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

ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE

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

QUARTERLY EM&A REPORT NO. 6

(01 AUGUST – 31 OCTOBER 2018)

Prepared by: _____
LO, Ting Yi

Certified by: _____
LAU, Chi Leung
Environmental Team Leader

Issued Date: 24 November 2018 *Report No.: ENA88465*

ANEWR

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

Your reference:

Our reference: HKDSD203/50/105393

Date: 28 November 2018

Attention: Mr Kenneth Kwong

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

Dear Sirs

Agreement No. HATS 02/2016
Services for Independent Environmental Checker (IEC) for
Contract No. DC/2013/10 – Design, Build and Operate San Wai Sewage Treatment Works – Phase 1
Quarterly Environmental Monitoring and Audit Report No.6 (August 2018 – October 2018)

We refer to email of 24 November 2018 from ETS-Testconsult Limited attaching the Quarterly Environmental Monitoring and Audit Report No.6 (August 2018 – October 2018).

We have no further comment and hereby verify the Quarterly Environmental Monitoring and Audit Report No.6 (August 2018 – October 2018).

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

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/FSKA/lhmh

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

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

FIGURES

EXECUTIVE SUMMARY

This Quarterly 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 sixth Quarterly 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 August to 31 October 2018.

Environmental Monitoring and Audit Progress
The quarterly 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: 9 Occasions at 1 designated locations & 7 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 27 Occasions at 1 designated locations & 21 Occasions at 2 designated locations*
- *Noise Monitoring (Day-time): 9 Occasions at 1 designated locations & 7 Occasions at 2 designated locations*
- *Water Quality Monitoring: 39 Occasions at 1 designated location*
- *Weekly Site inspection: 13 Occasions*

Breaches of Action and Limit Levels
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, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix K**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting period.

Weekly Site Inspections
In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting period. The major findings observed during site inspections are presented in the **Section 3.4.**

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

September 2018

As notified by 永康貨櫃服務有限公司 to the Contractor and referred to the ET on 04 September 2018, air quality monitoring and noise monitoring being carried out at ASR2a and NSR2a, under the EM&A programme has been suspended since 06 September 2018 because of the permission to carry out air quality monitoring and noise monitoring at 永康貨櫃服務有限公司 could not be granted after the end of August 2018. The draft proposal for changing EM&A Programme (Air Quality Monitoring and Noise Monitoring) was submitted to IEC on 26 September 2018 and the IEC have no objection to the proposal on 05 October 2018.

October 2018

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

1 INTRODUCTION

1.1. Basic Project Information

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

1.1.2. The project involves expansion of the preliminary treatment works at San Wai STW from 164,000 m^3/d to 200,000 m^3/d Average Dry Weather Flow, upgrading the preliminary treatment level to CEPT and adding centralized disinfection. The site layout plan is shown in **Appendix A**. For any enquiries, hot line telephone (24 hours) at 9083 0560 was established.

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 sixth Quarterly 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 August to 31 October 2018.

1.2. Project Organization

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

Table 1.1 Contact Information of Key Personnel

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

1.3. Construction Programme

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

1.4. Construction Works Undertaken During the Reporting Period

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

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

2 EM&A Requirement

2.1. Summary of EM&A Requirements

2.1.1. 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*

2.2. Monitoring Requirements

2.2.1. Air Quality Monitoring

In accordance with the EM&A Manual, 1-hr and 24-hr TSP air quality monitoring were conducted three times and once per six days correspondingly. Air quality monitoring were conducted at ASR1a (晉榮貨櫃服務有限公司) and ASR2a (永康貨櫃服務有限公司), ASR1a (晉榮貨櫃服務有限公司) and ASR1a (晉榮貨櫃服務有限公司) and ASR2b (永康貨櫃服務有限公司) during August 2018, September 2018 and October 2018 respectively, which was shown in **Figure 1.1** and **Figure 1.2**.

2.2.2. Noise Monitoring

Noise levels (L_{eq}, L_{10} and L_{90}) were monitored in the reporting period in accordance with the EM&A Manual. Noise monitoring were performed at NSR1a (晉榮貨櫃服務有限公司) and NSR2a (永康貨櫃服務有限公司), NSR1a (晉榮貨櫃服務有限公司) and NSR1a (晉榮貨櫃服務有限公司) and NSR2b (永康貨櫃服務有限公司) during August 2018, September 2018 and October 2018 respectively, which was shown in **Figure 1.1** and **Figure 1.2**.

2.2.3. Water Quality Monitoring

Water quality was monitored 3 times per week in the reporting period in accordance with the EM&A Manual at the one alternative water quality monitoring station, R1b (at Tin Shui Wai Nullah) which shown in **Figure 2**.

2.2.4 The equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports.

2.3. Action and Limit Levels

2.3.1. The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.1**.

Table 2.1 Action and Limit Levels for 1-hr and 24-hr TSP

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

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

2.3.2. The Action and Limit Levels for construction noise are provided in **Table 2.2**

Table 2.2 Action and Limit Levels for Construction Noise

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

2.3.3. The Action and Limit Levels for Water Quality are provided in **Table 2.3**

Table 2.3 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*

2.4. Event and Action Plans

2.4.1. The event and action plan is provided in **Appendix G**.

2.5. Mitigation Measures

2.5.1. Environmental mitigation measures for the Contract were recommended in the Approved EIA Report. **Appendix H** lists the recommended mitigation measures and the implementation status.

3 ENVIRONMENTAL MONITORING AND AUDIT

3.1. Air Quality Monitoring Result

3.1.1. No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in this quarter. Graphical presentation of 1-hour and 24-hour TSP monitoring results is shown in **Appendix D**. Wind data included wind speed and wind direction was extracted from Wetland Park Station of Hong Kong Observatory and is presented in **Appendix I**.

3.1.2. 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 quarter.

3.1.3. Apart from the construction activities, the cargo trunks passing through the container yards (晉榮貨櫃服務有限公司 and 永康貨櫃服務有限公司) would also generate dust since the Ha Tsuen Road was mainly made by soil and sand. A part of 1-hour TSP and 24-hour TSP monitoring results were contributed by the cargo trunks.

3.2. Noise Monitoring Results

3.2.1. No exceedance of Action and Limit Level of noise monitoring results was recorded during the reporting quarter. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting period is shown in **Appendix E**.

3.2.2. 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.

3.2.3. Since NSR1a, NSR2a and NSR2b were located inside the container yards, the frequency of vehicles moving in and out the container yards would influence the noise monitoring results.

3.3. Water Quality Monitoring Result

3.3.1. According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix K**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting period. Graphical presentation of the monitoring results for the reporting period is shown in **Appendix F**. According to the summary of water monitoring results,

3.3.2. 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 period were higher than the action level.

3.3.3. Aside from the discharge, weather condition would be a major factor that affects the water quality in Tin Shui Wan Nallah. In rainy day, the soil and other suspended materials were flushed along the shore and entered the Tin Shui Wai Nullah. Besides, the nullah water would flow rapidly and the sand and stones in the nullah bed were upturned. Thus, the water quality would be deteriorated.

3.4. Site Inspection

3.4.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. The dates of environmental site inspections during the reporting period are listed in **Table 3.1**.

Table 3.1 Environmental Site Inspection Date

August 2018	September 2018	October 2018
03, 10, 17, 23 and 31	06, 14, 21 and 27	05, 12, 19 and 25

3.4.2. Observations for the site inspections within this reporting period are summarized in **Table 3.2**.

Table 3.2 Summary of observation of site inspections

Date	Observations / Reminders	Follow-up Action	Closed Date
27 July 2018	1. General refuse was observed at Portion AB. 2. Stagnant water was observed at Portion AB. 3. Stagnant water was observed near Portion SDB.	1. General refuse was collected at Portion AB. 2. Stagnant water was cleared at Portion AB. 3. Stagnant water was cleared near Portion SDB.	03 August 2018
03 August 2018	1. Stagnant water was observed near	1. Stagnant water was cleared at Portion	10 August 2018

	Portion SDB.	SDB.	
10 August 2018	--	--	--
17 August 2018	1. Stagnant water was observed at Portion SDB, CEPT & UV.	1. Stagnant water was cleared at Portion SDB, CEPT & UV.	23 August 2018
23 August 2018	1. Improper disposal of general refuse was observed.	1. General refuse was collected.	31 August 2018
31 August 2018	1. Stagnant water was observed at CEPT. 2. General refuse was observed at CEPT.	1. Stagnant water was cleared at CEPT. 2. General refuse was collected at CEPT.	06 September 2018
06 September 2018	1. Wetsep was found to be overflowed.	1. Wetsep was repaired immediately.	14 September 2018
14 September 2018	1. Stagnant water was observed at CEPT	1. Stagnant water was cleared at CEPT	21 September 2018
21 September 2018	--	--	--
27 September 2018	--	--	--
05 October 2018	1. Stagnant water was observed inside the drip tray of a generator at Portion 1.	1. Stagnant water was cleared inside the drip tray of a generator at Portion 1.	12 October 2018
12 October 2018	1. Stagnant water was found accumulated on the road near SDB.	1. Stagnant water was cleared on the road near SDB.	19 October 2018
19 October 2018	--	--	--
25 October 2018	1. Stagnant water was found accumulated on the road near SDB.	Follow-up actions for outstanding observation will be inspected during the next site inspection.	--

3.5. Advice on the Solid and Liquid Waste Management Status

3.5.1. 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

3.5.2. The quantities of waste for disposal in this reporting period are summarized in the Monthly Summary Waste Flow Table which is shown in **Appendix J**.

3.5.3. 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.

3.6. Landscape and Visual Audit

3.6.1. 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 10 & 23 August 2018, 06 & 21 September 2018 and 04 & 19 October 2018.

3.6.2. Observations and reminders were summarized in the landscape and visual impact assessment checklists which are attached in the monthly EM&A reports.

3.7. Discharge License and Results of Effluent Monitoring

3.7.1. Effluent quality was monitored in the reporting quarter 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.

3.7.2. Effluent water samples were sampled by the Contractor. The dates of effluent sampling during the reporting period are listed in **Table 3.3**. During August 2018, only Wetsep at P8 was operated on 07 August 2018, the effluent water sample was sampled at P8 only on 07 August 2018. During September 2018, only Wetsep at P3 was operated on 05 September 2018, the effluent water sample was sampled at P3 only on 05 September 2018. For 21 September 2018, only Wetsep at P8 was operated and thus the effluent water sample was sampled at P8 only. During October 2018, only Wetsep at P1 and P8 were operated on October 2018, the effluent water sample was sampled at P1 and P8 on October 2018.

Table 3.3 Effluent Sampling Dates

August 2018	September 2018	October 2018
07 and 21	05 and 21	02, 16 and 30

3.7.3. 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.

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

3.8. Implementation Status of Environmental Mitigation Measures

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

Dust Mitigation Measures

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

i. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
j. The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
k. Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;
l. Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.

Noise Mitigation Measures

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

Water Quality Mitigation Measures

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

Waste Management Mitigation Measures

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

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

4 SUMMARY OF EXCEEDANCE, COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

4.1. Summary of Exceedance of the Environmental Quality Performance Limit

4.1.1. 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.

4.1.2. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.

4.1.3. According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix K**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting period.

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

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

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

4.2.3. A summary of environmental complaints, notifications of summons and successful prosecutions was given in **Table 4.1**.

Table 4.1 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

5 COMMENTS, RECOMMENDATIONS AND CONCLUSION

5.1. Comments

5.1.1. According to the environmental site inspection undertaken during the reporting period, the following recommendations were provided:

- The Contractor was reminded to clear all the stagnant water pools;
- The Contractor was reminded to collect the general refuse properly;
- The Contractor was reminded to maintain the Wetsep properly.

5.2. Recommendations

5.2.1. With implementation of the recommended environmental mitigation measures, the contract's environmental impacts were considered environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.

5.2.2. The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the Contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

5.3. Conclusions

5.3.1. 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.

5.3.2. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.

5.3.3. According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix K**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting period.

5.3.4. Environmental site inspections were carried out on 03, 10, 17, 23 & 31 August 2018, 06, 14, 21 & 27 September 2018 and 05, 12, 19 & 25 October 2018. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.

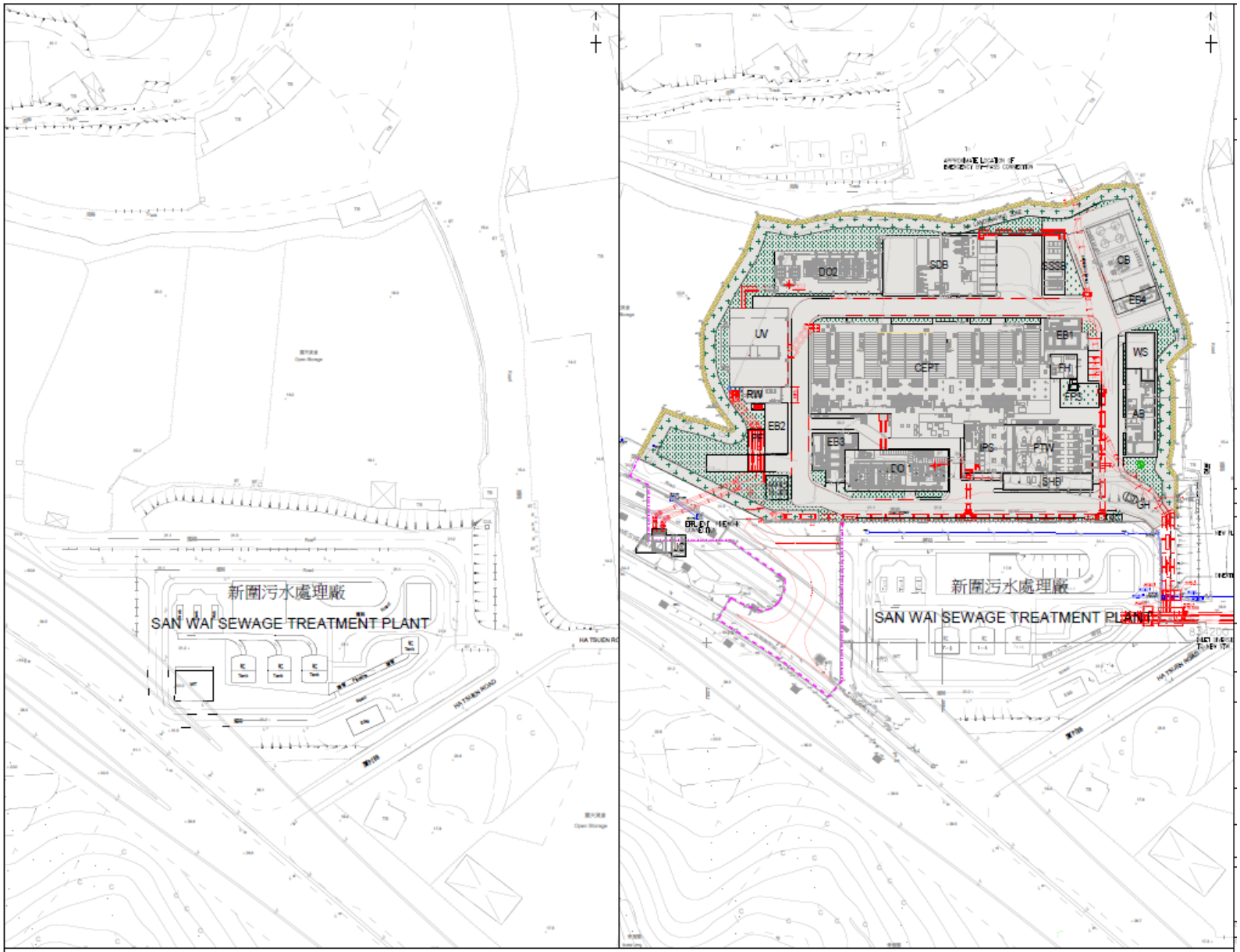
5.3.5. There were no complaints received during the reporting period.

