



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
JUNE 2022

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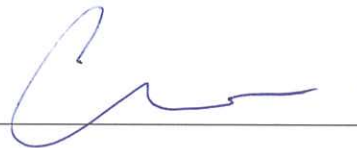
Shek Wu Hui Effluent Polishing Plant – Main Work

Monthly Environmental Monitoring & Audit Report

June 2022

(July 2022)

Verified by: Claudine Lee



Position: Independent Environmental Checker

Date: 14 July 2022

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – **June 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 **10th** 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 June 2022 to 30 June 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
- 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
- Pre-bored H piles
- Demolition works
- Sheet piling

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 (Sidestream Treatment Facilities)
- Electrical Installation for UV System No.1 Effluent TPS & Effluent Lift-up PS
- SAT Procedure of Penstock and Stoplog
- Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station
- HR and FH System Installation at Workshop No.2
- SPR System Installation at Workshop No.2
- MFA and AFA Installation at Workshop No.2
- Installation of CCTV at UV, EPS1 and Existing Control Room at SHWSTW
- Cabling and Installation of Metro Ethernet

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. [The 24-hour air quality monitoring scheduled on 8 June 2022 and 14 June 2022 were rescheduled to 9 June 2022 and 15 June 2022 respectively due to power interruption.](#)
- v. [No action or limit level exceedance was recorded in this reporting 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 [7\(DE/2018/03 & DE/2018/04\)](#), [9 \(DC/2018/06 & DC/2018/07\)](#), [14, 21 and 28 June 2022](#) and biweekly landscape inspection on [9 and 21 June 2022](#). IEC attended the joint site inspection on [28 June 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
- 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
- Pre-bored H piles
- Demolition works
- Sheet piling

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 (Sidestream Treatment Facilities)
- SAT Procedure of Penstock and Stoplog
- Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station
- HR and FH System Installation at Workshop No.2
- SPR System Installation at Workshop No.2
- MFA and AFA Installation at Workshop No.2
- Installation of CCTV at UV, EPS1 and Existing Control Room at SHWSTW
- Monorail Installation at SPS 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 and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire
Hydrant & Booster Pump Room and Temporary Chemical System

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	Senior Resident Engineer	Mr. Eddie Lam	3907 1131
Kwan Lee - Chun Wo Joint Venture	Contractor (DC/2018/06)	Environmental Engineer	Ms. Ruby Hui	6218 6408
		Assistant Environmental Engineer	Mr. Eric Chan	6432 2581
	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
- 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
- Pre-bored H piles
- Demolition works
- Sheet piling

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 (Sidestream Treatment Facilities)
- Electrical Installation for UV System No.1 Effluent TPS & Effluent Lift-up PS
- SAT Procedure of Penstock and Stoplog
- Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station
- HR and FH System Installation at Workshop No.2
- SPR System Installation at Workshop No.2
- MFA and AFA Installation at Workshop No.2
- Installation of CCTV at UV, EPS1 and Existing Control Room at SHWSTW
- Cabling and Installation of Metro Ethernet

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	3	Section 4, Footpath Construction near UV No.1
	Mobile crane	1	SDB
	Tower Crane	2	Near Workshop No.2 & Gate 2
	Mobile generator	1	Near Workshop No.2
	Cherry picker	1	UV No.1
	Scissor lift platform	2	SDB
	Roller	1	UV1 Cable Draw Pit
DC/2018/07	Drilling rig	2	PST and Inlet
	Excavator	11	BR2, Inlet and SAS
	Generator	4	BR2, MFB, PST and Inlet
	Air compressor	4	BR2 & Inlet
	Mobile Crane	2	PST & BR2
	Drilling machine	1	MFB
DE/2018/03	Generator	4	UV No.1, Sidestream and Workshop No.2
	Excavator	4	Sidestream
	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
- 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
- Pre-bored H piles
- Demolition works
- Sheet piling

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 (Sidestream Treatment Facilities)
- SAT Procedure of Penstock and Stoplog
- Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station
- HR and FH System Installation at Workshop No.2
- SPR System Installation at Workshop No.2
- MFA and AFA Installation at Workshop No.2
- Installation of CCTV at UV, EPS1 and Existing Control Room at SHWSTW
- Monorail Installation at SPS 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 and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System

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-RN0078-22	01 Mar 2022	28 Aug 2022	Valid
	GW-RN0231-22	01 Apr 2022	30 Sep 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	01 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-RN0078-22	01 Mar 2022	28 Aug 2022	Valid
Admission Ticket for Special Waste	16757	07 Mar 2022	07 Sep 2022	Valid

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-RN1008-21	28 Jan 2022	29 Jun 2022	Valid
	GW-RN0435-22	25 May 2022	24 Aug 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	17/09/2020	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Billing Account for Disposal of Construction Waste	703621912	02 Jan 2020	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-B2592-01	07 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	LxT1	005098
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.

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

- 4.3.8. 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.
- 4.3.9. The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

MONITORING LOCATIONS

- 4.3.10. 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

4.3.11. 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

4.3.12. 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.

4.3.13. 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.

4.3.14. 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).

4.3.15. 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

4.3.16. 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

4.3.17. 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.

4.3.18. 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 [The 24-hour air quality monitoring scheduled on 8 June 2022 and 14 June 2022 were rescheduled to 9 June 2022 and 15 June 2022 respectively due to power interruption](#)
- 5.2.3 [No action or limit level exceedance was recorded in this reporting month.](#)

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 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 [Nesting and breeding behaviours were observed during the monitoring in reporting month. There was at least one nest \(Asian Koel\). Although the location of the nest is near from the project site but there was no significant impact observed on the nest in the month reported.](#)

5.3.6 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)	0.362	0.397	4.433
Metals (in '000kg)	0	0	2.37
Paper / Cardboard Packing (in '000kg)	0	0.01	0.01
Plastics (in '000kg)	0	0	0
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m ³)	0.09	0.077	0.62

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)
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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	0.034	1.671
Disposal as Public Fill (Inert) (in '000m ³)	1.076	2.481	15.386
Metals (in '000kg)	2.14	0	23.3
Paper / Cardboard Packing (in '000kg)	0	0.01	0.01
Plastics (in '000kg)	0	0.001	0.005
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m ³)	0.016	0.02	0.093

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)	4029.56	5565.13	9854.98

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2022)
(in '000kg)			
Metals (in '000kg)	0	0	0
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)	1.64	1.19	8.59

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 7 (DE/2018/03 & DE/2018/04), 9 (DC/2018/06 & DC/2018/07), 14, 21 and 28 June 2022 and biweekly landscape inspection on 9 and 21 June 2022. IEC attended the joint site inspection on 28 June 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
20220517_2	17 May 2022	The Contractor was requested to replace the faded colour NRMM label for the operating excavator.	As observed on 14 June 2022, a valid NRMM label was provided.	Rectified
20220524_4	24 May 2022	The Contractor was requested to replace the faded colour NRMM label for the generator at MFB.	As observed on 14 June 2022, a valid NRMM label was provided.	Rectified
20220628_2	28 June 2022	The Contractor was reminded to maintain good housekeeping at Inlet.	As observed on 9 July 2022, the waste was removed.	Rectified

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

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
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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
June 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 3 Months

Contract No.	Key Construction Works	Recommended Mitigation Measures
DC/2018/06	<ul style="list-style-type: none"> • RC works • Road works • 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, especially screening noise during piling related activities • 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

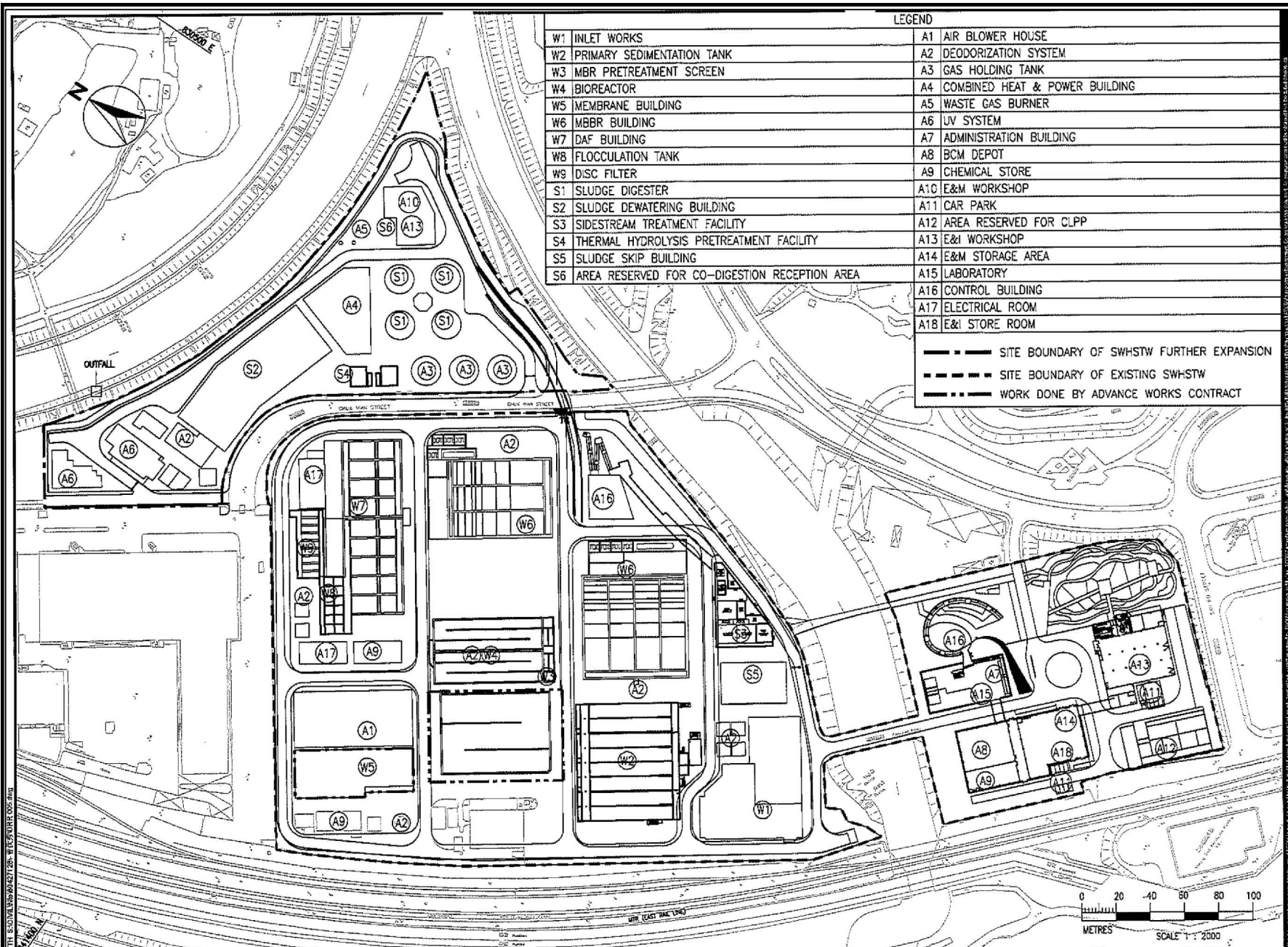
Contract No.	Key Construction Works	Recommended Mitigation Measures
		<p>application of ULSD as fuel for diesel-powered machinery.</p>
DC/2018/07	<ul style="list-style-type: none"> • ELS works • Pre-bored H piles • Demolition works • Sheet piling 	<ul style="list-style-type: none"> • Implement proper 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, especially screening noise during piling related activities • 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 (Sidestream Treatment Facilities) • SAT Procedure of Penstock and Stoplog • Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station 	<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, especially screening noise during piling related activities • Good site practices should be adopted to

Contract No.	Key Construction Works	Recommended Mitigation Measures
	<ul style="list-style-type: none"> • HR and FH System Installation at Workshop No.2 • SPR System Installation at Workshop No.2 • MFA and AFA Installation at Workshop No.2 • Installation of CCTV at UV, EPS1 and Existing Control Room at SHWSTW • Monorail Installation at SPS PS 	<p>check for any accumulation of waste materials on site and dispose waste materials at designated areas.</p> <ul style="list-style-type: none"> • 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/2018/04	<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 and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System 	<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	

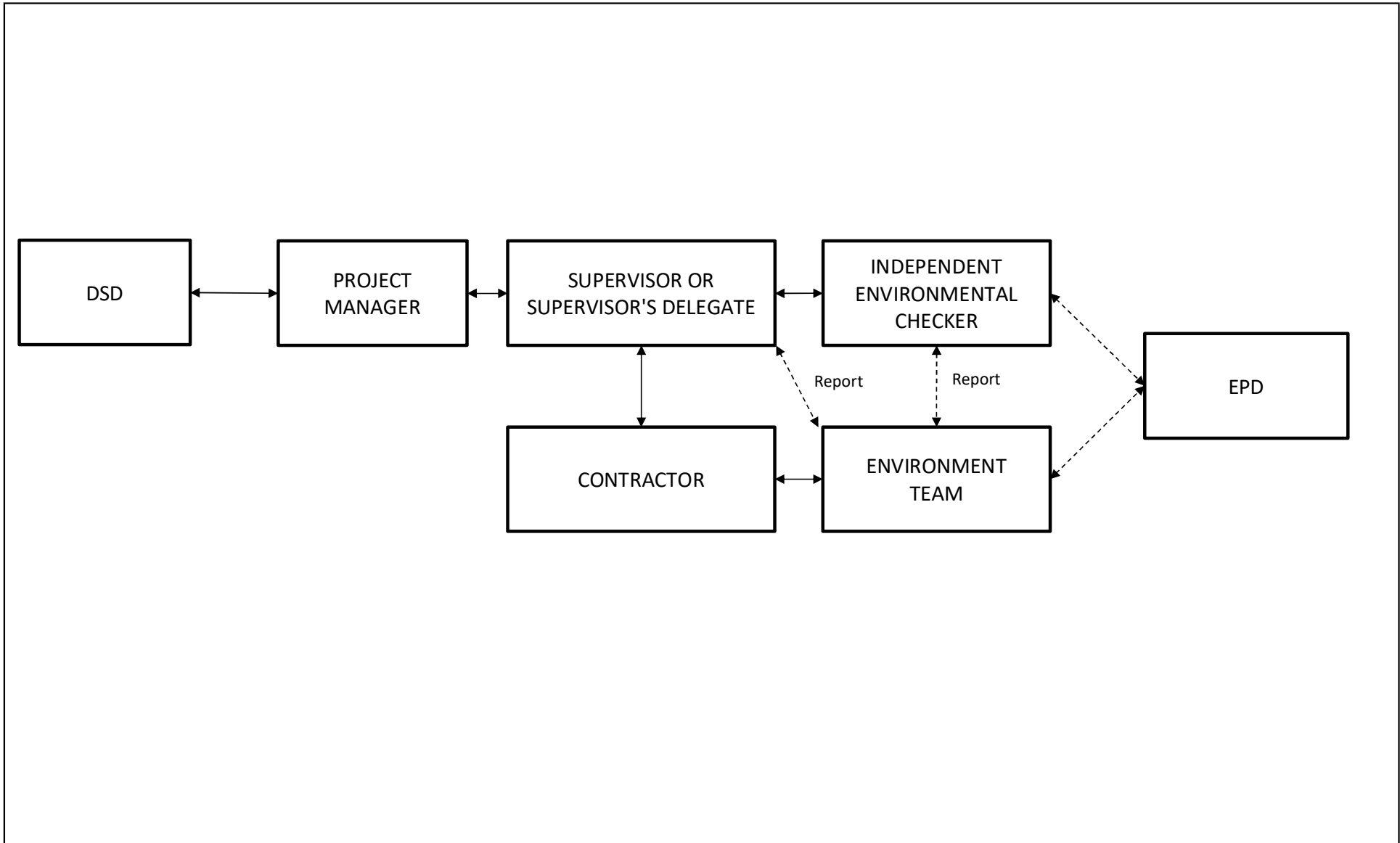
Shek Wu Hui Effluent Polishing Plant
 General Site Layout of SWHEPP

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



Figure 2.2

Project Organization Chart



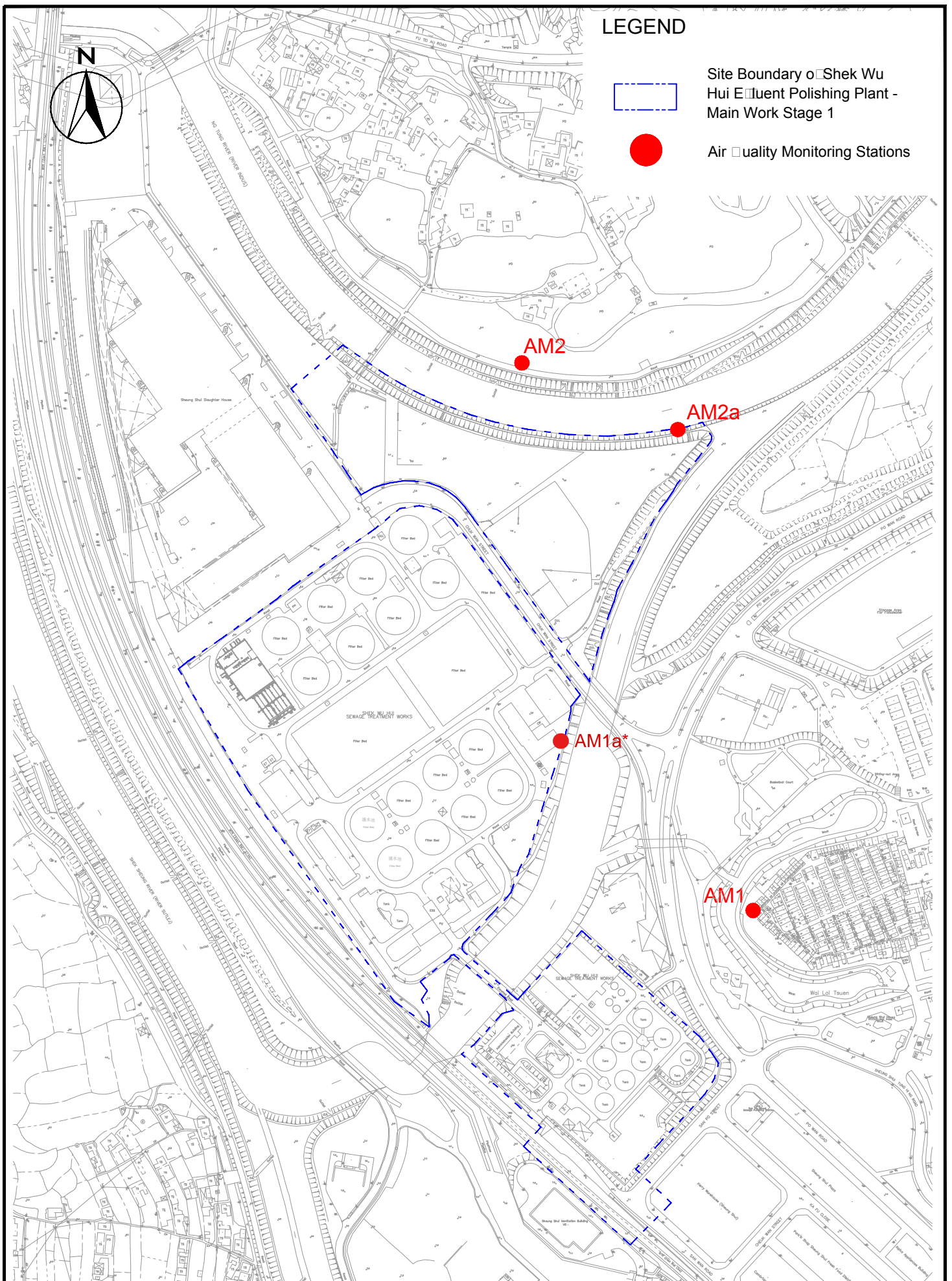
Shek Wu Hui Effluent Polishing Plant - Project Organisation For Environmental Monitoring and Audit	SCALE	N.T.S.	DATE	Sep 2019
	CHECK	JW	DRAWN	SY
	JOB NO.		FIGURE NO.	1.2

Figure 4.1

Locations of Noise Monitoring Stations

Figure 4.2

Locations of Air Quality Monitoring Stations



LEGEND



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



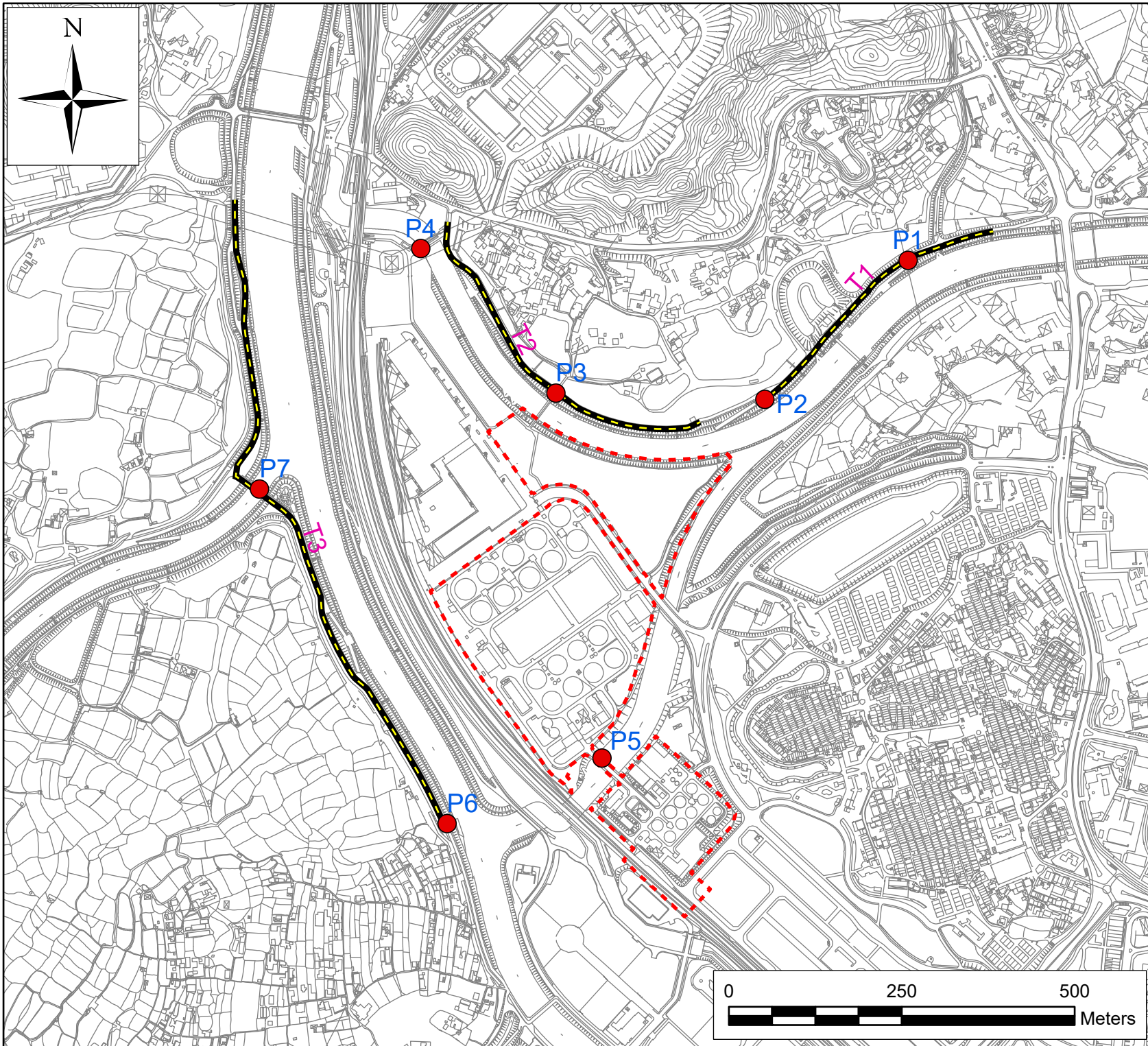
Air Quality Monitoring Stations

Shek Wu Hui Effluent Polishing Plant -
Location of Air Quality Monitoring Stations

SCALE	1:400 A4	DATE	SEP 2019
CHECK	JM	DRAWN	SY
JOB No.		FIGURE NO.	REVISION
		2	-

Figure 4.3

Locations of Ecological Monitoring Stations



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

PREPARED BY
Lam Environmental Services Limited
 19/F Remex Centre
 42 Wong Chuk Hang Road,
 Hong Kong
 Telephone: (852) 2882-3939
 Facsimile: (852) 2882-3331
 E-mail: info@lamenviro.com
 Website: <http://www.lamenviro.com>

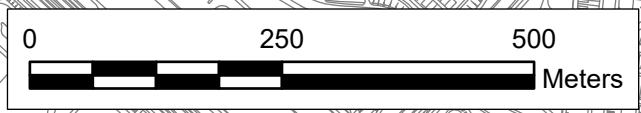
CONTRACT NO.
SPW 12/2021

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

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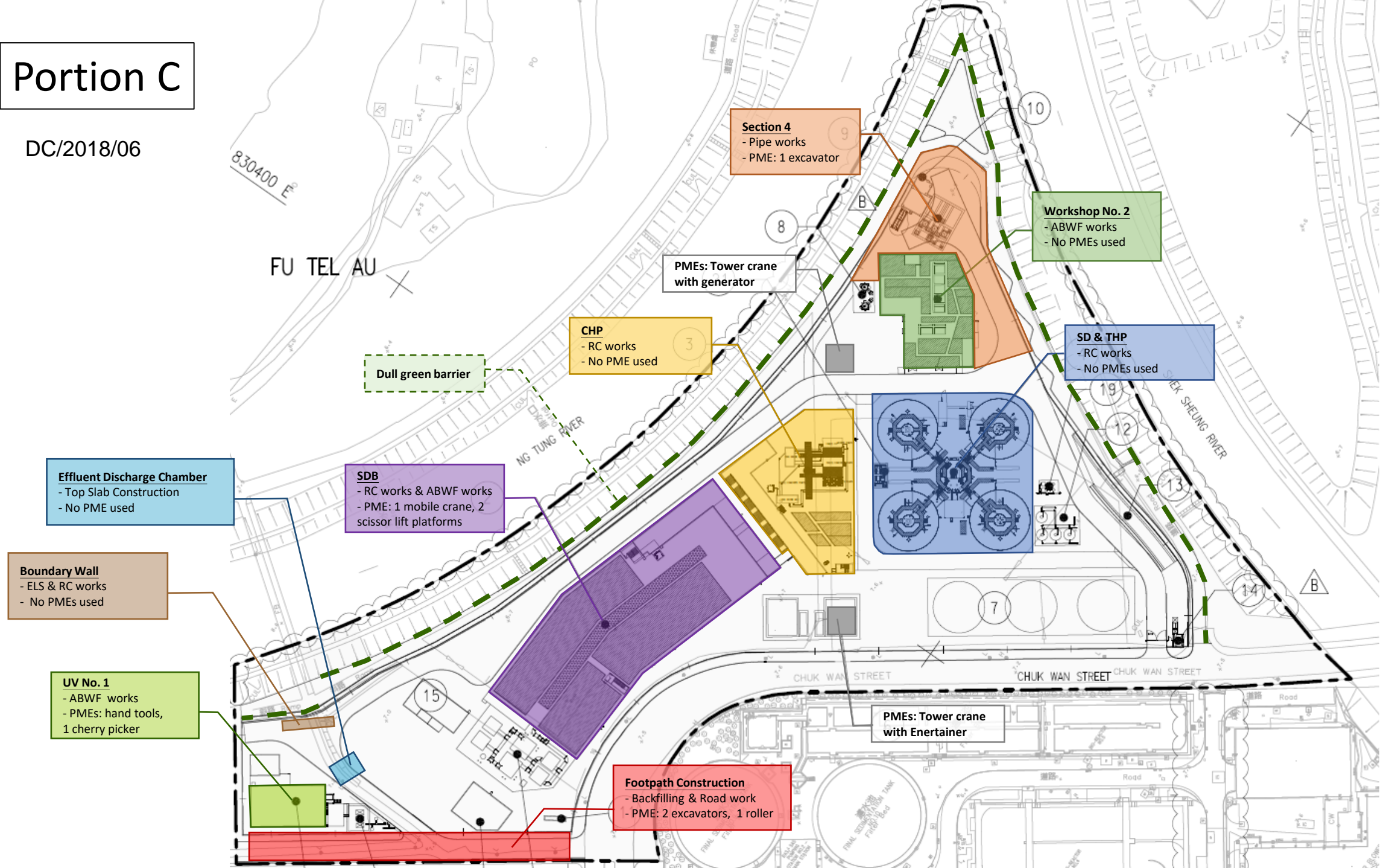


Appendix 2.1

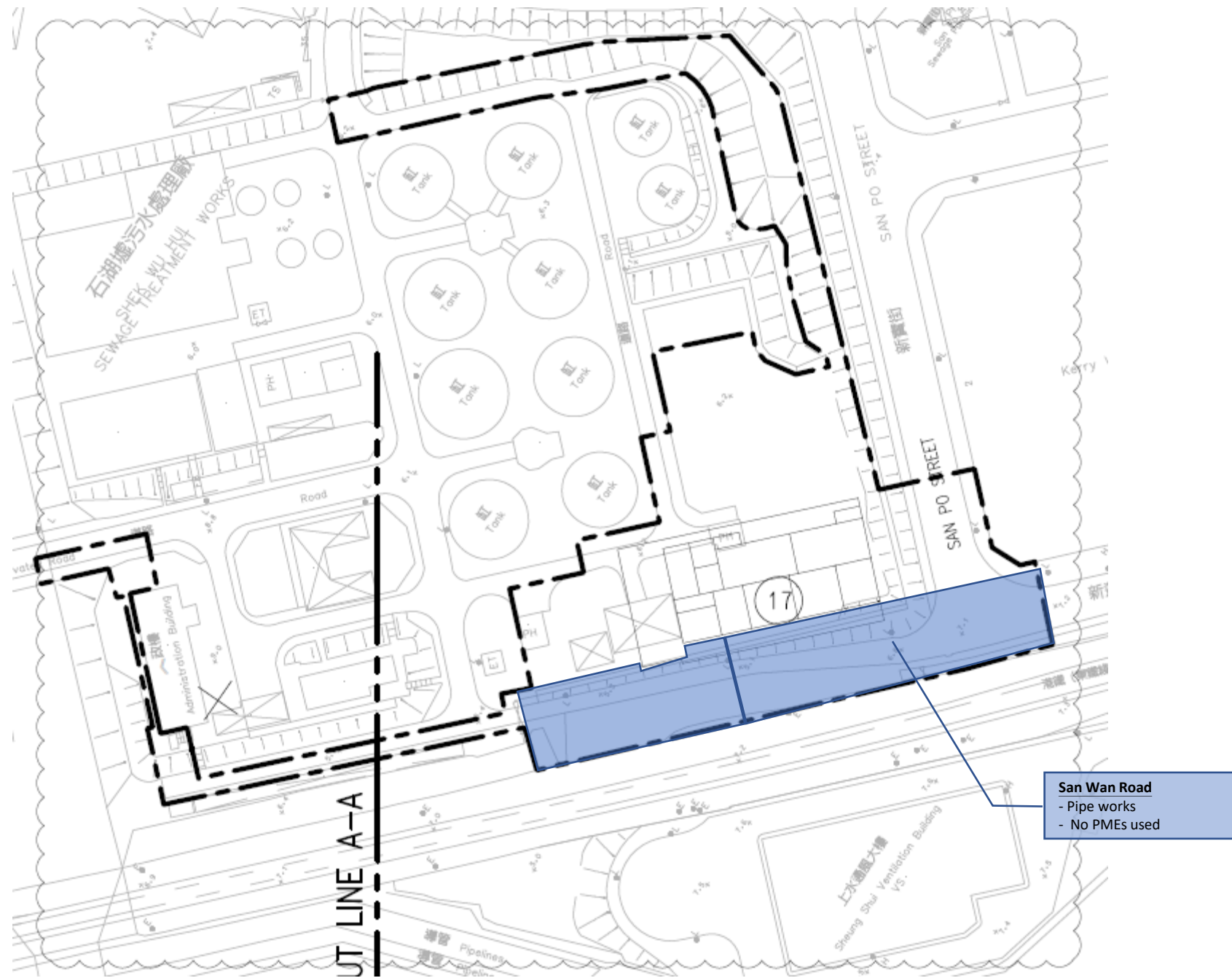
Layout Plan of Construction Activities and Site Record Photos

Portion C

DC/2018/06

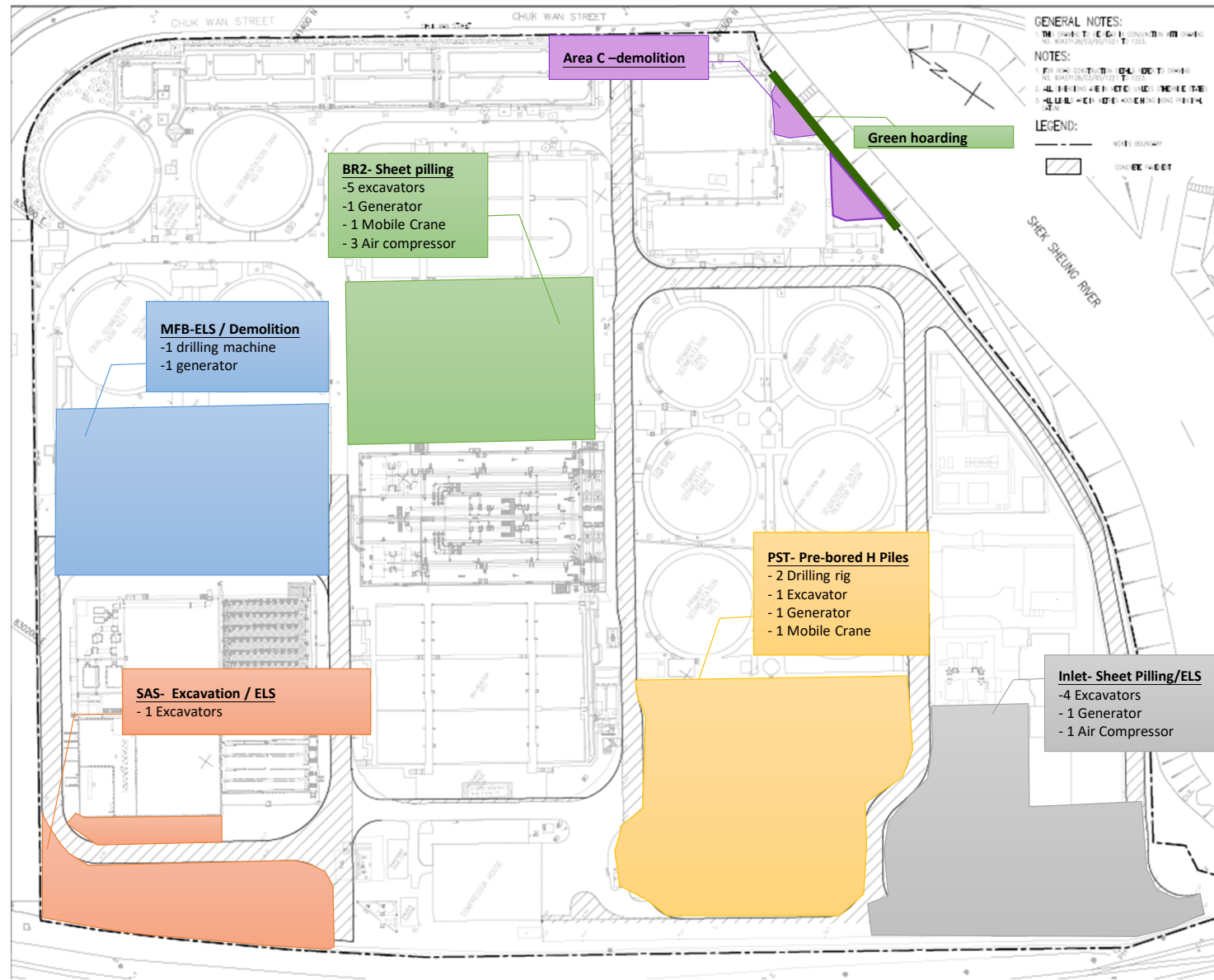


Portion A

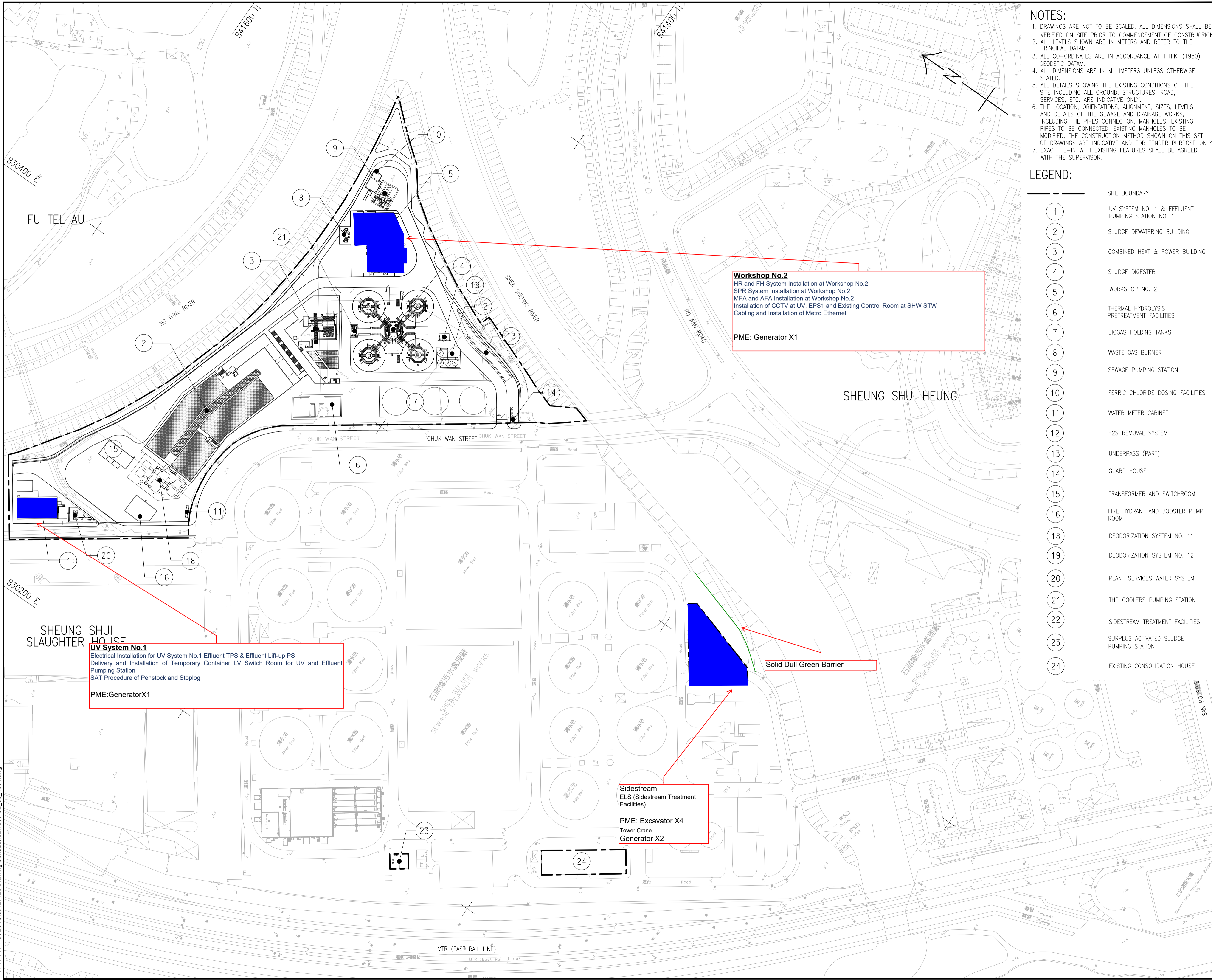


Portion B

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:

- DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL LEVELS SHOWN ARE IN METERS AND REFER TO THE PRINCIPAL DATUM.
- ALL CO-ORDINATES ARE IN ACCORDANCE WITH H.K. (1980) GEODETIC DATUM.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- ALL DETAILS SHOWING THE EXISTING CONDITIONS OF THE SITE INCLUDING ALL GROUND, STRUCTURES, ROAD, SERVICES, ETC. ARE INDICATIVE ONLY.
- 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.
- EXACT TIE-IN WITH EXISTING FEATURES SHALL BE AGREED WITH THE SUPERVISOR.

