



Our Ref.: CJO-3113

14 December 2023

The EIA Ordinance Register Office, **Environmental Protection Department,** 27th floor, Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong

**CONTRACT NO. 1/WSD/19 & 6/WSD/21** 

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND **ANCILLARY FACILITIES Environmental Permit EP-494/2015** 

We are enclosing the following information for your kind considerations of our application:

- (a) Three hard copies,
- (b) Two copies of the 93<sup>rd</sup> monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0). (Register No.: AEIAR-187/2015)

Please feel free to contact us should you need further information.

Yours sincerely,

Acumen Environmental Engineering and Technologies Co. Ltd.

Mr. Vega Wong 2698 8032

c.c. Water Supplies Department

c.c. AECOM





Your ref:

Our ref: CJO-3113

#### By hand

Chief Engineer /Project Management Water Supplies Department 46/F., Immigration Tower 7 Gloucester Road, Wanchai (Attn: Mr. H C Wong, Heinz)

14 December 2023

Dear Sir,

In-Situ Reprovisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities
Environmental Permit EP-494/2015
Submission of 93<sup>rd</sup> monthly EM&A Report

In accordance with the Condition 3.4 of the Environmental Permit (No. EP-494/2015), we submit herewith 3 hard copies and 2 electronic copies of the 93<sup>rd</sup> monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0) for your processing. I certified and confirmed the submission of this monthly EM&A Report had complied with the requirements as set out in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Yours faithfully,

Mr. Wong, Vega, T. L.

Environmental Team Leader

c.c. Independent Environmental Checker



AECOM

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#### By Email

Chief Engineer/Project Management Water Supplies Department 46/F., Immigration Tower 7 Gloucester Road, Wanchai

Attn: Mr. Edmund Huen

14 December 2023

Dear Sir,

#### Contract No.1/WSD/19

In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities

#### Contract No.6/WSD/21

In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) - Administration Building

#### Submission of 93<sup>rd</sup> Monthly EM&A Report for November 2023

Reference is made to Environmental Team (ET)'s 93<sup>rd</sup> Monthly EM&A Report for November 2023 (Rev. 0) submitted on 12 and 14 December 2023.

In accordance with the Condition 3.4 of the Environmental Permit (No.EP-494/2015), I verified and confirmed the submission of this Monthly EM&A Monitoring Report as compiled with the requirements as set in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully, AECOM Asia Co. Ltd.

Y W Fung

Independent Environmental Checker

c.c. Environmental Team Leader (via email)





## MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO. 93)

#### **FOR**

**CONTRACT NO. 1/WSD/19 & 6/WSD/21** IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) -**Water Treatment Works and Ancillary Facilities** 

(Rev. 0)

### MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO. 93)

# FOR CONTRACT NO. 1/WSD/19 & 6/WSD/21 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

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#### **EXECUTIVE SUMMARY**

- A.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- A.2 Under Contract No. 1/WSD/19 and 6/WSD/21, ATAL CW MH JV (ACMJV) is commissioned by WSD to undertake the construction of the main works while AECOM Asia Company Limited was appointed by WSD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, Acumen Environmental Engineering & Technologies Company Limited was appointed by ACMJV as the Environmental Team (ET). AECOM Asia Company Limited was also employed by the WSD as the Independent Environmental Checker (IEC).
- A.3 The construction phase of Contract No. 3/WSD/15 commenced on 30 October 2015 for completion by 31 December 2020. The construction phase of Contract No. 1/WSD/19 commenced on 01 January 2021. The construction phase of Contract No. 6/WSD/21 commenced on 16 March 2022. The impact monitoring of the EM&A programme, including air quality, noise, water quality monitoring as well as environmental site inspections, commenced on 17 February 2016.
- A.4 This is the 93<sup>rd</sup> monthly Environmental Monitoring and Audit Report for the Project which covers the period from 1 to 30 November 2023 (the reporting period) for Contract No. 1/WSD/19 and 6/WSD/21.
- A.5 For Contract No. 1/WSD/19, as informed by the Contractor, major activities in the reporting period included:
  - Major ELS Work (S1F, S2F, Ozone Building, SWPS, RMF)
    - **♦** Excavation
    - ♦ Soil nail installation
    - ♦ Lagging wall construction
    - ♦ Strut and waling installation
    - ♦ Pre-loading works
    - ♦ Plate load tests
  - Grout curtain
  - WET structure construction, top slab construction, water test
  - S1F and S2F:
    - ♦ Formation preparation (dewatering)
    - ♦ Blinding construction
    - ♦ Drilling works for earthing rods
    - ♦ Structure construction
  - Demolition of TWRT
  - Drilling works for King Posts
  - Filter bed demolition and backfilling
  - King Post installation work
  - Valve chamber for M1-5 water pipe diversion
  - Wall A & B construction works
  - Landscape works
  - Installation of under structures pipes
  - Installation of temporary steel decking at S2F
  - ABWF Works for 6 major buildings
  - Scaffolding Works for WET ABWF & Metal Works
  - Structural Steelworks for WET
  - Excavation for Stainless Steel Pipework under Structures of Six Major Buildings in Portion A

- Earthing Rod Installation (RMF, Ozone & SWPS)
- Installation of Tower Crane
- For Contract No. 6/WSD/21, as informed by the Contractor, major activities in the reporting period A.6 included:
  - Waterproofing Works
  - Carry Out Excavation Down to + 23.3mPD
  - Concreting for Raft Slab (LG/F Level)
  - Steel Plate Welding to Sheetpile for Waterproofing Works
  - Carry Out Excavation to Final Excavation Level +21.0mPD
  - **MIC Installation**
  - Excavation to Bottom Rockfill Level & Rockfill Replacement Work
  - Town Crane installation

#### Environmental monitoring activities under the EM&A program in this reporting period are summarized A.7 below

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air	1-Hour TSP	15
Noise	$L_{eq(30mins)}$ Daytime	5
Water	Water Sampling	13
Quality	water Sampfing	13
Inspection /	ET Regular Environmental Site Inspection	5
Audit	IEC Monthly Environmental Site Audit	1

- **A.8** No exceedance of air quality and noise monitoring was recorded in this reporting period. There were no exceedance in action level and 2 exceedances in limit level for water quality monitoring was recorded in this reporting period.
- A.9 No environmental complaint was received via EPD in this reporting period.
- A.10 No notification of any summons and successful prosecutions was received in this reporting period.
- A.11 No reporting change was made in this reporting period.
- A.12 No EPD site inspection was conducted in the reporting period.
- A.13 As informed by the Contractor, the major works for Contract No. 1/WSD/19 between December 2023 to February 2024 will be:

- Major ELS Work (S1F, S2F, Ozone Building, SWPS, RMF)
  - ♦ Excavation
  - ♦ Soil nail installation
  - ♦ Lagging wall construction
  - ♦ Strut and waling installation
  - ♦ Pre-loading works
  - ♦ Plate load tests
- Grout curtain
- WET structure construction, top slab construction, water test
- S1F, S2F and TWRT:
  - ♦ Formation preparation (dewatering)
  - ♦ Blinding construction
  - ♦ Drilling works for earthing rods

- ♦ Structure construction
- Demolition of TWRT
- Drilling works for King Posts
- King Post installation work
- Valve chamber for M1-5 water pipe diversion
- Wall A & B construction works
- Fencing construction works
- Landscape works
- Installation of under structures pipes
- Installation of temporary steel decking at S2F
- ABWF Works for 6 major buildings
- Scaffolding Works for WET ABWF & Metal Works
- Structural Steelworks for WET
- Excavation for Stainless Steel Pipework under Structures of Six Major Buildings in Portion A
- Earthing Rod Installation (RMF, Ozone & SWPS)
- Dismantle of ELS
- Installation of Tower Crane (SWPS)
- As informed by the Contractor, the major works for Contract No. 6/WSD/21 between December 2023 to A.14 February 2024 will be:
  - Waterproofing Works
  - Carry Out Excavation Down to +23.3mPD
  - Concreting for Raft Slab (LG/F Level)
  - Steel Plate Welding to Sheetpile for Waterproofing Works
  - Carry Out Excavation to Final Excavation Level +21.0mPD
  - MIC Installation
  - Excavation to Bottom Rockfill Level & Rockfill Replacement Work
  - Town Crane installation
- EM&A monitoring for the 93<sup>rd</sup> reporting period for Contract No. 1/WSD/19 and 6/WSD/21 has been A.15 completed. The 94<sup>th</sup> monthly EM&A report will cover the period from 1 to 31 December 2023.

#### I. INTRODUCTION

#### 1.1. PROJECT BACKGROUND

- 1.1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) on 28 January 2015, subsequent to approval of the EIA Report (Register No. AEIAR-187/2015), to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- 1.1.2 Under Contract No. 1/WSD/19 and 6/WSD/21, ATAL CW MH JV (ACMJV) and CW–FWS–JV are commissioned by WSD to undertake the construction of the main works while AECOM Asia Company Limited was appointed by WSD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, Acumen Environmental Engineering & Technologies Company Limited was appointed by ACMJV as the Environmental Team (ET). AECOM Asia Company Limited was also employed by the WSD as the Independent Environmental Checker (IEC).
- 1.1.3 The construction phase of Contract No. 3/WSD/15 commenced on 30 October 2015 for completion by 31 December 2020. The construction phase of Contract No. 1/WSD/19 commenced on 01 January 2021. The construction phase of Contract No. 6/WSD/21 commenced on 16 March 2022. The general layout plan of the Contract components is presented in **Appendix A**.
- 1.1.4 ET conducted below baseline monitoring at designated locations according to the EM&A Manual.
  - Air quality and noise: from 21 December 2015 to 3 January 2016.
  - Water quality: from 15 December 2015 to 8 January 2016.
- 1.1.5 Baseline Monitoring Report was issued by the ET and verified by the IEC on 27 January 2016 and submitted to the EPD on 2 February 2016.
- 1.1.6 The impact monitoring of the EM&A programme, including air quality, noise, water quality monitoring as well as environmental site inspections, commenced on 17 February 2016.

#### 1.2. ORGANIZATION STRUCTURE

1.2.1 The organization structure of the Contract is shown in **Appendix B**. Contact details of key personnel are summarized in below table:

Table 1-1: Key Personnel Contact for Environmental Works

Party	Position	Name	Telephone
Water Supplies	Senior Engineer	Mr. Ng, Horace, C. K.	2829 5693
Department			
AECOM	Chief Resident Engineer	Mr. Ng, Derek, K. H.	9717 1420
	Independent	Mr. Fung, Y. W.	3922 9366
	Environmental Checker	-	
	Deputy Independent	Ms. Lam, Lemon, M.	3922 9381
	Environmental Checker	C.	
ATAL-CW-MH Joint	Project Manager	Mr. Leung, W. C.	3758 8373
Venture	Site Agent	Ms. Cheung, S. Y.	6323 4716
CW-FWS JV	Construction Manager	Mr. Tung, K. M.	9680 4586
	Site Agent	Mr. Lee, C. M.	9148 4389
Acumen Env. Eng. &	Project Director	Ir Dr. Lam, Gabriel, C.	2333 6823
Tech. Co. Ltd.	ech. Co. Ltd.		
	Environmental Team		6113 2368
	Leader		
	Ecologist	Mr. Wan, Jay, P. H.	2333 6823

#### 1.3. SCOPE OF REPORT

- 1.3.1 This is the 93<sup>rd</sup> monthly EM&A Report under the Contract No. 1/WSD/19 and 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Water Treatment Works and Ancillary Facilities covering the period from 1 to 30 November 2023 (the reporting period).
- 1.3.2 The EM&A requirements for impact monitoring are set out in the approved EM&A Manual. Environmental aspects such as the construction air quality, noise, water quality and ecology were identified as the key issues during the construction phase of the Project.

#### 1.4. SUMMARY OF CONSTRUCTION WORKS

1.4.1 The construction phase of the Contract commenced on 30 October 2015. Latest construction programmes are shown in **Appendix C**.

- 1.4.2 As informed by the Contractor, no major works for Contract No.3/WSD/15 will be conducted. The major works for Contract No. 1/WSD/19 in November 2023 are:
  - Major ELS Work (S1F, S2F, Ozone Building, SWPS, RMF)
    - ♦ Excavation
    - ♦ Soil nail installation
    - ♦ Lagging wall construction
    - ♦ Strut and waling installation
    - ♦ Pre-loading works
    - ♦ Plate load tests
  - Grout curtain
  - WET structure construction, top slab construction, water test
  - S1F and S2F:
    - ♦ Formation preparation (dewatering)

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- ♦ Blinding construction
- ♦ Drilling works for earthing rods
- ♦ Structure construction
- Demolition of TWRT
- Drilling works for King Posts
- Filter bed demolition and backfilling
- King Post installation work
- Valve chamber for M1-5 water pipe diversion
- Wall A & B construction works
- Landscape works
- Installation of under structures pipes
- Installation of temporary steel decking at S2F
- ABWF Works for 6 major buildings
- Scaffolding Works for WET ABWF & Metal Works
- Structural Steelworks for WET
- Excavation for Stainless Steel Pipework under Structures of Six Major Buildings in Portion A
- Earthing Rod Installation (RMF, Ozone & SWPS)
- Installation of Tower Crane
- 1.4.3 As informed by the Contractor, no major works for Contract No.3/WSD/15 will be conducted. The major works for Contract No. 6/WSD/21 in November 2023 are:
  - Waterproofing Works
  - Carry Out Excavation Down to + 23.3mPD
  - Concreting for Raft Slab (LG/F Level)
  - Steel Plate Welding to Sheetpile for Waterproofing Works
  - MIC Installation
  - Excavation to Bottom Rockfill Level & Rockfill Replacement Work
  - Town Crane installation
- 1.4.4 The locations of the construction activities are shown in **Appendix D**. The Environmental Sensitive Receivers in the vicinity of the Project are shown in **Appendix E**.

#### 2. EM&A RESULTS

#### 2.1. EM&A BACKGROUND

2.1.1 The EM&A programme required environmental monitoring for air quality, noise, water quality and ecology as well as environmental site inspections for air quality, noise, water quality, waste management and ecology impacts. The EM&A requirements and related findings for each component are summarized in the following sections. A summary of impact monitoring programme is presented in Table 2-1.

Table 2-1: Summary of Impact Monitoring Programme

Impact Monitoring	Sampling Parameter	Frequency
Air Quality	1-hour TSP	3 times in every 6 days when documented and valid complaint was received
Noise	$L_{eq~30~min},~L_{eq~5~min},~~L_{10}$ and $L_{90}$ as reference.	1 time per week:  ◆ L <sub>eq 30 min</sub> for normal weekdays from 0700 - 1900;
Water Quality	Duplicate in-situ measurements: Dissolved Oxygen (DO), Turbidity and pH; HOKLAS-accredited laboratory analysis: Suspended Solids (SS).	3 days per week. The interval between 2 monitoring days will be more than 36 hours.
Ecology	-	A detailed at least 6 years post-planting monitoring and maintenance programme

#### Remark: Sampling Depth for Water Quality:

- (i) 3 depths: 1m below water surface, 1m above bottom and at mid-depth when the water depth exceeds 6m.
- (ii) If the water depth is between 3m and 6m, 2 depths: 1m below water surface and 1m above bottom.
- (iii) If the water depth is less than 3m, 1 sample at mid-depth is taken
- 2.1.2 A summary of the monitoring parameters is presented in Table 2-2.

Table 2-2: Summary of the monitoring parameters of EM&A Requirements

<b>Environmental Issue</b>	Parameter			
Air Quality	1-hour TSP Monitoring by Real-Time Portable Dust Meter			
Noise	L <sub>eq (30min)</sub> during normal working hours			
	In-situ measurement			
	• Dissolved Oxygen (mg/L);			
	<ul> <li>Dissolved Oxygen Saturation (%);</li> </ul>			
	• Turbidity (NTU);			
Water Quality	• pH value;			
-	• Water depth (m); and			
	• Temperature (°C)			
	Laboratory analysis			
	Suspended Solids (mg/L)			

- 2.1.3 Summary of determination of Action/Limit (A/L) Levels for air quality, noise and water quality are presented in **Appendix F**.
- 2.1.4 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in **Appendix G**.
- 2.1.5 The impact monitoring schedules are presented in **Appendix H** and the monitoring results are detailed in the following sub-sections.

#### 2.2. AIR QUALITY MONITORING

- 2.2.1 Impact monitoring for air quality had been carried out in accordance with Sections 2.29 of the approved EM&A Manual to determine the ambient 1-hour total suspended particulates (TSP) levels at the monitoring locations. 1-hour TSP sampling should be undertaken at least 3 times in every six-days at each monitoring station when the highest dust impacts are expected. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the impact monitoring period.
- 2.2.2 Two (2) designated monitoring stations, AM1 located at the L Louey and AM2 located at Hin Keng Estate Hin Wan House, were recommended in Section 2.18 of the approved EM&A Manual. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted among ET, IEC and EPD.
- 2.2.3 During the site visit, all designated air monitoring locations were identified. Details of air monitoring stations are described in Table 2-3. The location plan of air quality monitoring stations is shown in **Appendix I**.

Table 2-3: Location of the Air Quality Monitoring Stations

Air Quality Monitoring Station	Air Sensitive Receiver (ASR) ID in the approved EIA Report	Dust Monitoring Station
AM1	ASR2	The L Louey (at a platform level of about 5m above road level nearby)
AM2	ASR4	Hin Keng Estate - Hin Wan House (at the roof top)

2.2.4 The monitoring equipment using for the air quality impact monitoring was proposed by ET and verified by IEC. 1-hour TSP levels had been measured with direct reading dust meter. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50). The details of equipment using for impact monitoring are listed in Table 2-4 as below.

Table 2-4: Air Quality Impact Monitoring Equipment

Equipment	Model
Portable dust meter – 1-hour TSP	Qingdao Jingcheng Model PC-3A (E)
Portable Wind Speed Indicator	The Kestrel Pocket Weather Meter

- 2.2.5 The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
  - A pump to draw sample aerosol through the optic chamber where TSP is measured;
  - A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability;

and

- A built-in data logger compatible with based program to facilitate data collection, analysis and reporting.
- 2.2.6 The 1-hour TSP meter was calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. A valid calibration certificate is attached in **Appendix J**.
- 2.2.7 In this Reporting Period, a total of five (5) sampling days perform air quality monitoring at the two designated locations. The results for 1-hour TSP are summarized in Table 2-5 and Table 2-6.

Table 2-5: Summary of 1-hour TSP Monitoring Results – AM1

	1-hour TSP (μg/m³)					
Date	Weather	Start	End	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
		Time	Time	Measurement	Measurement	Measurement
2/11/2023	fine	09:26	12:26	48	42	35
8/11/2023	cloudy	09:36	12:36	30	31	21
14/11/2023	cloudy	09:30	12:30	51	49	55
20/11/2023	sunny	09:26	12:26	37	36	39
25/11/2023	fine	09:24	12:24	52	54	51
Average			42.1			
Range				21 - 55		

Table 2-6: Summary of 1-hour TSP Monitoring Results – AM2

	1-hour TSP (μg/m³)					
Date	Weather	Start	End	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
		Time	Time	Measurement	Measurement	Measurement
2/11/2023	fine	09:22	12:22	46	45	39
8/11/2023	cloudy	09:32	12:32	32	33	28
14/11/2023	cloudy	09:26	12:26	54	52	48
20/11/2023	sunny	09:22	12:22	48	41	44
25/11/2023	fine	09:20	12:20	50	49	44
Average			43.5			
Range				28 - 54		

2.2.8 In this Reporting Month, all monitoring result were below the action level. Hence, no Action or Limit Level exceedance was triggered during this month. The impact air quality monitoring results and graphical presentation are shown in **Appendix K**.

#### 2.3. NOISE MONITORING

- 2.3.1 Impact monitoring for noise levels had been measured in accordance with Sections 3.13 of approved EM&A Manual on normal weekdays at a frequency of once a week at logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays). The L<sub>eq</sub> had been recorded at the specified intervals.
- 2.3.2 According to Section 3.7 of the approved EM&A Manual, 3 noise sensitive receivers designated for the construction noise monitoring. The designated monitoring stations are identified and successfully granted by the premises. The details of noise monitoring stations are described in Table 2-7 and the location plan of noise monitoring stations is shown in **Appendix L**.

Table 2-7: Details of Noise Monitoring Stations

Noise Monitoring Station	Noise Sensitive Receiver (NSR) ID in the approved EIA Report	Identified Noise Monitoring Station
		The L Louey (South)
NM1	HK2	(at a platform level of
INIVII		about 5m above road level nearby
		- free field measurement)
		Hin Keng Estate –
NM2	HK5	Hin Wan House
		(at the roof level - facade measurement)
		C.U.H.K.F.A.A.
NM3	HK7	Thomas Cheung School
		(at the roof level - free field measurement)

2.3.3 The monitoring equipment using for the noise impact monitoring was proposed by ET and verified by IEC. Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications has been used for carrying out the noise monitoring. The sound level meter has been checked using an acoustic calibrator. The wind speed has been checked with a portable wind speed meter capable of measuring the wind speed in m/s. The details of equipment using for impact monitoring are listed in Table 2-8 as below.

Table 2-8: Noise Impact Monitoring Equipment

Noise	
Sound Level Meter	Svantek 971
Acoustic Calibrator	Rion NL-52
Portable Wind Speed Indicator	The Kestrel Pocket Weather Meter

- 2.3.4 All noise measurements were the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level  $(L_{eq})$ .
- 2.3.5 Prior to the impact noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Regular checking

was conducted in impact monitoring period. The calibration level before and after the noise measurement is agreed to within 1.0 dB.

- 2.3.6 An acoustic calibrator and sound level meter using impact monitoring is within the valid period and were calibrated per year. A set of valid calibration certificates is attached in **Appendix M**.
- 2.3.7 Noise measurements should not be made in presence of fog, rain, wind with a steady speed exceeding 5 ms<sup>-1</sup> or wind with gusts exceeding 10 ms<sup>-1</sup>. The wind speed was checked with a portable wind speed meter capable of measuring with speeds in ms<sup>-1</sup>.
- 2.3.8 In this Reporting Period, a total five (5) occasions noise monitoring was undertaken in Reporting period. The noise monitoring results at the designated locations are summarized in Tables 2-9 to 2-11.

Table 2-9: Summary of Noise Monitoring Results – NM1

Data	Time	Weather	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	Lag
Date	Time	weather	Leq <sub>5min</sub>	Leq <sub>30min</sub>					
2/11/2023	09:26 - 09:56	fine	55.1	53.3	58.8	52.3	51.4	52.6	54.7
8/11/2023	10:16 - 10:46	cloudy	50.4	53.1	53.8	52.2	50.5	50.7	52.0
14/11/2023	09:30 - 10:00	cloudy	54.2	55.9	52.7	52.4	50.8	51.1	53.2
20/11/2023	09:58 - 10:28	sunny	55.4	53.8	57.2	51.3	52.0	50.3	54.0
25/11/2023	09:34 - 10:04	fine	54.1	51.8	50.4	50.2	52.6	49.9	51.8
								Average	53.3
Limit Level	>75dB(A)							Range	51.8 –
									54.7

Table 2-10: Summary of Noise Monitoring Results – NM2

Data	Time	Weather	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	Lag
Date	Time	weather	Leq <sub>5min</sub>	Leq <sub>30min</sub>					
2/11/2023	10:00 - 10:30	fine	50.7	52.2	51.8	50.0	49.8	50.2	50.9
8/11/2023	10:50 - 11:20	cloudy	50.9	49.9	46.4	48.9	45.6	48.3	48.7
14/11/2023	10:04 - 10:34	cloudy	52.9	51.0	51.3	54.4	52.6	48.2	52.1
20/11/2023	10:32 - 11:02	sunny	50.3	51.2	49.6	54.0	52.1	51.6	51.7
25/11/2023	10:08 - 10:38	fine	48.2	47.4	49.1	46.8	45.7	46.5	47.4
								Average	50.5
Limit Level	>75dB(A)				•			Range	47.4 –
									52.1

Range

52.5

3<sup>rd</sup> 5<sup>th</sup> 6<sup>th</sup> 1<sup>st</sup> Date Time Weather Leq<sub>30min</sub> Leq<sub>5min</sub> Leq<sub>5min</sub> Leq<sub>5min</sub> Leq<sub>5min</sub> Leq<sub>5min</sub> Leq<sub>5min</sub> 2/11/2023 10:34 11:04 52.1 51.3 45.7 47.5 49.3 50.8 50.0 fine 8/11/2023 11:24 11:54 cloudy 48.2 49.2 49.7 47.6 46.6 45.9 48.1 47.2 14/11/2023 11:08 cloudy 46.5 44.7 45.7 48.9 47.6 48.4 10:38 51.2 20/11/2023 | 11:04 11:34 52.4 51.7 50.7 53.0 54.7 52.5 sunnv 25/11/2023 48.9 47.5 10:42 11:12 fine 46.0 46.8 45.5 45.2 46.8 49.5 Limit Level Average 70dB(A) during normal teaching periods 46.8 -

Table 2-11: Summary of Noise Monitoring Results – NM3

2.3.9 As shown in the results were well below the limit level, also no complaint was received by the RE, WSD, EPD and contractor. Hence, no Action or Limit Level exceedance was triggered during this month. The impact noise quality monitoring results and graphical presentation are shown in **Appendix N**.

#### 2.4. WATER QUALITY MONITORING

or 65dB(A) during examination periods

- 2.4.1 Water Impact monitoring had been taken three days per week with sampling or measurement in accordance with Sections 4.12 of the approved EM&A Manual at all designated monitoring stations in the 2 water courses. The interval between 2 sets of monitoring had been more than 36 hours. Replicate in-situ measures had been carried out in each sampling event.
- 2.4.2 Three (3) control and two (2) impact stations were recommended in the Section 4.7 of the approved EM&A Manual to carry out water quality monitoring. In order to identify and seek for the access of the water monitoring locations designated in the approved EM&A Manual, site visit was conducted among ET, IEC and Environmental Protection Department (EPD).
- 2.4.3 During the site visit, all designated monitoring locations were identified however one more impact stations (M3) along the same water course was introduced due to the concern on multiple site effect, in particular to address the potential impact to M2 from a source at upstream of the water course. Details and coordinates of the monitoring stations are described in Table 2-12 and the location plan of water quality monitoring stations is shown in **Appendix O**.

Table 2-12: Details of Water Quality Monitoring Station

Water Quality	Description	Co-ordinates		
<b>Monitoring Station</b>	Description	Easting	Northing	
C1		835110	824716	
C2	Control Stations	835403	824470	
C3		835642	824386	
M1	Immont	835215	824827	
M2	Impact Monitoring Stations	835536	824775	
M3	Monitoring Stations	835501	824648	

2.4.4 The water monitoring equipment and analysis using for the water quality monitoring were proposed by ET and verified by IEC. The details of equipment using for impact monitoring are listed in the Table 2-13 below:

Table 2-13: Monitoring Equipment Used in Impact Monitoring Program

Water quality						
Horiba Multi Water Quality C	Horiba Multi Water Quality Checker U-53					
Thermometer & DO meter	The instrument is a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment is capable of measuring as included a DO level in the range of 0 - 20mg/L and 0 - 200% saturation; and a temperature of 0 - 45°C.					
pH meter	The instrument consists of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It is readable to 0.1 pH in range of 0 to 14.					
Turbidmeter	The instrument is a portable and weatherproof turbidity measuring instrument using a DC power source. It has a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.					
Laboratory Analysis						
Suspended Solids	HOKLAS-accredited laboratory (Acumen Laboratory and Testing Limited)					

#### Remark:

- (i) Water samples for suspended solids (SS) have been stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 2.4.5 Before the commencement of the sampling, general information such as the date and time of sampling as well as the personnel responsible for monitoring were recorded on the monitoring field data sheet.
- 2.4.6 Water temperature, turbidity, DO, pH and water depth were measured in-situ. Since water depths at C1, C2, M1, M2 and M3 were less than 3 m, all in-situ measurements and sampling conducted at one water depth such as mid-depth are performed. Moreover, C3 was recorded dry throughout the sampling period. Therefore, in-situ measurements and sampling could not be conducted at C3 in accordance with the water monitoring requirements in the approved EM&A Manual.
- 2.4.7 At each sampling point, (two) 2 consecutive measurements of temperature, DO, turbidity and pH were measured. The Multi-Parameter Water Quality Monitoring Probe were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken. The certification of the Multi-parameter Water Quality Monitoring System is showed in **Appendix P**.
- 2.4.8 All water samples were delivered to the Acumen Laboratory and Testing Limited (HOKLAS registration no.: 241). SS testing was used HOKLAS accredited Analytical method APHA 2540 D. The certification of laboratory with HOKLAS accredited analytical tests are provided in **Appendix Q**.
- 2.4.9 In this reporting period, a total of thirteen (13) sampling days perform water monitoring at the six designated locations. Monitoring results of 4 key parameters: dissolved oxygen (DO), turbidity, suspended solids and pH in this Reporting Months, are summarized in Table 2-14.

Dissolved Oxygen - Mid **C**1 **C2 M2 C3 M1 M3** Depth (mg/L) Average 12.26 12.49 N/A 13.36 12.52 13.25 9.53 Min. 10.12 N/A 10.54 10.38 10.40 Max. 14.54 13.97 N/A 14.81 14.28 14.77 Turbidity - Mid Depth (NTU) **C1 C2 C3 M1 M2 M3** Average 0.10 0.86 N/A1.39 0.12 0.00 Min. 0.00 0.00 N/A 0.00 0.00 0.00 Max. 2.33 1.37 N/A 3.77 0.00 1.62 Suspended Solid - Mid depth **C1 C2 C3 M1 M2 M3** (mg/L)Average 1.62 1.10 N/A 1.68 1.12 1.09 Min. <1 <1 N/A <1 <1 <1 Max. 4.1 1.9 2.4 2.2 N/A 5.1 C1**C2 C3 M2 M3** pH value (unit) **M1** 7.99 Average 7.68 8.16 N/A 8.36 8.27 Min. 7.28 N/A 7.62 7.58 7.98 7.95 Max 7.89 8.57 8.18 8.48

N/A

8.62

Table 2-14: Summary of Water Quality Monitoring Results

Remark 1: Suspended solid values that are <1 is assumed to be 1 during calculation

- Remark 2: Underlined values indicated exceedance of limit level
- Remark 3: Details of exceedance of action level, please refer to appendix R
- 2.4.10 In this reporting month, most of the monitoring results were below or within the action level. There were no exceedances of action level and 2 exceedances of limit level in the reporting period, all was found non-project related. Detailed monitoring results including in-situ measurements, laboratory analysis data are shown in Appendix R.
- 2.4.11 Investigation report for the exceedance of water quality in November 2023 are supplemented in Appendix V.

#### 2.5. ECOLOGY

- 2.5.1 The condition of TA572 was observed in fair health despite in poor form. TA327 was in fair condition; while already dead TA326 collapsed under Signal No. 10 typhoon Mangkhut in September 2018. Tree guying cables have been installed to provide external support to the two remaining transplanted trees. Climbing vines on TA327 should be removed, including the roots, to reduce rapid colonization covering the canopy.
- 2.5.2 Compensatory planting of TA326 has been completed on 25 March 2020 by planting two *Syzygium levinei* and one *Schefflera heptaphylla*. However, the two native *Syzygium levinei* were mis-planted by two exotic *Syzygium jambos*, which has been replaced by another native tree species *Celtis sinensis* on 31 May 2021. Climbing vines on one of the Celtis sinensis should be removed, including the roots, to reduce rapid colonization covering the canopy.
- 2.5.3 *Desmos chinensis* has been finalized as the candidate to compensate the loss of *Artabotrys hongkongensis*. Two individuals were planted at Wall C in STWTW on 1 April 2021.
- 2.5.4 New small sprouts keep emerging from the two *Desmos chinensis* that have been reported dead previously. Construction materials was also found too close to the planter. An eye-catching protective fence shall be set up as a protection zone. No construction materials shall be placed near/ within the protection zone.
- 2.5.5 In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as shading net) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/ typhoon to the 27 nos. *Cibotium barometz* at Portion E of STSFWSR.
- 2.5.6 Weeding by hand held tools within protection zone of Cibotium barometz is urgently needed.
- 2.5.7 Root ball of TA572 and TA327 tree should be kept moisture especially during dry and non-raining day.
- 2.5.8 Signs of ploughed soil by wild boar(s) at the two groups of transplanted *Cibotium barometz* were reported in previous monitoring. A robust fencing was recently installed to protect the group of *Cibotium barometz* from further damage caused by wild boars.
- 2.5.9 Given that leftover/ garbage was observed nearby, illegal feeding of wild pigs or other wild animals was also suspected to occur. Warning signs of illegal feeding and plant protection zone may be put along the receptor site to remind the hikers. Reporting the case to the relevant government department, i.e. AFCD, is suggested to prevent further aggregation of wild boars in the area.

#### 2.6. WASTE MANAGEMENT STATUS

- 2.6.1 The Contractor has submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting. The Waste Producer Number to the Contractor is assigned in respect of the project site.
- 2.6.2 Wastes generated during this reporting period include mainly construction wastes (inert and non-inert). Waste flow table was prepared by the Contractor to record amount of waste generated and disposed (**Appendix T**).
- 2.6.3 The Contractor was advised to properly maintain on site C&D materials and waste collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse/recycle of C&D materials and wastes.
- 2.6.4 The Contractor was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly. For chemical waste containers, the Contractor was reminded to treat properly and store temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

#### 2.7. DELIVERY, STORAGE AND HANDLING OF CHLORINE

2.7.1 Chlorine is delivered to Sha Tin WTW in batches of up to 6×1-tonne drums. The transport route from Sham Shui Kok dock on North Lantau is shown in Figure 1. The route passes along the North Lantau Expressway, around the northern edge of Tsing Yi, through Tsuen Wan and along Tai Po Road (Piper's Hill) to Sha Tin (Table 2-15).

Figure 1: Chlorine Transport Route to Sha Tin Water Treatment Works

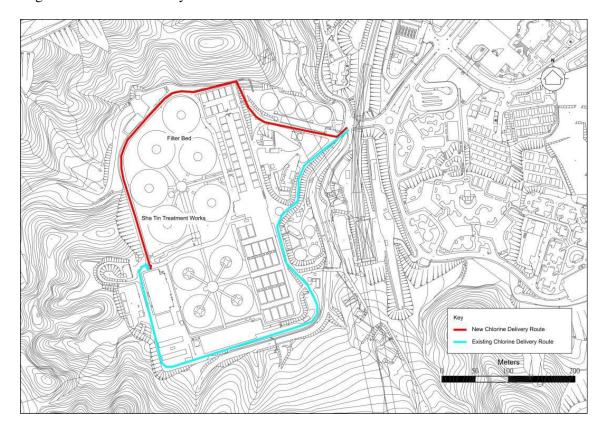


Table 2-15: Chlorine Truck Transport Route

Destination	Route
	Sham Shui Kok Dock > Cheung Tung Road > Sunny Bay Road > N Lantau Highway > Lantau Link > NW Tsing Yi Interchange > Tsing Yi North Costal road > Tsing
Tin WTW	Tsuen Road > Tsuen Wan Road > Kwai Chung Road > Ching Cheung Road > Tai Po Road > Tai Po Road (Piper's Hill) > Tai Po Road (Sha Tin Heights) > Tai Po Road > Tsing Sha Highway (Sha Tin) > Tai Po Rd (Sha Tin) > Sha Tin Rural
	Committee Rd > Tai Chung Kiu Rd > Che Kung Miu Road > Sha Tin WTW

- 2.7.2 Unloading takes place inside the Chlorination House, with the doors closed, in a designated truck unloading bay. The movement of drums within the storage area and 'drive-through' unloading bay is carried out using a hoist/monorail system with a purpose-built lifting beam. Prior to usage, the drums are stored on cradles within the chlorine storage area.
- 2.7.3 The on-site chlorine delivery route is shown in **Figure 2**.

Figure 2: Chlorine Delivery Route at Sha Tin WTW



- 2.7.4 An emergency chlorine scrubbing system is installed to remove any leaked chlorine in the chlorine handling and storage areas. The system is a packed tower utilising sodium hydroxide as the neutralising agent. The plant and equipment are installed in a separate scrubber room.
- 2.7.5 On detection of chlorine at a concentration of 3 ppm or above in the chlorine handling or storage areas, the scrubbing system will activate automatically. The air/chlorine mixture in the affected areas is drawn into the scrubber by the scrubber fan via ducting connected to the normal ventilation system. An electrically-operated isolating damper is provided in the scrubber intake which opens automatically when the scrubber fan starts up.
- 2.7.6 The scrubber system is normally set at auto standby mode and is activated if the chlorine concentration rises above 3 ppm. A continuous chlorine monitor is installed at a point downstream of the packed tower

- and upstream of the vent/recycle changeover dampers to monitor the scrubber performance; a "Chlorine concentration high" alarm will be initiated if the concentration of chlorine in the tower exhaust exceeds the preset value.
- 2.7.7 According to the Fire Services Department's fire safety requirements, an emergency repair/stoppage kit for chlorine spillage/leakage is provided and maintained in good working condition at all times for use by the trained persons and stowed adjacent to but outside the store/plant room. Regular drills are conducted to train personnel on the proper use of the breathing apparatus and protective clothing.
- 2.7.8 A Hazard Assessment of the risks associated with the storage, handling and transport of chlorine at Sha Tin WTW and the off-site transport of chlorine for the Construction and Operational Phases of the reprovisioning project has been conducted in the approved EIA Report (Register No. AEIAR-187/2015).
- 2.7.9 This In-situ Reprovisioning of Sha Tin WTW is an improvement project, following its completion the chlorine-related risks levels to the general public will be lowered due to the anticipated reduction of the chlorine storage and usage levels.
- 2.7.10 Implementation of the recommended mitigation measures would be regularly audited. No specific Environmental Monitoring would be required.

#### 2.8. EM&A SITE INSPECTION

- 2.8.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, contract No. 1/WSD/19 were five (5) site inspections carried out on 1, 8, 11, 22 and 30 November 2023. Contract No. 6/WSD/21 were five (5) site inspections carried out on 1, 8, 11, 22 and 30 November 2023.
- 2.8.2 One joint site inspection with IEC also undertaken on 30 November 2023. Minor deficiencies were observed during weekly site inspection or joint site inspection. Key observations during the site inspections are summarized in Table 2-16 (a) and Table 2-16 (b).

