Supernatant Pumping Station | 46 | 16-Sep-21 | 12-Nov-21 | 17-Sep-21 | 12-Nov-21 | 0 |
| ATALZ3S1-2140 | E&M installation of pumping system c/w pipework & valves & cabling | 35 | 12-Nov-21 | 23-Dec-21 | 13-Nov-21 | 23-Dec-21 | 0 |
| ATALZ3S1-2180 | T&C (Functional test for Thickened Sludge / Supernatant Pumping System) | 15 | 23-Dec-21 | 13-Jan-22 | 24-Dec-21 | 13-Jan-22 | 0 |
| **Relocation of Heater Room** | | 78 | 20-Aug-21 A | 21-Dec-21 | 02-Sep-21 | 23-Dec-21 | 2 |
| ATALZ3S1-2080 | CGS - Method Statement Submission and Approval for Relocation | 25 | 20-Aug-21 A | 17-Sep-21 | 02-Sep-21 | 20-Sep-21 | 2 |
| Z3S1-2090 | Civil Structural Construction for Heating Room | 30 | 18-Sep-21 | 26-Oct-21 | 21-Sep-21 | 28-Oct-21 | 2 |
| ATALZ3S1-2150 | Relocation works c/w T&C | 48 | 27-Oct-21 | 21-Dec-21 | 29-Oct-21 | 23-Dec-21 | 2 |
| **Temporary Polymer Preparation & Dosing System** | | 108 | 02-Aug-21 A | 10-Jan-22 | 09-Sep-21 | 12-Jan-22 | 2 |
| ATALZ3S1-2020 | CMS - Polymer Preparation System & Pumps | 27 | 02-Aug-21 A | 01-Sep-21 | 09-Sep-21 | 10-Sep-21 | 8 |
| Z3S1-2100 | Civil Structural Construction for Polymer Preparation & Dosing System | 50 | 02-Sep-21 | 02-Nov-21 | 11-Sep-21 | 11-Nov-21 | 8 |
| ATALZ3S1-2160 | E&M installation of polymer preparation & dosing system c/w pipework & valves & cabling | 35 | 03-Nov-21 | 13-Dec-21 | 13-Nov-21 | 23-Dec-21 | 9 |
| ATALZ3S1-1220 | T&C (Functional test for Polymer Preparation & Dosing System) | 14 | 22-Dec-21 | 10-Jan-22 | 24-Dec-21 | 12-Jan-22 | 2 |
| **Relocation of Ferric Chloride (FeCl3) Dosing System** | | 110 | 20-Aug-21 A | 12-Jan-22 | 11-Sep-21 | 12-Jan-22 | 0 |
| ATALZ3S1-2040 | CGS - Method Statement Submission and Approval for Relocation | 22 | 20-Aug-21 A | 14-Sep-21 | 13-Oct-21 | 28-Oct-21 | 35 |
| Z3S1-2110 | Civil Structural Construction for FeCl3 Dosing System | 50 | 02-Sep-21 | 02-Nov-21 | 11-Sep-21 | 11-Nov-21 | 8 |
| ATALZ3S1-2170 | Relocation Works of FeCl3 Dosing System | 36 | 03-Nov-21 | 14-Dec-21 | 12-Nov-21 | 23-Dec-21 | 8 |
| ATALZ3S1-1230 | T&C (Functional test FeCl3 Dosing System) | 14 | 23-Dec-21 | 12-Jan-22 | 24-Dec-21 | 12-Jan-22 | 0 |
| **Temporary Digested Sludge Pumping System and Forward Pumping Station** | | 114 | 02-Aug-21 A | 17-Jan-22 | 08-Oct-21 | 20-Sep-22 | 196 |
| ATALZ3S1-2030 | CMS - Digested Sludge Pump / Forward Pump | 22 | 02-Aug-21 A | 26-Aug-21 A | 08-Oct-21 | 08-Oct-21 | |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z3S1-2050 | Civil Structural Construction for Digested Sludge Pumping System | 53 | 31-Aug-21 | 03-Nov-21 | 08-Oct-21 | 09-Dec-21 | 31 |
| ATALZ3S1-2200 | E&M installation of digested sludge pump c/w pipework & valves & cabling at Stage 1A | 36 | 04-Nov-21 | 15-Dec-21 | 10-Dec-21 | 24-Jan-22 | 31 |
| ATALZ3S2-1030 | E&M installation of digested sludge pump c/w pipework & valves & cabling at Stage 2 | 15 | 16-Dec-21 | 05-Jan-22 | 22-Aug-22 | 07-Sep-22 | 196 |
| ATALZ3S2-1040 | T&C (Functional test for Digested Sludge Pumping System) | 10 | 06-Jan-22 | 17-Jan-22 | 08-Sep-22 | 20-Sep-22 | 196 |
| **Temporary Primary Sludge Pumping Station (P)** | | 72 | 02-Aug-21 A | 25-Nov-21 | 18-Dec-21 | 22-Mar-22 | 91 |
| Z3TD1-4040 | CMS - Primary Sludge Pump | 22 | 02-Aug-21 A | 26-Aug-21 A | 18-Dec-21 | 18-Dec-21 | |
| Z3TD1-4010 | Civil Structural Construction of Temporary Primary Sludge Pumping Station | 40 | 27-Aug-21 A | 15-Oct-21 | 18-Dec-21 | 09-Feb-22 | 91 |
| Z3TD1-4100 | E&M Installation of Primary Sludge Pump for pipework & cabling | 24 | 16-Oct-21 | 12-Nov-21 | 10-Feb-22 | 09-Mar-22 | 91 |
| Z3TD1-4110 | T&C (Functional test for Pumping System) | 11 | 13-Nov-21 | 25-Nov-21 | 10-Mar-22 | 22-Mar-22 | 91 |
| **Gas Holder 2 (GH2)** | | 71 | 03-Aug-21 A | 25-Nov-21 | 30-Sep-21 | 23-Dec-21 | 24 |
| ATALZ3S1-1200 | CGS - Method Statement Submission and Approval | 71 | 03-Aug-21 A | 27-Oct-21 | 30-Sep-21 | 24-Nov-21 | 24 |
| ATALZ3S1-1210 | Examination Works for BH No.2 c/w T&C | 25 | 28-Oct-21 | 25-Nov-21 | 25-Nov-21 | 23-Dec-21 | 24 |
| **Gas Holder 1 (GH1)** | | 206 | 13-Nov-21 | 30-Jul-22 | 17-Mar-22 | 24-Jun-23 | 263 |
| ATALZ3S2-1000 | Submission & Approval of Method Statement | 60 | 13-Nov-21* | 25-Jan-22 | 17-Mar-22 | 01-Jun-22 | 97 |
| ATALZ3S2-1010 | Procurement of parts | 72 | 26-Jan-22 | 30-Apr-22 | 02-Jun-22 | 26-Aug-22 | 97 |
| ATALZ3S2-1020 | Overhaul works | 20 | 03-May-22 | 26-May-22 | 27-Aug-22 | 20-Sep-22 | 97 |
| ATALZ3S3-1000 | Overhaul works | 39 | 27-May-22 | 13-Jul-22 | 20-Apr-23 | 06-Jun-23 | 263 |
| ATALZ3S3-1050 | Re-commissioning | 15 | 14-Jul-22 | 30-Jul-22 | 07-Jun-23 | 24-Jun-23 | 263 |
| **Submissions** | | 76 | 17-Jun-21 A | 15-Oct-21 | 31-Aug-21 | 29-Nov-21 | 37 |
| **Design Submission** | | 15 | 17-Jun-21 A | 05-Jul-21 A | 31-Aug-21 | 29-Nov-21 | |
| TDZ3S1-1140 | Pipework Sizing Calculation for Zone 3 Temporary Diversion | 15 | 17-Jun-21 A | 05-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1150 | Design of Temporary Water Heater House | 15 | 17-Jun-21 A | 05-Jul-21 A | 21-Sep-21 | 21-Sep-21 | |
| TDZ3S1-1180 | Design of 400m3 for Sludge Holding Tank | 15 | 17-Jun-21 A | 05-Jul-21 A | 29-Nov-21 | 29-Nov-21 | |
| TDZ3S1-1190 | Design of 400m3 for Sludge Thickening Tank | 15 | 17-Jun-21 A | 05-Jul-21 A | 29-Nov-21 | 29-Nov-21 | |
| **Material Submission** | | 19 | 06-Jul-21 A | 27-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1200 | Temp. Sludge Pipes, Fittings, Support and all Accessories | 19 | 06-Jul-21 A | 27-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1210 | Temp. Water Pipes, Fittings, Support and all Accessories | 19 | 06-Jul-21 A | 27-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1220 | Temp. Biogas Pipes, Fittings, Support and all Accessories | 19 | 06-Jul-21 A | 27-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| **Method Statement Submissions** | | 15 | 17-Jul-21 A | 01-Sep-21 | 29-Sep-21 | 15-Oct-21 | 35 |
| TDZ3S1-1260 | Installation works for Temporary Diversion Pipework | 15 | 17-Jul-21 A | 01-Sep-21 | 29-Sep-21 | 30-Sep-21 | 24 |
| TDZ3S1-1270 | Construction of Temporary Water Heater House | 15 | 17-Jul-21 A | 01-Sep-21 | 29-Sep-21 | 30-Sep-21 | 24 |
| TDZ3S1-1280 | Relocation of pipework including Biogas Pipe, Sludge Pipe, Heat Water Pipe | 15 | 17-Jul-21 A | 01-Sep-21 | 13-Oct-21 | 15-Oct-21 | 35 |
| **Procurement** | | 76 | 17-Jun-21 A | 15-Oct-21 | 31-Aug-21 | 15-Oct-21 | 0 |
| TDZ3S1-1290 | Advise of material availabilities and lead time for material | 6 | 17-Jun-21 A | 23-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1300 | Review of material with DSD ST1/AECOM | 6 | 24-Jun-21 A | 30-Jun-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1310 | Confirm material procurement | 6 | 01-Jul-21 A | 07-Jul-21 A | 31-Aug-21 | 31-Aug-21 | |
| TDZ3S1-1230 | Temp. Sludge Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities) | 50 | 17-Jul-21 A | 15-Oct-21 | 31-Aug-21 | 15-Oct-21 | 0 |
| TDZ3S1-1240 | Temp. Water Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities) | 50 | 17-Jul-21 A | 15-Oct-21 | 31-Aug-21 | 15-Oct-21 | 0 |
| TDZ3S1-1250 | Temp. Biogas Pipes, Fittings, Support and all Accessories (min duration allowed, subject to size and availabilities) | 50 | 17-Jul-21 A | 15-Oct-21 | 31-Aug-21 | 15-Oct-21 | 0 |
| **Overhaul Works At Existing SHT Footprint** | | 202 | 09-Nov-20 A | 21-Jul-21 A | 30-Sep-21 | 09-Nov-27 | |
| Z3S1a.7-40 | Completion Overhaul SHT No. 3 and No. 4 | 0 | | 21-Jul-21 A | | 09-Nov-27 | |
| **Overhaul at SHT** | | 202 | 09-Nov-20 A | 21-Jul-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2000 | Method Statement / PMAC Submission and Approval for SHTs | 67 | 09-Nov-20 A | 28-Jan-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2010 | Removal of Sludge at SHT 1 | 41 | 29-Jan-21 A | 24-Mar-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2020 | Removal of Sludge at SHT 2 | 36 | 09-Mar-21 A | 23-Apr-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2030 | Switch Duty to SHT 1 & 2 and Isolation of SHT 3 & 4 | 2 | 24-Apr-21 A | 26-Apr-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2040 | Removal of Sludge at SHT 3 | 38 | 27-Apr-21 A | 11-Jun-21 A | 30-Sep-21 | 30-Sep-21 | |
| ATALZ3S1A-2050 | Removal of Sludge at SHT 4 | 49 | 24-May-21 A | 21-Jul-21 A | 30-Sep-21 | 30-Sep-21 | |
| **Overhaul Works At Existing SDT Footprint** | | 263 | 09-Nov-20 A | 02-Oct-21 | 31-Aug-21 | 02-Oct-21 | 0 |
| Z3S1a.7-30 | Completion Overhaul SDT No. 3 and No. 4 | 0 | | 02-Oct-21* | | 02-Oct-21 | 0 |
| **SDT No. 1 and 2** | | 105 | 09-Nov-20 A | 20-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1000 | Method Statement / PMAC Submission and Approval for SDTs | 40 | 09-Nov-20 A | 24-Dec-20 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1010 | Overhaul of Bell Valves, Air Relief Valves, Sludge Feed Valves for SDT No. 1 & 2 | 16 | 28-Dec-20 A | 15-Jan-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1020 | Water Filling and Purging of SDT 1 & 2 | 17 | 16-Jan-21 A | 04-Feb-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1060 | Recommissioning of SDT No. 1 & 2 | 14 | 05-Feb-21 A | 27-Feb-21 A | 31-Aug-21 | 31-Aug-21 | |
| Z3S1A-2040 | Temporary Sludge Pipework Connection to the Methane Compressor House at Existing SDT | 18 | 01-Mar-21 A | 20-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| **SDT No. 3 and 4** | | 176 | 01-Mar-21 A | 02-Oct-21 | 31-Aug-21 | 02-Oct-21 | 0 |
| ATALZ3S1-1070 | Isolation of No. 3 & 4 and Conduct Water Filling and Purging | 19 | 01-Mar-21 A | 22-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1080 | Removal of Tanks Cover and Set Up of Ventilation Fan for SDT No. 3 & 4 | 5 | 23-Mar-21 A | 27-Mar-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1090 | Modify Sludge Feed Pipe and Drain Sludge to Level Below the Side Access Manhole | 32 | 29-Mar-21 A | 10-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1100 | Confine Space Assessment | 4 | 11-May-21 A | 14-May-21 A | 31-Aug-21 | 31-Aug-21 | |
| ATALZ3S1-1110 | Manual Removal of Remaining Bottom Sediments for SDT 3 & 4 at Stage 1 | 96 | 15-May-21 A | 07-Sep-21 | 31-Aug-21 | 07-Sep-21 | 0 |
| ATALZ3S1-1120 | Tools Removal and Final Inspection | 4 | 07-Sep-21 | 11-Sep-21 | 08-Sep-21 | 11-Sep-21 | 0 |
| ATALZ3S1-1130 | Water Filling of SDT No. 3 & 4 with Purging for Recommissioning | 16 | 11-Sep-21 | 02-Oct-21 | 13-Sep-21 | 02-Oct-21 | 0 |
| **At Existing STB** | | 180 | 17-Jun-21 A | 20-Jan-22 | 29-Sep-21 | 24-Jan-22 | 3 |
| **Stage 1: Trial Pits and Exposed Existing Pipeworks (STB)** | | 41 | 17-Jun-21 A | 02-Sep-21 | 29-Sep-21 | 11-Nov-21 | 57 |
| TDZ3S1-1010 | Method Statement for Temporary Consolidation Tank and Polymer Dosing System | 27 | 17-Jun-21 A | 19-Jul-21 A | 29-Sep-21 | 29-Sep-21 | |
| TDZ3S1-1120 | Trial Pits at Existing Consolidation Tanks - for pump pit depth and P.S. and S.A.S. Buffer Tank | 14 | 20-Jul-21 A | 02-Sep-21 | 09-Nov-21 | 11-Nov-21 | 57 |
| **Stage 1: Laying of Diversion Pipeworks (STB)** | | 168 | 02-Jul-21 A | 20-Jan-22 | 29-Sep-21 | 24-Jan-22 | 3 |
| Z3S1A-2000 | Method Statement for Waste Storage Area (40) | 27 | 02-Jul-21 A | 31-Aug-21 | 29-Sep-21 | 29-Sep-21 | 24 |
| TDZ3S1-1100 | Laying of Diversion Pipework - Sludge Pipe Diverson | 30 | 16-Oct-21 | 19-Nov-21 | 16-Oct-21 | 19-Nov-21 | 0 |
| Z3S1A-2010 | Demolition of Waste Storage Area (40) | 50 | 20-Nov-21 | 20-Jan-22 | 24-Nov-21 | 24-Jan-22 | 3 |
| **At Existing SHT** | | 147 | 30-Jul-21 A | 24-Jan-22 | 02-Oct-21 | 24-Jan-22 | 0 |
| **Stage 1: Laying of Diversion Pipeworks (SHT)-1** | | 85 | 30-Jul-21 A | 09-Nov-21 | 03-Dec-21 | 13-Jan-22 | 53 |
| TDZ3S1-1160 | Trial Pits at Sludge Dewatering House - for pipe crossing | 14 | 30-Jul-21 A | 13-Sep-21 | 03-Dec-21 | 16-Dec-21 | 78 |

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Remaining Level of Effort
DWP Rev.4
Actual Work
Remaining Work
Critical Remaining Work

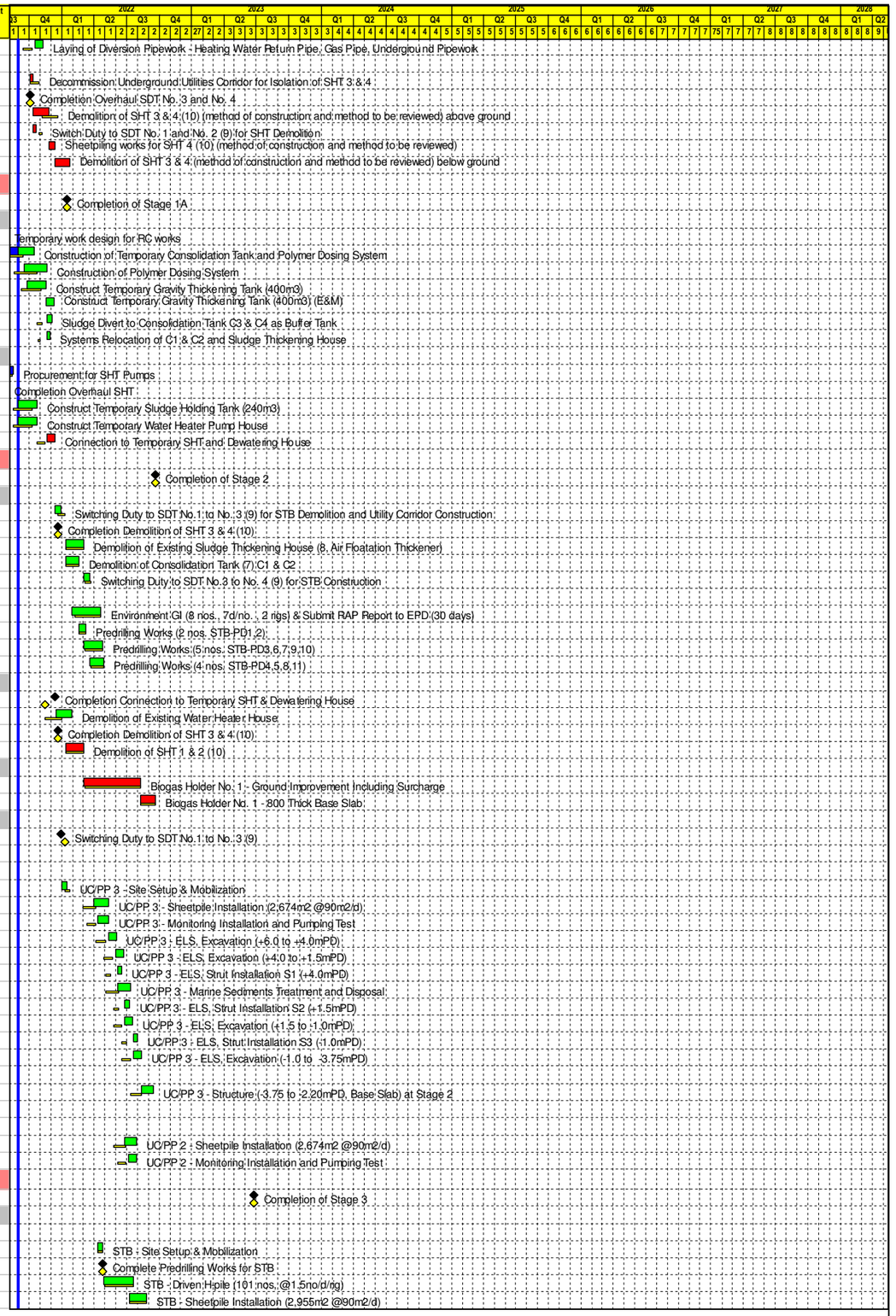
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| TDZ3S1-1170 | Laying of Diversion Pipework - Heating Water Return Pipe, Gas Pipe, Underground Pipework | 21 | 16-Oct-21* | 09-Nov-21 | 17-Dec-21 | 13-Jan-22 | 53 |
| **Stage 1: Decommissioning of Existing UU Corridor** | | 93 | 02-Oct-21 | 24-Jan-22 | 02-Oct-21 | 24-Jan-22 | 0 |
| Z3S1A-2020 | Decommission Underground Utilities Corridor for Isolation of SHT 3 & 4 | 7 | 02-Oct-21 | 11-Oct-21 | 04-Oct-21 | 11-Oct-21 | 0 |
| Z3S2-3070 | Completion Overhaul SDT No. 3 and No. 4 | 0 | | 02-Oct-21 | | 02-Oct-21 | 0 |
| Z3S1A-2030 | Demolition of SHT 3 & 4 (10) (method of construction and method to be reviewed) above ground | 38 | 11-Oct-21 | 25-Nov-21 | 12-Oct-21 | 25-Nov-21 | 0 |
| Z3S1a.7-20 | Switch Duty to SDT No. 1 and No. 2 (9) for SHT Demolition | 7 | 11-Oct-21 | 20-Oct-21 | 12-Oct-21 | 20-Oct-21 | 0 |
| Z3S1A-3020 | Sheetpiling works for SHT 4 (10) (method of construction and method to be reviewed) | 15 | 25-Nov-21 | 13-Dec-21 | 26-Nov-21 | 13-Dec-21 | 0 |
| Z3S1A-3030 | Demolition of SHT 3 & 4 (method of construction and method to be reviewed) below ground | 33 | 13-Dec-21 | 24-Jan-22 | 14-Dec-21 | 24-Jan-22 | 0 |
| **Stage 1A** | | 174 | 17-Jun-21 A | 13-Jan-22 | 29-Sep-21 | 27-Jan-22 | 12 |
| Z3S1A-3010 | Completion of Stage 1A | 0 | | 13-Jan-22* | | 13-Jan-22 | 0 |
| **Stage 1A : At Existing STB - Sludge Diversion** | | 133 | 06-Jul-21 A | 10-Dec-21 | 25-Oct-21 | 27-Jan-22 | 38 |
| Z3S1a.5-10 | Temporary work design for RC works | 15 | 06-Jul-21 A | 22-Jul-21 A | 29-Nov-21 | 29-Nov-21 | |
| Z3S1a.5-20 | Construction of Temporary Consolidation Tank and Polymer Dosing System | 45 | 23-Jul-21 A | 15-Oct-21 | 29-Nov-21 | 13-Jan-22 | 74 |
| TDZ3S1-1070 | Construction of Polymer Dosing System | 53 | 16-Sep-21 | 20-Nov-21 | 12-Nov-21 | 15-Jan-22 | 45 |
| TDZ3S1-1330 | Construct Temporary Gravity Thickening Tank (400m3) | 45 | 24-Sep-21 | 17-Nov-21 | 25-Oct-21 | 15-Dec-21 | 24 |
| TDZ3S1-1340 | Construct Temporary Gravity Thickening Tank (400m3) (E&M) | 20 | 18-Nov-21 | 10-Dec-21 | 16-Dec-21 | 11-Jan-22 | 24 |
| TDZ3S1-1110 | Sludge Divert to Consolidation Tank C3 & C4 as Buffer Tank | 12 | 20-Nov-21 | 03-Dec-21 | 14-Jan-22 | 27-Jan-22 | 44 |
| TDZ3S1-1080 | Systems Relocation of C1 & C2 and Sludge Thickening House | 7 | 20-Nov-21 | 29-Nov-21 | 17-Jan-22 | 24-Jan-22 | 45 |
| **Stage 1A : At Existing SHT - Temporary Sludge Holding Tank** | | 150 | 17-Jun-21 A | 13-Dec-21 | 29-Sep-21 | 13-Dec-21 | 0 |
| Z3S1a.6-10 | Procurement for SHT Pumps | 50 | 17-Jun-21 A | 18-Aug-21 A | 29-Sep-21 | 29-Sep-21 | |
| Z3S1a.7-10 | Completion Overhaul SHT | 0 | | 21-Jul-21 A | | 30-Sep-21 | |
| TDZ3S1-1060 | Construct Temporary Sludge Holding Tank (240m3) | 42 | 31-Aug-21 | 21-Oct-21 | 29-Sep-21 | 18-Nov-21 | 24 |
| TDZ3S1-1320 | Construct Temporary Water Heater Pump House | 42 | 31-Aug-21 | 21-Oct-21 | 30-Sep-21 | 19-Nov-21 | 25 |
| Z3S2-2360 | Connection to Temporary SHT and Dewatering House | 20 | 20-Nov-21 | 13-Dec-21 | 20-Nov-21 | 13-Dec-21 | 0 |
| **Stage 2** | | 225 | 11-Dec-21 | 20-Sep-22 | 13-Dec-21 | 11-Oct-22 | 16 |
| Z3S2-3020 | Completion of Stage 2 | 0 | | 20-Sep-22* | | 20-Sep-22 | 0 |
| **Stage 2 : New Sludge Thickening Building (STB) at** | | 107 | 11-Dec-21 | 29-Apr-22 | 20-Dec-21 | 17-May-22 | 13 |
| ATALZ3S1-1050 | Switching Duty to SDT No.1 to No. 3 (9) for STB Demolition and Utility Corridor Construction | 14 | 11-Dec-21 | 29-Dec-21 | 12-Jan-22 | 27-Jan-22 | 24 |
| Z3S2-3080 | Completion Demolition of SHT 3 & 4 (10) | 0 | | 20-Dec-21* | | 20-Dec-21 | 0 |
| Z3S2-2030 | Demolition of Existing Sludge Thickening House (8, Air Floatation Thickener) | 38 | 12-Jan-22 | 04-Mar-22 | 28-Jan-22 | 19-Mar-22 | 13 |
| Z3S2-2040 | Demolition of Consolidation Tank (7) C1 & C2 | 24 | 12-Jan-22 | 16-Feb-22 | 16-Feb-22 | 15-Mar-22 | 23 |
| ATALZ3S1-2210 | Switching Duty to SDT No.3 to No. 4 (9) for STB Construction | 14 | 04-Mar-22 | 21-Mar-22 | 21-Mar-22 | 06-Apr-22 | 13 |
| **Stage 2 : STB Pre-drilling Works** | | 67 | 29-Jan-22 | 29-Apr-22 | 04-Mar-22 | 17-May-22 | 13 |
| Z3S3-3400 | Environment GI (8 nos., 7d/no. , 2 rigs) & Submit RAP Report to EPD (30 days) | 58 | 29-Jan-22 | 19-Apr-22 | 04-Mar-22 | 17-May-22 | 22 |
| Z3S3-3050 | Predrilling Works (2 nos. STB-PD1,2) | 18 | 16-Feb-22 | 09-Mar-22 | 16-Mar-22 | 06-Apr-22 | 23 |
| Z3S3-2030 | Predrilling Works (5 nos. STB-PD3,6,7,9,10) | 41 | 04-Mar-22 | 26-Apr-22 | 24-Mar-22 | 17-May-22 | 16 |
| Z3S3-2020 | Predrilling Works (4 nos. STB-PD4,5,8,11) | 30 | 21-Mar-22 | 29-Apr-22 | 07-Apr-22 | 17-May-22 | 13 |
| **Stage 2 : Existing Sludge Holding Tanks** | | 61 | 13-Dec-21 | 04-Mar-22 | 13-Dec-21 | 04-Mar-22 | 0 |
| Z3S1a.7-60 | Completion Connection to Temporary SHT & Dewatering House | 0 | | 13-Dec-21* | | 13-Dec-21 | 0 |
| Z3S2.5-10 | Demolition of Existing Water Heater House | 38 | 14-Dec-21 | 29-Jan-22 | 13-Jan-22 | 04-Mar-22 | 23 |
| Z3S1a.7-50 | Completion Demolition of SHT 3 & 4 (10) | 0 | | 20-Dec-21* | | 20-Dec-21 | 0 |
| Z3S2-2010 | Demolition of SHT 1 & 2 (10) | 38 | 12-Jan-22 | 04-Mar-22 | 13-Jan-22 | 04-Mar-22 | 0 |
| **Stage 2 : Biogas Holder No. 1** | | 162 | 04-Mar-22 | 20-Sep-22 | 05-Mar-22 | 20-Sep-22 | 0 |
| Z3BH-1000 | Biogas Holder No. 1 - Ground Improvement Including Surcharge | 126 | 04-Mar-22 | 08-Aug-22 | 05-Mar-22 | 08-Aug-22 | 0 |
| Z3BH-1010 | Biogas Holder No. 1 - 800 Thick Base Slab | 36 | 08-Aug-22 | 20-Sep-22 | 09-Aug-22 | 20-Sep-22 | 0 |
| **Stage 2 : Utility Corridor Construction** | | 206 | 29-Dec-21 | 14-Sep-22 | 22-Mar-22 | 11-Oct-22 | 21 |
| Z3S2-2350 | Switching Duty to SDT No.1 to No. 3 (9) | 0 | | 29-Dec-21 | | 22-Mar-22 | 64 |
| **Stage 2 : Utility Corridor No. 3** | | 205 | 31-Dec-21 | 14-Sep-22 | 23-Mar-22 | 20-Sep-22 | 5 |
| **S2 : UC/PP3 Foundation and ELS Works** | | 178 | 31-Dec-21 | 12-Aug-22 | 23-Mar-22 | 18-Aug-22 | 5 |
| Z3S2-2340 | UC/PP 3 - Site Setup & Mobilization | 12 | 31-Dec-21 | 14-Jan-22 | 23-Mar-22 | 06-Apr-22 | 63 |
| Z3S2-2060 | UC/PP 3 - Sheetpile Installation (2,674m2 @90m2/d) | 30 | 31-Mar-22 | 11-May-22 | 07-Apr-22 | 17-May-22 | 5 |
| Z3S2-3050 | UC/PP 3 - Monitoring Installation and Pumping Test | 21 | 12-Apr-22 | 11-May-22 | 21-Apr-22 | 17-May-22 | 5 |
| Z3S2-2070 | UC/PP 3 - ELS, Excavation (+6.0 to +4.0mPD) | 20 | 12-May-22 | 04-Jun-22 | 18-May-22 | 10-Jun-22 | 5 |
| Z3S2-2090 | UC/PP 3 - ELS, Excavation (+4.0 to +1.5mPD) | 20 | 01-Jun-22 | 24-Jun-22 | 08-Jun-22 | 30-Jun-22 | 5 |
| Z3S2-2080 | UC/PP 3 - ELS, Strut Installation S1 (+4.0mPD) | 12 | 06-Jun-22 | 18-Jun-22 | 27-Jun-22 | 11-Jul-22 | 18 |
| Z3S2-2160 | UC/PP 3 - Marine Sediments Treatment and Disposal | 30 | 06-Jun-22 | 11-Jul-22 | 20-Jun-22 | 25-Jul-22 | 12 |
| Z3S2-2100 | UC/PP 3 - ELS, Strut Installation S2 (+1.5mPD) | 12 | 25-Jun-22 | 09-Jul-22 | 12-Jul-22 | 25-Jul-22 | 13 |
| Z3S2-2110 | UC/PP 3 - ELS, Excavation (+1.5 to -1.0mPD) | 20 | 25-Jun-22 | 19-Jul-22 | 02-Jul-22 | 25-Jul-22 | 5 |
| Z3S2-2120 | UC/PP 3 - ELS, Strut Installation S3 (-1.0mPD) | 12 | 20-Jul-22 | 02-Aug-22 | 26-Jul-22 | 08-Aug-22 | 5 |
| Z3S2-2130 | UC/PP 3 - ELS, Excavation (-1.0 to -3.75mPD) | 21 | 20-Jul-22 | 12-Aug-22 | 26-Jul-22 | 18-Aug-22 | 5 |
| **S2 : UC/PP3 Civil and Structural Works** | | 27 | 13-Aug-22 | 14-Sep-22 | 19-Aug-22 | 20-Sep-22 | 5 |
| Z3S2-2370 | UC/PP 3 - Structure (-3.75 to -2.20mPD, Base Slab) at Stage 2 | 27 | 13-Aug-22 | 14-Sep-22 | 19-Aug-22 | 20-Sep-22 | 5 |
| **Stage 2 : Utility Corridor No. 2** | | 30 | 25-Jun-22 | 30-Jul-22 | 16-Aug-22 | 11-Oct-22 | 59 |
| **S2 : UC/PP2 Foundation and ELS Works** | | 30 | 25-Jun-22 | 30-Jul-22 | 16-Aug-22 | 11-Oct-22 | 59 |
| Z3S2-2150 | UC/PP 2 - Sheetpile Installation (2,674m2 @90m2/d) | 30 | 25-Jun-22 | 30-Jul-22 | 16-Aug-22 | 20-Sep-22 | 43 |
| Z3S2-3060 | UC/PP 2 - Monitoring Installation and Pumping Test | 21 | 07-Jul-22 | 30-Jul-22 | 15-Sep-22 | 11-Oct-22 | 59 |
| **Stage 3** | | 377 | 11-Apr-22 | 24-Jun-23 | 05-May-22 | 28-Jun-23 | 3 |
| Z3S3-3030 | Completion of Stage 3 | 0 | | 24-Jun-23* | | 24-Jun-23 | 0 |
| **Stage 3 : New Sludge Thickening Building (STB) (Continued)** | | 255 | 11-Apr-22 | 02-Feb-23 | 05-May-22 | 24-Jun-23 | 122 |
| **Stage 3 : STB Foundation and ELS** | | 234 | 11-Apr-22 | 09-Jan-23 | 05-May-22 | 31-Jan-23 | 19 |
| Z3S3-3010 | STB - Site Setup & Mobilization | 10 | 11-Apr-22 | 26-Apr-22 | 05-May-22 | 17-May-22 | 16 |
| Z3S1a.7-70 | Complete Predrilling Works for STB | 0 | | 26-Apr-22 | | 17-May-22 | 16 |
| Z3S3-2090 | STB - Driven H-pile (101 nos, @1.5no/d/rig) | 68 | 29-Apr-22 | 22-Jul-22 | 18-May-22 | 06-Aug-22 | 13 |
| Z3S3-2180 | STB - Sheetpile Installation (2,955m2 @90m2/d) | 40 | 09-Jul-22 | 25-Aug-22 | 26-Jul-22 | 09-Sep-22 | 13 |

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- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

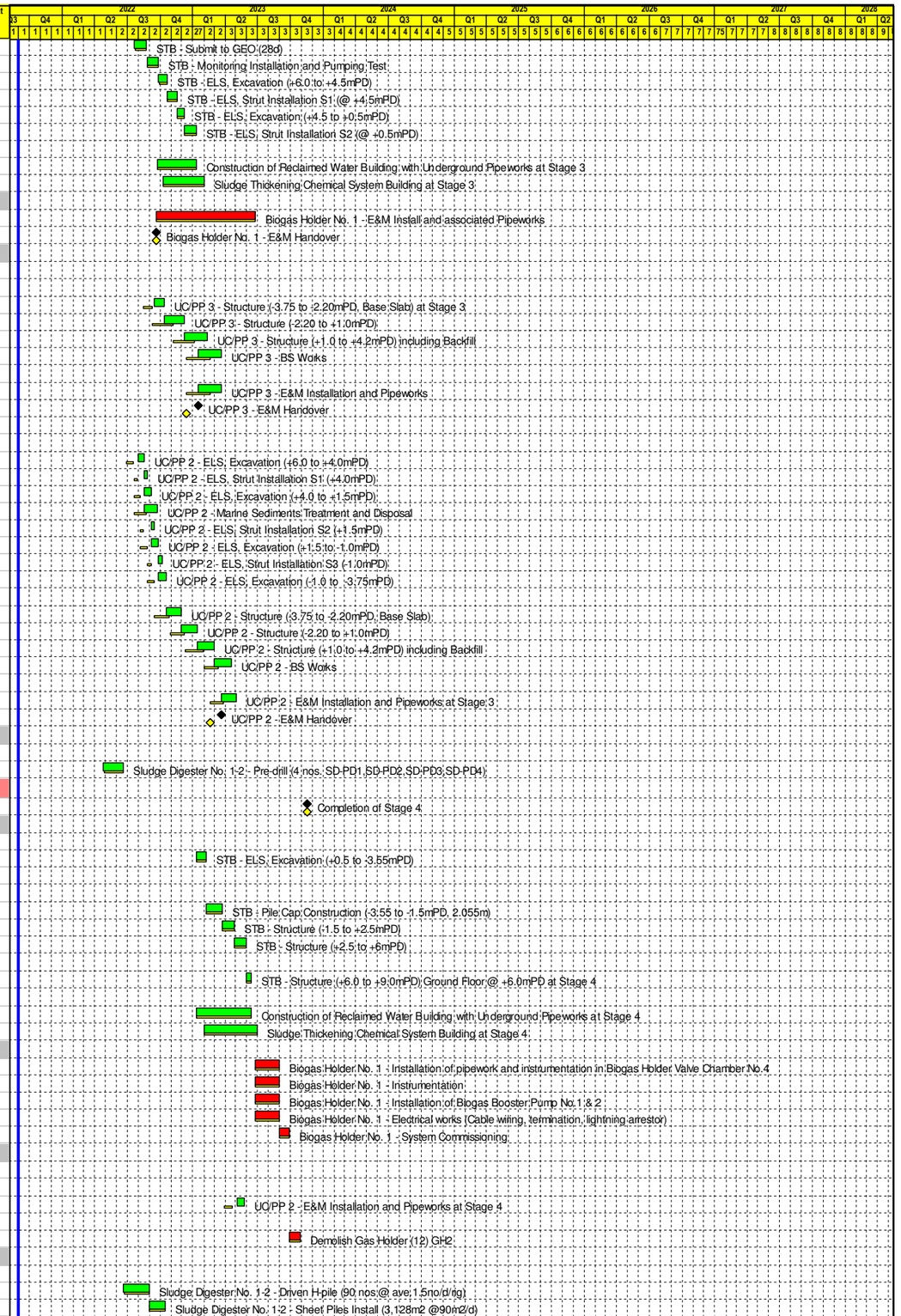
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

