



CONTRACT NO. SPW 12/2021
SHEK WU HUI EFFLUENT POLISHING PLANT – MAIN WORKS
UNDER FURTHER ENVIRONMENTAL PERMIT NO. FEP-
02/474/2013
MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT
SEPTEMBER 2022

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Contract No. SPW 12/2021

Shek Wu Hui Effluent Polishing Plant – Main Work

Monthly Environmental Monitoring & Audit Report

September 2022

(October 2022)

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – [September 2022](#) of Shek Wu Hui Effluent Polishing Plant – Main Work under Further Environmental Permit no. FEP-02/474/2013 (Hereafter as “the Project”). This is the [13th](#) EM&A report prepared by Environmental Team under Contract No. SPW 12/2021, presenting the environmental monitoring findings and information recorded during the period of [1 September 2022 to 30 September 2022](#). The cut-off date of reporting is at the end of each reporting month.

- ii. In the reporting month, the principal work activities of individual contracts are conducted as follows:

Contract No. DC/2018/06 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Civil Works for Sludge Treatment Facilities and 132 kV Primary Substation

- [RC works](#)
- [Road works](#)
- [Sewage, utility and pipe works](#)
- [Backfilling](#)
- [ABWF works](#)
- [Excavation](#)

Contract No. DC/2018/07 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Civil Works for Sewage Treatment Facilities

- [ELS works](#)
- [Sheet piling](#)
- [RC works](#)

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- [ELS works \(Sidestream Treatment Facilities\)](#)
- [Penstock and Stoplog Installation at SAS PS](#)
- [Electrical Installation at Workshop No.2](#)
- [Lift Installation and Plumbing Installation at Workshop No.2](#)
- [AFA and MFA System Installation](#)
- [SAT of Effluent Transfer Pump at UV No.1](#)
- [T&C UV System and for Electrical Installation at UV No.1](#)

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – E&M Works for Sewage Treatment Facilities

- [Improvement Works for Temporary Primary Sludge Thickener and its accessories](#)

Air Quality Monitoring

- iii. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring was conducted at two monitoring station. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 day in the reporting month.
- iv. [No action or limit level exceedance was recorded in this reporting period.](#)
- v. [Power failure was encountered at AM1a* during the period from 8 Sep 2022 to 10 Sep 2022, so the 24hr AQM for AM1a* was temporarily suspended during that period.](#)

Noise Monitoring

- vi. Noise monitoring was conducted at one noise monitoring station once per week in the reporting month.
- vii. [No action or limit level exceedance was recorded in this reporting period.](#)

Ecological Monitoring

- viii. Ecological monitoring 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.
- ix. [No Action or Limit level was triggered in the reporting month.](#)

Site Inspections and Audit

- x. The Environmental Team (ET) conducted weekly site inspections on [6, 8, 13, 20 and 27 September 2022](#) and biweekly landscape inspection on [13 and 27 September 2022](#). IEC attended the joint site inspection on [27 September 2022](#). No non-compliance was found during the site inspection while reminders on environmental measures were recommended.

Complaints, Notifications of Summons and Successful Prosecutions

- xi. [No environmental complaint, notification of summons and successful prosecution regarding the construction works was recorded in the reporting period.](#)

Reporting Changes

- xii. There are no particular reporting changes.

Future Key Issues

- xiii. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

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

Civil Works for Sludge Treatment Facilities and 132 kV Primary Substation

- RC works
- Road works
- Sewage, utility and pipe works
- Backfilling
- ABWF works

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

Civil Works for Sewage Treatment Facilities

- ELS works
- Sheet piling
- RC works
- Excavation

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

Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- ELS works (Sidestream Treatment Facilities)
- Lift Installation and Plumbing Installation at Workshop No.2

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

E&M Works for Sewage Treatment Facilities

- Improvement Works for Temporary Primary Sludge Thickener and its accessories
- E&M Installation works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System
- E&M installation works at Portion B-2, Inert Works

1 Introduction

1.1 Scope of the Report

- 1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) No. FEP-02/474/2013 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for North East New Territories New Development Areas (Register No.: AEIAR-175/2013).
- 1.1.2. In accordance with Clause 3.4 stated in FEP-02/474/2013, 3 hard copies and 2 electronic copies of Monthly EM&A Report shall be submitted to the Director within 10 working days after the end of each reporting month throughout the entire construction period.
- 1.1.3. According to Section 9.4.1.1 of the Project EM&A Manual, the Monthly EM&A Report should be submitted within 10 working days at the end of each reporting month, with the first report due in the month after construction commences.

1.2 Structure of the Report

Section 1 **Introduction** – details the scope and structure of the report.

Section 2 **Project Background** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 **Status of Regulatory Compliance** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

Section 4 **Monitoring Requirements** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 5 **Monitoring Results** – summarizes the monitoring results obtained in the reporting period.

Section 6 **Compliance Audit** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

Section 7 **Environmental Site Audit** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any



relevant follow-up actions within the reporting period.

Section 8 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 9 ***Conclusion***

2 Project Background

2.1 Background

2.1.1. The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) has been operating and maintaining for 30 years 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 years. In 1984, Stage I of SWHSTW was commissioned with design capacity of 60,000 cubic meters per day (m^3 /day) at Average Dry Weather Flow (ADWF). In 2001, Stage II of SWHSTW was completed with design capacity enhanced to 80,000 m^3 /day at ADWF. In 2009, the expansion of SWHSTW was completed and its design capacity was increased to 93,000 m^3 /day at ADWF.

2.1.2. Further expansion of SWHSTW has been planned to be carried out in order to cope with the forecast increase in flow from Fanling North and Kwu Tong North New Development Area (NDA) and other NDAs and developments in three phases, namely Phase 1A, 1B and 2, which are later revised to Main Works Stage 1, Stage 2 and Stage 3 respectively. The EIA study report (Register No.: AEIAR-175/2013) for the NENT NDAs Study covered the assessment for the Further Expansion of SWHSTW, which is a designated project under item F.1 and F.2 of Part 1, Schedule 2 of the EIA Ordinance. The location of the project site is shown in [Figure 2.1](#).

A Further EP was applied on 18 January 2018 to assume the responsibility for constructing and operating the SWHEPP Project up to a capacity of 190,000 m^3 /day. The Further EP No. FEP-02/474/2013 was issued to DSD as permit holder on 15 February 2018. Due to overlapping of scope with the Further EP currently in force, the Further EP No. FEP-01/474/2013 was subsequently surrendered on 15 August 2018.

2.2 Project Organization and Contact Personnel

2.2.1 Drainage Service Department (DSD) is the overall project controllers for the Project. For the construction phase of the Project, Engineer's Representative, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.2.2 The project organization and lines of communication with respect to environmental protection works are shown in [Figure 2.2](#). Key personnel and contact particulars are summarized in **Table 2.1**.

Table 2.1 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.
Drainage Services Department (DSD)	Permit Holder	CPC	Mr. Hanes Hui	2594 7459
AECOM	Supervisor Representative	Resident Engineer	Mr. Alex Leung	3907 6145
Kwan Lee - Chun Wo Joint Venture	Contractor (DC/2018/06)	Environmental Engineer	Ms. Ruby Hui	6218 6408
		Assistant Environmental Engineer	Mr. Marco Chan	6235 6017
	Contractor (DC/2018/07)	Environmental Engineer	Ms. Tiffany Choi	9789 1027
JEC	Contractor (DE/2018/03)	Environmental Officer	Ms. Juliet Ting	6826 7319
Bestwise	Contractor (DE/2018/04)	Environmental Officer	Mr. Albus Cheung	9731 0831
Meinhardt Infrastructure and Environment Ltd.	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Ms. Claudine Lee	9612 9229
Lam Environmental Services Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939

2.3 Construction Activities

2.3.1 In the reporting month, the principal work activities conducted of individual contracts are as follow. The layout plans showing the locations of reported construction activities, key PME used for the works contracts and site record photos are shown in [Appendix 2.1](#).

Contract No. DC/2018/06 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Civil Works for Sludge Treatment Facilities and 132 kV Primary Substation

- RC works
- Road works
- Sewage, utility and pipe works
- Backfilling
- ABWF works

- Excavation

Contract No. DC/2018/07 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
Civil Works for Sewage Treatment Facilities

- ELS works
- Sheet piling
- RC works

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- ELS works (Sidestream Treatment Facilities)
- Penstock and Stoplog Installation at SAS PS
- Electrical Installation at Workshop No.2
- Lift Installation and Plumbing Installation at Workshop No.2
- AFA and MFA System Installation
- SAT of Effluent Transfer Pump at UV No.1
- T&C UV System and for Electrical Installation at UV No.1

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
E&M Works for Sewage Treatment Facilities

- Improvement Works for Temporary Primary Sludge Thickener and its accessories

2.3.2 The number of key PME and their working locations are shown in **Table 2.2**.

Table 2.2 Summary of key PME and working locations of works contracts

Works Contract	Key PME	Number	Working locations
DC/2018/06	Excavator	4	Section 4, Area next to SDB, Biogas Holding Tank
	Mobile crane	1	SDB
	Tower Crane	2	Near Workshop No.2 and Gate 2
	Mobile generator	1	Near Workshop No.2
	Scissor lift platform	2	SDB
DC/2018/07	Excavator	22	BR2, Inlet, PST, Area C, Area D, MFB and SAS
	Generator	7	BR2, MFB, PST and Inlet
	Air compressor	1	Inlet
	Mobile Crane	4	PST, Inlet and BR2
	Road Work Machine	1	Inlet
DE/2018/03	Generator	7	UV No.1, Sidestream and Workshop No.2
	Tower Crane	1	Sidestream
DE/2018/04	-	-	-

2.3.3 In coming reporting month, the scheduled construction activities of individual contracts are listed as follows:

Contract No. DC/2018/06 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Civil Works for Sludge Treatment Facilities and 132 kV Primary Substation

- RC works
- Road works
- Sewage, utility and pipe works
- Backfilling
- ABWF works

Contract No. DC/2018/07 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
Civil Works for Sewage Treatment Facilities

- ELS works
- Sheet piling
- RC works
- Excavation

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- ELS works (Sidestream Treatment Facilities)
- MVAC System Installation at Workshop No.2
- Penstock and Stoplog Installation at SAS PS

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –
E&M Works for Sewage Treatment Facilities

- Improvement Works for Temporary Primary Sludge Thickener and its accessories
- E&M Installation works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System
- E&M installation works at Portion B-2, Inert Works

3 Status of Regulatory Compliance

3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in **Table 3.1 to 3.4**.

Table 3.1 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DC/2018/06

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	449210 (Portion A & C)	23 Sep 2019	N/A	Valid
	449211 (WM1)	23 Sep 2019	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00035431-2019 (Portion C)	27 Jul 2020	31 Jan 2025	Valid
	WT00035718-2020 (Portion A)	02 Apr 2020	30 Apr 2025	Valid
Billing Account for Disposal of Construction Waste	7035390	11 Oct 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-K3371-01	14 Nov 2019	N/A	Valid
Construction Noise Permit	GW-RN0231-22	1 Apr 2022	30 Sep 2022	Valid
	GW-RN0791-22	29 Aug 2022	28 Nov 2022	Valid

Table 3.2 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DC/2018/07

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	449210	23 Sep 2019	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00035727-2020	1 Apr 2020	30 Apr 2025	Valid
Billing Account for Disposal of Construction Waste	7035985	9 Dec 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-K3371-02	6 Jan 2020	N/A	Valid
Construction Noise Permit	GW-RN0791-22	29 Aug 2022	28 Nov 2022	Valid

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Admission Ticket for Special Waste	16757	7 Mar 2022	7 Sep 2022	Expired on 7 Sep 2022

Table 3.3 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DE/2018/03

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	455843 (WA3)	6 May 2020	N/A	Valid
	457212 (WA1-B)	15 Jun 2020	N/A	Valid
	460065 (Sidestream)	16 Sep 2020	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00037220-2020	16 Mar 2021	31 Jan 2026	Valid
Billing Account for Disposal of Construction Waste	7035700	6 Nov 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-T3861-01	14 Apr 2020	N/A	Valid
Construction Noise Permit	GW-RN0794-22	31 Aug 2022	30 Nov 2022	Valid

Table 3.4 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DE/2018/04

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	460181	17 Sep 2020	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Billing Account for Disposal of Construction Waste	703621912	2 Jan 2020	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-B2592-01	7 Jul 2020	N/A	Valid

3.1.2. Implementation status of the recommended mitigation measures during this report month is presented in [Appendix 3.1](#).

3.2 Summary of submission status under FEP-02/474/2013

3.2.1 A summary of the current status on submission under FEP-02/474/2013 is shown in **Table 3.5**.

Table 3.5 Summary of submission status under FEP-02/474/2013

EP Condition	Submission	Status
Condition 1.12	Commencement date of construction of the Project	Notified EPD on 8 Oct 2019
Condition 2.3 & 3.1	Updated EM&A Manual	The Manual was confirmed of no further comments by EPD on 17 Jan 2020
Condition 2.4	Management Organization of Main Construction Companies for Contract No.DC/2018/06	Informed EPD on 19 Nov 2019
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DC/2018/07	Informed EPD on 20 Dec 2019
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DE/2018/03	Informed EPD on 19 Feb 2020
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DE/2018/04	Informed EPD on 15 Feb 2020
Condition 2.4	Replacement of Environmental Team Leader	Informed EPD on 13 Sep 2021
Condition 2.4	Replacement of Independent Environmental Checker	Informed EPD on 13 Sep 2021
Condition 2.5	Location Plans for Contract No. DC/2018/06	Deposited to EPD on 19 Nov 2019
Condition 2.5	Location Plans for Contract No. DC/2018/07	Deposited to EPD on 20 Dec 2019
Condition 2.5	Location Plans for Contract No. DE/2018/03	Deposited to EPD on 15 Feb 2020
Condition 2.5	Location Plans for Contract No. DE/2018/04	Deposited to EPD on 18 Sep 2020
Condition 2.6	Submission of Landscape Plan	Pending for revision
Condition 3.3	Baseline Monitoring Report (Ecology)	The Report was first submitted to IEC for review on 22 Nov 2019, and verified on 29 Nov 2019
Condition 3.3	Baseline Monitoring Report	The Report will be submitted to EPD at least 6 weeks before the commencement of corresponding parts of landscape and visual mitigation measures of the Project

4 Monitoring Requirements

4.1 Noise Monitoring

NOISE MONITORING STATIONS

4.1.1. The noise monitoring stations for the Project are listed and shown in **Table 4.1** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 4.1 Noise Monitoring Station

Monitoring Station ID	Location
NM1	Wai Loi Tsuen
NM2	Fu Tei Au
NM3	Man Kok Village

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

4.1.2. The monitoring parameters, frequency and duration of noise monitoring are summarized in **Table 4.2**.

Table 4.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Period	Duration	Sampling Parameter	Sampling Period ⁽¹⁾	Frequency
Impact Monitoring	Throughout the construction phase	1 set of Leq (30 min)	between 0700-1900 hours on normal weekdays;	on a per week basis when noise generating activities are underway

Remark (1): Additional weekly impact monitoring shall be carried out during evening and night-time works if construction works are extended to include works during the hours of 1900-0700

MONITORING EQUIPMENT

4.1.3. Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 4.3**.

Table 4.3 Noise Monitoring Equipment

Equipment	Brand and Model	Series Number
Integrated Sound Level Meter	NTi XL2	A2A-15269-EO
Acoustic Calibrator	LD CAL200	13098

4.1.4. The calibration certificates of the noise monitoring equipment are attached in [Appendix 4.2](#).

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.1.5. Monitoring Procedure

- (a) Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s
- (b) The monitoring station shall normally be at a point 1 m from the exterior of the sensitive receiver building facade and be at a position 1.2 m above the ground. If there is problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made. For reference, a correction of +3 dB(A) shall be made to the free field measurements.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting: Fast
 - Time measurement: Leq (30min) for noise monitoring
- (e) 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 recalibration or repair of the equipment.
- (f) The wind speed was checked with the portable wind meter before noise monitoring.
- (g) At the end of the monitoring period, the Leq, L90 and L10 were recorded. In addition, site conditions and noise sources were recorded on a record sheet.

4.1.6. Maintenance and Calibration

- (a) The microphone head of the sound level and calibrator would be cleaned with soft cloth regularly.
- (B) The noise monitoring equipment shall be calibrated annually.

CONSTRUCTION NOISE LEVEL

4.1.7. The construction noise level refers the corrected noise level based on the calculated difference between SPL of the Measured Noise Level and the SPL of the Baseline Noise Level. In the event of the Baseline Noise Level exceeds the Measured Noise Level, no correction would be applied and the Construction Noise Level would be indicated as below baseline noise level (<BL).

EVENT AND ACTION PLAN

4.1.8. Noise Standards for Daytime Construction Activities are specified under EIAO-TM. The Action and Limit levels for construction noise are defined in **Table 4.4** and [Appendix 4.1](#). Should non-compliance of the criteria occurs, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.4 Action and Limit Level for Noise Monitoring

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

4.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring stations for the Project are listed and shown in **Table 4.5** and [Figure 4.2](#).

Table 4.5 Air Monitoring Station

Monitoring Station ID	Location	Measurement
AM1	House No. 15, Wai Loi Tsuen	1-hour TSP
AM2	Fu Tei Au	1-hour TSP
AM1a	Site boundary of the Shek Wu Hui STW (East), ground level of the control room of SWHSTW	24-hour TSP
AM1a* ⁽¹⁾	Site boundary of the Shek Wu Hui STW (East), Roof floor of the control room of SWHSTW	24-hour TSP
AM2a	Site boundary of the Shek Wu Hui STW (North)	24-hour TSP

Remarks

- (1) Due to close proximity to construction works and heavy machines, presence of physical barrier and safety concerns, find adjustment for the location of AM1a was proposed in accordance to Section 2.2.4.6 of the EM&A Manual. It was adjusted from the ground level near the control room of SWHSTW to the roof floor of that control room. The proposal has sought approval from ER and IEC, and agreement from EPD in May 2022.

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.2.2. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 days when the highest dust impact takes place.
- 4.2.3. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

- 4.2.4. 24-hour TSP Measuring Installation (HVS)
- (a) 0.6 – 1.7 m³ per minute adjustable flow range
 - (b) Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
 - (c) Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
 - (d) Capable of providing a minimum exposed area of 406 cm²;
 - (e) Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
 - (f) Equipped with a shelter to protect the filter and sampler;

- (g) Incorporated with an electronic mass flow rate controller or other equivalent devices;
- (h) Equipped with a flow recorder for continuous monitoring;
- (i) Provided with a peaked roof inlet;
- (j) Incorporated with a manometer;
- (k) Able to hold and seal the filter paper to the sampler housing at horizontal position;
- (l) Easily changeable filter; and
- (m) Capable of operating continuously for a 24-hour period

Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. All the data should be converted into standard temperature and pressure condition.

24-hour Measuring Procedures

- (a) Check the power supply to ensure the sampler works properly.
- (b) Remove the filter hold down by loosening the four nuts and carefully centre a new filter, with stamped number upward, on a supporting screen.
- (c) Properly align the filter on the screen so that the gasket will form an airtight seal on the outer edges of the filter.
- (d) Fasten the filter hold down frame to the filter holder with swing bolts. The pressure applied should be sufficient to avoid air leakage at the edges.
- (e) Close shelter lid and secure catch with the aluminum strip.
- (f) Record the flow indicator reading and determine the sampler flow rate. If it is outside the acceptable range, adjust the sampler flow rate.
- (g) Set the programmable timer and record the starting sampling time, weather condition and the filter identification number.
- (h) At the end of sampling, the filter was transferred from the filter holder of the HVS to a filter bag and sent to the accredited laboratory for weighing. The elapsed time was also recorded

4.2.5. 1-hour Measuring Procedures

Portable dust meter will be proposed and sufficient information will be submitted to IC (E) to prove that the instrument is capable of achieving a comparable result as that of the HVS and used for 1-hour sampling

- (a) Slide the power switch to turn the power on
- (b) Select the period of measurement to 60mins
- (c) Check and set the correct time
- (d) Select the appropriate unit display for the equipment

- (e) Collected the sampled data for analysis

The portable dust meter is calibrated at 2-years interval and checked with HVS yearly to determine the accuracy and validity of the results measured. The checking of portable dust meter will be carried out in order to determine the conversion factor between the portable dust meter and the standard equipment, HVS.

The calibration check is to be considered valid if the calculated correlation coefficient is >0.90.

4.2.6. Maintenance and Calibration

- (a) The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly to determine the accuracy and validity of the results measured.
- (b) Checking of direct reading dust meter will be carried out in order to determine the conversion factor between the direct reading dust meter and the standard equipment, HVS. The comparison check is to be considered valid based on correlation coefficient checked by HOKLAS laboratory

4.2.7. Laboratory measurement / analysis

- (a) A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.
- (b) Filter paper of size 8" x 10" shall be labelled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24 hours and be pre-weighed before use for the sampling.
- (c) After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity-controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.

4.2.8. High Volume Sampler (HVS – Model TE-5025A) completed with the appropriate sampling inlets were installed for the 24-hour TSP sampling. 1-hour TSP air quality monitoring was performed by using portable direct reading dust meters at each designated monitoring station. The brand and model of the equipment are given in **Table 4.6**.

Table 4.6 Air Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Portable direct reading dust meter	Met One BT- 645 / Met One AEROCET831	R14332 W15448
High Volume Sampler	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model no. G3101)	HVS001 (Serial number: 0401-1105) HVS003 (Serial number: 1096-2305)
Wind Anemometer	YGY-FSXY1	YG 21071630T0924

4.2.9. The calibration certificates of the air quality monitoring equipment are attached in [Appendix 4.2](#).

WIND DATA

4.2.10. Hong Wind data monitoring equipment was set up at roof floor (about 4/F) of the SWHSTW control room 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 sections of 22.5 degrees each. The wind data obtained from the on-site wind station during the reporting period is provided in [Appendix 4.3](#).

EVENT AND ACTION PLAN

4.2.11. The Action and Limit Levels for construction air quality are defined in **Table 4.7** and [Appendix 4.1](#). Should non-compliance of the air quality criteria occur, action in accordance with the Event and Action Plan in Appendix 6.1 shall be carried out.

Table 4.7 Action and Limit Level for Air Quality Monitoring

Parameter	Monitoring Station	Action Level (μgm^{-3})	Limit Level (μgm^{-3})
24-hour TSP Level	Site boundary of the Shek Wu Hui STW (East)	189	260.0
	Site boundary of the Shek Wu Hui STW (North)	187	
1-hour TSP Level	House No. 15, Wai Loi Tsuen	320	500.0
	Fu Tei Au	322	

4.3. Ecological Monitoring

- 4.3.1. According to the Updated EM&A Manual, weekly transect at both high and low tides shall be undertaken 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. [Appendix 4.1](#) shows the established Action/Limit Levels for ecological monitoring works.
- 4.3.2. The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

MONITORING LOCATIONS

- 4.3.3. 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 4.3](#) and summarized in [Table 4.8](#) The photo of each transect is provided in [Appendix 5.6](#).

Table 4.8 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

4.3.4. 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 5.1](#).

MONITORING METHODOLOGY

4.3.5. 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.

4.3.6. 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.

4.3.7. 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).

4.3.8. 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

4.3.9. The number and species of waterbirds utilizing the rivers fluctuate every day naturally. Therefore, the survey data were collectively analyzed 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 4.9**.

Table 4.9 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	普通鸕鶿
<i>Ardea alba</i>	Great Egret	大白鷺
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺

4.3.10. 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.

4.3.11. 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

5 Monitoring Results

- 5.0.1 The environmental monitoring will be implemented based on the division of works areas of each designed projects. Overall layout showing work areas and monitoring stations is shown in [Figure 2.1](#) and [Figure 4.1 – 4.3](#) respectively.
- 5.0.2 The environmental monitoring schedules for reporting month and coming month are presented in [Appendix 5.1](#).

5.1 Noise Monitoring Results

- 5.1.1 Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation are shown in [Appendix 5.2](#).
- 5.1.2 [No action or limit level exceedance was recorded in this reporting month.](#)

5.2 Air Monitoring Results

- 5.2.1 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in [Appendix 5.3](#).
- 5.2.2 [No action or limit level exceedance was recorded in this reporting month.](#)
- 5.2.3 [Power failure was encountered at AM1a* during the period from 8 Sep 2022 to 10 Sep 2022, so the 24hr AQM for AM1a* was temporarily suspended during that period.](#)

5.3 Ecology Monitoring Results

- 5.3.1 Details of ecological Monitoring results in the reporting month are provided in [Appendix 5.4](#) and [Appendix 5.5](#).
- 5.3.2 [No Action Level or Limit Level was triggered for ecological monitoring in the reporting month.](#)
- 5.3.3 [Site observation in the reporting month shows that construction activities are similar to previous months. The photos are provided in \[Appendix 5.6\]\(#\).](#)
- 5.3.4 [In recent months, it is found that there are different construction sites and human activities such as fishing, singing, waste burning and playing remote control boats around the project site. These construction and human activities may affect activities of the waterbirds. Although, there is no significant impact reduction in number of waterbirds, it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.](#)
- 5.3.5 [The monitoring work will continue next month to evaluate any construction impact on waterbirds.](#)

5.4 Waste Management

5.4.1 The quantities of waste for disposal in the Reporting Period are summarized in **Table 5.1** to **5.4**. The Monthly Summary Waste Flow Table is shown in [Appendix 5.7](#). Whenever possible, materials were reused on-site as far as practicable.

Table 5.1 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2018/06

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	0	0	0
Reused in this Contract (Inert) (in '000m ³)	0	0	0
Reused in other Projects (Inert) (in '000m ³)	0	0	0
Disposal as Public Fill (Inert) (in '000m ³)	1.409	1.022	8.498
Metals (in '000kg)	0	0.004	2.376
Paper / Cardboard Packing (in '000kg)	0	0	0.01
Plastics (in '000kg)	0.005	0.01	0.015
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m ³)	0.160	0.229	1.132

Table 5.2 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2018/07

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	0	0	0

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Reused in this Contract (Inert) (in '000m ³)	0	0	0
Reused in other Projects (Inert) (in '000m ³)	0	0	1.671
Disposal as Public Fill (Inert) (in '000m ³)	4.151	2.735	25.493
Metals (in '000kg)	0	0	23.3
Paper / Cardboard Packing (in '000kg)	0	0	0.01
Plastics (in '000kg)	0.003	0.007	0.019
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m ³)	0.026	0.042	0.191

Table 5.3 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2018/03

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0	0	0
Reused in this Contract (Inert) (in '000kg)	0	0	0
Reused in other Projects (Inert) (in '000kg)	0	0	0
Disposal as Public Fill (Inert) (in '000kg)	149.1	43.17	15421.84
Metals (in '000kg)	0	0	0

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Paper / Cardboard Packing (in '000kg)	0	0	0.439
Plastics (in '000kg)	0	0	0.023
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000kg)	0	3.61	13.91

Table 5.4 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2018/04

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0	0	0
Reused in this Contract (Inert) (in '000kg)	0	0	0
Reused in other Projects (Inert) (in '000m ³)	0	0	0
Disposal as Public Fill (Inert) (in '000m ³)	0	0	0
Metals (in '000kg)	0	0	0
Paper / Cardboard Packing (in '000kg)	0	0	0
Plastics (in '000kg)	0	0	0
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000kg)	0	0	0

6 Compliance Audit

6.1.1 The Event Action Plan for construction noise, air quality and ecological monitoring are presented in [Appendix 6.1](#).

6.1.2 The summary of exceedance is presented in [Appendix 6.2](#).

6.2 Noise Monitoring

6.2.1 No action or limit level exceedance was recorded in this reporting period.

6.3 Air Quality Monitoring

6.3.1 No action or limit level exceedance was recorded in this reporting period.

6.4 Ecological Monitoring

6.4.1 No Action Level or Limit Level was triggered for ecological monitoring in the reporting month.

6.5 Review of the Reasons for and the Implications of Non-compliance

6.5.1 No environmental non-compliance was recorded in the reporting month.

6.6 Summary of action taken in the event of and follow-up on non-compliance

6.6.1 There was no particular action taken since no non-compliance was recorded in the reporting period.

7 Environmental Site Audit

- 7.0.1. Within this reporting month, weekly environmental site audits were conducted on [6, 8, 13, 20 and 27 September 2022](#) and biweekly landscape inspection on [13 and 27 September 2022](#). IEC attended the joint site inspection on [27 September 2022](#).
- 7.0.2. No non-compliance was found during the environmental site inspection while reminders on environmental measures were recommended. Results and findings of these inspections in this reporting month are listed below in **Table 7.1 to 7.4**.

Table 7.1 Summary of Environmental Inspections of Contract No. DC/2018/06

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
-	-	-	-	-

Table 7.2 Summary of Environmental Inspections of Contract No. DC/2018/07

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20220927_2	27 Sep 2022	Faded colour NRMM label of the generator near MFB should be replaced.	Pending	Pending

Table 7.3 Summary of Environmental Inspections of Contract No. DE/2018/03

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20220906_1	6 Sep 2022	To replace and properly maintain the solid dull green barrier near Sidestream.	New green tarpaulin was provided to replace the old ones.	Rectified on 13 Sep 2022.

Table 7.4 Summary of Environmental Inspections of Contract No. DE/2018/04

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
-	-	-	-	-

8. Complaints, Notification of Summons and Prosecution

- 8.0.1. No environmental complaint, notification of summons and successful prosecution regarding construction works was recorded in the reporting period.
- 8.0.2. The details environmental complaints for the Project are summarized by complaint log in [Appendix 8.1](#).
- 8.0.3. Cumulative statistics on complaints and successful prosecutions are summarized in **Table 8.1** and **Table 8.2** respectively.

Table 8.1 Cumulative Statistics on Complaints in the Reporting Month

Reporting Period	No. of Complaints
Commencement works (Feb 2018) to last reporting month	4
September 2022	0
Total	4

Table 8.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative no. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
Total	-	0	0

9. Conclusion

- 9.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 9.0.2. Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor. Hence, the EM&A programme was considered effective and shall be maintained.
- 9.0.3. The scheduled construction activities and the recommended mitigation measures for the coming 3 months are listed in **Table 9.1**. The construction programmes of individual activities are provided in [Appendix 9.1](#).

Table 9.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting Month

Contract No.	Key Construction Works	Recommended Mitigation Measures
DC/2018/06	<ul style="list-style-type: none"> • RC works • Road works • Sewage, utility and pipe works • Backfilling • ABWF works 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on dusty surface and stockpiles • Implement proper measures to prevent excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers • Proper maintenance of the on-site drainage system • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.
DC/2018/07	<ul style="list-style-type: none"> • ELS works 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on

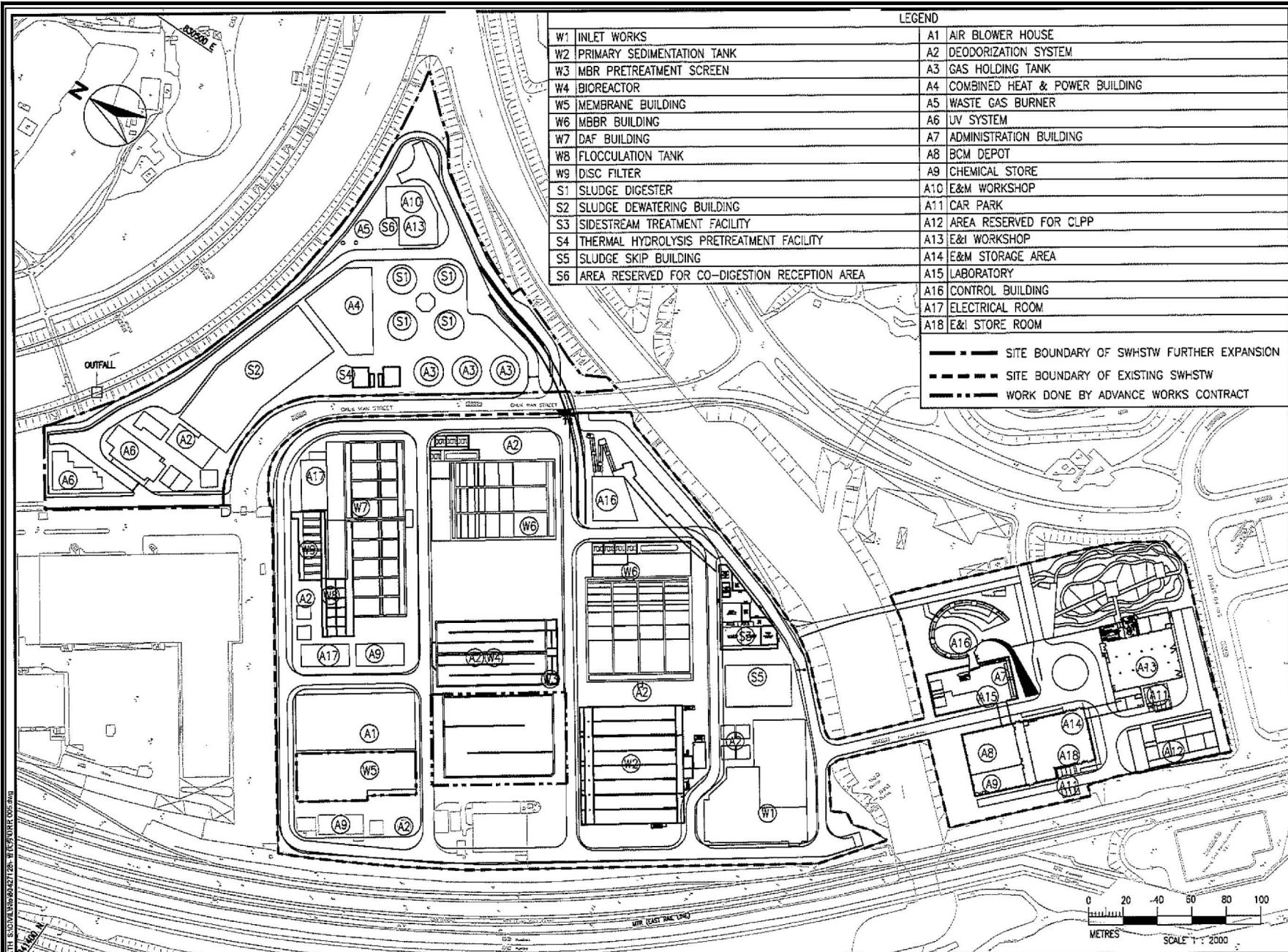
Contract No.	Key Construction Works	Recommended Mitigation Measures
	<ul style="list-style-type: none"> • Sheet piling • RC works • Excavation 	<p>dusty surface and stockpiles</p> <ul style="list-style-type: none"> • Implement proper measures to prevent excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers, especially screening noise during piling related activities • Proper maintenance of the on-site drainage system • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal. • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.
DE/2018/03	<ul style="list-style-type: none"> • ELS works (Sidestream Treatment Facilities) • Lift Installation and Plumbing Installation at Workshop No.2 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on dusty surface and stockpiles • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Proper maintenance of the on-site drainage system • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.

Contract No.	Key Construction Works	Recommended Mitigation Measures
DE/2018/04	<ul style="list-style-type: none"> • Improvement Works for Temporary Primary Sludge Thickener and its accessories • E&M Installation works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System • E&M installation works at Portion B-2, Inert Works 	<ul style="list-style-type: none"> • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal.



Figure 2.1

Project Layout



LEGEND			
W1	INLET WORKS	A1	AIR BLOWER HOUSE
W2	PRIMARY SEDIMENTATION TANK	A2	DEODORIZATION SYSTEM
W3	MBR PRETREATMENT SCREEN	A3	GAS HOLDING TANK
W4	BIOREACTOR	A4	COMBINED HEAT & POWER BUILDING
W5	MEMBRANE BUILDING	A5	WASTE GAS BURNER
W6	MBBR BUILDING	A6	UV SYSTEM
W7	DAF BUILDING	A7	ADMINISTRATION BUILDING
W8	FLOCCULATION TANK	A8	BCM DEPOT
W9	DISC FILTER	A9	CHEMICAL STORE
S1	SLUDGE DIGESTER	A10	E&M WORKSHOP
S2	SLUDGE DEWATERING BUILDING	A11	CAR PARK
S3	SIDESTREAM TREATMENT FACILITY	A12	AREA RESERVED FOR CLPP
S4	THERMAL HYDROLYSIS PRETREATMENT FACILITY	A13	E&I WORKSHOP
S5	SLUDGE SKIP BUILDING	A14	E&M STORAGE AREA
S6	AREA RESERVED FOR CO-DIGESTION RECEPTION AREA	A15	LABORATORY
		A16	CONTROL BUILDING
		A17	ELECTRICAL ROOM
		A18	E&I STORE ROOM
		--- SITE BOUNDARY OF SWHSTW FURTHER EXPANSION - - - SITE BOUNDARY OF EXISTING SWHSTW - · - · - WORK DONE BY ADVANCE WORKS CONTRACT	

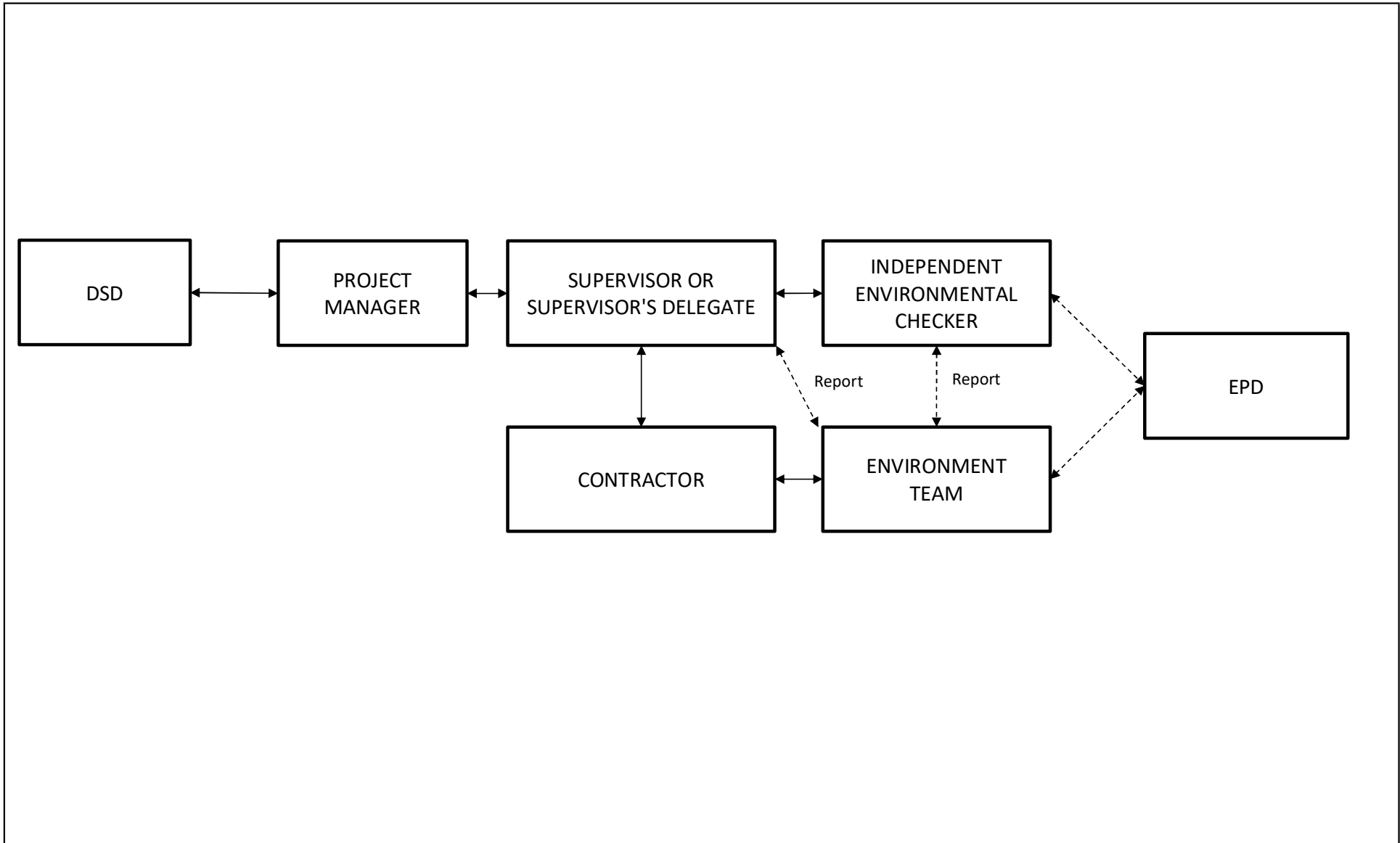
Shek Wu Hui Effluent Polishing Plant
 General Site Layout of SWHEPP

SCALE	As Shown	DATE	SEP 2019
CHECK	JM	DRAWN	SY
JOB No.		FIGURE NO.	1.1
		REV	-



Figure 2.2

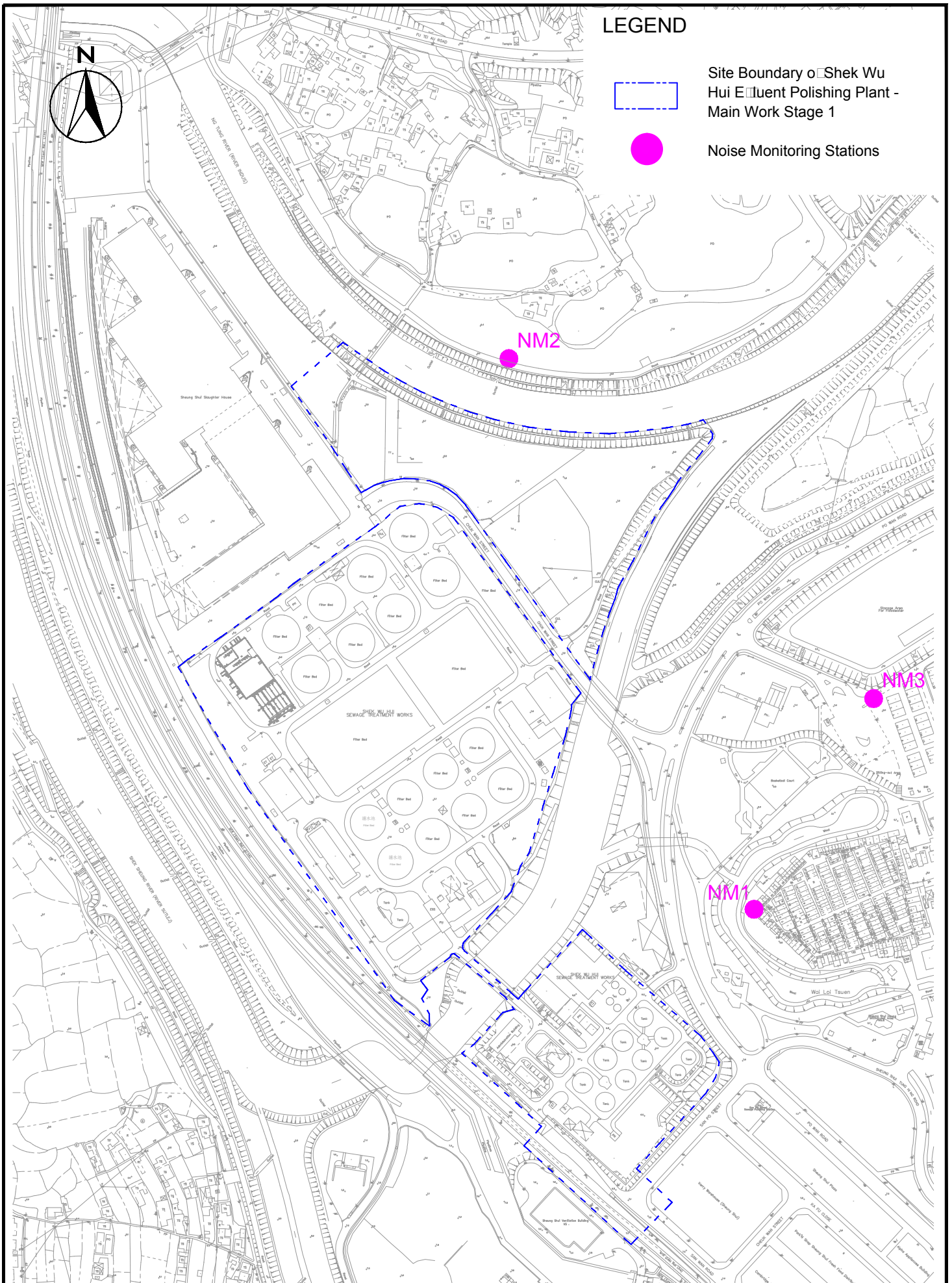
Project Organization Chart



	Shek Wu Hui Effluent Polishing Plant - Project Organisation For Environmental Monitoring and Audit	SCALE	N.T.S.	DATE	Sep 2019
		CHECK	JW	DRAWN	SY
		JOB NO.		FIGURE NO.	1.2

Figure 4.1

Locations of Noise Monitoring Stations



Shek Wu Hui Effluent Polishing Plant

Location of Noise Monitoring Stations

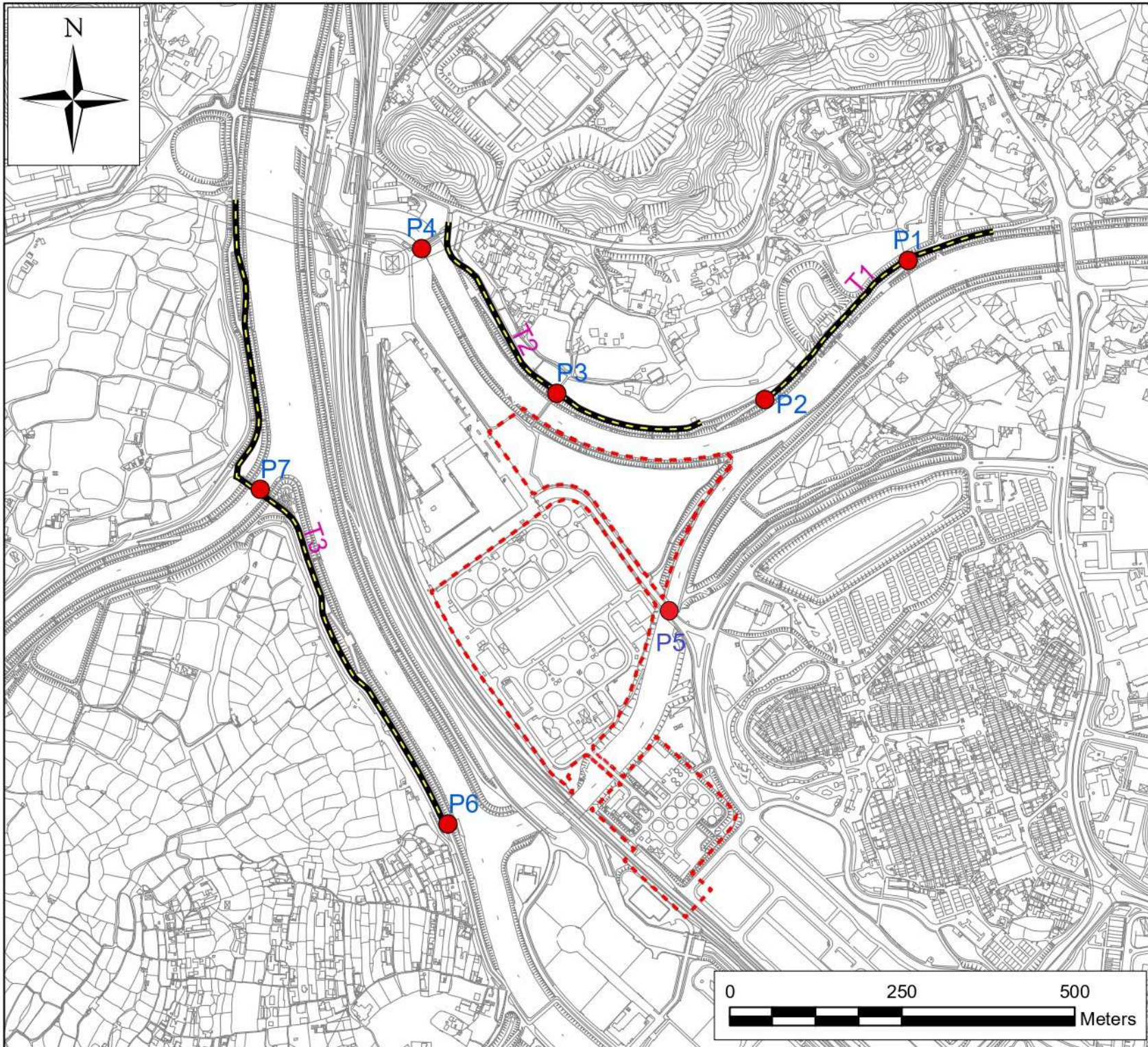
SCALE	1:4000 A4	DATE	SEP 2019	
CHECK	JM	DRAWN	SY	
JOB No.	MA19019	FIGURE NO.	3	REVISION
				-

Figure 4.2

Locations of Air Quality Monitoring Stations

Figure 4.3

Locations of Ecological Monitoring Stations



- Legend**
- - - Project Site Boundary
 - - - Walk Transects
 - Point Count Locations

PREPARED BY
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CONTRACT NO.
SPW 12/2021

PROJECT TITLE
**Shek Wu Hui Effluent Polishing
 Plant - Main Works
 Survey Location for Ecological
 Monitoring**

SCALE 1:7500@A4	DATE Sept 2021
DRAWN BY AL	CHECK BY MC
FIGURE NO. 1	REVISION NO. -

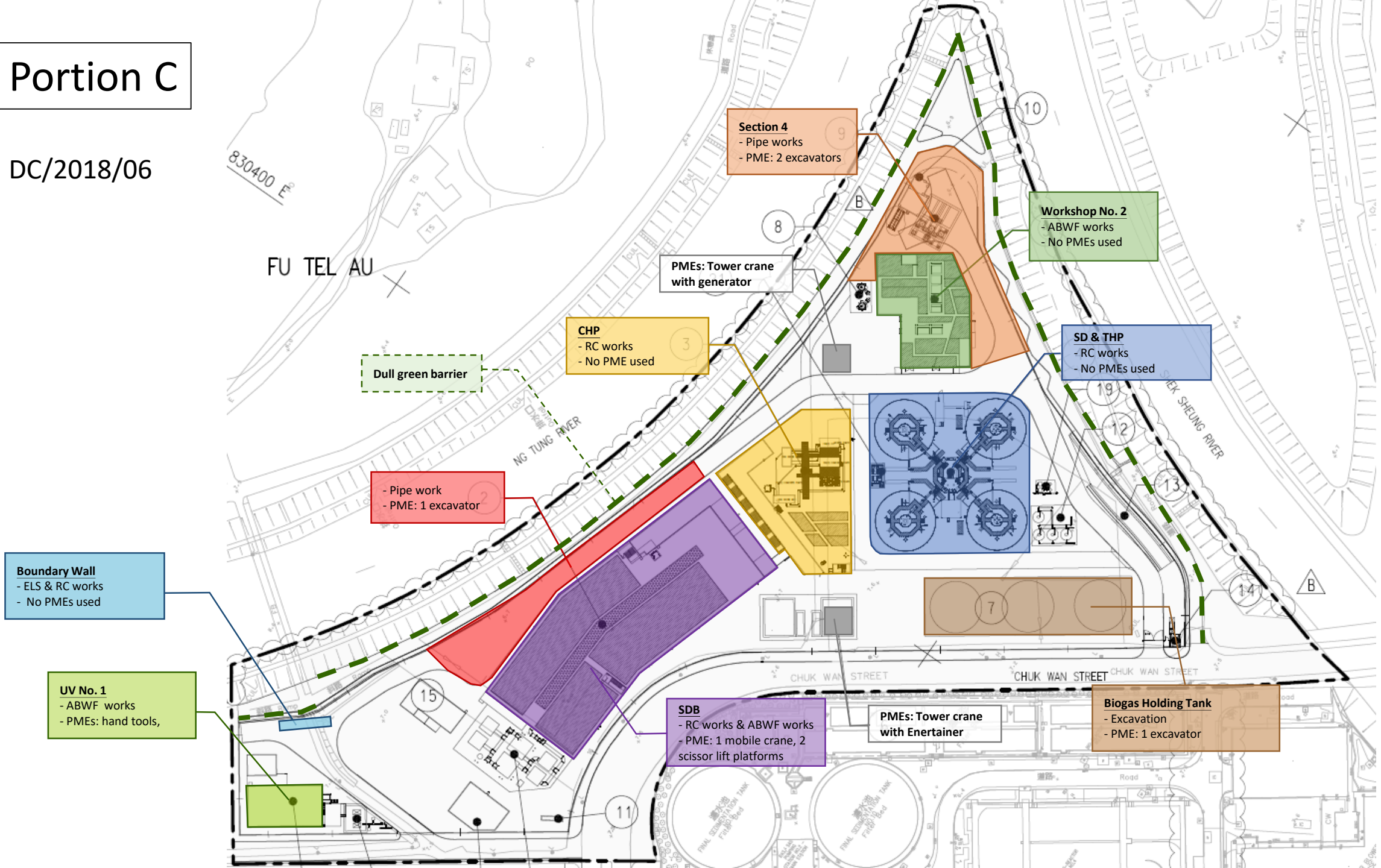


Appendix 2.1

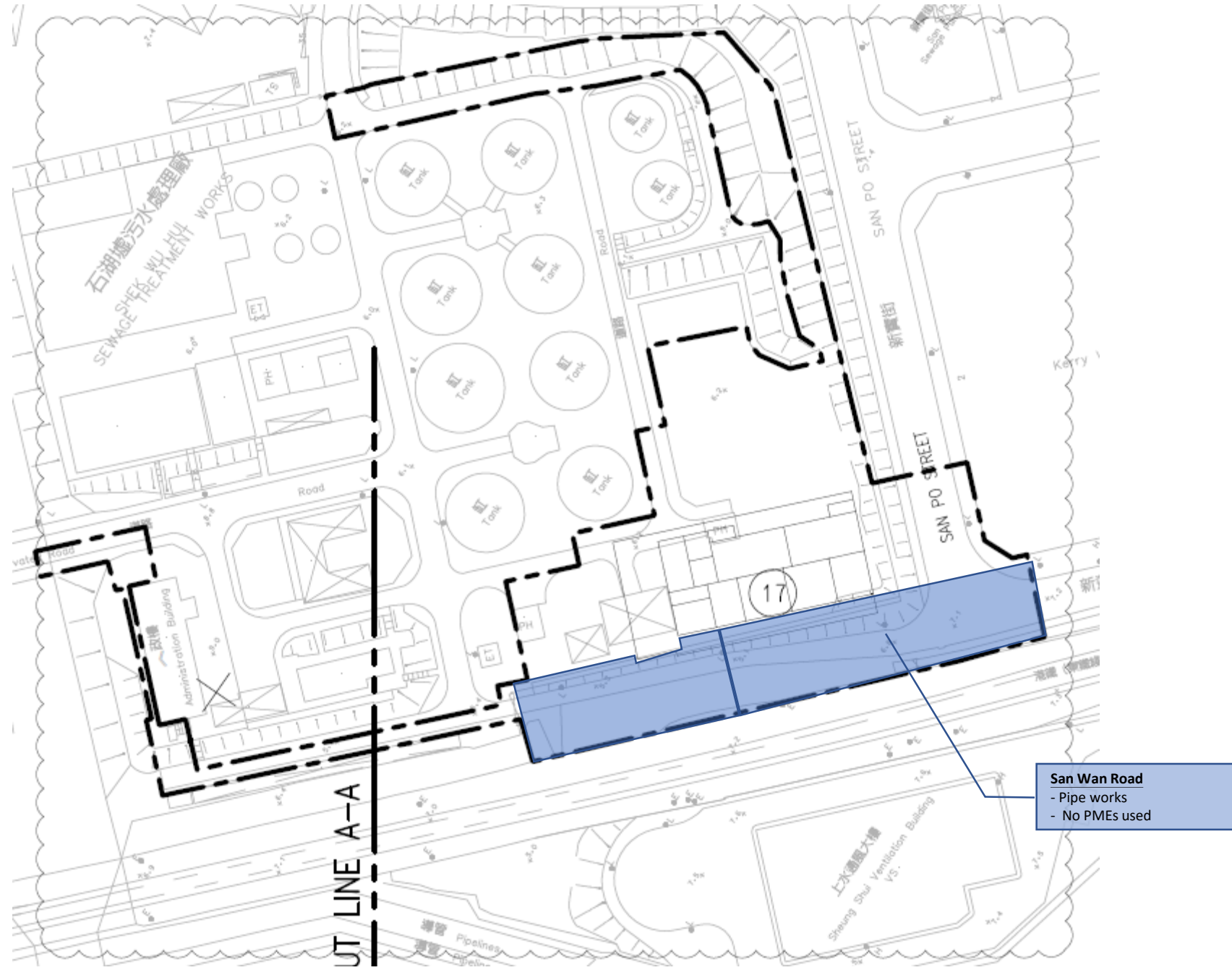
Layout Plan of Construction Activities and Site Record Photos

Portion C

DC/2018/06



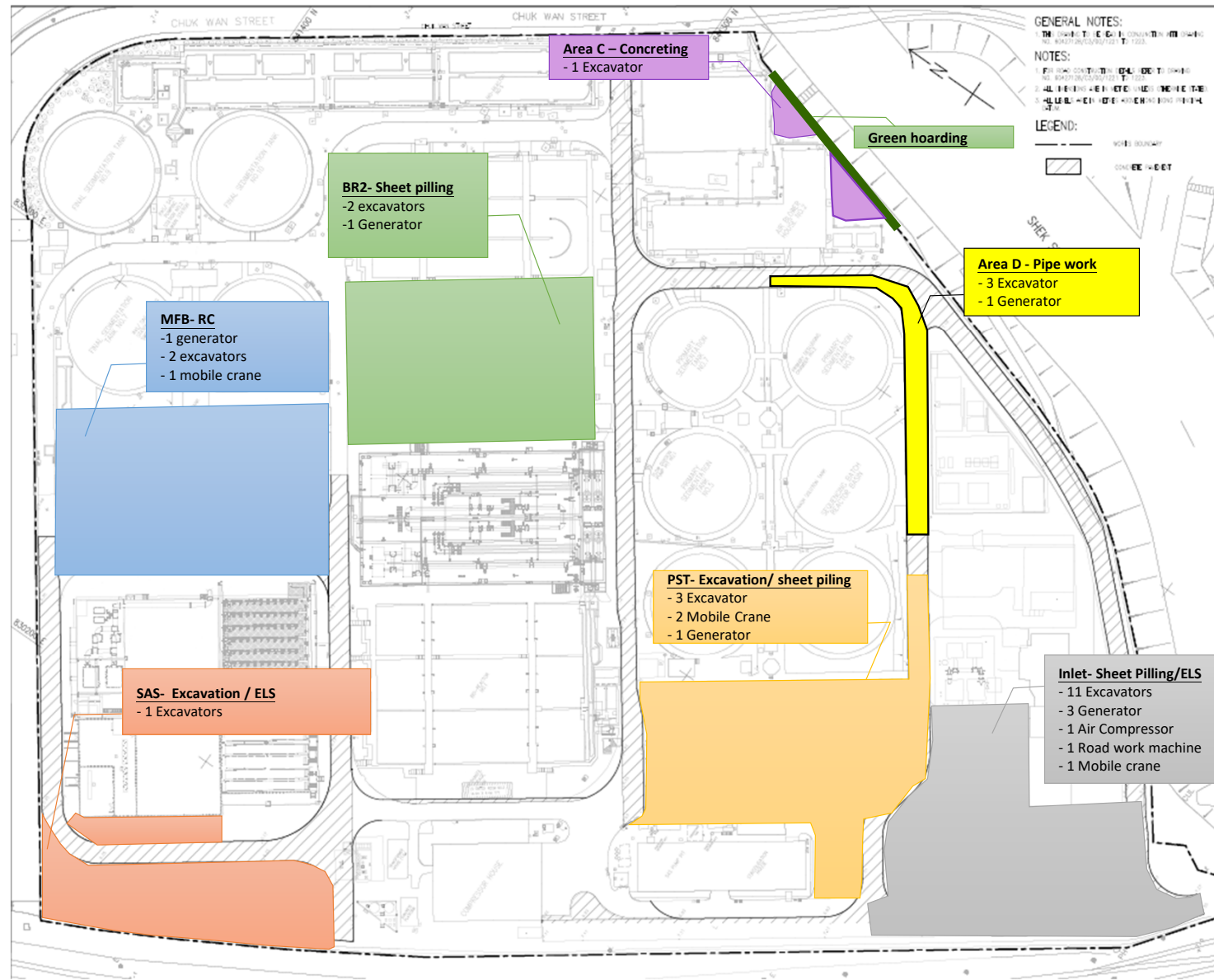
Portion A



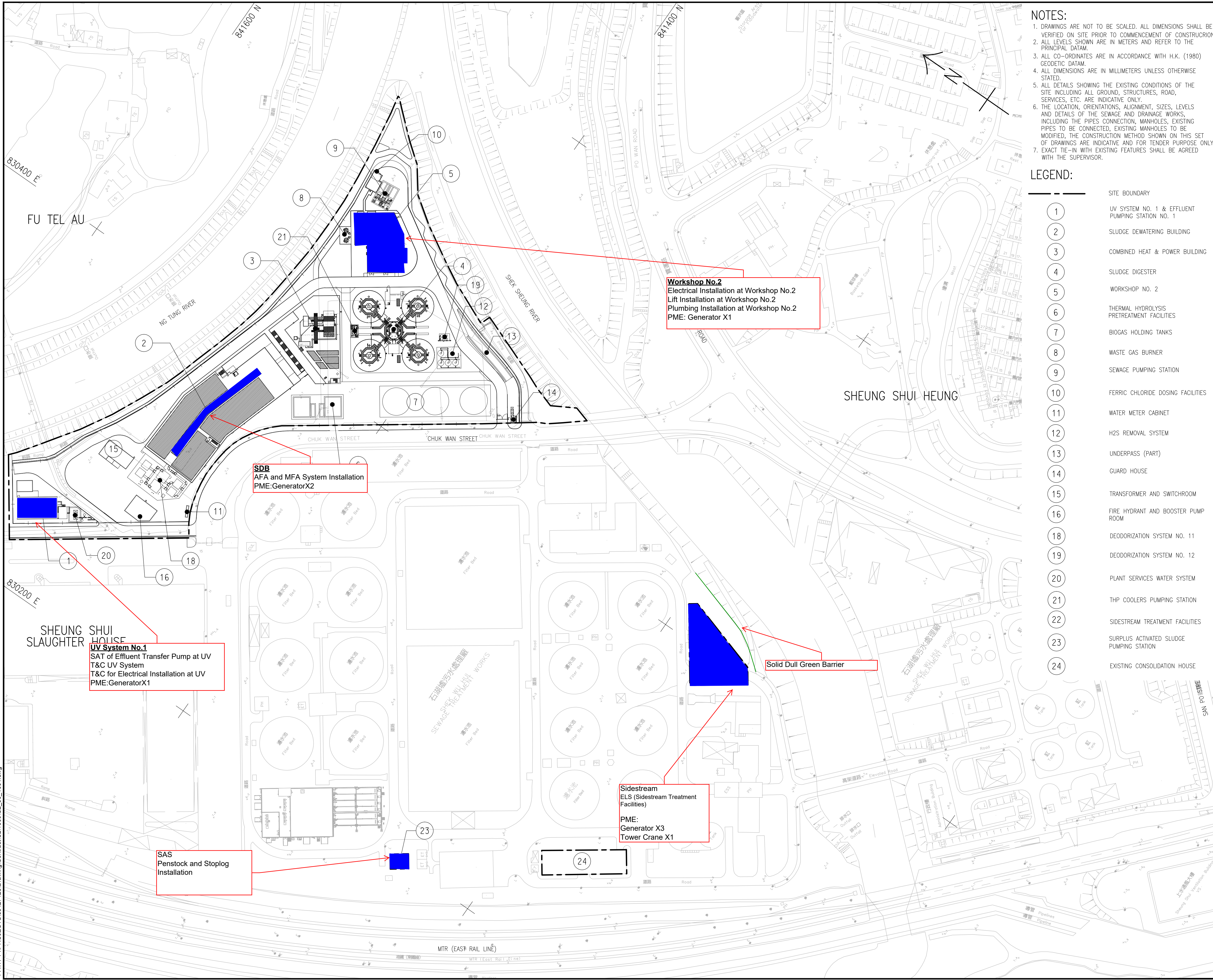
San Wan Road
- Pipe works
- No PMEs used

Portion B

DC/2018/07



Plot File by: GuoX 26/03/2019
 PATH: P:\PROJECTS\60427128\Drawing\Contract\C21000\C2_00_1001.dwg
 Project Management Initials: Designer: KYTM Checked: TLST Approved: ELIM
 ISO A1 594mm x 841mm



NOTES:

1. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
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3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH H.K. (1980) GEODETIC DATUM.
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6. THE LOCATION, ORIENTATIONS, ALIGNMENT, SIZES, LEVELS AND DETAILS OF THE SEWAGE AND DRAINAGE WORKS, INCLUDING THE PIPES CONNECTION, MANHOLES, EXISTING PIPES TO BE CONNECTED, EXISTING MANHOLES TO BE MODIFIED, THE CONSTRUCTION METHOD SHOWN ON THIS SET OF DRAWINGS ARE INDICATIVE AND FOR TENDER PURPOSE ONLY.
7. EXACT TIE-IN WITH EXISTING FEATURES SHALL BE AGREED WITH THE SUPERVISOR.

