



東業德勤測試顧問有限公司
ETS-TESTCONSULT LTD.TM

8/F Block B,
Veristrong Industrial Centre,
34-36 Au Pui Wan Street,
Fo Tan, Hong Kong

T: +852 2695 8318
F: +852 2695 3944
E: eti@ets-testconsult.com
W: www.ets-testconsult.com

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. 14**

(01 JUNE – 30 JUNE 2018)

Prepared by:


LO, Ting Yi

Certified by:


LAU, Chi Leung
Environmental Team Leader

Issued Date: 09 July 2018

Report No.: ENA84619

This report shall not be reproduced unless with prior written approval from this laboratory.



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: HKDSD203/50/105108

Date: 17 July 2018

Attention: Ms Carol Ho

BY EMAIL & POST
(email: carolho@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.14 (June 2018)

We refer to emails of 9 and 16 July 2018 from ETS-Testconsult Limited attaching the Monthly Environmental Monitoring and Audit Report No.14 (June 2018).

We have no further comment and hereby verify the Monthly Environmental Monitoring and Audit Report No.14 (June 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/WCKJ/lhnh

cc AECOM – Mr Patrick Leung (email: patrick.leung@swstw-aecon.com)
ETS-Testconsult Limited – Mr C L Lau (email: env@ets-testconsult.com)



TABLE OF CONTENTS

EXECUTIVE SUMMARY

1	INTRODUCTION	1-2
1.1	Basic Project Information	1
1.2	Project Organization	2
1.3	Construction Programme	2
1.4	Construction Works Undertaken During the Reporting Period	2
2	AIR QUALITY MONITORING	3-7
2.1	Monitoring Requirements	3
2.2	Monitoring Equipment	3-4
2.3	Monitoring Parameters, Frequency and Duration	4
2.4	Action and Limit Levels	5
2.5	Results and Observations	5
2.6	Event and Action Plan	5-7
3	NOISE MONITORING	8-11
3.1	Monitoring Requirements	8
3.2	Monitoring Equipment	8
3.3	Monitoring Duration and Frequency	8
3.4	Monitoring Locations	8
3.5	Monitoring Methodology	9
3.6	Actions and Limit Level	9
3.7	Results and Observation	9
3.8	Event and Action Plan	10-11
4	WATER QUALITY MONITORING	11-16
4.1	Monitoring Requirements	11
4.2	Monitoring Methodology and Equipment	11
4.3	Monitoring Frequency	12
4.4	Quality Assurance (QA) / Quality Control (QC)	12
4.5	Action and Limit Levels	12-13
4.6	Result and Observation	13
4.7	Event and Action Plan	13-16
5	ENVIRONMENTAL SITE INSPECTION AND AUDIT	16-20
5.1	Site Inspection	16
5.2	Landscape and Visual Audit	17
5.3	Advice on the Solid and Liquid Waste Management Status	17
5.4	Discharge License and Results of Effluent Monitoring	17-18
5.5	Environmental Licenses and Permits	18
5.6	Implementation Status of Environmental Mitigation Measures	18-19
5.7	Summary of Exceedance of the Environmental Quality Performance Limit	19-20
5.8	Summary of Complaints, Notification of Summons and Successful Prosecution	20
6	FUTURE KEY ISSUES	20-21
6.1	Construction Programme for the Coming Months	20
6.2	Key Issues for the Coming Month	20-21
6.3	Environmental Monitoring and Site Inspection Schedule for the Coming Month	21
7	CONCLUSION	21
7.1	Conclusion	21

LIST OF TABLES

Table 1.1	Contact Information of Key Personnel
Table 2.1	Air Quality Monitoring Equipment
Table 2.2	Monitoring Parameters, Duration and Frequencies of Impact Air Quality Monitoring
Table 2.3	Time Schedule of Impact Air Quality Monitoring
Table 2.4	The criteria of Action and Limit Levels for Air Quality
Table 2.5	Action and Limit Levels for 1-hour TSP and 24-hour TSP
Table 2.6	Event and Action Plan for Air Quality (Dust) during Construction Phase
Table 3.1	Noise Monitoring Equipment
Table 3.2	Time Schedule of Impact Noise Monitoring
Table 3.3	Noise Monitoring Stations
Table 3.4	Action and Limit Levels for Noise Monitoring
Table 3.5	Event/Action Plan for Construction Noise
Table 4.1	Summary of Testing Procedures for water samples
Table 4.2	Monitoring Frequency of Water Quality Monitoring
Table 4.3	Time Schedule of Impact Water Quality Monitoring
Table 4.4	The criteria of Action and Limit Levels for Water Quality
Table 4.5	Action and Limit Levels for Water Quality
Table 4.6	Event and Action Plan for Water Quality
Table 5.1	Summary of Observation of site inspections
Table 5.2	Summary of Quantities of Inert C&D Materials
Table 5.3	Summary of Quantities of C&D Materials
Table 5.4	Summary of Environmental Complaints Notification of Summons and Successful Prosecution

LIST OF APPENDICES

Appendix A	Location of Work Area
Appendix B	Project Organization Chart
Appendix C	Construction Programme
Appendix D1	Calibration Certificates for Impact Air Quality Monitoring Equipment
Appendix D2	Impact Air Quality Monitoring Results
Appendix D3	Graphical Plots of Impact Air Quality Monitoring Results
Appendix E1	Calibration Certificates for Impact Noise Monitoring Equipment
Appendix E2	Impact Noise Monitoring Results
Appendix E3	Graphical Plots of Impact Noise Monitoring Data
Appendix F1	Calibration Certificates for Impact Water Quality Monitoring Equipments
Appendix F2	Impact Water Quality Monitoring Results
Appendix F3	Graphical Plots of Impact Water Quality Monitoring Data
Appendix G	Weather Condition
Appendix H	Environmental Site Inspection Checklists
Appendix I	Landscape and Visual Impact Assessment Checklist
Appendix J	Waste Flow Table
Appendix K	Environmental Licenses and Permits
Appendix L	Implementation Schedule for Environmental Mitigation Measures (EMIS)
Appendix M	Environmental Site Inspection Schedule
Appendix N	Laboratory Report for Discharge Water

FIGURES

Figure 1	Air Quality and Noise Monitoring Stations
Figure 2	Water Quality Monitoring Stations

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 fourteenth 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 June 2018 to 30 June 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;*
- *Superstructure (rc and metalworks);*
- *Bar Screen Installation;*
- *Piling Foundation (Prebored H-pile);*
- *EVA (Road & Drainage);*
- *Diversion of Existing Watermains by WSD*

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: 5 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 15 Occasions at 2 designated locations*
- *Noise Monitoring (Day-time): 5 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

There were no reporting changes during the reporting period.

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 m³/d to 200,000 m³/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 fourteenth 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 June 2018 to 30 June 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.checkk.com
	Environmental Supervisor	Ms Cherry Ye	6237 1125	cherry.ye@c302.checkk.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;
- Superstructure (rc and metalworks);
- Bar Screen Installation;
- Piling Foundation (Prebored H-pile);
- EVA (Road & Drainage);
- Diversion of Existing Watermains by WSD

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 0.6m³/min and 1.7m³/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 $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 6 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

June 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

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 ($\mu\text{g}/\text{m}^3$)	For baseline level $\leq 384\mu\text{g}/\text{m}^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2	500 $\mu\text{g}/\text{m}^3$
	For baseline level $>384\mu\text{g}/\text{m}^3$, Action level = Limit Level	
24-hour TSP Level ($\mu\text{g}/\text{m}^3$)	For baseline level $< 200\mu\text{g}/\text{m}^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2	260 $\mu\text{g}/\text{m}^3$
	For baseline level $\geq 200\mu\text{g}/\text{m}^3$, 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 ($\mu\text{g}/\text{m}^3$)		24-hr TSP ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
ASR1a	309	500	260	260
ASR2a	292	500	228	260

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	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; 4. Discuss with IEC and 	<ol style="list-style-type: none"> 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;

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	of Contractor's remedial actions; 6. Keep EPD and ER informed of the results.	mitigation measures submitted by Contractor and advise the ER accordingly.	Contractor on potential remedial actions; 5. Ensure remedial actions properly implemented.	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 exceedance s; 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 (L_x). 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	Rion NC-73

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

June 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

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 NSR2a (永康貨櫃服務有限公司) which shown in **Figure 1**, were required to perform impact noise monitoring.

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	Free Field

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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IEC; 2. Implement noise mitigation proposals.
Limit level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification 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 	<ol style="list-style-type: none"> 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

	<p>the causes and actions taken for the exceedances;</p> <p>7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>		<p>work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>works as determined by ER, until the exceedance is abated.</p>
--	--	--	---	---

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°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 19 th ed 2130 B	0.01 mg/L
Total suspended solids	In house method refer to APHA 19 th 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

June 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 ▼

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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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



Event	Action			
	ET Leader	IEC	ER	Contractor
	6. Contractor; Repeat measurement on next day of exceedance.			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 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.	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 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;	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all



Event	Action			
	ET Leader	IEC	ER	Contractor
	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.	Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	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.
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	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	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

Event	Action			
	ET Leader	IEC	ER	Contractor
	7. mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.		Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.	7. measures; 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 07, 15, 21 & 28 June 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
31 May 2018	1. Stagnant water pool was observed at CEPT.	1. Stagnant pool was cleared at CEPT.	07 June 2018
07 June 2018	--	--	--
15 June 2018	1. Discoloured NRMM label was found on a generator.	1. Appropriate NRMM label was provided	21 June 2018
21 June 2018	--	--	--
28 June 2018	1. General refuse was observed at Portion AB. 2. Stagnant water was found accumulated inside the drip tray near Portion CEPT. 3. Stagnant pool was observed near Portion 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 15 and 28 June 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)	794	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)	53,050	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 12 and 26 June 2018. As the Wetsep at P3 and P6 were not operated during June 2018, the effluent water samples were sampled at P1 and P8 only in June 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 handling 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. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.

- 5.7.2.** There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a 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 July 2018 are included:

- Substructure (ELS & Bulk excavation);
- Substructure (rc structure);
- Backfilling;
- Superstructure (rc and metalworks);
- Removal of ELS;
- Water Tightness Test;
- Bar Screen Installation;
- Piling Foundation (Prebored H-pile);
- Slope works and Retaining Wall (Eastern Portion);
- Slope works (Northern Portion);
- Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains);
- CLP Cable Duct and Draw Pits (within the Site);
- EVA (Road & Drainage);
- RC Trench and Odour Pipe (DO1, DO2);
- Process Pipe;
- Emergency By-Pass Pipe;
- Diversion of Existing Watermains by WSD

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 July 2018 is provided in **Appendix M**.

7. CONCLUSION

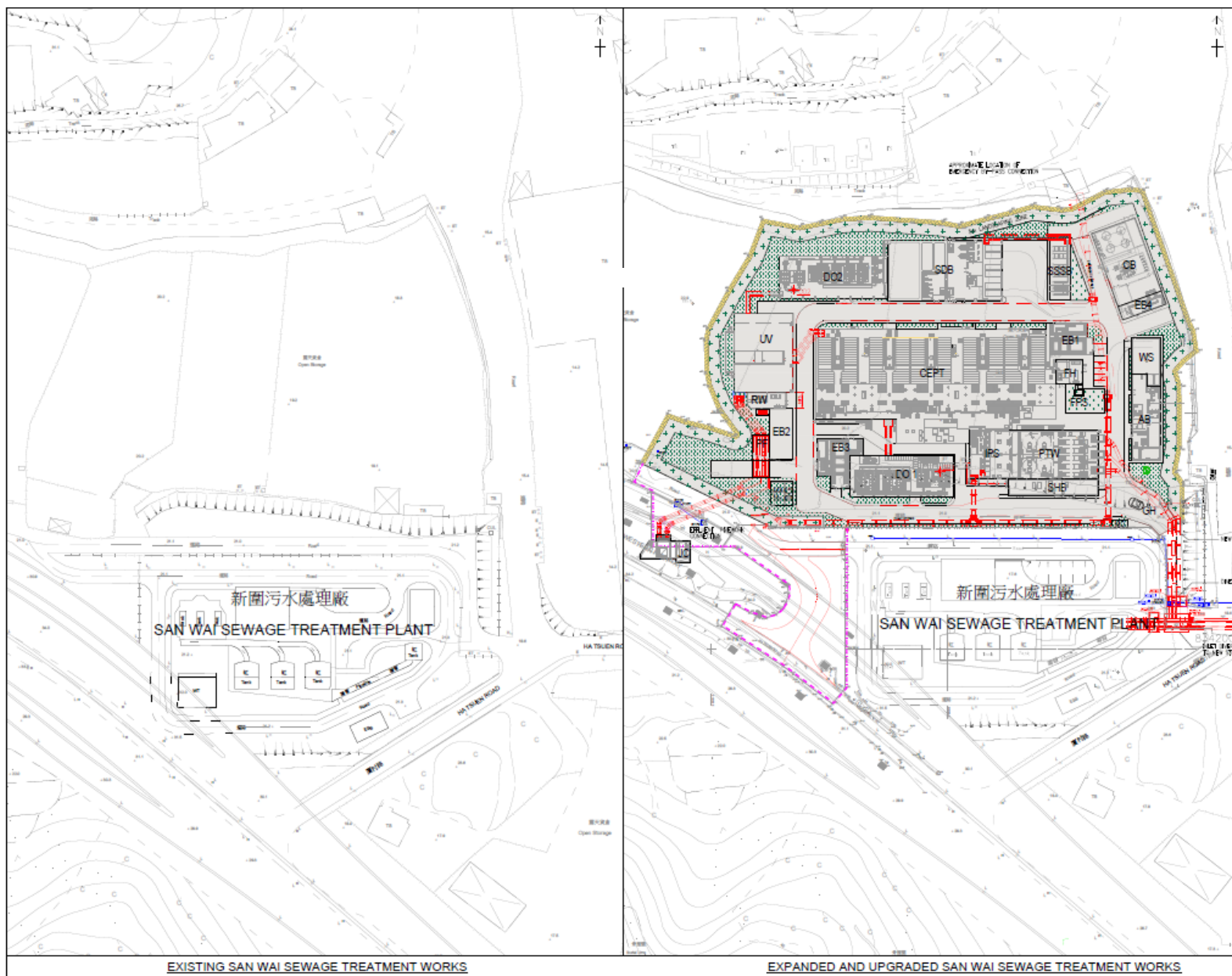
7.1. Conclusions

- 7.1.1.** There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.
- 7.1.2.** There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a 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 -

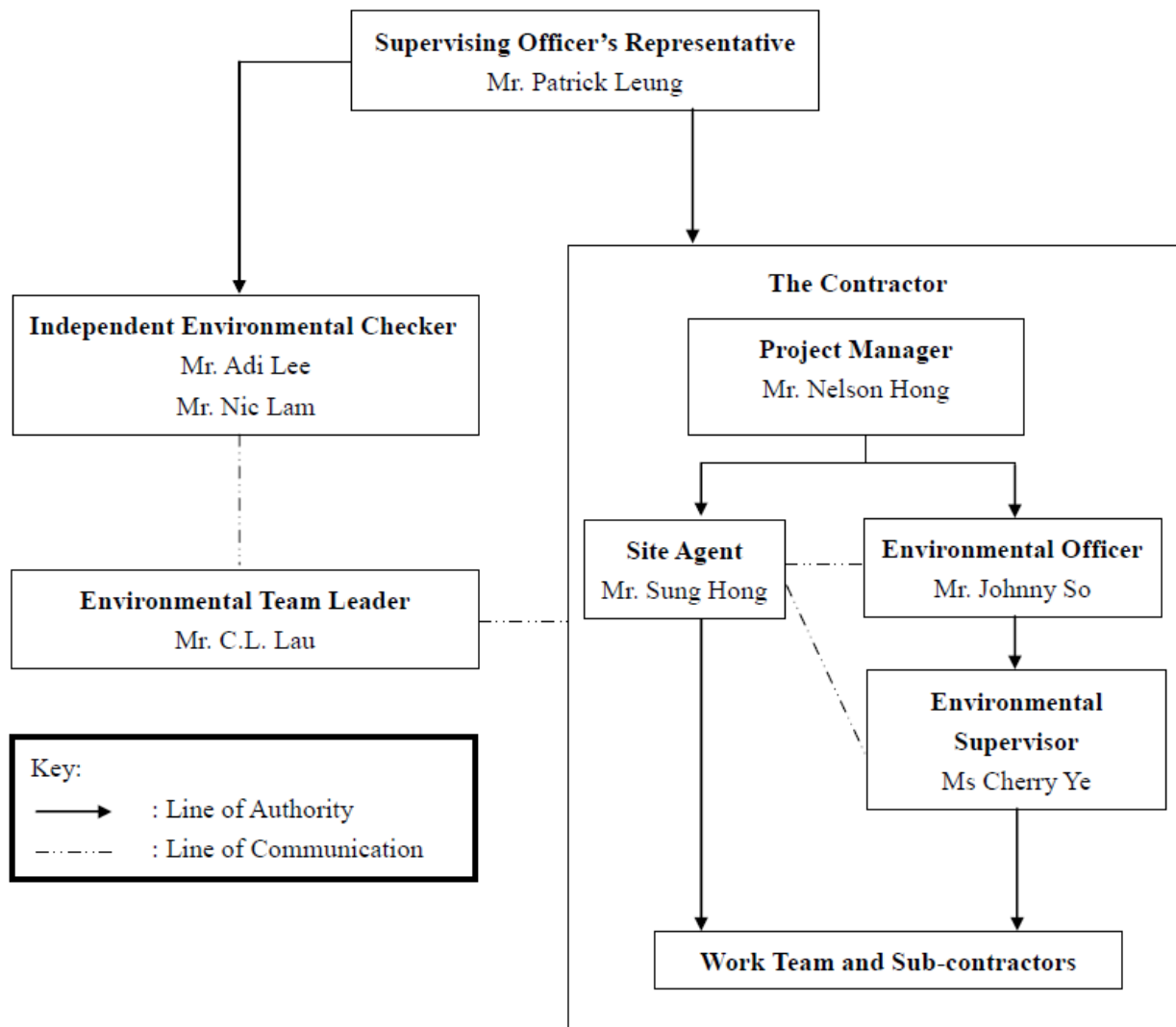
Appendix A

Location of Works Areas



Appendix B

Project Organization Chart



Appendix C

Construction Programme

DATA DATE: 30-Jun-18

LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1

PAGE 1 OF 11

Activity ID	Activity Name	At Completion	Start	Finish	Rev 9 BL	Rev 9 BL	Slippage	Slippage	Slippage - 15Days	2018				
		Duration			Start	Finish	Start Date	Finish Date	EOT Finish Date	Jun	Jul	Aug	Sep	Oct
San Wai Sewage Treatment Works Phase 1 - Rev 9 MP (Update as of 30Jun 2018)														
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 of 67, 71) - Including 10.5 Days Granted EOT	1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20		0	0					
Preliminaries & General Requirement		1277	01-Apr-17 A	29-Sep-20	01-Apr-17	05-Oct-20		0	7					
Contractor Requirement		1277	01-Apr-17 A	29-Sep-20	01-Apr-17	05-Oct-20		0	7					
PS465	Impact Monitoring	1189	27-Jun-17 A	28-Sep-20	27-Jun-17	05-Oct-20		0	8					
PS485	Site Drainage Plan Implementation	1277	01-Apr-17 A	29-Sep-20	01-Apr-17	05-Oct-20		0	7					
Contractor Requirement for Working Area Portion (P8)		30	15-Jul-18	13-Aug-18	15-Jul-18	13-Aug-18		0	0					
PS160	Fencing / Hoarding & Signboard Erection (P8)	30	15-Jul-18	13-Aug-18	15-Jul-18	13-Aug-18		0	0					
Design & Design Checking of Permanent Works		1561	26-Jun-16 A	04-Oct-20	26-Jun-16	03-Oct-20		0	0					
Statutory Submission		1433	01-Nov-16 A	04-Oct-20	01-Nov-16	03-Oct-20		0	0					
DS165	CLP - Power Supply	751	01-Nov-16 A	22-Nov-18	01-Nov-16	21-Nov-18		0	0					
DS166	CLP - Photovoltaic Panel Connection	197	24-Dec-17 A	09-Jul-18	24-Dec-17	25-Jun-18		0	-13					
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	339	28-Jul-17 A	02-Jul-18	28-Jul-17	29-May-18		0	-34					
DS177	BMSD - Passenger Lift	329	29-May-18 A	23-Apr-19	29-May-18	20-Apr-19		0	-3					
DS185	HAD - Home Affairs Department Application for Section 1 (ID KD150)	335	31-Jul-17 A	01-Jul-18	31-Jul-17	30-Jun-18		0	0					
DS195	BEAM Plus - Final Assessment (FA)	948	01-Mar-18 A	04-Oct-20	01-Mar-18	03-Oct-20		0	0					
DS200	ArchSD - VCAB and DAP Submission and Approval	473	15-Mar-17 A	01-Jul-18	15-Mar-17	30-Jun-18		0	0					
DS210	DLO - Submission and Approval of Tree Removal and Transplant Proposals	524	31-Jan-17 A	08-Jul-18	31-Jan-17	25-Jun-18		0	-13					
DS230	GEO - Submission of DDA28A to SO for onward submission to GEO for Checking Certificate	354	03-Aug-17 A	22-Jul-18	03-Aug-17	10-Jul-18		0	-13					
DS280	TPB - Submission of Landscape Proposal to TPB for Approval	192	10-Feb-18 A	21-Aug-18	10-Feb-18	07-Aug-18		0	-13					
AIP / DDA Submission & Approval		908	26-Jun-16 A	21-Dec-18	26-Jun-16	18-Dec-18		0	-2					
DS410	Review & Revisions of Design Plan	759	26-Jun-16 A	25-Jul-18	26-Jun-16	25-Jul-18		0	0					
Design Memorandum (AIP1 / DDA1)		222	13-May-18 A	21-Dec-18	13-May-18	18-Dec-18		0	-2					
DS505	DDA1 - Design Memorandum - Design Preparation to SO Approval	222	13-May-18 A	21-Dec-18	13-May-18	18-Dec-18		0	-2					
Global Design		722	21-Oct-16 A	12-Oct-18	21-Oct-16	08-Oct-18		0	-4					
Site Layout (AIP2 / DDA2)		654	21-Oct-16 A	06-Aug-18	21-Oct-16	04-Jul-18		0	-32					
DG390	DDA2 - Site Layout - Design Preparation to SO Approval	654	21-Oct-16 A	06-Aug-18	21-Oct-16	04-Jul-18		0	-32					
Electrical Power Supply System (AIP20 / DDA20ABCDE)		505	24-Apr-17 A	10-Sep-18	24-Apr-17	06-Aug-18		0	-36					
DG1891	DDA20A - Electrical Power Supply System - Design Preparation to SO Approval	485	24-Apr-17 A	22-Aug-18	24-Apr-17	22-Jun-18		0	-61					
DG3880	DDA20B - UPS System - Design Preparation to SO Approval	481	24-Apr-17 A	17-Aug-18	24-Apr-17	22-Jun-18		0	-57					
DG3896	DDA20C - Earthing and Lightning System - Design Preparation to SO Approval	481	24-Apr-17 A	17-Aug-18	24-Apr-17	22-Jun-18		0	-57					
DG3912	DDA20D - Energy Efficiency - Design Preparation to SO Approval	505	24-Apr-17 A	10-Sep-18	24-Apr-17	06-Aug-18		0	-36					
DG3950	DDA20E - Lighting Control System - Design Preparation to SO Approval	348	01-Sep-17 A	14-Aug-18	01-Sep-17	08-Jul-18		0	-37					
Control and Monitoring System (AIP21 / DDA21ABCDE)		622	12-Jan-17 A	26-Sep-18	12-Jan-17	27-Aug-18		0	-30					
DG1924	DDA21A - Process & Instrumentation Diagram (P&ID) - Design Preparation to SO Approval	578	12-Jan-17 A	13-Aug-18	12-Jan-17	18-Jun-18		0	-55					
DG1940	DDA21B - System Control Philosophy - Design Preparation to SO Approval	523	20-Mar-17 A	24-Aug-18	20-Mar-17	02-Jul-18		0	-54					

Remaining Level of Effort

Actual Level of Effort

Actual Work

Remaining Work

Critical Remaining Work

Milestone

ATAL

HEC

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 (30 June 2018)

THREE (3) MONTHS ROLLING PROGRAMME

Date	Revision	Checked	Approved
30-Jun-18	Three (3) Months Rolling Programme...		