Table 2-16 (a): Site Observations (1/WSD/19)

Date	<b>Environmental Observations</b>	Follow-up Status
1 November 2023	No environmental issue was observed during	N/A
1 November 2025	the site inspection.	N/A
8 November 2023	No environmental issue was observed during	N/A
8 November 2025	the site inspection.	N/A
14 November 2023	Contractors are reminded to maintain good	Housekeeping has been
	housekeeping at ozone building	maintained at ozone building
22 November 2023	No environmental issue was observed during	N/A
22 November 2023	the site inspection.	IV/A
30 November 2023	No environmental issue was observed during	N/A
30 Novellibel 2023	the site inspection.	IV/A

Table 2-16 (b): Site Observations (6/WSD/21)

Date	<b>Environmental Observations</b>	Follow-up Status
1 November 2023	It is observed that water accumulation near in	Water accumulation has been
1 November 2025	the site area. Contractor is reminded to clear it.	cleaned it.
8 November 2023	No environmental issue was observed during the site inspection.	N/A
14 November 2023	Contractors are reminded to keep clean and remove the general refuse regularly.	General refuse has been cleaned it.
	It is observed that water accumulation near in	Water accumulation has been
	the site area. Contractor is reminded to clear it.	cleaned it.
22 November 2023		
	It is observed that waste disposal in the site	Waste disposal has been cleaned
	area. Contractor is reminded to clear it	it
30 November 2023	No environmental issue was observed during	N/A
30 NOVEIHOEI 2023	the site inspection.	IV/A

2.8.3 The Contractor has rectified all the observations identified during environmental site inspections in the reporting period.

#### 2.9. ENVIRONMENTAL LICENSES AND PERMITS

2.9.1 The status of environmental license and permit is summarized in Table 2-17 (a) and Table 2-17 (b) below:

Table 2-17(a): Summary of Environmental License and Permit (1/WSD/19)

License / Permit	License /	Date of	Date of	License /	Remark
	Permit No.	Issue	Expiry	Permit	
				Holder	
Environmental Permit	EP- 494/2015	28/01/2015	N/A	WSD	
Notification of	Reference No:	10/8/2020	N/A	ACMJV	
Construction Works under	458807				
the Air Pollution Control					
(Construction Dust)					
Regulation (Form NA)					
Registration of Chemical	WPN5296-759-	28/09/2020	N/A	ACMJV	
Waste Producer	A3012-01				
Trip Ticket (Chit) Account	7038091	26/8/2020	N/A	ACMJV	
Waste Water Discharge	WT00037213-	19/1/2021	31/1/2026	ACMJV	
Licence	2020				
Notification of	AX210503	30/8/2021	N/A	ACMJV	
Commencement of					
Asbestos Abatement Work					
Construction Noise Permit	GW-RN0974-23	16/09/2023	15/12/2023	ACMJV	

Table 2-17(b): Summary of Environmental License and Permit (6/WSD/21)

License / Permit	License / Permit No.	Date of Issue	Date of Expiry	License / Permit	Remark
				Holder	
Notification of	Reference No:	24/11/2021	N/A	ACMJV	
Construction Works under	474147				
the Air Pollution Control					
(Construction Dust)					
Regulation (Form NA)					
Registration of Chemical	WPN5218-759-	5/1/2022	N/A	ACMJV	
Waste Producer	C4678-01				
Trip Ticket (Chit) Account	7042460	8/12/2021	N/A	ACMJV	
Waste Water Discharge	WT00040939-	11/5/2022	31/5/2027	ACMJV	
Licence	2022				
Construction Noise Permit	GW-RN0915-23	5/9/2023	4/12/2023	ACMJV	

#### 2.10. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 2.10.1 In response to the site audit findings, the Contractors carried out corrective actions. A summary of the environmental mitigation measures implemented by the Contractor in this Reporting Period are summarized in Table 2-18.
- 2.10.2 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (EMIS) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are showed **Appendix U**.

Table 2-18: Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Air Quality	<ul> <li>Tarpaulin covering of any dusty materials on a vehicle leaving the site;</li> <li>Imposition of speed controls for vehicles on site haul roads;</li> <li>Use of regular watering to reduce dust emissions from exposed site surfaces and roads;</li> <li>Side enclosure and covering of any aggregate or stockpiling of dusty materials to reduce emissions;</li> <li>Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.</li> </ul>
Noise	<ul> <li>Good site practices to limit noise emissions at the sources;</li> <li>Use of quite plant and working methods;</li> <li>Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs;</li> <li>Scheduling of construction works outside school examination period in critical area.</li> </ul>
Water	<ul> <li>Drainage systems were regularly and adequately maintained;</li> <li>Effluent discharged from the construction site should comply with standards stipulated in the TM-DSS;</li> <li>Open stockpiles of construction materials on sites should be covered.</li> </ul>
General	- The site was generally kept tidy and clean.

2.10.3 The necessary mitigation measures were implemented properly for this Contract.

### 2.11. SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

2.11.1 Results for 1-hour TSP and noise monitoring complied with the Action/ Limit levels in the reporting period. Results for water quality monitoring mostly complied with the Action/ Limit levels in the reporting period.

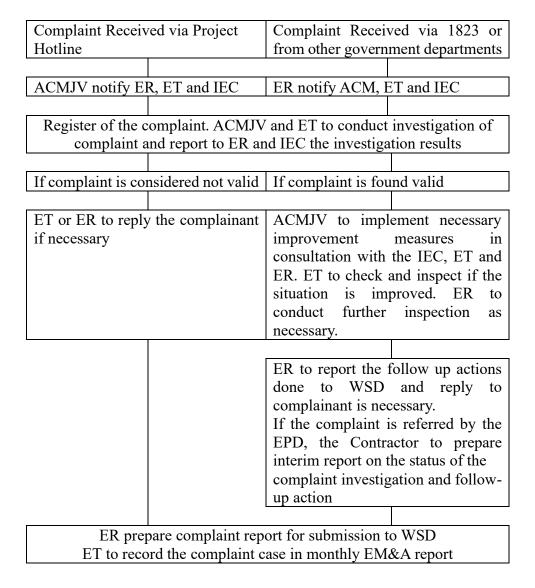
Project no.: CJO-3113

2.11.2 Cumulative statistics on exceedances is provided in **Appendix V**.

#### 2.12. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

#### 2.12.1 The Environmental Complaint Handling Procedure is shown in below table:

Table 2-19: Environmental Complaint Handling Procedure



- 2.12.2 No environmental complaint was received in the reporting period.
- 2.12.3 No notification of summons and prosecution was received in the reporting period.
- 2.12.4 No EPD site inspection was conducted in the reporting period.
- 2.12.5 Statistics on complaints, notifications of summons and successful prosecutions are summarized in **Appendix V**.

#### 2.13. DATA MANAGEMENT AND DATA QA/QC CONTROL

- 2.13.1 The impact monitoring data were handled by ET's in-house data recording and management system.
- 2.13.2 The monitoring data recorded in the equipment were downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data were input into computerized database properly. The laboratory results were input directly into the computerized database and checked by personnel other than those who had input the data.
- 2.13.3 For monitoring parameters that require laboratory analysis, the local laboratory had followed the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory testing.

#### Monthly EM&A Report (No.93)

**FUTURE KEY ISSUES** 

#### 3.1. CONSTRUCTION PROGRAMME FOR THE COMING MONTHS

- 3.1.1 As informed by the Contractor, the major works for Contract No. 1/WSD/19 between December 2023 to February 2024 will be:
  - Major ELS Work (S1F, S2F, Ozone Building, SWPS, RMF)
    - **♦** Excavation
    - ♦ Soil nail installation
    - ♦ Lagging wall construction
    - ♦ Strut and waling installation
    - ♦ Pre-loading works
    - ♦ Plate load tests
  - Grout curtain
  - WET structure construction, top slab construction, water test
  - S1F, S2F and SWPS:
    - ♦ Formation preparation (dewatering)
    - ♦ Blinding construction
    - ♦ Drilling works for earthing rods
    - ♦ Structure construction
  - Demolition of TWRT
  - Drilling works for King Posts
  - Filter bed demolition and backfilling
  - King Post installation work
  - Valve chamber for M1-5 water pipe diversion
  - Wall A & B construction works
  - Fencing construction works
  - Landscape works
  - Installation of under structures pipes
  - Installation of temporary steel decking at S2F
  - ABWF Works for 6 major buildings
  - Scaffolding Works for WET ABWF & Metal Works
  - Structural Steelworks for WET
  - Excavation for Stainless Steel Pipework under Structures of Six Major Buildings in Portion A
  - Earthing Rod Installation (RMF, Ozone & SWPS)
  - Dismantle of ELS
  - Installation of Tower Crane (SWPS)
- 3.1.2 As informed by the Contractor, the major works for Contract No. 6/WSD/21 between December 2023 to February 2024 will be:

- Waterproofing Works
- Carry Out Excavation Down to +23.3mPD
- Concreting for Raft Slab (LG/F Level)
- Steel Plate Welding to Sheetpile for Waterproofing Works
- Carry Out Excavation to Final Excavation Level +21.0mPD
- MIC Installation
- Excavation to Bottom Rockfill Level & Rockfill Replacement Work
- Town Crane installation

#### 3.2. KEY ISSUES FOR COMING MONTH

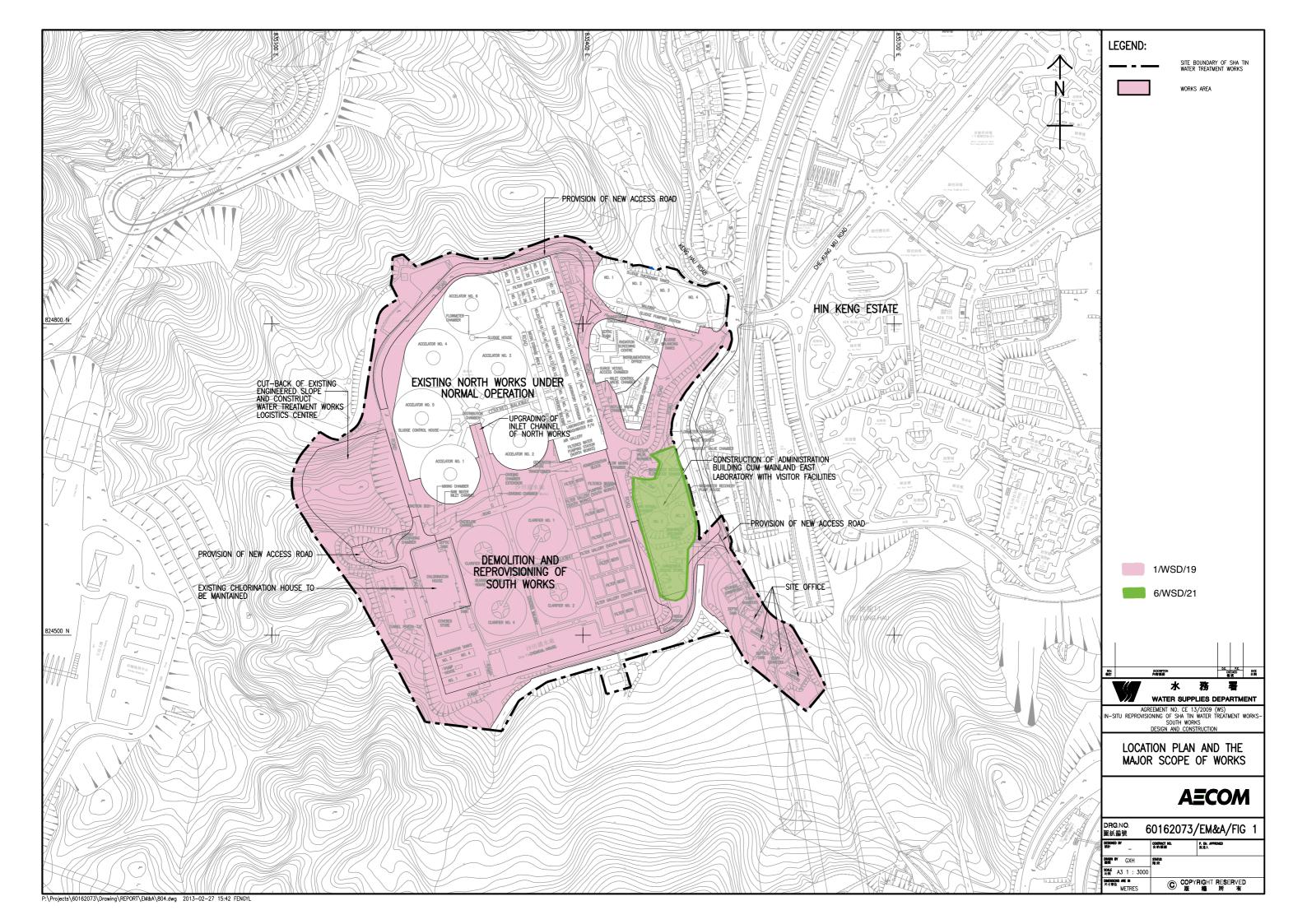
- 3.2.1 Potential environmental impacts arising from the above upcoming construction activities in November 2023 are mainly associated with dust, noise, water quality issues and waste management issues.
- 3.2.2 The tentative monitoring schedule for December 2023 to February 2024 can be found in **Appendix W.**

#### 4. CONCLUSIONS AND RECOMMENDATIONS

#### 4.1. SUMMARY

- 4.1.1 Air quality (1-hour TSP), noise, water quality and ecology impact monitoring were carried out in the reporting period. Most of the monitoring results are satisfactory, there was no exceedances of action level and limit level for water monitoring results in the reporting month was found and NOE and Investigation Report was therefore issued.
- 4.1.2 Five (5 nos.) environmental site inspections were conducted during the reporting period. Joint site inspection with IEC were carried out on 30 November 2023. Minor deficiencies were observed during site inspection and were rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- 4.1.3 To control the site performance on waste management, the contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.
- 4.1.4 No Environmental complaint was received in reporting period.
- 4.1.5 No notification of summons or prosecution was received since commencement of the Contract.
- 4.1.6 The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

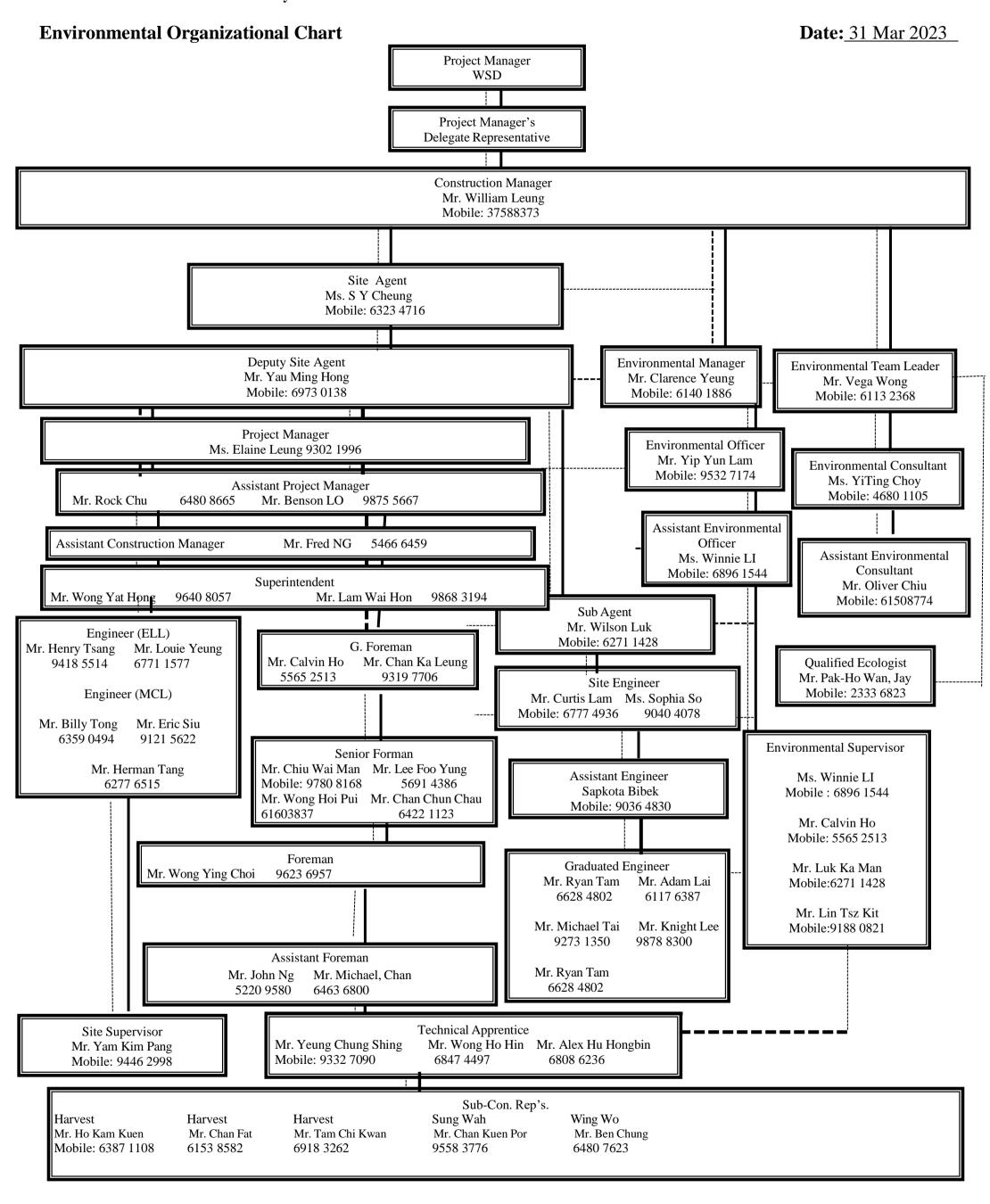
# Appendix A General Layout Plan



# Appendix B Project Organization

**In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)** 

- Water Treatment Works and Ancillary Facilities

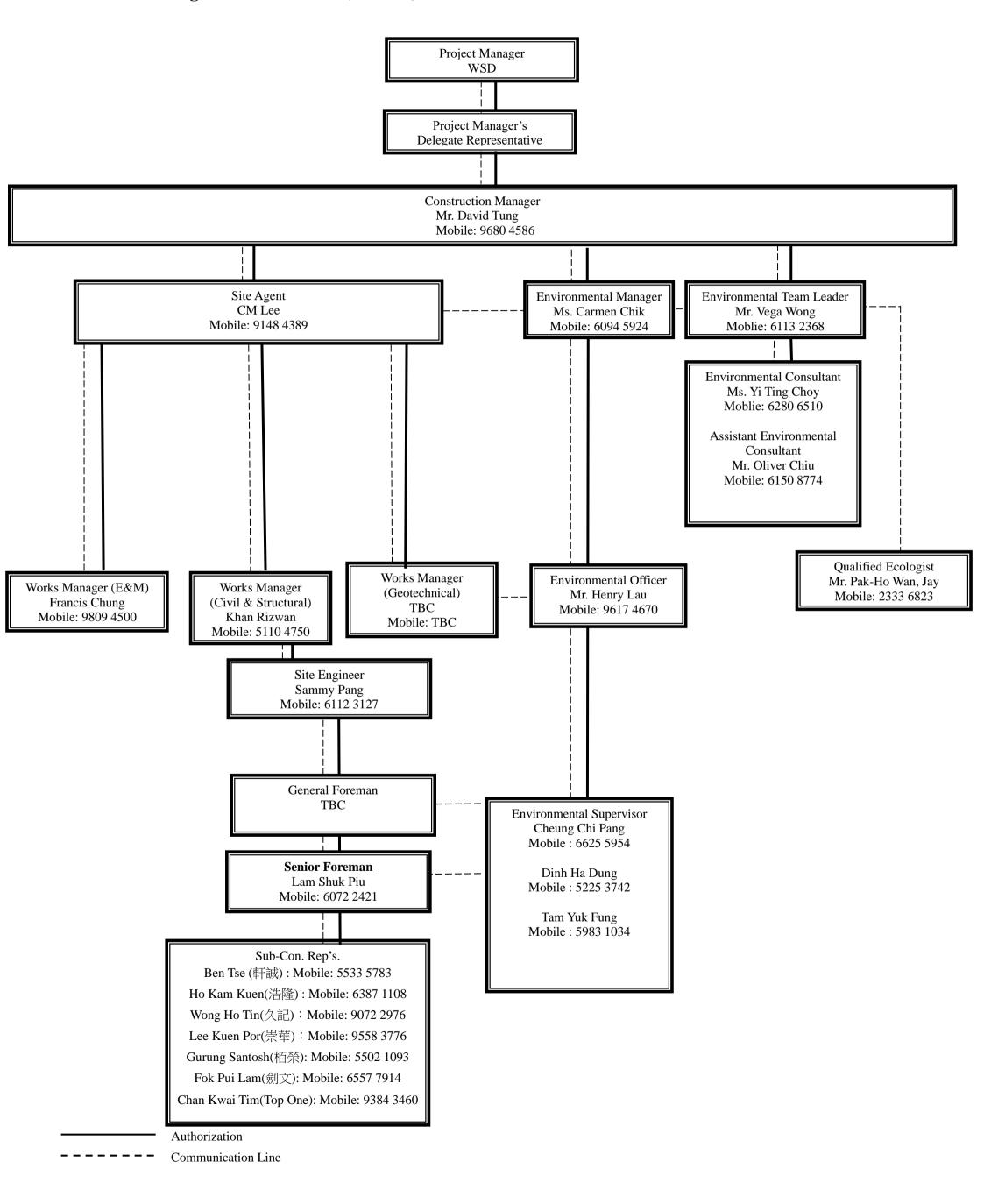


Authorization
Communication Line

**In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)** 

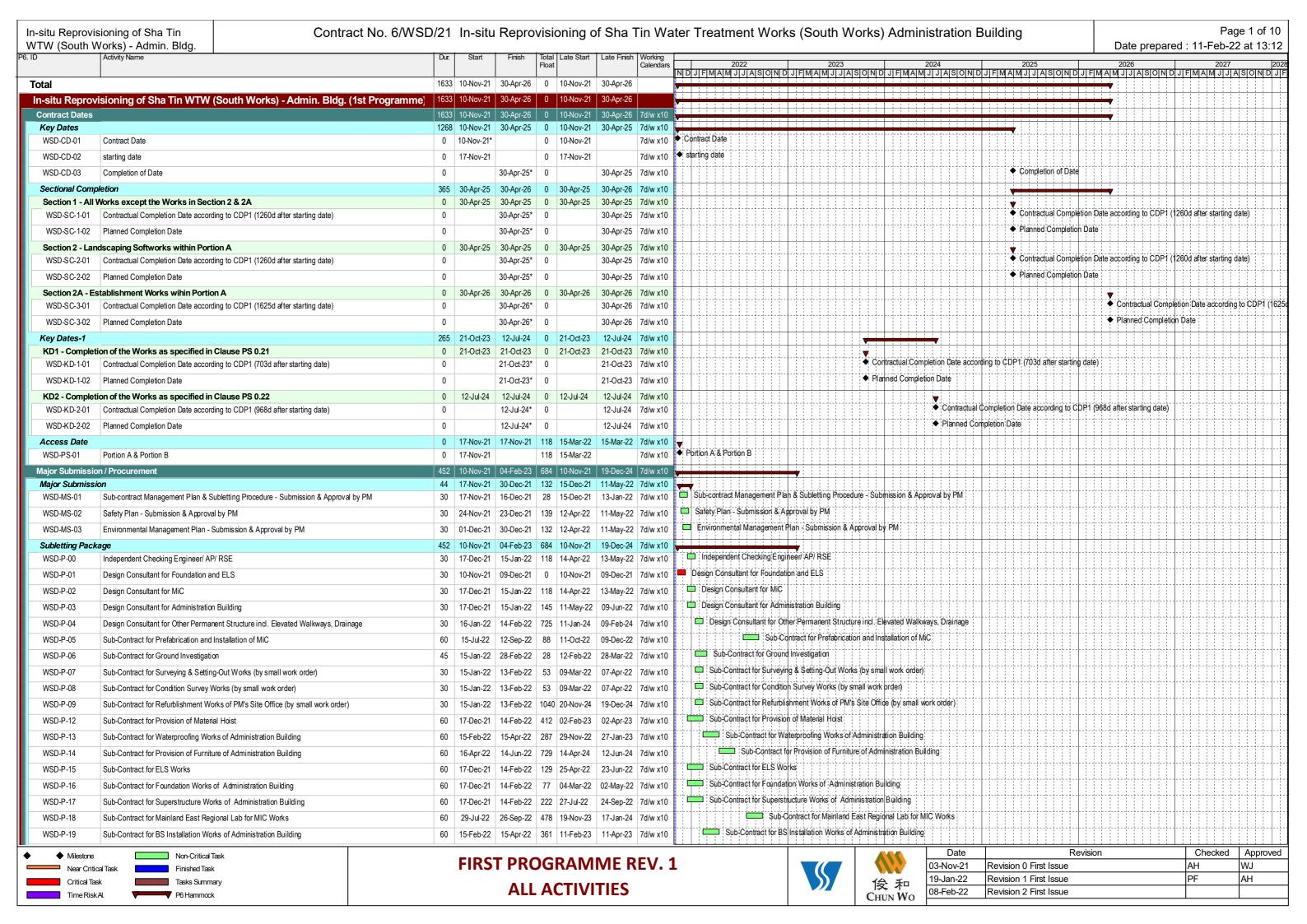
- Administration Building

#### **Environmental Organizational Chart (2023.03)**



# Appendix C Latest Construction Programme





Page 2 of 10 Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 NIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJI WSD-P-20 Sub-Contract for FS Installation Works of Administration Building 15-Apr-22 361 11-Feb-23 11-Apr-23 Sub-Contract for ABWF & Fit-out Works of Administration Building WSD-P-21 Sub-Contract for ABWF & Fit-out Works of Administration Building 60 15-Apr-22 112 07-Jun-22 05-Aug-22 7d/w x10 15-Feb-22 Sub-Contract for Cladding Installation Works of Administration Building WSD-P-22 15-Apr-22 | 112 | 07-Jun-22 Sub-Contract for Cladding Installation Works of Administration Building 60 05-Aug-22 7d/w x10 15-Feb-22 Sub-Contract for Green Roof & Landscaping Works WSD-P-23 Sub-Contract for Green Roof & Landscaping Works 60 14-Jun-22 112 06-Aug-22 04-Oct-22 7d/w x10 Sub-Contract for Irrigation System WSD-P-24 Sub-Contract for Irrigation System 60 16-Apr-22 14-Jun-22 748 03-May-24 01-Jul-24 7d/w x10 Sub-Contract for Lift Installation WSD-P-25 Sub-Contract for Lift Installation 60 15-Apr-22 557 26-Aug-23 24-Oct-23 7d/w x10 15-Feb-22 Sub-Contract for Structure Works of Elevated Walkway WSD-P-26 Sub-Contract for Structure Works of Flevated Walkway 60 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 Sub-Contract for ABWF, Fitting Out, E&M Works of Elevated Walkway WSD-P-27 Sub-Contract for ABWF, Fitting Out, E&M Works of Elevated Walkway 60 03-Dec-22 63 07-Dec-22 7d/w x10 **Material Procurement** 04-Feb-23 557 11-Mar-22 29-Dec-22 271 12-Jan-23 7d/w x10 Curtain Wall/ Glazing Submission & Approval for Curtain Wall Material Sample & Shop Drawing 14-Jul-22 | 271 | 12-Jan-23 Submission & Approval for Curtain Wall Material Sample & Shop Drawing WSD-P-M-03 90 11-Apr-23 7d/w x10 Glass Fabrication & Delivery for Prototype Demo WSD-P-M-04 Glass Fabrication & Delivery for Prototype Demo 90 12-Oct-22 271 12-Apr-23 10-Jul-23 7d/w x10 Visual Prototype Installation WSD-P-M-05 Visual Prototype Installation 50 01-Dec-22 271 11-Jul-23 29-Aug-23 7d/w x10 Performance Test of Prototy 29-Dec-22 271 30-Aug-23 26-Sep-23 7d/w x10 WSD-P-M-06 Performance Test of Prototype 28 02-Dec-22 Lift E1, E2 & E3 04-Feb-23 557 25-Oct-23 Drawing Submission & Approval for Lift (E1, E2 & E3) WSD-P-M-07 Drawing Submission & Approval for Lift (E1, E2 & E3) 14-Jul-22 557 25-Oct-23 Material Submission & Approval for Lift (E1, E2 & E3) WSD-P-M-08 Material Submission & Approval for Lift (E1, E2 & E3) 45 15-Jul-22 28-Aug-22 557 23-Jan-24 07-Mar-24 7d/w x10 Material Procurement & Delivery (E1, E2 & E3 Material Procurement & Delivery (E1, E2 & E3) 04-Feb-23 557 08-Mar-24 WSD-P-M-09 160 14-Aug-24 7d/w x10 29-Aug-22 Sheetpile 12-May-22 25 11-Mar-22 7d/w x10 WSD-P-M-10 Material Submission & Approval 13-Mar-22 25 11-Mar-22 Material Procurement & Delivery WSD-P-M-11 Material Procurement & Delivery 12-May-22 25 08-Apr-22 06-Jun-22 12-May-22 71 26-Apr-22 7d/w x10 ELS Steel Member Material Submission & Approval 13-Mar-22 71 26-Apr-22 WSD-P-M-12 Material Submission & Approva 28 23-May-22 7d/w x10 Material Procurement & Delivery WSD-P-M-13 Material Procurement & Delivery 60 12-May-22 71 24-May-22 22-Jul-22 7d/w x10 Concrete 12-May-22 209 11-Sep-22 Material Submission & Approval WSD-P-M-14 Material Submission & Approva 28 13-Mar-22 209 11-Sep-22 08-Oct-22 14-Feb-22 Material Procurement & Delivery 60 12-May-22 209 09-Oct-22 07-Dec-22 7d/w x10 WSD-P-M-15 Material Procurement & Delivery 14-Mar-22 Rebar 12-May-22 209 11-Sep-22 07-Dec-22 7d/w x10 Material Submission & Approval WSD-P-M-16 Material Submission & Approval 13-Mar-22 209 11-Sep-22 Material Procurement & Delivery WSD-P-M-17 Material Procurement & Delivery 60 12-May-22 209 09-Oct-22 07-Dec-22 7d/w x10 14-Mar-22 Submission & Approval for Project Design Plan WSD-S-01 Submission & Approval for Project Design Plan 60 08-Dec-21 05-Feb-22 97 15-Mar-22 13-May-22 7d/w x10 Design for MiC 12-Sep-22 88 14-May-22 09-Dec-22 Submission & Approval for MiC Layouts Proposal (AIP) WSD-D-M01 Submission & Approval for MiC Layouts Proposal (AIP) 15-Feb-22\* 15-Apr-22 88 14-May-22 12-Jul-22 7d/w x10 Submission & Approval for MiC Layouts Proposal (DDA WSD-D-M02 Submission & Approval for MiC Layouts Proposal (DDA) 90 14-Jul-22 88 13-Jul-22 10-Oct-22 7d/w x10 16-Apr-22 Submission & Approval for MiC Details (AIP WSD-D-M03 Submission & Approval for MiC Details (AIP) 90 16-Apr-22 14-Jul-22 88 13-Jul-22 10-Oct-22 7d/w x10 Submission & Approval for MiC Details (DDA) WSD-D-M04 Submission & Approval for MiC Details (DDA) 12-Sep-22 88 11-Oct-22 ninistration Building 07-Feb-22 19-Sep-23 954 07-Feb-22 7d/w x10 Design for Adr Submission & Approval for ELS Works Delson (All Submission & Approval for ELS Works Deisgn (AIP) WSD-D-AB00A 60 07-Apr-22 0 07-Feb-22 07-Apr-22 7d/w x10 07-Feb-22 Submission & Approval for ELS Works Desgn (DDA) WSD-D-AB00B Submission & Approval for ELS Works Deisgn (DDA) 60 08-Apr-22 06-Jun-22 0 08-Apr-22 06-Jun-22 7d/w x10 Submission & Approval for Foundation Desgn (AIP) Submission & Approval for Foundation Deisgn (AIP) 07-Apr-22 25 04-Mar-22 WSD-D-AB01A 02-May-22 Submission & Approval for Foundation Delson (DDA) WSD-D-AB01B Submission & Approval for Foundation Deisgn (DDA) 60 08-Apr-22 06-Jun-22 25 03-May-22 01-Jul-22 Submission & Approval for Permanent Work Structure Deisgn of Administration Building (AIP) WSD-D-AB02A Submission & Approval for Permanent Work Structure Deisgn of Administration Building (AIP) 60 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 08-Apr-22 Submission & Approval for Permanent Work Structure Deisgn of Administration Building (DDA) WSD-D-AB02B Submission & Approval for Permanent Work Structure Deisgn of Administration Building (DDA) 04-Sep-22 | 110 | 25-Sep-22 | 23-Dec-22 | 7d/w x10 Submission & Approval for BS/ FS/ Security Design of Administration Building (AIP) WSD-D-AB03A Submission & Approval for BS/ FS/ Security' Design of Administration Building (AIP) 05-Aug-22 249 11-Feb-23 07-Jun-22 11-Apr-23 Submission & Approval for BS/ FS/ Security Design of Administration Building (DDA WSD-D-AB03B Submission & Approval for BS/ FS/ Security' Design of Administration Building (DDA) 90 06-Aug-22 03-Nov-22 249 12-Apr-23 10-Jul-23 7d/w x10 Submission & Approval for Dangerous Goods Stores (AIP) WSD-D-AB04A Submission & Approval for Dangerous Goods Stores (AIP) 03-Nov-22 583 10-Apr-24 08-Jun-24 7d/w x10 Submission & Approval for Dangerous Goods Stores (DDA) WSD-D-AB04B Submission & Approval for Dangerous Goods Stores (DDA) 01-Feb-23 583 09-Jun-24 7d/w x10 Submission & Approval for Mainland East Regional Laboratory (AIP) WSD-D-AB05A Submission & Approval for Mainland East Regional Laboratory (AIP) 60 07-Jun-22 05-Aug-22 470 20-Sep-23 18-Nov-23 7d/w x10 Date Revision Checked Approved Non-Critical Task



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Tasks Summary

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Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 3 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 UDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJ WSD-D-AB05B Submission & Approval for Mainland East Regional Laboratory (DDA) 06-Aug-22 03-Nov-22 470 19-Nov-23 16-Feb-24 Submission & Approval for Visitor Reception Facilities (AIP) WSD-D-AB06A Submission & Approval for Visitor Reception Facilities (AIP) 60 02-Jan-23 267 29-Jul-23 26-Sep-23 7d/w x10 04-Nov-22 Submission & Approval for Visitor Reception Facilities (DDA) WSD-D-AB06B Submission & Approval for Visitor Reception Facilities (DDA) 100 12-Apr-23 267 27-Sep-23 7d/w x10 03-Jan-23 04-Jan-24 Submission & Approval for Water Treatment Training Venue (AIP WSD-D-AB07A Submission & Approval for Water Treatment Training Venue (AIP) 60 11-Jun-23 267 05-Jan-24 04-Mar-24 7d/w x10 Submission & Approval for Water Treatment Training Venue (DDA) WSD-D-AB07B Submission & Approval for Water Treatment Training Venue (DDA) 12-Jun-23 19-Sep-23 267 05-Mar-24 Submission & Approval for Main Control Room, Security Control Room, Server Rooms (AIP) WSD-D-AB08A Submission & Approval for Main Control Room, Security Control Room, Server Rooms (AIP) 60 02-Jan-23 249 11-Jul-23 08-Sep-23 7d/w x10 04-Nov-22 Submission & Approval for Main Control Room, Security Control Room, Server Rooms (DDA) WSD-D-AR08R Submission & Approval for Main Control Room, Security Control Room, Server Rooms (DDA) 02-Apr-23 249 09-Sep-23 07-Dec-23 7d/w x10 Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (AIP) WSD-D-AB09A Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (AIP) 01-Jun-23 974 02-Dec-25 30-Jan-26 7d/w x10 Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (DDA Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (DDA) WSD-D-AB09B 30-Aug-23 974 31-Jan-26 Submission & Approval for Landscape Works for the Green Roof and Coultyard incl. Irrigation System (AIP) Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (Alf WSD-D-AB10A 60 05-Aug-22 685 22-Apr-24 20-Jun-24 7d/w x10 Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (DDA) Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (DE WSD-D-AB10B 90 06-Aug-22 03-Nov-22 685 21-Jun-24 18-Sep-24 7d/w x10 02-Apr-23 63 10-Jun-22 7d/w x10 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (AIP) WSD-D-SB02A Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (AIP) 08-Apr-22 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (DDA) Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (DDA) 04-Oct-22 63 09-Aug-22 WSD-D-SB02B 120 07-Jun-22 06-Dec-22 7d/w x10 Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (AIP) Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (AIP) WSD-D-SB03A 05-Oct-22 03-Dec-22 63 07-Dec-22 04-Feb-23 7d/w x10 Submission & Approval for ABWF. Fitout, E&M Design of Elevated Walkway No.2 (DDA WSD-D-SB03B Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (DDA) 02-Apr-23 63 05-Feb-23 04-Jun-23 7d/w x10 Other Major Design Packages 29-Sep-23 244 05-Jun-23 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (AIP) WSD-D-OT02A Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (AIP) 60 01-Jun-23 63 05-Jun-23 03-Aug-23 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (DDA) Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (DDA) 120 WSD-D-OT02B 02-Jun-23 29-Sep-23 63 04-Aug-23 01-Dec-23 7d/w x10 Submission & Approval for Overall Drainage System (AIP) WSD-D-OT03A Submission & Approval for Overall Drainage System (AIP) 21 07-Mar-22 725 10-Feb-24 7d/w x10 Submission & Approval for Overall Drainage System (DDA) WSD-D-OT03B Submission & Approval for Overall Drainage System (DDA) 90 08-Mar-22 05-Jun-22 725 02-Mar-24 Interface Management Liaison with 1/WSD/19 02-Apr-23 677 07-Mar-23 Agree the Design Requirements for Main Control Room/ Security Control Room/ Server Rooms WSD-IM-01 Agree the Design Requirements for Main Control Room/ Security Control Room/ Server Rooms Agree the Design Requirements for Elevated Walkway No.1 Agree the Design Requirements for Elevated Walkway No.1 WSD-IM-02 63 07-Mar-23 Agree the Design Requirements for Elevated Walkway No.2 WSD-IM-03 Agree the Design Requirements for Elevated Walkway No.2 04-Oct-22 857 12-Aug-24 07-Feb-25 08-Apr-22 Liaison with 3/WSD/15 120 16-Mar-22 545 16-May-23 Agree the Design Requirements of Integrated Security Management System with 3/W\$D/15 & 1/W\$D/1 WSD-IM-04 Agree the Design Requirements of Integrated Security Management System with 3/WSD/15 & 1/WSD/19 120 16-Mar-22 545 16-May-23 12-Sep-23 7d/w x10 Section 1 of the Work 12-Sep-23 961 12-May-22 Preliminary Works Refurbishment of PM's Site Office & Associated Works at Portion B WSD-W-PW01 Refurbishment of PM's Site Office & Associated Works at Portion B 26-Feb-22 25-Jun-22 | 1040 | 01-Jan-25 30-Apr-25 7d/w x10 ☐ Site Set up WSD-W-PW02 Site Set up 28-Feb-22 68 12-May-22 25-May-22 6d/w x10 Temporary Drainage Installation WSD-W-PW03 Temporary Drainage Installation 68 26-May-22 23-Jun-22 Relocation of 6/W SD/21 Site Office to High Block WSD-W-PW04 Relocation of 6/WSD/21 Site Office to High Block 12 20-Jun-22 1159 17-Apr-26 07-Jun-22 30-Apr-26 6d/w x10 12-Sep-23 542 10-Dec-22 Prefabrication Yard Setub of Prefabrication Yard WSD-W-PY-01 Setup of Prefabrication Yard 12-Oct-22 88 10-Dec-22 7d/w x10 Fabrication for Mock-up. Inspection & Approval by PM Fabrication for Mock-up, Inspection & Approval by PM WSD-W-PY-02 11-Dec-22 88 09-Jan-23 09-Mar-23 7d/w x10 Fabrication of MiC Unit for Basement Level (40nos, PR= 24no/wk WSD-W-PY-03 Fabrication of MiC Unit for Basement Level (40nos, PR= 24no/wk) 35 15-Jan-23 88 10-Mar-23 13-Apr-23 7d/w x10 12-Dec-22 Delivery of MiC Unit to Site - Batch 1 (for Basement only WSD-W-PY-04 Delivery of MiC Unit to Site - Batch 1 (for Basement only) 09-Jan-23 16-Jan-23 133 23-Jun-23 30-Jun-23 6d/w x10 Fabrication of MiC Unit for Ground Level (46nos, PR= 24no/wk WSD-W-PY-05 Fabrication of MiC Unit for Ground Level (46nos, PR= 24no/wk) 35 19-Feb-23 88 14-Apr-23 18-May-23 7d/w x10 Delivery of MiC Unit to Site - Batch 2 (for G/F only) WSD-W-PY-06 Delivery of MiC Unit to Site - Batch 2 (for G/F only) 11-Feb-23 20-Feb-23 116 05-Jul-23 13-Jul-23 Fabrication of MiC Unit for First Floor Level (46nos, PR= 24no/wk) WSD-W-PY-07 Fabrication of MiC Unit for First Floor Level (46nos, PR= 24no/wk) 35 26-Mar-23 88 22-Jun-23 20-Feb-23 19-May-23 7d/w x10 Delivery of MiC Unit to Site - Batch 3 (for 1/F only) Delivery of MiC Unit to Site - Batch 3 (for 1/F only) 27-Mar-23 94 22-Jul-23 6d/w x10 WSD-W-PY-08 18-Mar-23 14-Jul-23 Fabrication of MiC Unit for Second Floor Level & Car Park (41nos. PR= 24no/wk WSD-W-PY-09 Fabrication of MiC Unit for Second Floor Level & Car Park (41nos, PR= 24no/wk) 35 30-Apr-23 88 23-Jun-23 27-Jul-23 7d/w x10 Delivery of MiC Unit to Site - Batch 4 (for 2/F only Delivery of MiC Unit to Site - Batch 4 (for 2/F only) WSD-W-PY-10 22-Apr-23 02-May-23 73 21-Jul-23 Delivery of MiC Unit to Site - Batch 5 (for Car Park only) Delivery of MiC Unit to Site - Batch 5 (for Car Park only) WSD-W-PY-11 26-Apr-23 77 29-Jul-23 29-Jul-23 6d/w x10 26-Apr-23 Fabrication of MIC for Elevated Walkway No. 2 Incl. ABWF, fit-out; drainage system & conceal ducts Fabrication of MIC for Elevated Walkway No.2 Incl. ABWF, fit-out, drainage system & conceal ducts WSD-W-PY-13 75 14-Jul-23 542 24-Oct-24 06-Jan-25 7d/w x10 Delivery of MiC Unit to Site - Batch 6 (MiC Bridge Delivery of MiC Unit to Site - Batch 6 (MiC Bridge 12-Sep-23 542 07-Jan-25 WSD-W-PY-14 Construction of Administration Building 1072 17-Nov-21 23-Oct-24 554 15-Mar-22 30-Apr-26 Date Checked Approved Non-Critical Tas FIRST PROGRAMME REV. 1 03-Nov-21 Revision 0 First Issue 19-Jan-22 Revision 1 First Issue АН

