

JOB NO.: TCS01196/22

WSD CONTRACT NO.: 7/WSD/21 -

CONSTRUCTION OF SIU HO WAN WATER TREATMENT WORKS EXTENSION AND SIU HO WAN RAW WATER BOOSTER PUMPING STATION

Monthly Environmental Monitoring and Audit Report – January 2024

PREPARED FOR

CHINA ROAD AND BRIDGE CORPORATION

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8 February 2024		TCS01196/22/600/R0077v1		AS	Am
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Version		Date		Remarks	
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Version	Date	Remarks
1	8 February 2024	First Submission

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Water Supplies Department

**Consultants Management Division** 

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Offices, 1 Sheung Wo Che Road, Sha

8 February 2024

By E-mail

Dear Sir,

#### RE: CONTRACT NO. 7/WSD/21 INDEPENDENT ENVIRONMENTAL CHECKER FOR ENVIRONMENTAL MONITORING AND AUDIT FOR SIU HO WAN WATER TREATMENT WORKS EXTENSION MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT – JANUARY 2024

I refer to the Monthly Environmental Monitoring and Audit Report – January 2024 (Report No.: TCS01196/22/600/R0077v1) received on 8 February 2024 by the Environmental Team (ET), Action-United Environmental Services & Consulting (AUES) via email. In accordance with Condition 4.4 of Environmental Permit No.EP-207/2005/A, I hereby verify the captioned report.

Yours faithfully,

For and on behalf of **Allied Environmental Consultants Ltd.** 

Joanne NG Independent Environmental Checker

JN/tw

c.c.	Action-United Environmental Services & Consulting (AUES)	Attn: Mr. Ben Tam	(By E-mail)
	Binnies Hong Kong Limited	Attn: Mr. Alex TUNG	(By E-mail)



#### **EXECUTIVE SUMMARY**

- ES.01. Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 "Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station" (hereinafter named as the "Works Contract"). Under this Works Contracts, the works mainly comprise of increasing the water treatment capacity of Siu Ho Wan water treatment works (SHW WTW) from 150,000m<sup>3</sup> per day to 300,000m<sup>3</sup> per day within the existing water treatment works compound, by constructing new water treatment facilities and a new laboratory building and modifying the existing associated facilities; and constructing a new raw water booster pumping station at Siu Ho Wan to increase the raw water transfer capacity from Tai Lam Chung Reservoir to SHW WTW.
- ES.02. According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A (hereinafter called the "EP"). Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.
- ES.03. On 20 March 2022, *China Road and Bridge Corporation* (hereinafter called the "Main *Contractor*") awarded the *Works Contracts* 7/*WSD*/21. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under *Contracts* 7/*WSD*/21 during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.
- ES.04. The Main-*Contractor* appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the "ET") to implement air quality monitoring as well as associated duties in accordance with the EM&A Manual stipulation.
- ES.05. As advised by the *Contractor*, the major construction works under Works Contract was commenced on 24 May 2022. This is the **21**<sup>st</sup> Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from *1 to 31 January 2024*.

#### **ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES**

ES.06. Environmental monitoring activities under the EM&A programme for the Contract in the Reporting Month are summarized in the following table.

Issues	Environmental Monitoring Parameters / Inspection	Sessions
Air Quality	24-Hour TSP	5
Inspection /	ET Regular Environmental Site Inspection	5
Audit	Joint site audit with <i>Project Manager</i> 's Delegate and IEC	1

#### ACTION AND LIMIT LEVELS EXCEEDANCE

ES.07. In the Reporting Month, no air quality monitoring exceedance was recorded.

#### SITE INSPECTION

ES.08. In the Reporting Month, joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the *PMD*, ET and the *Contractor* on *3*, *9*, *16*, *23 and 30 January 2024*. Joint site inspection with *PMD*, ET, IEC and the *Contractor* was carried out on *23 January 2024*. No non-compliance was recorded during the site inspections.

#### **ENVIRONMENTAL COMPLAINT**

ES.09. In the Reporting Month, no environmental complaint was received.



#### NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.010. In the Reporting Month, no prosecution or notification of summons was received.

#### **REPORTING CHANGE**

ES.011. There is no reporting change made for this monthly report.

#### FUTURE KEY ISSUES

- ES.012. For dry season, special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.
- ES.013. All effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.
- ES.014. All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.



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#### **1 INTRODUCTION**

#### **1.1 PROJECT BACKGROUND**

- 1.1.1 Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station (hereinafter named as the "Works Contract"). The Project works predicted by WSD will be undertaken about 34 months. Layout plan of the Project is shown in Appendix A.
- 1.1.2 According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A *(hereinafter called the "EP")*. Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.
- 1.1.3 The Works Contract construction activities mainly include:
  - a. Extension of the existing Siu Ho Wan WTW within the existing Siu Ho Wan WTW compound from a capacity of 150,000 m<sup>3</sup>/day to 300,000 m<sup>3</sup>/day
  - b. Uprating of the treated/fresh water pumping capacity in the existing Siu Ho Wan Raw Water and Fresh Water Pumping Station within the existing Siu Ho Wan WTW compound from a capacity of 150,000 m<sup>3</sup>/day to 300,000 m<sup>3</sup>/day
  - c. Construction of the proposed Siu Ho Wan Raw Water Booster Pumping Station and the laying of the associated water mains
- 1.1.4 On 20 March 2022, *China Road and Bridge Corporation* (hereinafter called the "Main *Contractor*") awarded the Works Contracts 7/WSD/21. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under Contracts 7/WSD/21 during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.
- 1.1.5 The Main-*Contractor* appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the "ET") to implement air quality (baseline and impact) monitoring as well as associated duties in accordance with the EM&A Manual stipulation.
- 1.1.6 Some design changes of the Project have been identified after the EIA stage for betterment in the design development. Some of these changes requires supplementary environmental review to address their likely environmental impacts and to identify any additional mitigation measures required for compliance with the EIAO. Supplementary environmental review has been performed for the changes and the review results are presented in the "Review Report on Environmental Impact Assessment (Review Report on EIA)" prepared under "Agreement No. CE 82/2017 (WS)". Having reviewed the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension.
- 1.1.7 According to the approved EM&A Manual, only air quality is required to be monitored during the construction phase of the Project. As part of the EM&A program, baseline monitoring is required to determine the ambient environmental conditions. Pursuant to the EM&A Manual, baseline environmental monitoring is required to be conducted prior to commencement of the construction works under the Project. Baseline air quality monitoring was conducted from 8 to 21 April 2022. During the baseline monitoring period, no major construction activities under the Project was observed.
- 1.1.8 As advised by the *Contractor*, the major construction works under Works Contract was commenced on 24 May 2022. This is the  $21^{st}$  Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from *1 to 31 January 2024*.



#### **1.2 REPORT STRUCTURE**

- 1.2.1 The Monthly EM&A Report is structured into the following sections:-
  - Section 1 Introduction
  - Section 2 Project Organization and Construction Progress
  - Section 3 Summary of Impact Monitoring Requirements
  - Section 4 Air Quality Monitoring
  - Section 5 Waste Management
  - Section 6 Site Inspections
  - Section 7 Environmental Complaints and Non-Compliances
  - Section 8 Implementation Status of Mitigation Measures
  - Section 9 Conclusions and Recommendations



#### 2 PROJECT ORGANISATION AND CONSTRUCTION PROGRESS

#### 2.1 **PROJECT ORGANISATION**

2.1.1 The project organization is shown in *Appendix B*. The roles and responsibilities of the various parties involved in the EM&A process and the organizational structure of the organizations responsible for implementing the EM&A programme are outlined below.

#### Water Supplies Department (WSD)

2.1.2 WSD is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by WSD to audit the results of the EM&A works carried out by the ET.

#### Environmental Protection Department (EPD)

2.1.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

#### Project Manager's Delegate (PMD)

- 2.1.4 The *PM*D is responsible for overseeing the construction works and for ensuring that the works are undertaken by the *Contractor* in accordance with the specification and contract requirements. The duties and responsibilities of the *PD*M with respect to EM&A are:
  - Supervise the *Contractor*'s activities and ensure that the requirements in the EM&A Manual are fully complied with;
  - Inform the *Contractor* when action is required to reduce impacts in accordance with the Event and Action Plans;
  - Comply with the agreed Event Contingency Plan in the event of any exceedance.

#### The Contractor

- 2.1.5 The Main *Contractor* is responsible perform construction works and for ensuring that the works are undertaken compliance with the specification and contract requirements. The duties and responsibilities of the Main *Contractor* with respect to EM&A are:
  - Employ an ET to undertake monitoring, laboratory analysis and reporting of environmental monitoring and audit;
  - Provide information / advice to the ET regarding works activities which may contribute, or be continuing to the generation of adverse environmental conditions;
  - Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event and Action Plans;
  - Implement measures to reduce impact whenever Action and Limit levels are exceeded;
  - Implement the corrective actions instructed by *PM*D;
  - Accompany joint site audit undertaken by the ET; and
  - Adhere to the procedures for carrying out complaint investigation.

#### Environmental Team (ET)

- 2.1.6 The ET is responsible perform implementation EM&A programmes of the Contract Works as stipulated in the Updated EM&A Manual ensure the works are fully compliance with environmental regulations. The duties and responsibilities of the ET with respect to EM&A are:
  - Set up all the required environmental monitoring stations;
  - Monitor various environmental parameters as required in the EM&A Manual;
  - Analyze the EM&A data and review the success of EM&A programme to cost effectively confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify any adverse environmental impacts arising;
  - Carry out site inspection to investigate and audit the *Contractor*'s site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and take proactive actions to pre-empt problems;
  - Audit and prepare audit reports on the environmental monitoring data and site environmental conditions;



- Report on the EM&A results to the IEC, *Contractor*, the *PMD* and EPD or its delegated representative;
- Recommend suitable mitigation measures to the *Contractor* in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans;
- Undertake regular and ad-hoc on-site audits / inspections and report to the *Contractor* and the ER of any potential non-compliance; and
- Follow up and close out non-compliance actions.

#### Independent Environmental Checker (IEC)

- 2.1.7 The duties and responsibilities of IEC with respect to EM&A are:
  - Review the EM&A works performed by the ET (at not less than monthly intervals);
  - Audit the monitoring activities and results (at not less than monthly intervals);
  - Report the audit results to the *PM*D and EPD in parallel;
  - Review the EM&A reports (monthly summary reports) submitted by the ET;
  - Review the proposal on mitigation measures submitted by the *Contractor* in accordance with the Event and Action Plans;
  - Check the mitigation measures submitted by the *Contractor* in accordance with the Event and Action Plans;
  - Check the mitigation measures that have been recommended in the EIA and this Manual, and ensure they are properly implemented in a timely manner, when necessary;
  - Report the findings of site inspections and other environmental performance reviews to *PM*D and EPD;
  - Coordinate the monitoring and auditing works for all the on-going contracts in the area in order to identify possible sources / causes of exceedances and recommend suitable remedial actions where appropriate; and
  - Coordinate the assessment and response to complaints / enquires from locals, green groups, district councils or the public at large.

#### 2.2 CONSTRUCTION PROGRESS

- 2.2.1 The major construction activities conducted under the Contract in the Reporting Period are listed below. The 3-month rolling construction programme is shown in *Appendix C*.
  - Concreting works for the structure of BPS at portion BPS-1
  - Excavation works at WTB
  - Construction of base slab for WTB
  - Dismantle of lateral support at OLB
  - Construction of base slab for at OLB
  - Construction of tower crane at OLB
  - Excavation, pipelaying and backfilling works for DN1200 watermain, DN100 and DN200 sludge pipe
  - Construction of R.C. pipe trough at portion BPS-3
  - Pipelaying works at portion BPS-3
  - Pipelaying works at access road of portion WTW-7
  - E&M modification works at existing Chemical Building
- 2.3 SUMMARY OF ENVIRONMENTAL PERMITS AND LICENCES
- 2.3.1 Summary of the relevant permits, licences, and/or notifications on environmental protection for the Project are presented in *Table 2-1*.

Table 2-1Status of Environmental Licences and I	Permits of the Contract
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		Licence/Permit Status			
Item	Description	Reference No./ License No./ Account No.	Approval Date	Expiry Date	Status
1	Air Pollution Control	Ref: 477913	23 Mar 2022	N/A	Valid



		Licence/Permit Status				
Item	Description	Reference No./ License No./ Account No.	Approval Date	Expiry Date	Status	
	(Construction Dust)					
	Regulation					
2	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	EPD Ref. No: RS02509 Acc. No.: 7043631	08 Apr 2022	N/A	Valid	
3	Chemical Waste Producer Registration	5213-961-C4701-01	31 May 2023	N/A	Valid	
4	Water Pollution Control Ordinance – Discharge Licence	WT00041885-2022	8 Sep 2022	30 Sep 2027	Valid	
5	Construction Noise Permit	GW-RS0714-23	18 Aug 2023	17 Feb 2024	Valid	



### **3** SUMMARY OF IMPACT MONITORING REQUIREMENTS

#### **3.1 GENERAL**

- 3.1.1 Only air quality monitoring is required to carry out related to Works contracts 7/WSD/21 during the construction phase to ensure the dust mitigation measures and performance properly implementation.
- 3.1.2 The other environmental monitoring for Works Area of Pui O was related to other Works Contracts and will be implemented by other appointed ET.
- 3.1.3 According to the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension. Air quality monitoring work will be implemented according to the EM&A Manual.

#### **3.2 MONITORING PARAMETERS**

- 3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:Air quality;
- 3.2.2 A summary of impact monitoring parameters is presented in *Table 3-1*:

#### Table 3-1Summary of Monitoring Parameters

Environmental Issue	Parameters
Air Quality	<ul> <li>1-hour TSP by Real-Time Portable Dust Meter( as required in case of complaints); and</li> <li>24-hour TSP by High Volume Air Sampler.</li> </ul>

#### **3.3** MONITORING LOCATIONS

3.3.1 According to the Review Report on EIA, air quality monitoring work should be implemented according to the EM&A Manual. As stated in Section 4 of EM&A Manual, there was only one air quality monitoring station designated under SHW WTW Extension. The air quality monitoring locations is listed in *Table 3-2*.

#### Table 3-2Designated Air Quality Monitoring Stations

Monitoring Station Identification No	Location	
SHWAB	Siu Ho Wan WTW Administration Building	

#### 3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 The requirements of impact monitoring are stipulated in *Sections 2.1.9* of the approved EM&A Manual and presented as follows.

#### <u>Air Quality Monitoring</u>

- 3.4.2 Frequency of impact air quality monitoring is as follows:
  - 1-hour TSP 3 times every six days (as required in case of complaints)
  - 24-hour TSP Once every 6 days during course of works.

#### **3.5 MONITORING EQUIPMENT**

#### Air Quality Monitoring

- 3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.* If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve.
- 3.5.2 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.



3.5.3 All equipment to be used for air quality monitoring are listed in below table.

#### Table 3-3Air Quality Monitoring Equipment

Equipment	Model			
	24-Hr TSP			
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170*			
Calibration Kit	TISCH Model TE-5025A*			
	1-Hour TSP			
Portable Dust Meter	Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter / SidePak <sup>™</sup> Personal Aerosol Monitor AM510			

\* Instrument was used in the Reporting Period and the calibration certificate could be referred in Appendix E.

#### **3.6 MONITORING PROCEDURES**

#### <u>1-hour TSP</u>

- 3.6.1 Operation of the 1-hour TSP meter will follow manufacturer's Operation and Service Manual.
- 3.6.2 The 1-hour TSP monitor, brand named "Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter" is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 900 light scattering. The 1-hour TSP monitor consists of the following:
  - a. A pump to draw sample aerosol through the optic chamber where TSP is measured;
  - b. A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
  - c. A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.
- 3.6.3 The 1-hour TSP meter to be used will be within the valid period, calibrated by the manufacturer prior to purchasing. Span check and BG of the instrument will be performed before each monitoring event. A valid calibration certificate is attached in *Appendix E*.