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1					PAGE 2 OF 11							
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 15Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
DG1966	DDA21C - Functional Design Specification - Design Preparation to SO Approval	502	03-Apr-17 A	17-Aug-18	03-Apr-17	20-Jun-18	0	-58						DDA21C - Functional D
DG1972	DDA21D - PLC, SCADA & I/O Allocation Schedules - Design Preparation to SO Approval	482	23-Apr-17 A	17-Aug-18	23-Apr-17	22-Jun-18	0	-57						DDA21D - PLC, SCADA
DG1988	DDA21E - SCADA Graphic Interface - Design Preparation to SO Approval	452	01-Jul-17 A	26-Sep-18	01-Jul-17	27-Aug-18	0	-30						DDA21E -
Landscaping Works (AIP22 / DDA22AB)		617	06-Jan-17 A	14-Sep-18	06-Jan-17	15-Jul-18	0	-61						
DG1260	DDA22A - Landscaping Works (Green Roof) - Design Preparation to SO Approval	572	06-Jan-17 A	31-Jul-18	06-Jan-17	02-Jul-18	0	-29						DDA22A - Landscaping Work
DG1274	DDA22B - Landscaping Works (Site Wide) - Design Preparation to SO Approval	439	03-Jul-17 A	14-Sep-18	03-Jul-17	15-Jul-18	0	-61						DDA22B - Lan
Testing and Commissioning Plan (AIP23 / DDA23)		315	28-Nov-17 A	08-Oct-18	28-Nov-17	08-Oct-18	0	0						
DG3270	AIP23 - Outline Testing & Commissioning Plan - Design Preparation to SO Approval	270	28-Nov-17 A	24-Aug-18	28-Nov-17	04-Jul-18	0	-52						AIP23 - Outline Testi
DG3305	DDA23 - Detailed Testing & Commissioning Plan - Design Preparation to SO Approval	170	22-Apr-18 A	08-Oct-18	22-Apr-18	08-Oct-18	0	0						DDA23 -
General Notes Drawings for Foundation and Civil & Structural (AIP24AB / DDA24AB)		524	22-Feb-17 A	30-Jul-18	22-Feb-17	29-Jun-18	0	-32						
General Notes Drawings for Civil & Structural (AIP24B / DDA24BC)		524	22-Feb-17 A	30-Jul-18	22-Feb-17	29-Jun-18	0	-32						
DG3706	DDA24C - Typical Details for Architecture - Design Preparation to SO Approval	524	22-Feb-17 A	30-Jul-18	22-Feb-17	29-Jun-18	0	-32						DDA24C - Typical Details for A
Site Formation (AIP26 / DDA26)		577	14-Jan-17 A	13-Aug-18	14-Jan-17	24-Jun-18	0	-50						
DG660	DDA26 - Site Formation - Design Preparation to SO Approval	577	14-Jan-17 A	13-Aug-18	14-Jan-17	24-Jun-18	0	-50						DDA26 - Site Formation -
Road Works (AIP27A / DDA27A)		492	23-Mar-17 A	28-Jul-18	23-Mar-17	28-Jun-18	0	-29						
DG1060	DDA27A - Road Works - Design Preparation to SO Approval	492	23-Mar-17 A	28-Jul-18	23-Mar-17	28-Jun-18	0	-29						DDA27A - Road Works - Desig
Sewerage and Drainage Works (AIP27B / DDA27BC1C2DEF)		599	21-Feb-17 A	12-Oct-18	21-Feb-17	06-Sep-18	0	-36						
Civil and Structural Design (AIP27B / DDA27BD)		550	21-Feb-17 A	24-Aug-18	21-Feb-17	29-Jul-18	0	-25						
DG960	DDA27B - Sewerage and Drainage Works - Design Preparation to SO Approval	524	21-Feb-17 A	29-Jul-18	21-Feb-17	01-Jul-18	0	-28						DDA27B - Sewerage and Drai
DG988	DDA27D - Detailed Design Report for Pipe Trenches - C&S - Design Preparation to SO Approval	474	08-May-17 A	24-Aug-18	08-May-17	29-Jul-18	0	-25						DDA27D - Detailed D
Electrical and Mechanical Design Foul Water Pump Sump (DDA27C1C2EF)		407	01-Sep-17 A	12-Oct-18	01-Sep-17	06-Sep-18	0	-36						
DG3964	DDA27C1 - Foul Water Pump Sump - GA Drawing - Design Preparation to SO Approval	348	01-Sep-17 A	15-Aug-18	01-Sep-17	24-Jun-18	0	-51						DDA27C1 - Foul Water P
DG3978	DDA27C2 - Foul Water Pump Sump - CR Drawing - Design Preparation to SO Approval	348	01-Sep-17 A	15-Aug-18	01-Sep-17	24-Jun-18	0	-51						DDA27C2 - Foul Water P
DG3992	DDA27E - Foul Water Pump Sump - Mechanical - Design Preparation to SO Approval	319	28-Nov-17 A	12-Oct-18	28-Nov-17	06-Sep-18	0	-36						DDA
DG4006	DDA27F - Foul Water Pump Sump - Electrical - Design Preparation to SO Approval	278	28-Nov-17 A	01-Sep-18	28-Nov-17	24-Jul-18	0	-39						DDA27F - Foul Wg
Boundary Wall & Entrance (AIP28 / DDA28AB)		584	03-Feb-17 A	10-Sep-18	03-Feb-17	11-Aug-18	0	-29						
DG1160	DDA28A - Slopes and Retaining Wall - Design Preparation to SO Approval	545	03-Feb-17 A	01-Aug-18	03-Feb-17	03-Jul-18	0	-29						DDA28A - Slopes and Retain
DG1195	DDA28B - Boundary Wall & Entrance - Design Preparation to SO Approval	450	17-Jun-17 A	10-Sep-18	17-Jun-17	11-Aug-18	0	-29						DDA28B - Boun
Foundation & Piling Design (AIP29 / DDA29ABCDE)		195	20-Dec-17 A	02-Jul-18	20-Dec-17	26-Jun-18	0	-6						
DG552	DDA29H - Piling Foundation (Area VIII - FH) - Design Preparation to SO Approval	195	20-Dec-17 A	02-Jul-18	20-Dec-17	26-Jun-18	0	-6						DDA29H - Piling Foundation Area VIII -
Site Wide Utility (AIP30 / DDA30ABCEFGI)		594	30-Jan-17 A	16-Sep-18	30-Jan-17	19-Jul-18	0	-58						
DG3515	DDA30A - Site Wide Security Access Control & Communication System - Design Preparation to SO Approval	548	30-Jan-17 A	31-Jul-18	30-Jan-17	02-Jul-18	0	-30						DDA30A - Site Wide Security
DG3774	DDA30B - Site Wide Utility (U/G Pipework, Ductwork, Cable Route, Cable Draw Pit) - Design Preparation to SO Approval	444	08-Jun-17 A	26-Aug-18	08-Jun-17	08-Jul-18	0	-48						DDA30B - Site Wide
DG3788	DDA30C - Fire Services System and Street Fire Hydrant System - Design Preparation to SO Approval	440	08-Jun-17 A	22-Aug-18	08-Jun-17	22-Jun-18	0	-61						DDA30C - Fire Servica
DG3816	DDA30E - Site Wide Utility (Road Lighting) - Design Preparation to SO Approval	425	23-Jun-17 A	22-Aug-18	23-Jun-17	22-Jun-18	0	-61						DDA30E - Site Wide U
DG3830	DDA30F - Typical Electrical Installation Drawings - Design Preparation to SO Approval	465	08-Jun-17 A	16-Sep-18	08-Jun-17	19-Jul-18	0	-58						DDA30F - Typ
DG3844	DDA30G - Typical Building Services Installation Drawings - Design Preparation to SO Approval	429	23-Jun-17 A	26-Aug-18	23-Jun-17	11-Jul-18	0	-46						DDA30G - Typica B
DG3858	DDA30I - Mechanical Design Report for Pipe Trench - Design Preparation to SO Approval	429	23-Jun-17 A	26-Aug-18	23-Jun-17	11-Jul-18	0	-46						DDA30I - Mechanica
HAZOP Report (DDA31AB)		612	01-Dec-16 A	05-Aug-18	01-Dec-16	03-Jun-18	0	-63						
DG3530	DDA31A - HAZOP Study - Design Preparation to SO Approval	605	01-Dec-16 A	29-Jul-18	01-Dec-16	29-May-18	0	-61						DDA31A - HAZOP Study - Des
DG3545	DDA31B - Hazardous Zoning Classification Report - Design Preparation to SO Approval	338	01-Sep-17 A	05-Aug-18	01-Sep-17	03-Jun-18	0	-63						DDA31B - Hazardous Zonin
ELS / Bulk Excavation (Temporary Works)		413	12-Jun-17 A	30-Jul-18	12-Jun-17	17-Jul-18	0	-12						
ELS for Emergency Bypass		396	12-Jun-17 A	12-Jul-18	12-Jun-17	12-Jul-18	0	0						
DG3740	ELS for Emergency Bypass - Design Preparation to DC and SO Approval	396	12-Jun-17 A	12-Jul-18	12-Jun-17	12-Jul-18	0	0						ELS for Emergency Bypass - Design
ELS for Inlet Pipe Connection		329	04-Sep-17 A	30-Jul-18	04-Sep-17	16-Jul-18	0	-13						
DG3755	ELS for Inlet Pipe Connection - Design Preparation to DC and SO Approval	329	04-Sep-17 A	30-Jul-18	04-Sep-17	16-Jul-18	0	-13						ELS for Inlet Pipe Connection

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 3 OF 11						
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 16Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
ELS for UV														
DG3769	ELS for UV - Design Preparation to DC and SO Approval	311	04-Sep-17 A	11-Jul-18	04-Sep-17	11-Jul-18	0	0						
ELS for PF														
DG3825	ELS for PF - Design Preparation to DC and SO Approval	331	25-Aug-17 A	21-Jul-18	25-Aug-17	17-Jul-18	0	-4						
Miscellaneous Design														
Equipment Schedules (DDA32A)														
DG2012	DDA32A - Equipment Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
Penstock & Stoplogs Schedules (DDA32B)														
DG3216	DDA32B - Penstock & Stoplogs Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
Valves Schedules (DDA32C)														
DG3222	DDA32C - Valves Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
Piping and Pipe Support Schedules (DDA32D)														
DG3864	DDA32D - Piping and Pipe Support Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
Painting Schedules (DDA32E)														
DG3228	DDA32E - Painting Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
Instrumentation Schedules (DDA32F)														
DG3234	DDA32F - Instrumentation Schedules - Design Preparation to SO Approval	369	03-Jul-17 A	07-Jul-18	03-Jul-17	09-Jun-18	0	-27						
LOT #1 - Building / Facilities Design : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB														
CEPT and System Control Flowmeter Chamber														
Civil and Structural Design (AIP6A / DDA6AB1B2)														
DB1123	DDA6A - CEPT & SF - C&S - Design Preparation to SO Approval	559	24-Dec-16 A	05-Jul-18	24-Dec-16	09-Jun-18	0	-26						
DB4930	DDA6B2 - SF - C&S - Design Preparation to SO Approval	517	26-Mar-17 A	24-Aug-18	26-Mar-17	24-Jun-18	0	-61						
Electrical and Mechanical Design (AIP6B / DDA6C1C2DEF)														
DB5608	DDA6F - CEPT & System Control - Building Services - Design Preparation to SO Approval	524	25-Jan-17 A	02-Jul-18	25-Jan-17	04-Jun-18	0	-28						
Inlet Work, Preliminary Treatment Works, IPS and SHB														
Civil and Structural Design (AIP5A / DDA5AB1B2)														
DB1223	DDA5A - PTW, IPS & SHB - C&S - Design Preparation to SO Approval	609	26-Nov-16 A	27-Jul-18	26-Nov-16	15-Jun-18	0	-42						
DB4814	DDA5B1 - PTW & IPS - C&S - Design Preparation to SO Approval	588	17-Dec-16 A	27-Jul-18	17-Dec-16	15-Jun-18	0	-42						
DB4830	DDA5B2 - SHB - C&S - Design Preparation to SO Approval	565	06-Feb-17 A	24-Aug-18	06-Feb-17	24-Jun-18	0	-61						
Electrical and Mechanical Design (AIP5B / DDA5C1C2DEF)														
DB1264	DDA5C1-2 - PTW, IPS & SHB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	480	01-Apr-17 A	25-Jul-18	01-Apr-17	25-May-18	0	-61						
UV Disinfection Facilities														
Civil and Structural Design (AIP7A / DDA7AB)														
DB1325	DDA7A - UV Facilities - C&S (Architectural) - Design Preparation to SO Approval	380	11-Aug-17 A	25-Aug-18	11-Aug-17	16-Jul-18	0	-40						
DB5010	DDA7B - UV Facilities - C&S (Structural) - Design Preparation to SO Approval	399	26-Jun-17 A	30-Jul-18	26-Jun-17	08-Jul-18	0	-21						
Electrical and Mechanical Design (AIP7B / DDA7C1C2DEF)														
DB1352	DDA7C1-1 - UV Facilities - (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	577	22-Dec-16 A	22-Jul-18	22-Dec-16	18-Jun-18	0	-33						
DB1384	DDA7C2-1 - UV Facilities - (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	577	22-Dec-16 A	22-Jul-18	22-Dec-16	18-Jun-18	0	-33						
DB1399	DDA7C2-2 - UV Facilities - (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	398	01-Jul-17 A	03-Aug-18	01-Jul-17	06-Jul-18	0	-27						
DB4540	DDA7D - UV Facilities - Mechanical - Design Preparation to SO Approval	524	30-Mar-17 A	04-Sep-18	30-Mar-17	26-Aug-18	0	-9						
DB5338	DDA7E - UV Facilities - Electrical - Design Preparation to SO Approval	485	30-Mar-17 A	27-Jul-18	30-Mar-17	30-May-18	0	-58						
DB5354	DDA7F - UV Facilities - Building Services - Design Preparation to SO Approval	485	30-Mar-17 A	27-Jul-18	30-Mar-17	11-Jun-18	0	-46						
Sludge Dewatering Building and Sludge Skip Storage Building														
Civil and Structural Design (AIP8A / DDA8AB1B2)														
DB1433	DDA8A - SDB and SSSB - C&S - Design Preparation to SO Approval	596	24-Dec-16 A	11-Aug-18	24-Dec-16	12-Jul-18	0	-30						
DB4858	DDA8B2 - SSSB - C&S - Design Preparation to SO Approval	567	04-Feb-17 A	24-Aug-18	04-Feb-17	24-Jun-18	0	-61						
Electrical and Mechanical Design (AIP8B / DDA8C1C2DEF)														
		608	27-Nov-16 A	27-Jul-18	27-Nov-16	27-May-18	0	-61						