LEGEND:

1	SITE BOUNDARY
2	UV SYSTEM NO. 1 & EFFLUENT PUMPING STATION NO. 1
3	SLUDGE DEWATERING BUILDING
4	COMBINED HEAT & POWER BUILDING
5	SLUDGE DIGESTER
6	WORKSHOP NO. 2
7	THERMAL HYDROLYSIS PRETREATMENT FACILITIES
8	BIOGAS HOLDING TANKS
9	WASTE GAS BURNER
10	SEWAGE PUMPING STATION
11	FERRIC CHLORIDE DOSING FACILITIES
12	WATER METER CABINET
13	H2S REMOVAL SYSTEM
14	UNDERPASS (PART)
15	GUARD HOUSE
16	TRANSFORMER AND SWITCHROOM
17	FIRE HYDRANT AND BOOSTER PUMP ROOM
18	DEODORIZATION SYSTEM NO. 11
19	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
 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
 渠務署
 Drainage Services Department

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程師/顧問公司

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
1	MAR. 19	TENDER DRAWING	TLST

STATUS
 現狀

SCALE
 A1 1:1000

DIMENSION UNIT
 METRES

KEY PLAN
 索引圖

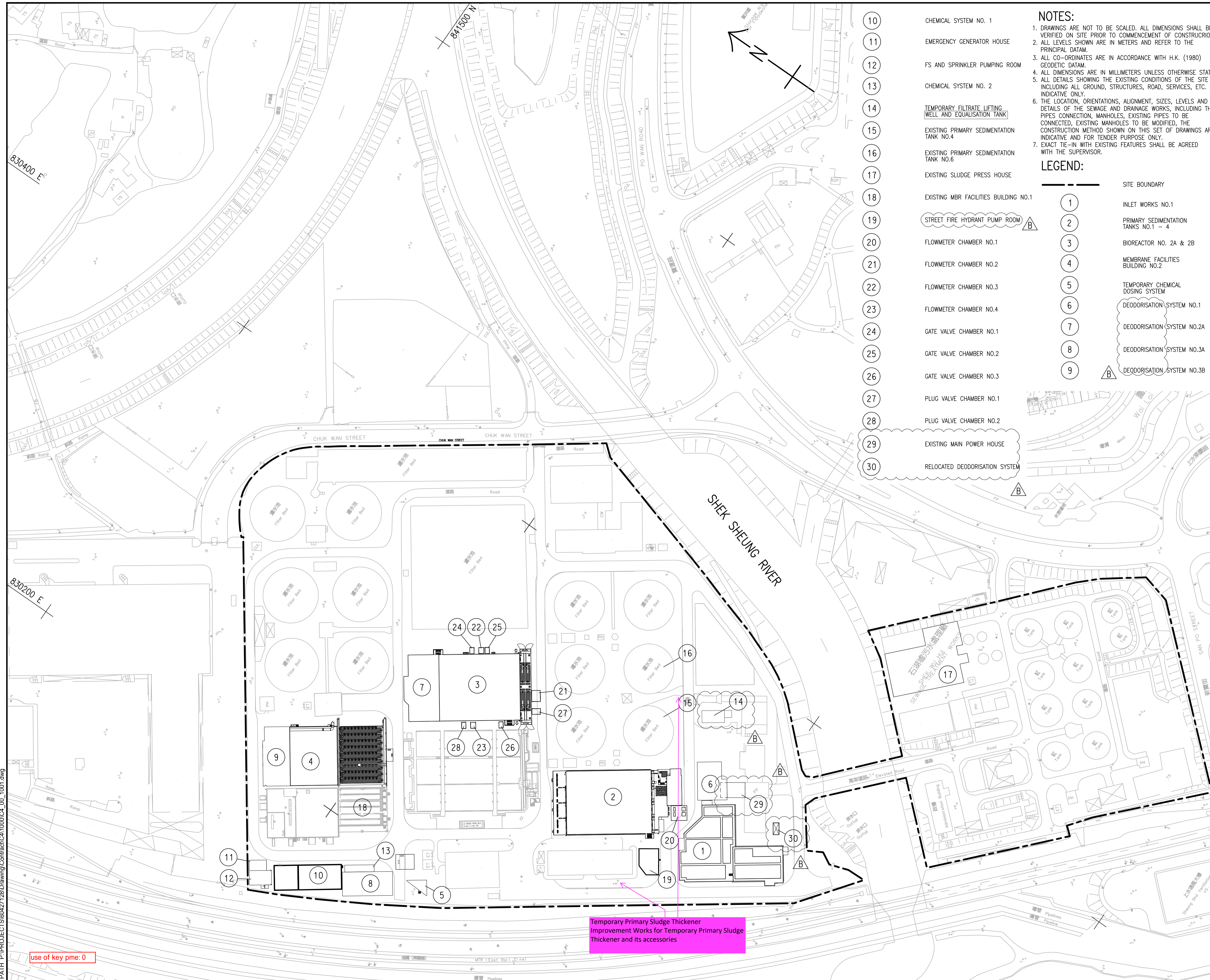
PROJECT NO.
 項目編號: 60427128

CONTRACT NO.
 合約編號: DE/2018/03

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:

1. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL LEVELS SHOWN ARE IN METERS AND REFER TO THE PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH H.K. (1980) GEODETIC DATUM.
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7. EXACT TIE-IN WITH EXISTING FEATURES SHALL BE AGREED WITH THE SUPERVISOR.

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



PROJECT
 SHEK WU HUI EFFLUENT POLISHING PLANT

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

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SUB-CONSULTANTS
 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
 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/2018/04

SHEET TITLE
 圖紙名稱: GENERAL LAYOUT PLAN

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

Use of key pme: 0

Temporary Primary Sludge Thickener Improvement Works for Temporary Primary Sludge Thickener and its accessories





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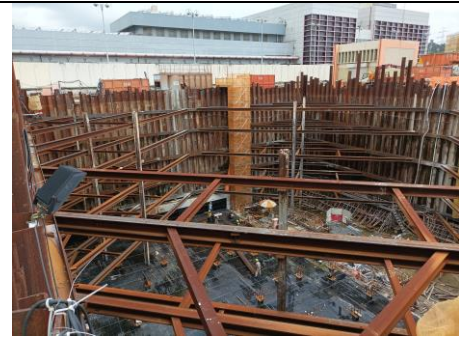


Site Record Photos



DC/2018/06

			
SD&THP	CHP	SDB	UV No.1 & Effluent Discharge Chamber

DC/2018/07

			
BR2	MFB	PST	Inlet



DE/2018/03



Sidestream



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"> Construction debris and spoil should be covered and/or properly disposed of as soon as possible to avoid these being washed into nearby water bodies; 						^
	<ul style="list-style-type: none"> Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified; 						^
	<ul style="list-style-type: none"> Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies; 						^
	<ul style="list-style-type: none"> Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited; 						^
	<ul style="list-style-type: none"> Regular water monitoring and site audit should be carried out at adequate points along any watercourses where construction works are underway upstream within their catchments and also on the Ng Tung, Sheung Yue and Shek Sheung Rivers. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works should be considered; 						^
	<ul style="list-style-type: none"> Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety; 						^
	<ul style="list-style-type: none"> Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means; Stockpiling sites should be lined with impermeable sheeting and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of 						^
	<ul style="list-style-type: none"> contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and 						^
	<ul style="list-style-type: none"> Supply of suitable clean backfill material after excavation, if required. 						^

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)	<p>*</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
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	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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 						^
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	MM11 - Screen Planting <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	MM16 - Screen Hoarding <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	MM17 - Light Control <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: August 3, 2021	Rootsmeter S/N: 438320	Ta: 295	°K
Operator: Jim Tisch		Pa: 750.3	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3166		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3610	3.2	2.00
2	3	4	1	0.9540	6.4	4.00
3	5	6	1	0.8460	7.9	5.00
4	7	8	1	0.8070	8.7	5.50
5	9	10	1	0.6630	12.7	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9930	0.7296	1.4123	0.9957	0.7316	0.8868
0.9888	1.0365	1.9973	0.9915	1.0393	1.2541
0.9868	1.1664	2.2330	0.9895	1.1696	1.4021
0.9857	1.2215	2.3420	0.9884	1.2248	1.4705
0.9804	1.4788	2.8246	0.9831	1.4828	1.7735
QSTD	m=	1.88375	QA	m=	1.17957
	b=	0.03970		b=	0.02493
	r=	0.99998		r=	0.99998

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

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

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



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM1a Calibration Date : 3-May-22
 Equipment no. : HVS001 (0401-1105) Calibration Due Date : 3-Jul-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	295	Kelvin	Pressure, P _a
			1015 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m _c	1.88375	Intercept, b _c	0.03970
Last Calibration Date	3-Aug-21	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	3-Aug-22				

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	0.8725	22	22.1301
2	2.4	2.4	4.8	1.1489	34	34.2011
3	3.3	3.3	6.6	1.3508	42	42.2484
4	4.3	4.3	8.6	1.5449	51	51.3016
5	5.4	5.4	10.8	1.7338	60	60.3549

By Linear Regression of Y on X

Slope, m = 48.9134 Intercept, b = -17.5531
 Correlation Coefficient* = 0.9995
 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 : 3-May-22 Date : 3-May-22



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM2a
 Equipment no. : HVS003 (1096-2305)

Calibration Date : 3-May-22
 Calibration Due Date : 3-Jul-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	295	Kelvin	Pressure, P _a
			1015 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m _c	1.88375	Intercept, b _c	0.03970
Last Calibration Date	3-Aug-21	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	3-Aug-22				

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	2.4	2.4	4.8	1.1489	23	23.1360
2	3.4	3.4	6.8	1.3714	32	32.1893
3	4.5	4.5	9.0	1.5809	42	42.2484
4	5.2	5.2	10.4	1.7010	47	47.2780
5	6.3	6.3	12.6	1.8744	55	55.3253

By Linear Regression of Y on X

Slope, m = 47.3405 Intercept, b = -26.2467
 Correlation Coefficient* = 0.9996
 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
 Date : 3-May-22

Checked by : Kelly Cheung
 Date : 3-May-22



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

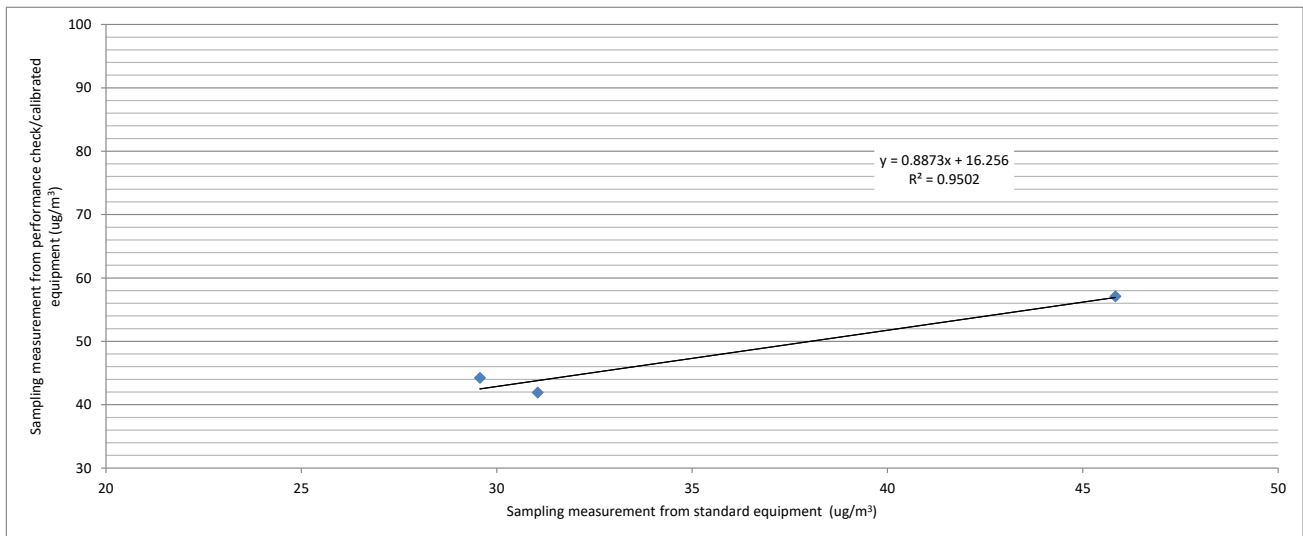
Portable Dust Meter Performance Check Results

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



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

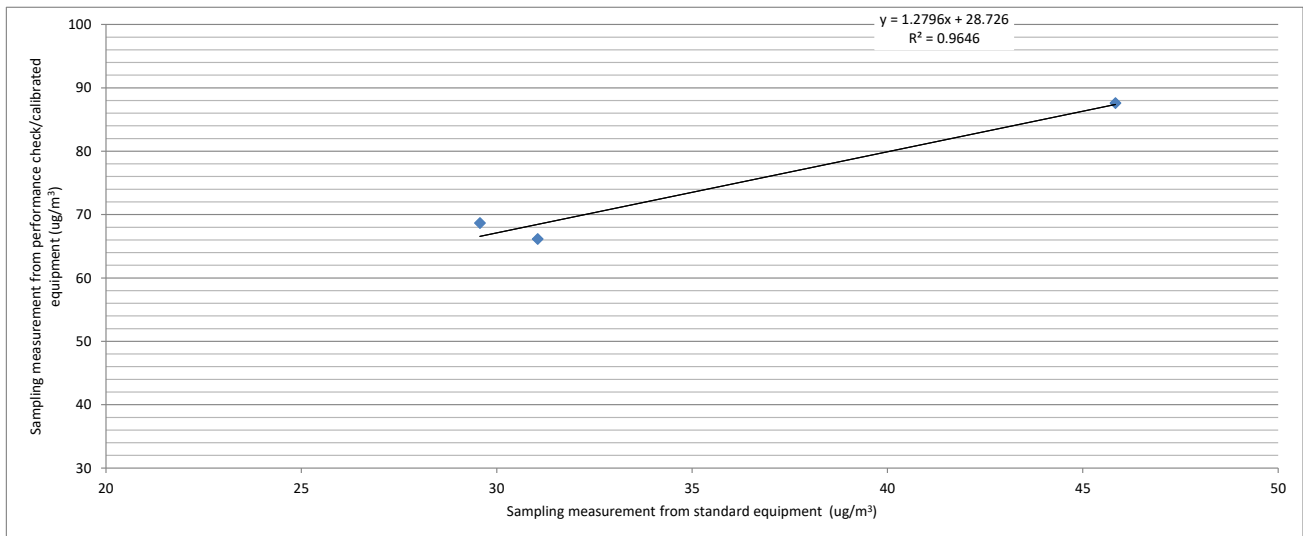
Portable Dust Meter Performance Check Results

Table with 6 columns: Trial no. in 1-hr period, Time, Mean Temp (°C), Mean Pressure (hPa), Concentration in ug/m³ (Standard equipment) (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) : 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



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CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0706 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Class 1)	Microphone	Preamp
Manufacturer:	Larson Davis	PCB	PCB
Type/Model No.:	LxT1	377B02	PRMLxT1L
Serial/Equipment No.:	0005098	173736	042838
Adaptors used:	-	-	-

Item submitted by

Customer Name: Lam Environmental Services Limited
Address of Customer:
Request No.:
Date of receipt: 06-Jul-2021

Date of test: 07-Jul-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	61227	31-Dec-2021	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 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 $\pm 20\%$.
- 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: 08-Jul-2021

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.: 21CA0706 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	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	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	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Frequency weightings	Lin	Pass	0.3	
	Time weightings	Single Burst Fast	Pass	0.3
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Crest factor of 3	Pass	0.3
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
	Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4
Overload indication	SPL	Pass	0.3	
	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:  End
Date: 07-Jul-2021

Checked by: 
Date: 08-Jul-2021

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.



Sound level meter type:	LxT1	Serial No.	0005098	Date	07-Jul-2021
Microphone type:	377B02	Serial No.	173736		
Preamp type:	PRMLXT1L	Serial No.	042838	Report:	21CA0706 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	10.8	dB
Noise level in C weighting	13.7	dB
Noise level in Lin	21.3	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	49.0	49.0	0.7	0.0	0.0
44.0	44.0	44.0	0.7	0.0	0.0
39.0	38.9	38.9	0.7	-0.1	-0.1
34.0	33.9	33.9	0.7	-0.1	-0.1
33.0	33.0	33.0	0.7	0.0	0.0



Sound level meter type:	LxT1	Serial No.	0005098	Date	07-Jul-2021
Microphone type:	377B02	Serial No.	173736		
Preamp type:	PRMLxT1L	Serial No.	042838	Report:	21CA0706 02

32.0	31.9	31.9	0.7	-0.1	-0.1
31.0	30.9	30.9	0.7	-0.1	-0.1
30.0	29.9	29.9	0.7	-0.1	-0.1

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
20-120	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
20-120	30.0	29.9	0.7	-0.1
	118.0	118.0	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	54.6	1.5	1.5	0.0
63.1	94.0	67.8	67.8	1.5	1.5	0.0
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.4	1.0	1.0	0.0
501.2	94.0	90.8	90.8	1.0	1.0	0.0
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.0	1.0	1.0	0.0
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.7	3.0	6.0	0.0

Frequency weighting C:

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	91.0	90.9	1.5	1.5	-0.1
63.1	94.0	93.2	93.2	1.5	1.5	0.0
125.9	94.0	93.8	93.8	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0



Test Data for Sound Level Meter

Sound level meter type: LxT1 Serial No. 0005098 Date 07-Jul-2021
 Microphone type: 377B02 Serial No. 173736
 Preamp type: PRMLxT1L Serial No. 042838 Report: 21CA0706 02

1995.0	94.0	93.8	93.9	1.0	1.0	0.1
3981.0	94.0	93.2	93.3	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	87.8	3.0	6.0	0.0

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	94.0	1.5	1.5	0.0
63.1	94.0	94.0	94.0	1.5	1.5	0.0
125.9	94.0	94.0	94.0	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.1	1.0	1.0	0.1
7943.0	94.0	94.0	94.1	1.5	3.0	0.1
12590.0	94.0	94.0	94.0	3.0	6.0	0.0

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	115.0	1.0	1.0	0.0

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

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 dB	Response to 10 ms dB	Response to 100 us dB	Tolerance +/- dB	Deviation dB
119.0	119.0	119.4	2.0	0.4



Test Data for Sound Level Meter

Page 4 of 5

Sound level meter type: LxT1 Serial No. 0005098 Date 07-Jul-2021
 Microphone type: 377B02 Serial No. 173736
 Preamp type: PRMLxT1L Serial No. 042838 Report: 21CA0706 02

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.4	2.0	0.4

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)

	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
Time weighting	dB	dB	indication(dB)	+/- dB	dB
Slow	118.0+6.6	118.0	118.0	0.5	0.0

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	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	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
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



Test Data for Sound Level Meter

Page 5 of 5

Sound level meter type:	LxT1	Serial No.	0005098	Date	07-Jul-2021
Microphone type:	377B02	Serial No.	173736		
Preamp type:	PRMLxT1L	Serial No.	042838	Report:	21CA0706 02

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
116.1	115.1	112.1	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

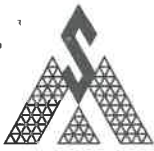
Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
122.8	121.8	81.8	81.8	2.2	0.0

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
		Measured (dB)		+	-	
Hz	dB					dB
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	91.9		1.5	3.0	-1.0

-----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

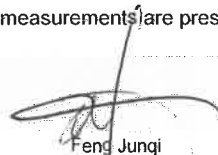
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results 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.

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

(Output level in dB re 20 µPa)

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:

Date: 29-Dec-2021

Checked by:

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

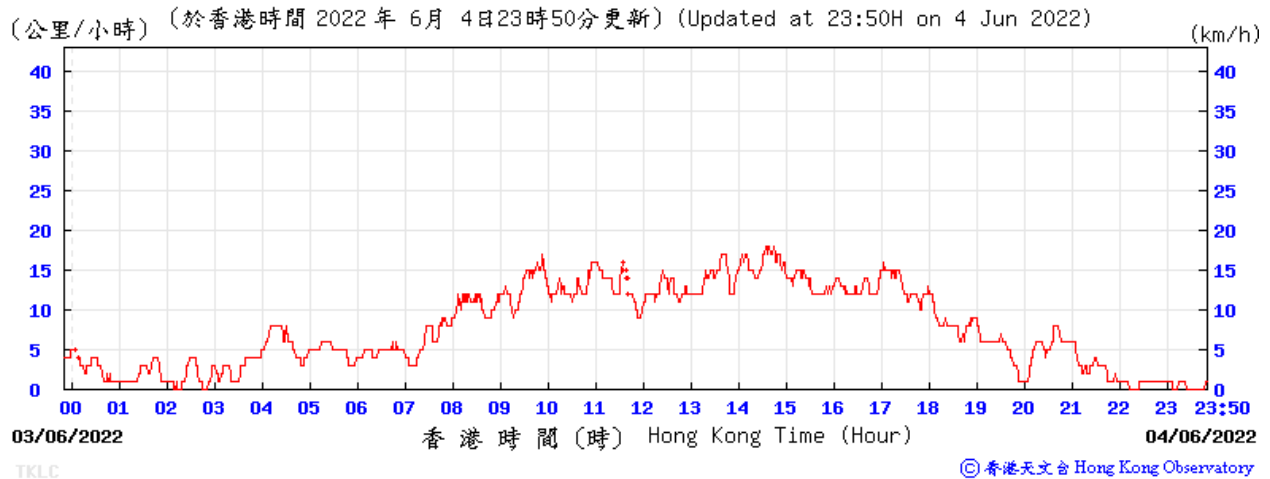
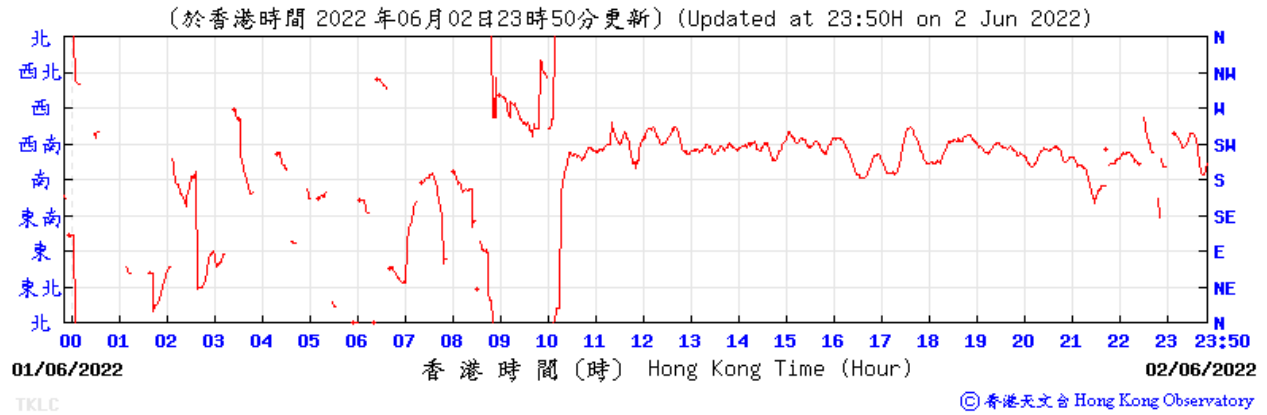
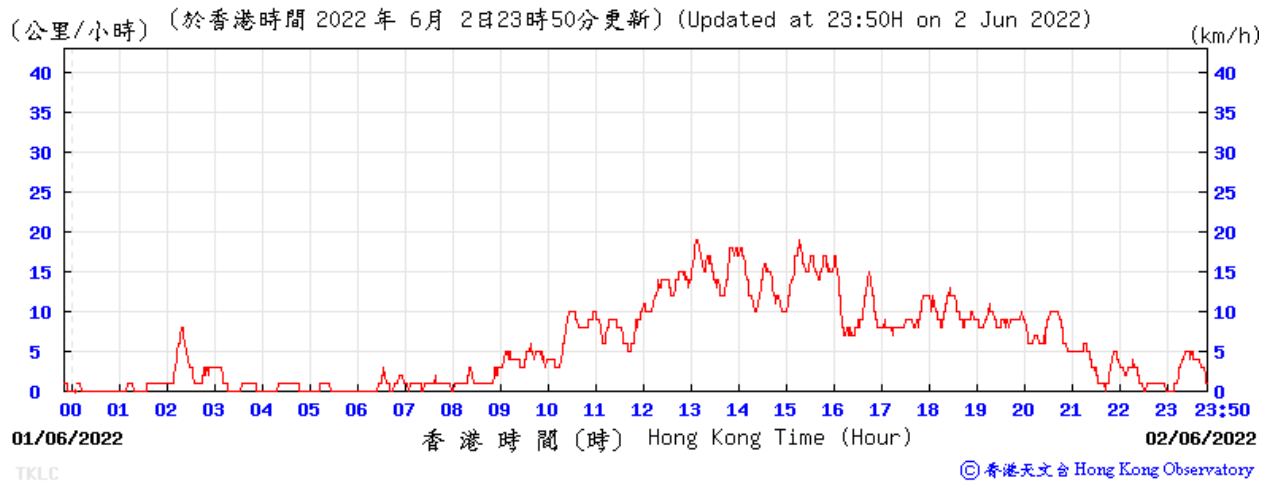


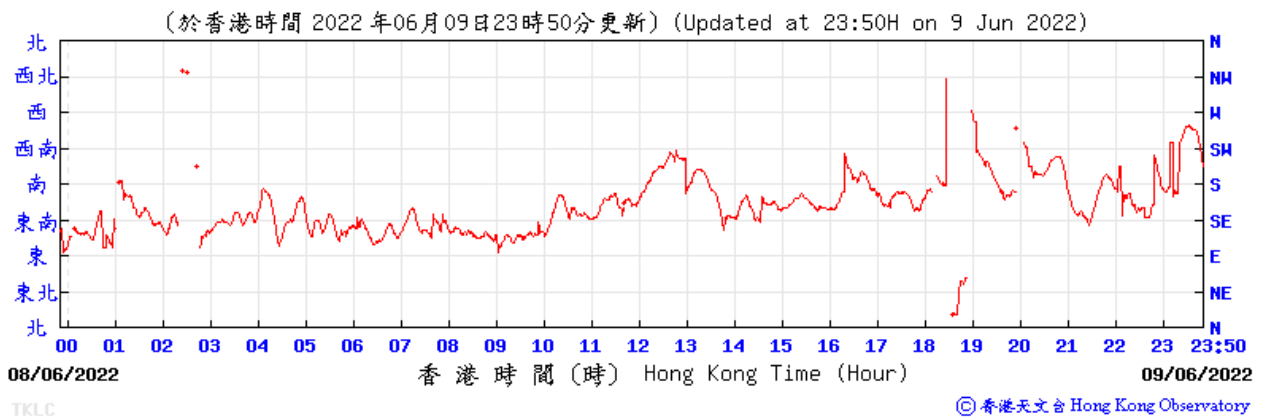
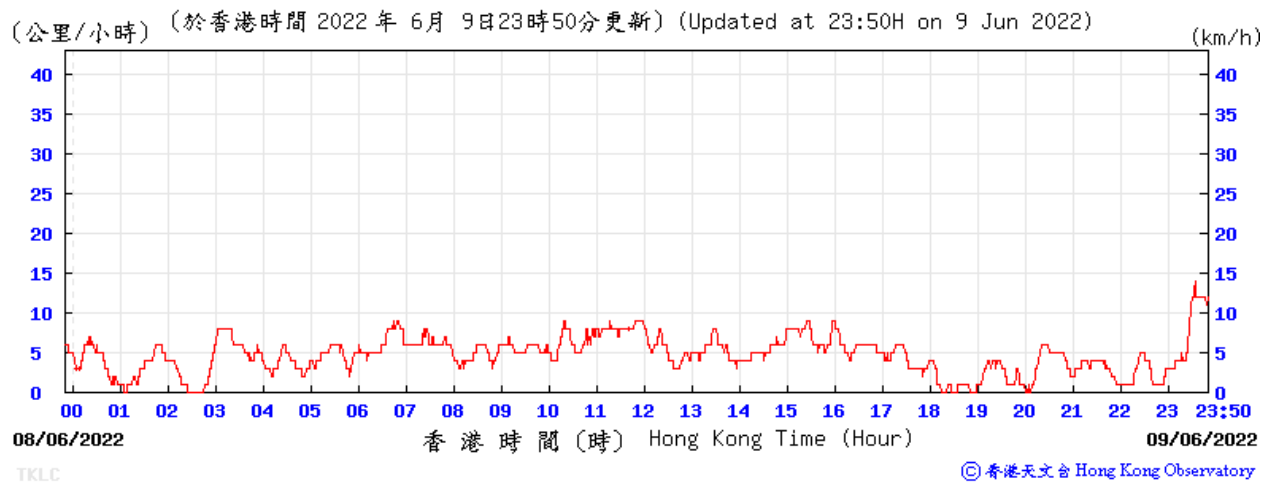
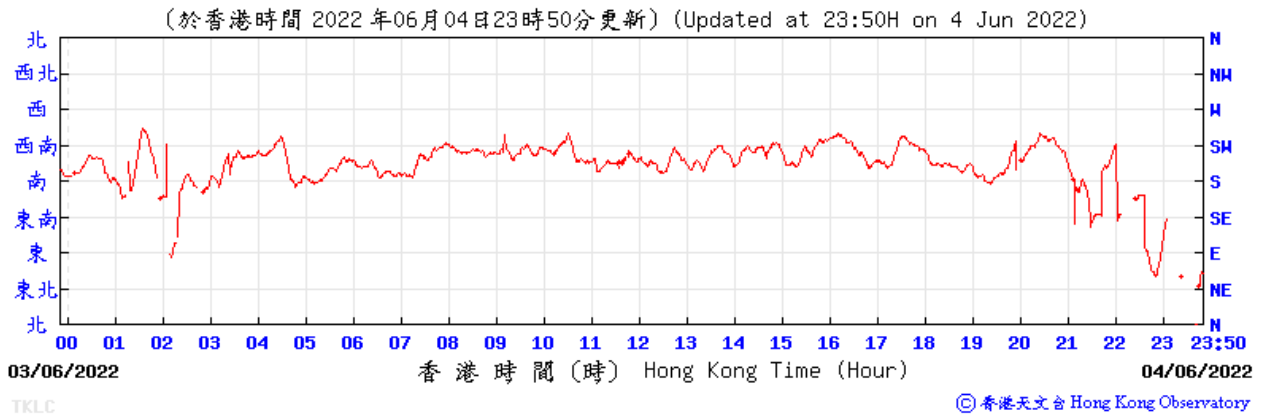
Appendix 4.3

Wind Data

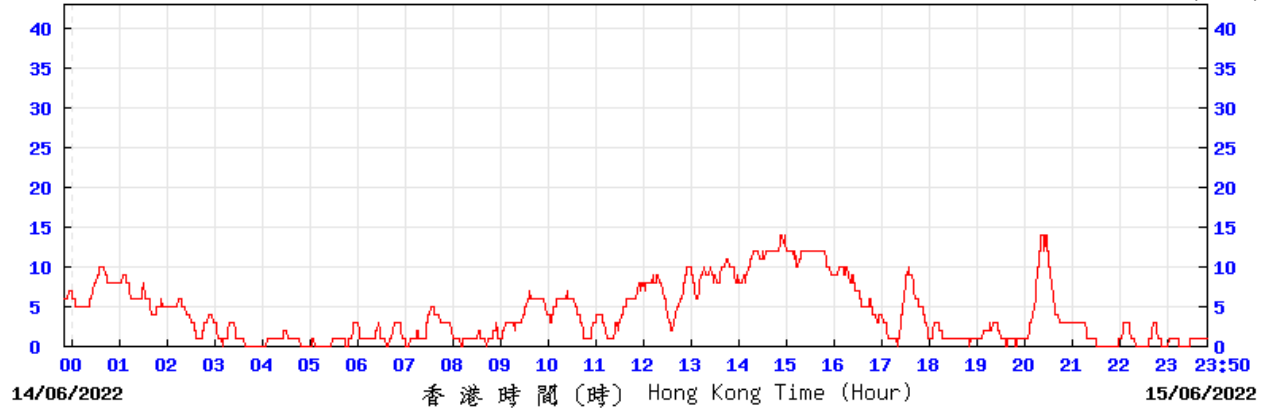
Wind data extraction from the Hong Kong Observatory (HKO)

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





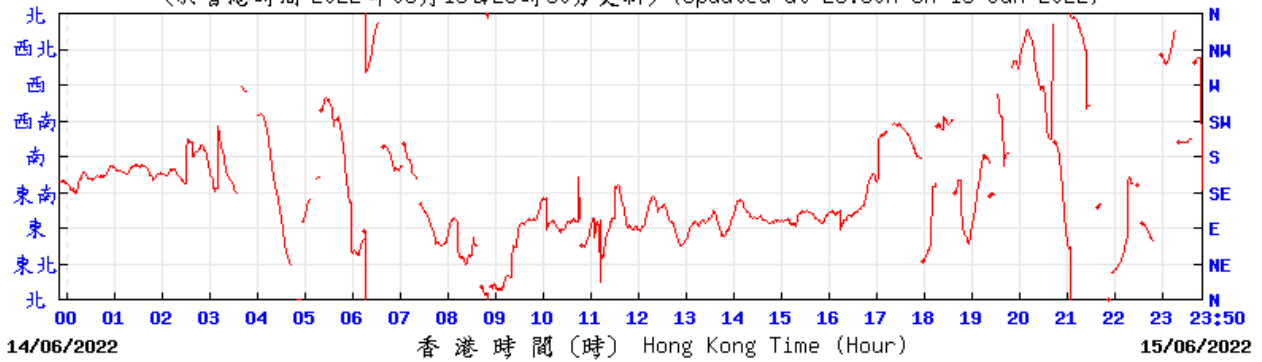
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TKLC

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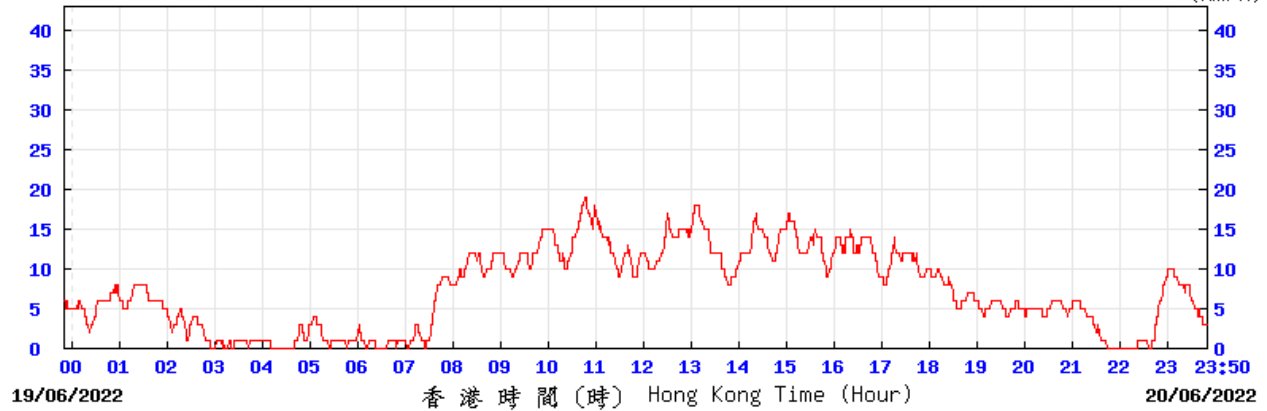
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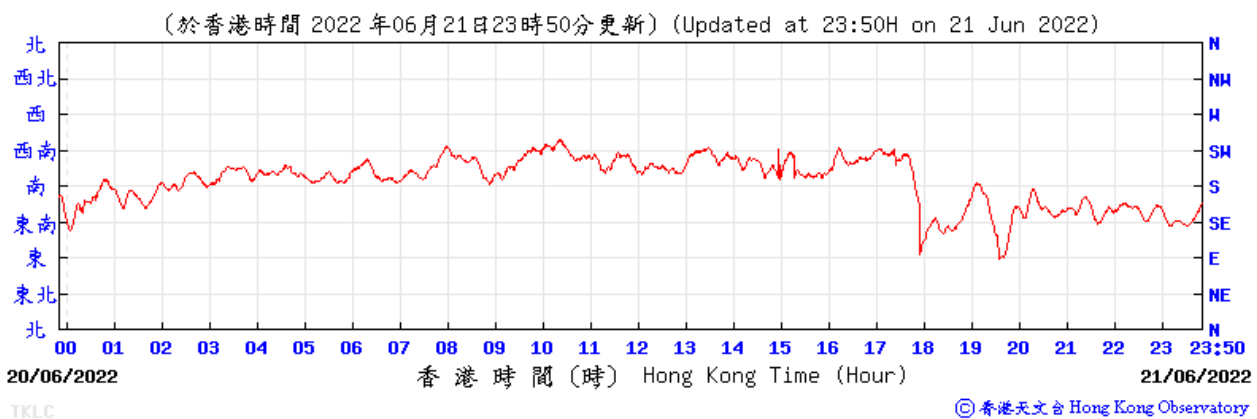
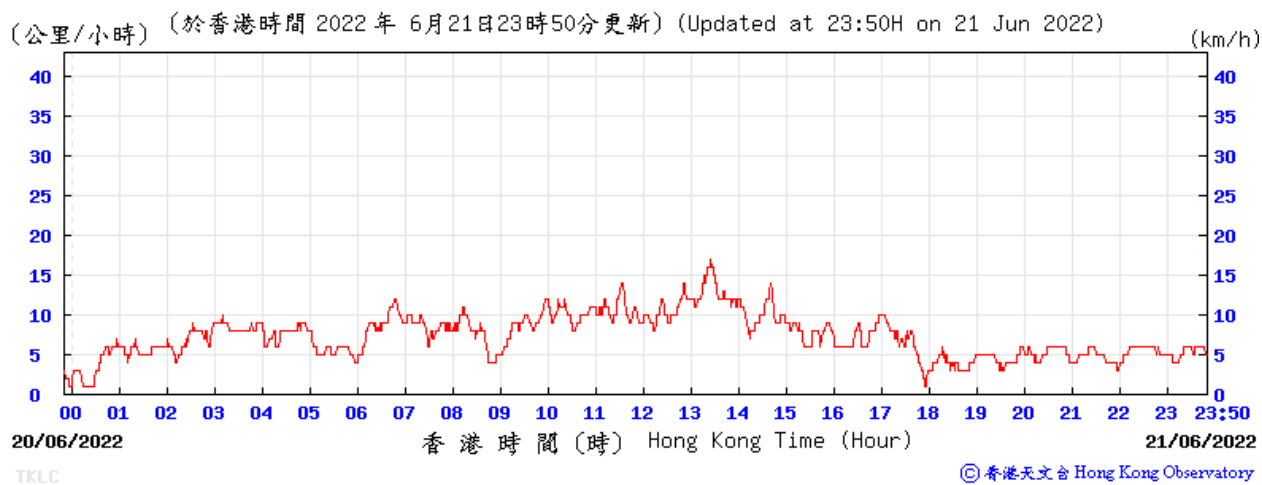
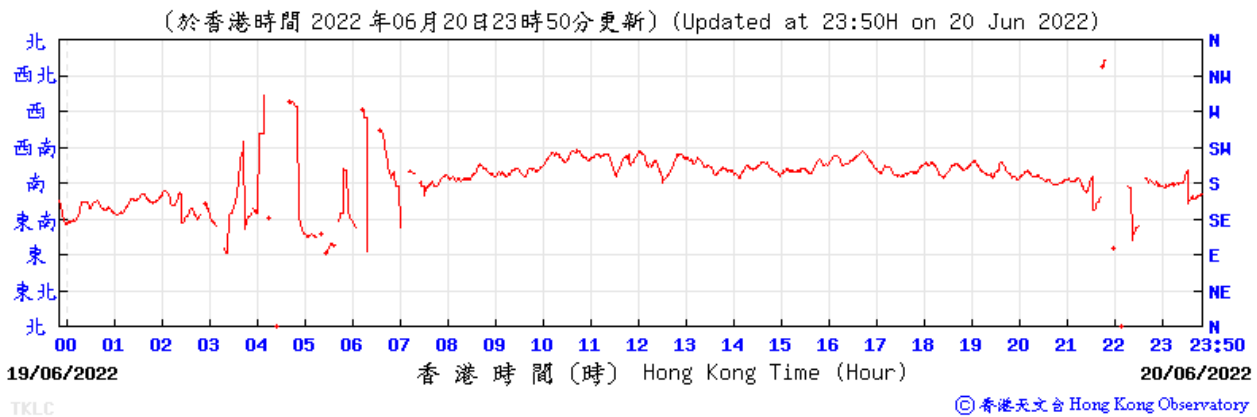
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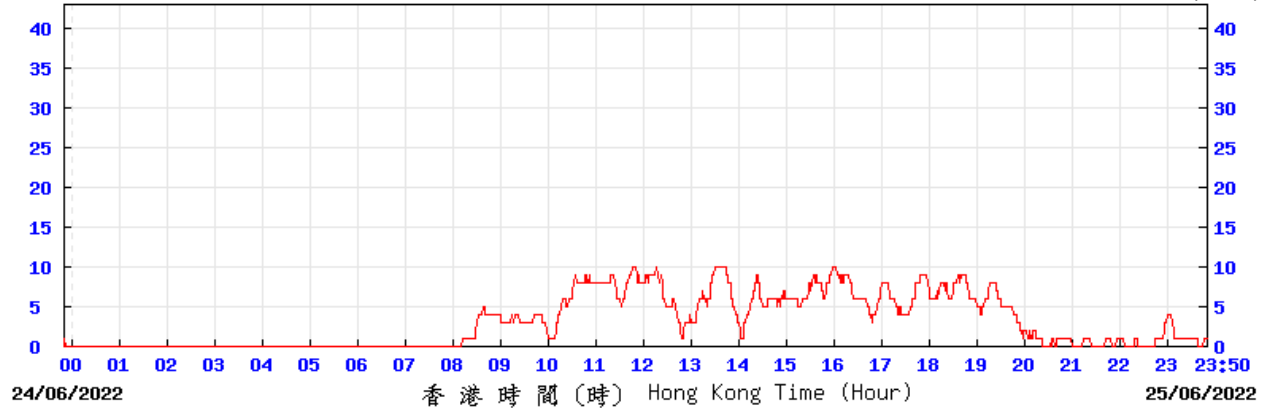