#### 24-hour TSP

- 3.6.4 The equipment used for 24-hour TSP measurement is the High Volume Sampler (hereinafter the "HVS") brand named TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50.* The HVS consists of the following:
  - a. An anodized aluminum shelter;
  - b. A 8"x10" stainless steel filter holder;
  - c. A blower motor assembly;
  - d. A continuous flow/pressure recorder;
  - e. A motor speed-voltage control/elapsed time indicator;
  - f. A 7-day mechanical timer, and
  - g. A power supply of 220v/50 Hz
- 3.6.5 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between 0.6m<sup>3</sup>/min and 1.7m<sup>3</sup>/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-
  - A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
  - Installed with elapsed-time meter with  $\pm 2$  minutes accuracy for 24 hours operation;



- Equipped with a timing/control device with  $\pm$  5 minutes accuracy for 24 hours operation;
- With flow control accuracy for  $\pm 2.5\%$  deviation over 24-hour sampling period;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.
- 3.6.6 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.
- 3.6.7 The HVS used for 24-hour TSP monitoring will be calibrated before the commencement for sampling, and after in two months interval with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m<sup>3</sup>/min. Motor brushes of HVS will be regularly replaced of about five hundred hours per time. Valid certificates of the calibration kit and HVS are attached in *Appendix E*.

### **3.7 DERIVATION OF ACTION/LIMIT (A/L) LEVELS**

3.7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual, the air quality criteria were set up, namely Action and Limit levels are listed in *Tables 3-4*.

Table 3-4Action and Limit Levels of Air Quality

Monitoring Station	Action Level (µg /m <sup>3</sup> )		Limit Level (µg/m <sup>3</sup> )	
Monitoring Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
SHWAB	291	170	500	260

#### **3.8** METEOROLOGICAL INFORMATION

3.8.1 The meteorological information including wind direction, wind speed, humidity, rainfall, air pressure and temperature is extracted from the Chek Lap Kok Station. Meteorological data are attached in *Appendix J*.

### **3.9** DATA MANAGEMENT AND DATA QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

- 3.9.1 All monitoring data were handled by the ET's in-house data recording and management system.
- 3.9.2 The monitoring data recorded in the equipment were downloaded directly from the equipment at each monitoring day or after completion of baseline measurement. The downloaded monitoring data were input into a computerized database properly maintained by the ET. The laboratory results were input directly into the computerized database and checked by personnel other than those who input the data.
- 3.9.3 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.



#### 4 AIR QUALITY MONITORING

#### 4.1 GENERAL

- 4.1.1 The air quality monitoring schedule is presented in *Appendix* G and the monitoring results are summarised in the following sub-sections.
- 4.1.2 In the reporting Period, no air quality complaint was received, thus no 1-hour TSP monitoring required to conduct according to *Section 2.19* of the approved EM&A Manual.

#### 4.2 AIR MONITORING RESULTS

4.2.1 In the Reporting Period, a total of 5 events 24-hour TSP monitoring were carried out and the monitoring results are summarized in *Table 4-1*. The detailed 24-hour monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

 Table 4-1
 Summary of 24-hour TSP Monitoring Result – SHWAB

24-hou	24-hour TSP (μg/m <sup>3</sup> )						
Date	Meas. Result						
4-Jan-24	77						
10-Jan-24	76						
16-Jan-24	69						
22-Jan-24	83						
27-Jan-24	95						
Average	80						
(Range)	(69 - 95)						

- 4.2.2 As shown in *Tables 4-1*, all the 24-hour TSP monitoring results were below the Action/Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.
- 4.2.3 The meteorological data during the impact monitoring days are summarized in *Appendix J*.



#### 5 WASTE MANAGEMENT

#### 5.1 GENERAL WASTE MANAGEMENT

5.1.1 Waste management was carried out in accordance with the Waste Management Section in the Environmental Management Plan for the Contract.

#### 5.2 **RECORDS OF WASTE QUANTITIES**

- 5.2.1 All types of waste arising from the construction works are broadly classified into the following:
  - Insert construction and demolition (C&D) material; and
  - C&D waste.
- 5.2.2 The quantities of waste for disposal in this Reporting Month under the Contract are summarised in *Tables 5-1* and *5-2* and the Waste Flow Table as shown in *Appendix K*. Whenever possible, materials were reused on-site as far as practicable.

#### Table 5-1Summary of Quantities of Inert C&D Materials for the Contract

Туре	Quantity in Reporting Month	Disposal / Dumping Ground
Reused in this Contract (Inert) (in T)	0	NA
Reused in other Contracts/ Projects (Inert) (in T)	0	NA
Disposal as Public Fill (Inert) (in T)	1238.380	TM 38

#### Table 5-2Summary of Quantities of C&D Wastes for the Contract

Туре	Quantity in Reporting Month	Disposal / Dumping Ground
Recycled Metal ('000kg)	0.0022	NA
Recycled Paper / Cardboard Packing ('000kg)	4.5060	NA
Recycled Plastic ('000kg)	0.0030	NA
Chemical Wastes ('000kg)	0	NA
General Refuses (in T)	29.490	NENT



#### **6 SITE INSPECTIONS**

#### 6.1 **REQUIREMENTS**

6.1.1 According to the EM&A Manual, the programme of environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections were carried out to confirm the environmental performance.

#### 6.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

6.2.1 In the Reporting Month, joint site inspections to evaluate the site environmental performance were carried out by the representatives of the *PM*D, ET and the *Contractor* on *3*, *9*, *16*, *23 and 30 January 2024*. Joint site inspection with *PM*D, ET, IEC and the *Contractor* was carried out on *23 January 2024*. No non-compliance was recorded.

6.2.2 The findings / deficiencies observed during the weekly site inspections are listed in *Table 6-1*.

Table 0-1 Site	able 0-1 Site Observations for the Contract							
Date	<b>Findings / Deficiencies</b>	Follow-Up Status						
3 January 2024	• The Contractor should remove or place chemical containers inside drip tray to prevent leak out of site. (WTB)	Chemical container was removed.						
9 January 2024	• The Contractor should remove construction waste and dispose empty cement bags. (BPS)	Construction waste was removed						
	• The Contractor should clean oil stain properly to prevent leak out. (BPS)	• Oil stain was cleaned.						
	• The Contractor was reminded to improve house-keeping.	• Reminder only.						
16 January 2024	• No environmental was observed during site inspection.	• NA						
23 January 2024	• The Contractor was reminded to provide mitigation measures to reduce noise impact. (WTB)	• Reminder only.						
30 January 2024	• The Contractor should dispose chemical containers properly to avoid leakage. (WTB)	• Chemical containers were removed.						
	• The Contractor was reminded to provide garbage skip. (WTB)	• Reminder only.						

Table 6-1Site Observations for the Contract



### 7 ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCES

#### 7.1 Environmental Complaints, Summons and Prosecutions

- 7.1.1 There was no environmental complaint, prosecution or notification of summons received in the Reporting Month.
- 7.1.2 The statistical summary table of the environmental complaints, summons and prosecution are presented in *Tables 7-1, 7-2* and *7-3*. Detailed complaint log for the Contract is presented in *Appendix L*.

### Table 7-1Statistical Summary of Environmental Complaints

Donorting Month	<b>Environmental Complaint Statistics</b>								
Reporting Month	Frequency	Cumulative	Project related complaint						
24 May 2022 to 31 December 2023	0	0	0						
1 to 31 January 2024	0	0	0						

### Table 7-2 Statistical Summary of Environmental Summons

Donouting Month	<b>Environmental Summons Statistics</b>								
Reporting Month	Frequency	Cumulative	Project related summons						
24 May 2022 to 31 December 2023	0	0	0						
1 to 31 January 2024	0	0	0						

### Table 7-3 Statistical Summary of Environmental Prosecution

Departing Month	<b>Environmental Prosecution Statistics</b>								
<b>Reporting Month</b>	Frequency	Cumulative	<b>Project related prosecution</b>						
24 May 2022 to 31 December 2023	0	0	0						
1 to 31 January 2024	0	0	0						



#### 8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

#### 8.1 GENERAL REQUIREMENTS

- 8.1.1 The environmental mitigation measures recommended in the ISEMM in the EM&A Manual covered the issues of dust, noise, water, waste, land contamination and ecology and they are summarised and presented in *Appendix M*.
- 8.1.2 The Contract works under the Project shall be implementing the required environmental mitigation measures according to the EM&A Manual as subject to the site conditions. Environmental mitigation measures generally implemented by the Contract and the implementation status are shown in *Appendix M*.

#### 8.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 8.2.1 According to the information provided by the *Contractor*, the major construction activities under the Contract in the coming month are listed below:
  - Concreting works for the structure of BPS at portion BPS-1
  - Excavation works at WTB
  - Construction of base slab for WTB
  - Dismantle of lateral support at OLB
  - Construction of base slab for at OLB
  - Construction of tower crane at OLB
  - Excavation, pipelaying and backfilling works for DN1200 watermain, DN100 and DN200 sludge pipe
    - Construction of R.C. pipe trough at portion BPS-3
    - Pipelaying works at portion BPS-3
    - Pipelaying works at access road of portion WTW-7
    - E&M modification works at existing Chemical Building

#### 8.3 KEY ISSUES FOR THE COMING MONTH

- 8.3.1 For dry season, special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.
- 8.3.2 All effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.
- 8.3.3 All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.



#### 9 CONCLUSIONS AND RECOMMENDATIONS

#### 9.1 CONCLUSIONS

- 9.1.1 As advised by the *Contractor*, the major construction works under Works Contract was commenced on 24 May 2022. This is the **21**<sup>st</sup> Monthly EM&A Report presenting monitoring results and inspection finding for the Project for the reporting period from **1** to **31** January 2024.
- 9.1.2 In the Reporting Period, no 24-hour TSP monitoring results triggered the Action/Limit level was recorded. No NOE or the associated corrective actions were therefore issued.
- 9.1.3 In the Reporting Month, joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the *PMD*, ET and the *Contractor* on *3*, *9*, *16*, *23 and 30 January 2024*. Joint site inspection with *PMD*, ET, IEC and the *Contractor* was carried out on *23 January 2024*. No non-compliance was recorded during the site inspections.
- 9.1.4 In the Reporting Month, no environmental complaint, prosecution or notification of summons was received. In addition, no emergency event related to violation of environmental legislation for illegal dumping and landfilling was received.

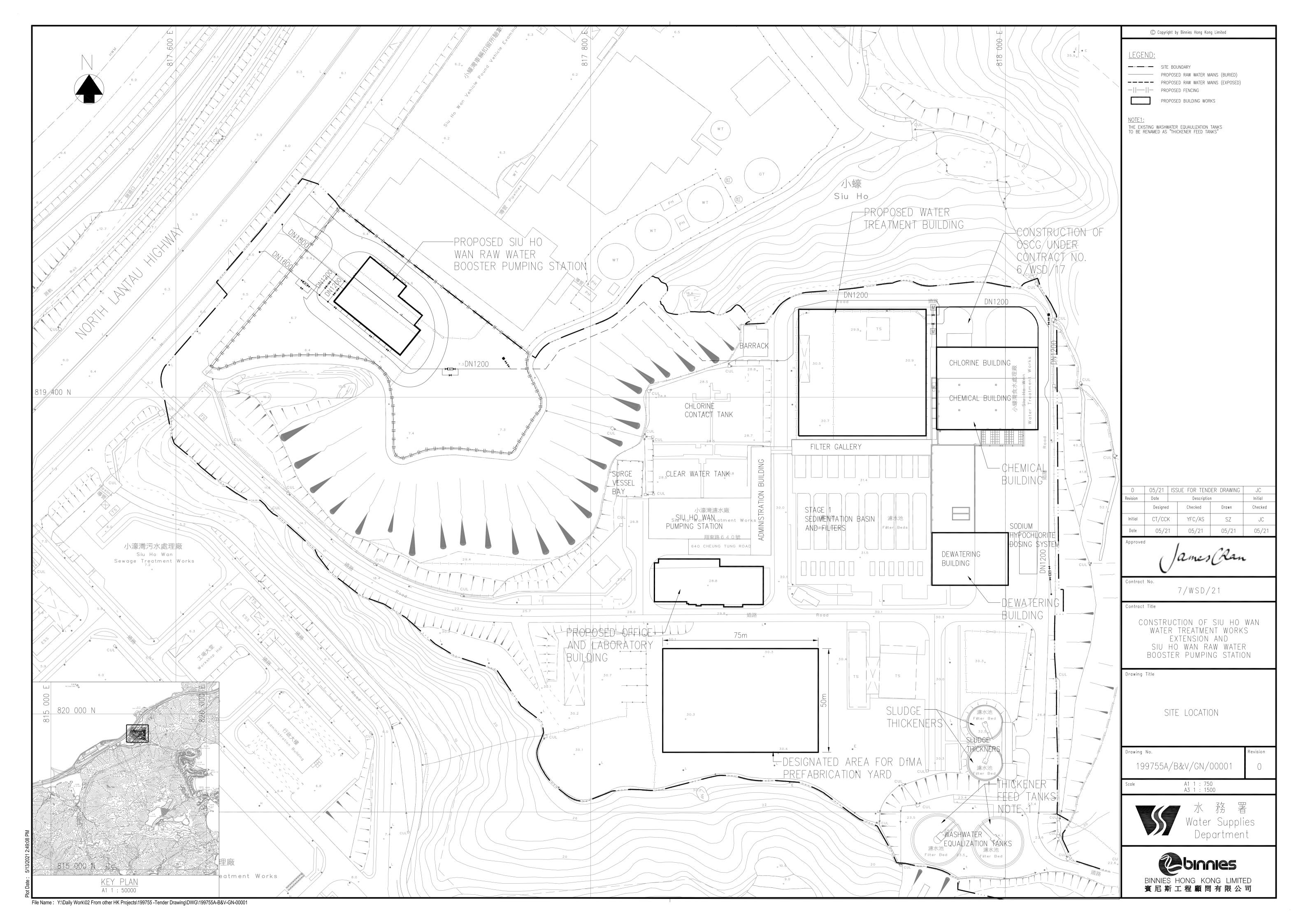
#### 9.2 **RECOMMENDATIONS**

- 9.2.1 For dry season, special attention should be paid on the potential construction dust impact since most of the construction sites are adjacent to Siu Ho Wan Sewage Treatment Works. The *Contractor* should fully implement the construction dust mitigation measures as appropriately.
- 9.2.2 All effluent discharge shall fulfill the requirement of Discharge Licence under the Water Pollution Control Ordinance.
- 9.2.3 All other mitigation measures recommended in the Implementation Schedule for Environmental Mitigation Measures of the EM&A Manual should be properly implemented and maintained as far as practicable.