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1					PAGE 4 OF 11							
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 15Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
DB1476	DDA8C1-2 - SDB and SSSB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	455	29-Apr-17 A	27-Jul-18	29-Apr-17	27-May-18	0	-61						
DB4556	DDA8D - SDB and SSSB - Mechanical - Design Preparation to SO Approval	605	27-Nov-16 A	25-Jul-18	27-Nov-16	25-May-18	0	-61						
DB5370	DDA8E - SDB and SSSB - Electrical - Design Preparation to SO Approval	605	27-Nov-16 A	25-Jul-18	27-Nov-16	25-May-18	0	-61						
DB5386	DDA8F - SDB and SSSB - Building Services - Design Preparation to SO Approval	605	27-Nov-16 A	25-Jul-18	27-Nov-16	27-May-18	0	-58						
LOT #2 - Building / Facilities Design : AB+WS, DO, CB+EB4, FH		714	28-Sep-16 A	12-Sep-18	28-Sep-16	29-Aug-18	0	-13						
Chemical Building and EB 4		714	28-Sep-16 A	12-Sep-18	28-Sep-16	29-Aug-18	0	-13						
Civil and Structural Design for CB & EB4 (AIP12A / DDA12AB)		571	31-Jan-17 A	24-Aug-18	31-Jan-17	04-Jul-18	0	-52						
DB2123	DDA12A - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	571	31-Jan-17 A	24-Aug-18	31-Jan-17	04-Jul-18	0	-52						DDA12A - Chemical
DB5234	DDA12B - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	571	31-Jan-17 A	24-Aug-18	31-Jan-17	24-Jun-18	0	-61						DDA12B - Chemical
Electrical and Mechanical Design for CB only (AIP12B / DDA12C1C2DEF)		714	28-Sep-16 A	12-Sep-18	28-Sep-16	29-Aug-18	0	-13						
DB2162	DDA12C2 - Chemical Building - CR Drawing - Design Preparation to SO Approval	685	28-Sep-16 A	13-Aug-18	28-Sep-16	04-Jul-18	0	-41						DDA12C2 - Chemical Bu
DB4602	DDA12D - Chemical Building - Mechanical - Design Preparation to SO Approval	584	05-Feb-17 A	12-Sep-18	05-Feb-17	29-Aug-18	0	-13						DDA12D - Ch
DB5402	DDA12E - Chemical Building - Electrical - Design Preparation to SO Approval	555	05-Feb-17 A	13-Aug-18	05-Feb-17	24-Jun-18	0	-50						DDA12E - Chemical Bu
DB5418	DDA12F - Chemical Building - Building Services - Design Preparation to SO Approval	559	05-Feb-17 A	17-Aug-18	05-Feb-17	24-Jun-18	0	-54						DDA12F - Chemical Bu
Administration Building & Maintenance Workshop		678	03-Oct-16 A	12-Aug-18	03-Oct-16	08-Jul-18	0	-34						
Civil and Structural Design (AIP10A / DDA10AB)		524	06-Mar-17 A	12-Aug-18	06-Mar-17	29-Jun-18	0	-43						
DB2234	DDA10A - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval	517	13-Mar-17 A	12-Aug-18	13-Mar-17	29-Jun-18	0	-43						DDA10A - Admin Bldg. &
DB5248	DDA10B - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval	484	06-Mar-17 A	02-Jul-18	06-Mar-17	14-Jun-18	0	-18						DDA10B - Admin Bldg. & Workshop - C
Electrical and Mechanical Design (AIP10B / DDA10C1C2DEF)		677	03-Oct-16 A	10-Aug-18	03-Oct-16	08-Jul-18	0	-33						
DB2286	DDA10C1-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	660	03-Oct-16 A	25-Jul-18	03-Oct-16	25-May-18	0	-61						DDA10C1-1 - Admin Bldg. & W
DB2307	DDA10C1-2 - Admin Bldg. & Workshop (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	314	01-Oct-17 A	10-Aug-18	01-Oct-17	08-Jul-18	0	-33						DDA10C1-2 - Admin Bldg.
DB2327	DDA10C2-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	649	03-Oct-16 A	13-Jul-18	03-Oct-16	25-May-18	0	-49						DDA10C2-1 - Admin Bldg. & Works
DB2349	DDA10C2-2 - Admin Bldg. & Workshop (Super Structural Design) - CR Drawing - Design Preparation to SO Approval	314	01-Oct-17 A	10-Aug-18	01-Oct-17	08-Jul-18	0	-33						DDA10C2-2 - Admin Bldg.
DB4618	DDA10D - Admin Bldg. & Workshop - Mechanical - Design Preparation to SO Approval	541	31-Jan-17 A	25-Jul-18	31-Jan-17	18-Jun-18	0	-37						DDA10D - Admin Bldg. & Work
DB5434	DDA10E - Admin Bldg. & Workshop - Electrical - Design Preparation to SO Approval	540	31-Jan-17 A	25-Jul-18	31-Jan-17	13-Jun-18	0	-41						DDA10E - Admin Bldg. & Work
DB5450	DDA10F - Admin Bldg. & Workshop - Building Services - Design Preparation to SO Approval	554	31-Jan-17 A	07-Aug-18	31-Jan-17	03-Jul-18	0	-36						DDA10F - Admin Bldg. & V
Deodorization Facilities No.1 and No.2		618	15-Dec-16 A	24-Aug-18	15-Dec-16	24-Jun-18	0	-61						
Civil and Structural Design (AIP9A / DDA9AB)		576	26-Jan-17 A	24-Aug-18	26-Jan-17	24-Jun-18	0	-61						
DB2323	DDA9A - DO #1 & #2 (Architectural) - C&S - Design Preparation to SO Approval	576	26-Jan-17 A	24-Aug-18	26-Jan-17	24-Jun-18	0	-61						DDA9A - DO #1 & #2
DB5190	DDA9B - DO #1 & #2 (Structural) - C&S - Design Preparation to SO Approval	446	05-Jun-17 A	24-Aug-18	05-Jun-17	24-Jun-18	0	-61						DDA9B - DO #1 & #2
Electrical and Mechanical Design (AIP9B / DDA9C1C2DEF)		590	15-Dec-16 A	27-Jul-18	15-Dec-16	21-Jun-18	0	-36						
DB2348	DDA9C1 - DO #1 & #2 - GA Drawing - Design Preparation to SO Approval	587	15-Dec-16 A	25-Jul-18	15-Dec-16	25-May-18	0	-61						DDA9C1 - DO #1 & #2 - GA Dr
DB2364	DDA9C2 - DO #1 & #2 - CR Drawing - Design Preparation to SO Approval	587	15-Dec-16 A	25-Jul-18	15-Dec-16	25-May-18	0	-61						DDA9C2 - DO #1 & #2 - CR Dr
DB4634	DDA9D - DO #1 & #2 - Mechanical - Design Preparation to SO Approval	548	26-Jan-17 A	27-Jul-18	26-Jan-17	21-Jun-18	0	-36						DDA9D - DO #1 & #2 - Mecha
DB5466	DDA9E - DO #1 & #2 - Electrical - Design Preparation to SO Approval	545	26-Jan-17 A	25-Jul-18	26-Jan-17	25-May-18	0	-61						DDA9E - DO #1 & #2 - Electric
DB5482	DDA9F - DO #1 & #2 - Building Services - Design Preparation to SO Approval	545	26-Jan-17 A	25-Jul-18	26-Jan-17	25-May-18	0	-61						DDA9F - DO #1 & #2 - Building
Street Fire Hydrant Pump Room & GENSET Room		643	07-Dec-16 A	11-Sep-18	07-Dec-16	12-Jul-18	0	-61						
Civil and Structural Design (AIP17A / DDA17AB)		521	23-Mar-17 A	26-Aug-18	23-Mar-17	11-Jul-18	0	-45						
DB2423	DDA17A - FH Pump Room & GENSET Room (Architectural) - C&S - Design Preparation to SO Approval	520	23-Mar-17 A	24-Aug-18	23-Mar-17	24-Jun-18	0	-61						DDA17A - FH Pump
DB5220	DDA17B - FH Pump Room & GENSET Room (Structural) - C&S - Design Preparation to SO Approval	390	01-Aug-17 A	26-Aug-18	01-Aug-17	11-Jul-18	0	-45						DDA17B - FH Pump
Electrical and Mechanical Design (AIP17B / DDA17C1C2DE)		643	07-Dec-16 A	11-Sep-18	07-Dec-16	12-Jul-18	0	-61						
DB2448	DDA17C1 - FH Pump Room & GENSET Room - GA Drawing - Design Preparation to SO Approval	613	07-Dec-16 A	12-Aug-18	07-Dec-16	12-Jun-18	0	-61						DDA17C1 - FH Pump Ro
DB2462	DDA17C2 - FH Pump Room & GENSET Room - CR Drawing - Design Preparation to SO Approval	613	07-Dec-16 A	12-Aug-18	07-Dec-16	12-Jun-18	0	-61						DDA17C2 - FH Pump R
DB4648	DDA17D - FH Pump Room & GENSET Room - Electrical - Design Preparation to SO Approval	537	23-Mar-17 A	11-Sep-18	23-Mar-17	12-Jul-18	0	-61						DDA17D - FH
DB5498	DDA17E - FH Pump Room & GENSET Room - Building Services - Design Preparation to SO Approval	520	23-Mar-17 A	24-Aug-18	23-Mar-17	11-Jul-18	0	-44						DDA17E - FH Pump
LOT #3 - Building / Facilities Design : EB1, EB2, EB3, EB4, RW, DG+CW, Inlet/Outlet Connection		794	16-Sep-16 A	18-Nov-18	16-Sep-16	28-Sep-18	0	-51						
Electrical Building No.1, No.2, No.3, No.4		709	16-Sep-16 A	26-Aug-18	16-Sep-16	24-Jul-18	0	-32						

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1					PAGE 5 OF 11							
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 15Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
Civil and Structural Design for EB123 (AIP13A / DDA13AB)														
DB3123	DDA13A - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	591	11-Jan-17 A	24-Aug-18	11-Jan-17	24-Jul-18	0	-31						DDA13A - EB1, EB2
DB5262	DDA13B - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	591	11-Jan-17 A	24-Aug-18	11-Jan-17	24-Jul-18	0	-31						DDA13B - EB1, EB2
Electrical and Mechanical Design for EB1234 (AIP13B / DDA13C1C2DE)														
DB3148	DDA13C1 - EB1, EB2, EB3 & EB4 - GA Drawing - Design Preparation to SO Approval	705	16-Sep-16 A	22-Aug-18	16-Sep-16	22-Jun-18	0	-61						DDA13C1 - EB1, EB2
DB3164	DDA13C2 - EB1, EB2, EB3 & EB4 - CR Drawing - Design Preparation to SO Approval	694	16-Sep-16 A	10-Aug-18	16-Sep-16	22-Jun-18	0	-50						DDA13C2 - EB1, EB2, EB3
DB4664	DDA13D - EB1, EB2, EB3 & EB4 - Electrical - Design Preparation to SO Approval	548	23-Feb-17 A	24-Aug-18	23-Feb-17	10-Jul-18	0	-46						DDA13D - EB1, EB2
DB5512	DDA13E - EB1, EB2, EB3 & EB4 - Building Services - Design Preparation to SO Approval	549	23-Feb-17 A	24-Aug-18	23-Feb-17	08-Jul-18	0	-48						DDA13E - EB1, EB2
Re-use Water Building														
Civil and Structural Design (AIP14A / DDA14AB)														
DB3223	DDA14A - Re-use water Building (Architectural) - C&S - Design Preparation to SO Approval	499	13-Apr-17 A	24-Aug-18	13-Apr-17	29-Jun-18	0	-56						DDA14A - Re-use wa
DB5080	DDA14B - Re-use water Building (Structural) - C&S - Design Preparation to SO Approval	372	18-Aug-17 A	24-Aug-18	18-Aug-17	28-Jun-18	0	-57						DDA14B - Re-use wa
Electrical and Mechanical Design (AIP14B / DDA14C1C2DEF)														
DB3264	DDA14C2 - Re-use water Building - CR Drawing - Design Preparation to SO Approval	621	03-Dec-16 A	15-Aug-18	03-Dec-16	15-Jun-18	0	-61						DDA14C2 - Re-use wate
DB4680	DDA14D - Re-use water Building - Mechanical - Design Preparation to SO Approval	496	13-Apr-17 A	21-Aug-18	13-Apr-17	24-Jul-18	0	-28						DDA14D - Re-use wat
DB5528	DDA14E - Re-use water Building - Electrical - Design Preparation to SO Approval	492	13-Apr-17 A	17-Aug-18	13-Apr-17	01-Jul-18	0	-47						DDA14E - Re-use wate
DB5544	DDA14F - Re-use water Building - Building Services - Design Preparation to SO Approval	499	13-Apr-17 A	24-Aug-18	13-Apr-17	24-Jun-18	0	-61						DDA14F - Re-use wa
ICW and DG Store & Chemical Waste Storage Building														
Civil and Structural Design (AIP16A / DDA16AB)														
DB3323	DDA16A - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	380	18-Aug-17 A	02-Sep-18	18-Aug-17	03-Jul-18	0	-61						DDA16A - ICW, DG
DB5276	DDA16B - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	380	18-Aug-17 A	02-Sep-18	18-Aug-17	03-Jul-18	0	-61						DDA16B - ICW, DG
Electrical and Mechanical Design (AIP16B / DDA16C1C2D)														
DB3348	DDA16C1 - ICW, DG & Chemical Stores - GA Drawing - Design Preparation to SO Approval	641	30-Nov-16 A	02-Sep-18	30-Nov-16	03-Jul-18	0	-61						DDA16C1 - ICW, DG
DB3362	DDA16C2 - ICW, DG & Chemical Stores - CR Drawing - Design Preparation to SO Approval	641	30-Nov-16 A	02-Sep-18	30-Nov-16	03-Jul-18	0	-61						DDA16C2 - ICW, DG
DB4694	DDA16D - ICW, DG & Chemical Stores - Building Services - Design Preparation to SO Approval	544	24-May-17 A	18-Nov-18	24-May-17	28-Sep-18	0	-51						
Inlet & Outlet Pipe Connections and Diversion Pipeworks														
Civil and Structural Design (AIP11 / DDA11ABC)														
DB3438	DDA11B - C&S Detailed Design Report for Inlet Connections Pipework - Design Preparation to SO Approval	524	08-Apr-17 A	13-Sep-18	08-Apr-17	10-Aug-18	0	-34						DDA11B - C&S
DB3452	DDA11C - C&S Detailed Design Report for Emergency Bypass - Design Preparation to SO Approval	574	31-Dec-16 A	27-Jul-18	31-Dec-16	27-May-18	0	-61						DDA11C - C&S Detailed Design
LOT #4 - Building / Facilities Design : GH, PF														
Payment Flowmeter Chamber														
Civil and Structural Design (AIP15A / DDA15B)														
DB4323	DDA15B - Payment Flowmeter - C&S - Design Preparation to SO Approval	488	13-Apr-17 A	13-Aug-18	13-Apr-17	20-Jul-18	0	-24						DDA15B - Payment Flow
Electrical and Mechanical Design (AIP15B / DDA15C1C2DEF)														
DB4356	DDA15C2 - Payment Flowmeter (Superstructure Design) - CR Drawing - Design Preparation to SO Approval	625	25-Nov-16 A	11-Aug-18	25-Nov-16	13-Jul-18	0	-30						DDA15C2 - Payment Flow
DB4740	DDA15D - Payment Flowmeter - Mechanical - Design Preparation to SO Approval	456	31-May-17 A	29-Aug-18	31-May-17	30-Aug-18	0	0						DDA15D - Payment
DB5560	DDA15E - Payment Flowmeter - Electrical - Design Preparation to SO Approval	451	31-May-17 A	24-Aug-18	31-May-17	24-Jun-18	0	-61						DDA15E - Payment F
DB5576	DDA15F - Payment Flowmeter - Building Services - Design Preparation to SO Approval	451	31-May-17 A	24-Aug-18	31-May-17	14-Jul-18	0	-41						DDA15F - Payment F
Gatehouse														
Civil and Structural Design (AIP18A / DDA18AB)														
DB4434	DDA18A - Gatehouse - C&S - Design Preparation to SO Approval	426	18-Jul-17 A	17-Sep-18	18-Jul-17	17-Aug-18	0	-30						DDA18A - Gatehouse
DB5290	DDA18B - Gatehouse - C&S - Design Preparation to SO Approval	425	18-Jul-17 A	17-Sep-18	18-Jul-17	17-Aug-18	-1	-30						DDA18B - Ga
Electrical and Mechanical Design (AIP18B / DDA18C)														
DB4754	DDA18C - Gatehouse - Building Services - Design Preparation to SO Approval	474	24-Apr-17 A	10-Aug-18	24-Apr-17	10-Jun-18	0	-61						DDA18C - Gatehouse - Bu
Civil & Structural Works														
LOT #1 - Bldg / Facilities Const. (Arch'l & Struct'l) : CEPT+SF, PTW+PS+SHB, UV, SDB+SSSB														
		478	01-Oct-17 A	22-Jan-19	01-Oct-17	15-Jan-19	0	-6						

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 6 OF 11						
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 15Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
Chemically Enhanced Primary Treatment (CEPT)		478	01-Oct-17 A	22-Jan-19	01-Oct-17	25-Dec-18	0	-27						
CS1510	Substructure (ELS & Bulk excavation)	295	01-Oct-17 A	23-Jul-18	01-Oct-17	22-Jul-18	0	0	0					
CS1520	Substructure (rc structure)	214	26-Jan-18 A	27-Aug-18	26-Jan-18	31-Jul-18	0	-27	-11					
CS1525	Removal of ELS	45	27-Aug-18	11-Oct-18	01-Aug-18	14-Sep-18	-27	-27	-11					
CS1526	Backfilling (except in Water Tightness Test area)	227	28-Apr-18 A	11-Dec-18	28-Apr-18	13-Nov-18	0	-27	-11					
CS1530	Superstructure (rc and metalworks)	334	22-Feb-18 A	22-Jan-19	22-Feb-18	25-Dec-18	0	-27	-11					
CS1540	Internal ABWF - CEPT	90	08-Sep-18	07-Dec-18	12-Aug-18	09-Nov-18	-27	-27	-11					
System Control Flowmeter Chamber (SF)		37	25-Aug-18	30-Sep-18	25-Aug-18	30-Sep-18	0	0						
CS1398	Substructure (ELS & Bulk excavation)	37	25-Aug-18	30-Sep-18	25-Aug-18	30-Sep-18	0	0						
Inlet Work, Preliminary Treatment Works and Inlet Pumping Station (PTW & IPS)		204	26-Jun-18 A	15-Jan-19	26-Jun-18	15-Jan-19	0	0						
CS1210	Substructure (ELS & Bulk excavation)	101	26-Jun-18 A	04-Oct-18	26-Jun-18	30-Sep-18	0	-4	0					
CS1220	Substructure (rc structure)	68	25-Aug-18	31-Oct-18	25-Aug-18	31-Oct-18	0	0						
CS1226	Backfilling (except in Water Tightness Test area)	190	10-Jul-18	15-Jan-19	10-Jul-18	15-Jan-19	0	0						
UV Disinfection Facility (UV)		435	07-Oct-17 A	15-Dec-18	07-Oct-17	15-Dec-18	0	0						
CS1908	Substructure (ELS & Bulk excavation)	42	20-May-18 A	30-Jun-18	20-May-18	30-Jun-18	0	0	0					
CS1910	Substructure (rc structure)	313	07-Oct-17 A	15-Aug-18	07-Oct-17	30-Jul-18	0	-16	0					
CS1912	Removal of ELS	14	15-Aug-18	29-Aug-18	31-Jul-18	13-Aug-18	-16	-16	0					
CS1915	Backfilling (except in Water Tightness Test area)	168	01-Jul-18	15-Dec-18	01-Jul-18	15-Dec-18	0	0	0					
CS1920	Superstructure (rc and metalworks)	78	15-Aug-18	01-Nov-18	31-Jul-18	16-Oct-18	-16	-16	0					
Sludge Dewatering Building (SDB)		219	05-Mar-18 A	09-Oct-18	05-Mar-18	20-Sep-18	0	-19						
CS1836	Backfilling (except in Water Tightness Test area)	29	30-Jun-18 A	28-Jul-18	10-Jun-18	09-Jul-18	-20	-19	-3					
CS1840	Superstructure (rc and metalworks)	189	05-Mar-18 A	09-Sep-18	05-Mar-18	21-Aug-18	0	-19	-3					
CS1845	Water Tightness Test + Backfilling	55	31-Jul-18	24-Sep-18	13-Jul-18	05-Sep-18	-19	-19	-3					
CS1850	ABWF - Sludge Dewatering Building	30	09-Sep-18	09-Oct-18	22-Aug-18	20-Sep-18	-19	-19	-3					
LOT #2 - Bldg / Facilities Const. (Arch'l & Struct'l) : AB+WS, DO, CB, FH		444	13-Oct-17 A	30-Dec-18	13-Oct-17	30-Dec-18	0	0						
Administration Building & Maintenance Workshop (AB & WS)		237	03-Apr-18 A	25-Nov-18	03-Apr-18	11-Nov-18	0	-14						
CS1110	Substructure (rc structure)	115	03-Apr-18 A	26-Jul-18	03-Apr-18	12-Jul-18	0	-14	0					
CS1115	Backfilling	131	03-Apr-18 A	11-Aug-18	03-Apr-18	11-Aug-18	0	0	0					
CS1120	Superstructure (rc and metalworks)	62	27-Jul-18	26-Sep-18	13-Jul-18	12-Sep-18	-14	-14	0					
CS1125	Water Tightness Test	60	27-Sep-18	25-Nov-18	13-Sep-18	11-Nov-18	-14	-14	0					
CS1130	ABWF - Administration Building & Maintenance Workshop	60	27-Sep-18	25-Nov-18	13-Sep-18	11-Nov-18	-14	-14	0					
Chemical Building (CB)		444	13-Oct-17 A	30-Dec-18	13-Oct-17	30-Dec-18	0	0						
CS2310	Substructure (rc structure)	384	13-Oct-17 A	31-Oct-18	13-Oct-17	31-Oct-18	0	0						
CS2315	Backfilling	136	16-Aug-18	30-Dec-18	17-Aug-18	30-Dec-18	0	0						
Street Fire Hydrant Pump Room & GENSET Room (FH)		61	31-Jul-18	30-Sep-18	01-Aug-18	30-Sep-18	0	0						
CS3003	Piling Foundation (Prebored H-pile) 6	31	31-Jul-18	31-Aug-18	01-Aug-18	31-Aug-18	0	0						
CS3004	Pile Loading Test	14	31-Aug-18	14-Sep-18	01-Sep-18	14-Sep-18	0	0						
CS3005	Post-Drilling	14	31-Aug-18	14-Sep-18	01-Sep-18	14-Sep-18	0	0						
CS3007	Substructure (ELS & Bulk excavation)	30	31-Aug-18	30-Sep-18	01-Sep-18	30-Sep-18	0	0						
LOT #3 - Bldg / Facilities Const. (Arch'l & Struct'l) : EB, RW, DG, ICW, JC		416	22-Oct-17 A	11-Dec-18	22-Oct-17	11-Dec-18	0	0						
Electrical Building No.2 (EB2)		129	31-Jul-18	07-Dec-18	01-Aug-18	07-Dec-18	0	0						
CS2504	Pile Loading Test	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18	0	0						
CS2505	Post-Drilling	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18	0	0						
CS2507	Substructure (ELS & Bulk excavation)	25	01-Aug-18	25-Aug-18	01-Aug-18	25-Aug-18	0	0						
CS2510	Substructure (rc structure)	55	26-Aug-18	19-Oct-18	26-Aug-18	19-Oct-18	0	0						
CS2515	Backfilling	90	09-Sep-18	07-Dec-18	09-Sep-18	07-Dec-18	0	0						