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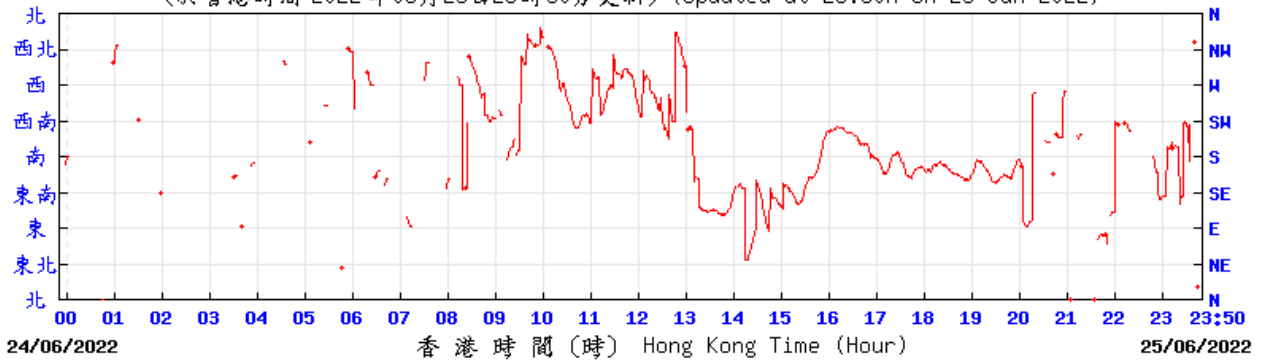
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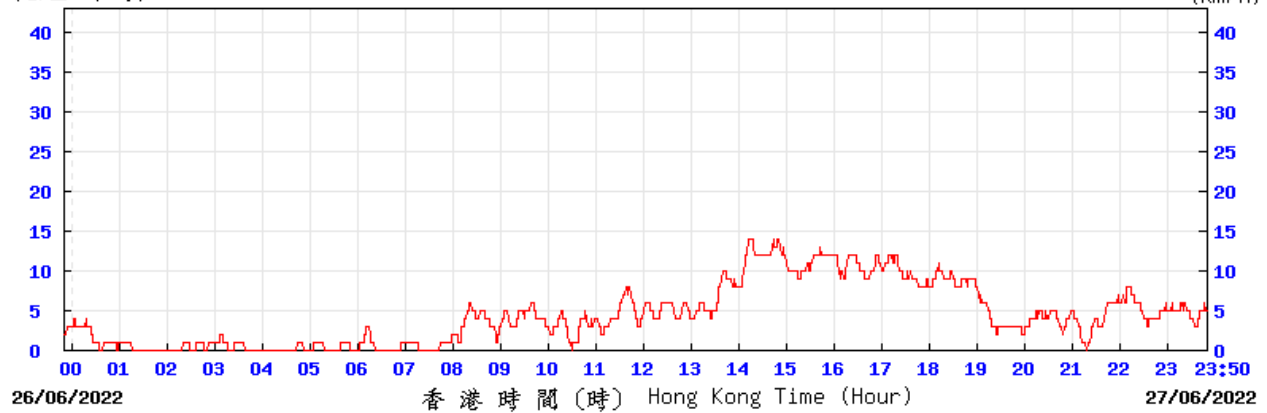
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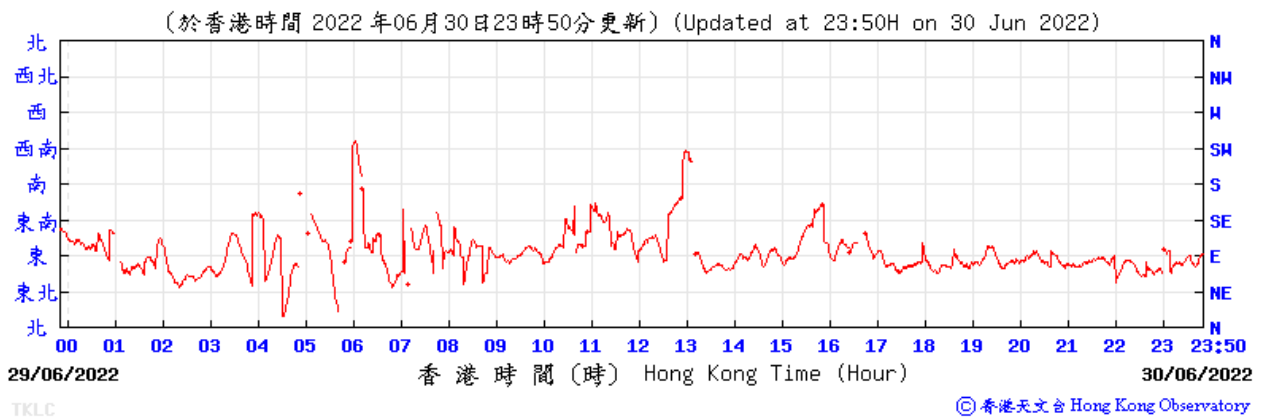
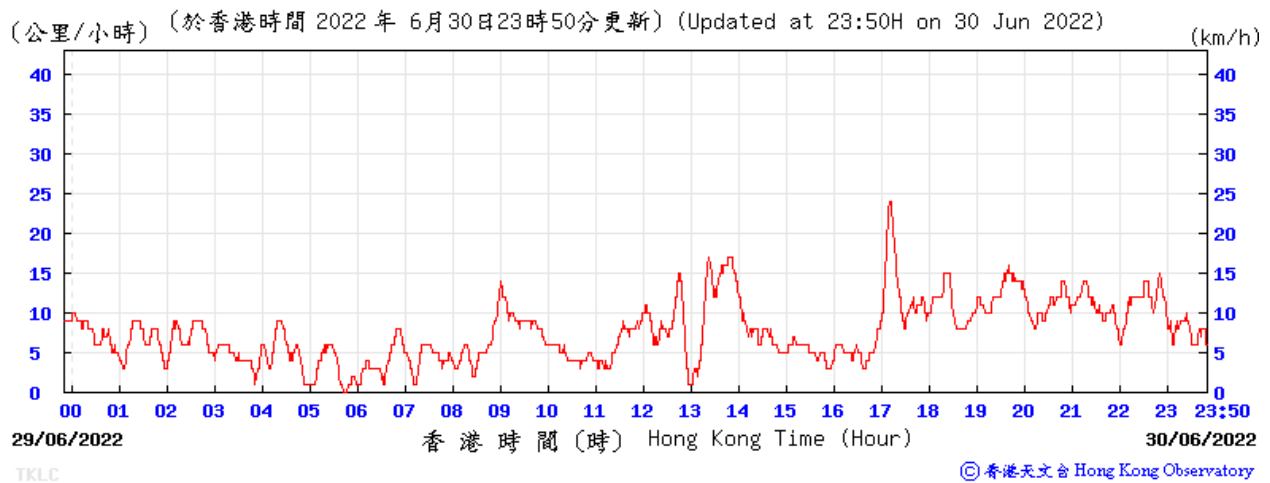
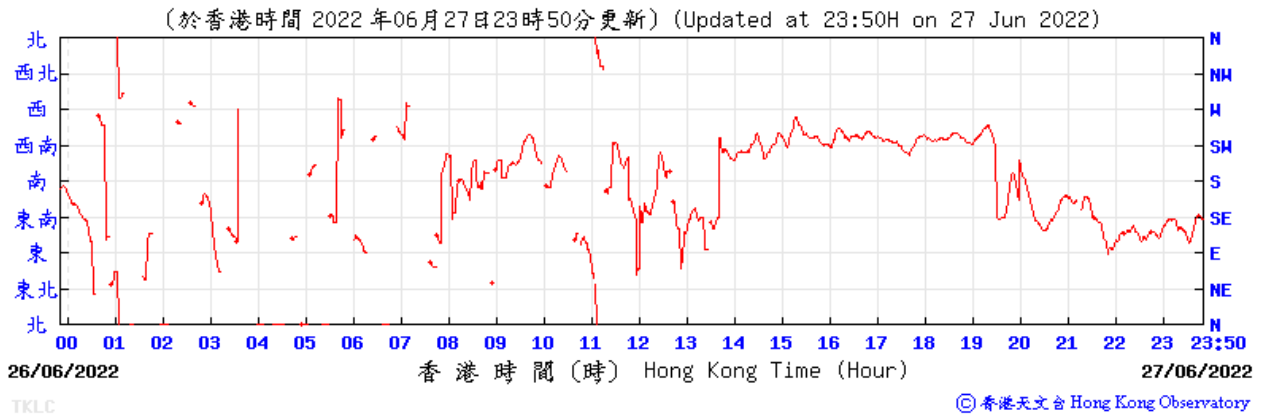
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(公里/小時) (於香港時間 2022 年 6月27日23時50分更新) (Updated at 23:50H on 27 Jun 2022) (km/h)



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Remarks

1. Data unavailable during the period of June 2022 since the wind anemometer (Serial no. YG 21071630T0924) is under maintenance.
2. The wind data in the subsequent days 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
Jun 2022

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

Remarks

1. The 24hr air quality monitoring scheduled on 8 Jun 2022 was rescheduled to 9 Jun 2022 due to power interruption.
 2. The 24hr air quality monitoring scheduled on 14 Jun 2022 was rescheduled to 15 Jun 2022 due to power interruption.
- 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
 Jul 2022

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

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

Day Time (0700 - 1900hrs on weekday)

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)									
09/06/2022	8:05	Drizzle	0.2	62.1	64.5	59.6	63.4	62	75
15/06/2022	8:10	Cloudy	0.2	65.6	66.8	63.7	63.4	62	75
21/06/2022	8:05	Cloudy	0.1	62.0	66.6	55.7	63.4	62	75
27/06/2022	9:10	Fine	0.0	59.4	59.0	48.9	63.4	59	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)									
09/06/2022	9:45	Drizzle	0.2	59.5	62.8	50.1	58.0	54	75
15/06/2022	9:00	Cloudy	0.2	65.1	66.4	62.9	58.0	64	75
21/06/2022	9:40	Fine	0.0	64.5	66.4	57.2	58.0	63	75
27/06/2022	9:35	Cloudy	0.0	64.6	64.9	54.5	58.0	64	75

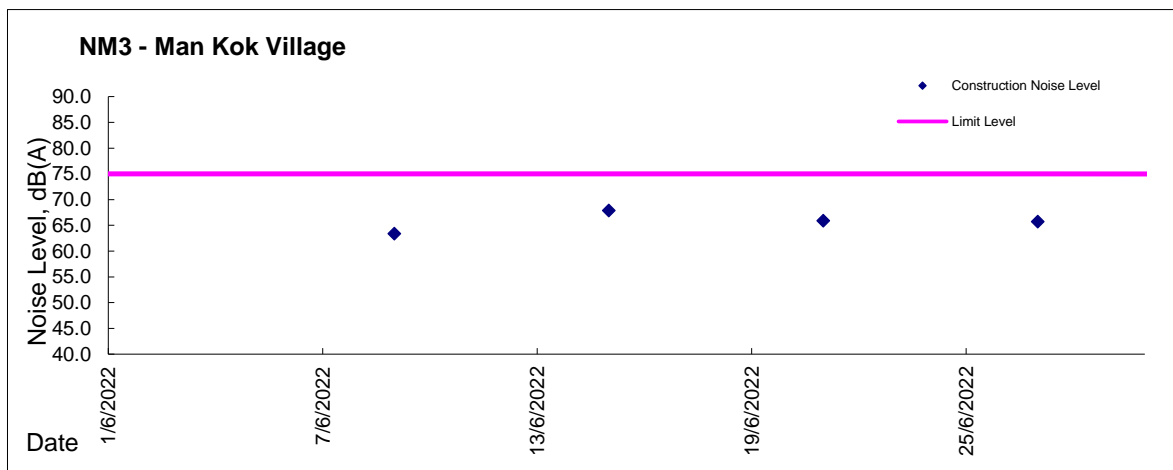
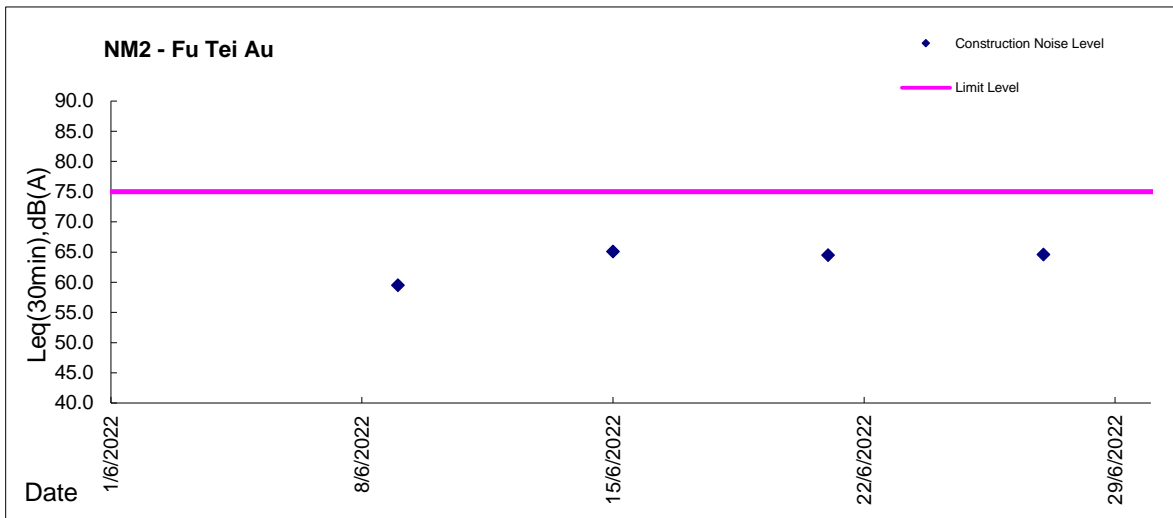
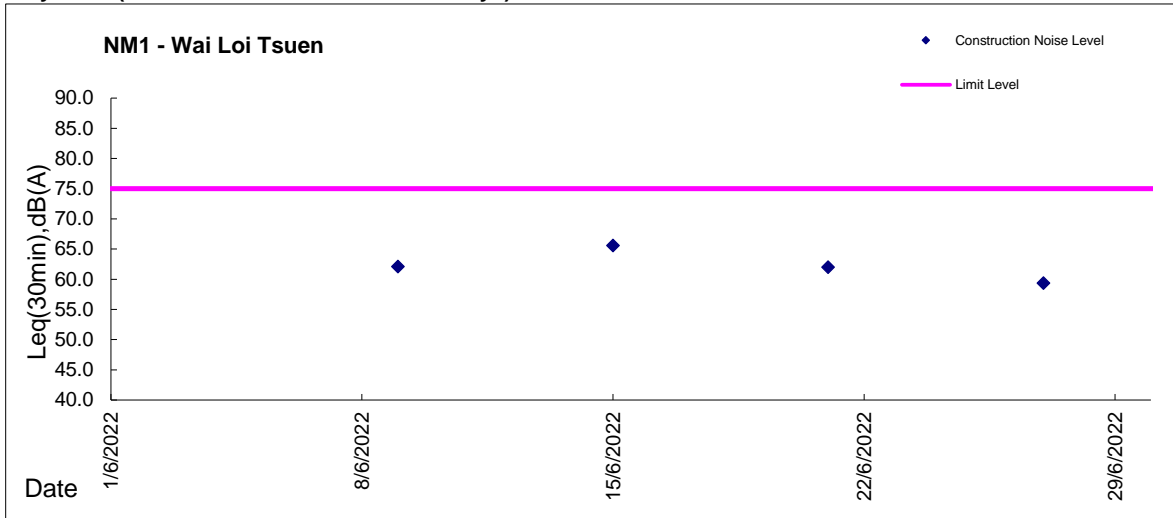
Location: NM3 - G/F, Man kok Village

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
09/06/2022	8:50	Drizzle	0.2	63.4	65.3	59.8	63.4	63	75
15/06/2022	8:55	Cloudy	0.0	67.9	68.9	65.1	63.4	66	75
21/06/2022	8:47	Cloudy	0.1	65.9	70.1	59.9	63.4	62	75
27/06/2022	10:25	Fine	1.2	65.7	66.7	55.2	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.
4-Jun-22	Fine	9:00	27	AEROCET 831	R14332
4-Jun-22	Fine	10:00	26		
4-Jun-22	Fine	11:00	26		
9-Jun-22	Drizzle	9:00	47		
9-Jun-22	Drizzle	10:00	47		
9-Jun-22	Drizzle	11:00	42		
15-Jun-22	Cloudy	9:00	22		
15-Jun-22	Cloudy	10:00	16		
15-Jun-22	Cloudy	11:00	13		
21-Jun-22	Cloudy	9:00	24		
21-Jun-22	Cloudy	10:00	21		
21-Jun-22	Cloudy	11:00	21		
27-Jun-22	Fine	8:00	10		
27-Jun-22	Fine	9:00	6		
27-Jun-22	Fine	10:00	5		



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.
4-Jun-22	Fine	9:00	16	AEROCET 831	W15448
4-Jun-22	Fine	10:00	18		
4-Jun-22	Fine	11:00	22		
9-Jun-22	Drizzle	9:00	59		
9-Jun-22	Drizzle	10:00	54		
9-Jun-22	Drizzle	11:00	51		
15-Jun-22	Cloudy	9:00	40		
15-Jun-22	Cloudy	10:00	47		
15-Jun-22	Cloudy	11:00	31		
21-Jun-22	Cloudy	9:00	43		
21-Jun-22	Cloudy	10:00	34		
21-Jun-22	Cloudy	11:00	38		
27-Jun-22	Fine	8:33	18		
27-Jun-22	Fine	9:33	18		
27-Jun-22	Fine	10:33	17		



Location: AM1a - Site Boundary of the Shek Wu Hui STW (East)
 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-Jun-22	8:00	Drizzle	1006.2	1005.6	28.8	29.2	AM1a_24hr_010310	2.7447	2.7992	27176.35	27200.35	24.00	1.18	1.18	1.18	1705	32	G3101	0401-1105
09-Jun-22	8:00	Cloudy	1005.5	1005.4	26.3	26.1	AM1a_24hr_010798	2.7762	2.8195	27224.35	27248.35	24.00	1.23	1.25	1.24	1789	24		
15-Jun-22	8:00	Fine	1009.2	1008.9	26.7	27.6	AM1a_24hr_010870	2.7522	2.8101	27248.35	27272.35	24.00	1.19	1.21	1.20	1726	34		
20-Jun-22	8:00	Cloudy	1004.8	1005.9	29.2	29.4	AM1a_24hr_010865	2.741	2.8124	27272.35	27296.35	24.00	1.23	1.23	1.23	1767	40		
25-Jun-22	8:00	Drizzle	1007.8	1009.3	29.6	30	AM1a_24hr_010861	2.7431	2.9094	27296.35	27320.35	24.00	1.23	1.23	1.23	1768	94		
30-Jun-22	8:00	Fine	1002.7	1000.7	27.5	26.9	AM1a_24hr_010583	2.8105	2.8635	27320.35	27344.35	24.00	1.23	1.23	1.23	1769	30		

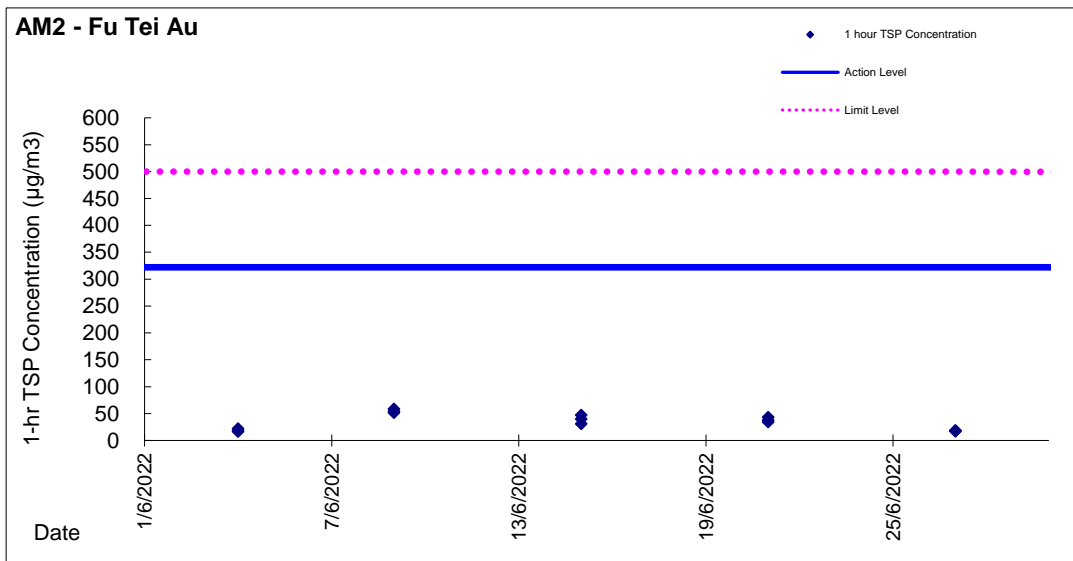
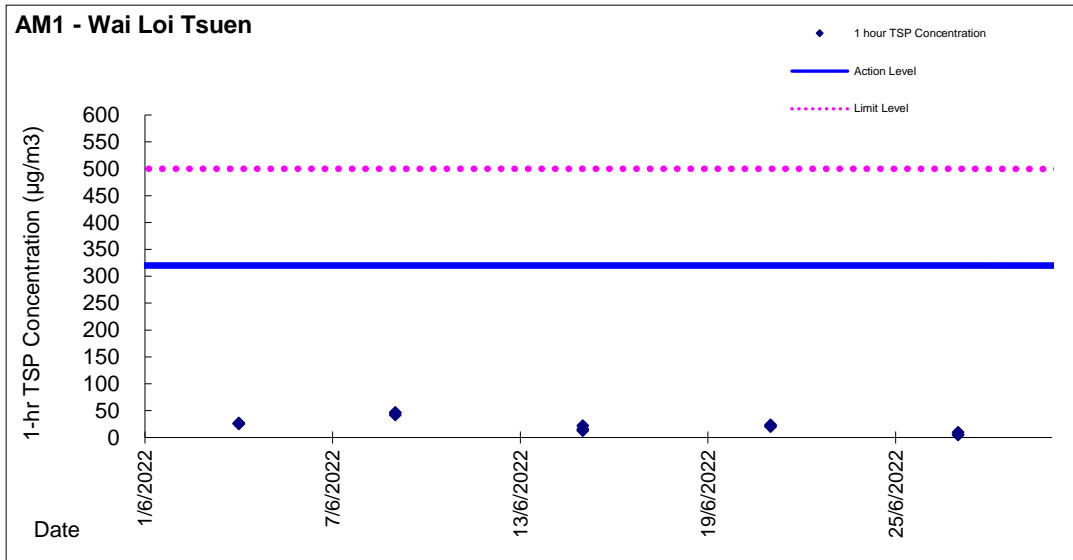


Location: AM2a - Site Boundary of the Shek Wu Hui STW (North)
Impact Monitoring Result on 24-hour TSP monitoring

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-Jun-22	8:00	Drizzle	1006.2	1005.6	28.8	29.2	AM2a_24hr_010698	2.7593	2.85	18229.93	18253.93	24.00	1.25	1.23	1.24	1785	51	G3101	1096-2305
09-Jun-22	8:00	Cloudy	1005.5	1005.4	26.3	26.1	AM2a_24hr_010872	2.7473	2.8412	18253.93	18277.93	24.00	1.53	1.53	1.53	2198	43		
15-Jun-22	8:00	Fine	1009.2	1008.9	26.7	27.6	AM2a_24hr_010795	2.7925	2.8811	18277.93	18301.93	24.00	1.48	1.48	1.48	2133	42		
20-Jun-22	8:00	Cloudy	1004.8	1005.9	29.2	29.4	AM2a_24hr_010866	2.75	2.8306	18301.93	18325.93	24.00	1.48	1.48	1.48	2126	38		
25-Jun-22	8:00	Drizzle	1007.8	1009.3	29.6	30	AM2a_24hr_010862	2.7467	2.8508	18325.93	18349.93	24.00	1.43	1.43	1.43	2062	50		
30-Jun-22	8:00	Fine	1002.7	1000.7	27.5	26.9	AM2a_24hr_010587	2.8216	2.9102	18349.93	18373.93	24.00	1.48	1.48	1.48	2128	42		

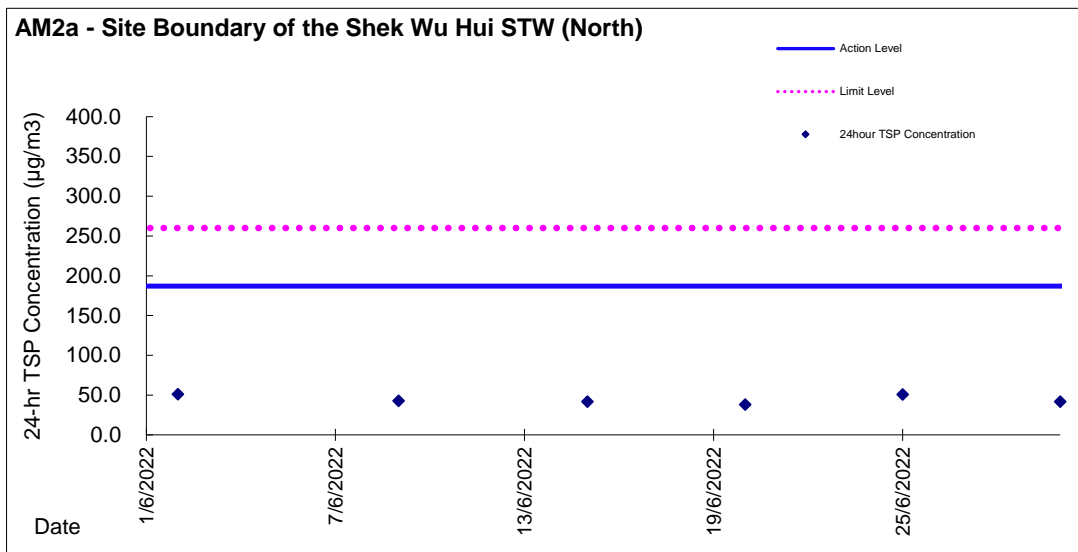
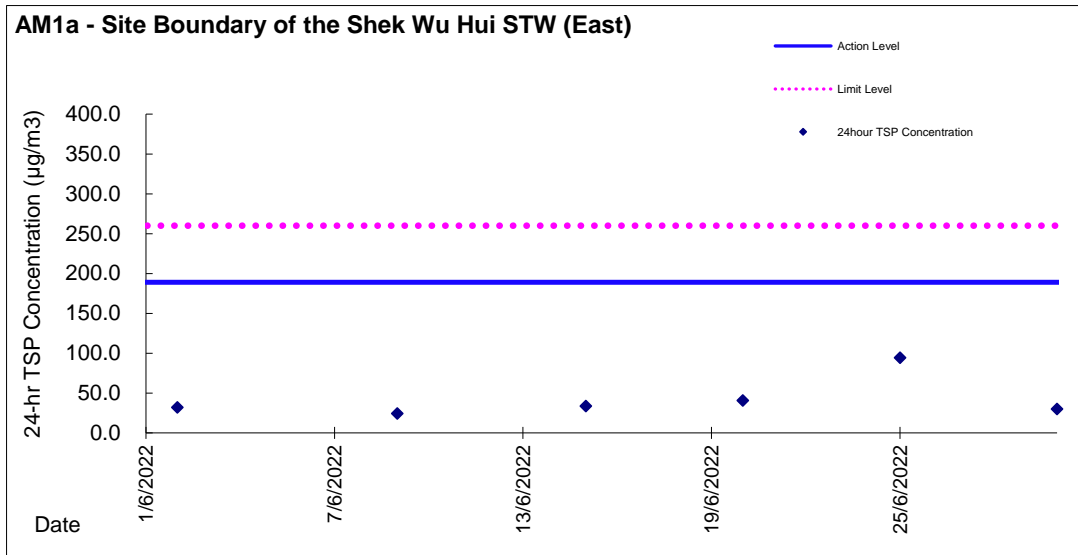


Graphic Presentation of TSP Result





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	33	1122
Waterbirds	10	260

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	139
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	1
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	78
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	0
<i>Ardea alba</i>	Great Egret	大白鷺	17
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	13
		Total	248

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	0.648	✓	✓
	Seasonal	0.868	✓	✓

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	2.449	✓	✓	2.449	✓	✓	✓
Grey Heron	NA*						
Chinese Pond Heron	-1.177	✓	✓	-0.196	✓	✓	✓
Great Cormorant	NA*						
Great Egret	0.590	✓	✓	0.590	✓	✓	✓
Eastern Cattle Egret	-1.429	✓	✓	-0.408	✓	✓	✓

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 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, but it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.
- 5.4.6.** Nesting and breeding behaviours were observed during the monitoring in reporting month. There was at least one nest (Asian Koel). Although the location of the nest is near from the project site but there was no significant impact observed on the nest in the month reported.
- 5.4.7.** The monitoring work will continue next month to evaluate any construction impact on waterbirds.

Observations

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

5.4.10.

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 Construction activities
T2 (PC3, PC4)	Construction activities such as generator & welding works, Scaffolding, sedimentation tank, Excavation and crane	Human Activities such as Fishing, Landscape Planting Construction activities such as Sheet-piling, generator & welding works, Scaffolding, sedimentation tank, Excavation and crane
PC5	Construction activities such as Excavation and crane	N/A
T3 (PC6, PC7)	Construction activities such as Sheet-piling	Human Activities such as Fishing 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	78	+++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	X	13	++
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	X	1	+
<i>Ardea alba</i>	Great Egret	大白鷺	X	17	++
<i>Egretta garzetta</i>	Little Egret	小白鷺	X	139	+++++
<i>Milvus migrans</i>	Black Kite	黑鳶	X	4	+
<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	白胸苦惡鳥	X	2	+
<i>Columba livia</i>	Domestic Pigeon	原鴿		1	N/A
<i>Spilopelia chinensis</i>	Spotted Dove	珠頸斑鳩		92	+++++
<i>Centropus sinensis</i>	Greater Coucal	褐翅鴉鵂		4	+
<i>Eudynamis scolopaceus</i>	Asian Koel	噪鵲		5	+
<i>Hierococyx sparverioides</i>	Large Hawk Cuckoo	大鷹鵂		1	+
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	白胸翡翠	X	1	+
<i>Alcedo atthis</i>	Common Kingfisher	普通翠鳥	X	1	+
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	X	4	+
<i>Dicrurus macrocercus</i>	Black Drongo	黑卷尾		0	+
<i>Urocissa erythroryncha</i>	Red-billed Blue Magpie	紅嘴藍鵲		2	+
<i>Pica pica</i>	Eurasian Magpie	喜鵲		3	+
<i>Parus cinereus</i>	Cinereous Tit	蒼背山雀		4	+
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	紅耳鶇		82	+++++

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鵲		28	+++++
<i>Hirundo rustica</i>	Barn Swallow	家燕		9	++
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	黃腹鷦鶯		9	++
<i>Prinia inornata</i>	Plain Prinia	純色鷦鶯		9	+
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶯		15	++
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	黑臉噪鵲		77	+++++
<i>Zosterops japonicus</i>	Japanese White-eye	暗綠繡眼鳥		12	++
<i>Acridotheres cristatellus</i>	Crested Myna	八哥		348	+++++
<i>Gracupica nigricollis</i>	Black-collared Starling	黑領棕鳥		61	+++++
<i>Copsychus saularis</i>	Oriental Magpie Robin	鵲鴝		3	+
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		94	+++++
<i>Lonchura punctulata</i>	Scaly-breasted Munia	斑文鳥		0	+++
<i>Motacilla alba</i>	White Wagtail	白鶺鴒		3	++

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	2/6/2022	13:00	H	91	211	18
		16:00	L	120		18
2	10/6/2022	10:00	H	98	211	13
		12:00	L	113		16
3	13/6/2022	12:00	H	84	181	15
		14:00	L	97		17
4	22/6/2022	15:30	H	134	285	14
		13:30	L	151		15
5	28/6/2022	11:00	H	108	234	14
		14:00	L	126		17

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	2/6/2022	13:00	H	26	53
		16:00	L	27	
2	10/6/2022	10:00	H	16	45
		12:00	L	29	
3	13/6/2022	12:00	H	19	44
		14:00	L	25	
4	22/6/2022	15:30	H	25	67
		13:30	L	42	
5	28/6/2022	11:00	H	16	51
		14:00	L	35	

Remarks: H: High Tide; L: Low Tide

T-Test Analysis for All Waterbirds

Baseline Data

Monthly Average Abundance (June)	45.30
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	0.648	✓	✓
	Seasonal	0.868	✓	✓

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	Avg.(June)	Avg.(Summer)
Species Name	Common Name	Chinese Name	2/6/2022	10/6/2022	13/6/2022	22/6/2022	28/6/2022				
<i>Egretta garzetta</i>	Little Egret	小白鷺	26	21	23	39	30	139	28	20	20
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	0	1	0	0	0	1	0	0	1
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	11	15	16	23	13	78	16	18	16
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	0	0	0	0	0	0	0	0	0
<i>Ardea alba</i>	Great Egret	大白鷺	4	5	1	3	4	17	3	3	3
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	6	3	2	2	0	13	3	4	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	2.449	✓	✓	2.449	✓	✓	✓
Grey Heron	NA*						
Chinese Pond Heron	-1.177	✓	✓	-0.196	✓	✓	✓
Great Cormorant	NA*						
Great Egret	0.590	✓	✓	0.590	✓	✓	✓
Eastern Cattle Egret	-1.429	✓	✓	-0.408	✓	✓	✓

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 (Taken on 10 Jun 2022)



Sheung Yue River – Survey Point 6 (Taken on 2 Jun 2022)



Shek Sheung River (Taken on 22 Jun 2022)



Ng Tung River - Survey Point 4 (Taken on 28 Jun 2022)

Human Activities & Site Conditions

		
<p>Construction Activities (Ng Tung River) (Project-related, taken on 10 Jun 2022)</p>	<p>Construction Activities (Shek Sheung River) (Project-related, taken on 10 Jun 2022)</p>	<p>Construction Activities (Shek Sheung River) (Project-related, taken on 22 Jun 2022)</p>
		
<p>Construction Activities (Sheung Yue River) (Project-related, taken on 13 Jun 2022)</p>	<p>Human Activities (Ng Tung River) (Non-project-related, taken on 28 Jun 2022)</p>	<p>Human Activities (Ng Tung River) (Non-project-related, taken on 2 Jun 2022)</p>



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 28 Jun 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 2 Jun 2022)



Human Activities (Sheung Yue River)
(Non-project-related, taken on 22 Jun 2022)






Construction Activities (Sheung Yue River)
(Non-project-related, taken on 13 Jun 2022)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 22 Jun 2022)



Human Activities (Sheung Yue River)
(Non-project-related, taken on 28 Jun 2022)

		
<p>Construction Activities (Ng Tung River) (Non-project-related, taken on 13 Jun 2022)</p>	<p>Human Activities (Shek Sheung River) (Non- project-related, taken on 10 Jun 2022)</p>	<p>Construction Activities (Ng Tung River) (Non-project-related, taken on 2 Jun 2022)</p>

Waterbird Species



Great Egret



Little Egret



Grey Heron



Waterbird in Sheung Yue 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 '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
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											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	4.433	0.000	0.000	0.000	4.433	1.233	2.370	0.010	0.000	0.000	0.620

- 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	0.000	0.00	0.010	0.001	0.000	0.020
Sub-total	17.057	0.000	0.000	1.671	15.386	0.208	23.30	0.010	0.005	0.000	0.093
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	17.057	0.000	0.000	1.671	15.386	0.208	23.30	0.010	0.005	0.000	0.093

- 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											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	9854.98 T	0	0	0	9854.98 T	0	0	0.439	0.023	0	8.59



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



Summary for Notification of Exceedance

Reporting Period: June 2022

Ref No.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up Action
-	-	-	-	-	-	-	-

Ref. No.	Date	Time	Location	Construction Noise Level	Parameter	Action Level	Limit Level	Follow-up action
-	-	-	-	-	-	-	-	-



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.