LEGEND:

---	SITE BOUNDARY
①	UV SYSTEM NO. 1 & EFFLUENT PUMPING STATION NO. 1
②	SLUDGE DEWATERING BUILDING
③	COMBINED HEAT & POWER BUILDING
④	SLUDGE DIGESTER
⑤	WORKSHOP NO. 2
⑥	THERMAL HYDROLYSIS PRETREATMENT FACILITIES
⑦	BIOGAS HOLDING TANKS
⑧	WASTE GAS BURNER
⑨	SEWAGE PUMPING STATION
⑩	FERRIC CHLORIDE DOSING FACILITIES
⑪	WATER METER CABINET
⑫	H2S REMOVAL SYSTEM
⑬	UNDERPASS (PART)
⑭	GUARD HOUSE
⑮	TRANSFORMER AND SWITCHROOM
⑯	FIRE HYDRANT AND BOOSTER PUMP ROOM
⑰	DEODORIZATION SYSTEM NO. 11
⑱	DEODORIZATION SYSTEM NO. 12
⑳	PLANT SERVICES WATER SYSTEM
㉑	THP COOLERS PUMPING STATION
㉒	SIDESTREAM TREATMENT FACILITIES
㉓	SURPLUS ACTIVATED SLUDGE PUMPING STATION
㉔	EXISTING CONSOLIDATION HOUSE



PROJECT
 項目
SHEK WU HUI EFFLUENT POLISHING PLANT

CONTRACT TITLE
 SHEK WU HUI EFFLUENT POLISHING PLANT - MAIN WORKS STAGE 1 - SIDESTREAM TREATMENT FACILITIES AND E&M WORKS FOR SLUDGE TREATMENT FACILITIES

CLIENT
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 渠務署
 Drainage Services Department

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 工程顧問公司
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SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION
 修訂

NO.	DATE	DESCRIPTION	CHK.
-	MAR. 19	TENDER DRAWING	TLST
I/R	DATE	DESCRIPTION	CHK.

STATUS
 階段

SCALE
 比例
 A1 1:1000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖

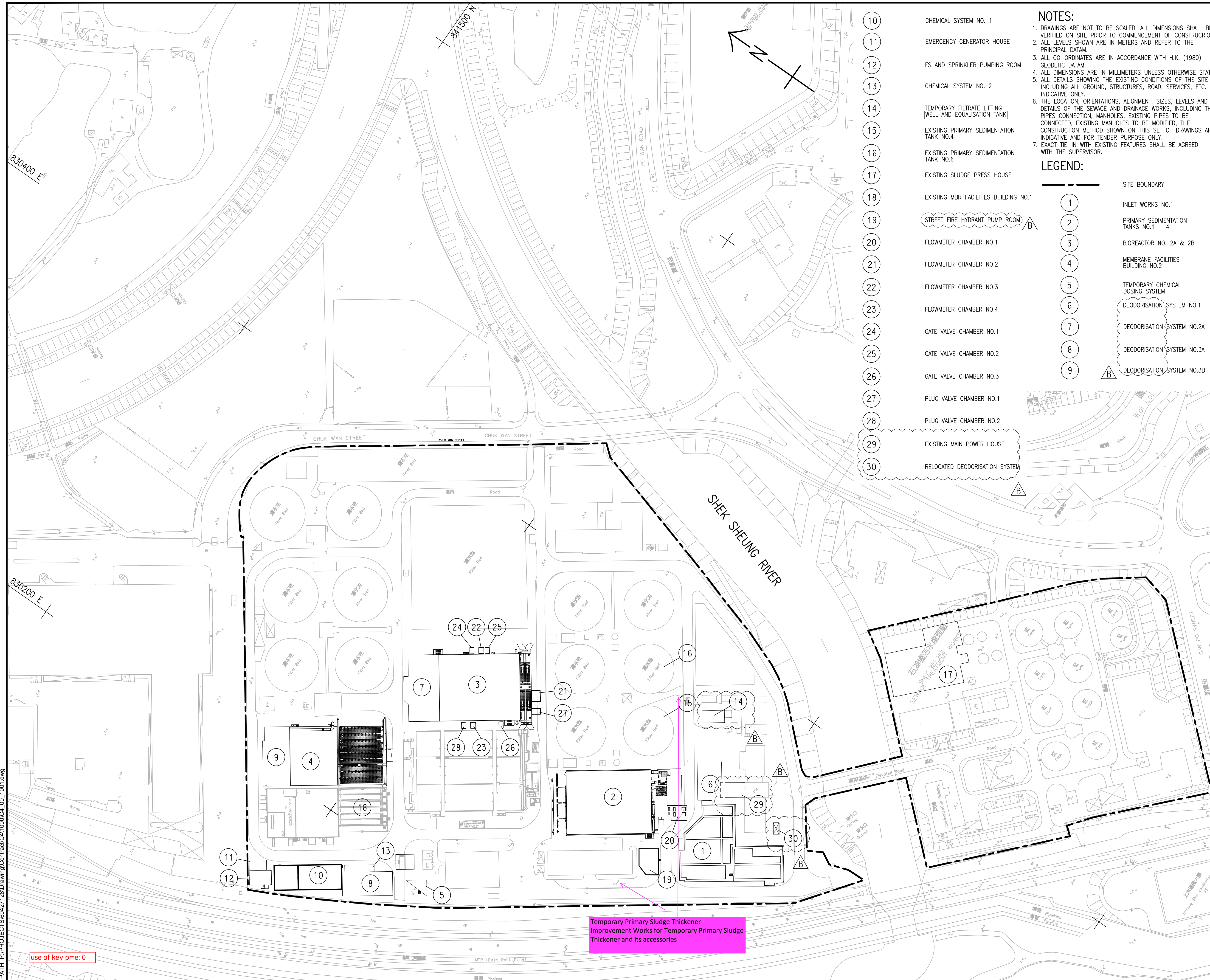
PROJECT NO.
 項目編號
 60427128

CONTRACT NO.
 合約編號
 DE/2018/03

SHEET TITLE
 圖紙名稱
 SHEK WU HUI EFFLUENT POLISHING PLANT GENERAL LAYOUT PLAN

SHEET NUMBER
 圖紙編號
 60427128/C2/00/1001

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- 10 CHEMICAL SYSTEM NO. 1
- 11 EMERGENCY GENERATOR HOUSE
- 12 FS AND SPRINKLER PUMP ROOM
- 13 CHEMICAL SYSTEM NO. 2
- 14 TEMPORARY FILTRATE LIFTING WELL AND EQUALISATION TANK
- 15 EXISTING PRIMARY SEDIMENTATION TANK NO.4
- 16 EXISTING PRIMARY SEDIMENTATION TANK NO.6
- 17 EXISTING SLUDGE PRESS HOUSE
- 18 EXISTING MBR FACILITIES BUILDING NO.1
- 19 STREET FIRE HYDRANT PUMP ROOM
- 20 FLOWMETER CHAMBER NO.1
- 21 FLOWMETER CHAMBER NO.2
- 22 FLOWMETER CHAMBER NO.3
- 23 FLOWMETER CHAMBER NO.4
- 24 GATE VALVE CHAMBER NO.1
- 25 GATE VALVE CHAMBER NO.2
- 26 GATE VALVE CHAMBER NO.3
- 27 PLUG VALVE CHAMBER NO.1
- 28 PLUG VALVE CHAMBER NO.2
- 29 EXISTING MAIN POWER HOUSE
- 30 RELOCATED DEODORISATION SYSTEM

NOTES:

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LEGEND:

- 1 SITE BOUNDARY
- 2 INLET WORKS NO.1
- 3 PRIMARY SEDIMENTATION TANKS NO.1 - 4
- 4 BIOREACTOR NO. 2A & 2B
- 5 MEMBRANE FACILITIES BUILDING NO.2
- 6 TEMPORARY CHEMICAL DOSING SYSTEM
- 7 DEODORISATION SYSTEM NO.1
- 8 DEODORISATION SYSTEM NO.2A
- 9 DEODORISATION SYSTEM NO.3A
- 10 DEODORISATION SYSTEM NO.3B

AECOM

PROJECT
 SHEK WU HUI EFFLUENT POLISHING PLANT

CLIENT
 渠務署
 Drainage Services Department

CONSULTANT
 土亞顧問公司
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 分列工程師有限公司

ISSUE/REVISION

REV	DATE	DESCRIPTION	CHK.
B	AUG. 19	TENDER ADDENDUM NO. 3	TLST
A	JUL. 19	TENDER ADDENDUM NO. 2	TLST
-	APR. 19	TENDER DRAWING	TLST

STATUS
 預設

SCALE
 1:1000

DIMENSION UNIT
 METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60427128

CONTRACT NO.
 合約編號
 DE/2018/04

SHEET TITLE
 圖紙名稱
 GENERAL LAYOUT PLAN

SHEET NUMBER
 圖紙編號
 60427128/C4/00/1001B

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Use of key pme: 0




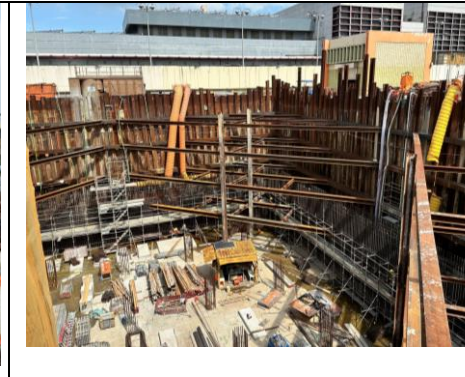


Site Record Photos



DC/2018/06

			
SD&THP	Section 4	SDB	Biogas Holding Tank

DC/2018/07

			
BR2	MFB	PST	Inlet



DE/2018/03



Sidestream

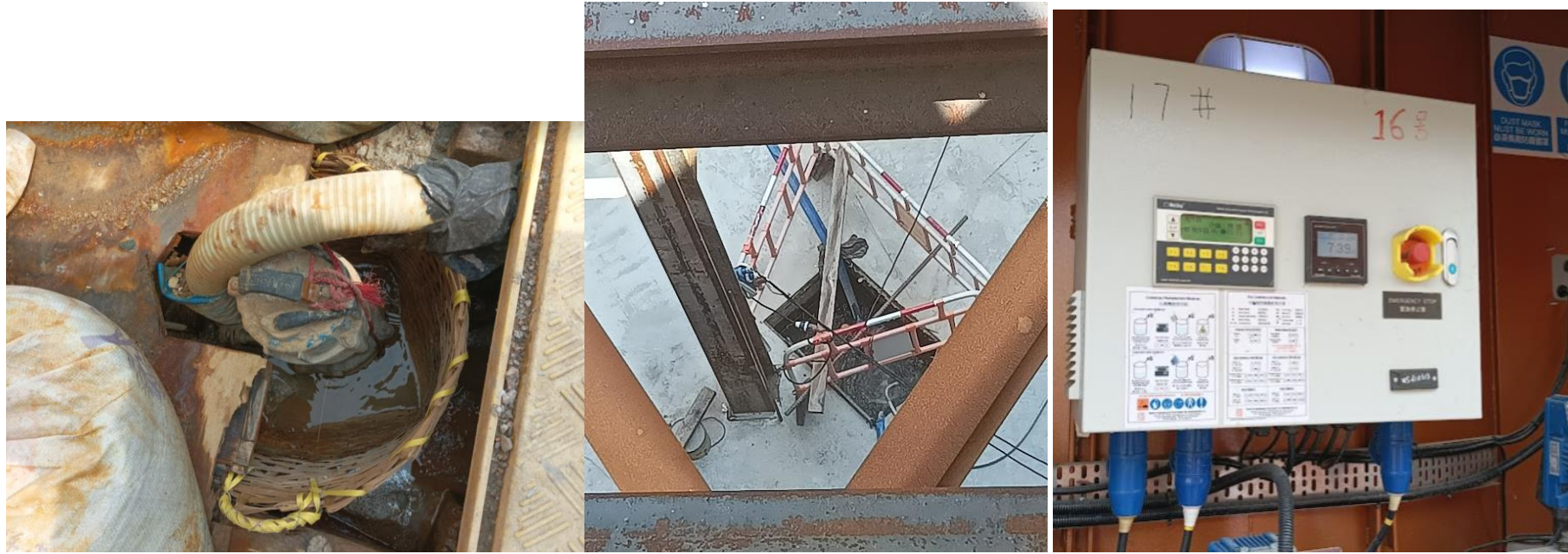
Site drainage system

DC/2018/06



The site surface runoff was collected and directed to the sedimentation tank by the pump and properly treated in the treatment tank

DC/2018/07



The site surface runoff was collected and directed to the sedimentation tank by the pump and properly treated in the treatment tank

DE/2018/03



The site surface runoff was collected and directed to the sedimentation tank by the pump and properly treated in the treatment tank



Appendix 3.1

Environmental Mitigation Implementation Schedule

Appendix 3.1 Environmental Mitigation Implementation Schedule

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	Remark
Air Quality Monitoring							
S2.4.1.3	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:						
	<ul style="list-style-type: none"> 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; 	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)	^
	<ul style="list-style-type: none"> Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; 						^
	<ul style="list-style-type: none"> A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						

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	Remark
	<ul style="list-style-type: none"> 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. 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^

	<ul style="list-style-type: none"> • 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 						^
	<ul style="list-style-type: none"> • 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	Remark
Noise Impact							
S3.4.1.1	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)	^
S3.4.1.2	<p>Good Site Practice:</p> <ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. 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. 	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	^ * ^ ^ ^ ^

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	Remark
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 and operation 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	The following measures to avoid, minimise and mitigate impact on water quality during construction phase shall be implemented						
	<ul style="list-style-type: none"> 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	^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^

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	Remark
	<ul style="list-style-type: none"> • 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; 						^
	<ul style="list-style-type: none"> • Speed control for the trucks carrying contaminated materials should be enforced; 						^
	<ul style="list-style-type: none"> • Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and 						^
	<ul style="list-style-type: none"> • Other measures as detailed in this schedule. 						^

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	Remark
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	Sewage from Workforce <ul style="list-style-type: none"> 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; 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 	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	Remark
Waste Management							
S6.2.2.1	<p>Good Site Practices and Waste Reduction Measures</p> <ul style="list-style-type: none"> 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; 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. 	Minimize waste generation during construction	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal Ordinance (WDO)	* ^ ^ ^ ^ ^
S6.2.3.1	<p>Waste Reduction Measures</p> <ul style="list-style-type: none"> Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; 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. 	Reduce waste generation	Contractors	Work Sites	Prior to the commencement of construction of Main Works Stage 1, Stage 2 and Stage 3	WDO	^ ^ ^ ^ ^

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	Remark
S6.2.4.1	Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	<ul style="list-style-type: none"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; 						^
	<ul style="list-style-type: none"> Stockpiling area should be provided with covers and water spraying system to prevent materials from windblown or being washed away; and 						^
	<ul style="list-style-type: none"> Different locations should be designated to stockpile each material to enhance reuse. 						^
S6.2.4.2	Storage, Collection and Transportation of Waste (con't)	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	<ul style="list-style-type: none"> Remove waste in timely manner; 						^
	<ul style="list-style-type: none"> Employ the trucks with cover or enclosed containers for waste transportation; 						^
	<ul style="list-style-type: none"> Obtain relevant waste disposal permits from the appropriate authorities; and Disposal of waste should be done at licensed waste disposal facilities 						^
S6.2.5.2	C&D Materials from Site Formation	Minimize waste impacts arising from waste storage	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	^
	<ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling; 						^
	<ul style="list-style-type: none"> Carry out on-site sorting; 						^
	<ul style="list-style-type: none"> Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; 						^
	<ul style="list-style-type: none"> 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 						^
S6.2.5.3	C&D Material from Buildings Demolition and New Building Construction						

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	Remark
	<ul style="list-style-type: none"> • General refuse should be stored in enclosed bins separately from construction and chemical wastes. • 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. 	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	^ ^ ^ ^

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	Remark
Landscape and Visual							
S7.3.1.1	<p>Good Site Practices Measures</p> <ul style="list-style-type: none"> 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. 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. 	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
							N/A
S7.3.2.1	<p>MM4 - Tree Protection & Preservation</p> <ul style="list-style-type: none"> 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. 	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	Remark
S7.3.2.1	<p>MM5 - Tree Transplantation</p> <ul style="list-style-type: none"> 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. 	Transplant Trees where suitable for transplantation	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 HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit	N/A
S7.3.2.1	<p>MM6 - Slope Landscaping</p> <ul style="list-style-type: none"> 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 seedlings and/or shrubs should be planted where slope gradient and site conditions allow. In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping 	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure manmade slopes are as visually amenable as possible.	Designer / Contractor	Work Sites	Prior to construction, construction phase and operation phase	GEO Publication (1999) - Use of Vegetation as Surface Protection on Slope; GEO Publication No. 1/2011- Technical Guidelines on Landscape Treatment for Slopes	N/A
S7.3.2.1	MM7 - Compensatory Planting						

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	Remark
	<ul style="list-style-type: none"> 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. 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. 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>Rhodomyrtus tomentosa</i>, <i>Rhaphiolepis indica</i>, and <i>Rhododendron simsii</i> are suggested. 	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
							N/A
							N/A
S7.3.2.1	MM9 - Vertical Greening <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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/Urbis 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	Remark
S7.3.2.1	<p>MM11 - Screen Planting</p> <ul style="list-style-type: none"> 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	<p>MM16 - Screen Hoarding</p> <ul style="list-style-type: none"> 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. Details can refer to the ecological impact assessment. [Chapter 13 of the EIA Report of NENT NDAs (Register No. AEIAR-175- 2013)] 	To screen undesirable views of the works site.	Designer	Work Sites	Construction phase		N/A
S7.3.2.1	<p>MM17 - Light Control</p> <ul style="list-style-type: none"> 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		N/A

Remarks:

- ^ Implemented
- * To be followed-up by Contractor
- # Not Implemented
- N/A Not Applicable



Appendix 4.1

Action and Limit Level

Action and Limit Levels

Air Quality Monitoring

Monitoring Station	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
AM1	320	500	189	260
AM2	322	500	187	260

Noise Monitoring

Monitoring Stations	Leq(30min),dB(A)	
	Action Level (dB(A))	Limit Level (dB(A))
NM1	When one documented complaint is received	75*
NM2		
NM3		

*Notes: (1) 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 should be followed.

(2) The limit level shall be 70 dB(A) and 65 dB(A) for educational institute during normal teaching periods and school examination periods, respectively.

Ecological Monitoring of 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 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 data.



Appendix 4.2

Copies of Calibration Certificates

Certificate of Calibration

Calibration Certification Information			
Cal. Date: June 28, 2022	Rootsmeter S/N: 438320	Ta: 296	°K
Operator: Jim Tisch		Pa: 755.1	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3880		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4500	3.2	2.00
2	3	4	1	1.0240	6.4	4.00
3	5	6	1	0.9130	7.9	5.00
4	7	8	1	0.8690	8.8	5.50
5	9	10	1	0.7180	12.8	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)	
0.9961	0.6870	1.4144	0.9958	0.6867	0.8854	
0.9918	0.9686	2.0003	0.9915	0.9683	1.2522	
0.9899	1.0842	2.2364	0.9895	1.0838	1.4000	
0.9887	1.1377	2.3456	0.9883	1.1373	1.4683	
0.9834	1.3696	2.8289	0.9830	1.3691	1.7708	
QSTD	m=	2.07013	QA	m=	1.29628	
	b=	-0.00727		b=	-0.00455	
	r=	0.99999		r=	0.99999	

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= $1/m \left(\left(\sqrt{\Delta H (Ta/Pa)} \right) - b \right)$

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



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM1a Calibration Date : 1-Sep-22
 Equipment no. : HVS001 (0401-1105) Calibration Due Date : 1-Nov-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	302	Kelvin	Pressure, P _a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	3880	Slope, m _c	2.07013	Intercept, b _c	-0.00727
Last Calibration Date	28-Jun-22	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-23				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8044	21	20.8058
2	2.3	2.3	4.6	1.0300	32	31.7041
3	3.5	3.5	7.0	1.2698	44	43.5932
4	4.3	4.3	8.6	1.4070	51	50.5285
5	5.6	5.6	11.2	1.6052	60	59.4452

By Linear Regression of Y on X

Slope, m = 48.9134 Intercept, b = -17.5531
 Correlation Coefficient* = 0.9998
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : Serial No.:0401-1105

Calibrated by : Alan Ng Checked by : Kelly Cheung
 Date : 1-Sep-22 Date : 1-Sep-22



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM2a Calibration Date : 1-Sep-22
 Equipment no. : HVS003 (1096-2305) Calibration Due Date : 1-Nov-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	302	Kelvin	Pressure, P _a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	3880	Slope, m _c	2.07013	Intercept, b _c	-0.00727
Last Calibration Date	28-Jun-22	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-23				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	2.3	2.3	4.6	1.0300	23	22.7873
2	3.5	3.5	7.0	1.2698	33	32.6949
3	4.6	4.6	9.2	1.4552	44	43.5932
4	5.2	5.2	10.4	1.5469	48	47.5562
5	6.1	6.1	12.2	1.6752	55	54.4915

By Linear Regression of Y on X

Slope, m = 47.3405 Intercept, b = -26.2467
 Correlation Coefficient* = 0.9980
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : Serial No.: 1096-2305

Calibrated by : Alan Ng Checked by : Kelly Cheung
 Date : 1-Sep-22 Date : 1-Sep-22



1600 Washington Blvd
 Grants Pass, OR 97526
 (541) 471-7111
 (541) 471-7116 (Fax)
 Service@metone.com

**Met One
 Instruments**

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# R14332
 Date of Calibration 4/29/2022 Sensor # 12228

JGoddard AT8
 Calibration Technician

AT6
 Quality Check

Temperature 22 °C

Relative Humidity 32 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	240943	05/31/2024
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
FLOW	SWIFT 6.0	B20457	11/24/2022
DMM	289	27720071	8/24/2022
RH/TEMP SENSOR	083E-1-6	R20313	9/13/2022
Particle Counter	GT-526S	X17421	5/29/2022

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : AEROCET831
Serial Number : R14332
Performance Check Date : 17-May-22

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS018 (S/N:2656)
Last Calibration Date : 29-Apr-22

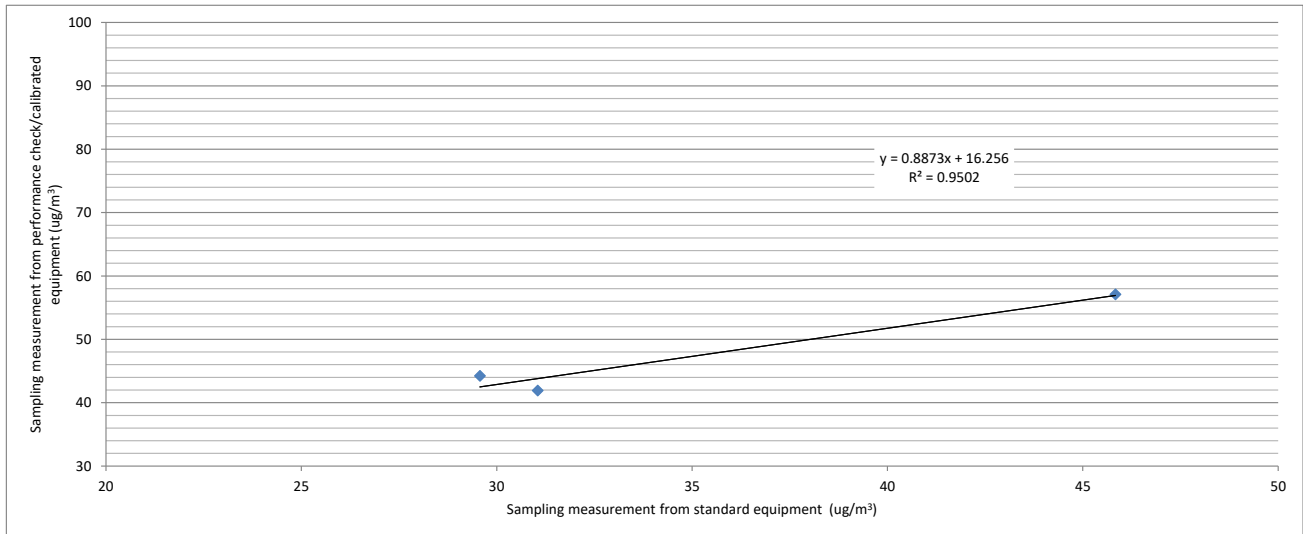
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Temp (°C), Mean Pressure (hPa), Concentration in ug/m³ (Standard equipment) (Y - Axis), Concentration in ug/m³ (Performance Check / Calibrated equipment) (X - Axis). Rows 1-3 show data for trials on 17/5/22.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 1.1000
Correlation Coefficient : 0.9748
Validity of Performance Check / Calibration Record : 17/5/2023



Operator: Alan Ng

Date: 1/6/2022

Checked by: Derek Lo

Date: 1/6/2022



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 Service@metone.com

**Met One
 Instruments**

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# W15448
 Date of Calibration 4/28/2022 Sensor # 16438

JGoddard AT8 AT6
 Calibration Technician Quality Check

Temperature 22 °C Relative Humidity 32 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	240943	05/31/2024
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526S	X17421	5/29/2022
FLOW	SWIFT 6.0	B20457	11/24/2022
RH/TEMP SENSOR	083E-1-6	R20313	9/13/2022
DMM	289	27720071	8/24/2022

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.



Portable Dust Meter Performance Check Record

Portable Dust Meter

Type : Particulate Monitor
Manufacturer : MET ONE INSTRUMENTS
Model Number : AEROCET831
Serial Number : W15448
Performance Check Date : 17-May-22

Standard Equipment

Type : High Volume Sampler
Manufacturer : TISCH
Model Number : TE-5170
Equipment Number : HVS018 (S/N:2656)
Last Calibration Date : 29-Apr-22

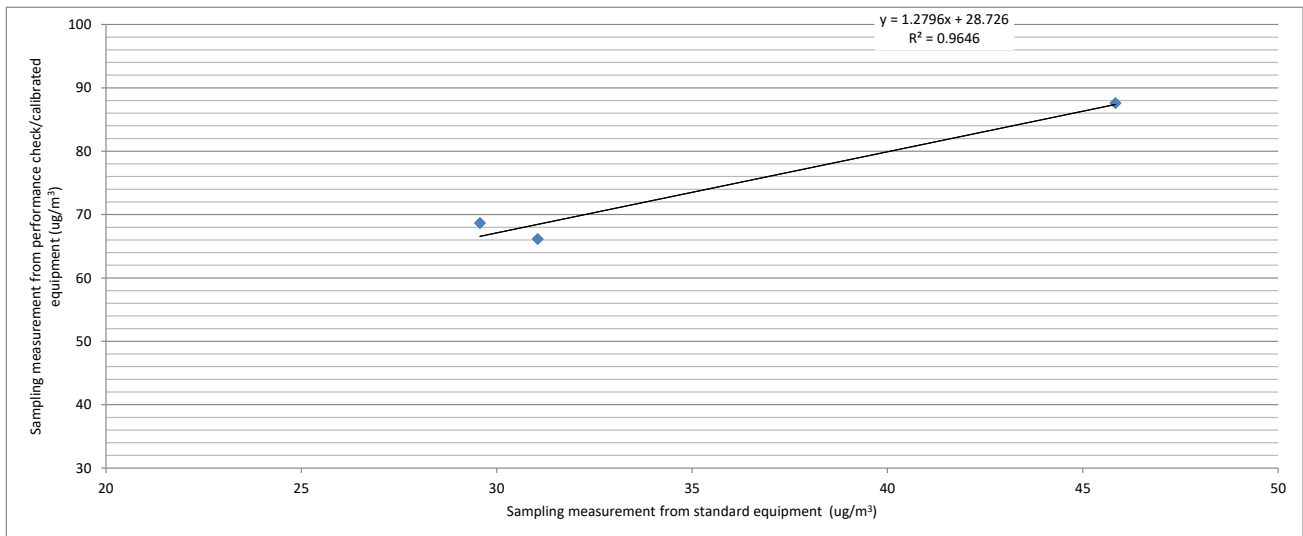
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Temp (°C), Mean Pressure (hPa), Concentration in ug/m³ (Standard equipment), Concentration in ug/m³ (Performance Check / Calibrated equipment). Contains 3 rows of data.

* Filter paper weighting was conducted by HOKLAS accredited laboratory.

Linear Regression of Y on X

Slope (K- factor) : 0.8000
Correlation Coefficient : 0.9821
Validity of Performance Check / Calibration Record : 17/5/2023



Operator: Alan Ng

Date: 1/6/2022

Checked by: Derek Lo

Date: 1/6/2022



CERTIFICATE OF CALIBRATION

Certificate No.: 22CA0224 04-02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Nti	,	Nti Andio	Nti Andio
Type/Model No.:	XL2	,	MC230A	MA220
Serial/Equipment No.:	A2A-15269-EO	,	A16673	8034
Adaptors used:	-	,		

Item submitted by

Customer Name: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 24-Feb-2022

Date of test: 01-Mar-2022

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2022	CIGISMEC
Signal generator	DS 360	33873	27-May-2022	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

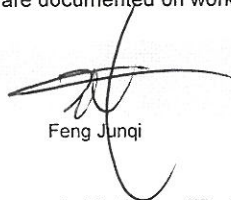
Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:



Feng Junqi

Date: 02-Mar-2022

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 22CA0224 04-02

Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
Peak response	Single Burst Slow	Pass	0.3	
	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
	Single burst 5 ms at 2000 Hz	Pass	0.3	
Time weighting I	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	SPL	Pass	0.3	
Overload indication	Leq	Pass	0.4	

2, Acoustic tests

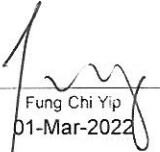
The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by: 

Date: 01-Mar-2022

- End -

Checked by: 

Date: 02-Mar-2022

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



Test Data for Sound Level Meter

Page 1 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	11.0	dB
Noise level in C weighting	14.5	dB
Noise level in Lin	20.9	dB

LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals. (SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
115.0	115.0	115.0	0.7	0.0	0.0
116.0	116.0	116.0	0.7	0.0	0.0
117.0	117.0	117.0	0.7	0.0	0.0
118.0	118.0	118.0	0.7	0.0	0.0
119.0	119.0	119.0	0.7	0.0	0.0
120.0	120.0	120.0	0.7	0.0	0.0
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.1	49.1	0.7	0.1	0.1
44.0	44.0	44.0	0.7	0.0	0.0
39.0	39.0	39.0	0.7	0.0	0.0
34.0	34.1	34.1	0.7	0.1	0.1
33.0	33.1	33.1	0.7	0.1	0.1



Test Data for Sound Level Meter

Page 2 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

32.0	32.2	32.2	0.7	0.2	0.2
31.0	31.2	31.2	0.7	0.2	0.2
30.0	30.3	30.3	0.7	0.3	0.3

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	94.0	94.0	0.7	0.0
20-120	94.0	94.0	0.7	0.0
0-100	94.0	94.0	0.7	0.0

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	51.0	51.7	0.7	0.7
	138.0	138.0	0.7	0.0
20-120	30.0	30.3	0.7	0.3
	118.0	118.0	0.7	0.0
0-100	30.0	30.0	0.7	0.0
	98.0	98.0	0.7	0.0

FREQUENCY WEIGHTING TEST

The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.4	1.5	1.5	-0.2
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.8	1.0	1.0	-0.1
251.2	94.0	85.4	85.3	1.0	1.0	-0.1
501.2	94.0	90.8	90.7	1.0	1.0	-0.1
1995.0	94.0	95.2	95.1	1.0	1.0	-0.1
3981.0	94.0	95.0	94.9	1.0	1.0	-0.1
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.5	3.0	6.0	-0.2

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB



Test Data for Sound Level Meter

Page 3 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673
Report: 22CA0224 04-02

1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	90.8	1.5	1.5	-0.2
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.8	1.0	1.0	0.0
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.1	1.0	1.0	-0.1
7943.0	94.0	91.0	91.0	1.5	3.0	0.0
12590.0	94.0	87.8	87.6	3.0	6.0	-0.2

Frequency weighting Lin:

Frequency Hz	Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
				+	-	
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	93.8	1.5	1.5	-0.2
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	93.9	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	93.9	1.0	1.0	-0.1
1995.0	94.0	94.0	93.9	1.0	1.0	-0.1
3981.0	94.0	94.0	93.9	1.0	1.0	-0.1
7943.0	94.0	94.0	94.0	1.5	3.0	0.0
12590.0	94.0	94.0	93.9	3.0	6.0	-0.1

Note: No corrections for the frequency response of the microphone, instrument case and windshield are made to the sound level meter.

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	115.0	114.9	1.0	1.0	-0.1

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	111.9	111.9	1.0	1.0	0.0



Test Data for Sound Level Meter

Page 4 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.3	2.0	0.3

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.3	2.0	0.3

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

Time weighting	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
	dB	dB	indication(dB)	+/- dB	dB
Slow	118.0+6.6	118.0	117.9	0.5	-0.1

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level	Single burst indication		Tolerance	Deviation
	dB	Expected (dB)	Actual (dB)	+/- dB
120.0	111.2	111.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated burst indication		Tolerance	Deviation
	dB	Expected (dB)	Actual (dB)	+/- dB
120.0	117.3	117.1	1.0	-0.2

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

Duration of tone burst: 1 ms

Repetition Time	Level of tone burst	Expected Leq	Actual Leq	Tolerance	Deviation	Remarks



Test Data for Sound Level Meter

Page 5 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673

Report: 22CA0224 04-02

msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	90.0	1.0	0.0	60s integ.
10000	80.0	80.0	80.0	1.0	0.0	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz

Integration time: 10 sec

The integrating sound level meter set to Leq:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10	88.0	58.0	58.0	1.7	0.0

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	88.0	68.0	68.0	1.7	0.0

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz

Amplitude: 2 dB below the upper limit of the primary indicator range.

Burst repetition frequency: 40 Hz

Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
121.6	120.6	117.6	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz

Integration time: 10 sec

Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
127.7	126.7	86.7	86.7	2.2	0.0

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerance (dB)		Deviation
Hz	dB	Measured (dB)	+	-	dB



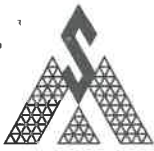
Test Data for Sound Level Meter

Page 6 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 01-Mar-2022
Microphone type: MC230A Serial No. A16673
Report: 22CA0224 04-02

1000	94.0	94.0	0.0	0.0	0.0
125	77.9	77.9	1.0	1.0	0.0
8000	92.9	93.3	1.5	3.0	0.4

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1222 02-01

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Larson Davis
Type/Model No.: CAL200
Serial/Equipment No.: 13098
Adaptors used: -

Item submitted by

Customer: Lam Environmental Services Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 22-Dec-2021

Date of test: 29-Dec-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	04-May-2022	SCL
Preamplifier	B&K 2673	2239857	31-May-2022	CEPREI
Measuring amplifier	B&K 2610	2346941	01-Jun-2022	CEPREI
Signal generator	DS 360	33873	27-May-2022	CEPREI
Digital multi-meter	34401A	US36087050	27-May-2022	CEPREI
Audio analyzer	8903B	GB41300350	28-May-2022	CEPREI
Universal counter	53132A	MY40003662	02-Jun-2022	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

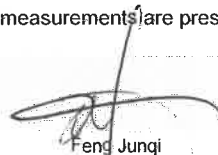
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Feng Junqi

Date: 03-Jan-2022

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

21CA1222 02-01

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 µPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.76	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.018 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 999.9 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 0.6%

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Yung Chi Yip

Date: 29-Dec-2021

Checked by:

Chan Yuk Yiu

Date: 03-Jan-2022

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



Lam Environmental Services Limited

Wind Station Performance Check Record

Type : Weather Station

Manufacturer : 武汉辰云科技有限公司

Model Number : YGY-FSXY1

Serial Number : YG 21071630T0924

Performance Check Date : 19-Mar-2022

Performance Check Results

Wind Speed Range (m/s)	Direct Reading average (V1, m/s)	Anemometer Value average (V2, m/s)	Difference (V1 - V2, m/s)
Zero Check	0.0	0	0
0 - 1	0.8	0.8	0
1 - 2	1.5	1.7	-0.2
2 - 3	2.5	2.4	0.1

Wind Direction (°)	Direct Reading (W1, °)	Compass Value (W2, °)	Difference (W1 - W2, m/s)
0	0	0	0
90	90	90	0
180	180	179	1
270	270	271	-1

Test Reference:

1. Wind Speed Check - Wind speed reading checked on-site against the anemometer.
2. Wind Direction Check - Wind direction reading check against on-site the marine compass.

Conducted by: Patrick Yeung

Checked by: Derek Lo



Lam Environmental Services Limite

Wind Station Performance Check Record

Type : Weather Station

Manufacturer : 武汉辰云科技有限公司

Model Number : YGY-FSXY1

Serial Number : YG 21071630T0924

Performance Check Date : 30-Sep-2022

Performance Check Results

Wind Speed Range (m/s)	Reading Value (V1, m/s)	Anemometer Value (V2, m/s)	Difference (V1 - V2, m/s)
Zero Check	0.0	0.0	0.0
1 - 2	2.0	2.1	-0.1
3 - 4	3.4	3.2	0.2
5 - 6	5.7	5.6	0.1
7 - 8	7.9	8.2	-0.3

Wind Direction (°)	Reading Value (W1, °)	Compass Value (W2, °)	Difference (W1 - W2, °)
0	-1	0	-1
90	90	90	0
180	178	180	-2
270	272	270	2

Test Reference:

1. Wind Speed Check - Speed reading checked on-site against anemometer logged value.
2. Wind Direction Check - Direction reading checked on on-site against compass marked reading.

Conducted by: William Cheung

Checked by: Raymond Dai



Appendix 4.3

Wind Data



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
1-Sep-22	00:00	0.0	75(ENE)
	01:00	0.0	76(ENE)
	02:00	0.0	357(N)
	03:00	0.0	48(NE)
	04:00	0.0	316(NW)
	05:00	0.0	208(SSW)
	06:00	1.3	91(E)
	07:00	0.0	191(S)
	08:00	0.0	211(SSW)
	09:00	0.5	132(SE)
	10:00	0.5	144(SE)
	11:00	0.0	337(NNW)
	12:00	0.0	184(S)
	13:00	0.0	53(NE)
	14:00	0.5	270(W)
	15:00	0.0	165(SSE)
	16:00	0.0	358(N)
	17:00	0.0	293(WNW)
	18:00	0.0	148(SSE)
	19:00	0.0	146(SE)
	20:00	0.0	102(ESE)
	21:00	0.0	202(SSW)
	22:00	0.0	9(N)
23:00	0.0	225(SW)	
2-Sep-22	00:00	0.0	140(SE)
	01:00	0.0	50(NE)
	02:00	0.0	54(NE)
	03:00	0.0	140(SE)
	04:00	0.0	106(ESE)
	05:00	0.0	146(SE)
	06:00	0.0	49(NE)
	07:00	0.0	50(NE)
	08:00	1.1	225(SW)
	09:00	1.7	264(W)
	10:00	0.0	106(ESE)
	11:00	0.0	177(S)
	12:00	0.0	28(NNE)
	13:00	0.9	53(NE)
	14:00	1.3	142(SE)
	15:00	1.7	118(ESE)
	16:00	0.0	31(NNE)
	17:00	1.7	37(NE)
	18:00	0.0	297(WNW)
	19:00	0.0	120(ESE)
	20:00	0.0	28(NNE)
	21:00	0.0	355(N)
	22:00	0.0	132(SE)
23:00	0.0	202(SSW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
3-Sep-22	00:00	0.0	198(SSW)
	01:00	0.5	147(SSE)
	02:00	0.0	275(W)
	03:00	0.0	139(SE)
	04:00	0.0	333(NNW)
	05:00	0.0	38(NE)
	06:00	0.0	176(S)
	07:00	1.7	240(WSW)
	08:00	0.0	211(SSW)
	09:00	1.5	325(NW)
	10:00	4.3	67(ENE)
	11:00	1.1	104(ESE)
	12:00	0.0	82(E)
	13:00	1.7	262(W)
	14:00	1.7	37(NE)
	15:00	0.0	77(ENE)
	16:00	0.0	235(SW)
	17:00	0.0	228(SW)
	18:00	0.9	183(S)
	19:00	0.9	220(SW)
	20:00	0.0	114(ESE)
	21:00	0.0	150(SSE)
	22:00	0.0	150(SSE)
23:00	0.0	285(WNW)	
4-Sep-22	00:00	0.0	104(ESE)
	01:00	0.5	179(S)
	02:00	0.0	117(ESE)
	03:00	0.0	174(S)
	04:00	0.0	213(SSW)
	05:00	0.0	91(E)
	06:00	0.0	284(WNW)
	07:00	0.0	2(N)
	08:00	0.0	327(NNW)
	09:00	0.0	143(SE)
	10:00	0.0	176(S)
	11:00	0.0	185(S)
	12:00	1.1	241(WSW)
	13:00	0.0	253(WSW)
	14:00	1.3	65(ENE)
	15:00	1.7	93(E)
	16:00	0.0	187(S)
	17:00	0.9	153(SSE)
	18:00	0.7	157(SSE)
	19:00	0.5	212(SSW)
	20:00	0.7	215(SW)
	21:00	0.0	253(WSW)
	22:00	0.0	64(ENE)
23:00	0.0	63(ENE)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
5-Sep-22	00:00	0.0	71(ENE)
	01:00	0.0	17(NNE)
	02:00	0.0	131(SE)
	03:00	0.0	237(WSW)
	04:00	0.0	118(ESE)
	05:00	0.0	23(NNE)
	06:00	0.0	43(NE)
	07:00	0.0	158(SSE)
	08:00	0.0	158(SSE)
	09:00	0.0	34(NE)
	10:00	0.0	324(NW)
	11:00	0.0	294(WNW)
	12:00	0.0	196(SSW)
	13:00	0.5	128(SE)
	14:00	1.3	88(E)
	15:00	0.9	136(SE)
	16:00	0.7	169(S)
	17:00	0.0	160(SSE)
	18:00	0.5	103(ESE)
	19:00	0.9	85(E)
	20:00	0.0	23(NNE)
	21:00	0.0	183(S)
	22:00	0.0	212(SSW)
23:00	0.0	121(ESE)	
6-Sep-22	00:00	0.0	104(ESE)
	01:00	0.0	150(SSE)
	02:00	0.0	153(SSE)
	03:00	0.0	232(SW)
	04:00	0.0	107(ESE)
	05:00	0.0	178(S)
	06:00	0.0	140(SE)
	07:00	0.0	152(SSE)
	08:00	0.0	69(ENE)
	09:00	0.0	123(ESE)
	10:00	0.0	267(W)
	11:00	0.0	27(NNE)
	12:00	0.9	149(SSE)
	13:00	1.7	96(E)
	14:00	1.3	136(SE)
	15:00	1.3	95(E)
	16:00	1.1	243(WSW)
	17:00	1.9	114(ESE)
	18:00	1.7	99(E)
	19:00	1.3	234(SW)
	20:00	0.0	250(WSW)
	21:00	1.3	98(E)
	22:00	1.1	136(SE)
23:00	1.1	264(W)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
7-Sep-22	00:00	0.0	93(E)
	01:00	1.1	88(E)
	02:00	0.7	287(WNW)
	03:00	0.0	172(S)
	04:00	0.0	56(NE)
	05:00	0.0	140(SE)
	06:00	0.0	45(NE)
	07:00	0.7	285(WNW)
	08:00	0.9	283(WNW)
	09:00	0.0	153(SSE)
	10:00	0.0	117(ESE)
	11:00	0.0	252(WSW)
	12:00	0.0	320(NW)
	13:00	0.7	163(SSE)
	14:00	0.0	120(ESE)
	15:00	0.0	191(S)
	16:00	0.0	123(ESE)
	17:00	0.0	202(SSW)
	18:00	0.0	77(ENE)
	19:00	0.0	285(WNW)
	20:00	0.7	75(ENE)
	21:00	0.0	147(SSE)
	22:00	0.0	158(SSE)
23:00	0.5	150(SSE)	
8-Sep-22	00:00	1.3	236(SW)
	01:00	0.5	175(S)
	02:00	0.0	145(SE)
	03:00	0.0	236(SW)
	04:00	0.0	336(NNW)
	05:00	0.0	114(ESE)
	06:00	0.0	20(NNE)
	07:00	0.0	43(NE)
	08:00	0.0	85(E)
	09:00	0.0	223(SW)
	10:00	0.0	50(NE)
	11:00	0.0	164(SSE)
	12:00	0.0	189(S)
	13:00	0.7	158(SSE)
	14:00	0.0	140(SE)
	15:00	0.0	47(NE)
	16:00	1.3	269(W)
	17:00	0.0	161(SSE)
	18:00	0.0	290(WNW)
	19:00	1.5	101(E)
	20:00	0.0	147(SSE)
	21:00	0.0	350(N)
	22:00	0.0	209(SSW)
23:00	0.0	71(ENE)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
9-Sep-22	00:00	0.0	279(W)
	01:00	0.0	330(NNW)
	02:00	0.7	180(S)
	03:00	0.0	159(SSE)
	04:00	0.0	145(SE)
	05:00	0.0	14(NNE)
	06:00	0.0	150(SSE)
	07:00	0.0	197(SSW)
	08:00	0.0	47(NE)
	09:00	0.0	150(SSE)
	10:00	0.0	43(NE)
	11:00	0.0	75(ENE)
	12:00	0.0	14(NNE)
	13:00	0.9	55(NE)
	14:00	0.9	297(WNW)
	15:00	2.5	183(S)
	16:00	1.3	190(S)
	17:00	0.9	183(S)
	18:00	0.0	49(NE)
	19:00	0.0	76(ENE)
	20:00	0.0	109(ESE)
	21:00	0.0	171(S)
	22:00	0.0	97(E)
23:00	0.0	18(NNE)	
10-Sep-22	00:00	0.0	116(ESE)
	01:00	0.0	152(SSE)
	02:00	0.0	111(ESE)
	03:00	0.0	85(E)
	04:00	0.0	47(NE)
	05:00	0.0	51(NE)
	06:00	0.0	81(E)
	07:00	0.0	100(E)
	08:00	0.0	60(ENE)
	09:00	0.0	51(NE)
	10:00	0.0	308(NW)
	11:00	1.1	115(ESE)
	12:00	0.0	92(E)
	13:00	0.7	131(SE)
	14:00	0.0	157(SSE)
	15:00	0.0	279(W)
	16:00	1.3	232(SW)
	17:00	0.0	278(W)
	18:00	2.1	40(NE)
	19:00	1.3	163(SSE)
	20:00	1.3	242(WSW)
	21:00	0.7	212(SSW)
	22:00	0.0	147(SSE)
23:00	0.0	214(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
11-Sep-22	00:00	0.7	290(WNW)
	01:00	0.0	94(E)
	02:00	0.0	152(SSE)
	03:00	0.0	122(ESE)
	04:00	0.0	120(ESE)
	05:00	0.0	101(E)
	06:00	0.0	123(ESE)
	07:00	0.0	159(SSE)
	08:00	0.0	91(E)
	09:00	0.0	77(ENE)
	10:00	0.0	112(ESE)
	11:00	0.0	145(SE)
	12:00	0.0	162(SSE)
	13:00	0.0	191(S)
	14:00	0.0	318(NW)
	15:00	0.0	243(WSW)
	16:00	0.0	175(S)
	17:00	0.0	153(SSE)
	18:00	0.0	94(E)
	19:00	0.0	111(ESE)
	20:00	1.1	106(ESE)
	21:00	0.5	67(ENE)
	22:00	0.0	133(SE)
23:00	0.0	91(E)	
12-Sep-22	00:00	0.0	144(SE)
	01:00	0.0	80(E)
	02:00	0.0	148(SSE)
	03:00	0.0	89(E)
	04:00	0.0	113(ESE)
	05:00	0.0	269(W)
	06:00	0.0	143(SE)
	07:00	0.0	116(ESE)
	08:00	0.0	285(WNW)
	09:00	0.0	262(W)
	10:00	0.0	76(ENE)
	11:00	0.0	140(SE)
	12:00	0.0	130(SE)
	13:00	0.5	38(NE)
	14:00	1.1	164(SSE)
	15:00	1.9	90(E)
	16:00	1.7	173(S)
	17:00	1.9	147(SSE)
	18:00	0.0	128(SE)
	19:00	0.5	264(W)
	20:00	0.0	192(SSW)
	21:00	0.0	205(SSW)
	22:00	0.0	186(S)
23:00	0.0	235(SW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
13-Sep-22	00:00	0.0	165(SSE)
	01:00	0.0	148(SSE)
	02:00	0.0	179(S)
	03:00	0.0	151(SSE)
	04:00	0.0	158(SSE)
	05:00	0.0	230(SW)
	06:00	0.0	160(SSE)
	07:00	0.0	103(ESE)
	08:00	0.0	48(NE)
	09:00	0.0	129(SE)
	10:00	0.0	138(SE)
	11:00	0.0	204(SSW)
	12:00	0.7	151(SSE)
	13:00	1.1	296(WNW)
	14:00	0.0	121(ESE)
	15:00	0.0	292(WNW)
	16:00	0.7	145(SE)
	17:00	0.0	305(NW)
	18:00	1.3	241(WSW)
	19:00	0.0	196(SSW)
	20:00	0.0	143(SE)
	21:00	0.0	149(SSE)
	22:00	0.0	149(SSE)
23:00	0.0	133(SE)	
14-Sep-22	00:00	0.0	144(SE)
	01:00	0.0	157(SSE)
	02:00	0.0	127(SE)
	03:00	0.0	227(SW)
	04:00	0.0	145(SE)
	05:00	0.0	135(SE)
	06:00	0.0	135(SE)
	07:00	0.0	93(E)
	08:00	0.0	97(E)
	09:00	0.0	225(SW)
	10:00	0.0	53(NE)
	11:00	0.0	308(NW)
	12:00	0.7	47(NE)
	13:00	0.5	136(SE)
	14:00	1.1	278(W)
	15:00	0.9	122(ESE)
	16:00	1.1	258(WSW)
	17:00	1.1	102(ESE)
	18:00	1.9	343(NNW)
	19:00	0.5	279(W)
	20:00	0.0	211(SSW)
	21:00	0.7	168(SSE)
	22:00	0.0	176(S)
23:00	0.0	196(SSW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
15-Sep-22	00:00	0.0	260(W)
	01:00	0.0	97(E)
	02:00	0.0	193(SSW)
	03:00	0.0	138(SE)
	04:00	0.0	68(ENE)
	05:00	0.0	69(ENE)
	06:00	0.0	201(SSW)
	07:00	0.0	137(SE)
	08:00	0.0	41(NE)
	09:00	0.0	134(SE)
	10:00	0.0	73(ENE)
	11:00	0.0	214(SW)
	12:00	0.0	268(W)
	13:00	0.5	286(WNW)
	14:00	0.0	158(SSE)
	15:00	1.3	79(E)
	16:00	0.0	115(ESE)
	17:00	1.9	94(E)
	18:00	1.7	220(SW)
	19:00	1.5	72(ENE)
	20:00	0.0	85(E)
	21:00	0.0	105(ESE)
	22:00	0.0	244(WSW)
23:00	0.0	107(ESE)	
16-Sep-22	00:00	0.0	49(NE)
	01:00	0.0	76(ENE)
	02:00	0.0	233(SW)
	03:00	0.0	136(SE)
	04:00	0.0	129(SE)
	05:00	0.0	189(S)
	06:00	0.0	141(SE)
	07:00	0.0	114(ESE)
	08:00	0.0	49(NE)
	09:00	0.0	62(ENE)
	10:00	0.0	102(ESE)
	11:00	0.0	126(SE)
	12:00	0.5	107(ESE)
	13:00	0.7	144(SE)
	14:00	0.0	155(SSE)
	15:00	0.9	102(ESE)
	16:00	0.0	67(ENE)
	17:00	0.0	194(SSW)
	18:00	0.0	146(SE)
	19:00	0.0	164(SSE)
	20:00	1.7	115(ESE)
	21:00	0.7	246(WSW)
	22:00	0.0	96(E)
23:00	0.0	286(WNW)	



Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
17-Sep-22	00:00	0.0	67(ENE)
	01:00	0.0	189(S)
	02:00	0.0	56(NE)
	03:00	0.0	93(E)
	04:00	0.0	111(ESE)
	05:00	0.0	44(NE)
	06:00	0.0	287(WNW)
	07:00	0.0	234(SW)
	08:00	0.0	239(WSW)
	09:00	0.0	65(ENE)
	10:00	0.0	163(SSE)
	11:00	0.0	130(SE)
	12:00	0.0	160(SSE)
	13:00	1.1	208(SSW)
	14:00	0.9	193(SSW)
	15:00	1.5	199(SSW)
	16:00	2.9	161(SSE)
	17:00	1.9	302(WNW)
	18:00	1.7	116(ESE)
	19:00	2.3	279(W)
	20:00	1.3	153(SSE)
	21:00	0.0	115(ESE)
	22:00	0.0	272(W)
23:00	0.5	105(ESE)	
18-Sep-22	00:00	1.1	317(NW)
	01:00	0.9	168(SSE)
	02:00	0.0	122(ESE)
	03:00	0.0	93(E)
	04:00	0.0	57(ENE)
	05:00	0.0	145(SE)
	06:00	0.0	164(SSE)
	07:00	0.0	138(SE)
	08:00	0.0	162(SSE)
	09:00	0.0	141(SE)
	10:00	0.0	162(SSE)
	11:00	0.0	145(SE)
	12:00	0.0	148(SSE)
	13:00	0.0	124(SE)
	14:00	1.1	302(WNW)
	15:00	0.0	131(SE)
	16:00	2.5	133(SE)
	17:00	2.5	166(SSE)
	18:00	3.3	247(WSW)
	19:00	0.0	161(SSE)
	20:00	0.0	82(E)
	21:00	0.9	84(E)
	22:00	0.0	134(SE)
23:00	0.0	164(SSE)	



Wind Speed and Wind Direction

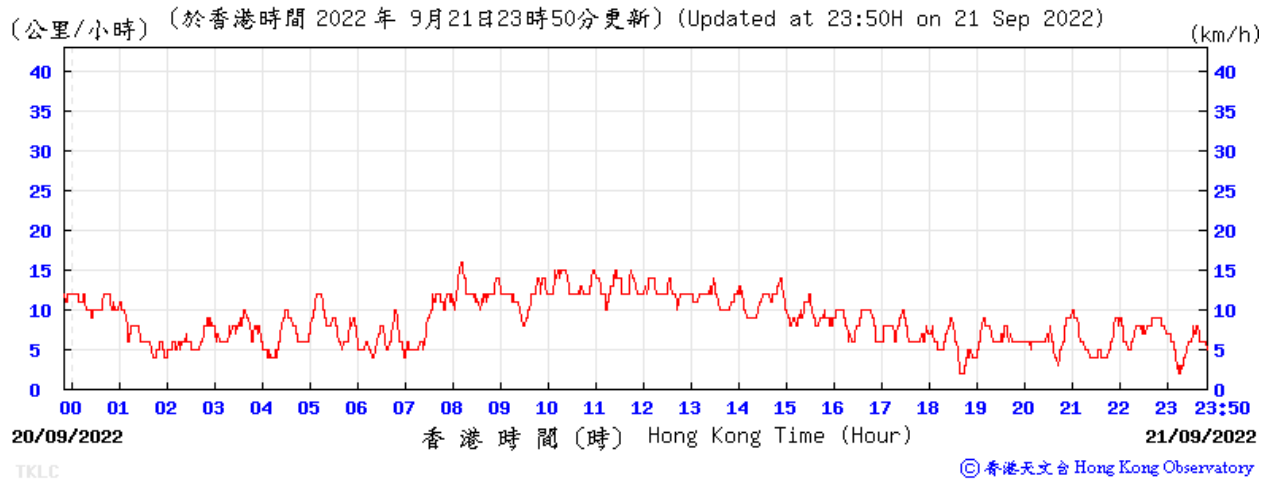
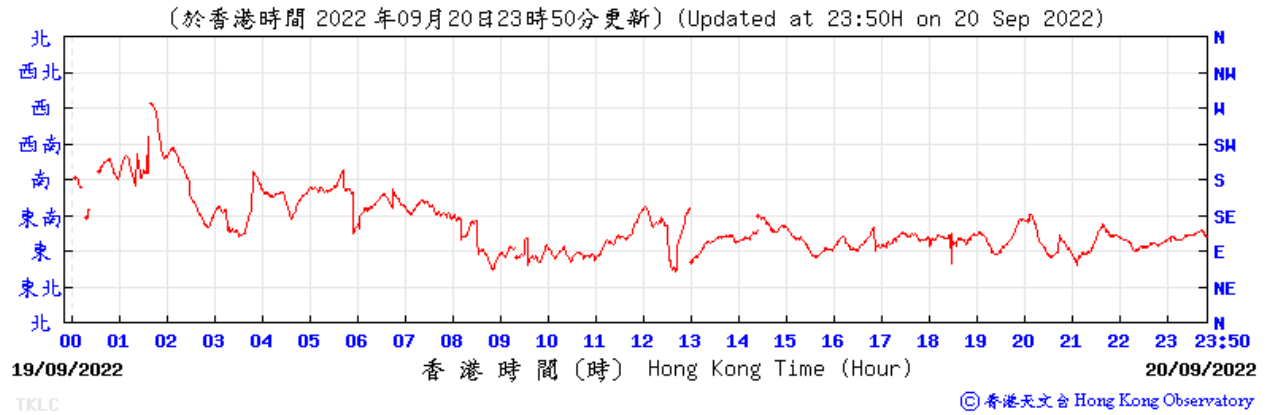
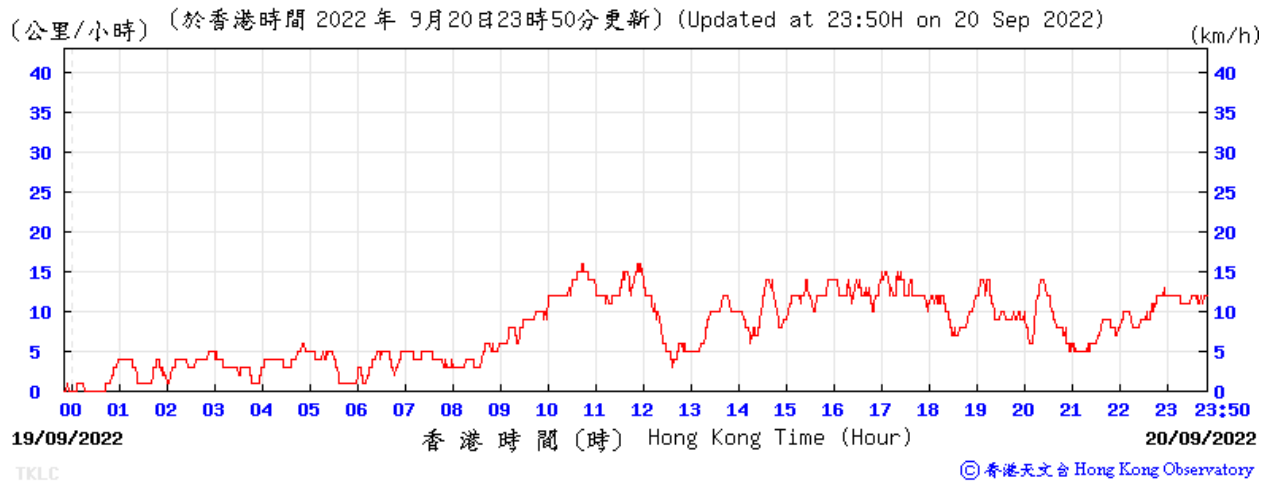
Date	Time	Wind Speed (m/s)	Wind Direction (degree)
19-Sep-22	00:00	0.0	159(SSE)
	01:00	1.5	67(ENE)
	02:00	0.0	116(ESE)
	03:00	0.0	79(E)
	04:00	0.7	265(W)
	05:00	1.7	79(E)
	06:00	0.0	137(SE)
	07:00	0.0	86(E)
	08:00	0.0	82(E)
	09:00	0.0	134(SE)
	10:00	0.0	123(ESE)
	11:00	0.0	315(NW)
	12:00	0.0	183(S)
	13:00	0.0	133(SE)
	14:00	0.0	45(NE)
	15:00	1.1	261(W)
	16:00	0.0	288(WNW)
	17:00	0.0	209(SSW)
	18:00	0.0	51(NE)
	19:00	0.0	148(SSE)
	20:00	0.0	21(NNE)
	21:00	1.1	103(ESE)
	22:00	0.0	218(SW)
23:00	0.0	158(SSE)	
30-Sep-22	15:00	0.9	141(SE)
	16:00	0	285(WNW)
	17:00	0	209(SSW)
	18:00	0	90(E)
	19:00	0.5	283(WNW)
	20:00	0	226(SW)
	21:00	0	129(SE)
	22:00	0	180(S)
23:00	2.3	268(W)	

