China Harbour Engineering Company Limited

Contract No. DC/2007/20

Harbour Area Treatment Scheme Stage 2A – Construction of Advance Disinfection Facilities at Stonecutters Island Sewage Treatment Works

Environmental Monitoring and Audit

Monthly Report (Version 1.0)

July 2008

Approved By	Dr. Priscilla Choy (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.

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 1st monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for Contract No. DC/2007/20 "Harbour Area Treatment Scheme Stage 2A – Construction of Advance Disinfection Facilities at Stonecutters Island Sewage Treatment Works" (the Project). This report documents the findings of EM&A Works conducted in July 2008.

2. The construction works for Portions 1 & 2 of the Project were commenced on 18th July 2008.

3. The major site activities undertaken in the reporting month included:

- Erection of temporary office for the Engineer;
- Mobilization of piling Rig for mini-piling works at Day Tank Storage Area;
- Re-driving existing PPC piles for chlorination compound and Switch Room No.1;
- Pre-drilling works for Day Tank Storage Area and Switch Room No. 2; and
- Diversion of existing DN250 watermain.

Environmental Monitoring Works

4. Environmental monitoring for the Project was performed in accordance with the Project EM&A Manual and the monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

5. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I Summary Table for Events Recorded in the Reporting Month

Parameter	No. of Exceedance		No. of Events Due to this Project	Action Taken
	Action Level	Limit Level		
1-hr TSP	0	0	0	N/A
24-hr TSP	0	0	0	N/A

1-hour TSP Monitoring

6. All 1-hour TSP monitoring was conducted at AM1 as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

7. All 24-hour TSP monitoring was conducted at AM1 as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

8. Environmental related licenses/permits granted to the Project include the Project Environmental Permit, billing account for Disposal of construction waste, Waste Water Discharge license and Construction Noise Permit.

Key Information in the Reporting Month

9. Summary of key information in this reporting month is tabulated in Table II.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	1	Baseline Environmental Monitoring Report for Portions 1 & 2 (Version 1.1)	Submitted to EPD on 2nd July 2008 (EP condition 4.3).	No comment	---
Notifications of any summons & prosecutions	0	---	N/A	N/A	---

Future Key Issues

10. Major site activities for the coming month will include:

- Erection of the Engineer's Site Office;
- Construction of Switch Room No. 1;
- Erection of project signboard at Portion 2;
- Construction of Barge Unloading Area;
- Construction of Wash-out Chamber No.1; and
- Diversion of existing DN250 watermain.

11. The future environmental concerns will be mainly on ponding water and surface runoff due to the rainy weather; dust emission from concrete breaking and excavation works; and management on waste generated from the works above.

1 INTRODUCTION

Background

1.1 "Harbour Area Treatment Scheme Stage 2A – Construction of Advance Disinfection Facilities at Stonecutters Island Sewage Treatment Works" (hereinafter called the "the Project") under Contract No. DC/2007/20 is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). A Final Environmental Impact Assessment (EIA) Report has been prepared in July 2007 to consider the key issues of noise, air quality, water quality, ecological, construction waste and human health risk, and identify possible mitigation measures. The Final EIA Report was endorsed by Environmental Protection Department (EPD) on 8 November 2007 and was included in the EIA register under the EIAO as report no. AEIAR-113/2007. Environmental Monitoring and Audit (EM&A) Manual for the Final EIA Report was also included as part of the Final EIA report in the register. An Environmental Permit (EP) No. EP-295/2007 was issued on 3rd December 2007 for the Project "Harbour Area Treatment Scheme – Provision of Disinfection Facilities at Stonecutters Island Sewage Treatment Works" to the Drainage Services Department (DSD) as Permit Holder. This Project comprises the Construction Phase of the Project "Harbour Area Treatment Scheme – Provision of Disinfection Facilities at Stonecutters Island Sewage Treatment Works".

1.2 The Project comprises mainly the construction of the advance disinfection facilities (ADF) include:

(a) Chlorination system - provision of a sodium hypochlorite solution storage farm and associated dosing system; and

(b) Dechlorination system - provision of a sodium bisulphite storage and associated dosing system.

1.3 The Project site layout plan is shown in **Figure 1.1.**

1.4 The Project will be constructed within the existing sewage treatment works on Stonecutters Island (SCISTW), which is providing Chemically Enhanced Primary Treatment (CEPT) for 1.4 million cubic metres of sewage collected each day through deep tunnels from the HATS Stage 1 catchments (i.e. the whole of Kowloon peninsula, Tseung Kwan O, Kwai Chung, Tsing Yi, Chai Wan and Shau Kei Wan). The design treatment capacity of the SCISTW is 1.7 million cubic metres per day. At present, the plant has no disinfection facility and the CEPT treated effluent is now discharged to the waters southwest of Stonecutters Island through a 1.7 km long outfall.

1.5 The chlorination system of the disinfection facilities would be located within the site boundary of the existing SCISTW (**Figure 1.1** refers). The dechlorination plant would be located adjacent to the existing chamber no. 15 (**Figure 1.1** refers) at the western end of Container Port Road South.

1.6 China Harbour Engineering Company Limited (CHEC) was awarded as the main contractor (hereinafter called "the Contractor") of the Project. Cinotech Consultants Limited (Cinotech) was commissioned by CHEC as the Environmental Team (ET). Dr. Priscilla CHOY of Cinotech was appointed as the ET Leader of the Project in accordance with EP Condition 2.1. Hyder Consulting Limited (Hyder) was employed by DSD to undertaken Independent Checker (IEC) services of the Project and Mr. Antony Wong of Hyder was appointed as the IEC under EP Condition 2.2.

1.7 The construction works for Portions 1 & 2 of the Project were commenced on 18th July 2008

1.8 This is the 1st monthly EM&A report summarizing the EM&A works for the Project in July 2008.

Project Organizations

1.9 Different parties with different levels of involvement in the project organization include:

- Project Proponent/ Permit Holder – Drainage Services Department (DSD)
- Engineer's Representative (ER) – Ove Arup & Partners Hong Kong Ltd. (ARUP)
- Contractor – China Harbour Engineering Company Limited (CHEC)
- Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)
- Independent Environmental Checker (IEC) – Hyder Consulting Limited (Hyder)

1.10 The responsibilities of respective parties in construction phase are detailed in Section 1.19 to 1.25 of the Project EM&A Manual.

1.11 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
DSD	Project Proponent/ Permit Holder	Ms. Ada LAI	Engineer	2159 3411	2833 9162
ARUP	Engineer's Representative	Mr. Peter WONG	Resident Engineer	2407 8221	2407 8772
		Ms. Gary CHEUNG	Resident Engineer	6201 3158	
		Mr. Sunny LO	Inspector of Works	6345 0548	
CHEC	Contractor	Mr. T. K. CHEUNG	Project Manager	2887 8118	2741 2772
		Mr. Aaron AU	Site Agent	6345 0754	
		Ms. Lighting CHAN	Environmental Officer	2887 8118	
Cinotech	Environmental Team	Dr. Priscilla CHOY	Environmental Team Leader	2151 2089	3107 1388
		Mr. Robert TSANG	Project Coordinator and Audit Team Leader	2151 2099	
		Mr. Henry LEUNG	Monitoring Team Leader	2151 2087	
Hyder	Independent Environmental Checker	Mr. Antony WONG	Independent Environmental Checker	2911 2744	2805 5028
		Ms. Karine WONG	Project Manager	2911 2707	
		Ms. Selina LEUNG	Independent Environmental Checker Representative	2911 2733	

Construction Programme

1.12 The site activities undertaken in the reporting month were:

- Erection of temporary office for the Engineer;
- Mobilization of piling Rig for mini-piling works at Day Tank Storage Area;
- Re-driving existing PPC piles for chlorination compound and Switch Room No.1;
- Pre-drilling works for Day Tank Storage Area and Switch Room No. 2; and
- Diversion of existing DN250 watermain.

Summary of EM&A Requirements

1.13 The EM&A programme requires construction phase air quality and noise monitoring as well as environmental site audits. The EM&A requirements 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 Final EIA report; and
- Environmental requirements in contract documents.

1.14 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.

1.15 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise as well as audit works for the Project in the reporting month.

2 AIR QUALITY

Monitoring Requirements

2.1 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted in accordance with the EM&A Manual to monitor the air quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 According to the EM&A Manual, two designated monitoring stations, AM1 and AM2 were selected for air quality monitoring, as shown in **Figure 1.2**. **Table 2.1** describes the locations of the air quality monitoring stations.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Location	Status
AM 1	Rooftop, Block A of Government Dockyard	Impact Monitoring
AM 2*	Ngong Shuen Chau Barracks – Group 2	Has not been confirmed

Remarks: *The designated AM2 was located close to the Project Portions 3 & 4 that the construction has not been commenced in those areas and the location for setting up AM 2 has not been confirmed.

Monitoring Equipment

2.3 **Table 2.2** summarizes the equipment used for the air quality monitoring in the reporting month.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Qty.
HVS Sampler	Graseby GMW 2310 HVS, Model GS-2310105-1	1
Calibrator	Tisch Environmental, Inc.; Model no. TE-5025A	1
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1

Monitoring Parameters, Frequency and Duration

2.4 **Table 2.3** summarizes the monitoring parameters and frequencies of impact air quality monitoring for the whole construction period.

Table 2.3 Impact Air Quality Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

2.5 1-hr TSP and 24-hr TSP were only conducted at AM1 as scheduled in the reporting month.

Monitoring Methodology and QA/QC Procedure

Instrumentation

2.6 High volume Samplers (HVS) completed with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

HVS Installation

2.7 The following guidelines were adopted during the installation of HVS:

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

Filters Preparation

2.8 Fiberglass filters (G810) were used [Note: these filters have a collection efficiency of larger than 99% for particles of 0.3 mm diameter]. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS 083), was responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for Cinotech's monitoring team.

2.9 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature

was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

2.10 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

2.11 Operating/analytical procedures for the air quality monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the two HVS were properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- The power supply was checked to ensure the samplers worked properly.
- On sampling, the samplers were operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

2.12 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipments and necessary power supply are in good working condition.
- All HVS were calibrated (five point calibration) using Calibration Kit prior to the commencement of the baseline monitoring.

Results and Observations

2.13 1-hour TSP monitoring at AM1 was conducted as scheduled in the reporting month. The results of 1-hour TSP were ranged between 38 $\mu g/m^3$ and 247 $\mu g/m^3$. No Action/Limit Level exceedance was recorded.

2.14 24-hour TSP monitoring at AM1 was conducted as scheduled in the reporting month. The results of 24-hour TSP were ranged between 42 $\mu g/m^3$ and 56 $\mu g/m^3$. No Action/Limit Level exceedance was recorded.

2.15 The designated AM2 was located close to the Project Portions 3 & 4 that the construction has not been commenced in those areas and the location for setting up AM 2 has not been confirmed. No monitoring work was conducted at AM2 in the reporting month.

2.16 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices D** and **E** respectively.

2.17 Wind data monitoring equipment has been installed at Rooftop, Block A of Government Dockyard for logging wind speed and wind direction. These wind data for the reporting month is summarized in **Appendix F**.

2.18 The environmental monitoring schedules for the reporting month and also the tentative schedule for the next month are shown in **Appendix C**.

3 NOISE

3.1 One construction noise monitoring station, NM1 - Barrack Buildings, was designated in the EM&A Manual.

3.2 The designated NM1 was located close to the Project Portions 3 & 4 that the construction has not been commenced in those areas and the location for setting up NM 1 has not been confirmed.

3.3 No construction noise monitoring work was conducted in the reporting month.

4 ENVIRONMENTAL AUDIT

Site Audits

4.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.

4.2 Site audits were conducted on 9th, 16th, 23rd and 30th July 2008 by ET. A joint site audit with the representatives of IEC, ER, the Contractor and the ET was carried out on 9th July 2008. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

4.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

Noise Monitoring

- No construction noise monitoring work was conducted in the reporting month.
- According to the observation in weekly site audit sessions, no excessive noise was notified from the Project.

Status of Environmental Licensing and Permitting

4.4 All permits/licenses obtained for the Project are summarized in **Table 4.1**.

Status of Waste Management

4.5 The Construction and Demolition (C&D) materials generated in the reporting month were some inert C&D materials that disposed as Public Fill. The quantities of waste generated in this reporting month are summarized in **Appendix K**. No chemical waste was generated in the reporting month.

Implementation Status of Environmental Mitigation Measures

4.6 According to the EIA Report and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. A summary of the EMIS is provided in **Appendix J**.

Table 4.1 Summary of Environmental Licensing and Permit Status

Permit / License No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-295/2007	03/12/07	N/A	The Project involves construction and operation of disinfection facilities (chlorination/dechlorination) within the existing Stonecutters Island Sewage Treatment Works. The disinfection facilities include storage, dosing and associated pipeline systems for sodium hypochlorite sodium bisulphite.	Valid
Billing Account for Disposal of Construction Waste				
7007138	13/05/08	N/A	Disposal of Construction waste.	Valid
Waste Water Discharge License				
EP760/269/0133011	14/07/08	31/07/13	Discharge of industrial trade effluent and all other wastewater after solid removal arising from Construction site at Stonecutters Island Sewage Treatment Works, Kowloon (Contract No. DC/2007/20 HATS 2A- Construction of Advance Disinfection Facilities at SCISTW) to communal storm drain.	Valid
Construction Noise Permit (CNP)				
PP-RW0010-08	20/05/08	19/09/08	Location: Construction site in Stonecutters Island Sewage Treatment Works at Stonecutters Island, Kowloon. Day and hours for the use of PMEs: 07:00-19:00 on any day not being a general holiday.	Valid

4.7 During the weekly environmental site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 4.2**.

Table 4.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations	Remedial Actions
Water Quality	9 Jul 08	Formation of ponding water was observed around Works Area B and Daytank Storage Area after rain. The Contractor was reminded to clear the ponding water or provide larvicidal oil regularly to prevent mosquito breeding.	The situation was observed improved/rectified in audit session 80716.
		Oil and silt were observed accumulated in the U-channel at Daytank Storage Area. The Contractor was reminded to clean it up and provide sufficient sandbags for desilting of surface runoff.	The situation was observed improved/rectified in audit session 80716.
	16 Jul 08	Ponding water was observed at the wheel washing bay at Works Area B. As the wheel washing bay was not ready to use at the moment, the Contractor was reminded to dry out the ponding water or provide larvicidal oil regularly to prevent mosquito breeding.	The situation was observed improved/rectified in audit session 80723.

Parameters	Date	Observations	Remedial Actions
		Overflow of silty water was observed at Daytank Storage Area. The Contractor was advised to provide extra sandbags for flood protection or reduce the amount of excavated materials.	The situation was observed improved/rectified in audit session 80723.
	30 Jul 08	Silt was observed accumulated higher than the sandbags and close to the edge of the Site Area at Daytank Storage Area. The Contractor was advised to provide sufficient sandbags and clean up the floor to prevent silty surface runoff during rain.	This item will be followed up in the coming audit sessions.
Air Quality	23 Jul 08	Exposed stockpiles of excavated materials were observed at Works Area B and Daytank Storage Area. To prevent dust emission, the Contractor was reminded to remove them, cover them with tarpaulin or provide water spraying daily.	The situation was observed improved/rectified in audit session 80730.
Waste / Chemical Management	9 Jul 08	General refuse (including discarded water bottles and cigarette box) was observed around Daytank Storage Area. The Contractor was reminded to clean it up and provide sufficient rubbish bin for this area.	The situation was observed improved/rectified in audit session 80716.
	23 Jul 08	General refuse was observed around the constructing RE's Site Office. The Contractor was reminded to clean it up.	The situation was observed improved/rectified in audit session 80730.
	30 Jul 08	Oil was observed on the ponding water at Daytank Storage Area. The Contractor was reminded to clean up the oil before discharging into public channel.	This item will be followed up in the coming audit sessions.

Implementation Status of Event Action Plans

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

1-hr TSP

4.9 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP

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

Summary of Complaint and Prosecution

4.11 No environmental related complaint, prosecution or notification of summons was received in the reporting month.

4.12 There was no environmental complaint, prosecution or notification of summons received since the Project commencement. The Complaint Log is attached in **Appendix M**.

5 FUTURE KEY ISSUES

Key Issues for the Coming Month

5.1 Key issues to be considered in the coming months include:

- Surface runoff from the Site area due to construction works and rainy weather;
- Dust emission from concrete breaking, excavation and loading and unloading dusty materials;
- Noise nuisance from operation of equipment and machinery on-site;
- Maintenance of de-silting facilities and drainage system, such as U-channels;
- Formation of ponding/ stagnant water in the site areas;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Larviciding against mosquito breeding in stagnant water should be carried out at least on a weekly basis; and
- Accumulation of C&D waste and general waste on site.

Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix C**.

Construction Program for the Next Month

5.3 A tentative construction programme is provided in **Appendix L**. The major construction activities in the coming month will include:

- Erection of the Engineer's Site Office;
- Construction of Switch Room No. 1;
- Erection of project signboard at Portion 2;
- Construction of Barge Unloading Area;
- Construction of Wash-out Chamber No.1; and
- Diversion of existing DN250 watermain.

6 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

6.1 Environmental monitoring and audit works were conducted in the reporting month. Site inspections were conducted on a weekly basis. The results were reviewed and checked.

1-hour TSP Monitoring

6.2 All 1-hour TSP monitoring was conducted at AM1 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 at AM1 as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Complaint and Prosecution

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

Recommendations

6.5 According to the environmental audits performed in the reporting month, the following recommendations were made:

Water Impact

- To ensure proper use and maintenance of the de-silting facilities and drainage system;
- To avoid formation of ponding/ stagnant water on site;
- To carry out larviciding regularly against mosquito breeding;
- To well maintain the drainage system inside and around the Site area; and
- To prevent surface runoff into public area or drainage channel.

Dust Impact

- To provide water spraying regularly on stockpiles of dusty materials, loading/ unloading of dusty materials and dried site areas;
- To remain good site practice on handling excavated or dusty material for dust suppression, e.g. covering by impervious materials; and
- To check and maintain the mechanical equipments regularly to avoid black smoke emission.

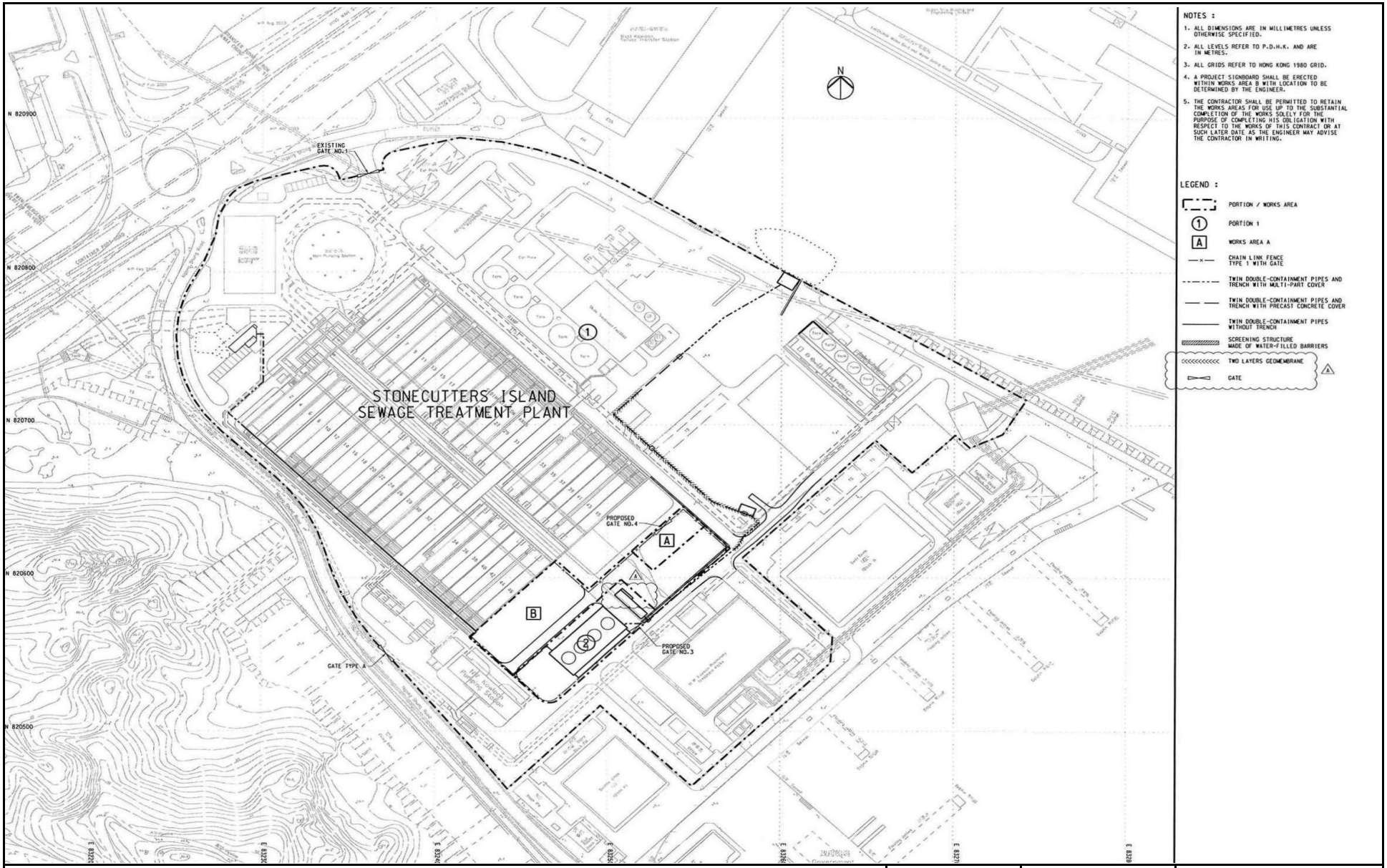
Noise Impact

- To space out noisy equipments and position as far away as possible from sensitive receivers; and
- To provide adequate lubricant on mechanical equipments to reduce frictional noise.

Waste / Chemical Management

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

FIGURES



Contract No. DC/2007/20 HARBOUR AREA TREATMENT SCHEME STAGE 2A - CONSTRUCTION OF ADVANCE DISINFECTION FACILITIES AT STONECUTTERES ISLAND SEWAGE TREATMENT WORKS	Scale N.T.S	Proposa No. MA8009	CINOTECH
Project Site Layout Plan (Page 1 of 2)	Date Jun-08	Figure 1.1	

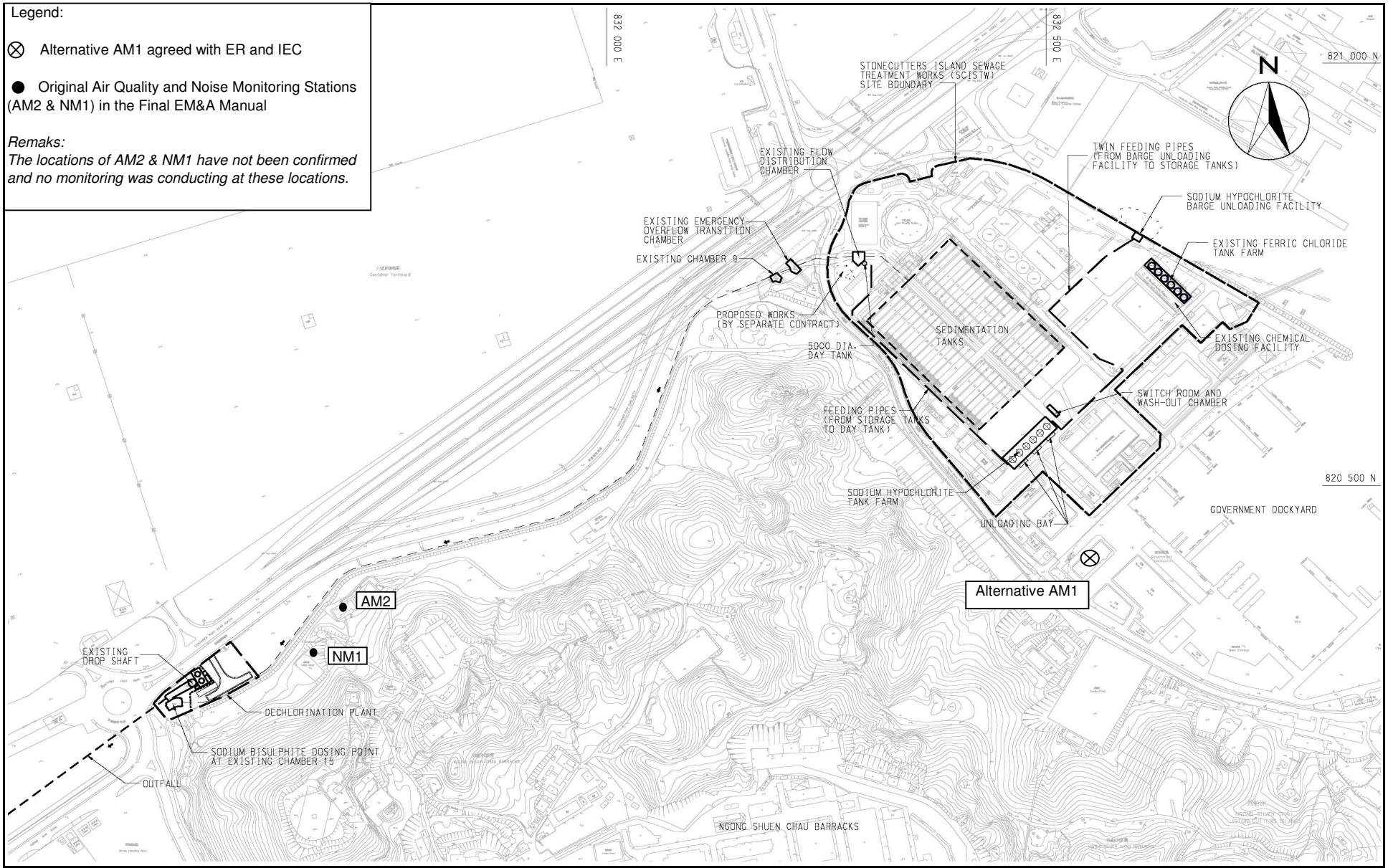
Contract No. DC/2007/20 HARBOUR AREA TREATMENT SCHEME STAGE 2A - CONSTRUCTION OF ADVANCE DISINFECTION FACILITIES AT STONECUTTERES ISLAND SEWAGE TREATMENT WORKS	Scale N.T.S	Proposa No. MA8009	CINOTECH
Project Site Layout Plan (Page 2 of 2)	Date Jun-08	Figure 1.1	

Legend:

⊗ Alternative AM1 agreed with ER and IEC

● Original Air Quality and Noise Monitoring Stations (AM2 & NM1) in the Final EM&A Manual

Remaks:
The locations of AM2 & NM1 have not been confirmed and no monitoring was conducting at these locations.



Contract No. DC/2007/20 HARBOUR AREA TREATMENT SCHEME STAGE 2A - CONSTRUCTION OF ADVANCE DISINFECTION FACILITIES AT STONECUTTERES ISLAND SEWAGE TREATMENT WORKS	Scale N.T.S	Proposal No. MA8009	CINOTECH
LOCATIONS OF ENVIRONMENTAL MONITORING STATIONS	Date Jul-08	Figure 1.2	

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A - Action and Limit Levels

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	307	500

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	158	260

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8009/17/0001

Station: Rooftop of Block A, Government Dockyard (24 hr) Operator: WK

Date: 6-Jun-08 Next Due Date: 5-Aug-08

Equipment No.: A-01-17 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	297.1	Pressure, Pa (mmHg)	758.6

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	10-Mar-08	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Mar-09	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	9.6	3.10	53.23	6.0	2.45
2	7.5	2.74	46.97	5.0	2.24
3	5.6	2.37	40.49	3.5	1.87
4	3.5	1.87	31.87	2.2	1.48
5	2.1	1.45	24.53	1.3	1.14

By Linear Regression of Y on X

Slope , mw = 0.0466 **Intercept, bw =** 0.0014

Correlation coefficient* = 0.9985

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.01

Remarks:

Conducted by: N.K. Tang Signature: Date: 6-June 2008.

Checked by: Signature: Date: 6/6/2008

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
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513.467.9000
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WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 10, 2008 Rootsmeter S/N 9833640 Ta (K) - 295
Operator Tisch Orifice I.D. - 0999 Pa (mm) - 746.76

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	1.3890	3.2	2.00
2	NA	NA	1.00	0.9850	6.3	4.00
3	NA	NA	1.00	0.8810	7.8	5.00
4	NA	NA	1.00	0.8410	8.6	5.50
5	NA	NA	1.00	0.6950	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9917	0.7139	1.4113		0.9957	0.7168	0.8874
0.9876	1.0026	1.9959		0.9916	1.0067	1.2549
0.9854	1.1185	2.2315		0.9894	1.1231	1.4030
0.9844	1.1706	2.3405		0.9884	1.1753	1.4715
0.9792	1.4090	2.8227		0.9832	1.4147	1.7747
Qstd slope (m) =		2.03154		Qa slope (m) =		1.27212
intercept (b) =		-0.03970		intercept (b) =		-0.02496
coefficient (r) =		0.99999		coefficient (r) =		0.99999
y axis = SQRT[H2O(Pa/760)(298/Ta)]				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}

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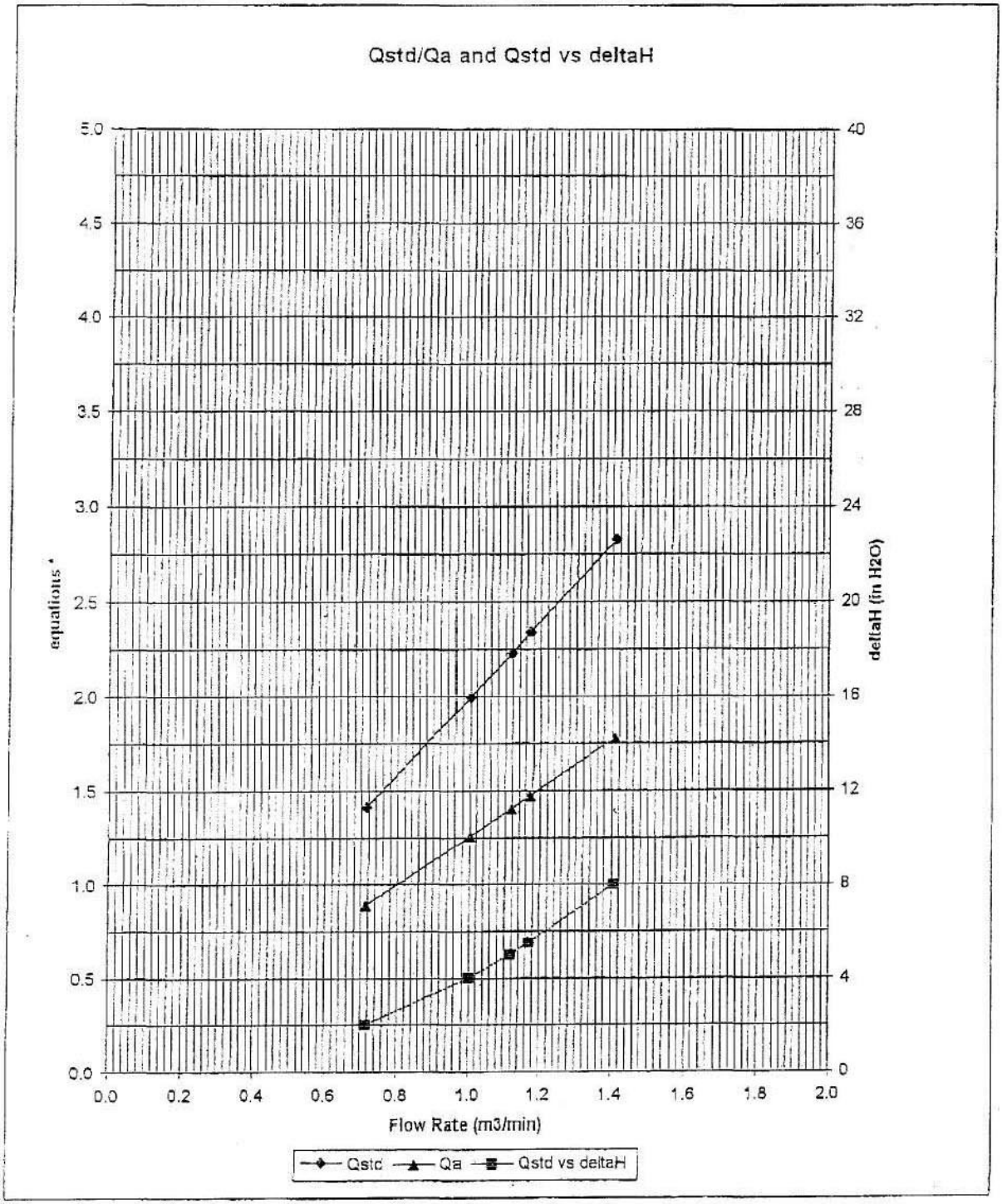
AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

WELLAB 匯力
Testing and Research

Unit C, 1/F., Goldlion Holdings Center,
13-15 Yuen Shun Circuit, Shatin, NT, HK.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. Henry Leung**

Test Report No.:	C/06/80602A
Date of Issue:	2008-06-05
Date Received:	2008-06-02
Date Tested:	2008-06-03
Date Completed:	2008-06-05
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Monitor II
Manufacturer	: Davis Instruments
Model No.	: 7440
Serial No.	: MC20813A11

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 56%

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

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

Patrick Tse

PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing and Research

Unit C, 1/F., Goldlion Holdings Center,
13-15 Yuen Shun Circuit, Shatin, NT, HK.
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TEST REPORT

Test Report No.:	C/06/80602A
Date of Issue:	2008-06-05
Date Received:	2008-06-02
Date Tested:	2008-06-03
Date Completed:	2008-06-05
Page:	2 of 2

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0.0	0.0	0.0
44.5	45.0	-0.5
90.5	90.5	0.0
136.0	135.0	1.0
180.1	180.0	0.1
225.6	225.0	0.6
270.4	270.0	0.4
314.6	315.0	-0.4
359.5	360.0	-0.5

**********END OF REPORT**********

APPENDIX C
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. DC/2007/20

HATS Stage 2A – Construction of Advance Disinfection Facilities at SCISTW

Impact Environmental Monitoring Schedule for July 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Jul	2-Jul	3-Jul	4-Jul	5-Jul
6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul
13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul
						24hrs TSP at AM1
20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul
	1hr TSP at AM1		1hr TSP at AM1	1hr TSP at AM1	24hrs TSP at AM1	
27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug
	1hr TSP at AM1		1hr TSP at AM1	24hrs TSP at AM1	1hr TSP at AM1	

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

AM1 - Air monitoring station at Rooftop of Block A, Government Dockyard

Contract No. DC/2007/20

HATS Stage 2A – Construction of Advance Disinfection Facilities at SCISTW

Tentative Impact Environmental Monitoring Schedule for August 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug
	1hr TSP at AM1		1hr TSP at AM1	24hrs TSP at AM1	1hr TSP at AM1	
3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug
		1hr TSP at AM1	24hrs TSP at AM1	1hr TSP at AM1	1hr TSP at AM1	
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
		24hrs TSP at AM1	1hr TSP at AM1	1hr TSP at AM1	1hr TSP at AM1	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
	24hrs TSP at AM1	1hr TSP at AM1	1hr TSP at AM1	1hr TSP at AM1		24hrs TSP at AM1
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
	1hr TSP at AM1	1hr TSP at AM1		1hr TSP at AM1	24hrs TSP at AM1	

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

AM1 - Air monitoring station at Rooftop of Block A, Government Dockyard

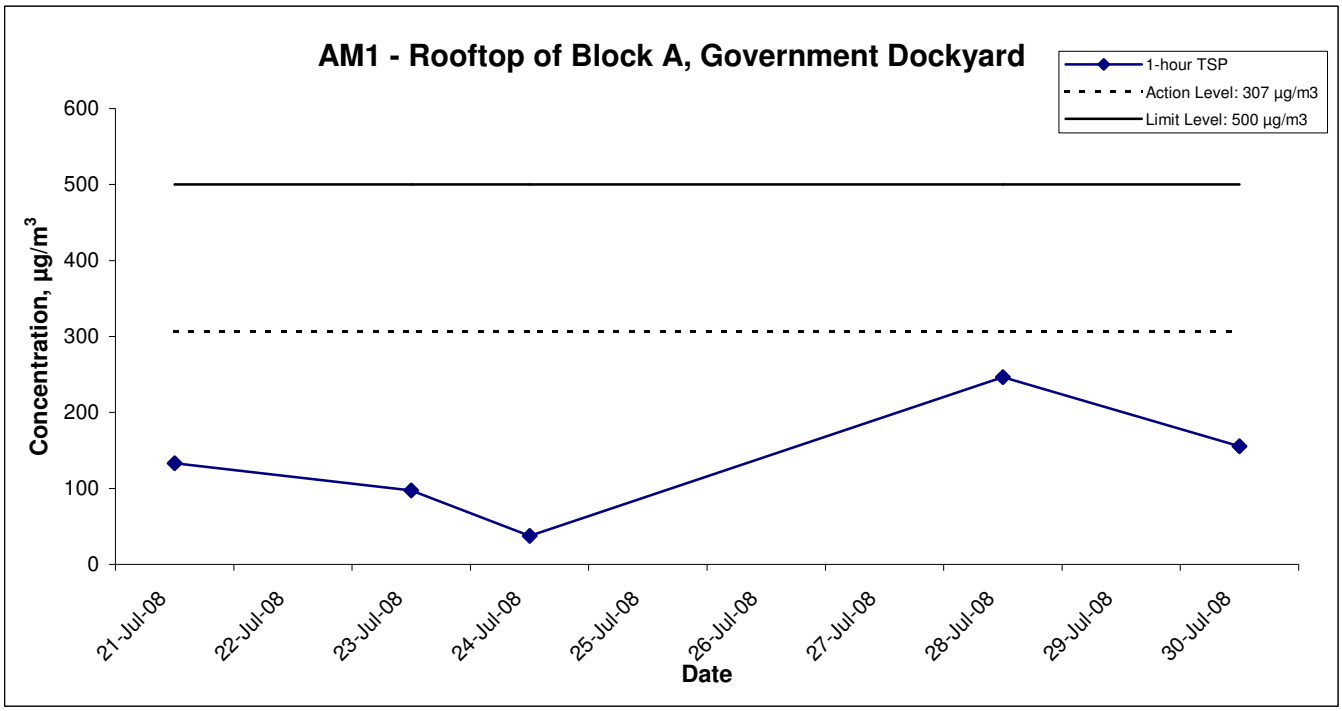
APPENDIX D
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix D - 1-hour TSP Monitoring Results

Station AM1 - Rooftop of Block A, Government Dockyard

Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	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			
21-Jul-08	11:00	Sunny	302.7	758.3	2.8600	2.8696	0.0096	5321.4	5322.4	1.0	1.20	1.20	1.20	72.2	133.0
23-Jul-08	9:00	Sunny	303.6	758.0	2.8351	2.8421	0.0070	5322.4	5323.4	1.0	1.20	1.20	1.20	72.1	97.2
24-Jul-08	9:00	Sunny	303.6	758.7	2.8455	2.8482	0.0027	5323.4	5324.4	1.0	1.20	1.20	1.20	72.1	37.5
28-Jul-08	11:00	Sunny	304.4	752.3	2.8514	2.8689	0.0175	5348.4	5349.4	1.0	1.20	1.19	1.19	71.0	246.6
30-Jul-08	9:00	Sunny	302.2	753.4	2.9105	2.9217	0.0112	5349.4	5350.4	1.0	1.20	1.20	1.20	72.0	155.6
														Min	37.5
														Max	246.6
														Average	133.9

1-hr TSP Concentration Levels



Title	Contract No. DC/2007/20 HATS Stage 2A – Construction of Advance Disinfection Facilities at SCISTW Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA8009	CINOTECH
		Date Jul 08	Appendix D	

