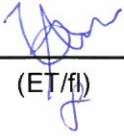


Ming Hing – Ming Hing Civil – Vasteam
Joint Venture

Contractor's General Submission Form (CGS)

| | | | |
|---------------------------------|--|--------------------------|-------------|
| Contract No. | 3/WSD/15 | | |
| Project Title: | In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) – Advance Works | | |
| CGS No.: | 3WSD15/CGS/SEQ/ALL/JV1033 | Issue: | A |
| | | Date: | 15/10/2020 |
| To: | Engineer's Representative | Your Ref: | |
| Attention: | Mr. Elsie Leung | | |
| From: | Ming Hing – Ming Hing Civil – Vasteam Joint Venture | | |
| Title: | EM & A Impact Monitoring Report (Sep 2020) | | |
| Specification: | --- | | |
| Purpose: | <input type="checkbox"/> For Information <input type="checkbox"/> For Comment <input type="checkbox"/> For Approval <input checked="" type="checkbox"/> For Record | | |
| Description of Contents: | <p>We herewith submit the EM&A Impact Monitoring Report (Sep 2020) for your perusal and record.</p> | | |
| Attachment: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Number of Copies: | 5 + 5 CD |
| Expected reply date: | 30 Oct 2020 | | |
| Issued By: |  _____ (ET/fl) | Printed Name: | Mr. Eros To |
| Designation: | Site Agent _____ | Date: | 15 Oct 2020 |
| Received By: | _____ | Received Date: | _____ |
| | (Signature & Received Chop) | | |

* Delete if not applicable

CC. JV Partner – (w/ encl.)
 Office Master Copy – (w/ encl.)

Your Ref:
Our Ref: 60479142/C/fyw2010151

By Hand & By Email

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

Attn: Mr. Edmund Huen

15 October 2020

Dear Sir,

**Contract No.3/WSD/15q
In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) Advance Works
Submission of 55th Monthly EM&A Report for September 2020**

Reference is made to Environmental Team (ET)'s 55th Monthly EM&A Report for September 2020 (Rev. 0) submitted on 15 October 2020.

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

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)

15 September, 2020

Dear Sir,

In-Situ Re provisioning of Sha Tin Water Treatment Works – South Works

Environmental Permit EP-494/2015

Submission of 55th monthly EM&A Report

In accordance with the Condition 3.4 of the Environmental Permit (No. EP-494/2015), we submit herewith 5 hard copies and 2 electronic copies of the 55th 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,



Ir Leung, Jacky, C. H.

Environmental Team Leader

c.c. Independent Environmental Checker



Water Supplies Department



**MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
(EM&A) REPORT (NO. 55)**

FOR

**CONTRACT No. 3/WSD/15
IN-SITU REPROVISIONING OF SHA TIN
WATER TREATMENT WORKS – SOUTH WORKS**

(Rev. 0)

**MONTHLY ENVIRONMENTAL
MONITORING AND AUDIT
(EM&A) REPORT (NO. 55) –**

**FOR
CONTRACT NO. 3/WSD/15
IN-SITU REPROVISIONING OF SHA TIN WATER
TREATMENT WORKS – SOUTH WORKS**





| | Name | Signature |
|-------------------------|--|---|
| Prepared by | Mr. Ng Ricky |  |
| Reviewed by | Mr. Wong, Vega, T. L. |  |
| Approved & Certified by | Ir Leung, Jacky, C. H. Environmental Team Leader (ETL) |  |
| Verified & Confirmed by | Mr. Fung, Y. W. Independent Environmental Checker (IEC) |  |

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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. 3/WSD/15, Ming Hing - Ming Hing Civil - Vasteam Joint Venture (MMVJV) is commissioned by WSD to undertake the construction of the advance 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 MMVJV 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 the Contract commenced on 30 October 2015 for completion by 2021. 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 55th monthly Environmental Monitoring and Audit Report for this Contract covering the period from 1 September 2020 to 30 September 2020 (the Reporting Period). As informed by the Contractor, major activities in the reporting period included:
- Architectural Builders Works and Finishes at Logistic Center
 - Architectural Builders Works and Finishes at Alum Tank & Hydro Turbine House
 - Testing and Commissioning Works at Logistic Center
 - Construction of New Carriageway and Associate Works at South Access Entrance
 - Tree Felling
 - Demolition Works of Existing Guard House and M123 Temporary Road
 - Indoor Air Quality Monitoring in Logistic Centre
 - Landscaping Works
- A.5 Environmental monitoring activities under the EM&A program in this reporting period are summarized below

| Issues | Environmental Monitoring Parameters / Inspection | Occasions |
|--------------------|---|------------------|
| Air | 1-Hour TSP | 18 |
| Noise | $L_{eq(30mins)}$ Daytime | 6 |
| Water Quality | Water Sampling | 13 |
| Inspection / Audit | ET Regular Environmental Site Inspection | 5 |
| | IEC Monthly Environmental Site Audit | 1 |

- A.6 No exceedance of air quality, noise and water quality monitoring were recorded in this reporting period.
- A.7 No environmental complaint were received via EPD in this reporting period.
- A.8 No notification of any summons and successful prosecutions was received in this reporting period.
- A.9 No reporting change was made in this reporting period.
- A.10 There was no EPD site inspection conducted in the reporting period.



- A.11 As informed by the Contractor, the major works for this Project in September 2020 will be:
- Architectural Builders Works and Finishes at Logistic Center
 - Architectural Builders Works and Finishes at Alum Tank & Hydro Turbine House
 - Testing and Commissioning Works at Logistic Center
 - Construction of New Carriageway and Associate Works at South Access Entrance
 - Tree Felling
 - Demolition Works of Existing Guard House and M123 Temporary Road
 - Indoor Air Quality Monitoring in Logistic Centre
 - Landscaping Works
- A.12 EM&A monitoring for the 55th reporting period has been completed. The 56th monthly EM&A report will cover the period from 1 October 2020 to 31 October 2020.



1. 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. 3/WSD/15, Ming Hing - Ming Hing Civil - Vasteam Joint Venture (MMVJV) is commissioned by WSD to undertake the construction of the advance 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 MMVJV 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 the Contract commenced on 30 October 2015 for completion by 28 January 2021. 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 Department | Engineer / Project Management | Mr. Chiu, Aletta C. M. | 2829 5653 |
| AECOM | Senior Resident Engineer (Civil) | Mr. Ng, Derek, K. H. | 9717 1420 |
| | Independent Environmental Checker | Mr. Fung, Y. W. | 3922 9366 |
| | Deputy Independent Environmental Checker | Ms. Lam, Lemon, M. C. | 3922 9381 |
| Ming Hing - Ming Hing Civil - Vasteam Joint Venture | Project Manager | Mr. Lam, Larry, M. W. | 6478 0501 |
| | Site Agent | Mr. To, Eros, W. H. | 9223 9590 |
| Acumen Env. Eng. & Tech. Co. Ltd. | Project Director | Ir Dr. Lam, Gabriel, C. K. | 2333 6823 |
| | Environmental Team Leader | Ir Leung, Jacky, C. H. | 9060 2368 |
| | Ecologist | Mr. Liu, Vincent, W. L. | 6505 5827 |

1.3. SCOPE OF REPORT

1.3.1 This is the 55th monthly EM&A Report under the Contract No. 3/WSD/15 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) – Advance Works covering the period from 1 September 2020 to 30 September 2020 (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 is shown in **Appendix C**.

1.4.2 As informed by the Contractor, details of the major works carried out in this reporting month are listed below:

- Architectural Builders Works and Finishes at Logistic Center
- Architectural Builders Works and Finishes at Alum Tank & Hydro Turbine House
- Testing and Commissioning Works at Logistic Center
- Construction of New Carriageway and Associate Works at South Access Entrance
- Tree Felling
- Demolition Works of Existing Guard House and M123 Temporary Road
- Indoor Air Quality Monitoring in Logistic Centre
- Landscaping Works



- 1.4.3 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: ◆ $L_{eq\ 30\ min}$ 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

| Environmental Issue | Parameter |
|---------------------|---|
| Air Quality | ● 1-hour TSP Monitoring by Real-Time Portable Dust Meter |
| Noise | ● $L_{eq\ (30min)}$ during normal working hours |
| Water Quality | In-situ measurement <ul style="list-style-type: none"> ● Dissolved Oxygen (mg/L); ● Dissolved Oxygen Saturation (%); ● Turbidity (NTU); ● pH value; ● Water depth (m); and ● Temperature (°C) |
| | Laboratory analysis <ul style="list-style-type: none"> ● 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 | Sensidyne Model 80570 |
| 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 six (6) 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

| Date | Weather | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|----------------|---------|---|----------|-----------------------------|-----------------------------|-----------------------------|
| | | Start Time | End Time | 1 st Measurement | 2 nd Measurement | 3 rd Measurement |
| 09/04/2020 | Fine | 15:24 | 18:24 | 106 | 117 | 128 |
| 09/09/2020 | Fine | 15:35 | 18:35 | 62 | 51 | 59 |
| 09/14/2020 | Fine | 08:10 | 11:10 | 38 | 45 | 42 |
| 09/18/2020 | Sunny | 15:32 | 18:32 | 82 | 90 | 76 |
| 09/23/2020 | Cloudy | 08:15 | 11:15 | 76 | 85 | 73 |
| 09/28/2020 | Cloudy | 09:36 | 12:36 | 80 | 83 | 84 |
| Average | | | | 76.5 | | |
| Range | | | | 38 – 128 | | |

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

| Date | Weather | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|----------------|---------|---|----------|-----------------------------|-----------------------------|-----------------------------|
| | | Start Time | End Time | 1 st Measurement | 2 nd Measurement | 3 rd Measurement |
| 09/04/2020 | Fine | 15:30 | 18:30 | 98 | 132 | 124 |
| 09/09/2020 | Fine | 15:42 | 18:42 | 65 | 54 | 66 |
| 09/14/2020 | Fine | 08:16 | 11:16 | 43 | 51 | 44 |
| 09/18/2020 | Sunny | 15:38 | 18:38 | 85 | 79 | 68 |
| 09/23/2020 | Cloudy | 08:21 | 00:21 | 81 | 76 | 80 |
| 09/28/2020 | Cloudy | 09:46 | 12:46 | 84 | 88 | 90 |
| Average | | | | 78.2 | | |
| Range | | | | 43 – 132 | | |

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_{eq} had been recorded at the specified intervals. The non-project related construction activity – Sha Tin to Central Link (SCL) for Hin Keng to Diamond Hill Tunnel, in the vicinity of the monitoring stations during the impact monitoring had been noted and the source and location of this activity had been recorded.
- 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 |
|--------------------------|--|---|
| NM1 | HK2 | The L Louey (South) (at a platform level of about 5m above road level nearby - free field measurement) |
| NM2 | HK5 | Hin Keng Estate – Hin Wan House (at the roof level - facade measurement) |
| NM3 | HK7 | C.U.H.K.F.A.A. 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 | NTi Audio XL2 |
| Acoustic Calibrator | Rion NC-74 |
| 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^{-1} or wind with gusts exceeding 10 ms^{-1} . The wind speed was checked with a portable wind speed meter capable of measuring with speeds in ms^{-1} .
- 2.3.8 In this Reporting Period, a total six (6) 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

| Date | Time | Weather | 1 st Leq _{5min} | 2 nd Leq _{5min} | 3 rd Leq _{5min} | 4 th Leq _{5min} | 5 th Leq _{5min} | 6 th Leq _{5min} | Leq _{30min} |
|--------------------------------|---------------|---------|--|--|--|--|--|--|----------------------|
| 09/04/2020 | 16:43 - 17:13 | Fine | 63.2 | 64.2 | 62.2 | 63.2 | 64.1 | 63.0 | 63.4 |
| 09/09/2020 | 16:53 - 17:23 | Fine | 61.6 | 62.1 | 63.2 | 62.8 | 61.9 | 62.2 | 62.3 |
| 09/14/2020 | 09:28 - 09:58 | Fine | 60.9 | 62.6 | 63.2 | 64.2 | 62.0 | 61.6 | 62.6 |
| 09/18/2020 | 16:52 - 17:22 | Sunny | 63.0 | 64.5 | 63.0 | 62.6 | 64.5 | 61.9 | 63.4 |
| 09/23/2020 | 09:34 - 10:04 | Cloudy | 61.7 | 62.6 | 61.6 | 64.2 | 63.2 | 64.1 | 63.0 |
| 09/28/2020 | 11:16 - 11:46 | Cloudy | 62.8 | 63.7 | 63.1 | 62.9 | 63.2 | 63.3 | 63.2 |
| Average | | | | | | | | | 63.0 |
| Range | | | | | | | | | 62.3 – 63.4 |
| Limit Level >75dB(A) | | | | | | | | | |

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

| Date | Time | Weather | 1 st Leq _{5min} | 2 nd Leq _{5min} | 3 rd Leq _{5min} | 4 th Leq _{5min} | 5 th Leq _{5min} | 6 th Leq _{5min} | Leq _{30min} |
|--------------------------------|---------------|---------|--|--|--|--|--|--|----------------------|
| 09/04/2020 | 15:30 - 16:00 | Fine | 62.1 | 63.2 | 62.1 | 61.4 | 58.6 | 62.1 | 61.8 |
| 09/09/2020 | 15:42 - 16:12 | Fine | 63.0 | 61.2 | 63.2 | 62.5 | 61.6 | 60.4 | 62.1 |
| 09/14/2020 | 08:16 - 08:46 | Sunny | 60.5 | 59.0 | 60.2 | 58.7 | 63.2 | 61.9 | 60.9 |
| 09/18/2020 | 15:38 - 16:08 | Cloudy | 61.6 | 63.2 | 60.5 | 59.5 | 60.7 | 62.0 | 61.4 |
| 09/23/2020 | 08:21 - 08:51 | Cloudy | 62.2 | 61.6 | 63.2 | 61.6 | 62.1 | 61.0 | 62.0 |
| 09/28/2020 | 09:45 - 10:15 | Cloudy | 60.0 | 60.7 | 61.3 | 62.4 | 61.8 | 61.5 | 61.4 |
| Average | | | | | | | | | 61.6 |
| Range | | | | | | | | | 60.9 – 62.1 |
| Limit Level >75dB(A) | | | | | | | | | |



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

| Date | Time | Weather | 1 st Leq _{5min} | 2 nd Leq _{5min} | 3 rd Leq _{5min} | 4 th Leq _{5min} | 5 th Leq _{5min} | 6 th Leq _{5min} | Leq _{30min} |
|---|---------------|---------|--|--|--|--|--|--|----------------------|
| 09/04/2020 | 16:05 - 16:35 | Fine | 62.1 | 60.5 | 59.9 | 57.8 | 58.1 | 60.5 | 60.1 |
| 09/09/2020 | 16:16 - 16:46 | Sunny | 59.9 | 60.5 | 61.6 | 57.0 | 58.3 | 56.9 | 59.4 |
| 09/14/2020 | 08:50 - 09:20 | Cloudy | 60.0 | 56.5 | 58.5 | 59.5 | 56.5 | 58.8 | 58.5 |
| 09/18/2020 | 16:14 - 16:44 | Cloudy | 58.8 | 28.8 | 60.5 | 61.6 | 59.3 | 60.0 | 59.4 |
| 09/23/2020 | 08:56 - 09:26 | Cloudy | 58.8 | 58.7 | 59.5 | 58.7 | 57.0 | 60.6 | 59.0 |
| 09/28/2020 | 10:22 - 10:52 | Cloudy | 58.1 | 57.9 | 57.6 | 57.7 | 58.4 | 58.9 | 58.1 |
| Limit Level | | | | | | | | Average | 59.1 |
| 70dB(A) during normal teaching periods or 65dB(A) during examination periods | | | | | | | | Range | 58.1 – 60.1 |

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

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 Monitoring Station | Description | Co-ordinates | |
|----------------------------------|----------------------------|--------------|----------|
| | | Easting | Northing |
| C1 | Control Stations | 835110 | 824716 |
| C2 | | 835403 | 824470 |
| C3 | | 835642 | 824386 |
| M1 | Impact Monitoring Stations | 835215 | 824827 |
| M2 | | 835536 | 824775 |
| M3 | | 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 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. |
| Turbidimeter | 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.



Table 2-14: Summary of Water Quality Monitoring Results

| Dissolved Oxygen – Mid Depth (mg/L) | C1 | C2 | C3 | M1 | M2 | M3 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Average | 8.66 | 8.54 | N/A | 9.18 | 9.17 | 9.44 |
| Min. | 8.29 | 8.37 | N/A | 8.85 | 8.81 | 9.23 |
| Max. | 9.54 | 8.80 | N/A | 9.43 | 9.39 | 9.62 |
| Turbidity – Mid Depth (NTU) | C1 | C2 | C3 | M1 | M2 | M3 |
| Average | 2.55 | 2.58 | N/A | 2.23 | 2.10 | 0.65 |
| Min. | 2.40 | 2.20 | N/A | 1.90 | 1.40 | 0.50 |
| Max. | 2.70 | 2.80 | N/A | 2.40 | 2.70 | 0.90 |
| Suspended Solid – Mid depth (mg/L) | C1 | C2 | C3 | M1 | M2 | M3 |
| Average | 3.29 | 3.38 | N/A | 2.44 | 4.45 | <1 |
| Min. | 2.60 | 2.60 | N/A | 1.70 | 3.20 | <1 |
| Max. | 4.00 | 4.10 | N/A | 3.00 | 5.80 | <1 |
| pH value (unit) | C1 | C2 | C3 | M1 | M2 | M3 |
| Average | 7.53 | 7.61 | N/A | 7.71 | 7.67 | 7.66 |
| Min. | 7.25 | 7.26 | N/A | 7.26 | 7.49 | 7.48 |
| Max | 7.82 | 7.88 | N/A | 7.90 | 7.92 | 7.84 |

2.4.10 In this Reporting Month, all monitoring result were below or within the action level. Hence, no Action or Limit Level exceedance was triggered during this month. Detailed monitoring results including in-situ measurements, laboratory analysis data are shown in **Appendix R**.



2.5. ECOLOGY

- 2.5.1 Detailed Vegetation Survey Report and Woodland Compensation Plan submitted to EPD and approved on 17 February 2016. To ensure the planting works are properly implemented, bi-weekly monitoring is proposed throughout the planting phase. The frequency of monitoring is proposed to be bi-monthly during the first years of the planting stage, and then reduced to quarterly for the six (6) year post-planting period.
- 2.5.2 A 6 years post-planting review report will be submitted within a month after completion of the at least 6 years post-planting monitoring and maintenance.
- 2.5.3 Monitoring inspections were conducted on 25 September 2020.
- 2.5.4 Three trees TA572, TA326 and TA327 were transplanted to tree compensation area within the Sha Tin Water Treatment Works (STWTW) in 20 June 2016.
- 2.5.5 The condition of TA572 was observed in poor condition due to the damage of two main trunks. TA327 was also in poor 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. Transplanted Lamb of Tartary (*Cibotium barometz*) seems to be received too much sunlight. Leaves of them were observed yellowish in colour. On the other hand, young foliage was growing out to replace the old one.
- 2.5.6 Since Sha Tin South Fresh Water Service Reservoir (STSFWSR) was still under preparation, Lamb of Tartary was still temporally stored in a nursery garden at Wang Toi Shan, Kam Tin.
- 2.5.7 In general, all transplanted Lamb of Tartary (*Cibotium barometz*) were in fair condition while Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016. The survival rate for Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was 96%. The Summary table for health condition and survival rate was shown in Appendix II.
- 2.5.8 All transplanted Lamb of Tartary (*Cibotium barometz*) have been severely damaged by Typhon Wipha on 30-31 July 2019; the next few monitoring will be critical to assess their survival and recovery progress.
- 2.5.9 It is recommended to retain transplanted Lamb of Tartary (*Cibotium barometz*) at the nursery garden under proper maintenance during current recovery stage. Once their condition has recovered to acceptable level, they can be moved to the transplantation site at Sha Tin South Fresh Water Service Reservoir (STSFWSR) when the site is ready.



2.5.10 After transplantation, root ball of TA572 and TA327 tree should be kept moisture especially during non-raining day.

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



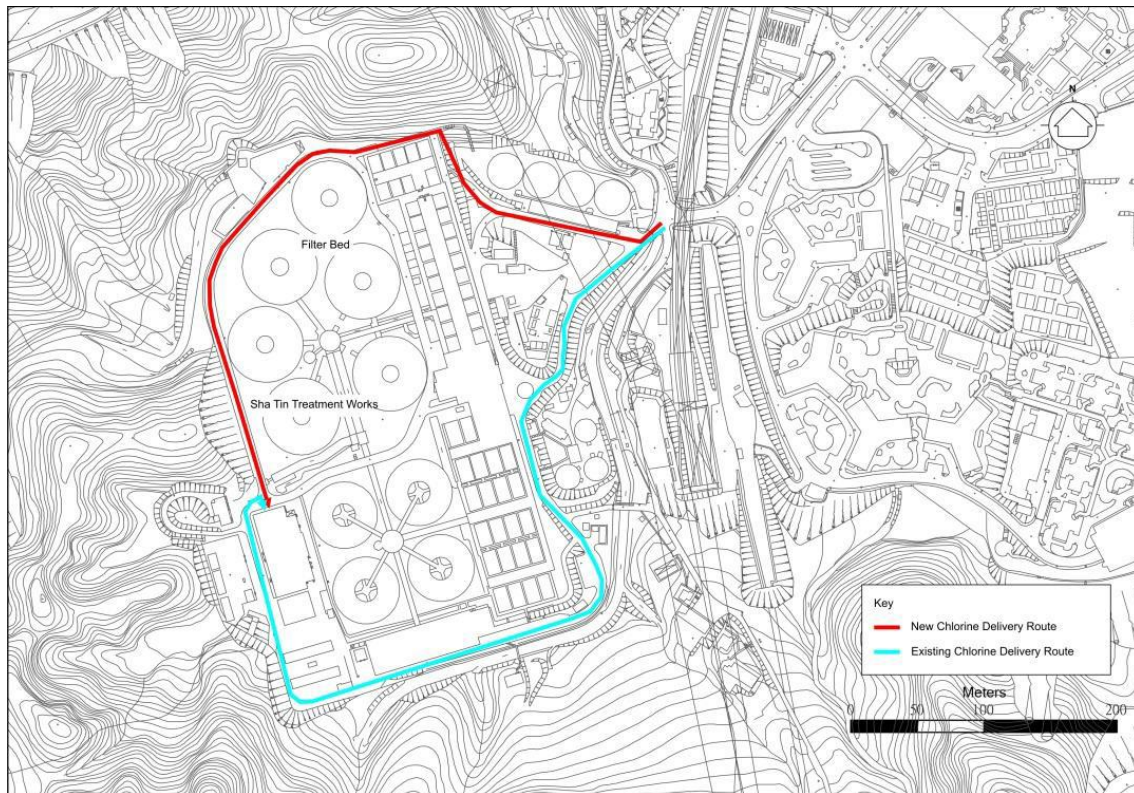
Table 2-15: Chlorine Truck Transport Route

| Destination | Route |
|------------------------------|---|
| From SSK Dock to Sha Tin WTW | 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 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, five (5) site inspections were carried out on 2, 9, 16, 23 and 29 September 2020.
- 2.8.2 One joint site inspection with IEC also undertaken on 23 September 2020. Minor deficiencies were observed during weekly site inspection or joint site inspection. Key observations during the site inspections are summarized in Table 2-16.

Table 2-16: Site Observations

| Date | Environmental Observations | Follow-up Status |
|-------------------|---|--|
| 2 September 2020 | 1. Retained water were found on the bucket of excavator near logistic center and the drip tray at the North Circular Road. The Contractor was reminded clear the retained water. | 1. Retained water were cleared. |
| 9 September 2020 | No environmental issue was observed during the site inspection | N/A |
| 16 September 2020 | 1. Retained water were found in the receptacle at Southern Bridge. The Contractor was reminded to clear the retained water. 2. Chemical waste at M123 were stored in an improper storage area. The Contractor was reminded to place the chemical waste in the chemical waste storage area. | 1. Retained water were cleared. 2. Chemical waste were properly stored. |
| 23 September 2020 | 1. Chemical waste storage area at the yard near North Circular Road was found without lock. The Contractor was reminded to provide a lock for the chemical waste storage area. | 1. A lock was provided. |
| 29 September 2020 | 1. Stagnant water were found at the slope near the site entrance and the North Circular Road. The Contractor was reminded to clear the stagnant water. | 1. Stagnant water were cleared. |

- i. The Contractor has rectified all of 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 below:

Table 2-17: Summary of Environmental License and Permit

| License / Permit | License / Permit No. | Date of Issue | Date of Expiry | License / Permit Holder | Remark |
|---|-----------------------------|----------------------|-----------------------|--------------------------------|---------------|
| Environmental Permit | EP- 494/2015 | 28/01/2015 | N/A | WSD | |
| Registration of Chemical Waste Producer | WPN5218-759 -M2936-01 | 31/12/2015 | N/A | MMVJV | |
| Trip Ticket (Chit) Account | 7023723 | 10/12/2015 | N/A | MMVJV | |
| Waste Water Discharge License (Wall C) | WT0023932 -2016 | 01/04/2016 | 31/03/2021 | MMVJV | |
| Waste Water Discharge License (Wall D) | WT0024211 -2016 | 10/06/2016 | 30/06/2021 | MMVJV | |
| Construction Noise Permit | GW-RN0336-20 | 12/05/2020 | 16/12/2020 | MMVJV | |



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 style="list-style-type: none"> - Tarpaulin covering of any dusty materials on a vehicle leaving the site; - Imposition of speed controls for vehicles on site haul roads; - Use of regular watering to reduce dust emissions from exposed site surfaces and roads; - Side enclosure and covering of any aggregate or stockpiling of dusty materials to reduce emissions; - Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. |
| Noise | <ul style="list-style-type: none"> - Good site practices to limit noise emissions at the sources; - Use of quiet plant and working methods; - Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; - Scheduling of construction works outside school examination period in critical area. |
| Water | <ul style="list-style-type: none"> - Drainage systems were regularly and adequately maintained; - Effluent discharged from the construction site should comply with standards stipulated in the TM-DSS; - Open stockpiles of construction materials on sites should be covered. |
| General | <ul style="list-style-type: none"> - 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, noise and water quality monitoring complied with the Action/ Limit levels in the reporting period.

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

| | |
|--|--|
| Complaint Received via Project Hotline | Complaint Received via 1823 or from other government departments |
| MMVJV notify ER, ET and IEC | ER notify MMVJV, ET and IEC |
| Register of the complaint. MMVJV and ET to conduct investigation of complaint and report to ER and IEC the investigation results | |
| If complaint is considered not valid | If complaint is found valid |
| ET or ER to reply the complainant if necessary | MMVJV to implement necessary improvement measures in consultation with the IEC, ET and ER. ET to check and inspect if the situation is improved. ER to conduct further inspection as necessary. |
| | ER to report the follow up actions done to WSD and reply to complainant is necessary. If the complaint is referred by the EPD, the Contractor to prepare interim report on the status of the complaint investigation and follow-up action |
| ER prepare complaint report for submission to WSD ET to record the complaint case in monthly EM&A report | |



- 2.12.2 No environmental complaint were received in the reporting period.
- 2.12.3 No notification of summons and prosecution was received in the reporting period.
- 2.12.4 No visit from EPD 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.



3. FUTURE KEY ISSUES

3.1. CONSTRUCTION PROGRAMME FOR THE COMING MONTHS

3.1.1 As informed by the Contractor, the major works for this Project from October 2020 to December 2020 will be:

- Architectural Builders Works and Finishes at Logistic Center
- Architectural Builders Works and Finishes at Alum Tank & Hydro Turbine House
- Testing and Commissioning at Logistic Center
- Drainage Works and Site Formation Works at South Access Entrance
- Landscaping Works

3.2. KEY ISSUES FOR COMING MONTH

3.2.1 Potential environmental impacts arising from the above upcoming construction activities in October 2020 are mainly associated with dust, noise, water quality issues and waste management issues.

3.2.2 Particular issues to be considered in the coming month include:

- Architectural Builders Works and Finishes at Logistic Center
- Architectural Builders Works and Finishes at Alum Tank & Hydro Turbine House
- Testing and Commissioning Works at Logistic Center
- Drainage Works and Site Formation Works at South Access Entrance
- Landscaping Works

3.2.2 The tentative monitoring schedule for October 2020 to December 2020 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. All monitoring results are satisfactory and no NOEs or associated corrective action was therefore issued.
- 4.1.2 Five (5 nos.) environmental site inspection were conducted during the reporting period. Joint site inspection with IEC were carried out on 23 September 2020. 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 were 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

LEGEND:

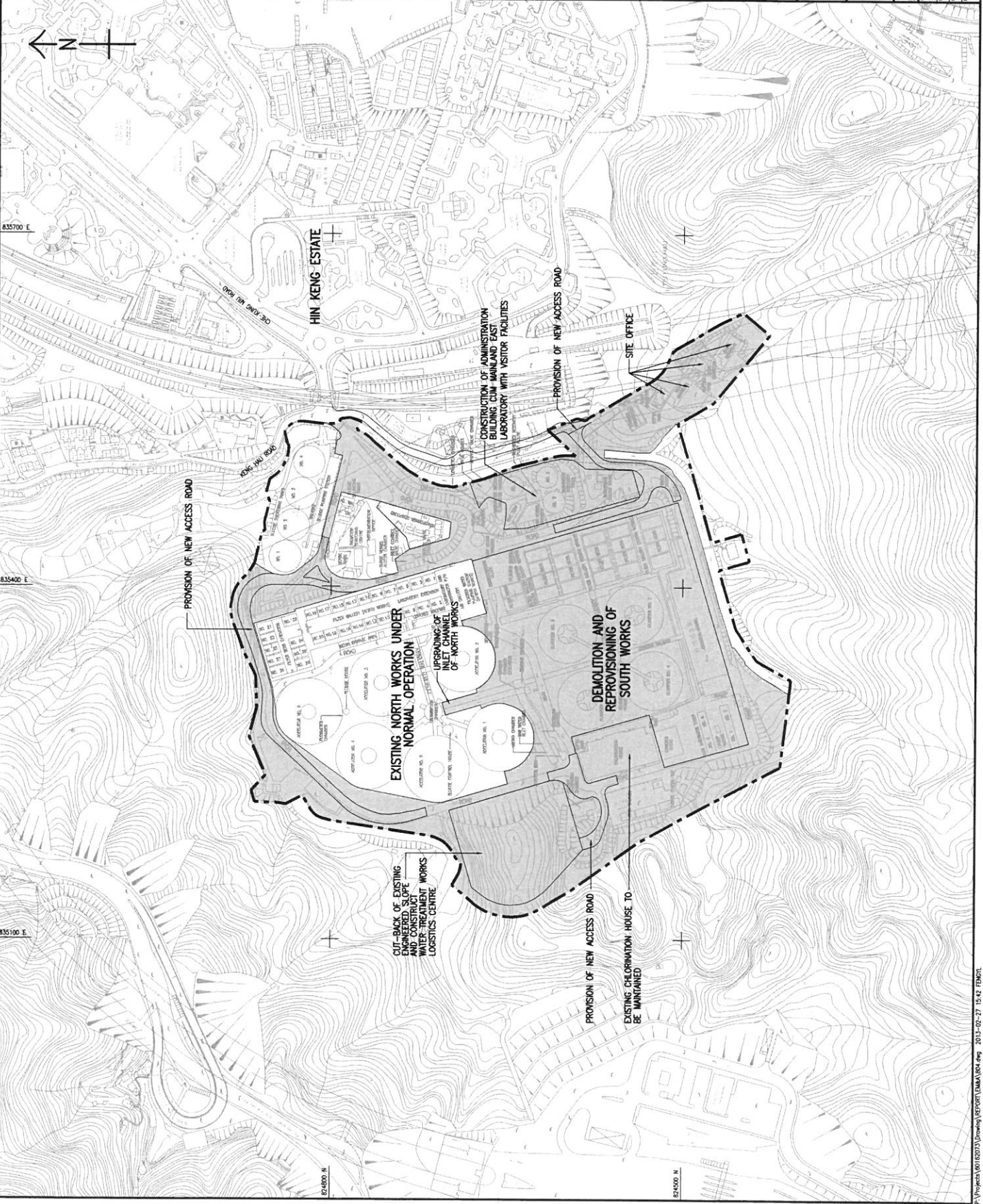
- SITE BOUNDARY OF SIA TN WATER TREATMENT WORKS
- ▭ WORKS AREA

水務署
WATER SUPPLIED DEPARTMENT
 60162073/EM&A/FIG 1
 60162073/EM&A/FIG 1
 IN-SITU REPROVISIONING OF SIA TN WATER TREATMENT WORKS - SOUTH WORKS
 DESIGN AND CONSTRUCTION

LOCATION PLAN AND THE MAJOR SCOPE OF WORKS

AECOM

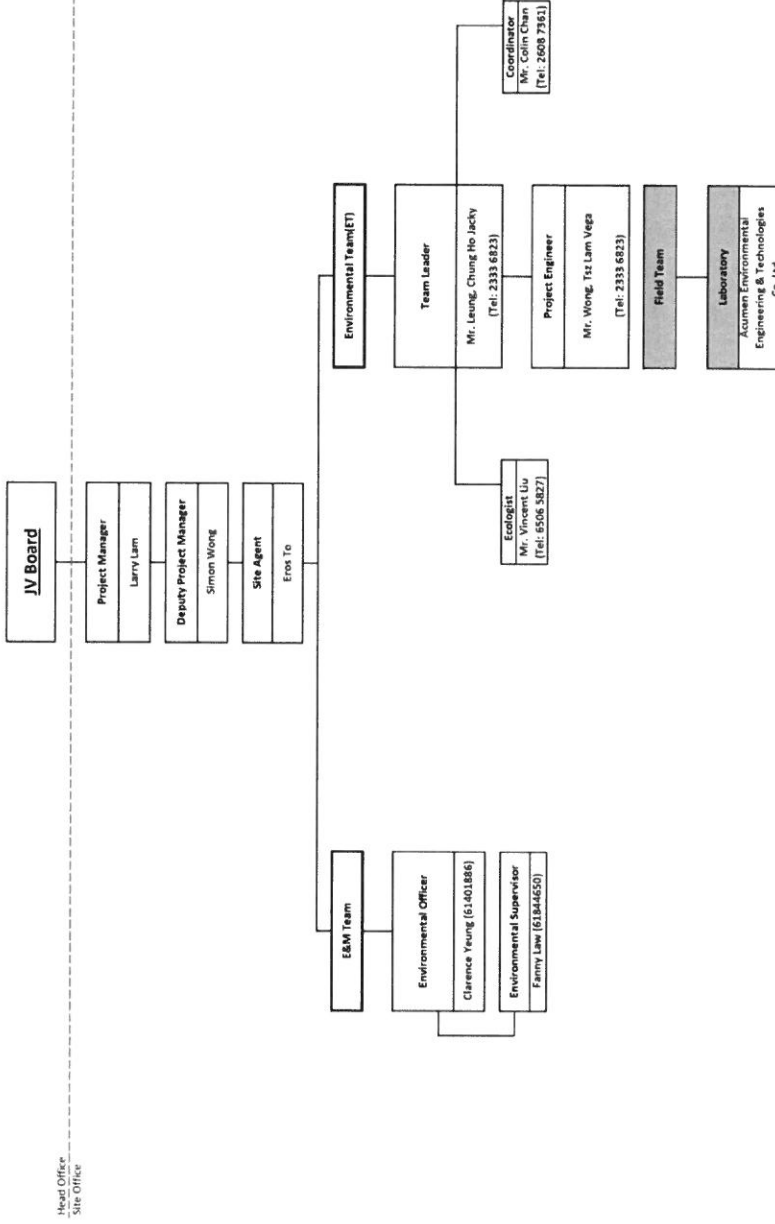
URGENT
 60162073/EM&A/FIG 1
 DATE: 15/02/2016
 SCALE: AS SHOWN
 PROJECT: 60162073/EM&A/FIG 1
 SHEET: 1 OF 1
 TOTAL SHEETS: 1
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Appendix B

Project Organization

Project Organization Chart





Head Office
 Site Office

Appendix C

Latest Construction Programme

| ID | ID | Task Name | Duration | Start | Finish | 2016 | 2017 | 2018 | 2019 | 2020 |
|----|------|--|----------|----------|----------|------|------|------|------|------|
| 1 | P | Preliminary & Design Works | 1402 d | 30/01/15 | 31/08/19 | | | | | |
| 2 | P000 | Preliminary Works | 1155 d | 30/01/15 | 27/12/18 | | | | | |
| 3 | P001 | Office Setup | 150 d | 30/01/15 | 27/3/16 | | | | | |
| 4 | P002 | Temporary RE office | 30 d | 30/01/15 | 28/1/15 | | | | | |
| 5 | P003 | Renovation of RE office | 150 d | 30/01/15 | 27/3/16 | | | | | |
| 6 | P004 | Renovation of site office | 120 d | 30/01/15 | 27/3/16 | | | | | |
| 7 | P005 | Renovation of site office | 120 d | 30/01/15 | 27/3/16 | | | | | |
| 8 | P006 | Renovation of site office | 120 d | 30/01/15 | 27/3/16 | | | | | |
| 9 | P007 | Survey & Environmental | 100 d | 30/01/15 | 6/2/16 | | | | | |
| 10 | P008 | Initial survey | 100 d | 30/01/15 | 6/2/16 | | | | | |
| 11 | P009 | UU detection | 100 d | 30/01/15 | 6/2/16 | | | | | |
| 12 | P010 | Tree and vegetation survey | 78 d | 30/01/15 | 15/1/16 | | | | | |
| 13 | P011 | Tree and vegetation survey submission to EPD | 0 d | 15/1/16 | 15/1/16 | | | | | |
| 14 | P012 | Tree and vegetation survey consent from EPD | 21 d | 16/1/16 | 5/2/16 | | | | | |
| 15 | P013 | Environmental impact baseline monitoring | 100 d | 30/01/15 | 6/2/16 | | | | | |
| 16 | P014 | Baseline monitoring submission | 0 d | 6/2/16 | 6/2/16 | | | | | |
| 17 | P015 | Baseline monitoring approval | 0 d | 6/2/16 | 6/2/16 | | | | | |
| 18 | P016 | Pre-construction survey | 100 d | 30/01/15 | 6/2/16 | | | | | |
| 19 | P017 | Tree Protection | 1155 d | 30/01/15 | 27/12/18 | | | | | |
| 20 | P018 | Tree transplanting works | 90 d | 7/2/16 | 6/5/16 | | | | | |
| 21 | P019 | Tree Protection | 1155 d | 30/01/15 | 27/12/18 | | | | | |
| 22 | D000 | Contractor's Design Submission | 1388 d | 13/11/15 | 31/08/19 | | | | | |
| 23 | D100 | General | 145 d | 13/11/15 | 5/4/16 | | | | | |
| 24 | D101 | Project Design Plan | 48 d | 13/11/15 | 20/11/15 | | | | | |
| 25 | D102 | AIP-01 & DDA-01 - Addition GI Plan | 48 d | 13/11/15 | 20/11/15 | | | | | |
| 26 | D103 | AIP-02 - Basis of Design | 48 d | 13/11/15 | 20/11/15 | | | | | |
| 27 | D104 | AIP-04 - E&M | 250 d | 15/1/16 | 20/9/16 | | | | | |
| 28 | D105 | DDA-04-1 - P&ID | 115 d | 22/11/16 | 16/3/17 | | | | | |
| 29 | D106 | DDA-04-2 - Pumping System & Pipework Design | 541 d | 15/2/17 | 9/8/18 | | | | | |
| 30 | D107 | DDA-04-3 - Pipe Support Design | 170 d | 23/9/16 | 11/3/17 | | | | | |
| 31 | D108 | DDA-04-4 - Testing & Commissioning | 703 d | 10/1/17 | 13/12/18 | | | | | |
| 32 | D109 | AIP-05 - Instrumentation, Control and Automation (DCS / Control Philosophy) | 117 d | 18/2/16 | 13/6/16 | | | | | |
| 33 | D110 | DDA-05-1 - DCS (General) | 468 d | 4/5/16 | 4/10/17 | | | | | |
| 34 | D111 | DDA-05-2 - DCS (Control Loop Diagrams) | 115 d | 25/7/16 | 31/10/16 | | | | | |
| 35 | D112 | DDA-05-3 - DCS (Control Loop Diagrams) | 957 d | 17/1/17 | 31/08/19 | | | | | |
| 36 | D113 | AIP-06 - Communication Network | 105 d | 14/7/17 | 26/10/17 | | | | | |
| 37 | D114 | DDA-06 - Communication Network | 14 d | 27/10/17 | 9/11/17 | | | | | |
| 38 | D115 | DDA-07 - Automatic Irrigation System | 298 d | 7/11/18 | 31/08/19 | | | | | |
| 39 | D116 | AIP-08 - Electrical Power Supply System | 130 d | 5/2/16 | 13/6/16 | | | | | |
| 40 | D117 | DDA-08-1 - Electrical Power Supply System | 911 d | 4/3/17 | 31/08/19 | | | | | |
| 41 | D118 | DDA-08-2 - Earthing Design | 643 d | 26/8/16 | 30/5/18 | | | | | |
| 42 | D119 | DDA-08-3 - Fault Calculation & Protection Setting for Electrical System | 651 d | 21/3/17 | 31/12/18 | | | | | |
| 43 | D120 | DDA-08-4 - Harmonic Analysis | 477 d | 27/1/18 | 31/12/18 | | | | | |
| 44 | D121 | DDA-08-5 - Modification of Existing Administration Building | 737 d | 15/9/16 | 21/9/18 | | | | | |
| 45 | D122 | DDA-08-6 - Modification of Existing Administration Building | 768 d | 16/2/17 | 25/5/19 | | | | | |
| 46 | D123 | AIP-10A - Process Piping - Civil | 95 d | 31/12/15 | 3/4/16 | | | | | |
| 47 | D124 | DDA-10A - Process Piping - Civil | 223 d | 16/5/18 | 9/1/19 | | | | | |
| 48 | D125 | AIP-10B - Process Piping - E&M (Pipe Trench E&M Design) | 146 d | 5/2/16 | 29/6/16 | | | | | |
| 49 | D126 | DDA-10B - Process Piping - E&M (Pipe Trench E&M Design) | 897 d | 14/7/16 | 27/12/18 | | | | | |
| 50 | D127 | AIP-19 - Site-wide E&M Design | 137 d | 19/2/16 | 4/7/16 | | | | | |
| 51 | D128 | DDA-19-1 - Site-wide E&M Design (General) (including Cable Duct Routes / Cable Routes by Main, Connection North Works Air Gallery) | 172 d | 24/10/18 | 13/4/19 | | | | | |
| 52 | D129 | DDA-19-2 - Site-wide E&M Design (General) (including Cable Duct Routes / Cable Routes by Main, Connection North Works Air Gallery) | 1082 d | 14/9/16 | 31/08/19 | | | | | |
| 53 | D130 | DDA-19-3 - Site-wide E&M Design (General) (including Cable Duct Routes / Cable Routes by Main, Connection North Works Air Gallery) | 1240 d | 18/1/16 | 10/6/19 | | | | | |
| 54 | D201 | AIP-11A - Design Concept | 27 d | 18/1/16 | 13/2/16 | | | | | |
| 55 | D202 | DDA-11A - Architectural Design Development (DAP stage 2 submission to ASD) | 795 d | 7/4/17 | 10/6/19 | | | | | |
| 56 | D300 | WTW Logistics Centre | 1315 d | 25/1/16 | 31/08/19 | | | | | |
| 57 | D301 | AIP-12A - Architectural Design including GA, Interior Design and Non-Structural Element | 91 d | 28/4/16 | 25/7/16 | | | | | |
| 58 | D302 | DDA-12A - Architectural Design including GA, Interior Design and Non-Structural Element | 983 d | 22/12/16 | 31/08/19 | | | | | |
| 59 | D303 | AIP-12B - Foundation & Structural Design | 40 d | 25/1/16 | 4/3/16 | | | | | |
| 60 | D304 | DDA-12B - Foundation & Structural Design | 306 d | 9/12/16 | 10/10/17 | | | | | |
| 61 | D305 | AIP-12C - Building Services Design | 498 d | 16/6/16 | 26/10/17 | | | | | |
| 62 | D306 | DDA-12C - Building Services Design | 374 d | 27/10/17 | 31/08/19 | | | | | |
| 63 | D307 | AIP-12D - Structural & Mechanical Design | 242 d | 21/3/17 | 17/11/17 | | | | | |
| 64 | D308 | DDA-12D - Structural & Mechanical Design | 282 d | 21/3/17 | 17/11/17 | | | | | |
| 65 | D400 | Alum Sanitation Tanks | 1315 d | 25/1/16 | 31/08/19 | | | | | |
| 66 | D401 | AIP-13A - Architectural Design including GA, Interior Design and Non-Structural Element | 91 d | 26/4/16 | 24/7/16 | | | | | |
| 67 | D402 | DDA-13A - Architectural Design including GA, Interior Design and Non-Structural Element | 983 d | 22/12/16 | 31/08/19 | | | | | |
| 68 | D403 | AIP-13B - Foundation & Structural Design | 40 d | 25/1/16 | 4/3/16 | | | | | |
| 69 | D404 | DDA-13B - Foundation & Structural Design | 306 d | 9/12/16 | 10/10/17 | | | | | |
| 70 | D405 | AIP-13C - Building Services Design | 498 d | 16/6/16 | 26/10/17 | | | | | |
| 71 | D406 | DDA-13C - Building Services Design | 374 d | 27/10/17 | 31/08/19 | | | | | |
| 72 | D407 | AIP-13D - Electrical & Mechanical Design | 91 d | 11/3/16 | 9/8/16 | | | | | |
| 73 | D408 | DDA-13D - Electrical & Mechanical Design | 280 d | 15/2/17 | 21/11/17 | | | | | |
| 74 | D500 | Hydro Turbine House | 1340 d | 31/12/15 | 31/08/19 | | | | | |
| 75 | D501 | AIP-14A - Architectural Design including GA, Interior Design and Non-Structural Element (incl. ME/CA and BS design) | 48 d | 3/2/16 | 21/3/16 | | | | | |

| ID | ID | Task Name | Duration | Rev 0 | Rev 1 | Rev 2 | Rev 3 | Rev 4 | Rev 5 | Rev 6 | Rev 7 | Rev 8 | Rev 9 | Rev 10 | Rev 11 | Rev 12 | Rev 13 | Rev 14 | Rev 15 | Rev 16 | Rev 17 | Rev 18 | Rev 19 | Rev 20 |
|-----|-----------|---|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start | Start |
| 151 | S1126AC-2 | IV Coordinated CLP Joint Inspection & Workshop for Phase Units Installation Aspect | 6 d | 17/18 | 6/7/18 | | | | | | | | | | | | | | | | | | | |
| 152 | S1126AC-3 | The First Unit of DB and PCT installed at NWTPH | 98 d | 7/7/18 | 12/10/18 | | | | | | | | | | | | | | | | | | | |
| 153 | S1126AC-4 | CLP Final Test and Inspection, Accepted for Further Energization | 30 d | 13/10/18 | 1/11/19 | | | | | | | | | | | | | | | | | | | |
| 154 | S1126AC-5 | Ready of 6.6kV Switchboard Energization - Supply 2 & 3 | 7 d | 12/11/18 | 18/11/18 | | | | | | | | | | | | | | | | | | | |
| 155 | S1126B0-1 | Additional Cable Support and Cable Hodge outside NWTPH | 99 d | 20/11/18 | 26/2/19 | | | | | | | | | | | | | | | | | | | |
| 156 | S1126B0-2 | Confirm Installation | 37 d | 21/11/18 | 27/12/18 | | | | | | | | | | | | | | | | | | | |
| 157 | S1126B0-3 | Material Ordering, Delivery & Testing | 37 d | 21/11/18 | 27/12/18 | | | | | | | | | | | | | | | | | | | |
| 158 | S1126B0-4 | Material Ordering, Delivery & Testing | 14 d | 22/12/18 | 10/1/19 | | | | | | | | | | | | | | | | | | | |
| 159 | S1126B0-5 | Fabrication and Erection for Cable Support | 17 d | 11/1/19 | 27/1/19 | | | | | | | | | | | | | | | | | | | |
| 160 | S1126B0-6 | Fabrication and Erection for Cable Bridge | 47 d | 11/1/19 | 26/2/19 | | | | | | | | | | | | | | | | | | | |
| 161 | S1126B0-7 | Fabrication and Erection for Cable Bridge | 835 d | 20/9/17 | 2/7/20 | | | | | | | | | | | | | | | | | | | |
| 162 | S1127 | NWTPH - Phase 1 - E & M Works & 6.6 kV Supply 4 Division by CLP | 711 d | 20/9/17 | 31/8/19 | | | | | | | | | | | | | | | | | | | |
| 163 | S1128 | NWTPH - New Ducts, Draw Pits & Openings for 6.6kV (Phase 1) Source 2 CLP | 2 d | 24/11/17 | 25/11/17 | | | | | | | | | | | | | | | | | | | |
| 164 | S1129 | CLP Inspection of the New ducts, Draw Pits & Openings for 6.6kV | 1 d | 26/11/17 | 26/11/17 | | | | | | | | | | | | | | | | | | | |
| 165 | S1130 | NWTPH - Defect Rectify after CLP Inspection of the New Ducts, Draw Pits & Openings | 1 d | 27/11/17 | 27/11/17 | | | | | | | | | | | | | | | | | | | |
| 166 | S1131 | NWTPH - Second CLP Inspection of the rectified New Ducts, Draw Pits & Openings 1 d | 1 d | 28/11/17 | 28/11/17 | | | | | | | | | | | | | | | | | | | |
| 167 | S1132 | NWTPH - TD New Ducts/Drawings after defect rectification to CLP - HO by | 1 d | 29/11/17 | 29/11/17 | | | | | | | | | | | | | | | | | | | |
| 168 | S1133 | NWTPH-CLP Mobilisation for Supply 4 Division | 1 d | 15/12/17 | 15/12/17 | | | | | | | | | | | | | | | | | | | |
| 169 | S1134 | NWTPH-CLP T&C of the completed HV Cable | 1 d | 1/12/17 | 1/12/17 | | | | | | | | | | | | | | | | | | | |
| 170 | S1135 | Re-routing of Incoming 4 Power Cables to North Works Air Gallery (Suspension of existing Pump No. 9 and Pump No. 14 Operation) | 34 d | 16/12/17 | 18/1/18 | | | | | | | | | | | | | | | | | | | |
| 171 | S1136 | NWTPH-Superstructure & ABWF (UP to GF) - HO by Civil Contractor | 0 d | 13/10/17 | 13/10/17 | | | | | | | | | | | | | | | | | | | |
| 172 | S1137 | NWTPH- Panel Supporting Frames (GF) - HO by Civil Contractor | 0 d | 13/10/17 | 13/10/17 | | | | | | | | | | | | | | | | | | | |
| 173 | S1138 | NWTPH- WF & Panel Supporting Frames (1/F to R/F slab) - HO by Civil Contractor | 0 d | 13/10/17 | 13/10/17 | | | | | | | | | | | | | | | | | | | |
| 174 | S1139 | NWTPH- LV Supply Installation Commence at GF | 33 d | 13/10/17 | 14/11/17 | | | | | | | | | | | | | | | | | | | |
| 175 | S1140 | NWTPH- 6.6kV/11kV Switchboard Installation at 1/F (incl. T & C) | 314 d | 20/9/17 | 30/7/18 | | | | | | | | | | | | | | | | | | | |
| 176 | S1141 | NWTPH- Installation of 5 nos. of New Cap Bank for Pumps at 1/F | 34 d | 13/10/17 | 15/11/17 | | | | | | | | | | | | | | | | | | | |
| 177 | S1142 | NWTPH - LV Cable Laying and Termination, # Subject to STWTW Operator | 365 d | 1/9/18 | 31/8/19 | | | | | | | | | | | | | | | | | | | |
| 178 | S1143 | NWTPH - 6.6kV Power and Control Cable Laying and Termination, Existing LV | 153 d | 31/7/18 | 30/12/18 | | | | | | | | | | | | | | | | | | | |
| 179 | S1144 | NWTPH-Phase 2 - E&M Works and 6.6kV Supply 2 Division | 740 d | 21/9/17 | 30/9/19 | | | | | | | | | | | | | | | | | | | |
| 180 | S1145 | NWTPH- Installation of Cable Rack at R/F of Admin Building by Civil Contractor | 14 d | 21/9/17 | 4/10/17 | | | | | | | | | | | | | | | | | | | |
| 181 | S1146 | NWTPH- Installation of Cable Ladder on the Cable Rack at R/F of Admin Building by E&M Contractor | 178 d | 5/10/17 | 31/7/18 | | | | | | | | | | | | | | | | | | | |
| 182 | S1147 | NWTPH- Cable Laying by CLP | 123 d | 23/8/18 | 23/12/18 | | | | | | | | | | | | | | | | | | | |
| 183 | S1148 | NWTPH- CLP Mobilisation for Supply 2 division, # Subject to STWTW Operator | 15 d | 10/6/19 | 24/6/19 | | | | | | | | | | | | | | | | | | | |
| 184 | S1149 | NWTPH- 6.6kV Supply 2 Division to NWTPH by CLP | 14 d | 23/6/19 | 6/7/19 | | | | | | | | | | | | | | | | | | | |
| 185 | S1150 | NWTPH- CLP T&C of the completed HV cables | 4 d | 30/5/19 | 2/6/19 | | | | | | | | | | | | | | | | | | | |
| 186 | S1151 | NWTPH- 6.6kV Switchboard T&C incl. CLP Inspection | 3 d | 20/6/19 | 22/6/19 | | | | | | | | | | | | | | | | | | | |
| 187 | S1152 | NWTPH- 6.6kV Switchboard Encapsulation - Supply 2 | 16 d | 23/6/19 | 8/7/19 | | | | | | | | | | | | | | | | | | | |
| 188 | S1153 | NWTPH- Pump No. 12 Division to NWTPH including Power and Control Cables, # 30 d | 30 d | 1/9/19 | 30/9/19 | | | | | | | | | | | | | | | | | | | |
| 189 | S1154 | Subject to WSD Overhaul Completion (Claim No. 37A) | | | | | | | | | | | | | | | | | | | | | | |
| 190 | S1155 | NWTPH- Pump No. 11 Division to NWTPH including Power and Control Cables, # 12 d | 12 d | 25/9/19 | 6/5/19 | | | | | | | | | | | | | | | | | | | |
| 191 | S1156 | Subject to WSD Overhaul Completion (Claim No. 37A) | | | | | | | | | | | | | | | | | | | | | | |
| 192 | S1157 | NWTPH- Phase 2 - E&M Works and 6.6kV Supply 2 Division | 170 d | 15/12/18 | 2/6/19 | | | | | | | | | | | | | | | | | | | |
| 193 | S1158 | NWTPH- CLP T&C of the completed HV Cables | 2 d | 20/1/19 | 20/1/19 | | | | | | | | | | | | | | | | | | | |
| 194 | S1159 | NWTPH- CLP T&C of the completed HV Cables | 4 d | 20/1/19 | 23/1/19 | | | | | | | | | | | | | | | | | | | |
| 195 | S1160 | NWTPH- 6.6kV Switchboard Encapsulation - Supply 3 | 2 d | 23/1/19 | 24/1/19 | | | | | | | | | | | | | | | | | | | |
| 196 | S1161 | NWTPH- Pump No. 13 Division to NWTPH including Power and Control Cables (Suspension of Pump No. 13 Operation), # Subject to WSD Overhaul Completion (Claim No. 37A) | 4 d | 25/1/19 | 28/1/19 | | | | | | | | | | | | | | | | | | | |
| 197 | S1162 | NWTPH- Pump No. 10 Division to NWTPH including Power and Control Cables (Suspension of Pump No. 10 Operation), # Subject to WSD Overhaul Completion (Claim No. 37A) | 19 d | 15/5/19 | 2/6/19 | | | | | | | | | | | | | | | | | | | |
| 198 | S1164 | NWTPH Phase 4A - Cap Bank for Pump No. 9 & 14 | 161 d | 11/7/19 | 18/12/19 | | | | | | | | | | | | | | | | | | | |
| 199 | S1164a | Cap Bank No. 9 & 14 - HV cable laying | 21 d | 11/7/19 | 31/7/19 | | | | | | | | | | | | | | | | | | | |
| 200 | S1165 | Cap Bank No. 9 Connection (Suspension of Pump No. 9 Operation), # Subject to WSD Arrangement | 11 d | 1/12/19 | 11/12/19 | | | | | | | | | | | | | | | | | | | |
| 201 | S1166 | Relocate existing Cap Bank No. 14 to NWTPH (Suspension of Pump No. 14) | 7 d | 12/12/19 | 18/12/19 | | | | | | | | | | | | | | | | | | | |
| 202 | S1167 | NWTPH Phase 4B - Divers Major LV Loads, Relocate existing Transformer No. 3 | 23 d | 1/12/19 | 23/12/19 | | | | | | | | | | | | | | | | | | | |
| 203 | S1168 | Divers North LV Loads to New LV Switchboard in NWTPH, # Subject to WSD Arrangement under VO for replacing the existing HV cable for existing Transformer No. 3 | 21 d | 1/12/19 | 21/12/19 | | | | | | | | | | | | | | | | | | | |
| 204 | S1169 | NWTPH- TD New Ducts & Draw Pits between Filters & Sludge Treatment Plant - | 0 d | 1/12/19 | 1/12/19 | | | | | | | | | | | | | | | | | | | |
| 205 | S1170 | Relocate Civil Connections between Transformer No. 3, and Reconnect to existing 6.6kV Switchboard in 22 d | 23 d | 21/2/19 | 23/12/19 | | | | | | | | | | | | | | | | | | | |
| 206 | S1171 | North Works Air Gallery | 22 d | 12/12/19 | 21/2/20 | | | | | | | | | | | | | | | | | | | |
| 207 | S1172 | NWTPH- Remove Interconnection Cable between Admin. Building and North Works 22 d Air Gallery Switchboard (Subject to Engineer's Instruction) | 22 d | 12/12/19 | 21/2/20 | | | | | | | | | | | | | | | | | | | |

Contract No.: 3WSD/15
In-site Re-provisioning of Sha. Tin Water Treatment Work (South Works) - Advance Works
Master Programme (Ver.09) - (Accelerated)

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Date: 2 November 2019

Critical Path **Task** **Summary** **Micro** **Critical**

| ID | ID | Task Name | Start | Finish | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|--------|--|----------|----------|------|------|------|------|------|
| 208 | S1173 | NWTPH - Establish a New 6.6kV Interconnection Cable Between North Works AHF Gallery Switchboard Power House and existing North Works AHF Gallery Switchboard | 12/12/19 | 2/1/20 | | | | | |
| 209 | S1174 | NWTPH LVSB, TA, PLC & Genset Installation at GF | 27/4 | 1/1/18 | | | | | |
| 210 | S1175 | NWTPH-60kV/11kV to 380V Transformers | 6/1 | 3/2/18 | | | | | |
| 211 | S1176 | NWTPH-60kV/11kV to 380V Transformers | 6/1 | 3/2/18 | | | | | |
| 212 | S1177 | NWTPH-PLC & Ctr. (incl. 60kV switchboard to existing Admin. Building) | 9/3 | 1/1/18 | | | | | |
| 213 | S1178 | NWTPH- Battery Charger System | 21/4 | 1/7/18 | | | | | |
| 214 | S1179 | NWTPH- Cable Supports | 10/4 | 12/18 | | | | | |
| 215 | S1180 | NWTPH- Cable Trays | 7/6 | 1/3/18 | | | | | |
| 216 | S1181 | NWTPH- Cable Laying | 4/5 | 1/4/18 | | | | | |
| 217 | S1182 | NWTPH- Cable Termination | 4/5 | 1/4/18 | | | | | |
| 218 | S1183 | NWTPH- TBCC | 12/6 | 2/1/18 | | | | | |
| 219 | S1184 | Hydro Turbine H- Testing | 13/5 | 1/2/18 | | | | | |
| 220 | S1200a | Hydro Turbine H- Testing | 13/5 | 1/2/18 | | | | | |
| 221 | S1200b | Hydro Turbine H- Testing | 13/5 | 1/2/18 | | | | | |
| 222 | S1201 | HTH - Modification work for High Island Wuermain | 6/5 | 15/2/16 | | | | | |
| 223 | S1202 | Site survey of existing pipework and cabling | 11/2 | 15/2/16 | | | | | |
| 224 | S1203 | Data collection for HTH design by E&M Contractor | 11/2 | 2/3/16 | | | | | |
| 225 | S1204 | Construction of cable ducting for signal and power cable | 8/2 | 2/3/16 | | | | | |
| 226 | S1205 | Rebocation of sampling panel and cable diversion | 12/2 | 2/3/16 | | | | | |
| 227 | S1206 | Replacement of existing actuators by WSD (EOT Claim no. 010) | 10/7 | 2/29/16 | | | | | |
| 228 | S1207 | Water suspension of High Island Water main pipes | 5/6 | 7/1/17 | | | | | |
| 229 | S1208 | Capping of path A (Upstream) | 0/0 | 10/1/17 | | | | | |
| 230 | S1209 | Capping of V160 valve (incl. downstream capping works) | 0/0 | 12/1/17 | | | | | |
| 231 | S1210 | Demolition of EDH (incl. relocation of existing E & M equipment) | 9/0 | 11/5/17 | | | | | |
| 232 | S1211 | Swapping of path B to path A (original) | 6/4 | 9/8/17 | | | | | |
| 233 | S1211a | HTH - Structure & Building Service | 3/5 | 12/10/17 | | | | | |
| 234 | S1212 | ELS works (sheepskin or pipe pile installation) | 2/8 | 12/10/17 | | | | | |
| 235 | S1213 | ELS works and excavation works | 3/6 | 9/1/17 | | | | | |
| 236 | S1214 | Excavation works | 3/6 | 9/1/17 | | | | | |
| 237 | S1215 | Foundation & substructure (incl. pipework installation inside Hydro Turbine House) | 6/1 | 17/1/18 | | | | | |
| 238 | S1216 | Superstructure for Hydro Turbine House | 8/9 | 19/5/18 | | | | | |
| 239 | S1217 | Completion of concrete structure of Hydro Turbine House | 0/0 | 15/6/18 | | | | | |
| 240 | S1218 | Finishing works | 1/8 | 16/6/18 | | | | | |
| 241 | S1219 | Completion of architectural finishes and relevant works (both internal and external) | 0/0 | 10/11/18 | | | | | |
| 242 | S1220 | Plumbing and Drainage installation | 1/8 | 16/6/18 | | | | | |
| 243 | S1221 | MVAC installation | 1/8 | 16/6/18 | | | | | |
| 244 | S1222 | Fire Services installation | 1/8 | 16/6/18 | | | | | |
| 245 | S1223 | Electrical installation | 1/8 | 16/6/18 | | | | | |
| 246 | S1224 | Water resumption of High Island Water main pipes | 5/5 | 24/10/18 | | | | | |
| 247 | S1225 | Remove capping of path A and re-install flow meter at HFI | 0/0 | 30/10/18 | | | | | |
| 248 | S1226 | HTH - E&M Works (Section 1) | 12/1 | 28/7/16 | | | | | |
| 249 | S1227 | Hydro Turbine House - E&M Equipment Procurement | 3/6 | 28/7/16 | | | | | |
| 250 | S1228 | Hydro Turbine House - E&M Equipment Manufacturing & FAT | 4/0 | 17/8/16 | | | | | |
| 251 | S1229 | Hydro Turbine House - E&M Equipment Delivery | 2/0 | 10/11/17 | | | | | |
| 252 | S1230 | Hydro Turbine House - E&M Equipment Delivery (Needle Valve & Turbine Generator) | 2/0 | 10/11/17 | | | | | |
| 253 | S1231 | Hydro Turbine House - HO by Civil Contractor | 0/0 | 16/6/18 | | | | | |
| 254 | S1232 | Installation of needle valve and turbine generator | 5/9 | 15/7/18 | | | | | |
| 255 | S1233 | Hydro Turbine House - Hydropower Generation System Mechanical Installation | 11/2 | 15/7/18 | | | | | |
| 256 | S1234 | T04 - Trench/Cable ducts & Draw Pits HO by Civil Contractor | 0/0 | 15/6/18 | | | | | |
| 257 | S1235 | T05 - Trench/Cable ducts & Draw Pits HO by Civil Contractor | 0/0 | 15/6/18 | | | | | |
| 258 | S1236 | Hydro Turbine House - Electrical & ICA Installation | 5/7 | 15/6/18 | | | | | |
| 259 | S1237 | Hydro Turbine House - Electrical & ICA Installation (Hydro Turbine System) | 5/7 | 15/6/18 | | | | | |
| 260 | S1238 | Section 1 Completion (Claims No. 026A, 028A & 051A) | 0/0 | 21/20 | | | | | |
| 261 | S2001 | Section 2 Commencement | 0/0 | 30/10/15 | | | | | |
| 262 | S2001 | Site Formation and Slope Retaining Structures for North Circular Road | 6/57 | 7/2/16 | | | | | |
| 263 | S2100 | L-shape Retaining Wall D | 19/7 | 7/2/16 | | | | | |
| 264 | S2100a | Site Clearance | 21/4 | 7/2/16 | | | | | |
| 265 | S2101 | Excavation works (incl. utilities relocation) | 21/4 | 7/2/16 | | | | | |
| 266 | S2102 | Subsoil of DI 1038 | 0/0 | 1/1/16 | | | | | |
| 267 | S2103 | Excavation for L-shape Retaining wall | 9/0 | 28/2/16 | | | | | |
| 268 | S2104 | Construction of L-shape Retaining wall | 12/0 | 13/4/16 | | | | | |
| 269 | S2105 | Permit of DI 1038 | 0/0 | 22/8/16 | | | | | |
| 270 | S2106 | Bore Pile & Mini Pile for Retaining Wall D | 33/4 | 22/8/16 | | | | | |
| 271 | S2106a | Excavation and backfilling for bore piling works area | 10/0 | 22/8/16 | | | | | |
| 272 | S2107 | Installation of temp. soil nail | 9/0 | 22/8/16 | | | | | |
| 273 | S2108 | Works for bored piles and mini piles | 15/4 | 30/11/16 | | | | | |
| 274 | S2109 | Construction of bored piles (DI H 5 - 0m, L 70m, Dia 1.5m) | 11/8 | 15/12/16 | | | | | |
| 275 | S2110 | Bored Pile test | 11/8 | 22/12/16 | | | | | |
| 276 | S2111 | Preparation works (Plant mobilization & site set up) | 14/4 | 5/4/17 | | | | | |
| 277 | S2112 | Mini pile load test (Preliminary Pile) | 3/3 | 19/4/17 | | | | | |
| 278 | S2113 | Construction of mini piles | 28/4 | 22/4/17 | | | | | |
| 279 | S2114 | Mini pile load test (Tension and compression) | 7/0 | 6/5/17 | | | | | |
| 280 | S2115 | Retaining Wall D for bore Pile & Mini Pile Section | 12/6 | 15/7/17 | | | | | |
| 281 | S2116 | Construction of retaining wall above bored pile | 30/4 | 22/7/17 | | | | | |
| 282 | S2117a | Critical Split | | | | | | | |
| 283 | S2117a | Nil/None | | | | | | | |
| 284 | S2118 | Summary | | | | | | | |



Contract No.: JWSD/15
 In-situ Reprisal of Sha Tin Water Treatment Works (South Works) - Advise Works
 Water Programme (Ver.09) - (Accelerated)

| ID | ID | Task Name | Duration | Rev 9 Start | Rev 9 Finish | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|----------|--|----------|-------------|--------------|------|------|------|------|------|
| 285 | S2119 | Construction of mini piles cap and L-shape retaining wall | 45 d | 5/8/17 | 18/9/17 | | | | | |
| 286 | S2120 | Construction of coping beam | 40 d | 19/9/17 | 28/10/17 | | | | | |
| 287 | S2121 | Backfilling works behind bored pile wall & L-shape retaining wall | 86 d | 11/8/17 | 24/11/17 | | | | | |
| 288 | S2005 | Section 2 Completion (Certificate of Completion No. 1) | 0 d | 24/11/17 | 24/11/17 | | | | | |
| 290 | S3001 | Section 3 Commencement | 0 d | 30/10/15 | 30/10/15 | | | | | |
| 291 | S3002 | New North Circular Road | 887 d | 11/11/16 | 6/4/19 | | | | | |
| 292 | S3002a | New Valve Chamber | 22 d | 11/11/16 | 12/6/17 | | | | | |
| 293 | S3004 | Excavation for construction of new valve chamber | 47 d | 11/11/16 | 17/12/16 | | | | | |
| 294 | S3005 | Construction of New Valve Chamber | 177 d | 18/12/16 | 12/6/17 | | | | | |
| 295 | S3005a | Flowmeter Chamber | 366 d | 4/1/18 | 4/1/19 | | | | | |
| 296 | S3003 | Raising the existing flowmeter chamber | 211 d | 4/1/18 | 2/8/18 | | | | | |
| 297 | S3008 | Construction for new road and associated Utility Installation, G16 Phase 1 (G16 Ch. 10 to Ch. 57) | 299 d | 12/3/18 | 4/1/19 | | | | | |
| 298 | S3008a | EAM for New Valve Chamber | 37 d | 13/1/19 | 6/4/19 | | | | | |
| 299 | S3006 | Lighting Installation for New Valve Chamber | 6 d | 13/1/19 | 6/3/19 | | | | | |
| 300 | S3007 | Existing Kiosk Modification of Panel & MCB for New Valve Chamber from Plover Cove Reservoir | 5 d | 2/4/19 | 6/4/19 | | | | | |
| 301 | S3100 | Temporary Washwater Recovery Tank | 1198 d | 1/4/16 | 12/7/19 | | | | | |
| 302 | S3100a | TWRT - DN900 pipe works | 516 d | 26/4/16 | 23/9/17 | | | | | |
| 303 | S3101 | Trial trench for DN900 washwater pipes | 25 d | 28/4/16 | 20/5/16 | | | | | |
| 304 | S3102 | ELS works and excavation works of trench pit | 14 d | 11/2/16 | 30/6/16 | | | | | |
| 305 | S3103 | Head dig tunnel (Tunnel no. 1, 2 & 3) for DN900 pipe | 130 d | 28/11/16 | 27/3/17 | | | | | |
| 306 | S3104 | Trial pit, ELS works and excavation works for manhole E | 90 d | 28/3/17 | 25/6/17 | | | | | |
| 307 | S3105 | Installation of DN900 pipe | 66 d | 28/3/17 | 26/5/17 | | | | | |
| 308 | S3106 | Modification of manhole E | 90 d | 26/6/17 | 23/8/17 | | | | | |
| 310 | S3107 | Head dig tunnel (Tunnel no. 4) for DN900 pipe (Claim No. 27A - Encounter with Uncharted Concrete Feature, & Suspension of Works due to New Guidance Notes on Safety and Health of Hand Dig Tunnel) | 370 d | 24/9/17 | 28/9/18 | | | | | |
| 311 | S3107C-1 | Head dig tunnel (Tunnel no. 4) for DN900 pipe | 75 d | 24/9/17 | 7/12/17 | | | | | |
| 312 | S3107C-2 | Head dig tunnel (Tunnel no. 4) for DN900 pipe | 62 d | 8/12/17 | 12/2/18 | | | | | |
| 313 | S3107C-3 | Head dig tunnel (Tunnel no. 4) for DN900 pipe | 14 d | 13/2/18 | 26/2/18 | | | | | |
| 314 | S3107C-5 | Head dig tunnel (Tunnel no. 4) for DN900 pipe | 17 d | 27/2/18 | 15/3/18 | | | | | |
| 315 | S3107C-3 | Safety and Health of Hand Dig Tunnel | 197 d | 16/3/18 | 28/9/18 | | | | | |
| 316 | S3106A | Head dig tunnel (Tunnel no. 4) for DN900 pipe, including pipe installation | 12 d | 29/9/18 | 10/10/18 | | | | | |
| 317 | S3108B | Installation of DN900 pipe | 258 d | 11/10/18 | 25/6/19 | | | | | |
| 318 | S3108B-1 | Connection to Existing Washwater Recovery Culvert (from North Filter Beds & South Filter Beds), (Claim No. 39A) | 12 d | 11/10/18 | 25/6/19 | | | | | |
| 319 | S3108B-2 | Chain No. 39A - Delay-1: Leakage of Excessive Water from Existing South Works & 258 d North Versus Filter Beds, Investigation, Additional Works & Final Change Over | 223 d | 11/10/18 | 25/6/19 | | | | | |
| 320 | S3108B-2 | Chain No. 39A - Delay-2: Conduct Investigation and Excavate Trial Pits (VO No. 59) 45 d | 45 d | 22/3/19 | 5/5/19 | | | | | |
| 320 | S3108B | TWRT - Modification of Tank | 361 d | 18/1/17 | 13/1/18 | | | | | |
| 321 | S3109 | Construction of Steel Platforms and Walkway | 175 d | 8/3/17 | 2/9/17 | | | | | |
| 322 | S3110 | Completion of Steel Platforms and Walkway Installation | 0 d | 2/9/17 | 2/9/17 | | | | | |
| 323 | S3111 | Lay 400mm & 100mm pipes (incl. 3 nos. of steel pipe-bridge) | 361 d | 18/1/17 | 13/1/18 | | | | | |
| 324 | S3112 | External Process Pipe Lay Installation | 127 d | 30/8/17 | 31/1/18 | | | | | |
| 325 | S3113 | External Process Pipe Lay Installation | 127 d | 30/8/17 | 31/1/18 | | | | | |
| 326 | S3114 | Temporary Washwater Recovery Tank - E&M Works | 1198 d | 1/4/16 | 12/7/19 | | | | | |
| 327 | S3115 | E&M equipment procurement and completion of delivery of E&M equipment on site (Lighting) | 122 d | 1/7/16 | 30/10/16 | | | | | |
| 328 | S3116 | Temp. WRT - Equipment Procurement | 168 d | 1/4/16 | 15/9/16 | | | | | |
| 329 | S3117 | Temp. WRT - Equipment Manufacturing & FAT | 213 d | 1/6/16 | 30/12/16 | | | | | |
| 330 | S3118 | Temp. WRT - Equipment Delivery | 287 d | 21/1/17 | 15/10/17 | | | | | |
| 331 | S3119 | Temp. WRT - HIO by Civil Contractor | 0 d | 30/9/17 | 30/9/17 | | | | | |
| 332 | S3120 | Temp. WRT - HIO - LV/Fire Cable draw pit & trench HIO by Civil Contractor | 0 d | 30/9/17 | 30/9/17 | | | | | |
| 333 | S3121 | Temp. WRT - Wall / slab opening inside Admin. Building - HIO by Civil Contractor | 0 d | 11/10/17 | 11/10/17 | | | | | |
| 334 | S3122 | Temp. WRT - Cable containment installation inside admin. Building | 13 d | 21/10/17 | 14/10/17 | | | | | |
| 335 | S3123 | Temp. WRT - LV / Fire Cable Laying | 47 d | 15/10/17 | 30/11/17 | | | | | |
| 336 | S3124 | Temp. WRT - Panel Support at existing Clarifier Distributing Chamber - HIO by Civil 1 d | 1 d | 11/10/17 | 11/10/17 | | | | | |
| 337 | S3125 | Contractor | 8 d | 15/12/17 | 23/12/17 | | | | | |
| 338 | S3127 | Temp. WRT - LNSB delivery and installation | 10 d | 12/1/18 | 10/1/18 | | | | | |
| 339 | S3128 | Temp. WRT - Site Test for LNSB | 10 d | 12/1/18 | 10/1/18 | | | | | |
| 340 | S3129 | Temp. WRT - Modify the existing Power Source and New power cable termination at Admin. Building LV Switch Room | 3 d | 1/6/18 | 3/6/18 | | | | | |
| 341 | S3131 | Temp. WRT - LNSR energization | 93 d | 30/3/18 | 30/6/18 | | | | | |
| 342 | S3132 | Temp. WRT - E&M installation inside circular Washwater Recovery Tank | 82 d | 10/4/18 | 30/6/18 | | | | | |
| 343 | S3133 | PCS Panel delivery and installation | 32 d | 5/7/18 | 15/8/18 | | | | | |
| 344 | S3134 | Temp. WRT - Location of existing switchboard at Clarifier Chamber | 3 d | 4/8/19 | 6/8/19 | | | | | |
| 345 | S3135 | Temp. WRT - T&C | 17 d | 26/6/19 | 12/7/19 | | | | | |
| 346 | S3300 | Site Formation - Flow Meter House + Valve Chamber @ Future Administration Building | 1185 d | 1/9/16 | 29/11/19 | | | | | |
| 347 | S3300a | Future Administration Building Ahead Works | 1139 d | 1/9/16 | 14/10/19 | | | | | |
| 348 | S3301 | Planning & coordination with WSD for re-arrangement of raw water mains from High Island Reservoir and construction of Flowmeter House and Valve Chamber | 235 d | 1/9/16 | 23/4/17 | | | | | |
| 349 | S3201a | Technical Examination for Cable diversion & Pipe Cappings | 90 d | 24/1/17 | 23/4/17 | | | | | |
| 350 | S3302 | Trial pit, and installation of manhole | 60 d | 24/4/17 | 22/6/17 | | | | | |
| 351 | S3303 | ELS works and excavation works for flow meter house and valve chamber | 110 d | 23/6/17 | 10/10/17 | | | | | |
| 352 | S3307 | Relocating existing Flow Meter | 3 d | 4/8/17 | 6/8/17 | | | | | |

Contract No. 195SD15
In-situ Rejuvenation of Shu Tin Water Treatment Works (South Works) - Advance Works
Master Programme (Ver.09) - (Accelerated)

Critical Split Milestone Summary Critical

Page 5 of 10
 Date 7 November 2019

| ID | Task Name | Duration | Rev 9 | Rev 9 | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|---|----------|----------|----------|-------|-------|-------|-------|-------|
| ID | Task Name | Start | Finish | Start | Start | Start | Start | Start | Start |
| 353 | Partial removal of existing flow meter house and valve chamber | 150 d | 17/17 | 13/11/18 | | | | | |
| 354 | Re-construction of flow meter house and valve chamber (incl. Steel Platform Installation) | 232 d | 6/1/19 | 15/8/19 | | | | | |
| 355 | ABWF Finishing Works for Flow Meter House and Valve Chamber | 106 d | 15/1/19 | 24/4/19 | | | | | |
| 356 | Plumbing and Drainage Installation for Flow Meter House and Valve Chamber | 60 d | 16/8/19 | 14/10/19 | | | | | |
| 357 | MVAC installation for Flow Meter House and Valve Chamber | 60 d | 16/8/19 | 14/10/19 | | | | | |
| 358 | Electrical installation for Flow Meter House and Valve Chamber | 60 d | 16/8/19 | 14/10/19 | | | | | |
| 359 | Valve Chamber - Equipment Procurement | 716 d | 30/11/17 | 15/11/18 | | | | | |
| 360 | Valve Chamber - Equipment Manufacturing & FAT | 62 d | 30/11/17 | 30/1/18 | | | | | |
| 361 | Valve Chamber - Equipment Delivery | 32 d | 30/11/17 | 28/2/19 | | | | | |
| 362 | Valve Chamber - Equipment Site Works Duration* | 91 d | 1/3/19 | 1/6/19 | | | | | |
| 363 | Valve Chamber - E&M Installation | 122 d | 31/7/19 | 31/8/19 | | | | | |
| 364 | Valve Chamber - Modifying the actuator to suit new level | 30 d | 1/8/19 | 30/8/19 | | | | | |
| 365 | Flowmeter House - Equipment Procurement | 66 d | 1/8/19 | 5/10/19 | | | | | |
| 366 | Flowmeter House - Equipment Manufacturing & FAT | 32 d | 15/10/19 | 15/11/19 | | | | | |
| 367 | Flowmeter House - Equipment Delivery | 866 d | 1/7/17 | 1/10/17 | | | | | |
| 368 | Flowmeter House - Equipment Installation of new mono rails | 512 d | 2/10/17 | 25/2/19 | | | | | |
| 369 | Flowmeter House - Pack Supply | 157 d | 1/11/19 | 1/11/19 | | | | | |
| 370 | Flowmeter House - T&C | 15 d | 1/8/19 | 15/8/19 | | | | | |
| 371 | Site Formation @ Future Administration Building | 228 d | 16/4/19 | 29/11/19 | | | | | |
| 372 | Abandon of 3 Nos. Existing Washwater Recovery Tanks | 0 d | 12/7/19 | 12/7/19 | | | | | |
| 373 | Isolation and Removal of Existing DN600 Fresh Water Main, # Subject to WSD Supply and Planting Division Schedule (Called off), (Contractor's NOC No. 22) | 40 d | 16/4/19 | 25/5/19 | | | | | |
| 374 | Re-isolation of DN600 Fresh Water Main into Two Stages, as per request - Stage 1 (Location A near Main Gate) | 1 d | 30/5/19 | 30/5/19 | | | | | |
| 375 | Re-isolation of DN600 Fresh Water Main into Two Stages, as per request - Stage 2 | 1 d | 5/6/19 | 5/6/19 | | | | | |
| 376 | Investigation and Termination of Existing DN600 Fresh Water Main | 105 d | 6/6/19 | 18/9/19 | | | | | |
| 377 | Demolishing existing structure for future administration building | 60 d | 13/7/19 | 10/9/19 | | | | | |
| 378 | Temporary Works & Demolition of 3 Nos. Existing Washwater Recovery Tanks | 90 d | 11/9/19 | 30/10/19 | | | | | |
| 379 | Site formation (backfilling) for future administration building | 30 d | 31/10/19 | 29/11/19 | | | | | |
| 380 | Construction of new main - Flow Meter House - Valve Chamber @ Future Administration Building | 0 d | 29/11/19 | 29/11/19 | | | | | |
| 381 | Box Culvert at Tin Sum Nullah | 1242 d | 1/10/16 | 24/2/20 | | | | | |
| 382 | Box Culvert Bay 5 to Bay 8 Connection Works | 261 d | 1/10/16 | 18/6/17 | | | | | |
| 383 | Temporary drainage diversion and form access | 45 d | 1/10/16 | 14/11/16 | | | | | |
| 384 | Excavation for Box Culvert (Bay 5) | 60 d | 15/11/16 | 13/1/17 | | | | | |
| 385 | Connection for Box Culvert (Bay 5) | 50 d | 14/1/17 | 4/3/17 | | | | | |
| 386 | Excavation for Box Culvert (Bay 6) | 30 d | 14/1/17 | 12/2/17 | | | | | |
| 387 | Connection for Box Culvert (Bay 6) | 25 d | 13/2/17 | 9/3/17 | | | | | |
| 388 | Construction for Box Culvert (Bay 7) | 18 d | 30/4/17 | 17/5/17 | | | | | |
| 389 | Excavation for Box Culvert (Bay 8) | 25 d | 10/3/17 | 3/4/17 | | | | | |
| 390 | Construction for Box Culvert (Bay 8) | 18 d | 1/6/17 | 18/6/17 | | | | | |
| 391 | Drainage diversion and form access | 876 d | 2/10/17 | 24/2/20 | | | | | |
| 392 | Excavation for Box Culvert (Bay 4) | 25 d | 2/10/17 | 26/10/17 | | | | | |
| 393 | Connection for Box Culvert (Bay 4) | 35 d | 27/10/17 | 30/1/17 | | | | | |
| 394 | Excavation for Box Culvert (Bay 3) | 35 d | 1/2/17 | 4/1/17 | | | | | |
| 395 | Connection for Box Culvert (Bay 3) | 22 d | 1/2/17 | 22/2/17 | | | | | |
| 396 | Excavation for Box Culvert (Bay 2) | 30 d | 19/1/18 | 25/2/17 | | | | | |
| 397 | Connection for Box Culvert (Bay 2) | 30 d | 26/2/17 | 24/1/18 | | | | | |
| 398 | Excavation for Box Culvert (Bay 1) | 30 d | 17/1/18 | 30/3/18 | | | | | |
| 399 | Connection for Box Culvert (Bay 1) | 30 d | 25/1/18 | 23/2/18 | | | | | |
| 400 | Backfilling Works and Existing Utilities Connection | 30 d | 17/3/18 | 15/4/18 | | | | | |
| 401 | Demolition of Temporary Steel South Bridge and Backfilling works to form Access Road (Subject to approval from STWV operator for using main gate as site entrance during construction of entrance above new box culvert.) | 122 d | 2/10/18 | 3/11/19 | | | | | |
| 402 | Storm Drain for Decking at Tin Sum Nullah, Drainage & Master Meter Room @ Keng Han Road | 1532 d | 2/1/16 | 12/3/20 | | | | | |
| 403 | Storm Drain for Tin Sum Nullah | 791 d | 2/1/16 | 23/18 | | | | | |
| 404 | Temporary drainage diversion | 15 d | 2/1/16 | 16/1/16 | | | | | |
| 405 | Modification of existing inlet structure | 40 d | 21/2/16 | 31/3/16 | | | | | |
| 406 | Temporary drainage diversion | 45 d | 3/10/16 | 16/1/16 | | | | | |
| 407 | ELS works and excavation works (Section 1) | 45 d | 17/11/16 | 31/12/16 | | | | | |
| 408 | Excavation for Box Culvert (Section 1) | 30 d | 26/1/17 | 14/2/17 | | | | | |
| 409 | Construction of manhole @ Section 1 | 25 d | 15/2/17 | 10/3/17 | | | | | |
| 410 | Installation for Storm Drain (Section 2) | 30 d | 12/3/17 | 10/4/17 | | | | | |
| 411 | Construction of inlet structure (Section 2) | 60 d | 11/4/17 | 9/6/17 | | | | | |
| 412 | Concrete surround to storm drain pipe and backfilling | 546 d | 3/7/17 | 24/12/18 | | | | | |
| 413 | Water Mains Connection & Master Meter Room | 160 d | 3/7/17 | 1/8/17 | | | | | |
| 414 | Application and obtain of excavation permit from Land Department | 30 d | 21/1/18 | 2/3/18 | | | | | |
| 415 | Excavation and backfilling of Keng Han Road | 40 d | 3/7/17 | 21/7/17 | | | | | |
| 416 | Construction of Valve Chamber at Keng Han Road | 336 d | 29/1/18 | 24/12/18 | | | | | |

Critical Path: 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500.

Summary: 1532 d, 2/1/16, 12/3/20
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Critical Path: 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500.

Task: Storm Drain for Decking at Tin Sum Nullah, Drainage & Master Meter Room @ Keng Han Road
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Summary: 1532 d, 2/1/16, 12/3/20
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Critical Path: 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500.

Task: Storm Drain for Decking at Tin Sum Nullah, Drainage & Master Meter Room @ Keng Han Road
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Summary: 1532 d, 2/1/16, 12/3/20
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Critical Path: 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500.



Task: Storm Drain for Decking at Tin Sum Nullah, Drainage & Master Meter Room @ Keng Han Road
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18

Summary: 1532 d, 2/1/16, 12/3/20
 Milestone: 2/1/16, 23/18, 16/1/16, 31/3/16, 16/1/16, 31/12/16, 14/2/17, 10/3/17, 9/6/17, 24/12/18, 1/8/17, 2/3/18, 1/8/17, 21/7/17, 24/12/18, 24/12/18



Contract No.: SWS01/15
 In-site Re-provisioning of Sha Tin Water Treatment Works (South Works) - Advance Works
 Master Programme (Ver.09) - (Accelerated)

| ID | Task Name | Duration | Start | Finish | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|--|----------|----------|----------|------|------|------|------|------|
| 497 | Superstructure for Alum Saturation Tanks | 34 d | 26/12/18 | 30/01/19 | | | | | |
| 498 | Steel canopy at Alum Saturation Tank Roof | 31 d | 15/8/19 | 14/9/19 | | | | | |
| 499 | Task coating & roller in tank works | 62 d | 15/9/19 | 15/11/19 | | | | | |
| 500 | B.S. - Plumbing and Drainage installation for Alum Saturation Tank | 60 d | 15/9/19 | 29/7/19 | | | | | |
| 501 | B.S. - HVAC installation for Alum Saturation Tank | 60 d | 15/9/19 | 13/8/19 | | | | | |
| 502 | B.S. - Fire Services installation for Alum Saturation Tank | 60 d | 15/9/19 | 12/8/19 | | | | | |
| 503 | Lifting appliances for Alum Saturation Tank | 52 d | 30/8/19 | 20/10/19 | | | | | |
| 504 | Automatic Irrigation system | 92 d | 30/9/19 | 30/12/19 | | | | | |
| 505 | Canopy installation | 73 d | 20/10/19 | 31/12/19 | | | | | |
| 506 | Completion of structure including canopy above Alum Saturation Tanks | 1410 d | 7/4/16 | 15/2/20 | | | | | |
| 507 | WTW Logistics Centre - Internal EAM Site Works | 671 d | 9/12/16 | 10/10/18 | | | | | |
| 508 | WTW Logistics Centre - Silo Installation B/F | 77 d | 9/12/16 | 23/2/17 | | | | | |
| 509 | WTW Logistics Centre - Silo Procurement | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 510 | WTW Logistics Centre - Silo Manufacturing & FAT | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 511 | WTW Logistics Centre - Silo Installation A/B | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 512 | WTW Logistics Centre - Silo Installation C/D | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 513 | WTW Logistics Centre - Silo Installation E/F | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 514 | WTW Logistics Centre - Silo Installation G/H | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 515 | WTW Logistics Centre - Silo Installation I/J | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 516 | WTW Logistics Centre - Silo Installation K/L | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 517 | WTW Logistics Centre - Silo Installation M/N | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 518 | WTW Logistics Centre - Silo Installation O/P | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 519 | WTW Logistics Centre - Silo Installation Q/R | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 520 | WTW Logistics Centre - Silo Installation S/T | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 521 | WTW Logistics Centre - Silo Installation U/V | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 522 | WTW Logistics Centre - Silo Installation W/X | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 523 | WTW Logistics Centre - Silo Installation Y/Z | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 524 | WTW Logistics Centre - Silo Installation AA | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 525 | WTW Logistics Centre - Silo Installation AB | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 526 | WTW Logistics Centre - Silo Installation AC | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 527 | WTW Logistics Centre - Silo Installation AD | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 528 | WTW Logistics Centre - Silo Installation AE | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 529 | WTW Logistics Centre - Silo Installation AF | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 530 | WTW Logistics Centre - Silo Installation AG | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 531 | WTW Logistics Centre - Silo Installation AH | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 532 | WTW Logistics Centre - Silo Installation AI | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 533 | WTW Logistics Centre - Silo Installation AJ | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 534 | WTW Logistics Centre - Silo Installation AK | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 535 | WTW Logistics Centre - Silo Installation AL | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 536 | WTW Logistics Centre - Silo Installation AM | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 537 | WTW Logistics Centre - Silo Installation AN | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 538 | WTW Logistics Centre - Silo Installation AO | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 539 | WTW Logistics Centre - Silo Installation AP | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 540 | WTW Logistics Centre - Silo Installation AQ | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 541 | WTW Logistics Centre - Silo Installation AR | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 542 | WTW Logistics Centre - Silo Installation AS | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 543 | WTW Logistics Centre - Silo Installation AT | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 544 | WTW Logistics Centre - Silo Installation AU | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 545 | WTW Logistics Centre - Silo Installation AV | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 546 | WTW Logistics Centre - Silo Installation AW | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 547 | WTW Logistics Centre - Silo Installation AX | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 548 | WTW Logistics Centre - Silo Installation AY | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 549 | WTW Logistics Centre - Silo Installation AZ | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 550 | WTW Logistics Centre - Silo Installation BA | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 551 | WTW Logistics Centre - Silo Installation BB | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 552 | WTW Logistics Centre - Silo Installation BC | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 553 | WTW Logistics Centre - Silo Installation BD | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 554 | WTW Logistics Centre - Silo Installation BE | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 555 | WTW Logistics Centre - Silo Installation BF | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 556 | WTW Logistics Centre - Silo Installation BG | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 557 | WTW Logistics Centre - Silo Installation BH | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 558 | WTW Logistics Centre - Silo Installation BI | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 559 | WTW Logistics Centre - Silo Installation BJ | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 560 | WTW Logistics Centre - Silo Installation BK | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 561 | WTW Logistics Centre - Silo Installation BL | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 562 | WTW Logistics Centre - Silo Installation BM | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 563 | WTW Logistics Centre - Silo Installation BN | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 564 | WTW Logistics Centre - Silo Installation BO | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 565 | WTW Logistics Centre - Silo Installation BP | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 566 | WTW Logistics Centre - Silo Installation BQ | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 567 | WTW Logistics Centre - Silo Installation BR | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 568 | WTW Logistics Centre - Silo Installation BS | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 569 | WTW Logistics Centre - Silo Installation BT | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 570 | WTW Logistics Centre - Silo Installation BU | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 571 | WTW Logistics Centre - Silo Installation BV | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 572 | WTW Logistics Centre - Silo Installation BW | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 573 | WTW Logistics Centre - Silo Installation BX | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 574 | WTW Logistics Centre - Silo Installation BY | 179 d | 15/4/18 | 16/10/18 | | | | | |
| 575 | WTW Logistics Centre - Silo Installation BZ | 179 d | 15/4/18 | 16/10/18 | | | | | |






Contract No.: JWSD/15
In-Situ Rejuvenation of Slab The Water Treatment Works (South Works) - Advance Works
Master Programme (Year 09) - (Accelerated)

Summary * Milestone * Critical
 Critical Split
 Page 6 of 10
 Date: 7 November 2019

| ID | ID | Task Name | Description | Start | End | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|-------------|---|---|----------|----------|------|------|------|------|------|
| 574 | S36109 | WTWLC-Cable Trough / Ducts / Plus between NWTPH & WTWLC - HO by Civil | WTWLC-Cable Trough / Ducts / Plus between NWTPH & WTWLC - HO by Civil | 10/31/19 | 10/31/19 | | | | | |
| 575 | S36111 | WTWLC - Installation of HV Cables from NWTPH to WTWLC | WTWLC - Installation of HV Cables from NWTPH to WTWLC | 6/2 | 10/31/19 | | | | | |
| 576 | S36112 | WTWLC - T5 Room Installation | WTWLC - T5 Room Installation | 3/2 | 10/31/19 | | | | | |
| 577 | S36115a | WTWLC - Cable & Termination for Lime System | WTWLC - Cable & Termination for Lime System | 4/5 | 29/10/19 | | | | | |
| 578 | S36115b | WTWLC - Cable & Termination for Polymer System | WTWLC - Cable & Termination for Polymer System | 6/0 | 21/01/19 | | | | | |
| 579 | S36115c | WTWLC - Cable & Termination for PAC System | WTWLC - Cable & Termination for PAC System | 6/0 | 17/09/19 | | | | | |
| 580 | S36115d | WTWLC - DCS | WTWLC - DCS | 13/0 | 15/08/19 | | | | | |
| 581 | S36116 | WTW Logistics Centre - HV Works | WTW Logistics Centre - HV Works | 3/5 | 1/10/18 | | | | | |
| 582 | S36117 | WTW Logistics Centre - HV Panel Final Flaying & SAT | WTW Logistics Centre - HV Panel Final Flaying & SAT | 4/6 | 1/10/18 | | | | | |
| 583 | S36118 | WTW Logistics Centre - HV Cable and Switchboard Final Inspection by CLP & Metering | WTW Logistics Centre - HV Cable and Switchboard Final Inspection by CLP & Metering | 2 | 24/2/19 | | | | | |
| 584 | S36121 | WTW Logistics Centre - HV Cable and Switchboard Final Inspection by CLP & Metering | WTW Logistics Centre - HV Cable and Switchboard Final Inspection by CLP & Metering | 2 | 24/2/19 | | | | | |
| 585 | S36119 | WTW Logistics Centre - HV Cable Laying from NWTPH to WTWLC | WTW Logistics Centre - HV Cable Laying from NWTPH to WTWLC | 6 | 10/31/19 | | | | | |
| 586 | S36120 | WTW Logistics Centre - HV Cable Termination and Insulation Test | WTW Logistics Centre - HV Cable Termination and Insulation Test | 31 | 16/2/19 | | | | | |
| 587 | S36121 | WTW Logistics Centre - HV LVSS Power Energization | WTW Logistics Centre - HV LVSS Power Energization | 1 | 15/10/19 | | | | | |
| 588 | S36122 | WTW Logistics Centre - T&C Individual Test for Flouride | WTW Logistics Centre - T&C Individual Test for Flouride | 1 | 15/10/19 | | | | | |
| 589 | S36124 | WTW Logistics Centre - T&C Precommissioning Test for Flouride | WTW Logistics Centre - T&C Precommissioning Test for Flouride | 12 | 2/11/19 | | | | | |
| 590 | S36126 | WTW Logistics Centre - T&C Preliminary Test for Flouride | WTW Logistics Centre - T&C Preliminary Test for Flouride | 3 | 14/11/19 | | | | | |
| 591 | S36125 | WTW Logistics Centre - T&C Commissioning Test for Flouride | WTW Logistics Centre - T&C Commissioning Test for Flouride | 28 | 17/11/19 | | | | | |
| 592 | S36127 | WTW Logistics Centre - T&C Individual Test for Pre Line | WTW Logistics Centre - T&C Individual Test for Pre Line | 21 | 15/11/19 | | | | | |
| 593 | S36124D | WTW Logistics Centre - T&C Precommissioning Test for Pre Line | WTW Logistics Centre - T&C Precommissioning Test for Pre Line | 7 | 6/12/19 | | | | | |
| 594 | S36126D | WTW Logistics Centre - T&C Preliminary Test for Pre Line | WTW Logistics Centre - T&C Preliminary Test for Pre Line | 3 | 13/12/19 | | | | | |
| 595 | S36125D | WTW Logistics Centre - T&C Commissioning Test for Pre Line | WTW Logistics Centre - T&C Commissioning Test for Pre Line | 28 | 16/12/19 | | | | | |
| 596 | S36127D | WTW Logistics Centre - T&C Individual Test for PAC | WTW Logistics Centre - T&C Individual Test for PAC | 20 | 12/12/19 | | | | | |
| 597 | S36124D | WTW Logistics Centre - T&C Precommissioning Test for PAC | WTW Logistics Centre - T&C Precommissioning Test for PAC | 7 | 6/12/19 | | | | | |
| 598 | S36126A | WTW Logistics Centre - T&C Preliminary Test for PAC | WTW Logistics Centre - T&C Preliminary Test for PAC | 3 | 8/1/20 | | | | | |
| 599 | S36125A | WTW Logistics Centre - T&C Commissioning Test for PAC | WTW Logistics Centre - T&C Commissioning Test for PAC | 28 | 11/1/20 | | | | | |
| 600 | S36127A | WTW Logistics Centre - T&C Individual Test for Post Line | WTW Logistics Centre - T&C Individual Test for Post Line | 20 | 14/1/20 | | | | | |
| 601 | S36124B | WTW Logistics Centre - T&C Precommissioning Test for Polymer | WTW Logistics Centre - T&C Precommissioning Test for Polymer | 20 | 2/12/19 | | | | | |
| 602 | S36124B | WTW Logistics Centre - T&C Commissioning Test for Polymer | WTW Logistics Centre - T&C Commissioning Test for Polymer | 7 | 22/12/19 | | | | | |
| 603 | S36125B | WTW Logistics Centre - T&C Individual Test for Polymer | WTW Logistics Centre - T&C Individual Test for Polymer | 3 | 29/12/19 | | | | | |
| 604 | S36127B | WTW Logistics Centre - T&C Precommissioning Test for Polymer | WTW Logistics Centre - T&C Precommissioning Test for Polymer | 28 | 1/1/20 | | | | | |
| 605 | S36125B | WTW Logistics Centre - T&C Commissioning Test for Polymer | WTW Logistics Centre - T&C Commissioning Test for Polymer | 20 | 12/12/19 | | | | | |
| 606 | S36124C | WTW Logistics Centre - T&C Individual Test for PAC | WTW Logistics Centre - T&C Individual Test for PAC | 20 | 12/12/19 | | | | | |
| 607 | S36125C | WTW Logistics Centre - T&C Commissioning Test for PAC | WTW Logistics Centre - T&C Commissioning Test for PAC | 3 | 8/1/20 | | | | | |
| 608 | S36127 | WTW Logistics Centre - T&C Individual Test for Lime, Polymer & PAC | WTW Logistics Centre - T&C Individual Test for Lime, Polymer & PAC | 28 | 11/1/20 | | | | | |
| 609 | Critical #2 | Completion of T&C of all E&M system in WTWLC | Completion of T&C of all E&M system in WTWLC | 0 | 10/2/20 | | | | | |
| 610 | S36128 | WTW Logistics Centre - External E&M Site Works | WTW Logistics Centre - External E&M Site Works | 6 | 11/2/20 | | | | | |
| 611 | S36129 | WTW Logistics Centre - Trench Civil Works - HO by Civil Contractor | WTW Logistics Centre - Trench Civil Works - HO by Civil Contractor | 0 | 29/3/18 | | | | | |
| 612 | S36130 | WTW Logistics Centre - Trench Civil Works - HO by Civil Contractor | WTW Logistics Centre - Trench Civil Works - HO by Civil Contractor | 0 | 29/3/18 | | | | | |
| 613 | S36131 | WTW Logistics Centre - PSW From Existing treated water pump house | WTW Logistics Centre - PSW From Existing treated water pump house | 200 | 15/5/19 | | | | | |
| 614 | S36132 | WTW Logistics Centre - Installation of new Process pipeline to existing dosing points | WTW Logistics Centre - Installation of new Process pipeline to existing dosing points | 230 | 15/4/19 | | | | | |
| 615 | S36133 | WTW Logistics Centre - Up to R/F - HO by Civil Contractor | WTW Logistics Centre - Up to R/F - HO by Civil Contractor | 30 | 12/2/18 | | | | | |
| 616 | S36134 | WTW Logistics Centre - Plant Service Water System High Pressure System (M4) | WTW Logistics Centre - Plant Service Water System High Pressure System (M4) | 200 | 12/2/18 | | | | | |
| 617 | S36135 | Saturation Tanks - E&M Works | Saturation Tanks - E&M Works | 100 | 15/8/19 | | | | | |
| 618 | S36136 | Saturation Tanks - Alum System Procurement | Saturation Tanks - Alum System Procurement | 694 | 22/5/17 | | | | | |
| 619 | S36137 | Saturation Tanks - Alum System Manufacturing & FAT | Saturation Tanks - Alum System Manufacturing & FAT | 55 | 22/5/17 | | | | | |
| 620 | S36138 | Saturation Tanks - Alum System Delivery | Saturation Tanks - Alum System Delivery | 120 | 16/7/17 | | | | | |
| 621 | S36139 | Saturation Tanks - First I/F Sub-G.L. AS-4-CH-1 - HO by Civil Contractor | Saturation Tanks - First I/F Sub-G.L. AS-4-CH-1 - HO by Civil Contractor | 91 | 15/1/19 | | | | | |
| 622 | S36140 | Saturation Tanks - First I/F Sub-G.L. AS-4-CH-1 - HO by Civil Contractor | Saturation Tanks - First I/F Sub-G.L. AS-4-CH-1 - HO by Civil Contractor | 0 | 27/2/19 | | | | | |
| 623 | S36141 | Saturation Tanks - Alum System Site Works Duration* | Saturation Tanks - Alum System Site Works Duration* | 186 | 16/6/19 | | | | | |
| 624 | S36142 | Saturation Tanks - Alum System - Mixers & Accessories | Saturation Tanks - Alum System - Mixers & Accessories | 150 | 16/6/19 | | | | | |
| 625 | S36143 | Saturation Tanks - Alum System - Electrical & K&A Installation | Saturation Tanks - Alum System - Electrical & K&A Installation | 107 | 5/6/19 | | | | | |
| 626 | S36144 | Saturation Tanks - Alum System - Electrical & K&A Installation | Saturation Tanks - Alum System - Electrical & K&A Installation | 47 | 30/7/19 | | | | | |
| 627 | S36145 | Saturation Tanks - Alum System - T&C | Saturation Tanks - Alum System - T&C | 30 | 17/9/19 | | | | | |
| 628 | S36146 | Saturation Tanks - T&C Individual Test for lateral & nozzle pipe | Saturation Tanks - T&C Individual Test for lateral & nozzle pipe | 433 | 18/11/18 | | | | | |
| 629 | S36147 | Saturation Tanks - T&C Precommissioning Test for lateral & nozzle pipe | Saturation Tanks - T&C Precommissioning Test for lateral & nozzle pipe | 7 | 26/10/19 | | | | | |
| 630 | S36148 | Saturation Tanks - T&C Preliminary Test for lateral & nozzle pipe | Saturation Tanks - T&C Preliminary Test for lateral & nozzle pipe | 27 | 20/11/19 | | | | | |
| 631 | S36149 | Saturation Tanks - T&C Commissioning Test for lateral & nozzle pipe | Saturation Tanks - T&C Commissioning Test for lateral & nozzle pipe | 3 | 29/11/19 | | | | | |
| 632 | S36149 | Saturation Tanks - T&C Individual Test for Alum solution tank | Saturation Tanks - T&C Individual Test for Alum solution tank | 2 | 21/12/19 | | | | | |
| 633 | S36149 | Saturation Tanks - T&C Precommissioning Test for Alum solution tank | Saturation Tanks - T&C Precommissioning Test for Alum solution tank | 28 | 20/12/19 | | | | | |
| 634 | S36149 | Saturation Tanks - T&C Preliminary Test for Alum solution tank | Saturation Tanks - T&C Preliminary Test for Alum solution tank | 7 | 23/11/19 | | | | | |
| 635 | S36148 | Saturation Tanks - T&C Commissioning Test for Alum solution tank | Saturation Tanks - T&C Commissioning Test for Alum solution tank | 3 | 29/11/19 | | | | | |
| 636 | S36150 | Saturation Tanks - T&C Commissioning Test for Alum solution tank | Saturation Tanks - T&C Commissioning Test for Alum solution tank | 28 | 2/12/19 | | | | | |
| 637 | S36151 | EMSD inspection of passenger lift | EMSD inspection of passenger lift | 1 | 12/11/19 | | | | | |
| 638 | S36151A | EMSD inspection of passenger lift | EMSD inspection of passenger lift | 1 | 24/1/20 | | | | | |
| 639 | S36152 | PSD inspection | PSD inspection | 1 | 31/10/19 | | | | | |
| 640 | S36153 | PSD inspection | PSD inspection | 3 | 25/11/19 | | | | | |
| 641 | S36154 | Additional works subject to window well installation | Additional works subject to window well installation | 11 | 19/12/18 | | | | | |
| 642 | S36154A | AECOM Request MAVIV to Provide the Proposal of Additional Glass Canopy on Window Wall at WTWLC | AECOM Request MAVIV to Provide the Proposal of Additional Glass Canopy on Window Wall at WTWLC (Claim No. 50A) | 0 | 17/12/18 | | | | | |
| 643 | S36154AC-1 | MAVIV Provide the Proposal and the Cost Estimate to AECOM | MAVIV Provide the Proposal and the Cost Estimate to AECOM | 73 | 17/12/18 | | | | | |
| 644 | S36154AC-2 | AECOM Confirmed Variation Order | AECOM Confirmed Variation Order | 0 | 11/2/19 | | | | | |
| 645 | S36154AC-3 | Design & Shop Drawing Submission and Approval | Design & Shop Drawing Submission and Approval | 122 | 12/3/19 | | | | | |
| 646 | S36154AC-4 | Material Ordering, Delivery & Testing | Material Ordering, Delivery & Testing | 46 | 12/7/19 | | | | | |
| 647 | S36154AC-5 | Installation of Window Wall & Glass Canopy | Installation of Window Wall & Glass Canopy | 66 | 27/8/19 | | | | | |
| 648 | S36154AC-6 | Completion of architectural finishes and relevant building works (both internal and external) | Completion of architectural finishes and relevant building works (both internal and external) | 0 | 2/1/20 | | | | | |
| 649 | S36155 | Priming Works | Priming Works | 569 | 11/5/18 | | | | | |
| 650 | S3700 | Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | 183 | 11/5/18 | | | | | |
| 651 | S3700A | Claim No. 38A - Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | Claim No. 38A - Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | 177 | 11/5/18 | | | | | |
| 652 | S3700A-C-1 | Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | Delay to Process Pipeline and Related Works Due to Replacement of Existing Lamp Posts, Uncharted Obstructions and Realigning of Process Pipeworks (Claim No. 38A) | 177 | 11/5/18 | | | | | |

| ID | ID | Task Name | Duration | Rev 9 Start | Rev 9 Finish | 2016 | 2017 | 2018 | 2019 | 2020 |
|-----|-----------|---|----------|-------------|--------------|------|------|------|------|------|
| 653 | S3700AC-2 | Claim No. 38A - Delay-2- Change of Alignment, Depth, and Position of Process Pipelines | 74 d | 22/8/18 | 31/11/18 | | | | | |
| 654 | S3700AC-3 | Claim No. 38A - Delay-3- Finalize the Diversion of Existing PE Chlorine Pipe | 9 d | 1/1/18 | 9/1/18 | | | | | |
| 655 | S3700A | Process Pipe Trench | 249 d | 12/11/18 | 18/7/19 | | | | | |
| 656 | S3701 | Process Pipe Trench C1 | 146 d | 12/11/18 | 18/7/19 | | | | | |
| 657 | S3702 | Process Pipe Trench C2 | 146 d | 12/11/18 | 18/7/19 | | | | | |
| 658 | S3703 | Process Pipe Trench F | 246 d | 12/11/18 | 18/7/19 | | | | | |
| 659 | S3704 | Process Pipe Trench G | 14 d | 15/11/18 | 28/11/18 | | | | | |
| 660 | S3705 | Process Pipe Trench H | 177 d | 12/11/18 | 7/5/19 | | | | | |
| 661 | S3705A | Diversion of Existing Pipe | 226 d | 13/3/19 | 24/10/19 | | | | | |
| 662 | S3706 | Diversion of Existing Chlorine Pipe (additional works, arrangement with STWTW operator) | 16 d | 13/3/19 | 28/3/19 | | | | | |
| 663 | S3707 | Process Pipe Trench H, subject to diversion of existing chlorine pipe schedule | 210 d | 29/3/19 | 24/10/19 | | | | | |
| 664 | S3707A | Pipe Line Installation & Testing | 215 d | 30/4/19 | 30/11/19 | | | | | |
| 665 | S3708 | Pipe line installation and testing (Trench C1 + F) | 77 d | 30/4/19 | 15/7/19 | | | | | |
| 666 | S3709 | Pipe line installation and testing (Trench C2) | 77 d | 30/4/19 | 15/7/19 | | | | | |
| 667 | S3710 | Pipe line installation and testing (Trench G + F) | 47 d | 30/6/19 | 15/8/19 | | | | | |
| 668 | S3711 | Pipe line installation and testing (Trench H) | 51 d | 11/10/19 | 30/11/19 | | | | | |
| 669 | S3712 | Completion of all site testing and operation commissioning | 0 d | 30/11/19 | 30/11/19 | | | | | |
| 670 | S3800 | Road Works (Claim No. 45, 53, 58 & 59) | 1207 d | 18/7/16 | 28/11/19 | | | | | |
| 671 | S3800a | Sludge Plant Road | 159 d | 18/7/16 | 28/12/16 | | | | | |
| 672 | S3801 | Construction for new road and associated Utility Installation at Sludge Plant Road | 159 d | 18/7/16 | 28/12/16 | | | | | |
| 673 | S3801a | Internal Road - G06 (North Circular Road) | 256 d | 17/12/18 | 29/8/19 | | | | | |
| 674 | S3802 | Construction for new road and associated Utility Installation, G06 Phase 2 (G06 Ch. 180 to Ch. 240) | 238 d | 17/12/18 | 11/8/19 | | | | | |
| 675 | S3803 | Construction for new road and associated Utility Installation, G06 Phase 4 & 5 (G06 Ch. 240 to Ch. 350) | 143 d | 5/4/19 | 25/8/19 | | | | | |
| 676 | S3804 | Construction for new road and associated Utility Installation, G06 Phase 3 (G06 Ch. 350 to Ch. 440) | 240 d | 2/1/19 | 29/8/19 | | | | | |
| 677 | S3804a | Internal Road - G10 (North Elter Loop) & G01 (Logistics Branch) | 415 d | 21/6/18 | 20/11/19 | | | | | |
| 678 | S3805 | Construction for new road and associated Utility Installation, G10 (G10 Ch. 179 to Ch. 344 & 240) | 344 d | 21/6/18 | 10/9/19 | | | | | |
| 679 | S3806 | Construction for new road and associated Utility Installation, G01 (G01 Ch. 100 to Ch. 71 & 180) | 71 d | 11/9/19 | 20/11/19 | | | | | |
| 680 | S3806a | Internal Road - Road Surface | 133 d | 11/7/19 | 20/11/19 | | | | | |
| 681 | S3807 | Construction of road surface | 133 d | 11/7/19 | 20/11/19 | | | | | |
| 682 | S3809 | Section 3 Completion | 0 d | 12/5/20 | 12/5/20 | | | | | |
| 683 | S4001 | Section 4 Completion (Certificate of Completion No. 1) | 0 d | 20/1/17 | 20/1/17 | | | | | |
| 684 | S4002 | Section 4 Completion (Certificate of Completion No. 2) | 0 d | 28/6/18 | 28/6/18 | | | | | |
| 685 | S4100 | Landscape Softworks & Establishment Works | 0 d | 28/6/18 | 28/6/18 | | | | | |
| 686 | S4101 | Landscape Softworks (Deletion of Landscape Works in Portion D under Variation Order no. 36) | 0 d | 28/6/18 | 28/6/18 | | | | | |
| 687 | S4102 | Establishment works (Deletion of Landscape Works in Portion D under Variation Order no. 38) | 0 d | 28/6/18 | 28/6/18 | | | | | |
| 688 | S4002 | Section 4 Completion (Certificate of Completion No. 2) | 0 d | 16/1/18 | 16/1/18 | | | | | |
| 689 | S5001 | Section 5 Commencement | 0 d | 10/10/15 | 10/10/15 | | | | | |
| 690 | S5001a | Landscape Softworks & Establishment Works | 148 d | 8/1/16 | 28/1/15 | | | | | |
| 691 | S5100 | Tree Planting | 585 d | 8/1/16 | 14/8/17 | | | | | |
| 692 | S5100a | Preparation of site area for planting works | 20 d | 8/1/16 | 27/1/16 | | | | | |
| 693 | S5101 | Transplanting works | 206 d | 28/1/16 | 14/8/16 | | | | | |
| 694 | S5102 | Establishment for transplanting works | 365 d | 15/8/16 | 14/8/17 | | | | | |
| 695 | S5103 | Landscape & Establishment | 516 d | 1/9/19 | 28/1/21 | | | | | |
| 696 | S5104 | Plant Material - Subversion & approval | 45 d | 1/9/19 | 15/10/19 | | | | | |
| 697 | S5104a | Landscape Works - Wall C | 60 d | 16/10/19 | 14/12/19 | | | | | |
| 698 | S5104b | Landscape Works - Wall D | 45 d | 15/12/19 | 28/1/20 | | | | | |
| 699 | S5104c | Landscape Works - Portion E | 45 d | 15/12/19 | 28/1/20 | | | | | |
| 700 | S5104d | Landscape Works - HPP Surround Area | 45 d | 15/12/19 | 28/1/20 | | | | | |
| 701 | S5104e | Landscape Works - Along NCR | 14 d | 16/1/20 | 29/1/20 | | | | | |
| 702 | S5104f | Landscape Works - Along Filter Bed | 14 d | 16/1/20 | 29/1/20 | | | | | |
| 703 | S5104h | Establishment works | 365 d | 30/1/20 | 28/1/21 | | | | | |
| 704 | S5104i | Establishment works | 365 d | 30/1/20 | 28/1/21 | | | | | |
| 705 | S5105 | Establishment works | 0 d | 28/1/21 | 28/1/21 | | | | | |

Contract No.: JWSDB15
In-situ Rejuvenation of Sha. The Water Treatment Works (South Works) - Advance Works
Master Programme (Year 09) - (Accelerated)

Critical Split
Task
Milestone
Summary
Critical

Page 16 of 18
 Date: 7 November 2019

Appendix D

Location of Construction Activities

LEGEND:

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- WORKS AREA
- REPRESSURIZABLE AIR SENSITIVE RECEIVERS (ASR)
- THE BLOSSOM PHASE 4
- THE L LOBBY
- HIN KENG ESTATE - HIN HAU HOUSE
- HIN KENG ESTATE - HIN WAN HOUSE
- HIN KENG ESTATE - HIN KWAN HOUSE
- SHA TIN HEIGHT TUNNEL ADMINISTRATION BUILDING
- RETRAINING HALL AND NEW ACCESS ROAD
- WATER TREATMENT WORKS LOGISTICS CENTRE
- UPGRADED MAIN ENTRY ROAD
- WASTEWATER EQUALIZATION TANKS (NORTH WORKS)
- DEMOLITION OF EXISTING WASTEWATER TREATMENT TANKS
- CONSTRUCTION OF SOUTH WORKS
- REGIONAL MANAGEMENT FACILITIES
- PRE-CONCRETE HOUSE AND COAGULATION TANKS
- FLOCCULATION TANKS
- HIGH RATE SEDIMENTATION TANKS
- INTERMEDIATE COAGULATION HOUSE
- STAGE 1 BIOLOGICAL FILTERS
- SOUTH WORKS PUMPING STATION
- INLET CHANNEL STATIC MAGES (NORTH WORKS)
- PEDESTRIAN WALKWAY
- STAGE 2 GRANULAR MEDIA FILTERS & UV REACTORS
- OPERATION OF HALL ROAD



13

| | |
|--|---|
| 水務署 WATER SUPPLIES DEPARTMENT AGREEMENT NO. CE 13/2008 (NS) IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS DESIGN AND CONSTRUCTION | LOCATIONS OF CONSTRUCTION WORKS AREA |
| | |
| DRG. NO. 60162073/FIGURE 4.2 圖紙編號 60162073/圖紙 4.2 DATE 2014.10.23 SCALE AS 1 : 3000 UNIT METRES © COPYRIGHT RESERVED 水務署 謹啟 | |

Appendix E

Environmental Sensitive Receivers in the Vicinity of the Project

LEGEND:

- SITE BOUNDARY OF SHIA TIN WATER TREATMENT WORKS
- - - STUDY AREA (500m BOUNDARY)
- ▭ WORKS AREA
- REPRESENTATIVE AIR SENSITIVE RECEIVERS (ASR)
- THE BLOSSOM PHASE 4
- THE L LOUHY
- HIN KENG ESTATE - HIN YAU HOUSE
- HIN KENG ESTATE - HIN WAN HOUSE
- HIN KENG ESTATE - HIN KWAN HOUSE
- SHIA TIN HEIGHT TUNNEL ADMINISTRATION BUILDING

- ASR-1
- ASR-2
- ASR-3
- ASR-4
- ASR-5
- ASR-6

水務署
 WATER SUPPLIES DEPARTMENT
 AGREEMENT NO. CE 17/2009 (NS)
 IN-SITU REPRODUCTION SOUTH WORKS
 DESIGN AND CONSTRUCTION

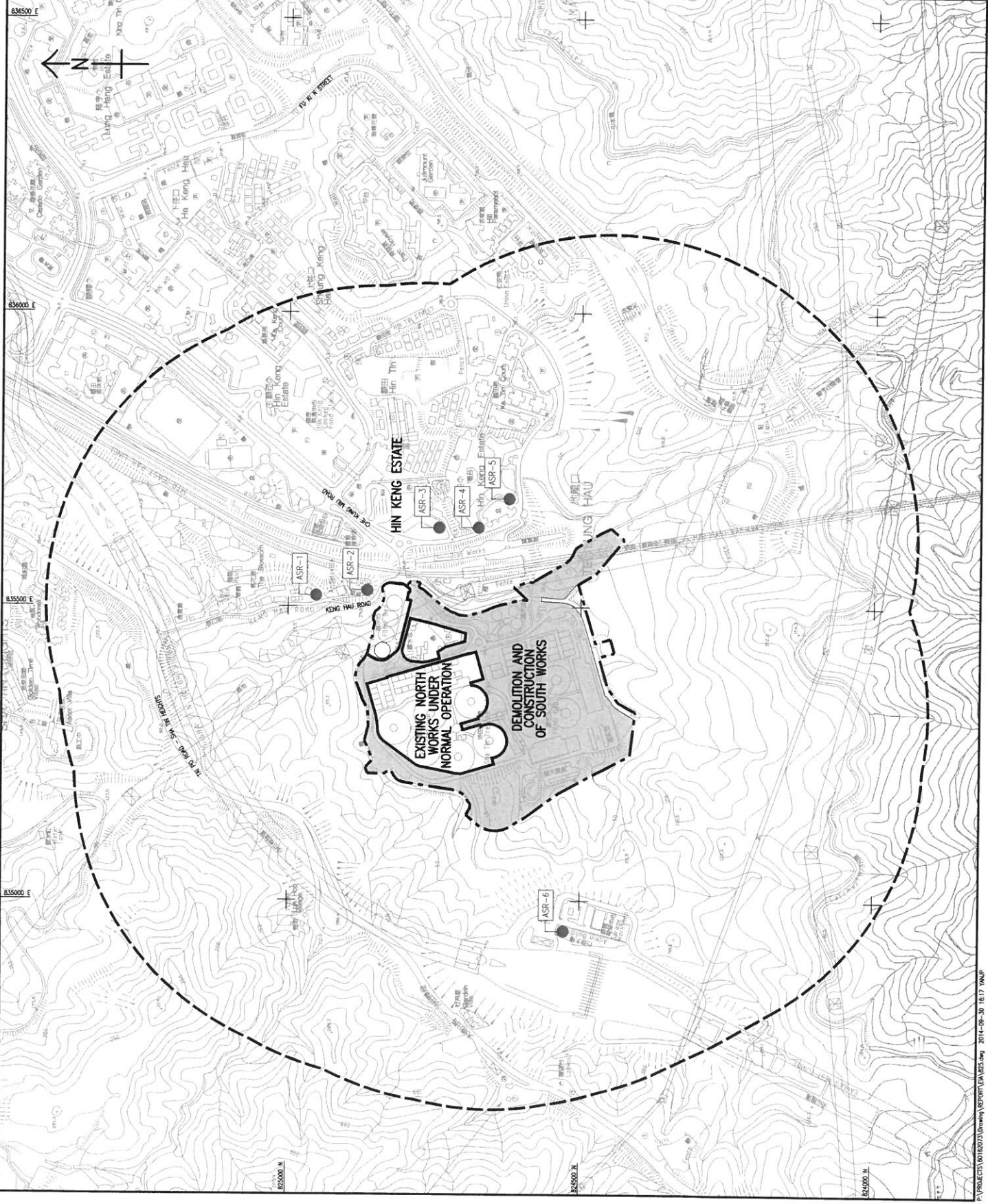
LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS

AECOM

DR/NO
 圖則編號
60162073/EIA/FIG 4.1

| | |
|------|------------|
| 圖則編號 | 60162073 |
| 圖則名稱 | 圖則名稱 |
| 圖則日期 | 2014-09-30 |
| 圖則比例 | 1:1000 |
| 圖則狀態 | 圖則狀態 |

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LEGEND:

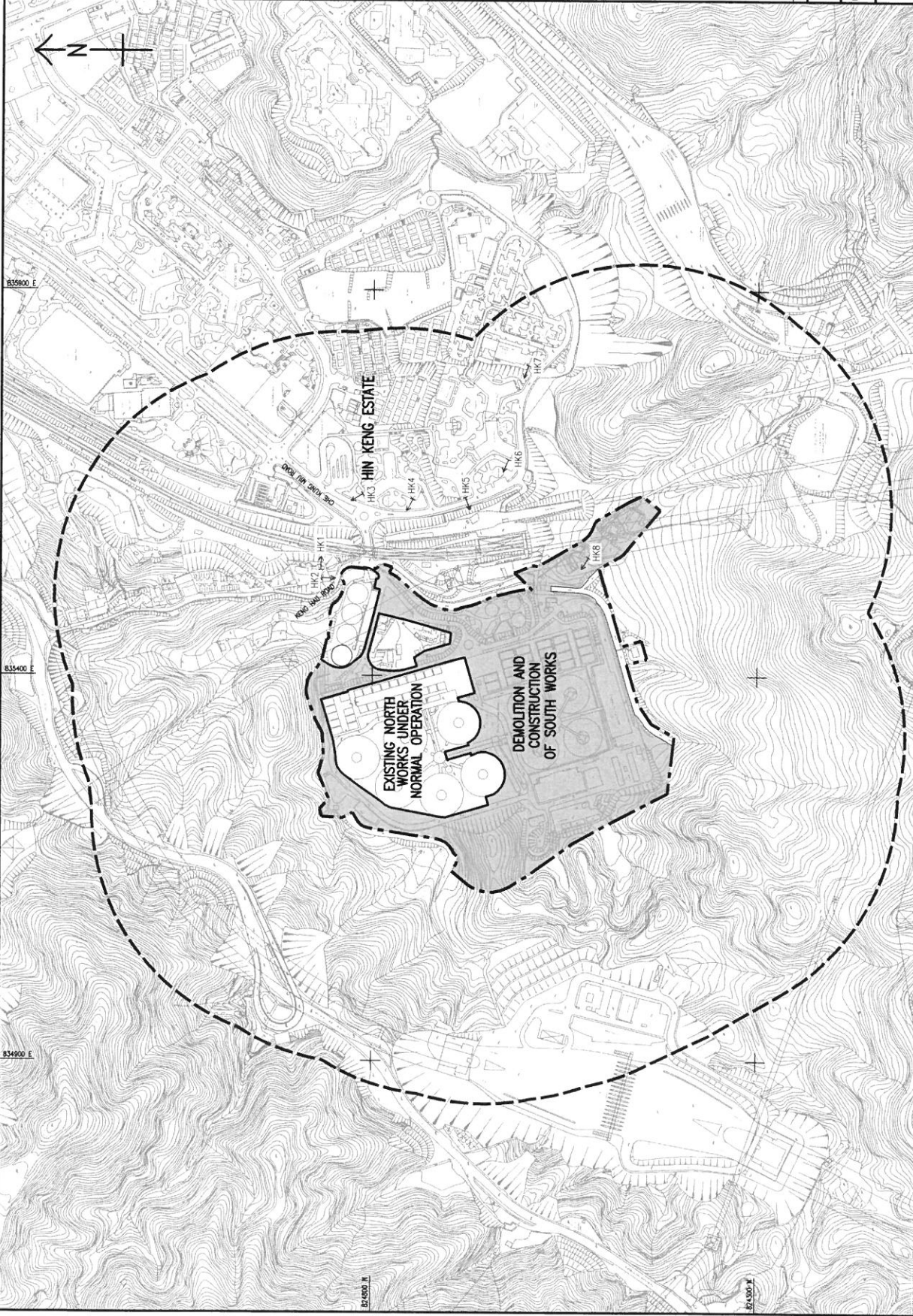
- SITE BOUNDARY OF SHW TSW WATER TREATMENT WORKS
- 300m STUDY AREA
- WORKS AREA
- REPRESENTATIVE NOISE SENSITIVE RECIPIENTS
- HK1

水務署
 WATER SUPPLIES DEPARTMENT
 LICENSE NO. CE 13/2005 (WS)
 IN-SITU REPRESENTATIVE OF SHW TSW WATER TREATMENT WORKS SOUTH WORKS DESIGN AND CONSTRUCTION

LOCATIONS OF REPRESENTATIVE NOISE SENSITIVE RECIPIENTS

AECOM

DRAWING NO. 60162073/EIA/FIG 5.1
 SHEET NO. 1 OF 1
 DATE: 12/2012
 SCALE: AS 1:5000
 PROJECT NO. 60162073 (Domestic) REPORT/EIA/029/001/2012-11-08 17:38 (EIA)



| ID | DESCRIPTION | CONSTRUCTION NOISE | OPERATIONAL FIXED PLANT NOISE |
|-----|--|--------------------|-------------------------------|
| HK1 | THE L LOUET (EAST) | Y | Y |
| HK2 | THE L LOUET (SOUTH) | Y | Y |
| HK3 | HIN KENG ESTATE, HIN YAU HOUSE (NORTH) | Y | Y |
| HK4 | HIN KENG ESTATE, HIN YAU HOUSE (SOUTH) | Y | Y |
| HK5 | HIN KENG ESTATE, HIN HAN HOUSE | Y | Y |
| HK6 | HIN KENG ESTATE, HIN HAN HOUSE | Y | Y |
| HK7 | CHUNFA THOMAS CHEUNG SCHOOL | Y | Y |
| HK8 | SHW TSW WTP STAFF QUARTERS | Y | Y |

LEGEND:

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- ▭ WORKS AREA
- INLAND WATER COURSE
- EPD WATER QUALITY MONITORING STATION
- EPD WATER QUALITY MONITORING STATION
- ▲ WED SHA TIN FLUSHING WATER INTAKE

水務署
 WATER SUPPLIES DEPARTMENT
 ASSESSMENT OF SHA TIN WATER TREATMENT WORKS
 IN-SITU REPRESENTATION OF SHA TIN WATER TREATMENT WORKS
 SHA TIN WORKS
 DESIGN AND CONSTRUCTION

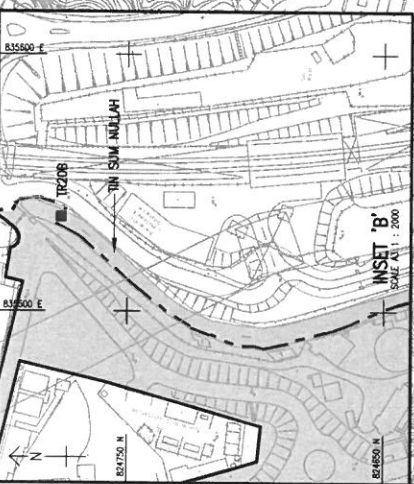
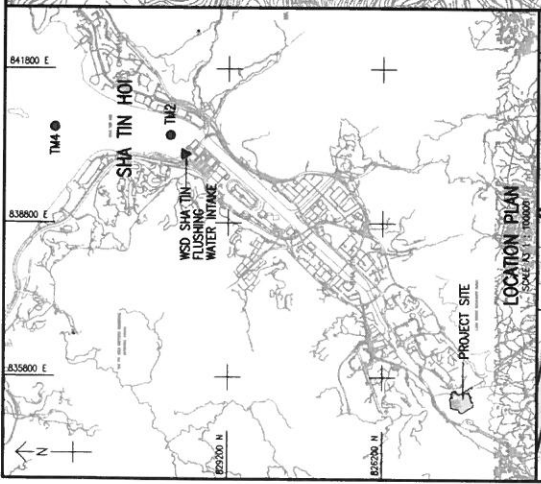
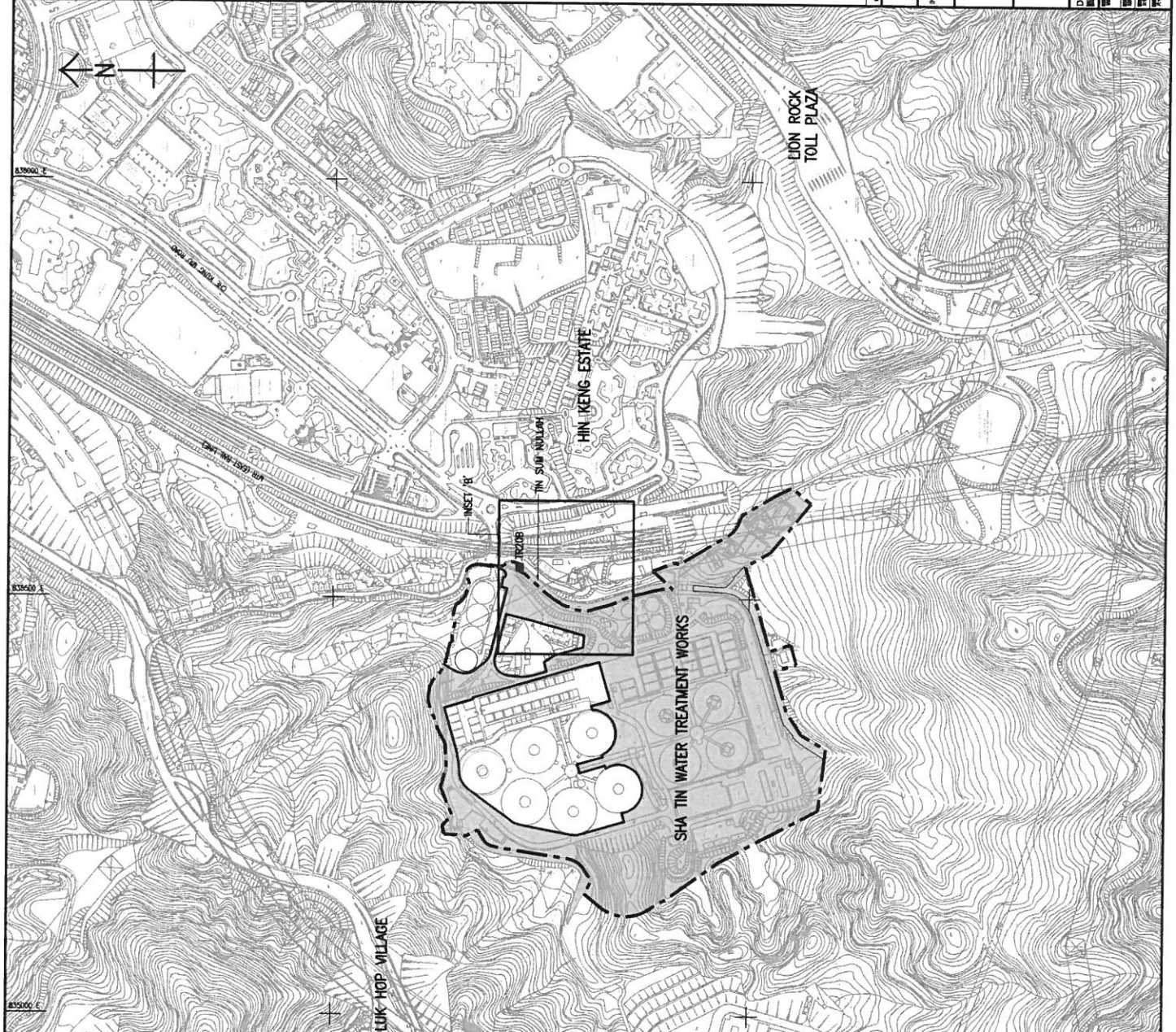
LOCATIONS OF WATER SENSITIVE RECEIVERS

AECOM

PROJECT NO. 60162073/EIA/FIG 6.1

| | |
|-------|-------|
| DATE | SCALE |
| NO. | BY |
| REV. | BY |
| DATE | BY |
| SCALE | BY |
| SCALE | BY |

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Appendix F

Summary of Action and Limit Levels

Determination of Action and Limit Levels for Air Quality

| Monitoring Locations | Action Level 1-hour TSP, ($\mu\text{g}/\text{m}^3$) | Limit Level 1-hour TSP, ($\mu\text{g}/\text{m}^3$) |
|----------------------|--|---|
| AM1 | 357 | 500 |
| AM2 | 334 | 500 |

Determination of Action and Limit Levels for Noise

| Monitoring Location | Action Level | Limit Level in dB(A) |
|---------------------|---|---|
| | 0700-1900 hours on normal weekdays | |
| NM1 | When one documented complaint is received | For domestic premises: 75 dB(A) for NM1 & NM2 |
| NM2 | | |
| NM3 | | 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 monitoring stations | Dissolved Oxygen (mg/L) | | Suspended Solids (mg/L) | | Turbidity (NTU) | | pH | |
|---------------------------|-------------------------|-------------|-------------------------|-------------|-----------------|-------------|------------------------------|------------------------------|
| | Action Level | Limit Level | Action Level | Limit Level | Action Level | Limit Level | Action Level | Limit 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 |
| M3 | 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

| ACTION | | | | |
|---|---|--|---|--|
| EVENT | ET | IEC | ER | CONTRACTOR |
| ACTION LEVEL | | | | |
| 1. Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing. | <ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate. |
| 2. Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and |

| | | | | | |
|------------------------------|---|--|---|---|-----------------------------------|
| | arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring. | | | | 4. Amend proposal as appropriate. |
| LIMIT LEVEL | | | | | |
| Event | ET | IEC | ER | CONTRACTOR | |
| 1. Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate. | |

| | ET | IEC | ER | CONTRACTOR |
|---|---|--|---|---|
| 2. Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. | <ol style="list-style-type: none"> 1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

Noise

| EVENT | ACTION | | | |
|---------------------|--|--|--|---|
| | ET | IEC | ER | CONTRACTOR |
| ACTION LEVEL | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the investigation results submitted by the Contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation 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 | <ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of | <ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be | <ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER |

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

Water Quality

| ACTION | | | | |
|---|--|--|---|---|
| EVENT | ET Leader | IEC | ER | CONTRACTOR |
| Action level being exceeded by one sampling day | <ul style="list-style-type: none"> ● Repeat <i>in situ</i> measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC and Contractor; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC and Contractor; ● Repeat measurement on next day of exceedance. | <ul style="list-style-type: none"> ● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the Implemented mitigation measures. | <ul style="list-style-type: none"> ● Discuss with IEC on the proposed mitigation measures; ● Make agreement on the mitigation measures to be implemented. ● Assess the effectiveness of the implemented mitigation measures. | <ul style="list-style-type: none"> ● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET and IEC and propose mitigation measures to IEC and ER; ● Implement the agreed mitigation measures. |

| | ET Leader | IEC | ER | CONTRACTOR |
|---|--|--|---|---|
| Action level being exceeded by more than one consecutive sampling day | <ul style="list-style-type: none"> ● Repeat <i>in situ</i> measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC and Contractor; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC and Contractor; ● Ensure mitigation measures are implemented; ● Prepare to increase the monitoring frequency to daily; | <ul style="list-style-type: none"> ● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the implemented mitigation measures. | <ul style="list-style-type: none"> ● Discuss with IEC on the proposed mitigation measures; ● Make agreement on the mitigation measures to be implemented; ● Assess the effectiveness of the implemented mitigation measures. | <ul style="list-style-type: none"> ● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET and IEC and propose mitigation measures to IEC and ER within three working days; ● Implement the agreed mitigation measures. |

| | | | | | |
|--|--|--|--|---|--|
| | <ul style="list-style-type: none"> Repeat measurement on next day of exceedance. | | | | |
| | ET Leader | IEC | ER | CONTRACTOR | |
| Limit level being exceeded by one sampling day | <ul style="list-style-type: none"> Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IEC Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; | <ul style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. | <ul style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures. | <ul style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; Implement the agreed mitigation measures. | |

| | | | | |
|--|---|--|--|--|
| | <ul style="list-style-type: none"> ● Increase the monitoring frequency to daily until no exceedance of Limit level. | | | |
| | <p>ET Leader</p> <ul style="list-style-type: none"> ● Repeat <i>in situ</i> measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC Contractor and EPD; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC, ER and Contractor; ● Ensure mitigation measures are | <p>IEC</p> <ul style="list-style-type: none"> ● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the implemented mitigation measures. | <p>ER</p> <ul style="list-style-type: none"> ● Discuss with IEC, ET and Contractor on the proposed mitigation measures; ● Request Contractor to critically review the working methods; ● Make agreement on the mitigation measures to be implemented; ● Assess the effectiveness of the implemented mitigation measures; ● Consider and instruct, if necessary, the Contractor to slow | <p>CONTRACTOR</p> <ul style="list-style-type: none"> ● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; ● Implement the agreed mitigation measures; |
| Limit level being exceeded by more than one consecutive sampling day | | | | |

| | | | | |
|--|---|--|---|--|
| | <p>implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</p> | | <p>down or to stop all or part of the construction activities until no exceedance of Limit level.</p> | <ul style="list-style-type: none"> ● As directed by the ER, to slow down or to stop all or part of the construction activities. |
|--|---|--|---|--|

Appendix H

Impact Monitoring Schedules

Aug-20

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

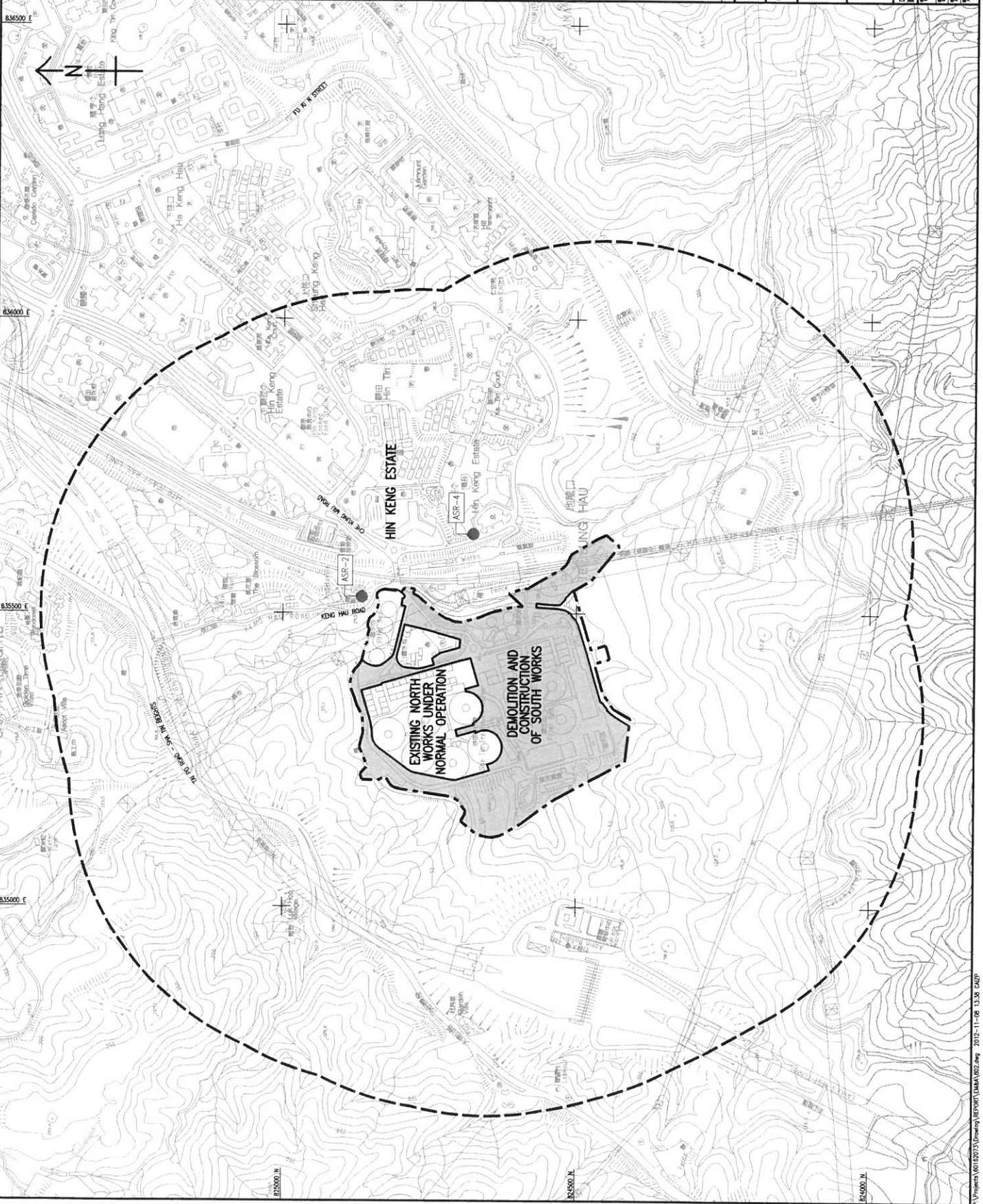
Sep 20

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

Appendix I

Location Plan of Air Quality Monitoring Station

- LEGEND:**
- SITE BOUNDARY OF SVA THIN WATER TREATMENT WORKS
 - STUDY AREA (500m BOUNDARY)
 - WORKS AREA
 - REPRESENTATIVE AIR SENSITIVE RECEIVERS (ASR)
 - THE L LOEY
 - HIN KENG ESTATE - HIN WAH HOUSE
 - ASR-2
 - ASR-4



水務署
WATER SUPPLIES DEPARTMENT
DESIGN AND CONSTRUCTION
IN-SITU REPRODUCTION OF SVA THIN WATER TREATMENT WORKS - DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED DUST MONITORING STATIONS

AECOM

PROJECT NO: 60162073/EM&A/FIG 3
 DRAWING NO: 60162073/EM&A/FIG 3
 DATE: 13/08/2012
 SCALE: AS 1: 5000
 PROJECT MANAGER: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

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Appendix J

Calibration Certificates

(Air Monitoring)

Sensidyne 80570 Nephelometer Calibration Certificate

Recommended calibration interval is 24 months from date of shipment and at 24 month intervals thereafter.

| | |
|----------|--------------------------|
| Serial # | R14527 |
| Firmware | 80570-8100-V1.0.4 |

All work has been successfully completed. (Sign off)

Calibrated By: J. Gist **AT14**

Date 01-08-2020

Quality Inspector: AT5

Date JAN 28 2020

Sensidyne, LP
1000 112th Circle North
Suite 100
St. Petersburg, FL 33716
U.S.A.

T 800-451-9444
T +1 727-530-3602
F +1 727-539-0550

Email: Info@Sensidyne.com
www.Sensidyne.com
www.Schauenburg.com

Next Calibration Due 01-08-2022

| | Pass/Fail | Criteria |
|--|-------------|-----------------------|
| Balance Sheath/Sample Flow Rate | pass | ± 5% |
| Set Sample Flow to 1 lpm | pass | ± 5% |
| Set Zero (k=1) | pass | ± 2 µg/m ³ |
| Set Gain | pass | ± 5% |
| Set Serial & Model Number | X | |
| Calibration Concentration, LD-3, µg/m ³ | 637 | |

Calibration Standards

| Standard | Manufacturer | Model | SN | Cal Due |
|--------------|--------------|-------|--------|------------|
| Nephelometer | Sibata | LD-3B | 476795 | 06-07-2020 |

The test and calibration results on this report certify that this instrument complies with the product specifications at the time of this report. Calibration was performed using test instruments and standards that are traceable to NMIJ and the International System of Units (SI). Laser safety and anti-static procedures are followed.



Sensidyne 80570 Nephelometer Calibration Certificate

Recommended calibration interval is 24 months from date of shipment and at 24 month intervals thereafter.

| | |
|----------|-------------------|
| Serial # | R13214 |
| Firmware | 80570-8100-V1.0.4 |

All work has been successfully completed. (Sign off)

Calibrated By: D. JONES AJ24 Date 10-01-2019

Quality Inspector: LW AJ23 Date OCT 03 2019

Next Calibration Due 10-01-2021

| | Pass/Fail | Criteria |
|--|-------------|-----------------------|
| Balance Sheath/Sample Flow Rate | <u>pass</u> | ± 5% |
| Set Sample Flow to 1 lpm | <u>pass</u> | ± 5% |
| Set Zero (k=1) | <u>pass</u> | ± 2 µg/m ³ |
| Set Gain | <u>pass</u> | ± 5% |
| Set Serial & Model Number | <u>X</u> | |
| Calibration Concentration, LD-3, µg/m ³ | <u>388</u> | |

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Email: info@sensidyne.com
www.sensidyne.com
www.schauenburg.com

Calibration Standards

| Standard | Manufacturer | Model | SN | Cal Due |
|--------------|--------------|-------|--------|------------|
| Nephelometer | Sibata | LD-3B | 6X7759 | 12/14/2019 |

The test and calibration results on this report certify that this instrument complies with the product specifications at the time of this report. Calibration was performed using test instruments and standards that are traceable to NMIJ and the International System of Units (SI). Laser safety and anti-static procedures are followed.

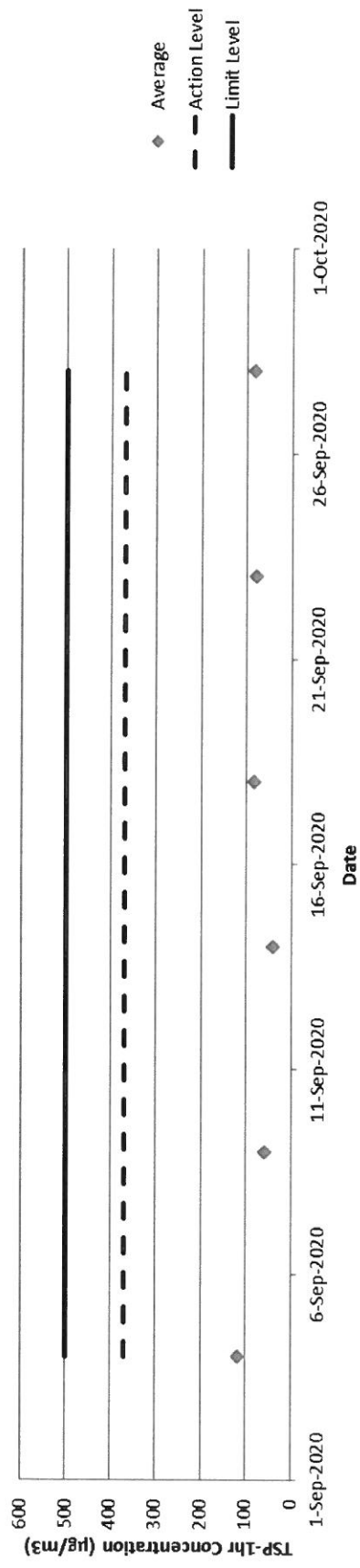
80570-9600 Sensidyne Cal Cert Rev C



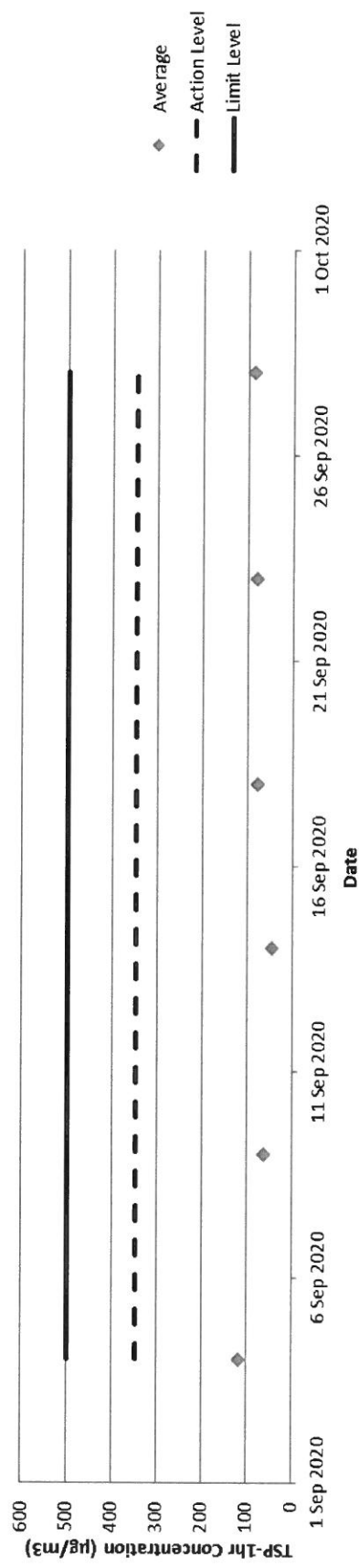
Appendix K

Impact Air Quality Monitoring Results and Graphical Presentation

The Summary of TSP-1hr Concentration ($\mu\text{g}/\text{m}^3$) at AM1 The L Louey



The Summary of TSP-1hr Concentration ($\mu\text{g}/\text{m}^3$) at AM2 Hin Keng Estate - Hin Wan House



Appendix L

Location Plan of Noise Monitoring Station

LEGEND:

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- 300m STUDY AREA
- WORKS AREA
- HK2
- HK5
- HK6
- HK7

THE L LOUHEY (SOUTH)

HIN KENG ESTATE - HIN WAN HOUSE

CAMILLA THOMAS CHEUNG SCHOOL

水務署
WATER SUPPLIES DEPARTMENT
AGREEMENT NO. CE 13/2009 (NS)
IN-SITU REPROCESSING OF SHA TIN WATER TREATMENT WORKS - SOUTH WORKS
DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED NOISE MONITORING STATIONS

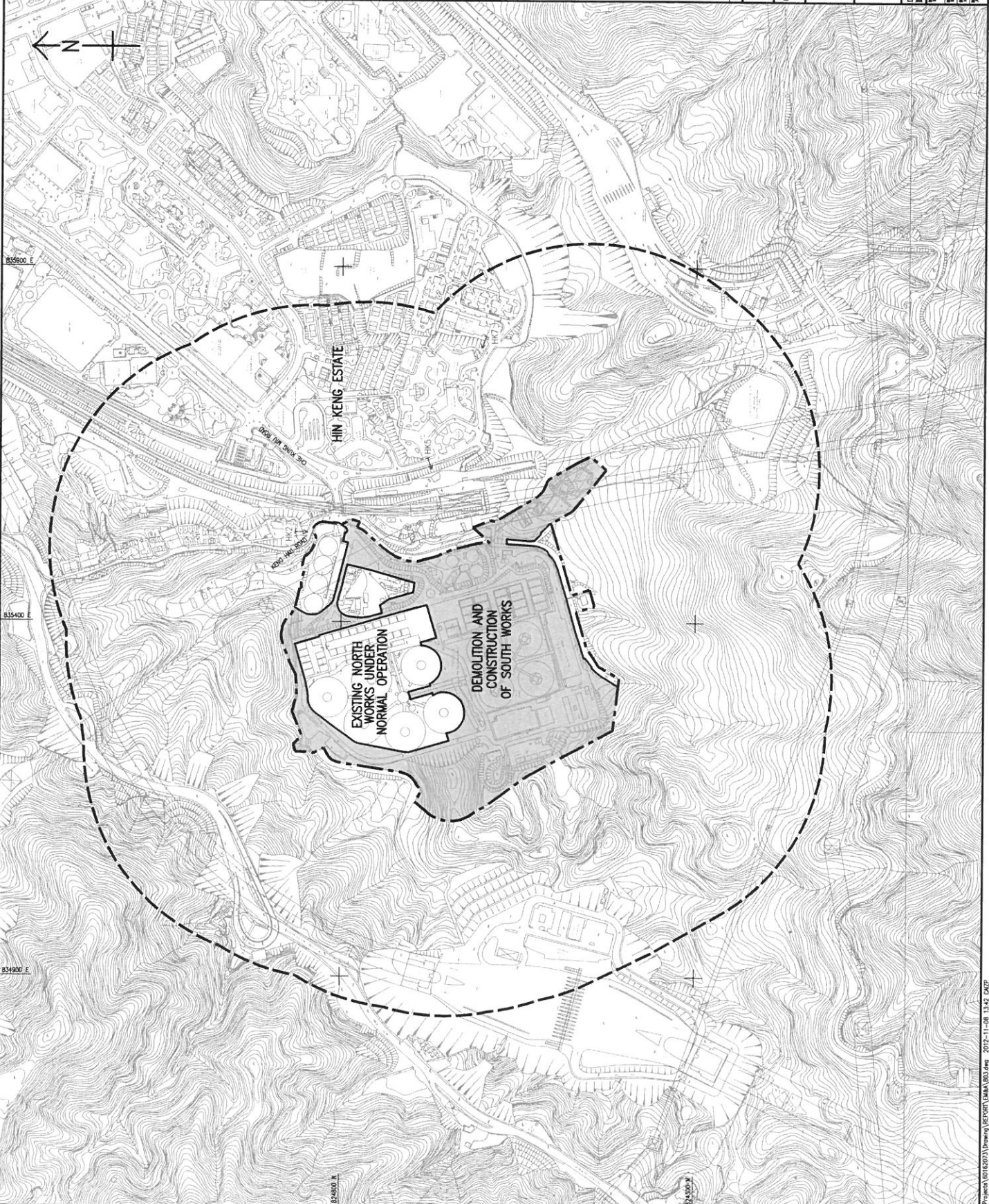
AECOM

PROJECT NO. 60162073/EM&A/FIG 4

SCALE: AS 1 : 5000

DATE: 2012-11-08

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Appendix M

Calibration Certificates (Noise)



**Certificate of
Conformity**

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 $\pm 1.04\%$ within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and $\pm 1.66\%$ 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 verified 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 $\pm 0.2\%$ 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 $\pm 0.02\%$ F.S.

Approved By:

Michael Naughton, Engineering Manager

| SENSORS | | | | | | | | | | | | | | | | | |
|------------------------|------|------|------|------|------|---------|------|------|------|------|------|----------|---|--|--|---|---|
| SENSOR | 1900 | 2000 | 2800 | 3000 | 3500 | 3500 DT | 4000 | 4200 | 4200 | 4300 | 4500 | 4500 HOR | ACCURACY (+/-)* | RESOLUTION | SPECIFICATION RANGE | OPERATIONAL RANGE | NOTES |
| Wind Speed / Air Flow | • | • | • | • | • | • | • | • | • | • | • | • | 0.6 to 80.0 mph 1.6 to 181.1 km/h Larger of 3% of reading, least significant digit or 20 ft/min | 0.1 mph 0.1 km/h 0.1 mph 0.1 km/h | 0.6 to 80.0 mph 1.6 to 181.1 km/h 2.2 to 248.0 km/h 1.2 to 194.7 mph 1.2 to 118.6 km/h 0 to 12 ft | 10 to 120 mph 16.1 to 193.0 km/h 2.2 to 248.0 km/h 1.2 to 194.7 mph 1.2 to 118.6 km/h 0 to 12 ft | 1 inch/25 mm diameter impeller with precision axle and ball-bearing 2-ball bearings. Standard speed stated as lower limit; readings may be taken down to 0.4 mph (0.6 km/h) 1 mph (1.6 km/h) after impeller startup. Off-axis accuracy: ±1% @ 5° off-axis, ±2% @ 10°, ±3% @ 15°. Calibration drift: ±1% after 100 hours use at 10 MPH (17 m/s). Replacement impeller (see PTH-0001) fits inside without tools (US Patent 5,783,753). Wind speed calibration and testing should be done with blower on impeller located at the top front face of the Kestrel. |
| Ambient Temperature | • | • | • | • | • | • | • | • | • | • | • | • | 0.8 °F 0.5 °C | 0.1 °F 0.1 °C | 20.0 to 150.0 °F 28.0 to 70.0 °C | 14.0 to 131.0 °F -10.0 to 55.0 °C | Hermetically-sealed, precision thermistor mounted externally and thermally isolated (US Patent 5,936,845) for rapid response. Airflow of 2.2 mph (3.5 m/s) or greater provides fastest response and reduction of radiation effect. Calibration drift negligible. Thermistor may also be used to measure temperature of water or snow by submerging thermistor portion into material - remove impeller prior to being submerged; measurements are accurate humidity sensor membrane is free of liquid water prior to being humidity based measurements after submersion. |
| Globe Temperature - Tg | | | | | | | | | | | • | | ±1 °F ±1.4 °C | 0.1 °F 0.1 °C | 20.0 to 140.0 °F 28.0 to 60.0 °C | 14.0 to 131.0 °F -10.0 to 35.0 °C | Temperature inside 1-in/25 mm black anodized copper globe connected to Tg equivalent for standards 6 in/150 mm globe. Celsius equivalent shown after airflow greater than 2 mph (3.2 m/s). |
| Relative Humidity | | | | | | | | | | | | | 3.0 %RH | 0.1 %RH | 5 to 95% non-condensing | 0 to 100% | Polymer capacitive humidity sensor mounted in the-walled chamber external to case for rapid, accurate response (US Patent 6,257,074). To achieve fastest accuracy, unit must be permitted to equilibrate to ambient temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift: ±2% over 24 months. Humidity sensor may be recalibrated at factory or in field using Kestrel Humidity Calibration Kit (KH-PH-002). |
| Pressure | | | | | | | | | | | | | 0.03 inHg 1.0 hPa (near) 0.01 PSI | 0.01 inHg 0.1 hPa (near) 0.01 PSI | 8.86 to 32.46 inHg 300 to 1100.0 hPa (near) 4.26 to 15.96 PSI and 32.0 to 185.0 °F 0.0 to 85.0 °C | 0.30 to 48.87 inHg 10.0 to 1684.7 hPa (near) 0.14 to 24.00 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C | Monolithic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be recalibrated at factory or in field. Adjustable reference altitude above display of station pressure or barometric pressure corrected to MSL. Kestrel 4200 displays station pressure on a dedicated screen. Kestrel 2500 and 3500 display continuously updating three-hour barometric pressure trend indicator - rising rapidly, rising slowly, falling rapidly. Kestrel 4000 series displays pressure trend through graphing function. PSI display on Kestrel 4000 series only. |
| Compass | | | | | | | | | | | | | 5° | 1° | 0 to 360° | 0 to 360° | 2-axis non-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unit's vertical position. Self-calibration routine eliminates magnetic error from batteries or unit and must be run after every full-power-down (battery remove or charge). Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declination/variation adjustable for True North readout. |

| CALCULATED MEASUREMENTS | | | | | | | | | | | | | | | | | |
|--|------|------|------|------|------|---------|------|------|------|------|------|----------|---|---|--|---|---|
| MEASUREMENT | 1900 | 2000 | 2800 | 3000 | 3500 | 3500 DT | 4000 | 4200 | 4200 | 4300 | 4500 | 4500 HOR | ACCURACY (+/-)* | RESOLUTION | SPECIFICATION RANGE | SENSORS EMPLOYED | NOTES |
| Air Density | | | | | | | | | | | | | 0.0003 lbm/ft ³ 0.0003 kg/m ³ | 0.001 lbm/ft ³ 0.001 kg/m ³ | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | Mass of air per unit volume. |
| Air Flow | | | | | | | | | | | | | 0.71% | 1 mft ³ 1 mft ³ 0.1 mft ³ 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 measurement and user-specified duct shape (circle or rectangle) and dimensions (units in, ft, cm or m). Maximum duct diameter input: 250.0 in (2.5 ft), 665.3 cm (6.65 m). |
| Altitude | | | | | | | | | | | | | Typical: 23.6 ft 7.2 m max: 48.2 ft 14.7 m | 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) measurement and any of various reference pressures to produce maximum accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to 1100 mBar. Air pressure that would be present in identical conditions at MSL. Station pressure compensated for local elevation provided by reference altitude. Requires accurate reference altitude to produce maximum altitude accuracy. |
| Barometric Pressure | | | | | | | | | | | | | 0.01 inHg 2.4 hPa (near) 0.03 PSI | 0.01 inHg 0.1 hPa (near) 0.01 PSI | Refer to Ranges for Sensors Employed | Pressure User Input (Reference Altitude) | Altitude measurement that would be present in identical conditions at MSL. Station pressure compensated for local elevation provided by reference altitude. Requires accurate reference altitude to produce maximum altitude accuracy. |
| Crosswind & Headwind/Tailwind | | | | | | | | | | | | | 1 mph 1.6 km/h 0.1 mph 0.1 km/h | 1 mph 1.6 km/h 0.1 mph 0.1 km/h | Refer to Ranges for Sensors Employed | Wind Speed Compass | Effective wind relative to a target or travel direction. Auto-switching headwind/tailwind indication. |
| Dew Point | | | | | | | | | | | | | 3.2 °F 1.8 °C | 0.1 °F 0.1 °C | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | Difference between dry bulb temperature and wet bulb temperature. When sweating, indicates evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 °C. |
| Density Altitude | | | | | | | | | | | | | 226 ft 69 m | 1 ft 1 m | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | Local air density converted to equivalent elevation above sea level in a uniform layer consisting of the International Standard Atmosphere. |
| Dewpoint | | | | | | | | | | | | | 3.4 °F 1.9 °C | 0.1 °F 0.1 °C | 15 to 95 % RH Refer to Range for Temperature Sensor | Temperature Relative Humidity | Temperature that a volume of air must be cooled to constant pressure for the water vapor present to condense into dew and form on a solid surface. Can also be considered to be the wet-bulb saturation temperature. |
| Evaporation Rate | | | | | | | | | | | | | 0.01 inHg/ft ³ 0.06 kg/m ³ /hr | 0.01 inHg/ft ³ 0.01 kg/m ³ /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 RT or probe thermometer (1° at 1°C, not included). Readings should be taken 30 inches above pour surface with the thermometer shaded and averaged for 6-10 seconds using built-in averaging function. |
| Heat Index | | | | | | | | | | | | | 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 humidity. Calculated based on NWS Heat Index (HI) tables. Measurement error limited by error of published tables. |
| Moisture Content / Humidity Ratio ("Grains") | | | | | | | | | | | | | 3 g/g g/g | 0.1 g/g 0.01 g/g | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | Mass of water vapor in a mass of air. |
| Relative Air Density | | | | | | | | | | | | | 0.3% | 0.1% | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | The ratio, expressed as a percentage, of measured air density to the air density of a standard atmosphere as defined by the ICAO. |
| Thermal Work Limit (TWL) | | | | | | | | | | | | | 10.8 W/m ² | 0.1 W/m ² | Refer to Ranges for Sensors Employed | Wind Speed Temperature Globe Temperature Relative Humidity Pressure | Estimated safe maximum continuously sustainable human metabolic rate (W/m ²) for the conditions and clothing factors. Based off of estimated metabolic output of typical human. On-screen gauge warning. |
| Outdoor Wet Bulb Globe Temperature (WBGT) | | | | | | | | | | | | | 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 Pressure | Measure of human heat stress defined as the combination of effects due to radiation, convection and conduction. Outdoor WBGT is calculated from a weighted sum of natural wet bulb (TWB), globe temperature (Tg) and dry bulb temperature (Td). User selectable on-screen warning range. |
| Wet Bulb Temperature - Naturally Aspirated (Twb) | | | | | | | | | | | | | 1.4 °F 0.8 °C | 0.1 °F 0.1 °C | Refer to Ranges for Sensors Employed | Wind Speed Temperature Globe Temperature Relative Humidity Pressure | Similar to psychrometric wet-bulb temperature (see below), however, this only undergoes forced convection from the ambient air velocity. This is a measure of the evaporative cooling that the air will allow. This is accounted for by combining the effects of, mainly, relative humidity and wind speed. |
| Wet Bulb Temperature - Psychrometric | | | | | | | | | | | | | 3.2 °F 1.8 °C | 0.1 °F 0.1 °C | Refer to Ranges for Sensors Employed | Temperature Relative Humidity Pressure | Temperature indicated by a sling psychrometer. Due to nature of the psychrometric ratio for a water-air system, this approximates the thermodynamic wet-bulb temperature. The thermodynamic wet-bulb temperature is the temperature a parcel of air would have if cooled adiabatically to saturation temperature via water evaporation. |
| Wind Chill | | | | | | | | | | | | | 1.6 °F 0.9 °C | 0.1 °F 0.1 °C | Refer to Ranges for Sensors Employed | Wind Speed Temperature | Perceived temperature resulting from combined effect of wind speed and temperature. Calculated based on the NWS Wind Chill Temperature (WCT) index. Revised 2001; with wind speed adjusted by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground. Measurement range limited by extent of published tables. |

| ADDITIONAL SPECIFICATIONS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Display & Backlight | • | • | • | • | • | • | • | • | • | • | • | • | Reflexive 3.19 digit LCD. Digit height 0.25 or 0.8 mm. Auto-on green auto-illumination backlight. Manual activation with auto-off. Reflective 5 digit LCD. Digit height 0.36 or 0.8 mm. Choice of auto-on green or visible red (NV mode only). Electrochromic backlight. Manual activation with auto-off. Multifunction, multi-digit monochrome dot-matrix display. Choice of auto-on green or visible red (NV mode only). Electrochromic backlight. Manual activation with auto-off. |
| Response Time & Display Update | • | • | • | • | • | • | • | • | • | • | • | • | All measurements except those based on relative humidity respond accurately within 1 second. Relative humidity and all measurements which include RH in their calculation may require as long as 1 minute to fully equilibrate to a large change in the measurement environment. Display updates every 1 second. |
| Max/avg Wind | • | • | • | • | • | • | • | • | • | • | • | • | One-button clear and restart of Max Wind Gust and Average Wind measurement. Max and average wind calculation may be started and stopped independently of data logging of other values along with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBGT, TWL, evaporation rate. |
| Data Storage & Graphical Display, Min/Max/Avg History | | | | | | | | | | | | | Minimum, maximum, average and logged history stored and displayed for every measured value. Large capacity data logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be reset independently. Auto-store interval variable from 2 seconds to 12 hours, overruns on or off. Logs even when display off except for 1 and 5 second intervals. Data capacity shown. |
| Data Upload & Bluetooth® Data Connect Option | | | | | | | | | | | | | Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. Bluetooth Data Transfer Option: Adjustable power consumption and radio range from up to 30 ft / 9 meters. Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. |
| Clock / Calendar | • | • | • | • | • | • | • | • | • | • | • | • | Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. |
| Auto Shutdown | • | • | • | • | • | • | • | • | • | • | • | • | Requires optional PC interface (USB or RS-232) or Bluetooth data transfer option and provided software. |
| Language | • | • | • | • | • | • | • | • | • | • | • | • | English, French, German, Italian, Spanish. |
| Certifications | • | • | • | • | • | • | • | • | • | • | • | • | CE certified. RoHS and WEEE compliant. Individually tested to NIST traceable standards (nearest certificate of tests available at additional charge). |
| Origin | • | • | • | • | • | • | • | • | • | • | • | • | Designed and manufactured in the USA from US and imported components. Complies with Regional Value Content and Trade Code Transmission requirements for NAFTA Preference Criterion B. |
| Battery Life | • | • | • | • | • | • | • | • | • | • | • | • | CR2032, one included. Average life: 300 hours. Battery life reduced by backlight use in 2000 to 3000 models. |
| Shock Resistance | • | • | • | • | • | • | • | • | • | • | • | • | Standard Models: AAA Absolute, Inc. included. Average life: 400 hours of use, reduced by backlight or Bluetooth radio transmission use. |
| Sealing | • | • | • | • | • | • | • | • | • | • | • | • | MSL STD-410g; Transit Shock Method 216.5 Procedure IV, unit only; impact may damage replaceable impeller. |
| Operational Temperature Limits | • | • | • | • | • | • | • | • | • | • | • | • | 14° F to 131° F / -10° C to 55° C. Measurements may be taken beyond the limits of the operational temperature range of the display and batteries by maintaining the unit within the operational range and exposing it to the more extreme environment to the minimum time necessary to take reading. |
| Storage Temperature | • | • | • | • | • | • | • | • | • | • | • | • | 22° F to 140° F / -30° C to 60° C |
| Size & Weight | • | • | • | • | • | • | • | • | • | • | • | • | 4.8 x 1.9 x 1.1 in / 12.2 x 4.8 x 2.8 cm, 3.6 oz / 102 g (including slip-on cover) 5.0 x 1.8 x 1.1 in / 12.7 x 4.5 x 2.8 cm, 3.8 oz / 102 g 5.5 x 2.3 x 1.1 in / 13.9 x 5.8 x 2.8 cm, 4.4 oz / 125 g |

* NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the combined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2E).
Please note, these specifications are valid for all Kestrel 4400 products and all other Kestrel 4000 series with a serial number higher than 55846. If your product has a lower serial number, please reference the previous version of the specifications.
© 2013 Nelson-Kellerman | 21 Creek Circle Boothwyn PA 19061 USA | www.NKHome.com

Certificate of Calibration

for

Description: *Sound Level Meter*
Manufacturer: *NTi Audio*
Type No.: *XL2 (Serial No.: A2A-09696-E0)*
Microphone: *ACO 7052 (Serial No.: 60997)*
Preamplifier: *MA220 (Serial No.: 5287)*

Submitted by:

Customer: *Acumen Environmental Engineering and Technologies Co. Ltd.*
Address: *No.12, Tam Kon Shan Road, Tsing Yi Island, Hong Kong*

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

- Within**
 Outside

the allowable tolerance.

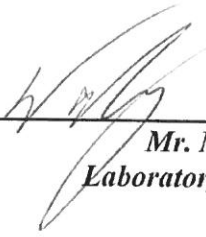
The test equipment used for calibration are traceable to National Standards via:

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

Date of receipt: 28 February 2020

Date of calibration: 2 March 2020

Calibrated by: 
Calibration Technician

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 2 March 2020

Certificate No.: APJ19-168-CC001



Page 1 of 4

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: 23.7 °C
 Air Pressure: 1008 hPa
 Relative Humidity: 54.5 %

3. Calibration Equipment:

| | Type | Serial No. | Calibration Report Number | Traceable to |
|--------------------------|----------|------------|---------------------------|--------------|
| Multifunction Calibrator | B&K 4226 | 2288467 | AV180064 | HOKLAS |

4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB |
|----------------------------------|-----------------|----------------|---------------|---------------|-----------------|-------------------------------------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | |
| 30-130 | dBA SPL | Fast | 94 | 1000 | 94.0 | ±0.4 |

Linearity

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB |
|----------------------------------|-----------------|----------------|---------------|---------------|-----------------|-------------------------------------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | |
| 30-130 | dBA SPL | Fast | 94 | 1000 | 94.0 | Ref |
| | | | 104 | | 104.0 | ±0.3 |
| | | | 114 | | 114.0 | ±0.3 |

Time Weighting

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB |
|----------------------------------|-----------------|----------------|---------------|---------------|-----------------|-------------------------------------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | |
| 30-130 | dBA SPL | Fast | 94 | 1000 | 94.0 | Ref |
| | | Slow | | | 94.0 | ±0.3 |

Frequency Response

Linear Response

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB | |
|----------------------------------|-----------------|----------------|---------------|---------------|--------------------|--|------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | | |
| 30-130 | dB | SPL | Fast | 94 | 31.5 | 94.0 | +2.0 |
| | | | | | 63 | 94.1 | ±1.5 |
| | | | | | 125 | 94.2 | ±1.5 |
| | | | | | 250 | 94.1 | ±1.4 |
| | | | | | 500 | 94.1 | ±1.4 |
| | | | | | 1000 | 94.0 | Ref |
| | | | | | 2000 | 93.8 | ±1.6 |
| | | | | | 4000 | 93.3 | ±1.6 |
| | | | | 8000 | 92.9 | +2.1; -3.1 | |

A-weighting

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB | |
|----------------------------------|-----------------|----------------|---------------|---------------|--------------------|--|-----------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | | |
| 30-130 | dBA | SPL | Fast | 94 | 31.5 | 55.6 | -39.4±2.0 |
| | | | | | 63 | 67.9 | -26.2±1.5 |
| | | | | | 125 | 78.0 | -16.1±1.5 |
| | | | | | 250 | 85.4 | -8.6±1.4 |
| | | | | | 500 | 90.8 | -3.2±1.4 |
| | | | | | 1000 | 94.0 | Ref |
| | | | | | 2000 | 95.0 | +1.2±1.6 |
| | | | | | 4000 | 94.3 | +1.0±1.6 |
| | | | | 8000 | 91.8 | -1.1+2.1; -3.1 | |

C-weighting

| Setting of Unit-under-test (UUT) | | | Applied value | | UUT Reading, dB | IEC 61672 Class 1 Specification, dB | |
|----------------------------------|-----------------|----------------|---------------|---------------|--------------------|--|----------|
| Range, dB | Freq. Weighting | Time Weighting | Level, dB | Frequency, Hz | | | |
| 30-130 | dBC | SPL | Fast | 94 | 31.5 | 91.0 | -3.0±2.0 |
| | | | | | 63 | 93.2 | -0.8±1.5 |
| | | | | | 125 | 94.0 | -0.2±1.5 |
| | | | | | 250 | 94.1 | -0.0±1.4 |
| | | | | | 500 | 94.1 | -0.0±1.4 |
| | | | | | 1000 | 94.0 | Ref |
| | | | | | 2000 | 93.6 | -0.2±1.6 |
| | | | | | 4000 | 92.5 | -0.8±1.6 |
| | | | | 8000 | 89.9 | -3.0+2.1; -3.1 | |

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 | ± 0.10 |
| | 125 Hz | ± 0.10 |
| | 250 Hz | ± 0.05 |
| | 500 Hz | ± 0.10 |
| | 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.



MAXLAB

CALIBRATION CERTIFICATE

| <i>Certificate Information</i> | | | | | | | | | | | | | | | | |
|--|--|------------------|-------------|--------------|--|-------------------|-----------|-----|------------------|--------------|--|--------------|----------------|--|--------------|------------------|
| Date of Issue | 22-Oct-2019 | | | | | | | | | | | | | | | |
| Certificate Number | MLCN192765S | | | | | | | | | | | | | | | |
| <i>Customer Information</i> | | | | | | | | | | | | | | | | |
| Company Name | Acuity Sustainability Consulting Limited | | | | | | | | | | | | | | | |
| Address | Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T. | | | | | | | | | | | | | | | |
| <i>Equipment-under-Test (EUT)</i> | | | | | | | | | | | | | | | | |
| Description | Sound Level Calibrator | | | | | | | | | | | | | | | |
| Manufacturer | Rion | | | | | | | | | | | | | | | |
| Model Number | NC-74 | | | | | | | | | | | | | | | |
| Serial Number | 34504770 | | | | | | | | | | | | | | | |
| Equipment Number | -- | | | | | | | | | | | | | | | |
| <i>Calibration Particular</i> | | | | | | | | | | | | | | | | |
| Date of Calibration | 22-Oct-2019 | | | | | | | | | | | | | | | |
| Calibration Equipment | 4231(MLTE008) / AV180068 / 13-May-20 1357(MLTE190) / MLEC19/05/02 / 26-May-20 | | | | | | | | | | | | | | | |
| Calibration Procedure | MLCG00, MLCG15 | | | | | | | | | | | | | | | |
| Calibration Conditions | <table border="1"> <tr> <td>Laboratory</td> <td>Temperature</td> <td>23 °C ± 5 °C</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>55% ± 25%</td> </tr> <tr> <td>EUT</td> <td>Stabilizing Time</td> <td>Over 3 hours</td> </tr> <tr> <td></td> <td>Warm-up Time</td> <td>Not applicable</td> </tr> <tr> <td></td> <td>Power Supply</td> <td>Internal battery</td> </tr> </table> | Laboratory | Temperature | 23 °C ± 5 °C | | Relative Humidity | 55% ± 25% | EUT | Stabilizing Time | Over 3 hours | | Warm-up Time | Not applicable | | Power Supply | Internal battery |
| Laboratory | Temperature | 23 °C ± 5 °C | | | | | | | | | | | | | | |
| | Relative Humidity | 55% ± 25% | | | | | | | | | | | | | | |
| EUT | Stabilizing Time | Over 3 hours | | | | | | | | | | | | | | |
| | Warm-up Time | Not applicable | | | | | | | | | | | | | | |
| | Power Supply | Internal battery | | | | | | | | | | | | | | |
| Calibration Results | Calibration data were detailed in the continuation pages. Calibration result was out of EUT specification. | | | | | | | | | | | | | | | |
| <i>Approved By & Date</i> | | | | | | | | | | | | | | | | |
| |  K.O. Lo 22-Oct-2019 | | | | | | | | | | | | | | | |
| <i>Statements</i> | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> * Calibration equipment used for this calibration are traceable to national / international standards. * The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement. * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT. * The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited. | | | | | | | | | | | | | | | | |



MAXLAB

Certificate No. MLCN192765S

| <i>Calibration Data</i> | | | | |
|-------------------------|------------------|------------------------|-------------------------|-------------------|
| EUT Setting | Standard Reading | EUT Error from Setting | Calibration Uncertainty | EUT Specification |
| 94 dB | 94.0 dB | 0.0 dB | 0.20 dB | ± 0.3 dB |

- END -

Calibrated By :
Date :

Dan
22-Oct-19

Checked By :
Date :

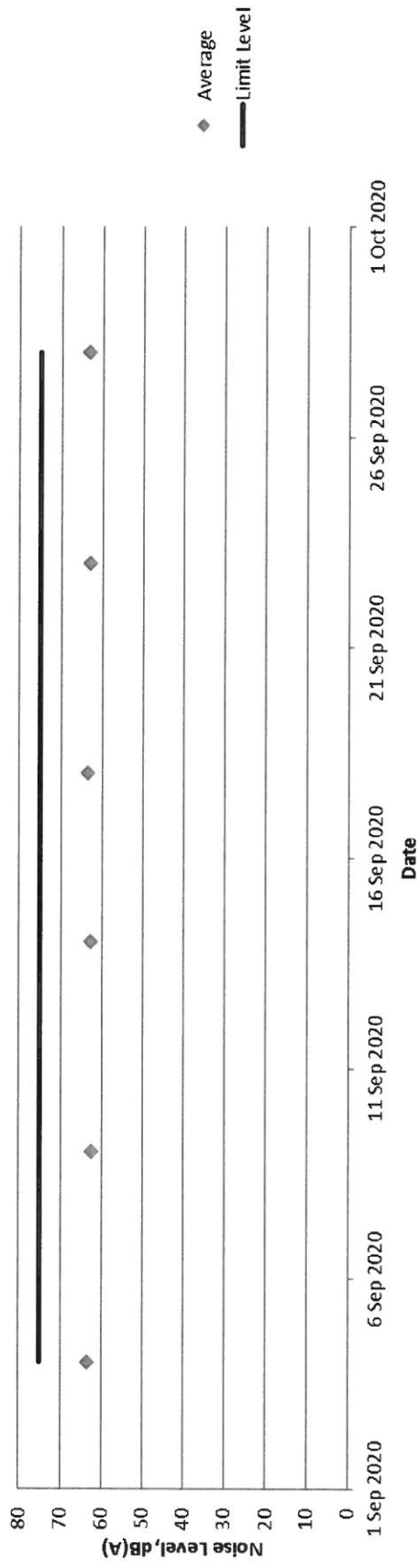
K.O. Lo
22-Oct-19

Page 2 of 2

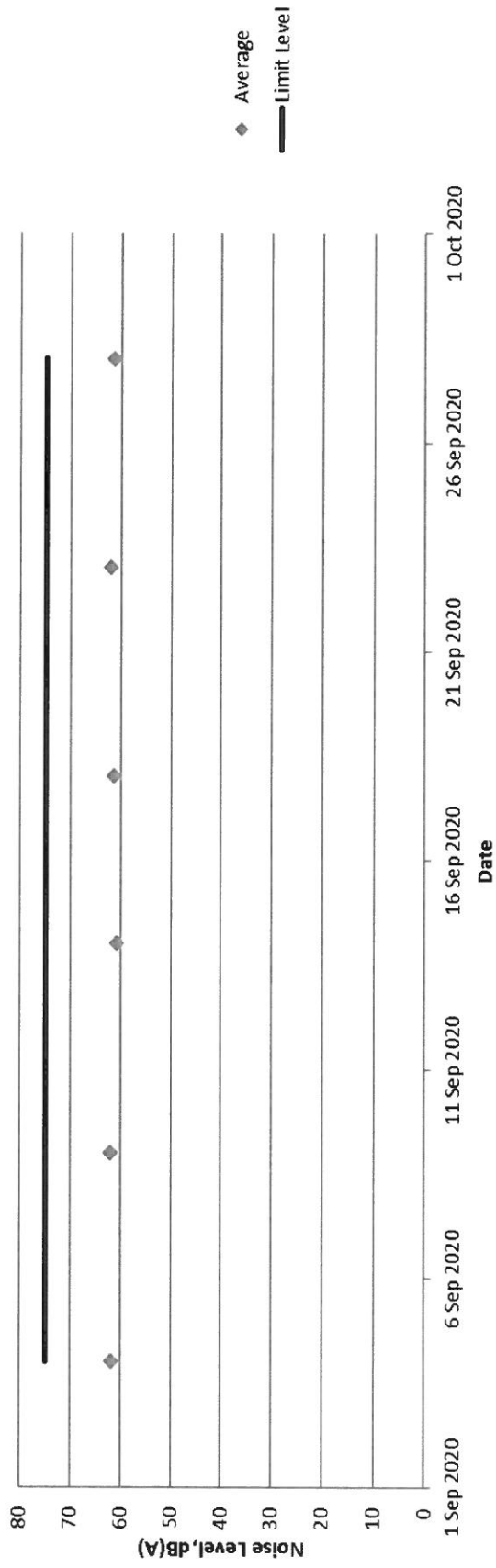
Appendix N

Impact Noise Monitoring Results and Graphical Presentation

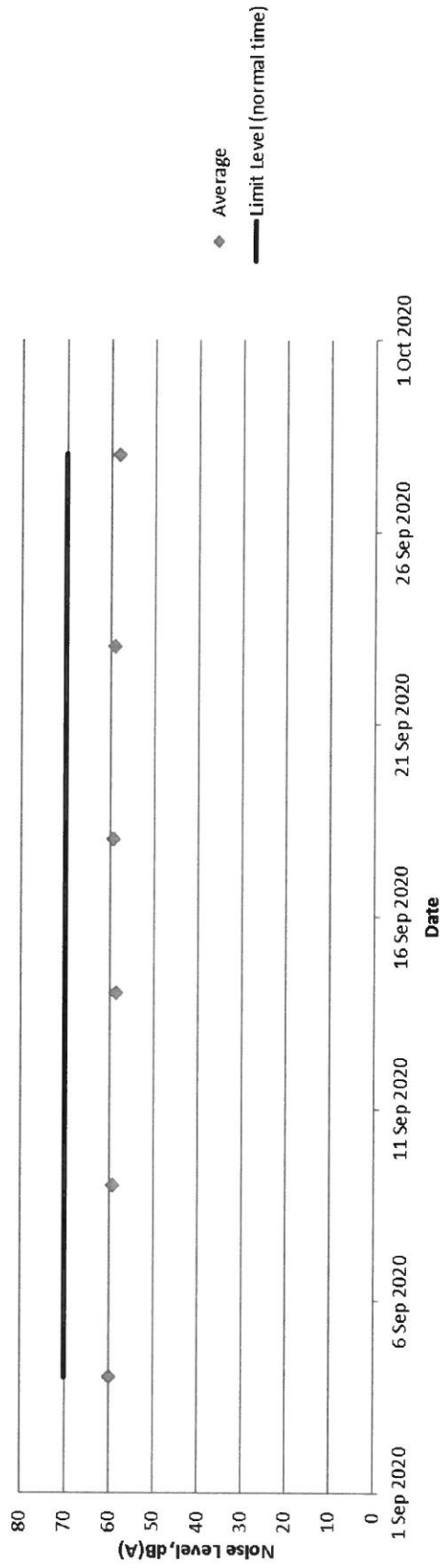
Noise Level Results at NM1 -The L Louey (South)



Noise Level Results at NM2 -Hin Keng Estate - Hin Wan House



Noise Level Results at NM3 -C.U.H.K.F.A.A. Thomas Cheung School



Appendix O

Location Plan of Water Quality Monitoring Station

LEGEND:

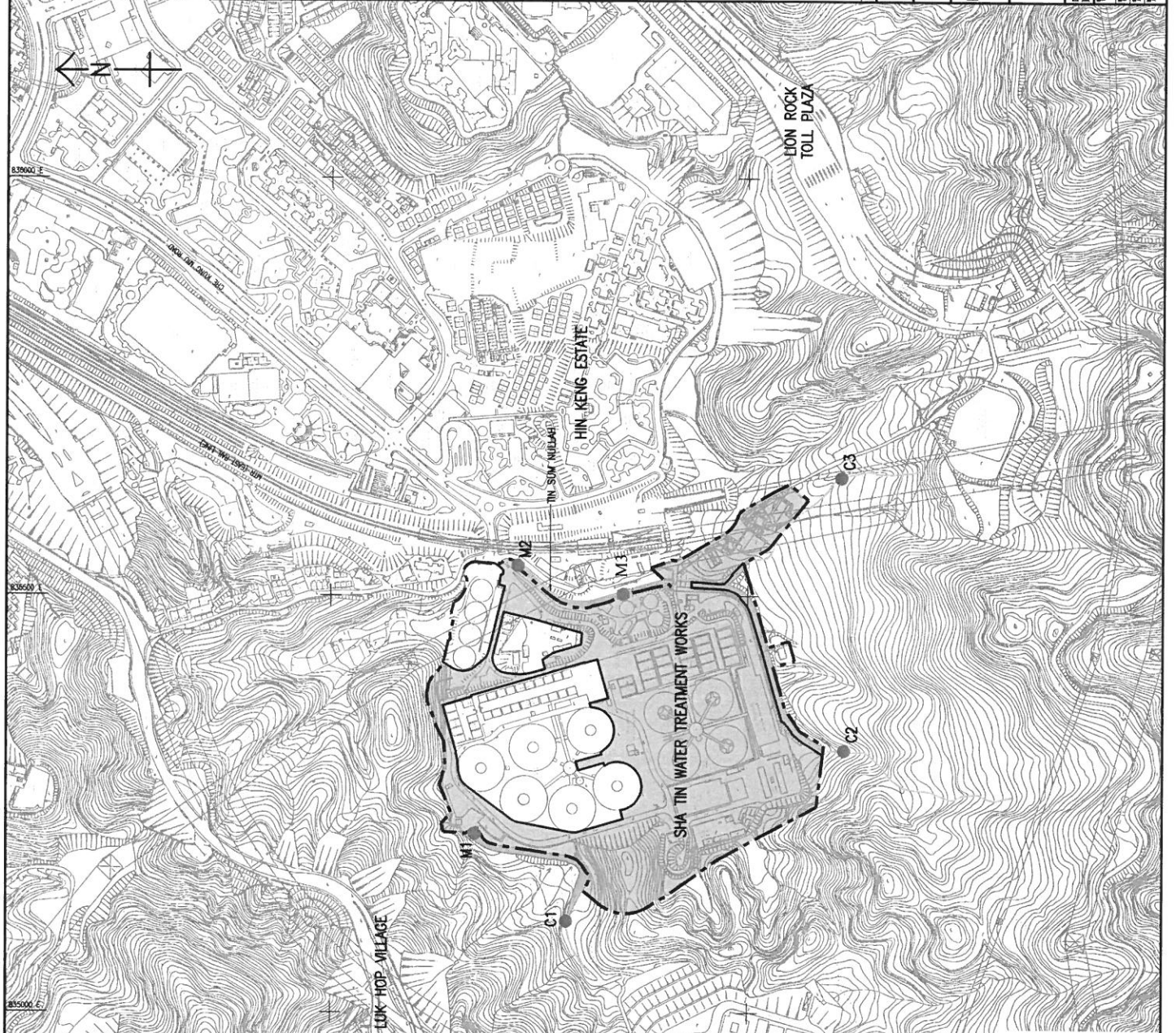
- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- ▭ WORKS AREA
- IN-LAND WATER COURSE
- IMPACT MONITORING STATION
- CONTROL STATION

水務署
WATER SUPPLIES DEPARTMENT
 AGREEMENT NO. CE 13/2009 (WS)
 IN-SITU REPRESENTATION OF SHA TIN WATER TREATMENT WORKS - DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

AECOM

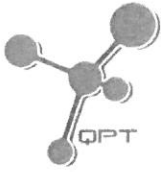
DRG. NO. 60162073/EM&A/FIG 5
 DATE: 11/08/2011
 SCALE: AS 1 : 5000
 UNIT: METRES
 © COPYRIGHT RESERVED



LOCATIONS OF WATER QUALITY MONITORING STATIONS

| STATIONS | DESCRIPTION | EASTING | NORTHING |
|----------|----------------------------|-----------|-----------|
| C1 | CONTROL STATIONS | 835109.77 | 824716.21 |
| C2 | CONTROL STATIONS | 835315.12 | 824382.63 |
| C3 | CONTROL STATIONS | 835641.80 | 824385.99 |
| M1 | IMPACT MONITORING STATIONS | 835214.82 | 824826.96 |
| M2 | IMPACT MONITORING STATIONS | 835536.24 | 824774.97 |

Project: 60162073 (Sha Tin Water Treatment Works) (EM&A) (V01) (Rev. 2012-11-08) 13.39 (DWG)



REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ060121
 Date of Issue : 06 July 2020
 Page No. : 1 of 2

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
 Unit C, 11/F, Ford Glory Plaza
 37-39 Wing Hong Street
 Cheung Sha Wan, Kowloon, Hong Kong
 Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment : Multi Water Quality Checker U-53
 Manufacturer : Horiba
 Serial Number : UHB5F2BB
 Date of Received : Jun 16, 2020
 Date of Calibration : Jul 06, 2020
 Date of Next Calibration^(a) : Oct 05, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

| <u>Parameter</u> ^(b) | <u>Reference Method</u> |
|---------------------------------|--|
| pH at 25°C | APHA 21e 4500-H ⁺ B |
| Dissolved Oxygen | APHA 21e 4500-O G |
| Salinity | APHA 21e 2520 B |
| Turbidity | APHA 21c 2130 B |
| Temperature | Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure. |

PART D – CALIBRATION RESULTS^(c,d)

(1) pH at 25°C

| Target (pH unit) | Displayed Reading ^(e) (pH Unit) | Tolerance ^(f) (pH Unit) | Results |
|------------------|--|------------------------------------|--------------|
| 4.00 | 4.06 | 0.06 | Satisfactory |
| 7.42 | 7.46 | 0.04 | Satisfactory |
| 10.01 | 9.92 | -0.09 | Satisfactory |

Tolerance of pH should be less than ± 0.20 (pH unit)

(2) Temperature

| Reading of Ref. thermometer (°C) | Displayed Reading (°C) | Tolerance (°C) | Results |
|----------------------------------|------------------------|----------------|--------------|
| 13.0 | 13.34 | 0.34 | Satisfactory |
| 26.0 | 26.24 | 0.24 | Satisfactory |
| 48.0 | 47.71 | -0.29 | Satisfactory |

Tolerance limit of temperature should be less than ± 2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

- ^(a) The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.
^(b) All chemical and microbiological tests were performed at unit 10-5/F and unit 10-14/F respectively of the company address stated above
^(c) The results relate only to the calibrated equipment as received
^(d) The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
^(e) "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
^(f) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.


 LEE Chun-ning, Desmond
 Senior Chemist



專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong

Email: info@qualityprotest.com; Website: www.qualityprotest.com

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

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ060121
Date of Issue : 06 July 2020
Page No. : 2 of 2

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) | Results |
|-------------------------|--------------------------|------------------|--------------|
| 0.00 | 0.11 | 0.11 | Satisfactory |
| 3.09 | 2.97 | -0.12 | Satisfactory |
| 5.00 | 4.92 | -0.08 | Satisfactory |
| 7.70 | 7.46 | -0.24 | Satisfactory |

Tolerance limit of dissolved oxygen should be less than ± 0.50 (mg/L)

(4) Salinity

| Expected Reading (g/L) | Displayed Reading (g/L) | Tolerance (%) | Results |
|------------------------|-------------------------|---------------|--------------|
| 10 | 10.33 | 3.30 | Satisfactory |
| 20 | 20.86 | 4.30 | Satisfactory |
| 30 | 31.77 | 5.90 | Satisfactory |

Tolerance limit of salinity should be less than ± 10.0 (%)

(5) Turbidity

| Expected Reading (NTU) | Displayed Reading ^(a) (NTU) | Tolerance ^(b) (%) | Results |
|------------------------|--|------------------------------|--------------|
| 0 | 0.02 | -- | Satisfactory |
| 10 | 9.76 | -2.4 | Satisfactory |
| 20 | 19.0 | -5.0 | Satisfactory |
| 100 | 95.5 | -4.5 | Satisfactory |
| 800 | 754 | -5.8 | Satisfactory |

Tolerance limit of turbidity should be less than ± 10.0 (%)

~ END OF REPORT ~

Remark(s): -

^(a) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

^(b) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

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

Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong
香港新界青衣北担杆山路12路段

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
在認可諮詢委員會的建議下獲香港認可處執行機關接受為

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of

Environmental Testing

此實驗所符合ISO/IEC 17025:2005所訂的要求
並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作

環境測試

This accreditation to ISO/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2005 的認可資格證明此實驗所具備指定範圍內所須的技術能力並實施一套實驗所質量管理體系(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 the Hong Kong Accreditation Service 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

WONG Wang-wan, Executive Administrator
執行幹事 黃宏華
Issue Date : 16 July 2014
簽發日期：二零一四年七月十六日

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

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按香港認可處訂立的條款及條件發出

L 001195

Appendix R

Impact Water Quality Monitoring Results

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 1 of 2

Report Number : Q200003aR200909
Job Number : R200909
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-747
Sample Description : pH Value, TSS and COD tests
Laboratory ID : R200909/1
Date of Sampling : 23/09/2020
Date Received : 23/09/2020
Test Period : 23/09/2020 – 24/09/2020
Test Required : 1. pH Value;
2. Total Suspended Solids (TSS);
3. Chemical Oxygen Demand (COD)
Method Used : 1. QPL-15d, APHA 22ed 4500-H⁺ B
2. QPL-15e, APHA 22ed 2540 D
3. QPL-15f, APHA 22ed 5220 B
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 Division

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited. The result(s) of this report are applied to the sample(s) submitted only.

Acumen Laboratory & Testing Limited | Lot 12 Tam Kon Shan Road, Tsing Yi (N), Hong Kong

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

E-mail: hthui@acumenhk.com / jleung@acumenhk.com

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number : Q200003aR200909
Job Number : R200909
Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | pH Value at (measured temperature °C) | Total Suspended Solids (TSS), mg/L | Chemical Oxygen Demand (COD), mg O ₂ /L |
|-----------|------------------|----------------------|---|--|--|
| R200909/1 | 23/09/2020 | Hing Keng, Wall C | 8.0 (23) | <2.5 | <50 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited. The result(s) of this report are applied to the sample(s) submitted only.

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Tel: (852) 2333 6823 Fax: (852) 2333 1316
E-mail: hthui@acumenhk.com / jleung@acumenhk.com

| Date | Time | Weather | Location | Co-ordinates | | Sample Depth | Water Depth | Depth | Temp. | DO con. | | DO Saturation | Turbidity | pH | SS |
|-------------|-------|---------|----------|--------------|--------|--------------|-------------|-------|-------|---------|------|---------------|-----------|------|-----|
| | | | | East | North | | | | | mg/L | % | | | | |
| 2 Sep 2020 | 11:40 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 30.2 | 8.47 | 8.48 | 90.7 | 2.5 | 2.6 | 7.61 | 2.7 |
| | 12:01 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 29.3 | 8.37 | 8.38 | 87.9 | 2.6 | 2.6 | 7.87 | 3.0 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 11:32 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.1 | 8.85 | 8.86 | 92.2 | 2.4 | 2.3 | 7.82 | 2.7 |
| | 10:50 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.2 | 9.14 | 9.15 | 97.5 | 2.6 | 2.7 | 7.80 | 4.4 |
| | 11:02 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 30.0 | 9.62 | 9.62 | 99.7 | 0.6 | 0.5 | 7.48 | <1 |
| 4 Sep 2020 | 11:05 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 28.5 | 8.64 | 8.64 | 92.9 | 2.5 | 2.5 | 7.50 | 3.3 |
| | 11:22 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 29.7 | 8.76 | 8.76 | 94.2 | 2.6 | 2.7 | 7.66 | 3.7 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 10:41 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.2 | 9.16 | 9.16 | 96.8 | 2.3 | 2.2 | 7.79 | 2.0 |
| | 10:13 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 31.2 | 9.24 | 9.23 | 97.6 | 1.7 | 1.8 | 7.70 | 3.6 |
| | 10:25 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 30.2 | 9.23 | 9.23 | 97.5 | 0.7 | 0.7 | 7.64 | <1 |
| 7 Sep 2020 | 11:24 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 31.4 | 8.67 | 8.66 | 90.4 | 2.5 | 2.6 | 7.41 | 3.7 |
| | 11:45 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.8 | 8.45 | 8.46 | 88.5 | 2.7 | 2.6 | 7.42 | 2.9 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 11:08 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.1 | 9.18 | 9.18 | 96.9 | 2.3 | 2.3 | 7.66 | 1.8 |
| | 10:30 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.5 | 9.22 | 9.22 | 97.2 | 2.7 | 2.6 | 7.75 | 5.4 |
| | 10:53 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.6 | 9.28 | 9.28 | 97.8 | 0.5 | 0.6 | 7.67 | <1 |
| 9 Sep 2020 | 13:29 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 28.9 | 9.25 | 9.25 | 95.6 | 2.5 | 2.5 | 7.51 | 2.8 |
| | 13:51 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 29.0 | 8.53 | 8.53 | 89.6 | 2.6 | 2.7 | 7.75 | 3.6 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 13:02 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.2 | 9.12 | 9.13 | 95.8 | 2.3 | 2.2 | 7.67 | 3.0 |
| | 12:35 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 29.9 | 9.39 | 9.39 | 96.5 | 1.7 | 1.8 | 7.49 | 3.2 |
| | 12:50 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 30.5 | 9.26 | 9.27 | 96.8 | 0.7 | 0.7 | 7.54 | <1 |
| 11 Sep 2020 | 14:54 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 29.6 | 8.47 | 8.48 | 90.1 | 2.5 | 2.5 | 7.49 | 3.7 |
| | 15:04 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 30.5 | 8.53 | 8.53 | 90.6 | 2.7 | 2.6 | 7.53 | 3.4 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 14:36 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.4 | 9.23 | 9.23 | 96.8 | 2.0 | 1.9 | 7.63 | 2.6 |
| | 14:06 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.1 | 8.85 | 8.86 | 92.7 | 2.1 | 2.2 | 7.60 | 4.8 |
| | 14:22 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 30.8 | 9.56 | 9.56 | 96.2 | 0.6 | 0.7 | 7.54 | <1 |
| 14 Sep 2020 | 13:13 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 32.4 | 8.74 | 8.74 | 88.1 | 2.4 | 2.5 | 7.52 | 4.0 |
| | 13:29 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.4 | 8.66 | 8.66 | 87.9 | 2.6 | 2.5 | 7.31 | 3.8 |
| | N/A | N/A | C3 | 835642 | 824386 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | 12:56 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.2 | 8.97 | 8.97 | 94.5 | 2.2 | 2.2 | 7.66 | 2.5 |
| | 12:24 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.9 | 8.81 | 8.81 | 95.6 | 2.6 | 2.5 | 7.60 | 5.6 |
| | 12:41 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.1 | 9.40 | 9.41 | 96.5 | 0.5 | 0.6 | 7.52 | <1 |

| | | | | | | | | | | | | | | | | | |
|-------------|--------|--------|--------|--------|--------|-------|-------|------|------|------|------|------|-----|------|------|------|-----|
| 16 Sep 2020 | 12:48 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 31.8 | 31.9 | 8.32 | 8.32 | 86.6 | 2.6 | 2.5 | 7.82 | 7.82 | 2.9 |
| | 12:58 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.5 | 31.4 | 8.80 | 8.80 | 87.1 | 2.2 | 2.3 | 7.65 | 7.65 | 3.5 |
| | N/A | N/A | 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 | N/A |
| | 11:36 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.2 | 31.3 | 9.23 | 9.23 | 96.4 | 2.1 | 2.2 | 7.69 | 7.69 | 1.7 |
| | 11:00 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 31.4 | 31.4 | 9.34 | 9.34 | 98.2 | 1.7 | 1.7 | 7.92 | 7.92 | 3.7 |
| | 11:16 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 30.9 | 31.0 | 9.50 | 9.50 | 94.6 | 0.6 | 0.6 | 7.68 | 7.68 | <1 |
| | 13:25 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 30.1 | 30.0 | 8.74 | 8.74 | 91.2 | 2.5 | 2.6 | 7.64 | 7.64 | 2.8 |
| | 13:36 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.2 | 31.2 | 8.56 | 8.56 | 90.5 | 2.6 | 2.7 | 7.75 | 7.75 | 2.6 |
| | N/A | N/A | 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 | N/A |
| 13:12 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.2 | 30.3 | 9.28 | 9.29 | 96.8 | 2.2 | 2.3 | 7.86 | 7.86 | 2.5 | |
| 12:40 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.4 | 30.4 | 9.20 | 9.20 | 95.6 | 2.5 | 2.6 | 7.49 | 7.49 | 3.6 | |
| 12:56 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.1 | 30.2 | 9.53 | 9.53 | 97.9 | 0.5 | 0.6 | 7.72 | 7.72 | <1 | |
| 15:02 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 29.5 | 29.6 | 8.77 | 8.77 | 92.6 | 2.7 | 2.7 | 7.50 | 7.50 | 3.8 | |
| 15:22 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 30.2 | 30.2 | 8.52 | 8.53 | 89.0 | 2.6 | 2.7 | 7.27 | 7.27 | 4.1 | |
| N/A | N/A | 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 | N/A | |
| 14:47 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.2 | 31.4 | 9.38 | 9.38 | 96.4 | 2.3 | 2.2 | 7.26 | 7.27 | 2.7 | |
| 14:05 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 31.3 | 31.3 | 9.22 | 9.22 | 95.8 | 1.8 | 1.8 | 7.64 | 7.64 | 5.8 | |
| 14:26 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.4 | 31.3 | 9.35 | 9.35 | 96.3 | 0.8 | 0.9 | 7.57 | 7.57 | <1 | |
| 12:55 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 30.8 | 30.8 | 8.61 | 8.60 | 95.6 | 2.6 | 2.6 | 7.56 | 7.56 | 2.6 | |
| 13:13 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.2 | 31.2 | 8.43 | 8.43 | 89.6 | 2.7 | 2.8 | 7.68 | 7.67 | 2.9 | |
| N/A | N/A | 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 | N/A | |
| 12:46 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.4 | 31.4 | 9.16 | 9.16 | 92.4 | 2.3 | 2.4 | 7.80 | 7.81 | 2.7 | |
| 12:14 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 32.0 | 32.0 | 9.22 | 9.22 | 95.5 | 2.5 | 2.5 | 7.69 | 7.69 | 4.0 | |
| 12:29 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.2 | 31.2 | 9.45 | 9.46 | 98.7 | 0.7 | 0.7 | 7.80 | 7.80 | <1 | |
| 11:16 | Sunny | C1 | 835110 | 824716 | 0.04 | 0.02 | 31.7 | 31.8 | 9.54 | 8.53 | 94.3 | 2.4 | 2.4 | 7.26 | 7.25 | 3.5 | |
| 11:32 | Sunny | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.4 | 31.5 | 8.44 | 8.44 | 91.5 | 2.5 | 2.5 | 7.85 | 7.86 | 3.0 | |
| N/A | N/A | 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 | N/A | |
| 10:57 | Sunny | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.6 | 31.5 | 9.43 | 9.43 | 96.3 | 2.3 | 2.2 | 7.90 | 7.90 | 2.3 | |
| 10:32 | Sunny | M2 | 835536 | 824775 | 0.05 | 0.025 | 32.1 | 32.1 | 9.25 | 9.25 | 97.6 | 2.2 | 2.1 | 7.66 | 7.65 | 3.8 | |
| 10:46 | Sunny | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.8 | 31.9 | 9.48 | 9.48 | 98.6 | 0.6 | 0.7 | 7.73 | 7.74 | <1 | |
| 11:35 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 32.4 | 32.5 | 8.61 | 8.61 | 89.2 | 2.7 | 2.6 | 7.58 | 7.59 | 3.3 | |
| 11:43 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.8 | 31.9 | 8.45 | 8.46 | 88.2 | 2.5 | 2.4 | 7.77 | 7.77 | 3.6 | |
| N/A | N/A | 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 | N/A | |
| 12:22 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 31.7 | 31.7 | 9.21 | 9.20 | 95.3 | 2.3 | 2.2 | 7.85 | 7.86 | 2.3 | |
| 11:48 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.8 | 30.7 | 9.11 | 9.12 | 98.5 | 1.5 | 1.4 | 7.67 | 7.70 | 4.6 | |
| 11:06 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.7 | 31.7 | 9.56 | 9.56 | 96.8 | 0.8 | 0.8 | 7.83 | 7.84 | <1 | |
| 13:59 | Cloudy | C1 | 835110 | 824716 | 0.04 | 0.02 | 30.8 | 30.7 | 8.29 | 8.29 | 91.7 | 2.6 | 2.6 | 7.54 | 7.55 | 3.7 | |
| 14:21 | Cloudy | C2 | 835403 | 824470 | 0.02 | 0.01 | 31.5 | 31.4 | 8.46 | 8.46 | 92.8 | 2.6 | 2.6 | 7.48 | 7.47 | 3.9 | |
| N/A | N/A | 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 | N/A | |
| 13:52 | Cloudy | M1 | 835215 | 824827 | 0.8 | 0.4 | 30.7 | 30.8 | 9.17 | 9.17 | 96.8 | 2.1 | 2.2 | 7.67 | 7.68 | 2.9 | |
| 13:20 | Cloudy | M2 | 835536 | 824775 | 0.05 | 0.025 | 30.9 | 30.8 | 9.16 | 9.16 | 95.7 | 1.7 | 1.6 | 7.69 | 7.69 | 5.3 | |
| 13:34 | Cloudy | M3 | 835501 | 824648 | 0.02 | 0.01 | 31.5 | 31.4 | 9.46 | 9.46 | 98.6 | 0.6 | 0.5 | 7.82 | 7.82 | <1 | |

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report


Page 1 of 2

Report Number : Q200003aR200896
Job Number : R200896
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-734
Sample Description : SS test
Laboratory ID : R200896/1-5
Date of Sampling : 02/09/2020
Date Received : 02/09/2020
Test Period : 02/09/2020 – 03/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited. The result(s) of this report are applied to the sample(s) submitted only.

Acumen Laboratory and Testing Limited

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Test Report

Page 2 of 2

Report Number : Q200003aR200896

Job Number : R200896

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200896/1 | 02/09/2020 | C1 | 2.7 |
| R200896/2 | 02/09/2020 | C2 | 3.0 |
| R200896/3 | 02/09/2020 | M1 | 2.7 |
| R200896/4 | 02/09/2020 | M2 | 4.4 |
| R200896/5 | 02/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Acumen Laboratory and Testing Limited

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

Test Report

Page 1 of 2

Report Number : Q200003aR200897
Job Number : R200897
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-735
Sample Description : SS test
Laboratory ID : R200897/1-5
Date of Sampling : 04/09/2020
Date Received : 04/09/2020
Test Period : 04/09/2020 – 05/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

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Report Number : Q200003aR200897

Job Number : R200897

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200897/1 | 04/09/2020 | C1 | 3.3 |
| R200897/2 | 04/09/2020 | C2 | 3.7 |
| R200897/3 | 04/09/2020 | M1 | 2.0 |
| R200897/4 | 04/09/2020 | M2 | 3.6 |
| R200897/5 | 04/09/2020 | M3 | <1 |

- Note:
1. mg/L indicates milligram per liter
 2. mg O₂/ L indicates milligram oxygen per liter
 3. < indicates less than.
 4. > indicates more than.
 5. NA indicates Not Applicable.

End of Report

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Test Report

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Report Number : Q200003aR200898
Job Number : R200898
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-736
Sample Description : SS test
Laboratory ID : R200898/1-5
Date of Sampling : 07/09/2020
Date Received : 07/09/2020
Test Period : 07/09/2020 – 08/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200898
Job Number : R200898
Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200898/1 | 07/09/2020 | C1 | 3.7 |
| R200898/2 | 07/09/2020 | C2 | 2.9 |
| R200898/3 | 07/09/2020 | M1 | 1.8 |
| R200898/4 | 07/09/2020 | M2 | 5.4 |
| R200898/5 | 07/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Test Report

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Report Number : Q200003aR200899
Job Number : R200899
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-737
Sample Description : SS test
Laboratory ID : R200899/1-5
Date of Sampling : 09/09/2020
Date Received : 09/09/2020
Test Period : 09/09/2020 – 10/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited. The result(s) of this report are applied to the sample(s) submitted only.

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Test Report

Page 2 of 2

Report Number : Q200003aR200899
Job Number : R200899
Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200899/1 | 09/09/2020 | C1 | 2.8 |
| R200899/2 | 09/09/2020 | C2 | 3.6 |
| R200899/3 | 09/09/2020 | M1 | 3.0 |
| R200899/4 | 09/09/2020 | M2 | 3.2 |
| R200899/5 | 09/09/2020 | M3 | <1 |

Note: 1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited. The result(s) of this report are applied to the sample(s) submitted only.

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Test Report

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Report Number : Q200003aR200900
Job Number : R200900
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-738
Sample Description : SS test
Laboratory ID : R200900/1-5
Date of Sampling : 11/09/2020
Date Received : 11/09/2020
Test Period : 11/09/2020 – 12/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200900

Job Number : R200900

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200900/1 | 11/09/2020 | C1 | 3.7 |
| R200900/2 | 11/09/2020 | C2 | 3.4 |
| R200900/3 | 11/09/2020 | M1 | 2.6 |
| R200900/4 | 11/09/2020 | M2 | 4.8 |
| R200900/5 | 11/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Test Report


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Report Number : Q200003aR200901
Job Number : R200901
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-739
Sample Description : SS test
Laboratory ID : R200901/1-5
Date of Sampling : 14/09/2020
Date Received : 14/09/2020
Test Period : 14/09/2020 – 15/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

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Report Number : Q200003aR200901

Job Number : R200901

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200901/1 | 14/09/2020 | C1 | 4.0 |
| R200901/2 | 14/09/2020 | C2 | 3.8 |
| R200901/3 | 14/09/2020 | M1 | 2.5 |
| R200901/4 | 14/09/2020 | M2 | 5.6 |
| R200901/5 | 14/09/2020 | M3 | <1 |

- Note:
1. mg/L indicates milligram per liter
 2. mg O₂/ L indicates milligram oxygen per liter
 3. < indicates less than.
 4. > indicates more than.
 5. NA indicates Not Applicable.

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Test Report


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Report Number : Q200003aR200902
Job Number : R200902
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-740
Sample Description : SS test
Laboratory ID : R200902/1-5
Date of Sampling : 16/09/2020
Date Received : 16/09/2020
Test Period : 16/09/2020 – 17/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

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Report Number : Q200003aR200902

Job Number : R200902

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200902/1 | 16/09/2020 | C1 | 2.9 |
| R200902/2 | 16/09/2020 | C2 | 3.5 |
| R200902/3 | 16/09/2020 | M1 | 1.7 |
| R200902/4 | 16/09/2020 | M2 | 3.7 |
| R200902/5 | 16/09/2020 | M3 | <1 |

- Note:
1. mg/L indicates milligram per liter
 2. mg O₂/ L indicates milligram oxygen per liter
 3. < indicates less than.
 4. > indicates more than.
 5. NA indicates Not Applicable.

End of Report

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Test Report


Page 1 of 2

Report Number : Q200003aR200903
Job Number : R200903
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-741
Sample Description : SS test
Laboratory ID : R200903/1-5
Date of Sampling : 18/09/2020
Date Received : 18/09/2020
Test Period : 18/09/2020 – 19/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

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Report Number : Q200003aR200903

Job Number : R200903

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200903/1 | 18/09/2020 | C1 | 2.8 |
| R200903/2 | 18/09/2020 | C2 | 2.6 |
| R200903/3 | 18/09/2020 | M1 | 2.5 |
| R200903/4 | 18/09/2020 | M2 | 3.6 |
| R200903/5 | 18/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

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Test Report

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Report Number : Q200003aR200904
Job Number : R200904
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-742
Sample Description : SS test
Laboratory ID : R200904/1-5
Date of Sampling : 21/09/2020
Date Received : 21/09/2020
Test Period : 21/09/2020 – 22/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D

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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200904
Job Number : R200904
Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200904/1 | 21/09/2020 | C1 | 3.8 |
| R200904/2 | 21/09/2020 | C2 | 4.1 |
| R200904/3 | 21/09/2020 | M1 | 2.7 |
| R200904/4 | 21/09/2020 | M2 | 5.8 |
| R200904/5 | 21/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Test Report

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Report Number : Q200003aR200905
Job Number : R200905
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-743
Sample Description : SS test
Laboratory ID : R200905/1-5
Date of Sampling : 23/09/2020
Date Received : 23/09/2020
Test Period : 23/09/2020 – 24/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

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Report Number : Q200003aR200905

Job Number : R200905

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200905/1 | 23/09/2020 | C1 | 2.6 |
| R200905/2 | 23/09/2020 | C2 | 2.9 |
| R200905/3 | 23/09/2020 | M1 | 2.7 |
| R200905/4 | 23/09/2020 | M2 | 4.0 |
| R200905/5 | 23/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Acumen Laboratory and Testing Limited

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Test Report

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Report Number : Q200003aR200906
Job Number : R200906
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-744
Sample Description : SS test
Laboratory ID : R200906/1-5
Date of Sampling : 25/09/2020
Date Received : 25/09/2020
Test Period : 25/09/2020 – 26/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200906
Job Number : R200906
Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200906/1 | 25/09/2020 | C1 | 3.5 |
| R200906/2 | 25/09/2020 | C2 | 3.0 |
| R200906/3 | 25/09/2020 | M1 | 2.3 |
| R200906/4 | 25/09/2020 | M2 | 3.8 |
| R200906/5 | 25/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Test Report

Page 1 of 2

Report Number : Q200003aR200907
Job Number : R200907
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-745
Sample Description : SS test
Laboratory ID : R200907/1-5
Date of Sampling : 28/09/2020
Date Received : 28/09/2020
Test Period : 28/09/2020 – 29/09/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200907

Job Number : R200907

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200907/1 | 28/09/2020 | C1 | 3.3 |
| R200907/2 | 28/09/2020 | C2 | 3.6 |
| R200907/3 | 28/09/2020 | M1 | 2.3 |
| R200907/4 | 28/09/2020 | M2 | 4.6 |
| R200907/5 | 28/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Test Report

Page 1 of 2

Report Number : Q200003aR200908
Job Number : R200908
Issue Date : 07/10/2020
Name of Applicant : Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name : CJO-3113-746
Sample Description : SS test
Laboratory ID : R200908/1-5
Date of Sampling : 30/09/2020
Date Received : 30/09/2020
Test Period : 30/09/2020 – 01/10/2020
Test Required : 1. Suspended Solids (SS)
Method Used : 1. QPL-15e, APHA 22ed 2540 D
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 Division

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Test Report

Page 2 of 2

Report Number : Q200003aR200908

Job Number : R200908

Issue Date : 07/10/2020

Test Result:

| Lab ID | Date of Sampling | Client Sample ID | Suspended Solids (SS), mg/L |
|-----------|------------------|------------------|--------------------------------|
| R200908/1 | 30/09/2020 | C1 | 3.7 |
| R200908/2 | 30/09/2020 | C2 | 3.9 |
| R200908/3 | 30/09/2020 | M1 | 2.9 |
| R200908/4 | 30/09/2020 | M2 | 5.3 |
| R200908/5 | 30/09/2020 | M3 | <1 |

Note:

1. mg/L indicates milligram per liter
2. mg O₂/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

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Appendix S

Impact Monitoring report for Ecology

Post-Transplantation Monitoring Report

for Agreement No. CE 13/2009 (WS)

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS

Report No.73

September 2020

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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*) trees, 5 colonies of Lamb of Tartary (*Cibotium barometz*) and 1 no. Hong Kong Eagle’s Claw (*Artabotrys hongkongensis*) was recommended to be transplanted in the approved detailed vegetation survey report.
- 1.4 Detailed vegetation report was planned that Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) trees will 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*) will 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 is Tree Report presents data collected on 25 September 2020. It contains the following information:
 - Introduction (Section 1)
 - Description Of Tree Monitoring Area (Section 2)
 - Monitoring Methodology (Section 3)
 - Result (Section 4)
 - Summary

- Photos (Appendix I)
- Summary table (Appendix II)
- Typhoon information (Appendix III)

2. DESCRIPTION OF TREE MONITORING SITE

- 2.1 Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) trees was transplanted within existing Sha Tin Water Treatment Works (STWTW) where is the extended compensatory plantation area. 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) where is currently covered with concrete. Plough is required before planting on to this area.
- 2.3 The planting site at Sha Tin South Fresh Water Service Reservoir (STSFWSR) was still under preparation. Lamb of Tartary (*Cibotium barometz*) to be transplanted was temporally stored at a nursery garden at Shui Mei Tsuen, Kam Tin. Once the planting site at Sha Tin South Fresh Water Service Reservoir (STSFWSR) was prepared and temporally stored transplanted vegetation were in fair condition, all transplanted Lamb of Tartary (*Cibotium barometz*) will be planted at the planting site.

3. MONITORING METHODOLOGY

- 3.1 Site inspection will be carried out by walking through the transplanting area. Health condition and survival rate will be 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 are classified as **good**;
 - Transplanted vegetation with few or no visible defects or health problems are classified as being **fair**;
 - Transplanted vegetation was badly damaged or clearly suffering from decay die back or the effects of very heavy vine growth are classified as **poor**.
- 3.5 Survival rate for each of transplanted vegetation species will be calculated based on site observation.

4. RESULT

- 4.1 Monitoring inspections were conducted on 25 September 2020. Three trees TA572, TA326 and TA327 were transplanted to tree compensation area within the Sha Tin Water Treatment Works (STWTW) in 20 June 2016.
- 4.2 The condition of TA572 was observed in poor condition due to the damage of two main trunks. TA327 was also in poor 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.
- 4.3 All transplanted Lamb of Tartary (*Cibotium barometz*) have been severely damaged by Typhon Wipha on 30-31 July 2019. Young leaves have been re-grown in about 6 individuals with fair to poor condition; however, the next few monitoring will be critical to assess their survival and recovery progress of all individuals.
- 4.4 Since Sha Tin South Fresh Water Service Reservoir (STSFWSR) was still under preparation, Lamb of Tartary was still temporally stored in a nursery garden at Shui Mei Tsuen, Kam Tin.
- 4.5 In general, 6 transplanted Lamb of Tartary (*Cibotium barometz*) were in fair to poor condition with foliage, while the other 21 remained in poor condition without regrowth of new foliage. Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016. The survival rate for Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was 96%. The Summary table for health condition and survival rate was shown in Appendix II.

5. MITIGATION MEASURE

- 5.1 Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016. In order to compensate for the loss of transplanted Hong Kong Eagle's Claw which is in climber growing form, it is recommended to plant an individual of native climber species at compensatory planting site (Sha Tin South Fresh Water Service Reservoir (STSFWSR)) together with compensatory tree planting. Recommended list of species are 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 climber species list to be planted

| Native Tree Species | |
|---------------------|--|
|---------------------|--|

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

- 5.2 Most transplanted Lamb of Tartary (*Cibotium barometz*) had shown either yellow foliage or loss of foliage, probably due to high exposure of sunlight at the new nursery site before the hit of Typhoon Wipha. It is recommended to retain them at the nursery garden under proper maintenance during current recovery stage. Shelter (such as 遮光網) has been provided to reduce the amount of sunlight received and avoid direct hit of rainstorm/ typhoon. Irrigation spray head has been installed to facilitate watering frequency whenever necessary. Once their condition has recovered to acceptable level, they can be moved to the transplantation site at Sha Tin South Fresh Water Service Reservoir (STSFWSR) when the site is ready. Otherwise a total of 27 new, healthy individuals of *Cibotium barometz* (or other possible candidate such as *Angiopteris fokiensis* and *Brainea insignis*) shall be sourced for compensatory planting.
- 5.3 After transplantation, root ball of TA572 and TA327 tree should be kept moisture especially during non-raining day.
- 5.4 Incense Tree (*Aquilaria sinensis*) tagged as TA326 was observed dead during inspection on 10 August 2017. Its DBH was measured as 346cm. In according to the Tree Preservation, Development Bureau Technical Circular (Works) No. 7/2015, the compensatory planting will try to achieve the compensatory planting ratio of 1:1 in terms of aggregated DBH.
- 5.5 In total, 3 individual of native tree species with heavy standard size will be planted with 2.5-3 meters (center to center) spacing at compensatory planting site. Recommended list of species are given in the Table 2 below. It is 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 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 2. Table for Recommended tree species list to be planted

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

6. SUMMARY

- 6.1 The condition of TA572 was observed in poor condition due to broken of main trunk. TA327 was also in poor 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.
- 6.2 All transplanted Lamb of Tartary (*Cibotium barometz*) have been severely damaged by Typhon Wipha on 30-31 July 2019. Next few monitoring will be critical to assess survival and recovery progress of all individuals. Shelter (遮光網) has been set up to reduce the intensity of sunlight and avoid direct hit of rainstorm/ typhoon. Currently, Lamb of Tartary was temporally stored in a nursery garden at Shui Mei Tsuen, Kam Tin. It is recommended to retain them at the nursery garden under proper maintenance during current recovery stage. In case their poor condition does not recover to acceptable level, a total of 27 new, healthy individuals of *Cibotium barometz* (or other possible candidate such as *Angiopteris fokiensis* and *Brainea insignis*) shall be sourced for compensatory planting.
- 6.3 In general, 4 transplanted Lamb of Tartary (*Cibotium barometz*) were in fair to poor condition with foliage, while the other 23 remained in poor condition without regrowth of new foliage. Hong Kong Eagle’s Claw (*Artabotrys hongkongensis*) and one Incense Tree (*Aquilaria sinensis*) TA326 were observed dead during inspection on 20 August 2016 and on 10 August 2017 respectively.

- 6.4 In order to compensate for the loss of transplanted Hong Kong Eagle's Claw and Incense Tree, it is recommended to plant an individual of native climber species and 3 heavy standard native tree species at compensatory planting site. The suggested species in planting list would have certain ecological value in terms of plant ecology and the associated wildlife including birds.
- 6.5 After transplantation, root ball of TA572 and TA327 tree should be kept moisture especially during dry and non-raining day.

APPENDIX I

Photo



Photo 1. General view of *Cibotium barometz* to be transplanted.



Photo 2. General view of *Cibotium barometz* to be transplanted.



Photo 3. Recovering *Cibotium barometz* with new fronds



Photo 4. Recovering *Cibotium barometz* with new fronds



Photo 5. *Cibotium barometz* in poor condition (occupied by weeds)



Photo 6. *Cibotium barometz* in poor condition (occupied by weeds)



Photo 7 & 8. All *Cibotium barometz* were finally stored under shelter (such as 遮光網). This help to reduce intensity of sunlight and avoid direct hit of rainstorm/ typhoon on the plants. Recovery in some individuals was indicated by regeneration of new fronds.



Photo 9. Transplanted Incense Tree (*Aquilaria sinensis*) – TA327 (left); and Ailanthus (*Ailanthus fordii*) – TA572 (right); stockpiled soil surrounding the TPZ shall be removed as soon as possible to relieve stress of soil compaction and reduced soil aeration.

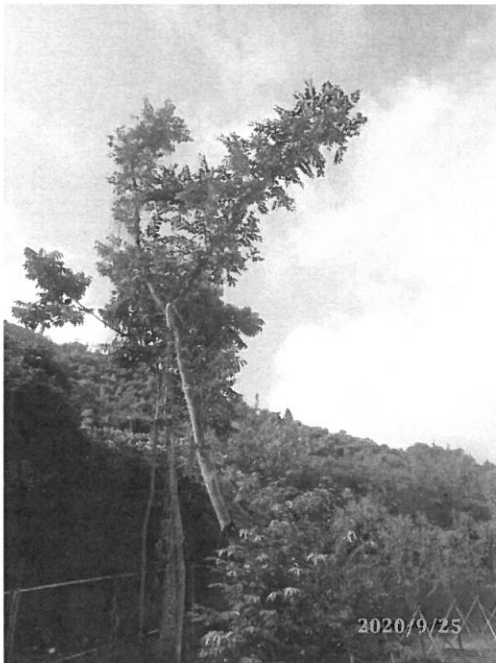


Photo 10. Weak crown with dead twigs observed in of TA327.



Photo 11. Sprouts with new leaves at trunk base of TA327.



Photo 12. Cracks and wounds observed in one of the trunks of TA572.



Photo 13. Weak crown and two broken trunks of TA572.



APPENDIX II

Table for condition of transplanted plant

Shrubs of Lamb of Tartary and Hong Kong Eagle’s Claw

| No. | Species | Condition | Alive/Dead | Remark |
|--|---------------------------------|-----------|------------|--|
| 1 | <i>Cibotium barometz</i> | Fair | Alive | Severely damaged by Typhon Wipha on 30-31 July 2019; the next few monitoring will be critical to assess their survival and recovery progress. 6 individuals were in fair to poor condition with foliage, the other 21 remained as poor before healthy foliage can sustain in coming monitoring. All individuals at this stage are not at acceptable level for transplantation back to STSFWSR. |
| 2 | <i>Cibotium barometz</i> | Fair | Alive | |
| 3 | <i>Cibotium barometz</i> | Fair-poor | Alive | |
| 4 | <i>Cibotium barometz</i> | Fair-poor | Alive | |
| 5 | <i>Cibotium barometz</i> | Fair-poor | Alive | |
| 6 | <i>Cibotium barometz</i> | Fair-poor | Alive | |
| 7 | <i>Cibotium barometz</i> | Poor | Alive | |
| 8 | <i>Cibotium barometz</i> | Poor | Alive | |
| 9 | <i>Cibotium barometz</i> | Poor | Alive | |
| 10 | <i>Cibotium barometz</i> | Poor | Alive | |
| 11 | <i>Cibotium barometz</i> | Poor | Alive | |
| 12 | <i>Cibotium barometz</i> | Poor | Alive | |
| 13 | <i>Cibotium barometz</i> | Poor | Alive | |
| 14 | <i>Cibotium barometz</i> | Poor | Alive | |
| 15 | <i>Cibotium barometz</i> | Poor | Alive | |
| 16 | <i>Cibotium barometz</i> | Poor | Alive | |
| 17 | <i>Cibotium barometz</i> | Poor | Alive | |
| 18 | <i>Cibotium barometz</i> | Poor | Alive | |
| 19 | <i>Cibotium barometz</i> | Poor | Alive | |
| 20 | <i>Cibotium barometz</i> | Poor | Alive | |
| 21 | <i>Cibotium barometz</i> | Poor | Alive | |
| 22 | <i>Cibotium barometz</i> | Poor | Alive | |
| 23 | <i>Cibotium barometz</i> | Poor | Alive | |
| 24 | <i>Cibotium barometz</i> | Poor | Alive | |
| 25 | <i>Cibotium barometz</i> | Poor | Alive | |
| 26 | <i>Cibotium barometz</i> | Poor | Alive | |
| 27 | <i>Cibotium barometz</i> | Poor | Alive | |
| Shelter (such as 遮光網) has been provided for reducing intensity of sunlight and direct hit of rainstorm/ typhoon on the plants. | | | | |
| 28 | <i>Artabotrys hongkongensis</i> | -- | Dead | -- |
| Survival rate (%) | | | 96% | |

Trees of Ailanthus and Incense Tree

| No. | Species | Condition | Alive/Dead | Remark |
|-------------------|---------------------------|-----------|------------|--|
| TA572 | <i>Ailanthus fordii</i> | Poor | Alive | Two main trunks were broken during typhoon on 23 August 2017. Cracks and wounds observed in one of the trunks. Weak canopy formed only by sprouts. |
| TA327 | <i>Aquilaria sinensis</i> | Poor | Alive | Tree crown of TA327 was thinner after transplantation. Water sprouts, cracks on tree bark and wound at trunk base observed. |
| TA326 | <i>Aquilaria sinensis</i> | Dead | Dead | Collapsed due to the Signal No.10 typhoon Mangkhut in September 2018. |
| Survival rate (%) | | | 67% | |

Appendix T

Monthly Summary of Waste Flow Table

Water Supplies Department
Monthly Summary Waste Flow Table
for Contract with Environmental Management Plan under ETWB TCW No. 19/2005 and its Interim Guidance Note
Reporting Year: 2020
Contract No. 3/WSD/15

(To be submitted to C&D MM Coordinator of Respective Division/Region via Engineer's Representative before 15th of the following month)

| Month | Actual Quantities of Inert C&D Materials Generated / Imported (in '000 m ³) | | | | | | Actual Quantities of Other C&D Materials / Wastes Generated | | | | |
|-----------------|---|---|-------------------------------|---------------------------------|--------------------------------|-----------------------|---|---|--|-------------------------------|---|
| | Total Quantities Generated [a+b+c+d] | Broken Concrete (including rock for recycling into aggregates) (a) | Reused in the Contract (b) | Reused in Other Projects (c) | Disposed as Public Fill (d) | Imported C&D Material | Metal (in '000kg) | Paper/ Cardboard Packaging (in '000kg) | Plastic (bottles/containers, plastic sheets/ foams from package material) (in '000kg) | Chemical Waste (in '000kg) | Others (e.g. General Refuse etc.) (in '000m ³) |
| January | 0.457 | 0.178 | 0.000 | 0.000 | 0.279 | 0.277 | 3.340 | 0.000 | 0.000 | 0.000 | 0.115 |
| February | 0.219 | 0.131 | 0.000 | 0.000 | 0.088 | 0.213 | 0.000 | 0.000 | 0.000 | 0.000 | 0.048 |
| March | 0.448 | 0.160 | 0.000 | 0.000 | 0.288 | 0.876 | 0.000 | 0.000 | 0.000 | 0.000 | 0.112 |
| April | 0.149 | 0.086 | 0.000 | 0.000 | 0.063 | 0.465 | 0.000 | 0.000 | 0.000 | 0.000 | 0.085 |
| May | 0.216 | 0.095 | 0.000 | 0.000 | 0.121 | 0.161 | 0.039 | 0.000 | 5.675 | 0.000 | 0.096 |
| June | 0.143 | 0.010 | 0.000 | 0.000 | 0.133 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.052 |
| Half-year total | 1.632 | 0.661 | 0.000 | 0.000 | 0.972 | 1.991 | 3.379 | 0.000 | 5.675 | 0.000 | 0.508 |
| July | 0.223 | 0.201 | 0.000 | 0.000 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.036 |
| August | 0.136 | 0.012 | 0.000 | 0.000 | 0.125 | 0.036 | 21.280 | 0.000 | 0.000 | 0.000 | 0.066 |
| September | 0.135 | 0.015 | 0.000 | 0.000 | 0.120 | 0.046 | 0.000 | 0.000 | 0.000 | 0.000 | 0.027 |
| October | | | | | | | | | | | |
| November | | | | | | | | | | | |
| December | | | | | | | | | | | |
| Yearly Total | 2.127 | 0.888 | 0.000 | 0.000 | 1.239 | 2.073 | 24.659 | 0.000 | 5.675 | 0.000 | 0.638 |

Appendix U

Implementation Schedule of Environmental Mitigation Measures (EMIS)

Environmental Mitigation and Enhancement Measure Implementation Schedule at Construction Stage

| EIA Ref. | Recommended Mitigation Measures | Location of the Measures | Implementation Agent | Relevant Legislation and Guidelines | Implementation Phase | | | Status |
|----------------------|---|-------------------------------------|----------------------|--|----------------------|---|---|--------|
| | | | | | D | C | O | |
| 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 | ✓ | | | Y |
| 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 Dust) Regulation | ✓ | | | Y |
| 4.7.1 | Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. | All works areas | Contractor | EM&A Manual | ✓ | | | Y |
| 4.7.1 | Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. | All works areas | Contractor | | ✓ | | | Y |
| 4.7.1 | Imposition of speed controls for vehicles on site haul roads. | All works areas | Contractor | | ✓ | | | Y |
| 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 | | ✓ | | | Y |
| Noise | | | | | | | | |
| 5.6.4 | Implement good site practices to reduce noise level | All works areas | Contractor | Noise Control Ordinance | ✓ | | | Y |
| 5.6.5 | Adoption of Quiet PME | All works areas | Contractor | | ✓ | | | N/A |
| 5.6.6 | Use of Movable Noise Barrier | All works areas | Contractor | | ✓ | | | N/A |
| 5.8 | Noise monitoring | Monitoring points | Contractor | | ✓ | | | Y |
| 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 | ✓ | | | Y |

| | | | | | | |
|--------|---|-----------------|------------|---|---|-----|
| 7.6.1 | Appropriate waste handling, transportation and disposal methods for all waste arisings generated during the construction works for the Project should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel. | All works areas | Contractor | Waste Disposal Ordinance | ✓ | Y |
| 7.6.2 | Implementation of good site practices for waste management | All works areas | Contractor | DEVB TCW No. 6/2010, | ✓ | Y |
| 7.6.3 | Implementation of trip ticket system to control waste disposal | All works areas | Contractor | ETWB TCW No. 19/2005 Land | ✓ | Y |
| 7.6.4 | Implementation of good site practices to reduce waste generations | All works areas | Contractor | (Miscellaneous Provisions) Ordinance | ✓ | Y |
| 7.6.5 | Re-use of excavated C&D materials on site as far as practical. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. | All works areas | Contractor | Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes | ✓ | Y |
| 7.6.8 | General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. | All works areas | Contractor | | ✓ | Y |
| 7.6.9 | All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. | All works areas | Contractor | | ✓ | N/A |
| 7.6.10 | A licensed asbestos waste collector will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. Application should be submitted to EPD. | All works areas | Contractor | | ✓ | N/A |
| 7.6.11 | If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste 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 | All works areas | Contractor | | ✓ | Y |

| | the Waste Disposal (Chemical Waste) (General) Regulation. | | | | | | | | | |
|--------------|---|--|--------------------------|---------------------|---|--|--|--|-----|--|
| Ecology | | | | | | | | | | |
| 8.8.1 | Ecological impacts on important habitats and the associated wildlife caused by the proposed development should be mitigated and compensation approaches to the maximum practical extent | All works areas in particular important habitats | The Engineer/ Contractor | EIAO-TM EM&A Manual | ✓ | | | | Y | |
| 8.8.2 | Reduce the amount of vegetation removal required and thereby minimize the footprint of the slope at the woodland habitat | All works areas | The Engineer/ Contractor | | ✓ | | | | Y | |
| 8.8.3 | Conduct detailed vegetation survey and implement suggested measures for species of conservation importance. | | The Engineer/ Contractor | | ✓ | | | | Y | |
| 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 | | ✓ | | | | 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 (<i>Livistona chinensis</i>) 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 | | ✓ | | | | 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 | | ✓ | | | | 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 | | ✓ | | | | Y | |
| 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 | | ✓ | | | | Y | |
| 8.8.9-8.8.11 | Implement woodland compensation | | The Engineer/ Contractor | | ✓ | | | | N/A | |

| Landscape and Visual | | | | | | |
|----------------------|--|---|--|--|-----------------------|-----------------------|
| 9.8.1 | Existing trees to be retained on site shall be carefully protected during construction. Trees unavoidably affected by the works shall be transplanted as far as possible. Compensatory Planting shall be provided in accordance with DEVB TCW No. 10/2013 – Tree Preservation. Control of night-time lighting glare. Erection of decorative screen hoarding compatible with the surrounding setting. 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 All works areas All works areas All works areas All works areas | Contractor Contractor Contractor Contractor Contractor | DEVB TCW No. 10/2013 EIAO TM | ✓ ✓ ✓ ✓ ✓ | Y Y Y Y Y |
| Cultural Heritage | | | | | | |
| 10.6.2 | Vibration monitoring at Ex KCR Beacon Hill Tunnel during piling works of Administration Building | Work site | The Engineer /Contractor | | ✓ | N/A |
| Land Contamination | | | | | | |
| 11.7 | 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) | ✓ | N/A |
| Hazard to Life | | | | | | |
| Table 12.22 | Ensure speed limit enforcement is specified in the contractor's Method Statement to limit the speed of construction vehicles on site Develop an audit procedure to ensure enforcement of speed limits and to ensure adequate site access control Ensure construction method statement is endorsed by the Engineer (AECOM) | All works areas All works areas All works areas | The Engineer The Engineer The Engineer | EIAO-TM | ✓ ✓ ✓ | Y Y Y |

| | | | | | | | |
|--|---|--|--------------------------------------|--|---|--|-----|
| | Ensure designated manoeuvring area for the new access road construction is away from the Chlorination House | New access road area | Contractor/ The Engineer | | √ | | Y |
| | Ensure that the emergency response plan and procedures (including drills) cover the provisioning activities | All works areas | Contractor/ The Engineer | | √ | | Y |
| | Safety training to be provided to construction workers and WSD/Engineer staff regarding evacuation procedures | All works area | Contractor/ The Engineer | | √ | | 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 | | √ | | N/A |
| | Ensure temporary suspension of crane operation and construction truck movements during chlorine delivery | All works areas | Contractor/ The Engineer | | √ | | Y |
| | Provide a crash barrier between the construction site and the north side of the Chlorination House. | Chlorination House area | Contractor | | √ | | Y |
| | 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 | | √ | | 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 | | √ | | Y |
| | Provide settlement monitoring for the Chlorination House to ensure no subsidence occurs from nearby excavation works. | Chlorination House area | Contractor | | √ | | Y |
| | 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 | | √ | | 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 | | √ | | 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 | | √ | | Y |
| | 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 | | √ | | N/A |

| | | | | | | |
|-----------------------------------|---|---|----------------------------------|---------|---|--------|
| 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 centre | WSD / Chlorine Supply Contractor | EIAO-TM | ✓ | k.i.v. |
| | Improved clamps with independent checks to prevent load shedding | Chlorine delivery trucks | | | ✓ | F |
| | Installation of fire screen and larger fire extinguishers to prevent engine and wheel fires from spreading to the cargo area | | | | ✓ | F |
| | Adoption of the chlorine delivery route from Sham Shui Kok Dock to Sha Tin WTW | | | | ✓ | F |
| | Provision of emergency repair kit | | | | ✓ | F |
| 12.34.3 Table 12.37 & 12.38 | Ban the use of retreaded tyres and perform regular visual checks on the tyres. | | | | ✓ | F |
| | 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. | | | | ✓ | F |
| | Limit fuel tanks capacity at the beginning of the Project (Item 2.3 of Table 12.37 – advance measure). | | | | ✓ | 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) | | | | ✓ | 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 | | | ✓ | 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.i.v. |
| | Implement a sturdy steel frame to minimize the potential for chlorine release due to truck rollover | | | | ✓ | 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 | | ✓ | k.i.v. |

| | | | | | |
|---|--|--|--|--|--|
| | <p>Training should be provided for the use of the GPS fleet management and improved safe driving.</p> <p>Ensured that independent checks are performed to ensure proper chlorine drum latching and clamping.</p> <p>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.</p> <p>Training should be provided to driver and driver attendant for the emergency use of the new 2 x 9L AFFF extinguishers.</p> <p>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</p> <p>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</p> <p>To keep under review alternate chlorine receiving dock in Sha Tin/Tai Po area for chlorine delivery to STWTW.</p> | | | <p>√</p> <p>√</p> <p>√</p> <p>√</p> <p>√</p> <p>√</p> <p>√</p> | <p>k.i.v.</p> <p>F</p> <p>k.i.v.</p> <p>F</p> <p>k.i.v.</p> <p>F</p> <p>k.i.v.</p> |
| <p><u>Legend</u></p> <p>D – Design Phase</p> <p>C – Construction Phase</p> <p>O – Operation Phase</p> <p>Y - Compliance of Mitigation Measures</p> <p>N/A – Not Applicable in Reporting Period</p> <p>k.i.v – Keep In View</p> <p>F - Completed</p> | | | | | |

Appendix V

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

Appendix W

Tentative schedule for environmental monitoring

Dec-20

| Sun | Mon | Tue | Wed | Thur | Fri | Sat |
|-----|---|-----|---|------|---|-----|
| | | 1 | 2 | 3 | 4 | 5 |
| | | | 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 | |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | 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 | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| | 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 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3 | |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | 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 | | | |
| 27 | 28 | 29 | 30 | 31 | | |
| | 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 | | | |

Nov-20

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

Oct-20

| Sun | Mon | Tue | Wed | Thur | Fri | 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, 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 | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | 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 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3 | |
| 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 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 | 30 | 31 |
| | | 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 |

Sep 20

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