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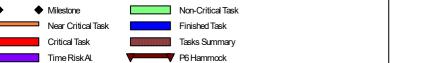
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Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 4 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 I GINIORALIL MIAMILI GINIORALIL MINAMILI GINIORALI LUMAMILI GINIORALI CONTRA LUMAMILI Foundation 26-May-23 1070 15-Mar-22 556 **Preparation Works** 06-May-22 48 15-Mar-22 Fdn. - Surveying, Trial Pit, UU Detection, Installation of Monitoring Strumentation, Site Haul Road Fdn. - Surveying, Trial Pit, UU Detection, Installation of Monitoring Strumentation, Site Haul Road WSD-W-F01 03-May-22 42 15-Mar-22 23-Jun-22 6d/w x10 Edn. - G.I. & Instrumentation 16-Mar-22 24 31-Mar-22 14-Apr-22 6d/w x10 WSD-W-F02 12 Fdn. - Conduct Laboratory Test & Issue Preliminary Report WSD-W-F03 Fdn. - Conduct Laboratory Test & Issue Preliminary Report 15-Apr-22 31 17-Apr-22 16-May-22 7d/w x10 Fdn. - Design Review WSD-W-F04 Fdn. - Design Review 21 06-May-22 31 17-May-22 06-Jun-22 30-Sep-22 84 07-Jun-22 Phase 1 (Grid J-Q/1-7) Temporary Retaining Structure (Grid J-Q/1-7), 120m long, to be constructed by Contract 1/WSD/19 Temporary Retaining Structure (Grid J-Q/1-7), 120m long, to be constructed by Contract 1/WSD/19 WSD-W-F-101 17-Nov-21 202 07-Jun-22 7d/w x10 Install Strut and Excavation at Portion 1 from 23.3mPD to 21.5mPD (2400m3, PR=100m3/d) 22-Jul-22 0 24-Jun-22 Install Strut and Excavation at Portion 1 from 23.3mPD to 21.5mPD (2400m³, PR=100m³/d) 22-Jul-22 6d/w x10 24-Jun-22 Carry Out Plate Load Test at Portion 1 WSD-W-F-103 | Carry Out Plate Load Test at Portion 05-Aug-22 86 17-Oct-22 30-Oct-22 7d/w x10 23-Jul-22 Footing - 1m thk Footing @ +21.5mPD incl. blinding layer (7 batches @ 6d/batch) WSD-W-F-104 Footing - 1m thk Footing @ +21.5mPD incl. blinding layer (7 batches @ 6d/batch) 6d/w x10 42 24-Sep-22 70 31-Oct-22 17-Dec-22 06-Aug-22 Time Risk Allowance for Phase 1 Foundation 30-Sep-22 84 18-Dec-22 WSD-W-F-105 Time Risk Allowance for Phase 1 Foundation 25-Sep-22 23-Dec-22 7d/w x10 Phase 2 (Grid A'-J/1-9) 26-May-23 1070 07-Jun-22 ◆ Temporary Retaining Structure (Grid A'-C/1), 48m long, to be constructed by Contract 1/WSD/19 WSD-W-F-201 Temporary Retaining Structure (Grid A'-C/1), 48m long, to be constructed by Contract 1/WSD/19 17-Nov-21 1626 30-Apr-26 ◆ Temporary Retaining Structure (Grid F-J/7-9), 30m long, to be constructed by Contract 1/WSD/19 WSD-W-F-201.5 Temporary Retaining Structure (Grid F-J/7-9), 30m long, to be constructed by Contract 1/WSD/19 7d/w x10 1626 30-Apr-26 0 17-Nov-21 ■ B.Footing - Sheet Piling (GL C-J/ 1), 50m on plan/ 12m deep, PR = 12sheet/d WSD-W-F-202 B.Footing - Sheet Piling (GL C-J/1), 50m on plan/ 12m deep, PR = 12sheet/d 12 07-Jun-22 20-Jun-22 0 07-Jun-22 20-Jun-22 6d/w x10 B.Footing - Sheet Piling (GL A1-F/9), 60m on plan/ 16m deep, PR =10sheet/o WSD-W-F-202.5 B.Footing - Sheet Piling (GL A1-F/9), 60m on plan/ 16m deep, PR =10sheet/d 0 07-Jun-22 Forming of Slope and Carry Out Excavation to + 20 mPD (11500m³, PR=100m³/d WSD-W-F-203 Forming of Slope and Carry Out Excavation to + 20 mPD (11500m<sup>3</sup>, PR=100m<sup>3</sup>/d) 115 23-Jul-22 07-Dec-22 0 23-Jul-22 07-Dec-22 Construct Partial Raft (10 batches @ 6d/batch 60 22-Feb-23 6d/w x10 WSD-W-F-204 | Construct Partial Raft (10 batches @ 6d/batch) 22-Feb-23 0 08-Dec-22 08-Dec-22 Install Raking Struts for Further Excavation WSD-W-F-205 Install Raking Struts for Further Excavation 28-Feb-23 0 23-Feb-23 28-Feb-23 6d/w x10 Excavate Slope in front of Sheetpile to +20 mPD (500m³, PR=100m³/d WSD-W-F-206 Excavate Slope in front of Sheetpile to +20 mPD (500m³, PR=100m³/d) 01-Mar-23 Construct Remaining Raft (10 batches @ 6d/batc WSD-W-F-207 Construct Remaining Raft (10 batches @ 6d/batch) 60 19-May-23 0 07-Mar-23 19-May-23 6d/w x10 07-Mar-23 ■ Time Risk Allowance for Phase 2 Foundation WSD-W-F-208 Time Risk Allowance for Phase 2 Foundation 20-May-23 26-May-23 0 20-May-23 26-May-23 7d/w x10 Structure 23-Jan-24 Phase 1 (Grid J-Q/1-7) 31-May-23 104 24-Dec-22 17-Oct-22 70 24-Dec-22 U/GR.C. - Beam / Column Construction WSD-W-UG1( U/G R.C. - Beam / Column Construction 17-Oct-22 70 24-Dec-22 Basement Level 02-Dec-22 89 11-Jan-23 03-Oct-22 WSD-W-SB101 B/F R.C. - Suspended Slab 12 18-Oct-22 31-Oct-22 70 11-Jan-23 27-Jan-23 6d/w x10 B/F R.C. - Formwork and Rebar to RC Column WSD-W-SB102 B/F R.C. - Formwork and Rebar to RC Column 6d/w x10 12 01-Nov-22 14-Nov-22 70 28-Jan-23 10-Feb-23 □ B/F R.C. - Formwork and Rebar RC Wall WSD-W-SB103 B/F R.C. - Formwork and Rebar RC Wall 6d/w x10 01-Nov-22 14-Nov-22 70 28-Jan-23 10-Feb-23 B/F.R.C.:- Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold WSD-W-SB104 B/F R.C. - Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 25-Nov-22 70 09-Feb-23 B/F R.C. - Concreting WSD-W-SB105 B/F R.C. - Concreting 26-Nov-22 26-Nov-22 70 23-Feb-23 23-Feb-23 B/F R.C. - Haul Road Preparation for Mobilization Mobile Crane WSD-W-SB106 B/F R.C. - Haul Road Preparation for Mobilization Mobile Crane 14-Oct-22 107 13-Feh-23 23-Feh-23 6d/w x10 03-Oct-22 B/F, MiC:- Installation of MiC Module (16 units) by Mobile Crane @ Basement level << PR=6no/d WSD-W-SB107 B/F MiC - Installation of MiC Module (16 units) by Mobile Crane @ Basement level << PR=6no/d>> 30-Nov-22 70 24-Feb-23 27-Feb-23 6d/w x10 Time Risk Allowance for Structural Works @ Basement Level Phase 1 WSD-W-SB108 Time Risk Allowance for Structural Works @ Basement Level Phase 1 02-Dec-22 89 28-Feb-23 01-Mar-23 7d/w x10 07-Jan-23 85 02-Mar-23 G/F R.C. - Formwork and Rebar to RC Column WSD-W-SG101 G/F R.C. - Formwork and Rebar to RC Column 70 02-Mar-23 ☐ G/F R.C. - Formwork and Rebar to RC Wall WSD-W-SG102 G/F R.C. - Formwork and Rebar to RC Wall 16-Dec-22 70 02-Mar-23 15-Mar-23 6d/w x10 03-Dec-22 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) Incl. Erect Scaffold WSD-W-SG103 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) incl. Erect Scaffold 12 15-Dec-22 30-Dec-22 70 14-Mar-23 27-Mar-23 6d/w x10 G/F R.C. - Concreting WSD-W-SG104 G/F R.C. - Concreting 31-Dec-22 70 28-Mar-23 28-Mar-23 6d/w x10 G/F MiG - Installation of MiC Module (18 units) by Mobile Crane @ Ground Floor level <<PR=6no/d>> WSD-W-SG105 G/F MiC - Installation of MiC Module (18 units) by Mobile Crane @ Ground Floor level << PR=6no/d>> 05-Jan-23 70 29-Mar-23 I Time Risk Allowance for Structural Works @ Ground Level Phase WSD-W-SG106 Time Risk Allowance for Structural Works @ Ground Level Phase 1 2 07-Jan-23 85 01-Apr-23 06-Jan-23 02-Apr-23 7d/w x10 13-Feb-23 86 03-Apr-23 1/F R.C. + Formwork and Rebar to RC Column WSD-W-S1101 1/F R.C. - Formwork and Rebar to RC Column 21-Jan-23 69 03-Apr-23 19-Apr-23 6d/w x10 1/F R.C. - Formwork and Rebar to RC Wall WSD-W-S1102 1/F R.C. - Formwork and Rebar to RC Wall 09-Jan-23 21-Jan-23 69 03-Apr-23 19-Apr-23 6d/w x10 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect WSD-W-S1103 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold 06-Feb-23 69 18-Apr-23 1 :1/F R.C. - Concreting WSD-W-S1104 1/F R.C. - Concreting 07-Feb-23 07-Feb-23 69 03-May-23 03-May-23 6d/w x10 :I:1/F MiC - Installation of MiC:Module (24 units) by:Mobile Crane @ First Floor level <<PR=6no/d>> WSD-W-S1105 1/F MiC - Installation of MiC Module (24 units) by Mobile Crane @ First Floor level << PR=6no/d>> 4 08-Feb-23 11-Feb-23 69 04-May-23 08-May-23 6d/w x10



## FIRST PROGRAMME REV. 1 ALL ACTIVITIES





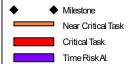
Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
)8-Feb-22	Revision 2 First Issue		

In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg. Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building

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Date prepared : 11-Feb-22 at 13:13

Control   Cont	5. ID Activity Name	Dur.	Start			Late Start	Late Finish			-		
Control Process   Control Pr					Float			Calendars			JIFIMIAIMIJIJAISIONID JIFIMIAIMIJIJAISIONID JIFIMIAIMIJIJAISIONID JIFIMIAIMIJIJAISIONID JIFIMIAIMIJIJAI	20   S O N D J
Section   Sect	WSD-W-S1106 Time Risk Allowance for Structural Works @ First Floor Level Phase 1	2	12-Feb-23	13-Feb-23	86 0	09-May-23	10-May-23	7d/w x10			Time Risk Allowance for Structural Works @ First Floor Level Phase 1	
1	Second Floor Level	31	14-Feb-23	16-Mar-23	88 1	11-May-23	12-Jun-23				V-V	
A	WSD-W-S2101 2/F R.C Formwork and Rebar to RC Column	12	14-Feb-23	27-Feb-23	70 1	11-May-23	24-May-23	6d/w x10	)			
Mathematical Content   Mathematical Content	WSD-W-S2102 2/F R.C Formwork and Rebar to RC Wall	12	14-Feb-23	27-Feb-23	70 1	11-May-23	24-May-23	6d/w x10	)			
Properties   Pro	WSD-W-S2103 2/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	25-Feb-23	10-Mar-23	70 2	23-May-23	06-Jun-23	6d/w x10	)		2/F R.C: Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	
	WSD-W-S2104 2/F R.C Concreting	1	11-Mar-23	11-Mar-23	70 0	07-Jun-23	07-Jun-23	6d/w x10	)		I 2/F R.C Concreting	
March Confession   March Confe	WSD-W-S2105 2/F MiC - Installation of MiC Module (16 units) by Mobile Crane @ Second Floor level < <pr=6no d="">&gt;</pr=6no>	3	13-Mar-23	15-Mar-23	70 0	08-Jun-23	10-Jun-23	6d/w x10	)		I 2/F MiC - Installation of MiC Module (16 units) by Mobile Crane @ Second Floor level < <pr=6nd d="">&gt;</pr=6nd>	
Mathematical Microsophic Colorans   1	WSD-W-S2106 Time Risk Allowance for Structural Works @ Second Floor Level Phase 1	1	16-Mar-23	16-Mar-23	88 1	12-Jun-23	12-Jun-23	7d/w x10	)		I Tîmê Risk Allowance for Ştrüctural Works @ Second Floor Level Phase 1	
Mathematical Microsophic Colorans   1	Third Floor Level	76	17-Mar-23	31-May-23	104 1	13-Jun-23	12-Sep-23					
Section   Sect	WSD-W-S3101 3/F R.C Formwork and Rebar to RC Column							6d/w x10	)		To 3/FR:C:- Formwork and Rebarto RC Column	
Accordance   Concess   C	WSD-W-S3102 3/F R.C Formwork and Rebar to RC Wall	12	17-Mar-23	30-Mar-23	70 1	13-Jun-23	27-Jun-23	6d/w x10	)		□ 3/F;R;C:-Formwork and Rebar to RC Walf	
Control Service   Servic	WSD-W-S3103 3/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	29-Mar-23	14-Apr-23	70 2	26-Jun-23	10-Jul-23	6d/w x10	)		📮 3/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Stab) incl. Erect Scaffold	
1	WSD-W-S3104 3/F R.C Concreting	1	15-Apr-23	15-Apr-23	70 1	11-Jul-23	11-Jul-23	6d/w x10	)		3/FR.C. Concreting	
1	WSD-W-S3105 3/F R.C Roof Construction	24	17-Apr-23	15-May-23	70 1	12-Jul-23	08-Aug-23	6d/w x10	)	·÷- -÷-i-÷-i-i-i-i-i-i-i-i-i-i-i-i-i-i-i-	. □ 3/F R.C Roof Construction	
March   Marc				-							□ Time Risk Allowance for Structural Works @ Third Floor Level Phase 1	
March   Marc												
March   Marc			,	-				TU/W XIU				
Mathement Learn   Mathement			•	-				6d/w x10	)			
Section (1987)   Control (1987)   Cont	<u> </u>										U/G R.C Beam / Column Construction	
1												
Miles   Mile	WSD-W-SB201 B/F R.C Suspended Slab						-	6d/w x10	)		DIFR.C Suspended Slab	
Second Float   Feed	WSD-W-SB203 B/F MiC - Installation of MiC Module (34 units) by Mobile Crane @ Basement level << PR=6no/d>>	6	26-Jun-23	03-Jul-23	0 2	26-Jun-23	03-Jul-23	6d/w x10	)		■ B/F MiC - Installation of MiC Module (34 units) by Mobile Crane @ Basement level < <pr=6no d="">&gt;</pr=6no>	
Second Float   Feed	WSD-W-SB204 Time Risk Allowance for MiC Installation @Basement Level	2	04-Jul-23	05-Jul-23	0 0	04-Jul-23	05-Jul-23	7d/w x10	)		J Time:Risk Allowance:for MiC Installation @Basement Level	
March   Marc	Ground Floor Level	9	06-Jul-23	14-Jul-23	0 0	06-Jul-23	14-Jul-23					
First   Floor Livel   1   1   1   1   1   1   1   1   1	WSD-W-SG05 G/F MiC - Installation of MiC Module (40 units) by Mobile Crane @ Ground level << PR=6no/d>>	7	06-Jul-23	13-Jul-23	0 0	06-Jul-23	13-Jul-23	6d/w x10	)		G/F MiC - Installation of MiC Module (40 units) by Mobile Crane @ Ground level << PR=6no/d>>	
MSD-Wis 120   Time Mc- Installation of Mc Mc- Index level (1 per level   September   Sep	WSD-W-SG06 Time Risk Allowance for MiC Installation @ Ground Level	1	14-Jul-23	14-Jul-23	0 1	14-Jul-23	14-Jul-23	7d/w x10	)		I Time Risk Allowance for MiC Installation @ Ground Level	
Second From Floor Level   Second Floor Level   Se	First Floor Level	11	15-Jul-23	25-Jul-23	0 1	15-Jul-23	25-Jul-23					1 1 1
Second Floor Level   4   25-Jul 2   54-Jul	WSD-W-S1201 1/F MiC - Installation of MiC Module (46 units) by Mobile Crane @ First Floor level < <pr=6no d="">&gt;</pr=6no>	8	15-Jul-23	24-Jul-23	0 1	15-Jul-23	24-Jul-23	6d/w x10	)			
MSD-W-S2202  Tem Rek Alevanco for Mile   Second Floor Level   4   2   2   2   2   2   2   2   2   2	WSD-W-S1202 Time Risk Allowance for MiC Installation @ First Floor Level	1	25-Jul-23	25-Jul-23	0 2	25-Jul-23	25-Jul-23	7d/w x10	)		I: Time Risk Allowance for MIC Installation @ First Floor Level	
WSD-W-S2002   Pfm C. Demonstration (@ Second Roor Level   Second Roor Level Roor Level Roor Roor Level Roor Roor Roor Level Roor Roor Roor Roor Roor Roor Roor Roo	Second Floor Level	4	26-Jul-23	29-Jul-23	0 2	26-Jul-23	29-Jul-23				<b>→</b>	
MSD-W-S2003   2F MC - Demoklization of Mobile Crame   0   29-Jul 2   6dw x ft   29-Jul	WSD-W-S2201 2/F MiC - Installation of MiC Module (18 units) by Mobile Crane @ Second Floor level < <pr=6no d="">&gt;</pr=6no>	3	26-Jul-23	28-Jul-23	0 2	26-Jul-23	28-Jul-23	6d/w x10	)			
Third Floor-Level	WSD-W-S2202 Time Risk Allowance for MiC Installation @ Second Floor Level	1	29-Jul-23	29-Jul-23	0 2	29-Jul-23	29-Jul-23	7d/w x10	)		Time Risk Allowance for MiC Installation @ Second Floor Level	
WSD-W-S3201 3F R.C Formwork and Rebar to RC Column	WSD-W-S2203 2/F MiC - Demobilization of Mobile Crane	0		29-Jul-23	0		29-Jul-23	6d/w x10	)		◆ 2/F,M/C:- Demobilization of Mobile:Crane	
WSD-W-S3203 3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   12   14-ug-23   24-ug-23   03   13-u2-23   24-ug-23   04   x10   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   14-ug-23   24-ug-23   04   x10   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Slab) incl. Erect Scaffold   18   3FR C Formwork and Rebar to RC Concrete Sibb (Third Floor Level Phase 2   24-ug-23   24-ug-23   24   24-ug-23   24   24   24   24   24   24   24												
WSD-W-S3203 3F R.C Formwork and Rebart to RC Concrete Sale) (Third Floor Sale) incl. Erect Scaffold   1   1-lug_23   2-lug_23   0   1-lug_23   2-lug_23   0   2-lug_23   2-lug_23	WSD-W-S3201 3/F R.C Formwork and Rebar to RC Column	12	31-Jul-23	12-Aug-23	0 3	31-Jul-23	12-Aug-23	6d/w x10	)			
WSD.W-S3206 3/F.R.C.   Concreting   1   25-Aug-23	WSD-W-S3202 3/F R.C Formwork and Rebar to RC Wall	12	31-Jul-23	12-Aug-23	0 3	31-Jul-23	12-Aug-23	6d/w x10	)			
WSD-W-S3205   FMC - Installation of Mic Module (14 units) by Mobile Crane @ Second Floor level <\pre>  Second Floor level Phase 2   Second Floor level <\pre>  Second Floor level <  Second Floor level Phase 2   Second Floor level <\pre>  Second Floor level <  Second Floor level <  Second Floor level   Second Floor level <  Second Floor level   Second Floor level <  Second Floor level Phase 2   Second Floor level <  Second Floor level   Second Floor level <  Second Floor level	WSD-W-S3203 3/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	11-Aug-23	24-Aug-23	0 1	11-Aug-23	24-Aug-23	6d/w x10	)			
WSD-W-S3206   Time Risk Allowance for Structural Works @ Third Floor Level Phase 2   2   30-Aug-23   31-Aug-23	WSD-W-S3204 3/F R.C Concreting	1	25-Aug-23	25-Aug-23	0 2	25-Aug-23	25-Aug-23	6d/w x10	)		IF 3/F.R.C Concreting	
WSD-W-S3207   SF.R.C Roof Construction   24   01-Sep-23   28-Sep-23   20   21-May-24   18-Jun-24   6d/w x10   3   19-be-23   3   3   17-Sep-24   18-Jun-24	WSD-W-S3205 3/F MiC - Installation of MiC Module (14 units) by Mobile Crane @ Second Floor level < <pr=6no d="">&gt;</pr=6no>	3	26-Aug-23	29-Aug-23	0 2	26-Aug-23	29-Aug-23	6d/w x10	)		I 3/FMIC Installation of Mic Wodule (14 units) by Mobile Crane @ Second Floor level < <pr=6no d="">&gt;&gt;</pr=6no>	
Phase 3 (Grid A'-C/1-4)   167   06-Jul-23   19-Jul-23   19-Jul-2	WSD-W-S3206 Time Risk Allowance for Structural Works @ Third Floor Level Phase 2	2	30-Aug-23	31-Aug-23	0 3	30-Aug-23	31-Aug-23	7d/w x10	)		I Time Risk Allowance for Structural Works @ Third Floor Level Phase 2	
Basement Floor Level	WSD-W-S3207 3/F R.C Roof Construction	24	01-Sep-23	28-Sep-23	210 2	21-May-24	18-Jun-24	6d/w x10	)		□ 3/F.R.C Roof Construction	
Basement Floor Level	Phase 3 (Grid A'-C/1-4)	167	06-Jul-23	19-Dec-23	273 0	07-Jul-23	17-Sep-24					
WSD-W-SB301 B/F R.C Suspended Slab  WSD-W-SB302 B/F R.C Formwork and Rebar to RC Column  12 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10   B/F R.C Formwork and Rebar to RC Column  WSD-W-SB303 B/F R.C Formwork and Rebar RC Wall  WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold  12 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10   B/F R.C Formwork and Rebar RC Wall  WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold  12 01-Aug-23 14-Aug-23 1 02-Aug-23 15-Aug-23 6d/w x10   B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold  WSD-W-SB305 B/F R.C Concreting  WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < PR=6no/d>  2 16-Aug-23 19-Aug-23 1 19-Aug-23 1 19-Aug-23 7d/w x10   B/F R.C Time Risk Allowance for Structural Works @ Basement Level Phase 3				_			20-Aug-23					
WSD-W-SB303 B/F R.C Formwork and Rebar RC Wall  WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold  12 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10  13 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10  14 20-Jul-23 02-Aug-23 15-Aug-23 15-Aug-23 15-Aug-23 15-Aug-23 15-Aug-23 15-Aug-23 15-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 16-Aug-23 17-Aug-23 17	WSD-W-SB301 B/F R.C Suspended Slab	12	06-Jul-23	19-Jul-23	1 0	07-Jul-23	20-Jul-23	6d/w x10	)			
WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold  12 01-Aug-23 14-Aug-23 1 02-Aug-23 15-Aug-23 16-Aug-23 17-Aug-23 18-Aug-23 1	WSD-W-SB302 B/F R.C Formwork and Rebar to RC Column	12	20-Jul-23	02-Aug-23	1 2	21-Jul-23	03-Aug-23	6d/w x10	)		B/F, R.C; - Formwork and Rebar; to RC Column	
WSD-W-SB305 B/F R.C Concreting  WSD-W-SB305 B/F R.C Concreting  1 15-Aug-23 15-Aug-23 1 16-Aug-23 16-Aug-23 6d/w x10  WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < <pr=6no d=""> 2 16-Aug-23 17-Aug-23 1 17-Aug-23 18-Aug-23 6d/w x10  WSD-W-SB307 Time Risk Allowance for Structural Works @ Basement Level Phase 3  2 18-Aug-23 1 19-Aug-23 1 19-Aug-23 7d/w x10  Time Risk Allowance for Structural Works @ Basement Level Phase 3</pr=6no>	WSD-W-SB303 B/F R.C Formwork and Rebar RC Wall	12	20-Jul-23	02-Aug-23	1 2	21-Jul-23	03-Aug-23	6d/w x10	)		B/F, R.C Formwork and Rebar; RC Wall	
WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level << PR=6no/d> 2 16-Aug-23 17-Aug-23 1 17-Aug-23 1 17-Aug-23 6d/w x10 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level << PR=6no/d>	WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold	12	01-Aug-23	14-Aug-23	1 0	02-Aug-23	15-Aug-23	6d/w x10	)		B/F R.C Förrmwork and Rebair RC Concrete Beam//S(ab) (Ground Slab) incl. Erect Scafföld	
WSD-W-SB307 Time Risk Allowance for Structural Works @ Basement Level Phase 3 2 18-Aug-23 19-Aug-23 1 19-Aug-23 7d/w x10 Time Risk Allowance for Structural Works @ Basement Level Phase 3	WSD-W-SB305 B/F R.C Concreting	1	15-Aug-23	15-Aug-23	1 1	16-Aug-23	16-Aug-23	6d/w x10	)		I BJF R.C Concreting	
WSD-W-SB307 Time Risk Allowance for Structural Works @ Basement Level Phase 3 2 18-Aug-23 19-Aug-23 1 19-Aug-23 7d/w x10 Time Risk Allowance for Structural Works @ Basement Level Phase 3	WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < <pr=6no d="">&gt;</pr=6no>	2	16-Aug-23	17-Aug-23	1 1	17-Aug-23	18-Aug-23	6d/w x10	)		B/F MiC -Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level << PR=6no/d>>	
	WSD-W-SB307 Time Risk Allowance for Structural Works @ Basement Level Phase 3				1 1	19-Aug-23	20-Aug-23	7d/w x10	)			
			<u> </u>			•	•		1	<u>-                                    </u>		











Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 6 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 NDJIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID J Ground Floor Level 28 21-Aug-23 17-Sep-23 0 21-Aug-23 G/F R.C. - Formwork and Rebar to RC Column WSD-W-SG301 G/F R C - Formwork and Rebar to RC Column 12 21-Aug-23 02-Sep-23 0 21-Aug-23 02-Sep-23 6d/w x10 ■ G/F R.C. - Formwork and Rebar to RC Wall WSD-W-SG302 G/F R.C. - Formwork and Rebar to RC Wall 02-Sep-23 0 21-Aug-23 02-Sep-23 21-Aug-23 G/F R.C. - Formwork and Rebar to RC|Concrete Slab (First Floor Slab) incl. Erect Scaffold WSD-W-SG303 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) incl. Erect Scaffold 12 01-Sep-23 14-Sep-23 0 01-Sep-23 14-Sep-23 6d/w x10 WSD-W-SG304 G/F R.C. - Concreting 15-Sep-23 6d/w x10 15-Sen-23 15-Sen-23 0 15-Sen-23 I: G/F:MiC - Installation of MiC Module (3 units) by Mobile Crane @ Ground Floor level <<PR=6no/d> WSD-W-SG305 G/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ Ground Floor level <<PR=6no/d>> 16-Sep-23 16-Sep-23 16-Sep-23 6d/w x10 Time Risk Allowance for Structural Works @ Ground Level Phase 3 WSD-W-SG306 Time Risk Allowance for Structural Works @ Ground Level Phase 3 1 17-Sep-23 17-Sep-23 0 17-Sep-23 17-Sep-23 7d/w x10 18-Sen-23 19-Dec-23 273 18-Sep-23 1/F R.C. - Formwork and Rebar to RC Column WSD-W-S1301 1/F R.C. - Formwork and Rebar to RC Column 03-Oct-23 0 18-Sep-23 03-Oct-23 6d/w x10 18-Sep-23 ■ 1/F R.C. - Formwork and Rebar to RC Wall WSD-W-S1302 1/F R.C. - Formwork and Rebar to RC Wall 12 18-Sep-23 03-Oct-23 0 18-Sep-23 03-Oct-23 6d/w x10 ■ 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold WSD-W-S1303 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold 12 29-Sep-23 14-Oct-23 0 29-Sep-23 14-Oct-23 6d/w x10 I 1/F R.C. - Concreting WSD-W-S1304 1/F R.C. - Concreting 16-Oct-23 16-Oct-23 6d/w x10 16-Oct-23 0 16-Oct-23 1 1/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ First Floor level < PR = 6no/d> WSD-W-S1305 1/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ First Floor level <<PR=6no/d>> 17-Oct-23 17-Oct-23 0 17-Oct-23 17-Oct-23 6d/w x10 I Time Risk Allowance for Structural Works @ First Floor Level Phase 3 WSD-W-S1306 Time Risk Allowance for Structural Works @ First Floor Level Phase 3 18-Oct-23 18-Oct-23 18-Oct-23 7d/w x10 18-Oct-23 0 1. 1/F R.C. + RC Roof Construction (Lower Roof, GL A'-E/1-4) 2 WSD-W-S1307 1/F R.C. - RC Roof Construction (Lower Roof, GL A'-E/1-4) 19-Oct-23 20-Oct-23 37 02-Dec-23 04-Dec-23 6d/w x10 1/F R.C. - Architectural Facade/ Concrete Plinth/Drainage System/Balustrade on Roof Terrage @ Second Level WSD-W-S1308 1/F R.C. - Architectural Facade/ Concrete Plinth/ Drainage System/ Balustrade on Roof Terrace @ Second 50 21-Oct-23 19-Dec-23 220 22-Jul-24 171 31-Jul-23 Phase 4 (Car Park and Ramp) 15-Dec-23 Carpark/Ramp -: Installation of MiC; Module (5; units) by Mobile Crane @ Car Park <<PR=6no/d>> Carpark/Ramp - Installation of MiC Module (5 units) by Mobile Crane @ Car Park <<PR=6no/d>> 31-Jul-23 31-Jul-23 WSD-W-CP01 31-Jul-23 0 31-Jul-23 6d/w x10 Carpark/Ramp - RC Column 5.7m x 19nos @ Basement Level (GL A-J/ 5-7) < PR = 7d/ column 7 mould> Carpark/Ramp - RC Column 5.7m x 19nos @ Basement Level (GL A'-J/ 5-7)<<PR= 7d/ column, 7 mould>> 21 01-Aug-23 24-Aug-23 0 01-Aug-23 24-Aug-23 6d/w x10 Carpark/Ramp:- RC:Concrete Slab (Ground Slab) incl. Erect Scaffold Carpark/Ramp - RC Concrete Slab (Ground Slab) incl. Erect Scaffold 16-Sep-23 0 25-Aug-23 Carpark/Ramp - RC Column fr.4.7m to 9.4m x 9nos @ Ground Level (GL A'-J/ 5-7)<<PR=14d/column, 5 moulds Carpark/Ramp - RC Column fr 4.7m to 9.4m x 9nos @ Ground Level (GL A'-J/ 5-7)<<PR= 14d/ column. 5 28 WSD-W-CP04 18-Sep-23 21-Oct-23 0 18-Sen-23 21-Oct-23 Carpark/Ramp - Concrete Structure for Ramp between G/F & 1/F including landing Carpark/Ramp - Concrete Structure for Ramp between G/F & 1/F including landing WSD-W-CP05 18 24-Oct-23 13-Nov-23 0 24-Oct-23 13-Nov-23 6d/w x10 Carpark/Ramp - Concrete Structure for Ramp between 1/F & 2/F including WSD-W-CP06 Carpark/Ramp - Concrete Structure for Ramp between 1/F & 2/F including 08-Dec-23 0 14-Nov-23 08-Dec-23 6d/w x10 Carpark/Ramp - Construction of Roadworks for Emergency Vehicle Access heading to Administration Building WSD-W-CP07 Carpark/Ramp - Construction of Roadworks for Emergency Vehicle Access heading to Administration Build 11-Nov-23 163 10-Apr-24 03-Jun-24 ◆ Carpark/Ramp - Completion of Structure for Car Park WSD-W-CP08 Camark/Ramp - Completion of Structure for Car Park 0 11-Nov-23 163 03-Jun-24 6d/w x10 ■ Time Risk Allowance for Activities WSD-D-CP01 to WSD+D-CP-06 WSD-W-CP09 Time Risk Allowance for Activities WSD-D-CP01 to WSD-D-CP-06 09-Dec-23 15-Dec-23 0 09-Dec-23 15-Dec-23 7d/w x10 Glazing/ Curtain Wall Glazing/Curtain Wall - Bracket Installation for Building <<PR=4d/storey>> WSD-W-GL01 Glazing/Curtain Wall - Bracket Installation for Building <<PR=4d/storey>> 28-Sep-23 22 27-Sep-23 Glazing/Curtain Wall - Curtain Wall Panel Installation for Building <<PR=5d/storey>> Glazing/Curtain Wall - Curtain Wall Panel Installation for Building << PR=5d/storey>> 48 27-Nov-23 22 28-Oct-23 WSD-W-GL02 29-Sep-23 22-Dec-23 6d/w x10 ■ Glazing/Curtain Wall - Bracket Installation for Ramp << PR=4d/storey>> Glazing/Curtain Wall - Bracket Installation for Ramp <<PR=4d/storey>> WSD-W-GI 03 16-Dec-23 22-Dec-23 0 16-Dec-23 22-Dec-23 6d/w x10 Glazing/Curtain Wall -: Curtain Wall Panel Installation for Ramp << PR=5d/storey>> WSD-W-GL04 Glazing/Curtain Wall - Curtain Wall Panel Installation for Ramp << PR=5d/storey>> 23-Dec-23 23-Jan-24 0 23-Dec-23 6d/w x10 Glazing/Curtain Wall + Steel Frame Installation @ Ground Floor Entrance Lobby Glazing/Curtain Wall - Steel Frame Installation @ Ground Floor Entrance Lobby WSD-W-GL05 30-Nov-23 37 10-Jan-24 I Glazing/Curtain Wall - Glazing Panel Installation Glazing/Curtain Wall - Glazing Panel Installation WSD-W-GL06 07-Dec-23 37 17-Jan-24 23-Jan-24 6d/w x10 01-Dec-23 ◆ Glazing/Curtain Wall - Completion of Building Envelope Glazing/Curtain Wall - Completion of Building Envelope WSD-W-GL07 23-Jan-24 23-Jan-24 ABWF/ MEP/ FS/ Fitout Works 110 14-Aug-23 Basement - Transformer Room/ LV Switch Room/ Utility Riser Room/ Service Tunnel & Yard 30-May-24 28 14-Aug-23 Tx & LV\$B Rooms - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works WSD-B-TR01 Tx & LVSB Rooms - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works 28-Aug-23 11 14-Aug-23 09-Sep-23 6d/w x10 Tx & LVSB Rooms - ABWF Dea1 - Dea3 WSD-B-TR02 Tx & LVSB Rooms - ABWF Deg1 - Deg3 26-Oct-23 11 11-Sep-23 08-Nov-23 6d/w x10 Tx & LVSB Rooms - BS 1st Fix - 3rd Fix WSD-B-TR03 Tx & LVSB Rooms - BS 1st Fix - 3rd Fix 22-Jan-24 11 09-Nov-23 03-Feb-24 6d/w x10 27-Oct-23 Tx & LVSB Rooms - CLP Inspection & Defect Rectificati WSD-R-TR05 Tx & LVSB Rooms - CLP Inspection & Defect Rectification 23-Jan-24 05-Feb-24 28 28-Feb-24 Tx & LVSB Rooms - Installation of Tx & Testing by CLP Tx & LVSB Rooms - Installation of Tx & Testing by CLP WSD-B-TR06 90 30-May-24 28 13-Mar-24 04-Jul-24 6d/w x10 Construction of Riser/Shaft/Tunnel for Cable Containmer WSD-B-TR06.5 | Construction of Riser/Shaft/Tunnel for Cable Containment 46 23-Jan-24 19-Mar-24 79 03-May-24 27-Jun-24 6d/w x10 Tx & LVSB Rooms - Completion of CLP Cable Laying Leading to Administration Building (to be constructed by Othe