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 7 OF 11						
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 16Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
Electrical Building No.3 (EB3)		101	02-Sep-18	11-Dec-18	02-Sep-18	11-Dec-18		0	0					
C52615	Backfilling	101	02-Sep-18	11-Dec-18	02-Sep-18	11-Dec-18		0	0					
Electrical Building No.4 (EB4)		362	22-Oct-17 A	19-Oct-18	22-Oct-17	18-Oct-18		0	0					
C52710	Substructure (rc structure)	316	22-Oct-17 A	03-Sep-18	22-Oct-17	31-Aug-18		0	-2	0				
C52715	Backfilling	65	08-Aug-18	12-Oct-18	08-Aug-18	11-Oct-18		0	0					
C52720	Superstructure (rc and metalworks)	45	04-Sep-18	19-Oct-18	04-Sep-18	18-Oct-18		0	0					
Re-use Water Building (RW)		87	01-Aug-18	26-Oct-18	01-Aug-18	26-Oct-18		0	0					
C52004	Pile Loading Test	14	01-Aug-18	14-Aug-18	01-Aug-18	14-Aug-18		0	0					
C52005	Post-Drilling	14	01-Aug-18	14-Aug-18	01-Aug-18	14-Aug-18		0	0					
C52007	Substructure (ELS & Bulk excavation)	25	01-Aug-18	25-Aug-18	01-Aug-18	25-Aug-18		0	0					
C52010	Substructure (rc structure)	62	26-Aug-18	26-Oct-18	26-Aug-18	26-Oct-18		0	0					
Existing Junction Chamber (JC)		120	12-Jun-18 A	09-Oct-18	12-Jun-18	09-Oct-18		0	0					
C52210	Bar Screen Installation	120	12-Jun-18 A	09-Oct-18	12-Jun-18	09-Oct-18		0	0					
LOT #4 - Bldg / Facilities Const. (Arch'l & Struct'l) : GH, PF, FW		220	24-Mar-18 A	29-Oct-18	24-Mar-18	29-Oct-18		0	0					
Payment Flowmeter Chamber (PF)		220	24-Mar-18 A	29-Oct-18	24-Mar-18	29-Oct-18		0	0					
C52080	Piling Foundation (Prebored H-pile) 9	130	24-Mar-18 A	31-Jul-18	24-Mar-18	31-Jul-18		0	0					
C52085	Pile Loading Test	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18		0	0					
C52090	Post-Drilling	14	31-Jul-18	14-Aug-18	01-Aug-18	14-Aug-18		0	0					
C52095	Substructure (ELS & Bulk excavation)	31	31-Jul-18	31-Aug-18	01-Aug-18	31-Aug-18		0	0					
C52100	Substructure (rc structure)	90	31-Jul-18	29-Oct-18	01-Aug-18	29-Oct-18		0	0					
External Works & Miscellaneous		517	15-Jun-18 A	14-Nov-19	15-Jun-18	13-Nov-19		0	0					
C53201	Slope works and Retaining Wall (Eastern Portion)	197	03-Jul-18	16-Jan-19	04-Jul-18	16-Jan-19		0	0					
C53203	Slope works (Northern Portion)	180	03-Jul-18	30-Dec-18	04-Jul-18	30-Dec-18		0	0					
C53210	Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains) incl. slope & retaining wall work @ P8	208	15-Jul-18	07-Feb-19	15-Jul-18	07-Feb-19		0	0					
C53230	CLP Cable Duct and Draw Pits (within the Site)	210	09-Jul-18	04-Feb-19	09-Jul-18	03-Feb-19		0	0					
C53250	EVA (Road & Drainage)	503	29-Jun-18 A	14-Nov-19	29-Jun-18	13-Nov-19		0	0					
C53252	RC Trench and Odour Pipe (DO1, DO2)	180	22-Jul-18	18-Jan-19	22-Jul-18	17-Jan-19		0	0					
C53254	Process Pipe	180	30-Jul-18	25-Jan-19	30-Jul-18	25-Jan-19		0	0					
C53256	Emergency By-Pass Pipe	260	15-Jul-18	31-Mar-19	15-Jul-18	31-Mar-19		0	0					
C53260	Sewage Pipe	210	28-Aug-18	25-Mar-19	28-Aug-18	25-Mar-19		0	0					
C53284	Diversion of Existing Watermains by WSD	60	15-Jun-18 A	13-Aug-18	15-Jun-18	13-Aug-18		0	0					
Green Roof		63	09-Sep-18	11-Nov-18	22-Aug-18	11-Nov-18		-19	0					
C53340	Administration Building and Maintenance Workshop	60	13-Sep-18	11-Nov-18	13-Sep-18	11-Nov-18		0	0					
C53350	Sludge Dewatering Building	60	09-Sep-18	08-Nov-18	22-Aug-18	20-Oct-18		-19	-19					
Statutory Works		249	25-Jan-18 A	01-Oct-18	25-Jan-18	30-Sep-18		0	0					
Electrical Supply & Energization - CLP		249	25-Jan-18 A	01-Oct-18	25-Jan-18	30-Sep-18		0	0					
SR130	Application of XP by CLP	249	25-Jan-18 A	01-Oct-18	25-Jan-18	30-Sep-18		0	0					
E&M Works		839	27-Nov-16 A	16-Mar-19	27-Nov-16	15-Mar-19		0	0					
Procurement		839	27-Nov-16 A	16-Mar-19	27-Nov-16	15-Mar-19		0	0					
Chemically Enhanced Primary Treatment (CEPT)		412	10-Nov-17 A	27-Dec-18	10-Nov-17	26-Dec-18		0	0					
EM3112	Manufacturing & Logistic (Major Equipment)	247	21-Feb-18 A	25-Oct-18	21-Feb-18	25-Oct-18		0	0					
EM3114	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	270	10-Nov-17 A	06-Aug-18	10-Nov-17	16-Aug-18		0	10					
EM3116	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	16-Aug-18	20-Dec-18	17-Aug-18	20-Dec-18		0	0					
EM3118	CMS Preparation, Submission & Approval (Electrical)	270	10-Nov-17 A	06-Aug-18	10-Nov-17	16-Aug-18		0	10					
EM3120	Manufacturing & Logistic (Electrical)	126	16-Aug-18	20-Dec-18	17-Aug-18	20-Dec-18		0	0					
EM3122	CMS Preparation, Submission & Approval (Building Services)	295	10-Nov-17 A	01-Sep-18	10-Nov-17	05-Sep-18		0	5					

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 8 OF 11						
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 16Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
EM3124	Manufacturing & Logistic (Building Services)	112	06-Sep-18	27-Dec-18	06-Sep-18	26-Dec-18		0	0					
System Control Flowmeter Chamber (SF)		718	25-Jan-17 A	13-Jan-19	25-Jan-17	12-Jan-19		0	0					
EM3132	CMS Preparation, Submission & Approval (Major Equipment)	529	25-Jan-17 A	08-Jul-18	25-Jan-17	10-Jul-18		0	3					
EM3134	Manufacturing & Logistic (Major Equipment)	185	12-Jul-18	13-Jan-19	12-Jul-18	12-Jan-19		0	0					
EM3136	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	244	10-Nov-17 A	12-Jul-18	10-Nov-17	15-Jul-18		0	4					
EM3138	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	16-Jul-18	20-Aug-18	16-Jul-18	19-Aug-18		0	0					
EM3140	CMS Preparation, Submission & Approval (Electrical)	329	10-Nov-17 A	04-Oct-18	10-Nov-17	24-Oct-18		0	20					
EM3144	CMS Preparation, Submission & Approval (Building Services)	331	10-Nov-17 A	07-Oct-18	10-Nov-17	15-Oct-18		0	9					
Inlet Work, Preliminary Treatment Units and Inlet Pumping Station (PTW & IPS)		703	04-Jan-17 A	08-Dec-18	04-Jan-17	07-Dec-18		0	0					
EM3135	CMS Preparation, Submission & Approval (Major Equipment)	543	04-Jan-17 A	01-Jul-18	04-Jan-17	01-May-18		0	-61					
EM3137	Manufacturing & Logistic (Major Equipment)	160	01-Jul-18	08-Dec-18	01-May-18	08-Oct-18		-61	-61					
EM3141	Witness FAT - Main Sewage Pumps	28	12-Aug-18	09-Sep-18	30-Jul-18	27-Aug-18		-13	-13					
EM3635	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	283	01-Oct-17 A	11-Jul-18	01-Oct-17	13-Jul-18		0	3					
EM3645	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	14-Jul-18	17-Nov-18	14-Jul-18	16-Nov-18		0	0					
EM3655	CMS Preparation, Submission & Approval (Electrical)	336	01-Oct-17 A	01-Sep-18	01-Oct-17	14-Sep-18		0	13					
EM3665	Manufacturing & Logistic (Electrical)	84	14-Sep-18	07-Dec-18	15-Sep-18	07-Dec-18		0	0					
EM3675	CMS Preparation, Submission & Approval (Building Services)	383	01-Oct-17 A	19-Oct-18	01-Oct-17	07-Nov-18		0	20					
Solid Handling Building (SHB)		583	12-Apr-17 A	16-Nov-18	12-Apr-17	15-Nov-18		0	0					
EM3145	CMS Preparation, Submission & Approval (Major Equipment)	449	12-Apr-17 A	05-Jul-18	12-Apr-17	05-May-18		0	-61					
EM3150	Manufacturing & Logistic (Major Equipment)	48	05-Jul-18	23-Aug-18	05-May-18	23-Jun-18		-61	-61					
EM3695	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	285	01-Oct-17 A	12-Jul-18	01-Oct-17	15-Jul-18		0	3					
EM3705	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	15-Jul-18	19-Aug-18	16-Jul-18	19-Aug-18		0	0					
EM3715	CMS Preparation, Submission & Approval (Electrical)	274	01-Oct-17 A	01-Jul-18	01-Oct-17	27-May-18		0	-35					
EM3725	Manufacturing & Logistic (Electrical)	84	01-Jul-18	23-Sep-18	28-May-18	19-Aug-18		-35	-35					
EM3735	CMS Preparation, Submission & Approval (Building Services)	287	01-Oct-17 A	15-Jul-18	01-Oct-17	18-Jul-18		0	4					
EM3745	Manufacturing & Logistic (Building Services)	120	19-Jul-18	16-Nov-18	19-Jul-18	15-Nov-18		0	0					
UV Disinfection Facility (UV)		480	21-Nov-17 A	16-Mar-19	21-Nov-17	15-Mar-19		0	0					
EM3190	Manufacturing & Logistic (Major Equipment)	320	30-Apr-18 A	16-Mar-19	30-Apr-18	15-Mar-19		0	0					
EM3755	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	293	21-Nov-17 A	10-Sep-18	21-Nov-17	27-Sep-18		0	18					
EM3765	Manufacturing & Logistic (Penstock, Pipe & Valve)	147	28-Sep-18	22-Feb-19	28-Sep-18	21-Feb-19		0	0					
EM3775	CMS Preparation, Submission & Approval (Electrical)	306	21-Nov-17 A	23-Sep-18	21-Nov-17	12-Oct-18		0	20					
EM3795	CMS Preparation, Submission & Approval (Building Services)	349	21-Nov-17 A	05-Nov-18	21-Nov-17	29-Nov-18		0	25					
Sludge Dewatering Building (SDB)		778	27-Nov-16 A	13-Jan-19	27-Nov-16	11-Jan-19		0	-3					
EM3175	CMS Preparation, Submission & Approval (Major Equipment)	588	27-Nov-16 A	07-Jul-18	27-Nov-16	07-May-18		0	-61					
EM3180	Manufacturing & Logistic (Major Equipment)	190	07-Jul-18	13-Jan-19	07-May-18	13-Nov-18		-61	-61					
EM3815	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	382	27-Oct-17 A	12-Nov-18	27-Oct-17	07-Dec-18		0	24					
EM3835	CMS Preparation, Submission & Approval (Electrical)	315	27-Oct-17 A	07-Sep-18	27-Oct-17	22-Sep-18		0	16					
EM3845	Manufacturing & Logistic (Electrical)	84	23-Sep-18	16-Dec-18	22-Sep-18	15-Dec-18		0	0					
EM3855	CMS Preparation, Submission & Approval (Building Services)	414	27-Oct-17 A	15-Dec-18	27-Oct-17	11-Jan-19		0	27					
Sludge Skip Storage Building (SSSB)		395	04-Sep-17 A	04-Oct-18	04-Sep-17	03-Sep-18		0	-30					
EM3875	CMS Preparation, Submission & Approval (Electrical)	308	04-Sep-17 A	09-Jul-18	04-Sep-17	11-Jun-18		0	-27					
EM3885	Manufacturing & Logistic (Electrical)	84	12-Jul-18	04-Oct-18	12-Jun-18	03-Sep-18		-30	-30					
EM3895	CMS Preparation, Submission & Approval (Building Services)	308	04-Sep-17 A	09-Jul-18	04-Sep-17	09-May-18		0	-61					
EM3905	Manufacturing & Logistic (Building Services)	32	09-Jul-18	10-Aug-18	11-May-18	12-Jun-18		-59	-59					
Administration Building & Maintenance Workshop (AB & WS)		635	31-Jan-17 A	27-Oct-18	31-Jan-17	29-Aug-18		0	-59					
EM3125	CMS Preparation, Submission & Approval (Major Equipment)	519	31-Jan-17 A	03-Jul-18	31-Jan-17	05-May-18		0	-59					
EM3130	Manufacturing & Logistic (Major Equipment)	115	04-Jul-18	27-Oct-18	06-May-18	29-Aug-18		-59	-59					

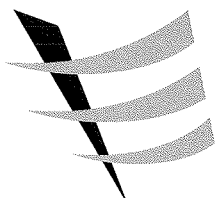
DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 9 OF 11						
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 16Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
EM3915	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	306	30-Aug-17 A	01-Jul-18	30-Aug-17	19-May-18	0	-43						
EM3925	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	04-Jul-18	10-Oct-18	22-May-18	28-Aug-18	-43	-43						
EM3935	CMS Preparation, Submission & Approval (Electrical)	306	30-Aug-17 A	02-Jul-18	30-Aug-17	22-May-18	0	-40						
EM3945	Manufacturing & Logistic (Electrical)	98	02-Jul-18	08-Oct-18	23-May-18	28-Aug-18	-40	-40						
EM3955	CMS Preparation, Submission & Approval (Building Services)	306	30-Aug-17 A	02-Jul-18	30-Aug-17	22-May-18	0	-40						
EM3965	Manufacturing & Logistic (Building Services)	98	02-Jul-18	08-Oct-18	23-May-18	28-Aug-18	-40	-40						
Deodorization Facilities No. 1 & 2 (DO 1 & DO 2)		732	10-Jan-17 A	12-Jan-19	10-Jan-17	06-Feb-19	0	26						
EM3165	CMS Preparation, Submission & Approval (Major Equipment)	551	10-Jan-17 A	14-Jul-18	10-Jan-17	14-May-18	0	-61						
EM3170	Manufacturing & Logistic (Major Equipment)	32	15-Jul-18	16-Aug-18	15-May-18	16-Jun-18	-61	-61						
EM3171	Witness FAT - DO 1 & DO 2	14	25-Jul-18	08-Aug-18	25-May-18	08-Jun-18	-61	-61						
EM3172	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	309	30-Aug-17 A	04-Jul-18	30-Aug-17	06-Jul-18	0	1						
EM3173	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	05-Jul-18	08-Nov-18	06-Jul-18	09-Nov-18	0	0						
EM3975	CMS Preparation, Submission & Approval (Electrical)	375	30-Aug-17 A	08-Sep-18	30-Aug-17	21-Sep-18	0	13						
EM3985	Manufacturing & Logistic (Electrical)	98	21-Sep-18	28-Dec-18	21-Sep-18	28-Dec-18	0	0						
EM3995	CMS Preparation, Submission & Approval (Building Services)	500	30-Aug-17 A	12-Jan-19	30-Aug-17	06-Feb-19	0	26						
Chemical Building (CB)		386	08-Nov-17 A	28-Nov-18	08-Nov-17	23-Dec-18	0	24						
EM3230	Manufacturing & Logistic (Major Equipment)	168	17-Mar-18 A	31-Aug-18	17-Mar-18	31-Aug-18	0	0						
EM4015	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	384	08-Nov-17 A	26-Nov-18	08-Nov-17	23-Dec-18	0	26						
EM4035	CMS Preparation, Submission & Approval (Electrical)	277	08-Nov-17 A	11-Aug-18	08-Nov-17	22-Aug-18	0	11						
EM4045	Manufacturing & Logistic (Electrical)	98	22-Aug-18	28-Nov-18	22-Aug-18	28-Nov-18	0	0						
EM4055	CMS Preparation, Submission & Approval (Building Services)	335	08-Nov-17 A	09-Oct-18	08-Nov-17	29-Oct-18	0	21						
Street Fire Hydrant Pump Room & GENSET Room (FH)		624	23-Mar-17 A	07-Dec-18	23-Mar-17	14-Dec-18	0	7						
EM3275	CMS Preparation, Submission & Approval (Major Equipment)	510	23-Mar-17 A	14-Aug-18	23-Mar-17	21-Aug-18	0	6						
EM3280	Manufacturing & Logistic (Major Equipment)	84	20-Aug-18	12-Nov-18	21-Aug-18	13-Nov-18	0	0						
EM4075	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	432	01-Oct-17 A	07-Dec-18	01-Oct-17	06-Dec-18	0	0						
EM4095	CMS Preparation, Submission & Approval (Electrical)	368	01-Oct-17 A	04-Oct-18	01-Oct-17	22-Oct-18	0	18						
EM4115	CMS Preparation, Submission & Approval (Building Services)	416	01-Oct-17 A	20-Nov-18	01-Oct-17	14-Dec-18	0	23						
Electrical Buildings (EB1, EB2, EB3 & EB4)		661	23-Feb-17 A	16-Dec-18	23-Feb-17	16-Dec-18	0	0						
EM3235	CMS Preparation, Submission & Approval (Major Equipment)	495	23-Feb-17 A	03-Jul-18	23-Feb-17	14-May-18	0	-50						
EM3240	Manufacturing & Logistic (Major Equipment)	84	05-Jul-18	27-Sep-18	16-May-18	08-Aug-18	-50	-50						
EM3245	Witness FAT - LV Switchboards (8 nos. for EB's and 4 nos. for SDB)	21	19-Jul-18	09-Aug-18	30-Jun-18	21-Jul-18	-19	-19						
EM3300	CMS Preparation, Submission & Approval (Electrical)	295	11-Sep-17 A	03-Jul-18	11-Sep-17	16-May-18	0	-48						
EM3305	Manufacturing & Logistic (Electrical)	93	03-Jul-18	04-Oct-18	16-May-18	17-Aug-18	-48	-48						
EM3310	CMS Preparation, Submission & Approval (Control & Instrument)	351	11-Sep-17 A	28-Aug-18	11-Sep-17	09-Sep-18	0	12						
EM3315	Manufacturing & Logistic (Control & Instrument)	98	09-Sep-18	16-Dec-18	09-Sep-18	16-Dec-18	0	0						
EM3320	CMS Preparation, Submission & Approval (Building Services)	330	09-Aug-17 A	04-Jul-18	09-Aug-17	04-May-18	0	-61						
EM3325	Manufacturing & Logistic (Building Services)	112	04-Jul-18	24-Oct-18	04-May-18	24-Aug-18	-61	-61						
Re-use Water Building (RW)		385	19-Nov-17 A	08-Dec-18	19-Nov-17	09-Dec-18	0	0						
EM3200	Manufacturing & Logistic (Major Equipment)	140	30-Jun-18	16-Nov-18	28-Jun-18	14-Nov-18	-2	-2						
EM4135	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	251	19-Nov-17 A	28-Jul-18	19-Nov-17	06-Aug-18	0	9						
EM4145	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	06-Aug-18	10-Sep-18	06-Aug-18	10-Sep-18	0	0						
EM4155	CMS Preparation, Submission & Approval (Electrical)	226	19-Nov-17 A	02-Jul-18	19-Nov-17	04-Jun-18	0	-29						
EM4165	Manufacturing & Logistic (Electrical)	98	03-Jul-18	09-Oct-18	04-Jun-18	10-Sep-18	-30	-30						
EM4175	CMS Preparation, Submission & Approval (Building Services)	262	19-Nov-17 A	07-Aug-18	19-Nov-17	19-Aug-18	0	11						
EM4185	Manufacturing & Logistic (Building Services)	112	18-Aug-18	08-Dec-18	19-Aug-18	09-Dec-18	0	0						
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		539	24-May-17 A	13-Nov-18	24-May-17	14-Nov-18	0	0						
EM3255	CMS Preparation, Submission & Approval (Major Equipment)	412	24-May-17 A	09-Jul-18	24-May-17	09-May-18	0	-61						

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1						PAGE 10 OF 11						
Activity ID	Activity Name	At Completion	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 150Days EOT Finish Date	2018				
		Duration								Jun	Jul	Aug	Sep	Oct
EM3260	Manufacturing & Logistic (Major Equipment)	98	10-Jul-18	15-Oct-18	10-May-18	15-Aug-18	-61	-61						Ma
EM4195	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	310	10-Dec-17 A	15-Oct-18	10-Dec-17	09-Nov-18	0	24						CM
EM4215	CMS Preparation, Submission & Approval (Electrical)	280	30-Sep-17 A	07-Jul-18	30-Sep-17	19-May-18	0	-49						CMS Preparation, Submission & Appr
EM4225	Manufacturing & Logistic (Electrical)	70	11-Jul-18	19-Sep-18	23-May-18	01-Aug-18	-49	-49						Manufactur
EM4235	CMS Preparation, Submission & Approval (Building Services)	293	30-Sep-17 A	19-Jul-18	30-Sep-17	25-Jul-18	0	5						CMS Preparation, Submission & A
EM4245	Manufacturing & Logistic (Building Services)	112	24-Jul-18	13-Nov-18	25-Jul-18	14-Nov-18	0	0						
Gatehouse (GH)		609	24-Apr-17 A	23-Dec-18	24-Apr-17	23-Dec-18	0	0						
EM3285	CMS Preparation, Submission & Approval (Building Services)	502	24-Apr-17 A	07-Sep-18	24-Apr-17	16-Sep-18	0	9						CMS Preparation
EM3290	Manufacturing & Logistic (Building Services)	98	16-Sep-18	23-Dec-18	16-Sep-18	23-Dec-18	0	0						
Payment Flowmeter Chamber (PF)		723	25-Jan-17 A	18-Jan-19	25-Jan-17	16-Feb-19	0	30						
EM3205	CMS Preparation, Submission & Approval (Major Equipment)	527	25-Jan-17 A	06-Jul-18	25-Jan-17	10-Jul-18	0	5						CMS Preparation, Submission & Appr
EM3210	Manufacturing & Logistic (Major Equipment)	185	17-Jul-18	18-Jan-19	17-Jul-18	17-Jan-19	0	0						
EM4255	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	306	01-Sep-17 A	04-Jul-18	01-Sep-17	04-May-18	0	-61						CMS Preparation, Submission & Appr
EM4265	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	05-Jul-18	11-Oct-18	05-May-18	11-Aug-18	-61	-61						Man
EM4275	CMS Preparation, Submission & Approval (Electrical)	367	20-Nov-17 A	22-Nov-18	20-Nov-17	18-Dec-18	0	27						
EM4295	CMS Preparation, Submission & Approval (Building Services)	423	20-Nov-17 A	16-Jan-19	20-Nov-17	16-Feb-19	0	31						
Foul Water Pump Sump		349	20-Nov-17 A	03-Nov-18	20-Nov-17	21-Oct-18	0	-13						
EM4315	CMS Preparation, Submission & Approval	229	20-Nov-17 A	06-Jul-18	20-Nov-17	23-Jun-18	0	-13						CMS Preparation, Submission & Appr
EM4320	Manufacturing & Logistic	120	07-Jul-18	03-Nov-18	23-Jun-18	21-Oct-18	-13	-13						
SCADA and CMMS Systems		486	01-Jul-17 A	29-Oct-18	01-Jul-17	29-Aug-18	0	-61						
EM3330	CMS Preparation, Submission & Approval	372	01-Jul-17 A	07-Jul-18	01-Jul-17	07-May-18	0	-61						CMS Preparation, Submission & Appr
EM3335	Manufacturing & Logistic (SCADA)	112	09-Jul-18	29-Oct-18	09-May-18	29-Aug-18	-61	-61						
EM3340	Witness FAT - SCADA System	28	22-Jul-18	19-Aug-18	22-Jun-18	20-Jul-18	-30	-30						Witness FAT - SCADA
EM3345	Manufacturing & Logistic (CMMS)	112	09-Jul-18	29-Oct-18	09-May-18	29-Aug-18	-61	-61						
EM3350	Witness FAT - CMMS	14	22-Jul-18	05-Aug-18	22-Jun-18	06-Jul-18	-30	-30						Witness FAT - CMMS
Cast - In Items		650	01-Feb-17 A	13-Nov-18	01-Feb-17	12-Nov-18	0	0						
EM3520	CMS Preparation, Submission & Approval	546	01-Feb-17 A	01-Aug-18	01-Feb-17	07-Aug-18	0	6						CMS Preparation, Submission
EM3525	Delivery of Cast-in Items for CEPT and SF	304	30-Sep-17 A	31-Jul-18	30-Sep-17	28-Jul-18	0	-2	0					Delivery of Cast-in Items for C
EM3530	Delivery of Cast-in Items for PTW and IPS	288	30-Sep-17 A	14-Jul-18	30-Sep-17	18-Jun-18	0	-27	-11					Delivery of Cast-in Items for PTW a
EM3540	Delivery of Cast-in Items for UV	63	30-Apr-18 A	02-Jul-18	30-Apr-18	16-Jun-18	0	-15	0					Delivery of Cast-in Items for UV
EM3545	Delivery of Cast-in Items for SDB	128	26-Feb-18 A	04-Jul-18	26-Feb-18	09-Jun-18	0	-24	-8					Delivery of Cast-in Items for SDB
EM3555	Delivery of Cast-in Items for Admin. Building	62	23-May-18 A	24-Jul-18	23-May-18	10-Jul-18	0	-14	0					Delivery of Cast-in Items for Adm
EM3565	Delivery of Cast-in Items for DO No. 2	48	27-Aug-18	14-Oct-18	27-Aug-18	14-Oct-18	0	0						Deliv
EM3570	Delivery of Cast-in Items for CB	48	08-Sep-18	26-Oct-18	09-Sep-18	26-Oct-18	0	0						
EM3575	Delivery of Cast-in Items for FH	48	23-Aug-18	10-Oct-18	23-Aug-18	09-Oct-18	0	0						Deliv
EM3600	Delivery of Cast-in Items for EB4	48	01-Sep-18	19-Oct-18	01-Sep-18	18-Oct-18	0	0						D
EM3605	Delivery of Cast-in Items for RW	48	03-Sep-18	20-Oct-18	03-Sep-18	20-Oct-18	0	0						D
EM3610	Delivery of Cast-in Items for DG and ICW	48	26-Sep-18	13-Nov-18	26-Sep-18	12-Nov-18	0	0						
EM3625	Delivery of Cast-in Items for PF	48	12-Aug-18	29-Sep-18	13-Aug-18	30-Sep-18	0	0						Delivery
Installation		197	28-Aug-18	13-Mar-19	27-Aug-18	12-Mar-19	0	0						
Administration Building & Maintenance Workshop (AB & WS)		197	28-Aug-18	13-Mar-19	27-Aug-18	12-Mar-19	0	0						
EM1100	SCADA System	180	29-Aug-18	25-Feb-19	29-Aug-18	25-Feb-19	0	0						
EM1105	Plant Installation (WS)	180	28-Aug-18	23-Feb-19	27-Aug-18	23-Feb-19	0	0						
EM1110	ELV System	180	14-Sep-18	13-Mar-19	14-Sep-18	12-Mar-19	0	0						
EM1120	BS - MVAC Installation	180	14-Sep-18	13-Mar-19	14-Sep-18	12-Mar-19	0	0						
Testing & Commissioning		121	03-Jun-18 A	01-Oct-18	03-Jun-18	01-Oct-18	1	0						
TC030	Operation Plan - Preparation for Submission	121	03-Jun-18 A	01-Oct-18	03-Jun-18	01-Oct-18	1	0						Operatic

DATA DATE: 30-Jun-18		LAYOUT: SW Project Phase 1 Rev 9 (3M 30Jun18)1					PAGE 11 OF 11							
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage - 16Days EOT Finish Date	2018				
										Jun	Jul	Aug	Sep	Oct
TC040	Asset Management Plan - Preparation for Submission	121	03-Jun-18 A	01-Oct-18	03-Jun-18	01-Oct-18	1	0						ASSET M

Appendix D1

Calibration Certificates for Impact Air Quality Monitoring Equipment



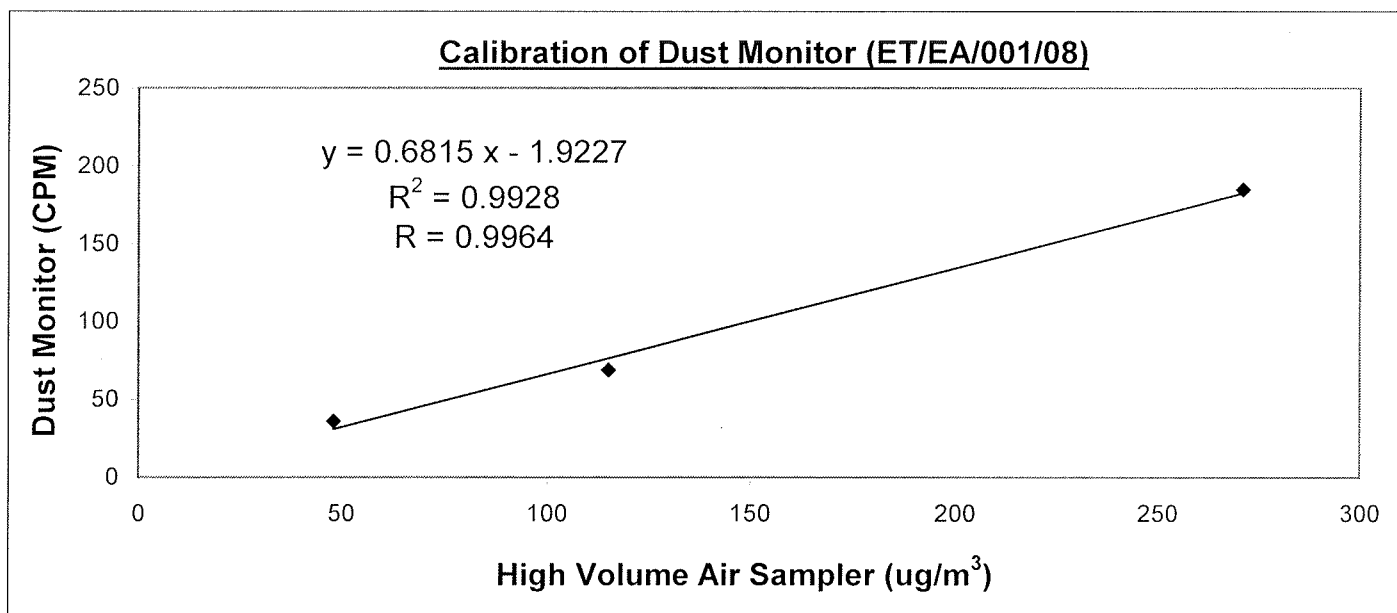
Internal Calibration Report
of
Dust Monitor

Manufacturer : SIBATA (LD-3B) **Date of Calibration** : 27 March 2018

Serial No. : 135261 (ET/EA/001/08) **Calibration Due Date** : 26 September 2018

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


Results :	Dust Monitor (CPM)	36	69	185
	High Volume Air Sampler (ug/m ³)	48	115	271
	High Volume Air Sampler Serial No.:1177		Calibration Due Date: 8 April 2018	




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

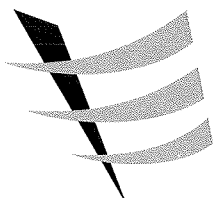
The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by :


Chung Ka Ho
(Technician)

Checked by :


LAU, Chi Leung
(Environmental Team Leader)



Internal Calibration Report
of
Dust Monitor

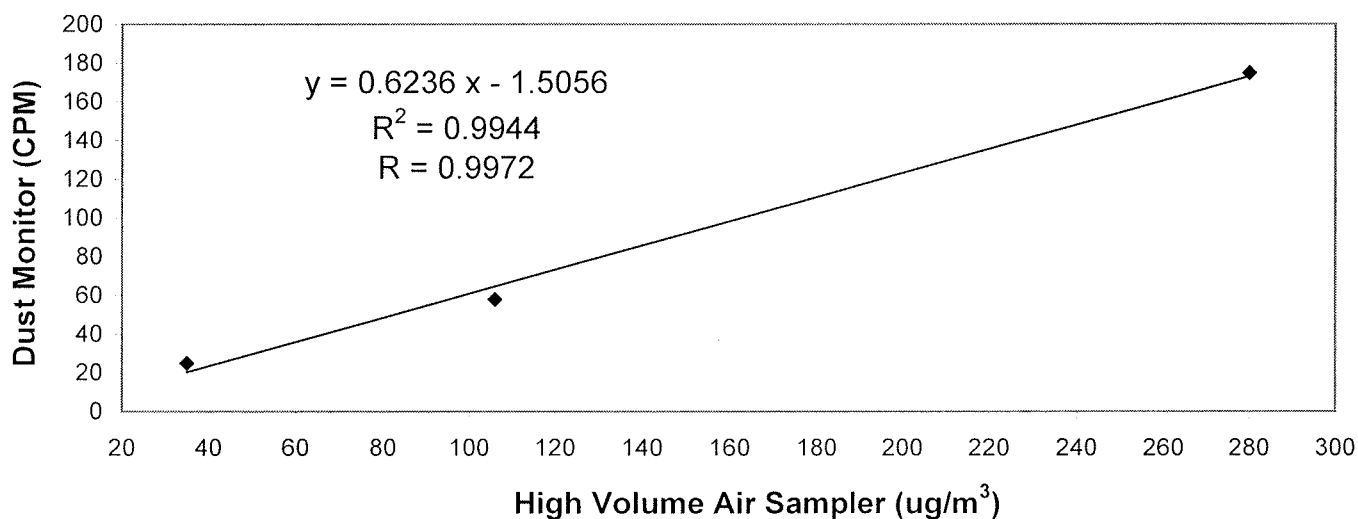
Manufacturer : SIBATA (LD-3B) Date of Calibration : 08 March 2018

Serial No. : 597340 (ET/EA/001/14) Calibration Due Date : 07 September 2018

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


Results :	Dust Monitor (CPM)	25	58	175
	High Volume Air Sampler (ug/m ³)	35	106	280
	High Volume Air Sampler Serial No.: 1177		Calibration Due Date: 8 April 2018	

Calibration of Dust Monitor (ET/EA/001/14)



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)



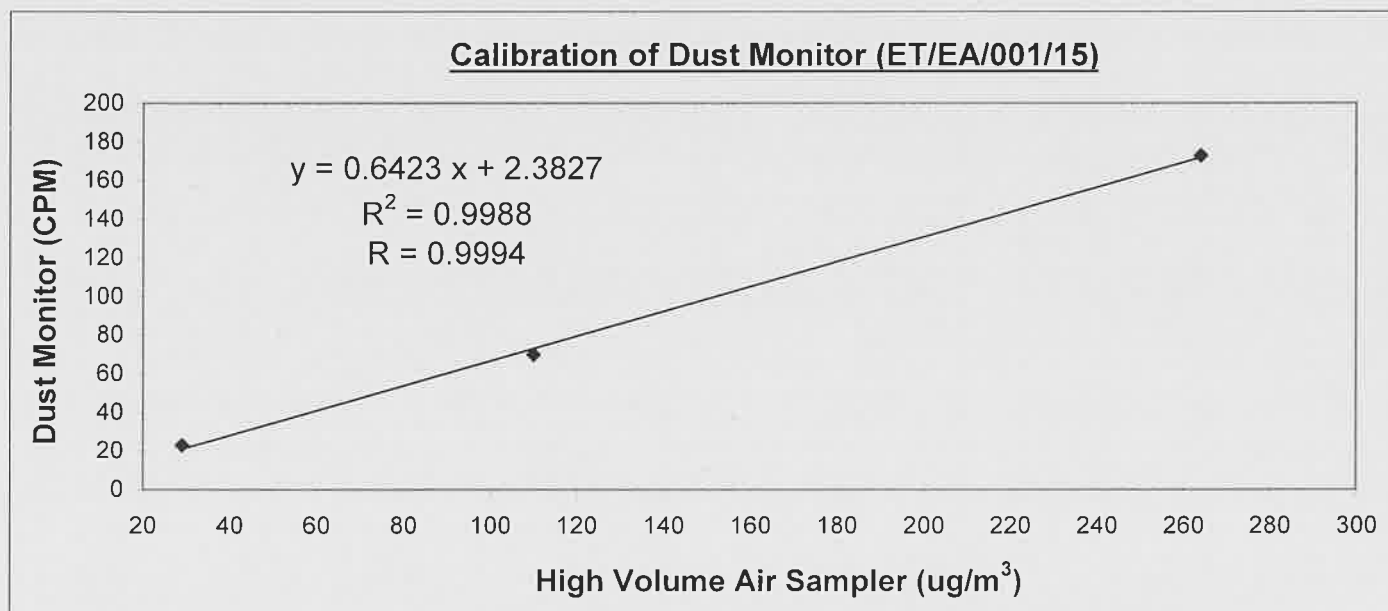
Internal Calibration Report
of
Dust Monitor

Manufacturer : SIBATA (LD-3B) **Date of Calibration :** 20 January 2018

Serial No. : 597227 (ET/EA/001/15) **Calibration Due Date :** 19 July 2018

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

Results :	Dust Monitor (CPM)	23	70	173
	High Volume Air Sampler (ug/m ³)	29	110	264
	High Volume Air Sampler Serial No.: 1177		Calibration Due Date: 11 February 2018	

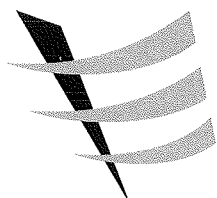


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a three-point calibration

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)



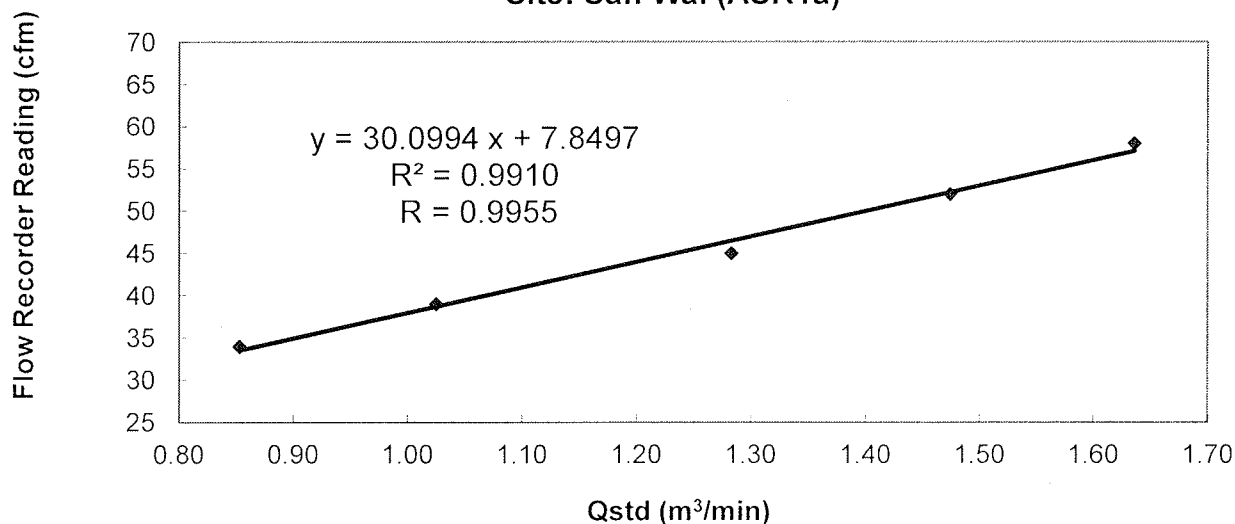
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 08 May 2018
Serial No. : 1934 (ET / EA / 003 / 25) **Calibration Due Date** : 07 July 2018
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results

Flow recorder reading (cfm)	58	52	45	39	34
Qstd (Actual flow rate, m ³ /min)	1.64	1.47	1.28	1.02	0.85
Pressure :	759.06 mm Hg		Temp. :	298 K	

Sampler 1934 Calibration Curve
Site: San Wai (ASR1a)

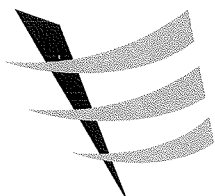


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

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

Calibrated by : MAK, Kei Wai
(Assistant Supervisor)

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



Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby (Model No. GS2310) **Date of Calibration** : 08 May 2018

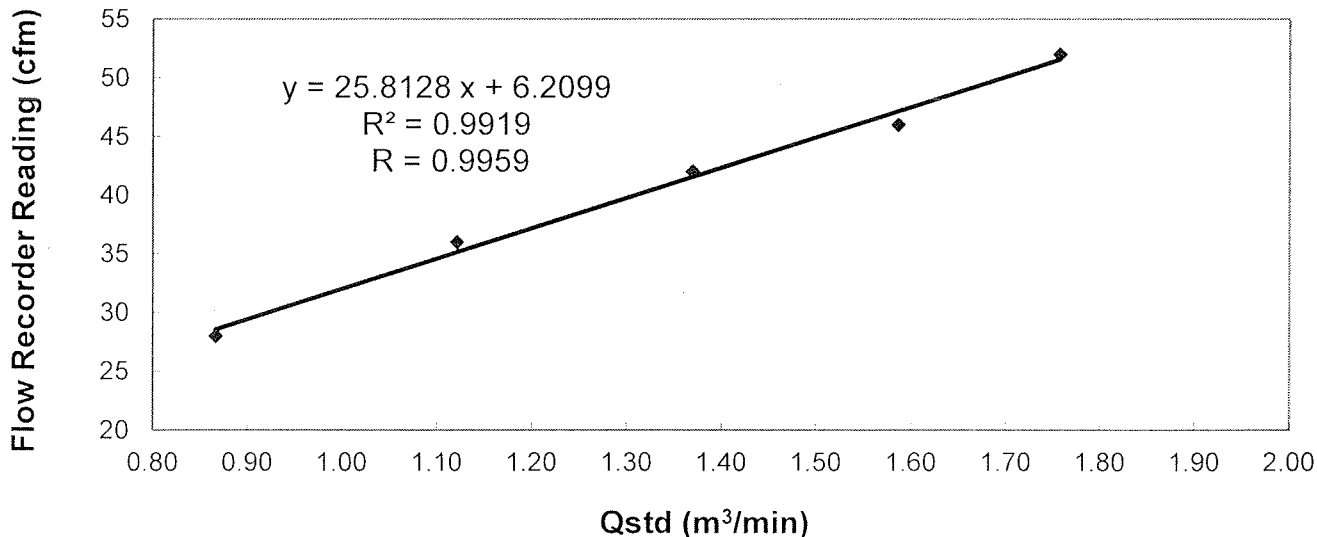
Serial No. : 9998 (ET / EA / 003 / 12) **Calibration Due Date** : 07 July 2018

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

Results

Flow recorder reading (cfm)	52	46	42	36	28
Qstd (Actual flow rate, m ³ /min)	1.76	1.59	1.37	1.12	0.87
Pressure : 759.06 mm Hg	Temp. : 298 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
(Assistant Supervisor)