Appendix A

Layout Plan of the Project

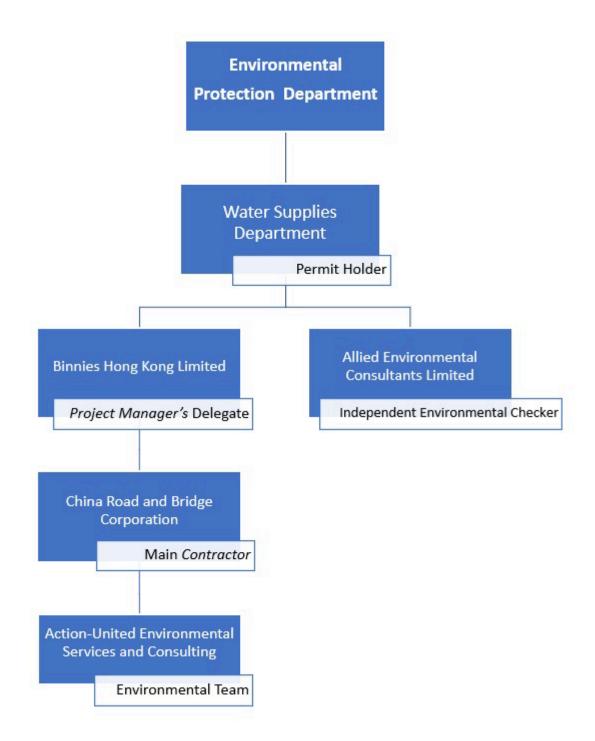




**Appendix B** 

**Project Organisation** 







### Contact Details of Key Personnel

Organisation	Project Role	Position	Name	Tel No.
		Chief Resident Engineer	Mr. Gilbert Ying	6343 1027
Binnies Hong Kong	Project	Senior Resident Engineer	Mr. Alex Tung	9080 0079
Limited	<i>Manager</i> 's Delegate	Resident Engineer	Mr. Patrick Wong	9267 8638
		Assistant Resident Engineer	Ms. Kelly Chan	9039 2863
China Road and		Site Agent	Mr. Eros To	9224 0114
	Contractor	Environmental Manager	Mr. Dennis Ho	5645 0563
Bridge Corporation		Environmental Officer	Ms. Wendy Leung	9877 4750
		Environmental Supervisor	Mr. Patrick Wan	9618 0010
Allied Environmental Consultants Limited	Independent Environmental Checker	Principle Consultant	Ms. Joanne Ng	2815 7028
Action-United Environmental		Environmental Team Leader	Mr. Tam Tak Wing	2959 6059
Services and	Environmental Team	Environmental Consultant	Ms. Nicola Hon	2959 6059
Consulting		Environmental Consultant	Mr. Ben Tam	2959 6059



## Appendix C

## **3-month Rolling Construction Programme**

tivity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start Actual Fir	ish Total Float	Duration % Complete	2023 Dec 23	Jan 24	Ŧ
Construct	ion of Siu Ho Wan Water Treatment Works Exte	941.0d	465.0d 21-Feb-22 18:00 A	09-Apr-25 18:00	21-Feb-22 18:00	519.0d	50.58%	23	24	
Preliminari	ies, Contractor's Design,Method Statement Submiss	926.0d	465.0d 21-Feb-22 18:00 A	09-Apr-25 18:00	21-Feb-22 18:00	519.0d	49.78%			
Contractor	's Design Submission and Approval	750.0d	170.0d 23-May-22 08:00 A		23-May-22 08:00	139.0d	77.33%			_
Major Perm	anent Works Design	750.0d	170.0d 23-May-22 08:00 A		23-May-22 08:00	139.0d	77.33%			_
MDD3010	Hazard and Operability studies	214.0d	15.0d 24-May-22 08:00 A		24-May-22 08:00	294.0d	92.99%			
MDD3015	Design of earth mat	70.0d	15.0d 07-Jul-22 08:00 A	15-Jan-24 18:00	07-Jul-22 08:00	189.0d	78.57%			
MDD3025	Comments and approval of Design for Ozone Equipment	14.0d	14.0d 01-Jan-24 08:00	14-Jan-24 18:00		-35.0d	0%			
MDD3046.2	Comments and approval of CR drawings submission for BPS	14.0d	13.0d 25-Aug-22 08:00 A	13-Jan-24 18:00	25-Aug-22 08:00	-85.0d	7.14%			
MDD3046.4	Comments and approval of CR drawings submission for OLB	15.0d	13.0d 21-Sep-22 08:00 A	13-Jan-24 18:00	21-Sep-22 08:00	-124.0d	13.33%			
MDD3046.5	CR drawings submission for WTB	120.0d	120.0d 01-Jan-24 08:00	29-Apr-24 18:00		-73.0d	0%			
MDD3065	Design for Manufacture and Assembly(DfMA) works for E&M works	210.0d	40.0d 31-Aug-22 08:00 A		31-Aug-22 08:00	-71.0d	80.95%			
MDD3070	Comments and approval of MiMEP design	60.0d	60.0d 10-Feb-24 08:00	09-Apr-24 18:00	00.00	-71.0d	0%			
MDD3080	Design for DAF Equipment	90.0d	30.0d 09-Jun-22 08:00 A	30-Jan-24 18:00	09-Jun-22 08:00	72.0d	66.67%			-
MDD3085	Comments and approval of design for DAF Equipment	60.0d	30.0d 31-Oct-22 08:00 A	30-Jan-24 18:00	31-Oct-22 08:00	67.0d	50%			-
MDD3110	Design for stage 2 architectural works	95.0d	30.0d 28-Feb-23 08:00 A	30-Jan-24 18:00	28-Feb-23 08:00	-118.0d	68.42%			-
MDD3115	Comments and approval of design for stage 2 architectural works	30.0d	30.0d 31-Jan-24 08:00	29-Feb-24 18:00	00.00	-118.0d	0%			
MDD3120	Design for building services (including FSD submission)	90.0d	20.0d 23-May-22 08:00 A		23-May-22 08:00	-2.0d	77.78%			
MDD3125	Comments and approval of design for building services	14.0d	14.0d 10-Feb-24 08:00	23-Feb-24 18:00	00.00	-22.0d	0%			
MDD3126	Design for building services at the existing building	120.0d	30.0d 01-Mar-23 08:00 A	30-Jan-24 18:00	01-Mar-23 08:00	157.0d	75%			-
MDD3127	Comments and approval of design for building services	14.0d	14.0d 31-Jan-24 08:00	13-Feb-24 18:00	00.00	157.0d	0%			_
MDD3135	Comments and approval of design for SRGF Equipment	15.0d	10.0d 21-Apr-23 08:00 A	10-Jan-24 18:00	21-Apr-23 08:00	89.0d	33.33%			
MDD3150	Design for WTB POCT & IOCT Equipment	90.0d	15.0d 31-Oct-22 08:00 A	15-Jan-24 18:00	31-Oct-22 08:00	102.0d	83.33%			
MDD3155	Comments and approval of Design for WTB POCT & IOCT Equipment	28.0d	28.0d 16-Jan-24 08:00	12-Feb-24 18:00	00.00	102.0d	0%			
MDD3160	Design for surge analysis system	90.0d	10.0d 31-Oct-22 08:00 A	10-Jan-24 18:00	31-Oct-22 08:00	-57.0d	88.89%			
MDD3165	Comments and approval of design for surge analysis system	15.0d	15.0d 11-Jan-24 08:00	25-Jan-24 18:00	00.00	-57.0d	0%			
MDD3180	Design for BACF Equipment	90.0d	30.0d 15-Jun-22 08:00 A	30-Jan-24 18:00	15-Jun-22 08:00	170.0d	66.67%			•
MDD3185	Comments and approval of design for BACF Equipment	15.0d	10.0d 24-Oct-22 08:00 A	13-Feb-24 18:00	24-Oct-22 08:00	170.0d	33.33%			1
MDD3200	Design for Chemical Plants Equipment	180.0d	45.0d 19-Jul-22 08:00 A	14-Feb-24 18:00	19-Jul-22 08:00	-34.0d	75%			
MDD3205	Comments and approval of design for Chemical Plants Equipment	30.0d	30.0d 22-Mar-23 08:00 A	28-Feb-24 18:00	22-Mar-23 08:00	224.0d	0%			
MDD3320	Design for WTB Inlet Valve Chamber Equipment	90.0d	45.0d 18-Oct-22 08:00 A	14-Feb-24 18:00	18-Oct-22 08:00	2.0d	50%			
MDD3325	Comments and approval of design for WTB Inlet Valve Chamber Equipment	30.0d	30.0d 15-Feb-24 08:00	15-Mar-24 18:00	00.00	2.0d	0%			





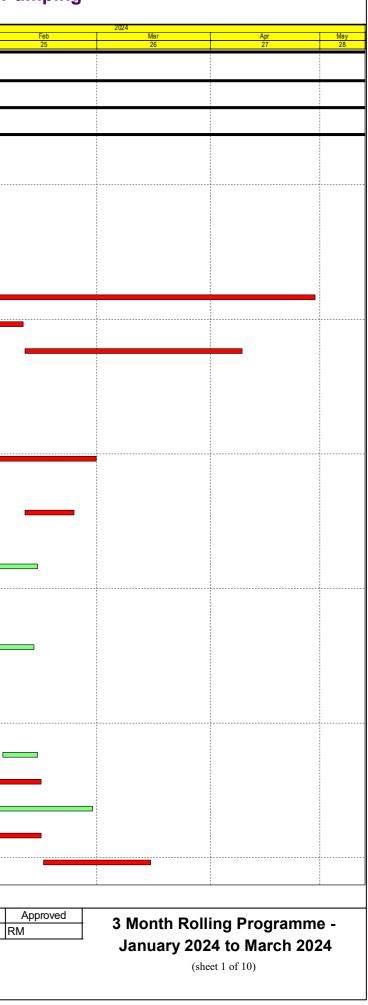
Actual Work Non-Critical Activity Summary

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Date Revision Checked 31-Dec-23 18... 1 CLX

Critical Activity

♦ Milestone



Activity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish Total Float	Duration %	2023 Dec	Jan
1 (5 5 4 4 4 4		00.01		00 5 1 04	26.0.00		Complete	23	24
MDD3340	Design for Sampling System	90.0d	40.0d 26-Oct-22	09-Feb-24	26-Oct-22 08:00	115.0d	55.56%		
MDD3345	Comments and approval of design for Sampling System	30.0d	08:00 A 40.0d 18-Jul-22	18:00 09-Feb-24	18-Jul-22	-35.0d	0%		
IVIDD3343	Comments and approval of design for Sampling System	50.0u	08:00 A	18:00	08:00	-55.04	070		
MDD3360	Design for Service Water Equipment	90.0d	10.0d 05-Dec-22	10-Jan-24	05-Dec-22	-6.0d	88.89%		
			08:00 A	18:00	08:00				
MDD3365	Comments and approval of design for Service Water Equipment	30.0d	30.0d 11-Jan-24	09-Feb-24		-6.0d	0%		
1000000		00.01	08:00	18:00	11.0.00	10.01	70.000		
MDD3380	Design for Lamella & Supernatant Plant	90.0d	25.0d 11-Oct-22 08:00 A	25-Jan-24 18:00	11-Oct-22 08:00	10.0d	72.22%		
MDD3385	Comments and approval of design for Lamella & Supernatant Plant	30.0d	30.0d 26-Jan-24	24-Feb-24	08.00	10.0d	0%		
MIDD5505	comments and approval of design for Earlena & Supernatant France	50.04	08:00	18:00		10.04	070		
MDD3390	Design for Lifting Appliance	120.0d	25.0d 10-Jun-22	25-Jan-24	10-Jun-22	-48.0d	79.17%		
			08:00 A	18:00	08:00				
MDD3391	Comment and approval of Lifting Appliance	15.0d	15.0d 26-Jan-24	09-Feb-24		-48.0d	0%		
1000		120.01	08:00	18:00	05.0.00	22.01	(( (70)		
MDD3400	Design for Electrical system	120.0d	40.0d 05-Sep-22 08:00 A	09-Feb-24 18:00	05-Sep-22 08:00	33.0d	66.67%		
MDD3410	Design for DCS	90.0d	20.0d 08-Sep-22	20-Jan-24	08-Sep-22	-40.0d	77.78%		
11225110		90.0 <b>u</b>	08:00 A	18:00	08:00	10.04	//./0/0		
MDD3415	Comments and approval of design for for DCS	30.0d	30.0d 21-Jan-24	19-Feb-24		-40.0d	0%		
			08:00	18:00					
MDD3420	Design for near real-time Operation Simulation System (part of existing	80.0d	30.0d 11-Jun-22	30-Jan-24	11-Jun-22	-20.0d	62.5%		
	facilities)		08:00 A	18:00	08:00				
MDD3421	Design for near real-time Operation Simulation System (Stream 2A)	90.0d	90.0d 21-Mar-24	18-Jun-24		-20.0d	0%		
MDD3425	Comments and approval of design for near real-time Operation Simulation	30.0d	08:00 30.0d 31-Jan-24	18:00 29-Feb-24		90.0d	0%		
MDD3423	System (part of existing facilities)	30.0d	08:00	29-Feb-24 18:00		90.0d	0%		
MDD3430	BEAM Plus PA submission	90.0d	45.0d 19-Dec-22	14-Feb-24	19-Dec-22	-22.0d	50%		
11225 150		90.0 <b>u</b>	08:00 A	18:00	08:00	22.04	2070		
MDD3431	Comment and approval of BEAM Plus PA submission	90.0d	90.0d 15-Feb-24	14-May-24		88.0d	0%		
			08:00	18:00					
MDD3440	Design Furniture and Testing Equipment Arrangement at Office and Laboratory	90.0d	45.0d 01-Feb-23	14-Feb-24	01-Feb-23	-19.0d	50%		
10002444	Building.	(0.0.1	08:00 A	18:00	08:00	10.01	50.000/		
MDD3441	Comment and approval of Design Furniture and Testing Equipment Arrangement at OLB	60.0d	25.0d 17-Feb-23 08:00 A	05-Mar-24 18:00	17-Feb-23 08:00	-19.0d	58.33%		8 8 8 8
MDD3450	Design Building and Energy, Management system, Extra Low Voltage system and	60 0A	45.0d 01-Feb-23	18.00 14-Feb-24	01-Feb-23	-36.0d	50%		
NIDD3430	Treatment Monitoring and Alert system	90.0u	08:00 A	18:00	01-100-25	-50.04	5070		
MDD3451	Comment and approval of Building and Energy, Management, Extra Low Voltage	90.0d	45.0d 01-Feb-23	05-Mar-24	01-Feb-23	-36.0d	50%		
	and Treatment Monitoring and Alert system		08:00 A	18:00	08:00				
Material Su	bmission	581.0d	70.0d 05-May-22	10-Mar-24	05-May-22	37.0d	89.72%		
N ( 1771 02 0		210.01	08:00 A	18:00	08:00	15.01	00.10/		
MAT1030	Equipment Submission (E&M Equipment other than listed below)	210.0d	25.0d 05-May-22 08:00 A	25-Jan-24 18:00	05-May-22 08:00	15.0d	88.1%		
MAT1030.01	Equipment Submission for UPS and Battery System Manufacturer and General	30.0d	20.0d 05-May-22	20-Jan-24	08.00 05-May-22	57.0d	33.33%		
101/11/05/0.01	Technical Submission	50.04	08:00 A	18:00	08:00	57.00	55.5570		
MAT1030.02	Equipment Submission for L.V. Switchboard & MCC	30.0d	20.0d 13-May-22	20-Jan-24	13-May-22	57.0d	33.33%		
			08:00 Å	18:00	08:00				
MAT1030.03	Equipment Submission for UPVC Diaphragm Valves	30.0d	20.0d 25-Oct-23	20-Jan-24	25-Oct-23	57.0d	33.33%		
			08:00 A	18:00	08:00				
MAT1030.04	Equipment Submission for Fire Service Installations (Dry System)	30.0d	20.0d 30-Oct-23	20-Jan-24	30-Oct-23	57.0d	33.33%		
MAT1020.05	Environment Sylveringian for Eilten Denne Syntam	20.04	08:00 A	18:00 20-Jan-24	08:00 03-Oct-23	57.04	22.220/		
MAT1030.05	Equipment Submission for Filter Press System	30.0d	20.0d 03-Oct-23 08:00 A	20-Jan-24 18:00	03-Oct-23 08:00	57.0d	33.33%		
MAT1030.06	Equipment Submission of Propeller Fan	30.0d	20.0d 30-Oct-23	20-Jan-24	30-Oct-23	57.0d	33.33%		
	1 1 -F		08:00 A	18:00	08:00				
MAT1030.07	Equipment Submission of Roof Extractor	30.0d	20.0d 20-Oct-23	20-Jan-24	20-Oct-23	57.0d	33.33%		
			08:00 A	18:00	08:00				<u></u>
MAT1030.08	Equipment Submission for Fire Service Installations (non-flammable type fire	30.0d	20.0d 27-Oct-23	20-Jan-24	27-Oct-23	57.0d	33.33%		
MATIOAO	sealant)	210.0.1	08:00 A	18:00	08:00	1001	00.4007		
MAT1040	Equipment Submission (Ozone System)	210.0d	20.0d 05-May-22 08:00 A	20-Jan-24 18:00	05-May-22 08:00	17.0d	90.48%		
			00.00 A	10.00	00.00		:		





Actual Work Non-Critical Activity

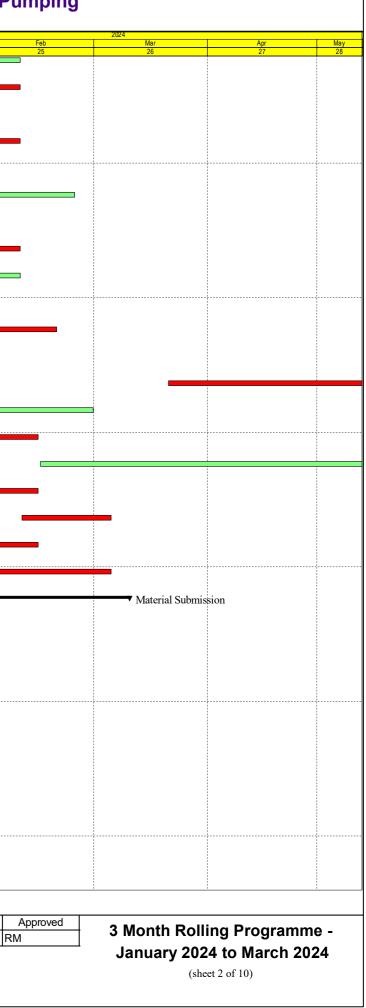
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Summary 31-Dec-23 18... 1