6d/w x10

04-Jul-24

24-Aug-24



WSD-B-TR08

WSD-B-EG01



EGM - Floor Screeding, Wall Plastering & Doors & Wall Lining

Tx & LVSB Rooms - CLP Power-on Date

EGM - Concrete Plinth, Waterproofing & Test

Basement - Emergency Generator Room

Tx & LVSB Rooms - Completion of CLP Cable Laying Leading to Administration Building (to be constructe

EGM - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works

#### FIRST PROGRAMME REV. 1 **ALL ACTIVITIES**

25-May-24 28 27-Jun-24 27-Jun-24

42 05-Feb-24

28 | 20-Feb-24 | 22-Mar-24 | 11 | 04-Mar-24 | 09-Apr-24 | 6d/w x10

05-Feb-24

30-May-24 28

06-Jul-24

02-Feb-24





◆ Tx & LVSB Rooms - CLP Power-on Date

EGM - Floor Screeding, Wall Plastering & Doors & Wall Lining

EGM - Concrete Plinth, Waterproofing & Test

EGM:- MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works

Date	Revision	Checked	Approved
3-Nov-21	Revision 0 First Issue	AH	WJ
9-Jan-22	Revision 1 First Issue	PF	AH
8-Feb-22	Revision 2 First Issue		

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 7 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 WSD-B-EG04 EGM - MEP Works 18-May-24 29-Apr-24 42 20-Jun-24 6d/w x10 B EGM - Move In Generator Equipments WSD-B-EG05 EGM - Move-In Generator Equipments 30-Apr-24 07-May-24 42 21-Jun-24 27-Jun-24 6d/w x10 EGM - Final Coat to Wall & Sealer to Floor WSD-B-EG06 EGM - Final Coat to Wall & Sealer to Floor 29-May-24 42 28-Jun-24 19-Jul-24 6d/w x10 08-May-24 EGM - Install Generator Equipments & Testino WSD-B-FG07 EGM - Install Generator Equipments & Testing 28 03-Jul-24 42 20-Jul-24 21-Aug-24 6d/w x10 I EGM - Install Doors & Ironmogery WSD-B-EG08 EGM - Install Doors & Ironmogery 06-Jul-24 42 22-Aug-24 24-Aug-24 6d/w x10 Basement - Sprinkler/FS Water Tank 12-Aug-24 10-Apr-24 24-Aug-24 6d/w x10 Sprinkler Tank/ FS Tank Room - Waterproofing & Testing 10-Apr-24 11 10-Apr-24 23-Apr-24 6d/w x10 WSD-B-FS01 Sprinkler Tank/ FS Tank Room - Waterproofing & Testing 12 23-Mar-24 Sprinkler: Tank/ FS Tank Room - Plastering: Works Inside Tank WSD-B-FS02 Sprinkler Tank/ FS Tank Room - Plastering Works Inside Tank 24-Apr-24 11 24-Apr-24 08-May-24 6d/w x10 Sprinkler: Tank/ FS Tank Room - Wall & Floor Tiling Works WSD-B-FS03 Sprinkler Tank/ FS Tank Room - Wall & Floor Tiling Works 25-Apr-24 24-May-24 11 09-May-24 06-Jun-24 6d/w x10 Sprinkler Tank/ FS Tank Room - Install Equipment WSD-R-FS04 Sprinkler Tank/ FS Tank Room - Install Equipment 60 17-Aug-24 6d/w x10 05-Aug-24 11 07-Jun-24 25-May-24 Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover WSD-B-FS05 Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover 12-Aug-24 11 19-Aug-24 24-Aug-24 6d/w x10 Basement - Office Fitting-Out 17-Feb-24 62 6d/w x10 B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-BA-01 B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 02-Nov-23 62 11-Jan-24 B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door WSD-R-BA-02 B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 03-Nov-23 30-Dec-23 62 18-Jan-24 16-Mar-24 6d/w x10 B/F Interior Decoration: MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-BA-03 B/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 17-Jan-24 62 03-Feb-24 06-Apr-24 6d/w x10 B/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-BA-04 B/F Interior Decoration - Inspection/ Testing/ Defect Rectification 18-Jan-24 17-Feb-24 62 08-Apr-24 06-May-24 6d/w x10 Basement - Dangerous Goods Store Fitting Out Basement Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-R-DG01 Basement Interior Decoration - Site Clearance/ Preparation for ABWE & MEP Works 02-Nov-23 257 07-Sep-24 13-Sep-24 6d/w x10 6 27-Oct-23 Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, doo WSD-B-DG02 Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, 48 03-Nov-23 30-Dec-23 257 14-Sep-24 12-Nov-24 6d/w x10 Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-DG03 Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation 17-Jan-24 257 03-Oct-24 28-Nov-24 6d/w x10 Basement Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-DG04 Basement Interior Decoration - Inspection/ Testing/ Defect Rectification 18-Jan-24 17-Feb-24 257 29-Nov-24 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 WSD-R-DG05 24-Feb-24 316 30-Dec-24 05-Jan-25 7d/w x10 18-Feb-24 Ground Floor Laboratory/ Vistory Reception Facility/ Water Treatment Training Venue 14-Feh-24 181 05-Jun-24 G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 181 05-Jun-24 G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 31-Oct-23 27-Dec-23 181 13-Jun-24 08-Aug-24 6d/w x10 G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-LG-03 G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation 13-Jan-24 181 29-Jun-24 24-Aug-24 6d/w x10 16-Nov-23 G/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-LG-04 G/F Interior Decoration - Inspection/ Testing/ Defect Rectification 24 15-Jan-24 14-Feb-24 181 26-Aug-24 23-Sep-24 6d/w x10 1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-L1-01 1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 6 24-Nov-23 30-Nov-23 0 24-Nov-23 30-Nov-23 6d/w x10 1/F Interior Decoration - ABWF Works ind ; block wall; plastering & paint, ceiling panel, raised floor, door 1/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door WSD-B-L1-02 29-Jan-24 61 17-Feb-24 17-Apr-24 6d/w x10 48 01-Dec-23 1/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 1/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation WSD-B-I 1-03 48 6d/w x10 18-Dec-23 17-Feb-24 61 05-Mar-24 04-May-24 1/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-L1-04 1/F Interior Decoration - Inspection/ Testing/ Defect Rectification 16-Mar-24 61 06-May-24 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 WSD1 23-Mar-24 79 04-Jun-24 Second Floor Office Fitting-Out 23-Mar-24 148 01-Dec-23 2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-L2-01 07-Dec-23 0 01-Dec-23 07-Dec-23 6d/w x10 2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 05-Feb-24 0 08-Dec-23 2/F Interior Decoration - MEP Works incl. 1st fix 2nd fix & final fix installation 2/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-L2-03 24-Feb-24 56 06-Mar-24 06-May-24 6d/w x10 27-Dec-23 2/F Interior Decoration - Inspection/ Testing/ Defect Rectification 23-Mar-24 148 26-Aug-24 WSD-B-I 2-04 2/F Interior Decoration - Inspection/ Testing/ Defect Rectification 23-Sep-24 6d/w x10 26-Feb-24 Third Floor Office Fitting-Out 30-Jan-24 13/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 3/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 42 30-Jan-24 3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel raised floor, door WSD-B-L3-02 3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 09-Apr-24 0 06-Feb-24 09-Apr-24 6d/w x10 06-Feb-24 3/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-I 3-03 3/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 48 0 26-Feb-24 25-Apr-24 6d/w x10 26-Feb-24 25-Apr-24 3/F Interior Decoration - Inspection/ Testing/ Defect Rectification 3/F Interior Decoration - Inspection/ Testing/ Defect Rectification 05-Jun-24 6d/w x10 WSD-B-L3-04 33 05-Jun-24 0 26-Apr-24 ■ Time Risk Allowance for Third Floor Office Fitting Out WSD-B-L3-05 Time Risk Allowance for Third Floor Office Fitting Out 10-Jun-24 0 06-Jun-24 10-Jun-24 7d/w x10 MEP Lift Installation (E1) 181 25-Jul-24 Lift E1: - Erect Falsework & Builders Works inside Lift Shaft WSD-B-LT1-01 Lift E1 - Erect Falsework & Builders Works inside Lift Shaft 22-Mar-24 146 25-Jul-24 19-Sep-24 6d/w x10 Lift E1 - Install Lift including Fitting-Out WSD-B-LT1-02 Lift E1 - Install Lift including Fitting-Out 60 23-Mar-24 21-May-24 181 20-Sep-24 7d/w x10 Lift E1 - Testing after Power Energization WSD-B-LT1-03 Lift E1 - Testing after Power Energization 02-Jun-24 181 19-Nov-24 ☐ Lift E1 - Submit Form LE5 & Wait for EMSD Inspection WSD-B-LT1-04 Lift E1 - Submit Form LE5 & Wait for EMSD Inspection 16-Jun-24 181 01-Dec-24 14-Dec-24 7d/w x10 Date Checked Approved Non-Critical Tas FIRST PROGRAMME REV. 1 03-Nov-21 Revision 0 First Issue Near Critical Task 19-Jan-22 Revision 1 First Issue АН Critical Task Tasks Summary 俊 和 **ALL ACTIVITIES** 

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Revision 2 First Issue

08-Feb-22

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 8 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 2022 2023 2024 2025 2026 2027 20 NDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJ WSD-B-LT1-05 Lift E1 - Inspection for Lift Fitout & Issue Lift Certification LE6 17-Jun-24 14-Jul-24 181 15-Dec-24 MEP Lift Installation (F2 & F3) 28-Aug-24 136 19-Jun-24 Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft WSD-B-LT2-01 Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft 14-Aug-24 6d/w x10 22-Mar-24 | 116 | 19-Jun-24 Lift E2 & E3 (FS) - Install Lift including Fitting-Out WSD-B-LT2-02 Lift E2 & E3 (FS) - Install Lift including Fitting-Out 60 23-Mar-24 21-May-24 145 15-Aug-24 13-Oct-24 7d/w x10 Lift E2 & E3 (F\$) - Testing after Power Energization WSD-B-LT2-03 Lift E2 & E3 (FS) - Testing after Power Energization 11-Jun-24 | 136 | 14-Oct-24 Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection WSD-B-LT2-04 Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection 08-Nov-24 7d/w x10 12-Jun-24 25-Jun-24 136 26-Oct-24 Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6 WSD-B-LT2-05 Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6 28 23-Jul-24 136 09-Nov-24 06-Dec-24 7d/w x10 26-Jun-24 Dismantle Material Hoist 18-Dec-24 WSD-B-LT2-06 Dismantle Material Hoist 04-Aug-24 136 07-Dec-24 7d/w x10 Remaining Works at Hosit Area WSD-B-LT2-07 Remaining Works at Hosit Area 136 19-Dec-24 Other Facilities 23-Sen-24 11-Jun-24 Fit-out & Plumber Works - Water Closet Rooms WSD-B-OF-01 Fit-out & Plumber Works - Water Closet Rooms 88 23-Sep-24 11-Jun-24 0 11-Jun-24 23-Sep-24 6d/w x10 FS Sprinkler Pump Room - E&M Installation of pumping system & BS Work WSD-B-OF-02 FS Sprinkler Pump Room - E&M Installation of pumping system & BS Works 64 24-Aug-24 0 11-Jun-24 24-Aug-24 6d/w x10 Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump WSD-B-OF-03 Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump 23-Sep-24 0 11-Jun-24 Car Park - MEP Works 06-Jun-24 90 04-Jun-24 Car Park - Erect Falseworks for Builders & MEP Works WSD-B-CP-01 | Car Park - Erect Falseworks for Builders & MEP Works 12 13-Nov-23 25-Nov-23 163 04-Jun-24 18-Jun-24 6d/w x10 Car Park - ABWF/ MEP/ FS Works WSD-B-CP-02 | Car Park - ABWF/ MEP/ FS Works 27-Nov-23 20-Jan-24 163 19-Jun-24 10-Aug-24 6d/w x10 Car Park - Electric Vehicle Charging Facilities WSD-B-CP-03 Car Park - Electric Vehicle Charging Facilities 22-Jan-24 28-Feb-24 163 12-Aug-24 14-Sep-24 6d/w x10 Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities WSD-B-CP-04 Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities 6 31-May-24 06-Jun-24 90 23-Sep-24 6d/w x10 16-Sen-24 Works for KD-1 21-Oct-23 0 13-Sep-23 ABWF & FS Works for Server Rooms/ Security Control Room WSD-KD1-01 ABWF & FS Works for Server Rooms/ Security Control Room 05-Sep-23 38 13-Sep-23 ◆ Complete the Civil. Structure Works, ABWF & FS for Server Rooms/ Security Control Room WSD-KD1-02 Complete the Civil, Structure Works, ABWF & FS for Server Rooms/ Security Control Room 05-Sep-23 21-Oct-23 ABWF & FS Works for Main Control Room WSD-KD1-03 ABWF & FS Works for Main Control Room 32 21-Oct-23 0 13-Sep-23 21-Oct-23 6d/w x10 13-Sep-23 ◆ Complete the Civil, Structure Works, ABWF & F\$ for Main Control Room Complete the Civil, Structure Works, ABWF & FS for Main Control Room WSD-KD1-04 21-Oct-23 21-Oct-23 6d/w x10 26-Apr-24 Electrical Power System incl. testing for Basemen WSD-KD2-01 Electrical Power System incl. testing for Basement 19-Feb-24 18-Apr-24 62 07-May-24 04-Jul-24 Electrical Power System incl. testing for Second Floo WSD-KD2-02 Electrical Power System incl. testing for Second Floor 48 26-Feb-24 25-Apr-24 56 07-May-24 04-Jul-24 6d/w x10 Electrical Power System incl. testing for Third Floor WSD-KD2-03 Electrical Power System incl. testing for Third Floor 56 04-Jul-24 0 26-Apr-24 04-Jul-24 6d/w x10 ◆ Termination of Cable to Tx after Cable Laying by 1/WSD/19 WSD-KD2-04 Termination of Cable to Tx after Cable Laying by 1/WSD/19 30-May-24 28 04-Jul-24 6d/w x10 ■ Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04 Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04 05-Jul-24 12-Jul-24 0 05-Jul-24 12-Jul-24 ◆ Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. testing WSD-KD2-06 Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. tes 12-Jul-24 12-Jul-24 6d/w x10 0 31-Aug-24 133 31-May-24 11-Jan-25 External Works Ext. Works - Underground Utilities Works, Drainage Works & Testing WSD-W-X-01 Ext. Works - Underground Utilities Works, Drainage Works & Testing 24-Apr-24 101 31-May-24 Ext. Works - Backfilling to Ground Level WSD-W-X-02 Ext. Works - Backfilling to Ground Level 24-May-24 108 03-Sep-24 Ext. Works - Construction of Remaining Concrete Pavemen Ext. Works - Construction of Remaining Concrete Pavement WSD-W-X-03 48 22-Jul-24 108 03-Oct-24 28-Nov-24 6d/w x10 25-May-24 Ext. Works - Construction of Staircase, ABWF Ext. Works - Construction of Staircase ARWE WSD-W-X-04 48 6d/w x10 28-Jun-24 23-Aug-24 | 108 | 06-Nov-24 03-Jan-25 I Time Risk Allowance for External Works WSD-W-X-05 Time Risk Allowance for External Works 31-Aug-24 133 04-Jan-25 7d/w x10 26-Aug-24 23-Oct-24 0 26-Aug-24 Testing & Commissioning Testing & Commissioning & fixing defects (FS - Related) Testing & Commissioning & fixing defects (FS - Related) WSD-B-TC-01 23-Sen-24 0 26-Aug-24 23-Sen-24 Testing & Commissioning & fixing defects (Non-FS - Related) Testing & Commissioning & fixing defects (Non- FS - Related) 24 WSD-B-TC-02 24-Sep-24 23-Oct-24 0 24-Sep-24 23-Oct-24 6d/w x10 Elevated Walkway No.2 317 05-Oct-22 27-Oct-23 439 08-Feb-25 6d/w x10 ► EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other under 1/WSD/19) WSD-W-W2-01 EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other 05-Oct-22 696 08-Feb-25 6d/w x10 ☐ EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection 18-Oct-22 696 08-Feb-25 21-Feb-25 6d/w x10 WSD-W-W2-02 05-Oct-22 ♦ EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit) WSD-W-W2-03 EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit) 6d/w x10 31-Jul-23 465 22-Feb-25 ■ EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection WSD-W-W2-04 EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection 12 12-Aug-23 465 22-Feb-25 07-Mar-25 6d/w x10 31-Jul-23 EW No.2 - MiC Bridge Installation & Associated Connection Works EW No.2 - MiC Bridge Installation & Associated Connection Works 13-Sep-23 WSD-W-W2-11 19-Sen-23 439 08-Mar-25 EW No.2 - Remaining ABWF, Fitout, BS, Works along Mic Bridge EW No.2 - Remaining ABWF, Fitout, BS Works along Mic Bridge WSD-W-W2-12 30 27-Oct-23 439 15-Mar-25 23-Apr-25 6d/w x10 20-Sep-23 Elevated Walkway No.1 (Structural Support only) 21-Oct-23 444 24-Apr-25 6d/w x10 24-Anr-25 • Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on Second Level) Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on S 444 24-Apr-25 6d/w x10 592 17-Sep-23 30-Apr-25 0 23-Apr-24 30-Apr-25 7d/w x10 Inspection & Approval by Government Authorities Date Checked Non-Critical Tas



Critical Task

Time Risk Al

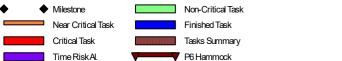
Tasks Summar

P6 Hammock





Page 9 of 10 In-situ Reprovisioning of Sha Tin Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 2022 2023 2024 2025 2026 2027 20 NDJFMAMJJJASONDJFMAMJJJASONDJFMAMJJJASONDJ FSD - DG Licence 06-Jun-24 219 23-Apr-24 264 11-Jan-25 FSD - DG Drawings First Submission WSD-IA-F01 FSD - DG Drawings First Submission 15-Nov-23 219 23-Apr-24 21-Jun-24 7d/w x10 17-Sep-23 FSD - DG Drawings Second Amendmen 14-Jan-24 219 22-Jun-24 WSD-IA-F02 FSD - DG Drawings Second Amendmen 60 20-Aug-24 7d/w x10 FSD - DG Drawings Third Amendment WSD-IA-F03 FSD - DG Drawings Third Amendment 60 15-Jan-24 14-Mar-24 219 21-Aug-24 19-Oct-24 7d/w x10 FSD - DG Inspection & Rectification FSD - DG Inspection & Rectification 13-Apr-24 219 20-Oct-24 WSD-IA-F04 FSD - VD Review & Inspection/ Rectification Work WSD-IA-F05 FSD - VD Review & Inspection/ Rectification Works 42 25-May-24 219 19-Nov-24 7d/w x10 FSD - VD issue letter of compliance WSD-IA-F06 FSD - VD issue letter of compliance 31-May-24 219 31-Dec-24 05-Jan-25 7d/w x10 26-May-24 FSD - Issue of DG License WSD-IA-F07 FSD - Issue of DG License 06-Jun-24 219 06-Jan-25 11-Jan-25 7d/w x10 **EPD - Emergency Generator** 11-Aug-24 153 08-Oct-24 EPD - EPD Drawing Submission & Approv EPD - EPD Drawing Submission & Approval 06-Jul-24 153 08-Oct-24 WSD-IA-E01 60 06-Dec-24 7d/w x10 EPD - Site Inspection & Rectification Work WSD-IA-E02 05-Jan-25 7d/w x10 FPD - Site Inspection & Rectification Works 30 05-Aug-24 153 07-Dec-24 07-Jul-24 ■ EPD - Approval Issue 11-Jan-25 7d/w x10 WSD-IA-E03 EPD - Approval Issue 11-Aug-24 | 153 | 06-Jan-25 WSD - WWO 046 (FS)/(PD) 11-Jan-25 0 24-Oct-24 WSD - Submit WWO 46 Part IV (PD) & Arrange Inspection by WSD WSD - Submit WWO 46 Part IV (PD) & Arrange Inspection by WSD WSD-IA-W01 0 24-Oct-24 13-Nov-24 7d/w x10 21 13-Nov-24 WSD - Site Inspection & Rectification Works by WSD (PD) 28-Dec-24 7d/w x10 WSD - Site Inspection & Rectification Works by WSD (PD) 45 WSD-IA-W02 14-Nov-24 28-Dec-24 0 14-Nov-24 WSD - Issue WWO 46 Part V (PD) WSD-IA-W03 WSD - Issue WWO 46 Part V (PD) 14 29-Dec-24 11-Jan-25 0 29-Dec-24 11-Jan-25 7d/w x10 WSD - Submit WWO 46 Part IV (FS) & Arrange Inspection by WSD WSD-IA-W04 WSD - Submit WWO 46 Part IV (FS) & Arrange Inspection by WSD 21 14-Oct-24 30 24-Oct-24 13-Nov-24 7d/w x10 24-Sep-24 WSD - Site Inspection & Rectification Works by WSD (FS) WSD-IA-W05 WSD - Site Inspection & Rectification Works by WSD (FS) 45 28-Nov-24 30 28-Dec-24 7d/w x10 15-Oct-24 14-Nov-24 ■ WSD - Issue WWO 46 Part V (FS) WSD-IA-W06 WSD - Issue WWO 46 Part V (FS) 12-Dec-24 30 29-Dec-24 11-Jan-25 7d/w x10 FSD / OP Inspection 109 30-Apr-25 0 30-Apr-25 7d/w x10 ◆ FSD - Submit Form FS251/314/501 WSD-IA-OP01 FSD - Submit Form FS251/314/501 11-Jan-25 FSD - FSD processes Form 215/314/501 & arranging for Ir WSD-IA-OP01a FSD - FSD processes Form 215/314/501 & arranging for Inspection 14 25-Jan-25 0 12-Jan-25 25-Jan-25 7d/w x10 12-Jan-25 FSD - FS Inspection, Rectification and Reinspection WSD-IA-OP01b FSD - FS Inspection, Rectification and Reinspection 28 22-Feb-25 0 26-Jan-25 22-Feb-25 7d/w x10 FSD - FSD processes FS Certificate Form 172 WSD-IA-OP01c FSD - FSD processes FS Certificate Form 172 23-Feb-25 08-Mar-25 0 23-Feb-25 08-Mar-25 7d/w x10 ◆ FSD - Issued Form 172 Issued by FSD (Fire Certificate WSD-IA-OP01d FSD - Issued Form 172 Issued by FSD (Fire Certificate) 08-Mar-25 0 08-Mar-25 7d/w x10 ◆ BD - Submit Form BA13 WSD-IA-OP02 BD - Submit Form BA13 0 27-Feb-25 0 27-Feb-25 7d/w x10 BD - BD processes Form BA13 & Arranging for Inspection 12-Mar-25 7d/w x10 BD - BD processes Form BA13 & Arranging for Inspection WSD-IA-OP03 14 27-Feb-25 12-Mar-25 0 27-Feb-25 BD - Inspection & Rectification Works WSD-IA-OP04 BD - Inspection & Rectification Works 7d/w x10 ■ BD - Issue OP Certificate BD - Issue OP Certificate WSD-IA-OP05 10-Apr-25 23-Apr-25 0 10-Apr-25 23-Apr-25 7d/w x10 Final Inspection & Handover to Client Final Inspection & Handover to Client WSD-IA-OP06 30-Apr-25 0 24-Apr-25 30-Apr-25 7d/w x10 24-Apr-25 Green Roof at Roof Terrace (Second Level) 27-Jun-24 300 19-Sep-24 G.Roof 2/F Level - Construction of Planter Separation WSD-W2-RT01 G.Roof 2/F Level - Construction of Planter Separation 12 24-Jan-24 06-Feb-24 193 19-Sep-24 GRoof 2/F Level - Installation of Irrigation Pipeworks & Irrigation Point WSD-W2-RT02 G.Roof 2/F Level - Installation of Irrigation Pipeworks & Irrigation Point 30 15-Mar-24 213 29-Oct-24 02-Dec-24 6d/w x10 07-Feb-24 GRoof 2/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier G.Roof 2/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier WSD-W2-RT03 20 16-Mar-24 12-Apr-24 219 10-Dec-24 04-Jan-25 6d/w x10 GRoof 2/F Level - Laying of Drainage, Filter; Moisture Retention Membrane. Erosion Protection Mat WSD-W2-RT04 G.Roof 2/F Level - Laying of Drainage, Filter, Moisture Retention Membrane, Erosion Protection Mat 20 07-May-24 219 06-Jan-25 G.Roof 2/F Level - Filling of Soil Laye WSD-W2-RT05 G.Roof 2/F Level - Filling of Soil Layer 18 29-May-24 219 01-Feb-25 21-Feb-25 08-May-24 G.Roof 2/F Level - Vegetation/ Planting WSD-W2-RT06 G.Roof 2/F Level - Vegetation/ Planting 24 27-Jun-24 219 22-Feb-25 21-Mar-25 6d/w x10 GRoof 2/F Level - Installation of Paying Stones on Walkway G.Roof 2/F Level - Installation of Paving Stones on Walkway WSD-W2-RT07 60 09-May-24 193 19-Oct-24 6d/w x10 GRoof 2/F Level - Installation Lighting G.Roof 2/F Level - Installation Lighting 08-Jun-24 319 25-Mar-25 23-Apr-25 7d/w x10 WSD-W2-RT08 Green Roof at Roof Level 26-Aug-24 193 04-Oct-24 ☐ G.Roof R/F Level - Construction of Planter Separation WSD-W2-RI 01 G.Roof R/F Level - Construction of Planter Separation 12 23-Feb-24 193 04-Oct-24 18-Oct-24 6d/w x10 G.Roof R/F Level - Installation of Irrigation Pipeworks & Irrigation Poin G.Roof R/F Level - Installation of Irrigation Pipeworks & Irrigation Point 24-Apr-24 213 03-Dec-24 09-Jan-25 6d/w x10 WSD-W2-RL02 30 G.Roof R/F Level - Laying of Waterproof, Membrane with Protection Screeding & Root Barrier WSD-W2-RL03 G.Roof R/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier 20-May-24 213 10-Jan-25 05-Feb-25 6d/w x10 25-Apr-24 GRoof R/F Level - Laying of Drainage, Filter, Mosture Retention Membrane, Erosion Protection Mat WSD-W2-RL04 G.Roof R/F Level - Laying of Drainage, Filter, Moisture Retention Membrane, Erosion Protection Mat 20 13-Jun-24 213 06-Feb-25 28-Feb-25 G.Roof R/F Level - Filling of Soil Lave WSD-W2-RI 05 G.Roof R/F Level - Filling of Soil Layer 05-Jul-24 213 01-Mar-25 GRoof R/F Level - Turf Laying on Roof WSD-W2-RL06 G.Roof R/F Level - Turf Laying on Roof 24 06-Jul-24 02-Aug-24 213 22-Mar-25 23-Apr-25 6d/w x10 G.Roof R/F Level - Installation of Paving Stones on Walkway WSD-W2-RL07 G.Roof R/F Level - Installation of Paving Stones on Walkway 22-Jul-24 193 31-Dec-24 14-Mar-25 6d/w x10 Milestone Non-Critical Tas



## FIRST PROGRAMME REV. 1 ALL ACTIVITIES





Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

Page 10 of 10 Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg. Date prepared: 11-Feb-22 at 13:13 Activity Name NDJFMAMJJASONDJFMAMJJASONDJFMAMJJJASONDDJFMAMJJASONDJFMAMJJASONDJFMAMJJJASONDJJFMAMJJJASONDJFMAMJJJASONDJ G.Roof R/F Level - Installation Lighting WSD-W2-RL08 G.Roof R/F Level - Installation Lighting 23-Jul-24 26-Aug-24 30-Apr-25 0 24-Jan-24 Courtvard at Ground Level 24-Jan-24 G.Roof G/F Level - Formation of Slope profile (Grid H-M/ 5-9) 22-Mar-24 0 24-Jan-24 WSD-W2-CY01 G.Roof G/F Level - Formaiton of Slope profile (Grid H-M/ 5-9) GRoof G/F Level - Hydroseeding on Slope WSD-W2-CY02 G.Roof G/F Level - Hydroseeding on Slope 30 23-Mar-24 02-May-24 0 23-Mar-24 02-May-24 6d/w x10 G.Roof G/F Level - Concrete Structure incl. Planter/ Bearing Wall/ Bench G.Roof G/F Level - Concrete Structure incl. Planter/ Bearing Wall/ Bench WSD-W2-CY03 29-Jun-24 0 03-May-24 29-Jun-24 6d/w x10 G.Roof G/F Level - Installation of Drainage System at Courtyard G.Roof G/F Level - Installation of Drainage System at Courtyard 48 26-Aug-24 6d/w x10 WSD-W2-CY04 02-Jul-24 26-Aug-24 0 02-Jul-24 G.Roof G/F Level - Installation of Irrigation Pipeworks & Irrigation Poin 48 G.Roof G/F Level - Installation of Irrigation Pipeworks & Irrigation Point 26-Aug-24 0 02-Jul-24 26-Aug-24 6d/w x10 WSD-W2-CY05 02-Jul-24 G.Roof G/F Level - Laving of Watergroof Membrane with Protection Screeding WSD-W2-CY06 G.Roof G/F Level - Laying of Waterproof Membrane with Protection Screeding 09-Oct-24 0 27-Aug-24 09-Oct-24 6d/w x10 G.Roof G/F Level - Soil Placement in Planter (2m depth) WSD-W2-CY07 G.Roof G/F Level - Soil Placement in Planter (2m depth) 36 10-Oct-24 21-Nov-24 0 10-Oct-24 21-Nov-24 GRoof G/F Level - Tree Transplant (39nos) 40 22-Nov-24 10-Jan-25 6d/w x10 WSD-W2-CY08 G.Roof G/F Level - Tree Transplant (39nos) 10-Jan-25 0 22-Nov-24 G.Roof G/F Level - G.Roof G/F Level - Shrub Planting G.Roof G/F Level - G.Roof G/F Level - Shrub Planting 11-Mar-25 0 11-Jan-25 11-Mar-25 6d/w x10 WSD-W2-CY09 48 11-Jan-25 GRoof G/F Level - Hydroseeding on Lawn WSD-W2-CY10 G.Roof G/F Level - Hydroseeding on Lawn 17-Apr-25 0 12-Mar-25 17-Apr-25 6d/w x10 ■ Time Risk Allowance for Activities from WSD-W2-CY01 to WSD-WC-CY-10 WSD-W2-CY10.5 Time Risk Allowance for Activities from WSD-W2-CY01 to WSD-WC-CY-10 18-Apr-25 23-Apr-25 0 18-Apr-25 23-Apr-25 7d/w x10 GRoof G/F Level - Architechural Works/ Balustrade Installation G.Roof G/F Level - Architechural Works/ Balustrade Installation 65 WSD-W2-CY11 02-Jul-24 14-Sep-24 56 05-Sep-24 22-Nov-24 6d/w x10 G Roof G/F Level - Installation of Lighting WSD-W2-CY12 G.Roof G/F Level - Installation of Lighting 30 23-Oct-24 56 23-Nov-24 30-Dec-24 6d/w x10 GRoof G/F Level - Installation of Paving Stones on Walkwa G.Roof G/F Level - Installation of Paving Stones on Walkway 56 31-Dec-24 WSD-W2-CY13 24-Oct-24 I G.Roof G/F Level - Waterproof, External Plaster applied to Retaining Wall WSD-W2-CY14 G.Roof G/F Level - Waterproof, External Plaster applied to Retaining Wall 12 02-Jul-24 15-Jul-24 | 205 | 08-Mar-25 | 21-Mar-25 | 6d/w x10

<b>*</b> *	Milestone	Non-Critical Task
	Near Critical Task	Finished Task
	Critical Task	Tasks Summary
	Time Risk Al.	P6 Hammock