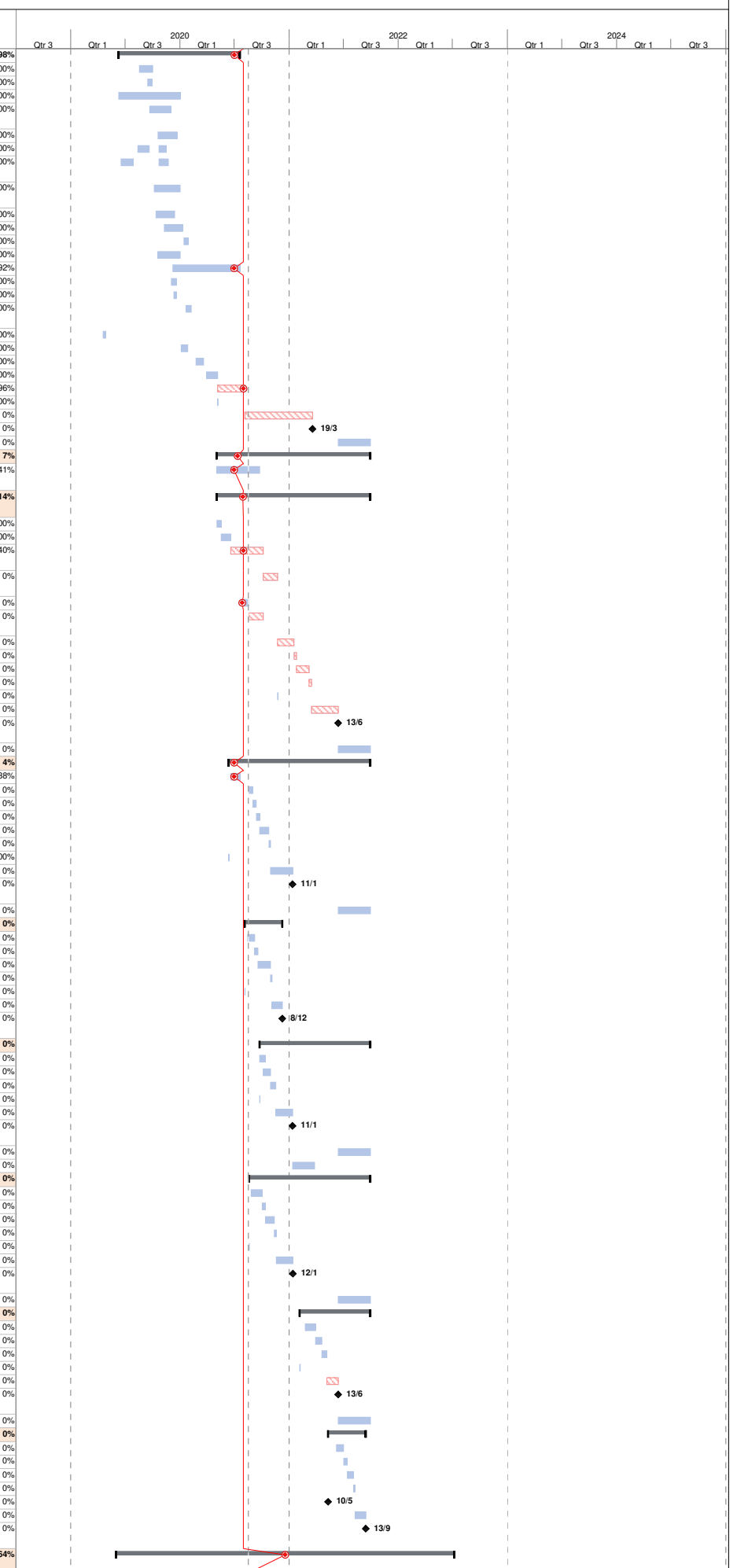


Appendix 9.1

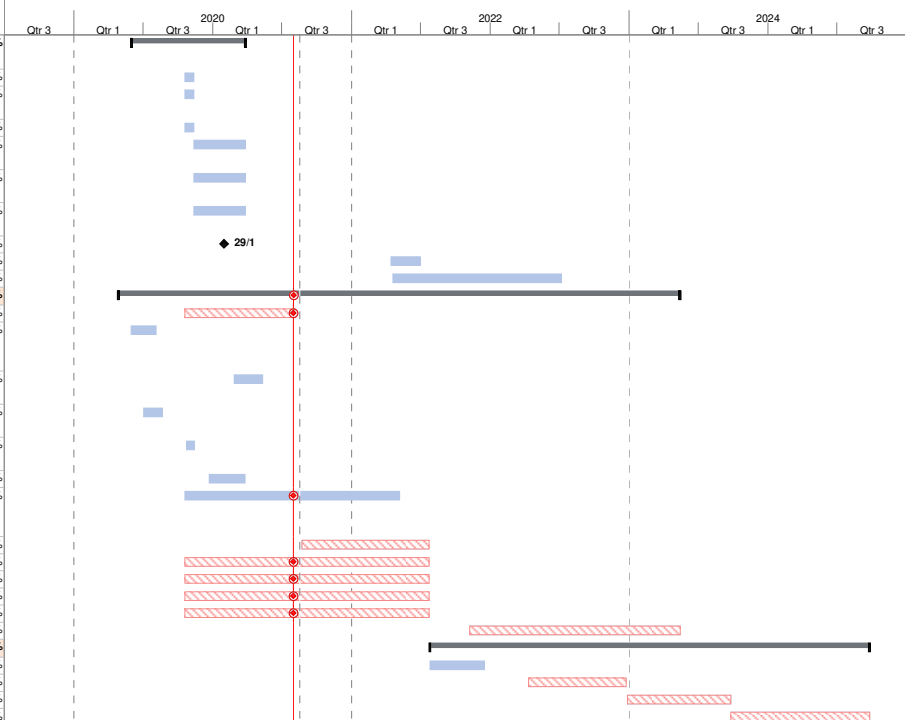
Construction Programme of Individual Contracts

ID	Activity ID	KD	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Success%	Time Risk Allowan	Gantt Chart (2019-2026)																						
															2019	H1	H2	2020	H1	H2	2021	H1	H2	2022	H1	H2	2023	H1	H2	2024	H1	H2	2025	H1	H2	2026	H1
606	C132SE-02040	KD2A	CLP Cable & Other Underground Utility Pipeworks			181 days	Mon 10/5/21	Mon 13/12/21	Mon 10/5/21	Mon 13/12/21	0 days		37FF	100%	10/5 - 13/12																						
607	C132SE-02042		CLP cable diversion works within SWHSTW and along San Wan Road by others		(EWN210)(148)	14 days	Mon 10/5/21	Wed 26/5/21	Mon 10/5/21	Wed 26/5/21	0 days			100%	10/5 - 26/5																						
608	C132SE-02043		CLP cable works along & across San Wan Road		(320), (363)	11 days	Tue 30/11/21	Sat 11/12/21	Tue 30/11/21	Sat 11/12/21	0 days			100%	30/11 - 11/12																						
609	C132SE-02044		CLP cable connection to LV transformer Room (by CLP)			185 days	Sat 12/6/21	Mon 13/12/21	Sat 12/6/21	Mon 13/12/21	0 days		610,611	100%	12/6 - 13/12																						
610	C132SE-02050		Road Works		(307), (309), (313), (33)	109 days	Tue 14/12/21	Sat 30/4/22	Tue 14/12/21	NA	0 days	609	37FF	63%	14/12 - 30/4																						
611	C132SE-02060		Road Carriageway Works			18 days	Tue 14/12/21	Fri 31/12/21	Tue 14/12/21	Fri 31/12/21	0 days	609	612SS+20	100%	14/12 - 31/12																						
612	C132SE-02070		Footpath works			95 days	Mon 3/1/22	Thu 7/4/22	Mon 3/1/22	NA	-17 days	611SS+20 days		90%	3/1 - 7/4																						
613	C132SE-02080		Road Lighting Works			138 days	Tue 14/12/21	Sat 30/4/22	Tue 14/12/21	NA	0 days	611SS		40% 1month	14/12 - 30/4																						
614	C132SE-03000	KD2A	Construction of New Boundary Wall		(155)	135 days	Sat 8/5/21	Tue 4/1/22	Sat 8/5/21	Tue 4/1/22	0 days	576	37FF	100%	8/5 - 4/1																						
615	C132SE-04000	SW2	Remaining Works after CLP Plant and Power Cables Installation			122 days	Mon 21/11/22	Sat 22/4/23	NA	NA	109 days	593	45FF	0%	21/11 - 22/4																						

Table with columns: ID, Activity ID, Key Date, Task Name, Implement Weather CE no., PMI & CE no., Baseline Duration, Baseline Start, Baseline Finish, Duration, Start, Finish, Actual Start, Actual Finish, Predecessors, Successors, Total Slack, Risk Allowance, % Complete. The table lists various construction tasks such as 'Additional Preliminary Works', 'Fire Services Sprinkler Pumping Room', 'Chemical System No. 1', 'Deodorization System No. 3A', etc.



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 Alteration works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)			180 days	Wed 29/1/20	Thu 3/9/20	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	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	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	536,537,538	0 days		100%
536	CAA-1400		Alteration works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)			180 days	Wed 29/1/20	Thu 3/9/20	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-alignmnt 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 Alteration 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	Alteration works for existing Membrane Facilities Building No.1			360 days	Mon 1/2/21	Fri 22/4/22	360 days	Tue 19/4/22	Thu 6/7/23	NA	NA	14FS-1 day,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	545SS+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 Sheeple 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, CHFTT 1&2, CHTE, CHTD, Foam Collection & Surplus activated sludge rising main pipe			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20	NA	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
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E&M Works for Slu			2044	11-Oct-19 A	15-May-25	24-Oct-21	15-May-25	0	
Contract Data			2044	11-Oct-19 A	15-May-25	18-Jan-22	15-May-25	0	
Starting Date & Completion Date			2044	11-Oct-19 A	15-May-25	18-Jan-22	15-May-25	0	
CD1000	Contract Date (LOA)	0	11-Oct-19 A		18-Jan-22				CD1010, S1P1000,
CD1010	Starting Date	0	23-Oct-19 A		18-Jan-22			CD1000	S1D1040, AD1050,
CD1020	Whole Contract Period (1626 days from starting date)	1626	23-Oct-19 A	04-Apr-24	21-May-22	04-Apr-24	0	CD1010	CD1040, CD1030
CD1030	Extension of Time Granted (Total 53.5days)	54	05-Apr-24	28-May-24*	05-Apr-24	28-May-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	24-May-22	18-Jan-22	15-May-25	1087	
AD1000	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19 A	24-Apr-21 A	26-Feb-22	26-Feb-22		CD1010	AD1010
AD1010	Planned Access Date for Portion C-1A (Partial Access)	1	24-Apr-21 A	24-Apr-21 A	26-Feb-22	26-Feb-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	26-Feb-22	26-Feb-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	21-May-22	30-Jan-22	30-Jan-22	-111	CD1010	AD1040
AD1040	Planned Access Date for Portion C-2A	1	21-May-22	21-May-22*	30-Jan-22	30-Jan-22	-111	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	21-May-22	20-Mar-22	20-Mar-22	-62	CD1010	AD1060
AD1060	Planned Access Date for Portion C-2B	1	21-May-22	21-May-22*	20-Mar-22	20-Mar-22	-62	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	21-May-22	13-May-22	13-May-22	-8	CD1010	AD1080
AD1080	Planned Access Date for Portion C2-C	1	21-May-22	21-May-22*	13-May-22	13-May-22	-8	CD1010, AD1070	S5DIGC1040, S5DIGC1210,
AD1090	Portion C-2D (within 825 to 945 days from starting date)	945	23-Oct-19 A	24-May-22	04-May-22	07-May-22	-17	CD1010	AD1100
AD1100	Planned Access Date for Portion C-2D	1	24-May-22	24-May-22*	07-May-22	07-May-22	-17	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	18-Jan-22	18-Jan-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	18-Jan-22	18-Jan-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	21-May-22	21-May-22		CD1010	AD1140
AD1140	Planned Access Date for Portion B-1	1	30-Sep-20 A	30-Sep-20 A	21-May-22	21-May-22		AD1130	KD1030, S3C1020,
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	08-Sep-22	08-Sep-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	08-Sep-22	08-Sep-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	26-Jun-22	26-Jun-22		CD1010	AD1200
AD1200	Planned Access Date for Works Area WA1-B	1	23-Oct-19 A	23-Oct-19 A	26-Jun-22	26-Jun-22		CD1010, AD1190	PL1000, PL1020
AD1210	Works Area WA3 (starting date)	1	23-Oct-19 A	23-Oct-19 A	09-Jul-22	09-Jul-22		CD1010	AD1220
AD1220	Planned Access Date for Works Area WA3	1	23-Oct-19 A	23-Oct-19 A	09-Jul-22	09-Jul-22		CD1010, AD1210	PL1000, PL1030
Key Dates			1577	23-Oct-19 A	15-Feb-24	26-Feb-22	15-May-25	456	
Contractual Completion (Include Implemented CE)			1537	23-Oct-19 A	06-Jan-24	26-Feb-22	15-May-25	496	
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	26-Feb-22	26-Feb-22		CD1010, S1D1040, S1D1100	CD1040, S4P1040
KD1010	KD2A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, Workshop No.2, etc.	226	23-Oct-19 A	04-Jun-20 A	15-May-25	15-May-25		CD1010, S2D1080, S2D1160	KD1020

Remarks: The Defect Date is 28 May 2025 (365 days after Completion of the whole of the works)
The period of Establishment Works is 365 days start from 29 May 2024 to 28 May 2025

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (2020-2025)																																											
S1D1180	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	60	15-Apr-20 A	29-May-20 A	26-Feb-22	26-Feb-22		CD1010, S1D1140, S1D1000	S1D1190, S4C1020	[Gantt bar: 15-Apr-20 A to 29-May-20 A]																																											
S1D1190	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	21	30-May-20 A	19-Jun-20 A	26-Feb-22	26-Feb-22		S1D1180	S1D1200	[Gantt bar: 30-May-20 A to 19-Jun-20 A]																																											
S1D1200	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	14	20-Jun-20 A	23-Jul-20 A	26-Feb-22	26-Feb-22		S1D1190	S1D1210	[Gantt bar: 20-Jun-20 A to 23-Jul-20 A]																																											
S1D1210	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	14	24-Jul-20 A	08-Aug-20 A	26-Feb-22	26-Feb-22		S1D1200	S4P1040, S5TXRP1000, S5TXRP1010, SC11110	[Gantt bar: 24-Jul-20 A to 08-Aug-20 A]																																											
Effluent Pumping Station No. 1		139	24-Mar-20 A	08-Aug-20 A	26-Feb-22	15-May-25				[Summary bar: 24-Mar-20 A to 08-Aug-20 A]																																											
S1D1220	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	60	24-Mar-20 A	08-May-20 A	26-Feb-22	26-Feb-22		CD1010, S1D1100	S1D1230, S1D1260, S1D1300	[Gantt bar: 24-Mar-20 A to 08-May-20 A]																																											
S1D1230	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	21	09-May-20 A	01-Jun-20 A	15-May-25	15-May-25		S1D1220	S1D1240	[Gantt bar: 09-May-20 A to 01-Jun-20 A]																																											
S1D1240	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	14	02-Jun-20 A	10-Jul-20 A	15-May-25	15-May-25		S1D1230	S1D1250	[Gantt bar: 02-Jun-20 A to 10-Jul-20 A]																																											
S1D1250	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	21	11-Jul-20 A	08-Aug-20 A	15-May-25	15-May-25		S1D1240	SC11110	[Gantt bar: 11-Jul-20 A to 08-Aug-20 A]																																											
S1D1260	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	60	15-Apr-20 A	29-May-20 A	26-Feb-22	26-Feb-22		CD1010, S1D1220, S1D1000	S1D1270, S4C1020	[Gantt bar: 15-Apr-20 A to 29-May-20 A]																																											
S1D1270	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	21	30-May-20 A	19-Jun-20 A	26-Feb-22	26-Feb-22		S1D1260	S1D1280	[Gantt bar: 30-May-20 A to 19-Jun-20 A]																																											
S1D1280	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	14	20-Jun-20 A	23-Jul-20 A	26-Feb-22	26-Feb-22		S1D1270	S1D1290	[Gantt bar: 20-Jun-20 A to 23-Jul-20 A]																																											
S1D1290	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	14	24-Jul-20 A	08-Aug-20 A	26-Feb-22	26-Feb-22		S1D1280	S4P1110, S4P1120, S4P1070, S4P1080, S4P1090, S4P1100, S5TXRP1000, S5TXRP1010, S5TXRP1020, S4P1130, SC11110	[Gantt bar: 24-Jul-20 A to 08-Aug-20 A]																																											
Building Services		147	15-Mar-20 A	06-Aug-20 A	11-Mar-22	01-May-22				[Summary bar: 15-Mar-20 A to 06-Aug-20 A]																																											
S1D1300	Prepare & Submit BS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	90	15-Mar-20 A	27-Jul-20 A	11-Mar-22	11-Mar-22		S1D1220	S1D1320, S1D1310	[Gantt bar: 15-Mar-20 A to 27-Jul-20 A]																																											
S1D1310	Review & Accept of BS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	8	21-Jul-20 A	05-Aug-20 A	01-May-22	01-May-22		S1D1300	SC11110, S5TXRC1030, S4C1110	[Gantt bar: 21-Jul-20 A to 05-Aug-20 A]																																											
S1D1320	Prepare & Submit FS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	60	14-Apr-20 A	05-Aug-20 A	11-Mar-22	11-Mar-22		S1D1300	S1D1330	[Gantt bar: 14-Apr-20 A to 05-Aug-20 A]																																											
S1D1330	Review & Accept of FS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	8	09-Jul-20 A	06-Aug-20 A	11-Mar-22	11-Mar-22		S1D1320	SC11110, S4P1030, S4P1140, S4P1150	[Gantt bar: 09-Jul-20 A to 06-Aug-20 A]																																											
Section 2 - Complete All Designs (exclude Sec. 1 & 3)		943	20-Nov-19 A	31-May-22	31-Dec-21	15-May-25	1080			[Summary bar: 20-Nov-19 A to 31-May-22]																																											
Major Plant & Materials Procurement		571	20-Nov-19 A	23-Apr-21 A	06-Feb-22	06-Apr-23				[Summary bar: 20-Nov-19 A to 23-Apr-21 A]																																											
S2P1000	Procurement & PO for Sludge Screening System (S2)	150	18-May-20 A	16-Oct-20 A	06-Feb-22	06-Feb-22		S2P1020	SC21110, S5SDBP1000, S2D1260, S5P1000, S2P1060, S2P1150, S5P1030	[Gantt bar: 18-May-20 A to 16-Oct-20 A]																																											
S2P1010	Procurement & PO for Sludge Thickening System (S3)	180	20-Nov-19 A	08-Jun-20 A	06-Feb-22	06-Feb-22		PL1010, CD1010	SC21110, S5SDBP1010, S2D1300, S2P1030	[Gantt bar: 20-Nov-19 A to 08-Jun-20 A]																																											

	File Name: DE/2018/03 RP R22 Layout: DE1803 RP (May 2022) - WBS Page 12 of 41	 Remaining Work  Critical Activity  Milestone  Actual Progress	<p align="center">Contract No. DE/2018/03</p> <p align="center">Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1</p> <p align="center">Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities</p> <p align="center">Revised Programme - as at 20 May 2022</p>	Date	Revision	Checked	Approved
	31-Jan-22	Rev.18		LT	KM		
	28-Feb-22	Rev.19		LT	KM		
	31-Mar-22	Rev.20		LT	KM		
	30-Apr-22	Rev.21		LT	KM		
31-May-22	Rev.22	LT	KM				

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (2020-2025)																																												
S2D1510	Review & Accept on Wiring Dwgs, Cable Schedule & Design Cal.	21	24-May-21 A	11-Jun-21 A	06-Feb-22	06-Feb-22		S2D1500	SC21110, S5P1050	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
S2D1520	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	232	22-Oct-20 A	10-Jun-21 A	03-May-22	03-May-22			S2D1530	[Gantt Bar: 22-Oct-20 to 10-Jun-21]																																												
S2D1530	Review & Accept on the Schedule, Design Cal. & Fixing Details of Equipment	21	24-May-21 A	11-Jun-21 A	03-May-22	03-May-22		S2D1520	S5BIOP1010, S5H2SP1000, SC21110	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
Combined Heat & Power Generation (CHP)											[Section Header]																																											
S2D1540	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	233	18-May-20 A	21-Jul-20 A	06-Feb-22	06-Feb-22		S2P1070	S2D1550	[Gantt Bar: 18-May-20 to 21-Jul-20]																																												
S2D1550	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	21	22-Jul-20 A	11-Aug-20 A	06-Feb-22	06-Feb-22		S2D1540	S2D1560, S2D1870	[Gantt Bar: 22-Jul-20 to 11-Aug-20]																																												
S2D1560	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	12-Aug-20 A	21-Dec-20 A	06-Feb-22	06-Feb-22		S2D1550	S2D1570	[Gantt Bar: 12-Aug-20 to 21-Dec-20]																																												
S2D1570	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	171	22-Dec-20 A	11-Jun-21 A	06-Feb-22	06-Feb-22		S2D1560	SC21110, S5P1050	[Gantt Bar: 22-Dec-20 to 11-Jun-21]																																												
S2D1580	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	18-May-20 A	21-Jul-20 A	26-May-22	26-May-22			S2D1590	[Gantt Bar: 18-May-20 to 21-Jul-20]																																												
S2D1590	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	21	22-Jul-20 A	11-Aug-20 A	26-May-22	26-May-22		S2D1580	S2D1600	[Gantt Bar: 22-Jul-20 to 11-Aug-20]																																												
S2D1600	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	12-Aug-20 A	21-Dec-20 A	26-May-22	26-May-22		S2D1590	S2D1610	[Gantt Bar: 12-Aug-20 to 21-Dec-20]																																												
S2D1610	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	171	22-Dec-20 A	11-Jun-21 A	26-May-22	26-May-22		S2D1600	S5CHPP1010, SC21110, S5S1020, PL1530	[Gantt Bar: 22-Dec-20 to 11-Jun-21]																																												
Waste Gas Burning System (WGB)											[Section Header]																																											
S2D1620	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	264	15-Oct-20 A	11-Jun-21 A	06-Feb-22	24-May-22			S2D1630	[Gantt Bar: 15-Oct-20 to 11-Jun-21]																																												
S2D1630	Review & Accept on Wiring Dwgs, Cable Schedule & Design Cal.	239	15-Oct-20 A	10-Jun-21 A	06-Feb-22	06-Feb-22				[Gantt Bar: 15-Oct-20 to 10-Jun-21]																																												
S2D1640	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	21	24-May-21 A	11-Jun-21 A	06-Feb-22	06-Feb-22		S2D1620	SC21110, S5P1050	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
S2D1640	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	194	29-Nov-20 A	10-Jun-21 A	24-May-22	24-May-22			S2D1650	[Gantt Bar: 29-Nov-20 to 10-Jun-21]																																												
S2D1650	Review & Accept on the Schedule, Design Cal. & Fixing Details of Equipment	21	24-May-21 A	11-Jun-21 A	24-May-22	24-May-22		S2D1640	S5WGBP1000, SC21110	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
Plant Service Water System (PSW)											[Section Header]																																											
S2D1660	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	325	16-Aug-20 A	11-Jun-21 A	06-Feb-22	06-Sep-22			S2D1670	[Gantt Bar: 16-Aug-20 to 11-Jun-21]																																												
S2D1670	Review & Accept on Wiring Dwgs, Cable Schedule & Design Cal.	299	16-Aug-20 A	10-Jun-21 A	06-Feb-22	06-Feb-22		S2D1080, S2D1160, S2P1090		[Gantt Bar: 16-Aug-20 to 10-Jun-21]																																												
S2D1670	Review & Accept on Wiring Dwgs, Cable Schedule & Design Cal.	21	24-May-21 A	11-Jun-21 A	06-Feb-22	06-Feb-22		S2D1660	SC21110, S5P1050	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
S2D1680	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	239	15-Oct-20 A	10-Jun-21 A	06-Sep-22	06-Sep-22			S2D1690	[Gantt Bar: 15-Oct-20 to 10-Jun-21]																																												
S2D1690	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	21	24-May-21 A	11-Jun-21 A	06-Sep-22	06-Sep-22		S2D1680	S5PSWP1000, SC21110	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
Surplus Activated Sludge Pumping Station (SAS)											[Section Header]																																											
S2D1700	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	440	01-Aug-20 A	11-Jun-21 A	08-Dec-22	15-May-25			S2D1710	[Gantt Bar: 01-Aug-20 to 11-Jun-21]																																												
S2D1710	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	202	01-Aug-20 A	17-Nov-20 A	15-May-25	15-May-25		S2P1100		[Gantt Bar: 01-Aug-20 to 17-Nov-20]																																												
S2D1710	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	21	18-Nov-20 A	24-Nov-20 A	15-May-25	15-May-25		S2D1700	S2D1720	[Gantt Bar: 18-Nov-20 to 24-Nov-20]																																												
S2D1720	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	198	25-Nov-20 A	10-Jun-21 A	15-May-25	15-May-25		S2D1710	S2D1730	[Gantt Bar: 25-Nov-20 to 10-Jun-21]																																												
S2D1730	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	21	24-May-21 A	11-Jun-21 A	15-May-25	15-May-25		S2D1720	SC21110	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
S2D1740	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	183	16-Aug-20 A	17-Nov-20 A	08-Dec-22	08-Dec-22			S2D1750	[Gantt Bar: 16-Aug-20 to 17-Nov-20]																																												
S2D1750	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	21	18-Nov-20 A	24-Nov-20 A	08-Dec-22	08-Dec-22		S2D1740	S2D1760	[Gantt Bar: 18-Nov-20 to 24-Nov-20]																																												
S2D1760	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	198	25-Nov-20 A	10-Jun-21 A	08-Dec-22	08-Dec-22		S2D1750	S2D1770	[Gantt Bar: 25-Nov-20 to 10-Jun-21]																																												
S2D1770	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	21	24-May-21 A	11-Jun-21 A	08-Dec-22	08-Dec-22		S2D1760	S5SASP1000, SC21110	[Gantt Bar: 24-May-21 to 11-Jun-21]																																												
Control and Monitoring System											[Section Header]																																											
S2D1780	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	211	30-Oct-20 A	11-Jun-21 A	08-Apr-22	15-May-25			S2D1790	[Gantt Bar: 30-Oct-20 to 11-Jun-21]																																												
S2D1780	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	193	30-Oct-20 A	11-May-21 A	15-May-25	15-May-25				[Gantt Bar: 30-Oct-20 to 11-May-21]																																												
S2D1790	Review & Accept on Wiring Dwgs, Cable Schedule & Design Cal.	30	12-May-21 A	11-Jun-21 A	15-May-25	15-May-25		S2D1780	SC21110	[Gantt Bar: 12-May-21 to 11-Jun-21]																																												
S2D1800	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	148	14-Dec-20 A	11-May-21 A	08-Apr-22	08-Apr-22			S2D1810	[Gantt Bar: 14-Dec-20 to 11-May-21]																																												



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- 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 May 2022

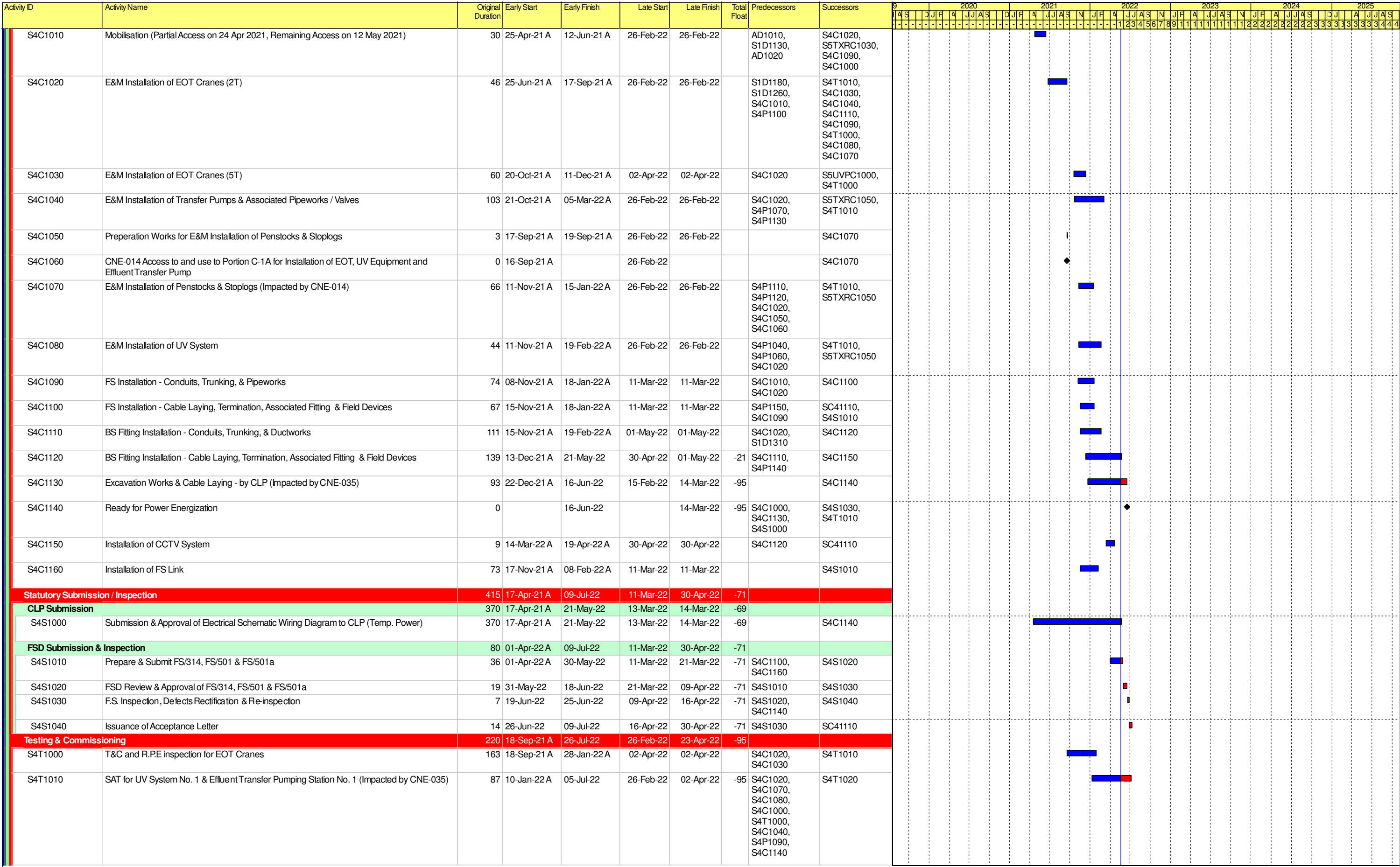
Date	Revision	Checked	Approved
31-Jan-22	Rev:18	LT	KM
28-Feb-22	Rev:19	LT	KM
31-Mar-22	Rev:20	LT	KM
30-Apr-22	Rev:21	LT	KM
31-May-22	Rev:22	LT	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020												2021												2022												2023												2024												2025											
										A	S	D	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N																					
S2D2100	Submit finalized material submissions of the cables, cable tray, ladder and accessories	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2110	Submit finalized cable route drawings	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2120	Submit finalized layout and control wiring diagrams for switchboard, MCC, control panel, etc	294	02-Jul-21 A	21-May-22*	31-Jan-22	31-Jan-22	-110																																																																										
S2D2130	Submit finalized design submissions of the CHP system	294	02-Jul-21 A	21-May-22*	31-Jan-22	31-Jan-22	-110																																																																										
S2D2140	Submit finalized interlock devices for electrical equipment and system	303	02-Jul-21 A	30-May-22*	21-Apr-22	30-Apr-22	-30																																																																										
S2D2150	Submit finalized calculations for total harmonic distortion, electrical faults and touch voltage	303	02-Jul-21 A	30-May-22*	21-Apr-22	30-Apr-22	-30																																																																										
S2D2160	Submit finalized design calculations, drawings & material submissions for ELV systems	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2170	Submit finalized design submissions of SCADA, PMS, CMMS, IDMS, UPS for FCS	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2180	Submit finalized configuration of SCADA/ PLC system, CMMS & PMS	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2190	Submit finalized PLC and MCC panel design	294	02-Jul-21 A	21-May-22*	28-Feb-22	28-Feb-22	-82																																																																										
S2D2200	Submit finalized design & philosophy of the process instrument	294	02-Jul-21 A	21-May-22*	31-Dec-21	31-Dec-21	-141																																																																										
S2D2210	Submit finalized Process Design Submission	152	02-Jul-21 A	30-Nov-21 A	15-May-25	15-May-25																																																																											
S2D2220	Submit finalized acoustic and noise calculations for all equipment	303	02-Jul-21 A	30-May-22*	21-Apr-22	30-Apr-22	-30																																																																										
S2D2230	Submit finalized design of THP feeding system	122	02-Jul-21 A	30-Nov-21 A	15-May-25	15-May-25																																																																											
S2D2240	Submit finalized design of the centrifuge discharge system	152	02-Jul-21 A	30-Nov-21 A	15-May-25	15-May-25																																																																											
Section 3 - Complete Design, Construction & T&C for Sidestream Facilities		1978	20-Nov-19 A	19-Apr-25	11-Apr-22	15-May-25	26																																																																										
Major Subcontractor / Supplier Procurement		633	20-Nov-19 A	06-Sep-21 A	22-Apr-22	15-May-25																																																																											
Design		320	20-Nov-19 A	12-Jul-20 A	22-Apr-22	15-May-25																																																																											
S3P1000	Procurement & PO for Deammonification Sidestream Treatment Facilities	200	20-Nov-19 A	05-Jun-20 A	22-Apr-22	22-Apr-22		CD1010, PL1010	S3D1000, S3D1440, S3P1470																																																																								
S3P1010	E&M (Process) Designer Award	1	05-Jun-20 A	05-Jun-20 A	15-May-25	15-May-25																																																																											
S3P1020	Civil & BS Designer Award	1	26-Jun-20 A	26-Jun-20 A	15-May-25	15-May-25			S3P1030																																																																								
S3P1030	Mobilisation	14	27-Jun-20 A	12-Jul-20 A	15-May-25	15-May-25		S3P1020																																																																									
Civil & Building Contractor		327	05-Aug-20 A	06-Sep-21 A	01-Jun-22	01-Jun-22																																																																											
For Site Clearance & Survey		36	05-Aug-20 A	12-Oct-20 A	01-Jun-22	01-Jun-22																																																																											
S3P1040	Submit Tender proposal of Civil Contractor (Site Clearance & Survey)	14	05-Aug-20 A	20-Aug-20 A	01-Jun-22	01-Jun-22			S3P1050																																																																								
S3P1050	Review & Comment the Tender proposal of Civil Contractor (Site Clearance & Survey)	14	21-Aug-20 A	01-Sep-20 A	01-Jun-22	01-Jun-22		S3P1040	S3P1060																																																																								
S3P1060	Re-submit Tender proposal of Civil Contractor (Site Clearance & Survey)	14	02-Sep-20 A	02-Sep-20 A	01-Jun-22	01-Jun-22		S3P1050	S3P1070																																																																								
S3P1070	Review & Accept Tender proposal of Civil Contractor (Site Clearance & Survey)	14	03-Sep-20 A	23-Sep-20 A	01-Jun-22	01-Jun-22		S3P1060	S3P1080																																																																								
S3P1080	Civil Contractor (Site Clearance & Survey) Award	1	07-Oct-20 A	07-Oct-20 A	01-Jun-22	01-Jun-22		S3P1070	S3P1090																																																																								
S3P1090	Mobilisation	5	08-Oct-20 A	12-Oct-20 A	01-Jun-22	01-Jun-22		S3P1080	S3C1010																																																																								
For Ground Investigation		98	29-Aug-20 A	08-Dec-20 A	01-Jun-22	01-Jun-22																																																																											
S3P1100	Submit Tender proposal of Civil Contractor (Ground Investigation)	14	29-Aug-20 A	29-Sep-20 A	01-Jun-22	01-Jun-22			S3P1110																																																																								
S3P1110	Review & Accept the Tender proposal of Civil Contractor (Ground Investigation)	21	30-Sep-20 A	27-Oct-20 A	01-Jun-22	01-Jun-22		S3P1100	S3P1120																																																																								
S3P1120	Tender Invitation of Civil Contractor (Ground Investigation)	7	02-Nov-20 A	13-Nov-20 A	01-Jun-22	01-Jun-22		S3P1110	S3P1130																																																																								
S3P1130	Submission of Tender Report	7	14-Nov-20 A	18-Nov-20 A	01-Jun-22	01-Jun-22		S3P1120	S3P1140																																																																								
S3P1140	Review & Accept the Tender Report by PM	21	19-Nov-20 A	19-Nov-20 A	01-Jun-22	01-Jun-22		S3P1130	S3P1150																																																																								
S3P1150	Contract Preparation	3	20-Nov-20 A	23-Nov-20 A	01-Jun-22	01-Jun-22		S3P1140	S3P1160																																																																								