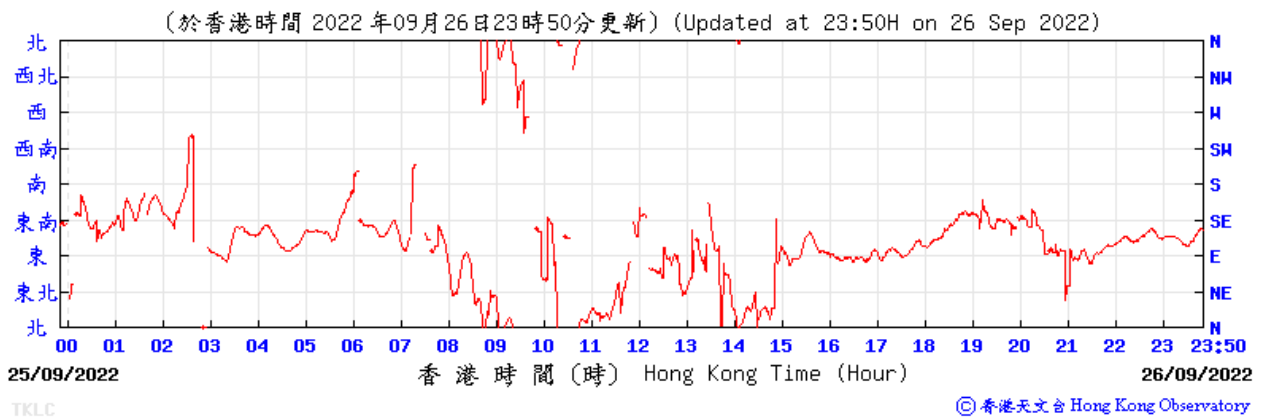
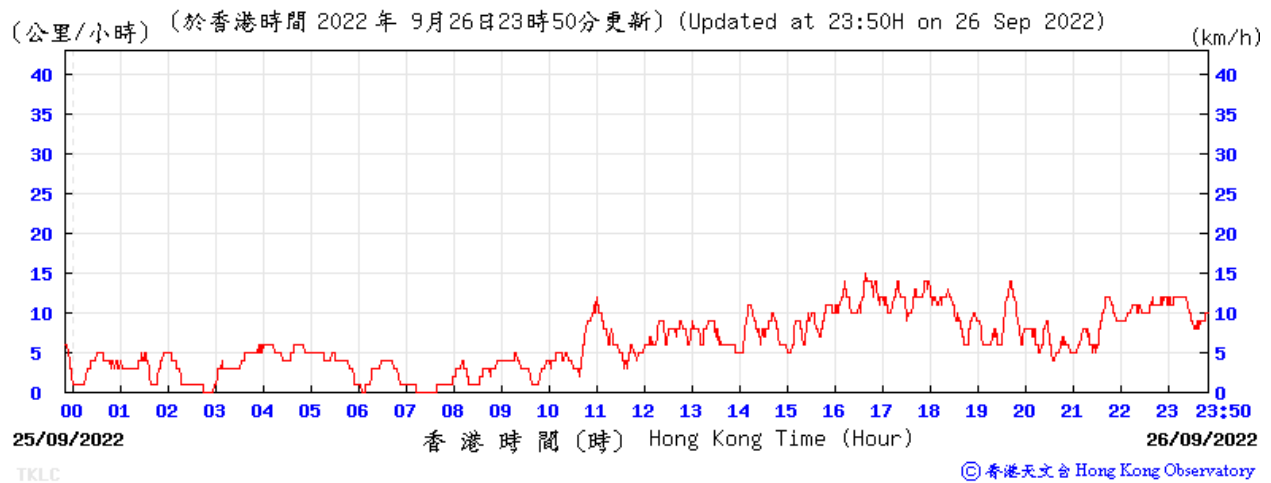
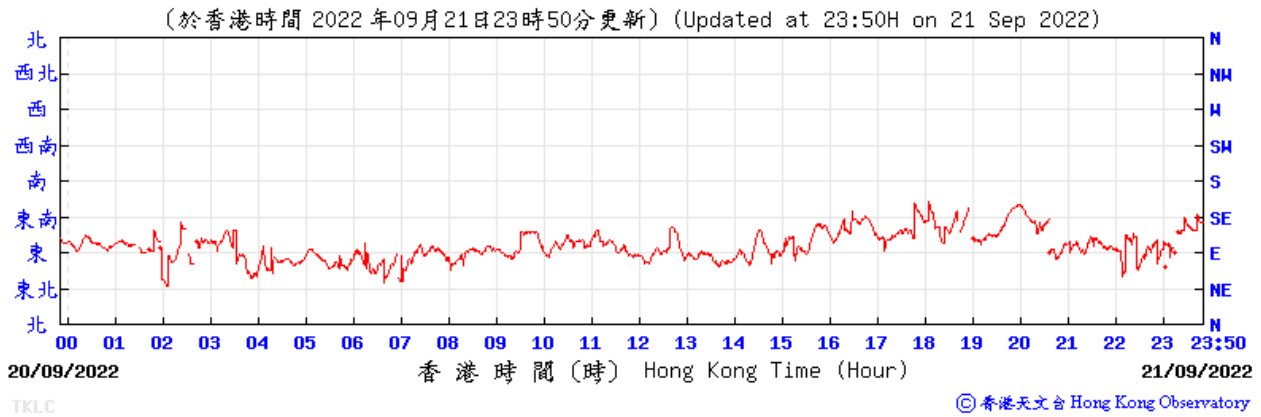
Remarks

1. Data unavailable from 19 September 2022 (00:00 a.m.) to 30 September 2022 (14:00 p.m.) since the wind anemometer (Serial no. YG 21071630T0924) is under calibration check.
2. The wind data during this period in this reporting month was reference to the wind data obtained from Hong Kong Observatory, i.e. Ta Kwu Ling weather station

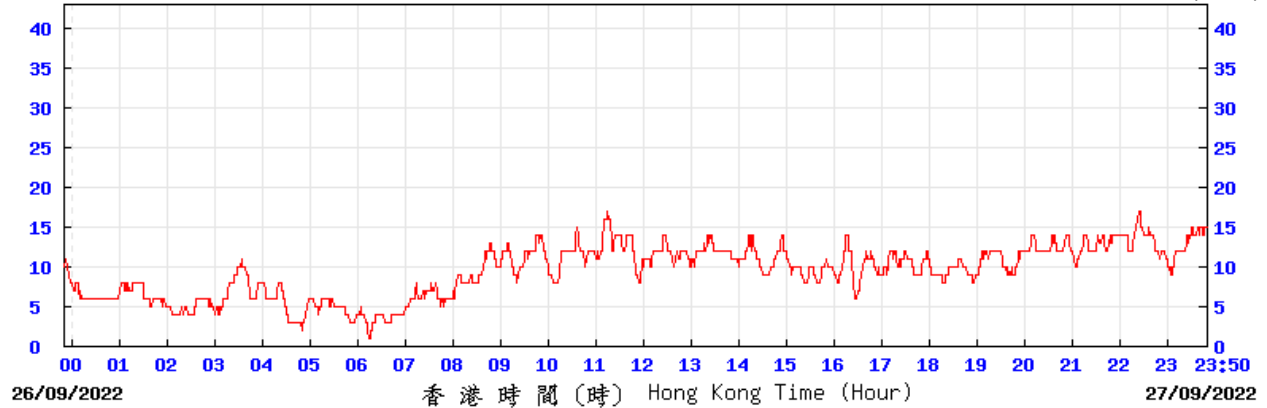
Wind data extraction from the Hong Kong Observatory (HKO)

1. Wind Speed and wind direction extracted from the HKO, Ta Kwu Ling Weather Station





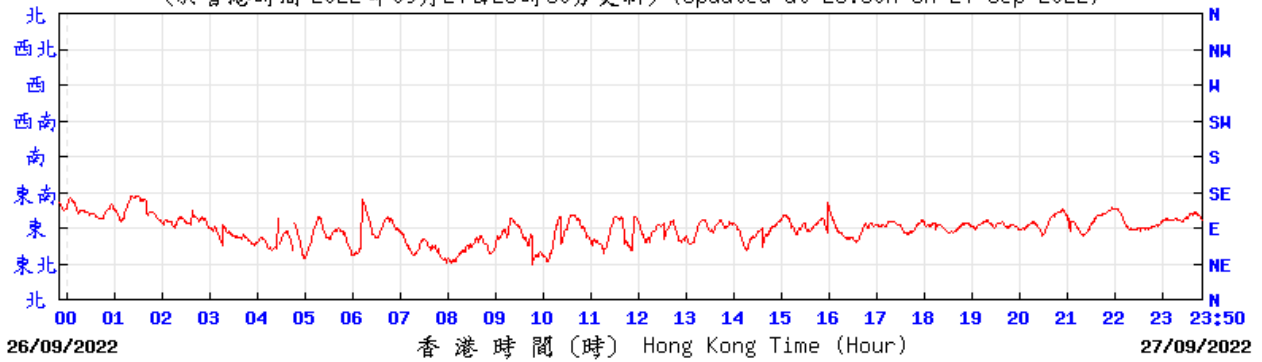
(公里/小時) (於香港時間 2022 年 9 月 27 日 23 時 50 分更新) (Updated at 23:50H on 27 Sep 2022) (km/h)



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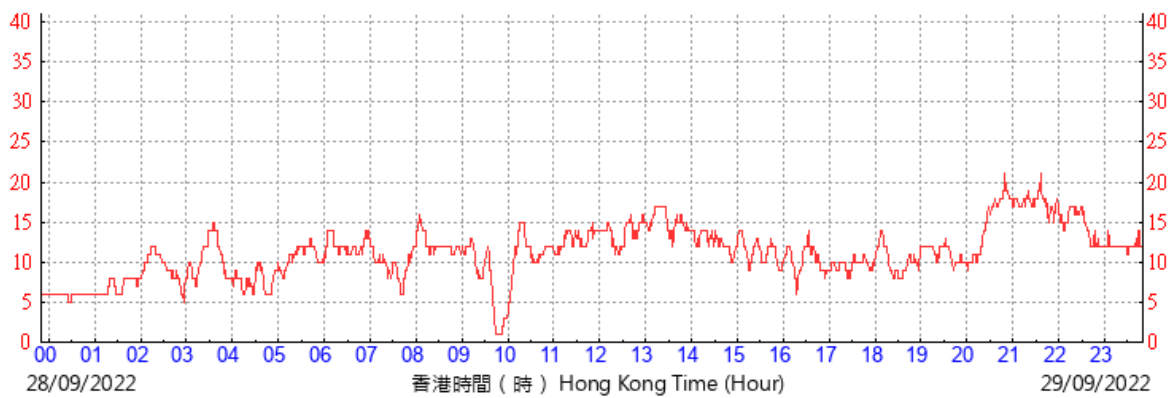
(於香港時間 2022 年 09 月 27 日 23 時 50 分更新) (Updated at 23:50H on 27 Sep 2022)



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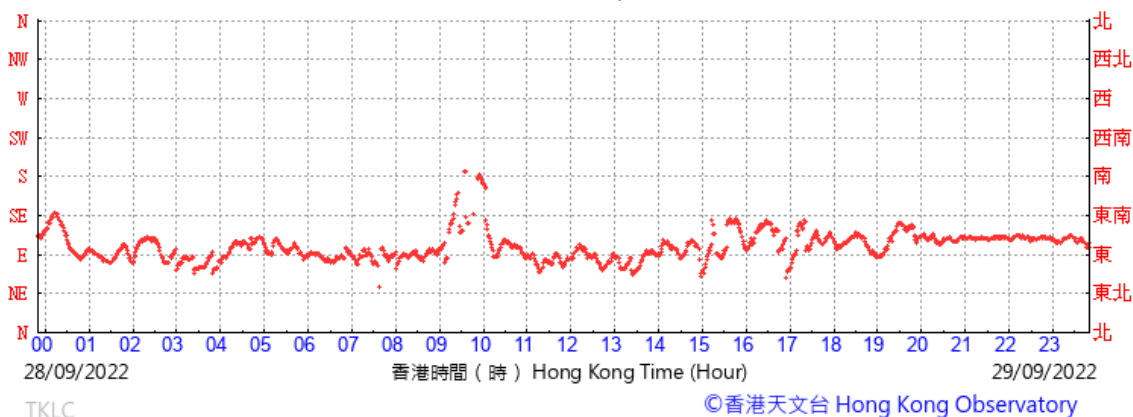
(公里/小時) (於香港時間 29/09/2022 23 時 50 分更新) (Updated at 23:50H on 29/09/2022) (km/h)



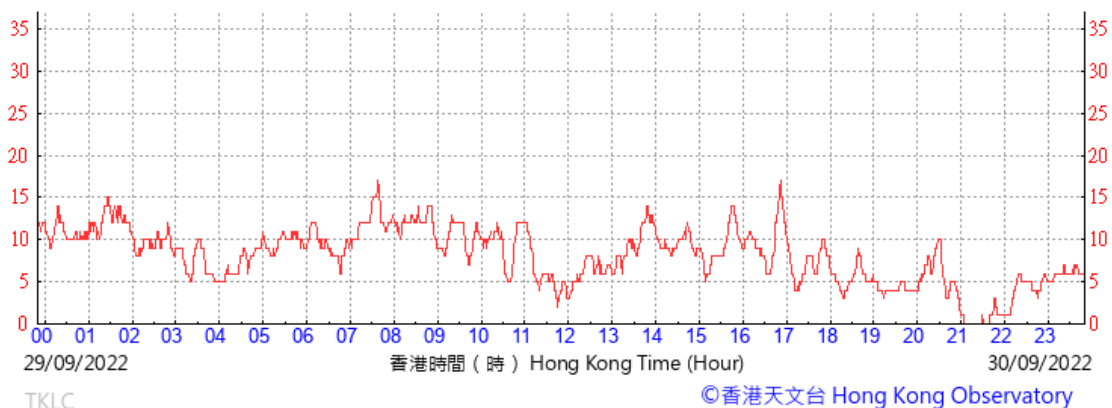
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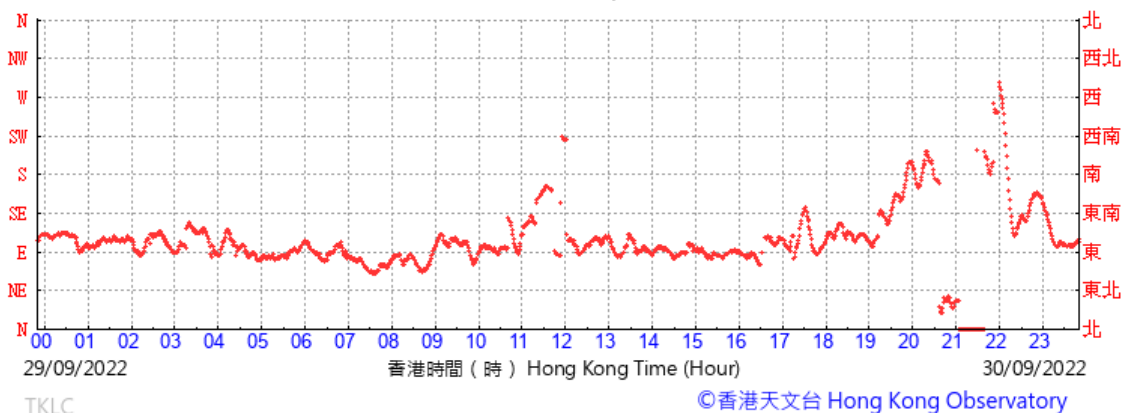
(於香港時間29/09/2022 23 時 50 分更新) (Updated at 23:50H on 29/09/2022)



(公里/小時) (於香港時間30/09/2022 23 時 50 分更新) (Updated at 23:50H on 30/09/2022) (km/h)



(於香港時間30/09/2022 23 時 50 分更新) (Updated at 23:50H on 30/09/2022)



Remarks

1. Data unavailable from 19 September 2022 (00:00 a.m.) to 30 September 2022 (14:00 p.m.) since the wind anemometer (Serial no. YG 21071630T0924) is under calibration check.
2. The wind data during this period in this reporting month was reference to the wind data obtained from Hong Kong Observatory, i.e. Ta Kwu Ling weather station



Appendix 5.1

Monitoring Schedule for Reporting Month and Next Reporting Month



Contract No. SPW 12/2021
Environmental Team (2021-2024)
for Shek Wui Effluent Polishing Plant - Main Works
Tentative Impact Monitoring Schedule
Sep 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01 Sep	02 Sep	03 Sep
					AQM - 24hr TSP	AQM - 1hr TSP
					Ecological Monitoring	
04 Sep	05 Sep	06 Sep	07 Sep	08 Sep	09 Sep	10 Sep
				AQM - 24hr TSP (AM2a) ¹	AQM - 1hr TSP	
					NM	
					Ecological Monitoring	
11 Sep	12 Sep	13 Sep	14 Sep	15 Sep	16 Sep	17 Sep
			AQM - 24hr TSP	AQM - 1hr TSP		
				NM		
		Ecological Monitoring				
18 Sep	19 Sep	20 Sep	21 Sep	22 Sep	23 Sep	24 Sep
		AQM - 24hr TSP	AQM - 1hr TSP			
			NM			
					Ecological Monitoring	
25 Sep	26 Sep	27 Sep	28 Sep	29 Sep	30 Sep	
	AQM - 24hr TSP	AQM - 1hr TSP		AQM - 24hr TSP	AQM - 1hr TSP	
		NM				
		Ecological Monitoring				

Remarks

- 1. Power failure was encountered at AM1a* during the period from 8 Sep 2022 to 10 Sep 2022, so the 24hr AQM for AM1a* was temporarily suspended.
- AQM: Air Quality Monitoring
- NM: Noise Monitoring, the monitoring dates are tentative and subject to change
- Ecological Monitoring dates are tentative and subject to change based on real-time tide.



Contract No. SPW 12/2021
Environmental Team (2021-2024)
for Shek Wui Effluent Polishing Plant - Main Works
Tentative Impact Monitoring Schedule
Oct 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01 Oct
02 Oct	03 Oct	04 Oct	05 Oct	06 Oct	07 Oct	08 Oct
			AQM - 24hr TSP	AQM - 1hr TSP	Ecological Monitoring	
				NM		
09 Oct	10 Oct	11 Oct	12 Oct	13 Oct	14 Oct	15 Oct
		AQM - 24hr TSP	AQM - 1hr TSP		Ecological Monitoring	
			NM			
16 Oct	17 Oct	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct
	AQM - 24hr TSP	AQM - 1hr TSP			Ecological Monitoring	AQM - 24hr TSP
		NM				
23 Oct	24 Oct	25 Oct	26 Oct	27 Oct	28 Oct	29 Oct
	AQM - 1hr TSP				AQM - 24hr TSP	AQM - 1hr TSP
	NM	Ecological Monitoring				
30 Oct	31 Oct					

Remarks

- AQM: Air Quality Monitoring
- NM: Noise Monitoring, the monitoring dates are tentative and subject to change
- Ecological Monitoring dates are tentative and subject to change based on real-time tide.



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



Noise Monitoring Result

Location: NM1 - G/F, Wai Loi Tsuen

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)									
09/09/2022	14:00	Fine	0.0	57.6	59.0	51.0	63.4	58	75
15/09/2022	11:20	Sunny	0.0	54.9	54.2	48.8	63.4	55	75
21/09/2022	11:00	Fine	0.0	58.8	57.2	53.9	63.4	59	75
27/09/2022	11:10	Fine	0.0	59.8	57.9	54.4	63.4	60	75

Location: NM2 - G/F, Fu Tei Au

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)									
09/09/2022	13:05	Fine	0.0	62.5	65.0	59.4	58.0	61	75
15/09/2022	8:55	Sunny	0.0	63.9	63.9	54.7	58.0	63	75
21/09/2022	8:55	Fine	2.0	63.8	64	55.1	58.0	62	75
27/09/2022	9:06	Fine	3.1	62.3	61.5	55.6	58.0	60	75

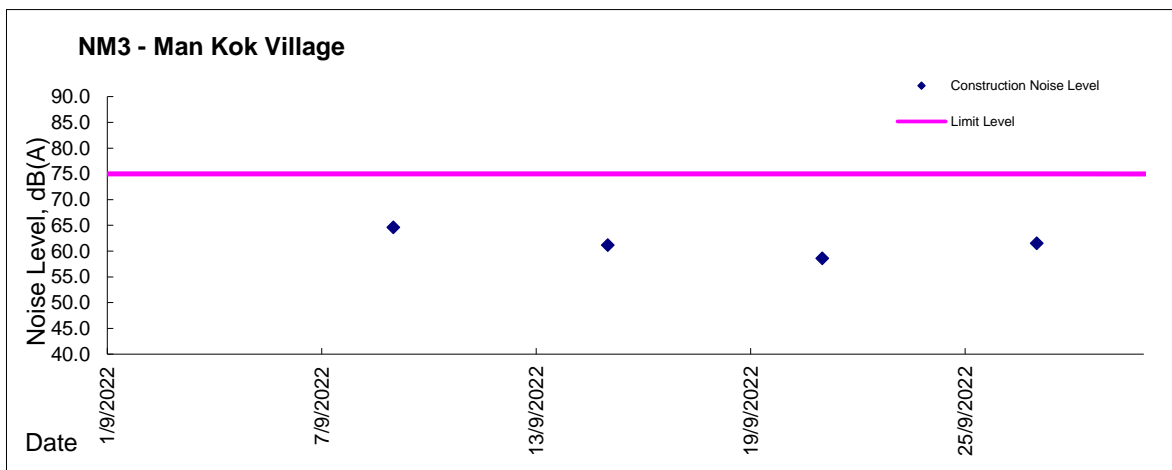
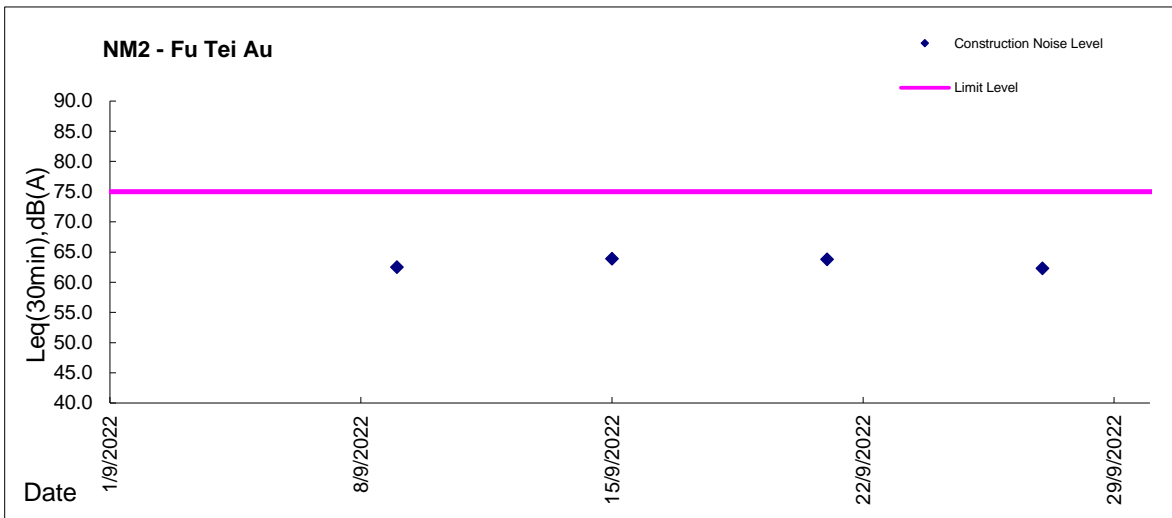
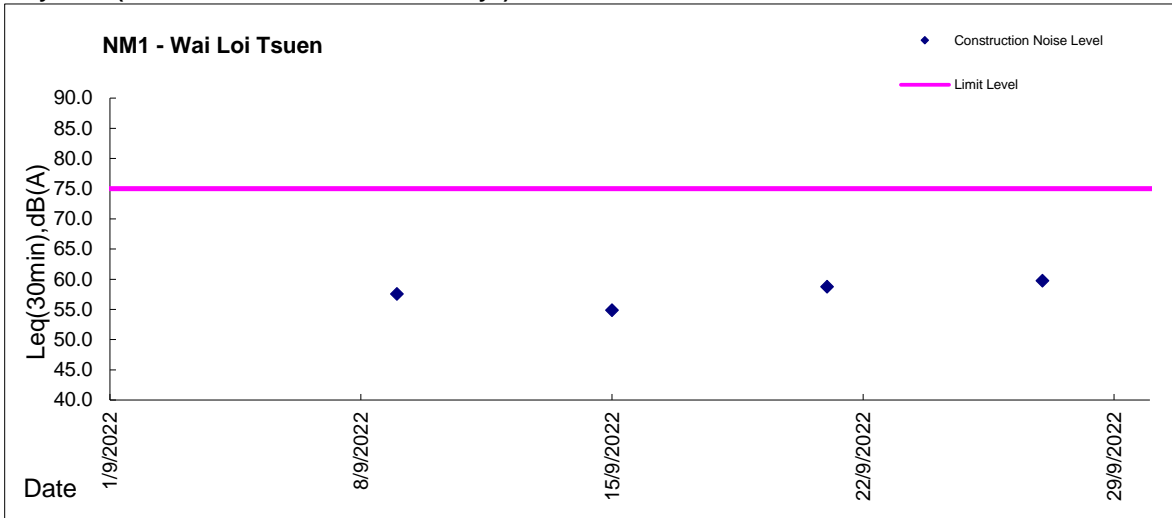
Location: NM3 - G/F, Man kok Village

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)									
09/09/2022	15:00	Fine	0.0	64.6	66.0	47.5	63.4	58	75
15/09/2022	10:05	Sunny	0.0	61.2	58.9	53.0	63.4	61	75
21/09/2022	10:20	Fine	1.1	58.6	59.6	48.5	63.4	59	75
27/09/2022	10:21	Fine	0.0	61.5	59.9	54.6	63.4	62	75

* Free field correction (Additional 3dB(A)) was made on NM1, NM2, and NM3 measurement result



Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Report on 1-hour TSP monitoring at AM1 - Wai Loi Tsuen
Action Level ($\mu\text{g}/\text{m}^3$) - 320
Limit Level ($\mu\text{g}/\text{m}^3$) - 500

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)	Model No.	Serial No.
3-Sep-22	Sunny	8:44	33	AEROCET 831	Y23154
3-Sep-22	Sunny	9:44	32		
3-Sep-22	Sunny	10:44	33		
9-Sep-22	Sunny	13:00	22		
9-Sep-22	Sunny	14:00	48		
9-Sep-22	Sunny	15:00	44		
15-Sep-22	Sunny	8:30	36		
15-Sep-22	Sunny	9:30	28		
15-Sep-22	Sunny	10:30	35		
21-Sep-22	Fine	8:23	33		
21-Sep-22	Fine	9:23	29		
21-Sep-22	Fine	10:23	26		
27-Sep-22	Sunny	8:42	74		
27-Sep-22	Sunny	9:42	62		
27-Sep-22	Sunny	10:42	60		
30-Sep-22	Fine	8:42	25		
30-Sep-22	Fine	9:43	17		
30-Sep-22	Fine	10:44	65		



Report on 1-hour TSP monitoring at AM2 - Fu Tei Au
Action Level ($\mu\text{g}/\text{m}^3$) - 322
Limit Level ($\mu\text{g}/\text{m}^3$) - 500

Date	Weather Condition	Time	Mass Concentration ($\mu\text{g}/\text{m}^3$)	Model No.	Serial No.
3-Sep-22	Sunny	8:21	27	AEROCET 831	W16848
3-Sep-22	Sunny	9:21	26		
3-Sep-22	Sunny	10:21	26		
9-Sep-22	Sunny	13:00	20		
9-Sep-22	Sunny	14:00	28		
9-Sep-22	Sunny	15:00	24		
15-Sep-22	Sunny	8:50	47		
15-Sep-22	Sunny	9:50	37		
15-Sep-22	Sunny	10:50	34		
21-Sep-22	Fine	8:50	51		
21-Sep-22	Fine	9:50	40		
21-Sep-22	Fine	10:50	45		
27-Sep-22	Sunny	8:58	181		
27-Sep-22	Sunny	9:58	188		
27-Sep-22	Sunny	10:58	164		
30-Sep-22	Fine	9:00	34		
30-Sep-22	Fine	10:01	28		
30-Sep-22	Fine	11:02	77		



Location: AM1a* - Site boundary of the Shek Wu Hui STW (East), Roof floor of the control room of SWHSTW
 Impact Monitoring Result on 24-hour TSP monitoring

Date	Sampling Time	Weather Condition	Pressure, hPa		Temp., °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, ug/m ³	Model No.	Serial No.
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average						
02-Sep-22	8:00	Sunny	1005.9	1002.8	29.5	30	AM1a_24hr_010543	2.7984	3.0610	27584.35	27608.35	24.00	1.18	1.18	1.18	1702	154	G3101	0401-1105
14-Sep-22	8:00	Sunny	1007	1005.9	31.7	31.3	AM1a_24hr_009011	2.7161	2.8785	27632.35	27656.35	24.00	1.22	1.25	1.24	1779	91		
20-Sep-22	8:00	Sunny	1008.2	1010.7	28.9	28.1	AM1a_24hr_010539	2.7949	2.9296	27656.35	27680.35	24.00	1.18	1.21	1.20	1724	78		
26-Sep-22	8:00	Sunny	1009.1	1007.7	29.4	29.2	AM1a_24hr_009436	2.7518	2.8414	27680.35	27704.35	24.00	1.23	1.23	1.23	1769	51		
29-Sep-22	8:00	Cloudy	1010.1	1012.3	28	26.4	AM1a_24hr_010533	2.8119	2.8646	27704.35	27728.35	24.00	1.23	1.23	1.23	1775	30		

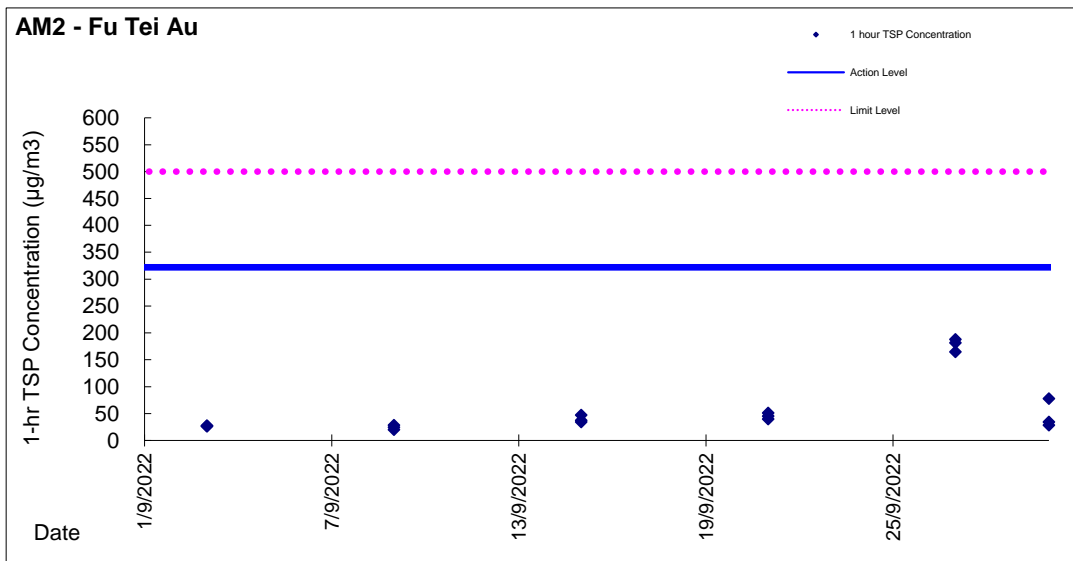
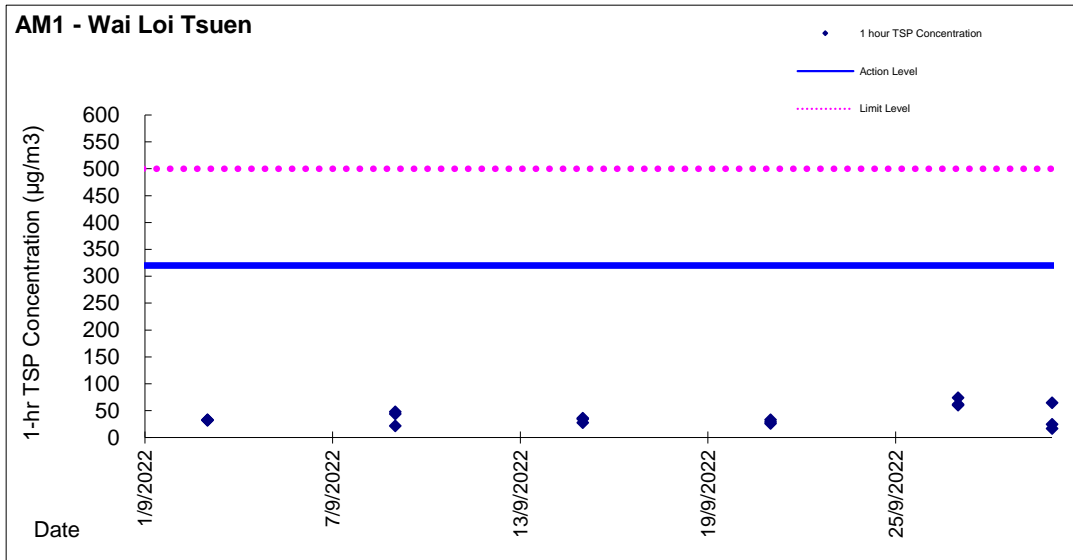


Location: AM2a - Site Boundary of the Shek Wu Hui STW (North)
 Impact Monitoring Result on 24-hour TSP monitoring

Date	Sampling Time	Weather Condition	Pressure, hPa		Temp., °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, ug/m ³	Model No.	Serial No.
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average						
02-Sep-22	8:00	Sunny	1005.9	1002.8	29.5	30	AM2a_24hr_010544	2.8013	2.9540	18613.93	18637.93	24.00	1.25	1.23	1.24	1783	86	G3101	1096-2305
08-Sep-22	8:00	Sunny	1014.2	1013.1	29.5	29.6	AM2a_24hr_010545	2.8142	2.9516	18637.93	18661.93	24.00	1.53	1.52	1.53	2196	63		
14-Sep-22	8:00	Sunny	1007	1005.9	31.7	31.3	AM2a_24hr_009012	2.7054	2.8214	18661.93	18685.93	24.00	1.47	1.47	1.47	2122	55		
20-Sep-22	8:00	Sunny	1008.2	1010.7	28.9	28.1	AM2a_24hr_010540	2.7986	2.913	18685.93	18709.93	24.00	1.48	1.48	1.48	2130	54		
26-Sep-22	8:00	Sunny	1009.1	1007.7	29.4	29.2	AM2a_24hr_010538	2.8165	2.9314	18709.93	18733.93	24.00	1.43	1.43	1.43	2063	56		
29-Sep-22	8:00	Cloudy	1010.1	1012.3	28	26.4	AM2a_24hr_010536	2.8059	2.9161	18733.93	18757.93	24.00	1.48	1.48	1.48	2134	52		

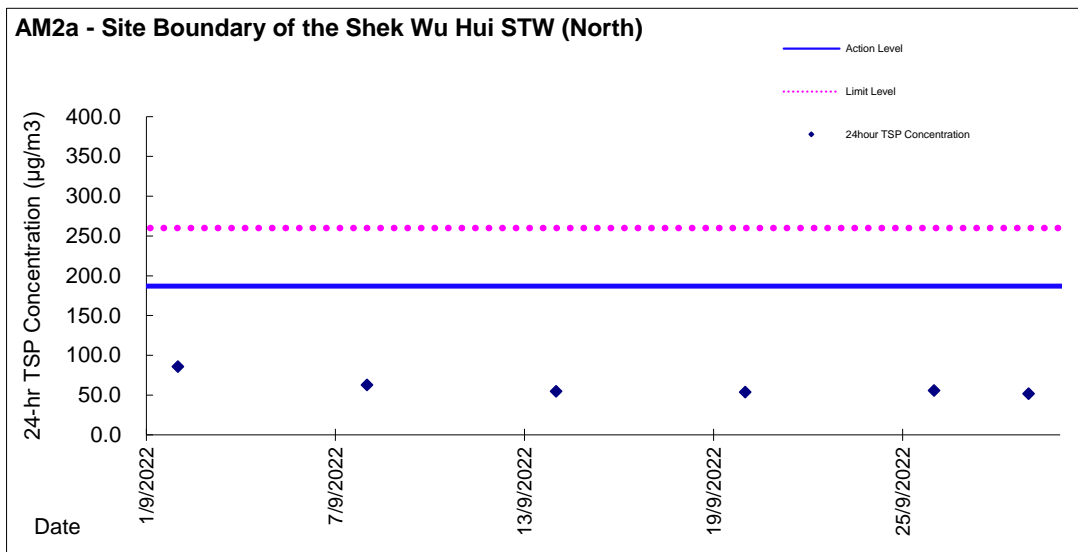
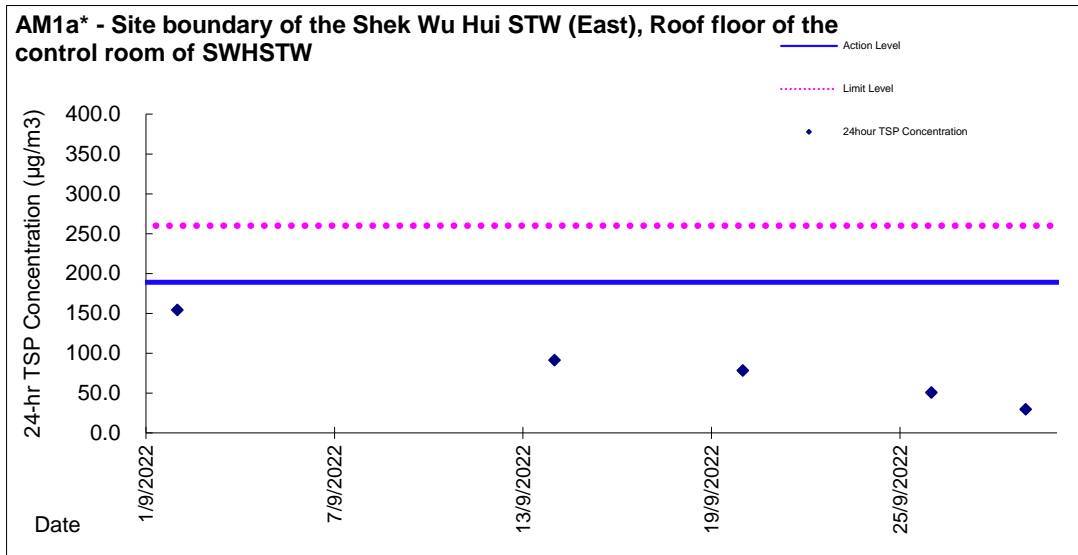


Graphic Presentation of TSP Result





Graphic Presentation of TSP Result





Appendix 5.4

Details of Ecological Monitoring Results in the Reporting Month

5.4. ECOLOGICAL MONITORING RESULTS

5.4.1. For this reporting month, the numbers of species and individuals recorded were provided in **Table 1** and the abundance of representative species were shown in **Table 2**.

Table 1 Total Bird Species and Abundance in the Reporting Month

	Number of Species	Abundance
All Avifauna	41	1101
Waterbirds	14	296

Table 2 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	114
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	49
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	55
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	1
<i>Ardea alba</i>	Great Egret	大白鷺	25
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	8
		Total	252

Analysis

5.4.2. The result of student t-tests for all waterbirds and representative waterbirds are compiled in **Table 3 and 4** respectively. Further details are provided in **Appendix 5.4b**.

Table 3 T-test Result for All Waterbirds in the Reporting Month

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95%	99%
Abundance	Monthly	2.603	✓	✓
	Seasonal	2.530	✓	✓

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 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%	99%	Seasonal	95%	99%	
Little Egret	2.701	✓	✓	1.112	✓	✓	✓
Grey Heron	NA*						
Chinese Pond Heron	-1.677	✓	✓	-2.795	X	✓	✓
Great Cormorant	NA*						
Great Egret	0.000	✓	✓	1.026	✓	✓	✓
Eastern Cattle Egret	1.969	✓	✓	-1.723	✓	✓	✓

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.

* Great Cormorant (*Phalacrocorax carbo*) and Grey Heron (*Ardea cinerea*) were not recognised as representative waterbird species during wet season.

- 5.4.3.** No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.
- 5.4.4.** Site observation in the reporting month shows that construction activities are similar to previous months. The photos are provided in **Appendix 5.6**.
- 5.4.5.** In recent months, it is found that there are different construction sites and human activities such as fishing, singing, waste burning and playing remote-control boats around the project site. These construction and human activities may affect activities of the waterbirds. Although, there is no significant impact reduction in number of waterbirds, it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.
- 5.4.6.** The monitoring work will continue next month to evaluate any construction impact on waterbirds.

Observations

- 5.4.7.** Waterbird behaviour observed during ecological monitoring are listed below:
- Flying
 - Foraging
 - Soaring
 - Resting
- 5.4.8.** The anthropogenic activities observed during ecological monitoring are listed in **Table 5**.

5.4.9.

Table 5 Observations during Ecological Monitoring in the Reporting Month

Location(s)	Observations	
	Project Related	Non-project Related
T1 (PC1, PC2)	N/A	Human Activities such as Fishing and playing remote-control boats Construction activities such as, Excavation and breaking works
T2 (PC3, PC4)	Construction activities such as generator & welding works, Scaffolding, sedimentation tank, Excavation and crane	Human Activities such as Fishing, Landscape Planting and waste burning Construction activities such as Sheet-piling, generator & welding works, Scaffolding, sedimentation tank, Excavation, crane and breaking works
PC5	Construction activities such as Excavation and crane	N/A
T3 (PC6, PC7)	Construction activities such as Sheet-piling	Human Activities such as Fishing and singing Construction activities such as Excavation Sheet-piling, generator & welding works, Scaffolding



Appendix 5.5

Ecological Monitoring Results and Analysis

Summary data of the Ecological Monitoring

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	X	55	+++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	X	8	++
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	X	49	+++++
<i>Ardea alba</i>	Great Egret	大白鷺	X	25	+++
<i>Egretta garzetta</i>	Little Egret	小白鷺	X	114	+++++
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	X	1	+
<i>Milvus migrans</i>	Black Kite	黑鳶	X	3	+
<i>Amauornis phoenicurus</i>	White-breasted Waterhen	白胸苦惡鳥	X	2	+
<i>Himantopus himantopus</i>	Black-winged Stilt	黑翅長腳鸕	X	4	+
<i>Tringa ochropus</i>	Green Sandpiper	白腰草鸕	X	1	+
<i>Actitis hypoleucos</i>	Common Sandpiper	磯鸕	X	24	+++
<i>Spilopelia chinensis</i>	Spotted Dove	珠頸斑鳩		73	+++++
<i>Centropus sinensis</i>	Greater Coucal	褐翅鴉鴉		2	+
<i>Eudynamys scolopaceus</i>	Asian Koel	噪鶇		4	N/A
<i>Hierococcyx sparverioides</i>	Large Hawk Cuckoo	大鷹鴉		1	+
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	白胸翡翠	X	5	+
<i>Alcedo atthis</i>	Common Kingfisher	普通翠鳥	X	4	+
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	X	1	+
<i>Lanius schach</i>	Long-tailed Shrike	棕背伯勞		2	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Urocissa erythroryncha</i>	Red-billed Blue Magpie	紅嘴藍鵲		1	+
<i>Pica pica</i>	Eurasian Magpie	喜鵲		1	+
<i>Corvus torquatus</i>	Collared Crow	白頸鴉		4	+
<i>Corvus macrorhynchos</i>	Large-billed Crow	大嘴烏鴉		1	+
<i>Parus cinereus</i>	Cinereous Tit	蒼背山雀		9	+
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	紅耳鸛		95	+++++
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鸛		20	+++
<i>Pycnonotus aurigaster</i>	Sooty-headed Bulbul	白喉紅臀鸛		0	+
<i>Hirundo rustica</i>	Barn Swallow	家燕		7	++
<i>Phylloscopus fuscatus</i>	Dusky Warbler	褐柳鶯		2	+
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	黃眉柳鶯		2	+
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	黃腹鷦鶯		7	+++
<i>Prinia inornata</i>	Plain Prinia	純色鷦鶯		10	++
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶯		20	+++
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	黑臉噪鶯		43	+++++
<i>Zosterops japonicus</i>	Japanese White-eye	暗綠繡眼鳥		40	+++++
<i>Acridotheres cristatellus</i>	Crested Myna	八哥		312	+++++
<i>Gracupica nigricollis</i>	Black-collared Starling	黑領椋鳥		36	+++++

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Copsychus saularis</i>	Oriental Magpie Robin	鵲鴝		4	++
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		56	+++++
<i>Lonchura punctulata</i>	Scaly-breasted Munia	斑文鳥		11	++
<i>Motacilla alba</i>	White Wagtail	白鵲鴝		42	+++++

Remarks:

X: Waterbird ;

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

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, 2020).

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.

Waterbird Ecological Monitoring Result

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	2/9/2022	11:30	H	96	188	19
		9:30	L	92		24
2	9/9/2022	12:00	H	110	245	23
		14:00	L	135		25
3	13/9/2022	14:00	H	97	250	21
		16:00	L	153		23
4	23/9/2022	10:30	H	88	196	17
		13:00	L	108		17
5	27/9/2022	11:00	H	99	222	24
		15:00	L	123		22

Remarks: H: High Tide; L: Low Tide

Total Waterbird Abundance from Point Count					
Survey Information				Total Waterbird Abundance from Point Count	
No.	Date	Time	Tide Level	Individuals Recorded	Total
1	2/9/2022	11:30	H	15	37
		9:30	L	22	
2	9/9/2022	12:00	H	20	72
		14:00	L	52	
3	13/9/2022	14:00	H	21	63
		16:00	L	42	
4	23/9/2022	10:30	H	18	59
		14:00	L	41	
5	27/9/2022	11:00	H	20	65
		15:00	L	45	

Remarks: H: High Tide; L: Low Tide

T-Test Analysis for All Waterbirds

Baseline Data

Monthly Average Abundance (September)	43.75
Seasonal Average Abundance (Summer season)	44.18

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)

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95% (-2.132)	99% (-3.747)
Abundance	Monthly	2.603	✓	✓
	Seasonal	2.530	✓	✓

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.

Abundance of Representative Waterbirds from Point Count											
Representative Species			Recorded Abundance							Baseline Data	
			Week 1	Week2	Week 3	Week 4	Week 5	Total	Average	Avgrage(Sep)	Avg (Summer)
Species Name	Common Name	Chinese Name	2/9/2022	9/9/2022	13/9/2022	23/9/2022	27/9/2022				
<i>Egretta garzetta</i>	Little Egret	小白鷺	14	22	29	23	26	114	23	16	20
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	3	15	11	9	11	49	10	5	1
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	12	8	16	13	6	55	11	14	16
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	0	0	0	0	1	1	0	0	0
<i>Ardea alba</i>	Great Egret	大白鷺	1	10	6	0	8	25	5	5	3
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	0	4	0	1	3	8	2	0	3

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 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)

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall
	Monthly	95%	99%	Seasonal	95%	99%	
Little Egret	2.701	✓	✓	1.112	✓	✓	✓
Grey Heron	NA*						
Chinese Pond Heron	-1.677	✓	✓	-2.795	X	✓	✓
Great Cormorant	NA*						
Great Egret	0.000	✓	✓	1.026	✓	✓	✓
Eastern Cattle Egret	1.969	✓	✓	-1.723	✓	✓	✓

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.

* Great Cormorant (*Phalacrocorax carbo*) and Grey Heron (*Ardea cinerea*) were not recognised as representative waterbird species during wet season.



Appendix 5.6

Photo Record of Ecological Monitoring

Conditions of Rivers



Sheung Yue River – Survey Point 7 (Taken on 9 Sep 2022)



Shek Sheung River – Survey Point 6 (Taken on 23 Sep 2022)



Shek Sheung River - Survey Point 5 (Taken on 27 Sep 2022)



Ng Tung River - Survey Point 4 (Taken on 23 Sep 2022)

Human Activities & Site Conditions



Construction Activities (Ng Tung River)
(Project-related, taken on 27 Sep 2022)



Construction Activities (Shek Sheung River)
(Project-related, taken on 9 Sep 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 23 Sep 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 23 Sep 2022)



Human Activities (Ng Tung River)
(Non-project-related, taken on 9 Sep 2022)



Human Activities (Shek Sheung River)
(Non-project-related, taken on 9 Sep 2022)



Human Activities (Ng Tung River)
(Non-project-related, taken on 27 Sep 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 27 Sep 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 27 Sep 2022)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 9 Sep 2022)

Waterbird Species



White-throated Kingfisher



Little Egret



Grey Heron



Waterbird in Shek Sheung River



Appendix 5.7

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2022

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	1.104	0.000	0.000	0.000	1.104	0.094	0.000	0.000	0.000	0.000	0.202
Feb	0.549	0.000	0.000	0.000	0.549	0.134	2.370	0.000	0.000	0.000	0.068
Mar	0.398	0.000	0.000	0.000	0.398	0.756	0.000	0.000	0.000	0.000	0.094
Apr	1.624	0.000	0.000	0.000	1.624	0.133	0.000	0.000	0.000	0.000	0.088
May	0.362	0.000	0.000	0.000	0.362	0.046	0.000	0.000	0.000	0.000	0.090
Jun	0.397	0.000	0.000	0.000	0.397	0.069	0.000	0.010	0.000	0.000	0.077
Sub-total	4.433	0.000	0.000	0.000	4.433	1.233	2.370	0.010	0.000	0.000	0.620
Jul	1.635	0.000	0.000	0.000	1.635	0.104	0.003	0.000	0.001	0.000	0.122
Aug	1.409	0.000	0.000	0.000	1.409	0.487	0.000	0.000	0.005	0.000	0.160
Sep	1.022	0.000	0.000	0.000	1.022	2.298	0.004	0.000	0.010	0.000	0.229
Oct											
Nov											
Dec											
Total	8.498	0.000	0.000	0.000	8.498	4.123	2.376	0.010	0.015	0.000	1.132

- 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 2022

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	4.980	0.000	0.000	0.813	4.167	0.000	15.45	0.000	0.004	0.000	0.012
Feb	3.400	0.000	0.000	0.639	2.761	0.038	5.71	0.000	0.000	0.000	0.010
Mar	3.050	0.000	0.000	0.073	2.977	0.000	0.00	0.000	0.000	0.000	0.019
Apr	2.037	0.000	0.000	0.112	1.925	0.108	0.00	0.000	0.000	0.000	0.016
May	1.076	0.000	0.000	0.000	1.076	0.062	2.14	0.000	0.000	0.000	0.016
Jun	2.515	0.000	0.000	0.034	2.481	0.036	0.00	0.010	0.001	0.000	0.020
Sub-total	17.057	0.000	0.000	1.671	15.386	0.244	23.30	0.010	0.005	0.000	0.093
Jul	3.222	0.000	0.000	0.000	3.222	0.000	0.00	0.000	0.005	0.000	0.031
Aug	4.151	0.000	0.000	0.000	4.151	0.115	0.00	0.000	0.003	0.000	0.026
Sep	2.735	0.000	0.000	0.000	2.735	0.000	0.00	0.000	0.007	0.000	0.042
Oct											
Nov											
Dec											
Total	27.164	0.000	0.000	1.671	25.493	0.359	23.30	0.010	0.019	0.000	0.191

- 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

EM&A Monthly Reporting Template (cut-off at the end of each month)

Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD

Contract No.: DE/2018/03

Monthly Summary Waste Flow Table for 2022 (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 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)
Jan	176.71 T	0	0	0	176.71 T	0	0	0.177	0.008	0	2.7T
Feb	83.58T	0	0	0	83.58T	0	0	0.132	0.003	0	0
Mar	0	0	0	0	0	0	0	0	0	0	3.06T
Apr	0	0	0	0	0	0	0	0.13	0.012	0	0
May	4029.56T	0	0	0	4029.56T	0	0	0	0	0	1.64T
June	5565.13T	0	0	0	5565.13T	0	0	0	0	0	1.19T
Sub-total	9854.98 T	0	0	0	9854.98 T	0	0	0.439	0.023	0	8.59
July	5374.59T	0	0	0	5374.59T	0	0	0	0	0	1.71T
Aug	149.1T	0	0	0	149.1T	0	0	0	0	0	0
Sept	43.17T	0	0	0	43.17T	0	0	0	0	0	3.61
Oct											
Nov											
Dec											
Total	15421.84T	0	0	0	15421.84T	0	0	0.439	0.023	0	13.91T



Appendix 6.1

Event and Action Plans

Event and Action Plan

Event and Action Plan for Construction Noise

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



Event and Action Plan for Construction Dust Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
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 the Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practices. 2. Amend working methods agreed with the ER as appropriate.
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify sources. 2. Inform the 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 the IEC, ER and Contractor on remedial action required. 7. If exceedance continues, arrange meeting with the IEC, Contractor and ER. 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET 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.
Limit Level				
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 	<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.



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

Event and Action Plan for Ecological Monitoring

Action level	Response	Limit Level	Response
Construction Phase			
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.



Event and 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 failure 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.
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER, EPD; 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 6.2

Summary of Notification of Exceedance



Appendix 8.1

Complaint Log



Summary of Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
1	18 March 2020	EPD	Expansion Site of SWHSTP (Portion C)	Water contamination	<p>Muddy water was suspected to be discharged from the expansion site of SWHSTP to Shek Sheung River, manholes and foul drains nearby</p> <p>The investigation and mitigation measures included</p> <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	Closed
2	19 February 2021	EPD	SWHEPP	Odour nuisance	<p>Significant odour nuisance was suspected to be emitted from the construction activities of SWHEPP</p> <p>The investigation and mitigation measures included</p> <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	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
3	9 August 2021	EPD	SWHEPP	Air Quality	<p>Air nuisance was suspected to be originated from the construction activities of SWHEPP</p> <p>The investigation and mitigation measures included</p> <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- Used battery powered solution to provide power to the tower crane- Carried out plant maintenance in a timely manner	Closed
20220304	4 March 2022	EPD	SWHEPP	Odour nuisance	<p>The complainant alleged the odour nuisance was sourced from the construction site of Shek Wu Hui Effluent Polishing Plant on 4 March 2022. Thus, all four contracts (Contract Nos. DC/2018/06, DC/2018/07, DE/2018/03 and DE/2018/04) were involved in the complaint investigation.</p> <p>After investigation, no construction activities undertaken by all four contracts was associated with the odour nuisance received on 4 March 2022. Nevertheless, the contractors were reminded and recommended to:</p> <ul style="list-style-type: none">• Ensure only equipment with valid NRMM label is allowed to be used at site and regular maintenance of equipment• Provide regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart• Use ULSD as fuel for diesel-powered equipment• Maintain proper segregation and storage of general refuse	Closed on 22 April 2022 as confirmed with EPD.