G.Roof G/F Level - Installation of Green Climber System on Retaining Wall

G.Roof G/F Level - Soil Placement around Retaining Wall

G.Roof G/F Level - Vertical Planting on Climber System

G.Roof G/F Level - Final Inspection & Handover to Client

Planned Project Completion

Final Inspection & Handover to Client

Establishment Works

WSD-W2-CY15

WSD-W2-CY16

WSD-W2-CY17

WSD-W2-CY18

WSD-W2-CY19

WSD-W2A-01

WSD-W2A-02





Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

GRoof G/F Level - Installation of Green Climber System on Retaining Wall

Planned Project Completion

GRoof G/F Level - Final Inspection & Handover to Client

Establishment Works

Final Inspection & Handover to Client

I G.Roof G/F Level - Soil Placement around Retaining Wall

GRoof G/F Level - Vertical Planting on Climber System

12

0

16-Jul-24

30-Jul-24

06-Aug-24

24-Apr-25

29-Jul-24

30-Apr-25 0

05-Aug-24 | 205 | 07-Apr-25

12-Aug-24 205 17-Apr-25

30-Apr-25 0 24-Apr-25

365 01-May-25 30-Apr-26 0 01-May-25 30-Apr-26 7d/w x10

6 25-Apr-26 30-Apr-26 0 25-Apr-26 30-Apr-26 7d/w x10

205 | 22-Mar-25 | 05-Apr-25 | 6d/w x10

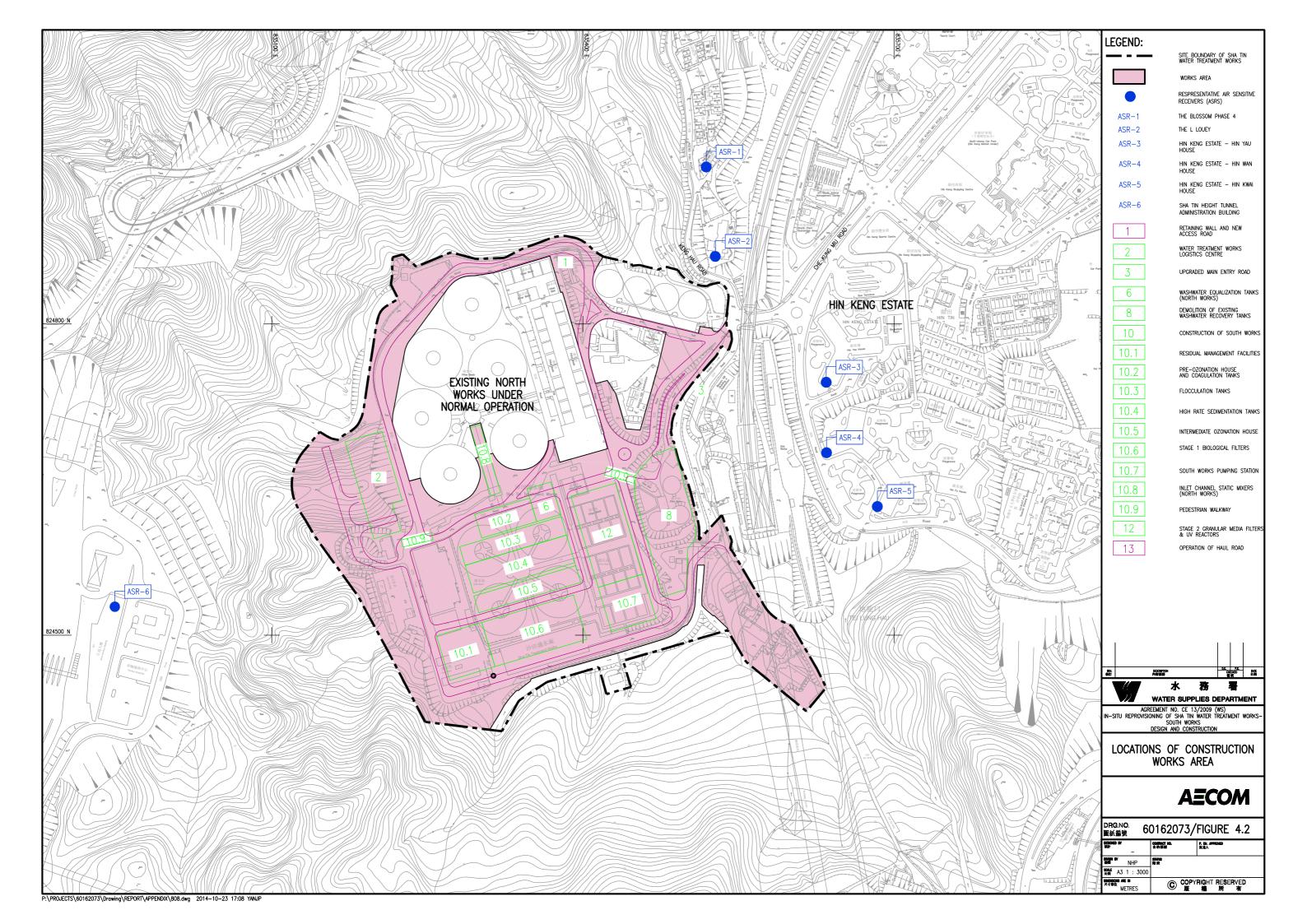
16-Apr-25 6d/w x10

23-Apr-25 6d/w x10

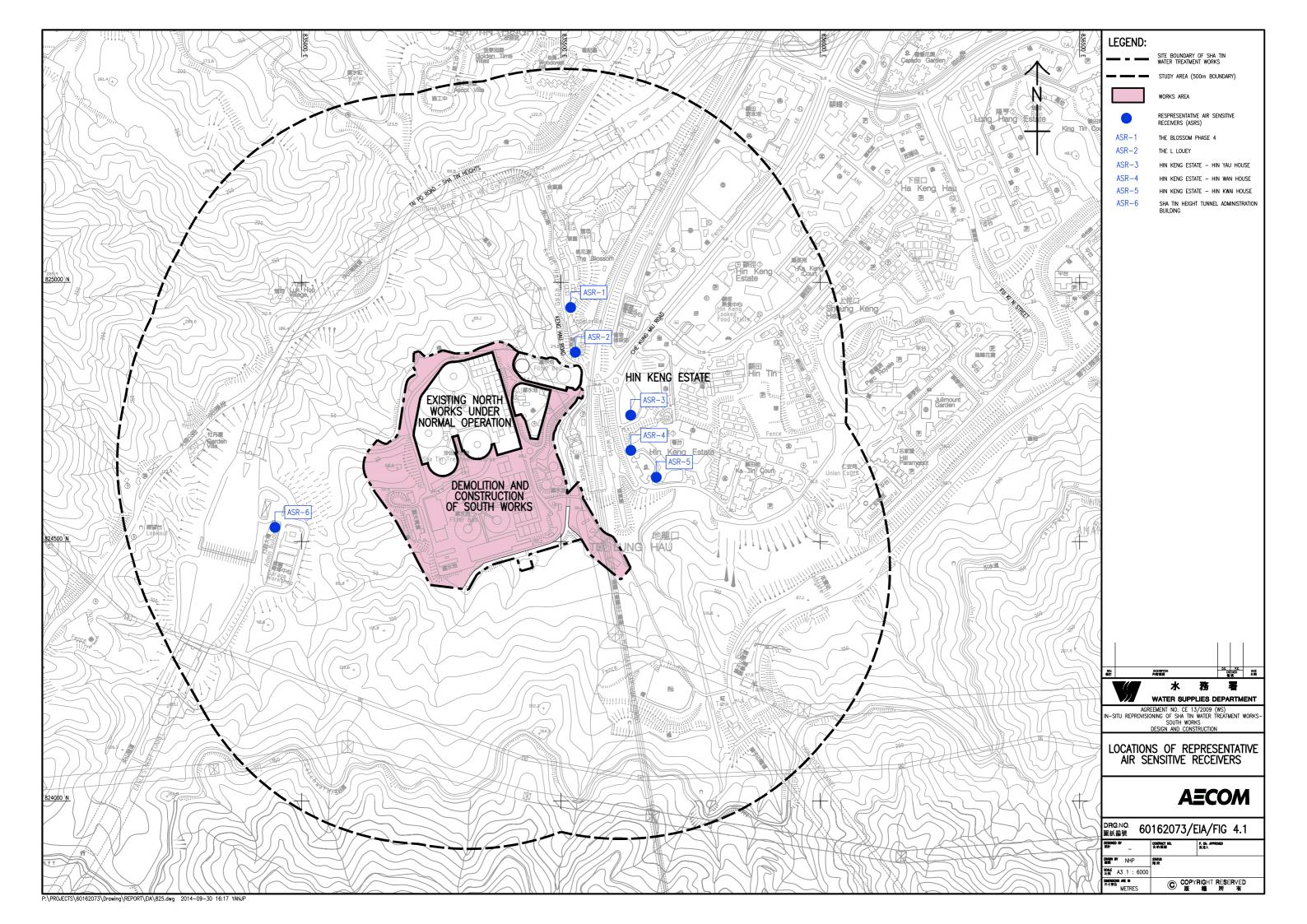
30-Apr-25 7d/w x10

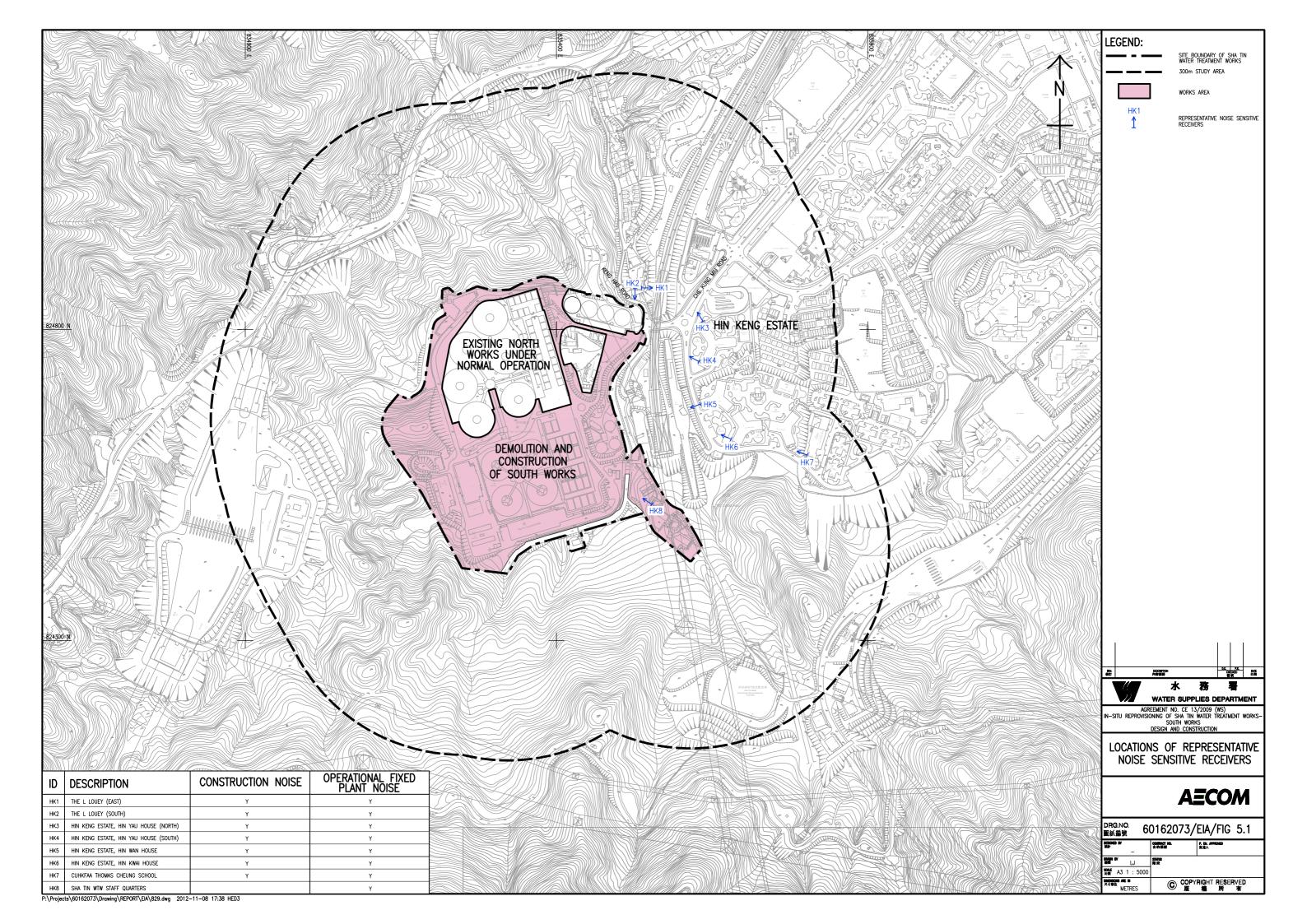
30-Apr-25 7d/w x10

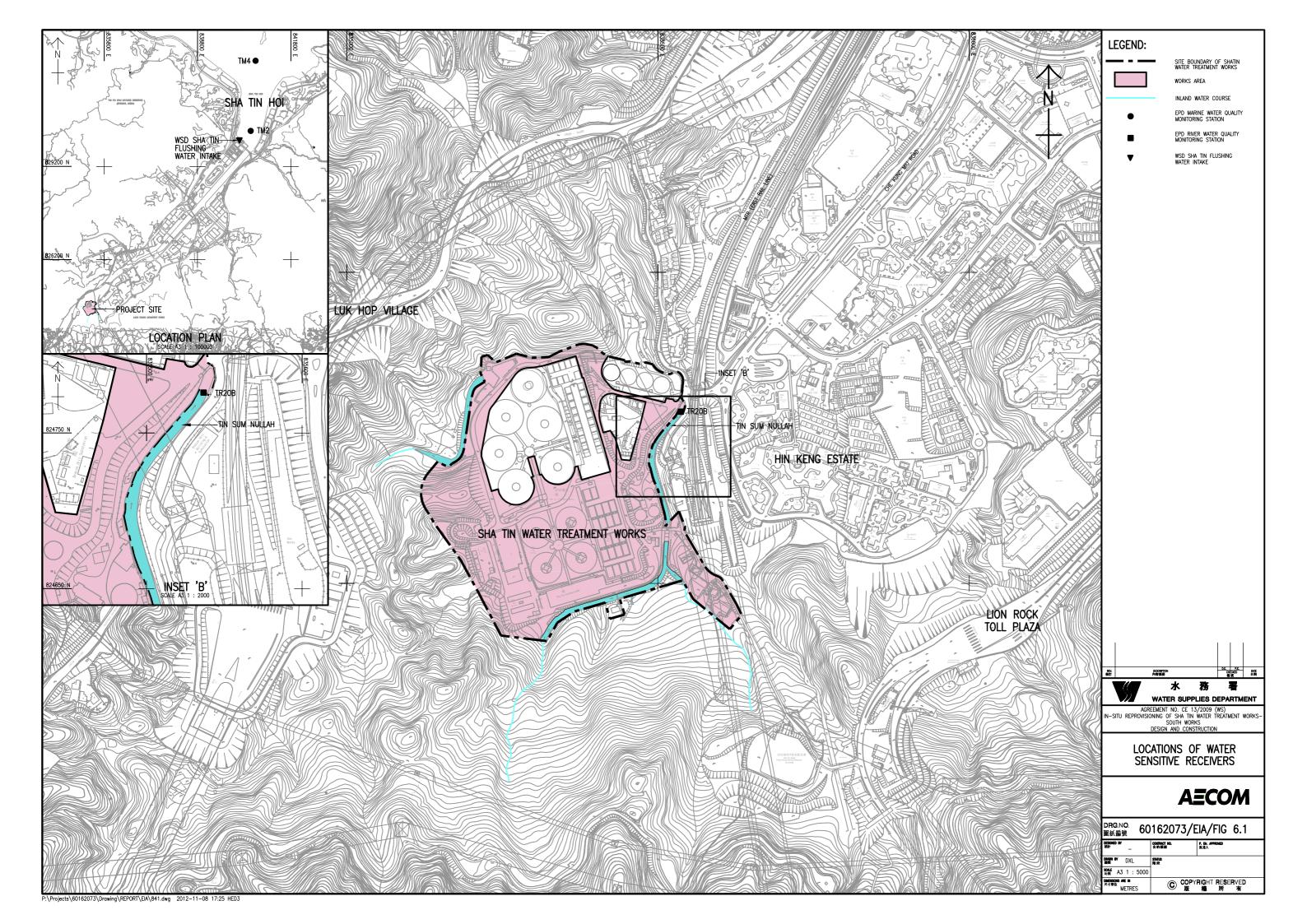
# Appendix D Location of Construction Activities



# Appendix E Environmental Sensitive Receivers in the Vicinity of the Projects







# Appendix F Summary of Action and Limit Levels

#### Determination of Action and Limit Levels for Air Quality

Monitoring Locations	Action Level 1-hour TSP, (μg/m³)	Limit Level 1-hour TSP, (μg/m³)
AM1	357	500
AM2	334	500

#### Determination of Action and Limit Levels for Noise

Monitoring	Action Level	Limit Level in dB(A)			
Location	0700-1900 hours on normal weekdays				
NM1 NM2		For domestic premises: 75 dB(A) for			
	When one documented	NM1 & NM2			
NM3	complaint is received	For schools: 70dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3			

#### Determination of Action and Limit Levels for Water Quality

Water		d Oxygen g/L)	Suspended (mg/		Turbidity	(NTU)	рН	
monitoring stations	Action	Limit	Action	Limit	Action	Limit	Action	Limit
Stations	Level	Level	Level	Level	Level	Level	Level	Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.6 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.6 to 11.0
М3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.6 to 8.7

Remark: For DO, action should be taken when monitoring result of either one of the surface, middle or bottom DO is lower than the proposed Action/Limit Levels.

# Appendix G Event/Action Plan

## Air Quality

FV/FNT	ACTION								
EVENT	ET	IEC	ER	CONTRACTOR					
ACTION LEVEL									
1. Exceedance for one	1. Inform the Contractor, IEC	Check monitoring data	1. Confirm receipt of	1. Identify source(s),					
sample	and ER;	submitted by the ET;	notification of exceedance	investigate the causes of					
	2. Discuss with the	2. Check Contractor's	in writing.	exceedance and propose					
	Contractor on the remedial	working method; and		remedial measures;					
	measures required;	3. Review and advise the ET		2. Implement remedial					
	3. Repeat measurement to	and ER on the effectiveness		measures; and					
	confirm findings; and	of the proposed remedial		3. Amend working methods					
	4. Increase monitoring	measures.		agreed with the ER as					
	frequency.			appropriate.					
2. Exceedance for two or	1. Inform the Contractor, IEC	Check monitoring data	1. Confirm receipt of	1. Identify source and					
more consecutive samples	and ER;	submitted by the ET;	notification of exceedance	investigate the causes					
	2. Discuss with the ER and	2. Check Contractor's	in writing;	of exceedance;					
	Contractor on the remedial	working method; and	2. Review and agree on the	2. Submit proposals for					
	measures required;	3. Review and advise the ET	remedial measures proposed	remedial measures to					
	3. Repeat measurements to	and ER on the effectiveness	by the Contractor; and	the ER with a copy to					
	confirm findings;	of the proposed remedial	3. Supervise implementation	ET and IEC within three					
	4. Increase monitoring	measures.	of remedial measures.	working days of notification;					
	frequency to daily;			3. Implement the agreed					
	5. If exceedance continues,			proposals; and					

	arrange meeting with the			4. Amend proposal as
	IEC, ER and Contractor; and			appropriate.
	6. If exceedance stops,			
	cease additional monitoring.			
LIMIT LEVEL				
Event	ET	IEC	ER	CONTRACTOR
1. Exceedance for one	1. Inform the Contractor,	Check monitoring data	1. Confirm receipt of	1. Identify source(s) and
sample	IEC, EPD and ER;	submitted by the ET;	notification of exceedance	investigate the causes
	2. Repeat measurement to	2. Check the Contractor's	in writing;	of exceedance;
	confirm findings;	working method;	2. Review and agree on the	2. Take immediate action to
	3. Increase monitoring	3. Discuss with the ET, ER	remedial measures proposed	avoid further exceedance;
	frequency to daily; and	and Contractor on possible	by the Contractor; and	3. Submit proposals for
	4. Discuss with the ER, IEC	remedial measures; and	3. Supervise implementation	remedial measures to ER
	and contractor on the	4. Review and advise the ER	of remedial measures.	with a copy to ET and IEC
	remedial measures and	and ET on the effectiveness		within three working days of
	assess the effectiveness.	of Contractor's remedial		notification;
		measures.		4. Implement the agreed
				proposals; and
				5. Amend proposal if
				appropriate.

	ET	IEC	ER	CONTRACTOR
2. Exceedance for two or	1. Notify Contractor, IEC, EPD	1. Check monitoring data	1. Confirm receipt of	1. Identify source(s) and
more consecutive samples	and ER;	submitted by the ET;	notification of exceedance	investigate the causes of
	2. Repeat measurement to	2. Check the Contractor's	in writing;	exceedance;
	confirm findings;	working method;	2. In consultation with the ET	2. Take immediate action
	3. Increase monitoring	3. Discuss with ET, ER, and	and IEC, agree with the	to avoid further exceedance;
	frequency to daily;	Contractor on the potential	Contractor on the remedial	3. Submit proposals for
	4. Carry out analysis of the	remedial measures; and	measures to be	remedial measures to the ER
	Contractor's working procedures	4. Review and advise the ER	implemented;	with a copy to the IEC and
	with the ER to determine	and ET on the effectiveness	3. Supervise the	ET within three working days
	possible mitigation to be	of Contractor's remedial	implementation of remedial	of notification;
	implemented;	measures.	measures; and	4. Implement the agreed
	5. Arrange meeting with the IEC		4. If exceedance continues,	proposals;
	and ER to discuss the remedial		consider what portion of the	5. Revise and resubmit
	measures to be taken;		work is responsible and	proposals if problem still not
	6. Review the effectiveness of		instruct the Contractor to	under control; and
	the Contractor's remedial		stop that portion of work	6. Stop the relevant portion
	measures and keep IEC, EPD		until the exceedance is	of works as determined by
	and ER informed of the results;		abated.	the ER until the exceedance
	and			is abated.
	7. If exceedance stops, cease			
	additional monitoring.			

### Noise

EVENT	ACTION							
EVENI	ET	IEC	ER	CONTRACTOR				
ACTION LEVEL	1. Notify the Contractor, IEC	Review the investigation	1. Confirm receipt of	Investigate the complaint				
	and ER;	results submitted by the	notification of complaint in	and propose remedial				
	2. Discuss with the ER and	Contractor; and	writing;	measures;				
	Contractor on the remedial	2. Review and advise the ET	2. Review and agree on the	2. Report the results of				
	measures required; and	and ER on the effectiveness	remedial measures proposed	investigation to the IEC, ET				
	3. Increase monitoring	of the remedial measures	by the Contractor; and	and ER;				
	frequency to check mitigation	proposed by the Contractor.	3. Supervise implementation	3. Submit noise mitigation				
	effectiveness.		of remedial measures.	proposals to the ER with				
				copy to the IEC and ET				
				within three working days of				
				notification; and				
				4. Implement noise mitigation				
				proposals.				
LIMIT LEVEL	1. Notify the Contractor, IEC,	Check monitoring data	1. Confirm receipt of	Identify source and				
	EPD and ER;	submitted by the ET;	notification of failure in	investigate the causes of				
	2. Repeat measurement to	2. Check the Contractor's	writing;	exceedance;				
	confirm findings;	working method;	2. In consultation with the ET	2. Take immediate action to				
	3. Increase monitoring	3. Discuss with the ER, ET	and IEC, agree with the	avoid further exceedance;				
	frequency;	and Contractor on the	Contractor on the remedial	3. Submit proposals for				
	4. Carry out analysis of	potential remedial measures;	measures to be	remedial measures to the ER				

Contractor's working	and	implemented;	with copy to the IEC and ET
procedures to determine	4. Review and advise the ET	3. Supervise the	within three working days of
possible mitigation to be	and ER on the effectiveness	implementation of remedial	notification;
implemented;	of the remedial measures	measures; and	4. Implement the agreed
5. Arrange meeting with the	proposed by the Contractor.	4. If exceedance continues,	proposals;
IEC and ER to discuss the		consider what portion of the	5. Revise and resubmit
remedial measures to be		work is responsible and	proposals if problem still not
taken;		instruct the Contractor to	under control; and
6. Review the effectiveness		stop that portion of work until	6. Stop the relevant portion
of Contractor's remedial		the exceedance is abated.	of works as determined by
measures and keep IEC,			the ER until the exceedance
EPD and ER informed of the			is abated.
results; and			
7. If exceedance stops,			
cease			

## Water Quality

EVENT		ACTION							
		ET Leader		IEC		ER		CONTRACTOR	
Action level being exceeded	•	Repeat in situ	•	Discuss with ET and	•	Discuss with IEC on the	•	Inform the ER and	
by one sampling day		measurement to		Contractor on the		proposed mitigation		confirm notification of	
		confirm findings;		mitigation measures;		measures;		the non-compliance in	
	•	Identify reasons for	•	Review proposals on	•	Make agreement on the		writing;	
		non-compliance and		mitigation measures		mitigation measures to	•	Rectify unacceptable	
		source(s) of impact;		submitted by		be implemented.		practice;	
	•	Inform IEC and		Contractor and advise	•	Assess the	•	Check all plant and	
		Contractor;		the ER accordingly;		effectiveness of the		equipment;	
	•	Check monitoring data,	•	Assess the		implemented mitigation	•	Consider changes of	
		all plant, equipment		effectiveness of the		measures.		working methods;	
		and Contractor's		Implemented mitigation			•	Discuss with ET and	
		working methods;		measures.				IEC and propose	
	•	Discuss mitigation						mitigation measures to	
		measures with IEC and						IEC and ER;	
		Contractor;					•	Implement the agreed	
	•	Repeat measurement						mitigation measures.	
		on next day of							
		exceedance.							

		ET Leader		IEC		ER		CONTRACTOR
Action level being exceeded	•	Repeat in situ	•	Discuss with ET and	•	Discuss with IEC on the	•	Inform the ER and
by more than one		measurement to		Contractor on the		proposed mitigation		confirm notification of
consecutive sampling day		confirm findings;		mitigation measures;		measures;		the non-compliance in
	•	Identify reasons for	•	Review proposals on	•	Make agreement on the		writing;
		non-compliance and		mitigation measures		mitigation measures to	•	Rectify unacceptable
		source(s) of impact;		submitted by		be implemented;		practice;
	•	Inform IEC and		Contractor and advise	•	Assess the	•	Check all plant and
		Contractor;		the ER accordingly;		effectiveness of the		equipment;
	•	Check monitoring data,	•	Assess the		implemented mitigation	•	Consider changes of
		all plant, equipment		effectiveness of the		measures.		working methods;
		and Contractor's		implemented mitigation			•	Discuss with ET and
		working methods;		measures.				IEC and propose
	•	Discuss mitigation						mitigation measures to
		measures with IEC and						IEC and ER within
		Contractor;						three working days;
	•	Ensure mitigation					•	Implement the agreed
		measures are						mitigation measures.
		implemented;						
	•	Prepare to increase the						
		monitoring frequency to						
		daily;						

	Repeat measurement			
	on next day of			
	exceedance.			
	ET Leader	IEC	ER	CONTRACTOR
Limit level being	Repeat in situ	Discuss with ET and	Discuss with IEC, ET	Inform the ER and
exceeded by one	measurement to	Contractor on the	and Contractor on the	confirm notification of
sampling day	confirm findings;	mitigation measures;	proposed mitigation	the non-compliance in
	<ul> <li>Identify reasons for</li> </ul>	Review proposals on	measures;	writing;
	non-compliance and	mitigation measures	Request Contractor to	Rectify unacceptable
	source(s) of impact;	submitted by	critically review the	practice;
	Inform IEC Contractor	Contractor and advise	working methods;	Check all plant and
	and EPD;	the ER accordingly;	Make agreement on the	equipment;
	Check monitoring data,	Assess the	mitigation measures to	Consider changes of
	all plant, equipment	effectiveness of the	be implemented;	working methods;
	and Contractor's	implemented mitigation	Assess the	Discuss with ET, IEC
	working methods;	measures.	effectiveness of the	and ER and propose
	Discuss mitigation		implemented mitigation	mitigation measures to
	measures with IEC, ER		measures.	IEC and ER within
	and Contractor;			three working days;
	Ensure mitigation			Implement the agreed
	measures are			mitigation measures.
	implemented;			

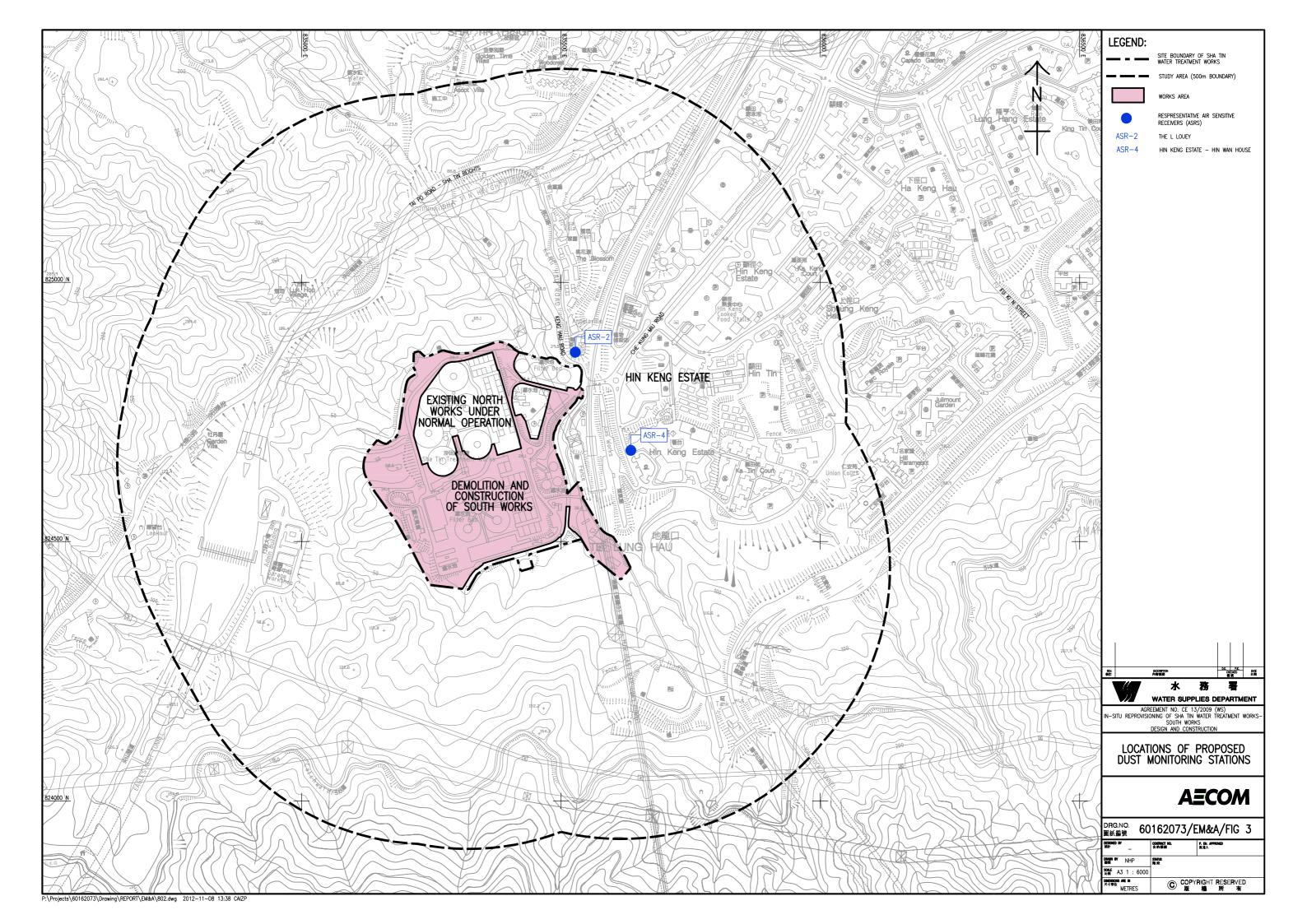
	Increase the monitoring     frequency to daily until     no exceedance of Limit     level.			
	ET Leader	IEC	ER	CONTRACTOR
Limit level being	Repeat in situ	Discuss with ET and	<ul> <li>Discuss with IEC, ET</li> </ul>	<ul> <li>Inform the ER and</li> </ul>
exceeded by more	measurement to	Contractor on the	and Contractor on the	confirm notification of
than one	confirm findings;	mitigation measures;	proposed mitigation	the non-compliance in
consecutive	<ul> <li>Identify reasons for</li> </ul>	Review proposals on	measures;	writing;
sampling day	non-compliance and	mitigation measures	Request Contractor to	Rectify unacceptable
	source(s) of impact;	submitted by	critically review the	practice;
	Inform IEC Contractor	Contractor and advise	working methods;	Check all plant and
	and EPD;	the ER accordingly;	Make agreement on the	equipment;
	<ul> <li>Check monitoring data,</li> </ul>	Assess the	mitigation measures to	Consider changes of
	all plant, equipment	effectiveness of the	be implemented;	working methods;
	and Contractor's	implemented mitigation	Assess the	Discuss with ET, IEC
	working methods;	measures.	effectiveness of the	and ER and propose
	Discuss mitigation		implemented mitigation	mitigation measures to
	measures with IEC, ER		measures;	IEC and ER within
	and Contractor;		Consider and instruct, if	three working days;
	Ensure mitigation		necessary, the	Implement the agreed
	measures are		Contractor to slow	mitigation measures;

implemented; Increase	down or to stop all or	As directed by the ER,
the monitoring	part of the construction	to slow down or to stop
frequency to daily until	activities until no	all or part of the
no exceedance of Limit	exceedance of Limit	construction activities.
level for two	level.	
consecutive days.		

## Appendix H Impact Monitoring Schedules

			Impact Monitoring Schedule for	STWTW		
Cura	IMag	Tuo	Nov-23	lth	Ima:	IC at
Sun	Mon	Tue		Thu <b>2</b>	Fri 3	Sat 4
			ı	2	3	4
			Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 & AM2  Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
5	6	7	8	9	10	11
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
12	13	14	15	16	17	18
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
19	20	21	22	23	24	25
	Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact
26	27	28	29	30		
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3			

## Appendix I Location Plan of Air Quality Monitoring Station



# Appendix J Calibration Certificates (Air Monitoring)





This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

### Methods Used in Calibration and Testing

#### Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is +/-1.04% within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and +/-1.66% within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

#### Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of +/- 0.05 °C.

#### **Direction / Heading**

The sensitivity of the magnetic directional sensor is verfied at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within +/- 5 degrees.

#### **Relative Humidity:**

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.2% RH.

#### **Barometric Pressure:**

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.02% F.S.

Approved By:

Michael Naughton, Engineering Manager

SENSOR	1000	2000	2500	3000	3500	3500	4000	4200	4250	4300	4400	4500	4500	ACCURACY (+/-)*	SENSO	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed   Air Flow	•	•	•	•	•	•	•	•	•	•	•	•	HOR	Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 0.1 knots 1 B	0.6 to 40.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 77.8 knots 0 to 12 B	0.6 to 60.0 m/s 118 to 11,811 ft/min 2.2 to 216.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 km/ts 0 to 12.8	Inch/25 mm diameter impeller with precision axis and low-friction Zystell bearings. Startup is stated as lower limit, readings may be taken down to 0.4 mis [78 ftmm] [1.5 kmh] [9 mph], after impeller startup, Off-asis accuracy -1% @ 5° off-axis; 2% @ 10° -35% @ 15° -Cashrid erf. 1 1% darb 10 hous use at 10 MB/17 mis. Repicement repoler (NR PH-2005) field installs without took (US Plainet C, 783 755). Whird speed calibration and testing about to be down thratige) on might in loaded at the MB/18 report face of the Nesting about to be down thratige) on might in loaded at the MB/18 report face of the Nesting about the down thratige on might in Loaded at the MB/18 report face of the Nesting about the down thratige on might in Loaded at the MB/18 report face of the Nesting about the down through the MB/18 report face of the Nesting about the
Ambient Temperature					٠	•					•		•	0.9*F 0.5*C	0.1 *F 0.1 *C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14.0.0 to 131.0 'F -10.0 to 55.0 °C	Hermitically-sealed, practision thermition mounted externally and thermally isolated. US Pair 5.358.665 for rapid response. Author of 2.2 mpc/1 mis or greater provides fastest response fastest reproduce fastest response fastest
Globe Temperature - Tg											•			*F 1.4 *C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in 25 mm black powder coated copper globe converted to Tg equivalen standard 6 in 150 mm globe. Closest equivalence obtained with airflow greater than 2.2 mph m/s.
Relative Humidity											•			3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rap accurate response (US Patent 6,257,074). To achieve stated accuracy, unit must be primit qualibate to external temperature when exposed to large, rapid temperature changes and out of direct suright. Calibration drift +7-2% over 24 months. Htm.Pdf sensor may be recall at factory or in fedular days restrict thing. Calibration Rns. Htm.Pdf 502.
Pressure			٠	23.5			•		٠				•	inHg 1.0 hPalmbar 0.01 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1100.0 hPajmbar 4.35 to 15.95 PSI and 32.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1654.7 hPalmbar 0.14 to 24.00 PSI and 14.0 to 131.0 "F -10.0 to 55.0 "C	Monofilhic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be reclaimbed of factory in field. Adjustate interiore attitude as display of station pressure or transmitic pressure connected to MSL. Kestelle 4200 displays station pressure or a dedicated screen. Relatele 2500 and 3500 displays station pressure or an edicated screen. Relatele 2500 and 3500 displays continuously update three-hour later matter pressure the related to relating station. Post displays pressure trend through graphing function. POI display on Kestel 4000 berlies only.
Compass												•		5*	1* 1/16th Cardinal Scale	0 to 360°	0 to 360°	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unifs vertical position. Self-calibration routine eliminates magnetic el from batteries or unit and must be run after verey full power-down (battery removal or chair. Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declaration brown size in deglarable for Tixe North readout.
														CALCUL	ATED ME	ASUREMENTS		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density	i jen	191		W	133	17	194	•	•		43	3	3,51	0.0002 lb/ft <sup>3</sup> 0.0033 kg/m <sup>3</sup>	0.001 lbs/ft <sup>3</sup> 0.001 kg/m <sup>3</sup>	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow								•	-					6.71%	1 cfm 1 m²/hr 1 m²/m 0.1m²/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measure and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in   21.5 ft   655.3 cm   6.55 m.
Altitude														typical: 23.6 ft 7.2 m max: 48.2 ft	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to mBar.
Barometric Pressure					•	٠	٠							14.7 m 0.07 inHg 2.4 hPa mbar 0.03 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	Air pressure that would be present in identical conditions at MSL. Station pressure compens for local elevation provided by reference altitude. Requires accurate reference altitude to proximum absolute accuracy.
Crosswind & Headwind/Tailwind														7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwindfallwind indical
Delta T														3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicat evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9
Density Altitude	JA L				1000									226 ft	1 ft	Refer to Ranges for	Pressure Temperature Relative Humidity	Local air density converted to equivalent elevation above sea level in a uniform layer consis
Denaity Autitude						101								69 m	1 m	Sensors Employed 15 to 95 % RH	Pressure	the International Standard Atmosphere.  Temperature that a volume of air must be cooled to at constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the cooled to a constant press
Dewpoint				•	•	•	•		•	•	•	•	•	1.9 °C	0.1 °C	Refer to Range for Temperature Sensor	Temperature Relative Humidity	present to condense into dewand form on a solid surface. Can also be considered to be the water-to-air saturation temperature.
Evaporation Rate														0.01 lib/ft²/hr 0.06 kg/m2/hr	0.01 b/ft²/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or grobe thermoreter (F or TC, not include). Readings should be taken 20 inches above pour surface with the thermistor shaded, and averaged for 6-10 seconds using built-in averaging function.
Heat Index	7.1	10	•	•	٠	23.54	٠	•	•	•	•	٠		7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Perceived temperature resulting from the combined effect of temperature and relative humic Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content   Humidity Ratio ("Grains")									•					.3 gpp .04 g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density					247	177	1			100				0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	The ratio, expressed as a percentage, of measured air density to the air density of a standa atmosphere as defined by the ICAO.
hermal Work Limit (TWL)						La P	13.	100	1 98		•			10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity Pressure	armospere as connect or excession of the Control of the Control of the Conditions and coloring factors. Based off of estimated metabolic cutput of typical human. O screen zone varings.
Outdoor Wet Bulb Globe Temperature (WBGT)								198	1,11					1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity	Measure of human heat stress defined as the combination of effects due to radiation, convi and conduction. Outdoor WBGT is calculated from a veighted sum of natural web bull. Or the globe temperature (Tg), and dry bulb temperature (Td). User setable on-screen varning zo
Wet Bulb Temperature - aturally Aspirated (Tnwb)			1812			THE P	re-	a is	3 19	e de la composition della comp	•	10 145	201	1.4 °F 0.8 °C	0.1 *F 0.1 *C	Refer to Ranges for Sensors Employed	Pressure  Wind Speed  Temperature  Globe Temperature  Relative Humidity	Similar to psychrometric wer-bubl temperature (see below). However, Trivib only undergoes convection from the arrisent air velocity. Trivib is a measure of the evaporative cooling that will allow. This is accounted for by combring the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric		7.00	S 140	18.21										3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Temperature Relative Humidity	Temperature indicated by a sling psychrometer. Due to nature of the psychrometric ratio for water-air system, this approximates the thermodynamic web-bulb temperature. The thermody web-bulb temperature is the temperature approach of air would have if cooled adiabatically to
Wind Chill	LW.	•	•						·					1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature	saturation temperature via water evaporating into it.  Perceived temperature resulting from combined effect of wind speed and temperature. Calcibased on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed all by a factor of 1.5 to wide devalvant results to wind speed measured at 10 m above cround.
C. 1 of 5U.			O.Y	(A)	133	901	1653	2423	MA			90		RESERVATION OF	The least			Measurement range limited by extent of published tables.
													2006	Reflective 3 1/2 digit LC	D. Digit height 0:38 in	CIFICATIONS  19 mm. Aviation green electro	luminescent backlight. Manual activation	on with auto-off.
Display & Backlight			•			•	•				•	•		Multifunction, multi-digit	monochrome dot-matri	x display. Choice of aviation	green or visible red (NV models only) of	uminescent backlight. Manual activation with auto-off. electroluminescent backlight. Automatic or manual activation.
Response Time & Display Update		•	•				•	•	•	•	•	•	•	equilibrate to a large cha	ange in the measureme	event environment. Display update ant environment. Display update t and Average Wind measure	tes every 1 second.	nd all measurements which include RH in their calculation may require as long as 1 minute to f
Max/Avg Wind							•	•			•							with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBC
ata Storage & Graphical Display, Min/Max/Avg History									3200 points					Minimum, maximum, ave	erage and logged histo re interval settable from	ry stored and displayed for ew n 2 seconds to 12 hours, oven	ery measured value. Large capacity di write on or off. Logs even when displa	ata logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be re y off except for 2 and 5 second intervals (code version 4.18 and later). Data capacity shown.
ta Upload & Bluetooth® Data Connect Option										•	•	•		Bluetooth Data Trans	fer Option: Adjustable		io range from up to 30 ft   9 meters. Inc	fividual unit ID and 4-digit PIN code preprogrammed for easy identification and data security w
Clock / Calendar	•	٠	•	•	•									Requires optional PC in	terface (USB or RS-23	rial Port Protocol for data trans 32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	
Auto Shutdown	٠	٠	•	•	•	•								Requires optional PC in	terface (USB or RS-23	<ul> <li>32) or Bluetooth data transfer</li> <li>32) or Bluetooth data transfer</li> <li>32) or Bluetooth data transfer</li> </ul>	option and provided software.	
Languages Certifications	•			•		•							•	English, French, Germa	n, Italian, Spanish.		ble standards (written certificate of tes	ts available at additional charge).
Origin Battery Life	•	•	:	:			•		٠	•	•	•	•	Designed and manufact CR2032, one, included.	ured in the USA from I Average life, 300 hour	JS and imported components. s. Battery life reduced by back	Complies with Regional Value Content klight use in 2000 to 3500 models.	t and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
Shock Resistance	•					•	•	•			•	:		Standard Models: AA MIL-STD-810g, Transit	A Alkaline, two, include Shock, Method 516.5	d. Average life, 400 hours of u	use, reduced by backlight or Bluetooth t may damage replaceable impeller.	radio transmission use.
Sealing	•					•	•		•		•	•		Waterproof (IP67 and N 14° F to 131° F   -10 °C	EMA-6). to 55 °C Measureme	nts may be taken beyond the li	imits of the operational temperature ra	nge of the display and batteries by maintaining the unit within the operational range and expos
Operational Temperature			575	CONTRACTOR OF STREET			J. S. S.	200			THE R		1	to the more extreme env	ironment for the minim	num time necessary to take rea	ading.	
Operational Temperature Limits Storage Temperature		•	•	•							•			-22.0 °F to 140.0 °F   -3	0.0 °C to 60.0 °C	102 g (including slip-on cover)		

<sup>\*</sup> NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the comined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2\(\mathbb{Z}\)).