Date

Revision Checked CLX

Critical Activity ♦ Milestone



ty ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish Total Float	Duration % Complete	2023 Dec	Jan 24
MAT1041	Comment and Approval of Equipment Submission (Ozone)	8.0d	8.0d 21-Jan-24 08:00	28-Jan-24 18:00		17.0d	0%	23	24
MAT1045	Equipment Submission(DAF)	210.0d	40.0d 05-May-22 08:00 A	09-Feb-24 18:00	05-May-22 08:00	37.0d	80.95%		
MAT1046	Comment and Approval of Equipment Submission (DAF)	117.0d	50.0d 29-Jul-22 08:00 A	10-Mar-24 18:00	29-Jul-22 08:00	37.0d	57.26%		
MAT1065	Equipment Submission (Laminar & Supernatant Plant)	210.0d	30.0d 05-May-22 08:00 A	30-Jan-24 18:00	05-May-22 08:00	35.0d	85.71%		
MAT1066	Comment and Approval of Equipment Submission (Laminar & Supernatant Plant)	8.0d	8.0d 23-Jan-24 08:00	30-Jan-24 18:00	00.00	35.0d	0%		
MAT1070	Equipment Submission (Sludge Dewatering Plant)	99.0d	10.0d 24-Oct-22 08:00 A	10-Jan-24 18:00	24-Oct-22 08:00	-3.0d	89.9%		
MAT1071	Comment and Approval of Equipment Submission (Sludge Dewatering Plant)	8.0d	8.0d 11-Jan-24 08:00	18-Jan-24 18:00		-3.0d	0%		
BIM Delive	rables	816.0d	465.0d 20-May-22 08:00 A	09-Apr-25 18:00	20-May-22 08:00	519.0d	43.01%		
BIMD1010	Fully Coordinated BIM Models	500.0d	170.0d 22-Jun-22 08:00 A	18-Jun-24 18:00	22-Jun-22 08:00	11.0d	71.67%		
BIMD1015	Shop drawings	700.0d	310.0d 22-Jun-22 08:00 A	05-Nov-24 18:00	22-Jun-22 08:00	674.0d	55.71%		
BIMD1020	Combined Service Drawing (CSD) and Combined Builder's Works Drawings (CBWD)	365.0d	30.0d 24-May-22 08:00 A	30-Jan-24 18:00	24-May-22 08:00	303.0d	91.78%		
BIMD1025	4D Modelling	700.0d	440.0d 20-May-22 08:00 A	15-Mar-25 18:00	20-May-22 08:00	544.0d	37.14%		
BIMD1030	BIM Progress Reporting	800.0d	380.0d 21-Jun-22 08:00 A	14-Jan-25 18:00	21-Jun-22 08:00	604.0d	52.5%		
BIMD1035	Clash report	447.0d	90.0d 31-Jul-22 08:00 A	30-Mar-24 18:00	31-Jul-22 08:00	181.0d	79.87%		
BIMD1040	3D VR	500.0d	200.0d 30-Jun-22 08:00 A	18-Jul-24 18:00	30-Jun-22 08:00	41.0d	60%		
BIMD1045	Existing condition modelling	447.0d	50.0d 21-Jun-22 08:00 A	19-Feb-24 18:00	21-Jun-22 08:00	934.0d	88.81%		
BIMD1050	3D digital survey	447.0d	100.0d 21-Jun-22 08:00 A	09-Apr-24 18:00	21-Jun-22 08:00	884.0d	77.63%		
BIMD1060	BIM Object	700.0d	410.0d 30-Jun-22 08:00 A	13-Feb-25 18:00	30-Jun-22 08:00	574.0d	41.43%		
BIMD1160	Digital fabrication	700.0d	465.0d 24-Oct-22 08:00 A	09-Apr-25 18:00	24-Oct-22 08:00	519.0d	33.57%		
Subcontra	cting and Procurement	830.0d	314.0d 21-Feb-22 18:00 A	09-Nov-24 18:00	21-Feb-22 18:00	72.0d	62.17%		
Subcontrac	ting	30.0d	30.0d 01-Jan-24 08:00	30-Jan-24 18:00		356.0d	0%		
MTW1660	Subletting for Drainage works	30.0d	30.0d 01-Jan-24 08:00	30-Jan-24 18:00		-76.0d	0%		
MTW1680	Subletting for Road works	30.0d	30.0d 01-Jan-24 08:00	30-Jan-24 18:00		356.0d	0%		
E&M Equip	ment Procurement,FAT and Delivery	830.0d	314.0d 21-Feb-22 18:00 A	09-Nov-24 18:00	21-Feb-22 18:00	25.0d	62.17%		
MTW1685	Submission of Equipment test plan	90.0d	15.0d 03-Feb-23 08:00 A	15-Jan-24 18:00	03-Feb-23 08:00	-81.0d	83.33%		
MTW1690	Approval of Equipment test plan	30.0d	15.0d 21-Feb-22 18:00 A	15-Jan-24 18:00	21-Feb-22 18:00	-81.0d	50%		
MTW1695	Procurement and delivery of Energy dissipation valves	270.0d	210.0d 04-May-23 08:00 A	28-Jul-24 18:00	04-May-23 08:00	67.0d	22.22%		
MTW1700	Procurement and delivery of Pipeworks, valves, EM flowmeters, instruments	200.0d	200.0d 16-Mar-24 08:00	01-Oct-24 18:00	00.00	2.0d	0%		
MTW1710	Procurement and delivery of POCT mixers, penstocks, stoplogs, EM flowmeters, instruments	240.0d	180.0d 25-Jun-22 08:00 A	28-Jun-24 18:00	25-Jun-22 08:00	-5.0d	25%		
MTW1720	Procurement and delivery of IOCT mixers, penstocks, stoplogs, EM flowmeters, instruments	240.0d	180.0d 25-Jun-22 08:00 A	28-Jun-24 18:00	25-Jun-22 08:00	-5.0d	25%		
MTW1730	Procurement and delivery of Ozone destruction system, pipeworks, instruments,	300.0d	170.0d 28-Mar-22	09-Nov-24	28-Mar-22	25.0d	43.33%		





Actual Work Non-Critical Activity Summary

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Date Revision Checked 31-Dec-23 18... 1 CLX

Critical Activity

♦ Milestone

	2024		
Feb 25	Mar 26	Apr 27	May 28
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		4 to March 202	

ctivity ID	Activity Name	Duration	Remaining S Duration	Start	Finish	Actual Start	Actual Finish Total Float	Duration % Complete	2023 Dec	Jan	
MTW1740	Procurement and delivery of PSA sets, Ozone Generator sets, air vessels, cooling system, PSU	360.0d		28-Mar-22 18:00 A	09-Nov-24 18:00	28-Mar-22 18:00	-35.0d	22.22%	23	24	
MTW1750	Procurement and delivery of POCT ozone gas valve trains, gas ejectors, sidestream pumps	300.0d	225.0d 2	25-Jun-22 08:00 A	12-Aug-24 18:00	25-Jun-22 08:00	52.0d	25%			
MTW1760	Procurement and delivery of IOCT ozone gas valve trains, gas ejectors, sidestream pumps	150.0d	130.0d 2	25-Jun-22 08:00 A	06-Jun-24 18:00	25-Jun-22 08:00	17.0d	13.33%	-		-
MTW1770	Procurement and delivery of DAF including flocculators, scrapers, mixers, recycle pump, air supply system, etc.	180.0d	100.0d 2	27-Jun-22 08:00 A	09-Apr-24 18:00	27-Jun-22 08:00	-8.0d	44.44%			
MTW1780	Procurement and delivery of DAF drain pump, instrumentation, air dryer and weir box	160.0d	100.0d 2	27-Jun-22 08:00 A	09-Apr-24 18:00	27-Jun-22 08:00	-13.0d	37.5%			
MTW1790	Procurement and delivery of BACF filter media, trough, underdrain system, mixers, penstocks	270.0d	220.0d 2	25-Jun-22 08:00 A	07-Aug-24 18:00	25-Jun-22 08:00	-6.0d	18.52%			
MTW1800	Procurement and delivery of SRGF filter media, trough, underdrain system, mixers, penstocks	250.0d	200.0d 2	25-Jun-22 08:00 A	18-Jul-24 18:00	25-Jun-22 08:00	-1.0d	20%			
MTW1810	Procurement and delivery of Sodium Phosphate Plant	280.0d	200.0d 2	26-Aug-22 08:00 A	18-Jul-24 18:00	26-Aug-22 08:00	83.0d	28.57%			
MTW1820	Procurement and delivery of Ammonium Sulphate Plant	280.0d		26-Aug-22 08:00 A	18-Jul-24 18:00	26-Aug-22 08:00	83.0d	28.57%			
MTW1830	Procurement and delivery of Sodium Sulphite Plant	300.0d		26-Aug-22 08:00 A	27-Aug-24 18:00	26-Aug-22 08:00	43.0d	20%			
MTW1840	Procurement and delivery of Sampling system	100.0d	100.0d (	01-Jan-24 08:00	09-Apr-24 18:00		-35.0d	0%			
MTW1850	Procurement and delivery of Service Water System	240.0d	240.0d 3	31-Jan-24 08:00	26-Sep-24 18:00		-6.0d	0%			
MTW1860	Procurement and delivery of Lamella & Supernatant Plant	160.0d	85.0d	10-Oct-22 08:00 A	25-Mar-24 18:00	10-Oct-22 08:00	-20.0d	46.88%			
MTW1865	Procurement and delivery of Lifting Appliance	210.0d		25-Jun-22 08:00 A	18-Jul-24 18:00	25-Jun-22 08:00	11.0d	4.76%			
MTW1870	Procurement and delivery of Transformers	270.0d		04-Jan-23 08:00 A	24-Apr-24 18:00	04-Jan-23 08:00	4.0d	57.41%			
MTW1880	Procurement and delivery of LV Switchboards	180.0d		15-Aug-22 08:00 A	29-Feb-24 18:00	15-Aug-22 08:00	-31.0d	66.67%			
MTW1890	Procurement and delivery of MCCs	120.0d		10-Oct-23 08:00 A	25-Mar-24 18:00	10-Oct-23 08:00	-56.0d	29.17%			
MTW1900	Procurement and delivery of Other electrical equipment	180.0d		01-May-23 08:00 A	29-Feb-24 18:00	01-May-23 08:00	-31.0d	66.67%			
MTW1910	Procurement and delivery of BS equipment (MVAC, FS, P&D, BS Electrical, CCTV, PA, PV Panels,genset)	120.0d		01-Jan-24 08:00	29-Apr-24 18:00		-59.0d	0%			
MTW1920	Procurement and delivery of Fresh Water pump	50.0d		15-Nov-23 08:00 A	30-Jan-24 18:00	15-Nov-23 08:00	-6.0d	40%			-
MTW1930	Procurement and delivery of Lime system, Polymer System, Chlorine System	150.0d		01-Jan-24 08:00	29-May-24 18:00		-50.0d	0%			
MTW1940	Procurement and delivery of Sludge dewatering plant	160.0d		03-Aug-22 08:00 A	25-Mar-24 18:00	03-Aug-22 08:00	-20.0d	46.88%			
MTW1950	Procurement and delivery of Control Panels, HV switchboard	110.0d	(	01-Jan-24 08:00	19-Apr-24 18:00		-81.0d	0%			
MTW1960	Procurement and delivery of DCS	100.0d		01-May-23 08:00 A	25-Jan-24 18:00	01-May-23 08:00	127.0d	75%			
Method Sta	tement Submission and Approval for Major Constructio	540.0d		24-Oct-22 08:00 A	22-Apr-24 18:00	24-Oct-22 08:00	189.0d	79.07%			
MSS2030	Method statement submission for structural works for Water Treatment Building	21.0d	21.0d (	05-Oct-23 00:00 A	21-Jan-24 18:00	05-Oct-23 00:00	-59.0d	0%			
MSS2035	Method statement comments and approval for structural works for Water Treatment Building	21.0d	21.0d (	01-Jan-24 08:00	21-Jan-24 18:00		-59.0d	0%			
MSS2060	Method statement submission for structural works for Office and Laboratory Building	14.0d	8.0d (	05-Jul-23 08:00 A	08-Jan-24 18:00	05-Jul-23 08:00	-99.0d	42.86%			
MSS2065	Method statement comments and approval for structural works for Office and Laboratory Building	14.0d	14.0d	18-Jul-23 08:00 A	18-Jan-24 18:00	18-Jul-23 08:00	-99.0d	0%			
MSS2100	Method statement submission for designing and implementing energy efficiency and optimization for BS	35.0d	35.0d (	01-Jan-24 08:00	04-Feb-24 18:00		54.0d	0%			
MSS2105	Method statement comments and approval for designing and implementing energy efficiency and optimization for BS	28.0d	28.0d (	05-Feb-24 08:00	03-Mar-24 18:00		54.0d	0%			





Actual Work Non-Critical Activity Summary

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Date Revision Checked 31-Dec-23 18... 1 CLX

Critical Activity ♦ Milestone

Feb 25	2024 Mar 26	Apr 27	May 28
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		eet 4 of 10)	

ivity ID	Activity Name	Duration	Remaining Start Duration	Fini	sh	Actual Start	Actual Finish Total Floa	at Duration % Complete	2023 Dec	Jan	
MSS2110	Method statement submission for modification of Chlorination Building	35.0d	35.0d 01-J		-Feb-24		-75.0	d 0%	23	24	
MSS2115	Method statement comments and approval for modification of Chlorination	28.0d	08:0 28.0d 05-H		:00 -Mar-24		-75.00	d 0%			
	Building		08:0	00 18	:00						
MSS2120	Method statement submission for designing and implementing the proposed Near-Real-Time operation simulation	60.0d	60.0d 01-J 08:0		-Feb-24 :00		-56.00	d 0%			
MSS2125	Method statement comments and approval for designing and implementing the proposed Near-Real-Time operation simulation	28.0d	28.0d 01-N 08:0	Mar-24 28	-Mar-24 :00		-56.00	d 0%			
MSS2130	Method statement submission for pipe modification works	45.0d	45.0d 01-J	Jan-24 14	-Feb-24		229.00	d 0%			
MSS2135	Method statement comments and approval for pipe modification works	28.0d	08:0 28.0d 15-H		:00 -Mar-24		229.00	d 0%			
			08:0	00 18	:00						
MSS2210	Method statement submission for E&M works for water treatment building	45.0d	45.0d 01-J 08:0		-Feb-24 :00		102.00	d 0%			
MSS2215	Method statement comments and approval for E&M works for water treatment building	28.0d	28.0d 15-H 08:0		-Mar-24 :00		102.00	d 0%			
MSS2220	Method statement submission for E&M works for SHWRWBPS	45.0d	45.0d 01-J	Jan-24 14	-Feb-24		-131.00	d 0%			
MSS2225	Method statement comments and approval for E&M works for SHWRWBPS	28.0d	08:0 28.0d 15-H		:00 -Mar-24		-131.0	d 0%			
			08:0	00 18	:00						
MSS2230	Method statement submission for E&M works for Office and Laboratory Building	45.0d	45.0d 01-J 08:0		-Feb-24 :00		4.00	d 0%			
MSS2235	Method statement comments and approval for E&M works for Office and Laboratory Building	28.0d	28.0d 15-H 08:0		-Mar-24 :00		4.00	d 0%			
MSS2240	Method statement submission for ABWF for water treatment building	45.0d	45.0d 01-J	Jan-24 14	-Feb-24		-71.00	d 0%			
MSS2245	Method statement comments and approval for ABWF for water treatment	28.0d	08:0 28.0d 05-H		:00 -Mar-24		-71.0	d 0%			-
MSS2250	building Method statement submission for ABWF for SHWRWBPS	20.04	08:0 30.0d 01-J		:00 -Jan-24		142.0	d 0%			
		30.0d	30.0d 01-J 08:0	00 18	:00		-142.00				
MSS2255	Method statement comments and approval for ABWF for SHWRWBPS	14.0d	14.0d 31-J 08:0		-Feb-24 :00		-142.00	d 0%			
MSS2260	Method statement submission for ABWF for Office and Laboratory Building	45.0d	45.0d 01-J	Jan-24 14	-Feb-24		116.00	d 0%			
MSS2265	Method statement comments and approval for ABWF for Office and Laboratory	28.0d	08:0 28.0d 15-H		:00 -Mar-24		116.0	d 0%			
MSS2270	Building Method statement submission for modification of Washwater System	28.0d	08:0 8.0d 24-0		:00 -Jan-24	24-Oct-22	-132.00	d 71.43%			
			08:0	00 A 18	:00	08:00					
MSS2275	Method statement comments and approval for modification of Washwater System	28.0d	5.0d 20-N 08:0		-Jan-24 :00	20-May-23 08:00	-137.00	d 82.14%			
MSS2280	Method statement submission for construction of flowmeter chambers	35.0d	35.0d 31-J	Jan-24 05	-Mar-24		-76.0	d 0%			
MSS2285	Method statement comments and approval for construction of flowmeter	28.0d	08:0 28.0d 06-N		:00 -Apr-24		-76.0	d 0%			
MSS2290	chambers Method statement submission for equipment installation for Dewatering Building	35.0d	08:0 35.0d 31-J		:00 -Mar-24		-11.00	d 0%			
			08:0	00 18	:00						8 8 8 8 8 8 8
MSS2295	Method statement comments and approval for equipment installation for Dewatering Building	28.0d	28.0d 06-N 08:0		-Apr-24 :00		-11.00	d 0%			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
MSS2300	Method statement submission for testing and commissioning	60.0d	60.0d 01-J	Jan-24 29	-Feb-24		125.00	d 0%			
MSS2310	Method statement comments and approval for testing and commissioning	28.0d	08:0 28.0d 01-N		:00 -Mar-24		125.00	d 0%			
MSS2320	Method statement submission for replacement of existing 11KV swtich boards	35.0d	08:0 35.0d 01-J		:00 -Feb-24		88.00	d 0%			
			08:0	00 18	:00						_
MSS2330	Method statement comments and approval for replacement existing 11KV swtich boards	28.0d	28.0d 05-H 08:0		-Mar-24 :00		88.00	d 0%			
MSS2335	Method statement submission for changeover of existing DCS installation	35.0d	35.0d 20-H	Feb-24 25	-Mar-24		-40.00	d 0%			8 8 8 8 8
MSS2345	Method statement comments and approval for changeover of existing DCS	28.0d	08:0 28.0d 26-M	Mar-24 22	:00 -Apr-24		-40.00	d 0%			
MSS2385	installation Method statement submission for E&M for existing building	28.0d	08:0 28.0d 01-J	00 18	:00 -Jan-24		-95.00	d 0%			
101002000	incurve statement submission for Each for existing building	20.0U	28.0d 01-J 08:0		-Jan-24 :00		-93.00	u U70			





