Bestwise – SFK Joint Venture

Contract No. DE/2018/17 Enhancement of Deodourisation System at Stonecutters Island Sewage Treatment Works

Quarterly Environmental Monitoring and Audit Report September to November 2019

(Version 1.0)

Certified By	(Environmental Team Leader)
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

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CE/Harbour Area Treatment Scheme Drainage Services Department Sewage Services Branch Harbour Area Treatment Scheme Division c/- G/F, Western Magistracy 2A Pokfulam Road, Hong Kong

Attn: Mr. K K Kam

Agreement No. CE 8/2009(EP) Harbour Area Treatment Scheme Stage 2A Independent Environmental Checker for Construction Phase – Investigation

Our Reference EC/AFK/DC/jI/T261332/ 22.01/L-1438

Contract No. DE/2018/17 – Enhancement of Deodourisation System at Stonecutters Island Sewage Treatment Works

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T +852 2828 5757 F +852 2827 1823 mottmac.hk Submission of 1st Quarterly EM&A Report for September to November 2019 (v1.0)

23 March 2020

By Post

Dear Sir,

We refer to the captioned Quarterly EM&A Report for September to November 2019 (v1.0) received on 19 March 2020 and confirm that we have no comment.

Yours faithfully for MOTT MACDONALD HONG KONG LIMITED

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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	
SCISTW	Stonecutters Island Sewage Treatment Works	
HATS Stage 2A	Harbour Area Treatment Scheme Stage 2A	
BSJV	Bestwise - SFK Joint Venture	

EXECUTIVE SUMMARY

Introduction

- This is the 1st Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab Limited for DSD Contract No. DE/2018/17 "Enhancement of Deodourisation System at SCISTW" (The Project) which documents the key information of EM&A and environmental monitoring works undertaken at the SCISTW under HATS Stage 2A Environmental Permit (Permit No. EP-322/2008/G).
- 2. The site activities undertaken in the reporting quarter included:

September 2019:

<u>DOU5</u>

- 1st rig mobilized to DOU5 on 31 Aug 2019
- 2nd rig mobilized to DOU5 on 2 Sep 2019
- Completion of predrilling work on 19 Sep 2019
- Mobilization of excavators to carry out trial trench excavation
- Uncharted cable ducts with concrete surround exposed on 24 Sep 2019
- Further investigation carried out and confirmed on 27 Sep 2019
- Abandoned concrete structure was exposed on 28 Sep 2019
- Mobilized coring machine to core through the obstruction
- Completed coring works
- Mobilization of piling equipment

DOU4

- 1st rig mobilized DOU4 on 10 Sep 2019
- 2nd rig mobilized DOU4 on 16 Sep 2019
- Predriling work completed on 30 Sep 2019 and demonization on 2 Oct 2019
- Mobilized excavator on 2 Oct 2019 to open up hard surface and carry out trial trench excavation
- Uncharted concrete surround exposed on 8 Oct 2019, two piles are obstructed by the concrete surround

October 2019:

DOU5

- Mobilized coring machine to core through the obstruction
- Completed coring works
- Mobilization of piling equipment

DOU4

- Predriling work completed on 30 Sep 2019 and demonization on 2 Oct 2019
- Mobilized excavator on 2 Oct 2019 to open up hard surface and carry out trial trench excavation
- Uncharted concrete surround exposed on 8 Oct 2019, two piles are obstructed by the concrete surround

November 2019:

<u>DOU1</u>

• Construction of plinth for erection of temporary DOU at DOU1 PS

DOU1R

• Fence off for open day event at DOU1R

<u>DOU2</u>

- Preparation work for foundation works at DOU2
- Reinstatement works for open day event at DOU2

DOU4

- Fence off for open day event at DOU4
- Site demonstration of pump lifting at DOU4
- Trial pit for diversion of uncharted DN250 water main at DOU4

DOU5

- Assembly of piling rig at DOU5
- Completion of pile excavation (DOU5a-P5)
- Disassembly of piling rig at DOU5 for open day event
- Preparation works for open day event at DOU5
- Re-assembly of piling rig and mobilization of crawler crane to resume foundation works after open day event

Environmental Monitoring Works

- 3. The environmental monitoring works of the Project were conducted by the ET for Contract DC/2009/10, at the SCISTW under HATS 2A with the same Environmental Permit. All the environmental monitoring works were conducted in accordance with the EM&A Manual. The monitoring results were checked and reviewed. 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.
- 4. Summary of the non-compliance of the reporting quarter is tabulated in **Table I**.

Monitored	Monitoring	Demonster		. of dance	No. of Ex Due to th		Action
Ву	Station	Parameter	Action Level	Limit Level	Action Level	Limit Level	Taken
	AMGo	1-hr TSP	0	0	0	0	N/A
	AM6a	24-hr TSP	0	0	0	0	N/A
	NM5	Noise	0	0	0	0	N/A
DC/2009/10	NM6	Noise	0	0	0	0	N/A
DC/2007/10	AM7	1-hr TSP	0	0	0	0	N/A
			24-hr TSP	0	0	0	0
	A N 40	1-hr TSP	0	0	0	0	N/A
	AM8	24-hr TSP	0	0	0	0	N/A

 Table I
 Summary Table for Non-compliance Recorded in the Reporting Quarter

1-hour TSP Monitoring

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

24-hour TSP Monitoring

6. All 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

Construction Noise

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

Environmental Licenses and Permits

8. Licenses/Permits granted to the Project include the Environmental Permit (EP); Billing account for Disposal of Construction Waste, Registered as Chemical Waste Producer and Construction Noise Permits.

Environmental Mitigation Implementation Schedule

9. According to the EIA Report Section 3.74, 4.56 and 13.44, air quality, noise and landscape and visual 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 G**.

Key Information in the Reporting Quarter

10. Summary of key information in the reporting quarter is tabulated in **Table II**.

 Table II
 Summary Table for Key Information in the Reporting Quarter

Event		Event Details		Status	Remark
Event	Number	Nature	Taken	Status	Keinark
Complaint received	0		N/A	N/A	
Status of submissions covering the reporting quarter	2	Monthly EM&A Reports from September 2019 and October 2019	Submitted to IEC for verification	No Comment	
Notifications of any summons & prosecutions received	0		N/A	N/A	

Summary of Complaints and Prosecutions

- 11. No environmental complaint and prosecution was received for the Project in the reporting quarter.
- 12. There were no environmental complaint and prosecution received since the commencement of the Project. The Complaint Log is presented in **Appendix H.**
- 13. The environmental concerns in the coming months are mainly on chemicals and general refuse storage, dust generated from the excavated dusty materials; and wastewater generated from the construction works.

1. INTRODUCTION

Background

- 1.1 The Project 'Enhancement of Deodourisation System at SCISTW' under Contract No: DE/2018/17 mainly comprises the following major works:
 - Construction of foundation for enhanced deodourisation system;
 - Design, supply, installation, testing and commissioning of enhanced deodourisation systems and associated accessories;
 - Enhancement of isolation devices at chemically enhanced primary treatment (CEPT) tanks;
 - Modification of air ducts at CEPT tanks;
 - Enhancement of sealing performance of existing covers for CEPT tanks; and
 - Any associated works as necessary to complete the above items.
- 1.2 The general location plan of the Project is shown in **Figure 1**.
- 1.3 The Project is under Harbour Area Treatment Scheme (HATS) Stage 2A and is a designated project with Register No. : AEIAR-121/2008. The current works under the Project at SCISTW for HATS 2A are covered by the Environmental Permit (Permit No. EP-322/2008/G), which was issued on 9th May 2014 by the Environmental Protection Department (hereinafter called EPD) to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.
- 1.4 The environmental monitoring works in the Project were covered by the ET for the Contract: DC/2009/10.
- 1.5 Bestwise SFK Joint Venture (hereafter called the BSJV) was commissioned by the DSD to undertake the construction of the Contract No. DE/2018/17 "Enhancement of Deodourisation System at SCISTW". The date of commencement of construction of the Project is 9th July 2019.
- 1.6 Wellab Limited was commissioned by BSJV to undertake the Environmental Monitoring and Audit (EM&A) works for the project and was appointed as the Environmental Team (ET) of the Project under Condition 2.1 of the EP. The date of commencement of EM&A works is 2nd September 2019. The Project cover the environmental monitoring works at monitoring stations AM6a, AM7, AM8, NM5 and NM6.
- 1.7 This is the 1st quarterly EM&A report summarizing the EM&A works conducted for the Project in September to November 2019.

Project Organizations

1.8 The contacts of the Project are shown in **Table 1.1** and the organization chart of ET for Contract is shown in **Figure 2**.

Party	Role	Name	Position	Phone No.
Ove Arup & Partners Hong	Project Management's	Mr. Edmund Chow	Senior Resident Engineer	2370 4311
Kong Ltd	Representative	Mr. Kevin Cheung	ER's Coordinator	3925 6506

Table 1.1Key Project Contacts

Party	Role	Name	Position	Phone No.
Wellab	Environmental	Dr. Priscilla Choy	ET Leader	2151 2089
wenab	Team	Mr. Howard Chan	Project Coordinator	2151 2073
Mott MacDonald	Independent Environmental Checker	Dr. Anne Kerr	Independent Environmental Checker	2828 5757
Bestwise –	~	Mr. Ken Chan	Site Agent	2620 0070
SFK Joint Venture	Contractor	Mr. Leo Leung	Environmental Officer	2620 0070

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 for September to November 2019.

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 Three designated monitoring stations, AM6a, AM7 and AM8 were selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 1**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Monitored by	Location of Measurement
AM6a		Works site boundary
AM7	DC/2009/10	North West Kowloon Sewage Pumping Station
AM8		Block A of Government Dockyard

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 could be referred to monthly reports.

Table 2.2 Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Station	Parameter	Period	Frequency
All monitoring	1-hour TSP	0700-1900 hrs	3 times/ every 6 days
locations	24-hour TSP	0000-2400 hrs	once in every 6 days

Monitoring Methodology and QA/QC Procedure

- 2.4 The monitoring methodology and QA/QC procedures are presented in Section 2.5 2.15 of monthly report of Contract DC/2009/10.
- 2.5 The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff's observation on the monitoring day.

Results and Observations

- 2.6 All 1-hour and 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix B**.
- 2.7 The graphical plots of the 1-hour and 24-hour TSP monitoring results are shown in **Appendix C**.
- 2.8 According to field observations during site inspection, the identified dust sources at the monitoring stations were mainly from loadings of material, vehicles movement, dust generated from the excavated dusty materials and construction works of other Contract and this Contract in site.

3. NOISE

Monitoring Requirements

3.1 Two noise monitoring stations, namely NM5 and NM6 was designated in the 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 two designated monitoring stations as listed in **Table 3.1**.

Monitoring Station	Monitored By	Location of Measurement
NM5		Near FSD Diving Rescue and Training Centre
NM6	DC/2009/10	Customs' Marine Base (Block H of Government Dockyard) Rooftop

Table 3.1Location of Noise Monitoring Stations

Monitoring Parameters, Frequency and Duration

3.3 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule could be referred to monthly reports of the respective contracts.

Table 3.2	Noise Monitoring Parameters, Frequency and Duration
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Monitoring Stations	Parameter	Period	Frequency	
NM5 NM6	L _{eq} (30 min.) dB(A)	0700-1900 hrs. on weekdays	Weekly	
	L _{eq} (5 min.) dB(A)	During restricted hours	Weekly Monitoring to be conducted during the construction works	

Monitoring Methodology and QA/QC Procedures

3.4 The monitoring methodology and QA/QC procedure could be referring to Section 3 of the monthly report for Contract DC/2009/10.

Results and Observations

- 3.5 The construction noise monitoring at the designated location was conducted by the ET of Contract DC/2009/10 as scheduled in the reporting quarter. The Graphical presentation of the noise monitoring result was shown in **Appendix D**.
- 3.6 No Action/Limit Level exceedance was recorded in the reporting quarter. Summary of exceedance is presented in **Appendix B**.
- 3.7 The major noise sources identified at the designated noise monitoring stations were generated by on-site vehicle movement and construction equipment, as well as construction activities from other and this Contract in Stonecutters Island STW.

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.
- 4.2 13 environmental site audits were conducted by ET and 3 IEC site audits were conducted for the Project in reporting quarter. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting quarter in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.

Review of Environmental Monitoring Procedures

4.4 The monitoring works were conducted by the monitoring teams of Contracts DC/2009/10. The monitoring procedures have been reviewed monthly.

Status of Environmental Licensing and Permitting

4.5 All permits/licenses obtained for the Contract DC/2009/10 are summarized in **Table 4.1**.

Reference	Valid Period		D-4-9-	C ()			
Number	From	То	Details	Status			
Water Dischar	Water Discharge License						
N/A	N/A	N/A	N/A	N/A			
Registered Ch	emical Waste	e Producer					
WPN5213-269- B2565-01	N/A	N/A	The application was approved on 14-8-2019.	Valid			
Billing Accourt	it for Dispos	al of Constru	uction Waste				
CSW03680	6/8/2019	N/A	The application was approved on 6-8-2019.	Valid			
Notification of Works Under APCO							
447348	N/A	N/A	Notice form received by EPD on 17-7-2019.	N/A			
Construction 1	Construction Noise Permit						
GW- RW0478-19	04/10/2019	26/03/2020	The application was approved on 30-9-2019	Valid			

 Table 4.1
 Summary of Environmental Licensing and Permit Status

Waste Management Status

4.6 The amount of Inert and Non Inert wastes generated by the construction activities of the Project in the reporting quarter is summarized in the waste flow table as shown in **Appendix E**.

