


Drainage Services Department

Agreement No. SPW 07/2019 Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Monthly EM&A Report March 2021

(Version 1)

Certified By 

(Environmental Team Leader:
Mr. KS Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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22 April 2021

By E-mail and Fax (3922 9797)

AECOM Asia Company Limited
8/F., Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road
Sha Tin, New Territories, Hong Kong

Attention: Mr CHANG Ping Wah

Dear Mr CHANG,

**Re: Contract No. SPW 08/2019
Independent Environmental Checker for
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1**

Monthly EM&A Report for March 2021

Reference is made to the Environmental Team's submission of Monthly EM&A Report for March 2021 (Version 1) certified by the ET Leader and provided to us via e-mail on 22 April 2021.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 of FEP-02/474/2013.

The ET Leader is reminded that it is the ET's responsibility to ensure the report be timely submitted to the Director of Environmental Protection as per Conditions 3.4 of the FEP-02/474/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited



Y H Hui
Independent Environmental Checker

c.c.

DSD
Cinotech

Attn.: Ms Konica Cheung
Attn.: Mr K. S. Lee

(By Fax: 3104 6420)
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EXECUTIVE SUMMARY**Introduction**

1. This is the 15th EM&A Report prepared by the Environmental Team, Cinotech Consultants Ltd., for Agreement No. SPW 07/2019 “Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1”. This report summarized the monitoring results and audits findings of the EM&A programme under the issued further EP No. FEP-02/474/2013 and in accordance with the Updated EM&A Manual during the reporting month of March 2021.

Summary of Main Works Undertaken and Key Measures Implemented

2. The main works undertaken during the reporting period are as follows:

Table I Summary Table for Major Site Activities in the Reporting Month

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	<ul style="list-style-type: none"> • ELS and excavation works • Sheet pile installation • RC works • Strut installation and blinding layer • Pipe jacking work
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • ELS and construction of inlet reception chamber • Trench excavation • Road and drainage works • Diversion of inlet works • Process pipe of CHR and CHS • Pre-drilling work and foundation work • Pre-bored H piles • Cable diversion works • Alternation of existing powerhouse • Demolition work of existing main facilities • Piling load test
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities	<ul style="list-style-type: none"> • Pre-drilling works
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • Construction of temporary filtrate equalisation tank. • Installation of temporary primary sludge thickener and its accessories • Dismantle and removal of E&M equipment of the existing primary sedimentation tank no. 4

3. Implementation of the key mitigation measures during the reporting period are as follows:

Air Quality

- Stockpiles were covered by impervious sheets.
- Water spraying on haul road was done to minimize dust generation.

Water Quality

- Wastewater was removed, pumped and collected in the sedimentation tank before discharge.

Waste Management

- Chemicals were stored in drip trays properly.
- Unused waste and materials were removed to maintain the tidiness of the site.

Summary of Exceedances, Investigation and Follow-up

4. Exceedance of Action/Limit levels during the reporting month (March 2021) and the investigation results and/or follow-up actions:

Air Quality Monitoring

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

Construction Noise Monitoring

- No Action/Limit Level exceedance for day time construction noise monitoring was recorded in the reporting month.

Ecological Monitoring

- No Action Level and 1 Limit Level exceedance was triggered.

Complaint Handling, Prosecution and Public Engagement**Table II Summary of Complaint/Summons/Prosecution in the Reporting Month**

Event	Event Details		Follow-up/ Remedial Actions	Status/ Remarks
	Number	Brief Description		
Complaints Received	0	-	-	-
Notification of Summons and Prosecutions Received	0	-	-	-
Public Engagement Activities	0	-	-	-

Reporting Changes

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

Future Key Issues

6. The key works or activities will be anticipated in the next reporting period are as follows:

Table III Summary Table for Site Activities in the Next Reporting Period

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	<ul style="list-style-type: none"> • ELS and excavation works • Sheet pile installation • RC works • Strut installation and blinding layer • Pipe jacking work
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • ELS and construction of inlet reception chamber • Trench excavation • Road and drainage works • Diversion of inlet works • Process pipe of CHR and CHS • Pre-drilling work and foundation work • Cable diversion works • Demolition work of existing main facilities • Alternation of existing powerhouse • Pre-bored H piles
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities	<ul style="list-style-type: none"> • Break concrete pavement and ramp • Construct sump pit and curb • Relocate container includes, remove shrubs and laying blinding • Setup of piling works, mobilization of plant and equipment • Start piling works • Socket H piling
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • Installation of temporary filtrate equalisation tank. • Installation of temporary primary sludge thickener and its accessories • Retrofitting the existing primary sedimentation tank No. 4 and 6 • Preparatory work for electrical installation at inlet works

1 INTRODUCTION

Background

- 1.1 The Further Expansion of Shek Wu Hui Effluent Polishing Plant (SWHEPP) is a designated Project (DP) under F.1 and F.2 of Part 1, Schedule 2 of Environmental Impact Assessment Ordinance (EIAO). The “North East New Territories New Development Areas” Environmental Impact Assessment (NENT NDAs EIA) Report (Registered No.: AEIAR-175/2013) covered the assessment for the Further Expansion of SWHSTW Phase 1A, 1B and 2, and the associated Environmental Monitoring and Audit (EM&A) Manual was approved on 18 October 2013.
- 1.2 The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) is operated and maintained by the Drainage Services Department (DSD). It provides secondary level treatment to sewage collected from Sheung Shui, Fanling and adjacent areas, SWHSTW was completed in two stages and expanded progressively in the past year. In 2009, the expansion of SWHSTW was completed and its design capacity was 93,000m²/day at average dry weather flow (ADWF). After the Resource Allocation Exercise 2017, the existing SWHSTW is proposed to be upgraded from secondary to tertiary treatment level as the new SWHEPP at 3 stages: Main Works Stage 1, Stage 2 and Stage 3.
- 1.3 A Further Environmental Permit (EP) (Permit No. FEP-02/474/2013) was issued on 15 February 2018 to DSD as the Permit Holder to assume the responsibility for construction and operating the SWHEPP Project up to a capacity of 190,000m³/day. The updated Environmental Monitoring and Audit (EM&A) Manual was prepared in accordance with Condition 2.3 of the Further EP. The site layout plan for the Project is shown in **Figure 1.1**.
- 1.4 Cinotech Consultants Ltd. was designated as the Environmental Team (ET) to undertake the EM&A works for “Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1” (hereinafter called the “Project”).

Purpose of the Report

- 1.5 This is the 15th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in March 2021.

Project Organizations

- 1.6 Different Parties with different levels of involvement in the project organization include:
 - Permit Holder – Drainage Services Department (DSD)
 - Supervisor Representative – AECOM Asia Company Limited (AECOM)
 - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
 - Independent Environmental Checker (IEC) – Ramboll Hong Kong Limited (Ramboll)
 - Contractors
 - Contract No.: DC/2018/06 - Kwan Lee - Chun Wo Joint Venture (KLCWJV)
 - Contract No.: DC/2018/07 - Kwan Lee - Chun Wo Joint Venture (KLCWJV)
 - Contract No.: DE/2018/03 - Jardine Engineering Corporation Limited (JEC)
 - Contract No.: DE/2018/04 - Bestwise Envirotech Limited (Bestwise)

1.7 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Phone No.
DSD	Permit Holder	Ms. Konica Cheung	2594 7463
AECOM	Supervisor Representative	Mr. Henry Tai	3792 0580
Cinotech	Environmental Team	Mr. KS Lee (ETL)	2151 2091
		Ms. Betty Choi	2151 2072
Ramboll	Independent Environmental Checker	Mr. Manson Yeung	3465 2888
KLCWJV	Contractor (DC/2018/06)	Ms. Ruby Hui	6218 6408
KLCWJV	Contractor (DC/2018/07)	Mr. Jimmy Cheng	9606 5916
JEC	Contractor (DE/2018/03)	Ms. Juliet Ting	6826 7319
Bestwise	Contractor (DE/2018/04)	Mr. Albus Cheung	9731 0831

1.8 The Organizational Structure for Environmental Management is shown in **Figure 1.2**.

Construction Activities undertaken during the Reporting Month

1.9 The major site activities undertaken in the reporting month included:

Table 1.2 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	<ul style="list-style-type: none"> • ELS and excavation works • Sheet pile installation • RC works • Strut installation and blinding layer • Pipe jacking work
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Contract No.	Contract Title	Site Activities
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities	<ul style="list-style-type: none"> • Pre-drilling works
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • Construction of temporary filtrate equalisation tank. • Installation of temporary primary sludge thickener and its accessories • Dismantle and removal of E&M equipment of the existing primary sedimentation tank no. 4

Summary of EM&A Requirements

- 1.10 The EM&A programme requires construction noise monitoring, air quality monitoring, water quality monitoring, ecological monitoring and environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA Report.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 8 of this report.
- 1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in March 2021.

Statues of Environmental Licensing and Permitting1.13 All permits/licenses obtained for the Project are summarized in **Table 1.3**.**Table 1.3 Summary of Environmental License and Permit**

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
All	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Notification of Construction Works under Air Pollution Control Ordinance (APCO)				
DC/2018/06	449210 (Portion A & C)	23 Sep 2019	N/A	Valid
DC/2018/06	449211 (WM1)	23 Sep 2019	N/A	Valid
DC/2018/07	449210	23 Sep 2019	N/A	Valid
DE/2018/03	455843 (WA3)	6 May 2020	N/A	Valid
DE/2018/03	457212 (WA1-B)	15 Jun 2020	N/A	Valid
DE/2018/03	460065 (Sidestream)	16 Sep 2020	N/A	Valid
DE/2018/04	460181	Notified EPD on 17 Sep 2020	N/A	Valid
Billing Account for Construction Waste Disposal				
DC/2018/06	7035390	11 Oct 2019	N/A	Valid
DC/2018/07	7035985	9 Dec 2019	N/A	Valid
DE/2018/03	7035700	6 Nov 2019	N/A	Valid
DE/2018/04	703621912	2 Jan 2020	N/A	Valid
Registration of Chemical Waste Producer				
DC/2018/06	5213-624-K3371-01	14 Nov 2019	N/A	Valid
DC/2018/07	5213-624-K3371-02	6 Jan 2020	N/A	Valid
DE/2018/03	5213-624-T3861-01	14 Apr 2020	N/A	Valid
DE/2018/04	5213-624-B2592-01	7 Jul 2020	N/A	Valid
Effluent Discharge License				
DC/2018/06	WT00035431-2019 (Portion C)	27 Jul 2020	31 Jan 2025	Valid
DC/2018/06	WT00035718-2020 (Portion A)	2 Apr 2020	30 Apr 2025	Valid
DC/2018/07	WT00035727-2020	1 Apr 2020	30 Apr 2025	Valid
DE/2018/03	WT00037220-2020	16 Mar 2021	31 Jan 2026	Valid
Construction Noise Permit (Use of Powered Mechanical Equipment at Portion A, B and C)				
DC/2018/06 & DC/2018/07	GW-RN0753-20	30 Oct 2020	11 Apr 2021	Valid
Admission Ticket for Disposal of Special Waste				
DC/2018/07	16113	17 Feb 2021	16 Jun 2021	Valid

2 AIR QUALITY

Monitoring Requirement

- 2.1 According to the Updated EM&A Manual of SWHEPP, 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

- 2.2 Four designated monitoring stations were selected for air quality monitoring programme. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 2.1 Air Quality Monitoring Locations

Monitoring Stations	Location	Location of Measurement
AM1 ⁽¹⁾	Wai Loi Tsuen	Ground Level
AM2 ⁽¹⁾	Fu Tei Au	Ground Level
AM1a ⁽²⁾	Site Boundary of the Shek Wu Hui STW (East)	Ground Level
AM2a ⁽²⁾	Site Boundary of the Shek Wu Hui STW (North)	Ground Level

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

Monitoring Parameters and Frequency

- 2.3 **Table 2.2** summarizes the monitoring parameters, monitoring period and frequencies of impact air quality monitoring. The monitoring schedule is shown in **Appendix B**.

Table 2.2 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Period	Frequency
AM1 & AM2	1-hour TSP	0700 – 1900	3 times/day, once every 6 days
AM1a & AM2a	24-hour TSP	24 hours	Once every 6 days

Monitoring Equipment

- 2.4 High Volume Samplers (HVS) in compliance with the specification stipulated in the EM&A Manual, Section 2.2.2, were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined by HVS to check the validity and accuracy of the results measured by direct reading method.
- 2.5 Wind data monitoring equipment was set on rooftop (about 4/F) of the SWHSTW control room building for logging wind speed and wind direction such that the wind sensors were clear of obstructions or turbulence caused by building. The wind data monitoring equipment was re-calibrated at least once every six months and the wind directions were divided into 16 sectors of 22.5 degrees each.

- 2.6 **Table 2.3** summarizes the equipment to be used for air quality monitoring. Copies of calibration certificates are attached in **Appendix C**.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
1-hour TSP Dust Meter	Sibata Model No.: LD-5R	2
HVS Sampler	GMW Model: GS 2310	1
	TISCH Model: TE 5170	1
Calibrator	TISCH Model: TE-5025A	1
Wind Anemometer	Global Water Instrumentation WE800	1

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

- 2.7 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Sibata Model No.: LD-5R)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

- 2.8 The following maintenance/calibration is required for the 1-hour dust meter:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

- 2.9 High volume samplers (HVS) (TISCH Model: TE-5170) complete with appropriate sampling inlets was employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in Section 2.2 of the Annex II Specification.
- 2.10 The positioning of the HVS samplers are as follows:
- A horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
 - No two samplers shall be placed less than 2 meter apart;
 - The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
 - A minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
 - A minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
 - No furnace or incinerator flue is nearby;
 - Airflow around the sampler is unrestricted;
 - The sampler is more than 20 metres from the dripline;
 - Any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
 - Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
 - A secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

- 2.11 Operating/analytical procedures for the air quality monitoring are highlighted as follows:
- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
 - For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3µm diameter were used.
 - The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the HOKLAS laboratory (High Precision Chemical Testing Limited) for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) should be $< 50\%$ and not vary by more than $\pm 5\%$. A convenient working RH is 40%.

Maintenance/Calibration

2.12 The following maintenance/calibration is required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

2.13 Impact air quality monitoring was conducted at four monitoring stations as scheduled. The monitoring schedule is shown in **Appendix B**.

2.14 No Action/Limit Level exceedance was recorded for all 1-hour TSP monitoring in the reporting month.

2.15 No Action/Limit Level exceedance was recorded for all 24-hour TSP monitoring in the reporting month.

2.16 The air temperature, precipitation and the relative humidity data was obtained from daily extract of Ta Kwu Ling Station in Hong Kong Observatory Climate Information Service, where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop (about 4/F) of the SWHSTW control room building. This weather information for the reporting month is summarized in **Appendix D**.

2.17 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.

2.18 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 2.4 Major Dust Source during Air Quality Monitoring

Monitoring Stations	Major Dust Source
AM1 - Wai Loi Tsuen	Road Traffic at Sheung Shui Tung Hing Road
AM2 - Fu Tei Au	N/A
AM1a - Site Boundary of the Shek Wu Hui STW (East)	Vehicle Movement within SWHSTW
AM2a - Site Boundary of the Shek Wu Hui STW (North)	N/A

Comparison of EM&A Result with EIA Prediction

2.19 The air monitoring data was compared with the predictions in the EIA Report (as approved in 2013) as summarised in **Tables 2.5** and **Table 2.6**.

Table 2.5 Comparison of 1-hr TSP Monitoring Data with Predictions in EIA Report (As Approved in 2013)

Monitoring Stations	ASR ID	Predicted 1-hr TSP Concentration in EIA Report (as Approved in 2013), dB(A), $\mu\text{g}/\text{m}^3$	Reporting Month (March 2021), $\mu\text{g}/\text{m}^3$
AM1 - Wai Loi Tsuen	N/A	N/A ⁽¹⁾	24.2 - 149.6
AM2 - Fu Tei Au	FLN-E28	255	22.0 - 156.2

Remarks:

(1) No 1-hr TSP concentration was predicted in EIA Report (As Approved in 2013).

Table 2.6 Comparison of 24-hr TSP Monitoring Data with Predictions in EIA Report (As Approved in 2013)

Monitoring Stations	Predicted 24-hr TSP Concentration in EIA Report (as approved in 2013), dB(A), $\mu\text{g}/\text{m}^3$	Reporting Month (March 2021), $\mu\text{g}/\text{m}^3$
AM1a - Site Boundary of the Shek Wu Hui STW (East)	N/A ⁽¹⁾	42.7 - 82.0
AM2a - Site Boundary of the Shek Wu Hui STW (North)	N/A ⁽¹⁾	23.9 - 59.5

Remarks:

(1) No 24-hr TSP concentration was predicted in EIA Report (as approved in 2013).

2.20 The 1-hour TSP concentration at AM2 in the reporting month was lower than the prediction in the EIA Report (As Approved in 2013). The 1-hour TSP concentrations at AM1 as well as 24-hour TSP concentrations at AM1a and AM2a were not predicted in the EIA Report (As Approved in 2013).

3 NOISE

Monitoring Requirements

- 3.1 According to the Updated EM&A Manual, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

- 3.2 Noise monitoring was conducted at three designated monitoring stations in the reporting period. **Table 3.1** and **Figure 3** show the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Location	Location of Measurement
NM1	Wai Loi Tsuen	Ground Level
NM2	Fu Tei Au	Ground Level
NM3	Man Kok Village	Ground Level

Monitoring Parameters, Frequency and Duration

- 3.3 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.2 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Time Period	Duration	Frequency	Parameter	Measurement
NM1	0700-1900 hrs on normal weekdays	30 minutes	Once per week	L ₁₀ (30 min.) dB(A)	Free Field
NM2				L ₉₀ (30 min.) dB(A)	Free Field
NM3				L _{eq} (30 min.) dB(A)	Free Field

Monitoring Equipment

- 3.4 Integrating Sound Level Meter was used for impact noise monitoring. The meters were Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 3.3** summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix G**.

Table 3.3 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	BSWA 308	3
Calibrator	ST-120	2

Monitoring Methodology and QA/QC Procedure

3.5 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting: Fast
 - Time measurement: 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise monitoring would be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. Supplementary monitoring would be provided to ensure sufficient data would be obtained.

Maintenance and Calibration

- 3.6 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- 3.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 3.8 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 3.9 No Action/Limit Level exceedance was recorded for all construction noise monitoring in the reporting month.
- 3.10 Noise monitoring results and graphical presentations are shown in **Appendix H**.

3.11 The major noise sources identified at the noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Other Noise Source Identified during Noise Monitoring

Monitoring Stations	Major Noise Source
NM1	Railway Noise and Road Traffic at Sheung Shui Tung Hing Road
NM2	N/A
NM3	Road Traffic at Po Wan Road

3.12 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Monitoring Stations	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
NM1	63.4	75
NM2	58.0	
NM3	63.4	

Comparison of EM&A Result with EIA Prediction

3.13 The noise monitoring data was compared with the predictions in EIA Report (as approved in 2013) as summarised in **Table 3.6**.

Table 3.6 Comparison of Noise Monitoring Data with Predictions in EIA Report (As Approved in 2013)

Monitoring Stations	NSR ID	Predicted Mitigated Construction Noise Levels in EIA Report (as Approved in 2013), dB(A)	Reporting Month (March 2021), Leq (30min) dB(A)
NM1 - Wai Loi Tsuen	N/A	N/A ⁽¹⁾	53.5 – 58.5
NM2 - Fu Tei Au	N/A	N/A ⁽¹⁾	53.8 – 56.8
NM3 – Man Kok Village	FN-18	66-75	55.0 – 60.1

Remarks:

(1) No construction noise level was predicted in EIA Report (As Approved in 2013).

3.14 The results at NM3 were lower than the range of the predicted mitigated construction noise levels in the EIA Report (As Approved in 2013). Construction noise levels at NM1 and NM2 were not predicted in the EIA Report (As Approved in 2013).

4 ECOLOGY

Monitoring Requirements

- 4.1 According to the Updated EM&A Manual, waterbird species which use rivers near the Project Site were identified and recorded. The monitoring requirement in the EM&A Manual is shown in **Table 4.1**. **Appendix A** shows the established Action/Limit Levels for ecological monitoring works.

Table 4.1 Monitoring of Measures to Minimise Disturbance to Waterbirds on Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Phase	Methodology
Construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities throughout the construction period.

- 4.2 The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

Monitoring Locations

- 4.3 Transect and point count surveys were proposed within the 500m boundary of Ng Tung River, Sheung Yue River and Shek Sheung River of the assessment area. Three transects and seven-point count locations during high and low tides were applied. These locations are shown in **Figure 4** and summarized in **Table 4.2**. The photo of each transect is provided in **Appendix J**.

Table 4.2 Ecological Monitoring Stations

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

Monitoring Parameters, Frequency and Duration

- 4.4 Monitoring surveys were conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station). The magnitude of how much above or below 1.5m was subject to tidal conditions of that week as it varied throughout different times of the year. Nonetheless, the high and low tide relative to that week's tidal condition were taken into consideration. The ecological monitoring schedule is shown in **Appendix B**.

Monitoring Methodology

- 4.5 Transect survey was undertaken along the concerned rivers (Ng Tung River, Sheung Yue River and Shek Sheung River) adjacent to proposed construction activities. As the sensitive receivers (large waterbirds) are easily visible and the surveyor has used auxiliary equipment such as camera(s) and binoculars (magnification 7-10x). The transect route only follows one bank of these rivers.
- 4.6 At point count locations, surveyors identified and recorded bird species which were seen or heard along the river channel. For each point count, surveyors quantitatively recorded all species seen and heard for the duration of five minutes up to the distance where birds were still detectable. All avifauna along the walk transect were recorded. Noticeable behaviours (e.g. breeding behaviours such as nesting and presence of recently fledged juveniles, roosting and feeding activities, etc.) were recorded as well.
- 4.7 Ornithological nomenclature used in report should follow *The Avifauna of Hong Kong* (Carey et al. (2001)), *The Birds of Hong Kong and South China* (Viney et al. (2005)) and the most recent updated list from other sources (e.g. Hong Kong Bird Watching Society).
- 4.8 Weather conditions, tidal information at the time of the survey and other noticeable activities occurring within or in the vicinity of the survey areas (e.g. ongoing routine drainage channel maintenance works and other human activities that could create disturbances to birds) were recorded.

Analytical Methodology

- 4.9 The number and species of waterbirds utilizing the rivers fluctuate every day naturally. Therefore, the survey data were collectively analysed on a monthly basis to increase the sample size and to reduce random error on one survey day. Since occurrence of waterbirds has distinctive seasonal pattern, the construction phase data for all waterbirds and representative waterbirds were compared with the baseline data for the respective month and season. The representatives of waterbirds are listed in **Table 4.3**.

Table 4.3 Representative Waterbirds

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

- 4.10 When a decline in abundance of all or representative waterbird is identified, one-tailed Student t-test was adopted to statistically analyse whether the drop is significant. If the collected data for the reporting month fails to show no significant difference from that in the baseline phase at 95% confidence level, the action level will be triggered. Likewise, the limit level is set at 99% confidence level.
- 4.11 In addition, if important behaviours such as breeding, brooding, nesting and presence of recently fledged juveniles of species of conservation importance are observed, the Resident Engineer, Contractor and IEC should be notified immediately after the survey. The Contractor should review current construction programme and minimize disturbance due to construction activities.

Results

- 4.12 For this reporting month, the numbers of species and individuals recorded were provided in **Table 4.4**. The photo record of waterbirds can be found in **Appendix J**.

Table 4.4 Total Bird Species and Abundance in the Reporting Month

	Number of Species	Abundance
All Avifauna	35	686
Waterbirds	16	260

- 4.13 **Table 4.5** presents the abundance of representative species.

Table 4.5 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	77
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	26
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	44
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鷓鴣	4
<i>Ardea alba</i>	Great Egret	大白鷺	26
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	51

Analysis

- 4.14 The result of student t-tests for all waterbirds and representative waterbirds are compiled in **Table 4.6** and **4.7** respectively. Further details are provided in **Appendix I**.

Table 4.6 T-test Result for All Waterbirds in the Reporting Month

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95% (-2.132)	99% (-3.747)
Abundance	Monthly	0.691	✓	✓
	Seasonal	-1.810	✓	✓

Remarks

✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.

✗ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

Table 4.7 T-test Result for Representative Waterbirds in the Reporting Month

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall
	Monthly	95% (-2.132)	99% (-3.747)	Seasonal	95% (-2.132)	99% (-3.747)	
Little Egret	-1.897	✓	✓	0.377	✓	✓	✓
Grey Heron	2.593	✓	✓	-7.749	✗	✗	✓
Chinese Pond Heron	-0.352	✓	✓	-0.359	✓	✓	✓
Great Cormorant	-3.810	✗	✗	-12.917	✗	✗	Limit Level
Great Egret	0.707	✓	✓	-0.058	✓	✓	✓
Eastern Cattle Egret	0.878	✓	✓	5.453	✓	✓	✓

Remarks

✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.

✗ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

- 4.15 Zero (0) Action Level and one (1) Limit Level was triggered for ecological monitoring in the reporting month.
- 4.16 The exceedance of Great Cormorant is considered as non-project-related as March 2021 was exceptionally warm in Hong Kong. To further elaborate, the monthly mean maximum temperature of 24.8 degrees, monthly mean temperature of 22.0 degrees and monthly mean minimum temperature of 20.2 degrees were 2.9 degrees, 2.5 degrees and 2.6 degrees above their corresponding normals (or 3.4 degrees, 2.9 degrees and 3.0 degrees above their corresponding 1981-2010 normals) and all of them were the highest of the correspondingly monthly mean values of March on record. It is assumed that such weather condition had encourage migratory bird such as Great Cormorant to migrate earlier than normal. In addition, Grey Heron, a winter visitor, had also experienced similar decline in the reporting month.
- 4.17 Site observation in the reporting month shows that construction activities are similar to previous months, no extremely loud noises was heard during the monitoring and data from other representative waterbirds indicate no overall decline in other resident birds. Mitigation such as noise barrier in green and hoarding in green had been erected around the construction site properly.

4.18 The monitoring work will continue next month to evaluate any construction impact on waterbirds.

Observations

4.19 Waterbird behaviour observed during ecological monitoring are listed below:

- Flying
- Foraging
- Soaring
- Resting

4.20 The anthropogenic activities observed during ecological monitoring are listed in **Table 4.8**.

Table 4.8 Observations during Ecological Monitoring in the Reporting Month

Location	Observations	
	Project Related	Non-project Related
T1 (PC1, PC2)	N/A	Fishing and jaywalking
T2 (PC3, PC4)	Excavation, crane and sheet-piling	Fishing, golfing and jaywalking
PC5	Excavation, crane and sheet-piling	N/A
T3 (PC6, PC7)	N/A	Fishing, jaywalking, breaking works, set-up of sedimentation tank and unknown source of smoke

5 WATER QUALITY

Monitoring Requirement

- 5.1 According to the Updated EM&A Manual, no water monitoring is required before the commencement of outfall construction at Ng Tung River.
- 5.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of water quality mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix K**.

6 WASTE MANAGEMENT

Monitoring Requirement

- 6.1 According to the Updated EM&A Manual, waste management would be the contractor's responsibility to ensure that all wastes produced during the construction works for the Project are handled, stored and disposed of in accordance with good waste management practices, EPD's regulations and requirements. No monitoring for waste management is required for the Project. An environmental management plan (EMP) should be prepared and submitted to the Supervisor for approval. The monitoring and auditing requirements of the EMP should be followed with regard to the management of C&D material.

Waste Management Status

- 6.2 Site audits were carried out on a weekly basis to monitor and audit to ensure that proper storage, transportation and disposal practices of waste materials generated during construction activities, such as construction and demolition (C&D) materials and general refuse are being implemented. The summaries of site audits are attached in **Appendix K**.
- 6.3 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix L**.

7 LANDSCAPE AND VISUAL

Audit Requirement

- 7.1 According to the Updated EM&A Manual, site audits would be undertaken during the construction phase of the Project to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives. Particularly audits would be carried out during site clearance when proposed tree felling and transplantation may occur. Site inspections would be undertaken at least once every two weeks during the construction period.
- 7.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix K**.

8 ENVIRONMENTAL AUDIT

Site Audits

- 8.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix K**.
- 8.2 Site audits for Contract No. DC/2018/06 and DC/2018/07 were conducted on 2, 11, 16, 23 & 30 March 2021 in the reporting month, whereas that for Contract No. DE/2018/03 and DE/2018/04 were conducted on 2, 9, 16, 23 & 30 March 2021 in the reporting month. Joint site inspection with the representative of IEC was conducted on 23 March 2021. No non-compliance was observed during the site audit.

Implementation Status of Environmental Mitigation Measures

- 8.3 According to Environmental Permits, the approved EIA Report (Register No.: AEIAR-175/2013), and the Updated EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix N**.
- 8.4 The ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in **Tables 8.1 - 8.4**. Refer to **Appendix K** for the site inspection summary reports in the reporting month.

Table 8.1 Observations and Recommendations of Site Audit of Contract No. DC/2018/06

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	23 Mar 2021	Wastewater should be pumped out and treated via sedimentation tank before discharge at Portion A.	The condition was observed to be improved/rectified by the contractor during the audit session on 30 Mar 2021.
<i>Air Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Noise</i>	N/A	There was no observation in the reporting period.	N/A
<i>Waste / Chemical Management</i>	N/A	There was no observation in the reporting period.	N/A
<i>Ecology and Fisheries</i>	N/A	There was no observation in the reporting period.	N/A
<i>Visual and Landscape</i>	N/A	There was no observation in the reporting period.	N/A
<i>Permits /Licences</i>	N/A	There was no observation in the reporting period.	N/A

Table 8.2 Observations and Recommendations of Site Audit of Contract No. DC/2018/07

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Noise</i>	N/A	There was no observation in the reporting period.	N/A
<i>Waste / Chemical Management</i>	N/A	There was no observation in the reporting period.	N/A
<i>Ecology and Fisheries</i>	N/A	There was no observation in the reporting period.	N/A
<i>Visual and Landscape</i>	N/A	There was no observation in the reporting period.	N/A
<i>Permits /Licences</i>	N/A	There was no observation in the reporting period.	N/A

Table 8.3 Observations and Recommendations of Site Audit of Contract No. DE/2018/03

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Noise</i>	N/A	There was no observation in the reporting period.	N/A
<i>Waste / Chemical Management</i>	N/A	There was no observation in the reporting period.	N/A
<i>Ecology and Fisheries</i>	N/A	There was no observation in the reporting period.	N/A
<i>Visual and Landscape</i>	N/A	There was no observation in the reporting period.	N/A
<i>Permits /Licences</i>	N/A	There was no observation in the reporting period.	N/A

Table 8.4 Observations and Recommendations of Site Audit of Contract No. DE/2018/04

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Noise</i>	N/A	There was no observation in the reporting period.	N/A
<i>Waste / Chemical Management</i>	23 Mar 2021	Chemicals should be stored in drip tray at Portion B-3-B.	The condition was observed to be improved/rectified by the contractor during the audit session on 30 Mar 2021.
	30 Mar 2021	Waste accumulated should be removed at Portion B-3-B.	Follow-up actions will be reported in the next month.
<i>Ecology and Fisheries</i>	N/A	There was no observation in the reporting period.	N/A
<i>Visual and Landscape</i>	N/A	There was no observation in the reporting period.	N/A
<i>Permits /Licences</i>	N/A	There was no observation in the reporting period.	N/A

Implementation Status of Event and Action Plans

8.5 The Event and Action Plans for air quality, construction noise, ecological monitoring and landscape and visual are presented in **Appendix M**.

Air Quality Monitoring

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

Construction Noise Monitoring

- No documented complaint on construction noise was received; no Action Level exceedance for day time construction noise monitoring was recorded.
- No Limit Level exceedance for day time construction noise monitoring was recorded in the reporting month.

Ecological Monitoring

- No Action Level and 1 Limit Level was triggered.

Landscape and Visual Monitoring

- No non-conformity for landscape and visual was recorded.

9 ENVIRONMENTAL NON-CONFORMANCE

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

- 9.1 No environmental complaints, warning, notifications of summons and successful prosecutions were received in the reporting month.
- 9.2 The summary of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix O**.

Summary of Exceedance

- 9.3 The summary of exceedance record in reporting month is shown in **Appendix P**.

10 FUTURE KEY ISSUES

10.1 Tentative construction programmes for the next three months are provided in **Appendix Q**.

10.2 Major site activities undertaken for the coming months are summarized in **Table 10.1**.

Table 10.1 Summary Table for Site Activities in the Next Reporting Period

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	<ul style="list-style-type: none"> • ELS and excavation works • Sheet pile installation • RC works • Strut installation and blinding layer • Pipe jacking work
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • ELS and construction of inlet reception chamber • Trench excavation • Road and drainage works • Diversion of inlet works • Process pipe of CHR and CHS • Pre-drilling work and foundation work • Cable diversion works • Demolition work of existing main facilities • Alternation of existing powerhouse • Pre-bored H piles
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities	<ul style="list-style-type: none"> • Break concrete pavement and ramp • Construct sump pit and curb • Relocate container includes, remove shrubs and laying blinding • Setup of piling works, mobilization of plant and equipment • Start pilling works • Socket H piling
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	<ul style="list-style-type: none"> • Installation of temporary filtrate equalisation tank. • Installation of temporary primary sludge thickener and its accessories • Retrofitting the existing primary sedimentation tank No. 4 and 6 • Preparatory work for electrical installation at inlet works

10.3 Key environmental issues in the coming months include:

- Stockpile accumulation on-site;
- Water spraying for dust generating activities and on haul road;
- Wastewater and runoff discharge from site;
- No disposition of slurry at the existing Shek Wu Hui Sewage Treatment Works;
- Coverage of open manholes to avoid dirty runoff to drainage system;
- Noise from operation of the equipment, especially for excavation works and machinery onsite;
- Accumulation of general refuse and construction waste on-site;
- Proper storage of construction materials on-site; and
- Storage of chemicals/fuel and chemical waste/waste oil on-site.

Monitoring Schedule

10.4 The tentative environmental monitoring schedule for the next month is shown in **Appendix B**.

11 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 11.1 This is the 15th Monthly EM&A Report which presents the EM&A works undertaken during the reporting month in accordance with the Updated EM&A Manual and the requirement under EP.

Air Quality Monitoring

- 11.2 No Action/Limit Level exceedance was recorded for all 1-hour and 24-hour TSP monitoring in the reporting month.

Construction Noise Monitoring

- 11.3 No Action/Limit Level exceedance was recorded for all noise monitoring in the reporting month.

Ecology

- 11.4 No Action Level and 1 Limit Level exceedance was triggered for all ecological monitoring in the reporting month. The decline of Great Cormorant was considered as non-project-related.

Site Audit

- 11.5 5 ET joint weekly environmental site inspections were conducted in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

- 11.6 No environmental complaints, notifications of summons and successful prosecutions were received in the reporting month.

Recommendations

- 11.7 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality

- Regular water spraying on haul road and dry surfaces should be applied to minimize dust generation.
- Stockpiles should be covered by impervious materials.

Water Quality

- Stagnant water should be removed and pumped through the sedimentation tank.
- Wastewater should be pumped and collected in the sedimentation tank before discharge.
- Muddy water should not be discharged into the surrounding rivers.
- No slurry should be disposed of at the existing Shek Wu Hui Sewage Treatment Works.

Waste Management

- General refuse and construction waste accumulation should be avoided.
- Chemicals should be stored in drip trays properly.

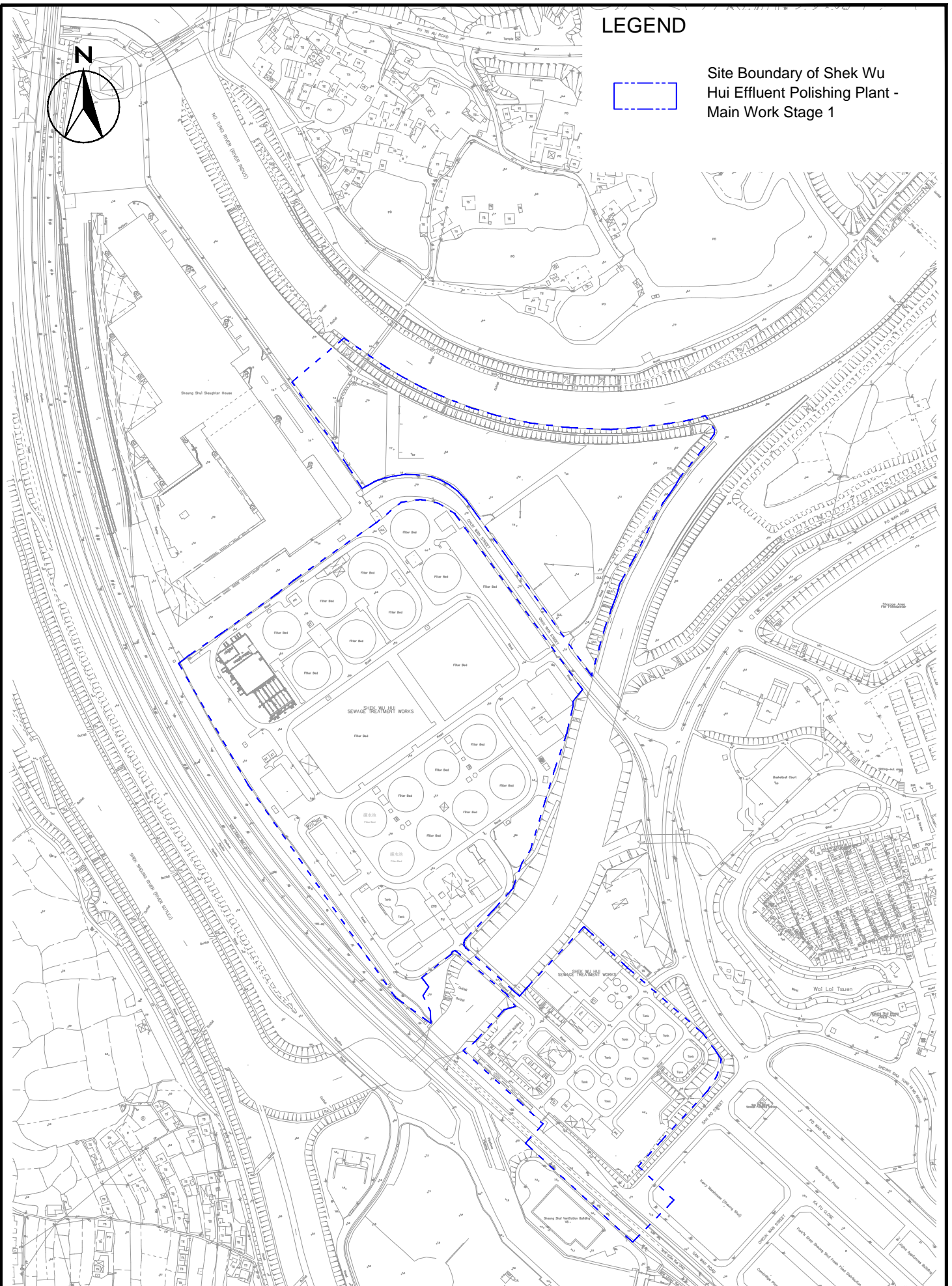
FIGURES



LEGEND



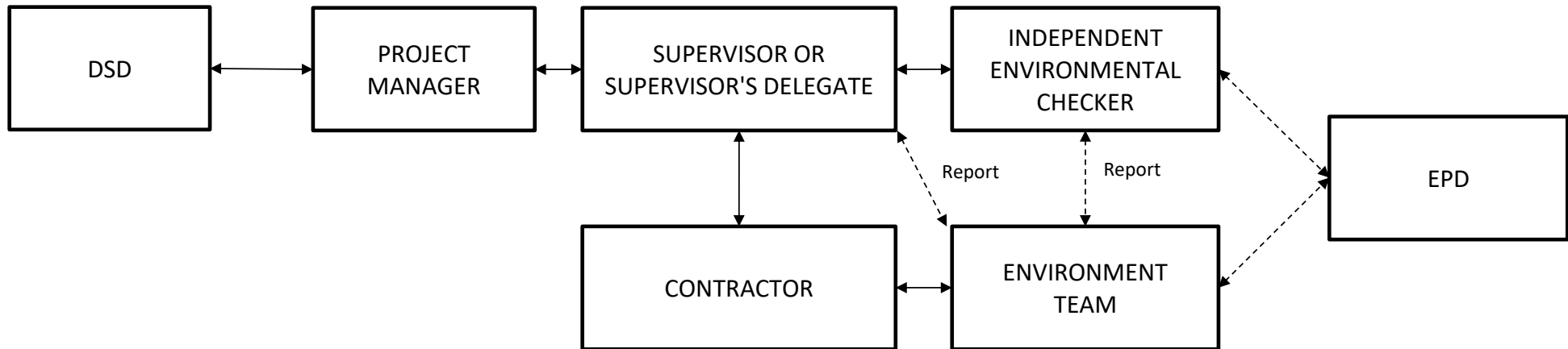
Site Boundary of Shek Wu Hui Effluent Polishing Plant - Main Work Stage 1



Agreement No. SPW07/2019
 Shek Wu Hui Effluent Polishing Plant -
 Main Works Stage 1

Site Layout

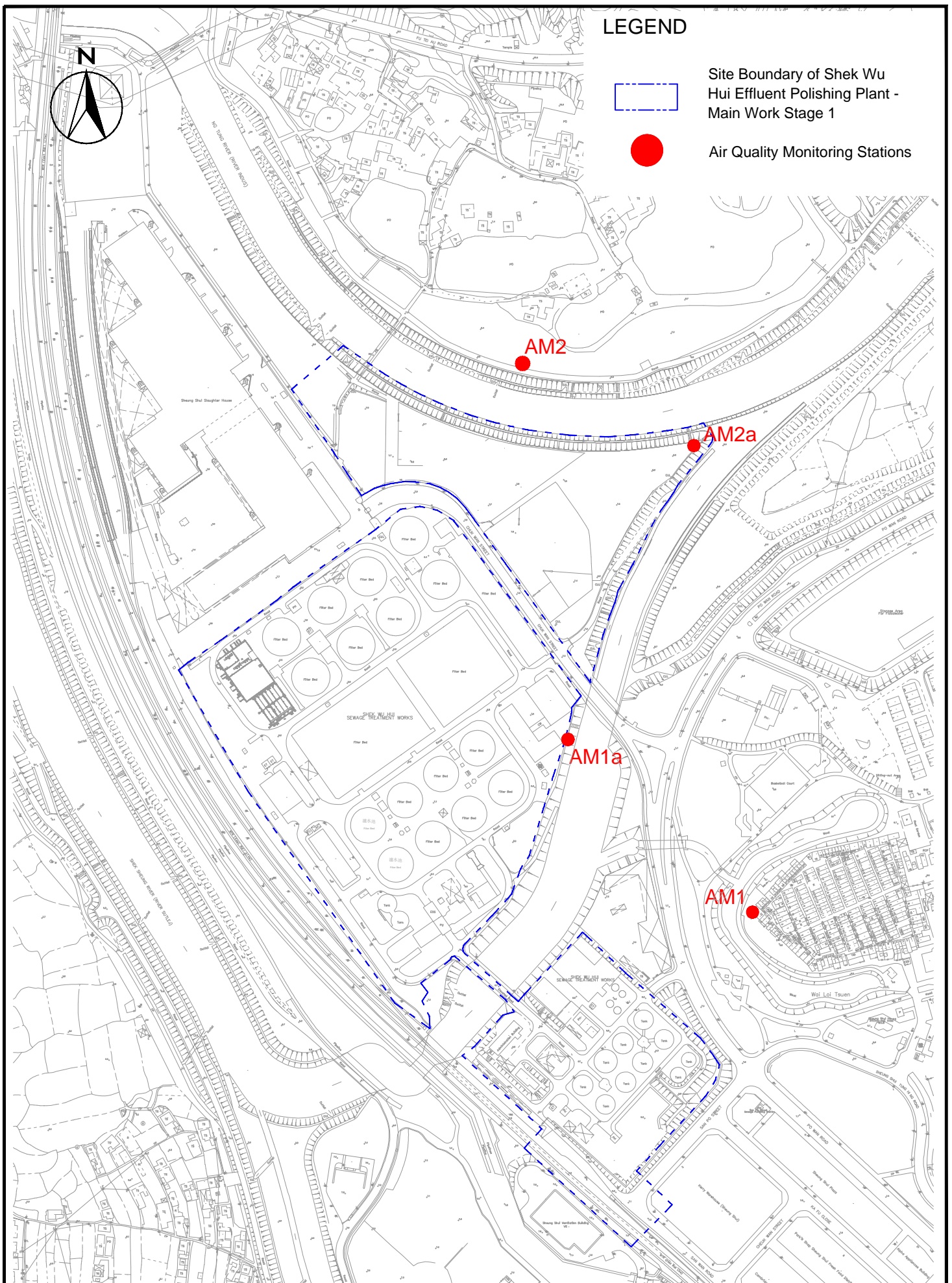
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CHECK	JM	DRAWN	SY
JOB No.	MA19019	FIGURE NO.	1.1
		REV	-



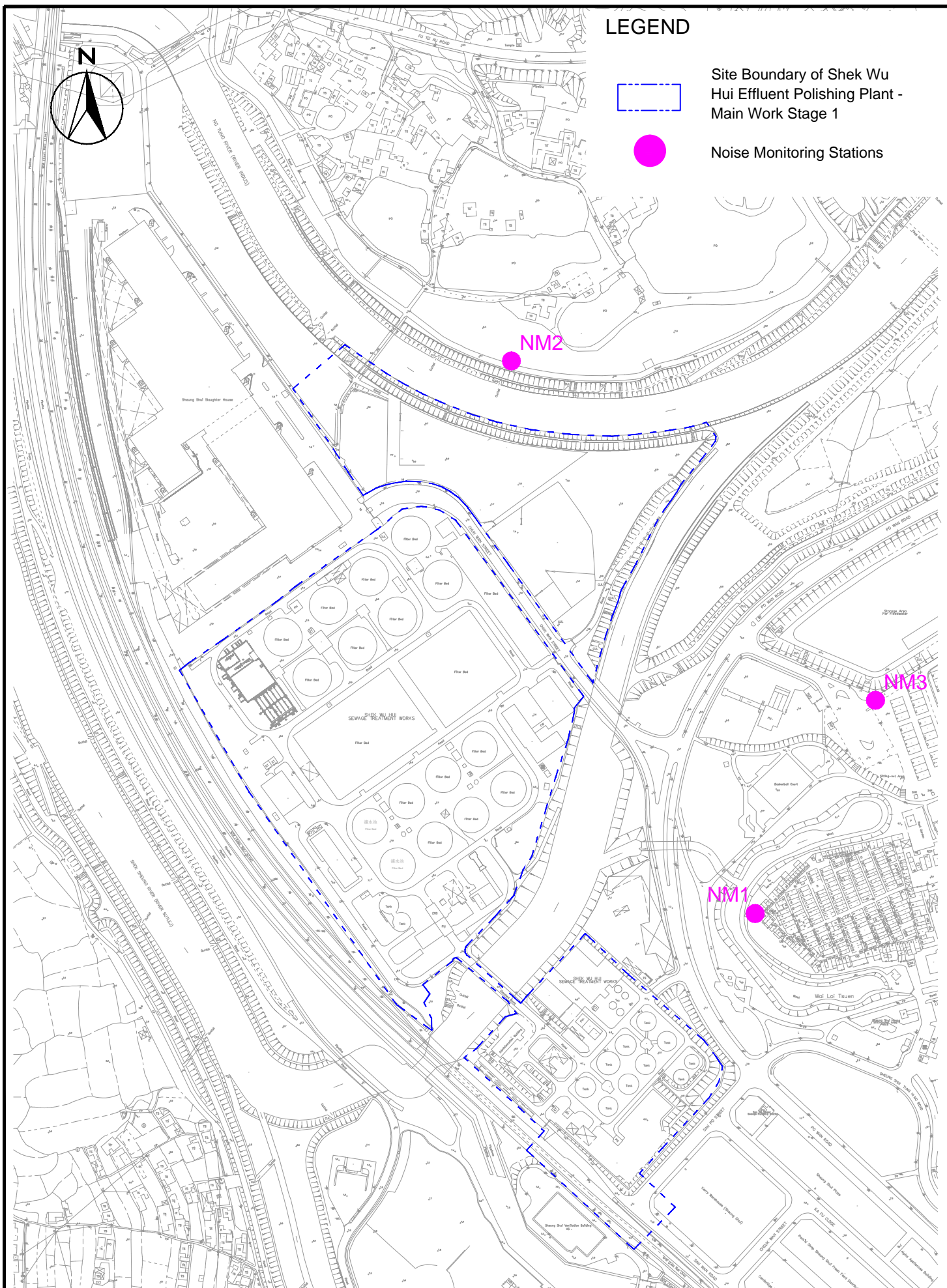
CINOTECH

Agreement No. SPW07/2019
 Shek Wu Hui Effluent Polishing Plant- Main Works Stage 1
Project Organisation For Environmental Monitoring and Audit

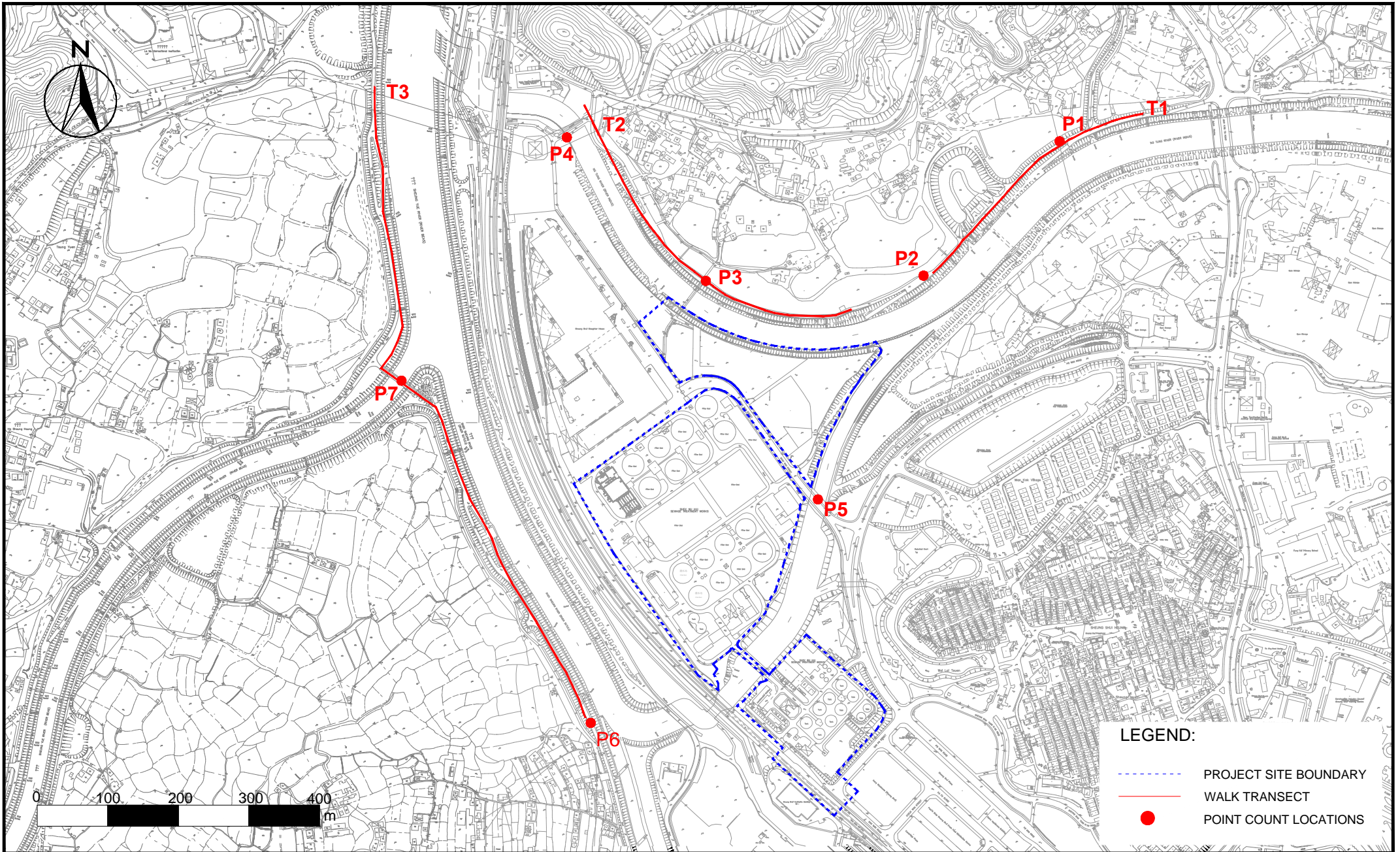
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CHECK	JM	DRAWN	SY
JOB NO.	MA19019	FIGURE NO.	1.2



SCALE	1:4000@A4	DATE	OCT 2019
CHECK	JM	DRAWN	SY
JOB No.	MA19019	FIGURE NO.	2
		REV	-



SCALE	1:4000@A4	DATE	OCT 2019
CHECK	JM	DRAWN	SY
JOB No.	MA19019	FIGURE NO.	3
		REV	-



LEGEND:

- - - - - PROJECT SITE BOUNDARY
- WALK TRANSECT
- POINT COUNT LOCATIONS



Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
 Survey Location for Impact Ecological Monitoring

SCALE	1:7000 @ A4	DATE	Jan 2020
CHECK	BC	DRAWN	JM
JOB No.	MA19019	FIGURE NO.	4
		REV	-

**APPENDIX A
ACTION AND LIMIT LEVELS**

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	320	500
AM2	322	

Table A-2 Action and Limit Levels for 24-hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1a	189	260
AM2a	187	

Table A-3 Action and Limit Levels for Noise during Construction Period

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

*Remarks:

- If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) used by the Noise Control Authority have to be followed.
- Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Table A-4 Action and Limit Levels of Disturbance to Waterbirds using Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Action Level	Limit Level
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Decline in numbers of all waterbird species relative to numbers during baseline monitoring such that the limit level response is triggered.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.

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

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Impact Air, Noise and Ecology Monitoring Schedule (March 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Mar	2-Mar	3-Mar	4-Mar	5-Mar	6-Mar
	24 hrs TSP Ecology			1 hr TSP x 3 Noise		24 hrs TSP
7-Mar	8-Mar	9-Mar	10-Mar	11-Mar	12-Mar	13-Mar
		1 hr TSP x 3 Noise			24 hrs TSP Ecology	
14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar
	1 hr TSP x 3 Noise	Ecology		24 hrs TSP	1 hr TSP x 3	
21-Mar	22-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar
			24 hrs TSP	1 hr TSP x 3 Noise	Ecology	
28-Mar	29-Mar	30-Mar	31-Mar			
	Ecology	24 hrs TSP	1 hr TSP x 3 Noise			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station

1-hr TSP

AM1 - Wai Loi Tsuen

AM2 - Fu Tei Au

24-hr TSP

AM1a - Site Boundary of the Shek Wu Hui STW (East)

AM2a - Site Boundary of the Shek Wu Hui STW (North)

Noise Monitoring Station

NM1 - Wai Loi Tsuen

NM2 - Fu Tei Au

NM3 - Man kok Village

Agreement No. SPW 07/2019

Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1

Tentative Impact Air, Noise and Ecology Monitoring Schedule (April 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Apr	2-Apr	3-Apr
				1 hr TSP x 3 24 hrs TSP		
4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr
			1 hr TSP x 3 Noise 24 hrs TSP	Ecology		
11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr
	24 hrs TSP Ecology	1 hr TSP x 3 Noise				24 hrs TSP
18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr
	1 hr TSP x 3 Noise		24 hrs TSP	1 hr TSP x 3	Ecology	
25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	
	Ecology	24 hrs TSP	1 hr TSP x 3 Noise			

Air Quality Monitoring Station

1-hr TSP

AM1 - Wai Loi Tsuen

AM2 - Fu Tei Au

24-hr TSP

AM1a - Site Boundary of the Shek Wu Hui STW (East)

AM2a - Site Boundary of the Shek Wu Hui STW (North)

Noise Monitoring Station

NM1 - Wai Loi Tsuen

NM2 - Fu Tei Au

NM3 - Man kok Village

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES FOR AIR QUALITY
MONITORING**

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 5-Feb-21
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 5-Apr-21
 Model No.: LD-5R
 Serial No.: 8Y2374
 Equipment No.: SA-01-04 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 652
 Tisch Calibration Orifice No.: 3607 After Sensitivity Adjustment 652

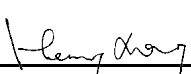
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	52.0	107.0
2	47.0	101.0
3	43.0	95.0
Average	47.3	101.0
By Linear Regression of Y on X Slope , mw = <u>1.3279</u> Intercept, bw = <u>38.1475</u> Correlation coefficient* = <u>0.9979</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)		101.0
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)		47.3
Measureing time, (min)		60.0
Set Correlation Factor , SCF		
SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)]		<u>2.1</u>

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 . Wong Shing Kwai

Approved by: 
 Henry Leung

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 5-Feb-21
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 5-Apr-21
 Model No.: LD-5R
 Serial No.: 972778
 Equipment No.: SA-01-07 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-01A Before Sensitivity Adjustment 735 CPM
 Tisch Calibration Orifice No.: 3607 After Sensitivity Adjustment 735 CPM

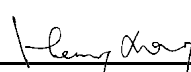
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	51.0	107.0
2	45.0	101.0
3	40.0	95.0
Average	45.3	101.0
By Linear Regression of Y on X Slope , mw = <u>1.0879</u> Intercept, bw = <u>51.6813</u> Correlation coefficient* = <u>0.9986</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	101.0	
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	45.3	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)]	<u>2.2</u>	

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Wong Shing Kwai

Approved by: 
 Henry Leung



Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 17, 2020	Rootsmeter S/N: 438320	Ta: 295	°K
Operator: Jim Tisch		Pa: 744.2	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3746		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0180	6.4	4.00
3	5	6	1	0.9080	7.9	5.00
4	7	8	1	0.8700	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H (Ta/Pa)}$ (y-axis)
0.9849	0.6868	1.4066	0.9957	0.6944	0.8904
0.9807	0.9633	1.9892	0.9914	0.9739	1.2592
0.9787	1.0779	2.2240	0.9894	1.0896	1.4078
0.9776	1.1237	2.3325	0.9883	1.1360	1.4765
0.9724	1.3601	2.8131	0.9831	1.3749	1.7808
QSTD	m=	2.09221	QA	m=	1.31010
	b=	-0.02779		b=	-0.01759
	r=	0.99994		r=	0.99994

Calculations	
Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va= $\Delta Vol((Pa-\Delta P)/Pa)$
Qstd= $Vstd/\Delta Time$	Qa= $Va/\Delta Time$
For subsequent flow rate calculations:	
Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa= $1/m \left(\left(\sqrt{\Delta H (Ta/Pa)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



RECALIBRATION DUE DATE:
January 11, 2022

Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 11, 2021	Rootsmeter S/N: 438320	Ta: 297	°K
Operator: Jim Tisch		Pa: 750.1	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3864		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4470	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9140	8.0	5.00
4	7	8	1	0.8670	8.8	5.50
5	9	10	1	0.7140	12.9	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9860	0.6814	1.4073	0.9957	0.6881	0.8899
0.9818	0.9616	1.9902	0.9915	0.9711	1.2585
0.9797	1.0719	2.2251	0.9893	1.0824	1.4071
0.9786	1.1288	2.3337	0.9883	1.1399	1.4757
0.9732	1.3630	2.8146	0.9828	1.3765	1.7798
QSTD	m=	2.06566	QA	m=	1.29348
	b=	0.00315		b=	0.00199
	r=	0.99996		r=	0.99996

Calculations	
Vstd= $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$	Va= $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$
Qstd= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
For subsequent flow rate calculations:	
Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH:	calibrator manometer reading (in H2O)
ΔP:	rootsmeter manometer reading (mm Hg)
Ta:	actual absolute temperature (°K)
Pa:	actual barometric pressure (mm Hg)
b:	intercept
m:	slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/17/0008

Project No. AM1a - Site boundary of the Shek Wu Hui STW (East)
 Date: 6-Jan-21 Next Due Date: 6-Mar-21 Operator: SK
 Equipment No.: A-01-17 Model No.: GS2310 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	<u>290.1</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.02740</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.0</u>	3.67	62.39	<u>9.5</u>	3.13
2	<u>10.4</u>	3.28	55.85	<u>7.1</u>	2.71
3	<u>8.2</u>	2.91	49.65	<u>5.4</u>	2.36
4	<u>5.3</u>	2.34	40.00	<u>3.3</u>	1.85
5	<u>2.8</u>	1.70	29.20	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0531 Intercept, bw = -0.2346
 Correlation coefficient* = 0.9976

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation


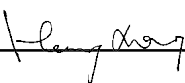
From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.06

Remarks: _____

Conducted by: SK Wong Signature:  Date: 6 January 2021
 Checked by: Henry Leung Signature:  Date: 6 January 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/17/0009

Project No. AM1a - Site boundary of the Shek Wu Hui STW (East)
 Date: 6-Mar-21 Next Due Date: 6-May-21 Operator: SK
 Equipment No.: A-01-17 Model No.: GS2310 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	<u>293</u>	Pressure, Pa (mmHg)	<u>764.5</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.1</u>	3.66	62.68	<u>9.8</u>	3.17
2	<u>10.3</u>	3.25	55.58	<u>7.4</u>	2.75
3	<u>8.1</u>	2.88	49.30	<u>5.6</u>	2.39
4	<u>5.3</u>	2.33	39.89	<u>3.4</u>	1.87
5	<u>2.8</u>	1.69	29.01	<u>1.9</u>	1.39

By Linear Regression of Y on X

Slope, mw = 0.0530 Intercept, bw = -0.1932
 Correlation coefficient* = 0.9980

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

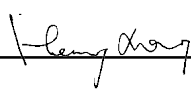
From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.26

Remarks: _____

Conducted by: SK Wong Signature:  Date: 6 March 2021

Checked by: Henry Leung Signature:  Date: 6 March 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/24/0008

Project No. AM2a - Site Boundary of the Shek Wu Hui STW (North)
 Date: 6-Jan-21 Next Due Date: 6-Mar-21 Operator: SK
 Equipment No.: A-01-24 Model No.: TE 5170 Serial No. 1659

Ambient Condition			
Temperature, Ta (K)	<u>290.1</u>	Pressure, Pa (mmHg)	<u>764.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.02740</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.3</u>	3.71	63.10	<u>10.2</u>	3.25
2	<u>10.8</u>	3.34	56.91	<u>8.3</u>	2.93
3	<u>8.3</u>	2.93	49.94	<u>6.0</u>	2.49
4	<u>6.2</u>	2.53	43.23	<u>4.1</u>	2.06
5	<u>3.0</u>	1.76	30.21	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0581 Intercept, bw = -0.4123
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation


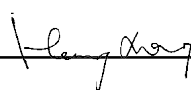
From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.22

Remarks: _____

Conducted by: SK Wong Signature:  Date: 6 January 2021
 Checked by: Henry Leung Signature:  Date: 6 January 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/24/0009

Project No. AM2a - Site Boundary of the Shek Wu Hui STW (North)
 Date: 6-Mar-21 Next Due Date: 6-May-21 Operator: SK
 Equipment No.: A-01-24 Model No.: TE 5170 Serial No. 1659

Ambient Condition			
Temperature, Ta (K)	<u>293</u>	Pressure, Pa (mmHg)	<u>764.5</u>

Orifice Transfer Standard Information					
Serial No.	<u>3864</u>	Slope, mc	<u>0.05846</u>	Intercept, bc	<u>-0.00313</u>
Last Calibration Date:	<u>11-Jan-21</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>11-Jan-22</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.2</u>	3.67	62.91	<u>10.3</u>	3.25
2	<u>10.8</u>	3.32	56.91	<u>8.3</u>	2.91
3	<u>8.3</u>	2.91	49.90	<u>5.9</u>	2.46
4	<u>6.1</u>	2.50	42.79	<u>4.0</u>	2.02
5	<u>3.0</u>	1.75	30.02	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0581 Intercept, bw = -0.4184
 Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation


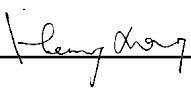
From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.23

Remarks: _____

Conducted by: SK Wong Signature:  Date: 6 March 2021
 Checked by: Henry Leung Signature:  Date: 6 March 2021

Certificate of Calibration - Wind Monitoring Station

Description: BM3 - Control Room at SWHSTW
 Manufacturer: Global Water Instrumentation
 Model No.: WE800 Weather Station
 Serial No.: 1517001963
 Equipment No.: SA-03-01
 Date of Calibration: 29-Oct-2020
 Next Due Date: 29-Apr-2021

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	$D = V1 - V2$
0.0	0.0	0.0
1.5	1.5	0.0
2.0	2.1	-0.1
3.5	3.5	0.0


2. Performance check of Wind Direction

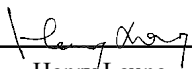
Wind Direction (°)		Difference D (°)
Wind Direction Reading (V1)	Marine Compass Value (V1)	$D = W1 - W2$
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: 
 - Wong Shing Kwai

Approved by: 
 Henry Leung

APPENDIX D
WEATHER INFORMATION

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

I. General Information from Hong Kong Observatory

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1-Mar-21	21.9	81	Trace
2-Mar-21	21.4	75	Trace
3-Mar-21	18.4	81	0.3
4-Mar-21	18.9	87	1
5-Mar-21	20.1	91	Trace
6-Mar-21	20.5	93	1.5
7-Mar-21	19.9	90	0.2
8-Mar-21	19.7	83	0.3
9-Mar-21	20.1	79	0
10-Mar-21	19.8	79	Trace
11-Mar-21	21.0	79	0
12-Mar-21	23.2	77	0
13-Mar-21	22.0	76	Trace
14-Mar-21	21.3	80	0
15-Mar-21	22.4	76	0
16-Mar-21	24.0	78	0
17-Mar-21	24.7	80	Trace
18-Mar-21	23.4	87	0.2
19-Mar-21	24.2	82	Trace
20-Mar-21	25.0	81	0
21-Mar-21	21.2	73	0
22-Mar-21	17.8	61	Trace
23-Mar-21	18.9	61	0
24-Mar-21	20.7	68	0
25-Mar-21	22.1	70	0
26-Mar-21	21.6	75	0
27-Mar-21	24.1	80	0
28-Mar-21	24.8	80	0
29-Mar-21	25.6	82	0
30-Mar-21	26.6	78	0
31-Mar-21	26.5	79	0

* The above information was extracted from the daily extract of Ta Kwu Ling Station in Hong Kong Observatory Climate Information Service.

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
1-Mar-21	0:00	211.8	0.1
1-Mar-21	1:00	234.7	1.6
1-Mar-21	2:00	174.6	3.2
1-Mar-21	3:00	130.5	4.8
1-Mar-21	4:00	1.5	4.8
1-Mar-21	5:00	220.2	3.2
1-Mar-21	6:00	127.0	3.2
1-Mar-21	7:00	201.8	3.2
1-Mar-21	8:00	123.5	1.6
1-Mar-21	9:00	180.6	3.2
1-Mar-21	10:00	48.1	3.2
1-Mar-21	11:00	306.9	1.6
1-Mar-21	12:00	252.6	4.8
1-Mar-21	13:00	232.5	4.8
1-Mar-21	14:00	244.9	4.8
1-Mar-21	15:00	289.1	4.8
1-Mar-21	16:00	141.2	4.8
1-Mar-21	17:00	165.1	3.2
1-Mar-21	18:00	73.4	4.8
1-Mar-21	19:00	73.4	3.2
1-Mar-21	20:00	62.8	3.2
1-Mar-21	21:00	64.7	4.8
1-Mar-21	22:00	44.7	4.8
1-Mar-21	23:00	76.4	3.2
2-Mar-21	0:00	65.3	3.2
2-Mar-21	1:00	59.3	1.6
2-Mar-21	2:00	73.4	1.6
2-Mar-21	3:00	82.4	1.6
2-Mar-21	4:00	74.0	3.2
2-Mar-21	5:00	68.6	3.2
2-Mar-21	6:00	68.1	4.8
2-Mar-21	7:00	95.9	1.6
2-Mar-21	8:00	99.0	1.6
2-Mar-21	9:00	109.3	1.6
2-Mar-21	10:00	202.8	1.6

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
2-Mar-21	11:00	70.4	3.2
2-Mar-21	12:00	104.1	4.8
2-Mar-21	13:00	108.3	4.8
2-Mar-21	14:00	104.9	4.8
2-Mar-21	15:00	67.3	4.8
2-Mar-21	16:00	122.3	4.8
2-Mar-21	17:00	101.3	3.2
2-Mar-21	18:00	111.8	3.2
2-Mar-21	19:00	83.4	0.1
2-Mar-21	20:00	91.9	0.1
2-Mar-21	21:00	32.6	0.1
2-Mar-21	22:00	76.4	0.1
2-Mar-21	23:00	85.4	0.1
3-Mar-21	0:00	102.5	0.1
3-Mar-21	1:00	108.6	0.1
3-Mar-21	2:00	84.6	0.1
3-Mar-21	3:00	57.9	0.1
3-Mar-21	4:00	76.1	0.1
3-Mar-21	5:00	72.5	0.1
3-Mar-21	6:00	111.7	0.1
3-Mar-21	7:00	106.8	0.1
3-Mar-21	8:00	79.5	0.1
3-Mar-21	9:00	133.6	3.2
3-Mar-21	10:00	46.3	0.1
3-Mar-21	11:00	195.1	1.6
3-Mar-21	12:00	165.0	0.1
3-Mar-21	13:00	180.8	0.1
3-Mar-21	14:00	113.0	0.1
3-Mar-21	15:00	122.3	0.1
3-Mar-21	16:00	109.7	0.1
3-Mar-21	17:00	136.0	1.6
3-Mar-21	18:00	96.6	0.1
3-Mar-21	19:00	95.4	0.1
3-Mar-21	20:00	87.7	0.1
3-Mar-21	21:00	86.1	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
3-Mar-21	22:00	100.7	0.1
3-Mar-21	23:00	76.9	0.1
4-Mar-21	0:00	77.8	0.1
4-Mar-21	1:00	72.7	0.1
4-Mar-21	2:00	63.6	0.1
4-Mar-21	3:00	72.6	0.1
4-Mar-21	4:00	63.8	0.1
4-Mar-21	5:00	61.6	0.1
4-Mar-21	6:00	81.6	0.1
4-Mar-21	7:00	83.0	0.4
4-Mar-21	8:00	42.0	0.4
4-Mar-21	9:00	56.3	0.4
4-Mar-21	10:00	78.9	2.0
4-Mar-21	11:00	65.1	3.6
4-Mar-21	12:00	87.5	3.6
4-Mar-21	13:00	63.4	3.6
4-Mar-21	14:00	159.2	5.2
4-Mar-21	15:00	132.3	5.2
4-Mar-21	16:00	151.1	5.2
4-Mar-21	17:00	44.4	3.6
4-Mar-21	18:00	36.0	5.2
4-Mar-21	19:00	66.3	3.6
4-Mar-21	20:00	63.3	5.2
4-Mar-21	21:00	56.4	3.6
4-Mar-21	22:00	62.1	3.6
4-Mar-21	23:00	104.6	5.2
5-Mar-21	0:00	98.2	5.2
5-Mar-21	1:00	38.4	6.8
5-Mar-21	2:00	68.7	3.6
5-Mar-21	3:00	92.7	3.2
5-Mar-21	4:00	182.8	6.4
5-Mar-21	5:00	116.6	4.8
5-Mar-21	6:00	16.2	3.2
5-Mar-21	7:00	65.5	3.2
5-Mar-21	8:00	40.7	3.2

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
5-Mar-21	9:00	188.0	1.6
5-Mar-21	10:00	76.1	1.6
5-Mar-21	11:00	88.3	3.2
5-Mar-21	12:00	85.3	1.6
5-Mar-21	13:00	116.1	1.6
5-Mar-21	14:00	53.6	3.2
5-Mar-21	15:00	66.5	1.6
5-Mar-21	16:00	68.0	1.6
5-Mar-21	17:00	89.4	1.6
5-Mar-21	18:00	88.3	0.1
5-Mar-21	19:00	70.3	0.1
5-Mar-21	20:00	84.4	0.1
5-Mar-21	21:00	79.6	0.1
5-Mar-21	22:00	137.0	0.1
5-Mar-21	23:00	119.3	0.1
6-Mar-21	0:00	119.1	0.1
6-Mar-21	1:00	56.3	0.1
6-Mar-21	2:00	76.2	0.1
6-Mar-21	3:00	120.2	1.6
6-Mar-21	4:00	93.5	1.6
6-Mar-21	5:00	164.6	3.2
6-Mar-21	6:00	81.2	3.2
6-Mar-21	7:00	115.5	3.2
6-Mar-21	8:00	106.0	3.2
6-Mar-21	9:00	93.4	3.2
6-Mar-21	10:00	79.5	4.8
6-Mar-21	11:00	98.8	4.8
6-Mar-21	12:00	108.1	4.8
6-Mar-21	13:00	137.3	1.6
6-Mar-21	14:00	104.3	3.2
6-Mar-21	15:00	115.1	1.6
6-Mar-21	16:00	105.5	1.6
6-Mar-21	17:00	121.0	1.6
6-Mar-21	18:00	75.6	0.1
6-Mar-21	19:00	130.3	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
6-Mar-21	20:00	146.5	0.1
6-Mar-21	21:00	63.2	0.1
6-Mar-21	22:00	140.6	0.1
6-Mar-21	23:00	74.0	0.1
7-Mar-21	0:00	62.6	1.6
7-Mar-21	1:00	59.0	1.6
7-Mar-21	2:00	94.6	3.2
7-Mar-21	3:00	76.5	4.8
7-Mar-21	4:00	93.7	3.2
7-Mar-21	5:00	96.1	1.6
7-Mar-21	6:00	121.9	3.2
7-Mar-21	7:00	78.9	1.6
7-Mar-21	8:00	119.6	1.6
7-Mar-21	9:00	87.3	3.2
7-Mar-21	10:00	74.1	0.8
7-Mar-21	11:00	64.0	0.8
7-Mar-21	12:00	170.6	0.8
7-Mar-21	13:00	115.9	2.4
7-Mar-21	14:00	65.5	4.0
7-Mar-21	15:00	158.4	4.0
7-Mar-21	16:00	162.9	4.0
7-Mar-21	17:00	62.0	5.6
7-Mar-21	18:00	93.4	5.6
7-Mar-21	19:00	125.9	5.6
7-Mar-21	20:00	77.6	4.0
7-Mar-21	21:00	92.5	5.6
7-Mar-21	22:00	77.0	4.0
7-Mar-21	23:00	86.9	5.6
8-Mar-21	0:00	45.6	4.0
8-Mar-21	1:00	80.8	4.0
8-Mar-21	2:00	68.6	5.6
8-Mar-21	3:00	92.9	5.6
8-Mar-21	4:00	50.6	7.2
8-Mar-21	5:00	63.3	4.0
8-Mar-21	6:00	88.2	1.6

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
8-Mar-21	7:00	109.3	1.6
8-Mar-21	8:00	62.1	3.2
8-Mar-21	9:00	115.2	4.4
8-Mar-21	10:00	117.5	8.1
8-Mar-21	11:00	133.4	6.4
8-Mar-21	12:00	90.0	6.1
8-Mar-21	13:00	69.4	6.1
8-Mar-21	14:00	164.2	4.4
8-Mar-21	15:00	110.9	4.4
8-Mar-21	16:00	124.9	4.4
8-Mar-21	17:00	157.7	4.8
8-Mar-21	18:00	134.5	4.8
8-Mar-21	19:00	141.5	6.4
8-Mar-21	20:00	117.5	6.4
8-Mar-21	21:00	146.3	8.1
8-Mar-21	22:00	47.6	4.4
8-Mar-21	23:00	30.1	4.8
9-Mar-21	0:00	64.8	4.8
9-Mar-21	1:00	75.8	6.4
9-Mar-21	2:00	93.1	3.2
9-Mar-21	3:00	90.2	4.8
9-Mar-21	4:00	115.8	1.6
9-Mar-21	5:00	65.2	3.2
9-Mar-21	6:00	207.3	3.2
9-Mar-21	7:00	60.9	1.6
9-Mar-21	8:00	113.4	1.6
9-Mar-21	9:00	149.4	1.6
9-Mar-21	10:00	157.5	1.6
9-Mar-21	11:00	156.1	1.6
9-Mar-21	12:00	224.2	0.1
9-Mar-21	13:00	254.8	0.1
9-Mar-21	14:00	218.2	0.1
9-Mar-21	15:00	214.5	0.1
9-Mar-21	16:00	226.7	0.1
9-Mar-21	17:00	136.7	1.6

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
9-Mar-21	18:00	76.3	1.6
9-Mar-21	19:00	82.0	3.2
9-Mar-21	20:00	75.7	1.6
9-Mar-21	21:00	86.2	0.0
9-Mar-21	22:00	89.1	0.1
9-Mar-21	23:00	80.5	0.1
10-Mar-21	0:00	59.1	0.1
10-Mar-21	1:00	74.9	1.6
10-Mar-21	2:00	213.9	0.1
10-Mar-21	3:00	179.7	1.6
10-Mar-21	4:00	34.2	0.1
10-Mar-21	5:00	102.7	0.1
10-Mar-21	6:00	53.8	0.1
10-Mar-21	7:00	81.8	0.1
10-Mar-21	8:00	68.5	0.1
10-Mar-21	9:00	114.1	0.1
10-Mar-21	10:00	155.7	0.1
10-Mar-21	11:00	15.8	0.1
10-Mar-21	12:00	178.1	0.1
10-Mar-21	13:00	204.5	1.6
10-Mar-21	14:00	27.0	0.1
10-Mar-21	15:00	221.9	0.1
10-Mar-21	16:00	33.4	1.6
10-Mar-21	17:00	92.3	0.1
10-Mar-21	18:00	71.8	1.6
10-Mar-21	19:00	66.6	0.1
10-Mar-21	20:00	62.0	0.1
10-Mar-21	21:00	65.5	1.6
10-Mar-21	22:00	35.8	0.1
10-Mar-21	23:00	66.3	0.1
11-Mar-21	0:00	69.3	0.1
11-Mar-21	1:00	64.9	0.1
11-Mar-21	2:00	43.0	0.1
11-Mar-21	3:00	73.1	0.1
11-Mar-21	4:00	30.2	1.6

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
11-Mar-21	5:00	76.1	0.1
11-Mar-21	6:00	104.4	0.1
11-Mar-21	7:00	70.2	0.1
11-Mar-21	8:00	78.0	0.1
11-Mar-21	9:00	70.6	0.1
11-Mar-21	10:00	64.7	0.1
11-Mar-21	11:00	67.9	0.1
11-Mar-21	12:00	141.0	0.1
11-Mar-21	13:00	93.0	0.1
11-Mar-21	14:00	63.3	0.1
11-Mar-21	15:00	100.9	0.1
11-Mar-21	16:00	43.8	1.6
11-Mar-21	17:00	122.0	1.6
11-Mar-21	18:00	76.7	0.1
11-Mar-21	19:00	105.3	0.1
11-Mar-21	20:00	96.7	0.1
11-Mar-21	21:00	97.8	0.1
11-Mar-21	22:00	76.6	0.1
11-Mar-21	23:00	114.2	0.1
12-Mar-21	0:00	130.6	0.1
12-Mar-21	1:00	155.4	0.1
12-Mar-21	2:00	99.9	0.1
12-Mar-21	3:00	89.2	0.1
12-Mar-21	4:00	145.1	0.1
12-Mar-21	5:00	89.3	0.1
12-Mar-21	6:00	126.6	0.1
12-Mar-21	7:00	93.5	0.1
12-Mar-21	8:00	103.9	0.1
12-Mar-21	9:00	117.8	0.1
12-Mar-21	10:00	90.1	0.4
12-Mar-21	11:00	116.3	2.0
12-Mar-21	12:00	131.2	2.0
12-Mar-21	13:00	217.9	2.0
12-Mar-21	14:00	200.8	2.0
12-Mar-21	15:00	141.1	2.0

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
12-Mar-21	16:00	168.3	2.0
12-Mar-21	17:00	124.6	0.4
12-Mar-21	18:00	110.6	2.0
12-Mar-21	19:00	95.2	0.4
12-Mar-21	20:00	41.1	0.4
12-Mar-21	21:00	75.8	0.4
12-Mar-21	22:00	78.6	0.4
12-Mar-21	23:00	76.8	0.4
13-Mar-21	0:00	56.7	0.4
13-Mar-21	1:00	76.8	0.4
13-Mar-21	2:00	81.4	0.4
13-Mar-21	3:00	64.9	0.4
13-Mar-21	4:00	86.6	0.4
13-Mar-21	5:00	73.6	2.0
13-Mar-21	6:00	76.7	0.4
13-Mar-21	7:00	83.0	0.4
13-Mar-21	8:00	102.2	0.4
13-Mar-21	9:00	201.4	0.4
13-Mar-21	10:00	75.1	0.4
13-Mar-21	11:00	146.4	2.0
13-Mar-21	12:00	115.0	2.0
13-Mar-21	13:00	129.7	2.0
13-Mar-21	14:00	106.0	2.0
13-Mar-21	15:00	126.9	0.4
13-Mar-21	16:00	90.3	0.4
13-Mar-21	17:00	145.6	2.0
13-Mar-21	18:00	76.6	2.0
13-Mar-21	19:00	132.8	2.0
13-Mar-21	20:00	194.6	2.0
13-Mar-21	21:00	42.2	0.4
13-Mar-21	22:00	74.2	3.2
13-Mar-21	23:00	77.2	3.2
14-Mar-21	0:00	74.8	1.6
14-Mar-21	1:00	5.4	1.6
14-Mar-21	2:00	41.0	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
14-Mar-21	3:00	67.8	1.6
14-Mar-21	4:00	61.2	1.6
14-Mar-21	5:00	87.3	1.6
14-Mar-21	6:00	70.8	1.6
14-Mar-21	7:00	74.7	1.6
14-Mar-21	8:00	11.1	1.6
14-Mar-21	9:00	70.0	1.6
14-Mar-21	10:00	88.5	1.6
14-Mar-21	11:00	162.4	1.6
14-Mar-21	12:00	55.4	0.1
14-Mar-21	13:00	41.9	0.1
14-Mar-21	14:00	61.0	0.1
14-Mar-21	15:00	28.4	0.1
14-Mar-21	16:00	46.7	0.1
14-Mar-21	17:00	111.1	0.1
14-Mar-21	18:00	104.9	0.1
14-Mar-21	19:00	73.5	0.1
14-Mar-21	20:00	114.4	0.1
14-Mar-21	21:00	118.2	0.1
14-Mar-21	22:00	83.6	0.1
14-Mar-21	23:00	55.9	0.1
15-Mar-21	0:00	57.4	0.1
15-Mar-21	1:00	70.9	0.1
15-Mar-21	2:00	63.5	0.1
15-Mar-21	3:00	60.2	0.1
15-Mar-21	4:00	209.6	0.1
15-Mar-21	5:00	19.7	0.1
15-Mar-21	6:00	69.1	0.1
15-Mar-21	7:00	37.1	1.6
15-Mar-21	8:00	67.2	0.1
15-Mar-21	9:00	87.6	0.1
15-Mar-21	10:00	115.3	0.1
15-Mar-21	11:00	203.7	0.1
15-Mar-21	12:00	103.7	0.1
15-Mar-21	13:00	107.4	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
15-Mar-21	14:00	165.7	0.1
15-Mar-21	15:00	95.4	0.1
15-Mar-21	16:00	149.2	0.1
15-Mar-21	17:00	83.6	0.1
15-Mar-21	18:00	103.9	0.1
15-Mar-21	19:00	77.0	0.1
15-Mar-21	20:00	152.5	0.1
15-Mar-21	21:00	97.5	0.1
15-Mar-21	22:00	81.7	0.1
15-Mar-21	23:00	79.3	0.1
16-Mar-21	0:00	67.3	0.1
16-Mar-21	1:00	96.8	0.1
16-Mar-21	2:00	104.8	0.1
16-Mar-21	3:00	96.2	0.1
16-Mar-21	4:00	79.9	0.1
16-Mar-21	5:00	107.0	0.1
16-Mar-21	6:00	65.0	0.1
16-Mar-21	7:00	61.4	1.6
16-Mar-21	8:00	51.1	0.1
16-Mar-21	9:00	119.4	0.1
16-Mar-21	10:00	118.8	1.6
16-Mar-21	11:00	131.0	3.2
16-Mar-21	12:00	139.2	3.2
16-Mar-21	13:00	86.0	3.2
16-Mar-21	14:00	166.6	3.2
16-Mar-21	15:00	147.5	3.2
16-Mar-21	16:00	168.0	3.2
16-Mar-21	17:00	90.2	4.8
16-Mar-21	18:00	82.0	3.2
16-Mar-21	19:00	117.8	4.8
16-Mar-21	20:00	94.3	3.2
16-Mar-21	21:00	114.9	3.2
16-Mar-21	22:00	85.0	1.6
16-Mar-21	23:00	96.9	3.2
17-Mar-21	0:00	107.5	4.8

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
17-Mar-21	1:00	78.6	3.2
17-Mar-21	2:00	91.5	3.2
17-Mar-21	3:00	101.4	3.2
17-Mar-21	4:00	74.5	1.6
17-Mar-21	5:00	112.7	3.2
17-Mar-21	6:00	56.5	1.6
17-Mar-21	7:00	60.3	0.1
17-Mar-21	8:00	65.8	1.6
17-Mar-21	9:00	76.5	3.2
17-Mar-21	10:00	140.1	4.8
17-Mar-21	11:00	69.3	3.2
17-Mar-21	12:00	63.0	3.2
17-Mar-21	13:00	71.8	3.2
17-Mar-21	14:00	93.1	3.2
17-Mar-21	15:00	98.7	1.6
17-Mar-21	16:00	120.4	1.6
17-Mar-21	17:00	88.7	0.0
17-Mar-21	18:00	75.4	1.6
17-Mar-21	19:00	81.9	0.1
17-Mar-21	20:00	69.8	0.1
17-Mar-21	21:00	85.8	0.1
17-Mar-21	22:00	66.6	0.1
17-Mar-21	23:00	107.3	0.1
18-Mar-21	0:00	49.5	0.1
18-Mar-21	1:00	88.4	1.6
18-Mar-21	2:00	81.9	0.1
18-Mar-21	3:00	72.3	0.1
18-Mar-21	4:00	110.5	1.6
18-Mar-21	5:00	83.9	0.1
18-Mar-21	6:00	63.4	1.6
18-Mar-21	7:00	82.0	1.6
18-Mar-21	8:00	110.0	0.1
18-Mar-21	9:00	77.9	1.6
18-Mar-21	10:00	185.5	0.1
18-Mar-21	11:00	137.4	1.6

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
18-Mar-21	12:00	183.0	1.6
18-Mar-21	13:00	163.2	0.1
18-Mar-21	14:00	94.7	0.1
18-Mar-21	15:00	109.5	0.1
18-Mar-21	16:00	90.5	0.1
18-Mar-21	17:00	88.0	0.1
18-Mar-21	18:00	64.0	0.1
18-Mar-21	19:00	206.7	0.1
18-Mar-21	20:00	74.3	0.1
18-Mar-21	21:00	110.8	0.1
18-Mar-21	22:00	81.7	0.1
18-Mar-21	23:00	54.7	0.1
19-Mar-21	0:00	88.0	0.1
19-Mar-21	1:00	52.4	0.1
19-Mar-21	2:00	74.6	0.1
19-Mar-21	3:00	82.9	0.1
19-Mar-21	4:00	48.0	0.1
19-Mar-21	5:00	76.4	0.1
19-Mar-21	6:00	83.8	0.1
19-Mar-21	7:00	73.2	0.1
19-Mar-21	8:00	113.5	0.1
19-Mar-21	9:00	69.8	0.1
19-Mar-21	10:00	88.6	0.1
19-Mar-21	11:00	65.7	0.1
19-Mar-21	12:00	76.2	0.1
19-Mar-21	13:00	84.4	0.1
19-Mar-21	14:00	43.3	1.6
19-Mar-21	15:00	70.3	1.6
19-Mar-21	16:00	182.9	0.1
19-Mar-21	17:00	118.2	0.1
19-Mar-21	18:00	129.2	0.1
19-Mar-21	19:00	94.8	0.1
19-Mar-21	20:00	76.5	0.1
19-Mar-21	21:00	74.7	0.1
19-Mar-21	22:00	71.6	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
19-Mar-21	23:00	68.7	0.1
20-Mar-21	0:00	76.3	0.1
20-Mar-21	1:00	87.3	0.1
20-Mar-21	2:00	21.1	0.1
20-Mar-21	3:00	97.7	1.6
20-Mar-21	4:00	77.6	0.1
20-Mar-21	5:00	52.7	0.1
20-Mar-21	6:00	52.8	0.1
20-Mar-21	7:00	64.0	0.1
20-Mar-21	8:00	242.1	0.1
20-Mar-21	9:00	102.8	0.1
20-Mar-21	10:00	69.8	0.1
20-Mar-21	11:00	130.5	0.1
20-Mar-21	12:00	88.9	0.1
20-Mar-21	13:00	70.0	0.1
20-Mar-21	14:00	86.4	0.1
20-Mar-21	15:00	82.3	0.1
20-Mar-21	16:00	66.5	0.1
20-Mar-21	17:00	155.7	0.1
20-Mar-21	18:00	94.3	0.1
20-Mar-21	19:00	189.2	0.1
20-Mar-21	20:00	70.2	0.1
20-Mar-21	21:00	83.9	0.1
20-Mar-21	22:00	87.8	0.1
20-Mar-21	23:00	123.1	0.1
21-Mar-21	0:00	106.7	0.1
21-Mar-21	1:00	78.9	0.1
21-Mar-21	2:00	93.4	0.1
21-Mar-21	3:00	93.3	0.1
21-Mar-21	4:00	65.3	0.1
21-Mar-21	5:00	87.3	0.1
21-Mar-21	6:00	143.3	0.1
21-Mar-21	7:00	156.9	0.1
21-Mar-21	8:00	100.0	0.1
21-Mar-21	9:00	49.5	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
21-Mar-21	10:00	102.5	0.1
21-Mar-21	11:00	67.3	0.1
21-Mar-21	12:00	117.7	1.6
21-Mar-21	13:00	133.6	1.6
21-Mar-21	14:00	135.6	3.2
21-Mar-21	15:00	58.7	3.2
21-Mar-21	16:00	126.3	4.8
21-Mar-21	17:00	106.8	1.6
21-Mar-21	18:00	112.6	1.6
21-Mar-21	19:00	99.7	0.1
21-Mar-21	20:00	127.2	0.1
21-Mar-21	21:00	76.0	1.6
21-Mar-21	22:00	76.8	3.2
21-Mar-21	23:00	64.7	3.2
22-Mar-21	0:00	67.6	4.8
22-Mar-21	1:00	22.6	4.8
22-Mar-21	2:00	45.0	8.1
22-Mar-21	3:00	63.9	4.8
22-Mar-21	4:00	61.0	3.2
22-Mar-21	5:00	87.7	3.2
22-Mar-21	6:00	31.1	0.1
22-Mar-21	7:00	107.9	0.1
22-Mar-21	8:00	125.8	0.1
22-Mar-21	9:00	134.6	0.1
22-Mar-21	10:00	284.8	0.1
22-Mar-21	11:00	283.3	0.1
22-Mar-21	12:00	298.1	0.1
22-Mar-21	13:00	261.1	0.1
22-Mar-21	14:00	271.4	0.1
22-Mar-21	15:00	259.6	0.1
22-Mar-21	16:00	273.9	1.6
22-Mar-21	17:00	281.4	0.1
22-Mar-21	18:00	95.4	0.1
22-Mar-21	19:00	111.8	0.1
22-Mar-21	20:00	100.2	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
22-Mar-21	21:00	83.4	0.1
22-Mar-21	22:00	105.4	0.1
22-Mar-21	23:00	26.1	0.1
23-Mar-21	0:00	116.4	0.1
23-Mar-21	1:00	54.7	1.6
23-Mar-21	2:00	71.8	1.6
23-Mar-21	3:00	168.7	1.6
23-Mar-21	4:00	240.5	3.2
23-Mar-21	5:00	235.5	3.2
23-Mar-21	6:00	293.8	3.2
23-Mar-21	7:00	124.2	3.2
23-Mar-21	8:00	94.0	3.2
23-Mar-21	9:00	259.1	4.8
23-Mar-21	10:00	281.3	4.8
23-Mar-21	11:00	254.2	4.4
23-Mar-21	12:00	293.2	4.4
23-Mar-21	13:00	244.2	1.6
23-Mar-21	14:00	249.7	3.2
23-Mar-21	15:00	274.9	3.2
23-Mar-21	16:00	309.7	3.2
23-Mar-21	17:00	163.1	1.6
23-Mar-21	18:00	68.4	0.1
23-Mar-21	19:00	104.2	0.1
23-Mar-21	20:00	97.7	0.1
23-Mar-21	21:00	116.5	0.1
23-Mar-21	22:00	103.1	0.1
23-Mar-21	23:00	210.6	1.6
24-Mar-21	0:00	67.5	1.6
24-Mar-21	1:00	105.1	1.6
24-Mar-21	2:00	48.8	0.1
24-Mar-21	3:00	107.2	0.1
24-Mar-21	4:00	92.9	1.6
24-Mar-21	5:00	110.6	0.1
24-Mar-21	6:00	76.0	0.1
24-Mar-21	7:00	146.1	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
24-Mar-21	8:00	77.5	0.1
24-Mar-21	9:00	77.8	1.6
24-Mar-21	10:00	78.7	3.2
24-Mar-21	11:00	96.1	3.2
24-Mar-21	12:00	117.9	4.8
24-Mar-21	13:00	172.1	4.8
24-Mar-21	14:00	109.1	4.8
24-Mar-21	15:00	90.7	3.2
24-Mar-21	16:00	72.5	1.6
24-Mar-21	17:00	158.7	4.8
24-Mar-21	18:00	117.5	4.8
24-Mar-21	19:00	96.2	4.8
24-Mar-21	20:00	66.3	3.2
24-Mar-21	21:00	103.4	3.2
24-Mar-21	22:00	158.7	3.2
24-Mar-21	23:00	55.2	3.2
25-Mar-21	0:00	212.9	1.6
25-Mar-21	1:00	114.1	1.6
25-Mar-21	2:00	99.1	1.6
25-Mar-21	3:00	113.3	3.2
25-Mar-21	4:00	118.8	0.1
25-Mar-21	5:00	86.9	0.1
25-Mar-21	6:00	92.4	0.1
25-Mar-21	7:00	75.1	0.1
25-Mar-21	8:00	59.6	0.1
25-Mar-21	9:00	75.4	0.1
25-Mar-21	10:00	88.4	0.1
25-Mar-21	11:00	72.9	0.1
25-Mar-21	12:00	129.7	0.1
25-Mar-21	13:00	203.0	0.1
25-Mar-21	14:00	107.1	0.1
25-Mar-21	15:00	145.3	0.1
25-Mar-21	16:00	83.1	0.1
25-Mar-21	17:00	70.2	0.1
25-Mar-21	18:00	89.4	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
25-Mar-21	19:00	101.5	0.1
25-Mar-21	20:00	146.8	0.1
25-Mar-21	21:00	91.2	0.1
25-Mar-21	22:00	75.2	0.1
25-Mar-21	23:00	84.5	0.1
26-Mar-21	0:00	58.6	0.1
26-Mar-21	1:00	77.1	0.1
26-Mar-21	2:00	81.2	0.1
26-Mar-21	3:00	74.5	0.1
26-Mar-21	4:00	121.9	0.1
26-Mar-21	5:00	90.0	0.1
26-Mar-21	6:00	163.6	0.1
26-Mar-21	7:00	96.9	0.1
26-Mar-21	8:00	81.3	0.1
26-Mar-21	9:00	69.8	0.1
26-Mar-21	10:00	68.0	0.1
26-Mar-21	11:00	63.5	1.6
26-Mar-21	12:00	71.9	1.6
26-Mar-21	13:00	108.5	1.6
26-Mar-21	14:00	73.2	1.6
26-Mar-21	15:00	88.9	1.6
26-Mar-21	16:00	91.6	1.6
26-Mar-21	17:00	85.7	1.6
26-Mar-21	18:00	164.6	1.6
26-Mar-21	19:00	64.0	0.1
26-Mar-21	20:00	73.9	0.1
26-Mar-21	21:00	105.5	0.1
26-Mar-21	22:00	71.9	0.1
26-Mar-21	23:00	84.9	0.1
27-Mar-21	0:00	73.9	0.1
27-Mar-21	1:00	83.8	0.1
27-Mar-21	2:00	70.2	0.1
27-Mar-21	3:00	141.0	1.6
27-Mar-21	4:00	70.2	1.6
27-Mar-21	5:00	81.7	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
27-Mar-21	6:00	80.7	0.1
27-Mar-21	7:00	54.9	0.1
27-Mar-21	8:00	96.6	0.1
27-Mar-21	9:00	132.9	0.1
27-Mar-21	10:00	109.4	1.6
27-Mar-21	11:00	139.0	0.1
27-Mar-21	12:00	132.9	0.1
27-Mar-21	13:00	170.4	0.1
27-Mar-21	14:00	233.2	0.1
27-Mar-21	15:00	162.0	0.1
27-Mar-21	16:00	183.3	0.1
27-Mar-21	17:00	75.9	0.1
27-Mar-21	18:00	73.7	0.1
27-Mar-21	19:00	67.4	0.1
27-Mar-21	20:00	87.2	0.1
27-Mar-21	21:00	75.2	0.1
27-Mar-21	22:00	62.0	0.1
27-Mar-21	23:00	47.9	0.1
28-Mar-21	0:00	66.3	0.1
28-Mar-21	1:00	79.5	0.1
28-Mar-21	2:00	200.5	0.1
28-Mar-21	3:00	40.7	0.1
28-Mar-21	4:00	61.2	0.1
28-Mar-21	5:00	47.3	0.1
28-Mar-21	6:00	35.7	0.1
28-Mar-21	7:00	252.4	0.1
28-Mar-21	8:00	33.1	0.1
28-Mar-21	9:00	68.4	0.1
28-Mar-21	10:00	319.7	0.1
28-Mar-21	11:00	191.3	0.1
28-Mar-21	12:00	32.0	0.1
28-Mar-21	13:00	58.5	0.1
28-Mar-21	14:00	80.9	0.1
28-Mar-21	15:00	104.1	0.1
28-Mar-21	16:00	74.4	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
28-Mar-21	17:00	215.1	0.1
28-Mar-21	18:00	53.8	0.1
28-Mar-21	19:00	58.9	0.1
28-Mar-21	20:00	78.8	0.1
28-Mar-21	21:00	44.2	0.1
28-Mar-21	22:00	58.2	0.1
28-Mar-21	23:00	76.8	0.1
29-Mar-21	0:00	59.9	0.1
29-Mar-21	1:00	75.4	0.1
29-Mar-21	2:00	125.2	0.1
29-Mar-21	3:00	99.6	0.1
29-Mar-21	4:00	102.0	0.1
29-Mar-21	5:00	75.5	0.1
29-Mar-21	6:00	112.4	0.1
29-Mar-21	7:00	128.0	0.1
29-Mar-21	8:00	86.3	0.1
29-Mar-21	9:00	147.5	0.1
29-Mar-21	10:00	112.8	0.1
29-Mar-21	11:00	111.3	0.1
29-Mar-21	12:00	106.9	1.6
29-Mar-21	13:00	151.5	1.6
29-Mar-21	14:00	88.1	1.6
29-Mar-21	15:00	150.0	3.2
29-Mar-21	16:00	123.4	0.1
29-Mar-21	17:00	110.3	3.2
29-Mar-21	18:00	148.3	3.2
29-Mar-21	19:00	66.0	1.6
29-Mar-21	20:00	142.1	4.8
29-Mar-21	21:00	130.8	3.2
29-Mar-21	22:00	105.3	0.1
29-Mar-21	23:00	89.9	1.6
30-Mar-21	0:00	111.7	0.1
30-Mar-21	1:00	96.0	0.1
30-Mar-21	2:00	96.3	0.1
30-Mar-21	3:00	83.1	0.1

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
30-Mar-21	4:00	72.7	0.1
30-Mar-21	5:00	52.2	0.1
30-Mar-21	6:00	88.9	0.1
30-Mar-21	7:00	97.1	0.1
30-Mar-21	8:00	58.5	0.1
30-Mar-21	9:00	103.5	1.6
30-Mar-21	10:00	76.9	3.2
30-Mar-21	11:00	61.6	3.2
30-Mar-21	12:00	61.7	4.8
30-Mar-21	13:00	86.4	4.8
30-Mar-21	14:00	63.1	3.2
30-Mar-21	15:00	74.1	1.6
30-Mar-21	16:00	67.8	3.2
30-Mar-21	17:00	81.2	1.6
30-Mar-21	18:00	81.3	1.6
30-Mar-21	19:00	29.4	1.6
30-Mar-21	20:00	66.6	1.6
30-Mar-21	21:00	61.4	1.6
30-Mar-21	22:00	54.4	1.6
30-Mar-21	23:00	61.3	3.2
31-Mar-21	0:00	57.8	1.6
31-Mar-21	1:00	60.6	1.6
31-Mar-21	3:00	45.0	1.6
31-Mar-21	4:00	41.6	1.6
31-Mar-21	5:00	60.7	3.2
31-Mar-21	6:00	62.2	4.8
31-Mar-21	7:00	25.8	4.8
31-Mar-21	8:00	70.9	8.1
31-Mar-21	9:00	283.6	4.8
31-Mar-21	10:00	52.5	4.8
31-Mar-21	11:00	98.6	4.8
31-Mar-21	12:00	136.2	5.1
31-Mar-21	13:00	86.3	4.4
31-Mar-21	14:00	83.5	4.8
31-Mar-21	15:00	69.7	3.2

**APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
31-Mar-21	16:00	170.2	4.4
31-Mar-21	17:00	222.7	3.2
31-Mar-21	18:00	223.5	3.2
31-Mar-21	19:00	287.5	4.8
31-Mar-21	20:00	286.9	3.2
31-Mar-21	21:00	142.4	1.6
31-Mar-21	22:00	30.4	1.6
31-Mar-21	23:00	30.9	1.6

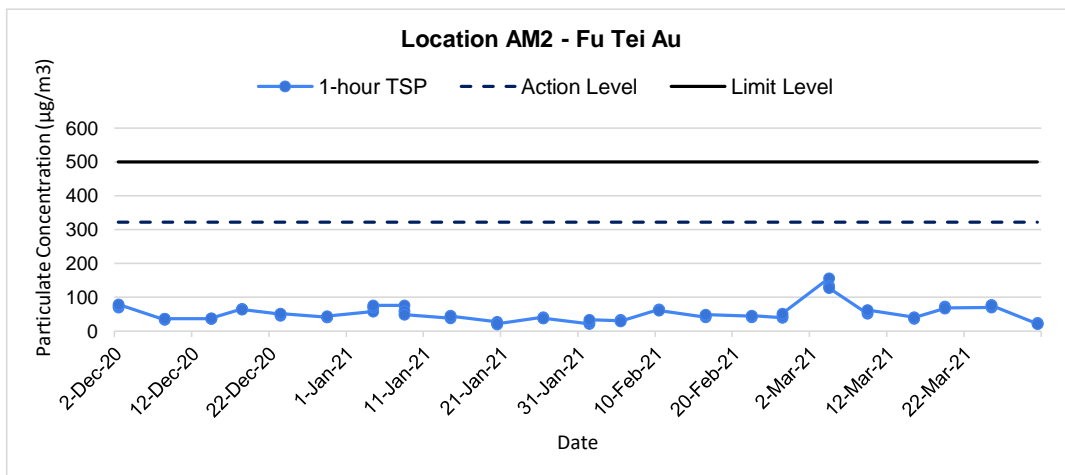
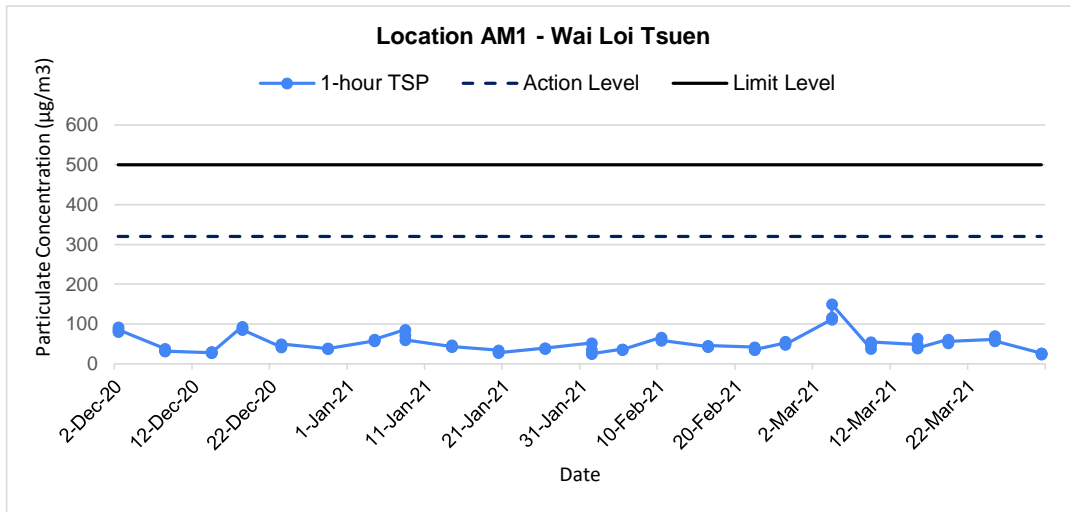
APPENDIX E
1-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS

Appendix E - 1-hour TSP Monitoring Results

Location AM1 - Wai Loi Tsuen			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
4-Mar-21	10:20	Cloudy	112.2
4-Mar-21	11:20	Cloudy	116.6
4-Mar-21	12:20	Cloudy	149.6
9-Mar-21	9:05	Sunny	37.8
9-Mar-21	10:05	Sunny	48.3
9-Mar-21	11:05	Sunny	54.6
15-Mar-21	9:30	Sunny	48.4
15-Mar-21	10:30	Sunny	63.8
15-Mar-21	11:30	Sunny	39.6
19-Mar-21	9:20	Sunny	60.9
19-Mar-21	10:20	Sunny	52.5
19-Mar-21	11:20	Sunny	56.7
25-Mar-21	9:15	Sunny	62.0
25-Mar-21	10:15	Sunny	70.0
25-Mar-21	11:15	Sunny	58.0
31-Mar-21	9:10	Sunny	26.4
31-Mar-21	10:10	Sunny	26.4
31-Mar-21	11:10	Sunny	24.2
		Average	61.6
		Maximum	149.6
		Minimum	24.2

Location AM2 - Fu Tei Au			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
4-Mar-21	13:40	Cloudy	156.2
4-Mar-21	14:40	Cloudy	134.2
4-Mar-21	15:40	Cloudy	127.6
9-Mar-21	13:00	Sunny	52.5
9-Mar-21	14:00	Sunny	56.7
9-Mar-21	15:00	Sunny	63.0
15-Mar-21	13:35	Sunny	41.8
15-Mar-21	14:35	Sunny	37.4
15-Mar-21	15:35	Sunny	39.6
19-Mar-21	13:10	Sunny	67.2
19-Mar-21	14:10	Sunny	73.5
19-Mar-21	15:10	Sunny	69.3
25-Mar-21	13:30	Sunny	70.0
25-Mar-21	14:30	Sunny	78.0
25-Mar-21	15:30	Sunny	76.0
31-Mar-21	13:20	Sunny	22.0
31-Mar-21	14:20	Sunny	24.2
31-Mar-21	15:20	Sunny	22.0
		Average	67.3
		Maximum	156.2
		Minimum	22.0

1-hr TSP Concentration Levels



Title	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1	Date	Mar 2021	Project No.	MA19019	CINOTECH
	Graphical Presentation of 1-hour TSP Monitoring Results			Appendix	E	

**APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

Appendix F - 24-hour TSP Monitoring Results

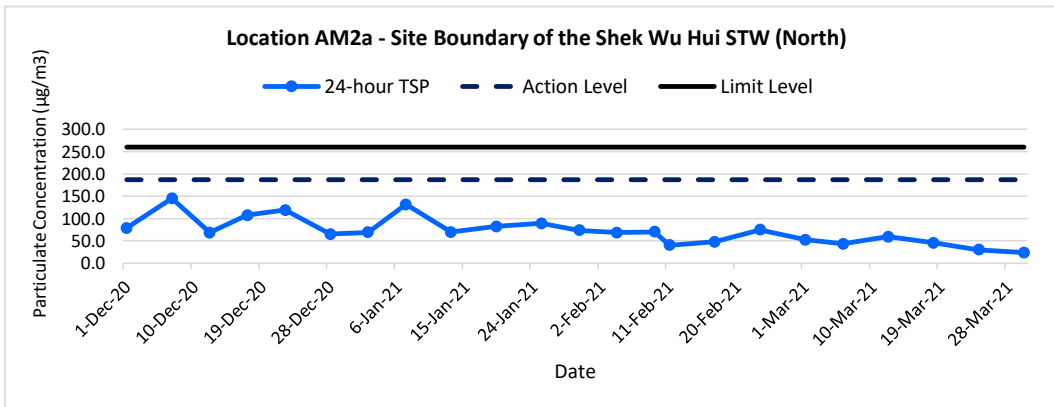
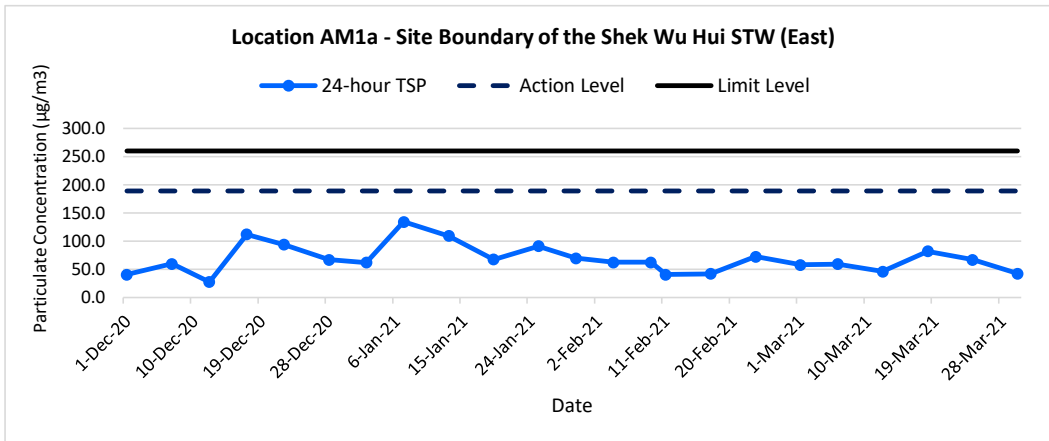
Location AM1a - Site Boundary of the Shek Wu Hui STW (East)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (μg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Mar-21	Cloudy	294.7	764.0	2.6903	2.7910	0.1007	9932.8	9956.8	24.0	1.21	1.21	1.21	1739.3	57.9
6-Mar-21	Sunny	293.2	764.2	2.6859	2.7897	0.1037	9956.8	9980.8	24.0	1.22	1.22	1.22	1752.9	59.2
12-Mar-21	Sunny	295.6	764.9	2.6881	2.7687	0.0806	9980.8	10004.8	24.0	1.21	1.21	1.21	1747.1	46.2
18-Mar-21	Sunny	296.8	760.6	2.6618	2.8045	0.1427	10004.8	10028.8	24.0	1.21	1.21	1.21	1740.1	82.0
24-Mar-21	Sunny	294.4	763.4	2.6716	2.7892	0.1177	10028.8	10052.8	24.0	1.22	1.21	1.21	1748.8	67.3
30-Mar-21	Sunny	299.6	755.8	2.6807	2.7544	0.0738	10052.8	10076.8	24.0	1.20	1.20	1.20	1727.1	42.7
													Min	42.7
													Max	82.0
													Average	59.2

Location AM2a - Site Boundary of the Shek Wu Hui STW (North)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (μg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Mar-21	Cloudy	294.7	764.0	2.6902	2.7817	0.0914	20127.3	20151.3	24.0	1.21	1.21	1.21	1742.0	52.5
6-Mar-21	Sunny	293.2	764.2	2.6818	2.7581	0.0763	20151.3	20175.3	24.0	1.22	1.22	1.22	1751.8	43.6
12-Mar-21	Sunny	295.6	764.9	2.6805	2.7844	0.1039	20175.3	20199.3	24.0	1.21	1.21	1.21	1746.6	59.5
18-Mar-21	Sunny	296.8	760.6	2.6707	2.7503	0.0796	20199.3	20223.3	24.0	1.21	1.21	1.21	1739.5	45.8
24-Mar-21	Sunny	294.4	763.4	2.6985	2.7516	0.0531	20223.3	20247.3	24.0	1.22	1.21	1.21	1748.1	30.4
30-Mar-21	Sunny	299.6	755.8	2.6155	2.6568	0.0413	20247.3	20271.3	24.0	1.20	1.20	1.20	1728.3	23.9
													Min	23.9
													Max	59.5
													Average	42.6

24-hr TSP Concentration Levels



Title Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1	Date Mar 2021	Project No. MA19019	
Graphical Presentation of 24-hour TSP Monitoring Results		Appendix F	

**APPENDIX G
COPIES OF CALIBRATION
CERTIFICATES FOR NOISE
MONITORING**



Equipment no.: N-12-01

Calibration Certificate

0024993

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570183 / 550233 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024993 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.4dB	-0.6dB	+/- 1.5dB	1
114.0dB	113.2dB	-0.8dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



Equipment no.: N-12-02

Calibration Certificate

0024995

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570187 / 550841 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024995 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.1dB	-0.9dB	+/- 1.5dB	1
114.0dB	113.1dB	-0.9dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



Equipment no.: N-12-03

Calibration Certificate

0024996

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024996 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



Equipment no.: N-13-01

Calibration Certificate

0025247

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025247 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Equipment no. : N-13-02

Calibration Certificate**0025249**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001636 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025249 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) within the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

**APPENDIX H
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix H - Noise Monitoring Results

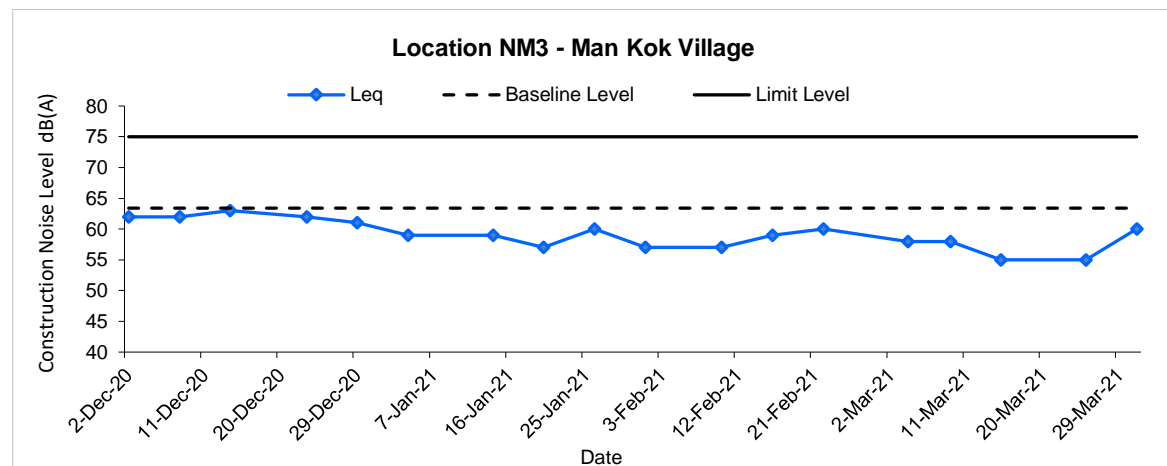
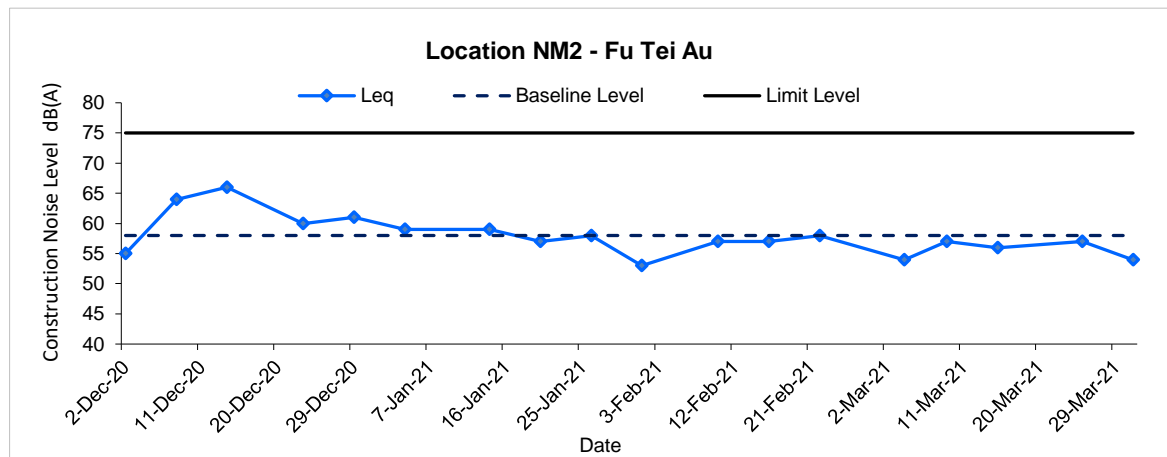
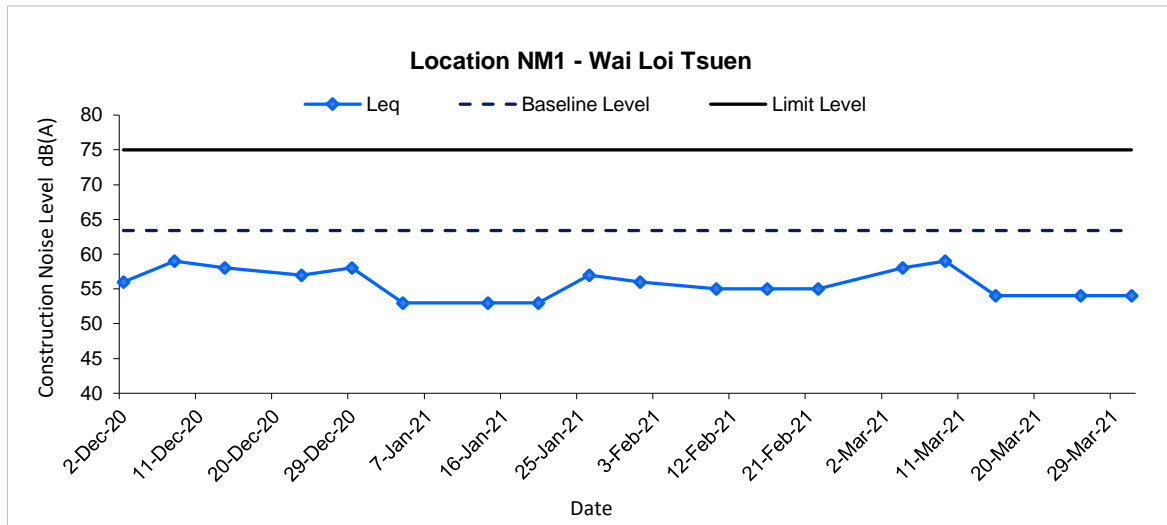
(0700-1900 hrs on Normal Weekdays)

Location NM1 - Wai Loi Tsuen							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
4-Mar-21	10:23	Cloudy	58.4	61.5	51.4	63.4	58.4 Measured \leq Baseline
9-Mar-21	10:00	Sunny	58.5	61.7	55.6	63.4	58.5 Measured \leq Baseline
15-Mar-21	13:00	Sunny	53.5	54.0	49.2	63.4	53.5 Measured \leq Baseline
25-Mar-21	10:00	Sunny	53.7	55.3	49.9	63.4	53.7 Measured \leq Baseline
31-Mar-21	13:30	Sunny	53.9	55.8	51.3	63.4	53.9 Measured \leq Baseline

Location NM2 - Fu Tei Au							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
4-Mar-21	11:49	Cloudy	54.2	56.7	48.8	58.0	54.2 Measured \leq Baseline
9-Mar-21	14:00	Sunny	56.6	59.2	53.1	58.0	56.6 Measured \leq Baseline
15-Mar-21	15:05	Sunny	56.4	59.2	51.4	58.0	56.4 Measured \leq Baseline
25-Mar-21	14:00	Sunny	56.8	59.9	51.7	58.0	56.8 Measured \leq Baseline
31-Mar-21	15:40	Sunny	59.4	61.2	55.5	58.0	53.8

Location NM3 - Man Kok Village							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
4-Mar-21	10:57	Cloudy	58.0	60.8	53.1	63.4	58 Measured \leq Baseline
9-Mar-21	11:00	Sunny	57.7	60.3	54.6	63.4	57.7 Measured \leq Baseline
15-Mar-21	13:50	Sunny	55.0	57.8	47.1	63.4	55 Measured \leq Baseline
25-Mar-21	11:30	Sunny	55.2	58.3	47.9	63.4	55.2 Measured \leq Baseline
31-Mar-21	14:00	Sunny	60.1	62.2	51.4	63.4	60.1 Measured \leq Baseline

Noise Levels



Title Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 Graphical Presentation of Construction Noise Monitoring Results	Date Mar 2021	Project No. MA19019	
		Appendix H	

**APPENDIX I
ECOLOGICAL MONITORING RESULTS
AND ANALYSIS**

MA19019 - Ecological Monitoring Result and Analysis


Table I: Recorded Bird Species and their Abundance in the Reporting Month

Scientific Name	Common Name	Chinese Name	Waterbird	Point Count Abundance	Transect Abundance
<i>Acridotheres cristatellus</i>	Crested Myna	八哥		94	+++++
<i>Actitis hypoleucos</i>	Common Sandpiper	磯鵲	*	10	
<i>Anthus hodgsoni</i>	Olive Backed Pipit	樹鵲		21	
<i>Ardea alba</i>	Great Egret	大白鷺	*	26	+
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	*	26	+
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	*	44	++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	*	51	++
<i>Buteo japonicus</i>	Eastern Buzzard	普通鵟	*	2	
<i>Centropus bengaiensis</i>	Lesser Coucal	小鴉鵂		1	
<i>Centropus sinensis</i>	Greater Coucal	褐翅鴉鵂		0	+
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	*	0	+
<i>Charadrius dubius</i>	Little Ringed Plover	金眶鸕	*	1	
<i>Corvus macrorhynchus</i>	Jungle Crow	大嘴烏鴉		12	+
<i>Corvus torquatus</i>	Collared Crow	白頸鴉	*	3	
<i>Egretta garzetta</i>	Little Egret	小白鷺	*	77	+++++
<i>Egretta intermedia</i>	Intermediate Egret	中白鷺	*	1	
<i>Eudynamis scolopacea</i>	Common Koel	噪鵲		10	+
<i>Garrulax perspicillatus</i>	Masked Laughing Thrush	黑臉噪鵲		16	
<i>Hierococcyx sparverioides</i>	Large Hawk Cuckoo	大鷹鵂		9	+
<i>Himantopus himantopus</i>	Black-winged Stilt	黑翅長腳鵲	*	12	+
<i>Hirundo rustica</i>	Barn Swallow	家燕		70	+
<i>Milvus migrans</i>	Black Kite	黑鳶	*	3	+
<i>Motacilla alba</i>	White Wagtail	白鶺鴒		29	++
<i>Myophonus caeruleus</i>	Blue Whistling Thrush	紫嘯鶺鴒		0	+
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶺鴒		23	++
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		11	+
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶺鴒	*	4	+
<i>Phylloscopus fuscatus</i>	Dusky Warbler	褐柳鶺鴒		6	+
<i>Pica pica</i>	Magpie	喜鵲		4	+
<i>Pycnonotus jocosus</i>	Crested bulbul	紅耳鶺鴒		27	++
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鶺鴒		38	+
<i>Streptopelia chinensis</i>	Spotted Dove	珠頸斑鳩		32	+
<i>Tringa nebularia</i>	Common Greenshank	青腳鵲	*	0	+
<i>Tringa ochropus</i>	Green Sandpiper	白腰草鵲	*	0	+
<i>Zosterops japonicus</i>	Japanese White-eye	暗綠繡眼鳥		23	+
Total Point Count Abundance				686	
Total Waterbirds				260	

*For waterbird

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

Remarks: (1) According to S4.7 of the approved Baseline Monitoring Report (Ecology), "waterbirds" was defined as "waterbirds and wetland-dependent species", which was referenced to Monthly Waterbird Monitoring Biannual Reports prepared by the Hong Kong Bird Watching Society (Anon, 2018). Also, S.13.11.3.2 of NENT NDA EIA Study requires "Monitoring of Measures to Mitigate for Impacts of the Project on Wetland-dependent Fauna using the Ng Tung, Sheung Yue and Shek Sheung Rivers". Therefore, "wetland-dependent birds" should be considered as "waterbirds". As raptors and Collared Crow are "wetland-dependent species", they should be taken into consideration in data analysis and impact assessment on waterbirds.

Agreement No. SPW 07/2019 Shek Wu Hui Effluent Polishing Plant - Main Work Stage 1	Project No. MA19019	
Monthly Data Analysis for Ecological Monitoring	Appendix I	

MA19019 - Waterbird Ecological Monitoring Result

Monitoring Month Mar
 Season Winter

Table II : Total Bird Abundance from Point Count						
Survey Information				Total Bird Abundance from Point Count		
No.	Date	Time	Tide Level	Individuals Recorded	Total	Species Recorded
#1	1 Mar 2021	13:00	High	44	127	11
		8:00	Low	83		21
#2	12 Mar 2021	14:00	High	53	147	15
		8:00	Low	94		19
#3	16 Mar 2021	13:00	High	39	122	13
		8:00	Low	83		16
#4	26 Mar 2021	12:00	High	55	155	16
		8:00	Low	100		21
#5	29 Mar 2021	11:00	High	43	135	11
		7:00	Low	92		18
Overall Total					686	

Table III: Total Waterbird Abundance from Point Count						
Survey Information				Numbers of Waterbirds		
No.	Date	Time	Tide Level	Individuals Recorded	Total	
#1	1 Mar 2021	13:00	High	16	56	
		8:00	Low	40		
#2	12 Mar 2021	14:00	High	20	70	
		8:00	Low	50		
#3	16 Mar 2021	13:00	High	11	50	
		8:00	Low	39		
#4	26 Mar 2021	12:00	High	10	40	
		8:00	Low	30		
#5	29 Mar 2021	11:00	High	15	44	
		7:00	Low	29		
Overall Total					260	
Average					52	

Table IV: T-Test Analysis for All Waterbirds

Baseline Data
 Monthly Average Abundance (Mar) 48.13
 Seasonal Average Abundance (Winter) 62.15

T-test
 The following hypothesis was made and a one-tail t-test will be used to test the data collected from the monitoring:

H₀ The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data.

H₁ The data collected does not falls within the normal distribution when compared to the baseline monitoring data.

If t-test value is smaller than the critical value, then rejects H₀.

For the data in the reporting month, the critical values are:

Crit. Value = -2.132 (95% Confidence Level)

Crit. Value = -3.747 (99% Confidence Level)

		Confidence Level		
T-values of Data in Reporting Month		95%	99%	
Abundance	Monthly	0.691	✓	✓
	Season	-1.810	✓	✓

Overall: ✓ ✓

Remarks:

✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.

✗ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

Agreement No. SPW 07/2019 Shek Wu Hui Effluent Polishing Plant - Main Work Stage 1		Project No. MA19019	CINOTECH
Monthly Data Analysis for Ecological Monitoring	Date March 2021	Appendix I	

MA19019 - Waterbird Ecological Monitoring Result

Monitoring Month Mar
Season Winter

Representative Species			Recorded Abundance							Baseline Data	
Species Name	Common Name	Chinese Name	1 Mar 2021	12 Mar 2021	16 Mar 2021	26 Mar 2021	29 Mar 2021	Total	Average	Avg (Mar)	Avg (Winter)
<i>Egretta garzetta</i>	Little Egret	小白鷺	19	19	15	8	16	77	15	19	15
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	4	5	9	5	3	26	5	3	13
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	6	13	7	9	9	44	9	9	9
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	2	2	0	0	0	4	1	3	7
<i>Ardea alba</i>	Great Egret	大白鷺	11	7	5	3	0	26	5	4	5
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	8	14	10	11	8	51	10	9	4

Table VI: T-test Analysis for Representative Waterbirds from Point Count

The following hypothesis was made and a one-tail t-test will be used to test the data collected from the monitoring:

H₀ The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data.

H₁ The data collected does not fall within the normal distribution when compared to the baseline monitoring data.

If t-test value for a specific representative is smaller than the critical value, then rejects H₀.

For the data in the reporting month, the critical values are:

Crit. Value = -2.132 (95% Confidence Level)

Crit. Value = -3.747 (99% Confidence Level)

Representative Species			T-value	Confidence Level		T-value	Confidence Level		Overall
Species Name	Common Name	Chinese Name	Monthly	95%	99%	Seasonal	95%	99%	
<i>Egretta garzetta</i>	Little Egret	小白鷺	-1.897	✓	✓	0.377	✓	✓	✓
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	2.593	✓	✓	-7.749	✗	✗	✓
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	-0.352	✓	✓	-0.359	✓	✓	✓
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	-3.810	✗	✗	-12.917	✗	✗	Limit Level
<i>Ardea alba</i>	Great Egret	大白鷺	0.707	✓	✓	-0.058	✓	✓	✓
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	0.878	✓	✓	5.453	✓	✓	✓

Remarks

✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.

✗ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

Agreement No. SPW 07/2019 Shek Wu Hui Effluent Polishing Plant - Main Work Stage 1		Project No. MA19019	CINOTECH
Monthly Data Analysis for Ecological Monitoring		Date March 2021 Appendix I	

**APPENDIX J
PHOTO RECORDS OF ECOLOGICAL
MONITORING**

Appendix J - Photo Records of Ecological Monitoring

Part A - Conditions of Rivers



Sheung Yue River (Taken on 12 Mar 2021)



Ng Tung River (Taken on 12 Mar 2021)



Shek Sheung River (Taken on 29 Mar 2021)

Part B – Waterbird Species

	
<p><i>Ardea alba</i> (Taken on 12 Mar 2021)</p>	<p><i>Ardea cinerea</i> (Taken on 29 Mar 2021)</p>
	
<p><i>Egretta garzetta</i> (Taken on 12 Mar 2021)</p>	



Ardeola bacchus (Taken on 16 Mar 2021)



Phalacrocorax carbo (Taken on 12 Mar 2021)



Bubulcus coromandus (Taken on 16 Mar 2021)



Himantopus himantopus (Taken on 12 Mar 2021)



Actitis hypoleucos (Taken on 16 Mar 2021)

Part C – Human Activities & Site Conditions



Excavation & Crane (Project-related, taken on 12 Mar 21)



Sheet-piling (Project-related, taken on 29 Mar 21)



Fishing & Jaywalking (Non-project-related, taken on 12 Mar 21)



Golfing (Non-project-related, taken on 12 Mar 21)



Unknown source of smoke (Non-project-related, taken on 16 Mar 21)



Placement of sedimentation tank (Non-project-related, taken on 29 Mar 21)



Breaking works (Non-project-related, taken on 29 Mar 21)



APPENDIX K
SITE AUDIT SUMMARY

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/06

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210302
Date	2 March 2021 (Tuesday)
Time	9:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210223).	



	Name	Signature	Date
Recorded by	Ms. Echo Hung		2 March 2021
Checked by	Mr. Eric Yan		3 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/06

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210311
Date	11 March 2021 (Thursday)
Time	9:30 – 11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210302).	



	Name	Signature	Date
Recorded by	Ms. Echo Hung		11 March 2021
Checked by	Mr. Eric Yan		11 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/06

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210316
Date	16 March 2021 (Tuesday)
Time	9:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210311).	



	Name	Signature	Date
Recorded by	Ms. Echo Hung		16 March 2021
Checked by	Mr. Eric Yan		17 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/06

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210323
Date	23 March 2021 (Tuesday)
Time	9:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
210323-R1	<ul style="list-style-type: none"> Wastewater should be pumped out and treated via sedimentation tank before discharge at Portion A. 	B3i
	<i>C. Air Quality</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>D. Noise</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>E. Waste / Chemical Management</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>F. Ecology and Fisheries</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>G. Landscape and Visual</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>H. Permits /Licences</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210316).	



	Name	Signature	Date
Recorded by	Ms. Echo Hung		23 March 2021
Checked by	Mr. Eric Yan		24 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/06

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210330
Date	30 March 2021 (Tuesday)
Time	9:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	Following up on the previous site inspection (ref no.: 210323): Item 210323-R1 was rectified/improved by the Contractor.	

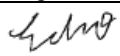

	Name	Signature	Date
Recorded by	Ms. Echo Hung		30 March 2021
Checked by	Mr. Eric Yan		31 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/07

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210302
Date	2 March 2021 (Thursday)
Time	9:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210223).	

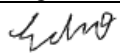

	Name	Signature	Date
Recorded by	Ms. Echo Hung		2 March 2021
Checked by	Mr. Eric Yan		3 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/07

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210311
Date	11 March 2021 (Thursday)
Time	9:30 – 11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210302).	

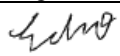

	Name	Signature	Date
Recorded by	Ms. Echo Hung		11 March 2021
Checked by	Mr. Eric Yan		11 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/07

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210316
Date	16 March 2021 (Tuesday)
Time	9:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210311).	

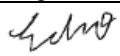

	Name	Signature	Date
Recorded by	Ms. Echo Hung		16 March 2021
Checked by	Mr. Eric Yan		17 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/07

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210323
Date	23 March 2021 (Tuesday)
Time	9:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210316).	

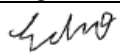

	Name	Signature	Date
Recorded by	Ms. Echo Hung		23 March 2021
Checked by	Mr. Eric Yan		24 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DC/2018/07

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210330
Date	30 March 2021 (Tuesday)
Time	9:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210323).	

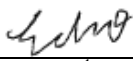

	Name	Signature	Date
Recorded by	Ms. Echo Hung		30 March 2021
Checked by	Mr. Eric Yan		31 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/03

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210302
Date	2 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210223).	

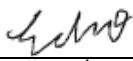

	Name	Signature	Date
Recorded by	Ms. Echo Hung		2 March 2021
Checked by	Mr. Eric Yan		3 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/03

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210309
Date	9 March 2021 (Tuesday)
Time	10:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210302).	

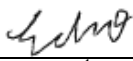

	Name	Signature	Date
Recorded by	Ms. Echo Hung		9 March 2021
Checked by	Mr. Eric Yan		10 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/03

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210316
Date	16 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210309).	

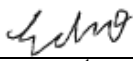

	Name	Signature	Date
Recorded by	Ms. Echo Hung		16 March 2021
Checked by	Mr. Eric Yan		17 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/03

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210323
Date	23 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210316).	

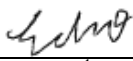

	Name	Signature	Date
Recorded by	Ms. Echo Hung		23 March 2021
Checked by	Mr. Eric Yan		24 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/03

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210330
Date	30 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210323).	

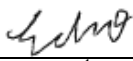

	Name	Signature	Date
Recorded by	Ms. Echo Hung		30 March 2021
Checked by	Mr. Eric Yan		31 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/04

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210302
Date	2 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210223).	

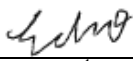

	Name	Signature	Date
Recorded by	Ms. Echo Hung		2 March 2021
Checked by	Mr. Eric Yan		3 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/04

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210309
Date	9 March 2021 (Tuesday)
Time	10:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210302).	

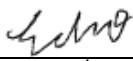

	Name	Signature	Date
Recorded by	Ms. Echo Hung		9 March 2021
Checked by	Mr. Eric Yan		10 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/04

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210316
Date	16 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210309).	

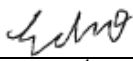

	Name	Signature	Date
Recorded by	Ms. Echo Hung		16 March 2021
Checked by	Mr. Eric Yan		17 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/04

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210323
Date	23 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
210323-R1	• Chemicals should be stored in drip tray at Portion B-3-B.	E6iv
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	No follow-up items from the previous site inspection (ref no.: 210316).	



	Name	Signature	Date
Recorded by	Ms. Echo Hung		23 March 2021
Checked by	Mr. Eric Yan		24 March 2021

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1
Contract No. DE/2018/04

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	210330
Date	30 March 2021 (Tuesday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Water Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>C. Air Quality</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>D. Noise</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>E. Waste / Chemical Management</i>	
210330-R1	• Waste accumulated should be removed at Portion B-3-B.	E2iii
	<i>F. Ecology and Fisheries</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>H. Permits /Licences</i>	
	• No environmental deficiency was identified during the site inspection.	
	<i>I. Others</i>	
	Following up on the previous site inspection (ref no.: 210323): Item 210323-R1 was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Ms. Echo Hung		30 March 2021
Checked by	Mr. Eric Yan		31 March 2021

**APPENDIX L
WASTE FLOW TABLE**

Monthly Summary Waste Flow Table for 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
Jan	10.034	0.000	0.000	8.257	1.777	0.606	0.000	0.000	0.002	0.000	0.038
Feb	3.703	0.000	0.000	2.871	0.833	0.071	2.120	0.000	0.000	0.000	0.024
Mar	4.644	0.000	0.000	2.190	2.454	0.037	0.000	0.000	0.006	0.000	0.044
Apr											
May											
Jun											
Sub-total	18.381	0.000	0.000	13.317	5.064	0.714	2.120	0.000	0.008	0.000	0.106
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	18.381	0.000	0.000	13.317	5.064	0.714	2.120	0.000	0.008	0.000	0.106

- Notes:
1. Assume the density of soil fill is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³.
 3. Assume the density of general refuse is 0.9 ton/m³.
 4. Assume density of waste oil is assumed to be 0.8 kg/L.
 5. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
 6. The slurry and bentonite are disposed at Tseung Kwun O 137.
 7. The non-inert C&D wastes are disposed at NENT.

Monthly Summary Waste Flow Table for 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0.836	0.000	0.000	0.000	0.836	0.301	21.25	0.000	0.002	0.000	0.006
Feb	0.911	0.000	0.000	0.000	0.911	0.376	39.35	0.000	0.000	0.000	0.007
Mar	0.954	0.000	0.000	0.000	0.954	0.202	0.00	0.000	0.003	0.000	0.016
Apr											
May											
Jun											
Sub-total	2.701	0.000	0.000	0.000	2.701	0.879	60.60	0.000	0.005	0.000	0.029
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	2.701	0.000	0.000	0.000	2.701	0.879	60.60	0.000	0.005	0.000	0.029

- Notes:
1. Assume the density of soil fill and special waste (i.e. sediment from DSD sedimentation tank) is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³
 3. Assume the density of general refuse is 0.9 ton/m³
 4. Density of waste oil is assumed to be 0.8 kg/L. Chemical waste includes waste oil.
 5. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38
 6. The slurry and bentonite are disposed at Tseung Kwun O 137
 7. The non-inert C&D wastes, including general refuse & special waste (i.e. sediment from DSD sedimentation tank) are disposed at NENT

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA

- Notes:
- (1) The performance targets are given in PS Clause 6A.27.8(14).
 - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (PS Clause 6.21.7(4)(b) refer

Monthly Summary Waste Flow Table for 2021 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)
Jan	230.16	0	0	0	230.16	0	0	0	0	0	1.54
Feb	175.98	0	100	0	75.98	0	0	0	0	0	3.63
Mar	11.98	0	0	0	11.98	0	0	0	0	0	1.35
Apr											
May											
June											
Sub-total	418.12	0	100	0	318.12	0	0	0	0	0	6.52
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	418.12	0	100	0	318.12	0	0	0	0	0	6.52

APPENDIX M
EVENT AND ACTION PLANS

Appendix M - Event Action Plans

Table M-1 Event/Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
Action level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Appendix M - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	<p>arrange meeting with IEC and ER;</p> <p>8. If exceedance stops, cease additional monitoring.</p>			
Limit level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification;

Appendix M - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	<p>4. Increase monitoring frequency to daily;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>necessary to assure their effectiveness and advise the ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>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.</p>	<p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Appendix M - Event Action Plans

Table M-2 Event/Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals;

Appendix M - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	<p>Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>3. Supervise the implementation of remedial measures.</p>	<p>4. Ensure remedial measures properly implemented;</p> <p>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.</p>	<p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Appendix M - Event Action Plans

Table M-3 Event/Action Plan for Ecology

Action Level	Response	Limit Level	Response
<i>Construction Phase</i>			
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to the Project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to the Project instigate remedial action.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to the Project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to the Project instigate remedial action.

Appendix M - Event Action Plans

Table M-4 Event/Action Plan for Landscape and Visual

Event	Action			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss remedial actions with IEC, ER and Contractor 3. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement.

Appendix M - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the Contractor, IEC and ER; 3. Discuss inspection frequency; 4. Discuss remedial actions with IEC, ER and Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If non-conformity stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.

**APPENDIX N
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Air Quality Impact							
S2.3.1.3	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <p>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</p> <p>Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</p> <p>A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones;</p> <p>The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</p> <p>Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</p> <p>When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period.</p> <p>The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</p>	To minimize the dust impact	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Air Pollution Control Ordinance (APCO) and Air Pollution Control (Construction Dust) Regulation	^ ^ ^ ^ ^ ^ ^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S2.3.1.3	Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;	To minimize the dust impact	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Air Pollution Control Ordinance (APCO) and Air Pollution Control (Construction Dust) Regulation	^
	Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;						^
	Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;						N/A
	Any skip hoist for material transport should be totally enclosed by impervious sheeting;						N/A
	Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;						N/A
	Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;						N/A
	Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and						N/A
	Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Noise Impact							
S3.2.1.1	Use of movable barrier, enclosure, acoustic mat and quiet plant. Use of wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m ² on a skid footing with 25mm thick internal sound absorptive lining.	To minimize construction noise impact arising from the Project at the affected noise sensitive receivers (NSRs)	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, Noise Control Ordinance (NCO)	^
S3.2.1.2	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, NCO	^
	Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.						^
	Mobile plant, if any, should be sited as far away from NSRs as possible.						^
	Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.						^
	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.						^
	Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.						N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Ecological Impact							
S4.2.1.1	Solid dull green noise/visual barriers of at least 2m high shall be erected and maintained between active works area and all areas of ecological importance.	Minimize noise and human disturbances during construction phase.	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.2	Avoid unnecessary lighting.	Minimize mortality impacts on birds.	Design / Contractor/ Plant Operator	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.3	Good construction site practice to minimise dust generation should be followed on all construction sites. Measures to avoid, minimise and mitigate impacts on air quality are detailed in this schedule	Minimize dust generation from construction sites.	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.4	Temporary sewerage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies;	Avoid, minimise and mitigate impact on water quality	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
	Proper locations well away from nearby water bodies should be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpiles of construction debris and spoil, and these should be identified before commencement of works;						^
	To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies should be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work sites;						^
	Construction debris and spoil should be covered and/or properly disposed of as soon as possible to avoid these being washed into nearby water bodies;						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S4.2.1.4	Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified;	Avoid, minimise and mitigate impact on water quality	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
	Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies;						^
	Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited;						^
	Regular water monitoring and site audit should be carried out at adequate points along any watercourses where construction works are underway upstream within their catchments and also on the Ng Tung, Sheung Yue and Shek Sheung Rivers. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works should be considered;						^
	Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety;						^
	Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means;						N/A
	Stockpiling sites should be lined with impermeable sheeting and banded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and						^
	Supply of suitable clean backfill material after excavation, if required.						N/A
	Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent discharge during transport or during wet season;						^
	Speed control for the trucks carrying contaminated materials should be enforced;						^
	Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Water Quality Impact							
S5.2.2.1	Construction Site Runoff Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.	Control construction runoff	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	*
S5.2.2.2 – S5.2.2.3	<p>Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p> <p>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures</p>	Handling of site sewage	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Waste Management							
S6.2.2.1	Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;	Minimize waste generation during construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal Ordinance (WDO)	^
	Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;						^
	Provision of sufficient waste disposal points and regular collection for disposal;						^
	Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;						^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;						^
	An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Supervisor for approval.						^
S6.2.3.1	Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Reduce waste generation	Contractor	Work Sites	Prior to the commencement of construction of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	Proper storage and site practices to minimize the potential for damage and contamination of construction materials;						^
	Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;						^
	Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and						^
	Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
6.2.4.1	Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and						^
	Different locations should be designated to stockpile each material to enhance reuse.						^
S6.2.4.2	Remove waste in timely manner;	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	#
	Employ the trucks with cover or enclosed containers for waste transportation						^
	Obtain relevant waste disposal permits from the appropriate authorities						^
	Disposal of waste should be done at licensed waste disposal facilities.						^
S6.2.5.2	Maintain temporary stockpiles and reuse excavated fill material for backfilling;	Minimize waste impacts from excavated and C&D materials	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^
	Carry out on-site sorting;						^
	Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;						^
	Adopt “selective demolition” technique to demolish the existing structure and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; and						N/A
	Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.						^
S6.2.5.3	The Contractor should recycle as much as possible of the C&DM on-site. Public fill and C&DM waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. For example, concrete and masonry can be crushed and used as fill, and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites should be designated for such segregation and storage.	Minimize waste impacts from building demolition and new building construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S6.2.5.3	The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used.	Minimize waste impacts from building demolition and new building construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^
	Government has developed a charging policy for the disposal of waste to landfill at present. It will provide additional incentive to reduce the volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented.						^
	In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously. To facilitate proper segregation of inert and non-inert C&D material arising from demolition works, selective demolition method should be adopted.						^
S6.2.5.4	If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers.	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^
	Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.						^
S6.2.5.5	General refuse should be stored in enclosed bins separately from construction and chemical wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal (Chemical Waste General) Regulation	^
	Recycling bins should also be placed to encourage recycling.						^
	Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.						^
	A reputable waste collector should be employed to remove general refuse on a daily basis.						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Landscape and Visual							
S7.3.1.1	<p>For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to.</p> <p>With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites.</p>	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
S7.3.2.1	<p>MM4 – Tree Protection & Preservation</p> <p>Existing trees to be retained within the Project Site should be carefully protected during construction. In particular Old and Valuable Trees (OVTs) will be preserved according to ETWB TC (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor’s works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.</p>	Protect and Preserve Trees	Designer / Contractor	Work Sites	Prior to construction and construction phase	ETWB TCW No. 29/2004 and DEVB TC(W) No.7/2015	^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	<p>MM5 - Tree Transplantation</p> <p>Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC No. 2/2004 and DEVB TC(W) No. 7/2015 and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.</p>	Transplant Trees where suitable for transplantation	Designer / Contractor	Work Sites where possible. Otherwise consider offsite locations	Prior to construction, construction phase and operation phase	<p>DEVB TC(W) No. 7/2015 and ETWB TCW No.2/2004</p> <p>HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit</p>	^
S7.3.2.1	<p>MM6 - Slope Landscaping</p> <p>Site formation should be reduced as far as possible. Hydroseeding of modified slopes should be done as soon as grading works are completed to prevent erosion and subsequent loss of landscape resources and character. Woodland tree seedings and/or shrubs should be planted where slope gradient and site conditions allow.</p>	<p>To avoid substantial slope cutting and fill slopes.</p> <p>To prevent erosion and subsequent loss of landscape resources and character.</p> <p>To ensure man-made slopes are as visually amenable as possible.</p>	Designer / Contractor	Work Sites	Prior to construction, construction phase and operation phase	<p>GEO Publication (1999) - Use of Vegetation as Surface Protection on Slope;</p> <p>GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes</p>	N/A
	<p>In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping works should comply with GWO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes.</p>						N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	MM7 - Compensatory Planting Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under DEVB TC(W) No. 7/2015.	Compensate for trees and shrubs lost due to the Project	Designer / Contractor	Work Sites where possible. Otherwise consider offsite locations	Prior to construction, construction phase and operation phase	DEVB TC(W) No. 7/2015 and ETWB TCW No. 2/2004	N/A
	Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots.						N/A
	Compensatory planting for shrubs should be considered in suitable locations. Native species such as <i>Melastoma malabathricum</i> , <i>Diospyros vaccinioides</i> , <i>Gardenia jasminoides</i> , <i>Ixora chinensis</i> , <i>Ligustrum sinense</i> , <i>Litsea rotundifolia</i> , <i>Melastoma dodecandrum</i> , <i>Atalantia buxifolia</i> , <i>Rhodomirtus tomentosa</i> , <i>Rhaphiolepis indica</i> , and <i>Rhododendron simsii</i> are suggested.						N/A
S7.3.2.1	MM9 - Vertical Greening Planting of climbers to grow up vertical surfaces were appropriate.	Soften hard surfaces and facilities	Designer / Contractor	On appropriate structures	Prior to construction, construction phase and operation phase	ETWB TCW No.11/2004 – Cyber Manual for Greening	N/A
S7.3.2.1	MM10 - Green Roof Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to visually sensitive receivers (VSRs) at high levels. Provide greening.	Designer / Contractor	On appropriate buildings	Prior to construction, construction phase and operation phase	CIBSE HK Branch, Technical Guidelines for Green Roof Systems in Hong Kong (2011); ArchSD/Urban Study on Green Roof Application in HK (2007)	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	MM11 - Screen Planting Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Designer / Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the structures.	Prior to construction, construction phase and operation phase	ETWB TCW No. 10/2013 and 3/2006	N/A
S7.3.2.1	MM16 - Screen Hoarding Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence.	To screen undesirable views of the works site.	Designer	Work Sites	Construction phase		^
S7.3.2.1	MM17 - Light Control Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	To minimize glare impact to adjacent VSRs.	Designer / Contractor	Work Sites and/or the Plant	Construction phase and operation phase		^

Remarks: EM&A Programme under FEP-02/474/2013	
^	Compliance of mitigation measure;
N/A N/A(1)	Not applicable at this stage; Not observed;
*	Recommendation was made during site audit but improved/retified by the contractor;
#	Recommendation was made during site audit but not yet improved/retified by the contractor;
X	Non-compliance of mitigation measure;
•	Non-compliance but rectified by the contractor.

**APPENDIX O
SUMMARIES OF ENVIRONMENTAL
COMPLAINT, WARNING, SUMMON
AND NOTIFICATION OF SUCCESSFUL
PROSECUTION**

Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Appendix O – Summary of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution

Reporting Month: March 2021

Log Ref.	Location	Received Date	Details of Complaint/Warning/Summon and Prosecution	Investigation/Mitigation Action	Status
1	Expansion Site of SWHSTP (Portion C)	18 March 2020	Muddy water was suspected to be discharged from the expansion site of SWHSTP to Shek Sheung River, manholes and foul drains nearby	<ul style="list-style-type: none"> • Employed suction truck and dump truck to clear the silt and mud at Shek Sheung River • Arranged to repair the wastewater treatment system • Installed additional sedimentation tanks and wastewater treatment system to increase the on-site treatment capacity • Clean the slurry sediment released from the outlet regularly by suction trucks • Avoid damage of underground drains and pipes caused by existing construction works • Avoid illegal discharge from the Site into foul drains and manholes 	Complaint Investigation Report (CIR) was submitted in April 2020

Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Appendix O – Summary of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution

Log Ref.	Location	Received Date	Details of Complaint/Warning/Summon and Prosecution	Investigation/Mitigation Action	Status
2	SWHEPP	19 February 2021	Significant odour nuisance was suspected to be emitted from the construction activities of SWHEPP	<ul style="list-style-type: none"> • Ensured only PMEs with valid NRMM label were used on-site • Conducted regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart • Used ULSD for diesel-powered equipment • Provided water spraying and water sprinklers system for haul road access and demolition works • Used battery powered solution to provide power to the tower crane • Provided cover for all rubbish bins on-site • Separated general refuse from construction waste 	CIR was submitted in March 2021

Remarks: No environmental complaint/warning/summon and prosecution was received in the reporting period.

APPENDIX P
SUMMARY OF EXCEEDANCE

Agreement No. SPW 07/2019

Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Appendix P – Summary of Exceedance

Reporting Month: March 2021

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

(C) Exceedance Report for Ecology
No Action Level of ecological monitoring was triggered in the reporting month.
One (1) Limit Level of ecological monitoring was triggered in the reporting month.

**APPENDIX Q
TENTATIVE CONSTRUCTION
PROGRAMME**

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Complete	Time Risk Allowan	Gantt Chart (May 8/4 to May 9/6)																
1		Contract Dates	1956 days	Mon 16/9/19	Wed 22/1/25	Mon 16/9/19	NA	0 days			36%		16/9	16/9	24/2	3/8	11/1	21/6	29/11	9/5	17/10	27/3	4/9	12/2	22/7	30/12	9/6	22/1	
2		Starting Date	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days		4,5FS+181 days,6,7,8,9,1	100%		16/9	16/9															
3		Access Date (cal. day)	180 days	Mon 16/9/19	Sat 14/3/20	Mon 16/9/19	Sat 14/3/20	0 days			100%		16/9	16/9	14/3														
4		Portion A-1	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
5		Portion A-2	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2FS+181 days		100%		16/9	16/9															
6		Portion C-1A	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
7		Portion C-1B	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
8		Portion C-2A	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
9		Portion C-2B	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
10		Portion C-2C	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
11		Portion C-2D	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
12		Portion C-3	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
13		Portion C-4	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
14		Portion C-5	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
15		Portion C-6	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
16		Works Area WA1	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
17		Works Area WA2-A	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%		16/9	16/9															
18		Key Date (cal. day)	840 days	Tue 17/9/19	Mon 3/1/22	Tue 17/9/19	NA	0 days			45%		17/9	17/9															
19		KD1A (525 days after starting date)	525 days	Tue 17/9/19	Mon 22/2/21	Tue 17/9/19	NA	0 days	2FS+1 day	55	63%		17/9	17/9															
20		KD2A (660 days after starting date)	660 days	Tue 17/9/19	Wed 7/7/21	Tue 17/9/19	NA	0 days	2FS+1 day	61	50%		17/9	17/9															
21		KD3A (740 days after starting date)	740 days	Tue 17/9/19	Sat 25/9/21	Tue 17/9/19	NA	-119.5 days	2FS+1 day	67	42%		17/9	17/9															
22		KD3B (725 days after starting date)	725 days	Tue 17/9/19	Fri 10/9/21	Tue 17/9/19	NA	-111.5 days	2FS+1 day	73	42%		17/9	17/9															
23		KD3C (750 days after starting date)	750 days	Tue 17/9/19	Tue 5/10/21	Tue 17/9/19	NA	-112.5 days	2FS+1 day	78	41%		17/9	17/9															
24		KD3D (660 days after starting date)	660 days	Tue 17/9/19	Wed 7/7/21	Tue 17/9/19	NA	-118.5 days	2FS+1 day	83	47%		17/9	17/9															
25		KD3E (840 days after starting date)	840 days	Tue 17/9/19	Mon 3/1/22	Tue 17/9/19	NA	-116.5 days	2FS+1 day	88	37%		17/9	17/9															
26		Completion Date (cal. day)	1955 days	Tue 17/9/19	Wed 22/1/25	Tue 17/9/19	NA	0 days			29%		17/9	17/9															
27		Section 1 of Works (675 days after starting date)	675 days	Tue 17/9/19	Thu 22/7/21	Tue 17/9/19	NA	0 days	2FS+1 day	93	82%		17/9	17/9															
28		Section 2 of Works (1,295 days after starting date)	1295 days	Tue 17/9/19	Mon 3/4/23	Tue 17/9/19	NA	0 days	2FS+1 day	99	25%		17/9	17/9															
29		Section 3 of Works (1,120 days after starting date)	1120 days	Tue 17/9/19	Mon 10/10/22	Tue 17/9/19	NA	-121.5 days	2FS+1 day	105	28%		17/9	17/9															
30		Section 4 of Works (900 days after starting date)	900 days	Tue 17/9/19	Fri 4/3/22	Tue 17/9/19	NA	-122.5 days	2FS+1 day	111	35%		17/9	17/9															
31		Section 5 of Works (1,590 days after starting date)	1590 days	Tue 17/9/19	Tue 23/1/24	Tue 17/9/19	NA	-123.5 days	2FS+1 day	32,33,117	20%		17/9	17/9															
32		Defect Liability Period	365 days	Wed 24/1/24	Wed 22/1/25	NA	NA	0 days	31		0%		17/9	17/9															
33		Soft Landscape Establishment Works	365 days	Wed 24/1/24	Wed 22/1/25	NA	NA	0 days	31		0%		17/9	17/9															
34	*	Planned Completion - Key Date (cal. day)	264.5 days	Wed 8/9/21	Tue 31/5/22	NA	NA	-198 days			0%		17/9	17/9															
35		KD1A (525 days after starting date)	0 days	Wed 8/9/21	Wed 8/9/21	NA	NA	-198 days	53FF,246FF,460FF		0%		17/9	17/9															
36		KD2A (660 days after starting date)	0 days	Thu 18/11/21	Thu 18/11/21	NA	NA	-134 days	59FF,514FF,515FF		0%		17/9	17/9															
37		KD3A (740 days after starting date)	0 days	Mon 4/4/22	Mon 4/4/22	NA	NA	-191 days	65FF,267FF		0%		17/9	17/9															
38		KD3B (725 days after starting date)	0 days	Tue 1/3/22	Tue 1/3/22	NA	NA	-171.5 days	71FF,288FF		0%		17/9	17/9															
39		KD3C (750 days after starting date)	0 days	Thu 27/1/22	Thu 27/1/22	NA	NA	-113.5 days	76FF,301FF		0%		17/9	17/9															
40		KD3D (660 days after starting date)	0 days	Sat 30/10/21	Sat 30/10/21	NA	NA	-115 days	81FF,329FF		0%		17/9	17/9															
41		KD3E (840 days after starting date)	0 days	Tue 31/5/22	Tue 31/5/22	NA	NA	-147.5 days	86FF,314FF,342FF,348FF,354f		0%		17/9	17/9															
42	*	Planned Completion - Section of the Works (cal. day)	1298 days	Tue 16/11/21	Fri 6/6/25	NA	NA	-116.5 days			0%		17/9	17/9															
43		SW1 Section 1 of Works (675 days after starting date)	0 days	Tue 16/11/21	Tue 16/11/21	NA	NA	-116.5 days	91FF,433FF		0%		17/9	17/9															
44		SW2 Section 2 of Works (1,295 days after starting date)	0 days	Mon 7/8/23	Mon 7/8/23	NA	NA	-125.5 days	97FF,520FF,532FF		0%		17/9	17/9															
45		SW3 Section 3 of Works (1,120 days after starting date)	0 days	Fri 10/2/23	Fri 10/2/23	NA	NA	-122.5 days	103FF,170FF,303FF,315FF,331		0%		17/9	17/9															
46		SW4 Section 4 of Works (900 days after starting date)	0 days	Fri 8/7/22	Fri 8/7/22	NA	NA	-125.5 days	109FF,367FF,372FF,376FF,41;482		0%		17/9	17/9															
47		SW5 Section 5 of Works (1,590 days after starting date)	0 days	Thu 6/6/24	Thu 6/6/24	NA	NA	-134.5 days	115FF,248FF,271FF,291FF,30;48,49		0%		17/9	17/9															
48		Defect Liability Period	365 days	Thu 6/6/24	Fri 6/6/25	NA	NA	0 days	47		0%		17/9	17/9															
49		Soft Landscape Establishment Works	365 days	Thu 6/6/24	Fri 6/6/25	NA	NA	0 days	47		0%		17/9	17/9															
50		Delaying Events Other than Change of Works Information	964.5 days	Tue 23/2/21	Thu 6/6/24	NA	NA	-99.5 days			0%		17/9	17/9															
51		Inclement Weather to KD1A	87.5 days	Sat 6/3/21	Thu 24/6/21	NA	NA	-97.5 days			0%		17/9	17/9															
52		Delay and Disruption of Works before Feb 2021	84.5 days	Sat 6/3/21	Mon 21/6/21	NA	NA	-97.5 days	56	53	0%		17/9	17/9															

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Complete	Time Risk Allowance	May		January		September		May		January		September		May	
													8/4	16/9	24/2	3/8	11/1	21/6	29/11	9/5	17/10	27/3	4/9	12/2	22/7	30/12
68		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Tue 5/10/21	Fri 8/10/21		NA	-99.5 days	67	64	0%															
69		Inclement Weather to KD3B	89.5 days	Thu 16/9/21	Wed 5/1/22		NA	-93.5 days			0%															
70		Delay and Disruption of Works before Feb 2021	86.5 days	Thu 16/9/21	Fri 31/12/21		NA	-93.5 days	73	71	0%															
71	KD3B	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Fri 31/12/21	Wed 5/1/22		NA	-93.5 days	70	38FF	0%															
72		Other Events affected to KD3B	4 days	Sat 11/9/21	Wed 15/9/21		NA	-93.5 days			0%															
73		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Sat 11/9/21	Wed 15/9/21		NA	-93.5 days	22	70	0%															
74		Inclement Weather to KD3C	89.5 days	Mon 11/10/21	Thu 27/1/22		NA	-93.5 days			0%															
75		Delay and Disruption of Works before Feb 2021	86.5 days	Mon 11/10/21	Mon 24/1/22		NA	-93.5 days	78	76	0%															
76	KD3C	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Mon 24/1/22	Thu 27/1/22		NA	-93.5 days	75	39FF	0%															
77		Other Events affected to KD3C	4 days	Wed 6/10/21	Sat 9/10/21		NA	-93.5 days			0%															
78		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Wed 6/10/21	Sat 9/10/21		NA	-93.5 days	23	75	0%															
79		Inclement Weather to KD3D	89.5 days	Tue 13/7/21	Thu 28/10/21		NA	-93.5 days			0%															
80		Delay and Disruption of Works before Feb 2021	86.5 days	Tue 13/7/21	Mon 25/10/21		NA	-93.5 days	83	81	0%															
81	KD3D	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Mon 25/10/21	Thu 28/10/21		NA	-93.5 days	80	40FF	0%															
82		Other Events affected to KD3D	4 days	Thu 8/7/21	Mon 12/7/21		NA	-93.5 days			0%															
83		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Thu 8/7/21	Mon 12/7/21		NA	-93.5 days	24	80	0%															
84		Inclement Weather to KD3E	89.5 days	Sat 8/1/22	Sat 30/4/22		NA	-93.5 days			0%															
85		Delay and Disruption of Works before Feb 2021	86.5 days	Sat 8/1/22	Wed 27/4/22		NA	-93.5 days	88	86	0%															
86	KD3E	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Wed 27/4/22	Sat 30/4/22		NA	-93.5 days	85	41FF	0%															
87		Other Events affected to KD3E	4 days	Tue 4/1/22	Fri 7/1/22		NA	-93.5 days			0%															
88		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Tue 4/1/22	Fri 7/1/22		NA	-93.5 days	25	85	0%															
89		Inclement Weather to Section 1 of the Works	86.5 days	Wed 4/8/21	Tue 16/11/21		NA	-96.5 days			0%															
90		Delay and Disruption of Works before Feb 2021	83.5 days	Wed 4/8/21	Fri 12/11/21		NA	-96.5 days	94	91	0%															
91	SW1	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Fri 12/11/21	Tue 16/11/21		NA	-96.5 days	90	43FF	0%															
92		Other Events affected to Section 1 of the Works	10 days	Fri 23/7/21	Tue 3/8/21		NA	-96.5 days			0%															
93		Unforeseen Social Activities in Hong Kong in November 2019 (NCE no.0003)	6 days	Fri 23/7/21	Thu 29/7/21		NA	-96.5 days	27	94	0%															
94		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Fri 30/7/21	Tue 3/8/21		NA	-96.5 days	93	90	0%															
95		Inclement Weather to Section 2 of the Works	89.5 days	Thu 20/4/23	Mon 7/8/23		NA	-99.5 days			0%															
96		Delay and Disruption of Works before Feb 2021	86.5 days	Thu 20/4/23	Thu 3/8/23		NA	-99.5 days	100	97	0%															
97	SW2	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Thu 3/8/23	Mon 7/8/23		NA	-99.5 days	96	44FF	0%															
98		Other Events affected to Section 2 of the Works	10 days	Tue 4/4/23	Wed 19/4/23		NA	-99.5 days			0%															
99		Unforeseen Social Activities in Hong Kong in November 2019 (NCE no.0003)	6 days	Tue 4/4/23	Fri 14/4/23		NA	-99.5 days	28	100	0%															
100		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Sat 15/4/23	Wed 19/4/23		NA	-99.5 days	99	96	0%															
101		Inclement Weather to Section 3 of the Works	89.5 days	Sat 22/10/22	Fri 10/2/23		NA	-99.5 days			0%															
102		Delay and Disruption of Works before Feb 2021	86.5 days	Sat 22/10/22	Tue 7/2/23		NA	-99.5 days	106	103	0%															
103	SW3	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Tue 7/2/23	Fri 10/2/23		NA	-99.5 days	102	45FF	0%															
104		Other Events affected to Section 3 of the Works	10 days	Tue 11/10/22	Fri 21/10/22		NA	-99.5 days			0%															
105		Unforeseen Social Activities in Hong Kong in November 2019 (NCE no.0003)	6 days	Tue 11/10/22	Mon 17/10/22		NA	-99.5 days	29	106	0%															
106		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Tue 18/10/22	Fri 21/10/22		NA	-99.5 days	105	102	0%															
107		Inclement Weather to Section 4 of the Works	89.5 days	Thu 17/3/22	Fri 8/7/22		NA	-99.5 days			0%															
108		Delay and Disruption of Works before Feb 2021	86.5 days	Thu 17/3/22	Tue 5/7/22		NA	-99.5 days	112	109	0%															
109	SW4	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Tue 5/7/22	Fri 8/7/22		NA	-99.5 days	108	46FF	0%															
110		Other Events affected to Section 4 of the Works	10 days	Sat 5/3/22	Wed 16/3/22		NA	-99.5 days			0%															
111		Unforeseen Social Activities in Hong Kong in November 2019 (NCE no.0003)	6 days	Sat 5/3/22	Fri 11/3/22		NA	-99.5 days	30	112	0%															
112		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus (PMI no.005)	4 days	Sat 12/3/22	Wed 16/3/22		NA	-99.5 days	111	108	0%															
113		Inclement Weather to Section 5 of the Works	89.5 days	Mon 5/2/24	Thu 6/6/24		NA	-99.5 days			0%															
114		Delay and Disruption of Works before Feb 2021	86.5 days	Mon 5/2/24	Mon 3/6/24		NA	-99.5 days	118	115	0%															
115	SW5	Delay and Disruption of Works for the month of Feb 2021 (NCE no.165)	3 days	Mon 3/6/24	Thu 6/6/24		NA	-99.5 days	114	47FF	0%															
116		Other Events affected to Section 5 of the Works	10 days	Wed 24/1/24	Sat 3/2/24		NA	-99.5 days			0%															
117		Unforeseen Social Activities in Hong Kong in November 2019 (NCE no.0003)	6 days	Wed 24/1/24	Tue 30/1/24		NA	-99.5 days	31	118	0%															

Critical Split Task Milestone Summary Critical

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Complete	Time Risk Allowan	May 8/4	16/9	January 24/2	September 3/8	11/1	May 21/6	January 29/11	September 9/5	17/10	May 27/3	4/9	January 12/2	September 22/7	30/12	May 9/6	
181		Prepare and submit the Procurement Procedure	34 days	Mon 16/9/19	Sat 19/10/19	Mon 16/9/19	Sat 19/10/19	0 days	2	182	100%		16/9	19/10														
182		PM Review & Accept Procurement Procedure	0 days	Sat 19/10/19	Sat 19/10/19	Sat 19/10/19	Sat 19/10/19	0 days	181	183,200,204,205,206,207	100%																	
183		Pipe works material	408 days	Fri 8/11/19	Sat 19/12/20	Fri 8/11/19	NA	8 days	182		78%		8/11															
184		Prepare & submit concrete pipe material particular	199 days	Tue 12/11/19	Tue 28/5/20	Tue 12/11/19	Thu 28/5/20	0 days	2	185	100%		12/11															
185		Approval of concrete pipe material	205 days	Thu 28/5/20	Sat 19/12/20	Thu 28/5/20	Sat 19/12/20	0 days	184	186	100%																	
186		Procurement, deliver & testing of concrete pipe material (1st batch)	0 days	Fri 8/11/19	Mon 25/11/19	Fri 8/11/19	Mon 25/11/19	0 days	185	428,429	100%																	
187		Procurement, deliver & testing of concrete pipe material (remaining)	247 days	Mon 16/12/19	Tue 18/8/20	Mon 16/12/19	NA	127 days		469	29%		16/12															
188		Prepare & submit ductile iron pipe material particular	90 days	Thu 19/12/19	Tue 17/3/20	Thu 19/12/19	Tue 17/3/20	0 days	2	189	100%		19/12															
189		Approval of ductile iron pipe material	28 days	Tue 17/3/20	Tue 14/4/20	Tue 17/3/20	Tue 14/4/20	0 days	188	190	100%																	
190		Procurement, deliver & testing of ductile iron pipe material	0 days	Wed 18/12/19	Tue 21/1/20	Wed 18/12/19	Tue 21/1/20	0 days	189	471	100%																	
191		Prepare & submit HDPE pipe material particular	127 days	Tue 21/1/20	Tue 26/5/20	Tue 21/1/20	Tue 26/5/20	0 days	2FS+120 days	192	100%		21/1															
192		Approval of HDPE pipe material	21 days	Tue 26/5/20	Tue 16/6/20	Tue 26/5/20	Tue 16/6/20	0 days	191	193	100%																	
193		Procurement, deliver & testing of HDPE pipe material	0 days	Fri 8/5/20	Mon 8/6/20	Fri 8/5/20	Mon 8/6/20	0 days	192	470,471	100%																	
194		Prepare & submit stainless steel pipe material particular	8 days	Fri 1/5/20	Fri 8/5/20	Fri 1/5/20	Fri 8/5/20	0 days	2	195	100%																	
195		Approval of stainless steel pipe material	21 days	Sat 9/5/20	Wed 5/8/20	Sat 9/5/20	Wed 5/8/20	0 days	194	196	100%																	
196		Procurement, deliver & testing of stainless steel pipe material	90 days	Wed 5/8/20	Tue 3/11/20	NA	NA	54.8 days	195	468	0%																	
197		Prepare & submit mild steel pipe material particular	1 day	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	0 days	2	198	100%		19/12															
198		Approval of mild steel pipe material	30 days	Thu 19/12/19	Sat 18/1/20	Thu 19/12/19	Sat 18/1/20	0 days	197	199	100%																	
199		Procurement, deliver & testing of mild steel pipe material	133 days	Mon 9/12/19	Sat 30/5/20	Mon 9/12/19	Sat 30/5/20	0 days	198	468	100%		9/12															
200		Prefabricated steel reinforcement	292.61 day	Wed 16/10/19	Mon 3/8/20	Wed 16/10/19	Mon 3/8/20	0 days	182		100%		16/10															
201		Prepare & submit steel reinforcement material particular	21 days	Wed 16/10/19	Sat 1/8/20	Wed 16/10/19	Sat 1/8/20	0 days	2FS+60 days	202	100%		16/10															
202		Approval of prefabricated steel reinforcement material supplier	60 days	Fri 6/12/19	Sat 1/8/20	Fri 6/12/19	Sat 1/8/20	0 days	201	203	100%		6/12															
203		Procurement, deliver & testing of prefabricated steel reinforcement material	180 days	Tue 4/2/20	Mon 3/8/20	Tue 4/2/20	Mon 3/8/20	0 days	202	502,412,376,371,366,360	100%		4/2															
204		Prepare, submit and approve the water proofing material	11 days	Fri 5/6/20	Mon 15/6/20	Fri 5/6/20	Mon 15/6/20	0 days	182	283,300,314,502	100%																	
205		Prepare, submit and approve the concrete mix	180 days	Fri 6/12/19	Tue 2/6/20	Fri 6/12/19	Tue 2/6/20	0 days	182	283,300,314,502	100%		6/12															
206		Prepare, submit and approve the metal works material	30 days	Mon 11/5/20	Tue 9/6/20	NA	NA	124 days	182	207,283,300,314,502	0%																	
207		Prepare, submit and approve the ABWF works material	30 days	Mon 4/1/21	Tue 2/2/21	NA	NA	198 days	206,182	247,270,290,303,315,331	0%																	
208		Site Preliminary Works	315.1 days	Mon 16/9/19	Thu 8/10/20	Mon 16/9/19	Thu 8/10/20	0 days			100%		16/9															
209		Mobilization for Hoarding	5 days	Thu 21/11/19	Tue 26/11/19	Thu 21/11/19	Tue 26/11/19	0 days	2	210	100%		21/11															
210		Hoarding Erection at Portion C	0 days	Wed 27/11/19	Sat 29/2/20	Wed 27/11/19	Sat 29/2/20	0 days	209,172,173,174,211,129		100%																	
211		Project Signboard Erection	11 days	Sun 15/12/19	Mon 30/12/19	Sun 15/12/19	Mon 30/12/19	0 days	182	210	100%		15/12															
212		Utility applications and Connection	87 days	Mon 16/9/19	Mon 30/12/19	Mon 16/9/19	Mon 30/12/19	0 days	2	213FF	100%		16/9															
213		Construction of Site Accommodation in Works Area	52 days	Thu 6/8/20	Thu 8/10/20	Thu 6/8/20	Thu 8/10/20	0 days	143,212FF,125		100%																	
214	*	Construction Works of Portion C of the Site	1526 days	Mon 16/9/19	Sat 16/11/24	Mon 16/9/19	NA	0 days			16%		16/9														16/11	
215	*	UV System No. 1 & Effluent Pumping Station No. 1	811 days	Mon 16/9/19	Tue 14/6/22	Mon 16/9/19	NA	480 days			58%		16/9														14/6	
216		Preliminary Works	114 days	Mon 16/9/19	Tue 4/2/20	Mon 16/9/19	Tue 4/2/20	0 days			100%		16/9														4/2	
217		Site Clearance & Site Set Up (NCE no. 0005, 0006)	23 days	Mon 16/9/19	Mon 14/10/19	Mon 16/9/19	Mon 14/10/19	0 days	2	218	100%		16/9														14/10	
218		Tree Felling Works	6 days	Tue 15/10/19	Sun 20/10/19	Tue 15/10/19	Sun 20/10/19	0 days	217	219	100%		15/10														20/10	
219		Trial Pit Excavation & UU Detection Works	5 days	Tue 15/10/19	Sat 19/10/19	Tue 15/10/19	Sat 19/10/19	0 days	218	220	100%		15/10														19/10	
220		Temporary Footpath Diversion	20 days	Mon 14/10/19	Tue 5/11/19	Mon 14/10/19	Tue 5/11/19	0 days	219	221,224	100%		14/10														5/11	
221		Temporary diverted footpath open to public	1 day	Tue 10/12/19	Tue 10/12/19	Tue 10/12/19	Tue 10/12/19	0 days	220	223,222	100%		10/12														10/12	
222		Additional Liaison and diversion of HyD Street Light Cables (NCE no. 0007)	28 days	Sat 30/11/19	Sat 4/1/20	Sat 30/11/19	Sat 4/1/20	0 days	221	223	100%		30/11														4/1	
223		Removal of Existing Street light and Provision of Temporary Street light (PMI no.005, NCE no. 0022)	8 days	Thu 23/1/20	Tue 4/2/20	Thu 23/1/20	Tue 4/2/20	0 days	177,221,222	428	100%																4/2	
224		Predrilling Works (8no, 1rig, 3days/drillhole/rig) (NCE no. 10)	12 days	Wed 27/11/19	Tue 10/12/19	Wed 27/11/19	Tue 10/12/19	0 days	220	225	100%		27/11														10/12	
225		Installation of Monitoring Points	1 day	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	0 days	224	227,226	100%		19/12														19/12	
226		Sheetpile Installation (FSP IV, 2200sq.m, 1 Rig)- stage 1 (NCE no. 18A, 22 & 25, 27)	97 days	Sat 4/1/20	Wed 6/5/20	Sat 4/1/20	Wed 6/5/20	0 days	225	228,230	100%	6.5,2,5,8	4/1														6/5	
227		Setting up plant for pre-bored socketed H-pile Installation	0 days	Mon 4/5/20	Thu 7/5/20	Mon 4/5/20	Thu 7/5/20	0 days	225,228SS-5 days		100%																7/5	
228		Pre-bored Socketed H-Pile Installation (34 Nos, 1 Rig, 3days/rig/pile) (NCE no. 32, 41, 49)	57 days	Thu 7/5/20	Tue 14/7/20	Thu 7/5/20	Tue 14/7/20	0 days	127,431,226	229,321,227SS-5 days,462	100%	40	7/5														14/7	
229		Pile Loading Test	26 days	Wed 15/7/20	Thu 13/8/20	Wed 15/7/20	Thu 13/8/20	0 days	228,311FS+5 days	340FS+5 days,230	100%		15/7														13/8	
230		Sheetpile Installation (FSP IV, 2200sq.m, 1 Rig)- stage 2 (NCE no. 10,55)	22 days	Fri 14/8/20	Tue 8/9/20	Fri 14/8/20	Tue 8/9/20	0 days	229,226	231FS-10 days	100%	17	14/8														8/9	
231		ELS Works (incl. Strut (4-layers) Installation & Excavation (3,700 cu.m) (NCE no.69)	48 days	Fri 28/8/20	Sat 24/10/20	Fri 28																						

Contract No. DC/2018/07 Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1																	Revised Works Programme (Status Date: 28/02/2021)																												
ID	Activity ID	Key Date	Task Name	CE for Inclement Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Gantt Chart																									
																				April	January	1st Quarter	October	July	3rd Quarter	April	January	1st Quarter	October	July	3rd Quarter	April													
1	CD-1000		Contract Dates			1585 days	Mon 18/11/19	Thu 27/3/25	2482.5 days	Mon 18/11/19	Tue 8/2/28	Mon 18/11/19	NA			0 days		5%		[Gantt Chart]																									
2	CD-1010		Starting Date			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	35FS+1461 days,36FS+901		0 days		100%		[Gantt Chart]																									
3	CAD-1000		Access Dates (cal. day)			310 days	Mon 18/11/19	Wed 23/9/20	289 days	Mon 18/11/19	Wed 2/9/20	Mon 18/11/19	Wed 2/9/20			0 days		100%		[Gantt Chart]																									
4	CAD-1010		Portion B-1 (Access Road AR3)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	211		0 days		100%		[Gantt Chart]																									
5	CAD-1020		Portion B-1A (Area for the works for Sidestream Treatment Facilities by Others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%		[Gantt Chart]																									
6	CAD-1030		Portion B-2 (Inlet Works No.1)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	306,317		0 days		100%		[Gantt Chart]																									
7	CAD-1040		Portion B-2A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%		[Gantt Chart]																									
8	CAD-1050		Portion B-3 (Primary Sedimentation Tanks No. 1-4)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	343		0 days		100%		[Gantt Chart]																									
9	CAD-1060		Portion B-4 (Bioreactor No. 2A & 2B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	358		0 days		100%		[Gantt Chart]																									
10	CAD-1070		Portion B-5 (Membrane Facilities Building No.2)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20	394,411,416		0 days		100%		[Gantt Chart]																									
11	CAD-1080		Portion B-6 (SAS Pumping Station)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	425		0 days		100%		[Gantt Chart]																									
12	CAD-1090		Portion B-7 (Ancillary structures)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	447		0 days		100%		[Gantt Chart]																									
13	CAD-1100		Portion B-7A (Alternation works for existing Power House)			0 days	Wed 2/9/20	Wed 2/9/20	0 days	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	510FS-1 day,29FS+151 days		0 days		100%		[Gantt Chart]																									
14	CAD-1110		Portion B-8 (Alternation for existing Membrane Facilities Building No.1)			0 days	Wed 22/9/20	Wed 22/9/20	0 days	Wed 22/9/20	Wed 22/9/20	Wed 22/9/20	Wed 22/9/20	512FS-1 day		0 days		100%		[Gantt Chart]																									
15	CAD-1020		Portion B-8A (Alternation of air supply main for existing Air Blower House No.2)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	503		0 days		100%		[Gantt Chart]																									
16	CAD-1130		Portion B-9 (remainder works in Zone B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	513,528		0 days		100%		[Gantt Chart]																									
17	CAD-1140		Portion B-9A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%		[Gantt Chart]																									
18	CAD-1150		Portion B-9B (Area for underground pipework modification and connection works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%		[Gantt Chart]																									
19	CAD-1160		Portion B-9C (Area for the works for pipeworks)			0 days	Wed 22/7/20	Wed 22/7/20	0 days	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20	2FS+151 days		0 days		100%		[Gantt Chart]																									
20	CKD-1000		Key Dates (cal. day)			1440 days	Tue 19/11/19	Sat 28/10/23	1519 days	Tue 19/11/19	Mon 15/1/24	Tue 19/11/19	NA			0 days		7%		[Gantt Chart]																									
21	CKD-1010		KD1A completion of AR3 in Portion B-1 (375 days after starting date)			300 days	Tue 19/11/19	Sun 13/9/20	375 days	Tue 19/11/19	Fri 27/11/20	Tue 19/11/19	NA 2FS+1 day,42FF	67		0 days		0%	IW	[Gantt Chart]																									
22	CKD-1020		KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (438.5 days after starting date)			360 days	Tue 19/11/19	Thu 12/11/20	438 days	Tue 19/11/19	Fri 29/1/21	Tue 19/11/19	NA 2FS+1 day,43FF	73		2570.5 days		81%	IW	[Gantt Chart]																									
23	CKD-1030		KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (1068.5 days after starting date)			990 days	Tue 19/11/19	Thu 4/8/22	1068.5 days	Tue 19/11/19	Sat 22/10/22	Tue 19/11/19	NA 2FS+1 day,44FF	79		1940 days		0%	IW	[Gantt Chart]																									
24	CKD-1040		KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)			1190 days	Tue 19/11/19	Mon 20/2/23	1190 days	Tue 19/11/19	Mon 20/2/23	Tue 19/11/19	NA 2FS+1 day,45FF			1903 days		32%	IW	[Gantt Chart]																									
25	CKD-1050		KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1,140days after starting date)			1140 days	Tue 19/11/19	Sun 1/1/23	1140 days	Tue 19/11/19	Sun 1/1/23	Tue 19/11/19	NA 2FS+1 day,46FF			-6 days		0%	IW	[Gantt Chart]																									
26	CKD-1060		KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (855.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	855.5 days	Tue 19/11/19	Wed 23/3/22	Tue 19/11/19	NA 2FS+1 day,47FF	82		-166.5 days		0%	MFB, IW	[Gantt Chart]																									
27	CKD-1070		KD1G completion of civil and structural works of MFB in Portion B-5 (1002.5 days after starting date)			950 days	Tue 19/11/19	Sat 25/6/22	1002.5 days	Tue 19/11/19	Wed 17/8/22	Tue 19/11/19	NA 2FS+1 day,48FF	86		-169.5 days		0%	MFB, IW	[Gantt Chart]																									
28	CKD-1080		KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (703.5 days after starting date)			630 days	Tue 19/11/19	Mon 9/8/21	703.5 days	Tue 19/11/19	Fri 22/10/21	Tue 19/11/19	NA 2FS+1 day,49FF	90		-133.5 days		0%	IW	[Gantt Chart]																									
29	CKD-1090		KD1I completion alternation works for existing Power House in Portion B-7A (179.5days after access date of B-7A)			150 days	Fri 4/9/20	Sun 31/1/21	179 days	Wed 2/9/20	Wed 28/7/21	Wed 2/9/20	NA 13FS+151 days,50FF	94		2445 days		0%	IW	[Gantt Chart]																									
30	CKD-1100		KD1J completion of auxiliary facilities in Portion B-7 (811.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	811.5 days	Tue 19/11/19	Mon 7/2/22	Tue 19/11/19	NA 2FS+801 days,51FF	98		2273 days		0%	IW	[Gantt Chart]																									
31	CKD-1110		KD2A completion of effluent pipes to LIV system and connection to its downstream in Portion B-9 (574.5 days after starting date)			495 days	Tue 19/11/19	Sat 27/3/21	577.5 days	Tue 19/11/19	Wed 26/10/22	Tue 19/11/19	NA 2FS+496 days,52FF	105		1935 days		0%	IW	[Gantt Chart]																									
32	CKD-1120		KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (494 days after starting date)			420 days	Tue 19/11/19	Mon 11/1/21	494 days	Tue 19/11/19	Fri 26/3/21	Tue 19/11/19	NA 2FS+421 days,53FF	108		2524 days		0%	IW	[Gantt Chart]																									
33	CKD-1130		KD3A completion of all utilities and road works (1519 days after starting date)			1440 days	Tue 19/11/19	Sat 28/10/23	1519 days	Tue 19/11/19	Mon 15/1/24	Tue 19/11/19	NA 2FS+1441 days,54FF	115		1490 days		0%	IW	[Gantt Chart]																									
34	CCD-1000		Completion Date (cal. Day)			1956 days	Tue 19/11/19	Thu 27/3/25	3003.5 days	Tue 19/11/19	Tue 8/2/28	Tue 19/11/19	NA			0 days		0%		[Gantt Chart]																									
35	CCD-1010		Section 1 of the Works (1,543.5 after starting date)			1460 days	Tue 19/11/19	Fri 17/11/23	1543.5 days	Tue 19/11/19	Tue 8/2/28	Tue 19/11/19	NA 2FS+1461 days,56FF	121		0 days		0%	MFB, IW	[Gantt Chart]																									
36	CCD-1020		Section 2 of the Works (977.5 after starting date)			900 days	Tue 19/11/19	Fri 6/5/22	977.5 days	Tue 19/11/19	Sat 23/7/22	Tue 19/11/19	NA 2FS+901 days,57FF	127		2032 days		0%	MFB, IW	[Gantt Chart]																									
37	CCD-1030		Section 3 of the Works (1,590 after starting date)			1590 days	Tue 19/11/19	Tue 26/3/24	1667.5 days	Tue 19/11/19	Wed 12/6/24	NA	NA 2FS+1591 days,58FF	39FS+1 day,133,38FS+1 day	0 days		0%	IW	[Gantt Chart]																										
38	CCD-1040		Defects Liability Period			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA 37FS+1 day			0 days		0%	IW	[Gantt Chart]																									
39	CCD-1050		Landscape Establishment Works			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA 37FS+1 day			1059.5 days		0%	IW	[Gantt Chart]																									
40	PD-1000		Planned Completion			1686 days	Fri 14/8/20	Thu 27/3/25	2793 days	Sun 13/9/20	Sun 7/5/28	Sun 13/9/20	NA			0 days		0%		[Gantt Chart]																									
41	PCD-1000		Planned Completion - Key Dates (cal. day)			1170 days	Fri 14/8/20	Sat 28/10/23	1135 days	Wed 30/9/20	Thu 9/11/23	Wed 30/9/20	NA			67 days		99%		[Gantt Chart]																									
42	PKD-1010	KD1A	KD1A completion of AR3 in Portion B-1 (300days after starting date)			0 days	Sat 12/9/20	Sat 12/9/20	0 days	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20	21FF		0 days		100%		[Gantt Chart]																									
43	PCD-1020	KD1B	KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (360days after starting date)			0 days	Fri 14/8/20	Fri 14/8/20	1 day	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	222FF,305FF,295FF,302FF,260FF,258FF	22FF		100%		[Gantt Chart]																										
44	PCD-1030	KD1C	KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (960days after starting date)			0 days	Thu 4/8/22	Thu 4/8/22	0 days	Fri 11/8/23	Fri 11/8/23	NA	NA 340FF,339FF,331FF,335FF	23FF		-294 days		0%		[Gantt Chart]																									
45	PCD-1040	KD1D	KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)			0 days	Mon 20/2/23	Mon 20/2/23	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA 354FF,353FF	24FF		0 days		0%		[Gantt Chart]																									
46	PCD-1050	KD1E	KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1,140days after starting date)			0 days	Sat 31/12/22	Sat 31/12/22	0 days	Sat 7/1/23	Sat 7/1/23	NA	NA 383FF,386FF,384FF,385FF	25FF		-6 days		0%		[Gantt Chart]																									
47	PCD-1060	KD1F	KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (800days after starting date)			0 days	Tue 25/1/22	Tue 25/1/22	0 days	Mon 5/9/22	Mon 5/9/22	NA	NA 421FF	26FF		-167 days		0%	MFB	[Gantt Chart]																									
48	PCD-1070	KD1G	KD1G completion of civil and structural works of MFB in Portion B-5 (950days after starting date)			0 days	Sat 25/6/22	Sat 25/6/22	0 days	Thu 2/2/23	Thu 2/2/23	NA	NA 422FF	27FF		-170 days		0%	MFB	[Gantt Chart]																									
49	PCD-1080	KD1H	KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (630days after starting date)			0 days	Mon 9/8/21	Mon 9/8/21	0 days	Fri 4/3/22	Fri 4/3/22	NA	NA 445FF,444FF	28FF		-134 days		0%		[Gantt Chart]																									
50	PCD-1090	KD1I	KD1I completion alternation works for existing Power House in Portion B-7A (150days after access date of B-7A)			0 days	Sat 30/1/21	Sat 30/1/21	1 day	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21	510FF	29FF		0 days		100%		[Gantt Chart]																								
51	PCD-1100	KD1J	KD1J completion of auxiliary facilities in Portion B-7 (800days after starting date)			0 days	Wed 26/1/22	Wed 26/1/22	0 days	Thu 9/1/23	Thu 9/1/23	NA	NA 484FF,483FF,462FF,461FF,495FF,494FF	30FF																															

ID	Activity ID	Key Date	Task Name	CE for Inclement Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Start	1st Quarter	October	July	3rd Quarter	April	1st Quarter	October	July	3rd Quarter	April						
79	ET1C-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Sat 22/10/22	Wed 26/10/22	NA	NA	NA 23	76	1940 days		0%	NW																	
80	ET1F-1000		Effects to KD1F			0 days	NA	NA	74.5 days	Wed 23/3/22	Sun 5/6/22	NA	NA	NA	76	2163 days		0%	NW																	
81	ET1F-1100		Inclement Weather to KD1F (cal. Day)			0 days	NA	NA	74.5 days	Wed 23/3/22	Sun 5/6/22	NA	NA	NA	76	2163 days		0%	NW																	
82	ET1F-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	74.5 days	Wed 23/3/22	Sun 5/6/22	NA	NA	NA 26	83	2163 days		0%	NW																	
83	ET1F-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Sun 5/6/22	Sun 5/6/22	NA	NA	NA 82		2163 days		0%	NW																	
84	ET1G-1000		Effects to KD1G			0 days	NA	NA	73.5 days	Wed 17/8/22	Sat 29/10/22	NA	NA	NA	87	2017 days		0%	NW																	
85	ET1G-1100		Inclement Weather to KD1G (cal. Day)			0 days	NA	NA	73.5 days	Wed 17/8/22	Sat 29/10/22	NA	NA	NA	87	2017 days		0%	NW																	
86	ET1G-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	73.5 days	Wed 17/8/22	Sat 29/10/22	NA	NA	NA 27		2017 days		0%	NW																	
87	ET1G-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Sat 29/10/22	Sat 29/10/22	NA	NA	NA 86		2017 days		0%	NW																	
88	ET1H-1000		Effects to KD1H			0 days	NA	NA	73.5 days	Fri 22/10/21	Mon 3/1/22	NA	NA	NA	91	2316 days		0%	NW																	
89	ET1H-1100		Inclement Weather to KD1H (cal. Day)			0 days	NA	NA	73.5 days	Fri 22/10/21	Mon 3/1/22	NA	NA	NA	91	2316 days		0%	NW																	
90	ET1H-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	73.5 days	Fri 22/10/21	Mon 3/1/22	NA	NA	NA 28		2316 days		0%	NW																	
91	ET1H-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Mon 3/1/22	Mon 3/1/22	NA	NA	NA 90		2316 days		0%	NW																	
92	ET1H-1000		Effects to KD1I			0 days	NA	NA	30 days	Thu 29/7/21	Fri 27/8/21	NA	NA	NA	95	2445 days		0%	NW																	
93	ET1H-1100		Inclement Weather to KD1I (cal. Day)			0 days	NA	NA	30 days	Thu 29/7/21	Fri 27/8/21	NA	NA	NA	95	2445 days		0%	NW																	
94	ET1H-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	30 days	Thu 29/7/21	Fri 27/8/21	NA	NA	NA 29		2445 days		0%	NW																	
95	ET1H-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Fri 27/8/21	Fri 27/8/21	NA	NA	NA 94		2445 days		0%	NW																	
96	ET1H-1000		Effects to KD1J			0 days	NA	NA	8.5 days	Mon 7/2/22	Tue 15/2/22	NA	NA	NA	99	2273 days		0%	NW																	
97	ET1H-1100		Inclement Weather to KD1J (cal. Day)			0 days	NA	NA	8.5 days	Mon 7/2/22	Tue 15/2/22	NA	NA	NA	99	2273 days		0%	NW																	
98	ET1H-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	8.5 days	Mon 7/2/22	Tue 15/2/22	NA	NA	NA 30		2273 days		0%	NW																	
99	ET1H-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Tue 15/2/22	Tue 15/2/22	NA	NA	NA 98		2273 days		0%	NW																	
100	ET2A-1000		Effects to KD2A			0 days	NA	NA	85.5 days	Wed 26/10/22	Thu 19/1/23	NA	NA	NA	103	1935 days		0%	NW																	
101	ET2A-1100		Inclement Weather to KD2A (cal. Day)			0 days	NA	NA	81.5 days	Sun 30/10/22	Thu 19/1/23	NA	NA	NA	103	1935 days		0%	NW																	
102	ET2A-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	81.5 days	Sun 30/10/22	Thu 19/1/23	NA	NA	NA 105		1935 days		0%	NW																	
103	ET2A-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Thu 19/1/23	Thu 19/1/23	NA	NA	NA 102		1935 days		0%	NW																	
104	ET2A-1200		Other Events to KD2A (not all)			0 days	NA	NA	4 days	Wed 26/10/22	Sun 30/10/22	NA	NA	NA	102	1935 days		0%	NW																	
105	ET2A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Wed 26/10/22	Sun 30/10/22	NA	NA	NA 31		1935 days		0%	NW																	
106	ET2A-1000		Effects to KD2B			0 days	NA	NA	75 days	Sat 27/3/21	Wed 9/6/21	NA	NA	NA	109	2524 days		0%	NW																	
107	ET2A-1100		Inclement Weather to KD2B (cal. Day)			0 days	NA	NA	75 days	Sat 27/3/21	Wed 9/6/21	NA	NA	NA	109	2524 days		0%	NW																	
108	ET2A-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	75 days	Sat 27/3/21	Wed 9/6/21	NA	NA	NA 32		2524 days		0%	NW																	
109	ET2A-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Wed 9/6/21	Wed 9/6/21	NA	NA	NA 108		2524 days		0%	NW																	
110	ET3A-1000		Effects to KD3A			0 days	NA	NA	84 days	Tue 16/1/24	Mon 8/4/24	NA	NA	NA	113	1490 days		0%	NW																	
111	ET3A-1100		Inclement Weather to KD3A (cal. Day)			0 days	NA	NA	80 days	Sat 20/1/24	Mon 8/4/24	NA	NA	NA	113	1490 days		0%	NW																	
112	ET3A-1110		Delay and Disruption of Works before February 2020			0 days	NA	NA	80 days	Sat 20/1/24	Mon 8/4/24	NA	NA	NA 115		1490 days		0%	NW																	
113	ET3A-1120		Delay and Disruption of Works for the month of February 2020			0 days	NA	NA	0 days	Mon 8/4/24	Mon 8/4/24	NA	NA	NA 112		1490 days		0%	NW																	
114	ET3A-1200		Other Events to KD3A (not all)			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA	NA	112	1490 days		0%	NW																	
115	ET3A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA	NA 33		1490 days		0%	NW																	
116	ETS1-1000		Effects to Section 1 of the Works			0 days	NA	NA	89.5 days	Tue 8/2/28	Sun 7/5/28	NA	NA	NA	119	0 days		0%	NW																	
117	ETS1-1100		Inclement Weather to Section 1 of the Works (cal. Day)			0 days	NA	NA	85.5 days	Sat 12/2/28	Sun 7/5/28	NA	NA	NA	119	0 days		0%	NW																	
118	ETS1-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	85.5 days	Sat 12/2/28	Sun 7/5/28	NA	NA	NA 121		0 days		0%	NW																	
119	ETS1-1120		Delay and Disruption of Works for the month of February 2021			0 days	NA	NA	0 days	Sun 7/5/28	Sun 7/5/28	NA	NA	NA 118		0 days		0%	NW																	
120	ETS1-1200		Other Events to Section 1 of the Works (not all)			0 days	NA	NA	4 days	Tue 8/2/28	Sat 12/2/28	NA	NA	NA	118	0 days		0%	NW																	
121	ETS1-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Tue 8/2/28	Sat 12/2/28	NA	NA	NA 35		0 days		0%	NW																	
122	ETS2-1000		Effects to Section 2 of the Works			0 days	NA	NA	83.5 days	Sat 23/7/22	Fri 14/10/22	NA	NA	NA	125	2032 days		0%	NW																	
123	ETS2-1100		Inclement Weather to Section 2 of the Works (cal. Day)			0 days	NA	NA	79.5 days	Wed 27/7/22	Fri 14/10/22	NA	NA	NA	125	2032 days		0%	NW																	
124	ETS2-1110		Delay and Disruption of Works before February 2021			0 days	NA	NA	79.5 days	Wed 27/7/22	Fri 14/10/22	NA	NA	NA 127		2032 days		0%	NW																	
125	ETS2-1120		Delay and Disruption of Works for the month of February 202																																	

ID	Activity ID	Key Date	Task Name	CE for Incident Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter
																					1st Quarter	3rd Quarter	1st Quarter	3rd Quarter	
																					April	July	October	April	July
164	SUBS-1290		Subletting for Construction of Cable trough for CLP 11kv Cable Diversion (PPMI 041)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20		429,440	0 days		100%							
165	SUBS-1300		Subletting for Demolition of Existing Pillar box and its concrete plinth (CE 030)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20		430	0 days		100%							
166	SUBS-1310		Subletting for Excavation to locate existing underground cable near SAS Pump Station (PPMI 038)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20		431	0 days		100%							
167	SUBS-1320		Subletting for Diversion of pumping system sewerage (PPMI 063)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20		435	0 days		100%							
168	SUBA-1000		Statutory Submission, Submission and Approval			1564 days	Mon 18/11/19	Wed 28/2/24	1956 days	Mon 18/11/19	Wed 26/3/25	Mon 18/11/19	NA			1137 days		43%							
169	SUBA-1010		Liaison with operator of SWHSTW and obtain their consent of associated method statement of major activities			0 days	NA	NA	1584 days	Mon 18/11/19	Wed 26/3/25	Mon 18/11/19	NA 2	59FF	975 days			19%							
170	SUBA-1020		Prepare and submit Subcontractor Management Plan (SMP)			24 days	Mon 18/11/19	Wed 11/12/19	24 days	Mon 18/11/19	Wed 11/12/19	Mon 18/11/19	Wed 11/12/19 2		138,141,140	0 days		100%							
171	SUBA-1030		Prepare and submit Interface Management Plan			36 days	Mon 18/11/19	Mon 23/12/19	36 days	Mon 18/11/19	Mon 23/12/19	Mon 18/11/19	Mon 23/12/19 2			0 days		100%							
172	SUBA-1040		Prepare and submit the TTA plans inside Treatment Plant for UU diversion and buildings construction			24 days	Mon 18/11/19	Wed 11/12/19	24 days	Mon 18/11/19	Wed 11/12/19	Mon 18/11/19	Wed 11/12/19 2		211	0 days		100%							
173	SUBA-1050		Prepare and submit method statement for UU diversion for Inlet Works No.1			12 days	Mon 18/11/19	Fri 29/11/19	12 days	Mon 18/11/19	Fri 29/11/19	Mon 18/11/19	Fri 29/11/19 2		174	0 days		100%							
174	SUBA-1060		PM review and accept the method statement			12 days	Sat 30/11/19	Wed 11/12/19	0 days	Sat 30/11/19	Wed 11/12/19	Sat 30/11/19	Wed 11/12/19 173		223,224	0 days		100%							
175	SUBA-1070		Prepare and submit combine underground services drawing for PM's review the alignment			24 days	Thu 26/12/19	Sat 18/1/20	23 days	Thu 26/12/19	Sat 18/1/20	Thu 26/12/19	Sat 18/1/20 141			0 days		100%							
176	SUBA-1080		Prepare and submit method statement for demolition existing structures			24 days	Mon 18/11/19	Wed 11/12/19	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20 2		394,347,448,306,510,366	0 days		100%							
177	SUBA-1090		Prepare and submit method statement for structural works for buildings			24 days	Mon 18/11/19	Wed 11/12/19	197 days	Mon 18/11/19	Mon 1/6/20	Mon 18/11/19	Mon 1/6/20 2			0 days		100%							
178	SUBA-1100		Prepare and submit method statements to MTRC regarding the works within railing protection boundary			36 days	Mon 18/11/19	Mon 23/12/19	92 days	Sat 1/2/20	Mon 25/5/20	Sat 1/2/20	Mon 25/5/20 2		347,448,510,306,366	0 days		100%							
179	SUBA-1110		Prepare and submit & approve Safety Management Plan			24 days	Mon 18/11/19	Wed 11/12/19	3 days	Mon 18/11/19	Wed 20/11/19	Mon 18/11/19	Wed 20/11/19 2			0 days		100%							
180	SUBA-1120		Prepare and submit Excavation and lateral support (ELS) proposal			24 days	Mon 10/2/20	Wed 4/3/20	128 days	Mon 10/2/20	Tue 16/6/20	Mon 10/2/20	Tue 16/6/20 2			0 days		100%							
181	SUBA-1130		Prepare and submit Dewatering proposal for basement construction			24 days	Mon 10/2/20	Wed 4/3/20	165 days	Mon 10/2/20	Thu 23/7/20	Mon 10/2/20	Thu 23/7/20 2			0 days		100%							
182	SUBA-1140		Prepare and submit Pre-construction condition survey of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	0 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20 208			0 days		100%							
183	SUBA-1150		Prepare and submit Settlement and movement monitoring proposal of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	110 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20 208			0 days		100%							
184	SUBA-1160		Prepare and submit design of structure elements of the temporary activated carbon deodorization unit			60 days	Fri 17/1/20	Mon 16/3/20	60 days	Mon 18/11/19	Mon 16/3/20	Mon 18/11/19	Mon 16/3/20 2FS+60 days			0 days		100%							
185	SUBA-1170		Prepare of RSE and structural design for alternation and additional (A&A) works at Membrane Facilities Building No.1			180 days	Mon 18/10/21	Fri 15/4/22	180 days	Mon 18/10/21	Fri 15/4/22	NA	NA		512	332 days		0%							
186	SUBA-1180		Prepare of RSE and structural design for alternation and additional (A&A) works at Main Power House			44 days	Wed 15/7/20	Thu 3/9/20	60 days	Mon 6/7/20	Thu 3/9/20	Mon 6/7/20	Thu 3/9/20		510	0 days		100%							
187	SUBE-1000		Environmental Aspect Submissions			45 days	Mon 18/11/19	Wed 11/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%							
188	SUBE-1010		Prepare, submit & approve Site Management Plan for Trip Tricket System			45 days	Mon 18/11/19	Wed 11/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20 2			0 days		100%							
189	SUBE-1020		Prepare, submit & approve Waste Management Plan			45 days	Mon 18/11/19	Wed 11/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20 2			0 days		100%							
190	SUBE-1030		Prepare, submit & approve Environmental Management Plan			45 days	Mon 18/11/19	Wed 11/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20 2			0 days		100%							
191	SUBP-1000		Procurement			731 days	Mon 18/11/19	Wed 17/1/21	648 days	Mon 18/11/19	Thu 26/8/21	Mon 18/11/19	NA			642 days		81%							
192	SUBP-1010		Prepare and submit the Procurement Procedure			12 days	Mon 18/11/19	Fri 29/11/19	2 days	Mon 18/11/19	Tue 19/11/19	Mon 18/11/19	Tue 19/11/19 2		193	0 days		100%							
193	SUBP-1020		PM Review & Accept Procurement Procedure			12 days	Sat 30/11/19	Wed 11/12/19	21 days	Tue 19/11/19	Tue 10/12/19	Tue 19/11/19	Tue 10/12/19 192		194,195,196,197,198,199,200	0 days		100%							
194	SUBP-1030		Prepare, submit and approve the pipe works material			25 days	Thu 12/12/19	Sun 5/1/20	34 days	Thu 6/2/20	Tue 10/3/20	Thu 6/2/20	Tue 10/3/20 193		222,503,523,524,526,525,52	0 days		100%							
195	SUBP-1040		Prepare, submit and approve the water proofing material			25 days	Thu 12/12/19	Sun 5/1/20	25 days	Mon 2/8/21	Thu 26/8/21	NA	NA 193		334,338	-73 days		0%							
196	SUBP-1050		Prepare, submit and approve the concrete mix material			48 days	Thu 12/12/19	Tue 28/1/20	90 days	Mon 3/2/20	Sat 2/5/20	Mon 3/2/20	Sat 2/5/20 193		327,383,444,417	0 days		100%							
197	SUBP-1060		Prepare, submit and approve the rebar material			48 days	Thu 12/12/19	Tue 28/1/20	49 days	Sat 23/5/20	Fri 10/7/20	Sat 23/5/20	Fri 10/7/20 193		327,383,444,417	0 days		100%							
198	SUBP-1070		Prepare, submit and approve the metal works material			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Tue 19/20	Sun 18/10/20	Tue 19/20	Sun 18/10/20 193		327,383,444,417	0 days		100%							
199	SUBP-1080		Prepare, submit and approve the ABWF works material			48 days	Sat 12/12/20	Tue 28/1/20	48 days	Mon 1/3/21	Sat 17/4/21	NA	NA 193		341,355,390,446,472,478,45	773 days		0%							
200	SUBP-1090		Prepare, submit and approve the protective lining to concrete			0 days	NA	NA	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20 193		327,383,444,417	0 days		100%							
201	SUBP-1100		Prepare, submit and approve the multi-part covers			0 days	NA	NA	21 days	Tue 5/5/20	Mon 25/5/20	Tue 5/5/20	Mon 25/5/20 193			0 days		100%							
202	SUBB-1000		BIM			1205 days	Thu 6/2/20	Wed 28/2/24	1562 days	Mon 18/11/19	Fri 28/2/25	Mon 18/11/19	NA			997 days		16%							
203	SUBB-1010		Prepare, submit and approve the proposal of details of Common data environment (CDE)			48 days	Thu 6/2/20	Wed 1/4/20	37 days	Mon 18/11/19	Wed 1/4/20	Mon 18/11/19	Wed 1/4/20 145,146		204	0 days		100%							
204			Prepare and submit BIM submission			1484 days	Thu 6/2/20	Wed 28/2/24	1451 days	Thu 2/4/20	Fri 28/2/25	Thu 2/4/20	NA 203			997 days		14%							
205	C-1000		Construction Works (Working day)			1957 days	Mon 18/11/19	Thu 27/3/25	1986 days?	Mon 18/11/19	Fri 25/4/25	Mon 18/11/19	NA			1108 days?		32%							
206	CPW-1000		Preliminary Works			109 days	Mon 18/11/19	Thu 5/3/20	121 days	Mon 18/11/19	Tue 17/3/20	Mon 18/11/19	Tue 17/3/20			0 days		100%							
211	CAR-0000		Access Road (AR3), B-1			193 days	Mon 20/1/20	Sat 12/9/20	238 days	Thu 12/12/19	Wed 30/9/20	Thu 12/12/19	Wed 30/9/20 4,172			0 days		100%							
221	CIW-0000		Inlet Works No.1, B-2			854 days	Mon 6/1/20	Mon 21/11/22	1188 days	Tue 26/11/19	Tue 28/11/23	Tue 26/11/19	NA			59 days		47%							
222	CIW-1000		Diversion Works (1. Inlet Trunk Sewer, Leachate Rising Mains, Sludge Pipes, Tank Drains and Pipelines near Primary Sludge Thickeners)			180 days	Mon 6/1/20	Fri 14/8/20	459 days	Tue 26/11/19	Wed 16/6/21	Tue 26/11/19	NA194,139		43FF	36 days		59%							
223	CIW-1100		Utilities scanning to identify existing UU arrangement			12 days	Mon 6/1/20	Sat 18/1/20	0 days	Fri 13/12/19	Sat 18/1/20	Fri 13/12/19	Sat 18/1/20 174		224SS,226	0 days		100%							
224	CIW-1200		Trial pits to locate the collection points			24 days	Mon 6/1/20	Wed 5/2/20	0 days	Mon 6/1/20	Tue 10/3/20	Mon 6/1/20	Tue 10/3/20 174,2												

ID	Activity ID	Key Date	Task Name	CE for Incident Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Year	1st Quarter	3rd Quarter	1st Quarter	3rd Quarter									
																					April	January	October	July	April	January	October	July	April				
253	CIW-1453		Additional Works for Manhole MHA01 Constructin and Pipe Connection to Manhole MHA01		094.14	0 days	NA	NA	160 days	Wed 16/9/20	Wed 31/3/21	Wed 16/9/20	NA	245,247	251	0 days		0%															
254	CIW-1454		Additional Works for IRC and Pipe Connection to IRC from Existing Manhole FMH1004115		096	0 days	NA	NA	17 days	Fri 18/9/20	Fri 9/10/20	Fri 18/9/20	Fri 9/10/20		255,257,251	0 days		100%															
255	CIW-1455		Removal of left-in sheetpiles at IRC		111	0 days	NA	NA	3 days	Mon 19/10/20	Wed 21/10/20	Mon 19/10/20	Wed 21/10/20	254		0 days		100%															
256	CIW-1456		Compliance Test for DN1800 Precast Concrete Pipe		077	065	0 days	NA	1 day	Fri 18/9/20	Fri 18/9/20	Fri 18/9/20	Fri 18/9/20			0 days		100%															
257	CIW-1457		Lay 1800mm dia concrete pipe			24 days	Sat 20/6/20	Mon 20/7/20	88 days	Thu 17/9/20	Mon 25/1/21	Thu 17/9/20	NA	244,245,254	258	101 days		0%															
258	CIW-1458		Connection to existing Inlet Chamber			12 days	Tue 21/7/20	Mon 3/8/20	12 days	Tue 26/1/21	Mon 8/2/21	NA	NA	257	43FF,318	101 days		0%															
259	CIW-1500		Diversion of Leachate Rising Main, Sludge Pipes and Tank Drain			150 days	Thu 6/2/20	Fri 7/8/20	517 days	Tue 26/11/19	Tue 24/8/21	Tue 26/11/19	NA			-22 days		57%															
260	CIW-1510	KD1B	Diversion of Tank Drain MHD8.5 (approx. 70m CHES1 & CHES2)			150 days	Thu 6/2/20	Fri 7/8/20	63 days	Sat 19/9/20	Fri 4/12/20	Sat 19/9/20	NA	287	43FF,318	154 days		94%															
261	CIW-1500a		Diversion of Tank Drain MHD9.5 to MHA04 (approx. 70m 675mm dia concrete pipe, 24m DN250 DI leachate rising main, 90m CHES1&S2 DN250 CI)			150 days	Thu 6/2/20	Fri 7/8/20	475 days	Tue 26/11/19	Tue 6/7/21	Tue 26/11/19	NA	224		-16 days		58%															
262	CIW-1500b		Joint Initial Survey arrangement with MTRCL			0 days	NA	NA	158 days	Tue 26/11/19	Wed 10/6/20	Tue 26/11/19	Wed 10/6/20			0 days		100%															
263	CIW-1500c		Site Clearance & inspection pit excavation under conforming alignments			0 days	NA	NA	36 days	Fri 12/6/20	Sat 25/7/20	Fri 12/6/20	Sat 25/7/20			0 days		100%															
264	CIW-1511		Tank Drain Diversion near MTRCL track			0 days	NA	NA	233 days	Thu 11/6/20	Mon 22/3/21	Thu 11/6/20	NA			68 days		72%															
265	CIW-1511a		Excavation of trial pit near MHD9.5 (TP45 & 47)		044	040	0 days	NA	12 days	Mon 27/7/20	Sat 8/8/20	Mon 27/7/20	Sat 8/8/20	276	266,270	0 days		100%															
266	CIW-1511b		Uncharted cables found near MTRCL track and identification		044	0 days	NA	NA	1 day	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20	265		0 days		100%															
267	CIW-1511c		Excavation of trial pit near MHD8.5			0 days	NA	NA	5 days	Fri 19/6/20	Wed 24/6/20	Fri 19/6/20	Wed 24/6/20	268		0 days		100%															
268	CIW-1511d		Lower the ground surface, opening and additional trial pit (TP38)		046	0 days	NA	NA	60 days	Thu 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20	267		0 days		100%															
269	CIW-1511e		Excavation of Trial Pits near Manhole MHA04 and MHD9			040	0 days	NA	60 days	Thu 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20	268		0 days		100%															
270	CIW-1511f		Additional Trial Pit between MHD9.5 and MHA04		095	0 days	NA	NA	25 days	Fri 21/8/20	Fri 19/9/20	Fri 21/8/20	Fri 19/9/20	271		0 days		100%															
271	CIW-1511g		Trimming of existing concrete surround		085	051	0 days	NA	19 days	Tue 8/9/20	Tue 29/9/20	Tue 8/9/20	Tue 29/9/20	270		0 days		100%															
272	CIW-1511h		Potential Delay for Construction of Manhole MHD9.5		145	0 days	NA	NA	61 days	Wed 18/11/20	Sat 30/1/21	Wed 18/11/20	NA	238		108 days		0%															
273	CIW-1511i		Compliance Test for DN675 and DN825 Precast concrete pipe			232	0 days	NA	1 day	Fri 18/12/20	Fri 18/12/20	NA	NA	281		0 days		0%															
274	CIW-1511j		Unsuit excavated material from MHD9.5 to MHD9		127	0 days	NA	NA	4 days	Fri 20/11/20	Tue 24/11/20	Fri 20/11/20	Tue 24/11/20			0 days		100%															
275	CIW-1511k		Revise design of manhole MHD9.5		167	0 days	NA	NA	20 days	Thu 7/1/21	Fri 29/1/21	Thu 7/1/21	Fri 29/1/21	276		0 days		100%															
276	CIW-1511l		Additional works for breaking concrete surround		167	0 days	NA	NA	25 days	Sat 30/1/21	Wed 3/3/21	Sat 30/1/21	Wed 3/3/21	275		0 days		100%															
277	CIW-1511m		Additional work to prevent backflow from MHI1 to MHD9.5		176	0 days	NA	NA	9 days	Mon 18/1/21	Wed 27/1/21	Mon 18/1/21	Wed 27/1/21			0 days		100%															
278	CIW-1511n		Sewage overflow incident of MHD11		180	0 days	NA	NA	30 days	Tue 16/2/21	Mon 22/3/21	Tue 16/2/21	NA			68 days		0%															
279	CIW-1512		Additional Special manhole for tank drain (NCE)			0 days	NA	NA	35 days	Mon 24/8/20	Mon 5/10/20	Mon 24/8/20	Mon 5/10/20	271	280,281	0 days		100%															
280	CIW-1513		Breaking of concrete surround of cables (0.8m x 0.8m x 70m) (NCE)			0 days	NA	NA	60 days	Tue 6/10/20	Tue 15/12/20	Tue 6/10/20	NA	279		145 days		78%															
281	CIW-1514	KD1B	Construction of tank drain along revised alignment (NCE)			0 days	NA	NA	221 days	Tue 6/10/20	Tue 6/7/21	Tue 6/10/20	NA	279,273	282SS+80 days,43FF,318	-16 days		21%															
282	CIW-1515		Replacement of rock fill material (NCE)			0 days	NA	NA	105 days	Tue 12/1/21	Sat 22/5/21	NA	NA	281SS+80 days	283SS+80 days	15 days		0%															
283	CIW-1516		Backfilling with concrete bedding (NCE)			0 days	NA	NA	30 days	Thu 22/4/21	Fri 28/5/21	NA	NA	282SS+80 days		15 days		0%															
284	CIW-1520		Diversion of Sludge Pipes			75 days	Tue 21/4/20	Tue 21/7/20	364 days	Mon 11/5/20	Thu 29/7/21	Mon 11/5/20	NA			0 days		59%															
285	CIW-1520a		Excavation of trial pit and identification of connection point		064	0 days	NA	NA	103 days	Mon 11/5/20	Wed 9/9/20	Mon 11/5/20	Wed 9/9/20	286		0 days		100%															
286	CIW-1520b		Trench excavation for twin DN250 sludge pipe and stopped by AECOM		064	75 days	Tue 21/4/20	Tue 21/7/20	4 days	Wed 15/7/20	Sat 18/7/20	Wed 15/7/20	Sat 18/7/20	285		0 days		100%															
287	CIW-1520c		Additional hole drilling works and identification of connection point			0 days	NA	NA	53 days	Mon 20/7/20	Fri 18/9/20	Mon 20/7/20	Fri 18/9/20	286		0 days		100%															
288	CIW-1520d		Substandard DI 250 Leachate Pipe		120	0 days	NA	NA	127 days	Tue 20/10/20	Wed 24/3/21	Tue 20/10/20	Wed 24/3/21	238		0 days		100%															
289	CIW-1520e		Substandard DI 500 Sewage Pipe		133	0 days	NA	NA	50 days	Mon 1/2/21	Tue 6/4/21	NA	NA	238		58 days		0%															
290	CIW-1520f		Encounter of uncharted concrete pipe within sheetpile cofferdam at MHA04		123	0 days	NA	NA	2 days	Tue 10/11/20	Wed 11/1/20	Tue 10/11/20	Wed 11/1/20	291		0 days		100%															
291	CIW-1520g	KD1B	Resumption and construction of sludge pipe construction			0 days	NA	NA	253 days	Sat 19/9/20	Thu 29/7/21	Sat 19/9/20	NA	290	43FF,318	-36 days		23%															
292	CIW-1530	KD1B	Diversion of Leachate Rising Main			60 days	Tue 21/4/20	Fri 3/7/20	60 days	Tue 15/6/21	Tue 24/8/21	NA	NA	251	319SS+40 days	-58 days		0%															
293	CIW-1600		Diversion of pipelines near Primary Sludge Thickeners (approx. 180m long 150mm to 375mm concrete pipes)			156 days	Thu 6/2/20	Fri 14/8/20	399 days	Tue 26/11/19	Wed 31/3/21	Tue 26/11/19	NA			60 days		43%															
294	CIW-1610		Trench Excavation from M/H MHD1E to MHD5 (approx. 90m long with M/Hs MHD1A, 1B, 1C, 1D & 1E)			60 days	Thu 6/2/20	Mon 20/4/20	0 days	Tue 26/11/19	Tue 26/11/19	NA	NA			0 days		0%															
295	CIW-1620		Manholes construction and Pipe laying			60 days	Mon 30/3/20	Sat 13/6/20	50 days	Tue 2/6/20	Fri 31/7/20	Tue 2/6/20	Fri 31/7/20	296	43FF,302,296	0 days		100%															
296	CIW-1621		Temporary Diversion of Existing DN200 Filtrate Rising Main		034	0 days	NA	NA	20 days	Sat 1/8/20	Mon 24/8/20	Sat 1/8/20	Mon 24/8/20	295	297,298	0 days		100%															
297	CIW-1622		E&M Equipment at Primary Sludge Thickeners to be Dismantled and Returned to DSD/ST1		039	0 days	NA	NA	60 days	Tue 25/8/20	Thu 5/1/20	Tue 25/8/20	NA	296		179 days		15%															
298	CIW-1623		Pipeline Diversion Works near Primary Sludge Thickening Tank		114	0 days	NA	NA	30 days	Tue 25/8/20	Mon 28/9/20	NA	NA	296	299,300	168 days		0%															
299	CIW-1624		Uncharted underground utilities at Proposed MHD5B		126	0 days	NA	NA	41 days	Thu 12/11/20	Thu 31/12/20	NA	NA	298	300SS+15 days	133 days		0%															
300	CIW-1625		Uncharted underground utilities near Proposed MHD5B		141	0 days	NA	NA	26 days	Mon 30/11/20	Thu 31/12/20	NA	NA	298SS+15 days,298	301	133 days		0%															
301	CIW-1630		Trench Excavation from M/H MHD1E to MHD5 (approx. 90m long with M/Hs M1A to M3B)		012	60 days	Tue 21/4/20	Fri 3/7/20	32 days	Thu 19/3/20	Wed 29/4/20	Thu 19/3/20	Wed 29/4/20	300	302,303	0 days		100%															
302	CIW-1640		Manholes construction and Pipe laying		012	058	25 days	Mon 15/6/20	Wed 15/7/20	12 days	Mon 4/5/20	Sat 16/5/20	Mon 4/5/20	Sat 16/5/20	301,295	43FF,305	0 days		100%														
303	CIW-1650		Trench Excavation from MHD5 to MHD9.5 (approx. 90m long with M/Hs MHD5A & 5B)			50 days	Thu 16/7/20	Fri 11/9/20	50 days	Wed 2/9/20	Mon 2/11/20	Wed 2/9/20	Mon 2/11/20	301,307,312,313,314,316	342SS	0 days		100%															
304	CIW-1660		Provision of Pumping System from Screen to Flume Channel		87	0 days	NA	NA	90 days	Tue 10/1																							

ID	Activity ID	Key Date	Task Name	CE for Incident Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Year	Quarter	Month	Day	
337	CW-3631		Rebar fix and formwork and concreting for the Inlet Works structure upto Ground Level			54 days	Tue 7/12/21	Mon 14/2/22	54 days	Mon 4/7/22	Sat 3/9/22	NA	NA	NA321	338	-365 days		0%		2021	April			
338	CW-3632		Apply waterproofing membrane and backfilling			14 days	Tue 15/2/22	Wed 2/3/22	14 days	Mon 5/9/22	Wed 21/9/22	NA	NA	NA337,195	339	-365 days		0%		2021	April			
339	CW-3633	KD1C	Rebar fix and formwork and concreting for the Inlet Works structure upto Roof Level			105 days	Thu 3/3/22	Thu 4/9/22	105 days	Thu 22/9/22	Thu 31/1/23	NA	NA	NA338	341,44FF,340	-365 days		0%		2021	April			
340	CW-3700	KD1C	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Thu 4/8/22	Thu 4/9/22	0 days	Fri 11/8/23	Fri 11/8/23	NA	NA	NA339,335,331	44FF,498,492	-522 days		0%		2021	April			
341	CW-3800	SW1	ABWF works + BS works			90 days	Fri 5/8/22	Mon 21/11/22	90 days	Sat 12/8/23	Tue 28/11/23	NA	NA	NA339,199,157,335	56FF	59 days		0%		2021	October			
342	CW-3900	SW2	Process Pipe CHE chainage 0-20 & CHF chainage 0-20			0 days	NA	NA	0 days	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	303SS	57FF	0 days		100%		2020	September			
343	CPS-0000		Primary Sedimentation Tanks, B-3 (2)			1115 days	Mon 18/11/19	Wed 23/8/23	1115 days	Mon 18/11/19	Wed 23/8/23	Mon 18/11/19	Mon 18/11/19	NA8	139 days	25%				2019	November			
344	CPS-1000		Operation of the Existing Primary sedimentation Tanks			615 days	Mon 18/11/19	Sat 24/7/21	615 days	Mon 18/11/19	Sat 24/7/21	Mon 18/11/19	NA	NA2	345	-323 days		62%		2019	November			
345	CPS-1100		Identification of existing cables near Primary Sedimentation Tank		88	0 days	NA	NA	65 days	Mon 26/7/21	Mon 11/10/21	NA	NA	NA344	346	-261 days		0%		2021	July			
346	CPS-1200		Reinstatement and re-commissioning of existing Primary Sedimentation Tank No. 4 and 6 (by others)			0 days	NA	NA	35 days	Tue 12/10/21	Mon 22/11/21	NA	NA	NA345	347	-261 days		0%		2021	July			
347	CPS-2000		Demolition of existing primary sedimentation tanks no. 1 & 2			45 days	Mon 13/12/21	Wed 9/2/22	45 days	Tue 23/11/21	Mon 17/1/22	NA	NA	NA138,176,178,346	348	-261 days		0%		2021	July			
348	CPS-3000		Predrilling (88hrs, 3rigs, 3days/drillhole/rig)			38 days	Thu 10/2/22	Fri 25/3/22	38 days	Tue 18/1/22	Sat 5/3/22	NA	NA	NA347,143,439	349	-261 days		0%		2021	January			
349	CPS-4000		Pre-bored H piles (205nos, 4rigs, 2days/pile/rig)			102 days	Sat 26/3/22	Mon 1/8/22	102 days	Mon 7/3/22	Tue 12/7/22	NA	NA	NA348,148,440	350FS-40 days,352,351	-261 days	5	0%		2021	July			
350	CPS-5000		Sheetpile Installation (FSP-II, 336sqm, 1rigs, 50sqm/rig/day)			85 days	Wed 25/5/22	Fri 2/9/22	85 days	Wed 25/5/22	Fri 2/9/22	NA	NA	NA349FS-40 days,149	352	-261 days		0%		2021	July			
351	CPS-6000		Pile Load Test			26 days	Tue 2/8/22	Wed 31/8/22	26 days	Wed 13/7/22	Thu 11/8/22	NA	NA	NA349	352	-242 days		0%		2021	July			
352	CPS-7000		ELS works (20000cu.m soil with 2 layers wailing / strutting)			45 days	Sat 3/9/22	Fri 28/10/22	45 days	Sat 3/9/22	Fri 28/10/22	NA	NA	NA348,151,351,350,144	353,357	-261 days		0%		2021	July			
353	CPS-8000	KD1D	R.C. Structure works			92 days	Sat 29/10/22	Mon 20/2/23	92 days	Sat 29/10/22	Mon 20/2/23	NA	NA	NA352,153	354,355,45FF,356	0 days		3	0%		2021	July		
354	CPS-9000	KD1D	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Mon 20/2/23	Mon 20/2/23	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	NA353	45FF	0 days		3	0%		2021	July		
355	CPS-10000	SW1	ABWF works + BS works			150 days	Tue 21/2/23	Wed 23/8/23	150 days	Tue 21/2/23	Wed 23/8/23	NA	NA	NA353,199,157	56FF	139 days		0%		2021	October			
356	CPS-11000	SW1	Flowmeter Chamber no.1			60 days	Tue 21/2/23	Sat 6/5/23	60 days	Tue 21/2/23	Sat 6/5/23	NA	NA	NA353	56FF	229 days		0%		2021	October			
357	CPS-12000	SW2	Process Pipe CHG chainage 0-50, CHH chainage 0-80, CHI chainage 0-95 & CHJ chainage 0-40			0 days	NA	NA	180 days	Sat 29/10/22	Fri 9/8/23	NA	NA	NA352	57FF	-261 days		0%		2021	April			
358	CBR-0000		Bioreactors No.2A & 2B, B-4 (3)			1106 days	Mon 18/11/19	Sat 12/8/23	1516 days?	Mon 18/11/19	Mon 6/1/25	Mon 18/11/19	Mon 18/11/19	NA9	1043 days?	28%				2019	November			
359	CBR-1000		Operation of 2no. Existing 800mm air mains over bioreactor no.2			360 days	Mon 18/11/19	Wed 11/11/20	360 days	Mon 18/11/19	Wed 11/11/20	Mon 18/11/19	Wed 11/11/20	2	362FF	0 days		100%		2020	November			
360	CBR-2000		Construction of Removable Steel Shutter in the Common Channel of BR2 and 3		67	0 days	NA	NA	86 days	Thu 1/10/20	Fri 15/1/21	Thu 1/10/20	Fri 15/1/21	160	361	0 days		100%		2020	October			
361			Construction of Isolation Wall in Existing common channel of BR2 (PPMI 061)			0 days	NA	NA	43 days	Sat 16/1/21	Wed 10/3/21	Sat 16/1/21	Wed 10/3/21	360		0 days		100%		2020	January			
362	CBR-4000		Diversion of rising main, drainage pipes, and foam collection & surplus activated sludge pipes			0 days	NA	NA	90 days	Wed 13/1/21	Wed 5/5/21	NA	NA	NA359FF	363FF	2127 days		0%		2020	January			
363	CBR-4100		Take Down E&M Equipment & cables in Bioreactor BR2 and Return to DSD		55	95, 210	0 days	NA	NA	90 days	Thu 15/10/20	Mon 1/2/21	Thu 15/10/20	Mon 1/2/21	362FF	373	0 days		100%		2020	October		
364	CBR-4200		Installation of monitoring points before demolition of BR2		113	219	0 days	NA	NA	5 days	Wed 27/1/21	Mon 1/2/21	Wed 27/1/21	Mon 1/2/21	371	365	0 days		100%		2020	January		
365	CBR-4300		Condition Survey for BR2			0 days	NA	NA	1 day	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	364	373	0 days		100%		2020	October			
366	CBR-5000		Demolition of existing bioreactor no.2			60 days	Wed 3/2/21	Tue 20/4/21	50 days	Sat 19/12/20	Mon 22/2/21	Tue 10/11/20	Tue 10/11/20	NA138,176,178		2185 days		61%		2020	February			
367	CBR-5100		Identification and removal of existing cables		121	210	0 days	NA	NA	35 days	Tue 10/11/20	Tue 10/11/20	Sat 19/12/20	370,368	370,368	0 days		100%		2020	November			
368	CBR-5200		Diversion of existing lighting cable and Earthing ducts_stage 1		264	0 days	NA	NA	43 days	Fri 4/12/20	Tue 26/1/21	Fri 4/12/20	Tue 26/1/21	367	373	0 days		100%		2020	December			
369	CBR-5300		Diversion of existing lighting cable and Earthing ducts_stage 2			0 days?	NA	NA	50 days	Thu 4/2/21	Fri 9/4/21	Thu 4/2/21	NA	NA		-37 days		0%		2021	February			
370	CBR-5400		Plugging and demolition of existing DN800 air main		91	0 days	NA	NA	4 days	Mon 28/12/20	Thu 31/12/20	Mon 28/12/20	Thu 31/12/20	367		0 days		100%		2020	December			
371	CBR-5400		Overflow incident from BR1 to BR2 works area no.1		154	0 days	NA	NA	33 days	Fri 18/12/20	Thu 28/1/21	Fri 18/12/20	Thu 28/1/21	364	373	0 days		100%		2020	December			
372	CBR-5400		Overflow incident from BR1 to BR2 works area (Feb 2021)		173	0 days	NA	NA	8 days?	Tue 16/2/21	Wed 24/2/21	Tue 16/2/21	Wed 24/2/21	364	373	0 days?		100%		2021	February			
373	CBR-5500		Demolition of existing pipe bridge, partition wall and base slab (Stage 1)			30 days	Wed 3/2/21	Fri 12/3/21	26 days	Tue 2/2/21	Sat 6/3/21	Tue 2/2/21	Sat 6/3/21	368,365,372,363	377	0 days		100%		2020	February			
374			Relocation of cables attached on the parapet wall		153	0 days	NA	NA	30 days	Thu 10/12/20	Sat 16/1/21	NA	NA	NA		2213 days		0%		2020	December			
375			Removal of additional concrete fill within the partition walls		174	0 days	NA	NA	26 days?	Tue 2/2/21	Sat 6/3/21	Tue 2/2/21	Sat 6/3/21	NA		0 days?		100%		2020	February			
376	CBR-5600		Demolition of surrounded walls and channel of BR2 (Stage 2)			30 days	Fri 12/3/21	Tue 20/4/21	30 days	Fri 8/10/21	Fri 12/11/21	NA	NA	NA378		-216 days		0%		2021	October			
377	CBR-6000		Predrilling (36hrs, 3rigs, 2days/drillhole/rig)			44 days	Wed 21/4/21	Sat 12/6/21	44 days	Mon 1/3/21	Fri 30/4/21	Mon 1/3/21	NA	NA378	378	-319 days		1	0%		2021	March		
378	CBR-7000		Pre-bored H piles (157nos, 2rigs, 2days/pile/rig)			131 days	Tue 15/8/21	Thu 18/11/21	131 days	Mon 3/5/21	Thu 7/10/21	NA	NA	NA377,148,407	380FS-39 days,382,381,376	-319 days	5	0%		2021	August			
379	CBR-8000		Additional diversion of DN600 tank drain pipes between BR2A & 2B		204	0 days	NA	NA	1 day?	Mon 18/11/19	Mon 18/11/19	NA	NA	NA		2558 days?		0%		2019	November			
380	CBR-8000		Sheetpile Installation (3000sqm, 1rigs, 50sqm/rig/day)			60 days	Wed 8/9/21	Fri 19/11/21	60 days	Sat 18/8/21	Tue 2/11/21	NA	NA	NA378FS-39 days,149	382	-314 days		0%		2021	August			
381	CBR-9000		Pile Load Test			26 days	Wed 8/9/21	Tue 19/11/21	26 days	Fri 8/10/21	Mon 8/11/21	NA	NA	NA378	382	-319 days		0%		2021	August			
382	CBR-10000		ELS works (18100cu.m soil with 4 layers wailing / strutting)			125 days	Mon 20/12/21	Fri 27/5/22	140 days	Tue 9/11/21	Tue 3/5/22	NA	NA	NA378,380,151,381,144	383,384	-319 days		3	0%		2021	November		
383	CBR-11000	KD1E	R.C. Structure works			180 days	Sat 28/5/22	Sat 31/12/22	205 days	Wed 4/5/22	Sat 7/1/23	NA	NA	NA154,196,197,382,200,198	390,46FF,387,388,389,391	-319 days		5	0%		2022	May		
384		KD1E	Additional plugging works and end wall construction		152	0 days	NA	NA	90 days	Wed 4/5/22	Fri 19/8/22	NA	NA	NA382	46FF,385	20 days		0%		2022	August			
385		KD1E	Additional backfill works after end wall construction at BR2 common channel		172	0 days	NA	NA	90 days	Sat 20/8/22	Tue 6/12/22	NA	NA	NA384	46FF	20 days		0%		2022	August			
386	CBR-12000	KD1E	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Sat 31/12/22	Sat 31/12/22	0 days	Mon 18/11/19	Mon 18/11/19	NA	NA	NA	46FF	926 days		0%		2021	November			
387	CBR-13000	SW1	Flowmeter no. 2-4			180 days	2023/1/3	2023/8/12	195 days	Tue 5/9/23	Tue 5/9/23</													

ID	Activity ID	Key Date	Task Name	CE for Inclement Weather	NCE/ECE/PMI	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Individual Critical Path	Quarter	Month
507	CAA-1400		Alteration works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)			180 days	Wed 29/1/20	Thu 3/9/20	185 days	Wed 11/11/20	Mon 28/6/21	Wed 11/11/20		NA 504,505,506	53FF	-74 days		9%		1st Quarter	October
508	CAA-1500	KD2B	Re-alignment of DN800 Temporary Air Main (CHTA) and Provision of FRP Staircases		064	0 days	NA	NA	185 days	Wed 11/11/20	Mon 28/6/21	Wed 11/11/20		NA 504,505,506	53FF	-74 days		9%		1st Quarter	October
509	CAA-1600	KD2B	Elevated Section of DN800 Temporary Air Main (CHTA) across existing Bioreactor's Distribution Chamber No. 2 (PPMI 044)		017 062	0 days	NA	NA	60 days	Wed 11/11/20	Fri 22/1/21		NA	NA 504,505,506	53FF	51 days		0%		3rd Quarter	April
510	CAA-2000	KD11	B7-A Alteration works for existing Power House			122 days	Fri 4/9/20	Sat 30/1/21	120 days	Fri 4/9/20	Thu 28/1/21	Fri 4/9/20	Thu 28/1/21	13FS-1 day,138,176,178,186	50FF,511	0 days		100%		1st Quarter	October
511	CAA-2100		Additional works for Power House		224	0 days	NA	NA	60 days	Fri 29/1/21	Thu 15/4/21		NA	NA 510		2143 days		0%		1st Quarter	October
512	CAA-3000	SW3	Alteration works for existing Membrane Facilities Building No.1			360 days	Mon 1/2/21	Fri 22/4/22	360 days	Tue 19/4/22	Thu 6/7/23		NA	NA 14FS-1 day,185	58FF	269 days		0%		1st Quarter	October
513	CUU-0000	*	External Underground Service, Utilities, Road/Drain			1091 days	Mon 24/2/20	Sat 28/10/23	1041 days	Mon 27/4/20	Sat 28/10/23	Mon 27/4/20		NA 16		1390 days		11%		1st Quarter	October
514	CUU-1000	KD2A	Process Pipes CHR and CHS (approx. 93m twin DN900 D.I.)			325 days	Mon 24/2/20	Sat 27/3/21	272 days	Mon 27/4/20	Wed 4/8/21	Mon 27/4/20		NA 194,158	526SS+48 days,524SS+48 d	-39.8 days		27%		1st Quarter	October
515	CUU-1000a		Special Treatment for Removing the Existing Abandoned DN1800 By-pass Pipe and the Concrete Mass in Conflict with the Proposed Sheetpile wall for trenching work of Process Pipeline CHR and CHS		029	0 days	NA	NA	54 days	Sat 30/5/20	Mon 3/8/20	Sat 30/5/20	Mon 3/8/20			0 days		100%		1st Quarter	October
516	CUU-1000b		Trenchless work for Process Pipes CHR and CHS (approx. 7m twin DN900 D.I.) (PPMI 040)		255	0 days	NA	NA	60 days	Mon 21/12/20	Sat 6/3/21		NA	NA	52FF	82 days		0%		1st Quarter	October
517	CUU-1001		Removal of Abandoned DN1800 Concrete Pipe and Concrete Mass near Existing UV Disinfection Channel at CHR & CHS Process Pipe Works Area		033	0 days	NA	NA	43 days	Thu 2/7/20	Thu 20/8/20	Thu 2/7/20	Thu 20/8/20			0 days		100%		1st Quarter	October
518	CUU-1002		Grouting for Sheung Shui Slaughter House Boundary Walls along CHR & CHS Pipes Works Area (PPMI 064)			0 days	NA	NA	20 days	Fri 23/10/20	Mon 16/11/20	Fri 23/10/20		NA		0 days		84%		1st Quarter	October
519	CUU-1003		Ground settlement near CHR CHS Open trench due to leakage of water main at SSSH		080	0 days	NA	NA	30 days	Thu 31/12/20	Thu 4/2/21		NA	NA		2197 days		0%		1st Quarter	October
520	CUU-1004		Delay Delivery of DI pipes due to COVID-19		076	0 days	NA	NA	40 days	Tue 22/12/20	Tue 9/2/21		NA	NA	522FF	426 days		0%		1st Quarter	October
521	CUU-1005		Change alignment and fittings for CHDO1 and CHDO2		074	0 days	NA	NA	78 days	Fri 4/12/20	Thu 11/3/21		NA	NA	522FF	403 days		0%		1st Quarter	October
522	CUU-2000	SW2	Process Pipes, including CHT, CHX, CHY, CHPS1&2, CHS S1&2, CHDO 1&2, CHPSW 1-8, CHTPS, CHPT1&2, CHFTT 1&2, CHTE, CHTD, Foam Collection & Surplus activated sludge rising main pipe			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20		NA 194,514SS+48 days,158,520FF,521FF	57FF,527	63 days		8%		1st Quarter	October
523	CUU-3000	SW2	Drainage			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20		NA 194,514SS+48 days,158	57FF,527	63 days	5	8%		1st Quarter	October
524	CUU-4000	SW2	Sewerage			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20		NA 514SS+48 days,194,158	57FF,527	63 days	5	8%		1st Quarter	October
525	CUU-5000	SW2	Waterworks			550 days	Mon 29/6/20	Fri 6/5/22	542 days	Mon 19/10/20	Wed 17/8/22	Mon 19/10/20		NA 514SS+48 days,194,158	529FS+2 days,57FF	-22 days	5	7%		1st Quarter	October
526	CUU-6000	SW2	Cable Ducts			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20		NA 514SS+48 days,194,158	527,57FF	63 days	5	8%		1st Quarter	October
527	CUU-7000	KD3A	Roadworks			540 days	Fri 31/12/21	Sat 28/10/23	440 days	Sat 7/5/22	Sat 28/10/23		NA	NA 526,523,524,522	54FF	64 days	5	0%		1st Quarter	October
528	CLW-0000	*	Landscaping Works			854 days	Wed 11/5/22	Thu 27/3/25	794 days	Sat 20/8/22	Fri 25/4/25		NA	NA 16		37 days		0%		1st Quarter	October
529	CLW-1000	SW3	Irrigation System			120 days	Wed 11/5/22	Fri 30/9/22	120 days	Sat 20/8/22	Fri 13/1/23		NA	NA 525FS+2 days,194	530,58FF	37 days		0%		1st Quarter	October
530	CLW-2000	SW3	Hard Landscaping Works			220 days	Mon 3/10/22	Mon 3/7/23	185 days	Sat 14/1/23	Wed 30/8/23		NA	NA 529,159	531,58FF	37 days	5	0%		1st Quarter	October
531	CLW-3000	SW3	Soft Landscaping Works			220 days	Tue 4/7/23	Tue 26/3/24	185 days	Thu 31/8/23	Thu 25/4/24		NA	NA 530,159	532,58FF	37 days	5	0%		1st Quarter	October
532	CLW-4000	DLP	Establishment Works (365 days)			294 days	Wed 27/3/24	Thu 27/3/25	365 days	Fri 26/4/24	Fri 25/4/25		NA	NA 531,159	59FF,60FF	1108 days	5	0%		1st Quarter	October

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2020				2021				2022				2023				2024													
								J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

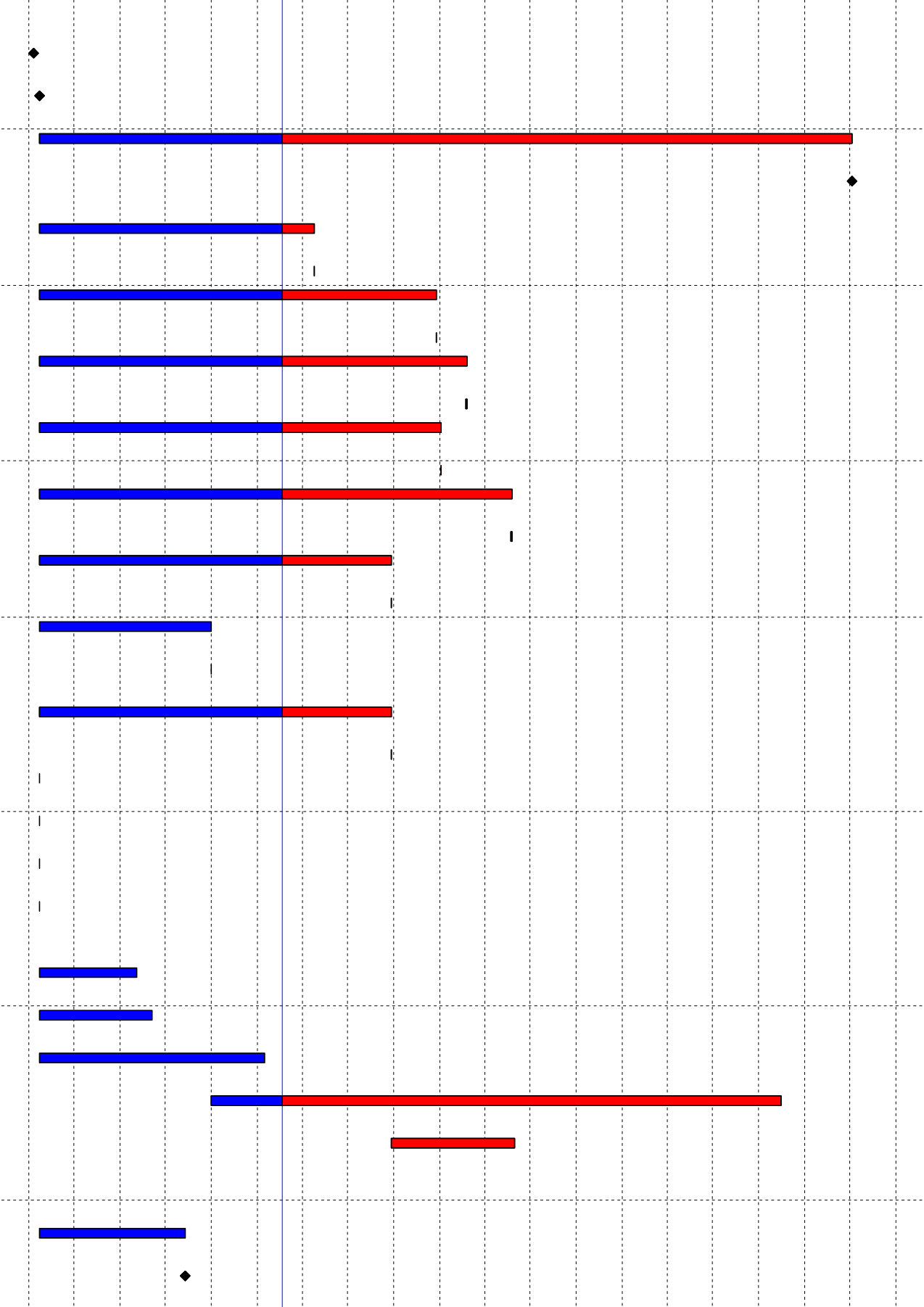
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E&M Works for Sludge Treatment Facilities

Contract Data							
Starting Date & Completion Date							
AS000010	Contract Date (LOA)	0	11-Oct-19 A		21-Feb-21		
AS000020	Starting Date	0	23-Oct-19 A		21-Feb-21		
AS000110	Whole Contract Period (1626 days from starting date)	1626	23-Oct-19 A	04-Apr-24	21-Feb-21	04-Apr-24	0
AS000220	Completion Date for the whole of the Works	0		04-Apr-24		04-Apr-24	0
Access Date							
AS001100	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19 A	24-Apr-21	21-Feb-21	24-Apr-21	0
AS001120	Planned Access Date for Portion C-1A	1	24-Apr-21	24-Apr-21*	24-Apr-21	24-Apr-21	0
AS001200	Portion C-2A (within 705 to 795 days from starting date)	795	23-Oct-19 A	25-Dec-21	21-Feb-21	25-Dec-21	0
AS001220	Planned Access Date for Portion C-2A	1	25-Dec-21	25-Dec-21*	25-Dec-21	25-Dec-21	0
AS001300	Portion C-2B (within 765 to 855 days from starting date)	855	23-Oct-19 A	23-Feb-22	21-Feb-21	23-Feb-22	0
AS001320	Planned Access Date for Portion C-2B	1	23-Feb-22	23-Feb-22*	23-Feb-22	23-Feb-22	0
AS001400	Portion C-2C (within 715 to 805 days from starting date)	805	23-Oct-19 A	04-Jan-22	21-Feb-21	04-Jan-22	0
AS001420	Planned Access Date for Portion C2-C	1	04-Jan-22	04-Jan-22*	04-Jan-22	04-Jan-22	0
AS001500	Portion C-2D (within 825 to 945 days from starting date)	945	23-Oct-19 A	24-May-22	21-Feb-21	24-May-22	0
AS001520	Planned Access Date for Portion C-2D	1	24-May-22	24-May-22*	24-May-22	24-May-22	0
AS001600	Portion C-3 (within 615 to 705 days from starting date)	705	23-Oct-19 A	26-Sep-21	21-Feb-21	26-Sep-21	0
AS001620	Planned Access Date for Portion C-3	1	26-Sep-21	26-Sep-21*	26-Sep-21	26-Sep-21	0
AS001700	Portion B-1 (within 285 to 345 days from starting date)	345	23-Oct-19 A	30-Sep-20 A	21-Feb-21	21-Feb-21	0
AS001720	Planned Access Date for Portion B-1	1	30-Sep-20 A	30-Sep-20 A	21-Feb-21	21-Feb-21	0
AS001800	Portion B-2 (within 615 to 705 days from starting date) (SS by NCE-NCE-219)	705	23-Oct-19 A	26-Sep-21	21-Feb-21	26-Sep-21	0
AS001820	Planned Access Date for Portion B-2 (SS by NCE-NCE-219)	1	26-Sep-21	26-Sep-21*	26-Sep-21	26-Sep-21	0
AS001900	Works Area WA1-B (starting date)	1	23-Oct-19 A	23-Oct-19 A	22-Feb-21	22-Feb-21	0
AS001910	Planned Access Date for Works Area WA1-B	1	23-Oct-19 A	23-Oct-19 A	22-Feb-21	22-Feb-21	0
AS001920	Works Area WA3 (starting date)	1	23-Oct-19 A	23-Oct-19 A	22-Feb-21	22-Feb-21	0
AS001930	Planned Access Date for Works Area WA3	1	23-Oct-19 A	23-Oct-19 A	22-Feb-21	22-Feb-21	0

Key Dates							
AS002010	KD1A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of UV System No.1 and Effluent Pumping Station No.1	196	23-Oct-19 A	05-May-20 A	15-Apr-21	15-Apr-21	0
AS002020	KD2A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, Workshop No.2, etc.	226	23-Oct-19 A	04-Jun-20 A	09-Jun-21	09-Jun-21	0
AS002040	KD2B Submission of Remaining Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, etc.	461	23-Oct-19 A	15-Jan-21 A	09-Jun-21	09-Jun-21	0
AS002050	KD3A Completion of Phase 1 Commissioning of Sidestream Treatment Facilities (1140d after Portion B-1 Access)	1141	30-Sep-20 A	14-Nov-23*	21-Feb-21	14-Nov-23	0
AS002060	KD5A - Completion of the BS Fittings Installation at CLP Sub-Station at Workshop No. 2 (245d after Portion C-3 Access)	246	26-Sep-21	29-May-22*	26-Sep-21	29-May-22	0

Completion Date							
Section 1 - Complete All Design at UV System No.1 & EP Station No. 1							
AS003100	Contract Duration of Section 1	291	23-Oct-19 A	08-Aug-20 A	04-Apr-24	04-Apr-24	0
AS003110	Completion date - Section 1 (290 days after starting date)	0		08-Aug-20 A		04-Apr-24	0

Remarks: The Defect Date is 4 Apr 2025 (365 days after Completion of the whole of the works)



File Name: DE/2018/03 RP R7
 Layout: DE1803 RP (Feb 2021) - WBS
 Page 1 of 20

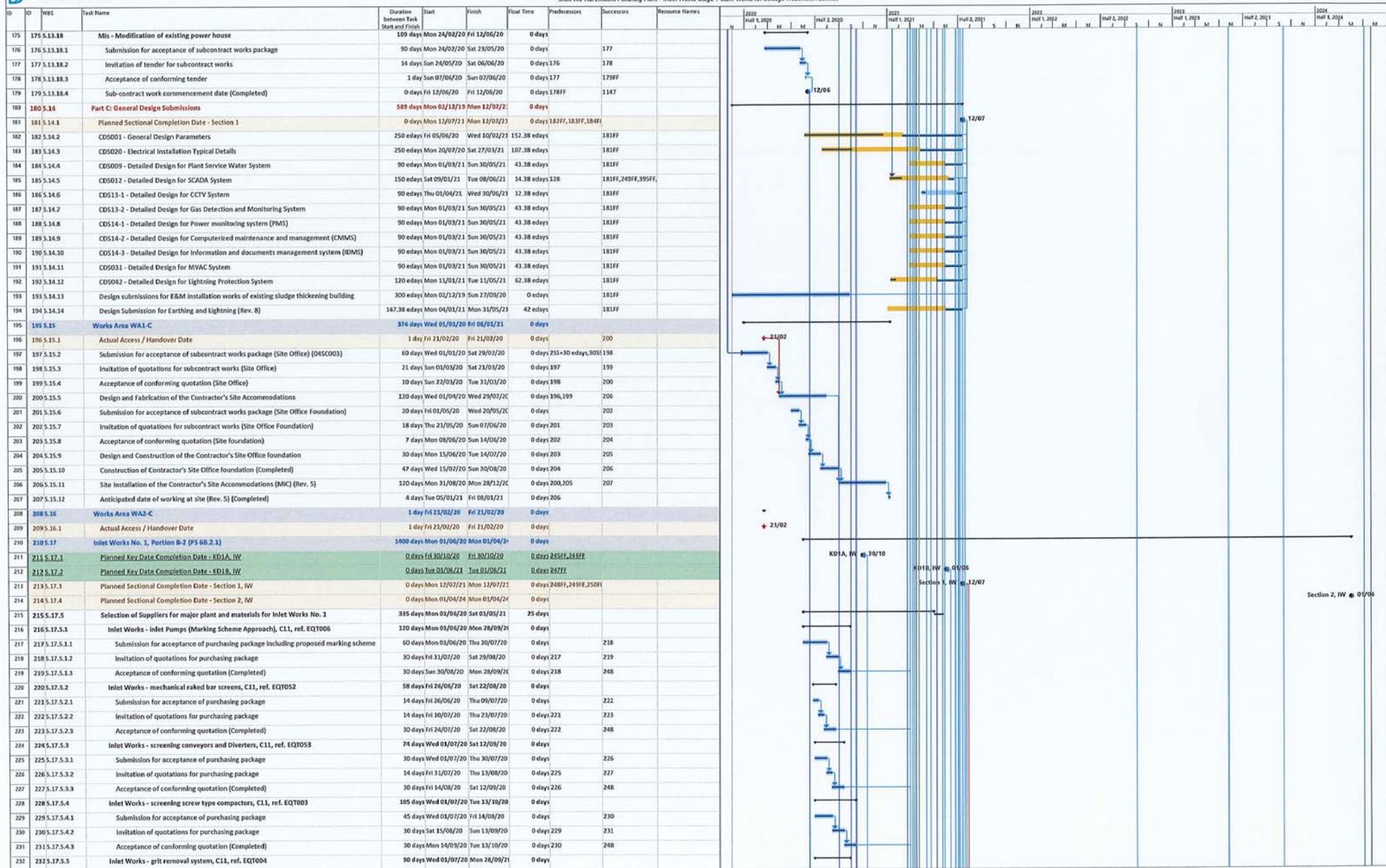
- Remaining Work
- Critical Activity
- Actual Progress
- ◆ Milestone

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities
Revised Programme - as at 20 Feb 2021

Date	Revision	Checked	Approved
30-Oct-20	Rev.3	LT	KM
02-Dec-20	Rev.4	LT	KM
30-Dec-20	Rev.5	LT	KM
26-Jan-21	Rev.6	LT	KM
26-Feb-21	Rev.7	LT	KM

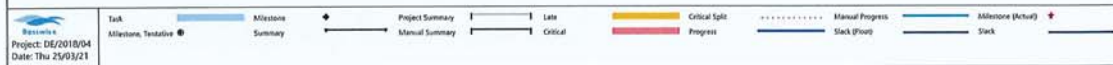
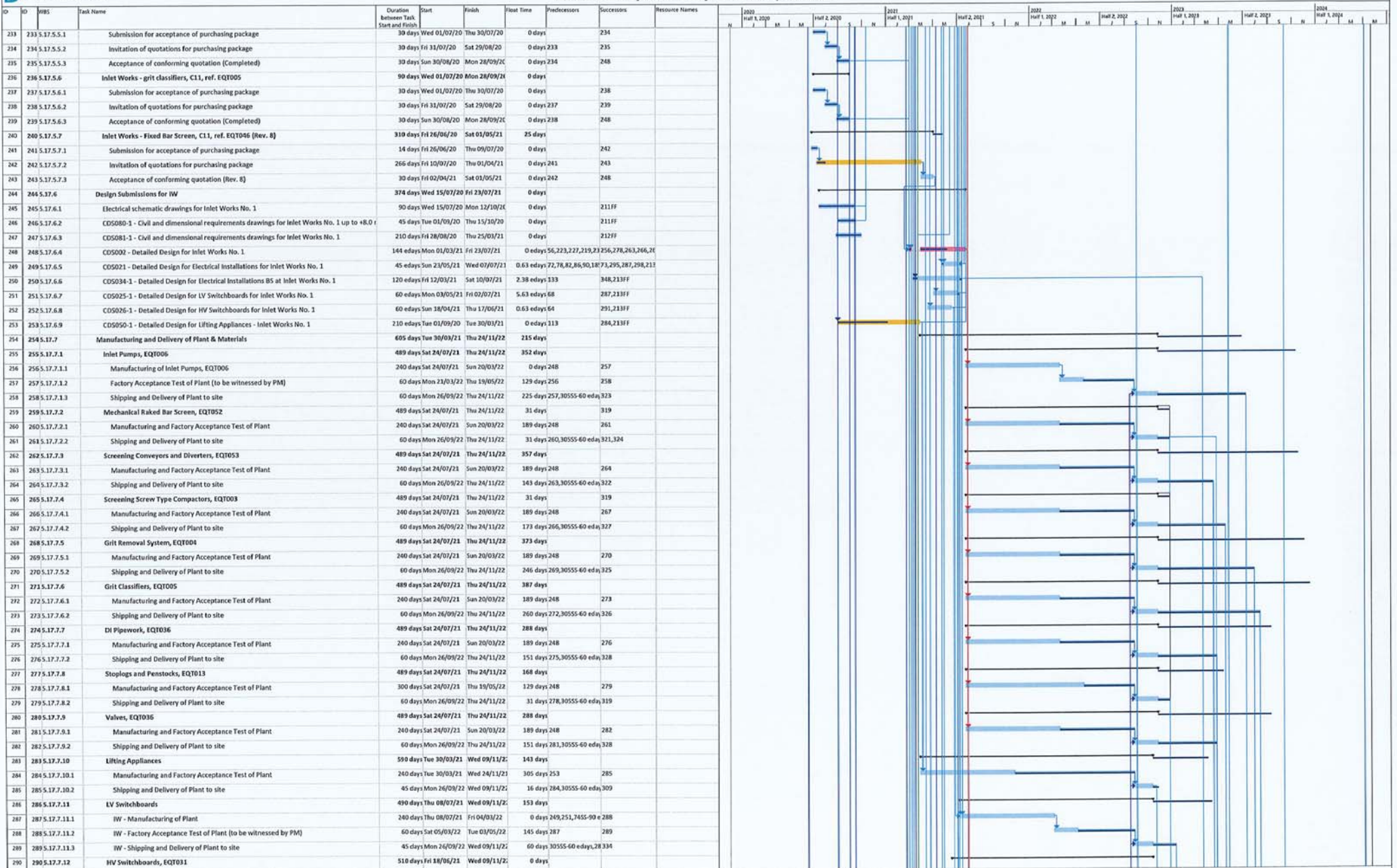


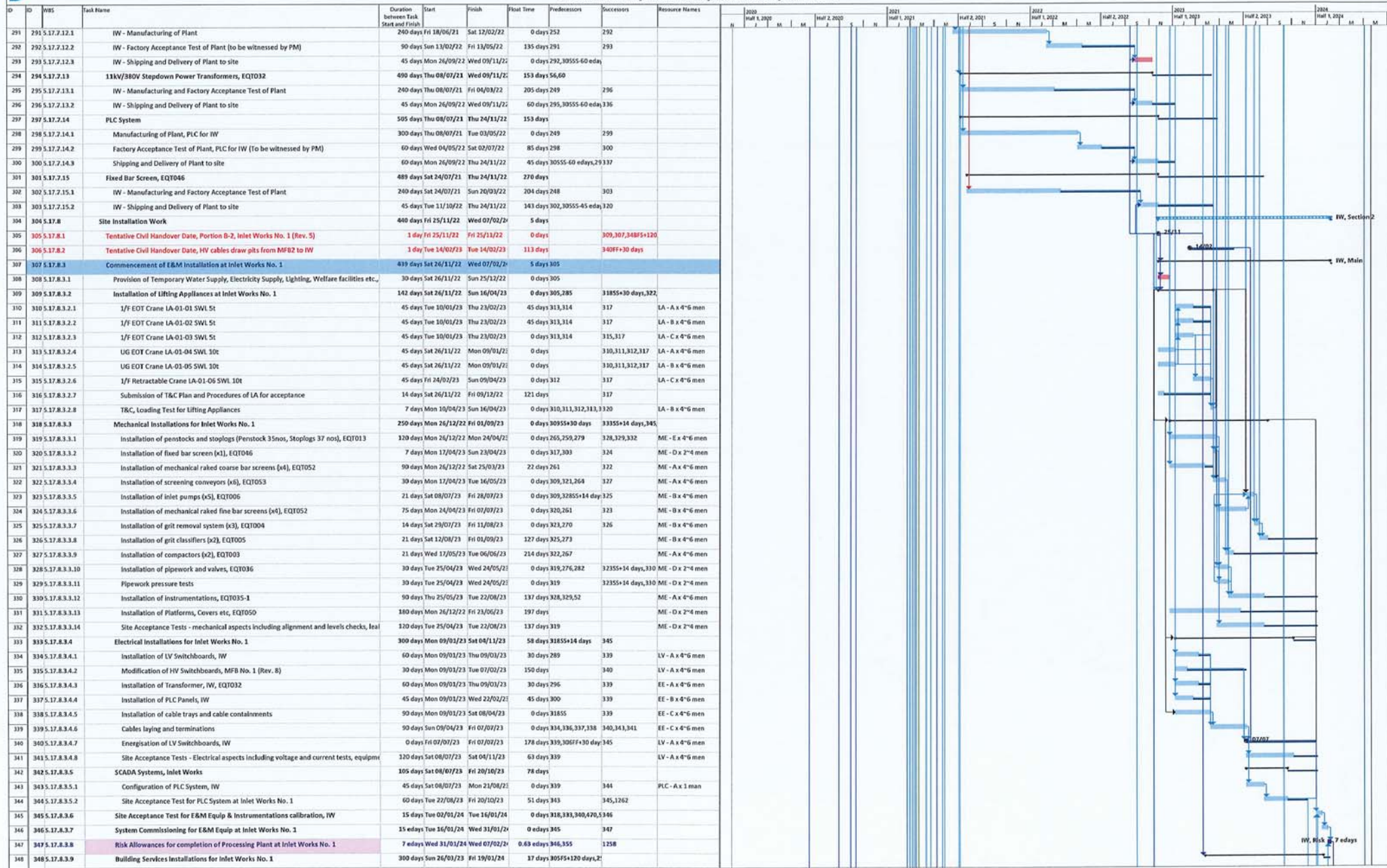




Task Milestones Project Summary Late Critical Split Manual Progress Milestone (Actual) Stack (Float) Stack

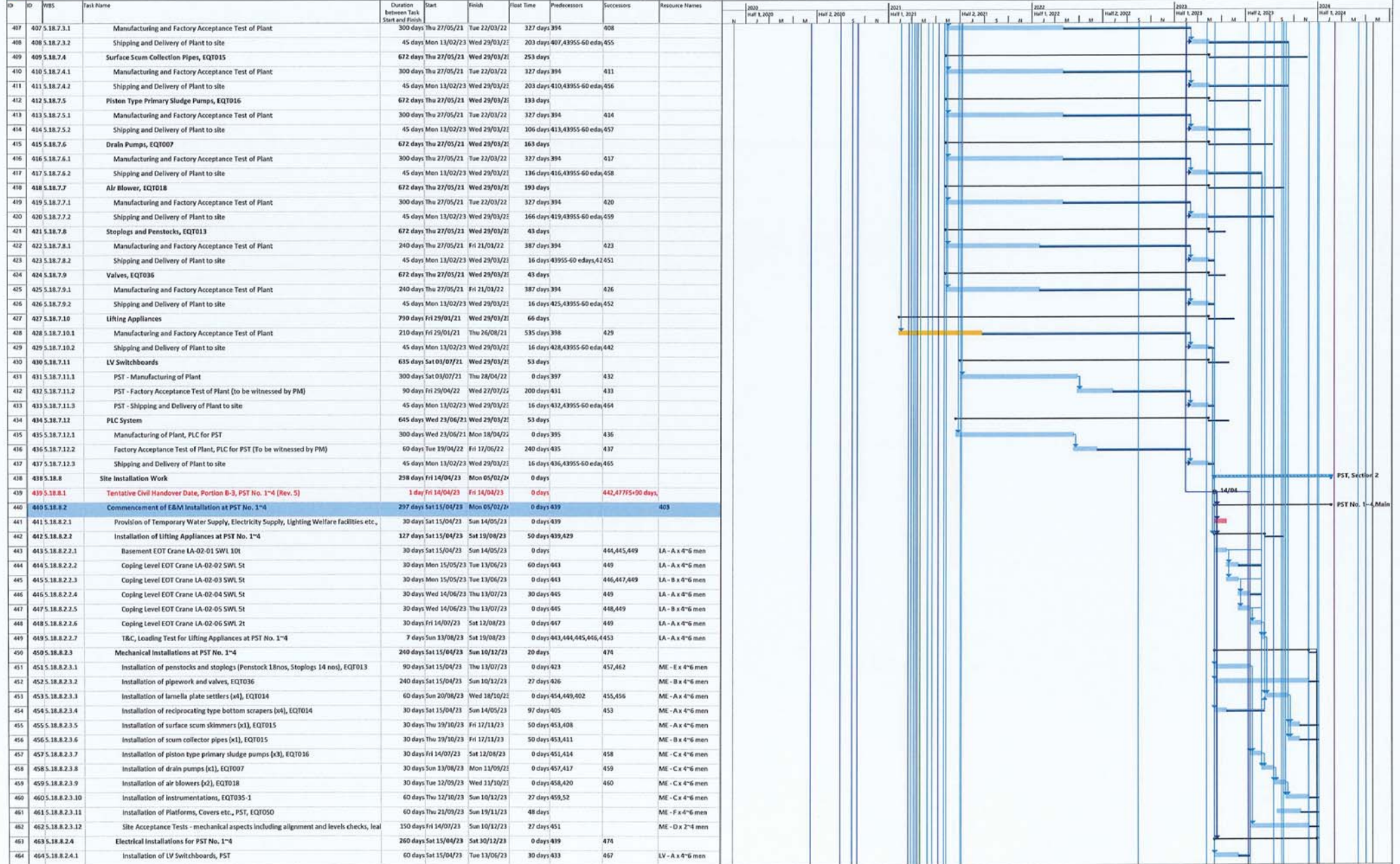
Milestones, Tentative Manual Summary Critical Progress

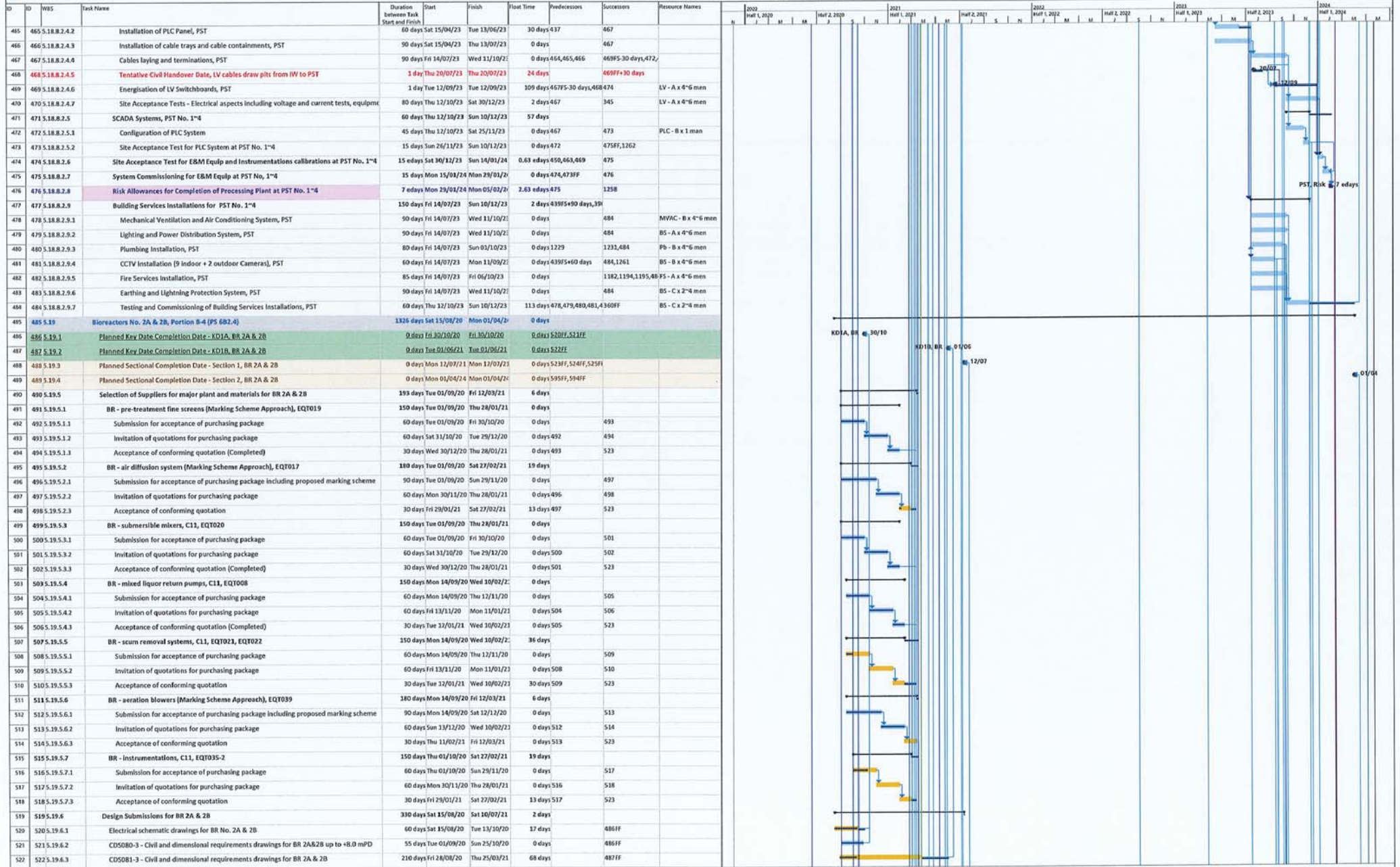




ID	WBS	Task Name	Duration Between Task Start and Finish	Start	Finish	Float Time	Predecessors	Successors	Resource Names	2020	2021	2022	2023	2024						
										Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	
349	349.5.17.8.3.9.1	Mechanical Ventilation and Air Conditioning System, IW	350 days	Sun 26/03/23	Tue 22/08/23	30 days		355	MVAC - B x 4'6" men											
350	350.5.17.8.3.9.2	Lighting and Power Distribution System, IW	180 days	Sun 26/03/23	Thu 21/09/23	0 days		355	BS - A x 4'6" men											
351	351.5.17.8.3.9.3	Plumbing Installation, IW	120 days	Sun 26/03/23	Sun 23/07/23	60 days	1231,1229	1231,355	PB - A x 4'6" men											
352	352.5.17.8.3.9.4	CCTV Installation (5 indoor +5 outdoor Cameras), IW	90 days	Mon 24/04/23	Sat 22/07/23	51 days	30555+150 days	355,1261	BS - B x 4'6" men											
353	353.5.17.8.3.9.5	Fire Services Installation, IW	120 days	Mon 24/04/23	Mon 21/08/23	31 days	30555+150 days	1182,1194,1195,35	FS - A x 4'6" men											
354	354.5.17.8.3.9.6	Earthing and Lightning Protection System, IW	60 days	Wed 24/05/23	Sat 22/07/23	61 days	30555+180 days	355	BS - C x 2'4" men											
355	355.5.17.8.3.9.7	Testing and Commissioning of Building Services Installations, IW	120 days	Fri 22/09/23	Fri 19/01/24	12 days	349,350,351,352,3347		BS - C x 2'4" men											
356	356.5.18	Primary Sedimentation Tanks No. 1 ~ 4, Portion B-3 (PS 6B2.2)	1371 days	Wed 01/07/20	Mon 01/04/24	0 days														
357	357.5.18.1	Planned Key Date Completion Date - KDJA, PST No. 1~4	0 days	Fri 30/10/20	Fri 30/10/20	0 days	3931FF, 3922FF													
358	358.5.18.2	Planned Key Date Completion Date - KD1B, PST No. 1~4	1 day	Tue 01/06/21	Tue 01/06/21	0 days	3931FF													
359	359.5.18.3	Planned Sectional Completion Date - Section 1, PST No. 1~4	0 days	Mon 12/07/21	Mon 12/07/21	0 days	398FF, 395FF, 394FF													
360	360.5.18.4	Planned Sectional Completion Date - Section 2, PST No. 1~4	0 days	Mon 01/04/24	Mon 01/04/24	0 days	484FF													
361	361.5.18.5	Selection of Suppliers for major plant and materials for PST No. 1~4	230 days	Wed 01/07/20	Mon 15/02/21	47 days														
362	362.5.18.5.1	PST - lamella plate settlers, C11, ref. EQT014	90 days	Wed 01/07/20	Mon 28/09/20	0 days														
363	363.5.18.5.1.1	Submission for acceptance of purchasing package	30 days	Wed 01/07/20	Thu 30/07/20	0 days		364												
364	364.5.18.5.1.2	Invitation of quotations for purchasing package	30 days	Fri 13/07/20	Sat 29/08/20	0 days	363	365												
365	365.5.18.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Sun 30/08/20	Mon 28/09/20	0 days	364	394												
366	366.5.18.5.2	PST - reciprocating type bottom scrapers, C11, ref. EQT014	135 days	Wed 01/07/20	Thu 12/11/20	0 days														
367	367.5.18.5.2.1	Submission for acceptance of purchasing package	45 days	Wed 01/07/20	Fri 14/08/20	0 days		368												
368	368.5.18.5.2.2	Invitation of quotations for purchasing package	60 days	Sat 15/08/20	Tue 13/10/20	0 days	367	369												
369	369.5.18.5.2.3	Acceptance of conforming quotation (Completed)	30 days	Wed 14/10/20	Thu 12/11/20	0 days	368	394												
370	370.5.18.5.3	PST - surface scum skimmers, C11, ref. EQT015	90 days	Tue 07/07/20	Sun 04/10/20	181 days														
371	371.5.18.5.3.1	Submission for acceptance of purchasing package	30 days	Tue 07/07/20	Wed 05/08/20	0 days		372												
372	372.5.18.5.3.2	Invitation of quotations for purchasing package	30 days	Thu 06/08/20	Fri 04/09/20	0 days	371	373												
373	373.5.18.5.3.3	Acceptance of conforming quotation	30 days	Sat 05/09/20	Sun 04/10/20	134 days	372	394												
374	374.5.18.5.4	PST - scum collector pipes, C11, ref. EQT015	210 days	Wed 01/07/20	Tue 24/01/21	67 days														
375	375.5.18.5.4.1	Submission for acceptance of purchasing package	120 days	Wed 01/07/20	Wed 28/10/20	0 days		376												
376	376.5.18.5.4.2	Invitation of quotations for purchasing package	60 days	Thu 29/10/20	Sun 27/12/20	0 days	375	377												
377	377.5.18.5.4.3	Acceptance of conforming quotation	30 days	Mon 28/12/20	Tue 26/01/21	20 days	376	394												
378	378.5.18.5.5	PST - piston type primary sludge pumps, C11, ref. EQT016	210 days	Wed 01/07/20	Tue 24/01/21	0 days														
379	379.5.18.5.5.1	Submission for acceptance of purchasing package	120 days	Wed 01/07/20	Wed 28/10/20	0 days		380												
380	380.5.18.5.5.2	Invitation of quotations for purchasing package	60 days	Thu 29/10/20	Sun 27/12/20	0 days	379	381												
381	381.5.18.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Mon 28/12/20	Tue 26/01/21	0 days	380	394												
382	382.5.18.5.6	PST - drain pumps, C11, ref. EQT007	210 days	Tue 14/07/20	Mon 08/02/21	0 days														
383	383.5.18.5.6.1	Submission for acceptance of purchasing package	120 days	Tue 14/07/20	Tue 10/11/20	0 days		384												
384	384.5.18.5.6.2	Invitation of quotations for purchasing package	60 days	Wed 11/11/20	Sat 09/01/21	0 days	383	385												
385	385.5.18.5.6.3	Acceptance of conforming quotation (Completed)	30 days	Sun 10/01/21	Mon 08/02/21	0 days	384	394												
386	386.5.18.5.7	PST - air blowers, C11, ref. EQT018	210 days	Tue 23/07/20	Mon 15/02/21	47 days														
387	387.5.18.5.7.1	Submission for acceptance of purchasing package	120 days	Tue 23/07/20	Tue 17/11/20	0 days		388												
388	388.5.18.5.7.2	Invitation of quotations for purchasing package	60 days	Wed 18/11/20	Sat 16/01/21	0 days	387	389												
389	389.5.18.5.7.3	Acceptance of conforming quotation	30 days	Sun 17/01/21	Mon 15/02/21	0 days	388	394												
390	390.5.18.6	Design Submissions for PST No. 1~4	336 days	Sat 01/08/20	Fri 02/07/21	10 days														
391	391.5.18.6.1	Electrical schematic drawings for PST No. 1~4	60 days	Sat 01/08/20	Tue 29/09/20	0 days		357FF												
392	392.5.18.6.2	CDS080-2 - Civil and dimensional requirements drawings for PST No. 1~4 up to +8.0 mPD	50 days	Tue 01/09/20	Tue 20/10/20	0 days		357FF												
393	393.5.18.6.3	CDS081-2 - Civil and dimensional requirements drawings for PST No. 1~4	150 days	Tue 01/09/20	Thu 28/01/21	0 days		358FF												
394	394.5.18.6.4	CDS003 - Detailed Design for Primary Sedimentation Tanks No. 1~4	100 edays	Mon 15/02/21	Wed 26/05/21	0.63 edays	365,369,373,377,401,404,407,410,41													
395	395.5.18.6.5	CDS022 - Detailed Design for Electrical Installations for PST No. 1~4	30 edays	Sun 23/05/21	Tue 22/06/21	0.63 edays	72,82,90,185FF	73,435,359FF												
396	396.5.18.6.6	CDS034-2 - Detailed Design for Electrical Installations BS at PST No. 1~4	50 edays	Fri 12/03/21	Thu 10/06/21	32.38 edays	133	477,359FF												
397	397.5.18.6.7	CDS025-2 - Detailed Design for LV Switchboards for PST No. 1~4	60 edays	Mon 03/05/21	Fri 02/07/21	0.63 edays	68	431,359FF												
398	398.5.18.6.8	CDS050-2 - Detailed Design for Lifting Appliances - PST No. 1~4	150 edays	Tue 01/09/20	Fri 29/01/21	0 edays	113	428,359FF												
399	399.5.18.7	Manufacturing and Delivery of Plant & Materials	790 days	Fri 29/01/21	Wed 29/03/21	253 days														
400	400.5.18.7.1	Lamella Plate Settlers, EQT014	672 days	Thu 27/05/21	Wed 29/03/21	193 days														
401	401.5.18.7.1.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Thu 27/05/21	Tue 22/03/21	327 days	394	402												
402	402.5.18.7.1.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/21	143 days	401,43955-60 edays	453												
403	403.5.18.7.2	Reciprocating Type Bottom Scrapers, EQT014	672 days	Thu 27/05/21	Wed 29/03/21	163 days														
404	404.5.18.7.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Thu 27/05/21	Tue 22/03/21	327 days	394	405												
405	405.5.18.7.2.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/21	16 days	404,43955-60 edays	454												
406	406.5.18.7.3	Surface Scum Skimmers, EQT015	672 days	Thu 27/05/21	Wed 29/03/21	253 days														

■ Task
▬ Milestone
● Milestone Tentative
▬ Summary
▬ Project Summary
▬ Manual Summary
▬ Late
▬ Critical
▬ Critical Split
▬ Progress
▬ Manual Progress
▬ Milestone (Actual)
▬ Slack (Float)
▬ Slack

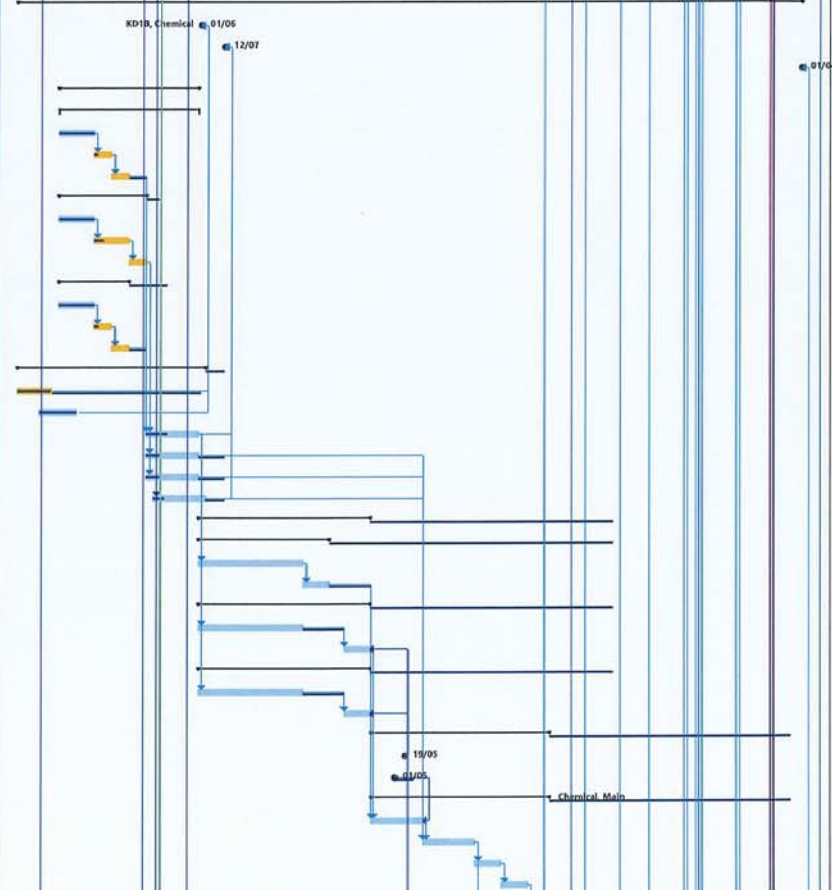




ID	WBS	Task Name	Duration Between Task Start and Finish	Start	Finish	Float Time	Predecessors	Successors	Resource Names	2020	2021	2022	2023	2024					
										Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	
523	523.5.19.6.4	COS004 - Detailed Design for Bioreactor 2A and 2B	120 days	Fri 12/03/21	Sat 10/07/21	0.63 days	494,498,502,506,530,533,536,539,54												
524	524.5.19.6.5	COS023 - Detailed Design for Electrical Installations for BR No. 2A & 2B	30 days	Sun 23/05/21	Tue 22/06/21	0.63 days	77,82,90,185FF	73,488FF,697											
525	525.5.19.6.6	COS034-3 - Detailed Design for Electrical Installations BS at BR No. 2A & 2B	100 days	Fri 12/03/21	Sun 20/06/21	22.38 days	edays:133	589,488FF,590											
526	526.5.19.6.7	COS025-3 - Detailed Design for LV Switchboards for BR 2A and 2B	60 days	Mon 01/05/21	Fri 02/07/21	0.63 days	68	683,488FF											
527	527.5.19.6.8	COS050-3 - Detailed Design for Lifting Appliances - BR 2A & 2B	120 days	Thu 01/10/20	Fri 29/01/21	0 days	113	557,488FF											
528	528.5.19.7	Manufacturing and Delivery of Plant & Materials	740 days	Fri 29/01/21	Tue 07/02/23	258 days													
529	529.5.19.7.1	Pre-treatment Fine Screens, EQT019	577 days	Sun 11/07/21	Tue 07/02/23	185 days													
530	530.5.19.7.1.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	531											
531	531.5.19.7.1.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	16 days	530,56055-60	edays:573											
532	532.5.19.7.2	Air Diffusion System, EQT017	577 days	Sun 11/07/21	Tue 07/02/23	168 days													
533	533.5.19.7.2.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	534											
534	534.5.19.7.2.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	83 days	533,56055-60	edays:574											
535	535.5.19.7.3	Submersible Mixer, EQT020	577 days	Sun 11/07/21	Tue 07/02/23	213 days													
536	536.5.19.7.3.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	537											
537	537.5.19.7.3.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	44 days	536,56055-60	edays:575											
538	538.5.19.7.4	Mixed Liquor Return Pumps, EQT008	577 days	Sun 11/07/21	Tue 07/02/23	228 days													
539	539.5.19.7.4.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	540											
540	540.5.19.7.4.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	16 days	539,56055-60	edays:576											
541	541.5.19.7.5	Sludge Removal System, EQT021, EQT022	577 days	Sun 11/07/21	Tue 07/02/23	258 days													
542	542.5.19.7.5.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	543											
543	543.5.19.7.5.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	46 days	542,56055-60	edays:577											
544	544.5.19.7.6	Aeration Blowers, EQT039	577 days	Sun 11/07/21	Tue 07/02/23	258 days													
545	545.5.19.7.6.1	Manufacturing and Factory Acceptance Test of Plant (to be witnessed by PM)	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	546											
546	546.5.19.7.6.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	173 days	545,56055-60	edays:578											
547	547.5.19.7.7	Instrumentations, EQT035-2	577 days	Sun 11/07/21	Tue 07/02/23	243 days													
548	548.5.19.7.7.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	549											
549	549.5.19.7.7.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	166 days	548,56055-60	edays:579											
550	550.5.19.7.8	Stopplogs and Penstocks, EQT013	577 days	Sun 11/07/21	Tue 07/02/23	93 days													
551	551.5.19.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	552											
552	552.5.19.7.8.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	16 days	551,56055-60	edays:571											
553	553.5.19.7.9	Valves, EQT036	577 days	Sun 11/07/21	Tue 07/02/23	93 days													
554	554.5.19.7.9.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	292 days	523	555											
555	555.5.19.7.9.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	16 days	554,56055-60	edays:572											
556	556.5.19.7.10	Lifting Appliances	740 days	Fri 29/01/21	Tue 07/02/23	101 days													
557	557.5.19.7.10.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Fri 29/01/21	Tue 26/08/21	485 days	527	558											
558	558.5.19.7.10.2	Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	16 days	557,56055-60	edays:564											
559	559.5.19.8	Site Installation Work	348 days	Thu 23/02/23	Mon 05/07/23	0 days													
560	560.5.19.8.1	Tentative Civil Handover Date, Portion B-4, BR2A & 2B (Rev. 5)	1 day	Thu 23/02/23	Thu 23/02/23	0 days		564,570,541,589FS-											
561	561.5.19.8.2	Tentative Civil Handover Date, LV cables draw pits from MFB2 to BR2	1 day	Thu 01/06/23	Thu 01/06/23	30 days		584FF+30 days											
562	562.5.19.8.3	Commencement of E&M installation at Bioreactor No. 2A & 2B	347 days	Fri 24/02/23	Mon 05/07/23	0 days	540												
563	563.5.19.8.3.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, Welfare facilities etc.,	7 days	Fri 24/02/23	Thu 02/03/23	0 days	540												
564	564.5.19.8.3.2	Installation of Lifting Appliances at BR 2A & 2B	67 days	Fri 24/02/23	Mon 01/05/23	85 days	540,558												
565	565.5.19.8.3.2.1	Coping Level EOT Crane LA-03-01 SWL St	30 days	Fri 24/02/23	Sat 25/03/23	0 days		567,568,569	LA - A x 4*6 men										
566	566.5.19.8.3.2.2	Coping Level EOT Crane LA-03-02 SWL St	30 days	Fri 24/02/23	Sat 25/03/23	0 days		567,568,569	LA - B x 4*6 men										
567	567.5.19.8.3.2.3	Coping Level EOT Crane LA-03-03 SWL St	30 days	Sun 26/03/23	Mon 24/04/23	0 days	565,566	569	LA - A x 4*6 men										
568	568.5.19.8.3.2.4	Coping Level Mobile A-frame LA-03-04 SWL 4t	7 days	Sun 26/03/23	Sat 01/04/23	23 days	565,566	569	LA - B x 4*6 men										
569	569.5.19.8.3.2.5	T&C, Loading Test for Lifting Appliances at Bioreactor No. 2A & 2B	7 days	Tue 25/04/23	Mon 01/05/23	0 days	565,566,567,568	574	LA - B x 4*6 men										
570	570.5.19.8.3.3	Mechanical Installations for E&M Equip at BR 2A & 2B	270 days	Fri 24/02/23	Mon 20/11/23	10 days	540	586											
571	571.5.19.8.3.3.1	Installation of penstocks and stoplogs (Penstocks Bnos, Stoplogs Bnos), EQT013	90 days	Fri 24/02/23	Wed 24/05/23	0 days	552	580	ME - E x 4*6 men										
572	572.5.19.8.3.3.2	Installation of pipework and valves, EQT036	150 days	Fri 24/02/23	Sun 23/07/23	0 days	555	579	ME - C x 4*6 men										
573	573.5.19.8.3.3.3	Installation of pre-treatment fine screens (x4)	28 days	Fri 24/02/23	Thu 23/03/23	0 days	531	575	ME - A x 4*6 men										
574	574.5.19.8.3.3.4	Installation of air diffusion system (x2), EQT017	90 days	Tue 02/05/23	Sun 30/07/23	0 days	569,534	578	ME - D x 2*4 men										
575	575.5.19.8.3.3.5	Installation of submersible mixers (x16), EQT020	90 days	Fri 24/03/23	Wed 21/06/23	162 days	573,537	586	ME - B x 4*6 men										
576	576.5.19.8.3.3.6	Installation of mixed liquor return pumps (x6), EQT008	30 days	Fri 24/02/23	Sat 25/03/23	0 days	540	577	ME - A x 4*6 men										
577	577.5.19.8.3.3.7	Installation of scum removal systems (x2), EQT022	45 days	Sun 26/03/23	Tue 09/05/23	205 days	576,543	586	ME - B x 4*6 men										
578	578.5.19.8.3.3.8	Installation of aeration blowers (x4), EQT039	45 days	Mon 31/07/23	Wed 13/09/23	78 days	574,546	586	ME - D x 2*4 men										
579	579.5.19.8.3.3.9	Installation of instrumentations, EQT035-2	60 days	Mon 24/07/23	Thu 21/09/23	70 days	572,549	586	ME - D x 2*4 men										
580	580.5.19.8.3.3.10	Site Acceptance Tests - mechanical aspects including alignment and levels checks, level	180 days	Thu 25/05/23	Mon 20/11/23	10 days	571	586	ME - D x 2*4 men										

■ Task
■ Milestone
■ Milestone (Actual)
■ Manual Progress
■ Slack (Post)
■ Slack
■ Critical Split
■ Progress
■ Manual Summary
■ Critical
■ Line
■ Manual Progress
■ Milestone (Actual)
■ Slack (Post)
■ Slack

ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Float Time	Predecessors	Successors	Resource Names	2020	2021	2022	2023	2024						
										Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	
755	755.2.0.8.4.5	SCADA Systems, BR No. 1 & No. 2, MFB No. 2	131 days	Fri 14/07/23	Tue 21/11/23	31 days														
756	756.2.0.8.4.5.1	Configuration of PLC System for BR No. 1 & No. 2	30 days	Mon 02/10/23	Tue 31/10/23	0 days	747,583	758	PLC - A x 1 man											
757	757.2.0.8.4.5.2	Configuration of PLC System for MFB No. 2	30 days	Fri 14/07/23	Sat 12/08/23	0 days	752	759												
758	758.2.0.8.4.5.3	Site Acceptance Test for PLC System at BR No. 1 and No. 2	21 days	Wed 01/11/23	Tue 21/11/23	19 days	756	761,587,1262												
759	759.2.0.8.4.5.4	Site Acceptance Test for PLC System at MFB No. 2	21 days	Sun 13/08/23	Sat 02/09/23	99 days	757	761,1262												
760	760.2.0.8.4.6	Site Acceptance Test for E&M Equip at MFB No. 2	30 edays	Fri 13/10/23	Sun 12/11/23	28.63 edays	739,744,754,724	761												
761	761.2.0.8.4.7	System Commissioning for E&M Equip at MFB No. 2	45 days	Mon 11/12/23	Wed 24/01/24	0 days	756,760,770,759,762													
762	762.2.0.8.4.8	Risk Allowances for Completion of Processing Plant at MFB No. 2	7 edays	Wed 24/01/24	Wed 31/01/24	7.63 edays	761	1158												
763	763.2.0.8.4.9	Building Services Installations for MFB No. 2	330 days	Sun 15/01/23	Sun 10/12/23	12 days	727FS+150 edays													
764	764.2.0.8.4.9.1	Mechanical Ventilation and Air Conditioning System, MFB No. 2	120 days	Sun 15/01/23	Sun 14/05/23	90 days		770	MVAC - A x 4*6 men											
765	765.2.0.8.4.9.2	Lighting and Power Distribution System, MFB No. 2	210 days	Sun 15/01/23	Sat 12/08/23	0 days		770	BS - A x 4*6 men											
766	766.2.0.8.4.9.3	Plumbing Installation, MFB No. 2	180 days	Sun 15/01/23	Thu 13/07/23	30 days	11229	1231,770	Pb - B x 4*6 men											
767	767.2.0.8.4.9.4	CCTV Installation (10 Indoor + 3 outdoor Cameras), MFB No. 2	90 days	Sun 15/01/23	Fri 14/04/23	120 days	727FS+120 days	770,1261	BS - B x 4*6 men											
768	768.2.0.8.4.9.5	Fire Services Installation, MFB No. 2	120 days	Sun 15/01/23	Sun 14/05/23	90 days		1182,1194,1195,771FS	BS - B x 4*6 men											
769	769.2.0.8.4.9.6	Earthing and Lightning Protection System, MFB No. 2	60 days	Sun 15/01/23	Wed 15/03/23	315 days		761FF	BS - C x 2*4 men											
770	770.2.0.8.4.9.7	Testing and Commissioning of Building Services Installations, MFB No. 2	120 days	Sun 13/08/23	Sun 10/12/23	0 days	764,765,766,767,761		BS - C x 2*4 men											
771	771.5.2.1	Chemical System No. 1 and No. 2, Portion B-7 & B-7B (PS 68.2.3)	1351 days	Tue 21/07/20	Mon 01/04/24	0 days														
772	772.5.2.1.1	Planned Key Date Completion Date - K01B, Chem Sys No. 1 & 2	0 days	Tue 01/06/21	Tue 01/06/21	0 days	789FF,790FF													
773	773.5.2.1.2	Planned Sectional Completion Date - Section 1, Chem Sys No. 1 & 2	0 days	Mon 12/07/21	Mon 12/07/21	0 days	791FF,792FF,793FF													
774	774.5.2.1.3	Planned Sectional Completion Date - Section 2, Chem Sys No. 1 & 2	0 days	Mon 01/04/24	Mon 01/04/24	0 days	820FF													
775	775.5.2.1.4	Selection of Suppliers for major plant and materials for Chemical Systems	240 days	Thu 03/10/20	Fri 28/05/21	0 days														
776	776.5.2.1.4.1	Chemical Storage and Dosing - chemical storage tanks, C11, ref. EQ1025	240 days	Thu 03/10/20	Fri 28/05/21	0 days														
777	777.5.2.1.4.1.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	0 days		778												
778	778.5.2.1.4.1.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	0 days	777	779												
779	779.5.2.1.4.1.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	30 days	778	791												
780	780.5.2.1.4.2	Chemical Storage and Dosing - chemical dosing pumps, C11, ref. EQ1027	150 days	Thu 01/10/20	Sat 27/02/21	22 days														
781	781.5.2.1.4.2.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	0 days		782												
782	782.5.2.1.4.2.2	Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	0 days	781	783												
783	783.5.2.1.4.2.3	Acceptance of conforming quotation	30 days	Fri 29/01/21	Sat 27/02/21	0 days	782	791,792,793												
784	784.5.2.1.4.3	Chemical Storage and Dosing - transfer pumps, C11, ref. EQ1026	120 days	Thu 01/10/20	Thu 28/01/21	64 days														
785	785.5.2.1.4.3.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	0 days		786												
786	786.5.2.1.4.3.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	0 days	785	787												
787	787.5.2.1.4.3.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	30 days	786	791												
788	788.5.2.1.5	Design Submissions for Chemical System No. 1 and No. 2	324 days	Tue 21/07/20	Thu 10/06/21	31 days														
789	789.5.2.1.5.1	Electrical schematic drawings for Chemical Systems No. 1 and No. 2	60 days	Tue 21/07/20	Fri 18/09/20	256 days		772FF												
790	790.5.2.1.5.2	CDS081-5 - Civil and dimensional requirements drawings for Chemical Systems	70 days	Fri 28/08/20	Thu 05/11/20	0 days		772FF												
791	791.5.2.1.5.3	CDS006 - Detailed Design for Chemical Dosing System	90 edays	Sat 27/02/21	Fri 28/05/21	0.63 edays	779,783,787	797,800,803,773FF												
792	792.5.2.1.5.4	CDS027 - Detailed Design for Electrical Installations for Chemical System No. 1	90 edays	Sat 27/02/21	Fri 28/05/21	45 edays	783	810,773FF												
793	793.5.2.1.5.5	CDS028 - Detailed Design for Electrical Installations for Chemical System No. 2	90 edays	Sat 27/02/21	Fri 28/05/21	45 edays	783	810,773FF												
794	794.5.2.1.5.6	CDS034-5 - Detailed Design for Electrical Installations BS at Chemical Systems	90 edays	Fri 12/03/21	Thu 10/06/21	32.38 edays	133	810,773FF												
795	795.5.2.1.6	Manufacturing and Delivery of Plant & Materials	296 days	Sat 29/05/21	Sun 26/03/22	417 days														
796	796.5.2.1.6.1	Chemical Storage Tanks, EQ1025	225 days	Sat 29/05/21	Sat 08/01/22	488 days														
797	797.5.2.1.6.1.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	0 days	791	798												
798	798.5.2.1.6.1.2	Shipping and Delivery of Plant to site	45 days	Thu 25/11/21	Sat 08/01/22	73 days	797	809												
799	799.5.2.1.6.2	Chemical Dosing Pumps, EQ1027	296 days	Sat 29/05/21	Sun 20/03/22	417 days														
800	800.5.2.1.6.2.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	71 days	791	801												
801	801.5.2.1.6.2.2	Shipping and Delivery of Plant to site	45 days	Fri 04/01/22	Sun 20/03/22	2 days	800,806FF-60 edays	809												
802	802.5.2.1.6.3	Chemical Transfer Pumps, EQ1026	296 days	Sat 29/05/21	Sun 20/03/22	417 days														
803	803.5.2.1.6.3.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	71 days	791	804												
804	804.5.2.1.6.3.2	Shipping and Delivery of Plant to site	45 days	Fri 04/01/22	Sun 20/03/22	2 days	803,806FF-60 edays	809												
805	805.5.2.1.7	Site Installation Work	307 days	Tue 22/03/22	Mon 23/01/24	415 days														
806	806.5.2.1.7.1	Tentative Civil Handover Date, Portion B-7 & B-7B (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	0 days		804FF-60 edays	801											
807	807.5.2.1.7.2	Tentative Civil Handover Date, Chemical Pipe Trench (by others)	1 day	Sun 01/05/22	Sun 01/05/22	33 days		809FF+50 days												
808	808.5.2.1.7.3	Commencement of E&M Installation at Chemical Dosing System 1 and System 2	307 days	Tue 22/03/22	Mon 23/01/24	415 days														
809	809.5.2.1.7.3.1	Mechanical Installations for E&M Equip. for Chemical Dosing System	90 edays	Tue 22/03/22	Mon 20/06/22	0 edays	807FF+50 days	804,810	ME - D x 2*4 men											
810	810.5.2.1.7.3.2	Electrical Installations for E&M Equip. for Chemical Dosing System	90 edays	Mon 20/06/22	Sun 18/09/22	0.63 edays	809,792,793,794	811,819												
811	811.5.2.1.7.3.3	Site Acceptance Test for E&M Equip for Chemical Dosing System	45 days	Mon 19/09/22	Wed 02/11/22	0 days	810	812												
812	812.5.2.1.7.3.4	System Commissioning for E&M Equip for Chemical Dosing System	45 days	Thu 03/11/22	Sat 17/12/22	0 days	811	813												



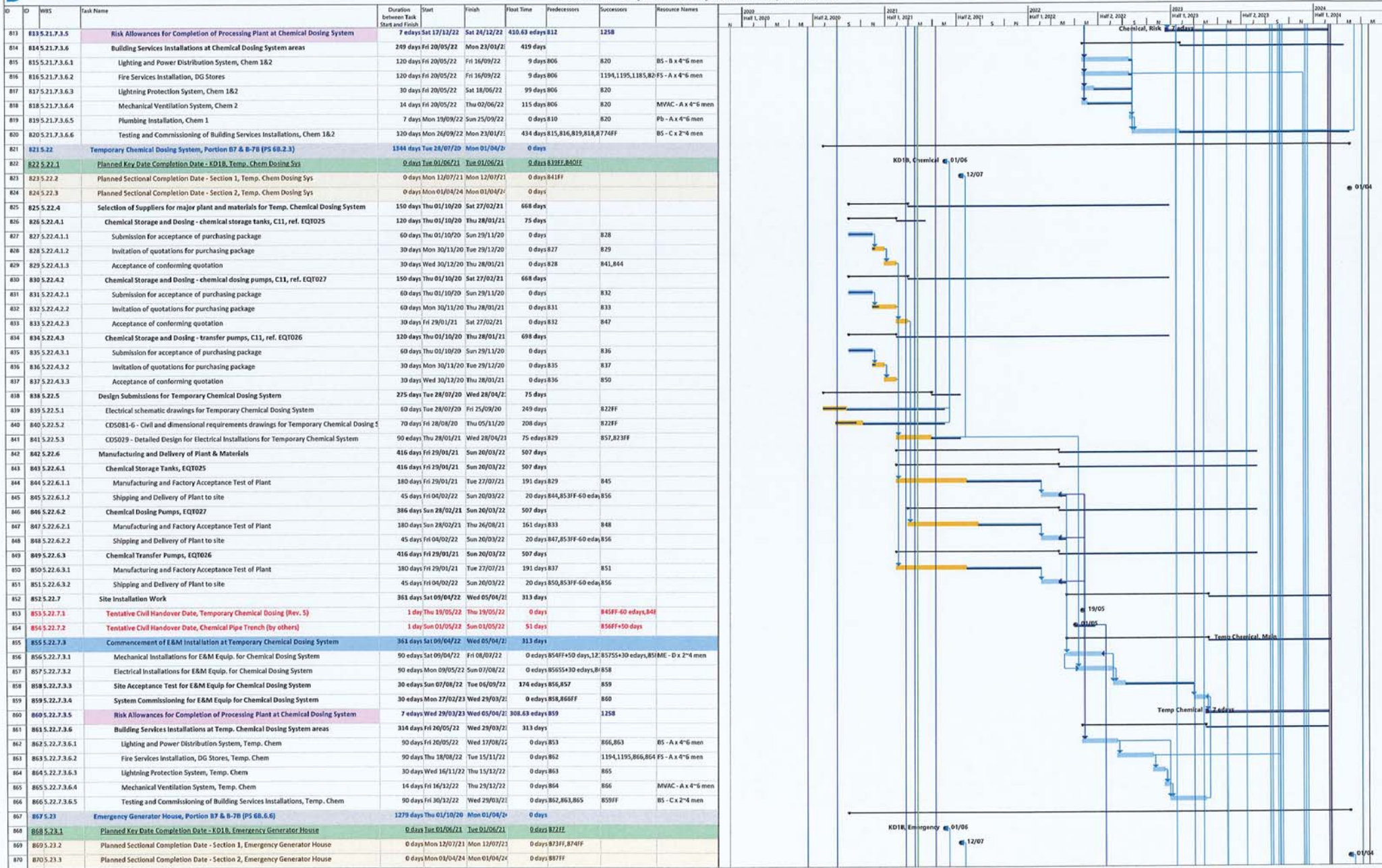
Task: Milestone (blue diamond), Project Summary (blue arrow), Late (red arrow), Critical (yellow arrow), Manual Progress (dotted line), Milestone (Actual) (red diamond), Milestone, Tentative (blue circle), Summary (black arrow), Critical (red arrow), Progress (green arrow), Stack (blue line), Stack (red line)

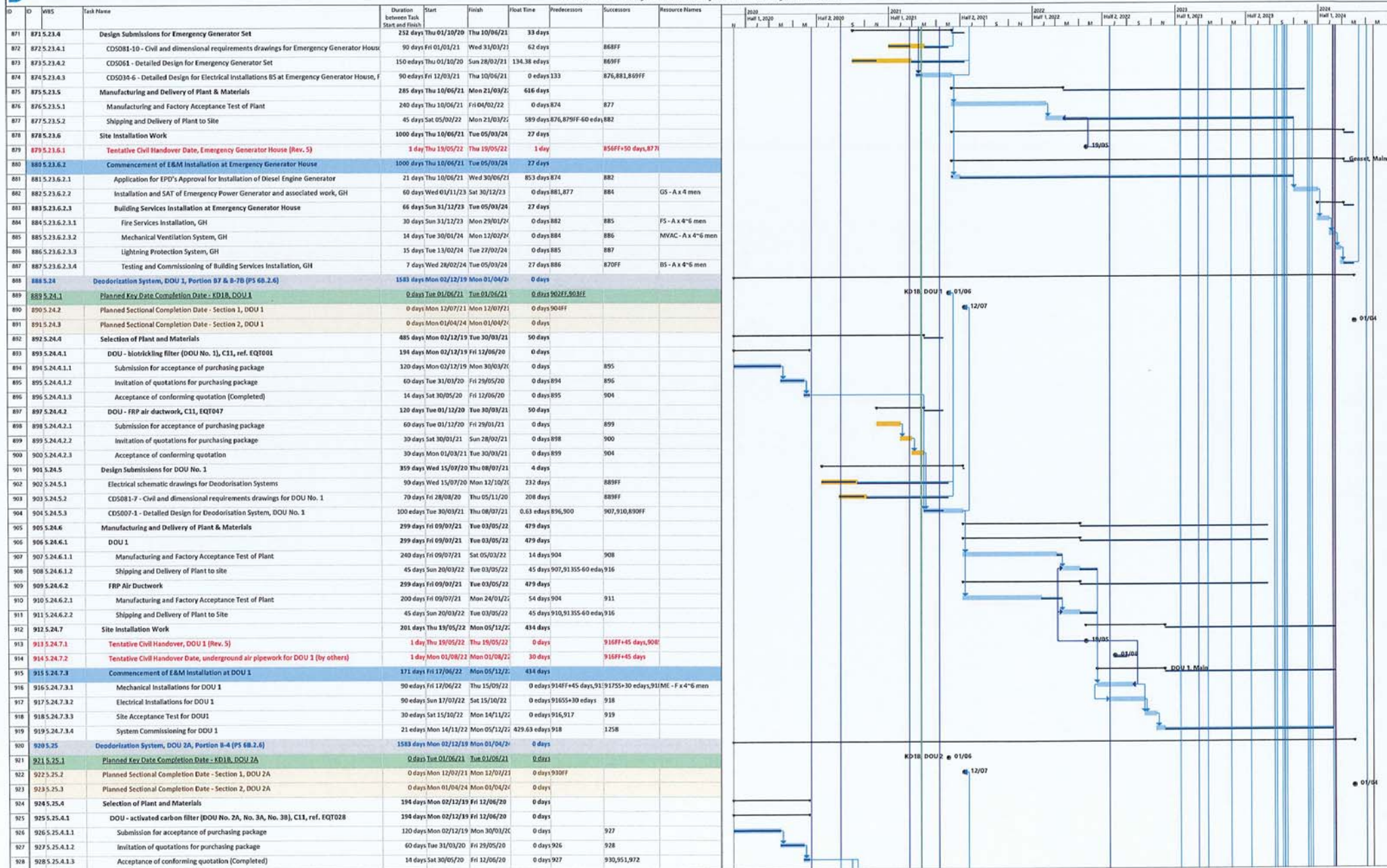
Project: DE/2018/04
Date: Thu 25/03/21

Status Date Sat 20/03/21

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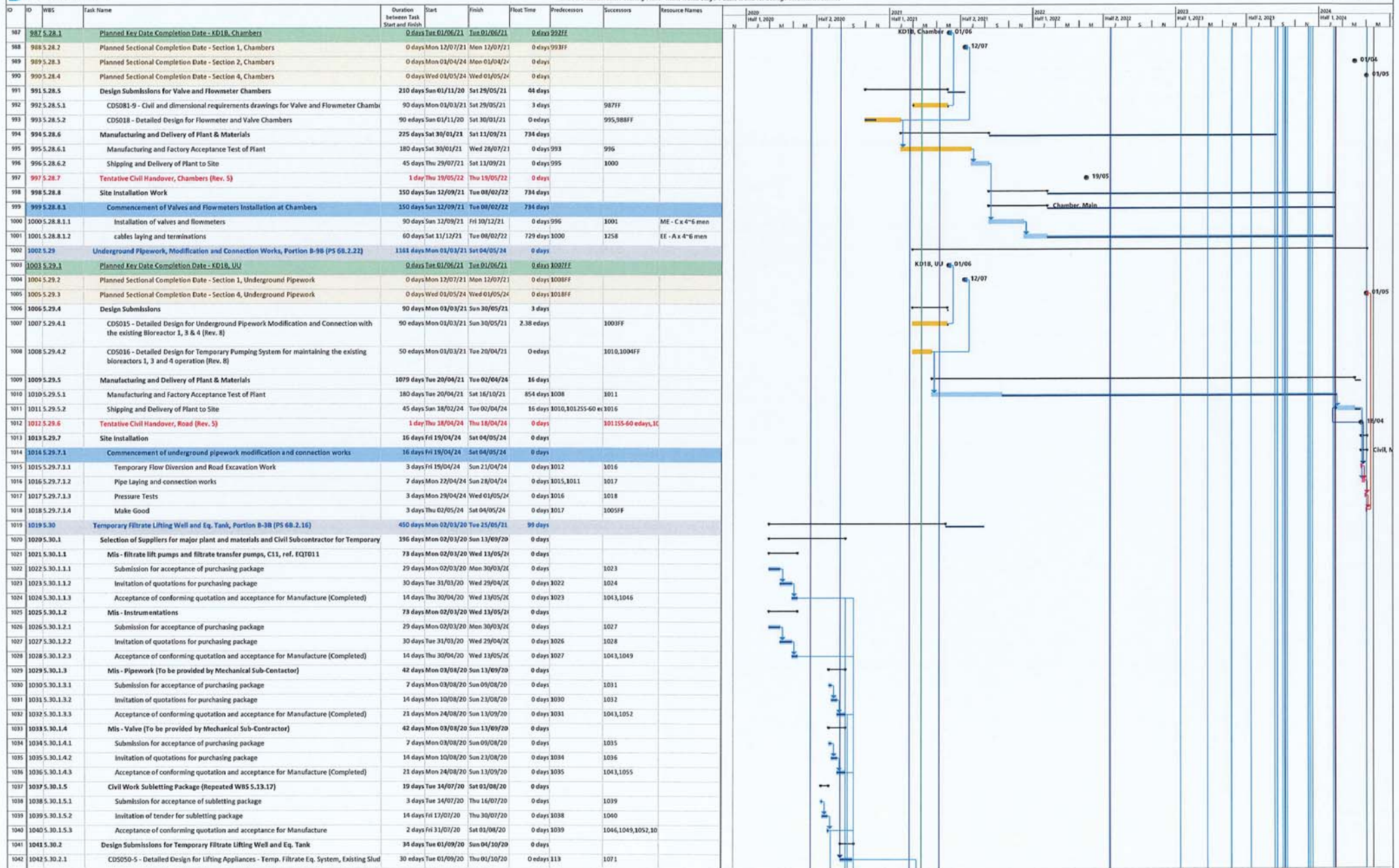
DE_2018_04 Revised PG- (Rev 8, 2021-03)



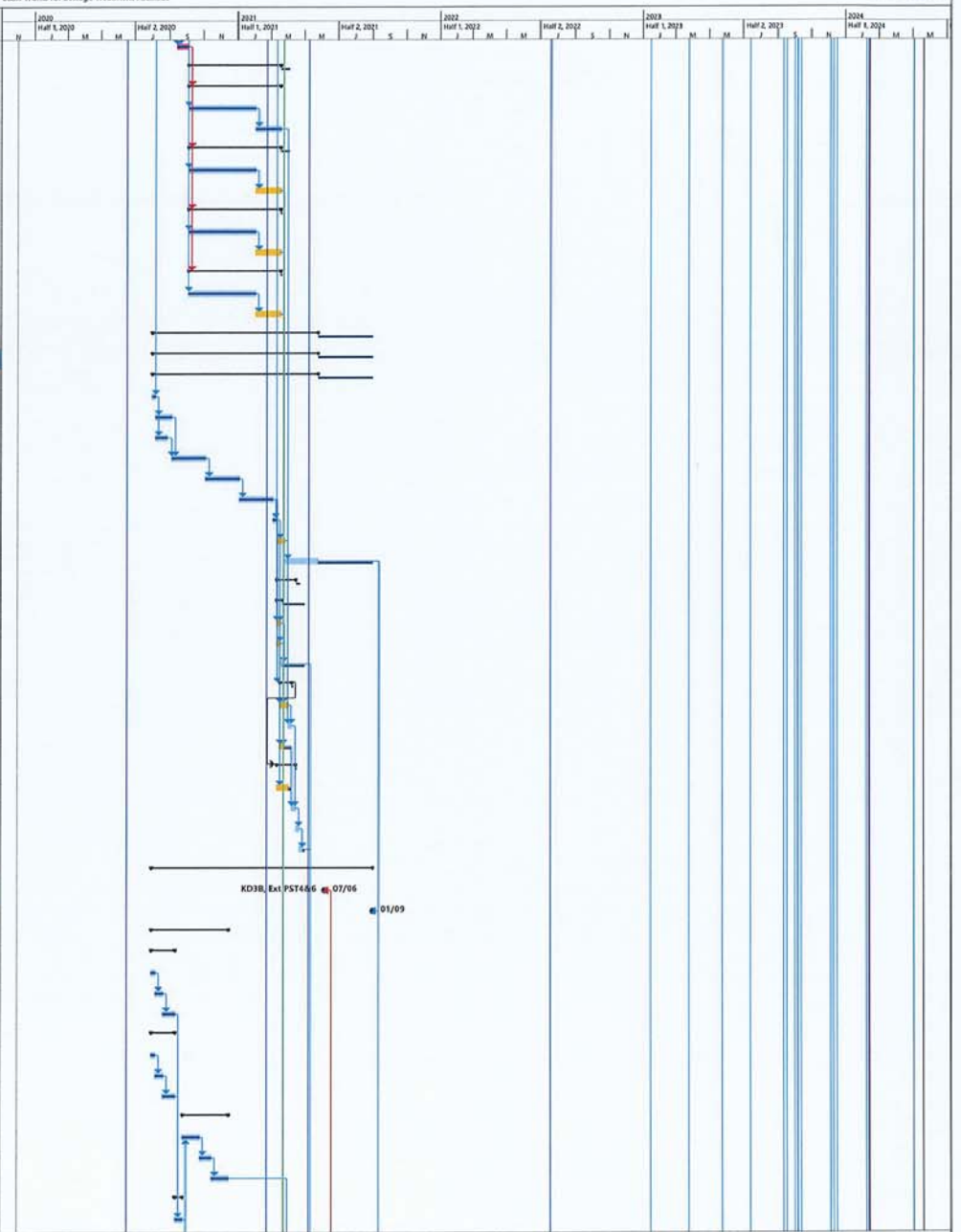


ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Float Time	Predecessors	Successors	Resource Names	2020	2021	2022	2023	2024						
										Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	
929	929.5.25.5	Design Submissions for DOU No. 2A	200 days	Tue 01/09/20	Sat 20/03/21	115 days														
930	930.5.25.5.1	CDS007-2 - Detailed Design for Deodorisation System, DOU No. 2A	200 edays	Tue 01/09/20	Sat 20/03/21	0 edays	933,936,922FF													
931	931.5.25.6	Manufacturing and Delivery of Plant & Materials	345 days	Sat 20/03/21	Sun 27/02/22	484 days														
932	932.5.25.6.1	DOU 2A	345 days	Sat 20/03/21	Sun 27/02/22	484 days														
933	933.5.25.6.1.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Sat 20/03/21	Tue 13/01/22	0 days	930	934												
934	934.5.25.6.1.2	Shipping and Delivery of Plant to site	45 days	Fri 14/01/22	Sun 27/02/22	361 days	933	941												
935	935.5.25.6.2	FRP Air Ductwork	345 days	Sat 20/03/21	Sun 27/02/22	484 days														
936	936.5.25.6.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Sat 20/03/21	Tue 13/01/22	0 days	930	937												
937	937.5.25.6.2.2	Shipping and Delivery of Plant to site	45 days	Fri 14/01/22	Sun 27/02/22	361 days	936	941												
938	938.5.25.7	Tentative Civil Handover, DOU 2A (Rev. 5)	1 day	Thu 23/02/23	Thu 23/02/23	0 days														
939	939.5.25.8	Site Installation Work	231 days	Thu 23/02/23	Thu 12/10/23	123 days														
940	940.5.25.8.1	Commencement of E&M installation at DOU 2A	231 days	Thu 23/02/23	Thu 12/10/23	123 days	540													
941	941.5.25.8.1.1	Mechanical Installations for DOU 2A	90 edays	Thu 23/02/23	Wed 24/05/21	0 edays	934,937	942	ME - F x 4-6 men											
942	942.5.25.8.1.2	Electrical Installations for DOU 2A	90 edays	Wed 24/05/23	Tue 22/08/23	0 edays	941	943												
943	943.5.25.8.1.3	Site Acceptance Test for ERM Equip for DOU 2A	30 edays	Tue 22/08/23	Thu 21/09/23	0 edays	962,963,942	944												
944	944.5.25.8.1.4	System Commissioning Test for DOU 2A	21 edays	Thu 21/09/23	Thu 12/10/23	118.63 edays	943	125B												
945	945.5.26	Deodorization System, DOU 3A, Portion B7 & B-7B (PS 6B.2.6)	1313 days	Fri 28/04/20	Mon 01/04/26	0 days														
946	946.5.26.1	Planned Key Date Completion Date - KD1B, DOU 3A	0 days	Tue 01/06/21	Tue 01/06/21	0 days	950FF													
947	947.5.26.2	Planned Sectional Completion Date - Section 1, DOU 3A	0 days	Mon 12/07/21	Mon 12/07/21	0 days	951FF													
948	948.5.26.3	Planned Sectional Completion Date - Section 2, DOU 3A	0 days	Mon 01/04/24	Mon 01/04/24	0 days														
949	949.5.26.4	Design Submissions for DOU No. 3A	234 days	Fri 28/08/20	Mon 19/04/22	85 days														
950	950.5.26.4.1	CDS081-B - Civil and dimensional requirements drawings for DOU No. 3A	200 days	Fri 28/08/20	Mon 15/03/21	78 days		946FF												
951	951.5.26.4.2	CDS007-3 - Detailed Design for Deodorisation System, DOU No. 3A	200 edays	Thu 01/10/20	Mon 19/04/21	0 edays	928	954,957,947FF												
952	952.5.26.5	Manufacturing and Delivery of Plant & Materials	225 days	Mon 19/04/21	Tue 30/11/21	634 days														
953	953.5.26.5.1	DOU 3A	225 days	Mon 19/04/21	Tue 30/11/21	634 days														
954	954.5.26.5.1.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 19/04/21	Sat 16/10/21	0 edays	951	955												
955	955.5.26.5.1.2	Shipping and Delivery of Plant to Site	45 edays	Sat 16/10/21	Tue 30/11/21	0 edays	954	962												
956	956.5.26.5.2	FRP Air Ductwork	225 days	Mon 19/04/21	Tue 30/11/21	634 days														
957	957.5.26.5.2.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 19/04/21	Sat 16/10/21	0 edays	951	958												
958	958.5.26.5.2.2	Shipping and Delivery of Plant to Site	45 edays	Sat 16/10/21	Tue 30/11/21	0 edays	957	962												
959	959.5.26.6	Tentative Civil Handover, DOU 3A (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	0 days														
960	960.5.26.7	Site Installation Work	171 days	Tue 30/11/21	Fri 20/05/22	634 days														
961	961.5.26.7.1	Commencement of E&M installation at DOU 3A	171 days	Tue 30/11/21	Fri 20/05/22	634 days														
962	962.5.26.7.1.1	Mechanical Installations for DOU 3A	120 edays	Tue 30/11/21	Wed 30/03/22	0 edays	958,955	96355+30 edays,96-ME - F x 4-6 men												
963	963.5.26.7.1.2	Electrical Installations for DOU 3A	90 edays	Thu 30/12/21	Wed 30/03/22	0 edays	96255+30 edays	964,943												
964	964.5.26.7.1.3	Site Acceptance Test for ERM Equip for DOU 3A	30 edays	Wed 30/03/22	Fri 29/04/22	0 edays	962,963	965												
965	965.5.26.7.1.4	System Commissioning Test for DOU 3A	21 edays	Fri 29/04/22	Fri 20/05/22	629 edays	964	125B												
966	966.5.27	Deodorization System, DOU 3B, Portion B-5B (PS 6B.2.6)	1285 days	Thu 15/10/20	Mon 01/04/26	0 days														
967	967.5.27.1	Tentative Civil Handover Date, underground air pipework for DOU 3B (by others) (Rev. 5)	1 day	Wed 17/08/22	Wed 17/08/22	0 days		982FF+30 days,976												
968	968.5.27.2	Planned Key Date Completion Date - KD1B, DOU 3B	0 days	Tue 01/06/21	Tue 01/06/21	0 days														
969	969.5.27.3	Planned Sectional Completion Date - Section 1, DOU 3B	0 days	Mon 12/07/21	Mon 12/07/21	0 days	972FF													
970	970.5.27.4	Planned Sectional Completion Date - Section 2, DOU 3B	0 days	Mon 01/04/24	Mon 01/04/24	0 days														
971	971.5.27.5	Design Submissions for DOU No. 3B	200 days	Thu 15/10/20	Mon 03/05/22	71 days														
972	972.5.27.5.1	CDS007-4 - Detailed Design for Deodorisation System, DOU No. 3B	200 edays	Thu 15/10/20	Mon 03/05/22	0 edays	928	975,978,969FF												
973	973.5.27.6	Manufacturing and Delivery of Plant & Materials	471 days	Mon 03/05/21	Wed 17/08/22	374 days														
974	974.5.27.6.1	DOU 3B	471 days	Mon 03/05/21	Wed 17/08/22	374 days														
975	975.5.27.6.1.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 03/05/21	Sat 30/10/21	231 edays	972	976												
976	976.5.27.6.1.2	Shipping and Delivery of Plant to Site	60 edays	Sat 18/06/22	Wed 17/08/22	0 edays	975,96755-60 edays	982												
977	977.5.27.6.2	FRP Air Ductwork	456 days	Mon 03/05/21	Tue 02/08/22	389 days														
978	978.5.27.6.2.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 03/05/21	Sat 30/10/21	231 edays	972	979												
979	979.5.27.6.2.2	Shipping and Delivery of Plant to Site	45 edays	Sat 18/06/22	Tue 02/08/22	15 edays	978,96755-60 edays	982												
980	980.5.27.7	Site Installation Work	171 days	Wed 17/08/22	Sat 04/02/23	374 days														
981	981.5.27.7.1	Commencement of E&M installation at DOU 3B	171 days	Wed 17/08/22	Sat 04/02/23	374 days														
982	982.5.27.7.1.1	Mechanical Installations for DOU 3B	120 edays	Wed 17/08/22	Thu 15/12/22	0 edays	967FF+30 days,978835+30 edays,98-ME - F x 4-6 men													
983	983.5.27.7.1.2	Electrical Installations for DOU 3B	90 edays	Fri 16/09/22	Thu 15/12/22	0 edays	98255+30 edays	984												
984	984.5.27.7.1.3	Site Acceptance Test for ERM Equip for DOU 3B	30 edays	Thu 15/12/22	Sat 14/01/23	0 edays	982,983	985												
985	985.5.27.7.1.4	System Commissioning Test for DOU 3B	21 edays	Sat 14/01/23	Sat 04/02/23	369 edays	984	125B												
986	986.5.28	Flowmeter and Valve Chambers, Portion B7 & B-7B (PS 6B.2.13)	1278 days	Sun 01/11/20	Wed 01/05/26	0 days														





ID	IO	WBS	Task Name	Duration Between Task Start and Finish	Start	Finish	Float Time	Predecessors	Successors	Resource Names	2020	2021	2022	2023	2024						
											Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	
1043		1043.5.30.2.2	Design submission for E&M installation works for temp. filtrate eq. system	21 days	Mon 14/09/20	Sun 04/10/20	0 days	1024,1028,1032,11045,1051,1048,10													
1044		1044.5.30.3	Manufacturing and Delivery of Plant & Materials	165 days	Mon 05/10/20	Thu 18/03/21	16 days														
1045		1045.5.30.3.1	Filtrate Lift Pumps and Filtrate Transfer Pump, EQ1011	165 days	Mon 05/10/20	Thu 18/03/21	0 days	1043													
1046		1046.5.30.3.1.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	0 days	1040,1024	1047												
1047		1047.5.30.3.1.2	Shipping and Delivery of Plant to site (Delivered)	45 days	Tue 02/02/21	Thu 18/03/21	0 days	1046	1076												
1048		1048.5.30.3.2	Instrumentations	165 days	Mon 05/10/20	Thu 18/03/21	16 days	1043													
1049		1049.5.30.3.2.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	0 days	1040,1028	1050												
1050		1050.5.30.3.2.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	0 days	1049	1077												
1051		1051.5.30.3.3	Pipework	165 days	Mon 05/10/20	Thu 18/03/21	2 days	1043													
1052		1052.5.30.3.3.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	0 days	1040,1032	1053												
1053		1053.5.30.3.3.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	0 days	1052	1075												
1054		1054.5.30.3.4	Valve	165 days	Mon 05/10/20	Thu 18/03/21	2 days	1043													
1055		1055.5.30.3.4.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	0 days	1040,1036	1056												
1056		1056.5.30.3.4.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	0 days	1055	1075												
1057		1057.5.30.4	Site Installation Work	297 days	Sat 01/08/20	Tue 25/05/21	99 days														
1058		1058.5.30.4.1	Commencement of Civil Construction and E&M Installation at Temp. Filtrate Lifting Well	297 days	Sat 01/08/20	Tue 25/05/21	99 days														
1059		1059.5.30.4.1.1	Civil Construction Work	297 days	Sat 01/08/20	Tue 25/05/21	99 days														
1060		1060.5.30.4.1.1.1	Civil on-site survey and report submission for acceptance	5 days	Sat 01/08/20	Thu 06/08/20	0 days	1040	1061,1062												
1061		1061.5.30.4.1.1.2	Civil structural design and drawing submission for acceptance	30 days	Fri 07/08/20	Sat 05/09/20	0 days	1060	1063												
1062		1062.5.30.4.1.1.3	Site Clearance, UU diversion and construction of U-channel	21 days	Fri 07/08/20	Thu 27/08/20	0 days	1060	1063												
1063		1063.5.30.4.1.1.4	ELS (Sheeting and Excavation)	60 days	Sun 05/09/20	Wed 04/11/20	0 days	1062,1061	1064												
1064		1064.5.30.4.1.1.5	Grouting Works	60 days	Thu 05/11/20	Sun 03/01/21	0 days	1063	1065												
1065		1065.5.30.4.1.1.6	RC structure works including cast-in items	60 days	Mon 04/03/21	Thu 04/03/21	0 days	1064	1074,1071,1066												
1066		1066.5.30.4.1.1.7	Removal Formwork and Flamework	8 days	Fri 05/03/21	Fri 12/03/21	0 days	1065	1071,1072,1075,10												
1067		1067.5.30.4.1.1.8	Waterproofing	14 days	Sat 13/03/21	Fri 26/03/21	0 days	1066	1068												
1068		1068.5.30.4.1.1.9	Other architectural works and finishing works	60 days	Sat 27/03/21	Tue 25/05/21	99 days	1067	1085FF												
1069		1069.5.30.4.1.2	E&M Installation Work	34 days	Sat 13/03/21	Thu 15/04/21	8 days														
1070		1070.5.30.4.1.2.1	Installation of Lifting Appliances at Temporary Filtrate Lifting Well and Eq. Tank	10 days	Sat 13/03/21	Mon 22/03/21	40 days														
1071		1071.5.30.4.1.2.1.1	GF MR LA-09-01 SWL 3t	7 days	Sat 13/03/21	Fri 19/03/21	0 days	1065,1042,1066	1073	LA - A x 4'6 men											
1072		1072.5.30.4.1.2.1.2	GF MR LA-09-02 SWL 3t	7 days	Sat 13/03/21	Fri 19/03/21	0 days	1066	1073	LA - A x 4'6 men											
1073		1073.5.30.4.1.2.1.3	Site Acceptance test and loading test of LA	3 days	Sat 20/03/21	Mon 22/03/21	40 days	1071,1072	1108FF	LA - A x 4'6 men											
1074		1074.5.30.4.1.2.2	Mechanical Installations for Temp. Filtrate Lifting Well and Eq. Tank	21 days	Fri 19/03/21	Thu 08/04/21	2 days	1065	1078FS-30 days												
1075		1075.5.30.4.1.2.2.1	Installation of pipework, chemical pipework and valves, EQ1036	14 days	Fri 19/03/21	Thu 01/04/21	0 days	1066,1053,1056	1076	ME - A x 4'6 men											
1076		1076.5.30.4.1.2.2.2	Installation of pumps	7 days	Fri 02/04/21	Thu 08/04/21	0 days	1075,1047	1080	ME - A x 4'6 men											
1077		1077.5.30.4.1.2.2.3	Installation of Instrumentations, EQ1035-3	7 days	Fri 19/03/21	Thu 25/03/21	14 days	1066,1050	1080	ME - A x 4'6 men											
1078		1078.5.30.4.1.2.3	Electrical Installations for Temp. Filtrate Lifting Well and Eq. Tank	34 days	Sat 13/03/21	Thu 15/04/21	2 days	1074FS-30 days													
1079		1079.5.30.4.1.2.3.1	Installation of cable trays and cable containments	21 days	Sat 13/03/21	Fri 02/04/21	6 days	1066	1080												
1080		1080.5.30.4.1.2.3.2	Cables laying and terminations	7 days	Fri 09/04/21	Thu 15/04/21	0 days	1079,1076,1077	1081												
1081		1081.5.30.4.1.3	Site Acceptance Test for E&M Equip at Filtrate Lifting Well and Eq. Tank	7 days	Fri 16/04/21	Thu 22/04/21	0 days	1080	1082												
1082		1082.5.30.4.1.4	System Commissioning for E&M Equip at Temp. Filtrate Lifting Well and Eq. Tank	7 days	Fri 23/04/21	Thu 29/04/21	2 days	1081	1108FF												
1083		1083.5.31	Existing PST No. 4 and No. 6, Portion B-3A (PS 6B.2.15)	397 days	Sat 01/08/20	Wed 01/09/21	0 days														
1084		1084.5.31.1	Planned Key Date Completion Date - K03B	0 days	Mon 07/06/21	Mon 07/06/21	0 days	1143FF													
1085		1085.5.31.2	Planned Sectional Completion Date - Section 3, PST No. 4 and No. 6	0 days	Wed 01/09/21	Wed 01/09/21	0 days	1088FF,1169FF													
1086		1086.5.31.3	Selection of Suppliers for major plant and materials and Subcontractor for PST No. 4 and N	137 days	Sat 01/08/20	Tue 15/12/20	0 days														
1087		1087.5.31.3.1	Mis - Rotating Bridge Scrapers and associated materials, C11, ref. EQ1037-1	42 days	Sat 01/08/20	Fri 11/09/20	0 days														
1088		1088.5.31.3.1.1	Submission for acceptance of purchasing package	7 days	Sat 01/08/20	Fri 07/08/20	0 days		1089												
1088		1088.5.31.3.1.2	Invitation of quotations for purchasing package	14 days	Sat 08/08/20	Fri 21/08/20	0 days		1090												
1090		1090.5.31.3.1.3	Acceptance of conforming quotation (Completed)	21 days	Sat 22/08/20	Fri 11/09/20	0 days		1089	1100											
1091		1091.5.31.3.2	Mis - Pipework, C11, ref. EQ1037-2	42 days	Sat 01/08/20	Fri 11/09/20	0 days														
1092		1092.5.31.3.2.1	Submission for acceptance of purchasing package	7 days	Sat 01/08/20	Fri 07/08/20	0 days		1093												
1093		1093.5.31.3.2.2	Invitation of quotations for purchasing package	14 days	Sat 08/08/20	Fri 21/08/20	0 days		1092	1094											
1094		1094.5.31.3.2.3	Acceptance of conforming quotation (Completed)	21 days	Sat 22/08/20	Fri 11/09/20	0 days		1093	1100											
1095		1095.5.31.3.3	Subletting of Electrical and Mechanical Installation Work w/ supply of LCP	81 days	Sat 26/09/20	Tue 15/12/20	0 days														
1096		1096.5.31.3.3.1	Submission for Subletting Package	30 days	Sat 26/09/20	Sun 25/10/20	0 days		1097												
1097		1097.5.31.3.3.2	Invitation to tender	21 days	Mon 26/10/20	Sun 15/11/20	0 days		1096	1098											
1098		1098.5.31.3.3.3	Acceptance of conforming tender (Completed)	30 days	Mon 16/11/20	Tue 15/12/20	0 days		1097	1115											
1099		1099.5.31.4	Design Submissions	14 days	Sat 12/09/20	Fri 25/09/20	0 days														
1100		1100.5.31.4.1	Design submissions for retrofitting the existing PST No. 4 and No. 6	14 days	Sat 12/09/20	Fri 25/09/20	0 days	1090,1094	1103,1106,1096												



█ Task
█ Milestone
█ Milestone (Active)
█ Milestone (Past)
█ Milestone (Future)
█ Milestone (Actual)

█ Project Summary
█ Manual Summary
█ Line
█ Critical
█ Critical Split
█ Progress
█ Manual Progress
█ Slack (P0)