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

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

Standard Conditions

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

RECALIBRATION

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

Appendix D2

Impact Air Quality Monitoring Results

Summary of Impact 1-hour TSP Monitoring Results

Air Quality Monitoring Station : ASR1a

Date	Weather	Temperature (°C)	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)
			Start	Finish	
06/06/2018	Cloudy	25	08:36	09:36	31
06/06/2018	Cloudy	25	09:36	10:36	29
06/06/2018	Cloudy	25	10:36	11:36	24
11/06/2018	Fine	30	10:00	11:00	76
11/06/2018	Fine	30	11:00	12:00	75
11/06/2018	Fine	30	13:00	14:00	76
16/06/2018	Fine	27	08:49	09:49	86
16/06/2018	Fine	27	09:49	10:49	87
16/06/2018	Fine	27	10:49	11:49	87
22/06/2018	Fine	27	08:44	09:44	133
22/06/2018	Fine	27	09:44	10:44	136
22/06/2018	Fine	27	10:44	11:44	134
28/06/2018	Fine	28	08:54	09:54	105
28/06/2018	Fine	28	09:54	10:54	108
28/06/2018	Fine	28	10:54	11:54	108
Min					24
Max					136
Average					86

Air Quality Monitoring Station : ASR2a

Date	Weather	Temperature (°C)	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)
			Start	Finish	
06/06/2018	Cloudy	25	08:43	09:43	32
06/06/2018	Cloudy	25	09:43	10:43	28
06/06/2018	Cloudy	25	10:43	11:43	26
11/06/2018	Fine	30	14:10	15:10	68
11/06/2018	Fine	30	15:10	16:10	70
11/06/2018	Fine	30	16:10	17:10	70
16/06/2018	Fine	27	13:04	14:04	91
16/06/2018	Fine	27	14:04	15:04	94
16/06/2018	Fine	27	15:04	16:04	92
22/06/2018	Fine	27	13:06	14:06	118
22/06/2018	Fine	27	14:06	15:06	123
22/06/2018	Fine	27	15:06	16:06	116
28/06/2018	Fine	28	13:00	14:00	94
28/06/2018	Fine	28	14:00	15:00	97
28/06/2018	Fine	28	15:00	16:00	95
Min					26
Max					123
Average					81

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. (µg/m ³)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
06/06/2018	08:36	07/06/2018	08:36	24437.64	24461.64	24	1.2675	1.2675	1.2675	2.6489	2.8686	120	Cloudy
11/06/2018	10:00	12/06/2018	10:00	24461.64	24485.64	24	1.1346	1.1346	1.1346	2.7879	2.9703	112	Fine
16/06/2018	08:49	17/06/2018	08:49	24485.64	24509.64	24	1.1014	1.1014	1.1014	2.8230	3.0160	122	Fine
22/06/2018	08:44	23/06/2018	08:44	24509.64	24533.64	24	1.2343	1.2343	1.2343	2.7083	2.8887	101	Cloudy
28/06/2018	08:54	29/06/2018	08:54	24533.64	24557.64	24	1.0681	1.0681	1.0681	2.7194	2.8989	117	Fine
											Min	101	
											Max	122	
											Average	114	

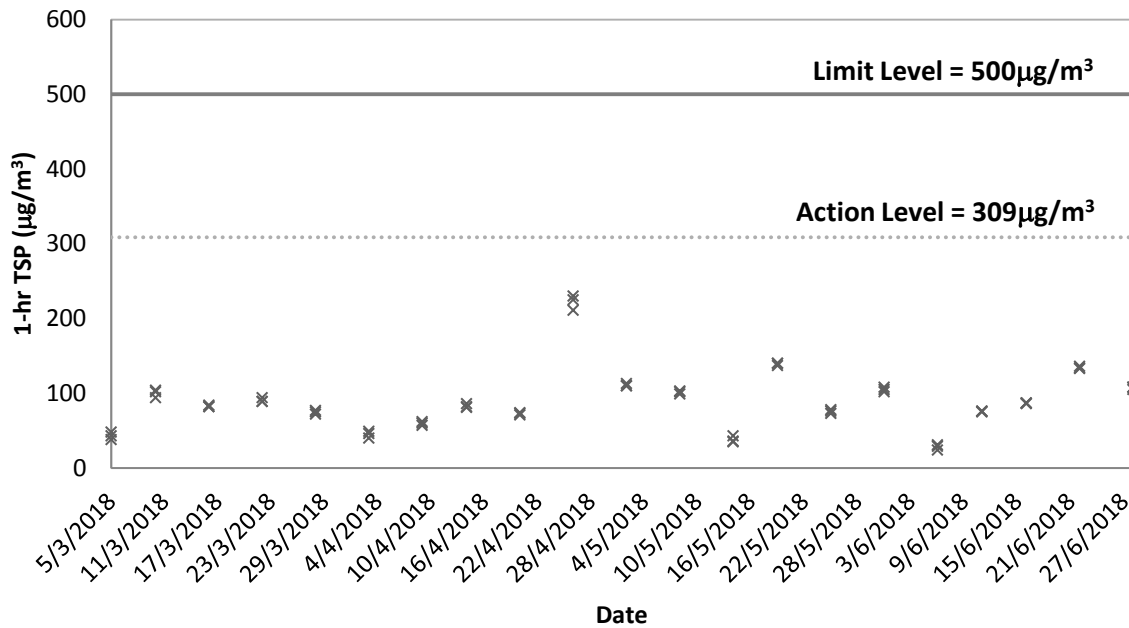
Air Quality Monitoring Station : ASR2a

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Paper Weight (g)		Conc. (g/m ³)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
06/06/2018	08:43	07/06/2018	08:43	21398.45	21422.45	24	1.3478	1.3478	1.3478	2.6375	2.8641	117	Cloudy
11/06/2018	14:10	12/06/2018	14:10	21422.45	21446.45	24	1.4640	1.4640	1.4640	2.7522	2.9820	109	Fine
16/06/2018	13:04	17/06/2018	13:04	21446.45	21470.45	24	1.5027	1.5027	1.5027	2.8197	3.0765	119	Fine
22/06/2018	13:06	23/06/2018	13:06	21470.45	21494.45	24	1.3090	1.3090	1.3090	2.6839	2.8688	98	Cloudy
28/06/2018	13:00	29/06/2018	13:00	21494.45	21518.45	24	1.3865	1.3865	1.3865	2.7061	2.9350	115	Fine
											Min	98	
											Max	119	
											Average	111	

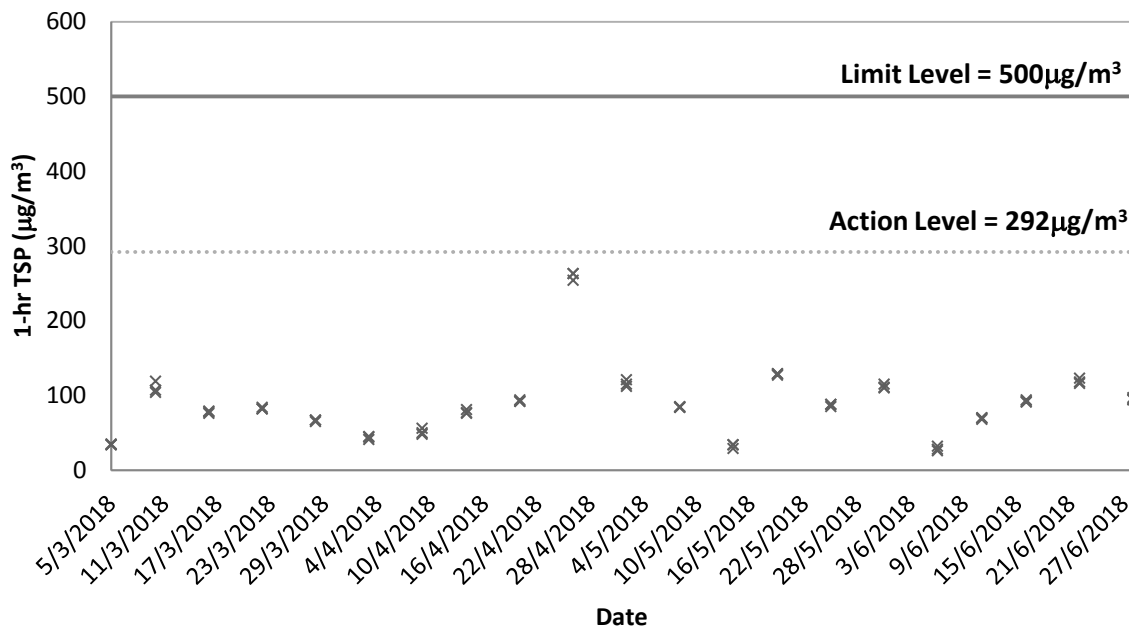
Appendix D3

Graphical Plots of Impact Air Quality Monitoring Results

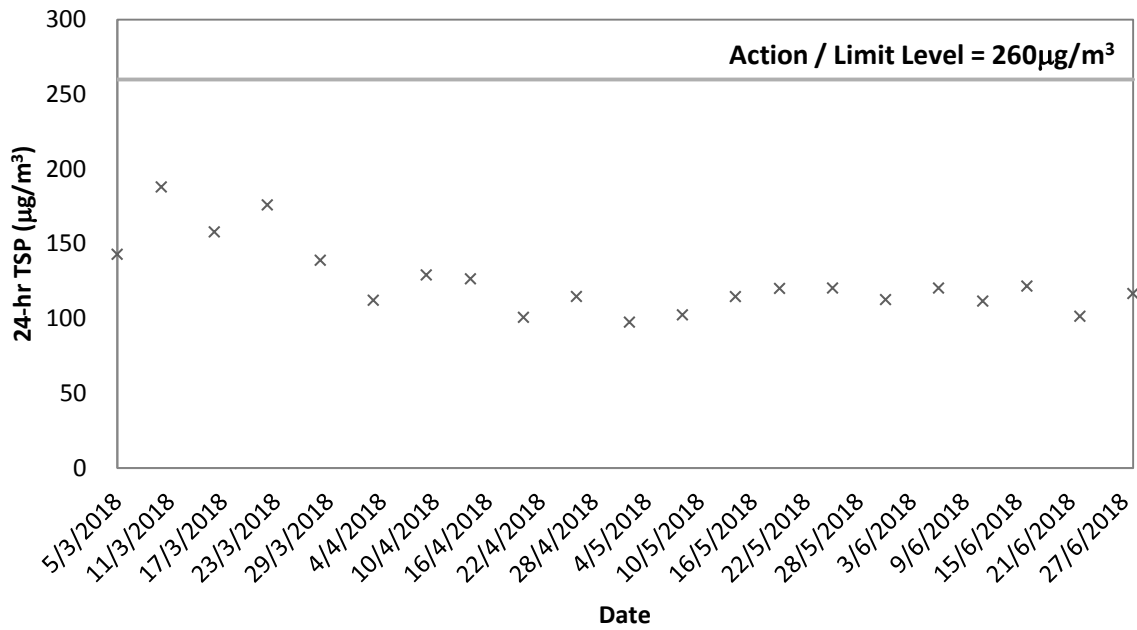
1-hr TSP at ASR1a



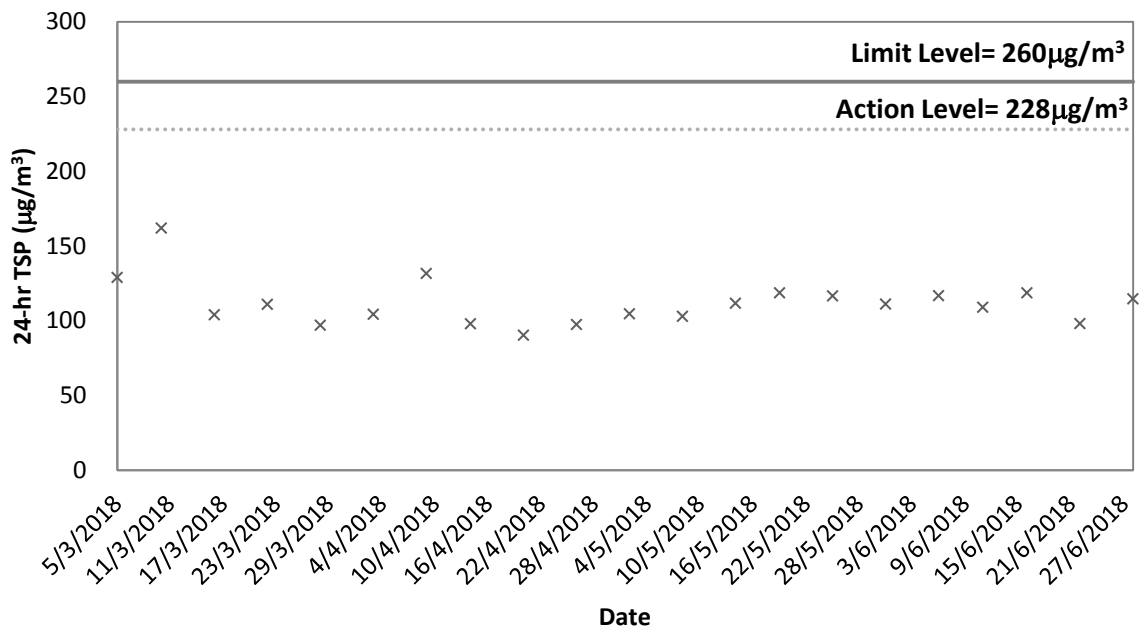
1-hr TSP at ASR2a



24-hr TSP at ASR1a



24-hr TSP at ASR2a



Appendix E1

Calibration Certificates for Impact Noise Monitoring Equipment



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

Model : AZ 8908

I.D. : ET/EN/001/05

Serial No. : 1064869

Test Conditions

Date of Test : 7-Mar-18

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Calibration procedure : T03, Z04.

Test Results

A correction factor of $\times 1.1$ 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:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
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

Page 2 of 2 Pages

Results :

1. Velocity

Applied Value (m/s)	UUT Reading (m/s)	Corrected Reading (UUT Rdg. \times 1.1)	Mfr's Spec.
0.00	0.0	0.0	\pm (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	\pm 1 °C

Remark : 1. UUT : Unit-Under-Test

2. Uncertainty : \pm (0.9% + 0.16 m/s) for Velocity, \pm 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 -----



Calibration Certificate

Certificate No. **709571**

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. : Q73909

Date of receipt : 6-Oct-17

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

I.D. : ET/EN/002/01

Model : NC-73

Serial No. : 10196943

Test Conditions

Date of Test : 16-Oct-17

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the manufacturer's specification.

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR
S041	Universal Counter	707135	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 : 

Alan Chu

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

Date: 16-Oct-17



Calibration Certificate

Certificate No. 709571

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.0 dB	± 1 dB

Uncertainty : ± 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.987 kHz	± 2 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.5 %

Mfr's Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remarks: 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 025 hPa

----- END -----



Hong Kong Calibration Ltd.

香港校正有限公司

Calibration Certificate

Certificate No. **713075**

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. : Q80009

Date of receipt : 29-Dec-17

Item Tested

Description : Sound Level Meter

Manufacturer : Rion

Model : NL-52

I.D. : ET/EN/003/14

Serial No. : 00320645

Test Conditions

Date of Test : 15-Jan-18

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Supply Voltage : --

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : Z01, IEC 61672.

Test Results

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
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

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

Date: 15-Jan-18

The copyright of this certificate is owned by Hong Kong Calibration Ltd. It may not be reproduced except in full.

E



Calibration Certificate

Certificate No. **713075**

Page 2 of 3 Pages

Results :

1. Self-generated noise: 17.6 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	92.2
		S	OFF		92.3
	C	F	OFF		92.3
	Z	F	OFF		92.3
	A	F	OFF	114.0	112.3
		S	OFF		112.4
	C	F	OFF		112.3
	Z	F	OFF		112.3

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	-8.6	- 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	+1.0	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.7	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.2	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.6	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 713075

Page 3 of 3 Pages

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 : 1 033 hPa.

4. Preamplifier model : NH-25 , S/N : 10653

5. Firmware Version: 1.2

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 -----



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:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
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

Certificate No. 801918

Page 2 of 3 Pages

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 \sim -3.1 dB
16 kHz	-8.1	- 6.6 dB, + 3.5 dB \sim - 17.0 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 801918

Page 3 of 3 Pages

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 -----

Appendix E2

Impact Noise Monitoring Results

Day-time Noise Monitoring

Monitoring Station: NSR1a

Date	Weather	Temperature (°C)	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at NSR1a, dB (A)			Wind Speed (m/s)
					Leq (30min)	L10 (30min)	L90 (30min)	
06/06/18	Cloudy	25	10:02	10:32	62.3	64.0	54.5	0.3
11/06/18	Fine	30	10:00	10:30	67.2	69.8	65.3	0.3
16/06/18	Fine	27	09:00	09:30	70.0	73.4	67.3	0.4
22/06/18	Fine	27	08:50	09:20	61.0	73.4	59.3	0.3
28/06/18	Fine	28	09:00	09:30	70.3	73.6	68.4	0.2
Min					61.0	64.0	54.5	
Max					70.3	73.6	68.4	
Logarithmic Average for normal weekdays					67.6	72.0	65.3	

Monitoring Station: NSR2a(*)

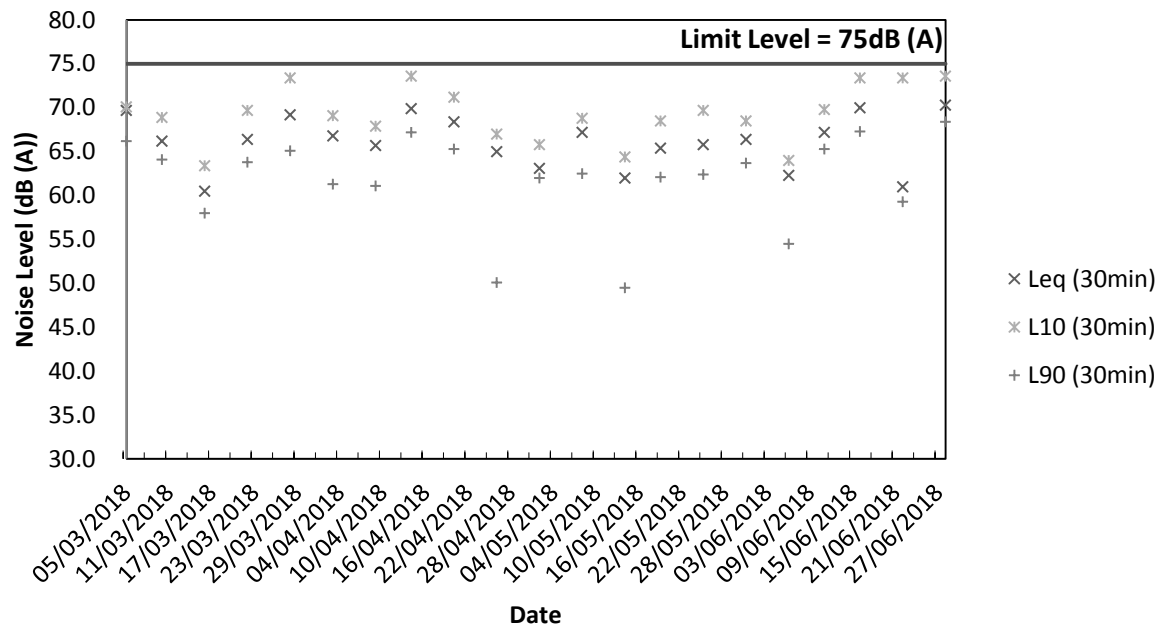
Date	Weather	Temperature (°C)	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at NSR2a, dB (A)			Wind Speed (m/s)
					Leq (30min)	L10 (30min)	L90 (30min)	
06/06/18	Cloudy	25	09:27	09:57	67.6	69.9	61.9	0.3
11/06/18	Fine	30	14:30	15:00	68.4	71.4	66.0	0.2
16/06/18	Fine	27	13:15	13:45	69.8	72.9	67.1	0.3
22/06/18	Fine	27	13:10	13:40	60.7	74.8	58.9	0.2
28/06/18	Fine	28	13:00	13:30	69.2	71.4	67.5	0.4
Min					60.7	69.9	58.9	
Max					69.8	74.8	67.5	
Logarithmic Average for normal weekdays					68.0	72.4	65.3	

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

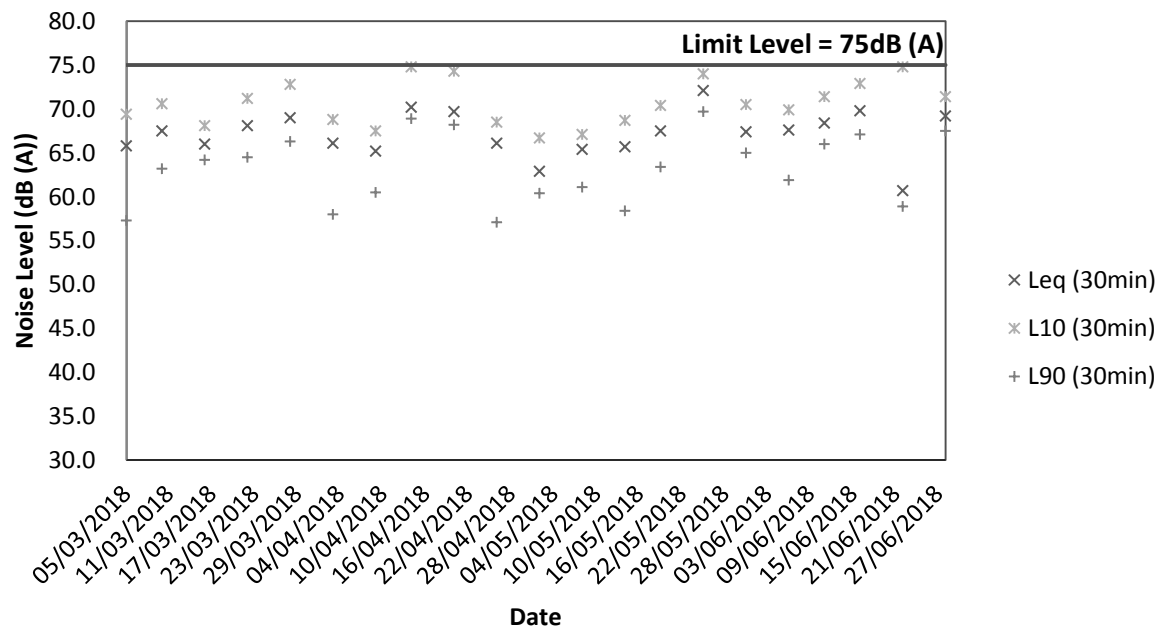
Appendix E3

Graphical Plots of Impact Noise Monitoring Data

Noise Level at NSR1a



Noise Level at NSR2a



Appendix F1

Calibration Certificates for Impact Water Quality Monitoring Equipments



Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/016 Manufacturer : HACH

Model No. : 2100Q Serial No. : 16030C048473

Date of Calibration : 9/4/2018 Due Date : 8/7/2018

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	20.7	3.5%
100	103	3%
800	794	0.75%

(*) 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 : 



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 : 15/4/2018 Calibration Due Date : 14/7/2018

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

	Temperature Reading (°C)	Correction (°C)	Corrected Temperature (°C)	Difference (°C)
Reference Thermometer	24.2	-0.6	23.6	0.1
DO Meter	23.7	0.0	23.7	

Criteria: Difference between corrected temperature from DO meter and reference thermometer : $< \pm 0.5$ °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	5.73	5.54	0.19
5	4.08	3.90	0.18
10	2.14	1.86	0.28

Criteria: Difference between DO meter reading and expected DO value: $< \pm 0.30$ 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/ 1.9	10	9.3
Reagent No. of NaCl (30 ppt): CPE/012/4.8/ 1.9	30	27.2

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 : 

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.
02/06/18	10:50-10:55	Fine	Mid-Depth	7.4	7.4	7.4	1.95	1.98	1.97	<5 [#]	<5 [#]	<5
05/06/18	11:02-11:15	Cloudy	Mid-Depth	12.6	12.7	12.7	2.36	2.32	2.34	6	8	7
07/06/18	16:55-17:06	Overcast	Mid-Depth	18.3	18.1	18.2	2.09	2.11	2.10	7	7	7
09/06/18	10:17-10:26	Cloudy	Mid-Depth	16.2	16.1	16.2	4.38	4.35	4.37	5	<5 [#]	<5
12/06/18	17:15-17:28	Cloudy	Mid-Depth	17.3	17.2	17.3	2.62	2.66	2.64	<5 [#]	<5 [#]	<5
14/06/18	17:20-17:32	Cloudy	Mid-Depth	9.5	9.5	9.5	2.23	2.27	2.25	<5 [#]	<5 [#]	<5
16/06/18	12:25-12:30	Cloudy	Mid-Depth	7.0	7.0	7.0	1.95	1.91	1.93	<5 [#]	<5 [#]	<5
19/06/18	12:15-12:20	Cloudy	Mid-Depth	9.5	9.5	9.5	2.24	2.27	2.26	<5 [#]	5	<5
21/06/18	09:45-10:00	Cloudy	Mid-Depth	15.2	15.3	15.3	2.18	2.14	2.16	8	9	9
23/06/18	12:30-12:35	Cloudy	Mid-Depth	12.1	11.8	12.0	2.49	2.45	2.47	14	12	13
26/06/18	15:40-15:52	Cloudy	Mid-Depth	17.6	17.8	17.7	2.13	2.10	2.12	11	10	11
28/06/18	11:50-12:00	Cloudy	Mid-Depth	6.3	6.2	6.2	2.18	2.22	2.20	<5 [#]	<5 [#]	<5
30/06/18	11:20-11:25	Fine	Mid-Depth	12.4	12.7	12.6	2.27	2.24	2.26	5	<5 [#]	<5
				Min		6.2	Min		1.91	Min		<5
				Max		18.3	Max		4.38	Max		14
				Average		12.4	Average		2.39	Average		4

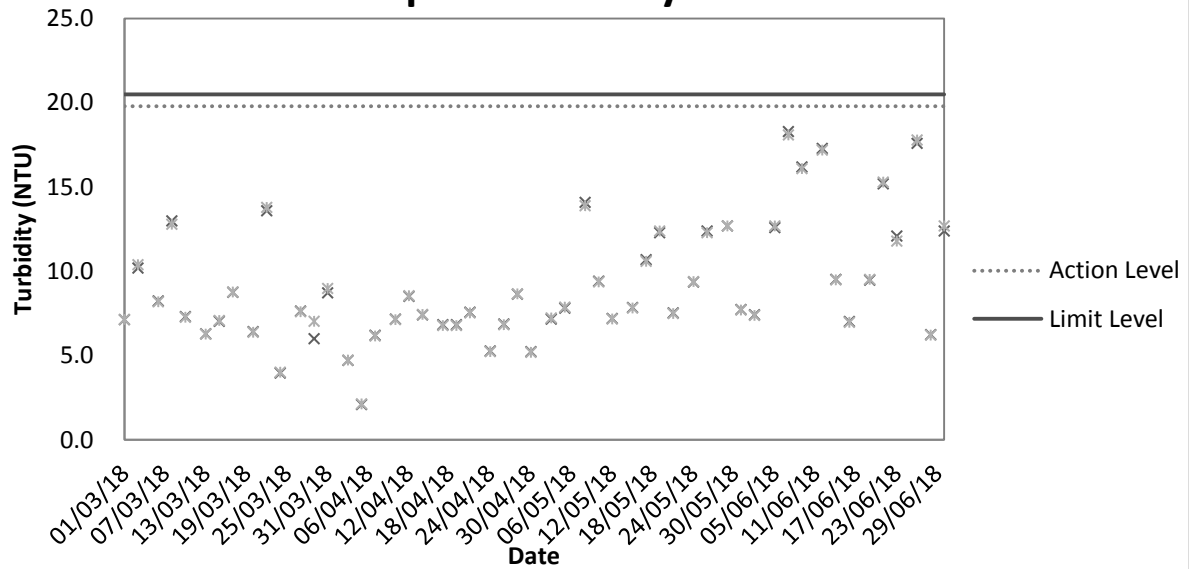
Remark(s):

- (#) 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.

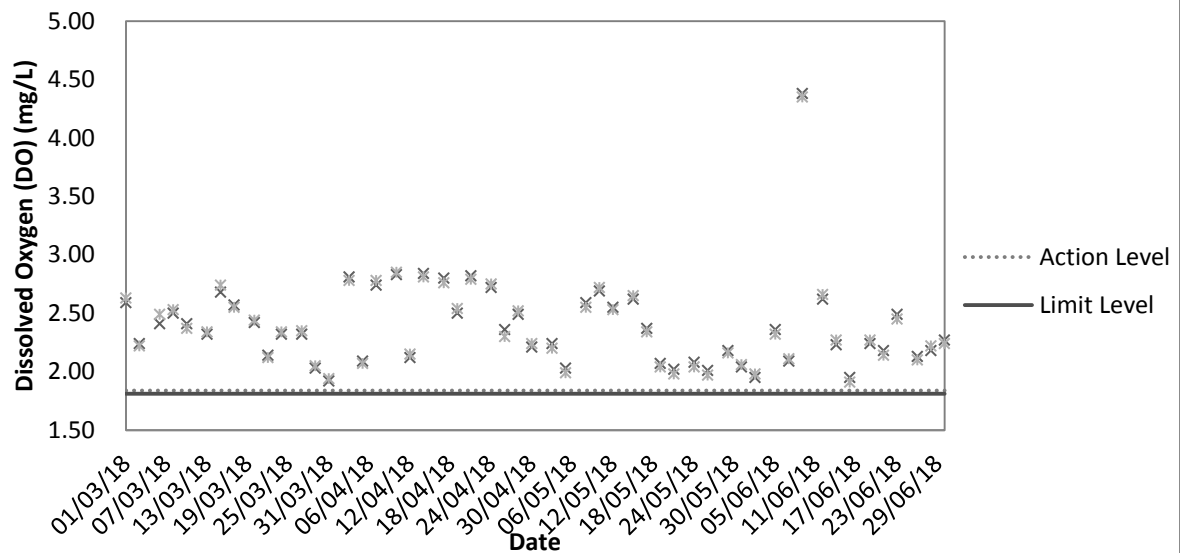
Appendix F3

Graphical Plots of Impact Water Quality Monitoring Data

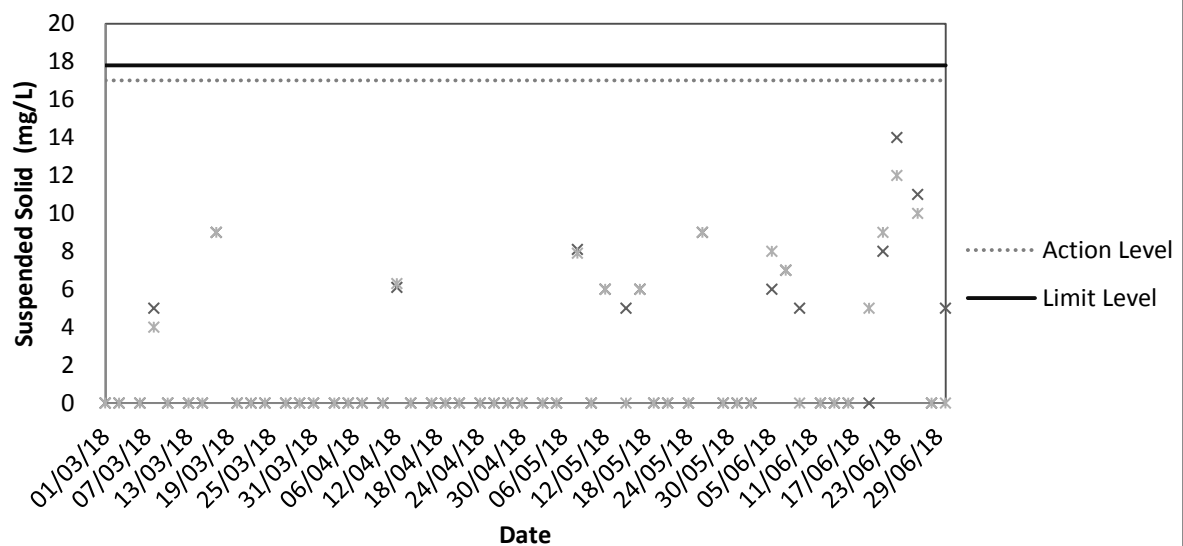
Impact Turbidity Result



Impact DO Result



Impact Suspended Solid (SS) Result



Appendix G

Weather Condition



Daily Extract of Meteorological Observations, June 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	1009.6	35.1	29.9	27.1	24.7	75	0.0	090	6.2
02	1010.0	33.4	29.2	26.2	22.5	68	0.0	070	9.6
03	1008.0	33.9	29.2	26.2	23.0	70	0.0	090	7.7
04	1007.1	31.7	28.5	25.8	24.2	78	19.0	080	9.5
05	1006.7	31.3#	27.0	25.6#	25.3	91	23.0	070	5.9
06	1005.0	27.1	26.2	25.1	25.4	95	111.0	070	4.2
07	1004.0	28.6	26.6	24.3	25.2	92	98.0	130	5.0
08	1000.6	28.9	27.3	25.2	25.0	87	69.0	150	11.7
09	998.9	31.6	28.3	26.0	24.6	81	9.5	310	4.7
10	1000.5	34.1	29.8	25.9	24.1	73	0.0	330	6.4
11	1002.3	34.4	29.8	25.1	21.4	64	0.0	170	6.1
12	1002.1	29.4	26.7	24.6	24.5	88	25.0	140	3.9
13	998.0	30.4	26.6	25.0	25.3	93	21.5	080	2.9
14	998.5	28.5	26.2	24.8	23.4	85	0.0	340	4.5
15	1001.9	30.1	27.0	24.6	22.5	76	0.0	040	4.5
16	1003.4	32.4	28.2	25.4	22.0	71	0.0	110	8.7
17	1002.1	33.8	28.7	24.9	21.0#	63#	0.0	060	5.0
18	1001.7	32.8	29.2	26.3	***	***	0.0	190	6.9
19	1003.7	32.6	29.2	26.9	25.6#	82#	10.0	200	8.0
20	1005.1	32.9	29.7	27.3	25.9	80	0.0	150	6.2
21	1005.5	33.3	29.7	27.4	25.9	80	0.0	170	5.5
22	1006.0	32.3	27.1	24.7	25.2	90	33.0	160	5.7
23	1006.4	29.2	26.1	24.7	25.2	95	26.0	080	3.5
24	1007.8	32.3	28.5	25.5	24.5	80	4.0	150	8.5
25	1008.6	31.0	27.6	25.3	25.0	86	13.0	150	7.1
26	1010.3	32.7	28.7	25.0	24.9	81	3.0	160	8.0
27	1009.8	31.7	28.5	25.5	25.0	82	0.5	160	4.5
28	1006.7	33.6	29.3	25.1	24.5	76	0.0	310	5.7
29	1003.8	34.3	30.1	27.0	25.2	76	0.0	160	7.5
30	1003.8	33.3	30.4	28.1	25.5	75	0.0	200	7.3

*** unavailable

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: 07 June 2018 **Inspected By:** Ivy Lo
Time: 09:30 **Weather Condition:** Cloudy
Participants: Patrick Leung, Johnny So, Cheryl Ye, 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.2	Are Construction Noise Permits available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.3	Is wastewater discharge license available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Air Quality	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.4	Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>Not observed</u>				
2.5	Are the work sites wetted with water twice a day?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.10	Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

3	Noise	N/A	Yes	No	Remarks
3.1	Are idle plant/equipments turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.2	Are silenced equipments or quiet plants utilized?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.6	Do air compressors have valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.7	Are compressor operated with doors closed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.8	QPME used with valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.10	Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Is a wheel washing bay provided at every site exit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	Waste / Chemical Management	N/A	Yes	No	Remarks
	<u>General Waste</u>				
5.1	Are sufficient waste disposal points provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.2	Is waste disposed regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<u>Construction Waste</u>				
5.5	Are the temporary stockpiles maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.6	Are the C&D materials sorted and recycled on-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical / Fuel Storage Area</u>					
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.12	Are the storage areas labeled and separated (if needed)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical Waste / Waste Oil</u>					
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Records</u>					
5.18	Is a licensed waste hauler used for waste collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Landscape and Visual Impacts	N/A	Yes	No	Remarks
6.1	Is the work site confined within site boundaries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.2	Is damage to surrounding areas avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Environmental Complaint	N/A	Yes	No	Remarks
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	General Housekeeping	N/A	Yes	No	Remarks
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Follow up actions for pervious Site Audit:

Follow-up action to item on 31/5/2018,
all item was improved.

Observations

N/A

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

N/A

Signature:

ET's representative

Name: Ivy Lo

Date: 7/6/2018

Signature:

Contractor's representative

Name:

Date:

Signature:

ET Leader

Name: C. L. Lau

Date: 8/6/2018


Signature:

SO's representative

Name:

Date:

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
--	 <p>Follow up action to Item 1 on 31/05/2018, stagnant pool was cleared at CEPT.</p>	--	180607_001	No	--

**Environmental Site Inspection Checklist – San Wai**

Inspection Date: 15 June 2018 **Inspected By:** Ivy Lo
Time: 14:00 **Weather Condition:** Fine
Participants: Teddy Yuen, Johnny So, Cheryl Ye, 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.2	Are Construction Noise Permits available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.3	Is wastewater discharge license available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Air Quality	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.4	Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>Not observed</u>				
2.5	Are the work sites wetted with water twice a day?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.10	Are hoarding \geq 2.4m tall provided beside roads or area with public access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



	before leaving the site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Item 1

3	Noise	N/A	Yes	No	Remarks
3.1	Are idle plant/equipments turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.2	Are silenced equipments or quiet plants utilized?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.6	Do air compressors have valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.7	Are compressor operated with doors closed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.8	QPME used with valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.10	Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Is a wheel washing bay provided at every site exit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

5	Waste / Chemical Management	N/A	Yes	No	Remarks
	<u>General Waste</u>				
5.1	Are sufficient waste disposal points provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.2	Is waste disposed regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<u>Construction Waste</u>				
5.5	Are the temporary stockpiles maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.6	Are the C&D materials sorted and recycled on-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical / Fuel Storage Area</u>					
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.12	Are the storage areas labeled and separated (if needed)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical Waste / Waste Oil</u>					
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Records</u>					
5.18	Is a licensed waste hauler used for waste collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Landscape and Visual Impacts	N/A	Yes	No	Remarks
6.1	Is the work site confined within site boundaries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.2	Is damage to surrounding areas avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Environmental Complaint	N/A	Yes	No	Remarks
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	General Housekeeping	N/A	Yes	No	Remarks
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



Follow up actions for pervious Site Audit:

N/A.

Observations

1. Discoloured NRMM label was found on a generator.

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

i. The contractor should provide appropriate NRMM label.

Signature:

ET's representative

Name:

Ivy Lo

Date:

15/6/2018

Signature:

Contractor's representative

Name:

Date:

Signature:

ET Leader

Name:

C. h. haw

Date:

16/6/2018


Signature:

SO's representative

Name:

Date:

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	 <p>Discolored NRMM label was found on a generator.</p>	To provide appropriate NRMM label	180615_001	Yes	22/06/2018



Environmental Site Inspection Checklist – San Wai

Inspection Date: 21-6-18 Inspected By: Frankie Tang
Time: 9:00 Weather Condition: Fine
Participants: Patrick Leung, Teddy Zuen, Cherry Ye, Kevin Tang, Abby Shau

		N/A	Yes	No	Remarks
1	Permits/Licenses				
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.2	Are Construction Noise Permits available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.3	Is wastewater discharge license available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Air Quality				
2.1	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.4	Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>not observed</u>				
2.5	Are the work sites wetted with water twice a day?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.10	Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



	before leaving the site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.15	Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

3	Noise	N/A	Yes	No	Remarks
3.1	Are idle plant/equipments turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.2	Are silenced equipments or quiet plants utilized?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.6	Do air compressors have valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.7	Are compressor operated with doors closed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.8	QPME used with valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	




4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Is a wheel washing bay provided at every site exit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	Waste / Chemical Management	N/A	Yes	No	Remarks
	<u>General Waste</u>				
5.1	Are sufficient waste disposal points provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.2	Is waste disposed regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<u>Construction Waste</u>				
5.5	Are the temporary stockpiles maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.6	Are the C&D materials sorted and recycled on-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	




5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical / Fuel Storage Area</u>					
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.12	Are the storage areas labeled and separated (if needed)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Chemical Waste / Waste Oil</u>					
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<u>Records</u>					
5.18	Is a licensed waste hauler used for waste collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Landscape and Visual Impacts	N/A	Yes	No	Remarks
6.1	Is the work site confined within site boundaries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.2	Is damage to surrounding areas avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Environmental Complaint	N/A	Yes	No	Remarks
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	General Housekeeping	N/A	Yes	No	Remarks
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Follow up actions for pervious Site Audit: Follow up action to item on 15/6/18, all item was improved.
Observations No Observation was recorded on this site inspection.
Corrective Actions – Mitigation Measures Implemented or Proposed (if any): N/A

Signature:
ET's representative


Name: Tany Chung Hing
Date: 22/6/18

Signature:
ET Leader


Name: C. L. Lam
Date: 23/6/18


Signature:
Contractor's representative

Name:
Date:

Signature:
SO's representative

Name:
Date:

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
--	 <p>Follow up action to Item 1 on 15/06/2018, appropriate NRMM label was provided</p>	--	180621_001	No	--



Environmental Site Inspection Checklist – San Wai

Inspection Date:

28/6/18

Inspected By:

Frankie Tung

Time:

14:00

Weather Condition:

Fine

Participants:

Patrick Leung, Kevin Tong, Idmy So, Cheryl Ye, Abby Sham

1	Permits/Licenses	N/A	Yes	No	Remarks
1.1	Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.2	Are Construction Noise Permits available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.3	Is wastewater discharge license available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.4	Are trip tickets for chemical waste and construction waste disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1.5	Are relevant license/permits for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Air Quality	N/A	Yes	No	Remarks
2.1	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.2	Are speed controlled at 10 km/h on unpaved site areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.3	Are plant and equipment well maintained (i.e. without black smoke from powered plant)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.4	Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: Not observed				
2.5	Are the work sites wetted with water twice a day?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.8	Are wheel washing facilities with high pressure water jet provided at all site exits if practicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.10	Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.12	Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.13	Are all vehicles and plant cleaned before they leave the construction site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.14	Are loaded dump trucks covered by impervious sheeting appropriately	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.18	Are unpaved areas / designated roads watered regularly to avoid dust generation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.19	Are dusty materials covered entirely by impervious sheeting or sprayed with water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

3	Noise	N/A	Yes	No	Remarks
3.1	Are idle plant/equipments turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.2	Are silenced equipments or quiet plants utilized?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.3	Are the silencers or mufflers properly fitted on construction equipments and maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.4	Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.6	Do air compressors have valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.7	Are compressor operated with doors closed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.8	QPME used with valid noise labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.9	Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Are stockpiles of materials placed in the locations away from the drainage channel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



4.3	Are site drainage systems and treatment facilities provided to minimize the water pollution?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.4	Is the treated effluent quality met the requirements specified in the discharge license?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.5	Is the sewage generated from toilets collected using a temporary storage system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.7	Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.9	Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Is a wheel washing bay provided at every site exit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.12	Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.13	Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.14	Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	Waste / Chemical Management	N/A	Yes	No	Remarks
	<u>General Waste</u>				
5.1	Are sufficient waste disposal points provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.2	Is waste disposed regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	item 1
5.3	Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	item 1
5.4	Are separated labeled containers/ areas provided for facilitating recycling and waste segregation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	<u>Construction Waste</u>				
5.5	Are the temporary stockpiles maintained regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.6	Are the C&D materials sorted and recycled on-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.8	Is the segregation and storage of C&D wastes undertaken in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



5.9	Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.10	Are surplus inert 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chemical / Fuel Storage Area					
5.11	Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.12	Are the storage areas labeled and separated (if needed)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.13	Do the storage areas have adequate ventilation and be covered to prevent rainfall entering?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.15	Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Chemical Waste / Waste Oil					
5.16	Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.17	Are chemicals and waste oil collected and stored for recycling or proper disposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Records					
5.18	Is a licensed waste hauler used for waste collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.19	Are the records of quantities of wastes generated, recycled and disposed properly kept?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.20	For the demolition material/ waste, is the number of loads for each day recorded as appropriate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Landscape and Visual Impacts	N/A	Yes	No	Remarks
6.1	Is the work site confined within site boundaries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.2	Is damage to surrounding areas avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Environmental Complaint	N/A	Yes	No	Remarks
7.1	Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	General Housekeeping	N/A	Yes	No	Remarks
8.1	Are potential stagnant pools cleared and mosquito breeding prevented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2/23
8.2	Are the defined boundaries of working areas identified to prevent loss of vegetation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



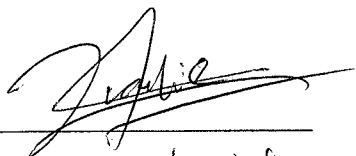
Follow up actions for pervious Site Audit: N/A

Observations Item 1: General refuse was observed at portion AB
Item 2: Stagnant water was found accumulated inside the drip tray near Portion C/PPT
Item 3: Stagnant pool was observed near Portion S/PB


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

Item 1: To clean the general refuse properly.
Item 2 & 3: To clean the stagnant water as soon as possible.

Signature:
ET's representative


Name: Tung Ching Hing
Date: 28.6.18

Signature:
ET Leader


Name: C.L. Han
Date: 28/6/18



Signature:
Contractor's representative


Name:
Date:

Signature:
SO's representative

Name:
Date:

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	 <p>General refuse was observed at Portion AB.</p>	To collect the general refuse properly	180628_001	Yes	06/07/2018
2	 <p>Stagnant water was found accumulated inside the drip tray near Portion CEPT.</p>	To clear the stagnant water	180628_002	Yes	06/07/2018

3	 <p>Stagnant pool was observed near Portion SDB.</p>	To clear the stagnant water	180628_003	Yes	06/07/2018
---	---	-----------------------------	------------	-----	------------

Appendix I

Landscape and Visual Impact Assessment Checklist

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 15 June 2018 Weather: Sunny/ Fine/ Cloudy/ Rainy
Time: 3:00 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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.2	Are trees to be transplanted removed to their final positions?	<input type="checkbox"/>	✓ <input type="checkbox"/>	<input type="checkbox"/>	
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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.5	Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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?	✓ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	vehicles, equipment or machinery?				
1.9	Are vehicular/foot paths and storage areas designated away from TPZ?	✓ <input type="checkbox"/>			
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?			✓ <input type="checkbox"/>	
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?			✓ <input type="checkbox"/>	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?		✓ <input type="checkbox"/>		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?	✓ <input type="checkbox"/>			
1.14	Is improper pruning of the tree branches/roots prohibited?	✓ <input type="checkbox"/>			
1.15	Are the trees free from any tree root damage?	✓ <input type="checkbox"/>			
1.16	Are construction works or operation of machines within the TPZ prohibited?	✓ <input type="checkbox"/>			
1.17	Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage?	✓ <input type="checkbox"/>			
1.18	Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works?			✓ <input type="checkbox"/>	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?	✓ <input type="checkbox"/>			
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?			✓ <input type="checkbox"/>	
2.2	Is the planting reserve complemented the boundary planting to the existing San Wai STW?			✓ <input type="checkbox"/>	
2.3	Is all new planting maintained for 12 months to ensure proper establishment?			✓ <input type="checkbox"/>	
2.4	Are the trees free from sign of deterioration of tree health and/or structure?			✓ <input type="checkbox"/>	
2.5	Are the trees free from insect pests and disease pathogens?			✓ <input type="checkbox"/>	
2.6	Are the irrigation systems functioning properly and well maintained?			✓ <input type="checkbox"/>	
2.7	Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery?			✓ <input type="checkbox"/>	

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
	
Existing trees outside lot at northern boundary	Weeds climbers found on the trees at south west corner of the site





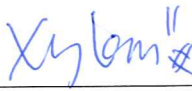
<p>Figure 3</p> 	<p>Figure 4</p> 
<p>Trees inside robust TPZ</p>	<p>Condition of trees at the entrance of the existing treatment plant</p>
<p>Figure 5</p> 	<p>Figure 6</p> 
<p>General condition of the existing trees at eastern boundary</p>	<p>Proper protective fence (outside works extent) is noted</p>

Figure 7



General condition of the tress at south west corner of the site

Signature:

		Signature	Date
Inspected & Recorded by	Registered Landscape Architect		
		Xylem Leung	
Checked by	Environmental Team Leader		
Follow up by	Contractor's Representative		
Witnessed by	Supervising Officer's Representative		

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 28 June 2018 **Weather:** Sunny/ Fine/ Cloudy/ Rainy
Time: 3:30 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?	✓ <input type="checkbox"/>			
1.2	Are trees to be transplanted removed to their final positions?		✓ <input type="checkbox"/>		
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?	✓ <input type="checkbox"/>			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?	✓ <input type="checkbox"/>			
1.5	Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities?	✓ <input type="checkbox"/>			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?	✓ <input type="checkbox"/>			
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?	✓ <input type="checkbox"/>			
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?	✓ <input type="checkbox"/>			

1.9	Are vehicular/foot paths and storage areas designated away from TPZ?	✓ <input type="checkbox"/>			
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?			✓ <input type="checkbox"/>	
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?			✓ <input type="checkbox"/>	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?		✓ <input type="checkbox"/>		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?	✓ <input type="checkbox"/>			
1.14	Is improper pruning of the tree branches/roots prohibited?	✓ <input type="checkbox"/>			
1.15	Are the trees free from any tree root damage?	✓ <input type="checkbox"/>			
1.16	Are construction works or operation of machines within the TPZ prohibited?	✓ <input type="checkbox"/>			
1.17	Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage?	✓ <input type="checkbox"/>			
1.18	Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works?			✓ <input type="checkbox"/>	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?	✓ <input type="checkbox"/>			
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?			✓ <input type="checkbox"/>	
2.2	Is the planting reserve complemented the boundary planting to the existing San Wai STW?			✓ <input type="checkbox"/>	
2.3	Is all new planting maintained for 12 months to ensure proper establishment?			✓ <input type="checkbox"/>	
2.4	Are the trees free from sign of deterioration of tree health and/or structure?			✓ <input type="checkbox"/>	
2.5	Are the trees free from insect pests and disease pathogens?			✓ <input type="checkbox"/>	
2.6	Are the irrigation systems functioning properly and well maintained?			✓ <input type="checkbox"/>	
2.7	Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery?			✓ <input type="checkbox"/>	

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 trees at south west corner of the site	Weeds climbers found on the trees at south west corner of the site

Figure 3



Trees inside robust TPZ

Figure 4



Condition of trees at the entrance of the existing treatment plant

Figure 5



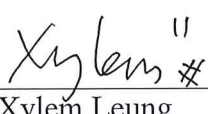
General condition of the existing trees at eastern boundary

Figure 6



Proper protective fence (outside works extent) is noted

Signature:

		Signature	Date
Inspected & Recorded by	Registered Landscape Architect		
		Xylem Leung	
Checked by	Environmental Team Leader		
Follow up by	Contractor's Representative		
Witnessed by	Supervising Officer's Representative		

Appendix J

Waste Flow Table

DSD Contract: DC/2013/10
Design, Build and Operate
San Wai Sewage Treatment Works Phase 1



ATAL-Degremont-China Harbour Joint Venture

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											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	17.458	0.000	0.000	0.000	17.458	3.460	0.005	0.350	0.000	0.000	135.000

- 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/m³; the densities of Building debris and special fill materials are 2.1 ton/m³; the densities of Broken Concrete is 2.4 ton/m³.

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-RN0811-17	16/12/2017	12/06/2018	Valid
7	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					
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;	Site Entrance	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;	Site Exit	√			
<ul style="list-style-type: none">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;	--	√			
<ul style="list-style-type: none">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	√			
<ul style="list-style-type: none">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;					
<ul style="list-style-type: none"> 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					
<ul style="list-style-type: none"> Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs. 	Site Area	√			
<ul style="list-style-type: none"> Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers 	Site Area	√			
<ul style="list-style-type: none"> Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise. 	Site Area	√			
<ul style="list-style-type: none"> Idle equipment should be turned off or throttled down. 	Site Area	√			
<ul style="list-style-type: none"> Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided 	Site Area	√			
<ul style="list-style-type: none"> Construction plant should be properly maintained and operated. 	Site Area	√			
Water Quality					
<ul style="list-style-type: none"> Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs; 	Site Area	√			
<ul style="list-style-type: none"> The exposed soil surfaces should also be properly protected to minimize dust emission; 	Site Area	√			
<ul style="list-style-type: none"> 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	√			
<ul style="list-style-type: none"> 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	√			
<ul style="list-style-type: none"> Provision of site drainage systems and treatment facilities would be required to minimize the water pollution; 	Site Area	√			
<ul style="list-style-type: none"> A discharge license needs to be applied from EPD for discharging effluent from the construction site; 	--	√			
<ul style="list-style-type: none"> The treated effluent quality is required to meet the requirements specified in the discharge license; 	--	√			
<ul style="list-style-type: none"> 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 handling 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

**Contract No. DC/2013/10 -
Design, Build and Operate San Wai Sewage Treatment Works – Stage 1
Schedule for Environmental Monitoring and Site Inspection
June 2018**

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

**Contract No. DC/2013/10 -
Design, Build and Operate San Wai Sewage Treatment Works – Stage 1
Schedule for Environmental Monitoring and Site Inspection
July 2018**

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

Appendix N

Laboratory Report for Discharge Water



TEST REPORT

Testing of Water and Wastewater

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

Report No. : ENA84436
Date of Issue : 29 June 2018
Page No. : 1 of 1

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 : 12 June 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. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 12 June 2018
Date of Testing Period : 12 to 13 June 2018
Lab Ref. No. : W41461

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1	01	pH	In house method TPE/003/W	7.1	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	17	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.

Approved Signatory :

LAU, Chi Leung

TPE/001/W

HKAS has accredited this laboratory (Reg. No. HOKLAS 022) under HOKLAS for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report shall not be reproduced unless with prior written approval from this laboratory.

- END OF REPORT -



TEST REPORT

Testing of Water and Wastewater

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

Report No. : ENA84437
Date of Issue : 29 June 2018
Page No. : 1 of 1

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 : 12 June 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. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 12 June 2018
Date of Testing Period : 12 to 13 June 2018
Lab Ref. No. : W41461

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P8	02	pH	In house method TPE/003/W	7.5	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	8	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.

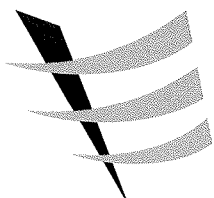
Approved Signatory :

LAU, Chi Leung

TPE/001/W

HOKLAS has accredited this laboratory (Reg. No. HOKLAS 022) under HOKLAS for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report shall not be reproduced unless with prior written approval from this laboratory.

- END OF REPORT -



TEST REPORT

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

Testing of Water and Wastewater

Report No. : ENA84625
Date of Issue : 09 July 2018
Page No. : 1 of 1

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 : 26 June 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. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 26 June 2018
Date of Testing Period : 26 to 27 June 2018
Lab Ref. No. : W41572

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P1	01	pH	In house method TPE/003/W	8.0	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	8	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.

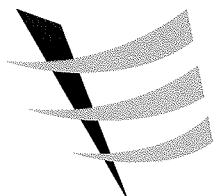
Approved Signatory :

LAU, Chi Leung

TPE/001/W

HKAS has accredited this laboratory (Reg. No. HOKLAS 022) under HOKLAS for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report shall not be reproduced unless with prior written approval from this laboratory.

- END OF REPORT -



東業德勤測試顧問有限公司

ETS-TESTCONSULT LTD.™

8/F Block B,
Veristrong Industrial Centre,
34-36 Au Pui Wan Street,
Fo Tan, Hong Kong

T: +852 2695 8318
F: +852 2695 3944

E: etl@ets-testconsult.com
W: www.ets-testconsult.com



TEST REPORT

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

Testing of Water and Wastewater

Report No. : ENA84626
Date of Issue : 09 July 2018
Page No. : 1 of 1

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 : 26 June 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. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 26 June 2018
Date of Testing Period : 26 to 27 June 2018
Lab Ref. No. : W41572

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	13	mg/L
	04	Chemical Oxygen Demand	In house method TPE/002/W	13	mgO ₂ /L

Remark(s):

- The results relate only to the tested sample as received.

Approved Signatory :

LAU, Chi Leung

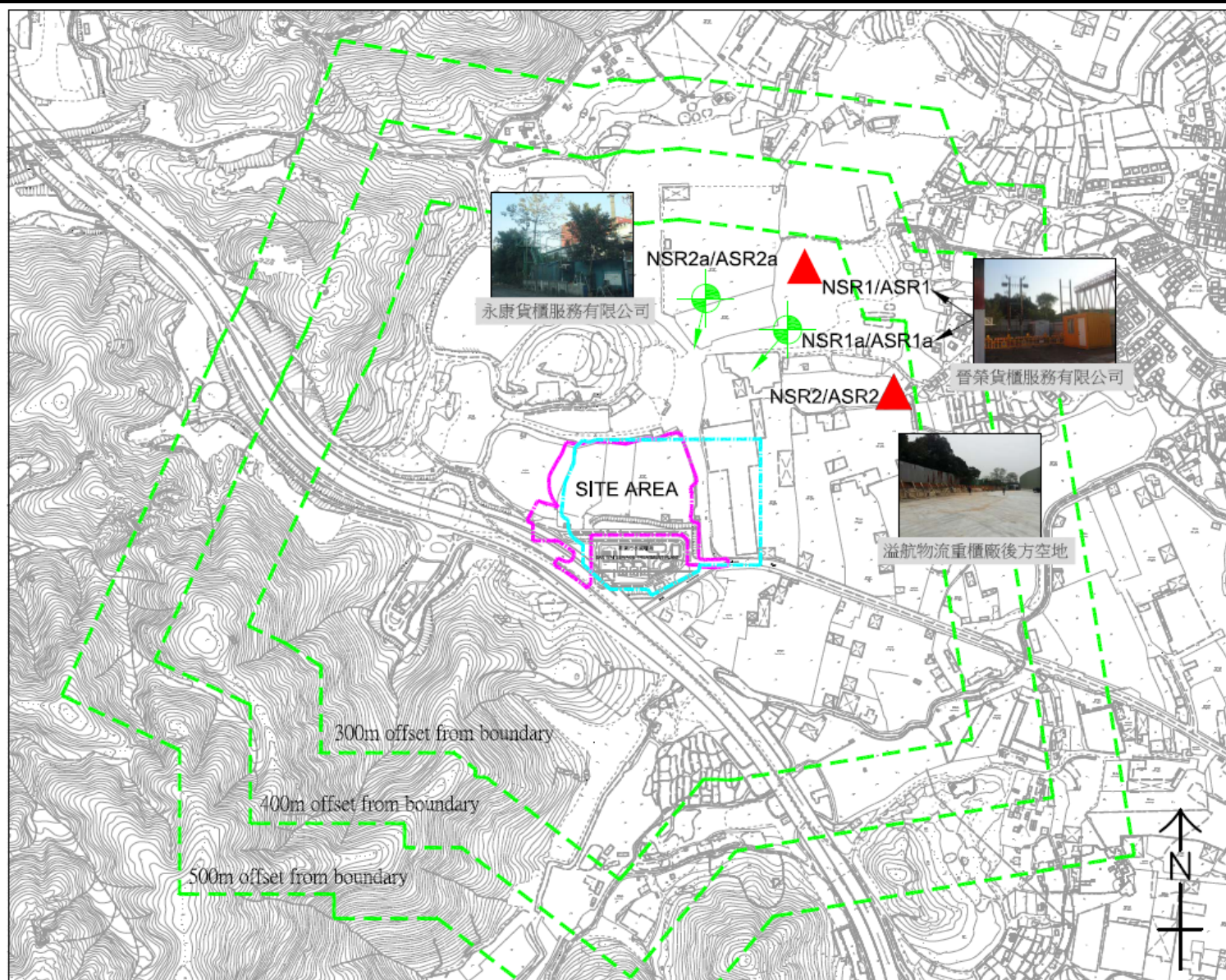
TPE/001/W

HKAS has accredited this laboratory (Reg. No. HOKLAS 022) under HOKLAS for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report shall not be reproduced unless with prior written approval from this laboratory.

- END OF REPORT -

Figure 1

Locations of Air Quality and Noise Monitoring Stations

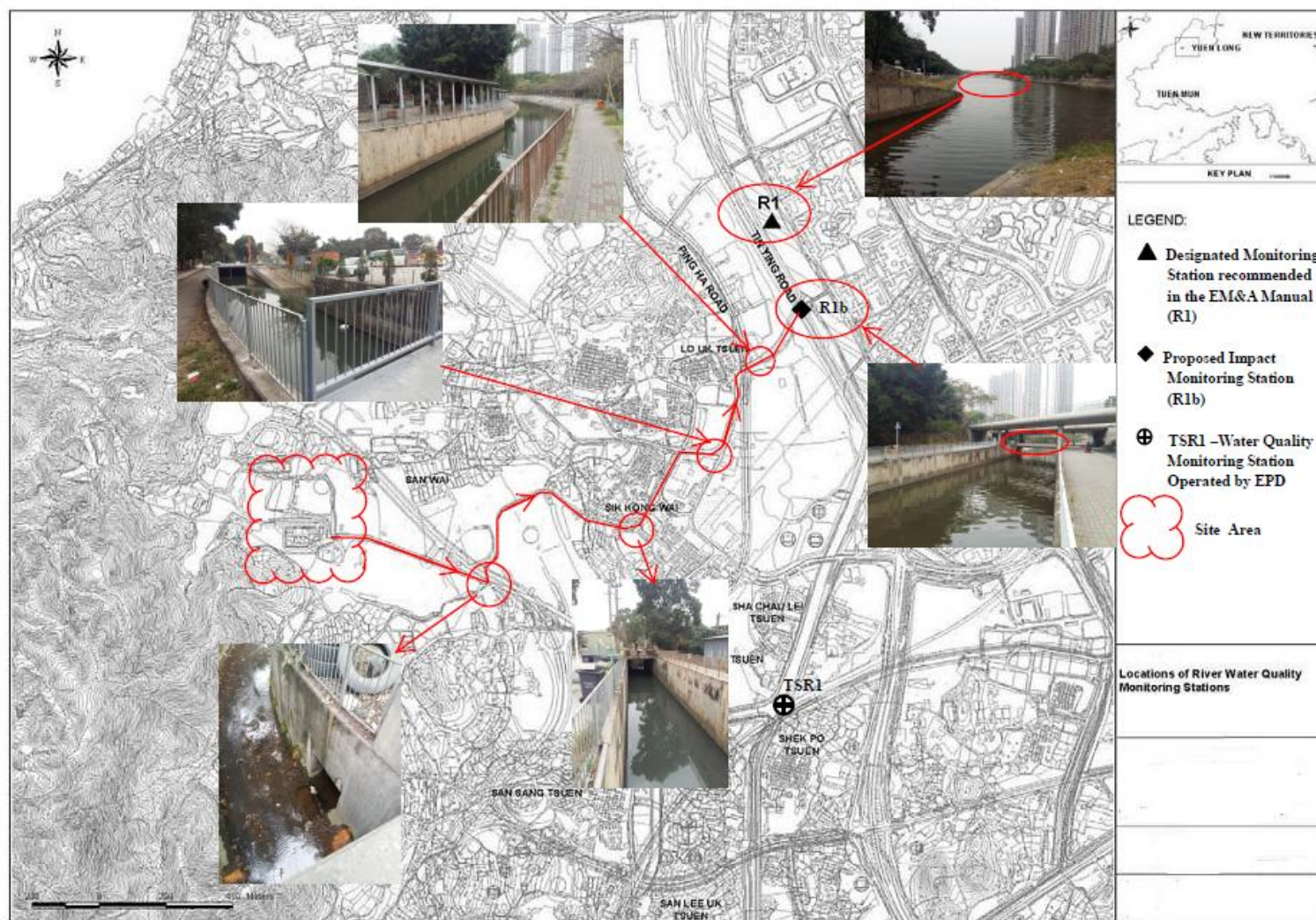


Project: Contract No. DC/2013/10 -Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

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