Implementation Status of Environmental Mitigation Measures

- 4.7 Details of the implementation of mitigation measures are provided in the **Appendix G**.
- 4.8 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 4.2a-c.**

Parameters	Ref. Number	Observations	Follow Up Action	
Water	190905-001	Muddy water was observed out of site boundary. Bunding should be provided to surround area of earthwork.	Muddy water was cleared.	
Quality	190919-001	Muddy water was observed out of site boundary in DOU5. Bunding should be provided to surround area of earthwork.	Muddy water was cleared.	
	190911-R01	Dusty materials should be covered	The dusty materials were covered by impervious materials.	
Air	190919-R01	by impervious materials.		
Quality	190926-R01	The NRMM label has faded. Contractor was reminded to replace the valid NRMM label.	Please refer to 191003-R01.	
Waste/ Chemical Management	N/A	There was no observation in the reporting period.	N/A	
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A	
Noise	N/A	There was no observation in the reporting period.	N/A	
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A	

Table 4.2a: Observations and Recommendations of Site Audits (September 2019)

Table 4.2b: Observations and Recommendations of Site Audits (October 2019)

Parameters	Ref. Number	Observations	Follow Up Action	
Water	191009-O01	Bunding should be provided for the earthwork in DOU2 to prevent direct runoff.	The drilling work was completed and no muddy water was observed in DOU2.	
Quality	191024-R01	Bunding was observed damaged.		
Quanty	191031-R02	Contractor was reminded to enhance bunding for preventing muddy water runoff at DOU5	The bunding was enhanced to prevent direct muddy water runoff.	
	190926-R01	The NRMM label has faded. Contractor was reminded to replace	The NRMM label was replaced.	
Air Quality	191003-R01	the valid NRMM label.		
	191031-R01	NRMM label should be placed on the machinery.	The NRMM label was placed on the machinery.	
Waste/ Chemical Management	N/A	There was no observation in the reporting period.	N/A	
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A	
Noise	N/A	There was no observation in the reporting period. N/A		
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A	

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	N/A	There was no observation in the reporting period.	N/A
Air Quality	191128-R02	Contractor was reminded to replace the NRMM label on the generator.	Follow up action will be reported in the next reporting period.
Waste/ Chemical Management	191128-001	Drip tray should be provided for chemical storage to prevent leakage.	Follow up action will be reported in the next reporting period.
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A
Noise	N/A	There was no observation in the reporting period.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A

Table 4.2c: Observations and Recommendations of Site Audits (November 2019)

Implementation Status of Event Action Plans

4.9 The Event Action Plans for air quality and noise are presented in **Appendix F.**

<u>1-hr TSP</u>

4.10 No Action/Limit Level exceedance was recorded in the reporting quarter.

24-hr TSP

4.11 No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

4.12 No Action/Limit Level exceedance was recorded in the reporting quarter.

Landscape and Visual

4.13 No non-compliance was recorded in the reporting quarter.

Summary of Complaints and Prosecutions

- 4.14 No environmental complaint and prosecution was received for the Project in the reporting quarter.
- 4.15 There were no environmental complaint and prosecution received since the commencement of the Project. The Complaint Log is presented in **Appendix H**.

5. FUTURE KEY ISSUES

Key Issues for the Coming Months

- 5.1 Key environmental issues in the coming months include:
 - Storage of chemicals/fuel and chemical waste/waste oil on-site;
 - Leakage of oil from equipment;
 - Dust generation should be mitigated by adequate water spraying, especially in dry days;
 - Stockpile should be properly covered by tarpaulin or impervious materials to mitigate dust generation:
 - Nosie from operation of equipment and machinery on-site;
 - Ponding water generated in pre-drillings;
 - Silty surface runoff generated from the site area; and
 - Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities.

Construction Program for the Coming Quarter

5.2 The tentative construction program is provided in **Appendix I.**

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

6.1 Environmental monitoring and audit works were performed in the reporting quarter and all monitoring results were checked and reviewed.

1-hour TSP Monitoring

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

24-hour TSP Monitoring

6.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

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

Environmental Audit

6.5 Environmental site audits were conducted as weekly basis in the reporting quarter. No noncompliance was recorded.

Complaint and Prosecution

6.6 No environmental complaint and prosecution was received in the reporting quarter.

Recommendations for the coming reporting period:

6.7 The following recommendations were made for the coming reporting period:

Air Quality

- To provide adequate water spray on site;
- To mitigate dust generation by adequate water spraying or covering by tarpaulin during dry days;
- To regularly maintain the machinery and vehicles on site;
- To follow up any exceedance caused by the construction works; and
- Non-Road Mobile Machinery (NRMM) labels must be demonstrated on the registered equipment for inspection.

Noise

- To inspect the noise sources 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 equipments to reduce frictional noise; and
- To well maintain the mechanical equipments / machineries to avoid abnormal noise nuisance.

Water Quality

- To identify any discharge of wastewater from the construction site;
- To provide adequate temporary drainage system with adequate capacity;
- To provide adequate wastewater treatment facilities to treat the wastewater generated during construction works and heavy rain;
- To properly cover the stockpile and slope to prevent the generation of surface runoff; and
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed.

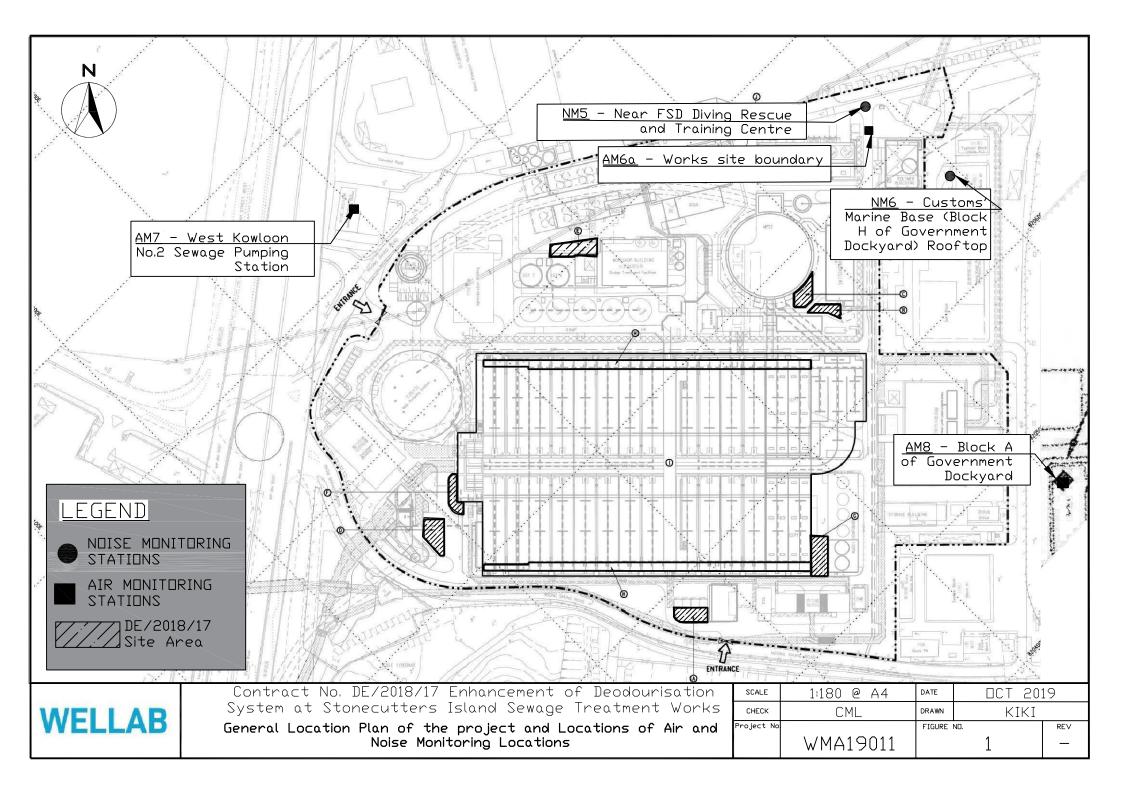
Waste/Chemical Management

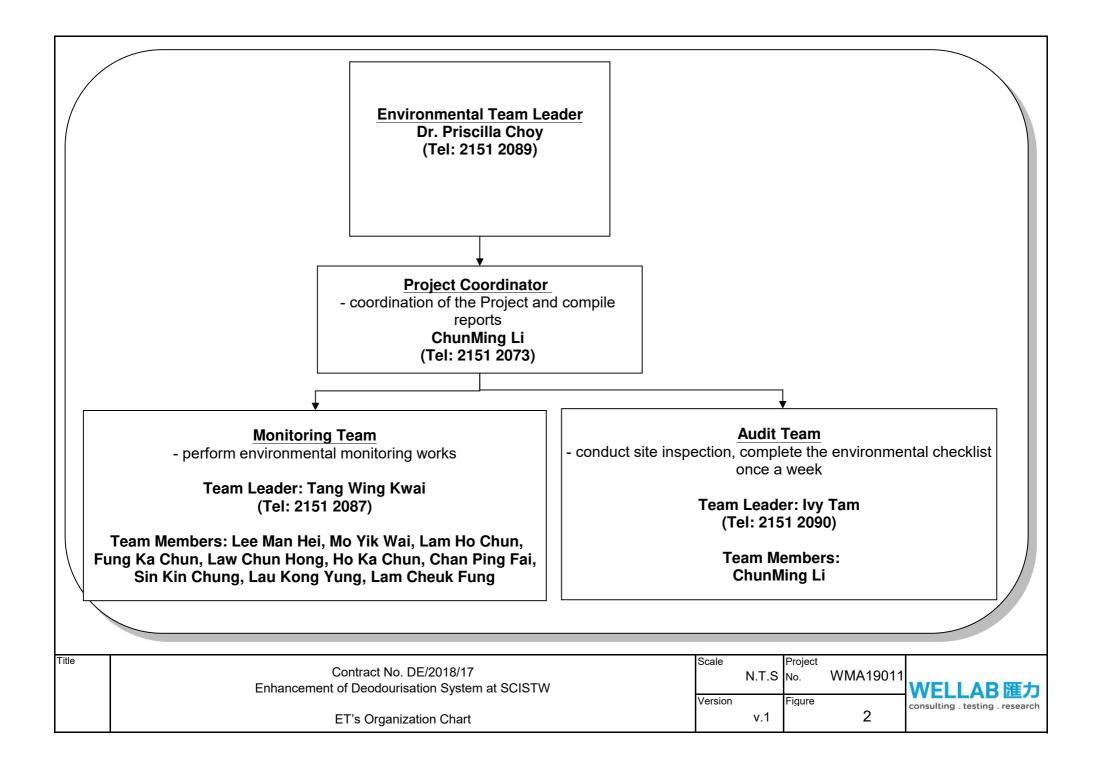
- To provide proper rubbish bins / skips for waste collection;
- To check for any accumulation of wasted materials or rubbish on site;
- To provide adequate chemical waste storage area on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment; and
-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

Landscape and Visual

- To erect and maintain the protection fence around the retaining tree; and
- To avoid any heavy materials placed into tree protection zone.

FIGURES





APPENDIX A ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE QUALITY

Appendix A Action and Limit Levels

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

Manitaring Stations	Action Level (µg/m ³)		Limit Level (µg/m ³)	
Monitoring Stations	1-hour	24-hour	1-hour	24-hour
АМба	346	196	500	260
AM7	322	207	500	260
AM8	307	158	500	260

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
	0700-1900 hours on normal weekdays	When one documented complaint is received	75
NM5 NM6	Evening Time of normal weekdays and General Holidays: All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the day- time and evening (0700 to 2300 hours)	N/A	70 ⁽¹⁾

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

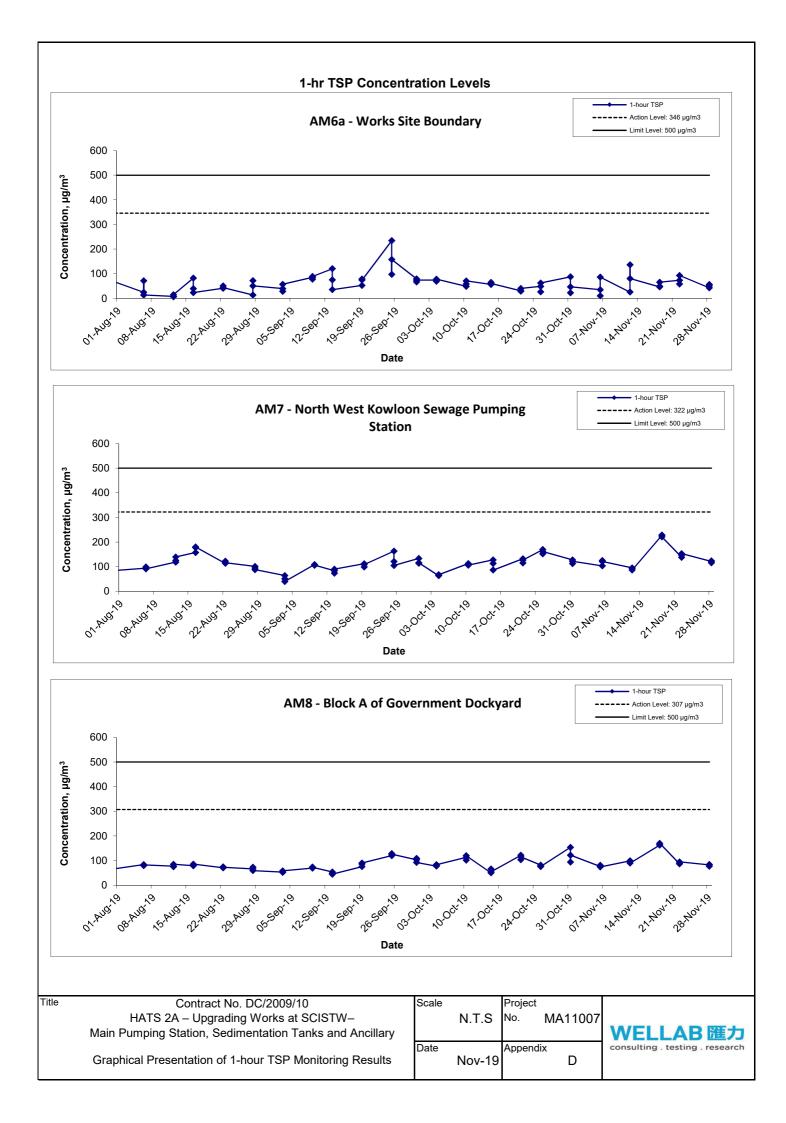
APPENDIX B SUMMARY OF EXCEEDANCE

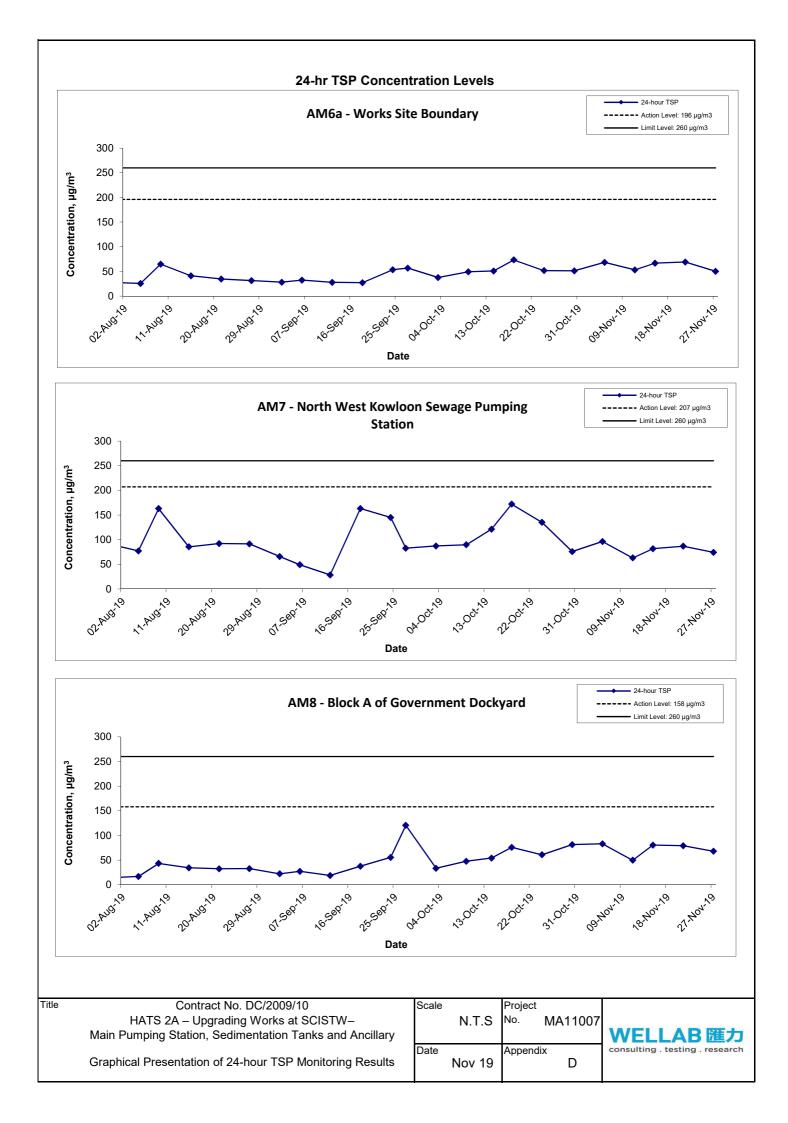
APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Quarterly: September to November 2019