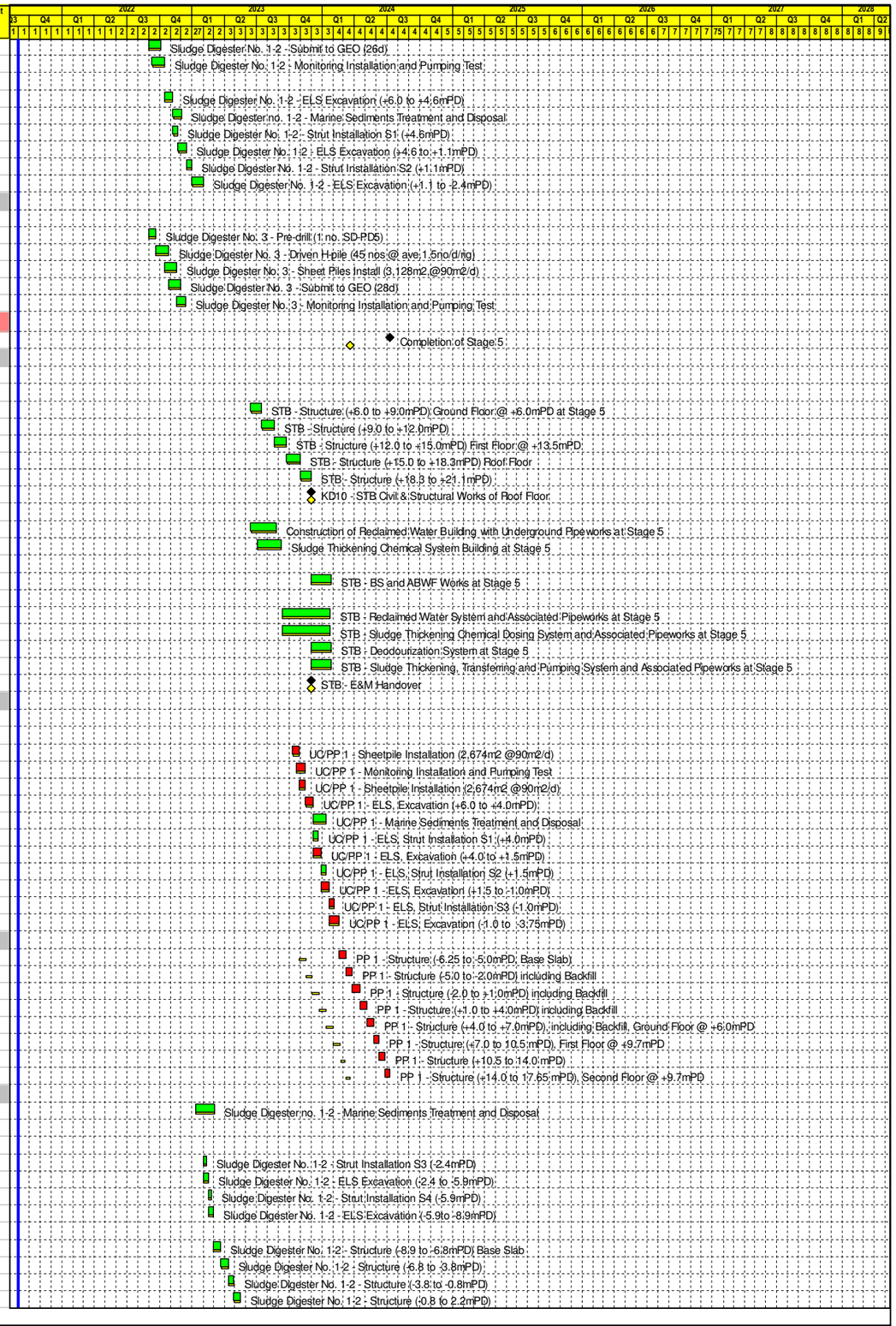

Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z3S3-3370 | STB - Submit to GEO (28d) | 28 | 22-Jul-22 | 24-Aug-22 | 27-Sep-22 | 31-Oct-22 | 55 |
| Z3S3-3340 | STB - Monitoring Installation and Pumping Test | 27 | 25-Aug-22 | 27-Sep-22 | 12-Sep-22 | 14-Oct-22 | 13 |
| Z3S3-2250 | STB - ELS, Excavation (+6.0 to +4.5mPD) | 18 | 27-Sep-22 | 20-Oct-22 | 15-Oct-22 | 04-Nov-22 | 13 |
| Z3S3-2290 | STB - ELS, Strut Installation S1 (@ +4.5mPD) | 24 | 20-Oct-22 | 17-Nov-22 | 05-Nov-22 | 02-Dec-22 | 13 |
| Z3S3-2360 | STB - ELS, Excavation (+4.5 to +0.5mPD) | 18 | 17-Nov-22 | 08-Dec-22 | 03-Dec-22 | 23-Dec-22 | 13 |
| Z3S3-2420 | STB - ELS, Strut Installation S2 (@ +0.5mPD) | 24 | 08-Dec-22 | 09-Jan-23 | 24-Dec-22 | 31-Jan-23 | 13 |
| **Stage 3 : Chemical Building and Reclaimed Water Building** | | 103 | 22-Sep-22 | 02-Feb-23 | 04-Mar-23 | 24-Jun-23 | 115 |
| Z3S3-2170 | Construction of Reclaimed Water Building with Underground Pipeworks at Stage 3 | 90 | 22-Sep-22 | 11-Jan-23 | 04-Mar-23 | 24-Jun-23 | 128 |
| Z3S3-2160 | Sludge Thickening Chemical System Building at Stage 3 | 90 | 11-Oct-22 | 02-Feb-23 | 04-Mar-23 | 24-Jun-23 | 115 |
| **Stage 3 : Biogas Holder No. 1 (Continued)** | | 220 | 20-Sep-22 | 24-Jun-23 | 21-Sep-22 | 24-Jun-23 | 0 |
| ATALZ3BH-1000 | Biogas Holder No. 1 - E&M Install and associated Pipeworks | 220 | 20-Sep-22 | 24-Jun-23 | 21-Sep-22 | 24-Jun-23 | 0 |
| ATALZ3BH-0900 | Biogas Holder No. 1 - E&M Handover | 0 | 20-Sep-22 | | 21-Sep-22 | | 0 |
| **Stage 3 : Utility Corridor Construction (Continued)** | | 220 | 01-Aug-22 | 03-May-23 | 12-Oct-22 | 28-Jun-23 | 46 |
| **Stage 3 : Utility Corridor No. 3** | | 150 | 15-Sep-22 | 21-Mar-23 | 07-Nov-22 | 16-May-23 | 43 |
| **S3 : UC/PP3 Civil and Structural Works** | | 150 | 15-Sep-22 | 21-Mar-23 | 07-Nov-22 | 16-May-23 | 43 |
| Z3S2-2140 | UC/PP 3 - Structure (-3.75 to -2.20mPD, Base Slab) at Stage 3 | 22 | 15-Sep-22 | 12-Oct-22 | 07-Nov-22 | 01-Dec-22 | 43 |
| Z3S2-2180 | UC/PP 3 - Structure (-2.20 to +1.0mPD) | 48 | 13-Oct-22 | 07-Dec-22 | 02-Dec-22 | 06-Feb-23 | 43 |
| Z3S2-2250 | UC/PP 3 - Structure (+1.0 to +4.2mPD) including Backfill | 48 | 08-Dec-22 | 11-Feb-23 | 07-Feb-23 | 03-Apr-23 | 43 |
| Z3S2-3040 | UC/PP 3 - BS Works | 50 | 16-Jan-23 | 21-Mar-23 | 14-Mar-23 | 16-May-23 | 43 |
| **S3 : UC/PP3 E&M Installation** | | 50 | 16-Jan-23 | 21-Mar-23 | 14-Mar-23 | 16-May-23 | 43 |
| Z3S2-2280 | UC/PP 3 - E&M Installation and Pipeworks | 50 | 16-Jan-23 | 21-Mar-23 | 14-Mar-23 | 16-May-23 | 43 |
| Z3S2-2279 | UC/PP 3 - E&M Handover | 0 | 16-Jan-23 | | 14-Mar-23 | | 43 |
| **Stage 3 : Utility Corridor No. 2** | | 220 | 01-Aug-22 | 03-May-23 | 12-Oct-22 | 28-Jun-23 | 46 |
| **S3 : UC/PP2 Foundation and ELS Works** | | 64 | 01-Aug-22 | 17-Oct-22 | 12-Oct-22 | 24-Dec-22 | 59 |
| Z3S2-2170 | UC/PP 2 - ELS, Excavation (+6.0 to +4.0mPD) | 16 | 01-Aug-22 | 18-Aug-22 | 12-Oct-22 | 29-Oct-22 | 59 |
| Z3S2-2190 | UC/PP 2 - ELS, Strut Installation S1 (+4.0mPD) | 8 | 19-Aug-22 | 27-Aug-22 | 26-Nov-22 | 05-Dec-22 | 82 |
| Z3S2-2200 | UC/PP 2 - ELS, Excavation (+4.0 to +1.5mPD) | 16 | 19-Aug-22 | 06-Sep-22 | 31-Oct-22 | 17-Nov-22 | 59 |
| Z3S2-2260 | UC/PP 2 - Marine Sediments Treatment and Disposal | 30 | 19-Aug-22 | 23-Sep-22 | 02-Nov-22 | 06-Dec-22 | 61 |
| Z3S2-2210 | UC/PP 2 - ELS, Strut Installation S2 (+1.5mPD) | 8 | 07-Sep-22 | 16-Sep-22 | 06-Dec-22 | 14-Dec-22 | 74 |
| Z3S2-2220 | UC/PP 2 - ELS, Excavation (+1.5 to -1.0mPD) | 16 | 07-Sep-22 | 26-Sep-22 | 18-Nov-22 | 06-Dec-22 | 59 |
| Z3S2-2230 | UC/PP 2 - ELS, Strut Installation S3 (-1.0mPD) | 9 | 27-Sep-22 | 08-Oct-22 | 15-Dec-22 | 24-Dec-22 | 66 |
| Z3S2-2240 | UC/PP 2 - ELS, Excavation (-1.0 to -3.75mPD) | 16 | 27-Sep-22 | 17-Oct-22 | 07-Dec-22 | 24-Dec-22 | 59 |
| **S3 : UC/PP2 Civil and Structural Works** | | 143 | 18-Oct-22 | 17-Apr-23 | 28-Dec-22 | 28-Jun-23 | 59 |
| Z3S2-2270 | UC/PP 2 - Structure (-3.75 to -2.20mPD, Base Slab) | 36 | 18-Oct-22 | 28-Nov-22 | 28-Dec-22 | 15-Feb-23 | 59 |
| Z3S2-2290 | UC/PP 2 - Structure (-2.20 to +1.0mPD) | 36 | 29-Nov-22 | 12-Jan-23 | 16-Feb-23 | 29-Mar-23 | 59 |
| Z3S2-2300 | UC/PP 2 - Structure (+1.0 to +4.2mPD) including Backfill | 36 | 13-Jan-23 | 02-Mar-23 | 30-Mar-23 | 16-May-23 | 59 |
| Z3S2-3030 | UC/PP 2 - BS Works | 35 | 03-Mar-23 | 17-Apr-23 | 17-May-23 | 28-Jun-23 | 59 |
| **S3 : UC/PP2 E&M Installation** | | 32 | 22-Mar-23 | 03-May-23 | 17-May-23 | 24-Jun-23 | 43 |
| Z3S2-2320 | UC/PP 2 - E&M Installation and Pipeworks at Stage 3 | 32 | 22-Mar-23 | 03-May-23 | 17-May-23 | 24-Jun-23 | 43 |
| Z3S2-2319 | UC/PP 2 - E&M Handover | 0 | 22-Mar-23 | | 17-May-23 | | 43 |
| **Stage 3 : New Sludge Digester No. 1 and 2 (Continued)** | | 45 | 26-Apr-22 | 21-Jun-22 | 15-Feb-23 | 12-Apr-23 | 236 |
| **Stage 3 : SD 1,2 Pre-drilling Works** | | 45 | 26-Apr-22 | 21-Jun-22 | 15-Feb-23 | 12-Apr-23 | 236 |
| Z3S3-2010 | Sludge Digester No. 1-2 - Pre-drill (4 nos. SD-PD1,SD-PD2,SD-PD3,SD-PD4) | 45 | 26-Apr-22 | 21-Jun-22 | 15-Feb-23 | 12-Apr-23 | 236 |
| **Stage 4** | | 440 | 21-Jun-22 | 16-Nov-23 | 01-Feb-23 | 01-Jun-24 | 170 |
| Z3S4-3340 | Completion of Stage 4 | 0 | | 16-Nov-23* | | 16-Nov-23 | 0 |
| **Stage 4 : New Sludge Thickening Building (STB) (Continued)** | | 135 | 09-Jan-23 | 30-Jun-23 | 01-Feb-23 | 16-Nov-23 | 115 |
| **Stage 4 : STB Foundation and ELS** | | 18 | 09-Jan-23 | 06-Feb-23 | 01-Feb-23 | 21-Feb-23 | 13 |
| Z3S3-2450 | STB - ELS, Excavation (+0.5 to -3.55mPD) | 18 | 09-Jan-23 | 06-Feb-23 | 01-Feb-23 | 21-Feb-23 | 13 |
| **Stage 4 : STB Civil and Structural Works** | | 133 | 11-Jan-23 | 30-Jun-23 | 22-Feb-23 | 16-Nov-23 | 115 |
| **S4 : STB Substructure** | | 90 | 06-Feb-23 | 29-May-23 | 22-Feb-23 | 13-Jun-23 | 13 |
| Z3S3-2500 | STB - Pile Cap Construction (-3.55 to -1.5mPD, 2.055m) | 40 | 06-Feb-23 | 24-Mar-23 | 22-Feb-23 | 13-Apr-23 | 13 |
| Z3S3-2600 | STB - Structure (-1.5 to +2.5mPD) | 25 | 24-Mar-23 | 27-Apr-23 | 14-Apr-23 | 13-May-23 | 13 |
| Z3S3-2630 | STB - Structure (+2.5 to +6mPD) | 25 | 27-Apr-23 | 29-May-23 | 15-May-23 | 13-Jun-23 | 13 |
| **S4 : STB Superstructure** | | 14 | 29-May-23 | 14-Jun-23 | 14-Jun-23 | 30-Jun-23 | 13 |
| Z3S3-3100 | STB - Structure (+6.0 to +9.0mPD) Ground Floor @ +6.0mPD at Stage 4 | 14 | 29-May-23 | 14-Jun-23 | 14-Jun-23 | 30-Jun-23 | 13 |
| **S4 : Chemical Building and Reclaimed Water Building** | | 133 | 11-Jan-23 | 30-Jun-23 | 26-Jun-23 | 16-Nov-23 | 115 |
| Z3S3-3080 | Construction of Reclaimed Water Building with Underground Pipeworks at Stage 4 | 120 | 11-Jan-23 | 14-Jun-23 | 26-Jun-23 | 16-Nov-23 | 128 |
| Z3S3-3070 | Sludge Thickening Chemical System Building at Stage 4 | 120 | 03-Feb-23 | 30-Jun-23 | 26-Jun-23 | 16-Nov-23 | 115 |
| **Stage 4 : Biogas Holder No. 1 (Continued)** | | 80 | 24-Jun-23 | 27-Sep-23 | 26-Jun-23 | 27-Sep-23 | 0 |
| ATALZ3BH-1010 | Biogas Holder No. 1 - Installation of pipework and instrumentation in Biogas Holder Valve Chamber No.4 | 56 | 24-Jun-23 | 30-Aug-23 | 26-Jun-23 | 30-Aug-23 | 0 |
| ATALZ3BH-1020 | Biogas Holder No. 1 - Instrumentation | 56 | 24-Jun-23 | 30-Aug-23 | 26-Jun-23 | 30-Aug-23 | 0 |
| ATALZ3BH-1030 | Biogas Holder No. 1 - Installation of Biogas Booster Pump No.1 & 2 | 56 | 24-Jun-23 | 30-Aug-23 | 26-Jun-23 | 30-Aug-23 | 0 |
| ATALZ3BH-1040 | Biogas Holder No. 1 - Electrical works (Cable wiring, termination, lightning arrestor) | 56 | 24-Jun-23 | 30-Aug-23 | 26-Jun-23 | 30-Aug-23 | 0 |
| ATALZ3BH-1050 | Biogas Holder No. 1 - System Commissioning | 24 | 30-Aug-23 | 27-Sep-23 | 31-Aug-23 | 27-Sep-23 | 0 |
| **Stage 4 : Utility Corridor Construction (Continued)** | | 147 | 04-May-23 | 28-Oct-23 | 28-Sep-23 | 16-Nov-23 | 16 |
| **Stage 4 : Utility Corridor No. 2** | | 18 | 04-May-23 | 24-May-23 | 27-Oct-23 | 16-Nov-23 | 145 |
| **S4 : UC/PP2 E&M Installation** | | 18 | 04-May-23 | 24-May-23 | 27-Oct-23 | 16-Nov-23 | 145 |
| Z3S2-2380 | UC/PP 2 - E&M Installation and Pipeworks at Stage 4 | 18 | 04-May-23 | 24-May-23 | 27-Oct-23 | 16-Nov-23 | 145 |
| **Stage 4 : Utility Corridor No. 1** | | 24 | 27-Sep-23 | 28-Oct-23 | 28-Sep-23 | 28-Oct-23 | 0 |
| Z3S4-2000 | Demolish Gas Holder (12) GH2 | 24 | 27-Sep-23 | 28-Oct-23 | 28-Sep-23 | 28-Oct-23 | 0 |
| **Stage 4 : New Sludge Digester No. 1 and 2 (Continued)** | | 193 | 21-Jun-22 | 01-Feb-23 | 13-Apr-23 | 27-Jan-24 | 309 |
| **Stage 4 : SD 1,2 Foundation and ELS** | | 193 | 21-Jun-22 | 01-Feb-23 | 13-Apr-23 | 27-Jan-24 | 309 |
| Z3S3-2050 | Sludge Digester No. 1-2 - Driven H-pile (90 nos @ ave.1.5no/d/rig) | 60 | 21-Jun-22 | 31-Aug-22 | 13-Apr-23 | 24-Jun-23 | 115 |
| Z3S3-2060 | Sludge Digester No. 1-2 - Sheet Piles Install (3,128m2 @90m2/d) | 36 | 31-Aug-22 | 15-Oct-22 | 26-Jun-23 | 07-Aug-23 | 236 |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z3S3-3390 | Sludge Digester No. 1-2 - Submit to GEO (26d) | 26 | 31-Aug-22 | 03-Oct-22 | 28-Dec-23 | 27-Jan-24 | 389 |
| Z3S3-3350 | Sludge Digester No. 1-2 - Monitoring Installation and Pumping Test | 28 | 09-Sep-22 | 15-Oct-22 | 06-Jul-23 | 07-Aug-23 | 236 |
| **S4 : Excavation and Strut Installation** | | 84 | 15-Oct-22 | 01-Feb-23 | 08-Aug-23 | 16-Nov-23 | 236 |
| Z3S3-2110 | Sludge Digester No. 1-2 - ELS Excavation (+6.0 to +4.6mPD) | 20 | 15-Oct-22 | 08-Nov-22 | 08-Aug-23 | 30-Aug-23 | 236 |
| Z3S3-2130 | Sludge Digester no. 1-2 - Marine Sediments Treatment and Disposal | 21 | 08-Nov-22 | 02-Dec-22 | 27-Sep-23 | 24-Oct-23 | 259 |
| Z3S3-2140 | Sludge Digester No. 1-2 - Strut Installation S1 (+4.6mPD) | 12 | 08-Nov-22 | 22-Nov-22 | 31-Aug-23 | 13-Sep-23 | 236 |
| Z3S3-2150 | Sludge Digester No. 1-2 - ELS Excavation (+4.6 to +1.1mPD) | 20 | 22-Nov-22 | 15-Dec-22 | 14-Sep-23 | 09-Oct-23 | 236 |
| Z3S3-2190 | Sludge Digester No. 1-2 - Strut Installation S2 (+1.1mPD) | 12 | 15-Dec-22 | 31-Dec-22 | 10-Oct-23 | 24-Oct-23 | 236 |
| Z3S3-2200 | Sludge Digester No. 1-2 - ELS Excavation (+1.1 to -2.4mPD) | 20 | 31-Dec-22 | 01-Feb-23 | 25-Oct-23 | 16-Nov-23 | 236 |
| **Stage 4 : New Sludge Digester No. 3 (Continued)** | | 88 | 31-Aug-22 | 12-Dec-22 | 05-Sep-23 | 01-Jun-24 | 461 |
| **Stage 4 : SD 3 Foundation and ELS Works** | | 88 | 31-Aug-22 | 12-Dec-22 | 05-Sep-23 | 01-Jun-24 | 461 |
| Z3S3-2080 | Sludge Digester No. 3 - Pre-drill (1 no. SD-PD5) | 16 | 31-Aug-22 | 20-Sep-22 | 05-Sep-23 | 22-Sep-23 | 296 |
| Z3S3-2070 | Sludge Digester No. 3 - Driven H-pile (45 nos @ ave.1.5no/d/rig) | 30 | 20-Sep-22 | 27-Oct-22 | 23-Sep-23 | 31-Oct-23 | 175 |
| Z3S3-2120 | Sludge Digester No. 3 - Sheet Piles Install (3,128m2,@90m2/d) | 28 | 15-Oct-22 | 17-Nov-22 | 14-Oct-23 | 16-Nov-23 | 292 |
| Z3S3-3380 | Sludge Digester No. 3 - Submit to GEO (28d) | 28 | 27-Oct-22 | 29-Nov-22 | 29-Apr-24 | 01-Jun-24 | 437 |
| Z3S3-3360 | Sludge Digester No. 3 - Monitoring Installation and Pumping Test | 21 | 17-Nov-22 | 12-Dec-22 | 17-Jan-24 | 16-Feb-24 | 341 |
| **Stage 5** | | 433 | 11-Jan-23 | 09-Jul-24 | 03-Jul-23 | 20-Aug-24 | 36 |
| Z3S5-3350 | Completion of Stage 5 | 0 | | 09-Jul-24* | | 09-Jul-24 | 0 |
| **Stage 5 : New Sludge Thickening Building (STB) (Continued)** | | 186 | 14-Jun-23 | 26-Jan-24 | 03-Jul-23 | 09-Jul-24 | 127 |
| **Stage 5 : STB Civil and Structural Works** | | 186 | 14-Jun-23 | 26-Jan-24 | 03-Jul-23 | 09-Jul-24 | 127 |
| **S5 : STB Superstructure** | | 141 | 14-Jun-23 | 01-Dec-23 | 03-Jul-23 | 08-Jan-24 | 29 |
| Z3S3-2660 | STB - Structure (+6.0 to +9.0mPD) Ground Floor @ +6.0mPD at Stage 5 | 25 | 14-Jun-23 | 15-Jul-23 | 03-Jul-23 | 31-Jul-23 | 13 |
| Z3S3-2700 | STB - Structure (+9.0 to +12.0mPD) | 30 | 15-Jul-23 | 19-Aug-23 | 01-Aug-23 | 04-Sep-23 | 13 |
| Z3S3-2710 | STB - Structure (+12.0 to +15.0mPD) First Floor @ +13.5mPD | 30 | 19-Aug-23 | 23-Sep-23 | 05-Sep-23 | 11-Oct-23 | 13 |
| Z3S3-2740 | STB - Structure (+15.0 to +18.3mPD) Roof Floor | 30 | 23-Sep-23 | 01-Nov-23 | 12-Oct-23 | 16-Nov-23 | 13 |
| Z3S3-2770 | STB - Structure (+18.3 to +21.1mPD) | 26 | 01-Nov-23 | 01-Dec-23* | 17-Nov-23 | 16-Dec-23 | 13 |
| Z3S3-2780 | KD10 - STB Civil & Structural Works of Roof Floor | 0 | | 01-Dec-23* | | 08-Jan-24 | 29 |
| **S5 : Chemical Building and Reclaimed Water Building** | | 73 | 14-Jun-23 | 09-Sep-23 | 05-Dec-23 | 22-Feb-24 | 130 |
| Z3S3-3180 | Construction of Reclaimed Water Building with Underground Pipeworks at Stage 5 | 60 | 14-Jun-23 | 25-Aug-23 | 05-Dec-23 | 22-Feb-24 | 143 |
| Z3S3-3170 | Sludge Thickening Chemical System Building at Stage 5 | 60 | 03-Jul-23 | 09-Sep-23 | 05-Dec-23 | 22-Feb-24 | 130 |
| **S5 : STB ABWF and BS Works** | | 45 | 01-Dec-23 | 26-Jan-24 | 16-May-24 | 09-Jul-24 | 127 |
| Z3S3-2790 | STB - BS and ABWF Works at Stage 5 | 45 | 01-Dec-23 | 26-Jan-24 | 16-May-24 | 09-Jul-24 | 127 |
| **Stage 5 : STB E&M Installation** | | 112 | 11-Sep-23 | 25-Jan-24 | 23-Feb-24 | 09-Jul-24 | 128 |
| Z3S3-2720 | STB - Reclaimed Water System and Associated Pipeworks at Stage 5 | 110 | 11-Sep-23 | 23-Jan-24 | 23-Feb-24 | 09-Jul-24 | 130 |
| Z3S3-2730 | STB - Sludge Thickening Chemical Dosing System and Associated Pipeworks at Stage 5 | 110 | 11-Sep-23 | 23-Jan-24 | 23-Feb-24 | 09-Jul-24 | 130 |
| Z3S3-2800 | STB - Deodourization System at Stage 5 | 44 | 01-Dec-23 | 25-Jan-24 | 17-May-24 | 09-Jul-24 | 128 |
| Z3S3-2810 | STB - Sludge Thickening, Transferring and Pumping System and Associated Pipeworks at Stage 5 | 44 | 01-Dec-23 | 25-Jan-24 | 17-May-24 | 09-Jul-24 | 128 |
| Z3S3-2799 | STB - E&M Handover | 0 | 01-Dec-23 | | 17-May-24 | | 128 |
| **Stage 5 : Utility Corridor Construction (Continued)** | | 102 | 10-Oct-23 | 17-Feb-24 | 11-Oct-23 | 09-Jul-24 | 114 |
| **Stage 5 : Utility Corridor No. 1** | | 102 | 10-Oct-23 | 17-Feb-24 | 11-Oct-23 | 09-Jul-24 | 114 |
| **S5 : UC/PP 1 Foundation and ELS Works** | | 102 | 10-Oct-23 | 17-Feb-24 | 11-Oct-23 | 09-Jul-24 | 114 |
| Z3S5UC1-2000 | UC/PP 1 - Sheetpile Installation (2,674m2 @90m2/d) | 15 | 10-Oct-23 | 28-Oct-23 | 11-Oct-23 | 28-Oct-23 | 0 |
| Z3S5UC1-2160 | UC/PP 1 - Monitoring Installation and Pumping Test | 21 | 20-Oct-23 | 15-Nov-23 | 21-Oct-23 | 15-Nov-23 | 0 |
| Z3S5UC1-2140 | UC/PP 1 - Sheetpile Installation (2,674m2 @90m2/d) | 15 | 28-Oct-23 | 15-Nov-23 | 30-Oct-23 | 15-Nov-23 | 0 |
| Z3S5UC1-2010 | UC/PP 1 - ELS, Excavation (+6.0 to +4.0mPD) | 18 | 15-Nov-23 | 06-Dec-23 | 16-Nov-23 | 06-Dec-23 | 0 |
| Z3S5UC1-2080 | UC/PP 1 - Marine Sediments Treatment and Disposal | 30 | 06-Dec-23 | 13-Jan-24 | 03-Jun-24 | 09-Jul-24 | 138 |
| Z3S5UC1-2020 | UC/PP 1 - ELS, Strut Installation S1 (+4.0mPD) | 12 | 06-Dec-23 | 20-Dec-23 | 21-Dec-23 | 06-Jan-24 | 12 |
| Z3S5UC1-2030 | UC/PP 1 - ELS, Excavation (+4.0 to +1.5mPD) | 18 | 06-Dec-23 | 29-Dec-23 | 07-Dec-23 | 29-Dec-23 | 0 |
| Z3S5UC1-2040 | UC/PP 1 - ELS, Strut Installation S2 (+1.5mPD) | 12 | 29-Dec-23 | 13-Jan-24 | 08-Jan-24 | 20-Jan-24 | 6 |
| Z3S5UC1-2050 | UC/PP 1 - ELS, Excavation (+1.5 to -1.0mPD) | 18 | 29-Dec-23 | 20-Jan-24 | 30-Dec-23 | 20-Jan-24 | 0 |
| Z3S5UC1-2060 | UC/PP 1 - ELS, Strut Installation S3 (-1.0mPD) | 12 | 20-Jan-24 | 03-Feb-24 | 22-Jan-24 | 03-Feb-24 | 0 |
| Z3S5UC1-2070 | UC/PP 1 - ELS, Excavation (-1.0 to -3.75mPD) | 18 | 20-Jan-24 | 17-Feb-24 | 22-Jan-24 | 17-Feb-24 | 0 |
| **Stage 5 : Pipe Portal No. 1** | | 114 | 17-Feb-24 | 09-Jul-24 | 19-Feb-24 | 09-Jul-24 | 0 |
| Z3S5-2010 | PP 1 - Structure (-6.25 to -5.0mPD, Base Slab) | 16 | 17-Feb-24 | 07-Mar-24 | 19-Feb-24 | 07-Mar-24 | 0 |
| Z3S5-2020 | PP 1 - Structure (-5.0 to -2.0mPD) including Backfill | 15 | 07-Mar-24 | 25-Mar-24 | 08-Mar-24 | 25-Mar-24 | 0 |
| Z3S5-2030 | PP 1 - Structure (-2.0 to +1.0mPD) including Backfill | 16 | 25-Mar-24 | 17-Apr-24 | 26-Mar-24 | 17-Apr-24 | 0 |
| Z3S5-2040 | PP 1 - Structure (+1.0 to +4.0mPD) including Backfill | 15 | 17-Apr-24 | 06-May-24 | 18-Apr-24 | 06-May-24 | 0 |
| Z3S5-2050 | PP 1 - Structure (+4.0 to +7.0mPD), including Backfill, Ground Floor @ +6.0mPD | 16 | 06-May-24 | 25-May-24 | 07-May-24 | 25-May-24 | 0 |
| Z3S5-2060 | PP 1 - Structure (+7.0 to 10.5 mPD), First Floor @ +9.7mPD | 12 | 25-May-24 | 08-Jun-24 | 27-May-24 | 08-Jun-24 | 0 |
| Z3S5-2070 | PP 1 - Structure (+10.5 to 14.0 mPD) | 12 | 08-Jun-24 | 24-Jun-24 | 11-Jun-24 | 24-Jun-24 | 0 |
| Z3S5-2080 | PP 1 - Structure (+14.0 to 17.65 mPD), Second Floor @ +9.7mPD | 12 | 24-Jun-24 | 09-Jul-24 | 25-Jun-24 | 09-Jul-24 | 0 |
| **Stage 5 : New Sludge Digester No. 1 and 2 (Continued)** | | 162 | 11-Jan-23 | 04-Aug-23 | 30-Dec-23 | 20-Aug-24 | 307 |
| Z3S3-3020 | Sludge Digester no. 1-2 - Marine Sediments Treatment and Disposal | 39 | 11-Jan-23 | 04-Mar-23 | 06-Jul-24 | 20-Aug-24 | 430 |
| **Stage 5 : Civil and Structural Works** | | 150 | 01-Feb-23 | 04-Aug-23 | 30-Dec-23 | 09-Jul-24 | 271 |
| **S5 : SD 1,2 Foundation and ELS** | | 24 | 01-Feb-23 | 01-Mar-23 | 30-Dec-23 | 27-Jan-24 | 271 |
| Z3S3-2210 | Sludge Digester No. 1-2 - Strut Installation S3 (-2.4mPD) | 7 | 01-Feb-23 | 09-Feb-23 | 12-Jan-24 | 19-Jan-24 | 281 |
| Z3S3-2220 | Sludge Digester No. 1-2 - ELS Excavation (-2.4 to -5.9mPD) | 12 | 01-Feb-23 | 15-Feb-23 | 30-Dec-23 | 13-Jan-24 | 271 |
| Z3S3-2230 | Sludge Digester No. 1-2 - Strut Installation S4 (-5.9mPD) | 7 | 15-Feb-23 | 23-Feb-23 | 20-Jan-24 | 27-Jan-24 | 276 |
| Z3S3-2240 | Sludge Digester No. 1-2 - ELS Excavation (-5.9to -8.9mPD) | 12 | 15-Feb-23 | 01-Mar-23 | 15-Jan-24 | 27-Jan-24 | 271 |
| **S5 : Substructure** | | 74 | 01-Mar-23 | 02-Jun-23 | 29-Jan-24 | 06-May-24 | 271 |
| Z3S3-2270 | Sludge Digester No. 1-2 - Structure (-8.9 to -6.8mPD) Base Slab | 18 | 01-Mar-23 | 22-Mar-23 | 29-Jan-24 | 24-Feb-24 | 271 |
| Z3S3-2350 | Sludge Digester No. 1-2 - Structure (-6.8 to -3.8mPD) | 14 | 22-Mar-23 | 12-Apr-23 | 26-Feb-24 | 12-Mar-24 | 271 |
| Z3S3-2390 | Sludge Digester No. 1-2 - Structure (-3.8 to -0.8mPD) | 14 | 12-Apr-23 | 28-Apr-23 | 13-Mar-24 | 28-Mar-24 | 271 |
| Z3S3-2440 | Sludge Digester No. 1-2 - Structure (-0.8 to 2.2mPD) | 14 | 28-Apr-23 | 16-May-23 | 02-Apr-24 | 18-Apr-24 | 271 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

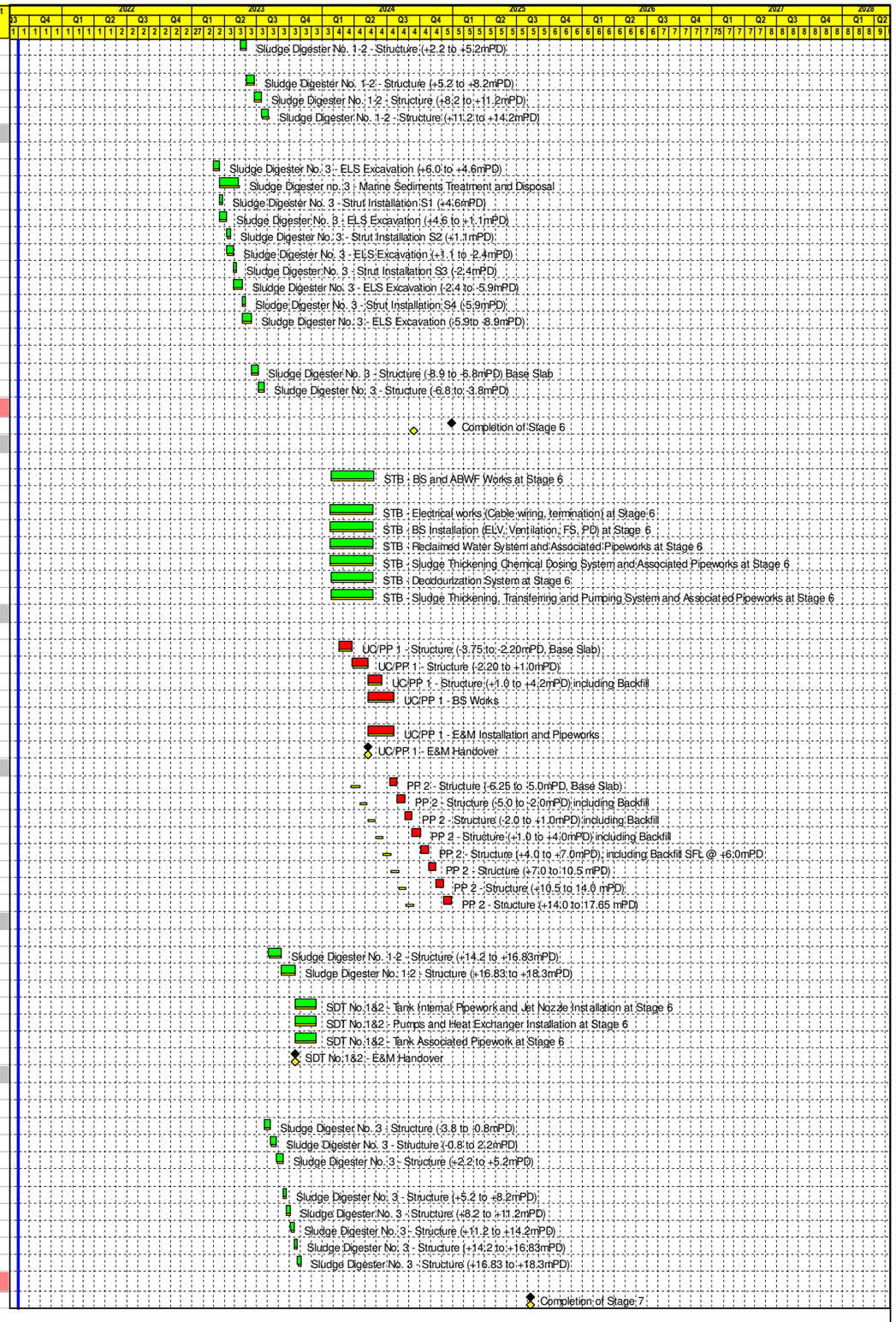
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| Z3S3-2470 | Sludge Digester No. 1-2 - Structure (+2.2 to +5.2mPD) | 14 | 16-May-23 | 02-Jun-23 | 19-Apr-24 | 06-May-24 | 271 |
| **S5 : Superstructure** | | 52 | 02-Jun-23 | 04-Aug-23 | 07-May-24 | 09-Jul-24 | 271 |
| Z3S3-2520 | Sludge Digester No. 1-2 - Structure (+5.2 to +8.2mPD) | 18 | 02-Jun-23 | 24-Jun-23 | 07-May-24 | 28-May-24 | 271 |
| Z3S3-2550 | Sludge Digester No. 1-2 - Structure (+8.2 to +11.2mPD) | 17 | 24-Jun-23 | 15-Jul-23 | 29-May-24 | 18-Jun-24 | 271 |
| Z3S3-2580 | Sludge Digester No. 1-2 - Structure (+11.2 to +14.2mPD) | 17 | 15-Jul-23 | 04-Aug-23 | 19-Jun-24 | 09-Jul-24 | 271 |
| **Stage 5 : New Sludge Digester No. 3 (Continued)** | | 115 | 01-Mar-23 | 22-Jul-23 | 17-Feb-24 | 09-Jul-24 | 282 |
| **Stage 5 : Excavation and Strut Installation** | | 85 | 01-Mar-23 | 15-Jun-23 | 17-Feb-24 | 01-Jun-24 | 282 |
| Z3S3-2280 | Sludge Digester No. 3 - ELS Excavation (+6.0 to +4.6mPD) | 15 | 01-Mar-23 | 18-Mar-23 | 17-Feb-24 | 05-Mar-24 | 282 |
| Z3S3-2300 | Sludge Digester no. 3 - Marine Sediments Treatment and Disposal | 42 | 18-Mar-23 | 12-May-23 | 12-Apr-24 | 01-Jun-24 | 310 |
| Z3S3-2310 | Sludge Digester No. 3 - Strut Installation S1 (+4.6mPD) | 7 | 18-Mar-23 | 27-Mar-23 | 29-Apr-24 | 07-May-24 | 324 |
| Z3S3-2320 | Sludge Digester No. 3 - ELS Excavation (+4.6 to +1.1mPD) | 15 | 18-Mar-23 | 06-Apr-23 | 06-Mar-24 | 22-Mar-24 | 282 |
| Z3S3-2330 | Sludge Digester No. 3 - Strut Installation S2 (+1.1mPD) | 7 | 06-Apr-23 | 18-Apr-23 | 08-May-24 | 16-May-24 | 316 |
| Z3S3-2340 | Sludge Digester No. 3 - ELS Excavation (+1.1 to -2.4mPD) | 15 | 06-Apr-23 | 27-Apr-23 | 23-Mar-24 | 13-Apr-24 | 282 |
| Z3S3-2370 | Sludge Digester No. 3 - Strut Installation S3 (-2.4mPD) | 7 | 27-Apr-23 | 06-May-23 | 17-May-24 | 24-May-24 | 308 |
| Z3S3-2380 | Sludge Digester No. 3 - ELS Excavation (-2.4 to -5.9mPD) | 20 | 27-Apr-23 | 22-May-23 | 15-Apr-24 | 08-May-24 | 282 |
| Z3S3-2400 | Sludge Digester No. 3 - Strut Installation S4 (-5.9mPD) | 7 | 22-May-23 | 31-May-23 | 25-May-24 | 01-Jun-24 | 295 |
| Z3S3-2410 | Sludge Digester No. 3 - ELS Excavation (-5.9to -8.9mPD) | 20 | 22-May-23 | 15-Jun-23 | 09-May-24 | 01-Jun-24 | 282 |
| **Stage 5 : SD 3 Civil and Structural Works** | | 30 | 15-Jun-23 | 22-Jul-23 | 03-Jun-24 | 09-Jul-24 | 282 |
| **S5 : SD 3 Substructure** | | 30 | 15-Jun-23 | 22-Jul-23 | 03-Jun-24 | 09-Jul-24 | 282 |
| Z3S3-2430 | Sludge Digester No. 3 - Structure (-8.9 to -6.8mPD) Base Slab | 15 | 15-Jun-23 | 05-Jul-23 | 03-Jun-24 | 20-Jun-24 | 282 |
| Z3S3-2460 | Sludge Digester No. 3 - Structure (-6.8 to -3.8mPD) | 15 | 05-Jul-23 | 22-Jul-23 | 21-Jun-24 | 09-Jul-24 | 282 |
| **Stage 6** | | 426 | 22-Jul-23 | 30-Dec-24 | 19-Feb-24 | 30-Dec-24 | 0 |
| Z3S6-3360 | Completion of Stage 6 | 0 | | 30-Dec-24* | | 30-Dec-24 | 0 |
| **Stage 6 : New Sludge Thickening Building (STB) (Continued)** | | 93 | 24-Jan-24 | 24-May-24 | 06-Sep-24 | 30-Dec-24 | 181 |
| **Stage 6 : STB ABWF and BS Works** | | 90 | 26-Jan-24 | 24-May-24 | 11-Sep-24 | 30-Dec-24 | 181 |
| Z3S3-3210 | STB - BS and ABWF Works at Stage 6 | 90 | 26-Jan-24 | 24-May-24 | 11-Sep-24 | 30-Dec-24 | 181 |
| **Stage 6 : STB E&M Installation** | | 92 | 24-Jan-24 | 23-May-24 | 06-Sep-24 | 30-Dec-24 | 182 |
| Z3S3-2850 | STB - Electrical works (Cable wiring, termination) at Stage 6 | 90 | 24-Jan-24 | 21-May-24 | 11-Sep-24 | 30-Dec-24 | 184 |
| Z3S3-2860 | STB - BS Installation (ELV, Ventilation, FS, PD) at Stage 6 | 90 | 24-Jan-24 | 21-May-24 | 11-Sep-24 | 30-Dec-24 | 184 |
| Z3S3-3150 | STB - Reclaimed Water System and Associated Pipeworks at Stage 6 | 90 | 24-Jan-24 | 21-May-24 | 11-Sep-24 | 30-Dec-24 | 184 |
| Z3S3-3160 | STB - Sludge Thickening Chemical Dosing System and Associated Pipeworks at Stage 6 | 90 | 24-Jan-24 | 21-May-24 | 11-Sep-24 | 30-Dec-24 | 184 |
| Z3S3-3190 | STB - Deodourization System at Stage 6 | 90 | 25-Jan-24 | 23-May-24 | 11-Sep-24 | 30-Dec-24 | 182 |
| Z3S3-3200 | STB - Sludge Thickening, Transferring and Pumping System and Associated Pipeworks at Stage 6 | 90 | 25-Jan-24 | 23-May-24 | 06-Sep-24 | 23-Dec-24 | 178 |
| **Stage 6 : Utility Corridor No. 1** | | 124 | 17-Feb-24 | 20-Jul-24 | 19-Feb-24 | 20-Jul-24 | 0 |
| **Stage 6 : UC/PP 1 Civil and Structural Works** | | 124 | 17-Feb-24 | 20-Jul-24 | 19-Feb-24 | 20-Jul-24 | 0 |
| Z3S5UC1-2090 | UC/PP 1 - Structure (-3.75 to -2.20mPD, Base Slab) | 32 | 17-Feb-24 | 26-Mar-24 | 19-Feb-24 | 26-Mar-24 | 0 |
| Z3S5UC1-2100 | UC/PP 1 - Structure (-2.20 to +1.0mPD) | 32 | 26-Mar-24 | 08-May-24 | 27-Mar-24 | 08-May-24 | 0 |
| Z3S5UC1-2110 | UC/PP 1 - Structure (+1.0 to +4.2mPD) including Backfill | 32 | 08-May-24 | 17-Jun-24 | 09-May-24 | 17-Jun-24 | 0 |
| Z3S5UC1-2150 | UC/PP 1 - BS Works | 60 | 08-May-24 | 20-Jul-24 | 09-May-24 | 20-Jul-24 | 0 |
| **Stage 6 : UC/PP 1 E&M Installation** | | 60 | 08-May-24 | 20-Jul-24 | 09-May-24 | 20-Jul-24 | 0 |
| Z3S5UC1-2120 | UC/PP 1 - E&M Installation and Pipeworks | 60 | 08-May-24 | 20-Jul-24 | 09-May-24 | 20-Jul-24 | 0 |
| Z3S5UC1-2119 | UC/PP 1 - E&M Handover | 0 | 08-May-24 | | 09-May-24 | | 0 |
| **Stage 6 : Pipe Portal No. 2** | | 144 | 09-Jul-24 | 30-Dec-24 | 10-Jul-24 | 30-Dec-24 | 0 |
| Z3S6PP2-2000 | PP 2 - Structure (-6.25 to -5.0mPD, Base Slab) | 18 | 09-Jul-24 | 30-Jul-24 | 10-Jul-24 | 30-Jul-24 | 0 |
| Z3S6PP2-2010 | PP 2 - Structure (-5.0 to -2.0mPD) including Backfill | 18 | 30-Jul-24 | 20-Aug-24 | 31-Jul-24 | 20-Aug-24 | 0 |
| Z3S6PP2-2020 | PP 2 - Structure (-2.0 to +1.0mPD) including Backfill | 18 | 20-Aug-24 | 10-Sep-24 | 21-Aug-24 | 10-Sep-24 | 0 |
| Z3S6PP2-2030 | PP 2 - Structure (+1.0 to +4.0mPD) including Backfill | 18 | 10-Sep-24 | 03-Oct-24 | 11-Sep-24 | 03-Oct-24 | 0 |
| Z3S6PP2-2040 | PP 2 - Structure (+4.0 to +7.0mPD), including Backfill SFL @ +6.0mPD | 18 | 03-Oct-24 | 25-Oct-24 | 04-Oct-24 | 25-Oct-24 | 0 |
| Z3S6PP2-2050 | PP 2 - Structure (+7.0 to 10.5 mPD) | 18 | 25-Oct-24 | 15-Nov-24 | 26-Oct-24 | 15-Nov-24 | 0 |
| Z3S6PP2-2060 | PP 2 - Structure (+10.5 to 14.0 mPD) | 18 | 15-Nov-24 | 06-Dec-24 | 16-Nov-24 | 06-Dec-24 | 0 |
| Z3S6PP2-2070 | PP 2 - Structure (+14.0 to 17.65 mPD) | 18 | 06-Dec-24 | 30-Dec-24 | 07-Dec-24 | 30-Dec-24 | 0 |
| **Stage 6 : New Sludge Digester No. 1 and 2 (Continued)** | | 112 | 04-Aug-23 | 16-Dec-23 | 17-Jul-24 | 27-Nov-24 | 277 |
| **Stage 6 : SD 1,2 Superstructure** | | 60 | 04-Aug-23 | 16-Oct-23 | 17-Jul-24 | 25-Sep-24 | 277 |
| Z3S3-2620 | Sludge Digester No. 1-2 - Structure (+14.2 to +16.83mPD) | 30 | 04-Aug-23 | 08-Sep-23 | 17-Jul-24 | 20-Aug-24 | 277 |
| Z3S3-2640 | Sludge Digester No. 1-2 - Structure (+16.83 to +18.3mPD) | 30 | 08-Sep-23 | 16-Oct-23 | 21-Aug-24 | 25-Sep-24 | 277 |
| **Stage 6 : SD 1,2 E&M Installation** | | 52 | 16-Oct-23 | 16-Dec-23 | 26-Sep-24 | 27-Nov-24 | 277 |
| Z3S3-2670 | SDT No.1&2 - Tank Internal Pipework and Jet Nozzle Installation at Stage 6 | 52 | 16-Oct-23 | 16-Dec-23 | 26-Sep-24 | 27-Nov-24 | 277 |
| Z3S3-2680 | SDT No.1&2 - Pumps and Heat Exchanger Installation at Stage 6 | 52 | 16-Oct-23 | 16-Dec-23 | 26-Sep-24 | 27-Nov-24 | 277 |
| Z3S3-2690 | SDT No.1&2 - Tank Associated Pipework at Stage 6 | 52 | 16-Oct-23 | 16-Dec-23 | 26-Sep-24 | 27-Nov-24 | 277 |
| Z3S3-2669 | SDT No.1&2 - E&M Handover | 0 | 16-Oct-23 | | 26-Sep-24 | | 277 |
| **Stage 6 : New Sludge Digester No. 3 (Continued)** | | 87 | 22-Jul-23 | 04-Nov-23 | 14-Sep-24 | 30-Dec-24 | 339 |
| **Stage 6 : SD 3 Civil and Structural Works** | | 87 | 22-Jul-23 | 04-Nov-23 | 14-Sep-24 | 30-Dec-24 | 339 |
| **S6 : SD 3 Substructure** | | 45 | 22-Jul-23 | 13-Sep-23 | 14-Sep-24 | 08-Nov-24 | 339 |
| Z3S3-2480 | Sludge Digester No. 3 - Structure (-3.8 to -0.8mPD) | 15 | 22-Jul-23 | 09-Aug-23 | 14-Sep-24 | 03-Oct-24 | 339 |
| Z3S3-2490 | Sludge Digester No. 3 - Structure (-0.8 to 2.2mPD) | 15 | 09-Aug-23 | 26-Aug-23 | 04-Oct-24 | 22-Oct-24 | 339 |
| Z3S3-2530 | Sludge Digester No. 3 - Structure (+2.2 to +5.2mPD) | 15 | 26-Aug-23 | 13-Sep-23 | 23-Oct-24 | 08-Nov-24 | 339 |
| **S6 : SD 3 Superstructure** | | 42 | 13-Sep-23 | 04-Nov-23 | 09-Nov-24 | 30-Dec-24 | 339 |
| Z3S3-2540 | Sludge Digester No. 3 - Structure (+5.2 to +8.2mPD) | 8 | 13-Sep-23 | 22-Sep-23 | 09-Nov-24 | 18-Nov-24 | 339 |
| Z3S3-2560 | Sludge Digester No. 3 - Structure (+8.2 to +11.2mPD) | 8 | 22-Sep-23 | 04-Oct-23 | 19-Nov-24 | 27-Nov-24 | 339 |
| Z3S3-2570 | Sludge Digester No. 3 - Structure (+11.2 to +14.2mPD) | 8 | 04-Oct-23 | 13-Oct-23 | 28-Nov-24 | 06-Dec-24 | 339 |
| Z3S3-2590 | Sludge Digester No. 3 - Structure (+14.2 to +16.83mPD) | 8 | 13-Oct-23 | 24-Oct-23 | 07-Dec-24 | 16-Dec-24 | 339 |
| Z3S3-2610 | Sludge Digester No. 3 - Structure (+16.83 to +18.3mPD) | 10 | 24-Oct-23 | 04-Nov-23 | 17-Dec-24 | 30-Dec-24 | 339 |
| **Stage 7** | | 515 | 16-Dec-23 | 08-Aug-25 | 22-Jul-24 | 11-May-26 | 236 |
| Z3S7-3370 | Completion of Stage 7 | 0 | | 08-Aug-25* | | 08-Aug-25 | 0 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

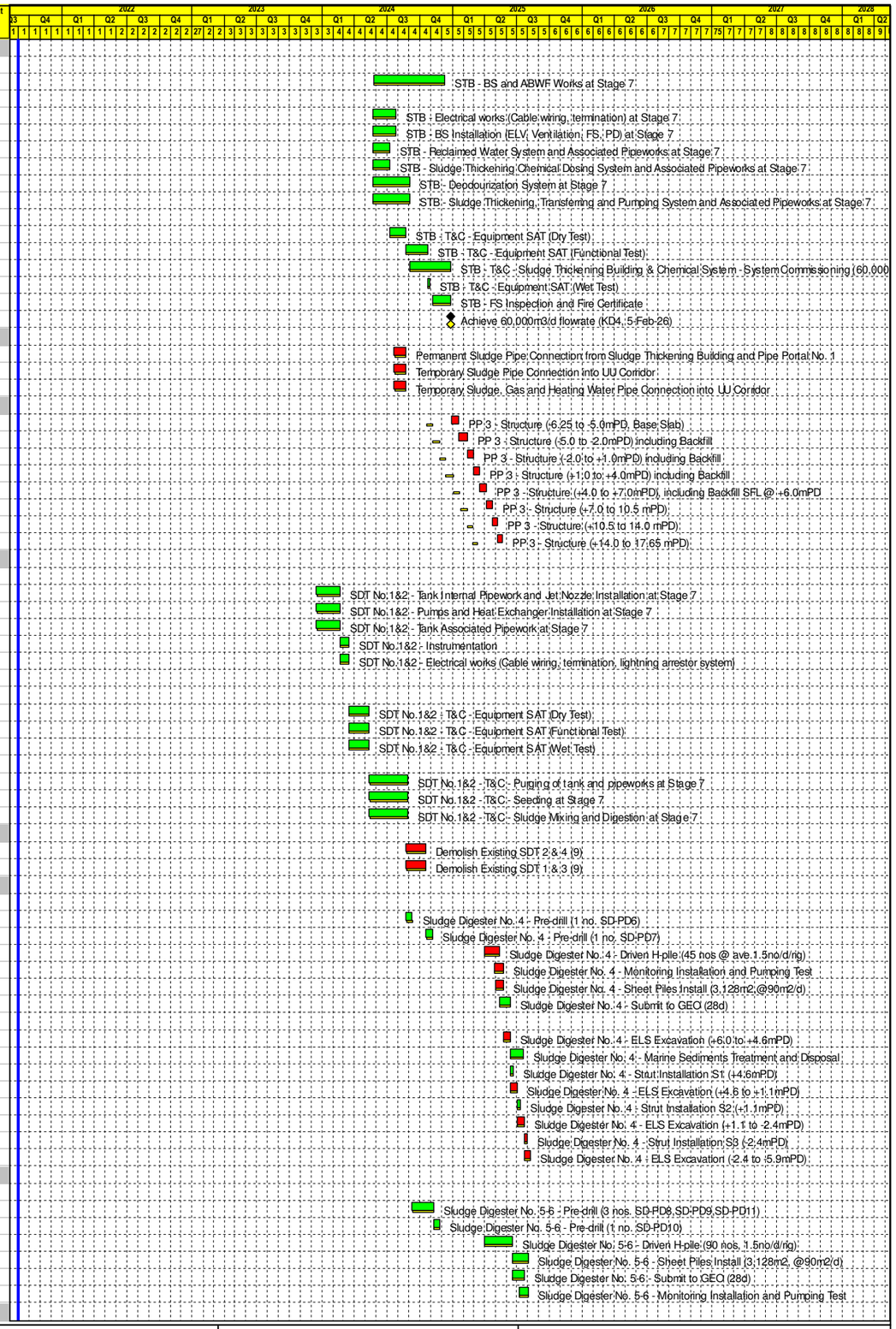
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5


Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| **Stage 7 : New Sludge Thickening Building (STB) (Continued)** | | 189 | 22-May-24 | 27-Dec-24 | 24-Dec-24 | 08-Aug-25 | 192 |
| **Stage 7 : STB ABWF and BS Works** | | 165 | 24-May-24 | 09-Dec-24 | 14-Jan-25 | 08-Aug-25 | 192 |
| Z3S3-3090 | STB - BS and ABWF Works at Stage 7 | 165 | 24-May-24 | 09-Dec-24 | 14-Jan-25 | 08-Aug-25 | 192 |
| **Stage 7 : STB E&M Installation** | | 88 | 22-May-24 | 03-Sep-24 | 24-Dec-24 | 08-Aug-25 | 272 |
| Z3S3-3220 | STB - Electrical works (Cable wiring, termination) at Stage 7 | 56 | 22-May-24 | 27-Jul-24 | 04-Jun-25 | 08-Aug-25 | 304 |
| Z3S3-3230 | STB - BS Installation (ELV, Ventilation, FS, PD) at Stage 7 | 56 | 22-May-24 | 27-Jul-24 | 04-Jun-25 | 08-Aug-25 | 304 |
| Z3S3-3240 | STB - Reclaimed Water System and Associated Pipeworks at Stage 7 | 40 | 22-May-24 | 09-Jul-24 | 02-Jan-25 | 22-Feb-25 | 185 |
| Z3S3-3250 | STB - Sludge Thickening Chemical Dosing System and Associated Pipeworks at Stage 7 | 40 | 22-May-24 | 09-Jul-24 | 02-Jan-25 | 22-Feb-25 | 185 |
| Z3S3-3260 | STB - Deodourization System at Stage 7 | 86 | 23-May-24 | 03-Sep-24 | 26-Apr-25 | 08-Aug-25 | 272 |
| Z3S3-3270 | STB - Sludge Thickening, Transferring and Pumping System and Associated Pipeworks at Stage 7 | 86 | 23-May-24 | 03-Sep-24 | 24-Dec-24 | 12-Apr-25 | 178 |
| **Stage 7 : STB Testing & Commissioning** | | 147 | 10-Jul-24 | 27-Dec-24 | 24-Feb-25 | 08-Aug-25 | 192 |
| Z3S3-2910 | STB - T&C - Equipment SAT (Dry Test) | 39 | 10-Jul-24 | 23-Aug-24 | 24-Feb-25 | 10-Apr-25 | 185 |
| Z3S3-2920 | STB - T&C - Equipment SAT (Functional Test) | 48 | 24-Aug-24 | 22-Oct-24 | 11-Apr-25 | 12-Jun-25 | 185 |
| Z3S3-2940 | STB - T&C - Sludge Thickening Building & Chemical System - System Commissioning (60,000 m3/d) (KD4) | 94 | 03-Sep-24 | 27-Dec-24 | 14-Apr-25 | 08-Aug-25 | 178 |
| Z3S3-2960 | STB - T&C - Equipment SAT (Wet Test) | 6 | 23-Oct-24 | 29-Oct-24 | 13-Jun-25 | 19-Jun-25 | 185 |
| Z3S3-2970 | STB - FS Inspection and Fire Certificate | 42 | 06-Nov-24 | 27-Dec-24 | 20-Jun-25 | 08-Aug-25 | 178 |
| Z3S3-2980 | Achieve 60,000m3/d flowrate (KD4, 5-Feb-26) | 0 | | 27-Dec-24 | | 08-Aug-25 | 224 |
| **Stage 7 : UC/PP Connection** | | 30 | 20-Jul-24 | 24-Aug-24 | 22-Jul-24 | 24-Aug-24 | 0 |
| Z3S7-2000 | Permanent Sludge Pipe Connection from Sludge Thickening Building and Pipe Portal No. 1 | 30 | 20-Jul-24 | 24-Aug-24 | 22-Jul-24 | 24-Aug-24 | 0 |
| Z3S7-2010 | Temporary Sludge Pipe Connection into UU Corridor | 30 | 20-Jul-24 | 24-Aug-24 | 22-Jul-24 | 24-Aug-24 | 0 |
| Z3S7-2020 | Temporary Sludge, Gas and Heating Water Pipe Connection into UU Corridor | 30 | 20-Jul-24 | 24-Aug-24 | 22-Jul-24 | 24-Aug-24 | 0 |
| **Stage 7 : Pipe Portal No. 3** | | 110 | 30-Dec-24 | 21-May-25 | 31-Dec-24 | 21-May-25 | 0 |
| Z3S8PP3-2000 | PP 3 - Structure (-6.25 to -5.0mPD, Base Slab) | 16 | 30-Dec-24 | 18-Jan-25 | 31-Dec-24 | 18-Jan-25 | 0 |
| Z3S8PP3-2010 | PP 3 - Structure (-5.0 to -2.0mPD) including Backfill | 15 | 18-Jan-25 | 11-Feb-25 | 20-Jan-25 | 11-Feb-25 | 0 |
| Z3S8PP3-2020 | PP 3 - Structure (-2.0 to +1.0mPD) including Backfill | 16 | 11-Feb-25 | 01-Mar-25 | 12-Feb-25 | 01-Mar-25 | 0 |
| Z3S8PP3-2030 | PP 3 - Structure (+1.0 to +4.0mPD) including Backfill | 15 | 01-Mar-25 | 19-Mar-25 | 03-Mar-25 | 19-Mar-25 | 0 |
| Z3S8PP3-2040 | PP 3 - Structure (+4.0 to +7.0mPD), including Backfill SFL @ +6.0mPD | 15 | 19-Mar-25 | 07-Apr-25 | 20-Mar-25 | 07-Apr-25 | 0 |
| Z3S8PP3-2050 | PP 3 - Structure (+7.0 to 10.5 mPD) | 11 | 07-Apr-25 | 23-Apr-25 | 08-Apr-25 | 23-Apr-25 | 0 |
| Z3S8PP3-2060 | PP 3 - Structure (+10.5 to 14.0 mPD) | 11 | 23-Apr-25 | 08-May-25 | 24-Apr-25 | 08-May-25 | 0 |
| Z3S8PP3-2070 | PP 3 - Structure (+14.0 to 17.65 mPD) | 11 | 08-May-25 | 21-May-25 | 09-May-25 | 21-May-25 | 0 |
| **Stage 7 : New Sludge Digester Nos. 1 and 2 (Continued)** | | 202 | 16-Dec-23 | 28-Aug-24 | 28-Nov-24 | 08-Aug-25 | 277 |
| **Stage 7 : E&M Installation** | | 68 | 16-Dec-23 | 15-Mar-24 | 28-Nov-24 | 24-Feb-25 | 277 |
| Z3S3-3280 | SDT No.1&2 - Tank Internal Pipework and Jet Nozzle Installation at Stage 7 | 46 | 16-Dec-23 | 19-Feb-24 | 28-Nov-24 | 23-Jan-25 | 277 |
| Z3S3-3290 | SDT No.1&2 - Pumps and Heat Exchanger Installation at Stage 7 | 46 | 16-Dec-23 | 19-Feb-24 | 28-Nov-24 | 23-Jan-25 | 277 |
| Z3S3-3300 | SDT No.1&2 - Tank Associated Pipework at Stage 7 | 46 | 16-Dec-23 | 19-Feb-24 | 28-Nov-24 | 23-Jan-25 | 277 |
| Z3S3-2750 | SDT No.1&2 - Instrumentation | 22 | 19-Feb-24 | 15-Mar-24 | 24-Jan-25 | 24-Feb-25 | 277 |
| Z3S3-2760 | SDT No.1&2 - Electrical works (Cable wiring, termination, lightning arrestor system) | 22 | 19-Feb-24 | 15-Mar-24 | 24-Jan-25 | 24-Feb-25 | 277 |
| **Stage 7 : Testing & Commissioning** | | 134 | 15-Mar-24 | 28-Aug-24 | 25-Feb-25 | 08-Aug-25 | 277 |
| **S7 : Equipment SAT** | | 44 | 15-Mar-24 | 11-May-24 | 25-Feb-25 | 17-Apr-25 | 277 |
| Z3S3-2820 | SDT No.1&2 - T&C - Equipment SAT (Dry Test) | 44 | 15-Mar-24 | 11-May-24 | 25-Feb-25 | 17-Apr-25 | 277 |
| Z3S3-2830 | SDT No.1&2 - T&C - Equipment SAT (Functional Test) | 43 | 15-Mar-24 | 10-May-24 | 26-Feb-25 | 17-Apr-25 | 278 |
| Z3S3-2840 | SDT No.1&2 - T&C - Equipment SAT (Wet Test) | 44 | 15-Mar-24 | 11-May-24 | 25-Feb-25 | 17-Apr-25 | 277 |
| **S7 : Process Start-Up** | | 90 | 11-May-24 | 28-Aug-24 | 22-Apr-25 | 08-Aug-25 | 277 |
| Z3S3-2870 | SDT No.1&2 - T&C - Purging of tank and pipeworks at Stage 7 | 90 | 11-May-24 | 28-Aug-24 | 22-Apr-25 | 08-Aug-25 | 277 |
| Z3S3-2880 | SDT No.1&2 - T&C - Seeding at Stage 7 | 90 | 11-May-24 | 28-Aug-24 | 22-Apr-25 | 08-Aug-25 | 277 |
| Z3S3-2890 | SDT No.1&2 - T&C - Sludge Mixing and Digestion at Stage 7 | 90 | 11-May-24 | 28-Aug-24 | 22-Apr-25 | 08-Aug-25 | 277 |
| **Stage 7 : Demolition of SDT 1-4** | | 45 | 24-Aug-24 | 19-Oct-24 | 26-Aug-24 | 19-Oct-24 | 0 |
| Z3S7-2030 | Demolish Existing SDT 2 & 4 (9) | 45 | 24-Aug-24 | 19-Oct-24 | 26-Aug-24 | 19-Oct-24 | 0 |
| Z3S7-2040 | Demolish Existing SDT 1 & 3 (9) | 45 | 24-Aug-24 | 19-Oct-24 | 26-Aug-24 | 19-Oct-24 | 0 |
| **Stage 7: New Sludge Digester No. 4** | | 299 | 24-Aug-24 | 08-Aug-25 | 03-Jan-25 | 05-Sep-25 | 24 |
| **Stage 7 : SD 4 Foundation and ELS Works** | | 299 | 24-Aug-24 | 08-Aug-25 | 03-Jan-25 | 05-Sep-25 | 24 |
| Z3S8SD-2000 | Sludge Digester No. 4 - Pre-drill (1 no. SD-PD6) | 14 | 24-Aug-24 | 10-Sep-24 | 03-Jan-25 | 18-Jan-25 | 106 |
| Z3S8SD-2020 | Sludge Digester No. 4 - Pre-drill (1 no. SD-PD7) | 14 | 19-Oct-24 | 05-Nov-24 | 06-Mar-25 | 21-Mar-25 | 109 |
| Z3S8SD-2030 | Sludge Digester No. 4 - Driven H-pile (45 nos @ ave.1.5no/d/rig) | 30 | 01-Apr-25 | 12-May-25 | 01-Apr-25 | 12-May-25 | 0 |
| Z3S8SD-2250 | Sludge Digester No. 4 - Monitoring Installation and Pumping Test | 21 | 28-Apr-25 | 23-May-25 | 28-Apr-25 | 23-May-25 | 0 |
| Z3S8SD-2040 | Sludge Digester No. 4 - Sheet Piles Install (3,128m2,@90m2/d) | 18 | 02-May-25 | 23-May-25 | 02-May-25 | 23-May-25 | 0 |
| Z3S8SD-2270 | Sludge Digester No. 4 - Submit to GEO (28d) | 28 | 13-May-25 | 14-Jun-25 | 05-Aug-25 | 05-Sep-25 | 70 |
| **S7 : Excavation and Strut Installation** | | 64 | 24-May-25 | 08-Aug-25 | 24-May-25 | 08-Aug-25 | 0 |
| Z3S8SD-2050 | Sludge Digester No. 4 - ELS Excavation (+6.0 to +4.6mPD) | 16 | 24-May-25 | 12-Jun-25 | 24-May-25 | 12-Jun-25 | 0 |
| Z3S8SD-2060 | Sludge Digester No. 4 - Marine Sediments Treatment and Disposal | 30 | 13-Jun-25 | 18-Jul-25 | 16-Jun-25 | 21-Jul-25 | 2 |
| Z3S8SD-2070 | Sludge Digester No. 4 - Strut Installation S1 (+4.6mPD) | 8 | 13-Jun-25 | 21-Jun-25 | 03-Jul-25 | 11-Jul-25 | 16 |
| Z3S8SD-2080 | Sludge Digester No. 4 - ELS Excavation (+4.6 to +1.1mPD) | 16 | 13-Jun-25 | 02-Jul-25 | 13-Jun-25 | 02-Jul-25 | 0 |
| Z3S8SD-2090 | Sludge Digester No. 4 - Strut Installation S2 (+1.1mPD) | 8 | 03-Jul-25 | 11-Jul-25 | 12-Jul-25 | 21-Jul-25 | 8 |
| Z3S8SD-2100 | Sludge Digester No. 4 - ELS Excavation (+1.1 to -2.4mPD) | 16 | 03-Jul-25 | 21-Jul-25 | 03-Jul-25 | 21-Jul-25 | 0 |
| Z3S8SD-2110 | Sludge Digester No. 4 - Strut Installation S3 (-2.4mPD) | 8 | 22-Jul-25 | 30-Jul-25 | 22-Jul-25 | 30-Jul-25 | 0 |
| Z3S8SD-2120 | Sludge Digester No. 4 - ELS Excavation (-2.4 to -5.9mPD) | 16 | 22-Jul-25 | 08-Aug-25 | 22-Jul-25 | 08-Aug-25 | 0 |
| **Stage 7 : New Sludge Digester No. 5 and 6** | | 260 | 10-Sep-24 | 01-Aug-25 | 20-Jan-25 | 11-May-26 | 226 |
| **Stage 7 : SD 5,6 Foundation and ELS Works** | | 260 | 10-Sep-24 | 01-Aug-25 | 20-Jan-25 | 11-May-26 | 226 |
| Z3S8SD-1000 | Sludge Digester No. 5-6 - Pre-drill (3 nos. SD-PD8,SD-PD9,SD-PD11) | 48 | 10-Sep-24 | 08-Nov-24 | 20-Jan-25 | 21-Mar-25 | 106 |
| Z3S8SD-1010 | Sludge Digester No. 5-6 - Pre-drill (1 no. SD-PD10) | 14 | 08-Nov-24 | 25-Nov-24 | 22-Mar-25 | 08-Apr-25 | 106 |
| Z3S8SD-1030 | Sludge Digester No. 5-6 - Driven H-pile (90 nos, 1.5no/d/rig) | 60 | 01-Apr-25 | 17-Jun-25 | 09-Apr-25 | 24-Jun-25 | 6 |
| Z3S8SD-1040 | Sludge Digester No. 5-6 - Sheet Piles Install (3,128m2, @90m2/d) | 38 | 18-Jun-25 | 01-Aug-25 | 25-Jun-25 | 08-Aug-25 | 6 |
| Z3S8SD-2280 | Sludge Digester No. 5-6 - Submit to GEO (28d) | 28 | 18-Jun-25 | 21-Jul-25 | 08-Apr-26 | 11-May-26 | 236 |
| Z3S8SD-2260 | Sludge Digester No. 5-6 - Monitoring Installation and Pumping Test | 21 | 09-Jul-25 | 01-Aug-25 | 12-Nov-25 | 05-Dec-25 | 105 |
| **Stage 7 : H2S System** | | 65 | 19-Oct-24 | 07-Jan-25 | 23-May-25 | 08-Aug-25 | 170 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

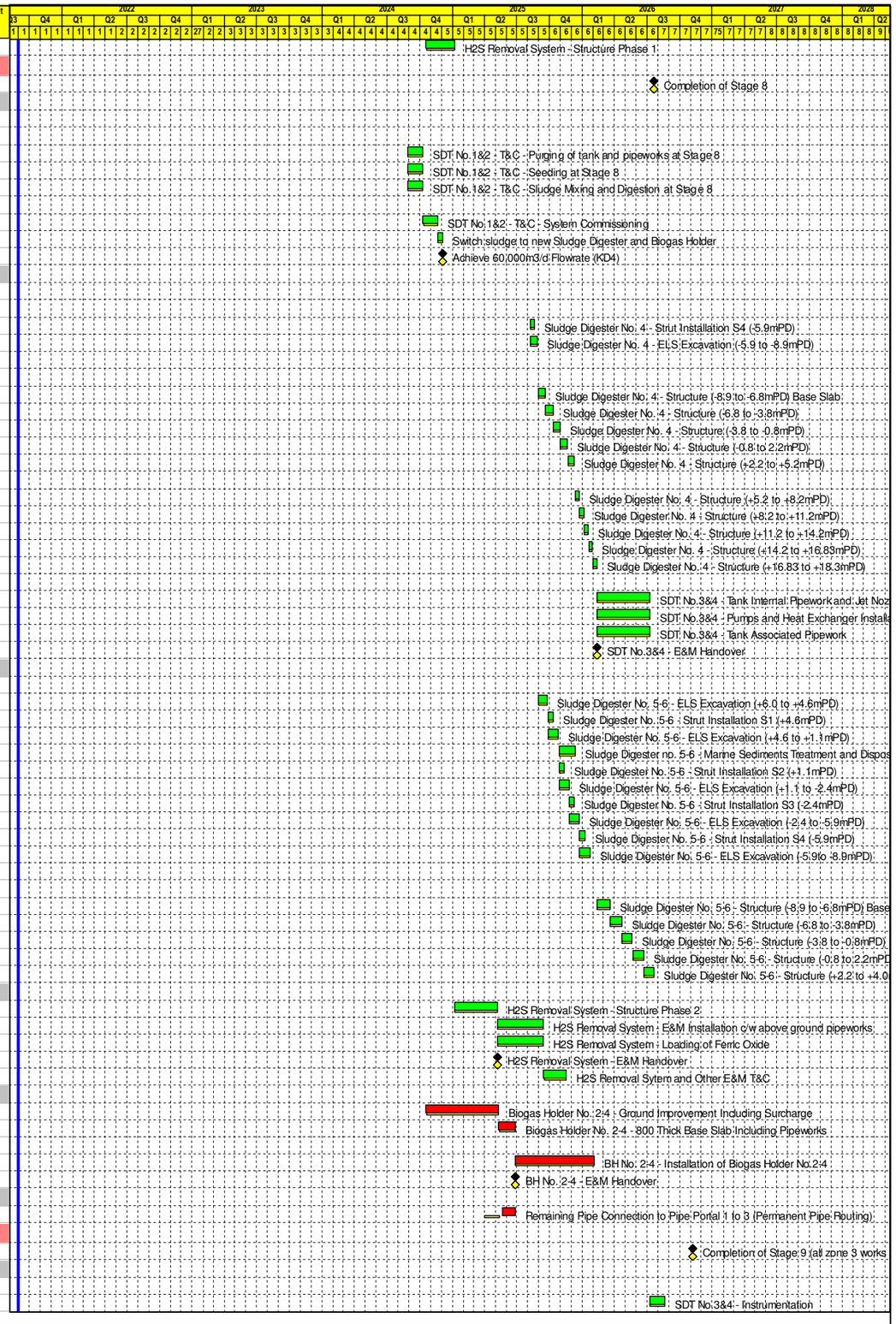
# Contract DC/2019/10 - YLEPP - Main Works for Stage 1
# Detailed Works Programme

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

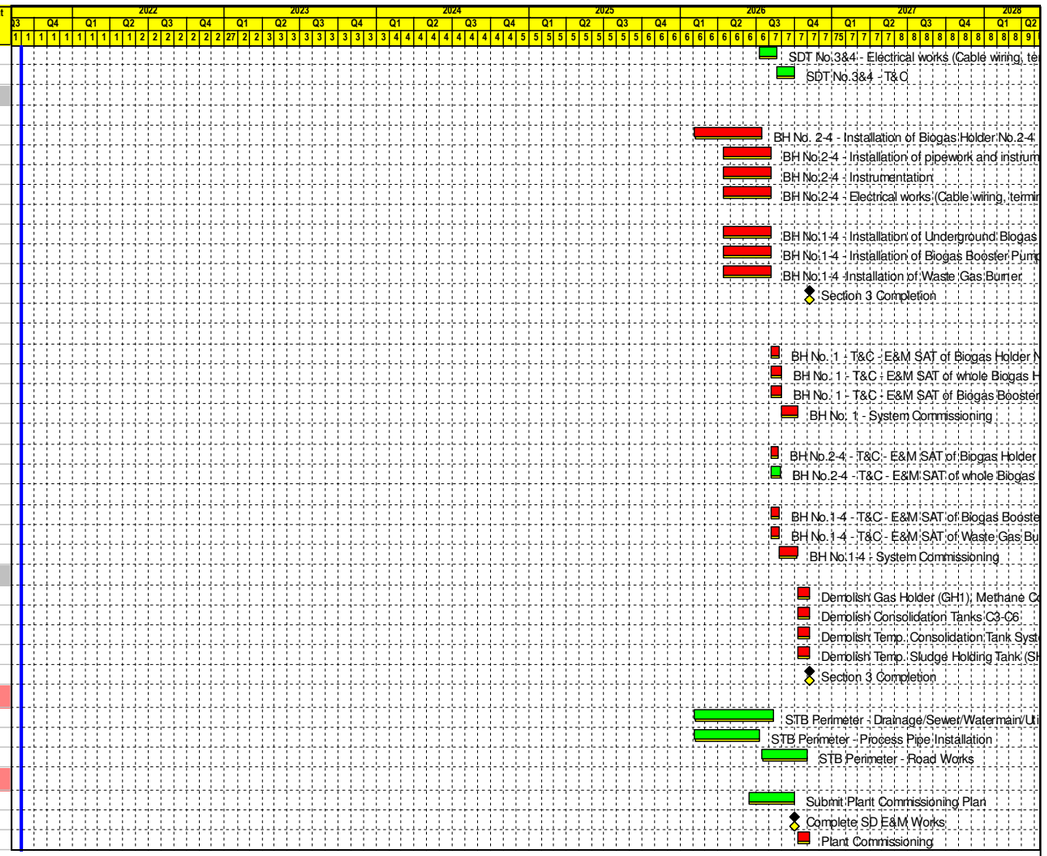

Detailed Works Programme

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| H2S-180 | H2S Removal System - Structure Phase 1 | 65 | 19-Oct-24 | 07-Jan-25 | 23-May-25 | 08-Aug-25 | 170 |
| **Stage 8** | | 594 | 28-Aug-24 | 22-Jul-26 | 21-Oct-24 | 08-Nov-27 | 406 |
| Z3S8-3380 | Completion of Stage 8 | 0 | | 22-Jul-26 | | 08-Nov-27 | 401 |
| **Stage 8 : New Sludge Digester No. 1 and 2 (Continued)** | | 81 | 28-Aug-24 | 04-Dec-24 | 31-Oct-25 | 05-Feb-26 | 345 |
| **Stage 8 : Testing & Commissioning** | | 81 | 28-Aug-24 | 04-Dec-24 | 31-Oct-25 | 05-Feb-26 | 345 |
| **S8 : Process Start-Up** | | 35 | 28-Aug-24 | 10-Oct-24 | 31-Oct-25 | 10-Dec-25 | 345 |
| Z3S3-3310 | SDT No.1&2 - T&C - Purging of tank and pipeworks at Stage 8 | 35 | 28-Aug-24 | 10-Oct-24 | 31-Oct-25 | 10-Dec-25 | 345 |
| Z3S3-3320 | SDT No.1&2 - T&C - Seeding at Stage 8 | 35 | 28-Aug-24 | 10-Oct-24 | 31-Oct-25 | 10-Dec-25 | 345 |
| Z3S3-3330 | SDT No.1&2 - T&C - Sludge Mixing and Digestion at Stage 8 | 35 | 28-Aug-24 | 10-Oct-24 | 31-Oct-25 | 10-Dec-25 | 345 |
| **S8 : System Commissioning** | | 46 | 10-Oct-24 | 04-Dec-24 | 11-Dec-25 | 05-Feb-26 | 345 |
| Z3S3-2900 | SDT No.1&2 - T&C - System Commissioning | 34 | 10-Oct-24 | 20-Nov-24 | 11-Dec-25 | 22-Jan-26 | 345 |
| Z3S3-2930 | Switch sludge to new Sludge Digester and Biogas Holder | 12 | 20-Nov-24 | 04-Dec-24 | 23-Jan-26 | 05-Feb-26 | 345 |
| Z3S3-2950 | Achieve 60,000m3/d Flowrate (KD4) | 0 | | 04-Dec-24 | | 05-Feb-26 | 345 |
| **Stage 8 : New Sludge Digester No. 4 (Continued)** | | 269 | 09-Aug-25 | 10-Jul-26 | 18-Aug-25 | 18-Jul-26 | 7 |
| **Stage 8 : SD 4 Foundation and ELS Works** | | 17 | 09-Aug-25 | 28-Aug-25 | 18-Aug-25 | 05-Sep-25 | 7 |
| **S8 : Excavation and Strut Installation** | | 17 | 09-Aug-25 | 28-Aug-25 | 18-Aug-25 | 05-Sep-25 | 7 |
| Z3S8SD-2130 | Sludge Digester No. 4 - Strut Installation S4 (-5.9mPD) | 8 | 09-Aug-25 | 18-Aug-25 | 28-Aug-25 | 05-Sep-25 | 16 |
| Z3S8SD-2140 | Sludge Digester No. 4 - ELS Excavation (-5.9 to -8.9mPD) | 17 | 09-Aug-25 | 28-Aug-25 | 18-Aug-25 | 05-Sep-25 | 7 |
| **Stage 8 : SD 4 Civil and Structural Works** | | 137 | 29-Aug-25 | 11-Feb-26 | 06-Sep-25 | 26-Feb-26 | 7 |
| **S8 : SD 4 Substructure** | | 86 | 29-Aug-25 | 10-Dec-25 | 06-Sep-25 | 18-Dec-25 | 7 |
| Z3S8SD-2150 | Sludge Digester No. 4 - Structure (-8.9 to -6.8mPD) Base Slab | 18 | 29-Aug-25 | 18-Sep-25 | 06-Sep-25 | 26-Sep-25 | 7 |
| Z3S8SD-2160 | Sludge Digester No. 4 - Structure (-6.8 to -3.8mPD) | 17 | 19-Sep-25 | 10-Oct-25 | 27-Sep-25 | 18-Oct-25 | 7 |
| Z3S8SD-2170 | Sludge Digester No. 4 - Structure (-3.8 to -0.8mPD) | 17 | 11-Oct-25 | 31-Oct-25 | 20-Oct-25 | 08-Nov-25 | 7 |
| Z3S8SD-2180 | Sludge Digester No. 4 - Structure (-0.8 to 2.2mPD) | 17 | 01-Nov-25 | 20-Nov-25 | 10-Nov-25 | 28-Nov-25 | 7 |
| Z3S8SD-2190 | Sludge Digester No. 4 - Structure (+2.2 to +5.2mPD) | 17 | 21-Nov-25 | 10-Dec-25 | 29-Nov-25 | 18-Dec-25 | 7 |
| **S8 : SD 4 Superstructure** | | 51 | 11-Dec-25 | 11-Feb-26 | 19-Dec-25 | 26-Feb-26 | 7 |
| Z3S8SD-2200 | Sludge Digester No. 4 - Structure (+5.2 to +8.2mPD) | 10 | 11-Dec-25 | 22-Dec-25 | 19-Dec-25 | 02-Jan-26 | 7 |
| Z3S8SD-2210 | Sludge Digester No. 4 - Structure (+8.2 to +11.2mPD) | 10 | 23-Dec-25 | 06-Jan-26 | 03-Jan-26 | 14-Jan-26 | 7 |
| Z3S8SD-2220 | Sludge Digester No. 4 - Structure (+11.2 to +14.2mPD) | 10 | 07-Jan-26 | 17-Jan-26 | 15-Jan-26 | 26-Jan-26 | 7 |
| Z3S8SD-2230 | Sludge Digester No. 4 - Structure (+14.2 to +16.83mPD) | 10 | 19-Jan-26 | 29-Jan-26 | 27-Jan-26 | 06-Feb-26 | 7 |
| Z3S8SD-2240 | Sludge Digester No. 4 - Structure (+16.83 to +18.3mPD) | 11 | 30-Jan-26 | 11-Feb-26 | 07-Feb-26 | 26-Feb-26 | 7 |
| **Stage 8 : E&M Works SDT No.3 & No.4** | | 115 | 12-Feb-26 | 10-Jul-26 | 27-Feb-26 | 18-Jul-26 | 7 |
| ATALZ3S8-2000 | SDT No.3&4 - Tank Internal Pipework and Jet Nozzle Installation | 115 | 12-Feb-26 | 10-Jul-26 | 27-Feb-26 | 18-Jul-26 | 7 |
| ATALZ3S8-2010 | SDT No.3&4 - Pumps and Heat Exchanger Installation | 115 | 12-Feb-26 | 10-Jul-26 | 27-Feb-26 | 18-Jul-26 | 7 |
| ATALZ3S8-2020 | SDT No.3&4 - Tank Associated Pipework | 115 | 12-Feb-26 | 10-Jul-26 | 27-Feb-26 | 18-Jul-26 | 7 |
| ATALZ3S8-2001 | SDT No.3&4 - E&M Handover | 0 | 12-Feb-26 | | 27-Feb-26 | | 7 |
| **Stage 8 : New Sludge Digester No. 5 and 6 (Continued)** | | 262 | 29-Aug-25 | 22-Jul-26 | 06-Dec-25 | 09-Oct-26 | 66 |
| **Stage 8 : SD 5,6 Foundation and ELS Works** | | 121 | 29-Aug-25 | 23-Jan-26 | 06-Dec-25 | 11-May-26 | 82 |
| Z3S8SD-1060 | Sludge Digester No. 5-6 - ELS Excavation (+6.0 to +4.6mPD) | 24 | 29-Aug-25 | 25-Sep-25 | 06-Dec-25 | 06-Jan-26 | 82 |
| Z3S8SD-1070 | Sludge Digester No. 5-6 - Strut Installation S1 (+4.6mPD) | 12 | 26-Sep-25 | 11-Oct-25 | 25-Feb-26 | 10-Mar-26 | 118 |
| Z3S8SD-1080 | Sludge Digester No. 5-6 - ELS Excavation (+4.6 to +1.1mPD) | 24 | 26-Sep-25 | 25-Oct-25 | 07-Jan-26 | 03-Feb-26 | 82 |
| Z3S8SD-1090 | Sludge Digester no. 5-6 - Marine Sediments Treatment and Disposal | 40 | 27-Oct-25 | 12-Dec-25 | 13-Feb-26 | 10-Apr-26 | 90 |
| Z3S8SD-1100 | Sludge Digester No. 5-6 - Strut Installation S2 (+1.1mPD) | 12 | 27-Oct-25 | 10-Nov-25 | 11-Mar-26 | 24-Mar-26 | 106 |
| Z3S8SD-1110 | Sludge Digester No. 5-6 - ELS Excavation (+1.1 to -2.4mPD) | 24 | 27-Oct-25 | 24-Nov-25 | 04-Feb-26 | 10-Mar-26 | 82 |
| Z3S8SD-1120 | Sludge Digester No. 5-6 - Strut Installation S3 (-2.4mPD) | 12 | 25-Nov-25 | 08-Dec-25 | 25-Mar-26 | 10-Apr-26 | 94 |
| Z3S8SD-1130 | Sludge Digester No. 5-6 - ELS Excavation (-2.4 to -5.9mPD) | 24 | 25-Nov-25 | 22-Dec-25 | 11-Mar-26 | 10-Apr-26 | 82 |
| Z3S8SD-1140 | Sludge Digester No. 5-6 - Strut Installation S4 (-5.9mPD) | 12 | 23-Dec-25 | 08-Jan-26 | 11-Apr-26 | 24-Apr-26 | 82 |
| Z3S8SD-1150 | Sludge Digester No. 5-6 - ELS Excavation (-5.9to -8.9mPD) | 25 | 23-Dec-25 | 23-Jan-26 | 11-Apr-26 | 11-May-26 | 82 |
| **Stage 8 : SD 5,6 Civil and Structural Works** | | 125 | 12-Feb-26 | 22-Jul-26 | 12-May-26 | 09-Oct-26 | 66 |
| **S8 : SD 5,6 Substructure** | | 125 | 12-Feb-26 | 22-Jul-26 | 12-May-26 | 09-Oct-26 | 66 |
| Z3S8SD-1170 | Sludge Digester No. 5-6 - Structure (-8.9 to -6.8mPD) Base Slab | 25 | 12-Feb-26 | 19-Mar-26 | 12-May-26 | 10-Jun-26 | 66 |
| Z3S8SD-1180 | Sludge Digester No. 5-6 - Structure (-6.8 to -3.8mPD) | 25 | 20-Mar-26 | 21-Apr-26 | 11-Jun-26 | 11-Jul-26 | 66 |
| Z3S8SD-1190 | Sludge Digester No. 5-6 - Structure (-3.8 to -0.8mPD) | 25 | 22-Apr-26 | 21-May-26 | 13-Jul-26 | 10-Aug-26 | 66 |
| Z3S8SD-1200 | Sludge Digester No. 5-6 - Structure (-0.8 to 2.2mPD) | 25 | 22-May-26 | 22-Jun-26 | 11-Aug-26 | 08-Sep-26 | 66 |
| Z3S8SD-1210 | Sludge Digester No. 5-6 - Structure (+2.2 to +4.0mPD) | 25 | 23-Jun-26 | 22-Jul-26 | 09-Sep-26 | 09-Oct-26 | 66 |
| **Stage 8 : H2S System (Continued)** | | 253 | 07-Jan-25 | 17-Nov-25 | 28-Nov-25 | 09-Oct-26 | 262 |
| H2S-170 | H2S Removal System - Structure Phase 2 | 91 | 07-Jan-25 | 06-May-25 | 28-Nov-25 | 24-Mar-26 | 262 |
| H2S-150 | H2S Removal System - E&M Installation c/w above ground pipeworks | 110 | 06-May-25 | 13-Sep-25 | 25-Mar-26 | 07-Aug-26 | 262 |
| H2S-155 | H2S Removal System - Loading of Ferric Oxide | 110 | 06-May-25 | 13-Sep-25 | 25-Mar-26 | 07-Aug-26 | 262 |
| H2S-149 | H2S Removal System - E&M Handover | 0 | 06-May-25 | | 25-Mar-26 | | 262 |
| H2S-160 | H2S Removal Sytem and Other E&M T&C | 52 | 13-Sep-25 | 17-Nov-25 | 08-Aug-26 | 09-Oct-26 | 262 |
| **Stage 8 : Biogas Holders No. 2,3 and 4** | | 383 | 19-Oct-24 | 04-Feb-26 | 21-Oct-24 | 04-Feb-26 | 0 |
| Z3BH-1020 | Biogas Holder No. 2-4 - Ground Improvement Including Surcharge | 160 | 19-Oct-24 | 10-May-25 | 21-Oct-24 | 10-May-25 | 0 |
| Z3BH-1030 | Biogas Holder No. 2-4 - 800 Thick Base Slab Including Pipeworks | 39 | 10-May-25 | 26-Jun-25 | 12-May-25 | 26-Jun-25 | 0 |
| **Stage 8 : E&M Installation Works BH 2,3,4** | | 184 | 26-Jun-25 | 04-Feb-26 | 27-Jun-25 | 04-Feb-26 | 0 |
| ATALZ3BH-2260 | BH No. 2-4 - Installation of Biogas Holder No.2-4 | 184 | 26-Jun-25 | 04-Feb-26 | 27-Jun-25 | 04-Feb-26 | 0 |
| ATALZ3BH-2259 | BH No. 2-4 - E&M Handover | 0 | 26-Jun-25 | | 27-Jun-25 | | 0 |
| **Stage 8 : Remaining Works** | | 30 | 21-May-25 | 26-Jun-25 | 22-May-25 | 26-Jun-25 | 0 |
| ATALZ3BH-2210 | Remaining Pipe Connection to Pipe Portal 1 to 3 (Permanent Pipe Routing) | 30 | 21-May-25 | 26-Jun-25 | 22-May-25 | 26-Jun-25 | 0 |
| **Stage 9** | | 237 | 04-Feb-26 | 08-Nov-26 | 05-Feb-26 | 08-Nov-26 | 0 |
| Z3S9-3380 | Completion of Stage 9 (all zone 3 works complete) | 0 | | 08-Nov-26* | | 08-Nov-26 | 0 |
| **Stage 9 : New Sludge Digester No. 4 (Continued)** | | 69 | 11-Jul-26 | 30-Sep-26 | 20-Jul-26 | 09-Oct-26 | 7 |
| **Stage 9 : E&M Works SDT No. 3 & No. 4** | | 69 | 11-Jul-26 | 30-Sep-26 | 20-Jul-26 | 09-Oct-26 | 7 |
| ATALZ3S8-2030 | SDT No.3&4 - Instrumentation | 34 | 11-Jul-26 | 19-Aug-26 | 20-Jul-26 | 27-Aug-26 | 7 |



| Activity ID | Activity Name | Orig Dur | Early Start | Early Finish | Late Start | Late Finish | Total Float |
|---|---|---|---|---|---|---|---|
| ATALZ3S8-2040 | SDT No.3&4 - Electrical works (Cable wiring, termination, lightning arrestor) | 34 | 11-Jul-26 | 19-Aug-26 | 20-Jul-26 | 27-Aug-26 | 7 |
| ATALZ3S8-2050 | SDT No.3&4 - T&C | 35 | 20-Aug-26 | 30-Sep-26 | 28-Aug-26 | 09-Oct-26 | 7 |
| **Stage 9 : Biogas Holders No. 2,3 and 4 (Continued)** | | 237 | 04-Feb-26 | 07-Nov-26 | 05-Feb-26 | 07-Nov-26 | 0 |
| **Stage 9 : E&M Installation Works BH 2,3,4** | | 145 | 04-Feb-26 | 07-Aug-26 | 05-Feb-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2000 | BH No. 2-4 - Installation of Biogas Holder No.2-4 | 126 | 04-Feb-26 | 16-Jul-26 | 05-Feb-26 | 16-Jul-26 | 0 |
| ATALZ3BH-2010 | BH No.2-4 - Installation of pipework and instrumentation in Biogas Holder Valve Chamber No.2-4 | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2020 | BH No.2-4 - Instrumentation | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2030 | BH No.2-4 - Electrical works (Cable wiring, termination, lightning arrestor) | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| **Stage 9 : E&M Installation Works for Biogas Holders No. 1-4** | | 178 | 14-Apr-26 | 07-Nov-26 | 15-Apr-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2040 | BH No.1-4 - Installation of Underground Biogas Pipework | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2050 | BH No.1-4 - Installation of Biogas Booster Pump No.3 & 4 and Transfer Pump | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2060 | BH No.1-4 -Installation of Waste Gas Burner | 95 | 14-Apr-26 | 07-Aug-26 | 15-Apr-26 | 07-Aug-26 | 0 |
| ATALZ3BH-2170 | Section 3 Completion | 0 | | 07-Nov-26* | | 07-Nov-26 | 0 |
| **Stage 9 : Testing and Commissioning (T&C)** | | 52 | 07-Aug-26 | 09-Oct-26 | 08-Aug-26 | 09-Oct-26 | 0 |
| **S9 : BH No.1** | | 52 | 07-Aug-26 | 09-Oct-26 | 08-Aug-26 | 09-Oct-26 | 0 |
| ATALZ3BH-2070 | BH No. 1 - T&C - E&M SAT of Biogas Holder No.1 (using Air to test membrane only) | 15 | 07-Aug-26 | 25-Aug-26 | 08-Aug-26 | 25-Aug-26 | 0 |
| ATALZ3BH-2090 | BH No. 1 - T&C - E&M SAT of whole Biogas Holder No.1 and associated valve and pipework (N2 Purging) | 20 | 07-Aug-26 | 31-Aug-26 | 08-Aug-26 | 31-Aug-26 | 0 |
| ATALZ3BH-2100 | BH No. 1 - T&C - E&M SAT of Biogas Booster Pump No.1 & 2 | 20 | 07-Aug-26 | 31-Aug-26 | 08-Aug-26 | 31-Aug-26 | 0 |
| ATALZ3BH-2160 | BH No. 1 - System Commissioning | 32 | 31-Aug-26 | 09-Oct-26 | 01-Sep-26 | 09-Oct-26 | 0 |
| **S9 : BH No.2, 3 & 4** | | 18 | 07-Aug-26 | 28-Aug-26 | 08-Aug-26 | 09-Oct-26 | 34 |
| ATALZ3BH-2080 | BH No.2-4 - T&C - E&M SAT of Biogas Holder No.2-4 (using Air to test membrane only) | 14 | 07-Aug-26 | 24-Aug-26 | 08-Aug-26 | 24-Aug-26 | 0 |
| ATALZ3BH-2110 | BH No.2-4 - T&C - E&M SAT of whole Biogas Holder No.2-4 and associated valve and pipework (N2 Purging) | 18 | 07-Aug-26 | 28-Aug-26 | 17-Sep-26 | 09-Oct-26 | 34 |
| **S9 : BH No.1, 2, 3 & 4** | | 52 | 07-Aug-26 | 09-Oct-26 | 08-Aug-26 | 09-Oct-26 | 0 |
| ATALZ3BH-2120 | BH No.1-4 - T&C - E&M SAT of Biogas Booster Pump No.3 & 4 and Transfer Pump | 15 | 07-Aug-26 | 25-Aug-26 | 08-Aug-26 | 25-Aug-26 | 0 |
| ATALZ3BH-2130 | BH No.1-4 - T&C - E&M SAT of Waste Gas Burner | 15 | 07-Aug-26 | 25-Aug-26 | 08-Aug-26 | 25-Aug-26 | 0 |
| ATALZ3BH-2150 | BH No.1-4 - System Commissioning | 37 | 25-Aug-26 | 09-Oct-26 | 26-Aug-26 | 09-Oct-26 | 0 |
| **Stage 9 : Remaining Works** | | 25 | 09-Oct-26 | 07-Nov-26 | 10-Oct-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2200 | Demolish Gas Holder (GH1), Methane Compressor House and Water Heater House | 24 | 09-Oct-26 | 07-Nov-26 | 10-Oct-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2220 | Demolish Consolidation Tanks C3-C6 | 24 | 09-Oct-26 | 07-Nov-26 | 10-Oct-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2230 | Demolish Temp. Consolidation Tank System & Polymer Dosing System | 24 | 09-Oct-26 | 07-Nov-26 | 10-Oct-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2240 | Demolish Temp. Sludge Holding Tank (SHT) | 24 | 09-Oct-26 | 07-Nov-26 | 10-Oct-26 | 07-Nov-26 | 0 |
| ATALZ3BH-2250 | Section 3 Completion | 0 | | 07-Nov-26* | | 07-Nov-26 | 0 |
| **External Works - Sludge Thickening Building Perimeter** | | 216 | 04-Feb-26 | 02-Nov-26 | 01-Apr-26 | 07-Nov-26 | 5 |
| EW-1020 | STB Perimeter - Drainage/Sewer/Watermain/Utility Installation | 150 | 04-Feb-26 | 13-Aug-26 | 01-Apr-26 | 02-Oct-26 | 41 |
| EW-1040 | STB Perimeter - Process Pipe Installation | 120 | 04-Feb-26 | 09-Jul-26 | 01-Apr-26 | 26-Aug-26 | 41 |
| EW-1060 | STB Perimeter - Road Works | 90 | 16-Jul-26 | 02-Nov-26 | 23-Jul-26 | 07-Nov-26 | 5 |
| **Plant Commissioning** | | 126 | 15-Jun-26 | 08-Nov-26 | 24-Jun-26 | 08-Nov-26 | 0 |
| PC-110 | Submit Plant Commissioning Plan | 90 | 15-Jun-26 | 30-Sep-26 | 24-Jun-26 | 09-Oct-26 | 7 |
| PC-100 | Complete SD E&M Works | 0 | | 30-Sep-26 | | 09-Oct-26 | 7 |
| PC-120 | Plant Commissioning | 30 | 09-Oct-26 | 08-Nov-26 | 10-Oct-26 | 08-Nov-26 | 0 |




保華-中國中鐵聯營體
PAUL Y.-CREC JOINT VENTURE

- Remaining Level of Effort
- DWP Rev.4
- Actual Work
- Remaining Work
- Critical Remaining Work

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

Project ID : DWP.DPr5_210831
Layout : DC201910 DWP rev.5

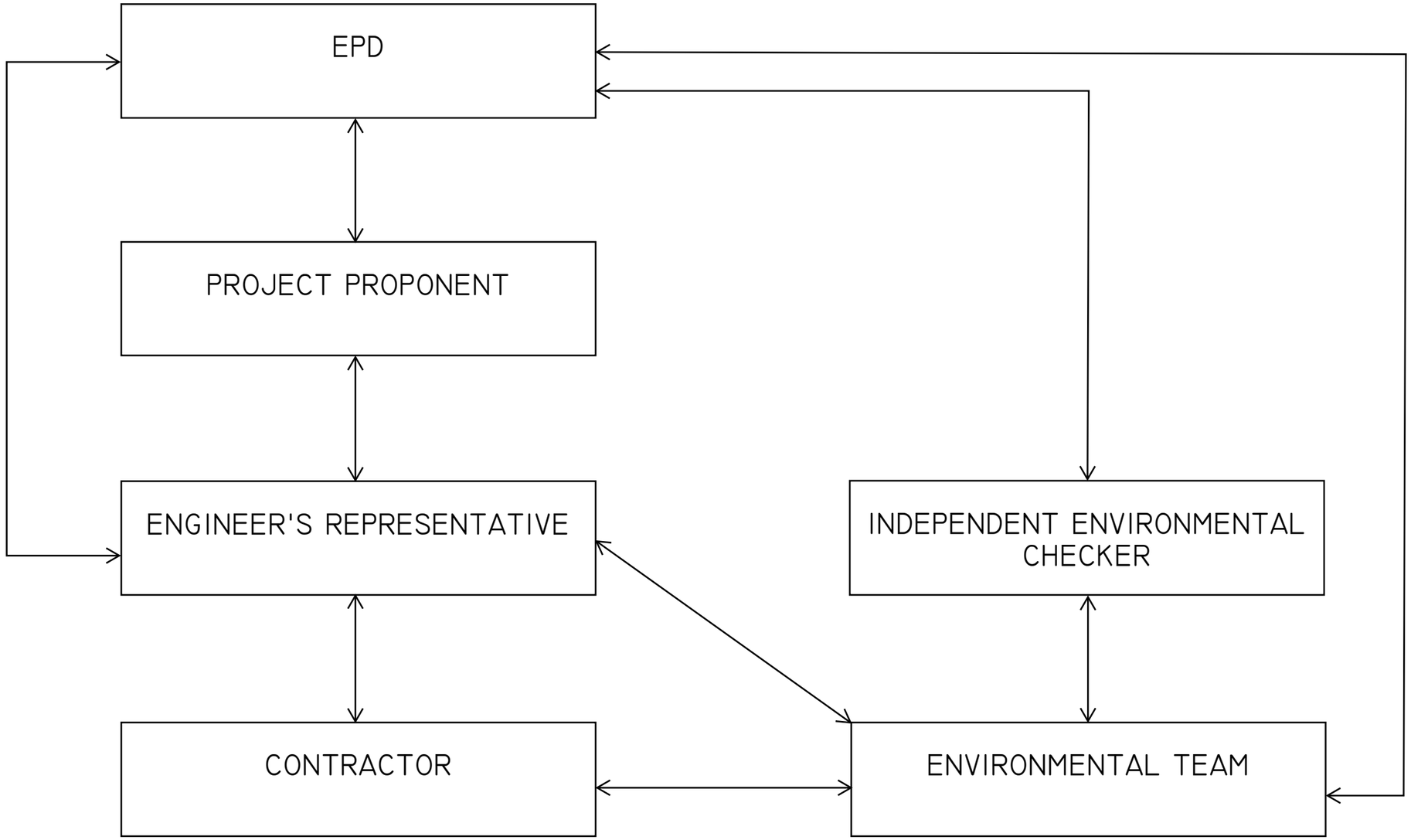

| Detailed Works Programme | | | |
|---|---|---|---|
| Date | Revision | Checked | Approved |
| 31-Aug-21 | Rev. 5 | | |
| 31-Jul-21 | Rev. 4 | | |
| 30-Jun-21 | Rev. 3 | | |

# 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 Level

## Action / Limit Levels for Air Quality

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

Notes:

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

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

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

## 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<br>5%-ile of baseline data for surface and middle layer.<br><br>Bottom<br>5%-ile of baseline data for bottom layer. | Surface & Middle<br>4 mg/L or 1%-ile of baseline data for surface and middle layer.<br><br>Bottom<br>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<br>after 18:00 during wet season | 65.5 dB(A)[1] | 72.2 dB(A)[2] |

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

Ecological Monitoring of Birds

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

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

# Appendix D

Calibration Certificate of Monitoring Equipment

# Air Quality Monitoring Equipment

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no. : 940891CA202730(1)



# CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

**Client Supplied Information**

Details of Unit Under Test, UUT

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

**Laboratory Information**

Description : 1. Balance 2. TSP high volume air sampler

Equipment ID. / Serial no. : 1. C-065-9 2. 4350

Date of Calibration : 23-Nov-2020 Ambient Temperature : 25 ± 10 °C

Calibration Location : General Chemical Laboratory of FTS and Ma Wan A1 Site Boundary

Method Used : By direct comparison the weight of dust particle trapped in a filter paper using high volume sampler (TSP method) for a certain period, with the reading of the UUT. They should be placed at the same location and powered on and off at the same time.