#### PC-3A(E) K-Factor Verification Test by Total Suspended Particulates HVS Test Report

#### Information of Calibrated Equipement

Verification Test Date:	1-Mar-23	to	2-Mar-23		Next Verification Test Date:	2-Mar-24
Jnit-under-Test- Model No.:		PC-3A(E)		_		
Unit-under-Test Serial No.:		JC-2002223				
Our Report Refrence No.:	RF	PT-23-HVS-00	)48	_		
Calibration Location:				Emax		

#### **Standard Equipment Information**

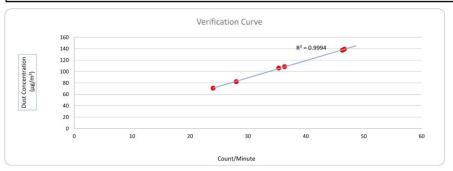
Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator
Standard Equipment Model No.:	TE-5170X	TE-5025A
Equipment serial no.:	1049	3465
Last Calibration Date:	1-Mar-23	28-Jun-22
Next Calibration Date:	30-Apr-23	27-Jun-23

#### **Equipement Vertification Result**

Verification			Duration		Results from C	alibrated Equipement	Results from Standard Equipment
Test No.	Date	Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration (μg/m³) y-axis
1	1/3/2023	5013.27	5016.34	184.20	8596	47	139
2	1/3/2023	5016.34	5019.34	180.00	6540	36	109
3	1/3/2023	5019.34	5022.34	180.00	8340	46	137
4	2/3/2023	5022.34	5025.34	180.00	5040	28	82
5	2/3/2023	5025.34	5028.34	180.00	4320	24	71
6	2/3/2023	5028.34	5031.34	180.00	6360	35	106

#### Linear Regression of y on x





Operated By:

Andy Li Project Technician, Environmental

Date: 02-03-2023

Checked By:

Tandy Tse
Senior Consultant, Environmental

Date: 02-03-2023





#### PC-3A(E) K-Factor Verification Test by Total Suspended Particulates HVS Test Report

#### Information of Calibrated Equipement

Verification Test Date:	8-Apr-23	to	9-Apr-23		Next Verification Test Date:	8-Apr-24
Unit-under-Test- Model No.:		PC-3A(E)		_	_	
Unit-under-Test Serial No.:		JC-2105804		_		
Our Report Refrence No.:	RI	PT-23-HVS-00	132	_		
Calibration Location:				Emax		

#### Standard Equipment Information

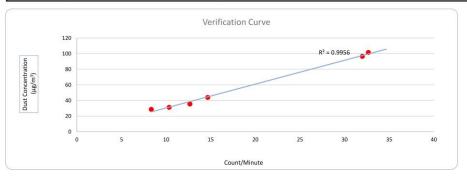
	Verification Equipment Type:	Tisch TSP HVS	Tisch HVS Calibrator	
1	Standard Equipment Model No.:	TE-5170X	TE-5028A	
1	Equipment serial no.:	1049	3702	
1	Last Calibration Date:	8-Apr-23	31-Mar-23	
1	Next Calibration Date:	7-Jun-23	30-Mar-24	

#### **Equipement Vertification Result**

Verification			Duration		Results from C	Calibrated Equipement	Results from Standard Equipment
Test No.	Date	Start-time	End-time	Elapsed Time (in min)	Total Counts	Counts/ Minute x-axis	Dust Concentration (μg/m³) y-axis
1	8/4/2023	7339.85	7342.85	180.00	2640	15	44
2	8/4/2023	7342.85	7345.85	180.00	2280	13	36
3	8/4/2023	7345.85	7348.85	180.00	5760	32	97
4	9/4/2023	7349.74	7352.74	180.00	1500	8	29
5	9/4/2023	7352.76	7355.76	180.00	1860	10	31
6	9/4/2023	7355.77	7358.77	180.00	5880	33	102

#### Linear Regression of y on x

Slope, K factor: <u>3.0528</u>	Intercept:	-0.0510	*Correlation Coefficient,R:	0.9978
Verification Test Result: Strong Correlation, Resul	ts were accepted.	* If	the Correlation Coefficient, R is <0.5. Checkin	ng and Re-verification are required.



Operated By:

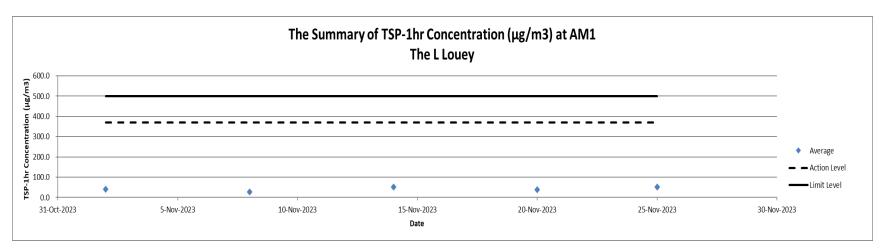
Andy Li Project Technician, Environmental Date: 10-04-2023

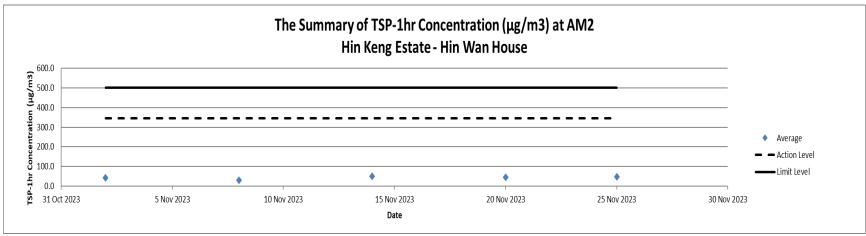
Checked By:

Tandy Tse
Senior Consultant, Environmental

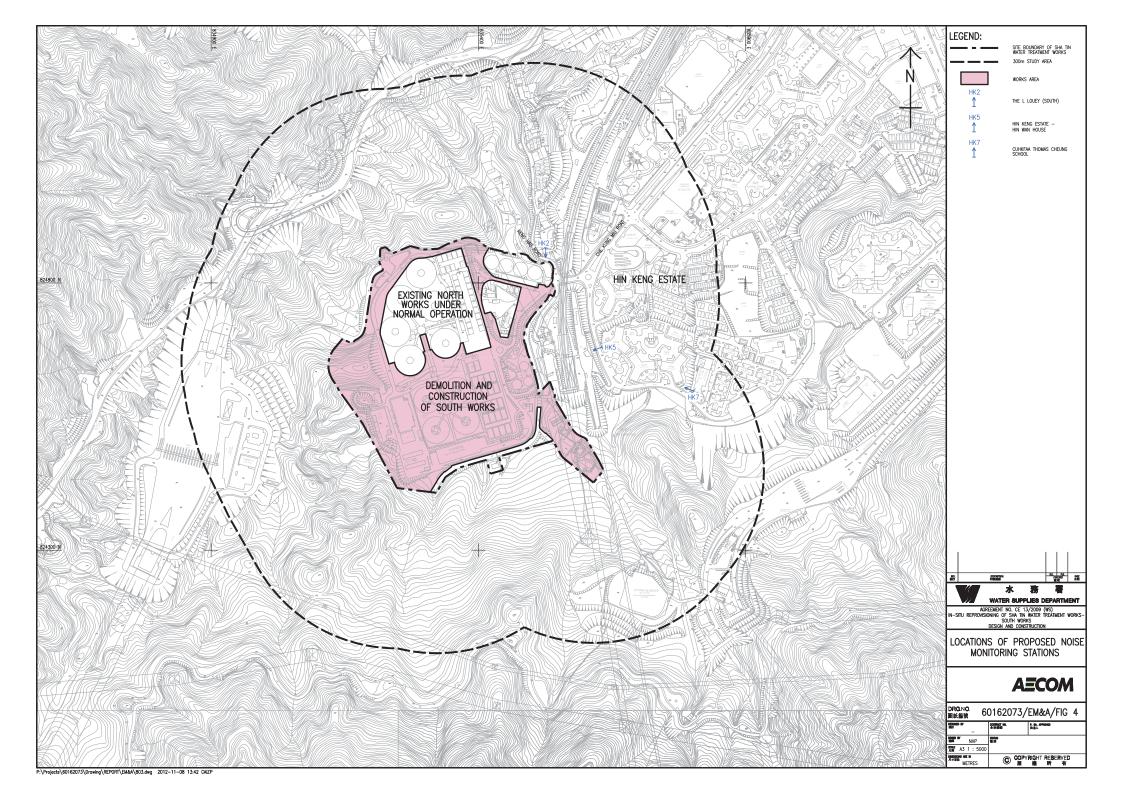
Date: 10-04-2023

# Appendix K Impact Air Quality Monitoring Results and Graphical Presentation





### Appendix L Location Plan of Noise Monitoring Station



# Appendix M Calibration Certificates (Noise)





This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

### Methods Used in Calibration and Testing

#### Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is +/-1.04% within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and +/-1.66% within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

#### Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of +/- 0.05 °C.

#### **Direction / Heading**

The sensitivity of the magnetic directional sensor is verfied at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within +/- 5 degrees.

#### **Relative Humidity:**

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.2% RH.

#### **Barometric Pressure:**

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.02% F.S.

Approved By:

Michael Naughton, Engineering Manager

SENSOR	1000	2000	2500	3000	3500	3500	4000	4200	4250	4300	4400	4500	4500	ACCURACY (+/-)*	SENSO	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed   Air Flow	•	•	•	•	•	•	•	•	•	•	•	•	HOR	Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 0.1 knots 1 B	0.6 to 40.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 77.8 knots 0 to 12 B	0.6 to 60.0 m/s 118 to 11,811 ft/min 2.2 to 216.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 km/ts 0 to 12.8	Inch/25 mm diameter impeller with precision axis and low-friction Zystell bearings. Startup is stated as lower limit, readings may be taken down to 0.4 mis [78 ftmm] [1.5 kmh] [9 mph], after impeller startup, Off-asis accuracy -1% @ 5° off-axis; 2% @ 10° -35% @ 15° -Cashrid erf. 1 1% darb 10 hous use at 10 MB/17 mis. Repicement repoler (NR PH-2005) field installs without took (US Plainet C, 783 755). Whird speed calibration and testing about to be down thratige) on might in loaded at the MB/18 report face of the Nesting about to be down thratige) on might in loaded at the MB/18 report face of the Nesting about the down thratige on might in Loaded at the MB/18 report face of the Nesting about the down thratige on might in Loaded at the MB/18 report face of the Nesting about the down through the MB/18 report face of the Nesting about the
Ambient Temperature					٠	•					•		•	0.9*F 0.5*C	0.1 *F 0.1 *C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14.0.0 to 131.0 'F -10.0 to 55.0 °C	Hermitically-sealed, practision thermition mounted externally and thermally isolated. US Pair 5.358.665 for rapid response. Author of 2.2 mpc/1 mis or greater provides fastest response fastest reproduce fastest response fastest
Globe Temperature - Tg											•			*F 1.4 *C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in 25 mm black powder coated copper globe converted to Tg equivalen standard 6 in 150 mm globe. Closest equivalence obtained with airflow greater than 2.2 mph m/s.
Relative Humidity											•			3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rap accurate response (US Patent 6,257,074). To achieve stated accuracy, unit must be primit qualibate to external temperature when exposed to large, rapid temperature changes and out of direct suright. Calibration drift +7-2% over 24 months. Htm.Pdf sensor may be recall at factory or in fedular days restrict thing. Calibration Rns. Htm.Pdf 502.
Pressure			٠	23.5			•		٠				•	inHg 1.0 hPalmbar 0.01 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1100.0 hPajmbar 4.35 to 15.95 PSI and 32.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1654.7 hPalmbar 0.14 to 24.00 PSI and 14.0 to 131.0 "F -10.0 to 55.0 "C	Monofilhic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be reclaimbed of factory in field. Adjustate interiore attitude as display of station pressure or transmitic pressure connected to MSL. Kestelle 4200 displays station pressure or a dedicated screen. Relatele 2500 and 3500 displays station pressure or an edicated screen. Relatele 2500 and 3500 displays continuously update three-hour later matter pressure the related to relating station. Post displays pressure trend through graphing function. POI display on Kestel 4000 berlies only.
Compass												•		5*	1* 1/16th Cardinal Scale	0 to 360°	0 to 360°	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unifs vertical position. Self-calibration routine eliminates magnetic el from batteries or unit and must be run after verey full power-down (battery removal or chair. Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declaration brown size in deglarable for Tixe North readout.
														CALCUL	ATED ME	ASUREMENTS		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density	i jen	191		W	133	17	194	•	•		43	3	3,51	0.0002 lb/ft <sup>3</sup> 0.0033 kg/m <sup>3</sup>	0.001 lbs/ft <sup>3</sup> 0.001 kg/m <sup>3</sup>	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow								•	-					6.71%	1 cfm 1 m²/hr 1 m²/m 0.1m²/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measure and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in   21.5 ft   655.3 cm   6.55 m.
Altitude														typical: 23.6 ft 7.2 m max: 48.2 ft	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to mBar.
Barometric Pressure					•	٠	٠							14.7 m 0.07 inHg 2.4 hPa mbar 0.03 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	Air pressure that would be present in identical conditions at MSL. Station pressure compens for local elevation provided by reference altitude. Requires accurate reference altitude to proximum absolute accuracy.
Crosswind & Headwind/Tailwind														7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwindfallwind indical
Delta T														3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicat evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9
Density Altitude	JA L				1000									226 ft	1 ft	Refer to Ranges for	Pressure Temperature Relative Humidity	Local air density converted to equivalent elevation above sea level in a uniform layer consis
Denaity Autitude						101								69 m	1 m	Sensors Employed 15 to 95 % RH	Pressure	the International Standard Atmosphere.  Temperature that a volume of air must be cooled to at constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the water vaporate to the cooled to a constant pressure for the cooled to a constant press
Dewpoint				•	•	•	•		•	•	•	•	•	1.9 °C	0.1 °C	Refer to Range for Temperature Sensor	Temperature Relative Humidity	present to condense into dewand form on a solid surface. Can also be considered to be the water-to-air saturation temperature.
Evaporation Rate														0.01 lib/ft²/hr 0.06 kg/m2/hr	0.01 b/ft²/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or grobe thermoreter (F or TC, not include). Readings should be taken 20 inches above pour surface with the thermistor shaded, and averaged for 6-10 seconds using built-in averaging function.
Heat Index	7.1	10	•	•	٠	23.54	٠	•	•	•	•	٠		7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Perceived temperature resulting from the combined effect of temperature and relative humic Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content   Humidity Ratio ("Grains")									•					.3 gpp .04 g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density					247	177	1			100				0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	The ratio, expressed as a percentage, of measured air density to the air density of a standa atmosphere as defined by the ICAO.
hermal Work Limit (TWL)						La P	13.	100	1 98		•			10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity Pressure	armospere as connect or excession of the Control of the Control of the Conditions and coloring factors. Based off of estimated metabolic cutput of typical human. O screen zone varings.
Outdoor Wet Bulb Globe Temperature (WBGT)								198	1,11					1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity	Measure of human heat stress defined as the combination of effects due to radiation, convi and conduction. Outdoor WBGT is calculated from a veighted sum of natural web bull. Or the globe temperature (Tg), and dry bulb temperature (Td). User setable on-screen varning zo
Wet Bulb Temperature - aturally Aspirated (Tnwb)			1812			THE P	re-	a is	3 19	e de la composition della comp	•	10 145	201	1.4 °F 0.8 °C	0.1 *F 0.1 *C	Refer to Ranges for Sensors Employed	Pressure  Wind Speed  Temperature  Globe Temperature  Relative Humidity	Similar to psychrometric wer-bubl temperature (see below). However, Trivib only undergoes convection from the arrisent air velocity. Trivib is a measure of the evaporative cooling that will allow. This is accounted for by combring the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric		7.00	S 140	18.20										3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Temperature Relative Humidity	Temperature indicated by a sling psychrometer. Due to nature of the psychrometric ratio for water-air system, this approximates the thermodynamic web-bulb temperature. The thermody web-bulb temperature is the temperature approach of air would have if cooled adiabatically to
Wind Chill	LW.	•	•						· h					1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature	saturation temperature via water evaporating into it.  Perceived temperature resulting from combined effect of wind speed and temperature. Calcibased on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed all by a factor of 1.5 to wide devalvant results to wind speed measured at 10 m above cround.
C. 1 of 5U.			O.Y	<b>1631</b>	133	901	1653	2423	MA			90		RESERVATION OF	The least			Measurement range limited by extent of published tables.
													2006	Reflective 3 1/2 digit LC	D. Digit height 0:38 in	CIFICATIONS  19 mm. Aviation green electro	luminescent backlight. Manual activation	on with auto-off.
Display & Backlight			•			•	•				•	•		Multifunction, multi-digit	monochrome dot-matri	x display. Choice of aviation	green or visible red (NV models only) of	uminescent backlight. Manual activation with auto-off. electroluminescent backlight. Automatic or manual activation.
Response Time & Display Update		•	•				•	•	٠	•	•	•	•	equilibrate to a large cha	ange in the measureme	event environment. Display update ant environment. Display update t and Average Wind measure	tes every 1 second.	nd all measurements which include RH in their calculation may require as long as 1 minute to f
Max/Avg Wind							•	•			•	٠						with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBC
ata Storage & Graphical Display, Min/Max/Avg History									3200 points					Minimum, maximum, ave	erage and logged histo re interval settable from	ry stored and displayed for ew n 2 seconds to 12 hours, oven	ery measured value. Large capacity di write on or off. Logs even when displa	ata logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be re y off except for 2 and 5 second intervals (code version 4.18 and later). Data capacity shown.
ta Upload & Bluetooth® Data Connect Option										•	•	•		Bluetooth Data Trans	fer Option: Adjustable		io range from up to 30 ft   9 meters. Inc	fividual unit ID and 4-digit PIN code preprogrammed for easy identification and data security w
Clock / Calendar	•	٠	•	•	•									Requires optional PC in	terface (USB or RS-23	rial Port Protocol for data trans 32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	
Auto Shutdown	٠	٠	•	•	•	•								Requires optional PC in	terface (USB or RS-23	<ul> <li>32) or Bluetooth data transfer</li> <li>32) or Bluetooth data transfer</li> <li>32) or Bluetooth data transfer</li> </ul>	option and provided software.	
Languages Certifications	•			•		•							•	English, French, Germa	n, Italian, Spanish.		ble standards (written certificate of tes	ts available at additional charge).
Origin Battery Life	•	•	:	:			•		٠	•	•	•	•	Designed and manufact CR2032, one, included.	ured in the USA from I Average life, 300 hour	JS and imported components. s. Battery life reduced by back	Complies with Regional Value Content klight use in 2000 to 3500 models.	t and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
Shock Resistance	•					•	•	•			•	:		Standard Models: AA MIL-STD-810g, Transit	A Alkaline, two, include Shock, Method 516.5	d. Average life, 400 hours of u	use, reduced by backlight or Bluetooth t may damage replaceable impeller.	radio transmission use.
Sealing	•				•	•	•		•		•	•		Waterproof (IP67 and N 14° F to 131° F   -10 °C	EMA-6). to 55 °C Measureme	nts may be taken beyond the li	imits of the operational temperature ra	nge of the display and batteries by maintaining the unit within the operational range and expos
Operational Temperature			575	CONTRACTOR OF STREET			J. S. S.	200			THE R		1	to the more extreme env	ironment for the minim	num time necessary to take rea	ading.	
Operational Temperature Limits Storage Temperature		•	•	•							•			-22.0 °F to 140.0 °F   -3	0.0 °C to 60.0 °C	102 g (including slip-on cover)		

<sup>\*</sup> NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the comined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2Σ).

Certificate No. D224645E



#### CALIBRATION CERTIFICATE

Product

SOUND CALIBRATOR

Type

NC-75

Serial number

35124528

Manufacturer

RION CO., LTD.

Calibration quantities : Sound pressure level (with reference standard microphone)

Calibration method

: Measured by specified secondary standard microphone

according to JCSS calibration procedure specified by RION.

Ambient conditions

Temperature 23.9 °C, Relative humidity 49 %,

Static pressure 100.6 kPa

Calibration date

: 02/11/2022 (DD/MM/YYYY)

Calibration location

: 3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan

RION CO., LTD. Calibration Room

We hereby certify that the results of this calibration were as follows.

Issue date: 09/11/2022 (DD/MM/YYYY)

Junichi Kawamura

Manager

Quality Assurance Section, Quality Assurance Department, Environmental Instrument Division,

RION CO., LTD.

3-20-41 Higashimotomachi, Kokubunji,

Tokyo 185-8533, Japan

This certificate is based on article 144 of the Measurement Law and indicates the result of calibration in accordance with measurement standards traceable to Primary Measurement Standards (National Standards) which realizes the physical units of measurement according to the International System of Units (SI).

The accreditation symbol is attestation of which the result of calibration is traceable to Primary Measurement Standards (National Standards).

The certificate shall not be reproduced except in full, without the written approval of the issuing laboratory.

The calibration laboratory who issued this calibration certificate conforms to ISO/IEC 17025:2017.

This calibration certificate was issued by the calibration laboratory accredited by IAJapan who is a signatory to the Mutual Recognition Arrangement (MRA) of International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Accreditation Cooperation (APAC). This (These) calibration result(s) may be accepted internationally through ILAC/APAC



Certificate No. D224645E

#### CALIBRATION RESULT

1. Sound pressure level (with reference standard microphone)

Measured	Expanded
value	uncertainty *1
93.99 dB	0.09 dB

Specified secondary standard microphone:

Type

:4160

Serial number : 2973341

Reference Sound pressure :  $2 \times 10^{-5}$  Pa

\*1 Defines an interval estimated to have a level of confidence of approximately 95 %.

Coverage factor k=2

Calibration result is the calibration value in ambient conditions during calibration.

#### BE OUT OF JCSS CALIBRATION

#### 1. Frequency

Measured value	Measurement uncertainty (k=2)
1000.0 Hz	$2.7 \times 10^{-4}  \mathrm{Hz}$

Working measurement standard universal counter:

Type

: 53132A

Serial number : MY40005574

(JCSS Calibration Certificate No. 2208001889940)

#### 2. Total distortion

Measured	
value	
0.2 %	

Working measurement standard distortion meter:

: VA-2230A

Serial number : 11076061

(A2LA Calibration Certificate No. 1502-03109)

- closing -



### Certificate of Calibration

for

Description:

Sound Level Meter

Manufacturer:

Svantek

Type No.:

971 (Serial No.: 103449)

Microphone:

ACO 7052E (Serial No.: 78092)

Preamplifier:

SV 18 (Serial No.:78763)

#### Submitted by:

Customer:

Acuity Sustainability Consulting Limited

Address:

Unit E, 12/F, Ford Glory Plaza,

Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon,

Hong Kong

Upon receipt for calibration, the instrument was found to be:

Within (31.5Hz – 8kHz)

☐ Outside

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:

The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 2 February 2023

Date of calibration: 6 February 2023

Date of NEXT calibration: 5 February 2024

Calibrated by:\_

Calibration Technician

Certified by:

Mr. Ng Yan Wa Laboratory Manager

Date of issue: 6 February 2023

Certificate No.: APJ22-136-CC001

Page 1 of 4

Room 422, Leader Industrial Centre, 57-59 Au Pui Wan Street , Fo Tan, Shatin, N.T., Hong Kong
Tel: (852) 2668 3423 Fax: (852) 2668 6946

Homepage: http://www.aa-lab.com

E-mail: inquiry@aa-lab.com



#### 1. Calibration Precaution:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

#### 2. Calibration Conditions:

Air Temperature:

23.9°C

Air Pressure:

1006 hPa

Relative Humidity:

47.9 %

#### 3. Calibration Equipment:

Type

Serial No.

Calibration Report Number

Traceable to

**Multifunction Calibrator** 

B&K 4226 2288467 AV220061

HOKLAS

#### 4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Sett	Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	10000	Specification, dB
25-124.3	dBA	SPL	Fast	94	1000	94.0	±0.4

#### Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading.	IEC 61672 Class	
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	1	Specification, dB
		dBA SPL Fast		94		94.0	Ref
25-124.3	dBA		Fast	104	1000	104.0	±0.3
				114		114.0	±0.3

#### Time Weighting

Sett	Setting of Unit-under-test (UUT)		Applied value		UUT Reading.	IEC 61672 Class 1	
Range, dB	Freq. V	Veighting	Time Weighting	Level, dB	Frequency, Hz	1	Specification, dl
25-124.3	dBA	SPL	Fast			94.0	Ref
20 124.5	UDA	SFL	Slow	94	1000	94.0	±0.3

Certificate No.: APJ22-136-CC001

Page 2 of 4

Room 422, Leader Industrial Centre, 57-59 Au Pui Wan Street , Fo Tan, Shatin, N.T., Hong Kong Tel: (852) 2668 3423 Fax:(852) 2668 6946

Homepage: http://www.aa-lab.com

E-mail:inquiry@aa-lab.com

## Acoustics and Air Testing Laboratory Co. Ltd. 聲學及空氣測試實驗室有限公司

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading	IEC 61672 Class			
Range, dB	Freq. W	eighting	Time Weighting				Specification, dB		
	14				31.5	94.2	±2.0		
				63	94.1	±1.5			
		dB SPL	Fast	94	125	94.1	±1.5		
25-124.3	ID						250	94.1	±1.4
23-124.5	aв				500	94.0	±1.4		
							1000	94.0	Ref
									2000
					4000	93.6	±1.6		
-:-1-4:					8000	90.9	+2.1; -3.1		

A-weighting

Setting of Unit-under-test (UUT)		Арр	lied value	UUT Reading.	IEC 61672 Class			
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz		Specification, dE	
					31.5	54.8	-39.4 ±2.0	
					63	68.0	-26.2±1.5	
		dBA SPL	Fast	94	125	78.0	-16.1±1.5	
25 1242	ID 4				250	85.4	-8.6±1.4	
25-124.3	dBA				500	90.8	-3.2 ±1.4	
							1000	94.0
					2000	95.1	+1.2 ±1.6	
			4000	94.6	$+1.0\pm1.6$			
					8000	90.0	-1.1+2.1; -3.1	

#### C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading.	IEC 61672 Class	
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz		Specification, dE
					31.5	91.2	-3.0 ±2.0
					63	93.3	-0.8 ±1.5
		dBC SPL	Fast	94	125	93.9	-0.2 ±1.5
25-124.3	Inc				250	94.0	-0.0 ±1.4
23-124.3	dBC				500	94.1	-0.0 ±1.4
					1000	94.0	Ref
					2000	93.7	-0.2 ±1.6
					4000	92.9	-0.8 ±1.6
				8000	88.1	-3.0 +2.1: -3.1	

Certificate No.: APJ22-136-CC001





#### 5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.10
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

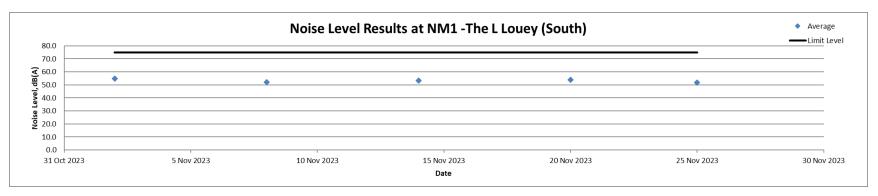
The uncertainties are evaluated for a 95% confidence level.

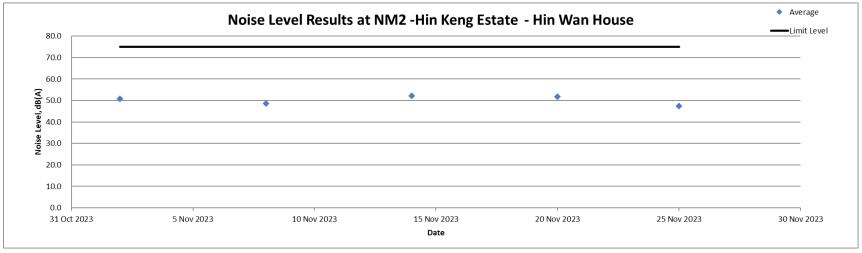
#### Note:

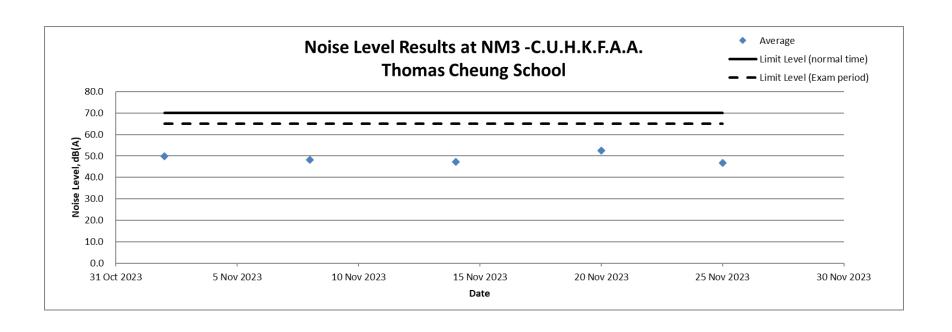
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.



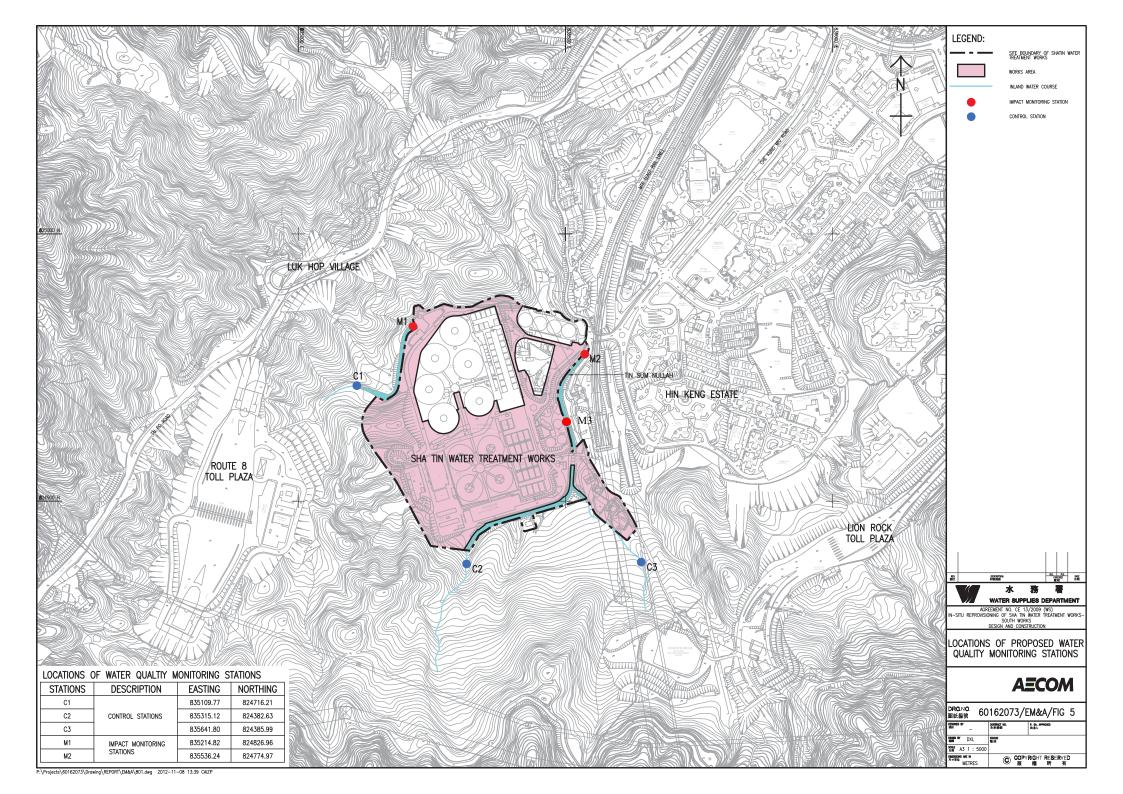
# Appendix N Impact Noise Monitoring Results and Graphical Presentation







# Appendix O Location Plan of Water Quality Monitoring Station



## Appendix P Calibration Certificate (Water Quality)

Tel: (852) 3956 8717; Fax: (852) 3956 3928

#### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BC100051

**Date of Issue** 

: 24 October 2023

Page No.

