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ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE

CONTRACT NO. DC/2013/10 - DESIGN, BUILD AND OPERATE SAN WAI SEWAGE TREATMENT WORKS – PHASE 1

MONTHLY EM&A REPORT
NO. 18

(01 OCTOBER – 31 OCTOBER 2018)

Prepared by: _____
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Certified by: _____
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Environmental Team Leader

Issued Date: 08 November 2018 *Report No.: ENA87701*

ANEWR

Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme
5/F, Western Magistracy
2A Po Fu Lam Road
Hong Kong

Your reference:

Our reference: HKDSD203/50/105386

Date: 20 November 2018

Attention: Mr Kenneth Kwong

BY EMAIL & POST
(email: kennethwkkwong@dsd.gov.hk)

Dear Sirs

Agreement No. HATS 02/2016
Services for Independent Environmental Checker (IEC) for
Contract No. DC/2013/10 – Design, Build and Operate San Wai Sewage Treatment Works – Phase 1
Monthly Environmental Monitoring and Audit Report No.18 (October 2018)

We refer to emails of 8, 14 and 16 November 2018 from ETS-Testconsult Limited attaching the Monthly Environmental Monitoring and Audit Report No.18 (October 2018).

We have no comment and hereby verify the Monthly Environmental Monitoring and Audit Report No.18 (October 2018) in accordance with Clause 5.4 of the Environmental Permit no. EP-464/2013.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Nic Lam on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/FSKA/lhmh

cc AECOM – Mr Patrick Leung (email: patrick.leung@swstw-aecom.com)
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EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as "the Contract"). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.

According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003). The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit.

Baseline monitoring was completed in April 2017. Action and Limit Levels were established for air quality, noise and water quality parameters based on the baseline monitoring results.

This is the eighteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries findings of the EM&A works conducted during the reporting period from 01 October 2018 to 31 October 2018.

Site Activities

As informed by the Contractor, site activities were carried out in this reporting month:

- *Substructure (ELS & Bulk excavation);*
- *Substructure (rc structure);*
- *Backfilling;*
- *Removal of ELS;*
- *Superstructure (rc and metalworks);*
- *Water Tightness Test;*
- *Internal ABWF – CEPT;*
- *ABWF - Sludge Dewatering Building;*
- *ABWF - Administration Building & Maintenance Workshop;*
- *Piling Foundation;*
- *ABWF - Electrical Building No.4;*
- *Bar Screen Installation;*
- *Slope works and Retaining Wall (Eastern Portion);*
- *Slope works and Retaining Wall (Northern Portion);*
- *Drainage Inlet connection;*
- *Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road;*
- *CLP Cable Duct and Draw Pits (within the Site);*
- *EVA (Road & Drainage);*
- *RC Trench and Odour Pipe (DO1, DO2);*
- *Process Pipe;*
- *Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope;*
- *Emergency By-Pass Pipe;*
- *Sewage Pipe;*
- *Cable Duct and Draw Pits;*
- *WSD External Watermain Laying Works;*
- *Internal Watermain Laying Works*

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual for this Contract. The summary of the monitoring activities in this reporting month is listed below:

- *24-hour TSP Monitoring: 4 Occasions at 1 designated locations & 1 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 12 Occasions at 1 designated locations & 3 Occasions at 2 designated locations*
- *Noise Monitoring (Day-time): 4 Occasions at 1 designated locations & 1 Occasions at 2 designated locations*
- *Water Quality Monitoring: 13 Occasions at 1 designated location*
- *Weekly Site inspection: 4 Occasions*

Air Quality Monitoring

No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in the reporting month.

Noise Monitoring

No exceedance of Action and Limit levels for noise monitoring was recorded in the reporting month.

Water Quality Monitoring

According to the summary of water monitoring results, no exceedance of Action and Limit levels was recorded in this reporting month.

Weekly Site Inspections

In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting month. The major findings observed during site inspections are presented in the **Section 5.0**.

Complaint Log

There was no complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during the reporting period.

Reporting Change

As notified by 永康貨櫃服務有限公司 to the Contractor and referred to the ET on 23 October 2018, the renovation of the container yard had been finished and thus the permission to carry out air quality monitoring and noise monitoring at 永康貨櫃服務有限公司 was granted again after 23 October 2018. Since the original location of ASR2a and NSR2a become the public access of the container yards and thus the location of air quality and noise monitoring station was adjusted. The proposed monitoring stations (ASR2b and NSR2b) would be located next to the office of 永康貨櫃服務有限公司 which was within 10m of ASR2a and NSR2a. The draft proposal for changing EM&A Programme (Air Quality Monitoring and Noise Monitoring) was submitted to IEC on 26 October 2018 and the IEC have no objection to the proposal on 31 October 2018.

Future Key Issues

The future key issues to be undertaken in the upcoming month are as follows:

- *Chemical and waste management;*
- *Treatment of runoff and wastewater prior to discharge; and*
- *Dust and Noise generated from construction activities*

1. INTRODUCTION

1.1. Basic Project Information

1.1.1. This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as "the Contract"). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.

1.1.2. The project involves expansion of the preliminary treatment works at San Wai STW from 164,000 m^3/d to 200,000 m^3/d Average Dry Weather Flow, upgrading the preliminary treatment level to CEPT and adding centralized disinfection. The site layout plan is shown in **Appendix A**.

1.1.3. According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented by an independent Environmental Team (ET) in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003).These documents are available through the EIA Ordinance Register. The construction works of the Contract commenced on 16 May 2017.

1.1.4. The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit. The EM&A requirements for each parameter described in the following sections include:

- *All monitoring parameters;*
- *Monitoring schedules for the reporting month and forthcoming months;*
- *Action and Limit levels for all environmental parameters;*
- *Event/Action Plans;*
- *Environmental mitigation measures, as recommended in the Project EIA study final report; and*
- *Environmental requirements in contract documents.*

1.1.5. As part of the project EM&A program, baseline monitoring was conducted from 21 March 2017 to 15 April 2017 to determine the ambient environmental conditions before the project commence any major construction works and it had been verified by IEC and endorsed by EPD.

1.1.6. This is the eighteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries the audit findings of the EM&A programme during the reporting period from 01 October 2018 to 31 October 2018.

1.2. Project Organization

1.2.1. The project organization structure and lines of communication with respect to the on-site environmental management structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1.**

Table 1.1 Contact Information of Key Personnel

Party	Position	Name of Key Staff	Tel. No.	E-mail
Supervising Officer (AECOM Asia Co. Ltd.)	Resident Engineer	Mr. Patrick Leung	5222 6561	patrick.leung@swstw-aecom.com
Independent Environmental Checker (ANewR Consulting Limited)	Technical Director	Mr. Adi Lee	2618 2836	aymlee@anewr.com
	Senior Environmental Consultant	Mr. Nic Lam	2618 2836	nhhlam@anewr.com
Contractor (ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE)	Environmental Officer	Mr. Johnny So	9513 8899	johnny.so@c302.chechk.com
Environmental Team (ETS-Testconsult Ltd.)	Environmental Team Leader	Mr. C. L. Lau	2946 7791	env@ets-testconsult.com

1.3. Construction Programme

1.3.1. A copy of the Contractor's construction programme is provided in **Appendix C**.

1.4. Construction Works Undertaken During the Reporting Period

1.4.1. A summary of the construction activities undertaken during this reporting period is shown below:

- *Substructure (ELS & Bulk excavation);*
- *Substructure (rc structure);*
- *Backfilling;*
- *Removal of ELS;*
- *Superstructure (rc and metalworks);*
- *Water Tightness Test;*
- *Internal ABWF – CEPT;*
- *ABWF - Sludge Dewatering Building;*
- *ABWF - Administration Building & Maintenance Workshop;*
- *Piling Foundation;*
- *ABWF - Electrical Building No.4;*
- *Bar Screen Installation;*
- *Slope works and Retaining Wall (Eastern Portion);*
- *Slope works and Retaining Wall (Northern Portion);*
- *Drainage Inlet connection;*
- *Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road;*
- *CLP Cable Duct and Draw Pits (within the Site);*
- *EVA (Road & Drainage);*
- *RC Trench and Odour Pipe (DO1, DO2);*
- *Process Pipe;*
- *Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope;*
- *Emergency By-Pass Pipe;*
- *Sewage Pipe;*
- *Cable Duct and Draw Pits;*
- *WSD External Watermain Laying Works;*
- *Internal Watermain Laying Works*

2. AIR QUALITY MONITORING

2.1. Monitoring Requirements

2.1.1. 1-hr and 24-hr TSP levels were monitored in the reporting month in accordance with the EM&A Manual. Two air monitoring locations were selected which was shown in **Figure 1**.

2.2. Monitoring Equipment

1-hour TSP Monitoring

1-hour TSP levels were measured by using dust meter which are capable of producing comparable results as the by high volume sampling method, to indicate short event impacts. The dust meter is compliant to the clause 1.2.5 of "General Technical Requirement of Environmental Monitoring" and clause 2.2 of "Generic Environmental Monitoring and Audit Manual".

Table 2.1 summarized the dust meter model used during the baseline monitoring. Copies of calibration certificates for dust meters were attached in **Appendix D1**.

Table 2.1 Air Quality Monitoring Equipment

Equipment	Model
Dust Meter	SIBATA LD-3B
High volume sampler (HVS)	Greasby GMW (GS2310)
Calibrator	Tisch TE-5025A

1-hr air quality monitoring (Dust Meter)

Measuring Procedures

The measuring procedures of the dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Press POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Press TIMER SET to Manual;
- Press START/STOP SWITCH to start the TSP monitoring;
- Press START/STOP SWITCH to stop the TSP monitoring after monitoring complete;
- Record measured COUNT directly from the dust meter and calculate the TSP level by using the equation of the certificate.

Maintenance & Calibration (QA/QC)

- Dust meter should be checked at 3-month intervals and calibrated at half-year intervals throughout all stages of air quality monitoring.

24-hr air quality monitoring (HVS)

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets were employed for both 1-hour and 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m^3/min and 1.7m^3/min.) in accordance with the manufacturer's

instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate was indicated on the flow rate chart.

- For TSP sampling, fiberglass filters (Whatman G653) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling month of 1 hour or 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recoded.
- Before weighting, all filters were equilibrated in desiccators for 24 hour with the temperature of 25^{o}C $\pm$ 3^{o}C and the relative humidity (RH) <50% $\pm$5%.

Maintenance & Calibration (QA/QC)

- HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Wetland Park Station of Hong Kong Observatory. All wind data during this reporting month are shown in **Appendix G**.

2.3. Monitoring Parameters, Frequency and Duration

2.3.1. **Table 2.2** summarizes the monitoring parameters, monitoring duration and frequencies of impact air quality monitoring.

Table 2.2 Monitoring Parameters, Duration and Frequencies of Impact Air Quality Monitoring

Parameter	Duration	Frequency
1-hr TSP	1 hr (0800-1900)	Three times per 6 days
24-hr TSP	24 hr	Once per 6 days

2.3.2. In this reporting period, a total of 15 occasions of 1-hour TSP monitoring and 5 events of 24-hour TSP monitoring were undertaken and the schedule was shown in **Table 2.3**

Table 2.3 Time Schedule of Impact Air Quality Monitoring

October 2018						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 ▼	6
7	8	9	10	11 ▼	12	13
14	15	16 ▼	17	18	19	20
21	22 ▼	23	24	25	26	27 ▼
28	29	30	31			

Remark: (▼) = Air quality monitoring carried out by ET.

2.4. Action and Limit Levels

The criteria for Action and Limit levels have been set out in the contract document of the Project as follows:

Table 2.4 The criteria of Action and Limit Levels for Air Quality

Parameters	Action	Limit
1-hour TSP Level ($\mu g/m^3$)	For baseline level $\leq$ 384$\mu g/m^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2	500 $\mu g/m^3$
	For baseline level >384$\mu g/m^3$, Action level = Limit Level	
24-hour TSP Level ($\mu g/m^3$)	For baseline level < 200$\mu g/m^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2	260 $\mu g/m^3$
	For baseline level $\geq$ 200$\mu g/m^3$, Action level = Limit Level	

Following the criteria shown in **Table 2.4**, the Action and Limit levels for 1-hour TSP derived as illustrated in **Table 2.5**.

Table 2.5 Action and Limit Levels for 1-hour TSP and 24-hour TSP

Air Quality Monitoring Station	1-hr TSP ($\mu g/m^3$)		24-hr TSP ($\mu g/m^3$)	
	Action Level	Limit Level	Action Level	Limit Level
ASR1a	309	500	260	260
ASR2a(1)	292	500	228	260
ASR2b(2)(3)	292	500	228	260

Remarks: (1) Air monitoring on ASR2a was suspended since 06 September 2018
(2) Alternative air quality monitoring station to replace ASR2a with effect from 27 October 2018
(3) The Action and Limit Levels of ASR2b are as same as the original levels of ASR2a.

2.5. Results and Observations

2.5.1. 1-hour and 24-hour TSP Monitoring Results

Monitoring data of both 1-hour and 24-hour TSP monitoring carried out in this reporting month are summarized in **Appendix D2**. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting month is shown in **Appendix D3**. Wind data included wind speed and wind direction was extracted from Wetland Park Station of Hong Kong Observatory during this reporting month and is presented in **Appendix G**.

No exceedance of Action and Limit Level of 1-hr TSP and 24-hour TSP monitoring results was recorded during the reporting month.

2.5.2. Observation

Generally, 1-hour TSP and 24-hour TSP monitoring results fluctuated well below the Action Level in this reporting period. The major dust source observed near the monitoring stations was mainly from vehicles passing by the container yards and general earth works. It can be concluded that the contractor implemented sufficient dust mitigation measures during this reporting month.

2.6. Event and Action Plan

If the impact monitoring results exceed the Action and Limit Levels, the actions specified in **Table 2.6** shall be carried out.

Table 2.6 Event and Action Plan for Air Quality (Dust) during Construction Phase

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded for one sample	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures are properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level being exceeded for one sample	1. Identify source; 2. Inform IEC, ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures;	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; 4. Discuss with	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the agreed

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	effectiveness of Contractor's remedial actions; 8. Keep EPD and ER informed of the results.	6. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly.	IEC and Contractor on potential remedial actions; 4. Ensure remedial actions properly implemented.	proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded for two or more consecutive samples	1. Identify source; 2. Inform IEC, ER and EPD the causes & actions taken for the exceedances; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Investigate the causes of exceedance; 6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Supervise the implementation of mitigation measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 4. Discuss with IEC and the Contractor on potential remedial actions; 5. Review Contractor's remedial actions whenever necessary to assure their effectiveness; 6. 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.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not resolved; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

3. NOISE MONITORING

3.1. Monitoring Requirements

3.1.1. Noise levels (L_{eq}, L_{10} and L_{90}) were monitored in the reporting month in accordance with the EM&A Manual.

3.2. Monitoring Equipment

Sound level meters used for impact noise monitoring were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (Lx). They complied with International Electro technical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 3.1** summarized the noise monitoring equipment model used during the baseline monitoring. Copies of calibration certificates for noise meters and calibrators were attached in **Appendix E1**.

Table 3.1 Noise Monitoring Equipment

Noise Monitoring Equipment	Model
Sound Level Meter	Rion NL-52
Sound Level Calibrator	Castle GA607

3.3. Monitoring Duration and Frequency

3.3.1. Impact noise monitoring for the A-weighted levels L_{eq}, L_{10} and L_{90} in 30-minute interval was recorded once per 6 days.

3.3.2. In this reporting period, a total of 5 occasions of noise monitoring were undertaken and the schedule was shown in **Table 3.2**

Table 3.2 Time Schedule of Impact Noise Monitoring

October 2018						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 ▼	6
7	8	9	10	11 ▼	12	13
14	15	16 ▼	17	18	19	20
21	22 ▼	23	24	25	26	27 ▼
28	29	30	31			

Remark: (▼) = Noise monitoring carried out by ET

3.4. Monitoring Locations

Two noise monitoring stations, NSR1a (晉榮貨櫃服務有限公司) and NSR2b (永康貨櫃服務有限公司) which shown in **Figure 1**, were required to perform impact noise monitoring during this reporting peroid. Since the permission to carry out noise monitoring at 永康貨櫃服務有限公司 could not be granted after the end of August 2018, noise monitoring on NSR2a was suspended since 06 September 2018. As notified by 永康貨櫃服務有限公司 to the Contractor and referred to the ET on 23 October 2018, the renovation of the container yard had been finished and thus the permission to carry out air quality monitoring and noise monitoring at 永康貨櫃服務有限公司 was granted again after 23 October 2018. The proposed monitoring stations NSR2b would be located next to the office of 永康貨櫃服務有限公司 which was within 10m of NSR2a. The draft proposal for changing EM&A Programme (Air Quality Monitoring and Noise Monitoring) was submitted to IEC on 26 October 2018 and the IEC have no objection to the proposal on 31 October 2018.

The impact noise monitoring programme was summarized in **Table 3.3**.

Table 3.3 Noise Monitoring Stations

Noise monitoring station	Type of Measurement
NSR1a	Façade
NSR2a(1)	Free Field
NSR2b(2)(3)	Façade

Remarks: (1) Noise monitoring on NSR2a was suspended since 06 September 2018
(2) Alternative air quality monitoring station to replace NSR2a with effect from 27 October 2018
(3) The Action and Limit Levels of NSR2b are as same as the original levels of NSR2a.

3.5. Monitoring Methodology

Instrumentation

Integrating Sound Level Meters were employed for noise monitoring.

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weighting : A
  - Time weighting : Fast
  - Time measurement : 30 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- 3dB(A) correction had been added to the results if noise measurements were free-field.
- Noise monitoring would be cancelled in the presence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration (QA/QC)

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth at quarterly intervals.
- The meters are sent to the HOKLAS accredited laboratory or equivalent to check and calibrated at yearly intervals.

3.6. Actions and Limit Level

The Action and Limit Levels were established in **Table 3.4** for noise monitoring.

Table 3.4 Action and Limit Levels for Noise Monitoring

Time Period	Action	Limit
0700 –1900 hrs normal weekdays	When one documented complaint is received	75 dB(A)*

Remark: (*)70dB(A) for schools and 65dB(A) for schools during school examination period

3.7. Results and Observations

3.7.1. Results

Monitoring data of noise monitoring carried out in this reporting month are summarized in **Appendix E2**. Graphical presentation of noise monitoring results for the reporting month is shown in **Appendix E3**.

No exceedance of Action and Limit Level of noise monitoring results was recorded during the reporting month.

3.7.2. Observation

The noise monitoring data were found to be lower than the limit level. The major noise source during the monitoring event was the vehicles passing through the container yard entrance and the general earth works inside the construction site.

3.8. Event and Action Plan

If the impact monitoring results exceed the Action and Limit Levels, the actions specified in **Table 3.5** shall be carried out.

Table 3.5 Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss with the Contractor and formulate remedial measures ; 5. Increase monitoring frequency to check the effectiveness of mitigation measures.	1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented.	1. Submit noise mitigation proposal to IEC; 2. Implement noise mitigation proposals.

Limit level	1. Notify IEC, ER, EPD & Contractor; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented; 5. If exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Undertake immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by ER, until the exceedance is abated.

4. WATER QUALITY MONITORING

4.1. Monitoring Requirements

4.1.1. Water quality was monitored in the reporting month in accordance with the EM&A Manual at one alternative water quality monitoring station, R1b (at Tin Shui Wai Nullah) which shown in **Figure 2.**

4.2. Monitoring Methodology and Equipment

For In-situ Water Quality Measurement

Dissolved Oxygen (DO) measuring equipment

A portable, weatherproof DO-measuring meter with built-in salinity compensation (e.g. YSI 85, YSI Pro 2030 or equivalent) was used in the baseline monitoring. It can be capable for measuring dissolved oxygen level in the range of 0-20 mg/L and 0-200 % saturation.

For Water Sampling and Sample Analysis

Water Sampler
A water sampler comprising a metal bucket was lowered into the water body.

Water Container
The sample container, made by high-density polythene, was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4^{o}C. The water samples will then be delivered to Environmental Laboratory of ETS-Testconsult Ltd (HOKLAS Registration No. 022) on the same day for analysis according to the Standard Method APHA 19ed.

The summary of testing methods of testing parameters required was shown in **Table 4.1**.

Table 4.1 Summary of Testing Procedures for water samples

Parameters	Testing Procedure	Detection Limit
Turbidity	Dissolved Oxygen Meter Measurement	0.1 NTU
Dissolved Oxygen	In house method refer to APHA 19th ed 2130 B	0.01 mg/L
Total suspended solids	In house method refer to APHA 19th ed 2540D	0.1 mg/L

4.3. Monitoring Frequency

4.3.1. Water samples were collected 3 times per week in 1 monitoring station. Three parameters including turbidity, dissolved oxygen and total suspended solids would be tested.

Table 4.2 Monitoring Frequency of Water Quality Monitoring

Parameters	Frequency	No. of sampling stations
Turbidity	3 times per week	1 station
Dissolved Oxygen		
Total suspended solids		

4.3.2. In this reporting period, a total of 13 occasions of water quality monitoring were undertaken and the schedule was shown in **Table 4.3**

Table 4.3 Time Schedule of Impact Water Quality Monitoring

October 2018						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 ▼	3	4 ▼	5	6 ▼
7	8	9 ▼	10	11 ▼	12	13 ▼
14	15	16 ▼	17	18 ▼	19	20 ▼
21	22	23 ▼	24	25 ▼	26	27 ▼
28	29	30 ▼	31			

Remark: (▼) = Water quality monitoring carried out by ET.

4.4. Quality Assurance (QA) / Quality Control (QC)

For in-situ measurements, at each measurement / sampling, two consecutive measurements of turbidity and dissolved oxygen (DO) were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. If the difference between the first and second measurement is greater than 25% the reading will be discarded and the measurements will be repeated.

For laboratory analysis of water, test method of all test parameters and the QA/QC samples were carried out in accordance with the requirements of HOKLAS.

For our QA/QC procedure, one QC sample, one duplicate sample and one sample spike of every batch of 20 samples were analyzed.

The calibration certifications of water quality monitoring equipments were shown in **Appendix F1**.

4.5. Actions and Limit Levels

The criteria for Action and Limit Levels have been set out as follows:

Table 4.4 The criteria of Action and Limit Levels for Water Quality

Parameters	Unit	Action Level	Limit Level
Turbidity	NTU	95%ile of baseline data	99%ile of baseline data
Dissolved Oxygen	mg/L	5%ile of baseline data	1%ile of baseline data
Suspended solids	mg/L	95%ile of baseline data	99%ile of baseline data

Following the criteria shown in **Table 4.4**, the Action and Limit Levels for monitoring parameters derived as illustrated in **Table 4.5**.

Table 4.5 Action and Limit Levels for Water Quality

Parameters	Unit	Action	Limit
Turbidity	NTU	19.8	20.5
Dissolved Oxygen	mg/L	1.84	1.81
Suspended Solid	mg/L	17.0	17.8

4.6. Result and Observation

4.6.1. Result

Monitoring data of water quality monitoring carried out in this reporting month are summarized in **Appendix F2**. Graphical presentation of the monitoring results for the reporting month is shown in **Appendix F3**.

No exceedance of Action and Limit Level of water quality monitoring results was recorded during the reporting month.

4.6.2. Observation

Generally, the turbidity and suspended solids were found to be lower than the action level. Besides, all results of dissolved oxygen measured in this reporting month were higher than the action level.

4.7. Event and Action Plan

If the impact monitoring results of the individual parameters exceed the Action and Limit Levels, the actions specified in **Table 4.6** shall be carried out.

Table 4.6 Event and Action Plan for Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures.
Action Level being exceeded by more than two consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
	measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance.			working days; 6. Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit Level being exceeded by more than two consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the ER, to slow down or to stop all or part of the marine work or construction activities.

5. ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1. Site Inspection

5.1.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. During the reporting period, site inspections were carried out on 05, 12, 19 & 25 October 2018.

5.1.2. Observations for the site inspections within this reporting period are summarized in **Table 5.1** and inspection checklists are attached in **Appendix H**.

Table 5.1 Summary of observation of site inspections

Date	Observations/ Reminders	Follow-up Action	Closed Date
05 October 2018	1. Stagnant water was observed inside the drip tray of a generator at Portion 1.	1. Stagnant water was cleared inside the drip tray of a generator at Portion 1.	12 October 2018
12 October 2018	1. Stagnant water was found accumulated on the road near SDB.	1. Stagnant water was cleared on the road near SDB.	19 October 2018
19 October 2018	--	--	--
25 October 2018	1. Stagnant water was found accumulated on the road near SDB.	Follow-up actions for outstanding observation will be inspected during the next site inspection.	--

5.2. Landscape and Visual Audit

5.2.1. Landscape and visual audits were undertaken at least once every two weeks throughout the construction period by a competent landscape architect. During the reporting period, audits were carried out on 04 and 19 October 2018.

5.2.2. Observations and reminders were summarized in the landscape and visual impact assessment checklists which are attached in **Appendix I**.

5.3. Advice on the Solid and Liquid Waste Management Status

5.3.1. All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil

5.3.2. The quantities of waste for disposal in this Reporting Period are summarized in **Table 5.2** and **Table 5.3** and the Monthly Summary Waste Flow Table is shown in **Appendix J**. Whenever possible, materials were reused on-site as far as practicable.

Table 5.2 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
Reused in this Contract (Inert) (m^3)	0	--
Reused in other Projects (Inert) (m^3)	0	--
Disposed as Public Fill (Inert) (m^3)	4,600	Tuen Mun 38 Fill Bank

Table 5.3 Summary of Quantities of C&D Materials

Type of Waste	Quantity	Disposal Location
Recycled Metal (kg)	0	--
Recycled Paper / Cardboard Packing (kg)	0	--
Recycled Plastic (kg)	0	--
Chemical Wastes (kg)	0	--
General Refuses (m^3)	56,600	North East New Territories (NENT) Landfill

5.3.3. To control over the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are in full compliance with the relevant license/permit

requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the EM&A Manual based on actual site conditions.

5.4. Discharge License and Results of Effluent Monitoring

5.4.1. Effluent quality was monitored in the reporting month in accordance with the EM&A Manual at the discharge point. A discharge license under Water Pollution Control Ordinance was obtained by the Contractor upon commencement of the Project. Self-monitoring would be performed as per the requirement under the discharge license. According to the EM&A Manual, pH, chemical oxygen demand and total suspended solid are required to be analysed at least once every two week.

5.4.2. Effluent water samples were scheduled to be collected on 02, 16 and 30 October 2018. Since only Wetsep at P1 and P8 were operated on October 2018, the effluent water sample was sampled at P1 and P8 on October 2018. The required testing parameter including pH, chemical oxygen demand and total suspended solid were carried out in a HOKLAS laboratory. The methods of chemical oxygen demand and total suspended solid determination follow APHA 19ed 5220 B and APHA 19ed 2540 D respectively. The laboratory reports for the discharge water are presented in **Appendix N**.

5.4.3. For effluent quality monitoring as per the discharge license requirement, the results complied with the discharge license requirement.

5.5. Environmental Licenses and Permits

5.5.1. The valid environmental licenses and permits during the reporting period are summarized in **Appendix K**.

5.6. Implementation Status of Environmental Mitigation Measures

5.6.1. The environmental mitigation measures that recommended in the Environmental Monitoring and Audit Manual covered the issues of dust, noise, water and waste and they are summarized as following:

Dust Mitigation Measures

a. The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
b. All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition;
c. Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;
d. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
e. Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit;
f. Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet;
g. The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;
h. Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;
i. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;

j. The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
k. Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;
l. Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.

Noise Mitigation Measures

a. Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs.
b. Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers
c. The contractor should site noisy equipment and activities as far from sensitive receivers as practical.
d. Idle equipment should be turned off or throttled down.
e. Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided
f. Construction plant should be properly maintained and operated.

Water Quality Mitigation Measures

a. Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;
b. The exposed soil surfaces should also be properly protected to minimize dust emission;
c. The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;
d. Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;
e. Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;
f. A discharge license needs to be applied from EPD for discharging effluent from the construction site;
g. The treated effluent quality is required to meet the requirements specified in the discharge license;
h. Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;
i. A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;
j. Illegal disposal of chemicals should be strictly prohibited;
k. Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;
l. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handing chemical wastes;
m. The impact from accidental spillage of chemicals can be effectively controlled through good management practices.

Waste Management Mitigation Measures

a. Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
b. To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce;
c. Any unused chemicals or those with remaining functional capacity should be recycled;

d. Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;
e. Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and
f. Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.

5.6.2. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in **Appendix L**. Most of the necessary mitigation measures were implemented properly. Any deficiencies were noted in the remarks of the schedule.

5.7. Summary of Exceedance of the Environmental Quality Performance Limit

5.7.1. Air quality monitoring being carried out at ASR2a under the EM&A programme has been suspended since 06 September 2018, the air quality monitoring was conducted at station ASR1a only during September 2018. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a during this reporting month.

5.7.2. Noise monitoring being carried out at NSR2a under the EM&A programme has been suspended since 06 September 2018, the noise monitoring was conducted at station NSR1a only during September 2018. There was no Action and Limit Level exceedance for noise recorded at station NSR1a during the reporting period.

5.7.3. There was no Action and Limit Level exceedance for water quality monitoring recorded at station R1b during the reporting period.

5.8. Summary of Complaints, Notification of Summons and Successful Prosecution

5.8.1. There were no complaints received during the reporting period.

5.8.2. There were no notifications of summons or prosecutions received during the reporting period.

5.8.3. A summary of environmental complaints, notifications of summons and successful prosecutions was given in **Table 5.4**.

Table 5.4 Summary of Environmental Complaints Notification of Summons and Successful Prosecution

Reporting Period	Cumulative Statistic		
	Complaints	Notifications of summons	Successful prosecutions
The reporting period	0	0	0
From commencement date of construction to end of reporting month	0	0	0

6. FUTURE KEY ISSUES

6.1. Construction Programme for the Coming Months

6.1.1. As informed by the Contractor, the major construction activities for November 2018 are included:

- *Substructure (rc structure);*
- *Substructure (ELS & Bulk excavation);*
- *Backfilling;*
- *Superstructure (rc and metalworks);*
- *Water Tightness Test;*
- *Internal ABWF – CEPT;*

- *Removal of ELS;*
- *ABWF - Sludge Dewatering Building;*
- *ABWF - Administration Building & Maintenance Workshop;*
- *Piling Foundation;*
- *ABWF - Electrical Building No.4;*
- *Bar Screen Installation;*
- *Site Formation along Boundary Wall (Perimeter);*
- *Slope works and Retaining Wall (Eastern Portion);*
- *Slope works and Retaining Wall (Northern Portion);*
- *Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains);*
- *Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road;*
- *CLP Cable Duct and Draw Pits (within the Site);*
- *EVA (Road & Drainage);*
- *RC Trench and Odour Pipe (DO1, DO2);*
- *Process Pipe;*
- *Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope;*
- *Emergency By-Pass Pipe;*
- *Sewage Pipe;*
- *Cable Duct and Draw Pits;*
- *WSD External Watermain Laying Works;*
- *Internal Watermain Laying Works*

6.2. Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- *Chemical and waste management;*
- *Treatment of runoff and wastewater prior to discharge; and*
- *Dust and Noise generated from construction activities;*

Mitigation measures to be required in the coming month:

Air Quality Impact

- To provide adequate water spraying in the worksite;
- To operate and maintain automatic wheel washing facilities properly;
- To provide road sweeping site entrance and public roads outside site entrance;
- To ensure implementation of the dust mitigation measures for the site activities;
- To maintain proper operation of the mist spraying system;
- To provide proper maintenance for vehicles and machines on site; and
- To investigate any other dust sources around the air sensitive receivers

Noise

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site; and
- To follow up any exceedance caused by the construction work inside the worksite

Water Quality Impact

- To ensure the drainage system was maintained properly;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To avoid stagnant water in the drip trays due to rainfall;
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding

Chemical and Waste Management

- To remove waste from the site regularly;
- To properly store and handle chemical wastes on site;
- To implement trip ticket system for all the imported public fill and general refuse disposal;
- To maintain proper housekeeping;
- To identify C&D material by packaging, labelling, storage, transportation and disposal in accordance with statutory regulations.

6.3. Environmental Monitoring and Site Inspection Schedule for the Coming Month

6.3.1. The tentative schedule for environmental monitoring and site inspection schedule for November 2018 is provided in **Appendix M**.

7. CONCLUSION

7.1. Conclusions

7.1.1. Air quality monitoring being carried out at ASR2a under the EM&A programme has been suspended since 06 September 2018, the air quality monitoring was conducted at station ASR1a during October 2018 and ASR2b since 27 October 2018. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2b during this reporting month.

7.1.2. Noise monitoring being carried out at NSR2a under the EM&A programme has been suspended since 06 September 2018, the noise monitoring was conducted at station NSR1a during October 2018 and NSR2b since 27 October 2018. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2b during the reporting period.

7.1.3. There was no Action and Limit Level exceedance for water quality monitoring recorded at station R1b during the reporting period.

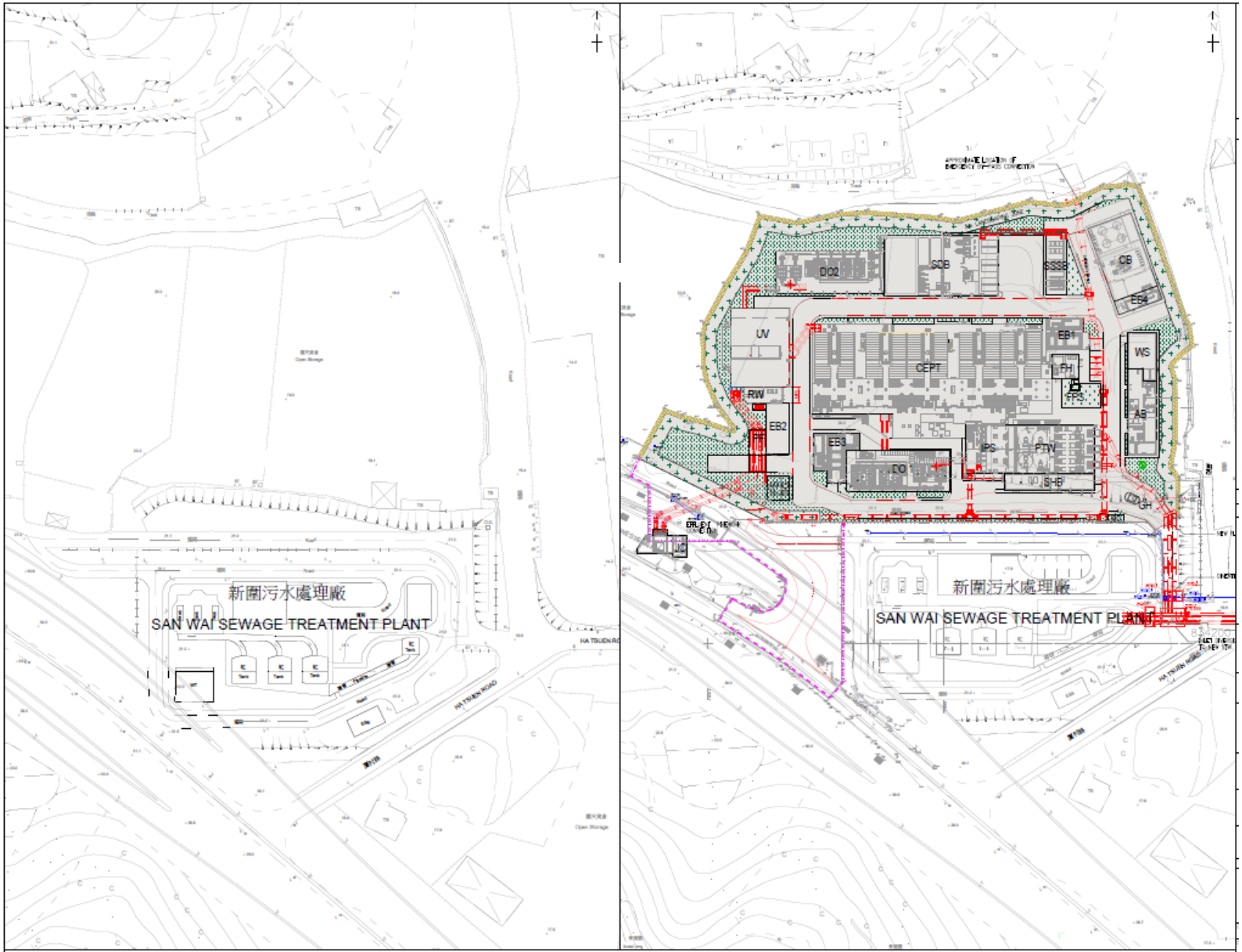
7.1.4. There were no complaints received during the reporting period.

7.1.5. There were no notifications of summons or prosecutions received during the reporting period.

- END OF REPORT -

Appendix A

Location of Works Areas

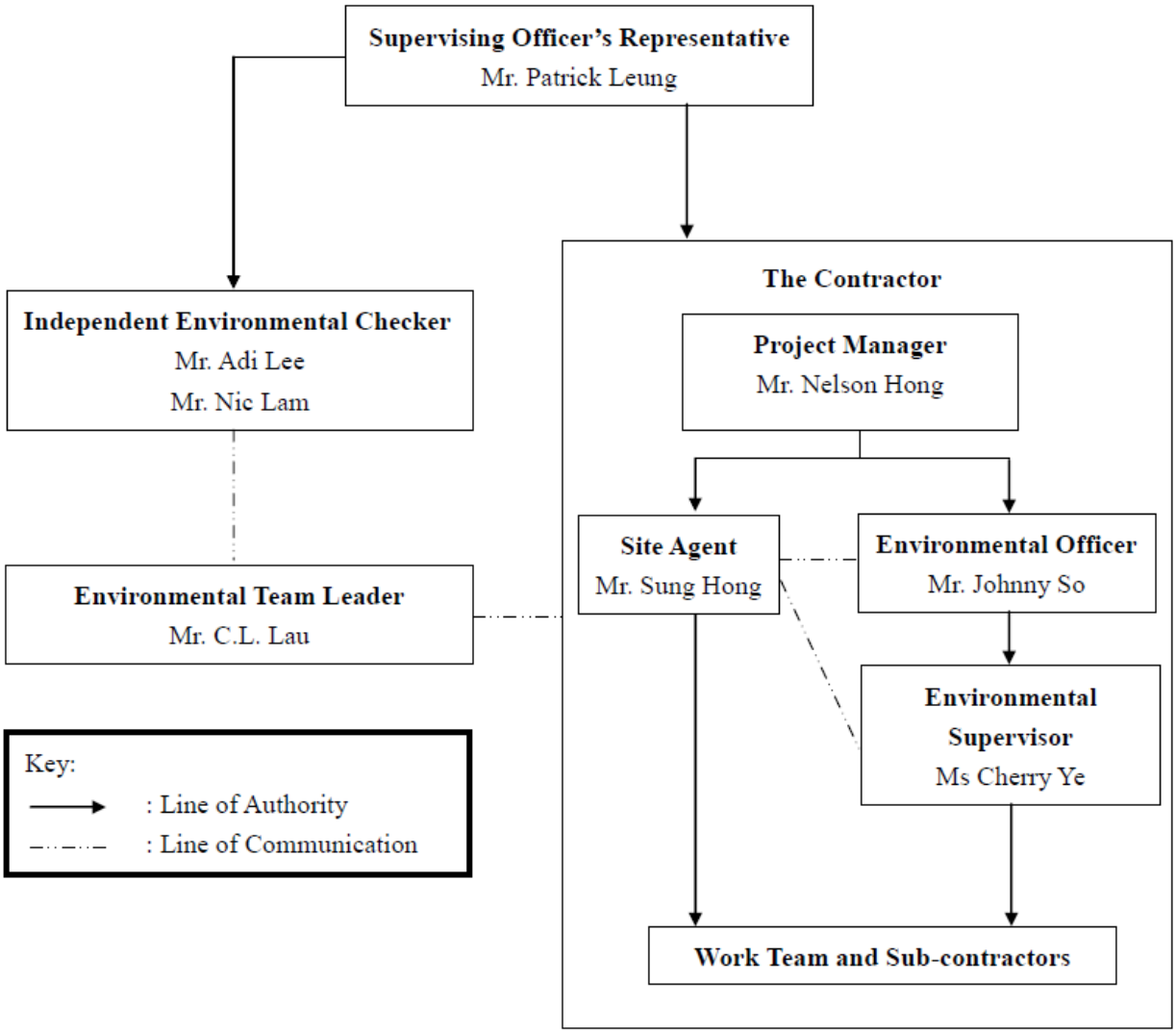


EXISTING SAN WAI SEWAGE TREATMENT WORKS

EXPANDED AND UPGRADED SAN WAI SEWAGE TREATMENT WORKS

Appendix B

Project Organization Chart

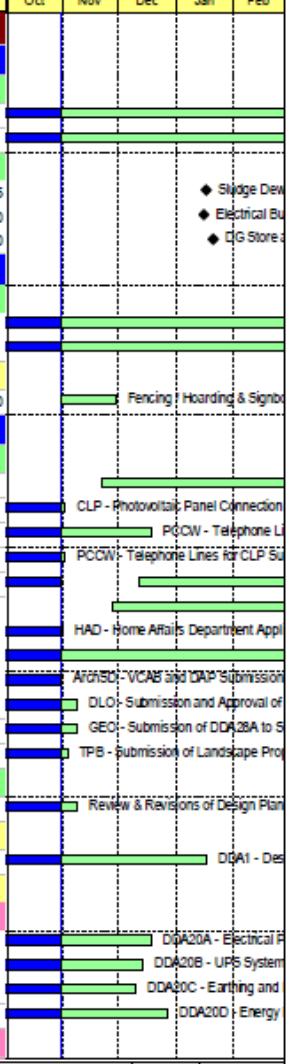

Supervising Officer's Representative
Mr. Patrick Leung
Independent Environmental Checker
Mr. Adi Lee
Mr. Nic Lam
Environmental Team Leader
Mr. C.L. Lau
The Contractor
Project Manager
Mr. Nelson Hong
Site Agent
Mr. Sung Hong
Environmental Officer
Mr. Johnny So
Environmental Supervisor
Ms Cherry Ye
Work Team and Sub-contractors
Key:
: Line of Authority
: Line of Communication

Appendix C

Construction Programme

DATA DATE: 31-Oct-18 | LAYOUT: SW Project Phase 1 Rev 9 (3M 30Oct18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
San Wai Sewage Treatment Works Phase 1 - Rev 9 MP (Update as of 31Oct 2018)		**1593**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**	
Key Date		**1593**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**	
Commencement & Completion of Works		1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0	
KD150	Section 1 - Handover to Home Affairs Department for Maintenance	1041	30-Nov-17 A	06-Oct-20	30-Nov-17	06-Oct-20	0	0	
KD160	Section 2 - Period of Works (FOT P.3 cl 67, 71) - Including 10.5 Days Granted EOT	1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0	
Plant Room Handover Dates To E&M Installation		4	16-Jan-19	21-Jan-19	20-Sep-18	08-Jan-19	-118	-12	
KD314	Sludge Dewatering Building (SDB)	0		17-Jan-19		20-Sep-18	-118	-118	-17.5
KD331	Electrical Building No.4 (EB4)	0		16-Jan-19		17-Nov-18	-60	-60	0
KD332	DG Store and Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)	0		21-Jan-19		08-Jan-19	-12	-12	0
Preliminaries & General Requirement		**1278**	**01-Apr-17 A**	**30-Sep-20**	**01-Apr-17**	**05-Oct-20**	**0**	**6**	
Contractor Requirement		1278	01-Apr-17 A	30-Sep-20	01-Apr-17	05-Oct-20	0	6	
PS455	Impact Monitoring	1191	27-Jun-17 A	29-Sep-20	27-Jun-17	05-Oct-20	0	6	
PS485	Site Drainage Plan Implementation	1278	01-Apr-17 A	30-Sep-20	01-Apr-17	05-Oct-20	0	6	
Contractor Requirement for Working Area Portion (P8)		30	31-Oct-18	29-Nov-18	15-Jul-18	13-Aug-18	-108	-108	
PS160	Fencing / Hoarding & Signboard Erection (P8)	30	31-Oct-18	29-Nov-18	15-Jul-18	13-Aug-18	-108	-108	0
Design & Design Checking of Permanent Works		**1561**	**26-Jun-16 A**	**03-Oct-20**	**26-Jun-16**	**03-Oct-20**	**0**	**0**	
Statutory Submission		1342	31-Jan-17 A	03-Oct-20	31-Jan-17	03-Oct-20	0	0	
DS150	Application of Discharge License for Operation	180	22-Nov-18	20-May-19	22-Nov-18	20-May-19	0	0	
DS166	CLP - Photovoltaic Panel Connection	313	24-Dec-17 A	02-Nov-18	24-Dec-17	25-Jun-18	0	-129	
DS173	PCCW - Telephone Lines and Megalink	540	27-Jun-17 A	18-Dec-18	27-Jun-17	18-Dec-18	0	0	
DS174	PCCW - Telephone Lines for CLP Summation Metering	462	28-Jul-17 A	02-Nov-18	28-Jul-17	29-May-18	0	-157	
DS177	EMSD - Passenger Lift	368	29-May-18 A	01-Jun-19	29-May-18	20-Apr-19	0	-42	
DS180	EPD - Application for Emergency Generator Flue Gas Discharge License	180	28-Nov-18	26-May-19	28-Nov-18	26-May-19	0	0	
DS185	HAD - Home Affairs Department Application for Section 1 (ID KD150)	458	31-Jul-17 A	01-Nov-18	31-Jul-17	30-Jun-18	0	-123	
DS195	BEAM Plus - Final Assessment (FA)	948	01-Mar-18 A	03-Oct-20	01-Mar-18	03-Oct-20	0	0	
DS200	ArchSD - VCAB and DAP Submission and Approval	596	15-Mar-17 A	31-Oct-18	15-Mar-17	30-Jun-18	0	-123	
DS210	DLO - Submission and Approval of Tree Removal and Transplant Proposals	647	31-Jan-17 A	08-Nov-18	31-Jan-17	25-Jun-18	0	-136	
DS230	GEO - Submission of DDA28A to SO for onward submission to GEO for Checking Certificate	463	03-Aug-17 A	08-Nov-18	03-Aug-17	10-Jul-18	0	-122	
DS280	TPB - Submission of Landscape Proposal to TPB for Approval	267	10-Feb-18 A	03-Nov-18	10-Feb-18	07-Aug-18	0	-88	
AIP / DDA Submission & Approval		935	26-Jun-16 A	17-Jan-19	26-Jun-16	18-Dec-18	0	-29	
DS410	Review & Revisions of Design Plan	865	26-Jun-16 A	08-Nov-18	26-Jun-16	25-Jul-18	0	-106	
Design Memorandum (AIP1 / DDA1)		249	13-May-18 A	17-Jan-19	13-May-18	18-Dec-18	0	-29	
DS505	DDA1 - Design Memorandum - Design Preparation to SO Approval	249	13-May-18 A	17-Jan-19	13-May-18	18-Dec-18	0	-29	
Global Design		774	01-Dec-16 A	14-Jan-19	01-Dec-16	08-Oct-18	0	-97	
Electrical Power Supply System (AIP20 / DDA20ABCDE)		612	24-Apr-17 A	27-Dec-18	24-Apr-17	06-Aug-18	0	-143	
DG1891	DDA20A - Electrical Power Supply System - Design Preparation to SO Approval	604	24-Apr-17 A	18-Dec-18	24-Apr-17	22-Jun-18	0	-160	
DG3880	DDA20B - UPS System - Design Preparation to SO Approval	600	24-Apr-17 A	14-Dec-18	24-Apr-17	22-Jun-18	0	-176	
DG3896	DDA20C - Earthing and Lightning System - Design Preparation to SO Approval	596	24-Apr-17 A	10-Dec-18	24-Apr-17	22-Jun-18	0	-171	
DG3912	DDA20D - Energy Efficiency - Design Preparation to SO Approval	612	24-Apr-17 A	27-Dec-18	24-Apr-17	06-Aug-18	0	-143	
Control and Monitoring System (AIP21 / DDA21ABCDE)		732	12-Jan-17 A	14-Jan-19	12-Jan-17	27-Aug-18	0	-140	



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

ATAL-Degremont-China Harbour Joint Venture

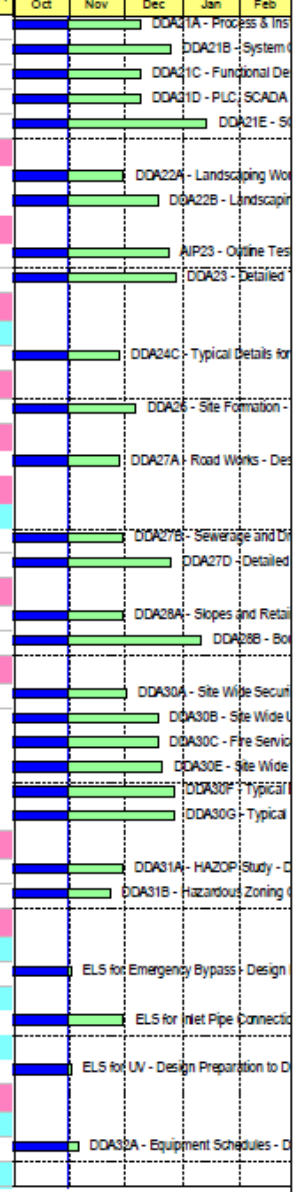
TASK filter: 3 Months Rolling Programme.

CONTRACT NO. DC/2013/10 DESIGN, BUILD & OPERATE
SAN WAI SEWAGE TREATMENT WORKS - PHASE 1
MASTER PROGRAMME Rev 9 (31 October 2018)
THREE (3) MONTHS ROLLING PROGRAMME

Date	Revision	Checked	Approved
31-Oct-18	Three (3) Months Rolling Programme...		

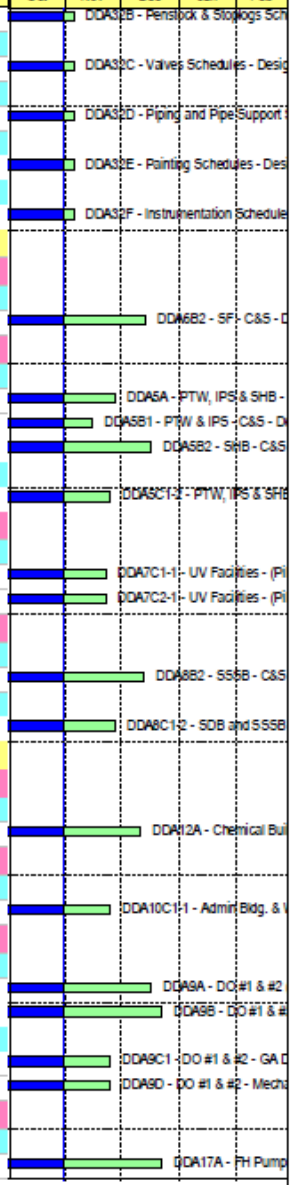
DATA DATE: 31-Oct-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 30Oct18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
DG1924	DDA21A - Process & Instrumentation Diagram (P&ID) - Design Preparation to SO Approval	696	12-Jan-17 A	09-Dec-18	12-Jan-17	18-Jun-18	0	-173	
DG1940	DDA21B - System Control Philosophy - Design Preparation to SO Approval	646	20-Mar-17 A	25-Dec-18	20-Mar-17	02-Jul-18	0	-177	
DG1956	DDA21C - Functional Design Specification - Design Preparation to SO Approval	615	03-Apr-17 A	09-Dec-18	03-Apr-17	20-Jun-18	0	-171	
DG1972	DDA21D - PLC, SCADA & I/O Allocation Schedules - Design Preparation to SO Approval	595	23-Apr-17 A	09-Dec-18	23-Apr-17	22-Jun-18	0	-170	
DG1988	DDA21E - SCADA Graphic Interface - Design Preparation to SO Approval	562	01-Jul-17 A	14-Jan-19	01-Jul-17	27-Aug-18	0	-140	
Landscaping Works (AIP22 / DDA22AB)		712	06-Jan-17 A	18-Dec-18	06-Jan-17	15-Jul-18	0	-156	
DG1260	DDA22A - Landscaping Works (Green Roof) - Design Preparation to SO Approval	693	06-Jan-17 A	30-Nov-18	06-Jan-17	02-Jul-18	0	-150	
DG1274	DDA22B - Landscaping Works (Site Wide) - Design Preparation to SO Approval	534	03-Jul-17 A	18-Dec-18	03-Jul-17	15-Jul-18	0	-156	
Testing and Commissioning Plan (AIP23 / DDA23)		396	28-Nov-17 A	28-Dec-18	28-Nov-17	08-Oct-18	0	-81	
DG3270	AIP23 - Outline Testing & Commissioning Plan - Design Preparation to SO Approval	392	28-Nov-17 A	24-Dec-18	28-Nov-17	04-Jul-18	0	-173	
DG3305	DDA23 - Detailed Testing & Commissioning Plan - Design Preparation to SO Approval	251	22-Apr-18 A	28-Dec-18	22-Apr-18	08-Oct-18	0	-81	
General Notes Drawings for Foundation and Civil & Structural (AIP24AB / DDA24AB)		644	22-Feb-17 A	27-Nov-18	22-Feb-17	29-Jun-18	0	-152	
General Notes Drawings for Civil & Structural (AIP24B / DDA24BC)		644	22-Feb-17 A	27-Nov-18	22-Feb-17	29-Jun-18	0	-152	
DG3706	DDA24C - Typical Details for Architecture - Design Preparation to SO Approval	644	22-Feb-17 A	27-Nov-18	22-Feb-17	29-Jun-18	0	-152	
Site Formation (AIP26 / DDA26)		691	14-Jan-17 A	06-Dec-18	14-Jan-17	24-Jun-18	0	-164	
DG660	DDA26 - Site Formation - Design Preparation to SO Approval	691	14-Jan-17 A	06-Dec-18	14-Jan-17	24-Jun-18	0	-164	
Road Works (AIP27A / DDA27A)		615	23-Mar-17 A	27-Nov-18	23-Mar-17	28-Jun-18	0	-152	
DG1060	DDA27A - Road Works - Design Preparation to SO Approval	615	23-Mar-17 A	27-Nov-18	23-Mar-17	28-Jun-18	0	-152	
Sewerage and Drainage Works (AIP27B / DDA27BC1C2DEF)		673	21-Feb-17 A	25-Dec-18	21-Feb-17	29-Jul-18	0	-149	
Civil and Structural Design (AIP27B / DDA27BD)		673	21-Feb-17 A	25-Dec-18	21-Feb-17	29-Jul-18	0	-149	
DG960	DDA27B - Sewerage and Drainage Works - Design Preparation to SO Approval	647	21-Feb-17 A	29-Nov-18	21-Feb-17	01-Jul-18	0	-151	
DG988	DDA27D - Detailed Design Report for Pipe Trenches - C&S - Design Preparation to SO Approval	597	08-May-17 A	25-Dec-18	08-May-17	29-Jul-18	0	-149	
Boundary Wall & Entrance (AIP28 / DDA28AB)		707	03-Feb-17 A	11-Jan-19	03-Feb-17	11-Aug-18	0	-152	
DG1160	DDA28A - Slopes and Retaining Wall - Design Preparation to SO Approval	665	03-Feb-17 A	29-Nov-18	03-Feb-17	03-Jul-18	0	-149	
DG1195	DDA28B - Boundary Wall & Entrance - Design Preparation to SO Approval	573	17-Jun-17 A	11-Jan-19	17-Jun-17	11-Aug-18	0	-152	
Site Wide Utility (AIP30 / DDA30ABCEFGI)		696	30-Jan-17 A	27-Dec-18	30-Jan-17	19-Jul-18	0	-161	
DG3515	DDA30A - Site Wide Security Access Control & Communication System - Design Preparation to SO Approval	670	30-Jan-17 A	01-Dec-18	30-Jan-17	02-Jul-18	0	-152	
DG3774	DDA30B - Site Wide Utility (U/G Pipework, Ductwork, Cable Route, Cable Draw Pit) - Design Preparation to SO Approval	559	08-Jun-17 A	18-Dec-18	08-Jun-17	06-Jul-18	0	-163	
DG3788	DDA30C - Fire Services System and Street Fire Hydrant System - Design Preparation to SO Approval	559	08-Jun-17 A	18-Dec-18	08-Jun-17	22-Jun-18	0	-180	
DG3816	DDA30E - Site Wide Utility (Road Lighting) - Design Preparation to SO Approval	547	23-Jun-17 A	21-Dec-18	23-Jun-17	22-Jun-18	0	-183	
DG3830	DDA30F - Typical Electrical Installation Drawings - Design Preparation to SO Approval	567	08-Jun-17 A	27-Dec-18	08-Jun-17	19-Jul-18	0	-161	
DG3844	DDA30G - Typical Building Services Installation Drawings - Design Preparation to SO Approval	552	23-Jun-17 A	27-Dec-18	23-Jun-17	11-Jul-18	0	-169	
HAZOP Report (DDA31AB)		728	01-Dec-16 A	29-Nov-18	01-Dec-16	03-Jun-18	0	-179	
DG3530	DDA31A - HAZOP Study - Design Preparation to SO Approval	728	01-Dec-16 A	29-Nov-18	01-Dec-16	29-May-18	0	-184	
DG3545	DDA31B - Hazardous Zoning Classification Report - Design Preparation to SO Approval	447	01-Sep-17 A	22-Nov-18	01-Sep-17	03-Jun-18	0	-172	
ELS / Bulk Excavation (Temporary Works)		536	12-Jun-17 A	30-Nov-18	12-Jun-17	16-Jul-18	0	-136	
ELS for Emergency Bypass		508	12-Jun-17 A	01-Nov-18	12-Jun-17	12-Jul-18	0	-112	
DG3740	ELS for Emergency Bypass - Design Preparation to DC and SO Approval	508	12-Jun-17 A	01-Nov-18	12-Jun-17	12-Jul-18	0	-112	
ELS for Inlet Pipe Connection		452	04-Sep-17 A	30-Nov-18	04-Sep-17	16-Jul-18	0	-136	
DG3755	ELS for Inlet Pipe Connection - Design Preparation to DC and SO Approval	452	04-Sep-17 A	30-Nov-18	04-Sep-17	16-Jul-18	0	-136	
ELS for UV		424	04-Sep-17 A	01-Nov-18	04-Sep-17	11-Jul-18	0	-113	
DG3769	ELS for UV - Design Preparation to DC and SO Approval	424	04-Sep-17 A	01-Nov-18	04-Sep-17	11-Jul-18	0	-113	
Miscellaneous Design		491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
Equipment Schedules (DDA32A)		491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
DG2012	DDA32A - Equipment Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
Penstock & Stoplogs Schedules (DDA32B)		491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	



DATA DATE: 31-Oct-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 30Oct18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
DG3216	DDA32B - Penstock & Stoplogs Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
	Valves Schedules (DDA32C)	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
DG3222	DDA32C - Valves Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
	Piping and Pipe Support Schedules (DDA32D)	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
DG3864	DDA32D - Piping and Pipe Support Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
	Painting Schedules (DDA32E)	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
DG3228	DDA32E - Painting Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
	Instrumentation Schedules (DDA32F)	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
DG3234	DDA32F - Instrumentation Schedules - Design Preparation to SO Approval	491	03-Jul-17 A	05-Nov-18	03-Jul-17	09-Jun-18	0	-149	
	LOT #1 - Building / Facilities Design : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB	752	26-Nov-16 A	17-Dec-18	26-Nov-16	24-Jun-18	0	-176	
	CEPT and System Control Flowmeter Chamber	629	26-Mar-17 A	14-Dec-18	26-Mar-17	24-Jun-18	0	-173	
	Civil and Structural Design (AIP6A / DDA6AB1B2)	629	26-Mar-17 A	14-Dec-18	26-Mar-17	24-Jun-18	0	-173	
DB4930	DDA6B2 - SF - C&S - Design Preparation to SO Approval	629	26-Mar-17 A	14-Dec-18	26-Mar-17	24-Jun-18	0	-173	
	Inlet Work, Preliminary Treatment Works, IPS and SHB	752	26-Nov-16 A	17-Dec-18	26-Nov-16	24-Jun-18	0	-176	
	Civil and Structural Design (AIP5A / DDA5AB1B2)	752	26-Nov-16 A	17-Dec-18	26-Nov-16	24-Jun-18	0	-176	
DB1223	DDA5A - PTW, IPS & SHB - C&S - Design Preparation to SO Approval	732	26-Nov-16 A	27-Nov-18	26-Nov-16	15-Jun-18	0	-165	
DB4814	DDA5B1 - PTW & IPS - C&S - Design Preparation to SO Approval	699	17-Dec-16 A	15-Nov-18	17-Dec-16	15-Jun-18	0	-153	
DB4830	DDA5B2 - SHB - C&S - Design Preparation to SO Approval	680	06-Feb-17 A	17-Dec-18	06-Feb-17	24-Jun-18	0	-176	
	Electrical and Mechanical Design (AIP5B / DDA5C1C2DEF)	603	01-Apr-17 A	25-Nov-18	01-Apr-17	25-May-18	0	-184	
DB1264	DDA5C1-2 - PTW, IPS & SHB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	603	01-Apr-17 A	25-Nov-18	01-Apr-17	25-May-18	0	-184	
	UV Disinfection Facilities	700	22-Dec-16 A	22-Nov-18	22-Dec-16	18-Jun-18	0	-156	
	Electrical and Mechanical Design (AIP7B / DDA7C1C2DEF)	700	22-Dec-16 A	22-Nov-18	22-Dec-16	18-Jun-18	0	-156	
DB1352	DDA7C1-1 - UV Facilities - (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	700	22-Dec-16 A	22-Nov-18	22-Dec-16	18-Jun-18	0	-156	
DB1384	DDA7C2-1 - UV Facilities - (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	700	22-Dec-16 A	22-Nov-18	22-Dec-16	18-Jun-18	0	-156	
	Sludge Dewatering Building and Sludge Skip Storage Building	677	04-Feb-17 A	13-Dec-18	04-Feb-17	24-Jun-18	0	-171	
	Civil and Structural Design (AIP8A / DDA8AB1B2)	677	04-Feb-17 A	13-Dec-18	04-Feb-17	24-Jun-18	0	-171	
DB4856	DDA8B2 - SSSB - C&S - Design Preparation to SO Approval	677	04-Feb-17 A	13-Dec-18	04-Feb-17	24-Jun-18	0	-171	
	Electrical and Mechanical Design (AIP8B / DDA8C1C2DEF)	578	29-Apr-17 A	27-Nov-18	29-Apr-17	27-May-18	0	-184	
DB1476	DDA8C1-2 - SDB and SSSB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	578	29-Apr-17 A	27-Nov-18	29-Apr-17	27-May-18	0	-184	
	LOT #2 - Building / Facilities Design : AB+WS, DO, CB+EB4, FH	815	03-Oct-16 A	27-Dec-18	03-Oct-16	12-Jul-18	0	-168	
	Chemical Building and EB 4	680	31-Jan-17 A	11-Dec-18	31-Jan-17	04-Jul-18	0	-161	
	Civil and Structural Design for CB & EB4 (AIP12A / DDA12AB)	680	31-Jan-17 A	11-Dec-18	31-Jan-17	04-Jul-18	0	-161	
DB2123	DDA12A - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	680	31-Jan-17 A	11-Dec-18	31-Jan-17	04-Jul-18	0	-161	
	Administration Building & Maintenance Workshop	783	03-Oct-16 A	25-Nov-18	03-Oct-16	25-May-18	0	-184	
	Electrical and Mechanical Design (AIP10B / DDA10C1C2DEF)	783	03-Oct-16 A	25-Nov-18	03-Oct-16	25-May-18	0	-184	
DB2286	DDA10C1-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	783	03-Oct-16 A	25-Nov-18	03-Oct-16	25-May-18	0	-184	
	Deodorization Facilities No.1 and No.2	738	15-Dec-16 A	23-Dec-18	15-Dec-16	24-Jun-18	0	-181	
	Civil and Structural Design (AIP9A / DDA9AB)	696	26-Jan-17 A	23-Dec-18	26-Jan-17	24-Jun-18	0	-181	
DB2323	DDA9A - DO #1 & #2 (Architectural) - C&S - Design Preparation to SO Approval	691	26-Jan-17 A	17-Dec-18	26-Jan-17	24-Jun-18	0	-176	
DB5150	DDA9B - DO #1 & #2 (Structural) - C&S - Design Preparation to SO Approval	566	05-Jun-17 A	23-Dec-18	05-Jun-17	24-Jun-18	0	-181	
	Electrical and Mechanical Design (AIP9B / DDA9C1C2DEF)	710	15-Dec-16 A	25-Nov-18	15-Dec-16	21-Jun-18	0	-156	
DB2348	DDA9C1 - DO #1 & #2 - GA Drawing - Design Preparation to SO Approval	710	15-Dec-16 A	25-Nov-18	15-Dec-16	25-May-18	0	-184	
DB4634	DDA9D - DO #1 & #2 - Mechanical - Design Preparation to SO Approval	668	26-Jan-17 A	25-Nov-18	26-Jan-17	21-Jun-18	0	-156	
	Street Fire Hydrant Pump Room & GENSET Room	750	07-Dec-16 A	27-Dec-18	07-Dec-16	12-Jul-18	0	-168	
	Civil and Structural Design (AIP17A / DDA17AB)	640	23-Mar-17 A	23-Dec-18	23-Mar-17	11-Jul-18	0	-164	
DB2423	DDA17A - FH Pump Room & GENSET Room (Architectural) - C&S - Design Preparation to SO Approval	640	23-Mar-17 A	23-Dec-18	23-Mar-17	24-Jun-18	0	-181	



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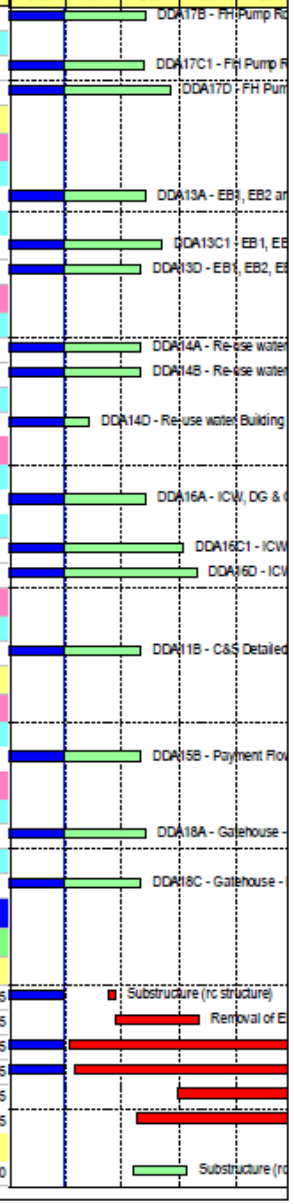
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
DB5220	DDA17B - FH Pump Room & GENSET Room (Structural) - C&S - Design Preparation to SO Approval	501	01-Aug-17 A	14-Dec-18	01-Aug-17	11-Jul-18	0	-156	
Electrical and Mechanical Design (AIP17B / DDA17C1C2DE)		750	07-Dec-16 A	27-Dec-18	07-Dec-16	12-Jul-18	0	-168	
DB2448	DDA17C1 - FH Pump Room & GENSET Room - GA Drawing - Design Preparation to SO Approval	736	07-Dec-16 A	13-Dec-18	07-Dec-16	12-Jun-18	0	-184	
DB4648	DDA17D - FH Pump Room & GENSET Room - Electrical - Design Preparation to SO Approval	644	23-Mar-17 A	27-Dec-18	23-Mar-17	12-Jul-18	0	-168	
LOT #3 - Building / Facilities Design : EB1, EB2, EB3, EB4, RW, DG+ICW, Inlet/Outlet Connection		846	16-Sep-16 A	10-Jan-19	16-Sep-16	28-Sep-18	0	-104	
Electrical Building No.1, No.2, No.3, No.4		828	16-Sep-16 A	23-Dec-18	16-Sep-16	12-Jul-18	0	-163	
Civil and Structural Design for EB123 (AIP13A / DDA13AB)		616	08-Apr-17 A	14-Dec-18	08-Apr-17	12-Jul-18	0	-155	
DB3123	DDA13A - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	616	08-Apr-17 A	14-Dec-18	08-Apr-17	12-Jul-18	0	-155	
Electrical and Mechanical Design for EB1234 (AIP13B / DDA13C1C2DE)		828	16-Sep-16 A	23-Dec-18	16-Sep-16	10-Jul-18	0	-166	
DB3148	DDA13C1 - EB1, EB2, EB3 & EB4 - GA Drawing - Design Preparation to SO Approval	828	16-Sep-16 A	23-Dec-18	16-Sep-16	22-Jun-18	0	-184	
DB4664	DDA13D - EB1, EB2, EB3 & EB4 - Electrical - Design Preparation to SO Approval	657	23-Feb-17 A	11-Dec-18	23-Feb-17	10-Jul-18	0	-155	
Re-use Water Building		608	13-Apr-17 A	11-Dec-18	13-Apr-17	24-Jul-18	0	-140	
Civil and Structural Design (AIP14A / DDA14AB)		608	13-Apr-17 A	11-Dec-18	13-Apr-17	29-Jun-18	0	-165	
DB3223	DDA14A - Re-use water Building (Architectural) - C&S - Design Preparation to SO Approval	608	13-Apr-17 A	11-Dec-18	13-Apr-17	29-Jun-18	0	-165	
DB5080	DDA14B - Re-use water Building (Structural) - C&S - Design Preparation to SO Approval	481	18-Aug-17 A	11-Dec-18	18-Aug-17	28-Jun-18	0	-166	
Electrical and Mechanical Design (AIP14B / DDA14C1C2DEF)		580	13-Apr-17 A	13-Nov-18	13-Apr-17	24-Jul-18	0	-112	
DB4680	DDA14D - Re-use water Building - Mechanical - Design Preparation to SO Approval	580	13-Apr-17 A	13-Nov-18	13-Apr-17	24-Jul-18	0	-112	
ICW and DG Store & Chemical Waste Storage Building		771	30-Nov-16 A	10-Jan-19	30-Nov-16	28-Sep-18	0	-104	
Civil and Structural Design (AIP16A / DDA16AB)		425	16-Oct-17 A	14-Dec-18	16-Oct-17	25-Jun-18	0	-172	
DB3323	DDA16A - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	425	16-Oct-17 A	14-Dec-18	16-Oct-17	25-Jun-18	0	-172	
Electrical and Mechanical Design (AIP16B / DDA16C1C2D)		771	30-Nov-16 A	10-Jan-19	30-Nov-16	28-Sep-18	0	-104	
DB3348	DDA16C1 - ICW, DG & Chemical Stores - GA Drawing - Design Preparation to SO Approval	764	30-Nov-16 A	03-Jan-19	30-Nov-16	03-Jul-18	0	-184	
DB4694	DDA16D - ICW, DG & Chemical Stores - Building Services - Design Preparation to SO Approval	596	24-May-17 A	10-Jan-19	24-May-17	28-Sep-18	0	-104	
Inlet & Outlet Pipe Connections and Diversion Pipeworks		613	08-Apr-17 A	11-Dec-18	08-Apr-17	10-Aug-18	0	-123	
Civil and Structural Design (AIP11 / DDA11ABC)		613	08-Apr-17 A	11-Dec-18	08-Apr-17	10-Aug-18	0	-123	
DB3438	DDA11B - C&S Detailed Design Report for Inlet Connections Pipework - Design Preparation to SO Approval	613	08-Apr-17 A	11-Dec-18	08-Apr-17	10-Aug-18	0	-123	
LOT #4 - Building / Facilities Design : GH, PF		611	13-Apr-17 A	14-Dec-18	13-Apr-17	20-Jul-18	0	-147	
Payment Flowmeter Chamber		608	13-Apr-17 A	11-Dec-18	13-Apr-17	20-Jul-18	0	-144	
Civil and Structural Design (AIP15A / DDA15B)		608	13-Apr-17 A	11-Dec-18	13-Apr-17	20-Jul-18	0	-144	
DB4323	DDA15B - Payment Flowmeter - C&S - Design Preparation to SO Approval	608	13-Apr-17 A	11-Dec-18	13-Apr-17	20-Jul-18	0	-144	
Gatehouse		600	24-Apr-17 A	14-Dec-18	24-Apr-17	24-Jun-18	0	-173	
Civil and Structural Design (AIP18A / DDA18AB)		515	18-Jul-17 A	14-Dec-18	18-Jul-17	24-Jun-18	0	-173	
DB4424	DDA18A - Gatehouse - C&S - Design Preparation to SO Approval	515	18-Jul-17 A	14-Dec-18	18-Jul-17	24-Jun-18	0	-173	
Electrical and Mechanical Design (AIP18B / DDA18C)		597	24-Apr-17 A	11-Dec-18	24-Apr-17	10-Jun-18	0	-184	
DB4754	DDA18C - Gatehouse - Building Services - Design Preparation to SO Approval	597	24-Apr-17 A	11-Dec-18	24-Apr-17	10-Jun-18	0	-184	
Civil & Structural Works		832	04-Oct-17 A	14-Jan-20	04-Oct-17	13-Nov-19	0	-61	
LOT #1 - Bldg / Facilities Const. (Arch'l & Struct'l) : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB		564	07-Oct-17 A	23-Apr-19	07-Oct-17	27-Feb-19	0	-55	
Chemically Enhanced Primary Treatment (CEPT)		453	26-Jan-18 A	23-Apr-19	26-Jan-18	25-Dec-18	0	-119	
CS1520	Substructure (rc structure)	306	26-Jan-18 A	27-Nov-18	26-Jan-18	31-Jul-18	0	-119	-18.5
CS1525	Removal of ELS	45	28-Nov-18	11-Jan-19	01-Aug-18	14-Sep-18	-119	-119	-18.5
CS1526	Backfilling (except in Water Tightness Test area)	319	28-Apr-18 A	12-Mar-19	28-Apr-18	13-Nov-18	0	-119	-18.5
CS1530	Superstructure (rc and metalworks)	426	22-Feb-18 A	23-Apr-19	22-Feb-18	25-Dec-18	0	-119	-18.5
CS1534	Water Tightness Test + Backfilling	60	31-Dec-18	01-Mar-19	03-Sep-18	01-Nov-18	-119	-119	-18.5
CS1540	Internal ABWF - CEPT	90	09-Dec-18	09-Mar-19	12-Aug-18	09-Nov-18	-119	-119	-18.5
System Control Flowmeter Chamber (SF)		82	07-Dec-18	26-Feb-19	01-Oct-18	21-Dec-18	-57	-57	
CS1400	Substructure (rc structure)	30	07-Dec-18	05-Jan-19	01-Oct-18	30-Oct-18	-57	-57	0



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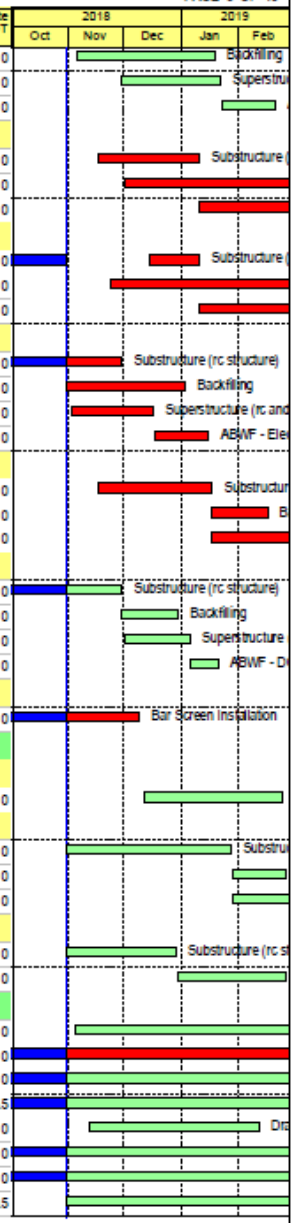
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
CS2415	Backfilling	76	05-Nov-18	19-Jan-19	06-Oct-18	20-Dec-18	-30	-30	0
CS2420	Superstructure (rc and metalworks)	54	30-Nov-18	22-Jan-19	31-Oct-18	23-Dec-18	-30	-30	0
CS2430	ABWF - Electrical Building No.1	30	23-Jan-19	21-Feb-19	24-Dec-18	22-Jan-19	-30	-30	0
Electrical Building No.2 (EB2)		115	17-Nov-18	12-Mar-19	26-Aug-18	18-Dec-18	-84	-84	
CS2510	Substructure (rc structure)	55	17-Nov-18	11-Jan-19	26-Aug-18	19-Oct-18	-84	-84	0
CS2515	Backfilling	90	01-Dec-18	01-Mar-19	09-Sep-18	07-Dec-18	-84	-84	0
CS2520	Superstructure (rc and metalworks)	60	11-Jan-19	12-Mar-19	20-Oct-18	18-Dec-18	-84	-84	0
Electrical Building No.3 (EB3)		525	04-Oct-17 A	12-Mar-19	04-Oct-17	18-Dec-18	0	-84	
CS2610	Substructure (rc structure)	465	04-Oct-17 A	11-Jan-19	04-Oct-17	19-Oct-18	0	-84	0
CS2615	Backfilling	101	24-Nov-18	05-Mar-19	02-Sep-18	11-Dec-18	-84	-84	0
CS2620	Superstructure (rc and metalworks)	60	11-Jan-19	12-Mar-19	20-Oct-18	18-Dec-18	-84	-84	0
Electrical Building No.4 (EB4)		452	22-Oct-17 A	16-Jan-19	22-Oct-17	17-Nov-18	0	-60	
CS2710	Substructure (rc structure)	405	22-Oct-17 A	30-Nov-18	22-Oct-17	31-Aug-18	0	-91	0
CS2715	Backfilling	65	31-Oct-18	03-Jan-19	08-Aug-18	11-Oct-18	-84	-84	0
CS2720	Superstructure (rc and metalworks)	45	03-Nov-18	17-Dec-18	04-Sep-18	18-Oct-18	-60	-60	0
CS2730	ABWF - Electrical Building No.4	30	18-Dec-18	16-Jan-19	19-Oct-18	17-Nov-18	-60	-60	0
Re-use Water Building (RW)		108	17-Nov-18	05-Mar-19	26-Aug-18	11-Dec-18	-84	-84	
CS2010	Substructure (rc structure)	62	17-Nov-18	18-Jan-19	26-Aug-18	26-Oct-18	-84	-84	0
CS2015	Backfilling (except in Water Tightness Test area)	30	18-Jan-19	17-Feb-19	27-Oct-18	25-Nov-18	-84	-84	0
CS2020	Superstructure (rc and metalworks)	46	18-Jan-19	05-Mar-19	27-Oct-18	11-Dec-18	-84	-84	0
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		456	22-Oct-17 A	21-Jan-19	22-Oct-17	08-Jan-19	0	-12	
CS2800	Substructure (rc structure)	405	22-Oct-17 A	30-Nov-18	22-Oct-17	18-Nov-18	0	-12	0
CS2805	Backfilling	30	30-Nov-18	30-Dec-18	19-Nov-18	18-Dec-18	-12	-12	0
CS2810	Superstructure (rc and metalworks)	36	01-Dec-18	06-Jan-19	19-Nov-18	24-Dec-18	-12	-12	0
CS2820	ABWF - DG Store and Chemical Waste Storage Building / Irrigation and Cleansing Water Pump Room	15	06-Jan-19	21-Jan-19	25-Dec-18	08-Jan-19	-12	-12	0
Existing Junction Chamber (JC)		181	12-Jun-18 A	09-Dec-18	12-Jun-18	09-Oct-18	0	-61	
CS2210	Bar Screen Installation	181	12-Jun-18 A	09-Dec-18	12-Jun-18	09-Oct-18	0	-61	0
LOT #4 - Bldg / Facilities Const. (Arch'l & Struct'l) : GH, PF, FW		136	31-Oct-18	15-Mar-19	01-Aug-18	27-Feb-19	-91	-16	
Gatehouse (GH)		75	12-Dec-18	25-Feb-19	13-Dec-18	25-Feb-19	0	0	
CS3100	Substructure (rc structure)	75	12-Dec-18	25-Feb-19	13-Dec-18	25-Feb-19	0	0	0
Payment Flowmeter Chamber (PF)		136	31-Oct-18	15-Mar-19	01-Aug-18	14-Dec-18	-91	-91	
CS2100	Substructure (rc structure)	90	31-Oct-18	28-Jan-19	01-Aug-18	29-Oct-18	-91	-91	0
CS2105	Backfilling	30	29-Jan-19	27-Feb-19	30-Oct-18	28-Nov-18	-91	-91	0
CS2110	Superstructure (rc and metalworks)	46	29-Jan-19	15-Mar-19	30-Oct-18	14-Dec-18	-91	-91	0
Foul Water Pump Sump (FW)		120	31-Oct-18	27-Feb-19	31-Oct-18	27-Feb-19	0	0	
CS3395	Substructure (rc structure)	60	31-Oct-18	29-Dec-18	31-Oct-18	29-Dec-18	0	0	0
CS3405	Superstructure (rc and metalworks)	60	30-Dec-18	27-Feb-19	30-Dec-18	27-Feb-19	0	0	0
External Works & Miscellaneous		564	29-Jun-18 A	14-Jan-20	29-Jun-18	13-Nov-19	0	-61	
CS3200	Site Formation along Boundary Wall (Perimeter)	180	04-Nov-18	03-May-19	05-Nov-18	03-May-19	0	0	0
CS3201	Slope works and Retaining Wall (Eastern Portion)	258	04-Jul-18 A	19-Mar-19	04-Jul-18	16-Jan-19	0	-61	0
CS3203	Slope works and Retaining Wall (Northern Portion)	241	04-Jul-18 A	02-Mar-19	04-Jul-18	30-Dec-18	0	-61	0
CS3210	Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains) incl. slope & retaining wall work @ P8	314	15-Jul-18 A	25-May-19	15-Jul-18	07-Feb-19	0	-106	-5.5
CS3225	Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road	92	12-Nov-18	12-Feb-19	13-Nov-18	12-Feb-19	0	0	0
CS3230	CLP Cable Duct and Draw Pits (within the Site)	271	09-Jul-18 A	05-Apr-19	09-Jul-18	03-Feb-19	0	-61	0
CS3250	EVA (Road & Drainage)	564	29-Jun-18 A	14-Jan-20	29-Jun-18	13-Nov-19	0	-61	0
CS3252	RC Trench and Odour Pipe (DO1, DO2)	180	31-Oct-18	28-Apr-19	22-Jul-18	17-Jan-19	-101	-101	-0.5



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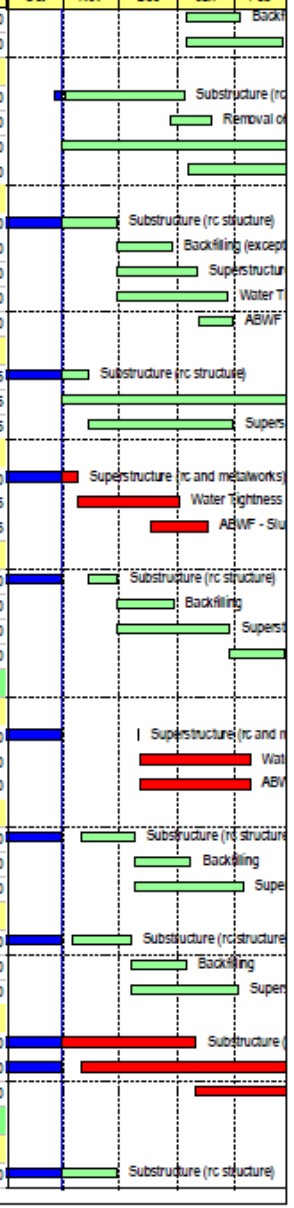
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
CS1405	Backfilling	30	06-Jan-19	04-Feb-19	31-Oct-18	29-Nov-18	-67	-67	0
CS1410	Superstructure (rc and metalworks)	52	06-Jan-19	26-Feb-19	31-Oct-18	21-Dec-18	-67	-67	0
Inlet Work, Preliminary Treatment Works and Inlet Pumping Station (PTW & IPS)		158	27-Oct-18 A	02-Apr-19	10-Jul-18	15-Jan-19	-109	-77	
CS1220	Substructure (rc structure)	70	27-Oct-18 A	04-Jan-19	25-Aug-18	31-Oct-18	-63	-65	0
CS1224	Removal of ELS	22	28-Dec-18	19-Jan-19	24-Oct-18	14-Nov-18	-65	-65	0
CS1226	Backfilling (except in Water Tightness Test area)	154	31-Oct-18	02-Apr-19	10-Jul-18	15-Jan-19	-113	-77	0
CS1230	Superstructure (rc and metalworks)	69	07-Jan-19	16-Mar-19	24-Oct-18	31-Dec-18	-75	-75	0
Solid Handling Building (SHB)		467	22-Oct-17 A	31-Jan-19	22-Oct-17	01-Jan-19	0	-30	
CS1300	Substructure (rc structure)	404	22-Oct-17 A	29-Nov-18	22-Oct-17	31-Oct-18	0	-30	0
CS1305	Backfilling (except in Water Tightness Test area)	30	30-Nov-18	29-Dec-18	31-Oct-18	29-Nov-18	-30	-30	0
CS1310	Superstructure (rc and metalworks)	43	30-Nov-18	11-Jan-19	31-Oct-18	12-Dec-18	-30	-30	0
CS1315	Water Tightness Test + Backfilling	60	30-Nov-18	28-Jan-19	31-Oct-18	29-Dec-18	-30	-30	0
CS1320	ABWF - Solid Handling Building	20	12-Jan-19	31-Jan-19	13-Dec-18	01-Jan-19	-30	-30	0
UV Disinfection Facility (UV)		542	07-Oct-17 A	01-Apr-19	07-Oct-17	15-Dec-18	0	-107	
CS1910	Substructure (rc structure)	404	07-Oct-17 A	14-Nov-18	07-Oct-17	30-Jul-18	0	-107	-6.5
CS1915	Backfilling (except in Water Tightness Test area)	153	31-Oct-18	01-Apr-19	01-Jul-18	15-Dec-18	-122	-107	-6.5
CS1920	Superstructure (rc and metalworks)	78	14-Nov-18	31-Jan-19	31-Jul-18	16-Oct-18	-107	-107	-6.5
Sludge Dewatering Building (SDB)		318	05-Mar-18 A	17-Jan-19	05-Mar-18	20-Sep-18	0	-118	
CS1840	Superstructure (rc and metalworks)	248	05-Mar-18 A	08-Nov-18	05-Mar-18	21-Aug-18	0	-78	0
CS1845	Water Tightness Test + Backfilling	55	08-Nov-18	02-Jan-19	13-Jul-18	05-Sep-18	-118	-118	-17.5
CS1850	ABWF - Sludge Dewatering Building	30	18-Dec-18	17-Jan-19	22-Aug-18	20-Sep-18	-118	-118	-17.5
Sludge Skip Storage Building (SSSB)		494	22-Oct-17 A	28-Feb-19	22-Oct-17	27-Feb-19	0	0	
CS2900	Substructure (rc structure)	404	22-Oct-17 A	30-Nov-18	22-Oct-17	29-Nov-18	0	0	0
CS2905	Backfilling	30	30-Nov-18	30-Dec-18	30-Nov-18	29-Dec-18	0	0	0
CS2910	Superstructure (rc and metalworks)	60	30-Nov-18	29-Jan-19	30-Nov-18	28-Jan-19	0	0	0
CS2920	ABWF - Sludge Skip Storage Building	30	29-Jan-19	28-Feb-19	29-Jan-19	27-Feb-19	0	0	0
LOT #2 - Bldg / Facilities Const. (Arch'l & Struct'l) : AB+WS, DO, CB, FH		525	13-Oct-17 A	22-Mar-19	13-Oct-17	02-Feb-19	0	-47	
Administration Building & Maintenance Workshop (AB & WS)		214	11-Jul-18 A	09-Feb-19	13-Jul-18	11-Nov-18	2	-90	
CS1120	Superstructure (rc and metalworks)	154	11-Jul-18 A	11-Dec-18	13-Jul-18	12-Sep-18	2	-90	0
CS1125	Water Tightness Test	60	12-Dec-18	09-Feb-19	13-Sep-18	11-Nov-18	-90	-90	0
CS1130	ABWF - Administration Building & Maintenance Workshop	60	12-Dec-18	09-Feb-19	13-Sep-18	11-Nov-18	-90	-90	0
Deodorization Facilities No. 1 (DO 1)		475	19-Oct-17 A	05-Feb-19	19-Oct-17	25-Jan-19	0	-11	
CS1610	Substructure (rc structure)	417	19-Oct-17 A	09-Dec-18	19-Oct-17	28-Nov-18	0	-11	0
CS1615	Backfilling	30	09-Dec-18	08-Jan-19	29-Nov-18	28-Dec-18	-11	-11	0
CS1620	Superstructure (rc and metalworks)	58	09-Dec-18	05-Feb-19	29-Nov-18	25-Jan-19	-11	-11	0
Deodorization Facilities No. 2 (DO 2)		469	22-Oct-17 A	03-Feb-19	22-Oct-17	02-Feb-19	0	0	
CS1710	Substructure (rc structure)	411	22-Oct-17 A	07-Dec-18	22-Oct-17	06-Dec-18	0	0	0
CS1715	Backfilling	30	07-Dec-18	06-Jan-19	07-Dec-18	05-Jan-19	0	0	0
CS1720	Superstructure (rc and metalworks)	58	07-Dec-18	03-Feb-19	07-Dec-18	02-Feb-19	0	0	0
Chemical Building (CB)		525	13-Oct-17 A	22-Mar-19	13-Oct-17	09-Jan-19	0	-71	
CS2310	Substructure (rc structure)	455	13-Oct-17 A	11-Jan-19	13-Oct-17	31-Oct-18	0	-71	0
CS2315	Backfilling	207	17-Aug-18 A	12-Mar-19	17-Aug-18	30-Dec-18	0	-71	0
CS2320	Superstructure (rc and metalworks)	70	11-Jan-19	22-Mar-19	01-Nov-18	09-Jan-19	-71	-71	0
LOT #3 - Bldg / Facilities Const. (Arch'l & Struct'l) : EB, RW, DG, ICW, JC		525	04-Oct-17 A	12-Mar-19	04-Oct-17	22-Jan-19	0	-49	
Electrical Building No.1 (EB1)		488	22-Oct-17 A	21-Feb-19	22-Oct-17	22-Jan-19	0	-30	
CS2410	Substructure (rc structure)	404	22-Oct-17 A	29-Nov-18	22-Oct-17	30-Oct-18	0	-30	0



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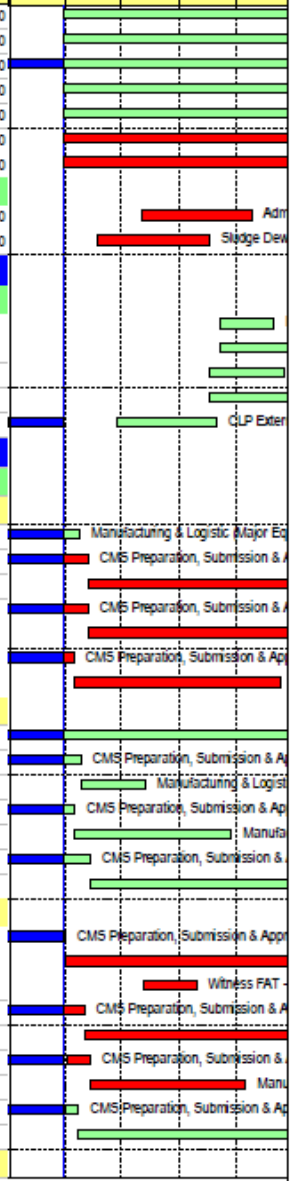
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
C53254	Process Pipe	180	31-Oct-18	28-Apr-19	30-Jul-18	25-Jan-19	-93	-93	0
C53256	Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope	180	31-Oct-18	28-Apr-19	02-Oct-18	30-Mar-19	-29	-29	0
C53258	Emergency By-Pass Pipe	291	15-Jul-18 A	01-May-19	15-Jul-18	31-Mar-19	0	-31	0
C53260	Sewage Pipe	210	31-Oct-18	28-May-19	28-Aug-18	25-Mar-19	-64	-64	0
C53262	Cable Duct and Draw Pits	180	31-Oct-18	28-Apr-19	30-Sep-18	28-Mar-19	-31	-31	0
C53276	WSD External Watermain Laying Works	180	31-Oct-18	28-Apr-19	11-Oct-18	08-Apr-19	-20	-20	0
C53278	Internal Watermain Laying Works	150	31-Oct-18	29-Mar-19	11-Oct-18	09-Mar-19	-20	-20	0
Green Roof		84	18-Nov-18	09-Feb-19	22-Aug-18	11-Nov-18	-88	-90	
C53340	Administration Building and Maintenance Workshop	60	12-Dec-18	09-Feb-19	13-Sep-18	11-Nov-18	-90	-90	0
C53350	Sludge Dewatering Building	60	18-Nov-18	17-Jan-19	22-Aug-18	20-Oct-18	-88	-88	0
Statutory Works		169	01-Oct-18 A	18-Mar-19	29-Nov-18	18-Mar-19	59	0	
Electrical Supply & Energization - CLP		169	01-Oct-18 A	18-Mar-19	29-Nov-18	18-Mar-19	59	0	
SR100	Enabling Works for Handover of EB1 Transformer Rooms to CLP	30	23-Jan-19	21-Feb-19	23-Jan-19	21-Feb-19	0	0	
SR110	LV Switchboard Installation & Cabling Works in EB1 Switch Rooms	55	23-Jan-19	18-Mar-19	23-Jan-19	18-Mar-19	0	0	
SR115	Enabling Works for Handover of EB3 Transformer Room to CLP	40	18-Jan-19	27-Feb-19	18-Jan-19	26-Feb-19	0	0	
SR125	LV Switchboard Installation & Cabling Works in EB3 Switch Room	60	18-Jan-19	18-Mar-19	18-Jan-19	18-Mar-19	0	0	
SR135	CLP External Cabling Works	113	01-Oct-18 A	21-Jan-19	29-Nov-18	27-Jan-19	59	6	
E&M Works		991	27-Nov-16 A	15-Aug-19	27-Nov-16	25-Jun-19	0	-51	
Procurement		901	27-Nov-16 A	16-May-19	27-Nov-16	11-May-19	0	-6	
Chemically Enhanced Primary Treatment (CEPT)		494	10-Nov-17 A	19-Mar-19	10-Nov-17	26-Dec-18	0	-82	
EM3112	Manufacturing & Logistic (Major Equipment)	261	21-Feb-18 A	08-Nov-18	21-Feb-18	25-Oct-18	0	-14	
EM3114	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	368	10-Nov-17 A	13-Nov-18	10-Nov-17	16-Aug-18	0	-88	
EM3116	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	13-Nov-18	19-Mar-19	17-Aug-18	20-Dec-18	-88	-88	
EM3118	CMS Preparation, Submission & Approval (Electrical)	368	10-Nov-17 A	13-Nov-18	10-Nov-17	16-Aug-18	0	-88	
EM3120	Manufacturing & Logistic (Electrical)	126	13-Nov-18	19-Mar-19	17-Aug-18	20-Dec-18	-88	-88	
EM3122	CMS Preparation, Submission & Approval (Building Services)	361	10-Nov-17 A	05-Nov-18	10-Nov-17	05-Sep-18	0	-61	
EM3124	Manufacturing & Logistic (Building Services)	112	05-Nov-18	25-Feb-19	06-Sep-18	26-Dec-18	-61	-61	
System Control Flowmeter Chamber (SF)		503	10-Nov-17 A	27-Mar-19	10-Nov-17	12-Feb-19	0	-43	
EM3134	Manufacturing & Logistic (Major Equipment)	181	28-Sep-18 A	27-Mar-19	12-Jul-18	12-Jan-19	-78	-74	
EM3136	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	364	10-Nov-17 A	09-Nov-18	10-Nov-17	15-Jul-18	0	-116	
EM3138	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	09-Nov-18	14-Dec-18	16-Jul-18	19-Aug-18	-116	-116	
EM3140	CMS Preparation, Submission & Approval (Electrical)	362	10-Nov-17 A	06-Nov-18	10-Nov-17	24-Oct-18	0	-13	
EM3142	Manufacturing & Logistic (Electrical)	84	06-Nov-18	29-Jan-19	25-Oct-18	16-Jan-19	-13	-13	
EM3144	CMS Preparation, Submission & Approval (Building Services)	370	10-Nov-17 A	14-Nov-18	10-Nov-17	15-Oct-18	0	-30	
EM3146	Manufacturing & Logistic (Building Services)	120	14-Nov-18	14-Mar-19	16-Oct-18	12-Feb-19	-30	-30	
Inlet Work, Preliminary Treatment Units and Inlet Pumping Station (PTW & IPS)		826	04-Jan-17 A	10-Apr-19	04-Jan-17	07-Mar-19	0	-33	
EM3135	CMS Preparation, Submission & Approval (Major Equipment)	666	04-Jan-17 A	01-Nov-18	04-Jan-17	01-May-18	0	-184	
EM3137	Manufacturing & Logistic (Major Equipment)	160	01-Nov-18	10-Apr-19	01-May-18	08-Oct-18	-184	-184	
EM3141	Witness FAT - Main Sewage Pumps	28	13-Dec-18	10-Jan-19	30-Jul-18	27-Aug-18	-136	-136	
EM3635	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	406	01-Oct-17 A	11-Nov-18	01-Oct-17	13-Jul-18	0	-120	
EM3645	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	11-Nov-18	17-Mar-19	14-Jul-18	16-Nov-18	-120	-120	
EM3655	CMS Preparation, Submission & Approval (Electrical)	410	01-Oct-17 A	14-Nov-18	01-Oct-17	14-Sep-18	0	-61	
EM3665	Manufacturing & Logistic (Electrical)	84	14-Nov-18	06-Feb-19	15-Sep-18	07-Dec-18	-61	-61	
EM3675	CMS Preparation, Submission & Approval (Building Services)	403	01-Oct-17 A	08-Nov-18	01-Oct-17	07-Nov-18	0	0	
EM3685	Manufacturing & Logistic (Building Services)	120	08-Nov-18	08-Mar-19	08-Nov-18	07-Mar-19	0	0	
Solid Handling Building (SHB)		689	12-Apr-17 A	01-Mar-19	12-Apr-17	15-Nov-18	0	-106	



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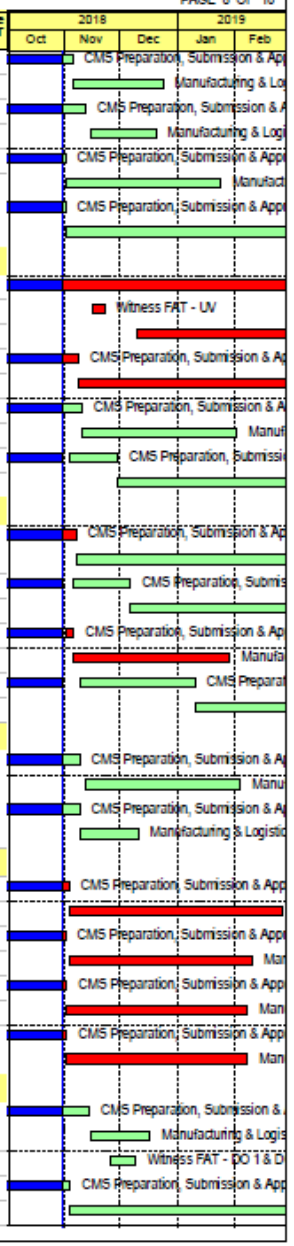
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
EM3145	CMS Preparation, Submission & Approval (Major Equipment)	572	12-Apr-17 A	05-Nov-18	12-Apr-17	05-May-18	0	-184	
EM3150	Manufacturing & Logistic (Major Equipment)	48	06-Nov-18	24-Dec-18	06-May-18	23-Jun-18	-184	-184	
EM3695	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	408	01-Oct-17 A	12-Nov-18	01-Oct-17	15-Jul-18	0	-120	
EM3705	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	15-Nov-18	20-Dec-18	16-Jul-18	19-Aug-18	-123	-123	
EM3715	CMS Preparation, Submission & Approval (Electrical)	397	01-Oct-17 A	01-Nov-18	01-Oct-17	27-May-18	0	-158	
EM3725	Manufacturing & Logistic (Electrical)	84	01-Nov-18	24-Jan-19	28-May-18	19-Aug-18	-158	-158	
EM3735	CMS Preparation, Submission & Approval (Building Services)	397	01-Oct-17 A	01-Nov-18	01-Oct-17	18-Jul-18	0	-106	
EM3745	Manufacturing & Logistic (Building Services)	120	01-Nov-18	01-Mar-19	19-Jul-18	15-Nov-18	-106	-106	
UV Disinfection Facility (UV)		500	21-Nov-17 A	04-Apr-19	21-Nov-17	29-Mar-19	0	-6	
EM3190	Manufacturing & Logistic (Major Equipment)	320	30-Apr-18 A	15-Mar-19	30-Apr-18	15-Mar-19	0	0	
EM3191	Witness FAT - UV	7	16-Nov-18	22-Nov-18	16-Nov-18	22-Nov-18	0	0	
EM3192	Delivery To Site (Major Equipment)	96	10-Dec-18	15-Mar-19	10-Dec-18	15-Mar-19	0	0	
EM3755	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	353	21-Nov-17 A	08-Nov-18	21-Nov-17	27-Sep-18	0	-42	
EM3765	Manufacturing & Logistic (Penstock, Pipe & Valve)	147	08-Nov-18	04-Apr-19	28-Sep-18	21-Feb-19	-42	-42	
EM3775	CMS Preparation, Submission & Approval (Electrical)	355	21-Nov-17 A	10-Nov-18	21-Nov-17	12-Oct-18	0	-29	
EM3785	Manufacturing & Logistic (Electrical)	84	10-Nov-18	02-Feb-19	12-Oct-18	04-Jan-19	-29	-29	
EM3795	CMS Preparation, Submission & Approval (Building Services)	374	21-Nov-17 A	29-Nov-18	21-Nov-17	29-Nov-18	0	0	
EM3805	Manufacturing & Logistic (Building Services)	120	30-Nov-18	29-Mar-19	29-Nov-18	29-Mar-19	0	0	
Sludge Dewatering Building (SDB)		901	27-Nov-16 A	16-May-19	27-Nov-16	11-May-19	0	-6	
EM3175	CMS Preparation, Submission & Approval (Major Equipment)	711	27-Nov-16 A	07-Nov-18	27-Nov-16	07-May-18	0	-184	
EM3180	Manufacturing & Logistic (Major Equipment)	190	07-Nov-18	16-May-19	07-May-18	13-Nov-18	-184	-184	
EM3815	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	406	27-Oct-17 A	06-Dec-18	27-Oct-17	07-Dec-18	0	0	
EM3825	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	06-Dec-18	11-Apr-19	07-Dec-18	12-Apr-19	0	0	
EM3835	CMS Preparation, Submission & Approval (Electrical)	375	27-Oct-17 A	06-Nov-18	27-Oct-17	22-Sep-18	0	-44	
EM3845	Manufacturing & Logistic (Electrical)	84	06-Nov-18	29-Jan-19	22-Sep-18	15-Dec-18	-44	-44	
EM3855	CMS Preparation, Submission & Approval (Building Services)	441	27-Oct-17 A	10-Jan-19	27-Oct-17	11-Jan-19	0	0	
EM3865	Manufacturing & Logistic (Building Services)	120	10-Jan-19	10-May-19	11-Jan-19	11-May-19	0	0	
Sludge Skip Storage Building (SSSB)		518	04-Sep-17 A	04-Feb-19	04-Sep-17	03-Sep-18	0	-153	
EM3875	CMS Preparation, Submission & Approval (Electrical)	431	04-Sep-17 A	09-Nov-18	04-Sep-17	11-Jun-18	0	-150	
EM3885	Manufacturing & Logistic (Electrical)	84	12-Nov-18	04-Feb-19	12-Jun-18	03-Sep-18	-153	-153	
EM3895	CMS Preparation, Submission & Approval (Building Services)	431	04-Sep-17 A	09-Nov-18	04-Sep-17	09-May-18	0	-184	
EM3905	Manufacturing & Logistic (Building Services)	32	09-Nov-18	11-Dec-18	11-May-18	12-Jun-18	-182	-182	
Administration Building & Maintenance Workshop (AB & WS)		758	31-Jan-17 A	27-Feb-19	31-Jan-17	29-Aug-18	0	-182	
EM3125	CMS Preparation, Submission & Approval (Major Equipment)	642	31-Jan-17 A	03-Nov-18	31-Jan-17	05-May-18	0	-182	
EM3130	Manufacturing & Logistic (Major Equipment)	115	04-Nov-18	27-Feb-19	06-May-18	29-Aug-18	-182	-182	
EM3915	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	429	30-Aug-17 A	01-Nov-18	30-Aug-17	19-May-18	0	-166	
EM3925	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	04-Nov-18	10-Feb-19	22-May-18	28-Aug-18	-166	-166	
EM3935	CMS Preparation, Submission & Approval (Electrical)	429	30-Aug-17 A	02-Nov-18	30-Aug-17	22-May-18	0	-163	
EM3945	Manufacturing & Logistic (Electrical)	98	02-Nov-18	08-Feb-19	23-May-18	28-Aug-18	-163	-163	
EM3955	CMS Preparation, Submission & Approval (Building Services)	429	30-Aug-17 A	02-Nov-18	30-Aug-17	22-May-18	0	-163	
EM3965	Manufacturing & Logistic (Building Services)	98	02-Nov-18	08-Feb-19	23-May-18	28-Aug-18	-163	-163	
Deodorization Facilities No. 1 & 2 (DO 1 & DO 2)		790	10-Jan-17 A	10-Mar-19	10-Jan-17	06-Feb-19	0	-32	
EM3165	CMS Preparation, Submission & Approval (Major Equipment)	674	10-Jan-17 A	14-Nov-18	10-Jan-17	14-May-18	0	-184	
EM3170	Manufacturing & Logistic (Major Equipment)	32	15-Nov-18	17-Dec-18	15-May-18	16-Jun-18	-184	-184	
EM3171	Witness FAT - DO 1 & DO 2	14	25-Nov-18	09-Dec-18	25-May-18	08-Jun-18	-184	-184	
EM3172	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	432	30-Aug-17 A	04-Nov-18	30-Aug-17	06-Jul-18	0	-122	
EM3173	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	04-Nov-18	10-Mar-19	06-Jul-18	09-Nov-18	-122	-122	



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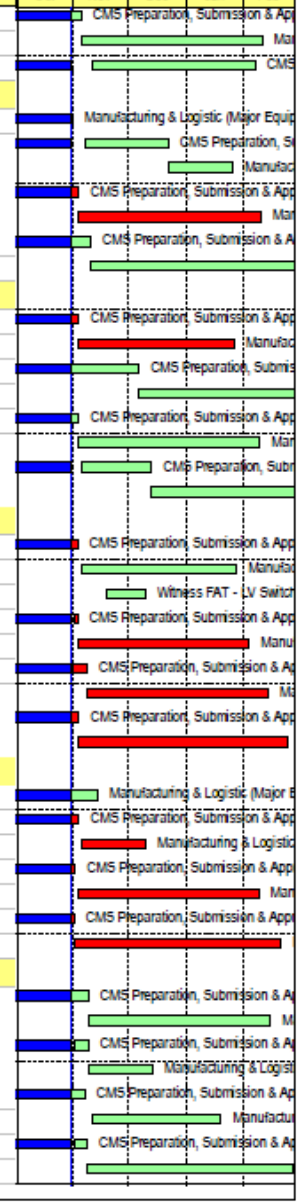
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
EM3975	CMS Preparation, Submission & Approval (Electrical)	432	30-Aug-17 A	05-Nov-18	30-Aug-17	21-Sep-18	0	-44	
EM3985	Manufacturing & Logistic (Electrical)	98	05-Nov-18	11-Feb-19	21-Sep-18	28-Dec-18	-44	-44	
EM3995	CMS Preparation, Submission & Approval (Building Services)	526	30-Aug-17 A	07-Feb-19	30-Aug-17	06-Feb-19	0	0	
Chemical Building (CB)		488	08-Nov-17 A	10-Mar-19	08-Nov-17	26-Feb-19	0	-12	
EM3230	Manufacturing & Logistic (Major Equipment)	229	17-Mar-18 A	01-Nov-18	17-Mar-18	31-Aug-18	0	-61	
EM4015	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	410	08-Nov-17 A	22-Dec-18	08-Nov-17	23-Dec-18	0	0	
EM4025	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	23-Dec-18	26-Jan-19	23-Dec-18	27-Jan-19	0	0	
EM4035	CMS Preparation, Submission & Approval (Electrical)	362	08-Nov-17 A	04-Nov-18	08-Nov-17	22-Aug-18	0	-74	
EM4045	Manufacturing & Logistic (Electrical)	98	04-Nov-18	10-Feb-19	22-Aug-18	28-Nov-18	-74	-74	
EM4055	CMS Preparation, Submission & Approval (Building Services)	368	08-Nov-17 A	10-Nov-18	08-Nov-17	29-Oct-18	0	-12	
EM4065	Manufacturing & Logistic (Building Services)	120	10-Nov-18	10-Mar-19	29-Oct-18	26-Feb-19	-12	-12	
Street Fire Hydrant Pump Room & GENSET Room (FH)		751	23-Mar-17 A	12-Apr-19	23-Mar-17	13-Apr-19	0	0	
EM3275	CMS Preparation, Submission & Approval (Major Equipment)	591	23-Mar-17 A	04-Nov-18	23-Mar-17	21-Aug-18	0	-75	
EM3280	Manufacturing & Logistic (Major Equipment)	84	04-Nov-18	27-Jan-19	21-Aug-18	13-Nov-18	-75	-75	
EM4075	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	432	01-Oct-17 A	06-Dec-18	01-Oct-17	06-Dec-18	0	0	
EM4085	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	06-Dec-18	11-Apr-19	07-Dec-18	11-Apr-19	0	0	
EM4095	CMS Preparation, Submission & Approval (Electrical)	399	01-Oct-17 A	04-Nov-18	01-Oct-17	22-Oct-18	0	-13	
EM4105	Manufacturing & Logistic (Electrical)	98	04-Nov-18	10-Feb-19	22-Oct-18	28-Jan-19	-13	-13	
EM4115	CMS Preparation, Submission & Approval (Building Services)	439	01-Oct-17 A	13-Dec-18	01-Oct-17	14-Dec-18	0	0	
EM4125	Manufacturing & Logistic (Building Services)	120	13-Dec-18	12-Apr-19	14-Dec-18	13-Apr-19	0	0	
Electrical Buildings (EB1, EB2, EB3 & EB4)		732	23-Feb-17 A	24-Feb-19	23-Feb-17	16-Dec-18	0	-71	
EM3235	CMS Preparation, Submission & Approval (Major Equipment)	618	23-Feb-17 A	03-Nov-18	23-Feb-17	14-May-18	0	-173	
EM3240	Manufacturing & Logistic (Major Equipment)	84	05-Nov-18	28-Jan-19	16-May-18	08-Aug-18	-173	-173	
EM3245	Witness FAT - LV Switchboards (8 nos. for EB's and 4 nos. for SDB)	21	19-Nov-18	10-Dec-18	30-Jun-18	21-Jul-18	-142	-142	
EM3300	CMS Preparation, Submission & Approval (Electrical)	418	11-Sep-17 A	03-Nov-18	11-Sep-17	16-May-18	0	-171	
EM3305	Manufacturing & Logistic (Electrical)	93	03-Nov-18	04-Feb-19	16-May-18	17-Aug-18	-171	-171	
EM3310	CMS Preparation, Submission & Approval (Control & Instrument)	424	11-Sep-17 A	08-Nov-18	11-Sep-17	09-Sep-18	0	-61	
EM3315	Manufacturing & Logistic (Control & Instrument)	98	08-Nov-18	14-Feb-19	09-Sep-18	16-Dec-18	-61	-61	
EM3320	CMS Preparation, Submission & Approval (Building Services)	453	09-Aug-17 A	04-Nov-18	09-Aug-17	04-May-18	0	-184	
EM3325	Manufacturing & Logistic (Building Services)	112	04-Nov-18	24-Feb-19	04-May-18	24-Aug-18	-184	-184	
Re-use Water Building (RW)		460	19-Nov-17 A	21-Feb-19	19-Nov-17	09-Dec-18	0	-75	
EM3200	Manufacturing & Logistic (Major Equipment)	140	28-Jun-18 A	14-Nov-18	28-Jun-18	14-Nov-18	0	0	
EM4135	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	351	19-Nov-17 A	04-Nov-18	19-Nov-17	06-Aug-18	0	-91	
EM4145	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	05-Nov-18	10-Dec-18	06-Aug-18	10-Sep-18	-92	-92	
EM4155	CMS Preparation, Submission & Approval (Electrical)	349	19-Nov-17 A	02-Nov-18	19-Nov-17	04-Jun-18	0	-152	
EM4165	Manufacturing & Logistic (Electrical)	98	03-Nov-18	09-Feb-19	04-Jun-18	10-Sep-18	-153	-153	
EM4175	CMS Preparation, Submission & Approval (Building Services)	348	19-Nov-17 A	01-Nov-18	19-Nov-17	19-Aug-18	0	-75	
EM4185	Manufacturing & Logistic (Building Services)	112	01-Nov-18	21-Feb-19	19-Aug-18	09-Dec-18	-75	-75	
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		645	24-May-17 A	28-Feb-19	24-May-17	14-Dec-18	0	-76	
EM3255	CMS Preparation, Submission & Approval (Major Equipment)	535	24-May-17 A	09-Nov-18	24-May-17	09-May-18	0	-184	
EM3260	Manufacturing & Logistic (Major Equipment)	98	10-Nov-18	15-Feb-19	10-May-18	15-Aug-18	-184	-184	
EM4195	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	334	10-Dec-17 A	09-Nov-18	10-Dec-17	09-Nov-18	0	0	
EM4205	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	09-Nov-18	14-Dec-18	09-Nov-18	14-Dec-18	0	0	
EM4215	CMS Preparation, Submission & Approval (Electrical)	403	30-Sep-17 A	07-Nov-18	30-Sep-17	19-May-18	0	-172	
EM4225	Manufacturing & Logistic (Electrical)	70	11-Nov-18	20-Jan-19	23-May-18	01-Aug-18	-172	-172	
EM4235	CMS Preparation, Submission & Approval (Building Services)	404	30-Sep-17 A	08-Nov-18	30-Sep-17	25-Jul-18	0	-106	
EM4245	Manufacturing & Logistic (Building Services)	112	08-Nov-18	28-Feb-19	25-Jul-18	14-Nov-18	-106	-106	



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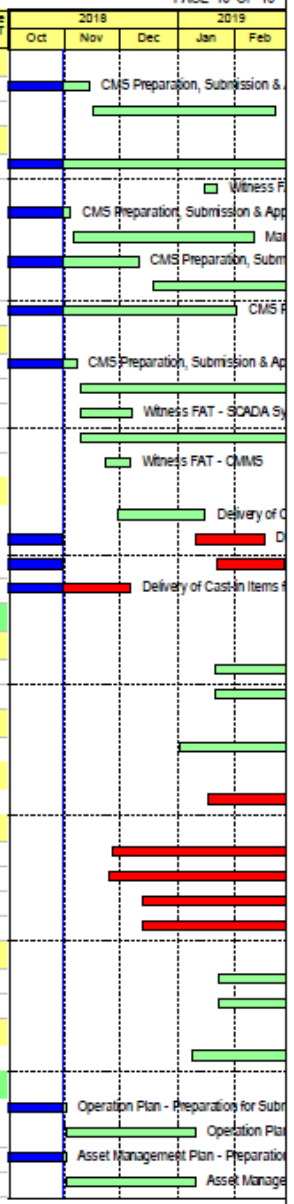
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 100.50 Days EOT
Gatehouse (GH)		670	24-Apr-17 A	22-Feb-19	24-Apr-17	23-Dec-18	0	-61	
EM3285	CMS Preparation, Submission & Approval (Building Services)	570	24-Apr-17 A	14-Nov-18	24-Apr-17	16-Sep-18	0	-59	
EM3290	Manufacturing & Logistic (Building Services)	98	16-Nov-18	22-Feb-19	16-Sep-18	23-Dec-18	-61	-61	
Payment Flowmeter Chamber (PF)		573	01-Sep-17 A	27-Mar-19	01-Sep-17	26-Mar-19	0	-1	
EM3210	Manufacturing & Logistic (Major Equipment)	181	28-Sep-18 A	27-Mar-19	17-Jul-18	17-Jan-19	-73	-69	
EM3211	Witness FAT - Payment Flowmeter and Reference Flowmeter	7	16-Jan-19	22-Jan-19	04-Nov-18	10-Nov-18	-73	-73	
EM4255	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	429	01-Sep-17 A	04-Nov-18	01-Sep-17	04-May-18	0	-184	
EM4265	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	05-Nov-18	11-Feb-19	05-May-18	11-Aug-18	-184	-184	
EM4275	CMS Preparation, Submission & Approval (Electrical)	386	20-Nov-17 A	11-Dec-18	20-Nov-17	18-Dec-18	0	8	
EM4285	Manufacturing & Logistic (Electrical)	98	19-Dec-18	27-Mar-19	19-Dec-18	26-Mar-19	0	0	
EM4295	CMS Preparation, Submission & Approval (Building Services)	439	20-Nov-17 A	02-Feb-19	20-Nov-17	16-Feb-19	0	15	
SCADA and CMMS Systems		609	01-Jul-17 A	01-Mar-19	01-Jul-17	29-Aug-18	0	-184	
EM3330	CMS Preparation, Submission & Approval	495	01-Jul-17 A	07-Nov-18	01-Jul-17	07-May-18	0	-184	
EM3335	Manufacturing & Logistic (SCADA)	112	09-Nov-18	01-Mar-19	09-May-18	29-Aug-18	-184	-184	
EM3340	Witness FAT - SCADA System	28	09-Nov-18	07-Dec-18	22-Jun-18	20-Jul-18	-140	-140	
EM3345	Manufacturing & Logistic (CMMS)	112	09-Nov-18	01-Mar-19	09-May-18	29-Aug-18	-184	-184	
EM3350	Witness FAT - CMMS	14	22-Nov-18	06-Dec-18	22-Jun-18	06-Jul-18	-153	-153	
Cast - In Items		153	29-Sep-18 A	28-Feb-19	01-Sep-18	17-Dec-18	-28	-73	
EM3585	Delivery of Cast-in Items for EB1	48	30-Nov-18	16-Jan-19	31-Oct-18	17-Dec-18	-30	-30	
EM3590	Delivery of Cast-in Items for EB2	141	29-Sep-18 A	17-Feb-19	20-Oct-18	06-Dec-18	21	-72	
EM3595	Delivery of Cast-in Items for EB3	153	29-Sep-18 A	28-Feb-19	20-Oct-18	06-Dec-18	21	-84	
EM3600	Delivery of Cast-in Items for EB4	69	29-Sep-18 A	06-Dec-18	01-Sep-18	18-Oct-18	-28	-49	
Installation		263	25-Nov-18	15-Aug-19	27-Aug-18	25-Jun-19	-90	-51	
System Control Flowmeter Chamber (SF)		60	21-Jan-19	22-Mar-19	21-Jan-19	21-Mar-19	0	0	
EM1400	Plant (Mechanical) Installation	60	21-Jan-19	22-Mar-19	21-Jan-19	21-Mar-19	0	0	
EM1405	Pipeworks	60	21-Jan-19	22-Mar-19	21-Jan-19	21-Mar-19	0	0	
Solid Handling Building (SHB)		90	02-Jan-19	02-Apr-19	02-Jan-19	01-Apr-19	0	0	
EM1300	Plant (Mechanical) Installation	90	02-Jan-19	02-Apr-19	02-Jan-19	01-Apr-19	0	0	
Sludge Dewatering Building (SDB)		210	17-Jan-19	15-Aug-19	27-Nov-18	25-Jun-19	-51	-51	
EM1800	Plant (Mechanical) Installation	210	17-Jan-19	15-Aug-19	27-Nov-18	25-Jun-19	-51	-51	
Administration Building & Maintenance Workshop (AB & WS)		197	25-Nov-18	11-Jun-19	27-Aug-18	12-Mar-19	-90	-90	
EM1100	SCADA System	180	27-Nov-18	26-May-19	29-Aug-18	25-Feb-19	-90	-90	
EM1105	Plant Installation (WS)	180	25-Nov-18	24-May-19	27-Aug-18	23-Feb-19	-90	-90	
EM1110	ELV System	180	13-Dec-18	11-Jun-19	14-Sep-18	12-Mar-19	-90	-90	
EM1120	BS - MVAC Installation	180	13-Dec-18	11-Jun-19	14-Sep-18	12-Mar-19	-90	-90	
Electrical Building No.1 (EB1)		90	23-Jan-19	23-Apr-19	23-Jan-19	22-Apr-19	0	0	
EM2400	Electrical Installation	90	23-Jan-19	23-Apr-19	23-Jan-19	22-Apr-19	0	0	
EM2425	BS - MVAC Installation	75	23-Jan-19	08-Apr-19	23-Jan-19	07-Apr-19	0	0	
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		90	09-Jan-19	09-Apr-19	09-Jan-19	08-Apr-19	0	0	
EM3450	Plant (Mechanical) Installation	90	09-Jan-19	09-Apr-19	09-Jan-19	08-Apr-19	0	0	
Testing & Commissioning		222	03-Jun-18 A	10-Jan-19	03-Jun-18	10-Dec-18	1	-31	
TC030	Operation Plan - Preparation for Submission	152	03-Jun-18 A	01-Nov-18	03-Jun-18	01-Oct-18	1	-31	
TC035	Operation Plan - Submission to SO for Review and Approval	70	01-Nov-18	10-Jan-19	01-Oct-18	10-Dec-18	-31	-31	
TC040	Asset Management Plan - Preparation for Submission	152	03-Jun-18 A	01-Nov-18	03-Jun-18	01-Oct-18	1	-31	
TC045	Asset Management Plan - Submission to SO for Review and Approval	70	01-Nov-18	10-Jan-19	01-Oct-18	10-Dec-18	-31	-31	



Appendix D1

Calibration Certificates for Impact Air Quality Monitoring Equipment

TISCH Environmental

RECALIBRATION DUE DATE:
March 21, 2019

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	March 21, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 756.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3480**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4200	3.2	2.00
2	3	4	1	1.0000	6.4	4.00
3	5	6	1	0.8950	7.9	5.00
4	7	8	1	0.8570	8.8	5.50
5	9	10	1	0.7070	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0087	0.7103	1.4233	0.9958	0.7012	0.8799
1.0044	1.0044	2.0129	0.9915	0.9915	1.2443
1.0024	1.1200	2.2505	0.9896	1.1057	1.3912
1.0012	1.1682	2.3603	0.9884	1.1533	1.4591
0.9959	1.4087	2.8467	0.9832	1.3907	1.7598
QSTD	**m=**	**2.04113**	**QA**	**m=**	**1.27812**
	b=	**-0.03040**		**b=**	**-0.01879**
	r=	**0.99994**		**r=**	**0.99994**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

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

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

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

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

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

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

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

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Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 31 August 2018

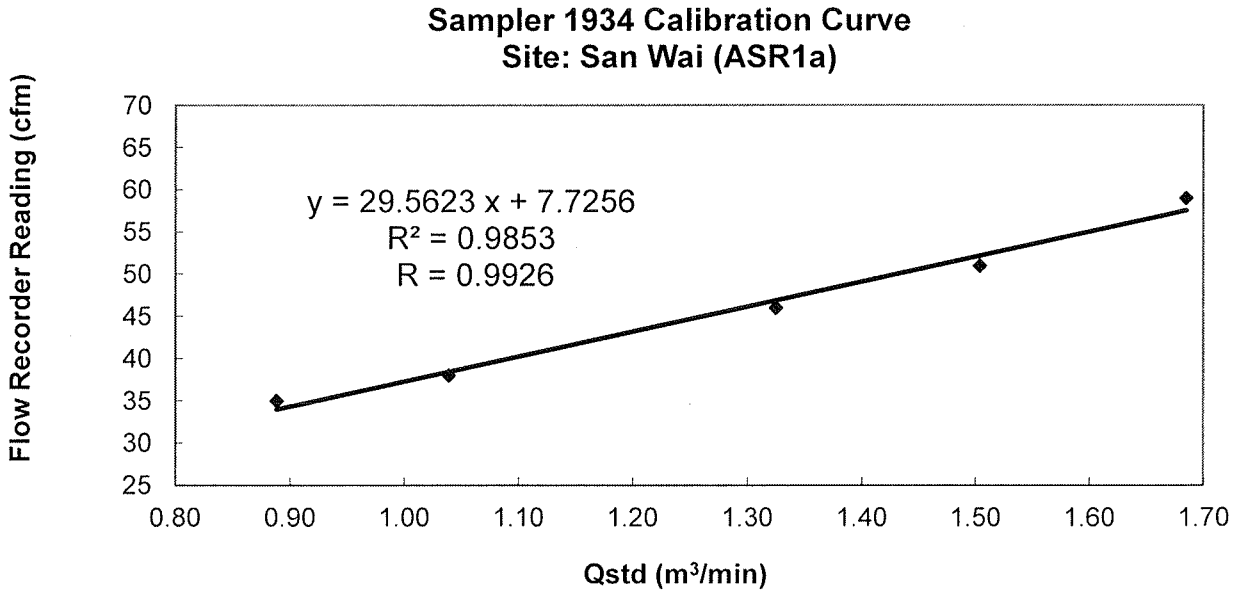
Serial No. : 1934 (ET / EA / 003 / 25)

Calibration Due Date : 30 October 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	59	51	46	38	35
Qstd (Actual flow rate, m^3/min)	1.68	1.50	1.32	1.04	0.89
Pressure : 759.06 **mm Hg**		Temp. :		300 K	



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / ~~unacceptable~~* for use.

Calibrated by : _____
TANG, Chung Hang
(Supervisor)

Approved by : _____
LAU, Chi Leung
(Environmental Team Leader)

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Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 27 October 2018

Serial No. : 1934 (ET / EA / 003 / 25)

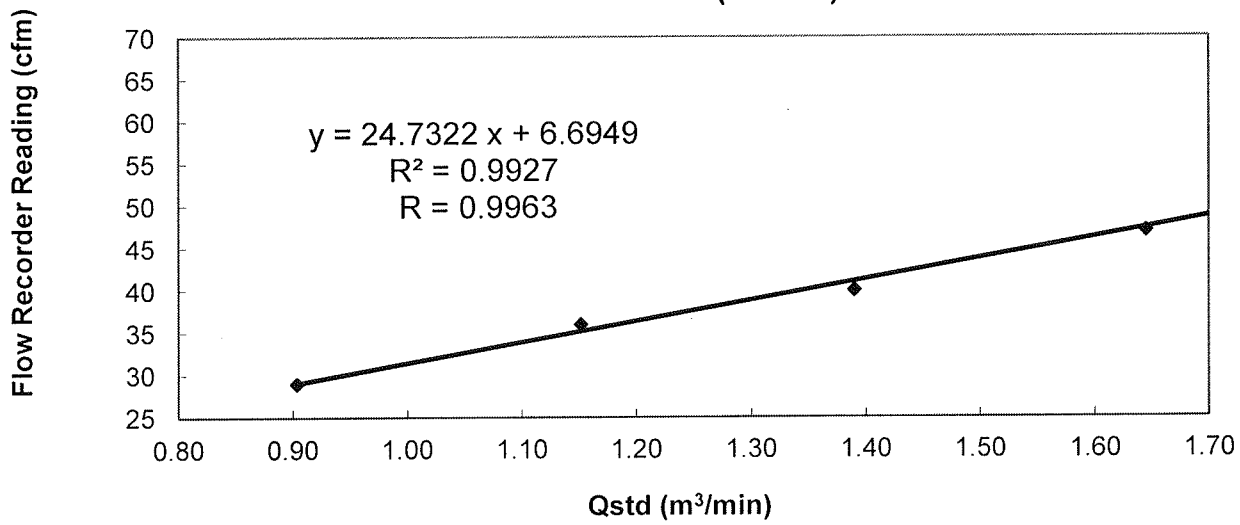
Calibration Due Date : 26 December 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	52	47	40	36	29
Qstd (Actual flow rate, m^3/min)	1.81	1.64	1.39	1.15	0.90
Pressure : 767.31 **mm Hg**		Temp. : 302 K			

Sampler 1934 Calibration Curve
Site: San Wai (ASR1a)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / ~~unacceptable~~* for use.

Calibrated by : Mak Kei Wai
MAK, Kei Wai
(Assistant Supervisor)

Approved by :
LAU, Chi Leung
(Environmental Team Leader)

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Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby (Model No. GS2310) Date of Calibration : 31 August 2018

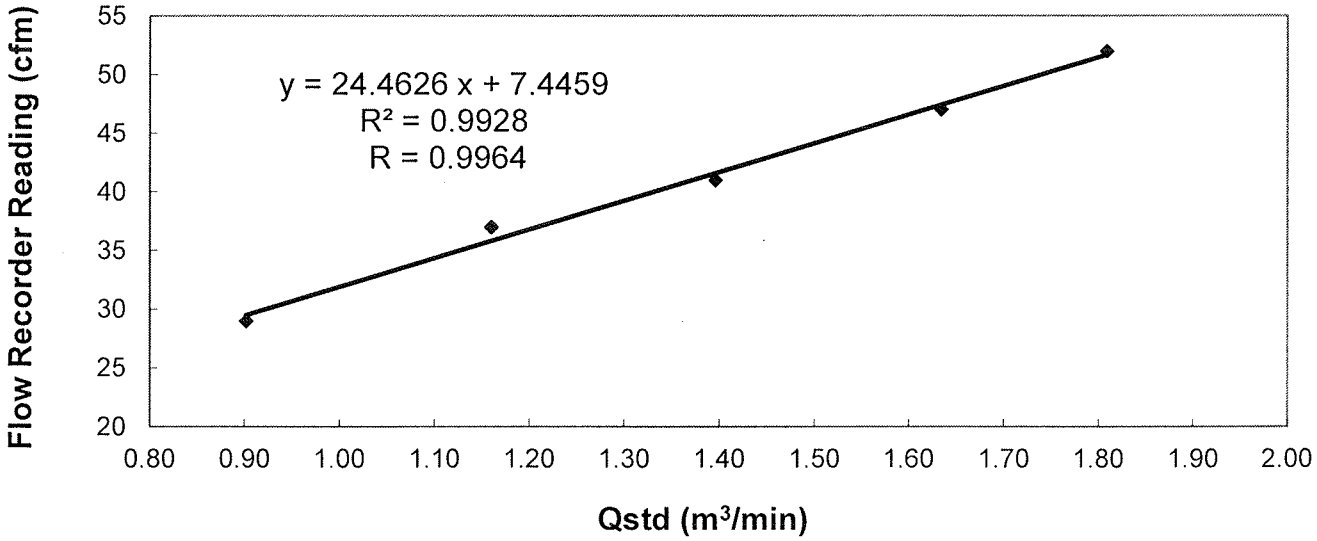
Serial No. : 9998 (ET / EA / 003 / 12) Calibration Due Date : 30 October 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	52	47	41	37	29
Qstd (Actual flow rate, m^3/min)	1.81	1.63	1.40	1.16	0.90
Pressure : 759.06 mm Hg		Temp. : 300 K			

Sampler 9998 Calibration Curve
Site: San Wai (ASR2a)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / ~~unacceptable~~* for use.

Calibrated by : _____
TANG, Chung Hang
(Supervisor)

Checked by : _____
LAU, Chi Leung
(Environmental Team Leader)

- END OF REPORT -

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Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby (Model No. GS2310) Date of Calibration : 27 October 2018

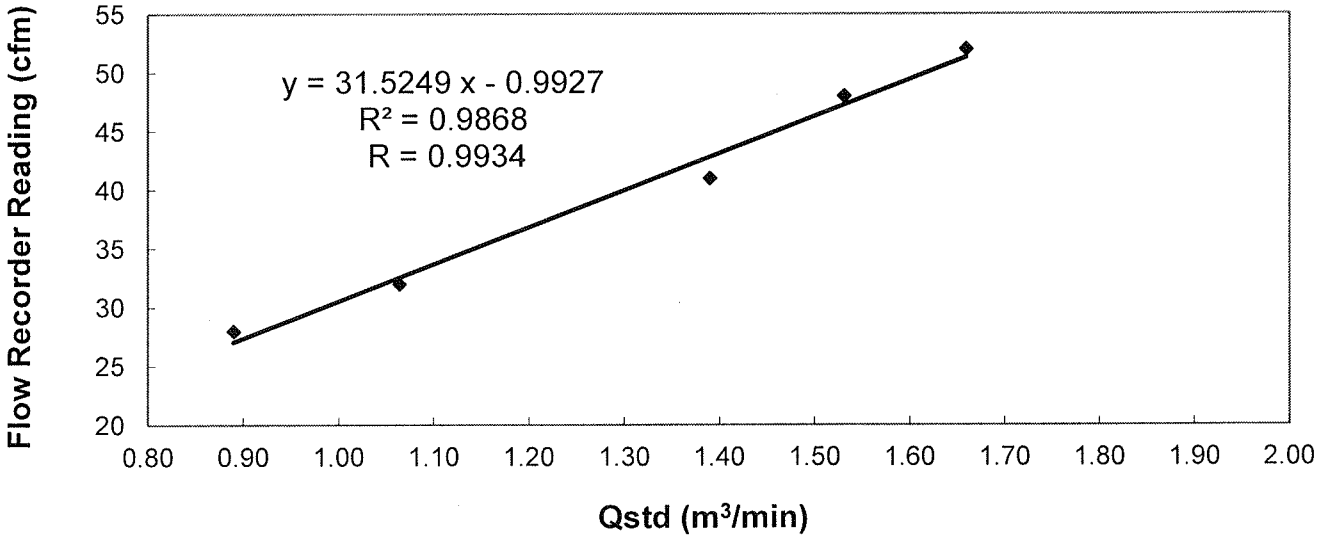
Serial No. : 9998 (ET / EA / 003 / 12) Calibration Due Date : 26 December 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	52	48	41	32	28
Qstd (Actual flow rate, m^3/min)	1.66	1.53	1.39	1.06	0.89
Pressure : 767.31 mm Hg		Temp. : 302 K			

Sampler 9998 Calibration Curve
Site: San Wai (ASR2a)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / ~~unacceptable~~* for use.

Calibrated by : Mak Kei Wai
MAK, Kei Wai
(Assistant Supervisor)

Checked by :
LAU, Chi Leung
(Environmental Team Leader)

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Internal Calibration Report of Dust Monitor

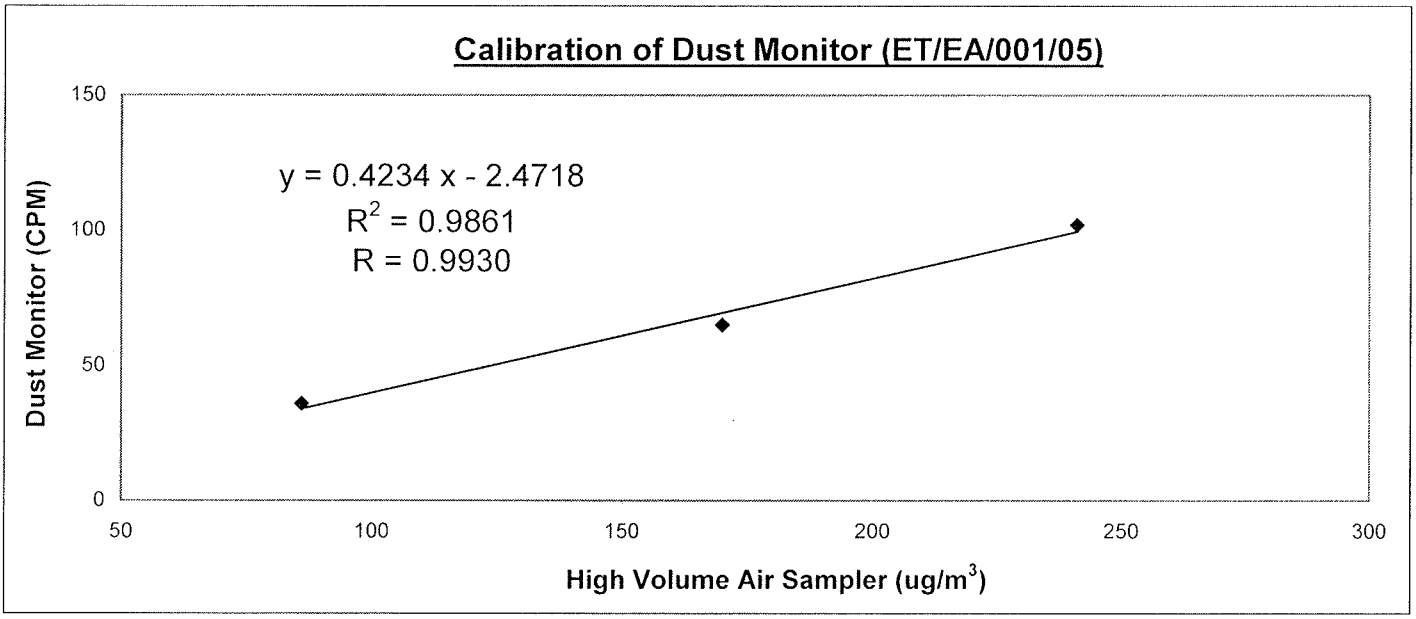
Manufacturer : SIBATA (LD-3B) Date of Calibration : 21 April 2018

Serial No. : 8X4282 (ET/EA/001/05) Calibration Due Date : 20 October 2018

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Monitor (CPM)	36	65	102
High Volume Air Sampler (ug/m^3)	86	170	241
High Volume Air Sampler Serail No.: 1177	Calibration Due Date: 5 June 2018		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after three-point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : CHUNG, Ka Ho (Technician)

Checked by : LAU, Chi Leung (Environmental Team Leader)

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Internal Calibration Report of Dust Monitor

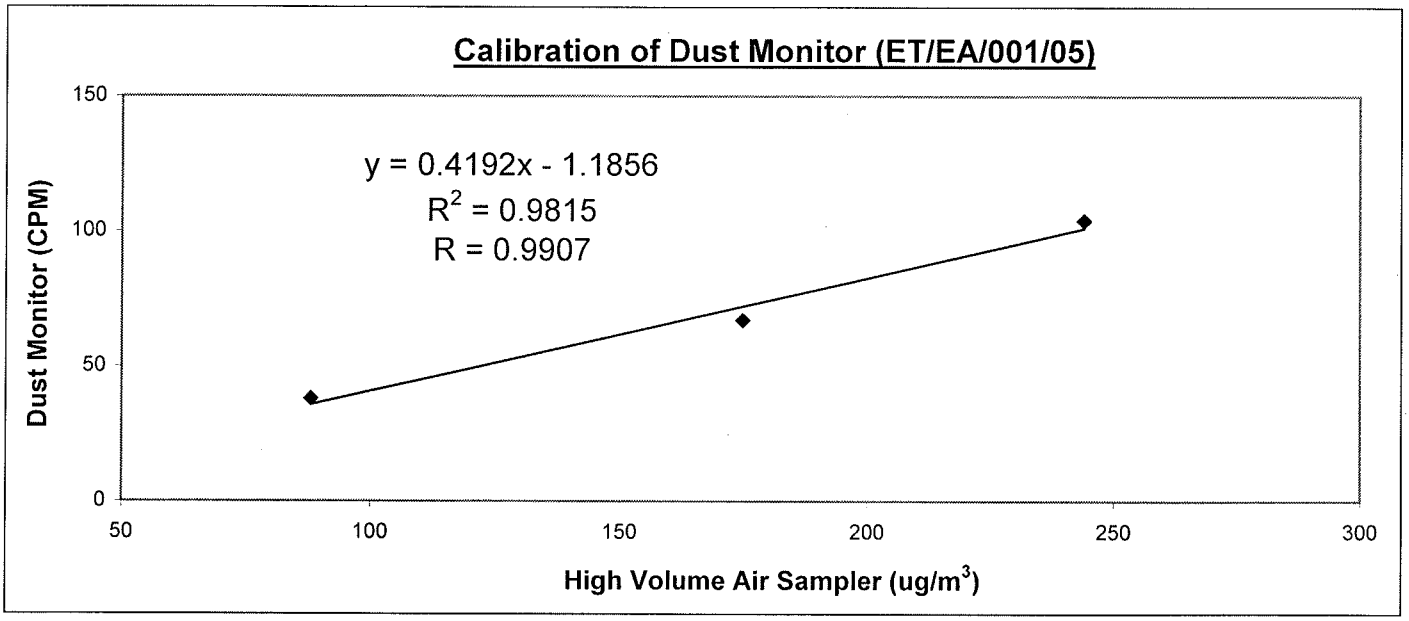
Manufacturer : SIBATA (LD-3B) Date of Calibration : 18 October 2018

Serial No. : 8X4282 (ET/EA/001/05) Calibration Due Date : 17 April 2019

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Monitor (CPM)	38	67	104
High Volume Air Sampler (ug/m^3)	88	175	244
High Volume Air Sampler Serail No.: 1177	Calibration Due Date: 1 December 2018		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after three-point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : _____
LI, Lok Yin
(Technician)

Checked by : _____
LAU, Chi Leung
(Environmental Team Leader)

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Internal Calibration Report of Dust Monitor

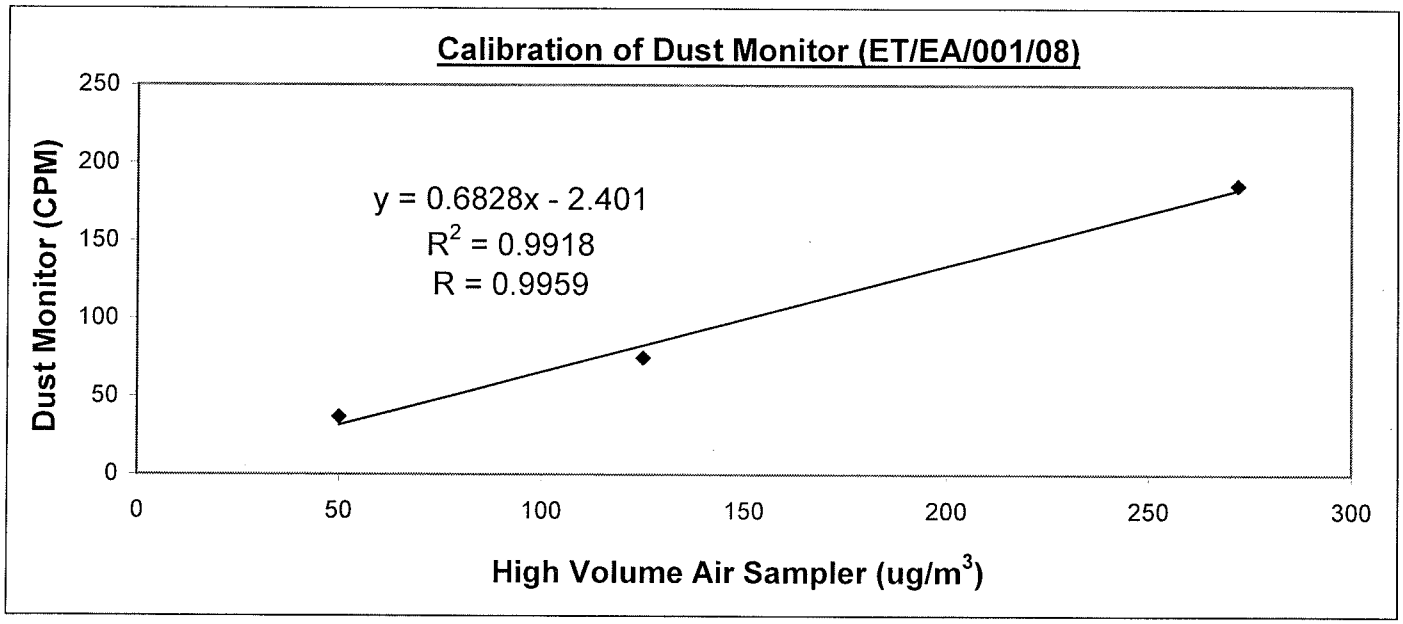
Manufacturer : SIBATA (LD-3B) Date of Calibration : 22 September 2018

Serial No. : 135261 (ET/EA/001/08) Calibration Due Date : 21 March 2019

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Monitor (CPM)	37	75	186
High Volume Air Sampler (ug/m^3)	50	125	272
High Volume Air Sampler Serail No.:1177	Calibration Due Date: 2 October 2018		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after three-pointcalibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : _____
Li Lok Yin
(Technician)

Checked by : _____
LAU, Chi Leung
(Environmental Team Leader)

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Internal Calibration Report of Dust Monitor

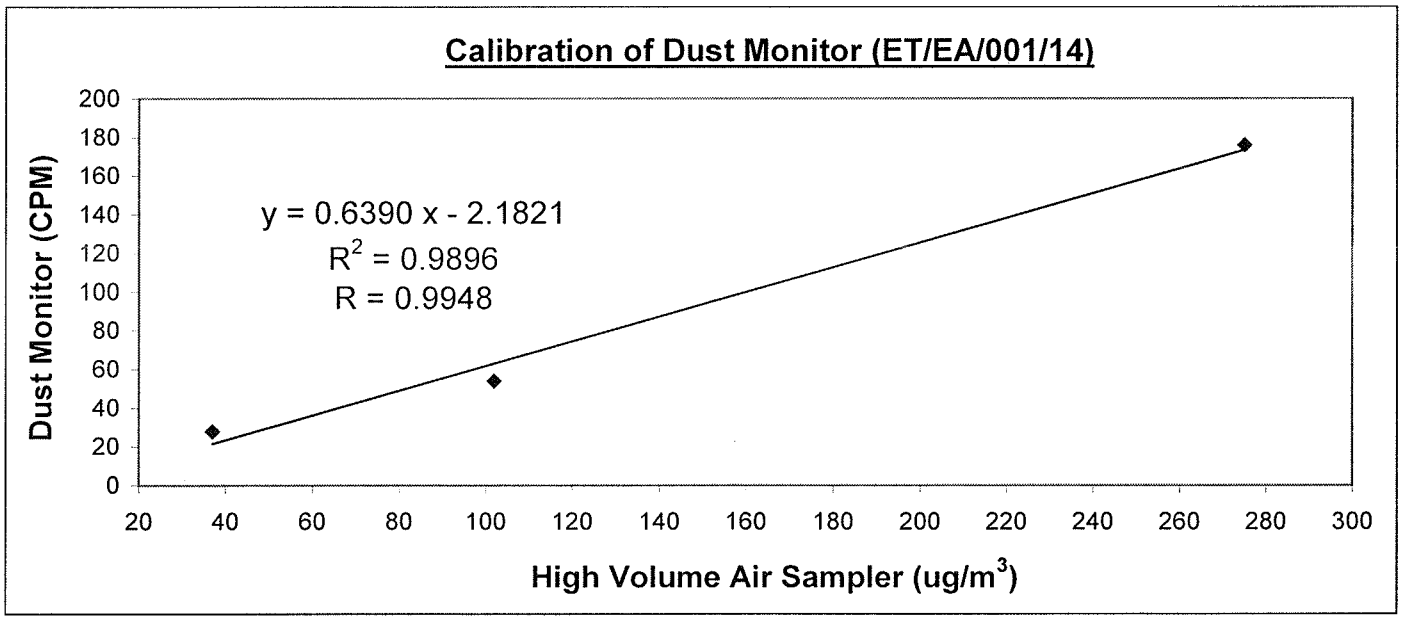
Manufacturer : SIBATA (LD-3B) Date of Calibration : 07 September 2018

Serial No. : 597340 (ET/EA/001/14) Calibration Due Date : 06 March 2019

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Monitor (CPM)	28	54	176
High Volume Air Sampler (ug/m^3)	37	102	275
High Volume Air Sampler Serail No.: 1177	Calibration Due Date: 2 October 2018		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a three-point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : _____
LI, Lok Yin
(Technician)

Checked by : _____
LAU, Chi Leung
(Environmental Team Leader)

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Internal Calibration Report of Dust Monitor

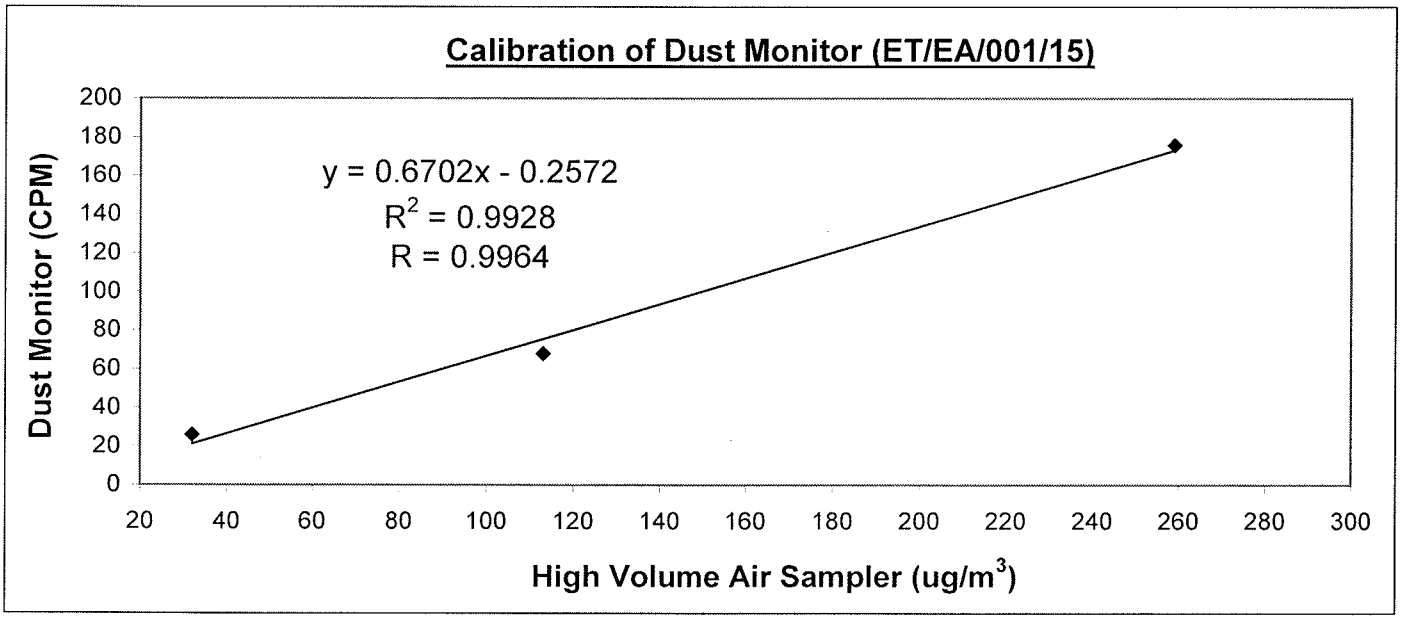
Manufacturer : SIBATA (LD-3B) Date of Calibration : 19 July 2018

Serial No. : 597227 (ET/EA/001/15) Calibration Due Date : 18 Jan 2019

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Monitor (CPM)	26	68	176
High Volume Air Sampler (ug/m^3)	32	113	259
High Volume Air Sampler Serail No.: 1177	Calibration Due Date: 3 August 2018		



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a three-point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : _____
CHUNG, Ka Ho
(Technician)

Checked by : _____
LAU, Chi Leung
(Environmental Team Leader)

- END OF REPORT -

Appendix D2

Impact Air Quality Monitoring Results

Summary of Impact 1-hour TSP Monitoring Results

Air Quality Monitoring Station : ASR1a

Date	Weather	Temperature (℃)	Monitoring Period		1-hr TSP ($\mu g/m^3$)
			Start	Finish	
05/10/2018	Cloudy	26	13:00	14:00	60
05/10/2018	Cloudy	26	14:00	15:00	61
05/10/2018	Cloudy	26	15:00	16:00	60
11/10/2018	Cloudy	24	13:00	14:00	110
11/10/2018	Cloudy	24	14:00	15:00	108
11/10/2018	Cloudy	24	15:00	16:00	106
16/10/2018	Cloudy	25	13:04	14:04	68
16/10/2018	Cloudy	25	14:04	15:04	64
16/10/2018	Cloudy	25	15:04	16:04	66
22/10/2018	Cloudy	24	09:51	10:51	141
22/10/2018	Cloudy	25	10:51	11:51	144
22/10/2018	Cloudy	27	13:00	14:00	136
27/10/2018	Fine	25	08:40	09:40	80
27/10/2018	Fine	25	09:40	10:40	77
27/10/2018	Fine	25	10:40	11:40	75

Min	60
Max	144
Average	90

Air Quality Monitoring Station : ASR2b

Date	Weather	Temperature (℃)	Monitoring Period		1-hr TSP ($\mu g/m^3$)
			Start	Finish	
27/10/2018	Fine	25	08:50	09:50	69
27/10/2018	Fine	25	09:50	10:50	66
27/10/2018	Fine	25	10:50	11:50	59

Min	59
Max	69
Average	65

Summary of Impact 24-hour TSP Monitoring Results

Air Quality Monitoring Station : ASR1a

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Paper Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
05/10/2018	14:00	06/10/2018	14:00	24941.64	24965.64	24	1.0241	1.0241	1.0241	2.6636	2.7887	85	Cloudy
11/10/2018	13:00	12/10/2018	13:00	24965.64	24989.64	24	1.0241	1.0241	1.0241	2.6530	2.7577	71	Cloudy
16/10/2018	13:04	17/10/2018	13:04	24989.64	25013.64	24	1.0579	1.0579	1.0579	2.6741	2.7792	69	Cloudy
22/10/2018	09:51	23/10/2018	09:51	25013.64	25037.64	24	1.0579	1.0579	1.0579	2.6504	2.7722	80	Cloudy
27/10/2018	08:40	28/10/2018	08:40	25037.64	25061.64	24	1.0232	1.0232	1.0232	2.6589	2.7695	75	Fine

Min	69
Max	85
Average	76

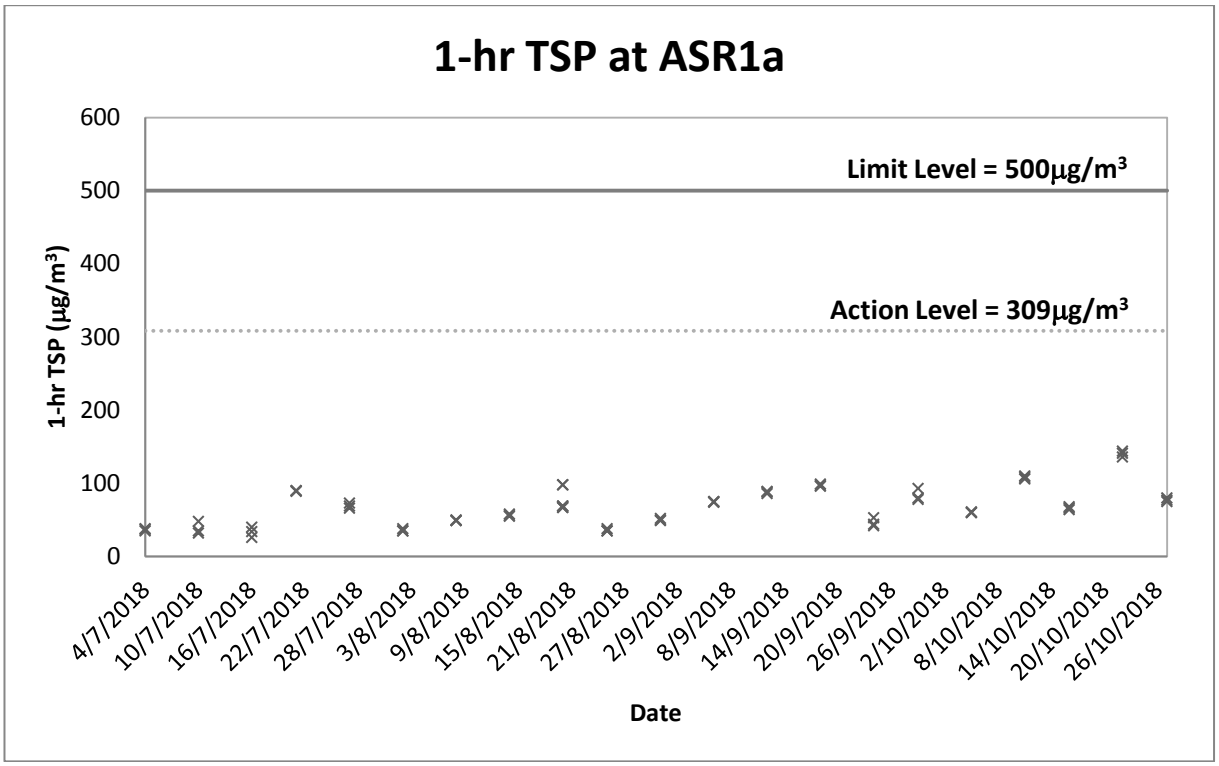
Air Quality Monitoring Station : ASR2b

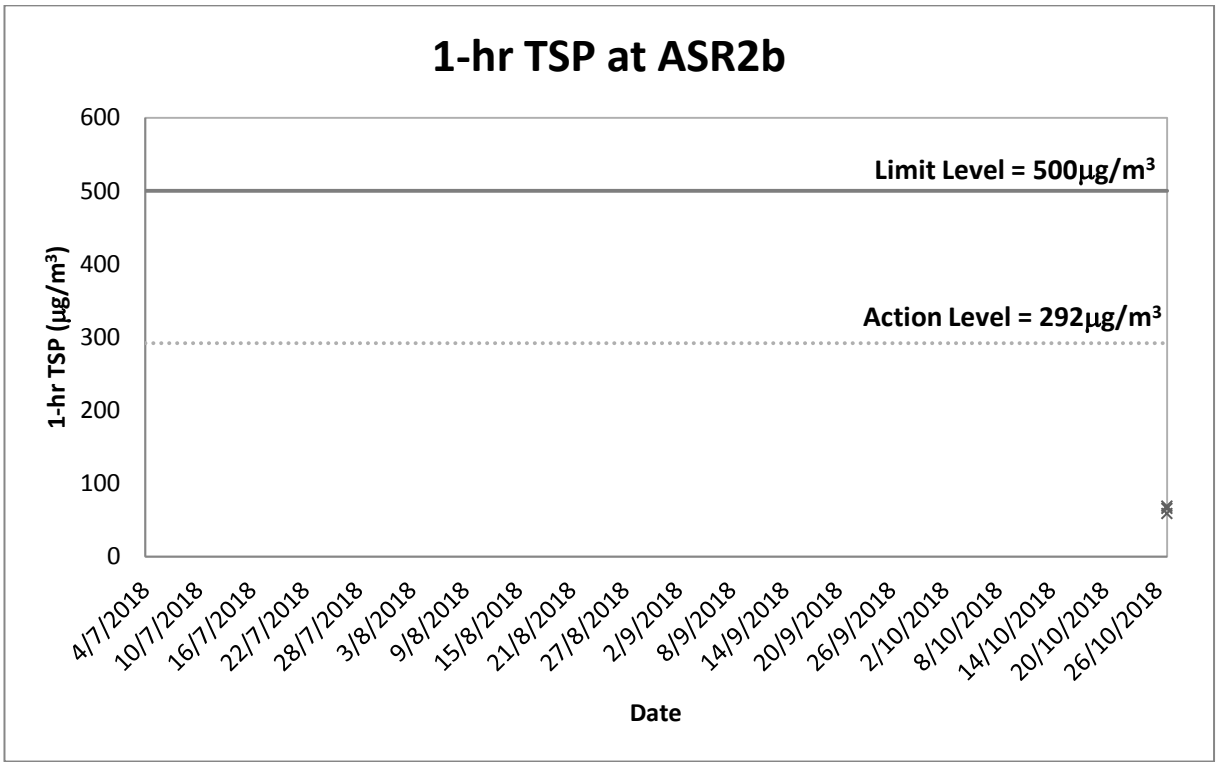
Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Paper Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
27/10/2018	08:50	28/10/2018	08:50	21782.45	21806.45	24	1.1100	1.1100	1.1100	2.6842	2.7879	65	Fine

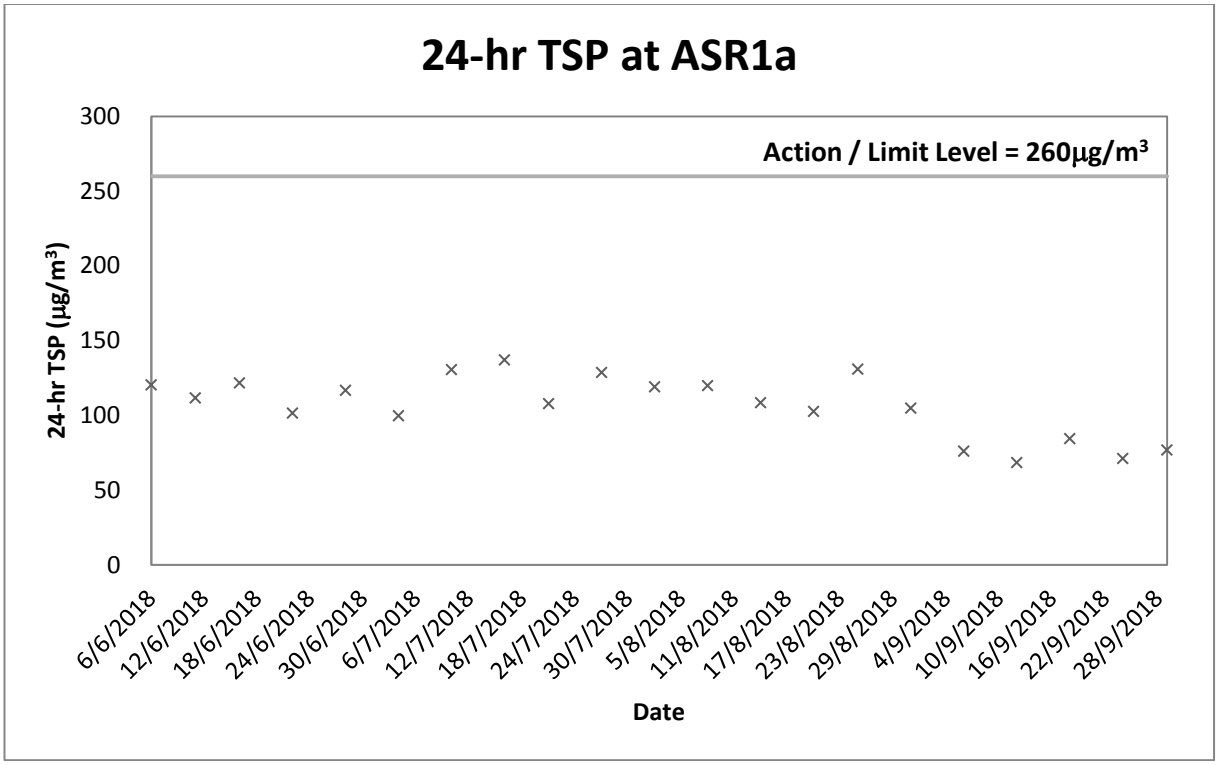
Min	65
Max	65
Average	65

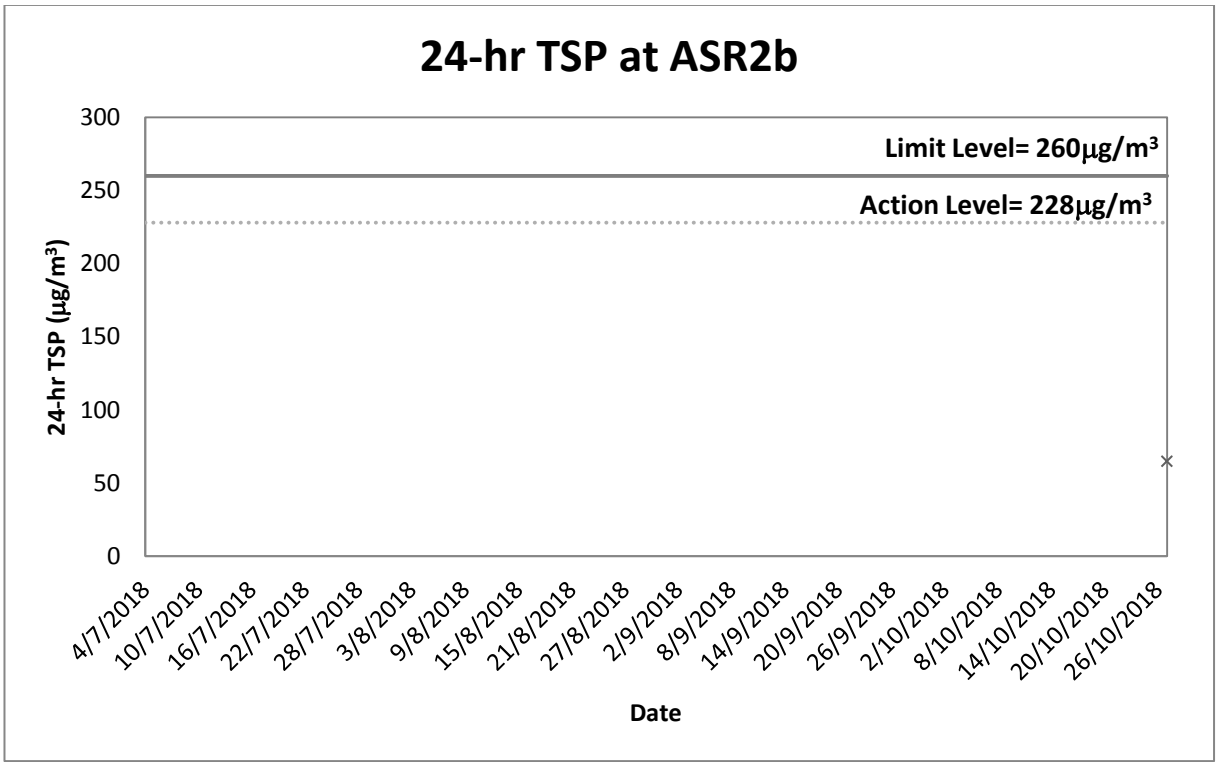
Appendix D3

Graphical Plots of Impact Air Quality Monitoring Results


1-hr TSP at ASR1a
Limit Level = 500μg/m³
Action Level = 309μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
4/7/2018
10/7/2018
16/7/2018
22/7/2018
28/7/2018
3/8/2018
9/8/2018
15/8/2018
21/8/2018
27/8/2018
2/9/2018
8/9/2018
14/9/2018
20/9/2018
26/9/2018
2/10/2018
8/10/2018
14/10/2018
20/10/2018
26/10/2018
Date


1-hr TSP at ASR2b
Limit Level = 500μg/m³
Action Level = 292μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
4/7/2018
10/7/2018
16/7/2018
22/7/2018
28/7/2018
3/8/2018
9/8/2018
15/8/2018
21/8/2018
27/8/2018
2/9/2018
8/9/2018
14/9/2018
20/9/2018
26/9/2018
2/10/2018
8/10/2018
14/10/2018
20/10/2018
26/10/2018
Date


24-hr TSP at ASR1a
Action / Limit Level = 260μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
6/6/2018
12/6/2018
18/6/2018
24/6/2018
30/6/2018
6/7/2018
12/7/2018
18/7/2018
24/7/2018
30/7/2018
5/8/2018
11/8/2018
17/8/2018
23/8/2018
29/8/2018
4/9/2018
10/9/2018
16/9/2018
22/9/2018
28/9/2018
Date


24-hr TSP at ASR2b
Limit Level= 260μg/m³
Action Level= 228μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
4/7/2018
10/7/2018
16/7/2018
22/7/2018
28/7/2018
3/8/2018
9/8/2018
15/8/2018
21/8/2018
27/8/2018
2/9/2018
8/9/2018
14/9/2018
20/9/2018
26/9/2018
2/10/2018
8/10/2018
14/10/2018
20/10/2018
26/10/2018
Date

Appendix E1

Calibration Certificates for Impact Noise Monitoring Equipment

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 801750 Page 1 of 2 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80695 **Date of receipt :** 13-Feb-18

Item Tested

Description : Thermo-Anemometer

Manufacturer : AZ Instrument **I.D.** : ET/EN/001/05

Model : AZ 8908 **Serial No.** : 1064869

Test Conditions

Date of Test : 7-Mar-18 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : T03, Z04.

Test Results

A correction factor of x 1.1 is required to bring the meter reading to within the manufacturer's specification.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S155	Std. Anemometer	711600	NIM-PRC
S223C	Std. Thermometer	705236	NIM-PRC

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance 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 measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : W M Ng

Approved by : Steve Kwan

Date: 7-Mar-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Certificate No. 801750

Results :

1. Velocity

Applied Value (m/s)	UUT Reading (m/s)	Corrected Reading (UUT Rdg. × 1.1)	Mfr's Spec.
0.00	0.0	0.0	± (3% of reading + 0.2 m/s)
2.50	2.3	2.5	
5.00	4.7	5.2	
10.00	*9.1	10.0	
15.00	*13.7	15.1	
19.00	*17.3	19.0	

2. Temperature

Applied Value (°C)	UUT Reading (°C)	Mfr's Spec.
22.50	22.2	± 1 °C

Remark : 1. UUT : Unit-Under-Test
2. Uncertainty : ± (0.9% + 0.16 m/s) for Velocity, ± 0.1 °C for Temperature, for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 022 hPa
4. *Out of Specification

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 802480

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80960 **Date of receipt :** 12-Mar-18

Item Tested

Description : Acoustic Calibrator
Manufacturer : Castle
Model : GA607
I.D. : ET/EN/002/07
Serial No. : 038641

Test Conditions

Date of Test : 20-Mar-18
Ambient Temperature : (23 ± 3)°C
Supply Voltage : --
Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procedure : IEC 60942, F06, F20, Z02.

Test Results

All results were within the IEC 60942 Class 1 specification.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR
S041	Universal Counter	802061	SCL-HKSAR
S206	Sound Level Meter	707129	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance 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 measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 20-Mar-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.1	± 0.4 dB

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB

IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.000	± 1 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. Total Distortion : < 2.8 %

IEC 60942 Class 1 Spec. : < 4 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 018 hPa.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. **804850** Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q81883 **Date of receipt :** 15-May-18

Item Tested

Description : Sound Level Meter

Manufacturer : Rion **I.D.** : ET/EN/003/16

Model : NL-52 **Serial No.** : 00253765

Test Conditions

Date of Test : 24-May-18 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type 1 or manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	803357	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance 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 measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 24-May-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Self-generated noise:** 15.3 dBA (Mfr's Spec ≤ 17 dBA)

2. **Acoustical signal test**

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
20 ~ 130	A	F	OFF	94.0	94.0
		S	OFF		94.0
	C	F	OFF		94.0
	Z	F	OFF		94.0
	A	F	OFF	114.0	114.0
		S	OFF		114.0
	C	F	OFF		114.0
	Z	F	OFF		114.0

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

3 **Electrical signal tests of frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 2 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.2	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+1.0	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 008 hPa.
4. Preamplifier model : NH-25 , S/N : 43795
5. Firmware Version: 1.5
6. Power Supply Check: OK
7. The UUT was adjusted with the laboratory's calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. **801918** Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80767 **Date of receipt :** 27-Feb-18

Item Tested

Description : Sound Level Meter

Manufacturer : Rion **I.D.** : ET/EN/003/18

Model : NL-52 **Serial No.** : 00264520

Test Conditions

Date of Test : 7-Mar-18 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type 1 or manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance 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 measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : _____
Elva Chong

Approved by : _____
Kin Wong

Date: 7-Mar-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Self-generated noise:** 14.8 dBA (Mfr's Spec ≤ 17 dBA)

2. **Acoustical signal test**

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
30-130	A	F	OFF	94.0	94.0
		S	OFF		94.0
	C	F	OFF		94.0
	Z	F	OFF		94.0
	A	F	OFF	114.0	114.1
		S	OFF		114.1
	C	F	OFF		114.1
	Z	F	OFF		114.1

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

3 **Electrical signal tests of frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 2 dB
63 Hz	-26.3	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.9	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.1	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 022 hPa.
4. Preamplifier model : NH-25 , S/N : 64645
5. Firmware Version: 1.7
6. Power Supply Check: OK
7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

--- END ---

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. **801919** Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80767 **Date of receipt :** 27-Feb-18

Item Tested

Description : Sound Level Meter

Manufacturer : Rion **I.D.** : ET/EN/003/19

Model : NL-52 **Serial No.** : 00264521

Test Conditions

Date of Test : 7-Mar-18 **Supply Voltage** : --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type 1 or manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance 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 measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 7-Mar-18

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Self-generated noise:** 15.7 dBA (Mfr's Spec ≤ 17 dBA)

2. **Acoustical signal test**

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
30-130	A	F	OFF	94.0	94.0
		S	OFF		94.0
	C	F	OFF		94.0
	Z	F	OFF		94.0
	A	F	OFF	114.0	114.1
		S	OFF		114.1
	C	F	OFF		114.1
	Z	F	OFF		114.1

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

3 **Electrical signal tests of frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 2 dB
63 Hz	-26.3	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+1.0	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 022 hPa.
4. Preamplifier model : NH-25 , S/N : 64646
5. Firmware Version: 1.7
6. Power Supply Check: OK
7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Appendix E2

Impact Noise Monitoring Results

Day-time Noise Monitoring

Monitoring Station: NSR1a

Date	Weather	Temperature (℃)	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at NSR1a, dB (A)			Wind Speed (m/s)
					Leq (30min)	L10 (30min)	L90 (30min)	
05/10/18	Cloudy	26	14:00	14:30	67.2	70.8	62.5	0.3
11/10/18	Cloudy	24	13:00	13:30	70.3	73.6	67.1	0.2
16/10/18	Cloudy	25	13:00	13:30	66.4	69.5	62.1	0.4
22/10/18	Cloudy	24	09:20	09:50	71.5	73.8	67.1	0.2
27/10/18	Fine	25	08:55	09:25	67.9	70.2	63.1	0.2
			Min		66.4	69.5	62.1	
			Max		71.5	73.8	67.1	
			Logarithmic Average for normal weekdays		69.1	71.9	65.0	

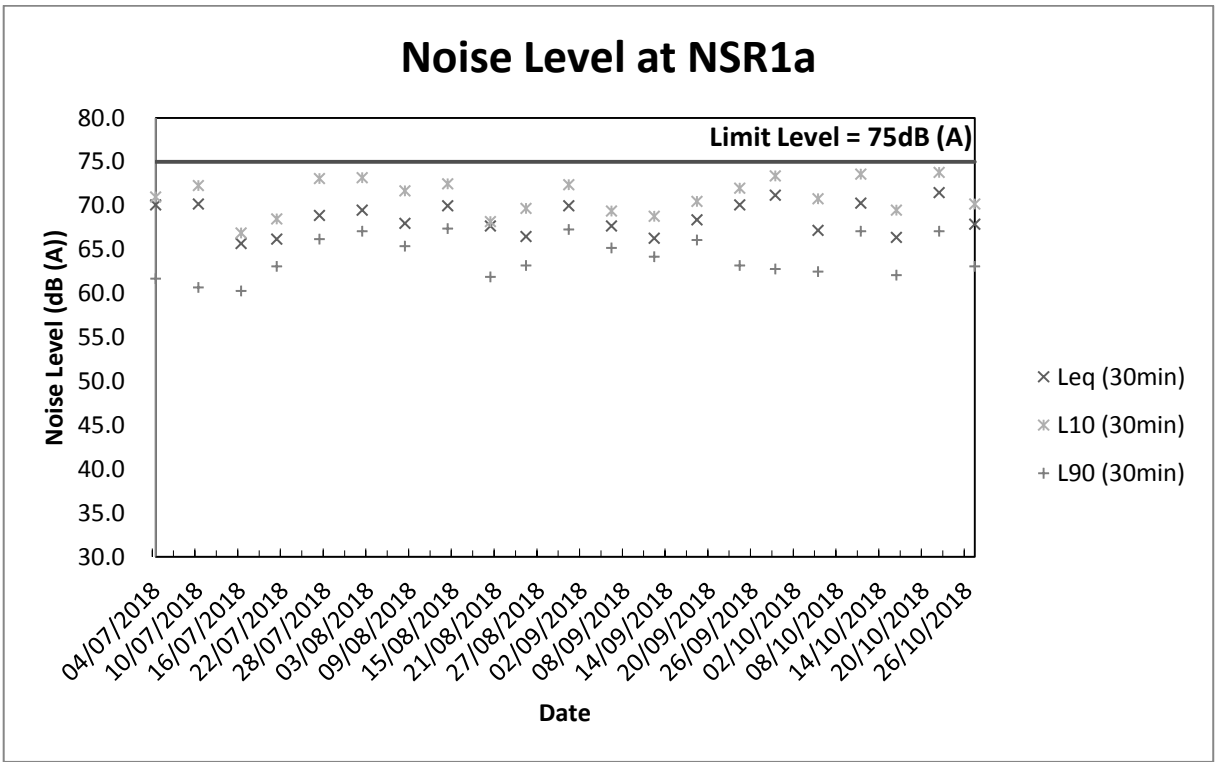
Monitoring Station: NSR2b

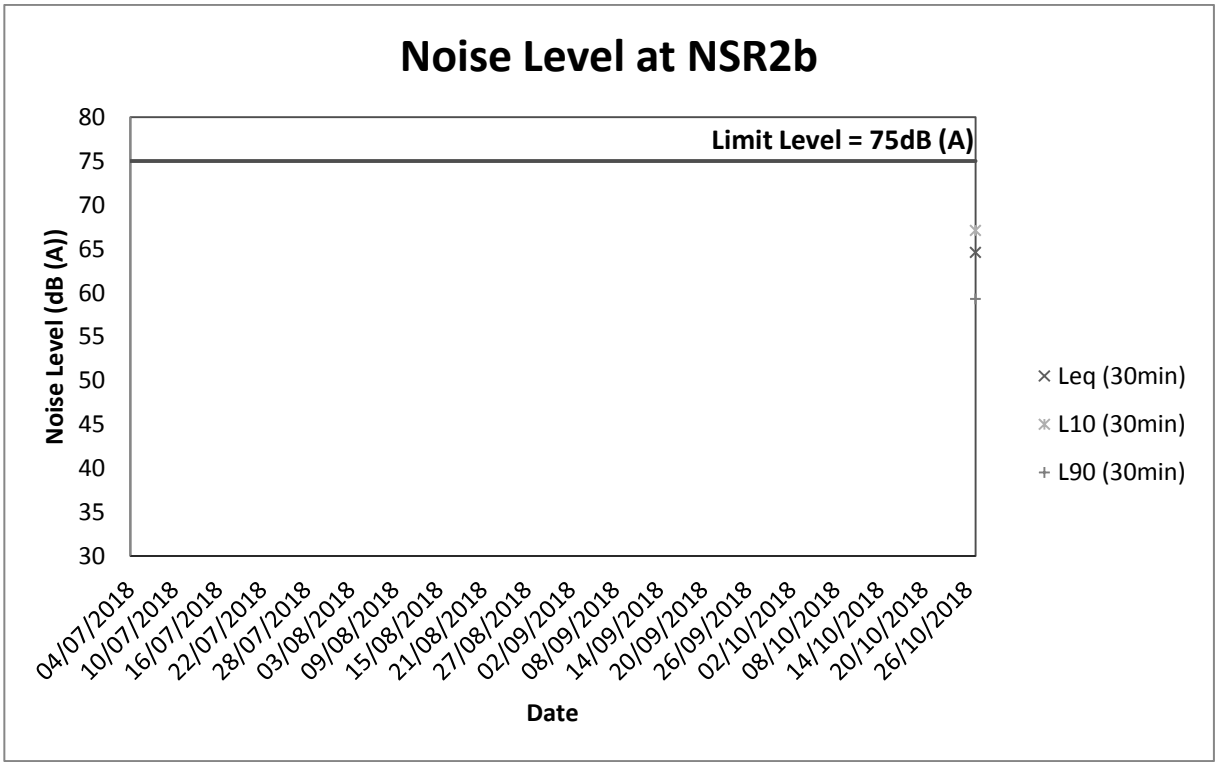
Date	Weather	Temperature (℃)	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at NSR2b, dB (A)			Wind Speed (m/s)
					Leq (30min)	L10 (30min)	L90 (30min)	
27/10/18	Fine	25	09:50	10:20	64.6	67.1	59.3	0.3
			Min		64.6	67.1	59.3	
			Max		64.6	67.1	59.3	
			Logarithmic Average for normal weekdays		64.6	59.3	51.5	

(*) : 3dB(A) correction was added to the results during the free-field noise measurements

Appendix E3

Graphical Plots of Impact Noise Monitoring Data


Noise Level at NSR1a
Limit Level = 75dB (A)
Noise Level (dB (A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
04/07/2018
10/07/2018
16/07/2018
22/07/2018
28/07/2018
03/08/2018
09/08/2018
15/08/2018
21/08/2018
27/08/2018
02/09/2018
08/09/2018
14/09/2018
20/09/2018
26/09/2018
02/10/2018
08/10/2018
14/10/2018
20/10/2018
26/10/2018
Date
Leq (30min)
L10 (30min)
L90 (30min)


Noise Level at NSR2b
Limit Level = 75dB (A)
Noise Level (dB (A))
80
75
70
65
60
55
50
45
40
35
30
04/07/2018
10/07/2018
16/07/2018
22/07/2018
28/07/2018
03/08/2018
09/08/2018
15/08/2018
21/08/2018
27/08/2018
02/09/2018
08/09/2018
14/09/2018
20/09/2018
26/09/2018
02/10/2018
08/10/2018
14/10/2018
20/10/2018
26/10/2018
Date
Leq (30min)
L10 (30min)
L90 (30min)

Appendix F1

Calibration Certificates for Impact Water Quality Monitoring Equipments

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/015 Manufacturer : HACH

Model No. : 2100Q Serial No. : 14110C036534

Date of Calibration : 25/7/18 Due Date : 24/10/18

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	20.3	1.5%
100	101	1.0%
800	784	-2.0%

(*) Difference = (Measured Value – Theoretical Value) / Theoretical Value x 100

Acceptance Criteria

Difference : -5 % to 5 %

The turbidity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Prepared by : _____ Checked by : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/015 Manufacturer : HACH

Model No. : 2100Q Serial No. : 14110C036534

Date of Calibration : 25/10/18 Due Date : 24/1/19

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	20.4	+2.0%
100	98.5	-1.5%
800	800	0.0%

(*) Difference = (Measured Value – Theoretical Value) / Theoretical Value x 100

Acceptance Criteria

Difference : -5 % to 5 %

The turbidity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Prepared by : _____ Checked by : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Form E/CE/R/24 Issue 1 (1/1) [01/18]

Calibration Report of Dissolved Oxygen Meter (*In situ* Measurement)

Equipment Ref. No. :	ET/EW/008/006	Manufacturer :	YSI
Model No. :	Pro 2030	Serial No. :	12A100554
Calibration Date :	2/9/2018	Calibration Due Date :	1/12/2018

Temperature Verification by Reference Thermometer (ET/0521/028)

	Temperature Reading (°C)	Correction (°C)	Corrected Temperature (°C)	Difference (°C)
Reference Thermometer	20.3	0.0	20.3	0.2
DO Meter	20.5	0.0	20.5	

Criteria: Difference between corrected temperature from DO meter and reference thermometer : < ± 0.5 °C

Zero Point Checking

DO meter reading (mg/L)	0.03

Criteria: Zero checking: 0.0 mg/L

Linearity Checking of Dissolved Oxygen Content by APHA 19ed 4500-O G

Purging time, min	Expected DO value (mg/L) (ET/0510/012)	DO meter reading (mg/L)	Difference of DO Content (mg/L)
2	6.85	7.05	0.20
5	4.37	4.25	0.12
10	1.80	1.71	0.09

Criteria: Difference between DO meter reading and expected DO value: < ±0.30 mg/L

Salinity Checking by APHA 19ed 2520 B

	Expected Salinity (ppt)	DO meter reading (ppt)
Reagent No. of NaCl (10 ppt): CPE/012/4.7/27	10	9.2
Reagent No. of NaCl (30 ppt): CPE/012/4.8/27	30	28.3

Criteria: Difference between DO meter reading and expected Salinity: ±10.0 %

The equipment complies # / ~~does not comply~~ # with the specified requirements and is deemed acceptable # / ~~unacceptable~~ # for use.

Delete as appropriate

Calibrated by : _____ Approved by : _____

CPE/024/W

Appendix F2

Impact Water Quality Monitoring Results

Impact Water Quality Monitoring

Monitoring Station: R1b

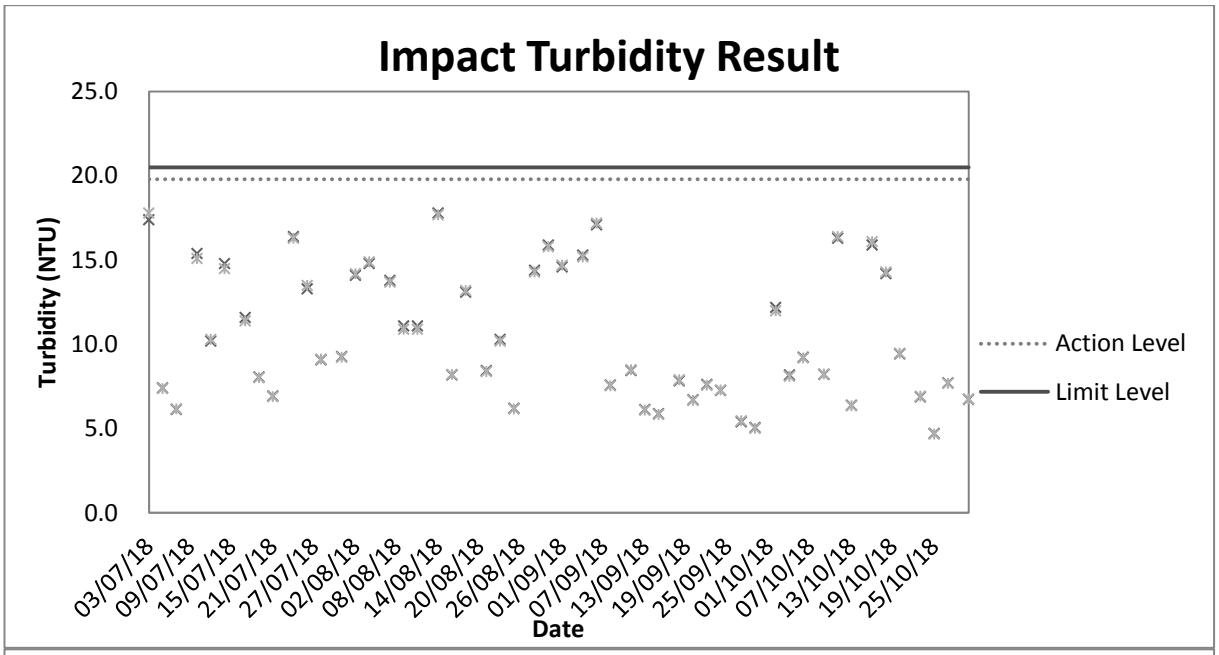
Date	Sampling Duration	Weather Condition	Sampling Level	Turbidity (NTU)			Dissolved Oxygen (DO) (mg/L)			Suspended Solid (SS) (mg/L)		
				1	2	Ave.	1	2	Ave.	1	2	Ave.
02/10/18	13:15-13:20	Fine	Mid-Depth	12.2	12.0	12.1	1.97	1.95	1.96	<5	<5	<5
04/10/18	07:40-07:45	Fine	Mid-Depth	8.2	8.1	8.2	2.30	2.33	2.32	<5	<5	<5
06/10/18	07:30-07:35	Fine	Mid-Depth	9.2	9.2	9.2	2.12	2.08	2.10	7	6	6
09/10/18	12:05-12:10	Fine	Mid-Depth	8.2	8.3	8.2	2.44	2.42	2.43	<5	<5	<5
11/10/18	13:35-13:46	Cloudy	Mid-Depth	16.3	16.4	16.4	2.63	2.60	2.62	7	7	7
13/10/18	11:15-11:25	Cloudy	Mid-Depth	6.4	6.4	6.4	2.54	2.57	2.56	<5	<5	<5
16/10/18	12:00-12:20	Cloudy	Mid-Depth	15.9	16.1	16.0	2.43	2.39	2.41	11	12	12
18/10/18	11:25-11:30	Drizzle	Mid-Depth	14.2	14.3	14.3	2.67	2.70	2.69	<5	<5	<5
20/10/18	07:30-07:35	Fine	Mid-Depth	9.4	9.5	9.5	2.74	2.72	2.73	6	6	6
23/10/18	11:15-11:30	Cloudy	Mid-Depth	6.9	6.9	6.9	2.54	2.51	2.53	<5	<5	<5
25/10/18	11:30-11:35	Cloudy	Mid-Depth	4.7	4.7	4.7	2.09	2.12	2.11	<5	<5	<5
27/10/18	11:00-11:05	Cloudy	Mid-Depth	7.7	7.7	7.7	2.68	2.65	2.67	<5	<5	<5
30/10/18	13:00-13:15	Fine	Mid-Depth	6.7	6.8	6.8	2.29	2.31	2.30	<5	<5	<5
				Min		4.7	Min		1.95	Min		<5
				Max		16.4	Max		2.74	Max		12
				Average		9.7	Average		2.42	Average		2

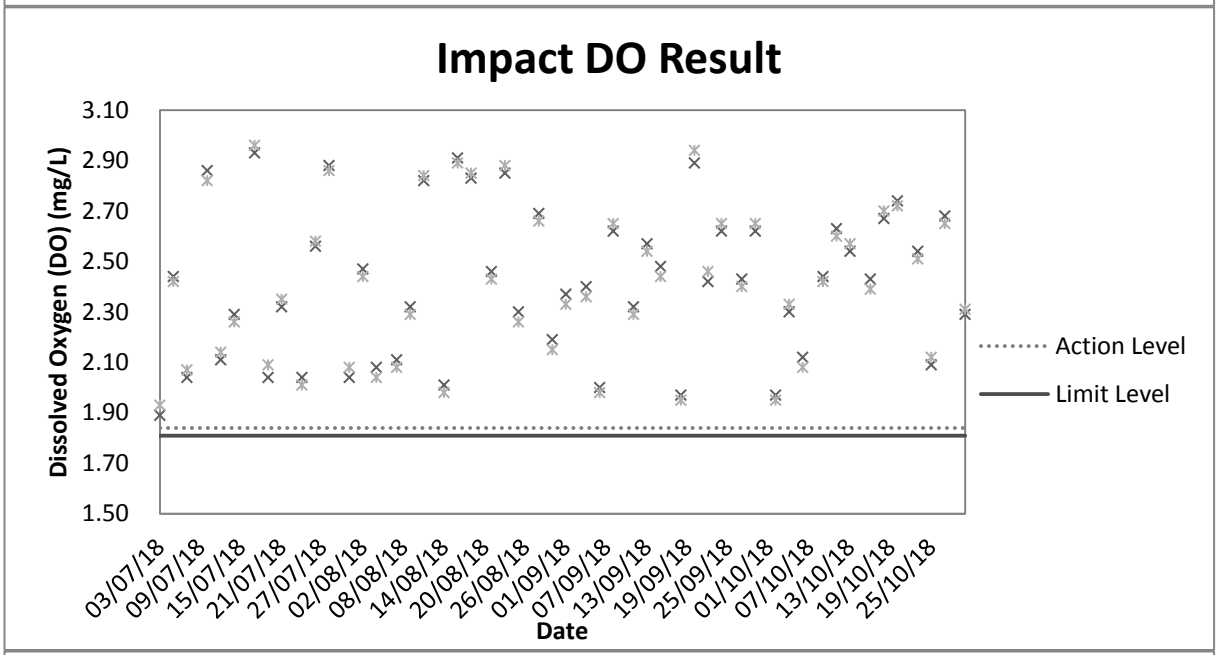
Remark(s):

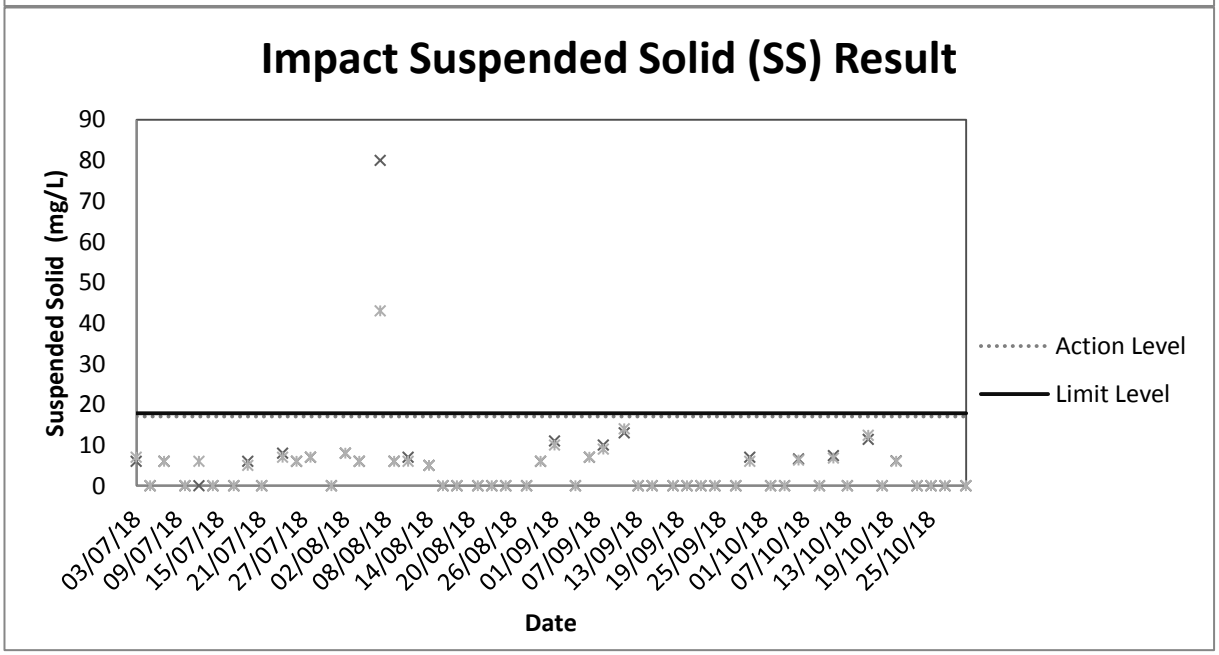
1. (#) 200ml sample was used for Suspended Solids analysis. Practical Quantitation Limit of Suspended Solids reported less than 5 mg/L. The results reported as <5 would be counted as zero for average measurement.

Appendix F3

Graphical Plots of Impact Water Quality Monitoring Data


Impact Turbidity Result
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
03/07/18
09/07/18
15/07/18
21/07/18
27/07/18
02/08/18
08/08/18
14/08/18
20/08/18
26/08/18
01/09/18
07/09/18
13/09/18
19/09/18
25/09/18
01/10/18
07/10/18
13/10/18
19/10/18
25/10/18
Date
Action Level
Limit Level


Impact DO Result
Dissolved Oxygen (DO) (mg/L)
3.10
2.90
2.70
2.50
2.30
2.10
1.90
1.70
1.50
03/07/18
09/07/18
15/07/18
21/07/18
27/07/18
02/08/18
08/08/18
14/08/18
20/08/18
26/08/18
01/09/18
07/09/18
13/09/18
19/09/18
25/09/18
01/10/18
07/10/18
13/10/18
19/10/18
25/10/18
Date
Action Level
Limit Level


Impact Suspended Solid (SS) Result
Suspended Solid (mg/L)
90
80
70
60
50
40
30
20
10
0
03/07/18
09/07/18
15/07/18
21/07/18
27/07/18
02/08/18
08/08/18
14/08/18
20/08/18
26/08/18
01/09/18
07/09/18
13/09/18
19/09/18
25/09/18
01/10/18
07/10/18
13/10/18
19/10/18
25/10/18
Date
Action Level
Limit Level

Appendix G

Weather Condition

Daily Extract of Meteorological Observations, October 2018 – Wetland Park

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1013.9	31.3#	26.3	22.4#	20.1	71	0.0	060	3.9
02	1014.9	32.3	25.9	21.5	18.8	69	0.0	050	4.6
03	1015.3	31.8	26.0	22.3	19.2	71	0.0	060	5.3
04	1013.9	31.8	25.5	20.8	17.0	64	0.0	350	3.5
05	1012.3	30.9	24.9	20.4	14.0	55	0.0	340	4.6
06	1013.6	31.7	24.8	18.7	15.3	60	0.0	160	4.7
07	1014.5	32.3	25.7	21.3	19.9	73	0.0	160	4.1
08	1014.0	31.3	26.0	22.3	21.3	77	0.0	170	4.1
09	1013.5	30.6	25.8	22.4	22.1	81	0.0	170	3.4
10	1014.9	29.7	23.5	22.0	21.3	88	14.0	330	4.3
11	1018.2	23.6	22.1	21.2	16.6	71	0.0	030	7.4
12	1019.0	26.8	23.1	20.6	17.7	72	0.0	050	5.5
13	1017.5	28.2	24.3	21.5	19.1	74	0.0	070	5.2
14	1015.3	28.4	24.5	22.1	21.1	82	0.0	110	4.0
15	1014.2	30.6	25.5	22.7	22.2	83	0.0	110	5.3
16	1013.4	26.5	23.6	21.7	22.1	91	4.5	330	3.7
17	1013.0	23.3	21.7	20.7	20.0	90	3.5	050	4.4
18	1015.0	24.2	21.4	19.6	19.8	91	18.0	050	6.0
19	1017.2	27.8	24.1	22.0	19.8	78	0.0	080	9.0
20	1018.6	26.7	24.0	22.2	19.8	78	0.0	080	8.5
21	1017.3	29.5	24.8	21.6	20.5	78	0.0	070	6.0
22	1015.8	30.3	24.1	20.7	21.5	86	0.0	110	3.3
23	1016.5	28.5	24.6	22.0	21.0	81	0.0	060	3.8
24	1016.8	28.2	24.6	22.4	21.2	82	0.0	060	3.9
25	1016.8	29.8	24.8	21.9	21.7	84	0.0	180	3.2
26	1016.6	30.0	25.3	20.7	21.5	81	0.0	330	4.4
27	1018.4	29.4	24.7	20.8	16.2	60	0.0	030	5.8
28	1017.5	29.5	23.0	17.6	12.8	56	0.0	060#	4.1
29	1015.4	29.7	22.0	16.6	12.6	64	0.0	330	4.9
30	1015.1	29.4	22.7	17.3	11.2	54	0.0	030	5.3
31	1014.7	27.8	24.2	19.9	7.5	35	0.0	020	8.6

 # data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Appendix H

Environmental Site Inspection Checklist

Environmental Site Inspection Checklist – San Wai

Inspection Date: 05 October 2018 **Inspected By:** Ivy Lo

Time: 14:30 **Weather Condition:** Sunny

Participants: Patrick Leung, Johnny So, Abby Sham, Jolson Leung

1	**Permits/Licenses**	N/A	Yes	No	Remarks
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	☐	☑	☐	
1.2	Are Construction Noise Permits available for inspection?	☐	☑	☐	
1.3	Is wastewater discharge license available for inspection?	☐	☑	☐	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	☐	☑	☐	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	

2	**Air Quality**	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	☐	☑	☐	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	☐	☑	☐	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	☐	☑	☐	
2.4	Observed dust source(s): ☐ Wind erosion ☐ Vehicle/ Equipment Movements ☐ Loading/ unloading of materials ☑ Others: Not observed				
2.5	Are the work sites wetted with water twice a day?	☐	☑	☐	
2.6	After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately?	☐	☑	☐	
2.7	Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition?	☐	☑	☐	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	☐	☑	☐	
2.9	Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores?	☐	☑	☐	
2.10	Are hoarding ≥ 2.4m tall provided beside roads or area with public access?	☐	☑	☐	
2.11	Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical?	☐	☑	☐	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	☐	☑	☐	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	☐	☑	☐	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	☐	☑	☐	

	before leaving the site?				
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	☐	☑	☐	
2.16	Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity?	☑	☐	☐	
2.17	Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical?	☑	☐	☐	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	☐	☑	☐	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	☑	☐	☐	
2.20	Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides?	☑	☐	☐	
2.21	Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation?	☐	☑	☐	

3	**Noise**	**N/A**	**Yes**	**No**	**Remarks**
3.1	Are idle plant/equipments turned off or throttled down?	☐	☑	☐	
3.2	Are silenced equipments or quiet plants utilized?	☐	☑	☐	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	☐	☑	☐	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	☑	☐	☐	
3.5	Are noise barriers (typically density @14kg/m^2) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs?	☐	☑	☐	
3.6	Do air compressors have valid noise labels?	☑	☐	☐	
3.7	Are compressor operated with doors closed?	☑	☐	☐	
3.8	QPME used with valid noise labels?	☑	☐	☐	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	☑	☐	☐	
3.10	Major noise source(s): ☐ Traffic ☐ Construction activities inside of site ☐ Construction activities outside of site ☐ Others:				

4	**Water Quality**	**N/A**	**Yes**	**No**	**Remarks**
	<u>Construction Activities</u>				
4.1	Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets?	☑	☐	☐	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	☑	☐	☐	

4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	☐	☑	☐	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	☐	☑	☐	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	☑	☐	☐	
4.6	Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible?	☑	☐	☐	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	☑	☐	☐	
4.8	Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins?	☐	☑	☐	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	☐	☑	☐	
4.10	Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers?	☑	☐	☐	
4.11	Is a wheel washing bay provided at every site exit?	☐	☑	☐	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	☐	☑	☐	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	☐	☑	☐	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	☑	☐	☐	
4.15	Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works?	☐	☑	☐	

5	**Waste / Chemical Management**	**N/A**	**Yes**	**No**	**Remarks**
	General Waste				
5.1	Are sufficient waste disposal points provided?	☐	☑	☐	
5.2	Is waste disposed regularly?	☐	☑	☐	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	☐	☑	☐	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	☐	☑	☐	
	Construction Waste				
5.5	Are the temporary stockpiles maintained regularly?	☐	☑	☐	
5.6	Are the C&D materials sorted and recycled on-site?	☐	☑	☐	
5.7	Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal?	☐	☑	☐	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	☐	☑	☐	

5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	☐	☑	☐	
5.10	Are surplus insert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor?	☑	☐	☐	
	Chemical / Fuel Storage Area				
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	☑	☐	☐	
5.12	Are the storage areas labeled and separated (if needed)?	☐	☑	☐	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	☐	☑	☐	
5.14	Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed?	☐	☑	☐	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	☐	☑	☐	
	Chemical Waste / Waste Oil				
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	☐	☑	☐	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	☐	☑	☐	
	Records				
5.18	Is a licensed waste hauler used for waste collection?	☐	☑	☐	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	☐	☑	☐	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	☐	☑	☐	

6	**Landscape and Visual Impacts**	**N/A**	**Yes**	**No**	**Remarks**
6.1	Is the work site confined within site boundaries?	☐	☑	☐	
6.2	Is damage to surrounding areas avoided?	☐	☑	☐	

7	**Environmental Complaint**	**N/A**	**Yes**	**No**	**Remarks**
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	☑	☐	☐	

8	**General Housekeeping**	**N/A**	**Yes**	**No**	**Remarks**
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	☐	☐	☑	Item 1
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	☐	☑	☐	

9	**Others**	**N/A**	**Yes**	**No**	**Remarks**
9.1	Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets?	☐	☑	☐	

Follow up actions for pervious Site Audit: N/A

Observations

1. Stagnant water was observed inside the drip tray of a generator at Portion 1

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

1. The contractor should clear the stagnant water.

Signature:
ET's representative

Name: Ivy Lo
Date: 5/10/2018

Signature:
Contractor's representative

Name: Sham Ching Yi
Date: 25/10/18

Signature:
ET Leader

Name: C. L. Lau
Date: 6/10/2018

Signature:
SO's representative

Name: C Woods
Date: 8/10/2018

Summary of the Weekly Environmental Site Inspection

Item	Details of observations	Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Proposed Follow up Date
1	 Stagnant water was observed inside the drip tray of a generator at Portion 1	To clear the stagnant water	181005_001	Yes	12/10/2018

Environmental Site Inspection Checklist – San Wai

Inspection Date: 11.10.18 **Inspected By:** Frankie Tong
Time: 9:00 **Weather Condition:** Fine
Participants: Patrick Leung, Johnny So, Abby Shum, Joshua Leung

		N/A	Yes	No	Remarks
1	**Permits/Licenses**				
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	☐	☑	☐	
1.2	Are Construction Noise Permits available for inspection?	☐	☑	☐	
1.3	Is wastewater discharge license available for inspection?	☐	☑	☐	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	☐	☑	☐	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	

		N/A	Yes	No	Remarks
2	**Air Quality**				
2.1	Is open burning avoided?	☐	☑	☐	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	☐	☑	☐	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	☐	☑	☐	
2.4	Observed dust source(s): ☐ Wind erosion ☐ Vehicle/ Equipment Movements ☐ Loading/ unloading of materials ☑ Others: Not observed				
2.5	Are the work sites wetted with water twice a day?	☐	☑	☐	
2.6	After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately?	☐	☑	☐	
2.7	Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition?	☐	☑	☐	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	☐	☑	☐	
2.9	Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores?	☐	☑	☐	
2.10	Are hoarding ≧ 2.4m tall provided beside roads or area with public access?	☐	☑	☐	
2.11	Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical?	☐	☑	☐	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	☐	☑	☐	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	☐	☑	☐	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	☐	☑	☐	

	before leaving the site?				
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	☐	☑	☐	
2.16	Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity?	☑	☐	☐	
2.17	Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical?	☑	☐	☐	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	☐	☑	☐	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	☑	☐	☐	
2.20	Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides?	☑	☐	☐	
2.21	Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation?	☐	☑	☐	

3	**Noise**	**N/A**	**Yes**	**No**	**Remarks**
3.1	Are idle plant/equipments turned off or throttled down?	☐	☑	☐	
3.2	Are silenced equipments or quiet plants utilized?	☐	☑	☐	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	☐	☑	☐	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	☑	☐	☐	
3.5	Are noise barriers (typically density @14kg/m^2) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs?	☐	☑	☐	
3.6	Do air compressors have valid noise labels?	☑	☐	☐	
3.7	Are compressor operated with doors closed?	☑	☐	☐	
3.8	QPME used with valid noise labels?	☑	☐	☐	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	☑	☐	☐	
3.10	Major noise source(s): ☐ Traffic ☑ Construction activities inside of site ☐ Construction activities outside of site ☐ Others:				

4	**Water Quality**	**N/A**	**Yes**	**No**	**Remarks**
	Construction Activities				
4.1	Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets?	☑	☐	☐	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	☑	☐	☐	

4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	☐	☑	☐	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	☐	☑	☐	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	☑	☐	☐	
4.6	Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible?	☑	☐	☐	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	☑	☐	☐	
4.8	Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins?	☐	☑	☐	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	☐	☑	☐	
4.10	Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers?	☑	☐	☐	
4.11	Is a wheel washing bay provided at every site exit?	☐	☑	☐	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	☐	☑	☐	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	☐	☑	☐	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	☑	☐	☐	
4.15	Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works?	☐	☑	☐	

5	**Waste / Chemical Management**	N/A	Yes	No	Remarks
	General Waste				
5.1	Are sufficient waste disposal points provided?	☐	☑	☐	
5.2	Is waste disposed regularly?	☐	☑	☐	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	☐	☑	☐	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	☐	☑	☐	
	Construction Waste				
5.5	Are the temporary stockpiles maintained regularly?	☐	☑	☐	
5.6	Are the C&D materials sorted and recycled on-site?	☐	☑	☐	
5.7	Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal?	☐	☑	☐	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	☐	☑	☐	

5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	☐	☑	☐	
5.10	Are surplus insert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor?	☑	☐	☐	
	Chemical / Fuel Storage Area				
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	☑	☐	☐	
5.12	Are the storage areas labeled and separated (if needed)?	☐	☑	☐	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	☐	☑	☐	
5.14	Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed?	☐	☑	☐	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	☐	☑	☐	
	Chemical Waste / Waste Oil				
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	☐	☑	☐	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	☐	☑	☐	
	Records				
5.18	Is a licensed waste hauler used for waste collection?	☐	☑	☐	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	☐	☑	☐	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	☐	☑	☐	

6	**Landscape and Visual Impacts**	**N/A**	**Yes**	**No**	**Remarks**
6.1	Is the work site confined within site boundaries?	☐	☑	☐	
6.2	Is damage to surrounding areas avoided?	☐	☑	☐	

7	**Environmental Complaint**	**N/A**	**Yes**	**No**	**Remarks**
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	☑	☐	☐	

8	**General Housekeeping**	**N/A**	**Yes**	**No**	**Remarks**
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	☐	☐	☑	Nil
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	☐	☑	☐	

9	**Others**	**N/A**	**Yes**	**No**	**Remarks**
9.1	Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets?	☐	☑	☐	

Follow up actions for pervious Site Audit: Follow up action to item on 5.10.18, all items was improved.

Observations 1. Stagnant water was found accumulated on the road ~~west~~ near SDB. X

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

Item 1 : To clean the stagnant water properly.

Signature:
ET's representative

Name: Frankie Tang
Date: 12.10.2018

Signature:
Contractor's representative

Name: Abby Sham
Date: 12/10/18

Signature:
ET Leader

Name: C.L. Law
Date: 13.10.2018

Signature:
SO's representative

Name: CY WONG
Date: 12.10.2018

Summary of the Weekly Environmental Site Inspection

Item	Details of observations	Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Proposed Follow up Date
--	 Follow up action to Item 1 on 05/10/2018, stagnant water was cleared inside the drip tray of a generator at Portion 1	--	181012_001	No	--

1	 Stagnant water was found accumulated on the road near SDB.	To clear the stagnant water	181012_001	Yes	19/10/2018

Environmental Site Inspection Checklist – San Wai

Inspection Date: 19 October 2018 **Inspected By:** Ivy Lo

Time: 14:30 **Weather Condition:** Fine

Participants: Kelvin Tang, Abby Sham, Jason Leung

1	**Permits/Licenses**	N/A	Yes	No	Remarks
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	☐	☑	☐	
1.2	Are Construction Noise Permits available for inspection?	☐	☑	☐	
1.3	Is wastewater discharge license available for inspection?	☐	☑	☐	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	☐	☑	☐	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	

2	**Air Quality**	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	☐	☑	☐	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	☐	☑	☐	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	☐	☑	☐	
2.4	Observed dust source(s): ☐ Wind erosion ☐ Vehicle/ Equipment Movements ☐ Loading/ unloading of materials ☑ Others: Not observed				
2.5	Are the work sites wetted with water twice a day?	☐	☑	☐	
2.6	After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately?	☐	☑	☐	
2.7	Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition?	☐	☑	☐	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	☐	☑	☐	
2.9	Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores?	☐	☑	☐	
2.10	Are hoarding ≧ 2.4m tall provided beside roads or area with public access?	☐	☑	☐	
2.11	Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical?	☐	☑	☐	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	☐	☑	☐	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	☐	☑	☐	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	☐	☑	☐	

	before leaving the site?				
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	☐	☑	☐	
2.16	Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity?	☑	☐	☐	
2.17	Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical?	☑	☐	☐	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	☐	☑	☐	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	☑	☐	☐	
2.20	Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides?	☑	☐	☐	
2.21	Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation?	☐	☑	☐	

3	**Noise**	**N/A**	**Yes**	**No**	**Remarks**
3.1	Are idle plant/equipments turned off or throttled down?	☐	☑	☐	
3.2	Are silenced equipments or quiet plants utilized?	☐	☑	☐	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	☐	☑	☐	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	☑	☐	☐	
3.5	Are noise barriers (typically density @14kg/m^2) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs?	☐	☑	☐	
3.6	Do air compressors have valid noise labels?	☑	☐	☐	
3.7	Are compressor operated with doors closed?	☑	☐	☐	
3.8	QPME used with valid noise labels?	☑	☐	☐	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	☑	☐	☐	
3.10	Major noise source(s): ☐ Traffic ☑ Construction activities inside of site ☐ Construction activities outside of site ☐ Others:				

4	**Water Quality**	**N/A**	**Yes**	**No**	**Remarks**
	<u>Construction Activities</u>				
4.1	Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets?	☑	☐	☐	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	☑	☐	☐	

4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	☐	☑	☐	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	☐	☑	☐	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	☑	☐	☐	
4.6	Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible?	☑	☐	☐	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	☑	☐	☐	
4.8	Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins?	☐	☑	☐	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	☐	☑	☐	
4.10	Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers?	☑	☐	☐	
4.11	Is a wheel washing bay provided at every site exit?	☐	☑	☐	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	☐	☑	☐	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	☐	☑	☐	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	☑	☐	☐	
4.15	Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works?	☐	☑	☐	

5	**Waste / Chemical Management**	**N/A**	**Yes**	**No**	**Remarks**
	General Waste				
5.1	Are sufficient waste disposal points provided?	☐	☑	☐	
5.2	Is waste disposed regularly?	☐	☑	☐	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	☐	☑	☐	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	☐	☑	☐	
	Construction Waste				
5.5	Are the temporary stockpiles maintained regularly?	☐	☑	☐	
5.6	Are the C&D materials sorted and recycled on-site?	☐	☑	☐	
5.7	Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal?	☐	☑	☐	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	☐	☑	☐	

5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	☐	☑	☐	
5.10	Are surplus insert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor?	☑	☐	☐	
	Chemical / Fuel Storage Area				
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	☑	☐	☐	
5.12	Are the storage areas labeled and separated (if needed)?	☐	☑	☐	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	☐	☑	☐	
5.14	Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed?	☐	☑	☐	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	☐	☑	☐	
	Chemical Waste / Waste Oil				
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	☐	☑	☐	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	☐	☑	☐	
	Records				
5.18	Is a licensed waste hauler used for waste collection?	☐	☑	☐	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	☐	☑	☐	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	☐	☑	☐	

6	**Landscape and Visual Impacts**	**N/A**	**Yes**	**No**	**Remarks**
6.1	Is the work site confined within site boundaries?	☐	☑	☐	
6.2	Is damage to surrounding areas avoided?	☐	☑	☐	

7	**Environmental Complaint**	**N/A**	**Yes**	**No**	**Remarks**
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	☑	☐	☐	

8	**General Housekeeping**	**N/A**	**Yes**	**No**	**Remarks**
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	☐	☑	☐	
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	☐	☑	☐	

9	**Others**	**N/A**	**Yes**	**No**	**Remarks**
9.1	Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets?	☐	☑	☐	

Follow up actions for pervious Site Audit:	Follow up action to item on 12/10/2018, all item was improved.
Observations	No adverse items were recorded during this inspection.
Corrective Actions – Mitigation Measures Implemented or Proposed (if any):	NA

Signature:
ET's representative

Name: Ivy Lo

Date: 19/10/2018

Signature:
Contractor's representative

Name: Sham Ching Yi

Date: 19/10/18

Signature:
ET Leader

Name: C. L. Lau

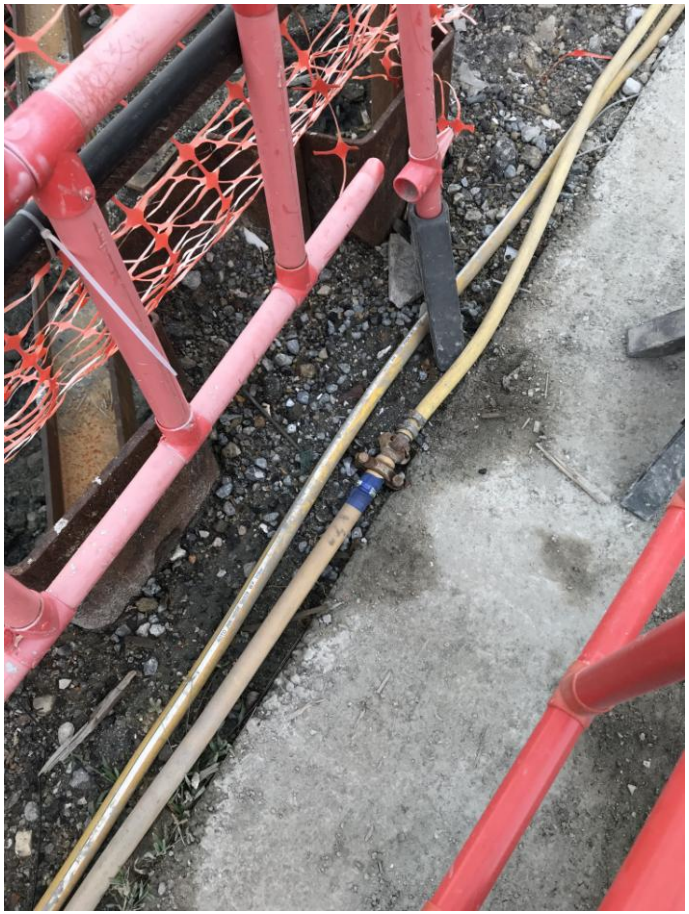
Date: 20/10/2018

Signature:
SO's representative

Name: C Y Wong

Date: 19/10/2018

Summary of the Weekly Environmental Site Inspection

Item	Details of observations	Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Proposed Follow up Date
--	 Follow up action to Item 1 on 12/10/2018, stagnant water was cleared on the road near SDB.	--	181019_001	No	--

Environmental Site Inspection Checklist – San Wai

Inspection Date: 25-10-18 **Inspected By:** Frankie Tang

Time: 14:30 **Weather Condition:** Fine

Participants: & Patrick Leung, Teddy [illegible], Ashley Shum, Jackson [illegible]

1	Permits/Licenses	N/A	Yes	No	Remarks
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	☐	☑	☐	
1.2	Are Construction Noise Permits available for inspection?	☐	☑	☐	
1.3	Is wastewater discharge license available for inspection?	☐	☑	☐	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	☐	☑	☐	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	

2	Air Quality	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	☐	☑	☐	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	☐	☑	☐	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	☐	☑	☐	
2.4	Observed dust source(s): ☐ Wind erosion ☐ Vehicle/ Equipment Movements ☐ Loading/ unloading of materials ☑ Others: Not observed				
2.5	Are the work sites wetted with water twice a day?	☐	☑	☐	
2.6	After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately?	☐	☑	☐	
2.7	Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition?	☐	☑	☐	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	☐	☑	☐	
2.9	Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores?	☐	☑	☐	
2.10	Are hoarding ≧ 2.4m tall provided beside roads or area with public access?	☐	☑	☐	
2.11	Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical?	☐	☑	☐	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	☐	☑	☐	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	☐	☑	☐	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	☐	☑	☐	

	before leaving the site?				
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	☐	☑	☐	
2.16	Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity?	☑	☐	☐	
2.17	Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical?	☑	☐	☐	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	☐	☑	☐	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	☑	☐	☐	
2.20	Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides?	☑	☐	☐	
2.21	Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation?	☐	☑	☐	

3	**Noise**	N/A	Yes	No	Remarks
3.1	Are idle plant/equipments turned off or throttled down?	☐	☑	☐	
3.2	Are silenced equipments or quiet plants utilized?	☐	☑	☐	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	☐	☑	☐	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	☑	☐	☐	
3.5	Are noise barriers (typically density @14kg/m^2) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs?	☐	☑	☐	
3.6	Do air compressors have valid noise labels?	☑	☐	☐	
3.7	Are compressor operated with doors closed?	☑	☐	☐	
3.8	QPME used with valid noise labels?	☑	☐	☐	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	☑	☐	☐	
3.10	Major noise source(s): ☐ Traffic ☑ Construction activities inside of site ☐ Construction activities outside of site ☐ Others:				

4	**Water Quality**	N/A	Yes	No	Remarks
	Construction Activities				
4.1	Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets?	☑	☐	☐	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	☑	☐	☐	

4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	☐	☑	☐	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	☐	☑	☐	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	☑	☐	☐	
4.6	Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible?	☑	☐	☐	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	☑	☐	☐	
4.8	Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins?	☐	☑	☐	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	☐	☑	☐	
4.10	Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers?	☑	☐	☐	
4.11	Is a wheel washing bay provided at every site exit?	☐	☑	☐	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	☐	☑	☐	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	☐	☑	☐	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	☑	☐	☐	
4.15	Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works?	☐	☑	☐	

5	**Waste / Chemical Management**	**N/A**	**Yes**	**No**	**Remarks**
	General Waste				
5.1	Are sufficient waste disposal points provided?	☐	☑	☐	
5.2	Is waste disposed regularly?	☐	☑	☐	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	☐	☑	☐	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	☐	☑	☐	
	Construction Waste				
5.5	Are the temporary stockpiles maintained regularly?	☐	☑	☐	
5.6	Are the C&D materials sorted and recycled on-site?	☐	☑	☐	
5.7	Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal?	☐	☑	☐	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	☐	☑	☐	

5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	☐	☑	☐	
5.10	Are surplus insert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor?	☑	☐	☐	
	Chemical / Fuel Storage Area				
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	☑	☐	☐	
5.12	Are the storage areas labeled and separated (if needed)?	☐	☑	☐	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	☐	☑	☐	
5.14	Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed?	☐	☑	☐	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	☐	☑	☐	
	Chemical Waste / Waste Oil				
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	☑	☐	☐	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	☐	☐	☑	N/A
	Records				
5.18	Is a licensed waste hauler used for waste collection?	☐	☑	☐	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	☐	☑	☐	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	☐	☑	☐	

6	**Landscape and Visual Impacts**	N/A	Yes	No	Remarks
6.1	Is the work site confined within site boundaries?	☐	☑	☐	
6.2	Is damage to surrounding areas avoided?	☐	☑	☐	

7	**Environmental Complaint**	N/A	Yes	No	Remarks
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	☑	☐	☐	

8	**General Housekeeping**	N/A	Yes	No	Remarks
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	☐	☐	☑	N/A
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	☐	☑	☐	

9	**Others**	N/A	Yes	No	Remarks
9.1	Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets?	☐	☑	☐	

Follow up actions for pervious Site Audit: N/A

Observations Item 1: Stagnant water and oil were found accumulated inside the chemical container near UV Zone.

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

Item 1: To clean the stagnant water and oil properly

Signature:
ET's representative

Name: Tang Chung Hong
Date: 25.10.18

Signature:
Contractor's representative

Name: Abby Sham
Date: 25/10/2018

Signature:
ET Leader

Name: C.K. Lau
Date: 26.10.18

Signature:
SO's representative

Name: C Y Cheung
Date: 25/10/2018

Summary of the Weekly Environmental Site Inspection

Item	Details of observations	Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Proposed Follow up Date
1	 Stagnant water and oil were found accumulated inside the chemical container near UV Zone.	To clear the stagnant water and oil properly	181025_001	Yes	01/11/2018

Appendix I

Landscape and Visual Impact Assessment Checklist

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 4 October 2018 **Weather:** Sunny/ ~~Fine/ Cloudy/ Rainy~~
Time: 14:30 p.m. **Wind:** ~~Strong/ Breeze/ Light/~~ Calm

Item	Description	YES	NO	N/A	Actions/ Remarks
1	**Construction Phase**				
1.1	Is the detailed tree survey completed prior to construction work?	✓□			
1.2	Are trees to be transplanted removed to their final positions?		✓□		
1.3	Are the transplants and existing trees to be retained properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect?	✓□			Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot.
1.4	Is regular inspection of the retained and transplanted trees made to ensure the effectiveness of the hoarding?	✓□			
1.5	Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities?	✓□			Except trees far beyond the extent of construction activities, strong protective fence is noted. Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot.
1.6	Are warning signs and notices installed at the fences denoting the "tree protection zone" to prohibit the entry of equipment or construction activities?	✓□			
1.7	Are tree labels with clear indication of tree no. and status (e.g. "R", "T" or "F") provided for all the trees on site?	✓□			
1.8	If protective fencings are not practicable, are the tree root systems adequately protected from soil compaction due to passage of vehicles, equipment or machinery?	✓□			

1.9	Are vehicular/foot paths and storage areas designated away from TPZ?	✓□			
1.10	Are the trees properly irrigated and sprayed with water to remove the accumulated construction dust during dry season in order to lessen the chances of decline and to maintain the vigour of trees?			✓□	
1.11	Are the trees free from any sign of distress, such as dieback, leaf loss, or general decline in tree health or appearance or tree damage with symptoms of construction injury?			✓□	Trees in eastern boundary: 1) Dead branches to remove 2) Tear bark/ stubs to be properly primed.
1.12	Are the trees free from wire or nail and prohibited to be used as anchor for any site activities?		✓□		1) Weeds climbers was found clinging on trees at south west corner.
1.13	Are cutting, trenching, excavating or raising of soil level within the TPZ prohibited?	✓□			
1.14	Is improper pruning of the tree branches/roots prohibited?	✓□			
1.15	Are the trees free from any tree root damage?	✓□			
1.16	Are construction works or operation of machines within the TPZ prohibited?	✓□			
1.17	Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage?	✓□			
1.18	Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works?			✓□	The site has previously been reclaimed from ponds. Most of the excavated topsoil is not desirable for reuse due to its inferior quality. Contractor's submitted referencing documents are attached in the checklist dated 4 May, 2018 for information.
1.19	Is the progress of the above activities reported in the monthly EM&A report?	✓□			
2	**Operational Phase (12 months period from commissioning of the expanded and upgraded works)**				

2.1	Is a planting reserve, where locates around the site perimeter of approximately 5m wide, provided to allow a continuous belt of trees to be planted as a visual screen?			✓□	
2.2	Is the planting reserve complemented the boundary planting to the existing San Wai STW?			✓□	
2.3	Is all new planting maintained for 12 months to ensure proper establishment?			✓□	
2.4	Are the trees free from sign of deterioration of tree health and/or structure?			✓□	
2.5	Are the trees free from insect pests and disease pathogens?			✓□	
2.6	Are the irrigation systems functioning properly and well maintained?			✓□	
2.7	Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery?			✓□	

Summary/ Remarks:

Follow up actions taken by Contractor for previous comments:

1. Trees at eastern boundary – pruning of dead branches has carried out. Contractor is reminded to carry out proper reduction cut to some of the branches in future to meet the current tree care standard.

The contractor was reminded to rectify the following:

1. Generally, contractor was reminded to keep on the tree protection and maintenance.
2. Weeds climbers was found clinging on the trees at south west corner. Contractor is required to remove it immediately.

New Observation:

1. Grade change and construction activities are noted on site. Contractor was reminded not to disturb the TPZ.

Reminders:

1. Contractor was reminded to provide TPZ with robust fence, whenever possible, at the drip line of all retained trees unless the trees are well beyond the extend of construction activities.

Photo Record:

Figure 1	Figure 2
	
General condition of the tress at northern side of the site	Weeds found at south-west corner of the site to be removed

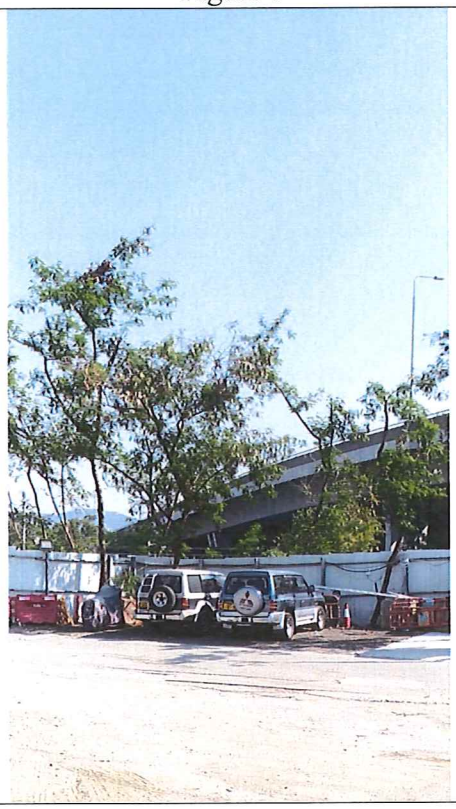
Figure 3	Figure 4
	
Tree protection to be make good	Condition of trees at the entrance of the existing treatment plant after typhoon

Figure 5	Figure 6
	
General condition of the existing trees at eastern boundary	Proper protective fence (outside works extent) is noted

Signature:

		Signature	Date
Inspected & Recorded by	Registered Landscape Architect	Xylem Leung	

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 19 October 2018 **Weather:** Sunny/ ~~Fine/ Cloudy/ Rainy~~
Time: 14:30 p.m. **Wind:** ~~Strong/ Breeze/ Light/~~ Calm

Item	Description	YES	NO	N/A	Actions/ Remarks
1	**Construction Phase**				
1.1	Is the detailed tree survey completed prior to construction work?	✓☐			
1.2	Are trees to be transplanted removed to their final positions?		✓☐		
1.3	Are the transplants and existing trees to be retained properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect?	✓☐			Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot.
1.4	Is regular inspection of the retained and transplanted trees made to ensure the effectiveness of the hoarding?	✓☐			
1.5	Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities?	✓☐			Except trees far beyond the extent of construction activities, strong protective fence is noted. Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot.
1.6	Are warning signs and notices installed at the fences denoting the "tree protection zone" to prohibit the entry of equipment or construction activities?	✓☐			
1.7	Are tree labels with clear indication of tree no. and status (e.g. "R", "T" or "F") provided for all the trees on site?	✓☐			
1.8	If protective fencings are not practicable, are the tree root systems adequately protected from soil compaction due to passage of vehicles, equipment or machinery?	✓☐			

1.9	Are vehicular/foot paths and storage areas designated away from TPZ?	✓☐			
1.10	Are the trees properly irrigated and sprayed with water to remove the accumulated construction dust during dry season in order to lessen the chances of decline and to maintain the vigour of trees?			✓☐	
1.11	Are the trees free from any sign of distress, such as dieback, leaf loss, or general decline in tree health or appearance or tree damage with symptoms of construction injury?			✓☐	Trees in eastern boundary: 1) Dead branches to remove 2) Tear bark/ stubs to be properly primed.
1.12	Are the trees free from wire or nail and prohibited to be used as anchor for any site activities?	✓☐			
1.13	Are cutting, trenching, excavating or raising of soil level within the TPZ prohibited?	✓☐			
1.14	Is improper pruning of the tree branches/roots prohibited?	✓☐			
1.15	Are the trees free from any tree root damage?	✓☐			
1.16	Are construction works or operation of machines within the TPZ prohibited?	✓☐			
1.17	Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage?	✓☐			
1.18	Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works?			✓☐	The site has previously been reclaimed from ponds. Most of the excavated topsoil is not desirable for reuse due to its inferior quality. Contractor's submitted referencing documents are attached in the checklist dated 4 May, 2018 for information.
1.19	Is the progress of the above activities reported in the monthly EM&A report?	✓☐			
2	**Operational Phase (12 months period from commissioning of the expanded and upgraded works)**				
2.1	Is a planting reserve, where locates			✓☐	

	around the site perimeter of approximately 5m wide, provided to allow a continuous belt of trees to be planted as a visual screen?				
2.2	Is the planting reserve complemented the boundary planting to the existing San Wai STW?			✓☐	
2.3	Is all new planting maintained for 12 months to ensure proper establishment?			✓☐	
2.4	Are the trees free from sign of deterioration of tree health and/or structure?			✓☐	
2.5	Are the trees free from insect pests and disease pathogens?			✓☐	
2.6	Are the irrigation systems functioning properly and well maintained?			✓☐	
2.7	Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery?			✓☐	

Summary/ Remarks:

Follow up actions taken by Contractor for previous comments:

1. Trees at eastern boundary – pruning of dead branches has carried out. Contractor is reminded to carry out proper reduction cut to some of the branches in future to meet the current tree care standard.

The contractor was reminded to rectify the following:

1. Generally, contractor was reminded to keep on the tree protection and maintenance.

New Observation:

1. Grade change and construction activities are noted on site. Contractor was reminded not to disturb the TPZ.

Reminders:

1. Contractor was reminded to provide TPZ with robust fence, whenever possible, at the drip line of all retained trees unless the trees are well beyond the extend of construction activities.

Photo Record:

Figure 1	Figure 2
	
General condition of the tress at northern side of the site	Removal of weeds and trees at south-west corner of the site is noted

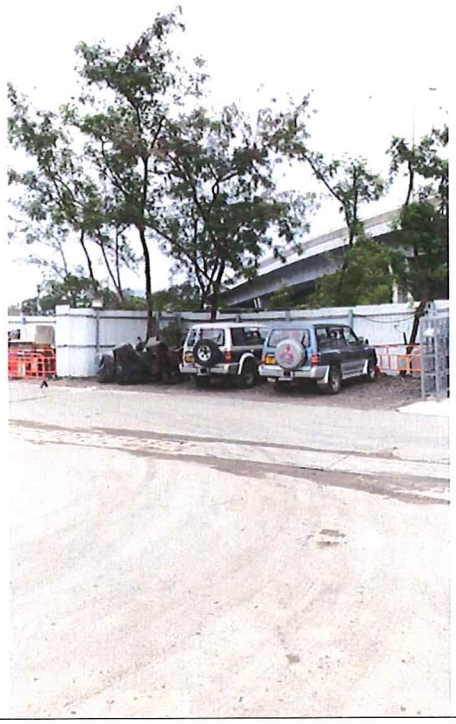
Figure 3	Figure 4
	
Tree protection to be make good	Condition of trees at the entrance of the existing treatment plant after typhoon

Figure 5	Figure 6
	
General condition of the existing trees at eastern boundary	Proper protective fence (outside works extent) is noted

Signature:

		Signature	Date
Inspected & Recorded by	Registered Landscape Architect	Xylem Leung	

Appendix J

Waste Flow Table

Name of Department: DSD

Year: 2018

Project: Design, Build and Operate San Wai Sewage Treatment Works - Phase 1

Contract No.: DC/2013/10

Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Broken Concrete (see Note [3])	Reused in the Contract (see Note)	Reused in other Projects	Disposed as Public Fill (see Note [4])	Imported Fill (see Note [4])	Metals	Paper/ cardboard packaging	Plastics (see Note [2])	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)
Jan	8.809	0.000	0.000	0.000	8.809	0.000	0.000	0.000	0.000	0.000	18.480
Feb	3.231	0.000	0.000	0.000	3.231	0.000	0.000	0.200	0.000	0.000	2.700
Mar	2.246	0.000	0.000	0.000	2.246	0.752	0.000	0.000	0.000	0.000	9.210
Apr	2.035	0.000	0.000	0.000	2.035	2.068	0.005	0.150	0.000	0.000	16.970
May	0.343	0.000	0.000	0.000	0.343	0.567	0.000	0.000	0.000	0.000	34.590
Jun	0.794	0.000	0.000	0.000	0.794	0.074	0.000	0.000	0.000	0.000	53.050
Jul	1.929	0.000	0.000	0.000	1.929	0.000	0.000	0.300	0.000	0.000	68.095
Aug	1.588	0.000	0.000	0.000	1.588	0.082	0.000	0.000	0.000	0.000	33.520
Sep	2.846	0.000	0.000	0.000	2.846	0.181	0.000	0.000	0.000	0.000	44.030
Oct	4.600	0.000	0.000	0.000	4.600	0.453	0.000	0.000	0.000	0.000	56.600
Nov											
Dec											
Total	28.421	0.000	0.000	0.000	28.421	4.177	0.005	0.650	0.000	0.000	337.245

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

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

(3) Broken concrete for recycling into aggregates.

(4) Assumption: The densities of subbase, Type A, Type B, Rockfill, Soil, Mix Rock and Soil, Reclaimed Asphalt Pave, Slurry are 2.0 ton/m^3; the densities of Building debris and special fill materials are 2.1 ton/m^3; the densities of Broken Concrete is 2.4 ton/m^3.

Appendix K

Environmental Licenses and Permits

Item No.	Nature of Permit / License / Notification	Permit / License/ Notification No.	Date of Issue / Effective of Permit / License	Date of Expiry of Permit / License	Remark (Validity for reporting period only)
1	Environmental Permit	EP-464/2013	18/10/2013	NA	Valid
2	Billing Account for Disposal of Construction Waste	7025330	07/07/2016	NA	Valid
3	Form NA notification (for APCO)	405489	26/07/2016	25/09/2020	Valid
4	Chemical Waste Producer Registration (for Site)	5218-511-A2823-01	23/01/2017	NA	Valid
5	Wastewater Discharge Licence (for WPCO)	WT00026754-2017	28/04/2017	31/01/2022	Valid
6	Construction Noise Permit (for Site)	GW-RN0271-18	13/06/2018	12/12/2018	Valid

Appendix L

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Environmental Mitigation Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
• The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;	Site Area	√			
• All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition;	Site Area	√			
• Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;	Site Entrance	√			
• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	Site Exit	√			
• Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit;	Site Area	√			
• Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet;	Main Haul Road	√			
• The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;	Site Entrance and Exit	√			
• Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;	Site Exit	√			
• Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;	--	√			
• The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;	Site Area	√			
• Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable	Site Area	√			

surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;					
• Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.	Site Area	√			
Noise					
• Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs.	Site Area	√			
• Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers	Site Area	√			
• Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise.	Site Area	√			
• Idle equipment should be turned off or throttled down.	Site Area	√			
• Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided	Site Area	√			
• Construction plant should be properly maintained and operated.	Site Area	√			
Water Quality					
• Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;	Site Area	√			
• The exposed soil surfaces should also be properly protected to minimize dust emission;	Site Area	√			
• The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;	Site Area	√			
• Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;	Site Exit	√			
• Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;	Site Area	√			
• A discharge license needs to be applied from EPD for discharging effluent from the construction site;	--	√			
• The treated effluent quality is required to meet the requirements specified in the discharge license;	--	√			
• Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;	Chemical Toilet	√			

• A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;	--	√			
• Illegal disposal of chemicals should be strictly prohibited;	Site Area	√			
• Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;	Site Area	√			
• Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handing chemical wastes;	Site Area	√			
• The impact from accidental spillage of chemicals can be effectively controlled through good management practices.	Site Area	√			
Waste Management					
• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Site Area	√			
• To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce;	Site Area	√			
• Any unused chemicals or those with remaining functional capacity should be recycled;	Site Area	√			
• Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;	Site Area	√			
• Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and	Site Area		√		
• Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	Site Area	√			
Landscape and Visual					
• Detailed tree survey should have been completed	Site Area	√			
• Trees should be transplanted to their final positions clear of the construction site	--			√	
• Erect site hoarding to protect adjacent vegetation from damage	Site Area	√			

• Regular inspections of the transplanted trees should be made to ensure the effectiveness of the hoarding	Site Area	√			
• Any topsoil excavated during the course of the works should be stored and protected on site for reuse for the restoration and screen planting works	Site Area			√	

Appendix M

Environmental Site Inspection Schedule

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Contract No. DC/2013/10 -
Design, Build and Operate San Wai Sewage Treatment Works – Stage 1

Schedule for Environmental Monitoring and Site Inspection

October 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 **Effluent Sampling** **WQM**	3	4 **WQM**	5 **24hr-TSP** **1hr-TSP x 3** **NM** **SI**	6 **WQM**
7	8	9 **WQM**	10	11 **24hr-TSP** **1hr-TSP x 3** **NM** **WQM**	12 **SI**	13 **WQM**
14	15	16 **24hr-TSP** **1hr-TSP x 3** **NM** **Effluent Sampling** **WQM**	17	18 **WQM**	19 **SI**	20 **WQM**
21	22 **24hr-TSP** **1hr-TSP x 3** **NM**	23 **WQM**	24	25 **WQM**	26 **SI**	27 **24hr-TSP** **1hr-TSP x 3** **NM** **WQM**
28	29	30 **Effluent Sampling** **WQM**	31			

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Contract No. DC/2013/10 -
Design, Build and Operate San Wai Sewage Treatment Works – Stage 1

Schedule for Environmental Monitoring and Site Inspection

November 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 **WQM**	2 **24hr-TSP** **1hr-TSP x 3** **NM** **SI**	3 **WQM**
4	5	6 **Effluent Sampling** **WQM**	7	8 **24hr-TSP** **1hr-TSP x 3** **NM** **WQM**	9 **SI**	10 **WQM**
11	12	13 **WQM**	14 **24hr-TSP** **1hr-TSP x 3** **NM**	15 **WQM**	16 **SI**	17 **WQM**
18	19	20 **24hr-TSP** **1hr-TSP x 3** **NM** **Effluent Sampling** **WQM**	21	22 **WQM**	23 **SI**	24 **WQM**
25	26 **24hr-TSP** **1hr-TSP x 3** **NM**	27 **WQM**	28	29 **WQM**	30 **SI**	

Appendix N

Laboratory Report for Discharge Water

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HOKLAS 022 TEST CAL

TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87454
Date of Issue : 18 October 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	02 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	02 October 2018
Date of Testing Period	:	02 to 03 Octobter 2018
Lab Ref. No.	:	W42340

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1	01	pH	In house method TPE/003/W	7.7	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	03	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):

1. The results relate only to the tested sample as received.
2. *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory :
LAU, Chi Leung

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- END OF REPORT -

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TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87455
Date of Issue : 18 October 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	02 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	02 October 2018
Date of Testing Period	:	02 to 03 Octobter 2018
Lab Ref. No.	:	W42340

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P8	02	pH	In house method TPE/003/W	7.6	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	04	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.
2. *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory : _____
LAU, Chi Leung

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TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87669
Date of Issue : 31 October 2018

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 16 October 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 16 October 2018
Date of Testing Period : 16 to 19 October 2018
Lab Ref. No. : W42450

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1A	01	pH	In house method TPE/003/W	7.8	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	04	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.
2. *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory : 
LAU, Chi Leung

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TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87670
Date of Issue : 31 October 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	16 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	16 October 2018
Date of Testing Period	:	16 to 19 October 2018
Lab Ref. No.	:	W42450

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1B	02	pH	In house method TPE/003/W	7.4	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	9	mg/L
	05	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.

Approved Signatory : _____
LAU, Chi Leung

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Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87671
Date of Issue : 31 October 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	16 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	16 October 2018
Date of Testing Period	:	16 to 19 October 2018
Lab Ref. No.	:	W42450

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P8	03	pH	In house method TPE/003/W	7.9	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	29	mg/L
	06	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.

Approved Signatory : LAU, Chi Leung

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Testing of Water and Wastewater

Report No. : ENA87928
Date of Issue : 05 November 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	30 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	30 October 2018
Date of Testing Period	:	30 October 2018
Lab Ref. No.	:	W42545

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1B	01	pH	In house method TPE/003/W	7.8	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	03	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.
2. *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory :
LAU, Chi Leung

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Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA87929
Date of Issue : 05 November 2018

Information Provided by Customer

Customer Name	:	ATAL-Degremont-China Harbour Joint Venture
Customer Address	:	19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source	:	Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type	:	Wastewater
Date of Sampling	:	30 October 2018
Sample Description	:	Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids). Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand). Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2. Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received	:	30 October 2018
Date of Testing Period	:	30 October 2018
Lab Ref. No.	:	W42545

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P8	02	pH	In house method TPE/003/W	7.8	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	04	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

Remark(s):
1. The results relate only to the tested sample as received.
2. *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory : LAU, Chi Leung

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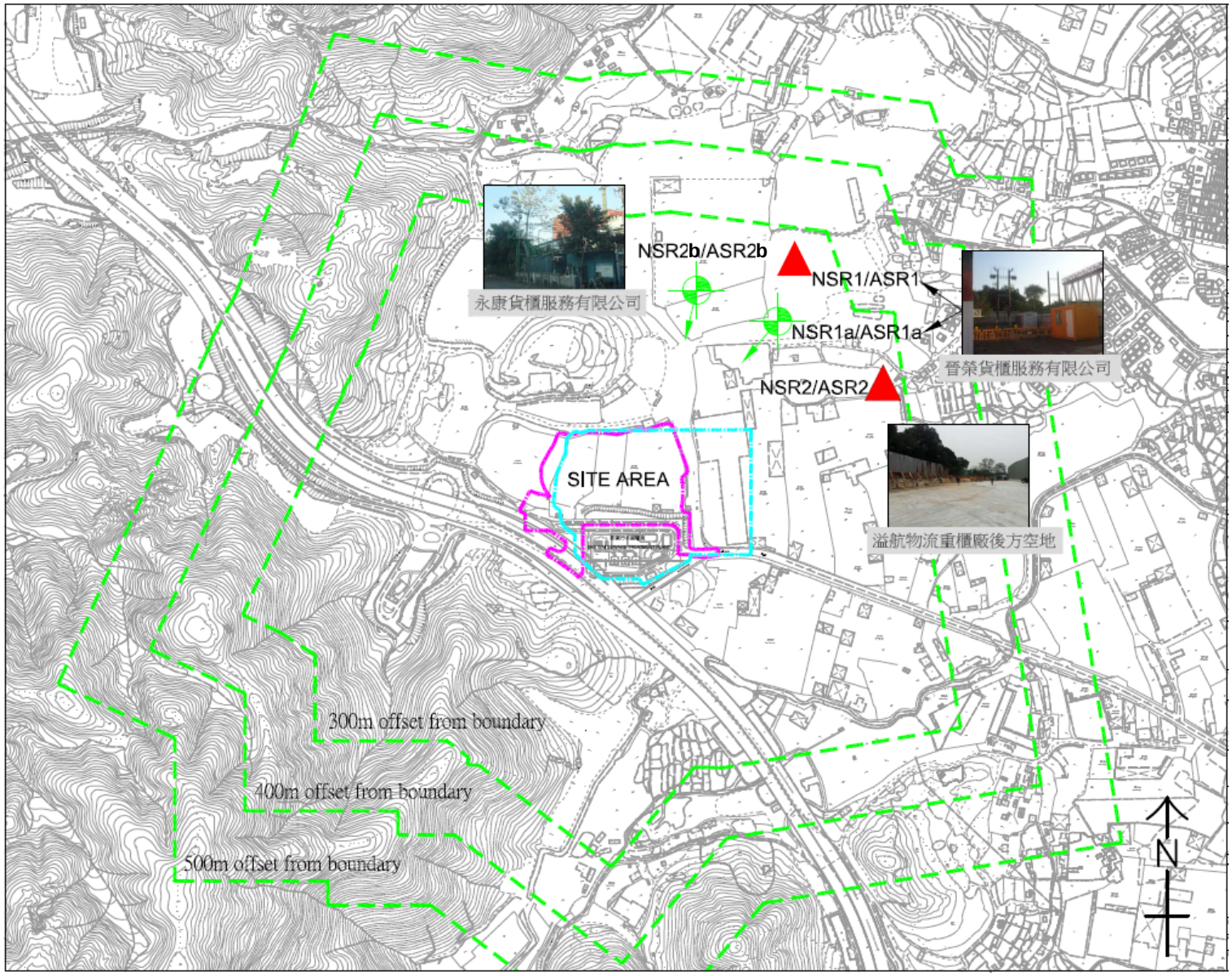
- END OF REPORT -

Figure 1

Locations of Air Quality and Noise Monitoring Stations

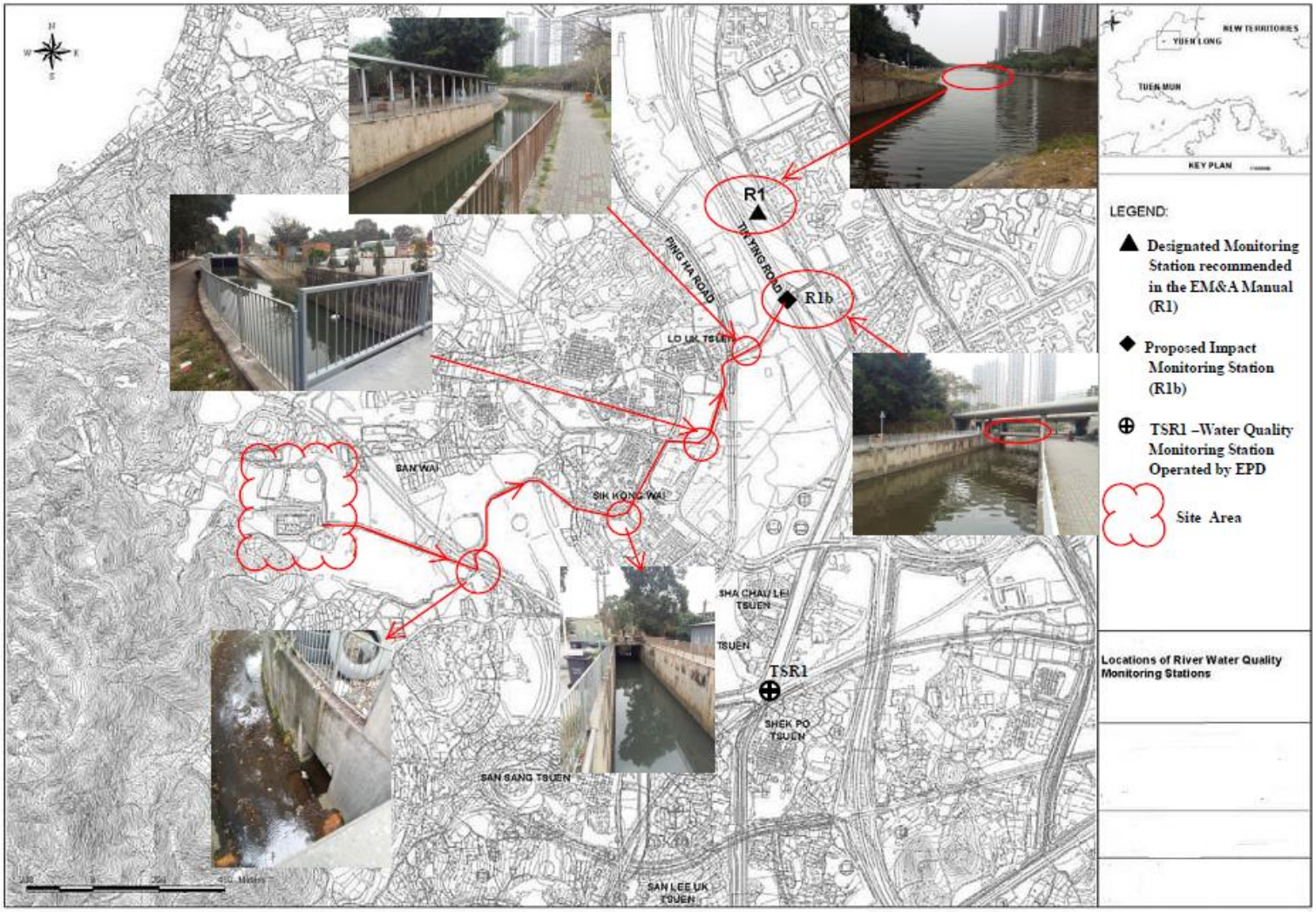


Project: Contract No. DC/2013/10 -Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 1 Locations of Air Quality and Noise Monitoring Stations

Figure 2

Locations of Water Quality Monitoring Station



Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 2 Locations of Water Quality Monitoring Station