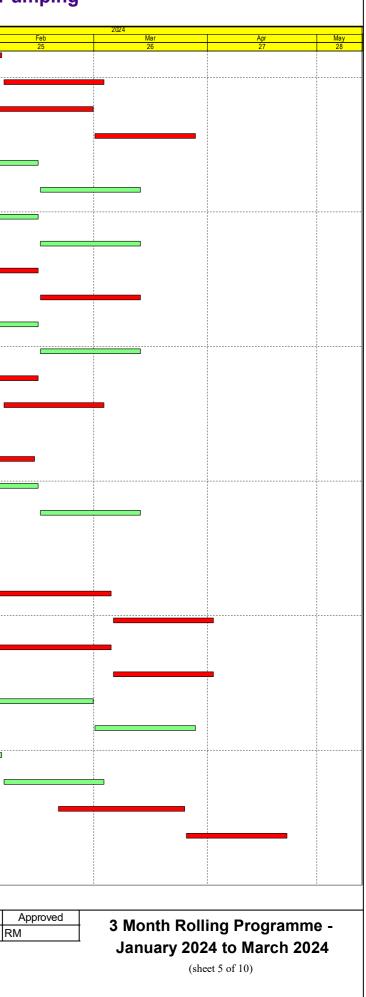
Actual Work Non-Critical Activity Summary

Date Revision Checked 31-Dec-23 18... 1 CLX

Critical Activity

♦ Milestone





rity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish Total Float	Duration % Complete	2023 Dec	Jan
MSS2395	Method statement comments and approval for E&M for existing building	28.0d	28.0d 29-Jan-24 08:00	25-Feb-24 18:00		-95.0d	0%	23	24
Precasting	and Fabrication Works	210.0d	150.0d 28-Nov-22 08:00 A	29-May-24 18:00	28-Nov-22 08:00	-99.0d	28.57%		
PRE2120	Fabrication of DfMA units for structural elements	210.0d	150.0d 28-Nov-22 08:00 A	29-May-24 18:00	28-Nov-22 08:00	-99.0d	28.57%		
Interfacing	lssues	150.0d	20.0d 05-May-22 08:00 A	20-Jan-24 18:00	05-May-22 08:00	265.5d	86.67%		Interfacing Is
PRE2170	Establish interface meeting and conformation of interface schedule	150.0d	20.0d 05-May-22 08:00 A	20-Jan-24 18:00	05-May-22 08:00	265.5d	86.67%		
Section 1	of the Works	269.0d	179.0d 18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00	28.0d	33.46%		
Constructi	ion of Water Treatment Building	175.0d	119.0d 07-Nov-23 08:00 A	29-Apr-24 18:00	07-Nov-23 08:00	-88.0d	32%		
Excavation	and Installation of Lateral Support	48.0d	48.0d 07-Feb-24 08:00	10-Apr-24 18:00	08.00	-121.0d	0%		
ELS for SRGF	<sup>-</sup> 1,2,3,4(Grib1-3,A-G)	48.0d	48.0d 07-Feb-24 08:00	10-Apr-24 18:00		-121.0d	0%		
S110202	Installation of 1st layer of strut BS1a at +32.5m	12.0d	12.0d 07-Feb-24 08:00	23-Feb-24 18:00		-121.0d	0%		
S110204	Excavation to +25.5mPD	10.0d	10.0d 24-Feb-24 08:00	06-Mar-24 18:00		-121.0d	0%		
S110206	Installation of 2nd layer of strut BS2a at +26.5m	14.0d	14.0d 07-Mar-24	22-Mar-24		-121.0d	0%		
S110208	Excavation to final formation level	12.0d	08:00 12.0d 23-Mar-24 08:00	18:00 10-Apr-24 18:00		-121.0d	0%		
Constructio	on of Substructure and Superstructre	130.0d	85.0d 07-Nov-23	17-Apr-24	07-Nov-23	-84.0d	34.62%		
S110340	Construction of Washwater Holding Tank, Supernatant Holding Tank(+19.8mPD)	22.0d	08:00 A 18.0d 20-Dec-23 08:00 A	18:00 22-Jan-24 18:00	08:00 20-Dec-23 08:00	-89.0d	18.18%		
S110361	Construction of Lamella settler room,SRGF Backwash Equalization Tanks(+19.8mPD to+25.0mPD)	20.0d	3.0d 07-Nov-23 08:00 A	04-Jan-24 18:00	08:00 07-Nov-23 08:00	-121.0d	85%		-
S110362	Construction of Lamella settler room,SRGF Backwash Equalization Tanks(+25.0mPD to+29.5mPD)	10.0d	10.0d 05-Jan-24 08:00	16-Jan-24 18:00	08.00	-121.0d	0%		
S110380	Construction of DAF maintenance floor Slab at level +25.0mPD	25.0d	25.0d 22-Jan-24 08:00	22-Feb-24 18:00		-89.0d	0%		
S110420	Construction of SRGF tanks No.5-8(+25mPD~+32.5mPD)	18.0d	18.0d 17-Jan-24 08:00	06-Feb-24 18:00		-121.0d	0%		
S110440	Construction of intermediate ozone contact tanks (IOCT)No.1&No.2 and access corridor at +24.0mPD	27.0d	27.0d 23-Jan-24 08:00	26-Feb-24 18:00		-84.0d	0%		
S110460	Construction of floor slab at +29.5mPD(Gridline G-M/1-6)	21.0d	21.0d 26-Feb-24 08:00	20-Mar-24 18:00		-84.0d	0%		
S110480	Construction of DAF Maintenance Hall(+25.0mPD~+29.5mPD)	35.0d	35.0d 23-Feb-24 08:00	08-Apr-24 18:00		-89.0d	0%		
S110520	Construction of BAC filter tanks (No.5 -8)	21.0d	21.0d 20-Mar-24 08:00	17-Apr-24 18:00		-84.0d	0%		
Internal Fin	ishing Works	40.0d	40.0d 21-Mar-24 08:00	29-Apr-24 18:00		-88.0d	0%		
S110740	Finishing works up to +25.0mPD floor including water tightness test of tanks, finishing to SRGF Maintenance Hall	40.0d	40.0d 21-Mar-24 08:00	29-Apr-24 18:00		-88.0d	0%		
Constructi	ion of Siu Ho Wan Raw Water Booster Pumping Station a	269.0d	179.0d 18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00	28.0d	33.46%		
Constructio	on of Substucture and Superstructure	74.0d	74.0d 27-Dec-23 08:00 A	03-Apr-24 18:00	27-Dec-23 08:00	92.0d	0%		
Construction	of Substucture and Superstructure(Gridline A-C)	26.0d	26.0d 27-Dec-23 08:00 A	31-Jan-24 18:00	27-Dec-23 08:00	-98.0d	0%		Cor
S111105	DfMA erection to +13.05 mPD (Grid C-A)	5.0d	2.0d 27-Dec-23 08:00 A	03-Jan-24 18:00	27-Dec-23 08:00	-98.0d	60%	-	•
S111110	Construction of roof up to +13.05 mPD (Grid C-A)	10.0d	10.0d 04-Jan-24 08:00	15-Jan-24 18:00	00.00	-98.0d	0%		
S111111	Construction of planter wall(including DfMA Erection) of at +13.05 mPD (Grid C-A)	14.0d	14.0d 16-Jan-24 08:00	31-Jan-24 18:00		-98.0d	0%		





Actual WorkNon-Critical Activity

Critical Activity

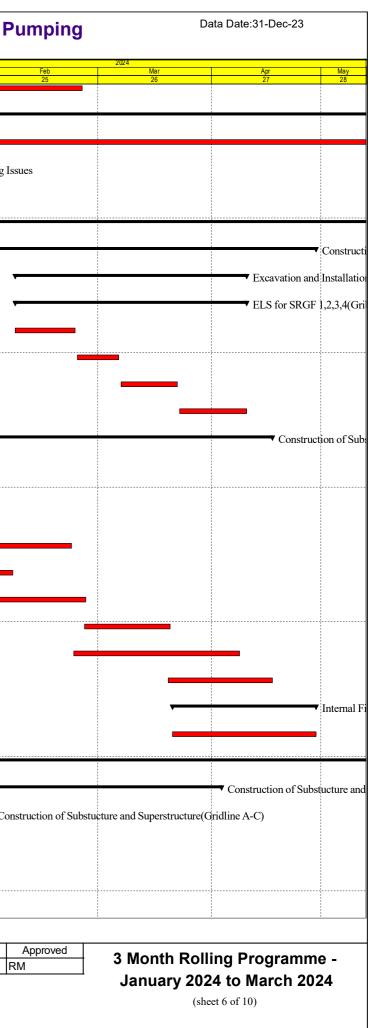
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Summary

Milestone

 Date
 Revision
 Checked

 31-Dec-23 18...
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rity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish	Total Float	Duration % Complete	2023 Dec 23	Jan 24	
Construction	of Substucture and Superstructure(Gridline C-D)	74.0d	74.0d 29-Dec-23	03-Apr-24	29-Dec-23		92.0d	0%	23	24	
S111035.1	Construction of beam to +15.05 mPD (Grid D-C)	15.0d	08:00 A 15.0d 29-Dec-23 08:00 A	18:00 18-Jan-24 18:00	08:00 29-Dec-23 08:00		-129.0d	0%	•		
S111036	Construction of roof at +15.05 mPD(Grid D-C)	11.0d	11.0d 19-Jan-24 08:00	31-Jan-24 18:00	00.00		-129.0d	0%			-
S111037	Construction of planter wall(including DfMA Erection) at +15.05 mPD(Grid D-C)	18.0d	18.0d 01-Feb-24 08:00	24-Feb-24 18:00			-123.0d	0%			
S111038.1	Rebar fixing of plinth for pumbling (Grid D-C)	15.0d	15.0d 26-Feb-24 08:00	13-Mar-24 18:00			92.0d	0%			
S111038.2	Formwork erection of plinth for pumbling (Grid D-C)	15.0d	15.0d 14-Mar-24 08:00	03-Apr-24 18:00			92.0d	0%			8 8 8
Internal Fin	ishing Works	60.0d	60.0d 14-Feb-24 08:00	13-Apr-24 18:00			47.0d	0%			
S111140	Finishing works from +1.25mPD to +15.05m (Grib D-C)	40.0d	40.0d 25-Feb-24 08:00	04-Apr-24 18:00			-153.0d	0%			
S111160	Finishing works CLP transformer room (Grib A-B/1-3)	30.0d	30.0d 14-Feb-24 08:00	14-Mar-24 18:00			-132.0d	0%			
S111161	Finishing works from +6.0mPD to +13.05m (Grib C-A)	30.0d	30.0d 15-Mar-24 08:00	13-Apr-24 18:00			47.0d	0%			
S111180	Handover to E&M (BPS)	0.0d	0.0d	14-Mar-24 18:00			-132.0d	0%			- 
Raw Water	Main Connections at Chenung Tung Road ((RWM-1) CHC 0 to 4	269.0d	179.0d 18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00		0.0d	33.46%			
Raw Water Ma	ain Connections at Chenung Tung Road(CH0-5)	269.0d	179.0d 18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00		0.0d	33.46%			
Preparation v	works	269.0d	179.0d 18-Sep-23 08:00 A	27-Jun-24 18:00	18-Sep-23 08:00		0.0d	33.46%			
S401120	XP Application & Approval by HyD	100.0d	61.0d 16-Oct-23 08:00 A	01-Mar-24 18:00	16-Oct-23 08:00		0.0d	39%			
S401130	RMO application	7.0d	7.0d 02-Mar-24 08:00	08-Mar-24 18:00	08.00		0.0d	0%			
S401140	Shut Down Plan Application & Approval by WSD	179.0d	179.0d 01-Jan-24 08:00	27-Jun-24 18:00			0.0d	0%			
S401475	Provide new site access	55.0d	15.0d 18-Sep-23 08:00 A	18-Jan-24 18:00	18-Sep-23 08:00		40.0d	72.73%			
S401480	Modification site access and fencing	25.0d	25.0d 19-Jan-24 08:00	20-Feb-24 18:00	00.00		40.0d	0%			
Laying RWM	-1&RWM-2 (CH 0-5)	25.0d	25.0d 09-Mar-24 08:00	11-Apr-24 18:00			0.0d	0%			
S401180	Pit Excavation at Cheung Tung Road	15.0d	15.0d 09-Mar-24 08:00	26-Mar-24 18:00			0.0d	0%			
S401181	Laying of RWM-2 CHD 0-5	10.0d	10.0d 27-Mar-24 08:00	11-Apr-24 18:00			0.0d	0%			
Laying of Rav	v Water Main (RWM-2) CHD 43.6 to 100 & Chamber B,C	7.0d	7.0d 27-Mar-24 08:00	08-Apr-24 18:00			0.0d	0%			- 
S401160	Excavation works for laying of RWM-2	7.0d	7.0d 27-Mar-24 08:00	08-Apr-24 18:00			0.0d	0%			
Construct	ion of Office and Laboratory Building	93.0d	75.0d 05-Dec-23 08:00 A	05-Apr-24 18:00	05-Dec-23 08:00		-112.0d	19.35%	,		
Excavation	and Installation of Lateral Support	9.0d	4.0d 08-Dec-23 08:00 A	05-Jan-24 18:00	08-Dec-23 08:00		-98.0d	55.56%	<b>-</b>	Excavation and Inst	tallatio
S120061	Excavation to +26.06mPD - West Part(Grib 1-3)	9.0d	4.0d 08-Dec-23 08:00 A	05-Jan-24 18:00	08-Dec-23 08:00		-98.0d	55.56%		•	
Constructio	on of Substructure and Superstructre	75.0d	75.0d 05-Dec-23 08:00 A	05-Apr-24 18:00	05-Dec-23 08:00		-112.0d	0%			-
Construction	of Tower Crane and Shear Wall	19.0d	15.0d 05-Dec-23 08:00 A	18-Jan-24 18:00	05-Dec-23 08:00		-105.0d	21.05%	,	Construc	ction o
S120105	Construction of shear wall(56m)	19.0d	0.0d 05-Dec-23 08:00 A	27-Dec-23 18:00 A	05-Dec-23 08:00	27-Dec-23 18:00		100%			
			00.00 A	10.00 A	00.00	10.00				F Contraction of the second se	:





Actual Work
Non-Critical Activity

Critical Activity

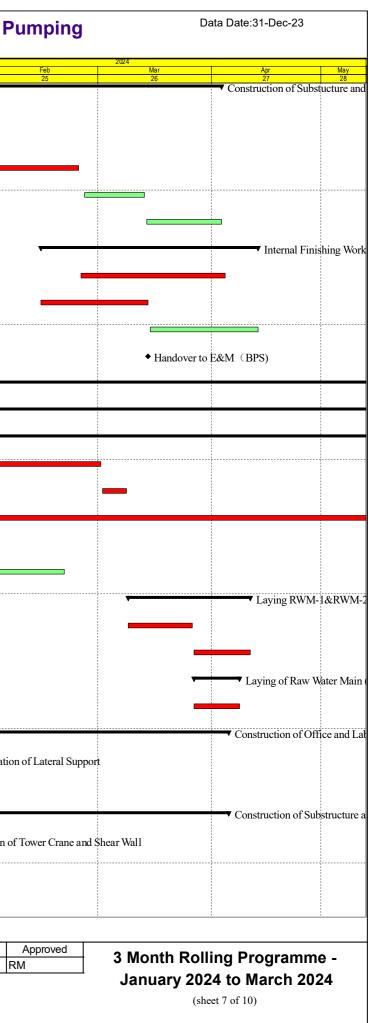
Summary

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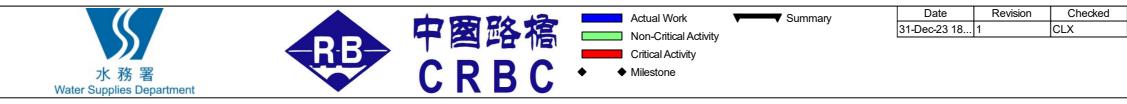
♦ Milestone

 Date
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 31-Dec-23 18...
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ity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish Total Floa	at Duration % Complete	2023 Dec Jan	
S120125	Erection tower crane	3.0d	3.0d 02-Jan-24	04-Jan-24		-112.0		23 24	
			08:00	18:00					
Construction	of Transformer Room(Grid 1-3)	57.0d	57.0d 23-Jan-24 08:00	05-Apr-24 18:00		-112.00	d 0%	· · · · · · · · · · · · · · · · · · ·	
S120101	Blinding and Concreting from +26.15 to +27.15mPD-West Part(Grib 1-3)	4.0d	4.0d 23-Jan-24	26-Jan-24		-112.00	d 0%		
G120107	$C_{\rm ext}$ tention $\mathbf{D}_{\rm ext}$ and $\mathbf{C}(1)(C_{\rm e}(1,1,2))$	15.0.1	08:00	18:00		112.0	1 00/		
S120107	Construction Basement Slab(Grib 1-3)	15.0d	15.0d 27-Jan-24 08:00	16-Feb-24 18:00		-112.00	d 0%		
S120120	Construction of wall and column up +28.35mPD(Grid 1-3)	15.0d	15.0d 27-Jan-24	16-Feb-24		-112.00	d 0%	-	
S401690	Compacted fill to Cable Tench	7.0d	08:00 7.0d 17-Feb-24	18:00 24-Feb-24		-112.00	d 0%		8
		7.00	08:00	18:00					-
S401700	Construction of Slab at +28.35mPD -West Part(Grib 1-3)	21.0d	21.0d 26-Feb-24 08:00	20-Mar-24 18:00		-112.00	d 0%		
S401710	Construction of Column&Wall to +35.05mPD-West Part(Grib 1-3)	10.0d	10.0d 21-Mar-24	05-Apr-24		-112.00	d 0%		
			08:00	18:00					
Construction	of Laboratory and Office(Grid 4-11)	15.0d	15.0d 05-Jan-24 08:00	22-Jan-24 18:00		-112.00	d 0%	· Con	struction
S120103	Blinding and Concreting from +26.5 to +27.7mPD -2ndPour(Remaining Part)	15.0d	15.0d 05-Jan-24	22-Jan-24		-112.00	d 0%		
		000.0.1	08:00	18:00	07.1.00	10	1 (0.040/		
Section 2	of the Works	832.0d	325.0d 27-Jun-22 08:00 A	20-Nov-24 18:00	27-Jun-22 08:00	4.00	d 60.94%		8 8 8 8
Water Trea	tment Building	580.0d	325.0d 27-Jun-22	20-Nov-24	27-Jun-22	4.00	d 52.21%		
		580.0d	08:00 A 325.0d 27-Jun-22	18:00 20-Nov-24	08:00 27-Jun-22	4.00	d 52.21%		
Statutory S	ubmission schedule	580.0d	08:00 A	18:00	08:00	4.00	J 32.2170		
S210060	DG (Ozone) installation approval - dwg & layout by FSD for WTB	580.0d	325.0d 27-Jun-22	20-Nov-24	27-Jun-22	4.00	d 52.21%		
Office and	Laboratory Duilding	278.0d	08:00 A 278.0d 02-Jan-24	18:00 05-Oct-24	08:00	-19.00	d 0%	· · · · · · · · · · · · · · · · · · ·	
Office and	Laboratory Building		08:00	18:00					
Procureme	nt of Laboratory Funiture and Equiopment	214.0d	214.0d 06-Mar-24 08:00	05-Oct-24 18:00		-19.00	d 0%		
MTW1905	Procurement of furniture and laboratory equipment	214.0d	214.0d 06-Mar-24	05-Oct-24		-19.0	d 0%		
			08:00	18:00			1		
CLP Interfa	ce	105.0d	105.0d 02-Jan-24 08:00	11-May-24 18:00		65.00	d 0%	·	
S401530	PMI/CE Issuance for CLP Lead-in Cable Ducts and Draw Pits	0.0d	0.0d 02-Jan-24	10100		0.0	d 0%	◆ PMI/CE Issuance for	CLP Lea
S401531	Excavation on the Footpath for HKT, Water Main and CLP diversion (to be under	45.04	08:00* 45.0d 02-Jan-24	26-Feb-24		65.00	d 0%		
5401551	PMI/CE(Activity ID S401530))	43.0d	43.00 02-Jan-24 08:00	18:00		05.00	1 070		
S401532	Construction of New HKT Cable draw pits and duct (to be under	60.0d	60.0d 27-Feb-24	11-May-24		65.00	d 0%		
Dervetering	PMI/CE(Activity ID S401530))	100.0d	08:00 100.0d 02-Jan-24	18:00 06-May-24		-13.00	d 0%	v	
Dewatering	g Building	100.00	08:00	18:00		-13.00	u 070		
S223600	Modification of structural works	100.0d	100.0d 02-Jan-24	06-May-24		-13.00	d 0%		
Washwate	r Sustam	115.0d	08:00 115.0d 02-Jan-24	18:00 24-May-24		-125.0	d 0%		
			08:00	18:00					
S223620	Modification of washwater equalization tanks No.1 and No.2	115.0d	115.0d 02-Jan-24 08:00	24-May-24 18:00		-125.00	d 0%		
Chemical I	Building	90.0d	90.0d 02-Jan-24	23-Apr-24		134.00	d 0%		
		00.01	08:00	18:00		121.0	1 00/		
Equipment	Procurement, Manufacture, FAT and Delivery	90.0d	90.0d 02-Jan-24 08:00	23-Apr-24 18:00		-121.00	d 0%		
S223710	Equipment manufacture, FAT and delivery	90.0d	90.0d 02-Jan-24	23-Apr-24		-121.0	d 0%		
NA		40.04	08:00	18:00		194.0	1 00/		
woaificatio	n of Existing Lime System & other systems and Installation of I	40.0d	40.0d 02-Jan-24 08:00	20-Feb-24 18:00		184.00	d 0%		-
S223726	MiMEP erection in Chamical Building	40.0d	40.0d 02-Jan-24	20-Feb-24		184.00	d 0%		
Oble de la	on Building	50.0d	08:00 50.0d 04-Mar-24	18:00 06-May-24		-58.00	1 0%		
		50.0u	50.00 0 <del>1</del> -1viai-24	00-1v1dy-24		-30.00	0/0		



Pumping	Da	ata Date:31-Dec-23	
	2024		
Feb 25	Mar 26	Apr 27	May 28
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		Construction of Tra	nsformer R
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ion of Laboratory and	Office(Grid 4-11)		
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Lead-in Cable Ducts a	nd Draw Pits		
			• Dew
			: 
			nical Build
		▼ Equ	pment Pro
• Modif	ication of Existing Lime S	ystem & other systems an	d Installati
	-		
	v		- Chle
Approved	3 Month Roll	ing Programm	ρ_
RM		4 to March 202	
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rity ID	Activity Name	Duration	Remaining Start Duration	Finish	Actual Start	Actual Finish Total Float	Duration % Complete	2023 Dec 23	Jan 24	
S224000	Installation of chlorinators	50.0d	50.0d 04-Mar-24	06-May-24		-58.0d	0%	23	24	
Siu Ho Wa	an Pumping Station	180.0d	08:00 180.0d 02-Jan-24	18:00 10-Aug-24		-79.0d	0%			
S224050	Modification of backwash pump to stream IIA SRGF	180.0d	08:00 180.0d 02-Jan-24	18:00 10-Aug-24		-79.0d	0%			
Administr	ation Building	180.0d	08:00 180.0d 02-Jan-24	18:00 10-Aug-24		-72.0d	0%			
		100.01	08:00	18:00		70.01	00/			
S201760	Modification work to the existing Control Room located on the 1st Floor	180.0d	180.0d 02-Jan-24 08:00	10-Aug-24 18:00		-72.0d	0%			
Section 3	of the Works	535.0d	290.0d 03-Apr-23 08:00 A	16-Oct-24 18:00	03-Apr-23 08:00	43.0d	45.79%			
Siu Ho Wa	an Raw Water Booster Pumping Station	535.0d	290.0d 03-Apr-23 08:00 A	16-Oct-24 18:00	03-Apr-23 08:00	43.0d	45.79%			
Equipmen	t Procurement, Manufacture, FAT and Delivery	535.0d	290.0d 03-Apr-23	16-Oct-24	03-Apr-23	-108.0d	45.79%			
S312000	Procurement of process and E&M equipment	60.0d	08:00 A 20.0d 03-Apr-23	18:00 20-Jan-24	08:00 03-Apr-23	-108.0d	66.67%			
S312020	Manufacture,FAT and delivery of process and E&M equipment	270.0d	08:00 A 270.0d 21-Jan-24	18:00 16-Oct-24	08:00	-108.0d	0%			
5312020	Manufacture,rA1 and derivery of process and E&M equipment	270.00	270.0d 21-Jan-24 08:00	18:00		-108.0d	0%			
Mechanica	al Works	150.0d	150.0d 21-Mar-24 08:00	21-Sep-24 18:00		56.0d	0%			
S312120	Installation of station pipework, valves and flowmeters	150.0d	150.0d 21-Mar-24 08:00	21-Sep-24		56.0d	0%			
Electrical	Works	160.0d	160.0d 21-Mar-24	18:00 04-Oct-24		-45.0d	0%			
S312140	Installation of cables	160.0d	08:00 160.0d 21-Mar-24	18:00 04-Oct-24		-45.0d	0%			
		100.04	08:00	18:00		-+5.00	070			
S312150	Installation of external cables to Water treatment building	120.0d	120.0d 21-Mar-24 08:00	16-Aug-24 18:00		-45.0d	0%			
Building S	ervices	120.0d	120.0d 21-Mar-24 08:00	16-Aug-24 18:00		-5.0d	0%			
S312200	Installation of MVAC system, fire services system, plumbing and drainage system	120.0d	120.0d 21-Mar-24 08:00	16-Aug-24 18:00		-5.0d	0%			8 8 8
Control Sy	rstem	150.0d	150.0d 21-Mar-24	21-Sep-24		56.0d	0%			
S312220	Installation of new DCS and BEMS, LCPs, PLCs, ALCPs AND MMIs	150.0d	08:00 150.0d 21-Mar-24	18:00 21-Sep-24		56.0d	0%			
Demeinin	n Marka	150.0d	08:00 100.0d 13-Oct-23	18:00 06-May-24	13-Oct-23	4.5d	33.33%			
Remainin	g works		08:00 A	18:00	08:00	1.54	55.5570			
Laying of I	Raw Water Main (RWM-2) CHD 100 to 150	74.0d	74.0d 01-Feb-24 08:00	06-May-24 18:00		-129.0d	0%			
S313080	Laying of Raw water main(RWM-2) CHD 100 to 150	74.0d	74.0d 01-Feb-24	06-May-24		-129.0d	0%			_
S313081	Laying washout pipe	20.0d	08:00 20.0d 16-Feb-24	18:00 09-Mar-24		-115.0d	0%			
S313082	Construction of associated pit and chamber	30.0d	08:00 30.0d 11-Mar-24	18:00 18-Apr-24		-115.0d	0%			
		10.00	08:00	18:00	12 0+ 22					
_ • •	Raw Water Main (RWM-3) CHE 0 to 200.9	90.0d	40.0d 13-Oct-23 08:00 A	20-Feb-24 18:00	13-Oct-23 08:00	64.5d				
S313320	Laying of Raw water main(RWM-3) CHE 0 to 50	24.0d	24.0d 12-Jan-24 08:00	08-Feb-24 18:00		64.5d	0%			
S313325	Connection to existing RWM from Shek Pik	7.0d	7.0d 09-Feb-24 08:00	20-Feb-24 18:00		64.5d	0%			
S313380	Laying of Raw water main(RWM-3) CHE 50 to 75 and addition Tee	45.0d	9.0d 13-Oct-23	11-Jan-24	13-Oct-23	64.5d	80%		<b>-</b>	
Section 3	Chamber(PMI-084) A of the Works - Entrustment Works	104.0d	08:00 A 80.0d 10-Nov-23	18:00 11-Apr-24	08:00 10-Nov-23	64.5d	23.08%			
Slope Wo		35.0d	08:00 A 30.0d 10-Nov-23	18:00 05-Feb-24	08:00 10-Nov-23	-24.0d	14.29%			8 8 8 8 8 8 8
			08:00 A	18:00	08:00					
S3A1075	Construction of pipe trough for laying of DN1200 FWM (CHFC320 to 380 -pipe trough)	35.0d	30.0d 10-Nov-23 08:00 A	05-Feb-24 18:00	10-Nov-23 08:00	-24.0d	14.29%			





Actual Work Non-Critical Activity Summary

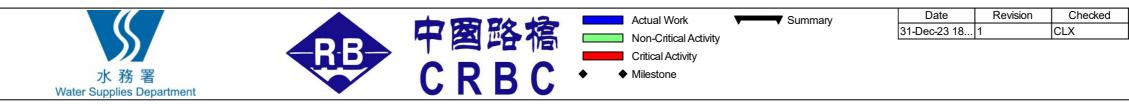
Date Revision Checked 31-Dec-23 18... 1 CLX

Critical Activity

Milestone

Pumping		Data Date:31-Dec-23	
Feb	2024 Mar	Apr	May
25	26	27	28
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			Ren
			• Kell
			Lay
<ul> <li>Laying of</li> </ul>	Raw Water Main (RV	WM-3) CHE 0 to 200.9	
		Section 3A of	the Works -
Slope Works			
		:	1
A			
Approved RM	3 Month Rol	lling Programm	e -
		24 to March 20	
	(5)	heet 9 of 10)	

	Activity Name	Duration	Remaining Start	Finish	Actual Start	Actual Finish	Total Float	Duration %	2023			2024	
			Duration					Complete	Dec 23	Jan 24	Feb 25	Mar 26	Apr 27
emaining Ŵ	Vorks	40.0d	40.0d 21-Feb-24 08:00	11-Apr-24 18:00			64.5d	0%					• Remaining Work
	Laying of DN1200 fresh water main (CHFC35 to 60) including construction of the valve chambers	40.0d	40.0d 21-Feb-24 08:00	11-Apr-24 18:00			64.5d	0%					