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart																																															
										2020				2021				2022				2023				2024				2025																											
S3D1060	Review & Comment on Architectural Design / Drawings by PM	67	22-Oct-20 A	17-Nov-20 A	07-May-23	07-May-23		S3D1050	S3D1070	[Gantt bar: 22-Oct-20 to 17-Nov-20]																																															
S3D1070	Revise & Re-submit Architectural Design / Drawings	28	18-Nov-20 A	24-Dec-20 A	07-May-23	07-May-23		S3D1060	S3D1080	[Gantt bar: 18-Nov-20 to 24-Dec-20]																																															
S3D1080	Review & Accept of Architectural Design / Drawings by PM	483	25-Dec-20 A	21-May-22	07-May-23	08-May-23	352	S3D1070	S3D1090	[Gantt bar: 25-Dec-20 to 21-May-22]																																															
S3D1090	Review & Accept of Architectural Design / Drawings by DSD (incl. VCAB) & DAP of ArchSD	300	15-Nov-21 A	10-Sep-22	15-Jan-23	08-May-23	240	S3D1080, S3D1130, S3D1030, S3D1040	S3C1140, S3P1490	[Gantt bar: 15-Nov-21 to 10-Sep-22]																																															
S3D1100	Prepare & Submit ABWF Works Drawings	68	03-Nov-20 A	24-Dec-20 A	07-May-23	07-May-23		S3D1000	S3D1110	[Gantt bar: 03-Nov-20 to 24-Dec-20]																																															
S3D1110	Review & Comment on ABWF Works Drawings by PM	21	25-Dec-20 A	29-Jan-21 A	07-May-23	07-May-23		S3D1100	S3D1120	[Gantt bar: 25-Dec-20 to 29-Jan-21]																																															
S3D1120	Revise & Re-submit ABWF Works Drawings	41	30-Jan-21 A	11-Mar-21 A	07-May-23	07-May-23		S3D1110	S3D1130	[Gantt bar: 30-Jan-21 to 11-Mar-21]																																															
S3D1130	Review & Accept of ABWF Works Drawings by PM	406	12-Mar-21 A	21-May-22	07-May-23	08-May-23	352	S3D1120	S3C1140, S3D1090	[Gantt bar: 12-Mar-21 to 21-May-22]																																															
Civil / Structural		639	13-Jul-20 A	18-Feb-22 A	11-Apr-22	15-May-25				[Summary bar for Civil/Structural]																																															
S3D1140	Prepare & Submit Loading Plan to ICE	60	13-Jul-20 A	25-Sep-20 A	11-Apr-22	11-Apr-22			S3D1150	[Gantt bar: 13-Jul-20 to 25-Sep-20]																																															
S3D1150	Review & Comment on Loading Plan by ICE	14	26-Sep-20 A	23-Oct-20 A	11-Apr-22	11-Apr-22		S3D1140	S3D1160	[Gantt bar: 26-Sep-20 to 23-Oct-20]																																															
S3D1160	Revise & Re-submit Loading Plan to ICE	175	24-Oct-20 A	20-Apr-21 A	11-Apr-22	11-Apr-22		S3D1150	S3D1170	[Gantt bar: 24-Oct-20 to 20-Apr-21]																																															
S3D1170	Review & Accept of Loading Plan by ICE	7	21-Apr-21 A	26-Apr-21 A	11-Apr-22	11-Apr-22		S3D1160	S3D1180	[Gantt bar: 21-Apr-21 to 26-Apr-21]																																															
S3D1180	Prepare & Submit Loading Plan to PM	7	27-Apr-21 A	27-Apr-21 A	11-Apr-22	11-Apr-22		S3D1170	S3D1190	[Gantt bar: 27-Apr-21 to 27-Apr-21]																																															
S3D1190	Review & Accept of Loading Plan by PM & DSD (incl. BCM)	359	28-Apr-21 A	18-Feb-22 A	11-Apr-22	11-Apr-22		S3D1180	S3C1090	[Gantt bar: 28-Apr-21 to 18-Feb-22]																																															
S3D1200	Prepare & Submit GI Plan	60	13-Jul-20 A	26-Aug-20 A	01-Jun-22	01-Jun-22			S3D1210	[Gantt bar: 13-Jul-20 to 26-Aug-20]																																															
S3D1210	Review & Comment on GI Plan by PM	14	27-Aug-20 A	10-Sep-20 A	01-Jun-22	01-Jun-22		S3D1200	S3D1220	[Gantt bar: 27-Aug-20 to 10-Sep-20]																																															
S3D1220	Revise & Re-submit GI Plan	7	11-Sep-20 A	28-Sep-20 A	01-Jun-22	01-Jun-22		S3D1210	S3D1230	[Gantt bar: 11-Sep-20 to 28-Sep-20]																																															
S3D1230	Review & Accept of GI Plan by PM	21	29-Sep-20 A	02-Nov-20 A	01-Jun-22	01-Jun-22		S3D1220	S3C1020	[Gantt bar: 29-Sep-20 to 02-Nov-20]																																															
S3D1240	Prepare & Submit Foundation Design / Drawings to ICE & PM	60	20-Aug-20 A	09-Oct-20 A	01-Jun-22	01-Jun-22			S3D1250, S3C1010, S3D1300, S3P1180	[Gantt bar: 20-Aug-20 to 09-Oct-20]																																															
S3D1250	Review & Comment on Foundation Design / Drawings by ICE & PM	79	10-Oct-20 A	27-Nov-20 A	15-May-25	15-May-25		S3D1240	S3D1260	[Gantt bar: 10-Oct-20 to 27-Nov-20]																																															
S3D1260	Revise & Re-submit Foundation Design / Drawings to ICE & PM	14	28-Nov-20 A	29-Jan-21 A	15-May-25	15-May-25		S3D1250	S3D1270	[Gantt bar: 28-Nov-20 to 29-Jan-21]																																															
S3D1270	Review & Accept of Foundation Design / Drawings by ICE & PM	10	30-Jan-21 A	26-Feb-21 A	15-May-25	15-May-25		S3D1260	S3D1280	[Gantt bar: 30-Jan-21 to 26-Feb-21]																																															
S3D1280	Prepare & Submit Foundation Design / Drawings to DSD (incl. BCM)	7	27-Feb-21 A	05-Mar-21 A	15-May-25	15-May-25		S3D1270	S3D1290	[Gantt bar: 27-Feb-21 to 05-Mar-21]																																															
S3D1290	Review & Accept of Foundation Design / Drawings by DSD (incl. BCM)	45	06-Mar-21 A	26-Mar-21 A	15-May-25	15-May-25		S3D1280		[Gantt bar: 06-Mar-21 to 26-Mar-21]																																															
S3D1300	Prepare & Submit Substructure / Superstructure Design / Drawings to ICE & PM	25	10-Oct-20 A	05-Nov-20 A	01-Jun-22	01-Jun-22		S3D1240	S3D1310, S3P1180	[Gantt bar: 10-Oct-20 to 05-Nov-20]																																															
S3D1310	Review & Comment on Substructure / Superstructure Design / Drawings by ICE & PM	55	06-Nov-20 A	30-Dec-20 A	18-Jun-22	18-Jun-22		S3D1300	S3D1320	[Gantt bar: 06-Nov-20 to 30-Dec-20]																																															
S3D1320	Revise & Re-submit Substructure / Superstructure Design / Drawings to ICE & PM	72	31-Dec-20 A	26-Apr-21 A	18-Jun-22	18-Jun-22		S3D1310	S3D1330	[Gantt bar: 31-Dec-20 to 26-Apr-21]																																															
S3D1330	Review & Accept of Substructure / Superstructure Design / Drawings by ICE & PM	271	27-Apr-21 A	18-Feb-22 A	18-Jun-22	18-Jun-22		S3D1320	S3D1340	[Gantt bar: 27-Apr-21 to 18-Feb-22]																																															
S3D1340	Prepare & Submit Substructure / Superstructure Design / Drawings to DSD (incl. BCM)	2	13-Dec-21 A	23-Dec-21 A	18-Jun-22	18-Jun-22		S3D1330	S3D1350	[Gantt bar: 13-Dec-21 to 23-Dec-21]																																															
S3D1350	Review & Accept of Substructure / Superstructure Design / Drawings by DSD (incl. BCM)	119	24-Dec-21 A	18-Feb-22 A	18-Jun-22	18-Jun-22		S3D1340	S3C1100	[Gantt bar: 24-Dec-21 to 18-Feb-22]																																															
ELS		214	07-Sep-21 A	26-Apr-22 A	02-Jul-22	02-Jul-22				[Summary bar for ELS]																																															
S3D1360	Prepare & Submit ELS Plan to ICE	45	07-Sep-21 A	20-Oct-21 A	02-Jul-22	02-Jul-22		S3P1400	S3D1370	[Gantt bar: 07-Sep-21 to 20-Oct-21]																																															
S3D1370	Review & Accept of ELS Plan by ICE	5	21-Oct-21 A	18-Nov-21 A	02-Jul-22	02-Jul-22		S3D1360	S3D1380	[Gantt bar: 21-Oct-21 to 18-Nov-21]																																															



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31-Jan-22	Rev.18	LT	KM
28-Feb-22	Rev.19	LT	KM
31-Mar-22	Rev.20	LT	KM
30-Apr-22	Rev.21	LT	KM
31-May-22	Rev.22	LT	KM



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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 May 2022

Date	Revision	Checked	Approved
31-Jan-22	Rev.18	LT	KM
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- Remaining Work
- Critical Activity
- ◆ Milestone
- █ Actual Progress

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020												2021												2022												2023												2024												2025											
										A S D			J F A			J J A S			D J F A			J J A S			N J H A			J J A S			N J H A			J J A S			N J H A			J J A S			N J H A			J J A S			N J H A			J J A S			N J H A			J J A S			N J H A																				
S4T1020	System Commissioning Tests	21	06-Jul-22	26-Jul-22	02-Apr-22	23-Apr-22	-95	S4T1010	SC41110, PL1200, PL1290, PL1250, S5UVPC1000																																																																								
Section 5 - Complete all remaining Works (incl. T&C)		1798	18-May-20 A	19-Apr-25	24-Oct-21	07-May-24	-347																																																																										
Fabrication, FAT & Delivery of Major Plant & Materials		973	18-May-20 A	15-Jan-23	24-Oct-21	03-Dec-22	-43																																																																										
S5P1000	Procurement & PO for Biogas Booster and Transfer Pumps	558	17-Jul-20 A	21-May-22	21-Jul-22	21-Jul-22	61	S2P1000	S5BIOP1000																																																																								
S5P1010	Procurement & PO for Pipeworks & Associated Valves	368	29-Jan-21 A	21-May-22	06-Apr-22	06-Apr-22	-45	S2D1070	S5P1080																																																																								
S5P1020	Procurement & PO for Lifting Appliances	537	18-May-20 A	29-Oct-21 A	08-Sep-22	08-Sep-22		S2P1020	S5P1120																																																																								
S5P1030	Procurement & PO for Ferric Chloride Storage Tank	591	20-Jul-20 A	18-May-22 A	07-Sep-22	07-Sep-22		S2P1000	S5FCDP1000																																																																								
S5P1040	Procurement & PO for Ferric Chloride Dosing Pump	635	18-May-20 A	13-May-22 A	15-Aug-22	15-Aug-22		S2P1020	S5FCDP1010																																																																								
S5P1050	Procurement & PO for Elec. Materials	236	21-Jun-21 A	21-May-22	06-Feb-22	06-Feb-22	-104	PL1010, S2P1130, S2D1370, S2D1570, S2D1270, S2D1310, S2D1430, S2D1470, S2D1510, S2D1630, S2D1670	S5P1130																																																																								
S5P1060	Procurement & PO for Genset	573	31-Jul-20 A	21-May-22	28-Mar-22	28-Mar-22	-54	S2D1160, S2D1220	S5SDBP1090																																																																								
S5P1070	Procurement & PO for mechanical ventilation system	90	28-Dec-21 A	28-Mar-22 A	24-Oct-21	24-Oct-21			S5P1140																																																																								
S5P1080	Fabrication & Delivery of Pipeworks & Associated Valves	110	22-May-22	08-Sep-22	07-Apr-22	25-Jul-22	-45	S5P1010	S5SDBC1040, S5SDBC1130, S5SDBC1330																																																																								
S5P1090	Fabrication of Control & Monitoring System	180	21-May-22*	16-Nov-22	08-Apr-22	04-Oct-22	-43	S2P1140, S2D1810	S5P1100																																																																								
S5P1100	FAT for SCADA System	30	17-Nov-22	16-Dec-22	05-Oct-22	03-Nov-22	-43	S5P1090	S5P1110																																																																								
S5P1110	Delivery of SCADA System	30	17-Dec-22	15-Jan-23	04-Nov-22	03-Dec-22	-43	S5P1100	S5SDBC1090, S5SDBC1390, S5CHPC1120, S5CHPC1250, S5DIGC1270, S5WS2C1180, S5BIOC1050																																																																								
S5P1120	Fabrication & Delivery of Lifting Appliances	150	30-Oct-21 A	21-May-22	08-Sep-22	08-Sep-22	110	S5P1020, S2D1830, S2D1850	S5SDBC1240																																																																								
S5P1130	Fabrication & Delivery of Elec. Materials	120	22-May-22	18-Sep-22	07-Feb-22	06-Jun-22	-104	S5P1050, S2D1370	S5SDBC1070, S5SDBC1170, S5SDBC1370, S5CHPC1100, S5CHPC1230, S5CHPC1290, S5TXRC1030, S5TXRC1040, S5DIGC1260, S5DIGC1120, S5DIGC1160, S5DIGC1200, S5WS2C1160, S5BIOC1020, S5BIOC1030, S5BIOC1040, S5THPC1020, S5H2SC1020, S5WGBC1020, S5DOUC1030, S5DOUC1040, S5EXAC1030, S5EXAC1040																																																																								



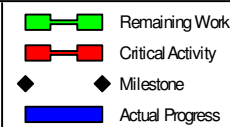
File Name: DE/2018/03 RP R22
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- Remaining Work
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Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Timeline (2020-2025)																																																			
S5SDBC1120	Installation of Silo , Conveyor & PC Pump	75	15-Jan-23	30-Mar-23	23-Nov-22	05-Feb-23	-53	S5SDBC1330, S5SDBP1070, S5SDBP1000, S5SDBP1080	S5SDBC1130, S5SDBT 1040	[Gantt chart bar: 2022-05-23 to 2023-02-05]																																																			
S5SDBC1130	Installation of Process Pipe	75	31-Mar-23	13-Jun-23	06-Feb-23	21-Apr-23	-53	S5SDBC1120, S5P1080	S5SDBT 1000	[Gantt chart bar: 2022-02-21 to 2023-04-13]																																																			
S5SDBC1140	Installation of Polymer	30	17-Sep-22	16-Oct-22	11-Jul-22	09-Aug-22	-68	S5SDBC1030	S5SDBC1340	[Gantt chart bar: 2022-07-09 to 2023-10-16]																																																			
S5SDBC1150	Installation of FS System	60	31-Jul-22	28-Sep-22	07-May-22	05-Jul-22	-85	S5SDBC1020	S5SDBC1160, S5SDBC1050, S5SDBC1170, S5SDBC1180, S5SDBC1190	[Gantt chart bar: 2022-05-07 to 2023-09-28]																																																			
S5SDBC1160	Installation of MVAC System	90	29-Sep-22	27-Dec-22	25-Feb-23	25-May-23	149	S5SDBC1150, S5P1140	S5SDBC1060	[Gantt chart bar: 2022-09-29 to 2023-05-25]																																																			
S5SDBC1170	Installation of Electrical System	90	29-Sep-22	27-Dec-22	06-Jul-22	03-Oct-22	-85	S5SDBC1150, S5P1130	S5SDBC1070, S5SDBC1190	[Gantt chart bar: 2022-07-06 to 2023-10-03]																																																			
S5SDBC1180	Installation of Plumbing System	90	29-Sep-22	27-Dec-22	28-Apr-23	26-Jul-23	211	S5SDBC1150	S5SDBC1080	[Gantt chart bar: 2022-09-29 to 2023-07-26]																																																			
S5SDBC1190	Installation of SCADA System / Control Monitoring System	60	29-Oct-22	27-Dec-22	24-Oct-22	22-Dec-22	-5	S5SDBC1150, S5SDBC1170	S5SDBC1090, S5T1000, S5T1010, S5T1020, S5T1030	[Gantt chart bar: 2022-10-29 to 2023-12-22]																																																			
S5SDBC1200	Generator & Fuel Room Installation	120	18-Dec-22	16-Apr-23	25-Oct-22	21-Feb-23	-54	S5SDBP1090, S5S1270, S5S1010	S5S1280	[Gantt chart bar: 2022-10-25 to 2023-02-21]																																																			
S5SDBC1210	TX Room Installation	90	17-Nov-22	14-Feb-23	03-Dec-22	02-Mar-23	16	S5SDBC1220, S5WS2P1050	S5SDBT 1030, S5SDBT 1020, S5SDBT 1010	[Gantt chart bar: 2022-11-17 to 2023-03-02]																																																			
S5SDBC1220	LV Switch Room Installation	90	31-Jul-22	28-Oct-22	04-Sep-22	02-Dec-22	35	S5SDBC1020, S5SDBP1110	S5SDBC1210, S5SDBT 1020, S5SDBT 1010	[Gantt chart bar: 2022-09-04 to 2023-12-02]																																																			
S5SDBC1230	Installation of Lift	120	16-Jul-22	12-Nov-22	23-Aug-23	20-Dec-23	403	S5SDBP1100	S5SDBT 1050	[Gantt chart bar: 2022-07-16 to 2024-01-20]																																																			
First Floor		327	03-Aug-22	25-Jun-23	11-Jun-22	22-Jan-24	211																																																						
S5SDBC1240	Installation of EOT Crane LA-01-03	90	03-Aug-22	31-Oct-22	11-Jun-22	08-Sep-22	-53	S5SDBC1100, S5P1120	S5SDBC1250, S5SDBC1280	[Gantt chart bar: 2022-06-11 to 2023-09-08]																																																			
S5SDBC1250	Installation of EOT Crane LA-01-02	75	01-Nov-22	14-Jan-23	24-Sep-22	07-Dec-22	-38	S5SDBC1240	S5SDBC1260, S5SDBC1290	[Gantt chart bar: 2022-09-24 to 2023-12-07]																																																			
S5SDBC1260	Installation of Monorail LA-01-04	60	15-Jan-23	15-Mar-23	08-Dec-22	05-Feb-23	-38	S5SDBC1250	S5SDBC1110, S5SDBC1310	[Gantt chart bar: 2022-12-08 to 2023-02-05]																																																			
S5SDBC1270	Installation of Polymer Tank	60	03-Aug-22	01-Oct-22	06-Feb-23	06-Apr-23	187	S5SDBC1100	S5SDBT 1030	[Gantt chart bar: 2022-08-03 to 2023-04-06]																																																			
S5SDBC1280	Installation of Sludge Thickening Centrifuges	105	16-Nov-22	28-Feb-23	09-Sep-22	22-Dec-22	-68	S5SDBC1340, S5SDBC1240, S5SDBP1030	S5SDBC1290	[Gantt chart bar: 2022-09-09 to 2023-12-22]																																																			
S5SDBC1290	Installation of Sludge Dewatering Centrifuges	105	01-Mar-23	13-Jun-23	23-Dec-22	06-Apr-23	-68	S5SDBC1280, S5SDBC1250, S5SDBP1060	S5SDBT 1030	[Gantt chart bar: 2022-12-23 to 2023-04-06]																																																			
S5SDBC1300	Installation of Screen Press	30	03-Aug-22	01-Sep-22	08-Mar-23	06-Apr-23	217	S5SDBC1100	S5SDBT 1030	[Gantt chart bar: 2022-08-03 to 2023-04-06]																																																			
S5SDBC1310	Installation of Mixer	30	16-Mar-23	14-Apr-23	08-Mar-23	06-Apr-23	-8	S5SDBC1330, S5SDBC1260	S5SDBT 1030	[Gantt chart bar: 2023-03-14 to 2023-04-06]																																																			
S5SDBC1320	Installation of PC Pump	45	18-Sep-22	01-Nov-22	09-Sep-22	23-Oct-22	-9	S5SDBP1070	S5SDBC1330	[Gantt chart bar: 2022-09-18 to 2023-10-23]																																																			
S5SDBC1330	Installation of Process Pipe	75	16-Dec-22	28-Feb-23	24-Oct-22	06-Jan-23	-53	S5SDBC1320, S5SDBC1040, S5P1080	S5SDBC1310, S5SDBC1120, S5SDBT 1000	[Gantt chart bar: 2022-10-24 to 2023-01-06]																																																			
S5SDBC1340	Installation of Polymer	30	17-Oct-22	15-Nov-22	10-Aug-22	08-Sep-22	-68	S5SDBC1140	S5SDBC1280	[Gantt chart bar: 2022-08-10 to 2023-09-08]																																																			
S5SDBC1350	Installation of FS System	60	28-Dec-22	25-Feb-23	23-Sep-23	21-Nov-23	269	S5SDBC1050	S5S1220	[Gantt chart bar: 2022-12-28 to 2024-11-21]																																																			
S5SDBC1360	Installation of MVAC System	90	28-Mar-23	25-Jun-23	24-Aug-23	21-Nov-23	149	S5SDBC1060, S5P1140	S5S1220	[Gantt chart bar: 2023-03-28 to 2024-11-21]																																																			
S5SDBC1370	Installation of Electrical System	90	28-Mar-23	25-Jun-23	02-Jan-23	01-Apr-23	-85	S5SDBC1070, S5P1130	S5SDBT 1020, S5SDBC1390	[Gantt chart bar: 2022-12-02 to 2023-04-01]																																																			
S5SDBC1380	Installation of Plumbing System	90	28-Mar-23	25-Jun-23	25-Oct-23	22-Jan-24	211	S5SDBC1080	S5S1160	[Gantt chart bar: 2023-03-28 to 2024-01-22]																																																			
S5SDBC1390	Installation of SCADA System / Control Monitoring System	60	27-Apr-23	25-Jun-23	21-Feb-23	21-Apr-23	-65	S5SDBC1090, S5SDBC1370, S5P1110	S5T 1060, S5T 1000, S5T 1010, S5T 1020, S5T 1030	[Gantt chart bar: 2023-02-21 to 2023-04-21]																																																			
Testing and Commissioning		393	16-Dec-22	12-Jan-24	24-Oct-22	18-Feb-24	37																																																						
S5SDBT1000	Pipe Pressure Test	180	16-Dec-22	13-Jun-23	24-Oct-22	21-Apr-23	-53	S5SDBC1330, S5SDBC1130, S5SDBC1040	S5T 1060	[Gantt chart bar: 2022-12-16 to 2023-04-21]																																																			



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Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (2020-2025)																																																																							
										2020												2021												2022												2023												2024												2025											
										A	S	D	J	F	A	J	J	A	S	N	J	H	A	J	J	A	S	N	J	H	A	J	J	A	S	N	J	H	A	J	J	A	S	N	J	H	A	J	J	A	S	N	J	H	A	J	J	A	S	N																					
S5WS2P1060	Fabrication of 11 kV Switchboard	120	29-Nov-21 A	25-Jun-22	08-May-22	11-Jun-22	-14	S2P1120, S5S1000	S5WS2P1070	[Gantt bars: blue, green, red]																																																																							
S5WS2P1070	FAT for 11 kV Switchboard	14	12-Jun-22	25-Jun-22	29-May-22	11-Jun-22	-14	S5WS2P1060	S5WS2P1080	[Gantt bars: blue, green, red]																																																																							
S5WS2P1080	Delivery of 11 kV Switchboard	60	26-Jun-22	24-Aug-22	12-Jun-22	10-Aug-22	-14	S5WS2P1070	S5WS2C1060, S5CHPC1140	[Gantt bars: blue, green, red]																																																																							
S5WS2P1090	Fabrication of 380V Switchboard	120	29-Nov-21 A	24-Jun-22	18-Aug-22	21-Sep-22	89	S2P1130, S2D1250, S2D1190, S2D1270	S5WS2P1100	[Gantt bars: blue, green, red]																																																																							
S5WS2P1100	FAT for 380V Switchboard	14	11-Jun-22	24-Jun-22	08-Sep-22	21-Sep-22	89	S5WS2P1090	S5WS2P1110	[Gantt bars: blue, green, red]																																																																							
S5WS2P1110	Delivery of 380V Switchboard	60	25-Jun-22	23-Aug-22	22-Sep-22	20-Nov-22	89	S5WS2P1100	S5CHPC1260	[Gantt bars: blue, green, red]																																																																							
S5WS2P1120	Fabrication & Delivery of Lift	210	18-Dec-21 A	15-Jul-22	28-Jun-23	22-Aug-23	403		S5WS2C1190	[Gantt bars: blue, green, red]																																																																							
Installation		702	31-Dec-21 A	23-Dec-23	18-Jan-22	20-Dec-23	-3																																																																										
S5WS2C1000	Mobilisation	14	31-Dec-21 A	12-Mar-22 A	18-Jan-22	18-Jan-22		AD1120, S5S1030	S5WS2C1010, S5WS2C1050	[Gantt bars: blue, green, red]																																																																							
CLP Substation		324	14-Mar-22 A	07-Feb-23	18-Jan-22	03-Apr-23	55																																																																										
S5WS2C1010	BS Fitting Installation (at CLP Sub-station in Workshop No.2)	60	14-Mar-22 A	11-Jun-22	18-Jan-22	08-Feb-22	-123	S5WS2C1000, AD1120	KD1060, S5WS2C1020, S5WS2C1050, KD1060-1	[Gantt bars: blue, green, red]																																																																							
S5WS2C1020	Inspections, Rectification & H/O to CLP	60	12-Jun-22	10-Aug-22	06-Aug-22	04-Oct-22	55	S5WS2C1010	S5WS2C1030	[Gantt bars: blue, green, red]																																																																							
S5WS2C1030	E&M Installation of HV Transformer (By CLP)	180	11-Aug-22	06-Feb-23	05-Oct-22	02-Apr-23	55	S5WS2C1020	S5WS2C1040	[Gantt bars: blue, green, red]																																																																							
S5WS2C1040	Energisation (By CLP)	1	07-Feb-23	07-Feb-23	03-Apr-23	03-Apr-23	55	S5WS2C1030, S5WS2C1060, S5S1000	S5TXRT1010	[Gantt bars: blue, green, red]																																																																							
HV Switchroom / Transformer Room / LV Switchroom		610	11-Apr-22 A	23-Dec-23	22-Jan-22	17-Nov-23	-36																																																																										
S5WS2C1050	BS Fitting Installation	60	11-Apr-22 A	03-Oct-22	22-Jan-22	08-Mar-22	-209	S5WS2C1000, S5WS2C1010, S5P1140	S5WS2C1060, S5WS2C1140	[Gantt bars: blue, green, red]																																																																							
S5WS2C1060	HV Switchroom Installation	60	04-Oct-22	02-Dec-22	12-Jun-22	10-Aug-22	-114	S5WS2C1050, S5WS2P1080	S5WS2C1130, S5TXRT1010, S5WS2C1040, S5CHPC1140, S5WS2C1070, S5WS2T1000	[Gantt bars: blue, green, red]																																																																							
S5WS2C1070	TX Room Installation	60	03-Dec-22	31-Jan-23	21-Jul-23	18-Sep-23	230	S5WS2C1060	S5WS2C1080, S5WS2T1000	[Gantt bars: blue, green, red]																																																																							
S5WS2C1080	LV Switchroom Installation	60	01-Feb-23	01-Apr-23	19-Sep-23	17-Nov-23	230	S5WS2C1070	S5WS2T1000	[Gantt bars: blue, green, red]																																																																							
S5WS2C1090	Access to Other Peripheral Systems (Impacted by EWN-0314)	1	14-Mar-23*	14-Mar-23	06-Nov-22	06-Nov-22	-128		S5WS2C1110	[Gantt bars: blue, green, red]																																																																							
S5WS2C1100	Access to Other Peripheral Systems (Impacted by EWN-0314-1)	1	31-Jul-23*	31-Jul-23	06-Nov-22	06-Nov-22	-267		S5WS2C1110	[Gantt bars: blue, green, red]																																																																							
S5WS2C1110	Main Cables Laying between Workshop No.2 & Tx Rm for CHP Bldg	60	01-Aug-23	29-Sep-23	07-Nov-22	05-Jan-23	-267	S5CHPC1190, S5WS2C1090, S5WS2C1100	S5CHPT1020, S5DIGT1010, S5WS2C1120, S5WS2T1010, S5BIOT1000, S5THPT1000, S5H2ST1000, S5WGBT1000, S5DOOUT1010, S5SPST1000, S5TCWT1000, S5FCDT1000	[Gantt bars: blue, green, red]																																																																							
S5WS2C1120	Main Cables Laying between Workshop No.2 & Tx Rm for Sludge Dewatering Bldg	70	31-Aug-23	08-Nov-23	07-Dec-22	14-Feb-23	-267	S5WS2C1110	S5SDBT1020, S5WS2C1130	[Gantt bars: blue, green, red]																																																																							
S5WS2C1130	Main Cables Laying between Workshop No.2 & Tx Rm for UV System No.1	75	10-Oct-23	23-Dec-23	16-Jan-23	31-Mar-23	-267	S5WS2C1060, S5WS2C1120	S5TXRT1010, S5PSWT1000, S5DOOUT1000, S5SHPT1000	[Gantt bars: blue, green, red]																																																																							
Building Services		500	16-Jul-22	27-Nov-23	09-Mar-22	20-Dec-23	23																																																																										
S5WS2C1140	Installation of FS System	90	04-Oct-22	01-Jan-23	09-Mar-22	06-Jun-22	-209	S5WS2C1050, S5S1120	S5WS2C1150, S5S1130, S5WS2C1160	[Gantt bars: blue, green, red]																																																																							
S5WS2C1150	Installation of MVAC System	150	02-Jan-23	31-May-23	25-Jun-23	21-Nov-23	174	S5WS2C1140, S5P1140	S5S1220	[Gantt bars: blue, green, red]																																																																							
S5WS2C1160	Installation of Electrical System	150	02-Jan-23	31-May-23	07-Jun-22	03-Nov-22	-209	S5WS2C1140, S5P1130	S5WS2C1170	[Gantt bars: blue, green, red]																																																																							
S5WS2C1170	Installation of Plumbing System	90	01-Jun-23	29-Aug-23	04-Nov-22	01-Feb-23	-209	S5WS2C1160	S5WS2C1180, S5S1160	[Gantt bars: blue, green, red]																																																																							




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30-Apr-22	Rev.21	LT	KM
31-May-22	Rev.22	LT	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020				2021				2022				2023				2024				2025							
										A	S	D	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J	F	A	J	J	A	S	N	J
S5WS2C1180	Installation of SCADA System / Control Monitoring System / Gas Detection System / CCTV	150	01-Jul-23	27-Nov-23	04-Dec-22	02-May-23	-209	S5WS2C1170, S5P1110	S5T1200, S5T1000, S5T1010, S5T1020, S5T1030, S5T1000, S5T1010, S5T1020, S5T1030																												
S5WS2C1190	Installation of Lift	120	16-Jul-22	12-Nov-22	23-Aug-23	20-Dec-23	403	S5WS2P1120	S5WS2T1020																												
Testing and Commissioning		424	02-Apr-23	29-May-24	18-Nov-23	18-Feb-24	-101																														
S5WS2T1000	SAT for Transformer & Switchboard	30	02-Apr-23	01-May-23	18-Nov-23	17-Dec-23	230	S5WS2C1080, S5WS2C1070, S5WS2C1060	S5WS2T1010																												
S5WS2T1010	Ready for Power Energisation	3	28-Mar-24	30-Mar-24	18-Dec-23	20-Dec-23	-101	S5WS2T1000, S5WS2C1110, S5CHPC1190, S5EXAC1030	S5WS2T1020																												
S5WS2T1020	SAT for Lift	60	31-Mar-24	29-May-24	21-Dec-23	18-Feb-24	-101	S5WS2C1190, S5WS2T1010	S5S1090																												
Biogas Storage		861	29-Nov-21 A	29-Apr-24	03-May-22	20-Jun-23	-314																														
Fabrication, FAT & Delivery of Major Plant & Materials		332	29-Nov-21 A	17-Nov-22	03-May-22	17-Jan-23	61																														
S5BIOP1000	Fabrication & Delivery of Biogas Booster and Transfer Pumps	180	22-May-22	17-Nov-22	22-Jul-22	17-Jan-23	61	S5P1000	S5BIOC1020																												
S5BIOP1010	Fabrication & Delivery of Biogas Storage	180	29-Nov-21 A	18-Jun-22	03-May-22	31-May-22	-18	S2P1050, S2D1530	S5BIOC1020, S5BIOC1030, S5BIOC1040																												
Installation		361	30-Jul-22	25-Jul-23	07-May-22	02-May-23	-84																														
S5BIOC1000	Access to Biogas Holding Tanks (Impacted by EWN-0314-1)	1	30-Jul-22*	30-Jul-22	07-May-22	07-May-22	-84		S5BIOC1010																												
S5BIOC1010	Mobilisation	30	31-Jul-22	29-Aug-22	08-May-22	06-Jun-22	-84	AD1100, S5BIOC1000	S5BIOC1020																												
S5BIOC1020	E&M Installation of Biogas Storage Tank 1	240	15-Aug-22	11-Apr-23	23-May-22	17-Jan-23	-84	AD1100, S5BIOP1010, S5S1060, S5BIOP1000, S5BIOC1010, S5P1130	S5BIOC1030, S5BIOT1000																												
S5BIOC1030	E&M Installation of Biogas Storage Tank 2	240	30-Aug-22	26-Apr-23	07-Jun-22	01-Feb-23	-84	AD1100, S5BIOC1020, S5BIOP1010, S5P1130	S5BIOC1040, S5WGBC1020, S5BIOT1000																												
S5BIOC1040	E&M Installation of Biogas Storage Tank 3	210	28-Nov-22	25-Jun-23	05-Sep-22	02-Apr-23	-84	AD1100, S5BIOC1030, S5BIOP1010, S5P1130	S5BIOT1010, S5BIOC1050, S5BIOT1000																												
S5BIOC1050	BS Installation for Biogas Holding Tanks	60	27-May-23	25-Jul-23	04-Mar-23	02-May-23	-84	S5THPC1040, S5BIOC1040, S5P1110	S5S1160, S5T1000, S5T1010, S5T1020, S5T1030																												
Testing and Commissioning		33	28-Mar-24	29-Apr-24	19-May-23	20-Jun-23	-314																														
S5BIOT1000	Ready for Power Energisation	3	28-Mar-24	30-Mar-24	19-May-23	21-May-23	-314	S5BIOC1040, S5BIOC1030, S5BIOC1020, S5WS2C1110, S5EXAC1030	S5BIOT1010																												
S5BIOT1010	SAT for Biogas Storage System	30	31-Mar-24	29-Apr-24	22-May-23	20-Jun-23	-314	S5BIOC1040, S5CHPT1020, S5BIOT1000	S5T1070																												
THP Area		994	29-Jun-21 A	29-Apr-24	18-Sep-22	06-May-23	-359																														
Fabrication, FAT & Delivery of Major Plant & Materials		315	29-Jun-21 A	25-Jun-22	18-Sep-22	23-Oct-22	120																														
S5THPP1000	Fabrication of THP System	300	29-Jun-21 A	18-Mar-22 A	18-Sep-22	18-Sep-22		S2P1040, S2D1410, S2D1370	S5THPP1010																												
S5THPP1010	FAT for THP System	14	03-Jan-22 A	21-May-22	18-Sep-22	18-Sep-22	120	S5THPP1000	S5THPP1020																												
S5THPP1020	Delivery of THP System	60	29-Mar-22 A	25-Jun-22	19-Sep-22	23-Oct-22	120	S5THPP1010	S5THPC1020																												
Installation		196	30-Jun-22	11-Jan-23	23-Oct-22	02-May-23	111																														
S5THPC1000	Access to THP Area (Impacted by EWN-0314)	1	30-Jun-22*	30-Jun-22	23-Oct-22	23-Oct-22	115		S5THPC1020																												
S5THPC1010	Access to THP Area (Impacted by EWN-0314-1)	1	30-Jul-22*	30-Jul-22	23-Oct-22	23-Oct-22	85		S5THPC1020																												



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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
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31-Jan-22	Rev.18	LT	KM
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Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020				2021				2022				2023				2024				2025			
										J	F	A	S	J	F	A	S	J	F	A	S	J	F	A	S	J	F	A	S	J	F	A	S
S5PSWT1000	Ready for Power Energisation	3	27-Dec-23	29-Dec-23	04-Apr-23	06-Apr-23	-267	S5PSWC1000, S5WS2C1130, S5EXAC1040, S5TXRT1010	S5PSWT1010																								
S5PSWT1010	SAT & System Commissioning Tests for Plant Services Water System	45	30-Dec-23	12-Feb-24	07-Apr-23	21-May-23	-267	S5PSWT1000, S5UVPC1000	S5T1060																								
DO Area		725	10-Mar-22 A	14-May-24	18-Oct-22	20-Jun-23	-329																										
Fabrication, FAT & Delivery of Major Plant & Materials		150	10-Mar-22 A	06-Aug-22	18-Oct-22	03-Jan-23	150																										
S5DOUP1000	Fabrication & Delivery of DO System	150	10-Mar-22 A	06-Aug-22	18-Oct-22	03-Jan-23	150	S2P1150, S2D1930	S5DOUC1030, S5DOUC1040																								
Installation		213	31-Aug-22	31-Mar-23	03-Jan-23	03-May-23	33																										
S5DOUC1000	Access to DO Area (Impacted by EWN-0314)	1	31-Aug-22*	31-Aug-22	03-Jan-23	03-Jan-23	125		S5DOUC1030, S5DOUC1040																								
S5DOUC1010	Access to DO Area No.11 (Impacted by EWN-0314-1)	1	31-Oct-22*	31-Oct-22	03-Jan-23	03-Jan-23	64		S5DOUC1030																								
S5DOUC1020	Access to DO Area No.12 (Impacted by EWN-0314-1)	1	31-Dec-22*	31-Dec-22	02-Feb-23	02-Feb-23	33		S5DOUC1040																								
S5DOUC1030	E&M Installation of DO System No.11	90	01-Nov-22	29-Jan-23	04-Jan-23	03-Apr-23	64	AD1100, S5DOUP1000, S5DOUC1000, S5DOUC1010, S5P1130	S5DOUT1000																								
S5DOUC1040	E&M Installation of DO System No.12	90	01-Jan-23	31-Mar-23	03-Feb-23	03-May-23	33	AD1100, S5DOUP1000, S5DOUC1000, S5DOUC1020, S5P1130	S5DOUT1010																								
Testing and Commissioning		140	27-Dec-23	14-May-24	04-Apr-23	20-Jun-23	-329																										
S5DOUT1000	Ready for Power Energisation of DO No.11	3	27-Dec-23	29-Dec-23	04-Apr-23	06-Apr-23	-267	S5DOUC1030, S5WS2C1130, S5EXAC1040, S5TXRT1010	S5DOUT1020																								
S5DOUT1010	Ready for Power Energisation of DO No.12	3	28-Mar-24	30-Mar-24	04-May-23	06-May-23	-329	S5DOUC1040, S5WS2C1110, S5EXAC1030	S5DOUT1030																								
S5DOUT1020	SAT & System Commissioning Tests for DO System No.11	45	30-Dec-23	12-Feb-24	07-Apr-23	21-May-23	-267	S5DOUT1000	S5T1060																								
S5DOUT1030	SAT & System Commissioning Tests for DO System No.12	45	31-Mar-24	14-May-24	07-May-23	20-Jun-23	-329	S5DOUT1010	S5T1080																								
Sewage Pump Station		695	21-May-22	14-Apr-24	23-Jul-22	21-May-23	-329																										
Fabrication, FAT & Delivery of Major Plant & Materials		194	21-May-22	30-Nov-22	23-Jul-22	01-Feb-23	63																										
S5SPSP1000	Fabrication & Delivery of Sewage Pump	150	21-May-22	17-Oct-22	23-Jul-22	19-Dec-22	63	S2P1180, S2D1940	S5SPSC1000																								
S5SPSP1010	Fabrication & Delivery of LV Switchboard	90	02-Sep-22	30-Nov-22	04-Nov-22	01-Feb-23	63		S5SPSC1000																								
Installation		120	01-Nov-22	28-Feb-23	03-Jan-23	02-May-23	63																										
S5SPSC1000	E&M Installation of Sewage Pump	60	01-Nov-22	30-Dec-22	03-Jan-23	03-Mar-23	63	AD1100, S5SPSP1000,	S5SPSC1010, S5SPST1000,																								
S5SPSC1010	BS Installation for Sewage Pumping Station	60	31-Dec-22	28-Feb-23	04-Mar-23	02-May-23	63	S5SPSC1000, S5P1140	S5S1160, S5T1000, S5T1010, S5T1020, S5T1030																								
Testing and Commissioning		471	31-Dec-22	14-Apr-24	04-Apr-23	21-May-23	-329																										
S5SPST0990	SAT of Switchboard	30	31-Dec-22	29-Jan-23	04-Apr-23	03-May-23	94	S5SPSC1000	S5SPST1000																								
S5SPST1000	Ready for Power Energisation	3	28-Mar-24	30-Mar-24	04-May-23	06-May-23	-329	S5SPSC1000, S5WS2C1110, S5EXAC1030,	S5SPST1010																								
S5SPST1010	SAT & System Commissioning Tests for Sewage Pumping Station	15	31-Mar-24	14-Apr-24	07-May-23	21-May-23	-329	S5SPST1000	S5T1060																								
THP Cooling Water Transfer Pumping Station		681	04-Jun-22	14-Apr-24	21-Sep-22	06-May-23	-344																										
Fabrication, FAT & Delivery of Major Plant & Materials		150	04-Jun-22	31-Oct-22	21-Sep-22	17-Feb-23	109																										
S5TCWP1000	Fabrication & Delivery of THP Cooling Pump	150	04-Jun-22	31-Oct-22	21-Sep-22	17-Feb-23	109	S2P1210, S2D1970, S2D1370	S5TCWC1020																								
Installation		184	30-Jun-22	30-Dec-22	17-Feb-23	18-Apr-23	109																										
S5TCWC1000	Access to THP CW Transfer Pumping Station (Impacted by EWN-0314)	1	30-Jun-22*	30-Jun-22	17-Feb-23	17-Feb-23	232		S5TCWC1020																								
S5TCWC1010	Access to THP CW Transfer Pumping Station (Impacted by EWN-0314-1)	1	31-Oct-22*	31-Oct-22	17-Feb-23	17-Feb-23	109		S5TCWC1020																								
S5TCWC1020	E&M Installation of THP Cooling Pump	60	01-Nov-22	30-Dec-22	18-Feb-23	18-Apr-23	109	AD1100, S5TCWP1000, S5TCWC1000, S5TCWC1010	S5TCWT1000																								
Testing and Commissioning		18	28-Mar-24	14-Apr-24	19-Apr-23	06-May-23	-344																										