Appendix 9.1

Construction Programme of Individual Contracts

ID	Activity ID	KD	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	% Complete	Time Risk Allowan	Gantt Chart (2020 H1 to 2025 H2)											
1	CD-0000		Contract Dates			2126 days	Mon 16/9/19	Fri 11/7/25	Mon 16/9/19	NA			0%	5/9	[Gantt Chart: Contract Dates]											
2	CD-01000		Starting Date			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Starting Date]											
3	CAD-00000		Access Date (cal. day)			180 days	Mon 16/9/19	Sat 14/3/20	Mon 16/9/19	Sat 14/3/20			100%	5/9	[Gantt Chart: Access Date]											
4	CAD-01000		Portion A-1			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion A-1]											
5	CAD-02000		Portion A-2			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion A-2]											
6	CAD-03000		Portion C-1A			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-1A]											
7	CAD-04000		Portion C-1B			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-1B]											
8	CAD-05000		Portion C-2A			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-2A]											
9	CAD-06000		Portion C-2B			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-2B]											
10	CAD-07000		Portion C-2C			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-2C]											
11	CAD-08000		Portion C-2D			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-2D]											
12	CAD-09000		Portion C-3			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-3]											
13	CAD-10000		Portion C-4			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-4]											
14	CAD-11000		Portion C-5			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-5]											
15	CAD-12000		Portion C-6			0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Portion C-6]											
16	CAD-13000		Works Area WA1			1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Works Area WA1]											
17	CAD-14000		Works Area WA2-A			1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19			100%	5/9	[Gantt Chart: Works Area WA2-A]											
18	CKD-00000		Key Date (cal. day)			367 days	Sat 22/5/21	Mon 23/5/22	Sat 22/5/21	NA			99%	5/9	[Gantt Chart: Key Date]											
19	CKD-01000		KD1A (613.5 days after starting date)			0 days	Sat 22/5/21	Sat 22/5/21	Sat 22/5/21	Sat 22/5/21	2FS+614.5 days,36FF	58	100%	5/9	[Gantt Chart: KD1A]											
20	CKD-02000		KD2A (820 days after starting date)			0 days	Tue 14/12/21	Tue 14/12/21	Tue 14/12/21	Tue 14/12/21	2FS+821 days,37FF	66	100%	5/9	[Gantt Chart: KD2A]											
21	CKD-03000		KD3A (908 days after starting date)			0 days	Sat 12/3/22	Sat 12/3/22	NA	NA	2FS+909 days,38FF	74	0%	5/9	[Gantt Chart: KD3A]											
22	CKD-04000		KD3B (894 days after starting date)			0 days	Sat 26/2/22	Sat 26/2/22	Sat 26/2/22	Sat 26/2/22	2FS+895 days,39FF	83	100%	5/9	[Gantt Chart: KD3B]											
23	CKD-05000		KD3C (891 days after starting date)			0 days	Wed 23/2/22	Wed 23/2/22	NA	NA	2FS+892 days,40FF	91	0%	5/9	[Gantt Chart: KD3C]											
24	CKD-06000		KD3D (785 days after starting date)			1 day	Tue 9/11/21	Tue 9/11/21	Tue 9/11/21	Tue 9/11/21	2FS+786 days,41FF	99	100%	5/9	[Gantt Chart: KD3D]											
25	CKD-07000		KD3E (980 days after starting date)			0 days	Mon 23/5/22	Mon 23/5/22	NA	NA	2FS+981 days,42FF	106	0%	5/9	[Gantt Chart: KD3E]											
26	CCD-00000		Completion Date (cal. day)			1205 days	Fri 25/3/22	Fri 11/7/25	Fri 25/3/22	NA			0%	5/9	[Gantt Chart: Completion Date]											
27	CCD-01000		Section 1 of Works (836 days after starting date)			0 days	Fri 25/3/22	Fri 25/3/22	Fri 25/3/22	Fri 25/3/22	2FS+837 days,44FF	114	100%	5/9	[Gantt Chart: Section 1]											
28	CCD-02000		Section 2 of Works (1,460 days after starting date)			0 days	Fri 15/9/23	Fri 15/9/23	NA	NA	2FS+1461 days,45FF	123	0%	5/9	[Gantt Chart: Section 2]											
29	CCD-03000		Section 3 of Works (1,284 days after starting date)			0 days	Thu 23/3/23	Thu 23/3/23	NA	NA	2FS+1285 days,46FF	132	0%	5/9	[Gantt Chart: Section 3]											
30	CCD-04000		Section 4 of Works (1,068 days after starting date)			0 days	Fri 19/8/22	Fri 19/8/22	NA	NA	2FS+1069 days,47FF	141	0%	5/9	[Gantt Chart: Section 4]											
31	CCD-05000		Section 5 of Works (1,760 days after starting date)			0 days	Thu 11/7/24	Thu 11/7/24	NA	NA	2FS+1761 days,48FF	32,33,150	0%	5/9	[Gantt Chart: Section 5]											
32	CCD-06000		Defect Liability Period			365 days	Fri 12/7/24	Fri 11/7/25	NA	NA	31		0%	5/9	[Gantt Chart: Defect Liability Period]											
33	CCD-07000		Soft Landscape Establishment Works			365 days	Fri 12/7/24	Fri 11/7/25	NA	NA	31		0%	5/9	[Gantt Chart: Soft Landscape Establishment Works]											
34	PKD-00000	*	Planned Completion - Key Date (cal. day)			1521 days	Wed 12/5/21	Thu 10/7/25	Wed 12/5/21	NA			31%	5/9	[Gantt Chart: Planned Completion - Key Date]											
35	PKD-00000	*	Planned Completion - Key Dates			598 days	Wed 12/5/21	Sat 31/12/22	Wed 12/5/21	NA			0%	5/9	[Gantt Chart: Planned Completion - Key Dates]											
36	PKD-01000	KD1A	KD1A			0 days	Wed 12/5/21	Wed 12/5/21	Wed 12/5/21	Wed 12/5/21	284FF	19FF	100%	5/9	[Gantt Chart: PKD-01000]											
37	PKD-02000	KD2A	KD2A			0 days	Mon 3/1/22	Mon 3/1/22	Mon 3/1/22	Mon 3/1/22	623FF	20FF	100%	5/9	[Gantt Chart: PKD-02000]											
38	PKD-03000	KD3A	KD3A			0 days	Thu 18/8/22	Thu 18/8/22	NA	NA	312FF	21FF	0%	5/9	[Gantt Chart: PKD-03000]											
39	PKD-04000	KD3B	KD3B			0 days	Tue 7/6/22	Tue 7/6/22	Tue 7/6/22	Tue 7/6/22	339FF	22FF	100%	5/9	[Gantt Chart: PKD-04000]											
40	PKD-05000	KD3C	KD3C			0 days	Fri 30/9/22	Fri 30/9/22	NA	NA	362FF	23FF	0%	5/9	[Gantt Chart: PKD-05000]											
41	PKD-06000	KD3D	KD3D			0 days	Sat 20/11/21	Sat 20/11/21	Sat 20/11/21	Sat 20/11/21	394FF	24FF	100%	5/9	[Gantt Chart: PKD-06000]											
42	PKD-07000	KD3E	KD3E			0 days	Sat 31/12/22	Sat 31/12/22	NA	NA	410FF,418FF,426FF,434FF,469FF,;25FF		0%	5/9	[Gantt Chart: PKD-07000]											
43	PCD-00000	*	Planned Completion - Section of the Works (cal. day)			1203 days	Fri 25/3/22	Thu 10/7/25	NA	NA			0%	5/9	[Gantt Chart: Planned Completion - Section of the Works]											
44	PCD-01000	SW1	Section 1 of Works			0 days	Fri 25/3/22	Fri 25/3/22	NA	NA	516FF,553FF,554FF,555FF,556FF,;27FF		0%	5/9	[Gantt Chart: PCD-01000]											
45	PCD-02000	SW2	Section 2 of Works			0 days	Thu 20/7/23	Thu 20/7/23	NA	NA	644FF	28FF	0%	5/9	[Gantt Chart: PCD-02000]											
46	PCD-03000	SW3	Section 3 of Works			0 days	Thu 16/2/23	Thu 16/2/23	NA	NA	205FF,364FF,378FF,397FF,419FF,;589,29FF		0%	5/9	[Gantt Chart: PCD-03000]											
47	PCD-04000	SW4	Section 4 of Works			0 days	Fri 31/3/23	Fri 31/3/23	NA	NA	517FF,546FF,318FF,345FF,365FF,;30FF		0%	5/9	[Gantt Chart: PCD-04000]											
48	PCD-05000	SW5	Section 5 of Works			0 days	Wed 10/7/24	Wed 10/7/24	NA	NA	290FF,319FF,346FF,366FF,380FF,;49,50,31FF		0%	5/9	[Gantt Chart: PCD-05000]											
49	PCD-06000	DLP	Defect Liability Period			365 days	Thu 11/7/24	Thu 10/7/25	NA	NA	48		0%	5/9	[Gantt Chart: PCD-06000]											
50	PCD-07000		Soft Landscape Establishment Works			365 days	Thu 11/7/24	Thu 10/7/25	NA	NA	48		0%	5/9	[Gantt Chart: PCD-07000]											
51	DE-00000		Delaying Events Other than Change of Works Information to be considered			1055.8 days	Mon 24/5/21	Tue 17/12/24	Mon 24/5/21	NA			46%	5/9	[Gantt Chart: Delaying Events]											
52	IWKD1A-01000		Inclment Weather to KD1A			41 days	Fri 4/6/21	Fri 23/7/21	Fri 4/6/21	NA			59%	5/9	[Gantt Chart: IWKD1A-01000]											
53	IWKD1A-01010		Delay and Disruption of Works before July 2022	(437)		41 days	Fri 4/6/21	Fri 23/7/21	Fri 4/6/21	NA	59		51%	5/9	[Gantt Chart: IWKD1A-01010]											
54	IWKD1A-01020		Delay and Disruption of Works for the month of July 2022	(464)		0 days	Tue 8/6/21	Tue 8/6/21	Tue 8/6/21	Tue 8/6/21	53		100%	5/9	[Gantt Chart: IWKD1A-01020]											
55	IWKD1A-01030		Delay and Disruption of works due to Red/Black Storm Signal/ Typhoon No.8 or above before July 2022			10 days	Tue 8/6/21	Thu 17/6/21	Tue 8/6/21	NA	54		90%	5/9	[Gantt Chart: IWKD1A-01030]											
56	IWKD1A-01040	KD1A	Delay and Disruption of works due to Red/Black Storm Signal/ Typhoon No.8 or above for July 2022			0 days	Wed 16/6/21	Wed 16/6/21	Wed 16/6/21	Wed 16/6/21	55		100%	5/9	[Gantt Chart: IWKD1A-01040]											
57	OEKD1A-01000		Other Events affected to KD1A			10 days	Mon 24/5/21	Thu 3/6/21	Mon 24/5/21	Thu 3/6/21			100%	5/9	[Gantt Chart: OEKD1A-01000]											
58	OEKD1A-01010		Unforeseen Social Activities in Hong Kong in November 2019	(3)		6 days	Mon 24/5/21	Sat 29/5/21	Mon 24/5/21	Sat 29/5/21	19		100%	5/9	[Gantt Chart: OEKD1A-01010]											
59	OEKD1A-01020		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus	5		4 days	Mon 31/5/21	Thu 3/6/21	Mon 31/5/21	Thu 3/6/21	58		100%	5/9	[Gantt Chart: OEKD1A-01020]											
60	IWKD2A-01000		Inclment Weather to KD2A			46 days	Thu 23/12/21	Mon 21/2/22	Thu 23/12/21	NA			61%	5/9	[Gantt Chart: IWKD2A-01000]											
61	IWKD2A-01010		Delay and Disruption of Works before July 2022	(437)		41 days	Thu 23/12/21	Tue 15/2/22	Thu 23/12/21	NA	67		51%	5/9	[Gantt Chart: IWKD2A-01010]											
62	IWKD2A-01020		Delay and Disruption of Works for the month of July 2022	(464)		0 days	Thu 20/1/22	Thu 20/1/22	Thu 20/1/22	Thu 20/1/22	61		100%	5/9	[Gantt Chart: IWKD2A-01020]											
63	IWKD2A-01030		Delay and Disruption of works due to Red/Black Storm Signal/ Typhoon No.8 or above before July 2022			10 days	Sat 12/2/22	Mon 21/2/22	Sat 12/2/22	Mon 21/2/22	62		100%	5/9	[Gantt Chart: IWKD2A-01030]											
64	IWKD2A-01040	KD2A	Delay and Disruption of works due to Red/Black Storm Signal/ Typhoon No.8 or above for July 2022			0 days	Mon 21/2/22	Mon 21/2/22	Mon 21/2/22	Mon 21/2/22	63		100%	5/9	[Gantt Chart: IWKD2A-01040]											
65	OEKD2A-01000		Other Events affected to KD2A			10 days	Sat 11/12/21	Wed 22/12/21	Sat 11/12/21	Wed 22/12/21			100%	5/9	[Gantt Chart: OEKD2A-01000]											
66	OEKD2A-01010		Unforeseen Social Activities in Hong Kong in November 2019	(3)		6 days	Sat 11/12/21	Fri 17/12/21	Sat 11/12/21	Fri 17/12/21	20		100%	5/9	[Gantt Chart: OEKD2A-01010]											
67	OEKD2A-01020		Special Arrangement for Work After CNY due to Spread of Novel Coronavirus	5		4 days	Sat 18/12/21	Wed 22/12/21	Sat 18/12/21	Wed 22/12																

ID	Activity ID	KD	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	% Complete	Time Risk Allowan	Gantt Chart (2020 H1 to 2025 H2)												
286	CUV1-12050		Remaining ABWF Works			200 days	Sat 26/3/22	Wed 12/10/22	Sat 26/3/22		NA 285	289FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
287	CUV1-12100		Underground Utilities Works in related to Effluent Chamber			97 days	Thu 13/5/21	Mon 6/9/21	Thu 13/5/21	Mon 6/9/21	281	288FS+1 day	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
288	CUV1-12200	SW1	Effluent Chamber (including Additional Works from PMI)		292	163 days	Tue 7/9/21	Fri 25/3/22	Tue 7/9/21	Fri 25/3/22	287FS+1 day	44FF	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
289	CUV1-12500	SW4	Underground utilities works - Revised Cable Ducts plan		318, 276, 219, 248, 207	47 days	Tue 16/8/22	Wed 12/10/22			NA 286FF	492SS, 428SS	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
290	CUV1-13000	SW5	Surrounding Site formation works and road works			180 days	Sat 18/3/23	Fri 27/10/23			NA 319FF	48FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
291	CSDC-00000	*	Sludge Digesters and Distribution Chamber (4)			1150 days	Sat 7/12/19	Fri 27/10/23	Sat 7/12/19		NA		51%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
292	CSDC-01000		Site Clearance & Site Set Up			6 days	Sat 7/12/19	Fri 13/12/19	Sat 7/12/19	Fri 13/12/19	293SF		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
293	CSDC-02000		Trial Pit Excavation & UU Detection Works			6 days	Sat 14/12/19	Fri 20/12/19	Sat 14/12/19	Fri 20/12/19	295SF		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
294	CSDC-03000		Tree Transplanting Works (TC080)		21, 22, 33, 45,	120 days	Fri 24/4/20	Tue 15/9/20	Fri 24/4/20	Tue 15/9/20	209	304FS-8 days	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
295	CSDC-04000		Predrilling Works (50no., 4rig, 3days/drillhole/rig) - Change to Work Information		(10)	10 days	Sat 28/12/19	Thu 9/1/20	Sat 28/12/19	Thu 9/1/20	177, 188, 189, 190, 192, 191, 194, 1	296, 293SF, 301	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
296	CSDC-05000		Installation of Monitoring Points			0 days	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	295		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
297	CSDC-06000		Sheetpile Installation- original		(310)	24 days	Wed 15/1/20	Fri 7/2/20	Wed 15/1/20	Fri 7/2/20			100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
298	CSDC-07000		Setting up plant for pre-bored socketed H-pile Installation			6 days	Mon 3/2/20	Sat 8/2/20	Mon 3/2/20	Sat 8/2/20		299		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]											
299	CSDC-08000		Pre-bored Socketed H-Pile Installation (127nos, 3rig, 3days/rig/pile) (NCE no. 18A,25)		17, 21, 22, 33,	69 days	Sat 8/2/20	Fri 5/6/20	Sat 8/2/20	Fri 5/6/20	161, 296, 301SS+20 days, 298	300	100% 6		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
300	CSDC-09000		Pile Loading Test		46, 257, 333	26 days	Fri 7/8/20	Fri 5/9/20	Fri 7/8/20	Fri 5/9/20		304		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]											
301	CSDC-10000		Sheetpile Installation -Change to Work Information (Use of Auger)		22, 33, 45, 46,	152 days	Mon 4/5/20	Mon 2/11/20	Mon 4/5/20	Mon 2/11/20	295	299SS+20 days, 374FS+8	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
302	CSDC-10900		Receiving of Civil Requirements from PM		(233)	1 day	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21	304FF-2 emons		100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
303	CSDC-11000		Construction of Digestors		(125), (232), (233), (234), (364), (415)	542 days	Tue 3/11/20	Thu 1/9/22	Tue 3/11/20	Thu 1/9/22	NA	410	57%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
304	CSDC-11010		ELS Works (incl. Strut (4-layers) Installation & Excavation (17,600 cu.m))		(112), 268, 338	88 days	Tue 3/11/20	Fri 26/3/21	Tue 3/11/20	Fri 26/3/21	179, 164, 300, 163, 294FS-8 days, 301	302FF-2 emons, 305SS+365	100% 2,3		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
305	CSDC-11015		Construction of Distribution Chamber		(204), (228)	(232), (233), (234), (429), 385, 413,	289 days	Wed 3/11/21	Thu 18/8/22	Wed 3/11/21	NA 304SS+365 days	312, 492, 317FS	72%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
306	CSDC-11016		Construction of Digesters tank No.1,2,3,4 (Wall Portion)		(204), (228)	(76), (413), (419), (125), (306), (233)	400 days	Sat 27/3/21	Sat 30/4/22	Sat 27/3/21	Sat 30/4/22	304, 238, 167, 302SS-2 emons	307, 309FS-50 days, 415FS+8 d	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]											
307	CSDC-11017		Water Test			20 days	Tue 3/5/22	Tue 26/5/22			NA 306	308	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
308	CSDC-11018		Apply Internal Anti-corrosion Protective Lining			28 days	Fri 27/5/22	Wed 29/6/22			NA 307	46FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
309	CSDC-11020a		Construction of the Roof Slab of SD No.1		(76), (413), (419), (125), (306), (233)	121 days	Mon 28/2/22	Wed 27/7/22	Mon 28/2/22	Wed 27/7/22	NA 306FS-50 days	316, 312FS-65 days, 310SS+21	0% 30		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
310	CSDC-11020b		Construction of the Roof Slab of SD No.3, No.4		(76), (413), (419), (125), (306), (233)	150 days	Mon 21/3/22	Wed 17/8/22	Mon 21/3/22	Wed 17/8/22	NA 309SS+21 days	311SS+50 days	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
311	CSDC-11020d		Construction of the Roof Slab of SD No.2		(76), (413), (419), (125), (306), (233)	115 days	Tue 10/5/22	Thu 1/9/22	Tue 10/5/22	Thu 1/9/22	NA 310SS+50 days	313, 315, 439	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
312	CSDC-12000	KD3A	Allow access to Contractor DE/2018/03 for E&M Installation			0 days	Thu 18/8/22	Thu 18/8/22			NA 305, 309FS-65 days	38FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
313	CSDC-11030d		Dismantle Scaffolding			30 days	Fri 2/9/22	Sun 2/10/22			NA 311	314	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
314	CSDC-11050		Backfill and Removal of ELS			60 days	Sun 2/10/22	Thu 1/12/22			NA 313	316, 495, 502, 499FS+12 days	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
315	CSDC-13000		Drainage System (within Bldg/ Structure) Installation			60 days	Fri 2/9/22	Mon 14/11/22			NA 311	318	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
316	CSDC-14000		FRP Walkway & Miscellaneous Installation			60 days	Thu 1/12/22	Thu 16/2/23			NA 309, 314	46FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
317	CSDC-15000	SW3	ABWF Works & BS Works, Change to Work Information (Apply Internal Anti-corrosion Protective Lining)		(173), 594	71 days	Tue 6/9/22	Wed 30/11/22			NA 242SS, 168SS, 305FS+15 days	46FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
318	CSDC-15500	SW4	Surrounding sewerage, utility and process pipe works		358, 298, 222, 248, 205, 206	101 days	Mon 14/11/22	Sat 18/3/23			NA 315	47FF, 582FS-360 days, 583FS-3	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
319	CSDC-16000	SW5	Surrounding Site formation works and road works			180 days	Sat 18/3/23	Fri 27/10/23			NA 318	48FF, 346FF, 366FF, 380FF, 399FF	0%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
320	CSDB-00000	*	Sludge Dewatering Building (2)			875.8 days?	Tue 26/11/19	Wed 9/11/22	Tue 26/11/19		NA		66%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
321	CSDB-01000		Site Clearance & Site Set Up			6 days	Tue 26/11/19	Mon 2/12/19	Tue 26/11/19	Mon 2/12/19	2	322	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
322	CSDB-02000		Predrilling Works (39no.4rig, 3days/drillhole/rig) - Change to Work Information (Additional Predrill and Steel H-Pile)		(10)	20 days	Thu 28/11/19	Fri 20/12/19	Thu 28/11/19	Fri 20/12/19	160, 321	324, 323	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
323	CSDB-03000		Additional Predrilling Works (11no.)			8 days	Mon 23/12/19	Mon 30/12/19	Mon 23/12/19	Mon 30/12/19	322	324	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
324	CSDB-04000		Installation of Monitoring Points			4 days	Fri 10/1/20	Tue 14/1/20	Fri 10/1/20	Tue 14/1/20	322, 323	329FS-3 days, 325	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
325	CSDB-05000		Sheet Pile Installation - Original		17	52 days	Wed 15/1/20	Fri 6/3/20	Wed 15/1/20	Fri 6/3/20	324	327, 326	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
326	CSDB-06000		Setting up plant for pre-bored socketed H-pile Installation		17	5 days	Sat 7/3/20	Thu 12/3/20	Sat 7/3/20	Thu 12/3/20	325	327	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
327	CSDB-07000		Pre-bored Socketed H-Pile Installation (202 Nos, 4 Rig, 3days/rig/pile)		17, 21, 22, 33,	67 days	Fri 13/3/20	Fri 5/6/20	Fri 13/3/20	Fri 5/6/20	161, 326, 325	371, 328	100% 24		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
328	CSDB-08000		Pile Loading Test		33, 45	20 days	Tue 30/6/20	Thu 23/7/20	Tue 30/6/20	Thu 23/7/20	327	330	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
329	CSDB-09000		Sheet Pile Installation- stage2 - Additional Works (Removal of uncharted reinforced concrete structure at SD)		17, 21, 22, 33,	295 days	Tue 3/12/19	Mon 30/11/20	Tue 3/12/19	Mon 30/11/20	324FS-3 days	330	100% 56		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
330	CSDB-10000		ELS Works (incl. Strut (3-layers) Installation & Excavation (25,000 cu.m)) - Change to Work Information / Removal of		258, (92), (112)	55 days	Tue 1/12/20	Fri 5/2/21	Tue 1/12/20	Fri 5/2/21	179SS, 164SS, 328, 163SS, 329	332, 333, 547, 331FF-2 emons	100% 10,2		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
331	CSDB-10900		Receiving of Civil Requirements from PM		(187), (319)	1 day	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21	330FF-2 emons	332SS-2 emons	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
332	CSDB-11000		R.C. Structure		438, (123), (183), (184), (187), (53),	390 days	Sat 6/2/21	Tue 7/6/22	Sat 6/2/21	Tue 7/6/22	239, 240, 330, 238, 331SS-2 emons	354, 334FS-90 days	100% 10		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
333	CSDB-11010		Basement Construction & external waterproofing works - (Additional Sump Pit, wall layout, revised GA/Framing		268, 338,	239, (53), (110), (113), (115), (123),	203 days	Sat 6/2/21	Sat 16/10/21	Sat 6/2/21	Sat 16/10/21	330	354, 334FS-90 days	100% 30		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]											
334	CSDB-11020		Ground Floor Construction @ +7.55mPD - Change to Work Information (Revised Layout)		(354), (187), (465), 465, (468), 468,	477 days	Fri 30/7/21	Sat 30/10/21	Fri 30/7/21	Sat 30/10/21	333FS-90 days	337, 335SS	100%		[Gantt Chart: 2020 H2, 2021 H1, 2022 H1, 2023 H1, 2024 H1, 2025 H2]												
335	CSDB-11030		Erect, maintain and dismantle the Additional Metal Scaffolding		596	60 days																					

ID	Activity ID	KD	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	% Complete	Time Risk Allowan	Gantt Chart (2020 H2 to 2025 H2)											
378	CSPS-10000	SW3	ABWF Works & BS Works & Apply Internal Anti-corrosion Protective Lining			90 days	Tue 3/5/22	Sat 20/8/22	Tue 3/5/22		NA 242SS,168SS,167,377	46FF,467	25%	3	[Gantt bar for 378: 25% complete, 3 days risk]											
379	CSPS-10500	SW4	Surrounding sewerage, utility and process pipe works		386, 299	39 days	Fri 28/10/22	Tue 13/12/22			NA NA 420SS	47FF,582FS-148 days,583FS-1	0%		[Gantt bar for 379: 0% complete]											
380	CSPS-11000	SW5	Surrounding Site formation works and road works			180 days	Sun 30/4/23	Fri 27/10/23			NA NA 319FF	48FF	0%		[Gantt bar for 380: 0% complete]											
381	CWS2-00000	*	Workshop No. 2 (5)			1136 days	Tue 24/12/19	Fri 27/10/23	Tue 24/12/19		NA		64%		[Gantt bar for 381: 64% complete]											
382	CWS2-01000		Site Clearance & Site Set Up			3 days	Tue 24/12/19	Sat 28/12/19	Tue 24/12/19		Sat 28/12/19 2	383	100%		[Gantt bar for 382: 100% complete]											
383	CWS2-02000		Predrilling Works (10no.1rig, 3days/drillhole/rig)		16, (10)	8 days	Thu 2/1/20	Fri 10/1/20	Thu 2/1/20		Fri 10/1/20 160,382	384	100%		[Gantt bar for 383: 100% complete]											
384	CWS2-03000		Installation of Monitoring Points			4 days	Tue 25/2/20	Fri 28/2/20	Tue 25/2/20		Fri 28/2/20 383	386,385	100%		[Gantt bar for 384: 100% complete]											
385	CWS2-04000		Setting up plant for pre-bored socked H-pile Installation	17		0 days	Tue 10/3/20	Tue 17/3/20	Tue 10/3/20		Sat 17/3/20 384,263	386	100%		[Gantt bar for 385: 100% complete]											
386	CWS2-05000		Pre-bored Socketed H-Pile Installation (36 Nos, 2 Rig, 3days/rig/pile)	17, 21, 22, 33	(10)	64 days	Wed 18/3/20	Sat 6/6/20	Wed 18/3/20		Sat 6/6/20 161,384,385	387,406	100%	6	[Gantt bar for 386: 100% complete]											
387	CWS2-06000		Pile Loading Test	33		16 days	Sun 7/6/20	Fri 26/6/20	Sun 7/6/20		Fri 26/6/20 386,602FS+5 days	388,373FS+5 days	100%		[Gantt bar for 387: 100% complete]											
388	CWS2-07000		Excavation for Pile Cap (1,800 cu.m) - Change to Work Information (Revised Layout of Foundation)	268, 338	(169), (85)	24 days	Thu 31/12/20	Thu 28/1/21	Thu 31/12/20		Thu 28/1/21 179,164,387,163	391,547,408,389FF-2 emons	100%	56	[Gantt bar for 388: 100% complete]											
389	CWS2-07900		Receiving of Civil Requirements from PM		548, 557, (170)	1 day	Mon 21/6/21	Mon 21/6/21	Mon 21/6/21		Mon 21/6/21 388FF-2 emons	390SS-2 emons	100%		[Gantt bar for 389: 100% complete]											
390	CWS2-08000		R.C. Structure		(303), 374, (85), (169), (185), (195), 204	204 days	Tue 16/3/21	Sat 20/11/21	Tue 16/3/21		Sat 20/11/21 389SS-2 emons		100%	10	[Gantt bar for 390: 100% complete]											
391	CWS2-08010		Ground Floor Construction @ +6.30mPD - Revised Civil Requirements in G/F	(204), (228)	(169), (185), (195), (217), (223), (225)	135 days	Tue 16/3/21	Sat 28/8/21	Tue 16/3/21		Sat 28/8/21 388,238	392	100%		[Gantt bar for 391: 100% complete]											
392	CWS2-08020		First Floor Construction @ +13.50mPD - Revised Civil Requirements in 1/F		(266), (299), (300)	55 days	Mon 30/8/21	Thu 4/11/21	Mon 30/8/21		Thu 4/11/21 391	393	100%		[Gantt bar for 392: 100% complete]											
393	CWS2-08030	KD3D	Roof Construction @+19.00mPD - Revised Civil Requirements in R/F		(302)	14 days	Fri 5/11/21	Sat 20/11/21	Fri 5/11/21		Sat 20/11/21 392	394	100%		[Gantt bar for 393: 100% complete]											
394	CWS2-09000	KD3D	Allow access to Contractor DE/2018/03 for E&M Installation			0 days	Sat 20/11/21	Sat 20/11/21	Sat 20/11/21		Sat 20/11/21 393	41FF	100%		[Gantt bar for 394: 100% complete]											
395	CWS2-NCE		Additional Works due to Change of Works Information		(85), (169), (185), (195), (235),	14 days	Tue 9/11/21	Wed 24/11/21	Tue 9/11/21		Wed 24/11/21	396,397	100%		[Gantt bar for 395: 100% complete]											
396	CWS2-10000		Drainage System (within Bldg/ Structure) Installation		(265), 366	60 days	Mon 22/11/21	Sat 5/2/22	Mon 22/11/21		Sat 5/2/22 395		100%		[Gantt bar for 396: 100% complete]											
397	CWS2-11000	SW3	ABWF Works & BS Works - Revised Architectural Layout & Schedule for Doors, Louvers and Windows		(95), (173), (406,407,408)	278 days	Mon 22/11/21	Mon 31/10/22	Mon 22/11/21		NA 242SS,168SS,395	46FF	64%		[Gantt bar for 397: 64% complete]											
398	CWS2-11500	SW4	Surrounding sewerage, utility and process pipe works		221,219,220,205,206,207	45 days	Mon 13/6/22	Thu 4/8/22	Mon 13/6/22		NA 309FS-38 days	47FF,582FS-200 days,583FS-2	0%		[Gantt bar for 398: 0% complete]											
399	CWS2-12000	SW5	Surrounding Site formation works and road works			180 days	Sun 30/4/23	Fri 27/10/23			NA NA 319FF	48FF	0%		[Gantt bar for 399: 0% complete]											
400	CTHP-00000	*	Thermal Hydrolysis Pretreatment (6)			1339.8 days	Thu 19/12/19	Wed 10/7/24	Thu 19/12/19		NA		30%		[Gantt bar for 400: 30% complete]											
401	CTHP-01000		Site Clearance & Site Set Up			18 days	Thu 19/12/19	Sat 11/1/20	Thu 19/12/19		Sat 11/1/20 2	402,403	100%		[Gantt bar for 401: 100% complete]											
402	CTHP-02000		Predrilling Works (3no.1rig, 3days/drillhole/rig)		21/24, (10)	1 day	Fri 10/1/20	Mon 13/1/20	Fri 10/1/20		Mon 13/1/20 160FS+24 days,401	404	100%		[Gantt bar for 402: 100% complete]											
403	CTHP-03000		Additional Predrilling Works (4no.)		(12)	1 day	Fri 10/1/20	Mon 13/1/20	Fri 10/1/20		Mon 13/1/20 401	404	100%		[Gantt bar for 403: 100% complete]											
404	CTHP-04000		Installation of Monitoring Points			6 days	Fri 1/5/20	Fri 8/5/20	Fri 1/5/20		Fri 8/5/20 402,403	406	100%		[Gantt bar for 404: 100% complete]											
405	CTHP-05000		Setting up plant for pre-bored socked H-pile Installation	22		5 days	Tue 12/5/20	Sat 16/5/20	Tue 12/5/20		Sat 16/5/20	406	100%		[Gantt bar for 405: 100% complete]											
406	CTHP-06000		Pre-bored Socketed H-Pile Installation (15 Nos, 1 Rig, 3days/rig/pile)	22, 33	(10)	30 days	Mon 18/5/20	Sat 20/6/20	Mon 18/5/20		Sat 20/6/20 161,404,405,386	407	100%	6	[Gantt bar for 406: 100% complete]											
407	CTHP-07000		Pile Loading Test	45, 46, 257		25 days	Mon 27/7/20	Fri 11/9/20	Mon 27/7/20		Fri 11/9/20 406,264FS+5 days	408,300SS+10 days	100%		[Gantt bar for 407: 100% complete]											
408	CTHP-08000		Excavation for Pile Cap (160 cu.m)		225, (70), (75)	12 days	Mon 19/10/20	Mon 2/11/20	Mon 19/10/20		Mon 2/11/20 179,164,407,388	410,409FF-2 emons	100%		[Gantt bar for 408: 100% complete]											
409	CTHP-08900		Receiving of Civil Requirements from PM		(270)	1 day	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21		Tue 15/6/21 408FF-2 emons	410SS-2 emons	100%		[Gantt bar for 409: 100% complete]											
410	CTHP-09000	KD3E, S	R.C. Plinth - Change to Works Information	268, 338	225, (115),(236)	0 days	Mon 2/11/20	Mon 2/11/20	Mon 2/11/20		Mon 2/11/20 408,303,409SS-2 emons	42FF,46FF	100%		[Gantt bar for 410: 100% complete]											
411	CTHP-09500	SW4	Surrounding sewerage, utility and process pipe works			52 days	Wed 28/9/22	Wed 30/11/22			NA NA 340FS+28 days	47FF,582FS-200 days,583FS-2	0%		[Gantt bar for 411: 0% complete]											
412	CTHP-10000	SW5	Surrounding Site formation works and road works			180 days	Sat 13/1/24	Wed 10/7/24			NA NA 319FF	48FF	0%		[Gantt bar for 412: 0% complete]											
413	CFCD-00000	*	Ferric Chloride Dosing Facilities (10)			903.8 days	Tue 15/6/21	Wed 10/7/24	Tue 15/6/21		NA		5%		[Gantt bar for 413: 5% complete]											
414	CFCD-01000		Excavation & ELS for Raft Footing (105 cu.m)			30 days	Thu 2/6/22	Fri 8/7/22	Thu 2/6/22		NA 415	417	0%		[Gantt bar for 414: 0% complete]											
415	CFCD-02000		Plate Load Test			19 days	Tue 10/5/22	Sat 28/5/22	Tue 10/5/22		Sat 28/5/22 306FS+8 days	417,416FF-2 emons,414	100%		[Gantt bar for 415: 100% complete]											
416	CFCD-02900		Receiving of Civil Requirements from PM			1 day	Tue 15/6/21	Tue 15/6/21	Tue 15/6/21		Tue 15/6/21 415FF-2 emons	417SS-2 emons	100%		[Gantt bar for 416: 100% complete]											
417	CFCD-03000		R.C. Structure			50 days	Sat 9/7/22	Mon 5/9/22			NA NA 166,238,416SS-2 emons,415,414	418	0%	5	[Gantt bar for 417: 0% complete]											
418	CFCD-04000	KD3E	Steel Roof Structure (On-site Fabrication)			26 days	Tue 6/9/22	Sat 8/10/22			NA NA 417	419,42FF	0%		[Gantt bar for 418: 0% complete]											
419	CFCD-05000	SW3	ABWF Works & BS Works, Change to Work Information (Application of Protective Lining System)		594	28 days	Sat 8/10/22	Thu 10/11/22			NA NA 418,242,168	46FF,582FS-185 days,583FS-1	0%		[Gantt bar for 419: 0% complete]											
420	CFCD-05500	SW4	Surrounding sewerage, utility and process pipe works - Updated Process Pipes Arrangement		386, 298	39 days	Fri 28/10/22	Tue 13/12/22			NA NA 419FS-11 days	47FF,582FS-200 days,583FS-2	0%		[Gantt bar for 420: 0% complete]											
421	CFCD-06000	SW5	Surrounding Site formation works and road works			180 days	Sat 13/1/24	Wed 10/7/24			NA NA 319FF	48FF	0%		[Gantt bar for 421: 0% complete]											
422	CFHB-00000	*	Fire Hydrant and Booster Pump Room (16)			877.8 days	Fri 16/7/21	Wed 10/7/24	Fri 16/7/21		NA		0%		[Gantt bar for 422: 0% complete]											
423	CFHB-01000		Excavation for Raft Footing (160 cu.m)			3 days	Mon 12/9/22	Thu 15/9/22			NA NA 2,340FS+14 days	424	0%		[Gantt bar for 423: 0% complete]											
424	CFHB-02000		Plate Load Test			18 days	Thu 15/9/22	Sat 8/10/22			NA NA 423	426FS+1 day,425FF-2 emons	0%		[Gantt bar for 424: 0% complete]											
425	CFHB-02900		Receiving of Civil Requirements from PM			1 day	Fri 16/7/21	Fri 16/7/21	Fri 16/7/21		Fri 16/7/21 424FF-2 emons		100%		[Gantt bar for 425: 100% complete]											
426	CFHB-03000	KD3E	R.C. Structure & waterproofing works			48 days	Mon 10/10/22	Mon 5/12/22			NA NA 424FS+1 day	427,42FF	0%	5	[Gantt bar for 426: 0% complete]											
427	CFHB-04000	SW3	ABWF Works & BS Works			24 days	Mon 5/12/22	Thu 5/1/23			NA NA 426,242SS,168SS	46FF,582FS-320 days,583FS-3	0%		[Gantt bar for 427: 0% complete]											
428	CFHB-04500	SW4	Surrounding sewerage, utility and process pipe works			46 days	Tue 16/8/22	Tue 11/10/22			NA NA 289SS,340SS	47FF,582FS-200 days,583FS-2	0%		[Gantt bar for 428: 0% complete]											
429	CFHB-05000	SW5	Surrounding Site formation works and road works			180 days	Sat 13/1/24	Wed 10/7/24			NA NA 319FF	48FF	0%		[Gantt bar for 429: 0% complete]											
430	CTFS-00000	*	Transformer and Switchroom (15)			678 days	Fri 16/7/21	Fri 27/10/23	Fri 16/7/21		NA		0%		[Gantt bar for 430: 0% complete]											
431	CTFS-01000		Excavation for Raft Footing (310 cu.m)		386	10 days	Fri 26/8/22	Tue 6/9/22			NA NA 2,340	432	0%		[Gantt bar for 431: 0% complete]											
432	CTFS-02000		Plate Load Test			18 days	Wed 7/9/22	Wed 28/9/22			NA NA 431	434,433FF-2 emons	0%		[Gantt bar for 432: 0% complete]											
433	CTFS-02900		Receiving of Civil Requirements from PM			1 day	Fri 16/7/21	Fri 16/7/21	Fri 16/7/21		Fri 16/7/21 432FF-2 emons	434	100%		[Gantt bar for 433: 100% complete]											
434	CTFS-03000	KD3E	R.C. Structure			30 days	Wed 28/9/22	Fri 4/11/22			NA NA 432,166,238,433	435,42FF	0%	5	[Gantt bar for 434: 0% complete]											
435	CTFS-04000	SW3	ABWF Works & BS Works		(95)	22 days	Fri 4/11/22	Wed 30/11/22			NA NA 434,242SS,168SS	46FF	0%		[Gantt bar for 435: 0% complete]											
436	CTFS-04500	SW4	Surrounding sewerage, utility and process pipe works			58 days	Tue 2/8/22	Tue 11/10/22			NA NA 345SS	47FF,582FS-200 days,583FS-2	0%		[Gantt bar for 436: 0% complete]											
437	CTFS-05000	SW5	Surrounding Site formation works and road works			180 days	Sun 30/4/23	Fri 27/10/23			NA NA 319FF	48FF	0%		[Gantt bar for 437: 0% complete]											
438	CUC-00000	*	Utility Corridor (13)		204	340 days	Fri 2/9/22	Thu 26/10/23			NA NA		0%		[Gantt bar for 438: 0% complete]											
439	CUC-01000		Excavation for Raft Footing - Additional Works (Verification of Existing Utilities)		478	60 days	Fri 2/																			

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	
1	CD-1000		Contract Dates			1585 days	Mon 18/11/19	Thu 27/3/25	1651.5 days	Mon 18/11/19	Fri 13/6/25	Mon 18/11/19	NA			88.5 days		0%	
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		8,9,13FS+290 days,14FS+311 days	0 days		100%	
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%	
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		201	0 days		100%	
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%	
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		295,306	0 days		100%	
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%	
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		335	0 days		100%	
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		353	0 days		100%	
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		402,419,425	0 days		100%	
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		434	0 days		100%	
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		461	0 days		100%	
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		539FS-1 day,29FS+179 days	0 days		100%	
14	CAD-1110		Portion B-8 (Alternation for existing Membrane Facilities Building No.1)			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		541FS-1 day	0 days		100%	
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		532	0 days		100%	
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		542,556	0 days		100%	
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%	
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%	
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		2F5+151 days	0 days		100%	
20	CKD-1000		Key Dates (cal. day)			1440 days	Tue 19/11/19	Sat 28/10/23	1144 days	Fri 27/11/20	Mon 15/1/24	Fri 27/11/20	NA			618 days		99%	
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	0 days	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20		2F5+376 days	0 days		100%	
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	1 day	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21		2F5+439.5 days	0 days		100%	
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	0 days	Sat 22/10/22	Sat 22/10/22	NA	NA	2F5+1069.5 days	67	1056.5 days		0%	
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	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	2F5+1191 days	70	947 days		0%	
25	CKD-1050		KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1140days after starting date)			1140 days	Tue 19/11/19	Sun 1/1/23	0 days	Sun 1/1/23	Sun 1/1/23	NA	NA	2F5+1141 days		997 days		0%	
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	0 days	Wed 23/3/22	Wed 23/3/22	NA	NA	2F5+856.5 days	74	1273.5 days		0%	
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	0 days	Wed 17/8/22	Wed 17/8/22	NA	NA	2F5+1003.5 days	78	1126.5 days		0%	
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	0 days	Fri 22/10/21	Fri 22/10/21	NA	NA	2F5+704.5 days	82	1425.5 days		0%	
29	CKD-1090		KD1I completion alternation works for existing Power House in Portion B-7A (179days after access date of B-7A)			150 days	Fri 4/9/20	Sun 31/1/21	1 day	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21		13FS+179 days	0 days		100%	
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	0 days	Mon 7/2/22	Mon 7/2/22	NA	NA	2F5+812.5 days	86	1317.5 days		0%	
31	CKD-1110		KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (577.5 days after starting date)			495 days	Tue 19/11/19	Sat 27/3/21	0 days	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21		2F5+578.5 days	93	0 days		100%
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	0 days	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21		2F5+495 days	0 days		100%	
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	0 days	Mon 15/1/24	Mon 15/1/24	NA	NA	2F5+1520 days	99	606 days		0%	
34	CCD-1000		Completion Date (cal. Day)			1956 days	Tue 19/11/19	Thu 27/3/25	1056 days	Sat 23/7/22	Fri 13/6/25	Sat 23/7/22	NA			50.5 days		0%	
35	CCD-1010		Section 1 of the Works (1,543.5 after starting date)			1460 days	Fri 17/11/23	Fri 9/2/24	0 days	Fri 9/2/24	Fri 9/2/24	NA	NA	2F5+1544.5 days	105	0 days		0%	
36	CCD-1020		Section 2 of the Works (977.5 after starting date)			900 days	Tue 19/11/19	Fri 6/5/22	0 days	Sat 23/7/22	Sat 23/7/22	NA	NA	2F5+978.5 days	111	0 days		0%	
37	CCD-1030		Section 3 of the Works (1,687.5 after starting date)			1590 days	Tue 19/11/19	Wed 12/6/24	0 days	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24		39FS+1 day,117,38FS+1 day	-77.5 days		99%	
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%	
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	103.5 days			0%	
40	PD-1000		Planned Completion			1686 days	Fri 14/8/20	Thu 27/3/25	1820 days	Wed 30/9/20	Wed 24/9/25	Wed 30/9/20	NA			0 days		3%	
41	PCD-1000		Planned Completion - Key Dates (cal. day)			1170 days	Fri 14/8/20	Sat 28/10/23	1321 days	Wed 30/9/20	Mon 13/5/24	Wed 30/9/20	NA			-119 days		99%	
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		210FF	0 days		100%	
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	0 days	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21		286FF,291FF,273FF	0 days		100%	
44	PCD-1030	KD1C	KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (990days after starting date)			0 days	Thu 4/8/22	Thu 4/8/22	0 days	Thu 1/12/22	Thu 1/12/22	NA	NA	330FF,322FF,248FF,294FF,212FF,250FF	-40 days		0%		
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	349FF,348FF,351FF,333FF	0 days		0%		
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 22/4/23	Sat 22/4/23	NA	NA	391FF,397FF,393FF,396FF,392FF	-111 days		0%		
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	Thu 4/8/22	Thu 4/8/22	NA	NA	430FF	-135 days		0%		
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	Wed 28/12/22	Wed 28/12/22	NA	NA	431FF	-133 days		0%		
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	Sat 19/3/22	Sat 19/3/22	NA	NA	459FF,458FF	-148 days		0%		
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		539FF	0 days		100%	
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	Mon 13/6/22	Mon 13/6/22	NA	NA	496FF,495FF,521FF,520FF,513FF,512FF	-126 days		0%		
52	PCD-1110	KD2A	KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (495days after starting date)			0 days	Sat 27/3/21	Sat 27/3/21	0 days	Wed 4/8/21	Wed 4/8/21	NA	NA	545FF,543FF	-47 days		0%		
53	PCD-1120	KD2B	KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (420days after starting date)			0 days	Thu 3/9/20	Thu 3/9/20	1 day	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21		532FF,536FF,537FF,538FF	0 days		100%	
54	PCD-1130	KD3A	KD3A completion of all utilities and road works (1440days after starting date)			0 days	Sat 28/10/23	Sat 28/10/23	0 days	Mon 13/5/24	Mon 13/5/24	NA	NA	555FF,557FF	-119 days		0%		
55	PCD-1000		Planned Completion Date (cal. Day)			1056 days	Fri 6/5/22	Thu 27/3/25	1054 days	Sat 5/11/22	Wed 24/9/25	NA	NA			-106 days		0%	
56	PCD-1010	SW1	Section 1 of the Works (1,460 after starting date)			0 days	Wed 23/8/23	Wed 2											

ID	Activity ID	Key Date	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
85	ET1H-1100		Inclment Weather to KD1J (cal. Day)			0 days	NA	NA	49 days	Mon 7/2/22	Mon 28/3/22	NA	NA			1276.5 days		0%
86	ET1H-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Mon 7/2/22	Wed 2/3/22	NA	NA 30	87		1276.5 days		0%
87	ET1H-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Wed 2/3/22	Mon 28/3/22	NA	NA 86			1276.5 days		0%
88	ET2A-1000		Effects to KD2A			0 days	NA	NA	53 days	Fri 18/6/21	Tue 10/8/21	Fri 18/6/21	NA			1506.5 days		24%
89	ET2A-1100		Inclment Weather to KD2A (cal. Day)			49 days	NA	NA	49 days	Tue 22/6/21	Tue 10/8/21	Tue 22/6/21	NA			1506.5 days		17%
90	ET2A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 22/6/21	Thu 15/7/21	Tue 22/6/21	NA 93	91		1506.5 days		37%
91	ET2A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 15/7/21	Tue 10/8/21	NA	NA 90			1506.5 days		0%
92	ET2A-1200		Other Events to KD2A (not all)			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21			0 days		100%
93	ET2A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21	31	90			100%
94	ET3A-1000		Effects to KD3A			0 days	NA	NA	53 days	Tue 16/1/24	Fri 8/3/24	NA	NA			565 days		0%
95	ET3A-1100		Inclment Weather to KD3A (cal. Day)			49 days	NA	NA	49 days	Sat 20/1/24	Fri 8/3/24	NA	NA			565 days		0%
96	ET3A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sat 20/1/24	Sun 11/2/24	NA	NA 99	97		565 days		0%
97	ET3A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Mon 12/2/24	Fri 8/3/24	NA	NA 96			565 days		0%
98	ET3A-1200		Other Events to KD3A (not all)			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA			565 days		0%
99	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 33	96		565 days		0%
100	ETS1-1000		Effects to Section 1 of the Works			0 days	NA	NA	53 days	Fri 9/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
101	ETS1-1100		Inclment Weather to Section 1 of the Works (cal. Day)			49 days	NA	NA	49 days	Tue 13/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
102	ETS1-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 13/2/24	Thu 7/3/24	NA	NA 105	103		540.5 days		0%
103	ETS1-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 7/3/24	Tue 2/4/24	NA	NA 102			540.5 days		0%
104	ETS1-1200		Other Events to Section 1 of the Works (not all)			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA			540.5 days		0%
105	ETS1-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA 35	102		540.5 days		0%
106	ETS2-1000		Effects to Section 2 of the Works			0 days	NA	NA	53 days	Sat 23/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
107	ETS2-1100		Inclment Weather to Section 2 of the Works (cal. Day)			49 days	NA	NA	49 days	Wed 27/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
108	ETS2-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Wed 27/7/22	Fri 19/8/22	NA	NA 111	109		1106.5 days		0%
109	ETS2-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Fri 19/8/22	Wed 14/9/22	NA	NA 108			1106.5 days		0%
110	ETS2-1200		Other Events to Section 2 of the Works (not all)			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA			1106.5 days		0%
111	ETS2-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA 36	108		1106.5 days		0%
112	ETS3-1000		Effects to Section 3 of the Works			0 days	NA	NA	53 days	Wed 12/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
113	ETS3-1100		Inclment Weather to Section 3 of the Works (cal. Day)			49 days	NA	NA	49 days	Sun 16/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
114	ETS3-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sun 16/6/24	Tue 9/7/24	NA	NA 117	115		416.5 days		0%
115	ETS3-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Tue 9/7/24	Sun 4/8/24	NA	NA 114			416.5 days		0%
116	ETS3-1200		Other Events to Section 3 of the Works (not all)			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA			416.5 days		0%
117	ETS3-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA 37	114		416.5 days		0%
118	SUB-1000		Submissions (cal. day)			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			182 days		60%
119	SUBS-1000		Subletting Package			96 days	Mon 18/11/19	Fri 21/2/20	562 days	Mon 18/11/19	Tue 1/6/21	Mon 18/11/19	Tue 1/6/21			0 days		100%
120	SUBS-1010		Prepare & submit subletting procedure			12 days	Mon 18/11/19	Fri 29/11/19	12 days	Mon 18/11/19	Mon 18/11/19	Fri 29/11/19	Fri 29/11/19	121		0 days		100%
121	SUBS-1020		PM review and accept subletting procedure			15 days	Sat 30/11/19	Wed 11/12/19	12 days	Sat 30/11/19	Wed 11/12/19	Sat 30/11/19	Wed 11/12/19	120		0 days		100%
122	SUBS-1030		Subletting for demolition works			24 days	Thu 12/12/19	Sat 4/1/20	93 days	Thu 12/12/19	Wed 18/3/20	Tue 17/12/19	Wed 18/3/20	121,154		0 days		100%
123	SUBS-1040		Subletting for UU diversion for Inlet Works No.1			24 days	Thu 12/12/19	Sat 4/1/20	78 days	Thu 12/12/19	Fri 10/1/20	Fri 27/3/20	Fri 10/1/20	121		0 days		100%
124	SUBS-1050		Subletting for inspection pit excavation			0 days	NA	NA	56 days	Thu 19/12/19	Wed 12/2/20	Thu 19/12/19	Wed 12/2/20	121,154		0 days		100%
125	SUBS-1060		Subletting for Preliminary Works (topographic surveying)			14 days	Thu 12/12/19	Wed 25/12/19	54 days	Fri 20/12/19	Tue 11/2/20	Fri 20/12/19	Tue 11/2/20	121,154		0 days		100%
126	SUBS-1070		Subletting for AR3 access road			24 days	Thu 12/12/19	Sat 4/1/20	0 days	Fri 13/12/19	Fri 13/12/19	Fri 13/12/19	Tue 11/2/20	124		0 days		100%
127	SUBS-1080		Subletting for pre-drilling works			24 days	Thu 12/12/19	Sat 4/1/20	38 days	Thu 6/2/20	Fri 20/3/20	Thu 6/2/20	Fri 20/3/20	125,126		0 days		100%
128	SUBS-1090		Subletting for Contractor designer for temporary works and ICE			24 days	Thu 12/12/19	Sat 4/1/20	71 days	Mon 16/12/19	Mon 24/2/20	Mon 16/12/19	Mon 24/2/20	127		0 days		100%
129	SUBS-1100		Subletting for independent BIM consultant			24 days	Thu 12/12/19	4/1/20	0 days	Wed 11/12/19	Thu 23/1/20	Wed 11/12/19	Thu 23/1/20	125		0 days		100%
130	SUBS-1110		Subletting for independent BIM services			0 days	NA	NA	15 days	Tue 14/1/20	Wed 28/2/20	Tue 14/1/20	Wed 28/2/20	125		0 days		100%
131	SUBS-1120		Subletting for Design, Supply & Install of Temporary Activated Carbon Deodorization Units (E&M Works)			0 days	NA	NA	0 days	Fri 13/12/19	Tue 11/2/20	Fri 13/12/19	Tue 11/2/20	125		0 days		100%
132	SUBS-1130		Subletting for pre-bored H pile works			36 days	Thu 12/12/19	Thu 16/1/20	45 days	Sun 5/7/20	Tue 18/8/20	Sun 5/7/20	Tue 18/8/20	131		0 days		100%
133	SUBS-1140		Subletting for Sheelple installation works			0 days	NA	NA	45 days	Tue 1/9/20	Thu 15/10/20	Thu 1/9/20	Thu 15/10/20	131		0 days		100%
134	SUBS-1150		Subletting for ELS works for Inlet Works No.1			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21	133		0 days		100%
135	SUBS-1160		Subletting for ELS works for Membrane Facilities Building and other buildings			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21	133		0 days		100%
136	SUBS-1170		Subletting for structural works for Inlet Works Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
137	SUBS-1180		Subletting for structural works for Primary Sedimentation Tanks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
138	SUBS-1190		Subletting for structural works for Bioreactors			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
139	SUBS-1200		Subletting for structural works for Membrane Facilities Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
140	SUBS-1210		Subletting for structural works for SAS pumping house and ancillary structures			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
141	SUBS-1220		Subletting for ABWF works			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Fri 26/2/21	Wed 14/4/21	Fri 26/2/21	Wed 14/4/21	140		0 days		100%
142	SUBS-1230		Subletting for Process Pipeworks, Utilities and Roadworks			48 days	Thu 12/12/19	Tue 28/1/20	150 days	Fri 22/5/20	Sun 18/10/20	Fri 22/5/20	Sun 18/10/20	121		0 days		100%
143	SUBS-1240		Subletting for Landscape Hardworks and Softworks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Thu 15/4/21	Tue 1/6/21	Thu 15/4/21	Tue 1/6/21	141		0 days		100%
144	SUBS-1250		Subletting for Trial dewatering works and installation of additional stop logs at BR2 connon channel due to malfunctioned of existing penstock at FST no. 5 and 7 (EWN 055)			0 days	NA	NA	15 days	Tue 15/9/20	Tue 29/9/20	Tue 15/9/20	Tue 29/9/20	355		0 days		100%
145	SUBS-1260		Subletting for Diversion of Power supply for existing Slaughter House pump station (CE 034)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20			0 days		100%
146	SUBS-1270		Subletting for Decommission of existing power and signal systems in leachate Pump station switch room (PMI 039)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20			0 days		100%
147	SUBS-1280		Subletting for Diversion of Existing DN250 Leachate Raising Main (PPMI 025)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20			0 days		100%
148	SUBS-1290		Subletting for Construction of Cable trough for CLP 11kv Cable Diversion (PPMI 041)			0 days	NA	NA	31 days	Mon 21/9/								

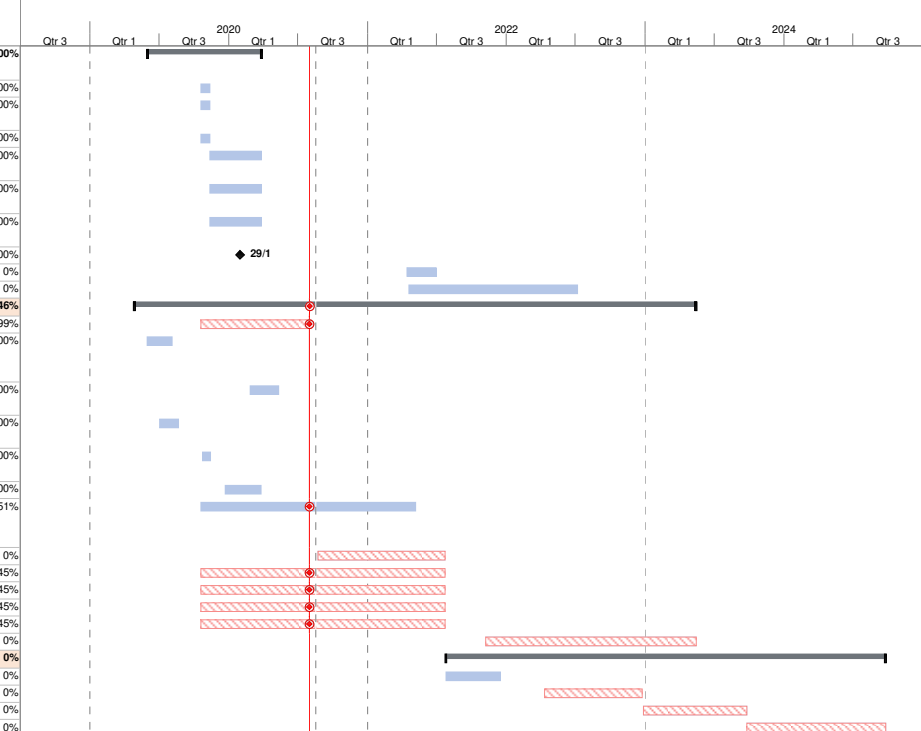
ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Gantt Chart (Qtr 3 2019 to Qtr 3 2024)											
170	SUBA-1130b		Prepare and submit Dewatering proposal for basement construction for Primary Sedimentation tanks No.1-4			0 days	NA	NA	24 days	Fri 1/7/22	Mon 25/7/22	NA	NA	NA3465F		1158 days		0%	[Gantt bar for 170: 1/7/22 to 25/7/22]											
171	SUBA-1130c		Prepare and submit Dewatering proposal for basement construction for Bioreactor No. 2A&2B			0 days	NA	NA	24 days	Sun 15/5/22	Wed 8/6/22	NA	NA	NA3895F		1205 days		0%	[Gantt bar for 171: 15/5/22 to 8/6/22]											
172	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	198		0 days		100%	[Gantt bar for 172: 18/11/19 to 6/3/20]											
173	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	198FS+120 days		0 days		100%	[Gantt bar for 173: 18/11/19 to 6/3/20]											
174	SUBA-1160		Prepare and submit design of structure elements of the temporary activated carbon deodorization unit			60 days	Fri 1/7/20	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%	[Gantt bar for 174: 18/11/19 to 16/3/20]											
175	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		541	332 days		0%	[Gantt bar for 175: 18/10/21 to 15/4/22]											
176	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		539	0 days		100%	[Gantt bar for 176: 6/7/20 to 3/9/20]											
177	SUBE-1000		Environmental Aspect Submissions			45 days	Mon 18/11/19	Wed 1/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%	[Gantt bar for 177: 18/11/19 to 6/2/20]											
178	SUBE-1010		Prepare, submit & approve Site Management Plan for Trip Tricket System			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 178: 18/11/19 to 22/1/20]											
179	SUBE-1020		Prepare, submit & approve Waste Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%	[Gantt bar for 179: 18/11/19 to 6/2/20]											
180	SUBE-1030		Prepare, submit & approve Environmental Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 180: 18/11/19 to 22/1/20]											
181	SUBP-1000		Procurement			731 days	Mon 18/11/19	Wed 17/11/21	648 days	Mon 18/11/19	Thu 26/8/21	Mon 18/11/19	NA			278 days		94%	[Gantt bar for 181: 18/11/19 to 26/8/21]											
182	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	183		0 days		100%	[Gantt bar for 182: 18/11/19 to 19/11/19]											
183	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	182	184,185,186,187,188,189,190,191	0 days		100%	[Gantt bar for 183: 19/11/19 to 10/12/19]											
184	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	183	212,532,551,552,554,553,549,557,0	0 days		100%	[Gantt bar for 184: 12/12/19 to 10/3/20]											
185	SUBP-1040		Prepare, submit and approve the water proofing material			25 days	Thu 12/12/19	Sun 5/1/20	25 days	Thu 26/8/21	Mon 26/8/21	NA	NA	183	329,325	278 days		0%	[Gantt bar for 185: 12/12/19 to 26/8/21]											
186	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	183	391,426	0 days		100%	[Gantt bar for 186: 12/12/19 to 2/5/20]											
187	SUBP-1060		Prepare, submit and approve the rebar material			48 days	Thu 12/12/19	Tue 28/1/20	49 days	Thu 10/7/20	Sat 23/5/20	Fri 10/7/20	Sat 23/5/20	183	391,426	0 days		100%	[Gantt bar for 187: 12/12/19 to 23/5/20]											
188	SUBP-1070		Prepare, submit and approve the metal works material			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20	183	391,426	0 days		100%	[Gantt bar for 188: 12/12/19 to 18/10/20]											
189	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	Mon 1/3/21	Sat 17/4/21	183	332,350,398,460,488,504,514,522,0	0 days		100%	[Gantt bar for 189: 12/12/20 to 17/4/21]											
190	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	183	391,426	0 days		100%	[Gantt bar for 190: 1/9/20 to 18/10/20]											
191	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	183		0 days		100%	[Gantt bar for 191: 5/5/20 to 25/5/20]											
192	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			178 days		27%	[Gantt bar for 192: 6/2/20 to 28/2/25]											
193	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	129,130	194	0 days		100%	[Gantt bar for 193: 18/11/19 to 1/4/20]											
194			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	193		178 days		25%	[Gantt bar for 194: 6/2/20 to 28/2/25]											
195	C-1000		Construction Works (Working day)			1957 days	Mon 18/11/19	Thu 27/3/25	2138 days	Mon 18/11/19	Wed 24/3/25	Mon 18/11/19	NA			0 days		51%	[Gantt bar for 195: 18/11/19 to 27/3/25]											
196	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%	[Gantt bar for 196: 18/11/19 to 17/3/20]											
197	CPW-1000		Initial Survey			24 days	Mon 18/11/19	Sat 14/12/19	10 days	Mon 18/11/19	Thu 28/11/19	Mon 18/11/19	Thu 28/11/19	198		0 days		100%	[Gantt bar for 197: 18/11/19 to 28/11/19]											
198	CPW-2000		Condition Survey			30 days	Fri 27/12/19	Tue 4/2/20	89 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	125,197	199,172,173FS+120 days,200	0 days		100%	[Gantt bar for 198: 18/11/19 to 6/3/20]											
199	CPW-3000		Installation of Monitoring Markers			26 days	Wed 5/2/20	Thu 5/3/20	78 days	Fri 29/11/19	Thu 5/3/20	Fri 29/11/19	Thu 5/3/20	198		0 days		100%	[Gantt bar for 199: 18/11/19 to 5/3/20]											
200	CPW-4000		Tree Felling Works	22, 235		0 days	NA	NA	9 days	Sat 7/3/20	Sat 7/3/20	Tue 17/3/20	Tue 17/3/20	198		0 days		100%	[Gantt bar for 200: 7/3/20 to 17/3/20]											
201	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	4156		0 days		100%	[Gantt bar for 201: 20/1/20 to 30/9/20]											
202	CAR-1000		Site setup and clearance works	05		28 days	Mon 20/1/20	Mon 24/2/20	38 days	Mon 20/1/20	Fri 6/3/20	Mon 20/1/20	Fri 6/3/20	203		0 days		100%	[Gantt bar for 202: 20/1/20 to 6/3/20]											
203	CAR-1001		Awaiting for AECOM instruction for alignment confirmation for road works	055		0 days	NA	NA	5 days	Mon 17/2/20	Thu 12/3/20	Mon 17/2/20	Thu 12/3/20	202		0 days		100%	[Gantt bar for 203: 17/2/20 to 12/3/20]											
204	CAR-1002		Additional Works in Access Road AR3 to Settle Left-in Material by Contract DC/2016/07	215-1		0 days	NA	NA	4 days	Thu 21/5/20	Mon 25/5/20	Thu 21/5/20	Mon 25/5/20	203		0 days		100%	[Gantt bar for 204: 21/5/20 to 25/5/20]											
205	CAR-2000		Drainage and Utilities Works			76 days	Fri 6/3/20	Tue 9/6/20	75 days	Sat 7/3/20	Tue 9/6/20	Sat 7/3/20	Tue 9/6/20	204		0 days		100%	[Gantt bar for 205: 6/3/20 to 9/6/20]											
206	CAR-2000a		Trimming of Existing Sheet Piles in Access Road AR3	215-2		0 days	NA	NA	20 days	Tue 14/7/20	Wed 5/8/20	Tue 14/7/20	Wed 5/8/20	205		0 days		100%	[Gantt bar for 206: 14/7/20 to 5/8/20]											
207	CAR-2000b		Installation of Multi-part Cover and Manhole Cover of Chamber RP6 and Associated Concreting Works in Portion B-1	215		0 days	NA	NA	7 days	Fri 28/8/20	Fri 4/9/20	Fri 28/8/20	Fri 4/9/20	206		0 days		100%	[Gantt bar for 207: 28/8/20 to 4/9/20]											
208	CAR-2001		Diversion of Existing Underground Cables in Portion B-1A	036		0 days	NA	NA	172 days	Thu 5/3/20	Wed 30/9/20	Thu 5/3/20	Wed 30/9/20	207		0 days		100%	[Gantt bar for 208: 5/3/20 to 30/9/20]											
209	CAR-2002		Additional U-channel, beam barrier and footway concrete pavement	055		0 days	NA	NA	60 days	Thu 12/12/19	Wed 26/2/20	Thu 12/12/19	Wed 26/2/20	210		0 days		100%	[Gantt bar for 209: 12/12/19 to 26/2/20]											
210	CAR-3000	KD1A	Roadworks	055		80 days	Wed 10/6/20	Sat 12/9/20	133 days	Fri 24/4/20	Wed 30/9/20	Fri 24/4/20	Wed 30/9/20	126,209,208	42FF	0 days		100%	[Gantt bar for 210: 10/6/20 to 30/9/20]											
211	CIW-0000		Inlet Works No.1, B-2			854 days	Mon 6/1/20	Mon 21/11/22	594 days	Tue 26/11/19	Thu 25/11/21	Tue 26/11/19	NA			0 days		88%	[Gantt bar for 211: 6/1/20 to 25/11/21]											
212	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	NA	184,123	44FF	111 days		88%	[Gantt bar for 212: 6/1/20 to 16/6/21]											
213	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	158	214SS,216	0 days		100%	[Gantt bar for 213: 13/12/19 to 18/1/20]											
214	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	158,213SS,124	232,251	0 days		100%	[Gantt bar for 214: 6/1/20 to 10/3/20]											
215	CIW-1300		Installation and Commissioning of Temporary Activated Carbon Deodorization Unit for the Existing Inlet Works			0 days	NA	NA	98 days	Wed 11/3/20	Sat 11/7/20	Wed 11/3/20	Sat 11/7/20			0 days		100%	[Gantt bar for 215: 11/3/20 to 11/7/20]											
216	CIW-1310		Construction of concrete plinth			0 days	NA	NA	24 days	Wed 11/3/20	Wed 8/4/20	Wed 11/3/20	Wed 8/4/20	213	217	0 days		100%	[Gantt bar for 216: 11/3/20 to 8/4/20]											
217	CIW-1320		Installation of Deodorizer			0 days	NA	NA	40 days	Thu 9/4/20	Sat 30/5/20	Thu 9/4/20	Sat 30/5/20	216		0 days		100%	[Gantt bar for 217: 9/4/20 to 30/5/20]											
218	CIW-1330		Testing & commissioning			0 days	NA	NA	15 days	Mon 1/6/20	Wed 17/6/20	Mon 1/6/20																		