**Calibration Results :**

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

**Remarks:**

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

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

Leung Kwok Tai (Assistant Manager)

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

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no. : 940891CA202730(6)



# CALIBRATION CERTIFICATE OF DUST METER

Client : Fugro Technical Services Limited

Project : Calibration Services

**Client Supplied Information**

Details of Unit Under Test, UUT

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

**Laboratory Information**

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

**Calibration Results :**

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

**Remarks:**

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

Checked by : Cammy Date : 15-12-2020 Certified by : C T Leung Date : 15-12-2020

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

Leung Kwok Tai (Assistant Manager)

** End of Report **

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : MaWTF, Ma Wan
Location ID: A1 Site Boundary

Date of Calibration: 23-Oct-20
Next Calibration Date: 22-Jan-21
Technician: Felix

### CONDITIONS

| | | | |
|---|---|---|---|
| Sea Level Pressure (hPa): | 1011.40 | Corrected Pressure (mm Hg): | 759 |
| Temperature (℃): | 24 | Temperature (K): | 297 |

### CALIBRATION ORIFICE

| | | | |
|---|---|---|---|
| Make: | Tisch | Qstd Slope: | 2.11508 |
| Model: | TE-5025A | Qstd Intercept: | -0.02962 |
| Calibration Date: | 11/9/2020 | Expiry Date: | 11/9/2021 |

### CALIBRATIONS

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd ($m^3$/min) | I (chart) | IC (corrected) | LINEAR REGRESSION | |
|---|---|---|---|---|---|---|---|---|
| 18 | 5.40 | -6.00 | 11.400 | 1.613 | 61.00 | 61.10 | Slope = | 32.5454 |
| 13 | 4.30 | -4.70 | 9.000 | 1.435 | 54.00 | 54.09 | Intercept = | 8.0074 |
| 10 | 3.30 | -3.70 | 7.000 | 1.267 | 49.00 | 49.08 | Corr. coeff.: | 0.9991 |
| 7 | 2.00 | -2.50 | 4.500 | 1.019 | 41.00 | 41.07 | | |
| 5 | 1.10 | -1.60 | 2.700 | 0.792 | 34.00 | 34.05 | | |

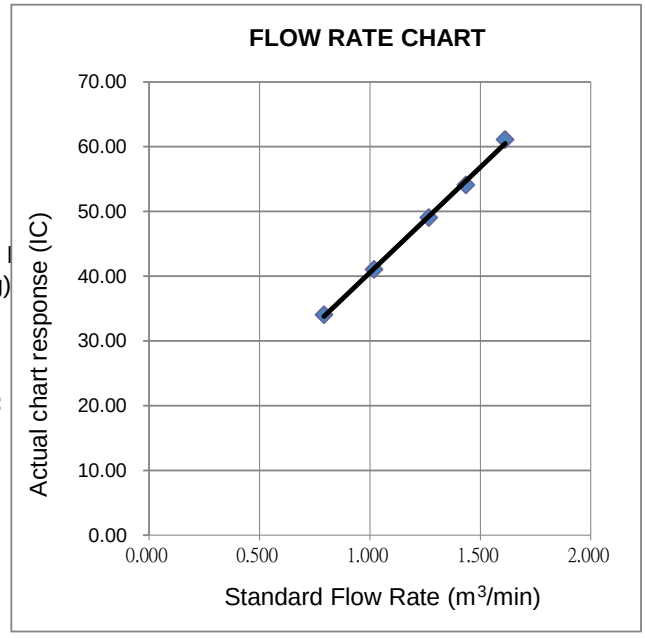
**Calculations:**

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

**For subsequent calculation of sampler flow:**
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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



**FUGRO TECHNICAL SERVICES LIMITED**
Room 723 & 725, 7/F, Block B,
Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.

# CALIBRATION REPORT OF WIND METER

**Project: Contract No. SPW 07/2020** | **Date of Calibration: 28-Mar-2021**
**Location: Yuen Long Sewage Treatment Works** | **Next Calibration Date: 27-Sep-2021**
**Technician: Sam Fong**

**Brand: Global Water**
**Model: GL500-7-2** **Serial No: 2012000974**

**Anemometer**

**Brand: Benetech**
**Model: GM816** **Equipment ID: 08**

**Procedures:**

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

**Wind Still Test:**

| Wind Speed (m/s) |
|---|
| 0.00 |

**Wind Speed Test:**

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

**Wind Direction Test:**

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

**Report Date: 1/4/2021**

**Wan Ka Ho**
Project Consultant

**FUGRO TECHNICAL SERVICES LIMITED**

13/F, Fugro House - KCC2,
1 Kwai On Rd, Kwai Chung,
NT, Hong Kong.

# CALIBRATION REPORT OF WIND METER

**Project: Contract No. SPW 07/2020** — **Date of Calibration: 27-Sep-2021**
**Location: Yuen Long Sewage Treatment Works** — **Next Calibration Date: 26-Mar-2022**
**Technician: Sam Fong**

**Brand: Global Water**
**Model: GL500-7-2** **Serial No: 2012000974**

**Anemometer**

**Brand: Benetech**
**Model: GM816** **Equipment ID: 08**

**Procedures:**

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

**Wind Still Test:**

| Wind Speed (m/s) |
|---|
| 0.00 |

**Wind Speed Test:**

| Global Water (m/s) | Anemometer (m/s) |
|---|---|
| 1.7 | 1.5 |
| 2.5 | 2.4 |
| 1.4 | 1.6 |

**Wind Direction Test:**

| | Marine Compass (o) |
|---|---|
| 137 | 135 |
| 98 | 96 |
| 205 | 204 |
| 314 | 316 |

**Report Date: 29/9/2021**

**Wan Ka Ho**
Project Consultant

# Noise Monitoring Equipment

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 203258CA211142



# CALIBRATION CERTIFICATE OF SOUND LEVEL METER

**Client Supplied Information**

Client : Fugro Technical Services Ltd.
Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter
Manufacturer : Casella

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

Equipment ID : N-45
Next Calibration Date : 27-May-2022
Specification Limit : EN 61672-1: 2003 Class 1

**Laboratory Information**

Details of Reference Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID. : R-108-1

Date of Calibration : 28-May-2021
Calibration Location : Calibration Laboratory of FTS
Method Used : By direct comparison
Ambient Temperature : 20±2 °C
Relative Humidity : <80% R.H.

**Calibration Results :**

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

**Remarks :**

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
5 The values given in this Calibration Certificate only relate to unit under test and the values measured at the time of the test. Any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 1-6-2021 Certified by : K T Leung Date : 1.6.2021

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

Leung Kwok Tai (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 203258CA202302(2)



# CALIBRATION CERTIFICATE OF SOUND LEVEL METER

**Client Supplied Information**

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

| | Meter | Microphone | Preamplifier |
|---|---|---|---|
| Model No. : | CEL-63X | CE-251 | CEL-495 |
| Serial No. : | 1488304 | 03876 | 002752 |

Equipment ID : N-62

Next Calibration Date : 29-Oct-2021

Specification Limit : EN 61672-1: 2003 Class 1

**Laboratory Information**

Details of Reference Equipment -

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

Equipment ID. : R-108-1

Date of Calibration : 30-Oct-2020

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Ambient Temperature : 20±2 °C

Relative Humidity : <80% R.H.

**Calibration Results :**

| Parameters | | Mean Value (dB) | Specification Limit(dB) |
|---|---|---|---|
| A-weigthing frequency response | 4000Hz | 1.5 | 2.6 to -0.6 |
| | 2000Hz | 1.3 | 2.8 to -0.4 |
| | 1000Hz | -0.1 | 1.1 to -1.1 |
| | 500Hz | -3.5 | -1.8 to -4.6 |
| | 250Hz | -8.9 | -7.2 to -10.0 |
| | 125Hz | -16.4 | -14.6 to -17.6 |
| | 63Hz | -26.4 | -24.7 to -27.7 |
| | 31.5Hz | -39.4 | -37.4 to -41.4 |
| Differential level linearity | 94dB-104dB | 0.0 | ± 0.6 |
| | 104dB-114dB | 0.0 | ± 0.6 |

**Remarks :**

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast.
4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
5. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : William Date : 4-11-2020 Certified by : K.T. Leung Date : 4-11-2020

Leung Kwok Tai (Assistant Manager)

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

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 203258CA210891



# CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

**Client Supplied Information**

Details of Unit Under Test, UUT

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

Next Calibration Date : 10-May-2022

Specification Limit : EN 60942: 2003 Class 1

**Laboratory Information**

Details of Calibration Equipment

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

Date of Calibration : 11-May-2021

Calibration Location : Calibration Laboratory of FTS

Ambient Temperature : 20±2 °C

Method Used : By direct comparison

Relative Humidity : <80% R.H.

**Calibration Results :**

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

**Remarks :**

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

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

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

Leung Kwok Tai (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 212769CA212069(3)



# CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

**Client Supplied Information**

Details of Unit Under Test, UUT

| | | |
|---|---|---|
| Description | : | Sound Calibrator |
| Manufacturer | : | Casella (Model CEL-120/1) |
| Serial No. | : | 2383707 |
| Equipment ID | : | N/A |
| Next Calibration Date | : | 25-Aug-2022 |
| Specification Limit | : | EN 60942: 2003 Class 1 |

**Laboratory Information**

Details of Calibration Equipment

| | | |
|---|---|---|
| Description | : | Reference Sound level meter |
| Equipment ID. | : | R-119-2 |
| Date of Calibration | : | 26-Aug-2021 |
| Calibration Location | : | Calibration Laboratory of FTS |
| Method Used | : | By direct comparison |

Ambient Temperature : 20±2 °C

Relative Humidity : <80% R.H.

**Calibration Results :**

| Parameters (Setting of UUT) | Mean Value (error of measurement) | Specification Limit(dB) |
|---|---|---|
| 94dB | -0.4 dB | ±0.4dB |
| 114dB | -0.3 dB | |

**Remarks :**

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

Checked by : Date : 27-8-2021 Certified by : Date : 27-8-2021

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

Leung Kwok Tai (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 212769CA211145



# CALIBRATION CERTIFICATE OF ANEMOMETER

**Client Supplied Information**

Client : Fugro Technical Services Limited

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : SENSOR

Model No. : AR816

Serial No. : 2136513

Equipment ID. : NA

Next Calibration Date : 30-May-2022

**Laboratory Information**

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

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

Calibration Location : Calibration Laboratory of FTS

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

**Calibration Results :**

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

**Remark :**

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

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

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

Leung Kwok Tai (Assistant Manager)

** End of Report **

Water Quality Monitoring Equipment

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145(1)



## Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter

**Information Supplied by Client**

| | | |
|---|---|---|
| Client | : | Fugro Technical Services Limited (MCL) |
| Client's address | : | Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15, Kwai Fung Crescent, Kwai Chung, N.T. |
| Sample description | : | One YSI EXO-3 Multi-parameter Water Quality Meter |
| Client sample ID | : | Serial No. 19A105808 |
| Test required | : | Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter |

**Laboratory Information**

| | | |
|---|---|---|
| Lab. sample ID | : | WA211145/2 |
| Date sample received | : | 08/06/2021 |
| Date of calibration | : | 21/06/2021 |
| Next calibration date | : | 20/09/2021 |
| Test method used | : | In-house comparison method |

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

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145(1)



**Results :**

**A. pH calibration**

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

**B. Salinity calibration**

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

**C. Dissolved Oxygen calibration**

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

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

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

Date : 08-07-2021

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

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145(1)



**Results :**

**D. Temperature calibration**

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

**E. Turbidity calibration**

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

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

Date : 08.07.2021

** End of Report **

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

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145



## Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter

**Information Supplied by Client**

| | | |
|---|---|---|
| Client | : | Fugro Technical Services Limited (MCL) |
| Client's address | : | Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15, Kwai Fung Crescent, Kwai Chung, N.T. |
| Sample description | : | One YSI EXO-3 Multi-parameter Water Quality Meter |
| Client sample ID | : | Serial No. 19A105807 |
| Test required | : | Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter |

**Laboratory Information**

| | | |
|---|---|---|
| Lab. sample ID | : | WA211145/1 |
| Date sample received | : | 08/06/2021 |
| Date of calibration | : | 21/06/2021 |
| Next calibration date | : | 20/09/2021 |
| Test method used | : | In-house comparison method |

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

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145



**Results :**

**A. pH calibration**

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

**B. Salinity calibration**

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

**C. Dissolved Oxygen calibration**

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

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

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

Date : 08.07.2021

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

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211145



**Results :**

**D. Temperature calibration**

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

**E. Turbidity calibration**

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

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

Date : 08.07.2021

** End of Report **

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884



## Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter

**Information Supplied by Client**

| | | |
|---|---|---|
| Client | : | Fugro Technical Services Limited (MCL) |
| Client's address | : | Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15, Kwai Fung Crescent, Kwai Chung, N.T. |
| Sample description | : | One YSI EXO-3 Multi-parameter Water Quality Meter |
| Client sample ID | : | Serial No. 19E100633 |
| Test required | : | Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter |

**Laboratory Information**

| | | |
|---|---|---|
| Lab. sample ID | : | WA211884/1 |
| Date sample received | : | 14/09/2021 |
| Date of calibration | : | 16/09/2021 |
| Next calibration date | : | 15/12/2021 |
| Test method used | : | In-house comparison method |

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884



**Results :**

**A. pH calibration**

| pH reading at 25°C for Q.C. solution(6.86) and at 25°C for Q.C. solution(9.18) | | |
|---|---|---|
| Theoretical | Measured | Deviation |
| 9.18 | 9.19 | +0.01 |
| 6.86 | 6.82 | -0.04 |

**B. Salinity calibration**

| Salinity, ppt | | | |
|---|---|---|---|
| Theoretical | Measured | Deviation | Maximum acceptable Deviation |
| 1 | 1.00 | 0.00 | ± 0.1 |
| 10 | 9.95 | -0.05 | ± 0.5 |
| 20 | 19.87 | -0.13 | ± 1.0 |
| 30 | 29.91 | -0.09 | ± 1.5 |
| 40 | 39.70 | -0.30 | ± 2.0 |

**C. Dissolved Oxygen calibration**

| Trial No. | Dissolved oxygen content, mg/L | |
|---|---|---|
| | By Titration | By D.O. meter |
| 1 | 7.47 | 7.64 |
| 2 | 7.85 | 7.72 |
| 3 | 7.57 | 7.76 |
| Average | 7.63 | 7.71 |

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

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

Date : 6/10/2021

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884



**Results :**

**D. Temperature calibration**

| Thermometer reading, °C | Meter reading, °C |
|---|---|
| 24.40 | 24.31 |

**E. Turbidity calibration**

| Turbidity, N.T.U. | | | |
|---|---|---|---|
| Theoretical | Measured | Deviation | Maximum acceptable Deviation |
| 4 | 4.20 | +0.20 | ± 0.6 |
| 8 | 8.08 | +0.08 | ± 0.8 |
| 40 | 38.54 | -1.46 | ± 3.0 |
| 80 | 80.26 | +0.26 | ± 4.0 |

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

Date : 6/10/2021

** End of Report **

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884(1)



## Report on Calibration of YSI EXO-3 Multi-parameter Water Quality Meter

**Information Supplied by Client**

| | | |
|---|---|---|
| Client | : | Fugro Technical Services Limited (MCL) |
| Client's address | : | Rm. 723-726, 7/F, Profit Industrial Building, No. 1-15, Kwai Fung Crescent, Kwai Chung, N.T. |
| Sample description | : | One YSI EXO-3 Multi-parameter Water Quality Meter |
| Client sample ID | : | Serial No. 19E100634 |
| Test required | : | Calibration of the YSI EXO-3 Multi-parameter Water Quality Meter |

**Laboratory Information**

| | | |
|---|---|---|
| Lab. sample ID | : | WA211884/2 |
| Date sample received | : | 14/09/2021 |
| Date of calibration | : | 16/09/2021 |
| Next calibration date | : | 15/12/2021 |
| Test method used | : | In-house comparison method |

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884(1)



**Results :**

**A. pH calibration**

| pH reading at 25°C for Q.C. solution(6.86) and at 25°C for Q.C. solution(9.18) | | |
|---|---|---|
| Theoretical | Measured | Deviation |
| 9.18 | 9.15 | -0.03 |
| 6.86 | 6.81 | -0.05 |

**B. Salinity calibration**

| Salinity, ppt | | | |
|---|---|---|---|
| Theoretical | Measured | Deviation | Maximum acceptable Deviation |
| 1 | 1.00 | 0.00 | ± 0.1 |
| 10 | 9.96 | -0.04 | ± 0.5 |
| 20 | 19.91 | -0.09 | ± 1.0 |
| 30 | 29.97 | -0.03 | ± 1.5 |
| 40 | 39.76 | -0.24 | ± 2.0 |

**C. Dissolved Oxygen calibration**

| Trial No. | Dissolved oxygen content, mg/L | |
|---|---|---|
| | By Titration | By D.O. meter |
| 1 | 7.50 | 7.64 |
| 2 | 7.65 | 7.64 |
| 3 | 7.57 | 7.61 |
| Average | 7.57 | 7.63 |

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

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

Date : 6/10/2021

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

**FUGRO TECHNICAL SERVICES LIMITED**
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 142626WA211884(1)



**Results :**

**D. Temperature calibration**

| Thermometer reading, °C | Meter reading, °C |
|---|---|
| 23.30 | 23.31 |

**E. Turbidity calibration**

| Turbidity, N.T.U. | | | |
|---|---|---|---|
| Theoretical | Measured | Deviation | Maximum acceptable Deviation |
| 4 | 4.26 | +0.26 | ± 0.6 |
| 8 | 7.61 | -0.39 | ± 0.8 |
| 40 | 39.98 | -0.02 | ± 3.0 |
| 80 | 79.85 | -0.15 | ± 4.0 |

**F. Chlorophyll calibration**

| Chlorophyll reading at 22.4°C for Std. solution (62.5ug/L) | | |
|---|---|---|
| Theoretical (ug/L) (Temp.-compensated) | Measured | Deviation |
| 66.0 | 66.1 | +0.1 |

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

Date : 6/10/2021

** End of Report **

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

# CALIBRATION CERTIFICATE

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

| | |
|---|---|
| **Calibration Certificate Number:** | **61134** |
| Instrument Type: | MODEL 106 |
| Instrument Serial Number: | 67738 |
| Calibrated By: | N.PADDON |
| Date: | 11TH NOVEMBER 2019 |
| Signed: | |

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

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

+44 (0) 1803 869292
sales@valeport.co.uk
**www.valeport.co.uk**

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

ISO 9001 ISO 14001 OHSAS 18001

SonTek
a xylem brand

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

# Certificate of Calibration

**TEST REPORT**

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

**POWER TEST**

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

**NOISE TEST**

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

## VERIFICATION

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

## OPTIONS

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

Verified by: **ainthasane**

This report was generated on 5/24/2017.

# Appendix E

Environmental Monitoring Schedule

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

## Impact Monitoring Schedule (September 2021)

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

**Remarks**

1. Air Quality Monitoring (**AQM**): 3 x 1-hour TSP Monitoring per 6 days.
2. Noise Monitoring (**NM**): $L_{eq}$ (30 min) during between 0700 - 1900.
3. Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
4. Ecological Monitoring of Birds (**EMB**): Once per month.
5. Ardeid Night Roost Monitoring (**ANRM**): Once per month.
6. Air Quality Location: AM1 and AM2
7. Noise Monitoring Location: CM1, CM2 and CM3
8. Water Quality Monitoring Location: M1, M2, M3

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

## Impact Monitoring Schedule (October 2021)

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

**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**): $L_{eq}$ (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 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1**

## Impact Monitoring Schedule (November 2021)

| Sun | Mon | Tue | Wed | Thur | Fri | Sat |
|---|---|---|---|---|---|---|
| | 1 | 2<br>**WQM**<br>Mid Flood(5:22)<br>Mid Ebb(11:40) | 3<br>**AQM, NM** | 4<br>**WQM**<br>Mid Flood(7:05)<br>Mid Ebb(13:10) | 5 | 6<br>**WQM**<br>Mid Flood(8:58)<br>Mid Ebb(14:42) |
| 7 | 8 | 9<br>**AQM, NM**<br>**WQM**<br>Mid Flood(12:00)<br>Mid Ebb(16:58) | 10 | 11<br>**WQM**<br>Mid Flood(18:40)<br>Mid Ebb(6:01) | 12 | 13<br>**WQM**<br>Mid Flood(16:38)<br>Mid Ebb(8:40) |
| 14 | 15<br>**AQM, NM** | 16<br>**WQM**<br>Mid Flood(5:38)<br>Mid Ebb(11:43) | 17 | 18<br>**WQM**<br>Mid Flood(7:13)<br>Mid Ebb(12:58) | 19 | 20<br>**AQM**<br>**WQM**<br>Mid Flood(8:46)<br>Mid Ebb(14:05) |
| 21 | 22 | 23<br>**WQM**<br>Mid Flood(10:59)<br>Mid Ebb(15:46) | 24 | 25<br>**WQM**<br>Mid Flood(12:35)<br>Mid Ebb(17:07) | 26<br>**AQM, NM** | 27<br>**WQM**<br>Mid Flood(14:39)<br>Mid Ebb(6:13) |
| 28 | 29 | 30<br>**WQM**<br>Mid Flood(16:42)<br>Mid Ebb(10:02) | | | | |

**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**): $L_{eq}$ (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 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1**

## Impact Monitoring Schedule (December 2021)

| Sun | Mon | Tue | Wed | Thur | Fri | Sat |
|---|---|---|---|---|---|---|
| | | | 1 | 2<br>**AQM, NM**<br>**WQM**<br>Mid Flood(6:05)<br>Mid Ebb(11:59) | 3 | 4<br>**WQM**<br>Mid Flood(8:14)<br>Mid Ebb(13:46) |
| 5 | 6 | 7<br>**WQM**<br>Mid Flood(11:01)<br>Mid Ebb(15:52) | 8<br>**AQM, NM** | 9<br>**WQM**<br>Mid Flood(12:53)<br>Mid Ebb(4:58) | 10 | 11<br>**WQM**<br>Mid Flood(14:56)<br>Mid Ebb(6:44) |
| 12 | 13 | 14<br>**AQM, NM**<br>**WQM**<br>Mid Flood(16:52)<br>Mid Ebb(10:19) | 15 | 16<br>**WQM**<br>Mid Flood(6:32)<br>Mid Ebb(11:59) | 17 | 18<br>**WQM**<br>Mid Flood(8:09)<br>Mid Ebb(13:11) |
| 19 | 20<br>**AQM, NM** | 21<br>**WQM**<br>Mid Flood(10:11)<br>Mid Ebb(14:51) | 22 | 23<br>**WQM**<br>Mid Flood(11:25)<br>Mid Ebb(16:04) | 24<br>**AQM** | 25<br>**WQM**<br>Mid Flood(12:47)<br>Mid Ebb(5:08) |
| 26 | 27 | 28<br>**WQM**<br>Mid Flood(14:55)<br>Mid Ebb(7:39) | 29 | 30<br>**AQM, NM**<br>**WQM**<br>Mid Flood(16:18)<br>Mid Ebb(10:43) | 31 | |

**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**): $L_{eq}$ (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

# Appendix F

Monitoring Results

# Air Quality Monitoring Results

**1-hour TSP Monitoring Result for**

**Contract No. SPW 07/2020**

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

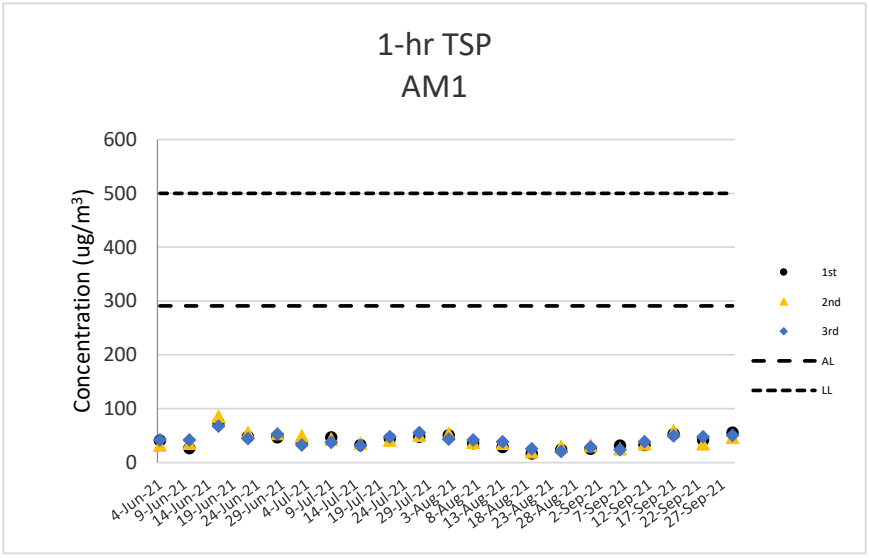
**AM1 - Topfine Machinery (China) Co. Ltd.**

| Date | Weather Condition | Start Time | 1-hour TSP (µg/m³) 1st Measurement | 2nd Measurement | 3rd Measurement | Action Level ($ug/m^3$) | Limit Level ($ug/m^3$) |
|---|---|---|---|---|---|---|---|
| 6-Sep-21 | Fine | 8:34 | 32 | 26 | 24 | 291 | 500 |
| 11-Sep-21 | Cloudy | 9:14 | 33 | 35 | 39 | | |
| 17-Sep-21 | Cloudy | 8:39 | 53 | 59 | 50 | | |
| 23-Sep-21 | Cloudy | 8:39 | 42 | 35 | 48 | | |
| 29-Sep-21 | Cloudy | 8:46 | 56 | 47 | 51 | | |
| | | Min | 24 | | | | |
| | | Max | 59 | | | | |
| | | Average | 42 | | | | |

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

| Date | Weather Condition | Start Time | 1-hour TSP (µg/m³) 1st Measurement | 2nd Measurement | 3rd Measurement | Action Level ($ug/m^3$) | Limit Level ($ug/m^3$) |
|---|---|---|---|---|---|---|---|
| 6-Sep-21 | Fine | 8:47 | 29 | 21 | 30 | 296 | 500 |
| 11-Sep-21 | Cloudy | 9:38 | 38 | 42 | 47 | | |
| 17-Sep-21 | Cloudy | 8:55 | 62 | 60 | 56 | | |
| 23-Sep-21 | Cloudy | 8:53 | 50 | 45 | 56 | | |
| 29-Sep-21 | Cloudy | 8:59 | 59 | 56 | 63 | | |
| | | Min | 21 | | | | |
| | | Max | 63 | | | | |
| | | Average | 48 | | | | |

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


1-hr TSP
AM1
Concentration (ug/m³)
600
500
400
300
200
100
0
1st
2nd
3rd
AL
LL
4-Jun-21
9-Jun-21
14-Jun-21
19-Jun-21
24-Jun-21
29-Jun-21
4-Jul-21
9-Jul-21
14-Jul-21
19-Jul-21
24-Jul-21
29-Jul-21
3-Aug-21
8-Aug-21
13-Aug-21
18-Aug-21
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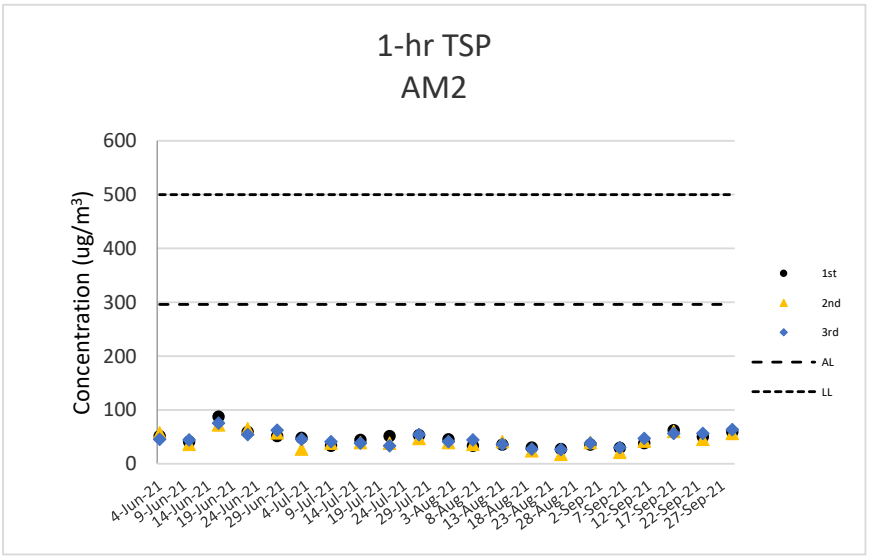
28-Aug-21
2-Sep-21
7-Sep-21
12-Sep-21
17-Sep-21
22-Sep-21
27-Sep-21


1-hr TSP
AM2
Concentration (ug/m³)
600
500
400
300
200
100
0
1st
2nd
3rd
AL
LL
4-Jun-21
9-Jun-21
14-Jun-21
19-Jun-21
24-Jun-21
29-Jun-21
4-Jul-21
9-Jul-21
14-Jul-21
19-Jul-21
24-Jul-21
29-Jul-21
3-Aug-21
8-Aug-21
13-Aug-21
18-Aug-21
23-Aug-21
28-Aug-21
2-Sep-21
7-Sep-21
12-Sep-21
17-Sep-21
22-Sep-21
27-Sep-21

# Noise Monitoring Results

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

**CM1 - Squatter house to the north of YLSTW**

| Date | Start Time | $L_{eq}$ 30min dB(A) | $L_{10}$ dB(A) | $L_{90}$ dB(A) | Wind Speed (m/s) | Weather | Limit Level dB(A) |
|---|---|---|---|---|---|---|---|
| 6-Sep-21 | 10:38 | 53 | 58 | 48 | 0.8 | Fine | 75 |
| 17-Sep-21 | 10:28 | 55 | 57 | 53 | 0.3 | Cloudy | 75 |
| 23-Sep-21 | 10:41 | 55 | 56 | 52 | 0.1 | Cloudy | 75 |
| 29-Sep-21 | 10:26 | 53 | 55 | 51 | 0.1 | Cloudy | 75 |
| | **Max** | 55 | | | | | |
| | **Min** | 53 | | | | | |

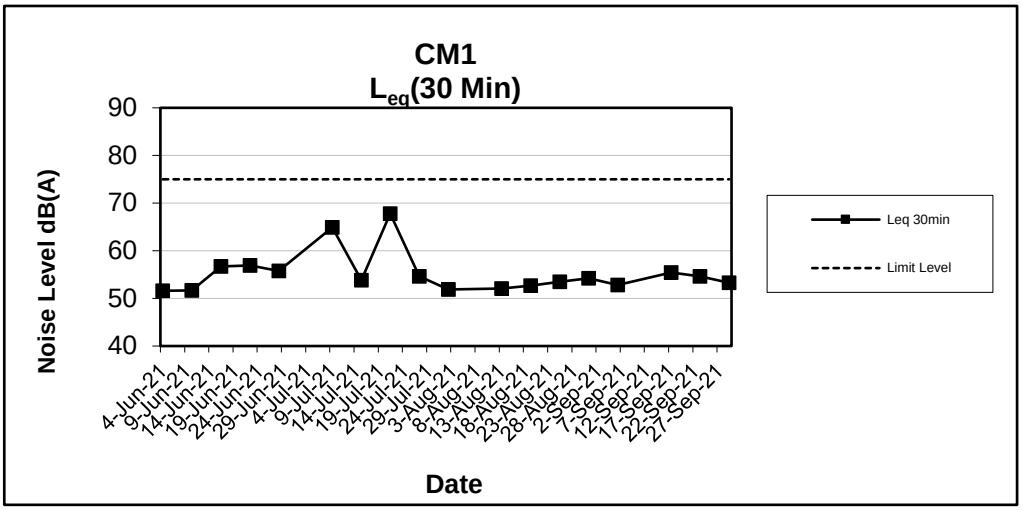
**CM2 - Squatter house to the west of YLSTW**

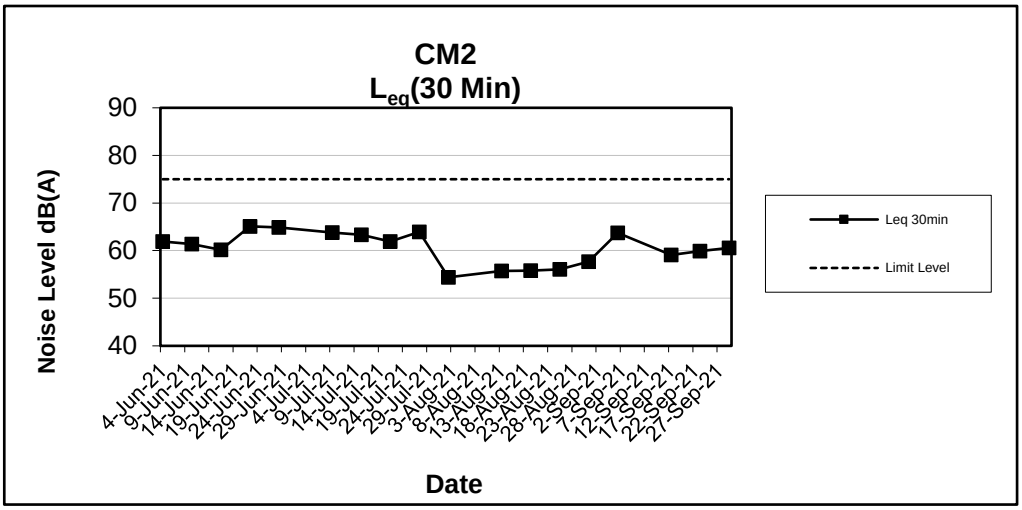
| Date | Start Time | $L_{eq}$ 30min dB(A) | $L_{10}$ dB(A) | $L_{90}$ dB(A) | Wind Speed (m/s) | Weather | Limit Level dB(A) |
|---|---|---|---|---|---|---|---|
| 6-Sep-21 | 8:52 | 64 | 67 | 60 | 0.8 | Fine | 75 |
| 17-Sep-21 | 9:09 | 59 | 63 | 54 | 0.2 | Cloudy | 75 |
| 23-Sep-21 | 9:17 | 60 | 64 | 54 | 0.3 | Cloudy | 75 |
| 29-Sep-21 | 9:10 | 61 | 64 | 55 | 0.2 | Cloudy | 75 |
| | **Max** | 64 | | | | | |
| | **Min** | 59 | | | | | |

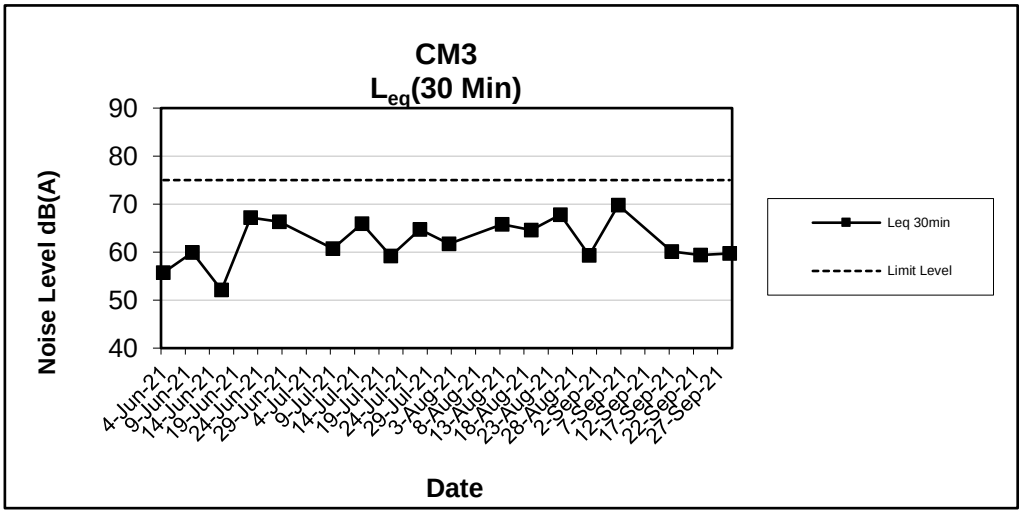
**CM3 - Squatter house to the east of YLSTW**

| Date | Start Time | $L_{eq}$ 30min dB(A) | $L_{10}$ dB(A) | $L_{90}$ dB(A) | Wind Speed (m/s) | Weather | Limit Level dB(A) |
|---|---|---|---|---|---|---|---|
| 6-Sep-21 | 9:41 | 70 | 73 | 66 | 0.7 | Fine | 75 |
| 17-Sep-21 | 13:11 | 60 | 64 | 55 | 0.2 | Cloudy | 75 |
| 23-Sep-21 | 13:10 | 59 | 63 | 55 | 0.3 | Cloudy | 75 |
| 29-Sep-21 | 13:07 | 60 | 64 | 54 | 0.2 | Cloudy | 75 |
| | **Max** | 70 | | | | | |
| | **Min** | 59 | | | | | |

Note:
CM1, CM2 and CM3: Free-field measurement (+3dB(A) correction has been applied).
No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.


CM1
$L_{eq}$(30 Min)
Noise Level dB(A)
90
80
70
60
50
40
4-Jun-21
9-Jun-21
14-Jun-21
19-Jun-21
24-Jun-21
29-Jun-21
4-Jul-21
9-Jul-21
14-Jul-21
19-Jul-21
24-Jul-21
29-Jul-21
3-Aug-21
8-Aug-21
13-Aug-21
18-Aug-21
23-Aug-21
28-Aug-21
2-Sep-21
7-Sep-21
12-Sep-21
17-Sep-21
22-Sep-21
27-Sep-21
Date
Leq 30min
Limit Level


CM2
$L_{eq}$(30 Min)
Noise Level dB(A)
90
80
70
60
50
40
4-Jun-21
9-Jun-21
14-Jun-21
19-Jun-21
24-Jun-21
29-Jun-21
4-Jul-21
9-Jul-21
14-Jul-21
19-Jul-21
24-Jul-21
29-Jul-21
3-Aug-21
8-Aug-21
13-Aug-21
18-Aug-21
23-Aug-21
28-Aug-21
2-Sep-21
7-Sep-21
12-Sep-21
17-Sep-21
22-Sep-21
27-Sep-21
Date
Leq 30min
Limit Level


CM3
$L_{eq}$(30 Min)
Noise Level dB(A)
90
80
70
60
50
40
4-Jun-21
9-Jun-21
14-Jun-21
19-Jun-21
24-Jun-21
29-Jun-21
4-Jul-21
9-Jul-21
14-Jul-21
19-Jul-21
24-Jul-21
29-Jul-21
3-Aug-21
8-Aug-21
13-Aug-21
18-Aug-21
23-Aug-21
28-Aug-21
2-Sep-21
7-Sep-21
12-Sep-21
17-Sep-21
22-Sep-21
27-Sep-21
Date
Leq 30min
Limit Level