Approved RM

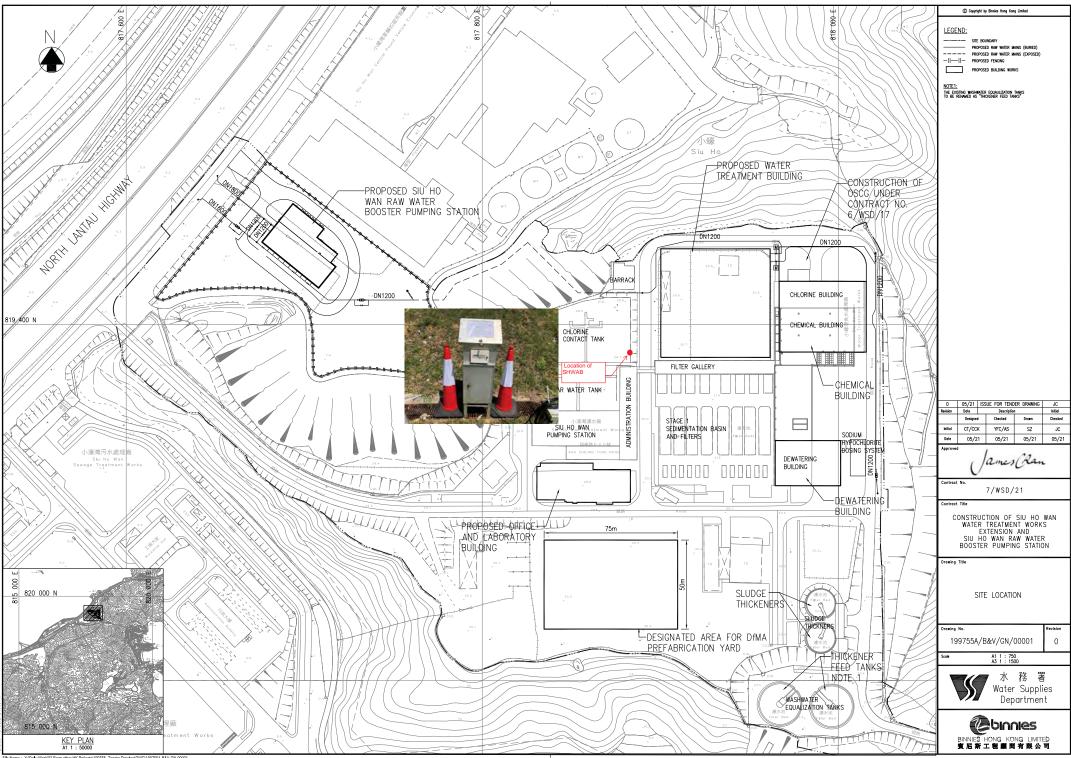
## 3 Month Rolling Programme -January 2024 to March 2024

(sheet 10 of 10)



**Appendix D** 

**Monitoring Locations** 



File Name : Y:IDaily Work/02 From other HK Projects/199755 - Tender Drawing/DWG/199755A-B&V-GN-00001



Appendix E

### **Calibration Certificates**

Z:\Jobs\2022\TCS01196(7\_WSD\_21)\600\Report Submission\Impact EM&A Report\2024\21st EM&A Report January 2024\R0077v1.doc



RECALIBRATION DUE DATE: December 15, 2024

Certificate of Calibration

			Calibration	Certificati	on Informat	ion			
Cal. Date:	December	15, 2023	Roots	meter S/N:	438320	Ta:	295	°K	
Operator:	Jim Tisch					Pa:	Pa: 748.5		
Calibration	Model #:	TE-5025A	Calil	prator S/N:	1941			-	
								1	
	Run	Vol. Init (m3)	Vol. Final	ΔVol.	ΔTime	ΔΡ			
	1 Kun	(m3) 2	(m3)	(min)	(mm Hg) 3.2	(in H2O)			
	2	1	4	1	1.4390	6.4	2.00		
	3	5	6	1	0.9260	8.0	5.00		
	4	7	8	1	0.8840	8.9	5.50	1	
	5	9	10 1		0.7290	12.9	8.00		
				Data Tabula	tion			]	
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	√∆H(Ta/Pa)		
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)		
	0.9907	0.6790	1.410	06	0.9957	0.6825	0.8878		
	0.9864	0.9522	1.994		0.9914	0.9570	1.2556		
	0.9843	1.0630	2.230	And the second se	0.9893	1.0684	1.4037		
	0.9831	1.1121	2.339		0.9881	1.1178	1.4723		
	0.9778	1.3413	2.82		0.9828	1.3481	1.7756		
	ΟςΤΟ	m= b=	2.131				1.33479		
	QSTD	r=	0.999		QA	b= r=	-0.02217 0.99999		
						1	0.0000		
	Vstd=	$\Lambda Vol((Pa-\Lambda P)$	/Pstd)(Tstd/Ta	Calculatio					
	Constant of the owner owne	Vstd/ATime	/1300/1300/18	,,	and the same statement of the	ΔVol((Pa-ΔI Va/ΔTime			
			For subsequ	ent flow ra	te calculatio	Normality of the Owner Contractory of the Party of the Owner Contractory of the Owner			
	Qstd=	1/m (( \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Pa <u>Tstd</u> Pstd Ta	))-b)		l(Ta/Pa))-b)			
	Standard	Conditions							
Tstd:	298.15					RECA	LIBRATION		
Pstd:	And the state of t	mm Hg							
		(ey	- 1120)				nnual recalibratio		
	and the second se	er reading (in eter reading	,				Regulations Part 5		
		perature (°K)					Reference Meth		
		essure (mm					ended Particulate		
o: intercept	· · · · · · · · · · · · · · · · · · ·				the	e Atmosphe	re, 9.2.17, page 3	50	
m: slope				L					

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009

### TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

-													
Location :	Siu Ho	Wan WT	W Adm	inistration			Date of C	Calibratio	on: 30-N	lov-23			
Location I	D :	SHWAE	3			ľ	Vext Calibra	ation Da	te: 30-J	an-24			
Name and	Model:	TISCH H	IVS Mo	del TE-517	0		Τ	Technici:	an: Eric				
						CONDI	TIONS						
	~		_				1	~					
	Se	a Level I		. ,		1006.3		Coi		Pressure (r	0,	754	.725
		Temp	erature	(°C)		29.1			Temp	erature (F	K)		302
				0/		DRAIIC							
				Make->	TIS	SCH			Qstd S	lope ->		2.1097	7
				Model->	502	25A		Q	std Inter	cept ->		-0.037	82
				Serial # ->	406	54							
							ATION						
					C	CALIBR	ATION						
Plate	H20 (L)	H2O (R)	H20	Qstd		Ι	IC			LINEA	R		
No.	(in)	(in)	(in)	(m3/min)	((	chart)	corrected		F	REGRESS	ION		
18	6.10	6.10	12.2	1.656		56	55.05		Slope = 27.1568				
13	4.80	4.80	9.6	1.471		50	49.15		Inte	ercept =	10.0751		
10	3.40	3.40	6.8	1.241		47	46.20		Corr.	coeff. =	0.9874		
7	2.50	2.50	5.0	1.067		38	37.35						
5	1.20	1.20	2.4	0.745		31	30.47						
Calculatio	ns '							FL	OW RAT	E CHART	1		
Qstd = 1/r		$20(P_{2}/P_{3})$	td)(Tstd	/Ta))-b]		60.0	00						ר
IC = I[Sqr		-		(1 <i>u))</i> 0]								•	
10 1[041		<i>(1500)</i> 1				50.0							
Qstd = sta	ndard flo	w rate								•/			
IC = corrections	ected char	rt respon	es										
I = actual						<b>වු</b> 40.0	00						-
m = calibr	ator Qsta	l slope				onse			/				
b = calibra	ator Qstd	intercep	t			<b>50 3</b> 0.0	n		<u> </u>				
Ta = actua	al temper	ature dui	ing calil	oration ( de	g K	art							
Pstd = act	ual press	ure durin	ig calibra	ation ( mm	Hg	Actual chart response (IC) 0.05 0.05							
						20.0 YCtri	00						-
For subse	•			•									
1/m(( I )[Sqrt(298/Tav)(Pav/760)]-b)						10.0							
	1 1					10.0							
m = sample		4											
b = samp		ept				0.0		0.555			4 505	-	1
I = chart r	-	o torrere	otra				0.000	0.500 Stan		000 Pato (m3/m	1.500 in)	2.	000
Tav = dail								Stan	uaru FIUW	Rate (m3/m			
Pav = dail	ly averag	e pressui	C										



## Appendix F

### **Event and Action Plan**

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Event Action Plan for Air Quality									
Event	ET		IEC	<u>,</u>	РМ	Ф	Со	ntractor	
Action Level exceedance for one sample	<ol> <li>Ide inv cau exc pro me:</li> <li>Infa and</li> <li>Rep me: con and</li> <li>Inc mo free</li> </ol>	eedance and pose remedial asures; orm IEC, <i>PM</i> D l <i>Contractor</i> ; beat asurement to affirm finding; l rease nitoring quency to daily.	1. 2. 3.	Check monitoring data submitted by ET; Check <i>Contractor</i> 's working method; and Review and advise the ET and <i>PM</i> D on the effectiveness of the proposed remedial measures.	1. N	Notify <i>Contractor</i> .	1. 2. 3.	Identify source, investigate the causes of exceedance and propose remedial measures Rectify any unacceptable practice and implement remedial measures; and Amend working methods agreed with <i>PM</i> D if appropriate.	
Action Level exceedance for two or more consecutive samples	<ul> <li>inv. cau</li> <li>exc</li> <li>prome:</li> <li>2. Infeador</li> <li>and</li> <li>3. Advant</li> <li>and</li> </ul>	the proposed hedial asures; beat asurements to firm findings; rease nitoring quency to daily; focuss with IEC, <i>D</i> and <i>mtractor</i> on hedial actions uired; exceedance eting with IEC <i>I PMD</i> ; and exceedance ps, cease litional	1. 2. 3. 4. 5.	Check monitoring data submitted by ET; Check <i>Contractor</i> 's working method; Discuss with ET and <i>Contractor</i> on possible remedial measures; Advise the ET and <i>PMD</i> on the effectiveness of the proposed remedial measures; and Supervise Implementation of remedial measures.	1. 2. 3.	Confirm receipt of notification of failure in writing; Notify <i>Contractor</i> ; and Supervise and ensure remedial measures properly implemented.	1. 2. 3. 4.	Identify source, investigate the causes of exceedance and propose remedial measures Submit proposals for remedial actions to <i>PMD</i> with a copy to ET and IEC within 3 working days of notification; Implement the agreed proposals; and Amend proposal if appropriate.	
Limit Level exceedance for one sample	1. Ide inv cau exc pro mea 2. Infe <i>Con</i>	nitoring. ntify source, estigate the ses of eedance and pose remedial asures; orm <i>PM</i> D, <i>ntractor</i> , IEC I EPD;	1. 2. 3.	Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET, PMD and Contractor on possible remedial	1. 2. 3.	Confirm receipt of notification of failure in writing; Notify <i>Contractor</i> ; and Supervise and ensure remedial measures properly implemented.	1.	Identify source, investigate the causes of exceedance and propose remedial measures; Take immediate action to avoid further exceedance;	

#### **Event Action Plan for Air Quality**

Z:\Jobs\2022\TCS01196(7\_WSD\_21)\600\Report Submission\Impact EM&A Report\2024\21st EM&A Report January 2024\R0077v1.doc

#### WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station Monthly Environmental Impact Monitoring and Audit Report (January 2024)



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

Note:

ET – Environmental Team IEC – Independent Environmental Checker

*PMD – Project Manager's Delegate* 



## Appendix G

### **Monitoring Schedule**

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AU	ES
----	----

D	Pate	AIR QUALITY MONITORING (24-HOUR TSP)
Mon	01-Jan-24	
Tue	02-Jan-24	
Wed	03-Jan-24	
Thu	04-Jan-24	$\checkmark$
Fri	05-Jan-24	
Sat	06-Jan-24	
Sun	07-Jan-24	
Mon	08-Jan-24	
Tue	09-Jan-24	
Wed	10-Jan-24	$\checkmark$
Thu	11-Jan-24	
Fri	12-Jan-24	
Sat	13-Jan-24	
Sun	14-Jan-24	
Mon	15-Jan-24	
Tue	16-Jan-24	✓
Wed	17-Jan-24	
Thu	18-Jan-24	
Fri	19-Jan-24	
Sat	20-Jan-24	
Sun	21-Jan-24	
Mon	22-Jan-24	$\checkmark$
Tue	23-Jan-24	
Wed	24-Jan-24	
Thu	25-Jan-24	
Fri	26-Jan-24	
Sat	27-Jan-24	✓
Sun	28-Jan-24	
Mon	29-Jan-24	
Tue	30-Jan-24	
Wed	31-Jan-24	

#### Impact Air Quality Monitoring Schedule for the Reporting Period

✓	Monitoring Day
	Sunday or Public Holiday

AU	ES
----	----

		AIR QUALITY MONITORING			
Г	Date				
-		(24-HOUR TSP)			
Thu	1-Feb-24				
Fri	2-Feb-24	$\checkmark$			
Sat	3-Feb-24				
Sun	4-Feb-24				
Mon	5-Feb-24				
Tue	6-Feb-24				
Wed	7-Feb-24				
Thu	8-Feb-24	√			
Fri	9-Feb-24				
Sat	10-Feb-24				
Sun	11-Feb-24				
Mon	12-Feb-24				
Tue	13-Feb-24				
Wed	14-Feb-24	√			
Thu	15-Feb-24				
Fri	16-Feb-24				
Sat	17-Feb-24				
Sun	18-Feb-24				
Mon	19-Feb-24				
Tue	20-Feb-24	$\checkmark$			
Wed	21-Feb-24				
Thu	22-Feb-24				
Fri	23-Feb-24				
Sat	24-Feb-24				
Sun	25-Feb-24				
Mon	26-Feb-24	✓			
Tue	27-Feb-24				
Wed	28-Feb-24				
Thu	29-Feb-24				

#### Impact Air Quality Monitoring Schedule for next Reporting Period

$\checkmark$	Monitoring Day
	Sunday or Public Holiday



## Appendix H

### **Database of Monitoring Result**



Impact Mo	Impact Monitoring Results for 24-hour TSP at SHWAB														
	ELAPSED TIME			CHART READING		AVG	STANDARD			FILTER WEIGHT (g)		WEIGHT	DUST		
DATE	SAMPLE NUMBER	INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG	TEMP (°C)	AVG PRESS (hPa)	FLOW RATE (m <sup>3</sup> /min)	AIR VOLUME (std m <sup>3</sup> )	INITIAL	FINAL	DUST COLLECTED (g)	24-hour TSP IN AIR (ug/m <sup>3</sup> )
4-Jan-24	29942	20494.46	20518.46	1440.00	38	38	38.0	17.0	1020.9	1.05	1516	2.7644	2.8805	0.1161	77
10-Jan-24	29940	20518.46	20542.46	1440.00	40	40	40.0	20.3	1018.6	1.12	1609	2.7623	2.8841	0.1218	76
16-Jan-24	29934	20542.46	20566.46	1440.00	40	40	40.0	22.8	1020.5	1.11	1602	2.7908	2.9010	0.1102	69
22-Jan-24	29933	20566.46	20590.46	1440.00	40	40	40.0	15.0	1023.3	1.13	1634	2.7787	2.9140	0.1353	83
27-Jan-24	20003	20590.46	20614.46	1440.00	40	40	40.0	15.5	1025.8	1.14	1635	2.7950	2.9496	0.1546	95

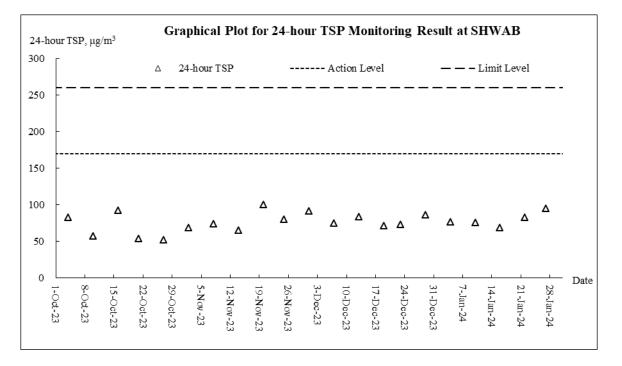


### Appendix I

### **Graphical Plots for Monitoring Result**



### **24-Hour TSP**





# Appendix J

### **Meteorological Data**

 $Z: Vobs \ 2022 \ TCS01196 (7 \ WSD \ 21) \ 600 \ Report \ Submission \ Impact \ EM\&A \ Report \ 2024 \ 21st \ EM\&A \ Report \ January \ 2024 \ R0077 \ v1. \ doc \ 2024 \ 21st \ EM\&A \ Report \ January \ 2024 \ R0077 \ v1. \ doc \ 2024 \ 21st \ EM\&A \ Report \ January \ 2024 \ R0077 \ v1. \ doc \ 2024 \ 21st \ EM\&A \ Report \ January \ 2024 \ R0077 \ v1. \ doc \ 2024 \ 21st \ EM\&A \ Report \ January \ 2024 \ 20$ 



					ok			
Date		Weather	Total Rainfal l (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	Mean Press. (hPa)
1-Jan-24	Mon	Mainly cloudy. Sunny intervals in the afternoon.	0	22.1	16.2	62.5	Е	1019.9
2-Jan-24	Tue	One or two light rain patches tonight.	0	20.5	16	65.0	Е	1019.1
3-Jan-24	Wed	Mainly fine. Moderate easterly winds.	0	18.8	15	60.0	N/NW	1020
4-Jan-24	Thu	Mainly cloudy. Sunny intervals in the afternoon.	0	16.8	13.5	55.5	NE	1020.9
5-Jan-24	Fri	Mainly fine. Moderate easterly winds.	0	19.4	12.5	65.7	E/NE	1020.2
6-Jan-24	Sat	It will be fine. Dry during the day.	0	20.3	17	61.0	E/NE	1020.1
7-Jan-24	Sun	Mainly fine. Moderate easterly winds.	0	21.4	21.5	58.5	E/SE	1021
8-Jan-24	Mon	One or two light rain patches tonight.	Trace	20.6	20	63.0	Е	1019.6
9-Jan-24	Tue	Mainly cloudy. Sunny intervals in the afternoon.	Trace	21.5	12.2	67.5	W/NW	1017.2
10-Jan-24	Wed	Mainly fine. Moderate easterly winds.	0	21.2	15	63.0	NE	1018.6
11-Jan-24	Thu	Dry with sunny periods during the day.	Trace	20.1	10.5	52.5	NE	1020
12-Jan-24	Fri	Dry with sunny periods in the afternoon	0	19.8	11.7	63.7	Е	1019.1
13-Jan-24	Sat	Mainly cloudy tonight.	0	21.3	10.0	59.7	E/SE	1019.9
14-Jan-24	Sun	Moderate easterly winds.	0	21.8	8.7	50.5	W/SW	1021.1
15-Jan-24	Mon	Mainly cloudy. Sunny intervals in the afternoon.	0	21.8	16.0	53.0	E/SE	1021.2
16-Jan-24	Tue	Dry with sunny periods in the afternoon	0	20.2	20	62.5	Е	1022.1
17-Jan-24	Wed	Moderate easterly winds.	0.1	20.0	14	63.7	Е	1020.4
18-Jan-24	Thu	Mainly cloudy tonight.	0	22.6	11.2	62.5	W	1017.7
19-Jan-24	Fri	Mainly fine. Warm during the day.	0	22.8	10	61.0	E/NE	1016.3
20-Jan-24	Sat	Becoming cloudy later. Moderate easterly winds.	0	21.0	16.2	71.0	NW	1016.3
21-Jan-24	Sun	Moderate easterly winds.	Trace	18.6	15	65.0	Ν	1020.3
22-Jan-24	Mon	Fresh northerly winds, strong offshore and on high ground.	0.5	13.6	17.5	71.0	N/NE	1023.3
23-Jan-24	Tue	Very cold Cloudy to overcast with a few rain patches.	2.7	7.6	18	72.5	N/NE	1028.5
24-Jan-24	Wed	Very cold Cloudy to overcast with a few rain patches.	0	8.4	15.5	47.0	NE	1029.2
25-Jan-24	Thu	Moderate northeasterly winds.	0	11.5	11.5	44.5	N	1028.7
26-Jan-24	Fri	Dry with sunny periods.	0	14.4	15	49.5	E/NE	1027.3
27-Jan-24	Sat	Moderate northeasterly winds.	1	14.4	12.7	61.0	E/NE	1025.8
28-Jan-24	Sun	Very cold Cloudy to overcast with a few rain patches.	2.4	12.9	11	70.0	E/NE	1026.4
29-Jan-24	Mon	Moderate easterly winds.	Trace	15.7	10	75	E/NE	1023.4
30-Jan-24	Tue	Mainly cloudy with coastal mist.	Trace	18.9	12.5	79	N/NW	1020.7
31-Jan-24	Wed	Mainly cloudy with rather low visibility.	Trace	20.9	17.7	80.7	Е	1019.4

*Remark: The above information was extracted from the Hong Kong Observatory Station of Chek Lap Kok of below link: <u>https://www.hko.gov.hk/en/index.html</u>* 



Appendix K

Waste Flow Table

### Monthly Summary Waste Flow Table for <u>2024</u> (year)

Actual Quantities of Inert C&D Materials Generated Monthly Actual Quantities of C&D Wastes Generated Monthly											
			ies of Inert C&	D Materials Ge	nerated Monthly		A	ctual Quantitie	s of C&D Waste	es Generated M	onthly
Month	Total Quantity Generated	Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
		(a) (see Note 3)	(b)	(c)	(d)			P			
	(in Tonne)	(in Tonne)	(in Tonne)	(in Tonne)	(in Tonne)	(in Tonne)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in Tonne)
Jan	1252.840	14.460	0.000	0.000	1238.380	310.040	0.0022	4.5060	0.0030	0.0000	29.490
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	1252.840	14.460	0.000	0.000	1238.380	310.040	0.0022	4.5060	0.0030	0.0000	29.490
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	1252.840	14.460	0.000	0.000	1238.380	310.040	0.0022	4.5060	0.0030	0.0000	29.490

Project : Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station Contract No.: 7/WSD/21

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.

(3) Broken concrete for recycling into aggregates.

(4) Total Quantity Gernerated = a+b+c+d.



## Appendix L

### **Environmental Complaints Log**

WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station Monthly Environmental Impact Monitoring and Audit Report (January 2024)



#### **Environmental Complaints Log**

Log ref.	Date of complaint	Complaint route	Reference no.	Complaint nature	Investigation fining	Status
1						
2						
3						
4						



### Appendix M

### Implementation Schedule for Environmental Mitigation Measures



Monthly Environmental Impact Monitoring and Audit Report (January 2024)

### **Environmental Mitigation Implementation Schedule for Air Quality Control**

EIA	Environmental Protection Measures	Location/Tim	Implementa	Implementation Stages*			Relevant Legislation	
Ref		ing	tion Agent	D	С	0	& Guidelines	
Construction	Phase (Air Quality Control)		•					
S3.8	<ul> <li>Dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation shall be incorporated to control dust emission. Notice shall be given to authority prior to commencing of work. Relevant control measures include:</li> <li>watering on the work sites at Siu Ho Wan WTW twice a day;</li> <li>skip hoist for material transport shall be totally enclosed by impervious sheeting;</li> <li>vehicle washing facilities shall be provided at every vehicle exit point;</li> <li>the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores;</li> <li>every main haul road shall be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet;</li> <li>every stock of more than 20 bags of cement shall be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides;</li> <li>all dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;</li> <li>every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the construction sites;</li> <li>the dusty materials stockpiled on site shall be covered; and</li> <li>the load of dusty materials carried by vehicle leaving a construction site shall be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.</li> </ul>	Work site / during construction period.	Contractor		V		Air Pollution Control (Construction Dust) Regulation	
	hase(Air Quality)							
NA	NA	NA	NA	NA	NA	NA	NA	
	Phase (Noise Control)						T	
S4.8.1	Use of silenced PME	Work site close to all NSRs	Contractor		1		NCO, EIAO-TM	
S4.8.6	<ul> <li>Good Site Practices:</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>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.</li> <li>Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> <li>Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme.</li> </ul>	Work site close to all NSRs / throughout the construction period.	Contractor		N		NCO, EIAO-TM	

# WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station



EIA	Environmental Protection Measures	Location/Tim	Implementa	Implem	nentation S	Stages*	<b>Relevant Legislation</b>	
Ref		ing	tion Agent	D	С	0	& Guidelines	
<b>Operation</b> Pl	hase(Noise Control)							
NA	NA	NA	NA	NA	NA	NA	NA	
Construction	Phase (Water Quality Control)							
<u>85.7.2</u>	<ul> <li>Construction Site Runoff and Drainage</li> <li>Before commencing any site formation work, all sewer and drainage connections shall be sealed to prevent debris, soil, sand etc. from entering public sewers/drains.</li> <li>Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities shall be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures shall be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.</li> <li>Water pumped out from foundation excavations shall be discharged into silt removal facilities.</li> <li>Exposed soil surfaces shall be protected by paving or fill material as soon as possible to reduce the potential of soil erosion.</li> <li>Open stockpiles of construction materials or construction wastes on-site of more</li> </ul>	Work site / During the construction period	Contractor		√		ProPECC PN 1/94; WPCO	
	than 50m3 shall be covered with tarpaulin or similar fabric during rainstorms.							
\$5.7.3	<ul> <li>General Construction Activities</li> <li>Debris and rubbish generated on-site shall be collected, handled and disposed of properly to avoid entering the nearby watercourses and storm water drains. Stockpiles of cement and other construction materials shall be kept covered when not being used.</li> </ul>	Work site / During the construction period	Contractor		1		ProPECC PN 1/94; WPCO	
\$5.7.4	<ul> <li>Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event.</li> </ul>	Work site / During the construction period	Contractor		1			
\$5.7.5	<ul> <li>Sewage from Construction Workforce</li> <li>Temporary sanitary facilities, such as portable chemical toilets, shall be employed on-site. A licensed contractor shall be responsible for appropriate disposal and maintenance of these facilities.</li> </ul>	Work site / During the construction period	Contractor		1		WPCO	
<b>Operation Pl</b>	hase(Water Quality Control)							
NA	NA	NA	NA	NA	NA	NA	NA	
Construction	Phase (Ecology)							
S.6.9.3	<ul> <li>Mitigation to minimise impacts on vegetation in woodland</li> <li>All trees shall be preserved as far as possible, especially species of high conservation or amenity value. Recommendations to be provided in the Tree Survey Report to mitigate impacts on trees shall be followed. Where trees are to be preserved in-situ, but are likely to be disturbed from works activities, protective fencing/hoarding shall be carefully set up around the affected trees (refer to</li> </ul>	Worksiteparticularlywoodland/Duringdesignphaseandconstructionperiod	WSD/ Contractor	$\checkmark$	V		EIAO	

# WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station



EIA	Environmental Protection Measures	Location/Tim	Implementa	Implementation Stages*			<b>Relevant Legislation</b>
Ref		ing	tion Agent	D	С	0	& Guidelines
S.6.9.4/ S.6.11.2	<ul> <li>Landscape and Visual).</li> <li>Disturbance of individuals of the shrub/tree species Pavetta hongkongensis and tree Aquilaria sinensis of conservation interest should be avoided. A buffer to the dripline of each plant of at least 1m radius should be demarcated to prohibit disturbance. Where loss of this species would be unavoidable, it is recommended that these plants may be transplanted to safe locations within the same habitat. Following transplantation, regular monitoring of the trees and seedlings should be conducted by a suitably qualified botanist/horticulturist over a 12-month period.</li> </ul>						
S.6.9.5	<ul> <li>Mitigation to minimise impacts on aquatic ecology</li> <li>Trench excavation works for the raw water mains near the stream courses should be carried out in the dry season as far as practicable.</li> </ul>	Work site / During construction period	WSD/ Contractor	$\checkmark$	~		
S.6.9.6	<ul> <li>Mitigation to minimise general disturbance to wildlife</li> <li>Noise mitigation measures through the use of quiet construction plant shall be implemented to minimise disturbance to habitats adjacent to the works areas.</li> </ul>	Work site / During construction period	Contractor		1		EIAO
S.6.9.7	<ul> <li>General good site practice</li> <li>Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats.</li> <li>Construction activities shall be restricted to works areas that shall be clearly demarcated. The works areas shall be reinstated after completion of the works.</li> <li>Waste skips shall be provided to collect general refuse and construction wastes. The wastes shall be disposed of timely and properly off-site.</li> <li>General drainage arrangements shall include sediment and oil traps to collect and control construction site run-off.</li> <li>Open burning on works sites is illegal, and shall be strictly prohibited. Stove fires on works sites shall also not be allowed. Temporary fire fighting equipment shall be provided particularly in woodland areas.</li> </ul>	Work site / During construction period	Contractor		~		ΕΙΑΟ
S.6.9.8.	<ul> <li><i>Re-vegetation to reinstate works areas</i></li> <li>As far as possible compensatory planting shall use native plants of the same species that occur in the adjacent woodland habitat and have flowers/fruits attractive to wildlife. On-site compensatory planting should be conducted on at least a one to one basis.</li> </ul>	Work site in woodland / Immediately following works	Contractor		V		EIAO
	hase(Ecology)						
NA	NA	NA	NA	NA	NA	NA	NA
	Phase (Landscape and Visual Impact)	D :			,	1	
S7.9	<ul> <li>All existing top-soil shall be conserved and reused</li> <li>Temporary hoarding barriers shall be of a recessive visual appearance in both colour and form.</li> <li>Chromatic colour scheme with appropriate texture should be considered while designing the external surface of the proposed SHW Raw Water Booster Pumping Station in order to visually merge the proposed structures into the surrounding landscape.</li> </ul>	During construction phase	Contractor		N		EIAO-TM
<b>Operation P</b>	hase(Landscape and Visual Impact)						

# WSD Contract No.: 7/WSD/21 - Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station



EIA	Environmental Protection Measures	Location/Tim	Implementa	Implem	entation S	<b>Relevant Legislation</b>	
Ref		ing	tion Agent	D	С	0	& Guidelines
S7.9	<ul> <li>New compensatory planting works shall be carried out as early as possible in the construction period which allow maximum time for establishment and more mature trees when the works completed.</li> <li>Landscape or compensatory planting shall be provided where appropriate for enhancing greening and achieving visual screening. In this aspect, compensatory tree planting shall be considered. Selection of plant species shall match with the surrounding vegetation type and form for consistency of landscape resources and visual comfort, for matching with the local habitat. Tree planting shall be firstly considered when the amenity area or slope is feasible for planting trees so as to provide visual screening.</li> </ul>	During operation phase	Contractor			V	EIAO-TM
S7.9	<ul> <li>Planting area of approximately 2000 to 3000mm wide where fast growing tall trees with dense foliage shall be provided along the site boundary of Siu Ho Wan Raw Water Booster Pumping Station for visual screening.</li> <li>For planting close to or surrounded by natural terrain, compensatory planting should be arranged in a semi natural manner where feasible in order to blend the new planting into natural environment.</li> <li>The newly planted trees, shrubs and grassed areas are maintained throughout the first 12 months of the operation stage.</li> </ul>	During operation phase	Contractor			V	EIAO-TM
Waste Manag	gement						
\$10.5.1 - \$10.5.3	<ul> <li>Good Site Practices</li> <li>Good site practices during the construction activities include:</li> <li>Nomination of approved personnel, such as a site manager, to be responsible for good site practices and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility.</li> <li>Training of site personnel in proper waste management and chemical waste handling procedures.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>A Waste Management Plan shall be prepared and submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details.</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) shall be proposed.</li> <li>In order to monitor the disposal of C&amp;D material at public filling areas and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. One may make reference to WBTC No. 21/2002 for details.</li> </ul>	Work site / During the construction period	Contractor				Waste Disposal Ordinance (Cap.54) WBTC No.21/2002, ETWB TCW No. 15/2003
S10.5.4	Waste Reduction Measures Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction	Work site / During planning & design stage, and construction	WSD/Contracto r	1	1		WBTC No.4/98, ETWB TCW No. 15/2003



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EIA	Environmental Protection Measures	Location/Tim	Implementa	Implem	entation S	tages*	Relevant Legislation
Ref		ing	tion Agent	D	С	0	& Guidelines
	<ul> <li>include:</li> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.</li> <li>Separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors.</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>Maximising the use of reusable steel formwork to reduce the amount of C&amp;D material.</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials.</li> <li>Plan and stock construction materials carefully to minimise amount of waste</li> </ul>	stage					
\$10.5.9	generated and avoid unnecessary generation of waste.           General Refuse           General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material.	Work site / During the construction period	Contractor		1		Public Health and Municipal Services Ordinance (Cap. 132)
S10.5.7	Construction & Demolition (C&D) Material When disposing C&D material at a public filling area, it shall be noted that the material shall only consist of soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt. The material shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor.	Work site / During the construction period	Contractor		1		WBTC No. 4/98, 21/2002, 25/99, 12/2000 ETWB TCW No. 15/2003
S10.5.8	Chemical Wastes If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes shall be used. Appropriate labels shall be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes generated at the Chemical Waste Treatment Centre at Tsing Yi, or other licenced facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. All chemical wastes shall be removed from the waterworks installations at the first instance.	Work site / During the construction period	Contractor		1		

Note: N/A Not applicable \*D – Design; C – Construction; O – Operation