5.3.6. There was no notification of summons and successful prosecution received during the reporting period.

- END OF REPORT -

Appendix A

Location of Works Areas

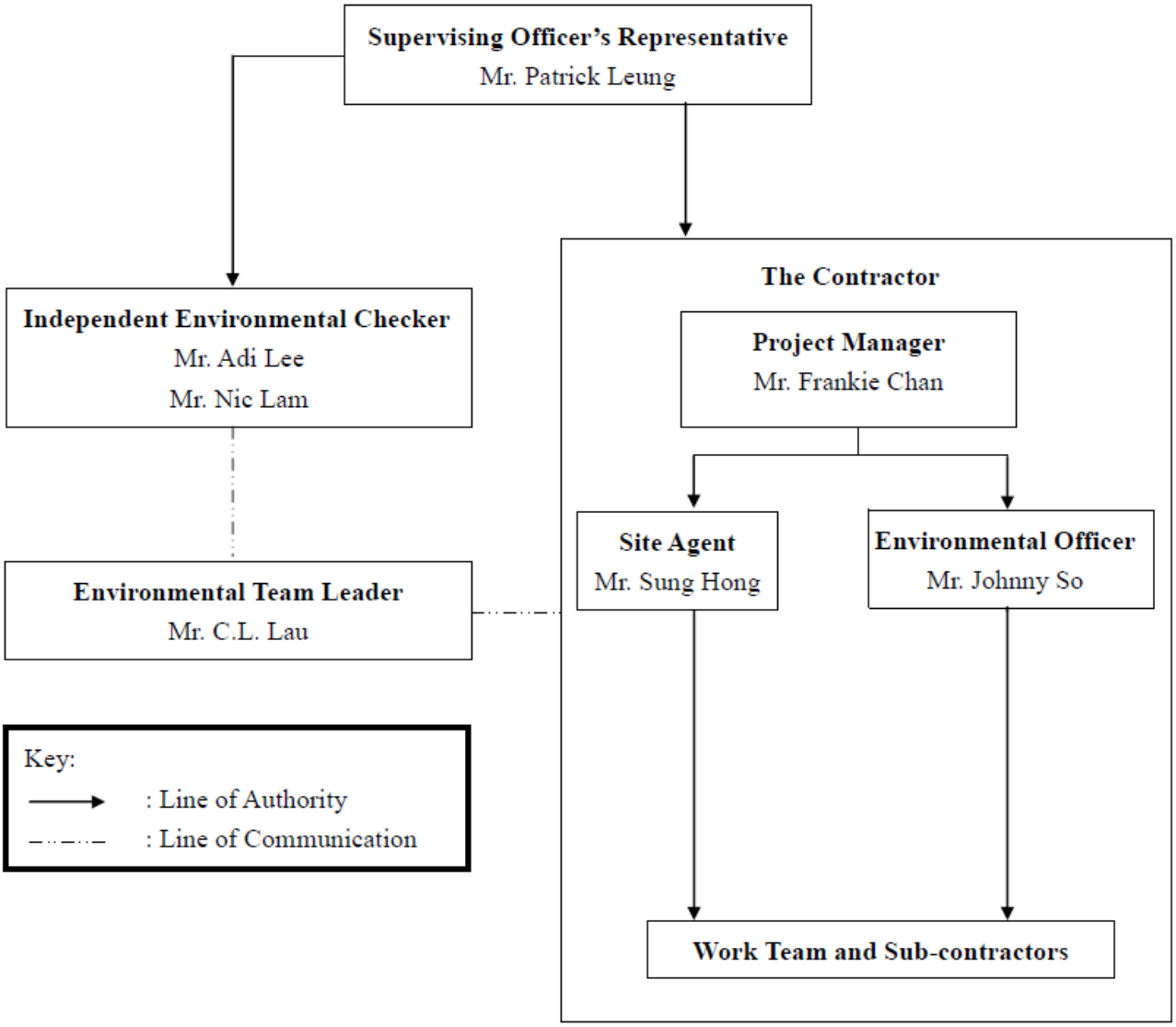


EXISTING SAN WAI SEWAGE TREATMENT WORKS

EXPANDED AND UPGRADED SAN WAI SEWAGE TREATMENT WORKS

Appendix B

Project Organization Chart


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

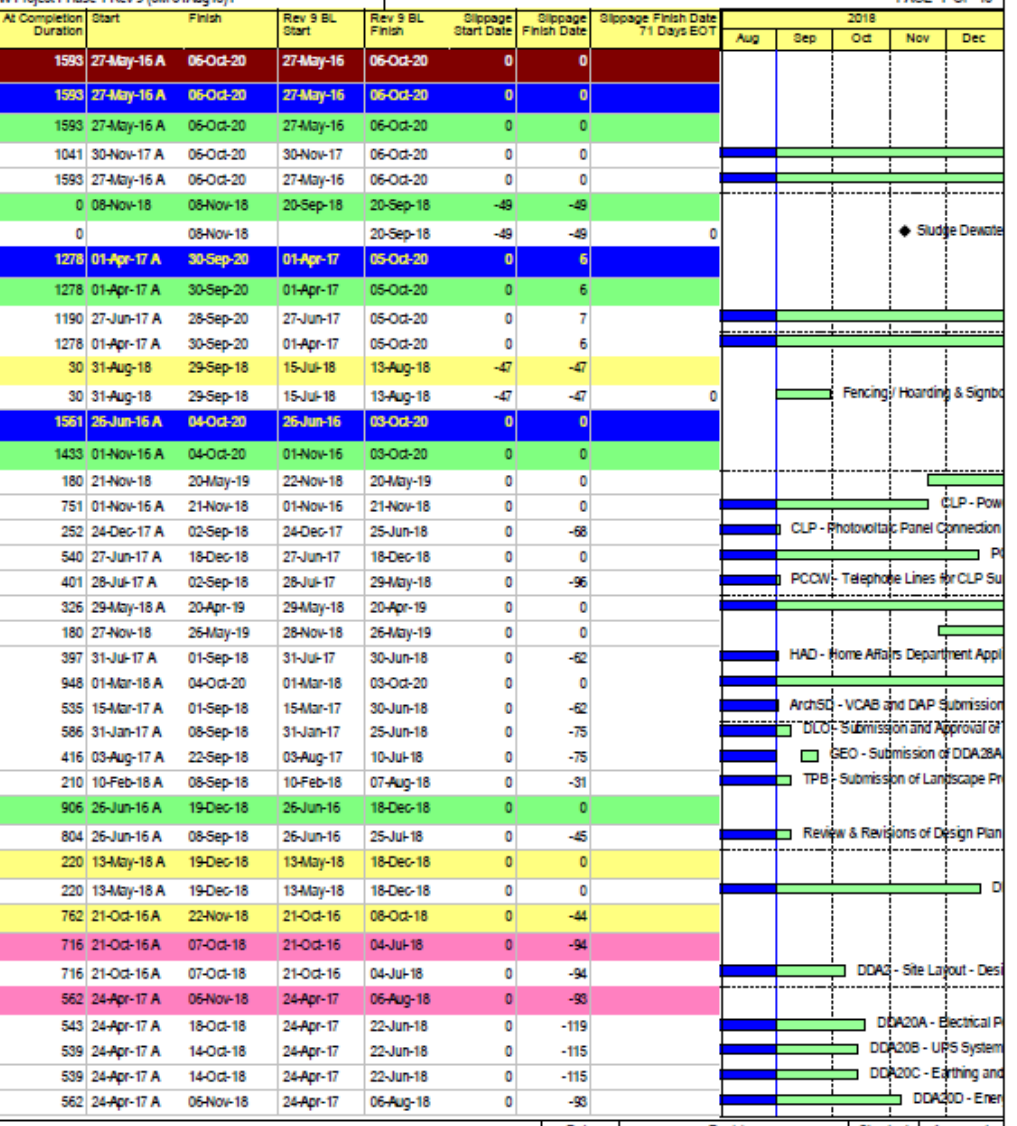
Appendix C

Construction Programme

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
San Wai Sewage Treatment Works Phase 1 - Rev 9 MP (Update as of 31Aug 2018)		**1593**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**	
Key Date		**1593**	**27-May-16 A**	**06-Oct-20**	**27-May-16**	**06-Oct-20**	**0**	**0**	
Commencement & Completion of Works		1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0	
KD150	Section 1 - Handover to Home Affairs Department for Maintenance	1041	30-Nov-17 A	06-Oct-20	30-Nov-17	06-Oct-20	0	0	
KD160	Section 2 - Period of Works (FOT P.3 cl 67, 71) - Including 10.5 Days Granted EOT	1593	27-May-16 A	06-Oct-20	27-May-16	06-Oct-20	0	0	
Plant Room Handover Dates To E&M Installation		0	08-Nov-18	08-Nov-18	20-Sep-18	20-Sep-18	-49	-49	
KD314	Sludge Dewatering Building (SDB)	0		08-Nov-18		20-Sep-18	-49	-49	0
Preliminaries & General Requirement		**1278**	**01-Apr-17 A**	**30-Sep-20**	**01-Apr-17**	**05-Oct-20**	**0**	**6**	
Contractor Requirement		1278	01-Apr-17 A	30-Sep-20	01-Apr-17	05-Oct-20	0	6	
PS455	Impact Monitoring	1190	27-Jun-17 A	28-Sep-20	27-Jun-17	05-Oct-20	0	7	
PS485	Site Drainage Plan Implementation	1278	01-Apr-17 A	30-Sep-20	01-Apr-17	05-Oct-20	0	6	
Contractor Requirement for Working Area Portion (P8)		30	31-Aug-18	29-Sep-18	15-Jul-18	13-Aug-18	-47	-47	
PS160	Fencing / Hoarding & Signboard Erection (P8)	30	31-Aug-18	29-Sep-18	15-Jul-18	13-Aug-18	-47	-47	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	
DS150	Application of Discharge License for Operation	180	21-Nov-18	20-May-19	22-Nov-18	20-May-19	0	0	
DS165	CLP - Power Supply	751	01-Nov-16 A	21-Nov-18	01-Nov-16	21-Nov-18	0	0	
DS166	CLP - Photovoltaic Panel Connection	252	24-Dec-17 A	02-Sep-18	24-Dec-17	25-Jun-18	0	-68	
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	401	28-Jul-17 A	02-Sep-18	28-Jul-17	29-May-18	0	-96	
DS177	EMSD - Passenger Lift	326	29-May-18 A	20-Apr-19	29-May-18	20-Apr-19	0	0	
DS180	EPD - Application for Emergency Generator Flue Gas Discharge License	180	27-Nov-18	26-May-19	28-Nov-18	26-May-19	0	0	
DS185	HAD - Home Affairs Department Application for Section 1 (ID KD150)	397	31-Jul-17 A	01-Sep-18	31-Jul-17	30-Jun-18	0	-62	
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	535	15-Mar-17 A	01-Sep-18	15-Mar-17	30-Jun-18	0	-62	
DS210	DLO - Submission and Approval of Tree Removal and Transplant Proposals	586	31-Jan-17 A	08-Sep-18	31-Jan-17	25-Jun-18	0	-75	
DS230	GEO - Submission of DDA28A to SO for onward submission to GEO for Checking Certificate	416	03-Aug-17 A	22-Sep-18	03-Aug-17	10-Jul-18	0	-75	
DS280	TPB - Submission of Landscape Proposal to TPB for Approval	210	10-Feb-18 A	08-Sep-18	10-Feb-18	07-Aug-18	0	-31	
AIP / DDA Submission & Approval		906	26-Jun-16 A	19-Dec-18	26-Jun-16	18-Dec-18	0	0	
DS410	Review & Revisions of Design Plan	804	26-Jun-16 A	08-Sep-18	26-Jun-16	25-Jul-18	0	-45	
Design Memorandum (AIP1 / DDA1)		220	13-May-18 A	19-Dec-18	13-May-18	18-Dec-18	0	0	
DS505	DDA1 - Design Memorandum - Design Preparation to SO Approval	220	13-May-18 A	19-Dec-18	13-May-18	18-Dec-18	0	0	
Global Design		762	21-Oct-16 A	22-Nov-18	21-Oct-16	08-Oct-18	0	-44	
Site Layout (AIP2 / DDA2)		716	21-Oct-16 A	07-Oct-18	21-Oct-16	04-Jul-18	0	-94	
DG390	DDA2 - Site Layout - Design Preparation to SO Approval	716	21-Oct-16 A	07-Oct-18	21-Oct-16	04-Jul-18	0	-94	
Electrical Power Supply System (AIP20 / DDA20ABCDE)		562	24-Apr-17 A	06-Nov-18	24-Apr-17	06-Aug-18	0	-93	
DG1891	DDA20A - Electrical Power Supply System - Design Preparation to SO Approval	543	24-Apr-17 A	18-Oct-18	24-Apr-17	22-Jun-18	0	-119	
DG3880	DDA20B - UPS System - Design Preparation to SO Approval	539	24-Apr-17 A	14-Oct-18	24-Apr-17	22-Jun-18	0	-115	
DG3896	DDA20C - Earthing and Lightning System - Design Preparation to SO Approval	539	24-Apr-17 A	14-Oct-18	24-Apr-17	22-Jun-18	0	-115	
DG3912	DDA20D - Energy Efficiency - Design Preparation to SO Approval	562	24-Apr-17 A	06-Nov-18	24-Apr-17	06-Aug-18	0	-93	



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

ATAL-Degremont-China Harbour Joint Venture

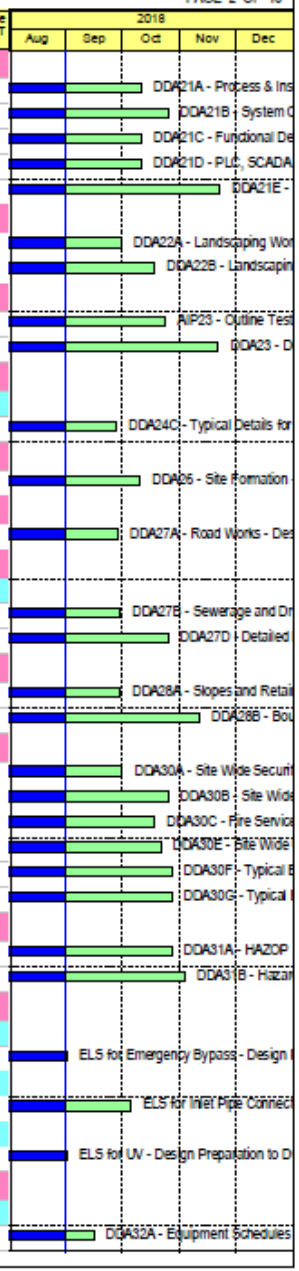
TASK filter: 3 Months Rolling Programme.

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

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

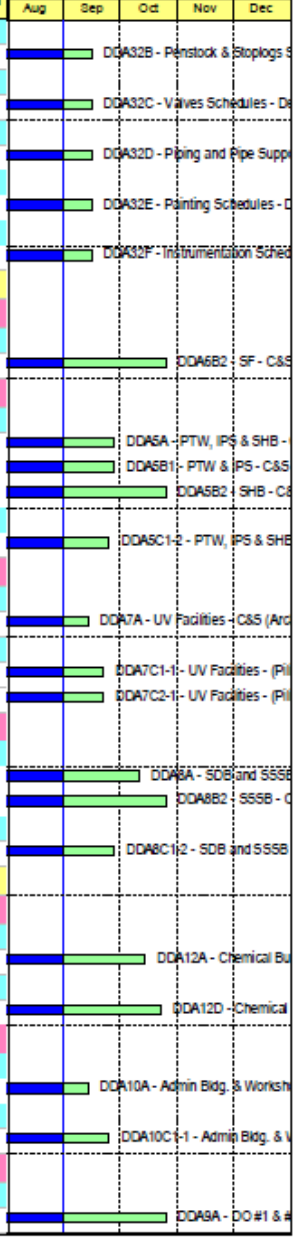
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
	Control and Monitoring System (AIP21 / DDA21ABCDE)	679	12-Jan-17 A	22-Nov-18	12-Jan-17	27-Aug-18	0	-87	
DG1924	DDA21A - Process & Instrumentation Diagram (P&ID) - Design Preparation to SO Approval	638	12-Jan-17 A	11-Oct-18	12-Jan-17	18-Jun-18	0	-115	
DG1940	DDA21B - System Control Philosophy - Design Preparation to SO Approval	585	20-Mar-17 A	25-Oct-18	20-Mar-17	02-Jul-18	0	-116	
DG1956	DDA21C - Functional Design Specification - Design Preparation to SO Approval	557	03-Apr-17 A	11-Oct-18	03-Apr-17	20-Jun-18	0	-113	
DG1972	DDA21D - PLC, SCADA & I/O Allocation Schedules - Design Preparation to SO Approval	537	23-Apr-17 A	11-Oct-18	23-Apr-17	22-Jun-18	0	-112	
DG1988	DDA21E - SCADA Graphic Interface - Design Preparation to SO Approval	509	01-Jul-17 A	22-Nov-18	01-Jul-17	27-Aug-18	0	-87	
	Landscaping Works (AIP22 / DDA22AB)	651	06-Jan-17 A	18-Oct-18	06-Jan-17	15-Jul-18	0	-95	
DG1260	DDA22A - Landscaping Works (Green Roof) - Design Preparation to SO Approval	632	06-Jan-17 A	30-Sep-18	06-Jan-17	02-Jul-18	0	-89	
DG1274	DDA22B - Landscaping Works (Site Wide) - Design Preparation to SO Approval	473	03-Jul-17 A	18-Oct-18	03-Jul-17	15-Jul-18	0	-95	
	Testing and Commissioning Plan (AIP23 / DDA23)	359	28-Nov-17 A	21-Nov-18	28-Nov-17	08-Oct-18	0	-44	
DG3270	AIP23 - Outline Testing & Commissioning Plan - Design Preparation to SO Approval	331	28-Nov-17 A	24-Oct-18	28-Nov-17	04-Jul-18	0	-112	
DG3305	DDA23 - Detailed Testing & Commissioning Plan - Design Preparation to SO Approval	214	22-Apr-18 A	21-Nov-18	22-Apr-18	08-Oct-18	0	-44	
	General Notes Drawings for Foundation and Civil & Structural (AIP24AB / DDA24AB)	583	22-Feb-17 A	27-Sep-18	22-Feb-17	29-Jun-18	0	-91	
	General Notes Drawings for Civil & Structural (AIP24B / DDA24BC)	583	22-Feb-17 A	27-Sep-18	22-Feb-17	29-Jun-18	0	-91	
DG3706	DDA24C - Typical Details for Architecture - Design Preparation to SO Approval	583	22-Feb-17 A	27-Sep-18	22-Feb-17	29-Jun-18	0	-91	
	Site Formation (AIP26 / DDA26)	635	14-Jan-17 A	10-Oct-18	14-Jan-17	24-Jun-18	0	-108	
DG660	DDA26 - Site Formation - Design Preparation to SO Approval	635	14-Jan-17 A	10-Oct-18	14-Jan-17	24-Jun-18	0	-108	
	Road Works (AIP27A / DDA27A)	554	23-Mar-17 A	28-Sep-18	23-Mar-17	28-Jun-18	0	-91	
DG1060	DDA27A - Road Works - Design Preparation to SO Approval	554	23-Mar-17 A	28-Sep-18	23-Mar-17	28-Jun-18	0	-91	
	Sewerage and Drainage Works (AIP27B / DDA27BC1C2DEF)	612	21-Feb-17 A	25-Oct-18	21-Feb-17	29-Jul-18	0	-88	
	Civil and Structural Design (AIP27B / DDA27BD)	612	21-Feb-17 A	25-Oct-18	21-Feb-17	29-Jul-18	0	-88	
DG960	DDA27B - Sewerage and Drainage Works - Design Preparation to SO Approval	586	21-Feb-17 A	29-Sep-18	21-Feb-17	01-Jul-18	0	-90	
DG988	DDA27D - Detailed Design Report for Pipe Trenches - C&S - Design Preparation to SO Approval	536	08-May-17 A	25-Oct-18	08-May-17	29-Jul-18	0	-88	
	Boundary Wall & Entrance (AIP28 / DDA28AB)	646	03-Feb-17 A	11-Nov-18	03-Feb-17	11-Aug-18	0	-91	
DG1160	DDA28A - Slopes and Retaining Wall - Design Preparation to SO Approval	604	03-Feb-17 A	29-Sep-18	03-Feb-17	03-Jul-18	0	-88	
DG1195	DDA28B - Boundary Wall & Entrance - Design Preparation to SO Approval	512	17-Jun-17 A	11-Nov-18	17-Jun-17	11-Aug-18	0	-91	
	Site Wide Utility (AIP30 / DDA30ABCEFGI)	635	30-Jan-17 A	27-Oct-18	30-Jan-17	19-Jul-18	0	-100	
DG3515	DDA30A - Site Wide Security Access Control & Communication System - Design Preparation to SO Approval	609	30-Jan-17 A	01-Oct-18	30-Jan-17	02-Jul-18	0	-91	
DG3774	DDA30B - Site Wide Utility (U/G Pipework, Ductwork, Cable Route, Cable Draw Pit) - Design Preparation to SO Approval	505	08-Jun-17 A	25-Oct-18	08-Jun-17	08-Jul-18	0	-109	
DG3788	DDA30C - Fire Services System and Street Fire Hydrant System - Design Preparation to SO Approval	498	08-Jun-17 A	18-Oct-18	08-Jun-17	22-Jun-18	0	-119	
DG3816	DDA30E - Site Wide Utility (Road Lighting) - Design Preparation to SO Approval	486	23-Jun-17 A	21-Oct-18	23-Jun-17	22-Jun-18	0	-122	
DG3830	DDA30F - Typical Electrical Installation Drawings - Design Preparation to SO Approval	506	08-Jun-17 A	27-Oct-18	08-Jun-17	19-Jul-18	0	-100	
DG3844	DDA30G - Typical Building Services Installation Drawings - Design Preparation to SO Approval	491	23-Jun-17 A	27-Oct-18	23-Jun-17	11-Jul-18	0	-108	
	HAZOP Report (DDA31AB)	703	01-Dec-16 A	03-Nov-18	01-Dec-16	03-Jun-18	0	-154	
DG3530	DDA31A - HAZOP Study - Design Preparation to SO Approval	696	01-Dec-16 A	27-Oct-18	01-Dec-16	29-May-18	0	-152	
DG3545	DDA31B - Hazardous Zoning Classification Report - Design Preparation to SO Approval	429	01-Sep-17 A	03-Nov-18	01-Sep-17	03-Jun-18	0	-154	
	ELS / Bulk Excavation (Temporary Works)	481	12-Jun-17 A	05-Oct-18	12-Jun-17	16-Jul-18	0	-81	
	ELS for Emergency Bypass	447	12-Jun-17 A	01-Sep-18	12-Jun-17	12-Jul-18	0	-51	
DG3740	ELS for Emergency Bypass - Design Preparation to DC and SO Approval	447	12-Jun-17 A	01-Sep-18	12-Jun-17	12-Jul-18	0	-51	
	ELS for Inlet Pipe Connection	397	04-Sep-17 A	05-Oct-18	04-Sep-17	16-Jul-18	0	-81	
DG3755	ELS for Inlet Pipe Connection - Design Preparation to DC and SO Approval	397	04-Sep-17 A	05-Oct-18	04-Sep-17	16-Jul-18	0	-81	
	ELS for UV	363	04-Sep-17 A	01-Sep-18	04-Sep-17	11-Jul-18	0	-52	
DG3769	ELS for UV - Design Preparation to DC and SO Approval	363	04-Sep-17 A	01-Sep-18	04-Sep-17	11-Jul-18	0	-52	
	Miscellaneous Design	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	Equipment Schedules (DDA32A)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG2012	DDA32A - Equipment Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	