# Water Quality Monitoring Results

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 2/9/2021 | Mid-Flood | Fine | Calm | 18:38 | 1.8 | M | 0.9 | 1 | 0.162 | 207 | 7.71 | 7.71 | 3.72 | 3.72 | 30.98 | 30.99 | 37.5 | 37.7 | 2.76 | 2.78 | 12.2 | 12.2 | 16 | 17 |
| M1 | 2/9/2021 | Mid-Flood | Fine | Calm | 18:38 | 1.8 | M | 0.9 | 2 | | | 7.71 | | 3.71 | | 30.99 | | 37.9 | | 2.79 | | 12.2 | | 17 | |
| M2 | 2/9/2021 | Mid-Flood | Fine | Calm | 18:19 | 1.2 | M | 0.6 | 1 | 0.129 | 281 | 7.74 | 7.74 | 4.42 | 4.43 | 30.85 | 30.85 | 36.4 | 36.5 | 2.66 | 2.67 | 12.3 | 12.4 | 19 | 19 |
| M2 | 2/9/2021 | Mid-Flood | Fine | Calm | 18:19 | 1.2 | M | 0.6 | 2 | | | 7.73 | | 4.43 | | 30.84 | | 36.5 | | 2.67 | | 12.4 | | 18 | |
| M3 | 2/9/2021 | Mid-Flood | Fine | Moderate | 18:20 | 1.4 | M | 0.7 | 1 | 0.049 | 81 | 7.11 | 7.12 | 3.14 | 3.16 | 29.51 | 29.52 | 50.7 | 50.7 | 4.03 | 4.02 | 19.1 | 19.1 | 18 | 19 |
| M3 | 2/9/2021 | Mid-Flood | Fine | Moderate | 18:20 | 1.4 | M | 0.7 | 2 | | | 7.12 | | 3.18 | | 29.52 | | 50.6 | | 4.01 | | 19.1 | | 19 | |
| M1 | 2/9/2021 | Mid-Ebb | Fine | Calm | 10:13 | 2 | M | 1 | 1 | 0.068 | 181 | 7.43 | 7.43 | 3.31 | 3.32 | 30.42 | 30.42 | 35.6 | 35.7 | 2.62 | 2.63 | 10.3 | 10.2 | 9 | 10 |
| M1 | 2/9/2021 | Mid-Ebb | Fine | Calm | 10:13 | 2 | M | 1 | 2 | | | 7.42 | | 3.32 | | 30.42 | | 35.8 | | 2.63 | | 10.1 | | 10 | |
| M2 | 2/9/2021 | Mid-Ebb | Fine | Calm | 10:33 | 1.4 | M | 0.7 | 1 | 0.1 | 213 | 7.61 | 7.60 | 2.91 | 2.91 | 30.65 | 30.65 | 33.0 | 33.0 | 2.40 | 2.40 | 13.2 | 13.2 | 19 | 20 |
| M2 | 2/9/2021 | Mid-Ebb | Fine | Calm | 10:33 | 1.4 | M | 0.7 | 2 | | | 7.59 | | 2.90 | | 30.64 | | 32.9 | | 2.40 | | 13.2 | | 20 | |
| M3 | 2/9/2021 | Mid-Ebb | Fine | Moderate | 10:24 | 0.8 | M | 0.4 | 1 | 0.034 | 175 | 7.13 | 7.13 | 2.21 | 2.23 | 29.39 | 29.39 | 44.8 | 44.8 | 3.41 | 3.40 | 30.0 | 30.0 | 15 | 16 |
| M3 | 2/9/2021 | Mid-Ebb | Fine | Moderate | 10:24 | 0.8 | M | 0.4 | 2 | | | 7.12 | | 2.24 | | 29.38 | | 44.7 | | 3.38 | | 30.0 | | 16 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 4/9/2021 | Mid-Flood | Fine | Moderate | 19:36 | 1.2 | M | 0.6 | 1 | 0.13 | 179 | 7.21 | 7.23 | 2.54 | 2.55 | 28.66 | 28.67 | 49.2 | 49.5 | 3.58 | 3.60 | 31.8 | 31.8 | 35 | 33 |
| M1 | 4/9/2021 | Mid-Flood | Fine | Moderate | 19:36 | 1.2 | M | 0.6 | 2 | | | 7.25 | | 2.55 | | 28.67 | | 49.7 | | 3.62 | | 31.7 | | 31 | |
| M2 | 4/9/2021 | Mid-Flood | Fine | Moderate | 19:18 | 1.4 | M | 0.7 | 1 | 0.117 | 195 | 7.24 | 7.27 | 2.34 | 2.37 | 28.74 | 28.72 | 48.1 | 48.2 | 3.46 | 3.47 | 31.2 | 31.2 | 35 | 37 |
| M2 | 4/9/2021 | Mid-Flood | Fine | Moderate | 19:18 | 1.4 | M | 0.7 | 2 | | | 7.29 | | 2.39 | | 28.69 | | 48.2 | | 3.47 | | 31.2 | | 38 | |
| M3 | 4/9/2021 | Mid-Flood | Cloudy | Smooth | 19:21 | 0.6 | M | 0.3 | 1 | 0.103 | 71 | 7.17 | 7.17 | 3.87 | 3.87 | 31.52 | 31.52 | 52.7 | 52.6 | 3.93 | 3.92 | 39.6 | 39.6 | 29 | 29 |
| M3 | 4/9/2021 | Mid-Flood | Cloudy | Smooth | 19:21 | 0.6 | M | 0.3 | 2 | | | 7.17 | | 3.86 | | 31.51 | | 52.4 | | 3.91 | | 39.6 | | 29 | |
| M1 | 4/9/2021 | Mid-Ebb | Fine | Moderate | 12:19 | 0.9 | M | 0.45 | 1 | 0.065 | 91 | 7.11 | 7.15 | 7.20 | 7.17 | 31.11 | 31.13 | 51.2 | 51.3 | 3.65 | 3.66 | 28.1 | 28.2 | 24 | 25 |
| M1 | 4/9/2021 | Mid-Ebb | Fine | Moderate | 12:19 | 0.9 | M | 0.45 | 2 | | | 7.19 | | 7.14 | | 31.15 | | 51.4 | | 3.67 | | 28.3 | | 26 | |
| M2 | 4/9/2021 | Mid-Ebb | Fine | Moderate | 12:38 | 1.1 | M | 0.55 | 1 | 0.052 | 124 | 7.10 | 7.11 | 7.04 | 7.04 | 31.31 | 31.31 | 54.7 | 54.8 | 3.89 | 3.91 | 28.9 | 28.9 | 27 | 30 |
| M2 | 4/9/2021 | Mid-Ebb | Fine | Moderate | 12:38 | 1.1 | M | 0.55 | 2 | | | 7.12 | | 7.03 | | 31.32 | | 54.9 | | 3.92 | | 28.9 | | 33 | |
| M3 | 4/9/2021 | Mid-Ebb | Cloudy | Smooth | 12:07 | 0.8 | M | 0.4 | 1 | 0.16 | 248 | 6.62 | 6.63 | 2.98 | 2.99 | 30.12 | 30.11 | 49.5 | 49.7 | 3.73 | 3.74 | 45.3 | 45.3 | 26 | 30 |
| M3 | 4/9/2021 | Mid-Ebb | Cloudy | Smooth | 12:07 | 0.8 | M | 0.4 | 2 | | | 6.63 | | 2.99 | | 30.10 | | 49.8 | | 3.75 | | 45.3 | | 33 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 7/9/2021 | Mid-Flood | Cloudy | Smooth | 7:24 | 2.4 | M | 1.2 | 1 | 0.247 | 174 | 7.60 | 7.61 | 9.98 | 9.98 | 30.37 | 30.37 | 56.9 | 57.5 | 4.04 | 4.08 | 15.8 | 15.8 | 21 | 21 |
| M1 | 7/9/2021 | Mid-Flood | Cloudy | Smooth | 7:24 | 2.4 | M | 1.2 | 2 | | | 7.61 | | 9.97 | | 30.37 | | 58.0 | | 4.12 | | 15.9 | | 21 | |
| M2 | 7/9/2021 | Mid-Flood | Cloudy | Smooth | 7:39 | 1.4 | M | 0.7 | 1 | 0.212 | 230 | 7.76 | 7.77 | 7.08 | 7.08 | 30.44 | 30.43 | 59.5 | 59.3 | 4.28 | 4.27 | 18.3 | 18.5 | 23 | 23 |
| M2 | 7/9/2021 | Mid-Flood | Cloudy | Smooth | 7:39 | 1.4 | M | 0.7 | 2 | | | 7.77 | | 7.07 | | 30.42 | | 59.1 | | 4.25 | | 18.7 | | 22 | |
| M3 | 7/9/2021 | Mid-Flood | Fine | Moderate | 7:31 | 1.6 | M | 0.8 | 1 | 0.038 | 119 | 7.15 | 7.16 | 6.42 | 6.43 | 30.21 | 30.22 | 53.2 | 53.2 | 3.86 | 3.85 | 28.3 | 28.3 | 37 | 36 |
| M3 | 7/9/2021 | Mid-Flood | Fine | Moderate | 7:31 | 1.6 | M | 0.8 | 2 | | | 7.16 | | 6.44 | | 30.22 | | 53.1 | | 3.84 | | 28.3 | | 34 | |
| M1 | 7/9/2021 | Mid-Ebb | Cloudy | Smooth | 14:25 | 2 | M | 1 | 1 | 0.188 | 238 | 7.52 | 7.53 | 8.96 | 8.96 | 31.28 | 31.28 | 51.9 | 52.2 | 3.71 | 3.73 | 24.5 | 24.7 | 24 | 25 |
| M1 | 7/9/2021 | Mid-Ebb | Cloudy | Smooth | 14:25 | 2 | M | 1 | 2 | | | 7.53 | | 8.96 | | 31.27 | | 52.5 | | 3.75 | | 25.0 | | 26 | |
| M2 | 7/9/2021 | Mid-Ebb | Cloudy | Smooth | 14:09 | 1.2 | M | 0.6 | 1 | 0.17 | 269 | 7.40 | 7.41 | 7.11 | 7.11 | 31.72 | 31.72 | 49.4 | 49.7 | 3.55 | 3.57 | 15.0 | 14.4 | 20 | 20 |
| M2 | 7/9/2021 | Mid-Ebb | Cloudy | Smooth | 14:09 | 1.2 | M | 0.6 | 2 | | | 7.41 | | 7.10 | | 31.72 | | 49.9 | | 3.58 | | 13.8 | | 19 | |
| M3 | 7/9/2021 | Mid-Ebb | Fine | Moderate | 14:10 | 0.9 | M | 0.45 | 1 | 0.068 | 72 | 7.28 | 7.28 | 4.52 | 4.53 | 30.23 | 30.26 | 49.5 | 49.2 | 3.56 | 3.54 | 32.9 | 32.9 | 59 | 57 |
| M3 | 7/9/2021 | Mid-Ebb | Fine | Moderate | 14:10 | 0.9 | M | 0.45 | 2 | | | 7.27 | | 4.54 | | 30.29 | | 48.8 | | 3.52 | | 32.9 | | 54 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 9/9/2021 | Mid-Flood | Fine | Moderate | 9:02 | 1.2 | M | 0.6 | 1 | 0.05 | 180 | 8.13 | 8.14 | 7.03 | 7.04 | 30.15 | 30.15 | 53.1 | 53.5 | 3.72 | 3.76 | 33.0 | 32.7 | 22 | 24 |
| M1 | 9/9/2021 | Mid-Flood | Fine | Moderate | 9:02 | 1.2 | M | 0.6 | 2 | | | 8.14 | | 7.04 | | 30.16 | | 53.8 | | 3.79 | | 32.5 | | 25 | |
| M2 | 9/9/2021 | Mid-Flood | Fine | Moderate | 9:22 | 1 | M | 0.5 | 1 | 0.087 | 197 | 8.23 | 8.25 | 6.44 | 6.43 | 29.17 | 29.20 | 54.7 | 54.7 | 3.82 | 3.86 | 34.1 | 34.2 | 37 | 39 |
| M2 | 9/9/2021 | Mid-Flood | Fine | Moderate | 9:22 | 1 | M | 0.5 | 2 | | | 8.27 | | 6.41 | | 29.23 | | 54.6 | | 3.89 | | 34.2 | | 40 | |
| M3 | 9/9/2021 | Mid-Flood | Fine | Calm | 8:59 | 1 | M | 0.5 | 1 | 0.231 | 67 | 7.49 | 7.50 | 3.90 | 3.91 | 30.52 | 30.52 | 47.2 | 47.7 | 3.46 | 3.50 | 46.6 | 46.1 | 46 | 47 |
| M3 | 9/9/2021 | Mid-Flood | Fine | Calm | 8:59 | 1 | M | 0.5 | 2 | | | 7.50 | | 3.92 | | 30.52 | | 48.2 | | 3.53 | | 45.6 | | 48 | |
| M1 | 9/9/2021 | Mid-Ebb | Fine | Moderate | 15:45 | 0.9 | M | 0.45 | 1 | 0.143 | 13 | 8.03 | 8.04 | 7.16 | 7.15 | 29.73 | 29.74 | 51.1 | 51.2 | 3.54 | 3.56 | 35.7 | 35.7 | 58 | 55 |
| M1 | 9/9/2021 | Mid-Ebb | Fine | Moderate | 15:45 | 0.9 | M | 0.45 | 2 | | | 8.04 | | 7.13 | | 29.74 | | 51.3 | | 3.58 | | 35.7 | | 52 | |
| M2 | 9/9/2021 | Mid-Ebb | Fine | Moderate | 15:24 | 0.7 | M | 0.35 | 1 | 0.104 | 70 | 8.33 | 8.36 | 7.53 | 7.55 | 28.94 | 28.90 | 48.7 | 48.5 | 3.51 | 3.49 | 34.7 | 34.6 | 35 | 35 |
| M2 | 9/9/2021 | Mid-Ebb | Fine | Moderate | 15:24 | 0.7 | M | 0.35 | 2 | | | 8.39 | | 7.57 | | 28.86 | | 48.3 | | 3.47 | | 34.6 | | 34 | |
| M3 | 9/9/2021 | Mid-Ebb | Fine | Calm | 15:23 | 0.8 | M | 0.4 | 1 | 0.189 | 255 | 7.21 | 7.22 | 3.06 | 3.06 | 31.45 | 31.45 | 50.3 | 50.2 | 3.69 | 3.68 | 38.9 | 39.0 | 34 | 35 |
| M3 | 9/9/2021 | Mid-Ebb | Fine | Calm | 15:23 | 0.8 | M | 0.4 | 2 | | | 7.22 | | 3.05 | | 31.44 | | 50.1 | | 3.67 | | 39.0 | | 36 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 11/9/2021 | Mid-Flood | Fine | Moderate | 10:41 | 1.6 | M | 0.8 | 1 | 0.025 | 213 | 8.21 | 8.22 | 5.11 | 5.13 | 30.12 | 30.13 | 58.9 | 59.8 | 4.11 | 4.25 | 36.7 | 36.7 | 28 | 27 |
| M1 | 11/9/2021 | Mid-Flood | Fine | Moderate | 10:41 | 1.6 | M | 0.8 | 2 | | | 8.22 | | 5.14 | | 30.13 | | 60.7 | | 4.38 | | 36.7 | | 25 | |
| M2 | 11/9/2021 | Mid-Flood | Fine | Moderate | 10:59 | 1.4 | M | 0.7 | 1 | 0.054 | 323 | 8.09 | 8.11 | 4.97 | 4.97 | 29.73 | 29.74 | 61.2 | 61.5 | 4.42 | 4.46 | 35.5 | 35.5 | 65 | 62 |
| M2 | 11/9/2021 | Mid-Flood | Fine | Moderate | 10:59 | 1.4 | M | 0.7 | 2 | | | 8.12 | | 4.96 | | 29.74 | | 61.8 | | 4.50 | | 35.5 | | 58 | |
| M3 | 11/9/2021 | Mid-Flood | Cloudy | Calm | 10:26 | 0.8 | M | 0.4 | 1 | 0.093 | 68 | 7.69 | 7.70 | 5.10 | 5.11 | 30.82 | 30.83 | 53.7 | 53.4 | 3.84 | 3.82 | 43.2 | 43.7 | 58 | 58 |
| M3 | 11/9/2021 | Mid-Flood | Cloudy | Calm | 10:26 | 0.8 | M | 0.4 | 2 | | | 7.71 | | 5.12 | | 30.83 | | 53.1 | | 3.80 | | 44.1 | | 57 | |
| M1 | 11/9/2021 | Mid-Ebb | Fine | Moderate | 16:45 | 1.2 | M | 0.6 | 1 | 0.046 | 13 | 7.96 | 7.95 | 3.86 | 3.87 | 30.23 | 30.24 | 53.4 | 53.6 | 3.88 | 3.90 | 38.7 | 38.7 | 46 | 45 |
| M1 | 11/9/2021 | Mid-Ebb | Fine | Moderate | 16:45 | 1.2 | M | 0.6 | 2 | | | 7.94 | | 3.88 | | 30.24 | | 53.7 | | 3.92 | | 38.8 | | 44 | |
| M2 | 11/9/2021 | Mid-Ebb | Fine | Moderate | 16:25 | 1.1 | M | 0.55 | 1 | 0.104 | 7 | 7.91 | 7.92 | 3.44 | 3.46 | 29.76 | 29.77 | 51.7 | 51.8 | 3.64 | 3.66 | 40.3 | 40.4 | 46 | 48 |
| M2 | 11/9/2021 | Mid-Ebb | Fine | Moderate | 16:25 | 1.1 | M | 0.55 | 2 | | | 7.92 | | 3.47 | | 29.77 | | 51.9 | | 3.67 | | 40.4 | | 50 | |
| M3 | 11/9/2021 | Mid-Ebb | Cloudy | Calm | 16:31 | 0.6 | M | 0.3 | 1 | 0.082 | 271 | 7.40 | 7.40 | 6.36 | 6.36 | 31.31 | 31.31 | 48.3 | 48.5 | 3.48 | 3.50 | 46.8 | 46.9 | 55 | 55 |
| M3 | 11/9/2021 | Mid-Ebb | Cloudy | Calm | 16:31 | 0.6 | M | 0.3 | 2 | | | 7.39 | | 6.36 | | 31.30 | | 48.7 | | 3.51 | | 47.1 | | 54 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 44.1 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M1(Impact Station) | 2.25 | 1.91 | 52.4 | 56.8 | 61.5 | 68 |

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 14/9/2021 | Mid-Flood | Fine | Moderate | 15:03 | 1.3 | M | 0.65 | 1 | 0.141 | 18 | 7.58 | 7.56 | 3.28 | 3.29 | 29.77 | 29.76 | 54.4 | 54.2 | 4.11 | 4.09 | 29.6 | 29.5 | 36 | 38 |
| M1 | 14/9/2021 | Mid-Flood | Fine | Moderate | 15:03 | 1.3 | M | 0.65 | 2 | | | 7.54 | | 3.29 | | 29.74 | | 53.9 | | 4.06 | | 29.5 | | 40 | |
| M2 | 14/9/2021 | Mid-Flood | Fine | Moderate | 14:43 | 1.4 | M | 0.7 | 1 | 0.108 | 79 | 7.79 | 7.77 | 3.14 | 3.16 | 30.76 | 30.75 | 52.4 | 52.2 | 3.92 | 3.89 | 31.5 | 31.5 | 34 | 37 |
| M2 | 14/9/2021 | Mid-Flood | Fine | Moderate | 14:43 | 1.4 | M | 0.7 | 2 | | | 7.74 | | 3.18 | | 30.74 | | 51.9 | | 3.86 | | 31.5 | | 39 | |
| M3 | 14/9/2021 | Mid-Flood | Cloudy | Calm | 14:46 | 0.4 | M | 0.2 | 1 | 0.205 | 73 | 7.80 | 7.81 | 4.32 | 4.32 | 31.62 | 31.62 | 55.7 | 55.9 | 3.97 | 3.99 | 23.8 | 23.5 | 30 | 31 |
| M3 | 14/9/2021 | Mid-Flood | Cloudy | Calm | 14:46 | 0.4 | M | 0.2 | 2 | | | 7.81 | | 4.31 | | 31.62 | | 56.0 | | 4.00 | | 23.2 | | 32 | |
| M1 | 14/9/2021 | Mid-Ebb | Fine | Moderate | 6:51 | 0.9 | M | 0.45 | 1 | 0.043 | 118 | 7.82 | 7.83 | 4.36 | 4.36 | 31.80 | 31.79 | 47.7 | 47.9 | 3.42 | 3.45 | 29.0 | 29.0 | 26 | 27 |
| M1 | 14/9/2021 | Mid-Ebb | Fine | Moderate | 6:51 | 0.9 | M | 0.45 | 2 | | | 7.84 | | 4.35 | | 31.79 | | 48.1 | | 3.47 | | 29.0 | | 27 | |
| M2 | 14/9/2021 | Mid-Ebb | Fine | Moderate | 7:11 | 1.1 | M | 0.55 | 1 | 0.083 | 73 | 7.74 | 7.75 | 3.91 | 3.92 | 32.09 | 32.09 | 43.5 | 43.6 | 3.10 | 3.12 | 24.2 | 24.3 | 31 | 32 |
| M2 | 14/9/2021 | Mid-Ebb | Fine | Moderate | 7:11 | 1.1 | M | 0.55 | 2 | | | 7.75 | | 3.92 | | 32.09 | | 43.6 | | 3.13 | | 24.3 | | 33 | |
| M3 | 14/9/2021 | Mid-Ebb | Cloudy | Calm | 6:51 | 0.6 | M | 0.3 | 1 | 0.263 | 245 | 7.51 | 7.52 | 3.61 | 3.61 | 30.42 | 30.43 | 58.6 | 58.4 | 4.24 | 4.23 | 42.7 | 42.3 | 43 | 45 |
| M3 | 14/9/2021 | Mid-Ebb | Cloudy | Calm | 6:51 | 0.6 | M | 0.3 | 2 | | | 7.52 | | 3.61 | | 30.43 | | 58.2 | | 4.21 | | 41.9 | | 46 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 18:07 | 1.6 | M | 0.8 | 1 | 0.193 | 110 | 7.30 | 7.31 | 4.35 | 4.36 | 31.54 | 31.54 | 37.7 | 38.2 | 2.75 | 2.79 | 16.4 | 16.4 | 19 | 20 |
| M1 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 18:07 | 1.6 | M | 0.8 | 2 | | | 7.32 | | 4.36 | | 31.53 | | 38.6 | | 2.82 | | 16.3 | | 21 | |
| M2 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 17:47 | 1 | M | 0.5 | 1 | 0.174 | 290 | 7.54 | 7.54 | 4.17 | 4.17 | 31.79 | 31.80 | 36.6 | 37.0 | 2.66 | 2.70 | 26.2 | 26.2 | 26 | 25 |
| M2 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 17:47 | 1 | M | 0.5 | 2 | | | 7.54 | | 4.16 | | 31.80 | | 37.4 | | 2.73 | | 26.1 | | 24 | |
| M3 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 17:53 | 1.1 | M | 0.55 | 1 | 0.043 | 76 | 8.55 | 8.53 | 2.58 | 2.57 | 31.38 | 31.39 | 50.7 | 51.1 | 4.06 | 4.05 | 36.2 | 35.7 | 41 | 41 |
| M3 | 16/9/2021 | Mid-Flood | Cloudy | Smooth | 17:53 | 1.1 | M | 0.55 | 2 | | | 8.51 | | 2.56 | | 31.39 | | 51.4 | | 4.04 | | 35.1 | | 41 | |
| M1 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:36 | 2 | M | 1 | 1 | 0.127 | 172 | 7.88 | 7.87 | 2.78 | 2.78 | 30.42 | 30.42 | 31.9 | 32.3 | 2.33 | 2.36 | 23.6 | 23.4 | 17 | 18 |
| M1 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:36 | 2 | M | 1 | 2 | | | 7.86 | | 2.78 | | 30.42 | | 32.7 | | 2.39 | | 23.2 | | 19 | |
| M2 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:55 | 1.2 | M | 0.6 | 1 | 0.138 | 223 | 7.48 | 7.49 | 2.58 | 2.58 | 30.86 | 30.86 | 34.7 | 35.0 | 2.53 | 2.56 | 29.5 | 31.1 | 43 | 44 |
| M2 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:55 | 1.2 | M | 0.6 | 2 | | | 7.49 | | 2.58 | | 30.85 | | 35.3 | | 2.58 | | 32.6 | | 44 | |
| M3 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:40 | 0.6 | M | 0.3 | 1 | 0.049 | 119 | 8.14 | 8.15 | 2.35 | 2.36 | 31.56 | 31.56 | 44.5 | 44.4 | 3.87 | 3.83 | 27.0 | 27.1 | 40 | 38 |
| M3 | 16/9/2021 | Mid-Ebb | Cloudy | Smooth | 9:40 | 0.6 | M | 0.3 | 2 | | | 8.15 | | 2.36 | | 31.55 | | 44.3 | | 3.79 | | 27.1 | | 36 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 18/9/2021 | Mid-Flood | Fine | Moderate | 19:37 | 1.1 | M | 0.55 | 1 | 0.187 | 65 | 7.39 | 7.39 | 3.68 | 3.69 | 28.86 | 28.85 | 30.8 | 30.6 | 2.18 | 2.18 | 21.9 | 21.9 | 22 | 21 |
| M1 | 18/9/2021 | Mid-Flood | Fine | Moderate | 19:37 | 1.1 | M | 0.55 | 2 | | | 7.38 | | 3.69 | | 28.84 | | 30.4 | | 2.17 | | 21.9 | | 19 | |
| M2 | 18/9/2021 | Mid-Flood | Fine | Moderate | 19:16 | 1.4 | M | 0.7 | 1 | 0.108 | 75 | 7.45 | 7.46 | 3.44 | 3.43 | 28.74 | 28.75 | 32.5 | 32.7 | 2.34 | 2.36 | 19.3 | 19.3 | 19 | 20 |
| M2 | 18/9/2021 | Mid-Flood | Fine | Moderate | 19:16 | 1.4 | M | 0.7 | 2 | | | 7.46 | | 3.42 | | 28.76 | | 32.8 | | 2.37 | | 19.3 | | 20 | |
| M3 | 18/9/2021 | Mid-Flood | Cloudy | Calm | 19:17 | 0.8 | M | 0.4 | 1 | 0.179 | 70 | 7.41 | 7.41 | 2.94 | 2.94 | 30.52 | 30.52 | 47.7 | 48.2 | 3.57 | 3.61 | 28.4 | 27.8 | 29 | 28 |
| M3 | 18/9/2021 | Mid-Flood | Cloudy | Calm | 19:17 | 0.8 | M | 0.4 | 2 | | | 7.40 | | 2.93 | | 30.52 | | 48.7 | | 3.64 | | 27.3 | | 26 | |
| M1 | 18/9/2021 | Mid-Ebb | Fine | Moderate | 12:01 | 0.8 | M | 0.4 | 1 | 0.056 | 196 | 7.85 | 7.86 | 2.19 | 2.19 | 30.79 | 30.78 | 41.7 | 41.6 | 2.94 | 2.93 | 23.5 | 23.6 | 19 | 21 |
| M1 | 18/9/2021 | Mid-Ebb | Fine | Moderate | 12:01 | 0.8 | M | 0.4 | 2 | | | 7.86 | | 2.18 | | 30.76 | | 41.4 | | 2.92 | | 23.6 | | 22 | |
| M2 | 18/9/2021 | Mid-Ebb | Fine | Moderate | 12:15 | 1 | M | 0.5 | 1 | 0.042 | 71 | 8.16 | 8.16 | 2.33 | 2.35 | 30.96 | 30.95 | 44.8 | 44.2 | 3.27 | 3.26 | 21.4 | 21.4 | 24 | 23 |
| M2 | 18/9/2021 | Mid-Ebb | Fine | Moderate | 12:15 | 1 | M | 0.5 | 2 | | | 8.15 | | 2.36 | | 30.94 | | 43.6 | | 3.24 | | 21.4 | | 22 | |
| M3 | 18/9/2021 | Mid-Ebb | Cloudy | Calm | 11:52 | 1 | M | 0.5 | 1 | 0.14 | 262 | 7.11 | 7.12 | 2.23 | 2.24 | 29.83 | 29.83 | 52.6 | 52.2 | 3.94 | 3.91 | 24.6 | 24.5 | 23 | 23 |
| M3 | 18/9/2021 | Mid-Ebb | Cloudy | Calm | 11:52 | 1 | M | 0.5 | 2 | | | 7.12 | | 2.24 | | 29.82 | | 51.8 | | 3.88 | | 24.4 | | 22 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 21/9/2021 | Mid-Flood | Cloudy | Moderate | 7:36 | 1.2 | M | 0.6 | 1 | 0.13 | 231 | 7.28 | 7.28 | 6.43 | 6.44 | 31.20 | 31.20 | 42.4 | 42.3 | 3.03 | 3.02 | 17.5 | 17.5 | 9 | 10 |
| M1 | 21/9/2021 | Mid-Flood | Cloudy | Moderate | 7:36 | 1.2 | M | 0.6 | 2 | | | 7.28 | | 6.44 | | 31.20 | | 42.1 | | 3.01 | | 17.5 | | 10 | |
| M2 | 21/9/2021 | Mid-Flood | Cloudy | Moderate | 7:51 | 0.9 | M | 0.45 | 1 | 0.16 | 262 | 8.09 | 8.10 | 5.14 | 5.15 | 31.07 | 31.31 | 47.5 | 47.3 | 3.40 | 3.39 | 18.8 | 18.8 | 24 | 24 |
| M2 | 21/9/2021 | Mid-Flood | Cloudy | Moderate | 7:51 | 0.9 | M | 0.45 | 2 | | | 8.10 | | 5.16 | | 31.55 | | 47.0 | | 3.37 | | 18.7 | | 23 | |
| M3 | 21/9/2021 | Mid-Flood | Fine | Smooth | 7:44 | 1.6 | M | 0.8 | 1 | 0.037 | 230 | 8.00 | 7.99 | 1.99 | 1.96 | 31.23 | 31.24 | 44.3 | 44.5 | 3.28 | 3.31 | 18.8 | 18.8 | 25 | 25 |
| M3 | 21/9/2021 | Mid-Flood | Fine | Smooth | 7:44 | 1.6 | M | 0.8 | 2 | | | 7.97 | | 1.92 | | 31.24 | | 44.7 | | 3.33 | | 18.7 | | 25 | |
| M1 | 21/9/2021 | Mid-Ebb | Cloudy | Moderate | 14:17 | 1 | M | 0.5 | 1 | 0.138 | 181 | 8.54 | 8.54 | 5.76 | 5.76 | 31.32 | 31.32 | 43.5 | 43.7 | 3.12 | 3.13 | 20.7 | 20.7 | 24 | 24 |
| M1 | 21/9/2021 | Mid-Ebb | Cloudy | Moderate | 14:17 | 1 | M | 0.5 | 2 | | | 8.54 | | 5.75 | | 31.32 | | 43.8 | | 3.14 | | 20.7 | | 24 | |
| M2 | 21/9/2021 | Mid-Ebb | Cloudy | Moderate | 13:59 | 0.8 | M | 0.4 | 1 | 0.125 | 143 | 8.19 | 8.19 | 4.81 | 4.81 | 31.27 | 31.29 | 51.8 | 51.6 | 3.73 | 3.72 | 25.6 | 25.5 | 27 | 28 |
| M2 | 21/9/2021 | Mid-Ebb | Cloudy | Moderate | 13:59 | 0.8 | M | 0.4 | 2 | | | 8.18 | | 4.80 | | 31.30 | | 51.4 | | 3.70 | | 25.5 | | 29 | |
| M3 | 21/9/2021 | Mid-Ebb | Fine | Smooth | 14:10 | 0.9 | M | 0.45 | 1 | 0.059 | 265 | 8.31 | 8.32 | 1.87 | 1.87 | 31.48 | 31.48 | 46.6 | 46.8 | 3.34 | 3.36 | 23.1 | 23.2 | 23 | 24 |
| M3 | 21/9/2021 | Mid-Ebb | Fine | Smooth | 14:10 | 0.9 | M | 0.45 | 2 | | | 8.32 | | 1.86 | | 31.48 | | 46.9 | | 3.38 | | 23.4 | | 25 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 23/9/2021 | Mid-Flood | Fine | Moderate | 8:55 | 1.2 | M | 0.6 | 1 | 0.101 | 175 | 7.75 | 7.75 | 7.68 | 7.67 | 29.77 | 29.77 | 55.7 | 55.6 | 4.05 | 4.03 | 26.4 | 26.4 | 11 | 11 |
| M1 | 23/9/2021 | Mid-Flood | Fine | Moderate | 8:55 | 1.2 | M | 0.6 | 2 | | | 7.74 | | 7.66 | | 29.77 | | 55.4 | | 4.01 | | 26.3 | | 10 | |
| M2 | 23/9/2021 | Mid-Flood | Fine | Moderate | 9:12 | 1.4 | M | 0.7 | 1 | 0.108 | 77 | 7.45 | 7.45 | 6.98 | 6.98 | 29.63 | 29.63 | 48.6 | 48.6 | 3.35 | 3.35 | 27.9 | 27.9 | 21 | 20 |
| M2 | 23/9/2021 | Mid-Flood | Fine | Moderate | 9:12 | 1.4 | M | 0.7 | 2 | | | 7.44 | | 6.97 | | 29.63 | | 48.5 | | 3.34 | | 27.9 | | 19 | |
| M3 | 23/9/2021 | Mid-Flood | Cloudy | Calm | 8:57 | 1 | M | 0.5 | 1 | 0.228 | 84 | 7.55 | 7.56 | 4.49 | 4.48 | 29.36 | 29.36 | 60.5 | 60.1 | 4.49 | 4.48 | 36.0 | 36.1 | 45 | 45 |
| M3 | 23/9/2021 | Mid-Flood | Cloudy | Calm | 8:57 | 1 | M | 0.5 | 2 | | | 7.56 | | 4.47 | | 29.36 | | 59.7 | | 4.47 | | 36.2 | | 45 | |
| M1 | 23/9/2021 | Mid-Ebb | Fine | Moderate | 15:15 | 0.9 | M | 0.45 | 1 | 0.046 | 310 | 7.46 | 7.48 | 7.28 | 7.25 | 20.66 | 20.66 | 51.9 | 51.5 | 3.79 | 3.77 | 20.3 | 20.3 | 13 | 14 |
| M1 | 23/9/2021 | Mid-Ebb | Fine | Moderate | 15:15 | 0.9 | M | 0.45 | 2 | | | 7.49 | | 7.22 | | 20.66 | | 51.1 | | 3.74 | | 20.2 | | 15 | |
| M2 | 23/9/2021 | Mid-Ebb | Fine | Moderate | 14:59 | 1.1 | M | 0.55 | 1 | 0.06 | 283 | 8.34 | 8.33 | 6.69 | 6.67 | 29.81 | 29.81 | 44.2 | 44.5 | 3.23 | 3.25 | 23.6 | 23.6 | 18 | 18 |
| M2 | 23/9/2021 | Mid-Ebb | Fine | Moderate | 14:59 | 1.1 | M | 0.55 | 2 | | | 8.31 | | 6.64 | | 29.81 | | 44.8 | | 3.27 | | 23.7 | | 17 | |
| M3 | 23/9/2021 | Mid-Ebb | Cloudy | Calm | 15:01 | 0.8 | M | 0.4 | 1 | 0.12 | 249 | 7.32 | 7.33 | 3.63 | 3.63 | 30.51 | 30.51 | 50.9 | 51.0 | 3.81 | 3.82 | 49.4 | 49.8 | 54 | 55 |
| M3 | 23/9/2021 | Mid-Ebb | Cloudy | Calm | 15:01 | 0.8 | M | 0.4 | 2 | | | 7.33 | | 3.62 | | 30.50 | | 51.1 | | 3.83 | | 50.2 | | 55 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 25/9/2021 | Mid-Flood | Fine | Moderate | 10:09 | 1.1 | M | 0.55 | 1 | 0.108 | 77 | 8.34 | 8.33 | 5.94 | 5.95 | 29.61 | 29.61 | 61.1 | 61.2 | 4.50 | 4.51 | 36.7 | 36.8 | 44 | 44 |
| M1 | 25/9/2021 | Mid-Flood | Fine | Moderate | 10:09 | 1.1 | M | 0.55 | 2 | | | 8.31 | | 5.96 | | 29.61 | | 61.2 | | 4.52 | | 36.8 | | 43 | |
| M2 | 25/9/2021 | Mid-Flood | Fine | Moderate | 10:23 | 0.9 | M | 0.45 | 1 | 0.058 | 106 | 7.97 | 7.97 | 5.50 | 5.55 | 29.86 | 29.86 | 34.1 | 34.2 | 2.53 | 2.54 | 31.4 | 31.4 | 37 | 37 |
| M2 | 25/9/2021 | Mid-Flood | Fine | Moderate | 10:23 | 0.9 | M | 0.45 | 2 | | | 7.96 | | 5.59 | | 29.85 | | 34.2 | | 2.54 | | 31.4 | | 37 | |
| M3 | 25/9/2021 | Mid-Flood | Fine | Calm | 10:12 | 0.6 | M | 0.3 | 1 | 0.192 | 75 | 7.52 | 7.53 | 2.87 | 2.87 | 30.30 | 30.30 | 54.3 | 54.2 | 4.06 | 4.05 | 43.3 | 44.0 | 21 | 20 |
| M3 | 25/9/2021 | Mid-Flood | Fine | Calm | 10:12 | 0.6 | M | 0.3 | 2 | | | 7.53 | | 2.87 | | 30.29 | | 54.1 | | 4.03 | | 44.7 | | 19 | |
| M1 | 25/9/2021 | Mid-Ebb | Fine | Moderate | 16:11 | 0.9 | M | 0.45 | 1 | 0.047 | 343 | 7.91 | 7.93 | 4.92 | 4.93 | 28.74 | 28.75 | 60.9 | 60.7 | 4.57 | 4.54 | 31.7 | 31.8 | 35 | 37 |
| M1 | 25/9/2021 | Mid-Ebb | Fine | Moderate | 16:11 | 0.9 | M | 0.45 | 2 | | | 7.94 | | 4.93 | | 28.76 | | 60.4 | | 4.51 | | 31.8 | | 39 | |
| M2 | 25/9/2021 | Mid-Ebb | Fine | Moderate | 15:55 | 0.7 | M | 0.35 | 1 | 0.041 | 266 | 7.75 | 7.76 | 5.32 | 5.34 | 29.53 | 29.53 | 66.8 | 66.3 | 4.93 | 4.90 | 34.5 | 34.3 | 36 | 38 |
| M2 | 25/9/2021 | Mid-Ebb | Fine | Moderate | 15:55 | 0.7 | M | 0.35 | 2 | | | 7.76 | | 5.36 | | 29.53 | | 65.7 | | 4.87 | | 34.1 | | 39 | |
| M3 | 25/9/2021 | Mid-Ebb | Fine | Calm | 15:56 | 0.6 | M | 0.3 | 1 | 0.168 | 251 | 7.26 | 7.26 | 1.70 | 1.71 | 30.89 | 30.90 | 56.4 | 56.5 | 4.19 | 4.20 | 49.6 | 49.3 | 55 | 56 |
| M3 | 25/9/2021 | Mid-Ebb | Fine | Calm | 15:56 | 0.6 | M | 0.3 | 2 | | | 7.25 | | 1.72 | | 30.90 | | 56.5 | | 4.20 | | 49.0 | | 56 | |

**Remark**

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

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 44.1 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M1(Impact Station) | 2.25 | 1.91 | 50.2 | 54.3 | 59 | 68 |

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 28/9/2021 | Mid-Flood | Cloudy | Smooth | 13:29 | 1.8 | M | 0.9 | 1 | 0.161 | 139 | 7.37 | 7.38 | 4.96 | 4.97 | 30.65 | 30.65 | 40.7 | 41.4 | 2.98 | 3.03 | 25.8 | 25.4 | 26 | 27 |
| M1 | 28/9/2021 | Mid-Flood | Cloudy | Smooth | 13:29 | 1.8 | M | 0.9 | 2 | | | 7.39 | | 4.97 | | 30.65 | | 42.1 | | 3.08 | | 25.0 | | 27 | |
| M2 | 28/9/2021 | Mid-Flood | Cloudy | Smooth | 13:13 | 0.8 | M | 0.4 | 1 | 0.179 | 242 | 7.51 | 7.51 | 4.79 | 4.80 | 30.77 | 30.78 | 58.1 | 58.4 | 4.23 | 4.25 | 18.6 | 18.0 | 28 | 29 |
| M2 | 28/9/2021 | Mid-Flood | Cloudy | Smooth | 13:13 | 0.8 | M | 0.4 | 2 | | | 7.51 | | 4.80 | | 30.78 | | 58.7 | | 4.27 | | 17.4 | | 29 | |
| M3 | 28/9/2021 | Mid-Flood | Fine | Moderate | 13:09 | 1.2 | M | 0.6 | 1 | 0.037 | 225 | 7.21 | 7.22 | 4.04 | 4.04 | 30.83 | 30.83 | 65.5 | 65.7 | 4.78 | 4.79 | 23.0 | 22.9 | 29 | 29 |
| M3 | 28/9/2021 | Mid-Flood | Fine | Moderate | 13:09 | 1.2 | M | 0.6 | 2 | | | 7.22 | | 4.03 | | 30.83 | | 65.8 | | 4.79 | | 22.9 | | 28 | |
| M1 | 28/9/2021 | Mid-Ebb | Cloudy | Smooth | 5:38 | 2.2 | M | 1.1 | 1 | 0.248 | 204 | 7.11 | 7.11 | 3.70 | 3.70 | 29.16 | 29.16 | 44.5 | 44.4 | 3.27 | 3.27 | 16.5 | 16.7 | 13 | 13 |
| M1 | 28/9/2021 | Mid-Ebb | Cloudy | Smooth | 5:38 | 2.2 | M | 1.1 | 2 | | | 7.11 | | 3.69 | | 29.15 | | 44.3 | | 3.26 | | 16.9 | | 12 | |
| M2 | 28/9/2021 | Mid-Ebb | Cloudy | Smooth | 5:56 | 1.2 | M | 0.6 | 1 | 0.191 | 303 | 7.21 | 7.22 | 3.87 | 3.87 | 29.21 | 29.22 | 65.0 | 64.4 | 4.73 | 4.69 | 22.1 | 22.1 | 31 | 31 |
| M2 | 28/9/2021 | Mid-Ebb | Cloudy | Smooth | 5:56 | 1.2 | M | 0.6 | 2 | | | 7.22 | | 3.86 | | 29.22 | | 63.8 | | 4.64 | | 22.1 | | 31 | |
| M3 | 28/9/2021 | Mid-Ebb | Fine | Moderate | 5:30 | 0.9 | M | 0.45 | 1 | 0.065 | 177 | 7.17 | 7.18 | 3.86 | 3.88 | 30.94 | 30.94 | 64.7 | 64.5 | 4.71 | 4.68 | 21.5 | 21.6 | 24 | 24 |
| M3 | 28/9/2021 | Mid-Ebb | Fine | Moderate | 5:30 | 0.9 | M | 0.45 | 2 | | | 7.19 | | 3.89 | | 30.94 | | 64.3 | | 4.64 | | 21.6 | | 23 | |

**Remark**

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**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

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

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

| Monitoring Location | Date | Tide Mode | Weather | Sea Condition | Time | Water Depth (m) | Monitoring Level | Monitoring Level (m) | Replicate | In-situ Measurement | | | | | | | | | | | | | | Laboratory Analysis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Current Speed (m/s) | Current Direction (°) | pH | | Salinity (ppt) | | Temperature (degree C) | | DO Saturation (%) | | DO (mg/L) | | Turbidity (NTU) | | Total Suspended Solids (mg/L) | |
| | | | | | | | | | | Value | Value | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. | Value | Ave. |
| M1 | 30/9/2021 | Mid-Flood | Fine | Moderate | 20:53 | 1 | M | 0.5 | 1 | 0.128 | 344 | 7.06 | 7.05 | 5.78 | 5.78 | 31.89 | 31.88 | 33.1 | 32.9 | 2.24 | 2.23 | 34.2 | 34.1 | 28 | 30 |
| M1 | 30/9/2021 | Mid-Flood | Fine | Moderate | 20:53 | 1 | M | 0.5 | 2 | | | 7.04 | | 5.77 | | 31.87 | | 32.6 | | 2.21 | | 33.9 | | 31 | |
| M2 | 30/9/2021 | Mid-Flood | Fine | Moderate | 20:33 | 1.2 | M | 0.6 | 1 | 0.104 | 213 | 7.05 | 7.05 | 6.05 | 6.06 | 31.90 | 31.91 | 36.4 | 36.6 | 2.49 | 2.51 | 29.0 | 29.0 | 25 | 25 |
| M2 | 30/9/2021 | Mid-Flood | Fine | Moderate | 20:33 | 1.2 | M | 0.6 | 2 | | | 7.04 | | 6.06 | | 31.91 | | 36.8 | | 2.53 | | 29.0 | | 25 | |
| M3 | 30/9/2021 | Mid-Flood | Cloudy | Calm | 20:34 | 0.8 | M | 0.4 | 1 | 0.075 | 91 | 7.31 | 7.32 | 5.94 | 5.94 | 31.15 | 31.16 | 46.5 | 47.2 | 3.32 | 3.37 | 29.9 | 29.8 | 35 | 36 |
| M3 | 30/9/2021 | Mid-Flood | Cloudy | Calm | 20:34 | 0.8 | M | 0.4 | 2 | | | 7.32 | | 5.93 | | 31.16 | | 47.9 | | 3.42 | | 29.7 | | 37 | |
| M1 | 30/9/2021 | Mid-Ebb | Fine | Moderate | 7:41 | 0.7 | M | 0.35 | 1 | 0.057 | 337 | 7.02 | 7.03 | 6.31 | 6.33 | 32.00 | 32.02 | 42.3 | 42.5 | 2.99 | 3.02 | 22.4 | 22.4 | 33 | 32 |
| M1 | 30/9/2021 | Mid-Ebb | Fine | Moderate | 7:41 | 0.7 | M | 0.35 | 2 | | | 7.04 | | 6.34 | | 32.04 | | 42.7 | | 3.04 | | 22.4 | | 30 | |
| M2 | 30/9/2021 | Mid-Ebb | Fine | Moderate | 7:57 | 0.9 | M | 0.45 | 1 | 0.067 | 23 | 7.14 | 7.16 | 5.92 | 5.93 | 31.94 | 31.93 | 37.8 | 37.6 | 2.68 | 2.66 | 21.7 | 21.7 | 31 | 31 |
| M2 | 30/9/2021 | Mid-Ebb | Fine | Moderate | 7:57 | 0.9 | M | 0.45 | 2 | | | 7.17 | | 5.94 | | 31.93 | | 37.4 | | 2.64 | | 21.7 | | 30 | |
| M3 | 30/9/2021 | Mid-Ebb | Cloudy | Calm | 7:39 | 0.6 | M | 0.3 | 1 | 0.204 | 277 | 7.08 | 7.08 | 5.01 | 5.02 | 30.04 | 30.05 | 52.6 | 52.8 | 4.17 | 4.18 | 23.3 | 23.7 | 23 | 24 |
| M3 | 30/9/2021 | Mid-Ebb | Cloudy | Calm | 7:39 | 0.6 | M | 0.3 | 2 | | | 7.08 | | 5.02 | | 30.05 | | 52.9 | | 4.19 | | 24.0 | | 25 | |

**Remark**

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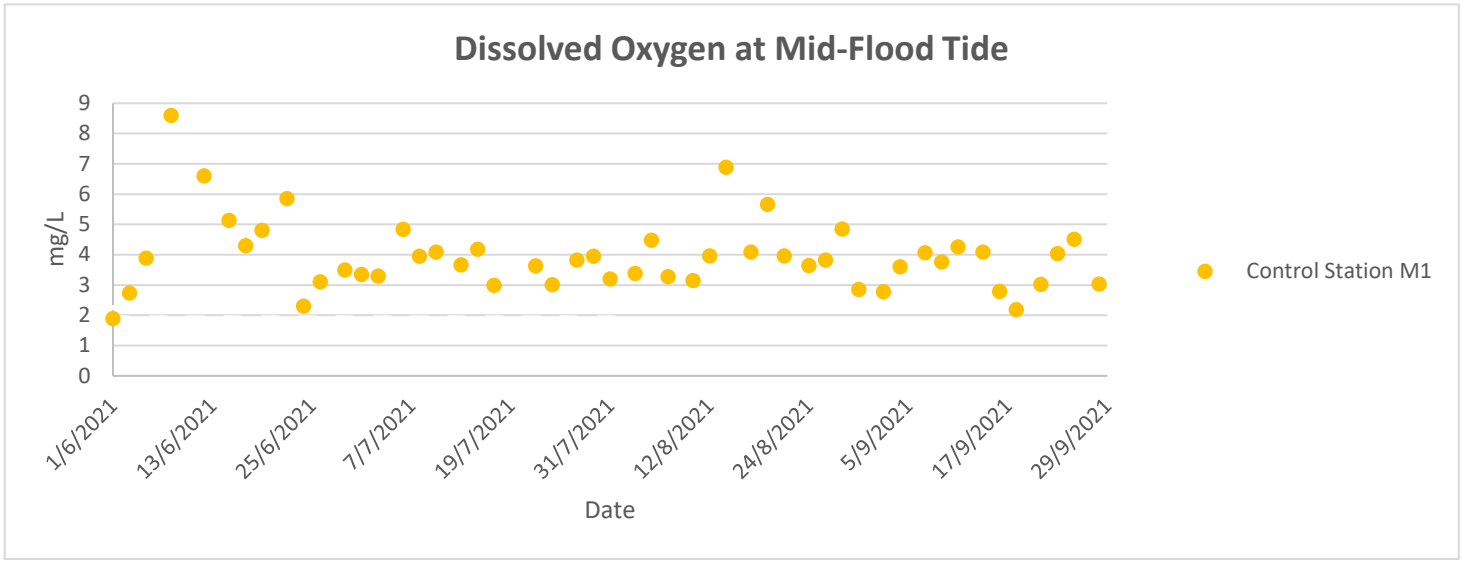
6. Limti Level for SS: 99%-ile of baseline data or 130% of upstream control station's SS recorded on the same day.