ID	Activity ID	Key Date	Task Name	Inherent Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
252	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%
253	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%
254	CIW-1511		Tank Drain Diversion near MTRCL track			0 days	NA	NA	246 days	Thu 11/6/20	Mon 12/4/21	Thu 11/6/20	Sat 10/4/21			0 days		100%
255	CIW-1511a		Excavation of trial pit near MHD9.5 (TP45 & 47)	040		0 days	NA	NA	12 days	Mon 27/7/20	Sat 8/8/20	Mon 27/7/20	Sat 8/8/20		256,260	0 days		100%
256	CIW-1511b		Uncharted cables found near MTRCL track and identification			0 days	NA	NA	1 day	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20			0 days		100%
257	CIW-1511c		Excavation of trial pit near MHD9.5			0 days	NA	NA	5 days	Fri 19/6/20	Wed 24/6/20	Fri 19/6/20	Wed 24/6/20		258	0 days		100%
258	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		259	0 days		100%
259	CIW-1511e		Excavation of Trial Pits near Manhole MHA04 and MH09	040		0 days	NA	NA	60 days	Fri 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20			0 days		100%
260	CIW-1511f		Additional Trial Pit between MHD9.5 and MHA04	040		0 days	NA	NA	25 days	Fri 21/8/20	Fri 18/9/20	Fri 21/8/20	Fri 18/9/20			0 days		100%
261	CIW-1511g		Sheetpile installation for MHD9.5			0 days	NA	NA	38 days	Fri 1/9/20	Fri 16/10/20	Fri 16/10/20	Fri 16/10/20			0 days		100%
262	CIW-1511h		Sheetpile installation between MHD9.5 & MHA04			0 days	NA	NA	25 days	Tue 8/9/20	Thu 8/10/20	Tue 8/9/20	Thu 8/10/20			0 days		100%
263	CIW-1511i		LUU supporting & ELS works& excavatub between MHD9.5 & MHA04			0 days	NA	NA	73 days	Wed 7/10/20	Mon 4/1/21	Wed 7/10/20	Mon 4/1/21			0 days		100%
264	CIW-1511j		Unsuit excavated material from MHD9.5 to MHA04		261	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%
265	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			0 days		100%
266	CIW-1511l		Break up opening and plugging existing concrete pipe at MHD9.5			0 days	NA	NA	6 days	Mon 18/1/21	Sat 23/1/21	Mon 18/1/21	Sat 23/1/21			0 days		100%
267	CIW-1511m		Trimming existing concrete pipe at MHD9.5			0 days	NA	NA	13 days	Fri 22/1/21	Fri 5/2/21	Fri 22/1/21	Fri 5/2/21			0 days		100%
268	CIW-1511n		Construction of manhole MHD9.5			0 days	NA	NA	49 days	Sat 6/2/21	Sat 10/4/21	Sat 6/2/21	Sat 10/4/21			0 days		100%
269	CIW-1511o		Additional work to prevent backflow from MH11 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%
270	CIW-1511p		Sewage overflow incident of MHD11	(180)		0 days	NA	NA	9 days	Sat 13/2/21	Thu 25/2/21	Sat 13/2/21	Thu 25/2/21			0 days		100%
271	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		272,273	0 days		100%
272	CIW-1513		Breaking of concrete surround of cables (0.8m x 0.8m x 70m) (NCE)			0 days	NA	NA	24 days	Tue 8/9/20	Wed 7/10/20	Tue 8/9/20	Wed 7/10/20			0 days		100%
273	CIW-1514	KD1B	Construction of tank drain along revised alignment w/ concrete surround		051	0 days	NA	NA	10 days	Tue 5/1/21	Fri 15/1/21	Tue 5/1/21	Fri 15/1/21		271	0 days		100%
274	CIW-1516		Backfilling trench between MHD9.5 & MHA04			0 days	NA	NA	20 days	Sat 16/1/21	Mon 8/2/21	Sat 16/1/21	Mon 8/2/21			0 days		100%
275	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		96%
276	CIW-1520a		Excavation of trial pit and identification of connection point		351	0 days	NA	NA	103 days	Mon 11/5/20	Wed 9/9/20	Mon 11/5/20	Wed 9/9/20		277	0 days		100%
277	CIW-1520b		Trench excavation for twin DN250 sludge pipe, on hold due to encounter of uncharted sludge pipe		351	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		276	0 days		100%
278	CIW-1520c		Additional hole drilling works and identification of connection point			0 days	NA	NA	53 days	Mon 20/7/20	Mon 20/7/20	Mon 20/7/20	Mon 20/7/20		277	0 days		100%
279	CIW-1520d		Temporary diversion of substandard DI 250 Leachate raising main		202	0 days	NA	NA	127 days	Tue 20/10/20	Wed 24/3/21	Tue 20/10/20	Wed 24/3/21		228	0 days		100%
280	CIW-1520e		Protection work for substandard DI 500 tank drain Pipe (near MHD 9.5)		302	0 days	NA	NA	93 days	Wed 18/11/20	Fri 12/3/21	Wed 18/11/20	Fri 12/3/21		228	0 days		100%
281	CIW-1520f		Encounter of uncharted concrete pipe within sheetpile cofferdam at MHA04			0 days	NA	NA	2 days	Tue 10/11/20	Wed 11/11/20	Tue 10/11/20	Wed 11/11/20		282	0 days		100%
282	CIW-1520g		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	281	307,44FF	-36 days		91%
283	CIW-1530		Diversion of Leachate Raising Main			60 days	Tue 21/4/20	Fri 3/7/20	60 days	Tue 14/9/21	Thu 25/11/21	NA	NA	241		-135 days		0%
284	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	570 days	Tue 26/11/19	Thu 28/10/21	Tue 26/11/19	NA			0 days		55%
285	CIW-1610		Trench Excavation from MH MHD1E to MHD6 (approx. 90m long with MHS MHD1A, 1B, 1C, 1D & 1E) - resigned		87	60 days	Thu 6/2/20	Mon 20/4/20	0 days	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19			0 days		100%
286	CIW-1620		Manholes construction and Pipe laying - omitted		87	60 days	Mon 30/3/20	Sat 13/6/20	0 days	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20		286	0 days		100%
287	CIW-1621		Temporary Diversion of Existing DN200 Filtrate Raising Main		034	0 days	NA	NA	20 days	Sat 1/8/20	Mon 24/8/20	Sat 1/8/20	Mon 24/8/20		288	0 days		100%
288	CIW-1623		Pipeline Diversion Works near Primary Sludge Thickening Tank		(114)	0 days	NA	NA	30 days	Fri 16/4/21	Sat 22/5/21	Fri 16/4/21	Sat 22/5/21		287	0 days		100%
289	CIW-1625		Uncharted underground utilities near Proposed MHD5B		0260	0 days	NA	NA	26 days	Mon 24/5/21	Wed 23/6/21	Mon 24/5/21	Wed 23/6/21		288,293	0 days		100%
290	CIW-1630		Trench Excavation from MH (approx. 90m long with MHS M1A to M3B)			60 days	Tue 21/4/20	Fri 3/7/20	32 days	Thu 19/3/20	Thu 19/3/20	Thu 19/3/20	Wed 29/4/20		291,292	0 days		100%
291	CIW-1640		Manholes construction (M1A, M1B, M2B, M3B) and Pipe laying			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		286,292	0 days		100%
292	CIW-1650		Trench Excavation from MHD5 to MHD9.5 (approx. 90m long with MHS MHD5A & 5B)		(114)	50 days	Thu 16/7/20	Fri 11/9/20	60 days	Wed 2/9/20	Wed 30/12/20	Wed 2/9/20	Wed 30/12/20		290,296,301,303,305	0 days		100%
293	CIW-1660		Provision of Pumping System from Screen to Flume Channel		87	0 days	NA	NA	287 days	Tue 10/11/20	Thu 28/10/21	Tue 10/11/20	NA	289	294	-111 days		75%
294	CIW-1670		Manholes construction (MHD5A, MHD5B, MHD5C) and Pipe laying			45 days	Sat 23/5/20	Thu 16/7/20	293 days	Thu 3/11/20	Thu 28/10/21	Thu 3/11/20	NA	293	44FF	-111 days		8%
295	CIW-2000		Decommission and Demolition of Existing Facilities and Structures			240 days	Mon 2/3/20	Fri 18/12/20	222 days	Thu 19/3/20	Tue 15/12/20	Thu 19/3/20	Tue 15/12/20		6,122,160	0 days		100%
296	CIW-2100		Primary Sludge Thickening Tank No.1 and No.2			80 days	Mon 2/3/20	Thu 9/6/20	222 days	Thu 19/3/20	Tue 15/12/20	Thu 19/3/20	Tue 15/12/20		292	0 days		100%
297	CIW-2101		Additional Works for Temporary Diversion of Bypass Pipe near Primary Sludge Thickeners			0 days	NA	NA	45 days	Thu 19/3/20	Thu 19/3/20	Thu 19/3/20	Sun 17/5/20			0 days		100%
298	CIW-2110		Removal of E&M equipment of primary sludge thickening tank			0 days	NA	NA	1 day	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20		299	0 days		100%
299	CIW-2120		Decommission and Demolition the tank			80 days	Mon 2/3/20	Tue 9/6/20	150 days	Thu 18/6/20	Tue 15/12/20	Thu 18/6/20	Tue 15/12/20		298	0 days		100%
300	CIW-2130		Demolition of structure no.2			0 days	NA	NA	24 days	Mon 18/5/20	Mon 22/6/20	Mon 18/5/20	Mon 22/6/20			0 days		100%
301	CIW-2200		Primary Sludge Pump Pit			60 days	Wed 10/6/20	Thu 20/8/20	18 days	Wed 22/7/20	Tue 11/8/20	Wed 22/7/20	Tue 11/8/20		299,300,304	0 days		100%
302	CIW-2300		Septic Tank			50 days	Fri 21/8/20	Tue 20/10/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		301	0 days		100%
303	CIW-2400		Diesel Tank			50 days	Wed 21/10/20	Fri 18/12/20	53 days	Thu 2/7/20	Tue 1/9/20	Thu 2/7/20	Tue 1/9/20		292	0 days		100%
304	CIW-2410		Transfers of Remaining Diesel Fuel of Existing Diesel Tank			0 days	NA	NA	15 days	Thu 2/7/20	Thu 2/7/20	Thu 2/7/20	Tue 21/7/20		305	0 days		100%
305	CIW-2420		Demolition of diesel tank			50 days	Wed 21/10/20	Fri 18/12/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		304	0 days		100%
306	CIW-3000		Inlet Works No.1 Building (1)			569 days	Sat 19/12/20	Mon 21/11/22	747 days	Wed 15/9/20	Thu 23/3/23	Tue 15/9/20	NA			748 days		18%
307	CIW-3100		Predrilling (10hrs, 1trigs, 2.5days/drillhole/riq) - stage 1			40 days	Mon 4/1/21	Mon 22/2/21	28 days	Tue 15/9/20	Mon 19/10/20	Tue 15/9/20	Mon 19/10/20		248,250,273,228,282	0 days	1	100%
308	CIW-3100a		Predrilling (22hrs, 1trigs, 2.5days/drillhole/riq) - stage 2			0 days	NA	NA	60 days	Tue 8/12/20	Mon 22/2/21	Tue 8/12/20	Mon 22/2/21			0 days		100%
309	CIW-3200		Pre-bored H piles (188nos, 1.8trigs, 2days/riq/pile)			133 days	Tue 23/2/21	Wed 4/8/21	210 days	Fri 19/2/21	Tue 2/11/21	Fri 19/2/21	NA	228,132	310SS+150 days,311	-34 days	5	63%
310	CIW-3400a		Pile Load Test at stage 1			26 days	Thu 5/8/21	Fri 3/9/21	21 days	Sat 21/8/21	Tue 14/9/21	NA	NA	309SS+150 days	312	83 days		0%
311																		

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	
342	CPS-3000		Predrilling (63mrs, 3rigs, 3days/drillhole/ri)			38 days	Thu 10/2/22	Fri 25/3/22	38 days	Fri 15/10/21	Sat 27/11/21	NA	NA	127,452,339,340	343	-62 days	1	0%	
343	CPS-4000		Pre-bored H piles (205nos, 2.5rigs, 2days/pile/ri)			102 days	Sat 26/3/22	Mon 18/8/22	164 days	Mon 29/11/21	Wed 22/6/22	NA	NA	132,453,341,342	344	-62 days	5	0%	
344	CPS-5000		Sheetpile Installation (FSP-II, 3360sq.m, 3rigs, 50sqm/ri/day)			85 days	Wed 25/5/22	Fri 2/9/22	42 days	Thu 5/5/22	Fri 24/6/22	NA	NA	343,345,346,347	345	-62 days	0	0%	
345	CPS-6000		Pile Load Test			26 days	Tue 28/2/22	Wed 23/6/22	26 days	Thu 23/6/22	Sat 23/7/22	NA	NA	NA	346	0 days	0	0%	
346	CPS-7000		ELS works (20000cu.m soil with 2 layers walling / strutting)			45 days	Sat 3/9/22	Fri 28/10/22	60 days	Mon 25/7/22	Wed 6/10/22	NA	NA	343,135,345,344	347	0 days	3	0%	
347	CPS-7900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 7/7/22	Thu 7/7/22	NA	NA	NA	348	186 days	0	0%	
348	CPS-8000	KD1D	R.C. Structure works (including ELS demolition works)			92 days	Sat 29/10/22	Mon 20/2/23	112 days	Thu 6/10/22	Mon 20/2/23	NA	NA	137,346,347,348,349	349	0 days	3	0%	
349	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	NA	349,350,45FF,351FF	45FF	0 days	0	0%
350	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	NA	348,189,141	56FF	139 days	0	0%
351	CPS-11000	KD1D	Flowmeter Chamber no.1			60 days	Tue 21/2/23	Sat 6/5/23	60 days	Tue 6/12/22	Mon 20/2/23	NA	NA	NA	348,349	45FF,333FF	0 days	0	0%
352	CPS-12000	SW2	Process Pipe CHG change 0-50, CHH change 0-80, CHI change 0-95 & CHJ change 0-40 and surrounding utilities			0 days	NA	NA	100 days	Wed 8/6/22	Thu 6/10/22	NA	NA	NA	344,345,347 days	57FF,555	-62 days	0	0%
353	CBR-0000		Bioreactors No.2A & 2B, B-4 (3)			1106 days	Mon 18/11/19	Sat 12/8/23	1194 days	Mon 18/11/19	Mon 27/11/23	Mon 18/11/19	NA 9			546 days		38%	
354	CBR-1000		Operation of 2no. Existing 800mm air mains over bioreactor no.2			360 days	Mon 18/11/19	Wed 11/11/20	292 days	Mon 18/11/19	Wed 11/11/20	Mon 18/11/19	Wed 11/11/20	NA	NA	0 days	0	100%	
355	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	144	365	0 days	0	100%	
356	CBR-4100		Take Down E&M Equipment & cables in Bioreactor BR2 and Return to DSD		95	0 days	NA	NA	90 days	Thu 15/10/20	Mon 1/2/21	Thu 15/10/20	Mon 1/2/21	366	366	0 days	0	100%	
357	CBR-4200		Installation of monitoring points before demolition of BR2		219	0 days	NA	NA	5 days	Wed 27/1/21	Mon 1/2/21	Wed 27/1/21	Mon 1/2/21	363	358	0 days	0	100%	
358	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	357	366	0 days	0	100%	
359	CBR-5000		Demolition of existing bioreactor no.2			60 days	Wed 3/2/21	Tue 20/4/21	98 days	Tue 10/11/20	Wed 10/3/21	Tue 10/11/20	Wed 10/3/21	122,162		0 days		100%	
360	CBR-5100		Identification and removal of existing cables on air main pipe bridge		210	0 days	NA	NA	35 days	Tue 10/11/20	Sat 19/12/20	Tue 10/11/20	Sat 19/12/20	361,365	361,365	0 days	0	100%	
361	CBR-5300		Plugging and demolition of existing DN800 air main			0 days	NA	NA	5 days	Mon 28/12/20	Sat 2/1/21	Mon 28/12/20	Sat 2/1/21	360	366	0 days	0	100%	
362	CBR-5200		Division of existing lighting cable and Earthing ducts, stage 1		264	0 days	NA	NA	43 days	Fri 4/12/20	Fri 4/12/20	Tue 26/1/21	Fri 4/12/20	363	366	0 days	0	100%	
363	CBR-5400		Overflow incident from BR1 to BR2 works area no.1 (Dec 2020)		285	0 days	NA	NA	33 days	Fri 18/12/20	Thu 28/1/21	Fri 18/12/20	Thu 28/1/21	364	357,362	0 days	0	100%	
364	CBR-5410		Overflow incident from BR1 to BR2 works area (Feb 2021)		340	0 days	NA	NA	8 days	Tue 16/2/21	Wed 24/2/21	Tue 16/2/21	Wed 24/2/21	365	366,363	0 days	0	100%	
365	CBR-3000		Construction of Isolation Wall & stoplog in common channel of BR2 & BR3		277	0 days	NA	NA	43 days	Sat 16/1/21	Wed 10/3/21	Sat 16/1/21	Wed 10/3/21	355,360	364	0 days	0	100%	
366	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	362,358,364,356	367,358,368	0 days	0	100%	
367	CBR-5520		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	366,358	368	0 days	0	100%	
368	CBR-5900		Construction of precautionary measures (i.e. isolation wall)		322	0 days	NA	NA	2 days	Tue 9/3/21	Wed 10/3/21	Tue 9/3/21	Wed 10/3/21	366,367	369,371	0 days	0	100%	
369	CBR-5905		Construction of precautionary measures (i.e. bund wall)		305	0 days	NA	NA	3 days	Thu 15/4/21	Sat 17/4/21	Thu 15/4/21	Sat 17/4/21	368	368	0 days	0	100%	
370	CBR-5910		Removal of abandoned DN250 air pipe		209	0 days	NA	NA	6 days	Tue 20/4/21	Mon 26/4/21	Tue 20/4/21	Mon 26/4/21	368	368	0 days	0	100%	
371	CBR-6000		Predrilling (33mrs, 3rigs, 2days/drillhole/ri), stage 1			44 days	Wed 21/4/21	Sat 12/6/21	44 days	Mon 1/3/21	Wed 5/5/21	Mon 1/3/21	Wed 5/5/21	368	372	0 days	1	100%	
372	CBR-7000		Pre-bored H piles (113nos, 2rigs, 2days/pile/ri), stage 1			113 days	Thu 15/6/21	Thu 18/11/21	113 days	Thu 6/5/21	Fri 17/9/21	Thu 6/5/21	NA	371	382,355+30 days,377,355+45 days,381	5	41%		
373	CBR-7100		External works between BR2 and MFB2			0 days	NA	NA	217 days	Wed 30/6/21	Mon 21/3/22	Wed 30/6/21	NA			1046 days		9%	
374	CBR-7110		DN700 (CHER)RAS diversion			0 days	NA	NA	45 days	Wed 30/6/21	Sat 21/8/21	Wed 30/6/21	Sat 21/8/21	375	375	1212 days	2%	0%	
375	CBR-7120		Temporary vehicle diversion for RAS operation			0 days	NA	NA	6 days	Mon 23/8/21	Sat 28/8/21	Mon 23/8/21	NA	374	374	1212 days	0%	0%	
376	CBR-7130		DN600 Temporary Sewage diversion			0 days	NA	NA	120 days	Wed 30/6/21	Sat 10/11/21	Wed 30/6/21	NA			-45 days		18%	
377	CBR-7131		2nos. Manhole Construction (MHTD1 and MHTD2)		204, 353	0 days	NA	NA	75 days	Wed 30/6/21	Mon 27/9/21	Wed 30/6/21	NA	375,355+45 days	378,375-30 days	-88 days	0	36%	
378	CBR-7132		Existing DN600 tank drain diversion		204, 353	45 days	NA	NA	75 days	Mon 23/8/21	Sat 20/11/21	NA	NA	377,375-30 days	379	-88 days	0	0%	
379	CBR-7140		Demolition of abandoned DN600 pipe and existing surrounded wall & channel of BR2		353, 336	30 days	NA	NA	45 days	Mon 22/11/21	Sat 15/1/22	NA	NA	378	380	-88 days	0	0%	
380	CBR-7150		Pre-drilling(3nr.) & Pre-bored H piles (20mrs, 1rig, 2days/drillhole/ri), stage 2A			26 days	NA	NA	26 days	Mon 17/1/22	Fri 18/2/22	NA	NA	379	381	-88 days	0	0%	
381	CBR-7160		Pile load test			26 days	NA	NA	26 days	Sat 19/2/22	Mon 21/3/22	NA	NA	380,386	389,388	-88 days	0	0%	
382	CBR-7200		External works between BR2 and PST			0 days	NA	NA	141 days	Wed 30/6/21	Wed 15/12/21	Wed 30/6/21	NA	372,355-30 days		-38 days		19%	
383	CBR-7210		Demolition of existing DN1200, DN900 and DN500 pipe (w/ ELS works)		91	0 days	NA	NA	75 days	Wed 30/6/21	Mon 27/9/21	Wed 30/6/21	NA	372,355+45 days	384	-38 days	0	36%	
384	CBR-7220		Division of existing lighting cable and Earthing ducts (w/ ELS)		264	0 days	NA	NA	30 days	Tue 28/9/21	Wed 3/11/21	NA	NA	383	385	-38 days	0	0%	
385	CBR-7230		Demolition of existing side wall		336	0 days	NA	NA	12 days	Thu 4/11/21	Wed 17/11/21	NA	NA	384	386	-38 days	0	0%	
386	CBR-7240		Pre-bored H piles (24mrs, 2rig, 2days/drillhole/ri), stage 2B			24 days	NA	NA	24 days	Thu 18/11/21	Wed 15/12/21	NA	NA	385	381	-38 days	0	0%	
387	CBR-7340		Demolition of existing side wall between BR2 & BR3 and base slab			0 days	NA	NA	60 days	Sat 18/9/21	Tue 30/11/21	NA	NA	372	388	1 day	0	0%	
388	CBR-8000		Sheetpile Installation (3000sq.m, 1rigs, 50sqm/ri/day)			60 days	Wed 9/9/21	Fri 19/11/21	60 days	Tue 22/3/22	Tue 7/6/22	NA	NA	381,387	389	-88 days	0	0%	
389	CBR-10000		ELS works (18100cu.m soil with 4 layers walling / strutting)			125 days	Mon 20/12/21	Sat 27/5/22	80 days	Wed 8/6/22	Fri 9/9/22	NA	NA	135,381,388	391,390FF,3 emons,399,355+46 days	391,355	3	0%	
390	CBR-10900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Sat 11/6/22	Sat 11/6/22	NA	NA	389,393	391,355	168 days	0	0%	
391	CBR-11000	KD1E	R.C. Structure works (including ELS demolition works)			180 days	Sat 28/5/22	Sat 31/12/22	180 days	Sat 10/9/22	Sat 22/4/23	NA	NA	138,188,187,190,188,389,390,355-3 emons	398,46FF,397,393FF,394,355+25 da	46FF	5	0%	
392	CBR-11000	KD1E	Process Pipe CHQ change 65-140			0 days	NA	NA	60 days	Wed 8/2/23	Sat 22/4/23	NA	NA	391,391	46FF	-88 days	0	0%	
393	CBR-11020	KD1E	Additional backfill works after end wall construction at BR2 common channel		277	0 days	NA	NA	30 days	Wed 15/3/23	Sat 22/4/23	NA	NA	391,391	46FF	-88 days	0	0%	
394	CBR-13000	KD1E	Flowmeter no. 2,4			180 days	2023/1/3	2023/8/12	60 days	Thu 10/1/22	Wed 21/12/22	NA	NA	391,355+25 days	395,395-13 days	-88 days	0	0%	
395	CBR-14000	KD1E	Gate Valve Chamber no.1-3			180 days	2023/1/3	2023/8/12	60 days	Wed 7/12/22	Tue 21/2/23	NA	NA	394,395-13 days	395,395-12 days	-88 days	0	0%	
396	CBR-15000	KD1E	Plug Valve Chamber no.1-2			180 days	2023/1/3	2023/8/12	60 days	Wed 8/2/23	Sat 22/4/23	NA	NA	395,395-12 days	46FF	-88 days	0	0%	
397	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	Sat 22/4/23	Sat 22/4/23	NA	NA	391	46FF	-88 days	0	0%	
398	CBR-16000	SW1	ABWF works + BS works			180 days	Tue 3/1/23	Sat 12/8/23	180 days	Mon 24/4/23	Mon 27/11/23	NA	NA	391,189,141	56FF	60 days	0	0%	
399	CBR-17000	SW2	Process Pipe CHQ change 65-170, CHP change 60-130, CHL change 0-35 & CHK change 0-50 and surrounding utilities			0 days	NA	NA	80 days	Tue 8/8/22	Sat 5/11/22	NA	NA	389,355+46 days	57FF,555	-88 days</			

ID	Activity ID	Key Date	Task Name	Inherent Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
435	CSA-1000		Additional Preliminary Works			0 days	NA	NA	330 days	Tue 9/6/20	Mon 19/7/21	Tue 9/6/20	NA			1247 days		98%
436	CSA-1020		Expose and abandon existing electric cable & trial pits		78	0 days	NA	NA	39 days	Mon 17/8/20	Wed 30/9/20	Mon 17/8/20	Wed 30/9/20			0 days		100%
437	CSA-1030		Installation of standpipes		71	0 days	NA	NA	13 days	Mon 14/9/20	Mon 28/9/20	Mon 14/9/20	Mon 28/9/20			0 days		100%
438	CSA-1100		Diversion of Existing SAS Raising Main near SAS Pumping Station		68, 75, 76	0 days	NA	NA	170 days	Tue 9/6/20	Thu 31/12/20	Tue 9/6/20	Thu 31/12/20			0 days		100%
439	CSA-1200		Decommission of existing power and signal systems in leachate pump station switch room		312, 309, 310	0 days	NA	NA	58 days	Mon 21/9/20	Mon 30/11/20	Mon 21/9/20	Mon 30/11/20	146	453	0 days		100%
440	CSA-1300		Construction of Cable Trough for CLP 11kV Cable Diversion		75, 76, 77, 161	0 days	NA	NA	54 days	Mon 19/10/20	Mon 21/12/20	Mon 19/10/20	Mon 21/12/20		453	0 days		100%
441	CSA-1400		Demolition of Existing Pillar box and its concrete plinth		144, 212, 3/30	0 days	NA	NA	63 days	Wed 12/8/20	Sat 14/11/20	Wed 12/8/20	Sat 14/11/20	149	453	0 days		100%
442	CSA-1500		Excavation to locate existing underground cable near SAS Pump Station		78	0 days	NA	NA	59 days	Wed 17/6/20	Sat 21/11/20	Wed 17/6/20	Sat 21/11/20		453	0 days		100%
443	CSA-1600		Diversion of Existing DN80 Permeate Raising Main near SAS Pumping station		89	0 days	NA	NA	72 days	Tue 6/10/20	Thu 31/12/20	Tue 6/10/20	Thu 31/12/20		453	0 days		100%
444	CSA-1800		Trench Excavation near SAS for CLP diversion of 11kV cable		309, 310	0 days	NA	NA	53 days	Mon 12/10/20	Sat 12/12/20	Mon 12/10/20	Sat 12/12/20		453	0 days		100%
445	CSA-1700		Relocation of Oil Interceptor Near Existing Compressor House		144, 212, 3/70	0 days	NA	NA	50 days	Mon 9/11/20	Fri 8/1/21	Mon 9/11/20	Fri 8/1/21		453	0 days		100%
446	CSA-1900		Diversion of existing system sewerage		212, 309, 3183	0 days	NA	NA	36 days	Wed 13/1/21	Fri 26/2/21	Wed 13/1/21	Fri 26/2/21	151	455,453,447	0 days		100%
447	CSA-1910		Diversion of existing copper pipe near proposed SAS pumping station		309, 310	0 days	NA	NA	61 days	Mon 19/10/20	Thu 31/12/20	Mon 19/10/20	Thu 31/12/20	446	453	0 days		100%
448	CSA-1920		Pipeline of proposed SAS Pumping Station - 13 nos. of puddles		221	0 days	NA	NA	180 days	Mon 7/12/20	Mon 19/7/21	Mon 7/12/20	Mon 19/7/21			1247 days		92%
449	CSA-1930		Additional DN150 Raising main for SAS		220/69	0 days	NA	NA	15 days	Wed 21/2/20	Fri 18/12/20	Wed 21/2/20	Fri 18/12/20			0 days		100%
450	CSA-1940		Additional DN90 PE pipe diversion		89	0 days	NA	NA	7 days	Fri 11/12/20	Fri 18/12/20	Fri 11/12/20	Fri 18/12/20			0 days		100%
451	CSA-1970		Additional diversion of existing sludge rising main and sewerage system		81	0 days	NA	NA	15 days	Thu 21/1/21	Sat 6/2/21	Thu 21/1/21	Sat 6/2/21			0 days		100%
452	CSA-2000		Predrilling (4hrs, 1rig, 4days/drillhole/rig)		68	16 days	Wed 20/5/20	Sat 6/6/20	7 days	Sat 18/4/20	Sat 25/4/20	Sat 18/4/20	Sat 25/4/20	127	342,453	0 days		100%
453	CSA-3000		Pre-bored H piles (12nos, 1rigs, 4days/pile/rig)			60 days	Mon 8/6/20	Tue 18/8/20	19 days	Mon 4/1/21	Mon 25/1/21	Mon 4/1/21	Mon 25/1/21	132,452,148,438,439,441,442,443,445,444,343,454		2	0 days	100%
454	CSA-4000		Pile Load Test			21 days	Wed 19/8/20	Tue 17/9/20	22 days	Fri 19/3/21	Tue 23/2/21	Fri 19/3/21	Tue 23/2/21	453	456,455	0 days		100%
455	CSA-5000		Sheetpile Installation (FSP-II, 690sq.m, 40sqm/day)			28 days	Wed 19/8/20	Sat 19/9/20	28 days	Thu 30/3/21	Wed 5/5/21	Tue 30/3/21	Wed 5/5/21	133,454,446	456	0 days		100%
456	CSA-6000		ELS works (1300cu.m soil with 2 layers walling / strutting)			75 days	Mon 21/9/20	Wed 19/2/20	75 days	Thu 6/5/21	Wed 4/8/21	Thu 6/5/21	Wed 4/8/21	NA,455,135,454	458,457FF-3 emons	-121 days	2	96%
457	CSA-6900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	456FF-3 emons	458SS-3 emons	0 days		100%
458	CSA-7000	KD1H	R.C. Structure works (including ELS demolition works)			186 days	Mon 21/12/20	Mon 9/8/21	186 days	Thu 5/8/21	Sat 19/3/22	Thu 5/8/21	Sat 19/3/22	NA,456,457SS-3 emons	459,460,49FF	-121 days	5	0%
459	CSA-8000	KD1H	Allow access to Contractor DE/2018/03 for E&M installation and T&C works			0 days	Mon 9/8/21	Mon 9/8/21	0 days	Sat 19/3/22	Sat 19/3/22	NA	NA	458	49FF	-121 days		0%
460	CSA-9000	SW1	ABWF works + BS works			90 days	Tue 10/8/21	Thu 25/11/21	90 days	Thu 14/6/22	Wed 28/9/22	Thu 14/6/22	Wed 28/9/22	NA	458,189,141,522SS	56FF	405 days	0%
461	CAS-0000		Ancillary Structures, B-7			503 days	Mon 7/9/20	Sat 21/5/22	420 days	Mon 3/5/21	Wed 28/9/22	Mon 3/5/21	NA	12		891 days		7%
462	CAS-1000		Demolition of Existing Faciliates and Structures (leachate pump pit & pumping station)			120 days	Mon 7/9/20	Sat 30/1/21	120 days	Mon 3/5/21	Thu 23/9/21	Mon 3/5/21	NA	122,160,162	497	48 days		41%
463	CFS-1000		Fire Services Sprinkler Pumping Room & Emergency Generator House (9)(10)**		301	220 days	Sat 10/4/21	Sun 3/1/21	419 days	Tue 4/5/21	Wed 28/9/22	Tue 4/5/21	NA	NA		405 days		14%
464	CFS-1000		Water Sampling and Testing for existing effluent pump pit		384	0 days	NA	NA	12 days	Tue 4/5/21	Mon 17/5/21	Tue 4/5/21	Mon 17/5/21		465	0 days		100%
465	CFS-1150		Identification, decommission and demolition of the existing kloak		86	0 days	NA	NA	26 days	Tue 18/5/21	Fri 18/6/21	Tue 18/5/21	Fri 18/6/21	464	466,479	0 days		100%
466	CFS-1100		Provision of Flowmeter chamber, gate valve chamber and associated sewerage		85	0 days	NA	NA	90 days	Sat 19/6/21	Tue 5/10/21	Sat 19/6/21	NA	465	467,469FF	-101 days		40%
467	CFS-1200		Decommission and demolition of the existing pump pit and associated sewerage manholes and pipes		86	0 days	NA	NA	40 days	Wed 6/10/21	Mon 22/11/21	NA	NA	466	470	-101 days		0%
468	CFS-1250		Diversion of Leachate Raising Main near SSSH		241	0 days	NA	NA	18 days	Wed 28/7/21	Wed 18/8/21	NA	NA	469SF	480	18 days		0%
469	CFS-1300		E&M provision of flowmeter chamber and associated sewerage for effluent and sewage from SSSH		256	0 days	NA	NA	40 days	Wed 18/8/21	Tue 5/10/21	NA	NA	466FF	470,468SF	-61 days		0%
470	CFS-2000		Excavation for Raft Footing (800cu.m)			65 days	NA	NA	44 days	Tue 23/11/21	Sat 15/1/22	NA	NA	469,467	471	-101 days		0%
471	CFS-2800		Plate load test at bottom level of compacted general fill(2no.)			12 days	NA	NA	7 days	Mon 17/1/22	Mon 24/1/22	NA	NA	470	472	-101 days		0%
472	CFS-2900		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Mon 24/1/22	Mon 7/3/22	NA	NA	471	473	-124.42 edays		0%
473	CFS-3000		Plate load test at bottom level of base slab (3no.)			28 days	Fri 4/6/21	Mon 21/6/21	7 days	Tue 8/3/22	Tue 15/3/22	NA	NA	472	474FF-3 emons,475	-101 days		0%
474	CFS-3900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Tue 23/11/21	Tue 23/11/21	NA	NA	473FF-3 emons	475SS-3 emons	59 days		0%
475	CFS-4000	KD1J	R.C. structure works			120 days	NA	NA	70 days	Wed 16/3/22	Mon 13/6/22	NA	NA	473,474SS-3 emons	477,476,51FF,521FF,520FF	-101 days	2	0%
476	CFS-5000	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Mon 13/9/21	Mon 13/9/21	0 days	Mon 13/6/22	Mon 13/6/22	NA	NA	475	51FF	-101 days		0%
477	CFS-6000	SW1	ABWF works + BS works			90 days	Tue 14/9/21	Mon 3/1/22	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	475	56FF	405 days		0%
478	CCS-1000		Chemical System No.1 (8)*			168 days	Mon 1/2/21	Thu 26/8/21	386 days	Sat 12/6/21	Wed 28/9/22	Sat 12/6/21	NA	NA		891 days		4%
479	CCS-1310		Demolition of SSSH Pump Pit and Associated Sewerage System		086	0 days	NA	NA	26 days	Sat 19/6/21	Tue 20/7/21	Sat 19/6/21	NA	465	481	54 days		38%
480	CCS-1110		Removal of existing Leachate Raising Main near SSSH		241	0 days	NA	NA	12 days	Wed 18/8/21	Tue 31/8/21	NA	NA	468	481	18 days		0%
481	CCS-1100		Excavation for Raft Footing (200cu.m)			10 days	Mon 1/2/21	Thu 11/2/21	10 days	Mon 1/9/21	Sat 11/9/21	NA	NA	480,479	485FF-3 emons,486,482	18 days		0%
482	CCS-1080		Plate load test at bottom level of compacted general fill(2no.)			9 days	NA	NA	9 days	Mon 13/9/21	Thu 23/9/21	NA	NA	481	483	18 days		0%
483	CCS-1090		Soil Replacement (10 layers SRT)			0 days	NA	NA	30 edays	Thu 23/9/21	Sat 23/10/21	NA	NA	482	484	23.58 edays		0%
484	CCS-1200		Plate load test at bottom level of base slab (1no.)			5 days	Tue 16/2/21	Wed 3/3/21	5 days	Mon 25/10/21	Fri 29/10/21	NA	NA	483	486,493	19 days		0%
485	CCS-1190		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	481FF-3 emons	486SS-3 emons	0 days		100%
486	CCS-1300	KD1J	R.C. structure works			45 days	Mon 15/3/21	Mon 10/5/21	60 days	Sat 30/10/21	Tue 11/1/22	NA	NA	481,485SS-3 emons,484	51FF,488,487	20 days	2	0%
487	CCS-1400	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works			0 days	Mon 10/5/21	Mon 10/5/21	0 days	Tue 11/1/22	Tue 11/1/22	NA	NA	486	51FF	20 days		0%
488	CCS-1500	SW1	ABWF works + BS works			90 days	Tue 11/5/21	Thu 26/8/21	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	189,141,486,522SS	56FF	405 days		0%
489	CDS-0000		Deodorization System No.3A (7)*			149 days	Tue 16/11/21	Sat 21/5/22	105 days	Thu 5/8/21	Wed 8/12/21	NA	NA	NA	NA	90 days		0%
490	CDS-2000		Excavation for Raft Footing (400cu.m)			20 days	Tue 16/11/21	Wed 8/12/21	20 days	Sat 14/8/21	Tue 7/9/21	NA	NA	491SF		1205 days		0%
491	CDS-2008		Plate load test at bottom level of compacted general fill(2no.)			10 days	NA	NA	10 days	Tue 7/9/21	Sat 18/9/21	NA	NA	492SF	490SF	1195 days		0%
492	CDS-2100		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Sat 18/9/21	Sat 30/10/21	NA	NA	493SF	491SF	1425.42 edays		0%
493	CDS-3000		Plate load test at bottom level of base slab (1no.)			4 days	Thu 9/12/21	Fri 24/12/21	4 days	Sat 30/10/21	Wed 3/11/21	NA	NA	484	494FF-3 emons,495,492SF,500FS	19 days		0%
494	CDS-3900		Receiving of Civil Requirements from PM			0 days												

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
532	CAA-1000	KD2B	B-8A Alternation 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	246 days	Mon 1/6/20	Fri 26/3/21	Mon 1/6/20	Fri 26/3/21	15,142,184	53FF	0 days		100%
533	CAA-1100		Change of pipe bridge design		(057)	0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
534	CAA-1200		Additional inspection pit to verify the connection point to existing (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
535	CAA-1300		Additional MBV installation (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
536	CAA-1400		Alternation 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	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
537	CAA-1500	KD2B	Re-alignmnet of DN800 Temporary Air Main (CHTA) and Provision of FRP Staircases		064	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
538	CAA-1600	KD2B	Elevated Section of DN800 Temporary Air Main (CHTA) across existing Bioreactor's Distribution Chamber No. 2		062	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF,539	0 days		100%
539	CAA-2000	KD11	B7-A Alternation works for existing Power House			122 days	Fri 4/9/20	Sat 30/1/21	0 days	Wed 11/11/20	Fri 29/1/21	Wed 11/11/20	Fri 29/1/21	13FS-1 day,122,160,162,176,538	50FF,540FS+356 days	0 days		100%
540	CAA-2100	SW3	Additional works for Power House		224	0 days	NA	NA	60 days	Thu 14/4/22	Wed 29/6/22	NA	NA	539FS-356 days	58FF	570 days		0%
541	CAA-3000	SW3	Alternation 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,175	58FF	269 days		0%
542	CUU-0000	*	External Underground Service, Utilities, Road/Drain			1091 days	Mon 24/2/20	Sat 28/10/23	1192 days	Mon 27/4/20	Mon 13/5/24	Mon 27/4/20	NA	16		-88 days		46%
543	CUU-1000	KD2A	Process Pipes CHR and CHS (approx. 93m twin DN900 D.I.)		33, 222, 255	325 days	Mon 24/2/20	Sat 27/3/21	379 days	Mon 27/4/20	Wed 4/8/21	Mon 27/4/20	NA	184,142	54SS+48 days,552SS+48 days,55	39 days		99%
544	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		33	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%
545	CUU-1000b		Trenchless work for Process Pipes CHR and CHS (approx. 7m twin DN900 D.I.)		255	0 days	NA	NA	60 days	Thu 25/2/21	Mon 10/5/21	Thu 25/2/21	Mon 10/5/21		52FF	0 days		100%
546	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%
547	CUU-1002		Grouting for Sheung Shui Slaughter House Boundary Walls along CHR & CHS Pipes Works Area		222	0 days	NA	NA	20 days	Fri 23/10/20	Mon 16/11/20	Fri 23/10/20	Mon 16/11/20			0 days		100%
548	CUU-1004		Delay Delivery of DI pipes due to COVID-19		(076)	0 days	NA	NA	75 days	Tue 22/12/20	Thu 25/3/21	Tue 22/12/20	Thu 25/3/21		549FF	0 days		100%
549	CUU-2000	SW2	Process Pipes, including CHT, CHX, CHY, CHPS1&2, CHS S1&2, CHDO 1&2, CHPSW 1-8, CHTPS, CHPT1&2, CHTFT 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	184,142,548FF,543SS+48 days	57FF,555,550SS+250 days	63 days		51%
550	CUU-2100	SW2	Remaining Process Pipes			0 days	NA	NA	270 days	Mon 23/8/21	Fri 22/7/22	NA	NA	549SS+250 days	57FF	0 days		0%
551	CUU-3000	SW2	Remaining Drainage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142	555,57FF	0 days	5	45%
552	CUU-4000	SW2	Remaining Sewerage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
553	CUU-5000	SW2	Remaining Waterworks			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	557FS+2 days,57FF	0 days	5	45%
554	CUU-6000	SW2	Remaining Cable Ducts			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
555	CUU-7000	KD3A	Roadworks			540 days	Fri 31/12/21	Sat 28/10/23	440 days	Mon 7/11/22	Mon 13/5/24	NA	NA	554,551,552,549,352,399,334,433	54FF,558SS+123 days	-88 days	5	0%
556	CLW-0000	*	Landscaping Works			854 days	Wed 11/5/22	Thu 27/3/25	946 days	Tue 26/7/22	Wed 24/9/25	NA	NA	16		0 days		0%
557	CLW-1000	KD3A	Irrigation System			120 days	Wed 11/5/22	Fri 30/9/22	120 days	Tue 26/7/22	Thu 15/12/22	NA	NA	553FS+2 days,184	558,54FF	1 day		0%
558	CLW-2000	SW3	Hard Landscaping Works			220 days	Mon 3/10/22	Mon 3/7/23	214 days	Tue 11/4/23	Sat 23/12/23	NA	NA	557,555SS+123 days	559,58FF	-88 days	5	0%
559	CLW-3000	SW3	Soft Landscaping Works			220 days	Tue 26/3/24	Tue 4/7/23	214 days	Wed 27/12/23	Tue 24/9/24	NA	NA	558,143	560,58FF	-88 days	5	0%
560	CLW-4000	DLP	Establishment Works (365 days)			294 days	Wed 27/3/24	Thu 27/3/25	365 days	Wed 25/9/24	Wed 24/9/25	NA	NA	559,143	59FF,60FF	0 days	5	0%



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020												2021												2022												2023												2024												2025												1026																																																													
										AS												JF												JJA												JAS												JJA												JAS												JJA												JAS												JJA												JAS												JJA												JAS	
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E&M Works for Slu											2044	11-Oct-19 A	15-May-25	05-Sep-21	15-May-25	0				Remarks: The Defect Date is 05 Jun 2025 (365 days after Completion of the whole of the works); The period of Establishment Works is 365 days start from 06 Jun 2024 to 05 Jun 2025																																																																																																																											
Contract Data											2044	11-Oct-19 A	15-May-25	05-Sep-21	15-May-25	0																																																																																																																															
Starting Date & Completion Date											2044	11-Oct-19 A	15-May-25	05-Sep-21	15-May-25	0																																																																																																																															
CD1000	Contract Date (LOA)	0	11-Oct-19 A		05-Sep-21				CD1010, S1P1000,																																																																																																																																						
CD1010	Starting Date	0	23-Oct-19 A		05-Sep-21		CD1000	S1D1040, AD1050,																																																																																																																																							
CD1020	Whole Contract Period (1626 days from starting date)	1626	23-Oct-19 A	04-Apr-24	21-Aug-22	04-Apr-24	0	CD1010	CD1040, CD1030																																																																																																																																						
CD1030	Extension of Time Granted (Total 61.5days)	62	05-Apr-24	05-Jun-24*	05-Apr-24	05-Jun-24	0	CD1020	CD1040																																																																																																																																						
CD1040	Completion Date for the whole of the Works	0		15-May-25		15-May-25	0	CD1020, CD1010,																																																																																																																																							
Access Date											1434	23-Oct-19 A	21-Aug-22	13-Sep-21	15-May-25	998																																																																																																																															
AD1000	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19 A	24-Apr-21 A	16-Apr-22	16-Apr-22		CD1010	AD1010																																																																																																																																						
AD1010	Planned Access Date for Portion C-1A (Partial Access)	1	24-Apr-21 A	24-Apr-21 A	16-Apr-22	16-Apr-22		CD1010, AD1000	PL1470, S4C1010																																																																																																																																						
AD1020	Planned Access Date for Portion C-1A (Access for Remaining Area)	1	12-May-21 A	12-May-21 A	16-Apr-22	16-Apr-22			S4C1010																																																																																																																																						
AD1030	Portion C-2A (within 705 to 795 days from starting date) (SS by NCE-NCE-288, within 705 to 831 days from starting date)	831	23-Oct-19 A	30-Jan-22 A	30-Jan-22	30-Jan-22		CD1010	AD1040																																																																																																																																						
AD1040	Planned Access Date for Portion C-2A	1	21-Aug-22	21-Aug-22*	30-Jan-22	30-Jan-22	-203	CD1010, AD1030																																																																																																																																							
AD1050	Portion C-2B (within 765 to 855 days from starting date) (SS by NCE-NCE-286, within 765 to 880 days from starting date)	880	23-Oct-19 A	20-Mar-22 A	20-Mar-22	20-Mar-22		CD1010	AD1060																																																																																																																																						
AD1060	Planned Access Date for Portion C-2B	1	21-Aug-22	21-Aug-22*	20-Mar-22	20-Mar-22	-154	CD1010, AD1050	S5CHPC1020																																																																																																																																						
AD1070	Portion C-2C (within 715 to 805 days from starting date) (SS by NCE-NCE-287, within 715 to 934 days from starting date)	934	23-Oct-19 A	13-May-22 A	13-May-22	13-May-22		CD1010	AD1080																																																																																																																																						
AD1080	Planned Access Date for Portion C2-C	1	21-Aug-22	21-Aug-22*	13-May-22	13-May-22	-100	CD1010, AD1070	S5DIGC1040, S5DIGC1210, S5DIGC1030																																																																																																																																						
AD1090	Portion C-2D (within 825 to 945 days from starting date)	945	23-Oct-19 A	24-May-22 A	16-May-22	16-May-22		CD1010	AD1100																																																																																																																																						
AD1100	Planned Access Date for Portion C-2D	1	21-Aug-22	21-Aug-22*	16-May-22	16-May-22	-97	AD1090	S5BIOC1020, S5BIOC1030,																																																																																																																																						
AD1110	Portion C-3 (within 615 to 705 days from starting date) (SS by NCE-NCE-273, within 615 to 815 days from starting date)	815	23-Oct-19 A	31-Dec-21 A	02-Aug-22	02-Aug-22		CD1010	AD1120																																																																																																																																						
AD1120	Planned Access Date for Portion C-3 (SS by NCE-NCE-273)	1	31-Dec-21 A	31-Dec-21 A	02-Aug-22	02-Aug-22		AD1110, S2D1110	KD1060, S5WS2C1000,																																																																																																																																						
AD1130	Portion B-1 (within 285 to 345 days from starting date)	345	23-Oct-19 A	30-Sep-20 A	13-Sep-21	13-Sep-21		CD1010	AD1140																																																																																																																																						
AD1140	Planned Access Date for Portion B-1	1	30-Sep-20 A	30-Sep-20 A	13-Sep-21	13-Sep-21		AD1130	KD1030, S3C1020, S3C1010, KD1030-1																																																																																																																																						
AD1150	Portion B-2a (within 615 to 705 days from starting date) (SS by NCE-NCE-219, within 771 to 891 days from starting date)	891	23-Oct-19 A	23-Mar-22 A	25-Aug-22	25-Aug-22		CD1010	AD1160																																																																																																																																						
AD1160	Planned Access Date for Portion B-2a (SS by NCE-NCE-219)	1	23-Mar-22 A	23-Mar-22 A	25-Aug-22	25-Aug-22		AD1150	S5SASC1010, S5SASC1000																																																																																																																																						
AD1170	Portion B-2b (within 615 to 705 days from starting date) (SS by NCE-NCE-219)	705	23-Oct-19 A	24-Sep-21 A	15-May-25	15-May-25																																																																																																																																									
AD1180	Planned Access Date for Portion B-2b (SS by NCE-NCE-219)	1	24-Sep-21 A	24-Sep-21 A	15-May-25	15-May-25																																																																																																																																									
AD1190	Works Area WA1-B (starting date)	1	23-Oct-19 A	23-Oct-19 A	05-Jul-22	05-Jul-22		CD1010	AD1200																																																																																																																																						
AD1200	Planned Access Date for Works Area WA1-B	1	23-Oct-19 A	23-Oct-19 A	05-Jul-22	05-Jul-22		CD1010, AD1190	PL1000, PL1020																																																																																																																																						
AD1210	Works Area WA3 (starting date)	1	23-Oct-19 A	23-Oct-19 A	01-Aug-23	01-Aug-23		CD1010	AD1220																																																																																																																																						
AD1220	Planned Access Date for Works Area WA3	1	23-Oct-19 A	23-Oct-19 A	01-Aug-23	01-Aug-23		CD1010, AD1210	PL1000, PL1030																																																																																																																																						
Key Dates											1593	23-Oct-19 A	02-Mar-24	16-Apr-22	15-May-25	439																																																																																																																															
Contractual Completion (Include Implemented CE)											1546	23-Oct-19 A	15-Jan-24	16-Apr-22	15-May-25	487																																																																																																																															
KD1000	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	16-Apr-22	16-Apr-22		CD1010, S1D1040,	CD1040, S4P1040																																																																																																																																						

	File Name: DE/2018/03 RP R25 Layout: DE1803 RP (Aug 2022) - WBS Page 1 of 46	 Remaining Work  Critical Activity  Milestone  Actual Progress	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 Aug 2022				Date	Revision	Checked	Approved
						30-Apr-22	Rev21	LT	KM	
						31-May-22	Rev22	LT	KM	
						30-Jun-22	Rev23	LT	KM	
						31-Jul-22	Rev24	LT	KM	
					31-Aug-22	Rev25	LT	KM		

Item	Major Activities & Submission in coming 3 months	Time					Progress (E&M contract)				Action	Remarks / Status
		Contract Planned Commencement Date	Anticipated / Actual Commencement Date	Contract Planned Finish Date	Anticipated / Actual Finish Date	% of time elapsed based on "updated date")	Unit	Total Quantity	Completed Quantity	Actual Progress %		
Drawing Submission for Key Dates												
KD1A: Submission of civil and dimensional requirement drawing, electrical schematic drawings, etc. from formation level up to +8mPD in accordance with the contract requirement of Contract No. DC/2018/07 to carry out civil works construction	KD1A: Submission of Civil Requirement Drawing (Final)	8/28/2020	9/18/2020	11/5/2020	11/5/2020	Task Completed	no.	26	26	100%		
	KD1A: Submission of Electrical Schematic Drawing (Final)	7/15/2020	7/15/2020	11/5/2020	11/5/2020	Task Completed	no.	11	11	100%		
	KD1A: 6 November 2020											
KD1B: Submission of remaining civil and dimensional requirement drawings, electrical schematic drawing, etc. in accordance with the contract requirement of Contract No. DC/2018/07 to carry out civil works construction	KD1B: Submission of Civil Requirement Drawing (First Draft)	9/30/2020	9/28/2020	12/30/2020	3/31/2021	Task Completed	no.	47	47	100%		
	KD1B: Submission of Civil Requirement Drawing (Final)	11/6/2020	11/5/2020	6/4/2021	6/4/2021	Task Completed	no.	47	47	100%		All the CWR Drawings were submitted.
	KD1B: 4 June 2021											
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	Submission of subletting package for acceptance (C9)	3/1/2020	2/24/2020	3/14/2020	4/22/2020	Task Completed				100%	-	Bestwise resubmitted on 22 April 2020
	Acceptance of subletting package (C9)	3/14/2020	5/6/2020	4/1/2020	5/5/2020	Task Completed				100%	-	AECOM accepted subletting package on 5 May 2020
	Tender invitation (C9)	4/1/2020	5/15/2020	4/15/2020	5/22/2020	Task Completed				100%	-	Invitation to tender was commenced on 12 May 2020 and tender returned on 22 May 2020
	Tender award (C9)	4/15/2020	5/22/2020	4/29/2020	5/26/2020	Task Completed				100%	-	Bestwise submitted tender report on 26 May 2020
	Acceptance of tender award (C9)	-	-	-	6/6/2020	Task Completed				100%	-	AECOM accepted tender report on 2 June 2020, Letter of Acceptance was issued on 6 June
	Dismantle of existing BS equipment		6/15/2020		7/25/2020	Task Completed				100%		
	Removal of emergency generators	6/1/2020	6/15/2020	6/30/2020	7/25/2020	Task Completed				100%		
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	KD3A: Testing and Commissioning	7/1/2020	7/3/2020	7/29/2020	7/29/2020	Task Completed				100%		First test was conducted on 3 July 2020. Remaining test would be subjected to completion of civil works. KD3A - 29 July 2020. Joint Site Inspection was conducted on 24 July 2020 and Notice of completion of work was submitted on 28 July 2020
	KD3A: 29 July 2020											
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	Submission of onsite survey plan on E&M aspects for	3/1/2020	3/25/2020	3/30/2020	4/27/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 27 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/22/2020	Task Completed				100%	-	AECOM accepted the onsite survey plan on 22 May 2020. Onsite coordination with ST1 - Onsite survey conducted from 20 July 2020 to 22 July 2020. Bestwise submitted survey report on 5 August 2020. AECOM commented on 19 Aug 2020. Bestwise to resubmit upon conducting the remaining onsite survey. (Done) - Bestwise revised survey plan for remaining onsite checking of PST No. 6 on 1 Sep 2020. After discussion with plant operator, the remaining survey would be conducted after the dismantling work of PSTs. Formal survey record for PST No.4 was submitted on 24 May 2021. - Remaining survey (level of bridge & scraper) for PST 6 completed. - Formal survey report shall be submitted on 30 Jul 2021.
	KD3B: Submission of onsite survey report	7/11/2020	7/20/2020	7/16/2020	7/30/2021	Task Completed				100%	Bestwise	
	KD3B: Acceptance of onsite survey report	7/17/2020	8/6/2020	7/23/2020	8/6/2021	Task Completed				-		Acceptance for the center point, vertical and horizontal alignment of ductfoot installation of PST No.4 shall subject to joint site meeting conducted on 2 June 2021. Refer to E-RISC no. 000014A & 000016 result for details.
	KD3B: Preparation of procurement package (C11)	12/2/2019	8/1/2020	4/13/2020	8/7/2020	Task Completed				100%		
	KD3B: Tender invitation - Clarifier (C11)	12/2/2019	8/14/2020	4/13/2020	8/26/2020	Task Completed				100%		
	KD3B: Tender Award - Clarifier (C11)	12/2/2019	8/26/2020	4/13/2020	9/25/2020	Task Completed				100%		
	KD3B: Acceptance of tender award (C11)	12/2/2019	9/11/2020	4/13/2020	9/18/2020	Task Completed				-		
	KD3B: Tender invitation - DI Pipe (C11)	12/2/2019	1/13/2021	4/13/2020	1/19/2021	Task Completed				100%		
	KD3B: Tender Award - DI Pipe (C11)	12/2/2019	1/21/2021	4/13/2020	1/23/2021	Task Completed				100%		
	KD3B: Tender invitation - LCP (C11)	12/2/2019	2/3/2021	4/13/2020	2/5/2021	Task Completed						
	KD3B: Tender Award - LCP (C11)	12/2/2019	2/6/2021	4/13/2020	2/8/2021	Task Completed				100%		
	KD3B: Preparation of subletting package for dismantling work (C9)	12/2/2019	9/21/2020	4/13/2020	10/21/2020	Task Completed				100%		
	KD3B: Tender invitation for dismantling work (C9)	12/2/2019	11/12/2020	4/13/2020	11/19/2020	Task Completed				100%		
	KD3B: Tender Award for dismantling work (C9)	12/2/2019	11/20/2020	4/13/2020	11/22/2020	Task Completed				100%		
	KD3B: Acceptance of tender award for dismantling work (C9)	12/2/2019	11/23/2020	4/13/2020	12/1/2020	Task Completed				100%		

KD3B: Preparation and Acceptance of subletting package for installation work (C9)	12/2/2019	12/15/2020	4/13/2020	3/1/2021	Task Completed					100%	
KD3B: Tender invitation for installation work (C9)	12/2/2019	3/3/2021	4/13/2020	3/10/2021	Task Completed					100%	
KD3B: Tender Award for installation work (C9)	12/2/2019	3/12/2021	4/13/2020	3/15/2021	Task Completed					100%	
KD3B: Acceptance of tender award for installation work (C9)	12/2/2019	3/15/2021	4/13/2020	3/19/2021	Task Completed					100%	
Submission and Acceptance of Drawing Submission	4/14/2020	8/5/2020	9/10/2020	1/11/2021	Task Completed					100%	
Submission and Acceptance of P&M Submission	4/14/2020	8/5/2020	9/10/2020	6/30/2021	Task Completed						Formal resubmission of P&M for Rotating Bridge Scraper P&M-0024 (Rev.1) was submitted to AECOM on 24 June 2021 and is accepted by AECOM. P&M submission for Local Control Panel Rev.3 was submitted on 20 Mar 2021 and AECOM accepted on 26 Mar 2021.
Submission and Acceptance of FAT Plan	12/1/2020	1/27/2021	12/15/2020	2/16/2021	Task Completed					100%	
Submission and Acceptance of SAT Plan	3/1/2021	3/1/2021	4/1/2021	5/5/2021	Task Completed					100%	Bestwise submitted on 13 Apr 2021. AECOM accepted with comments on 5 May 2021.
Submission and Acceptance of Design Submission (Support to DN700 Feed Pipe)	N/A	2/22/2021	N/A	5/13/2021	Task Completed						Advanced Calculation was provided on 17 Mar 2021 and revised on 18 Mar 2021. Bestwise proposed to use the existing support. Calculation was provided on 1 Apr 2021 via email. Dimension of support column was checked again on 14 Apr 2021. Proposal submitted on 30 Apr 2021. AECOM accepted with comments on 13 May 2021.
Submission and Acceptance of Design Submission (Stainless steel support to FRP Cover of Effluent)	N/A	2/24/2021	N/A	4/19/2021	Task Completed					100%	Advanced Calculation was provided on 17 Mar 2021 and revised on 18 Mar 2021. Bestwise formal submitted on 26 Mar 2021. AECOM accepted with comment on 19 Apr 2021.
KD3B: Dismantle and Removal of E&M Equipment at PST No. 6	2/9/2021	12/21/2020	2/19/2021	1/15/2021	Task Completed					100%	
Flow Diversion and drain out PST No.4	N/A	1/25/2021	N/A	3/26/2021	Task Completed					100%	
KD3B: Dismantle and Removal of E&M Equipment at PST No. 4	2/9/2021	3/5/2021	2/19/2021	4/1/2021	Task Completed					100%	
KD3B: Material Manufacturing (Clarifier)	9/12/2020	12/16/2020	12/12/2020	2/20/2021	Task Completed					100%	The clarifier would be manufactured in 2 batches (rotating bridge related and FRP launder cover). Manufacturing instruction was issued on 16 Dec 2020. Jash suggested 1st batch of material (clarifier) would be ready for shipping on 20 Feb 2021 and 2nd batch of material (FRP Launder Cover) would be ready for shipping on 13 Mar 2021. (To be confirmed by Jash by providing shipment booking, but supplier cannot provide updated information at this moment due to second surge of COVID-19 in india)
KD3B: FAT of the Clarifier	N/A	2/24/2021	N/A	3/1/2021	Task Completed					100%	FAT Report submitted on 24 Feb 2021 and AECOM accepted subject to comment on 1 Mar 2021
KD3B: Material Delivery (Clarifier)	12/13/2020	2/27/2021	1/18/2021	4/6/2021	Task Completed					100%	
KD3B: Material Deliver to Site (Clarifier)	N/A	4/6/2021	N/A	4/8/2021	Task Completed					100%	
KD3B: Material Manufacturing (DI pipes and fittings)	9/11/2020	1/26/2021	1/18/2021	3/15/2021	Task Completed					100%	Extracted from C9 package to C11 package to suit the installation programme
KD3B: Material Delivery (DI pipes and fittings)	9/11/2020	3/16/2021	1/18/2021	3/24/2021	Task Completed					100%	
KD3B: Material Delivery (FRP Cover)	N/A	3/26/2021	N/A	6/21/2021	Task Completed					100%	All the FRP covers were delivered to site.
KD3B: Material Manufacturing (LCP)	9/11/2020	3/4/2021	1/18/2021	4/16/2021	Task Completed					100%	
KD3B: Material Delivery (LCP)	9/11/2020	4/17/2021	1/18/2021	4/30/2021	Task Completed					100%	
KD3B: Retrofitting Concrete Structure of PST No. 4	N/A	4/2/2021	N/A	4/22/2021	Task Completed					100%	
KD3B: Installation of E&M Equipment at PST No. 4	2/27/2021	4/5/2021	5/10/2021	5/17/2021	Task Completed						
KD3B: Testing and Commissioning for PST No. 4	5/11/2021	4/19/2021	6/9/2021	7/26/2021	Task Completed						Wet test for PST 4 completed on 26 July 2021.
Flow Diversion from PST No.6 to Temporary Filtrate Equalization Tank	N/A	5/19/2021	N/A	5/20/2021	Task Completed					100%	Filtrate feeding to TFES was resumed on 19/5/2021 with fine-tuned control.
Removal of Accumulated Sludge Inside PST No. 6	N/A	5/19/2021	N/A	5/30/2021	Task Completed					100%	NCE-0229, this includes removal of floating scum/ sludge and clearance of blockage of drain pipe
KD3B: Retrofitting Concrete Structure of PST No. 6	N/A	5/28/2021	N/A	6/24/2021	Task Completed					100%	
KD3B: Mechanical Installation of E&M Equipment at PST No. 6	2/27/2021	5/31/2021	5/10/2021	7/21/2021	Task Completed					100%	This includes PST Influent feed pipe, center bearing & slip ring assembly, motor & gearbox assembly, rotating bridge sludge & scum scraper assembly, circular baffle diffuser box, v-notched weir plate, scum baffle plate, scum collection box and FRP cover.
KD3B: Electrical Installation of E&M Equipment at PST No. 6	2/27/2021	6/9/2021	5/10/2021	7/21/2021	Task Completed					100%	This includes installation of LCP, cable laying & terminations.
KD3B: Testing and Commissioning for PST No. 6	5/11/2021	6/22/2021	6/9/2021	8/20/2021	Task Completed					100%	Wet test (1st) completed on 20 Aug 2021 and wet test (2nd) completed on 3 Sep 2021.
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	KD3B: System Commissioning for PST No. 4 & 6	N/A	6/22/2021	N/A	9/3/2021	Task Completed				100%	Wet test (2nd) for PST#6 completed on 3 Sep 2021 and pre-handover inspection arranged on 30 Aug 2021. Defect list (final) received on 17 Sep 2021 and defect rectification was completed. Site training/ demonstration shall be conducted by end Feb and PMI modification work shall be completed by end March.
	KD3B: 9 June 2021										
Section 1 of Works (outstanding works list)											

6B.2.12 Provision of New Replacement Filter Plates	Submission of onsite survey plan for acceptance	3/1/2020	3/25/2020	3/30/2020	4/21/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/12/2020	Task Completed				100%	-	Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	5/21/2020	5/21/2020	5/29/2020	5/29/2020	Task Completed				100%		
	Acceptance of onsite survey report	5/30/2020	5/30/2020	6/15/2020	6/15/2020	Task Completed				-		
	Preparation of procurement package (C11)	6/22/2020	6/22/2020	7/6/2020	7/14/2020	Task Completed				100%		
	Tender invitation (C11)	7/15/2020	7/15/2020	7/22/2020	7/24/2020	Task Completed				100%		
	Tender Award (C11)	7/23/2020	7/25/2020	7/29/2020	7/31/2020	Task Completed				100%		Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical
	Material Submission											Material submission (Rev.1) resubmitted on 7 Dec 2020. AECOM accepted subject to comments on 24 Dec 2020. Material submission (Rev. 2) resubmitted on 12 Jan 2021. AECOM accepted subject to comment on 22 Jan 2021.
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Delivery	12/1/2020	12/1/2020	8/8/2021	8/8/2021	Task Completed				-		"Filter Press Plates and Cloths" were handed over to DSD.
6B.2.12 Provision of Membrane Filter Press System at Existing Sludge Press House	Submission of onsite survey plan for acceptance	3/1/2020	3/25/2020	3/30/2020	Task to be deleted	Task to be deleted				-	-	PPMI No.5 was issued by PM on 24 April 2020. Bestwise is requested to submit quotation on delete the provision of one (1) no. of membrane filter press system in pursuant to Particular Specification Clause 6B.2.12.
6B.2.16 Temporary Filtrate Equalisation System (Sub-programme was provided by Bestwise)	Submission of onsite survey plan on E&M aspects for acceptance	3/1/2020	4/1/2020	3/30/2020	5/7/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 7 May 2020
	Acceptance of submission of onsite survey plan	3/1/2020	4/1/2020	3/30/2020	5/23/2020	Task Completed				100%	-	AECOM accepted the onsite survey plan on 23 May 2020
6B.2.16 Temporary Filtrate Equalisation System (Sub-programme was provided by Bestwise)	Submission and Acceptance of ELS Design for Lifting Well	15/06/2020 -> 17/08/2020*	9/2/2020	30/07/2020 -> 30/11/2020*	2/9/2021	Task Completed				100%	Bestwise	- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. Bestwise submitted Rev.0 on 21 Oct 2020 and resubmitted Rev.2 on 23 Jan 2021. - AECOM provide consent for the ELS temporary works on 9 Feb 2021. AECOM accepted on 9 Feb 2021.
	Submission and Acceptance of Design for Filtrate Lifting Well Construction	15/06/2020 -> 17/08/2020*	9/2/2020	30/07/2020 -> 30/11/2020*	1/15/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. AECOM commented on 21 Dec 2020. Bestwise submitted Rev.0 on 2 Nov 2020 and Rev.1 on 8 Jan 2021.
	Submission and Acceptance of Design of FRP Filtrate Equalization Tank	15/06/2020 -> 07/09/2020**	9/2/2020	30/07/2020 -> 22/10/2020*	1/15/2021	Task Completed				100%		** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. Bestwise submitted Rev.0 on 08 Jan 2020.
	Submission and Acceptance of Design of footing for FRP Filtrate Equalization Tank	15/06/2020 -> 07/09/2020**	9/2/2020	30/07/2020 -> 22/10/2020*	2/19/2021	Task Completed				100%		** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. Design of Footing was submitted on 8 Feb 2021.
	Submission and Acceptance of Design of Formwork & Flasework Design for Construction of Lifting Well	15/06/2020 -> 17/08/2020*	9/2/2020	30/07/2020 -> 30/11/2020*	1/15/2021	Task Completed				100%		- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Bestwise submitted Rev.0 on 12 Jan 2020.
	Submission and Acceptance of Contractor's Design for Temporary Filtrate Equalisation System (E&M Works) (CDS010-2)	01/06/2020 -> 7/9/2020**	7/5/2020	30/07/2020 -> 30/11/2020*	7/30/2021	Task Completed				-	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Bestwise submitted (CDS 0010 Rev.0) on 6 August 2020, AECOM commented on 27 Aug 2020. Bestwise to resubmit (Separate submissions P&M0049, DWG0038, CDS0026, P&M0008, P&M0004, CDS0037, CDS0027, DWG0040 were submitted) - Control philosophy (CDS0027 Rev.0) was submitted on 22 Dec 2020. AECOM commented on 13 Jan 2021, Bestwise resubmitted on 27 May 2021 formally, AECOM accepted with comments on 4 Jun 2021.
	Drawing Submission	01/06/2020 -> 17/08/2020*	9/29/2020	30/07/2020 -> 30/11/2020*	3/5/2021	Task Completed				100%	Bestwise	- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Bestwise submitted (rev.0) on 29 Oct 2020 and resubmitted (rev.2) on 25 Jan 2021, AECOM accepted on 5 Feb 2021.
	Material Submission	01/06/2020 -> 17/08/2020*	11/29/2020	30/07/2020 -> 30/11/2020*	2/25/2021	Task Completed				100%	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - P&M submission of temporary filtrate equalization tank (P&M 0030 Rev.1) on 29 Jan 2021. AECOM accepted subject to comments on 25 Feb 2021.
Subletting Package for Temporary Filtrate Equalization System	Tender invitation (C11) (EQT-002 & EQT-004)	4/17/2020	4/17/2020	5/7/2020	5/7/2020	Task Completed				100%		
	Tender award (C11) (EQT-002 & EQT-004)	4/14/2020	4/24/2020	5/13/2020	5/13/2020	Task Completed				100%	Bestwise	Bestwise submitted tender report on 29 April 2020 for filtrate pumps, AECOM commented on 29 May 2020, Bestwise to resubmit. Bestwise submitted tender report of instrument on 13 May 2020, AECOM noted on 26 May
	Acceptance of tender award (C11) (EQT-002 & EQT-004)	4/25/2020	4/25/2020	5/21/2020	5/21/2020	Task Completed				100%	Bestwise	
	Material Submission	20/07/2020 ->	10/16/2020	20/08/2020 -	2/5/2021	Task Completed				-	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 18