: 1 of 2

#### PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

PART B - SAMPLE INFORMATION

Name of Equipment:

YSI ProDSS (Multi-Parameters)

Manufacturer:

YSI (a xylem brand)

Serial Number:

22C106561

Date of Received:

19 October 2023

Date of Calibration:

24 October 202323 January 2024

Date of Next Calibration: Request No.:

D-BC100051

#### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

**Test Parameter** 

Reference Method

pH value

APHA 21e 4500-H+ B

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520 B

Dissolved oxygen

APHA 23e 4500-O G (Membrane Electrode Method)

Turbidity

APHA 21e 2130 B (Nephelometric Method)

#### PART D - CALIBRATION RESULT

#### (1) pH value

Target ( pH unit )	Display Reading ( pH unit )	Tolerance	Result
4.00	4.09	0.09	Satisfactory
7.42	7.46	0.04	Satisfactory
10.01	10.08	0.07	Satisfactory

Tolerance of pH value should be less than  $\pm$  0.2 ( pH unit )

#### (2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
16	15.6	-0.4	Satisfactory
23	22.1	-0.9	Satisfactory
38	36.9	-1.1	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  ( °C )

#### (3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	10.01	0.10	Satisfactory
20	20.63	3.15	Satisfactory
30	31.63	5.43	Satisfactory

Tolerance of Salinity should be less than  $\pm$  10.0 (%)

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED SIGNATORY:

Assistant Manager

#### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BC100051

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: 24 October 2023

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: 2 of 2

#### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
8.17	8.55	0.38	Satisfactory
5.47	5.83	0.36	Satisfactory
1.43	1.21	-0.22	Satisfactory
0.05	0.27	0.22	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm$  0.5 ( mg/L )

#### (5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance ( % )	Result
0	0.79		Satisfactory
10	9.66	-3.4	Satisfactory
20	18.21	-9.0	Satisfactory
100	97.55	-2.5	Satisfactory
800	753.80	-5.8	Satisfactory

Tolerance of Turbidity should be less than  $\pm 10.0$  (%)

#### Remark(s)

- 'The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
- ·The results relate only to the calibrated equipment as received
- 'The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
- "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
- 'The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

--- END OF REPORT ---

# Appendix Q The Certification of Laboratory with HOKLAS accredited Analytical Tests



#### Hong Kong Accreditation Service 香港認可處

#### **Certificate of Accreditation**

認可證書

This is to certify that 特此證明

#### ACUMEN LABORATORY AND TESTING LIMITED

浩科檢測中心有限公司

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

香港九龍長沙灣永康街37-39號福源廣場12樓D室

is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017 for performing specific laboratory activities as listed in the scope of accreditation within the test category of 獲香港認可應根據ISO/IEC 17025:2017認可 進行載於認可範圍內下透測試類別中的指定實驗所活動

#### **Environmental Testing**

環境測試

This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and the implementation of a management system relevant to laboratory operation (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套與實驗所運作相關的管理體系 (見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive 現經香港認可處執行機關授權在此蓋上香港認可處的印章

SHUM Wai-leung, Executive Administrator

執行幹事 沈偉良

Issue Date: 15 November 2021

簽發日期:二零二一年十一月十五日

Registration Number HOKLAS 241 註冊號碼:

Date of First Registration: 16 July 2014 首次註冊日期:二零一四年七月十六日

## Appendix R Impact Water Quality Monitoring Results

Doto	Time		Masthar Laggian		Co-ordinates		Water Depth	Sample Depth	Temp.		DO	con.	Turbidity		рН		SS
Date		Time	Weather	Location	East	North	m	m	°C		mç	g/L	NTU		unit		mg/L
		12:30	Fine	C1	835110	824716	0.04			24.23			0.96	1	7.8	7.87	1.7
1/11/2023		12:55	Fine	C2	835403	824470	0.02	0.01	24.45	24.68	13.4	13.57	0	0	8.26	8.3	<1
	N/A		Fine	C3	835642	824386	N/A	N/A	N/A N/A		N/A	N/A N/A	N/A	N/A	N/A		N/A
		12:35	Fine	M1	835215	824827	0.8	0.4	24.46	24.11	14.1	14.81	1.51	1.62	8.18	8.14	<1
		12:50	Fine	M2	835536	824775	0.05	0.025	24.6	24.55	12.92	13.56	0	0	8.28	8.36	1.2
		12:52	Fine	M3	835501	824648	0.02	0.01	24.08	24.73	14.25	13.71	0	0	8.31	8.3	<1
		9:38	Fine	C1	835110	824716	0.04			24.4			0.71	0.66	7.74	7.85	<1
		10:03	Fine	C2	835403	824470	0.02	0.01	25.57	25.55	13.29	13.97	0	0	8.5	8.57	<1
3/11/2023	N/A		Fine	C3	835642	824386			N/A N/A			N/A N/A	N/A	N/A	N/A		N/A
3/11/2023		9:43	Fine	M1	835215	824827	0.8			24.68			0.89	0.99	7.99	8.06	<1
		9:58	Fine	M2	835536	824775	0.05			25.95		13.98	0	0	8.47	8.62	<1
		10:00	Fine	M3	835501	824648	0.02	0.01	24.66	25.15	14.33	14.05	0	0	8.38	8.45	<1
		12:41	Fine	C1	835110	824716	0.04			25.21			0.13	0.14	7.84	7.81	1.5
		13:06	Fine	C2	835403	824470	0.02	0.01		25.46		12.01	0	0	8.07	8.1	<1
6/11/2023	N/A		Fine	C3	835642	824386			N/A N/A			N/A N/A	N/A	N/A	N/A		N/A
0/11/2020		12:46	Fine	M1	835215	824827	0.8			25.33		13.87	0.28	0.28	7.85	7.86	1.0
		13:01	Fine	M2	835536	824775	0.05			25.95			0	0	8.41	8.34	<1
		13:03	Fine	M3	835501	824648	0.02	0.01	25.26	25.73	14.53	14.1	0	0	8.24	8.3	<1
		0.55	F:	0.4	005440	00.474.0	0.04	0.00	00.07	0.4.05	40.05	10.00	0.00	0.40	7.0	7.50	1.6
		9:55	Fine	C1	835110	824716	0.04			24.25			2.33	2.18	7.6	7.52	1.6
	NI/A	10:20	Fine	C2	835403	824470	0.02			24.77	12.22		0	0	7.97	8.02	<1
8/11/2023	N/A	40.00	Fine	C3	835642	824386			N/A N/A			N/A N/A	N/A	N/A	N/A	0.00	N/A
		10:00	Fine	M1	835215	824827	0.8			24.15		14.5	3.77	3.66	8.13	8.09	2.4
		10:15	Fine	M2	835536	824775	0.05			25.03			0	0	8.32	8.34	<1
		10:17	Fine	M3	835501	824648	0.02	0.01	24.17	24.66	14.77	14.69	U	U	8.21	8.26	<1
		9:42	Fine	C1	835110	824716	0.04	0.02	24.25	24.79	12.71	12.98	0.17	0.16	7.53	7.6	1.4
		10:07	Fine	C2	835403	824470	0.04			25.18		13.41	0.17	0.10	8.33	8.34	<1
	N/A	10.07	Fine	C3	835642	824386	N/A		N/A N/A		N/A	N/A N/A	N/A	N/A	N/A	0.04	N/A
10/11/2023	14//	9:47	Fine	M1	835215	824827	0.8	0.4		24.68			0.52	0.53	7.58	7.67	1.2
		10:02	Fine	M2	835536	824775	0.05			25.8	13.17		0.02	0.00	8.55	8.44	<1
		10:04	Fine	M3	835501	824648	0.02			24.84			0	0	8.22	8.26	<1
		70.01		1010	230001	02 10 10	0.02	0.01	20.00	21.04	10.1	10.20	<u> </u>	<u>~</u>	J.22	3.20	
		12:18	Fine	C1	835110	824716	0.04	0.02	23.43	23.44	12.48	12.95	1.1	1.11	7.87	7.89	1.9
		12:40	Fine	C2	835403	824470	0.02			23.88			0	0	8.23	8.24	<1
40/44/0000	N/A		Fine	C3	835642	824386			N/A N/A			N/A N/A	N/A	N/A	N/A		N/A
13/11/2023		11:39	Fine	M1	835215	824827	0.8			23.36			1.25	1.36	8.17	8.16	2.1
		10:55	Fine	M2	835536	824775	0.05			23.83			0	0	8.37	8.42	<1
		11:07	Fine	M3	835501	824648	0.02			23.18			0	0	8.28	8.31	<1
		, , , , ,		1110	230001	52 10 10	3.02	9.01	20.20	20.10	.2.70	12.00	ĕ	٠,	5.25	0.01	1.2

		9:34	Fine	C1	835110	824716		0.04	0.02	23.09	23.08	11.34	11.29	1.01	0.96	7.28	7.38	1.6
		9:59	Fine	C2	835403	824470		0.02	0.01	23.43	23.65	13.75	13.77	0	0	8.1	8.08	<1
4 = /4 / /0000	N/A		Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
15/11/2023		9:39	Fine	M1	835215	824827		0.8	0.4	23.08	23.05	14.17	13.69	1.22	1.34	7.9	7.99	1.5
		9:54	Fine	M2	835536	824775		0.05	0.025	23.94	23.93	12.76	13.55	0	0	8.24	8.19	<1
		9:56	Fine	M3	835501	824648		0.02	0.01	23.08	23.2	13.88	13.25	0	0	8.19	8.18	<1
		12:50	Fine	C1	835110	824716		0.04	0.02	22.3	21.64	11.73	11.43	1.15	1.16	7.89	7.86	1.8
		13:15	Fine	C2	835403	824470		0.02	0.01	21.89	21.47	12.36	12.4	1.32	1.37	8.14	8.09	1.4
17/11/2022	N/A		Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
17/11/2023		12:55	Fine	M1	835215	824827		0.8	0.4	21.66	21.75	12.22	11.56	2.74	2.79	7.99	8.06	<u>5.1</u>
		13:10	Fine	M2	835536	824775		0.05	0.025	21.98	22.61	13.31	13.4	1.62	1.56	8.19	8.19	2.4
		13:12	Fine	M3	835501	824648		0.02	0.01	21.87	21.81	13.9	14.57	0	0	8.26	8.31	<1
		9:33	Fine	C1	835110	824716		0.04	0.02	24.81	24.42	13.75	13.77	0.23	0.24	7.6	7.52	<1
		9:58	Fine	C2	835403	824470		0.02	0.01	23.98	23.9	13.65	13.29	0	0	7.66	7.62	<1
20/11/2023	N/A		Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
20/11/2023		9:38	Fine	M1	835215	824827		0.8	0.4	24.2	23.97	13.3	13.57	0.44	0.45	8.16	8.05	<1
		9:53	Fine	M2	835536	824775		0.05	0.025	23.84	23.77	12.81	12.33	0	0	8.39	8.45	<1
		9:55	Fine	M3	835501	824648		0.02	0.01	24.19	23.89	13.56	13.47	0	0	8.33	8.32	<1
		9:29	Fine	C1	835110	824716		0.04	0.02	23.54	23.38	13.42	13.7	0	0	7.5	7.62	1.0
		9:54	Fine	C2	835403	824470		0.02	0.01	23.36	23.46	12.68	12.69	0	0	8.32	8.38	<1
22/11/2023	N/A		Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
		9:34	Fine	M1	835215	824827		0.8	0.4	23.48	23.33	13.68	13.98	0	0	7.76	7.82	<1
		9:49	Fine	M2	835536	824775		0.05	0.025	23.41	23.36	12.54	12.57	0	0	8.5	8.51	<1
		9:51	Fine	M3	835501	824648		0.02	0.01	23.37	23.37	13.62	13.7	0	0	8.44	8.48	<1
		0.24	Cuppy	C1	835110	824716		0.04	0.02	23.96	22.20	10.25	0.52	1.48	1 62	7.57	7.40	4.1
		9:34 9:59	Sunny	C2	835403	824470		0.04	0.02 0.01	23.63	23.39 23.83	10.35 10.8	9.53 10.44	0	1.63	7.57 8.24	7.48 8.22	4.1
	NI/A	9.59	Sunny Sunny	C3	835642	824386	N/A	0.02		23.03 N/A	23.63 N/A	N/A	N/A	NI/A	N/A	N/A	0.22	<1
24/11/2023	N/A	9:39	Sunny	M1	835215	824827	IN/A	0.8	0.4 N/A	23.49	23.83	12.64	12.5	2.88	2.57	8.05	8.09	N/A 2.2
		9:54	Sunny	M2	835536	824775		0.05	0.025	23.86	23.84	10.44	10.38	2.00	0	8.42	8.38	<1
		9:56	Sunny	M3	835501	824648		0.03	0.025	23.62	23.54	10.44	10.81	0	0	8.2	8.22	<1
		0.00	Odminy	IVIO	000001	024040		0.02	0.01	20.02	20.04	10.4	10.01	٥	٥	0.2	0.22	~1
		9:41	Fine	C1	835110	824716		0.04	0.02	24.95	24.95	10.71	10.08	0.43	0.43	7.7	7.67	1.5
		10:06	Fine	C2	835403	824470		0.02	0.01	24.13	24.36	10.12	10.61	0	0	7.77	7.82	<1
	N/A	10100	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
26/11/2023		9:46	Fine	M1	835215	824827		0.8	0.4	24.95	24.89	10.61	10.54	0.66	0.66	7.87	7.84	1.4
		10:01	Fine	M2	835536	824775		0.05	0.025	24.37	23.61	11.2	11.36	0	0	8.06	7.98	<1
		10:03	Fine	M3	835501	824648		0.02	0.01	24.87	24.14	10.79	10.57	0	0	7.95	7.97	<1
							<u> </u>					<u> </u>						
		13:15	Fine	C1	835110	824716		0.04	0.02	21.69	21.9	10.67	10.23	1.46	1.43	7.85	7.83	<1
		13:40	Fine	C2	835403	824470		0.02	0.01	21.68	21.73	11.62	10.68	0	0	8.4	8.36	1.9
29/11/2023	N/A		Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
29/11/2023		13:20	Fine	M1	835215	824827		0.8	0.4	21.79	21.75	13.46	13.9	1.85	1.92	8.12	8.09	<1
		13:35	Fine	M2	835536	824775		0.05	0.025	21.75	21.78	10.95	10.6	0	0	8.44	8.45	<1
		13:37	Fine	M3	835501	824648		0.02	0.01	21.73	21.78	12.77	12.91	0	0	8.4	8.35	<u>2.2</u>
	-										·		·				·	

Remark 1: Values that are <1 is assumed to be 1 during calculation. Remark 2: Underlined values indicated exceedance of limit level.

There were 0 exceedances of Action Level and 2 exceedances of Limit Level



### Acumen Laboratory and Testing Limited

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q230002aR231817

Job Number

R231817

Issue Date

15/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1225

Test Required

Total Suspended Solids (TSS)

Sampling Date

13/11/2023

Date Samples Received

13/11/2023

Sample Nature

Water

Number of Samples Received

5

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231817/1-5

Test Period

13/11/2023 - 14/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division



Flat/Rm D. 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

#### **Test Report**

Page 2 of 2

Q230002aR231817

Report Number Job Number

R231817

Issue Date

15/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231817/1	13/11/2023	C1	1.9
R231817/2	13/11/2023	C2	<1
R231817/3	13/11/2023	M1	2.1
R231817/4	13/11/2023	M2	<1
R231817/5	13/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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Test Report

Report Number

Q230002aR231908

Job Number

R231908

Issue Date

29/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1227

Test Required

Total Suspended Solids (TSS)

Sampling Date

15/11/2023

Date Samples Received

15/11/2023

Sample Nature

Water

Number of Samples Received

5

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R231908/1-5

Test Period

15/11/2023 - 16/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huhtington

Laboratory Manager



Tel: (852) 2333 6823 Fax: (852) 2333 1316

#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231908

Job Number

R231908

Issue Date

29/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231908/1	15/11/2023	C1	1.6
R231908/2	15/11/2023	C2	<1
R231908/3	15/11/2023	M1	1.5
R231908/4	15/11/2023	M2	<1
R231908/5	15/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- < indicates less than.
- 2. 3. 4. 5. Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231909

Job Number

R231909

Issue Date

29/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

**Applicant Address** 

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1228

Test Required

Total Suspended Solids (TSS)

Sampling Date

17/11/2023

Date Samples Received

17/11/2023

Sample Nature

Water

Number of Samples Received

5

Condition Received

Type of Container

Sample(s) arrived laboratory in chilled condition

HDPE Plastic Bottles

Laboratory ID

R231909/1-5

Test Period

17/11/2023 - 18/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Fax: (852) 2333 1316 Tel: (852) 2333 6823

#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231909

Job Number

R231909

Issue Date

29/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231909/1	17/11/2023	C1	1.8
R231909/2	17/11/2023	C2	1.4
R231909/3	17/11/2023	M1	5.1
R231909/4	17/11/2023	M2	2.4
R231909/5	17/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. 3. 4. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Acumen Laboratory and Testing Limited
Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

**Test Report** 

Report Number Q230002aR231910

Job Number R231910

Issue Date 29/11/2023

Applicant Name Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Page 1 of 2

**Project Name** CJO-3113-1229

Test Required Total Suspended Solids (TSS)

Sampling Date 20/11/2023 Date Samples Received 20/11/2023

Sample Nature Water

Number of Samples Received 5

Condition Received Sample(s) arrived laboratory in chilled condition

Type of Container **HDPE Plastic Bottles** 

Laboratory ID R231910/1-5

Test Period 20/11/2023 - 21/11/2023

Method Used In-house Method, QPL-15e for Total Suspended Solids

Test Result Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager



Fax: (852) 2333 1316 Tel: (852) 2333 6823

**Test Report** 

Page 2 of 2

Report Number

Q230002aR231910

Job Number

R231910

Issue Date

29/11/2023

#### Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231910/1	20/11/2023	C1	<1
R231910/2	20/11/2023	C2	<1
R231910/3	20/11/2023	M1	<1
R231910/4	20/11/2023	M2	<1
R231910/5	20/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. 3. 4. 5. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
  Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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**Test Report** 

Report Number

Q230002aR231911

Job Number

R231911

Issue Date

29/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1230

Test Required

Total Suspended Solids (TSS)

Sampling Date

22/11/2023

Date Samples Received

22/11/2023

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R231911/1-5

Test Period

22/11/2023 - 23/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Tel: (852) 2333 6823 Fax: (852) 2333 1316

#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231911

Job Number

R231911

Issue Date

29/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231911/1	22/11/2023	C1	1.0
R231911/2	22/11/2023	C2	<1
R231911/3	22/11/2023	M1	<1
R231911/4	22/11/2023	M2	<1
R231911/5	22/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Page 1 of 2

Report Number

Q230002aR231972

Job Number

R231972

Issue Date

06/12/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1231

Test Required

Total Suspended Solids (TSS)

Sampling Date

24/11/2023

Date Samples Received

24/11/2023

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231972/1-5

Test Period

24/11/2023 - 25/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager



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#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231972

Job Number

R231972

Issue Date

06/12/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231972/1	24/11/2023	C1	4.1
R231972/2	24/11/2023	C2	<1
R231972/3	24/11/2023	M1	2.2
R231972/4	24/11/2023	M2	<1
R231972/5	24/11/2023	М3	<1

#### Note:

- 1. mg/L indicates milligram per liter
- 2. < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231974

Job Number

R231974

Issue Date

06/12/2023

**Applicant Name** 

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1232

Test Required

Total Suspended Solids (TSS)

Sampling Date

27/11/2023

Date Samples Received

27/11/2023

Sample Nature

Water

Number of Samples Received

\_

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231974/1-5

Test Period

27/11/2023 - 28/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D. 12/F. Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Fax: (852) 2333 1316 Tel: (852) 2333 6823

**Test Report** 

Page 2 of 2

Report Number

Q230002aR231974

Job Number

R231974

Issue Date

06/12/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231974/1	27/11/2023	C1	1.5
R231974/2	27/11/2023	C2	<1
R231974/3	27/11/2023	М1	1.4
R231974/4	27/11/2023	M2	<1
R231974/5	27/11/2023	М3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
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#### **Test Report**

Report Number

Q230002aR231975

Job Number

R231975

Issue Date

06/12/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1233

Test Required

Total Suspended Solids (TSS)

Sampling Date

29/11/2023

Date Samples Received

29/11/2023

Sample Nature

Water

Number of Samples Received

vvale

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231975/1-5

Test Period

29/11/2023 - 30/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

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#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231975

Job Number

R231975

Issue Date

06/12/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231975/1	29/11/2023	C1	<1
R231975/2	29/11/2023	C2	1.9
R231975/3	29/11/2023	M1	<1
R231975/4	29/11/2023	M2	<1
R231975/5	29/11/2023	M3	2.2

#### Note:

- mg/L indicates milligram per liter
- 2. 3. 4. 5. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231787

Job Number

R231787

Issue Date

13/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1221

Test Required

Total Suspended Solids (TSS)

Sampling Date

01/11/2023

Date Samples Received

01/11/2023

Sample Nature

Water

Number of Samples Received

viace

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R231787/1-5

Test Period

01/11/2023 - 02/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager



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#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231787

Job Number

R231787

Issue Date

13/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231787/1	01/11/2023	C1	1.7
R231787/2	01/11/2023	C2	<1
R231787/3	01/11/2023	M1	<1
R231787/4	01/11/2023	M2	1.2
R231787/5	01/11/2023	M3	<1

#### Note:

- mg/L indicates milligram per liter
- < indicates less than.
- 2. 3. 4. 5. Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231788

Job Number

R231788

Issue Date

13/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

**Applicant Address** 

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1222

Test Required

Total Suspended Solids (TSS)

Sampling Date

03/11/2023

Date Samples Received

03/11/2023

Sample Nature

Water

Number of Samples Received

\_

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231788/1-5

**Test Period** 

03/11/2023 - 04/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

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Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

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#### **Test Report**

Page 2 of 2

Report Number

Q230002aR231788

Job Number

R231788

Issue Date

13/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231788/1	03/11/2023	C1	<1
R231788/2	03/11/2023	C2	<1
R231788/3	03/11/2023	M1	<1
R231788/4	03/11/2023	M2	<1
R231788/5	03/11/2023	М3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- 4. 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231789

Job Number

R231789

Issue Date

13/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co. Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1223

Test Required

Total Suspended Solids (TSS)

Sampling Date

06/11/2023

**Date Samples Received** 

06/11/2023

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231789/1-5

Test Period

06/11/2023 - 07/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

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Acumen Laboratory and Testing Limited

**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager



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#### **Test Report**

Page 2 of 2

Q230002aR231789

Job Number : R231789

Issue Date : 13/11/2023

#### **Test Result:**

Report Number

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231789/1	06/11/2023	C1	1.5
R231789/2	06/11/2023	C2	<1
R231789/3	06/11/2023	M1	1.0
R231789/4	06/11/2023	M2	<1
R231789/5	06/11/2023	M3	<1

#### Note:

- 1. mg/L indicates milligram per liter
- 2. < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- 4. Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- 6. The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.



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#### **Test Report**

Report Number

Q230002aR231815

Job Number

R231815

Issue Date

15/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1224

Test Required

Total Suspended Solids (TSS)

Sampling Date

08/11/2023

**Date Samples Received** 

08/11/2023

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

**HDPE Plastic Bottles** 

Laboratory ID

R231815/1-5

**Test Period** 

08/11/2023 - 09/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



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**Test Report** 

Page 2 of 2

Report Number

Q230002aR231815

Job Number

R231815

Issue Date

15/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231815/1	08/11/2023	C1	1.6
R231815/2	08/11/2023	C2	<1
R231815/3	08/11/2023	M1	2.4
R231815/4	08/11/2023	M2	<1
R231815/5	08/11/2023	М3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- 3. Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



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#### Test Report

Report Number

Q230002aR231816

Job Number

R231816

Issue Date

15/11/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

**Project Name** 

CJO-3113-1225

Test Required

Total Suspended Solids (TSS)

Sampling Date

10/11/2023

Date Samples Received

10/11/2023

Sample Nature

Water

Number of Samples Received

E

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R231816/1-5

Test Period

10/11/2023 - 11/11/2023

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

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**Authorized Signature** 

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

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**Test Report** 

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Report Number

Q230002aR231816

Job Number

R231816

Issue Date

15/11/2023

#### **Test Result:**

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R231816/1	10/11/2023	C1	1.4
R231816/2	10/11/2023	C2	<1
R231816/3	10/11/2023	M1	1.2
R231816/4	10/11/2023	M2	<1
R231816/5	10/11/2023	М3	<1

#### Note:

- mg/L indicates milligram per liter
- 2. 3. 4. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested. 6.
- The result(s) are applied only to the sample(s) received.

# Appendix S Impact Monitoring report for Ecology

Project no.: CJO-3113

## **Post-Transplantation Monitoring Report**

Report No. 111 Nov 2023

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3

#### 1. INTRODUCTION

- 1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- 1.2 Upon the requirement of the Environmental Permit, a detailed vegetation report presenting the baseline vegetation condition for flora species with conservation interest, transplanting and monitoring programme for the Project has been prepared and approved by DEP in February 2016.
- 1.3 There were 4 flora species of conservation importance were recorded in the woodland habitat within project site including Ailanthus (*Ailanthus fordii*), Incense Tree (*Aquilaria sinensis*), Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*). In total, 2 nos. of Incense Tree (*Aquilaria sinensis*), 1 no. of Ailanthus (*Ailanthus fordii*) tree, 5 colonies of Lamb of Tartary (*Cibotium barometz*) and 1 no. Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) were recommended to be transplanted in the approved detailed vegetation survey report.
- 1.4 As planned in the detailed vegetation report, Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) trees would be transplanted within existing Sha Tin Water Treatment Works (STWTW). All other shrubs including Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) would be transplanted to the hillside slope at Sha Tin South Fresh Water Service Reservoir (STSFWSR).
- 1.2 Upon the requirement of the Environmental Permit, a qualified Ecologist was commissioned to prepare a post-transplantation monitoring report to present the status (health condition and survival rate) of transplanted vegetation and submitted to the DEP.
- 1.3 Monitoring of transplanted flora was conducted after the transplantation. The monitoring will be conducted at twice per month during the first year and once per month during the course of planting works. The parameters to be monitoring will include the health condition and survival rate of the transplanted flora. Any observations and recommendations will be reported in monthly EM&A reports.
- 1.3 This Tree Report presents survey findings on 23 November 2023. It contains the following information:
  - Introduction (Section 1);
  - Description of Tree Monitoring Area (Section 2);
  - Monitoring Methodology (Section 3);
  - Result (Section 4);
  - Mitigation Measures (Section 5);
  - Summary (Section 6);
  - Photos (Annex I);
  - Summary table (Annex II); and
  - Typhoon information (Annex III).

#### 2. DESCRIPTION OF TREE MONITORING SITE

2.1 Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) tree were transplanted to the extended compensatory plantation area within existing Sha Tin Water Treatment Works (STWTW). The area was flat and without covering with concrete.

- 2.2 Lamb of Tartary (*Cibotium barometz*) will be transplanted to the Sha Tin South Fresh Water Service Reservoir (STSFWSR). Ploughing is required before planting on to this open corner of short grassland.
- 2.3 Other compensatory trees have been planted at STWTW and STSFWSR.

#### 3. MONITORING METHODOLOGY

- 3.1 Site inspection was carried out by walking through the transplanting area. Health condition and survival rate were observed during inspection.
- 3.4 Health condition of all transplanted vegetation including trees/shrubs surveyed was evaluated according to the following criteria:
  - Transplanted vegetation with good health is classified as good;
  - Transplanted vegetation with few or no visible defects or health problems is classified as being **fair**; and
  - Transplanted vegetation that was badly damaged or clearly suffering from decay die back or the effects of very heavy vine growth is classified as **poor**.
- 3.5 Survival rate for each of transplanted vegetation species will be calculated based on site observation.

#### 4. RESULT

- 4.1 The monthly monitoring inspection was conducted on 23 November 2023.
- 4.2 Three trees TA572, TA326 and TA327 were transplanted to tree compensation area within the Sha Tin Water Treatment Works (STWTW) on 20 June 2016.
- 4.3 The condition of TA572 was observed in fair health despite in poor form due to the damage of the two main trunks. TA327 was in fair condition. The already dead tree TA326 collapsed due to big hit by the Signal No.10 typhoon Mangkhut on 16 September 2018. Tree guying cables have been installed to provide external support to the remaining two transplanted trees.
- 4.4 The joint site meeting with our ecologist, Project Manager, Contractor and Landscape Contractor on 20 October 2020 revealed that the designated recipient site at STSFWSR was under excessive exposure of direct sunlight, strong winds, far from riparian zone/ moist valley and low in soil moisture. This was not a favourable microhabitat for *Cibotium barometz* to be transplanted back. Two best portions within this recipient site would be a corner with shading canopy from trees on a man-made feature nearby; as well as understory zone of an existing tree. Mitigation measures are proposed in Section 5 to enhance a sustainable survival of *Cibotium barometz* during the post-transplantation stage.
- 4.5 All 27 nos. of *Cibotium barometz* transplanted from the nursery at Shui Mei Tsuen, Kam Tin were generally in fair condition at their current location at STSFWSR.
- 4.6 The Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016.
- 4.7 The transplantation of the 27 nos. of *Cibotium barometz* and the compensatory planting of TA326 and the climber *Artabotrys hongkongensis* have been conducted as detailed in Section 5.

4.8 Rapid recolonization/ invasion of weeds/ exotic species/ climbers on the transplanted plants has been observed since past few monitoring. Climbers on TA327 and one of the *Celtis sinensis* should be removed, including the roots, to reduce rapid colonization covering the canopy. Weeding within the two protection zones of *Cibotium barometz* at Portion E of STSFWSR shall only be conducted by hand-held tools rather than grass cutting machine. No fire/ chemical weeding shall be allowed.

#### 5. MITIGATION MEASURE

5.1 In order to compensate for the loss of the transplanted *Artabotrys hongkongensis* which is in climber growing form, it is recommended to plant an individual of native climber species at the compensatory planting site together with compensatory tree planting. Recommended list of species is given in the Table 1 below. It is suggested that about 1 species of climber to be selected from the following list according to availability of the nursery source. The recommended plant species have been recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

Table 1. Table for Recommended native climber species list to be planted

Common Name	Latin Name	Chinese Name	Growing Form
Climbing Bauhinia	Bauhinia glauca	粉葉羊蹄甲	Climber
Spiny-fruited Vine	Byttneria aspera	刺果藤	Climber
Bentham's Rose-wood	Dalbergia benthamii	兩廣黃檀	Climber
Desmos	Desmos chinensis	假鷹爪	Climber
Glaucescent Diploclisia	Diploclisia glaucescens	蒼白秤鈎風	Climber
Luofushan Joint-fir	Gnetum luofuense	羅浮買麻藤	Climber
Australian Cow-plant	Gymnema sylvestre	匙羹藤	Climber
Shining Hypserpa	Hypserpa nitida	夜花藤	Climber
Large-flowered Honeysuckle	Lonicera macrantha	大花忍冬	Climber
Splash-of-white	Mussaenda pubescen	玉葉金花	Climber
Rusty-haired Raspberry	Rubus reflexus	鏽毛莓	Climber
Sandpaper Vine	Tetracera asiatica	錫葉藤	Climber
Hong Kong Eagle's Claw	Artabotrys hongkongensis	鷹爪花	Climber

- 5.2 Desmos chinensis has been finalized as the candidate. Two individuals were planted at Wall C in STWTW on 1 April 2021 (Annex I).
- 5.3 New small sprouts keep emerging from the two *Desmos chinensis* that have been reported dead previously. Construction materials was also found too close to the planter. An eye-catching protective fence shall be set up as a protection zone. No construction materials shall be placed near/within the protection zone.
- 5.4 All 27 nos. Lamb of Tartary (*Cibotium barometz*) were transplanted successfully back to Portion E of STSFWSR on 23 April 2021 (Annex I). In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/typhoon.
- 5.5 Transplanted *Cibotium barometz* shall be watered at least once in the morning and once in the afternoon; before irrigation spray head has been installed to facilitate watering frequency whenever necessary.
- An eye-catching protective net has been set up to enclose the 27 nos. transplanted *Cibotium barometz* (in groups when planted together) to avoid disturbance/ damage from works activities. Any collapsed shelter and fencing shall be rectified promptly.
- 5.7 Sign of disturbance by wild boar(s) were found at the two groups of transplanted *Cibotium barometz* previously. A robust fencing was installed so as to prevent them from any further disturbance.
- 5.8 Weeding within the two protection zones of *Cibotium barometz* shall only be conducted by handheld tools rather than grass cutting machine. No fire/chemical weeding shall be allowed.
- 5.9 The 27 nos. transplanted *Cibotium barometz* shall be maintained with proposed mitigated measures mentioned for 12 months for establishment. A 12-month post-transplantation monitoring period helps to assess their survival during the establishment period.
- 5.10 Any dead individuals/ those in poor condition before transplant back to STSFWSR or during the post-transplantation period shall be replaced by planting healthy individuals of *Cibotium barometz*.

Other possible fern candidate such as *Brainea insignis*, which is more adaptive to more exposed habitat under direct sunlight, can be sourced for compensatory planting.

- 5.11 Root ball of TA572 and TA327 tree should be kept moisture especially during non-raining day.
- 5.12 The Incense Tree (*Aquilaria sinensis*) tagged as TA326 was observed dead during inspection on 10 August 2017. Its DBH was measured as 346mm. In accordance with the Tree Preservation, Development Bureau Technical Circular (Works) No. 7/2015, the compensatory planting aimed to achieve the compensatory planting ratio of 1:1 in terms of aggregated DBH.
- 5.13 In total, 3 individual of native tree species with heavy standard size were planted with 2.5-3 meters (center to center) spacing at compensatory planting site. Recommended list of species was given in the Table 2 below. It was suggested that at least 1 tree species to be selected from the following list according to availability of the nursery source. The recommended plant species was recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

Table 2. Table for recommended native tree species list to be planted

Common Name	Latin Name	Chinese Name	<b>Growing Form</b>
Ivy Tree	Schefflera heptaphylla	鴨腳木	Tree
Levine's Syzygium	Syzygium levinei	山蒲桃	Tree
Chekiang Machilus	Machilus chekiangensis	浙江潤楠	Tree
Aporusa	Aporusa dioica	銀柴	Tree
Mountain Tallow Tree	Sapium discolor	山烏桕	Tree
Fragrant Litsea	Litsea cubeba	山蒼樹	Tree
Chinese Apea Ear-ring	Archidendron lucidum	亮葉猴耳環	Tree
Chinese Hackberry	Celtis sinensis	朴樹	Tree
Turn-in-the-wind	Mallotus paniculatus	白楸	Tree
Acronychia	Acronychia pedunculata	降真香	Tree

- 5.14 Based on the Tree Survey Report, the following trees transplanted under Contract No. 3/WSD/15 were found dead. In accordance with GS 3.97 (3), replacement planting of TB0054, B0056, TB0101 and TC0138 was completed on 25 March 2021 (Annex I).
- 5.15 Two *Syzygium levinei* and one *Schefflera heptaphylla* were chosen from Table 2 as compensation for the loss of TA0326.
- 5.16 However, the two native *Syzygium levinei* (山蒲桃) were mis-planted by two exotic *Syzygium jambos* (蒲桃), of which both of their Chinese names and Scientific names are different by one word.
- 5.17 The two mis-planted *Syzygium jambos* were then replaced by another native tree species *Celtis sinensis* chosen from Table 2 due to market availability at that time. Replacement work was conducted on 31 May 2021.

#### • Table 3. Summary table compensatory planting.

Tree No.	Species	Compensatory/ Replacement Planting
TA0326	Aquilaria sinensis 土沉香	Compensated by 1 no. of <i>Schefflera heptaphylla</i> and 2 nos. of <i>Celtis sinensis</i>

- 5.18 With completion of compensatory planting for the loss of *Artabotrys hongkongensis* and TA0326 (*Aquilaria sinensis*), the survival of the replaced species has been monitored since then (i.e. 2 nos. of *Desmos chinensis*; 1 no. of *Schefflera heptaphylla* and 2 nos. of *Celtis sinensis*).
- 5.19 Survival of the 27 nos. of Lamb of Tartary (*Cibotium barometz*) transplanted back to STSFWSR has also been monitored too. No more individual was stored at the nursery.
- 5.20 Health condition and survival rate are shown in Annex II.

#### 6. **SUMMARY**

- 6.1 The condition of TA572 was observed in fair health despite in poor form. TA327 was in fair condition; while already dead TA326 collapsed under Signal No. 10 typhoon Mangkhut in September 2018. Tree guying cables have been installed to provide external support to the two remaining transplanted trees. Climbing vines on TA327 should be removed, including the roots, to reduce rapid colonization covering the canopy.
- 6.2 Compensatory planting of TA326 has been completed on 25 March 2020 by planting two *Syzygium levinei* and one *Schefflera heptaphylla*. However, the two native *Syzygium levinei* were mis-planted by two exotic *Syzygium jambos*, which have been replaced by another native tree species *Celtis sinensis* on 31 May 2021. Climbing vines on one of the *Celtis sinensis* should be removed, including the roots, to reduce rapid colonization covering the canopy.
- 6.3 Desmos chinensis has been finalized as the candidate to compensate for the loss of Artabotrys hongkongensis. Two individuals were planted at Wall C in STWTW on 1 April 2021.
- 6.4 New small sprouts keep emerging from the two *Desmos chinensis* that have been reported dead previously. Construction materials was also found too close to the planter. An eye-catching protective fence shall be set up as a protection zone. No construction materials shall be placed near/within the protection zone.
- 6.5 In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/ typhoon to the 27 nos. of transplanted *Cibotium barometz* at Portion E of STSFWSR.
- 6.6 Weeding by hand held tools within protection zone of *Cibotium barometz* is urgently needed.
- 6.7 Root ball of TA572 and TA327 tree should be kept moisture especially during dry and non-raining day.
- 6.8 Signs of ploughed soil by wild boar(s) at the two groups of transplanted *Cibotium barometz* were reported in previous monitoring. A robust fencing was recently installed to protect the group of *Cibotium barometz* from further damage caused by wild boars.
- 6.9 Given that leftover/ garbage was observed nearby, illegal feeding of wild pigs or other wild animals was also suspected to occur. Warning signs of illegal feeding and plant protection zone may be put along the receptor site to remind the hikers. Reporting the case to the relevant government department, i.e. AFCD, is suggested to prevent further aggregation of wild boars in the area.

### ANNEX I

### Photo



Photo 1. Collapsed protection zone of *Cibotium* barometz shall be rectified.



Photo 2. A protective fence for another patch of *Cibotium barometz*.



Photo 3. Fast-growing weeds and climbers shall be cleared including the roots, otherwise it recolonizes quickly after recent clearance.



Photo 4. The protective fence provides half-shade for the *Cibotium barometz*.





Photo 5 & 6. Despite the *Cibotium barometz* (red) are growing in satisfactory condition, it has already been hidden by weeds and climbers, which may deplete their health/ growth condition.

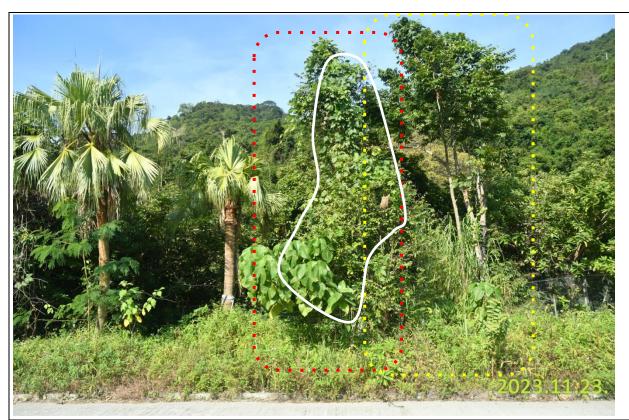


Photo 7. Transplanted Incense Tree (*Aquilaria sinensis*) – TA327 (red); and Ailanthus (*Ailanthus fordii*) – TA572 (yellow). Climber (white) should be removed, including the roots, to relieve the canopy



Photo 8. Sprouts at lower trunk of TA327 (*Aquilaria sinensis*). Climber (red) should be removed, including the roots, to relieve the canopy

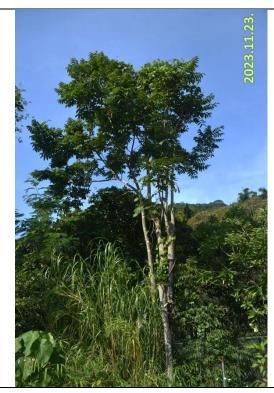


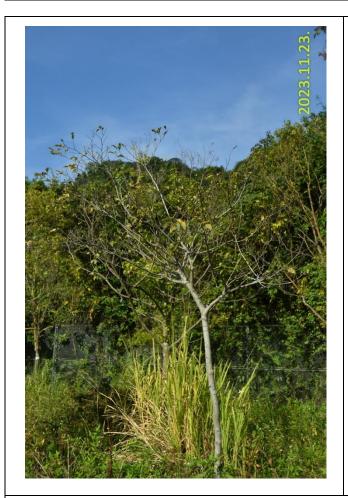
Photo 9. TA572 (*Ailanthus fordii*) was found vigorous and in generally good condition.



Photo 10. New sprouts keep emerging from the *Desmos chinensis* that reported dead previously. Chlorosis probably due to vigorous sunlight and dehydration



Photo 11. *Schefflera heptaphylla* as compensatory planting of TA326.



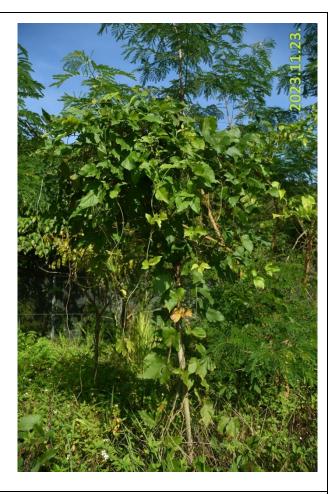
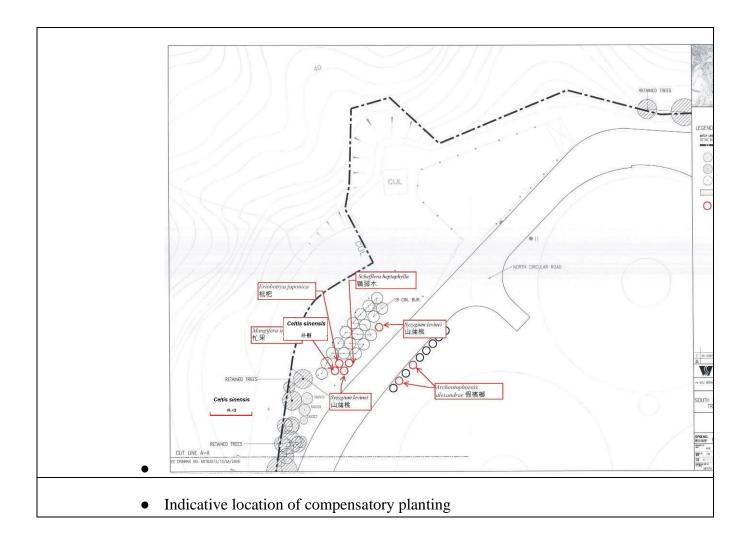


Photo 12 and 13. The two exotic *Syzygium jambos* (mis-treated as the native *Syzygium levinei*) are replaced by another native tree *Celtis sinensis* (due to market availability) as compensatory planting of TA326. Note: *Celtis sinensis* is a deciduous species.