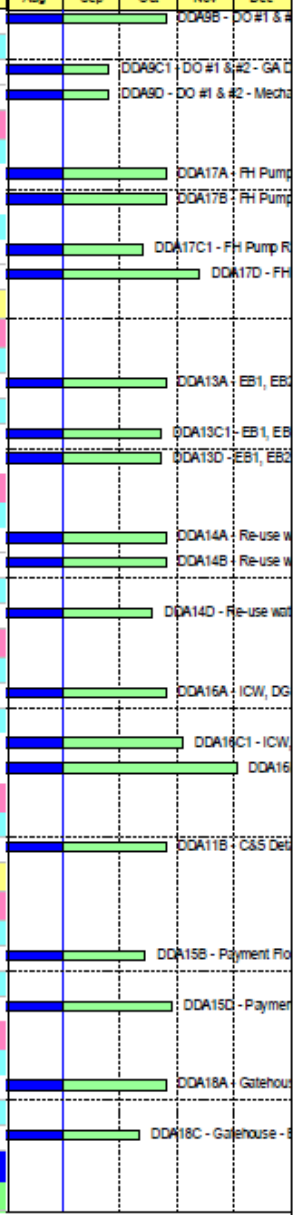
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
	Penstock & Stoplogs Schedules (DDA32B)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG3216	DDA32B - Penstock & Stoplogs Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	Valves Schedules (DDA32C)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG3222	DDA32C - Valves Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	Piping and Pipe Support Schedules (DDA32D)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG3864	DDA32D - Piping and Pipe Support Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	Painting Schedules (DDA32E)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG3228	DDA32E - Painting Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	Instrumentation Schedules (DDA32F)	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
DG3234	DDA32F - Instrumentation Schedules - Design Preparation to SO Approval	440	03-Jul-17 A	15-Sep-18	03-Jul-17	09-Jun-18	0	-98	
	LOT #1 - Building / Facilities Design : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB	699	26-Nov-16 A	25-Oct-18	26-Nov-16	16-Jul-18	0	-101	
	CEPT and System Control Flowmeter Chamber	579	26-Mar-17 A	25-Oct-18	26-Mar-17	24-Jun-18	0	-123	
	Civil and Structural Design (AIP6A / DDA6AB1B2)	579	26-Mar-17 A	25-Oct-18	26-Mar-17	24-Jun-18	0	-123	
DB4930	DDA6B2 - SF - C&S - Design Preparation to SO Approval	579	26-Mar-17 A	25-Oct-18	26-Mar-17	24-Jun-18	0	-123	
	Inlet Work, Preliminary Treatment Works, IPS and SHB	699	26-Nov-16 A	25-Oct-18	26-Nov-16	24-Jun-18	0	-123	
	Civil and Structural Design (AIP5A / DDA5AB1B2)	699	26-Nov-16 A	25-Oct-18	26-Nov-16	24-Jun-18	0	-123	
DB1223	DDA5A - PTW, IPS & SHB - C&S - Design Preparation to SO Approval	671	26-Nov-16 A	27-Sep-18	26-Nov-16	15-Jun-18	0	-104	
DB4814	DDA5B1 - PTW & IPS - C&S - Design Preparation to SO Approval	650	17-Dec-16 A	27-Sep-18	17-Dec-16	15-Jun-18	0	-104	
DB4830	DDA5B2 - SHB - C&S - Design Preparation to SO Approval	627	06-Feb-17 A	25-Oct-18	06-Feb-17	24-Jun-18	0	-123	
	Electrical and Mechanical Design (AIP5B / DDA5C1C2DEF)	542	01-Apr-17 A	25-Sep-18	01-Apr-17	25-May-18	0	-123	
DB1264	DDA5C1-2 - PTW, IPS & SHB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	542	01-Apr-17 A	25-Sep-18	01-Apr-17	25-May-18	0	-123	
	UV Disinfection Facilities	639	22-Dec-16 A	22-Sep-18	22-Dec-16	16-Jul-18	0	-67	
	Civil and Structural Design (AIP7A / DDA7AB)	399	11-Aug-17 A	13-Sep-18	11-Aug-17	16-Jul-18	0	-59	
DB1325	DDA7A - UV Facilities - C&S (Architectural) - Design Preparation to SO Approval	399	11-Aug-17 A	13-Sep-18	11-Aug-17	16-Jul-18	0	-59	
	Electrical and Mechanical Design (AIP7B / DDA7C1C2DEF)	639	22-Dec-16 A	22-Sep-18	22-Dec-16	18-Jun-18	0	-95	
DB1352	DDA7C1-1 - UV Facilities - (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	639	22-Dec-16 A	22-Sep-18	22-Dec-16	18-Jun-18	0	-95	
DB1384	DDA7C2-1 - UV Facilities - (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval	639	22-Dec-16 A	22-Sep-18	22-Dec-16	18-Jun-18	0	-95	
	Sludge Dewatering Building and Sludge Skip Storage Building	671	24-Dec-16 A	25-Oct-18	24-Dec-16	12-Jul-18	0	-105	
	Civil and Structural Design (AIP8A / DDA8AB1B2)	671	24-Dec-16 A	25-Oct-18	24-Dec-16	12-Jul-18	0	-105	
DB1433	DDA8A - SDB and SSSB - C&S - Design Preparation to SO Approval	657	24-Dec-16 A	11-Oct-18	24-Dec-16	12-Jul-18	0	-91	
DB4858	DDA8B2 - SSSB - C&S - Design Preparation to SO Approval	629	04-Feb-17 A	25-Oct-18	04-Feb-17	24-Jun-18	0	-123	
	Electrical and Mechanical Design (AIP8B / DDA8C1C2DEF)	517	29-Apr-17 A	27-Sep-18	29-Apr-17	27-May-18	0	-123	
DB1476	DDA8C1-2 - SDB and SSSB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval	517	29-Apr-17 A	27-Sep-18	29-Apr-17	27-May-18	0	-123	
	LOT #2 - Building / Facilities Design : AB+WS, DO, CB+EB4, FH	770	03-Oct-16 A	12-Nov-18	03-Oct-16	29-Aug-18	0	-74	
	Chemical Building and EB 4	630	31-Jan-17 A	23-Oct-18	31-Jan-17	29-Aug-18	0	-54	
	Civil and Structural Design for CB & EB4 (AIP12A / DDA12AB)	622	31-Jan-17 A	14-Oct-18	31-Jan-17	04-Jul-18	0	-103	
DB2123	DDA12A - Chemical Building & EB4 - C&S - Design Preparation to SO Approval	622	31-Jan-17 A	14-Oct-18	31-Jan-17	04-Jul-18	0	-103	
	Electrical and Mechanical Design for CB only (AIP12B / DDA12C1C2DEF)	625	05-Feb-17 A	23-Oct-18	05-Feb-17	29-Aug-18	0	-54	
DB4602	DDA12D - Chemical Building - Mechanical - Design Preparation to SO Approval	625	05-Feb-17 A	23-Oct-18	05-Feb-17	29-Aug-18	0	-54	
	Administration Building & Maintenance Workshop	722	03-Oct-16 A	25-Sep-18	03-Oct-16	29-Jun-18	0	-87	
	Civil and Structural Design (AIP10A / DDA10AB)	550	13-Mar-17 A	13-Sep-18	13-Mar-17	29-Jun-18	0	-76	
DB2234	DDA10A - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval	550	13-Mar-17 A	13-Sep-18	13-Mar-17	29-Jun-18	0	-76	
	Electrical and Mechanical Design (AIP10B / DDA10C1C2DEF)	722	03-Oct-16 A	25-Sep-18	03-Oct-16	25-May-18	0	-123	
DB2286	DDA10C1-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval	722	03-Oct-16 A	25-Sep-18	03-Oct-16	25-May-18	0	-123	
	Deodorization Facilities No.1 and No.2	680	15-Dec-16 A	25-Oct-18	15-Dec-16	24-Jun-18	0	-123	
	Civil and Structural Design (AIP9A / DDA9AB)	638	26-Jan-17 A	25-Oct-18	26-Jan-17	24-Jun-18	0	-123	
DB2323	DDA9A - DO #1 & #2 (Architectural) - C&S - Design Preparation to SO Approval	638	26-Jan-17 A	25-Oct-18	26-Jan-17	24-Jun-18	0	-123	



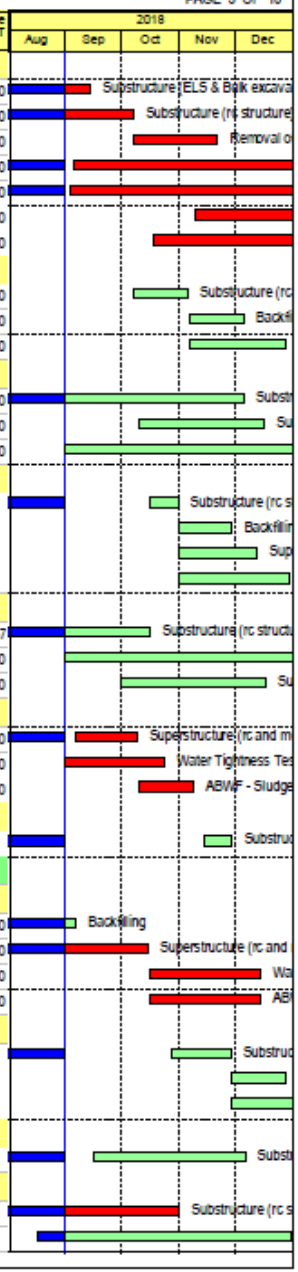
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
DB5150	DDA9B - DO #1 & #2 (Structural) - C&S - Design Preparation to SO Approval	508	05-Jun-17 A	25-Oct-18	05-Jun-17	24-Jun-18	0	-123	
Electrical and Mechanical Design (AIP9B / DDA9C1C2DEF)		649	15-Dec-16 A	25-Sep-18	15-Dec-16	21-Jun-18	0	-95	
DB2348	DDA9C1 - DO #1 & #2 - GA Drawing - Design Preparation to SO Approval	649	15-Dec-16 A	25-Sep-18	15-Dec-16	25-May-18	0	-123	
DB4634	DDA9D - DO #1 & #2 - Mechanical - Design Preparation to SO Approval	607	26-Jan-17 A	25-Sep-18	26-Jan-17	21-Jun-18	0	-95	
Street Fire Hydrant Pump Room & GENSET Room		705	07-Dec-16 A	12-Nov-18	07-Dec-16	12-Jul-18	0	-123	
Civil and Structural Design (AIP17A / DDA17AB)		582	23-Mar-17 A	25-Oct-18	23-Mar-17	11-Jul-18	0	-106	
DB2423	DDA17A - FH Pump Room & GENSET Room (Architectural) - C&S - Design Preparation to SO Approval	582	23-Mar-17 A	25-Oct-18	23-Mar-17	24-Jun-18	0	-123	
DB5220	DDA17B - FH Pump Room & GENSET Room (Structural) - C&S - Design Preparation to SO Approval	451	01-Aug-17 A	25-Oct-18	01-Aug-17	11-Jul-18	0	-106	
Electrical and Mechanical Design (AIP17B / DDA17C1C2DE)		705	07-Dec-16 A	12-Nov-18	07-Dec-16	12-Jul-18	0	-123	
DB2448	DDA17C1 - FH Pump Room & GENSET Room - GA Drawing - Design Preparation to SO Approval	675	07-Dec-16 A	13-Oct-18	07-Dec-16	12-Jun-18	0	-123	
DB4648	DDA17D - FH Pump Room & GENSET Room - Electrical - Design Preparation to SO Approval	599	23-Mar-17 A	12-Nov-18	23-Mar-17	12-Jul-18	0	-123	
LOT #3 - Building / Facilities Design : EB1, EB2, EB3, EB4, RW, DG+ICW, Inlet/Outlet Connection		808	16-Sep-16 A	02-Dec-18	16-Sep-16	28-Sep-18	0	-66	
Electrical Building No.1, No.2, No.3, No.4		770	16-Sep-16 A	25-Oct-18	16-Sep-16	12-Jul-18	0	-105	
Civil and Structural Design for EB123 (AIP13A / DDA13AB)		566	08-Apr-17 A	25-Oct-18	08-Apr-17	12-Jul-18	0	-105	
DB3123	DDA13A - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval	566	08-Apr-17 A	25-Oct-18	08-Apr-17	12-Jul-18	0	-105	
Electrical and Mechanical Design for EB1234 (AIP13B / DDA13C1C2DE)		767	16-Sep-16 A	23-Oct-18	16-Sep-16	10-Jul-18	0	-105	
DB3148	DDA13C1 - EB1, EB2, EB3 & EB4 - GA Drawing - Design Preparation to SO Approval	767	16-Sep-16 A	23-Oct-18	16-Sep-16	22-Jun-18	0	-123	
DB4664	DDA13D - EB1, EB2, EB3 & EB4 - Electrical - Design Preparation to SO Approval	607	23-Feb-17 A	23-Oct-18	23-Feb-17	10-Jul-18	0	-105	
Re-use Water Building		561	13-Apr-17 A	25-Oct-18	13-Apr-17	24-Jul-18	0	-93	
Civil and Structural Design (AIP14A / DDA14AB)		561	13-Apr-17 A	25-Oct-18	13-Apr-17	29-Jun-18	0	-118	
DB3223	DDA14A - Re-use water Building (Architectural) - C&S - Design Preparation to SO Approval	561	13-Apr-17 A	25-Oct-18	13-Apr-17	29-Jun-18	0	-118	
DB5080	DDA14B - Re-use water Building (Structural) - C&S - Design Preparation to SO Approval	434	18-Aug-17 A	25-Oct-18	18-Aug-17	28-Jun-18	0	-119	
Electrical and Mechanical Design (AIP14B / DDA14C1C2DEF)		554	13-Apr-17 A	18-Oct-18	13-Apr-17	24-Jul-18	0	-86	
DB4680	DDA14D - Re-use water Building - Mechanical - Design Preparation to SO Approval	554	13-Apr-17 A	18-Oct-18	13-Apr-17	24-Jul-18	0	-86	
ICW and DG Store & Chemical Waste Storage Building		733	30-Nov-16 A	02-Dec-18	30-Nov-16	28-Sep-18	0	-66	
Civil and Structural Design (AIP16A / DDA16AB)		375	16-Oct-17 A	25-Oct-18	16-Oct-17	25-Jun-18	0	-122	
DB3323	DDA16A - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval	375	16-Oct-17 A	25-Oct-18	16-Oct-17	25-Jun-18	0	-122	
Electrical and Mechanical Design (AIP16B / DDA16C1C2D)		733	30-Nov-16 A	02-Dec-18	30-Nov-16	28-Sep-18	0	-66	
DB3348	DDA16C1 - ICW, DG & Chemical Stores - GA Drawing - Design Preparation to SO Approval	703	30-Nov-16 A	03-Nov-18	30-Nov-16	03-Jul-18	0	-123	
DB4694	DDA16D - ICW, DG & Chemical Stores - Building Services - Design Preparation to SO Approval	558	24-May-17 A	02-Dec-18	24-May-17	28-Sep-18	0	-66	
Inlet & Outlet Pipe Connections and Diversion Pipeworks		566	08-Apr-17 A	25-Oct-18	08-Apr-17	10-Aug-18	0	-76	
Civil and Structural Design (AIP11 / DDA11ABC)		566	08-Apr-17 A	25-Oct-18	08-Apr-17	10-Aug-18	0	-76	
DB3438	DDA11B - C&S Detailed Design Report for Inlet Connections Pipework - Design Preparation to SO Approval	566	08-Apr-17 A	25-Oct-18	08-Apr-17	10-Aug-18	0	-76	
LOT #4 - Building / Facilities Design : GH, PF		564	13-Apr-17 A	28-Oct-18	13-Apr-17	30-Aug-18	0	-60	
Payment Flowmeter Chamber		564	13-Apr-17 A	28-Oct-18	13-Apr-17	30-Aug-18	0	-60	
Civil and Structural Design (AIP15A / DDA15B)		550	13-Apr-17 A	14-Oct-18	13-Apr-17	20-Jul-18	0	-86	
DB4323	DDA15B - Payment Flowmeter - C&S - Design Preparation to SO Approval	550	13-Apr-17 A	14-Oct-18	13-Apr-17	20-Jul-18	0	-86	
Electrical and Mechanical Design (AIP15B / DDA15C1C2DEF)		516	31-May-17 A	28-Oct-18	31-May-17	30-Aug-18	0	-60	
DB4740	DDA15D - Payment Flowmeter - Mechanical - Design Preparation to SO Approval	516	31-May-17 A	28-Oct-18	31-May-17	30-Aug-18	0	-60	
Gatehouse		550	24-Apr-17 A	25-Oct-18	24-Apr-17	24-Jun-18	0	-123	
Civil and Structural Design (AIP18A / DDA18AB)		465	18-Jul-17 A	25-Oct-18	18-Jul-17	24-Jun-18	0	-123	
DB4424	DDA18A - Gatehouse - C&S - Design Preparation to SO Approval	465	18-Jul-17 A	25-Oct-18	18-Jul-17	24-Jun-18	0	-123	
Electrical and Mechanical Design (AIP18B / DDA18C)		536	24-Apr-17 A	11-Oct-18	24-Apr-17	10-Jun-18	0	-123	
DB4754	DDA18C - Gatehouse - Building Services - Design Preparation to SO Approval	536	24-Apr-17 A	11-Oct-18	24-Apr-17	10-Jun-18	0	-123	
Civil & Structural Works		774	01-Oct-17 A	14-Nov-19	01-Oct-17	13-Nov-19	0	0	
LOT #1 - Bldg / Facilities Const. (Arch'l & Struct'l) : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB		524	01-Oct-17 A	08-Mar-19	01-Oct-17	15-Jan-19	0	-52	