**For Flood Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M2(Impact Station) | 1.88 | 1.79 | 43.0 | 52.4 | 81 | 112 |
| M3(Impact Station) | 3.28 | 3.14 | 74.3 | 78.0 | 104 | 167 |

**For Ebb Tide**

| Monitoring Location | DO | | NTU | | SS | |
|---|---|---|---|---|---|---|
| | AL | LL | AL | LL | AL | LL |
| M1(Impact Station) | 2.25 | 1.91 | 48.4 | 50.4 | 59 | 68 |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mg/L
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8
7
6
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4
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25/6/2021
7/7/2021
19/7/2021
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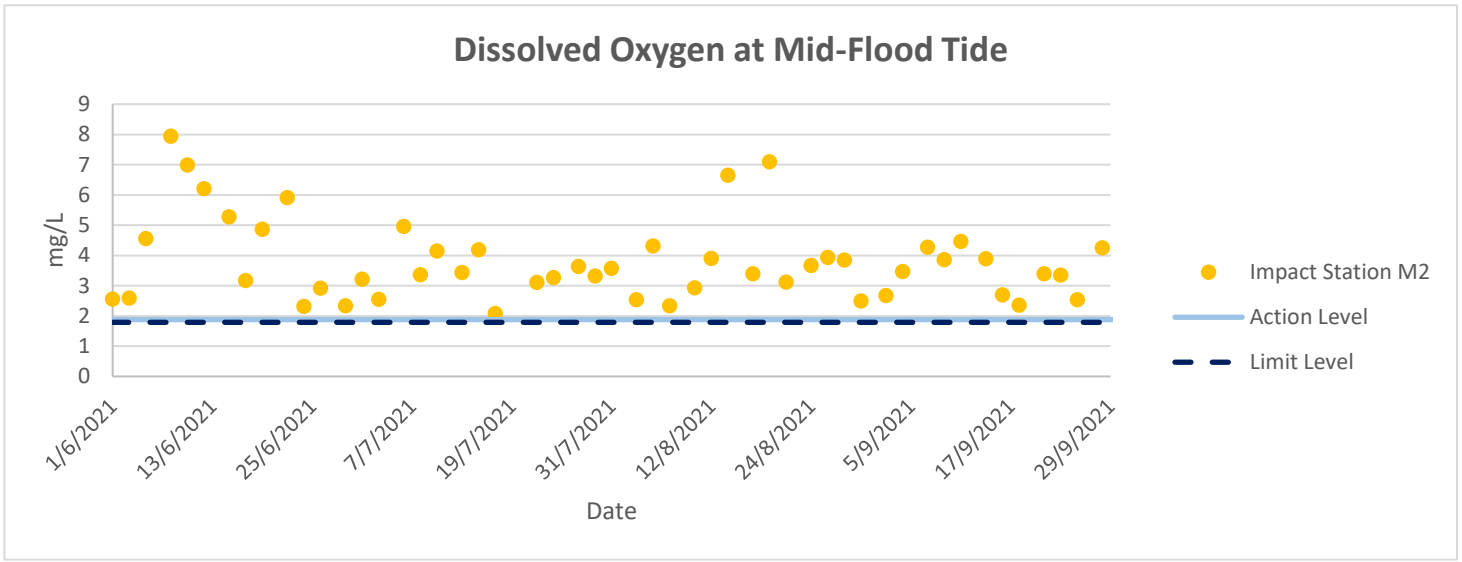
24/8/2021
5/9/2021
17/9/2021
29/9/2021
Date
Control Station M1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mg/L
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17/9/2021
29/9/2021
Date
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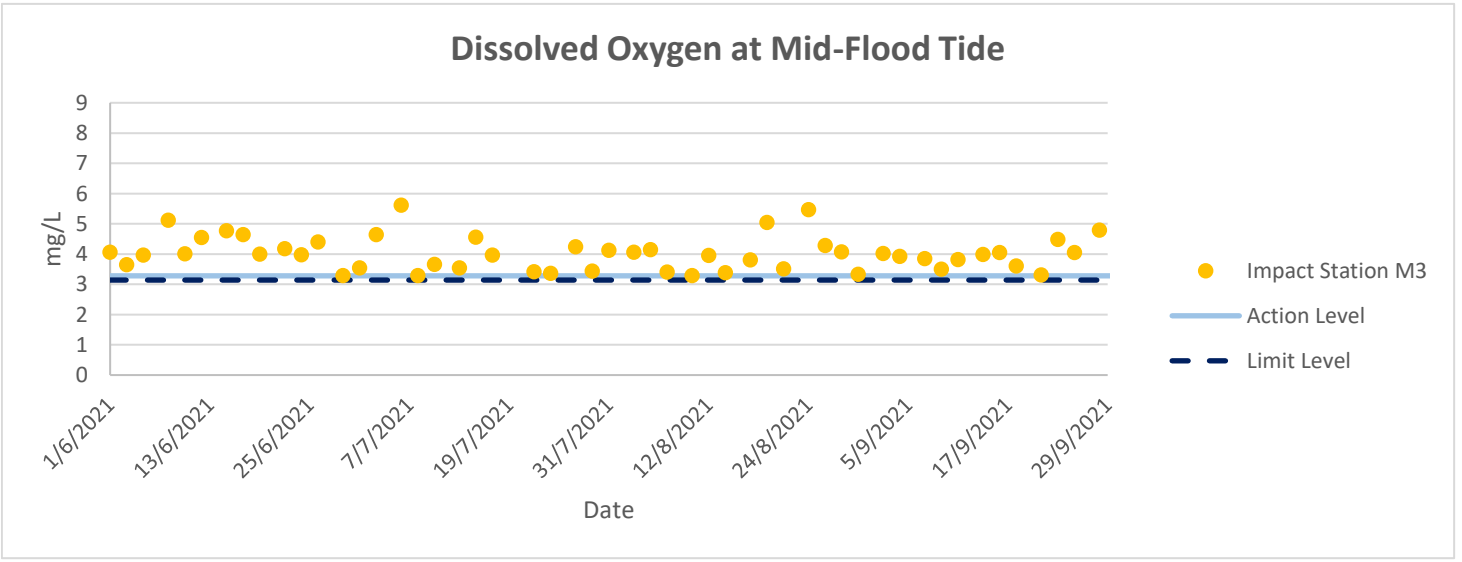
Action Level
Limit Level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mg/L
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6
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3
2
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1/6/2021
13/6/2021
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29/9/2021
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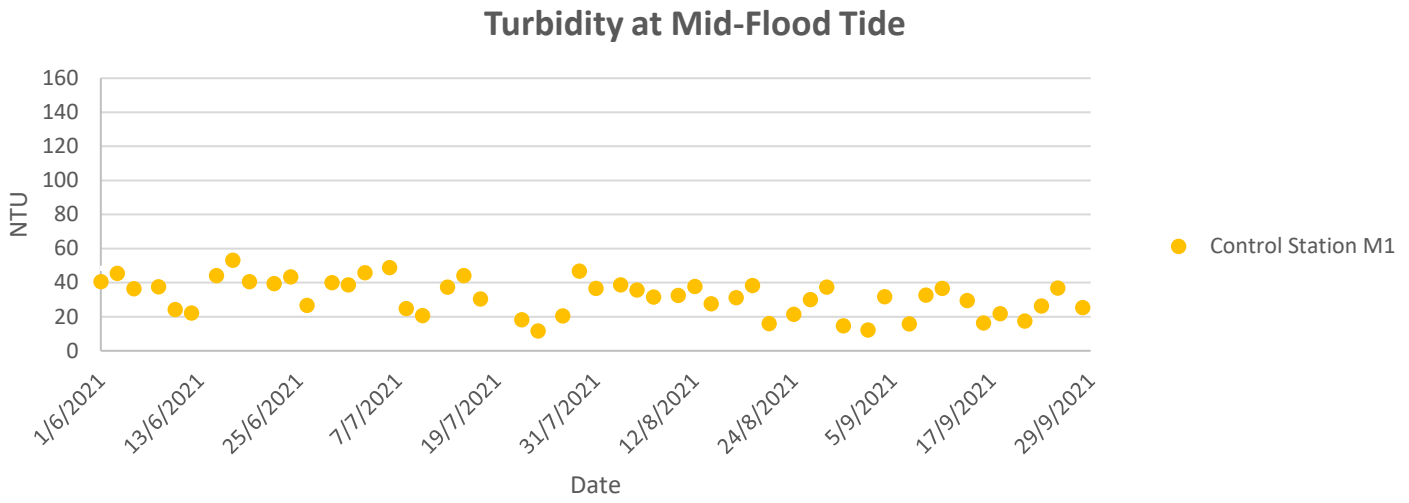
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20
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NTU
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13/6/2021
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7/7/2021
19/7/2021
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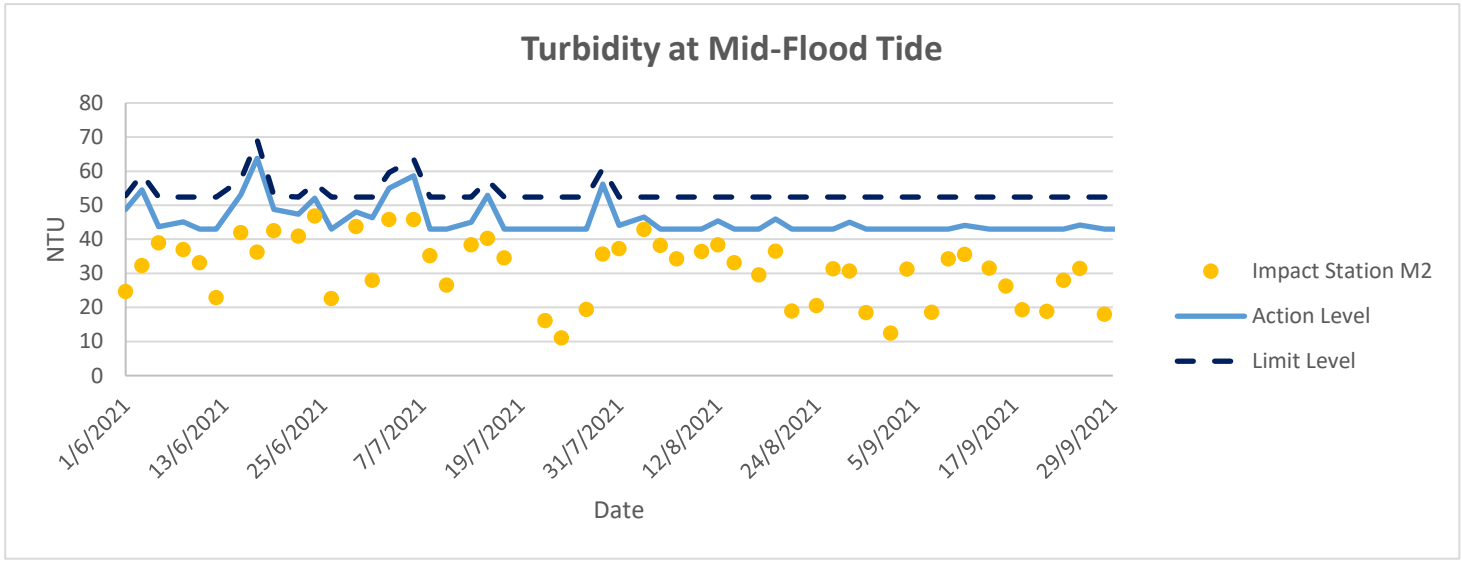
24/8/2021
5/9/2021
17/9/2021
29/9/2021
Date
Control Station M1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29/9/2021
Date
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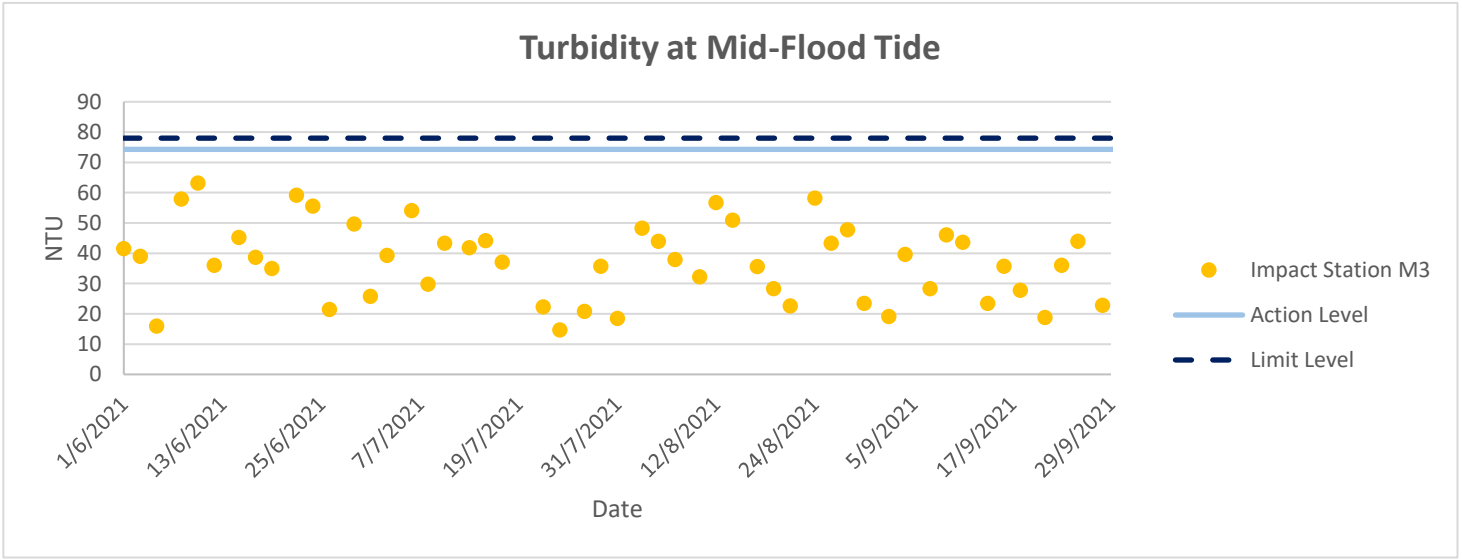
Action Level
Limit Level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80
70
60
50
40
30
20
10
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NTU
1/6/2021
13/6/2021
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31/7/2021
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17/9/2021
29/9/2021
Date
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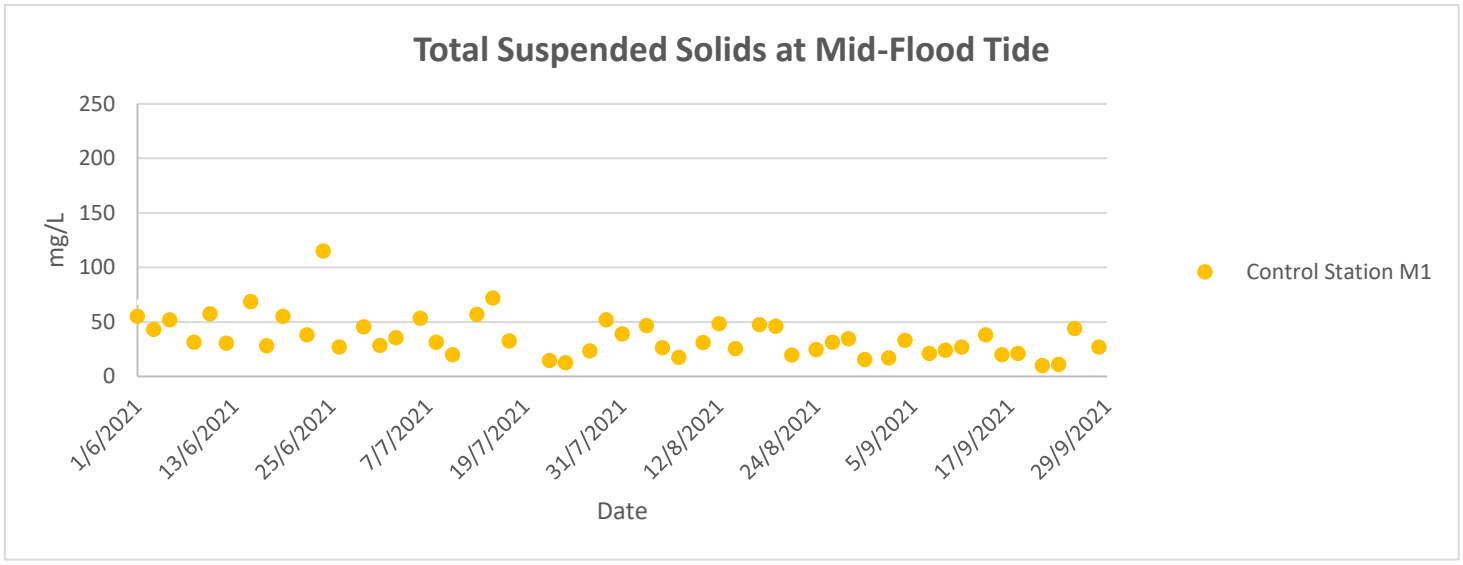
Action Level
Limit Level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mg/L
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19/7/2021
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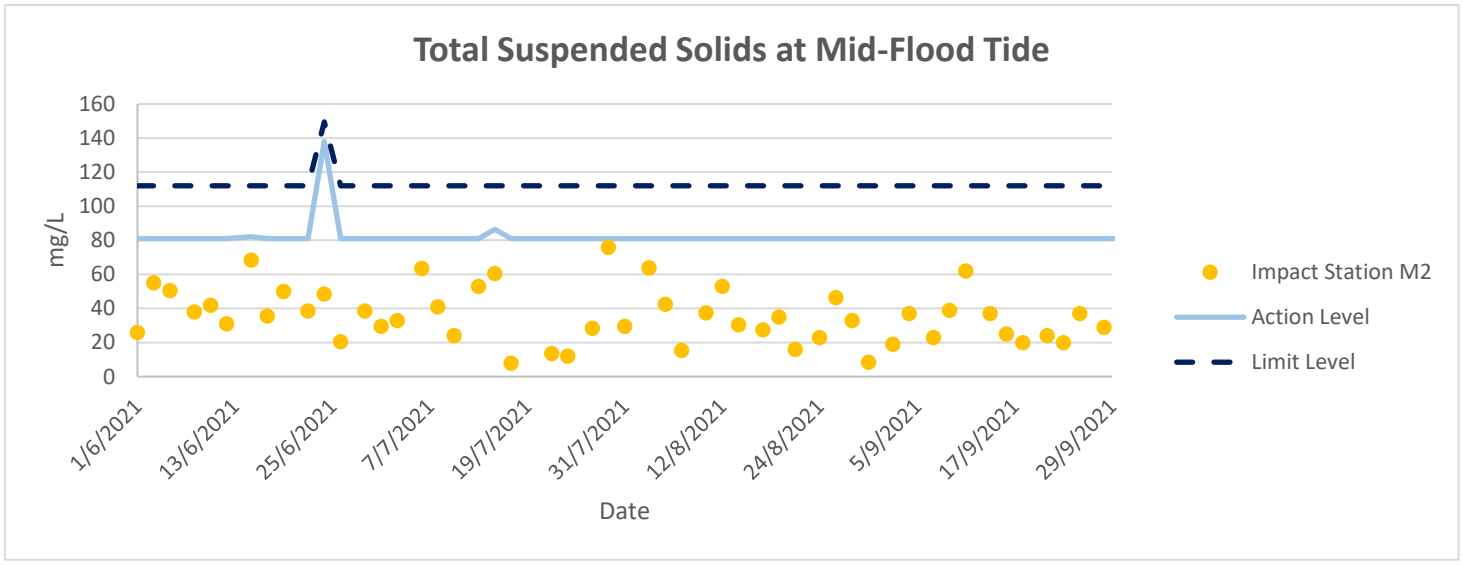
17/9/2021
29/9/2021
Date
Control Station M1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mg/L
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31/7/2021
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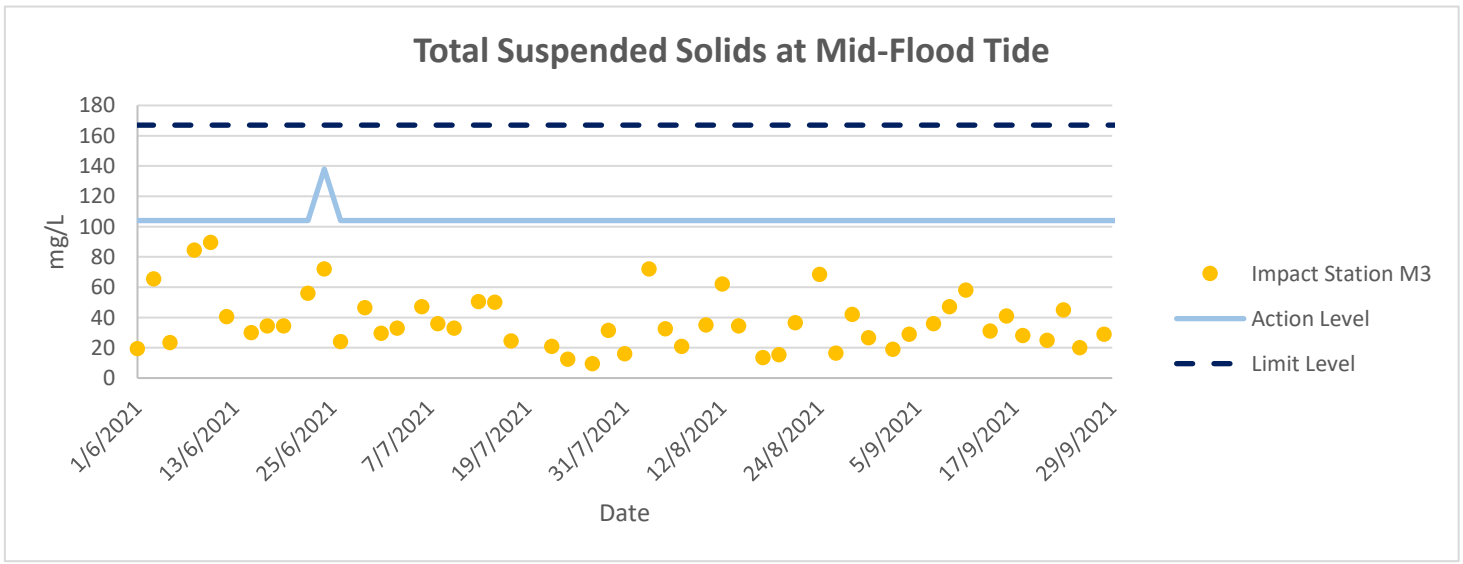
29/9/2021
Date
Impact Station M2
Action Level
Limit Level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mg/L
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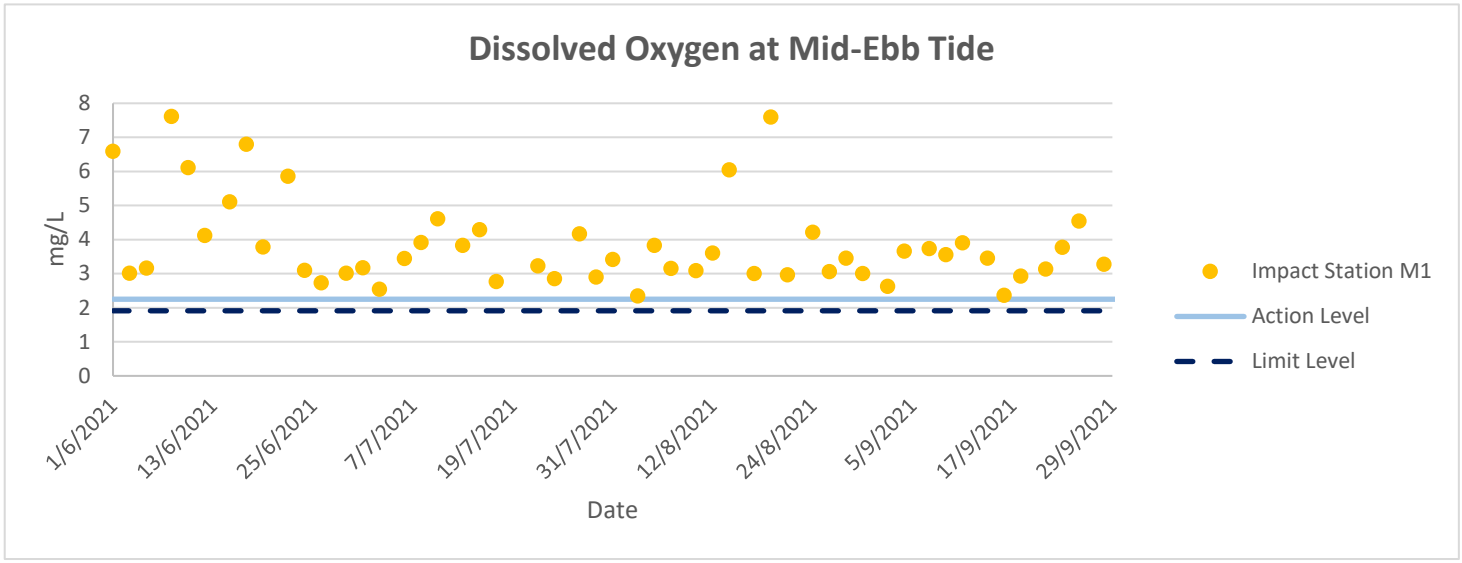
17/9/2021
29/9/2021
Date
Impact Station M3
Action Level
Limit Level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mg/L
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6
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13/6/2021
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7/7/2021
19/7/2021
31/7/2021
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17/9/2021
29/9/2021
Date
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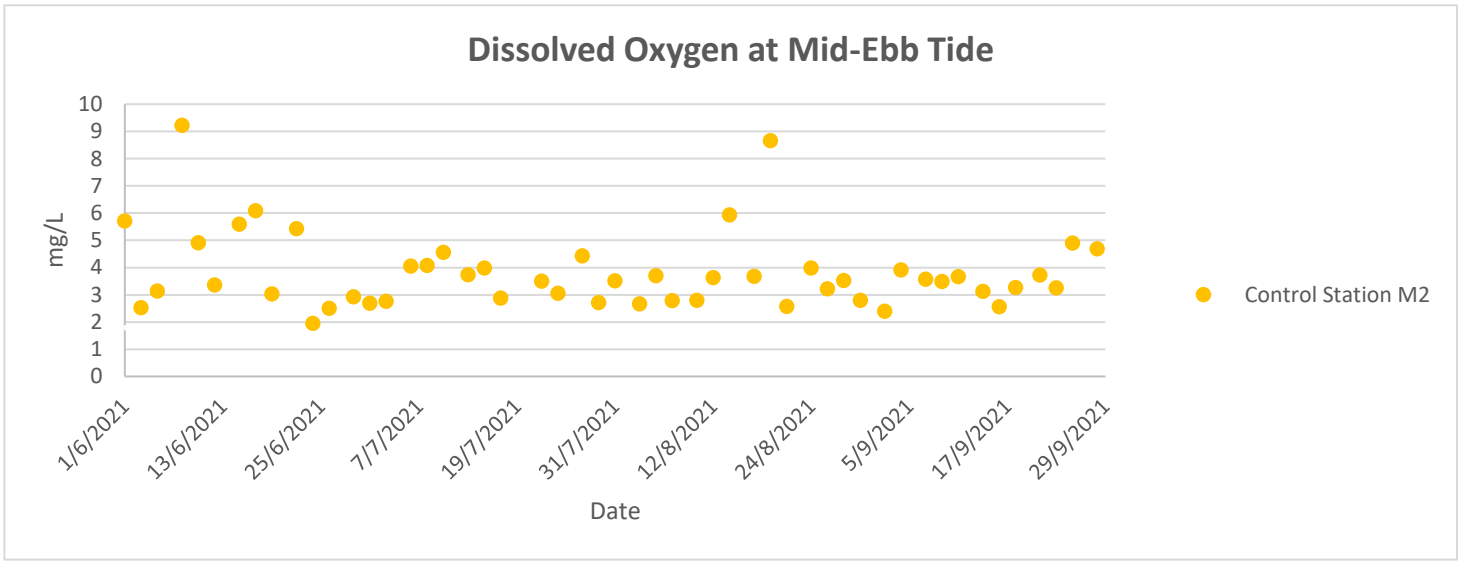
Action Level
Limit Level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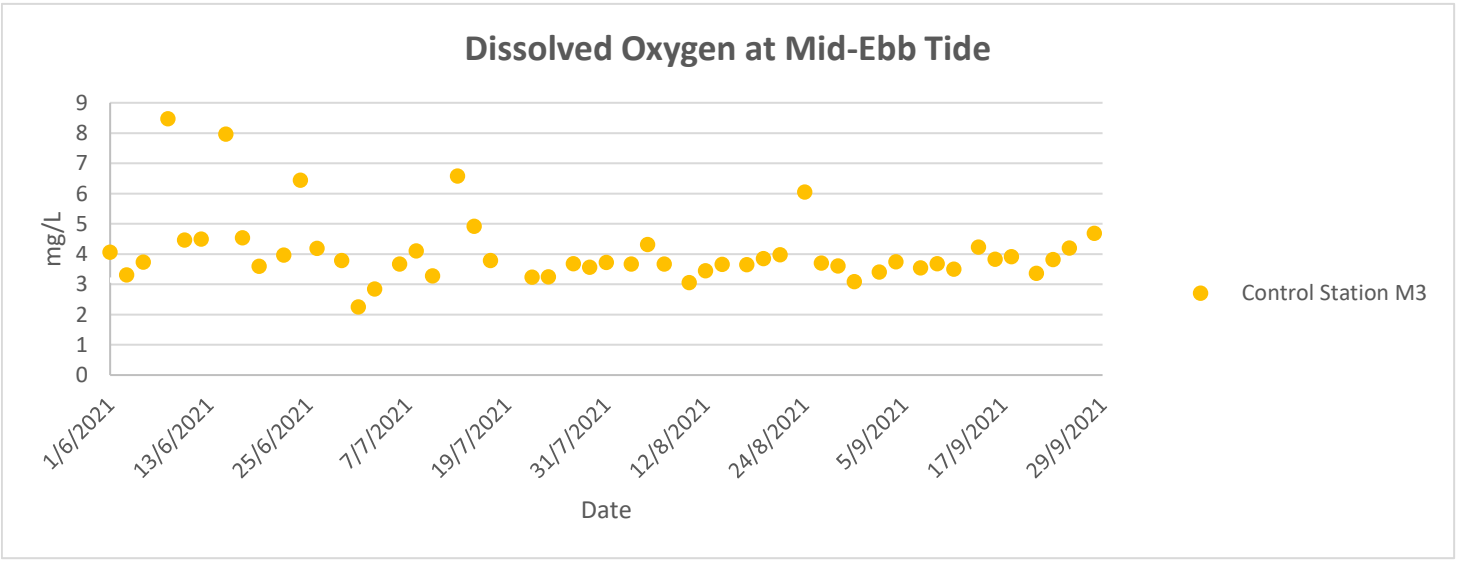
29/9/2021
Date
Control Station M2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mg/L
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3
4
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6
7
8
9
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29/9/2021
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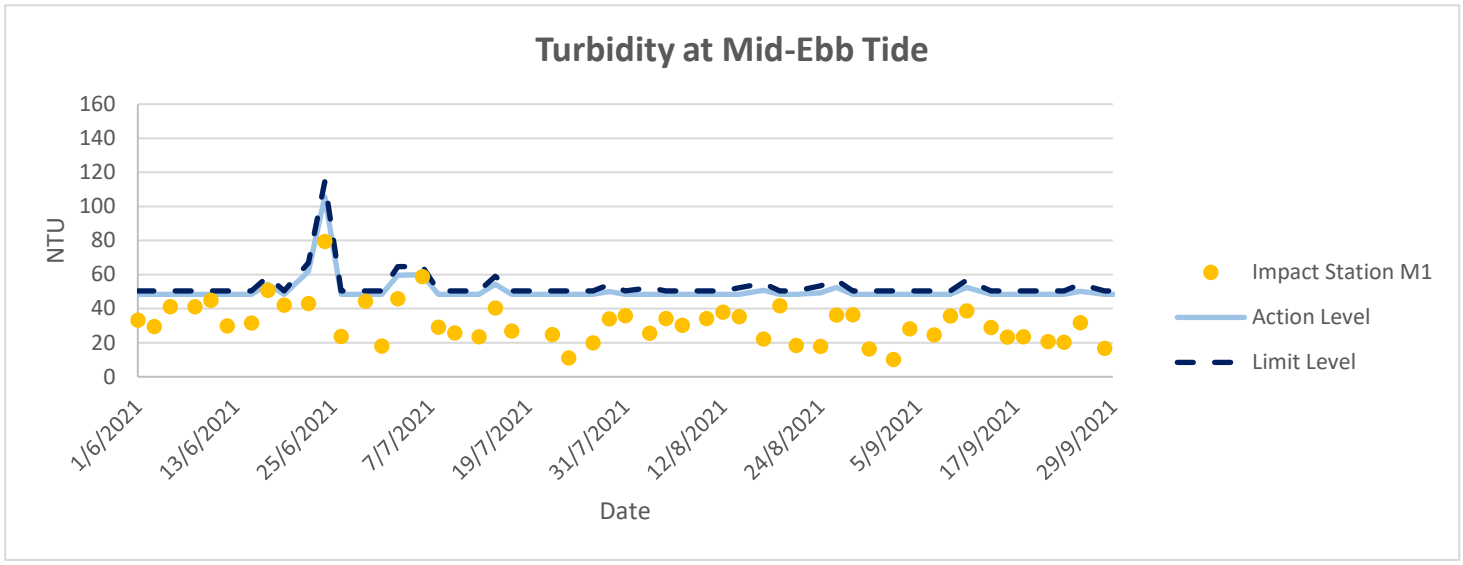
Control Station M3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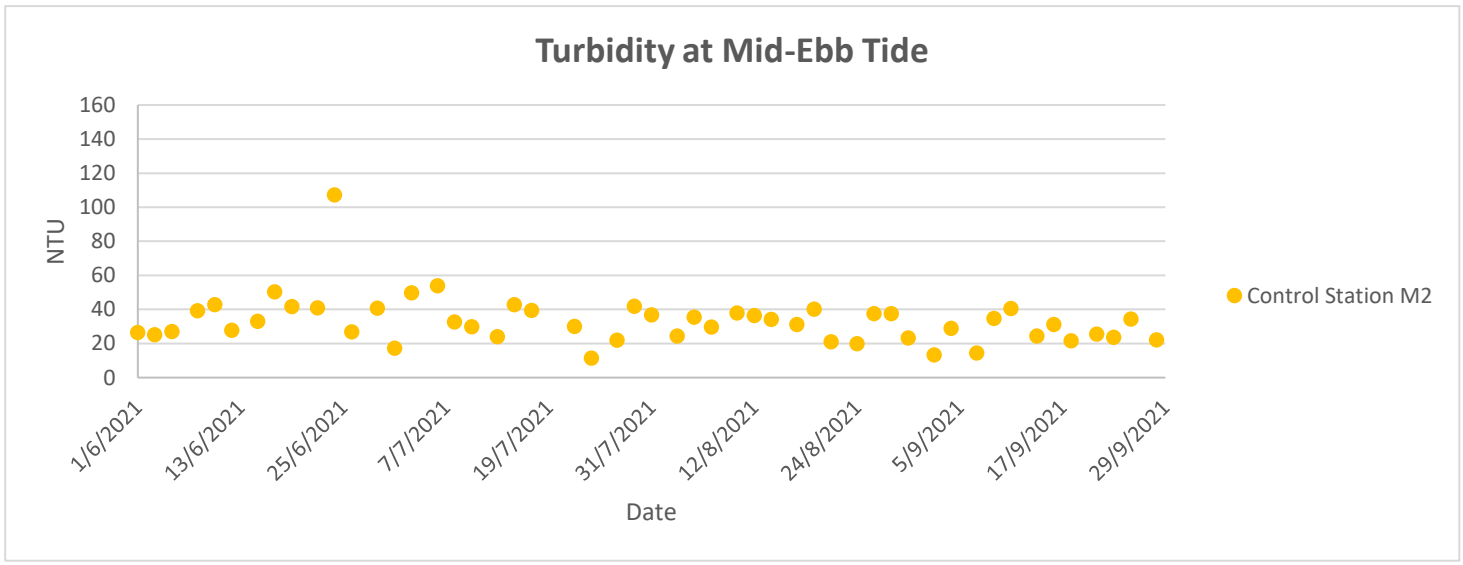
Limit Level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29/9/2021
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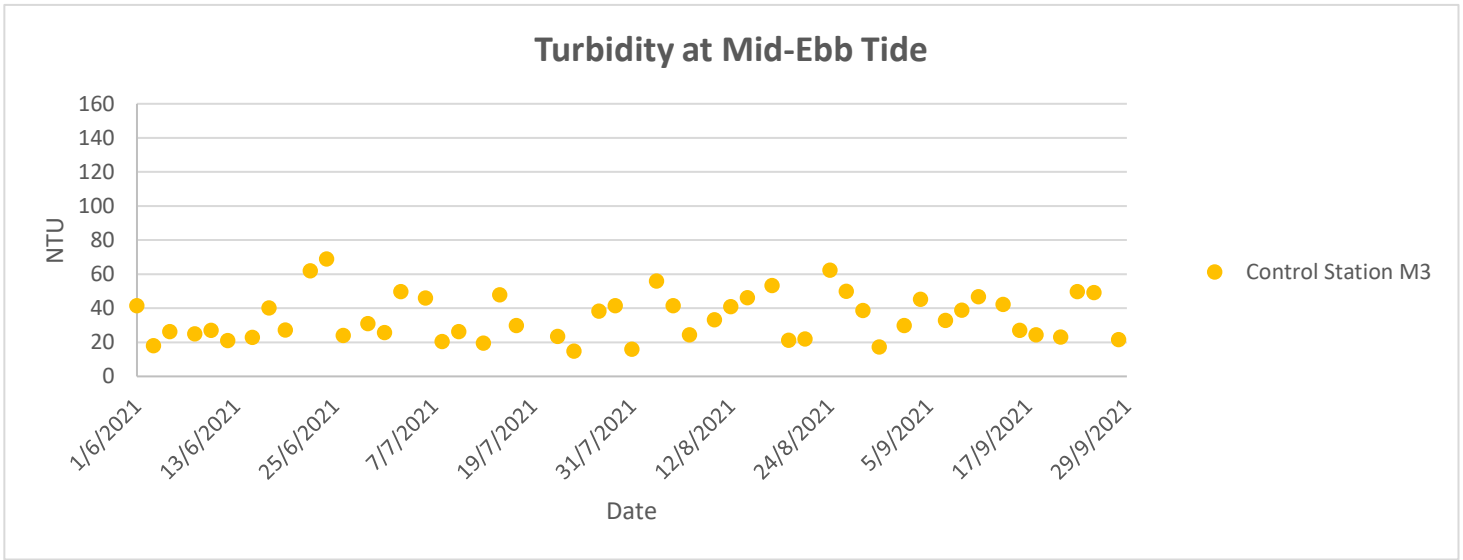
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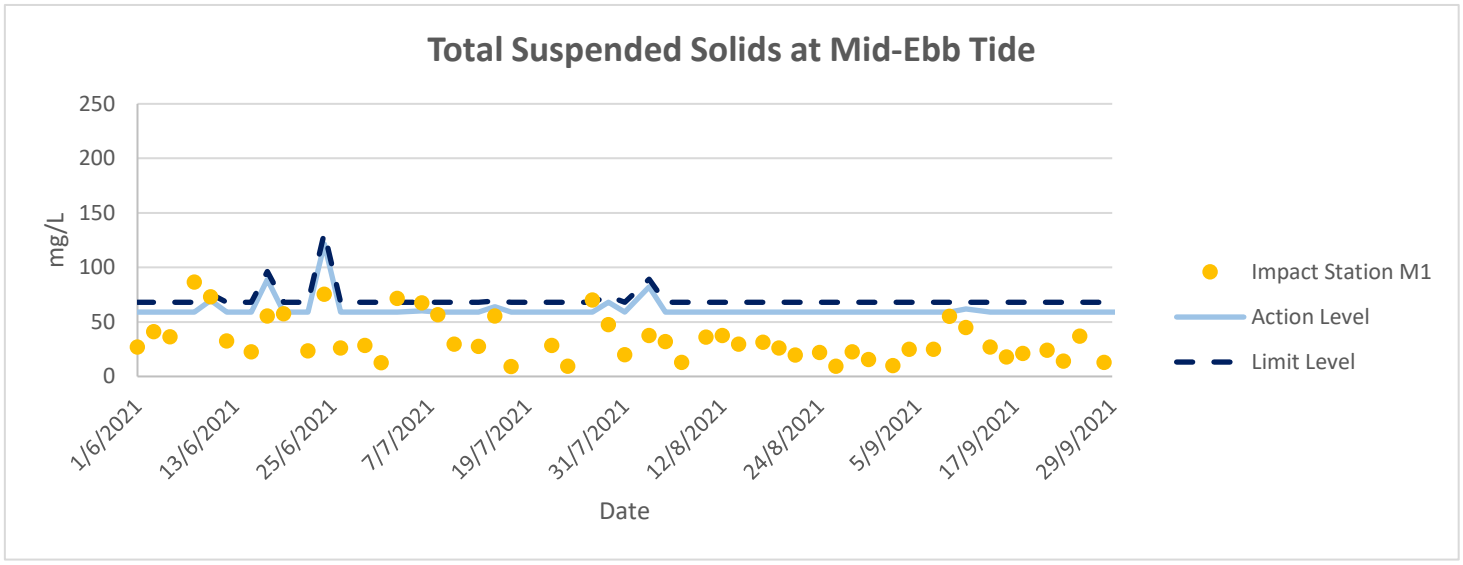
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150
100
50
0
mg/L
1/6/2021
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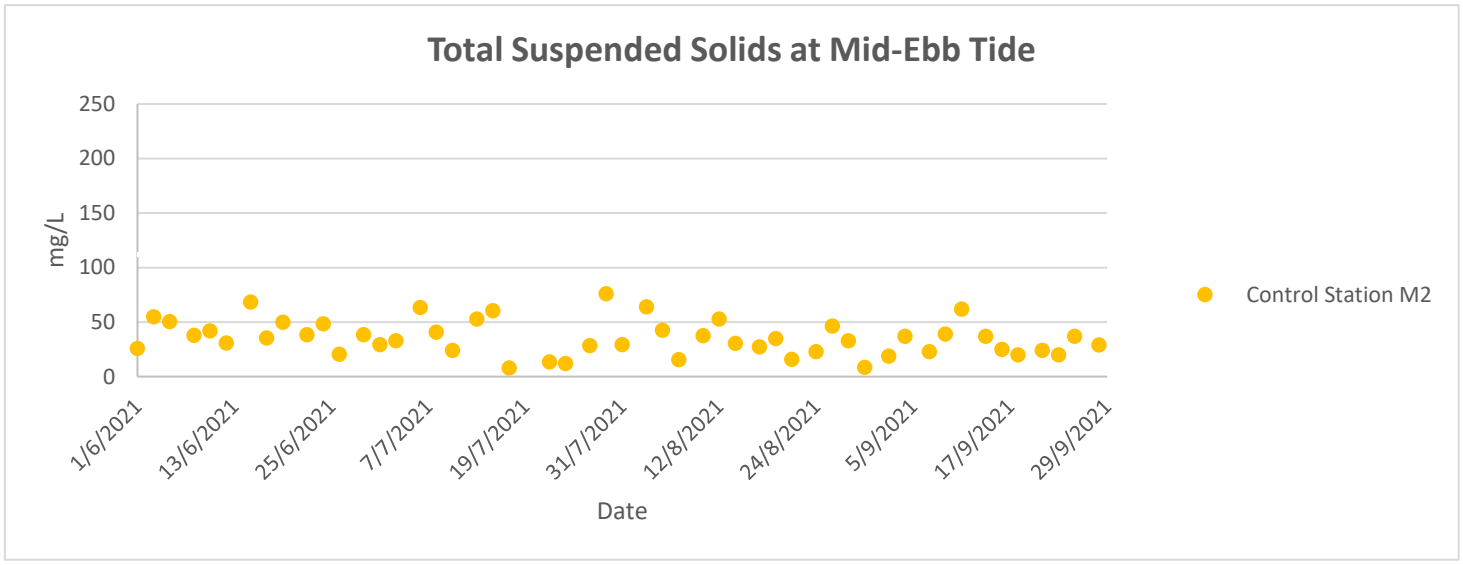
Limit Level


Total Suspended Solids at Mid-Ebb Tide
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mg/L
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29/9/2021
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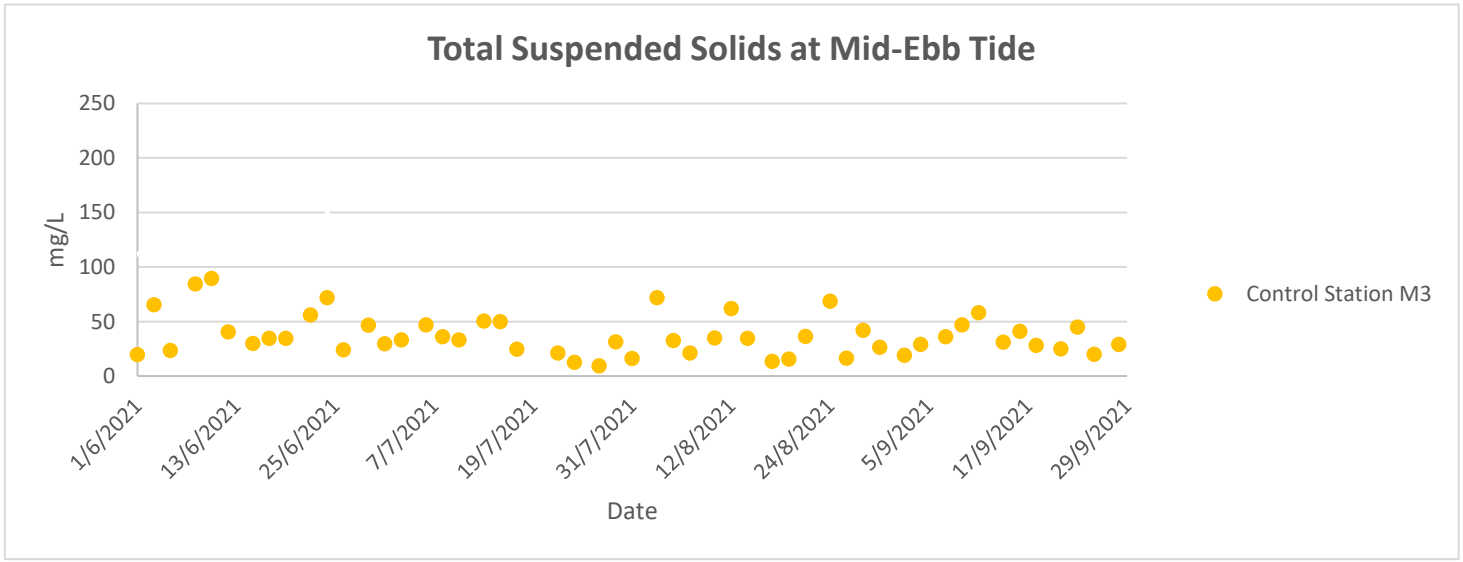
Total Suspended Solids at Mid-Ebb Tide
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200
150
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mg/L
1/6/2021
13/6/2021
25/6/2021
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31/7/2021
12/8/2021
24/8/2021
5/9/2021
17/9/2021
29/9/2021
Date
Control Station M3

# Ecology Monitoring Results

## Appendix F.1 Supplemental Discussion

### F.1.1 Active Ardeid Night Roost

For the final night roost, a total of nine Chinese Pond Heron individuals utilized the inside portions of the understory to canopy layers of the roosting substrate *Sonneratia apetala* and *S. caseolaris* at ANR1. The night roost (ANR2) located at the northeast of the Project boundary, as noted to be active last April 2021, was not used by the ardeids during the current monitoring period, similar with the May to August 2021 results. This was, however, not caused by the Project's construction activities as the recorded noise level ((42.4 dB(A)) near ANR2 was lower with respect to the action limit level of 65.5 dB(A) which more likely to cause behavioural responses of some kind by the ardeids (Wright et al. 2010). Furthermore, ardeid night roosts are known for their highly changeable locations and roosting population. These roosting locations can change in temporal basis and even change from day to day on a small scale. In Hong Kong, fluctuation of roosting population, abandonment or change in locations of roosting site without major nearby environmental change has been observed in roosts and locations (HKJC, 2005; Lee et al., 2004; MTRC, 2010).

### F.1.2 Ecological Monitoring of Birds

#### F.1.2.1 Abundance

##### F.1.2.1.1 All Avifauna Species

**Point Count**

Among the different species recorded, the Black-winged Stilt *Himantopus himantopus* was noted with the highest abundance (13 ind.), followed by the Chinese Pond Heron *Ardeola bacchus* and Little Egret *Egretta garzetta* both with 9 ind. each. On the other hand, all of the species which had the least abundance (1 ind.) during the reporting month include the Blue-winged Pitta *Pitta moluccensis,* Eastern Cattle Egret *Bubulcus coromandus,* Oriental Magpie Robin *Copsychus saularis*, Black-collared Starling *Gracupica nigricollis* and Yellow-bellied Prinia *Prinia flaviventris*.

**Transect Walk**

Among the different species recorded, the Little Egret *Egretta garzetta* was noted with the highest abundance (15 ind.), followed by Common Greenshank *Tringa nebularia* (12 ind.) and Black-winged Stilt *Himantopus himantopus* (10 ind.). On the other hand, the Oriental Magpie Robin *Copsychus saularis* and White-breasted Waterhen *Amaurornis phoenicurus* had the lowest abundance (1 ind. each).

##### F.1.2.1.2 Avifauna Species of Conservation Importance

**Point Count**

Among the different species recorded, the Black-winged Stilt *Himantopus himantopus* was recorded with the highest abundance (13 ind.), followed by both the Chinese Pond Heron *Ardeola bacchus* and Little Egret *Egretta garzetta* both with 9 ind. each. On the other hand, the four species such as the Common Greenshank *Tringa nebularia,* Great Egret *Ardea alba, Grey Heron Ardea cinerea* and *Pied avocet Recurvirostra avosetta* had the lowest abundance (4 ind. each).

**Transect Walk**

Among the different species recorded, the Little Egret *Egretta garzetta* was noted with the highest abundance (15 ind.), followed by the Common Greenshank *Tringa nebularia* (12 ind.) and Black-winged Stilt *Himantopus himantopus* (10). On the other hand, species including the Common Redshank *Tringa totanus* and Black Kite *Milvus migrans* had the lowest recorded abundance (2 ind. each).