	Submission of subletting package for acceptance (C9)	3/1/2020	7/13/2020	3/14/2020	7/13/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	3/15/2020	7/14/2020	3/28/2020	7/14/2020	Task Completed				100%		
	Tender invitation (C9)	3/29/2020	7/15/2020	4/11/2020	7/22/2020	Task Completed				100%		
	Tender award (C9)	4/12/2020	7/23/2020	4/25/2020	8/13/2020	Task Completed				100%		
	Acceptance of tender award for civil construction work (C9)	26/04/2020	8/14/2020	5/5/2020	9/2/2020	Task Completed				100%		
	Preparation of subletting package for mech work (C9)	01/08/2020 -> 01/12/2020*	1/25/2021	08/08/20 -> 08/12/2020*	3/1/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. Subletting package would be submitted on 25 Feb 2021 and AECOM accepted on 1 Mar
	Tender invitation for mech work (C9)	08/08/20 ->	3/2/2021	15/08/2020 -	3/9/2021	Task Completed				100%		Tender invitation was conducted on 2 Mar 2021 and returned on 9 Mar 2021
	Tender Award for mech work (C9)	15/08/2020 ->	3/10/2021	22/08/2020 -	3/15/2021	Task Completed				100%		Tender report was submitted on 15 Mar 2021
	Acceptance of tender award for mech work (C9)	22/08/2020 ->	3/15/2021	29/08/2020 -	3/19/2021	Task Completed				100%		Tender award on 19 Mar 2021.
	Preparation of subletting package for elect work (C9)	01/08/2020 -> 01/12/2020*	2/2/2021	08/08/20 -> 08/12/2020*	3/1/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. Subletting package resubmitted on 26 Feb 2021 and AECOM accepted on 1 Mar 2021..
	Tender invitation for elect work (C9)	01/08/2020 ->	3/2/2021	15/08/2020 -	3/9/2021	Task Completed				100%		Tender invitation was conducted on 2 Mar 2021 and returned on 9 Mar 2021
	Tender Award for elect work (C9)	08/08/20 ->	3/10/2021	22/08/2020 -	3/15/2021	Task Completed				100%		Tender report was submitted on 15 Mar 2021
	Acceptance of tender award for elect work (C9)	15/08/2020 -> 15/12/2020*	3/15/2021	29/08/2020 -> 29/12/2020*	3/19/2021	Task Completed				100%		Tender award on 19 Mar 2021.
Construction of Temporary Filtrate Equalisation System	Construction of minor civil works under PMI 014	22/08/2020 -> 22/12/2020*	10/5/2020	10/15/2020	3/31/2021	Task Completed				100%	Bestwise	Utilities survey report of lifting well and EQ tank were submitted on 23 Sept 2020 and 29 Sept 2020. AECOM commented lifting well on 29 Sept 2020.
	RC Structure Works of lifting well	11/7/2020	1/12/2021	12/30/2020	2/25/2021	Task Completed				100%		
	Construction of concrete plinth for filtrate EQ tank	1/23/2021	2/8/2021	2/1/2021	2/26/2021	Task Completed				100%		
	Offsite fabrication and delivery of filtrate EQ tank	10/31/2020	1/16/2021	2/2/2021	3/4/2021	Task Completed				100%		First batch of filtrate EQ tank panel was delivered on 4 Mar 2021.
	Onsite assembly of filtrate EQ tank	2/2/2021	3/1/2021	3/12/2021	4/16/2021	Task Completed				100%		
6B.2.16 Temporary Filtrate Equalisation System	Mechanical Installation	3/17/2021	3/30/2021	4/12/2021	5/14/2021	Task Completed				-		
	Electrical Installation	3/13/2021	3/29/2021	4/15/2021	12/10/2021	Task Completed				-		PLC programme for water spray system (stage 1) is on-going, motorized gate valve for stage 2 under PMI is being fabricated and the delivery lead time is by end November.
	Testing and Commissioning	4/15/2021	4/22/2021	5/1/2021	10/31/2022	93%				-		Defect rectification for BCM comments was partially completed and Site Acceptance Test (72 hours) shall be commenced by End Sep 2022 subject to coordination with RSS and ST1.
6B.1.17 Overall plant treatment process review by the Treatment Process Specialist	Submission of Treatment Process Specialist's review report	6/1/2020	6/1/2020	6/30/2020	7/2/2020	Task Completed				-	Bestwise	Preliminary Draft submitted, meeting completed on 15 May 2020 with SRE and TPS. Initial process design evaluation was submitted on 20 May 2020. Design calculation submitted on
	Acceptance of submission for further design	6/14/2020	7/3/2020	6/30/2020	7/17/2020	Task Completed				-		
6B Overall plant process equipment sizing review	Submission of Contractor's Design Calculation for	6/1/2020	6/1/2020	6/30/2020	7/2/2020	Task Completed				-	Bestwise	Preliminary Draft submitted, meeting completed on 15 May 2020 with SRE and TPS. Initial
	Acceptance of submission for further detail design	6/14/2020	7/3/2020	6/30/2020	7/17/2020	Task Completed				-		
6B.2.1 Inlet Works	Submission of Contractor's Design for Inlet Works No. 1	9/6/2020	11/16/2020	5/14/2021	10/30/2022	94%				-	Bestwise	All finalized design calculations for Inlet Works no.1 shall be submitted by 30 Oct 2022.
	Submission of P&M Submission	9/6/2020	9/7/2020	5/14/2021	9/30/2022	99%						P&M0022 - Inlet Pumps (status: B) P&M0003 - Coarse Screens & Fine Screens (status: B) P&M0085 - Grit Traps (status: B) P&M0084 - Screw Compactor (status: B) P&M0042 - Screw Conveyors for Coarse Screens and Fine Screens (status: B) All P&M for Inlet Works no.1 shall be submitted by 30 Sep 2022.
	Submission of P&ID Drawing	9/6/2020	9/6/2020	5/14/2021	12/29/2020	Task Completed						PID (rev.B) submitted on 13 Nov 2020. AECOM accepted subject to comments on 29 Dec 2020.
	Submission of GA Drawing	9/6/2020	1/5/2021	5/14/2021	10/30/2022	94%						E&M GA submission DWG0082 resubmitted on 9 July 2021. AECOM commented on 19 Feb 2021. Bestwise reviewed GA in BIM with AECOM on 12 Jan 2022. Electrical GA DWG0095 resubmitted on 3 July 2021. AECOM commented on 21 Apr 2021. Bestwise reviewed GA in BIM with AECOM on 12 Jan 2022. All finalized drawings for Inlet Works no.1 shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 5, 12, 19/5/2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	10/30/2022	94%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. All finalized drawings for Inlet Works no.1 shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%					-	
	Submission of detailed design for electrical installation for Inlet Works No. 1 (CDS021)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for LV Switchboards for Inlet Works No. 1 (CDS025-1)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						

	Submission of detailed design for electrical installation BS for Inlet Works No. 1 (CDS034-1)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for Inlet Works No. 1 up to +8.0 mPD (CDS080-1)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Inlet Works No. 1 up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/17/2020	Task Completed	no.	3	3	100%			1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for Inlet Works No. 1 up to +8.0 mPD (Final)	8/28/2020	9/18/2020	11/5/2020	11/5/2020	Task Completed	no.	3	3	100%	Bestwise		Bestwise resubmitted (rev.A) on 27 Oct 2020.
	KD1A: Submission of electrical schematic drawings for Inlet Works No. 1 (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	2	2	100%			1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of electrical schematic drawings for Inlet Works No. 1 (Final)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	Task Completed	no.	2	2	100%	Bestwise		Bestwise submitted on 20 Oct 2020
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
6B.2.2 Primary Sedimentation Tank No. 1-4	Submission of Contractor's Design for Primary Sedimentation Tanks No. 1-4	9/6/2020	12/28/2020	5/14/2021	10/30/2022	94%				-	Bestwise		PFD (rev.B) under DWG0004 submitted on 22 June 2021. Finalized design calculations for PST shall be submitted by 30 Oct 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	10/30/2022	94%							P&M0058 - Lamella Plate Settler (status: B) P&M0097 - Scum Skimmer and Scum Collection Pipe (status: C) P&M0086 - Sludge Bottom Scraper (status: C) P&M0051 - Drain Pump (status: C) P&M0044 - Primary Sludge Pump (status: B) Finalized material submissions for PST shall be submitted by 30 Oct 2022.
	Submission of P&ID Drawing	9/6/2020	10/2/2020	5/14/2021	6/24/2021	Task Completed							PID under DWG0037 (rev.1) submitted on 24 June 2021 and is accepted by AECOM.
	Submission of GA Drawing	9/6/2020	2/3/2021	5/14/2021	10/30/2022	94%							Mechanical GA was submitted on 19 Jun 2021. Electrical GA under DWG0103 (rev.1) was submitted on 6 Jul 2021 and is accepted by AECOM. Finalized drawings for PST shall be submitted by 30 Aug 2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	10/30/2022	94%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawings for PST shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	4/2/2021	5/29/2021	10/30/2022	93%				-			Refer to outstanding list under "Certificate of completion no.1 - section 1 of the works".
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for LV Switchboards for Primary Sedimentation Tanks (CDS025-2)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for Primary Sedimentation Tanks up to +8.0 mPD (CDS080-2)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Primary Sedimentation Tanks No. 1-4 up to +8.0 mPD	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	4	4	100%			1st part of drafted drawing (2 nos.) was submitted on 23 Sept 2020. Remaining drawings (2 nos.) were submitted on 30 Sept 2020.
	KD1A: Submission of civil requirement drawing for Primary Sedimentation Tanks No. 1-4 up to +8.0 mPD	8/28/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed	no.	4	4	100%	Bestwise		Bestwise resubmitted (Rev.A) on 27 Oct & 13 Nov 2020.
	KD1A: Submission of electrical schematic drawings for Primary Sedimentation Tanks No. 1-4 (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of electrical schematic drawings for Primary Sedimentation Tanks No. 1-4 (Final)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	Task Completed	no.	1	1	100%	Bestwise		Bestwise submitted on 20 Oct 2020
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
6B.2.3 Chemical Storage and Dosing System	Submission of Contractor's Design for Chemical Dosing System (CDS006)	9/6/2020	1/7/2021	5/14/2021	10/29/2021	Task Completed				-	Bestwise		Design calculation (rev.0) of CHS1 and TCHS submitted on 2 Sep 2020 and 28 Aug 2020, AECOM commented on 24 Sep and 6 Oct 2020, Bestwise submitted CDS0060 on 15 Jul 2021 and CDS0044 on 19 Jul 2021. Finalized design calculation for chemical systems was submitted on 29 Oct 2021.
	Submission of P&M Submission	9/6/2020	9/6/2020	5/14/2021	10/30/2021	Task Completed							Finalized material submissions for chemical system was submitted on 30 Oct 2021.
	Submission of P&ID Drawing	9/6/2020	12/11/2020	5/14/2021	6/29/2021	Task Completed							PID resubmitted under DWG0053 (rev.1) on 28 Jun 2021, DWG0057 (rev.1) on 29 Jun 2021 and DWG0058 (rev.1) on 29 Jun 2021.

	Submission of GA Drawing	9/6/2020	2/8/2021	5/14/2021	10/30/2022	94%							Electrical GA drawings for CS1 under DWG0096 submitted on 10 April 2021. AECOM accepted subject to comments on 17 Apr 2021. Mechanical GA drawings for CS1 submitted on 1 April 2021. AECOM commented on 24 April 2021. Bestwise resubmitted DWG0093 (rev.1) on 30 Jun 2021 and is accepted by AECOM. Mechanical GA for Temp CS submitted on 12 Jun 2021. All finalized drawings for chemical systems shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 17. 21. 28/4/2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	10/30/2022	94%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. All finalized drawings for chemical system shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%				-			
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installations	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/16/2020	Task Completed	no.	2	2	100%			1st draft of drawing submitted on 15 September for CHS1 and 16 September 2020 for
	KD1A: Submission of civil requirement drawing for	9/7/2020	9/17/2020	11/5/2020	11/5/2020	Task Completed	no.	2	2	100%			Bestwise resubmitted (Rev.A) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/15/2020	Task Completed				-			1st draft of drawing to be submitted by 16 September 2020
	KD1A: Submission of electrical schematic drawings for Chemical System No. 1 and No. 2 (Final)	9/7/2020	9/16/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (First	7/15/2020	7/15/2020	8/15/2020	9/15/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 15 September 2020
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (Final)	9/7/2020	9/16/2020	11/5/2020	11/5/2020	Task Completed	no.	1	1	100%			Bestwise resubmitted (Rev.A) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for Temporary Chemical System (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/15/2020	Task Completed				-			1st draft of drawing to be submitted by 16 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	9/16/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
6B.2.4 Membrane Bioreactor (MBR) System - Bio Reactor 2A and 2B	Submission of Contractor's Design for Bioreactor 2A and 2B (CDS004)	9/6/2020	1/12/2021	5/14/2021	10/30/2022	94%					-	Bestwise	PFID (rev.1) submitted on 3 Nov 2020. AECOM accepted on 7 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Electrical CDS submitted on 23 Jun 2021. Finalized design calculations shall be submitted by 30 Oct 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	10/30/2022	94%							P&M0060 - Pre-treatment Fine Screen (status: B) P&M0053 - MLR Pump (status: B) P&M0118 - Scum Skimmer & Scum Pump (status: C) P&M0088 - Fine Bubble Air Diffuser (status: B) P&M0xxx - Wash Compactor (status: B) P&M0041 - Submersible Mixer (status: B) Finalized material submission shall be submitted by 30 Oct 2022.
	Submission of P&ID Drawing	9/6/2020	11/2/2020	5/14/2021	7/2/2021	Task Completed							PID (Rev.1) under DWG0042 resubmitted on 6 July 2021.
	Submission of GA Drawing	9/6/2020	2/17/2021	5/14/2021	10/30/2022	94%							Mechanical GA under DWG0132 submitted on 26 Jun 2021 and is accepted by AECOM. Electrical GA submitted on 23 Jun 2021. Finalized drawing shall be submitted by 30 June 2022. BIM GA review meeting is scheduled on 1, 8, 15/6/2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	10/30/2022	94%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%				-			Refer to outstanding list under "Certificate of completion no.1 - section 1 of the works".
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for LV Switchboards for BR 2A and 2B (CDS025-3)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed							
	Submission of civil work requirements for BR 2A and 2B up to +8.0 mPD (CDS080-3)	9/1/2020	9/1/2020	10/30/2020	10/30/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for BR 2A and 2B up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	2	2	100%			1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of civil requirement drawing for BR 2A and 2B up to +8.0 mPD (Final)	8/28/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed	no.	2	2	100%	Bestwise		AECOM commented on 23 Oct 2020, Bestwise resubmitted on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for BR 2A and 2B (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed				-			1st draft of drawing was sent to AECOM via email on 15 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
6B.2.4 Membrane Bioreactor (MBR) System - Membrane Filtration System No. 2 (MFB No. 2)	Submission of Contractor's Design for Membrane Filtration System (CDS005)	9/6/2020	1/11/2021	5/14/2021	10/30/2022	94%					-	Bestwise	PFID (rev.1) submitted on 3 Nov 2020. AECOM accepted on 10 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Finalized design calculations shall be submitted by 30 Aug 2022.

Submission of P&M Submission	9/6/2020	11/19/2020	5/14/2021	10/30/2022	94%							P&M0072 - Membrane Module (status: B) P&M0069 - Permeate Pump (status: B) P&M0047 - RAS Pump (status: B) P&M0050 - Drain Pump (status: B) P&M0074 - Air Scour Blower (status: C) P&M0073 - Aeration Blower (status: C) P&M0093 - Air Compressor (status: C) P&M0091 - Chemical Pump (status: B) P&M0xxx - Chemical Tank (to be submitted) Finalized material submission shall be submitted by 30 Oct 2022.	
Submission of P&ID Drawing	9/6/2020	10/30/2020	5/14/2021	7/2/2021	Task Completed							DWG0049 (Rev.1) was resubmitted on 2 Jul 2021.	
Submission of GA Drawing	3/31/2021	2/18/2021	5/14/2021	10/30/2022	94%							DWG0121 (rev.1) was resubmitted to AECOM on 17 Jul 2021 Finalized drawings shall be submitted by 30 June 2022. BIM GA review meeting is scheduled on 19, 26/5/2022 and 2/6/2022 (Lower part) BIM GA review meeting is scheduled on 16, 23, 30/6/2022 (Upper part)	
Submission of Electrical Drawing	4/15/2021	1/15/2021	5/14/2021	10/30/2022	94%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Electrical GA under DWG0079 (rev.1) was resubmitted on 8 Jul 2021. Finalized drawings shall be submitted by 30 Oct 2022.	
Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%					-			
Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of detailed design for LV Switchboards for	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of detailed design for electrical installation BS for MFB (CDS034-4)	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed								
Submission of civil work requirements for MFB up to	9/1/2020	9/1/2020	9/30/2020	9/30/2020	Task Completed								
KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	7	7	100%			1st draft of drawing submitted on 30 September	
KD1A: Submission of civil requirement drawing for MFB No. 2 up to +8.0 mPD (Final)	8/28/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed	no.	7	7	100%	Bestwise		Bestwise resubmitted (Rev.1) on 5 Nov 2020.	
KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed	no.	3	3	100%			1st draft of drawing submitted on 30 September 2020	
KD1A: Submission of electrical schematic drawings for MFB No. 2 (Final)	9/7/2020	10/1/2020	11/5/2020	10/20/2020	Task Completed	no.	3	3	100%	Bestwise		Bestwise submitted (Rev.1) on 20 Oct 2020	
KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020	
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender invitation (C11)	4/17/2020	4/17/2020	4/24/2020	4/24/2020	Task Completed					100%		
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender award (C11)	4/25/2020	4/25/2020	5/12/2020	5/12/2020	Task Completed					100%	Bestwise	Bestwise submitted tender report on 13 May 2020. AECOM commented on 23 July 2020. Bestwise to resubmit.
	Acceptance of tender award (C11)	5/13/2020	5/13/2020	5/21/2020	5/21/2020	Task Completed					100%		
	Submission of Contractor's Design for Deodorisation System , DOU No. 1 (CDS0019 & CDS0045)	9/6/2020	9/6/2020	5/14/2021	12/31/2021	Task Completed					-		Design Calculation (Rev.0) was submitted on 24 Nov 2020. AECOM commented on 6 Jan 2021, Bestwise to resubmit. Bestwise submitted CDS0045 on 3 June 2021. Finalized design was completed.
	Submission of P&ID Drawing of DOU No. 1	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 1	9/6/2020	9/6/2020	5/14/2021	9/30/2022	99%							GA submitted on 21 Jun 2021 Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 11, 18, 25/5/2022.
	Submission of Electrical Drawing of DOU No. 1	3/21/2021	1/30/2021	5/14/2021	10/30/2022	94%							Control wiring diagrams was resubmitted on 1 April 2021. AECOM commented on 23 Apr 2021. Bestwise to resubmit. Finalized drawings shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%					-		
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 1 up to +8.0 mPD (First Draft)	7/15/2020	7/15/2020	8/15/2020	9/28/2020	Task Completed	no.	1	1	100%			1st draft of drawing was submitted on 28 September 2020
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 1 up to +8.0 mPD (Final)	8/28/2020	9/29/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%	Bestwise		Bestwise resubmitted (rev.1) on 5 Nov 2020.
	Submission of Contractor's Design for Deodorisation System , DOU No. 2A (CDS0019 & CDS0048)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	Task Completed					-		CDS0019: Design Calculation for Deodorisation System (status: B) CDS0048: Design Calculation on DOU2A - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 2A	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 2A	9/6/2020	8/3/2020	5/14/2021	9/30/2022	99%					-	Bestwise	Bestwise submitted (rev.1) on 30 Oct 2020. AECOM commented on 16 Dec 2020. Bestwise to resubmit. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 1, 8, 15/6/2022.
	Submission of Electrical Drawing of DOU No. 2A	3/21/2021	1/26/2021	5/14/2021	10/30/2022	94%							Bestwise submitted (rev.0) on 26 Jan 2021, AECOM commented on 4 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%					-		

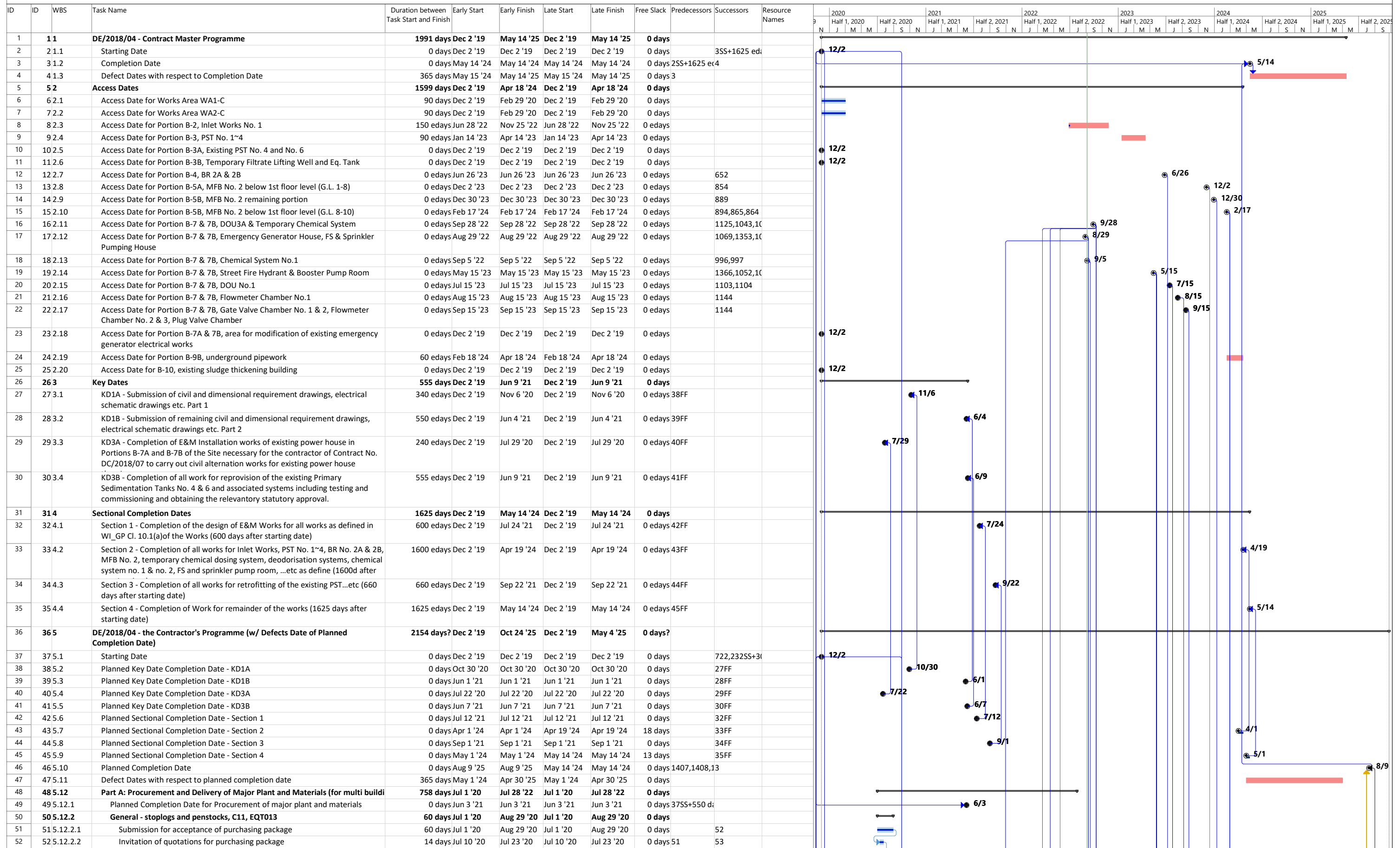
	Submission of Contractor's Design for Deodorisation System , DOU No. 3A (CDS0019 & CDS0055)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	Task Completed				-		CDS0019: Design Calculation for Deodorisation System (status: B) CDS0055: Design Calculation on DOU3A - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 3A	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed				-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3A	9/6/2020	7/8/2020	5/14/2021	9/30/2022	99%				-	Bestwise	Bestwise submitted (rev.1) on 28 Oct 2020. AECOM commented on 16 Dec 2020. Bestwise resubmitted on 24 June 2021. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 27/4/2022, 4, 11/5/2022.
	Submission of Electrical Drawing of DOU No. 3A	3/21/2021	2/26/2021	5/14/2021	10/30/2022	93%						Bestwise submitted on 17 Apr 2021. AECOM commented on 27 Apr 2021. Bestwise to resubmit. GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%						
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 3A up to +8.0 mPD	7/15/2020	7/15/2020	8/15/2020	9/28/2020	Task Completed	no.	1	1	100%		1st draft of drawing was submitted on 28 September 2020
	KD1A: Submission of civil requirement drawing for Submission of Contractor's Design for Deodorisation System , DOU No. 3B (CDS0019 & CDS0049)	8/28/2020	9/29/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%	Bestwise	Bestwise resubmitted (rev.1) on 5 Nov 2020.
	Submission of Contractor's Design for Deodorisation System , DOU No. 3B (CDS0019 & CDS0049)	9/6/2020	9/6/2020	5/14/2021	12/10/2021	Task Completed						CDS0019: Design Calculation for Deodorisation System (status: B) CDS0049: Design Calculation on DOU3B - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 3B	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed				-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3B	9/6/2020	9/6/2020	5/14/2021	9/30/2022	99%						Bestwise submitted DWG0081 (rev.0) on 5 Feb 2021. AECOM commented on 12 Mar 2021. Bestwise to resubmit. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 16, 23, 30/6/2022.
	Submission of Electrical Drawing of DOU No. 3B	3/21/2021	2/22/2021	5/14/2021	10/30/2022	93%						GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 30 Oct 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/30/2022	92%				-		
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for LV Switchboards for	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of detailed design for electrical installation	9/6/2020	9/6/2020	5/14/2021	5/14/2021	Task Completed						
	Submission of civil work requirements for MFB up to	9/1/2020	9/1/2020	9/30/2020	9/30/2020	Task Completed						
	Submission of civil requirement drawing for MFB up to	8/28/2020	8/28/2020	11/2/2020	11/2/2020	Task Completed						
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed				-		1st draft of drawing to be submitted by 30 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed						
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
04SC008 - Design, Supply and Installation of detailed design for lifting appliances	Acceptance of tender award (C9)	-	-	-	7/6/2020	Task Completed				100%	-	AECOM accepted tender report on 6 July 2020.
	Submission of detailed design for lifting appliances for Inlet Works No. 1 (CDS050-1)	9/6/2020	12/5/2020	9/6/2020	10/30/2022	94%						DWG 0055 (Rev.0) was submitted on 13 Mar 2021. AECOM commented on 20 Apr 2021. Bestwise to resubmit. Bestwise submitted P&M0025 on 15 June 2021. Finalized design shall be submitted by 30 Oct 2022.
	Submission of detailed design for lifting appliances for Primary Sedimentation Tanks (CDS050-2)	9/6/2020	12/5/2020	9/6/2020	10/30/2022	94%						DWG 0054 (Rev.0) was submitted on 18 Jan 2021. AECOM commented on 9 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 30 Oct 2022.
	Submission of detailed design for lifting appliances for BR 2A and 2B (CDS050-3)	9/6/2020	12/5/2020	9/6/2020	10/30/2022	94%						DWG 0065 (Rev.0) was submitted on 18 Jan 2021. AECOM commented on 9 Mar 2021. Bestwise to resubmit. P&M-0026 (Rev.1) received status B. Finalized design calculation shall be submitted by 30 Oct 2022.
	Submission of detailed design for lifting appliances for MFB (CDS050-4)	9/6/2020	12/5/2020	9/6/2020	10/30/2022	94%						DWG 0066 (Rev.1) was submitted on 1 Mar 2021. AECOM commented on 5 Mar 2021. Bestwise to resubmit. P&M-0027 (Rev.1) received status B. Finalized design calculation shall be submitted by 30 Oct 2022.
	Submission of detailed design for lifting appliances for Temporary Filtration Tank (CDS050-5)	9/6/2020	12/5/2020	9/6/2020	5/21/2021	Task Completed						DWG 0051 (Rev.2) was resubmitted on 7 May 2021 and acceptance by AECOM subject to condition on 21 May 2021. Bestwise submitted P&M0021 on 21 June 2021.
Building Services System	Submission for MVAC system	N/A	12/10/2020	N/A	10/30/2022	94%						Design calculations and drawings for inlet works was submitted on 16 Dec 2020. AECOM commented on 15 Jan 2021 and 20 Jan 2021. Design calculations and drawings for PST was submitted on 30 Dec 2020. AECOM commented on 22 Jan 2021 and 26 Jan 2021. Design calculations and drawings for MFB2 was submitted on 29 Jan 2021. AECOM commented on 26 Mar 2021. Subletting package resubmitted by 18 Mar 2021. AECOM accepted on 19 Mar 2021. Finalized design shall be submitted by 30 Oct 2022.
	Submission for Fire Services System	N/A	3/15/2021	N/A	10/30/2022	93%						Subletting Package to be resubmitted by 31 Mar 2021. AECOM accepted on 9 Apr 2021. Drawings: Inlet Works: submitted on 8 June 2021. PST 1-4: submitted on 23 Jun 2021 BR2A & 2B: submitted on 8 Jun 2021 MFB 2: submitted on 8 Jun 2021 Finalized design shall be submitted by 30 Oct 2022.

	Submission for Plumbing and Drainage System	N/A	3/15/2021	N/A	10/30/2022	93%							Subletting Package resubmitted by 10 Mar 2021. AECOM accepted on 12 Mar 2021. Tender invitation was conducted on 15 Mar 2021 and closed on 26 Mar 2021. Finalized design shall be submitted by 30 Oct 2022.
	Submission for Electrical Services System	N/A	12/10/2020	N/A	10/30/2022	94%							GA for lighting was submitted on 18 Dec 2020. AECOM commented on 6 Jan 2021. Bestwise to resubmit. GA for small power system was submitted in 8 Feb 2021. AECOM commented on 3 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 30 Oct 2022.
	Submission of ELV system	N/A	1/8/2021	N/A	10/30/2022	94%							GA for CCTV was resubmitted on 16 Mar 2021. AECOM commented on 30 Mar 2021. Bestwise resubmitted on 25 Jun 2021. Finalized design shall be submitted by 30 Oct 2022.
	Submission for PV system	N/A	3/15/2021	N/A	10/30/2022	93%							Tender package was submitted to AECOM. Finalized design shall be submitted by 30 Oct 2022.
SCADA System & PMS	Submission for SCADA system	N/A	2/11/2021	N/A	10/30/2022	94%							Revised SCADA structure was provided via email on 9 Apr 2021 and tender package is under preparation. Finalized design shall be submitted by 30 Oct 2022.
	Submission for PMS system	N/A	3/8/2021	N/A	10/30/2022	93%							Tender package to be resubmitted on 29 June 2021. Finalized design shall be submitted by 30 Oct 2022.
	Submission for CMMS & IDMS system	N/A	6/1/2021	N/A	10/30/2022	92%							Finalized design shall be submitted by 30 Oct 2022.
Section 2 of Works													
Street Fire Hydrant Pump Room	KD1A: Submission of civil requirement drawing for	7/15/2020	7/15/2020	8/15/2020	9/17/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for	8/28/2020	9/18/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%			Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed							1st draft of drawing to be submitted by 30 September 2020
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
FS & Sprinkler Pump Room	KD1A: Submission of civil requirement drawing for FS	7/15/2020	7/15/2020	8/15/2020	9/17/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for FS	8/28/2020	9/18/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%			Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020	Task Completed							
	KD1A: Submission of electrical schematic drawings for	9/7/2020	10/1/2020	11/5/2020	11/5/2020	Task Completed							
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
Emergency Generator House	KD1A: Submission of civil requirement drawing for Emergency Generator House up to +8.0 mPD (First	7/15/2020	7/15/2020	8/15/2020	9/18/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 18 September 2020
	KD1A: Submission of civil requirement drawing for Emergency Generator House up to +8.0 mPD (Final)	8/28/2020	9/19/2020	11/2/2020	11/5/2020	Task Completed	no.	1	1	100%			Bestwise resubmitted (rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	7/15/2020	7/15/2020	8/15/2020	9/30/2020								
	KD1A: Submission of electrical schematic drawings for Street Fire Hydrant Pump Room (Final)	9/7/2020	10/1/2020	11/5/2020	11/5/2020								
	KD1A: 6 November 2020												Notice of completion works was submitted on 17 Nov 2020
Lightning Protection System for DOU3A (underground)	Submission and Acceptance for Lightning Protection System Design	12/6/2021	12/6/2021	1/31/2022	1/31/2022	Task Completed							
	Material Delivery	2/7/2022	2/7/2022	2/28/2022	2/28/2022	Task Completed							Material Delivery was by End Feb 2022.
	Installation Work	3/31/2022	4/26/2022	5/5/2022	5/5/2022	Task Completed							The installation work was completed on 5 May 2022.
	Testing & Commissioning	1/7/2023	1/7/2023	1/31/2023	1/31/2023								
Lightning Protection System for Inlet Works (underground)	Submission and Acceptance for Lightning Protection System Design	12/20/2021	12/20/2021	1/31/2022	1/31/2022								
	Material Delivery	12/15/2022	10/1/2022	3/31/2022	10/31/2022								
	Installation Work	3/15/2022	11/1/2022	10/30/2022	12/14/2022								Underground works subject to site coordination with JV.
	Testing & Commissioning	11/1/2022	12/15/2022	11/15/2022	12/31/2022								
Section 3 of Works													
6B.2.12 Provision of New Replacement Filter Plates	Submission of onsite survey plan for acceptance	3/1/2020	3/25/2020	3/30/2020	4/21/2020	Task Completed				100%	-		Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	3/1/2020	3/25/2020	3/30/2020	5/12/2020	Task Completed				100%	-		Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	5/21/2020	5/21/2020	5/29/2020	5/29/2020	Task Completed				100%			
	Acceptance of onsite survey report	5/30/2020	5/30/2020	6/15/2020	6/15/2020	Task Completed				-			
	Preparation of procurement package (C11)	6/22/2020	6/22/2020	7/6/2020	7/14/2020	Task Completed				100%			
	Tender invitation (C11)	7/15/2020	7/15/2020	7/22/2020	7/24/2020	Task Completed				100%			
	Tender Award (C11)	7/23/2020	7/25/2020	7/29/2020	7/31/2020	Task Completed				100%			
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Submission	8/21/2020	8/21/2020	8/28/2020	12/7/2020	Task Completed				100%			Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical Material submission (Rev.1) resubmitted on 7 Dec 2020. AECOM accepted subject to comments on 24 Dec 2020. Material submission (Rev. 2) resubmitted on 12 Jan 2021. AECOM accepted subject to comment on 22 Jan 2021.

6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Delivery	12/1/2020	12/1/2020	8/8/2021	7/13/2021	Task Completed					-		Handed over to DSD.
	Completion Date of Section 3: 22 September 2021												
Subcontracting													
	Submission of subletting package for acceptance	1/1/2020	3/6/2020	3/30/2020	3/6/2020	Task Completed					100%	-	
	Acceptance of subletting package	3/1/2020	3/21/2020	3/30/2020	3/21/2020	Task Completed					100%	-	
	Tender invitation	3/1/2020	3/24/2020	4/1/2020	3/30/2020	Task Completed					100%	-	
	Tender award	3/22/2020		4/14/2020	4/6/2020	Task Completed					100%	-	Bestwise submitted tender report on 6 April 2020
	Acceptance of tender award	-	-	-	4/15/2020	Task Completed					100%	-	AECOM accepted tender report on 15 April 2020
Construction of Contractor's site accommodation in WA1-C	Design of MiC	4/15/2020	4/16/2020	6/1/2020	8/15/2020	Task Completed					100%	-	Revised layout drawings received from AluHouse on 28 May 2020. Comments provided to AluHouse on 2 June 2020.
	Submission of detailed design including foundation works, septic tank	7/1/2020	7/1/2020	7/14/2020	9/4/2020	Task Completed					100%	-	Design calculation of foundation work was submitted on 7 July 2020, comment received on 27 July 2020. Bestwise to resubmit.
	Site Clearance Work	7/15/2020	7/20/2020	7/31/2020	8/15/2020	Task Completed					100%	-	Tender invitation commenced on 29 May 2020 and tenders received on 4 June 2020. Tender
	Off-site fabrication of Septic tank	7/15/2020	7/20/2020	7/31/2020	7/31/2020	Task Completed					100%	-	Site clearance work started on 20 July 2020
	Submission of method statement with ICE certificate	8/1/2020	8/1/2020	8/7/2020	10/8/2020	Task Completed					100%	-	CV of ICE was submitted on 4 August 2020 and accepted on 25 August 2020
	Submission of design calculation with ICE certificate	8/1/2020	8/1/2020	8/7/2020	10/8/2020	Task Completed					100%	-	Design calculation of foundation work was submitted on 7 July 2020, comment received on
	Acceptance of method statement and design calculation	8/8/2020	10/9/2020	8/14/2020	10/16/2020	Task Completed					100%	-	Method Statement and Design Calculation was submitted on 8 Oct 2020.
	Submission of method statement with ICE certificate	8/1/2020	8/1/2020	8/7/2020	11/23/2020	Task Completed					100%	-	
	Submission of design calculation with ICE certificate	8/1/2020	8/1/2020	8/7/2020	11/23/2020	Task Completed					100%	-	
	Acceptance of method statement and design calculation	8/8/2020	11/24/2020	8/14/2020	11/27/2020	Task Completed					100%	-	
	Excavation work	8/17/2020	10/21/2020	8/18/2020	10/21/2020	Task Completed					100%	-	
	Installation of septic tank	8/19/2020	10/21/2020	8/20/2020	10/22/2020	Task Completed					100%	-	
	Construction of RC foundation	8/21/2020	10/23/2020	8/31/2020	11/12/2020	Task Completed					100%	-	
	Off-site fabrication and delivery of MiC Office	6/1/2020	9/30/2020	7/31/2020	12/4/2020	Task Completed					100%	-	
On-site installation of MiC Office	8/1/2020	12/4/2020	8/30/2020	1/5/2021	Task Completed					100%	-		
	Installation of car park shelter	1/4/2021	1/7/2021	1/11/2021	1/9/2021	Task Completed					100%	-	Subject to the completion of car park shelter of PM office and JEC office.
04SC003 - Building Information Modeling (BIM)													
	Submission of subletting package for acceptance (C9)	3/1/2020	3/25/2020	3/14/2020	3/25/2020	Task Completed					100%	-	
	Acceptance of subletting package (C9)	3/14/2020	4/2/2020	3/30/2020	4/2/2020	Task Completed					100%	-	
	Tender invitation (C9)	4/1/2020	4/1/2020	4/8/2020	4/9/2020	Task Completed					100%	-	
	Tender award (C9)	-	-	-	4/15/2020	Task Completed					100%	-	Bestwise submitted tender report on 15 April 2020
	Submission of subletting package for acceptance	3/14/2020	3/16/2020	3/30/2020	4/20/2020	Task Completed					100%	-	Bestwise resubmitted on 20 April 2020
	Acceptance of subletting package	3/28/2020	5/4/2020	4/13/2020	5/13/2020	Task Completed					100%	-	AECOM accepted subletting package on 13 May 2020
	Tender invitation	4/11/2020	6/19/2020	4/27/2020	6/26/2020	Task Completed					-	-	Invitation to tender was commenced on 19 June 2020 and tender returned on 26 June 2020
	Tender award	4/25/2020	6/27/2020	5/11/2020	7/4/2020	Task Completed					-	-	Bestwise submitted tender report on 30 June 2020
	Acceptance of tender award	-	-	-	7/18/2020	Task Completed					-	-	
04SC007 - Independent Beam Plus Consultant													
	Submission of subletting package for acceptance	3/1/2020	3/30/2020	3/14/2020	3/30/2020	Task Completed					100%	-	
	Acceptance of subletting package	3/14/2020	4/3/2020	3/30/2020	4/3/2020	Task Completed					100%	-	
	Tender invitation	3/30/2020	3/30/2020	4/9/2020	4/9/2020	Task Completed					100%	-	
	Tender award	-	-	-	4/15/2020	Task Completed					100%	-	Bestwise submitted tender report on 15 April 2020
	Acceptance of tender award	-	-	-	4/17/2020	Task Completed					100%	-	AECOM accepted tender report on 17 April 2020
	Introduction meeting with IBPC, Cinotech	-	-	-	4/28/2020	Task Completed					100%	-	Meeting completed on 28 April 2020 followed by planning work progress
04SC008 - Design, Supply and Installation of detailed													
	Submission of subletting package for acceptance (C9)	4/1/2020	3/17/2020	4/14/2020	3/17/2020	Task Completed					100%	-	Bestwise submitted subletting package on 3 April 2020
	Acceptance of subletting package (C9)	4/14/2020	4/17/2020	4/30/2020	4/28/2020	Task Completed					100%	-	AECOM accepted subletting package on 28 April 2020
	Tender invitation (C9)	4/30/2020	5/6/2020	5/14/2020	5/28/2020	Task Completed					100%	-	Invitation to tender was commenced on 6 May 2020 and tender returned on 28 May 2020
	Tender award (C9)	5/14/2020	5/29/2020	5/30/2020	6/9/2020	Task Completed					100%	-	Bestwise submitted tender report on 9 June 2020.
Temporary Primary Sludge Thickener and its	Submission of subletting package (C9) for acceptance	15/05/2020 -> 30/05/2020 -> 30/7/2020*	8/14/2020	15/05/2020 -> 15/06/2020 -> 15/8/2020*	8/27/2020	Task Completed					100%	Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020.
	Acceptance of subletting package (C9) (Mech)		8/15/2020		9/16/2020	Task Completed					100%	-	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
	Tender invitation (C9) (Mech)	15/06/2020-> 15/8/2020*	9/9/2020	22/06/2020-> 22/8/2020*	10/14/2020	Task Completed					100%	-	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation for FRP Tank was conducted on 9 Sep 2020, tender returned on 16 Sep 2020. - Tender invitation for mechanical installation was conducted on 29 Sept 2020, tender returned on 14 Oct 2020.

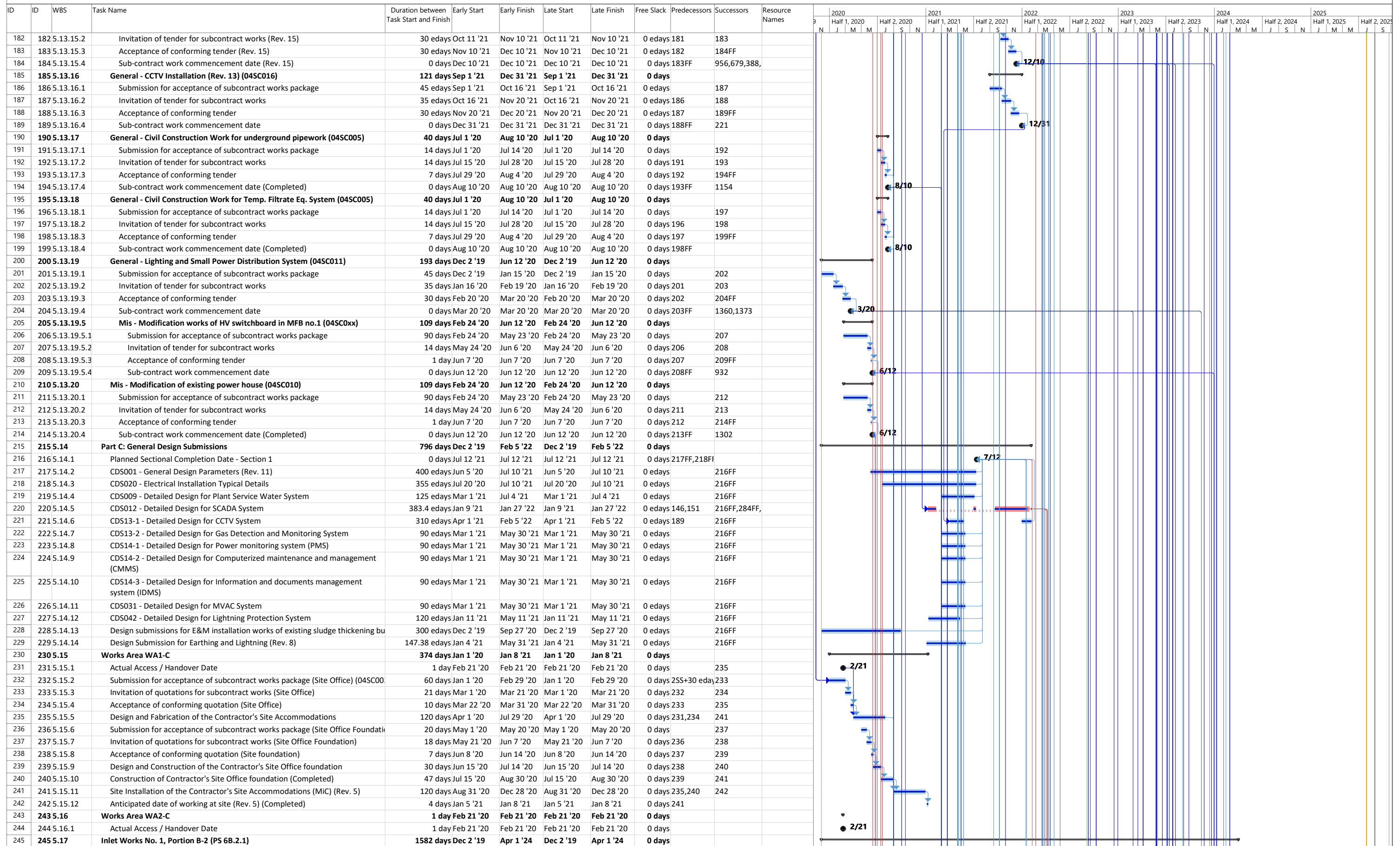
Tender award (C9) (Mech)	22/06/2020->22/8/2020*	9/17/2020	29/06/2020->29/8/2020*	10/22/2020	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender report for FRP Tank was submitted on 24 Sep 2020 and accepted on 9 Oct 2020. - Tender report for mechanical installation submitted on 22 Oct 2020 and accepted on 16 Nov 2020.
Acceptance of tender award (C9) (Mech)	-	-	-	11/16/2020	Task Completed				100%		
Submission of subletting package (C9) for acceptance (Elect)	15/05/2020 -> 15/7/2020*	12/9/2020	15/05/2020 -> 30/11/2020*	1/28/2021	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Bestwise resubmitted subcontracting package of electrical installation on 28 Jan 2021
Acceptance of subletting package (C9) (Elect)	30/05/2020 -> 30/7/2020*	1/29/2021	15/06/2020-> 15/8/2020*	2/1/2021	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
Tender invitation (C9) (Elect)	15/06/2020-> 15/8/2020*	2/1/2021	22/06/2020-> 22/8/2020*	2/11/2021	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation commenced on 1 Feb 2021 and returned on 11 Feb 2021
Tender award (C9) (Elect)	22/06/2020-> 22/8/2020*	2/11/2021	29/06/2020-> 29/8/2020*	2/23/2021	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender report target submitted on 23 Feb 2021 and accepted on 24 Feb 2021
Acceptance of tender award (C9) (Elect)	-	-	-	2/26/2021	Task Completed				100%		
Tender invitation (C11)	30/04/2020-> 15/07/2020*	4/30/2020	30/06/2020-> 15/09/2020*	11/18/2020	Task Completed				100%	Bestwise	- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. -Tender invitation of Primary Sludge Thickener commenced on 22 April 2020 and tender was received on 29 April 2020. Tender queries was requested on 5 May 2020 and received on 7 May 2020. Tender report was commented by PM and resubmitted on 22 May 2020. Accepted by AECOM on 12 Jun 2020. - Tender Invitation of process pumps for the thickening system was commenced on 5 Jun 2020 and tenders were received on 10 June 2020. Tender report submitted to PM on 2 July 2020. Tender Invitation of activated carbon filter was commenced on 22 Oct 2020 and to be returned on 2 Nov 2020. Tender report submitted on 5 Nov 2020 and accepted on 16 Nov 2020 - Tender Invitation of FRP platform was commenced on 13 Nov 2020 and to be returned on 20 Nov 2020. Tender report submitted on 30 Nov 2020 and accepted on 11 Jan 2020 - Tender Invitation of instrument was commenced on 18 Nov 2020 and to be returned on 25 Nov 2020. Tender report submitted on 30 Nov 2020 - Based on the control philosophy agreed on 23 Dec 2020, motorized and solenoid valves were selected
Tender award (C11)	15/05/2020-> 29/07/2020*	5/30/2020	15/07/2020-> 29/08/2020*	11/30/2020	Task Completed				100%		- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
Acceptance of tender award (C11)	-	-	-	9/18/2020					-		
Design Submission	03/07/2020 -> 15/07/2020*	8/5/2020	21/09/2020-> 02/10/2020*	5/10/2021	Task Completed				100%	Bestwise	- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. -Design submission of Process Pumps (Rev.3) resubmitted on 14 Apr 2021, AECOM accepted with comments on 7 May 2021. -Design submission of electrical calculation (rev.2) was resubmitted on 29 Apr 2021. AECOM accepted with comments on 10 May 2021. -Control Philosophy (Rev.2) resubmitted on 5 Mar 2021. AECOM accepted subject to comments on 26 Mar 2021.
Plant and Material Submission	21/07/2020 -> 30/07/2020*	7/21/2020	31/08/2020 -> 31/10/2020*	6/30/2021	Task Completed					Bestwise	- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Plant and Material submission of primary sludge thickener was resubmitted on 1 Sep 2020 (Rev. 3) and AECOM accepted on 8 Sep 2020. - Plant and Material submission P&M0002 (Rev.2) of process pumps was submitted on 5 August 2020 and AECOM commented on 26 Aug 2020, Bestwise to re-submitted to AECOM. - Plant and Material submission (Rev.0) for valves was submitted on 16 Nov 2020. AECOM accepted on 14 Dec 2020 subject to comments - Plant and Material submission (Rev.1) for DI pipes and fittings was resubmitted on 3 Dec 2020. AECOM accepted on 14 Dec 2020 - Plant and Material submission (Rev.0) for primary sludge equalization tank was submitted on 5 Feb 2021. AECOM accepted subject to comments on 25 Feb 2021. - Plant and Material submission (Rev.0) for activated carbon filter was submitted on 28 Jan 2021. AECOM accepted subject to comments on 5 Feb 2021. - Plant and Material submission (Rev. 1) for instruments was resubmitted on 13 Mar 2021. AECOM accepted subject to comments on 7 Apr 2021.
Drawing Submission	03/07/2020 -> 30/07/2020*	8/3/2020	21/09/2020 -> 21/11/2020*	2/10/2021	Task Completed				100%	Bestwise	- *Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - PFD, P&ID, Schematic GA (Rev.3) resubmitted on 22 Jan 2021 according to the finalized control philosophy. AECOM accepted subject to comment on 29 Jan 2021. - Electrical drawing - Bestwise resubmitted electrical drawing (Rev.5) on 22 Mar 2021. AECOM accepted on 16 Apr 2021.

	Material Manufacturing	31/07/2020 -> 30/09/2020*	8/4/2020	21/10/2020 - > 21/12/2020*	4/20/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Manufacturing instruction of PS thickener was issued on 3 August 2020. - Manufacturing instruction of process pumps was issued on 24 September 2020 - Electrical sub-contractor is awarded and manufacturing LCP
	Material Delivery	05/09/2020 ->	11/4/2020	16/11/2020 -	6/21/2021	Task Completed						
	Mechanical Installation	01/10/2020 -> 01/12/2020*	2/2/2021	15/11/2020 - > 15/01/2021*	5/17/2021	Task Completed				-		
	Offsite Fabrication and Delivery of FRP Tank		1/16/2021		4/7/2021	Task Completed				100%		First batch to be delivered on 23 Mar 2021
	Onsite Installation of FRP Tank		4/7/2021		7/30/2021	Task Completed						Water filling to tank completed; Tank hydraulic test completed.
	Electrical Installation	01/10/2020 -> 01/12/2020*	3/19/2021	15/11/2020 - > 15/01/2021*	7/19/2021	Task Completed				-		Energize of all LCPs on 24 May 2021 and isolated prior to system commissioning.
Temporary Primary Sludge Thickener and its accessories (Sub-programme was provided by Bestwise)	Testing and Commissioning	15/11/2020 -> 15/01/2021*	5/8/2021	22/11/2020 - > 22/01/2021*	9/30/2022	98%				-		Improvement works under PMI are on-going and defect rectification for BCM comments was partially completed. - Testing and Commissioning (3 x 24hrs) completed by End September.
Modification of Existing Emergency Generator Electrical Works	Submission of subletting package (C9) for acceptance	10/15/2020	10/15/2020	10/31/2020	12/11/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	11/1/2020	11/5/2020	11/15/2020	1/2/2021	Task Completed				100%		
	Tender invitation (C9)	11/16/2020	1/26/2021	11/30/2020	2/5/2021	Task Completed				100%		Tender invitation commenced on 26 Jan 2021, and returned on 5 Feb 2021
	Tender award (C9)	11/30/2020	2/18/2021	12/7/2020	2/18/2021	Task Completed				100%		Tender report was submitted on 18 Feb 2021 and accepted on 26 Feb 2021
	Acceptance of tender award (C9)	12/8/2020	2/18/2021	12/15/2020	2/26/2021	Task Completed				100%		
	Design Submission	12/15/2020	3/15/2021	1/15/2021	4/23/2021	Task Completed				100%		DWG-0100 was submitted on 23 Apr 2021. AECOM accepted with comments on 30 Apr
	Transportation of existing dismantled genset no. 2 (Genset No.2) to subcontractor (Click Ltd.)'s workshop	3/9/2021	3/9/2021	3/9/2021	3/9/2021	Task Completed				100%		
	Drawing submission (Drawing of General Layout for Existing 600kVA Genset Container)	4/23/2021	4/23/2021	4/30/2021	4/30/2021	Task Completed				100%		
	Drawing submission (Cable route ,general arrangement, etc)	5/14/2021	5/28/2021	5/21/2021	5 July 2021	Task Completed				100%		
	Material submission P431 P&M-0087	21 May 2021	19 June 2021	28 May 2021	12 July 2021	Task Completed				100%		
	Fabrication of container at PRC	21 June 2021	21 June 2021	TBC	8/12/2021	Task Completed				100%		
	Container deliver to HK	TBC	8/12/2021	8/10/2021	8/12/2021	Task Completed				100%		
	Off site modification work at HK factory	TBC	8/16/2021	8/24/2021	8/24/2021	Task Completed				100%		
	FAT plan of modified Genset No.2 P431 MS-036	7/12/2021	7/12/2021	8/20/2021	8/20/2021	Task Completed				100%		
	FAT of Genset No.2 after modification works	8/25/2021	8/25/2021	8/25/2021	8/25/2021	Task Completed				100%		
	Installation Work of I-beam Support	8/26/2021	8/26/2021	8/26/2021	8/26/2021	Task Completed				100%		
	Transportation of Genset No. 2 to existing power house in SWHSTW and completion of the Genset No.2 installation on I-beam supporting frame	8/27/2021	8/27/2021	8/27/2021	8/27/2021	Task Completed				100%		
	Provision of one (1) can of 160L diesel and a diesel hand pump placed at diesel daily tank of Genset No.1 for standby top up (PPMI-012 item L) Location to be coordinated and advised by SWHSTW operator DSD/ST1	7/27/2021	7/27/2021	8/31/2021								Location to be further coordinated with DSD.
	Modification works of existing switchboard	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Cables (including control cable and power cables) laying and installation of cable containment, busbar chamber	7/21/2021	7/30/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Supply of busbar chamber/ connection box	8/10/2021	8/10/2021	9/3/2021	9/3/2021	Task Completed				100%		
	Completion of all Genset cables and cable termination work to existing power house in SWHSTW after the completion of Genset No. 2 installation work	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed				100%		
	Delivery of dummy load and self-test	9/9/2021	9/9/2021	9/14/2021	9/15/2021	Task Completed				100%		
	SAT and T&C (witness by AECOM and DSD/ST1) Please allow 1 week advance notice for coordination with DSD/ST1, e.g. genset signal start, etc.)	9/15/2021	9/15/2021	9/15/2021	9/16/2021	Task Completed				100%		
04SC009 - Design, Supply and Installation of HVSB	Submission of subletting package for acceptance	4/21/2020		5/1/2020		-						
	Acceptance of subletting package	5/21/2020		5/30/2020		-						
	Tender invitation	6/1/2020		6/14/2020		-						
	Tender award	7/1/2020		7/14/2020		-						
04SC010 - Design, Supply and Installation of LVSB	Submission of subletting package for acceptance	5/1/2020		5/14/2020		-						



Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) ★
Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
117	117.5.13.3.1	Submission for acceptance of proposed hydraulic laboratory to conduct the	7 edays	May 15 '20	May 22 '20	May 15 '20	May 22 '20	0 edays		118													
118	118.5.13.3.2	Invitation to quotations for provision of service	7 edays	May 22 '20	May 29 '20	May 22 '20	May 29 '20	0 edays	117	119													
119	119.5.13.3.3	Acceptance of proposed hydraulic laboratory	6 edays	May 29 '20	Jun 3 '20	May 29 '20	Jun 3 '20	0 edays	118	120													
120	120.5.13.3.4	Commencement of detailed proposal and conduction of test (Rev 13)	480 days	Jun 4 '20	Sep 26 '21	Jun 4 '20	Sep 26 '21	0 days	119	121													
121	121.5.13.3.5	Acceptance of hydraulic Report (Rev 16)	75 days	Sep 27 '21	Dec 10 '21	Sep 27 '21	Dec 10 '21	0 days	120	279,439,584,													
122	122.5.13.4	General - Independent Checking Engineer (04SC004)	127 days	Mar 11 '20	Jul 15 '20	Mar 11 '20	Jul 15 '20	0 days															
123	123.5.13.4.1	Submission for acceptance of proposed Independent Checking Engineer	90 edays	Mar 11 '20	Jun 9 '20	Mar 11 '20	Jun 9 '20	0 edays		124													
124	124.5.13.4.2	Acceptance of proposed Independent Checking Engineer	1 eday	Jun 24 '20	Jun 25 '20	Jun 24 '20	Jun 25 '20	0 edays	123	125													
125	125.5.13.4.3	Engagement with an Independent Checking Engineer	21 days	Jun 25 '20	Jul 15 '20	Jun 25 '20	Jul 15 '20	0 days	124	126													
126	126.5.13.4.4	Actual Date for engagement with an ICE (Completed)	0 days	Jul 15 '20	Jul 15 '20	Jul 15 '20	Jul 15 '20	0 days	125														
127	127.5.13.5	General - Lifting Appliances (04SC008)	81 days	May 1 '20	Jul 21 '20	May 1 '20	Jul 21 '20	0 days															
128	128.5.13.5.1	Submission for acceptance of subcontract works package	30 edays	May 1 '20	May 31 '20	May 1 '20	May 31 '20	0 edays		129													
129	129.5.13.5.2	Invitation of tender for subcontract works	21 edays	May 31 '20	Jun 21 '20	May 31 '20	Jun 21 '20	0 edays	128	130													
130	130.5.13.5.3	Acceptance of conforming tender	30 edays	Jun 21 '20	Jul 21 '20	Jun 21 '20	Jul 21 '20	0 edays	129	131													
131	131.5.13.5.4	Sub-contract work commencement date (Completed)	0 days	Jul 21 '20	Jul 21 '20	Jul 21 '20	Jul 21 '20	0 days	130	287,447,594,													
132	132.5.13.6	General - Mechanical Installations	244 days	Jun 1 '21	Jan 30 '22	Jun 1 '21	Jan 30 '22	0 days															
133	133.5.13.6.1	Submission for acceptance of subcontract works package	120 days	Jun 1 '21	Sep 28 '21	Jun 1 '21	Sep 28 '21	0 days		134													
134	134.5.13.6.2	Invitation of tender for subcontract works	75 days	Sep 29 '21	Dec 12 '21	Sep 29 '21	Dec 12 '21	0 days	133	135													
135	135.5.13.6.3	Acceptance of conforming tender	30 days	Dec 13 '21	Jan 11 '22	Dec 13 '21	Jan 11 '22	0 days	134	136FF													
136	136.5.13.6.4	Sub-contract work commencement date	1 day	Jan 30 '22	Jan 30 '22	Jan 30 '22	Jan 30 '22	0 days	135FF	359,509,662,													
137	137.5.13.7	General - Electrical Installations	244 days	Jun 1 '21	Jan 30 '22	Jun 1 '21	Jan 30 '22	0 days															
138	138.5.13.7.1	Submission for acceptance of subcontract works package	120 edays	Jun 1 '21	Sep 29 '21	Jun 1 '21	Sep 29 '21	0 edays		139													
139	139.5.13.7.2	Invitation of tender for subcontract works	75 edays	Sep 29 '21	Dec 13 '21	Sep 29 '21	Dec 13 '21	0 edays	138	140													
140	140.5.13.7.3	Acceptance of conforming tender	30 edays	Dec 13 '21	Jan 12 '22	Dec 13 '21	Jan 12 '22	0 edays	139	141FF													
141	141.5.13.7.4	Sub-contract work commencement date	1 day	Jan 30 '22	Jan 30 '22	Jan 30 '22	Jan 30 '22	0 days	140FF	374,522,685,													
142	142.5.13.8	General - Facility Computerized Systems (SCADA & PMS) 04SC018	384 days	Sep 1 '20	Sep 20 '21	Sep 1 '20	Sep 20 '21	0 days															
143	143.5.13.8.1	Submission for acceptance of subcontract works package	60 edays	Sep 1 '20	Oct 31 '20	Sep 1 '20	Oct 31 '20	0 edays		144													
144	144.5.13.8.2	Invitation of tender for subcontract works	310 edays	Oct 31 '20	Sep 6 '21	Oct 31 '20	Sep 6 '21	0 edays	143	145													
145	145.5.13.8.3	Acceptance of conforming tender (Completed)	14 edays	Sep 6 '21	Sep 20 '21	Sep 6 '21	Sep 20 '21	0 edays	144	146													
146	146.5.13.8.4	Sub-contract work commencement date	0 days	Sep 20 '21	Sep 20 '21	Sep 20 '21	Sep 20 '21	0 days	145	220													
147	147.5.13.9	General - Facility Computerized Systems (CMMS & IDMS) 04SC057	384 days	Sep 1 '20	Sep 20 '21	Sep 1 '20	Sep 20 '21	0 days															
148	148.5.13.9.1	Submission for acceptance of subcontract works package	60 edays	Sep 1 '20	Oct 31 '20	Sep 1 '20	Oct 31 '20	0 edays		149													
149	149.5.13.9.2	Invitation of tender for subcontract works	310 edays	Oct 31 '20	Sep 6 '21	Oct 31 '20	Sep 6 '21	0 edays	148	150													
150	150.5.13.9.3	Acceptance of conforming tender	14 edays	Sep 6 '21	Sep 20 '21	Sep 6 '21	Sep 20 '21	0 edays	149	151													
151	151.5.13.9.4	Sub-contract work commencement date	0 days	Sep 20 '21	Sep 20 '21	Sep 20 '21	Sep 20 '21	0 days	150	220													
152	152.5.13.10	General - Building Services Installations	130 days	Nov 2 '20	Mar 12 '21	Nov 2 '20	Mar 12 '21	0 days															
153	153.5.13.10.1	Submission for acceptance of subcontract works package (Rev. 15)	60 edays	Nov 2 '20	Jan 1 '21	Nov 2 '20	Jan 1 '21	0 edays		154													
154	154.5.13.10.2	Invitation of tender for subcontract works	30 edays	Jan 1 '21	Jan 31 '21	Jan 1 '21	Jan 31 '21	0 edays	153	155													
155	155.5.13.10.3	Acceptance of conforming tender	30 edays	Jan 31 '21	Mar 2 '21	Jan 31 '21	Mar 2 '21	0 edays	154	156FF													
156	156.5.13.10.4	Sub-contract work commencement date	0 days	Mar 12 '21	Mar 12 '21	Mar 12 '21	Mar 12 '21	0 days	155FF	285,445,590,													
157	157.5.13.11	General - Mechanical Ventilation and Air Conditioning Installation (Rev. 13) (04SC020)	413 days	Nov 2 '20	Dec 19 '21	Nov 2 '20	Dec 19 '21	0 days															
158	158.5.13.11.1	Submission for acceptance of subcontract works package	60 days	Nov 2 '20	Dec 31 '20	Nov 2 '20	Dec 31 '20	0 days		159													
159	159.5.13.11.2	Invitation of tender for subcontract works	30 edays	Dec 31 '20	Jan 30 '21	Dec 31 '20	Jan 30 '21	0 edays	158	160													
160	160.5.13.11.3	Submission for acceptance of revised subcontract works package (Rev. 13)	60 days	Sep 1 '21	Oct 30 '21	Sep 1 '21	Oct 30 '21	0 days	159	161													
161	161.5.13.11.4	Invitation of tender for subcontract works (Rev. 15)	14 days	Nov 15 '21	Nov 28 '21	Nov 15 '21	Nov 28 '21	0 days	160	162													
162	162.5.13.11.5	Acceptance of conforming tender (Rev. 13)	21 days	Nov 29 '21	Dec 19 '21	Nov 29 '21	Dec 19 '21	0 days	161	163FF													
163	163.5.13.11.6	Sub-contract work commencement date	0 days	Dec 19 '21	Dec 19 '21	Dec 19 '21	Dec 19 '21	0 days	162FF	674,382,531													
164	164.5.13.12	General - Emergency Power Generator Set (04SC006)	146 days	Jul 1 '20	Nov 23 '20	Jul 1 '20	Nov 23 '20	0 days															
165	165.5.13.12.1	Submission for acceptance of subcontract works package	60 edays	Jul 1 '20	Aug 30 '20	Jul 1 '20	Aug 30 '20	0 edays		166													
166	166.5.13.12.2	Invitation of tender for subcontract works	30 edays	Aug 30 '20	Sep 29 '20	Aug 30 '20	Sep 29 '20	0 edays	165	167													
167	167.5.13.12.3	Acceptance of conforming tender	30 edays	Sep 29 '20	Oct 29 '20	Sep 29 '20	Oct 29 '20	0 edays	166	168FF													
168	168.5.13.12.4	Sub-contract work commencement date (Completed)	24 days	Oct 31 '20	Nov 23 '20	Oct 31 '20	Nov 23 '20	0 days	167FF	1057													
169	169.5.13.13	General - Plumbing Installation (Rev. 5) (04SC021)	231 days	Jul 1 '20	Feb 16 '21	Jul 1 '20	Feb 16 '21	0 days															
170	170.5.13.13.1	Submission for acceptance of subcontract works package	30 edays	Jul 1 '20	Jul 31 '20	Jul 1 '20	Jul 31 '20	0 edays		171													
171	171.5.13.13.2	Invitation of tender for subcontract works	75 edays	Jul 31 '20	Oct 14 '20	Jul 31 '20	Oct 14 '20	0 edays	170	172													
172	172.5.13.13.3	Retender of subcontract works (Rev. 5)	14 days	Jan 4 '21	Jan 17 '21	Jan 4 '21	Jan 17 '21	0 days	171	173													
173	173.5.13.13.4	Acceptance of conforming tender (Completed)	30 edays	Jan 17 '21	Feb 16 '21	Jan 17 '21	Feb 16 '21	0 edays	172	174FF													
174	174.5.13.13.5	Sub-contract work commencement date (Extended)	0 days	Feb 16 '21	Feb 16 '21	Feb 16 '21	Feb 16 '21																



Bestwise Project: DE/2018/04 Date: 31/07/22

Task: Blue bar, Milestone: Diamond, Project Summary: Grey bar, Late: Red bar, Critical Split: Yellow bar, Manual Progress: Dotted line, Milestone (Actual): Star, Milestone, Tentative: Circle with dot, Summary: Grey bar, Manual Summary: Grey bar, Critical: Red bar, Progress: Red bar, Slack (Float): Blue bar, Slack: Blue bar

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
312	312.5.17.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Apr 21 '22	Dec 16 '22	Apr 21 '22	Mar 1 '23	0 days	283	313													
313	313.5.17.7.8.2	Shipping and Delivery of Plant to site	60 days	Dec 17 '22	Feb 14 '23	Mar 2 '23	Apr 30 '23	75 days	312,346SS-€369														
314	314.5.17.7.9	Lifting Appliances	590 days	Mar 30 '21	Nov 9 '22	Mar 30 '21	Mar 1 '23	112 days															
315	315.5.17.7.9.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mar 30 '21	Nov 24 '21	Mar 30 '21	Nov 24 '21	0 days	287	316													
316	316.5.17.7.9.2	Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Jan 16 '23	Mar 1 '23	16 days	315,346SS-€350														
317	317.5.17.7.10	LV Switchboards	345 days	Mar 16 '22	Feb 23 '23	Mar 16 '22	Mar 11 '23	16 days															
318	318.5.17.7.10.1	IW - Manufacturing of Plant	240 days	Mar 16 '22	Nov 10 '22	Mar 16 '22	Nov 26 '22	0 days	284,286,84S	319													
319	319.5.17.7.10.2	IW - Factory Acceptance Test of Plant (to be witnessed by PM)	60 days	Nov 11 '22	Jan 9 '23	Nov 27 '22	Jan 25 '23	0 days	318	320													
320	320.5.17.7.10.3	IW - Shipping and Delivery of Plant to site	45 days	Jan 10 '23	Feb 23 '23	Jan 26 '23	Mar 11 '23	0 days	346SS-60 ed	375													
321	321.5.17.7.11	HV Switchboards, 04SC012	1074 days	Dec 2 '19	Nov 9 '22	Dec 2 '19	Nov 9 '22	0 days															
322	322.5.17.7.11.1	IW - Manufacturing of Plant	150 days	Dec 2 '19	Apr 29 '20	Dec 2 '19	Apr 29 '20	0 days	323														
323	323.5.17.7.11.2	IW - Factory Acceptance Test of Plant (to be witnessed by PM)	30 days	Apr 30 '20	May 29 '20	Apr 30 '20	May 29 '20	0 days	322	324													
324	324.5.17.7.11.3	IW - Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Sep 26 '22	Nov 9 '22	0 days	323,346SS-€														
325	325.5.17.7.12	11kV/380V Stepdown Power Transformers, EQT032	369 days	Nov 6 '21	Nov 9 '22	Nov 6 '21	Mar 11 '23	122 days															
326	326.5.17.7.12.1	IW - Manufacturing and Factory Acceptance Test of Plant	240 days	Nov 6 '21	Jul 3 '22	Nov 6 '21	Jan 25 '23	84 days	284	327													
327	327.5.17.7.12.2	IW - Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Jan 26 '23	Mar 11 '23	60 days	326,346SS-€376														
328	328.5.17.7.13	Building Services	180 days	Oct 15 '22	Apr 12 '23	Oct 15 '22	Apr 12 '23	0 days															
329	329.5.17.7.13.1	Equipment Delivery for Mechanical Ventilation and Air Conditioning Syste	180 days	Oct 15 '22	Apr 12 '23	Jan 24 '23	Jul 23 '23	0 days	395														
330	330.5.17.7.13.2	Equipment Delivery for Lighting and Power Distribution System	180 days	Oct 15 '22	Apr 12 '23	Jan 24 '23	Jul 23 '23	0 days	396														
331	331.5.17.7.13.3	Equipment Delivery for Plumbing Installation	180 days	Oct 15 '22	Apr 12 '23	Feb 3 '23	Aug 2 '23	0 days	397														
332	332.5.17.7.13.4	Equipment Delivery for CCTV Installation	180 days	Oct 15 '22	Apr 12 '23	Feb 23 '23	Aug 22 '23	0 days	398														
333	333.5.17.7.13.5	Equipment Delivery for Fire Services Installation	180 days	Oct 15 '22	Apr 12 '23	Jan 29 '23	Jul 28 '23	0 days	399														
334	334.5.17.7.13.6	Equipment Delivery for Earthing and Lightning Protection System	180 days	Oct 15 '22	Apr 12 '23	Jan 24 '23	Jul 23 '23	0 days	400														
335	335.5.17.7.14	PLC System	420 days	Nov 6 '21	Dec 30 '22	Nov 6 '21	Mar 26 '23	86 days															
336	336.5.17.7.14.1	Manufacturing of Plant, PLC for IW	300 days	Nov 6 '21	Sep 1 '22	Nov 6 '21	Nov 26 '22	0 days	284	337													
337	337.5.17.7.14.2	Factory Acceptance Test of Plant, PLC for IW (To be witnessed by PM)	60 days	Sep 2 '22	Oct 31 '22	Nov 27 '22	Jan 25 '23	0 days	336	338													
338	338.5.17.7.14.3	Shipping and Delivery of Plant to site	60 days	Nov 1 '22	Dec 30 '22	Jan 26 '23	Mar 26 '23	0 days	346SS-60 ed	391													
339	339.5.17.7.15	Fixed Bar Screen, EQT046	489 days	Jul 24 '21	Nov 24 '22	Jul 24 '21	Jul 21 '23	239 days															
340	340.5.17.7.15.1	IW - Manufacturing and Factory Acceptance Test of Plant	240 days	Jul 24 '21	Mar 20 '22	Jul 24 '21	Mar 20 '22	0 days	283	341													
341	341.5.17.7.15.2	IW - Shipping and Delivery of Plant to site	45 days	Oct 11 '22	Nov 24 '22	Jun 7 '23	Jul 21 '23	143 days	340,346SS-4361														
342	342.5.17.7.16	Electrical System	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days															
343	343.5.17.7.16.1	Equipment Delivery for Cable Containment	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days	377														
344	344.5.17.7.16.2	Equipment Delivery for Cable Provision	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days	378														
345	345.5.17.8	Site Installation Work	377 days	Nov 25 '22	Dec 6 '23	Nov 25 '22	Mar 6 '24	91 days															
346	346.5.17.8.1	Tentative Civil Handover Date, Portion B-2, Inlet Works No. 1 (Rev. 5)	1 day	Nov 25 '22	Nov 25 '22	Nov 25 '22	Nov 25 '22	0 days	350,348,349,														
347	347.5.17.8.2	Tentative Civil Handover Date, HV cables draw pits from MFB2 to IW	1 day	Feb 14 '23	Feb 14 '23	Jul 9 '23	Jul 9 '23	129 days	380FF+30 day														
348	348.5.17.8.3	Commencement of E&M Installation at Inlet Works No. 1	376 days	Nov 26 '22	Dec 6 '23	Nov 26 '22	Mar 6 '24	0 days	346	402FS-30 day													
349	349.5.17.8.3.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, Welfare facilities etc., IW	30 days	Nov 26 '22	Dec 25 '22	Nov 26 '22	Oct 20 '23	299 days	346														
350	350.5.17.8.3.2	Installation of Lifting Appliances at Inlet Works No. 1	142 days	Nov 26 '22	Apr 16 '23	Mar 2 '23	Jul 21 '23	0 days	346,316	359SS+30 day													
351	351.5.17.8.3.2.1	1/F EOT Crane LA-01-01 SWL 5t	45 days	Jan 10 '23	Feb 23 '23	May 31 '23	Jul 14 '23	45 days	354,355	358	LA - A x 4~6 m												
352	352.5.17.8.3.2.2	1/F EOT Crane LA-01-02 SWL 5t	45 days	Jan 10 '23	Feb 23 '23	May 31 '23	Jul 14 '23	45 days	354,355	358	LA - B x 4~6 m												
353	353.5.17.8.3.2.3	1/F EOT Crane LA-01-03 SWL 5t	45 days	Jan 10 '23	Feb 23 '23	Apr 16 '23	May 30 '23	0 days	354,355	356,358	LA - C x 4~6 m												
354	354.5.17.8.3.2.4	UG EOT Crane LA-01-04 SWL 10t	45 days	Nov 26 '22	Jan 9 '23	Mar 2 '23	Apr 15 '23	0 days	351,352,353,	351,352,353,	LA - A x 4~6 m												
355	355.5.17.8.3.2.5	UG EOT Crane LA-01-05 SWL 10t	45 days	Nov 26 '22	Jan 9 '23	Mar 2 '23	Apr 15 '23	0 days	351,352,353,	351,352,353,	LA - B x 4~6 m												
356	356.5.17.8.3.2.6	1/F Retractable Crane LA-01-06 SWL 10t	45 days	Feb 24 '23	Apr 9 '23	May 31 '23	Jul 14 '23	0 days	353	358	LA - C x 4~6 m												
357	357.5.17.8.3.2.7	Submission of T&C Plan and Procedures of LA for acceptance	14 days	Nov 26 '22	Dec 9 '22	Jul 1 '23	Jul 14 '23	121 days	358														
358	358.5.17.8.3.2.8	T&C, Loading Test for Lifting Appliances	7 days	Apr 10 '23	Apr 16 '23	Jul 15 '23	Jul 21 '23	0 days	351,352,353	361	LA - B x 4~6 m												
359	359.5.17.8.3.3	Mechanical Installations for Inlet Works No. 1	346 days	Dec 26 '22	Dec 6 '23	Jan 1 '23	Dec 6 '23	0 days	350SS+30 day;374SS+14 day														
360	360.5.17.8.3.3.1	Installation of penstocks and stoplogs (Penstock 35nos, Stoplogs 37 nos), EQT013	120 days	Jan 1 '23	Apr 30 '23	Jan 1 '23	Apr 30 '23	0 days	299,293,310	369,370,373	ME - E x 4~6 men												
361	361.5.17.8.3.3.2	Installation of fixed bar screen (x1), EQT046	7 days	Apr 17 '23	Apr 23 '23	Jul 22 '23	Jul 28 '23	0 days	358,341	365	ME - D x 2~4 men												
362	362.5.17.8.3.3.3	Installation of mechanical raked coarse bar screens (x4), EQT052	90 days	Dec 26 '22	Mar 25 '23	Apr 10 '23	Jul 8 '23	22 days	295	363	ME - A x 4~6 men												
363	363.5.17.8.3.3.4	Installation of screening conveyors (x6), EQT053	30 days	Apr 17 '23	May 16 '23	Jul 9 '23	Aug 7 '23	0 days	350,362,29E	368	ME - A x 4~6 men												
364	364.5.17.8.3.3.5	Installation of inlet pumps (x5), EQT006	21 days	Jul 8 '23	Jul 28 '23	Oct 12 '23	Nov 1 '23	0 days	350,369SS+	366	ME - B x 4~6 men												
365	365.5.17.8.3.3.6	Installation of mechanical raked fine bar screens (x5), EQT052	75 days	Apr 24 '23	Jul 7 '23	Jul 29 '23	Oct 11 '23	0 days	361,295	364	ME - B x 4~6 men												
366	366.5.17.8.3.3.7	Installation of grit removal system (x3), EQT004	14 days	Jul 29 '23	Aug 11 '23	Nov 2 '23	Nov 15 '23	0 days	364,304	36													

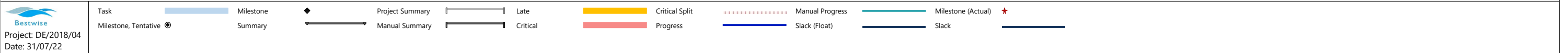
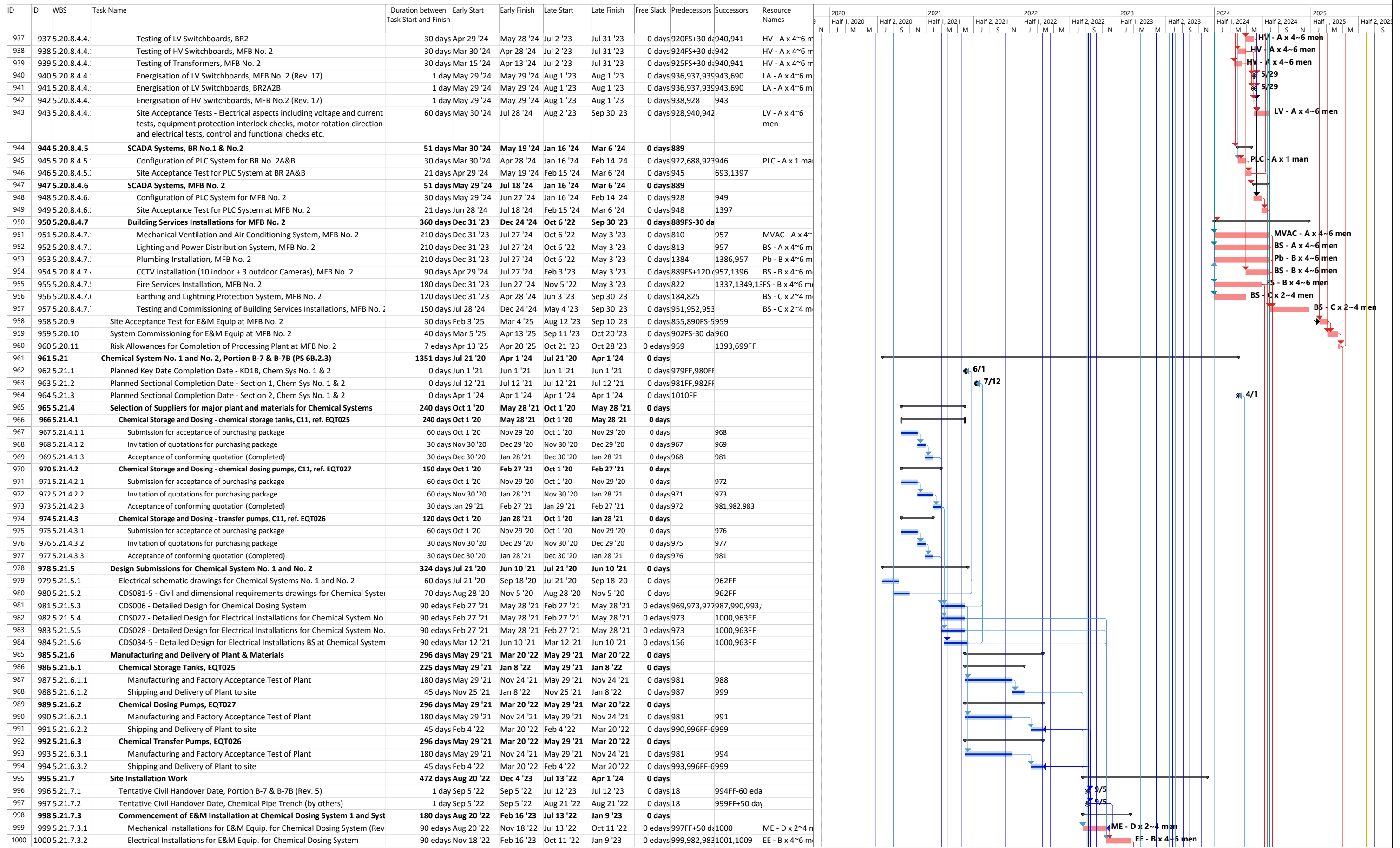
ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	Half 1, 2025	Half 2, 2025
439	439 5.18.6	Design Submissions for PST No. 1~ 4	587 days	Aug 1 '20	Mar 11 '22	Aug 1 '20	Mar 11 '22	0 days	121														
440	440 5.18.6.1	Electrical schematic drawings for PST No. 1~4	60 days	Aug 1 '20	Sep 29 '20	Aug 1 '20	Sep 29 '20	0 days		406FF													
441	441 5.18.6.2	CDS080-2 - Civil and dimensional requirements drawings for PST No. 1~4 up to +8.0	50 days	Sep 1 '20	Oct 20 '20	Sep 1 '20	Oct 20 '20	0 days		406FF													
442	442 5.18.6.3	CDS081-2 - Civil and dimensional requirements drawings for PST No. 1~ 4	150 days	Sep 1 '20	Jan 28 '21	Sep 1 '20	Jan 28 '21	0 days		407FF													
443	443 5.18.6.4	CDS003 - Detailed Design for Primary Sedimentation Tanks No. 1~4	299.2 edays	Feb 15 '21	Dec 11 '21	Feb 15 '21	Dec 11 '21	0 edays	414,418,422	450,453,456,													
444	444 5.18.6.5	CDS022 - Detailed Design for Electrical Installations for PST No. 1~4	154.88 edays	Oct 7 '21	Mar 11 '22	Oct 7 '21	Mar 11 '22	0 edays	82,92,100,2	83,491,408FF													
445	445 5.18.6.6	CDS034-2 - Detailed Design for Electrical Installations BS at PST No. 1~4	277.88 edays	Mar 12 '21	Dec 15 '21	Mar 12 '21	Dec 15 '21	0 edays	156	408FF,531													
446	446 5.18.6.7	CDS025-2 - Detailed Design for LV Switchboards for PST No. 1~4	254 edays	May 3 '21	Jan 12 '22	May 3 '21	Jan 12 '22	0 edays	78	480,408FF													
447	447 5.18.6.8	CDS050-2 - Detailed Design for Lifting Appliances - PST No. 1~ 4	150 edays	Sep 1 '20	Jan 29 '21	Sep 1 '20	Jan 29 '21	0 edays	131	477,408FF													
448	448 5.18.7	Manufacturing and Delivery of Plant & Materials	1235 days	Dec 2 '19	Apr 19 '23	Dec 2 '19	Sep 20 '23	154 days															
449	449 5.18.7.1	Lamella Plate Settlers, EQT014	353 days	Apr 11 '22	Mar 29 '23	Apr 11 '22	Jul 22 '23	115 days															
450	450 5.18.7.1.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Apr 11 '22	Feb 4 '23	Apr 11 '22	Jun 7 '23	8 days	443	451													
451	451 5.18.7.1.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Jun 8 '23	Jul 22 '23	115 days	450,498SS-€	512													
452	452 5.18.7.2	Reciprocating Type Bottom Scrappers, EQT014	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Jun 22 '23	85 days															
453	453 5.18.7.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Dec 12 '21	Oct 7 '22	Dec 12 '21	May 8 '23	128 days	443	454													
454	454 5.18.7.2.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	May 9 '23	Jun 22 '23	16 days	453,498SS-€	513													
455	455 5.18.7.3	Surface Scum Skimmers, EQT015	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Sep 20 '23	175 days															
456	456 5.18.7.3.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Dec 12 '21	Oct 7 '22	Dec 12 '21	Aug 6 '23	128 days	443	457													
457	457 5.18.7.3.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Aug 7 '23	Sep 20 '23	175 days	456,498SS-€	514													
458	458 5.18.7.4	Surface Scum Collection Pipes, EQT015	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Sep 20 '23	175 days															
459	459 5.18.7.4.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Dec 12 '21	Oct 7 '22	Dec 12 '21	Aug 6 '23	128 days	443	460													
460	460 5.18.7.4.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Aug 7 '23	Sep 20 '23	16 days	459,498SS-€	515													
461	461 5.18.7.5	Piston Type Primary Sludge Pumps, EQT016	397 days	Feb 26 '22	Mar 29 '23	Feb 26 '22	Sep 20 '23	175 days															
462	462 5.18.7.5.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Feb 26 '22	Dec 22 '22	Feb 26 '22	Aug 6 '23	52 days	443	463													
463	463 5.18.7.5.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Aug 7 '23	Sep 20 '23	16 days	462,498SS-€	516													
464	464 5.18.7.6	Drain Pumps, EQT007	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Aug 21 '23	145 days															
465	465 5.18.7.6.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Dec 12 '21	Oct 7 '22	Dec 12 '21	Jul 7 '23	128 days	443	466													
466	466 5.18.7.6.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Jul 8 '23	Aug 21 '23	16 days	465,498SS-€	517													
467	467 5.18.7.7	Air Blower, EQT018	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Sep 20 '23	175 days															
468	468 5.18.7.7.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Dec 12 '21	Oct 7 '22	Dec 12 '21	Aug 6 '23	128 days	443	469													
469	469 5.18.7.7.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Aug 7 '23	Sep 20 '23	46 days	468,498SS-€	518													
470	470 5.18.7.8	Stoplogs and Penstocks, EQT013	473 days	Dec 12 '21	Mar 29 '23	Dec 12 '21	Jul 22 '23	115 days															
471	471 5.18.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 12 '21	Aug 8 '22	Dec 12 '21	Jun 7 '23	188 days	443	472													
472	472 5.18.7.8.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Jun 8 '23	Jul 22 '23	16 days	498SS-60 ed	510													
473	473 5.18.7.9	Pipework, Valves and Electric Actuators, EQT036, EQT042 (Rev. 11)	343 days	Apr 21 '22	Mar 29 '23	Apr 21 '22	Feb 22 '23	0 days	63,70,66														
474	474 5.18.7.9.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Apr 21 '22	Dec 16 '22	Apr 21 '22	Jan 8 '23	23 days	443	475													
475	475 5.18.7.9.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Jan 9 '23	Feb 22 '23	0 days	474,498SS-€	511													
476	476 5.18.7.10	Lifting Appliances	790 days	Jan 29 '21	Mar 29 '23	Jan 29 '21	Mar 17 '23	0 days															
477	477 5.18.7.10.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Jan 29 '21	Aug 26 '21	Jan 29 '21	Aug 26 '21	0 days	447	478													
478	478 5.18.7.10.2	Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Feb 1 '23	Mar 17 '23	0 days	477,498SS-€	501													
479	479 5.18.7.11	LV Switchboards	441 days	Jan 13 '22	Mar 29 '23	Jan 13 '22	Aug 9 '23	133 days															
480	480 5.18.7.11.1	PST - Manufacturing of Plant	300 days	Jan 13 '22	Nov 8 '22	Jan 13 '22	Mar 27 '23	0 days	446	481													
481	481 5.18.7.11.2	PST - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Nov 9 '22	Feb 6 '23	Mar 28 '23	Jun 25 '23	6 days	480	482													
482	482 5.18.7.11.3	PST - Shipping and Delivery of Plant to site	45 days	Feb 13 '23	Mar 29 '23	Jun 26 '23	Aug 9 '23	16 days	481,498SS-€	523													
483	483 5.18.7.12	Building Services	180 days	Oct 15 '22	Apr 12 '23	Oct 15 '22	Apr 12 '23	0 days															
484	484 5.18.7.12.1	Equipment Delivery for Mechanical Ventilation and Air Conditioning System	180 days	Oct 15 '22	Apr 12 '23	May 8 '23	Nov 4 '23	92 days		532													
485	485 5.18.7.12.2	Equipment Delivery for Lighting and Power Distribution System	180 days	Oct 15 '22	Apr 12 '23	May 8 '23	Nov 4 '23	92 days		533													
486	486 5.18.7.12.3	Equipment Delivery for Plumbing Installation	180 days	Oct 15 '22	Apr 12 '23	May 18 '23	Nov 14 '23	92 days		534													
487	487 5.18.7.12.4	Equipment Delivery for CCTV Installation (9 indoor + 2 outdoor Cameras)	180 days	Oct 15 '22	Apr 12 '23	Jun 7 '23	Dec 4 '23	92 days		535													
488	488 5.18.7.12.5	Equipment Delivery for Fire Services Installation	180 days	Oct 15 '22	Apr 12 '23	Jan 19 '23	Jul 18 '23	92 days		536													
489	489 5.18.7.12.6	Equipment Delivery for Earthing and Lightning Protection System	180 days	Oct 15 '22	Apr 12 '23	May 8 '23	Nov 4 '23	92 days		537													
490	490 5.18.7.13	PLC System	405 days	Mar 11 '22	Apr 19 '23	Mar 11 '22	Aug 9 '23	112 days															
491	491 5.18.7.13.1	Manufacturing of Plant, PLC for PST	300 days	Mar 11 '22	Jan 4 '23	Mar 11 '22	Apr 26 '23	0 days	444	492													
492	492 5.18.7.13.2	Factory Acceptance Test of Plant, PLC for PST (To be witnessed by PM)	60 days	Jan 5 '23	Mar 5 '23	Apr 27 '23	Jun 25 '23	0 days	491	493													
493	493 5.18.7.13.3	Shipping and Delivery of Plant to site	45 days	Mar 6 '23	Apr 19 '23	Jun 26 '23	Aug 9 '23	0 days	492,498SS-€	524													
494	494 5.18.7.14	Electrical System	90 days	Dec 2 '19																			

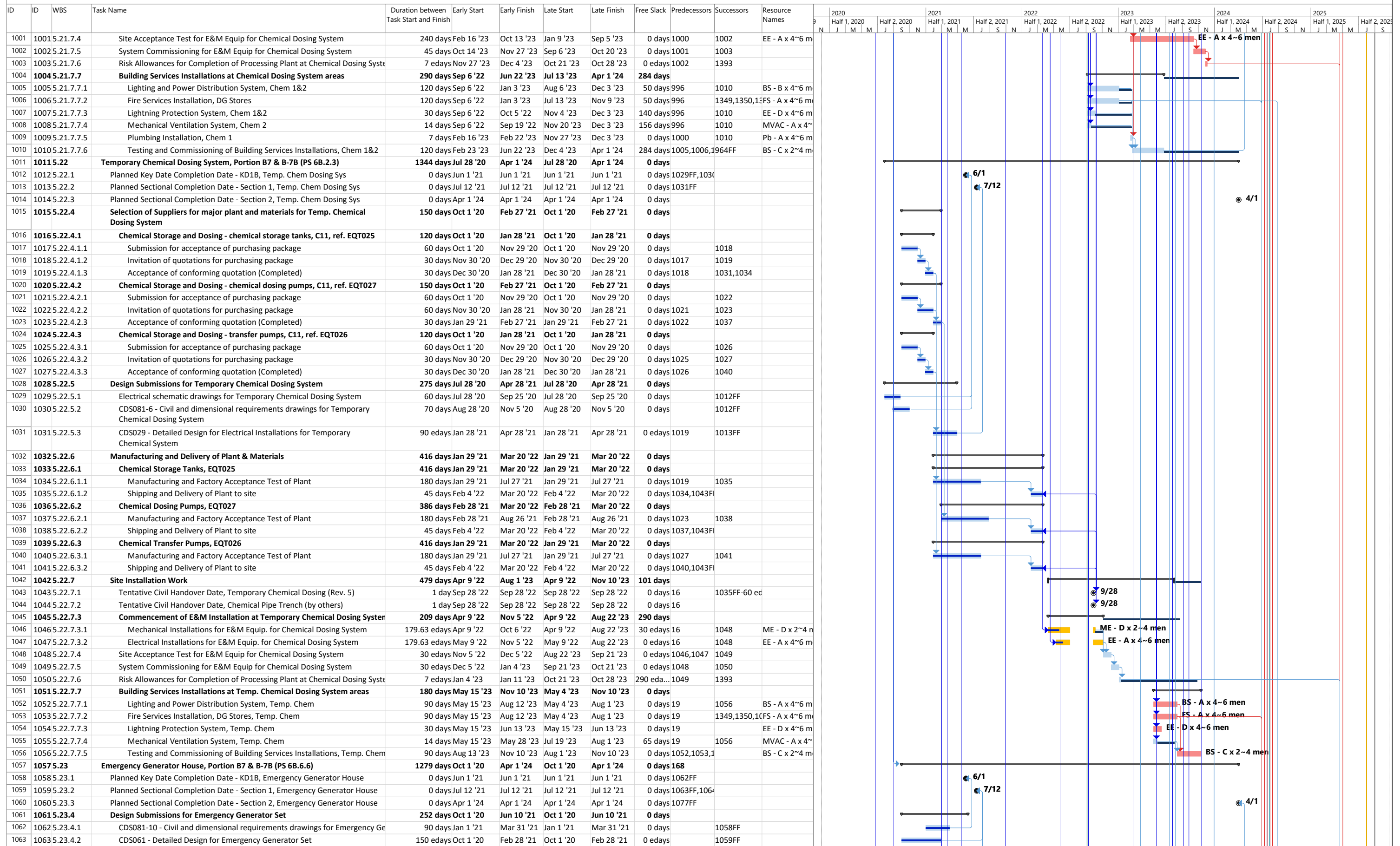
ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024	Half 2, 2024	Half 1, 2025	Half 2, 2025
504	504.5.18.8.2.2.3	Coping Level EOT Crane LA-02-03 SWL 5t	30 days	May 15 '23	Jun 13 '23	Apr 17 '23	May 16 '23	0 days	502	505,506,508	LA - B x 4~6 men												
505	505.5.18.8.2.2.3	Coping Level EOT Crane LA-02-04 SWL 5t	30 days	Jun 14 '23	Jul 13 '23	Jun 16 '23	Jul 15 '23	2 days	504	508	LA - A x 4~6 men												
506	506.5.18.8.2.2.3	Coping Level EOT Crane LA-02-05 SWL 5t	30 days	Jun 14 '23	Jul 13 '23	May 17 '23	Jun 15 '23	0 days	504	507,508	LA - B x 4~6 men												
507	507.5.18.8.2.2.3	Coping Level EOT Crane LA-02-06 SWL 2t	30 days	Jul 14 '23	Aug 12 '23	Jun 16 '23	Jul 15 '23	0 days	506	508	LA - A x 4~6 men												
508	508.5.18.8.2.2.3	T&C, Loading Test for Lifting Appliances at PST No. 1~4	7 days	Aug 13 '23	Aug 19 '23	Jul 16 '23	Jul 22 '23	0 days	502,503,504,512		LA - A x 4~6 men												
509	509.5.18.8.2.3	Mechanical Installations at PST No. 1~4	240 days	Apr 15 '23	Dec 10 '23	Feb 23 '23	Oct 20 '23	0 days	136														
510	510.5.18.8.2.3.1	Installation of penstocks and stoplogs (Penstock 18nos, Stoplogs 14 nos), EQT013	90 days	Apr 15 '23	Jul 13 '23	Jul 23 '23	Oct 20 '23	99 days	472		ME - E x 4~6 men												
511	511.5.18.8.2.3.1	Installation of pipework and valves, EQT036	240 days	Apr 15 '23	Dec 10 '23	Feb 23 '23	Oct 20 '23	0 days	475	521FS-100 da	ME - B x 4~6 men												
512	512.5.18.8.2.3.1	Installation of lamella plate settlers (x4), EQT014	60 days	Aug 20 '23	Oct 18 '23	Jul 23 '23	Sep 20 '23	0 days	513,508,451	514	ME - A x 4~6 men												
513	513.5.18.8.2.3.1	Installation of reciprocating type bottom scrapers (x4), EQT014	30 days	Apr 15 '23	May 14 '23	Jun 23 '23	Jul 22 '23	69 days	454	512	ME - A x 4~6 men												
514	514.5.18.8.2.3.1	Installation of surface scum skimmers (x1), EQT015	30 days	Oct 19 '23	Nov 17 '23	Sep 21 '23	Oct 20 '23	0 days	512,457		ME - A x 4~6 men												
515	515.5.18.8.2.3.1	Installation of scum collector pipes (x1), EQT015	30 days	Apr 15 '23	May 14 '23	Sep 21 '23	Oct 20 '23	159 days	460		ME - B x 4~6 men												
516	516.5.18.8.2.3.1	Installation of piston type primary sludge pumps (x3), EQT016	30 days	Apr 15 '23	May 14 '23	Sep 21 '23	Oct 20 '23	159 days	463		ME - C x 4~6 men												
517	517.5.18.8.2.3.1	Installation of drain pumps (x1), EQT007	30 days	Apr 15 '23	May 14 '23	Aug 22 '23	Sep 20 '23	0 days	466	518	ME - C x 4~6 men												
518	518.5.18.8.2.3.1	Installation of air blowers (x2), EQT018	30 days	May 15 '23	Jun 13 '23	Sep 21 '23	Oct 20 '23	129 days	517,469		ME - C x 4~6 men												
519	519.5.18.8.2.3.1	Installation of instrumentations, EQT035-1	60 days	Sep 2 '23	Oct 31 '23	Aug 22 '23	Oct 20 '23	0 days	59,511FS-10		ME - C x 4~6 men												
520	520.5.18.8.2.3.1	Installation of Platforms, Covers etc., PST, EQT050	60 days	Sep 21 '23	Nov 19 '23	Aug 22 '23	Oct 20 '23	0 days			ME - F x 4~6 men												
521	521.5.18.8.2.3.1	Site Acceptance Tests - mechanical aspects including alignment and levels checks, leakage tests, welding tests, installation checks,	100 days	Sep 2 '23	Dec 10 '23	Jul 13 '23	Oct 20 '23	0 days	511FS-100 days		ME - D x 2~4 men												
522	522.5.18.8.2.4	Electrical Installations for PST No. 1~4	187 days	Apr 15 '23	Oct 18 '23	Jul 11 '23	Jan 6 '24	80 days	498,141														
523	523.5.18.8.2.4.1	Installation of LV Switchboards, PST	60 days	Apr 15 '23	Jun 13 '23	Aug 10 '23	Oct 8 '23	30 days	482	526	LV - A x 4~6 men												
524	524.5.18.8.2.4.1	Installation of PLC Panel, PST	60 days	Apr 20 '23	Jun 18 '23	Aug 10 '23	Oct 8 '23	25 days	493	526	EE - A x 4~6 men												
525	525.5.18.8.2.4.1	Installation of cable trays and cable containments, PST	90 days	Apr 15 '23	Jul 13 '23	Jul 11 '23	Oct 8 '23	0 days	495	526	EE - A x 4~6 men												
526	526.5.18.8.2.4.1	Cables laying and terminations, PST	90 days	Jul 14 '23	Oct 11 '23	Oct 9 '23	Jan 6 '24	7 days	523,524,525	529FS-30 day	EE - B x 4~6 men												
527	527.5.18.8.2.4.1	Tentative Civil Handover Date, LV cables draw pits from IW to PST	1 day	Jul 20 '23	Jul 20 '23	Oct 8 '23	Oct 8 '23	0 days		529FF+30 day													
528	528.5.18.8.2.4.1	Cables laying and terminations between buildings	90 days	Jul 21 '23	Oct 18 '23	Oct 9 '23	Jan 6 '24	0 days	527	529FS-30 day	EE - B x 4~6 men												
529	529.5.18.8.2.4.1	Energisation of LV Switchboards, PST	1 day	Sep 19 '23	Sep 19 '23	Dec 17 '23	Dec 17 '23	89 days	526FS-30 da		LV - A x 4~6 men												
530	530.5.18.8.2.4.1	Site Acceptance Tests - Electrical aspects including voltage and current tests, equipment protection interlock checks, motor rotation direction and electrical tests, control and functional checks etc.	80 days	Jul 11 '23	Sep 28 '23	Sep 29 '23	Dec 17 '23	80 days	526FS-100 days,528FS-days		LV - A x 4~6 men												
531	531.5.18.8.2.5	Building Services Installations for PST No. 1~4	150 days	Jul 14 '23	Dec 10 '23	Jul 18 '23	Apr 1 '24	4 days	498FS+90 da														
532	532.5.18.8.2.5.1	Mechanical Ventilation and Air Conditioning System, PST	90 days	Jul 14 '23	Oct 11 '23	Nov 4 '23	Feb 1 '24	0 days	484	538	MVAC - B x 4~6 men												
533	533.5.18.8.2.5.1	Lighting and Power Distribution System, PST	90 days	Jul 14 '23	Oct 11 '23	Nov 4 '23	Feb 1 '24	0 days	485	538	BS - A x 4~6 men												
534	534.5.18.8.2.5.1	Plumbing Installation, PST	80 days	Jul 14 '23	Oct 1 '23	Nov 14 '23	Feb 1 '24	10 days	1384,486	1386,538	Pb - B x 4~6 men												
535	535.5.18.8.2.5.1	CCTV Installation (9 indoor + 2 outdoor Cameras), PST	60 days	Jul 14 '23	Sep 11 '23	Dec 4 '23	Feb 1 '24	30 days	498FS+60 da	538,1396	BS - B x 4~6 men												
536	536.5.18.8.2.5.1	Fire Services Installation, PST	85 days	Jul 14 '23	Oct 6 '23	Jul 18 '23	Oct 10 '23	4 days	488	1337,1349,1351	FS - A x 4~6 men												
537	537.5.18.8.2.5.1	Earthing and Lightning Protection System, PST	90 days	Jul 14 '23	Oct 11 '23	Nov 4 '23	Feb 1 '24	0 days	184,489	538	BS - C x 2~4 men												
538	538.5.18.8.2.5.1	Testing and Commissioning of Building Services Installations, PST	60 days	Oct 12 '23	Dec 10 '23	Feb 2 '24	Apr 1 '24	113 days	532,533,534	409FF	BS - C x 2~4 men												
539	539.5.18.8.2.6	SCADA Systems, PST No. 1~4	60 days	Oct 19 '23	Dec 17 '23	Jan 7 '24	Mar 6 '24	80 days															
540	540.5.18.8.2.6.1	Configuration of PLC System	45 days	Oct 19 '23	Dec 2 '23	Jan 7 '24	Feb 20 '24	0 days	526,528	541	PLC - B x 1 ma												
541	541.5.18.8.2.6.1	Site Acceptance Test for PLC System at PST No. 1~4	15 days	Dec 3 '23	Dec 17 '23	Feb 21 '24	Mar 6 '24	80 days	540	1397	PLC - A x 1 ma												
542	542.5.18.9	Site Acceptance Test for E&M Equip and Instrumentations calibrations at PST No. 1~4	15 edays	Nov 18 '23	Dec 3 '23	Sep 21 '23	Oct 6 '23	0 edays	499FS-30 da	543													
543	543.5.18.10	System Commissioning for E&M Equip at PST No. 1~4	15 days	Dec 3 '23	Dec 17 '23	Oct 6 '23	Oct 20 '23	0 days	542	544													
544	544.5.18.11	Risk Allowances for Completion of Processing Plant at PST No. 1~4	7 edays	Dec 17 '23	Dec 24 '23	Oct 21 '23	Oct 28 '23	0 edays	543	1393													
545	545.5.19	Bioreactors No. 2A & 2B & DOU2A, Portion B-4 (PS 6B2.4)	1722 days?	Dec 2 '19	Aug 18 '24	Dec 2 '19	Aug 18 '24	0 days?															
546	546.5.19.1	Planned Key Date Completion Date - KD1A, BR 2A & 2B & DOU2A	0 days	Oct 30 '20	Oct 30 '20	Oct 30 '20	Oct 30 '20	0 days	585FF,586FF														
547	547.5.19.2	Planned Key Date Completion Date - KD1B, BR 2A & 2B & DOU2A	0 days	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	587FF														
548	548.5.19.3	Planned Sectional Completion Date - Section 1, BR 2A & 2B & DOU2A	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	588FF,589FF														
549	549.5.19.4	Planned Sectional Completion Date - Section 2, BR 2A & 2B & DOU2A	0 days	Aug 18 '24	Aug 18 '24	Aug 18 '24	Aug 18 '24	0 days	679FF,680FF														
550	550.5.19.5	Selection of Suppliers for major plant and materials for BR 2A & 2B & DOU2A	528 days	Dec 2 '19	May 12 '21	Dec 2 '19	May 12 '21	0 days															
551	551.5.19.5.1	BR - pre-treatment fine screens (Marking Scheme Approach), EQT019	150 days	Sep 1 '20	Jan 28 '21	Sep 1 '20	Jan 28 '21	0 days															
552	552.5.19.5.1.1	Submission for acceptance of purchasing package	60 days	Sep 1 '20	Oct 30 '20	Sep 1 '20	Oct 30 '20	0 days		553													
553	553.5.19.5.1.2	Invitation of quotations for purchasing package	60 days	Oct 31 '20	Dec 29 '20	Oct 31 '20	Dec 29 '20	0 days	552	554													
554	554.5.19.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Dec 30 '20	Jan 28 '21	Dec 30 '20	Jan 28 '21	0 days	553	588													
555	555.5.19.5.2	BR - air diffusion system (Marking Scheme Approach), EQT017	180 days	Sep 1 '20	Feb 27 '21	Sep 1 '20	Feb 27 '21	0 days															
556	556.5.19.5.2.1	Submission for acceptance of purchasing package including proposed marking sch	90 days	Sep 1 '20	Nov 29 '20	Sep 1 '20	Nov 29 '20	0 days		557													
557	557.5.19.5.2.2	Invitation of quotations for purchasing package	60 days	Nov 30 '20	Jan 28 '21	Nov 30 '20	Jan 28 '21	0 days	556	558													
558	558.5.19.5.2.3	Acceptance of conforming quotation (Completed)	30 days	Jan 29 '21	Feb 27 '21	Jan 29 '21	Feb 27 '21	0 days	557	588													
559	559.5.19.5.3	BR - submersible mixers, C11, EQT020	150 days	Sep 1 '20	Jan 28 '21	Sep 1 '20	Jan 28 '21	0 days															
560	560.5.19.5.3.1	Submission for acceptance of purchasing package	60 days																				

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
566	566.5.19.5.4.3	Acceptance of conforming quotation (Completed)	30 days	Jan 12 '21	Feb 10 '21	Jan 12 '21	Feb 10 '21	0 days	565	588													
567	567.5.19.5.5	BR - scum removal systems, C11, EQT021, EQT022	150 days	Sep 14 '20	Feb 10 '21	Sep 14 '20	Feb 10 '21	0 days															
568	568.5.19.5.5.1	Submission for acceptance of purchasing package	60 days	Sep 14 '20	Nov 12 '20	Sep 14 '20	Nov 12 '20	0 days		569													
569	569.5.19.5.5.2	Invitation of quotations for purchasing package	60 days	Nov 13 '20	Jan 11 '21	Nov 13 '20	Jan 11 '21	0 days	568	570													
570	570.5.19.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Jan 12 '21	Feb 10 '21	Jan 12 '21	Feb 10 '21	0 days	569	588													
571	571.5.19.5.6	DOU - activated carbon filter (DOU No. 2A, No. 3A, No. 3B), C11, ref. EQT0	194 days	Dec 2 '19	Jun 12 '20	Dec 2 '19	Jun 12 '20	0 days															
572	572.5.19.5.6.1	Submission for acceptance of purchasing package	120 days	Dec 2 '19	Mar 30 '20	Dec 2 '19	Mar 30 '20	0 days		573													
573	573.5.19.5.6.2	Invitation of quotations for purchasing package	60 days	Mar 31 '20	May 29 '20	Mar 31 '20	May 29 '20	0 days	572	574													
574	574.5.19.5.6.3	Acceptance of conforming quotation (Completed)	14 days	May 30 '20	Jun 12 '20	May 30 '20	Jun 12 '20	0 days	573	592,756													
575	575.5.19.5.7	BR - instrumentations, C11, EQT035-2	120 days	Oct 1 '20	Jan 28 '21	Oct 1 '20	Jan 28 '21	0 days															
576	576.5.19.5.7.1	Submission for acceptance of purchasing package	60 days	Oct 1 '20	Nov 29 '20	Oct 1 '20	Nov 29 '20	0 days		577													
577	577.5.19.5.7.2	Invitation of quotations for purchasing package	60 days	Nov 30 '20	Jan 28 '21	Nov 30 '20	Jan 28 '21	0 days	576	583													
578	578.5.19.5.8	PV System (EQT041)	104 days	Jan 29 '21	May 12 '21	Jan 29 '21	May 12 '21	0 days															
579	579.5.19.5.8.1	Submission for acceptance of purchasing package	30 days	Mar 1 '21	Mar 30 '21	Mar 1 '21	Mar 30 '21	0 days		580													
580	580.5.19.5.8.2	Invitation of quotations for purchasing package	21 days	Mar 31 '21	Apr 20 '21	Mar 31 '21	Apr 20 '21	0 days	579	581													
581	581.5.19.5.8.3	Acceptance of conforming quotation	21 days	Apr 21 '21	May 11 '21	Apr 21 '21	May 11 '21	0 days	580	582													
582	582.5.19.5.8.4	Commencement of Design Work	1 day	May 12 '21	May 12 '21	May 12 '21	May 12 '21	0 days	581														
583	583.5.19.5.8.5	Acceptance of conforming quotation	30 days	Jan 29 '21	Feb 27 '21	Jan 29 '21	Feb 27 '21	0 days	577	588													
584	584.5.19.6	Design Submissions for BR 2A & 2B	578 days	Aug 15 '20	Mar 15 '22	Aug 15 '20	Mar 15 '22	0 days	121														
585	585.5.19.6.1	Electrical schematic drawings for BR No. 2A & 2B	60 days	Aug 15 '20	Oct 13 '20	Aug 15 '20	Oct 13 '20	0 days		546FF													
586	586.5.19.6.2	CDS080-3 - Civil and dimensional requirements drawings for BR 2A&2B up to +8.0 m	55 days	Sep 1 '20	Oct 25 '20	Sep 1 '20	Oct 25 '20	0 days		546FF													
587	587.5.19.6.3	CDS081-3 - Civil and dimensional requirements drawings for BR 2A & 2B	281 days	Aug 28 '20	Jun 4 '21	Aug 28 '20	Jun 4 '21	0 days		547FF													
588	588.5.19.6.4	CDS004 - Detailed Design for Bioreactor 2A and 2B	291 edays	Mar 12 '21	Dec 28 '21	Mar 12 '21	Dec 28 '21	0 edays	554,558,562	597,600,603,													
589	589.5.19.6.5	CDS023 - Detailed Design for Electrical Installations for BR No. 2A & 2B	159.38 edays	Oct 7 '21	Mar 15 '22	Oct 7 '21	Mar 15 '22	0 edays	82,92,100,2	83,548FF,844													
590	590.5.19.6.6	CDS034-3 - Detailed Design for Electrical Installations BS at BR No. 2A & 2B	323.38 edays	Mar 12 '21	Jan 29 '22	Mar 12 '21	Jan 29 '22	0 edays	156	548FF,674,67													
591	591.5.19.6.7	CDS025-3 - Detailed Design for LV Switchboards for BR 2A and 2B	251 edays	May 3 '21	Jan 9 '22	May 3 '21	Jan 9 '22	0 edays	78	830,548FF													
592	592.5.19.6.8	CDS007-2 - Detailed Design for Deodorisation System, DOU No. 2A	475.38 edays	Sep 1 '20	Dec 20 '21	Sep 1 '20	Dec 20 '21	0 edays	574,740	548FF,624,62													
593	593.5.19.6.9	CDS031 - Detailed Design for MVAC System	311.38 edays	Mar 1 '21	Jan 6 '22	Mar 1 '21	Jan 6 '22	0 edays		216FF													
594	594.5.19.6.10	CDS050-3 - Detailed Design for Lifting Appliances - BR 2A & 2B	120 edays	Oct 1 '20	Jan 29 '21	Oct 1 '20	Jan 29 '21	0 edays	131	646,548FF													
595	595.5.19.7	Manufacturing and Delivery of Plant & Materials	1287 days	Dec 2 '19	Jun 10 '23	Dec 2 '19	May 6 '24	331 days															
596	596.5.19.7.1	Pre-treatment Fine Screens, EQT019	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Jan 6 '24	210 days															
597	597.5.19.7.1.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Nov 22 '23	244 days	588	598													
598	598.5.19.7.1.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Nov 23 '23	Jan 6 '24	16 days	597,652SS-€664														
599	599.5.19.7.2	Air Diffusion System, EQT017	451 days	Mar 17 '22	Jun 10 '23	Mar 17 '22	Jan 19 '24	223 days															
600	600.5.19.7.2.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mar 17 '22	Nov 11 '22	Mar 17 '22	Dec 5 '23	166 days	588	601													
601	601.5.19.7.2.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Dec 6 '23	Jan 19 '24	16 days	600,652SS-€665														
602	602.5.19.7.3	Submersible Mixer, EQT020	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Nov 5 '23	148 days															
603	603.5.19.7.3.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Sep 21 '23	244 days	588	604													
604	604.5.19.7.3.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Sep 22 '23	Nov 5 '23	16 days	603,652SS-€666														
605	605.5.19.7.4	Mixed Liquor Return Pumps, EQT008	451 days	Mar 17 '22	Jun 10 '23	Mar 17 '22	Nov 20 '23	163 days															
606	606.5.19.7.4.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mar 17 '22	Nov 11 '22	Mar 17 '22	Oct 6 '23	166 days	588	607													
607	607.5.19.7.4.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Oct 7 '23	Nov 20 '23	16 days	606,652SS-€667														
608	608.5.19.7.5	Sum Removal System, EQT021, EQT022	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Nov 5 '23	148 days															
609	609.5.19.7.5.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Sep 21 '23	244 days	588	610													
610	610.5.19.7.5.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Sep 22 '23	Nov 5 '23	16 days	609,652SS-€668														
611	611.5.19.7.6	Instrumentations, EQT035-2	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Apr 13 '24	308 days															
612	612.5.19.7.6.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Feb 28 '24	244 days	588	613													
613	613.5.19.7.6.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Feb 29 '24	Apr 13 '24	16 days	612,652SS-€672														
614	614.5.19.7.7	Stoplogs and Penstocks, EQT013	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Nov 5 '23	148 days															
615	615.5.19.7.7.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Sep 21 '23	244 days	588	616													
616	616.5.19.7.7.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Sep 22 '23	Nov 5 '23	16 days	615,652SS-€663														
617	617.5.19.7.8	Pipework, Valves and Electric Actuators, EQT036, EQT042 (Rev. 11)	416 days	Apr 21 '22	Jun 10 '23	Apr 21 '22	Dec 20 '23	193 days	63,70,66														
618	618.5.19.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Apr 21 '22	Dec 16 '22	Apr 21 '22	Nov 5 '23	131 days	588	619													
619	619.5.19.7.8.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Nov 6 '23	Dec 20 '23	61 days	618,652SS-€670														
620	620.5.19.7.9	Photovoltaic Power System	195 days	Dec 2 '19	Jun 13 '20	Dec 2 '19	Jun 13 '20	0 days															
621	621.5.19.7.9.1	Manufacturing and Factory Acceptance Test of Plant	150 days	Dec 2 '19	Apr 29 '20	Dec 2 '19	Apr 29 '20	0 days		622													
622	622.5.19.7.9.2	Shipping and Delivery of Plant to site	45 days	Apr 30 '20	Jun 13 '20	Apr 30 '20	Jun 13 '20	0 days	621	682													
623	623.5.19.7.10	DOU 2A	345 days	Dec 21 '21	Nov 30 '22	Dec 21 '21	Dec 15 '23	380 days															

ID	ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
													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	Half 1, 2025	Half 2, 2025
814	814	5.20.7.15.3	Plumbing Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days?															
815	815	5.20.7.15.3	Manufacturing and FAT for Plumbing Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		816													
816	816	5.20.7.15.3	Shipping and Delivery for Plumbing Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	815	1386,957													
817	817	5.20.7.15.4	CCTV Equipment	180 days?	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days?															
818	818	5.20.7.15.4	Manufacturing and FAT for CCTV Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		819													
819	819	5.20.7.15.4	Shipping and Delivery for CCTV Equipment (10 indoor + 3 outdoor Cam)	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	818	957,1396													
820	820	5.20.7.15.5	Fire Service Equipment	180 days?	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days?															
821	821	5.20.7.15.5	Manufacturing and FAT for Fire Services Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		822													
822	822	5.20.7.15.5	Equipment Delivery for Fire Services Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	821	1337,1349,15													
823	823	5.20.7.15.6	Earthing and Lightning Protection System Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days															
824	824	5.20.7.15.6	Manufacturing and FAT for Earthing and Lightning Protection System Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		825													
825	825	5.20.7.15.6	Equipment Delivery for Earthing and Lightning Protection System Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	824	956													
826	826	5.20.7.16	Lifting Appliances	978 days	Mar 14 '21	Nov 16 '23	Mar 14 '21	Jul 7 '22	0 days															
827	827	5.20.7.16.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Mar 14 '21	Oct 9 '21	Mar 14 '21	Oct 9 '21	0 days	762	828													
828	828	5.20.7.16.2	Shipping and Delivery of Plant to site	45 days	Oct 3 '23	Nov 16 '23	May 24 '22	Jul 7 '22	0 days	827,854,855-€857,892,899														
829	829	5.20.7.17	LV Switchboards	704 days	Jan 10 '22	Dec 14 '23	Jan 10 '22	Mar 3 '23	0 days															
830	830	5.20.7.17.1	BR - Manufacturing of Plant	240 days	Jan 10 '22	Sep 6 '22	Jan 10 '22	Oct 19 '22	0 days	591	831													
831	831	5.20.7.17.2	BR - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Sep 7 '22	Dec 5 '22	Oct 20 '22	Jan 17 '23	0 days	830	832													
832	832	5.20.7.17.3	BR - Shipping and Delivery of Plant to site	45 days	Dec 6 '22	Jan 19 '23	Jan 18 '23	Mar 3 '23	43 days	831	920													
833	833	5.20.7.17.4	MFS - Manufacturing of Plant	240 days	Jan 10 '22	Sep 6 '22	Jan 10 '22	Oct 19 '22	0 days	758	834													
834	834	5.20.7.17.5	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Sep 7 '22	Dec 5 '22	Oct 20 '22	Jan 17 '23	43 days	833	835													
835	835	5.20.7.17.6	MFS - Shipping and Delivery of Plant to site	45 days	Oct 31 '23	Dec 14 '23	Jan 18 '23	Mar 3 '23	0 days	834,889,895-€921														
836	836	5.20.7.18	HV Switchboards, 04SC012	704 days	Jan 10 '22	Dec 14 '23	Jan 10 '22	Apr 2 '23	0 days															
837	837	5.20.7.18.1	MFS - Manufacturing of Plant	180 days	Jan 10 '22	Jul 8 '22	Jan 10 '22	Nov 18 '22	0 days	759	838													
838	838	5.20.7.18.2	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Jul 9 '22	Oct 6 '22	Nov 19 '22	Feb 16 '23	133 days	837	839													
839	839	5.20.7.18.3	MFS - Shipping and Delivery of Plant to site	45 days	Oct 31 '23	Dec 14 '23	Feb 17 '23	Apr 2 '23	0 days	838,889,895-€924														
840	840	5.20.7.19	11kV/380V Stepdown Power Transformers, EQT032	285 days	Mar 16 '22	Dec 25 '22	Mar 16 '22	Apr 17 '23	113 days															
841	841	5.20.7.19.1	MFS - Manufacturing and Factory Acceptance Test of Plant	240 days	Mar 16 '22	Nov 10 '22	Mar 16 '22	Mar 3 '23	0 days	754	842													
842	842	5.20.7.19.2	MFS - Shipping and Delivery of Plant to site	45 days	Nov 11 '22	Dec 25 '22	Mar 4 '23	Apr 17 '23	113 days	841	925													
843	843	5.20.7.20	PLC System	285 days	Mar 16 '22	Dec 25 '22	Mar 16 '22	Mar 3 '23	68 days															
844	844	5.20.7.20.1	Manufacturing of Plant, PLC for BR2A & B	210 days	Mar 16 '22	Oct 11 '22	Mar 16 '22	Dec 18 '22	0 days	589	845													
845	845	5.20.7.20.2	Factory Acceptance Test of Plant, PLC for BR2A & B (To be witnessed by PM)	30 days	Oct 12 '22	Nov 10 '22	Dec 19 '22	Jan 17 '23	0 days	844	846													
846	846	5.20.7.20.3	Shipping and Delivery of Plant to site	45 days	Nov 11 '22	Dec 25 '22	Jan 18 '23	Mar 3 '23	68 days	845	922													
847	847	5.20.7.20.4	Manufacturing of Plant, PLC for MFB2	210 days	Mar 16 '22	Oct 11 '22	Mar 16 '22	Dec 18 '22	0 days	754	848													
848	848	5.20.7.20.5	Factory Acceptance Test of Plant, PLC for MFB2 (To be witnessed by PM)	30 days	Oct 12 '22	Nov 10 '22	Dec 19 '22	Jan 17 '23	0 days	847	849													
849	849	5.20.7.20.6	Shipping and Delivery of Plant to site	45 days	Nov 11 '22	Dec 25 '22	Jan 18 '23	Mar 3 '23	68 days	848	923													
850	850	5.20.7.21	Electrical System	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days															
851	851	5.20.7.21.1	Equipment Delivery for Cable Containment	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days	888,927														
852	852	5.20.7.21.2	Equipment Delivery for Cable Provision	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days	928														
853	853	5.20.8	Site Installation Work	598 days?	Sep 15 '23	May 4 '25	Sep 15 '23	May 4 '25	0 days															
854	854	5.20.8.1	Tentative Civil Handover Date, Portion B-5A, MFB No. 2	1 day	Dec 2 '23	Dec 2 '23	Jul 23 '22	Jul 23 '22	0 days	13	857,863FS+4!													
855	855	5.20.8.2	Commencement of E&M Installation at MFB No. 2 Lower Part	404 days	Sep 15 '23	Oct 22 '24	Sep 15 '23	Oct 22 '24	0 days	854	958													
856	856	5.20.8.2.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, Welfare facilities etc., MFB2	7 days	Dec 3 '23	Dec 9 '23	Aug 5 '23	Aug 11 '23	0 days	854														
857	857	5.20.8.2.2	Installation of Lifting Appliances at MFB No. 2	120 days	Dec 3 '23	Mar 31 '24	Aug 25 '22	Aug 11 '23	0 days	854,828														
858	858	5.20.8.2.2.1	B2 EOT Crane LA-04-01 SWL 5t	60 days	Dec 3 '23	Jan 31 '24	Aug 25 '22	Oct 23 '22	0 days	860,861,862,														
859	859	5.20.8.2.2.2	B2 EOT Crane LA-04-02 SWL 5t	60 days	Dec 3 '23	Jan 31 '24	Aug 25 '22	Oct 23 '22	0 days	860,861,862,														
860	860	5.20.8.2.2.3	B2 MR LA-04-03 SWL 5t	30 days	Feb 1 '24	Mar 1 '24	Jun 13 '23	Jul 12 '23	0 days	858,859	862													
861	861	5.20.8.2.2.4	B1 MR LA-04-04 SWL 3t	30 days	Feb 1 '24	Mar 1 '24	Oct 31 '22	Nov 29 '22	0 days	858,859	862,875													
862	862	5.20.8.2.2.5	T&C, Loading Test for Lifting Appliances	30 days	Mar 2 '24	Mar 31 '24	Jul 13 '23	Aug 11 '23	0 days	858,859,860														
863	863	5.20.8.2.3	Mechanical Installations for E&M Equip. at MFB No. 2 Lower Part	331 days	Jan 17 '24	Dec 12 '24	Oct 16 '22	Aug 11 '23	0 days	854FS+45 er														
864	864	5.20.8.2.3.1	Installation of penstocks and stoplogs (Penstocks 18nos, Stoplogs 11nos), EQT013	120 days	Feb 17 '24	Jun 15 '24	Oct 16 '22	Feb 12 '23	0 days	797,15	886	ME - E x 4~6 men												
865	865	5.20.8.2.3.2	Installation of hollow fibre membrane modules rack (x9), EQT023	120 days	Feb 17 '24	Jun 15 '24	Oct 16 '22	Feb 12 '23	0 days	767,15	886,902	ME - A x 4~6 men												
866	866	5.20.8.2.3.3	Installation of compressed air system	120 days	Jan 17 '24	May 15 '24	Nov 30 '22	Mar 29 '23	0 days	788		ME - B x 4~6 men												
867	867	5.20.8.2.3.3.1	Installation of compressor, air dryer & air receiver (x2)	30 days	Jan 17 '24	Feb 15 '24	Nov 30 '22	Dec 29 '22	0 days	868														
868	868	5.20.8.2.3.3.2	Installation of pipework and valves, EQT036	90 days	Feb 16 '24	May 15 '24	Dec 30 '22	Mar 29 '23	0 days	867	886FS-45 day													
869	869	5.20.8.2.3.4	Installation of permeate pumping system	150 days	Feb 8 '24	Jul 6 '24	Oct 31 '22	Mar 29 '23	0 days	776,858FS+4		ME - A x 4~6 men												