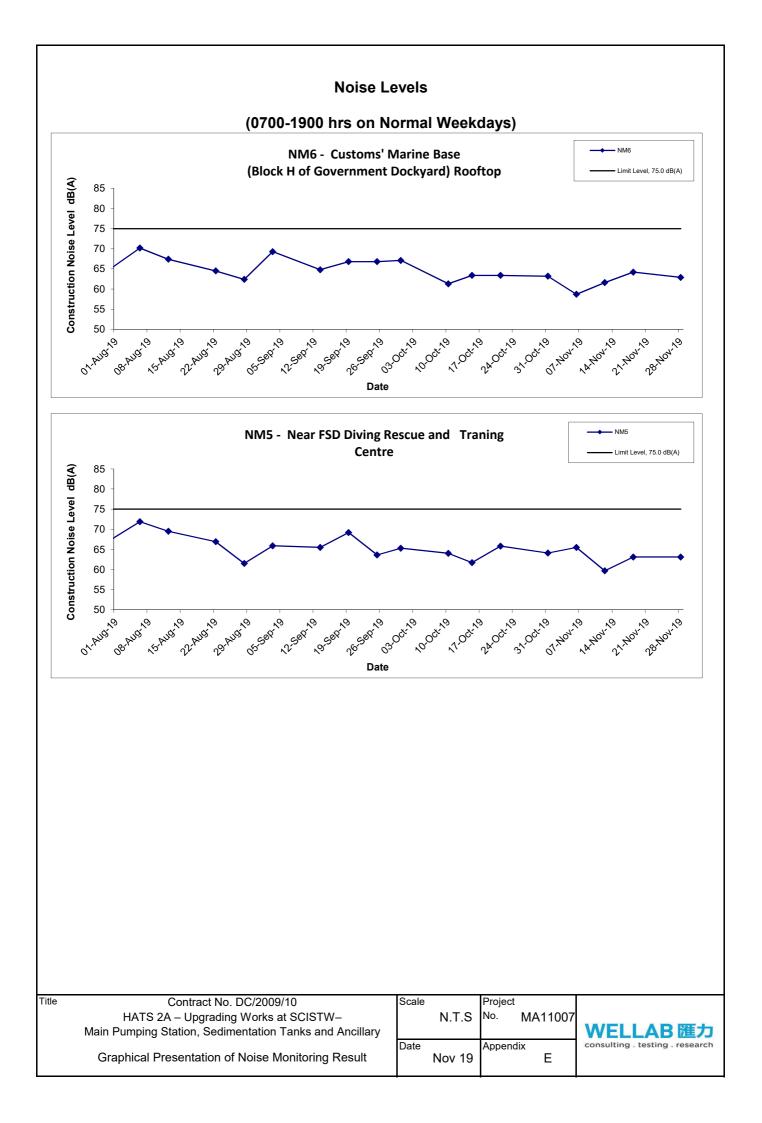
- a) Exceedance Report for 1-hr TSP (NIL)
- b) Exceedance Report for 24-hr TSP (NIL)
- c) Exceedance Report for Construction Noise (NIL)

APPENDIX C 1-HOUR AND 24-HOUR TSP GRAPHICAL PRESENTATION





APPENDIX D NOISE MONITORING GRAPHICAL PRESENTATIONS



APPENDIX E SUMMARY OF AMOUNT OF WASTE GENERATED Name of Department: DSD Contract No. : DE/2018/17 Monthly Summary Waste Flow Table for 2019 (year) Actual Quantities of inert C&D Materials Generated Monthly Actual Quantities of C&D Materials Generated Monthly Hard Rock and Large Total Quantity Reused in the Reused in Disposed as Imported Metals Paper/ Plastics Chemical Other, e.g. Month cardboard other Projects Generated Broken Concrete Contract Public Fill Fill (see Note 3) Waste general refuse $(In '000m^3)$ $(In '000m^3)$ $(In '000m^3)$ $(In '000m^3)$ $(In '000m^3)$ $(In '000m^3)$ (In '000kg) (In '000kg) (In '000kg) $(In '000m^3)$ (In '000kg) Jan Feb Mar N/A Apr May June 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Sub-total 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 July 0.052 0.052 0.000 0.000 0.052 0.000 0.000 0.000 0.000 0.000 0.000 Aug 0.048 0.048 0.048 0.000 Sep 0.000 0.000 0.000 4.120 0.000 0.000 0.000 0.087 0.087 0.000 0.000 0.087 0.000 5.120 0.000 0.000 0.000 0.000 Oct 0.000 0.000 0.000 0.114 0.114 0.000 0.000 0.114 0.000 2.290 0.001 Nov Dec 0.301 0.301 0.301 0.000 0.000 0.000 0.000 0.000 0.000 11.530 0.001 Total Total since commence 0.301 0.301 0.000 0.000 0.301 0.000 11.530 0.000 0.000 0.000 0.001 ment of project

Notes: (1) The performance targets are given in PS Clause 25.37(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

(4) The conversion factor for tonne to m^3 for inert C&D materials is 1.9 tonne/m³.

(5) The conversion factor for tonne to m^3 for general refuse is 1.8 tonne/m³.

APPENDIX F EVENT ACTION PLANS

APPENDIX F – Event / Action Plans

Table F-1 Event / Action Plan For Air Quality

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

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

	ACTION			
EVENT	ET	IEC	ER	CONTRACTOR
	implemented;	advise the ER accordingly;	5. If exceedance continues,	control;
	6. Arrange meeting with IEC and	5. Supervise the implementation of	consider what portion of the	5. Stop the relevant portion of
	ER to discuss the remedial actions	remedial measures.	work is responsible and	works as determined by the
	to be taken;		instruct the Contractor to stop	ER until the exceedance is
	7. Assess effectiveness of		that portion of work until the	abated
	Contractor's remedial actions and		exceedance is abated.	
	keep IEC, EPD and ER informed of			
	the results;			
	8. If exceedance stops, cease			
	additional monitoring			

Table F-2 Event / Action Plan For Construction Noise

	ACTION			
EVENT	ET	IEC	ER	CONTRACTOR
Action Level	1. Notify ER, IEC and Contractor;	1. Review the investigation	1. Confirm receipt of	1. Submit noise mitigation
being	2. Carry out investigation;	results submitted by the ET;	notification of failure in writing;	proposals to IEC and ER;
exceeded	3. Report the results of investigation to	2. Review the proposed	2. Notify Contractor;	2. Implement noise mitigation
encected	the IEC, ER and Contractor;	remedial measures by the	3. In consolidation with the IEC,	proposals
	4. Discuss with the IEC and	Contractor and advise the ER	agree with the Contractor on the	
	Contractor on remedial measures	accordingly;	remedial measures to be	
	required;	3. Advise the ER on the	implemented;	
	5. Increase monitoring frequency to	effectiveness of the proposed	4. Supervise the implementation of	
	check mitigation effectiveness	remedial measures	remedial measures	
Limit Level	1. Inform IEC, ER, Contractor and	1. Discuss amongst ER, ET,	1. Confirm receipt of	1. Take immediate action to
being	EPD;	and	notification of failure in writing;	avoid further exceedance;
exceeded	2. Repeat measurements to confirm	Contractor on the potential	2. Notify Contractor;	2. Submit proposals for
executed	findings;	remedial actions;	3. In consolidation with the	remedial actions to IEC
	3. Increase monitoring frequency;	2. Review Contractor's	IEC, agree with the Contractor on	and ER within 3 working
	4. Identify source and investigate the	remedial	the remedial measures to be	days of notification;
	cause of exceedance;	actions whenever necessary	implemented;	3. Implement the agreed
	5. Carry out analysis of Contractor's	to assure their effectiveness	4. Supervise the implementation of	proposals;
	working procedures;	and advise the ER accordingly.	remedial measures;	4. Submit further proposal if
	6. Discuss with the IEC, Contractor		5. If exceedance continues,	problem still not under
	and ER on remedial measures		consider stopping the Contractor to	control;
	required;		continue working on that portion of	5. Stop the relevant portion
	7. Assess effectiveness of Contractor's		work which causes the exceedance	of works as instructed by
	remedial actions and keep IEC, EPD		until the exceedance is abated	the ER until the exceedance is
	and ER informed of the results;			abated
	8. If exceedance stops, cease			
	additional monitoring			

APPENDIX G ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

APPENDIX G IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			
А	Air Quality		
3.74	Skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	٨
	Vehicle washing facilities should be provided at every vehicle exit point.		٨
	The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore.		^
	Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit.		N/A
	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.		٨
	Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.		Λ
	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.		*
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.		٨
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.		٨
	Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides.		٨
	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.		٨
3.74	Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All construction sites	٨

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			
В	Airborne Noise		
4.56-	Use of quiet PME, movable barriers and acoustic mats.	All construction sites	٨
4.61			
4.67	Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.		^
	Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.		^
	Mobile plant, if any, shall be sited as far away from NSRs as possible.		٨
	Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.		^
4.67	Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.		^
	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^
С	Water Quality		
6.349 to 6.375	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All construction sites	*
6.376 6.377	Effluent Discharge There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes. Accidental Spillage of Chemicals		∧ ∧
	produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General)		

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			
	Regulation should be observed and complied with for control of chemical wastes.		
6.378	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.		٨
6.379	 Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 		Λ
6.380	Construction Works in Close Proximity of Storm Drains or Seafront:	All construction sites	۸
	 To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable. The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea. 		

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			

D	Waste Management		
9.107	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimize wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	All construction sites	٨
9.109	 All waste materials should be segregated into categories covering: excavated materials suitable for reuse on-site; excavated materials suitable for public filling facilities; remaining C&D waste for landfill; chemical waste; and general refuse for landfill. 	All construction sites	۸
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals.		۸
	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.		۸
	Encourage collection of aluminum cans, PET bottles and paper by providing separate labeled bins to enable these wastes to be segregated from other general refuse generated by the work force.		٨
	Any unused chemicals or those with remaining functional capacity shall be recycled.		٨
	Proper storage and site practices to minimize the potential for damage or contamination of construction materials.		*
9.115	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.		۸
	Training of site personnel in proper waste management and chemical waste handling procedures.		۸
9.115	Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.		۸
	Provision of sufficient waste disposal points and regular collection of waste.		٨
	Regular cleaning and maintenance programme for drainage systems, sumps and oil		۸

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			
	intercontors		
	interceptors.		
9.125	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All construction sites	Λ
9.131	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.		٨
9.133	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.		٨
9.135	The recyclable component of the municipal waste generated by the workforce, such as aluminum cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		Λ
9.137	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		Λ
9.142	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.		N/A

EIA	Recommended Mitigation Measures	Location of the measure	Implementation Status
Ref.			

Ε	Terrestrial Ecology		
10.94	To implement effective noise mitigation measures as recommended in Section 4 of EIA.	All construction sites	N/A
10.95	Dust control practices such as regular watering, complete coverage of any aggregate or dusty material storage piles, and re-schedule of dusty activities during high-wind conditions as well as other measures recommended in Section 3 of EIA, should be implemented.	-	٨
10.96	Fences/hoardings should be erected and installed along the boundary of the works areas.		۸
10.97	Standard good site practices as suggested in Section 10 of EIA should be implemented.		N/A
10.98	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.	-	٨
F	Landscape and Visual		
Table 13.7	P Topsoil, where identified, should be stripped and stored for re-use in the construction of All control the soft landscape works, where practical.	All construction sites	۸
	Existing trees to be retained on site should be carefully protected during construction.		٨
	Trees unavoidably affected by the works should be transplanted where practical.		۸
	Compensatory tree planting should be provided to compensate for felled trees.		٨
	Control of night-time lighting.		٨
Table	Erection of decorative screen hoarding compatible with the surrounding setting.	All construction sites	N/A
13.7			
G	Marine Ecology		
11.137	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	All construction sites	٨
Н	Hazard to Life		
14A.201	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	Exact location will be determined on construction site by the engineer	٨

Remarks:	 Compliance of mitigation measure;
	N/A Not Applicable;
	* Recommendation was made during site audit but
	improved/rectified by the contractor.
	# Recommendation was made during site audit and to be
	improved / rectified by the contractor.
	X Non-compliance of mitigation measure;
	Non-compliance but rectified by the contractor;

APPENDIX H COMPLAINT LOG

APPENDIX H – COMPLAINT LOG

Reporting Quarter: September to November 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 quarter.

APPENDIX I CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Activity % Complete	Total Float	Original Time risk Duration allowance	Start	Finish	20	19		
Works Prov	gramme (First Programme)							-	_	
Contract Pa								┣	_	_
KD0001	Starting date of Project	0%	0	0	09-Jul-19*			• •	Star	tin
KD0005	Completion Date (665 days)	0%	0	0		03-May-2				
Key Dates										
KD0010	Starting date of Project	0%	0	0	09-Jul-19*			*	Star	tin
KD0020	KD A - Completion of all other works including DOUs 1, 2, 4, 5 Polishing stages for FSI (540 days)	0%	0	0		29-Dec-20*			09-	1
ACCESS Dat A1090	e of Part of the Site PartA-L PartA-L	0%	0	0	09-Jul-19				Part	
	and General Requirements	0%	0	0	09-301-19			Ţ	an	_
PG00010	Statutory application/ notification of EPD and LD	0%	11	21 0	09-Jul-19	29-Jul-19		-	<u> </u>	S
PG00020	Submission of Safety plan	0%	11	21 0	09-Jul-19	29-Jul-19		╺╺┟	Ē	s
PG00030	Approval of Safety Plan	0%	11	21 0	30-Jul-19	19-Aug-19			5	F
PG00040	Submission of Waste Management Plan/ Environmental Management plan	0%	11	21 0	09-Jul-19	29-Jul-19		-		s
PG00050	Approval of Waste Management Plan/ Environmental Management plan	0%	11	14 0	30-Jul-19	12-Aug-19				
PG00060	Submission of Subcontractor Management Plan	0%	112	14 0	09-Jul-19	22-Jul-19				luk 1
PG00070 PG00080	Approval of Subcontractor Management Plan Submission of Staffing Proposal	0%	112 7	14 0 14 0	23-Jul-19 09-Jul-19	05-Aug-19 22-Jul-19		╺		L. Juk
PG00090	Approval of Staffing Proposal	0%	7	7 0	23-Jul-19	29-Jul-19		Ģ	-	A
	Ire Construction Works							┝┿	÷	H
Section 1 of t							 	╞╪		
A2960	Section 1 Completion (150days)	0%	0	0 0		05-Dec-19*				
	Submission (AIP)		_	7 0	00 1 1 15	45.1.1.15		Ħ		ľ
A4930 A4940	Submission of AIP Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5 Approval of AIP Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5	0% 0%	0	7 0 21 0	09-Jul-19 16-Jul-19	15-Jul-19 05-Aug-19		3	SU	bn
A4940 A4950	Submission of AIP Design of Air Relief Duct for Effluent Drop Structure	0%	0	7 0	09-Jul-19	15-Jul-19		-	5	bn
A4960	Approval of AIP Design of Air Relief Duct for Effluent Drop Structure	0%	0	21 0	16-Jul-19	05-Aug-19		4		
A4970	Submission of AIP Design of Isolation Device for Effluent Drop Structure	0%	0	7 0	09-Jul-19	15-Jul-19		-	Su	bn
A4980	Approval of AIP Design of Isolation Device for Effluent Drop Structure	0%	0	21 0	16-Jul-19	05-Aug-19		F	ŧ	
A4990	Submission of AIP Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	7 0	09-Jul-19	15-Jul-19		1		bn
A5000	Approval of AIP Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	21 0	16-Jul-19	05-Aug-19			F) brr
A5010 A5170	Submission of AIP Design fo power supply, cabling, earthing, lightning protection and interface with Approval of AIP Design fo power supply, cabling, earthing, lightning protection and interface with ex	0% 0%	57 57	7 0 21 0	09-Jul-19 16-Jul-19	15-Jul-19 05-Aug-19		긚	- 1	L
	Submission (DDA)	078	51	21 0	10-001-13	03-Aug-13		H		Ļ
A4945	Submission of DDA Civil requirement drawings and General Arrangement of DOU1, DOU1R, DOU2	0%	0	7 0	09-Jul-19	15-Jul-19		-	SĻ	bn
A4955	Review and comment on DDA of Civil requirement drawings and General Arrangement of DOU1, D(0%	0	21 0	16-Jul-19	05-Aug-19		4		Ĩ
A4965	Re-submission of DDA Civil requirement drawings and General Arrangement of DOU1, DOU1R, DC	0%	0	7 0	06-Aug-19	12-Aug-19			1	2
A4975	Approval of DDA Civil requirement drawings and General Arrangement of DOU1, DOU1R, DOU2, E Submission of DDA Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5	0%	0	7 0	13-Aug-19	19-Aug-19				ľ
A5015 A5020	Review and Comment on DDA Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOUS Review and Comment on DDA Design of Activated Carbon Filter Systems for DOU1, DOU2 and DC	0%	0	7 0 21 0	06-Aug-19 13-Aug-19	12-Aug-19 02-Sep-19				H
A5030	Re-submission of DDA Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5	0%	0	7 0	03-Sep-19	09-Sep-19				-
A5040	Approval of DDA Design of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5	0%	0	7 0	10-Sep-19	16-Sep-19				11
A5050	Submission of DDA Design of Air Relief Duct for Effluent Drop Structure	0%	0	7 0	06-Aug-19	12-Aug-19			1	
A5060	Review and Comment on DDA Design of Air Relief Duct for Effluent Drop Structure	0%	0	21 0	13-Aug-19	02-Sep-19				M
A5070 A5080	Re-submission of DDA Design of Air Relief Duct for Effluent Drop Structure	0% 0%	0	7 0 7 0	03-Sep-19 10-Sep-19	09-Sep-19				
A5090	Approval of DDA Design of Air Relief Duct for Effluent Drop Structure Submission of DDA Design of Isolation Device for Effluent Drop Structure	0%	0	7 0	06-Aug-19	16-Sep-19 12-Aug-19				
A5100	Review and Comment on DDA Design of Isolation Device for Effluent Drop Structure	0%	0	21 0	13-Aug-19	02-Sep-19				F
A5110	Re-submission of DDA Design of Isolation Device for Effluent Drop Structure	0%	0	7 0	03-Sep-19	09-Sep-19				11
A5120	Approval of DDA Design of Isolation Device for Effluent Drop Structure	0%	0	7 0	10-Sep-19	16-Sep-19		_		
A5130	Submission of DDA Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	7 0	06-Aug-19	12-Aug-19				
A5140 A5150	Review and Comment on DDA Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks Re-submission of DDA Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	21 0 7 0	13-Aug-19 03-Sep-19	02-Sep-19 09-Sep-19				[]
A5150 A5160	Approval of DDA Design of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	7 0	10-Sep-19	16-Sep-19				$\ $
A5460	Submission of DDA Design of power supply, cabling, earthing, lightning protection and interface with	0%	57	7 0	06-Aug-19	12-Aug-19			L,	-
A8020	Review & comment of DDA Design of power supply, cabling, earthing, lightning protection and interf	0%	57	21 0	13-Aug-19	02-Sep-19		.44		F
A8030	Re-submission of DDA Design of power supply, cabling, earthing, lightning protection and interface	0%	57	7 0	03-Sep-19	09-Sep-19				$\ $
A8040	Approval of DDA Design of power supply, cabling, earthing, lightning protection and interface with e	0%	57	7 0	10-Sep-19	16-Sep-19				$\ $
A5180	and Delivery of Equipment/Material for Section 1 of Works Procurement of Activated Carbon Filter Systems for DOU1, DOU2 and DOU5	0%	0	48 0	07-Sep-19	24-Oct-19				$\ $
A5190	FAT of Activated Carbon Filter System for DOU1	0%	0	6 0	07-Sep-19 07-Oct-19	12-Oct-19	 	•++		┢╋
A5200	Delivery of Activated Carbon Filter System for DOU1 to Site	0%	0	14 0	13-Oct-19	26-Oct-19				$\ $
A5210	FAT of Activated Carbon Filter System for DOU2	0%	0	6 0	13-Oct-19	18-Oct-19				$\ $
A5220	Delivery of Activated Carbon Filter System for DOU2 to Site	0%	0	14 0	19-Oct-19	01-Nov-19				$\ $
A5230	FAT of Activated Carbon Filter System for DOU5	0%	0	6 0	19-Oct-19	24-Oct-19	 	-++	·	-
A5240 A5250	Delivery of Activated Carbon Filter System for DOU5 to Site Procurement of FRP Air Ducts for Effluent Drop Structure	0%	0	14 0 45 0	25-Oct-19 02-Sep-19	07-Nov-19 16-Oct-19				$\ $
A5260	FAC of FRP Air Ducts for Effluent Drop Structure	0%	0	7 0	10-Oct-19	16-Oct-19				$\ $
A5270	Delivery of FRP Air Ducts for Effluent Drop Structure to Site	0%	0	7 0	17-Oct-19	23-Oct-19				$\ $
A5280	Procurement of Isolation Devices for Effluent Drop Structure	0%	0	30 0	02-Sep-19	01-Oct-19				
A5290	Delivery of Isolation Devices for Effluent Drop Structure to Site	0%	0	7 0	02-Oct-19	08-Oct-19				Ц
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Actual Work Remaining Work

 Milestone •

Summary

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Critical Remaining Work

Enhancement of Deodourization System at Stonecu

	Activity Name	Activity % To Complete	tai i ioat	Original Time ri Duration allowar		Finish	2019 2020 Q3 Q4 Q1 Q2
300	Procurement of Sealant for FRP Sliding Covers of Existing CEPT Tanks	0%	1	30 0	02-Sep-19	01-Oct-19	Froculement of Sealant for FRP Sliding Covers of Existing CEPT Tanks
310	Delivery of Sealant for FRP Sliding Covers of Existing CEPT Tanks to Site	0%	1	7 0	02-Oct-19	08-Oct-19	Delivery of Sealant for FRP Sliding Covers of Existing CEPT Tanks to
i <mark>nd Geo</mark> 0	technical Design Submission (DDA) Submission of DDA Geotechnical design for piling works for DOU1, DOU2 and DOU5	0%	0	7 0	00 400 10	00 Aug 10	▼ 06-Jan-20, Civil and Geotechnical Design Su
	Review and Comment on DDA Geotechnical design for piling works for DOU1, DOU2 and DOU5 Review and Comment on DDA Geotechnical design for piling works for DOU1, DOU2 and DOU5	0%	0	21 0	20-Aug-19 27-Aug-19	26-Aug-19 16-Sep-19	Review and Comment on DDA Geotechnical design for pilling works for DC
)	Re-submission of DDA Geotechnical design for piling works for DOU1, DOU2 and DOU5	0%	0	5 0	17-Sep-19	21-Sep-19	Re-submission of DDA Geotechnical design for piling works for DOU1, I
i0	Approval of DDA Geotechnical design for piling works for DOU1, DOU2 and DOU5	0%	0	7 0	22-Sep-19	28-Sep-19	Approval of DDA Geotechnical design for piling works for DOU1, DOU2
0	Submission of DDA structural design for RC works of DOU 1, 2 and 5	0%	0	14 0	29-Sep-19	12-Oct-19	Submission of DDA structural design for FIC works of DOU 1, 2 and
00	Review and Comment on DDA structural design for RC works for DOU1, DOU2 and DOU5	0%	0	10 0	13-Oct-19	22-Oct-19	Review and Comment on DDA structural design for RC works for
0	Re-submission of DDA structural design for RC works for DOU1, DOU2 and DOU5	0%	0	10 0	23-Oct-19	01-Nov-19	Re-submission of DDA structural design for RC works for DO
20	Approval of DDA structural design for RC works for DOU1, DOU2 and DOU5	0%	0	10 0	02-Nov-19	11-Nov-19	Approval of DDA structural design for RC works for DOU1,
340	Submission of DDA for ABWF design for DOU 1, 2 and 5	0%	115	14 0	29-Sep-19	12-Oct-19	Submiss on of DDA for ABWF design for DOU 1, 2 and 5
50	Review and Comment on DDA ABWF design for DOU1, DOU2 and DOU5	0%	115	14 0	13-Oct-19	26-Oct-19	Review and Comment on DDA ABWF design for DOU , DOU2 a
360	Re-submission of DDA ABWF design for DOU1, DOU2 and DOU5	0%	115	14 0	27-Oct-19	09-Nov-19	H Basubmission of DDA ABWF design for DOU1, DOU2 and D Approval of DDA ABWF design for DO⊍1, DOU2 and DO
370 U 1	Approval of DDA ABWF design for DOU1, DOU2 and DOU5	0%	115	14 0	10-Nov-19	23-Nov-19	
oundation	1 works						06-Jan-20, DOU 1
1130	General Site Clearance and underground uliities detection/ idenification	0%	0	6 0	09-Jul-19	15-Jul-19	General Site Clearance and underground uliities detection/ idenification
1131	Installation and initial survey of building, ground and utilities settlement	0%	0	6 0	16-Jul-19	22-Jul-19	hstallation and initial survey of building, ground and utilities settlement
1132	Temporary Diversion of existing drainage pipes	0%	0	15 0	16-Jul-19	01-Aug-19	Tempyrary Diversion of existing drainage pipes
133	Pre-drilling for H-pile foundation (3Nos)	0%	0	10 0	29-Jul-19	08-Aug-19	Pre-drilling for H-pile jourdation (3Nos)
134	Engineer's Review of foundaiton design, rockhead coutour and founding level of H-piles	0%	0	28 0	09-Aug-19	10-Sep-19	Engineer's Review of foundaiton design, rockhead coutour and founding leve
137	Mobilzation of piling rigs (1 rig)	0%	0	3 0	21-Aug-19	23-Aug-19	Mobilzation of pling r gs (1 rig)
1140	Prebored H-pile (P1-7, 7Nos)	0%	0	32 0	24-Aug-19	30-Sep-19	Pieboled H-bile (P1-7, 7Nos)
	Pile load test	0%	0	6 0	02-Oct-19	08-Oct-19	
1440	Post Drilling for Prebored H-piles	0%	0	4 0	09-Oct-19	12-Oct-19	Post Drilling for Prebored H-piles 06-Jan-20. RC works
works 5470	Open Excavation and for pile cap construction	0%	0	4 0	14-Oct-19	17-Oct-19	Open Ecovation and for pile cap construction
.5480	Pile head preparation and weld test	0%	0	5 0	18-Oct-19	23-Oct-19	Pile head preparation and weld test
5490	Formwork and steel fixing of pile cap	0%	0	10 0	24-Oct-19	04-Nov-19	Formwork and steel fixing of pile cap
5500	Concreting of pile cap	0%	0	2 0	05-Nov-19	06-Nov-19	Concreting of pile cap
5510	Concreting of MCC room wall and roof slab	0%	76	24 2	07-Nov-19	04-Dec-19	Concreting of MCC room wall and roof slab
5520	Internal finishes of MCC room and Builder works	0%	76	18 2	13-Dec-19	06-Jan-20	Internal finishes of MCC room and Builder wo
ainage w	orks						
M install							U U U U U U U U U U U U U U U U U U U
	Underground works for cabling duct and trenches	0%	0	15 0	13-Nov-19		Underground works for cabling duct and trenches
5540	Installation of the Activated Carbon Filter System and air duct connection for DOU1	0%	0	15 1	13-Nov-19		Installation of the Activated Carbon Filter System and a Trial operation and Performance Test of the Activated
550 J 2	Trial operation and Performance Test of the Activated Carbon Filter System for DOU1	0%	0	5 0	30-Nov-19	05-Dec-19	
Indation) works						v 05-Diec-19, DOU 2
5380	General Site Clearance and underground uliities detection/ idenification	0%	0	6 0	09-Jul-19	15-Jul-19	General Site Clearance and underground uliities detection/identification
5390	Installation and initial survey of building, ground and utilities settlement	0%	0	9 0	16-Jul-19	25-Jul-19	Installation and initial survey of building, ground and utilities settlement
410	Pre-drilling for H-pile foundation (5Nos, 2 rig)	0%	0	12 0	26-Jul-19	08-Aug-19	Pre-drilling for H-pile four dation (5Nos, 2 rig)
20	Engineer's Review of foundaiton design, rockhead coutour and founding level of H-piles	0%	0	28 0	09-Aug-19	10-Sep-19	Engineer's Review of foundaiton design, rockhead coutour and founding leve
430	Mobilzation of piling rigs	0%	0	3 0	17-Aug-19	21-Aug-19	Preliming rigs
440	Preliminary pile for shaft friction piles (3Nos)	0%	0	12 0	21-Aug-19	03-Sep-19	
6450	Pile load test for preliminary piles	0%	0	6 0	04-Sep-19	10-Sep-19	Pile load test for preliminary piles
5560	Prebored H-pile (2a-P1-2a-P8, 8Nos)	0%	0	35 0	11-Sep-19	22-Oct-19	Prebored H-pile (2a-P1-2a-P8, 8Nds)
5565	Prebored H-pile (2b-P1-2b-P6, 6Nos)	0%	51	30 0	23-Oct-19	26-Nov-19	Prebored H-pile (2b-P1-2b-P6 6Nos)
5570	Pile load test	0%	0	6 0	23-Oct-19	29-Oct-19	File oad test
5580 works	Post Drilling for Prebored H-piles	0%	0	4 0	30-Oct-19	02-Nov-19	20-Nov-19, RC works
450	Open Excavation and for pile cap construction DOU2a	0%	0	4 0	04-Nov-19	07-Nov-19	Den Excavation and for pile cap construction DOU2a
455	Pile head preparation and weld test	0%	0	3 0	08-Nov-19		Ple head preparation and weld test
460	Formwork and steel fixing of pile cap	0%	0	7 0	12-Nov-19		Formwork and steel fixing of pile cap
470	Concreting of pile cap	0%	0	1 0	20-Nov-19	20-Nov-19	Concreting of pile cap
ainage w	orks						
M install							V V 05-Dec-19, E&M installation
	Underground works for cabling duct and trenches	0%	0	10 0		02-Dec-19	Underground works for qabiling duct and trenches
5360	Installation of the Activated Carbon Filter System and air duct connection for DOU2a	0%	0	10 0		02-Dec-19	Installation of the Activated Carbon Filter System and a
	Trial Operation and Performance Test of the Activated Carbon Filter System for DOU2a	0%	0	3 0	03-Dec-19	05-Dec-19	Trial Operation and Performance Test of the Activated
U5 undation	a warka						30-Oct-19, Foundation works
undation 5650	General Site Clearance and underground uliities detection/ idenification	0%	8	6 0	09-Jul-19	15-Jul-19	
5660	Installation and initial survey of building, ground and utilities settlement	0%	8	9 0	16-Jul-19	25-Jul-19	General Site Clearance and underground ultities detection/ identification Installation and initial survey of building, ground and utilities settlement The draftilling for the foundation (Alios 1 rin)
5670	Pre-drilling for H-pile foundation (4Nos, 1 rig)	0%	8	12 0	26-Jul-19	08-Aug-19	Pre-drilling for H ple four dation (4Nos, 1 rig)
5680	Engineer's Review of foundaiton design, rockhead coutour and founding level of H-piles	0%	8	28 0	09-Aug-19	10-Sep-19	Engineer's Review of foundaiton design, rockhead coutour and founding leve
\$5690	Mobilzation of piling rigs	0%	8	3 0	17-Aug-19	21-Aug-19	0), ←Mobilzation of titing rips
5720	Prebored H-pile (5a-P1-2a-P6, 6Nos)	0%	0	28 0	30-Aug-19	02-Oct-19	Frebored H pile (5a-P1-2a-P6, 6Nos)
45730	Prebored H-pile (5b-P1-5b-P6, 6Nos)	0%	25	24 0	03-Oct-19	30-Oct-19	Pretored H-pile (5b-P1-5b-P6, 6Nos)
45740	Pile load test	0%	0	6 0	03-Oct-19	09-Oct-19	Pile load test
\$5750	Post Drilling for Prebored H-piles	0%	0	4 0	10-Oct-19	14-Oct-19	Post Dri ling for Prebored H-piles
	or DOU5a		. /	=1 ·	4- 6	10.5	P→ V 07-Nov-19, RC works for DOU5a
	Open Excavation and for pile cap construction DOU5b	0%	0	5 0	15-Oct-19	19-Oct-19	per Excavation and for pile cap construction DOU5b
5590							
						Contract N	lo. DC/2018/17
Actu	ual Work Milestone Maining Work Milestone Milestone					Contract N	o. DC/2018/17

RP Sliding Covers of Existing CEPT Tanks to Site 6-Jan-20, Civil and Geotechnical Design Submission (DDA) esign for piling works for DOU1, DOU2 and DOU5 Geotechnical design for piling works for DOU1, DOU2 and DOU5 echnical design for piling works for DOU1, DOU2 and DOU5 cal design for piling works for DOU1, DOU2 and DOU5 ctural design for RC works of DOU 1, 2 and 5 t on DDA structural design for RC works for DOU1, DOU2 and DOU5 DDA structural design for RC works for DOU1, DOU2 and DOU5 structural design for RC works for DOU1, DOU2 and DOU5 ABWF design for DOU 1, 2 and 5 ent on DDA ABWF design for DOU1, DOU2 and DOU5 of DDA ABWF design for DOU1, DOU2 and DOU5 DDA ABWF design for DOU1, DOU2 and DOU5 6-Jan-20, DOU 1 works es detection/ idenification und and utilities settlement pipes design, rockhead coutour and founding level of H-piles s) ed H-piles Jan-20, RC works for pile cap construction and weld test eel fixing of pile cap e cap g of MCC room wall and roof slab ternal finishes of MCC room and Builder works , E&M installation nd works for cabling duct and trenches n of the Activated Carbon Filter System and air duct connection for DOU1 ration and Performance Test of the Activated Carbon Filter System for DOL), DOU 2 oundation works es detection/ idenification ound and utilities settlement 2 riģ) n design, rockhead coutour and founding level of H-piles piles (3Nos) P1-2a-P8, 8Nds) -pile (2b-P1-2b-P6; 6Nos) rebored H-piles C works and for pile cap construction DOU2a ration and weld tes I steel fixing of pile cap f pile cap , E&M installation und works for cabling duct and trenches n of the Activated Carbon Filter System and air duct connection for DOU2a ration and Performance Test of the Activated Carbon Filter System for DO 9, DOU5 ation works es detection/ idenification und and utilities settlement rig) design, rockhead coutour and founding level of H-piles 1-P6, 6Nos) -P1-5b-P6, 6Nos) red H-piles

First Programme

Q3			Q4			Q1			2021 Q2			Q3	
on (DDA)													
0U2 and nd DOU		5											
DU5													
DOU2 a													
and DOL													
J5													
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oiles													
connectio	on for												
Filter Sy													
oiles													
connect													
Filter S	ystem	for D	OU2a										
oiles													
Cha	et 2 c	f 7		ate		Revis	ion	<u> </u>	Checke	d	A	pproved	
Snee	et 2 0		9-Jul-19 9-Aug-19		Rev. Rev.	0		+					
		6			1100.			1			1		

		Complete		Duration allowance					Q	3		C	24	Q1	Q2	Q3	
A5600	Pile head preparation and weld test	0%	0	4 0	21-Oct-19	24-Oct-19						Pile	head prepa	aration and weld test			
A5610	Formwork and steel fixing of pile cap	0%	0	10 0	25-Oct-19	05-Nov-19						- 🗰 I	o mwork a	nd steel fixing of pile ca	up		
A5620	Concreting of pile cap	0%	0	2 0	06-Nov-19	07-Nov-19							Concreting	of pile cap			
Drainage w														Dec-19, E&M installation			
E&M install A5625	ation Underground works for cabling duct and trenches	0%	0	18 5	08-Nov-19	28-Nov-19								ground works for cablin			
A5630	Installation of the Activated Carbon Filter System and air duct connection for DOU5b	0%	0	18 2	08-Nov-19									lation of the Activated C	5 I I	d air duct conn	ection for DOU5b
A5640	Trial Operation and Performance Test of the Activated Carbon Filter System for DOU5b	0%	0	6 0	29-Nov-19								Tria	Operation and Perforn			
CEPT tank	······································		-				- i +				-			Dec-19, CEPT tank			
Air ducts of	effluent drop shaft											-	05-L	Dec-19, Air ducts of Efflu			
A7090	Installation of FRP air duct for effluent drop structure	0%	0	25 0	24-Oct-19	21-Nov-19							Installat	tion of FRP air duct for			
A7180	Reliability Test of FRP air ducts for effluent Drop Structure	0%	0	12 0	22-Nov-19	05-Dec-19						`		ability Test of FRP air d	A 1 1	tructure	
Effluent Lau A7100	Inder Delivery of isolation device for on site prototype test	0%	15	6 0	09-Jul-19	15-Jul-19			live	ry of icol		dovido fo		Dec-19, Effluent Launde ototype test	r		
A7100	Installation of the Isolation Device for Effluent Drop Structure for On-site Prototype Test	0%	15	10 0	26-Aug-19	05-Sep-19				1 :		- i 1		Device for Effluent Drop	Structure for On-site F	rototype Test	
A7120	Conduction of On-site Prototype Test of the Isol ation Device for Effluent Drop Structure	0%	15	12 0	06-Sep-19	· · · · · · · · · · · · · · · · · · ·					_			rototype Test of the Isol	A 1 1		re
A7130	Full Scale Installation of Isolation Devices for Effluent Drop Structure	0%	0	38 5	09-Oct-19	21-Nov-19					୳୲		1 1	ale Installation of Isolati	4 i i	- i - i - i	i i i
A7190	Performance test (smoke Test) of the isol ati on device for effluent drop structure	0%	0	12 0	22-Nov-19	05-Dec-19						6	Perf	ormance test (smoke T	est) of the isol ation dev	ice for effluent	drop structure
CEPT FRP c	overs									-			05-0	ec-19, CEPT FRP cov	ers		
A7140	Delivery of FRP Sliding Cover Sealant for On-site Prototype Test	0%	3	6 0	02-Sep-19	07-Sep-19								ver Sealant for On-site			
A7150	Installation of FRP Sliding Cover Sealant for On-site Prototype Test	0%	3	8 0	09-Sep-19					-	1.1		1 1 2	ng Cover Sealant for Or	1 1 1 1		
A7160	Conduction of On-site Prototype Test of FRP Sliding Cover Sealant	0%	3	12 0	18-Sep-19	02-Oct-19				· ••[Conducti		e Prototype Test of FRF	A 51 1		DT TI
A7170	Full Scale Installation of FRP Sliding Cover Sealants for Existing CEPT Tanks	0%	0	40 5	07-Oct-19	21-Nov-19						ſ		ale Installation of FRP S ormance test (Smoke te			
A7200	Performance test (Smoke test) of the sealant for FRP sliding covers	0%	0	12 0	22-Nov-19	05-Dec-19							Perf	unnance test (Smoke te	su or the searant for F	r silaing cove	ers.
Section 2 of t A2970	Section 2 Completion (665d)	0%	0	0 0		03-May-2											
KD0100	KD A - Completion of all other works including DOUs 1, 2, 4, 5 Polishing stages for FSI (540 days)	0%	0	0 0		29-Dec-20*											
	Submission (AIP)	070	Ū	0		20 800 20				_	_	▼ 14 Oc	t-19, E&M [Design Submission (AIF	5		
A5760	Submission of AIP Design of Wet Chemical Scrubber System for DOU1, DOU2 and DOU5	0%	0	14 0	13-Aug-19	26-Aug-19			-	Subi		1 1	1 5	Vet Chemical Scrubber	2 1 1	U2 and DOU5	
A5770	Approval of AIP Design of Wet Chemical Scrubber System for DOU1, DOU2 and DOU5	0%	0	21 0	27-Aug-19	16-Sep-19				-	Appr	oval of A	IP Design o	f Wet Chemical Scrubb	er System for DOU1, D	OU2 and DOU	J5
A5780	Submission of AIP Design of the Polishing System for DOU4	0%	0	14 0	27-Aug-19	09-Sep-19				-				of the Polishing System	A 1 1		
A5790	Approval of AIP Design of the Polishing System for DOU4	0%	0	21 0	10-Sep-19	30-Sep-19				- H				on of the Polishing Syst			
A5800	Submission of AIP Design of the Polishing System for DOU1R	0%	0	14 0	27-Aug-19	09-Sep-19				--	1 1			of the Polishing System	1 1 1		
A5810	Approval of AIP Design of the Polishing System for DOU1R	0%	0	21 0	10-Sep-19	30-Sep-19					H .		1 1 2	on of the Polishing Syst	4 i i		
A5820	Submission of AIP Design of NaOH Bulk Storage and Transfer Facilities	0%	23	14 0	10-Sep-19	23-Sep-19					Su		1 1	ign of NaOH Bulk Stora	7 1 1		
A5830 A5840	Approval of AIP Design of NaOH Bulk Storage and Transfer Facilities Submission of AIP Design of Power Supply and Distribution System for DOU Polishing Systems	0%	23 19	21 0 14 0	24-Sep-19 13-Aug-19	14-Oct-19 26-Aug-19			-	- Sub	niecio		1 î	ower Supply and Distri	, °	i i	toms
A5850	Approval of AIP Design of Power Supply and Distribution System for DOU Polishing Systems	0%	19	21 0	27-Aug-19	16-Sep-19								Power Supply and Dist			
A5860	Submission of AIP Design for Upgrading and replacement of the existing local HMI touchscreen	0%	3	14 0	13-Aug-19				-	Subi				Upgrading and replacer	1 I I I		* 1 1 1
A5870	Approval of AIP Design for Upgrading and replacement of the existing local HMI touchscreen	0%	40	21 0	27-Aug-19	16-Sep-19				►				or Upgrading and replac	4 1 17	-i i	i i i
A5880	Submission of AIP Design of PLC & SCADA Systems for DOU Polishing Systems (including function	0%	3	14 0	27-Aug-19	09-Sep-19				•	ubmi	ssion of /	AIP Design	of PLC & SCADA Syste	ns for DOU Polishing	Systems (inclue	ding functional desig
A5890	Approval of AIP Design of PLC & SCADA Systems for DOU Polishing Systems (including functional	0%	3	21 0	10-Sep-19	30-Sep-19						Approval	of AIP Desig	on of PLC & SCADA Sys	stems for DOU Polishir	g Systems (ind	cluding functional des
A5900	Submission of AIP Design of Building Services for DOU Polishing Systems, New Switch/MCC Roor	0%	3	14 0	27-Aug-19	09-Sep-19								of Building Services for			
A5910	Approval of AIP Design of Building Services for DOU Polishing Systems, New Switch/MCC Rooms	0%	17	21 0	10-Sep-19	30-Sep-19				╞╋═	I I ^	Approval	of AIP Desig	on of Building Services	for DOU Polishing Sys	tems, New Swi	tch/MCC Rooms
A5920	Submission of AIP Design of Fire Services for DOU Polishing Systems, New Switch/MCC Rooms a	0%	3	14 0	10-Sep-19	23-Sep-19					te sin h a	+		ign of Fire Services for		- • • •	
A5930	Approval of AIP Design of Fire Services for DOU Polishing Systems, New Switch/MCC Rooms and	0%	3	21 0	24-Sep-19	14-Oct-19				_ []			1 1	esign of Fire Services	A 1 1 1 1	- E - E - E - E - E - E - E - E - E - E	- I I I I
A8000	Submission of AIP Design fo power supply, cabling, earthing, lightning protection and interface with	0%	59	14 0	13-Aug-19	-								ower supply, cabling, e		- i - i	
A8010	Approval of AIP Design fo power supply, cabling, earthing, lightning protection and interface with ex' Submission of AIP design of networks integration with existing DCS	0%	59 59	21 0 14 0	27-Aug-19	16-Sep-19 26-Aug-19			CI 10					power supply, cabling		lection and me	enace with exig insta
A8090 A8100	Approval of AIP Design of networks integration with existing DCS	0%	59	21 0	13-Aug-19 27-Aug-19	16-Sep-19						- i 1	l i	f network integration wi			
A8110	Submission of AIP design of Redundant fiber network for new SCADA	0%	59	14 0	13-Aug-19				-		a state a			edundant fiber network			
A8120	Approval of AIP design of Redundant fiber networks for new SCADA	0%	59	21 0	27-Aug-19	-							1 1	Redundant fiber netwo			
A8150	Submission of AIP design for upgrading works and modification of ex'tg data, event & Historain serv	0%	59	14 0	13-Aug-19				L-I	Subi	nissio	on of AIP	design for u	pgrading works and m	dification of ex'tg data,	event & Histor	ain server in DOU18
A8180	Approval of AIP design for upgrading works and modification of ex'tg data, event & Historain server	0%	59	21 0	27-Aug-19	16-Sep-19								r upgrading works and			
E&M Design	Submission (DDA)													Dec-19, E&M Design S			
A1170	Submission of DDA Design of Wet Chemical Scrubbers Filters for DOU1, DOU2 and DOU5	0%	0	14 0	17-Sep-19						E S		1 1	esign of Wet Chemical	A 1 1		
A1180	Review and Comment on DDA Design of Wet Chemical Scrubbers Filters for DOU1, DOU2 and DO	0%	0	21 0	01-Oct-19								1 1	mment on DDA Design	· · ·		1 1 1 I I
A1183	Re-submission of DDA Design of Wet Chemical Scrubbers Filters for DOU1, DOU2 and DOU5	0%	0	7 0	22-Oct-19	28-Oct-19						Re	1 î	n of DDA Design of We	🦸 i i	i i	i i i
A1185 A1190	Approval of DDA Design of Wet Chemical Scrubbers Filters for DOU1, DOU2 and DOU5	0%	0 21	14 0 14 0	29-Oct-19 01-Oct-19	11-Nov-19 14-Oct-19							1 1 1	of DDA Design of Wet C DA Design of the Polishi	2 1 1	ers for DOUT,	DOU2 and DOU5
A1190	Submission of DDA Design of the Polishing System for DOU4 Review and Comment on DDA Design of the Polishing System for DOU4	0%	21	21 0	15-Oct-19	04-Nov-19						<u></u>		Comment on DDA Desi		tem for DOI 14	
A1210	Re-submission of DDA Design of the Polishing System for DOU4	0%	21	7 0	05-Nov-19									sion of DDA Design of			
A1260	Approval of DDA Design of the Polishing System for DOU4	0%	21	14 0	12-Nov-19									al of DDA Design of the			
A5940	Submission of DDA Design of the Polishing System for DOU1R	0%	0	14 0	01-Oct-19	14-Oct-19								A Design of the Polishi	A 1 1	1 1	
A5950	Review and Comment on DDA Design of the Polishing System for DOU1R	0%	0	21 0	15-Oct-19	04-Nov-19								Comment on DDA Desi		1 1	٦
A5960	Re-submission of DDA Design of the Polishing System for DOU1R	0%	0	7 0	05-Nov-19	11-Nov-19	[-[- 4	•	sion of DDA Design of			
A5970	Approval of DDA Design of the Polishing System for DOU1R	0%	0	14 0	12-Nov-19	25-Nov-19						- F		al of DDA Design of the	2 1 1		
A5980	Submission of DDA Design of the NaOH bulk storage and transfer Facilities	0%	23	14 0	15-Oct-19	28-Oct-19					⊨	- Su	1 i	DDA Design of the Na	• i ī i	i i	
A5990	Review and Comment on DDA Design of the NaOH bulk storage and transfer Facilities	0%	23	21 0	29-Oct-19	18-Nov-19						╘╺┫╤		and Comment on DDA			
A6000	Re-submission of DDA Design of the NaOH bulk storage and transfer Facilities	0%	23	7 0	19-Nov-19	-								mission of DDA Desig			
A6010	Approval of DDA Design of the NaOH bulk storage and transfer Facilities	0%	23	14 0	26-Nov-19							Submin-	·	proval of DDA Design of		· · · ·	- i i i
A6020 A6030	Submission of DDA Design of Power Supply and Distribution System for DOU Polishing Systems	0%	19	14 0	17-Sep-19	30-Sep-19							• P	Design of Power Supply	• • • • •		1 2 2 1 1
etro u SU	Review and Comment on DDA Design of Power Supply and Distribution System for DOU Polishing	0%	19	21 0	01-Oct-19	21-Oct-19	ŀ	1	:			inev		ament on DDA gestgn	and D	iça ibalio(i SyS	Control DQC FUIISIII
710000																	
	ual Work Milestone					Contract No	DC	1/201	10/1	7						-	Sheet 3 of 7

Critical Remaining Work

First Programme

							2021				
Q4				Q1			Q2	;		Q3	
U5b											
							03-N	ay-21, S	ection 2	of the V	Vorks
								on 2 Co			
		•	KD A -	Compl	etion of	all oth	er works				
ign spe lesign s NaOH I	peci	ica	ti on)	mpounc							
nd NaO Ilation stallatio	H Bu	k S	torage (Compoi	und						
11&2 in I 0U1&2 i											
1 DOU5 15											
hing Sy		6									
Da Jul-19	ue		Rev.	Revis	ion	+	Checke	d	A	pproved	
Aug-19			Rev.			+					
		_									

ity ID	Activity Name	Activity % Total Complete	⊦loat	Original Time risk Duration allowance	Start	Finish	201	19	Q3			Q	4	Q1	Q2	Q3
A6040	Re-submission of DDA Design of Power Supply and Distribution System for DOU Polishing Systen	0%	19	7 0	22-Oct-19	28-Oct-19		Π	E			Re	supmissic			tion System for DOU Polishing \$
A6050	Approval of DDA Design of Power Supply and Distribution System for DOU Polishing Systems	0%	19	14 0	29-Oct-19	11-Nov-19							Approval of	of DDA Design of Powe	r Supply and Distributio	System for DOU Polishing Syst
A6060	Submission of DDA Design of Upgrading and replacement of the existing local HMI touchscreen	0%	40	14 0	17-Sep-19	30-Sep-19				-	Sub	missio	n of DDA D	Design of Upgrading and	treplacement of the exis	ting local HMI touchscreen
A6070	Review and Comment on DDA Design of Upgrading and replacement of the existing local HMI touch	0%	40	21 0	01-Oct-19	21-Oct-19					┝╢	Revi	ew and Co	mment on DDA Design	of Upgrading and replac	ement of the existing local HMI to
A6080	Re-submission of DDA Design of Upgrading and Upgrading and replacement of the existing local HI	0%	40	7 0	22-Oct-19	28-Oct-19							2	1 1 1 1 1 1 1		nd replacement of the existing lo
A6090	Approval of DDA Design of Upgrading and Upgrading and replacement of the existing local HMI tour	0%	40	14 0	29-Oct-19	11-Nov-19							16			replacement of the existing local
A6100	Submission of DDA Design of PLC & SCADA Systems for DOU Polishing Systems	0%	3	14 0	01-Oct-19	14-Oct-19		.	·		> ₽		6		ADA Systems for DOU F	
A6110	Review and Comment on DDA Design of PLC & SCADA Systems for DOU Polishing Systems	0%	45	21 0	15-Oct-19	04-Nov-19						_	i i	-i i i I	Y i i i	stems for DOU Polishing System
A6120 A6130	Re-submission of DDA Design of PLC & SCADA Systems for DOU Polishing Systems Approval of DDA Design of PLC & SCADA Systems for DOU Polishing Systems	0%	45 45	7 0 14 0	05-Nov-19	11-Nov-19 25-Nov-19							- K			for DOU Polishing Systems
A6130	Approval of DDA Design of PLC & SCADA Systems for DOU Polishing Systems Submission of DDA Design of Building Services for DOU Polishing Systems, New MCC Rooms and	0%	45	14 0	12-Nov-19 15-Oct-19	25-100V-19 28-Oct-19							_		1 I I I I I I I I I I I I I I I I I I I	shing Systems, New MCC Room
A6150	Review and Comment on DDA Design of Building Services for DOU Polishing Systems, New MCC Hoons and	0%	3	21 0	29-Oct-19	18-Nov-19							li li		Y	bes for DOU Polishing Systems.
A6160	Re-submission of DDA Design of Building Services for DOU Polishing Systems, New MCC Rooms	0%	3	7 0	19-Nov-19	25-Nov-19										r DOU Polishing Systems, New I
A6170	Approval of DDA Design of Building Services for DOU Polishing Systems, New MCC Rooms and N	0%	3	14 0	26-Nov-19	09-Dec-19									· · ·	OU Polishing Systems, New MC
A8050	Submission of DDA Design of power supply, cabling, earthing, lightning protection and interface with	0%	59	14 0	17-Sep-19	30-Sep-19				-	Sub	missio	n of DDA I	Design of power supply,	cabling, earthing, lightn	ing protection and interface with
A8060	Review & comment of DDA Design of power supply, cabling, earthing, lightning protection and interf	0%	59	21 0	01-Oct-19	21-Oct-19						Revi	ew & comr	ment of DDA Design of p	oower supply, cabling, ea	arthing, lightning protection and ir
A8070	Re-submission of DDA Design of power supply, cabling, earthing, lightning protection and interface	0%	59	7 0	22-Oct-19	28-Oct-19					╞╘╾	Re	supmissic	on of DDA Design of pow	ver supply, cabling, eartl	hing, lightning protection and inte
A8080	Approval of DDA Design of power supply, cabling, earthing, lightning protection and interface with e	0%	59	14 0	29-Oct-19	11-Nov-19							· 10	1 I I I I I I I I I I I I I I I I I I I		g, lightning protection and interfa
A8280	Submission of DDA Design of networks integration with the existing DCS	0%	59	14 0	17-Sep-19	30-Sep-19				-∎	Sub				gration with the existing	
A8290	Review & comment of DDA Design of networks integration with the existing DCS	0%	59	21 0	01-Oct-19	21-Oct-19							- P	1 1 1 1 1	etworks integration with	
A8300	Re-submission of DDA Design of networks integration with the existing DCS	0%	59	7 0	22-Oct-19	28-Oct-19						-	6		works integration with th	· · · · · ·
A8310 A8320	Approval of DDA Design of networks integration with the existing DCS Submission of DDA Design of redundant fiber networks for new SCADA	0%	59 59	14 0 14 0	29-Oct-19 17-Sep-19	11-Nov-19 30-Sep-19	∤ ₿						'. C		rks integration with the e networks for new SCA	· · · · · · · · · · · · · · · · · · ·
A8320 A8330	Submission of DDA Design of redundant fiber networks for new SCADA Review & comment of DDA Design of redundant fiber networks for new SCADA	0%	59 59	21 0	01-Oct-19	21-Oct-19	1 1								edundant fiber networks	
A8340	Re-submission of DDA Design of redundant fiber networks for new SCADA	0%	59	7 0	22-Oct-19	28-Oct-19	1						6	1 1 1 1	undant fiber networks fo	
A8350	Approval of DDA Design of redundant fiber networks for new SCADA	0%	59	14 0	29-Oct-19	11-Nov-19	1 1				[3	- P		dant fiber networks for n	
A8360	Submission of DDA Design of upgrading works and modification of ex'tg data, event & Historain ser	0%	59	14 0	17-Sep-19	30-Sep-19	1 🗄				Sub		· 6		4 i i	x'tg data, event & Historain serve
A8370	Review & comment of DDA Design of upgrading works and modification of ex'tg data, event & Histor	0%	59	21 0	01-Oct-19	21-Oct-19					-	Revi	ew & comn	ment of DDA Design of u	pgrading works and mo	dification of ex'tg data, event & Hi
A8380	Re-submission of DDA Design of upgrading works and modification of ex'tg data, event & Historain	0%	59	7 0	22-Oct-19	28-Oct-19					╞╘╾	Re	supmissic	on of DDA Design of upg	rading works and modif	cation of ex'tg data, event & Histo
A8390	Approval of DDA Design of upgrading works and modification of ex'tg data, event & Historain server	0%	59	14 0	29-Oct-19	11-Nov-19					L		Approval of			tion of exitg data, event & Histora
	otechnical Design Submission (DDA)	001		7 0		07.0 1.10								- C C C C C C C C C C C C C C C C C C C	d Geotechnical Design	
A7880 A7890	Submission of DDA Geotechnical design for piling works for DOU1R and 4	0%	0	7 0 21 0	01-Oct-19 08-Oct-19	07-Oct-19 28-Oct-19								1 1 1 T	or piling works for DOU	works for DOUIR and 4
A7890 A7900	Review and Comment on DDA Geotechnical design for piling works for DOU1R and 4 Re-submission of DDA Geotechnical design for piling works for DOU1R and 4	0%	0	7 0	29-Oct-19	04-Nov-19						-1 1	6		al design for piling work	
A7910	Approval of DDA Geotechnical design for piling works for DOU1R and 4	0%	0	7 0	05-Nov-19	11-Nov-19						d ∎l	- P	1 I I I I I I I I I I I I I I I I I I I	sign for piling works for	1 I I I I I I
A7920	Submission of DDA structural design for RC works of DOU1R and 4	0%	39	14 0	12-Nov-19	25-Nov-19							Submi	ssion of DDA structural	design for RC works of	DOU1R and 4
A7930	Review and Comment on DDA structural design for RC works for DOU1R and 4	0%	39	21 0	26-Nov-19	16-Dec-19							-	Review and Comment or	n DDA structural design	for RC works for: DOU1R and 4
A7940	Re-submission of DDA structural design for RC works for DOU1R and 4	0%	39	10 0	17-Dec-19	26-Dec-19							-	Re-submission of DD	A structural design for R	C works for DOU1R and 4
A7950	Approval of DDA structural design for RC works for DOU1R and 4	0%	39	10 0	27-Dec-19	05-Jan-20							- P	They defend on the second s		vorks for DOU1R and 4
A7960	Submission of DDA for ABWF design for DOU1R and 4	0%	184	14 0	12-Nov-19	25-Nov-19						-1			design for DOU1R and	i i i i
A7970	Review and Comment on DDA ABWF design for DOU1R and 4	0%	184	21 0	26-Nov-19	16-Dec-19								1 1 1 1 1 1 1	DDA ABWF design for	
A7980 A7990	Re-submission of DDA ABWF design for DOU1R and 4 Approval of DDAABWF design for DOU1R and 4	0%	184 184	10 0 10 0	17-Dec-19 27-Dec-19	26-Dec-19	·								A ABWF design for DOI WF design for DOU1R	
Procuemen	and Delivery of Equipment/ Material for Section 2 of Works	0%	104	10 0	27-Dec-19	05-Jan-20							-			nent and Delivery of Equipment/I
A1320	Procurement of Wet Chemical Scrubber Systems for DOU1, DOU2 and DOU5	0%	0	90 0	12-Nov-19	09-Feb-20										ubber Systems for DOU1, DOU2
A1330	FAT of Wet Chemical Scrubber Systems for DOU1, DOU2 and DOU5	0%	0	14 0	10-Feb-20	23-Feb-20								FAT of	Wet Chemical Scrubbe	Systems for DOU1, DOU2 and
A1350	Delivery of Wet Chemical Scrubber Systems for DOU1, DOU2 and DOU5	0%	0	14 0	24-Feb-20	08-Mar-20								Del	livery of Wet Chemical	Scrubber Systems for DOU1, DO
A1360	Procurement of DOU4 Polishing System	0%	21	76 0	26-Nov-19	09-Feb-20							-	· · · · · · · · · · · · · · · · · · ·	ent of DOU4 Polishing S	1 1 1 1 1
A1380	FAT of DOU4 Polishing System	0%	21	14 0	10-Feb-20	23-Feb-20									DOU4 Polishing Syster	i i i i i
A1500	Delivery of DOU4 Polishing System	0%	21	14 0	24-Feb-20	08-Mar-20								LE LE LE LE LE Prése	livery of DOU4 Polishin	
A6180 A6190	Procurement of DOU1R Polishing System FAT of DOU1R Polishing System	0%	0	76 0 14 0	26-Nov-19 10-Feb-20	09-Feb-20 23-Feb-20	-								ent of DOU1R Polishing DOU1R Polishing Syste	1 ⁴ 1 1 1 1
A6190 A6200	Delivery of DOUTR Polishing System	0%	0	14 0	24-Feb-20	23-Feb-20 08-Mar-20									Ivery of DOU1R Polishi	
A6210	Procurement of NaOH Bulk Storage Tank and Transfer Facilities	0%	23	76 0	10-Dec-19	23-Feb-20							-		1 1 1 1	prage Tank and Transfer Facilitie
A6220	FAT of NaOH Bulk Storage Tank and Transfer Facilities	0%	23	14 0	24-Feb-20	08-Mar-20	1 1								i i i i	Tank and Transfer Facilities
A6230	Delivery of NaOH Bulk Storage Tank and Transfer Facilities	0%	23	14 0	09-Mar-20	22-Mar-20	1							1 I I I I I I I I I I I I I I I I I I I		Storage Tank and Transfer Facili
A6240	Procurement of Power Supply and Distribution System for DOU Polishing Systems	0%	19	90 0	12-Nov-19	09-Feb-20	1				i	-1	i li	Procureme	ent of Power Supply and	Distribution System for DOU Pol
A6250	FAT of Power Supply and Distribution System for DOU Polishing Systems	0%	19	30 0	10-Feb-20	10-Mar-20		T						2 i 2i <mark>1</mark> 21i		Distribution System for DOU Polis
A6260	Delivery of Power Supply and Distribution System for DOU Polishing Systems	0%	19	14 0	11-Mar-20	24-Mar-20										oly and Distribution System for D
A6270	Procurement of packaged offer for Upgrading and Replacement of the existing local HMI touchscree	0%	40	120 0	12-Nov-19	10-Mar-20								1 I I I P II		offer for Upgrading and Replacen
A6290	Delivery of packaged offer for Upgrading and Replacement of the existing local HMI touchscreen	0%	40	14 0	11-Mar-20	24-Mar-20	-							· · · · P		offer for Upgrading and Replacem
A6300	Procurement of PLC and SCADA Systems for DOU Polishing Systems	0%	45	90 0	26-Nov-19	23-Feb-20	 							a da a sa ba a sa ba da a sa da b i a sa ba da sa		A Systems for DOU Polishing Sy A Systems for DOU Polishing Sys
A6310 A6320	FAT of PLC and SCADA Systems for DOU Polishing Systems Delivery of hardware of PLC and SCADA Systems for DOU Polishing Systems	0%	45 45	30 0 14 0	24-Feb-20 25-Mar-20	24-Mar-20 07-Apr-20									21 2 2	e of PLC and SCADA Systems for
A6320 A6330	Procurement of Building Services Equipment for DOU Polishing Systems, New Switch/MCC Rooms	0%	45	90 0	10-Dec-19	07-Apr-20 08-Mar-20	1 1							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Here is a second	rvices Equipment for DOU Polis
A6340	Delivery of Building Services Equipment for DOU Polishing Systems, New Switch/MCC Rooms and	0%	3	30 0	09-Mar-20	07-Apr-20	1 1									Services Equipment for DOU Po
A6350	Procurement of Fire Services Equipment for DOU Polishing Systems, New MCC Rooms and NaOH	0%	28	90 0	10-Dec-19	08-Mar-20	1 🗄				1		-	Pro	curement of Fire Servic	es Equipment for DOU Polishing
A7080	Delivery of Fire Services Equipment for DOU Polishing Systems, New MCC Rooms and NaOH Bu	0%	28	30 0	09-Mar-20		1[.	++-	1+						Delivery of Fire Se	rvices Equipment for DOU Polis
DOU 1																
	lation (2nd stage)	001	_ 1		00.11	00.0.1.51										
A7210	Installation of DOU1 wet scrubber and air duct connection for DOU1	0%	0	175 14	09-Mar-20	08-Oct-20	-									Installation of
A7212 A7222	Installation of Power supply and disturbution system for DOU polishing systems Upgrading and Replacement of the existing local HMI touchscreen	0% 0%	16 56	130 14 90 14	25-Mar-20 25-Mar-20	31-Aug-20 14-Jul-20	<u> </u> <u></u>							·····	· · · · · · · · · · · · · · · · · · ·	Upgrading and Replaceme
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Activity ID	Activity Name	Activity % To Complete	otal Float		Time risk allowance	Start	Finish	2019	Q3	Q4	Q1	Q2	2020 Q3
A72	232 Installation of PLC and SCADA system for DOU polishing systems	0%	45	90	14	10-Apr-20	27-Jul-20						Installation of
A72	242 Installation of Building Service for DOU polishing system, MCC room	0%	1	180	14	10-Apr-20	12-Nov-20					-	
A72	252 Installation of Fire services for DOU polishing system, MCC room and NaOH bulk storage compou	0%	31	150	14	10-Apr-20	08-Oct-20					+	
	292 Software developement for new DOU polishing stage	0%	38	120		10-Apr-20	01-Sep-20					>	Softv
	332 Installation of redundunt fiber networks for new SCADA	0%	38	30	14	02-Sep-20	08-Oct-20						
	ting and commissioning 262 Performance Test of the DOU1 wet scrubber	0%	0	45	5	09-Oct-20	22-Nov-20						
	Hardware, point/end to point/end, interlock, simulation and interface test for PLC and SCADA for DC	0%	18	-5		03-Oct-20 01-Sep-20	04-Nov-20						
	 Hardware, point to point, end to end and function testfor upgrading and replacement of existing local 	0%	66	65		15-Jul-20	17-Sep-20						
	Reliability test of the polishing system of DOU1	0%	0	36		23-Nov-20	28-Dec-20						·
A73	302 Reliability test of NaOH bulk Storage and transfer system	0%	3	30	0	21-Oct-20	19-Nov-20						
A73	312 Performance test of building service for DOU polishing system, MCC room and NaOH bulk storage	0%	1	45	5	13-Nov-20	27-Dec-20						
	322 Performance test of fire service for DOU polishing system, MCC room and NaOH bulk storage com	0%	36	45	5	09-Oct-20	22-Nov-20						
DOU													· · · · · · · · · · · · · · · · · · ·
	Indation works 376 General Site Clearance and underground uliities detection/ idenification	0%	66	6	0	09-Jul-19	15-Jul-19		neral Site Cleara	ance and undergr	● 06-Jan-20, Fou ound uliities detection/		
	380 Installation and initial survey of building, ground and utilities settlement	0%	66	6		16-Jul-19	22-Jul-19	- : 6			Iding, ground and utiliti		
A63	395 Pre-drilling for H-pile foundation (3Nos, 2 rigs)	0%	51	10	0	09-Aug-19	20-Aug-19	-	Pre-drillín	g for H pile found	ation (3Nos, 2 rigs)		
A63	396 Engineer's Review of foundaiton design, rockhead coutour and founding level of H-piles	0%	51	24	0	21-Aug-19	17-Sep-19		En En	gineers Review o	of foundaiton design roo	khead ooutour and	founding level of H-piles
A63	397 Demolition of existing concrete plinth	0%	51	12	1	18-Sep-19	02-Oct-19			Demolition of exi	isting concrete plint		
A64	400 Prebored rock-socketted H-pile (P1-6, 6Nos)	0%	17	35	1	12-Nov-19	21-Dec-19				Prebored rock-soc	etted H pile (P1-6,	6Nos)
	410 Pile load test	0%	17	6		23-Dec-19	31-Dec-19				Pile Idad test		
	420 Post Drilling for Prebored H-piles	0%	17	4	0	02-Jan-20	06-Jan-20				Post Drilling fo	repored H-piles	0 BC works
	works 455 Open Excavation for pile cap construction	0%	17	6	1	11-Jan-20	17-Jan-20				Open Excav	ation for pile cap co	0, RC works
	455 Open Excavation for pile cap constituction 457 Pile head preparation and weld test	0%	17	6		18-Jan-20	24-Jan-20					reparation and wel	i i i i
	458 Formwork and steel fixing of pile cap	0%	17	15		25-Jan-20	11-Feb-20					vork and steel fixing	
	460 Concreting of pile cap	0%	17	2		12-Feb-20	13-Feb-20	1				reting of pile cap	
A64	470 Concreting of MCC room wall and roof slab	0%	117	24	2	14-Feb-20	16-Mar-20						CC room wall and roof slab
A64	480 Internal finishes of MCC room and Builder works	0%	117	15	2	25-Mar-20	14-Apr-20					Internal f	inishes of MCC room and Builde
Und		00/	447	00	5	15 4	05 1						
	450 Construction and installation of Cable into existing/ new underground cable trench/ ducts 490 Statutory submission and approval from WSD	0%	117 36	60 210		15-Apr-20 02-Oct-19*	25-Jun-20 15-Jun-20						Statutory submission and
	490 Statutory submission and approval from WSD 500 Construction of underground watermain for DOU1R	0%	36			16-Jun-20	02-Oct-20						
	A installation	070	00	00	14	TO BUILED	02 001 20						
A65		0%	0	175	14	09-Mar-20	08-Oct-20						
A72	290 Installation of Power supply and disturbution system for DOU polishing systems	0%	17	130	14	25-Mar-20	31-Aug-20					+	Insta
A73	310 Installation of PLC and SCADA system for DOU polishing systems	0%	46	90	14	10-Apr-20	27-Jul-20						Installation of
	320 Installation of Building Service for DOU polishing system, MCC room	0%	1	180		10-Apr-20	12-Nov-20	····				+	· · · · · · · · · · · · · · · · · · ·
	Installation of Fire services for DOU polishing system, MCC room and NaOH bulk storage compou	0%	21	160		10-Apr-20	20-Oct-20						Coffi
	260 Software development for new DOU polishing stage 270 Installation of redundunt fiber networks for new SCADA	0%	39 39	120 30		10-Apr-20 02-Sep-20	01-Sep-20 08-Oct-20						Softv
	ting and commissioning	076	39	30	14	02-3ep-20	06-001-20						
	335 Performance Test of the DOU1R polishing unit	0%	0	39	5	09-Oct-20	23-Nov-20						
A75	530 Hardware, point/end to point/end, interlock, simulation and interface test for PLC and SCADA for DC	0%	19	65	5	01-Sep-20	04-Nov-20						
A75	550 Reliability test of the polishing system of DOU1R	0%	0	35	0	24-Nov-20	28-Dec-20						
	560 Reliability test of NaOH bulk Storage and transfer system	0%	4			21-Oct-20	19-Nov-20						
	Performance test of building service for DOU polishing system, MCC room and NaOH bulk storage	0%	1	45		13-Nov-20	27-Dec-20						
A75		0%	24	45	5	21-Oct-20	04-Dec-20						
	works											07-Mar-20, RC wo	rks
A68	825 Open Excavation and for pile cap construction	0%	51	6	0	27-Nov-19	03-Dec-19				Open Excavation and fo		ion
	830 Pile head preparation and weld test	0%	51	10		04-Dec-19	14-Dec-19				Pile head preparation	and weld test	
	835 Formwork and steel fixing of pile cap	0%	51	18		16-Dec-19	08-Jan-20					steel fixing of pile o	ap
	836 Concreting of pile cap	0%	51	2		09-Jan-20	10-Jan-20				Concreting of		wall and roof alob
	855 Concreting of MCC room wall and roof slab 859 Internal finishes of MCC room and Builder works	0%	116	24 15		11-Jan-20	07-Feb-20 07-Mar-20				1 1 1	ting of MCC room v Internal finishes of	MCC room and Builder works
A68 Und		0%	116	15	۲	17-Feb-20	07-IVIAF-20		-			material initiaties of	
	810 Construction and installation of Cable into existing/ new underground cable trench/ ducts	0%	36	90	2	16-Jun-20	02-Oct-20						
A81	130 Statutory submission and approval from WSD	0%	36	210	14	02-Oct-19*	15-Jun-20						Statutory submission and
A81	140 Construction of underground watermain for DOU2	0%	36	90	14	16-Jun-20	02-Oct-20						
	A installation										-		
A68		0%	51	175		11-Jan-20	12-Aug-20						Installatio
	450 Installation of Power supply and disturbution system for DOU polishing systems	0%	20	130		25-Mar-20	31-Aug-20						Insta
	460 Upgrading and Replacement of the existing local HMI touchscreen 470 Installation of PLC and SCADA system for DOU polishing systems	0%	30 49	120 90		25-Mar-20 10-Apr-20	18-Aug-20 27-Jul-20						Upgradi
	470 Installation of PLC and SCADA system of DOD poinshing systems 480 Installation of Building Service for DOU polishing system, MCC room	0%	49	90		10-Apr-20	12-Nov-20						
	490 Installation of Fire services for DOU polishing system, MCC room and NaOH bulk storage compou	0%	31	150		10-Apr-20	08-Oct-20					-	
	400 Software developement for new DOU polishing stage	0%	44			10-Apr-20	01-Sep-20					+	Softv
	410 Installation of redundunt fiber networks for new SCADA	0%	44			02-Sep-20	08-Oct-20	1					
	ting and commissioning												+
	890 Performance Test of chemical scrubber and air duct for DOU2	0%	39			06-Sep-20	20-Oct-20						
	Hardware, point/end to point/end, interlock, simulation and interface test for PLC and SCADA for DC	0%	24	65		01-Sep-20	04-Nov-20						
A76	Hardware, point to point, end to end and function test for upgrading and replacement of existing loca	0%	37	65	5	19-Aug-20	22-Oct-20						
	Actual Work						Contract N	No. DC/201	8/17				Sheet 5
	Remaining Work		.		6D -					m			
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Softw	are develo	opeme	nt fo	new	v DOU	polishi	ng stage	þ					
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	Activity Name	Activity % Complete	Iotal Float	Original Time r Duration allowa		Finish	2019	Q	3 Q4	Q1		2020 Q2	Q3	
610	Reliability test of the polishing system of DOU2	0%	9	30 0	20-Nov-20	19-Dec-20								
D	Reliability test of NaOH bulk Storage and transfer system	0%	9	30 0	21-Oct-20	19-Nov-20								
)	Performance test of building service for DOU polishing system, MCC room and NaOH bulk storage	0%	1	45 5	13-Nov-20	27-Dec-20								
10	Performance test of fire service for DOU polishing system, MCC room and NaOH bulk storage com	0%	36	45 5	09-Oct-20	22-Nov-20								
4 ndation	works							·		23-Jan-20.F	oundation wor	rks		
58	General Site Clearance and underground uliities detection/ idenification	0%	36	6 0	27-Jul-19	02-Aug-19	L	≻⊡ G	eneral Site Clearance and undergrou	nd uliities detection	/idenificatior	n		
60	Installation and initial survey of building, ground and utilities settlement	0%	36	6 0	03-Aug-19	09-Aug-19		L i g	Installation and initial survey of build	ing, ground and util	ties settleme	ent		
75	Pre-drilling for H-pile foundation (5Nos, 2rigs)	0%	36	12 1	10-Aug-19	-		¦⊷∎	Pre-drilling for H-pile foundation	· · · · · · · · · · · · ·				
76	Engineer's Review of foundaiton design, rockhead coutour and founding level of H-piles	0%	36	28 0	24-Aug-19				- Engineer's Review of foι		khead coutou	ır and founding leve	l of H-piles	s
78	Mobilzation of piling rigs	0%	36	3 0	26-Sep-19	28-Sep-19			► Mobilzation of piling rig					
80	Prebored H-pile (P1-7, 7Nos)	0%	0	40 3	12-Nov-19				- ,	Prebored H-pile (P1	-7, 7Nos)			
90	Pile load test	0%	0	6 0	13-Jan-20	18-Jan-20				Pile load test	or Proborod I			
800 vorks	Post Drilling for Prebored H-piles	0%	0	4 0	20-Jan-20	23-Jan-20				Post Drilling:		H-piles ▼ 15-May-20, RC v	vorks	
35	Open Excavation and for pile cap construction	0%	0	12 2	24-Jan-20	06-Feb-20				Open Exc		or pile cap construc		
637	Pile head preparation and weld test	0%	0	9 2	07-Feb-20	17-Feb-20						on and weld test		
639	Formwork and steel fixing of pile cap	0%	0	18 3	18-Feb-20	12-Mar-20					E () ()	d steel fixing of pile	cap	
640	Concreting of pile cap	0%	0	2 0	13-Mar-20	14-Mar-20					Concreting of			
50	Concreting of MCC room wall and roof slab	0%	61	24 3	16-Mar-20	15-Apr-20						creting of MCC roon		
60	Internal finishes of MCC room and Builder works	0%	61	18 3	24-Apr-20	15-May-20						Internal finishes	of MCC roo	om a
ergroun i30	d Drainage and cabling works Construction and installation of Cable into existing/ new underground cable trench/ ducts	0%	61	90 2	16-May-20	01-Sep-20					L	-	-	Co
60	Statutory submission and approval from WSD	0%	36	210 14	02-Oct-19*	· ·				: :		Statutory	/ submissio	
70	Construction of underground watermain for DOU2	0%	36	90 14	16-Jun-20							F	: :	
installa														
00	Installation of the DOU4 polishing Unit and air duct connection for DOU4	0%	0 20	162 14	30-Mar-20	14-Oct-20						: :	: ;	Ins
20 20	Installation of Power supply and disturbution system for DOU polishing systems Installation of PLC and SCADA system for DOU polishing systems	0% 0%	20 49	130 14 90 14	25-Mar-20 10-Apr-20	31-Aug-20 27-Jul-20						: :	Installatio	
30	Installation of Building Service for DOU polishing system, MCC room	0%	49	180 14	10-Apr-20	12-Nov-20						: :	Personal I (
40	Installation of Fire services for DOU polishing system, MCC room and NaOH bulk storage compou	0%	31	150 14	10-Apr-20	08-Oct-20					-			
20	Software developement for new DOU polishing stage	0%	44	120 14	10-Apr-20	01-Sep-20					-			Sof
30	Installation of redundunt fiber networks for new SCADA	0%	44	30 14	02-Sep-20	08-Oct-20							⊨ ⊫	
ng and	comissioning												- I -	
10	Performance Test of the DOU4 polishing Unit	0%	0	45 5	15-Oct-20	28-Nov-20								
50	Hardware, point/end to point/end, interlock, simulation and interface test for PLC and SCADA for DC	0%	24	65 5	01-Sep-20	04-Nov-20							· •	
570	Reliability test of the polishing system of DOU4	0%	0	30 0	29-Nov-20									
580 200	Reliability test of NaOH bulk Storage and transfer system	0%	9	30 0	21-Oct-20	19-Nov-20								
590 700	Performance test of building service for DOU polishing system, MCC room and NaOH bulk storage Performance test of fire service for DOU polishing system, MCC room and NaOH bulk storage com	0% 0%	1 36	45 5 45 5	13-Nov-20 09-Oct-20									
5									¥	·				
ndation	works or DOU5b										0-Mar-20 BC	C works for DOU5b		
	Open Excavation and for pile cap construction	0%	25	6 1	12-Nov-19	18-Nov-19			► Open Ex¢a	vation and for pile o				
010	Pile head preparation and weld test	0%	25	9 1	19-Nov-19	28-Nov-19				d preparation and w				
)15	Formwork and steel fixing of pile cap	0%	25	18 3	29-Nov-19	19-Dec-19			Fo	rmwork and steel fix	king of pile ca	ар		
)18	Concreting of pile cap	0%	25	2 0	20-Dec-19	21-Dec-19			L − ∎ ¢	oncreting of ple cap				
)20	Concreting of MCC room wall and roof slab	0%	25	30 3	23-Dec-19	29-Jan-20			╘╼══	Concreting	of MCC room	wall and roof slab		
25	Internal finishes of MCC room and Builder works	0%	25	18 3	15-Feb-20	10-Mar-20					nternal finishe	es of MCC room and	d Builder wo	vorks
e <mark>rgroun</mark> 90	Id Drainage and cabling works Construction and installation of Cable into existing/ new underground cable trench/ ducts	0%	144	90 4	11-Mar-20	29-Jun-20						Cons	truction and	nd in
90	Statutory submission and approval from WSD	0%	36	210 14	02-Oct-19*							, 4	/ submissio	
00	Construction of underground watermain for DOU2	0%	36	90 14	16-Jun-20									
installa	ation													
60	Installation of the DOU5 polishing system and air duct connection for DOU1	0%	6	175 14	09-Mar-20	08-Oct-20				·		· · · · · · · · · · · · · · · · · · ·		
45	Installation of Power supply and disturbution system for DOU polishing systems	0%	13	130 14	25-Mar-20					L		: :	·	Ins
65	Installation of PLC and SCADA system for DOU polishing systems	0%	42	90 14	10-Apr-20	27-Jul-20						1 1	Installatio	tion
75	Installation of Building Service for DOU polishing system, MCC room	0%	1	180 14	10-Apr-20	12-Nov-20						1 1	: :	_
85	Installation of Fire services for DOU polishing system, MCC room and NaOH bulk storage compou	0%	31	150 14	10-Apr-20	08-Oct-20						i i		Sof
40 50	Software development for new DOU polishing stage Installation of redundunt fiber networks for new SCADA	0%	36 36	120 14 30 14	10-Apr-20 02-Sep-20	01-Sep-20 08-Oct-20								30
	commissioning	U /0	50	50 14	02-06p-20	33 301-20								_
87	Performance Test of the DOU5 polishing system	0%	6	30 5	09-Oct-20	12-Nov-20								
10	Hardware, point/end to point/end, interlock, simulation and interface test for PLC and SCADA for DC	0%	15	65 5	01-Sep-20	04-Nov-20							i i ∳⊏	
30	Reliability test of the polishing system of DOU5	0%	0	39 0	20-Nov-20								<u>I</u> I.	
40	Reliability test of NaOH bulk Storage and transfer system	0%	0	30 0	21-Oct-20	19-Nov-20								
50	Performance test of building service for DOU polishing system, MCC room and NaOH bulk storage	0%	1	45 5	13-Nov-20									
60	Performance test of fire service for DOU polishing system, MCC room and NaOH bulk storage com	0%	36	45 5	09-Oct-20	22-Nov-20								
l bulk st vorks	torage compound									Of	-Mar-20, RC	works		
	Demolition of existing Storage compound	0%	0	50 5	27-Aug-19	24-Oct-19				sting Storage compo	ound			
40	Excavation of NaOH bulk storage compound	0%	0	12 2	25-Oct-19	07-Nov-19			Excavation of					
250	Carryout plate load test for foundation	0%	0	24 5	08-Nov-19					out plate load test for				
	Review design by Project Manager Respresentative	0%	0	28 0	06-Dec-19	10-Jan-20		1		📕 Review design b	v Proiect Mar	nager Respresentat	ive	
60		• • •										•		

Critical Remaining Work

First Programme

									2021				
		Q4				Q1			Q2			Q3	
		╞╼═		F	leliabilit	y test o	f the pol	ishing	system o	f DOU2			
			Relia	bilit	y test of	NaOH	bulk Sto	brage	and transf	er syste	m		
					Perform	nance t	est of bu	ilding	service for	or DOU	polishin	a syster	n, MC
	-		Perf						OU polish				
		Ĺ.			28-Dec						,	-	
					20-Dec	-20, D							
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roof sl	ab												
om an	d Builder	works											
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Insta	lation of	Power	supp	y a	nd distu	rbution	system	for D	DU polishi	ng syst	ems		
tion of	LC and	SCAD	sys	em	for DOI	J polisł	ning sys	tems					
									polishing	system	, MCC r	oom	
	lnst	allation	of Fi	e s	ervices	for DO	U polish	ina s	rstem, MC	C room	and Na	OH bulk	stora
Softy	are deve									-			
3011													
	Inst	allation	of re				orks for		1				
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				!					hìng Unit				
		Harc	ware	, po	oint/end	to point	/end, in	erlocl	i, simulati	on and i	nterface	test for	PLC a
		 -			Reliabi	lity tes	t of the p	olishi	nģ system	of DOI	J4		
			Relia	bilit	y test of	NaOH	bulk Ste	brage	and transf	er syste	m		
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		(*	Perf						OU polish				
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vorks													
	02-00	t-20 U	nder	Iroi	ind Drai	nade al	nd cabli	na wo	ks				
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	lnst	allation	of th	D	DU5 pol	ishing s	system	and ai	duct con	hection	for DOU	1	
Insta	lation of	Power	supp	y a	nd distu	rbution	system	for D	DU polishi	ng syst	ems		
tion of	LC and	SCAD	sys	em	for DO	J polisł	ning sys	tems					
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Soft	are deve											- 0.11	
5010							orks for		CADA				
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					Reliabi	lity tes	t of the p	olishi	ng system	of DOI	J5		
			Relia	bilit	y test of	NaOH	bulk Sto	rage	and transf	er syste	m		
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		Aug-19			Rev.			+					
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ivity ID	Activity Name	Activity %				Start	Finish	2019			2020				2021		
		Complete	ŧ	Duration	allowance			Q3		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
A7270	RC works for NaOH bulk storage compound	0%	0	45	5 5	11-Jan-20	06-Mar-20				RC	works for NaOH bull					
E&M insta	Ilation													5-Sep-20, E&M insta	allation		
A7280	Installation NaOH storage tanks and associated transfer pump	0%	0	120	20	15-Apr-20	05-Sep-20							nstallation NaOH s	orage tainks and associated trains	fer pump	
Testing ar	nd Commissioning													 9	9-Nov-20, Testing and Commissi	oning	
A7390	Performance test of the NaOH bulk storage compound and transfer system	0%	0	75	5 15	06-Sep-20	19-Nov-20							P(erformance test of the NaOH bul	< st <mark>o</mark> rage compound and	d transfer syster
Statutary I	nspection by FSD														V	🛛 🗸 03-May-21, Sta	tutary Inspection
A7770	Submission of Application for FS inspection ot FSD	0%	0	21	1 0	29-Dec-20	18-Jan-21								Submission of App	lication for FS inspectio	n ot FSD
A7780	FS inspection by FSD	0%	0	14	1 2	19-Jan-21	01-Feb-21								FS inspection	by FSD	
A7790	System/ Defect rectification	0%	0	40) 5	02-Feb-21	13-Mar-21								Syst	em/ Defect rectification	
A7800	Submission of application for FS reinspection to FSD	0%	0	21	1 0	14-Mar-21	03-Apr-21									Submission of applicat	ion for FS reins
A7810	FS re-inspection by FSD	0%	0	14	1 2	04-Apr-21	17-Apr-21								F	FS re-inspection by	FSD
A7820	Issue FS certificates	0%	0	15	5 2	18-Apr-21	02-May-21									Issue FS certific	cates
A7830	Works completion for Handover	0%	0	-	1 0	03-May-21	03-May-21									Works complet	ion for Handove
Handover	of E&M equipment					,									V	😽 03-May-21, Har	ndover of E&M e
A8210	Submission of O&M manual, Training manual and spare part list	0%	0	30)	30-Dec-20*	28-Jan-21								Submission of C	80 manual, Training m	anual and spare
A8220	Submission of final version of training manual	0%	0	30)	29-Jan-21	27-Feb-21								Submis	ion of final version of tr	aining manual
A8230	O&M training to DSD/ST2	0%	0	14	1	28-Feb-21	13-Mar-21									tra ning to D\$D/ST2	
A8240	Handover spare parts	0%	0	30)	14-Mar-21	12-Apr-21									Handover spare part	s
A8250	Handover of Final version of O&M manual	0%	0	2	1	13-Apr-21	03-May-21	1							G	Handover of Fir	nal version of O

Actual Work	♦ ♦ Milestone	Contract No. DC/2018/17	Sheet 7 of 7
Remaining Work	Summary	Enhancement of Deodourization System at Stonecutter Island Sewage Treatment Works	29-
Critical Remaining W	ork		
		First Programme	

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Date	Revision	Checked	Approved
9-Jul-19	Rev. 0		
29-Aug-19	Rev. 1		