**Appendix F.2 Ecological Bird Monitoring Results (15 and 20 September 2021)**

| Date (dd/mm/yyyy) | Daytime/Night time | Season | Area | Transect/Point Count | Point Count (Location)/Transect Impact | Common Name | Scientific Name | Abundance | Habitat | Distribution in Hong Kong[2] | Principal Status[3] | Level of Concern[4] | Protection Status in China[5] | China Red Data Book [6] | Red List of China's Vertebrates [10] | IUCN Red List [7] (v.2020-3) | Species of Conservation Importance | Wetland Dependent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Crested Myna | *Acridotheres cristatellus* | 4 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Great Egret | *Ardea alba* | 9 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Grey Heron | *Ardea cinerea* | 3 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Chinese Pond Heron | *Ardeola bacchus* | 1 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Eastern Cattle Egret | *Bubulcus coromandus* | 2 | Pond-FLW | Common | R.PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Whiskered Tern | *Chlidonias hybrida* | 3 | Pond-FLW | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black Drongo | *Dicrurus macrocercus* | 2 | Plantation-FLW | Common | SV | - | - |  | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Little Egret | *Egretta garzetta* | 9 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black-collared Starling | *Gracupica nigricollis* | 2 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black Kite | *Milvus migrans* | 2 | Pond-FLW | Common | R,WV | (RC) | Class II | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | White Wagtail | *Motacilla alba* | 5 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Eurasian Tree Sparrow | *Passer montanus* | 7 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Spotted Dove | *Spilopelia chinensis* | 8 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Chinese Pond Heron | *Ardeola bacchus* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Little Egret | *Egretta garzetta* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Scaly-breasted Munia | *Lonchura punctulata* | 3 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Grey Heron | *Ardea cinerea* | 1 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Black Drongo | *Dicrurus macrocercus* | 1 | Pond-FLW | Common | SV | - | - |  | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Little Egret | *Egretta garzetta* | 1 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Plain Prinia | *Prinia inornata* | 1 | Reedbed | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW3 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW3 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Eastern Cattle Egret | *Bubulcus coromandus* | 1 | Pond-FLW | Common | R.PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Pied Kingfisher | *Ceryle rudis* | 2 | Pond-FLW | Uncommon | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | Whiskered Tern | *Chlidonias hybrida* | 2 | Pond-FLW | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | Eurasian Tree Sparrow | *Passer montanus* | 3 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Great Egret | *Ardea alba* | 2 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Grey Heron | *Ardea cinerea* | 1 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Black Drongo | *Dicrurus macrocercus* | 1 | Plantation-FLW | Common | SV | - | - | | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Little Egret | *Egretta garzetta* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Black-collared Starling | *Gracupica nigricollis* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Blue-winged Pitta | *Pitta moluccensis* | 1 | Pond-FLW | Vagrant | PM | - | - | - | DD | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Plain Prinia | *Prinia inornata* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Crested Myna | *Acridotheres cristatellus* | 4 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Great Egret | *Ardea alba* | 2 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Chinese Pond Heron | *Ardeola bacchus* | 4 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Velvet-fronted Nuthatch | *Sitta frontalis* | 2 | Plantation-FLW | Common | R | - | - | - | DD | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Chinese Pond Heron | *Ardeola bacchus* | 3 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Little Egret | *Egretta garzetta* | 4 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Black-winged Stilt | *Himantopus himantopus* | 6 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Common Greenshank | *Tringa nebularia* | 4 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Japanese White-eye | *Zosterops japonicus* | 3 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Barn Swallow | *Hirundo rustica* | 3 | Modified Watercourse | Abundant | PM,SV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Plain Prinia | *Prinia inornata* | 2 | Plantation-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Oriental Magpie Robin | *Copsychus saularis* | 1 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Crested Myna | *Acridotheres cristatellus* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Chinese Pond Heron | *Ardeola bacchus* | 1 | Pond-NSW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | White-rumped Munia | *Lonchura striata* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Eurasian Tree Sparrow | *Passer montanus* | 4 | Pond-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Yellow-bellied Prinia | *Prinia flaviventris* | 1 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Plain Prinia | *Prinia inornata* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Chinese Pond Heron | *Ardeola bacchus* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Whiskered Tern | *Chlidonias hybrida* | 2 | Modified Watercourse | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Black-winged Stilt | *Himantopus himantopus* | 2 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Common Greenshank | *Tringa nebularia* | 4 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Pied Avocet | *Recurvirostra avosetta* | 4 | Modified Watercourse | Abundant | WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Masked Laughingthrush | *Garrulax perspicillatus* | 3 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Black-winged Stilt | *Himantopus himantopus* | 1 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Modified Watercourse | Common | R | - | - | - | LC | LC | N | Y |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | Grey Heron | *Ardea cinerea* | 2 | Modified Watercourse | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | Oriental Magpie Robin | *Copsychus saularis* | 1 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Modified Watercourse | Common | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Chinese Pond Heron | *Ardeola bacchus* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Black-winged Stilt | *Himantopus himantopus* | 4 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | White Wagtail | *Motacilla alba* | 1 | Modified Watercourse | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Common Greenshank | *Tringa nebularia* | 8 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Common Redshank | *Tringa totanus* | 2 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | Black-winged Stilt | *Himantopus himantopus* | 10 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 20/09/2021 | Night time | Wet Season | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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

-: no observed individual

**Appendix F.3.1 Ecological Bird Monitoring Diversity (All avifauna species in Point Count Method) in All Habitats (15 and 20 September 2021)**

| Scientific Name | Count | P | Ln(P) | P*Ln(P) | P*Ln(P)2 |
|---|---|---|---|---|---|
| *Acridotheres cristatellus* | 6 | 0.060606 | -2.80336 | -0.1699 | 0.476293 |
| *Amaurornis phoenicurus* | 2 | 0.020202 | -3.90197 | -0.07883 | 0.307584 |
| *Ardea alba* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| *Ardea cinerea* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| *Ardeola bacchus* | 9 | 0.090909 | -2.3979 | -0.21799 | 0.522718 |
| *Bubulcus coromandus* | 1 | 0.010101 | -4.59512 | -0.04642 | 0.213284 |
| *Ceryle rudis* | 2 | 0.020202 | -3.90197 | -0.07883 | 0.307584 |
| *Chlidonias hybrida* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| *Copsychus saularis* | 1 | 0.010101 | -4.59512 | -0.04642 | 0.213284 |
| *Dicrurus macrocercus* | 2 | 0.020202 | -3.90197 | -0.07883 | 0.307584 |
| *Egretta garzetta* | 9 | 0.090909 | -2.3979 | -0.21799 | 0.522718 |
| *Garrulax perspicillatus* | 3 | 0.030303 | -3.49651 | -0.10595 | 0.370472 |
| *Gracupica nigricollis* | 1 | 0.010101 | -4.59512 | -0.04642 | 0.213284 |
| *Himantopus himantopus* | 13 | 0.131313 | -2.03017 | -0.26659 | 0.541219 |
| *Lonchura punctulata* | 3 | 0.030303 | -3.49651 | -0.10595 | 0.370472 |
| *Lonchura striata* | 2 | 0.020202 | -3.90197 | -0.07883 | 0.307584 |
| *Motacilla alba* | 3 | 0.030303 | -3.49651 | -0.10595 | 0.370472 |
| *Passer montanus* | 7 | 0.070707 | -2.64921 | -0.18732 | 0.496244 |
| *Pitta moluccensis* | 1 | 0.010101 | -4.59512 | -0.04642 | 0.213284 |
| *Prinia flaviventris* | 1 | 0.010101 | -4.59512 | -0.04642 | 0.213284 |
| *Prinia inornata* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| *Recurvirostra avosetta* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| *Sitta frontalis* | 2 | 0.020202 | -3.90197 | -0.07883 | 0.307584 |
| *Spilopelia chinensis* | 7 | 0.070707 | -2.64921 | -0.18732 | 0.496244 |
| *Tringa nebularia* | 4 | 0.040404 | -3.20883 | -0.12965 | 0.416023 |
| | | | | | |
| Total | 99 | 1 | -87.1557 | -2.96908 | 9.267327 |
| Richness | 25 | | | | |
| SS | 9.267327 | | | | |
| SQ | 8.815449 | | | | |
| H | 2.96908 | | | | |
| $S^2_H$ | 0.005789 | | | | |

**Appendix F.3.2 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Point Count Method) in All Habitats (15 and 20 September 2021)**

| Scientific Name | Count | P | Ln(P) | P*Ln(P) | $P*Ln(P)^2$ |
|---|---|---|---|---|---|
| *Ardea alba* | 4 | 0.085106 | -2.46385 | -0.20969 | 0.516644 |
| *Ardea cinerea* | 4 | 0.085106 | -2.46385 | -0.20969 | 0.516644 |
| *Ardeola bacchus* | 9 | 0.191489 | -1.65292 | -0.31652 | 0.523179 |
| *Egretta garzetta* | 9 | 0.191489 | -1.65292 | -0.31652 | 0.523179 |
| *Himantopus himantopus* | 13 | 0.276596 | -1.2852 | -0.35548 | 0.456863 |
| *Recurvirostra avosetta* | 4 | 0.085106 | -2.46385 | -0.20969 | 0.516644 |
| *Tringa nebularia* | 4 | 0.085106 | -2.46385 | -0.20969 | 0.516644 |
| | | | | | |
| Total | 47 | 1 | -14.4465 | -1.82727 | 3.569798 |
| Richness | 7 | | | | |
| SS | 3.569798 | | | | |
| SQ | 3.338928 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| H | 1.82727 | | | | |
| $S^2_H$ | 0.00627 | | | | |

**Appendix F.3.3 Ecological Bird Monitoring Diversity (All avifauna species in Transect Walk Method) in All Habitats (15 and 20 September 2021)**

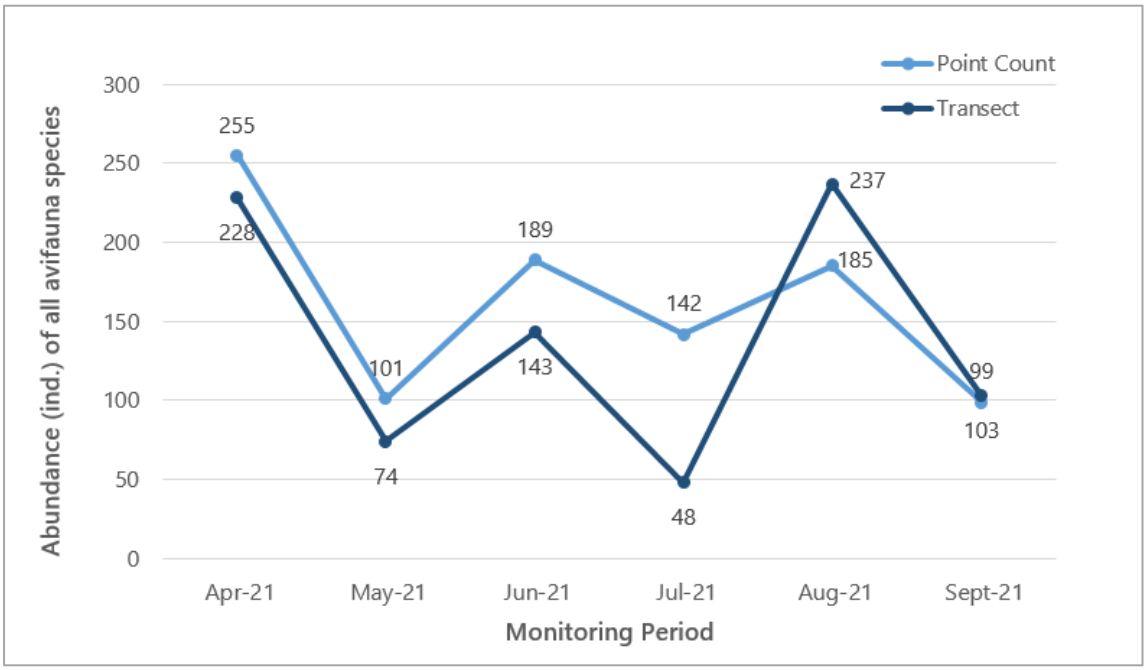
| Scientific Name | Count | P | Ln(P) | P*Ln(P) | P*Ln(P)$^2$ |
|---|---|---|---|---|---|
| *Acridotheres cristatellus* | 4 | 0.038835 | -3.24843 | -0.12615 | 0.409799 |
| *Amaurornis phoenicurus* | 1 | 0.009709 | -4.63473 | -0.045 | 0.208551 |
| *Ardea alba* | 9 | 0.087379 | -2.4375 | -0.21299 | 0.519154 |
| *Ardea cinerea* | 3 | 0.029126 | -3.53612 | -0.10299 | 0.364198 |
| *Ardeola bacchus* | 6 | 0.058252 | -2.84297 | -0.16561 | 0.470824 |
| *Bubulcus coromandus* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Chlidonias hybrida* | 3 | 0.029126 | -3.53612 | -0.10299 | 0.364198 |
| *Copsychus saularis* | 1 | 0.009709 | -4.63473 | -0.045 | 0.208551 |
| *Dicrurus macrocercus* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Egretta garzetta* | 15 | 0.145631 | -1.92668 | -0.28058 | 0.540596 |
| *Gracupica nigricollis* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Himantopus himantopus* | 10 | 0.097087 | -2.33214 | -0.22642 | 0.528048 |
| *Hirundo rustica* | 3 | 0.029126 | -3.53612 | -0.10299 | 0.364198 |
| *Milvus migrans* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Motacilla alba* | 6 | 0.058252 | -2.84297 | -0.16561 | 0.470824 |
| *Passer montanus* | 7 | 0.067961 | -2.68882 | -0.18274 | 0.491342 |
| *Prinia inornata* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Spilopelia chinensis* | 8 | 0.07767 | -2.55529 | -0.19847 | 0.507145 |
| *Tringa nebularia* | 12 | 0.116505 | -2.14982 | -0.25046 | 0.538455 |
| *Tringa totanus* | 2 | 0.019417 | -3.94158 | -0.07654 | 0.301671 |
| *Zosterops japonicus* | 3 | 0.029126 | -3.53612 | -0.10299 | 0.364198 |
| | | | | | |
| Total | 103 | 1 | -70.088 | -2.77022 | 8.160106 |
| Richness | 21 | | | | |
| SS | 8.160106 | | | | |
| SQ | 7.674098 | | | | |
| H | 2.77022 | | | | |
| $S^2_H$ | 0.005661 | | | | |

**Appendix F.3.4 Ecological Bird Monitoring Diversity (Avifauna species of conservation importance in Transect Walk Method) in All Habitats (15 and 20 September 2021)**

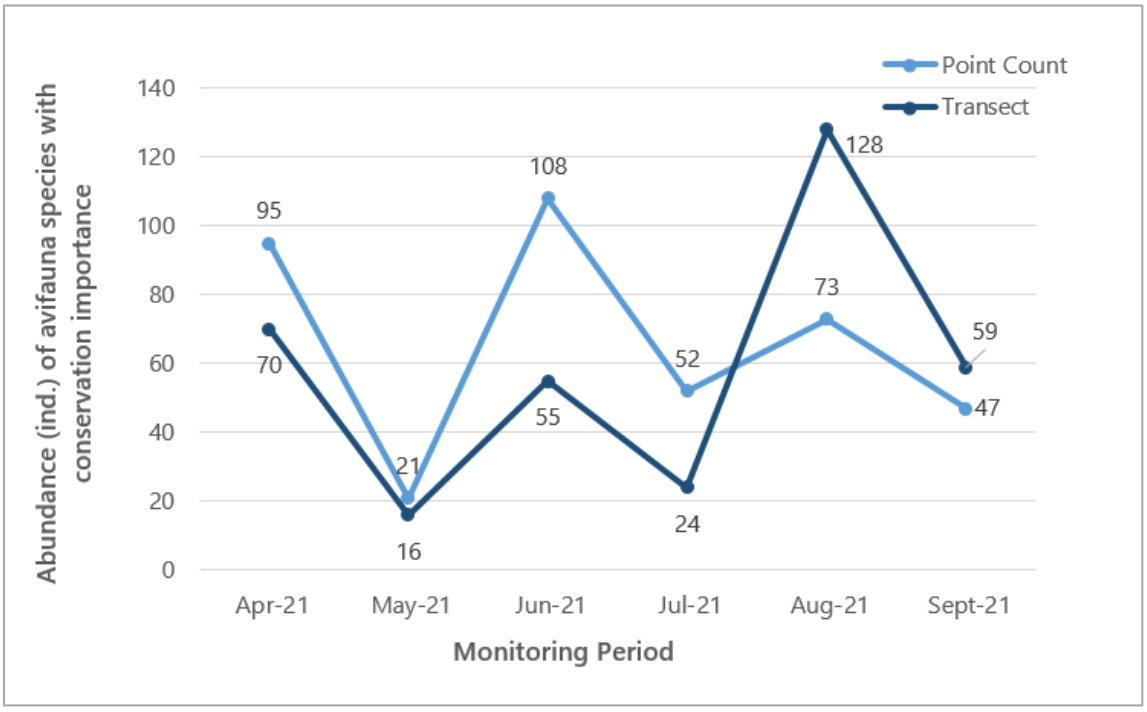
| Scientific Name | Count | P | Ln(P) | P*Ln(P) | P*Ln(P)$^2$ |
|---|---|---|---|---|---|
| *Ardea alba* | 9 | 0.152542 | -1.88031 | -0.28683 | 0.539325 |
| *Ardea cinerea* | 3 | 0.050847 | -2.97893 | -0.15147 | 0.45122 |
| *Ardeola bacchus* | 6 | 0.101695 | -2.28578 | -0.23245 | 0.531334 |
| *Egretta garzetta* | 15 | 0.254237 | -1.36949 | -0.34817 | 0.476821 |
| *Himantopus himantopus* | 10 | 0.169492 | -1.77495 | -0.30084 | 0.533976 |
| *Milvus migrans* | 2 | 0.033898 | -3.38439 | -0.11473 | 0.388274 |
| *Tringa nebularia* | 12 | 0.20339 | -1.59263 | -0.32392 | 0.515893 |
| *Tringa totanus* | 2 | 0.033898 | -3.38439 | -0.11473 | 0.388274 |
| | | | | | |
| Total | 59 | 1 | -18.6509 | -1.87314 | 3.825117 |
| Richness | 8 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| SS | 3.825117 | | | | |
| SQ | 3.508651 | | | | |
| H | 1.87314 | | | | |
| $S^2_H$ | 0.006369 | | | | |

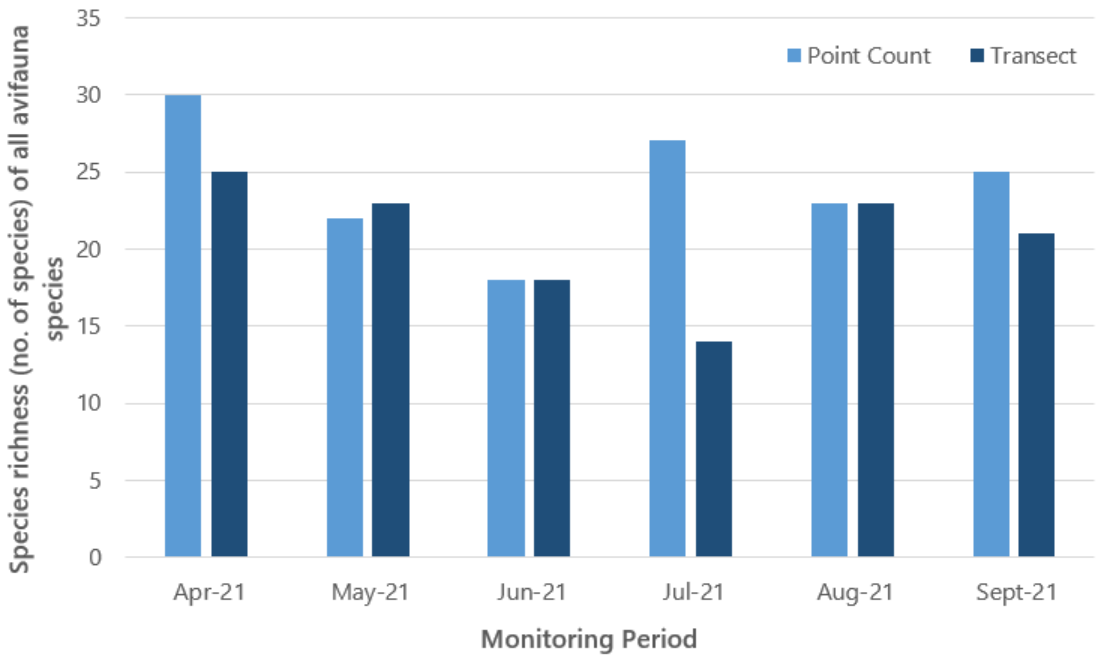
**Appendix F.4.1 Abundance of all avifauna species throughout the monitoring period**



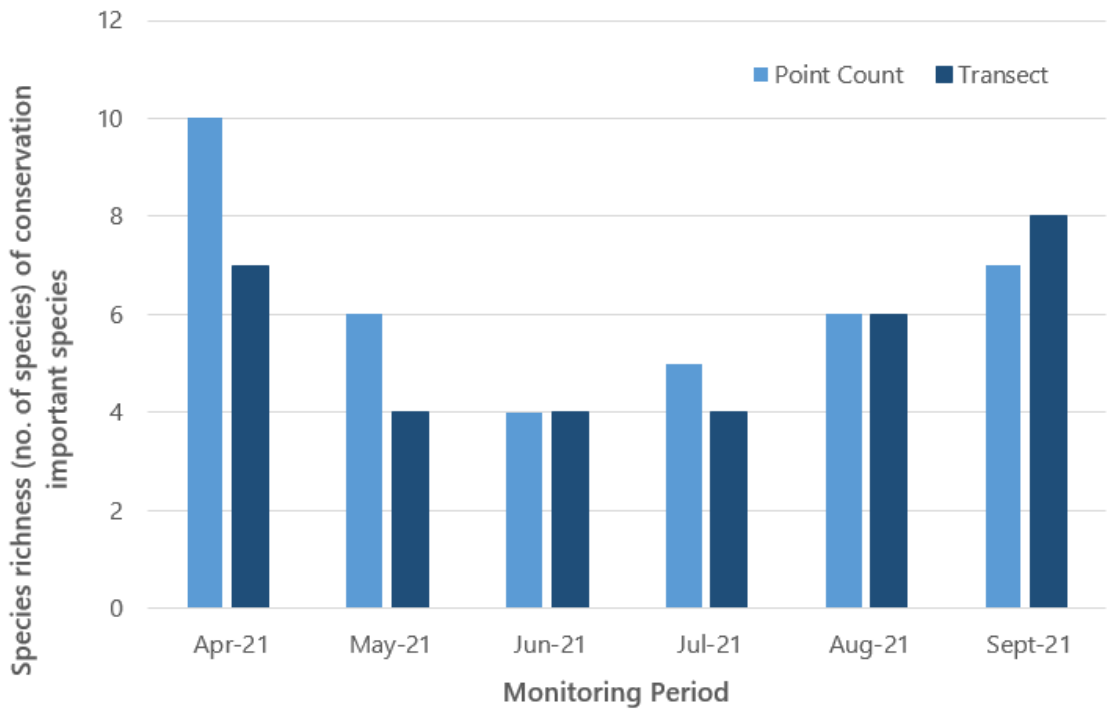

**Appendix F.4.2 Abundance of avifauna species with conservation importance throughout the monitoring period**



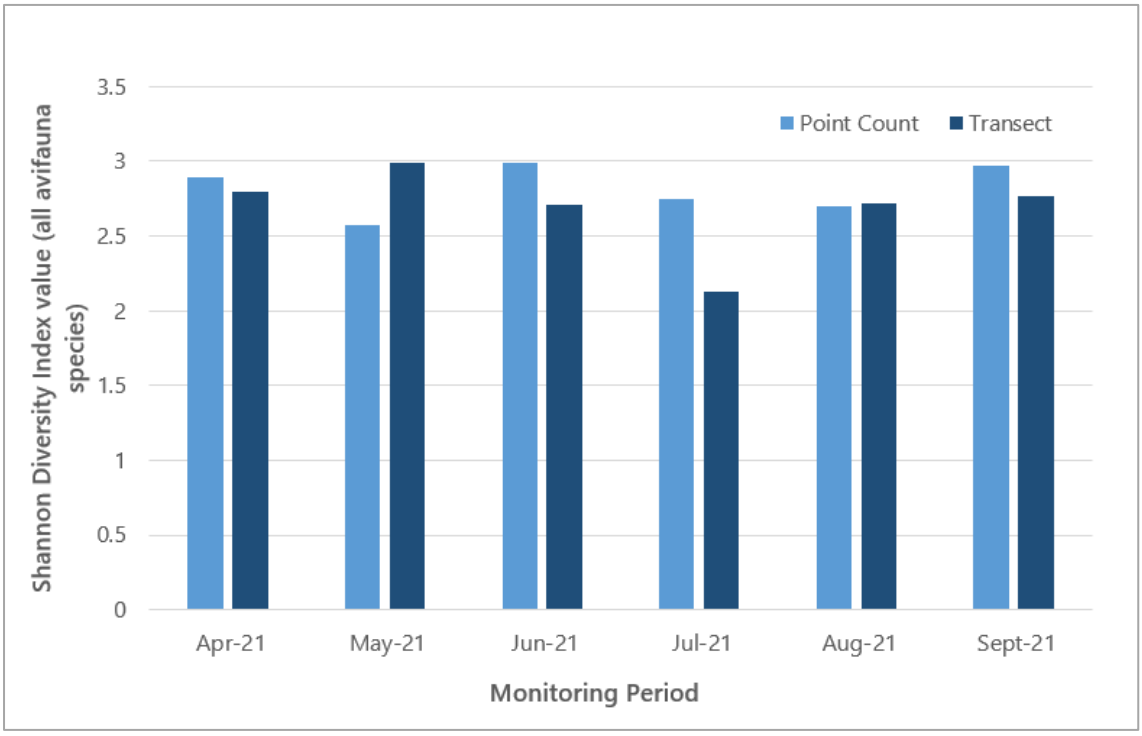
**Appendix F.5.1 Species richness of all avifauna species throughout the monitoring period**



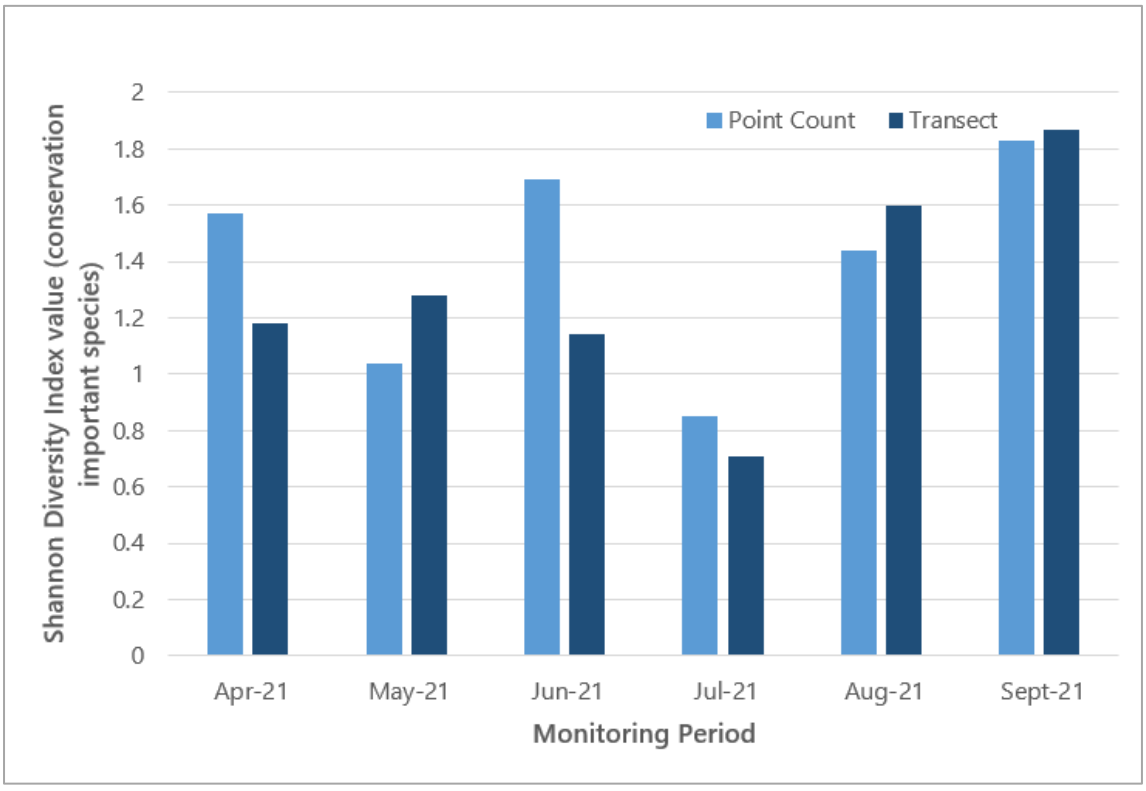

**Appendix F.5.2 Species richness of avifauna species with conservation importance throughout the monitoring period**



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




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



## Appendix F.7 Two-tailed Unpaired T-test

Formula:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

## Appendix F.7.1 Abundance of all avifauna species - Point Count Method

| Months | September 2016 | September 2021 |
|---|---|---|
| N | 70 | 52 |
| df | 69 | 51 |
| M | 3.17 | 1.9 |
| SS | 889.94 | 112.52 |
| $S^2$ | 12.9 | 2.21 |
| t-value | 2.40 | |
| p-value | 0.02 | |
| Notes:<br>N: Number of samples/observation<br>df: Degrees of freedom<br>M: Mean<br>SS: Sum of Squares<br>$S^2$: Measure on a random sample that is used to estimate the variance of the population | | |

## Appendix F.7.2 Abundance of all avifauna species – Transect Walk Method

| Months | September 2016 | September 2021 |
|---|---|---|
| N | 33 | 28 |
| df | 32 | 27 |
| M | 3.61 | 3.68 |
| SS | 405.88 | 166.11 |
| $S^2$ | 12.68 | 6.15 |
| t-value | -0.09 | |
| p-value | 0.93 | |
| Notes:<br>N: Number of samples/observation<br>df: Degrees of freedom<br>M: Mean<br>SS: Sum of Squares<br>$S^2$: Measure on a random sample that is used to estimate the variance of the population | | |

## Appendix F.7.3 Abundance of avifauna species with conservation importance – Point Count Method

| Months | September 2016 | September 2021 |
|---|---|---|
| N | 32 | 19 |
| df | 31 | 18 |
| M | 3.72 | 2.47 |
| SS | 488.47 | 76.74 |
| $S^2$ | 15.76 | 4.26 |
| t-value | 1.27 | |
| p-value | 0.21 | |
| Notes:<br>N: Number of samples/observation<br>df: Degrees of freedom<br>M: Mean<br>SS: Sum of Squares<br>$S^2$: Measure on a random sample that is used to estimate the variance of the population | | |

## Appendix F.8 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.8.1 Species diversity of all avifauna species – Point Count Method

| Months | September 2016 | September 2021 |
|---|---|---|
| Total | 222 | 99 |
| N | 34 | 25 |
| H | 3.01 | 2.97 |
| $S^2_H$ | 0.004 | 0.006 |
| t | 0.42 | |
| df | 232.88 | |
| Crit | 1.97 | |
| p | 0.67 | |
| CI | 0.13 | 0.15 |

## Appendix F.8.2 Species diversity of all avifauna species – Transect Walk Method

| Months | September 2016 | September 2021 |
|---|---|---|
| Total | 119 | 103 |
| N | 27 | 21 |
| H | 2.95 | 2.77 |

| Months | September 2016 | September 2021 |
|---|---|---|
| $S^2_H$ | 0.006 | 0.006 |
| t | 1.72 | |
| df | 221 | |
| Crit | 1.97 | |
| p | 0.09 | |
| CI | 0.15 | 0.15 |

**Appendix F.8.3 Species diversity of avifauna species with conservation importance – Point Count Method**

| Months | September 2016 | September 2021 |
|---|---|---|
| Total | 119 | 47 |
| N | 12 | 7 |
| H | 2.04 | 1.83 |
| $S^2_H$ | 0.006 | 0.006 |
| t | 1.98 | |
| df | 128.42 | |
| Crit | 1.98 | |
| p | 0.05 | |
| CI | 0.15 | 0.16 |

# Appendix G

Wind Data

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

| Date | Wind Speed | Wind Direction |
|---|---|---|
| 15/09/2021 06:00 | 0.0 | W |
| 15/09/2021 07:00 | 0.0 | NWN |
| 15/09/2021 08:00 | 0.0 | NEE |
| 15/09/2021 09:00 | 0.0 | NEE |
| 15/09/2021 10:00 | 0.0 | SES |
| 15/09/2021 11:00 | 0.0 | NWN |
| 15/09/2021 12:00 | 0.3 | NEN |
| 15/09/2021 13:00 | 0.1 | SWW |
| 15/09/2021 14:00 | 0.1 | W |
| 15/09/2021 15:00 | 0.1 | W |
| 15/09/2021 16:00 | 0.5 | SWW |
| 15/09/2021 17:00 | 0.1 | SW |
| 15/09/2021 18:00 | 0.1 | SWW |
| 15/09/2021 19:00 | 0.0 | SWW |
| 15/09/2021 20:00 | 0.0 | S |
| 15/09/2021 21:00 | 0.0 | S |
| 15/09/2021 22:00 | 0.2 | S |
| 15/09/2021 23:00 | 0.1 | SES |
| 16/09/2021 00:00 | 0.0 | SW |
| 16/09/2021 01:00 | 0.2 | SWW |
| 16/09/2021 02:00 | 0.0 | NWW |
| 16/09/2021 03:00 | 0.0 | NW |
| 16/09/2021 04:00 | 0.0 | N |
| 16/09/2021 05:00 | 0.0 | N |
| 16/09/2021 06:00 | 0.0 | N |
| 16/09/2021 07:00 | 0.0 | N |
| 16/09/2021 08:00 | 0.0 | N |
| 16/09/2021 09:00 | 0.0 | NW |
| 16/09/2021 10:00 | 0.1 | NWN |
| 16/09/2021 11:00 | 0.0 | NEN |
| 16/09/2021 12:00 | 0.1 | W |
| 16/09/2021 13:00 | 0.3 | NWW |
| 16/09/2021 14:00 | 0.6 | SWW |
| 16/09/2021 15:00 | 0.1 | SW |
| 16/09/2021 16:00 | 0.0 | SEE |
| 16/09/2021 17:00 | 0.0 | NEE |
| 16/09/2021 18:00 | 0.1 | N |
| 16/09/2021 19:00 | 0.0 | W |

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

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

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

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

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

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

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

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

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

| Date | Wind Speed | Wind Direction |
|---|---|---|
| 23/09/2021 04:00 | 0.0 | NEN |
| 23/09/2021 05:00 | 0.1 | NE |
| 23/09/2021 06:00 | 0.0 | NE |
| 23/09/2021 07:00 | 0.0 | N |
| 23/09/2021 08:00 | 0.0 | NEE |
| 23/09/2021 09:00 | 0.0 | N |
| 23/09/2021 10:00 | 0.1 | NEN |
| 23/09/2021 11:00 | 0.1 | NE |
| 23/09/2021 12:00 | 0.4 | NEN |
| 23/09/2021 13:00 | 0.0 | SE |
| 23/09/2021 14:00 | 0.3 | NEN |
| 23/09/2021 15:00 | 0.3 | NEE |
| 23/09/2021 16:00 | 0.3 | NEN |
| 23/09/2021 17:00 | 0.2 | NE |
| 23/09/2021 18:00 | 0.0 | NEN |
| 23/09/2021 19:00 | 0.0 | SE |
| 23/09/2021 20:00 | 0.0 | SE |
| 23/09/2021 21:00 | 0.0 | N |
| 23/09/2021 22:00 | 0.1 | NE |
| 23/09/2021 23:00 | 0.0 | NEN |
| 24/09/2021 00:00 | 0.0 | NEN |
| 24/09/2021 01:00 | 0.0 | NE |
| 24/09/2021 02:00 | 0.0 | SEE |
| 24/09/2021 03:00 | 0.0 | NEE |
| 24/09/2021 04:00 | 0.0 | S |
| 24/09/2021 05:00 | 0.0 | NWN |
| 24/09/2021 06:00 | 0.0 | NEN |
| 24/09/2021 07:00 | 0.0 | NEN |
| 24/09/2021 08:00 | 0.1 | NEN |
| 24/09/2021 09:00 | 0.0 | NE |
| 24/09/2021 10:00 | 0.4 | NE |
| 24/09/2021 11:00 | 0.1 | NEE |
| 24/09/2021 12:00 | 0.3 | E |
| 24/09/2021 13:00 | 0.4 | NEE |
| 24/09/2021 14:00 | 0.2 | NE |
| 24/09/2021 15:00 | 0.5 | NE |
| 24/09/2021 16:00 | 0.1 | NEE |
| 24/09/2021 17:00 | 0.0 | SEE |

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

| Date | Wind Speed | Wind Direction |
|---|---|---|
| 24/09/2021 18:00 | 0.2 | SE |
| 24/09/2021 19:00 | 0.1 | E |
| 24/09/2021 20:00 | 0.1 | NE |
| 24/09/2021 21:00 | 0.0 | NEE |
| 24/09/2021 22:00 | 0.0 | NE |
| 24/09/2021 23:00 | 0.1 | NE |
| 25/09/2021 00:00 | 0.0 | E |
| 25/09/2021 01:00 | 0.1 | SEE |
| 25/09/2021 02:00 | 0.0 | SEE |
| 25/09/2021 03:00 | 0.1 | NE |
| 25/09/2021 04:00 | 0.2 | NE |
| 25/09/2021 05:00 | 0.1 | NE |
| 25/09/2021 06:00 | 0.3 | NE |
| 25/09/2021 07:00 | 0.1 | NEE |
| 25/09/2021 08:00 | 0.0 | SES |
| 25/09/2021 09:00 | 0.2 | NEN |
| 25/09/2021 10:00 | 0.3 | NEN |
| 25/09/2021 11:00 | 0.3 | NEN |
| 25/09/2021 12:00 | 0.3 | NEN |
| 25/09/2021 13:00 | 0.3 | NE |
| 25/09/2021 14:00 | 0.2 | NE |
| 25/09/2021 15:00 | 0.1 | SEE |
| 25/09/2021 16:00 | 0.3 | SEE |
| 25/09/2021 17:00 | 0.0 | SES |
| 25/09/2021 18:00 | 0.0 | NEE |
| 25/09/2021 19:00 | 0.1 | NEE |
| 25/09/2021 20:00 | 0.0 | E |
| 25/09/2021 21:00 | 0.1 | SEE |
| 25/09/2021 22:00 | 0.0 | SE |
| 25/09/2021 23:00 | 0.0 | E |
| 26/09/2021 00:00 | 0.2 | NEE |
| 26/09/2021 01:00 | 0.1 | NEE |
| 26/09/2021 02:00 | 0.2 | NE |
| 26/09/2021 03:00 | 0.1 | NE |
| 26/09/2021 04:00 | 0.1 | NEE |
| 26/09/2021 05:00 | 0.3 | NE |
| 26/09/2021 06:00 | 0.0 | NEE |
| 26/09/2021 07:00 | 0.1 | NE |

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

| Date | Wind Speed | Wind Direction |
|---|---|---|
| 26/09/2021 08:00 | 0.3 | NE |
| 26/09/2021 09:00 | 0.3 | NE |
| 26/09/2021 10:00 | 0.1 | NEN |
| 26/09/2021 11:00 | 0.1 | NEN |
| 26/09/2021 12:00 | 0.3 | NEE |
| 26/09/2021 13:00 | 0.3 | N |
| 26/09/2021 14:00 | 0.1 | NE |
| 26/09/2021 15:00 | 0.1 | SES |
| 26/09/2021 16:00 | 0.0 | NW |
| 26/09/2021 17:00 | 0.0 | SW |
| 26/09/2021 18:00 | 0.2 | SWW |
| 26/09/2021 19:00 | 0.0 | SW |
| 26/09/2021 20:00 | 0.0 | E |
| 26/09/2021 21:00 | 0.0 | E |
| 26/09/2021 22:00 | 0.0 | NEE |
| 26/09/2021 23:00 | 0.0 | NE |
| 27/09/2021 00:00 | 0.0 | NE |
| 27/09/2021 01:00 | 0.0 | NE |
| 27/09/2021 02:00 | 0.0 | NE |
| 27/09/2021 03:00 | 0.0 | NE |
| 27/09/2021 04:00 | 0.0 | N |
| 27/09/2021 05:00 | 0.0 | N |
| 27/09/2021 06:00 | 0.0 | N |
| 27/09/2021 07:00 | 0.0 | N |
| 27/09/2021 08:00 | 0.0 | NEN |
| 27/09/2021 09:00 | 0.0 | E |
| 27/09/2021 10:00 | 0.1 | NE |
| 27/09/2021 11:00 | 0.1 | NEE |
| 27/09/2021 12:00 | 0.3 | NEN |
| 27/09/2021 13:00 | 0.3 | N |
| 27/09/2021 14:00 | 0.0 | NWW |
| 27/09/2021 15:00 | 0.0 | NWN |
| 27/09/2021 16:00 | 0.0 | NW |
| 27/09/2021 17:00 | 0.2 | NWW |
| 27/09/2021 18:00 | 0.0 | SES |
| 27/09/2021 19:00 | 0.1 | SES |
| 27/09/2021 20:00 | 0.1 | SES |
| 27/09/2021 21:00 | 0.4 | S |

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

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

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

| Date | Wind Speed | Wind Direction |
|---|---|---|
| 29/09/2021 12:00 | 0.0 | W |
| 29/09/2021 13:00 | 0.0 | SWW |
| 29/09/2021 14:00 | 0.4 | NW |
| 29/09/2021 15:00 | 0.0 | SW |
| 29/09/2021 16:00 | 0.0 | NWN |
| 29/09/2021 17:00 | 0.3 | SW |
| 29/09/2021 18:00 | 0.1 | SE |
| 29/09/2021 19:00 | 0.0 | SE |
| 29/09/2021 20:00 | 0.0 | SE |
| 29/09/2021 21:00 | 0.1 | SES |
| 29/09/2021 22:00 | 0.0 | SES |
| 29/09/2021 23:00 | 0.0 | SWS |
| 30/09/2021 00:00 | 0.0 | S |
| 30/09/2021 01:00 | 0.0 | SWS |
| 30/09/2021 02:00 | 0.0 | S |
| 30/09/2021 03:00 | 0.1 | SES |
| 30/09/2021 04:00 | 0.0 | SES |
| 30/09/2021 05:00 | 0.0 | SES |
| 30/09/2021 06:00 | 0.0 | SES |
| 30/09/2021 07:00 | 0.0 | SES |
| 30/09/2021 08:00 | 0.0 | SEE |
| 30/09/2021 09:00 | 0.0 | SEE |
| 30/09/2021 10:00 | 0.0 | NEN |
| 30/09/2021 11:00 | 0.0 | NWW |
| 30/09/2021 12:00 | 0.3 | NWW |
| 30/09/2021 13:00 | 0.1 | NW |
| 30/09/2021 14:00 | 0.4 | SWW |
| 30/09/2021 15:00 | 0.1 | SWW |
| 30/09/2021 16:00 | 0.1 | SWS |
| 30/09/2021 17:00 | 0.1 | SWS |
| 30/09/2021 18:00 | 0.2 | SES |
| 30/09/2021 19:00 | 0.1 | SE |
| 30/09/2021 20:00 | 0.0 | S |
| 30/09/2021 21:00 | 0.0 | S |
| 30/09/2021 22:00 | 0.0 | S |
| 30/09/2021 23:00 | 0.0 | SES |
| 01/09/2021 00:00 | 0.0 | SES |

# Appendix H

Event and Action Plan

## Event and Action Plan for Air Quality (Construction Dust)

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

## Event and Action Plan for Water Quality Monitoring

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

| EVENT | ACTION | | | |
|---|---|---|---|---|
| | ET | IEC | ER | Contractor |
| Limit level being exceeded by one sampling day | 1. Repeat in situ measurement on the next day of exceedance to confirm findings;<br>2. Check monitoring data, plant, equipment and Contractor(s)'s working methods;<br>3. Identify source(s) of impact and record in notification of exceedance;<br>4. Inform IEC, Contractor(s) and ER;<br>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;<br>2. Inform EPD and AFCD;<br>3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly;<br>4. Assess the effectiveness of the implemented mitigation measures. | 1. Confirm receipt of notification of exceedance in writing;<br>2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented.<br>3. Ensure additional mitigation measures are properly implemented.<br>4. Request Contractor(s) to critically review the working methods. | 1. Confirm receipt of notification of exceedance in writing;<br>2. Check plant and equipment and rectify unacceptable practice;<br>3. Critically review the need to change working methods;<br>4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days;<br>5. Implement the agreed mitigation measures. |
| Limit level being exceeded by two or more consecutive sampling days | 1. Repeat in situ measurement on the next day of exceedance to confirm findings;<br>2. Check monitoring data, plant, equipment and Contractor(s)'s working methods;<br>3. Identify source(s) of impact and record in notification of exceedance;<br>4. Inform IEC, Contractor(s) and ER;<br>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;<br>2. Inform EPD and AFCD;<br>3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly;<br>4. Assess the effectiveness of the implemented mitigation measures. | 1. Confirm receipt of notification of exceedance in writing;<br>2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented.<br>3. Ensure additional mitigation measures are properly implemented.<br>4. Request Contractor(s) to critically review the working methods. | 1. Confirm receipt of notification of exceedance in writing;<br>2. Check plant and equipment and rectify unacceptable practice;<br>3. Critically review the need to change working methods;<br>4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days;<br>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;<br>2. Carry out investigation;<br>3. Report the results of investigation to the IEC, ER and Contractor;<br>4. Discuss with the Contractor and formulate remedial measures; and<br>5. Increase monitoring frequency to check mitigation effectiveness. | 1. Review the analyzed results submitted by the ET;<br>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; and<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analyzed noise problem; and<br>4. Ensure remedial measures are properly implemented. | 1. Submit noise mitigation proposals to IEC; and<br>2. Implement noise mitigation proposals. |
| Limit Level | 1. Identify source;<br>2. Inform IEC, ER, EPD and Contractor;<br>3. Repeat measurements to confirm findings;<br>4. Increase monitoring frequency;<br>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;<br>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;<br>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analysed noise problem;<br>4. Ensure remedial measures are properly implemented; and<br>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;<br>2. Submit proposals for remedial actions to IEC within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Resubmit proposals if problem still not under control; and<br>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

# Appendix I

Waste Flow Table

**Waste Flow Table for Year 2021**

| Monthly Ending | Total Quantity Generated | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | Actual Quantities of Non-inert C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note 2) | Chemical Waste | Others, e.g. general refuse |
| | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) |
| 2021 Jan | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil |
| 2021 Feb | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil |
| 2021 Mar | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil | Nil |
| 2021 Apr | 216.92 | Nil | Nil | Nil | 152.94 | Nil | Nil | Nil | Nil | Nil | 63.98 |
| 2021 May | 277.74 | Nil | Nil | Nil | 268.92 | Nil | Nil | 0.11 | Nil | Nil | 8.71 |
| 2021 Jun | 715.93 | Nil | Nil | Nil | 551.41 | Nil | 146.74 | 0.11 | Nil | Nil | 17.67 |
| 2021 Jul | 1521.38 | Nil | Nil | Nil | 1466.15 | Nil | 32.46 | Nil | Nil | Nil | 22.77 |
| 2021 Aug | 2108.79 | Nil | Nil | Nil | 2057.77 | Nil | 29.59 | 0.13 | Nil | Nil | 21.30 |
| 2021 Sep | 3648.77 | Nil | Nil | Nil | 3576.22 | Nil | 50.31 | Nil | Nil | Nil | 22.24 |
| 2021 Oct | | | | | | | | | | | |
| 2021 Nov | | | | | | | | | | | |
| 2021 Dec | | | | | | | | | | | |
| Total | 8489.53 | 0 | 0 | 0 | 8073.41 | 0 | 259.1 | 0.35 | 0 | 0 | 156.67 |

Note:
1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.