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- Remaining Work
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Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2020												2021												2022												2023												2024												2025											
										Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S5T1020	SAT of CMMS	180	28-Nov-23	25-May-24	03-May-23	29-Oct-23	-209	S5TXRC1050, S5WS2C1180, S5SDBC1090, S5SDBC1190, S5SDBC1390, S5CHPC1120, S5CHPC1250, S5TXRC1050, S5DIGC1270, S5WS2C1180, S5BIOC1050, S5THPC1040, S5SPSC1010	S5T1040																																																																								
S5T1030	SAT of IDMS	180	28-Nov-23	25-May-24	03-May-23	29-Oct-23	-209	S5TXRC1050, S5WS2C1180, S5SDBC1090, S5SDBC1190, S5SDBC1390, S5CHPC1120, S5CHPC1250, S5TXRC1050, S5DIGC1270, S5WS2C1180, S5BIOC1050, S5THPC1040, S5SPSC1010	S5T1040																																																																								
S5T1040	Overall Testing for Whole System	90	26-May-24	23-Aug-24	30-Oct-23	27-Jan-24	-209	S5T1000, S5T1010, S5T1020, S5T1030	SC51110, S5T1140																																																																								
T&C of E&M Process		400	16-Mar-24	19-Apr-25	22-Apr-23	25-Apr-24	-359																																																																										
S5T1050	System Commissioning Tests for THP System	30	30-Apr-24	29-May-24	07-May-23	05-Jun-23	-359	S5THPT1010, S5EXAC1020, S5T1060, S5TCWT1010	S5T1120, S5T1080, S5T1110																																																																								
S5T1060	System Commissioning Tests for Sludge Dewatering System	30	16-Mar-24	14-Apr-24	22-Apr-23	21-May-23	-329	S5SDBT1030, S5EHC1000, S5SDBT1040, S5SDBC1390, S5SDBT1000, S5DOUT1020, S5SPST1010, S5PSWT1010, S5SAST1000, S5EHC1000	S5T1120, S5T1110, PL1520, S5T1050																																																																								
S5T1070	System Commissioning Tests for Biogas Storage System	30	30-May-24	28-Jun-24	06-Jun-23	05-Jul-23	-359	S5BIOT1010, S5T1080	S5T1120, S5T1110, S5S1070, S5T1100																																																																								
S5T1080	System Commissioning Tests for Sludge Digestion System	30	15-May-24	13-Jun-24	22-May-23	20-Jun-23	-359	S5DIGT1020, S5T1050, S5DIGC1270, S5H2ST1010, S5DOUT1030, S5FCDT1010	S5T1120, S5T1110, S5T1070																																																																								
S5T1090	System Commissioning Tests for Gas Burning System	30	29-Jun-24	28-Jul-24	06-Jul-23	04-Aug-23	-359	S5WGBT1010, S5T1100	S5T1120, S5T1110																																																																								
S5T1100	System Commissioning Tests for CHP System	30	14-Jun-24	13-Jul-24	21-Jun-23	20-Jul-23	-359	S5CHPT1030, S5S1310, S5CHPC1120, S5CHPT1000, S5CHPC1250, S5CHPT1040, S5CHPT1050, S5T1070	S5T1120, S5T1110, PL1560, S5T1090																																																																								
S5T1110	Seeding	14	15-Jul-24	28-Jul-24	22-Jul-23	04-Aug-23	-359	S5T1090, S5T1070, S5T1080, S5T1100, S5T1060, S5T1050, S5SAST1000	PL1210, S5T1120																																																																								

	File Name: DE/2018/03 RP R22 Layout: DE1803 RP (May 2022) - WBS Page 39 of 41	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Remaining Work</p> <p>■ Critical Activity</p> <p>◆ Milestone</p> <p>■ Actual Progress</p> </div> <div style="width: 45%; text-align: center;"> <p>Contract No. DE/2018/03</p> <p>Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1</p> <p>Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities</p> <p>Revised Programme - as at 20 May 2022</p> </div> </div>	<table border="1"> <thead> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>31-Jan-22</td> <td>Rev.18</td> <td>LT</td> <td>KM</td> </tr> <tr> <td>28-Feb-22</td> <td>Rev.19</td> <td>LT</td> <td>KM</td> </tr> <tr> <td>31-Mar-22</td> <td>Rev.20</td> <td>LT</td> <td>KM</td> </tr> <tr> <td>30-Apr-22</td> <td>Rev.21</td> <td>LT</td> <td>KM</td> </tr> <tr> <td>31-May-22</td> <td>Rev.22</td> <td>LT</td> <td>KM</td> </tr> </tbody> </table>	Date	Revision	Checked	Approved	31-Jan-22	Rev.18	LT	KM	28-Feb-22	Rev.19	LT	KM	31-Mar-22	Rev.20	LT	KM	30-Apr-22	Rev.21	LT	KM	31-May-22	Rev.22	LT	KM
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S5T1120	Process Start Up - Digester 1	120	29-Jul-24	25-Nov-24	05-Aug-23	02-Dec-23	-359	S5T1090, S5T1070, S5T1080, S5T1100, S5T1060, S5T1050, S5T1110, S5S1080, S5TXRC1050, S5SAST1000	S5T1150, S5T1130, PL1400, S3T1130, S3T1150	[Gantt bar from 29-Jul-24 to 25-Nov-24]																																															
S5T1130	Notice to Commence Phase 1 System Commissioning - Digester 1	3	26-Nov-24	28-Nov-24	25-Jan-24	27-Jan-24	-306	S5T1120	S5T1140	[Gantt bar from 26-Nov-24 to 28-Nov-24]																																															
S5T1140	Phase 1 System Commissioning - Digester 1	30	29-Nov-24	28-Dec-24	28-Jan-24	26-Feb-24	-306	S5T1130, S5T1040	S5T1180	[Gantt bar from 29-Nov-24 to 28-Dec-24]																																															
S5T1150	Process Start Up - Digester 2	120	20-Sep-24	17-Jan-25	27-Sep-23	24-Jan-24	-359	S5T1120	S5T1160	[Gantt bar from 20-Sep-24 to 17-Jan-25]																																															
S5T1160	Notice to Commence Phase 1 System Commissioning - Digester 2	3	18-Jan-25	20-Jan-25	25-Jan-24	27-Jan-24	-359	S5T1150	S5T1170	[Gantt bar from 18-Jan-25 to 20-Jan-25]																																															
S5T1170	Phase 1 System Commissioning - Digester 2	30	21-Jan-25	19-Feb-25	28-Jan-24	26-Feb-24	-359	S5T1160	S5T1180	[Gantt bar from 21-Jan-25 to 19-Feb-25]																																															
S5T1180	Phase 2 System Commissioning - Digester 1 & 2	7	20-Feb-25	26-Feb-25	27-Feb-24	04-Mar-24	-359	S5T1170, S5T1140	S5T1190, PL1210, PL1310, S3T1180, S3T1160	[Gantt bar from 20-Feb-25 to 26-Feb-25]																																															
S5T1190	Notice to Commence Plant Commissioning	7	27-Feb-25	05-Mar-25	05-Mar-24	11-Mar-24	-359	S5T1180	S5T1200	[Gantt bar from 27-Feb-25 to 05-Mar-25]																																															
S5T1200	Plant Commissioning Tests	45	06-Mar-25	19-Apr-25	12-Mar-24	25-Apr-24	-359	S5T1190, S5S1020, S5TXRC1050, S5WS2C1180, S5S1150, S3T1160	SC51110, PL1210	[Gantt bar from 06-Mar-25 to 19-Apr-25]																																															
Statutory Submission / Inspection			1185	03-Oct-20 A	04-Aug-24	18-Jan-22	07-May-24	-89																																																	
CLP Submission			275	30-May-21 A	21-May-22	07-May-22	07-May-22	-14																																																	
S5S1000	Submission & Approval of Electrical Schematic Wiring Diagram to CLP	275	30-May-21 A	21-May-22	07-May-22	07-May-22	-14		S5WS2C1040, S5WS2P1060	[Blue bar from 30-May-21 to 21-May-22]																																															
EPD Submission / Inspection			477	28-Aug-21 A	17-Dec-22	28-Apr-22	24-Oct-22	-54																																																	
S5S1010	EPD Submission & Approval for Air Pollution Control - Genset	180	21-Jun-22	17-Dec-22	28-Apr-22	24-Oct-22	-54	S2D1860	S5SDBC1200	[Red bar from 21-Jun-22 to 17-Dec-22]																																															
S5S1020	EPD Submission & Approval for Air Pollution Control - CHP & Burner	180	28-Aug-21 A	30-Jul-22	26-May-22	26-May-22	-65	S2D1610	S5T1200, S5THPC1020, S5CHPC1020	[Blue bar from 28-Aug-21 to 30-Jul-22]																																															
EMSD Submission / Inspection			1185	03-Oct-20 A	04-Aug-24	18-Jan-22	07-May-24	-89																																																	
S5S1030	BEE0 Stage one: Submit EE1 & EE-SU to EMSD	60	03-Oct-20 A	02-Dec-20 A	18-Jan-22	18-Jan-22		S2D1890	S5WS2C1000	[Blue bar from 03-Oct-20 to 02-Dec-20]																																															
S5S1040	BEE0 Stage two: Submit EE2 & EE-SU to EMSD	60	16-May-24	14-Jul-24	09-Mar-24	07-May-24	-68	S5S1250	SC51120	[Red bar from 16-May-24 to 14-Jul-24]																																															
S5S1050	Application & Approval of the Zone Classification of Hazardous Area - including Fire Risk Assessment Report	180	15-Nov-21 A	12-Jun-22	30-Apr-22	22-May-22	-21	S2D1070	S5S1070, S5S1060	[Blue bar from 15-Nov-21 to 12-Jun-22]																																															
S5S1060	Application for Construction Approval of Notifiable Gas Installation (Form 104)	180	15-Nov-21 A	12-Jun-22	30-Apr-22	22-May-22	-21	S2D1070, S5S1050	S5S1070, S5BIOC1020	[Blue bar from 15-Nov-21 to 12-Jun-22]																																															
S5S1070	Application for Approval of Use of Notifiable Gas Installation (Form 105)	28	15-Jun-24	12-Jul-24	24-Jun-23	21-Jul-23	-357	S5S1060, S5T1070, S5S1050	S5S1080	[Red bar from 15-Jun-24 to 12-Jul-24]																																															
S5S1080	EMSD Inspection - Gas Holding Tanks	14	13-Jul-24	26-Jul-24	22-Jul-23	04-Aug-23	-357	S5S1070	S5T1120	[Red bar from 13-Jul-24 to 26-Jul-24]																																															
S5S1090	Form 5 Submission to EMSD - Lift Installation	0	30-May-24		19-Feb-24		-101	S5SDBT1050, S5WS2T1020	S5S1100	[Milestone diamond at 19-Feb-24]																																															
S5S1100	EMSD Inspection - Lift Installation	7	29-Jun-24	05-Jul-24	20-Mar-24	26-Mar-24	-101	S5S1090	S5S1110	[Red bar from 29-Jun-24 to 05-Jul-24]																																															
S5S1110	Issuance of Form 6 - Lift Installation	0		04-Aug-24		25-Apr-24	-101	S5S1100	SC51110	[Milestone diamond at 25-Apr-24]																																															
WSD Submission / Inspection			884	01-Jul-21 A	01-Dec-23	09-Mar-22	25-Apr-24	146																																																	
S5S1120	Submit WWO46 Part I / II to WSD (FS/PD)	30	01-Jul-21 A	30-Jul-21 A	09-Mar-22	09-Mar-22		S2D1910, S2D1860, S2D1870, S2D1880, S2D1890, S2D1900	S5S1130, S5WS2C1140, S5SHPC1020, S5DIGC1300	[Blue bar from 01-Jul-21 to 30-Jul-21]																																															
S5S1130	Submit WWO46 Part IV to WSD (FS)	0	02-Jan-23		13-Sep-23		254	S5S1120, S5WS2C1140, S5SHPC1020	S5S1140, S5S1150	[Milestone diamond at 13-Sep-23]																																															
S5S1140	WSD Inspection (FS)	28	16-Jan-23	12-Feb-23	27-Sep-23	24-Oct-23	254	S5S1130	S5S1250, S5S1150	[Green bar from 16-Jan-23 to 12-Feb-23]																																															
S5S1150	Issuance of FS Water Certificate	0		12-Mar-23		21-Nov-23	254	S5S1130, S5S1140	S5T1200, S5S1220	[Milestone diamond at 21-Nov-23]																																															



■ Remaining Work
■ Critical Activity
■ Actual Progress
◆ Milestone

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities
Revised Programme - as at 20 May 2022

Date	Revision	Checked	Approved
31-Jan-22	Rev.18	LT	KM
28-Feb-22	Rev.19	LT	KM
31-Mar-22	Rev.20	LT	KM
30-Apr-22	Rev.21	LT	KM
31-May-22	Rev.22	LT	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (2020-2025)																																															
										2020				2021				2022				2023				2024				2025																											
S5S1160	Submit WWO46 Part IV to WSD (PD)	0	30-Aug-23		23-Jan-24		146	S5THPC1040, S5BIOC1050, S5SPSC1010, S5SDBC1380, S5CHPC1240, S5CHPC1110, S5DIGC1300, S5WS2C1170	S5S1170	[Gantt Chart Data]																																															
S5S1170	WSD Inspection	7	13-Sep-23	19-Sep-23	06-Feb-24	12-Feb-24	146	S5S1160	S5S1180	[Gantt Chart Data]																																															
S5S1180	Issuance of Form WWO46 Part Va	0		03-Oct-23		26-Feb-24	146	S5S1170	S5S1200, S5S1190	[Gantt Chart Data]																																															
S5S1190	System Flushing / Sampling	45	04-Oct-23	17-Nov-23	27-Feb-24	11-Apr-24	146	S5S1180	S5S1200	[Gantt Chart Data]																																															
S5S1200	Issuance of Form WWO46 Part Vb	0		17-Nov-23		11-Apr-24	146	S5S1180, S5S1190	S5S1210	[Gantt Chart Data]																																															
S5S1210	Issuance of Water Certificate	0		01-Dec-23		25-Apr-24	146	S5S1200	SC51110	[Gantt Chart Data]																																															
FSD Submission / Inspection		695	21-Jun-22	15-May-24	28-Apr-22	08-Mar-24	-68			[Gantt Chart Data]																																															
S5S1220	Prepare & Submit FSI/314 & FSI/501	14	29-Jan-24	11-Feb-24	22-Nov-23	05-Dec-23	-68	S5WS2C1150, S5S1310, S5S1150, S5EXAC1050, S5SDBC1350, S5EXAC1060, S5SDBC1360, S5CHPC1080, S5CHPC1090, S5CHPC1210, S5CHPC1220, S5DIGC1280, S5DIGC1290, S5SHPT1010	S5S1230	[Gantt Chart Data]																																															
S5S1230	FSD Review & Approval of FSI/314 & FSI/501	21	12-Feb-24	03-Mar-24	06-Dec-23	26-Dec-23	-68	S5S1220	S5S1240	[Gantt Chart Data]																																															
S5S1240	F.S. Inspection, Defects Rectification & Re-inspection	45	04-Mar-24	17-Apr-24	27-Dec-23	09-Feb-24	-68	S5S1230	S5S1250	[Gantt Chart Data]																																															
S5S1250	Issuance of Acceptance Letter	28	18-Apr-24	15-May-24	10-Feb-24	08-Mar-24	-68	S5S1240, S5S1140	SC51110, S5S1040	[Gantt Chart Data]																																															
S5S1260	Application of D.G. Licence	0	21-Jun-22		28-Apr-22		-54	S2D1860	S5S1270	[Gantt Chart Data]																																															
S5S1270	Processing of D.G. Licence Application	180	21-Jun-22	17-Dec-22	28-Apr-22	24-Oct-22	-54	S5S1260	S5S1280, S5SDBC1200	[Gantt Chart Data]																																															
S5S1280	Apply for D.G. Inspection	45	02-May-23	15-Jun-23	22-Feb-23	07-Apr-23	-69	S5S1270, S5SDBC1200, S5CHPC1150, S5FCDC1020	S5S1310, S5S1290	[Gantt Chart Data]																																															
S5S1290	D.G. Inspection, Defects Rectification & Re-inspection (Ventilation Division)	45	16-Jun-23	30-Jul-23	08-Apr-23	22-May-23	-69	S5S1280	S5S1310, S5S1300	[Gantt Chart Data]																																															
S5S1300	D.G. Inspection, Defects Rectification & Re-inspection (DG Division)	45	31-Jul-23	13-Sep-23	23-May-23	06-Jul-23	-69	S5S1290	S5S1310	[Gantt Chart Data]																																															
S5S1310	Issue D.G. Licence	14	14-Sep-23	27-Sep-23	07-Jul-23	20-Jul-23	-69	S5S1290, S5S1300, S5S1280	S5S1220, S5T1100	[Gantt Chart Data]																																															



File Name: DE/2018/03 RP R22
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- 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 May 2022

Date	Revision	Checked	Approved
31-Jan-22	Rev.18	LT	KM
28-Feb-22	Rev.19	LT	KM
31-Mar-22	Rev.20	LT	KM
30-Apr-22	Rev.21	LT	KM
31-May-22	Rev.22	LT	KM

Contract No. DE/2018/04
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
- E&M Works for Sewage Treatment Facilities
3 Month Rolling Programme (From 01/05/2022 to 01/08/2022)

Updated on: 20-Jun-22

Item	Major Activities & Submission in coming 3 months	Time					% of time elapsed based on "updated date")	Progress (E&M contract)				Action	Remarks / Status
		Contract Planned Commencement Date	Anticipated / Actual Commencement Date	Contract Planned Finish Date	Anticipated / Actual Finish 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												
	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	
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	KD3B: Submission of onsite survey report	7/11/2020	7/20/2020	7/16/2020	7/30/2021	Task Completed				100%	Bestwise	- 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: 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.
8/21/2020	8/21/2020	8/28/2020	12/7/2020	Task Completed				100%			
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-	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 reveiced on 17 Aug 2020. Subletting package would was submitted on 25 Feb 2021 and AECOM accepted on 1 Mar 2021
	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 reveiced 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 Comissioning	4/15/2021	4/22/2021	5/1/2021	7/15/2022	94%				-		Site Acceptance Test (72 hours) and defect rectification for BCM comments shall be completed by 15 July 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	7/30/2022	94%				-	Bestwise	All finalized design calculations for Inlet Works no.1 shall be submitted by 30 July 2022.
	Submission of P&M Submission	9/6/2020	9/7/2020	5/14/2021	7/30/2022	94%						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 July 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	7/30/2022	93%						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	7/30/2022	93%						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 July 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%				-		
	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	7/30/2022	93%					-	Bestwise	PFD (rev.B) under DWG0004 submitted on 22 June 2021. Finalized design calculations for PST shall be submitted by 30 July 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	7/30/2022	93%							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 July 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	7/30/2022	93%							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 July 2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	7/30/2022	93%							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 July 2022.
	Acceptance of submission	5/15/2021	4/2/2021	5/29/2021	7/30/2022	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 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	7/30/2022	93%							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	7/30/2022	93%							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 July 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%					-		
	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	7/30/2022	93%						-	Bestwise PFD (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 July 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	7/30/2022	93%							P&M0060 - Pre-treatment Fine Screen (status: C) 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: C) Finalized material submission shall be submitted by 30 July 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	7/30/2022	92%							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	7/30/2022	93%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 July 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%						-	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	7/30/2022	93%						-	Bestwise PFD (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 July 2022.

	Submission of P&M Submission	9/6/2020	11/19/2020	5/14/2021	7/30/2022	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: under RSS review) P&M0xxx - Chemical Tank (to be submitted) Finalized material submission shall be submitted by 30 July 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	7/30/2022	92%							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	7/30/2022	93%							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 July 2022.	
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%						-		
	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	7/30/2022	94%							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	7/30/2022	93%							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 July 2022.
		Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%					-		
		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	7/30/2022	94%					-	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	7/30/2022	93%							Bestwise submitted (rev.0) on 26 Jan 2021, AECOM commented on 4 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 July 2022.
		Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%					-		

	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	7/30/2022	95%					-	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	7/30/2022	92%							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 July 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%							
	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	7/30/2022	94%							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	7/30/2022	92%							GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 30 July 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/30/2022	91%							
	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	7/30/2022	93%							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 July 2022.
	Submission of detailed design for lifting appliances for Primary Sedimentation Tanks (CDS050-2)	9/6/2020	12/5/2020	9/6/2020	7/30/2022	93%							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 July 2022.
	Submission of detailed design for lifting appliances for BR 2A and 2B (CDS050-3)	9/6/2020	12/5/2020	9/6/2020	7/30/2022	93%							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 July 2022.
	Submission of detailed design for lifting appliances for MFB (CDS050-4)	9/6/2020	12/5/2020	9/6/2020	7/30/2022	93%							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 July 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	7/30/2022	93%							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 July 2022.
	Submission for Fire Services System	N/A	3/15/2021	N/A	7/30/2022	92%							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 July 2022.

	Submission for Plumbing and Drainage System	N/A	3/15/2021	N/A	7/30/2022	92%								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 July 2022.
	Submission for Electrical Services System	N/A	12/10/2020	N/A	7/30/2022	93%								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 July 2022.
	Submission of ELV system	N/A	1/8/2021	N/A	7/30/2022	93%								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 July 2022.
	Submission for PV system	N/A	3/15/2021	N/A	7/30/2022	92%								Tender package was submitted to AECOM. Finalized design shall be submitted by 30 July 2022.
SCADA System & PMS	Submission for SCADA system	N/A	2/11/2021	N/A	7/30/2022	93%								Revised SCADA structure was provided via email on 9 Apr 2021 and tender package is under preparation. Finalized design shall be submitted by 30 July 2022.
	Submission for PMS system	N/A	3/8/2021	N/A	7/30/2022	92%								Tender package to be resubmitted on 29 June 2021. Finalized design shall be submitted by 30 July 2022.
	Submission for CMMS & IDMS system	N/A	6/1/2021	N/A	7/30/2022	91%								Finalized design shall be submitted by 30 July 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 and actual time to be confirmed.
	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%				Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical
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%				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.

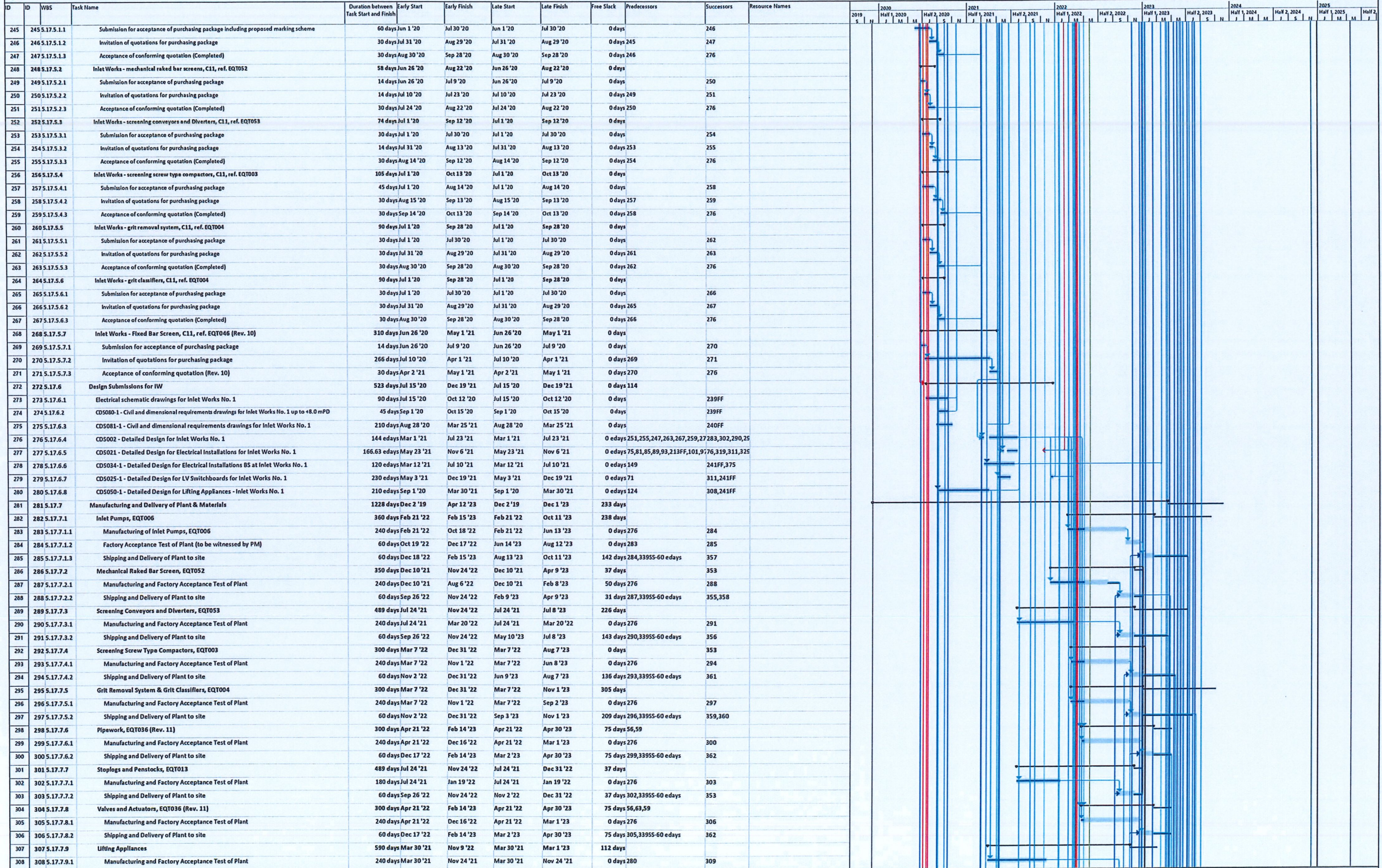
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Delivery	12/1/2020	12/1/2020	8/8/2021	7/13/2021	Task Completed					-		Handed over to DSD.
	Completion Date of Section 3: 22 September 2021												
Subcontracting													
	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						-	-	
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 ->	8/14/2020	15/05/2020 -	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)	30/05/2020 ->	8/15/2020	15/06/2020 ->	15/8/2020*	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->	9/9/2020	22/06/2020->	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-> 29/07/2020*	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*	7/15/2022	94%			-		Improvement works under PMI and defect rectification for BCM comments are on-going. - Replacement of butterfly valves by knife gate valves - Installation of air-conditioned enclosures for Alfa Laval LCPs - Replacement of existing thickened sludge transfer pumps by larger capacity ones - Testing and Commissioning (3 x 24hrs) to be commenced by End June 2022
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		-					

Table with columns: ID, WBS, Task Name, Duration, Start/Finish dates, Free Slack, Predecessors, Successors, Resource Names. Rows 53-116. Includes a Gantt chart on the right side showing task progress from 2019 to 2025.

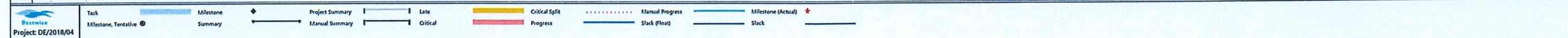
Legend for symbols: Task, Milestone, Project Summary, Late, Critical Split, Manual Progress, Milestone (Actual), Milestone, Tentative, Summary, Manual Summary, Critical, Progress, Slack (float), Slack.



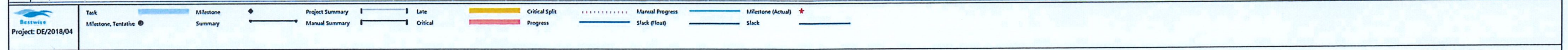
Legend for Gantt chart symbols and colors:

- Task (Blue bar)
- Milestone (Diamond symbol)
- Project Summary (Arrow symbol)
- Manual Progress (Dotted line)
- Milestone (Actual) (Red star symbol)
- Milestone, Tentative (Circle with dot symbol)
- Summary (Thick bar)
- Manual Summary (Thin bar)
- Critical (Yellow bar)
- Progress (Orange bar)
- Slack (Float) (Green 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
309	309.5.17.7.9.2	Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Jan 16 '23	Mar 1 '23	16 days	308,33955-60 edays	343	
310	310.5.17.7.10	LV Switchboards	345 days	Mar 16 '22	Feb 23 '23	Mar 16 '22	Nov 16 '23	266 days			
311	311.5.17.7.10.1	IW - Manufacturing of Plant	240 days	Mar 16 '22	Nov 10 '22	Mar 16 '22	Aug 3 '23	0 days	277,279,7755-90 edays	312	
312	312.5.17.7.10.2	IW - Factory Acceptance Test of Plant (to be witnessed by PM)	60 days	Nov 11 '22	Jan 9 '23	Aug 4 '23	Oct 2 '23	0 days	311	313	
313	313.5.17.7.10.3	IW - Shipping and Delivery of Plant to site	45 days	Jan 10 '23	Feb 23 '23	Oct 3 '23	Nov 16 '23	0 days	33955-60 edays,312	368	
314	314.5.17.7.11	HV Switchboards, 045C012	1074 days	Dec 2 '19	Nov 9 '22	Dec 2 '19	Nov 9 '22	0 days			
315	315.5.17.7.11.1	IW - Manufacturing of Plant	150 days	Dec 2 '19	Apr 29 '20	Dec 2 '19	Apr 29 '20	0 days		316	
316	316.5.17.7.11.2	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	315	317	
317	317.5.17.7.11.3	IW - Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Sep 26 '22	Nov 9 '22	0 days	316,33955-60 edays		
318	318.5.17.7.12	11kV/380V Stepdown Power Transformers, EQT032	369 days	Nov 6 '21	Nov 9 '22	Nov 6 '21	Nov 16 '23	372 days			
319	319.5.17.7.12.1	IW - Manufacturing and Factory Acceptance Test of Plant	240 days	Nov 6 '21	Jul 3 '22	Nov 6 '21	Oct 2 '23	84 days	277	320	
320	320.5.17.7.12.2	IW - Shipping and Delivery of Plant to site	45 days	Sep 26 '22	Nov 9 '22	Oct 3 '23	Nov 16 '23	60 days	319,33955-60 edays	369	
321	321.5.17.7.13	Building Services	180 days	Oct 15 '22	Apr 12 '23	Oct 15 '22	Apr 12 '23	0 days			
322	322.5.17.7.13.1	Equipment Delivery for Mechanical Ventilation and Air Conditioning System	180 days	Oct 15 '22	Apr 12 '23	Nov 17 '23	May 15 '24	0 days		388	
323	323.5.17.7.13.2	Equipment Delivery for Lighting and Power Distribution System	180 days	Oct 15 '22	Apr 12 '23	Nov 17 '23	May 15 '24	0 days		389	
324	324.5.17.7.13.3	Equipment Delivery for Plumbing Installation	180 days	Oct 15 '22	Apr 12 '23	Nov 27 '23	May 25 '24	0 days		390	
325	325.5.17.7.13.4	Equipment Delivery for CCTV Installation	180 days	Oct 15 '22	Apr 12 '23	Dec 17 '23	Jun 14 '24	0 days		391	
326	326.5.17.7.13.5	Equipment Delivery for Fire Services Installation	180 days	Oct 15 '22	Apr 12 '23	Nov 22 '23	May 20 '24	0 days		392	
327	327.5.17.7.13.6	Equipment Delivery for Earthing and Lightning Protection System	180 days	Oct 15 '22	Apr 12 '23	Nov 17 '23	May 15 '24	0 days		393	
328	328.5.17.7.14	PLC System	420 days	Nov 6 '21	Dec 30 '22	Nov 6 '21	Dec 1 '23	336 days			
329	329.5.17.7.14.1	Manufacturing of Plant, PLC for IW	300 days	Nov 6 '21	Sep 1 '22	Nov 6 '21	Aug 3 '23	0 days	277	330	
330	330.5.17.7.14.2	Factory Acceptance Test of Plant, PLC for IW (To be witnessed by PM)	60 days	Sep 2 '22	Oct 31 '22	Aug 4 '23	Oct 2 '23	0 days	329	331	
331	331.5.17.7.14.3	Shipping and Delivery of Plant to site	60 days	Nov 1 '22	Dec 30 '22	Oct 3 '23	Dec 1 '23	0 days	33955-60 edays,330	384	
332	332.5.17.7.15	Fixed Bar Screen, EQT046	489 days	Jul 24 '21	Nov 24 '22	Jul 24 '21	Jul 21 '23	239 days			
333	333.5.17.7.15.1	IW - Manufacturing and Factory Acceptance Test of Plant	240 days	Jul 24 '21	Mar 20 '22	Jul 24 '21	Mar 20 '22	0 days	276	334	
334	334.5.17.7.15.2	IW - Shipping and Delivery of Plant to site	45 days	Oct 11 '22	Nov 24 '22	Jun 7 '23	Jul 21 '23	143 days	333,33955-45 edays	354	
335	335.5.17.7.16	Electrical System	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days			
336	336.5.17.7.16.1	Equipment Delivery for Cable Containment	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days		370	
337	337.5.17.7.16.2	Equipment Delivery for Cable Provision	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days		371	
338	338.5.17.8	Site Installation Work	384 days	Nov 25 '22	Dec 13 '23	Nov 25 '22	Oct 27 '24	319 days			
339	339.5.17.8.1	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		343,341,342,2E	
340	340.5.17.8.2	Tentative Civil Handover Date, HV cables draw pits from MF82 to IW	1 day	Feb 14 '23	Feb 14 '23	Mar 15 '24	Mar 15 '24	129 days		373FF+30 days	
341	341.5.17.8.3	Commencement of E&M Installation at Inlet Works No. 1	376 days	Nov 26 '22	Dec 6 '23	Nov 26 '22	Oct 27 '24	0 days	339	395FS-30 days	
342	342.5.17.8.3.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, Welfare facilities etc.,	30 days	Nov 26 '22	Dec 25 '22	Nov 26 '22	Aug 12 '24	596 days	339		
343	343.5.17.8.3.2	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	339,309	3525S+30 days	
344	344.5.17.8.3.2.1	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	347,348	351 LA - A x 4*6 men	
345	345.5.17.8.3.2.2	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	347,348	351 LA - B x 4*6 men	
346	346.5.17.8.3.2.3	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	347,348	349,351 LA - C x 4*6 men	
347	347.5.17.8.3.2.4	UG EOT Crane LA-01-04 SWL 10t	45 days	Nov 26 '22	Jan 9 '23	Mar 2 '23	Apr 15 '23	0 days		344,345,346,35LA - A x 4*6 men	
348	348.5.17.8.3.2.5	UG EOT Crane LA-01-05 SWL 10t	45 days	Nov 26 '22	Jan 9 '23	Mar 2 '23	Apr 15 '23	0 days		344,345,346,35LA - B x 4*6 men	
349	349.5.17.8.3.2.6	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	346	351 LA - C x 4*6 men	
350	350.5.17.8.3.2.7	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		351	
351	351.5.17.8.3.2.8	T&C, Loading Test for Lifting Appliances	7 days	Apr 10 '23	Apr 16 '23	Jul 15 '23	Jul 21 '23	0 days	344,345,346,347,348,349,35354	LA - B x 4*6 men	
352	352.5.17.8.3.3	Mechanical Installations for Inlet Works No. 1	346 days	Dec 26 '22	Dec 6 '23	Jan 1 '23	Dec 6 '23	0 days	34355+30 days,129	3675S+14 days	
353	353.5.17.8.3.3.1	Installation of penstocks and stoplogs (Penstock 35nos, Stoplogs 37 nos), EQT013	120 days	Apr 30 '23	Jan 1 '23	Jan 1 '23	Apr 30 '23	0 days	292,286,303	362,363,366 ME - E x 4*6 men	
354	354.5.17.8.3.3.2	Installation of fixed bar screen (x1), EQT046	7 days	Apr 17 '23	Apr 23 '23	Jul 22 '23	Jul 28 '23	0 days	351,334	358 ME - D x 2*4 men	
355	355.5.17.8.3.3.3	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	288	356 ME - A x 4*6 men	
356	356.5.17.8.3.3.4	Installation of screening conveyors (x6), EQT053	30 days	Apr 17 '23	May 16 '23	Jul 9 '23	Aug 7 '23	0 days	343,355,291	361 ME - A x 4*6 men	
357	357.5.17.8.3.3.5	Installation of inlet pumps (x5), EQT006	21 days	Jul 8 '23	Jul 28 '23	Oct 12 '23	Nov 1 '23	0 days	343,3625S+14 days,358,363,359	ME - B x 4*6 men	
358	358.5.17.8.3.3.6	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	354,288	357 ME - B x 4*6 men	
359	359.5.17.8.3.3.7	Installation of grit removal system (x3), EQT004	14 days	Jul 29 '23	Aug 11 '23	Nov 2 '23	Nov 15 '23	0 days	357,297	360 ME - B x 4*6 men	
360	360.5.17.8.3.3.8	Installation of grit classifiers (x2), EQT004	21 days	Aug 12 '23	Sep 1 '23	Nov 16 '23	Dec 6 '23	96 days	359,297	ME - B x 4*6 men	
361	361.5.17.8.3.3.9	Installation of compactors (x2), EQT003	21 days	May 17 '23	Jun 6 '23	Aug 8 '23	Aug 28 '23	83 days	356,294	366 ME - A x 4*6 men	
362	362.5.17.8.3.3.10	Installation of pipework and valves, EQT036	30 days	May 1 '23	May 30 '23	May 1 '23	May 30 '23	0 days	353,300,306	3575S+14 days,ME - D x 2*4 men	
363	363.5.17.8.3.3.11	Pipework pressure tests	30 days	May 1 '23	May 30 '23	May 1 '23	May 30 '23	0 days	353	3575S+14 days,ME - D x 2*4 men	
364	364.5.17.8.3.3.12	Installation of instrumentations, EQT035-1	90 days	May 31 '23	Aug 28 '23	May 31 '23	Aug 28 '23	0 days	362,363,52	366 ME - A x 4*6 men	
365	365.5.17.8.3.3.13	Installation of Platforms, Covers etc, EQT050	180 days	Dec 26 '22	Jun 23 '23	Mar 2 '23	Aug 28 '23	66 days		366 ME - D x 2*4 men	
366	366.5.17.8.3.3.14	Site Acceptance Tests - mechanical aspects including alignment and levels checks, leakage tests, welding tests, installation checks, pressure tests etc.	100 days	Aug 29 '23	Dec 6 '23	Aug 29 '23	Dec 6 '23	0 days	353,361,364,365	ME - D x 2*4 men	
367	367.5.17.8.3.4	Electrical Installations for Inlet Works No. 1	326 days	Jan 9 '23	Nov 30 '23	Jun 13 '23	Aug 12 '24	155 days	3525S+14 days,134		
368	368.5.17.8.3.4.1	Installation of LV Switchboards, IW	60 days	Feb 24 '23	Apr 24 '23	Nov 17 '23	Jan 15 '24	0 days	313	371 LV - A x 4*6 men	
369	369.5.17.8.3.4.2	Installation of Transformer, IW, EQT032	60 days	Jan 9 '23	Mar 9 '23	Nov 17 '23	Jan 15 '24	0 days	320	371,372FS+30 ME - A x 4*6 men	
370	370.5.17.8.3.4.3	Installation of cable trays and cable containments	90 days	Jan 23 '23	Apr 8 '23	Oct 18 '23	Jan 15 '24	16 days	336	371 EE - C x 4*6 men	
371	371.5.17.8.3.4.4	Cables laying and terminations	90 days	Jan 25 '23	Apr 23 '23	Jan 16 '24	Apr 14 '24	0 days	368,369,370,384,337	373,385,374 EE - C x 4*6 men	

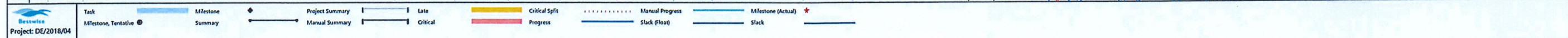


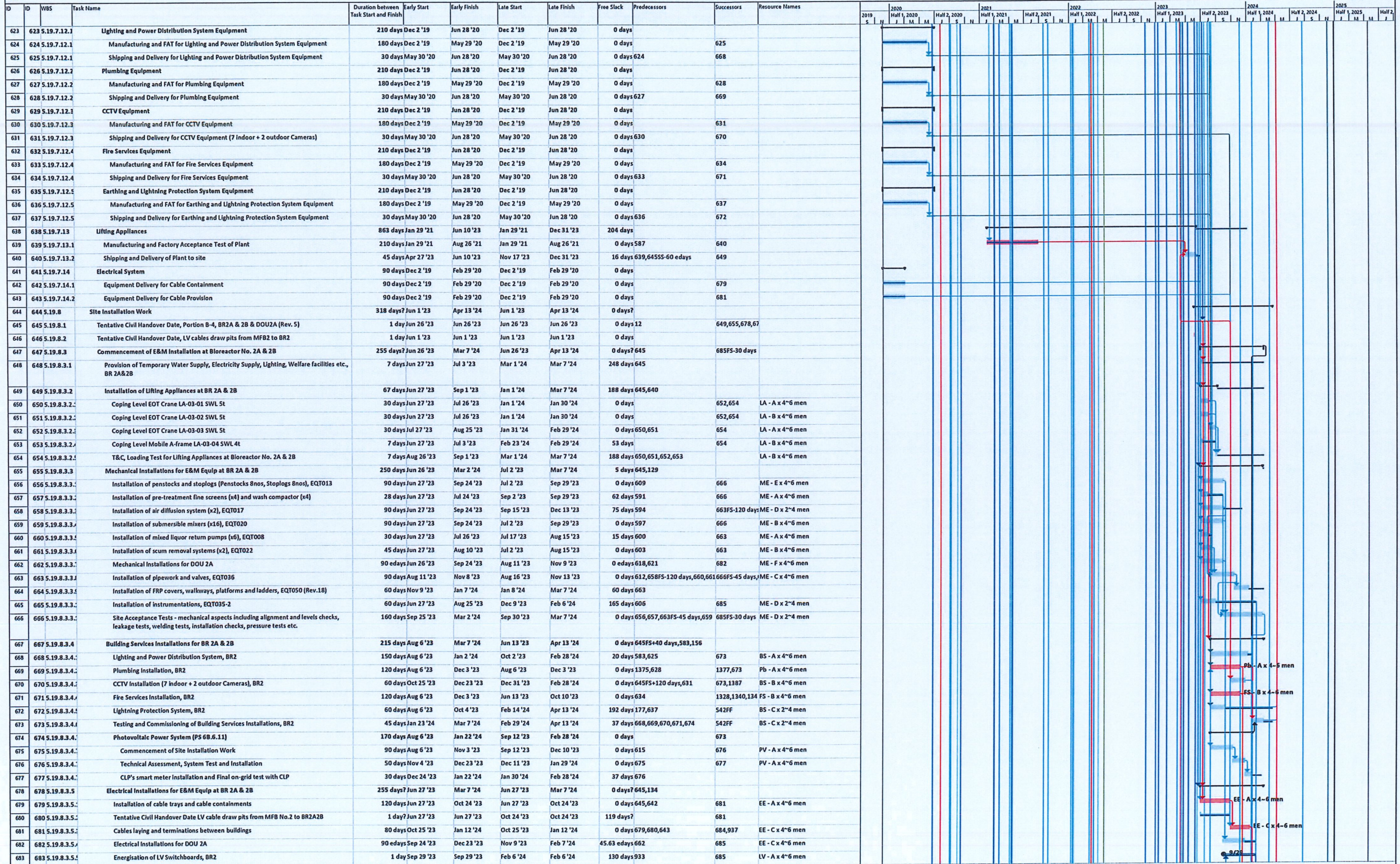
ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2019	2020	2021	2022	2023	2024	2025													
													S	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J	S	N
372	5.17.8.3.4.4	Energisation of Transformer, IW	14 days	Apr 9 '23	Apr 22 '23	Apr 1 '24	Apr 14 '24	92 days	369FS+30 days	373																					
373	5.17.8.3.4.4	Energisation of LV Switchboards, IW	0 days	Jul 23 '23	Jul 23 '23	Apr 15 '24	Apr 15 '24	0 days	371,340FF+30 days,372	374,522	LV - A x 4*6 men																				
374	5.17.8.3.4.4	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.	120 days	Jul 24 '23	Nov 20 '23	Apr 15 '24	Aug 12 '24	266 days	371,373		LV - A x 4*6 men																				
375	5.17.8.3.4.4	Building Services Installations for Inlet Works No. 1	250 days	Mar 26 '23	Nov 30 '23	Jun 13 '23	Aug 12 '24	79 days	339FS+120 days,278,156																						
376	5.17.8.3.4.4	Mechanical Ventilation and Air Conditioning System, IW	150 days	Mar 26 '23	Aug 22 '23	Dec 7 '23	May 4 '24	0 days		382	MVAC - B x 4*6 men																				
377	5.17.8.3.4.4	Lighting and Power Distribution System, IW	180 days	Mar 26 '23	Sep 21 '23	Dec 7 '23	Jun 3 '24	0 days		382FS-30 days	BS - A x 4*6 men																				
378	5.17.8.3.4.4	Plumbing Installation, IW	120 days	Mar 26 '23	Jul 23 '23	Aug 6 '23	Dec 3 '23	30 days	1375	1377,382	Pb - A x 4*6 men																				
379	5.17.8.3.4.4	CCTV Installation (5 indoor +5 outdoor Cameras), IW	90 days	Apr 24 '23	Jul 22 '23	Feb 5 '24	May 4 '24	31 days	339SS+150 days	382,1387	BS - B x 4*6 men																				
380	5.17.8.3.4.4	Fire Services Installation, IW	120 days	Apr 24 '23	Aug 21 '23	Jun 13 '23	Oct 10 '23	1 day	339SS+150 days	1328,1340,134	FS - A x 4*6 men																				
381	5.17.8.3.4.4	Earthing and Lightning Protection System, IW	60 days	May 24 '23	Jul 22 '23	Mar 6 '24	May 4 '24	31 days	339SS+180 days,177	382	BS - C x 2*4 men																				
382	5.17.8.3.4.4	Testing and Commissioning of Building Services Installations, IW	100 days	Aug 23 '23	Nov 30 '23	May 5 '24	Aug 12 '24	256 days	376,377FS-30 days,378,379,		BS - C x 2*4 men																				
383	5.17.8.3.5	SCADA Systems, Inlet Works	310 days	Dec 31 '22	Nov 5 '23	Dec 2 '23	Oct 27 '24	336 days	339																						
384	5.17.8.3.5	Installation of PLC Panels, IW	45 days	Dec 31 '22	Feb 13 '23	Dec 2 '23	Jan 15 '24	70 days	331	371	EE - B x 4*6 men																				
385	5.17.8.3.5	Configuration of PLC System, IW	45 days	Jul 24 '23	Sep 6 '23	Jul 15 '24	Aug 28 '24	0 days	371	386	PLC - A x 1 man																				
386	5.17.8.3.5	Site Acceptance Test for PLC System at Inlet Works No. 1	60 days	Sep 7 '23	Nov 5 '23	Aug 29 '24	Oct 27 '24	119 days	385	1388																					
387	5.17.8.3.6	Building Services Installations, Inlet Works No.1	228 days	Nov 26 '22	Jul 11 '23	May 15 '24	Aug 12 '24	398 days																							
388	5.17.8.3.6	Mechanical Ventilation and Air Conditioning System	90 days	Apr 13 '23	Jul 11 '23	May 15 '24	Aug 12 '24	398 days	322		MVAC - B x 4*6 men																				
389	5.17.8.3.6	Lighting and Power Distribution System	90 days	Apr 13 '23	Jul 11 '23	May 15 '24	Aug 12 '24	398 days	323		BS - A x 4*6 men																				
390	5.17.8.3.6	Plumbing Installation	80 days	Apr 13 '23	Jul 1 '23	May 25 '24	Aug 12 '24	408 days	324		Pb - B x 4*6 men																				
391	5.17.8.3.6	CCTV Installation	60 days	Apr 13 '23	Jun 11 '23	Jun 14 '24	Aug 12 '24	428 days	325		BS - B x 4*6 men																				
392	5.17.8.3.6	Fire Services Installation	85 days	Apr 13 '23	Jul 6 '23	May 20 '24	Aug 12 '24	403 days	326		FS - A x 4*6 men																				
393	5.17.8.3.6	Earthing and Lightning Protection System	90 days	Apr 13 '23	Jul 11 '23	May 15 '24	Aug 12 '24	398 days	327		BS - C x 2*4 men																				
394	5.17.8.3.6	Testing and Commissioning of Building Services Installations	60 days	Nov 26 '22	Jan 24 '23	Jun 14 '24	Aug 12 '24	566 days			BS - C x 2*4 men																				
395	5.17.8.4	Site Acceptance Test for E&M Equip & Instrumentations calibration, IW	15 days	Nov 7 '23	Nov 21 '23	Jul 14 '24	Jul 28 '24	0 days	341FS-30 days	396																					
396	5.17.8.5	System Commissioning for E&M Equip at Inlet Works No. 1	15 edays	Nov 21 '23	Dec 6 '23	Jul 29 '24	Aug 13 '24	0 edays	395	397																					
397	5.17.8.6	Risk Allowances for completion of Processing Plant at Inlet Works No. 1	7 edays	Dec 6 '23	Dec 13 '23	Aug 13 '24	Aug 20 '24	250.63 ed...	396	1384																					
398	5.18	Primary Sedimentation Tanks No. 1 - 4, Portion B-3 (PS 6B2.2)	1583 days	Dec 2 '19	Apr 1 '24	Dec 2 '19	Oct 27 '24	209 days																							
399	5.18.1	Planned Key Date Completion Date - KDJ1, PST No. 1~4	0 days	Oct 30 '20	Oct 30 '20	Oct 30 '20	Oct 30 '20	0 days	433FF,434FF																						
400	5.18.2	Planned Key Date Completion Date - KD1B, PST No. 1~4	1 day	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	435FF																						
401	5.18.3	Planned Sectional Completion Date - Section 1, PST No. 1~4	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	438FF,437FF,436FF,439FF,44																						
402	5.18.4	Planned Sectional Completion Date - Section 2, PST No. 1~4	0 days	Apr 1 '24	Apr 1 '24	Apr 1 '24	Apr 1 '24	0 days	531FF																						
403	5.18.5	Selection of Suppliers for major plant and materials for PST No. 1~4	230 days	Jul 1 '20	Feb 15 '21	Jul 1 '20	Feb 15 '21	0 days																							
404	5.18.5.1	PST - lamella plate settlers, C11, ref. EQ1014	90 days	Jul 1 '20	Sep 28 '20	Jul 1 '20	Sep 28 '20	0 days																							
405	5.18.5.1.1	Submission for acceptance of purchasing package	30 days	Jul 1 '20	Jul 30 '20	Jul 1 '20	Jul 30 '20	0 days		406																					
406	5.18.5.1.2	Invitation of quotations for purchasing package	30 days	Jul 31 '20	Aug 29 '20	Jul 31 '20	Aug 29 '20	0 days	405	407																					
407	5.18.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Aug 30 '20	Sep 28 '20	Aug 30 '20	Sep 28 '20	0 days	406	436																					
408	5.18.5.2	PST - reciprocating type bottom scrapers, C11, ref. EQ1014	135 days	Jul 1 '20	Nov 12 '20	Jul 1 '20	Nov 12 '20	0 days																							
409	5.18.5.2.1	Submission for acceptance of purchasing package	45 days	Jul 1 '20	Aug 14 '20	Jul 1 '20	Aug 14 '20	0 days		410																					
410	5.18.5.2.2	Invitation of quotations for purchasing package	60 days	Aug 15 '20	Oct 13 '20	Aug 15 '20	Oct 13 '20	0 days	409	411																					
411	5.18.5.2.3	Acceptance of conforming quotation (Completed)	30 days	Oct 14 '20	Nov 12 '20	Oct 14 '20	Nov 12 '20	0 days	410	436																					
412	5.18.5.3	PST - surface scum skimmers, C11, ref. EQ1015	90 days	Jul 7 '20	Oct 4 '20	Jul 7 '20	Oct 4 '20	0 days																							
413	5.18.5.3.1	Submission for acceptance of purchasing package	30 days	Jul 7 '20	Aug 5 '20	Jul 7 '20	Aug 5 '20	0 days		414																					
414	5.18.5.3.2	Invitation of quotations for purchasing package	30 days	Aug 6 '20	Sep 4 '20	Aug 6 '20	Sep 4 '20	0 days	413	415																					
415	5.18.5.3.3	Acceptance of conforming quotation	30 days	Sep 5 '20	Oct 4 '20	Sep 5 '20	Oct 4 '20	0 days	414	436																					
416	5.18.5.4	PST - scum collector pipes, C11, ref. EQ1015	210 days	Jul 1 '20	Jan 26 '21	Jul 1 '20	Jan 26 '21	0 days																							
417	5.18.5.4.1	Submission for acceptance of purchasing package	120 days	Jul 1 '20	Oct 28 '20	Jul 1 '20	Oct 28 '20	0 days		418																					
418	5.18.5.4.2	Invitation of quotations for purchasing package	60 days	Oct 29 '20	Dec 27 '20	Oct 29 '20	Dec 27 '20	0 days	417	419																					
419	5.18.5.4.3	Acceptance of conforming quotation	30 days	Dec 28 '20	Jan 26 '21	Dec 28 '20	Jan 26 '21	0 days	418	436																					
420	5.18.5.5	PST - piston type primary sludge pumps, C11, ref. EQ1016	210 days	Jul 1 '20	Jan 26 '21	Jul 1 '20	Jan 26 '21	0 days																							
421	5.18.5.5.1	Submission for acceptance of purchasing package	120 days	Jul 1 '20	Oct 28 '20	Jul 1 '20	Oct 28 '20	0 days		422																					
422	5.18.5.5.2	Invitation of quotations for purchasing package	60 days	Oct 29 '20	Dec 27 '20	Oct 29 '20	Dec 27 '20	0 days	421	423																					
423	5.18.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Dec 28 '20	Jan 26 '21	Dec 28 '20	Jan 26 '21	0 days	422	436																					
424	5.18.5.6	PST - draft pumps, C11, ref. EQ1007	210 days	Jul 14 '20	Feb 8 '21	Jul 14 '20	Feb 8 '21	0 days																							
425	5.18.5.6.1	Submission for acceptance of purchasing package	120 days	Jul 14 '20	Nov 10 '20	Jul 14 '20	Nov 10 '20	0 days		426																					
426	5.18.5.6.2	Invitation of quotations for purchasing package	60 days	Nov 11 '20	Jan 9 '21	Nov 11 '20	Jan 9 '21	0 days	425	427																					
427	5.18.5.6.3	Acceptance of conforming quotation (Completed)	30 days	Jan 10 '21	Feb 8 '21	Jan 10 '21	Feb 8 '21	0 days	426	436																					
428	5.18.5.7	PST - air blowers, C11, ref. EQ1018	210 days	Jul 21 '20	Feb 15 '21	Jul 21 '20	Feb 15 '21	0 days																							
429	5.18.5.7.1	Submission for acceptance of purchasing package	120 days	Jul 21 '20	Nov 17 '20	Jul 21 '20	Nov 17 '20	0 days		430																					
430	5.18.5.7.2	Invitation of quotations for purchasing package	60 days	Nov 18 '20	Jan 16 '21	Nov 18 '20	Jan 16 '21	0 days	429	431																					
431	5.18.5.7.3	Acceptance of conforming quotation	30 days	Jan 17 '21	Feb 15 '21	Jan 17 '21	Feb 15 '21	0 days	430	436																					
432	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	114																						
433	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		399FF																					



Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 E&M Works for Sewage Treatment Facilities

ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names
434	434.5.18.6.2	CDS080-2 - Civil and dimensional requirements drawings for PST No. 1~4 up to +8.0 mPD	50 days Sep 1 '20	Oct 20 '20	Sep 1 '20	Oct 20 '20	0 days			399FF	
435	435.5.18.6.3	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			400FF	
436	436.5.18.6.4	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 407,411,415,419,423,427,434,438,446,449,45				
437	437.5.18.6.5	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 75,85,93,213FF,101,97			76,484,401FF	
438	438.5.18.6.6	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 149			401FF,524	
439	439.5.18.6.7	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 71			473,401FF	
440	440.5.18.6.8	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 124			470,401FF	
441	441.5.18.7	Manufacturing and Delivery of Plant & Materials	1235 days Dec 2 '19	Apr 19 '23	Dec 2 '19	Jul 13 '24	451 days				
442	442.5.18.7.1	Lamella Plate Settlers, EQT014	353 days Apr 11 '22	Mar 29 '23	Apr 11 '22	May 14 '24	412 days				
443	443.5.18.7.1.1	Manufacturing and Factory Acceptance Test of Plant	300 days Apr 11 '22	Feb 4 '23	Apr 11 '22	Mar 30 '24	8 days 436			444	
444	444.5.18.7.1.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Mar 31 '24	May 14 '24	143 days 443,491SS-60 edays			505	
445	445.5.18.7.2	Reciprocating Type Bottom Scrappers, EQT014	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	Apr 14 '24	382 days				
446	446.5.18.7.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days Dec 12 '21	Oct 7 '22	Dec 12 '21	Feb 29 '24	128 days 436			447	
447	447.5.18.7.2.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Mar 1 '24	Apr 14 '24	16 days 446,491SS-60 edays			506	
448	448.5.18.7.3	Surface Scum Skimmers, EQT015	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	Jul 13 '24	472 days				
449	449.5.18.7.3.1	Manufacturing and Factory Acceptance Test of Plant	300 days Dec 12 '21	Oct 7 '22	Dec 12 '21	May 29 '24	128 days 436			450	
450	450.5.18.7.3.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	May 30 '24	Jul 13 '24	203 days 449,491SS-60 edays			507	
451	451.5.18.7.4	Surface Scum Collection Pipes, EQT015	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	Jul 13 '24	472 days				
452	452.5.18.7.4.1	Manufacturing and Factory Acceptance Test of Plant	300 days Dec 12 '21	Oct 7 '22	Dec 12 '21	May 29 '24	128 days 436			453	
453	453.5.18.7.4.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	May 30 '24	Jul 13 '24	16 days 452,491SS-60 edays			508	
454	454.5.18.7.5	Piston Type Primary Sludge Pumps, EQT016	397 days Feb 26 '22	Mar 29 '23	Feb 26 '22	Jul 13 '24	472 days				
455	455.5.18.7.5.1	Manufacturing and Factory Acceptance Test of Plant	300 days Feb 26 '22	Dec 22 '22	Feb 26 '22	May 29 '24	52 days 436			456	
456	456.5.18.7.5.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	May 30 '24	Jul 13 '24	16 days 455,491SS-60 edays			509	
457	457.5.18.7.6	Drain Pumps, EQT007	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	Jun 13 '24	442 days				
458	458.5.18.7.6.1	Manufacturing and Factory Acceptance Test of Plant	300 days Dec 12 '21	Oct 7 '22	Dec 12 '21	Apr 29 '24	128 days 436			459	
459	459.5.18.7.6.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Apr 30 '24	Jun 13 '24	16 days 458,491SS-60 edays			510	
460	460.5.18.7.7	Air Blower, EQT018	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	Jul 13 '24	472 days				
461	461.5.18.7.7.1	Manufacturing and Factory Acceptance Test of Plant	300 days Dec 12 '21	Oct 7 '22	Dec 12 '21	May 29 '24	128 days 436			462	
462	462.5.18.7.7.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	May 30 '24	Jul 13 '24	46 days 461,491SS-60 edays			511	
463	463.5.18.7.8	Stoplogs and Penstocks, EQT013	473 days Dec 12 '21	Mar 29 '23	Dec 12 '21	May 14 '24	412 days				
464	464.5.18.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days Dec 12 '21	Aug 8 '22	Dec 12 '21	Mar 30 '24	188 days 436			465	
465	465.5.18.7.8.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Mar 31 '24	May 14 '24	16 days 491SS-60 edays,464			503	
466	466.5.18.7.9	Pipework, Valves and Electric Actuators, EQT036, EQT042 (Rev. 11)	343 days Apr 21 '22	Mar 29 '23	Apr 21 '22	Dec 16 '23	262 days 56,63,59				
467	467.5.18.7.9.1	Manufacturing and Factory Acceptance Test of Plant	240 days Apr 21 '22	Dec 16 '22	Apr 21 '22	Nov 1 '23	58 days 436			468	
468	468.5.18.7.9.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Nov 2 '23	Dec 16 '23	16 days 467,491SS-60 edays			504	
469	469.5.18.7.10	Lifting Appliances	790 days Jan 29 '21	Mar 29 '23	Jan 29 '21	Jan 8 '24	285 days				
470	470.5.18.7.10.1	Manufacturing and Factory Acceptance Test of Plant	210 days Jan 29 '21	Aug 26 '21	Jan 29 '21	Aug 26 '21	0 days 440			471	
471	471.5.18.7.10.2	Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Nov 25 '23	Jan 8 '24	16 days 470,491SS-60 edays			494	
472	472.5.18.7.11	LV Switchboards	441 days Jan 13 '22	Mar 29 '23	Jan 13 '22	Mar 31 '24	368 days				
473	473.5.18.7.11.1	PST - Manufacturing of Plant	300 days Jan 13 '22	Nov 8 '22	Jan 13 '22	Nov 17 '23	0 days 439			474	
474	474.5.18.7.11.2	PST - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days Nov 9 '22	Feb 6 '23	Nov 18 '23	Feb 15 '24	6 days 473			475	
475	475.5.18.7.11.3	PST - Shipping and Delivery of Plant to site	45 days Feb 13 '23	Mar 29 '23	Feb 16 '24	Mar 31 '24	16 days 474,491SS-60 edays			516	
476	476.5.18.7.12	Building Services	180 days Oct 15 '22	Apr 12 '23	Oct 15 '22	Apr 12 '23	0 days				
477	477.5.18.7.12.1	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			525	
478	478.5.18.7.12.2	Equipment Delivery for Lighting and Power Distribution System	180 days Oct 15 '22	Apr 12 '23	May 8 '23	Nov 4 '23	92 days			526	
479	479.5.18.7.12.3	Equipment Delivery for Plumbing Installation	180 days Oct 15 '22	Apr 12 '23	Mar 19 '23	Sep 15 '23	92 days			527	
480	480.5.18.7.12.4	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			528	
481	481.5.18.7.12.5	Equipment Delivery for Fire Services Installation	180 days Oct 15 '22	Apr 12 '23	Jan 19 '23	Jul 18 '23	92 days			529	
482	482.5.18.7.12.6	Equipment Delivery for Earthing and Lightning Protection System	180 days Oct 15 '22	Apr 12 '23	May 8 '23	Nov 4 '23	92 days			530	
483	483.5.18.7.13	PLC System	405 days Mar 11 '22	Apr 19 '23	Mar 11 '22	Mar 31 '24	347 days				
484	484.5.18.7.13.1	Manufacturing of Plant, PLC for PST	300 days Mar 11 '22	Jan 4 '23	Mar 11 '22	Dec 17 '23	0 days 437			485	
485	485.5.18.7.13.2	Factory Acceptance Test of Plant, PLC for PST (To be witnessed by PM)	60 days Jan 5 '23	Mar 5 '23	Dec 18 '23	Feb 15 '24	0 days 484			486	
486	486.5.18.7.13.3	Shipping and Delivery of Plant to site	45 days Mar 6 '23	Apr 19 '23	Feb 16 '24	Mar 31 '24	0 days 485,491SS-60 edays			517	
487	487.5.18.7.14	Electrical System	90 days Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days				
488	488.5.18.7.14.1	Equipment Delivery for Cable Containment	90 days Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days			518	
489	489.5.18.7.14.2	Equipment Delivery for Cable Provision	90 days Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days			519	
490	490.5.18.8	Site Installation Work	255 days Apr 14 '23	Dec 24 '23	Apr 18 '23	Oct 27 '24	4 days				
491	491.5.18.8.1	Tentative Civil Handover Date, Portion B-3, PST No. 1~4 (Rev. 5)	1 day Apr 14 '23	Apr 14 '23	Apr 18 '23	Apr 18 '23	0 days			494,492,515,45	
492	492.5.18.8.2	Commencement of E&M Installation at PST No. 1~4	247 days Apr 15 '23	Dec 17 '23	Jul 18 '23	Oct 27 '24	0 days 491			535FS-30 days 403	
493	493.5.18.8.2.1	Provision of Temporary Water Supply, Electricity Supply, Lighting Welfare facilities etc., P	30 days Apr 15 '23	May 14 '23	Jul 14 '24	Aug 12 '24	456 days 491				
494	494.5.18.8.2.2	Installation of Lifting Appliances at PST No. 1~4	127 days Apr 15 '23	Aug 19 '23	Jan 9 '24	May 14 '24	269 days 491,471				
495	495.5.18.8.2.2.1	Basement EOT Crane LA-02-01 SWL 10t	30 days Apr 15 '23	May 14 '23	Jan 9 '24	Feb 7 '24	0 days			496,497,501	LA - A x 4~6 men
496	496.5.18.8.2.2.2	Coping Level EOT Crane LA-02-02 SWL 5t	30 days May 15 '23	Jun 13 '23	Apr 8 '24	May 7 '24	60 days 495			501	LA - A x 4~6 men
497	497.5.18.8.2.2.3	Coping Level EOT Crane LA-02-03 SWL 5t	30 days May 15 '23	Jun 13 '23	Feb 8 '24	Mar 8 '24	0 days 495			498,499,501	LA - B x 4~6 men



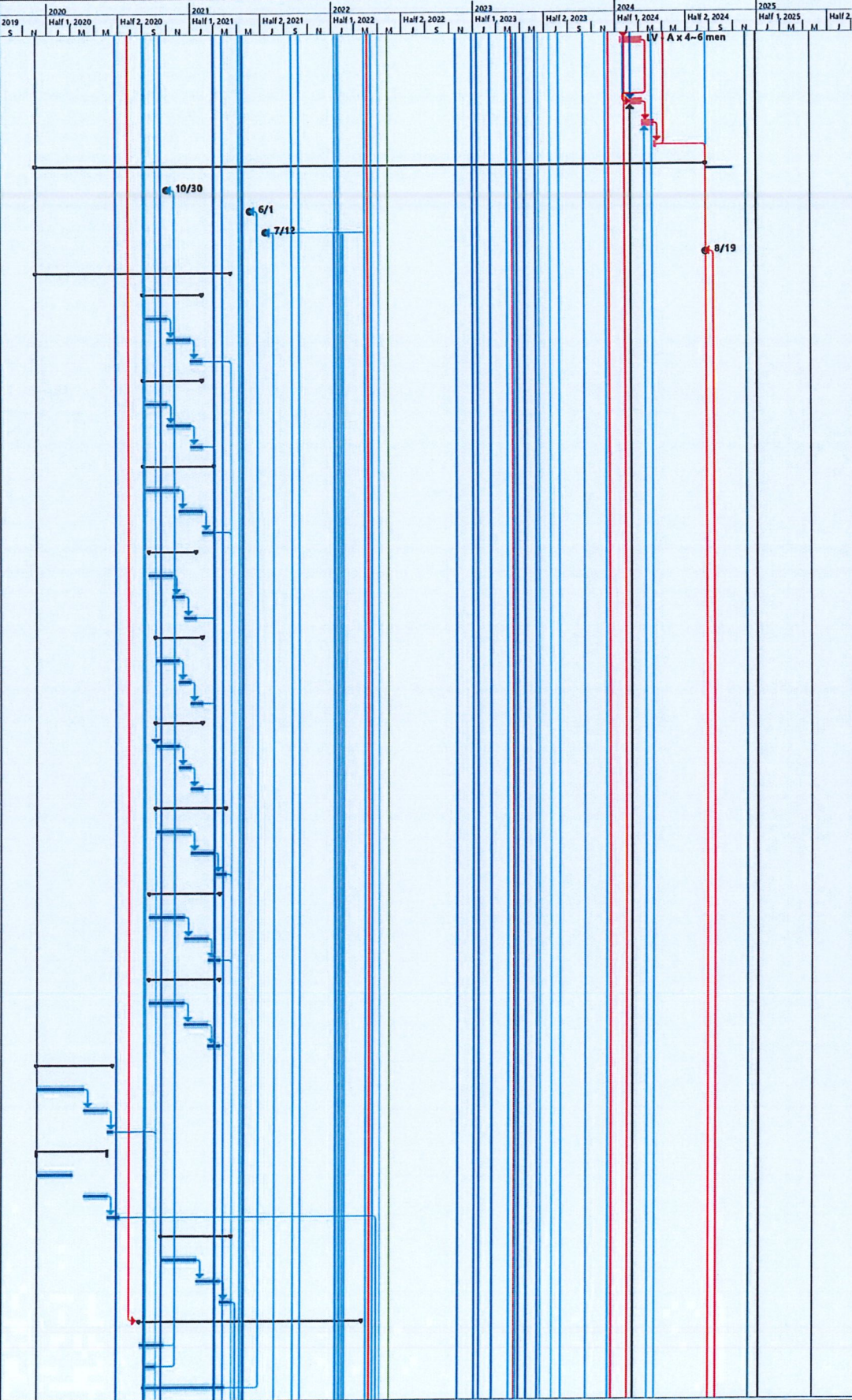


Legend for Gantt chart symbols and colors:

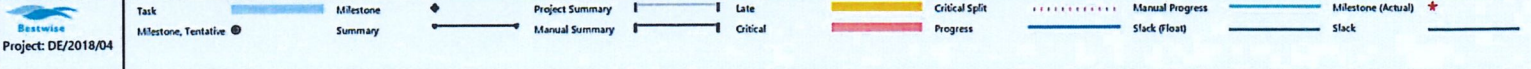
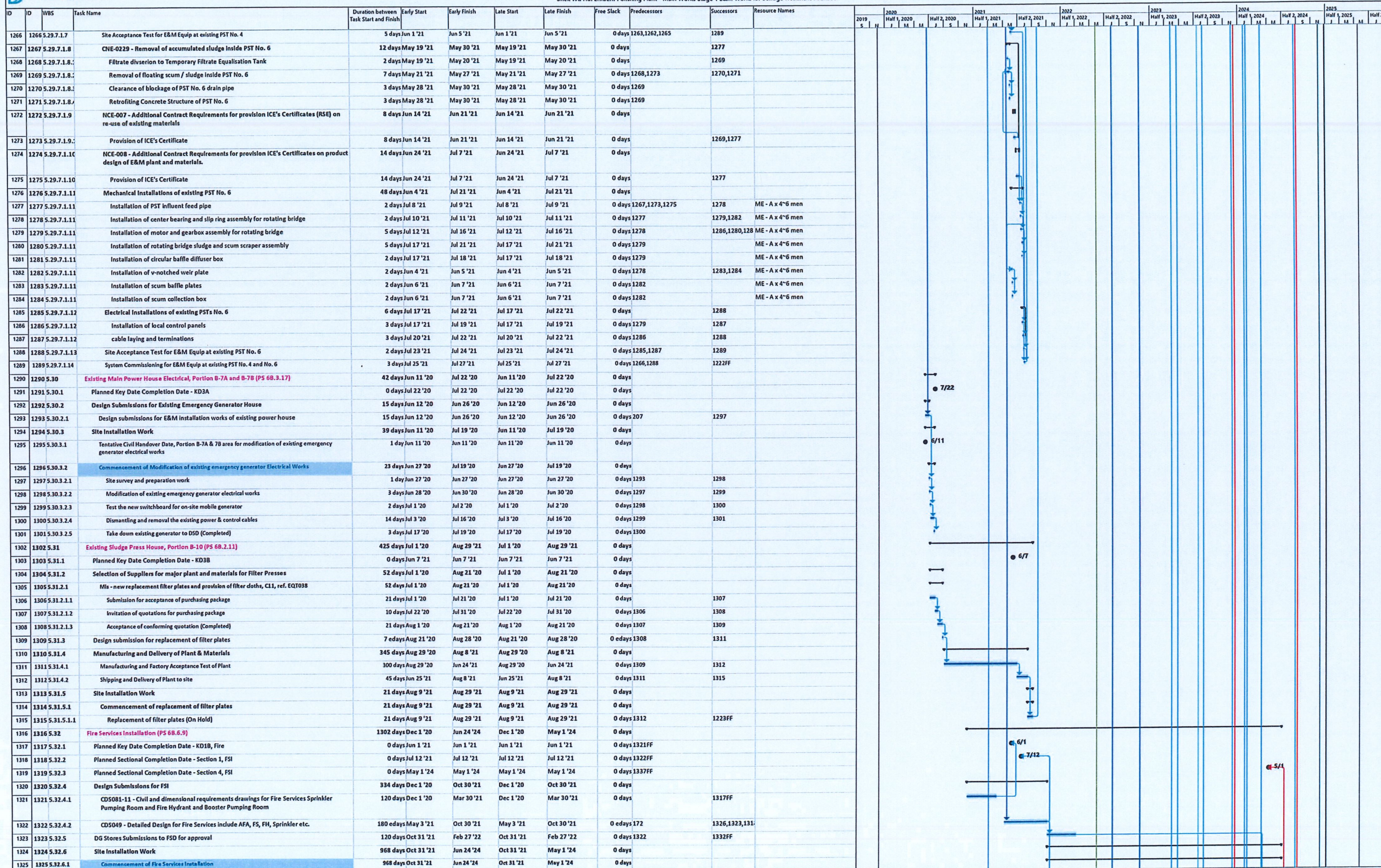
- Task: Solid blue bar
- Milestone: Diamond symbol
- Project Summary: Dashed line
- Milestone, Tentative: Circle with dot symbol
- Summary: Solid grey bar
- Late: Red bar
- Critical Split: Yellow bar
- Manual Progress: Dotted blue bar
- Milestone (Actual): Star symbol
- Critical: Solid red bar
- Progress: Solid blue bar
- Slack (float): Dashed blue bar
- Slack: Solid grey bar

Proposed Work Programme for DE/2018/04
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 E&M Works for Sewage Treatment Facilities

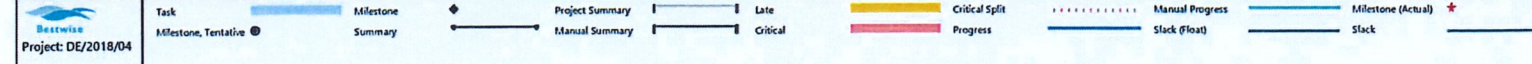
ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2019	2020	2021	2022	2023	2024	2025
684	684.5.19.8.3.5.1	Site Acceptance Tests - Electrical aspects including voltage and current tests, equipment protection interlock checks, motor rotation direction and electrical tests, control and functional checks etc.	55 days	Jan 13 '24	Mar 7 '24	Jan 13 '24	Mar 7 '24	0 days	681	685FS-30 days	LV - A x 4-6 men							
685	685.5.19.8.4	Site Acceptance Test for E&M Equip at BR 2A & 2B & DOU2A	30 edays	Feb 7 '24	Mar 8 '24	Feb 7 '24	Mar 8 '24	0 edays	665,666FS-30 days,683,647F	686								
686	686.5.19.8.5	System Commissioning for E&M Equip at BR 2A & 2B & DOU2A	30 days	Mar 8 '24	Apr 6 '24	Mar 8 '24	Apr 6 '24	0 days	685,939	687								
687	687.5.19.8.6	Risk Allowances for Completion of Processing Plant at BR 2A & 2B	7 edays	Apr 6 '24	Apr 13 '24	Apr 6 '24	Apr 13 '24	0 edays	686	1384,542FF								
688	688.5.20	Membrane Facilities Building & DOU3B, Portion B-5 (PS 6B.2.4)	1723 days	Dec 2 '19	Aug 19 '24	Dec 2 '19	Oct 27 '24	69 days										
689	689.5.20.1	Planned Key Date Completion Date - KD1A, MFB No. 2	0 days	Oct 30 '20	Oct 30 '20	Oct 30 '20	Oct 30 '20	0 days	743FF,744FF									
690	690.5.20.2	Planned Key Date Completion Date - KD1B, MFB No. 2 & DOU3B	0 days	Jun 1 '21	Jun 1 '21	Jun 1 '21	Jun 1 '21	0 days	745FF									
691	691.5.20.3	Planned Sectional Completion Date - Section 1, MFB No. 2 & DOU3B	0 days	Jul 12 '21	Jul 12 '21	Jul 12 '21	Jul 12 '21	0 days	746FF,747FF,748FF,750FF,751FF									
692	692.5.20.4	Planned Sectional Completion Date - Section 2, MFB No. 2 & DOU3B	0 days	Aug 19 '24	Aug 19 '24	Aug 19 '24	Aug 19 '24	0 days	951FF									
693	693.5.20.5	Selection of Suppliers for major plant and materials for MFB	498 days	Dec 2 '19	Apr 12 '21	Dec 2 '19	Apr 12 '21	0 days										
694	694.5.20.5.1	MFS - hollow fibre membrane modules (Marking Scheme Approach), ref. EQT023	150 days	Sep 1 '20	Jan 28 '21	Sep 1 '20	Jan 28 '21	0 days										
695	695.5.20.5.1.1	Submission for acceptance of purchasing package including proposed marking scheme	60 days	Sep 1 '20	Oct 30 '20	Sep 1 '20	Oct 30 '20	0 days		696								
696	696.5.20.5.1.2	Invitation of quotations for purchasing package	60 days	Oct 31 '20	Dec 29 '20	Oct 31 '20	Dec 29 '20	0 days	695	697								
697	697.5.20.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Dec 30 '20	Jan 28 '21	Dec 30 '20	Jan 28 '21	0 days	696	746								
698	698.5.20.5.2	MFS - air scour blowers, C11, ref. EQT040	150 days	Sep 1 '20	Jan 28 '21	Sep 1 '20	Jan 28 '21	0 days										
699	699.5.20.5.2.1	Submission for acceptance of purchasing package	60 days	Sep 1 '20	Oct 30 '20	Sep 1 '20	Oct 30 '20	0 days		700								
700	700.5.20.5.2.2	Invitation of quotations for purchasing package	60 days	Oct 31 '20	Dec 29 '20	Oct 31 '20	Dec 29 '20	0 days	699	701								
701	701.5.20.5.2.3	Acceptance of conforming quotation (Completed)	30 days	Dec 30 '20	Jan 28 '21	Dec 30 '20	Jan 28 '21	0 days	700	748								
702	702.5.20.5.3	MFS - permeate pumps, C11, ref. EQT024	180 days	Sep 1 '20	Feb 27 '21	Sep 1 '20	Feb 27 '21	0 days										
703	703.5.20.5.3.1	Submission for acceptance of purchasing package	90 days	Sep 1 '20	Nov 29 '20	Sep 1 '20	Nov 29 '20	0 days		704								
704	704.5.20.5.3.2	Invitation of quotations for purchasing package	60 days	Nov 30 '20	Jan 28 '21	Nov 30 '20	Jan 28 '21	0 days	703	705								
705	705.5.20.5.3.3	Acceptance of conforming quotation (Completed)	30 days	Jan 29 '21	Feb 27 '21	Jan 29 '21	Feb 27 '21	0 days	704	746								
706	706.5.20.5.4	MFS - compressed air system, C11, ref. EQT029	120 days	Sep 15 '20	Jan 12 '21	Sep 15 '20	Jan 12 '21	0 days										
707	707.5.20.5.4.1	Submission for acceptance of purchasing package	60 days	Sep 15 '20	Nov 13 '20	Sep 15 '20	Nov 13 '20	0 days		708								
708	708.5.20.5.4.2	Invitation of quotations for purchasing package	30 days	Nov 14 '20	Dec 13 '20	Nov 14 '20	Dec 13 '20	0 days	707	709								
709	709.5.20.5.4.3	Acceptance of conforming quotation (Completed)	30 days	Dec 14 '20	Jan 12 '21	Dec 14 '20	Jan 12 '21	0 days	708	748								
710	710.5.20.5.5	MFS - chemical storage tanks, C11, ref. EQT091	120 days	Oct 1 '20	Jan 28 '21	Oct 1 '20	Jan 28 '21	0 days										
711	711.5.20.5.5.1	Submission for acceptance of purchasing package	60 days	Oct 1 '20	Nov 29 '20	Oct 1 '20	Nov 29 '20	0 days		712								
712	712.5.20.5.5.2	Invitation of quotations for purchasing package	30 days	Nov 30 '20	Dec 29 '20	Nov 30 '20	Dec 29 '20	0 days	711	713								
713	713.5.20.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Dec 30 '20	Jan 28 '21	Dec 30 '20	Jan 28 '21	0 days	712	748								
714	714.5.20.5.6	MFS - chemical dosing & transfer pumps, C11, ref. EQT090	120 days	Oct 1 '20	Jan 28 '21	Oct 1 '20	Jan 28 '21	0 days										
715	715.5.20.5.6.1	Submission for acceptance of purchasing package	60 days	Oct 1 '20	Nov 29 '20	Oct 1 '20	Nov 29 '20	0 days	2,30	716								
716	716.5.20.5.6.2	Invitation of quotations for purchasing package	30 days	Nov 30 '20	Dec 29 '20	Nov 30 '20	Dec 29 '20	0 days	715	717								
717	717.5.20.5.6.3	Acceptance of conforming quotation (Completed)	30 days	Dec 30 '20	Jan 28 '21	Dec 30 '20	Jan 28 '21	0 days	716	748								
718	718.5.20.5.7	MFS - return activated sludge pumps (Marking Scheme Approach), ref. EQT010	180 days	Oct 1 '20	Mar 29 '21	Oct 1 '20	Mar 29 '21	0 days										
719	719.5.20.5.7.1	Submission for acceptance of purchasing package	90 days	Oct 1 '20	Dec 29 '20	Oct 1 '20	Dec 29 '20	0 days		720								
720	720.5.20.5.7.2	Invitation of quotations for purchasing package	60 days	Dec 30 '20	Feb 27 '21	Dec 30 '20	Feb 27 '21	0 days	719	721								
721	721.5.20.5.7.3	Acceptance of conforming quotation (Completed)	30 days	Feb 28 '21	Mar 29 '21	Feb 28 '21	Mar 29 '21	0 days	720	746								
722	722.5.20.5.8	MFS - membrane tank drain pumps, C11, ref. EQT009	180 days	Sep 15 '20	Mar 13 '21	Sep 15 '20	Mar 13 '21	0 days										
723	723.5.20.5.8.1	Submission for acceptance of purchasing package	90 days	Sep 15 '20	Dec 13 '20	Sep 15 '20	Dec 13 '20	0 days		724								
724	724.5.20.5.8.2	Invitation of quotations for purchasing package	60 days	Dec 14 '20	Feb 11 '21	Dec 14 '20	Feb 11 '21	0 days	723	725								
725	725.5.20.5.8.3	Acceptance of conforming quotation (Completed)	30 days	Feb 12 '21	Mar 13 '21	Feb 12 '21	Mar 13 '21	0 days	724	746								
726	726.5.20.5.9	BR - aeration blowers (Marking Scheme Approach), EQT039	180 days	Sep 14 '20	Mar 12 '21	Sep 14 '20	Mar 12 '21	0 days										
727	727.5.20.5.9.1	Submission for acceptance of purchasing package including proposed marking scheme	90 days	Sep 14 '20	Dec 12 '20	Sep 14 '20	Dec 12 '20	0 days		728								
728	728.5.20.5.9.2	Invitation of quotations for purchasing package	60 days	Dec 13 '20	Feb 10 '21	Dec 13 '20	Feb 10 '21	0 days	727	729								
729	729.5.20.5.9.3	Acceptance of conforming quotation (Completed)	30 days	Feb 11 '21	Mar 12 '21	Feb 11 '21	Mar 12 '21	0 days	728	581								
730	730.5.20.5.10	DOU - activated carbon filter (DOU No. 2A, No. 3A, No. 3B), C11, ref. EQT028	194 days	Dec 2 '19	Jun 12 '20	Dec 2 '19	Jun 12 '20	0 days										
731	731.5.20.5.10.1	Submission for acceptance of purchasing package	120 days	Dec 2 '19	Mar 30 '20	Dec 2 '19	Mar 30 '20	0 days		732								
732	732.5.20.5.10.2	Invitation of quotations for purchasing package	60 days	Mar 31 '20	May 29 '20	Mar 31 '20	May 29 '20	0 days	731	733								
733	733.5.20.5.10.3	Acceptance of conforming quotation (Completed)	14 days	May 30 '20	Jun 12 '20	May 30 '20	Jun 12 '20	0 days	732	585,749								
734	734.5.20.5.11	Valves for Inlet Works no.1, PST no. 1-4, BR2A2B, MFB2 and Flowmeter and Valve Chamb	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	Jun 28 '20	0 days										
735	735.5.20.5.11.1	Submission for acceptance of purchasing package	90 days	Dec 2 '19	Feb 29 '20	Dec 2 '19	Feb 29 '20	0 days		737								
736	736.5.20.5.11.2	Invitation of quotations for purchasing package	60 days	Mar 31 '20	May 29 '20	Mar 31 '20	May 29 '20	0 days		737								
737	737.5.20.5.11.3	Acceptance of conforming quotation	30 days	May 30 '20	Jun 28 '20	May 30 '20	Jun 28 '20	0 days	736	792FS-60 days								
738	738.5.20.5.12	Plant Service Water System - booster pumps & hydro-pneumatic pressure tanks, C11, ref.	180 days	Oct 15 '20	Apr 12 '21	Oct 15 '20	Apr 12 '21	0 days										
739	739.5.20.5.12.1	Submission for acceptance of purchasing package	90 days	Oct 15 '20	Jan 12 '21	Oct 15 '20	Jan 12 '21	0 days		740								
740	740.5.20.5.12.2	Invitation of quotations for purchasing package	60 days	Jan 13 '21	Mar 13 '21	Jan 13 '21	Mar 13 '21	0 days	739	741								
741	741.5.20.5.12.3	Acceptance of conforming quotation (Completed)	30 days	Mar 14 '21	Apr 12 '21	Mar 14 '21	Apr 12 '21	0 days	740	746								
742	742.5.20.6	Design Submissions for MFB No. 2	572 days	Aug 21 '20	Mar 15 '22	Aug 21 '20	Mar 15 '22	0 days	114									
743	743.5.20.6.1	Electrical schematic drawings for MFB No. 2	60 days	Aug 21 '20	Oct 19 '20	Aug 21 '20	Oct 19 '20	0 days		689FF								
744	744.5.20.6.2	CDS080-4 - Civil and dimensional requirements drawings for MFB no. 2 up to +8.0 mPD	30 days	Sep 1 '20	Sep 30 '20	Sep 1 '20	Sep 30 '20	0 days		689FF								
745	745.5.20.6.3	CDS081-4 - Civil and dimensional requirements drawings for MFB No. 2	210 days	Aug 28 '20	Mar 25 '21	Aug 28 '20	Mar 25 '21	0 days		690FF								