Fast-growing climber was observed in one of the *Celtis sinensis* (right; compared to the left). The climber should be removed immediately otherwise it will affect the health of the tree. Root removal is necessary when recolonization of weeds is fast after recent routine maintenance work.



### ANNEX II Table for condition of transplanted plant

Fern Cibotium barometz and climber Desmos chinensis

No.	Species	Condition	Alive/Dead	Remark
1	Cibotium barometz	Fair	Alive	
2	Cibotium barometz	Fair	Alive	
3	Cibotium barometz	Fair	Alive	27 individuals were
4	Cibotium barometz	Fair	Alive	transplanted back to
5	Cibotium barometz	Fair	Alive	STSFWSR on 23 April
6	Cibotium barometz	Fair	Alive	2021.
7	Cibotium barometz	Fair	Alive	2021.
8	Cibotium barometz	Fair	Alive	The shelter has been
9	Cibotium barometz	Fair	Alive	repeatedly damaged by
10	Cibotium barometz	Fair	Alive	wild boars, resulting the
11	Cibotium barometz	Fair	Alive	plants vulnerable to
12	Cibotium barometz	Fair	Alive	uprooting. Some
13	Cibotium barometz	Fair	Alive	individuals were exposed
14	Cibotium barometz	Fair	Alive	under direct sunlight due
15	Cibotium barometz	Fair	Alive	to the damage of shelter.
16	Cibotium barometz	Fair	Alive	A robust protection zone
17	Cibotium barometz	Fair	Alive	was recently set up in
18	Cibotium barometz	Fair	Alive	February 2023 which
19	Cibotium barometz	Fair	Alive	should prevent the plants
20	Cibotium barometz	Fair	Alive	from further disturbance
21	Cibotium barometz	Fair	Alive	by the wild boars. Any
22	Cibotium barometz	Fair	Alive	illegal feeding by hikers
23	Cibotium barometz	Fair	Alive	shall be reported to
24	Cibotium barometz	Fair	Alive	AFCD/ hotline 1823.
25	Cibotium barometz	Fair	Alive	
26	Cibotium barometz	Fair	Alive	
27	Cibotium barometz	Fair	Alive	
	The shelter (such as 遮光	網) has been set up	to provide shadir	ng and against direct hit of
		rainstorm/ typho	on on the plants.	

28	Desmos chinensis	Poor-Fair	Alive	Two individuals were
				planted at Wall C in
				STWTW on 1 April 2021;
				Resprouted since
				monitoring made on 30
				November 2022.
				Chlorosis
	•	Survival rate (%)	100	

Transplanted/ compensatory Trees

No.	Species	Condition	Alive/Dead	Remark
TA572	Ailanthus fordii	Fair	Alive	Two main trunks were broken during typhoon on 23 August 2017. Cracks and wounds observed in one of the trunks. Canopy formed by sprouts.
TA327	Aquilaria sinensis	Fair	Alive	Tree crown of TA327 was thinner after transplantation. Water sprouts, cracks on tree bark and would at trunk base observed.  Climber should be cleared to relieve the canopy.
N/A	Celtis sinensis	Fair	Alive	Compensate for TA326; Syzygium jambos replaced by Celtis sinensis on 31 May 2021.
N/A	Celtis sinensis	Fair	Alive	Compensate for TA326; Syzygium jambos replaced by Celtis sinensis on 31 May 2021.  Climber should be cleared to relieve the canopy.
N/A	Schefflera heptaphylla	Fair	Alive	Compensate for TA326; old leaved replaced by new leaf buds
		Survival rate (%)	100%	

## Appendix T Monthly Summary of Waste Flow Table

### Monthly Summary Waste Flow Table for 2023

Contract No.: 1/WSD/19 Contract Title: In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)

-Water Treatment Works and Ancillary Facilities

	A	Actual Quantities of Iner	t C&D Materials C	enerated / Imported	(in '000m3)			Actual Qua	ntities of C&D Wastes (	Generated	
		Broken Concrete							Plastics		
3.641.		(including rock for				Imported		Paper/	(bottles/containers,plas		Others, e.g.
Month	Total Quantity	recycling into	Reused in the	Reused in other	Disposed as	C&D		cardboard	tic sheets/foam	Chemical	general
	Generated	aggregates)	Contract	Projects	Public Fill	Material	Metals	packaging	package material)	Waste	refuse
	(a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )
Jan	29.38182	0.14400	0.00000	28.90055	0.33727	0.45850	0.0000	0.00000	0.00000	0.00000	0.01788
Feb	20.99489	0.17365	0.00000	20.69526	0.12598	0.14700	52.3700	0.00000	0.00000	0.00000	0.03906
Mar	25.42917	1.30078	0.00000	24.07151	0.05688	1.25313	100.8400	0.00000	0.00000	0.00000	0.02243
Apr	16.76824	2.55390	1.02564	12.46633	0.72238	0.07514	9.1200	0.00000	0.00000	0.00000	0.03613
May	23.46874	0.62600	0.00000	22.28436	0.55838	2.49430	0.0000	0.00000	0.00000	0.00000	0.03846
Jun	8.60790	0.00000	0.00000	8.23532	0.37258	0.07696	34.0300	0.00000	0.00000	0.00000	0.04152
Sub-total	124.65074	4.79833	1.02564	116.65331	2.17346	4.50503	196.3600	0.00000	0.00000	0.00000	0.19548
Jul	11.97417	0.11118	0.00000	11.55559	0.30740	1.40670	0.0000	0.00000	0.00000	0.00000	0.08802
Aug	9.52968	0.10462	0.00000	9.29376	0.13130	0.76460	0.0000	0.00000	0.00000	0.00000	0.04487
Sep	8.25255	0.02177	0.00000	8.14904	0.08174	0.85210	0.0000	0.00000	0.00000	0.00000	0.04164
Oct	7.16179	0.04551	0.00000	7.05738	0.05891	1.93500	0.0000	0.00000	0.00000	0.00000	0.10916
Nov	7.62534	0.23198	0.00000	7.38300	0.01037	1.79960	0.0000	0.00000	0.00000	0.00000	0.12311
Dec	0.00000										
Total	169.19427	5.31338	1.02564	160.09208	2.76318	11.26303	196.36000	0.00000	0.00000	0.00000	0.60228

### SUMMARY TABLE FOR WORK PROCESSES OR ACTIVITIES REQUIRING TIMBER FOR TEMPORARY WORKS

Contract No.: 1/WSD/19

Monthly/Year: 11/2023

Contract Title: In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) - Water Treatment Works and Ancillary Facilities

Item No.	Description of Works Process or Activity [see note (a) below]	e note (a) below] Temporary Construction Works		Actual Quantities Used (000m <sup>3</sup> )	Remarks
1	S1F, S2F, RMF, SWPS, WET & OZONE	Concreting formwork	3.6	3.3	
		Total Estimated Quantity of Timber Used	3.6		

Notes: (a) The Contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.



	Name of Department:	WSD	Contract No.: 6/WSD/21
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### Monthly Summary Waste Flow Table for 2023 (year)

		Actual Quantities	of Inert C&D N	Materials Generate	ed Monthly		Actua	l Quantities of	C&D Wastes	Generated Mo	onthly
Month	Total Quantity Generated	II arde Broken	Reused in the Contract	Reused in other Projects	l •	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2022	13254.17	0.00	0.00	10021.50	2695.72	207.15	19.43	0.19	0.01	0.00	35.90
Jan-23	964.64	0.00	0.00	957.42	0.00	0.00	0.00	0.02	0.00	0.00	7.20
Feb-23	9404.28	0.00	0.00	7518.52	1880.86	0.00	2.73	0.00	0.00	0.00	2.17
Mar-23	910.01	0.00	0.00	540.37	0.00	332.17	29.73	0.00	0.00	0.00	7.74
Apr-23	5806.90	0.00	0.00	1724.82	2665.37	1404.55	4.12	0.09	0.01	0.00	7.93
May-23	2484.77	0.00	0.00	1301.97	601.63	569.10	0.00	0.00	0.00	0.00	12.07
Jun-23	2813.62	0.00	0.00	46.96	1754.73	994.78	6.23	0.05	0.00	0.00	10.86
Sub-total	22384.21	0	0	12090.06	6902.59	3300.603	42.8123	0.1632	0.0197	0	47.97
Jul-23	2798.10	0.00	0.00	616.79	1972.09	190.99	5.2	0.0464	0.0083	0	12.98
Aug-23	2615.24	0.00	0.00	846.52	1400.97	344.10	8.54	0	0	0	15.11
Sep-23	525.62	0.00	0.00	0.00	0.00	505.21	4.52	0	0	0	15.89
Oct-23	3840.03	0	0	754.90	2356.18	698.29	0	0.04	0.007	0	30.61
Nov-23	1579.30	0	0	1132.17	428.72	0	0	0.097	0	0	18.31
Dec-23											
Total	46702.84	0.00	0.00	25461.94	15756.27	5246.34	80.51	0.44	0.04	0.00	157.31

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 material
- (3) All recyclable materials, including metals, paper / carboard packaging, plastics, etc. will be collected by registered collector for recycling.
- (4) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m3; soil = 2.0 tonnes/m3

excavated: rock = 2.0 tonnes/m3; soil = 1.8 tonnes/m3; broken concrete and bitumen = 2.4 tonnes/m3

C&D Waste = 0.9 tonnes/m3; bentonite slurry = 2.8 tonnes/m3

## Appendix U Implementation Schedule of Environmental Mitigation Measures (EMIS)

### <u>Environmental Mitigation and Enhancement Measure Implementation Schedule at Construction Stage</u>

EIA Ref.	Recommended Mitigation Measures		Implementation Agent	Relevant Legislation		ation	_ Status	
	<b>0</b>	Measures		and Guidelines	D	С	О	
Air Quality								
4.7.1	Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.	All works areas	Contractor	Air Pollution Control		1		Υ
4.7.1	Side enclosure and covering of any aggregate or stockpiling of dusty material to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	All works areas	Contractor	Ordinance and Air Pollution Control (Construction		1		Υ
4.7.1	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	All works areas	Contractor	Dust) Regulation		1		Υ
4.7.1	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.	All works areas	Contractor	EM&A Manual		1		Υ
4.7.1	Imposition of speed controls for vehicles on site haul roads.	All works areas	Contractor			1		Υ
4.7.1	Implement EM&A program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All works areas / Monitoring points	Contractor			<b>V</b>		Y
Noise								
5.6.4	Implement good site practices to reduce noise level	All works areas	Contractor	Noise Control Ordinance		1		Y
5.6.5	Adoption of Quiet PME	All works areas	Contractor			1		N/A
5.6.6	Use of Movable Noise Barrier	All works areas	Contractor			1		N/A
5.8	Noise monitoring	Monitoring points	Contractor			<b>V</b>		Υ
Water Quality	, /							
6.8.1	Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand	All works areas	Contractor	ProPECC PN 1/94 Construction		1		Υ

	traps, silt traps and sedimentation basins. Channels or earth bunds or			Site Drainage		
	sand bag barriers should be provided on site to properly direct					
	stormwater to such silt removal facilities. Perimeter channels at site			TM-DSS		
	boundaries should be provided where necessary to intercept storm			PROVED THE TRACE SHARPER		
	run-off from outside the site so that it will not wash across the site.			Water Pollution		
	Catchpits and perimeter channels should be constructed in advance of			Control		
	site formation works and earthworks.			Ordinance		
6.8.2	Silt removal facilities, channels and manholes should be maintained and	All works areas	Contractor			
	the deposited silt and grit should be removed regularly, at the onset of				1	Y
	and after each rainstorm to prevent local flooding.					
6.8.3	Temporary exposed slope surfaces should be covered and temporary	All works area	Contractor			
	access roads should be protected by crushed stone or gravel, as					Y
	excavation proceeds. Intercepting channels should be provided to					1
	prevent storm run-off from washing across exposed soil surfaces.					
6.8.4	Earthworks final surfaces should be well compacted and the subsequent	All works areas	Contractor			
	permanent work or surface protection should be carried out immediately				0000	
	after the final surfaces are formed to prevent erosion caused by				1	N/A
	rainstorms. Appropriate drainage like intercepting channels should be					
	provided where necessary.					
6.8.5	Rainwater pumped out from trenches or foundation excavations should	All works areas	Contractor		1	Y
	be discharged into storm drains via silt removal facilities.				\ \ \ \ \ \	Y
6.8.6	Open stockpiles of construction materials (e.g. aggregates, sand and fill	All works areas	Contractor			
	material) on sites should be covered with tarpaulin or similar fabric				√	Y
	during rainstorms.					
6.8.7	Manholes (including newly constructed ones) should always be	All works areas	Contractor		7,000	
	adequately covered and temporarily sealed so as to prevent silt,				√	Y
	construction materials or debris from getting into the drainage system.					
6.8.8	Good site practices should be adopted to remove rubbish and litter from	All works areas	Contractor			
	construction sites so as to prevent the rubbish and litter from spreading				√	Y
	from the site area.					
6.8.9	All vehicles and plant should be cleaned before they leave a construction	All works areas	Contractor			
	site to minimize the deposition of earth, mud, debris on roads. A wheel		5.70-90.00.000			
	washing bay should be provided at every site exit if practicable and				√	Y
	wash-water should have sand and silt settled out or removed before					
	discharging into storm drains.					
6.8.10	Before commencing any demolition works, all drainage connections	All works areas	Contractor			
	should be sealed to prevent building debris, soil, sand etc. from entering				√	N/A

	drains.		
6.8.11	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be tankered off site for disposal into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary.	All works areas	Contractor
6.8.12	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10. The neutralized wastewater should be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.	All works areas	Contractor
6.8.13	All surface run-off must proper collected and discharge at designated location. The discharge quality must meet the requirements specified in the discharge license.	All works areas	Contractor
6.8.15	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All works areas	Contractor
6.8.16	Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges	All works areas	Contractor
6.8.17	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance.	All works areas	Contractor
6.8.18	Sewage generated from the workforce should be properly treated by interim treatment facilities, such as chemical toilets which are properly maintained with the employment of licensed collectors for the collection and disposal on a regular basis.	All works areas	Contractor
6.8.19	Adopt relevant measures stated in ETWB TC (Works) No. 5/2005 "Protection of Natural Streams/rivers from Adverse Impacts arising from Construction Works" to minimize the potential water quality impacts from the construction works near any water courses.	All works areas	Contractor
6.10	Water quality monitoring	Monitoring points	Contractor

7.6.1	Appropriate waste handling, transportation and disposal methods for all waste arisings generated during the construction works for the Project	All works areas	Contractor	Waste Disposal Ordinance		1	Υ
	should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel.			DEVB TCW No.			
7.6.2	Implementation of good site practices for waste management	All works areas	Contractor	6/2010,		<b>V</b>	Υ
7.6.3	Implementation of trip ticket system to control waste disposal	All works areas	Contractor				
				ETWB TCW No.		1	Υ
7.6.4	Implementation of good site practices to reduce waste generations	All works areas	Contractor	19/2005 Land		√	Υ
7.6.5	Re-use of excavated C&D materials on site as far as practical. A suitable	All works areas	Contractor	(Miscellaneous			
	area should be designated within the site for temporary stockpiling of	The state of the second	The STATE OF THE S	Provisions)		$\sqrt{}$	Υ
	C&D material and to facilitate the sorting process.			Ordinance			
7.6.8	General refuse should be stored in enclosed bins or compaction units	All works areas	Contractor				
	separate from C&D material. A reputable waste collector should be			Code of Practice		V	Υ
	employed by the contractor to remove general refuse from the site,			on the Packaging,		×	8.18
	separately from C&D material.			Labelling and			
7.6.9	All storage of asbestos waste should be carried out properly in a secure	All works areas	Contractor	Storage of			
	place isolated from other substances so as to prevent any possible			Chemical Wastes		1	
	release of asbestos fibres into the atmosphere and contamination of					V	N/A
	other substances. The storage area should bear warning panels to alert						
7.6.40	people of the presence of asbestos waste.	All	Control	_	-	-	
7.6.10	A licensed asbestos waste collector will be appointed to collect the	All works areas	Contractor			V	N1 /A
	asbestos waste and deliver to the designated landfill for disposal.					V	N/A
7.6.11	Application should be submitted to EPD.  If chemical wastes were to be produced at the construction site, the	All marks areas	Contractor				100
7.0.11	Contractor would be required to register with the EPD as a Chemical	All works areas	Contractor				
	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 should be						
	used, and incompatible chemicals should be stored separately.						
	Appropriate labels should be securely attached on each chemical waste					$\sqrt{}$	Υ
	container indicating the corresponding chemical characteristics of the					,	
	waste, such as explosive,						
	flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The						
	Contractor shall use a licensed collector to transport the chemical wastes.						
	The licensed collector shall deliver the waste to the Chemical Waste						
	Treatment Centre at Tsing Yi, or other licenced facility, in accordance with						

	the Waste Disposal (Chemical Waste) (General) Regulation.					
Ecology		1				
8.8.1	Ecological impacts on important habitats and the associated wildfile caused by the proposed development should be mitigated and compensation approaches to the maximum practical extent	All works areas in particular important	The Engineer/ Contractor	EIAO-TM EM&A Manual	1	Y
8.8.2	Reduce the amount of vegetation removal required and thereby minimize the footprint of the slope at the woodland habitat	habitats All works areas	The Engineer/ Contractor		<b>V</b>	Υ
8.8.3	Conduct detailed vegetation survey and implement suggested measures for species of conservation importance.		The Engineer/ Contractor		<b>V</b>	Υ
8.8.4	The affected Incense Tree and Ailanthus as mentioned in the detailed vegetation survey report within the works area will be transplanted		The Engineer/ Contractor		<b>√</b>	Y
8.8.5	To avoid impacts on Short-nosed Fruit Bat, the tree with records of an active roost and trees showing evidence of roosting activity should be retained where possible. Where Chinese Fan-palm (Livistona chinensis) removal is required, these should be checked by suitably qualified ecologist with over 7 years relevant experience for roosting bats prior to their removal. If roosting bats are observed, a strategy for passive removal will be agreed with the AFCD and implemented. This could include undertaking the works just after the bats have left the roost (i.e. dusk).		The Engineer/ Contractor		<b>V</b>	N/A
8.8.6	The inclusion of Chinese Fan-palm of similar size as the affected plant within the areas of compensatory planting or other suitable areas is recommended to replace affected specimens, and compensate for the impact to roosting opportunities for this bat species		The Engineer/ Contractor		1	N/A
8.8.7	Implement good site measures to minimize the disturbance impacts to terrestrial habitat and associated wildlife arising from the land-based construction activities.		The Engineer/ Contractor		<b>V</b>	Υ
8.8.8	To minimize the contamination of wastewater discharge, accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as diverting the site runoff to silt trap facilities before discharging into storm drain, proper waste and dumping management and standard good site practice for land-based construction.		The Engineer/ Contractor		<b>V</b>	Y
8.8.9-8.8.11	Implement woodland compensation		The Engineer/ Contractor		<b>V</b>	N/A

	Visual	Allaulea aua	Combination	DEVID TOW No	T T	
.8.1	Existing tress to be retained on site shall be carefully protected during construction. Trees unavoidably affected by the works shall be transplanted as far as possible.	All works areas	Contractor	DEVB TCW No. 10/2013	√	Y
	Compensatory Planting shall be provided in accordance with DEVB TCW No. 10/2013 – Tree Preservation.	V All works areas Contractor		EIAO TM	√	Y
	Control of night-time lighting glare.	All works areas	Contractor		1	Y
	Erection of decorative screen hoarding compatible with the surrounding setting.	All works areas	Contractor		1	Y
	Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	All works areas	Contractor		1	Y
ultural Herita	ge					
0.6.2	Vibration monitoring at Ex KCR Beacon Hill Tunnel during piling works of Administration Building	Work site	The Engineer /Contractor		1	N/A
and Contamir	nation					
1.7	Identify contamination and implement appropriate remedial measures on site. Provide relevant submission and obtain approval from EPD if necessary.	All works areas	Contractor	Guidance Note for Contaminated Land Assessment and Remediation  Guidance Manual for Use of Risk based Remediation Goals for Contaminated Land Management (Guidance Manual)	V	N/A
lazard to Life			T	T = =		
able 12.22	Ensure speed limit enforcement is specified in the contractor's Method Statement to limit the speed of construction vehicles on site	All works areas	The Engineer	EIAO-TM	√	Y
	Develop an audit procedure to ensure enforcement of speed limits and to ensure adequate site access control	All works areas	The Engineer		1	Y
	Ensure construction method statement is endorsed by the Engineer (AECOM)	All works areas	The Engineer		1	Υ

Ensure designated manoeuvring area for the new access road construction is away from the Chlorination House	New access road area	Contractor/ The Engineer		√	Υ
Ensure that the emergency response plan and procedures (including drills) cover the reprovisioning activities	All works areas	Contractor/ The Engineer		1	Υ
Safety training to be provided to construction workers and WSD/Engineer staff regarding evacuation procedures	All works area	Contractor/ The Engineer		1	Y
Ensure communication protocol is in place between construction and operation staff with regard to the change of chlorine delivery route and the switchover from the existing to new chlorinated water piping;	All works areas	Contractor/ The Engineer		1	N/A
Ensure temporary suspension of crane operation and construction truck movements during chlorine delivery	All works areas	Contractor/ The Engineer		1	Υ
Provide a crash barrier between the construction site and the north side of the Chlorination House.	Chlorination House area	Contractor		√	Υ
Conduct vibration monitoring at the Chlorination House during piling activities to ensure vibration levels are acceptable and will not lead to any damage of the Chlorination House	Chlorination House area	Contractor		1	Y
Civil engineering calculation to be performed to confirm differential settlement from excavation work is within acceptable limits for the Chlorination House	Chlorination House area	Contractor		1	Y
Provide settlement monitoring for the Chlorination House to ensure no subsidence occurs from nearby excavation works.	Chlorination House area	Contractor		<b>√</b>	Υ
Confirm the chlorine concentration for the chlorinated water before the switchover from the existing to new piping. This is to avoid the potential for chlorine gas vapours being released if the concentration is too high and there is spillage during switchover	Chlorinated water piping	WSD		1	N/A
Develop an operating procedure for performing the chlorinated water switchover from the existing piping to new piping.	All works areas	Contractor/ The Engineer / WSD		1	N/A
Ensure the location/height of the lifting equipment is such there is no impact on Chlorination House/chlorine delivery route in case of falling, swinging or dropped load.	Chlorination House area	Contractor/ The Engineer		1	Υ
Implement the controlled demolition of the existing E&M workshop to ensure that any steel structural elements can only fall away from the Chlorination House	Existing E&M Workshop and Chlorination House	Contractor/ The Engineer		1	N/A

		1	_	 	
	areas				
Stop any construction activities which may lead to vibrations and potential slope/boulder disturbance during the chlorine deliveries	All works areas	Contractor		N	\ \ \
Installation of Chlorine gas monitors with audible alarms in the relevant reprovisioning works area	Reprovisioning works areas	Contractor/ The Engineer		\ \	1
Provision of an accompanying vehicle for the chlorine truck on the WTW site and ensuring that during the chlorine drums delivery construction works are stopped and the construction workers moved away from Chlorination House	All works areas	Contractor		V	<b>V</b>
Establish a liaison between the contractor and HKCG and develop a chlorine/town gas emergency plan to ensure gas safety during the Construction Phase	Beacon Hill North Gas Offtake Station and Gas Pipelines in Old Beacon Hill Tunnel	The Engineer / Contractor / HKCG		N	V
Temporary suspend chlorine delivery during the short period of construction of the concerned section of elevated walkway to avoid mobile crane impact on the chlorine truck		The Engineer / Contractor			√
Provide clear road signs for site vehicles	Chlorine delivery route and reprovisioning works access roads	The Engineer / Contractor		√	<b>V</b>
Large equipment/plant movement should be controlled by 'Permit-to-move' system	All works areas	The Engineer / Contractor / WSD		V	\display
Define restricted zone for the equipment (i.e. keep the equipment from the Chlorination House at a safe distance). The extent of the restricted zone would be determined by the size of the equipment	Chlorination House area	The Engineer / Contractor		V	\display
Locate the construction site office at or near property boundary away from the Chlorination House as far as possible	Construction Office area	The Engineer / Contractor			√
Entry of non-authorized personnel to the construction site to be prohibited	All works areas	Contractor		V	<b>√</b>

12.15.4, 12.18.1, 12.22.9	GPS fleet management system with driver training to help enforce truck speeds	Chlorine delivery trucks, fleet management	WSD / Chlorine Supply Contractor	EIAO-TM	<b>V</b>	k	k.i.v.
		centre					
	Improved clamps with independent checks to prevent load shedding	Chlorine delivery trucks			√	F	F
	Installation of fire screen and larger fire extinguishers to prevent engine and wheel fires from spreading to the cargo area	delivery tracks			√	F	F
	Adoption of the chlorine delivery route from Sham Shui Kok Dock to Sha Tin WTW				<b>√</b>	F	F
	Provision of emergency repair kit				V	F	F
12.34.3 Table 12.37	Ban the use of retreaded tyres and perform regular visual checks on the tyres.				√	F	F
& 12.38	A vehicle accompanying chlorine truck along critical road sections in Sha Tin. The truck should be equipped with emergency kit, fire extinguisher, radio set for communication. The accompanying vehicle will be ahead of the chlorine truck after the vehicles entering the water treatment works site – An accompanying vehicle may provide rapid response to an incident but any action would be limited to containing a small leak.				٧	F	F
	Limit fuel tanks capacity at the beginning of the Project (Item 2.3 of Table 12.37 – advance measure).				√	F	F
	Review the practicality of reducing combustible materials or use of fire retardant materials in the cab. (Item 2.3 of Table 12.37 – further measure)				1	k	k.i.v.
	Annual periodic radiography or ultrasonic test inspections of the chlorine drums should be considered for implementation as soon as feasible (Item 3.8 of Table 12.37).	Chlorine drums			V	k	k.i.v.
	Implement side, front and rear crash guards with high energy absorption in coordination and accordance with the relevant authorities.	Chlorine delivery trucks			√	k	k.i.v.
	Implement a sturdy steel frame to minimize the potential for chlorine release due to truck rollover				1	k	k.i.v.
12.34.4	WSD will continue to keep under review the latest development of use of alternative disinfectants in water supply industry to aim at minimising on-site chlorine storage.4	Chlorine delivery Route	WSD		<b>V</b>	k	k.i.v.

Training should be provided for the use of the GPS fleet management and improved safe driving.	√	k.i.v
Ensured that independent checks are performed to ensure proper chlorine drum latching and clamping.	√	F
Chlorine truck drivers or driver attendants should be further trained to check and detect potential chlorine leaks during transport. This should include the timely application of the emergency kit.	√	k.i
Training should be provided to driver and driver attendant for the emergency use of the new 2 × 9L AFFF extinguishers.	<b>√</b>	F
Induction training for new drivers and driver attendant should include familiarisation with the route, familiarisation with chlorine risks, defensive driving, application of emergency kits, use of fire extinguishers and emergency response	٧	k.
Provision of a fire screen between the cab and cargo as well as fire retardant materials for the wheel arches on the chlorine truck should be planned and provided	√	F
To keep under review alternate chlorine receiving dock in Sha Tin/Tai Po area for chlorine delivery to STWTW.	√	k.

### Legend

- D Design Phase
- C Construction Phase
- O Operation Phase
- Y Compliance of Mitigation Measures
- N/A Not Applicable in Reporting Period
- k.i.v Keep In View
- F Completed

# Appendix V Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions

### Statistical Summary of Exceedances (November 2023)

Air Quality										
Location	A	ction Lev	el		Limit Level				Total	
AM1		0				0			0	
AM2	0					0			0	
Noise										
Location	A	ction Lev	el		I	imit Leve	el		Total	
NM1		0				0			0	
NM2	12 0 0			0						
NM3	0 0						0			
				Wa	ter Qualit					
Location	Action Level				Limit Level					
Location	DO	Turbidity	SS	pН	DO	Turbidity	SS	pН	Total	
C1	0	0	0	0	0	0	0	0	0	
C2	0	0	0	0	0	0	0	0	0	
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
M1	0	0	0	0	0	0	1	0	1	
M2	0	0	0	0	0	0	0	0	0	
M3	0	0	0	0	0	0	1	0	1	

There was 0 exceedances of Action Level and 0 exceedance of Limit Level in November 2023

### Statistical Summary of Exceedances (Cumulative)

				Ai	r Quality	,				
Location	A	ction Lev	el		Limit Level				Total	
AM1	0					0			0	
AM2		0				0			0	
Noise										
Location	A	ction Lev	el		I	imit Leve	el		Total	
NM1		0 0						0		
NM2	0		0					0		
NM3	0				0					
				Wa	ter Qualit	,				
Location	Action Level			Limit Level						
Location	DO	Turbidity	SS	pН	DO	Turbidity	SS	pН	Total	
C1	0	0	18	4	1	10	8	3	44	
C2	0	1	12	1	5	9	6	1	35	
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	
M1	0	1	7	1	7	6	26	7	55	
M2	0	0	0	0	9	3	2	0	14	
M3	0	0	0	2	10	22	46	0	80	

### Statistical Summary of Environmental Complaints

Reporting	<b>Environmental Complaint Statistics</b>						
Period	Frequency	Complaint Nature	Cumulative				
1 November– 30 November 2023	0	N/A	4				

### Statistical Summary of Environmental Summons

Reporting	Environmental Summons Statistics						
Period	Frequency	Details	Cumulative				
1 November – 30 November 2023	0	N/A	0				

### Statistical Summary of Environmental Prosecution

Reporting	Environmental Prosecution Statistics							
Period	Frequency	Details	Cumulative					
1 November – 30 November 2023	0	N/A	0					





To IEC (AECOM), ER (AECOM), Contractor Fax No By-email

(ATAL - CW - MH JV (ACMJV), CW-FWS JV)

CC

From Oliver Chiu Date 11 December 2023

Our Ref CJO - 3113

RE Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water

Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 17 November

2023

Dear Sir,

Exceedances of water quality were found in the monitoring on 17 November 2023. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action	Limit	Measured	Range of	Exceedance
			Level	Level	Level	Baseline	
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	1.8	<1-9.7	
C2		Fin a	4.22	0.16	1.4	-1 12.0	
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.4	<1-12.0	
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	5.1	<1-4.7	Limit level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.4	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	<1	<1-1.3	-

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,
For and on Behalf of
Acumen Environmental Engineering & Technologies Co., Ltd.

Oliver Chiu

Assistant Environmental Consultant





### <u>Investigation Report on Limit Level Non-compliance on 17 November 2023</u>

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 11 December 2023

### (I) Summary of exceedance on 17 November 2023

Station	Parameter	Weather	Action	Limit	Measured	Range of	Exceedance
			Level	Level	Level	Baseline	
C1	Suspended	Fine	4.19	6.73	1.8	<1 – 9.7	
	Solids (mg/L)						
C2	Suspended	Fine	4.33	8.16	1.4	<1 – 12.0	
	Solids (mg/L)						
M1	Suspended	Fine	3.30	3.56	5.1	<1-4.7	Limit level
	Solids (mg/L)						
M2	Suspended	Fine	18.84	26.80	2.4	<1 - 38	-
	Solids (mg/L)						
M3	Suspended	Fine	1.00	1.00	<1	<1-1.3	-
	Solids (mg/L)						

### (II) Investigation Results, Recommendations & Mitigation Measures

- 1) According to the field observation from the Environmental Team (ET) on 17 November 2023, no polluted discharge was made from construction site to Impact Monitoring Station M1 (Photo 1). The condition of water at Impact Station M1 was in order and no discharge from construction was observed (Photo 1).
- 2) Weekly site inspection by the Contractor, ET was conducted on 22 November 2023 to audit the site environmental performance. The finding of the inspection were summarized below:

### 6/WSD

- I. It is observed that water accumulation in the site area. Contractor reminded to clear it.
- II. It is observed that waste disposal in the site area. Contractor reminded to clear it.
- 3) In our investigation on 17 November 2023, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). The water accumulation was observed on the 6/WSD site area (Photo 5). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.





### Photo Record

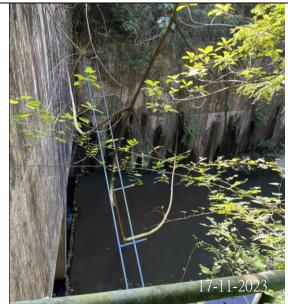


Photo 1 (M1)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)







Photo 4 (Water quality of water treatment tank at 1/WSD)



Photo 5 (Water accumulation on the site area at 6/WSD)





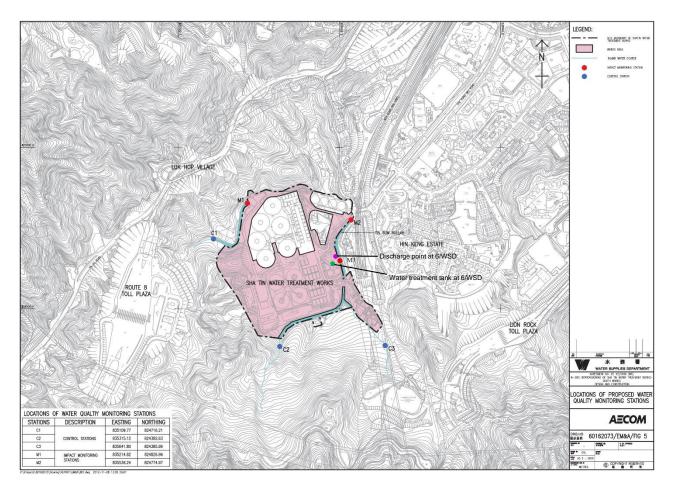


Figure 1 Location Map Water Quality Monitoring Location





To IEC (AECOM), ER (AECOM), Contractor

Fax No

By-email

(ATAL - CW - MH JV (ACMJV), CW-FWS

JV)

From Oliver Chiu

Date

11 December 2023

Our Ref

CJO - 3113

RE

Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water

Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 29 November

2023

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 29 November 2023. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	<1	<1-9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	<1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	<1	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.2	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully,

For and on Behalf of

Acumen Environmental Engineering & Technologies Co., Ltd.

Oliver Chiu

Assistant Environmental Consultant





### <u>Investigation Report on Limit Level Non-compliance on 29 November 2023</u>

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) — WATER

TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 11 December 2023

### (I) Summary of exceedance on 29 November 2023

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	<1	<1-9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	1.9	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	<1	<1-4.7	-
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	<1	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.2	<1-1.3	Limit Level

### (II) Investigation Results, Recommendations & Mitigation Measures

- 1) According to the field observation from the Environmental Team (ET) on 29 November 2023, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor and ET was conducted on 30 November 2023 to audit the site environmental performance. The overall condition was in compliance.
- 3) In our investigation on 29 November, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the FM&A Manual.





### **Photo Record**

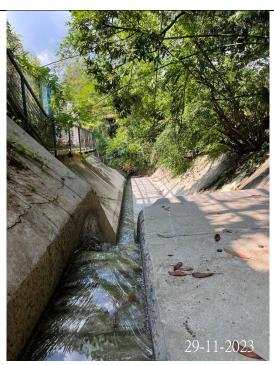


Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)







Photo 4 (Water quality of water treatment tank at 1/WSD)





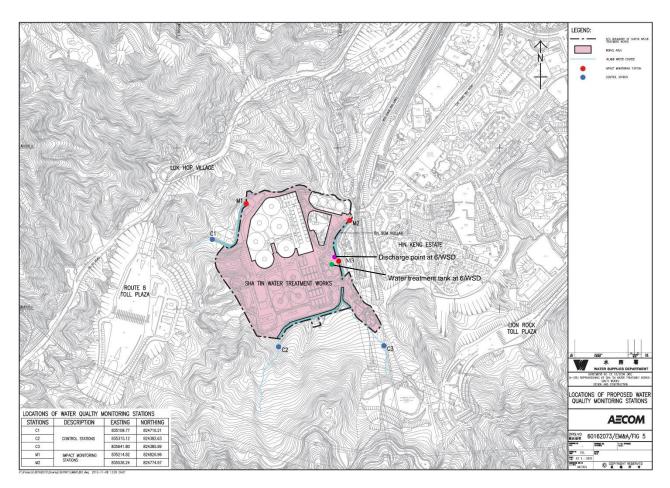


Figure 1 Location Map Water Quality Monitoring Location

## Appendix W Tentative Schedule of Impact Monitoring

Tentative Impact Monitoring Schedule for STWTW							
Dec-23SunMonTueWedThuFriSat							
Sun	IVION	Tue	vved	i nu	[ [ ]   ]	2	
					Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		
3	4	5	6	7	8	9	
5	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 8, AM2	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		
10	11	12	13	14	15	16	
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		
17	18	19	20	21	22	23	
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 & AM2  Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact	
24	25	26	27	28	29	30	
			Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		
31							

Tentative Impact Monitoring Schedule for STWTW								
Jan-24								
Sun	Mon		Wed			Sat		
	1	2	3	4	5	6		
		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		
7	8	9	10	11	12	13		
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3			
14	15	16	17	18	19	20		
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3			
21	22	23	24	25	26	27		
	Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 & AM2  Noise monitoring for NM1, NM2 &  NM3		
28	29	30	31					
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					

Tentative Impact Monitoring Schedule for STWTW							
Feb-24							
Sun	Mon	Tue	Wed	Thu		Sat	
				1	2	3	
					Impact  Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for		
					NM1, NM2 & NM3		
4	5	6	7	8	9	10	
	Impact Water Quality monitoring for C1, C3		Impact Water Quality monitoring for C1, C2,	Impact Air monitoring for AM1 & AM2	Impact Water Quality monitoring for C1, C2,	Impact Air monitoring for AM1 & AM2	
	Water Quality monitoring for C1, C2, C3, M1, M2 & M3		C3, M1, M2 & M3	Noise monitoring for NM1, NM2 & NM3	C3, M1, M2 & M3	Noise monitoring for NM1, NM2 & NM3	
11	12	13	14	15	16	17	
				Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 & AM2  Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	
18	19	20	21	22	23	24	
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact  Air monitoring for AM1 & AM2  Noise monitoring for NM1, NM2 &  NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		
25	26	27	28	29			
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				