# Appendix J

Implementation Status of Environment Mitigation Measures

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| **Air Quality Impact** | | | |
| Construction Phase | | | |
| 3.6.1.6 | Watering once per every two hours on active works areas to reduce dust emission. | All active works areas during construction phase | Implemented |
| 3.8.1.1 | Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below shall be carried out to further minimize construction dust impact: | Construction Sites | |
| | • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. | | 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. | | Partially Implemented |
| | • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. | | Partially 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 |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | | Implemented |
| **Noise Impact** | | | |
| Construction Phase | | | |
| 4.8.1 | Movable noise barriers are recommended for hydraulic breakers mounted on excavators to be adopted during construction. | Construction Sites | Partially Implemented |
| | Good site practices listed below and the noise control requirements stated in EPD's "Recommended Pollution Control Clauses for Construction Contracts" should be included in the Contract Specification for the Contractors to follow and should be implemented to further minimize the potential noise impacts during the construction phase of the Project. | | N/A |
| | • 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. | | N/A |
| | • 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. | | N/A |
| | • 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<br>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 |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| 5.8.1.3 | All vehicles and plant should be cleaned before they leave a construction site to minimise the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. | Construction Sites / Construction Phase | Partially 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 | Partially Implemented |
| 5.8.1.7 | Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly (as well as at the onset of and after each rainstorm) to prevent overflows and localised flooding. | Construction Sites / Construction Phase | Implemented |
| 5.8.1.8 | Construction works should be programmed to minimise soil excavation in the wet season (i.e. April to September). If soil excavation cannot be avoided in these months or at any time of year when rainstorms are likely, temporarily exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm run-off from washing across exposed soil surfaces. | Construction Sites / Construction Phase | N/A |
| 5.8.1.9 | Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion | Construction Sites / Construction Phase | N/A |

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

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| 5.8.1.17 | Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. | Construction Sites /Construction Phase | N/A |
| 5.8.1.18 | Disposal of chemical wastes should be carried out in compliance with the WDO. The Code of Practice on the<br>Packaging, Labelling and Storage of Chemical Wastes published under the WDO should be followed to avoid leakage or spillage of chemicals. | Construction Sites / Construction Phase | N/A |
| 5.8.1.19 | All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS). | Construction Sites / Construction Phase | N/A |
| 5.8.2.11 | Chemical should be stored on site at bunded area and separate drainage system as appropriate should be provided to avoid any spilled chemicals from entering the storm drain in case of accidental spillage. Also, adequate tools for cleanup of spilled chemicals should be stored on site and appropriate training shall be provided to staffs to further prevent potential adverse water quality impacts from happening. | Project site / Design and Operation Phase | Implemented |
| **Waste Management Implication** | | | |
| Construction Phase | | | |
| 6.6.1.3 | <u>Good Site Practices</u><br>Recommendations for good site practices during the construction phase include: | Construction Sites | |
| | • Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility; | | Implemented |
| | • Training of site personnel in proper waste management and chemical waste handling procedures; | | Implemented |
| | • Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter; | | N/A |
| | • Arrangement for regular collection of waste for transport off-site and final disposal; | | Implemented |
| | • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; | | Implemented |
| | • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; | | N/A |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • 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<br>Recommendations to achieve waste reduction include: | Construction Sites | |
| | • Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; | | Implemented |
| | • 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; | | N/A |
| | • 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 |
| 6.6.1.7 | <u>Storage of Waste</u><br>Recommendations to minimise the impacts include: | Construction Sites | |
| | • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution; | | N/A |
| | • Maintain and clean storage areas routinely; | | N/A |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and | | Partially Implemented |
| | • Different locations should be designated to stockpile each material to enhance reuse. | | N/A |
| 6.6.1.8 | Collection of WasteLicensed 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: | Construction Sites | |
| | • Remove waste in timely manner; | | 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<br>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 | N/A |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| 6.6.1.12 | <u>Construction and Demolition Material</u><br>Careful design, planning together with good site management can reduce over-ordering and generation of C&D materials such as concrete, mortar and cement grouts. Formwork should be designed to maximize the use of standard wooden panels, so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse | Construction Sites | N/A |
| 6.6.1.13 | The excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below: | Construction Sites | |
| | • A WMP, which becomes part of the EMP, should be prepared in accordance with ETWB TCW No.19/2005; | | Implemented |
| | • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and | | N/A |
| | • In order to monitor the disposal of C&D materials at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to DEVB TCW 06/2010). | | Implemented |
| 6.6.1.14 | It is recommended that specific areas should be provided by the Contractors for sorting and to provide temporary storage areas (if required) for the sorted materials. Control measures for temporary stockpiles on-site should be taken in order to minimise the noise, generation of dust and pollution of water. These measures include: | Construction Sites | |
| | • Surface of stockpiled soil should be regularly wetted with water especially during dry season; | | N/A |
| | • Disturbance of stockpile soil should be minimised; | | N/A |
| | • Stockpiled soil should be properly covered with tarpaulin especially when heavy storms are predicted; and | | Partially Implemented |
| | • Stockpiling areas should be enclosed where space is available. | | N/A |

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

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

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| 7.8.1.2 - 7.8.1.3;7.8.2.1 | 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 (afterdecommissioning of theconcerned facilities / areasbut prior to the constructionworks at the concernedfacilities / areas) | Implemented |
| 7.8.3.1 | The mitigation measures will be recommended in the RAP and would typically include the following: | Project Site / Construction Phase | |
| | • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; | | 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. | | Partially 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; | | N/A |
| | • Speed control for the trucks carrying contaminated materials shall be enforced; | | N/A |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and | | N/A |
| | • Pollution control measures for air emissions (e.g. from biopile blower and handling of cement), noise emissions (e.g. from blower or earthmoving equipment), and water discharges (e.g. runoff control from treatment facility) shall be implemented and complied with relevant regulations and guidelines. | | N/A |
| **Ecological Impact (Terrestrial and Aquatic)** | | | |
| Construction Phase | | | |
| 8.10.2.1 | Avoidance of Recognised Site of Conservation Importance<br>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 SeasonIn 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<br>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<br>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 |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| 8.10.3.4 – 8.10.3.5 | <u>Minimising Construction Noise Disturbance Impacts Through Careful Phasing of Construction Activities</u><br>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.<br><br>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 | <u>Minimising Construction Noise Disturbance Impacts through Use of Noise Barriers</u><br>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.<br><br>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.<br><br>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 |

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

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| Table 10.11 | Compensatory Tree Planting (CM3)<br>Any trees to be felled under the Project shall be compensated in accordance with DEVB TCW No. 7/2015 - Tree Preservation. For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed. | Project site / Construction Phase | N/A |
| Table 10.11 | Control of Night-time Lighting Glare (CM4)<br>All the night time lighting shall be avoided except for safety purpose. No light glare shall illuminate directly outside the site. | Project site / Construction Phase | Implemented |
| Table 10.11 | Erection of Decorative Screen Hoarding (CM5)<br>Site hoardings, if any, shall be painted in dull green colour | Project site / Construction Phase | Implemented |
| Table 10.11 | Management of Construction Activities and Facilities (CM6)<br>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 |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • Physical barriers such as concrete blocks shall be set up at the 15m zone in order to avoid those construction plants or vehicles from colliding to the digester / gas holder units in use. | | N/A |
| 11.5.8 | • 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 / ConstructionPhase | Partially 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; | | N/A |

| EIA Ref. | Environmental Protection Measures | Location / Duration of Measures / Timing of Completion of Measures | Implementation Status |
|---|---|---|---|
| | • Ensure that the construction activities do not impede the functions of fire and gas detection system, fire protection system, muster areas, fire-fighting vehicle access and escape routes; | | N/A |
| | • 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. | | Partially Implemented |
| | Potential risks of the construction activities shall be assessed, and risk precautionary measures shall be implemented in Contractor's works procedures. | | Partially Implemented |

Note:

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

# Appendix K

Weather and Meteorological Conditions

# August 2021 Weather

**Station: Wetland Park**

| Date | Mean Pressure (hPa) | Air Temperature | | | Mean Relative Humidity (%) | Total Rainfall (mm) |
|---|---|---|---|---|---|---|
| | | Maximum (deg. C) | Mean (deg. C) | Minimum (deg. C) | | |
| August 2021 | | | | | | |
| 1 | 997.9 | 34.6 | 30.4 | 28.3 | 83 | 0 |
| 2 | 997.8 | 35.0 | 29.9 | 26.5 | 84 | 1.5 |
| 3 | 996.8 | 30.1 | 28.3 | 26.8 | 90 | 4.5 |
| 4 | 995.4 | 33.5 | 28.6 | 25.6 | 90 | 72.5 |
| 5 | 995.6 | 29.7 | 27.8 | 26.2 | 94 | 17.5 |
| 6 | 997.5 | 31.6 | 28.7 | 26.4 | 91 | 36 |
| 7 | 1000.8 | 32.6 | 28.8 | 27.2 | 93 | 10 |
| 8 | 1003.7 | 32.4 | 28.4 | 26.0 | 93 | 13 |
| 9 | 1004.7 | 32.5 | 28.5 | 26.1 | 93 | 5 |
| 10 | 1005.4# | 31.7# | 29.0# | 26.1# | 92# | 0# |
| 11 | 1007.7 | 33.4 | 29.3 | 27.1 | 89 | 5 |
| 12 | 1008.3 | 32.3 | 28.8 | 26.4 | 87 | 13.5 |
| 13 | 1005.6 | 31.4 | 28.5 | 26.4 | 90 | 0 |
| 14 | 1005.8 | 29.9 | 27.7 | 26.3 | 93 | 12 |
| 15 | 1009.6 | 30.7 | 27.8 | 25.8 | 89 | 1 |
| 16 | 1011.9 | 32.2 | 28.2 | 25.9 | 90 | 7 |
| 17 | 1010.0 | 34.0 | 29.6 | 26.0 | 82 | 0 |
| 18 | 1007.7 | 33.5# | 28.6 | 26.3# | 87 | 0 |
| 19 | 1008.2 | 32.0 | 27.7 | 24.6 | 91 | 22.5 |
| 20 | 1008.9 | 34.4 | 29.4 | 26.0 | 83 | 0 |
| 21 | 1008.0 | 34.9 | 29.7 | 26.1 | 81 | 0 |
| 22 | 1006.8 | 34.4# | 30.0 | 26.9# | 79 | 0 |
| 23 | 1006.6 | 34.0# | 29.7 | 26.5# | 81 | 0 |
| 24 | 1007.2 | 32.7 | 29.2 | 27.0 | 85 | 1.5 |
| 25 | 1008.4 | 33.6 | 29.3 | 26.4 | 83 | 0 |
| 26 | 1010.4 | 34.3 | 29.7 | 26.7 | 81 | 0 |
| 27 | 1011.6 | 29.5 | 25.0 | 22.9 | 95 | 10.5 |
| 28 | 1011.2 | 30.9 | 26.4 | 22.9 | 85 | 2 |
| 29 | 1010.7 | 31.4 | 27.7 | 25.9 | 85 | 1.5 |
| 30 | 1011.0 | 33.0 | 28.5 | 25.5 | 84 | 0 |
| 31 | 1010.7 | 29.4# | 26.8 | 25.5# | 84 | 10 |

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

# September 2021 Weather

**Station: Hong Kong Observatory**

| Date | Mean Pressure (hPa) | Air Temperature | | | Mean Relative Humidity (%) | Total Rainfall (mm) |
|---|---|---|---|---|---|---|
| | | Maximum (deg. C) | Mean (deg. C) | Minimum (deg. C) | | |
| August 2021 | | | | | | |
| 1 | 1009.9 | 32.1 | 28.7 | 26.7 | 85 | 5.9 |
| 2 | 1009.0 | 33.0 | 29.5 | 27.7 | 80 | 0 |
| 3 | 1007.4 | 33.6 | 29.8 | 27.8 | 79 | Trace |
| 4 | 1008.3 | 33.6 | 29.8 | 27.9 | 79 | 0.9 |
| 5 | 1010.0 | 33.2 | 29.8 | 28.3 | 79 | Trace |
| 6 | 1010.5 | 32.5 | 29.7 | 28.0 | 77 | 0 |
| 7 | 1010.4 | 33.4 | 30.1 | 28.1 | 78 | 0.2 |
| 8 | 1009.4 | 34.3 | 30.6 | 28.2 | 74 | 0 |
| 9 | 1009.3 | 33.5 | 30.1 | 27.8 | 73 | 0 |
| 10 | 1008.3 | 33.7 | 30.5 | 28.6 | 71 | 0 |
| 11 | 1004.5 | 33.4 | 30.5 | 28.4 | 75 | 0 |
| 12 | 1002.0 | 34.5 | 31.2 | 29.0 | 76 | 0 |
| 13 | 1006.7 | 33.6 | 30.9 | 29.5 | 77 | 0 |
| 14 | 1011.5 | 30.2 | 29.0 | 26.7 | 83 | 33.8 |
| 15 | 1011.2 | 33.0 | 30.2 | 27.9 | 75 | 0 |
| 16 | 1009.4 | 31.9 | 29.2 | 26.8 | 77 | Trace |
| 17 | 1009.2 | 34.1 | 29.5 | 27.5 | 77 | 7.6 |
| 18 | 1011.1 | 33.2 | 30.2 | 28.3 | 79 | 0.2 |
| 19 | 1011.3 | 32.1 | 29.3 | 27.4 | 86 | 21.2 |
| 20 | 1010.4 | 32.3 | 29.3 | 27.9 | 84 | 9.4 |
| 21 | 1009.5 | 31.7 | 29.0 | 26.7 | 82 | 10.2 |
| 22 | 1010.5 | 34.0 | 30.3 | 27.9 | 77 | 0.5 |
| 23 | 1013.0 | 30.2 | 28.0 | 26.0 | 87 | 38.4 |
| 24 | 1013.6 | 32.0 | 29.4 | 27.8 | 81 | 1.2 |
| 25 | 1012.8 | 32.3 | 29.6 | 27.9 | 76 | 0.1 |
| 26 | 1012.3 | 31.6 | 29.1 | 27.8 | 72 | 0 |
| 27 | 1010.8 | 32.8 | 29.5 | 28.1 | 75 | 0 |
| 28 | 1009.6 | 32.2 | 29.6 | 27.9 | 75 | 0 |
| 29 | 1008.3 | 32.7 | 29.7 | 27.9 | 77 | 0 |
| 30 | 1008.1 | 32.9 | 30.3 | 28.4 | 78 | 0 |

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

Source: Hong Kong Observatory

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

# Appendix L

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

## Environmental Complaints Log

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

## Cumulative Statistics on Complaints

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

## Cumulative Statistics on Notification of Summons and Successful Prosecutions

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

# Appendix M

ET Leader's Site Environmental Audit

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

| Parameters | Date | Observations and Recommendations | Follow-up |
|---|---|---|---|
| Air Quality | 1 Sep 2021 | Reminder 1:<br>The Contractor is reminded to cover the excavated soil properly with tarpaulin sheets to prevent dust emission for trial pit (Portion 1 – YLSTW). | 1 Sep 2021 |
| | 16 Sep 2021 | Observation 1:<br>Wind blown dust is observed when the truck is leaving at site exit. The Contractor should provide mitigation measures to prevent dust emission from vehicle wheel & body (Portion 1 – YLSTW). | 16 Sep 2021 |
| | | Observation 2:<br>The Contractor is required to improve the mitigation at present wheel wash area at southern exit (e.g. provide better bedding of aggregates for preventing muddy water) (Portion 1 – YLSTW). | 18 Sep 2021 |
| Noise | NA | | |
| Water Quality | 16 Sep 2021 | Reminder 1:<br>The Contractor is reminded to provide MSDS information at WetSep. (Portion 1 – YLSTW). | 16 Sep 2021 |
| | 23 Sep 2021 | Observation 1:<br>Mitigation measures should be provided to intercept silty runoff from the piling area (Portion 1 – YLSTW). | 24 Sep 2021 |
| Chemical and Waste Management | 8 Sep 2021 | Reminder 1:<br>The Contractor is reminded to provide drip tray for the chemicals to prevent accidental spillage (Portion 1 – YLSTW). | 8 Sep 2021 |
| | 29 Sep 2021 | Reminder 1:<br>The Contractor is reminded to cover the excavated soil properly with tarpaulin sheets to prevent dust emission (Portion 1 – YLSTW). | 29 Sep 2021 |
| Land Contamination | NA | | |
| Ecological Impact | NA | | |
| Landscape and Visual Impact | NA | | |
| Permit / Licenses | NA | | |
| Others | NA | | |

# Appendix N

Outstanding Issues and Deficiencies

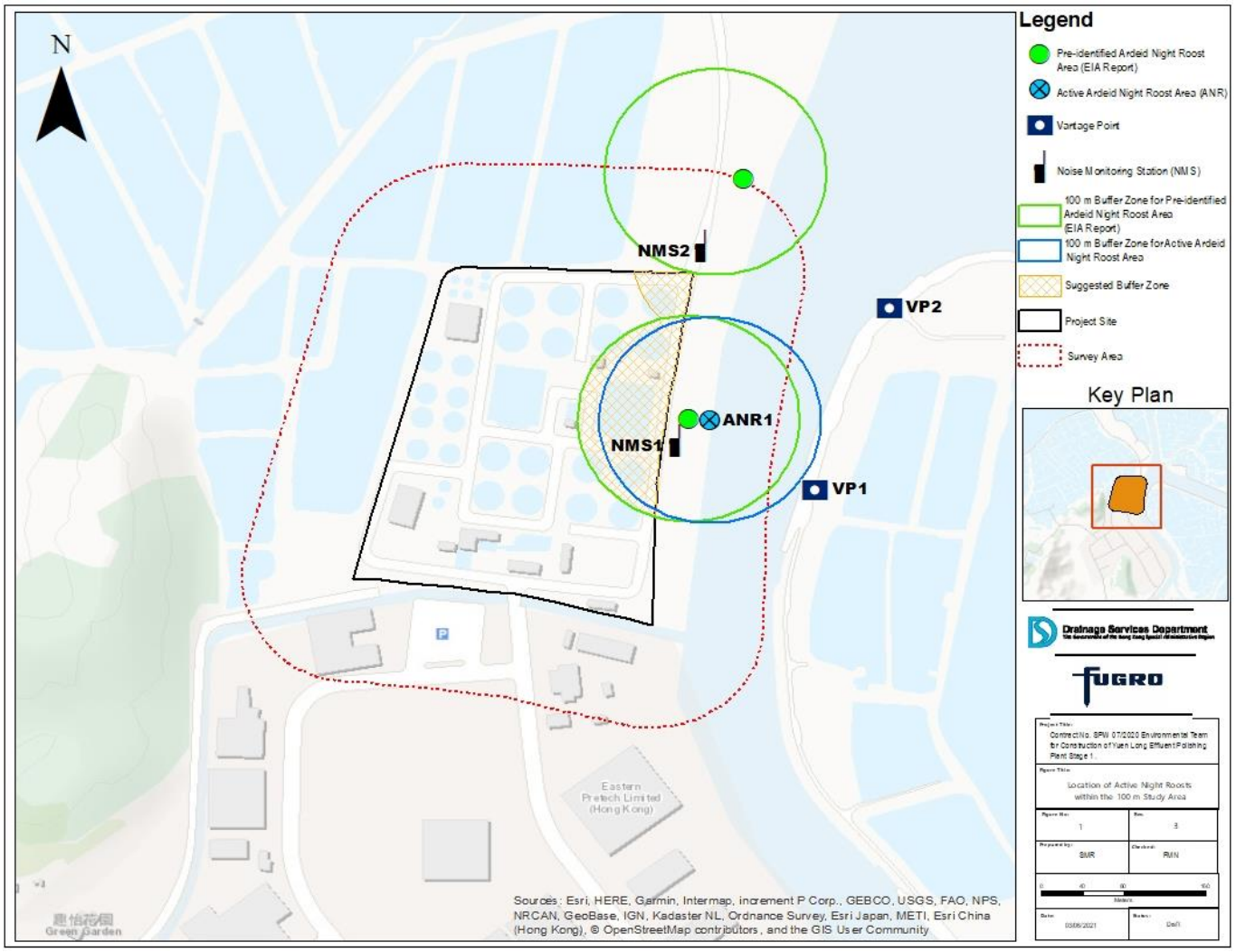
**Summary of Outstanding Issues and Deficiencies in the Reporting Month**

| 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 Roost and Noise Monitoring Stations




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

## O.2 Survey Photos

### O.2.1 Pre-roosting Aggregate

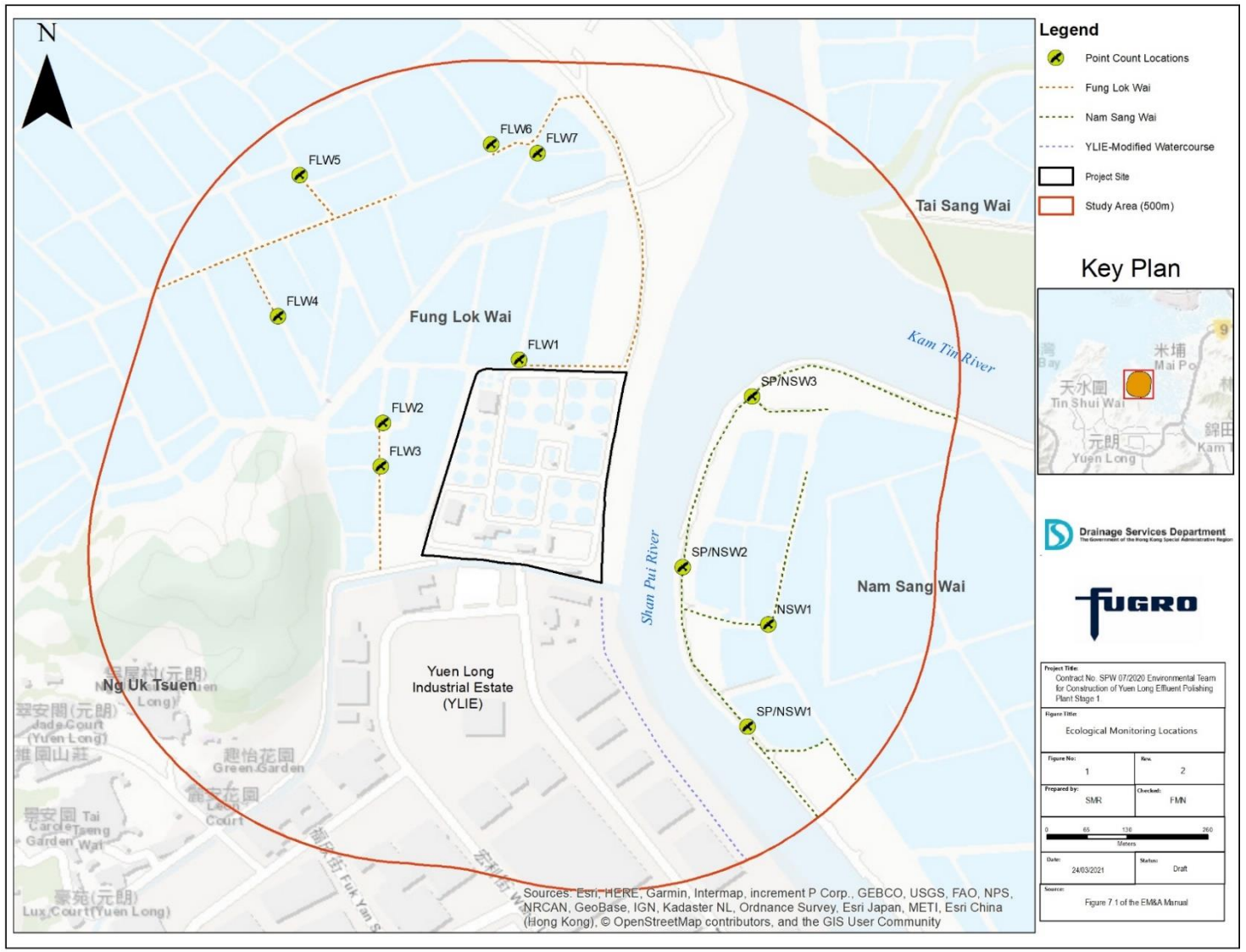
Appendix O.2.1a: Pre-roost aggregate of the Little Egret *Egretta garzetta* in the mudflat area east of the Project boundary observed on 20 September 2021 around 17:28

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

Appendix O.2.2a: Active night roost on *Sonneratia apetala* and *S. caseolaris* mangrove roosting substrate located east of the Project boundary observed on 20 September 2021 around 18:26

# Appendix P

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




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

# Appendix Q

Notification of Exceedance

# Notification of Ecological Monitoring of Birds Exceedance

Incident Report on Action/ Limit Level Exceedance

| | | | | |
|---|---|---|---|---|
| Reference No.: | IR202109_Species Abundance | | | |
| Project: | Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1 | | | |
| Survey Date: | 15/09/2021 (Daytime survey) and 20/09/21 (Night time survey) | | | |
| | Method | Parameters | Action Level | Limit Level |
| Action level / Limit level: (For Avifauna Communities**)** | Transect | Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community | Significant decline[1,2] in any of these parameters during the current monitoring month relative to the corresponding month during the baseline survey | Significant decline in any of these parameters for three consecutive months |
| | | Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community | | |
| | | Abundance of species with conservation importance only | | |
| | | Species diversity of species with conservation importance only | | |
| | Point Count | Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community | | |
| | | Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community | | |
| | | Abundance of species with conservation importance only | | |
| | | Species diversity of species with conservation importance only | | |
| Measured significant decline in abundance and/or species diversity (fill in as appropriate) | Transect | Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community | ☐ | ☐ |
| | | Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community | ☐ | ☐ |
| | | Abundance of species with conservation importance only | ☐ | ☐ |
| | | Species diversity of species with conservation importance only | ☐ | ☐ |
| | Point Count | Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community | ☑ | ☐ |
| | | Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community | ☐ | ☐ |
| | | Abundance of species with conservation importance only | ☐ | ☐ |
| | | Species diversity of species with conservation importance only | ☐ | ☐ |
| Action taken / to be taken[3]: (tick / circle / fill in as appropriate) | Responses:<br>☑ Informed IEC, ER, and Contractor.<br>☑ Reviewed monitoring data.<br>☑ Investigated possible causes of decline and identified possible source (s) of impact. Recorded in notification.<br>☑ Check Contractor's working methods. | | | |

| | |
|---|---|
| | ☐ Other |
| Possible reason/s[4] for action or limit level Non-compliance: (tick / fill in as appropriate) | **Findings / Evidences**<br>☐ Construction noise disturbance<br>☐ Vibration disturbance from potential percussive piling works<br>☐ Construction lighting/glare disturbance<br>☐ Increased human activities<br>☐ Construction dust disturbance<br>☑ Others:<br>In the nearby Deep Bay Area it was reported that from 2000 to 2018 there has been a consistent decline in coverage of intertidal mudflat, consistent increase in coverage of mangrove and other vegetation (Sung Y-H et. al., 2021)[5]. Moreover, based on satellite images (2016 to 2020) the mudflat, specifically at the confluence area of Shan Pui River and Kam Tin River, adjacent to Project site was progressively invaded most probably by the fast-growing exotic mangrove species *Sonneratia* spp. as initially reported in the EIA report. The decrease in mudflat coverage may imply a decrease in foraging area for waterbirds, hence, could have led the current decrease in abundance (Point count method). |
| Observations | ☑ Noise levels (43.7 to 61.5 dB(A)) recorded from the different point count locations during the ecological bird monitoring are mostly low. The generally low noise levels are unlikely to cause significant impact to birds as behavioral response of some kind are more likely to occur at above 65.5 dB(A) (Wright et al. 2010)[6]. There was no station with noise levels that exceeded 65.5 dB(A).<br>☑ Environmental site audits indicated that the recommended environmental protection measures/mitigation measures to mitigate ecological impacts have been implemented.<br>☑ No significant decrease in abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for Transect/~~Point Count~~ survey.<br>☑ No significant decrease in species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for Transect/Point Count survey.<br>☑ No significant decrease in abundance of species with conservation importance only was observed for Transect/Point Count survey.<br>☑ No significant decrease in species diversity of species with conservation importance only was observed for Transect/Point Count survey. |
| Conclusion | ☑ Due to influences of external factors/ other threats, not Project related<br>☐ Due to influences of construction activities under this project in the vicinity, considered to be Project related |
| Mitigation measures | ☑ Avoidance of recognized site of conservation importance<br>☑ Restriction of construction hours<br>☑ Minimizing construction noise disturbance impacts through the use of noise barriers<br>☑ Establishment of bird curtain |
| Attachment | Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations<br>Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations (September 2021)<br>Annex C – Summary of Two-tailed Unpaired T-test Analysis (September 2021)<br>Annex D – Abundance Tables<br>Annex E – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (September 2021)<br>Annex F – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (September 2021) |

Notes:

1. Significant decline in abundance determined using two-tailed t-test, $\alpha = 0.05$
2. Significant decline in species diversity determined using the Hutcheson t-test, two-tailed
3. In accordance with Table 4.2 "Responses to Alert and Action Level for Avifauna Communities" of the Baseline Bird Survey Report
4. With reference to Table 8.34 "Summary of Potential Impacts and Mitigation Measures Requirements of the Construction of the Project" of the approved EIA Report
5. Sung, Y-H, Chun-chiu Pang, Tom Chung-hoi Li, Paulina Pui Yun Wong and Yat-tung Yu. 2021. Ecological Correlates of 20-Year

Population Trends of Wintering Waterbirds in Deep Bay, South China. Front. Ecol. Evol. https://doi.org/10.3389/fevo.2021.658084

6. Wright, M.D., Goodman, P. and Cameron, T. 2010. Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl. 60:150-167

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

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

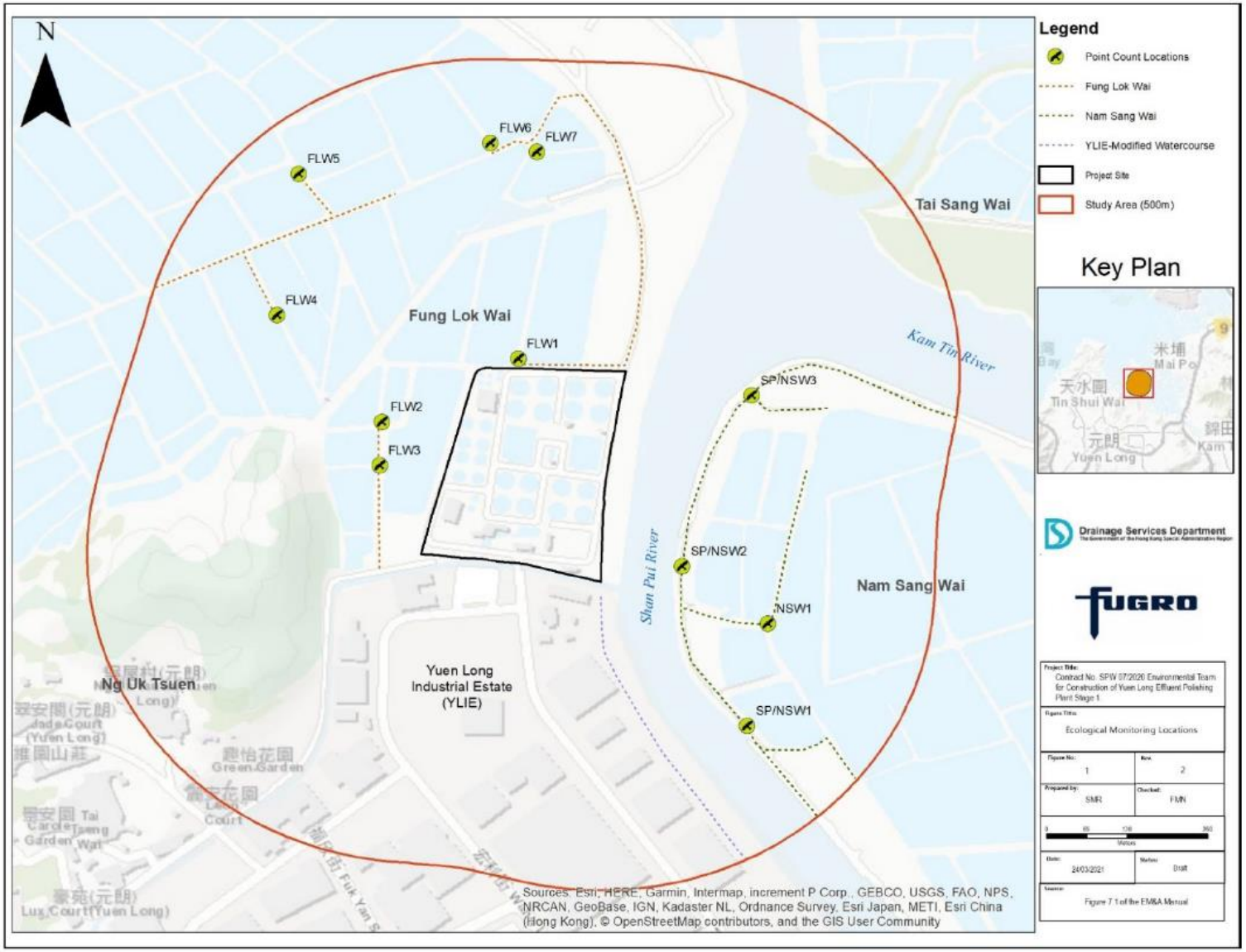
Prepared by: Fenelyn Nabuab
Designation: Ecologist

Signature: _____
Date (dd/mm/yyyy): 05/10/2021

Certified by: Alvin Yu
Designation: Environmental Team Leader

Signature: _____
Date (dd/mm/yyyy): 05/10/2021

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


N
FLW6
FLW7
FLW5
FLW4
FLW1
FLW2
FLW3
Fung Lok Wai
Tai Sang Wai
Kam Tin River
SP/NSW3
SP/NSW2
NSW1
SP/NSW1
Shan Pui River
Nam Sang Wai
Yuen Long Industrial Estate (YLIE)
Ng Uk Tsuen
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), © OpenStreetMap contributors, and the GIS User Community
Legend
Point Count Locations
Fung Lok Wai
Nam Sang Wai
YLIE-Modified Watercourse
Project Site
Study Area (500m)
Key Plan
Drainage Services Department
FUGRO
Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1
Ecological Monitoring Locations
1
2
SMR
FMN
24/03/2021
Draft
Figure 7.1 of the EM&A Manual

FUGRO

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

| Date (dd/mm/yyyy) | Daytime/ Night time | Season | Area | Transect/ Point Count | Point Count (Location)/ Transect Impact | Common Name | Scientific Name | Abundance | Habitat | Distribution in Hong Kong[2] | Principal Status[3] | Level of Concern[4] | Protection Status in China[5] | China Red Data Book[6] | Red List of China's Vertebrates[10] | IUCN Red List[7] (v.2020-3) | Species of Conservation Importance | Wetland Dependent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Crested Myna | *Acridotheres cristatellus* | 4 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Great Egret | *Ardea alba* | 9 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Grey Heron | *Ardea cinerea* | 3 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Chinese Pond Heron | *Ardeola bacchus* | 1 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Eastern Cattle Egret | *Bubulcus coromandus* | 2 | Pond-FLW | Common | R.PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Whiskered Tern | *Chlidonias hybrida* | 3 | Pond-FLW | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black Drongo | *Dicrurus macrocercus* | 2 | Plantation-FLW | Common | SV | - | - | | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Little Egret | *Egretta garzetta* | 9 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black-collared Starling | *Gracupica nigricollis* | 2 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Black Kite | *Milvus migrans* | 2 | Pond-FLW | Common | R,WV | (RC) | Class II | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | White Wagtail | *Motacilla alba* | 5 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Eurasian Tree Sparrow | *Passer montanus* | 7 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | FLW | Spotted Dove | *Spilopelia chinensis* | 8 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Chinese Pond Heron | *Ardeola bacchus* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Little Egret | *Egretta garzetta* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Scaly-breasted Munia | *Lonchura punctulata* | 3 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW1 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Grey Heron | *Ardea cinerea* | 1 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | FLW2 | Black Drongo | *Dicrurus macrocercus* | 1 | Pond-FLW | Common | SV | - | - | | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Little Egret | *Egretta garzetta* | 1 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW2 | Plain Prinia | *Prinia inornata* | 1 | Reedbed | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet | FLW | Point | FLW2 | Spotted Dove | *Spilopelia* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Season | | Count | | | *chinensis* | | | | | | | | | | | |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW3 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW3 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Eastern Cattle Egret | *Bubulcus coromandus* | 1 | Pond-FLW | Common | R.PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Pied Kingfisher | *Ceryle rudis* | 2 | Pond-FLW | Uncommon | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW4 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | Whiskered Tern | *Chlidonias hybrida* | 2 | Pond-FLW | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW5 | Eurasian Tree Sparrow | *Passer montanus* | 3 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Great Egret | *Ardea alba* | 2 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Grey Heron | *Ardea cinerea* | 1 | Pond-FLW | Common | WV | PRC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | FLW6 | Black Drongo | *Dicrurus macrocercus* | 1 | Plantation-FLW | Common | SV | - | - | | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Little Egret | *Egretta garzetta* | 2 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Black-collared Starling | *Gracupica nigricollis* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | White Wagtail | *Motacilla alba* | 1 | Pond-FLW | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Blue-winged Pitta | *Pitta moluccensis* | 1 | Pond-FLW | Vagrant | PM | - | - | - | DD | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Plain Prinia | *Prinia inornata* | 1 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW6 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Crested Myna | *Acridotheres cristatellus* | 4 | Pond-FLW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Great Egret | *Ardea alba* | 2 | Pond-FLW | Common | R,WV | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Chinese Pond Heron | *Ardeola bacchus* | 4 | Pond-FLW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Velvet-fronted Nuthatch | *Sitta frontalis* | 2 | Plantation-FLW | Common | R | - | - | - | DD | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Point Count | FLW7 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-FLW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Chinese Pond Heron | *Ardeola bacchus* | 3 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Little Egret | *Egretta garzetta* | 4 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Black-winged Stilt | *Himantopus himantopus* | 6 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Common Greenshank | *Tringa nebularia* | 4 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Japanese White-eye | *Zosterops japonicus* | 3 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Barn Swallow | *Hirundo rustica* | 3 | Modified Watercourse | Abundant | PM,SV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Plain Prinia | *Prinia inornata* | 2 | Plantation-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Transect | NSW | Oriental Magpie Robin | *Copsychus saularis* | 1 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Crested Myna | *Acridotheres cristatellus* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Chinese Pond Heron | *Ardeola bacchus* | 1 | Pond-NSW | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | White-rumped Munia | *Lonchura striata* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Eurasian Tree Sparrow | *Passer montanus* | 4 | Pond-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Yellow-bellied Prinia | *Prinia flaviventris* | 1 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Plain Prinia | *Prinia inornata* | 2 | Pond-NSW | Common | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | NSW1 | Spotted Dove | *Spilopelia chinensis* | 1 | Pond-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Chinese Pond Heron | *Ardeola bacchus* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Whiskered Tern | *Chlidonias hybrida* | 2 | Modified Watercourse | Uncommon | PM | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Black-winged Stilt | *Himantopus himantopus* | 2 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Common Greenshank | *Tringa nebularia* | 4 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW1 | Pied Avocet | *Recurvirostra avosetta* | 4 | Modified Watercourse | Abundant | WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Masked Laughingthrush | *Garrulax perspicillatus* | 3 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW2 | Black-winged Stilt | *Himantopus himantopus* | 1 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Modified Watercourse | Common | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet | NSW | Point | SP/NSW3 | Grey Heron | *Ardea cinerea* | 2 | Modified | Common | WV | PRC | - | - | LC | LC | Y | Y |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Season | | Count | | | | | Watercourse | | | | | | | | | |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | Oriental Magpie Robin | *Copsychus saularis* | 1 | Plantation-NSW | Abundant | R | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | White-breasted Waterhen | *Amaurornis phoenicurus* | 1 | Modified Watercourse | Common | R | - | - | - | LC | LC | N | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Chinese Pond Heron | *Ardeola bacchus* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Little Egret | *Egretta garzetta* | 2 | Modified Watercourse | Common | R | PRC (RC) | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Black-winged Stilt | *Himantopus himantopus* | 4 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | White Wagtail | *Motacilla alba* | 1 | Modified Watercourse | Common | PM,WV | - | - | - | LC | LC | N | N |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Common Greenshank | *Tringa nebularia* | 8 | Modified Watercourse | Abundant | PM,WV | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | FLW | Transect | YLIE-CW | Common Redshank | *Tringa totanus* | 2 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 15/09/2021 | Daytime | Wet Season | NSW | Point Count | SP/NSW3 | Black-winged Stilt | *Himantopus himantopus* | 10 | Modified Watercourse | Common | PM | RC | - | - | LC | LC | Y | Y |
| 20/09/2021 | Night time | Wet Season | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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
- : no observed individual

Annex C – Summary of Two-tailed Unpaired T-test Analysis (September 2021)

Testing Method and Output

Two-tailed Unpaired T-test at α=0.05

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Output

Abundance of all avifauna species - Point Count Method

| Months | September 2016 | September 2021 |
|---|---|---|
| N | 70 | 52 |
| df | 69 | 51 |
| M | 3.17 | 1.9 |
| SS | 889.94 | 112.52 |
| $S^2$ | 12.9 | 2.21 |
| t-value | 2.4 | |
| p-value | 0.02 | |

Notes:
N: Number of samples/observation
df: Degrees of freedom
M: Mean
SS: Sum of Squares
$S^2$: Measure on a random sample that is used to estimate the variance of the population

Annex D – Abundance Tables

Annex D.1 Baseline (September 2016) consolidated abundance data of all avifauna species for point count method

| Scientific Name | Abundance |
|---|---|
| *Acridotheres cristatellus* | 6 |
| *Actitis hypoleucos* | 3 |
| *Alcedo atthis* | 2 |
| *Amaurornis phoenicurus* | 1 |
| *Anas clypeata* | 10 |
| *Ardea alba* | 8 |
| *Ardea cinerea* | 7 |
| *Ardeola bacchus* | 27 |
| *Ceryle rudis* | 1 |
| *Chlidonias hybrida* | 7 |
| *Cisticola juncidis* | 1 |
| *Copsychus saularis* | 2 |
| *Dicrurus macrocercus* | 6 |
| *Egretta garzetta* | 31 |
| *Garrulax perspicillatus* | 3 |
| *Gracupica nigricollis* | 11 |
| *Himantopus himantopus* | 16 |
| *Hirundo rustica* | 15 |
| *Ixobrychus sinensis* | 1 |
| *Lanius cristatus* | 1 |
| *Lanius schach* | 1 |
| *Milvus migrans* | 2 |
| *Motacilla alba* | 5 |
| *Nycticorax nycticorax* | 3 |
| *Passer montanus* | 15 |
| *Phalacrocorax carbo* | 2 |
| *Prinia flaviventris* | 1 |
| *Prinia inornata* | 1 |
| *Recurvirostra avosetta* | 3 |
| *Spilopelia chinensis* | 15 |
| *Streptopelia decaocto* | 1 |
| *Streptopelia tranquebarica* | 2 |
| *Tachybaptus ruficollis* | 11 |
| *Tringa nebularia* | 1 |
| **Grand Total** | **222** |

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

| Scientific Name | Abundance |
|---|---|
| *Acridotheres cristatellus* | 6 |
| *Amaurornis phoenicurus* | 2 |
| *Ardea alba* | 4 |
| *Ardea cinerea* | 4 |
| *Ardeola bacchus* | 9 |
| *Bubulcus coromandus* | 1 |
| *Ceryle rudis* | 2 |
| *Chlidonias hybrida* | 4 |
| *Copsychus saularis* | 1 |
| *Dicrurus macrocercus* | 2 |
| *Egretta garzetta* | 9 |
| *Garrulax perspicillatus* | 3 |
| *Gracupica nigricollis* | 1 |
| *Himantopus himantopus* | 13 |
| *Lonchura punctulata* | 3 |
| *Lonchura striata* | 2 |
| *Motacilla alba* | 3 |
| *Passer montanus* | 7 |
| *Pitta moluccensis* | 1 |
| *Prinia flaviventris* | 1 |
| *Prinia inornata* | 4 |
| *Recurvirostra avosetta* | 4 |
| *Sitta frontalis* | 2 |
| *Spilopelia chinensis* | 7 |
| *Tringa nebularia* | 4 |
| **Grand Total** | **99** |

Annex D.3 Baseline (September 2016) consolidated abundance data of conservation important avifauna species for point count method

| Scientific Name | Abundance |
|---|---|
| *Anas clypeata* | 10 |
| *Ardea alba* | 8 |
| *Ardea cinerea* | 7 |
| *Ardeola bacchus* | 27 |

| Scientific Name | Abundance |
|---|---|
| *Cisticola juncidis* | 1 |
| *Egretta garzetta* | 31 |
| *Himantopus himantopus* | 16 |
| *Milvus migrans* | 2 |
| *Phalacrocorax carbo* | 2 |
| *Recurvirostra avosetta* | 3 |
| *Tachybaptus ruficollis* | 11 |
| *Tringa nebularia* | 1 |
| **Grand Total** | **119** |

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

| Scientific Name | Abundance |
|---|---|
| *Ardea alba* | 4 |
| *Ardea cinerea* | 4 |
| *Ardeola bacchus* | 9 |
| *Egretta garzetta* | 9 |
| *Himantopus himantopus* | 13 |
| *Recurvirostra avosetta* | 4 |
| *Tringa nebularia* | 4 |
| **Grand Total** | **47** |

Annex D.5 Baseline (September 2016) consolidated abundance data of all avifauna species for transect walk method

| Scientific Name | Abundance |
|---|---|
| *Amaurornis phoenicurus* | 1 |
| *Ardea alba* | 16 |
| *Ardea cinerea* | 1 |
| *Ardeola bacchus* | 3 |
| *Bubulcus coromandus* | 14 |
| *Centropus sinensis* | 1 |
| *Copsychus saularis* | 1 |
| *Cyanopica cyanus* | 1 |
| *Dicrurus hottentottus* | 5 |
| *Dicrurus macrocercus* | 4 |
| *Egretta garzetta* | 6 |
| *Garrulax perspicillatus* | 6 |

| Scientific Name | Abundance |
|---|---|
| *Gracupica nigricollis* | 5 |
| *Halcyon smyrnensis* | 1 |
| *Himantopus himantopus* | 2 |
| *Hirundo rustica* | 5 |
| *Lanius schach* | 1 |
| *Orthotomus sutorius* | 1 |
| *Phalacrocorax carbo* | 10 |
| *Prinia flaviventris* | 3 |
| *Prinia inornata* | 2 |
| *Spilopelia chinensis* | 6 |
| *Streptopelia decaocto* | 8 |
| *Streptopelia tranquebarica* | 3 |
| *Tachybaptus ruficollis* | 5 |
| *Tringa nebularia* | 1 |
| *Zosterops japonicus* | 7 |
| **Grand Total** | **119** |

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

| Scientific Name | Abundance |
|---|---|
| *Acridotheres cristatellus* | 4 |
| *Amaurornis phoenicurus* | 1 |
| *Ardea alba* | 9 |
| *Ardea cinerea* | 3 |
| *Ardeola bacchus* | 6 |
| *Bubulcus coromandus* | 2 |
| *Chlidonias hybrida* | 3 |
| *Copsychus saularis* | 1 |
| *Dicrurus macrocercus* | 2 |
| *Egretta garzetta* | 15 |
| *Gracupica nigricollis* | 2 |
| *Himantopus himantopus* | 10 |
| *Hirundo rustica* | 3 |
| *Milvus migrans* | 2 |
| *Motacilla alba* | 6 |
| *Passer montanus* | 7 |
| *Prinia inornata* | 2 |
| *Spilopelia chinensis* | 8 |
| *Tringa nebularia* | 12 |

| Scientific Name | Abundance |
|---|---|
| *Tringa totanus* | 2 |
| *Zosterops japonicus* | 3 |
| **Grand Total** | **103** |

Annex D.7 Baseline (September 2016) consolidated abundance data of conservation important avifauna species for transect walk method

| Scientific Name | Abundance |
|---|---|
| *Ardea alba* | 16 |
| *Ardea cinerea* | 1 |
| *Ardeola bacchus* | 3 |
| *Centropus sinensis* | 1 |
| *Egretta garzetta* | 6 |
| *Himantopus himantopus* | 2 |
| *Phalacrocorax carbo* | 10 |
| *Tachybaptus ruficollis* | 5 |
| *Tringa nebularia* | 1 |
| **Grand Total** | **45** |

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

| Scientific Name | Abundance |
|---|---|
| *Ardea alba* | 9 |
| *Ardea cinerea* | 3 |
| *Ardeola bacchus* | 6 |
| *Egretta garzetta* | 15 |
| *Himantopus himantopus* | 10 |
| *Milvus migrans* | 2 |
| *Tringa nebularia* | 12 |
| *Tringa totanus* | 2 |
| **Grand Total** | **59** |

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

| Frequency and Period | Location | Daytime (15/09/2021) | | Night time (20/09/2021) | |
|---|---|---|---|---|---|
| | | Start Time | $L_{Aeq}$ (30 min) dB(A) | Start Time | $L_{Aeq}$ (30 min) dB(A) |
| Monthly in concurrence with the ecological monitoring of birds | FLW1 | 07:50 | 51.9 | 18:36 | 42.3 |
| | FLW2 | 07:35 | 49.4 | 18:25 | 42.1 |
| | FLW3 | 07:35 | 56.3 | 18:25 | 45.2 |
| | FLW4 | 08:30 | 47.2 | 18:45 | 48.3 |
| | FLW5 | 08:45 | 43.7 | 18:52 | 46.2 |
| | FLW6 | 09:50 | 55.9 | 18:59 | 48.8 |
| | FLW7 | 09:50 | 54.8 | 19:14 | 52.4 |
| | SP/NSW3 | 11:05 | 46.1 | 20:27 | 61.1 |
| | SP/NSW2 | 11:17 | 52.6 | 20:10 | 59.9 |
| | NSW1 | 11:17 | 46.7 | 20:17 | 56 |
| | SP/NSW1 | 11:01 | 56.6 | 20:05 | 61.5 |

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

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

Annex F.2. Footpath immediately north of the Project Site

Annex F.3. Modified Watercourse, southeast of the Project Site

Annex F.4. Mangrove habitat and modified watercourse, northeast of the Project Site

Annex F.5. Algal bloom on an Active Pond at Fong Lok Wai, far north of the Project Site