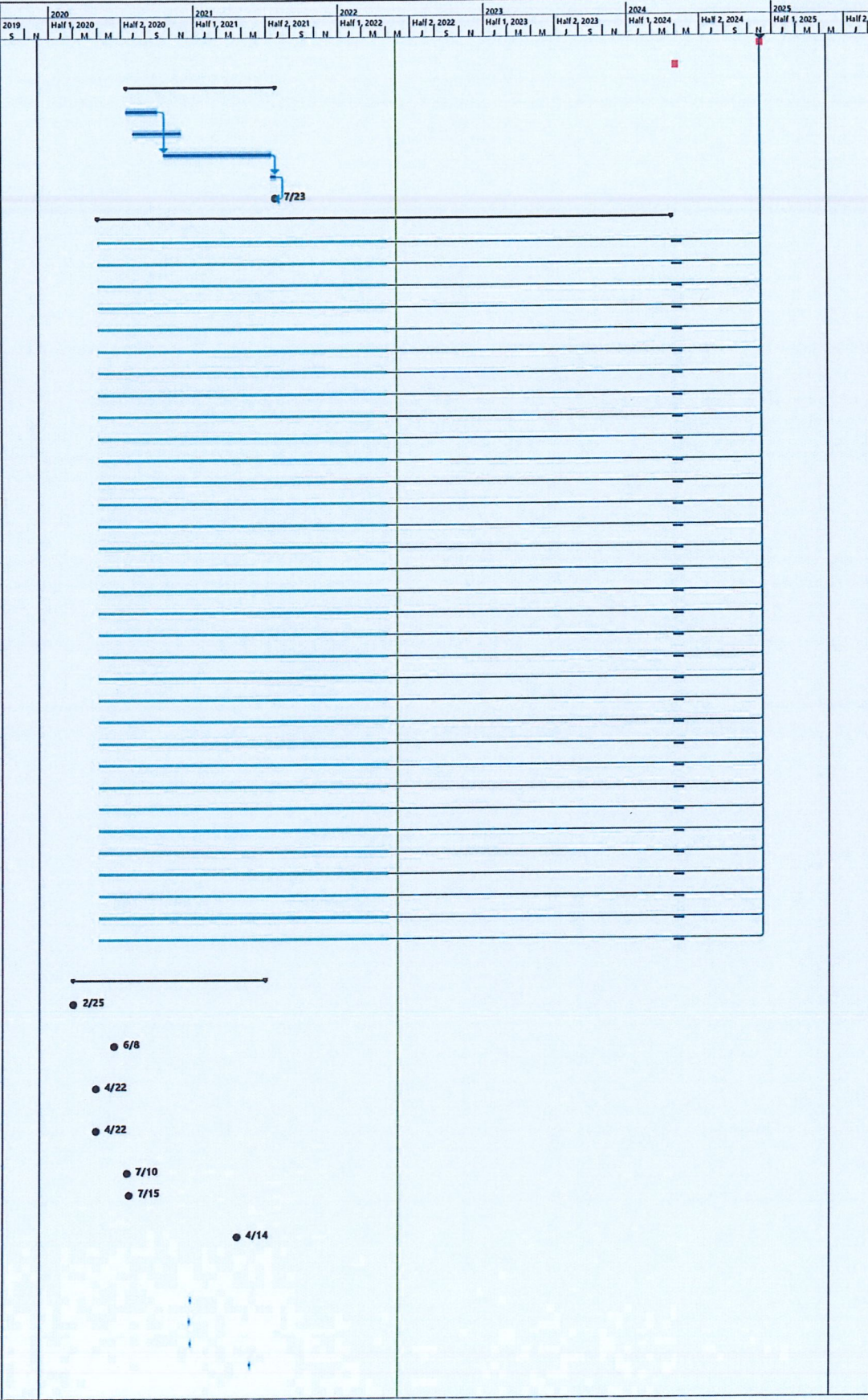
ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2019	2020	2021	2022	2023	2024	2025
												S	M	J	J	S	M	J
746	746.5.20.6.4	CDS005 - Detailed Design for Membrane Filtration System, Pumps and Membrane Modules	258 edays	Apr 12 '21	Dec 26 '21	Apr 12 '21	Dec 26 '21	0 edays	697,705,721,725,741	758,762,768,7E								
747	747.5.20.6.5	CDS024 - Detailed Design for Electrical Installations for MFB No. 2	159.38 edays	Oct 7 '21	Mar 15 '22	Oct 7 '21	Mar 15 '22	0 edays	75,85,81,89,93,213FF,101,97,6,834,840,691									
748	748.5.20.6.6	CDS008 - Detailed Design for Membrane Filtration System, Air Blowers, Dosing Systems etc	324 edays	Mar 1 '21	Jan 19 '22	Mar 1 '21	Jan 19 '22	0 edays	701,709,713,717	783,786,691FF								
749	749.5.20.6.7	CDS007-3 - Detailed Design for Deodorisation System, DOU No. 3B	445.38 edays	Oct 1 '20	Dec 20 '21	Oct 1 '20	Dec 20 '21	0 edays	567,733	795,798								
750	750.5.20.6.8	CDS034-4 - Detailed Design for Electrical Installations BS at MFB No. 2	308.38 edays	Mar 12 '21	Jan 14 '22	Mar 12 '21	Jan 14 '22	0 edays	149	691FF								
751	751.5.20.6.9	CDS025-4 - Detailed Design for LV Switchboards for Membrane Filtration System	251 edays	May 3 '21	Jan 9 '22	May 3 '21	Jan 9 '22	0 edays	71	826,691FF								
752	752.5.20.6.10	CDS026-2 - Detailed Design for HV Switchboards for MFB No. 2	266 edays	Apr 18 '21	Jan 9 '22	Apr 18 '21	Jan 9 '22	0 edays	67	691FF,830								
753	753.5.20.6.11	CDS031 - Detailed Design for HVAC System	311.38 edays	Mar 1 '21	Jan 6 '22	Mar 1 '21	Jan 6 '22	0 edays		209FF								
754	754.5.20.6.12	CDS042 - Detailed Design for Lightning Protection System	357.38 edays	Jan 11 '21	Jan 3 '22	Jan 11 '21	Jan 3 '22	0 edays		209FF								
755	755.5.20.6.13	CDS050-4 - Detailed Design for Lifting Appliances - MFB No. 2	150 edays	Oct 15 '20	Mar 14 '21	Oct 15 '20	Mar 14 '21	0 edays	124	820,691FF								
756	756.5.20.7	Manufacturing and Delivery of Plant & Materials	1287 days	Dec 2 '19	Jun 10 '23	Dec 2 '19	Jun 10 '23	184 days										
757	757.5.20.7.1	Hollow Fibre Membrane Modules, EQT023	389 days	Nov 8 '21	Dec 1 '22	Nov 8 '21	Apr 14 '23	134 days										
758	758.5.20.7.1.1	MFS - Manufacturing of Plant (M.I. issued)	300 days	Nov 8 '21	Sep 7 '22	Nov 8 '21	Jan 19 '23	0 days	746	759								
759	759.5.20.7.1.2	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	40 days	Sep 8 '22	Oct 17 '22	Jan 20 '23	Feb 28 '23	0 days	758	760								
760	760.5.20.7.1.3	MFS - Shipping and Delivery of Plant to site	45 days	Oct 18 '22	Dec 1 '22	Mar 1 '23	Apr 14 '23	75 days	759	858								
761	761.5.20.7.2	Air Scour Blowers, EQT040	474 days	Dec 27 '21	Apr 14 '23	Dec 27 '21	Apr 14 '23	0 days										
762	762.5.20.7.2.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 27 '21	Aug 23 '22	Dec 27 '21	Feb 28 '23	189 days	746	763								
763	763.5.20.7.2.2	Shipping and Delivery of Plant to site	45 days	Mar 1 '23	Apr 14 '23	Mar 1 '23	Apr 14 '23	0 days	762,88255-60 edays									
764	764.5.20.7.3	Aeration Blowers, EQT039	529 days	Dec 29 '21	Jun 10 '23	Dec 29 '21	Dec 11 '23	184 days										
765	765.5.20.7.3.1	Manufacturing and Factory Acceptance Test of Plant (to be witnessed by PM)	240 days	Dec 29 '21	Aug 25 '22	Dec 29 '21	Oct 27 '23	244 days	581	766								
766	766.5.20.7.3.2	Shipping and Delivery of Plant to site	45 days	Apr 27 '23	Jun 10 '23	Oct 28 '23	Dec 11 '23	4 days	765,64555-60 edays	903								
767	767.5.20.7.4	Permeate Pump, EQT024	285 days	Feb 9 '22	Nov 20 '22	Feb 9 '22	Apr 29 '23	160 days										
768	768.5.20.7.4.1	Manufacturing and Factory Acceptance Test of Plant (M.I. issued)	240 days	Feb 9 '22	Oct 6 '22	Feb 9 '22	Mar 15 '23	0 days	746	769								
769	769.5.20.7.4.2	Shipping and Delivery of Plant to site	45 days	Oct 7 '22	Nov 20 '22	Mar 16 '23	Apr 29 '23	108 days	768	862								
770	770.5.20.7.5	Return Activated Sludge Pump, EQT010	337 days	Nov 5 '21	Oct 7 '22	Nov 5 '21	May 29 '23	234 days										
771	771.5.20.7.5.1	Manufacturing and Factory Acceptance Test of Plant (M.I. issued)	240 days	Nov 5 '21	Aug 23 '22	Nov 5 '21	Apr 14 '23	0 days	746	772								
772	772.5.20.7.5.2	Shipping and Delivery of Plant to site	45 days	Aug 24 '22	Oct 7 '22	Apr 15 '23	May 29 '23	130 days	771	865								
773	773.5.20.7.6	Membrane Tank Drain Pump, EQT009	196 days	Dec 13 '21	Jun 26 '22	Dec 13 '21	May 29 '23	337 days										
774	774.5.20.7.6.1	Manufacturing and Factory Acceptance Test of Plant (M.I. issued)	107 days	Dec 13 '21	Apr 12 '22	Dec 13 '21	Apr 12 '22	0 days	746	775FS+30 days								
775	775.5.20.7.6.2	Shipping and Delivery of Plant to site	45 days	May 13 '22	Jun 26 '22	Apr 15 '23	May 29 '23	278 days	774FS+30 days	868								
776	776.5.20.7.7	Plant Service Water System, EQT030	474 days	Dec 27 '21	Apr 14 '23	Dec 27 '21	May 29 '23	45 days										
777	777.5.20.7.7.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Dec 27 '21	Jul 24 '22	Dec 27 '21	Apr 14 '23	219 days	746	778								
778	778.5.20.7.7.2	Shipping and Delivery of Plant to site	45 days	Mar 1 '23	Apr 14 '23	Apr 15 '23	May 29 '23	0 days	777,88255-60 edays	875								
779	779.5.20.7.8	Compressed Air System, EQT029	474 days	Dec 27 '21	Apr 14 '23	Dec 27 '21	May 29 '23	45 days										
780	780.5.20.7.8.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Dec 27 '21	Jul 24 '22	Dec 27 '21	Apr 14 '23	219 days	746	781								
781	781.5.20.7.8.2	Shipping and Delivery of Plant to site	45 days	Mar 1 '23	Apr 14 '23	Apr 15 '23	May 29 '23	0 days	780,88255-60 edays	859								
782	782.5.20.7.9	Chemical Storage Tanks, EQT025	225 days	Jan 20 '22	Sep 1 '22	Jan 20 '22	May 29 '23	270 days										
783	783.5.20.7.9.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Jan 20 '22	Jul 18 '22	Jan 20 '22	Apr 14 '23	0 days	748	784								
784	784.5.20.7.9.2	Shipping and Delivery of Plant to site	45 days	Jul 19 '22	Sep 1 '22	Apr 15 '23	May 29 '23	166 days	783	871,896								
785	785.5.20.7.10	Chemical Dosing and Transfer Pumps, EQT026	225 days	Jan 20 '22	Sep 1 '22	Jan 20 '22	May 29 '23	270 days										
786	786.5.20.7.10.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Jan 20 '22	Jul 18 '22	Jan 20 '22	Apr 14 '23	0 days	748	787								
787	787.5.20.7.10.2	Shipping and Delivery of Plant to site	45 days	Jul 19 '22	Sep 1 '22	Apr 15 '23	May 29 '23	166 days	786	871								
788	788.5.20.7.11	Stoplogs and Penstocks, EQT013	474 days	Dec 27 '21	Apr 14 '23	Dec 27 '21	Apr 14 '23	0 days										
789	789.5.20.7.11.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Dec 27 '21	Aug 23 '22	Dec 27 '21	Feb 28 '23	189 days	746	790								
790	790.5.20.7.11.2	Shipping and Delivery of Plant to site	45 days	Mar 1 '23	Apr 14 '23	Mar 1 '23	Apr 14 '23	0 days	789,88255-60 edays	857								
791	791.5.20.7.12	Valves for Inlet Works no.1, PST no. 1-4, BR2A2B, MFB2 and Flowmeter and Valve Chamb	285 days	Apr 21 '22	Jan 30 '23	Apr 21 '22	Jan 30 '23	0 days	56,63,59									
792	792.5.20.7.12.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Apr 21 '22	Dec 16 '22	Apr 21 '22	Dec 16 '22	0 days	746,737FS-60 days	793								
793	793.5.20.7.12.2	Shipping and Delivery of Plant to site	45 days	Dec 17 '22	Jan 30 '23	Dec 17 '22	Jan 30 '23	0 days	792									
794	794.5.20.7.13	DOU 3B	225 days	Dec 20 '21	Aug 2 '22	Dec 20 '21	Dec 12 '23	496 days										
795	795.5.20.7.13.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Dec 20 '21	Jun 18 '22	Dec 20 '21	Oct 28 '23	0 edays	749	796								
796	796.5.20.7.13.2	Shipping and Delivery of Plant to Site	45 edays	Jun 18 '22	Aug 2 '22	Oct 28 '23	Dec 12 '23	316.63 ed...	795	906								
797	797.5.20.7.14	FRP Air Ductwork for DOU3B	225 days	Dec 20 '21	Aug 2 '22	Dec 20 '21	Dec 12 '23	496 days										
798	798.5.20.7.14.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Dec 20 '21	Jun 18 '22	Dec 20 '21	Oct 28 '23	0 edays	749	799								
799	799.5.20.7.14.2	Shipping and Delivery of Plant to Site	45 edays	Jun 18 '22	Aug 2 '22	Oct 28 '23	Dec 12 '23	316.63 ed...	798	906								
800	800.5.20.7.15	Building Services	225 days	Dec 2 '19	Jul 13 '20	Dec 2 '19	Jul 13 '20	0 days?										
801	801.5.20.7.15.1	MVAC Equipment	120 days?	Dec 2 '19	Mar 30 '20	Dec 2 '19	Mar 30 '20	0 days?										
802	802.5.20.7.15.1	Manufacturing and FAT for MVAC Equipment	120 days	Dec 2 '19	Mar 30 '20	Dec 2 '19	Mar 30 '20	0 days		803								
803	803.5.20.7.15.1	Shipping and Delivery for MVAC Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	802	948,942								
804	804.5.20.7.15.2	Lighting and Power Distribution System Equipment	180 days?	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days?										
805	805.5.20.7.15.2	Manufacturing and FAT for Lighting and Power Distribution System Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		806								
806	806.5.20.7.15.2	Shipping and Delivery for Lighting and Power Distribution System Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	805	948,943								
807	807.5.20.7.15.3	Plumbing Equipment	180 days?	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days?										
808	808.5.20.7.15.3	Manufacturing and FAT for Plumbing Equipment	180 days	Dec 2 '19	May 29 '20	Dec 2 '19	May 29 '20	0 days		809								
809	809.5.20.7.15.3	Shipping and Delivery for Plumbing Equipment	30 days	Dec 3 '19	Jan 1 '20	Dec 3 '19	Jan 1 '20	0 days	808	1377,948								



ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2019	2020	2021	2022	2023	2024	2025						
												S	M	T	W	T	F	S	M	T	W	T	F	S
1326	1326.5.32.6.1.1	Design Review of Approved General Building Plan	126 days	Oct '21	Mar '22	Oct '21	Mar '22	0 days	1322	1327														
1327	1327.5.32.6.1.2	Submission of WWO542 for WSD's approval	270 days	Mar '22	Nov '22	Mar '22	Oct '23	314 days	1326	1328														
1328	1328.5.32.6.1.3	Submission of WWO46 for WSD's Inspection	30 days	Dec '23	Jan '24	Oct '23	Nov '23	0 days	1327,946,671,380,529,815	1329														
1329	1329.5.32.6.1.4	Obtain WWO46 Part V	60 days	Jan '24	Mar '24	Nov '23	Jan '24	0 days	1328	1332,1330														
1330	1330.5.32.6.1.5	FSD Inspection and Approval for MVAC	21 days	Mar '24	Mar '24	Jan '24	Jan '24	0 days	1340,1341,1329	1333														
1331	1331.5.32.6.1.6	FSD Inspection and Approval for DG Stores	21 days	Feb '24	Feb '24	Jan '24	Jan '24	0 days	1340,1341,997	1333														
1332	1332.5.32.6.1.7	Submission of (FSI/314 & FSI/501) to FSD	14 days	Mar '24	Mar '24	Jan '24	Jan '24	0 days	1340,1341,1329,1354FF,1349,1	1333														
1333	1333.5.32.6.1.8	Pre-inspection meeting with FSD	5 days	Mar '24	Mar '24	Jan '24	Feb '24	0 days	1332,1330,1331	1334														
1334	1334.5.32.6.1.9	Initial Inspection with FSD	15 days	Mar '24	Apr '24	Feb '24	Feb '24	0 days	1333	1335														
1335	1335.5.32.6.1.10	Document Checking	45 days	Apr '24	May '24	Feb '24	Apr '24	0 days	1334	1336														
1336	1336.5.32.6.1.11	Re-inspections with FSD	14 days	May '24	Jun '24	Apr '24	Apr '24	0 days	1335	1337														
1337	1337.5.32.6.1.12	Issue of acceptance memo by FSD	14 days	Jun '24	Jun '24	Apr '24	May '24	0 days	1336	1319FF														
1338	1338.5.32.6.1.13	Installation of FS Pumps and Sprinkler Pumps	60 days	Apr '23	Jun '23	Sep '23	Nov '23	161 days		1341	FS - A x 4*6 men													
1339	1339.5.32.6.1.14	Installation of Fire Hydrant and Booster Pumps	60 days	Apr '23	Jun '23	Sep '23	Nov '23	161 days		1341	FS - A x 4*6 men													
1340	1340.5.32.6.1.15	SAT for Manual and automatic fire detection and alarm system	60 days	Dec '23	Feb '24	Nov '23	Jan '24	0 days	1044,997,946,671,380,529,815	1332,1330,1331														
1341	1341.5.32.6.1.16	SAT for Fire hydrants, hose reels and street fire hydrant system	60 days	Dec '23	Feb '24	Nov '23	Jan '24	0 days	1338,1339,1044,997,946,671,3	1332,1330,1331														
1342	1342.5.33	Fire Services Sprinkler Pumping Room, Portion B-7 & B-7B (PS 6B.6.9)	421 days	May '22	Jul '23	Dec '22	Jan '24	200 days																
1343	1343.5.33.1	Site Installation Work	421 days	May '22	Jul '23	Dec '22	Jan '24	200 days																
1344	1344.5.33.1.1	Tentative Civil Handover Date, FS Sprinkler Pump Room (Rev. 5)	1 day	May '22	May '22	Dec '22	Dec '22	0 days		1345,1350														
1345	1345.5.33.1.2	Commencement of E&M Installation at FS & Sprinkler Pump Room	420 days	May '22	Jul '23	Dec '22	Jan '24	200 days	1344															
1346	1346.5.33.1.2.1	Mechanical Installations for FS & Sprinkler Pumps	90 edays	May '22	Aug '22	Dec '22	Mar '23	0 edays		1347	FS - A x 4*6 men													
1347	1347.5.33.1.2.2	Electrical Installations for FS & Sprinkler Pumps	90 edays	May '22	Nov '22	Nov '22	Mar '23	0.63 edays	1346	1348,1351,135	FS - A x 4*6 men													
1348	1348.5.33.1.2.3	Site Acceptance Test for FS & Sprinkler Pumps	45 days	Nov '22	Dec '22	Oct '23	Dec '23	0 days	1347	1349														
1349	1349.5.33.1.2.4	System Commissioning for FS & Sprinkler Pumps	45 days	Dec '22	Feb '23	Dec '23	Jan '24	336 days	1348	1332														
1350	1350.5.33.1.2.5	Building Services Installations at FS & Sprinkler Pump Room	240 days	Nov '22	Jul '23	Jun '23	Jan '24	200 days	1344															
1351	1351.5.33.1.2.5.1	Lighting and Power Distribution System, Chem 1&2	120 days	Nov '22	Mar '23	Jun '23	Oct '23	0 days	1347,197	1354	BS - A x 4*6 men													
1352	1352.5.33.1.2.5.2	Lightning Protection System, FS & Sprinkler Pump Room	30 days	Nov '22	Dec '22	Sep '23	Oct '23	90 days	1347	1354	BS - A x 4*6 men													
1353	1353.5.33.1.2.5.3	Mechanical Ventilation System, FS & Sprinkler PR	14 days	Nov '22	Nov '22	Sep '23	Oct '23	106 days	1347	1354	MVAC - A x 4*6 men													
1354	1354.5.33.1.2.5.4	Testing and Commissioning of Building Services Installations, FS & Sprinkler PR	120 days	Mar '23	Jul '23	Oct '23	Jan '24	200 days	1351,1352,1353	1332FF														
1355	1355.5.34	Fire Hydrant and Booster Pumping Room, Portion B7 & B-7B (PS 6B.6.9)	465 days	May '22	Aug '23	Oct '22	Jan '24	156 days																
1356	1356.5.34.1	Site Installation Work	465 days	May '22	Aug '23	Oct '22	Jan '24	156 days																
1357	1357.5.34.1.1	Tentative Civil Handover Date, Fire Hydrant and Booster Pumping Room (Rev. 5)	1 day	May '22	May '22	Oct '22	Oct '22	0 days		1037FF+50 day														
1358	1358.5.34.1.2	Commencement of E&M Installation at Street FH Pump Room	464 days	May '22	Aug '23	Oct '22	Jan '24	156 days																
1359	1359.5.34.1.2.1	Mechanical Installations for Street FH Pumps	90 edays	May '22	Aug '22	Oct '22	Jan '23	0 edays	1357	1360	FS - A x 4*6 men													
1360	1360.5.34.1.2.2	Electrical Installations for Street FH Pump	90 edays	May '22	Nov '22	Jan '23	Apr '23	0.63 edays	1359	1361,1364	FS - A x 4*6 men													
1361	1361.5.34.1.2.3	Site Acceptance Test for Street FH Pump	45 days	Nov '22	Dec '22	Nov '23	Dec '23	0 days	1360	1362														
1362	1362.5.34.1.2.4	System Commissioning for Street FH Pumps	45 days	Dec '22	Feb '23	Dec '23	Jan '24	350 days	1361	1332FF														
1363	1363.5.34.1.2.5	Building Services Installations at Street FH Pump Room	284 days	Nov '22	Aug '23	Apr '23	Jan '24	156 days																
1364	1364.5.34.1.2.5.1	Lighting and Power Distribution System, Street FH PR	120 days	Nov '22	Mar '23	Apr '23	Aug '23	0 days	1360,197	1367,1365	BS - A x 4*6 men													
1365	1365.5.34.1.2.5.2	Lightning Protection System, Street FH PR	30 days	Mar '23	Apr '23	Aug '23	Sep '23	0 days	1364	1366,1367	BS - A x 4*6 men													
1366	1366.5.34.1.2.5.3	Mechanical Ventilation System, Street FH PR	14 days	Apr '23	Apr '23	Sep '23	Oct '23	0 days	1365	1367	MVAC - A x 4*6 men													
1367	1367.5.34.1.2.5.4	Testing and Commissioning of Building Services Installations, FH PR	120 days	Apr '23	Aug '23	Oct '23	Jan '24	156 days	1364,1365,1366	1332FF														
1368	1368.5.35	Plumbing Installation (PS 6B.6.8)	1110 days	Feb '21	Mar '24	Feb '21	Mar '24	0 days																
1369	1369.5.35.1	Planned Sectional Completion Date - Section 1, Plumbing	0 days	Jul '21	Jul '21	Jul '21	Jul '21	0 days	1371FF															
1370	1370.5.35.2	Design Submissions for Plumbing	134 days	Feb '21	Jun '21	Feb '21	Jun '21	0 days																
1371	1371.5.35.2.1	CDS033 - Detailed Design for Plumbing System	134 edays	Feb '21	Jun '21	Feb '21	Jun '21	0 edays	167	1374,1369FF														
1372	1372.5.35.3	Site Installation Work	976 days	Jul '21	Mar '24	Jul '21	Mar '24	0 days																
1373	1373.5.35.3.1	Commencement of Plumbing Installation	976 days	Jul '21	Mar '24	Jul '21	Mar '24	0 days																
1374	1374.5.35.3.1.1	Submission of detail design for acceptance	90 days	Jul '21	Sep '21	Jul '21	Sep '21	0 days	1371	1375	Pb - A x 4*6 men													
1375	1375.5.35.3.1.2	Submission of WWO542 for WSD's approval	355 days	Sep '21	Sep '21	Sep '21	May '23	188 days	1374	944,669,378,527	Pb - B x 4*6 men													
1376	1376.5.35.3.1.3	Connection of External Pumping System (By others)	0 days	Sep '23	Sep '23	Dec '23	Dec '23	80 days		1377														
1377	1377.5.35.3.1.4	Submission of WWO46 for WSD's Inspection	45 days	Dec '23	Jan '24	Dec '23	Jan '24	0 days	1376,944,669,378,527,809	1378														
1378	1378.5.35.3.1.5	Obtain WWO46 Part V	45 days	Jan '24	Mar '24	Jan '24	Mar '24	0 days	1377	1379														
1379	1379.5.35.3.1.6	Tentative Date for connection of external water pipework (by others)	0 days	Mar '24	Mar '24	Mar '24	Mar '24	0 days	1378															
1380	1380.5.36	Plant Commissioning	404 days	Nov '23	Dec '24	Nov '23	Dec '24	0 days		39FF														
1381	1381.5.36.1	Planned Sectional Completion Date - Section 4, Plant Commissioning	0 days	May '24	May '24	May '24	May '24	0 days																
1382	1382.5.36.2	Design Submission for Treatment Process Plant Testing & Commissioning	90 days	Nov '23	Jan '24	Nov '23	Jan '24	0 days																
1383	1383.5.36.2.1	Document Submission and Resubmission for T&C procedures	90 days	Nov '23	Jan '24	Nov '23	Jan '24	0 days																
1384	1384.5.36.3	System Commissioning Tests of the E&M systems at IW, PST, BR 2A&2B, MFB No. 2, Chemical Dosing Systems, DOUs	7 days	Aug '24	Aug '24	Aug '24	Aug '24	0 days	1101,397,687,951,994,1041,1385															
1385	1385.5.36.4	MBR System Process Startup	45 days	Aug '24	Oct '24	Aug '24	Oct '24	0 days	1384	1386														
1386	1386.5.36.5	Plant Commissioning	45 days	Oct '24	Nov '24	Oct '24	Nov '24	0 days	1385	1389														
1387	1387.5.36.6	Overall commissioning of CCTV system	30 days	Dec '23	Jan '24	Oct '24	Nov '24	307 days	945,670,379,528,812	1389														
1388	1388.5.36.7	Overall commissioning of Facility Computerized Systems (SCADA, CMMS, PMS, IDMS)	28 days	Mar '24	Mar '24	Oct '24	Nov '24	238 days	386,534,939,940	1389														



ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	2019	2020	2021	2022	2023	2024	2025
1389	1389.5.36.8	Overall Plant Commissioning and OSD pre-handover inspections	14 days	Nov 25 '24	Dec 8 '24	Nov 25 '24	Dec 8 '24	0 days	1386,1387,1388									
1390	1390.5.36.9	O&M manual for overall system	14 days	Apr 25 '24	May 8 '24	Apr 25 '24	May 8 '24	0 days										
1391	1391.5.37	CE No. 009 - Provision of an Additional Primary Sludge Thickening System	375 days	Jul 14 '20	Jul 23 '21	Jul 14 '20	Jul 23 '21	0 days										
1392	1392.5.37.1	Detail Design Submission and Approval	77 days	Jul 14 '20	Sep 28 '20	Jul 14 '20	Sep 28 '20	0 days		1394								
1393	1393.5.37.2	Subletting, Procurement, Manufacturing and Delivery	120 days	Jul 31 '20	Nov 27 '20	Jul 31 '20	Nov 27 '20	0 days										
1394	1394.5.37.3	Site Installation	270 days	Oct 17 '20	Jul 13 '21	Oct 17 '20	Jul 13 '21	0 days	1392									
1395	1395.5.37.4	Testing and Commissioning (Rev. 15)	10 days	Jul 14 '21	Jul 23 '21	Jul 14 '21	Jul 23 '21	0 days	1394	1396FF								
1396	1396.5.37.5	Planned Completion Date	1 day	Jul 23 '21	Jul 23 '21	Jul 23 '21	Jul 23 '21	0 days	1395FF									
1397	1397.6	Beam Plus Submissions	1450 days	May 1 '20	Apr 19 '24	May 1 '20	Apr 19 '24	0 days										
1398	1398.6.1	SA10 - Environmental Management Plan	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1399	1399.6.2	SA11 - Air Pollution During Construction	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1400	1400.6.3	SA12 - Noise During Construction	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1401	1401.6.4	SA14 - Noise from Building Equipment	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1402	1402.6.5	SA15 - Light Pollution	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1403	1403.6.6	MAP1 - Timber used for Temporary Works	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1404	1404.6.7	MAP2 - Use of Non-CFC Based Refrigerants	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1405	1405.6.8	MAP3 - Waste Management Plan	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1406	1406.6.9	MA2 - Modular and Standardized Design	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1407	1407.6.10	MAB - Ozone Depleting Substances	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1408	1408.6.11	MA11 - Construction Waste Reduction	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1409	1409.6.12	EUP1 - Minimum Energy Performance	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1410	1410.6.13	EU1 - Reduction of CO2 Emissions	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1411	1411.6.14	EU2 - Peak Electricity Demand Reduction	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1412	1412.6.15	EU6 - Renewable Energy Systems	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1413	1413.6.16	EU9 - Energy Efficient Appliances	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1414	1414.6.17	EU10 - Testing and Commissioning	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1415	1415.6.18	EU11 - Operation and Maintenance	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1416	1416.6.19	EU12 - Meter and Monitoring	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1417	1417.6.20	WUP1 - Water Quality Survey	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1418	1418.6.21	WUP2 - Minimum Water Saving Performance	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1419	1419.6.22	WU1 / WU6 - Annual Water Use / Effluent Discharge to Foul Sewers	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1420	1420.6.23	IEQ1 - Minimum Ventilation Performance	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1421	1421.6.24	IEQ1 - Security	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1422	1422.6.25	IEQ2 - Plumbing and Drainage	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1423	1423.6.26	IEQ3 - Biological Contamination	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1424	1424.6.27	IEQ5 - Construction IAQ Management	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1425	1425.6.28	IEQ6 / IEQ7 - IAQ	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1426	1426.6.29	IEQ9 - Increased Ventilation	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1427	1427.6.30	IEQ11 - Localised Ventilation	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1428	1428.6.31	IEQ12 - Ventilation in Common Areas	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1429	1429.6.32	IEQ13 - Thermal Comfort in Air - Conditioned Premises	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1430	1430.6.33	IEQ16 / IEQ17 - Interior Lighting in Normally Occupied Area / Interior Lighting in Areas not Normally Occupied	1450 days	May 1 '20	Apr 19 '24	May 26 '20	May 14 '24	25 days		39								
1431	1431.7	Summary of compensation events notified	487 days	Feb 25 '20	Jun 25 '21	Feb 25 '20	Jun 25 '21	0 days										
1432	1432.7.1	Compensation Event (CE) No. 001, Special Arrangement in Reducing the Risk of the Spread of Novel Coronavirus	1 day	Feb 25 '20	Feb 25 '20	Feb 25 '20	Feb 25 '20	0 days										
1433	1433.7.2	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										
1434	1434.7.3	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										
1435	1435.7.4	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										
1436	1436.7.5	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										
1437	1437.7.6	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										
1438	1438.7.7	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										
1439	1439.7.8	NCE-PPMI-0202 (CE) Revised GA for F.S. & Sprinkler Pumping Room and Emergency Generator R	1 day	Dec 18 '20	Dec 18 '20	Dec 18 '20	Dec 18 '20	0 days										
1440	1440.7.9	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										
1441	1441.7.10	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										
1442	1442.7.11	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										



ID	WBS	Task Name	Duration between Task Start and Finish	Early Start	Early Finish	Late Start	Late Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart Timeline																											
												2019	2020			2021			2022			2023			2024		2025												
												S	Half 1, 2020	M	Half 2, 2020	S	Half 1, 2021	M	Half 2, 2021	S	Half 1, 2022	M	Half 2, 2022	S	Half 1, 2023	M	Half 2, 2023	S	Half 1, 2024	M	Half 2, 2024	S	Half 1, 2025	M	Half 2, 2025				
1443	1443.7.12	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																															
1444	1444.7.13	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																															
1445	1445.7.14	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																															
1446	1446.7.15	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																															
1447	1447.7.16	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																															
1448	1448.7.17	NCE-PMI-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																															
1449	1449.7.18	NCE-PMI-0223 (CE) Revised GA for Chemical Pipe Trench	1 day	Apr 7 '21	Apr 7 '21	Apr 7 '21	Apr 7 '21	0 days																															
1450	1450.7.19	NCE-PMI-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																															
1451	1451.7.20	NCE-PMI-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																															
1452	1452.7.21	NCE-PMI-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																															