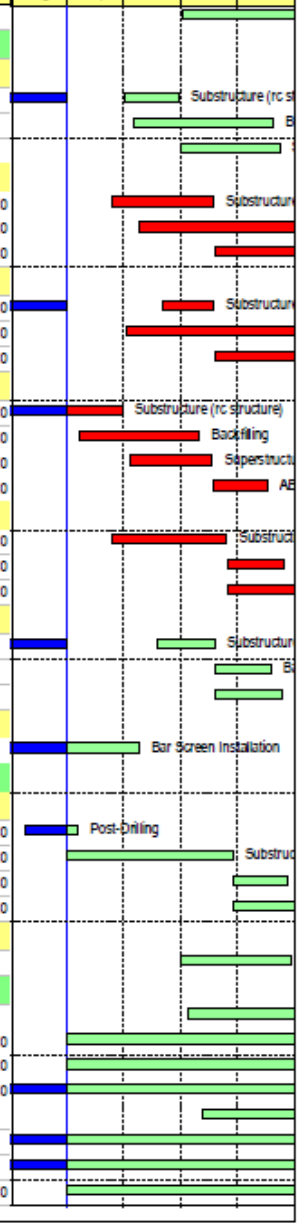
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
Chemically Enhanced Primary Treatment (CEPT)		518	01-Oct-17 A	03-Mar-19	01-Oct-17	25-Dec-18	0	-67	
CS1510	Substructure (ELS & Bulk excavation)	349	01-Oct-17 A	14-Sep-18	01-Oct-17	22-Jul-18	0	-54	0
CS1520	Substructure (rc structure)	254	26-Jan-18 A	07-Oct-18	26-Jan-18	31-Jul-18	0	-67	0
CS1525	Removal of ELS	45	07-Oct-18	21-Nov-18	01-Aug-18	14-Sep-18	-67	-67	0
CS1526	Backfilling (except in Water Tightness Test area)	267	28-Apr-18 A	20-Jan-19	28-Apr-18	13-Nov-18	0	-67	0
CS1530	Superstructure (rc and metalworks)	374	22-Feb-18 A	03-Mar-19	22-Feb-18	25-Dec-18	0	-67	0
CS1534	Water Tightness Test + Backfilling	60	09-Nov-18	08-Jan-19	03-Sep-18	01-Nov-18	-67	-67	0
CS1540	Internal ABWF - CEPT	90	18-Oct-18	16-Jan-19	12-Aug-18	09-Nov-18	-67	-67	0
System Control Flowmeter Chamber (SF)		82	07-Oct-18	27-Dec-18	01-Oct-18	21-Dec-18	-6	-6	
CS1400	Substructure (rc structure)	30	07-Oct-18	05-Nov-18	01-Oct-18	30-Oct-18	-6	-6	0
CS1405	Backfilling	30	06-Nov-18	05-Dec-18	31-Oct-18	29-Nov-18	-6	-6	0
CS1410	Superstructure (rc and metalworks)	52	06-Nov-18	27-Dec-18	31-Oct-18	21-Dec-18	-6	-6	0
Inlet Work, Preliminary Treatment Works and Inlet Pumping Station (PTW & IPS)		256	26-Jun-18 A	08-Mar-19	26-Jun-18	15-Jan-19	0	-52	
CS1210	Substructure (ELS & Bulk excavation)	163	26-Jun-18 A	05-Dec-18	26-Jun-18	30-Sep-18	0	-66	0
CS1220	Substructure (rc structure)	68	10-Oct-18	16-Dec-18	25-Aug-18	31-Oct-18	-46	-46	0
CS1225	Backfilling (except in Water Tightness Test area)	190	31-Aug-18	08-Mar-19	10-Jul-18	15-Jan-19	-52	-52	0
Solid Handling Building (SHB)		434	22-Oct-17 A	29-Dec-18	22-Oct-17	29-Dec-18	0	0	
CS1300	Substructure (rc structure)	374	22-Oct-17 A	31-Oct-18	22-Oct-17	31-Oct-18	0	0	
CS1305	Backfilling (except in Water Tightness Test area)	30	31-Oct-18	29-Nov-18	31-Oct-18	29-Nov-18	0	0	
CS1310	Superstructure (rc and metalworks)	43	31-Oct-18	12-Dec-18	31-Oct-18	12-Dec-18	0	0	
CS1315	Water Tightness Test + Backfilling	60	31-Oct-18	29-Dec-18	31-Oct-18	29-Dec-18	0	0	
UV Disinfection Facility (UV)		496	07-Oct-17 A	14-Feb-19	07-Oct-17	15-Dec-18	0	-61	
CS1910	Substructure (rc structure)	375	07-Oct-17 A	16-Oct-18	07-Oct-17	30-Jul-18	0	-78	-7
CS1915	Backfilling (except in Water Tightness Test area)	168	31-Aug-18	14-Feb-19	01-Jul-18	15-Dec-18	-61	-61	0
CS1920	Superstructure (rc and metalworks)	78	30-Sep-18	17-Dec-18	31-Jul-18	16-Oct-18	-61	-61	0
Sludge Dewatering Building (SDB)		249	05-Mar-18 A	08-Nov-18	05-Mar-18	20-Sep-18	0	-49	
CS1840	Superstructure (rc and metalworks)	219	05-Mar-18 A	09-Oct-18	05-Mar-18	21-Aug-18	0	-49	0
CS1845	Water Tightness Test + Backfilling	55	31-Aug-18	24-Oct-18	13-Jul-18	05-Sep-18	-49	-49	0
CS1850	ABWF - Sludge Dewatering Building	30	10-Oct-18	08-Nov-18	22-Aug-18	20-Sep-18	-49	-49	0
Sludge Skip Storage Building (SSSB)		404	22-Oct-17 A	29-Nov-18	22-Oct-17	29-Nov-18	0	0	
CS2900	Substructure (rc structure)	404	22-Oct-17 A	29-Nov-18	22-Oct-17	29-Nov-18	0	0	
LOT #2 - Bldg / Facilities Const. (Arch'l & Struct'l) : AB+WS, DO, CB, FH		470	13-Oct-17 A	25-Jan-19	13-Oct-17	25-Jan-19	0	0	
Administration Building & Maintenance Workshop (AB & WS)		256	03-Apr-18 A	14-Dec-18	03-Apr-18	11-Nov-18	0	-33	
CS1115	Backfilling	157	03-Apr-18 A	06-Sep-18	03-Apr-18	11-Aug-18	0	-26	0
CS1120	Superstructure (rc and metalworks)	97	11-Jul-18 A	15-Oct-18	13-Jul-18	12-Sep-18	2	-33	0
CS1125	Water Tightness Test	60	16-Oct-18	14-Dec-18	13-Sep-18	11-Nov-18	-33	-33	0
CS1130	ABWF - Administration Building & Maintenance Workshop	60	16-Oct-18	14-Dec-18	13-Sep-18	11-Nov-18	-33	-33	0
Deodorization Facilities No. 1 (DO 1)		464	19-Oct-17 A	25-Jan-19	19-Oct-17	25-Jan-19	0	0	
CS1610	Substructure (rc structure)	406	19-Oct-17 A	28-Nov-18	19-Oct-17	28-Nov-18	0	0	
CS1615	Backfilling	30	29-Nov-18	28-Dec-18	29-Nov-18	28-Dec-18	0	0	
CS1620	Superstructure (rc and metalworks)	58	29-Nov-18	25-Jan-19	29-Nov-18	25-Jan-19	0	0	
Deodorization Facilities No. 2 (DO 2)		411	22-Oct-17 A	06-Dec-18	22-Oct-17	06-Dec-18	0	0	
CS1710	Substructure (rc structure)	411	22-Oct-17 A	06-Dec-18	22-Oct-17	06-Dec-18	0	0	
Chemical Building (CB)		454	13-Oct-17 A	10-Jan-19	13-Oct-17	09-Jan-19	0	0	
CS2310	Substructure (rc structure)	384	13-Oct-17 A	01-Nov-18	13-Oct-17	31-Oct-18	0	0	
CS2315	Backfilling	136	17-Aug-18 A	31-Dec-18	17-Aug-18	30-Dec-18	0	0	



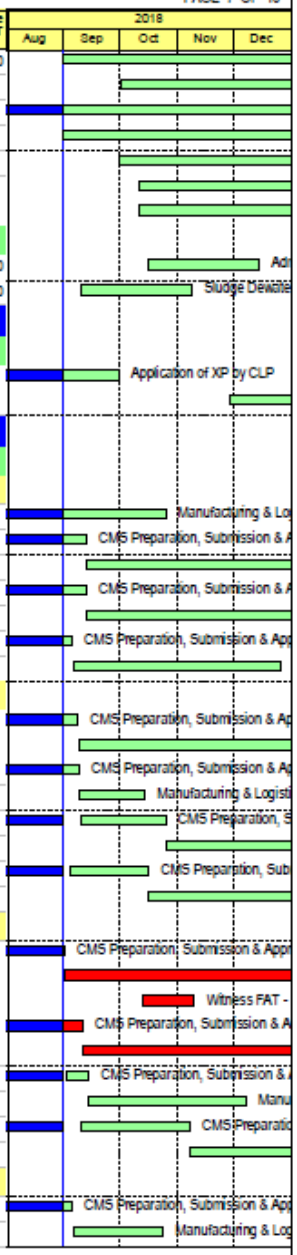
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
CS2320	Superstructure (rc and metalworks)	70	01-Nov-18	10-Jan-19	01-Nov-18	09-Jan-19	0	0	
LOT #3 - Bldg / Facilities Const. (Arch'l & Struct'l) : EB, RW, DG, ICW, JC		471	04-Oct-17 A	17-Jan-19	04-Oct-17	24-Dec-18	0	-24	
Electrical Building No.1 (EB1)		428	22-Oct-17 A	23-Dec-18	22-Oct-17	23-Dec-18	0	0	
CS2410	Substructure (rc structure)	374	22-Oct-17 A	30-Oct-18	22-Oct-17	30-Oct-18	0	0	
CS2415	Backfilling	76	06-Oct-18	20-Dec-18	06-Oct-18	20-Dec-18	0	0	
CS2420	Superstructure (rc and metalworks)	54	31-Oct-18	23-Dec-18	31-Oct-18	23-Dec-18	0	0	
Electrical Building No.2 (EB2)		115	25-Sep-18	17-Jan-19	26-Aug-18	18-Dec-18	-30	-30	
CS2510	Substructure (rc structure)	55	25-Sep-18	18-Nov-18	26-Aug-18	19-Oct-18	-30	-30	0
CS2515	Backfilling	90	09-Oct-18	06-Jan-19	09-Sep-18	07-Dec-18	-30	-30	0
CS2520	Superstructure (rc and metalworks)	60	19-Nov-18	17-Jan-19	20-Oct-18	18-Dec-18	-30	-30	0
Electrical Building No.3 (EB3)		471	04-Oct-17 A	17-Jan-19	04-Oct-17	18-Dec-18	0	-30	
CS2610	Substructure (rc structure)	411	04-Oct-17 A	18-Nov-18	04-Oct-17	19-Oct-18	0	-30	0
CS2615	Backfilling	101	02-Oct-18	10-Jan-19	02-Sep-18	11-Dec-18	-30	-30	0
CS2620	Superstructure (rc and metalworks)	60	19-Nov-18	17-Jan-19	20-Oct-18	18-Dec-18	-30	-30	0
Electrical Building No.4 (EB4)		422	22-Oct-17 A	17-Dec-18	22-Oct-17	17-Nov-18	0	-30	
CS2710	Substructure (rc structure)	344	22-Oct-17 A	30-Sep-18	22-Oct-17	31-Aug-18	0	-30	0
CS2715	Backfilling	65	07-Sep-18	10-Nov-18	08-Aug-18	11-Oct-18	-30	-30	0
CS2720	Superstructure (rc and metalworks)	45	04-Oct-18	17-Nov-18	04-Sep-18	18-Oct-18	-30	-30	0
CS2730	ABWF - Electrical Building No.4	30	18-Nov-18	17-Dec-18	19-Oct-18	17-Nov-18	-30	-30	0
Re-use Water Building (RW)		108	25-Sep-18	10-Jan-19	26-Aug-18	11-Dec-18	-30	-30	
CS2010	Substructure (rc structure)	62	25-Sep-18	25-Nov-18	26-Aug-18	26-Oct-18	-30	-30	0
CS2015	Backfilling (except in Water Tightness Test area)	30	26-Nov-18	25-Dec-18	27-Oct-18	25-Nov-18	-30	-30	0
CS2020	Superstructure (rc and metalworks)	46	26-Nov-18	10-Jan-19	27-Oct-18	11-Dec-18	-30	-30	0
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		429	22-Oct-17 A	25-Dec-18	22-Oct-17	24-Dec-18	0	0	
CS2800	Substructure (rc structure)	393	22-Oct-17 A	19-Nov-18	22-Oct-17	18-Nov-18	0	0	
CS2805	Backfilling	30	19-Nov-18	19-Dec-18	19-Nov-18	18-Dec-18	0	0	
CS2810	Superstructure (rc and metalworks)	36	19-Nov-18	25-Dec-18	19-Nov-18	24-Dec-18	0	0	
Existing Junction Chamber (JC)		120	12-Jun-18 A	09-Oct-18	12-Jun-18	09-Oct-18	0	0	
CS2210	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		158	09-Aug-18 A	13-Jan-19	01-Aug-18	29-Dec-18	-8	-15	
Payment Flowmeter Chamber (PF)		158	09-Aug-18 A	13-Jan-19	01-Aug-18	14-Dec-18	-8	-30	
CS2090	Post-Drilling	29	09-Aug-18 A	06-Sep-18	01-Aug-18	14-Aug-18	-8	-23	0
CS2100	Substructure (rc structure)	90	31-Aug-18	28-Nov-18	01-Aug-18	29-Oct-18	-30	-30	0
CS2105	Backfilling	30	29-Nov-18	28-Dec-18	30-Oct-18	28-Nov-18	-30	-30	0
CS2110	Superstructure (rc and metalworks)	46	29-Nov-18	13-Jan-19	30-Oct-18	14-Dec-18	-30	-30	0
Foul Water Pump Sump (FW)		60	31-Oct-18	29-Dec-18	31-Oct-18	29-Dec-18	0	0	
CS3395	Substructure (rc structure)	60	31-Oct-18	29-Dec-18	31-Oct-18	29-Dec-18	0	0	
External Works & Miscellaneous		503	29-Jun-18 A	14-Nov-19	29-Jun-18	13-Nov-19	0	0	
CS3200	Site Formation along Boundary Wall (Perimeter)	180	04-Nov-18	03-May-19	05-Nov-18	03-May-19	0	0	
CS3201	Slope works and Retaining Wall (Eastern Portion)	197	31-Aug-18	15-Mar-19	04-Jul-18	16-Jan-19	-58	-58	0
CS3203	Slope works and Retaining Wall (Northern Portion)	180	31-Aug-18	26-Feb-19	04-Jul-18	30-Dec-18	-58	-58	0
CS3210	Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains) incl. slope & retaining wall work @ P8	253	15-Jul-18 A	25-Mar-19	15-Jul-18	07-Feb-19	0	-45	0
CS3225	Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road	92	12-Nov-18	12-Feb-19	13-Nov-18	12-Feb-19	0	0	
CS3230	CLP Cable Duct and Draw Pits (within the Site)	210	09-Jul-18 A	03-Feb-19	09-Jul-18	03-Feb-19	0	0	
CS3250	EVA (Road & Drainage)	503	29-Jun-18 A	14-Nov-19	29-Jun-18	13-Nov-19	0	0	
CS3252	RC Trench and Odour Pipe (DO1, DO2)	180	31-Aug-18	26-Feb-19	22-Jul-18	17-Jan-19	-40	-40	0



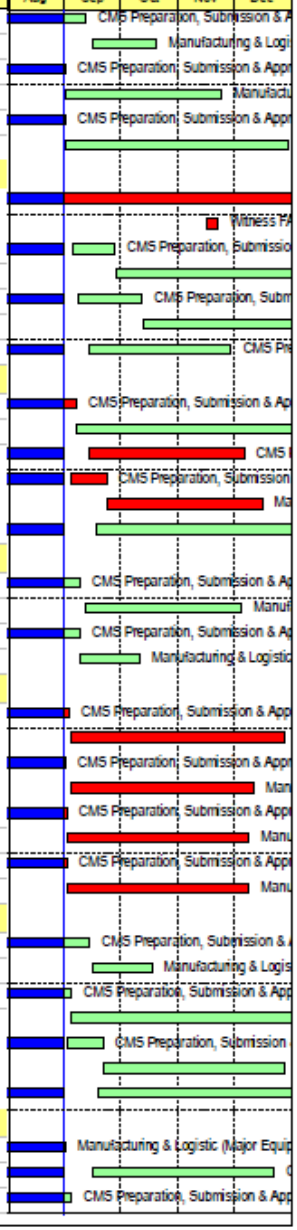
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
C53254	Process Pipe	180	31-Aug-18	26-Feb-19	30-Jul-18	25-Jan-19	-32	-32	0
C53256	Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope	180	01-Oct-18	30-Mar-19	02-Oct-18	30-Mar-19	0	0	
C53258	Emergency By-Pass Pipe	260	15-Jul-18 A	31-Mar-19	15-Jul-18	31-Mar-19	0	0	
C53260	Sewage Pipe	210	31-Aug-18	28-Mar-19	28-Aug-18	25-Mar-19	-3	-3	
C53262	Cable Duct and Draw Pits	180	30-Sep-18	28-Mar-19	30-Sep-18	28-Mar-19	0	0	
C53276	WSD External Watermain Laying Works	180	11-Oct-18	08-Apr-19	11-Oct-18	08-Apr-19	0	0	
C53278	Internal Watermain Laying Works	150	11-Oct-18	09-Mar-19	11-Oct-18	09-Mar-19	0	0	
Green Roof		96	10-Sep-18	14-Dec-18	22-Aug-18	11-Nov-18	-19	-33	
C53340	Administration Building and Maintenance Workshop	60	16-Oct-18	14-Dec-18	13-Sep-18	11-Nov-18	-33	-33	0
C53350	Sludge Dewatering Building	60	10-Sep-18	08-Nov-18	22-Aug-18	20-Oct-18	-19	-19	0
Statutory Works		368	25-Jan-18 A	27-Jan-19	25-Jan-18	27-Jan-19	0	0	
Electrical Supply & Energization - CLP		368	25-Jan-18 A	27-Jan-19	25-Jan-18	27-Jan-19	0	0	
SR130	Application of XP by CLP	249	25-Jan-18 A	30-Sep-18	25-Jan-18	30-Sep-18	0	0	
SR135	CLP External Cabling Works	60	29-Nov-18	27-Jan-19	29-Nov-18	27-Jan-19	0	0	
E&M Works		865	27-Nov-16 A	11-Apr-19	27-Nov-16	15-Mar-19	0	-26	
Procurement		840	27-Nov-16 A	16-Mar-19	27-Nov-16	15-Mar-19	0	-1	
Chemically Enhanced Primary Treatment (CEPT)		433	10-Nov-17 A	17-Jan-19	10-Nov-17	26-Dec-18	0	-21	
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)	307	10-Nov-17 A	13-Sep-18	10-Nov-17	16-Aug-18	0	-27	
EM3116	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	13-Sep-18	17-Jan-19	17-Aug-18	20-Dec-18	-27	-27	
EM3118	CMS Preparation, Submission & Approval (Electrical)	307	10-Nov-17 A	13-Sep-18	10-Nov-17	16-Aug-18	0	-27	
EM3120	Manufacturing & Logistic (Electrical)	126	13-Sep-18	17-Jan-19	17-Aug-18	20-Dec-18	-27	-27	
EM3122	CMS Preparation, Submission & Approval (Building Services)	300	10-Nov-17 A	05-Sep-18	10-Nov-17	05-Sep-18	0	0	
EM3124	Manufacturing & Logistic (Building Services)	112	06-Sep-18	26-Dec-18	06-Sep-18	26-Dec-18	0	0	
System Control Flowmeter Chamber (SF)		777	25-Jan-17 A	13-Mar-19	25-Jan-17	12-Feb-19	0	-28	
EM3132	CMS Preparation, Submission & Approval (Major Equipment)	591	25-Jan-17 A	08-Sep-18	25-Jan-17	10-Jul-18	0	-59	
EM3134	Manufacturing & Logistic (Major Equipment)	185	09-Sep-18	13-Mar-19	12-Jul-18	12-Jan-19	-59	-59	
EM3136	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	303	10-Nov-17 A	09-Sep-18	10-Nov-17	15-Jul-18	0	-55	
EM3138	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	09-Sep-18	14-Oct-18	16-Jul-18	19-Aug-18	-55	-55	
EM3140	CMS Preparation, Submission & Approval (Electrical)	349	10-Nov-17 A	25-Oct-18	10-Nov-17	24-Oct-18	0	0	
EM3142	Manufacturing & Logistic (Electrical)	84	25-Oct-18	17-Jan-19	25-Oct-18	16-Jan-19	0	0	
EM3144	CMS Preparation, Submission & Approval (Building Services)	340	10-Nov-17 A	16-Oct-18	10-Nov-17	15-Oct-18	0	0	
EM3146	Manufacturing & Logistic (Building Services)	120	16-Oct-18	13-Feb-19	16-Oct-18	12-Feb-19	0	0	
Inlet Work, Preliminary Treatment Units and Inlet Pumping Station (PTW & IPS)		793	04-Jan-17 A	07-Mar-19	04-Jan-17	07-Mar-19	0	0	
EM3135	CMS Preparation, Submission & Approval (Major Equipment)	605	04-Jan-17 A	01-Sep-18	04-Jan-17	01-May-18	0	-123	
EM3137	Manufacturing & Logistic (Major Equipment)	160	01-Sep-18	08-Feb-19	01-May-18	08-Oct-18	-123	-123	
EM3141	Witness FAT - Main Sewage Pumps	28	13-Oct-18	10-Nov-18	30-Jul-18	27-Aug-18	-75	-75	
EM3635	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	345	01-Oct-17 A	11-Sep-18	01-Oct-17	13-Jul-18	0	-59	
EM3645	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	11-Sep-18	15-Jan-19	14-Jul-18	16-Nov-18	-59	-59	
EM3655	CMS Preparation, Submission & Approval (Electrical)	349	01-Oct-17 A	14-Sep-18	01-Oct-17	14-Sep-18	0	0	
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)	403	01-Oct-17 A	07-Nov-18	01-Oct-17	07-Nov-18	0	0	
EM3685	Manufacturing & Logistic (Building Services)	120	07-Nov-18	07-Mar-19	08-Nov-18	07-Mar-19	0	0	
Solid Handling Building (SHB)		628	12-Apr-17 A	30-Dec-18	12-Apr-17	15-Nov-18	0	-45	
EM3145	CMS Preparation, Submission & Approval (Major Equipment)	511	12-Apr-17 A	05-Sep-18	12-Apr-17	05-May-18	0	-123	
EM3150	Manufacturing & Logistic (Major Equipment)	48	06-Sep-18	24-Oct-18	06-May-18	23-Jun-18	-123	-123	



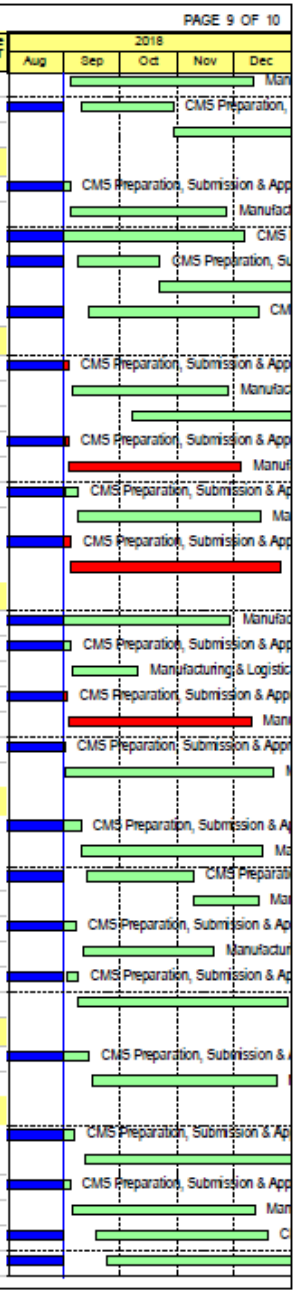
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
EM3695	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	347	01-Oct-17 A	12-Sep-18	01-Oct-17	15-Jul-18	0	-59	
EM3705	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	15-Sep-18	20-Oct-18	16-Jul-18	19-Aug-18	-62	-62	
EM3715	CMS Preparation, Submission & Approval (Electrical)	336	01-Oct-17 A	01-Sep-18	01-Oct-17	27-May-18	0	-97	
EM3725	Manufacturing & Logistic (Electrical)	84	01-Sep-18	24-Nov-18	28-May-18	19-Aug-18	-97	-97	
EM3735	CMS Preparation, Submission & Approval (Building Services)	336	01-Oct-17 A	01-Sep-18	01-Oct-17	18-Jul-18	0	-45	
EM3745	Manufacturing & Logistic (Building Services)	120	01-Sep-18	30-Dec-18	19-Jul-18	15-Nov-18	-45	-45	
UV Disinfection Facility (UV)		480	21-Nov-17 A	15-Mar-19	21-Nov-17	15-Mar-19	0	0	
EM3190	Manufacturing & Logistic (Major Equipment)	320	30-Apr-18 A	15-Mar-19	30-Apr-18	15-Mar-19	0	0	
EM3191	Witness FAT - UV	7	16-Nov-18	22-Nov-18	16-Nov-18	22-Nov-18	0	0	
EM3755	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	311	21-Nov-17 A	27-Sep-18	21-Nov-17	27-Sep-18	0	0	
EM3765	Manufacturing & Logistic (Penstock, Pipe & Valve)	147	28-Sep-18	21-Feb-19	28-Sep-18	21-Feb-19	0	0	
EM3775	CMS Preparation, Submission & Approval (Electrical)	326	21-Nov-17 A	12-Oct-18	21-Nov-17	12-Oct-18	0	0	
EM3785	Manufacturing & Logistic (Electrical)	84	13-Oct-18	04-Jan-19	12-Oct-18	04-Jan-19	0	0	
EM3795	CMS Preparation, Submission & Approval (Building Services)	374	21-Nov-17 A	29-Nov-18	21-Nov-17	29-Nov-18	0	0	
Sludge Dewatering Building (SDB)		840	27-Nov-16 A	16-Mar-19	27-Nov-16	11-Jan-19	0	-65	
EM3175	CMS Preparation, Submission & Approval (Major Equipment)	650	27-Nov-16 A	07-Sep-18	27-Nov-16	07-May-18	0	-123	
EM3180	Manufacturing & Logistic (Major Equipment)	190	07-Sep-18	16-Mar-19	07-May-18	13-Nov-18	-123	-123	
EM3815	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	406	27-Oct-17 A	06-Dec-18	27-Oct-17	07-Dec-18	0	0	
EM3835	CMS Preparation, Submission & Approval (Electrical)	331	27-Oct-17 A	23-Sep-18	27-Oct-17	22-Sep-18	0	0	
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)	441	27-Oct-17 A	11-Jan-19	27-Oct-17	11-Jan-19	0	0	
Sludge Skip Storage Building (SSSB)		457	04-Sep-17 A	05-Dec-18	04-Sep-17	03-Sep-18	0	-92	
EM3875	CMS Preparation, Submission & Approval (Electrical)	370	04-Sep-17 A	09-Sep-18	04-Sep-17	11-Jun-18	0	-89	
EM3885	Manufacturing & Logistic (Electrical)	84	12-Sep-18	05-Dec-18	12-Jun-18	03-Sep-18	-92	-92	
EM3895	CMS Preparation, Submission & Approval (Building Services)	370	04-Sep-17 A	09-Sep-18	04-Sep-17	09-May-18	0	-123	
EM3905	Manufacturing & Logistic (Building Services)	32	09-Sep-18	11-Oct-18	11-May-18	12-Jun-18	-121	-121	
Administration Building & Maintenance Workshop (AB & WS)		697	31-Jan-17 A	28-Dec-18	31-Jan-17	29-Aug-18	0	-121	
EM3125	CMS Preparation, Submission & Approval (Major Equipment)	581	31-Jan-17 A	03-Sep-18	31-Jan-17	05-May-18	0	-121	
EM3130	Manufacturing & Logistic (Major Equipment)	115	04-Sep-18	28-Dec-18	06-May-18	29-Aug-18	-121	-121	
EM3915	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	368	30-Aug-17 A	01-Sep-18	30-Aug-17	19-May-18	0	-105	
EM3925	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	04-Sep-18	11-Dec-18	22-May-18	28-Aug-18	-105	-105	
EM3935	CMS Preparation, Submission & Approval (Electrical)	368	30-Aug-17 A	02-Sep-18	30-Aug-17	22-May-18	0	-102	
EM3945	Manufacturing & Logistic (Electrical)	98	02-Sep-18	09-Dec-18	23-May-18	28-Aug-18	-102	-102	
EM3955	CMS Preparation, Submission & Approval (Building Services)	368	30-Aug-17 A	02-Sep-18	30-Aug-17	22-May-18	0	-102	
EM3965	Manufacturing & Logistic (Building Services)	98	02-Sep-18	09-Dec-18	23-May-18	28-Aug-18	-102	-102	
Deodorization Facilities No. 1 & 2 (DO 1 & DO 2)		758	10-Jan-17 A	07-Feb-19	10-Jan-17	06-Feb-19	0	0	
EM3165	CMS Preparation, Submission & Approval (Major Equipment)	613	10-Jan-17 A	14-Sep-18	10-Jan-17	14-May-18	0	-123	
EM3170	Manufacturing & Logistic (Major Equipment)	32	15-Sep-18	17-Oct-18	15-May-18	16-Jun-18	-123	-123	
EM3172	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	371	30-Aug-17 A	04-Sep-18	30-Aug-17	06-Jul-18	0	-61	
EM3173	Manufacturing & Logistic (Penstock, Pipe & Valve)	126	04-Sep-18	08-Jan-19	06-Jul-18	09-Nov-18	-61	-61	
EM3975	CMS Preparation, Submission & Approval (Electrical)	387	30-Aug-17 A	21-Sep-18	30-Aug-17	21-Sep-18	0	0	
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)	526	30-Aug-17 A	07-Feb-19	30-Aug-17	06-Feb-19	0	0	
Chemical Building (CB)		476	08-Nov-17 A	26-Feb-19	08-Nov-17	26-Feb-19	0	0	
EM3230	Manufacturing & Logistic (Major Equipment)	168	17-Mar-18 A	01-Sep-18	17-Mar-18	31-Aug-18	0	0	
EM4015	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	410	08-Nov-17 A	22-Dec-18	08-Nov-17	23-Dec-18	0	0	
EM4035	CMS Preparation, Submission & Approval (Electrical)	301	08-Nov-17 A	04-Sep-18	08-Nov-17	22-Aug-18	0	-13	



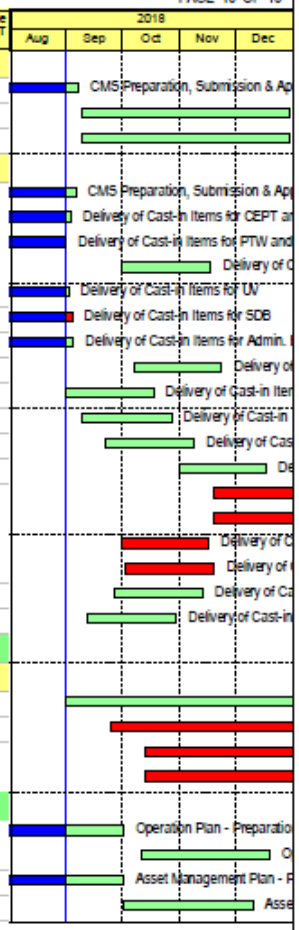
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
EM4045	Manufacturing & Logistic (Electrical)	98	04-Sep-18	11-Dec-18	22-Aug-18	28-Nov-18	-13	-13	
EM4055	CMS Preparation, Submission & Approval (Building Services)	356	08-Nov-17 A	29-Oct-18	08-Nov-17	29-Oct-18	0	0	
EM4065	Manufacturing & Logistic (Building Services)	120	30-Oct-18	26-Feb-19	29-Oct-18	26-Feb-19	0	0	
Street Fire Hydrant Pump Room & GENSET Room (FH)		676	23-Mar-17 A	28-Jan-19	23-Mar-17	28-Jan-19	0	0	
EM3275	CMS Preparation, Submission & Approval (Major Equipment)	530	23-Mar-17 A	04-Sep-18	23-Mar-17	21-Aug-18	0	-14	
EM3280	Manufacturing & Logistic (Major Equipment)	84	04-Sep-18	27-Nov-18	21-Aug-18	13-Nov-18	-14	-14	
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)	386	01-Oct-17 A	22-Oct-18	01-Oct-17	22-Oct-18	0	0	
EM4105	Manufacturing & Logistic (Electrical)	98	22-Oct-18	28-Jan-19	22-Oct-18	28-Jan-19	0	0	
EM4115	CMS Preparation, Submission & Approval (Building Services)	439	01-Oct-17 A	14-Dec-18	01-Oct-17	14-Dec-18	0	0	
Electrical Buildings (EB1, EB2, EB3 & EB4)		722	23-Feb-17 A	15-Feb-19	23-Feb-17	16-Dec-18	0	-61	
EM3235	CMS Preparation, Submission & Approval (Major Equipment)	557	23-Feb-17 A	03-Sep-18	23-Feb-17	14-May-18	0	-112	
EM3240	Manufacturing & Logistic (Major Equipment)	84	05-Sep-18	28-Nov-18	16-May-18	08-Aug-18	-112	-112	
EM3245	Witness FAT - LV Switchboards (8 nos. for EB's and 4 nos. for SDB)	131	07-Oct-18	15-Feb-19	30-Jun-18	21-Jul-18	-99	-209	
EM3300	CMS Preparation, Submission & Approval (Electrical)	357	11-Sep-17 A	03-Sep-18	11-Sep-17	16-May-18	0	-110	
EM3305	Manufacturing & Logistic (Electrical)	93	03-Sep-18	05-Dec-18	16-May-18	17-Aug-18	-110	-110	
EM3310	CMS Preparation, Submission & Approval (Control & Instrument)	363	11-Sep-17 A	08-Sep-18	11-Sep-17	09-Sep-18	0	0	
EM3315	Manufacturing & Logistic (Control & Instrument)	98	08-Sep-18	15-Dec-18	09-Sep-18	16-Dec-18	0	0	
EM3320	CMS Preparation, Submission & Approval (Building Services)	392	09-Aug-17 A	04-Sep-18	09-Aug-17	04-May-18	0	-123	
EM3325	Manufacturing & Logistic (Building Services)	112	04-Sep-18	25-Dec-18	04-May-18	24-Aug-18	-123	-123	
Re-use Water Building (RW)		399	19-Nov-17 A	22-Dec-18	19-Nov-17	09-Dec-18	0	-14	
EM3200	Manufacturing & Logistic (Major Equipment)	154	28-Jun-18 A	29-Nov-18	28-Jun-18	14-Nov-18	0	-14	
EM4135	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	290	19-Nov-17 A	04-Sep-18	19-Nov-17	06-Aug-18	0	-30	
EM4145	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	05-Sep-18	10-Oct-18	06-Aug-18	10-Sep-18	-31	-31	
EM4155	CMS Preparation, Submission & Approval (Electrical)	288	19-Nov-17 A	02-Sep-18	19-Nov-17	04-Jun-18	0	-91	
EM4165	Manufacturing & Logistic (Electrical)	98	03-Sep-18	10-Dec-18	04-Jun-18	10-Sep-18	-92	-92	
EM4175	CMS Preparation, Submission & Approval (Building Services)	287	19-Nov-17 A	01-Sep-18	19-Nov-17	19-Aug-18	0	-14	
EM4185	Manufacturing & Logistic (Building Services)	112	01-Sep-18	22-Dec-18	19-Aug-18	09-Dec-18	-14	-14	
DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW)		584	24-May-17 A	29-Dec-18	24-May-17	14-Dec-18	0	-15	
EM3255	CMS Preparation, Submission & Approval (Major Equipment)	474	24-May-17 A	09-Sep-18	24-May-17	09-May-18	0	-123	
EM3260	Manufacturing & Logistic (Major Equipment)	98	10-Sep-18	16-Dec-18	10-May-18	15-Aug-18	-123	-123	
EM4195	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	334	10-Dec-17 A	09-Nov-18	10-Dec-17	09-Nov-18	0	0	
EM4205	Manufacturing & Logistic (Penstock, Pipe & Valve)	35	09-Nov-18	14-Dec-18	09-Nov-18	14-Dec-18	0	0	
EM4215	CMS Preparation, Submission & Approval (Electrical)	342	30-Sep-17 A	07-Sep-18	30-Sep-17	19-May-18	0	-111	
EM4225	Manufacturing & Logistic (Electrical)	70	11-Sep-18	20-Nov-18	23-May-18	01-Aug-18	-111	-111	
EM4235	CMS Preparation, Submission & Approval (Building Services)	343	30-Sep-17 A	08-Sep-18	30-Sep-17	25-Jul-18	0	-45	
EM4245	Manufacturing & Logistic (Building Services)	112	08-Sep-18	29-Dec-18	25-Jul-18	14-Nov-18	-45	-45	
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)	509	24-Apr-17 A	14-Sep-18	24-Apr-17	16-Sep-18	0	2	
EM3290	Manufacturing & Logistic (Building Services)	98	16-Sep-18	23-Dec-18	16-Sep-18	23-Dec-18	0	0	
Payment Flowmeter Chamber (PF)		780	25-Jan-17 A	16-Mar-19	25-Jan-17	16-Feb-19	0	-27	
EM3205	CMS Preparation, Submission & Approval (Major Equipment)	589	25-Jan-17 A	06-Sep-18	25-Jan-17	10-Jul-18	0	-57	
EM3210	Manufacturing & Logistic (Major Equipment)	185	12-Sep-18	16-Mar-19	17-Jul-18	17-Jan-19	-57	-57	
EM4255	CMS Preparation, Submission & Approval (Penstock, Pipe & Valve)	368	01-Sep-17 A	04-Sep-18	01-Sep-17	04-May-18	0	-123	
EM4265	Manufacturing & Logistic (Penstock, Pipe & Valve)	98	05-Sep-18	12-Dec-18	05-May-18	11-Aug-18	-123	-123	
EM4275	CMS Preparation, Submission & Approval (Electrical)	394	20-Nov-17 A	19-Dec-18	20-Nov-17	18-Dec-18	0	0	
EM4295	CMS Preparation, Submission & Approval (Building Services)	454	20-Nov-17 A	17-Feb-19	20-Nov-17	16-Feb-19	0	0	



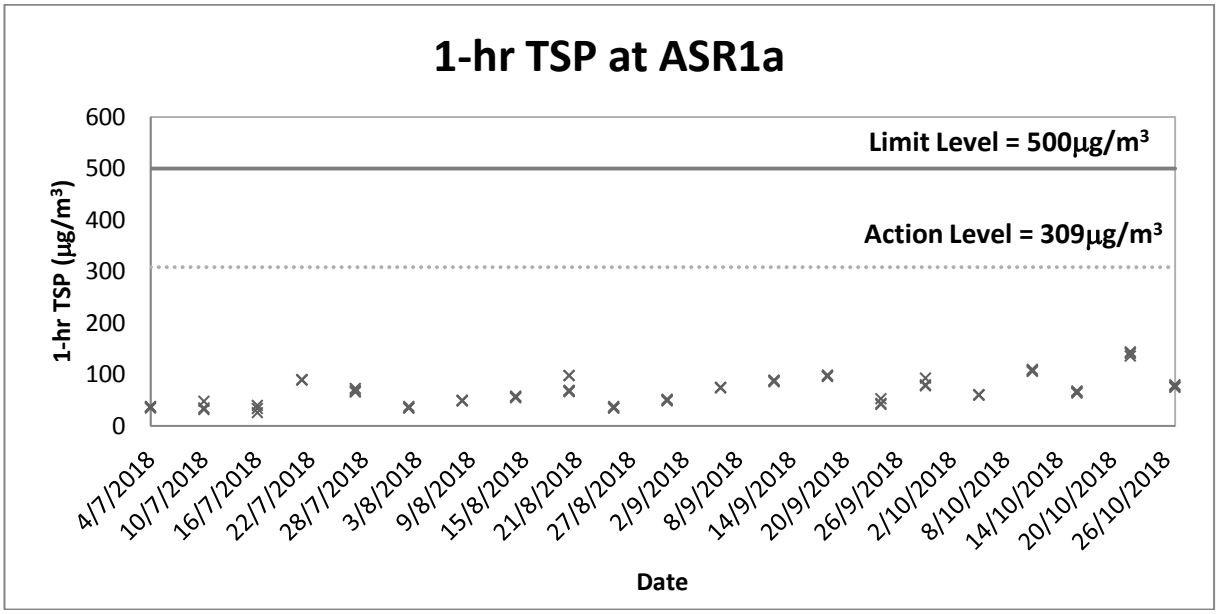
DATA DATE: 31-Aug-18 | LAYOUT: SW Project PHase 1 Rev 9 (3M 31Aug18)1 |

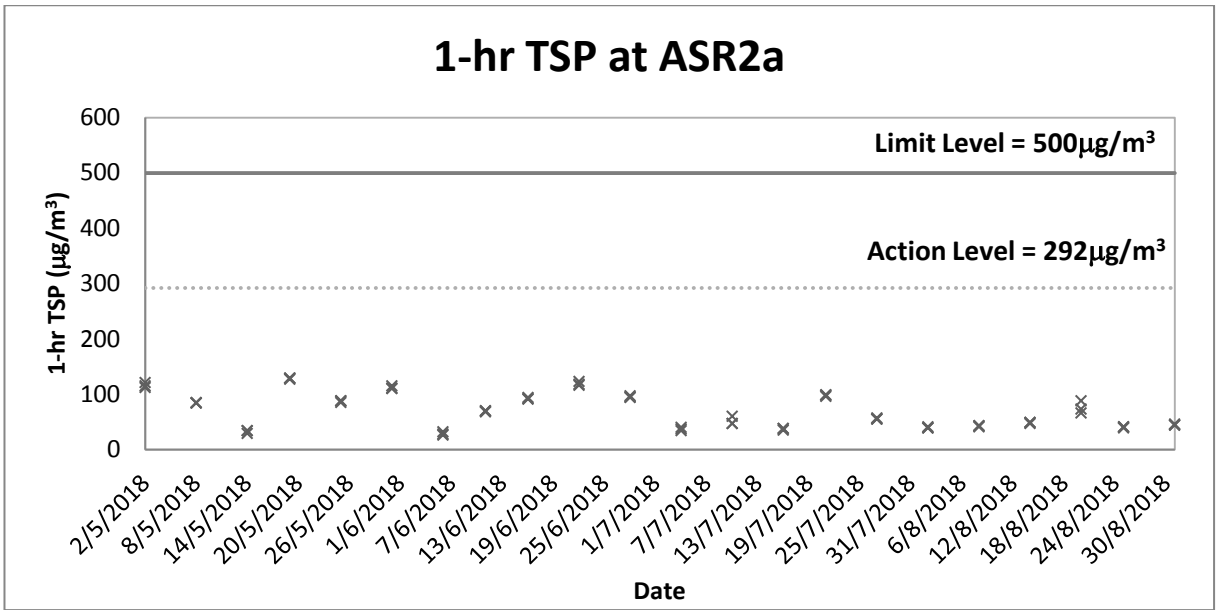
Activity ID	Activity Name	At Completion Duration	Start	Finish	Rev 9 BL Start	Rev 9 BL Finish	Slippage Start Date	Slippage Finish Date	Slippage Finish Date 71 Days EOT
SCADA and CMMS Systems		548	01-Jul-17 A	30-Dec-18	01-Jul-17	29-Aug-18	0	-123	
EM3330	CMS Preparation, Submission & Approval	434	01-Jul-17 A	07-Sep-18	01-Jul-17	07-May-18	0	-123	
EM3335	Manufacturing & Logistic (SCADA)	112	09-Sep-18	30-Dec-18	09-May-18	29-Aug-18	-123	-123	
EM3345	Manufacturing & Logistic (CMMS)	112	09-Sep-18	30-Dec-18	09-May-18	29-Aug-18	-123	-123	
Cast - In Items		704	01-Feb-17 A	05-Jan-19	01-Feb-17	17-Dec-18	0	-19	
EM3520	CMS Preparation, Submission & Approval	582	01-Feb-17 A	06-Sep-18	01-Feb-17	07-Aug-18	0	-30	
EM3525	Delivery of Cast-in Items for CEPT and SF	339	30-Sep-17 A	03-Sep-18	30-Sep-17	28-Jul-18	0	-37	
EM3530	Delivery of Cast-in Items for PTW and IPS	336	30-Sep-17 A	31-Aug-18	30-Sep-17	18-Jun-18	0	-75	
EM3535	Delivery of Cast-in Items for SHB	48	01-Oct-18	17-Nov-18	01-Oct-18	17-Nov-18	0	0	
EM3540	Delivery of Cast-in Items for UV	125	30-Apr-18 A	02-Sep-18	30-Apr-18	16-Jun-18	0	-77	
EM3545	Delivery of Cast-in Items for SDB	190	26-Feb-18 A	04-Sep-18	26-Feb-18	09-Jun-18	0	-86	
EM3555	Delivery of Cast-in Items for Admin. Building	105	23-May-18 A	04-Sep-18	23-May-18	10-Jul-18	0	-57	
EM3560	Delivery of Cast-in Items for DO No. 1	48	07-Oct-18	23-Nov-18	07-Oct-18	23-Nov-18	0	0	
EM3565	Delivery of Cast-in Items for DO No. 2	48	31-Aug-18	17-Oct-18	27-Aug-18	14-Oct-18	-4	-4	
EM3570	Delivery of Cast-in Items for CB	48	09-Sep-18	27-Oct-18	09-Sep-18	26-Oct-18	0	0	
EM3575	Delivery of Cast-in Items for FH	48	22-Sep-18	08-Nov-18	23-Aug-18	09-Oct-18	-30	-30	
EM3585	Delivery of Cast-in Items for EB1	48	31-Oct-18	17-Dec-18	31-Oct-18	17-Dec-18	0	0	
EM3590	Delivery of Cast-in Items for EB2	48	19-Nov-18	05-Jan-19	20-Oct-18	06-Dec-18	-30	-30	
EM3595	Delivery of Cast-in Items for EB3	48	19-Nov-18	05-Jan-19	20-Oct-18	06-Dec-18	-30	-30	
EM3600	Delivery of Cast-in Items for EB4	48	30-Sep-18	16-Nov-18	01-Sep-18	18-Oct-18	-29	-29	
EM3605	Delivery of Cast-in Items for RW	48	03-Oct-18	19-Nov-18	03-Sep-18	20-Oct-18	-30	-30	
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-Sep-18	30-Oct-18	13-Aug-18	30-Sep-18	-30	-30	
Installation		223	31-Aug-18	11-Apr-19	27-Aug-18	12-Mar-19	-3	-29	
Administration Building & Maintenance Workshop (AB & WS)		223	31-Aug-18	11-Apr-19	27-Aug-18	12-Mar-19	-3	-29	
EM1100	SCADA System	180	31-Aug-18	26-Feb-19	29-Aug-18	25-Feb-19	-2	-2	
EM1105	Plant Installation (WS)	180	25-Sep-18	24-Mar-19	27-Aug-18	23-Feb-19	-29	-29	
EM1110	ELV System	180	13-Oct-18	11-Apr-19	14-Sep-18	12-Mar-19	-29	-29	
EM1120	BS - MVAC Installation	180	13-Oct-18	11-Apr-19	14-Sep-18	12-Mar-19	-29	-29	
Testing & Commissioning		200	03-Jun-18 A	19-Dec-18	03-Jun-18	10-Dec-18	1	-10	
TC030	Operation Plan - Preparation for Submission	121	03-Jun-18 A	01-Oct-18	03-Jun-18	01-Oct-18	1	0	
TC035	Operation Plan - Submission to SO for Review and Approval	70	11-Oct-18	19-Dec-18	01-Oct-18	10-Dec-18	-10	-10	
TC040	Asset Management Plan - Preparation for Submission	121	03-Jun-18 A	01-Oct-18	03-Jun-18	01-Oct-18	1	0	
TC045	Asset Management Plan - Submission to SO for Review and Approval	70	01-Oct-18	10-Dec-18	01-Oct-18	10-Dec-18	0	0	

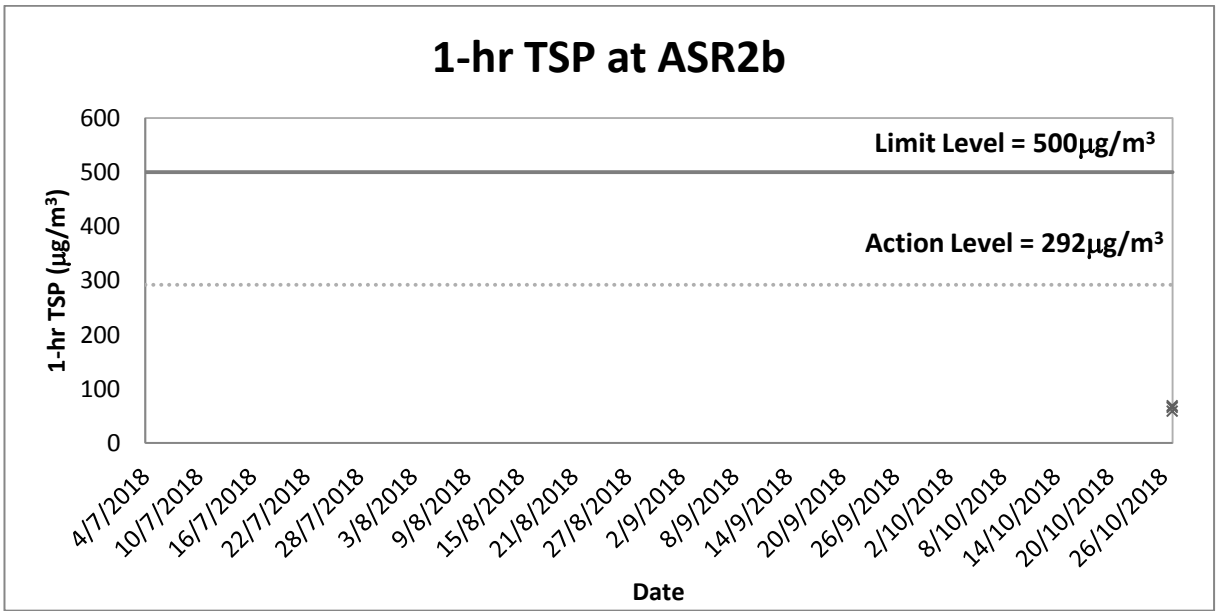


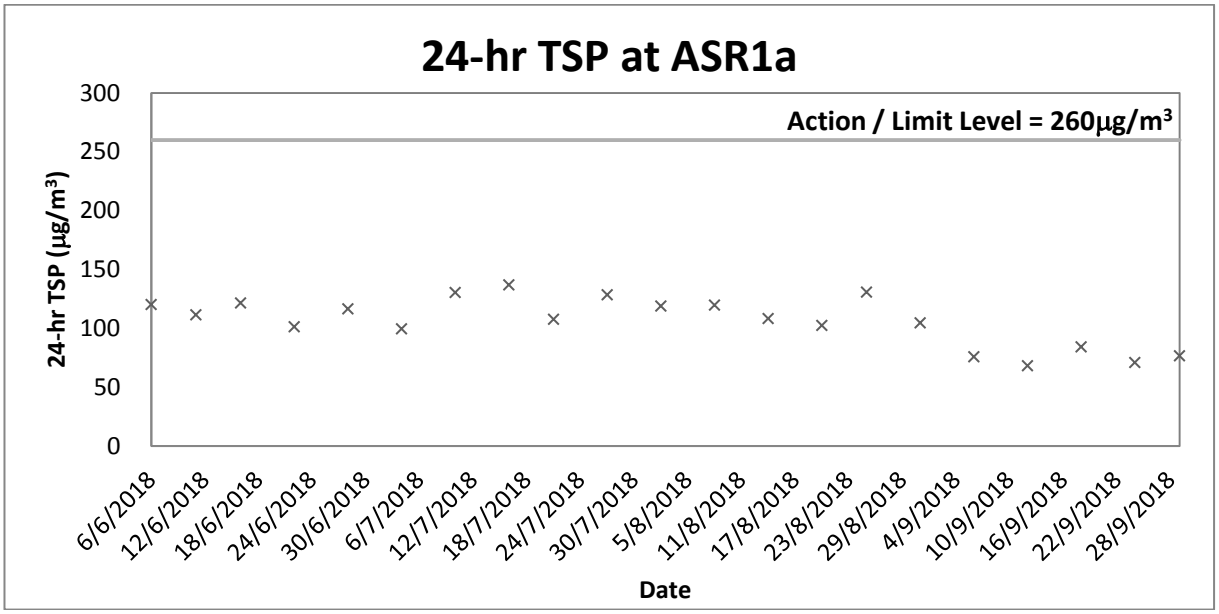
Appendix D

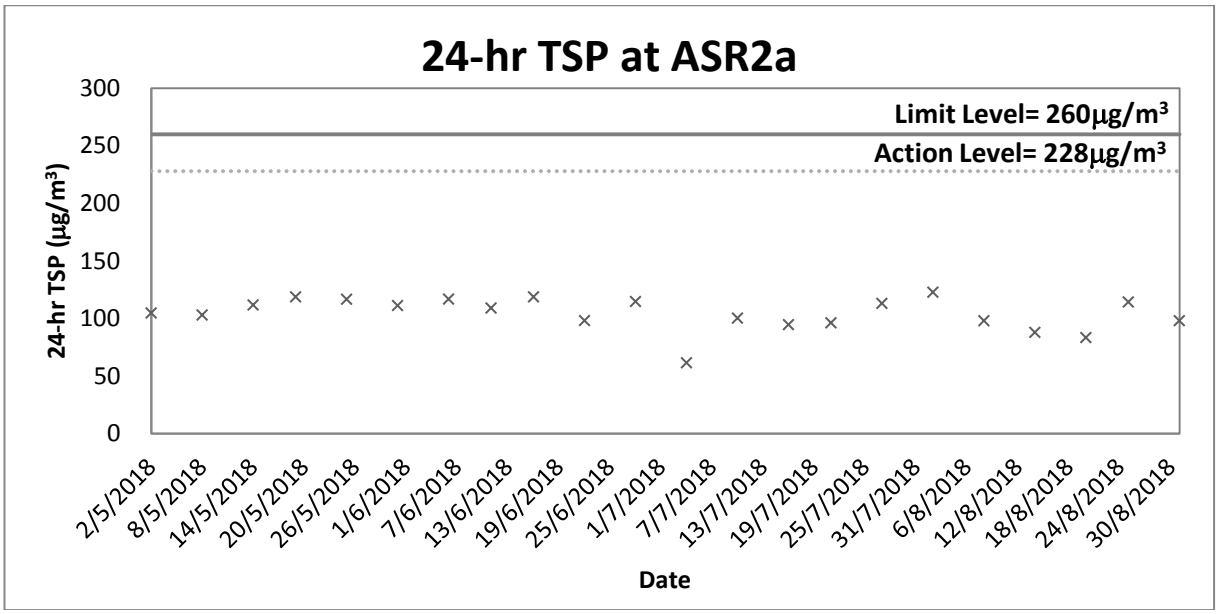
Graphical Plots of Impact Air Quality Monitoring Results

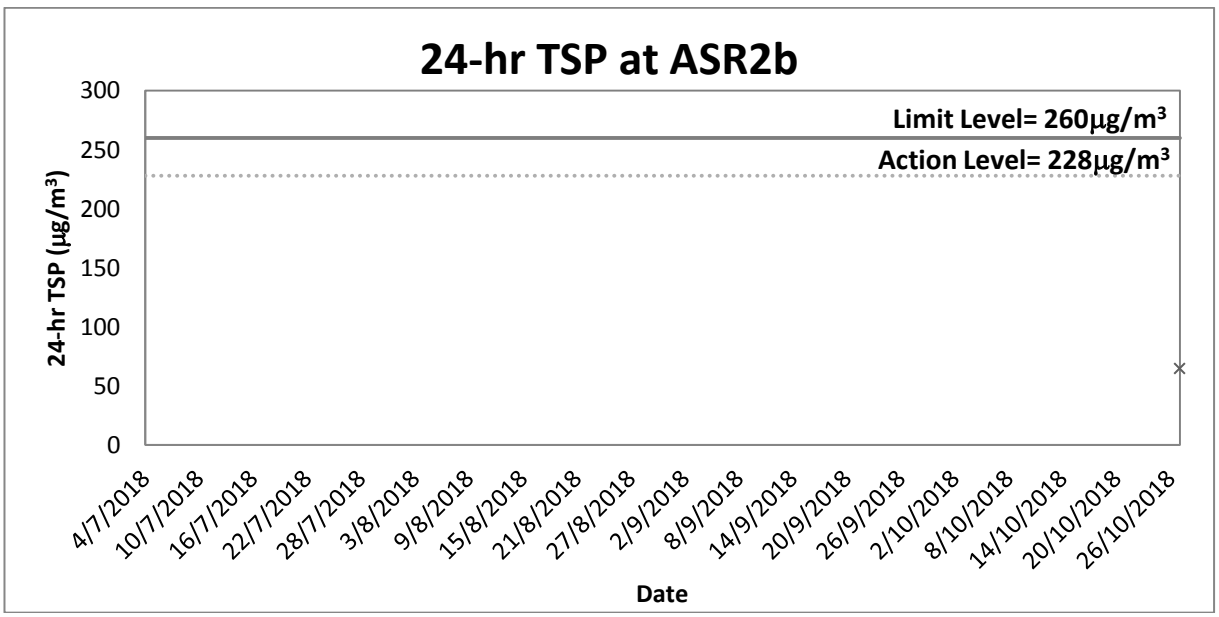

1-hr TSP at ASR1a
Limit Level = 500μg/m³
Action Level = 309μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
4/7/2018
10/7/2018
16/7/2018
22/7/2018
28/7/2018
3/8/2018
9/8/2018
15/8/2018
21/8/2018
27/8/2018
2/9/2018
8/9/2018
14/9/2018
20/9/2018
26/9/2018
2/10/2018
8/10/2018
14/10/2018
20/10/2018
26/10/2018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


1-hr TSP at ASR2a
Limit Level = 500μg/m³
Action Level = 292μg/m³
1-hr TSP (μg/m³)
600
500
400
300
200
100
0
2/5/2018
8/5/2018
14/5/2018
20/5/2018
26/5/2018
1/6/2018
7/6/2018
13/6/2018
19/6/2018
25/6/2018
1/7/2018
7/7/2018
13/7/2018
19/7/2018
25/7/2018
31/7/2018
6/8/2018
12/8/2018
18/8/2018
24/8/2018
30/8/2018
Date


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

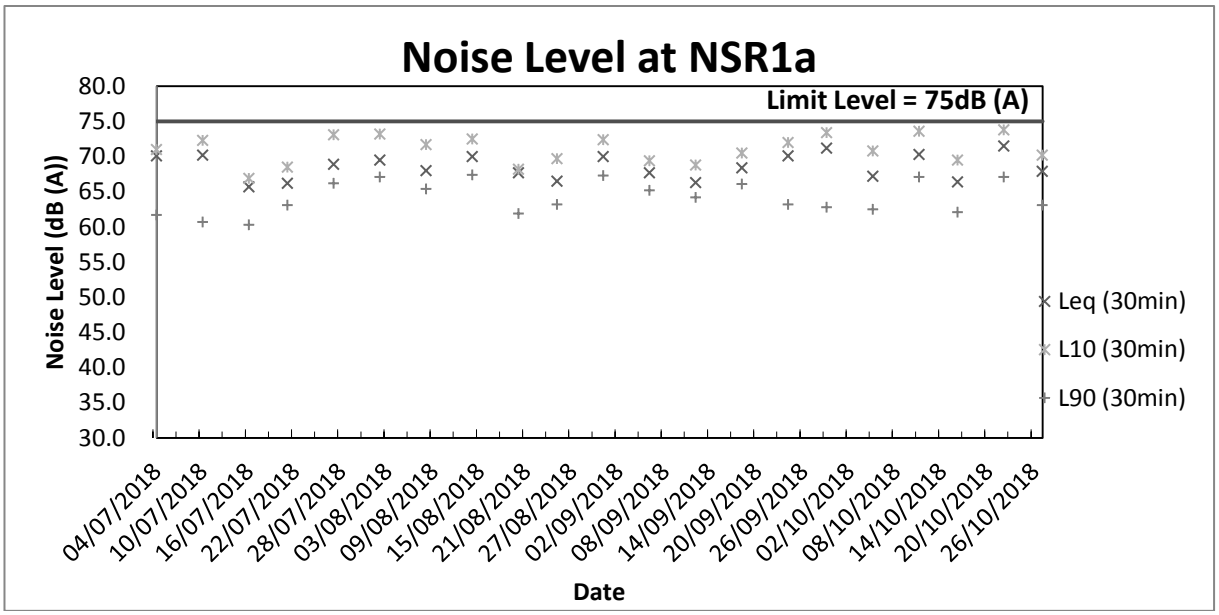

24-hr TSP at ASR1a
Action / Limit Level = 260μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
6/6/2018
12/6/2018
18/6/2018
24/6/2018
30/6/2018
6/7/2018
12/7/2018
18/7/2018
24/7/2018
30/7/2018
5/8/2018
11/8/2018
17/8/2018
23/8/2018
29/8/2018
4/9/2018
10/9/2018
16/9/2018
22/9/2018
28/9/2018
Date

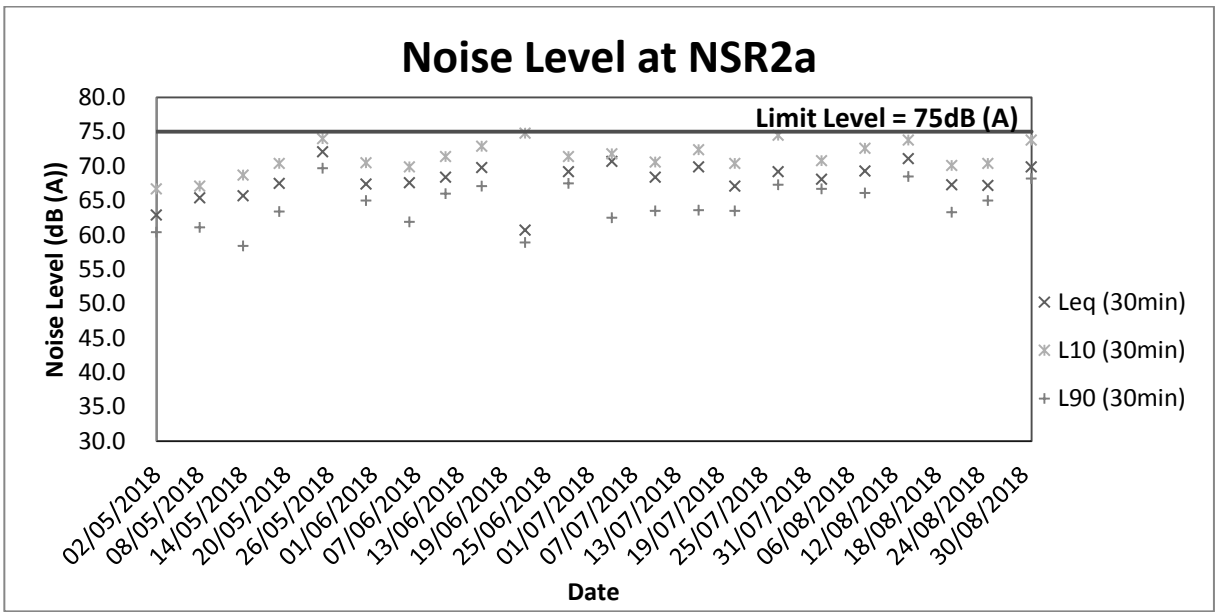

24-hr TSP at ASR2a
Limit Level= 260μg/m³
Action Level= 228μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
2/5/2018
8/5/2018
14/5/2018
20/5/2018
26/5/2018
1/6/2018
7/6/2018
13/6/2018
19/6/2018
25/6/2018
1/7/2018
7/7/2018
13/7/2018
19/7/2018
25/7/2018
31/7/2018
6/8/2018
12/8/2018
18/8/2018
24/8/2018
30/8/2018
Date

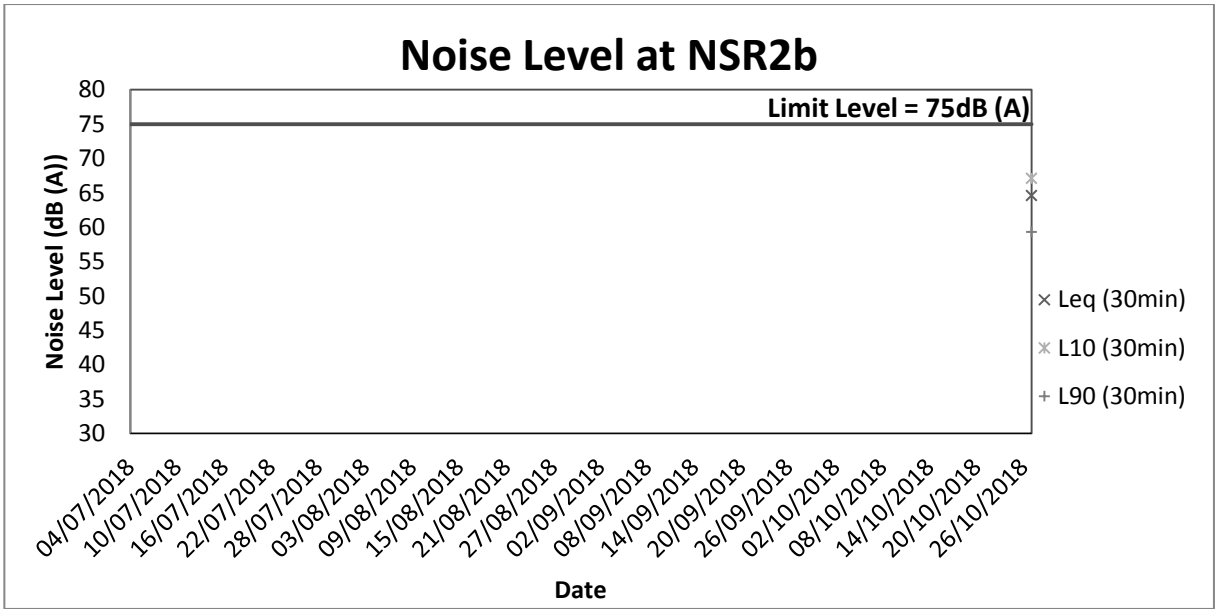

24-hr TSP at ASR2b
Limit Level= 260μg/m³
Action Level= 228μg/m³
24-hr TSP (μg/m³)
300
250
200
150
100
50
0
4/7/2018
10/7/2018
16/7/2018
22/7/2018
28/7/2018
3/8/2018
9/8/2018
15/8/2018
21/8/2018
27/8/2018
2/9/2018
8/9/2018
14/9/2018
20/9/2018
26/9/2018
2/10/2018
8/10/2018
14/10/2018
20/10/2018
26/10/2018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

Appendix E

Graphical Plots of Impact Noise Monitoring Data

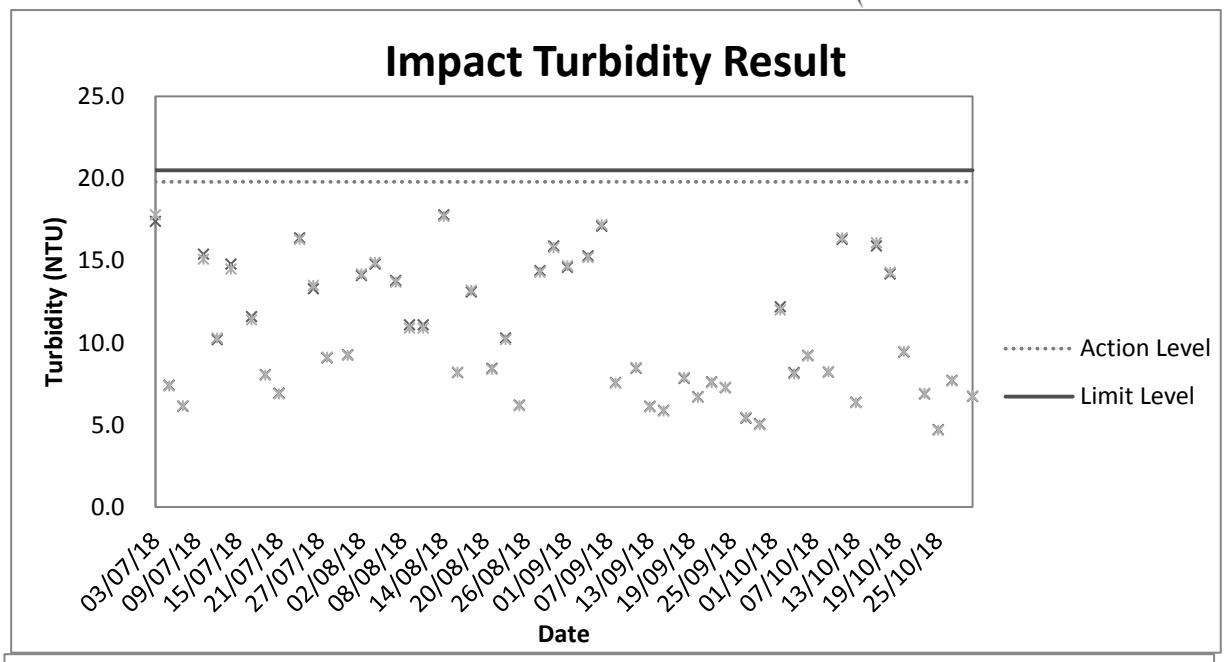

Noise Level at NSR1a
Limit Level = 75dB (A)
Noise Level (dB (A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
Leq (30min)
L10 (30min)
L90 (30min)
04/07/2018
10/07/2018
16/07/2018
22/07/2018
28/07/2018
03/08/2018
09/08/2018
15/08/2018
21/08/2018
27/08/2018
02/09/2018
08/09/2018
14/09/2018
20/09/2018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

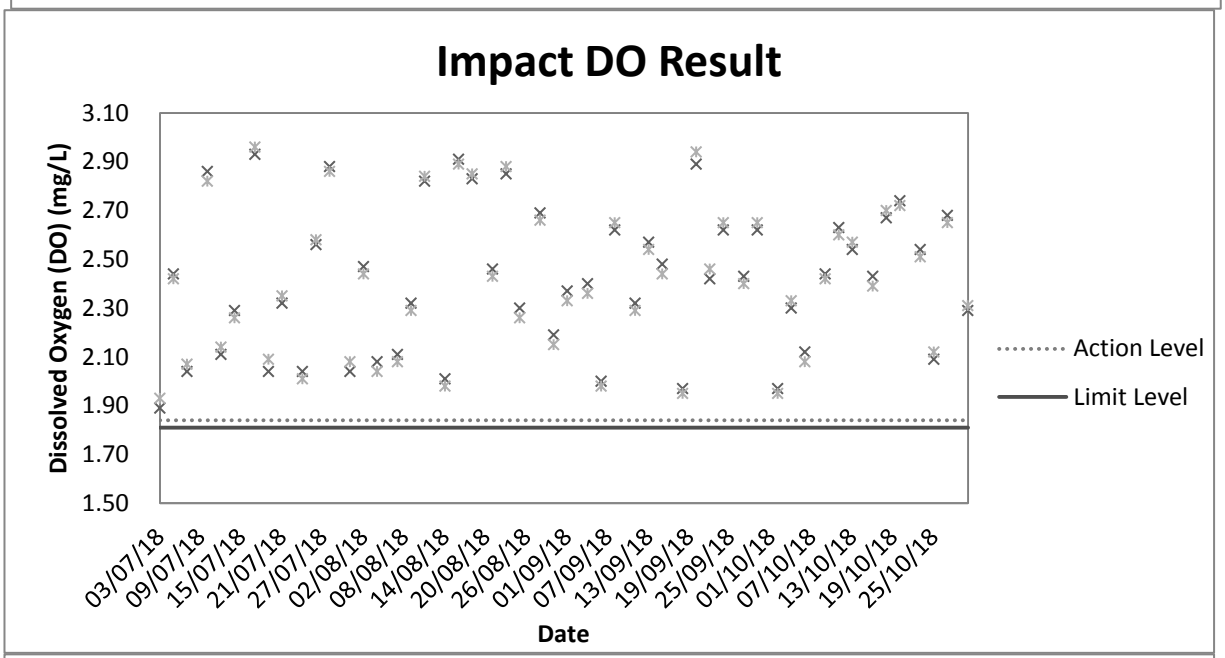

Noise Level at NSR2a
Limit Level = 75dB (A)
Noise Level (dB (A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
Leq (30min)
L10 (30min)
L90 (30min)
02/05/2018
08/05/2018
14/05/2018
20/05/2018
26/05/2018
01/06/2018
07/06/2018
13/06/2018
19/06/2018
25/06/2018
01/07/2018
07/07/2018
13/07/2018
19/07/2018
25/07/2018
31/07/2018
06/08/2018
12/08/2018
18/08/2018
24/08/2018
30/08/2018
Date

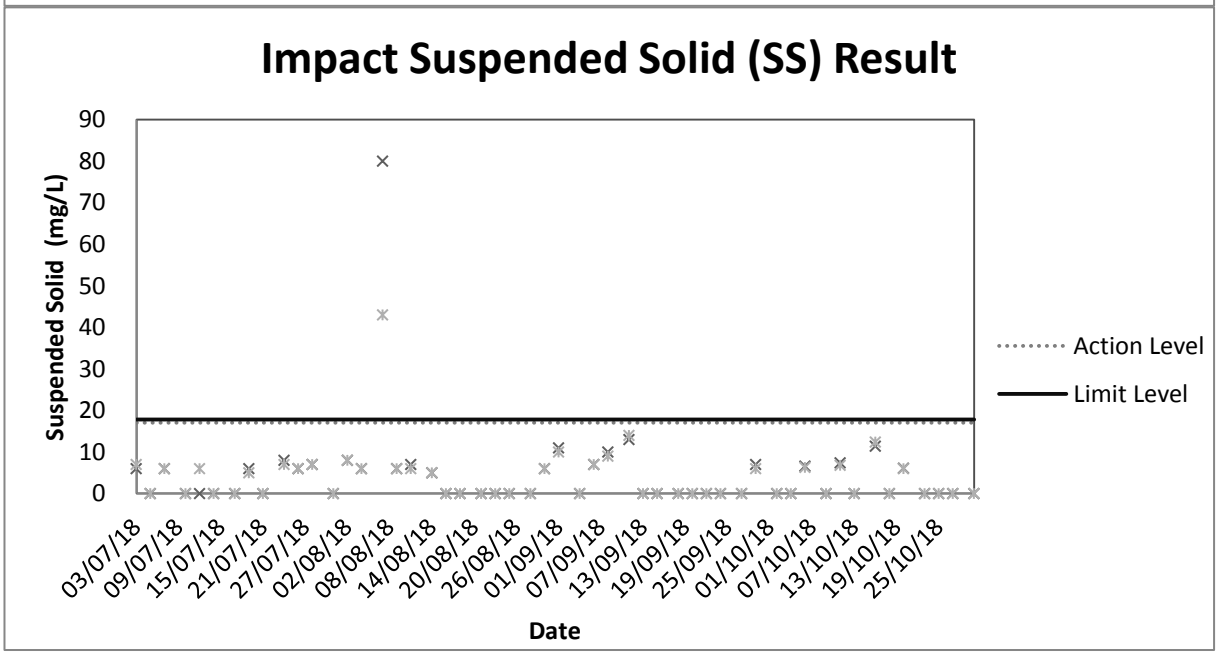

Noise Level at NSR2b
Limit Level = 75dB (A)
Noise Level (dB (A))
80
75
70
65
60
55
50
45
40
35
30
Leq (30min)
L10 (30min)
L90 (30min)
04/07/2018
10/07/2018
16/07/2018
22/07/2018
28/07/2018
03/08/2018
09/08/2018
15/08/2018
21/08/2018
27/08/2018
02/09/2018
08/09/2018
14/09/2018
20/09/2018
26/09/2018
02/10/2018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

Appendix F

Graphical Plots of Impact Water Quality Monitoring Data


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


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


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

Appendix G

Event and Action Plan

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

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

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

Event and Action Plan for Construction Noise

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

	effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.		portion of work until the exceedance is abated.	is abated.

Event and Action Plan for Water Quality

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

Event	Action			
	ET Leader	IEC	ER	Contractor
	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.	and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	3. Assess the effectiveness of the implemented mitigation measures.	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; 3. Inform IEC, Contract or 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	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.

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

Appendix H

Implementation Schedule for Environmental Mitigation Measures (EMIS)

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

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

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

Weather Condition

Daily Extract of Meteorological Observations, August 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	1004.3	33.7	29.7	26.0	25.5	79	10.0	160	4.8
02	1003.5	33.3	30.1	27.0	25.2	76	0.0	200	6.3
03	1003.1	32.6	29.4	26.8	25.5	81	7.0	190	4.8
04	1004.4	33.6	29.3	26.6	25.8	83	9.5	160	5.3
05	1005.6	33.3	29.6	26.6	26.0	82	0.0	150	4.3
06	1005.2	33.9	29.2	26.7	26.0	84	0.5	170	3.9
07	1004.3	34.7	28.6	26.5	25.8	86	0.0	060	2.8
08	1004.1	34.1	29.4	24.5	25.2	79	17.5	100	6.5
09	1003.2	33.7	29.8	26.9	24.7	75	0.0	090	10.8
10	1001.4	31.6	27.3	25.3	25.7	91	52.5	080	6.8
11	998.6	27.8#	26.5	24.6#	25.5	94	64.5	090	6.3
12	996.4	28.3	26.5	25.4	25.4	94	72.0	090	4.6
13	996.1	33.7	28.9	25.9	25.5	83	0.0	090	8.0
14	996.2	31.7	27.5	26.1	25.9	91	21.0	070	7.5
15	998.9	30.8	27.6	25.8	25.6	90	5.0	090	4.9
16	999.9	30.8	27.3	25.9	25.9	92	2.5	070	4.3
17	1000.1	30.2	26.9	24.9	25.2	91	9.0	170	4.8
18	1001.2	32.9	28.2	25.6	25.5	86	34.0	160	4.3
19	1002.4	32.4#	28.2	26.0#	25.2	85	0.0	310	3.6
20	1002.1	32.4	27.9	24.6	26.1	91	75.5	180	3.5
21	1000.0	33.3#	27.8	24.8#	26.1	91	18.0	170	3.8
22	1000.0	33.0	28.2	24.1	25.2	85	24.0	190	4.3
23	1001.6	32.0	27.9	24.2	25.1	86	17.0	170	4.3
24	1001.5	33.6	29.1	24.8	26.0	84	0.5	300	2.8
25	999.7	34.8#	31.0	27.4#	24.3	69	0.0	330	4.3
26	999.3	33.3	28.9	26.2	24.9	80	5.0	170	3.9
27	1001.1	30.0	26.7	24.8	25.0	90	31.0	160	4.6
28	1001.9	31.2#	26.2	24.7#	24.9	93	32.0	160	3.8
29	1002.4	28.6	26.0	24.4	25.1	95	96.0	340	4.1
30	1005.2	27.5	26.6	25.5	25.8	95	31.0	160	4.6
31	1009.1	29.9	26.8	25.5	25.7	94	19.5	160	4.9

 # data incomplete

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

Daily Extract of Meteorological Observations, September 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	1009.7	28.5	25.9	24.5	25.0	95	25.0	150	3.5
02	1007.7	30.9	26.4	24.4	24.7	91	19.5	170	4.0
03	1006.7	31.8	27.4	24.4	24.8	86	1.5	170	3.5
04	1005.4	33.7#	29.1	25.3#	25.1	81	0.0	160	4.4
05	1004.6	34.5	29.2	26.2	25.8	83	0.0	310	3.9
06	1005.2	32.3	28.4	25.8	26.0	87	26.5	060	4.3
07	1006.2	32.8	28.3	25.8	25.9	88	0.5	070	2.7
08	1008.7	30.7	27.0	25.5	23.4	81	0.5	340	4.6
09	1011.4	31.8	27.2	24.7	22.0	74	0.0	030	5.8
10	1012.4	30.6	25.7	23.7	23.3	87	0.5	090	3.0
11	1009.4	33.0	27.1	22.7	21.9	76	0.0	330	2.5
12	1007.8	31.2	27.4	25.3	22.7	76	0.0	090	9.8
13	1009.3	31.9	27.6	25.7	24.3	83	3.5	070	8.9
14	1009.0	33.8#	28.7	24.7#	24.6	80	0.0	160	4.8
15	1003.0	35.5	30.5	24.6	23.6	69	0.0	010	5.9
16	991.5	31.6	26.4	23.9	22.9	83	209.5	010	32.1
17	1008.2	31.5	27.8	25.5	24.3	82	15.5	140	17.5
18	1013.4	33.2	28.1	25.1	24.6	82	1.0	070	7.8
19	1012.6	32.5	28.3	24.0	23.8	78	0.0	170	3.9
20	1010.8	32.3	28.8	25.4	24.4	78	0.0	170	6.1
21	1011.4	32.9	28.9	25.3	23.6	74	0.0	170	5.4
22	1013.1	34.2	28.3	24.6	24.6	81	0.0	170	4.4
23	1013.0	32.8	27.7	25.3	25.1	86	1.0	170	2.5
24	1010.9	31.0	26.5	24.8	24.7	90	8.5	080	4.0
25	1009.7	32.5	26.9	24.2	22.9	80	1.0	170	5.4
26	1009.4	31.2	26.7	23.4	23.2	82	0.0	160	5.1
27	1009.6	32.0	26.9	24.2	23.3	81	0.0	180	4.7
28	1010.1	32.0#	27.0	24.0#	20.7	70	0.0	340	5.6
29	1009.1	32.1	26.9	22.1	19.0	63	0.0	350	5.2
30	1010.6	32.0	27.2	23.1	18.2	59	0.0	030	5.8

 # data incomplete

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

Daily Extract of Meteorological Observations, October 2018 – Wetland Park

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

 # data incomplete

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

Appendix J

Waste Flow Table

Name of Department: DSD

Year: 2018

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

Contract No.: DC/2013/10

Waste Flow Table

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

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

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

(3) Broken concrete for recycling into aggregates.

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

Appendix K

Investigation Reports on Action Level or Limit Level Non-compliance

Report No. **002**
Monitoring Date **07 August 2018**

The Action and Limit Levels of suspended solids (SS) determined from baseline monitoring data are reproduced below:

Monitoring Parameter	Action Level (AL)	Limit Level (LL)
Suspended Solid (mg/L)	17.0	17.8

Suspended Solid (in mg/L)

Monitoring Station	Monitoring Duration	Result			Level Exceedance
		Trial 1	Trial 2	Average	
R1b	15:18 to 15:28	80	43	62	Limit

Investigation Results:

a) Causes of exceedances

Exceedance was not due to construction works under Contract No. DC/2013/10 because:

- The surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. The effluent was thus brought into an acceptable minimum level and also complied with the requirements specified in the discharge license before discharge.
- Besides, effluent water sample was scheduled to be collected on 07 August 2018 at P8. As per the discharge license requirement, the results complied with the discharge license requirement. The effluent quality report was shown in **Appendix A**. Thus, the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b.
- Thus, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related.

b) Action required under the action plan

Refer to Table 4.4 of the EM&A Manual.

c) Action taken under the action plan

1. Not applicable as suspended solids was not measured in-situ;
2. After considered the above mentioned investigation results, it appears that it was unlikely that the suspended solids exceedance was attributed to the work site of this Contract;

3. The exceedance was informed to IEC, Contractors and EPD;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Mitigation measures and recommendations were provided in item d).
6. The water quality monitoring results of 09 August 2018 was shown below:

Test Parameters	Trial 1	Trial 2	Average	Action Level	Limit Level
Turbidity (NTU)	11.1	10.9	11.0	19.8	20.5
Dissolved Oxygen (mg/L)	2.32	2.29	2.31	1.84	1.81
Suspended Solid (mg/L)	6	6	6	17.0	17.8

The results of suspended solid of the water samples collected on 09 August 2018 were under the action limit.

d) ET's conclusions and recommendations for mitigation

- All relevant water quality mitigation measures were checked to be fully implemented including provision of site drainage systems and treatment facilities, maintaining the existing silt trap to ensure good efficiency of wheel wash facilities, transferring the runoffs and wastewater to the Wetsep for removal of the suspended solids and other pollutants in order to ensure the treated effluent complied with the requirements specified in the discharge license.

- The Contractor was reminded to ensure all construction activities that generate wastewater with high concentrations of suspended solids (SS) should be collected to sedimentation tanks or package treatment systems for proper treatment prior to discharge.

e) Contractor's actions to implement the mitigation

- All construction activities that generate wastewater with high concentrations of suspended solids (SS) like wheel washing etc. was collected to sedimentation tanks or package treatment systems for proper treatment prior to discharge.
- All silt removal facilities, channels and manholes was maintained and any deposited silt and grit was removed regularly.

Prepared by: _____
LO, Ting Yi

Certified by: _____
LAU, Chi Leung
Environmental Team Leader

Appendix A

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
HOKLAS 022 TEST CAL

TEST REPORT

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

Testing of Water and Wastewater

Report No. : ENA85832
Date of Issue : 14 August 2018

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 07 August 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 07 August 2018
Date of Testing Period : 07 to 08 August 2018
Lab Ref. No. : W41918

Result

Sample ID	Sample No.	Test	Method Used	Result	Unit
P8	01	pH	In house method TPE/003/W	8.1	(at 25°C)
		Total Suspended Solids	In house method TPE/006/W	<5*	mg/L
	02	Chemical Oxygen Demand	In house method TPE/002/W	<10	mgO_2/L

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

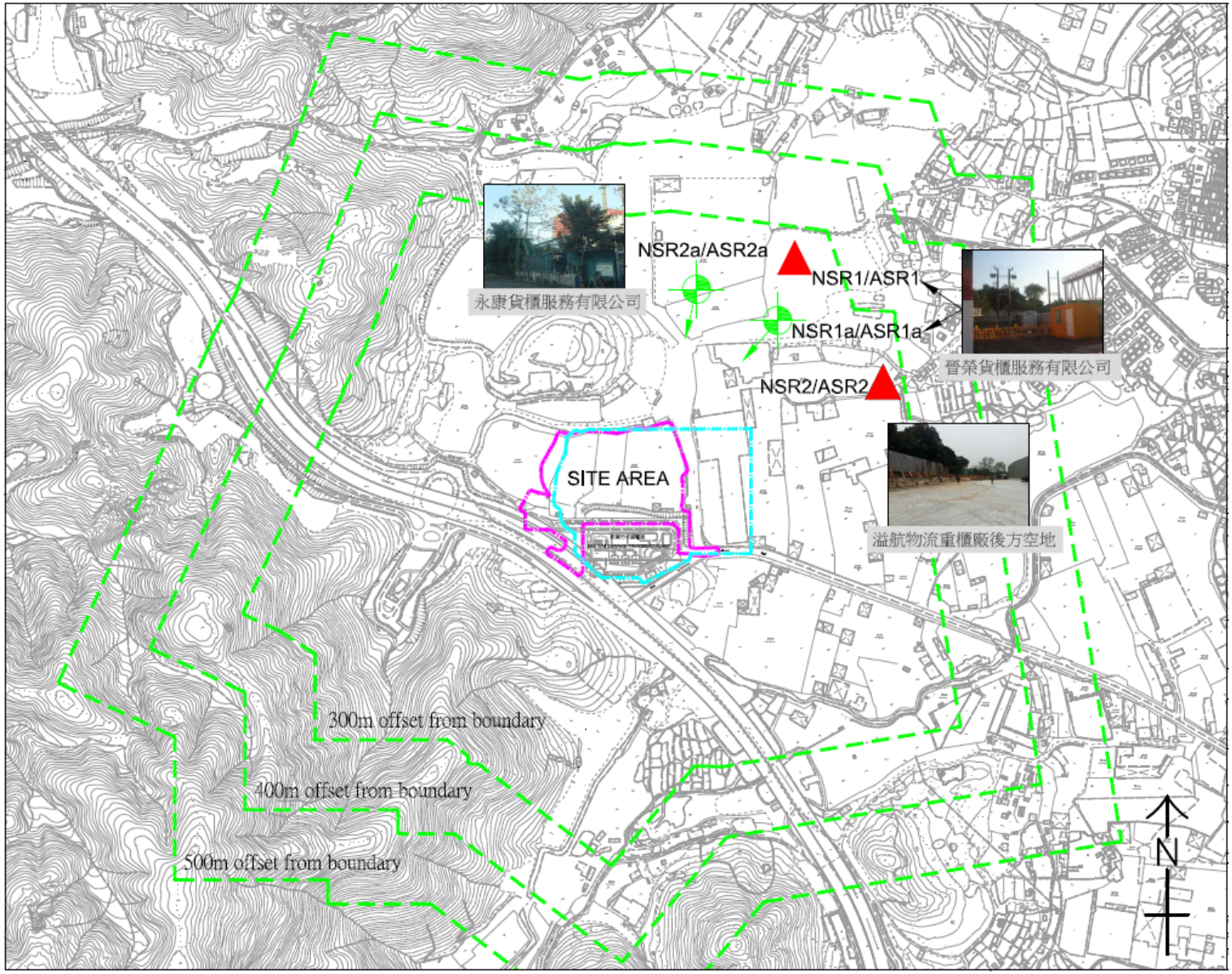
Approved Signatory :
LAU, Chi Leung

TPE/001/W

- END OF REPORT -

Figure 1.1

Locations of Air Quality and Noise Monitoring Stations

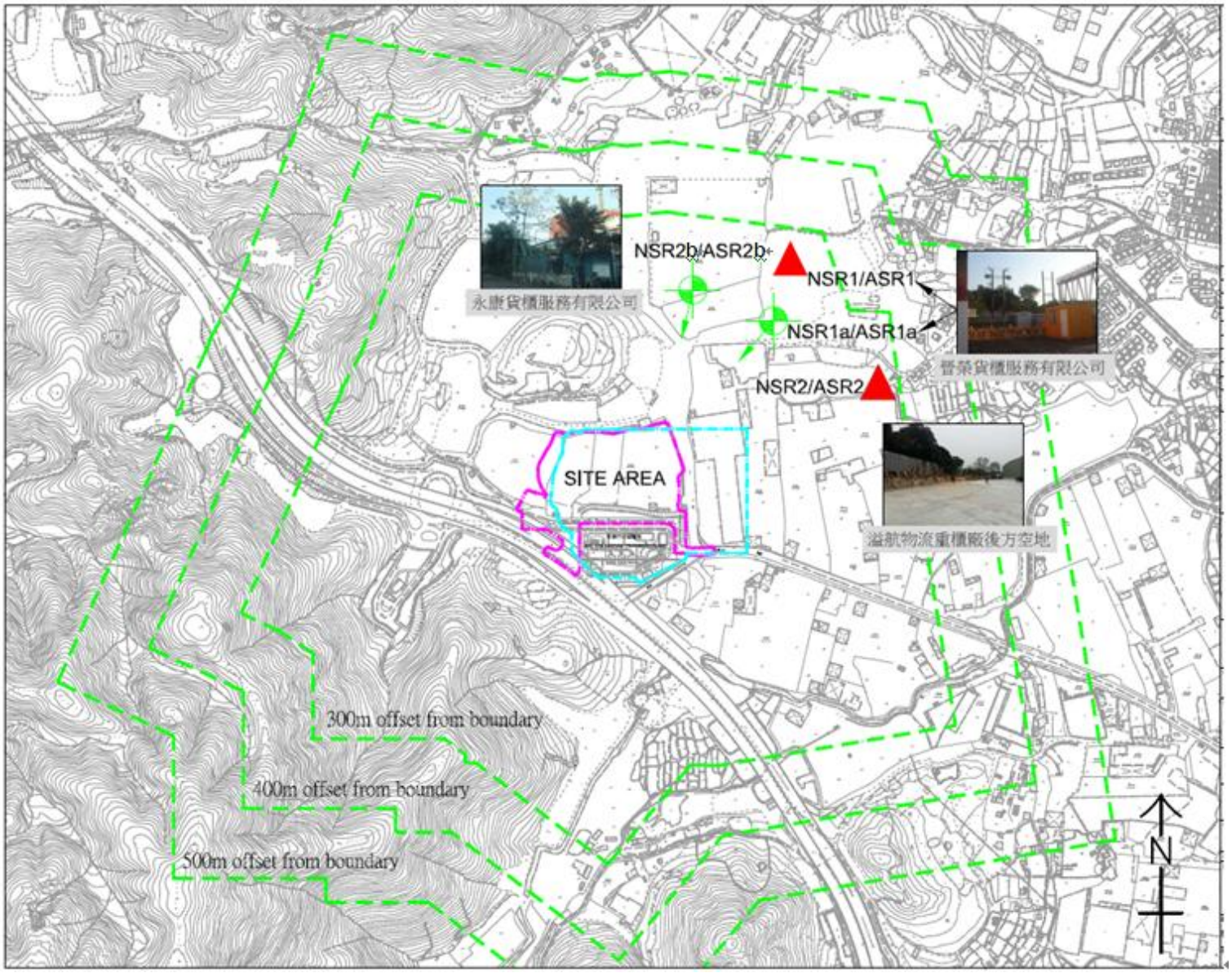


Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 1.1 Locations of Air Quality and Noise Monitoring Stations before 23 October 2018

Figure 1.2

Locations of Air Quality and Noise Monitoring Stations

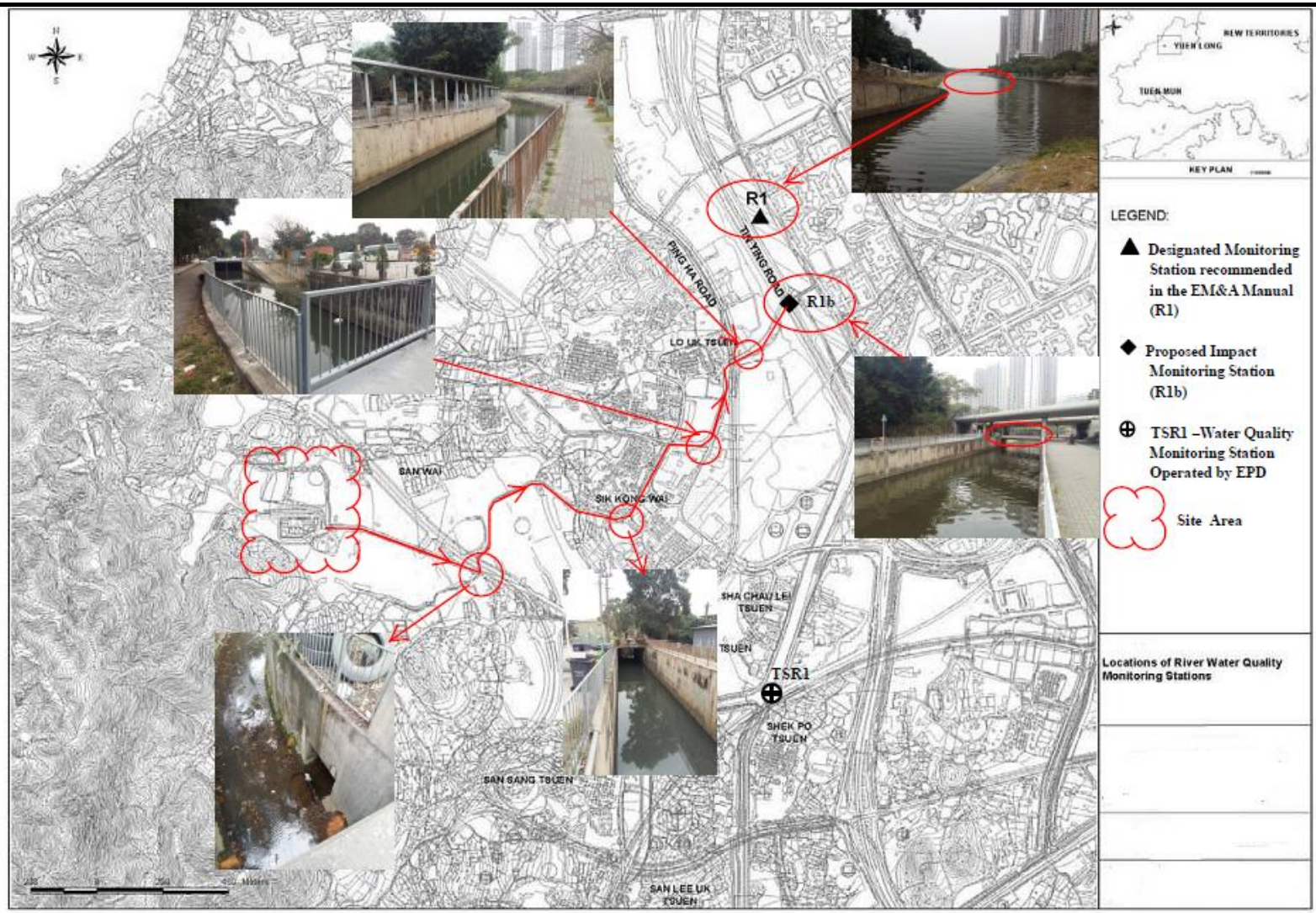


Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 1.2 Locations of Air Quality and Noise Monitoring Stations on or after 23 October 2018

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