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
877	877.5.20.8.2.3.1	Installation of pipework and valves, EQT036	90 days	Apr 1 '24	Jun 29 '24	Dec 30 '22	Mar 29 '23	0 days	876	886FS-45 day													
878	878.5.20.8.2.3.1	Installation of chemical system (Citric Acid)	120 days	Jan 17 '24	May 15 '24	Nov 30 '22	Mar 29 '23	0 days	791,794		ME - D x 2~4 men												
879	879.5.20.8.2.3.1	Installation of storage tank (x2), EQT091	30 days	Jan 17 '24	Feb 15 '24	Nov 30 '22	Dec 29 '22	0 days		881													
880	880.5.20.8.2.3.1	Installation of dosing pump (x2), EQT090	30 days	Jan 17 '24	Feb 15 '24	Nov 30 '22	Dec 29 '22	0 days		881													
881	881.5.20.8.2.3.1	Installation of pipework and valves, EQT036	90 days	Feb 16 '24	May 15 '24	Dec 30 '22	Mar 29 '23	0 days	879,880	886FS-45 day													
882	882.5.20.8.2.3.1	Installation of plant service water system	120 days	Jan 17 '24	May 15 '24	Nov 30 '22	Mar 29 '23	0 days	785		ME - C x 4~6 men												
883	883.5.20.8.2.3.1	Installation of pump (x4), pressure tank (x2), EQT030	30 days	Jan 17 '24	Feb 15 '24	Nov 30 '22	Dec 29 '22	0 days		884													
884	884.5.20.8.2.3.1	Installation of pipework and valves, EQT036	90 days	Feb 16 '24	May 15 '24	Dec 30 '22	Mar 29 '23	0 days	883	886FS-45 day													
885	885.5.20.8.2.3.1	Installation of FRP covers, walkways, platforms and ladders, EQT050 (Rev.18)	90 days	Jan 17 '24	Apr 15 '24	May 14 '23	Aug 11 '23	0 days			ME - C x 4~6 men												
886	886.5.20.8.2.3.1	Site Acceptance Tests - mechanical aspects including alignment and levels checks, leakage tests, welding tests, installation checks,	180 days	Jun 16 '24	Dec 12 '24	Feb 13 '23	Aug 11 '23	0 days	864,865,866 days,871FS-		ME - D x 2~4 men												
887	887.5.20.8.2.4	Electrical Installations for E&M Equip. at MFB No. 2 Lower Part	180 days	Dec 3 '23	May 30 '24	Oct 6 '22	Apr 3 '23	0 days	141,854														
888	888.5.20.8.2.4.1	Installation of cable trays and cable containments	180 days	Dec 3 '23	May 30 '24	Oct 6 '22	Apr 3 '23	0 days	851	927													
889	889.5.20.8.3	Tentative Civil Handover Date, Portion B-5B, MFB No. 2 remaining portion (Rev. 5)	1 day	Dec 30 '23	Dec 30 '23	Jul 7 '22	Jul 7 '22	0 days	14	892,901FS+4! edays,891,89													
890	890.5.20.8.4	Commencement of E&M Installation at MFB No. 2 Upper Part	450 days	Dec 31 '23	Mar 24 '25	Jul 8 '22	Mar 6 '24	0 days	889	958FS-50 day													
891	891.5.20.8.4.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, Welfare facilities etc., MFB2	7 days	Dec 31 '23	Jan 6 '24	Sep 24 '23	Sep 30 '23	0 days	889														
892	892.5.20.8.4.2	Installation of Lifting Appliances at MFB No. 2	225 days	Dec 31 '23	Aug 11 '24	Jul 8 '22	Feb 17 '23	0 days	889,828														
893	893.5.20.8.4.2.1	GF EOT Crane LA-04-05 SWL 5t	60 days	Dec 31 '23	Feb 28 '24	Jul 8 '22	Sep 5 '22	0 days		895,896,900	LA - A x 4~6 men												
894	894.5.20.8.4.2.2	GF Gantry Crane LA-04-06 SWL 6t	60 days	Feb 17 '24	Apr 16 '24	Nov 5 '22	Jan 3 '23	0 days	15	900,902	LA - B x 4~6 men												
895	895.5.20.8.4.2.3	1F EOT Crane LA-04-07 SWL 15t	60 days	Feb 29 '24	Apr 28 '24	Sep 6 '22	Nov 4 '22	0 days	893	897,898,900	LA - A x 4~6 men												
896	896.5.20.8.4.2.4	1F EOT Crane LA-04-08 SWL 15t	60 days	Feb 29 '24	Apr 28 '24	Sep 6 '22	Nov 4 '22	0 days	893	897,898,900	LA - B x 4~6 men												
897	897.5.20.8.4.2.5	RF EOT Crane LA-04-09 SWL 2t	60 days	Apr 29 '24	Jun 27 '24	Nov 5 '22	Jan 3 '23	0 days	895,896	900	LA - A x 4~6 men												
898	898.5.20.8.4.2.6	RF Retractable MR LA-04-10 SWL 2t	60 days	Apr 29 '24	Jun 27 '24	Nov 5 '22	Jan 3 '23	0 days	895,896	900	LA - B x 4~6 men												
899	899.5.20.8.4.2.7	Mobile A-frame LA-04-11 SWL 2t	15 days	Dec 31 '23	Jan 14 '24	Dec 20 '22	Jan 3 '23	0 days	828	900	LA - C x 4~6 men												
900	900.5.20.8.4.2.8	T&C, Loading Test for Lifting Appliances	45 days	Jun 28 '24	Aug 11 '24	Jan 4 '23	Feb 17 '23	0 days	893,894,895	907	LA - A x 4~6 men												
901	901.5.20.8.4.3	Mechanical Installations for E&M Equip. at MFB No. 2 Upper Part	405 days	Feb 14 '24	Mar 24 '25	Feb 18 '23	Oct 10 '23	0 days	889FS+45 ed														
902	902.5.20.8.4.3.1	Installation of hollow fibre membrane modules (x9), EQT023	90 days	Jun 16 '24	Sep 13 '24	Jul 13 '23	Oct 10 '23	0 days	865,894	959FS-30 day	ME - A x 4~6 men												
903	903.5.20.8.4.3.2	Installation of chemical system (Citric Acid + NaOCl)	120 days	Feb 14 '24	Jun 12 '24	Feb 18 '23	Jun 17 '23	0 days	791		ME - D x 2~4 men												
904	904.5.20.8.4.3.3	Installation of storage tank, EQT091	30 days	Feb 14 '24	Mar 14 '24	Feb 18 '23	Mar 19 '23	0 days		906													
905	905.5.20.8.4.3.4	Installation of dosing pump (x4) and transfer pump (x4), EQT090	30 days	Feb 14 '24	Mar 14 '24	Feb 18 '23	Mar 19 '23	0 days		906													
906	906.5.20.8.4.3.5	Installation of pipework and valves, EQT036	90 days	Mar 15 '24	Jun 12 '24	Mar 20 '23	Jun 17 '23	0 days	904,905	918FS-45 day													
907	907.5.20.8.4.3.6	Installation of air scour blower system	120 days	Aug 12 '24	Dec 9 '24	Feb 18 '23	Jun 17 '23	0 days	900		ME - A x 4~6 men												
908	908.5.20.8.4.3.7	Installation of blowers (x3), EQT040	30 days	Aug 12 '24	Sep 10 '24	Feb 18 '23	Mar 19 '23	0 days		909													
909	909.5.20.8.4.3.8	Installation of pipework and valves, EQT036	90 days	Sep 11 '24	Dec 9 '24	Mar 20 '23	Jun 17 '23	0 days	908	918FS-45 day													
910	910.5.20.8.4.3.9	Installation of aeration blower system	120 days	Feb 14 '24	Jun 12 '24	Feb 18 '23	Jun 17 '23	0 days	773	692	ME - D x 2~4 men												
911	911.5.20.8.4.3.10	Installation of blowers (x4), EQT039	30 days	Feb 14 '24	Mar 14 '24	Feb 18 '23	Mar 19 '23	0 days		912													
912	912.5.20.8.4.3.11	Installation of pipework and valves, EQT036	90 days	Mar 15 '24	Jun 12 '24	Mar 20 '23	Jun 17 '23	0 days	911	918FS-45 day													
913	913.5.20.8.4.3.12	Mechanical Installations for DOU 3B	120 days	Feb 14 '24	Jun 12 '24	Feb 18 '23	Jun 17 '23	0 days	803,806	926SS+30 ed	ME - F x 4~6 men												
914	914.5.20.8.4.3.13	Installation of extraction fan, filter, dehumidifier	30 days	Feb 14 '24	Mar 14 '24	Feb 18 '23	Mar 19 '23	0 days		915													
915	915.5.20.8.4.3.14	Installation of FRP ductwork	90 days	Mar 15 '24	Jun 12 '24	Mar 20 '23	Jun 17 '23	0 days	914	918FS-45 day													
916	916.5.20.8.4.3.15	Installation of instrumentations, EQT035-1	60 days	Feb 14 '24	Apr 13 '24	Aug 12 '23	Oct 10 '23	0 days	59	958FS-60 day	ME - D x 2~4 men												
917	917.5.20.8.4.3.16	Installation of FRP covers, walkways, platforms and ladders, EQT050	60 days	Feb 14 '24	Apr 13 '24	Aug 2 '23	Sep 30 '23	0 days			ME - D x 2~4 men												
918	918.5.20.8.4.3.17	Site Acceptance Tests - mechanical aspects including alignment and levels checks, leakage tests, welding tests, installation checks,	150 days	Oct 26 '24	Mar 24 '25	May 4 '23	Sep 30 '23	0 days	906FS-45 days,909FS-		ME - D x 2~4 men												
919	919.5.20.8.4.4	Electrical Installations for E&M Equip. at MFB No. 2 Upper Part	332 days	Dec 31 '23	Nov 26 '24	Mar 4 '23	Sep 30 '23	0 days	141,889														
920	920.5.20.8.4.4.1	Installation of LV Switchboards, BR2	90 days	Dec 31 '23	Mar 29 '24	Mar 4 '23	Jun 1 '23	0 days	832	937FS+30 day	LV - B x 4~6 men												
921	921.5.20.8.4.4.2	Installation of LV Switchboards, MFB No. 2	90 days	Dec 31 '23	Mar 29 '24	Mar 4 '23	Jun 1 '23	0 days	835	936FS+30 day	LV - A x 4~6 men												
922	922.5.20.8.4.4.3	Installation of PLC Panels, BR2	90 days	Dec 31 '23	Mar 29 '24	Mar 4 '23	Jun 1 '23	0 days	846	945,928													
923	923.5.20.8.4.4.4	Installation of PLC Panels, MFB No. 2	90 days	Dec 31 '23	Mar 29 '24	Mar 4 '23	Jun 1 '23	0 days	849	945,928	PLC - B x 1 man												
924	924.5.20.8.4.4.5	Installation of HV Switchboards, MFB No. 2	60 days	Dec 31 '23	Feb 28 '24	Apr 3 '23	Jun 1 '23	0 days	839	938FS+30 day	HV - A x 4~6 men												
925	925.5.20.8.4.4.6	Installation of transformer, MFB No. 2, EQT032	45 days	Dec 31 '23	Feb 13 '24	Apr 18 '23	Jun 1 '23	0 days	842	939FS+30 day													
926	926.5.20.8.4.4.7	Electrical Installations for DOU 3B	90 edays	Mar 15 '24	Jun 13 '24	Jul 2 '23	Sep 30 '23	0 edays	913SS+30 ed		EE - D x 4~6 men												
927	927.5.20.8.4.4.8	Installation of cable trays and cable containments	180 days	May 31 '24	Nov 26 '24	Apr 4 '23	Sep 30 '23	0 days	888,851														
928	928.5.20.8.4.4.9	Cables laying and terminations	60 days	Mar 30 '24	May 28 '24	Jun 2 '23	Jul 31 '23	0 days	920,921,922,943,940,942,														
929	929.5.20.8.4.4.10	LV and control cables in MFB no.2	60 days	Mar 30 '24	May 28																		

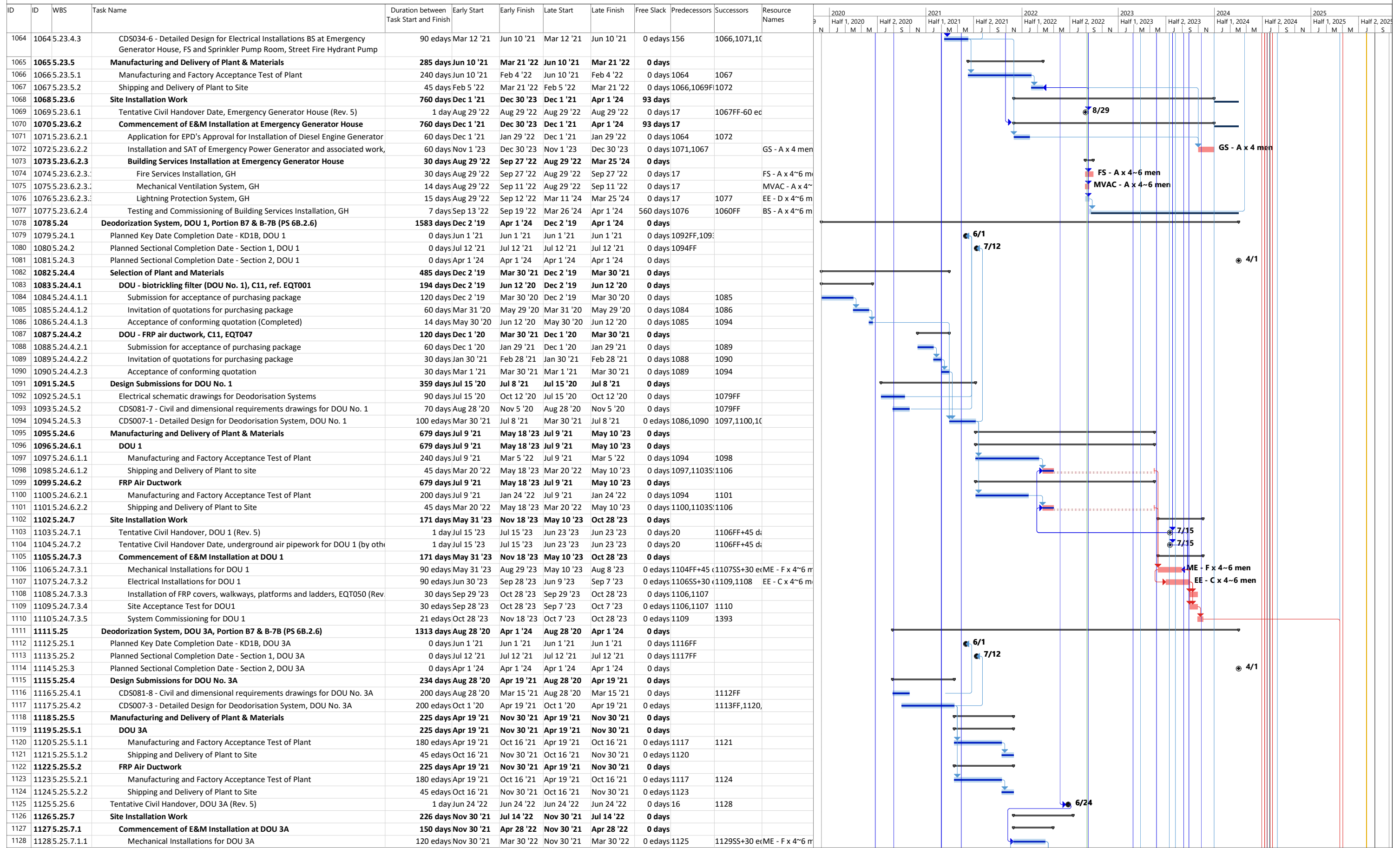




Bestwise Project: DE/2018/04 Date: 31/07/22

Task: [Blue bar] Milestone: [Diamond] Project Summary: [Grey bar] Late: [Red bar] Critical Split: [Yellow bar] Manual Progress: [Dotted line] Milestone (Actual): [Green star]

Milestone, Tentative: [Circle with dot] Summary: [Arrow] Manual Summary: [Grey bar] Critical: [Red bar] Progress: [Red bar] Slack (Float): [Blue line] Slack: [Black line]



Bestwise Project: DE/2018/04 Date: 31/07/22

Task: [Blue bar] Milestone: [Black diamond] Project Summary: [Grey bar] Late: [Red bar] Critical Split: [Yellow bar] Manual Progress: [Dotted line] Milestone (Actual): [Red star]

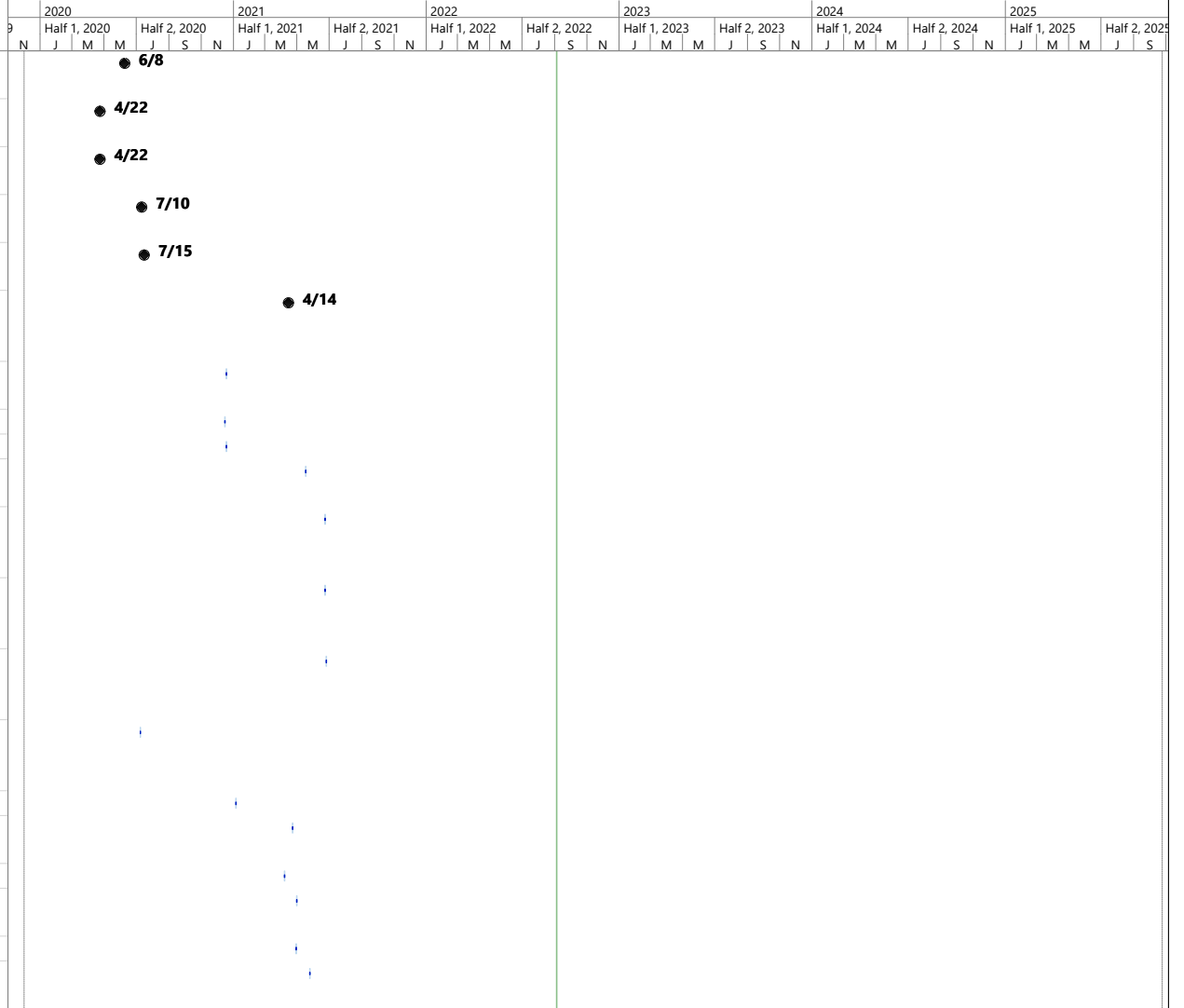
Milestone, Tentative: [Blue circle] Summary: [Black diamond] Manual Summary: [Grey bar] Critical: [Red bar] Progress: [Red bar] Slack (Float): [Blue line] Slack: [Black line]

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
1129	1129 5.25.7.1.2	Electrical Installations for DOU 3A	90 edays	Dec 30 '21	Mar 30 '22	Dec 30 '21	Mar 30 '22	0 edays	1128SS+30	1131,1130	EE - D x 4~6 m												
1130	1130 5.25.7.1.3	Installation of FRP covers, walkways, platforms and ladders, EQT050 (Rev.	30 days	Mar 30 '22	Apr 28 '22	Mar 30 '22	Apr 28 '22	0 days	1128,1129														
1131	1131 5.25.7.2	Site Acceptance Test for E&M Equip for DOU 3A	30 edays	Mar 30 '22	Apr 29 '22	Mar 30 '22	Apr 29 '22	0 edays	1128,1129	1132													
1132	1132 5.25.7.3	System Commissioning Test for DOU 3A	76 edays	Apr 29 '22	Jul 14 '22	Apr 29 '22	Jul 14 '22	0 edays	1131														
1133	1133 5.26	Flowmeter and Valve Chambers, Portion B7 & B-7B (PS 6B.2.13)	1278 days	Nov 1 '20	May 1 '24	Nov 1 '20	May 1 '24	0 days															
1134	1134 5.26.1	Planned Key Date Completion Date - KD1B, Chambers	0 days	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	1139FF														
1135	1135 5.26.2	Planned Sectional Completion Date - Section 1, Chambers	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	1140FF														
1136	1136 5.26.3	Planned Sectional Completion Date - Section 2, Chambers	0 days	Apr 1 '24	Apr 1 '24	Apr 1 '24	Apr 1 '24	0 days															
1137	1137 5.26.4	Planned Sectional Completion Date - Section 4, Chambers	0 days	May 1 '24	May 1 '24	May 1 '24	May 1 '24	0 days															
1138	1138 5.26.5	Design Submissions for Valve and Flowmeter Chambers	210 days	Nov 1 '20	May 29 '21	Nov 1 '20	May 29 '21	0 days															
1139	1139 5.26.5.1	CDS081-9 - Civil and dimensional requirements drawings for Valve and Flowmeter Chambers	90 days	Mar 1 '21	May 29 '21	Mar 1 '21	May 29 '21	0 days		1134FF													
1140	1140 5.26.5.2	CDS018 - Detailed Design for Flowmeter and Valve Chambers	90 edays	Nov 1 '20	Jan 30 '21	Nov 1 '20	Jan 30 '21	0 edays		1142,1135FF													
1141	1141 5.26.6	Manufacturing and Delivery of Plant & Materials	225 days	Jan 30 '21	Sep 11 '21	Jan 30 '21	Sep 11 '21	0 days															
1142	1142 5.26.6.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Jan 30 '21	Jul 28 '21	Jan 30 '21	Jul 28 '21	0 days	1140	1143													
1143	1143 5.26.6.2	Shipping and Delivery of Plant to Site	45 days	Jul 29 '21	Sep 11 '21	Jul 29 '21	Sep 11 '21	0 days	1142	1147													
1144	1144 5.26.7	Tentative Civil Handover, Chambers (Rev. 5)	1 day	Sep 15 '23	Sep 15 '23	Sep 15 '23	Sep 15 '23	0 days	21,22														
1145	1145 5.26.8	Site Installation Work	150 days	Sep 12 '21	Feb 8 '22	Sep 12 '21	Feb 8 '22	0 days															
1146	1146 5.26.8.1	Commencement of Valves and Flowmeters Installation at Chambers	150 days	Sep 12 '21	Feb 8 '22	Sep 12 '21	Feb 8 '22	0 days															
1147	1147 5.26.8.1.1	Installation of valves and flowmeters	90 days	Sep 12 '21	Dec 10 '21	Sep 12 '21	Dec 10 '21	0 days	1143	1148	ME - C x 4~6 m												
1148	1148 5.26.8.1.2	cables laying and terminations	60 days	Dec 11 '21	Feb 8 '22	Dec 11 '21	Feb 8 '22	0 days	1147	1393	EE - A x 4~6 m												
1149	1149 5.27	Underground Pipework, Modification and Connection Works, Portion B-9B (PS 6B.2.22)	1699 days	Mar 1 '21	Oct 24 '25	Mar 1 '21	May 1 '24	0 days															
1150	1150 5.27.1	Planned Key Date Completion Date - KD1B, UU	0 days	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	1154FF														
1151	1151 5.27.2	Planned Sectional Completion Date - Section 1, Underground Pipework	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	1155FF														
1152	1152 5.27.3	Planned Sectional Completion Date - Section 4, Underground Pipework	0 days	May 1 '24	May 1 '24	May 1 '24	May 1 '24	0 days	1165FF														
1153	1153 5.27.4	Design Submissions	90 days	Mar 1 '21	May 30 '21	Mar 1 '21	May 30 '21	0 days															
1154	1154 5.27.4.1	CDS015 - Detailed Design for Underground Pipework Modification and Connection with the existing Bioreactor 1, 3 & 4 (Rev. 8)	90 edays	Mar 1 '21	May 30 '21	Mar 1 '21	May 30 '21	0 edays	194	1150FF													
1155	1155 5.27.4.2	CDS016 - Detailed Design for Temporary Pumping System for maintaining the existing bioreactors 1, 3 and 4 operation (Rev. 8)	50 edays	Mar 1 '21	Apr 20 '21	Mar 1 '21	Apr 20 '21	0 edays		1157,1151FF													
1156	1156 5.27.5	Manufacturing and Delivery of Plant & Materials	1079 days	Apr 20 '21	Apr 2 '24	Apr 20 '21	Mar 12 '24	0 days															
1157	1157 5.27.5.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Apr 20 '21	Oct 16 '21	Apr 20 '21	Oct 16 '21	0 days	1155	1158													
1158	1158 5.27.5.2	Shipping and Delivery of Plant to Site	45 days	Feb 18 '24	Apr 2 '24	Jan 28 '24	Mar 12 '24	0 days	1157,1159S	1163													
1159	1159 5.27.6	Tentative Civil Handover, Road (Rev. 5)	1 day	Apr 18 '24	Apr 18 '24	Feb 1 '24	Feb 1 '24	0 days		1158SS-60 ed													
1160	1160 5.27.7	Site Installation	90 days	Jul 27 '25	Oct 24 '25	Feb 2 '24	May 1 '24	0 days															
1161	1161 5.27.7.1	Commencement of underground pipework modification and connection works	90 days	Jul 27 '25	Oct 24 '25	Feb 2 '24	May 1 '24	0 days	1395														
1162	1162 5.27.7.1.1	Temporary Flow Diversion and Road Excavation Work	40 days	Jul 27 '25	Sep 4 '25	Feb 2 '24	Mar 12 '24	0 days	1159	1163													
1163	1163 5.27.7.1.2	Pipe Laying and connection works	40 days	Sep 5 '25	Oct 14 '25	Mar 13 '24	Apr 21 '24	0 days	1162,1158	1164													
1164	1164 5.27.7.1.3	Pressure Tests	7 days	Oct 15 '25	Oct 21 '25	Apr 22 '24	Apr 28 '24	0 days	1163	1165													
1165	1165 5.27.7.1.4	Make Good (Section 2 Completion)	3 days	Oct 22 '25	Oct 24 '25	Apr 29 '24	May 1 '24	0 days	1164	1152FF													
1166	1166 5.28	Temporary Filtrate Lifting Well and Eq. Tank, Portion B-3B (PS 6B.2.16)	450 days	Mar 2 '20	May 25 '21	Mar 2 '20	May 25 '21	0 days															
1167	1167 5.28.1	Selection of Suppliers for major plant and materials and Civil Subcontractor for Temporary Filtrate Lifting Well and Eq. Tank	196 days	Mar 2 '20	Sep 13 '20	Mar 2 '20	Sep 13 '20	0 days															
1168	1168 5.28.1.1	Mis - filtrate lift pumps and filtrate transfer pumps, C11, ref. EQT011	73 days	Mar 2 '20	May 13 '20	Mar 2 '20	May 13 '20	0 days															
1169	1169 5.28.1.1.1	Submission for acceptance of purchasing package	29 days	Mar 2 '20	Mar 30 '20	Mar 2 '20	Mar 30 '20	0 days		1170													
1170	1170 5.28.1.1.2	Invitation of quotations for purchasing package	30 days	Mar 31 '20	Apr 29 '20	Mar 31 '20	Apr 29 '20	0 days	1169	1171													
1171	1171 5.28.1.1.3	Acceptance of conforming quotation and acceptance for Manufacture (Completed)	14 days	Apr 30 '20	May 13 '20	Apr 30 '20	May 13 '20	0 days	1170	1190,1193													
1172	1172 5.28.1.2	Mis - Instrumentations	73 days	Mar 2 '20	May 13 '20	Mar 2 '20	May 13 '20	0 days															
1173	1173 5.28.1.2.1	Submission for acceptance of purchasing package	29 days	Mar 2 '20	Mar 30 '20	Mar 2 '20	Mar 30 '20	0 days		1174													
1174	1174 5.28.1.2.2	Invitation of quotations for purchasing package	30 days	Mar 31 '20	Apr 29 '20	Mar 31 '20	Apr 29 '20	0 days	1173	1175													
1175	1175 5.28.1.2.3	Acceptance of conforming quotation and acceptance for Manufacture (Completed)	14 days	Apr 30 '20	May 13 '20	Apr 30 '20	May 13 '20	0 days	1174	1190,1196													
1176	1176 5.28.1.3	Mis - Pipework (To be provided by Mechanical Sub-Contractor)	42 days	Aug 3 '20	Sep 13 '20	Aug 3 '20	Sep 13 '20	0 days															
1177	1177 5.28.1.3.1	Submission for acceptance of purchasing package	7 days	Aug 3 '20	Aug 9 '20	Aug 3 '20	Aug 9 '20	0 days		1178													
1178	1178 5.28.1.3.2	Invitation of quotations for purchasing package	14 days	Aug 10 '20	Aug 23 '20	Aug 10 '20	Aug 23 '20	0 days	1177	1179													
1179	1179 5.28.1.3.3	Acceptance of conforming quotation and acceptance for Manufacture (Completed)	21 days	Aug 24 '20	Sep 13 '20	Aug 24 '20	Sep 13 '20	0 days	1178	1190,1199													
1180	1180 5.28.1.4	Mis - Valve (To be provided by Mechanical Sub-Contractor)	42 days	Aug 3 '20	Sep 13 '20	Aug 3 '20	Sep 13 '20	0 days															
1181	1181 5.28.1.4.1	Submission for acceptance of purchasing package	7 days	Aug 3 '20	Aug 9 '20	Aug 3 '20	Aug 9 '20	0 days		1182													
1182	1182 5.28.1.4.2	Invitation of quotations for purchasing package	14 days	Aug 10 '20	Aug 23 '20	Aug 10 '20	Aug 23 '20	0 days	1181	1183													
1183	1183 5.28.1.4.3	Acceptance of conforming quotation and acceptance for Manufacture (Completed)	21 days	Aug 24 '20	Sep 13 '20	Aug 24 '20	Sep 13 '20	0 days	1182	1190,1202													
1184	1184 5.28.1.5	Civil Work Subletting Package (Repeated WBS 5.13.17)	19 days	Jul 14 '20	Aug 1 '20	Jul 14 '20	Aug 1 '20	0 days															
1185	1185 5.28.1.5.1	Submission for acceptance of subletting package	3 days	Jul 14 '20	Jul 16 '20	Jul 14 '20	Jul 16 '20	0 days		1186													
1186	1186 5.28.1.5.2	Invitation of tender for subletting package	14 days	Jul 17 '20	Jul 30 '20	Jul 17 '20	Jul 30 '20	0 days	1185	1187													
1187	1187 5.28.1.5.3	Acceptance of conforming quotation and acceptance for Manufacture	2 days	Jul 31 '20	Aug 1 '20	Jul 31 '20																	

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
1188	1188.5.28.2	Design Submissions for Temporary Filtrate Lifting Well and Eq. Tank	34 days	Sep 1 '20	Oct 4 '20	Sep 1 '20	Oct 4 '20	0 days															
1189	1189.5.28.2.1	CDS050-5 - Detailed Design for Lifting Appliances - Temp. Filtrate Eq. System, Existing Sludge Press House	30 edays	Sep 1 '20	Oct 1 '20	Sep 1 '20	Oct 1 '20	0 edays	131	1218													
1190	1190.5.28.2.2	Design submission for E&M Installation works for temp. filtrate eq. system	21 days	Sep 14 '20	Oct 4 '20	Sep 14 '20	Oct 4 '20	0 days	1171,1175,11192,1198,11														
1191	1191.5.28.3	Manufacturing and Delivery of Plant & Materials	165 days	Oct 5 '20	Mar 18 '21	Oct 5 '20	Mar 18 '21	0 days															
1192	1192.5.28.3.1	Filtrate Lift Pumps and Filtrate Transfer Pump, EQT011	165 days	Oct 5 '20	Mar 18 '21	Oct 5 '20	Mar 18 '21	0 days	1190														
1193	1193.5.28.3.1.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Oct 5 '20	Feb 1 '21	Oct 5 '20	Feb 1 '21	0 days	1187,1171	1194													
1194	1194.5.28.3.1.2	Shipping and Delivery of Plant to site (Delivered)	45 days	Feb 2 '21	Mar 18 '21	Feb 2 '21	Mar 18 '21	0 days	1193	1223													
1195	1195.5.28.3.2	Instrumentations	165 days	Oct 5 '20	Mar 18 '21	Oct 5 '20	Mar 18 '21	0 days	1190														
1196	1196.5.28.3.2.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Oct 5 '20	Feb 1 '21	Oct 5 '20	Feb 1 '21	0 days	1187,1175	1197													
1197	1197.5.28.3.2.2	Shipping and Delivery of Plant to site	45 days	Feb 2 '21	Mar 18 '21	Feb 2 '21	Mar 18 '21	0 days	1196	1224													
1198	1198.5.28.3.3	Pipework	165 days	Oct 5 '20	Mar 18 '21	Oct 5 '20	Mar 18 '21	0 days	1190														
1199	1199.5.28.3.3.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Oct 5 '20	Feb 1 '21	Oct 5 '20	Feb 1 '21	0 days	1187,1179	1200													
1200	1200.5.28.3.3.2	Shipping and Delivery of Plant to site	45 days	Feb 2 '21	Mar 18 '21	Feb 2 '21	Mar 18 '21	0 days	1199	1222													
1201	1201.5.28.3.4	Valve	165 days	Oct 5 '20	Mar 18 '21	Oct 5 '20	Mar 18 '21	0 days	1190														
1202	1202.5.28.3.4.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Oct 5 '20	Feb 1 '21	Oct 5 '20	Feb 1 '21	0 days	1187,1183	1203													
1203	1203.5.28.3.4.2	Shipping and Delivery of Plant to site	45 days	Feb 2 '21	Mar 18 '21	Feb 2 '21	Mar 18 '21	0 days	1202	1222													
1204	1204.5.28.4	Site Installation Work	297 days	Aug 1 '20	May 25 '21	Aug 1 '20	May 25 '21	0 days															
1205	1205.5.28.4.1	Commencement of Civil Construction and E&M Installation at Temp. Filtrate Lifting Well and Eq. Tank	297 days	Aug 1 '20	May 25 '21	Aug 1 '20	May 25 '21	0 days															
1206	1206.5.28.4.1.1	Civil Construction Work	297 days	Aug 1 '20	May 25 '21	Aug 1 '20	May 25 '21	0 days															
1207	1207.5.28.4.1.1.1	Civil on-site survey and report submission for acceptance	5 edays	Aug 1 '20	Aug 6 '20	Aug 1 '20	Aug 6 '20	0 edays	1187	1208,1209													
1208	1208.5.28.4.1.1.2	Civil structural design and drawing submission for acceptance	30 days	Aug 7 '20	Sep 5 '20	Aug 7 '20	Sep 5 '20	0 days	1207	1210													
1209	1209.5.28.4.1.1.3	Site Clearance, UU diversion and construction of U-channel	21 days	Aug 7 '20	Aug 27 '20	Aug 7 '20	Aug 27 '20	0 days	1207	1210													
1210	1210.5.28.4.1.1.4	ELS (Sheeting and Excavation)	60 days	Sep 6 '20	Nov 4 '20	Sep 6 '20	Nov 4 '20	0 days	1209,1208	1211													
1211	1211.5.28.4.1.1.5	Grouting Works	60 days	Nov 5 '20	Jan 3 '21	Nov 5 '20	Jan 3 '21	0 days	1210	1212													
1212	1212.5.28.4.1.1.6	RC structure works including cast-in items	60 days	Jan 4 '21	Mar 4 '21	Jan 4 '21	Mar 4 '21	0 days	1211	1221,1218,12													
1213	1213.5.28.4.1.1.7	Removal Formwork and Flasework	8 days	Mar 5 '21	Mar 12 '21	Mar 5 '21	Mar 12 '21	0 days	1212	1218,1219,12													
1214	1214.5.28.4.1.1.8	Waterproofing	14 days	Mar 13 '21	Mar 26 '21	Mar 13 '21	Mar 26 '21	0 days	1213	1215													
1215	1215.5.28.4.1.1.9	Other architectural works and finishing works	60 days	Mar 27 '21	May 25 '21	Mar 27 '21	May 25 '21	0 days	1214	1232FF													
1216	1216.5.28.4.1.2	E&M Installation Work	34 days	Mar 13 '21	Apr 15 '21	Mar 13 '21	Apr 15 '21	0 days															
1217	1217.5.28.4.1.2.1	Installation of Lifting Appliances at Temporary Filtrate Lifting Well and Eq. Tank	10 days	Mar 13 '21	Mar 22 '21	Mar 13 '21	Mar 22 '21	0 days															
1218	1218.5.28.4.1.2.2	GF MR LA-09-01 SWL 1t	7 days	Mar 13 '21	Mar 19 '21	Mar 13 '21	Mar 19 '21	0 days	1212,1189,11	1220	LA - A x 4~6 m												
1219	1219.5.28.4.1.2.3	GF MR LA-09-02 SWL 1t	7 days	Mar 13 '21	Mar 19 '21	Mar 13 '21	Mar 19 '21	0 days	1213	1220	LA - A x 4~6 m												
1220	1220.5.28.4.1.2.4	Site Acceptance test and loading test of LA	3 days	Mar 20 '21	Mar 22 '21	Mar 20 '21	Mar 22 '21	0 days	1218,1219	1255FF	LA - A x 4~6 m												
1221	1221.5.28.4.1.2.5	Mechanical Installations for Temp. Filtrate Lifting Well and Eq. Tank	21 days	Mar 19 '21	Apr 8 '21	Mar 19 '21	Apr 8 '21	0 days	1212	1225FS-30 da													
1222	1222.5.28.4.1.2.6	Installation of pipework, chemical pipework and valves, EQT036	14 days	Mar 19 '21	Apr 1 '21	Mar 19 '21	Apr 1 '21	0 days	1213,1200,11	1223	ME - A x 4~6 m												
1223	1223.5.28.4.1.2.7	Installation of pumps	7 days	Apr 2 '21	Apr 8 '21	Apr 2 '21	Apr 8 '21	0 days	1222,1194	1227	ME - A x 4~6 m												
1224	1224.5.28.4.1.2.8	Installation of instrumentations, EQT035-3	7 days	Mar 19 '21	Mar 25 '21	Mar 19 '21	Mar 25 '21	0 days	1213,1197	1227	ME - A x 4~6 m												
1225	1225.5.28.4.1.2.9	Electrical Installations for Temp. Filtrate Lifting Well and Eq. Tank	34 days	Mar 13 '21	Apr 15 '21	Mar 13 '21	Apr 15 '21	0 days	1221FS-30 d														
1226	1226.5.28.4.1.2.10	Installation of cable trays and cable containments	21 days	Mar 13 '21	Apr 2 '21	Mar 13 '21	Apr 2 '21	0 days	1213	1227	EE - A x 4~6 m												
1227	1227.5.28.4.1.2.11	Cables laying and terminations	7 days	Apr 9 '21	Apr 15 '21	Apr 9 '21	Apr 15 '21	0 days	1226,1223,11	1228	EE - A x 4~6 m												
1228	1228.5.28.4.1.3	Site Acceptance Test for E&M Equip at Filtrate Lifting Well and Eq. Tank	7 days	Apr 16 '21	Apr 22 '21	Apr 16 '21	Apr 22 '21	0 days	1227	1229													
1229	1229.5.28.4.1.4	System Commissioning for E&M Equip at Temp. Filtrate Lifting Well and Eq. Tank	7 days	Apr 23 '21	Apr 29 '21	Apr 23 '21	Apr 29 '21	0 days	1228	1255FF													
1230	1230.5.29	Existing PST No. 4 and No. 6, Portion B-3A (PS 6B.2.15)	397 days	Aug 1 '20	Sep 1 '21	Aug 1 '20	Sep 1 '21	0 days															
1231	1231.5.29.1	Planned Key Date Completion Date - KD3B	0 days	Jun 7 '21	Jun 7 '21	Jun 7 '21	Jun 7 '21	0 days	1298FF														
1232	1232.5.29.2	Planned Sectional Completion Date - Section 3, PST No. 4 and No. 6	0 days	Sep 1 '21	Sep 1 '21	Sep 1 '21	Sep 1 '21	0 days	1215FF,132														
1233	1233.5.29.3	Selection of Suppliers for major plant and materials and Subcontractor for PST No. 4 and No. 6	137 days	Aug 1 '20	Dec 15 '20	Aug 1 '20	Dec 15 '20	0 days															
1234	1234.5.29.3.1	Mis - Rotating Bridge Scrapers and associated materials, C11, ref. EQT037-1	42 days	Aug 1 '20	Sep 11 '20	Aug 1 '20	Sep 11 '20	0 days															
1235	1235.5.29.3.1.1	Submission for acceptance of purchasing package	7 days	Aug 1 '20	Aug 7 '20	Aug 1 '20	Aug 7 '20	0 days		1236													
1236	1236.5.29.3.1.2	Invitation of quotations for purchasing package	14 days	Aug 8 '20	Aug 21 '20	Aug 8 '20	Aug 21 '20	0 days	1235	1237													
1237	1237.5.29.3.1.3	Acceptance of conforming quotation (Completed)	21 days	Aug 22 '20	Sep 11 '20	Aug 22 '20	Sep 11 '20	0 days	1236	1247													
1238	1238.5.29.3.2	Mis - Pipework, C11, ref. EQT037-2	42 days	Aug 1 '20	Sep 11 '20	Aug 1 '20	Sep 11 '20	0 days															
1239	1239.5.29.3.2.1	Submission for acceptance of purchasing package	7 days	Aug 1 '20	Aug 7 '20	Aug 1 '20	Aug 7 '20	0 days		1240													
1240	1240.5.29.3.2.2	Invitation of quotations for purchasing package	14 days	Aug 8 '20	Aug 21 '20	Aug 8 '20	Aug 21 '20	0 days	1239	1241													
1241	1241.5.29.3.2.3	Acceptance of conforming quotation (Completed)	21 days	Aug 22 '20	Sep 11 '20	Aug 22 '20	Sep 11 '20	0 days	1240	1247													
1242	1242.5.29.3.3	Subletting of Electrical and Mechanical Installation Work w/ supply of LCP	81 days	Sep 26 '20	Dec 15 '20	Sep 26 '20	Dec 15 '20	0 days															
1243	1243.5.29.3.3.1	Submission for Subletting Package	30 days	Sep 26 '20	Oct 25 '20	Sep 26 '20	Oct 25 '20	0 days	1247	1244													
1244	1244.5.29.3.3.2	Invitation to tender	21 days	Oct 26 '20	Nov 15 '20																		

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
												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	Half 1, 2025	Half 2, 2025
1314	1314.5.31.2.1	Mis - new replacement filter plates and provision of filter cloths, C11, ref. EQT038	52 days	Jul 1 '20	Aug 21 '20	Jul 1 '20	Aug 21 '20	0 days															
1315	1315.5.31.2.1.1	Submission for acceptance of purchasing package	21 days	Jul 1 '20	Jul 21 '20	Jul 1 '20	Jul 21 '20	0 days		1316													
1316	1316.5.31.2.1.2	Invitation of quotations for purchasing package	10 days	Jul 22 '20	Jul 31 '20	Jul 22 '20	Jul 31 '20	0 days	1315	1317													
1317	1317.5.31.2.1.3	Acceptance of conforming quotation (Completed)	21 days	Aug 1 '20	Aug 21 '20	Aug 1 '20	Aug 21 '20	0 days	1316	1318													
1318	1318.5.31.3	Design submission for replacement of filter plates	7 edays	Aug 21 '20	Aug 28 '20	Aug 21 '20	Aug 28 '20	0 edays	1317	1320													
1319	1319.5.31.4	Manufacturing and Delivery of Plant & Materials	345 days	Aug 29 '20	Aug 8 '21	Aug 29 '20	Aug 8 '21	0 days															
1320	1320.5.31.4.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Aug 29 '20	Jun 24 '21	Aug 29 '20	Jun 24 '21	0 days	1318	1321													
1321	1321.5.31.4.2	Shipping and Delivery of Plant to site	45 days	Jun 25 '21	Aug 8 '21	Jun 25 '21	Aug 8 '21	0 days	1320	1324													
1322	1322.5.31.5	Site Installation Work	21 days	Aug 9 '21	Aug 29 '21	Aug 9 '21	Aug 29 '21	0 days															
1323	1323.5.31.5.1	Commencement of replacement of filter plates	21 days	Aug 9 '21	Aug 29 '21	Aug 9 '21	Aug 29 '21	0 days															
1324	1324.5.31.5.1.1	Replacement of filter plates (On Hold)	21 days	Aug 9 '21	Aug 29 '21	Aug 9 '21	Aug 29 '21	0 days	1321	1232FF													
1325	1325.5.32	Fire Services Installation (PS 6B.6.9)	1509 days	Dec 1 '20	Jan 17 '25	Dec 1 '20	May 1 '24	0 days															
1326	1326.5.32.1	Planned Key Date Completion Date - KD1B, Fire	0 days	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	1330FF														
1327	1327.5.32.2	Planned Sectional Completion Date - Section 1, FSI	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	1331FF														
1328	1328.5.32.3	Planned Sectional Completion Date - Section 4, FSI	0 days	May 1 '24	May 1 '24	May 1 '24	May 1 '24	0 days	1346FF														
1329	1329.5.32.4	Design Submissions for FSI	334 days	Dec 1 '20	Oct 30 '21	Dec 1 '20	Oct 30 '21	0 days															
1330	1330.5.32.4.1	CDS081-11 - Civil and dimensional requirements drawings for Fire Services Sprinkler Pumping Room and Fire Hydrant and Booster Pumping Room	120 days	Dec 1 '20	Mar 30 '21	Dec 1 '20	Mar 30 '21	0 days		1326FF													
1331	1331.5.32.4.2	CDS049 - Detailed Design for Fire Services include AFA, FS, FH, Sprinkler etc.	180 edays	May 3 '21	Oct 30 '21	May 3 '21	Oct 30 '21	0 edays	179	1335,1332,13													
1332	1332.5.32.5	DG Stores Submissions to FSD for approval	120 days	Oct 31 '21	Feb 27 '22	Oct 31 '21	Feb 27 '22	0 days	1331	1341FF													
1333	1333.5.32.6	Site Installation Work	1175 days	Oct 31 '21	Jan 17 '25	Oct 31 '21	May 1 '24	0 days															
1334	1334.5.32.6.1	Commencement of Fire Services Installation	1175 days	Oct 31 '21	Jan 17 '25	Oct 31 '21	May 1 '24	0 days															
1335	1335.5.32.6.1.1	Design Review of Approved General Building Plan	126 days	Oct 31 '21	Mar 5 '22	Oct 31 '21	Mar 5 '22	0 days	1331	1336													
1336	1336.5.32.6.1.2	Submission of WWO542 for WSD's approval	270 days	Mar 6 '22	Nov 30 '22	Mar 6 '22	Oct 10 '23	314 days	1335	1337													
1337	1337.5.32.6.1.3	Submission of WWO46 for WSD's Inspection	30 days	Jun 28 '24	Jul 27 '24	Oct 11 '23	Nov 9 '23	0 days	1336,955,678	1338													
1338	1338.5.32.6.1.4	Obtain WWO46 Part V	60 days	Jul 28 '24	Sep 25 '24	Nov 10 '23	Jan 8 '24	0 days	1337	1341,1339													
1339	1339.5.32.6.1.5	FSD Inspection and Approval for MVAC	21 days	Sep 26 '24	Oct 16 '24	Jan 9 '24	Jan 29 '24	0 days	1349,1350,13	1342													
1340	1340.5.32.6.1.6	FSD Inspection and Approval for DG Stores	21 days	Aug 27 '24	Sep 16 '24	Jan 9 '24	Jan 29 '24	0 days	1349,1350,10	1342													
1341	1341.5.32.6.1.7	Submission of (FSI/314 & FSI/501) to FSD	14 days	Sep 26 '24	Oct 9 '24	Jan 16 '24	Jan 29 '24	0 days	1349,1350,13	1342													
1342	1342.5.32.6.1.8	Pre-inspection meeting with FSD	5 days	Oct 17 '24	Oct 21 '24	Jan 30 '24	Feb 3 '24	0 days	1341,1339,13	1343													
1343	1343.5.32.6.1.9	Initial Inspection with FSD	15 days	Oct 22 '24	Nov 5 '24	Feb 4 '24	Feb 18 '24	0 days	1342	1344													
1344	1344.5.32.6.1.10	Document Checking	45 days	Nov 6 '24	Dec 20 '24	Feb 19 '24	Apr 3 '24	0 days	1343	1345													
1345	1345.5.32.6.1.11	Re-inspections with FSD	14 days	Dec 21 '24	Jan 3 '25	Apr 4 '24	Apr 17 '24	0 days	1344	1346													
1346	1346.5.32.6.1.12	Issue of acceptance memo by FSD	14 days	Jan 4 '25	Jan 17 '25	Apr 18 '24	May 1 '24	0 days	1345	1328FF													
1347	1347.5.32.6.1.13	Installation of FS Pumps and Sprinkler Pumps	60 days	Apr 3 '23	Jun 1 '23	Sep 11 '23	Nov 9 '23	161 days		1350	FS - A x 4~6 men												
1348	1348.5.32.6.1.14	Installation of Fire Hydrant and Booster Pumps	60 days	Apr 3 '23	Jun 1 '23	Sep 11 '23	Nov 9 '23	161 days		1350	FS - A x 4~6 men												
1349	1349.5.32.6.1.15	SAT for Manual and automatic fire detection and alarm system	60 days	Jun 28 '24	Aug 26 '24	Nov 10 '23	Jan 8 '24	0 days	1053,1006,95	1341,1339,134													
1350	1350.5.32.6.1.16	SAT for Fire hydrants, hose reels and street fire hydrant system	60 days	Jun 28 '24	Aug 26 '24	Nov 10 '23	Jan 8 '24	0 days	1347,1348,10	1341,1339,134													
1351	1351.5.33	Fire Services Sprinkler Pumping Room, Portion B-7 & B-7B (PS 6B.6.9)	421 days	Aug 29 '22	Oct 23 '23	Dec 5 '22	Jan 29 '24	98 days															
1352	1352.5.33.1	Site Installation Work	421 days	Aug 29 '22	Oct 23 '23	Dec 5 '22	Jan 29 '24	98 days															
1353	1353.5.33.1.1	Tentative Civil Handover Date, FS Sprinkler Pump Room (Rev. 5)	1 day	Aug 29 '22	Aug 29 '22	Dec 5 '22	Dec 5 '22	0 days	17	1354,1359													
1354	1354.5.33.1.2	Commencement of E&M Installation at FS & Sprinkler Pump Room	420 days	Aug 29 '22	Oct 23 '23	Dec 6 '22	Jan 29 '24	98 days	1353														
1355	1355.5.33.1.2.1	Mechanical Installations for FS & Sprinkler Pumps	90 edays	Aug 29 '22	Nov 27 '22	Dec 6 '22	Mar 6 '23	0 edays		1356	FS - A x 4~6 men												
1356	1356.5.33.1.2.2	Electrical Installations for FS & Sprinkler Pumps	90 edays	Nov 27 '22	Feb 25 '23	Mar 6 '23	Jun 4 '23	0.63 ed...	1355	1357,1360,13	FS - A x 4~6 men												
1357	1357.5.33.1.2.3	Site Acceptance Test for FS & Sprinkler Pumps	45 days	Feb 26 '23	Apr 11 '23	Oct 18 '23	Dec 1 '23	0 days	1356	1358													
1358	1358.5.33.1.2.4	System Commissioning for FS & Sprinkler Pumps	45 days	Apr 12 '23	May 26 '23	Dec 2 '23	Jan 15 '24	234 days	1357	1341													
1359	1359.5.33.1.2.5	Building Services Installations at FS & Sprinkler Pump Room	240 days	Feb 26 '23	Oct 23 '23	Jun 4 '23	Jan 29 '24	98 days	1353														
1360	1360.5.33.1.2.5.1	Lighting and Power Distribution System, Chem 1&2	120 days	Feb 26 '23	Jun 25 '23	Jun 4 '23	Oct 1 '23	0 days	1356,204	1363	BS - A x 4~6 men												
1361	1361.5.33.1.2.5.2	Lightning Protection System, FS & Sprinkler Pump Room	30 days	Feb 26 '23	Mar 27 '23	Sep 2 '23	Oct 1 '23	90 days	1356	1363	BS - A x 4~6 men												
1362	1362.5.33.1.2.5.3	Mechanical Ventilation System, FS & Sprinkler PR	14 days	Feb 26 '23	Mar 11 '23	Sep 18 '23	Oct 1 '23	106 days	1356	1363	MVAC - A x 4~6 men												
1363	1363.5.33.1.2.5.4	Testing and Commissioning of Building Services Installations, FS & Sprinkler PR	120 days	Jun 26 '23	Oct 23 '23	Oct 2 '23	Jan 29 '24	98 days	1360,1361,13	1341FF													
1364	1364.5.34	Fire Hydrant and Booster Pumping Room, Portion B7 & B-7B (PS 6B.6.9)	465 days	May 15 '23	Aug 21 '24	Oct 22 '22	Jan 29 '24	0 days															
1365	1365.5.34.1	Site Installation Work	465 days	May 15 '23	Aug 21 '24	Oct 22 '22	Jan 29 '24	0 days															
1366	1366.5.34.1.1	Tentative Civil Handover Date, Fire Hydrant and Booster Pumping Room (Re	1 day	May 15 '23	May 15 '23	Oct 22 '22	Oct 22 '22	0 days	19	1368													
1367	1367.5.34.1.2	Commencement of E&M Installation at Street FH Pump Room	464 days	May 15 '23	Aug 21 '24	Oct 23 '22	Jan 29 '24	0 days															
1368	1368.5.34.1.2.1	Mechanical Installations for Street FH Pumps	90 edays	May 15 '23	Aug 13 '23	Oct 23 '22	Jan 21 '23	0 edays	1366	1369	FS - A x 4~6 men												
1369	1369.5.34.1.2.2	Electrical Installations for Street FH Pump	90 edays	Aug 13 '23	Nov 11 '23	Jan 21 '23	Apr 21 '23	0 edays	1368	1370,1373	FS - A x 4~6 men												
1370	1370.5.34.1.2.3	Site Acceptance Test for Street FH Pump	45 days	Nov 12 '23	Dec 26 '23	Nov 1 '23																	

ID	ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2020		2021		2022		2023		2024		2025	
													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	Half 1, 2025	Half 2, 2025
1442	1442	7.2	Compensation Event (CE) No. 002, the Contractor's Site Accommodation by Modular Integrated Construction (MiC) Method	1 day	Jun 8 '20	Jun 8 '20	Jun 8 '20	Jun 8 '20	0 days															
1443	1443	7.3	Compensation Event (CE) No. 003, Designated Area for the Contractor's Site Accommodation in Works Area WA1	1 day	Apr 22 '20	Apr 22 '20	Apr 22 '20	Apr 22 '20	0 days															
1444	1444	7.4	Compensation Event (CE) No. 005, Designated Area for the Contractor's Storage Area in Works Area WA2-C	1 day	Apr 22 '20	Apr 22 '20	Apr 22 '20	Apr 22 '20	0 days															
1445	1445	7.5	Compensation Event (CE) No. 007, Employment of Temporary Staff under Anti-Epidemic Fund	1 day	Jul 10 '20	Jul 10 '20	Jul 10 '20	Jul 10 '20	0 days															
1446	1446	7.6	Compensation Event (CE) No. 009, Provision of an Additional Primary Sludge Thickening System and Deletion of Provision of a Membrane Filter Press System	1 day	Jul 15 '20	Jul 15 '20	Jul 15 '20	Jul 15 '20	0 days															
1447	1447	7.7	Compensation Event (CE) No. 011, Dismantling, relocating, disconnecting and re-installing of the existing building services (BS) equipment, supervisory control and data acquisition (SCADA) panel at existing main power house	1 day	Apr 14 '21	Apr 14 '21	Apr 14 '21	Apr 14 '21	0 days															
1448	1448	7.8	NCE-PPMI-0202 (CE) Revised GA for F.S. & Sprinkler Pumping Room and Emergency Generator Room	1 day	Dec 18 '20	Dec 18 '20	Dec 18 '20	Dec 18 '20	0 days															
1449	1449	7.9	NCE-PPMI-0203 (CE) Revised General Arrangement for Temp. Chemical System	1 day	Dec 15 '20	Dec 15 '20	Dec 15 '20	Dec 15 '20	0 days															
1450	1450	7.10	NCE-PPMI-0204 (CE) Revised GA Layout Plan for DO Sys. No. 3A	1 day	Dec 18 '20	Dec 18 '20	Dec 18 '20	Dec 18 '20	0 days															
1451	1451	7.11	NCE-PPMI-0205 (CE) Provision of Louvre Panel for Outdoor AC Units at Contractor's Site Accommodation	1 day	May 17 '21	May 17 '21	May 17 '21	May 17 '21	0 days															
1452	1452	7.12	NCE-PPMI-0206 (CE) Modification of Feeders of the existing switchboards at Inlet Work and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Jun 23 '21	Jun 23 '21	Jun 23 '21	Jun 23 '21	0 days															
1453	1453	7.13	NCE-PPMI-0207 (CE) Modification of Feeders of the existing switchboards at Inlet Consolidation House and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Jun 23 '21	Jun 23 '21	Jun 23 '21	Jun 23 '21	0 days															
1454	1454	7.14	NCE-PPMI-0208 (CE) Modification of Feeders of the existing switchboards at Membrane Facilities Building and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Jun 25 '21	Jun 25 '21	Jun 25 '21	Jun 25 '21	0 days															
1455	1455	7.15	NCE-PPMI-0211 (CE) Provision of a New Chemical Storage and Dosing System for the Application of Glycerin to Replace Methanol as an Alternative External Carbon Source for the Denitrification Process at BR2A and BR2B	1 day	Jul 8 '20	Jul 8 '20	Jul 8 '20	Jul 8 '20	0 days															
1456	1456	7.16	NCE-PPMI-0213 (CE) Revised General Arrangement for Chemical System No. 1	1 day	Jan 5 '21	Jan 5 '21	Jan 5 '21	Jan 5 '21	0 days															
1457	1457	7.17	NCE-PPMI-0219 (CE) Provision and Removal of the Blank Flange to Blank Off Drain Valve and Temporary Submersible Pumps in PST No. 6	1 day	Apr 22 '21	Apr 22 '21	Apr 22 '21	Apr 22 '21	0 days															
1458	1458	7.18	NCE-PPMI-0223 (CE) Revised GA for Chemical Pipe Trench	1 day	Apr 7 '21	Apr 7 '21	Apr 7 '21	Apr 7 '21	0 days															
1459	1459	7.19	NCE-PPMI-0226 (CE) Modification Works of Manhole Cover for MHD13 for Filtrate Intake Pipe of Primary Sludge Thickening System	1 day	Apr 30 '21	Apr 30 '21	Apr 30 '21	Apr 30 '21	0 days															
1460	1460	7.20	NCE-PPMI-0227 (CE) Provision of Project Jackets with Fleece Vests	1 day	Apr 29 '21	Apr 29 '21	Apr 29 '21	Apr 29 '21	0 days															
1461	1461	7.21	NCE-PPMI-0234 (CE) Provision of removal of the blank flange to blank off drain valve of PST No. 4	1 day	May 25 '21	May 25 '21	May 25 '21	May 25 '21	0 days															



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

 Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack