Harbour Area Treatment Scheme Stage 2A

Contract No. DC/2007/23, DC/2009/10, DC/2009/17 and DC/2009/18

Consolidated Monthly Environmental Monitoring and Audit Report
June 2013

(Version 1.1)

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.

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15 July 2013
By Post

Attn: Mr. Danny Tang

Dear Sir,

Agreement No. CE 8/2009(EP)
Harbour Area Treatment Scheme (HATS) Stage 2A
Independent Environmental Checker for Construction Phase – Investigation
Submission of Monthly EM&A Consolidated Report for Stonecutters Island Sewage Treatment Works for June 2013 (Issue No. 43) Version 1.1

We refer to the captioned report consolidating the individual ETL certified and IEC verified Monthly EM&A Reports for Contract Nos. DC/2007/23, DC/2009/10, DC/2009/17 and DC/2009/18 at Stonecutters Island works site for HATS Stage 2A. We hereby verify the consolidated report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Dr. Anne F Kerr
Independent Environmental Checker

c.c. ARUP Mr. Ted Y F Tang Fax: 2370 4377

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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 2A	Harbour Area Treatment Scheme Stage 2A

EXECUTIVE SUMMARY

Introduction

1. This is the 43rd Consolidated Environmental Monitoring and Audit (EM&A) Report summaries the key information of EM&A monthly reports for the following construction contracts at the Stonecutters Island Sewage Treatment Works (SCISTW) under the Project of Harbour Area Treatment Scheme Stage 2A (the Project) and prepared by Cinotech Consultants Limited, the Environmental Team (ET) for Contract no. DC/2009/10.

    - Contract no. DC/2007/23 – Construction of Sewage Conveyance System from North Point to Stonecutters Island;
    - Contract no. DC/2009/17 – Upgrading Works at Stonecutters Island Sewage Treatment Works – Sludge Dewatering Facilities;
    - Contract no. DC/2009/10 – Upgrading Works at Stonecutters Island Sewage Treatment Works – Main Pumping Station, Sedimentation Tanks and Ancillary Facilities; and
    - Contract no. DC/2009/18 – Upgrading Works at Stonecutters Island Sewage Treatment Works –Effluent Tunnel and Disinfection Facilities.

2. The above-mentioned Contracts are under the same Environmental Permit (EP) No. EP-322/2008/F and separate ETs were appointed under each contract pursuant to Condition 2.1 of the EP.

3. This report is a contractual requirement under Contract No. DC/2009/10 to provide a consolidated monthly summary of the EM&A works at SCISTW for ease of reference. Each contract is administered under their respective contract by different project teams including the Engineer, the Engineer's Representatives, the Contractor, and the ET.

4. No amendment of the information in the EM&A reports for each individual contract was made in this consolidated monthly report.

5. This Report documents the findings of EM&A Works for the Project covering the period in June 2013.

6. The details of the EM&A for individual contracts can be found in the separate EM&A monthly reports. In case of ambiguity and discrepancy, the individual EM&A report shall prevail. The Executive Summaries and Web Sites for the individual contracts are shown below:

Table I Summary Table for Executive Summaries and Web Sites:

Contract no.	ES/Web Site	Details:
DC/2007/23	Executive Summary	At SCISTW, air quality monitoring station AM6 and noise monitoring station NM5 were monitored by ET for Contract no. DC/2007/23.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200723/EM&A%20Report-DC200723.html
DC/2009/17	Executive Summary	The air quality and noise monitoring stations under this contract were covered by other contracts at SCISTW. The monitoring data would be summarized in this monthly EM&A report.

	Web Site	http://www.hats2a-ema.com/RP_EMA/DC%202009%2017/EM&A%20Report-DC200917.html
DC/2009/10	Executive Summary	At SCISTW, air quality monitoring station AM7, AM8 and noise monitoring station NM6 were monitored by ET for Contract no. DC/2009/10.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200910/EM&A%20Report-DC200910.html
DC/2009/18	Executive Summary	At SCISTW, air quality monitoring station AM9 and noise monitoring station NM7 were monitored by ET for Contract no. DC/2009/18.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200918/EM&A%20Report-DC200918.html

Environmental Monitoring and Audit Works

7. The environmental monitoring works in the Project were covered by the ETs for the Contracts: DC/2007/23, DC/2009/10 and DC/2009/18 and the site audits were conducted once per week for each contract by their ETs.

8. Summary of the non-compliance of the reporting month is tabulated in **Table II**.

Table II Summary Table for Non-compliance Recorded in the Reporting Month

Monitored By	Monitoring Station	Parameter	No. of Exceedance		No. of Exceedance Due to the Project		Action Taken
			Action Level	Limit Level	Action Level	Limit Level	
DC/2007/23	AM6	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	
DC/2009/10	AM7	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
	AM8	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
DC/2009/18	AM9	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
DC/2007/23	NM5	Noise	0	0	0	0	
DC/2009/10	NM6		0	0	0	0	
DC/2009/18	NM7		0	0	0	0	

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

11. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance for normal working hours and restricted hours were recorded in the reporting month.

Key Information in the Reporting Month

12. Summary of key information in the reporting month is tabulated in **Table III**.

Table III Monthly Consolidated Summary Table for Key Information

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Status of submissions under EP	1	Monthly Consolidated EM&A Report for Stonecutters Island Sewage Treatment Works for May 2013	Submitted to EPD	No comment	---
Notifications of any summons & prosecutions received	0	--	N/A	N/A	---

Key Information in the EIA Report

13. According to the EIA Report, air quality, noise, water quality, ecology and landscape and visual would be the key environmental issues during the construction of the project. Details of the implementation of mitigation measures for four contracts are provided in the **Appendix J**.

1. INTRODUCTION

Background

1.1 Harbour Area Treatment Scheme (HATS) Stage 2A is a designated project (Register No. : AEIAR-121/2008). The Environmental Permit (Permit No. EP-322/2008/F) for the Project was issued on 10th October 2012 to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.

1.2 The general location plan for the Contracts: DC/2007/23, DC/2009/10, DC/2009/17 and DC/2009/18 are shown in **Figures 1 to Figure 3**.

1.3 The environmental permit (EP) was issued for the whole HATS Stage 2A construction works. The ET for the Contract DC/2009/10 is contractually responsible for consolidating the key information from all monthly EM&A reports from the ETs of other Contracts at SCISTW into a single monthly summary for ease of reference.

1.4 The 1st to 11th consolidated monthly EM&A reports were prepared by Ove Arup & Partners Hong Kong Ltd (Arup) and submitted to EPD. From November 2010 onwards, the 12th and subsequent consolidated monthly EM&A report will be prepared and submitted by Cinotech Consultant Limited, the ET for the Contracts DC/2009/10, DC/2009/17 and DC/2009/18.

1.5 This is the 43rd consolidated monthly EM&A report summarizing the EM&A works conducted for the Project at SCISTW in June 2013.

1.6 The monthly EM&A reports for each contract were prepared and certified by separate ETs and subsequently verified by the Independent Environmental Checker (IEC) for the Project. All individual monthly EM&A Reports are provided in the Project Website.

Current Contracts at SCISTW

1.7 The major Contracts at SCISTW and their scope of works are provided below:

Contract no. DC/2007/23

- Construction of sewage conveyance system between Sai Ying Pun junction shaft and Stonecutters Island Sewage Treatment Works;
- Construction of riser shaft at Stonecutters Island Sewage Treatment Works;
- Construction of Stage 2 Connecting Adit between the riser shaft and Stage 2 Main Pumping Station side chamber (by others) at Stonecutters Island Sewage Treatment Works.

Contract no. DC/2009/10

- Construction of a main pumping station;
- The extension of chemically enhanced primary treatment tanks; and
- The construction of other ancillary facilities at Stonecutters Island Sewage Treatment Works.

Contract no. DC/2009/17

- Demolition of the existing structures including vehicle washing facilities, Sludge Silo Building, Sludge Dewatering Building, process water storage tanks, polyelectrolyte storage tanks, ADF barging facilities and all associated plant and equipment;
- Construction of Sludge Dewatering Building, Sludge Cake Silos, Sludge Conveyor Bridges, Sludge Storage Tank, Deodourisation Units, Workshop Building, Process Water Storage Tanks and Pumping System;

- Construction of roof landscaping including irrigation system for the Sludge Dewatering Building and Workshop Building;
- Construction of chemical unloading facilities and the chemical pipe trench for the Disinfection Facilities; and
- Construction of associated Electrical, Mechanical, Building Services, Fire Services and Process Installation, Odour Control System and Temporary Vehicle Wash Facilities.

Contract no. DC/2009/18

- The Construction of an 880m long effluent tunnel at Stonecutters Island; and
- The Construction of disinfection facilities at Stonecutters Island Sewage Treatment Works (SCISTW).

Project Organizations

1.8 The key contacts of current contracts are provided in Table 1.1.

Table 1.1 Key Project Contacts

Contract No./ Position	DC/2007/23	DC/2009/10
Contract Title:	Construction of Sewage Conveyance System from North Point to Stonecutters Island;	Upgrading Works at SCISTW - Main Pumping Station, Sedimentation Tanks and Ancillary Facilities
Consultant	Metcalf & Eddy – AECOM JV	Ove Arup & Partners HK Ltd
The Engineer	Keith Tsang (Tel:2605 6262)	S.Y.Chan (Tel: 2528 3031)
The Engineer Representative	Y.H. Fung (Tel: 3713 3110)	Ted Tang (Tel: 2370 4311)
ER's Coordinator	Y.H. Fung (Tel: 3713 3110)	Natalie Kwok (Tel: 6794 8844)
Independent Environmental Checker	Dr. Anne Kerr (Tel:2828 5757)	Dr. Anne Kerr (Tel:2828 5757)
Contractor	Gammon Construction Ltd	Sun Fook Kong – Biwater Joint Venture
Site Agent	Mr. Max Ko (Tel: 9033 1292)	Mr. Ivan Tse (Tel: 6200 2149)
Environmental Officer	Mr. Leo Chow (Tel:9300 2013)	Ms. Connie Wong (Tel:2620 0070)
Environmental Team	Environmental Resources Management Ms.Winnie Ko (Tel: 2271 3000)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Table 1.1(cont'd) Key Project Contacts

Contract No.	DC/2009/17	DC/2009/18
Contract Title:	Upgrading Works at Stonecutters Island Sewage Treatment Works – Sludge Dewatering Facilities	Upgrading Works at Stonecutters Island Sewage Treatment Works – Effluent Tunnel and Disinfection Facilities
Consultant	Ove Arup & Partners HK Ltd	Ove Arup & Partners HK Ltd
The Engineer	S.Y.Chan (Tel: 2528 3031)	S.Y.Chan (Tel: 2528 3031)

Contract No.	DC/2009/17	DC/2009/18
The Engineer Representative	Ted Tang (Tel: 2370 4311)	Ted Tang (Tel: 2370 4311)
ER's Coordinator	Natalie Kwok (Tel: 6794 8844)	Natalie Kwok (Tel: 6794 8844)
Independent Environmental Checker	Dr. Anne Kerr (Tel:2828 5757)	Dr. Anne Kerr (Tel:2828 5757)
Contractor	China State- ATAL Joint Venture	Chun Wo – CEC Joint Venture
Site Agent	Mr. Tony Wong (Tel: 2370 3166)	Mr. W.C. Lee (Tel: 6688 5680)
Environmental Officer	Mr. H.S.Lui (Tel: 9050 2212)	Mr. Shelton Chan (Tel: 5395 5470)
Environmental Team	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Construction Programme

1.9 The construction program for the four Contracts at SCISTW are provided in **Appendix L**. Major construction works undertaken during the reporting month include:

Table 1.2 Construction Works in the Reporting Month

Contract No.	Construction Works in the Reporting Month
DC/2007/23	• Pilot hole drilling for raise boring at Riser Shaft; • Pre-excavation grouting at Production Shaft; and • Drilling and blasting at the Production Shaft.
DC/2009/17	Portion 3: • Enlargement of plinth at R/F of DDE was completed; • Installation of steelwork of cladding walls was in progress; • Modification of metal scaffolding working platform for construction of cladding wall was in progress; and\ • Installation of plastic wood plank to form panel at G/F for Linwood cladding wall was in progress. Portion 4: • Installation of green roof system was in progress; • Finishing working of staircases No. 1 & 2 were in progress; • Finishing working of external walls were in progress; • Installation of handrails on R/F of DG Store was in progress; • Installation of skylights on R/F of SDB was in progress; and • Dismantle of external metal scaffolding working platform at Grid Line 13 and between Grid Line 3 to 8/D was in progress. Portion 5: • Injection grouting of stem walls of SST No. 6 & 7 were in progress. External Works: • SWAC / PMAC submission and implementation of TTA for the commencement of external works were in progress; • Laying of DN750 stormwater drain and construction of its manhole at Zone B1 were in progress; • Laying of cable ducts at Zone B2a was completed; • The construction of chemical pipe trench at Zone B6 would be commenced; • Laying of 2 nos. DN80 wateramins near Northern Sludge Cake Silo at Zone B6 was completed; • Reinstatement works at Zone C2 (Stage 3) were in progress; • Backfilling works in between sludge storage tank nos. 6 & 7 at Zone C3 was in

	progress; • Laying of DN250 centrate pipe from sludge chamber no. 4 at Zone C3 was completed; • Cutting and capping the exposed existing DN200 & DN500 sludge pipes at Zone C5 were completed. Further ELS works were in progress; • Laying of additional cable ducts and construction of cable draw pits at Zone C6 & C7 were in progress; • Excavation works for laying of watermains at Zone C7 were in progress; • Reinstatement works at Zone E2 were completed; • Laying of DN80, DN100 & DN150 wateramins at Zone E3 was completed and the backfilling works were in progress; • Reinstatement works at Zone E4 were competed; • Installation of solid pump pipeworks at B4 of NSCS was in progress; • Installation of pipeworks and ductworks for the following systems at SDB was in progress: Process water system, Deodourisation system, Polymer dosing system, Solid pump system, BS - plumbing and drainage system, BS – fire service System, BS – MVAC; • Installation of Vehicle Washing Machine was in progress; • Installation of FRP ducts for DOU 6 was in progress; • The following major E&M equipment for Section 3 was delivered to site: DOU 6A including AC Filter, Bio-trickling filters and blowers; • Installation of polymer system at G/F of SDB was in progress; • Installation of chemical injection system at G/F of SDB was in progress; • Cabling at G/F and 1/F of SDB was in progress; • Installation of U/G pipeworks at Sludge Storage Tanks 6 & 7 was in progress; • Installation of supports for pipeworks at tops of Sludge Storage Tanks 6 & 7 was in progress; • Installation of heat detectors and MCCB in SDB was in progress; • Installation of MVAC in Control Room at 1/F of SDB was in progress; • Installation of collecting conveyors at G/F of SDB was in progress; • Installation of DOU6A was in progress; • SAT for LV switchboards and RMU was in progress; • Pressure test for pipework at G/F of SDB was in progress; and • Installation of lighting fittings at SDB and NSCS was in progress.
DC/2009/10	• At MPS2, Ground Floor constructed on 4 Jun 2013 (from +2.80mPD to +5.90mPD) and Construction of Staircase ST-3 and lift shaft are in progress; • Handover of Storage Building to ST2 was completed on 28 Jun 2013; • At Switchgear Building ,First Floor (Grid 1 – Grid 5) constructed on 26 Jun 2013 and the construction of Roof Floor (Grid 1 and Grid 10) was in progress and the concreting scheduled on end of July 2013; • Widening of CLP cable trench and construction CLP cable trench are in progress; • At Portion 3, construction of pile cap G.L B-D/29-33_E was completed and Daido Piles extension at new PST was in progress. Erection of Tower Crane TC3 was completed; and • At Portion 8, Re-driving test of existing daido pile was in progress.
DC/2009/18	Portion 3: • Blasting and rock excavation at Riser Shaft Tunnel Extension; • Construction of Dechlorination Plant Structure; • Demolition of existing D-wall and; • Commence Entry Culvert Structure Works. Portion 7: • Blasting and rock excavation at Drop Shaft Tunnel Extension.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction phase monitoring for air quality and noise, as well as site audits covering environmental mitigation measures, including landscape and visual impact, waste/chemicals management, and general compliance with the EM&A

Manual and relevant permits/licenses. 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.

1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of this report.

1.12 This report summarized the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely dust, noise levels, and audit works conducted for the Project in June 2013, and the methodology and QA/QC procedures of the monitoring parameters.

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

2.2 Four designated monitoring stations, AM6, AM7, AM8 and AM9 were selected for impact dust monitoring. Table 2.1 describes the air quality monitoring locations, which are also depicted in **Figures 1 and 3**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Responsible Contracts	Location of Measurement
AM6	DC/2007/23	Works site boundary of DC/2007/23
AM7	DC/2009/10	North West Kowloon Sewage Pumping Station
AM8		Block A of Government Dockyard
AM9	DC/2009/18	Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Monitoring Equipment

2.3 **Table 2.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates were shown in **Appendix C**.

Table 2.2 Air Quality Monitoring Equipment

Contract No.	DC/2007/23	DC/2009/10	DC/2009/18
Laser Dust Monitor	N/A*	Met One Instruments: Model no. AEROCET-531	Met One Instruments: Model no. AEROCET-531
HVS Sampler	GMW GS-2310	TISCH: Model no. TE-5170	TISCH: Model no. TE-5170
Calibrator	CM-AIR-43	TISCH: Model TE-5025A	TISCH: Model TE-5025A

N/A*: 1-hr TSP monitoring by DC/2007/23 was carried out by using HVS sampler.

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology and QA/QC Procedure

2.5 The monitoring methodology and QA/QC procedure for monitoring equipment are presented in the monthly reports for Contracts DC/2007/23, DC/2009/10 and DC/2009/18.

Results and Observations

2.6 **Table 2.4** summaries the air quality monitoring results at AM6, AM7, AM8 and AM9 in reporting month.

Table 2.4 Summary of 1-hour and 24-hour TSP Monitoring Results in Reporting Month

Air Quality Monitoring Station	Average μgm^{-3}	Range μgm^{-3}	Action Level μgm^{-3}	Limit Level μgm^{-3}
1 hour TSP				
AM6	171	128-219	346	500
AM7	54	23-79	322	
AM8	49	21-69	307	
AM9	57	31-78	318	
24 hours TSP				
AM6	91	82-102	196	260
AM7	53	29-67	207	
AM8	28	16-44	158	
AM9	62	41-83	169	

2.7 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.

2.8 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.

2.9 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix D**.

2.10 According to the field observations, the identified dust sources at the monitoring stations were mainly from loading of material, vehicles movement and construction works in site.

3. NOISE

Monitoring Requirements

3.1 Three noise monitoring stations, namely NM5, NM6 and NM7 were 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 three designated monitoring stations as listed in Table 3.1. **Figures 1 and 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Station	Responsible Contracts	Location of Measurement
NM5	DC/2007/23	Near FSD Diving Rescue and Training Centre
NM6	DC/2009/10	Customs' Marine Base
NM7	DC/2009/18	Open Area near Naval Base Barrack

Monitoring Equipment

3.3 Table 3.2 summarizes the noise monitoring equipment. Copies of calibration certificates were shown in **Appendix C**.

Table 3.2 Noise Monitoring Equipment

Contract No.	DC/2007/23	DC/2009/10	DC/2009/18
Sound Level Meter	Rion NL-31	SVANTEK Model no: SVAN 955	SVANTEK Model no: SVAN 955, 957
Calibrator	Rion NC-73	SVANTEK Model no: SV 30A	SVANTEK Model no: SV 30A

Monitoring Parameters, Frequency and Duration

3.4 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM5 NM6 NM7	L_{eq}(30 min.) dB(A)	0700-1900 hrs on weekdays	Once per week
	L_{eq}(5 min.) dB(A)	During restricted hours	Weekly monitoring to be conducted during the construction works

Monitoring Methodology and QA/QC Procedures

3.5 The monitoring methodology and QA/QC procedure are presented in the monthly reports of the Contract DC/2007/23, DC/2009/10 and DC/2009/18.

Results and Observations

3.6 **Table 3.4** summaries the noise monitoring results at NM5, NM6 and NM7 in reporting month.

Table 3.4 Summary of Noise Monitoring Results in Reporting Month

For the time period 0700-1900 hrs. on weekdays		
Monitoring Station	Range, dB(A) L_{eq}(30 min.)	Limit Level ,dB(A) L_{eq}(30 min.)
NM5	60.8-63.2	75.0
NM6	65.2-68.1	
NM7	67.1-68.2	
For the time period 1900-2300 hrs. on Normal Weekdays, And 0700-2300 of Sundays and Public Holiday		
Monitoring Station	Range, dB(A) L_{eq}(5 min.)	Limit Level ,dB(A) L_{eq}(5 min.)
NM5	57.0-62.2	70.0
NM7	63.3-63.9	
All days during 2300 to 0700 hrs. of the next day		
NM7	54.7-58.5*	55.0

Remark:* Since the construction noise levels recorded in restricted hour from 23:00 to 07:00 of the next day were lower than the baseline level, the construction noise levels were considered non-valid exceedance of Limit Level.

3.7 All construction noise monitoring at three designated locations were conducted by their ETs as scheduled in the reporting month.

3.8 No Action/Limit Level exceedance for normal working hours and restricted hours was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

3.9 Noise monitoring results and graphical presentations are shown in **Appendix E**.

3.10 The major noise sources identified at the designated noise monitoring stations during day time were the noise generated from trucks movement outside the noise enclosure, concreting work and the traffic noise from the Container Port Road South close to the site boundary of Contract No: DC/2009/18; while the major noise sources identified during the evening and night time was the traffic noise from the Container Port Road South and Stonecutters Bridge near to the Project area since the Construction works were mainly conducted within the noise enclosure during restricted hours.

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 each Project site.

4.2 Environmental site audits were conducted in the reporting month for each Contract is the following. No non-compliance was observed during the site audits.

Table 4.1 Summary of Date of Site Inspection

Contract No.	Date of Site Inspection
DC/2007/23	6, 13, 20 and 27 June 2013
DC/2009/10	7, 14, 20 and 28 June 2013
DC/2009/17	6, 13, 20 and 27 June 2013
DC/2009/18	5, 14, 19 and 26 June 2013

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 month in accordance to section 11.10 of the EM&A Manual. No non-compliance was observed during the site inspections.

4.4 The summaries of site audits for four contracts are attached in **Appendix H**.

Review of Environmental Monitoring Procedures

4.5 The monitoring works conducted by the monitoring teams of respective Contracts and were inspected regularly by their ETs.

Status of Environmental Licensing and Permitting

4.6 All permits/licenses obtained for the each Contract are summarized in **Appendix F**.

Status of Waste Management

4.7 The amount of wastes generated by the activities of four contracts in the reporting month is the following:

Table 4.2 Summary of Amount of Waste Generated in Reporting Month

Contract	Inert C&D[1] Materials	Other C&D[2] Waste	Chemical Waste (L)	Marine Deposit		
				Type 1 (m^3)	Type 2 (m^3)	Type 3 (Tonnes)
DC/2007/23	19809*(m^3)	198*(m^3)	400	0*	0*	0*
DC/2009/10	395(m^3)	74kg and 26m^3	0	0	0	0
DC/2009/17	389.29(m^3)	24.51 (Tonnes)	0	0	0	0
DC/2009/18	528(m^3)	5091kg and 10(m^3)	0	0	0	0

Remark*: The amount of waste generated is from all sites in this Contract.
1: Inert C&D Materials includes Broken Concrete/Rock, Inert C&D waste reused in the

Contract/other Project and those disposed to Public Fill.
2: Other C&D Waste includes Metals, Paper Cardboard packaging, plastic and other General Refuse.

4.8 The disposal location of wastes generated by the activities of four contracts is the following:

Table 4.3 Summary of Disposal Location of Waste Generated in Reporting Month

Contract No.	Disposal Location of Wastes in Report Month
DC/2007/23	9620m^3 of Inert C&D have were reused in other project and 10189m^3 of Inert C&D were used in SENT landfill/ Lam Tei Quarry or disposed of in Tuen Mun Area 38 Fill Bank/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point. No plastics, but 1kg of steel and 100kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.
DC/2009/17	Tuen Mun Area 38 Fill Bank and NENT Landfill.
DC/2009/10	Tuen Mun Area 38 Fill Bank and NENT Landfill. 57kg paper/cardboard packaging, 5kg plastic and 12kg of metals were sent to recyclers during the reporting period.
DC/2009/18	Tuen Mun Area 38 Fill Bank and NENT Landfill and Tseung Kwan O Area 137 Fill Bank 89kg paper/cardboard packaging and 5002kg of metal were sent to recycler during the reporting period.

4.9 The summaries of amount of waste generated in four contracts could be referred to respective monthly report.

Implementation Status of Environmental Mitigation Measures

4.10 Details of the implementation of mitigation measures for four contracts are provided in the **Appendix J**.

4.11 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations and recommendations for the Projects are summarized in **Appendix H**.

Implementation Status of Event Action Plans

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

1-hr TSP

4.13 No Action/Limit Level exceedance was recorded.

24-hr TSP

4.14 No Action/Limit Level exceedance was recorded.

Construction Noise

4.15 No Action/Limit Level exceedance for normal working hours and restricted hours was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

Landscape and Visual

4.16 No non-compliance was recorded.

Summary of Complaints and Prosecutions

4.17 No environmental complaint and prosecution was received at SCISTW for four contracts in the reporting month.

4.18 There were no environmental complaint and prosecution received since the commencement of four contracts. The Complaint Log is presented in **Appendix K**.

5. FUTURE KEY ISSUES

Key Issues for the Coming Month

5.1 Key environmental issues in the coming month include:

- Generation of dust from stockpiles of excavated and dusty materials, unpaved site area and vehicle movement, roadworks, excavation works and loading and unloading dusty materials on-site;
- Noise from operation of equipment and machinery on-site;
- Storage of chemicals/fuel and chemical waste/waste oil on-site;
- Ponding water generated in pre-drillings;
- Drainage system should be well designed and maintained to prevent flooding and silty water getting into the public area;
- Oil leakage from equipment and spillage;
- Silty surface runoff generated from the site area during raining;
- Dust generation should be mitigated by adequate water spraying, especially in dry days;
- Stockpile should be covered by tarpaulin to reduce dust generation;
- Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities; and
- Proper tree and shrub protection works should be provided when carrying out works near existing trees and shrubs.

Monitoring Schedule for the Next Month

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

Construction Program for the Next Month

5.3 The tentative construction programs are provided in **Appendix L**.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

6.1 Environmental monitoring and audit works were performed in the reporting month 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 month. 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 month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

6.4 No Action/Limit Level exceedance for normal working hours and restricted hours was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

Environmental Audit

6.5 Environmental site audits were conducted on weekly basis in the reporting month. No non-compliance was recorded.

Complaint and Prosecution

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

Recommendations for the coming reporting month:

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

Air Quality

- To regularly maintain the machinery and vehicles on site;
- To mitigate the dust generation by adequate water spraying in dry days;
- To cover the stockpile with tarpaulin to reduce dust generation;
- To follow up any exceedance caused by the construction works; and
- To implement dust suppression measures on all haul roads, stockpiles, dried/unpaved surfaces and excavation/road breaking works.

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;

Water Quality

- To identify any discharge of wastewater from the construction site;
- To avoid water from accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed;and
- To clear the sediment in the wastewater treatment tanks regularly.

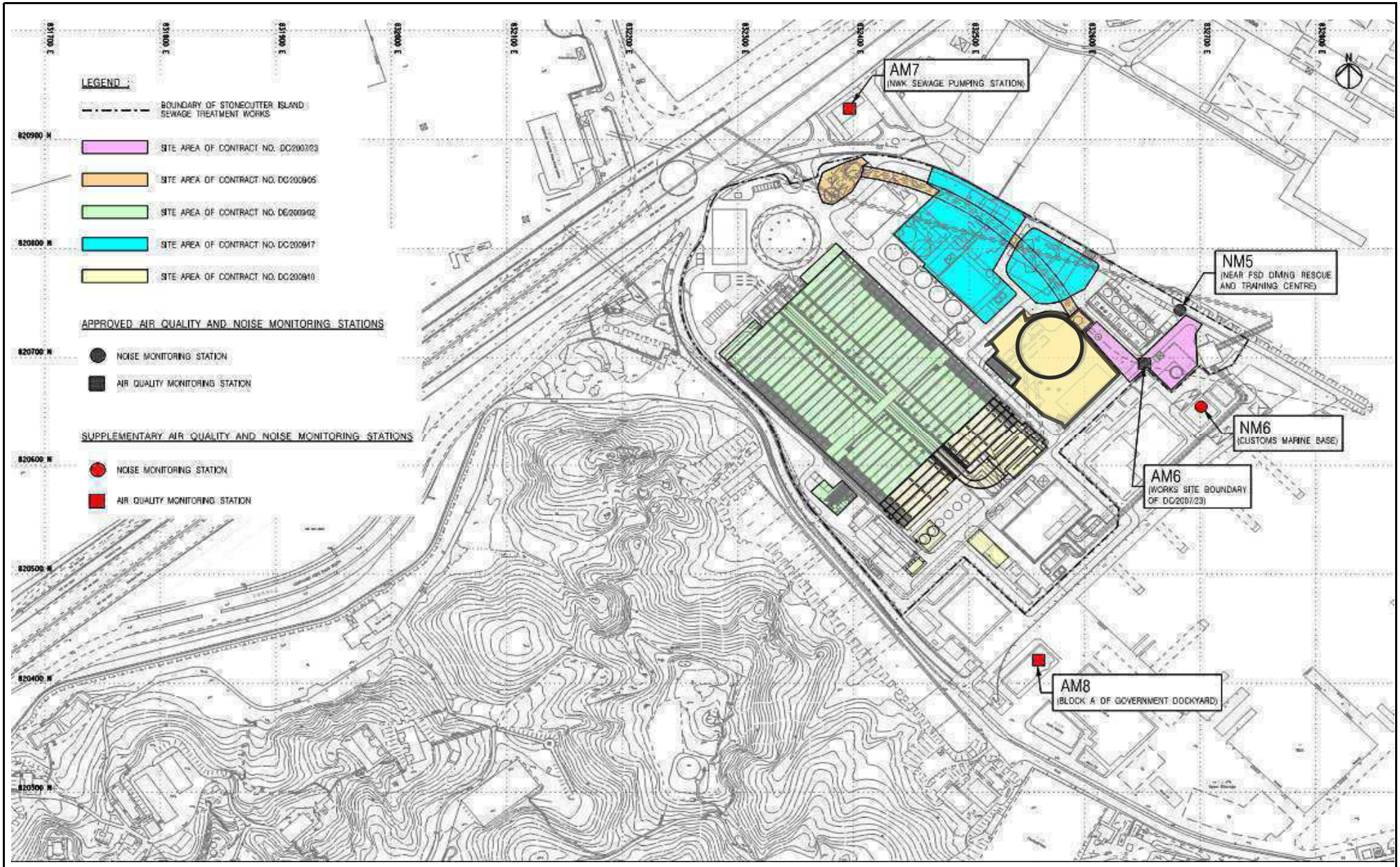
Waste/Chemical Management

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

Landscape and Visual

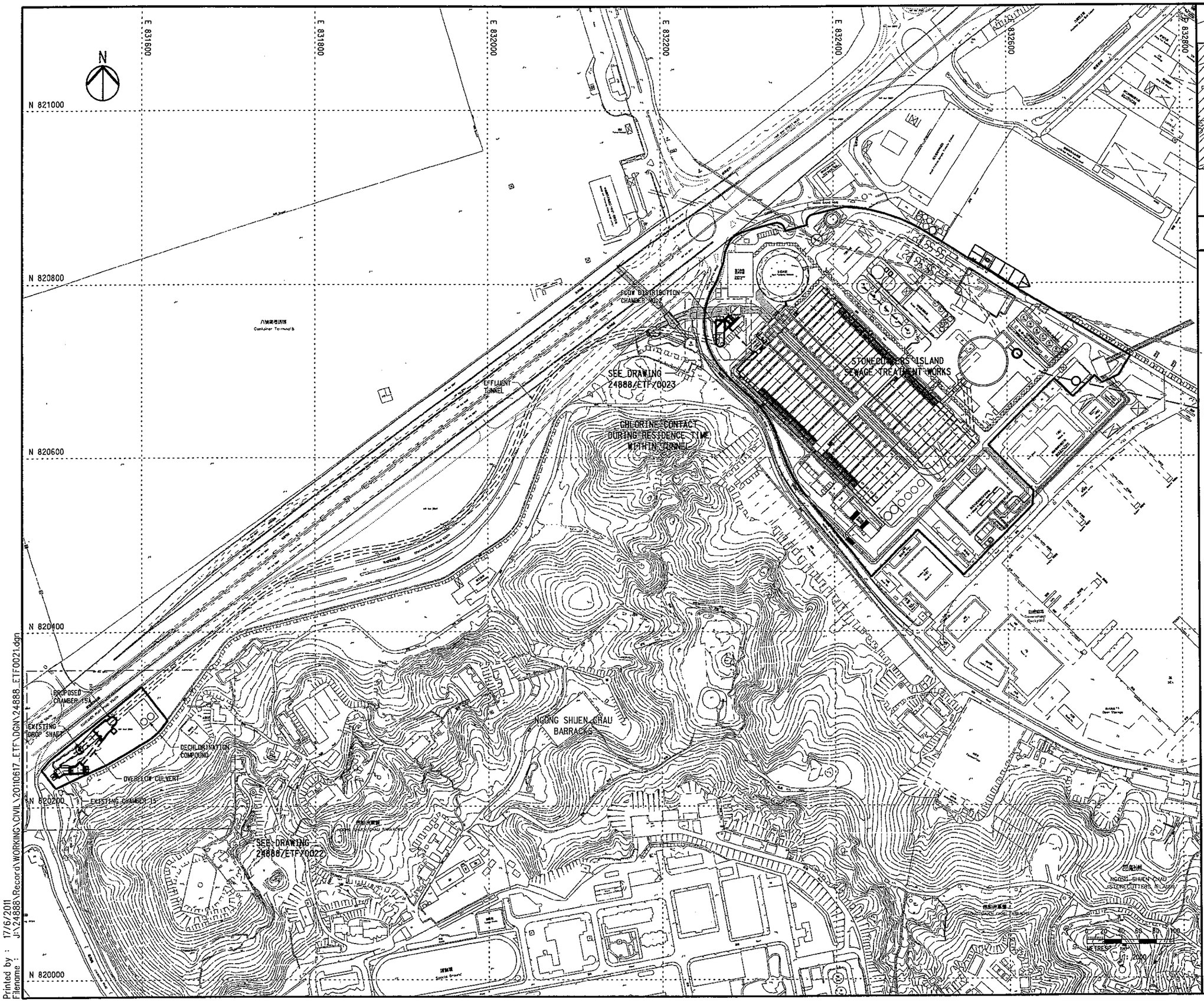
- To erect and maintain the protection fence around the retaining tree; and
- To avoid any heavy materials placed into tree protection zone.

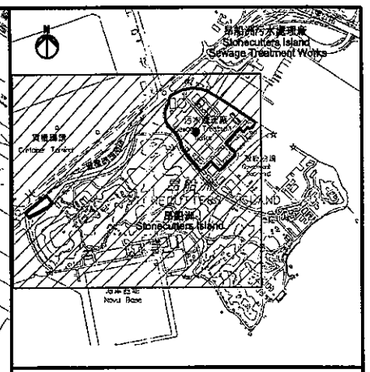
FIGURES



Title	Contract No: DC/2009/10 HATS 2A - Upgrading Main Pumping Station,Sedimentation Tanks and Ancillary Facilities at SISTW	Scale N.T.S	Project No. MA11007
	General Location Plan of the Project and Locations of Air Quality and Noise Monitoring Stations	Date 8/2011	Figure 1

CINOTECH





KEY PLAN

LEGEND:

BOUNDARY OF SCISTW

ALIGNMENT OF EFFLUENT TUNNEL

Rev	Description	By	Date
0	ISSUE FOR CONSTRUCTION	PW	06/11

Consultant

ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited

Project title

Contract No. DC/2009/18
Harbour Area Treatment Scheme Stage 2A-Upgrading Works at
Stonecutters Island Sewage Treatment Works-Effluent Tunnel and Disinfection Facilities

Drawing title

GENERAL LAYOUT
(SHEET 1)

Drawing no.			Rev.
24888/ETF/0021			0
Drawn WM	Date 08/10	Checked PW	Approved DP
Scale 1:2000 @A1		Status WORKING	

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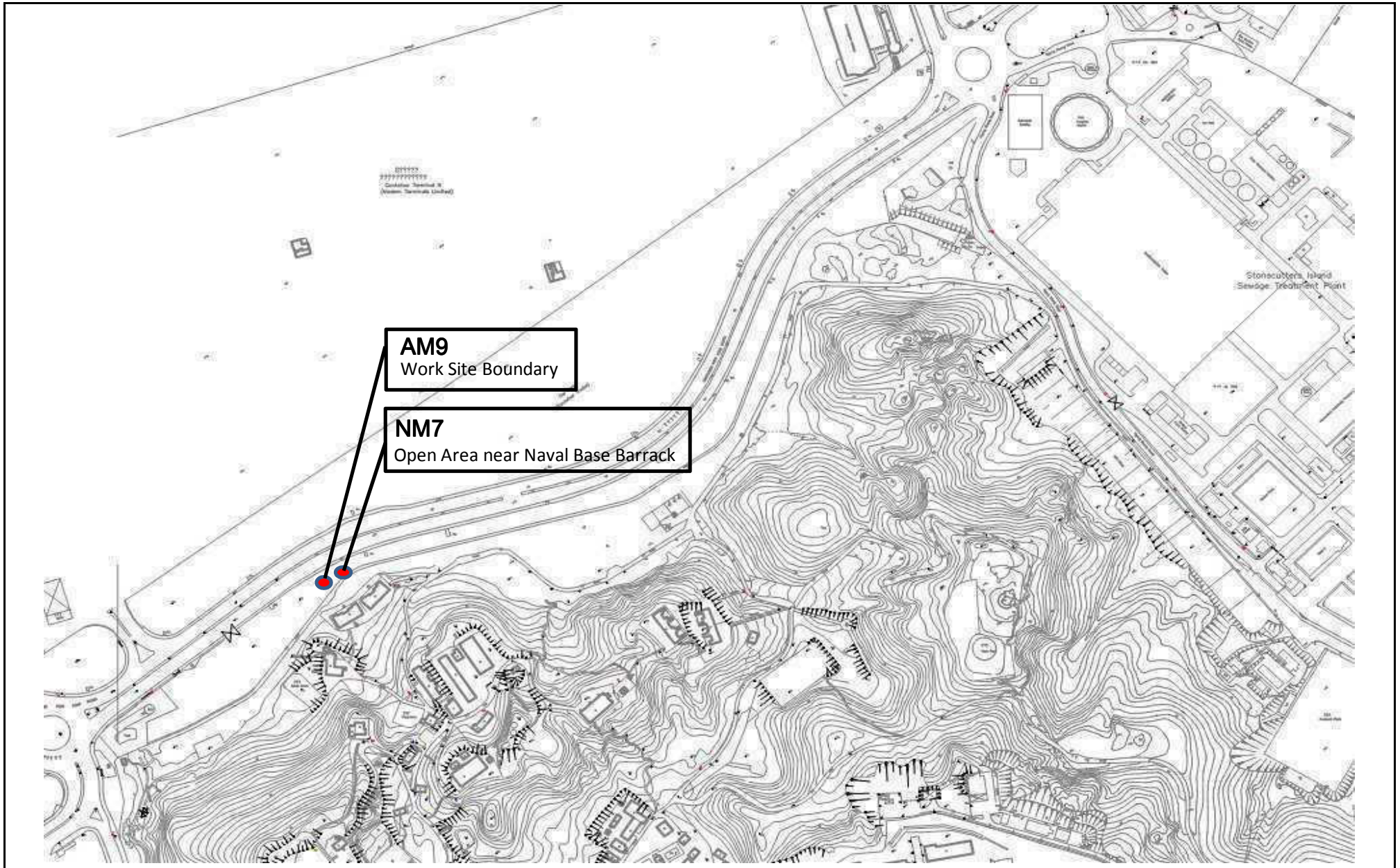

Title	Contract No. DC/2009/18 HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities	Scale N.T.S	Project No. MA11043	CINOTECH
	Locations of Impact Air Quality and Noise Monitoring Stations	Date 12/2011	Figure 3	

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix A Action and Limit Levels

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

Monitoring Stations	Action Level ($\mu g/m^3$)		Limit Level ($\mu g/m^3$)	
	1-hour	24-hour	1-hour	24-hour
AM6	346	196	500	260
AM7	322	207	500	260
AM8	307	158	500	260
AM9	138	169	500	260

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM5 **NM6** **NM7**	0700-1900 hours on normal weekdays	When one documented complaint is received	75
	Restricted Hours (Evening Time) 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)
	Restricted Hours (Night Time) All days during the night-time (2300 to 0700 hours)	N/A	55(1)

Note(1): Construction Noise Criteria for activity other than Percussive Pilling.

APPENDIX B
ENVIRONMENTAL MONITORING SCHEDULES

Annex G3 Monitoring Schedule of the Reporting Month and Next Month

DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Construction Air Quality Monitoring Schedule

AM6 - Works Site Boundary
Monitoring Month : June 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Jun
2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun
				1-hr and 24-hr Monitoring		
9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun
		1-hr and 24-hr Monitoring	Public Holiday			
16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun
	1-hr and 24-hr Monitoring					1-hr and 24-hr Monitoring
23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
					1-hr and 24-hr Monitoring	

Monitoring Month : July 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30-Jun	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
	Public Holiday			1-hr and 24-hr Monitoring		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
			1-hr and 24-hr Monitoring			
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
		1-hr and 24-hr Monitoring				
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	1-hr and 24-hr Monitoring				1-hr and 24-hr Monitoring	
28-Jul	29-Jul	30-Jul	31-Jul			

Annex G3 Monitoring Schedule of the Reporting Month and Next Month

DC/2007/23

Harbour Area Treatment Scheme Stage 2A

Construction of Sewage Conveyance System from North Point to Stonecutters Island

Impact Construction Noise Quality Monitoring Schedule

NM5 - A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary

Monitoring Month : June 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Jun
2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun
Noise Monitoring				Noise Monitoring		
9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun
		Noise Monitoring (daytime and evening time)	Public Holiday			
16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun
Noise Monitoring	Noise Monitoring					
23-Jun / 30-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
Noise Monitoring		Noise Monitoring (evening time)			Noise Monitoring	

Monitoring Month : July 2013

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
	Public Holiday			Noise Monitoring		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
		Noise Monitoring (evening time)	Noise Monitoring			
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
Noise Monitoring		Noise Monitoring				
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	Noise Monitoring	Noise Monitoring (evening time)				
28-Jul	29-Jul	30-Jul	31-Jul			
Noise Monitoring						

Contract No. DC/2009/18

HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities

Impact Air Quality and Noise Monitoring Schedule (June 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Jun
						24 hr TSP
2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun
	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			24 hr TSP	1hr TSP X 3	
9-Jun	10-Jun	11-Jun	**12-Jun**	13-Jun	14-Jun	15-Jun
		24 hr TSP		1hr TSP X 3 Noise (Daytime, Evening and Night Time)		
16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun
	24 hr TSP	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			24 hr TSP	
23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			24 hr TSP	1hr TSP X 3	
30-Jun						

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

Air Quality Monitoring Location:

AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Noise Monitoring Location:

NM7 - Open Area near Naval Base Barrack

Contract No. DC/2009/18

HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities

Tentative Impact Air Quality and Noise Monitoring Schedule (July 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
			24 hr TSP	1hr TSP X 3 Noise (Daytime, Evening and Night Time)		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
		24 hr TSP	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
	24 hr TSP	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			24 hr TSP	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	1hr TSP X 3 Noise (Daytime, Evening and Night Time)			24 hr TSP	1hr TSP X 3	
28-Jul	29-Jul	30-Jul	31-Jul			
			24 hr TSP			

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

Air Quality Monitoring Location:
AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Noise Monitoring Location:
NM7 - Open Area near Naval Base Barrack

DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SISTW
Impact Air Quality and Noise Monitoring Schedule (June 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Jun
						24 hr TSP
2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun
	1hr TSP X 3 Noise (NM6)			24 hr TSP	1hr TSP X 3	
9-Jun	10-Jun	11-Jun	**12-Jun**	13-Jun	14-Jun	15-Jun
		24 hr TSP		1hr TSP X 3 Noise (NM6)		
16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun
	24 hr TSP	1hr TSP X 3 Noise (NM6)			24 hr TSP	
23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
	1hr TSP X 3 Noise (NM6)			24 hr TSP	1hr TSP X 3	
30-Jun						

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

Air Quality Monitoring Station
AM7 - West Kowloon No.2 Sewage Pumping Station
AM8 - Block A of Government Dockyard

Noise Monitoring Station
NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop

DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SISTW
Tentative Impact Air Quality and Noise Monitoring Schedule (July 2013)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
			24 hr TSP	1hr TSP X 3 Noise (NM6)		
7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
		24 hr TSP	1hr TSP X 3 Noise (NM6)			
14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
	24 hr TSP	1hr TSP X 3 Noise (NM6)			24 hr TSP	
21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
	1hr TSP X 3 Noise (NM6)			24 hr TSP	1hr TSP X 3	
28-Jul	29-Jul	30-Jul	31-Jul			
			24 hr TSP			

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

Air Quality Monitoring Station
AM7 - West Kowloon No.2 Sewage Pumping Station
AM8 - Block A of Government Dockyard

Noise Monitoring Station
NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop

APPENDIX C
CALIBRATION CERTIFICATES OF THE ENVIRONMENTAL MONITORING EQUIPMENT

High-Volume TSP Sampler
5-Point Calibration Record9

Location	:	AM6
Calibrated by	:	P.F.Yeung
Date	:	18/05/2013

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1254

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1010
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.3	3.030	1.463	61	60.6
2	13 holes	7.6	2.739	1.323	54	53.6
3	10 holes	6.4	2.513	1.216	48	47.7
4	7 holes	4.4	2.084	1.010	38	37.8
5	5 holes	2.7	1.6337	0.794	28	27.8

Sampler Calibration Relationship

Slope(m):49.191 Intercept(b): -11.617 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 23/05/2013

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
0.9967	0.6902	1.4149
0.9925	0.9693	2.0010
0.9903	1.0858	2.2372
0.9893	1.1345	2.3464
0.9840	1.3666	2.8299

Qstd slope (m) = 2.09107
intercept (b) = -0.02838
coefficient (r) = 0.99996

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.6896	0.8851
0.9915	0.9683	1.2517
0.9893	1.0847	1.3995
0.9883	1.1334	1.4678
0.9830	1.3652	1.7702

Qa slope (m) = 1.30939
intercept (b) = -0.01775
coefficient (r) = 0.99996

y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124191
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1770)

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-31
Serial No. / 編號	:	00603867
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 July 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Fluke Precision Measurement Ltd., UK
- Rohde & Schwarz Laboratory, Germany

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 18 July 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C124191
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.8

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	Ref.
			Slow			93.7	± 0.3

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Certificate of Calibration
校正證書

Certificate No. : C124191
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

Remarks : - Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
  250 Hz - 500 Hz : ± 0.30 dB
  1 kHz : ± 0.20 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  12.5 kHz : ± 0.70 dB
  104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1472)

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-31
Serial No. / 編號	:	00410224
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 June 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

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Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.7	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.7	Ref.
			Slow			93.6	± 0.3

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.3	-26.2 ± 1.5
					125 Hz	77.4	-16.1 ± 1.5
					250 Hz	85.0	-8.6 ± 1.4
					500 Hz	90.4	-3.2 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	95.0	+1.2 ± 1.6
					4 kHz	94.8	+1.0 ± 1.6
					8 kHz	92.7	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.5
					250 Hz	93.7	0.0 ± 1.4
					500 Hz	93.8	0.0 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	93.6	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.8	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

Remarks : - Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
  250 Hz - 500 Hz : ± 0.30 dB
  1 kHz : ± 0.20 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  12.5 kHz : ± 0.70 dB
  104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1674)

Description / 儀器名稱	:	Sound Level Calibrator
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NC-73
Serial No. / 編號	:	10997142
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 9 July 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By / 測試 : L K Yeung

Certified By / 核證 : K C Lee

Date of Issue / 簽發日期 : 10 July 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	1 kHz ± 2 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/55/0006

Station: AM7 - North West Kowloon Sewage Pumping Station Operator: Shing

Date: 24-Apr-13 Next Due Date: 23-Jun-13

Equipment No.: A-01-55 Serial No. 2355

Ambient Condition			
Temperature, Ta (K)	295.8	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.44	60.78	8.7	2.97
2	9.4	3.08	54.56	6.8	2.62
3	6.8	2.62	46.53	5.3	2.32
4	4.3	2.09	37.17	3.5	1.88
5	2.6	1.62	29.09	2.3	1.53

By Linear Regression of Y on X

Slope , mw = 0.0448 **Intercept, bw =** 0.2186

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.55**

Remarks:

Conducted by: Shing Signature: Date: 24 April 2013

Checked by: Signature: Date: 24 Apr 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/55/0007

Station: AM7 - North West Kowloon Sewage Pumping Station Operator: Hei

Date: 24-Jun-13 Next Due Date: 23-Aug-13

Equipment No.: A-01-55 Serial No. 2355

Ambient Condition			
Temperature, Ta (K)	301.1	Pressure, Pa (mmHg)	758.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	2-Oct-13	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.41	60.29	8.7	2.93
2	9.5	3.06	54.19	6.8	2.59
3	7.2	2.67	47.28	5.4	2.31
4	4.5	2.11	37.55	3.6	1.89
5	2.8	1.66	29.80	2.3	1.51

By Linear Regression of Y on X

Slope , mw = 0.0457 **Intercept, bw =** 0.1513

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.53**

Remarks:

Conducted by: Hei Signature: Hei Date: 24/6/2013

Checked by: Wk Tang Signature: Kwai Date: 24/6/2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/68/0005

Station: AM8 - Block A of Government Dockyard Operator: Shing
Date: 24-Apr-13 Next Due Date: 23-Jun-13
Equipment No.: A-01-68 Serial No. 3219

Ambient Condition			
Temperature, Ta (K)	295.9	Pressure, Pa (mmHg)	763.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.3	3.38	59.73	8.6	2.95
2	9.7	3.13	55.40	7.2	2.70
3	6.9	2.64	46.85	5.5	2.36
4	4.5	2.13	38.00	3.9	1.99
5	2.2	1.49	26.82	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0443 **Intercept, bw =** 0.2797

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.72**

Remarks:

Conducted by: shing Signature: Date: 24 April 2013
Checked by: HL Signature: Date: 24 April 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/68/0006

Station: AM8 - Block A of Government Dockyard Operator: Hei

Date: 24-Jun-13 Next Due Date: 23-Aug-13

Equipment No.: A-01-68 Serial No. 3219

Ambient Condition			
Temperature, Ta (K)	301.5	Pressure, Pa (mmHg)	757.8

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.40	59.99	8.4	2.88
2	9.6	3.08	54.42	7.0	2.63
3	6.9	2.61	46.26	5.4	2.31
4	4.5	2.11	37.52	3.5	1.86
5	2.1	1.44	25.90	2.0	1.40

By Linear Regression of Y on X

Slope , mw = 0.0436 **Intercept, bw =** 0.2598

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.63**

Remarks:

Conducted by: Hei Signature: Hei Date: 24 / 6 / 2013

Checked by: Wh Tang Signature: Kwon Date: 24/6/2013

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0011

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Operator: Shing

Date: 24-Apr-13 Next Due Date: 23-Jun-13

Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	762

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.45	60.95	8.8	2.98
2	9.5	3.10	54.77	6.9	2.64
3	6.8	2.62	46.47	5.2	2.29
4	4.6	2.15	38.37	3.7	1.93
5	2.4	1.56	27.94	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw :** 0.1329

Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.48**

Remarks:

Conducted by: Shing Signature: Date: 24 April 2013

Checked by: HL Signature: Date: 24 April 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0012

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Operator: Hei

Date: 24-Jun-13 Next Due Date: 23-Aug-13

Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	301.7	Pressure, Pa (mmHg)	757.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.39	59.96	8.3	2.86
2	9.5	3.06	54.11	6.7	2.57
3	6.9	2.61	46.24	5.1	2.24
4	4.6	2.13	37.91	3.7	1.91
5	2.4	1.54	27.61	1.9	1.37

By Linear Regression of Y on X

Slope , mw = 0.0451 **Intercept, bw =** 0.1517

Correlation coefficient* = 0.9986

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.44**

Remarks:

Conducted by: Hei Signature: Hei Date: 24/6/2013

Checked by: Wk Tang Signature: Kwan Date: 24/6/2013

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Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/130531/3
Date of Issue:	2013-06-03
Date Received:	2013-05-31
Date Tested:	2013-05-31
Date Completed:	2013-06-03
Next Due Date:	2013-08-02

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-531
Serial No.	: N6732
Flow rate	:0.1 cfm
Zero Count Test	:0 mg (The result of the 2-minute sample)
Equipment No.	: A-02-11

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 67%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.065

****

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**

Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/130531/1
Date of Issue:	2013-06-03
Date Received:	2013-05-31
Date Tested:	2013-05-31
Date Completed:	2013-06-03
Next Due Date:	2013-08-02
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-531
Serial No.	: N6733
Flow rate	:0.1 cfm
Zero Count Test	:0 mg (The result of the 2-minute sample)
Equipment No.	: A-02-12

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 67%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.080

****

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Laboratory Manager

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/130531/2
Date of Issue:	2013-06-03
Date Received:	2013-05-31
Date Tested:	2013-05-31
Date Completed:	2013-06-03
Next Due Date:	2013-08-02
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-531
Serial No.	: N6735
Flow rate	:0.1 cfm
Zero Count Test	:0 mg (The result of the 2-minute sample)
Equipment No.	: A-02-14

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 67%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.074

****

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TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/N/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/121204/2
Date of Issue:	2012-12-05
Date Received:	2012-12-04
Date Tested:	2012-12-04
Date Completed:	2012-12-05
Next Due Date:	2013-12-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23852
Microphone No.	: 48531
Equipment No.	: N-08-11

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 60%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	C/N/121105/1
Date of Issue:	2012-11-05
Date Received:	2012-11-03
Date Tested:	2012-11-03
Date Completed:	2012-11-05
Next Due Date:	2013-11-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10965
Equipment No.	: N-09-02

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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Test Report No.:	C/N/121005/1
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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

Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-Jun-13	9:05	10:05	Cloudy	179	346	500	Construction work in progress	29	<5	GMW GS-2310 (S/N 1254)	7315
	10:07	11:07	Cloudy	172	346	500	Construction work in progress	29	<5	GMW GS-2310 (S/N 1254)	7316
	11:09	12:09	Cloudy	182	346	500	Construction work in progress	29	<5	GMW GS-2310 (S/N 1254)	7317
11-Jun-13	9:10	10:10	Cloudy	128	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	7319
	10:12	11:12	Cloudy	189	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	7320
	11:14	12:14	Cloudy	197	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	7321
17-Jun-13	9:00	10:00	Cloudy	139	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7673
	10:02	11:02	Cloudy	152	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7674
	11:04	12:04	Cloudy	146	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7675
22-Jun-13	9:25	10:25	Rainy	200	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7757
	10:27	11:27	Rainy	219	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7758
	11:29	12:29	Rainy	200	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7759
28-Jun-13	9:15	10:15	Sunny	149	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7761
	10:17	11:17	Sunny	167	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7762
	11:19	12:19	Sunny	149	346	500	Construction work in progress	30	<5	GMW GS-2310 (S/N 1254)	7763
			Min.	**128**							
			Max.	**219**							
			Average	**171**							

* Wind Speed data is presented in the Meteorological Data table

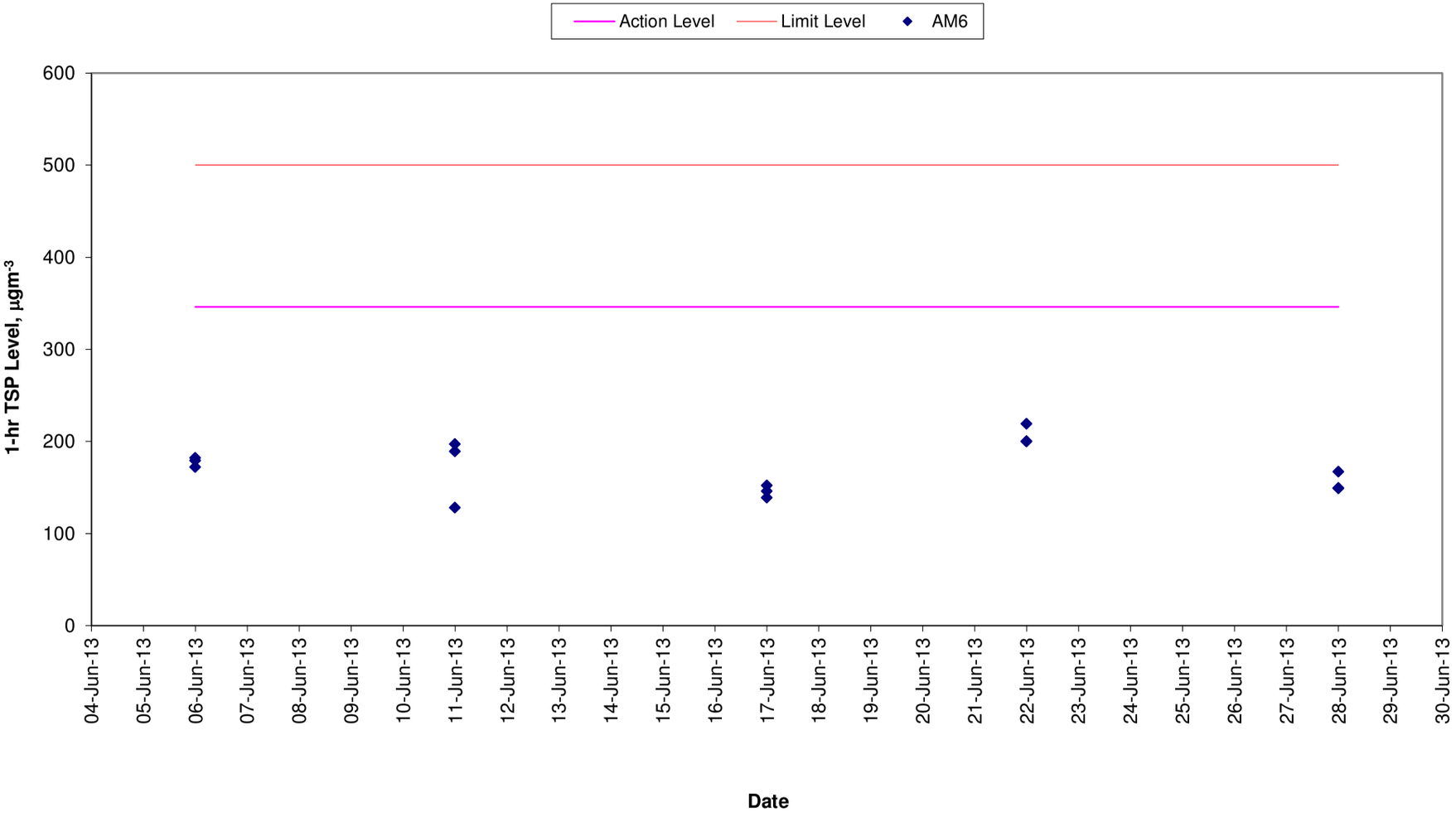
Annex G5 24-hour and 1-hour TSP Monitoring Results

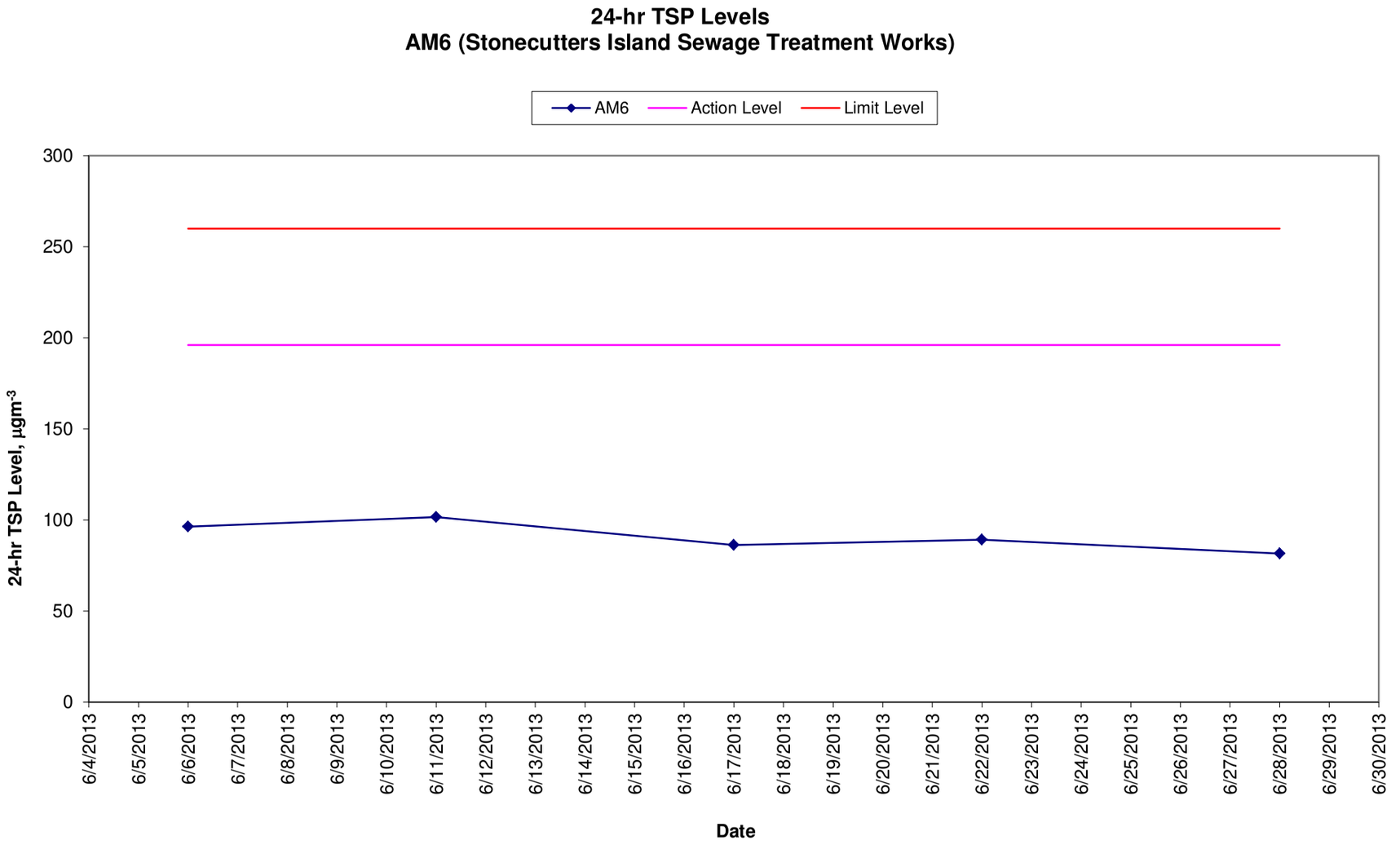
24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m^3)	(µg/m^3)	(µg/m^3)		ID	ID
6-Jun-13	12:11	7-Jun-13	12:11	Cloudy	2.6821	2.8500	11760.03	11784.03	24.00	1.21	1.21	1.21	96	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	7318
11-Jun-13	12:16	12-Jun-13	12:16	Cloudy	2.6751	2.8521	11787.03	11811.03	24.00	1.21	1.21	1.21	102	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	7322
17-Jun-13	12:06	18-Jun-13	12:06	Cloudy	2.6709	2.8211	11814.03	11838.03	24.00	1.21	1.21	1.21	86	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	7323
22-Jun-13	12:31	23-Jun-13	12:31	Rainy	2.6756	2.8309	11841.03	11865.03	24.00	1.21	1.21	1.21	89	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	7679
28-Jun-13	12:21	29-Jun-13	12:21	Sunny	2.8917	3.0338	11868.03	11892.03	24.00	1.21	1.21	1.21	82	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	7764
												Min.	**82**					
												Max.	**102**					
												Average	**91**					

1-hr TSP Levels
AM6 (Stonecutters Island Sewage Treatment Works)




24-hr TSP Levels
AM6 (Stonecutters Island Sewage Treatment Works)
AM6
Action Level
Limit Level
24-hr TSP Level, µgm-3
300
250
200
150
100
50
0
6/4/2013
6/5/2013
6/6/2013
6/7/2013
6/8/2013
6/9/2013
6/10/2013
6/11/2013
6/12/2013
6/13/2013
6/14/2013
6/15/2013
6/16/2013
6/17/2013
6/18/2013
6/19/2013
6/20/2013
6/21/2013
6/22/2013
6/23/2013
6/24/2013
6/25/2013
6/26/2013
6/27/2013
6/28/2013
6/29/2013
6/30/2013
Date

Appendix D - 1-hour TSP Monitoring Results

Location AM7 - North West Kowloon Sewage Pumping Station			
Date	Time	Weather	Particulate Concentration (μg/m^3)
3-Jun-13	9:00	Sunny	52
3-Jun-13	10:00	Sunny	56
3-Jun-13	11:00	Sunny	54
7-Jun-13	9:00	Sunny	49
7-Jun-13	10:00	Sunny	53
7-Jun-13	11:00	Sunny	54
13-Jun-13	9:00	Cloudy	67
13-Jun-13	10:00	Cloudy	63
13-Jun-13	11:00	Cloudy	69
18-Jun-13	9:00	Sunny	79
18-Jun-13	10:00	Sunny	75
18-Jun-13	11:00	Sunny	70
24-Jun-13	13:00	Cloudy	24
24-Jun-13	14:00	Cloudy	27
24-Jun-13	15:00	Cloudy	23
28-Jun-13	13:00	Sunny	54
28-Jun-13	14:00	Sunny	49
28-Jun-13	15:00	Sunny	59
		Average	54
		Maximum	79
		Minimum	23

Location AM8 - Block A of Government Dockyard			
Date	Time	Weather	Particulate Concentration (μg/m3)
3-Jun-13	13:00	Sunny	59
3-Jun-13	14:00	Sunny	55
3-Jun-13	15:00	Sunny	52
7-Jun-13	13:00	Sunny	48
7-Jun-13	14:00	Sunny	45
7-Jun-13	15:00	Sunny	44
13-Jun-13	13:00	Cloudy	56
13-Jun-13	14:00	Cloudy	59
13-Jun-13	15:00	Cloudy	54
18-Jun-13	13:00	Sunny	69
18-Jun-13	14:00	Sunny	67
18-Jun-13	15:00	Sunny	64
24-Jun-13	13:00	Cloudy	22
24-Jun-13	14:00	Cloudy	21
24-Jun-13	15:00	Cloudy	25
28-Jun-13	9:00	Sunny	50
28-Jun-13	10:00	Sunny	46
28-Jun-13	11:00	Sunny	43
		Average	49
		Maximum	69
		Minimum	21

Appendix D - 24-hour TSP Monitoring Results

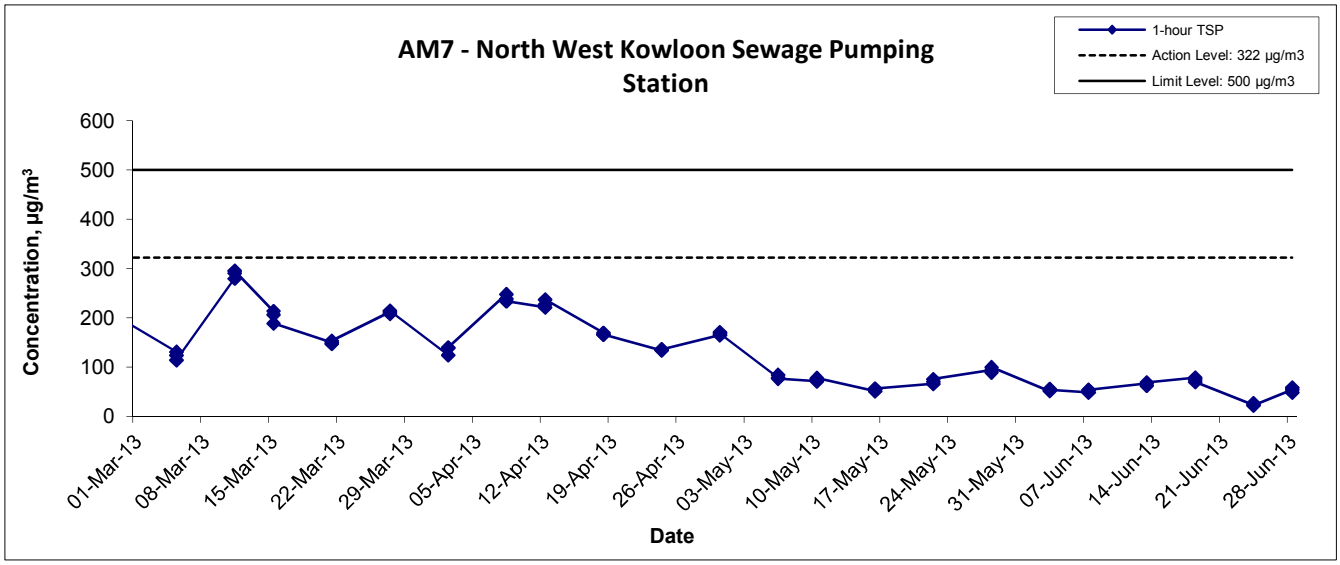
Location AM7 - North West Kowloon Sewage Pumping Station

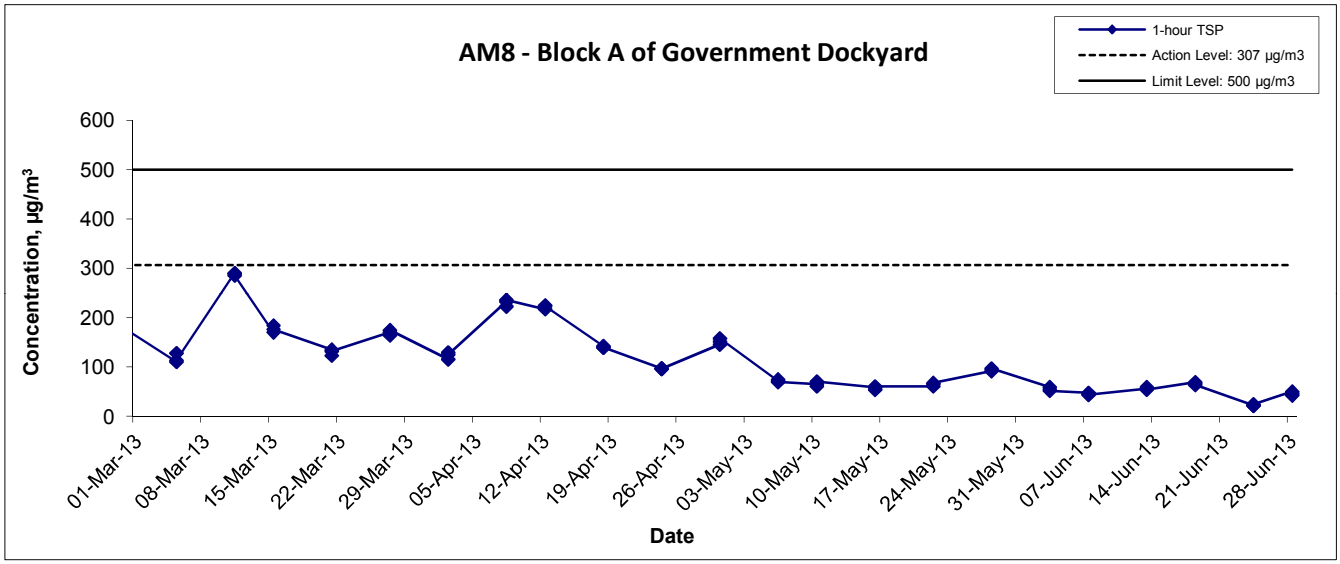
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
1-Jun-13	Sunny	303.0	3.1592	3.2594	0.1002	28385.3	28409.3	24.0	1.20	1.20	1.20	1734.7	57.8
6-Jun-13	Cloudy	299.0	3.1567	3.2561	0.0994	28409.3	28433.3	24.0	1.22	1.21	1.22	1749.8	56.8
11-Jun-13	Rainy	297.1	3.1002	3.1794	0.0792	28433.3	28457.3	24.0	1.21	1.21	1.21	1748.4	45.3
17-Jun-13	Cloudy	300.9	3.0819	3.1988	0.1169	28457.3	28481.3	24.0	1.21	1.21	1.21	1737.3	67.3
21-Jun-13	Sunny	302.9	3.0878	3.1891	0.1013	28481.3	28505.3	24.0	1.20	1.20	1.20	1730.5	58.5
27-Jun-13	Sunny	302.3	3.0701	3.1214	0.0513	28505.3	28529.3	24.0	1.21	1.21	1.21	1739.5	29.5
												Min	29
												Max	67
												Average	53

Location AM8 - Block A of Government Dockyard

Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
1-Jun-13	Sunny	303.0	3.1199	3.1953	0.0754	2057.1	2081.1	24.0	1.19	1.19	1.19	1719.2	43.9
6-Jun-13	Cloudy	299.0	3.1874	3.2313	0.0439	2081.1	2105.1	24.0	1.20	1.20	1.20	1734.6	25.3
11-Jun-13	Rainy	297.1	3.1109	3.1389	0.0280	2105.1	2129.1	24.0	1.20	1.20	1.20	1733.3	16.2
17-Jun-13	Cloudy	300.9	3.0771	3.1259	0.0488	2129.1	2153.1	24.0	1.20	1.20	1.20	1721.9	28.3
21-Jun-13	Sunny	302.9	3.0970	3.1588	0.0618	2153.1	2177.1	24.0	1.19	1.19	1.19	1715.0	36.0
27-Jun-13	Sunny	302.4	3.0729	3.1067	0.0338	2177.1	2201.1	24.0	1.21	1.21	1.21	1743.4	19.4
												Min	16
												Max	44
												Average	28

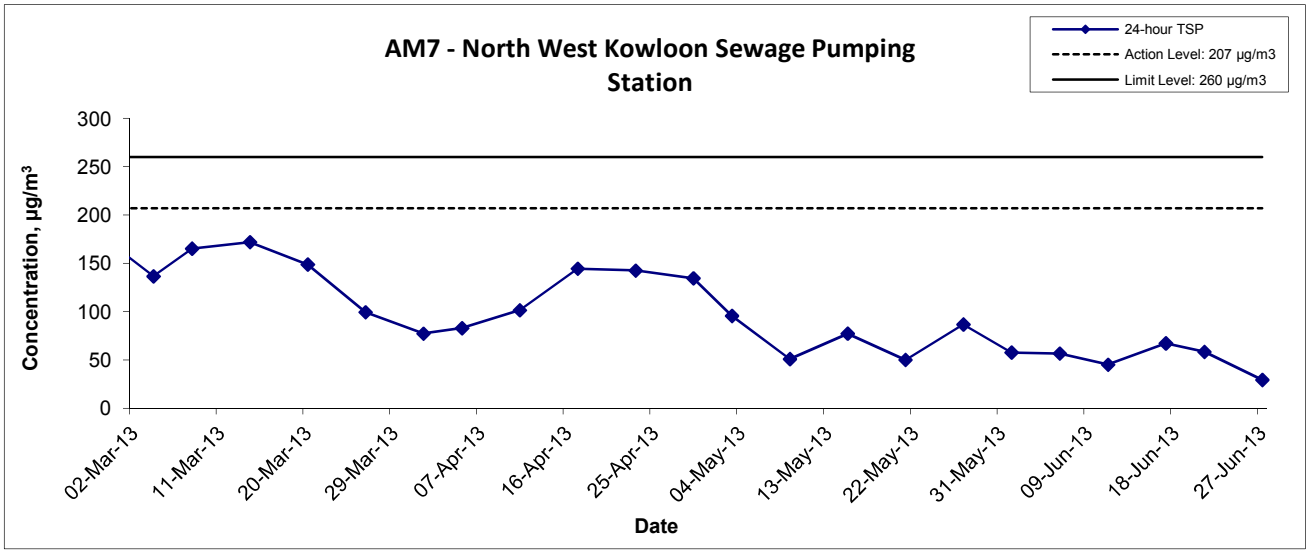
1-hr TSP Concentration Levels

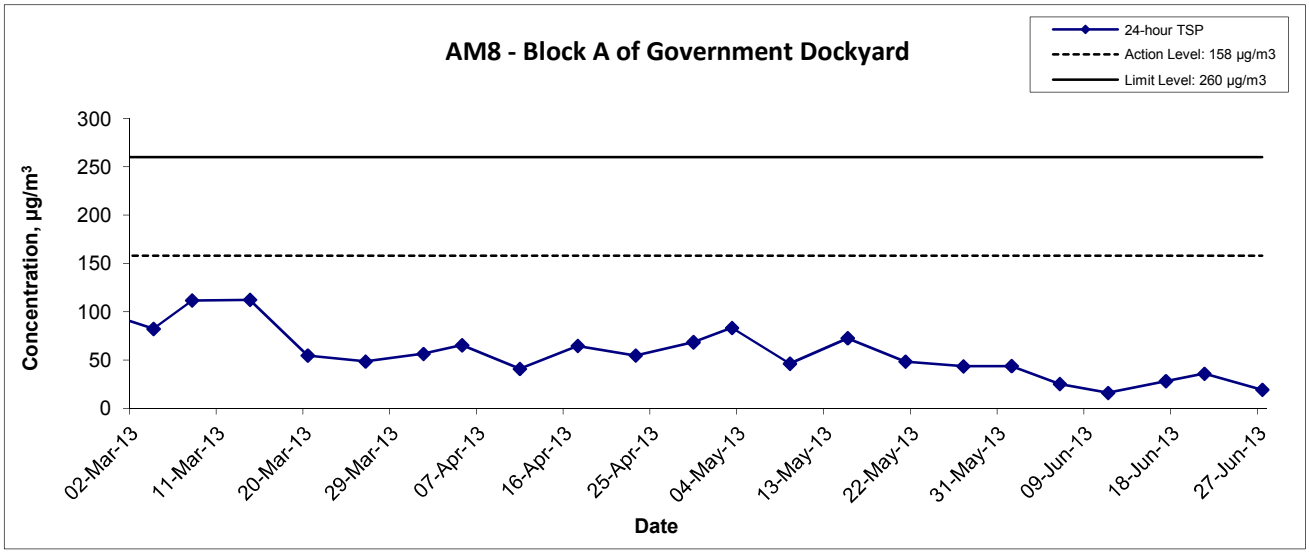




Title: Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Jun 13	Project No.: MA11007 Appendix: D	CINOTECH

24-hr TSP Concentration Levels





Title	Scale	Project No.
Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of 24-hour TSP Monitoring Results	N.T.S	MA11007
	Date: Jun 13	Appendix: D

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Appendix D - 1-hour TSP Monitoring Results

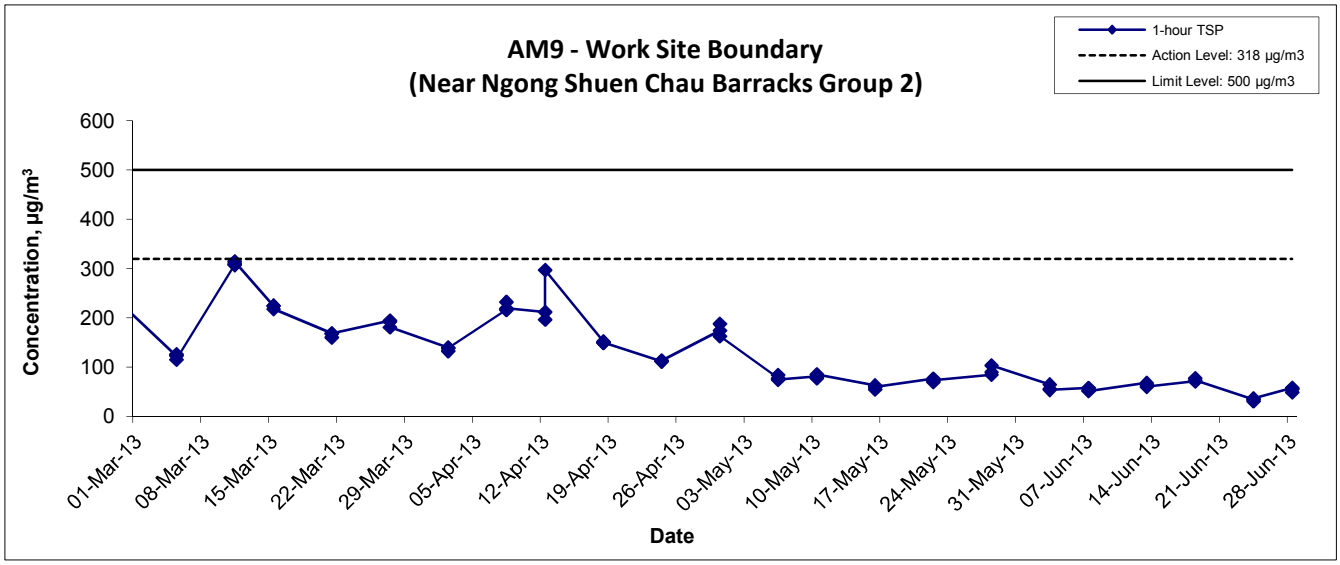
Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Grou			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
3-Jun-13	9:00	Sunny	65.0
3-Jun-13	10:00	Sunny	56.4
3-Jun-13	11:00	Sunny	54.3
7-Jun-13	9:00	Sunny	58.3
7-Jun-13	10:00	Sunny	54.0
7-Jun-13	11:00	Sunny	51.8
13-Jun-13	9:00	Cloudy	68.2
13-Jun-13	10:00	Cloudy	65.0
13-Jun-13	11:00	Cloudy	60.7
18-Jun-13	9:00	Sunny	71.4
18-Jun-13	10:00	Sunny	77.7
18-Jun-13	11:00	Sunny	73.5
24-Jun-13	9:00	Cloudy	34.4
24-Jun-13	10:00	Cloudy	31.1
24-Jun-13	11:00	Cloudy	36.5
28-Jun-13	13:30	Sunny	58.0
28-Jun-13	14:30	Sunny	55.8
28-Jun-13	15:30	Sunny	49.4
		Average	56.8
		Maximum	77.7
		Minimum	31.1

Appendix D - 24-hour TSP Monitoring Results

Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

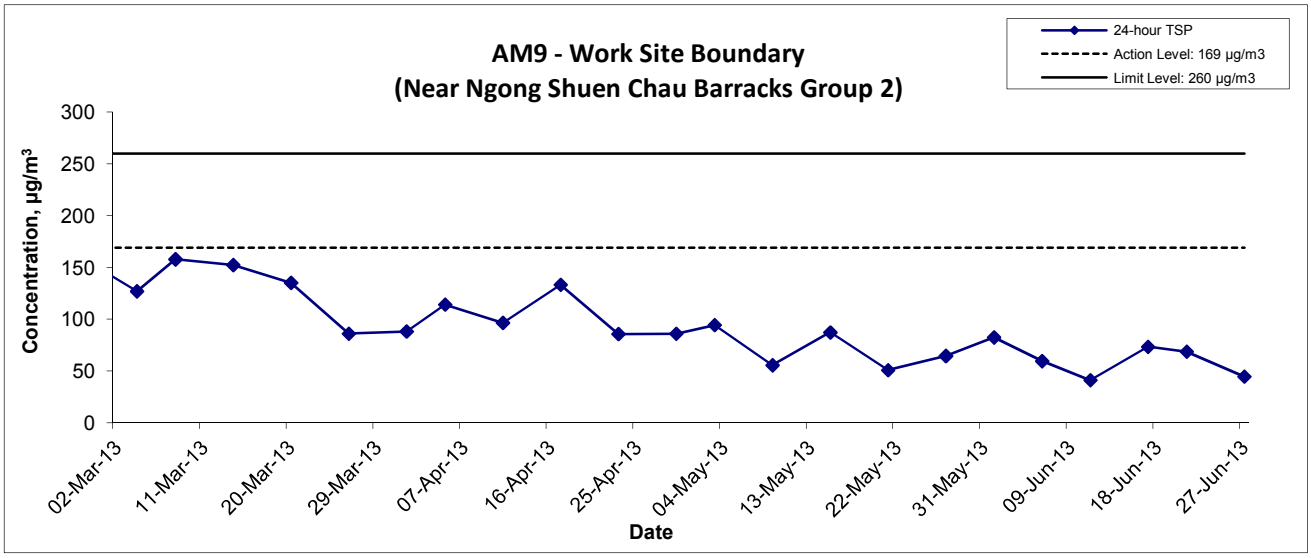
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
1-Jun-13	Sunny	303.0	3.1825	3.3252	0.1427	1257.6	1281.6	24.0	1.20	1.20	1.20	1729.7	82.5
6-Jun-13	Cloudy	299.0	3.1338	3.2378	0.1040	1281.6	1305.6	24.0	1.21	1.21	1.21	1744.1	59.6
11-Jun-13	Rainy	297.1	3.1684	3.2403	0.0719	1305.6	1329.6	24.0	1.21	1.21	1.21	1742.9	41.3
17-Jun-13	Cloudy	300.9	3.1348	3.2621	0.1273	1329.6	1353.6	24.0	1.20	1.20	1.20	1732.3	73.5
21-Jun-13	Sunny	302.9	3.0881	3.2068	0.1187	1353.6	1377.6	24.0	1.20	1.20	1.20	1725.8	68.8
27-Jun-13	Sunny	302.4	3.0629	3.1405	0.0776	1377.6	1401.6	24.0	1.21	1.21	1.21	1739.4	44.6
												Min	41.3
												Max	82.5
												Average	61.7

1-hr TSP Concentration Levels



Title: Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Jun 13	Project No.: MA11043 Appendix: D	CINOTECH

24-hr TSP Concentration Levels



Title: Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Jun 13	Project No.: MA11043 Appendix: D	CINOTECH

APPENDIX E
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Annex G6 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
06-Jun-13	10:00	10:30	Cloudy	61	64	67	Drill Rig and Welding Machine	Traffic noise	-	28	0.6	RION-NL31 (S/N 00410224)	RION-NL73 (S/N 10997142)
11-Jun-13	10:18	10:48	Cloudy	61	63	56	Drill Rig and Welding Machine	Traffic noise	-	30	0.5	RION-NL31 (S/N 00410224)	RION-NL73 (S/N 10997142)
17-Jun-13	11:10	11:40	Cloudy	63	65	54	Drill Rig, Welding Machine and Dump Truck	traffic noise	-	29	0.3	RION-NL31 (S/N 00410224)	RION-NL73 (S/N 10997142)
28-Jun-13	11:02	11:32	Sunny	63	66	57	Drill rig, excavator	traffic noise	-	30	0.8	RION-NL31 (S/N 00410224)	RION-NL73 (S/N 10997142)
			Min.	**61**									
			Max.	**63**									

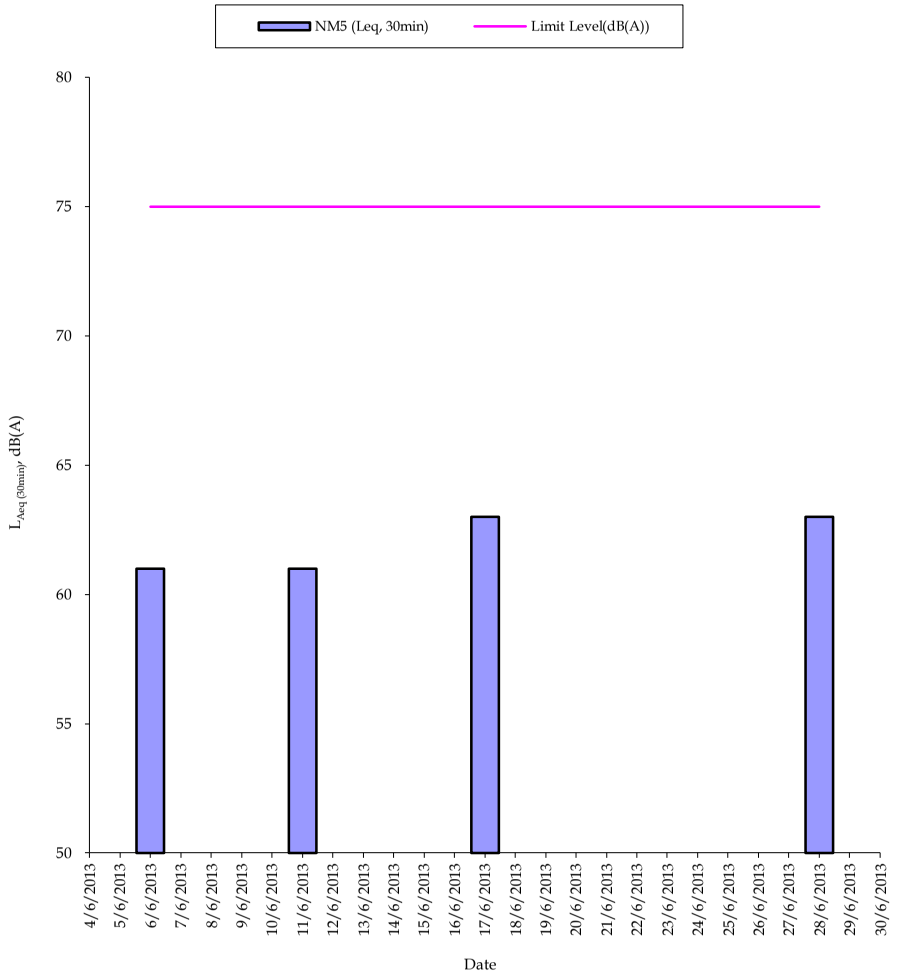
Annex G6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

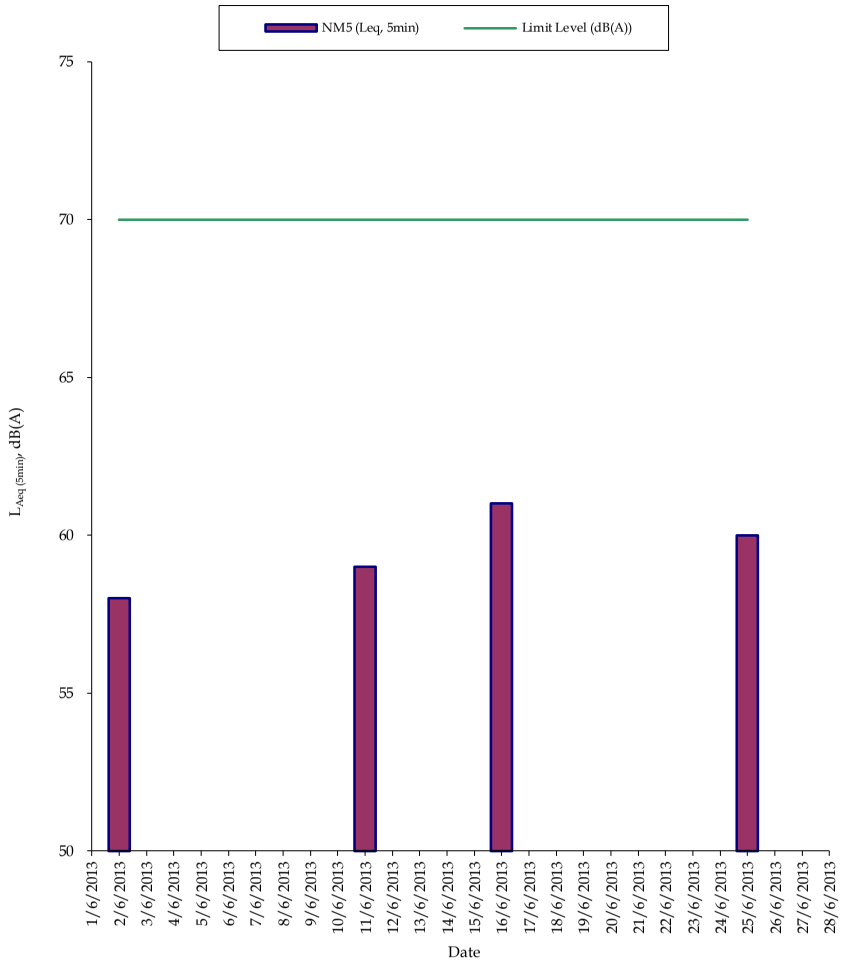
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Jun-13	14:10	14:15	Sunny	57	60	55	Drill Rig and Concrete Lorry Mixer	Traffic noise	-	33	0.8	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	14:15	14:20	Sunny	57	58	55			-				
	14:20	14:25	Sunny	59	61	56			-				
	14:10	14:25	Sunny	58	60	55			-				
11-Jun-13	19:03	19:08	Cloudy	59	60	57	Drill Rig	Traffic noise & aircraft noise	-	26	0.6	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:08	19:13	Cloudy	60	61	56			-				
	19:13	19:18	Cloudy	59	61	56			-				
	19:03	19:18	Cloudy	59	61	56			-				
16-Jun-13	14:17	14:22	Cloudy	60	63	58	Drill Rig	Traffic noise & aircraft noise	-	30	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	14:22	14:27	Cloudy	62	64	59			-				
	14:27	14:32	Cloudy	62	65	59			-				
	14:17	14:32	Cloudy	61	64	59			-				
25-Jun-13	19:02	19:07	Cloudy	60	62	57	Drill rig	Traffic noise	-	29	0.6	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:07	19:12	Cloudy	60	61	56			-				
	19:12	19:17	Cloudy	60	62	56			-				
	19:02	19:17	Cloudy	60	62	56			-				
30-Jun-13	10:00	10:05	Sunny	57	58	55	Drill rig	Traffic noise & aircraft noise	-	30	0.8	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	10:05	10:10	Sunny	56	58	55			-				
	10:10	10:15	Sunny	58	60	55			-				
	10:00	10:15	Sunny	57	59	55			-				
			Min.	**57**									
			Max.	**62**									

Normal Weekdays Noise Monitoring Results at NM5 ($L_{Aeq, 30min}$)



Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM5 ($L_{Aeq, 5min}$)



Remark:
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period

Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM7 - Open Area near Naval Base Barrack					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L_{eq}	L_{10}	L_{90}
3-Jun-13	10:00	Sunny	67.4	70.2	64.8
13-Jun-13	11:00	Cloudy	68.2	70.5	65.3
18-Jun-13	10:00	Sunny	67.1	69.3	64.4
24-Jun-13	09:00	Cloudy	67.6	69.8	62.4

(Restricted Hours - 07:00 to 23:00 holidays & 19:00 to 23:00 on all other days)

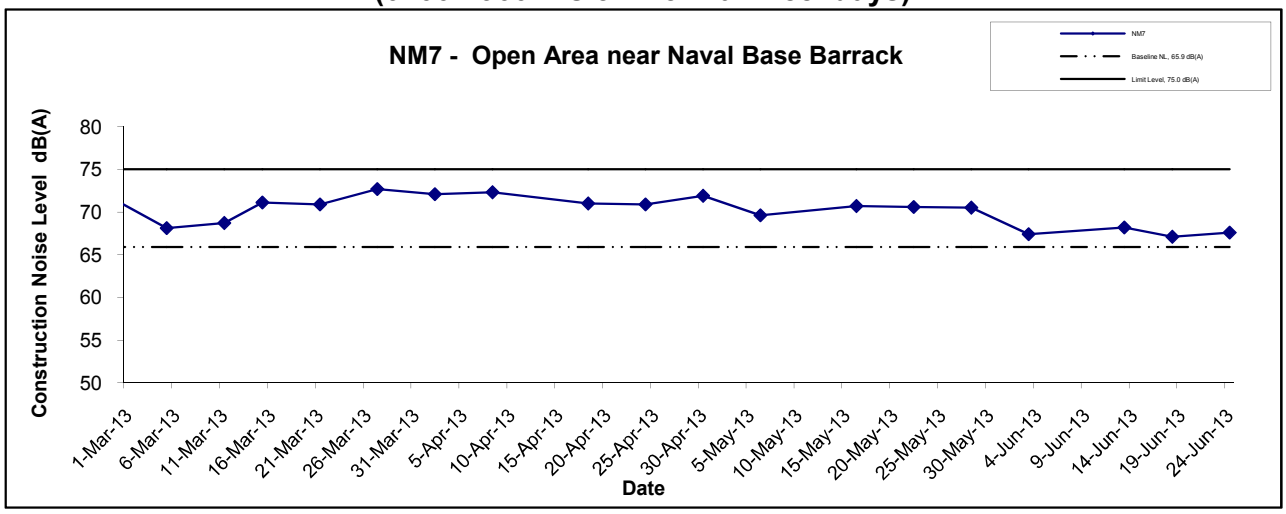
Location NM7 - Customs' Marine Base (Block H of Government Dockyard) Rooftop						
Date	Time	Weather	dB (A) (5-min)			
			L_{eq}	L_{10}	L_{90}	Average L_{eq}
3-Jun-13	19:00	Fine	62.3	64.9	59.7	63.3
	19:05		63.1	65.4	60.3	
	19:10		64.2	66.8	61.6	
13-Jun-13	19:05	Fine	63.6	65.8	60.0	63.6
	19:10		64.1	66.4	60.3	
	19:15		63.2	65.4	59.7	
18-Jun-13	19:05	Fine	64.3	66.8	61.2	63.9
	19:10		63.8	65.9	60.4	
	19:15		63.5	65.3	60.1	
24-Jun-13	19:00	Fine	62.1	65.4	58.6	63.4
	19:05		63.7	66.3	59.6	
	19:10		64.1	66.7	61.0	

(Restricted Hours - 23:00 to 07:00 on all days)

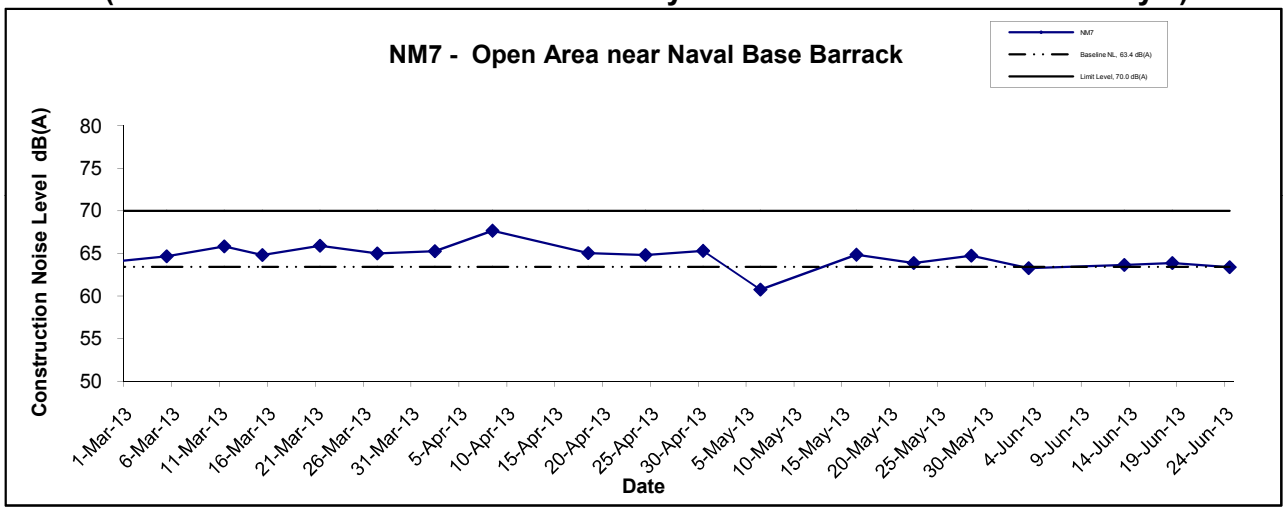
Location NM7 - Customs' Marine Base (Block H of Government Dockyard) Rooftop								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
3-Jun-13	23:00	Fine	58.2	60.0	54.2	58.5	59.7	58.5 Measured≦Baseline
	23:05		59.4	60.9	56.3			
	23:10		57.9	59.7	54.9			
13-Jun-13	23:00	Fine	54.2	56.8	50.3	55.2		55.2 Measured≦Baseline
	23:05		53.7	56.5	50.6			
	23:10		56.9	58.6	51.9			
18-Jun-13	23:00	Fine	56.4	58.9	50.2	54.7		54.7 Measured≦Baseline
	23:05		53.4	55.2	49.7			
	23:10		53.6	55.0	50.3			
24-Jun-13	23:00	Fine	56.9	58.2	52.5	57.8		57.8 Measured≦Baseline
	23:05		57.2	59.1	52.9			
	23:10		58.9	60.3	53.4			

Noise Levels

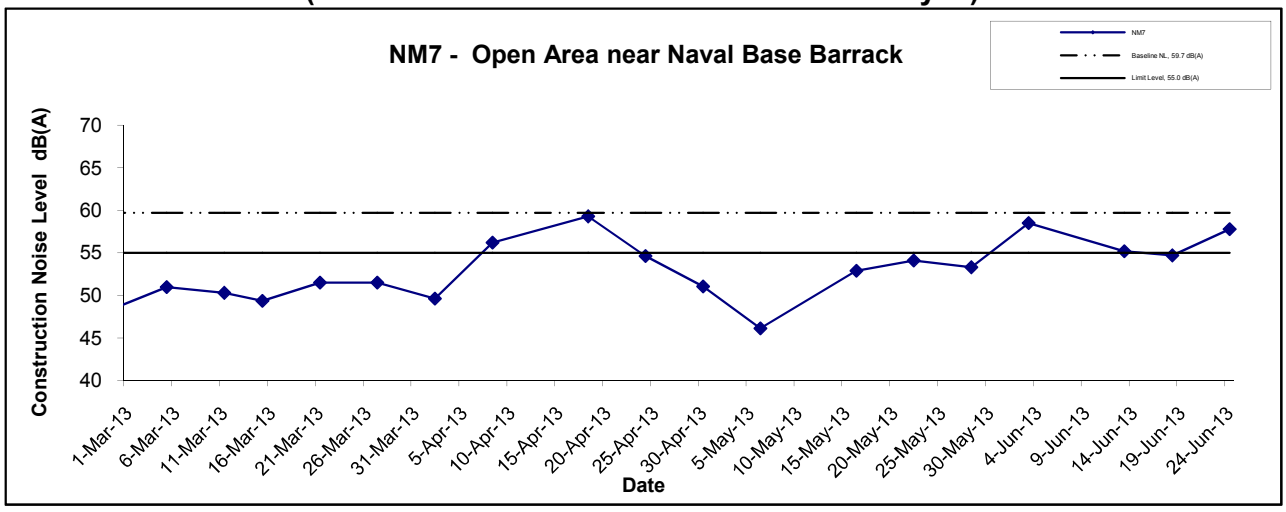
(0700-1900 hrs on Normal Weekdays)



(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)



(Restricted Hours - 23:00 to 07:00 on all days)



Title	Scale	Project No.
Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities Graphical Presentation of Noise Monitoring Result (NM7)	N.T.S	MA11043
	Date Jun 13	Appendix E

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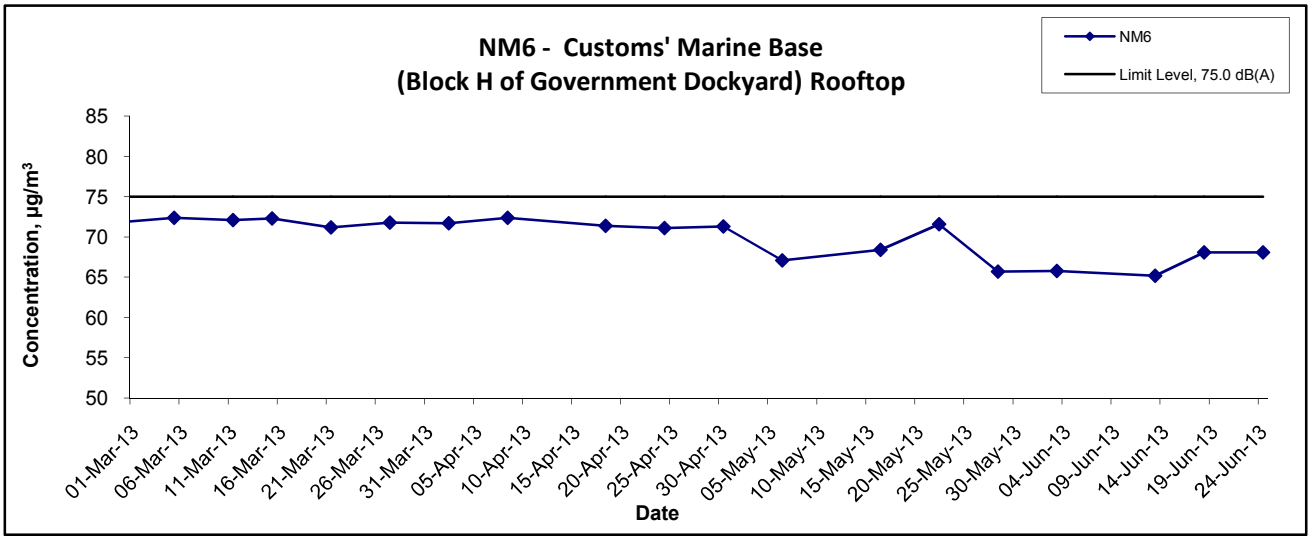
Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop					
Date	Time	Weather	Unit: dB (A) (30-min) Measured Noise Level		
			L_{eq}	L_{10}	L_{90}
3-Jun-13	13:20	Sunny	65.8	67.1	62.5
13-Jun-13	13:40	Cloudy	65.2	67.8	62.9
18-Jun-13	13:30	Sunny	68.1	70.3	64.9
24-Jun-13	14:20	Cloudy	68.1	71.2	64.6

Noise Levels

(0700-1900 hrs on Normal Weekdays)



Title	Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of Noise Monitoring Result	Scale N.T.S Date Jun 13	Project No. MA11007 Appendix E	CINOTECH

APPENDIX F
ENVIRONMENTAL PERMITS AND LICENSES

APPENIDX F –Environmental Permits and Licenses

Table F.1 Summary of Environmental Licensing and Permit Status for Contract DC/2007/23

Permit No.	Valid Period		Details	Status
	From	To		
Wastewater Discharge License				
WT00005069-2009	11/8/2010	31/10/2014	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid
Chemical Waste Producer Registration				
5213-269-G2449-07	--	--	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid
Construction Noise Permit				
GW-RW0990-12	9/1/2013	8/7/2013	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid
GW-RW0258-13	23/04/2013	22/10/2013	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid

Table F.2 Summary of Environmental Licensing and Permit Status for Contract DC/2009/17

Permit No.	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00007763-2010	22/10/2010	31/10/2015	Location: Portion 5	Valid
WT00007921-2010	23/11/2010	30/11/2015	Location: Portion C	Valid
WT00007982-2010	3/12/2010	31/12/2015	Location: Portion 3&4	Valid
Registered Chemical Waste Producer				
5213-239-C3388-02	19/10/2010	N/A	Major chemical waste types are: Spent battery, waste mechanical oil and spent lubricant.	Valid
Billing Account for Disposal of Construction Waste				
A/C No.7011408	15/09/2010	N/A	N/A	Valid
Notification of Works Under APCO				
Ref:321235	7/09/2010	N/A	--	Valid
Construction Noise Permit				
GW-RW0229-13	21/04/2012	20/10/2013	Location: Portion 3, 4 and 5	Valid
GW-RW0746-12	21/04/2012	20/10/2013	Location: Portion 3, 4 and 5	Valid

Table F.3 Summary of Environmental Licensing and Permit Status for Contract DC/2009/18

Permit/ A/C Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00010571-2011	13/10/2011	31/10/2016	Location: Portion 7A and 15A	Valid
Registered Chemical Waste Producer				
5213-269-C3689-01	8/9/2011	N/A	Site Area under the Project	Valid
Billing Account for Disposal of Construction Waste				
7013233	18/7/2011	N/A	N/A	Valid
Notification of Works Under APCO				
Ref: 332427	15/7/2011	N/A	N/A	N/A
Construction Noise Permit				
GW-RW0116-13	22/2/2013	21/8/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion C2)	Valid
GW-RW0283-13	13/5/2013	12/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Barging Point)	Valid
GW-RW0328-13	14/5/2013	12/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 3)	Valid
GW-RW0340-13	01/06/2013	30/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 7)	Valid
GW-RW0386-13	14/6/2013	13/12/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 3)	Valid

Table F.4 Summary of Environmental Licensing and Permit Status for Contract DC/2009/10

Reference Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00009245-2011	1/6/2011	30/6/2016	The application was approved on 1-6-2011.	Valid
WT00012151-2012	28/2/2012	28/2/2017	The application was approved on 28-2-2012.	Valid
WT00015128-2013	28/1/2013	31/1/2018	The application was approved on 28-1-2013.	Valid
Registered Chemical Waste Producer				
WPN5213-269-3584-01	N/A	N/A	The application was approved on 4-5-2011.	Valid
Billing Account for Disposal of Construction Waste				
CSW01444	16/3/2011	N/A	The application was approved on 16-3-2011.	Valid
Notification of Works Under APCO				
327427	N/A	N/A	Notice form received by EPD on 2-3-2011.	N/A
Construction Noise Permit for Percussive Pilling (driving steel pile)				
PP-RW0009-13	3/5/2013	1/2/2014	Location: Portion 3 and 8.	Valid
PP-RW0027-12	10/1/2013	1/10/2013	Location: Portion 4.	Valid
Construction Noise Permit for use of mechanical equipment outside permitted working hours				
GW-RW0971-12	25/12/2012	24/6/2013	Location: Portion 4	Expired on 24/6/2013

Reference Number	Valid Period		Details	Status
	From	To		
GW-RW0952-12	25/12/2012	24/6/2013	Location: Portion B	Expired on 24/6/2013
GW-RW0378-13	25/6/2013	24/12/2013	Location: Portion 4&5	Valid
GW-RW0381-13	25/6/2013	24/12/2013	Location: Portion B	Valid
GW-RW0053-13	1/2/2013	31/7/2013	Location: Portion 3 and 8	Valid
GW-RW0038-13	1/2/2013	31/7/2013	Location: Portion 6	Valid
Renewal of Admission Ticket for Disposal of Special Waste (Grit) at Landfills				
No. 10641	1/6/2013	30/11/2013	N/A	Valid

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: June 2013

a) Exceedance Report for 1-hr TSP (NIL)

b) Exceedance Report for 24-hr TSP (NIL)

c) Exceedance Report for Construction Noise (NIL)

No Exceedance of Action/Limit Level for normal working hours and restricted hours was recorded.

APPENDIX H
SITE AUDIT SUMMARY

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 03 June 2013

Follow-up Actions Taken after Previous Site Audit

Central Drop Shaft

- Two chemical drums and an oil drum which were placed beside the retained tree had been removed.

Stonecutters Island Production Shaft

- A chemical drum which was placed inside the noise enclosure had been removed.

North Point Drop Shaft

- A drip tray has been provided to the oil drum which was placed beside the chemical waste storage.

Observations and Recommendations

Stonecutters Island Production Shaft

- Three chemical drums placed beside the chemical waste storage were observed without drip tray. The Contractor was reminded to provide drip tray to prevent potential chemical leakage.

Wan Chai Production Shaft

- Access to the chemical waste storage was observed being blocked. The Contractor was reminded to keep the access to the chemical waste storage shelf clear.

Inspection date: 13 June 2013

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The chemical drums which were placed beside the chemical waste storage had been provided with drip tray.

Wan Chai Production Shaft

- Access to the chemical waste storage shelf had been cleared.

Observations and Recommendations

Stonecutters Island Production Shaft

- The chemical drums placed at the opposite of the chemical waste storage were observed without drip tray. The Contractor was reminded to provide drip tray to prevent potential chemical leakage.

Central Drop Shaft

- General refuse was observed not being stored in specified enclosed bins/compaction units. The Contractor was reminded to store the general refuse in enclosed bins/ compaction units, or reused if possible.

North Point Production Shaft

- Oil stains were observed on the floor near the chemicals storage area. The Contractor was reminded to remove the oil stains.

Inspection date: 20 June 2013

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The chemical drums placed at the opposite of the chemical waste storage had been provided with drip tray.

Central Drop Shaft

- General refuse had been disposed of from site as observed during the site inspection.

North Point Production Shaft

- Oil stains on the floor near the chemicals storage area had been removed.

Observations and Recommendations

Stonecutters Island Production Shaft

- Stagnant water was observed in the drip tray at the back of the noise enclosure. The Contractor was reminded to remove the stagnant water to ensure sufficient capacity of the drip tray to prevent chemical spillage.

Inspection date: 27 June 2013

Follow-up Actions Taken after Previous Site Audit

- No follow-up actions during this site audit.

Observations and Recommendations

Stonecutters Island Production Shaft

- Stagnant water was still observed in the drip tray at the back of the noise enclosure. The Contractor was further reminded to remove the stagnant water to ensure a sufficient capacity for the drip tray to prevent chemical spillage.
- Chemical drums were observed without drip tray at the entrance of the noise enclosure. The Contractor was reminded to provide drip tray for them to prevent potential chemical spillage.

North Point Production Shaft

- Stagnant water was observed in the drip tray at the opposite of the Wastewater Treatment System. The Contractor was reminded to remove the stagnant water to ensure a sufficient capacity for the drip tray to prevent chemical spillage.

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 Environmental site audits were conducted on 5th, 14th, 19th and 26th June 2013 for the Project. 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.

Implementation Status of Environmental Mitigation Measures

4.4 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1**.

Table 4.1 Observations of Site Audit

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	130605-O01	Stagnant water should be cleared to prevent mosquito breeding. (Portion 3)	Stagnant water is being cleaned up regularly.
	130605-R04	Accumulated slurry in U-channel should be regularly cleared. (Portion 7)	Accumulated slurry in U-channel was cleared by the contractor.
	130619-R01	Properly clear the stagnant water at Portion 7.	The stagnant water was reduced and swept away at Portion 7.
	130626-R01	The Oil stain was observed near the chemical containers at Portion 3. The Contractor was reminded to provide the drip tray to the chemical containers and clear the oil stain properly.	Drip tray was provided for the identified chemical containers.
	130626-R03	Properly clear the muddy ponding water at Portion3 and pump to the wastewater treatment facilities before discharging.	The ponding water was pumped to a designated sedimentation tank.
	130626-R05	The sediment tank should be provided in adequate capacity to discharge and make sure it is free silt and sediment at Portion 7.	The sediment tank was rectified and functioned properly, without identifiable silt and sediment.
Air Quality	130626-R02	The haul road should be sprayed with water to avoid the dust generation at Portion 3.	Water was sprayed on the haul road.
Waste/ Chemical Management	130605-O02	Oil stains should be cleared in Portion 3 and oily water should be disposed of as chemical waste.	Oil stains was cleared and disposed of as chemical waste
	130605-R03	C&D waste in Portion 7 should be regularly disposed of.	C&D waste was removed regularly.

	130614-R01	Drip tray hole should be sealed to avoid chemical spillage. (Portion 7)	The hole on the drip tray has been plugged.
	130619-R02	Provide chemical label and drip tray to chemical container at Portion 3.	The chemical container was removed and not observed at Portion 3.
	130626-R01	The Oil stain was observed near the chemical containers at Portion 3. The Contractor was reminded to provide the drip tray to the chemical containers and clear the oil stain properly.	Drip tray was provided for the identified chemical containers.
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A
Noise	130626-R04	The excavator should be turned off at Portion 3 when it is not used.	The idled excavator was turned off and the key removed.
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A

4.5 The summaries of site audits are attached in **Appendix G**.

4.6 Details of the implementation of mitigation measures are provided in the **Appendix J**.

Status of Environmental Licensing and Permitting

4.7 All permits/licenses obtained for the Contract DC/2009/18 are summarized in **Table 4.2**.

Table 4.2 Summary of Environmental Licensing and Permit Status for Contract DC/2009/18

Permit/ A/C Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00010571-2011	13/10/2011	31/10/2016	Location: Portion 7A and 15A	Valid
Registered Chemical Waste Producer				
5213-269-C3689-01	8/9/2011	N/A	Site Area under the Project	Valid
Billing Account for Disposal of Construction Waste				
7013233	18/7/2011	N/A	N/A	Valid
Notification of Works Under APCO				
Ref: 332427	15/7/2011	N/A	N/A	N/A
Construction Noise Permit				
GW-RW0116-13	22/2/2013	21/8/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion C2)	Valid
GW-RW0283-13	13/5/2013	12/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Barging Point)	Valid
GW-RW0328-13	14/5/2013	12/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 3)	Valid
GW-RW0340-13	01/06/2013	30/11/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 7)	Valid
GW-RW0386-13	14/6/2013	13/12/2013	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 3)	Valid

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 Environmental site audits were conducted on 6, 13, 20 and 27 June 2013 for the Project. 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.

4.4 The summaries of site audits are attached in **Appendix C**.

Implementation Status of Environmental Mitigation Measures

4.5 Details of the implementation of mitigation measures are provided in the **Appendix F.**

4.6 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1.**

Table 4.1 Observations of Site Audit

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	130627-R01	Excavated materials should be covered by tarpaulin or bunded to avoid dust generation and runoff. (Portion C7)	Excavated materials were completely covered by tarpaulin.
	130627-O02	The container tray under the machine in the building should be cleared of stagnant water to prevent mosquito breeding. (Portion 3)	Stagnant water was cleared in the container tray.
	130627-O03	Oily water was observed in the drip tray, the contractor was reminded to clear it to maintain adequate capacity. (Portion 5)	Oily water was still observed accumulating in the drip tray during 130704 site inspection. The oily water was cleared during 130711 site inspection.
Air Quality	130613-R01	Exposed stockpile on the rooftop should be properly covered by tarpaulin to reduce dust generation. (Portion 4)	The stockpile was removed by the contractor.
	130613-O03	To clear the dusty materials at the surrounding of Portion 4 to reduce dust generation.	The dusty materials were cleared by the contractor.
	130620-R01	Exposed stockpile on the rooftop should be properly covered to reduce dust generation. (Between Portion 3 and 4; Portion 5)	The stockpile was removed by the contractor (Between Portion 3 and 4). The stockpile was covered by the contractor to reduce dust emission. (Portion 5)
	130627-R01	Excavated materials should be covered by tarpaulin or bunded to avoid dust generation and runoff. (Portion C7)	Excavated materials were completely covered by tarpaulin.

Waste/ Chemical Management	130606-R01	C&D waste should be properly sorted before disposal. (Portion 3)	C&D waster is properly disposed according to the contractor.
	130613-R02	Used chemical containers and general refuse should be properly stored and disposed of. (Portion 4 & 5)	Chemical containers and general refuse were disposed.
	130620-O02	Oil stained soil should be cleared as chemical waste. (Between Portion 3 and 4)	Oil stained soil was disposed properly according to the contractor.
	130627-O03	Oily water was observed in the drip tray, the contractor was reminded to clear it to maintain adequate capacity. (Portion 5)	Oily water was still observed accumulating in the drip tray during 130704 site inspection. The oily water was cleared during 130711 site inspection.
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

Review of Environmental Monitoring Procedures

4.7 The monitoring works conducted by the monitoring teams of Contracts DC/2007/23 and DC/2009/10. The monitoring procedures were reviewed by their respective ETs.

Status of Environmental Licensing and Permitting

4.8 All permits/licenses obtained for the Contract DC/2009/17 are summarized in **Table 4.2**.

Table 4.2 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00007763-2010	22/10/2010	31/10/2015	Location: Portion 5	Valid
WT00007921-2010	23/11/2010	30/11/2015	Location: Portion C	Valid
WT00007982-2010	3/12/2010	31/12/2015	Location: Portion 3&4	Valid
Registered Chemical Waste Producer				
5213-239-C3388-02	19/10/2010	N/A	Major chemical waste types are: Spent battery, waste mechanical oil and spent lubricant.	Valid
Billing Account for Disposal of Construction Waste				
A/C No.7011408	15/09/2010	N/A	N/A	Valid
Notification of Works Under APCO				
Ref:321235	7/09/2010	N/A	--	Valid
Construction Noise Permit				
GW-RW0229-13	21/04/2012	20/10/2013	Location: Portion 3, 4 and 5	Valid
GW-RW0746-12	21/04/2012	20/10/2013	Location: Portion 3, 4 and 5	Valid

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 Environmental site audits were conducted on 7, 14, 20 and 28 June 2013 for the Project. 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.

4.4 The summaries of site audits are attached in **Appendix G**.

Implementation Status of Environmental Mitigation Measures

4.5 Details of the implementation of mitigation measures are provided in the **Appendix J**.

4.6 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1**.

Table 4.1 Observations of Site Audit

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	130614-O01	Excavated materials should be bunded to form a confine area to avoid runoff. (Portion 4)	Bund is provided to confine the area.
	130620-R01	Stagnant water in Portion 4 should be cleared.	Water pump was in use during inspection to clear the water.
	130628-O03	Stagnant water was observed inside the building, the contractor was reminded to clear it to prevent mosquito breeding. (Portion 4)	Stagnant water was cleared inside the building.
Air Quality	130628-R01	Water spraying should be provided when drilling to reduce dust generation. (Portion 4)	Drilling activities wasn't observed during site inspection.
	130628-R02	Exposed stockpile was observed improperly covered, the contractor was reminded to use a proper tarpaulin to cover it. (Portion 4)	Exposed stockpile was covered entirely.
Waste/ Chemical Management	130607-R01	Accumulated refuse was observed in Portion 3. The contractor was reminded to dispose of it regularly.	Item was found outstanding during 130614 site inspection. Accumulated refuse was clear during 130620 site inspection.
	130614-R01	Accumulated refuse was observed in Portion 4. The contractor was reminded to dispose of it regularly.	Accumulated refuse was disposed of regularly.

	130628-O04	The storage of C&D material storage area was observed beyond full capacity, the contractor was reminded to dispose of it regularly. (Portion 3)	C&D materials are disposed of properly.
Landscape and Visual	N/A	There was no observation in the reporting month.	N/A
Noise	N/A	There was no observation in the reporting month.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting month.	N/A

Review of Environmental Monitoring Procedures

4.7 The monitoring works conducted by the monitoring teams of Contracts DC/2007/23, and DC/2009/10. The monitoring procedures were reviewed by their respective ETs.

Status of Environmental Licensing and Permitting

4.8 All permits/licenses obtained for the Contract DC/2009/10 are summarized in **Table 4.2**.

Table 4.2 Summary of Environmental Licensing and Permit Status for Contract DC/2009/10

Reference Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00009245-2011	1/6/2011	30/6/2016	The application was approved on 1-6-2011.	Valid
WT00012151-2012	28/2/2012	28/2/2017	The application was approved on 28-2-2012.	Valid
WT00015128-2013	28/1/2013	31/1/2018	The application was approved on 28-1-2013.	Valid
Registered Chemical Waste Producer				
WPN5213-269-3584-01	N/A	N/A	The application was approved on 4-5-2011.	Valid
Billing Account for Disposal of Construction Waste				
CSW01444	16/3/2011	N/A	The application was approved on 16-3-2011.	Valid
Notification of Works Under APCO				
327427	N/A	N/A	Notice form received by EPD on 2-3-2011.	N/A
Construction Noise Permit for Percussive Pilling (driving steel pile)				
PP-RW0009-13	3/5/2013	1/2/2014	Location: Portion 3 and 8.	Valid
PP-RW0027-12	10/1/2013	1/10/2013	Location: Portion 4.	Valid
Construction Noise Permit for use of mechanical equipment outside permitted working hours				
GW-RW0971-12	25/12/2012	24/6/2013	Location: Portion 4	Expired on 24/6/2013
GW-RW0952-12	25/12/2012	24/6/2013	Location: Portion B	Expired on 24/6/2013

APPENDIX I
EVENT ACTION PLANS

APPENDIX I – Event / Action Plans

Table I-1 Event / Action Plan For Air Quality

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

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring			
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate

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

Table I-2 Event / Action Plan For Construction Noise

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

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring		until the exceedance is abated	the ER until the exceedance is abated

APPENDIX J
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

APPENDIX J IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
A	**Air Quality**					
3.74	Skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	^	^	^	^
	Vehicle washing facilities should be provided at every vehicle exit point.			^	^	^
	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	N/A	N/A
	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.			^	*	*
	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.			*	*	^
	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.			^	^	^
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is			^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
	the recommended limit.					
	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.			^	^	^
	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.			^	^	^
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		^	^	^
B	**Airborne Noise**					
4.56–4.61	Use of quiet PME, movable barriers and acoustic mats.	All construction sites	^	^	^	^
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.		^	^	^	^
	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		^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
	NSRs.					
	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^	^	^	^
C	**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	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.		^	^	^	*
6.377	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste		^	^	^	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
	Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.					
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.		^	*	^	^
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.		<>	^	^	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
6.380	Construction Works in Close Proximity of Storm Drains or Seafront 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.	All construction sites	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
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	^	^	^	^
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	^	^	^	*
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;		^	*	^	*
	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.			^	*	*
	Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.			^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
	Any unused chemicals or those with remaining functional capacity shall be recycled.			^	^	^
	Proper storage and site practices to minimise 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.		^	^	^	^
	Training of site personnel in proper waste management and chemical waste handling procedures.			^	^	^
	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.			^	^	^
	Provision of sufficient waste disposal points and regular collection of waste.			^	*	^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil 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	^	N/A	^	^
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.		^	^	^	^
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.		^	*	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
9.135	The recyclable component of the municipal waste generated by the workforce, such as aluminium 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.		^	^	^	*
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.		^	*	^	*
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		^	N/A	N/A	N/A

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
	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.					
E	**Terrestrial Ecology**					
10.94	To implement effective noise mitigation measures as recommended in Section 4 of EIA.	All construction sites	^	N/A	N/A	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.		^	^	^	^
10.96	Fences/hoardings should be erected and installed along the boundary of the works areas.		^	^	^	^
10.97	Standard good site practices as suggested in Section 10 of EIA should be implemented.		^	N/A	N/A	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.		^	^	^	^
F	**Landscape and Visual**					
Table 13.7	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	All construction sites	^	^	^	^
	Existing trees to be retained on site should be carefully protected during construction.			^	^	^
	Trees unavoidably affected by the works should be transplanted where practical.			^	^	^
	Compensatory tree planting should be provided to compensate for felled trees.			^	^	^
	Control of night-time lighting.			^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract			
			DC/2007/23	DC/2009/17	DC/2009/10	DC/2009/18
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.			N/A	N/A	N/A
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	^	^	^	^
H	**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	^	^	^	^
I	**Cultural Heritage**					
Tables 15.8 - 15.11	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in EM&A Manual Tables 15.8, 15.9, 15.10 and 15.11	NA. Vibration monitoring has not been launched during the reporting period	N/A	N/A	^

Remarks:	^ Compliance of mitigation measure;
	<> Compliance of mitigation measure but need improvement';
	N/A Not Applicable;
	* Recommendation was made during site audit but improved/rectified by the contractor.
	@ partially implemented

	X	Non-compliance of mitigation measure;
	•	Non-compliance but rectified by the contractor;
	#	Recommendation was made during site audit and to be improved / rectified by the contractor.

APPENDIX K
COMPLAINT LOG

APPENDIX K – COMPLAINT LOG

Reporting Month: June 2013

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

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

APPENDIX L
CONSTRUCTION PROGRAMME

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp
HATS Stage 2A - Contract DC/2007/23					
Stonecutters Island STW Production Shaft					
Preliminaries Works					
SCPS10070	SCPS: Construct/Install Blast Protection	2	22SEP10	24SEP10	0
SCPS10075	SCPS: Site Inspection from Mines	1	25SEP10	25SEP10	0
SCPS10080	SCPS: Issue Blasting Permit	1	27SEP10	27SEP10	0
EBS, Env. & Geotechnical Instrumentations					
Markers/UMP's/Others(Same note as Piez.)					
SCPS0391	SCPS: Install GS Markers (17 Nos.)	74	01SEP09A	01FEB10	85
SCPS0393	SCPS: JointSurvey&EstablishBaseline Readings GSM	14	02FEB10	20FEB10	0
Piezometers(NearbyPTWorPScovered inthisInstalln)					
SCPS0375	SCPS: BH907 Piezometer Baseline Establishment	26	10NOV09A	23JAN10	85
SCPS0381	SCPS: BH908 Piezometer Baseline Establishment	26	10NOV09A	27JAN10	73
SCPS0387	SCPS: BH906 Piezometer Baseline Establishment	26	15JAN10A	06FEB10	40
Electrical & Mechanical Installations					
SCPS0620	SCPS: Installation Works for 11KV Application	60	08APR10	18JUN10	0
SCPS0625	SCPS: 11 KV Connection & Power On	4	19JUN10	23JUN10	0
Marine Dumping Permit					
SCPS0370	SCPS: Request for Disposal Site&Get Permit	24	02JAN10A	05FEB10	38
Diaphragm Wall					
SCPS0279	SCPS: Excavate 3rd Panel to Formation Level	12	16JAN10A	20JAN10	92
SCPS0281	SCPS: 3rd Panel Desanding & Preparation Works	4	21JAN10	25JAN10	0
SCPS0282	SCPS: Grouting Works Phase 1	45	21JAN10	17MAR10	0
SCPS0283	SCPS: 3rd Panel Rebar Cage Installation	3	26JAN10	28JAN10	0
SCPS0285	SCPS: 3rd Panel Concreting Works	1	29JAN10	29JAN10	0
SCPS0287	SCPS: Excavate 4th Panel to Formation Level	23	30JAN10	01MAR10	0
SCPS0289	SCPS: 4th Panel Desanding & Preparation Works	9	02MAR10	11MAR10	0
SCPS0291	SCPS: 4th Panel Rebar Cage Installation	6	12MAR10	18MAR10	0
SCPS0292	SCPS: Grouting Works Phase 2	45	18MAR10	11MAY10	0
SCPS0293	SCPS: 4th Panel Concreting Works	1	19MAR10	19MAR10	0
SCPS0297	SCPS: Excavate 5th Panel to Formation Level	8	20MAR10	29MAR10	0
SCPS0299	SCPS: 5th Panel Desanding & Preparation Works	3	30MAR10	01APR10	0
SCPS0301	SCPS: 5th Panel Rebar Cage Installation	2	02APR10	03APR10	0
SCPS0303	SCPS: 5th Panel Concreting Works	1	06APR10	06APR10	0
SCPS0307	SCPS: Excavate 6th Panel to Formation Level	23	07APR10	04MAY10	0
SCPS0309	SCPS: 6th Panel Desanding & Preparation Works	9	05MAY10	14MAY10	0
SCPS0310	SCPS: Grouting Works Phase 3	50	12MAY10	10JUL10	0
SCPS0311	SCPS: 6th Panel Rebar Cage Installation	6	15MAY10	21MAY10	0
SCPS0313	SCPS: 6th Panel Concreting Works	1	22MAY10	22MAY10	0
SCPS0317	SCPS: Excavate 7th Panel to Formation Level	8	24MAY10	01JUN10	0
SCPS0319	SCPS: 7th Panel Desanding & Preparation Works	3	02JUN10	04JUN10	0
SCPS0321	SCPS: 7th Panel Rebar Cage Installation	2	05JUN10	07JUN10	0
SCPS0323	SCPS: 7th Panel Concreting Works	1	08JUN10	08JUN10	0
SCPS0327	SCPS: Excavate 8th Panel to Formation Level	8	09JUN10	18JUN10	0
SCPS0329	SCPS: 8th Panel Desanding & Preparation Works	3	19JUN10	22JUN10	0
SCPS0331	SCPS: 8th Panel Rebar Cage Installation	2	23JUN10	24JUN10	0
SCPS0333	SCPS: 8th Panel Concreting Works	1	25JUN10	25JUN10	0
SCPS0335	SCPS: Install Dewatering Wells for Pump-test	12	05JUL10	17JUL10	0
SCPS0337	SCPS: Pumping Test	6	19JUL10	24JUL10	0
SCPS0338	SCPS: Submission of Pumping Test Report	6	26JUL10	31JUL10	0
SCPS0341	SCPS: Demobilization	6	26JUL10	31JUL10	0
Shaft Excavation					
SCPS0500	SCPS: Construct Capping Beam & Shaft Collar	12	26JUL10	07AUG10	0
SCPS0510	SCPS: Initial Excavation of Shaft (7m)	4	09AUG10	12AUG10	0
SCPS0520	SCPS: Set-Up Equipment for Shaft Sink	12	13AUG10	26AUG10	0
SCPS0525	SCPS: Erect Noise Enclosure at Shaft Top	12	13AUG10	26AUG10	0
SCPS0530	SCPS: Excavate Soil & Ring Beams (50m)	22	27AUG10	21SEP10	0
SCPS0575	SCPS: Probe, Grout, D&B Rock, Muck Out (87m)	100	28SEP10	26JAN11	0
SCPS0640	SCPS: Construct Sump at Shaft Bottom	2	27JAN11	28JAN11	0
SCPS0665	SCPS: Erect Tunnel Hoist & Muck Out System	10	29JAN11	12FEB11	0
Backfill, Reinstatement & Landscaping					
SCPS0910	SCPS: Backfill Shaft (20%)	8	12SEP13	21SEP13	0
SCPS0920	SCPS: Backfill Shaft (40%)	8	23SEP13	02OCT13	0
SCPS0930	SCPS: Backfill Shaft (60%)	8	03OCT13	11OCT13	0
SCPS0940	SCPS: Backfill Shaft (80%)	8	12OCT13	22OCT13	0
SCPS0950	SCPS: Backfill Shaft (100%)	8	23OCT13	31OCT13	0
SCPS0960	SCPS: Reinstatement Around PS Area	12	01NOV13	14NOV13	0
SCPS0970	SCPS: Demobilise Clear Area	6	15NOV13	21NOV13	0
SCPS0975	SCPS: Complete All Works at SCI PS (KD-11)	0		21NOV13	0
SCPS0980	SCPS: Landscaping & Planting Works	60	22NOV13*	20JAN14	0
SCPS0990	SCPS: Period of Establishment Works	360	21JAN14	15JAN15	0
SCPS1000	SCPS: End of Establishment Period	0		15JAN15	0

Start Date	31JUL09
Finish Date	15JAN15
Data Date	20JAN10
Run Date	01FEB10 10:42

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Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 1 of 1

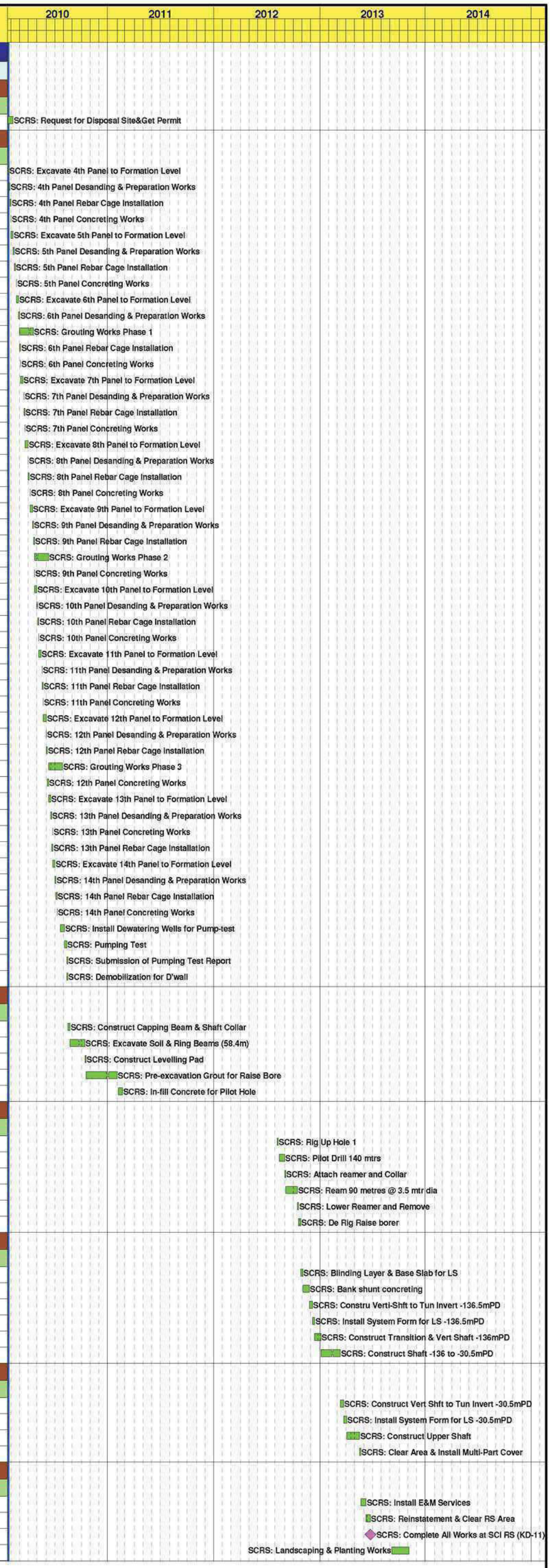
Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island
Programme

Annex G8 Construction Programme for the Project

Gammon

Date	Revision	Checked	Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp
HATS Stage 2A - Contract DC/2007/23					
Stonecutters Island STW Riser Shaft					
Marine Dumping Permit					
SCRS0370	SCRS: Request for Disposal Site&Get Permit	24	05JAN10A	06FEB10	33
Diaphragm Wall					
SCRS0287	SCRS: Excavate 4th Panel to Formation Level	7	09JAN10A	23JAN10	50
SCRS0289	SCRS: 4th Panel Desanding & Preparation Works	3	25JAN10	27JAN10	0
SCRS0291	SCRS: 4th Panel Rebar Cage Installation	2	28JAN10	29JAN10	0
SCRS0293	SCRS: 4th Panel Concreting Works	1	30JAN10	30JAN10	0
SCRS0295	SCRS: Excavate 5th Panel to Formation Level	7	01FEB10	08FEB10	0
SCRS0297	SCRS: 5th Panel Desanding & Preparation Works	3	09FEB10	11FEB10	0
SCRS0299	SCRS: 5th Panel Rebar Cage Installation	2	12FEB10	13FEB10	0
SCRS0301	SCRS: 5th Panel Concreting Works	1	18FEB10	18FEB10	0
SCRS0303	SCRS: Excavate 6th Panel to Formation Level	7	19FEB10	26FEB10	0
SCRS0305	SCRS: 6th Panel Desanding & Preparation Works	3	27FEB10	02MAR10	0
SCRS0306	SCRS: Grouting Works Phase 1	40	03MAR10	19APR10	0
SCRS0307	SCRS: 6th Panel Rebar Cage Installation	2	03MAR10	04MAR10	0
SCRS0309	SCRS: 6th Panel Concreting Works	1	05MAR10	05MAR10	0
SCRS0311	SCRS: Excavate 7th Panel to Formation Level	7	06MAR10	13MAR10	0
SCRS0313	SCRS: 7th Panel Desanding & Preparation Works	3	15MAR10	17MAR10	0
SCRS0315	SCRS: 7th Panel Rebar Cage Installation	2	18MAR10	19MAR10	0
SCRS0317	SCRS: 7th Panel Concreting Works	1	20MAR10	20MAR10	0
SCRS0319	SCRS: Excavate 8th Panel to Formation Level	7	22MAR10	29MAR10	0
SCRS0321	SCRS: 8th Panel Desanding & Preparation Works	3	30MAR10	01APR10	0
SCRS0323	SCRS: 8th Panel Rebar Cage Installation	2	02APR10	03APR10	0
SCRS0325	SCRS: 8th Panel Concreting Works	1	06APR10	06APR10	0
SCRS0327	SCRS: Excavate 9th Panel to Formation Level	7	07APR10	14APR10	0
SCRS0329	SCRS: 9th Panel Desanding & Preparation Works	3	15APR10	17APR10	0
SCRS0331	SCRS: 9th Panel Rebar Cage Installation	2	19APR10	20APR10	0
SCRS0332	SCRS: Grouting Works Phase 2	40	21APR10	07JUN10	0
SCRS0333	SCRS: 9th Panel Concreting Works	1	21APR10	21APR10	0
SCRS0335	SCRS: Excavate 10th Panel to Formation Level	7	22APR10	29APR10	0
SCRS0337	SCRS: 10th Panel Desanding & Preparation Works	3	30APR10	04MAY10	0
SCRS0339	SCRS: 10th Panel Rebar Cage Installation	2	05MAY10	06MAY10	0
SCRS0341	SCRS: 10th Panel Concreting Works	1	07MAY10	07MAY10	0
SCRS0343	SCRS: Excavate 11th Panel to Formation Level	7	08MAY10	15MAY10	0
SCRS0345	SCRS: 11th Panel Desanding & Preparation Works	3	17MAY10	19MAY10	0
SCRS0347	SCRS: 11th Panel Rebar Cage Installation	2	20MAY10	21MAY10	0
SCRS0349	SCRS: 11th Panel Concreting Works	1	22MAY10	22MAY10	0
SCRS0351	SCRS: Excavate 12th Panel to Formation Level	7	24MAY10	31MAY10	0
SCRS0353	SCRS: 12th Panel Desanding & Preparation Works	3	01JUN10	03JUN10	0
SCRS0355	SCRS: 12th Panel Rebar Cage Installation	2	04JUN10	05JUN10	0
SCRS0356	SCRS: Grouting Works Phase 3	40	08JUN10	26JUL10	0
SCRS0357	SCRS: 12th Panel Concreting Works	1	07JUN10	07JUN10	0
SCRS0359	SCRS: Excavate 13th Panel to Formation Level	7	08JUN10	15JUN10	0
SCRS0361	SCRS: 13th Panel Desanding & Preparation Works	3	17JUN10	19JUN10	0
SCRS0365	SCRS: 13th Panel Concreting Works	1	23JUN10	23JUN10	0
SCRS0366	SCRS: 13th Panel Rebar Cage Installation	2	21JUN10	22JUN10	0
SCRS0367	SCRS: Excavate 14th Panel to Formation Level	7	24JUN10	02JUL10	0
SCRS0369	SCRS: 14th Panel Desanding & Preparation Works	3	03JUL10	06JUL10	0
SCRS0371	SCRS: 14th Panel Rebar Cage Installation	2	07JUL10	08JUL10	0
SCRS0373	SCRS: 14th Panel Concreting Works	1	09JUL10	09JUL10	0
SCRS0380	SCRS: Install Dewatering Wells for Pump-test	12	20JUL10	02AUG10	0
SCRS0390	SCRS: Pumping Test	6	03AUG10	09AUG10	0
SCRS0392	SCRS: Submission of Pumping Test Report	6	10AUG10	16AUG10	0
SCRS0394	SCRS: Demobilization for D'wall	6	10AUG10	16AUG10	0
Shaft Excavation					
SCRS0400	SCRS: Construct Capping Beam & Shaft Collar	6	17AUG10	23AUG10	0
SCRS0410	SCRS: Excavate Soil & Ring Beams (58.4m)	42	24AUG10	13OCT10	0
SCRS0420	SCRS: Construct Levelling Pad	3	14OCT10	18OCT10	0
SCRS0430	SCRS: Pre-excavation Grout for Raise Bore	90	19OCT10	02FEB11	0
SCRS0440	SCRS: In-fill Concrete for Pilot Hole	12	07FEB11	19FEB11	0
Raised Boring					
SCRS0700	SCRS: Rig Up Hole 1	5	07AUG12	11AUG12	0
SCRS0710	SCRS: Pilot Drill 140 mtrs	16	13AUG12	30AUG12	0
SCRS0720	SCRS: Attach reamer and Collar	3	31AUG12	03SEP12	0
SCRS0730	SCRS: Ream 90 metres @ 3.5 mtr dia	35	04SEP12	16OCT12	0
SCRS0740	SCRS: Lower Reamer and Remove	3	17OCT12	19OCT12	0
SCRS0750	SCRS: De Rig Raise borer	5	20OCT12	26OCT12	0
Lower Shaft Construction					
SCRS0835	SCRS: Blinding Layer & Base Slab for LS	6	27OCT12	02NOV12	0
SCRS0840	SCRS: Bank shunt concreting	18	03NOV12	23NOV12	0
SCRS0875	SCRS: Constru Verti-Shft to Tun Invert -136.5mPD	9	24NOV12	04DEC12	0
SCRS0885	SCRS: Install System Form for LS -136.5mPD	9	05DEC12	14DEC12	0
SCRS0935	SCRS: Construct Transition & Vert Shaft -136mPD	15	15DEC12	03JAN13	0
SCRS0940	SCRS: Construct Shaft -136 to -30.5mPD	55	04JAN13	12MAR13	0
Upper Shaft Construction					
SCRS0975	SCRS: Construct Vert Shft to Tun Invert -30.5mPD	9	13MAR13	22MAR13	0
SCRS0995	SCRS: Install System Form for LS -30.5mPD	9	23MAR13	02APR13	0
SCRS1045	SCRS: Construct Upper Shaft	36	03APR13	16MAY13	0
SCRS1065	SCRS: Clear Area & Install Multi-Part Cover	3	17MAY13	20MAY13	0
Miscellaneous Works					
SCRS2010	SCRS: Install E&M Services	18	21MAY13	10JUN13	0
SCRS2020	SCRS: Reinstatement & Clear RS Area	12	11JUN13	25JUN13	0
SCRS2025	SCRS: Complete All Works at SCI RS (KD-11)	0		25JUN13	0
SCRS2030	SCRS: Landscaping & Planting Works	60	08SEP13*	06NOV13	0



Start Date	31JUL09
Finish Date	15JAN15
Data Date	20JAN10
Run Date	01FEB10 10:50

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Critical Activity

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WPU7 Sheet 1 of 2

Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme

Annex G8 Construction Programme for the Project

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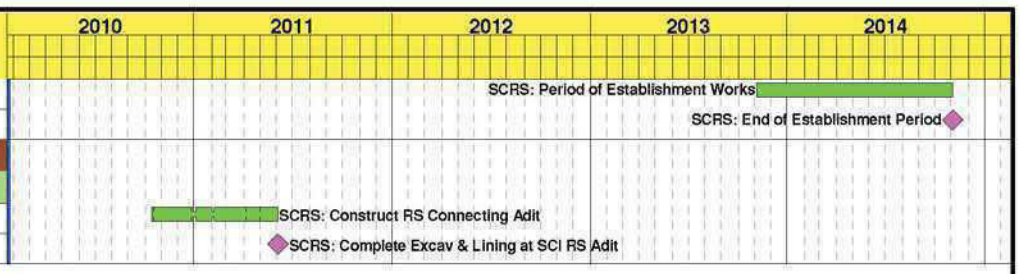
Date	Revision	Checked	Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp
SCRS2060	SCRS: Period of Establishment Works	360	07NOV13	01NOV14	0
SCRS2070	SCRS: End of Establishment Period	0		01NOV14	0
Connecting Adit					
SCRS2040	SCRS: Construct RS Connecting Adit	192	14OCT10	03JUN11	0
SCRS2050	SCRS: Complete Excav & Lining at SCI RS Adit	0		03JUN11	0



Start Date	31JUL09
Finish Date	15JAN15
Data Date	20JAN10
Run Date	01FEB10 10:50

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Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island
Programme

Annex G8 Construction Programme for the Project

Gammon

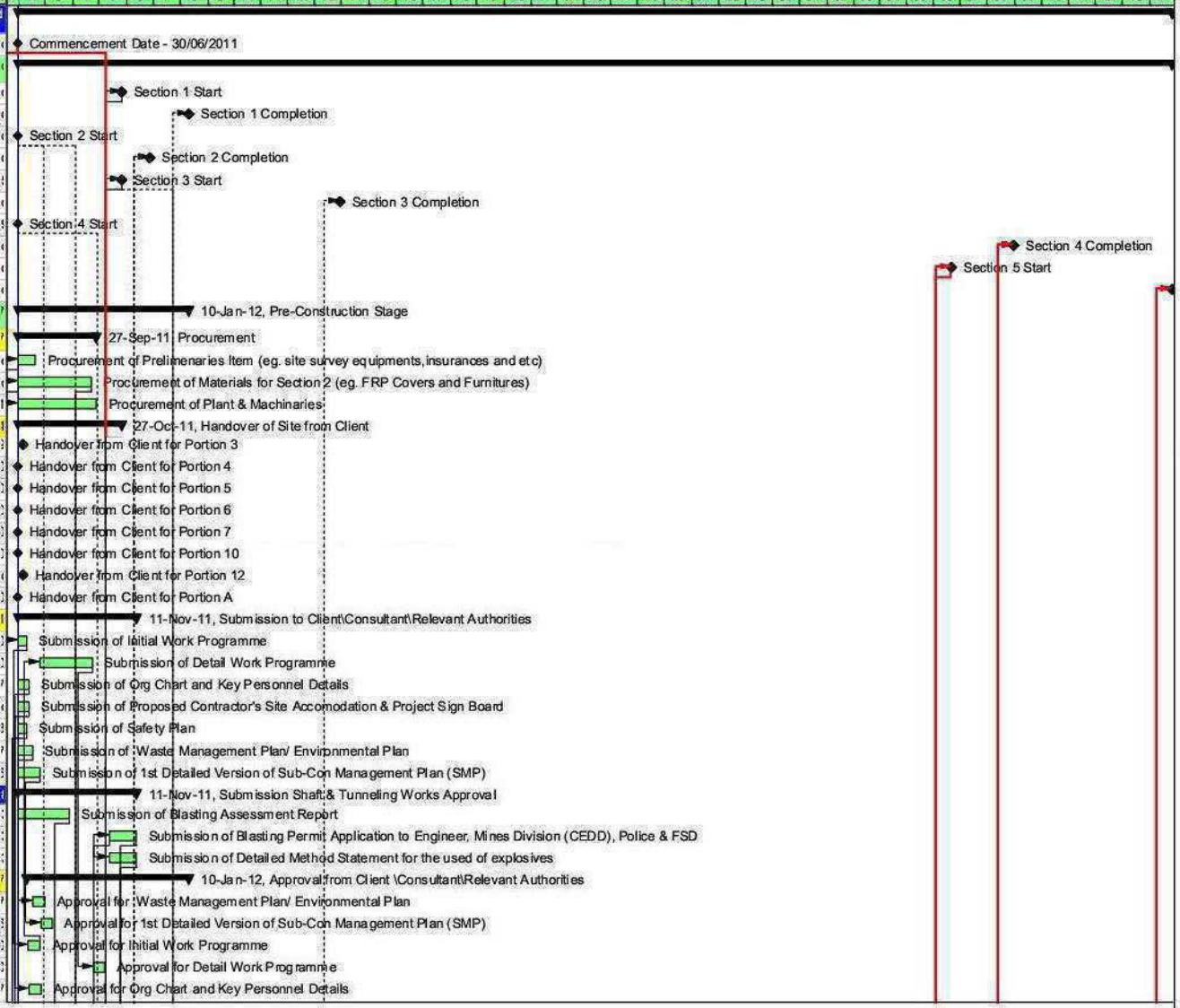
Date	Revision	Checked	Approved

Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
Harbour Area Treatment Scheme Stage 2	1263d	30-Jun-11	26-Jan-15
Commencement Date - 30/06/2011	0d	30-Jun-11	
Sectional Completion Milestones	1263d	30-Jun-11	26-Jan-15
Section 1 Start	0d	27-Oct-11	
Section 1 Completion	0d		10-Jan-12*
Section 2 Start	0d	30-Jun-11*	
Section 2 Completion	0d		26-Nov-11*
Section 3 Start	0d	27-Oct-11	
Section 3 Completion	0d		28-Jun-12*
Section 4 Start	0d	30-Jun-11	
Section 4 Completion	0d		30-Jul-14*
Section 5 Start	0d	22-May-14	
Section 5 Completion	0d		26-Jan-15*
Pre-Construction Stage	188d	30-Jun-11	10-Jan-12
Procurement	87d	30-Jun-11	27-Sep-11
Procurement of Prelimenaries Item (eg. site survey eq	21d	30-Jun-11	20-Jul-11
Procurement of Materials for Section 2 (eg. FRP Cove	84d	30-Jun-11	21-Sep-11
Procurement of Plant & Machinaries	90d	30-Jun-11	27-Sep-11
Handover of Site from Client	115d	30-Jun-11	27-Oct-11
Handover from Client for Portion 3	0d	07-Jul-11*	
Handover from Client for Portion 4	0d	30-Jun-11	
Handover from Client for Portion 5	0d	30-Jun-11	
Handover from Client for Portion 6	0d	30-Jun-11	
Handover from Client for Portion 7	0d	30-Jun-11	
Handover from Client for Portion 10	0d	30-Jun-11	
Handover from Client for Portion 12	0d	07-Jul-11*	
Handover from Client for Portion A	0d	30-Jun-11*	
Submission to Client\Consultant\Relevant Author	130d	30-Jun-11	11-Nov-11
Submission of Initial Work Programme	12d	30-Jun-11	11-Jul-11
Submission of Detail Work Programme	60d	26-Jul-11	23-Sep-11
Submission of Org Chart and Key Personnel Details	14d	30-Jun-11	13-Jul-11
Submission of Proposed Contractor's Site Accomodati	14d	30-Jun-11	13-Jul-11
Submission of Safety Plan	11d	30-Jun-11	10-Jul-11
Submission of Waste Management Plan/ Environmen	18d	30-Jun-11	17-Jul-11
Submission of 1st Detailed Version of Sub-Con Manag	27d	30-Jun-11	26-Jul-11
Submission Shaft & Tunneling Works Approval	130d	30-Jun-11	11-Nov-11
Submission of Blasting Assessment Report	60d	30-Jun-11	28-Aug-11
Submission of Blasting Permit Application to Engine	30d	13-Oct-11	11-Nov-11
Submission of Detailed Method Statement for the us	30d	13-Oct-11	11-Nov-11
Approval from Client \Consultant\Relevant Autho	177d	11-Jul-11	10-Jan-12
Approval for Waste Management Plan/ Environmental	14d	18-Jul-11	31-Jul-11
Approval for 1st Detailed Version of Sub-Con Manage	14d	27-Jul-11	09-Aug-11
Approval for Initial Work Programme	14d	12-Jul-11	25-Jul-11
Approval for Detail Work Programme	14d	24-Sep-11	07-Oct-11
Approval for Org Chart and Key Personnel Details	14d	14-Jul-11	27-Jul-11



Actual Work ◆ Milestone
Remaining Work ▼ Summary
Critical Work

DC/2009/18 - HARBOUR AREA TREATMENT SCHEME STAGE 2A - Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities.

INITIAL WORK PROGRAMME, REV.0 (1st Submission)

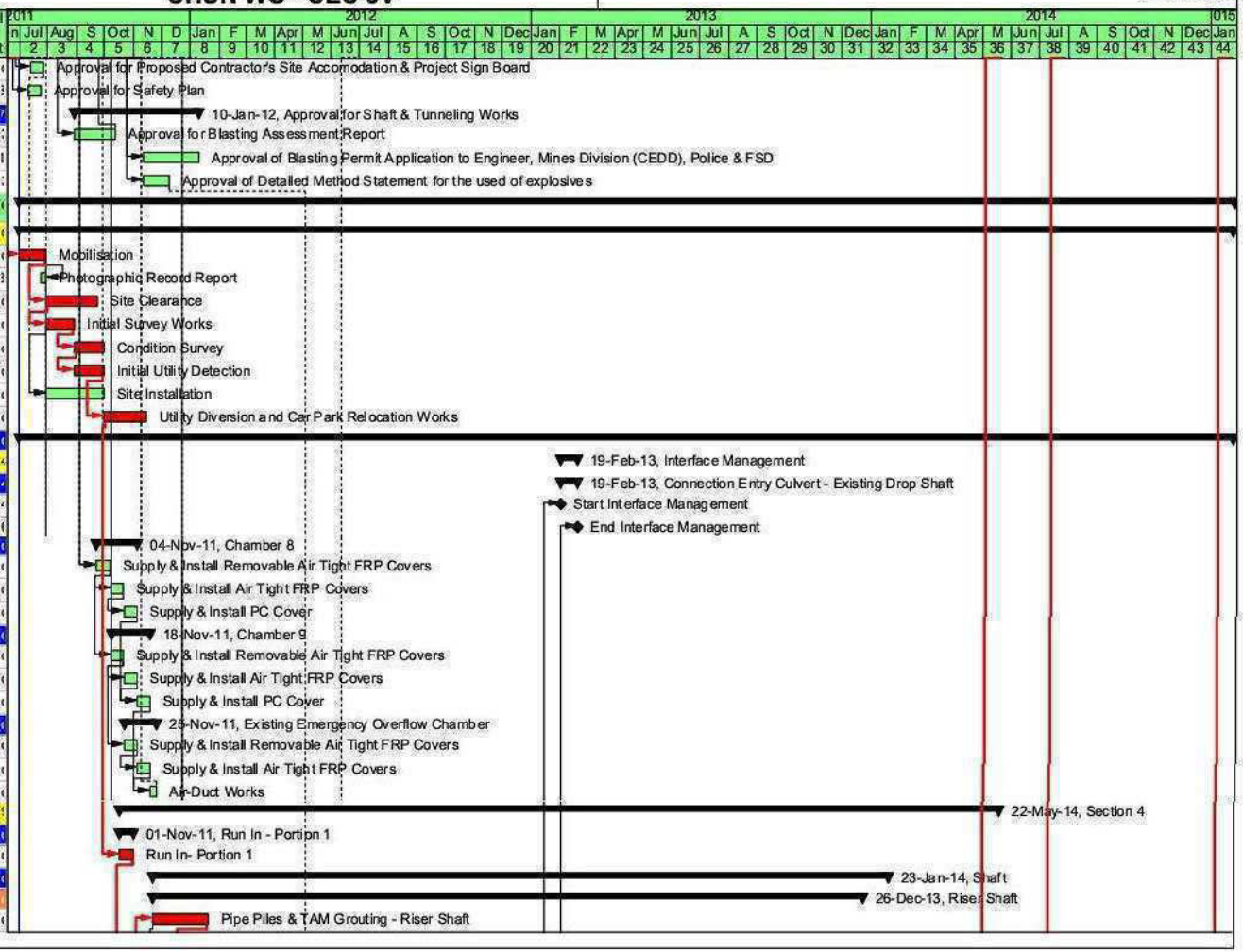
Date	Revision	Checked	Approved
11-Jul-11	Initial Work Programme		

Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
Approval for Proposed Contractor's Site Accomodation	14d	14-Jul-11	27-Jul-11
Approval for Safety Plan	14d	11-Jul-11	24-Jul-11
Approval for Shaft & Tunneling Works	128d	29-Aug-11	10-Jan-12
Approval for Blasting Assessment Report	45d	29-Aug-11	12-Oct-11
Approval of Blasting Permit Application to Engineer,	60d	12-Nov-11	10-Jan-12
Approval of Detailed Method Statement for the used	28d	12-Nov-11	09-Dec-11
Construction Stage	1263d	30-Jun-11	26-Jan-15
Preliminaries	1262d	30-Jun-11	24-Jan-15
Mobilisation	24d	30-Jun-11	30-Jul-11
Photographic Record Report	5d	25-Jul-11	30-Jul-11
Site Clearance	42d	30-Jul-11	23-Sep-11
Initial Survey Works	24d	30-Jul-11	30-Aug-11
Condition Survey	24d	30-Aug-11	30-Sep-11
Initial Utility Detection	24d	30-Aug-11	30-Sep-11
Site Installation	48d	30-Jul-11	30-Sep-11
Utility Diversion and Car Park Relocation Works	36d	30-Sep-11	14-Nov-11
Reccuring Items	1262d	30-Jun-11	24-Jan-15
Interface Management	17d	01-Feb-13	19-Feb-13
Connection Entry Culvert - Existing Drop Shaft	17d	01-Feb-13	19-Feb-13
Start Interface Management	0d	01-Feb-13	
End Interface Management	0d		19-Feb-13
Chamber 8	42d	22-Sep-11	04-Nov-11
Supply & Install Removable Air Tight FRP Covers	12d	22-Sep-11	07-Oct-11
Supply & Install Air Tight FRP Covers	12d	08-Oct-11	21-Oct-11
Supply & Install PC Cover	12d	22-Oct-11	04-Nov-11
Chamber 9	41d	08-Oct-11	18-Nov-11
Supply & Install Removable Air Tight FRP Covers	12d	08-Oct-11	21-Oct-11
Supply & Install Air Tight FRP Covers	12d	22-Oct-11	04-Nov-11
Supply & Install PC Cover	12d	05-Nov-11	18-Nov-11
Existing Emergency Overflow Chamber	33d	22-Oct-11	25-Nov-11
Supply & Install Removable Air Tight FRP Covers	12d	22-Oct-11	04-Nov-11
Supply & Install Air Tight FRP Covers	12d	05-Nov-11	18-Nov-11
Air-Duct Works	6d	19-Nov-11	25-Nov-11
Section 4	918d	17-Oct-11	22-May-14
Run In - Portion 1	14d	17-Oct-11	01-Nov-11
Run In- Portion 1	13d	17-Oct-11	01-Nov-11
Shaft	767d	22-Nov-11	23-Jan-14
Riser Shaft	740d	22-Nov-11	26-Dec-13
Pipe Piles & TAM Grouting - Riser Shaft	49d	22-Nov-11	20-Jan-12



Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

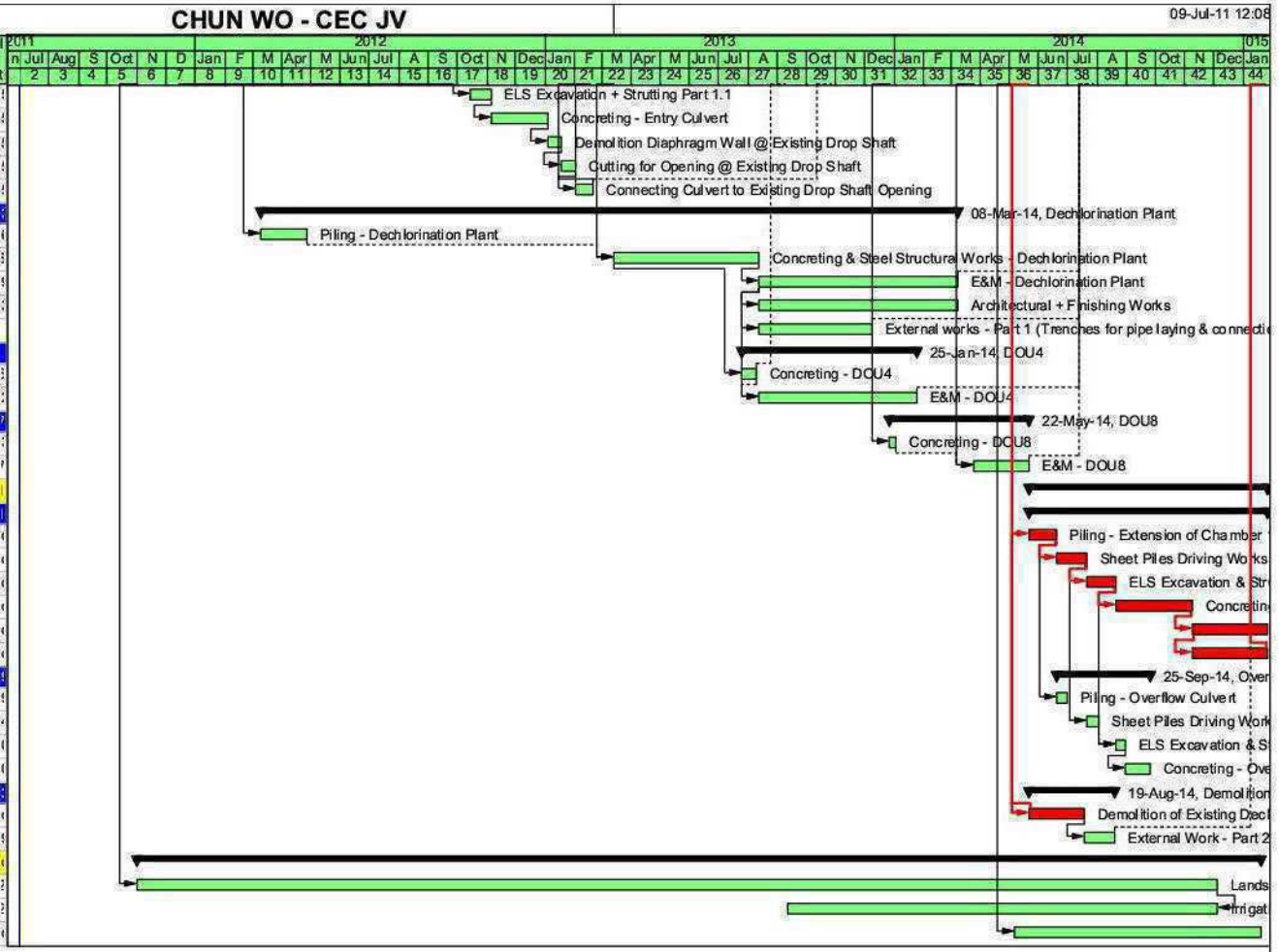
Activity Name	Original Duration	Start	Finish
Erection of Noise Enclosure	42d	18-Feb-12	09-Apr-12
Mechanical Excavation + Ring Beams - Riser Sh	35d	09-Apr-12	21-May-12
D&B Excavation - Riser Shaft (1.2m/day)	72d	21-May-12	06-Sep-12
Shaft Concrete - Riser Shaft	46d	16-Aug-13	16-Oct-13
Demolition of Noise Enclosure - Riser Shaft	12d	16-Oct-13	30-Oct-13
Cutting Pipe Piles - Riser Shaft	6d	20-Nov-13	27-Nov-13
Shaft & Tunnel Junction Concrete - Riser Shaft	24d	27-Nov-13	26-Dec-13
Drop Shaft	754d	07-Dec-11	23-Jan-14
Pipe Piles & TAM Grouting - Drop Shaft	49d	07-Dec-11	08-Feb-12
Erection of Noise Enclosure	42d	03-Apr-12	24-May-12
Mechanical Excavation + Ring Beams - Drop Sha	27d	24-May-12	26-Jun-12
D&B Excavation - Drop Shaft (1.2m/day)	69d	26-Jun-12	12-Oct-12
Shaft Concrete - Drop Shaft	48d	14-Jan-13	14-Mar-13
Reinforcement Delivery for Tunnel	48d	30-May-13	29-Jul-13
Demolition of Noise Enclosure - Drop Shaft	12d	29-Jul-13	13-Aug-13
Cutting Pipe Piles - Drop Shaft	6d	16-Jan-14	23-Jan-14
Shaft & Tunnel Junction Concrete - Drop Shaft	24d	17-Dec-13	16-Jan-14
Effluent Tunnel	453d	06-Sep-12	17-Dec-13
Excavation	209d	06-Sep-12	09-Apr-13
Riser Shaft Side	209d	06-Sep-12	09-Apr-13
D&B Excavation initial 5m through Riser Shaft	10d	06-Sep-12	21-Sep-12
D&B Excavation initial 45m through Riser Sha	30d	21-Sep-12	06-Nov-12
D&B Excavation 400m (7.4m/day)	105d	06-Nov-12	09-Apr-13
Drop Shaft Side	54d	12-Oct-12	07-Dec-12
D&B Excavation initial 5m through Drop Shaft	10d	12-Oct-12	26-Oct-12
D&B Excavation initial 45m through Drop Sha	30d	26-Oct-12	07-Dec-12
Tunnel Lining Works	263d	21-Mar-13	17-Dec-13
Formwork Gantry	43d	21-Mar-13	04-May-13
Assembly at Surface	18d	21-Mar-13	12-Apr-13
Assembly at Shaft Bottom	18d	12-Apr-13	04-May-13
Reinforcement Gantry	16d	09-Apr-13	25-Apr-13
Assembly at Shaft Bottom	14d	09-Apr-13	25-Apr-13
Lining	228d	25-Apr-13	17-Dec-13
Reinforcement Works - Crown Section	169d	25-Apr-13	21-Nov-13
Reinforcement Works - Bottom Section	169d	29-Apr-13	25-Nov-13
Concrete Lining (1.5days/ 8m block)	169d	04-May-13	29-Nov-13
Formwork Gantry Disassembly	15d	29-Nov-13	17-Dec-13
Flow Distribution Chamber No.2	795d	08-Feb-12	07-May-14
H - Piling - Flow Distribution Chamber No.2	26d	08-Feb-12	09-Mar-12
Sheet Piles Driving Works	21d	09-Mar-12	03-Apr-12
ELS Excavation & Strutting	23d	13-Aug-13	11-Sep-13
Concreting Part 1 - Flow Distribution Chamber No.2	48d	11-Sep-13	11-Nov-13
Concreting Part 2- Flow Distribution Chamber No.2	36d	23-Jan-14	10-Mar-14
E&M - Flow Distribution Chamber No.2	48d	10-Mar-14	07-May-14
Architectural & Finishing Works	48d	10-Mar-14	07-May-14
Chamber 15A	904d	01-Nov-11	22-May-14
H - Piling - Chamber 15A	18d	01-Nov-11	22-Nov-11
Sheet Piles Driving Works - Part 1	36d	04-Jan-12	18-Feb-12
ELS Excavation & Strutting - Part 1.2	18d	30-Oct-13	20-Nov-13
Concreting - Chamber 15A	72d	26-Dec-13	25-Mar-14
E&M - Chamber 15A	48d	25-Mar-14	22-May-14
Architectural & Finishing Works	48d	25-Mar-14	22-May-14
Entry Culvert	439d	22-Nov-11	19-Feb-13
H - Piling - Entry Culvert + Part 1 of Overflow Culvert	20d	22-Nov-11	15-Dec-11

Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

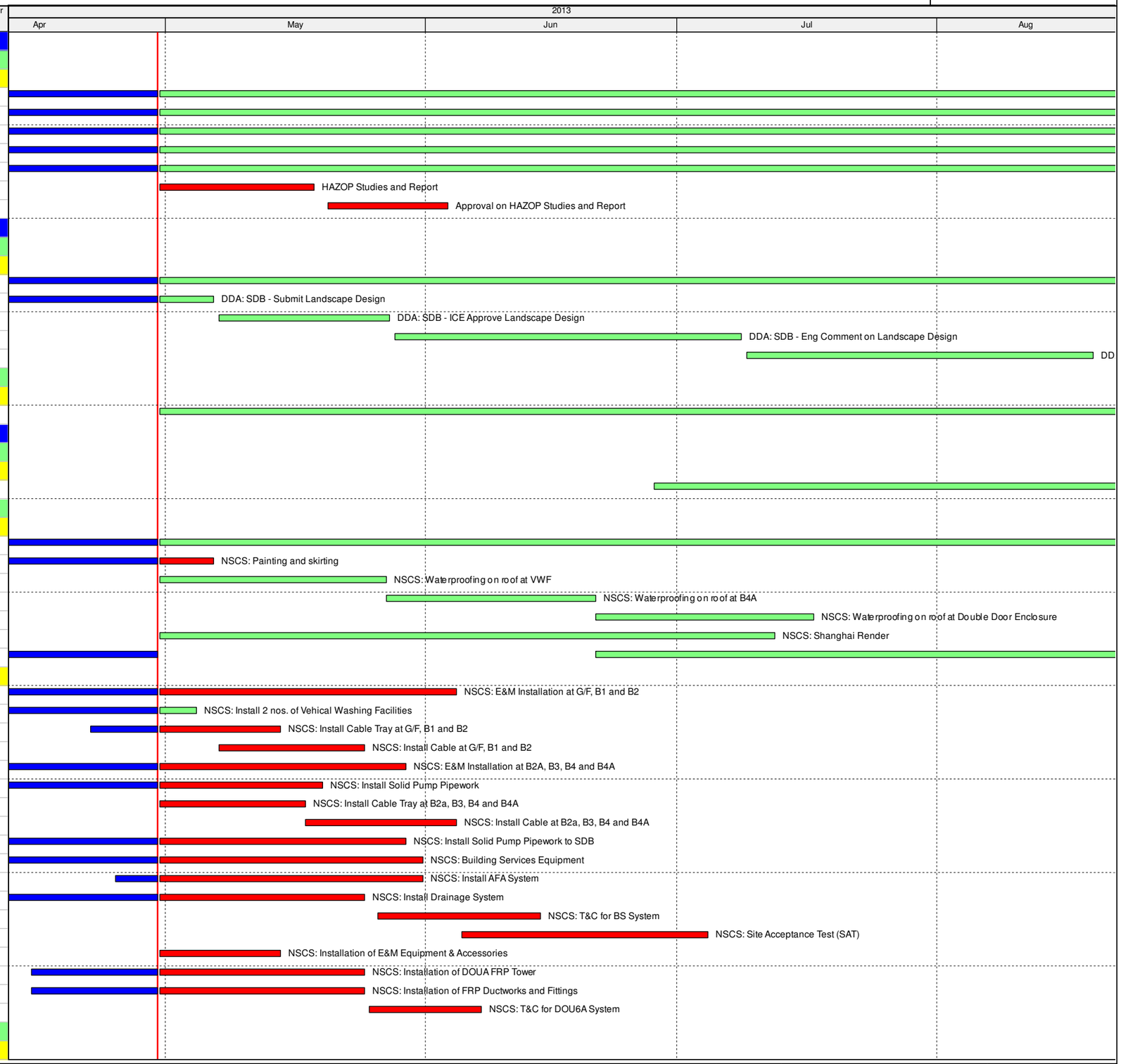
CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
ELS Excavation + Strutting Part 1.1	18d	15-Oct-12	05-Nov-12
Concreting - Entry Culvert	50d	05-Nov-12	04-Jan-13
Demolition Diaphragm Wall @ Existing Drop Shaft	12d	04-Jan-13	18-Jan-13
Cutting for Opening @ Existing Drop Shaft	12d	18-Jan-13	01-Feb-13
Connecting Culvert to Existing Drop Shaft Opening	12d	01-Feb-13	19-Feb-13
Dechlorination Plant	706d	09-Mar-12	08-Mar-14
Piling - Dechlorination Plant	40d	09-Mar-12	26-Apr-12
Concreting & Steel Structural Works - Dechlorinatio	123d	14-Mar-13	12-Aug-13
E&M - Dechlorination Plant	168d	12-Aug-13	08-Mar-14
Architectural + Finishing Works	168d	12-Aug-13	08-Mar-14
External works - Part 1 (Trenches for pipe laying &	96d	12-Aug-13	09-Dec-13
DOU4	176d	25-Jul-13	25-Jan-14
Concreting - DOU4	12d	25-Jul-13	09-Aug-13
E&M - DOU4	135d	12-Aug-13	25-Jan-14
DOU8	143d	26-Dec-13	22-May-14
Concreting - DOU8	6d	26-Dec-13	03-Jan-14
E&M - DOU8	48d	25-Mar-14	22-May-14
Section 5	240d	22-May-14	26-Jan-15
Extension of Chamber	240d	22-May-14	26-Jan-15
Piling - Extension of Chamber 15	24d	22-May-14	20-Jun-14
Sheet Piles Driving Works - Part 2	25d	20-Jun-14	21-Jul-14
ELS Excavation & Strutting - Part 2	24d	21-Jul-14	20-Aug-14
Concreting - Extension of Chamber 15	63d	20-Aug-14	08-Nov-14
E&M - Extension of Chamber 15	65d	08-Nov-14	26-Jan-15
Architectural & Finishing Works - Extension of Chan	65d	08-Nov-14	26-Jan-15
Overflow Culvert	92d	20-Jun-14	25-Sep-14
Piling - Overflow Culvert	8d	20-Jun-14	30-Jun-14
Sheet Piles Driving Works - Overflow Culvert	10d	21-Jul-14	02-Aug-14
ELS Excavation & Strutting - Overflow Culvert	8d	20-Aug-14	30-Aug-14
Concreting - Overflow Culvert	20d	30-Aug-14	25-Sep-14
Demolition of Existing Dechlorination Plant	86d	22-May-14	19-Aug-14
Demolition of Existing Dechlorination Plant	48d	22-May-14	19-Jul-14
External Work - Part 2 (Concrete Pavement)	24d	19-Jul-14	19-Aug-14
Landscape Works	1138d	01-Nov-11	19-Jan-15
Landscaping Softwork	918d	01-Nov-11	05-Dec-14
Irrigation System	450d	11-Sep-13	05-Dec-14
Establishment Works	258d	07-May-14	19-Jan-15



Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
Preliminaries and General Requirement					
General Requirements					
Initial Works					
PG000172	Maintenance and Security for Portion F	1463d	01-Jun-12 A	26-May-16	1123d
PG000190	Environmental Impact Monitoring	2000d	04-Dec-10 A	26-May-16	1123d
PG000260	Maintenance and Upkeeping of Portion D	2095d	25-Aug-10 A	26-May-16	1123d
PG000300	Maintenance and Security in Portion E	2095d	25-Aug-10 A	26-May-16	1123d
PG000310	Maintenance and Security in Portion G	1463d	01-Jun-12 A	26-May-16	1123d
PG000410	HAZOP Studies and Report	15d	30-Apr-13	18-May-13	15d
PG000420	Approval on HAZOP Studies and Report	13d	20-May-13	03-Jun-13	13d
Design of Permanent Works					
DDA 1 (SDB and Associated Structure)					
Sub-Package F					
DP024190	DDA: SDB - Landscape (Irrigation) Design and Approval	175d	26-Nov-12 A	09-Sep-13	133d
DP024200	DDA: SDB - Submit Landscape Design	49d	26-Nov-12 A	06-May-13	7d
DP024210	DDA: SDB - ICE Approve Landscape Design	21d	07-May-13	27-May-13	21d
DP024220	DDA: SDB - Eng Comment on Landscape Design	42d	28-May-13	08-Jul-13	42d
DP024230	DDA: SDB - Finalize Landscape Design	42d	09-Jul-13	19-Aug-13	42d
Design of Permanent Work					
DDA 35 - Workshop Equipment					
DP008810	DDA: Workshop (E&M) - Designer to Compile DDA	120d	30-Apr-13	27-Aug-13	120d
Section 3 of the Works					
Sludge Container					
Procurement, Manufacture and Delivery					
S3000270	NSCS: Construct &Test Re-designed Sludge Container (2	90d	28-Jun-13	15-Oct-13	90d
Northern Sludge Cake Silo					
Architecture Finishes					
S3000450	NSCS: Building Finishes and Landscape	230d	29-Sep-12 A	25-Nov-13	173d
S3000480	NSCS: Painting and skirting	60d	12-Jan-13 A	06-May-13	5d
S3000510	NSCS: Waterproofing on roof at VWF	21d	30-Apr-13	27-May-13	21d
S3000520	NSCS: Waterproofing on roof at B4A	21d	27-May-13	21-Jun-13	21d
S3000530	NSCS: Waterproofing on roof at Double Door Enclosure	21d	21-Jun-13	17-Jul-13	21d
S3000550	NSCS: Shanghai Render	60d	30-Apr-13	12-Jul-13	60d
S3000560	NSCS: Install Synthetic Timber Cladding	120d	02-Apr-13 A	01-Nov-13	110d
E&M Installation and T&C					
S3000810	NSCS: E&M Installation at G/F, B1 and B2	98d	02-Jan-13 A	04-Jun-13	36d
S3000840	NSCS: Install 2 nos. of Vehical Washing Facilities	95d	14-Jan-13 A	04-May-13	5d
S3000850	NSCS: Install Cable Tray at G/F, B1 and B2	25d	22-Apr-13 A	14-May-13	15d
S3000860	NSCS: Install Cable at G/F, B1 and B2	18d	07-May-13	24-May-13	18d
S3000880	NSCS: E&M Installation at B2A, B3, B4 and B4A	75d	02-Jan-13 A	29-May-13	30d
S3000890	NSCS: Install Solid Pump Pipework	75d	04-Feb-13 A	19-May-13	20d
S3000910	NSCS: Install Cable Tray at B2a, B3, B4 and B4A	18d	30-Apr-13	17-May-13	18d
S3000920	NSCS: Install Cable at B2a, B3, B4 and B4A	18d	17-May-13	04-Jun-13	18d
S3000950	NSCS: Install Solid Pump Pipework to SDB	70d	04-Feb-13 A	29-May-13	30d
S3000960	NSCS: Building Services Equipment	66d	26-Jan-13 A	31-May-13	32d
S3000962	NSCS: Install AFA System	36d	25-Apr-13 A	31-May-13	32d
S3000964	NSCS: Install Drainage System	36d	10-Apr-13 A	24-May-13	25d
S3000968	NSCS: T&C for BS System	20d	26-May-13	14-Jun-13	20d
S3000970	NSCS: Site Acceptance Test (SAT)	30d	05-Jun-13	04-Jul-13	30d
S3001010	NSCS: Installation of E&M Equipment & Accessories	15d	30-Apr-13	14-May-13	15d
S3001020	NSCS: Installation of DOUA FRP Tower	35d	15-Apr-13 A	24-May-13	25d
S3001030	NSCS: Installation of FRP Ductworks and Fittings	35d	15-Apr-13 A	24-May-13	25d
S3001040	NSCS: T&C for DOU6A System	14d	25-May-13	07-Jun-13	14d
Sludge Dewatering Building and DOU6					
Architecture Finishes					

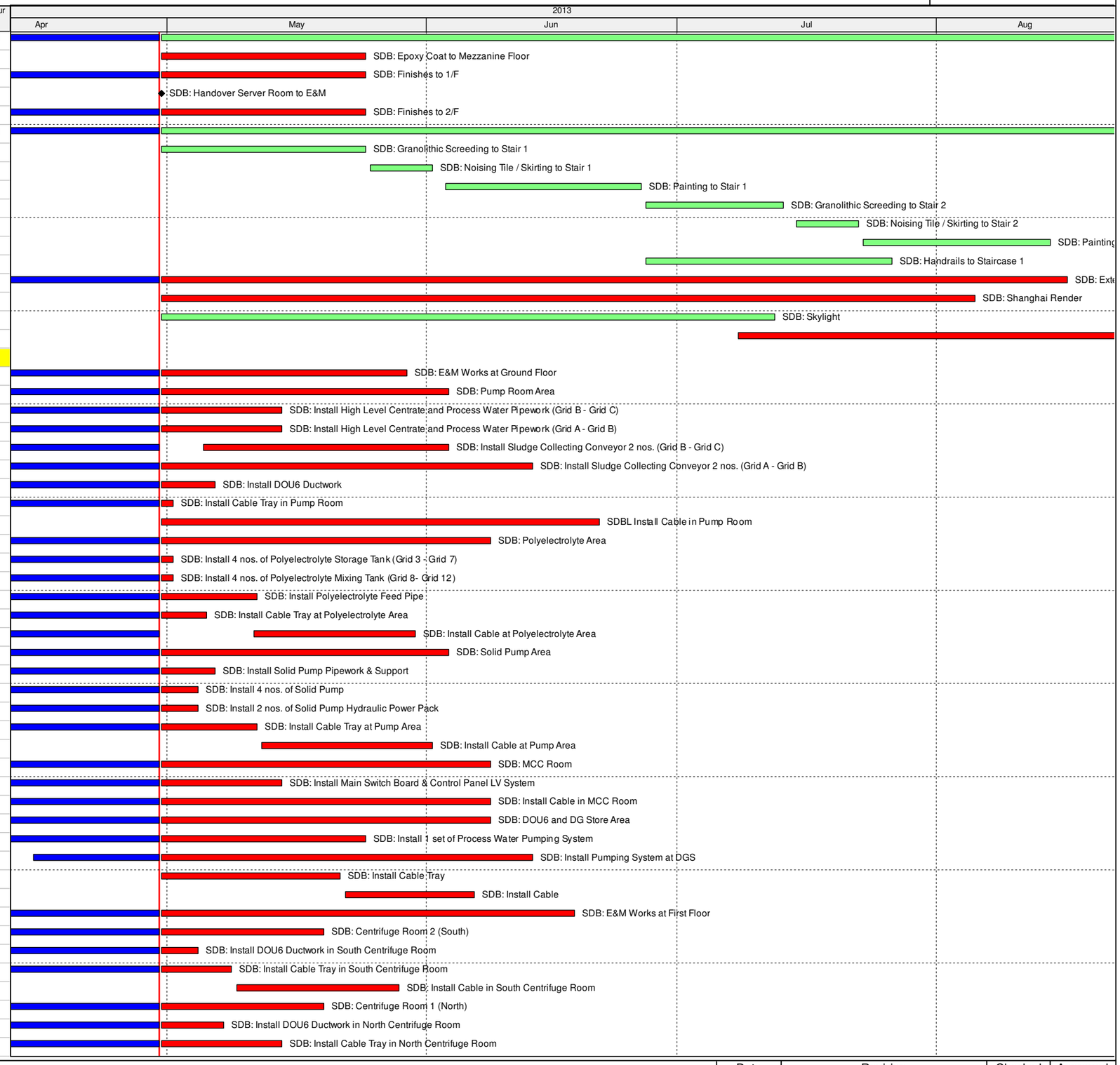


Actual Work ◆ Milestone
Remaining Work
Critical Remaining Work

Three Month Rolling Programme - June to August 2013

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3001380	SDB: Building Finishes and Landscape	385d	05-Jul-12 A	16-Dec-13	191d
S3001410	SDB: Epoxy Coat to Mezzanine Floor	20d	30-Apr-13	24-May-13	20d
S3001420	SDB: Finishes to 1/F	150d	16-Jul-12 A	24-May-13	20d
S3001436	SDB: Handover Server Room to E&M	0d		30-Apr-13	0d
S3001463	SDB: Finishes to 2/F	52d	31-Dec-12 A	24-May-13	20d
S3001479	SDB: Finishes to Stair 1 and 2	118d	08-Apr-13 A	28-Aug-13	100d
S3001480	SDB: Granolithic Screeding to Stair 1	20d	30-Apr-13	24-May-13	20d
S3001482	SDB: Noising Tile / Skirting to Stair 1	7d	25-May-13	01-Jun-13	7d
S3001484	SDB: Painting to Stair 1	20d	03-Jun-13	26-Jun-13	20d
S3001486	SDB: Granolithic Screeding to Stair 2	14d	27-Jun-13	13-Jul-13	14d
S3001488	SDB: Noising Tile / Skirting to Stair 2	7d	15-Jul-13	22-Jul-13	7d
S3001490	SDB: Painting to Stair 2	20d	23-Jul-13	14-Aug-13	20d
S3001492	SDB: Handrails to Staircase 1	25d	27-Jun-13	26-Jul-13	25d
S3001515	SDB: External Finishes	145d	11-Dec-12 A	16-Aug-13	90d
S3001520	SDB: Shanghai Render	80d	30-Apr-13	05-Aug-13	80d
S3001524	SDB: Skylight	60d	30-Apr-13	12-Jul-13	60d
S3001525	SDB: Synthetic Timber Cladding	90d	08-Jul-13	24-Oct-13	90d
E&M Installation and T&C					
S3003020	SDB: E&M Works at Ground Floor	220d	06-Sep-12 A	29-May-13	30d
S3003030	SDB: Pump Room Area	220d	06-Sep-12 A	03-Jun-13	35d
S3003040	SDB: Install High Level Centrate and Process Water Pipew	153d	02-Oct-12 A	14-May-13	15d
S3003080	SDB: Install High Level Centrate and Process Water Pipew	153d	02-Oct-12 A	14-May-13	15d
S3003110	SDB: Install Sludge Collecting Conveyor 2 nos. (Grid B - G	73d	28-Jan-13 A	03-Jun-13	30d
S3003120	SDB: Install Sludge Collecting Conveyor 2 nos. (Grid A - G	57d	08-Apr-13 A	13-Jun-13	45d
S3003130	SDB: Install DOU6 Ductwork	60d	09-Jan-13 A	06-May-13	7d
S3003140	SDB: Install Cable Tray in Pump Room	52d	08-Jan-13 A	01-May-13	2d
S3003150	SDBL Install Cable in Pump Room	53d	30-Apr-13	21-Jun-13	53d
S3003170	SDB: Polyelectrolyte Area	175d	05-Oct-12 A	08-Jun-13	40d
S3003190	SDB: Install 4 nos. of Polyelectrolyte Storage Tank (Grid 3	121d	31-Oct-12 A	01-May-13	2d
S3003200	SDB: Install 4 nos. of Polyelectrolyte Mixing Tank (Grid 8- (	115d	06-Nov-12 A	01-May-13	2d
S3003240	SDB: Install Polyelectrolyte Feed Pipe	57d	21-Jan-13 A	11-May-13	12d
S3003260	SDB: Install Cable Tray at Polyelectrolyte Area	15d	25-Feb-13 A	05-May-13	6d
S3003270	SDB: Install Cable at Polyelectrolyte Area	53d	18-Feb-13 A	30-May-13	20d
S3003290	SDB: Solid Pump Area	111d	24-Dec-12 A	03-Jun-13	35d
S3003300	SDB: Install Solid Pump Pipework & Support	100d	24-Dec-12 A	06-May-13	7d
S3003310	SDB: Install 4 nos. of Solid Pump	45d	24-Dec-12 A	04-May-13	5d
S3003320	SDB: Install 2 nos. of Solid Pump Hydraulic Power Pack	45d	21-Dec-12 A	04-May-13	5d
S3003330	SDB: Install Cable Tray at Pump Area	24d	21-Jan-13 A	11-May-13	12d
S3003340	SDB: Install Cable at Pump Area	21d	12-May-13	01-Jun-13	21d
S3003360	SDB: MCC Room	74d	12-Nov-12 A	08-Jun-13	40d
S3003380	SDB: Install Main Switch Board & Control Panel LV System	60d	07-Jan-13 A	14-May-13	15d
S3003400	SDB: Install Cable in MCC Room	60d	02-Apr-13 A	08-Jun-13	40d
S3003420	SDB: DOU6 and DG Store Area	90d	07-Jan-13 A	08-Jun-13	40d
S3003440	SDB: Install 1 set of Process Water Pumping System	85d	31-Dec-12 A	24-May-13	25d
S3003450	SDB: Install Pumping System at DGS	60d	15-Apr-13 A	13-Jun-13	45d
S3003460	SDB: Install Cable Tray	22d	30-Apr-13	21-May-13	22d
S3003470	SDB: Install Cable	16d	22-May-13	06-Jun-13	16d
S3003490	SDB: E&M Works at First Floor	175d	05-Oct-12 A	18-Jun-13	50d
S3003500	SDB: Centrifuge Room 2 (South)	107d	05-Oct-12 A	19-May-13	20d
S3003530	SDB: Install DOU6 Ductwork in South Centrifuge Room	60d	09-Jan-13 A	04-May-13	5d
S3003540	SDB: Install Cable Tray in South Centrifuge Room	19d	02-Apr-13 A	08-May-13	9d
S3003550	SDB: Install Cable in South Centrifuge Room	20d	09-May-13	28-May-13	20d
S3003570	SDB: Centrifuge Room 1 (North)	149d	31-Oct-12 A	19-May-13	20d
S3003600	SDB: Install DOU6 Ductwork in North Centrifuge Room	60d	09-Jan-13 A	07-May-13	8d
S3003610	SDB: Install Cable Tray in North Centrifuge Room	39d	21-Jan-13 A	14-May-13	15d



Actual Work ◆ Milestone

Remaining Work

Critical Remaining Work

Three Month Rolling Programme - June to August 2013

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3003620	SDB: Install Cable in North Centrifuge Room	39d	04-May-13	11-Jun-13	39d
S3003640	SDB: Control Room	97d	25-Dec-12 A	18-Jun-13	50d
S3003650	SDB: Install 14 nos. of Centrifuge Control Panel	90d	25-Dec-12 A	14-May-13	15d
S3003660	SDB: Install Cable Tray in Control Room	19d	04-May-13	22-May-13	19d
S3003670	SDB: Install Cable in Control Room	18d	23-May-13	09-Jun-13	18d
S3003690	SDB: Hydraulic Power Pack Room	79d	14-Jan-13 A	29-May-13	30d
S3003700	SDB: Install 2 nos. of Solid Pump Hydraulic Power Pack	79d	14-Jan-13 A	14-May-13	15d
S3003710	SDB: Install Cable Tray in Power Pack Room	32d	28-Jan-13 A	19-May-13	20d
S3003720	SDB: Install Cable in Power Pack Room	22d	30-Apr-13	21-May-13	22d
S3003730	SDB: Commencement of E&M works at Server Room	0d	13-May-13*		0d
S3003740	SDB: DCS Server Room	69d	13-May-13	20-Jul-13	69d
S3003750	SDB: Install Server	30d	13-May-13	11-Jun-13	30d
S3003760	SDB: Install Cable Tray in Server Room	14d	12-Jun-13	25-Jun-13	14d
S3003770	SDB: Install Cable in Server Room	25d	26-Jun-13	20-Jul-13	25d
S3003790	SDB: E&M Works at Roof Floor	202d	03-Oct-12 A	23-May-13	24d
S3003830	SDB: Install Cable on Roof	24d	30-Apr-13	23-May-13	24d
S3003840	SDB: Building Services	117d	02-Jan-13 A	06-Jul-13	68d
S3003850	SDB: Install AFA Panel	30d	14-Jan-13 A	13-May-13	14d
S3003860	SDB: Install FS Water Pumping System	30d	02-Apr-13 A	09-May-13	10d
S3003870	SDB: Install Fans	30d	25-May-13	23-Jun-13	30d
S3003880	SDB: Install Air Purifer Unit	30d	12-Jun-13	11-Jul-13	30d
S3003890	SDB: Install VRV Units	30d	30-Apr-13	29-May-13	30d
S3003900	SDB: Install Lighting Fixture	60d	30-Apr-13	28-Jun-13	60d
S3003920	SDB: Install Drainage System	60d	10-Jan-13 A	09-May-13	10d
S3003930	SDB: Install Sanitary Fitting & Plumbing System	35d	30-Apr-13	03-Jun-13	35d
S3003940	SDB: Install Fire Service Pipe Line	70d	08-Apr-13 A	23-Jun-13	55d
S3003950	SDB: T&C for BS System	30d	22-Jun-13	21-Jul-13	30d
S3004000	SDB: Precommissioning Test	30d	02-Jul-13	31-Jul-13	30d
S3004010	SDB: Liaise with ST2 to Decommission Extg Plant	60d	02-Jul-13	09-Sep-13	60d
Sludge Storage Tank 6 and 7					
Structure					
S3005850	SST: External Painting for Tank 6	30d	08-May-13	13-Jun-13	30d
S3005860	SST: Install Railing for Tank 6	18d	14-Jun-13	05-Jul-13	18d
S3005870	SST: Clearance for Tank 6	6d	06-Jul-13	12-Jul-13	6d
S3006310	SST: Finishes for Tank 6 and 7	152d	31-Oct-12 A	12-Jul-13	60d
S3006340	SST: Water Tightness Test to Tank 7	18d	01-Mar-13 A	07-May-13	6d
S3006350	SST: Install Railing at Tank 7	18d	08-May-13	29-May-13	18d
S3006360	SST: External Painting for Tank 7	30d	30-May-13	05-Jul-13	30d
S3006370	SST: Clearnce for Tank 7	6d	06-Jul-13	12-Jul-13	6d
E&M Installation and T&C					
S3006670	SST: Commencement of E&M at Sludge Storage TanK 6	0d	30-Apr-13		0d
S3006680	SST: Install Sludge Feed Pipe, Recirculation Pipe and Scu	75d	30-Apr-13	13-Jul-13	75d
S3006685	SST: Install Jet Mixer at Sludge Storage Tank 6	45d	30-May-13	13-Jul-13	45d
S3006700	SST: Commencement of E&M at Sludge Storage Tank 7	0d	30-Apr-13		0d
S3006710	SST: Install Jet Mixer at Sludge Storage Tank 7	45d	29-May-13	13-Jul-13	45d
S3006720	SST: Install Sludge Feed Pipe, Recirculation Pipe and Scu	75d	30-Apr-13	13-Jul-13	75d
S3006730	SST: Site Acceptance Test (SAT)	24d	02-Jul-13	25-Jul-13	24d
S3006740	SST: Testing and commissioning (Internal T&C)	24d	08-Jul-13	31-Jul-13	24d
Transformer Bay					
Structure					
S3007010	TB: Structure and Finishes	430d	21-Nov-11 A	26-Jul-13	72d
S3007310	TB: Finishes	27d	18-Mar-13 A	22-Jun-13	12d
S3007320	TB: Painting Coat	12d	08-Jun-13	22-Jun-13	12d
S3007350	TB: Shanghai Rendering	30d	24-Jun-13	29-Jul-13	30d
E&M Installation and T&C					

Actual Work ◆ Milestone
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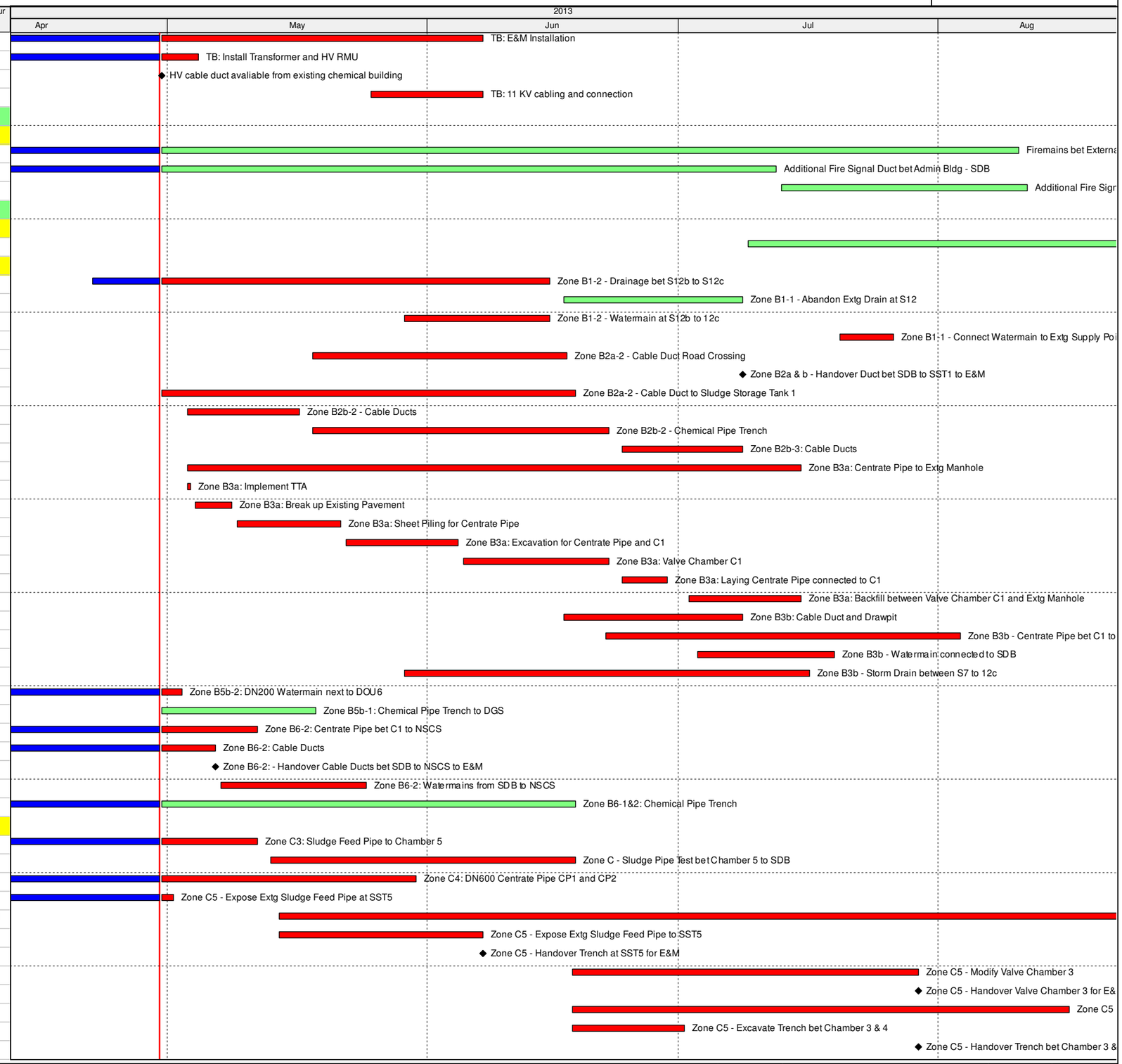
Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3007800	TB: E&M Installation	100d	19-Nov-12 A	07-Jun-13	39d
S3007820	TB: Install Transformer and HV RMU	58d	19-Nov-12 A	04-May-13	5d
S3007830	HV cable duct avaliable from existing chemical building	0d	30-Apr-13		0d
S3007840	TB: 11 KV cabling and connection	14d	25-May-13	07-Jun-13	14d
System					
Piping and Ducting					
S3009940	Firemains bet External Suppy Point to Zone B1	105d	01-Mar-13 A	10-Aug-13	85d
S3009950	Additional Fire Signal Duct bet Admin Bldg - SDB	70d	06-Apr-13 A	12-Jul-13	60d
S3009960	Additional Fire Signal Cable bet Admin Bldg -SDB	30d	13-Jul-13	11-Aug-13	30d
External (Civil) Works					
Zone A					
S3008440	Zone A5: Cabe Trough to MPS	70d	09-Jul-13	28-Sep-13	70d
Zone B					
S3008470	Zone B1-2 - Drainage bet S12b to S12c	40d	22-Apr-13 A	15-Jun-13	38d
S3008480	Zone B1-1 - Abandon Extg Drain at S12	18d	17-Jun-13	08-Jul-13	18d
S3008505	Zone B1-2 - Watermain at S12b to 12c	15d	29-May-13	15-Jun-13	15d
S3008510	Zone B1-1 - Connect Watermain to Extg Supply Point	6d	20-Jul-13	26-Jul-13	6d
S3008540	Zone B2a-2 - Cable Duct Road Crossing	25d	18-May-13	17-Jun-13	25d
S3008550	Zone B2a & b - Handover Duct bet SDB to SST1 to E&M	0d		08-Jul-13	0d
S3008560	Zone B2a-2 - Cable Duct to Sludge Storage Tank 1	40d	30-Apr-13	18-Jun-13	40d
S3008580	Zone B2b-2 - Cable Ducts	12d	03-May-13	16-May-13	12d
S3008585	Zone B2b-2 - Chemical Pipe Trench	30d	18-May-13	22-Jun-13	30d
S3008590	Zone B2b-3: Cable Ducts	12d	24-Jun-13	08-Jul-13	12d
S3008610	Zone B3a: Centrate Pipe to Extg Manhole	60d	03-May-13	15-Jul-13	60d
S3008620	Zone B3a: Implement TTA	1d	03-May-13	03-May-13	1d
S3008630	Zone B3a: Break up Existing Pavement	4d	04-May-13	08-May-13	4d
S3008640	Zone B3a: Sheet Piling for Centrate Pipe	10d	09-May-13	21-May-13	10d
S3008645	Zone B3a: Excavation for Centrate Pipe and C1	12d	22-May-13	04-Jun-13	12d
S3008655	Zone B3a: Valve Chamber C1	15d	05-Jun-13	22-Jun-13	15d
S3008660	Zone B3a: Laying Centrate Pipe connected to C1	6d	24-Jun-13	29-Jun-13	6d
S3008665	Zone B3a: Backfill between Valve Chamber C1 and Extg M	12d	02-Jul-13	15-Jul-13	12d
S3008685	Zone B3b: Cable Duct and Drawpit	18d	17-Jun-13	08-Jul-13	18d
S3008690	Zone B3b - Centrate Pipe bet C1 to MPS Stage 1	36d	22-Jun-13	03-Aug-13	36d
S3008700	Zone B3b - Watermain connected to SDB	15d	03-Jul-13	19-Jul-13	15d
S3008710	Zone B3b - Storm Drain between S7 to 12c	40d	29-May-13	16-Jul-13	40d
S3008885	Zone B5b-2: DN200 Watermain next to DOU6	21d	03-Jan-13 A	02-May-13	2d
S3008930	Zone B5b-1: Chemical Pipe Trench to DGS	15d	30-Apr-13	18-May-13	15d
S3008980	Zone B6-2: Centrate Pipe bet C1 to NSCS	24d	07-Feb-13 A	11-May-13	10d
S3008990	Zone B6-2: Cable Ducts	18d	23-Feb-13 A	06-May-13	5d
S3008995	Zone B6-2: - Handover Cable Ducts bet SDB to NSCS to E	0d		06-May-13	0d
S3009000	Zone B6-2: Watermains from SDB to NSCS	15d	07-May-13	24-May-13	15d
S3009010	Zone B6-1&2: Chemical Pipe Trench	60d	02-Apr-13 A	18-Jun-13	40d
Zone C					
S3009410	Zone C3: Sludge Feed Pipe to Chamber 5	75d	05-Nov-12 A	11-May-13	10d
S3009450	Zone C - Sludge Pipe Test bet Chamber 5 to SDB	30d	13-May-13	18-Jun-13	30d
S3009540	Zone C4: DN600 Centrate Pipe CP1 and CP2	120d	05-Jun-12 A	30-May-13	25d
S3009630	Zone C5 - Expose Extg Sludge Feed Pipe at SST5	25d	18-Mar-13 A	01-May-13	2d
S3009650	Zone C5 - Replace Sludge Feed Pipe to SST5	133d	14-May-13	23-Sep-13	133d
S3009660	Zone C5 - Expose Extg Sludge Feed Pipe to SST5	25d	14-May-13	07-Jun-13	25d
S3009670	Zone C5 - Handover Trench at SST5 for E&M	0d		07-Jun-13	0d
S3009690	Zone C5 - Modify Valve Chamber 3	42d	18-Jun-13	29-Jul-13	42d
S3009695	Zone C5 - Handover Valve Chamber 3 for E&M	0d		29-Jul-13	0d
S3009720	Zone C5 - Sludge Pipe bet Chamber 3 & 4	60d	18-Jun-13	16-Aug-13	60d
S3009730	Zone C5 - Excavate Trench bet Chamber 3 & 4	14d	18-Jun-13	01-Jul-13	14d
S3009740	Zone C5 - Handover Trench bet Chamber 3 & 4 to E&M	0d		29-Jul-13	0d



Actual Work ◆ ◆ Milestone

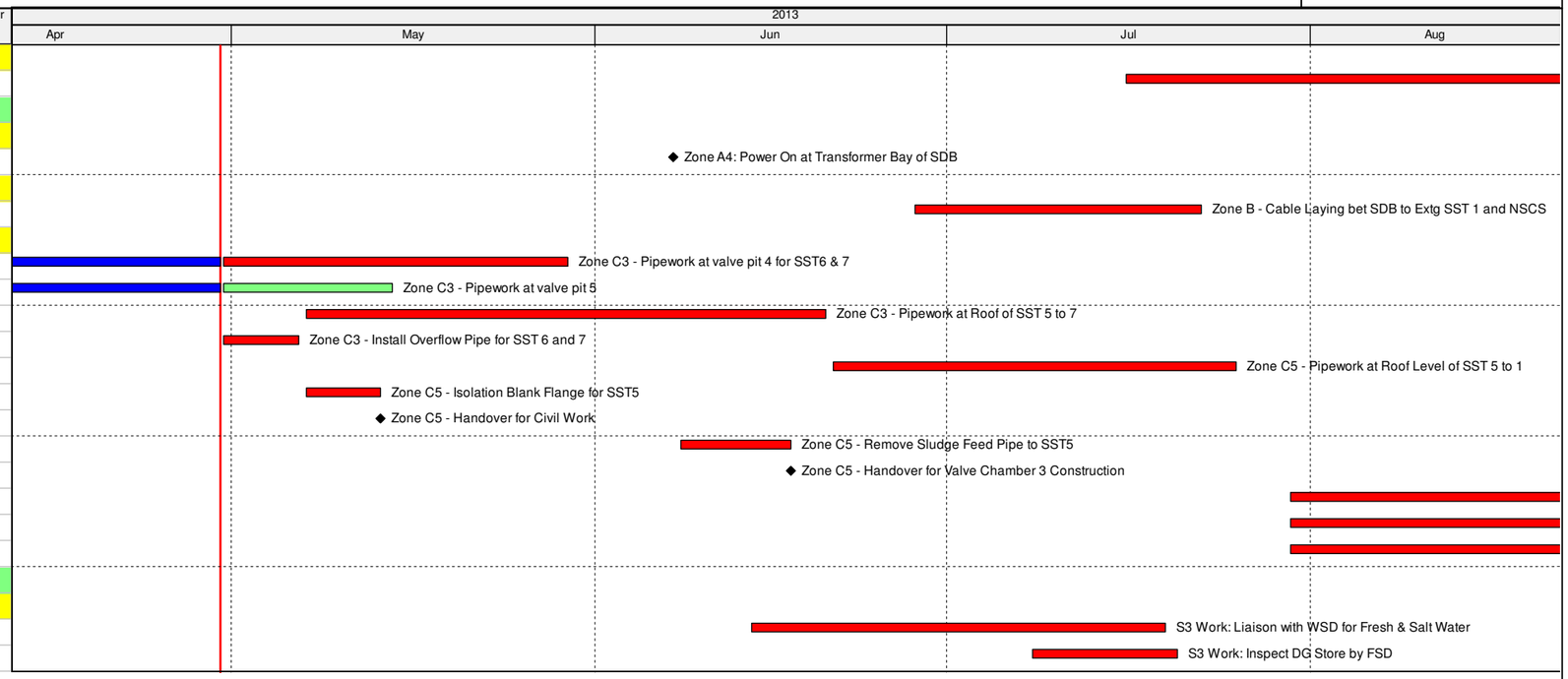
Remaining Work

Critical Remaining Work

Three Month Rolling Programme - June to August 2013

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
Road and Drain					
S3011400	Zone B3a: Foul Drain between F6 to F6A to F6C and F6D	36d	16-Jul-13	27-Aug-13	36d
External (E&M) Works					
Zone A					
S3008438	Zone A4: Power On at Transformer Bay of SDB	0d		07-Jun-13	0d
Zone B					
S3008720	Zone B - Cable Laying bet SDB to Extg SST 1 and NSCS	25d	28-Jun-13	22-Jul-13	25d
Zone C					
S3009475	Zone C3 - Pipework at valve pit 4 for SST6 & 7	45d	07-Mar-13 A	29-May-13	30d
S3009478	Zone C3 - Pipework at valve pit 5	30d	18-Feb-13 A	14-May-13	15d
S3009480	Zone C3 - Pipework at Roof of SST 5 to 7	45d	07-May-13	20-Jun-13	45d
s3009490	Zone C3 - Install Overflow Pipe for SST 6 and 7	7d	30-Apr-13	06-May-13	7d
S3009620	Zone C5 - Pipework at Roof Level of SST 5 to 1	35d	21-Jun-13	25-Jul-13	35d
S3009640	Zone C5 - Isolation Blank Flange for SST5	7d	07-May-13	13-May-13	7d
S3009645	Zone C5 - Handover for Civil Work	0d		13-May-13	0d
S3009680	Zone C5 - Remove Sludge Feed Pipe to SST5	10d	08-Jun-13	17-Jun-13	10d
S3009685	Zone C5 - Handover for Valve Chamber 3 Construction	0d		17-Jun-13	0d
S3009700	Zone C5 - Replace Sludge Feed Pipe to SST5	42d	30-Jul-13	09-Sep-13	42d
S3009705	Zone C5 - Install Jet Mixing System for SST5	42d	30-Jul-13	09-Sep-13	42d
S3009750	Zone C5 - Laying Pipe bet Chamber 3 & 4	30d	30-Jul-13	28-Aug-13	30d
Statutory Inspection and Training					
E&M Installation and T&C					
S3013095	S3 Work: Liaison with WSD for Fresh & Salt Water	30d	14-Jun-13	19-Jul-13	30d
S3013130	S3 Work: Inspect DG Store by FSD	12d	08-Jul-13	20-Jul-13	12d

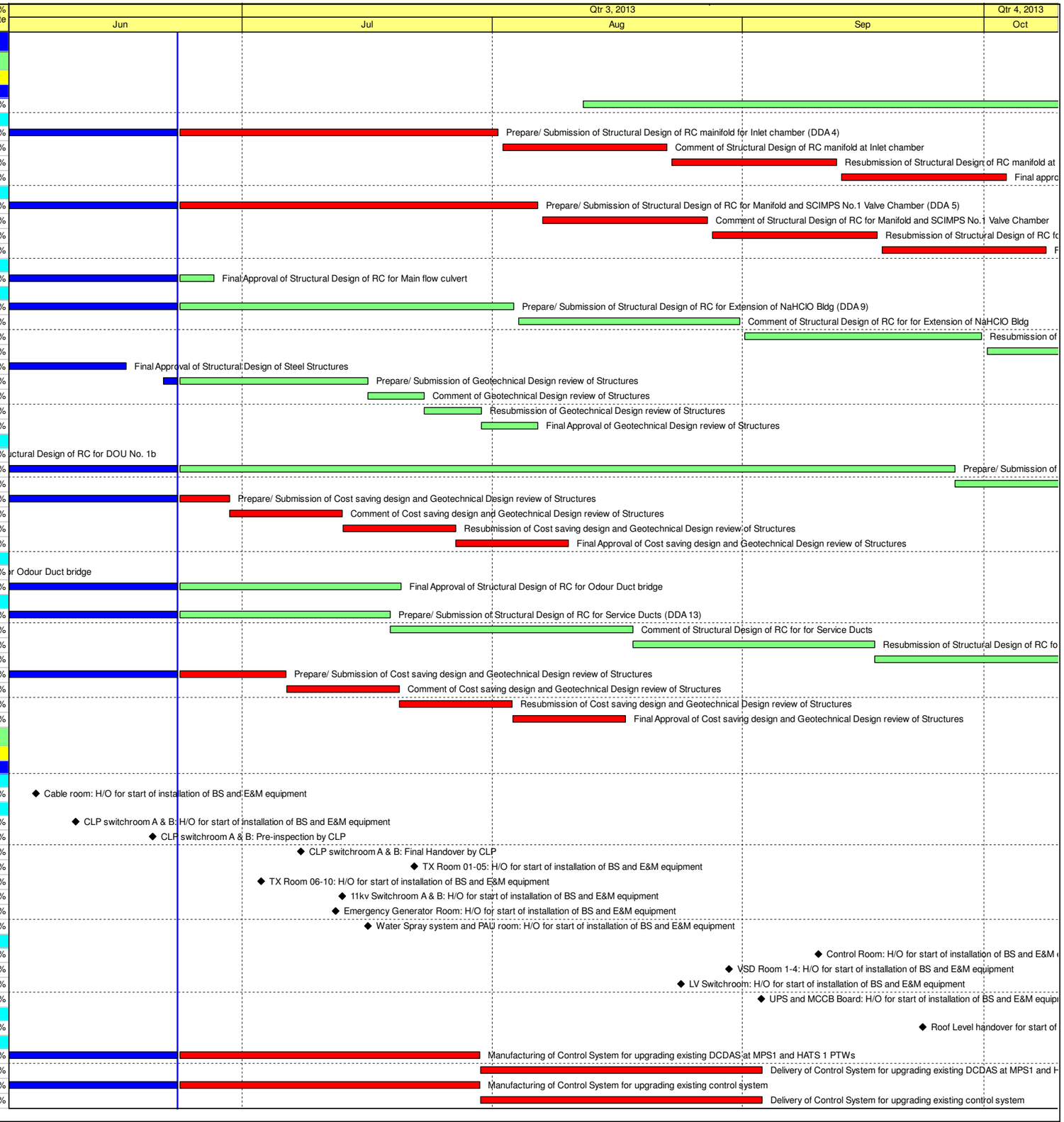


Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Three Month Rolling Programme - June to August 2013

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
C10TGP03UTGP (R3)						
Civil and Geotechnical Submission						
Contractor Design, Submission and Approval						
Detailed Design Approval (DDA) Submission for Structural/ Builder Works						
CCD00250	Prepare/ Submission of Architecture and Builder Works Design	180	12-Aug-2013	07-Feb-2014	115	0%
DDA4 (SCIMPS2 and Inlet Chamber)						
CCD00165	Prepare/ Submission of Structural Design of RC manifold for Inlet cha	160	23-Dec-2012 A	01-Aug-2013	-37	75%
CCD00175	Comment of Structural Design of RC manifold at Inlet chamber	21	02-Aug-2013	22-Aug-2013	-37	0%
CCD00185	Resubmission of Structural Design of RC manifold at Inlet chamber	21	23-Aug-2013	12-Sep-2013	-37	0%
CCD00215	Final approval of Structural Design of RC manifold at Inlet chamber	21	13-Sep-2013	03-Oct-2013	-37	0%
DDA5 (SCIMPS No. 1 Valve Chamber)						
CCD00131	Prepare/ Submission of Structural Design of RC for Manifold and SCIM	180	01-Dec-2011 A	06-Aug-2013	-63	75%
CCD00132	Comment of Structural Design of RC for Manifold and SCIMPS No.1 V	21	07-Aug-2013	27-Aug-2013	-63	0%
CCD00133	Resubmission of Structural Design of RC for Manifold and SCIMPS N	21	28-Aug-2013	17-Sep-2013	-63	0%
CCD00134	Final Approval of Structural Design of RC for Manifold and SCIMPS No	21	18-Sep-2013	08-Oct-2013	-63	0%
DDA7 (Main Flow Culvert)						
CCD00154	Final Approval of Structural Design of RC for Main flow culvert	30	30-Apr-2013 A	27-Jun-2013	145	85%
DDA9 (Extension of NaHClO Bldg)						
CCD00161	Prepare/ Submission of Structural Design of RC for Extension of NaH	210	19-Apr-2012 A	03-Aug-2013	32	80%
CCD00162	Comment of Structural Design of RC for for Extension of NaHClO Bldg	28	04-Aug-2013	31-Aug-2013	32	0%
CCD00163	Resubmission of Structural Design of RC for Extension of NaHClO Bl	30	01-Sep-2013	30-Sep-2013	32	0%
CCD00164	Final Approval of Structural Design of RC for Extension of NaHClO Blc	30	01-Oct-2013	30-Oct-2013	32	0%
CCD00209	Final Approval of Structural Design of Steel Structures	30	17-May-2013 A	16-Jun-2013 A		100%
CCD00370	Prepare/ Submission of Geotechnical Design review of Structures	28	21-Jun-2013 A	16-Jul-2013	110	15%
CCD00380	Comment of Geotechnical Design review of Structures	7	16-Jul-2013	23-Jul-2013	110	0%
CCD00390	Resubmission of Geotechnical Design review of Structures	7	23-Jul-2013	30-Jul-2013	110	0%
CCD00400	Final Approval of Geotechnical Design review of Structures	7	30-Jul-2013	06-Aug-2013	110	0%
DDA11 (DOU No. 3 and DOU No. 1b)						
CCD00204	Final Approval of Structural Design of RC for DOU No. 1b	30	02-May-2013 A	22-May-2013 A		100%
CCD00205	Prepare/ Submission of Structural Design of RC for DOU No. 3 (DDA	175	08-Jun-2012 A	27-Sep-2013	121	45%
CCD00221	Comment of Structural Design of RC for for DOU No. 3	30	27-Sep-2013	27-Oct-2013	121	0%
CCD00450	Prepare/ Submission of Cost saving design and Geotechnical Design	65	27-Jan-2012 A	29-Jun-2013	-23	90%
CCD00460	Comment of Cost saving design and Geotechnical Design review of S	14	29-Jun-2013	13-Jul-2013	-23	0%
CCD00470	Resubmission of Cost saving design and Geotechnical Design review	14	13-Jul-2013	27-Jul-2013	-23	0%
CCD00480	Final Approval of Cost saving design and Geotechnical Design review	14	27-Jul-2013	10-Aug-2013	-23	0%
DDA12 (Odour Duct Bridge)						
CCD00183	Resubmission of Structural Design of RC for Odour Duct bridge	75	25-Feb-2013 A	10-May-2013 A		100%
CCD00184	Final Approval of Structural Design of RC for Odour Duct bridge	30	11-May-2013 A	20-Jul-2013	304	6.67%
DDA13 (Service Ducts)						
CCD00770	Prepare/ Submission of Structural Design of RC for Service Ducts (DI	175	08-Jun-2012 A	19-Jul-2013	225	85%
CCD00780	Comment of Structural Design of RC for for Service Ducts	30	19-Jul-2013	18-Aug-2013	225	0%
CCD00790	Resubmission of Structural Design of RC for Service Ducts	30	18-Aug-2013	17-Sep-2013	225	0%
CCD00800	Final Approval of Structural Design of RC for Service Ducts	30	17-Sep-2013	17-Oct-2013	225	0%
CCD00810	Prepare/ Submission of Cost saving design and Geotechnical Design	90	01-Oct-2012 A	06-Jul-2013	-30	85%
CCD00820	Comment of Cost saving design and Geotechnical Design review of S	14	06-Jul-2013	20-Jul-2013	-30	0%
CCD00830	Resubmission of Cost saving design and Geotechnical Design review	14	20-Jul-2013	03-Aug-2013	-30	0%
CCD00840	Final Approval of Cost saving design and Geotechnical Design review	14	03-Aug-2013	17-Aug-2013	-30	0%
Infrastructure Construction Works						
Works for Section 2						
Portion 4 (Switchgear Building)						
Interface between Civil/ ABWF/ E&M works (Basement level)						
SGB0010	Cable room: H/O for start of installation of BS and E&M equipment	0		05-Jun-2013 A		100%
Interface between Civil/ ABWF/ E&M works (Ground Floor)						
SGB0020	CLP switchroom A & B: H/O for start of installation of BS and E&M equ	0		10-Jun-2013 A		100%
SGB0025	CLP switchroom A & B: Pre-inspection by CLP	0		20-Jun-2013 A		100%
SGB0026	CLP switchroom A & B: Final Handover by CLP	0		08-Jul-2013	0	0%
SGB0030	TX Room 01-05: H/O for start of installation of BS and E&M equipmen	0		22-Jul-2013	24	0%
SGB0035	TX Room 06-10: H/O for start of installation of BS and E&M equipmen	0		03-Jul-2013	78	0%
SGB0040	11kv Switchroom A & B: H/O for start of installation of BS and E&M equ	0		13-Jul-2013	28	0%
SGB0050	Emergency Generator Room: H/O for start of installation of BS and E&	0		12-Jul-2013	21	0%
SGB0055	Water Spray system and PAU room: H/O for start of installation of BS	0		16-Jul-2013	10	0%
Interface between Civil/ ABWF/ E&M works (First Floor)						
SGB0060	Control Room: H/O for start of installation of BS and E&M equipment	0		10-Sep-2013	-34	0%
SGB0070	VSD Room 1-4: H/O for start of installation of BS and E&M equipment	0		30-Aug-2013	-41	0%
SGB0080	LV Switchroom: H/O for start of installation of BS and E&M equipment	0		24-Aug-2013	3	0%
SGB0085	UPS and MCCB Board: H/O for start of installation of BS and E&M equ	0		03-Sep-2013	2	0%
Interface between Civil/ ABWF/ E&M works (Roof Floor)						
SGB0090	Roof Level handover for start of installation of BS and E&M equipment	0		23-Sep-2013	-2	0%
Procurement/ Order/ Manufacturing/ Delivery						
P302560	Manufacturing of Control System for upgrading existing DCDAS at MP	125	06-Jan-2013 A	30-Jul-2013	-27	70%
P302570	Delivery of Control System for upgrading existing DCDAS at MPS1 and	35	30-Jul-2013	03-Sep-2013	-27	0%
P302590	Manufacturing of Control System for upgrading existing control system	125	13-Jan-2013 A	30-Jul-2013	-27	70%
P302600	Delivery of Control System for upgrading existing control system	35	30-Jul-2013	03-Sep-2013	-27	0%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

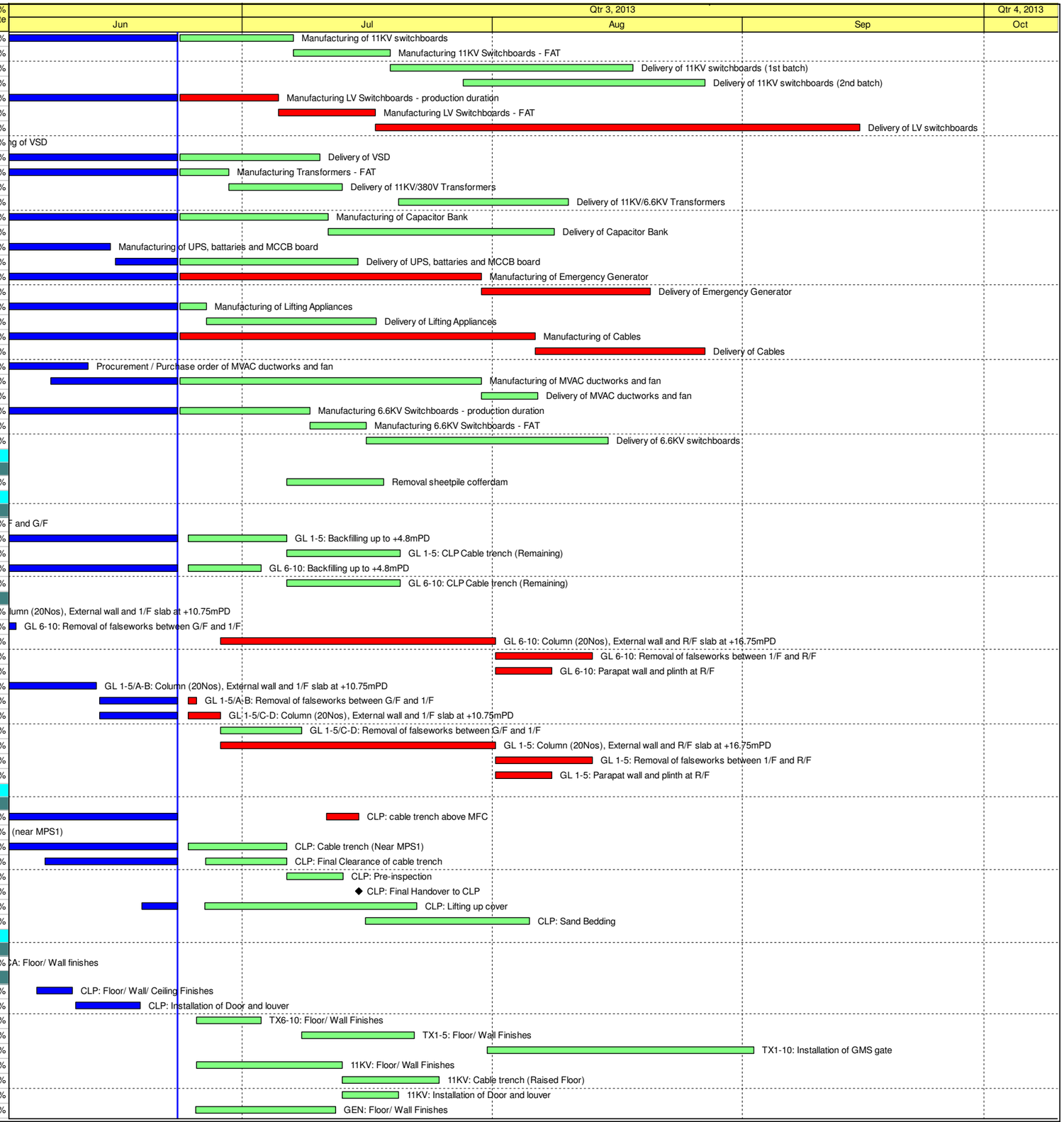
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P402050	Manufacturing of 11KV switchboards	285	08-Jun-2012 A	07-Jul-2013	4	95%
P402055	Manufacturing 11KV Switchboards - FAT	12	07-Jul-2013	19-Jul-2013	4	0%
P402060	Delivery of 11KV switchboards (1st batch)	30	19-Jul-2013	18-Aug-2013	4	0%
P402065	Delivery of 11KV switchboards (2nd batch)	30	28-Jul-2013	27-Aug-2013	4	0%
P402082	Manufacturing LV Switchboards - production duration	180	26-Jul-2012 A	05-Jul-2013	-5	93%
P402083	Manufacturing LV Switchboards - FAT	12	05-Jul-2013	17-Jul-2013	-5	0%
P402090	Delivery of LV switchboards	60	17-Jul-2013	15-Sep-2013	-5	0%
P402092	Manufacturing of VSD	300	01-Jun-2012 A	26-May-2013 A		100%
P402095	Delivery of VSD	45	27-May-2013 A	10-Jul-2013	52	60%
P402115	Manufacturing Transformers - FAT	14	27-May-2013 A	29-Jun-2013	26	55%
P402119	Delivery of 11KV/380V Transformers	14	29-Jun-2013	13-Jul-2013	26	0%
P402120	Delivery of 11KV/6.6KV Transformers	21	20-Jul-2013	10-Aug-2013	26	0%
P402122	Manufacturing of Capacitor Bank	135	25-Feb-2013 A	11-Jul-2013	40	86%
P402123	Delivery of Capacitor Bank	28	11-Jul-2013	08-Aug-2013	40	0%
P402126	Manufacturing of UPS, battaries and MCCB board	90	17-Mar-2013 A	14-Jun-2013 A		100%
P402127	Delivery of UPS, battaries and MCCB board	30	15-Jun-2013 A	15-Jul-2013	52	26%
P402140	Manufacturing of Emergency Generator	180	04-Sep-2012 A	30-Jul-2013	-3	79%
P402150	Delivery of Emergency Generator	21	30-Jul-2013	20-Aug-2013	-3	0%
P402170	Manufacturing of Lifting Appliances	145	01-Feb-2013 A	26-Jun-2013	45	97.38%
P402180	Delivery of Lifting Appliances	21	26-Jun-2013	17-Jul-2013	45	0%
P402230	Manufacturing of Cables	210	08-Jun-2012 A	06-Aug-2013	-14	79%
P402240	Delivery of Cables	21	06-Aug-2013	27-Aug-2013	-14	0%
P905750	Procurement / Purchase order of MVAC ductworks and fan	21	01-Jun-2013 A	12-Jun-2013 A		100%
P905760	Manufacturing of MVAC ductworks and fan	54	07-Jun-2013 A	30-Jul-2013	7	30%
P905770	Delivery of MVAC ductworks and fan	7	30-Jul-2013	06-Aug-2013	7	0%
P905980	Manufacturing 6.6KV Switchboards - production duration	180	26-Jul-2012 A	09-Jul-2013	16	91%
P905990	Manufacturing 6.6KV Switchboards - FAT	7	09-Jul-2013	16-Jul-2013	16	0%
P906000	Delivery of 6.6KV switchboards	30	16-Jul-2013	15-Aug-2013	16	0%
Foundation Works						
Excavation and Lateral Support for Substructure						
P401340	Removal sheetpile cofferdam	10	06-Jul-2013	18-Jul-2013	16	0%
R.C. Works						
Substructure						
P401208	GL 1-5: Removal of falseworks between B/F and G/F	15	23-Apr-2013 A	10-May-2013 A		100%
P401209	GL 1-5: Backfilling up to +4.8mPD	18	30-Apr-2013 A	06-Jul-2013	16	40%
P401210	GL 1-5: CLP Cable trench (Remaining)	12	06-Jul-2013	20-Jul-2013	16	0%
P902349	GL 6-10: Backfilling up to +4.8mPD	18	30-Apr-2013 A	03-Jul-2013	19	60%
P902350	GL 6-10: CLP Cable trench (Remaining)	12	06-Jul-2013	20-Jul-2013	16	0%
Superstructure						
P902390	GL 6-10: Column (20Nos), External wall and 1/F slab at +10.75mPD	18	30-Apr-2013 A	26-May-2013 A		100%
P902392	GL 6-10: Removal of falseworks between G/F and 1/F	10	24-May-2013 A	03-Jun-2013 A		100%
P902395	GL 6-10: Column (20Nos), External wall and R/F slab at +16.75mPD	28	28-Jun-2013	01-Aug-2013	-29	0%
P902400	GL 6-10: Removal of falseworks between 1/F and R/F	10	01-Aug-2013	13-Aug-2013	-29	0%
P902410	GL 6-10: Parapat wall and plinth at R/F	6	01-Aug-2013	08-Aug-2013	-1	0%
P902430	GL 1-5/A-B: Column (20Nos), External wall and 1/F slab at +10.75mP	18	29-May-2013 A	13-Jun-2013 A		100%
P902433	GL 1-5/A-B: Removal of falseworks between G/F and 1/F	10	13-Jun-2013 A	25-Jun-2013	-34	87%
P902434	GL 1-5/C-D: Column (20Nos), External wall and 1/F slab at +10.75mP	14	13-Jun-2013 A	28-Jun-2013	-43	70%
P902435	GL 1-5/C-D: Removal of falseworks between G/F and 1/F	10	28-Jun-2013	08-Jul-2013	24	0%
P902439	GL 1-5: Column (20Nos), External wall and R/F slab at +16.75mPD	28	28-Jun-2013	01-Aug-2013	-35	0%
P902440	GL 1-5: Removal of falseworks between 1/F and R/F	10	01-Aug-2013	13-Aug-2013	-35	0%
P902450	GL 1-5: Parapat wall and plinth at R/F	6	01-Aug-2013	08-Aug-2013	-1	0%
External Works						
CLP cable trench						
A1150	CLP: cable trench above MFC	12	18-May-2013 A	15-Jul-2013	-6	75%
A1210	CLP: Liaise with CLP for details of cable trench (near MPS1)	12	06-Feb-2013 A	09-May-2013 A		100%
A1230	CLP: Cable trench (Near MPS1)	18	26-Apr-2013 A	06-Jul-2013	22	40%
A1235	CLP: Final Clearance of cable trench	15	06-Jun-2013 A	06-Jul-2013	22	45%
A1240	CLP: Pre-inspection	6	06-Jul-2013	13-Jul-2013	22	0%
A1245	CLP: Final Handover to CLP	0		15-Jul-2013	-6	0%
A1250	CLP: Lifting up cover	24	18-Jun-2013 A	22-Jul-2013	3	10%
A1260	CLP: Sand Bedding	18	16-Jul-2013	05-Aug-2013	3	0%
Builder and finishes Works						
Basement Floor						
P405000	CA: Floor/ Wall finishes	12	18-May-2013 A	31-May-2013 A		100%
Ground Floor						
P405011	CLP: Floor/ Wall/ Ceiling Finishes	6	05-Jun-2013 A	10-Jun-2013 A		100%
P405015	CLP: Installation of Door and louver	6	10-Jun-2013 A	18-Jun-2013 A		100%
P405021	TX6-10: Floor/ Wall Finishes	6	25-Jun-2013	03-Jul-2013	25	0%
P405022	TX1-5: Floor/ Wall Finishes	12	08-Jul-2013	22-Jul-2013	21	0%
P405025	TX1-10: Installation of GMS gate	28	31-Jul-2013	02-Sep-2013	67	0%
P405030	11KV: Floor/ Wall Finishes	15	25-Jun-2013	13-Jul-2013	14	0%
P405035	11KV: Cable trench (Raised Floor)	10	13-Jul-2013	25-Jul-2013	14	0%
P405037	11KV: Installation of Door and louver	6	13-Jul-2013	20-Jul-2013	18	0%
P405041	GEN: Floor/ Wall Finishes	15	25-Jun-2013	12-Jul-2013	18	0%



Actual Work
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Critical Remaining Work
◆ Milestone

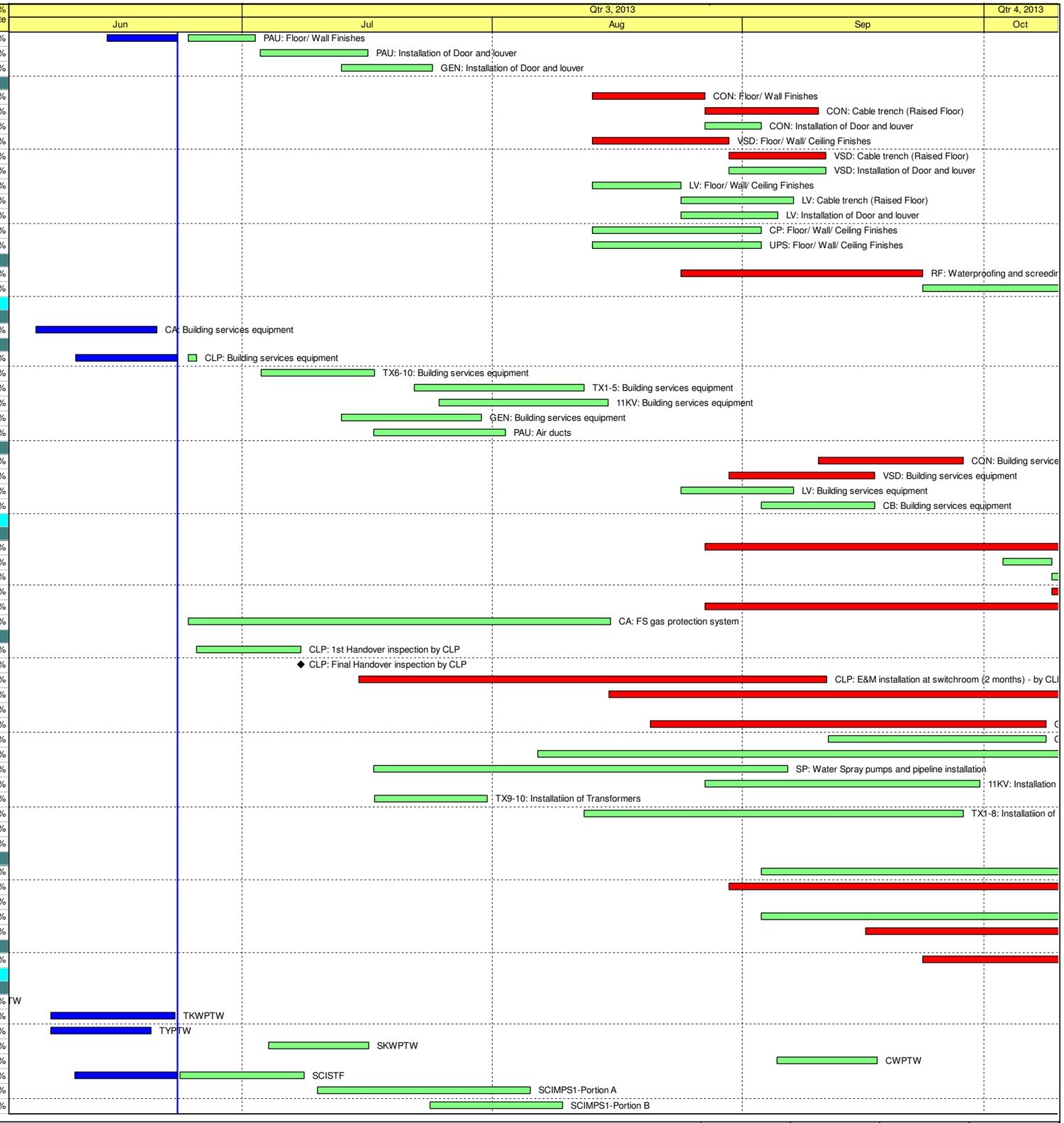
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P405050	PAU: Floor/ Wall Finishes	15	14-Jun-2013 A	02-Jul-2013	9	53.33%
P405055	PAU: Installation of Door and louver	12	03-Jul-2013	16-Jul-2013	9	0%
P405060	GEN: Installation of Door and louver	10	13-Jul-2013	24-Jul-2013	18	0%
First Floor						
P405090	CON: Floor/ Wall Finishes	12	13-Aug-2013	27-Aug-2013	-29	0%
P405095	CON: Cable trench (Raised Floor)	12	27-Aug-2013	10-Sep-2013	-29	0%
P405097	CON: Installation of Door and louver	6	27-Aug-2013	03-Sep-2013	39	0%
P405110	VSD: Floor/ Wall/ Ceiling Finishes	15	13-Aug-2013	30-Aug-2013	-35	0%
P405115	VSD: Cable trench (Raised Floor)	10	30-Aug-2013	11-Sep-2013	-9	0%
P405117	VSD: Installation of Door and louver	10	30-Aug-2013	11-Sep-2013	32	0%
P405201	LV: Floor/ Wall/ Ceiling Finishes	10	13-Aug-2013	24-Aug-2013	2	0%
P405205	LV: Cable trench (Raised Floor)	12	24-Aug-2013	07-Sep-2013	35	0%
P405207	LV: Installation of Door and louver	10	24-Aug-2013	05-Sep-2013	37	0%
P405360	CP: Floor/ Wall/ Ceiling Finishes	18	13-Aug-2013	03-Sep-2013	12	0%
P405370	UPS: Floor/ Wall/ Ceiling Finishes	18	13-Aug-2013	03-Sep-2013	2	0%
Roof Floor						
P405300	RF: Waterproofing and screeding	24	24-Aug-2013	23-Sep-2013	-1	0%
P405310	RF: Green Roof installation	24	23-Sep-2013	23-Oct-2013	2	0%
Building Service Installation						
Basement Floor						
P902470	CA: Building services equipment	12	05-Jun-2013 A	20-Jun-2013 A		100%
Ground Floor						
P405500	CLP: Building services equipment	12	10-Jun-2013 A	25-Jun-2013	0	90.83%
P405504	TX6-10: Building services equipment	12	03-Jul-2013	17-Jul-2013	67	0%
P405505	TX1-5: Building services equipment	18	22-Jul-2013	12-Aug-2013	21	0%
P405510	11KV: Building services equipment	18	25-Jul-2013	15-Aug-2013	14	0%
P405520	GEN: Building services equipment	15	13-Jul-2013	30-Jul-2013	18	0%
P405525	PAU: Air ducts	15	17-Jul-2013	02-Aug-2013	9	0%
First Floor						
P405530	CON: Building services equipment	15	10-Sep-2013	28-Sep-2013	-29	0%
P405535	VSD: Building services equipment	15	30-Aug-2013	17-Sep-2013	-35	0%
P405540	LV: Building services equipment	12	24-Aug-2013	07-Sep-2013	2	0%
P405545	CB: Building services equipment	12	03-Sep-2013	17-Sep-2013	12	0%
Electrical and Mechainical Installation						
Basement Floor						
P904100	CA: Cable Containment installation	60	27-Aug-2013	08-Nov-2013	-11	0%
P904101	CA: 11KV Cables laying (from HV-A to TX-9)	5	03-Oct-2013	09-Oct-2013	3	0%
P904102	CA: 11KV Cables laying (from HV-B to TX-10)	5	09-Oct-2013	16-Oct-2013	3	0%
P904112	CA: 380V Cables laying (from TX 9-10 to LV switchboard))	12	09-Oct-2013	23-Oct-2013	-4	0%
P904150	CA: Others Cables	60	27-Aug-2013	08-Nov-2013	-11	0%
P904190	CA: FS gas protection system	45	24-Jun-2013	15-Aug-2013	55	0%
Ground Floor						
P904010	CLP: 1st Handover inspection by CLP	10	25-Jun-2013	08-Jul-2013	0	0%
P904011	CLP: Final Handover inspection by CLP	0		08-Jul-2013	0	0%
P904015	CLP: E&M installation at switchroom (2 months) - by CLP	50	15-Jul-2013	11-Sep-2013	-6	0%
P904020	CLP: Cabling (2months) - by CLP	50	15-Aug-2013	16-Oct-2013	-6	0%
P904025	CLP: energisation	0		16-Oct-2013	-6	0%
P904030	GEN: Emergency Generator and associated E&M works	40	20-Aug-2013	08-Oct-2013	0	0%
P904035	GEN: Fuel tank Installation	21	11-Sep-2013	08-Oct-2013	1	0%
P904060	PAU: PAU and Fans	60	06-Aug-2013	18-Oct-2013	6	0%
P904065	SP: Water Spray pumps and pipeline installation	45	17-Jul-2013	06-Sep-2013	36	0%
P904160	11KV: Installation of 11KV switchboard	28	27-Aug-2013	30-Sep-2013	4	0%
P904170	TX9-10: Installatiion of Transformers	12	17-Jul-2013	31-Jul-2013	67	0%
P904180	TX1-8: Installatiion of Transformers	40	12-Aug-2013	28-Sep-2013	21	0%
P904260	TX: Cable termination	6	16-Oct-2013	23-Oct-2013	3	0%
P904420	11KV: Cable termination	6	16-Oct-2013	23-Oct-2013	3	0%
First Floor						
P904000	CB: Capacitor bank and cablings	30	03-Sep-2013	10-Oct-2013	12	0%
P904110	VSD: Lifting appliances	36	30-Aug-2013	15-Oct-2013	-35	0%
P904115	VSD: VSD panels	36	15-Oct-2013	26-Nov-2013	-35	0%
P904120	UPS: UPS, Battary and MCCB board	40	03-Sep-2013	23-Oct-2013	2	0%
P904130	LV: LV switchboard	30	16-Sep-2013	23-Oct-2013	-4	0%
Roof Floor						
P410010	RF: Air-conditioning units and heat exchangers	24	23-Sep-2013	23-Oct-2013	-1	0%
Instrumentation and Control Automation (ICA) installation						
Ugrading works for Existing DCDAS at HATS Stage 1						
P430040	KTPTW	37	23-Apr-2013 A	29-May-2013 A		100%
P430060	TKWPTW	16	07-Jun-2013 A	22-Jun-2013 A		100%
P430070	TYPTW	13	07-Jun-2013 A	19-Jun-2013 A		100%
P430080	SKWPTW	13	04-Jul-2013*	16-Jul-2013	130	0%
P430090	CWPTW	13	05-Sep-2013*	17-Sep-2013	67	0%
P430100	SCISTF	29	10-Jun-2013 A	08-Jul-2013	138	44.83%
P430110	SCIMPS1-Portion A	27	10-Jul-2013*	05-Aug-2013	110	0%
P430120	SCIMPS1-Portion B	17	24-Jul-2013*	09-Aug-2013	106	0%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P430130	SCIMPS1-Portion C	35	13-Aug-2013*	16-Sep-2013	68	0%
P430140	SCIMPS1-Portion D	22	16-Sep-2013*	07-Oct-2013	47	0%
P430150	SYSCON Computer room	12	07-Oct-2013*	18-Oct-2013	36	0%
P430160	NWKPS	14	03-Oct-2013*	16-Oct-2013	38	0%
P430170	NWKPTW	113	01-Aug-2013*	21-Nov-2013	2	0%
P430180	SCICDF	13	18-Sep-2013*	30-Sep-2013	54	0%
Hardware Installation at New Switchgear Building						
P420000	CON: Console installation	50	10-Sep-2013	11-Nov-2013	-29	0%
P420010	CON: Fibre cable laying from HATS1 Switchgear Building	60	14-May-2013 A	02-Aug-2013	54	54.5%
Statutory Submission and Inspection						
Environmental Protection Department (EPD)						
P451060	EPD: Submission for Emergency Genset	120	26-Feb-2013 A	28-Jun-2013	53	97.5%
P451065	EPD: Genset installation	40	20-Aug-2013	08-Oct-2013	0	0%
P451070	EPD: Inspection	4	16-Oct-2013	21-Oct-2013	-6	0%
Water Supply Department (WSD)						
P449030	WM(P): External watermain laying	45	24-Jun-2013	15-Aug-2013	16	0%
P449040	WM(P): Submit WWO046	0		15-Aug-2013	19	0%
P449050	WM(P): WSD inspection and install meter	18	16-Aug-2013	05-Sep-2013	16	0%
P449060	WM(P): Issue water connection advice (Portable water and Irrigation	0		05-Sep-2013	20	0%
P451000	WM(FS): Submit WWO542 (Fire Service)	60	15-Mar-2013 A	13-May-2013 A		100%
P451010	WM(FS): Approval of WWO542	0		23-Jun-2013	14	0%
P451020	WM(FS): External Watermain Pipe laying	45	24-Jun-2013	15-Aug-2013	18	0%
P451030	WM(FS): Submit WWO046	0		15-Aug-2013	18	0%
P451040	WM(FS): WSD inspection and install meter	30	16-Aug-2013	19-Sep-2013	18	0%
P451050	WM(FS): Issue Water Connection advice	0		19-Sep-2013	18	0%
Fire Service Department (FSD)						
P440040	FS: FS installation	60	05-Jun-2013 A	16-Aug-2013	54	24.33%
P440045	FS: DG submission for Fuel tank of Genset	22	20-Aug-2013	14-Sep-2013	-2	0%
P440047	FS: DG fuel tank installation	21	14-Sep-2013	11-Oct-2013	-2	0%
P440048	FS: DG store inspection	3	16-Oct-2013	19-Oct-2013	-5	0%
Testing and Commissioning						
P400196	Testing and commissioning for DCDAS system at individual PTWs, MI	60	23-Apr-2013 A	05-Jul-2013	93	83.33%
Works for Section 3						
Portion 1 (Existing CEPT tanks)						
Procurement/ Order/ Manufacturing/ Delivery						
P106120	Manufacturing of Scum Collection System	180	03-Apr-2013 A	30-Sep-2013	11	44.52%
P106130	Delivery of Scum Collectioin System	30	30-Sep-2013	30-Oct-2013	11	0%
P106150	Manufacturing of FRP mid tank baffles	180	03-Apr-2013 A	30-Sep-2013	11	44.52%
P106160	Delivery of FRP mid tank baffles	30	30-Sep-2013	30-Oct-2013	11	0%
Portion 3 (Extension of CEPT Tank)						
Submission of design of E&M works						
P301031	CMS of Scum collection system (AIP No. 8)	90	19-Mar-2013 A	17-Jun-2013 A		100%
P301032	Approval/ comment for CMS of the Scum collection system	90	18-Apr-2013 A	17-Jul-2013	28	72.7%
P301490	Approval/ comment for CMS of the Process water flushing and protec	90	25-Feb-2013 A	25-May-2013 A		100%
P301530	Approval/ comment for DDA of the Chemical (FECL3 and polymer) do:	90	15-Apr-2013 A	13-Jul-2013	70	76.67%
Procurement/ Order/ Manufacturing/ Delivery						
P301720	Manufacturing of sludge pumping systems	330	06-Aug-2012 A	01-Jul-2013	210	97.27%
P301730	Delivery of sludge pumping systems	45	02-Jul-2013	15-Aug-2013	210	0%
P301731	Procurement / Purchase Order of scum collection systems	28	17-Jul-2013	14-Aug-2013	28	0%
P301732	Manufacturing of scum collection systems	150	14-Aug-2013	11-Jan-2014	28	0%
P301740	Procurement / Purchase Order of Process water flushing and protect	30	23-Jun-2013	22-Jul-2013	78	0%
P301750	Manufacturing of Process water flushing and protected water system	120	23-Jul-2013	19-Nov-2013	78	0%
P301780	Manufacturing of penstocks and stoplogs	210	06-Feb-2013 A	03-Sep-2013	288	65.24%
P301790	Delivery of penstocks and stoplogs	35	04-Sep-2013	08-Oct-2013	288	0%
P301800	Procurement / Purchase Order of Chemical (FECL3 and polymer) dos	28	14-Jul-2013	10-Aug-2013	70	0%
P301810	Manufacturing of Chemical (FECL3 and polymer) dosing system	120	11-Aug-2013	08-Dec-2013	70	0%
P301840	Manufacturing of Lifting Appliance	180	12-Apr-2013 A	09-Oct-2013	83	39.64%
P301850	Delivery of Lifting Appliance	90	09-Oct-2013	07-Jan-2014	83	0%
P301870	Manufacturing of building service equipment	150	28-Feb-2013 A	27-Jul-2013	209	76.67%
P301880	Delivery of building service equipment	28	28-Jul-2013	24-Aug-2013	209	0%
Foundation Works						
Extension/ trimming of Existing Daido Piles						
P321010	Extension L1 to L36 (24 Nos)	18	09-Apr-2013 A	06-Jul-2013	-12	40%
P902555	Extension for J5 to J44 (11Nos)	15	23-Apr-2013 A	09-Jul-2013	-2	15%
P902600	Extension for M1 to M 59 (40Nos)	21	23-Sep-2013	18-Oct-2013	-23	0%
Excavation and Lateral Support for Substructure						
Cofferdam No. 2 (GL34-36, A)						
P904270	CO2: Temporary traffic deck and temporary support for CLP cable tre	24	25-Mar-2013 A	11-Jul-2013	-15	40%
P904285	CLP Cable trench	18	04-May-2013 A	27-May-2013 A		100%
P904290	CO2: Grout Curtain for exisitng service ducts	45	15-Apr-2013 A	09-Aug-2013	-15	45%
P904300	CO2: Install steel girder beam for temporary support of existing servic	18	26-Jul-2013	16-Aug-2013	-15	0%
P904310	CO2: Excavation down to +4.0mPD	10	16-Aug-2013	28-Aug-2013	-15	0%
P904320	CO2: Install 1st layer of wailing and strut at +4.5mPD	15	28-Aug-2013	14-Sep-2013	-15	0%
P904330	CO2: Excavation down to +1.5mPD	10	11-Sep-2013	24-Sep-2013	-15	0%

Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

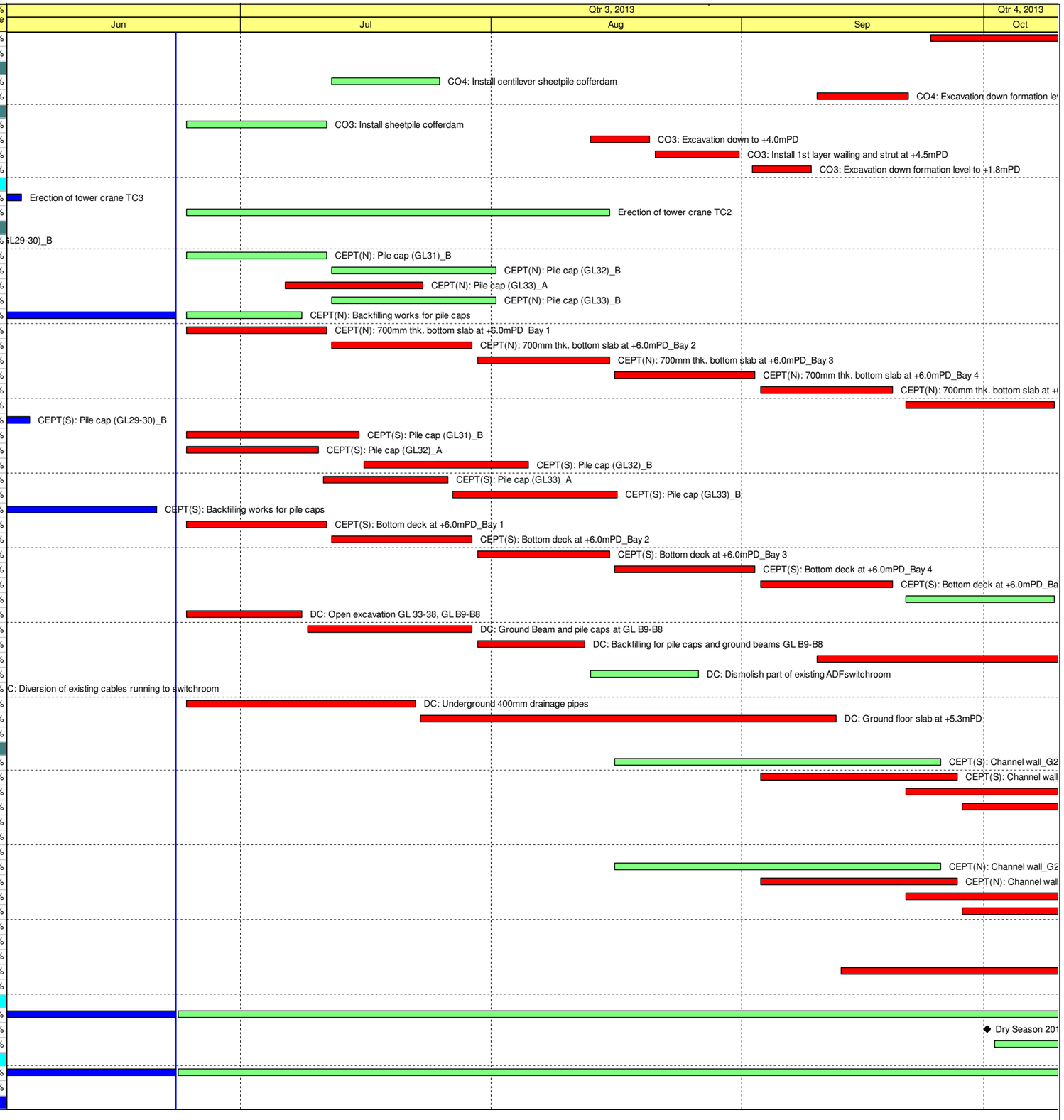
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P904340	CO2: Install 2nd layer of wailing and strut at +2.0mPD	15	24-Sep-2013	12-Oct-2013	-15	0%
P904360	CO2: Excavation down to -1.0mPD	10	12-Oct-2013	25-Oct-2013	-15	0%
Cofferdam No. 3 (GL38, B-C)						
P322400	CO4: Install centilever sheetpile cofferdam	12	12-Jul-2013	25-Jul-2013	16	0%
P322430	CO4: Excavation down formation level to +2.5mPD	10	10-Sep-2013	21-Sep-2013	-23	0%
Cofferdam No. 4 (GL33-38, B3-B6)						
P322300	CO3: Install sheetpile cofferdam	15	24-Jun-2013	11-Jul-2013	4	0%
P322310	CO3: Excavation down to +4.0mPD	7	13-Aug-2013	20-Aug-2013	-23	0%
P322320	CO3: Install 1st layer wailing and strut at +4.5mPD	10	21-Aug-2013	31-Aug-2013	-23	0%
P322330	CO3: Excavation down formation level to +1.8mPD	7	02-Sep-2013	09-Sep-2013	-23	0%
R.C. Works						
P300180	Erection of tower crane TC3	35	09-Apr-2013 A	04-Jun-2013 A		100%
P300185	Erection of tower crane TC2	45	24-Jun-2013	15-Aug-2013	126	0%
Substructure						
P330201	CEPT(N): Pile cap (GL29-30)_B	18	09-May-2013 A	21-May-2013 A		100%
P330206	CEPT(N): Pile cap (GL31)_B	15	24-Jun-2013	11-Jul-2013	10	0%
P330216	CEPT(N): Pile cap (GL32)_B	18	12-Jul-2013	01-Aug-2013	10	0%
P330225	CEPT(N): Pile cap (GL33)_A	14	06-Jul-2013	23-Jul-2013	-12	0%
P330226	CEPT(N): Pile cap (GL33)_B	18	12-Jul-2013	01-Aug-2013	10	0%
P330230	CEPT(N): Backfilling works for pile caps	48	09-May-2013 A	08-Jul-2013	31	75.42%
P330235	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 1	15	24-Jun-2013	11-Jul-2013	-17	0%
P330245	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 2	15	12-Jul-2013	29-Jul-2013	-17	0%
P330255	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 3	15	30-Jul-2013	15-Aug-2013	-17	0%
P330265	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 4	15	16-Aug-2013	02-Sep-2013	-17	0%
P330285	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 5	15	03-Sep-2013	19-Sep-2013	-17	0%
P330295	CEPT(N): 700mm thk. bottom slab at +6.0mPD_Bay 6	15	21-Sep-2013	09-Oct-2013	-3	0%
P333005	CEPT(S): Pile cap (GL29-30)_B	18	23-May-2013 A	05-Jun-2013 A		100%
P333013	CEPT(S): Pile cap (GL31)_B	18	24-Jun-2013	15-Jul-2013	-8	0%
P333015	CEPT(S): Pile cap (GL32)_A	14	24-Jun-2013	10-Jul-2013	-3	0%
P333017	CEPT(S): Pile cap (GL32)_B	18	16-Jul-2013	05-Aug-2013	-8	0%
P333020	CEPT(S): Pile cap (GL33)_A	14	11-Jul-2013	26-Jul-2013	-3	0%
P333022	CEPT(S): Pile cap (GL33)_B	18	27-Jul-2013	16-Aug-2013	-3	0%
P333025	CEPT(S): Backfilling works for pile caps	48	23-Apr-2013 A	20-Jun-2013 A		100%
P333030	CEPT(S): Bottom deck at +6.0mPD_Bay 1	15	24-Jun-2013	11-Jul-2013	-17	0%
P333035	CEPT(S): Bottom deck at +6.0mPD_Bay 2	15	12-Jul-2013	29-Jul-2013	-17	0%
P333045	CEPT(S): Bottom deck at +6.0mPD_Bay 3	15	30-Jul-2013	15-Aug-2013	-17	0%
P333055	CEPT(S): Bottom deck at +6.0mPD_Bay 4	15	16-Aug-2013	02-Sep-2013	-17	0%
P333065	CEPT(S): Bottom deck at +6.0mPD_Bay 5	15	03-Sep-2013	19-Sep-2013	-17	0%
P333075	CEPT(S): Bottom deck at +6.0mPD_Bay 6	15	21-Sep-2013	09-Oct-2013	156	0%
P334000	DC: Open excavation GL 33-38, GL B9-B8	12	24-Jun-2013	08-Jul-2013	-23	0%
P334005	DC: Ground Beam and pile caps at GL B9-B8	18	09-Jul-2013	29-Jul-2013	-23	0%
P334010	DC: Backfilling for pile caps and ground beams GL B9-B8	12	30-Jul-2013	12-Aug-2013	-23	0%
P334011	DC: Ground Beam and pile caps at GL GL B1-B6	35	10-Sep-2013	23-Oct-2013	-16	0%
P334018	DC: Dismolish part of existing ADFswitchroom	12	13-Aug-2013	26-Aug-2013	79	0%
P335035	DC: Diversion of existing cables running to switchroom	24	02-May-2013 A	31-May-2013 A		100%
P335045	DC: Underground 400mm drainage pipes	24	24-Jun-2013	22-Jul-2013	-6	0%
P335050	DC: Ground floor slab at +5.3mPD	45	23-Jul-2013	12-Sep-2013	-6	0%
P338010	FLOC: Pile head preparation	22	19-Oct-2013	13-Nov-2013	-23	0%
Superstructure						
P300560	CEPT(S): Channel wall_G29 (From +6.6 to +10.5mPD)_Bay 1-3	34	16-Aug-2013	25-Sep-2013	91	0%
P300563	CEPT(S): Channel wall_G30 (From +6.6 to +10.5mPD)_Bay 1-3	21	03-Sep-2013	27-Sep-2013	-2	0%
P300566	CEPT(S): Channel wall_G31 (From +6.6 to +10.5mPD)_Bay 1-3	21	21-Sep-2013	17-Oct-2013	-17	0%
P300569	CEPT(S): Channel wall_G32 (From +6.6 to +10.5mPD)_Bay 1-3	21	28-Sep-2013	24-Oct-2013	-2	0%
P300572	CEPT(S): Channel wall_G33 (From +6.6 to +10.5mPD)_Bay 1-3	21	18-Oct-2013	11-Nov-2013	-17	0%
P300575	CEPT(S): Upper channel deck at +10.5mPD_Bay 1-3	35	10-Oct-2013	20-Nov-2013	156	0%
P300578	CEPT(S): Upper channel deck at +10.5mPD_Bay 4-6	35	18-Oct-2013	27-Nov-2013	4	0%
P330210	CEPT(N): Channel wall_G29 (From +6.6 to +10.5mPD)_Bay 1-3	34	16-Aug-2013	25-Sep-2013	91	0%
P330211	CEPT(N): Channel wall_G30 (From +6.6 to +10.5mPD)_Bay 1-3	21	03-Sep-2013	27-Sep-2013	-2	0%
P330212	CEPT(N): Channel wall_G31 (From +6.6 to +10.5mPD)_Bay 1-3	21	21-Sep-2013	17-Oct-2013	-17	0%
P330213	CEPT(N): Channel wall_G32 (From +6.6 to +10.5mPD)_Bay 1-3	21	28-Sep-2013	24-Oct-2013	-2	0%
P330223	CEPT(N): Channel wall_G33 (From +6.6 to +10.5mPD)_Bay 1-3	21	18-Oct-2013	11-Nov-2013	-17	0%
P330231	CEPT(N): Upper channel deck at +10.5mPD_Bay 1-3	35	10-Oct-2013	20-Nov-2013	-3	0%
P330232	CEPT(N): Upper channel deck at +10.5mPD_Bay 4-6	35	18-Oct-2013	27-Nov-2013	4	0%
P330290	DC: Columns	24	13-Sep-2013	12-Oct-2013	-6	0%
P330300	DC: Channel deck at +10.3mPD	40	15-Oct-2013	29-Nov-2013	-6	0%
Effluent Culvert Connection works						
P300274	Temporary flow diversion with ST2 coordination (for northern effluent c	210	23-Mar-2013 A	18-Oct-2013	104	43.81%
P300275	Dry Season 2013	0	01-Oct-2013*		25	0%
P300280	Construction of bulkhead wall at existing Northern culvert and installati	45	02-Oct-2013	23-Nov-2013	20	0%
Disturbution Channel Connection works						
P904930	Temporary flow diversion with ST2 coordination (for northern disturbut	210	23-Mar-2013 A	18-Oct-2013	60	43.81%
P904935	Construction of bulkhead wall at existing disturbution channels	45	19-Oct-2013	10-Dec-2013	51	0%
Portion 4 (Main Pumping Station)						



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

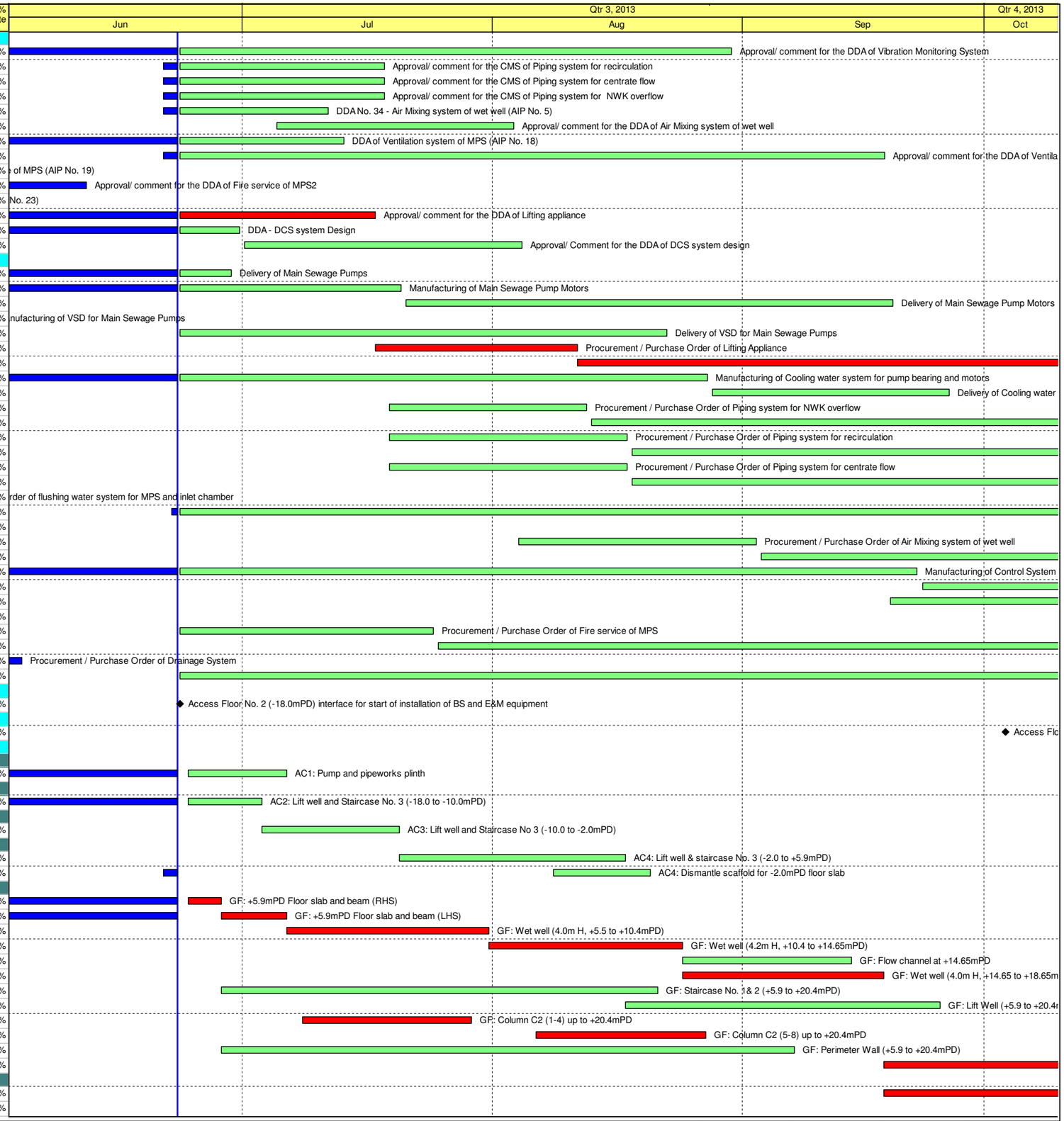
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
Submission of design of E&M works						
P301109	Approval/ comment for the DDA of Vibration Monitoring System	280	24-Nov-2012 A	30-Aug-2013	359	75.36%
P301250	Approval/ comment for the CMS of Piping system for recirculation	28	21-Jun-2013 A	18-Jul-2013	138	7.14%
P301254	Approval/ comment for the CMS of Piping system for centrate flow	28	21-Jun-2013 A	18-Jul-2013	4	7.14%
P301256	Approval/ comment for the CMS of Piping system for NWK overflow	28	21-Jun-2013 A	18-Jul-2013	125	7.14%
P301260	DDA No. 34 - Air Mixing system of wet well (AIP No. 5)	21	21-Jun-2013 A	11-Jul-2013	30	9.52%
P301270	Approval/ comment for the DDA of Air Mixing system of wet well	30	05-Jul-2013	03-Aug-2013	30	0%
P301390	DDA of Ventilation system of MPS (AIP No. 18)	90	15-Apr-2013 A	13-Jul-2013	19	76.67%
P301400	Approval/ comment for the DDA of Ventilation system of MPS2	90	21-Jun-2013 A	18-Sep-2013	19	2.22%
P301410	DDA of Fire service of MPS (AIP No. 19)	120	23-Jan-2013 A	22-May-2013 A		100%
P301420	Approval/ comment for the DDA of Fire service of MPS2	109	23-Feb-2013 A	11-Jun-2013 A		100%
P301470	DDA of Lifting appliance (AIP No. 23)	120	18-Jan-2013 A	17-May-2013 A		100%
P301540	Approval/ comment for the DDA of Lifting appliance	120	19-Mar-2013 A	17-Jul-2013	-1	79.47%
P301552	DDA - DCS system Design	84	08-Apr-2013 A	30-Jun-2013	256	90.48%
P301562	Approval/ Comment for the DDA of DCS system design	35	01-Jul-2013	04-Aug-2013	256	0%
Procurement/ Order/ Manufacturing/ Delivery						
P302270	Delivery of Main Sewage Pumps	61	30-Apr-2013 A	29-Jun-2013	23	88.52%
P302290	Manufacturing of Main Sewage Pump Motors	365	21-Jul-2012 A	20-Jul-2013	189	92.33%
P302300	Delivery of Main Sewage Pump Motors	61	21-Jul-2013	19-Sep-2013	189	0%
P302320	Manufacturing of VSD for Main Sewage Pumps	365	31-May-2012 A	30-May-2013 A		100%
P302330	Delivery of VSD for Main Sewage Pumps	61	23-Jun-2013	22-Aug-2013	82	0%
P302340	Procurement / Purchase Order of Lifting Appliance	25	17-Jul-2013	11-Aug-2013	-1	0%
P302350	Manufacturing of Lifting Appliance	120	11-Aug-2013	09-Dec-2013	-1	0%
P302380	Manufacturing of Cooling water system for pump bearing and motors	120	30-Apr-2013 A	27-Aug-2013	13	45%
P302390	Delivery of Cooling water system for pump bearing and motors	30	28-Aug-2013	26-Sep-2013	13	0%
P302421	Procurement / Purchase Order of Piping system for NWK overflow	25	19-Jul-2013	12-Aug-2013	125	0%
P302422	Manufacturing of Piping system for NWK overflow	90	13-Aug-2013	10-Nov-2013	125	0%
P302430	Procurement / Purchase Order of Piping system for recirculation	30	19-Jul-2013	17-Aug-2013	138	0%
P302431	Manufacturing of Piping system for recirculation	90	18-Aug-2013	15-Nov-2013	138	0%
P302440	Procurement / Purchase Order of Piping system for centrate flow	30	19-Jul-2013	17-Aug-2013	4	0%
P302441	Manufacturing of Piping system for centrate flow	90	18-Aug-2013	15-Nov-2013	4	0%
P302444	Procurement / Purchase Order of flushing water system for MPS and	30	19-Apr-2013 A	18-May-2013 A		100%
P302445	Manufacturing of flushing water system for MPS and inlet chamber	120	22-Jun-2013 A	19-Oct-2013	226	0.83%
P302446	Delivery of flushing water system for MPS and inlet chamber	30	20-Oct-2013	18-Nov-2013	226	0%
P302460	Procurement / Purchase Order of Air Mixing system of wet well	30	04-Aug-2013	02-Sep-2013	30	0%
P302470	Manufacturing of Air Mixing system of wet well	120	03-Sep-2013	31-Dec-2013	30	0%
P302530	Manufacturing of Control System for DCS and Interfacing control syst	223	12-Feb-2013 A	22-Sep-2013	105	58.74%
P302540	Delivery of Control System for DCS and Interfacing control system	30	23-Sep-2013	22-Oct-2013	105	0%
P302610	Procurement / Purchase Order of Ventilation system of MPS	24	19-Sep-2013	12-Oct-2013	19	0%
P302620	Manufacturing of Ventilation system of MPS	90	13-Oct-2013	10-Jan-2014	19	0%
P302640	Procurement / Purchase Order of Fire service of MPS	32	23-Jun-2013	24-Jul-2013	49	0%
P302650	Manufacturing of Fire service of MPS	120	25-Jul-2013	21-Nov-2013	49	0%
P302700	Procurement / Purchase Order of Drainage System	34	01-May-2013 A	03-Jun-2013 A		100%
P302710	Manufacturing of Drainage System	150	23-Jun-2013	19-Nov-2013	143	0%
Interface between Civil/ ABWF/ E&M works (Access Floor No. 2, -18.0mPD)						
MPS0020	Access Floor No. 2 (-18.0mPD) interface for start of installation of BS	0		23-Jun-2013	264	0%
Interface between Civil/ ABWF/ E&M works (Access Floor No. 3, -10.0mPD)						
MPS0030	Access Floor No. 3 (-10.0mPD) interface for start of installation of BS	0		03-Oct-2013	283	0%
R.C. Works						
Access Floor No. 1 (-32.0mPD)						
P400255	AC1: Pump and pipeworks plinth	24	03-Apr-2013 A	06-Jul-2013	13	55%
Access Floor No. 2 (-18.0mPD)						
P400445	AC2: Lift well and Staircase No. 3 (-18.0 to -10.0mPD)	15	23-Apr-2013 A	03-Jul-2013	39	50%
Access Floor No. 3 (-10.0mPD)						
P902710	AC3: Lift well and Staircase No 3 (-10.0 to -2.0mPD)	15	03-Jul-2013	20-Jul-2013	39	0%
Access Floor No. 4 (-2.0mPD)						
P902800	AC4: Lift well & staircase No. 3 (-2.0 to +5.9mPD)	24	20-Jul-2013	17-Aug-2013	39	0%
P903140	AC4: Dismantle scaffold for -2.0mPD floor slab	12	21-Jun-2013 A	20-Aug-2013	179	16.67%
Ground floor slab (+5.9mPD)						
P902840	GF: +5.9mPD Floor slab and beam (RHS)	18	23-Apr-2013 A	28-Jun-2013	-32	75%
P902850	GF: +5.9mPD Floor slab and beam (LHS)	18	08-May-2013 A	06-Jul-2013	-32	65%
P902860	GF: Wet well (4.0m H, +5.5 to +10.4mPD)	21	06-Jul-2013	31-Jul-2013	-32	0%
P902870	GF: Wet well (4.2m H, +10.4 to +14.65mPD)	21	31-Jul-2013	24-Aug-2013	-32	0%
P902880	GF: Flow channel at +14.65mPD	18	24-Aug-2013	14-Sep-2013	52	0%
P902890	GF: Wet well (4.0m H, +14.65 to +18.65mPD)	21	24-Aug-2013	18-Sep-2013	-32	0%
P902900	GF: Staircase No. 1& 2 (+5.9 to +20.4mPD)	45	28-Jun-2013	21-Aug-2013	21	0%
P902910	GF: Lift Well (+5.9 to +20.4mPD)	32	17-Aug-2013	25-Sep-2013	39	0%
P902920	GF: Column C2 (1-4) up to +20.4mPD	18	08-Jul-2013	29-Jul-2013	-13	0%
P902930	GF: Column C2 (5-8) up to +20.4mPD	18	06-Aug-2013	27-Aug-2013	-13	0%
P903040	GF: Perimeter Wall (+5.9 to +20.4mPD)	60	28-Jun-2013	07-Sep-2013	13	0%
P903650	GF: Wet well (4.0m H, +18.65 to +22.0mPD)	21	18-Sep-2013	16-Oct-2013	-15	0%
1/f slab (+20.4mPD)						
P902940	1F: +20.4mPD Floor slab and beam (RHS)	18	18-Sep-2013	11-Oct-2013	-32	0%
P902950	1F: +20.4mPD Floor slab and beam (LHS)	18	11-Oct-2013	02-Nov-2013	-31	0%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

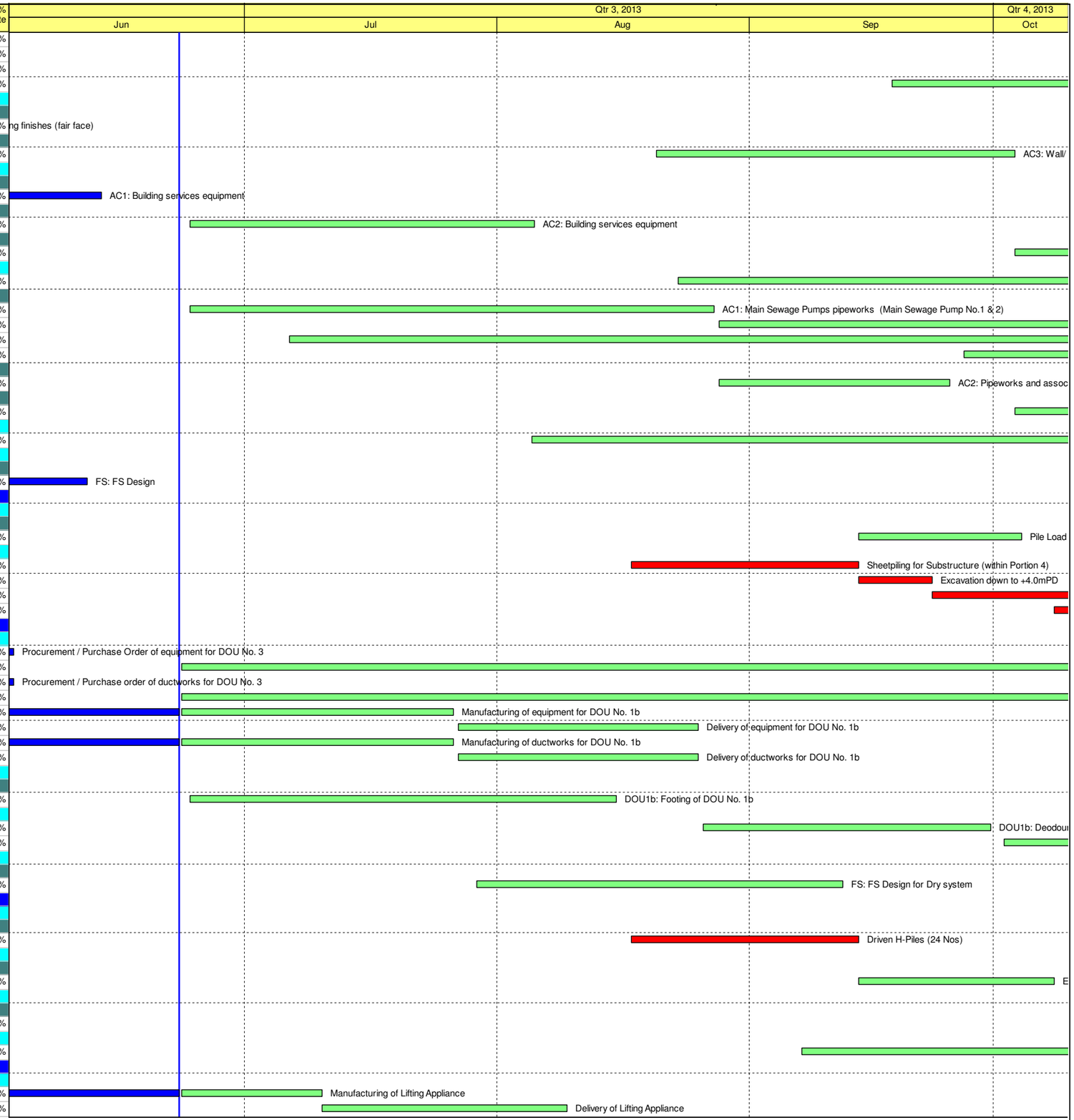
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P902960	1F: Wet well (+22.0 to +25.9mPD)	18	16-Oct-2013	06-Nov-2013	-15	0%
P903000	1F: Staircase No. 1 and No. 2 (+20.4 to +25.9mPD)	28	11-Oct-2013	14-Nov-2013	-22	0%
P903020	1F: Column C2 (1-4) up to +25.9mPD	12	11-Oct-2013	26-Oct-2013	-32	0%
P903050	1F: Perimeter Wall (+20.4 to +25.9mPD)	60	18-Sep-2013	30-Nov-2013	3	0%
Builder and finishes Works						
Access Floor No. 2 (-19.0mPD)						
P400395	AC2: Wall/ ceiling finishes (fair face)	36	11-Apr-2013 A	24-May-2013 A		100%
Access Floor No. 3 (-10.0mPD)						
P400525	AC3: Wall/ ceiling finishes (fair face)	36	20-Aug-2013	03-Oct-2013	179	0%
Building Service Installation						
Access Floor No. 1 (-32.0mPD)						
P400280	AC1: Building services equipment	45	18-Apr-2013 A	13-Jun-2013 A		100%
Access Floor No. 2 (-19.0mPD)						
P400350	AC2: Building services equipment	36	24-Jun-2013	05-Aug-2013	216	0%
Access Floor No. 3 (-10.0mPD)						
P400360	AC3: Building services equipment	36	03-Oct-2013	15-Nov-2013	227	0%
Electrical and Machainical Installation						
P400311	Installation of VSD panels and associated cabling works (at switchgea	230	23-Aug-2013	05-Jun-2014	67	0%
Access Floor No. 1 (-32.0mPD)						
P903760	AC1: Main Sewage Pumps pipeworks (Main Sewage Pump No.1 & 2)	55	24-Jun-2013	27-Aug-2013	32	0%
P903770	AC1: Main Sewage Pumps pipeworks (Main Sewage Pump No.3 & 4)	55	28-Aug-2013	02-Nov-2013	32	0%
P903795	AC1: Main Sewage Pump No.1 - 4 (RHS)	200	06-Jul-2013	07-Mar-2014	13	0%
P904410	AC1: Cooling Water Pipeworks for Pump Bearings	90	27-Sep-2013	15-Jan-2014	10	0%
Access Floor No. 2 (-19.0mPD)						
P903830	AC2: Pipeworks and associated cabling works (Main Sewage Pump N	24	28-Aug-2013	25-Sep-2013	185	0%
Access Floor No. 3 (-10.0mPD)						
P903960	AC3: Pipeworks and associated cabling works (Main Sewage Pump N	24	03-Oct-2013	01-Nov-2013	179	0%
Instrumentation and Control Automation (ICA) installation						
P409000	NWK PTW: DCS installation	80	05-Aug-2013	08-Nov-2013	308	0%
Statutory Submission and Inspection						
Fire Service Department (FSD)						
P402700	FS: FS Design	45	28-Apr-2013 A	11-Jun-2013 A		100%
Portion 4 (Main flow Culvert)						
Foundation Works						
Driven H-Pile						
P903430	Pile Load Test for working pile	15	14-Sep-2013	04-Oct-2013	38	0%
Excavation and Lateral Support Works for Substructure (Near MPS2)						
P903130	Sheetpiling for Substructure (within Portion 4)	24	17-Aug-2013	14-Sep-2013	-26	0%
P903440	Excavation down to +4.0mPD	6	14-Sep-2013	23-Sep-2013	-26	0%
P903450	Install 1st layer of wailing and strut at +4.5mPD	15	23-Sep-2013	11-Oct-2013	-26	0%
P903460	Excavation down to +1.5mPD	12	08-Oct-2013	23-Oct-2013	-26	0%
Portion 4 (Deodourization Unit No. 3 & 1b and Odour duct bridge)						
Procurement/ Order/ Manufacturing/ Delivery						
P403080	Procurement / Purchase Order of equipment for DOU No. 3	25	09-May-2013 A	02-Jun-2013 A		100%
P403090	Manufacturing of equipment for DOU No. 3	240	23-Jun-2013	17-Feb-2014	83	0%
P403110	Procurement / Purchase order of ductworks for DOU No. 3	25	09-May-2013 A	02-Jun-2013 A		100%
P403120	Manufacturing of ductworks for DOU No. 3	240	23-Jun-2013	17-Feb-2014	115	0%
P403150	Manufacturing of equipment for DOU No. 1b	100	18-Apr-2013 A	26-Jul-2013	249	66%
P403160	Delivery of equipment for DOU No. 1b	30	27-Jul-2013	25-Aug-2013	249	0%
P403180	Manufacturing of ductworks for DOU No. 1b	100	18-Apr-2013 A	26-Jul-2013	287	66%
P403190	Delivery of ductworks for DOU No. 1b	30	27-Jul-2013	25-Aug-2013	287	0%
R.C. Works						
Deodourization Unit No. 3 and No. 1b						
P400495	DOU1b: Footing of DOU No. 1b	45	24-Jun-2013	15-Aug-2013	208	0%
Electrical and Machainical Installation						
P401680	DOU1b: Deodourization unit No. 1b	30	26-Aug-2013	30-Sep-2013	200	0%
P401681	DOU1b: Ductworks for DOU No. 1b	60	02-Oct-2013	11-Dec-2013	200	0%
Statutory Submission and Inspection						
Fire Service Department (FSD)						
P905190	FS: FS Design for Dry system	45	29-Jul-2013	12-Sep-2013	86	0%
Portion 4 (Service Ducts)						
Foundation Works						
Driven H-pile						
P903540	Driven H-Piles (24 Nos)	24	17-Aug-2013	14-Sep-2013	-26	0%
Excavation and lateral support for substructure						
Service Duct (Type 1)						
P400550	ELS for service duct at CH0-20	18	14-Sep-2013	08-Oct-2013	188	0%
R.C. Works						
Service Duct (Type 1)						
P400560	R.C. works of service Ducts at CH0-20	25	17-Oct-2013	15-Nov-2013	181	0%
Civil Works						
P400570	Dia 100-32mm Watermain laying	75	07-Sep-2013	07-Dec-2013	272	0%
Portion 5 (Inlet Chamber)						
Procurement/ Order/ Manufacturing/ Delivery						
P501490	Manufacturing of Lifting Appliance	120	12-Mar-2013 A	10-Jul-2013	278	85.25%
P501500	Delivery of Lifting Appliance	30	10-Jul-2013	09-Aug-2013	278	0%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

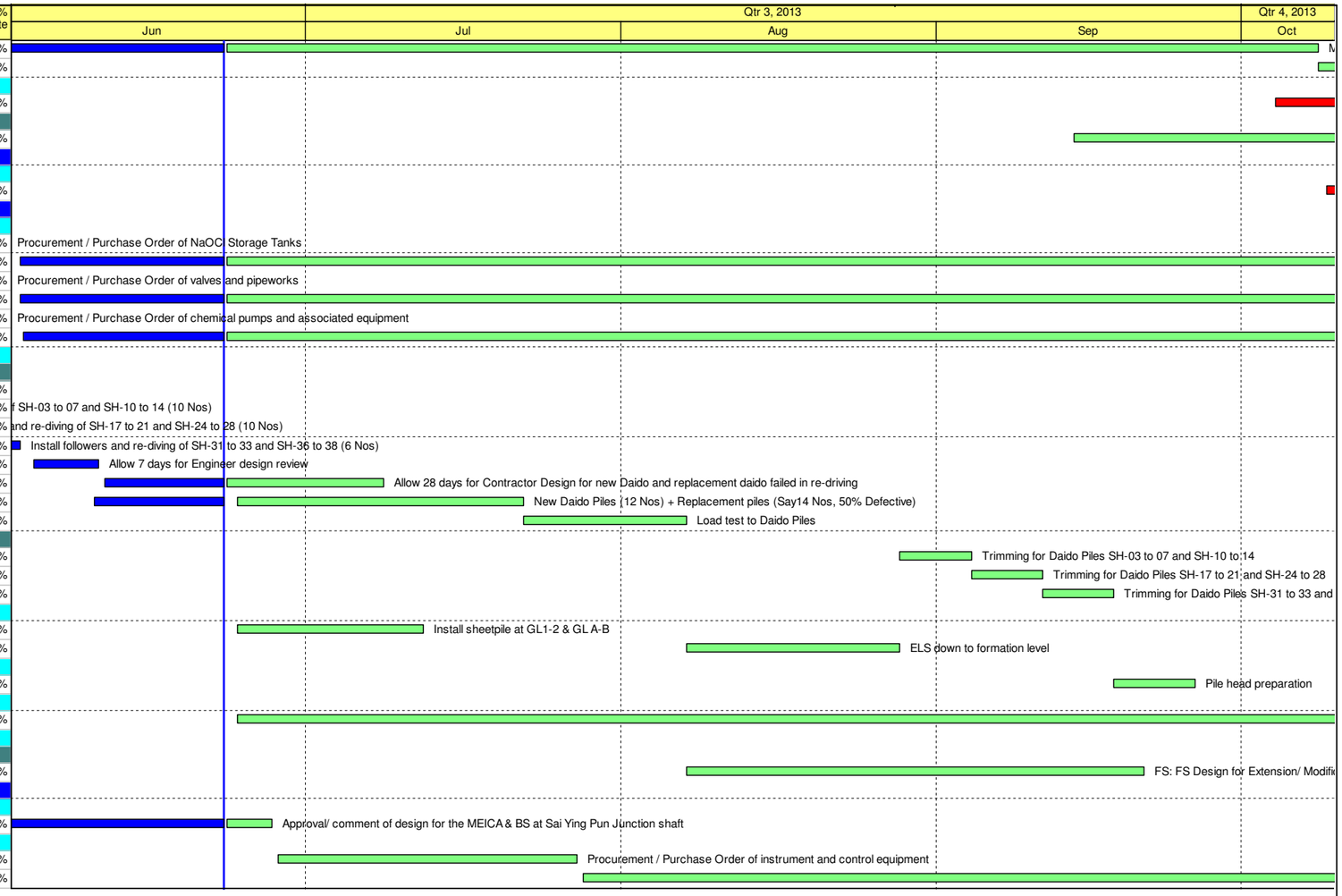
Contract No. DC/2009/10

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatement Works

Three Months Rolling Programme (24 Jun 2013 to 24 Sep 2013)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P501610	Manufacturing of building service equipment	210	12-Mar-2013 A	08-Oct-2013	76	48.71%
P501620	Delivery of building service equipment	50	08-Oct-2013	27-Nov-2013	76	0%
R.C. Works						
P400631	R.C. works for Manifold of cast-in puddle flange for connection of valv	180	04-Oct-2013	16-May-2014	-30	0%
Diaphgram Wall opening						
P400635	Breaking Diaphgram wall for twin wet well inlet pipes	60	14-Sep-2013	27-Nov-2013	94	0%
Portion 6 (Valve Chamber)						
R.C. Works						
P600010	Site Clearance	12	09-Oct-2013	23-Oct-2013	-52	0%
Portion 8 (Extension of Sodium Hypochlorite Storage Compound)						
Procurement/ Order/ Manufacturing/ Delivery						
P801140	Procurement / Purchase Order of NaOCl Storage Tanks	30	02-May-2013 A	01-Jun-2013 A		100%
P801150	Manufacturing of NaOCl Storage Tanks	180	03-Jun-2013 A	10-Dec-2013	45	5%
P801170	Procurement / Purchase Order of valves and pipeworks	30	02-May-2013 A	01-Jun-2013 A		100%
P801180	Manufacturing of valves and pipeworks	210	03-Jun-2013 A	08-Jan-2014	136	5%
P801200	Procurement / Purchase Order of chemical pumps and associated ec	30	02-May-2013 A	01-Jun-2013 A		100%
P801210	Manufacturing of chemical pumps and associated equipment	270	03-Jun-2013 A	06-Mar-2014	79	5%
Foundation Works						
Re-driving test for existing daido Piles						
P800039	Mobilization and expose existing diado piles	10	29-Apr-2013 A	10-May-2013 A		100%
P800041	Install followers and re-diving of SH-03 to 07 and SH-10 to 14 (10 Nos	6	11-May-2013 A	17-May-2013 A		100%
P800042	Install followers and re-diving of SH-17 to 21 and SH-24 to 28 (10 Nos	6	18-May-2013 A	24-May-2013 A		100%
P800043	Install followers and re-diving of SH-31 to 33 and SH-36 to 38 (6 Nos)	6	25-May-2013 A	03-Jun-2013 A		100%
P800120	Allow 7 days for Engineer design review	7	04-Jun-2013 A	10-Jun-2013 A		100%
P800130	Allow 28 days for Contractor Design for new Daido and replacement c	28	11-Jun-2013 A	08-Jul-2013	68	42.86%
P800180	New Daido Piles (12 Nos) + Replacement piles (Say14 Nos, 50% Def	36	10-Jun-2013 A	22-Jul-2013	55	35%
P800240	Load test to Daido Piles	14	22-Jul-2013	07-Aug-2013	55	0%
Trimming/ Extension of existing daido piles						
P905430	Trimming for Daido Piles SH-03 to 07 and SH-10 to 14	6	28-Aug-2013	04-Sep-2013	55	0%
P905440	Trimming for Daido Piles SH-17 to 21 and SH-24 to 28	6	04-Sep-2013	11-Sep-2013	55	0%
P905450	Trimming for Daido Piles SH-31 to 33 and SH-36 to 38	6	11-Sep-2013	18-Sep-2013	55	0%
Excavation and Lateral Support for Substructure						
P802070	Install sheetpile at GL1-2 & GL A-B	16	24-Jun-2013	12-Jul-2013	76	0%
P802080	ELS down to formation level	18	07-Aug-2013	28-Aug-2013	55	0%
R.C. Works						
P905465	Pile head preparation	6	18-Sep-2013	26-Sep-2013	55	0%
Structural Steel Works						
P800100	Fabrication of Structural steel	120	24-Jun-2013	14-Nov-2013	176	0%
Statutory Submission and Inspection						
Fire Sevice Department (FSD)						
P905620	FS: FS Design for Extension/ Modification of Fire Service system	45	07-Aug-2013	21-Sep-2013	283	0%
Sai Ying Pun Junction Shaft						
Submission of design of E&M works						
P801060	Approval/ comment of design for the MEICA & BS at Sai Ying Pun Jun	210	30-Nov-2012 A	27-Jun-2013	75	97.62%
Procurement/ Order/ Manufacturing/ Delivery						
P801260	Procurement / Purchase Order of instrument and control equipment	30	28-Jun-2013	27-Jul-2013	75	0%
P801270	Manufacturing of instrument and control equipment	180	28-Jul-2013	23-Jan-2014	75	0%



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