

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

Our reference:

HKDSD201/50/105609

Date:

13 March 2019

#### BY HAND

Dear Sirs

Agreement No. SP 01/2015 Environmental Monitoring and Audit for Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A Monthly EM&A Report for February 2019

On behalf of Drainage Services Department, we are pleased to submit herewith three hard copies and two electronic copies of the captioned report in accordance with Condition 3.4 of the Further Environmental Permit No. FEP-02-474/2013.

Should you have any queries, please do not hesitate to contact the undersigned or our Ms Hazel Chan on 2618 2831.

Yours faithfully ANEWR CONSULTING LIMITED

Independent Environmental Checker logh

LYMA/CYYH/lhmh

Encl.

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# **Drainage Services Department**

# Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A

# Monthly EM&A Report

(February 2019)

Verified by	:	Mr. Adi Lee
Position	:	Independent Environmental Checker
Date	:	13 March 2019

# **Drainage Services Department**

# Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A

# Monthly EM&A Report

(February 2019)

**Certified by** :

Dr. Priscilla Choy

Environmental Team Leader of Contract No. DE/2014/01

Position

: 13 March 2019

Date

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#### 1. EXECUTIVE SUMMARY

This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 under FEP No. FEP-02/474/2013 in February 2019 (the reporting period).

#### 1.1 Summary of Major Construction Works taken in the Reporting Period

1.1.1 In the reporting period, the major construction works being undertaken by the respective Contractors under the Project are summarized in the below table.

Works Contract	Contract Title	Major Construction Works
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further	<ul> <li>The major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD.</li> <li>Installation of Building Services at MBR Facilities Building</li> <li>Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.</li> <li>Installation of MBR Pre-treatment Screen</li> </ul>
	Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	<ul> <li>Facilities.</li> <li>Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).</li> <li>Installation of pipework in Bioreactor No.1 (BR1).</li> <li>Installation of permeate pipes at G/F, MBR facilities Building.</li> <li>Installation of FRP platforms at B/F, MBR Facilities Building.</li> <li>Installation of pipework in Membrane Filtration Tanks.</li> <li>Installation of chemical dosing system in Chemical Rooms.</li> <li>Electrical installation in Bioreactor No.1 (BR1), Membrane Filtration Tanks and MBR Facilities Building.</li> </ul>

#### **1.2** Environmental Monitoring and Audit Activities

1.2.1 The environmental monitoring activities under the EM&A programme are summarized in the below table. No Action and Limit Level exceedance of air quality and construction noise monitoring was recorded during the reporting period.

Environmental Issue	8		Action Level Exceedance	Limit Level Exceedance
Air Quality	1-hour TSP	36	0	0
All Quality	24-hour TSP	10	0	0
Construction Noise	LAeq(30min) Daytime	8	0	0

#### **1.3** Environmental Complaint

1.3.1 No environmental complaint, notification of summons or successful prosecutions were received during the reporting period. It is summarized in the below table.

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions	Status / Follow-up Actions
DC/2013/09	0	0	0	N/A
DE/2014/01	0	0	0	N/A

#### 1.4 Site Inspection

1.4.1 Joint site inspections to evaluate the site environmental performance by the RE, the ET and the Contractor were carried out on the following dates during the reporting period.

Contract No. DC/2013/09: No site inspection was carried out in the reporting period Contract No. DE/2014/01: 8, 13, 21 and 27 February 2019

1.4.2 IEC conducted site audit on 21 February 2019. No environmental non-compliance was identified in the reporting period.

#### **1.5** Reporting Changes

1.5.1 The EM&A Programme of Contract No. DC/2013/09 was handed over to the ET of Contract No. DE/2014/01 since August 2018. Thus, the Monthly EM&A Report starting from September 2018 onwards will present the EM&A works undertaken by the ET of Contract No. DE/2014/01.

### 1.6 Future Key Issues

## 1.6.1 Key issues to be considered in the next reporting period for the Project are as follow:

Works Contract	Major Construction Works	Potential Pollution Issues	Mitigation Measures
DC/2013/09	The construction works have been certified as substantially completed by DSD.	N/A	N/A
DE/2014/01	<ul> <li>Installation of Building Services at MBR Facilities Building.</li> <li>Installation of associated accessories for air blowers at 1/F, MBR Facilities Building.</li> <li>Installation of MBR pretreatment screen facilities.</li> <li>Installation of pipework &amp; diffusers in Bioreactor No.1 (BR1).</li> <li>Installation of pipework and FRP platforms at G/F, MBR Facilities Building.</li> <li>Installation of pipework and FRP covers in Membrane Filtration Tanks.</li> <li>Installation of chemical dosing system in Chemical Rooms.</li> <li>Electrical installation in Bioreactor No.1 (BR1), Membrane Filtration Tanks and MBR Facilities Building.</li> </ul>	<ul> <li>Leakage from chemicals containers</li> <li>Waste accumulation on site</li> </ul>	<ul> <li>Waste should be stored and disposed properly to avoid accumulation and leakage</li> <li>Accumulated waste to be recycled on-site whenever possible</li> </ul>

March 2019

#### 2. INTRODUCTION

#### 2.1 Background

- 2.1.1 The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) is operated and maintained by the Drainage Services Department (DSD). It provides secondary level treatment to sewage collected from Sheung Shui, Fanling and adjacent areas, with design capacity of 93,000m<sup>3</sup>/day at ADWF.
- 2.1.2 To cope with the latest population growth and new developments in the catchment, further expansion of SWHSTW is planned to be carried out in three phases, namely Phases 1A, 1B and 2. Further Expansion Phase 1A is to cope with the forecast increase in sewage flow from local developments and extension of village sewerage in Sheung Shui, Fanling and adjacent areas. The scope of the Phase 1A Project comprises the followings:
  - (a) the construction of proposed treatment facilities to increase the treatment capacity of SWHSTW by at least 40,000m<sup>3</sup>/day with tertiary treatment level, with suitable allowance to cater for a further increase of treatment capacity by 20,000m<sup>3</sup>/day in Phase 1B; and
  - (b) modification/upgrading of the existing facilities of SWHSTW.
- 2.1.3 To cope with the projected sewage flow buildup and meet the tight implementation programme, Advance Works for SWHSTW Further Expansion Phase 1A (hereinafter referred as "the Project") are proposed to be carried out between 2015 and 2018. The Phase 1A Advance Works comprise a civil works contract and an Electrical & Mechanical (E&M) works contract. The civil works Contract No. DC/2013/09 "Advance Works for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A and Sewerage Works at Ping Che Road" is supervised by the Sewerage Projects Division (SPD) of DSD. The E&M works Contract No. DE/2014/01 "Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works Advance Works and Ng Chow South Road Sewage Pumping Station" is supervised by the Electrical & Mechanical Projects Division (E&MPD) of DSD.
- 2.1.4 The scope of Phase 1A Advance Works comprises the followings:
  - (a) the conversion of one existing bioreactor (BR1) and two existing final sedimentation tanks (FST1 and FST2) into one membrane bioreactor; and
  - (b) the ancillary works.
- 2.1.5 This Project is a part of designated project under item F.2 of Part 1, Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance. The EIA for the further expansion of SWHSTW Phases 1A, 1B and 2 is covered under the EIA Report of NENT NDAs (Register No. AEIAR-175-2013).
- 2.1.6 An Environment Permit (EP) No. EP-474/2013 for the further expansion of SWHSTW Phases 1A, 1B and 2 was issued by EPD to CEDD on 21 November 2013. On 23 January 2014, Further Environmental Permit (FEP) No. FEP-01/474/2013 was issued by EPD to DSD for the further expansion of SWHSTW Phase 1A works. On 15 February 2018, FEP No. FEP-02/474/2013 was issued by EPD to DSD covering the upgrading works of SWHSTW Phases 1A, 1B and 2.
- 2.1.7 With the issue of FEP No. FEP-02/474/2013, DSD has surrendered FEP No. FEP-01/474/2013 on 15 August 2018 which covering Phase 1A works only.

#### 2.2 Project Programme

Two construction works contracts of the Project, i.e. civil works and E&M works, were commenced in October 2015 and October 2017 respectively. The major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD and the remaining work is completed by the end of July 2018. The works of Contract No. DE/2014/01 is completed in early 2019 tentatively. *Table 2.1* summarises the information of the awarded Works Contracts.

Table 2.1 Summary of Awarded works Contracts					
Works Contract	Description	Construction Start Date	Contractor	Environmental Team	
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road	October 2015	Tsun Yip Waterworks Construction Co Ltd (Tsun Yip)	Action-United Environmental Services & Consulting (AUES)	
DE/2014/01	Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	October 2017	Jardine Engineering Corporation Limited (JEC)	Wellab Limited (Wellab)	

## Table 2.1 Summary of Awarded Works Contracts

#### 2.3 **Purpose of the Report**

2.3.1 The Environmental Monitoring and Audit (EM&A) programme for Contract No. DC/2013/09 and No. DE/2014/01 commenced in October 2015 and October 2017 respectively. This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 in February 2019 (the reporting period).

#### 2.4 **Project Organization**

Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in *Table 2.2* below.

## Table 2.2Key Project Contacts

Works Contract	Organization	Role	Name	Tel No.
DC/2013/09	DSD	Resident Engineer	Ms. Konica Cheung	2594 7463
	ANewR	Independent	Mr. Adi Lee	2618 2836
	Consulting	Environmental		
	Limited	Checker		
	Tsun Yip	Site Agent	Mr. Ken Wong	9161 9627
		Environmental Officer	Mr. M. T. Ho	9507 9634
	AUES	Environmental	Mr. T. W. Tam	2959 6059
		Team Leader		
DE/2014/01	DSD	Resident Engineer	Mr. Fong Mo	2594 7329
	ANewR	Independent	Mr. Adi Lee	2618 2836
	Consulting	Environmental		
	Limited	Checker		
	JEC	Project Manager	Mr. Kim Hung Lau	2947 1125
		Environmental	Mr. George Ng	2947 1125
	Wellab	Environmental	Dr. Priscilla Choy	2151 2089
		Team Leader		

#### 3. ENVIRONMENTAL MONITORING AND AUDIT

- 3.1 The Project has been divided into two construction works contracts which are covered by EP No. EP-474/2013 and FEP No. FEP-02/474/2013. As per the EP Conditions, EM&A Report for Works Contract No. DE/2014/01 prepared by the Contractor's ET is provided in *Appendix A*.
- 3.2 The EM&A Report provides details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- 3.3 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in *Table 3.1*.

Works Contract	Contract Title	Major Construction Works
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road	5
DE/2014/01	Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	<ul> <li>Building</li> <li>Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.</li> <li>Installation of MBR Pre-treatment Screen Facilities.</li> <li>Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).</li> </ul>

 Table 3.1
 Summary of Major Construction Activities in the Reporting Period

- 3.4 As the major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD and the remaining work is completed by the end of July 2018, air quality and construction noise monitoring have been handed over to the ET of Contract No. DE/2014/01.
- 3.5 Impact monitoring for air quality and construction noise were conducted in accordance with the Updated EM&A Manual in the reporting period. The monitoring results conducted by the ET of Contract No. DE/2014/01 for this reporting month are summarised in *Tables 3.2* to *3.4*. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the Monthly EM&A Report of Contract No. DE/2014/01 as provided in *Appendix A*.

3.6 No Action and Limit Level exceedance of air quality and construction noise monitoring was recorded during the reporting period.

Monitoring Station ID	Location	TSP Concentration (mg/m <sup>3</sup> )	Action Level (mg/m <sup>3</sup> )	Limit Level (mg/m3)	Exceedance due to the Project Construction (Yes/No)
AM1	No. 31 Wai Loi Tsuen	75.0 - 182.3	286	500	No
AM2	Fu Tei Au	60.0 - 161.1	276	500	No

#### Table 3.2 Summary of 1-Hour TSP Monitoring Results in the Reporting Period

Note:

(1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

#### Table 3.3 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration (mg/m <sup>3</sup> )	Action Level (mg/m <sup>3</sup> )	Limit Level (mg/m3)	Exceedance due to the Project Construction (Yes/No)
AM1a	SWHSTW site boundary	16.3 – 56.7	147	260	No
AM2a	RE's Site Office	48.6 - 78.3	155	260	No

Note:

(1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

#### Table 3.4 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level (LAeq,30mins, dB(A))	Action Level (dB(A))	Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
NM1	No. 31 Wai Loi Tsuen	49.5 - 62.1	When one documented	75	No
NM2	Fu Tei Au	44.7 - 63.4	complaint is received	75	No

Note:

(1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

- 3.7 No environmental complaint, notification of summons or successful prosecutions were received during the reporting period. Log for environmental complaints, notification of summons and successful prosecutions are provided in *Table 3.5*.
- 3.8 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-compliance was identified in the reporting period. The site inspection for Contract No. DC/2013/09 was ceased upon received EPD's reply letter on 24 August 2018. Joint site inspections for Contract No. DE/2014/01 were carried out on 8, 13, 21 and 27 February 2019 during the reporting period. In addition, IEC conducted site audit on 21 February 2019. No environmental non-compliance was identified in the reporting period.

# Table 3.5Log for Environmental Complaints, Notification of Summons and Successful<br/>Prosecutions for the Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
DC/2013/09	0	0	0
DE/2014/01	0	0	0

#### 4. WASTE MANAGEMENT

- 4.1 Waste management was carried out by on-site Environmental Officer or an Environmental Supervisor of the Contractor from time to time.
- 4.2 The quantities of waste for disposal in this Reporting Period are summarized in *Tables 4.1* and *4.2* and the Monthly Summary Waste Flow Table of Contract No. DE/2014/01 is presented in the EM&A Report as provided in *Appendix A*. Whenever possible, materials were reused on-site as far as practicable.

Table 4.1	Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No.
	DC/2013/09

Type of Waste		Quantity		Disposal
	Prior	Reporting	Cumulated	Location
	Months	Month	Cumulated	
Total C&D Materials (Inert) (in '000m <sup>3</sup> )	24.00	0	24.00	
Hard Rock and Large Broken Concrete	2.26	0	2.26	
(Inert) (in $000 \text{m}^3$ )	2.20	0	2.20	
Reused in this Project (Inert) (in '000m <sup>3</sup> )	3.67	0	3.67	
Reused in other Projects (Inert) (in '000m <sup>3</sup> )	2.23	0	2.23	
Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )	15.93	0	15.93	
Metals (in '000kg)	142.00	0	142.00	
Paper / Cardboard Packing (in '000kg)	0.07	0	0.07	
Plastics (in '000kg)	0	0	0	
Chemical Wastes (in '000kg)	0	0	0	
General Refuses (in '000m <sup>3</sup> )	1.19	0	1.19	

# Table 4.2Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No.<br/>DE/2014/01

Type of Waste		Quantity		Disposal
	Prior	Reporting	Cumulated	Location
	Months	Month	Cumulated	
Total C&D Materials (Inert) (in '000m <sup>3</sup> )	0	0	0	
Hard Rock and Large Broken Concrete (Inert) (in '000m <sup>3</sup> )	0	0	0	
Reused in this Project (Inert) (in '000m <sup>3</sup> )	0	0	0	
Reused in other Projects (Inert) (in '000m <sup>3</sup> )	0	0	0	
Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )	0	0	0	
Metals (in '000kg)	0	0	0	
				Lau Choi Kee
Paper / Cardboard Packing (in '000kg)	0.105	0.009	0.114	Papers
				Co.Ltd.
Plastics (in '000kg)	0	0	0	
Chemical Wastes (in '000kg)	0	0	0	
General Refuses (in tonne)	59.85	2.63	62.48	NENT

#### 5. IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

5.1 The Contractor has implemented all mitigation measures and requirements as stated in the EIA Reports, EM&A Manuals, EP No. EP-474/2013 and FEP No. FEP-02/474/2013. Summary of the relevant permits, licenses, and/or notifications on environmental protection for this Project in this reporting period are summarised in *Tables 5.1* and *5.2*.

### Table 5.1 Summary of Environmental Licenses and Permits for Contract No. DC/2013/09

Item	Valid License/Permit	License/Permit Number
1	Further Environmental Permit	FEP-02/474/2013
1	Futurei Environmentai Fermit	(Valid from 15 February 2018)
2	Air Pollution Control (Construction Dust) Regulation	N/A
3	Chemical Waste Producer Registration	WPN5213-624-T3148-04
4	Water Pollution Control Ordinance	WT00022503-2015
5	Billing Account for Disposal of Construction Waste	Account Number: 7022898

#### Table 5.2 Summary of Environmental Licenses and Permits for Contract No. DE/2014/01

Item	Valid License/Permit	License/Permit Number
1	Further Environmental Permit	FEP-02/474/2013
1	Futurei Environmentai Fermit	(Valid from 15 February 2018)
2	Chemical Waste Producer Registration	WPN5213-624-T3685-01
3	Billing Account for Disposal of Construction Waste	Account Number: 7024165

#### 6. CONCLUSION AND RECOMMENDATION

#### 6.1 Conclusion

- 6.1.1 This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 in February 2019 (the reporting period).
- 6.1.2 The EM&A Programme of Contract No. DC/2013/09 was handed over to the ET of Contract No. DE/2014/01 since August 2018. Thus, the Monthly EM&A Report starting from September 2018 onwards will present the EM&A works undertaken by the ET of Contract No. DE/2014/01.
- 6.1.3 No Action and Limit Level exceedance of 1-hour and 24-hour TSP monitoring was recorded during the reporting period.
- 6.1.4 No Action and Limit Level exceedance of construction noise monitoring was recorded during the reporting period.
- 6.1.5 Joint site inspections to evaluate the site environmental performance by the RE, the ET and the Contractors were carried out on the following dates during the reporting period.

Contract No. DC/2013/09: No site inspection was carried out in the reporting period Contract No. DE/2014/01: 8, 13, 21 and 27 February 2019

- 6.1.6 IEC conducted site audit on 21 February 2019. No environmental non-compliance was identified in the reporting period.
- 6.1.7 No documented complaint, notification of summons or successful prosecution was received during the reporting period.

#### 6.2 Recommendation

6.2.1 The following recommendations were made for future reporting periods:

#### Air Quality

- To regularly maintain the machinery and vehicles on site;
- To follow up any exceedance caused by the construction works;
- Non-Road Mobile Machinery (NRMM) labels must be demonstrated on the registered equipment for inspection.

#### Noise

- To inspect the noise source inside the site;
- To follow up any exceedance caused by the construction works;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers;
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.
- To provide adequate lubricant on mechanical equipment to reduce frictional noise; and
- To well maintain the mechanical equipment/ machineries to avoid abnormal noise nuisance.

#### Water Quality

- To identify any discharge of wastewater from the construction site;
- To avoid blockage of U channel and drainage system by sediment;
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed; and
- To avoid spoilage of run-off from construction site to public area.
- The discharge quality must meet the requirements specified in the discharge license.

#### Waste/Chemical Management

- To provide proper rubbish bins / skips for waste collection;
- To check for any accumulation of wasted materials or rubbish on site;
- To provide proper storage area or drip trays for oil and chemical containers on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment;
- To avoid improper handling or storage of oil drum on site.

## **APPENDIX** A

## MONTHLY EM&A REPORT FOR CONTRACT NO. DE/2014/01

## Jardine Engineering Corporation, Limited

• • • • • • • • • •

Contract No. DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station

> Monthly Environmental Monitoring and Audit Report February 2019

> > (Version 1.0)

Certified By <u>(Environmental Team Leader)</u>	Certified By	(Environmental Team Leader)
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REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

WELLAB accepts no responsibility for changes made to this report by third parties

#### WELLAB LTD

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## ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
DSD	Drainage Services Department
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan
SWHSTW	Shek Wu Hui Sewage Treatment Works

## **EXECUTIVE SUMMARY**

#### Introduction

- This is the 17<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab Limited for DSD Contract No. DE/2014/01 "Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station" (The Project) which documents the key information of EM&A and environmental monitoring works undertaken by other Contract at the Shek Wu Hui Sewage Treatment Works under Phase 1A with Environmental Permit (Permit No. FEP-02/474/2013).
- 2. The site activities undertaken in the reporting month included:
  - Installation of Building Services at MBR Facilities Building
  - Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.
  - Installation of MBR Pre-treatment Screen Facilities.
  - Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).
  - Installation of pipework in Bioreactor No.1 (BR1).
  - Installation of permeate pipes at G/F, MBR facilities Building.
  - Installation of FRP platforms at B/F, MBR Facilities Building.
  - Installation of pipework in Membrane Filtration Tanks.
  - Installation of chemical dosing system in Chemical Rooms.
  - Electrical installation in Bioreactor No.1 (BR1), Membrane Filtration Tanks and MBR Facilities Building.

## **Environmental Monitoring Works**

- 3. From August 2018 onward, the environmental monitoring works of the Project were conducted by the ET of Contract No. DE/2014/01, which took over all the monitoring stations from Contract No. DC/2013/09 under the same FEP. The impact monitoring methodology conducted by DE/2014/01 will follow the requirements of the Updated EM&A Manual for Shek Wu Hui Sewage Treatment Works.
- 4. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- 5. Summary of the non-compliance of the reporting month is tabulated in **Table I**.

Table I	Summary Table for Non-compliance (Exceedances) Recorded in the Reporting
	Month

Monitored	Monitoring	Dependenten	No. of Exceedance		No. of Exceedance Due to the Project		Action
Ву	Station	Parameter	Action Level	Limit Level	Action Level	Limit Level	Taken
	AM1	1-hr TSP	0	0	0	0	N/A
	AM1a	24-hr TSP	0	0	0	0	N/A
DE/2014/01	AM2	1-hr TSP	0	0	0	0	N/A
DE/2014/01	AM2a	24-hr TSP	0	0	0	0	N/A
	NM1	Noise	0	0	0	0	N/A
	NM2	Noise	0	0	0	0	N/A

## 1-hour TSP Monitoring

6. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

## 24-hour TSP Monitoring

7. All 24-hour TSP monitoring at the monitoring station of AM1a and AM2a was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

## Construction Noise

8. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

## **Environmental Licenses and Permits**

9. Licenses/Permits granted to Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A include the Environmental Permit (EP no. FEP-02/474/2013); Registered as a Chemical Waste Producer and Billing account for Disposal of Construction Waste for the Project.

## **Environmental Mitigation Implementation Schedule**

10. According to the Updated EM&A Manual, air quality, noise and waste management would be the key environmental issues and mitigation measures shall be implemented during the construction phase. Details of the implementation of mitigation measures are provided in the **Appendix J**.

## Key Information in the Reporting Month

11. Summary of key information in the reporting month is tabulated in **Table II** 

 Table II
 Summary Table for Key Information in the Reporting Month

Event	Even	t Details	Action Taken	Status	Remark
Event	Number	Nature	Action Taken	Status	
Complaint received	0		N/A	N/A	
Reporting Changes					
Notifications of any summons & prosecutions received	0		N/A	N/A	

## Site Inspection Conducted by Government Department

12. No site inspection for Contract DE/2014/01 was conducted by Government Department in the reporting month.

## Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summons

13. No environmental complaint was received during the reporting period. No prosecution,

reporting changes and notification of summons were received or reported since the commencement of the Project.

14. There were no environmental complaint received since the commencement of the Project. The Complaint Log is presented in **Appendix K**.

## **Future Key Issues**

- 15. Key issues to be considered in the coming month for the Contract include:
  - Leakage from chemicals containers.
  - Waste accumulation on site.

## 1. INTRODUCTION

## Background

- 1.1 The Project 'Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station' under Contract No: DE/2014/01 mainly comprises the Design, manufacture, supply, delivery, installation, inspection, testing and commissioning of E&M installations for the Advance Works in the SWHSTW. The general location plan of the Project is shown in **Figure 1**.
- 1.2 The Project is under North East New Territories New Development Areas and is part of the designated project with Register No. : AEIAR-175/2013. The current works under the Project and other Contracts at SWHSTW are covered by the Environmental Permit (Permit No. FEP-02/474/2013), which was issued on 15<sup>th</sup> February 2018 by the Environmental Protection Department (hereinafter called EPD) to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.
- 1.3 The environmental monitoring works on air quality and noise were covered by the ET of Contract DE/2014/01 for the Project.
- 1.4 The Jardine Engineering Corporation, Limited was commissioned by the DSD to undertake the construction of the Contract No. DE/2014/01 "Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A Advance Works and Ng Chow South Road Sewage Pumping Station".
- 1.5 The site activities undertaken in the reporting month included:
  - Installation of Building Services at MBR Facilities Building
  - Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.
  - Installation of MBR Pre-treatment Screen Facilities.
  - Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).
  - Installation of pipework in Bioreactor No.1 (BR1).
  - Installation of permeate pipes at G/F, MBR facilities Building.
  - Installation of FRP platforms at B/F, MBR Facilities Building.
  - Installation of pipework in Membrane Filtration Tanks.
  - Installation of chemical dosing system in Chemical Rooms.
  - Electrical installation in Bioreactor No.1 (BR1), Membrane Filtration Tanks and MBR Facilities Building.
- 1.6 Wellab Limited was commissioned and appointed by The Jardine Engineering Corporation Limited as the Environmental Team (ET) of Contract No. DE/2014/01 under Condition 2.1 of the FEP. The Environmental Monitoring and Audit (EM&A) works were conducted and reported during the reporting month according to the Updated EM&A Manual of this designated project.
- 1.7 This is the monthly EM&A report summarizing the EM&A works conducted for the Project in February 2019.

## **Project Organizations**

1.8 The contacts of the Project are shown in **Table 1.1** and the Project Organization Chart is

shown in **Figure 4**.

Table 1.1Key Project Contacts					
Party	Role	Name	Position	Phone No.	
Drainage Service Department	Resident Site Engineer	Mr. Fong Mo	Resident Engineer	2594 7329	
Wellab	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2836	
The Jardine Engineering	Contractor	Mr. Kim Hung Lau	Project Manager	2947 1125	
Corporation, Limited	Conductor	Mr. George Ng	Environmental Officer	2947 1125	

### **Summary of EM&A Requirements**

- 1.9 The EM&A programme requires construction phase monitoring for air quality and construction noise, landscape and visual and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:
  - All monitoring parameters;
  - 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.
- 1.10 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 4** of this report.
- 1.11 This report presents the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely air quality, noise and audit works conducted for the Project during this reporting month.

## 2. AIR QUALITY

### **Monitoring Requirements**

2.1 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

### **Monitoring Locations**

2.2 Four designated monitoring stations, AM1, AM1a, AM2 and AM2a were selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations and **Figure 2** indicated their positions in relation to the site boundary.

 Table 2.1
 Locations for Air Quality Monitoring

Monitoring Station	Monitored by	Location of Measurement
AM1		No. 31 Wai Loi Tsuen
AM2	DE/2014/01	Fu Tei Au
AM1a	DE/2014/01	SWHSTW site boundary
AM2a	]	RE's Site Office

## **Monitoring Parameters, Frequency and Duration**

2.3 **Table 2.2** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting period is shown in **Appendix B**.

 Table 2.2
 Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Station	Parameter	Period	Frequency
AM1 AM2	1-hour TSP	0700-1900 hrs	three times every 6 days
AM1a AM2a	24-hour TSP	0000-2400 hrs	once every 6 days

## **Monitoring Equipment**

2.4 **Table 2.3** summarizes the equipment used in the impact air quality monitoring programme. The high volume sampler for 24-hour TSP monitoring at AM1 has been relocated to the alterative monitoring station of AM1a. The copies of their calibration certificates is shown in **Appendix C**.

Table 2.3         Summary of Monitoring Equipment			
Equipment	Model and Make		
HVS	Tisch Model no. TE-5170		
Handheld Particle Counter	Met One Instruments Model no. AEROCET-831		
Calibrator	Tisch Model TE-5025A		

## Table 2.3 Summary of Monitoring Equipment

## Monitoring Methodology and QA/QC Procedure

- 2.5 The monitoring methodology and QA/QC procedures for impact air quality monitoring are presented as follow:
- 2.6 The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff's observation on the monitoring day. The wind data is adopted from the website of Hong Kong Observatory (Ta Kwu Ling weather stations).

## 1 Hour TSP Monitoring Procedures with Laser Dust Monitor

- 2.7 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:
  - The 1-hour dust meter is placed at least 1.3 meters above ground.
  - Set POWER to "ON" and make sure that the battery level will not flash or in low level.
  - Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet will be released.
  - Push the knob at MEASURE position.
  - Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
  - Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
  - Information such as sampling date, time, count value and site condition will be recorded during the monitoring period.

#### Maintenance/Calibration

- 2.8 The following maintenance/calibration was required for the direct dust meters:
  - Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

#### 24 Hours TSP Monitoring with High Volume Sampler

#### Instrumentation

2.9 High Volume Sampler (HVS) completed with appropriate sampling inlets was employed for air quality monitoring. Each sampler comprised of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that

required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

- 2.10 The following guidelines were adopted during the installation of HVS:
  - Sufficient support was provided to secure the samplers against gusty wind.
  - No two samplers were placed less than 2 meters apart.
  - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
  - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
  - No furnaces or incineration flues were nearby.
  - Airflow around the sampler was unrestricted.
  - The samplers were more than 20 meters from the drip line.
  - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

## Filer Preparation

- 2.11 Fiberglass filters, which have a collection efficiency of larger than 99% of particles of 0.3 µm in diameter, were used. A HOKLAS accredited laboratory, Wellab Ltd., was responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for Wellab's monitoring team.
- 2.12 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%. Wellab Ltd. has a comprehensive quality assurance and quality control programme.

## **Operating/Analytical Procedures**

- 2.13 Operating/analytical procedures for the air quality monitoring were highlighted as follows.
  - Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m3/min. and 1.4 m3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
  - The power supply was checked to ensure the sampler worked properly.
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than  $\pm 3^{\circ}$ C; the relative humidity (RH) should be < 50% and not vary by more than  $\pm 5^{\circ}$ . A convenient working RH is 40%. Weighing results were returned to Wellab for further analysis of TSP concentrations collected by each filter.

### Maintenance and Calibration

- 2.14 The high volume motors and their accessories will be properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- 2.15 All HVSs are calibrated (five point calibration) using TE-5025A Calibration Kit prior to the commencement of the impact monitoring. The five-point calibration would be carried out every two months

### **Results and Observations**

2.16 **Table 2.4** summarizes the monitoring results at AM1, AM1a, AM2 and AM2a in the reporting month.

	88			
Air Quality Monitoring Station	<b>Average</b> µg/m <sup>3</sup>	<b>Range</b> µg/m³	Action Level µg/m <sup>3</sup>	Limit Level µg/m <sup>3</sup>
1 hour TSP				
AM1	113.7	75.0 - 182.3	286	500
AM2	110.0	60.0 - 161.1	276	500
24 hours TSP				
AM1a	36.6	16.3 - 56.7	147	260
AM2a	61.3	48.6 - 78.3	155	200

# Table 2.4Summary of 1-hour and 24-hour TSP Monitoring Result in the<br/>Reporting Period

- 2.17 The monitoring data and graphical presentations for 1-hour and 24-hour TSP monitoring results are shown in **Appendix D**.
- 2.18 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix F.**
- 2.19 The monitoring works for 1-hour and 24-hour TSP monitoring were conducted as scheduled in the reporting month.

- 2.20 Action/Limit Level exceedance was not recorded during the reporting period. Summary of exceedance is presented in **Appendix F.**
- 2.21 According to field observations during site inspection, identifiable dust emission sources near the monitoring stations were vehicles movement on Chuk Wan Street.

## 3. NOISE

## **Monitoring Requirements**

3.1 Two noise monitoring station, namely NM1 and NM2 were designated in the Updated EM&A Manual for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

## **Monitoring Locations**

3.2 Noise monitoring was conducted at the designated monitoring stations as listed in Table3.1 and Figure 3 indicated their positions in relation to the site boundary

 Table 3.1
 Location of Noise Monitoring Stations

Monitoring Station	Monitored By	Location of Measurement	
NM1	DE/0014/01	No. 31 Wai Loi Tsuen	
NM2	DE/2014/01	Fu Tei Au	

## Monitoring Parameters, Frequency and Duration

3.3 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.2	Noise Monitoring Parameters, Frequency and Duration
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Monitoring Stations	Parameter	Period	Frequency
NM1	L10(30 min.) dB(A) L90(30 min.) dB(A)	0700-1900 hrs on	Once per week
NM2	$L_{eq}(30 \text{ min.}) dB(A)$	normal weekdays	Once per week

## **Monitoring Equipment**

3.4 **Table 3.3** summarizes the noise quality monitoring equipment and **Appendix C** shows the copies of calibration certificates for the equipment used during the reporting period.

Table 3.3Noise Monitoring Equipment

Equipment	Model		
Integrating Sound Level Meter	SVANTEK, Model no: SVAN 957/977		
Calibrator	SVANTEK, Model no: SV 30A B&K Model no.: 4231		

## Monitoring Methodology and QA/QC Procedures

- 3.5 The monitoring methodology and QA/QC procedure are presented as follow:
- 3.6 General weather conditions (i.e. sunny, cloudy or rainy) were recorded by field observation during equipment checking. Field Monitoring

- 3.7 The monitoring procedures are as follows:
  - The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground. All monitoring stations were conducted at a distance of 1 m away from the exterior of the building façade.
  - The battery condition was checked to ensure good functioning of the meter.
  - Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
    - Frequency weighting : A
    - Time weighting : Fast
    - Measurement time : 30 minutes
  - Noise monitoring was carried out 30 minutes during on the monitoring days. Monitoring data was recorded and stored automatically within the sound level meter system. At the end of the monitoring period, noise levels in term of  $L_{eq}$ ,  $L_{90}$  and  $L_{10}$  were recorded.
  - All the monitoring data within the sound level meter system was downloaded through the computer software, and all these data was checked and reviewed within the computer.
  - Since no wind or gusts shall exceed 5m/s or 10m/s respectively during the noise monitoring, a portable anemometer was used to check the wind speed at the monitoring stations. Weather conditions such as fog and rain were avoided during the monitoring.

#### Maintenance and Calibration

- 3.8 Maintenance and Calibration procedures were as follows:
  - The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
  - Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
  - The sound level meter and calibrator were checked and calibrated at yearly intervals.

#### **Results and Observations**

3.9 **Table 3.4** summarizes the noise monitoring results in the reporting period.

 Table 3.4
 Summary the Noise Monitoring Results in Reporting Period

0700-1900 hrs. during weekdays				
Noise Monitoring StationRange, dB(A), Leq(30 min.)Limit Level, dB(A)				
NM1	49.5 - 62.1	75.0		
NM2	44.7 - 63.4	75.0		

- 3.10 The monitoring results and graphical presentations can be referred to **Appendix E**.
- 3.11 No Action/Limit Level exceedance was recorded in the reporting month. Summary of

exceedance is presented in Appendix F.

3.12 The major noise source identified at the designated noise monitoring stations was vehicles movement on Chuk Wan Street.

### 4. ENVIRONMENTAL AUDIT

### Site Audits

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix G**.
- 4.2 Site audits were conducted on 8, 13, 21 and 27 February 2019 by ET after the commencement of construction works for the Contract. A joint site audit with the representative of IEC was carried out on 21 February 2019. The details of observations during site audit can refer to **Table 4.1**.

### **Implementation Status of Environmental Mitigation Measures**

- 4.3 Details of the implementation of mitigation measures are provided in the **Appendix J.**
- 4.4 During the weekly environmental site inspections in the reporting period, no nonconformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1**.

Table 4.1         Observations of Site Audit					
Parameters	Date	Ref. No	Observations	Follow Up Action	
Water Quality	N/A	N/A			
Air Quality	N/A	N/A			
Noise	N/A	N/A			
Waste/Chemical Management	N/A	N/A			
Permit/ Licenses	N/A	N/A			

Table 4.1Observations of Site Audit

### **Review of Environmental Monitoring Procedures**

4.5 The monitoring works conducted by Contract No. DE/2014/01 were reviewed at a regular basis to ensure the monitoring procedures were carried out properly.

### Status of Environmental Licensing and Permitting

4.6 All permits/licenses obtained for the Contract DE/2014/01 are summarized in **Table 4.2**.

### Table 4.2 Summary of Environmental Licensing and Permit Status

Dama 4 Na	Valid Period		D-4-9-	G4 4
Permit No.	From	То	Details	Status
Environmental P	ermit			
FEP-02/474/2013	15/2/2018	N/A	The FEP was approved on 15/2/2018	
Registered Chem	ical Waste Pr	oducer		
WPN5213-624- T3685-01	3/7/2017	N/A	The application was approved on 3/7/2017	

Dame 4 No	Valid P	eriod	Deteile		
Permit No. From		То	Details	Status	
Billing Account for Disposal of Construction Waste					
A/C No.7024165	4/2/2016	N/A	The application was approved on 4/2/2016	Valid	

### **Status of Waste Management**

4.7 The amount of wastes generated by the activities of the Project in the reporting month is shown in **Appendix H** and **Table 4.3**.

Table 4.3	Quantities of Waste Generated from the Reporting Month
-----------	--

Type of waste		Quantity	Disposal Location
C&D Ma	terials (inert)	$0 m^3$	-
C&D Materials	General Refuse	2.63 tonne	NENT
(non-inert)	<b>Chemical Waste</b>	0 <i>kg</i>	-
	Paper/ cardboard	9 kg	Lau Choi Kee Papers Co. Ltd (35 Po Wan Road, Sheung Shui, NT)
Plastics		0 <i>kg</i>	-
	Metals	0 <i>kg</i>	-

### **Implementation Status of Event Action Plans**

4.8 The Event Action Plans for air quality and noise are presented in **Appendix I.** 

<u>1-hr TSP</u>

4.9 No Action/Limit Level exceedance was recorded.

<u>24-hr TSP</u>

4.10 No Action/Limit Level exceedance was recorded.

Construction Noise

4.11 No Action/Limit Level exceedance was recorded.

Landscape and Visual

4.12 No non-compliance was recorded.

### Site Inspection Conducted by Government Department

4.13 No site inspection for Contract DE/2014/01 was conducted by Government Department in the reporting month.

# Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summons

4.14 No environmental complaint, prosecution, reporting changes and notification of summons were received or reported since the commencement of the Project. There were

no environmental complaint received since the commencement of the Project. The Complaint Log is presented in **Appendix K.** 

### 5. FUTURE KEY ISSUES

### Key Issues for the Coming Month

5.1 Key issues to be considered in the coming month for the Contract include:

### Table 5.1 Future Key Issue for the next Reporting Month

Major Construction Works	Potential Pollution Issues	Mitigation Measures
<ul> <li>Installation of Building Services at MBR Facilities Building.</li> <li>Installation of associated accessories for air blowers at 1/F, MBR Facilities Building.</li> <li>Installation of MBR pre- treatment screen facilities.</li> <li>Installation of pipework &amp; diffusers in Bioreactor No.1 (BR1).</li> <li>Installation of pipework and FRP platforms at G/F, MBR Facilities Building.</li> <li>Installation of pipework and FRP covers in Membrane Filtration Tanks.</li> <li>Installation of chemical dosing system in Chemical Rooms.</li> <li>Electrical installation in Bioreactor No.1 (BR1), Membrane Filtration Tanks. and MBR Facilities Building.</li> </ul>	<ul> <li>Leakage from chemicals containers.</li> <li>Waste accumulation on site.</li> </ul>	<ul> <li>Waste should be stored and disposed properly to avoid accumulation and leakage.</li> <li>Accumulated waste to be recycled on-site whenever possible.</li> </ul>

### Monitoring Schedule for the Next Reporting Period

5.2 The tentative environmental monitoring schedules for the next reporting month are shown in **Appendix B**.

### **Construction Program for the Next Reporting Period**

5.3 The tentative construction program is provided in **Appendix L.** 

### 6. CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

6.1 Environmental monitoring and audit works were performed in the reporting month for the Project. The results were checked and reviewed by the ET of Contract DE/2014/01.

### 1-hour TSP Monitoring

6.2 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

### 24-hour TSP Monitoring

- 6.3 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. No Action/Limit Level exceedance was recorded during the 24-hour TSP monitoring.
- 6.4 The 24-hour TSP monitoring was conducted as scheduled in the reporting month.

### Construction Noise Monitoring

6.5 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

### Environmental Audit

6.6 Weekly environmental site audits were conducted by the ET of Contract No. DE/2014/01 at the site area during the reporting month. No non-compliance was recorded.

### Complaint, notification of summons and Prosecution

- 6.7 No environmental complaint was received in the reporting month
- 6.8 No notification of summons and prosecution were received in the reporting month.

### **Recommendations for Future Reporting Months:**

6.9 The following recommendations were made for future reporting months:

### Air Quality

- To regularly maintain the machinery and vehicles on site;
- To follow up any exceedance caused by the construction works;
- Non-Road Mobile Machinery (NRMM) labels must be demonstrated on the registered equipment for inspection.

Noise

• To inspect the noise source inside the site;

- To follow up any exceedance caused by the construction works;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers;
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.
- To provide adequate lubricant on mechanical equipment to reduce frictional noise; and
- To well maintain the mechanical equipment/ machineries to avoid abnormal noise nuisance.

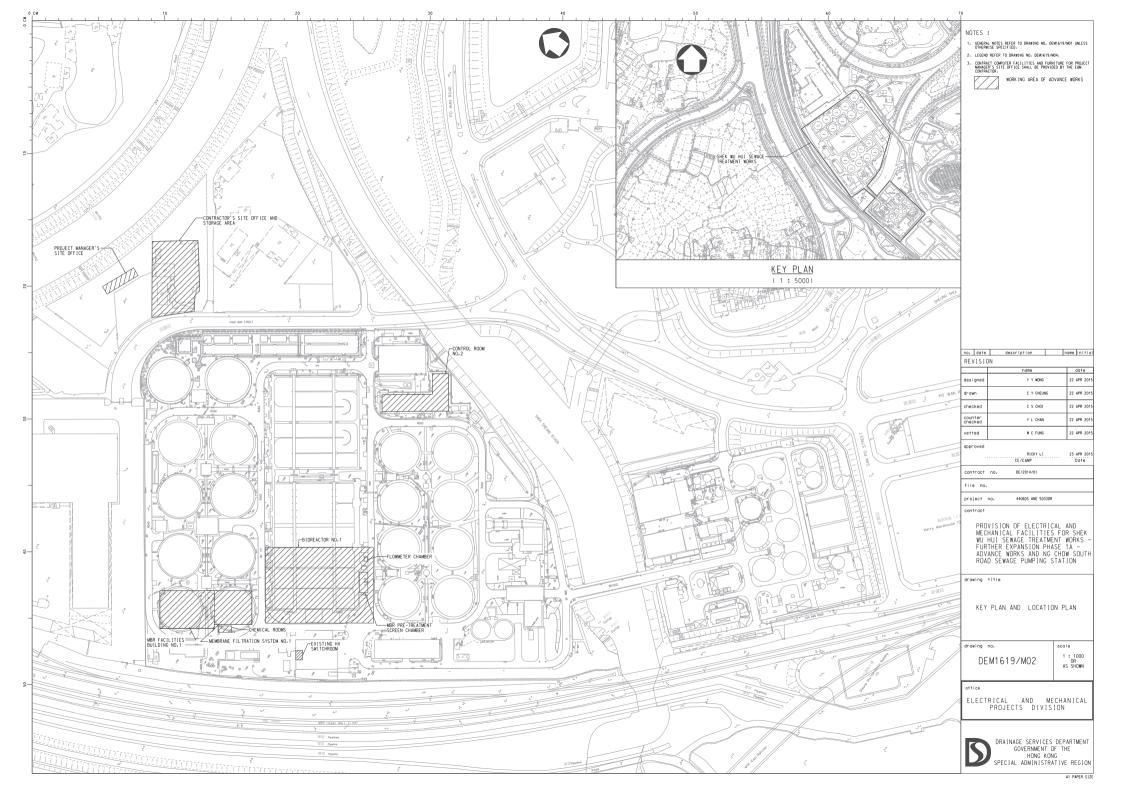
### Water Quality

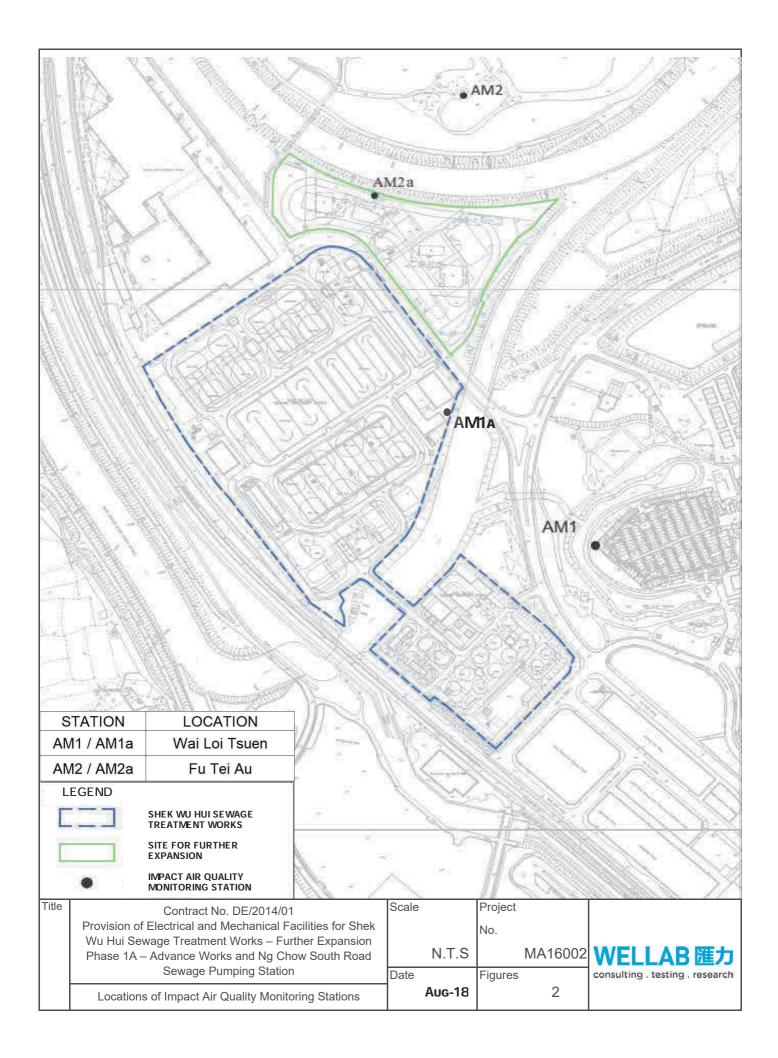
- To identify any discharge of wastewater from the construction site;
- To avoid blockage of U channel and drainage system by sediment;
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed; and
- To avoid spoilage of run-off from construction site to public area.
- The discharge quality must meet the requirements specified in the discharge licence.

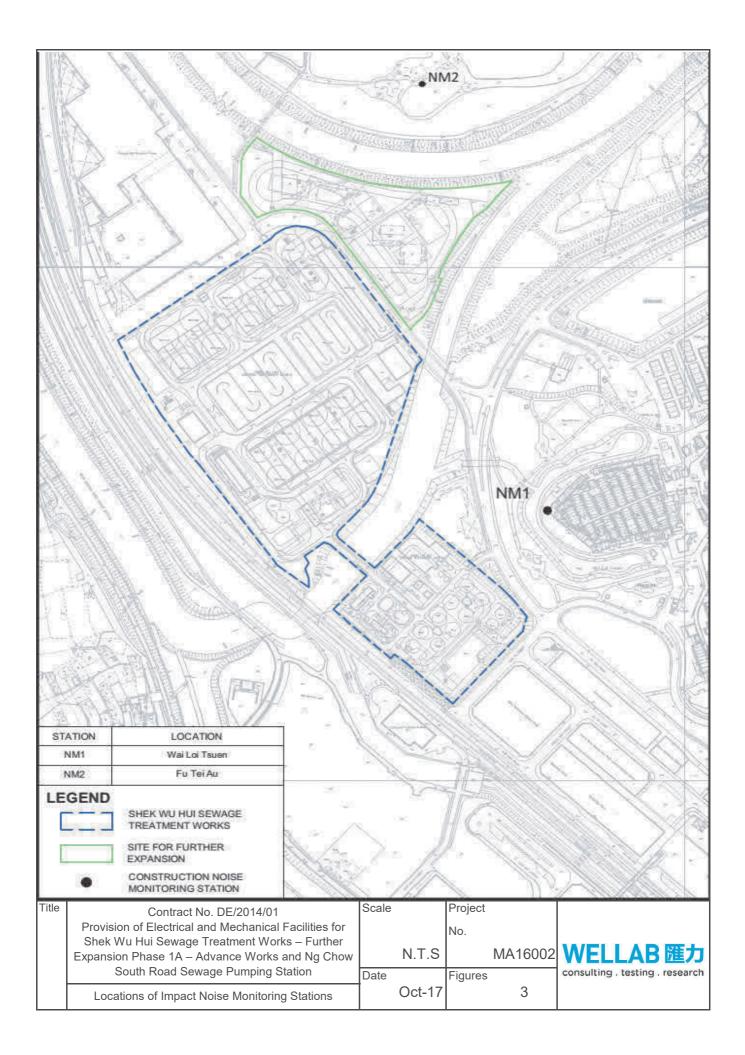
### Waste/Chemical Management

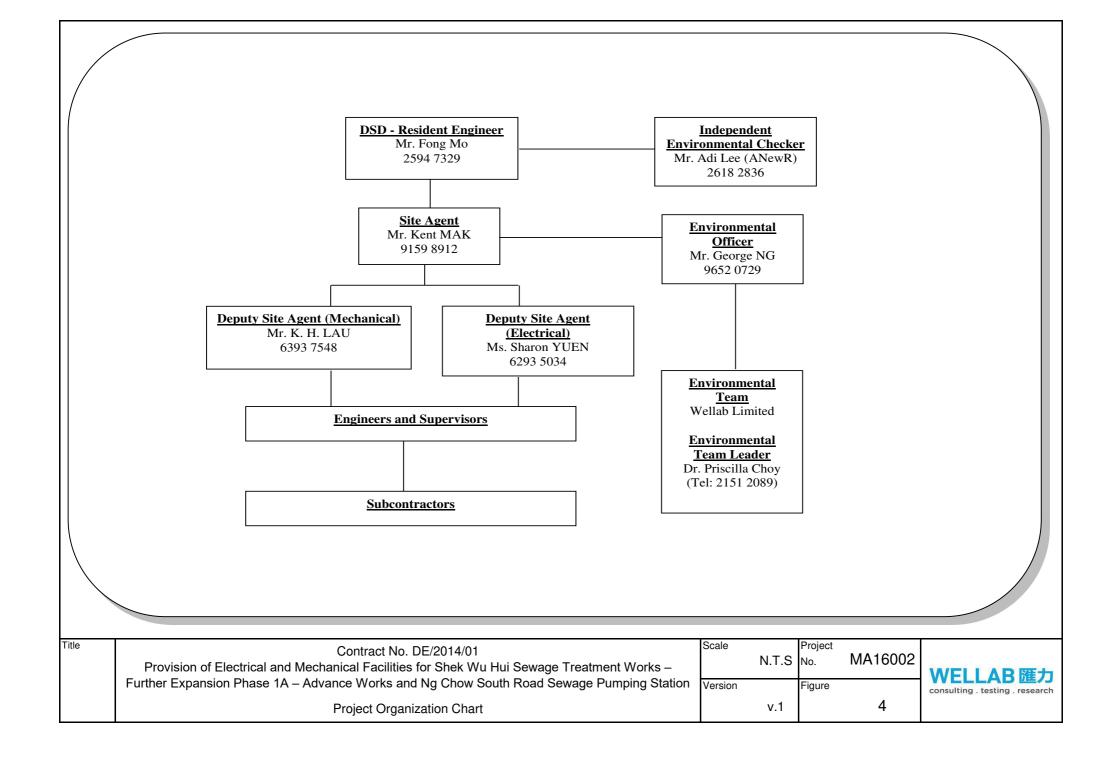
- To provide proper rubbish bins / skips for waste collection;
- To check for any accumulation of wasted materials or rubbish on site;
- To provide proper storage area or drip trays for oil and chemical containers on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment;
- To avoid improper handling or storage of oil drum on site.

FIGURES









APPENDIX A ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE QUALITY Jardine Engineering Corporation Ltd.

### Appendix A Action and Limit Levels

### Table A-1 Action and Limit Levels for 1-Hour TSP and 24-Hour TSP

Monitoring Stations	Action Le	vel (µg/m <sup>3</sup> )	Limit Level (µg/m³)		
Monitoring Stations	1-hour	24-hour	1-hour	24-hour	
AM1	286	N/A	500	N/A	
AM1a	N/A	147	N/A	260	
AM2	276	N/A	500	N/A	
AM2a	N/A	155	N/A	260	

### Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM1	0700 1000 hours on normal wooldays	When one	>75*
NM2	0700-1900 hours on normal weekdays	documented complaint is received	10

Note: (\*) Reduces to 70 dB(A) for schools and 65 dB(A) during the school examination periods.

APPENDIX B ENVIRONMENTAL MONITORING SCHEDULES

#### Contract No. DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works Tentative Impact Air and Noise Monitoring Schedule for February 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
					1 hr TSP X3	
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
3-Feb	4-reb	5-Feb	0-FeD	7-Feb	8-Feb	9-Feb
	1 hr TSP X3					1 hr TSP X3
	Noise					1 101 110
	24 hr TSP				24 hr TSP	
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
					1 hr TSP X3	
					Noise	
				24 hr TSP		
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
17-Feb	18-100	19-100	20-100	21-100	22-100	25-100
				1 hr TSP X3		
				Noise		
			24 hr TSP			
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb		
		1 hr TSP X3				
		Noise				
	24 hr TSP					
	24 III 15r					
				l		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

#### Air Quality Monitoring Station

**Noise Monitoring Station** 

AM1 - No. 31 Wai Loi Tsuen (1hr) AM2 - Fu Tei Au (1hr) AM2a - RE's Site Office (24hr) AM1a - SWHSTW site boundary (24hr) NM1 - No. 31 Wai Loi Tsuen NM2 - Fu Tei Au

#### Contract No. DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works Tentative Impact Air and Noise Monitoring Schedule for March 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Mar	2-Mar
					24 hr TSP	
3-Mar	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	9-Mar
5-Mai	4-1414	5-Mai	0-14141	/-1/141	8-141	9-141
	1 hr TSP X3				1 hr TSP X3	
					Noise	
				24 hr TSP		
10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar
				1 hr TSP X3		
				Noise		
			24 hr TSP			
17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar
17-Mar	18-1418	19-Mar	20-Mar	21-Mar	22-141	23-Mar
			1 hr TSP X3			
			Noise			
		24 hr TSP				
		21111101				
24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar
		1 hr TSP X3				
		Noise				
	24 hr TSP			24 hr TSP		
21 34						
31-Mar						

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

#### Air Quality Monitoring Station

AM1 - No. 31 Wai Loi Tsuen (1hr) AM2 - Fu Tei Au (1hr) AM2a - RE's Site Office (24hr) AM1a - SWHSTW site boundary (24hr) Noise Monitoring Station

NM1 - No. 31 Wai Loi Tsuen NM2 - Fu Tei Au

APPENDIX C COPIES OF CALIBRATION CERTIFICATES



### TEST REPORT

### APPLICANT: Wellab Limited (EM&A Department) Room 1701, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	30677A
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13
Page:	1 of 1

ATTN:

Mr. W. K. Tang

Certificate of Calibration				
Item for Calibration:				
Description	: Dust Monitor			
Manufacturer	: Met One Instruments			
Model No.	: AEROCET-831			
Serial No.	: X23808			
Flow rate	: 0.1 cfm			
Zero Count Test	: 0 count per 1 minute			
Equipment No.	: WA-01-02			
Test Conditions:				
Room Temperatre	: 17-22 degree Celsius			
Relative Humidity	: 40-70%			

#### **Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.

2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

#### **Results:**

Correlation Factor (CF)	1.159

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

(

PATRICK TSE Laboratory Manager



### TEST REPORT

Test Report No.:	30573
Date of Issue:	2018-12-24
Date Received:	2018-12-21
Date Tested:	2018-12-21
Date Completed:	2018-12-24
Next Due Date:	2019-02-23
Dago	1  of  1

Page:

1 of 1

ATTN:

Mr. W. K. Tang

	Certificate of Calibration
Item for Calibration: Description Manufacturer Model No. Serial No. Flow rate Zero Count Test	: Dust Monitor : Met One Instruments : AEROCET-831 : X24476 : 0.1 cfm : 0 count per 1 minute : WA-01-05
Equipment No. <b>Test Conditions:</b> Room Temperatre Relative Humidity	: 17-22 degree Celsius : 40-70%

### **Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.

2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

#### **Results:**

incourto.	
Correlation Factor (CF)	1.186
	and the second

\*\*\*\*\*\*\*\*

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

atick le

PATRICK TSE Laboratory Manager



### TEST REPORT

### APPLICANT: Wellab Limited (EM&A Department) Room 1701, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	30914
Date of Issue:	2019-02-25
Date Received:	2019-02-22
Date Tested:	2019-02-22
Date Completed:	2019-02-25
Next Due Date:	2019-04-24
Page:	1 of 1

#### ATTN:

Ī

Mr. W. K. Tang

C	ertificate of Calibration
Item for Calibration:	
Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24476
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-05
Test Conditions:	
Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

#### **Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.

2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

#### **Results:**

Correlation Factor (CF)	1.131
*****	*****

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



### **TEST REPORT**

Test Report No.:	30573A
Date of Issue:	2018-12-24
Date Received:	2018-12-21
Date Tested:	2018-12-21
Date Completed:	2018-12-24
Next Due Date:	2019-02-23
Pane	1 of 1

Page:

1 of 1

### ATTN:

### Mr. W. K. Tang

	Certificate of Calibration
Item for Calibration:	
Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24477
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-06
<b>Test Conditions:</b>	
Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

#### **Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.

2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:	
Correlation Factor (CF)	1.159

\*\*\*\*\*\*\*\*\*\*\*\*

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



### TEST REPORT

### APPLICANT: Wellab Limited (EM&A Department) Room 1701, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	30677D
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13
Page:	1 of 1

#### ATTN:

Mr. W. K. Tang

Certificate of Calibration	
Item for Calibration:	
Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24475
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-07
Test Conditions:	
Room Temperatre	: 17-22 degree Celsius
<b>Relative</b> Humidity	: 40-70%

#### **Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.

2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

#### **Results:**

Correlation Factor (CF)	1.195
*****	******

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



#### TEST REPORT Test Report No.: 29499 **Cinotech Consultants Limited APPLICANT:** Room 1710, Technology Park, Date of Issue: 2018-08-13 Date Received: 18 On Lai Street, 2018-08-11 Date Tested: 2018-08-11 Shatin, NT, Hong Kong Date Completed: 2018-08-13 Next Due Date: 2019-08-12 ATTN: Mr. W.K. Tang Page: 1 of 1 **Certificate of Calibration** Item for calibration: : 'SVANTEK' Integrating Sound Level Meter Description Manufacturer : SVANTEK Model No. : SVAN 957 Serial No. :21459 Microphone No. : 43676 · ~ • • Equipment No. : N-08-08 **Test conditions:** : 17-22 degree Celsius Room Temperatre **Relative Humidity** :40-70% **Test Specifications:** Performance checking at 94 and 114 dB Methodology: In-house method, according to manufacturer instruction manual

#### **Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:* For and On Behalf of **WELLAB Ltd.** 

**PATRICK TSE** 

Laboratory Manager

WELLAB 匯 Testing & Research 力 WELLAB LIMITED Rms 1214, 1502, 1516, 1701 & 1716, Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

### **TEST REPORT**

### APPLICANT: Cinotech Consultants Limited Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No .:	29815
Date of Issue:	2018-09-15
Date Received:	2018-09-14
Date Tested:	2018-09-14
Date Completed:	2018-09-15
Next Due Date:	2019-09-14
Page:	1 of 1

ATTN:

Mr. W.K. Tang

### **Certificate of Calibration**

#### Item for calibration:

Description Manufacturer Model No. Serial No. Microphone No. Equipment No. : 'SVANTEK' Integrating Sound Level Meter : SVANTEK : SVAN 977 : 45482 : 63626 : N-08-14

#### **Test conditions:**

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70%

#### **Test Specifications:**

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### **Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



#### TEST REPORT Test Report No.: 29817 **APPLICANT: Cinotech Consultants Limited** Date of Issue: 2018-09-29 Room 1710, Technology Park, Date Received: 2018-09-28 18 On Lai Street, Shatin, NT, Hong Kong Date Tested: 2018-09-28 Date Completed: 2018-09-29 Next Due Date: 2019-09-28 1 of 1 Page: ATTN: Mr. W.K. Tang Item for calibration: : Acoustical Calibrator Description Manufacturer : SVANTEK :SV30A Model No. Serial No. :24780 :N-09-05 Equipment No. **Test conditions:** Room Temperatre : 17-22 degree Celsius **Relative Humidity** : 40-70% **Methodology:** The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### **Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

PATRICK TSE Laboratory Manager



1 of 1

### **TEST REPORT**

APPLICANT:	<b>Cinotech Consultants Limited</b>	Test Report No.:	29683
	Room 1710, Technology Park,	Date of Issue:	2018-08-20
	18 On Lai Street,	Date Received:	2018-08-17
	Shatin, NT, Hong Kong	Date Tested:	2018-08-17
		Date Completed:	2018-08-20
		Next Due Date:	2019-08-19

### ATTN: Mr. W.K. Tang

#### Item for calibration:

Description Manufacturer Model No. Serial No. Equipment No. : Acoustical Calibrator : Brüel & Kjær : 4231 : 2412367 : N-02-03

Page:

### **Test conditions:**

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70 %

#### Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

#### **Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	$94.0 \pm 0.1 \text{ dB}$
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY: For and On Behalf of WELLAB Ltd.

P'ATRICK TSE Laboratory Manager

## WELLAB 匯力

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### **High-Volume TSP Sampler** 5-POINT CALIBRATION DATA SHEET

				File No.	MA16002/70/0004
Station:	AM1a - SWHS	STW site boundary	Operator:	HM	
Date:	22-Jan-19	·····	Next Due Date:	21-Mar-19	
Equipment No.:	A-01-70		Serial No.	3216	
			Ambient Condition		
Temperatu	re, Ta (K)	286	Pressure, Pa (mmHg)	771.4	

Orifice Transfer Standard Information							
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045		
Last Calibration Date:	13-Feb-18	mc x Qstd + bc = $[\Delta H x (Pa/760) x (298/Ta)]^{1/2}$					
Next Calibration Date:	13-Feb-19	Qstd = { $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc					

	-	Calibration of	TSP Sampler		•
Calibration		Orfice	HVS		
Point	$\Delta H$ (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ <b>Y-axis</b>
1	11.7	3.52	60.11	7.7	2.85
2	9.7	3.20	54.73	6.0	2.52
3	7.4	2.80	47.80	4.9	2.28
4	5.0	2.30	39.30	3.4	1.90
5	3.4	1.90	32.41	2,5	1.63
By Linear Regr Slope , mw = Correlation c			Intercept, bw	0.205	7
*If Correlation C	Coefficient < 0.99	0, check and recalibrate.	-		
	· · · · · · · · · · · · · · · · · · ·	Set Point C	alculation		
From the TSP Fi	eld Calibration C	urve, take Qstd = 43 CFM			
From the Reares	sion Faustion the	e "Y" value according to			

mw x	Qstd	+ bw =	[ΔW x	(Pa/760)	x	(298/Ta)] <sup>1/2</sup>
------	------	--------	-------	----------	---	--------------------------

Therefore, Set Point;  $W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = 4.04$ 

 Remarks:

 Conducted by:
  $\underline{M}_{M}$  Signature:
  $\underline{M}_{M}$  Date:
  $\underline{M}_{I}$   $\underline{M}_{I}$  <

WELLAB 匯力	V	M		LA	B	歷	73
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# **High-Volume TSP Sampler** 5-POINT CALIBRATION DATA SHEET

						File No.	MA16002/45/0004	
Station:	AM2a - RE's Si	ite Office		Operator:	:HM	[		
Date:	22-Jan-19		_ :	Next Due Date:	:21-Mai	21-Mar-19		
Equipment No.	: <u>A-01-45</u>		-	Serial No.	1309			
					· . · · ·	ter an		
			Ambient (					
Temperati	ure, Ta (K)	286.4	Pressure, Pa	a (mmHg)	I	771.5		
		Or	ifice Transfer Sta	ndard Inform	ation			
Seria	ıl No.	2896	Slope, mc	0.0585	Intercep	t. bc	-0.00045	
Last Calibr	ration Date:	13-Feb-18			$c = [\Delta H x (Pa/76)]$			
	ration Date:	13-Feb-19	1		(Pa/760) x (298/			
		•						
		North Antala (China)	Calibration of	TSP Sampler				
Calibration		0	fice	····		HVS		
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	50) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of water		760) x (298/Ta)] <sup>1/2</sup> <b>Y-axis</b>	
1	12.4		3.62	61.84	7.0		2.72	
2	10.6		3.35	57.18	5.9		2.50	
3	7.8		2.87	49.05	4.8		2.25	
4	5.4		2.39	40.81	3.6		1.95	
5	3.3		1.87	31.91	2.4		1.59	
Slope , mw = Correlation c		0.9	985	Intercept, bw :	0.436	3		
				· · · · · · · · · · · · · · · · · · ·				
Energy the TOD D			Set Point Ca	alculation				
	ield Calibration C ssion Equation, the						Ē	
rioni nie Kegres	sion Equation, in	e i value acco	ording to					
		mw x Q	std + bw = $[\Delta W x]$	(Pa/760) x (29	98/Ta)] <sup>1/2</sup>			
Therefore, Se	et Point; W = ( mv	v x Qstd + bw )'	<sup>e</sup> x (760 / Pa)x (	Ta / 298) = .	3.84			
Remarks:								
Conducted by:	LEB MAN MEZ	Signature:	her	201 1		Date:	22/1/2019	
Checked by:		Signature:	Viw,	Devi		Date:	27/112019	
	0	-				-		

nvir	D o n m		al	D		Ver announ on th	0	ALIBRATION DUE DATE: Sary 13, 2019
	Ce	rtifa	cate e	<u> </u>			rtion	5.7 (5.850,4975,4076, 5.75
			Calibration	8		1		214
Cal. Date:	February 13	3, 2018	Rootsr	neter S/N:	438320		293	۴K
Operator:	Jim Tisch					Pa;	763.3	mm Hg
Calibration	Model #:	TE-5025A	Calib	arator S/N:	2896			
	100000		14 1 10 1			1.5		7
		Vol. Init	Vol. Final	∆Vol.	ΔTime	ΔΡ		
	Run	(m3) 1	(m3)	(m3) 1	(min) 1.4670	(mm Hg) 3.2	(in H2O) 2.00	1
	2	3	2	1	1.4870	5.2	4.00	
	3	5	6	1	A 6 1 9 9 1 1 9 9 1 9 1 9 1 9 1 9 1 9 1 9	8.0	5.00	
	4	7	8	1	0.8840	8.8	5.50	
	5	9	10	1		12.8	8.00	-
		- 1			N (55)			J
				ata Tabula	tion		20	-
	Vstd	Qstd	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right)}$	)( <u>Tstd</u> ) Ta)		Qa	$\sqrt{\Delta H(Ta/Pa)}$	
	(m3)	(x-axis)	(y-axi		Va	(x-axis)	(y-axis)	
	1.0172	0.6934	1.429		0.9958	0.6788	0.8762	-
	1.0129	0.9758	2.021		0.9916	0.9553	1.2392	
	1.0107	1.0962	2.259	(1945) 1	0.9895	1.0732	1.3854	
	1.0097	1.1422	2.370		0.9885	1.1182 1.3562	1.4530	
	1.0045		2.057		0.9032	1.5502 m=	1.7324	
	QSTD	b=	-0.000		QA	b=	-0.00028	2
		r=	0.999	#2 2 M		r=	0.99992	
	0	1.00000000 B		Calculation	nr.			1
	Vstd=l		/Pstd)(Tstd/Ta		20122-04 02010-20 00205 00	ΔVol((Pa-Δ	P)/Pa)	
		Vstd/ATime	, scultiscut ta			Va/ATime	Wid)	1
			For subseque	ent flow ra				1
	Qstd=	1/m (( \sqrt{\Delta H})	Pa ) Tstd Pstd Ta )	)-b)	Qa=	11	(Та/Ра))-ь)	
	Standard	Conditions			14			
Tstd:	298,15 <			[	6	RECA	LIBRATION	
		mm Hg			US EPA reco	mmenden	nnual recalibrati	on ner 1998
Pstd:		ey er reading (i	1 H2O1				legulations Part	an interesting a second and
	ir manamat		11201				-	
ΔH: calibrate	or manomet ter manome	ter reading	mm Hg)		Appendix F	s to Part 50	Reference Meth	100 IOF THE
	ter manome	eter reading (	mm Hg)				Reference Meti ended Particulat	
ΔH: calibrate ΔP: rootsme	ter manome solute temp	eter reading ( rerature (*K)			Determinat	ion of Susp	nded Particulat re, 9.2.17, page	e Matter in

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

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

APPENDIX D 1-HOUR AND 24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Location AM1 - No.31 Wai Loi Tsuen									
Date	Date Time		Particulate Concentration ( µg/m³)						
1-Feb-19	9:00	Cloudy	103.3						
1-Feb-19	10:00	Cloudy	91.2						
1-Feb-19	11:00	Cloudy	93.9						
4-Feb-19	9:00	Fine	182.3						
4-Feb-19	10:00	Fine	142.8						
4-Feb-19	11:00	Fine	152.2						
9-Feb-19	8:30	Fine	143.9						
9-Feb-19	9:30	Fine	137.8						
9-Feb-19	10:30	Fine	126.0						
15-Feb-19	9:00	Sunny	78.2						
15-Feb-19	10:00	Sunny	81.4						
15-Feb-19	11:00	Sunny	85.4						
21-Feb-19	9:00	Cloudy	75.0						
21-Feb-19	10:00	Cloudy	79.0						
21-Feb-19	11:00	Cloudy	83.9						
26-Feb-19	13:10	Cloudy	128.5						
26-Feb-19	14:10	Cloudy	129.6						
26-Feb-19	15:10	Cloudy	132.8						
		Minimum	75.0						
		Maximum	182.3						
		Average	113.7						

# Appendix D - 1-hour TSP Monitoring Results

Location AM2 - Fu Tei Au									
Date	Time	Weather	Particulate Concentration ( µg/m3)						
1-Feb-19	13:00	Cloudy	96.1						
1-Feb-19	14:00	Cloudy	102.6						
1-Feb-19	15:00	Cloudy	84.6						
4-Feb-19	13:00	Fine	128.5						
4-Feb-19	14:00	Fine	114.2						
4-Feb-19	15:00	Fine	140.6						
9-Feb-19	13:15	Fine	131.0						
9-Feb-19	14:15	Fine	140.1						
9-Feb-19	15:15	Fine	122.2						
15-Feb-19	13:00	Sunny	84.2						
15-Feb-19	14:00	Sunny	88.2						
15-Feb-19	15:00	Sunny	79.2						
21-Feb-19	14:00	Cloudy	60.0						
21-Feb-19	15:00	Cloudy	86.1						
21-Feb-19	16:00	Cloudy	75.7						
26-Feb-19	8:30	Cloudy	161.1						
26-Feb-19	9:30	Cloudy	144.7						
26-Feb-19	10:30	Cloudy	140.1						
		Minimum	60.0						
		Maximum	161.1						
		Average	110.0						

### Appendix D- 24-hour TSP Monitoring Results

#### AM1a - SWHSTW site boundary

Compling Data Start Ti	Start Time	Weather	Air	Air Atmospheric		Filter Weight (g)		Elapse Time		Sampling	Flow Rate (m <sup>3</sup> /min.)		Av. flow	Total vol.	Conc.
Sampling Date	Start Time	Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
4-Feb-19	9:00	Sunny	292.3	767.5	3.6155	3.6800	0.0645	16752.6	16776.6	24.0	1.19	1.19	1.19	1716.3	37.6
8-Feb-19	11:00	Cloudy	297.6	764.4	2.9617	3.0286	0.0669	16776.6	16800.6	24.0	1.18	1.18	1.18	1695.4	39.5
14-Feb-19	9:00	Cloudy	293.1	768.9	2.9840	3.0119	0.0279	16800.6	16824.6	24.0	1.19	1.19	1.19	1715.5	16.3
20-Feb-19	9:00	Cloudy	294.9	767.0	2.9907	3.0473	0.0566	16824.6	16848.6	24.0	1.19	1.19	1.19	1707.3	33.2
25-Feb-19	9:00	Cloudy	287.8	767.3	3.1938	3.2920	0.0982	16848.6	16872.6	24.0	1.20	1.20	1.20	1731.0	56.7
														Min	16.3
														Max	56.7

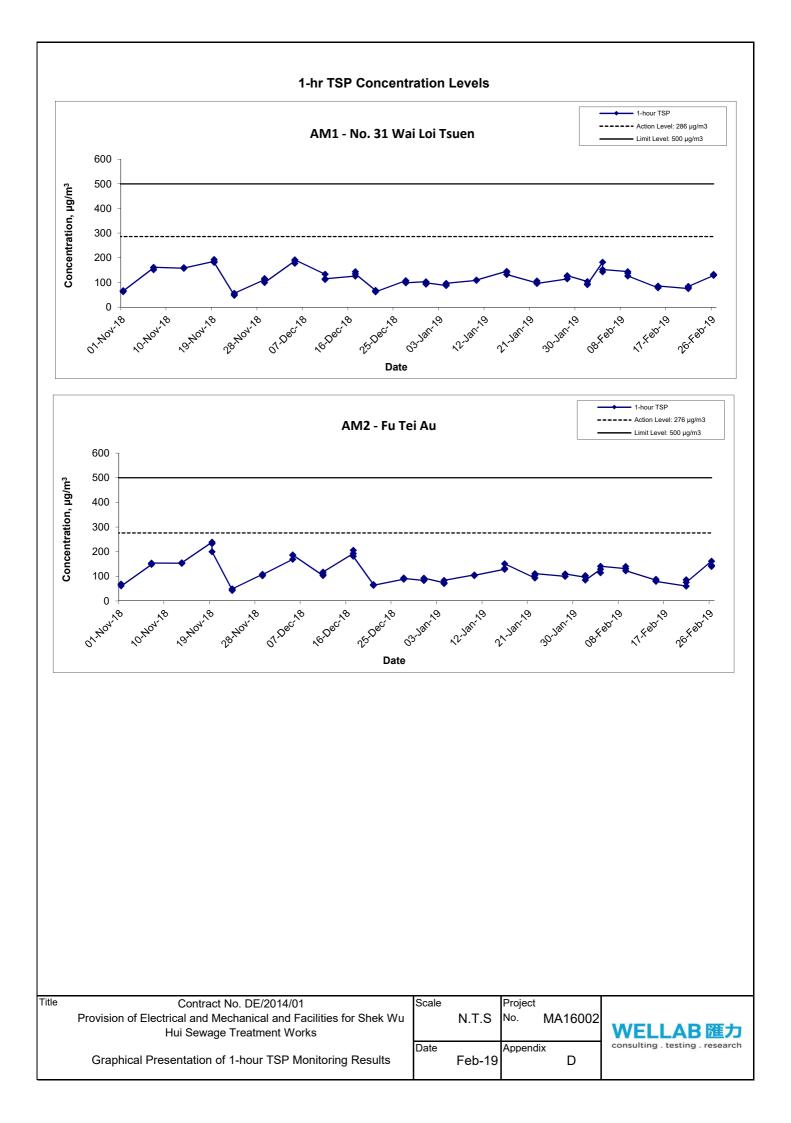
#### AM2a - RE's Site Office

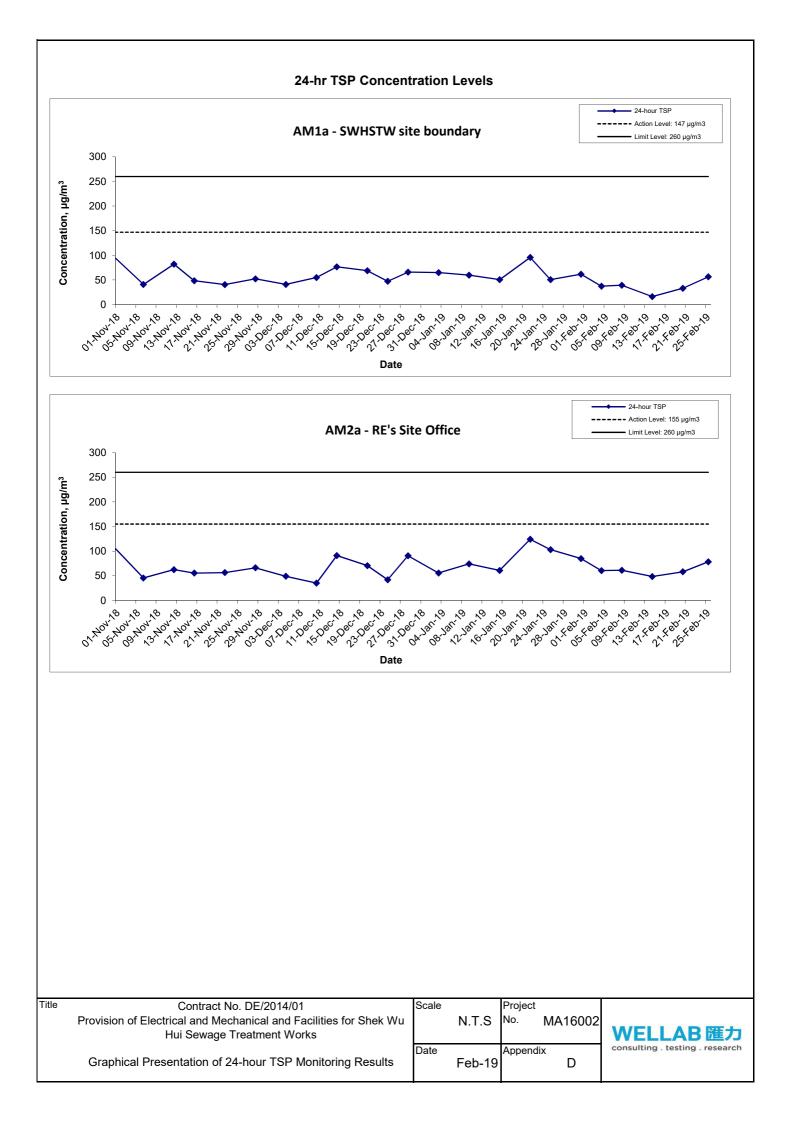
Sampling Date Start Time		Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	(m <sup>3</sup> /min.)	Av. flow	Total vol.	Conc.
Sampling Date	Start Time	Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m <sup>3</sup> /min)	(m <sup>3</sup> )	(µg/m <sup>3</sup> )
4-Feb-19	9:00	Sunny	292.6	767.4	3.6469	3.7503	0.1034	7765.2	7789.2	24.0	1.19	1.19	1.19	1710.6	60.4
8-Feb-19	11:50	Cloudy	298.3	764.0	2.9792	3.0823	0.1031	7789.2	7813.2	24.0	1.17	1.17	1.17	1684.6	61.2
14-Feb-19	9:00	Cloudy	293.5	769.1	2.9843	3.0674	0.0831	7813.2	7837.2	24.0	1.19	1.19	1.19	1709.7	48.6
20-Feb-19	9:00	Cloudy	294.6	767.2	2.9686	3.0676	0.0990	7837.2	7861.2	24.0	1.18	1.18	1.18	1702.9	58.1
25-Feb-19	9:00	Cloudy	287.7	767.7	3.1984	3.3338	0.1354	7861.2	7885.2	24.0	1.20	1.20	1.20	1729.7	78.3
														Min	48.6
														Max	70.0

Max 78.3 Average 61.3

Average

36.6





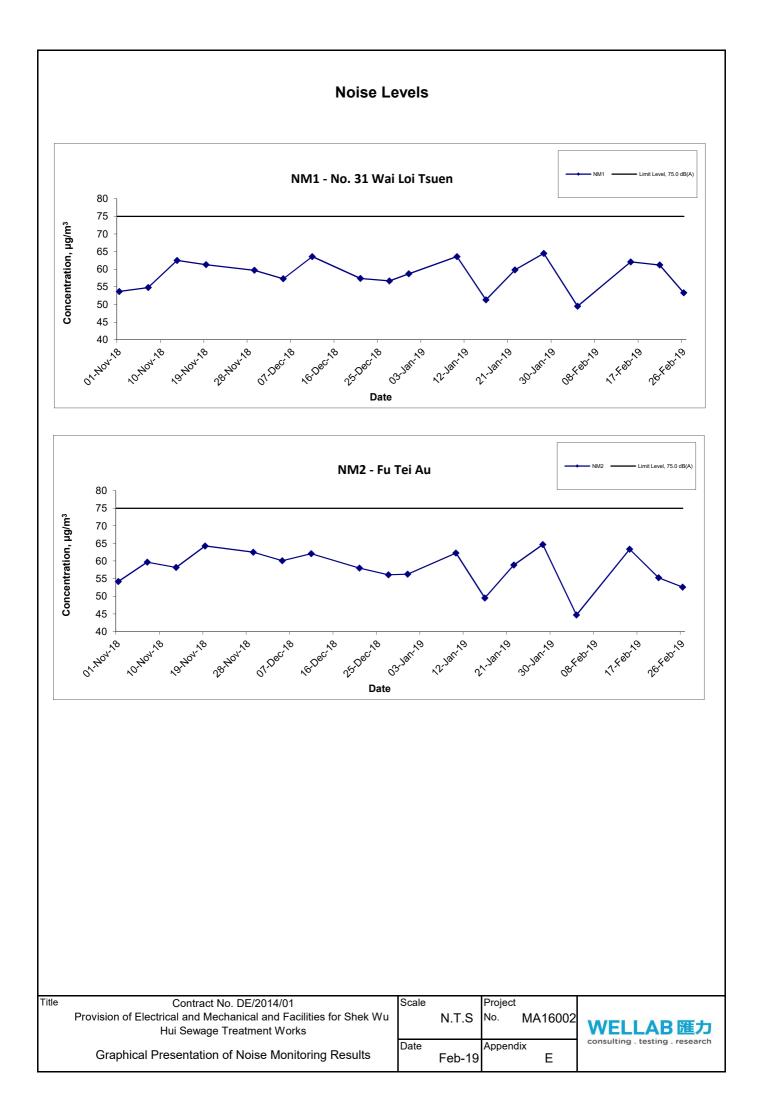
APPENDIX E NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

#### Appendix E - Noise Monitoring Results

#### (0700-1900 hrs on Normal Weekdays)

Location NM1 - No.31 Wai Loi Tsuen										
		Weather	Unit: dB (A) (30-min) Measured Noise Level							
Date	Time									
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>					
4-Feb-19	9:30	Sunny	49.5	52.4	44.3					
15-Feb-19	9:10	Sunny	62.1	63.2	55.7					
21-Feb-19	10:00	Cloudy	61.2	63.3	56.7					
26-Feb-19	15:00	Cloudy	53.3	55.0	51.0					

Location NM2 - Fu Tei Au										
			Unit: dB (A) (30-min)							
Date	Time	Weather	Measured Noise Level							
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>					
4-Feb-19	13:00	Sunny	44.7	46.1	38.1					
15-Feb-19	13:15	Sunny	63.4	65.3	59.5					
21-Feb-19	15:30	Cloudy	55.3	56.8	51.3					
26-Feb-19	11:00	Cloudy	52.6	53.9	49.7					



APPENDIX F SUMMARY OF EXCEEDANCE

# APPENDIX F – SUMMARY OF EXCEEDANCE

# Reporting Month: February 2019

- a) Exceedance Report for 1-hr TSP (NIL)
- b) Exceedance Report for 24-hr TSP (NIL)
- c) Exceedance Report for Construction Noise (NIL)

APPENDIX G SITE AUDIT SUMMARY

## **Record Summary of Environmental Site Inspection**

Checklist Reference Number	190208
Date	08 February 2019 (Friday)
Time	09:30-10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	

Ref. No.	Remarks/Observations	Related Item No
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li>Part F – Waste / Chemical Management</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others / Remarks	
	• Follow-up on previous audit session, all environmental deficiency was rectified.	

	Name	Signature	Date
Recorded by	Jonathan Lee	X	11 February 2019
Checked by	Dr. Priscilla Choy	NI	11 February 2019

## Contract No: DE/2014/01

Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works -Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station

### **Record Summary of Environmental Site Inspection**

Checklist Reference Number	190213	
Date	13 February 2019 (Wednesday)	
Time	09:30-10:30	

Ref. No.	Non-Compliance	Related Item No.
	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<ul> <li><i>Part C - Water Quality</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li>Part D - Air Quality</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part E – Construction Noise Impact</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul> <li><i>Part F – Waste / Chemical Management</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<ul><li><i>Part G - Permit / Licenses</i></li><li>No environmental deficiency was identified during the site inspection.</li></ul>	
	Others / Remarks	
	• No environmental deficiency was identified during the previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan	29	15 February 2019
Checked by	Dr. Priscilla Choy	NI	15 February 2019

## **Record Summary of Environmental Site Inspection**

Checklist Reference Number	190221	
Date	21 February 2019 (Thursday)	
Time	09:30-10:30	

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	<ul> <li><i>Part F – Waste / Chemical Management</i></li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others / Remarks	
	• No environmental deficiency was identified during the previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan	2-P	21 February 2019
Checked by	Dr. Priscilla Choy	NZ	21 February 2019

## Contract No: DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works -Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station

## **Record Summary of Environmental Site Inspection**

Checklist Reference Number	190227	
Date	27 February 2019 (Wednesday)	
Time	09:30-10:30	

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Remarks/Observations	Related Item No.
Part C - Water Quality	
Part D - Air Quality	
Part E – Construction Noise Impact	
Part F – Waste / Chemical Management	
No environmental deficiency was identified during the site inspection.     Part G - Permit / Licenses	
• No environmental deficiency was identified during the site inspection.	
<ul> <li>Others / Remarks</li> <li>No environmental deficiency was identified during the previous audit</li> </ul>	
	<ul> <li>Part C - Water Quality</li> <li>No environmental deficiency was identified during the site inspection.</li> <li>Part D - Air Quality</li> <li>No environmental deficiency was identified during the site inspection.</li> <li>Part E - Construction Noise Impact</li> <li>No environmental deficiency was identified during the site inspection.</li> <li>Part F - Waste / Chemical Management</li> <li>No environmental deficiency was identified during the site inspection.</li> <li>Part G - Permit / Licenses</li> <li>No environmental deficiency was identified during the site inspection.</li> </ul>

	Name	Signature	Date
Recorded by	Eric Chan	2p	28 February 2019
Checked by	Dr. Priscilla Choy	NI	28 February 2019

APPENDIX H SUMMARY OF AMOUNT OF WASTE GENERATED Name of Department: Drainage Services Department

Contract No. : DE/2014/01

# **Monthly Summary Waste Flow Table for 2019**

		Annual Quan	tities of Inert Co	&D Materials Ger	nerated Monthly		Annual Quantities of C&D Materials Generated Monthly				
Month	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)
Jan	0	0	0	0	0	0	0	0.016	0	0	4.06
Feb	0	0	0	0	0	0	0	0.009	0	0	2.63
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0.025	0	0	6.69
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0.025	0	0	6.69

	Forecast of Total Quantities of C&D Materials to be Generated from the Contractor									
Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
(in '000 m <sup>3</sup> )	(in '000 m <sup>3</sup> )	(in '000 m <sup>3</sup> )	(in '000 m <sup>3</sup> )	(in '000 m <sup>3</sup> )	(in '000 m <sup>3</sup> )	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)
0	0	0	0	0	0	0	0.5	0.5	0.5	50

Notes: (1) The performance targets are given in PS Clause 6.21.8(14).
 (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m<sup>3</sup>. (PS Clause 6.21.7(4)(b) refers).

APPENDIX I EVENT ACTION PLANS

# **APPENDIX I – Event / Action Plans**

# Table I-1 Event / Action Plan For Air Quality

ACTION							
ET	IEC	ER	CONTRACTOR				
1. Identify source, investigate the causes of exceedance and propose	1. Check monitoring data submitted by ET;	1. Notify Contractor.	1. Rectify any unacceptable practice;				
remedial measures;	2. Check Contractor's working		2. Amend working methods				
<ol> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to</li> </ol>	method.		if appropriate.				
<ol> <li>Identify source;</li> <li>Inform IEC and ER;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance continues, attace</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented</li> </ol>	<ol> <li>Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>				
	ET 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange	ETIEC1. Identify source, investigate the causes of exceedance and propose remedial measures;1. Check monitoring data submitted by ET;2. Inform IEC and ER; 3. Repeat measurement to confirm finding;2. Check Contractor's working method.4. Increase monitoring frequency to daily.1. Check monitoring data submitted by ET;3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings;1. Check contractor's working method.3. Advise the ER on the effectiveness of the proposed remedial measures; findings;3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures;5. Increase monitoring frequency to daily;4. Advise the ET on the effectiveness of the proposed remedial measures;6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional5. Supervise Implementation of remedial measures.	ETIECER1. Identify source, investigate the causes of exceedance and propose remedial measures; 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. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings;1. Check monitoring data submitted by ET; 2. Check Contractor's working method;1. Confirm receipt of notification of exceedance writing; 2. Notify Contractor; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional1. Coeffectiveness remedial measures.				

	ACTION							
EVENT	ET	IEC	ER	CONTRACTOR				
LIMIT LEVEL								
1. Exceedance for	1. Identify source, investigate the	1. Check monitoring data submitted	1. Confirm receipt of	1. Take immediate action to				
one sample	causes of exceedance and propose	by ET;	notification of failure in	avoid further exceedance;				
	remedial measures;	2. Check Contractor's working	writing;	2. Submit proposals for				
	2. Inform Contractor ,IEC, ER, and	method;	2. Notify Contractor;	remedial actions to IEC				
	EPD;	3. Discuss with ET and Contractor	3. Ensure remedial	within 3 working days of				
	3. Repeat measurement to confirm	on possible remedial measures;	measures properly	notification;				
	finding;	4. Advise the ER on the	implemented	3. Implement the agreed				
	4. Increase monitoring frequency to	effectiveness of the proposed		proposals;				
	daily;	remedial measures;		4. Amend proposal if				
	5. Assess effectiveness of Contractor's	5. Supervise implementation of		appropriate				
	remedial actions and keep IEC, EPD	remedial measures						
	and ER informed of the results.							
2. Exceedance for	1. Notify IEC, ER, Contractor and	1. Discuss amongst ER, ET, and	1. Confirm receipt of	1. Take immediate action to				
two or more	EPD;	Contractor on the potential remedial	notification of exceedance	avoid further exceedance;				
consecutive	2. Identify source;	actions;	in writing;	2. Submit proposals for				
samples	3. Repeat measurement to confirm	2. Review Contractor's remedial	2. Notify Contractor;	remedial actions to IEC				
	findings;	actions whenever necessary to	3. In consolidation with the	within 3 working days of				
	4. Increase monitoring frequency to	assure their effectiveness and advise	IEC, agree with the	notification;				
	daily;	the ER accordingly;	Contractor on the remedial	3. Implement the agreed				
	5. Carry out analysis of Contractor's	3. Supervise the implementation of	measures to be	proposals;				
	working procedures to determine	remedial measures.	implemented;	4. Resubmit proposals if				
	possible mitigation to be		4. Ensure remedial	problem still not under				
	implemented;		measures properly	control;				
	6. Arrange meeting with IEC and ER to		implemented;	5. Stop the relevant portion				
	discuss the remedial actions to be		5. If exceedance continues,	of works as determined by				

	ACTION							
EVENT	ET	IEC	ER	CONTRACTOR				
	taken;		consider what portion of	the ER until the exceedance				
	7. Assess effectiveness of Contractor's		the work is responsible and	is abated				
	remedial actions and keep IEC, EPD		instruct the Contractor to					
	and ER informed of the results;		stop that portion of work					
	8. If exceedance stops, cease additional		until the exceedance is					
	monitoring		abated.					

# Table I-2 Event / Action Plan For Construction Noise

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

APPENDIX J ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

#### **Objectives of the** Who to Location When to **Requirements** / EM&A Recommended of the Relevant **Recommended Mitigation Measures** implement the implement the Ref. Measures measures? measures? Legislations measure Air Quality Α Dust suppression measures stipulated in the Air Pollution Control S2.4.1.3 To minimize the Contractor Work Sites Construction phase Air Pollution Control (Construction Dust) Regulation and good site practices: dust impact of Advance Works Ordinance (APCO) Any excavated or stockpile of dusty material should be covered entirely • and Main Works of and Air Pollution by impervious sheeting or spraved with water to maintain the entire Phase 1A Control (Construction surface wet and then removed or backfilled or reinstated where Dust) Regulation practicable within 24 hours of the excavation or unloading; Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones; The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water ٠ jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; Surfaces where any pneumatic or power-driven drilling, cutting, ٠ polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be spraved with ٠ water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by ٠ impervious sheeting; Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; Cement or dry PFA delivered in bulk should be stored in a closed silo ٠ fitted with an audible high level alarm which is interlocked with the

# APPENDIX J IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
	<ul> <li>material filling line and no overfilling is allowed;</li> <li>Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.</li> </ul>					
В	Noise					
S3.4.1.1	wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m <sup>2</sup> on a skid footing with 25mm thick internal sound absorptive lining.	To minimize construction noise impact arising from the Project at the affected noise sensitive receivers (NSRs)	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM,
S3.4.1.2	<ul> <li>Good Site Practice:</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.</li> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	To minimize	Contractor	Work Sites	Construction period of Advance Works and Main Works of Phase 1A	EIAO-TM, NCO
С	Ecological Impact					
S4.2.1.2	Avoid unnecessary lighting.	Minimize mortality impacts on birds.	Design/ Contractor/ Plant Operator	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM
S4.2.1.3	Good construction site practice to minimise dust generation should be followed on all construction sites. Measures to avoid, minimise and mitigate impacts on air quality are detailed in this schedule	Minimize dust generation from construction sites.	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
S4.2.1.4	<ul> <li>The following measures to avoid, minimise and mitigate impact on water quality during construction phase shall be implemented</li> <li>Temporary severage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies;</li> <li>Proper locations well away from nearby water bodies should be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpiles of construction debris and spoil, and these should be identified before commencement of works;</li> <li>To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies should be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work sites;</li> <li>Construction debris and spoil should be covered and/or properly disposed of as soon as possible to avoid these being washed into nearby water bodies;</li> <li>Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified;</li> <li>Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies;</li> <li>Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited;</li> <li>Regular water monitoring and site audit should be carried out at adequate points along any watercourses where construction works are underway upstream within their catchments and also on the Ng Tung, Sheung Yue and Shek Sheung Rivers. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works should be considered;</li> <li>Excavation profiles should be indentified before insult and safety;</li> <li>Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the</li></ul>		Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM

EM&A Ref.	<b>Recommended Mitigation Measures</b>	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
	<ul> <li>water bodies; and</li> <li>Supply of suitable clean backfill material after excavation, if required.</li> <li>Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent discharge during transport or during wet season;</li> <li>Speed control for the trucks carrying contaminated materials should be enforced;</li> <li>Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and</li> <li>Other measures as detailed in this schedule.</li> </ul>					
D	Water Quality Impact					
\$5.2.2.1	Construction Site Runoff Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.	Control construction runoff	Contractors	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM, WPCO, EIAO
\$5.2.2.2- \$5.2.2.3	<ul> <li>Sewage from Workforce</li> <li>Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> <li>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures</li> </ul>	Handling of site sewage	Contractors	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM, WPCO, EIAO
Е	Waste Management					
S6.2.2.1	<ul> <li>Good Site Practices and Waste Reduction Measures:</li> <li>Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</li> <li>Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;</li> </ul>	Minimize waste Generation during construction	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal Ordinance (WDO)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
	<ul> <li>Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Engineer for approval.</li> </ul>					
\$6.2.3.1	<ul> <li>Waste Reduction Measures:</li> <li>Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>Proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;</li> <li>Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and</li> <li>Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.</li> </ul>		Contractor	Work Sites	Prior to the commencement of construction of Advance Works and Main Works of Phase 1A	WDO
S6.2.4.1 - S6.2.4.2	<ul> <li>Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</li> <li>Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> <li>Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations should be designated to stockpile each material to enhance reuse.</li> <li>Remove waste in timely manner;</li> <li>Employ the trucks with cover or enclosed containers for waste transportation;</li> <li>Obtain relevant waste disposal permits from the appropriate authorities; and</li> <li>Disposal of waste should be done at licensed waste disposal facilities.</li> </ul>	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	WDO
\$6.2.5.3	<ul> <li>C&amp;D Material from Buildings Demolition and New Building Construction</li> <li>The Contractor should recycle as much as possible of the C&amp;DM on- site. Public fill and C&amp;DM waste should be segregated and stored in</li> </ul>	Minimize waste impacts from building demolition and new	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Land (Miscellaneou s Provisions) Ordinance, WDO,

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
	<ul> <li>different containers or skips to enhance reuse or recycling of materials and their proper disposal. For example, concrete and masonry can be crushed and used as fill, and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites should be designated for such segregation and storage.</li> <li>The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used.</li> <li>Government has developed a charging policy for the disposal of waste to landfill at present. It will provide additional incentive to reduce the volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented.</li> <li>In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously.</li> <li>To facilitate proper segregation of inert and non-inert C&amp;D material arising from demolition works, selective demolition method should be adopted.</li> </ul>	building construction				ETWB TCW No. 19/2005
\$6.2.5.4	<ul> <li>Chemical Waste</li> <li>If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers.</li> <li>Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
\$6.2.5.5	<ul> <li>General Refuse</li> <li>General refuse should be stored in enclosed bins separately from construction and chemical wastes.</li> <li>Recycling bins should also be placed to encourage recycling.</li> <li>Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.</li> <li>A reputable waste collector should be employed to remove general refuse on a daily basis.</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

APPENDIX K COMPLAINT LOG

# **APPENDIX K – COMPLAINT LOG**

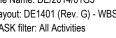
# **Reporting Month**: February 2019

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

**Remarks**: No environmental complaint was received in the reporting month.

APPENDIX L CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct	Nov -1	Dec	Jan 2	Feb 3	Mar 4	Apr	May 6	201 Jun	8 Jul	Aug	Sep	Oct	Nov 12	Dec 13	Jan 14	Feb 15	Mar 16	2019 Apr 17	May 18	Jun 19	Jul ig 20 !1
Shek Wu Hu	ui STW - Master Programme DE/2014/01				-2	-	<u> </u>	2		4	5	0		0	3	10		12	13	14	13	10	17	10	19	20 .1
Contract Da	oata e & Completion Date																									
AS000010	Contract Date (LOA)	0 28-Dec-15 A																								
AS000020	Contract Starting Date	0 30-Dec-15 A																								
AS000020	Original Contract Period	297 30-Dec-15 A	23-Oct-18	182														28-Oct-18 O	riginal Contra	of Period						
AS000110 AS000220		237 30-Dec-13A		102														25-001-10, 0		d Feriou			•	22 Apr 10 Co	atract Campl	btion Data farith
	Contract Completion Date for the whole of the Works	0	23-Apr-19	0																			•	23-Api-19, Co	itract Comp	etion Date for th
Access Date		0 00 Dec 15 A	07 4 10 4	_																						
AS001010	PM's Site Office and Contractor's Site Office and Storage Area, (within 120 days)	0 30-Dec-15 A																								
AS001012	Planned Access Date for PM's Site Office and Contractor's Site Office and Storage Area	0 27-Apr-16 A				<u></u>																				
AS001020	Flowmeter Chamber, MBR Pre-treatment Screen Chamber and its vicinity, (within 560 days)	0 30-Dec-15 A																								
AS001022	Planned Access Date for Flowmeter Chamber, MBR Pre-treatment Screen Chamber and its vicinity	0 06-Nov-17 A				1																				
AS001030	Bioreactor no.1 (BR1) and its vicinity, (within 560 days)	0 30-Dec-15 A																								
AS001032	Planned Access Date for Bioreactor no.1 (BR1) and its vicinity	0 01-Dec-17 A					1																			
AS001040	MBR Facilities Building, Membrane Filtration System No.1 (MFS1) and its vicinity, (within 566 days)	0 30-Dec-15 A																								
AS001042	Planned Access Date for MBR Facilities Building, Membrane Filtration System No.1 (MFS1) and its vicinity	0 19-Nov-17 A					1 1 1 1																			
AS001050	Ng Chow South Road Sewage Pumping Station - (within 158 days)	0 30-Dec-15 A																								
AS001052	Planned Access Date for Ng Chow South Road Sewage Pumping Station	0 04-Jun-16 A	04-Jun-16 A																							
AS001100	New Access Date for MFB -B/F	1 30-Mar-18	30-Mar-18*	0					30-	-Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-B/F												
AS001120	New Access Date for MFB -G/F	0 06-Dec-17 A	06-Dec-17 A				1																			
AS001150	New Access Date for MFB -CLP Rm C	0 29-Sep-17 A	29-Sep-17 A																							
AS001160	New Access Date for MFB -CLP Rm D	0 26-Sep-17 A	26-Sep-17 A																							
AS001170g	New Access Date for MFB -11kV Switch room	0 03-Nov-17 A	03-Nov-17 A			I																				
AS001175g	New Access Date for MFB -LV Switchroom 1 at G/F	1 30-Mar-18	30-Mar-18*	17					30-	-Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-LV Switchroo	om 1 at G/F											
AS001180	New Access Date for MFB -1/F (Air Blowers Area)	1 20-Feb-18	20-Feb-18*	17				20-	Feb-18   20-F	eb-18*, Ne	v Access Date	for MFB - 1/F	(Air Blowers	s Area)												
AS001180g	New Access Date for MFB -1/F (Other Areas)	1 30-Mar-18	30-Mar-18*	22					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-1/F (Other A	vreas)											
AS001200	New Access Date for MFB -LR/F	1 30-Mar-18	30-Mar-18*	237					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-LR/F												
AS001220	New Access Date for MFB -UR/F	1 30-Mar-18	30-Mar-18*	237					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-UR/F												
AS001240	New Access Date for MFB -Parapet & Roof	1 30-Mar-18	30-Mar-18*	237					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for MFB	-Parapet & R	oof											
AS001300	New Access Date for Pre-treatment Screen Chamber	1 03-Jan-18	03-Jan-18*	4			03-Jan-18	l 03-Jan-1	18*, New Access I	Date for Pre	-treatment Sc	reen Chamber	r													
AS001320	New Access Date for Flowmeter Chamber	1 30-Mar-18	30-Mar-18*	87					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for Flown	neter Chamb	er											1
AS001340	New Access Date for Bioreactor No. 1 - 2nd Lane	0 06-Dec-17 A	06-Dec-17 A				1																			
AS001342	New Access Date for Bioreactor No. 1 - 1st Lane (2nd Half)	1 25-Jan-18	25-Jan-18*	77			2	Jan-18 🛛	25-Jan-18*, Nev	w Access Da	te for Bioreac	tor No. 1 - 1st	Lane (2nd H	Half)												
AS001342g	New Access Date for Bioreactor No. 1 - 1st Lane (1st Half)	1 30-Mar-18	30-Mar-18*	10					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for Biorea	actor No. 1	1st Lane (1st	t Half)										
AS001344	New Access Date for Bioreactor No. 1 - Post Anoxic Zone	1 30-Mar-18	30-Mar-18*	13					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for Biorea	actor No. 1	Post Anoxic	Zone										
AS001360	New Access Date for Membrane Tanks	1 30-Mar-18	30-Mar-18*	17				+	30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for Memb	orane Tanks												
AS001380	Availability of CLP Cable Ducts	0 03-Nov-17 A	03-Nov-17 A			I .																				
AS001400	New Access Date for Other Cable Ducts	1 30-Mar-18	30-Mar-18*	8					30-	Mar-18 I	30-Mar-18*, N	lew Access Da	ate for Other	Cable Ducts												
AS001420	New Access Date for Chemical Room	1 30-Apr-18	30-Apr-18*	72						3	0-Apr-18	30-Apr-18*, N	lew Access D	ate for Chem	nical Room											
AS001440	New Access Date for LV Switchroom No.3	1 30-Apr-18	30-Apr-18*	37						3	0-Apr-18	30-Apr-18*, N	lew Access D	ate for LV Sv	vitchroom No	0.3										
Key Dates																										
AS002010	Completion of NCSRPSP E&M Works including testing and commissioning	0 30-Dec-15 A	28-Jul-17 A				1 1 1 1 1																			
	File Name: DE/2014/01G3	Remain										Contra	ct No.	DE/20	14/01					Da Da		Revisi		Checked		proved
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities	Critical						P	rovision	of E&						age Tre	eatme	nt Wor	ks	08-Jan- 22-Jun-		Rev. 0 Rev. D		H Lau H Lau	KM KM	
			Progress								-	nsion P								12-Jul-1	17	Rev. E	KI	H Lau	KM	
	Page 1 of 16									Ng (	Chow So	outh Ro		-	-	ng Stat	ion			17-Oct- 27-Mar		Rev. F Rev. G		H Lau H Lau	KM KM	
	EC											Mas	ster Pr	ogram	me						10			i ∟du		
																						•				



tivity ID	Activity Name	Remaining Start Duration	Finish	Tota Float						ar Apr	May	2018 Jun	Jul	Aug	Sep		lov Dec			Mar	2019 Apr			Jul ig
AS002020	Completion of SWHSTW - Further Expansion Phase 1A - Advance Works E&M Works including T&C, process commissioning	380 30-Dec-15 A	23-Apr-19	C	-2	-1	1	2	3 4	4 5	6	7	8	9	10	11	12 13	14	15	16	17 23	-Apr-19, Com	19 2 Diletion of SWHS	20 11 TW - Fur
Section I AS200010	Contract Completion of the works - Section I	0 30-Dec-15 A	23-Sep-16.4																					
AS200010 AS200020	Completion date - Section I (272 days from starting date)	0	23-Sep-16 A																					
	owance and Planned Completion		20 000 1011																					
AS200040	Planned Completion date - Section I	0	23-Sep-16 A																					
Section II AS300010	Contract Completion of the works - Section II	0 30-Dec-15 A	18-Mar-16 A																					
AS300020	Completion date - Section II (80 days from starting date)	0	18-Mar-16 A																					
	owance and Planned Completion																							
AS300040	Planned Completion date - Section II	0	18-Mar-16 A																					
Section III AS400010	Contract Completion of the works - Section III	440 30-Dec-15 A	15-Mar-19	39	9															15-M	ar-19, Contrac	t Completion	of the works - Sec	ction III
AS400020	Completion date - Section III (1029 days from starting date)	0	23-Apr-19	C																	23	-Apr-19, Com	pletion date - Sec	tion III (
Time Risk All	owance and Planned Completion																							
AS400030	Time Risk Allowance for Completion of Function Test of Section III (4% of installation duration, 463-469 days)	18 06-Apr-19	23-Apr-19	C	D															06-Apr-19			Risk Allowance fo	
AS400040	Planned Completion date - Section III	0	23-Apr-19	C	0																<b>◆</b> 23	-Apr-19, Planr	ed Completion d	ate - Se
Section IV AS500010	Contract Completion of the works - Section IV	0 30-Dec-15 A	28-Jul-17 A																					
AS500020	Completion date - Section IV (278 days from starting date)	0	28-Jul-17 A		ate - Section IV (27	78 days from	starting dat	te)																
	owance and Planned Completion																							
AS500030 AS500040	Time Risk Allowance for Section IV (4% of installation duration, 120 days)	0 22-Jun-17 A	28-Jul-17 A	_	plation Data																			
	Planned Completion Date	0	28-Jul-17 A		pletion Date																			
1.01 - Prelimin	edule No.1 - Preliminaries <sup>aries</sup>																							
Contractor's S	Site Office Construction Construction of Contractor's Site Office & Store	0 22-Jul-16 A	23-Sep-16 A																					
AS101012	Maintain Contractor's Site Office & Store	450 27-Oct-16 A	25-Mar-19	8	3															2	5-Mar-19, Ma	intain Contrac	or's Site Office &	Store
AS101014	Removal of Site Office, Store & Relevant Facilities	21 26-Mar-19	15-Apr-19	8	3															26-Mar-19 🗖	15-Ap	r-19, Remova	of Site Office, St	tore & R
Site Facilities																								
AS101030	Set up Temp. Electricity Supply, Water Supply	0 18-Aug-16 A																						
AS101032	Provision of Temp. Electricity & Water Supply for execution for the Contract	471 27-Oct-16 A	15-Apr-19	8	3																15-Ap	r-19, Provisior	of Temp. Electri	city & Wa
AS101040	Applications to the Public Utilities for Provision of Services	0 29-Jan-16 A	23-Sep-16 A																					
AS101041	Completion of CLP 11kV Switchroom No. 1 & No.2 (by Other Contractor)	0	29-Sep-17 A		29-Sep-17 A, Cor	mpletion of CI	LP 11kV Sv	vitchroom N	No. 1 & No.2 (by O	ther Contractor)														
AS101042	BS Works for CLP 11 kV Switchroom No.1 & No. 2	0 30-Sep-17 A	02-Nov-17 A	_	_																			
AS101042g	H/O Inspection of 11 kV Switchroom with CLP	13 03-Nov-17 A	12-Jan-18	75	5 3-Nov-17 A			12-Jai	n-18, H/O Inspectio	on of 11 kV Switch	room with CLP													
AS101043	Handover of 11 kV Switchroom to CLP	0	12-Jan-18	75	5			🔶 12-Jai	n-18, Handover of	11 kV Switchroom	to CLP													
AS101045	Provision of Permanent Electricity Supply (by CLP)	120 13-Jan-18	12-May-18	75			13-Jan-18					ay-18, Provision of			y (by CLF	<b>)</b>								
AS101045a	CLP Meters Installed	0	22-May-18	94	4						♦ 2	22-May-18, CLP Me												
AS101046	Provision of Telemetry & Telephone Lines	30 19-Aug-18	17-Sep-18	36	<sup>5</sup>								19-Aug	-18	<b>17-</b> 56	ep-18, Provision o	nt Telemietry & Tele	ephone Lines						
AS101050	ecessary labour, tools, materials, equipment and supervision Environmental Auditing and fulfilling the Environmental Permit	471 29-Jan-16 A	15-Apr-19	8	3																15-Ap	r-19, Environn	nental Auditing ar	າd fulfilliກ
	s and As-Built Drawings																							
AS101061	Prepare & Submit the first draft O&M Manuals	90 19-May-18	16-Aug-18	87	7					19	May-18		17			e & Submit the firs								
AS101062 AS101071	Acceptance the first draft O&M Manuals Prepare & Submit the final draft O&M Manuals & all Drawings	28 17-Aug-18 90 23-Nov-18	13-Sep-18 20-Feb-19	17	7								17-Aug-		13-Sep	23-Nov-1		i wanuais		20-Feb-19 Pro	nare & Submi	t the final draft	O&M Manuals &	all Draw
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	Page 2 of 16		- 3. 000							Ng Chow	South	Road Sew	/age P	umping	Statio	on		17-Oct-		Rev. F	KH		KM	
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AS101150 Prov work Uniform AS101170 Unifor Independent Chec	urs) ovide O&M of the Petrol-Electricity Contract Cars; Driving Services (outside normal rking hours) iform for Site Personnel and self-employed workers		15-Apr-19																		15-Apr-19, Pr	ovide O&M o	f the Contract C
AS101150 Prov work Uniform AS101170 Unifor Independent Chec	vide O&M of the Petrol-Electricity Contract Cars; Driving Services (outside normal rking hours)	471 29-Jan-16 A		8			-						:							1	15-Apr-19, Pr	ovide O&M o	f the Electric Co
Uniform AS101170 Unifo Independent Chec	form for Site Personnel and self-employed workers		15-Apr-19	8	-		_									1					15-Apr-19, Pr	ovide O&M o	f the Petrol-Elec
AS101170 Unifo																							
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	cking Engineer																						
	ovision of Independent Certified Engineer in accordance with the Specification	471 29-Jan-16 A	15-Apr-19	8		1 1 1 1 1					1	:					: : 	1		1	15-Apr-19, Pr	ovision of Ind	ependent Certifi
Automated Extern	nal Defibrillator (AED)																						
	ovide Automated External Defibrillator (AED) and associated accessories	0 18-Nov-16 A	12-Dec-16 A																				
AS101192 Prov	ovide Training for Qualified on-site personnels for the use of AED	0 13-Dec-16A	22-Dec-16 A																				
	- · · ·																						
	t Plan for Trip Ticket System mplete site management plan for trip ticket system	0 30-Dec-15 A	13-Mar-16 A																				
AS102020 Imple	plementation of site management plan for trip ticket system	471 14-Mar-16 A	15-Apr-19	8																	15-Apr-19, Im	plementation	of site manager
Site Cleaning and			10.4 10																				
AS103010 (i) S	Site and works area in Shek Wu Hui Sewage Treatment Works - Daily	471 26-Sep-17 A	19-Apr-19	4																1	19-Apr-19, (	) Site and v	vorks area in Sh
AS103020 (ii) S	Site and works area in Ng Chow Nam Road Sewage Pumping Station - Daily	0 05-Jun-16 A	27-Sep-16 A																				
AS103030 (i) S	Site and works area in Shek Wu Hui Sewage Treatment Works - Weekly	471 26-Sep-17A	19-Apr-19	4		¦ 	_													1	19-Apr-19, (	) Site and v	vorks area in Sh
AS103040 (ii) S	Site and works area in Ng Chow Nam Road Sewage Pumping Station - Weekly	0 05-Jun-16 A	27-Sep-16 A																				
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	mplete sub-contractor management plan	0 30-Dec-15 A	27-Feb-16 A																				
AS104020 Quai	arterly updating of sub-contractor management plan	471 29-May-16 A	15-Apr-19	8																	15-Apr-19, Qu	arterly unda	ing of sub-cont
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Waste Managemen AS105010 Com	ent Plan mplete waste management plan	0 30-Dec-15 A	28-Mar-16 A																				
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AS105020 Revie	view and updating of waste management plan	471 29-Mar-16 A	15-Apr-19	8																	15-Apr-19, Re	view and up	dating of waste r
Safety Scheme		0.00 D 45 A																					
AS106010 Com	mplete Safety Plan	0 30-Dec-15 A	27-FeD-16A																				
AS106030 Upda	date Safety Plan	471 29-Feb-16 A	19-Apr-19	4																	19-Apr-19, l	Ipdate Safet	Plan
AS106050 Prov	ovide Safety Officer	471 28-Apr-16 A	15-Apr-19	8							i 	:	:		:	1	· · · ·			1	15-Apr-19, Pr	ovide Safety	Officer
AS106070 Atter	end Site Safety and Environment Management Committee	471 28-Apr-16 A	15-Apr-19	8																	15-Apr-19, Att	end Site Safe	ety and Environn
	end Site Safety and Environment Committee	471 28-Apr-16 A	15-Apr-19	٩																	15-Apr-19 AH	end Site Sof	ety and Environn
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AS106090 Arra	ange and attend weekly safety walk	471 28-Apr-16 A	15-Apr-19	8																	15-Apr-19, Ar	ange and atl	and weekly safe
AS106100 Arrai	ange and attend weekly environmental walk	471 28-Apr-16 A	15-Apr-19	8												1					15-Apr-19, Ar	ange and atl	end weekly envi
AS106110 Prov	ovide safety and environment training - (i) 1 day course ( for first attendance)	471 28-Apr-16 A	15-Apr-19	8								:	:		:						15-Apr-19, Pr	ovide safety a	and environment
AS106120 Prov	ovide safety and environment training - (ii) 0.5 day revalidation course	471 28-Apr-16 A	15-Apr-19	8																	15-Apr-19. Pr	ovide safetv #	and environment
AS106130 Prov	vide safety and environment training - site specific induction training	471 28-Apr-16 A	15-Apr-19	8																	10-Apr-19, Pr	viue satety a	and environment
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AS106140	Provide safety and environment training - tool			1 28-Apr-16 A		8								1				1						15-Apr-19, Provide s	
AS106150	Provide safety and environment training:Parti instructed by the Engineer	icipate in safety promotional campaign as	471	1 28-Apr-16 A	15-Apr-19	8													1					15-Apr-19, Provide s	afety and environ
AS107010	Arrange and hold Pre-work Activities of Site S	Safety Cycle	471	1 28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Arrange	and hold Pre-worl
AS107020	Provide safety bulletin board		471	1 28-Apr-16 A	15-Apr-19	8				1	1		1	1		1	1			1	1	<u>i</u> i	<u>.                                    </u>	15-Apr-19, Provide s	safety bulletin boa
AS107030	Use of quality powered mechanical equipment	nt	471	1 28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Use of question	uality powered me
AS109010	Confined Space Training for Competent Pers		471	1 28-Apr-16 A		0																		15-Apr-19, Confined	
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AS109020	Confined Space Training for Certified Worker	rs to certified workers	471	1 28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Confined	Space Training for
Invironment					07.5 1 10.4																				
AS106020	Complete Environmental Management Plan		0	0 30-Dec-15 A	27-Feb-16 A																				
AS106040	Update Environmental Management Plan		471	1 29-Feb-16 A	19-Apr-19	4			-										1	1	1			19-Apr-19, Update	Environmental N
AS106060	Provide Environmental Officer		471	1 29-Jan-16 A	15-Apr-19	8													· · · · · · · · · · · · · · · · · · ·					15-Apr-19, Provide I	Environmental Of
AS108010	Use of mechanical dump truck covers		471	1 29-Feb-16 A	19-Apr-19	4			-		-		-									<u> </u>		19 Apr-19, Use of	mechanical dum
AS111010	Update the EM&A Manual		471	1 28-Feb-16 A	15-Apr-19	8														1				15-Apr-19, Update t	he EM&A Manua
AS111020	Implement all necessary environmental impac	ct mitigation measures	471	1 28-Feb-16 A	15-Apr-19	8																		15-Apr-19, Impleme	ent all necessary e
	· · · ·																								
AS111030	Employ Environmental Team		U	0 30-Dec-15 A	27-Apr-16 A																				
AS111032	Provide Environmental Team Services		471	1 28-Apr-16 A	15-Apr-19	8						1							1	1	1			15-Apr-19, Provide I	Environmental Te
	s Commissioning																								
AS112000	Process Commissioning (Refer to Section III)		0	0	05-Apr-19	0																	♦ 05	05-Apr-19, Process Com	missioning (Refe
	Procurement Programme				07.5 1 10.4																				
S003000	Prepare & Submit Procurement Programme		U	J 30-Dec-15 A	27-Feb-16 A																				
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ctivity Scheo	dule No.2 alculation of Plant and Materials																								
AS201100	Complete Design Calculation of Plant & Mater	erial (Refer to P&M Submission Schedule	0	0 30-Dec-15 A	23-Sep-16 A																				
2 - Civil Rea	for details) uirment Drawings for the Plant																								
AS202100	Complete Civil Requirment Drawings for Flow MF Tanks & MFB (B/L)	wmeter Chamber, Pre-treatment Screen,	0	0 30-Dec-15 A	28-Mar-16 A													+				+	·		
AS202200	Complete Other Civil Requirment Drawings (	Refer to Dwgs Submission Schedule for	0	0 30-Dec-15 A	23-Sep-16 A																				
3 - Detailed F	details) Design and Plant Layout Drawings																								
AS203100	Complete Detailed Design and Plant Layout I	Drawings (Refer to Dwgs Submission	0	29-Mar-16 A	23-Sep-16 A																				
ection II of	Schedule for details)																								
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	alculation of Plant and Material																								
AS301100	Complete Design Calculation of Plant & Mater for details)	rial (Refer to P&M Submission Schedule	0	0 30-Dec-15 A	18-Mar-16 A																				
2 - Civil Requ AS302100	uirment Drawings for the Plant Complete Civil Requirment Drawings (Refer t	ta Duuga Submissian Cabadula far dataila)	0	0 30-Dec-15 A	10 May 16 A																				
		to Dwgs Submission Schedule for details)	0	50-Dec-15 A	10-101a1-10 A																				
3 - Detailed D AS303100	Design and Plant Layout Drawings Complete Detailed Design and Plant Layout D	Drawings (Refer to Dwgs Submission	0	0 30-Dec-15 A	18-Mar-16 A																				
	Schedule for details)																								
ection III o																									
	ial Procurement Award of Suppliers - Mechanical - ME	BR1																							
AS400100	Procurement of BR Feedpumps & Associated	d Equipment	0	28-May-16 A	23-Sep-16 A										[		[								
AS400110	Procurement of MBR Pre-treatment Screen		0	29-Mar-16 A	21-Jun-16 A																				
AS400120	Procurement of Wash compactors, bagging s	system	0	28-May-16 A	25-Aug-16 A																				
AS400120a	Procurement of screenings skips			0 30-Sep-16 A	-																				
AS400130	Procurement of Associated ductworks, pipewo		0	0 30-Sep-16 A													     								
AS400140	Procurement of Mist system, FRP kiosk and c	drain pumping system	0	0 30-Sep-16 A	05-Sep-17 A																				
AS400150	Procurement of Ancillary areation system		0	27-Jun-16 A	22-Sep-16 A																				
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	Page 4 of 16				<b>U</b>						Ng	Chow	South I	Road S	ewage	Pumpi	ng Stat	ion			17-Oct		Rev. F	KH Lau	KM
													Μ	aster P	rogran	nme					27-Mar	-18	Rev. G	KH Lau	KM
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64.84       Notice interactions       - <td>AS400160</td> <td>Procurement of Other Associated Equip't for MBR Pre-treatment Screen Facilities</td> <td>23 20-Nov-17 A</td> <td>22-Jan-18</td> <td>91</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>reen Facilities</td> <td>10</td> <td></td> <td>12</td> <td>13</td> <td>14</td> <td>13</td> <td>10</td> <td>17</td> <td>10</td> <td>13</td> <td>20</td>	AS400160	Procurement of Other Associated Equip't for MBR Pre-treatment Screen Facilities	23 20-Nov-17 A	22-Jan-18	91								reen Facilities	10		12	13	14	13	10	17	10	13	20
General Arrows Arr				1																				
State       November 2																								
and																								
name       nam       name       name															1 1 1 1									
and set or control and set of the s	AS400230	Procurement of Surplus Activated Sludge Pumps	0 28-May-16 A	22-Sep-16 A																				
1000000000000000000000000000000000000	AS400240	Procurement of Air Diffusion System	0 29-Mar-16 A	01-Jun-16 A																				
Addef       Name of the state of a state if a point of a state if a po	AS400250	Procurement of Associated pipework, ductwork & valves BR1	23 30-Sep-16 A	22-Jan-18	62				2-Jan-18, Procurement	of Associated pipework, d	uctwork & valve	s BR1												
	AS400260	Procurement of Foam control system and wash water spraying system	0 27-Jun-16 A	22-Sep-16 A																				
Name       Nume       Num       Nume       Num       Num       Num       Num       Num       Num       Num       Num       Num<	AS400270	Procurement of Other associated equipment for BR1	23 30-Sep-16 A	22-Jan-18	64			2	2-Jan-18, Procurement	of Other associated equip	ment for BR1													
name			0 14 Mpr 16 A	20 Apr 16 A																				
Among Yeb Maxama Jee       Among Yeb Maxama Jee <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																								
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Available																								
mem       m			0 30-Sep-16 A	29-Jun-17 A																				
Addem       Aussier of Outrights       Support       Sup	AS400360		0 30-Sep-16 A	05-Sep-17 A																				
Amount of Contract Advanced Lations:       1	AS400370	Procurement of Wash Water Pumping System	0 03-Jul-17 A	05-Sep-17 A																				
	AS400380	Procurement of Associated Pipes, Valves & Fittings- MFS1	23 09-Jan-17 A	22-Jan-18	53			2	2-Jan-18, Procurement	of Associated Pipes, Valve	s & Fittings- M	FS1												
40000       Name       0       0.00000       0       0.00000       0	AS400390	Procurement of Other Associated Equipment - MFS1	23 09-Jan-17 A	22-Jan-18	23			2	2-Jan-18, Procurement	of:Other Associated Equi	oment - MFS1													
Anomental Purpulsation Line Automatic Ling Applicable Location Li		· · · · · · · · · · · · · · · · · · ·	0 28-May-16 A	22-Sep-16 A																				
Norward Register - Protocols, Hung Applane 1, Bangel Market Register 1, Bangel Market Reginter 1, Bangel Market Register 1, Bangel Market Regis															+									
NAME       Processor       Operation				20-Sep-17 A																				
Addem       Description       Second       Second <td></td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td>-</td> <td>15-Feb-17 A</td> <td></td>		· · · · · · · · · · · · · · · · · · ·	-	15-Feb-17 A																				
Image: Section of Section Sectin Section Section Section Section Section Section Sectio	AS400510	Procurement of Penstocks	0 30-Sep-16 A	15-Feb-17 A																				
Autom       Autom <td< td=""><td>AS400520</td><td>Procurement of Deodorisers System</td><td>0 24-Feb-17A</td><td>26-Jul-17 A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	AS400520	Procurement of Deodorisers System	0 24-Feb-17A	26-Jul-17 A																				
Autom       Autom <td< td=""><td>Tender and A</td><td>Award of Suppliers - Electrical Main &amp; Sub-main</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Tender and A	Award of Suppliers - Electrical Main & Sub-main																						
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Add0000       Poorement of LV. Suichbard       0       0.4.4r-10A       2.5.9r-16A       0.4.4r-17A       0.5.9r-16A       0.4.4r-17A       0.4.4r-14	AS400610	Procurement of 3.3kV HV Switchboard	0 28-Apr-16 A	21-Sep-16 A																				
Astrongenerated Variable Speed Drive       40       40.548,14       Autorn 10       40.548,14       Autorn 10       10       40.548,14       Autorn 10       10       10.548,14	AS400620	Procurement of Transformer	0 28-Apr-16 A	21-Sep-16 A																				
A840050       Mourement of Subser for Motor, Seven & Alline etc.       Or De 2 Aug. 16.       2 Sep. 16.       Or De 2 Sep.	AS400630	Procurement of L.V. Switchboard	0 28-Apr-16 A	22-Sep-16 A																				
A340000       Posurement of Powr Supply Cables       0	AS400640	Procurement of Variable Speed Drive	0 30-Sep-16 A	02-Mar-17 A																				
Action	AS400650	Procurement of Starter for Motor, Screen & Mixer etc.	0 22-Aug-16 A	22-Sep-16 A																				
AS400500       Procurement of Cable Tray & Turaking etc.       O       26-Nov-16A       24-Nov-17A       O       A	AS400660	Procurement of Power Supply Cables	0 30-Sep-16 A	07-Dec-17 A			-																	
Tender and Avard of Suppliers - Monitoring at Control System       0       2-Nov-16A       10-Jul-17A       Nov         AS400700       Procurement of Monitoring at Control System       0       2-Nov-16A       10-Jul-17A       Low	AS400670	Procurement of Earthing & Lightning Materials	11 26-Nov-16 A	10-Jan-18	55			10-Jan	18, Procurement of Ea	rthing & Lightning Materia	ıls													
AS400700       Procurement of Monitoring & Control System       0       28-Nov-16A       18-Jul-17A       Image: Description of Descripticon of Description of Description of Descriptico	AS400680	Procurement of Cable Tray & Trunking etc.	0 26-Nov-16 A	24-Nov-17 A																				
AS400700       Procurement of Monitoring & Control System       0       26-Nov-16A       18-Jul-17A       Image: Discreption of Discreption	Tender and A	Award of Suppliers - Monitoring and Control System					• • • • • • • • • • • • • • • • • • • •																	
AS400720 Procurement of B.S. Plant & Materials 90 26-Nov-16A 30-Mar-18 21 Tender and Award of Suppliers - Fire Services AS40070 Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 28-Feb-18 20-90 Subcontracting Procurement of F.S. Plant & Materials 90 20-90 Subcontracting Procurement of F.S. Plan			0 26-Nov-16 A	18-Jul-17 A																				
Tender and Award of Suppliers - Fire Services       Date       Revision       Checked       Approved         As400740       Procurement of F.S. Plant & Materials       60       28-Feb-18       36       28-Feb-18, Procurement of F.S. Plant & Materials       1																								
As400740 Proceeded of F.S. Plant & Materials 60 26-Nov-16 A 28-Feb-18 36 28-Feb-18, Procurement of F.S. Plant & Materials 28-Feb-18, Pr			90 26-Nov-16 A	30-Mar-18	21					30-Mar-18, Procuren	ient of B.S. Plar	א Materials												
File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities       Remaining Work       Contract No. DE/2014/01         Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works TASK filter: All Activities       Date       Rev. 0       KH Lau       KM         Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works TASK filter: All Activities       Milestone       22-Jun-17       Rev. 0       KH Lau       KM         Page 5 of 16       Actual Progress       Actual Progress       KH Lau       KM			60 26-Nov-16 A	28-Feb-18	36				28-Feb-1	8, Procurement of F.S. P	lant & Materials													
File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities       Remaining Work       Contract No. DE/2014/01       Date       Revision       Checked       Approved         Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works TASK filter: All Activities       Milestone       Milestone       VM	Subcontractir	ng Process													- - - - -									
Page 5 of 16       Page 5 of 16       File Name, DE/2014/013       Contract No. DE/2014/01       08-Jan-16       Rev. 0       KH Lau       KM         Description       Actual Progress       Actual Progress       Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works of the transmission Phase 1A - Advance Works and the transmission Phase 1A - Advance Works and of the							: !		: !		:	:	:		:	:	:	: 	oto	Des del		Checkerd		
Layout Deliver (Nev. 9) WBS       Image: Second and the				•																				I UVEC
Further Expansion Phase 1A - Advance Works and       12-Jul-17       Rev. E       KH Lau       KM         Page 5 of 16       Ng Chow South Road Sewage Pumping Station       17-Oct-17       Rev. F       KH Lau       KM								Pr						-		nt Worl	ks	22-Jun	-17	Rev. D	КН	l Lau	КМ	
										-														
Master Programme     27-Mar-18     Rev. G     KH Lau     KM		Page 5 of 16							Ng	-		-	-	ng Stat	ion									
										r	Master F	Program	nme					27-Mar	-18	Rev. G	KH	Lau	KM	
																							<u> </u>	

Activity ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct Nov Dec	Jan	Feb	Mar Apr	May	2 Jun	2018 Jul	Αυα	Sep Oct	Nov Dec	Jan Fe	b Mar	2019 Apr May	Jun	Jul
Subcontracti	ng Prodedure and Acceptance	2 di allori		· iour	-2 -1 1	2	3	4 5	6	7	8	9	10 11	12 13	14 15		17 18	19	20
AS400800	Submit Details of the Tender, Tenderers & Procedures for Subcontractor Selection	60 30-Dec-15 A	28-Feb-18	10				28-Feb-18, Submit De	tails of the Tend	er, Tenderei	\$&Procedure	s for Subcont	tractor Selection						
AS400810	Comment on Details of the Tender, Tenderers & Procedures for Subcontractor	0 31-Aug-16 A	21 Aug 16 A																
	Selection																		
AS400820	Resubmit Details of the Tender, Tenderers & Procedures for Subcontractor Selection	0 31-Aug-16 A	31-Aug-16 A																
AS400830	Acceptance of Details of Tender, Tenderers & Procedures for Subcontractor Selection for the S/C by PM	83 20-Sep-16 A	23-Mar-18	7				23-Mar-18, A	Acceptance of D	letails of Ten	der, Tenderers	& Procedure	as for Subcontractor Selecti	on for the S/C by PM					
Tender and A	ward of Subontractors																		
AS300850	Procurement for Subcontracting - Mechanical Installation (BR1)	25 14-Mar-17 A	24-Jan-18	64			24-Jan-18, F	Procurement for Subcontr	acting - Mechar	ical Installati	on (BR1)								
AS300860	Procurement for Subcontracting - Mechanical Installation (MFS1)	83 01-Aug-17 A	23-Mar-18	396				23-Mar-18, F	Procurement fo	Subcontrac	ting - Mechani	cal Installation	n (MFS1)						
AS300870	Procurement for Subcontracting - Mechanical Installation (Penstocks / Stoplogs)	83 14-Mar-17 A	23-Mar-18	64	· · · · · · · · · · · · · · · · · · ·	· - • • • • • • • • • • • • • • • • • •		23-Mar-18, F	Procurement fo	Subcontrac	țing - Mechani	cal Installation	n (Penstocks / Stoplogs)						
AS300880	Procurement for Subcontracting - Mechanical Installation (Flowmeter Chamber)	0 14-Mar-17 A	30-Nov-17 A																
AS300890	Procurement for Subcontracting - Mechanical Installation (DO System -Supply &	0 28-Feb-17A	26- Jul-17 A																
	Install)																		
AS300900	Procurement for Subcontracting - Mechanical Installation (NCSRSPS)	0 25-May-16 A	12-Sep-16 A																
AS400840	Procurement for Subcontracting - Mechanical Installation (MBR Pre-treatment Screen Chamber)	0 21-Mar-17 A	30-Nov-17 A																
AS400910	Procurement for Subcontracting - FRP Cover (Supply & Install)	0 28-Feb-17 A	08-May-17 A																
AS400920	Procurement for Subcontracting - FRP Platform & Kiosk (Supply & Install)	91 02-Nov-17 A	31-Mar-18	11 2	-Nov-17 A			31-Mar-1	8 Procuremen	for Subcon	tracting - FRP	Platform & Ki	iosk (Supply & Install)						
AS400930	Procurement for Subcontracting - Lifting Appliances (Supply & Install)	0 25-Oct-16 A	19-Jan-17 A																
AS400940	Procurement for Subcontracting - Electrical (HV) Installation	0 20-Oct-16 A	01-Sep-17 A																
			· · · · · · · · · · · · · · · · · · ·																
AS400950	Procurement for Subcontracting - Electrical (LV) Installation	41 19-Nov-16 A	09-Feb-18	117			09-Fe	eb-18, Procurement for S	upcontracting -	Electrical (LV	) Installation								
AS400960	Procurement for Subcontracting - PQEM System (Supply & Install)	0 08-May-17 A	18-Jul-17 A																
AS400970	Procurement for Subcontracting - SCADA / PLC System (Supply & Install)	0 30-Sep-16 A	18-Jul-17 A																
AS400980	Procurement for Subcontracting - Building Services (Supply & Install)	11 10-Feb-17 A	10-Jan-18	36		10-Ja	an 18, Procur	ement for Subcontracting	- Building Servi	ces (Supply	& Install)								
AS400982	Procurement for Subcontracting - SS316 Air Duct (Supply & Install)	33 10-Feb-17 A	01-Feb-18	123			01-Feb-1	18, Procurement for Subo	ontracting - SS	16 Air Duct	Supply & Insta	all)							
AS400990	Procurement for Subcontracting - Fire Services (Supply & Install)	60 10-Feb-17A	28-Feb-18	36				28-Feb-18, Procureme	ent for Subcontr	acting - Fire	Services (Sun	nlv & Install)							
								<u> </u>											
AS400992	Procurement for Subcontracting - FS Water Tanks (Supply & Install)	60 10-Feb-17 A	28-Feb-18	36				28-Feb-18, Procureme	ent for Subcontr	acting - FS (	Vater Tanks (S	supply & Insta	all)						
Activity Sche	edule No. 4 or MBR Pre-treatment Screen Chamber																		
	g, FAT and Delivery																		
AS401010	Purchase Order for BR Feedpumps & Associated Equipment	0 06-Sep-16 A	23-Sep-16 A																
AS401012	Manufacturing, FAT & Delivery to Site - BR Feedpumps & Associated Equipment	0 14-Oct-16 A	18-Jul-17 A																
AS401030	Purchase Order for MBR Pre-treatment Screen	0 01-Jun-16 A	21-Jun-16 A																
AS401032	Manufacturing, FAT & Delivery to Site - MBR Pre-treatment Screen	53 06-Jul-16 A	21-Feb-18	16				21-Feb-18, Manufacturing	, FAT & Deliver	y to Site - M	BR Pre-treatm	lent Screen							
AS401050	Purchase Order for Wash Compactors, bagging system	0 23-May-16 A	21-Jun-16 A																
AS401050a	Purchase Order for Screening skips & FRP Kiosk	0 16-Oct-17A	19-Oct-17 A																
							<u></u>												
AS401052	Manufacturing, FAT & Delivery to Site - Wash Compactors, bagging system	53 31-Aug-16 A	21-Feb-18	91				21-Feb-18, Manufacturing	g, FAT & Deliver	y to Site - W	ash Compacto	ors, bagging s	system						
AS401052a	Manufacturing, FAT & Delivery to Site - Screening skips & FRP Kiosk	152 20-Oct-17 A	31-May-18	55 -	17 A					31-May-1	3, Manufacturii	ng, FAT & De	livery to Site - Screening sk	ips & FRP Kiøsk					
AS401070	Purchase Order for Mist system and drain pumping system	0 14-Aug-17 A	05-Sep-17 A																
AS401072	Manufacturing, FAT & Delivery to Site - Mist system and drain pumping system	152 06-Sep-17 A	31-May-18	22			-			31-May-1	, Manufacturii	g, FAT & De	livery to Site - Mist system a	and drain pumping system					
AS401090	Purchase Order for Associated pipeworks and valves	0 18-Sep-17A	20-Sep-17 A																
AS401092	Manufacturing, FAT & Delivery to Site - Associated pipeworks and valves	47 21-Sep-17 A	15-Feb-18	7			15	-Feb-18, Manufacturing, F	AT & Deliverv t	o Site - Asso	ciated pipewor	ks and valves	8						
AS401110	Purchase Order for Ancillary areation system	0 13-Sep-16A																	
AS401112	Manufacturing, FAT & Delivery to Site - Ancillary areation system	60 05-May-17 A	28-Feb-18	114				28-Feb-18, Manufactu	ring, FAT & Del	very to Site	Ancillary area	tion system							
AS401130	Purchase Order for Other associated equipment for MBR Pre-treatment Screen Facilities	14 09-Jan-18	22-Jan-18	91	09-Jan-	18 💻	22-Jan-18, P	urchase Order for Other	associated equi	oment for M	R Pre-treatm	ent Screen F	acilities						
AS401132	Manufacturing & Delivery to Site / FAT - Other associated equipment for MBR Pre-treatment Screen Facilities	110 23-Jan-18	12-May-18	91	2	3-Jan-18 🗖			12-Ma	y-18, Manuf	acturing & Del	very to Site /	FAT - Other associated equ	uipment for MBR Pre-treat	ment Screen Facilitie	s			
Install, T&C fo	or Pre-treatment Screen Chamber (incl. Provision for Health & Safety Requirement	nts)																	
															Date	Revision	n Check	d ^~	provod
	File Name: DE/2014/01G3	Remai	•								). DE/20	-			08-Jan-16	Rev. 0	KH Lau	ed Ap KM	proved
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities	Critica				P	Provisio						age Treatmen	it Works	22-Jun-17	Rev. D	KH Lau	KM	
			Progress										e Works and		12-Jul-17	Rev. E	KH Lau	KM	
	Page 6 of 16							Ng Chow					ng Station		17-Oct-17	Rev. F	KH Lau	KM	
									M	aster P	rogram	nme			27-Mar-18	Rev. G	KH Lau	KM	

ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	2018 Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb Mar	20 Apr	19 May	Jun
AS401002	Mobilisation of Works - MBR Pre-Treatment Screen Chamber	14 04-Jan-18	17-Jan-18	36	-2	-1	1 04-Jan-18	2	Jan-18, Mot	4 disation of Wo	5 rks - MBR P	6 e-Treatment	7 Screen Cha	8 Imber	9	10	11	12	13	14	15 16	17	18	19
AS401020	Install BR Feedpumps, Control, Site Test	30 08-Apr-18	07-May-18	16	-					08-Apr-18	8	07-May	/-18, Install E	R Feedpump	s, Control, S	ite Test								
AS401040	Install MBR Pre-treatment Screens, Control, Site Test	45 22-Feb-18	07-Apr-18	16	_			22-	Feb-18		07-Apr	18, Install ME	BR Pre-treat	ment Screens	s, Control, Sit	te Test								
	Install Wash Compactors & bagging system	30 08-May-18	06-Jun-18	16	_									I-18, Install W			a system							
	Install Screening skips & FRP Kiosk	· ·		40																				
		30 07-Jun-18	06-Jul-18	49	_		1 1 1 1 1										& FRP Kiosk							
AS401080	Install Mist system and drain pumping system	30 07-Jun-18	06-Jul-18	16			1 1 1 1					07-Jun-18	8	06-Jul-	18, Install Mi	st system and	drain pumpin	system						
AS401100	Install Associated pipeworks and valves	120 17-Feb-18*	16-Jun-18	6			1 1 1 1	17-Fe	b-18* 💻				16	-Jun-18, Inst	all Associated	l pipeworks a	nd valves							
AS401120	Install Ancillary areation system	60 17-Jun-18	15-Aug-18	6	i							17-Ju	un-18 🗖		15	5-Aug-18, Inst	all Ancillary are	ation system						
AS401140	Install Other associated equipment for MBR Pre-treatment Screen Facilities	30 17-Jul-18	15-Aug-18	6	i								17-	Jul-18 💻	15	5-Aug-18, Inst	all Other asso	ciated equipm	ent for MBR P	re-treatment Scre	en Facilities			
AS401800	Complete Power Cables Laying from Switchboard to Inlet Screen Chamber	0	02-Aug-18	22											🔶 02-Aug-	18, Complete	Power Cable	s Laying from	\$witchboard t	o Inlet Screen Ch	amber			
AS401900	Site test and commission for MBR pre-treatment System	30 24-Aug-18	22-Sep-18	1	-		1 1 1 1 1							2	4-Aug-18	-	22-Sep-18, S	ite test and co	mmission for I	MBR pre-treatme	nt System			
4.2 Works for	pr Bioreactor No. 1 (BR1)						1 1 1 1 1																	
	g, FAT and Delivery Purchase Order for Aeration Blowers & master control for aeration system	0 18-Aug-16 A	24-Aug-16 A																					
				4 47			, , , , ,		00 1 10			Cita	A susting Di											
	Manufacturing, FAT & Delivery to Site - Aeration Blowers & master control for aeration system	30 04-Jul-16 A		147	_		1 1 1		1 29-Jan-18	, Manufacturin	g, FAT & De	very to Site -	Aeration Bio	owers & mast	er control for	aeration syst	em							
	Purchase Order for Submersible Mixers	0 06-Sep-16 A	22-Sep-16 A																					
AS402032	Manufacturing, FAT & Delivery to Site - Submersible Mixers	0 14-Oct-16 A	22-Sep-17 A																					
AS402050	Purchase Order for Mixed Liquor Return pumps	0 06-Sep-16 A	22-Sep-16 A				1 1 1 1 1					1 1 1 1												
AS402052	Manufacturing, FAT & Delivery to Site - Mixed Liquor Return pumps	0 14-Oct-16 A	06-Jul-17 A		_		1 1 1 1 1					, , , ,												
AS402070	Purchase Order for Surplus Activated Sludge Pumps	0 06-Sep-16 A	23-Sep-16 A																					
AS402072	Manufacturing, FAT & Delivery to Site - Surplus Activated Sludge Pumps	0 14-Oct-16 A	26-Sep-17 A		-																			
AS402090	Purchase Order for Air Diffusion System	0 02-May-16 A	01-Jun-16 A																					
AS402092	Manufacturing, FAT & Delivery to Site - Air Diffusion System	106 31-Mar-17 A	15-Apr-18	41			, , ,				15-	pr-18, Manu	ufacturing, FA	AT & Delivery	to Site - Air D	Diffusion Syste	em							
AS402110	Purchase Order for Associated ductworks, pipeworks and valves	0 13-Nov-17A	17-Nov-17 A		-																			
	Manufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	0 18-Nov-17 A										, , , ,												
					_																			
	Purchase Order for Foam control system & wash spraying system	0 13-Sep-16A			_		1 1 1 1 1																	
	Manufacturing, FAT & Delivery to Site - Foam control system & wash spraying system	68 14-Oct-16 A		/9			1 1 1 1					-		Site - Foam o			lying system							
	Purchase Order for Other associated equipment for Other associated equipment for BR1	14 09-Jan-18	22-Jan-18	64			09-Jan-1	8 💻 2	22-Jan-18, P	urchase Order														
AS402152	Manufacturing, FAT & Delivery to Site - Other associated equipment for BR1	60 23-Jan-18	23-Mar-18	64			23	Jan-18 🗖		2	3-Mar-18, M	anufacturing,	FAT & Deliv	ery to Site - C	ther associat	ted equipmer	nt for BR1							
	or BR1 (incl. Provision for Health & Safety Requirements) Mobilisation of Works - BR1	0 07-Dec-17 A	21-Dec-17 A																					
	Install Aeration blowers & master control system	60 28-Apr-18	26-Jun-18	59	_		1 1 1 1			a	8-Apr-18	1 1 1 1		26-Jun-18	Install Aerati	on blowers &	master contro	system						
				10	_						·	00 14 4				on blowers a		system						
	Install Submersible Mixers	30 03-Apr-18	02-May-18	10	_					03-Apr-18				omersible Mix										
	Install Mixed Liquor Return pumps	14 03-May-18	16-May-18	10									]	all Mixed Liqu										
AS402080	Install Surplus Activated Sludge Pumps	14 17-May-18	30-May-18	86							17-Ma	y-18 💻	30-May-1	8, Install Surp	olus Activated	Sludge Pum	os							
AS402100	Install Air Diffusion Aeration System	90 03-May-18	31-Jul-18	24							03-May-18				31-Jul-18	3, Install Air D	iffusion Aeratic	n System						
AS402120	Install Associated ductworks, pipeworks and valves	111 22-Dec-17 A	20-Apr-18	36	i	22-De	c-17A 🗖	1			20	-Apr-18, Ins	tall Associate	d ductworks,	pipeworks ar	nd valves								
AS402140	Install Foam control system & wash spraying system	30 03-May-18	01-Jun-18	24							03-May-18		01-Jun-1	8, Install Foa	m control sys	tem & wash s	spraying syster	n						
AS402160	Install Other associated equipment for BR1	90 17-May-18	14-Aug-18	10							17-Ma	y-18 🗖		 	14	-Aug-18, Inst	all Other assoc	iated equipm	ent for BR1					
AS402800	Complete Power Cable Laying from Switchboard to Plants for BR1	0	19-Aug-18	6					-						•	19-Aug-18, C	omplete Powe	r Cable Laying	g from Switchb	oard to Plants for	BR1			
AS402900	Site Testing & Commissioning for BR1	60 24-Aug-18	22-Oct-18	1	-									2	4-Aug-18			22-Oct-18, Si	te Testing & C	ammissioning for I	3R1			
4.3 Works for	pr Membrane Filtration System (MFS1)																							
Manufacturing	g, FAT and Delivery	0 10 4 10 4	20 Apr 10 A																					
A9403010	Purchase Order for Membrane Modules	0 18-Apr-16 A	29-Apr-16 A				   																	
	File Name: DE/2014/01G3	Remair	ning Work									Cont	ract NI		001 / /0	1				Date	Re	evision	Checked	Appro
	Layout: DE1401 (Rev. G) - WBS	Critical	•						ovicio	n of E&	M Fac			o. DE/2	-		reatmo	nt Mar	kc	08-Jan-16			KH Lau	KM
	TASK filter: All Activities	Milestor						"	GVISIU					e 1A - A		-			11.5	22-Jun-17 12-Jul-17	Rev.   Rev.		KH Lau KH Lau	KM KM
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	Page 7 of 16													-	-					27-Mar-1			KH Lau	KM
JE												101	laster l	rogran	nme					27 1110	100.	<u> </u>	Tarread	

i) NaOCI dosing pumps	12 Modules		10 Men	Aug 9 g, FAT & Delive ermeate Pump: ermeate Pump:	very to Site -	g, FAT & Del			4	Feb 3	Jan 2	Dec 1	56 9 9	lay-18 ep-16 A lar-18 ep-16 A	16A 2	ion  51 28-Mar-1  0 13-Sep-1		anufacturing, FAT & Delivery to Site - Membrane Modules urchase Order for Permeate Pumps	AS403012 AS403030
i) NaOCI dosing pumps			is Compressor	ermeate Punip	very to Site -	g, FAT & Del							9	ep-16A lar-18	16A 2				
ii) Citric Acid dosing pum	(i) NaOCI (	∣System (i)	Compressor		Blowers	Air Scouring							9	lar-18		0 13-Sep-1		urchase Order for Permeate Pumps	AS403030
ii) Citric Acid dosing pum	(i) NaOCI (	∣System (i)	Compressor		Blowers	Air Scouring							9		6A 2				710400000
ii) Citric Acid dosing pum	(i) NaOCI (	∣System (i)		rery to Site - Air			ivery to Site -	ıg, FAT & De	-18, Manufacturin					ep-16A		88 07-Oct-16	8	anufacturing, FAT & Delivery to Site - Permeate Pumps	AS403032
ii) Citric Acid dosing pum	(i) NaOCI (	₁ System (i)		ery to Site - Air			livery to Site -	ıg, FAT & De	-18, Manufacturin					001011	16 A 2	0 13-Sep-1		urchase Order for Return Activated Sludge Pumps	AS403050
ii) Citric Acid dosing pum	(i) NaOCI (	ı System (i)		rery to Site - Air			livery to Site -	ig, FAT & De	-18, Manufacturin					ep-17 A	6A 0	0 07-Oct-16		anufacturing, FAT & Delivery to Site - Return Activated Sludge Pumps	AS403052
i) Citric Acid dosing pum	(i) NaOCI (	ı System (ï		tery to Site - Air			livery to Site -	ıg, FAT & De	-18, Manufacturin				 	ug-16 A	16A 3	0 31-Aug-1		urchase Order for Backwash Pumps (Item Deleted)	AS403070
i) Citric Acid dosing pum	(i) NaOCI d	ı System (ij		tery to Site - Air			livery to Site -	ng, FAT & De	-18, Manufacturin					ug-16 A	16 A 3	0 31-Aug-1		anufacturing, FAT & Delivery to Site - Backwash Pumps (Item Deleted)	AS403072
i) Citric Acid dosing pum	(i) NaOCI d	ı System (i)		ery to Site - Air			livery to Site -	ng, FAT & De	-18, Manufacturin	1				ug-16 A	16 A 2	0 15-Aug-1		urchase Order for Air Scouring Blowers	AS403090
i) Citric Acid dosing pum	(i) NaOCI (	ı System (i)		ery to Site - Air	g, FAT & Del					29-Jan-1			 102	an-18	6 A 2	30 11-Apr-16	3	anufacturing, FAT & Delivery to Site - Air Scouring Blowers	AS403092
i) Citric Acid dosing pum	(i) NaOCI (	ı System (i)		ery to Site - Air	g, FAT & Del									ec-17 A	17A 2	0 18-Dec-1		urchase Order for Air Compressor	AS403110
i) Citric Acid dosing pum	(i) NaOCl (	ı System (i)				Manufacturi	29-Apr-18				<mark>1</mark>	-Dec-17A	 57	pr-18	17A 2	20 22-Dec-1	12	anufacturing, FAT & Delivery to Site - Air Compressor	AS403112
i) Citric Acid dosing pum	(i) NaOCI	g System (ij	omical Doging											un-17 A	7A 2	0 05-Jun-17		urchase Order for Chemical Dosing System (i) NaOCI dosing pumps	AS403130
		:	lernical Doşing -	very to Site - Ch	g, FAT & De	, Manufactur	30-Apr-18						86	pr-18	7A 3	21 30-Jun-17	12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (i) NaOCI dosing Imps	AS403132
		1												un-17 A	7A 2	0 05-Jun-17		urchase Order for Chemical Dosing System (ii) Citric Acid dosing pumps	AS403150
	(ii) Citric Ar	J System (ii	nemical Dosing	very to Site - Ch	g, FAT & De	, Manufactur	30-Apr-18						116	pr-18	7A 3	21 30-Jun-17	g 12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (ii) Citric Acid dosing Imps	AS403152
i) Chomical starses to													 	eb-17 A	17A 2	0 06-Feb-1		urchase Order for Chemical Dosing System (iii) Chemical storage tank	AS403170
iii) Chemical storage tanl	(ili) Chemic	J System (il	nemical Dosing	very to Site - Ch	ig, FAT & De	, Manufactur	30-Apr-18						116	pr-18	17 A 3	21 01-Mar-1	ge 12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (iii) Chemical storage nk	AS403172
														ep-17 A	17A 0	0 28-Aug-1		urchase Order for Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning rain Pumps	AS403190
Drain Pumps for MFS1 a	, Drain Pun	n Pumps, C	°ermeate Drain	livery to Site - F	ning, FAT & D	8, Manufactu	02-May-1						93	lay-18	17 A 0	23 06-Sep-1	12	anufacturing, FAT & Delivery to Site - Permeate Drain Pumps, Drain Pumps for FS1 and Cleaning Drain Pumps	AS403192
														ep-17 A	17A 0	0 28-Aug-1		urchase Order for Wash water pumping system	AS403210
a)m	tem	nping syste	ash water pump	very to Site - W	ig, FAT & De	, Manufactur	30-Apr-18					<u> </u>	 125	pr-18	17A 3	21 06-Sep-1	12	anufacturing, FAT & Delivery to Site - Wash water pumping system	AS403212
					ks and valve	vorks, pipewo	ociated ductv	Order for Ass	eb-18, Purchase C	02-Feb	3-Jan-18 📘	2	53	eb-18	8 0	11 23-Jan-18	1	urchase Order for Associated ductworks, pipeworks and valves	AS403230
peworks and valves	pipeworks a	tworks, pig	Associated duct	livery to Site - A	ring, FAT & D	8, Manufact	03-May-			8	03-Feb-1		53	lay-18	18 0	90 03-Feb-1	9	anufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	AS403232
					or MFS1	equipment	ner associate	Order for Otl	eb-18, Purchase C	02-Feb	3-Jan-18 🗖	2	23	eb-18	8 0	11 23-Jan-18	1	urchase Order for Other associated equipment for MFS1	AS403250
	1	for MFS1	ted equipment f	Other associat	elivery to Site	ring, FAT & D	8, Manufactu	03-Apr-1		8	03-Feb-1		23	pr-18	18 0	60 03-Feb-1	6	anufacturing, FAT & Delivery to Site - Other associated equipment for MFS1	AS403252
													 	17.4	17.4 0	0 07-Dec-1		IFS1 (incl. Provision for Health & Safety Requirements) obilisation of Works - MBR Facilities Building G/F	
												_						-	
				s Building B/F					31-Mar-18				0	pr-18		7 31-Mar-1		obilisation of Works - MBR Facilities Building B/F	AS403002a
					MFS1	tion of Works	r⊦18, Mobilisa	🗖 09-Ap	03-Apr-18				17	pr-18	8 0	7 03-Apr-18		obilisation of Works - MFS1	AS403004
stall Membrane Modules	nstall Mem				26-Jul-18 📕								0	ep-18	8 2	60 26-Jul-18	6	stall Membrane Modules, MFS Tank	AS403020
		gt	No.6, MBR Bldg	Pumps, No.1 - I	tall Permeate	1-May-18, In	2	3	07-Apr-18				0	lay-18	8 2	45 07-Apr-18	4	stall Permeate Pumps, No.1 - No.6, MBR Bldg	AS403040
e Pumps, No.1 - No.5, N	je Pumps,	ted Sludge	I Return Activate	25-Jul-18, Instal		6-Jun-18	2						0	ul-18	8 2	30 26-Jun-18	3	stall Return Activated Sludge Pumps, No.1 - No.5, MBR Bldg	AS403060
											1			ec-17 A	17A 3	0 30-Dec-1		stall Backwash Pumps -MBR Bldg (Not required)	AS403080
		J	vers, MBR Bildg	r Scouring Blow	n-18, Install A	<b>11</b> -Ju		28-Apr-18	2				14	un-18	8 1	45 28-Apr-18	4	stall Air Scouring Blowers, MBR Bldg	AS403100
		3R Bldg.	omp re ssor, MB	18, Install Air C	<b>11</b> -Ju	-18	12-Jun						14	ul-18	8 1	30 12-Jun-18	3	stall Air Compressor, MBR Bdg.	AS403120
				s - Chemical R				01-May-18	(				72	lay-18	18 1	14 01-May-1	1	obilisation of Works - Chemical Rooms	AS403140
		ge Tank	Pumps & Storag	laOCI Dosing P	un-18, Install	13-	y-18 🗖	15-Ma					72	un-18	18 1	30 15-May-1	3	stall NaOCI Dosing Pumps & Storage Tank	AS403142
torage Tank	Storage Ta	Pumps & S	ic Acid Dosing P	l-18, Install Citri	13-Ji	1-18	14-Jur						72	ul-18	8 1	30 14-Jun-18	3	stall Citric Acid Dosing Pumps & Storage Tank	AS403160
sing Pumps & Storage T	osing Pump	tic Acid Dos	18, Install Acetic	12-Aug-	18	14-Jı							81	ug-18	B 1	30 14-Jul-18	3	stall Acetic Acid Dosing Pumps & Storage Tank	AS403180
					J-Jun-18, Insl	2	May-18 🗖	22-					 74	un-18	18 2	30 22-May-1	3	stall Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning Drain Pumps, FS1 Drain Chamber	AS403200
for MFS1 and Cleaning	n, MBR Bld	ng system,	h water pumpin	18, Install Wash	11-Ju	Jun-18 🗖	21-						74	ıl-18	8 1	21 21-Jun-18	2	stall Wash water pumping system, MBR Bldg.	AS403220
	ated ductwo	all Associate	5-Aug-18, Iristall	25		:		28-Apr-18	2				29	ug-18	8 2	20 28-Apr-18	12	stall Associated ductworks, pipeworks and valves	AS403240
udge g. 	g.  ik 	dg ated Sh g BR Bld sge Tar Pumps tic Acid rain Pu	No.6, MBR Bldg II Return Activate vers, MBR Bldg compressor, MBI looms Pumps & Storag ic Acid Dosing P -18, Install Acetit ain Pumps, Dra h water pumpin	Pumps, No. 1 - 1 25-Jul-18, Instal r Scouring Bbw 18, Install Air C s - Chemical R 4aOCI Dosing P -18, Install Citri 12-Aug- 18, Install Wash	MFS1 26-Jul-18 Jall Permeate n-18, Install A 11-Ju sation of Wor un-18, Install 13-Ju -18	tion of Works 1-May-18, In 6-Jun-18 11-Jk 18 11-Jk 13-Jk 14-Jk 14-Jk	18, Mobilisa 2 2 12-Jun 14-N 14-Jun 14-Jun 14-Jun	09-Ap	03-Apr-18 07-Apr-18 2				0 0 14 14 72 72 81 74 74	pr-18 ep-18 lay-18 ul-18 ec-17 A ul-18 ul-18 lay-18 ul-18 ul-18 ul-18 ul-18	8     0       8     2       8     2       18     2       17 A     30       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1       18     1	7         03-Apr-18           60         26-Jul-18           45         07-Apr-18           30         26-Jul-18           45         07-Apr-18           30         26-Jul-18           45         28-Apr-18           30         12-Jun-18           30         12-Jun-18           30         14-Jun-18           30         22-May-1           30         22-May-1	6 4 3 4 3 4 3 3 3 3 3 3 3 3 3 2	obilisation of Works - MFS1 stall Membrane Modules, MFS Tank stall Permeate Pumps, No.1 - No.6, MBR Bldg stall Return Activated Sludge Pumps, No.1 - No.5, MBR Bldg stall Backwash Pumps - MBR Bldg (Not required) stall Air Scouring Blowers, MBR Bldg stall Air Compressor, MBR Bldg. obilisation of Works - Chemical Rooms stall NaOCI Dosing Pumps & Storage Tank stall Citric Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning Drain Pumps, FS1 Drain Chamber stall Wash water pumping system, MBR Bdg.	AS403004 AS403020 AS403040 AS403060 AS403080 AS403100 AS403120 AS403140 AS403142 AS403140 AS403160 AS403200 AS403220

File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities

Critical Activity **◇** 

Remaining Work

♦ Milestone

Actual Progress

Contract No. DE/2014/01 Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station Master Programme

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Activity ID	Activity Name	Remainin	Start	Finish	Total										2018										2
		Duratio	ñ		Float	Oct -2	Nov -1	Dec 1	Jan 2	Feb 3	Mar 4	Apr 5	May 6	Jun 7		Jul 8	Aug 9	Sep 10	Oct 11	Nov 12	Dec 13	Jan 14	15	Mar 16	A
AS403260	Install Power Supply / Other associated equipment for MFS1	15	0 27-Apr-18	23-Sep-18	0						2	7-Apr-18											d equipment for		
AS403800	Complete Laying Power Cable from Switchboard to Plant for MFS1		D	23-Sep-18	0													•	23-Sep-18,	Complete Lay	ing Power C	able from S	witchboard to P	ant for MFS1	
AS403900	Site test and commission for Membrane Filtration System (MFS1)	6	24-Sep-18	22-Nov-18	0												24-	Sep-18			22-Nov-18,	Site test and	d commission fo	Membrane F	itration
	or Flowmeter Chamber																								
AS404010	Purchase Order for Flowmeter		0 28-Aug-16 A	22-Sep-16 A																					
AS404012	Manufacturing, FAT & Delivery to Site - Flowmeter		0 04-Oct-16 A	21-Aug-17 A																					
AS404030	Purchase Order for Associated ductworks, pipeworks and valves		0 18-Sep-17 A	20-Sep-17 A																					
AS404032	Manufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	9	1 21-Sep-17 A	31-Mar-18	86							31-Mar-18	3 Manufactur	ring, FAT &	Delivery t	o Site - Ass	sociated du	uctworks, pi	eworks and	valves					
AS404050	Purchase Order for Flange Adaptor		0 18-Sep-17 A	18-Sep-17 A																					
AS404052	Manufacturing, FAT & Delivery to Site - Flange Adaptor	9	1 21-Sep-17 A	31-Mar-18	86			   				31-Mar-18	3 Manufactur	ring, FAT &	Delivery t	o Site - Fla	inge Adapi	tor							
Install, T&C f	or Flowmeter Chamber (incl. Provision for Health & Safety Requirements)																								
AS404020	Install Flowmeter, Flange Adaptor, Associated Ductworks, pipeworks & Valves (MBR1)	4	5 17-Jul-18	30-Aug-18	24									1	7-Jul-18			30-Aug-18	3, Install Flov	meter, Flange	Adaptor, As	sociated Du	uctworks, pipewo	rks & Valves (	MBR 1)
AS404040	Install Flowmeter, Flange Adaptor, Associated Ductworks, pipeworks & Valves (BR1)	4	5 02-Jun-18	16-Jul-18	24								02-Jun-18			16-Jul-1	18, Install F	Flowmeter, F	lange Adapt	or Associated	Ductworks,	pipeworks 8	& Valves (BR 1)		
	or Penstocks, Actuators and Stoplogs																								
AS405010	Purchase Order for (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8		0 08-Feb-17 A	15-Feb-17 A																					
AS405012	Manufacturing, FAT & Delivery to Site - (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8		0 16-Feb-17A	28-Nov-17 A			 																		
AS405030	Purchase Order for (II) Inlet of influent channel of membrane tanks, S1 & S2		08-Feb-17A	15-Feb-17A									+												
AS405032	Manufacturing, FAT & Delivery to Site - (II) Inlet of influent channel of membrane tanks S1 & S2	6,	0 16-Feb-17A	28-Nov-17 A																					
AS405050	Purchase Order for (III) Inlet of membrane tanks PS1 - PS6		0 09-Feb-17 A	15-Feb-17 A																					
AS405052	Customs Manufacturing, FAT & Delivery to Site - (III) Inlet of membrane tanks PS1 -		0 16-Feb-17A	28-Nov-17 A																					
AS405070	Purchase Order for (IV) Outlet of membrane tanks Gate Valves		0 26-Jun-17 A	07-Jul-17 A																					
AS405072	Manufacturing, FAT & Delivery to Site - (IV) Outlet of membrane tanks - 6 nos.	9	1 08-Jul-17 A	31-Mar-18	51							31-Mar-18	3. Manufactur	ring, FAT &	Delivery t	to Site - (IV)	) Outlet of	membrane	tanks - 6 no:	3.					
AS405090	Purchase Order for Other associated equipment for penstocks & stoplogs		0 09-Feb-17 A	15-Feb-17 A																					
AS405092	Manufacturing, FAT & Delivery to Site - Other associated equipment for penstocks &		0 16-Feb-17A	28-Nov-17 A																					
Install, T&C f	stoplogs or Penstocks, Actuators & Stoplogs (incl. Provision for Health & Safety Require	ments)																							
AS405020	Install (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8	3	0 08-Apr-18	07-May-18	49						08-Apr-18	3	07-Ma	y-18, Instal	ll (i) Wier F	Penstocks -	Outlet of	MBR Pre-tr	eatment Scre	ens S7 & S8					
AS405040	Install Penstocks w/ Actuator for Inlet of Membrane Tanks - PS1 to PS6, MFS1	3	26-Jun-18	25-Jul-18	30								2	26-Jun-18		<b>2</b> 5-J	Jul-18, Ins	tall Penstoc	s w/ Actuato	or for Inlet of N	lembrane Ta	anks - PS1 t	o PS6, MFS1		
AS405060	Install (II) Inlet of influent channel of membrane tanks, S1 & S2	3	08-May-18	06-Jun-18	49							08-May-1	8	06-J	lun-18, Ins	stall (II) Inle	et of influer	nt channel o	fmembrane	tanks, S1 & S	2				
AS405080	Install Gatevalve w/ Actuator for Outlet of membrane tanks	3	5 22-May-18	25-Jun-18	0							22-	May-18 💻		<b>2</b> 5-Ju	n-18, Install	ll Gatevalv	e w/ Actuat	or for Outlet	ofmembrane	tanks				
AS405100	Install Other associated equipment for penstocks & stoplogs	6	26-Jun-18	24-Aug-18	30								2	26-Jun-18			2	24-Aug-18, I	nstall Other	associated eq	uipment for p	enstocks &	stoplogs		
	or Building Services and Fire Services			_																					
AS406500	Prepare & Submit F314 & F501	1	4 24-Jan-19	06-Feb-19	37																	24-Jan-19	06-Fe	19, Prepare	& Subn
AS406510	F.S. Inspection	1	4 23-Feb-19	08-Mar-19	21																		23-Feb-19	08-Mar	-19, F.S
AS406520	Report of Completion on Ventilation System		7 24-Jan-19	30-Jan-19	44																	24-Jan-19	🔲 30-Jan-1	Report of C	ompletio
AS406530	VAC Inspection	1	4 31-Jan-19	13-Feb-19	44																	31-Jan-1	9 💻 13-	eb-19, VAC	Inspection
AS406540	Issuance of Acceptance Letter		7 09-Mar-19	15-Mar-19	21																		09-Mar-	9 🗖 15-N	/ar-19,
AS406550	Application of D.G. Licence		0 02-Apr-18*		138						02-Apr-18*	Applicatio	n of D.G. Lic	ence											
AS406560	Processing of D.G. Licence Application	18	0 02-Apr-18*	28-Sep-18	138						02-Apr-18*								28-Sep-1	3, Processing	of D.G. Licer	nce Applicati	on		
AS406570	D.G. Inspection & Issue D.G. Licence	3	0 24-Jan-19	22-Feb-19	21																	24-Jan-19		22-Feb-19, D	G. Insp
Statutory Sul	bmission / Inspection (WSD)																								
AS406600	Submit WWO46 Pt. I & II to WSD (FS)	3	0 30-May-18*	28-Jun-18	158							3	30-May-18*		28-Ji	un-18, \$ubi	mit WWO	46 Pt. I & II	to WSD (FS	)					
AS406610	Approval of WWO46 Pt. I & II by WSD (FS)	3	29-Jun-18	28-Jul-18	158									29-Jun-18	B .	28	-Jul-18, Ap	pproval of W	WO46 Pt. I	& II by WSD (	FS)				
AS406620	Submit WWO46 Pt. IV to WSD (FS)		7 24-Jan-19	30-Jan-19	28																	24-Jan-19	🔲 30-Jan-1	Submit WW	O46 Pt
	File Name: DE/2014/01G3		- Remaii	ning Work									<u> </u>			F /224	1/04						Date	Revis	ion
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	Page 0 of 16		Actual	Progress								-	South										Oct-17	Rev. E Rev. F	
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Dec	Jan	Feb	Mar	201 Apr	9	May		Jun	Jul	ıg
13 oply / Other a	14 ssociated eq	15 uipment for 1	16 MFS1	17		18		19	20	11
Power Cable	= 110111 SWI[Ch	iouaro to Pla	Intion MFS1							
-Nov-18, Site	test and con	mission for	Membrane Fi	tration S	yster	n (MFS1)				
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daptor, Assoc	iated Ductwo	rks, pipewor	ks & Valves (I	MBR 1)						
uctworks, pipe	eworks & Val	ves (BR 1)								+-
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mbrane Tank	s - PS1 to PS	6, MFS1								
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ment for pens	SLOCKS & Stop	ogs								
24-	Jan-19 🗖	06-Feb	19, Prepare	& Submit	F31	4 & F501				
	23-	-ер-19 📘	<b>08-</b> Mar-	19, F.S.	inspe	ection				
24-	Jan-19 🗖	30-Jan-19	Report of Co	mpletion	on	lentilation Sys	tem			
	31-Jan-19 [	13-F	eb-19, VAC li	nspection	ı					
			9 🗖 15-M			ce of Accenta	nce	etter		- <u></u>
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D.G. Licence	Application									
24-	Jan-19 🗖		22-Feb-19, D.	G. Inspe	ction	& Issue D.G	Lice	nce		
3										
5)										
24-	Jan-19 🗖	30-Jan-19	Submit WW	D46 Pt. I	V to	WSD (FS)				
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	17-Oct-		Rev. F			Lau		KM		
	27-Mar		Rev. G			Lau		KM		

Activity ID	Activity Name	Remaining	Start	Finish	Total	Oct Nov	Dee	lan	Feb	Mar	× 1 Apr	May	l lus	2018	Aug	Con	Oct	Nev	Dee	lan	L Esh	Mar	2019	May	hus	led 1
AS406630	WSD Inspection (FS)	Duration	31-Jan-19	01-Mar-19	Float 28	Oct Nov -2 -1	Dec 1	2	3	4	r Apr 5	May 6	Jun 7	Jul 8	Aug 9	Sep 10	Oct 11	12	Dec 13		Feb 15	16	Apr 17 WSD Inspectio	18	Jun 19	Jul II 20
		50	51-5an-15	01-10121-13	20																		WOD Inspectio	11(1-3)		
AS406010	, FAT and Delivery Purchase Order for Indoor Lighting	14	17-Mar-18	30-Mar-18	72			-	17-N	/lar-18 🗖	30-Mar-18	Purchase O	rder for Indo	or Lighting												
AS406012	Manufacturing, FAT & Delivery to Site - Indoor Lighting	90	31-Mar-18	28-Jun-18	72					31-Mar-	18			28-Jun-18,	Manufacturir	ng, FAT & Delivery	y to Site - Ind	loor Lightir	g							
AS406030	Purchase Order for Air-conditioning & ventilation System	14	17-Mar-18	30-Mar-18	34				17-N	/lair-18 ∎	30-Mar-18	, Purchase O	order for Air-c	ohditioning &	ventilation Sy	stem										
AS406032	Manufacturing, FAT & Delivery to Site - Air-conditioning & ventilation System	120	31-Mar-18	28-Jul-18	34					31-Mar-	-18				28-Jul-18,	Manufacturing, FA	AT & Delivery	r to Site - A	vir-conditioni	ng & ventilation	System					
AS406050	Purchase Order for Outdoor lighting installation for relevant area	14	17-Mar-18	30-Mar-18	147				17-N	Nar-18	30-Mar-18	Purchase O	order for Out	door lighting in	stallation for	relevant area										
AS406052	Manufacturing, FAT & Delivery to Site - Outdoor Lighting installation for relevant area	90	31-Mar-18	28-Jun-18	147					31-Mar-			<u>.</u>			ng, FAT & Delivery	v to Site - Ou	itdoor Liah	ting installati	on for relevant	area					
AS406070	Purchase Order for Other B.S. installation for relevant area		17-Mar-18	30-Mar-18	21				17-N		30-Mar-18	Purchase O					,									
AS406072	Manufacturing, FAT & Delivery to Site - Other B.S. installation for relevant area		31-Mar-18	28-Jun-18	21					31-Mar-			-			ng, FAT & Delivery	v to Site - Oth	her BS in	stallation for	relevant area						
					21				01 Mar 19		14-Mar-18, Purch	and Order fo						101 D.O. 11								
AS406090	Purchase Order for F.S. Fittings & Equipment		01-Mar-18	14-Mar-18	30						14-iviµr-16, Purch	ase Order to					50 FW	۰. ۲								
AS406092	Manufacturing, FAT & Delivery to Site - F.S. Fittings & Equipment	90	15-Mar-18	12-Jun-18	36				15-Ma	ar-18 🗖		   	12-J	un-18, Manut	acturing, FAI	F& Delivery to Site	e - F.S. Fitting	gs & Equip	ment							
AS406020	r Building Services (incl. Provision for Health & Safety Requirements) Install Indoor Lighting - Trunking / Conduits, MBR Building	60	29-Jun-18	27-Aug-18	72								29-Jun-18			27-Aug-18, Ins	tall Indoor Lig	ghting - Tru	unking / Con	duits, MBR Buil	lding					
AS406022	Install Indoor Lighting Fittings, MBR Building	60	28-Aug-18	26-Oct-18	72										28-Aug-18		26	6-Oct-18, I	nstall Indoor	Lighting Fitting	s, MBR Buik	ding				
AS406024	Install Indoor Lighting - Trunking / Conduits, Chemical Rooms	7	28-Aug-18	03-Sep-18	104										28-Aug-18	03-Sep-18,	Install Indoor	Lighting -	Trunking / C	onduits, Chemi	ical Rooms					
AS406026	Install Indoor Lighting Fittings, Chemical Rooms	7	04-Sep-18	10-Sep-18	125										04-Sep-18	3 🗖 10-Sep-1	8, Install Inde	oor Lightin	g Fittings, C	hemical Rooms	6					
AS406040	Ductwork for Ventilation System, MBR Building		02-May-18	30-Jul-18	34						02-May-18					, Ductwork for Ver										
AS406041	Install Ventilation Fans & Control, MBR Building		31-Jul-18	20-Aug-18	57											20-Aug-18, Install				uldina						
AS406042	Complete Ventilation System	0	01 001 10	20-Aug-18	57											20-Aug-18, Comp										
AS406042			09 444 19	-	07							1 1 1 1								ditioning MDD	Duilding					
	Install Split Type Air-conditioning, MBR Building		28-Aug-18	01-Oct-18	97										28-Aug-18				Type Air-con	laitioning, MBR	Building					
AS406044	MVAC Ready		02-Oct-18		97											02-Oct-18 🔶										
AS406045	Provision of Temp. A/C for H.V. Switchroom	21	31-Jul-18	20-Aug-18	34									31-Jul-18	2	20-Aug-18, Prolvis	ion of Temp.	A/C for H.	V. Switchroo	m						
AS406046	Temporary MVAC Ready	0	21-Aug-18		34									21-	Aug-18 🔶 1	Temporary MVAC	Ready									
AS406060	Install Outdoor Lighting for Pre-treatment Screen & Flowmeter Chamber	30	29-Jun-18	28-Jul-18	162								29-Jun-18		28-Jul-18,	Install Outdoor Lig	ghting for Pre	e-treatmen	t Screen & F	lowmeter Chai	mber					
AS406061	Install Outdoor Lighting for BR1 & its Vicinity Areas	45	29-Jun-18	12-Aug-18	147								29-Jun-18		12-A	Aug-18, Install Out	tdoor Lighting	g for BR1 a	& its Vicinity /	Areas						
AS406062	Install Outdoor Lighting for MBR Building & its Vicinity Areas	45	29-Jun-18	12-Aug-18	147								29-Jun-18		12-A	Aug-18, Install Out	tdoor Lighting	g for MBR	Building & it	s Vicinity Areas						
AS406063	Install Outdoor Lighting for MFS1 & its Vicinity area	30	29-Jun-18	28-Jul-18	162								29-Jun-18		28-Jul-18,	Install Outdoor Lie	ghting for MF	S1 & its V	cinity area							
AS406064	Install Outdoor Lighting for Chemical Rooms	14	11-Sep-18	24-Sep-18	125										11-Sep	-18 24-	Sep-18, Inst	all Outdoo	r Lighting fo	Chemical Roo	oms					
AS406080	Install Other B.S. (Switches for Power Supply to Equipment), Pre-treatment Screen & Flowmeter Chamber	30	29-Jun-18	28-Jul-18	21							1 1 1 1	29-Jun-18	-	28-Jul-18,	Install Other B.S.	(Switches for	r Power Si	upply to Equi	ipment), Pre-tre	eatment Scre	en & Flowme	ter Chamber			
AS406081	Install Other B.S. (Switches for Power Supply to Equipment), BR1 & its Vicinity Areas	30	29-Jul-18	27-Aug-18	21									29-Jul-18		27-Aug-18, Ins	tall Other B.S	6. (Switche	s for Power	Supply to Equip	pment), BR1	& its Vicinity A	reas			
AS406082	Install Other B.S. (Switches for Power Supply to Equipment), MBR Facilities Building	45	28-Aug-18	11-Oct-18	21							1 1 1 1			28-Aug-18		11-Oct-1	18, Install C	Other B.S. (S	Switches for Pov	wer Supply to	α Equipment),	MBR Facilities	Building		
AS406083	Install Other B.S. (Switches for Power Supply to Equipment), MFS1 & its Vicinity area	45	12-Oct-18	25-Nov-18	21											12-Oct-18			25-Nov-18	Install Other B	3.S. (Switches	s for Power Si	upply to Equipm	ent), MFS1 &	its Vicinity area	3
AS406084	Install Other B.S. (Switches for Power Supply to Equipment), Chemical Rooms	21	26-Nov-18	16-Dec-18	21												26-1	Nov-18	16	6-Dec-18, Insta	Il Other B.S.	Switches for	Power Supply to	o Equipment).	Chemical Roc	oms
AS406800	Testing and Commission of B.S. Installation	21	17-Dec-18	06-Jan-19	21													17-D	ec-18 💻	06-Jan-	19, Testing a	and Commissic	on of B.S. Install	ation		
Install, T&C fo	r Fire Services (incl. Provision for Health & Safety Requirements)																									
AS406101	Install Trunking & Conduits for AFA System - MBR Facilities Building	30	13-Jun-18	12-Jul-18	36							13-Jun	1-18	12-J		Trunking & Condu										
AS406102	Install AFA Fittings & Accessories, Wiring - MBR Facilities Building	60	13-Jul-18	10-Sep-18	36								13-Ju	-18		10-Sep-1	8, Install AFA	A Fittings &	Accessories	, Wiring - MBR	Faclities Bui	ilding				
AS406104	Install Trunking & Conduits for AFA System - Chemical Rooms/D.G. Store	7	14-Jul-18	20-Jul-18	81								14-Jı	il 18 🗖 2	0-Jul-18, Inst	all Trunking & Çor	nduits for AFA	A System -	Chemical R	ooms/D.G. Sto	re					
AS406106	Install AFA Fittings & Accessories, Wiring - Chemical Rooms/D.G. Store	7	21-Jul-18	27-Jul-18	81								2	I-Jul-18 🗖	27-Jul-18, I	Install AFA Fittings	& Accessorie	es, Wiring	- Chemical F	Rooms/D.G. Sto	ore					
AS406108	Install F.S.Main Control System	7	11-Sep-18	17-Sep-18	36										11-Sep	-18 🗖 17-Se	p-18, Install I	F.S.Main C	ontrol Syste	m						
AS406180	Pipework for Sprinkler, HR/HR - MBR Facilities Building	14	29-Jul-18	11-Aug-18	158									29-Jul-18	11-A	ug-18, Pipework f	for Sprinkler,	HR/HR - I	BR Facilitie	sBuilding						
AS406182	Install Sprinkler Head, Hose Reel & Fire Hydrant - MBR Faclities Building	35	12-Aug-18	15-Sep-18	158									12-Aug	-18	15-Sep	-18, Install S	prinkler He	ad, Hose R	eel & Fire Hydr	rant - MBR F	aclities Buildin	ġ			
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	Page 10 of 16									Γ	Ng Chow			-	-	ing Statio	on			17-Oct		Rev. F	КНІ		KM	
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AS406184 Install F.S. Pumps and Control - MBR Facilities Building	45 13-Jun-18	27-Jul-18	81	-1 1	2	Feb 3	4	5	6 7 13-Jun-18	8	9	10	11	12	13 clities Building		Feb 15	Mar 16	17		19 20
AS406240 F.S. Direct Link Connection	7 07-Jan-19	13-Jan-19	21													9 🗖 13-Jah-	10 ES D	rect Link Conn	ection		
AS406260 Install Fire Extinguisher for Relevant Areas	7 24-Jan-19	30-Jan-19	65													4-Jan-19 🗖 :			-	Relevant Areas	
AS406900 Testing of F.S. System	10 14-Jan-19	23-Jan-19	21												14-Jar	n 19 💻 23-	Jan-19, Te	sting of F.S. Sy	stem		
4.7 HV Switchgear, Transformer, LV Switchgear, LV Control Gear etc Manufacturing, FAT and Delivery																					
AS407010 Purchase Order for 11kV HV Switchboard	0 12-Sep-16 A	21-Sep-16 A																			
AS407012 Manufacturing, FAT & Delivery to Site - 11kV HV Switchboard	12 07-Oct-16 A	11-Jan-18	30		11-Ja	an-18, Manufa	acturing, FAT	& Delivery to S	ite - 11kV HV Switchbo	ard											
AS407030 Purchase Order for 3.3kV HV Switchboard	0 12-Sep-16 A	21-Sep-16 A																			
AS407032 Manufacturing, FAT & Delivery to Site - 3.3kV HV Switchboard	89 07-Oct-16 A	29-Mar-18	85					29-Mar-18, M	/anufacturing, FAT & D	elivery to Site -	3.3kV HV Sw	itchboard									
AS407050 Purchase Order for Transformer	0 13-Sep-16 A	21-Sep-16 A																			
AS407052 Manufacturing, FAT & Delivery to Site - Transformer	75 07-Oct-16 A	15-Mar-18	53				15-1	Mar-18 Manuta	cturing, FAT & Delivery	to Site - Tran	former										
									lotaning, i i ti a Deliverj												
	0 13-Sep-16A																				
AS407072 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.1	106 30-Sep-16 A	15-Apr-18	1						pr-18, Manufacturing, F												
AS407074 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.2	106 30-Sep-16 A	15-Apr-18	31					15-Ap	or-18, Manufacturing, F	AT & Delivery t	o Site - L.V. S	witchboard N	d.2								
AS407076 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.3	121 30-Sep-16 A	14-May-18	37						14-May-18, Ma	nufacturing, FA	T & Delivery to	Site - L.V. S	witchboard No	0.3							
AS407090 Purchase Order for (I) VSD for Permeate Pumps	0 03-Mar-17 A	16-Mar-17 A	·																		
AS407092 Manufacturing, FAT & Delivery to Site - (I) VSD for Permeate Pumps	75 17-Mar-17 A	15-Mar-18	32			:	15-N	Mar-18, Manufa	cturing, FAT & Delivery	to Site - (I) VS	of for Permea	te Pumps									
AS407110 Purchase Order for (II) VSD for RAS Pumps	0 03-Mar-17 A	16-Mar-17 A																			
AS407112 Manufacturing, FAT & Delivery to Site - (II) VSD for RAS Pumps	75 17-Mar-17 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	to Site - (II) V	SD for RAS F	umps	+								
AS407130 Purchase Order for (III) VSD for SAS Pumps	0 03-Mar-17 A	16-Mar-17 A																			
AS407132 Manufacturing, FAT & Delivery to Site - (III) VSD for SAS Pumps	75 17-Mar-17 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	to Site - (III) V	SD for SAS P	umps									
AS407150 Purchase Order for (IV) VSD for BR Feedpumps	0 03-Mar-17A	16-Mar-17 A																			
AS407152 Manufacturing, FAT & Delivery to Site - (IV) VSD for BR Feedpumps	75 17-Mar-17 A	15-Mar-18	32				15-N	Mar-18 Manufa	cturing, FAT & Delivery	to Site - (IV) \	SD for BB F	ednumns									
AS407170 Purchase Order for (V) VSD for Drain Pumps for MFS1	0 03-Mar-17A																				
AS407172 Manufacturing, FAT & Delivery to Site - (V) VSD for Drain Pumps for MFS1	75 17-Mar-17 A						15 1	Max 19 Manufa	cturing, FAT & Delivery	the Cites (10.1)	CD for Droin I	umpo for ME	61								
			32					Mar 10, Mariue	lotting, I And Delivery			umps for ivit									
	0 13-Sep-16A		·																		
AS407192 Manufacturing, FAT & Delivery to Site - Starter for Motor, Screen & Mixer etc.	75 30-Sep-16 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	to Site - Starte	er for Motor, S	creen & Mixe	r etc.								
Install, T&C for MBR Facilities Building (incl. Provision for Health & Safety Requirements)           AS407001         Mobilisation & Preparation Works - MBR Facilities Building CLP Rm C & D	0 30-Sep-17 A	02-Nov-17 A																			
AS407002 Mobilisation of Works - MBR Facilities Building	0 03-Nov-17 A	02-Dec-17 A	· · · · · · · · · · · · · · · · · · ·																		
AS407020 Install 11kV HV Switchboard, SAT	65 12-Jan-18	17-Mar-18	30	12	-Jan-18		17-	-Mar-18, Instal	11kV HV Switchboard,	SAT											
AS407022 Modify Existing 11kV HV Switchboard, SAT	21 18-Mar-18	07-Apr-18	30			18-M	Nar-18	07-Apr-1	8, Modify Existing 11kV	HV Switchboa	rd, SAT										
AS407024 CLP Inspection / Install Meters	10 13-May-18	22-May-18	75						8 🛄 22-May-18,			s									
AS407026 11kV HV Switchboard Energization	0 23-May-18		75				<u> </u>		ay-18 🔷 11kV HV Sw												
AS407040 Install 3.3kV HV Switchboard, SAT	30 14-May-18	12-Jun-18	40						18 <b>12</b>			chhoard CA									
			40					r+-iviay-						ord							
AS407042 Functional Test - 3.3kV HV Switchboard	14 27-Jun-18	10-Jul-18	40							10-Ju		ar rest - 3.3K\	U OV SWICODO	nal U							
AS407060 Install Transformers (No. 3 & 4)	14 08-Apr-18	21-Apr-18	30						Apr-18, Install Transfo												
AS407062 Install Transformers (No. 1 & 2)	14 30-Apr-18	13-May-18	22				<u>]</u>		13-May-18, Inst												
AS407080 Install L.V. Switchboard No.1 & MCB Distribution Board, SAT	45 16-Apr-18	30-May-18	1				16-Ap	pr-18	30-May-					ard, SAT							
AS407081 Install VSD for BR Feedpumps, 2 nos.	3 31-May-18	02-Jun-18	48					3	1-May-18 🛿 02-Jun	18, Install VSD	for BR Feed	umps, 2 nos.									
AS407082 Install L.V. Switchboard No.2 & MCB Distribution Board, SAT	45 16-May-18	29-Jun-18	1					16-May	18	29-Jun-18	nstall L.V. S	witchboard No	2 & MCB Dis	tribution Boa	ard, SAT						
AS407083 Mobilisation of Works - Chemical Rooms	7 29-Jun-18	05-Jul-18	1						29-Jun-18	🗖 05-Jul-1	8, Mobilisatior	of Works - C	hemical Roor	ns							
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Page 11 of 16							Ng	Chow S	outh Road	-	-	ng Stat	ion			17-Oct-1 27-Mar-1		Rev. F Rev. G	KH KH		KM KM
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Activity ID		Activity Name	Remaining Start	Finish	Total								201	18				1 1			- M - F	2019			
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AS40	7084	Install MCB Distribution Board, DB-P6 (Chemical Room 2)	14 06-Jul-18	19-Jul-18	1								06-Jul-18	19-	Jul-18, Install	MCB Distrib	ution Board,	DB-P6 (Chem	ical Room 2)						
AS40	7085	Functional Test - L.V. Switchboard No. 1	30 20-Jul-18	18-Aug-18	1								20-ju	ıl-18	18-	Aug-18, Fun	ictional Test -	L.V. Switchbo	ard No. 1						
AS40	7086	L.V. Switchboard No. 1 Ready for Energisation	0 19-Aug-18		1									19-Au	g-18 🔶 L.V	Switchboar	d No. 1 Read	ly for Energisa	tion						
AS40	7087	Functional Test - L.V. Switchboard No. 2	30 30-Jun-18	29-Jul-18	21							30	-Jun-18 🗖		29-Jul-18. F	unctional Te	st - L.V. Switc	hboard No. 2							
AS40	7088	L.V. Switchboard No. 2 Ready for Energisation	0 19-Aug-18		1									19-Au	g-18 🗢 L.V	Switchboar	q No. 2 Read	ly for Energisa	tion						
AS40	7500	Install , T&C of PQEMS	60 26-Aug-18	24-Oct-18	29									26	Aug-18			24-Oct-18, In	stall , T&C of PQEMS						
AS40	7600	Earthing System for MFS1 Completed	0 19-Aug-18		29									19-Au	g-18 🔶 Ea	thing Systen	n for MFS1 C	ompleted							
AS40	7620	Submit WR1 to EMSD for Electrical System, MFS1	7 19-Aug-18	25-Aug-18	29									19-Au	g-18 🗖 :	25-Aug-18, S	Submit WR1	to EMSD for E	lectrical System, MFS1						
AS40	7640	Power On for MFS1 System	0 26-Aug-18		29									26	Aua-18 🔶	Power On fo	or MFS1 Syste	em							
		-													-3										
	-	r BR1's Vicinity Area (incl. Provision for Health & Safety Requirements) Mobilisation of Works - BR1's Vicinity area	14 01-May-18	14-May-18	37					þ	01-May-18	14-May	-18, Mobilisa	ation of Work	s - BR1's Vici	inty area									
AS40	7004	Construction of Canopy for housing the L.V. Switchboard No.3	0 15-May-18	15-May-18	37						15-Mav	-18   15-May	-18. Constru	uction of Can	opy for housi	ing the L.V. S	Switchboard N								
					07											-									
AS40	7089a	Install L.V. Switchboard No.3 (with Canopy)	30 15-May-18	13-Jun-18	37						15-May	-18	13-Jun	-18, Instali L	. V. Switchdoa	ard No.3 (Wit	n Canopy)								
AS407	7089b	Functional Test - L.V. Switchboard No. 3	30 14-Jun-18	13-Jul-18	37							14-Jun+18	3	13-Jul	-18, Functior	tal Test - L.V.	. Switchboard	I No. 3							
AS40	7089c	L.V. Switchboard No. 3 Ready for Energisation	0 14-Jul-18		37								14-Jul-1	8 🔶 L.V. S	witchboard N	lo. 3 Ready f	for Energisati	on							
AS40	7089d	Install MCB Distribution Board, DB-P8 (Power supply from Switchboard No.3)	7 14-Jul-18	20-Jul-18	170								14-Jul-1	8 🗖 20	Jul-18, Instal	MCB Distrib	, pution Board,	; DB-P8 (Powe	r supply from Switchboar	d No.3)					
AS40	7700	Complete Earthing & Lightning System for BR1	0	19-Aug-18	1										<b>4</b> 19.	Aug-18 Cor	molete Farthi	na & Liahtnina	System for BR1						
AS40	7720	Submit WR1 to EMSD for Electrical System, BR1	5 19-Aug-18	23-Aug-18	1									19-Au	g-18 🗖 2	3-Aug-18, S	ubmit WR1 to	EMSD for El	ectrical System, BR1						
AS40	7740	Power On for BR1 System	0 24-Aug-18		1									24-	Aug-18 🔶 F	ower On for	BR1 System								
4.8 Lit	fting Ap	ppliance																							
Manuf AS408		I, FAT and Delivery Purchase Order for 1 no. 1,500 kgs Lifting Appliance - (I) For Pre-treatment Screen	0 08-Feb-17A	14-Feb-17 A																					
		Chamber																							
AS408	8012	Manufacturing, FAT & Delivery to Site - 1 no. 1,500 kgs Lifting Appliance - (I) For Pre-treatment Screen Chamber	0 15-Feb-17 A	06-Dec-17 A																					
AS408	8030	Purchase Order for 1 no. 500 kgs Lifting Appliance - (II) For BR1	0 08-Feb-17 A	14-Feb-17 A																					
AS408	8032	Manufacturing, FAT & Delivery to Site - 1 no. 500 kgs Lifting Appliance - (II) For BR1	39 15-Feb-17 A	07-Feb-18	66				07-Feb	-18, Manufact	turing, FAT &	Delivery to Site	- 1 no. 500 l	kgs Lifting A	pliance - (II)	For BR1									
AS408	8050	Purchase Order for 1 no. 3,000 kgs & 1 no. 4,000 kgs Lifting Appliance - (III) In G/F of	0 08-Feb-17A	14-Feb-17 A																					
4540		Membrane Facilities Building	0 15 Ech 17 A	06 Dec 17 A																					
A5408	8052	Manufacturing, FAT & Delivery to Site - 1 no. 3,000 kgs & 1 no. 4,000 kgs Lifting Appliance - (III) In G/F of MF Bldg.	0 15-Feb-17A	06-Dec-17 A																					
AS408	8070	Purchase Order for 2 nos. 8,500 kgs Lifting Appliance - (IV) In 1/F of Membrane Facilities Building	0 08-Feb-17 A	14-Feb-17 A																					
AS408	8072	Manufacturing, FAT & Delivery to Site - 2 nos. 8,500 kgs Lifting Appliance - (IV) In 1/F of Membrane Facilities Building	39 15-Feb-17 A	07-Feb-18	30			1	07-Feb	-18, Manufad	turing, FAT &	Delivery to Site	- 2 nos. 8,50	00 kgs Lifting	Appliance -	(IV) In 1/F of	Membrane F	acilities Buildi	ng						
AS408		Purchase Order for 2 nos. 5,000 kgs Lifting Appliance - (V) For MFS1	0 08-Feb-17 A	14-Feb-17 A																					
AS408	8092	Manufacturing, FAT & Delivery to Site - 2 nos. 5,000 kgs Lifting Appliance - (V) For	91 15-Feb-17A	31-Mar-18	58						31-Mar-18	, Manufacturing,	FAT & Deliv	erv to Site -	2 nos. 5.000	kas Liftina Ar	obliance - (V)	For MFS1							
		MFS1																							
AS408		r Pre-Treatment Screen Chamber (incl. Provision for Health & Safety Requirement: Mobilisation of Works - MBR Pre-Treatment Screen Chamber	s) 14 04-Jan-18	17-Jan-18	37		04-Jan-18	17-	an-18, Mobi	lisation of Wor	rks - MBR Pr	e-Treatment Sc	reen Chamb	er											
AS408	8022	Install Monorail A-shape support column. 1,500kgs S.W.L. Electric Chain Hoist	45 08-Feb-18*	24-Mar-18	16			08-Feb-18		2	4-Mar-18 In	stall Monorail A-	shane sunor	ort column 1	500kas S W	Eectric C	hain Hoist								
														,											
AS408	8024	SAT of Lifting Appliance	14 25-Mar-18	07-Apr-18	16				25	Mar-18	07-Apr-	18, SAT of Liftin	g Appliance												
AS408		r Bioreactor No.1 (BR1) (incl. Provision for Health & Safety Requirements) Install Monorail 500kgs S.W.L. Manual Hoist c/w Trolley	14 03-Apr-18	16-Apr-18	12					()3-Anr-19	16.4	Apr-18, Install M	onorail 5004	as SWI M	anual Hoiet o	w Trolley									
					12									-											
AS408	8042	SAT of Lifting Appliance	14 17-Apr-18	30-Apr-18	12					17-Ap	r-18 💻	30-Apr-18, S/	AT of Lifting A	Appliance											
AS408		r MBR Facilities Building (incl. Provision for Health & Safety Requirements) Install Electric Travelling Crane for 1 No. 3,000 kg S.W.L. & 1 No. 4,000 S.W.L G/F	65 07-Dec 17 A	05-Mar-19	7	07-Dec-17 A				05-Mor 1	8 Install Elect	tric Travelling C	rane for 1 N	0.3000 60	W   2.1 M	4 000 9 14	. G/E								
			65 07-Dec-17 A			07-Dec-17A						-		-	o.vv.∟. & 1 N(	a. 4,000 S.W	.L G/F								
AS408	8062	SAT of Lifting Appliance, G/F	25 06-Mar-18	30-Mar-18	7				06-Mar-18		30-Mar-18,	SAT of Lifting A	ppliance, G/I	F											
AS408	8080	Install 2 Nos. Electric Travelling Crane for 8,500 kg S.W.L - 1/F	35 24-Feb-18	30-Mar-18	14			24-	Feb-18 🗖		30-Mar-18,	Install 2 Nos. El	lectric Travel	ling Crane fo	r 8,500 kg S.	W.L 1/F									
AS408	8082	SAT of Lifting Appliance, 1/F	28 31-Mar-18	27-Apr-18	14					31-Mar-18		27-Apr-18, SAT	Γ of Lifting Ap	opliance, 1/F											
Install	l, T&C for	r MFS1 (incl. Provision for Health & Safety Requirements)																							
AS408		Install 2 Nos. Electric Travelling Crane for 5,000 kg S.W.L - MFS1 Tanks	30 01-Apr-18	30-Apr-18	58					01-Apr-18		30-Apr-18, In	stall 2 Nos. E	lectric Trave	lling Crane fo	r 5,000 kg S	W.L MFS	1 Tanks							
						<u> </u>	<u> </u>					<u> </u>				!	:	:	<u>       i                             </u>		·i				i
		File Name: DE/2014/01G3	Remain	ning Work					_		_	Contra	ict No	DF/20	14/01		_	_		Date	Revision		Checked		proved
		Layout: DE1401 (Rev. G) - WBS	Critical	Activity				Dr	ovisio	n of F&	M Fari	ilities for		-	-		eatmo	nt Worl	08-Ja		Rev. 0		Lau	KM	
		TASK filter: All Activities	Milestor					FI	5113101			ansion I				-			<b>(S</b> 22-Ju 12-Ju		Rev. D		Lau Lau	KM KM	
			Actual F	Progress							-	South Ro							12-Ju 17-O		Rev. E Rev. F		Lau Lau	KM	
		Page 12 of 16								148 (	CHOW 3			-	-	ing Stat			27-M		Rev. G		Lau	KM	
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Activity ID		Activity Name	Remaining Start	Finish	Total									2	018								2019			
-			Duration		Float	Oct N -2	Nov -1	Dec 1	Jan 2	Feb 3	4	5	6	7	8	9	10	Oct Nov 11 12	Dec 13	Jan 14	Feb 15	Mar 16	Apr 17	May 18		Jul ig 20 !1
,	S408102	SAT of Lifting Appliance (MFS1 Tanks)	28 01-May-18	28-May-18	58							01-May-18		28-May-18,	SAT of Lifting	Appliance (MF	S1 Tanks)									
		Earthing and Lightning Protection System												       												
		, FAT and Delivery Purchase Order for Cables between HV Switchboard and TX	0 04-Dec-17 A	07-Dec-17 A				1																		
-	S409012	Manufacturing & Delivery to Site - Cables between HV Switchboard and TX	97 08-Dec-17 A	06-Apr-18	107	08-D	Dec-17 A					06-Apr-	8, Manufactu	ring & Delive	ry to Site - Cat	les between	HV Switchba	ard and TX								
	S409014	Purchase Order for Cables between TX/ 3.3kV SW. and Air Blower	0 04-Dec-17 A	07-Dec-17 A										- - - - -												
		Manufacturing of Manufacturing & Delivery to Site - Cables between TX/ 3.3kV SW.	97 08-Dec-17 A		149	0.00	Dec-17 A					06 Apr	9 Manufacti	ring of Monu	facturing 8 Dal	ivory to Sito	Cables betw	een TX/ 3.3kV SW. an	d Air Plowor							
		and Air Blower			143	00-2						00-Api-	o, manufacti		lacturing a De	ivery to one	Cables betw	een 170 3.500 500. an								
<i>P</i>	S409030	Purchase Order for Cables between TX and LV Switchboard	0 04-Dec-17 A	07-Dec-17 A																						
,	S409032	Manufacturing & Delivery to Site - Cables between TX and LV Switchboard	97 08-Dec-17 A	06-Apr-18	149	08-D	Dec-17 A					06-Apr-	8, Manufacti	iring & Delive	ry to Site - Cal	oles between	TX and LV S	witchboard								
P	S409050	Purchase Order for Cables between LV Switchboard and Plant	0 04-Dec-17 A	07-Dec-17 A				1																		
F	S409052	Manufacturing & Delivery to Site - Cables between LV Switchboard and Plant	97 08-Dec-17 A	06-Apr-18	80	08-D	Dec-17 A					06-Apr-	8, Manufacti	Iring & Delive	ry to Site - Cal	oles between	LV Switchbo	ard and Plant								
F	S409070	Purchase Order for Earthing Sys Inlet Screen Chamber, BR1 & MFS1	7 04-Jan-18	10-Jan-18	55		0	)4-Jan-18	🗖 10-Jan	18, Purchas	e Order for E	arthing Sys.	Inlet Screer	Chamber, B	R1 & MFS1						-					
F	S409072	Manufacturing & Delivery to Site - Earthing Sys Inlet Screen Chamber, BR1 & MFS1	120 11-Jan-18	10-May-18	55			11-Jan-18					10-Ma	y-18, Manufa	cturing & Delive	ery to Site - E	arthing Sys.	Inlet Screen Chambe	, BR1 & MFS1	I						
-	S409090	Purchase Order for Lightning Sys Inlet Screen Chamber, BR1 & MFS1	7 04-Jan-18	10-Jan-18	77		0	)4-Jan-18	🗖 10-Jan	18, Purchas	e Order for L	ightning Sys.	- Inlet Scree	h Chamber, E	R1 & MFS1											
	S409092	Manufacturing & Delivery to Site - Lightning Sys Inlet Screen Chamber, BR1 & MFS1	120 11-Jan-18	10-May-18	77			11-Jan-18					10-Ma	v-18 Manufa	cturing & Delive	arv to Site - Li	ahtnina Svs	- Inlet Screen Chambe	r BB1 & MES	1						
				-			_	in dan io						, inditional			gritting Oyo.									
		Purchase Order for Cables Tray	0 20-Nov-17 A																							
, A	S409112	Manufacturing & Delivery to Site - Cables Tray	83 25-Nov-17 A	23-Mar-18	59	25-Nov-17	7 A				2	3-Mar-18, M	anufacturing a	Delivery to	\$ite - Cables Tr	ay										
		r MBR Facilities Building (incl. Provision for Health & Safety Requirements) Complete Cable Pits & Ducting between New/Existing 11kV Switch Room	0	30-Mar-18	38						•	30-Mar-18.	Complete Ca	able Pits & Du	cting between	New/Existind	11kV Switch	Room								
		Complete HV Switchboard and TX Installation	0	12-Jun-18	40										n-18, Complet											
					40												oard and 17	Installation								
<i>4</i>	S409003	Mobilisation of Works - MBR Facilities Building	14 31-Mar-18	13-Apr-18	38						31-Mar-18	<b>13-</b> A			s - MBR Facilit											
Į A	S409020	Laying Cables between HV Switchboard and TX	14 13-Jun-18	26-Jun-18	40								13-Jun	18	26-Jun-18, La	ying Cables b	etween HV	Switchboard and TX								
F	S409022	Laying Cables between TX/ 3.3kV SW. and Air Blower	14 04-Jul-18	17-Jul-18	61									04-Jul-18	<b>17-J</b> u	ul-18, Laying (	Cables betwo	een TX/ 3.3kV SW. and	Air Blower							
F	S409039	Complete LV Switchboard and TX Installation	0	19-Aug-18	248											♦ 19-/	Aug-18, Com	plete LV Switchboard a	and TX Installa	tion						
-	S409040	Laying Cables between TX and LV Switchboard	14 27-Jun-18	10-Jul-18	68								2	7-Jun-18	10-Jul-1	8, Laying Cat	oles betweer	TX and LV Switchboa	rd							
-	S409060	Laying Cables between LV Switchboard and Plant - MBR Facilities Building	60 04-Jun-18	02-Aug-18	22								04-Jun-18			02-Aug-18,	Laying Cabl	es between LV Switchb	oard and Plan	t - MBR Faciliti	es Building					
-	S409121	Install Cable Tray/Trunking between HV Switchboard and TX	7 30-Apr-18	06-May-18	22							30-Apr-18	06-May-	18, Install Ca	ble Tray/Trunki	ng between	IV Switchbo	ard and TX						·		
		Install Cable Tray/Trunking between T X/3.3kV SW. and Air Blower	7 27-Jun-18	03-Jul-18	61								-		·	-		between TX/3.3kV SV	V and Air Blow	/or						
												07.14														
	S409123	Install Cable Tray/Trunking between LV Switchboard and TX	7 07-May-18	13-May-18	22									-	Cable Tray/Tru	-										
, A	S409124	Install Cable Tray/Trunking between LV Switchboard and Plant - MBR Facilities Building	21 14-May-18	03-Jun-18	22							14-May	18	<b>0</b> 3-Jun-1	8, Install Cable	Tray/Trunking	between L	/ Switchboard and Plar	nt - MBR Facili	ties Building						
ļ ļ	S409900	Complete Earthing & Lightning System for MFS1	0	19-Aug-18	29											♦ 19-/	Aug-18, Com	plete Earthing & Lightr	ing System for	MFS1						
		Plant's Vicinity Areas (incl. Provision for Health & Safety Requirements) Complete Cable Pits & Ducting between LV Switchboard and Plant - Relevant Areas	0	30-Mar-18	57							30-Mar-18	Complete C:	hle Pits & Du	cting between	IV Switchboa	rd and Plant	- Relevant Areas								
			°		110										-	LV Ownonbog	i a land i land	The over the over								
		Complete Lightning Pits & Ducting	0	30-Mar-18	118							30-Mar-18,														
F	S409080	Complete Earth Pits & Ducting	0	30-Mar-18	96						<	30-Mar-18,														
P P	S409081	Install Earth Electrode & Earthing Conductor - Earthing System for HV & LV Equipment	14 11-May-18	24-May-18	55							11-May-	8 💻 2	4-May-18, Ir	stall Earth Elec	trode & Earth	ing Conduct	or - Earthing System fo	r HV & LV Equ	lipment						
F	S409082	Install Earth Electrode & Earthing Conductor - Lightning System for HV & LV Equipment	10 25-May-18	03-Jun-18	63							25	May-18 🗖	03-Jun-1	8, Install Earth	Electrode & E	arthing Con	ductor - Lighthing Syste	m for HV & LV	' Equipment						
F	S409083	Install Earthing Conductor for Inlet Screen Chamber	14 05-Aug-18	19-Aug-18	29										05-Aug-18	19-/	Aug-18, Insta	II Earthing Conductor f	or Inlet Screen	Chamber						
F	S409084	Install Earthing Conductor for BR1, Testing	30 20-Jul-18	19-Aug-18	1									20-	Jul-18	19-/	Aug-18, Insta	II Earthing Conductor f	or BR1, Testin	g						
F	S409085	Install Earthing Conductor - Lightning System for HV & LV Equipment	55 25-Jun-18	19-Aug-18	1								25	Jun-18 🗖		19-/	Aug-18, Insta	II Earthing Conductor -	Lightning Syst	tem for HV & L	V Equipment					
	S409086	Install Earthing Conductor for MFS1, Testing	60 20-Jun-18	19-Aug-18	29								20	un-18 💻				Il Earthing Conductor f								
		Install Cable Tray/Trunking for Plant - Relevant Areas	90 31-Mar-18	28-Jun-18	===						31-Mar-18				28- lun 19-			for Plant - Relevant Are								
			50 51-Wai-10	20-JUII=10	57						5 i - ividi = 10				20-JUII-10, I	Jan Jaule II	ay munking	ioi mant - noievant Are								
		sing System , FAT and Delivery																								
-						· · · ·																		•		
		File Name: DE/2014/01G3	Remain	ning Work									Cont	act No	. DE/20	14/01					Date	Revisio		Checked	Appro	ved
		Layout: DE1401 (Rev. G) - WBS	Critical						Pr	ovisior	۱ of E&	M Faci			-	-	ige Tre	atment Wo	orks	08-Jar		Rev. 0		I Lau I Lau	KM KM	
		TASK filter: All Activities	Milesto												1A - Ac		-		-	22-Jur 12-Jul		Rev. D Rev. E		I Lau I Lau	KM	
		Page 13 of 16	Acidal	Progress								•			ewage F					17-Oc		Rev. F		l Lau	KM	
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Activity ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	2018 Jul	Aug	Sep	Oct	Nov	Dec	
AS410010	Purchase Order for Deodorisers system with dehumidifier	0 10-Jul-17 A	26-Jul-17 A		-2	-1	1	2	3	4	5	6	/	8	9	10	11	12	13	-
AS410012	Manufacturing, FAT & Delivery to Site - Deodorisers system with dehumidifier	136 27-Jul-17 A	15-May-18	66						 	<u>.</u>	15-1	May-18, Man	ufacturing, F	AT & Delivery t	o Site - Deoc	lorisers syster	n with dehum	idifier	
AS410030	Purchase Order for S.S. Ducting & Accessories	0 24-Jul-17 A	26-Jul-17 A											+						
AS410032	Manufacturing & Delivery to Site - S.S. Ducting & Accessories	136 27-Jul-17 A	15-May-18	96						-		15-1	May-18, Man	ufacturing &	Delivery to Site	S.S. Ducti	nġ & Accessor	ies		
Install, T&C 1	or MBR Facilities Building (incl. Provision for Health & Safety Requirements)																			
AS410020	Install Deodorising Plant	45 16-May-18	29-Jun-18	66							16-M	ay-18			8, Install Deodo					
AS410040	Install S.S. Ducting, Accessories & Deodorising Control System	35 15-Jun-18	19-Jul-18	66								15-Ju	n-18 💻	1	9-Jul-18, Insta	IS.S. Ductin	g, Accessories	s & Deodorisin	ig Control Sys	sterr
	nance Platform & Covers																			
AS411010	Purchase Order for maintenance platforms, stairways, hand railings and covers	7 01-Apr-18*	07-Apr-18	4						01-Apr-18*	🔲 07-Арг	-18, Purchase	Order for m	aintenance	olatforms, stairv	vays, hand r	ailings and cov	vers		
AS411012	Manufacturing & Delivery to Site - maintenance platforms, stairways, hand railings and covers	60 08-Apr-18	06-Jun-18	4						08-Apr-1	8	 	06-Jun	18, Manufa	cturing & Delive	ry to Site - m	aintenance p	latforms, stair	ways, hand ra	ailing
AS411030	Purchase Order for Maintenance Platform in Basement of MBR Facilities Building	7 01-Apr-18	07-Apr-18	19	-					01-Apr-18	🔲 07-Арі	-18, Purchase	Order for N	aintenance l	Platform in Bas	ement of MB	R Facilities Bu	uilding		
AS411032	Manufacturing & Delivery to Site - Maintenance Platform in Basement of MBR Facilitie Building	s 45 08-Apr-18	22-May-18	19						08-Apr-1	8	2	2-May-18, N	lanufacturing	& Delivery to S	Site - Mainter	nance Platforn	n in Basemen	t of MBR Fac	cilitie
AS411050	Purchase Order for FRP covers for Membrane Facilities Tanks	0 02-May-17 A	08-May-17 A																	
AS411052	Manufacturing & Delivery to Site - FRP covers for Membrane Facilities Tanks	91 09-May-17 A	31-Mar-18	26						-	31-Mar-1	3. Manufacturi	ng & Delivery	to Site - FF	P covers for M	embrane Fa	cilities Tanks			
AS411070	Purchase Order for Steel Cover for Air Blower Opening on 1/F of MBR Bldg. (Not	0 30-Dec-17 A	30-Dec-17 A		_			I												
AS411072	required) Manufacturing & Delivery to Site - Steel Cover for Air Blower Opening on 1/F of MBR	0 30-Dec-17 A	30-Dec-17 A																	
Install, T&C f	Bldg. (Not required) or Maintenance Platform & Covers (incl. Provision for Health & Safety Requirem	ents)										¦								
AS411020	Install maintenance platforms, stairways, hand railings and covers	75 07-Jun-18	20-Aug-18	4								07-Jun-18	3		20	Aug-18, In:	stall maintena	nce platforms	, stairways, ha	and
AS411040	Install Hand Rail & Maintenance Platform in Basement of MBR Facilities Building	45 23-May-18	06-Jul-18	19	1						23	-May-18 🗖		06-Jul	18, Install Han	d Rail & Mair	tenance Platf	orm in Basem	ent of MBR F	Facili
AS411060	Install FRP covers for Membrane Facilities Tanks	60 10-Apr-18	08-Jun-18	17						10-Apr-	18		08-Jur	n-18, Install F	RP covers for	Membrane F	acilities Tanks			
AS411080	Install Steel Cover for Air Blower Opening on 1/F of MBR Bldg. (Not required)	0 30-Dec-17 A	30-Dec-17 A					I												
4.12 SCAD												 								
AS412010	Purchase Order for Proposed SCADA	0 03-Jul-17 A	18-Jul-17 A																	
AS412012	Manufacturing & Delivery to Site - Proposed SCADA	90 19-Jul-17 A	30-Mar-18	48						1	30-Mar-18	, Manufacturi	ng & Delivery	to Site - Pro	posed SCADA					
AS412030	Purchase Order for PLC System	0 10-Jul-17 A	18-Jul-17 A																	
AS412032	Manufacturing & Delivery to Site - PLC System	90 19-Jul-17 A	30-Mar-18	48							30-Mar-18	, Manufacturii	ng & Delivery	to Site - PL	C System					
AS412050	Purchase Order for Instrumentation in Flowmeter and MBR Pre-treatment Screen	91 31-Dec-17	31-Mar-18	23			31-Dec-17				31-Mar-1	B Purchase O	der for Instr	umentation i	n Flowmeter ar	nd MBR Pre-	treatment Scr	reen Chambe	rs	
AS412052	Chambers Manufacturing & Delivery to Site - Instrumentation in Flowmeter and MBR	90 01-Apr-18	29-Jun-18	23						01-Apr-18				29-Jun-1	3, Manufacturin	g & Delivery	to Site - Instru	umentation in	Flowmeter a	ind N
AS412070	Pre-treatment Screen Chambers Purchase Order for Instrumentation in BR1	91 31-Dec-17	31-Mar-18	37			31-Dec-17				31-Mar-1	B Purchase O	der for Instr	umentation i	n BR1					
AS412052 AS412070 AS412072 AS412090 AS412092 AS412100 AS412112 AS412130 AS412132	Manufacturing of Instrumentation in BR1	90 01-Apr-18	29-Jun-18	37						01-Apr-18				29-Jun-1	8, Manufacturin	g of Instrum	entation in BR	1		
AS412090	Purchase Order for Instrumentation in MFS1 & MFB	91 31-Dec-17	31-Mar-18	51			31-Dec-17				31-Mar-1	3, Purchase O	der for Instr	umentation i	n MFS1 & MFE	3				
AS412092	Manufacturing & Delivery to Site - Instrumentation in MFS1 & MFB	90 01-Apr-18	29-Jun-18	51						01-Apr-18					B, Manufacturin		to Site - Instru	mentation in	MES1 & MEE	в
AS412110	Purchase Order UPS for PLC Systems A	0 03-Jul-17 A	18-Jul-17 A																	
AS412112	Manufacturing & Delivery to Site - UPS for PLC Systems A	90 19-Jul-17 A	30-Mar-18	177							30-Mar-18	Manufacturi	a & Delivery	to Site - LIP	S for PLC Syst	ems A				
AS412130	Purchase Order UPS for PLC Systems B	0 03-Jul-17 A	18-Jul-17 A		_							, wanaladan								
A0412100				177							00 Mar 10	Manufacturi		to Cito LID	C for DLC Curt	alma P				
	Manufacturing & Delivery to Site - UPS for PLC Systems B	90 19-Jul-17 A	30-Mar-18	177							30-Mar-18	, manuracturi	ng & Delivery	to Site - UP	S for PLC Syst	ems B				
AS412001	or SCADA (incl. Pro vision for Health & Safety Requirements) Mobilisation of Works - Areas for laying works of optical fibres	7 03-Apr-18	09-Apr-18	8						03-Apr-18	🗖 09-Ap	r-18, Mobilisa	tion of Works	Areas for	aying works of	optical fibres				
AS412020	Laying Fibre Optical Ethernet Ring	30 10-Apr-18	09-May-18	8						10-Apr-	18	09-Ma	y-18, Laying	Ribre Optica	I Ethernet Ring					
AS412021	Set Up and Demonstrate all the Functionality of the Proposed SCADA/PLC System A	45 10-May-18	23-Jun-18	8							10-May-	18		23-Jun-18, \$	Set Up and Der	nonstrate all	the Functiona	lity of the Pro	posed SCAD	ıA/PL
AS412022	Modify Existing Master Station at Control Room	45 24-Jun-18	07-Aug-18	12								24	HJun-18 🗖		07-Aug	-18, Modify E	xisting Maste	r Station at C	ontrol Room	
AS412023	Install SCADA Master Station	35 08-Aug-18	11-Sep-18	12										08-Aug-	18	11-S	ep-18, Install	SCADA Maste	er Station	
AS412024	Wiring for Control & Monitoring Circuits, Termination - SCADA	30 12-Sep-18	11-Oct-18	12											12-Sep-	18	11-0	ct-18, Wiring	for Control &	Mor
	File Name: DE/2014/01G3	Remai	ning Work									Cont	ract No	. DE/2	2014/01					ŀ
	Layout: DE1401 (Rev. G) - WBS	Critical	Activity					Pr	ovisio	n of E8	M Fac			-	Hui Sew		eatmei	nt Wor	ks	-

Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities

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Milestone

Actual Progress

Contract No. DE/2014/01 Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station Master Programme

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No. Model         No. Model <t< th=""><th>2019 Iar Apr May Jun Jul</th><th>Eeb M</th><th>Dec Jan</th><th>Oct Nov [</th><th>Sen</th><th>Aug</th><th>2018 Jun Jul</th><th>May</th><th>Mar Apr</th><th>Eeb</th><th>Jan</th><th>Dec</th><th>Oct Nov</th><th>Total Float</th><th>Finish</th><th>Remaining Start</th><th>tivity Name</th><th>ctivity ID</th></t<>	2019 Iar Apr May Jun Jul	Eeb M	Dec Jan	Oct Nov [	Sen	Aug	2018 Jun Jul	May	Mar Apr	Eeb	Jan	Dec	Oct Nov	Total Float	Finish	Remaining Start	tivity Name	ctivity ID
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Number							13-30,-18							57				
• State		nination - PLC Syste												0				
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Image: Second				entation in BR1	g-18, Install Instrum	8 <b>13-Aug</b> -1	31-Jul-18							6	13-Aug-18	14 31-Jul-18	stall Instrumentation in BR1	AS412080
Marcine				strumentation in MFS1	27-Aug-18, Install Ir	Aug-18 <b>2</b> 7	14-A							6	27-Aug-18	14 14-Aug-18	stall Instrumentation in MFS1	AS412100
Number         Number<			system A	p-18, Install UPS for PLC	26-Sep	28-Aug-18								27	26-Sep-18	30 28-Aug-18	stall UPS for PLC system A	AS412120
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4 40000       8 10000       9 100000       9 100000       9 100000 <td>22-Mar-19, Supply and Delivery of Aluminum scaffoldir</td> <th></th> <td></td> <td>14</td> <td></td> <td></td> <td></td> <td></td>	22-Mar-19, Supply and Delivery of Aluminum scaffoldir													14				
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11 Stagely & Delary of Space 3. Tack 1       30 (2 Fe 1)			ımp	y and Delivery of Sump Pr	30-Aug-18, Supply	3	Jul-18*	02						197	30-Aug-18	60 02-Jul-18*	pply and Delivery of Sump Pump	AS413090
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Ability       Obergy of game & last bit (Sackbage and sack Sockbage and sackbage and sack																		
Addring:       Description:       Descripition:       Descripiti:       Des	22-Mar-19, Delivery of (a) Automatic samplers' spare													32	22-Mar-19			
Astribution       Option of spaces 1 took tor datases 1 took tor dat	22-Mar-19, Delivery of Spares & Tools for LV Switchbo	-eb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for LV Switchboard, Control Panels and SCADA System	AS414020
Addition       Description       Contract No. DE/2014/013       Contract No. DE/2014/013       Contract No. DE/2014/013         Addition       Description       Contract No. DE/2014/013       Description       Contract No. DE/2014/013       Description	22-Mar-19, Delivery of Spares & Tools for HV Switchb	eb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for HV Switchboard (including capacitor correction units)	AS414030
Add-14600       Delawy figures 3, Tock to 4 dector Diffuser       Sol 2, Feb. 10       Sol 2, Feb.	22-Mar-19, Delivery of Spares & Tools for SC AD A Sys	Peb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for SCADA System, PLC system and Instrumentation	AS414040
A611000       0 eterry al gares & Tools to C entringal Purp       30       21 eter 19       24 har 19       24         A611000       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       24 har 19       24         A611000       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       24 har 19       24         A611000       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       24 har 19       24         A611100       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       24 har 19       24         A611100       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       32       24 har 19       24         A611100       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       32       24 har 19       24         A611100       Obdery al gares & Tools to C entringal Purp       30       21 eter 19       32       24 har 19       24       32       34 har 9       <	22-Mar-19, Delivery of Spares & Tools for Air Blower													32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Air Blower	AS414050
A8414000       Date of Spread, Toos for Peterbola, Adduct and Have       00       21 + 56 + 10       21 + 56 + 10       20       21 + 56 + 10       20       21 + 56 + 10       20       21 + 56 + 10       20       21 + 56 + 10       20       21 + 56 + 10       20       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10       21 + 56 + 10 <t< td=""><td>22-Mar-19, Delivery of Spares &amp; Tools for Aeration Dif</td><th>Feb-19</th><td>21-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>32</td><td>22-Mar-19</td><td>30 21-Feb-19</td><td>livery of Spares &amp; Tools for Aeration Diffuser</td><td>AS414060</td></t<>	22-Mar-19, Delivery of Spares & Tools for Aeration Dif	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Aeration Diffuser	AS414060
ASt14000       Delevy of Spaces & Table for LBing Agataness       00       21-Feb-19       22-Mar-19       22-Mar-19 <td>22-Mar-19, Delivery of Spares &amp; Tools for Centrifugal</td> <th>Feb-19</th> <td>21-</td> <td></td> <td>32</td> <td>22-Mar-19</td> <td>30 21-Feb-19</td> <td>livery of Spares &amp; Tools for Centrifugal Pump</td> <td>AS414070</td>	22-Mar-19, Delivery of Spares & Tools for Centrifugal	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Centrifugal Pump	AS414070
Addition       Delwary of Spares & Tools for Spar	22-Mar-19, Delivery of Spares & Tools for Penstocks,	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Penstocks, Actuator and Valve	AS414080
Asti-110       Delevery of Spare & Tools for Job of status to U Ded status to U Int       30       21-Feb-19       22-Mar-19       30         Asti-1120       Delevery of Spare & Tools for MSR Pre-treatment Stareers       30       21-Feb-19       22-Mar-19       30         Asti-1120       Delevery of Spare & Tools for MSR Pre-treatment Stareers       30       21-Feb-19       22-Mar-19       30         Asti-1100       Delevery of Spare & Tools for MSR Pre-treatment Stareers       30       21-Feb-19       22-Mar-19       30         Asti-1100       Delevery of Spare & Tools for MSR Pre-treatment Stareers       30       21-Feb-19       22-Mar-19       30         Asti-1100       Delevery of Spare & Tools for MSR Pre-treatment Stareers       30       21-Feb-19       22-Mar-19       30         Asti-1100       Delevery of Spare & Tools for MSR Pre-tone Stare & Tools for MSR Pre-tone Pre-tone Stare & Tools for MSR Pre-tone Pre-tone Stare & Tools for MSR Pre-tone P	22-Mar-19, Delivery of Spares & Tools for Lifting Appli	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Lifting Appliances	AS414090
A341120       Delway of Spares & Tools for Wahn Compastor       30       21-Feb-19       22-Mar-19. Delva         A341130       Delway of Spares & Tools for MBP Perturber mixer       30       21-Feb-19       22-Mar-19. Delva         A341130       Delway of Spares & Tools for MBP Perturber mixer       30       21-Feb-19       22-Mar-19. Delva         A341130       Delway of Spares & Tools for MLP pump       30       21-Feb-19       22-Mar-19. Delva         A341120       Delway of Spares & Tools for MLP pump       30       21-Feb-19       22-Mar-19. Delva         A341120       Delway of Spares & Tools for MLP pump       30       21-Feb-19       22-Mar-19. Delva         A341120       Delway of Spares & Tools for MLP pump       30       21-Feb-19       22-Mar-19. Delva         A341120       Delway of Spares & Tools for MLP pump       30       21-Feb-19       22-Mar-19. Delva         Commissioning Plan & Poceadia       30       21-Feb-19       22-Mar-19. Delva       32         Commissioning Plan & Poceadia       30       21-Feb-19       22-Mar-19. Delva       32         Commissioning Plan & Poceadia       30       21-Feb-19       22-Mar-19. Delva       32-Feb-19       32         Commissioning Plan & Poceadia       30       21-Feb-19       22-Mar-19       32	22-Mar-19, Delivery of Spares & Tools for Special Too	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Special Tool and measuring equipment	AS414100
A3414130       Delevery of Sparse & Tools for MBR Pre-treatment Spreams       00       21-Feb-19       22-Mar-19       02         A3414100       Delevery of Sparse & Tools for Submersible mixer       00       21-Feb-19       22-Mar-19       02         A3414100       Delevery of Sparse & Tools for Submersible mixer       00       21-Feb-19       22-Mar-19       02         A3414100       Delevery of Sparse & Tools for MLR pump       00       21-Feb-19       22-Mar-19       02         A3414100       Delevery of Sparse & Tools for SIDe resultment Summary       00       21-Feb-19       22-Mar-19       02         A3414100       Delevery of Sparse & Tools for SIDe resultment Summary       00       21-Feb-19       22-Mar-19       02         A3414170       Lubricuts for 1 year use of all equipment       00       21-Feb-19       22-Mar-19       02         Process Commissioning Plan       90       26-Mar-19       02 <td< td=""><td>22-Mar-19, Delivery of Spares &amp; Tools for Deodorizati</td><th>Peb-19</th><td>21.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>32</td><td>22-Mar-19</td><td>30 21-Feb-19</td><td>livery of Spares &amp; Tools for Deodorization Unit</td><td>AS414110</td></td<>	22-Mar-19, Delivery of Spares & Tools for Deodorizati	Peb-19	21.											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Deodorization Unit	AS414110
ASI4 1410       Delevy of Sparse & Toole for Submersible mixer       30       21-Feb-19       32         ASI4 1410       Delevy of Sparse & Toole for MLR pump       30       21-Feb-19       32         ASI4 1410       Delevy of Sparse & Toole for MLR pump       30       21-Feb-19       32         ASI4 1410       Delevy of Sparse & Toole for MLR pump       30       21-Feb-19       32         ASI4 1410       Delevy of Sparse & Toole for MLR pump       30       21-Feb-19       32         ASI4 1470       Lubricants for 1 year use of all equipment       30       21-Feb-19       32         ASI4 1470       Lubricants for 1 year use of all equipment       30       21-Feb-19       32         Process Commissioning Flan       90       26-May-18       21       24-May-18       24-May-18       21-Feb-19       24-May-18       21-Feb-19       22-Mar-19, Paper	22-Mar-19, Delivery of Spares & Tools for Wash Com	Feb-19	21.											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Wash Compactor	AS414120
Astitis0       Delvery of Spares & Tools for MLR pump       30       21-Feb-19       22-Mar-19       32         Astitis0       Delvery of Spares & Tools for BF Redpump       30       21-Feb-19       22-Mar-19       32         Astitis0       Delvery of Spares & Tools for BF Redpump       30       21-Feb-19       22-Mar-19       32         Astitis0       Delvery of Spares & Tools for BF Redpump       30       21-Feb-19       22-Mar-19       32         Astitis0       Delvery of Spares & Tools for BF Redpump       30       21-Feb-19       22-Mar-19       32         Commissioning Pha Process       30       21-Feb-19       22-Mar-19       32         Commissioning Pha Process       30       21-Feb-19       22-Mar-19, Lubr       24-Mar-18, Propere / ICE Certified / Submit a Process Commissioning Pha         Sti12010       Prepare / ICE Certified / Submit a Process Commissioning Pha       90       26-Mar-18       21       24-Mar-18       24-Mar-18, Propere / ICE Certified / Submit a Process Commissioning Pha       24-Mar-18, Propere / ICE Certified / Submit a Process Commissioning Pha       24-Mar-18       24-Mar-18, Propere / ICE Certified / Submit a Process Commissioning Pha       24-Mar-18       24-	22-Mar-19, Delivery of Spares & Tools for MBR Pre-tr	Feb-19	21-											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for MBR Pre-treatment Screens	AS414130
AS414160 Delwary of Sparse & Tools for BR Feedpump 30 21-Feb-19 22-Mar-19 32 21-Feb-19 22-Mar-19 104 22-Mar-19 104 22-Mar-18 Process Commissioning Plan 22-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 22-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 22-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 22-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 23-Mar-19, Lubr 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / Submit a Process Commissioning Plan 24-Mar-18, Pigpare / ICE Certified / S	22-Mar-19, Delivery of Spares & Tools for Submersible	Feb-19	21.											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for Submersible mixer	AS414140
AS414170 Lubricants for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 Process Commissioning Plan 700 26-May-18 21-Feb-19 22-Mar-19 32 Commissioning Plan 700 26-May-18 21-Feb-19 22-Mar-19 32 AS112010 Prepare / ICE Certified / Submit a Process Commissioning Plan 90 26-May-18 21 20-Sep-18 21 20-Sep-18 21 20-Sep-18 21 20-Sep-18 21 20-Sep-18 20-Sep-18 21 20-Sep-18 20-Sep-18 21 20-Sep-18	22-Mar-19, Delivery of Spares & Tools for MLR pump	Feb-19	21											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for MLR pump	AS414150
Process Commissioning Commissioning Plan & Procedure       Sector	22-Mar-19, Delivery of Spares & Tools for BR Feedpu	Feb-19	21											32	22-Mar-19	30 21-Feb-19	livery of Spares & Tools for BR Feedpump	AS414160
Commissioning Plan & Procedure       Commissioning Plan       90       26-May-18       24-Aug-18       24-Aug-18       Prepare / ICE Certified / Submit a Process Commissioning Plan         A S112010       Prepare / ICE Certified / Submit a Process Commissioning Plan       90       26-May-18       24-Aug-18       24-Aug-18       24-Aug-18       24-Aug-18       20-Sep-18, Comments on Process Commissioning Plan       10       24-Aug-18       20-Sep-18, Comments on Process Commissioning Plan       10	22-Mar-19, Lubricants for 1 year use of all equipment	Feb-19	21											32	22-Mar-19	30 21-Feb-19	bricants for 1 year use of all equipment	AS414170
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	ID	Activity Name	Remaining S Duration	Start	Finish	Total Float Oct	Nov	Dec		Feb		Apr	May	2 Jun	2018 Jul	Aug 9	Sep	Oct		Dec	Jan	Feb	Mar		May Jun	
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