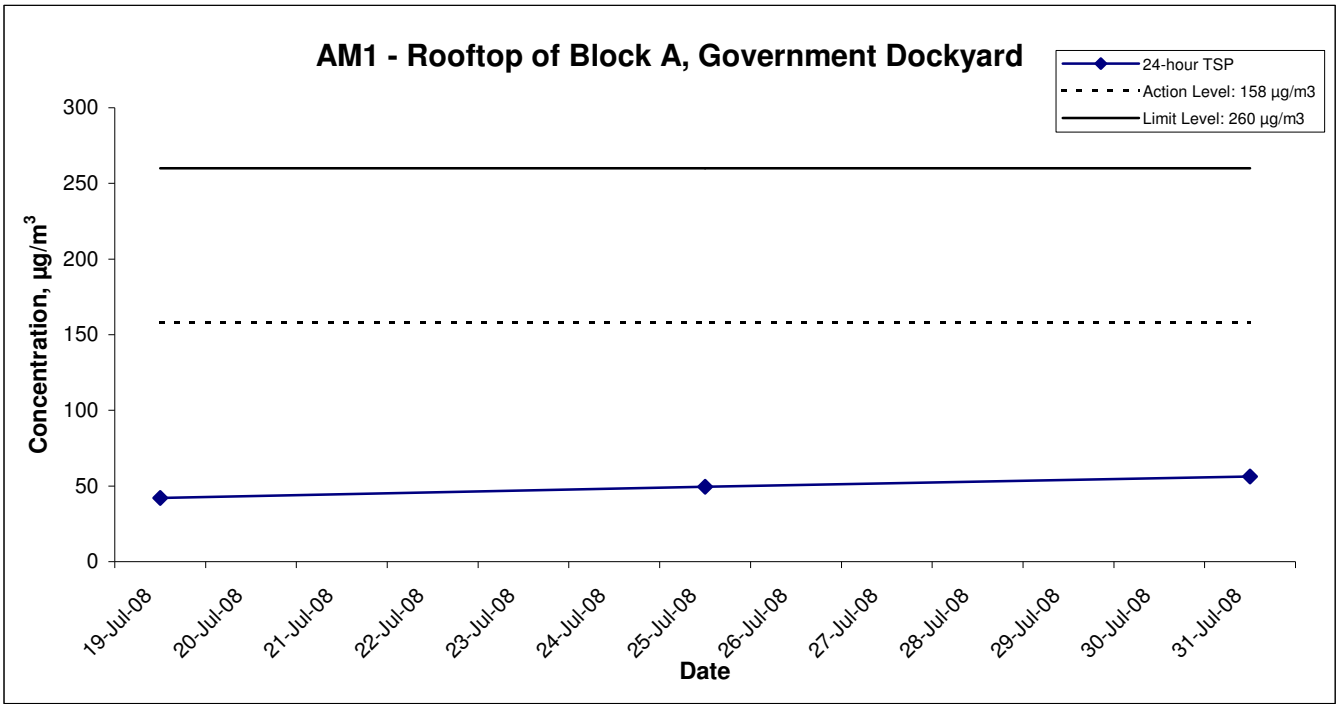
APPENDIX E
24-HOURS TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix E - 24-hour TSP Monitoring Results

Station AM1 - Rooftop of Block A, Government Dockyard

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	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			
19-Jul-08	Sunny	303.3	757.0	2.8604	2.9333	0.0729	5297.4	5321.4	24.0	1.20	1.20	1.20	1728.3	42.2
25-Jul-08	Sunny	303.6	758.5	2.8723	2.9580	0.0857	5324.4	5348.4	24.0	1.20	1.20	1.20	1729.1	49.6
31-Jul-08	Sunny	302.6	758.5	2.8517	2.9492	0.0975	5350.4	5374.4	24.0	1.20	1.20	1.20	1732.9	56.3
													Min	42.2
													Max	56.3
													Average	49.3

24-hr TSP Concentration Levels



Title	Contract No. DC/2007/20 HATS Stage 2A – Construction of Advance Disinfection Facilities at SCISTW Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Jul 08	Project No. MA8009 Appendix E	CINOTECH

APPENDIX F
WIND DATA

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Jul-2008	0:00	0.9	ENE
1-Jul-2008	1:00	1.3	ENE
1-Jul-2008	2:00	0.9	ENE
1-Jul-2008	3:00	0.9	E
1-Jul-2008	4:00	0.9	NE
1-Jul-2008	5:00	0.4	NNE
1-Jul-2008	6:00	0.4	E
1-Jul-2008	7:00	0.0	E
1-Jul-2008	8:00	0.0	E
1-Jul-2008	9:00	0.0	E
1-Jul-2008	10:00	0.4	SE
1-Jul-2008	11:00	0.4	E
1-Jul-2008	12:00	0.9	ENE
1-Jul-2008	13:00	0.9	ESE
1-Jul-2008	14:00	0.9	E
1-Jul-2008	15:00	1.3	SSE
1-Jul-2008	16:00	0.9	WSW
1-Jul-2008	17:00	0.4	SW
1-Jul-2008	18:00	0.4	WSW
1-Jul-2008	19:00	0.9	ENE
1-Jul-2008	20:00	0.0	SSW
1-Jul-2008	21:00	0.0	SSW
1-Jul-2008	22:00	0.0	---
1-Jul-2008	23:00	0.0	SSW
2-Jul-2008	0:00	0.0	SSW
2-Jul-2008	1:00	0.0	---
2-Jul-2008	2:00	0.0	---
2-Jul-2008	3:00	0.0	---
2-Jul-2008	4:00	0.0	SSW
2-Jul-2008	5:00	0.4	ENE
2-Jul-2008	6:00	0.4	ENE
2-Jul-2008	7:00	0.4	---
2-Jul-2008	8:00	0.4	ENE
2-Jul-2008	9:00	0.4	ENE
2-Jul-2008	10:00	0.4	WSW
2-Jul-2008	11:00	0.4	ENE
2-Jul-2008	12:00	0.4	WSW
2-Jul-2008	13:00	0.9	NE
2-Jul-2008	14:00	0.9	WSW
2-Jul-2008	15:00	0.9	SW
2-Jul-2008	16:00	0.4	SW
2-Jul-2008	17:00	0.4	S
2-Jul-2008	18:00	0.4	E
2-Jul-2008	19:00	0.0	ENE
2-Jul-2008	20:00	0.0	SE
2-Jul-2008	21:00	0.0	ESE
2-Jul-2008	22:00	0.0	NE
2-Jul-2008	23:00	0.0	---
3-Jul-2008	0:00	0.0	NE
3-Jul-2008	1:00	0.0	---
3-Jul-2008	2:00	0.0	---
3-Jul-2008	3:00	0.0	ENE
3-Jul-2008	4:00	0.0	E
3-Jul-2008	5:00	0.0	---
3-Jul-2008	6:00	0.0	---
3-Jul-2008	7:00	0.0	E
3-Jul-2008	8:00	0.4	ENE
3-Jul-2008	9:00	0.0	N
3-Jul-2008	10:00	0.9	NE
3-Jul-2008	11:00	0.4	SW
3-Jul-2008	12:00	0.4	SE
3-Jul-2008	13:00	0.4	S
3-Jul-2008	14:00	0.4	SW

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Jul-2008	15:00	0.4	S
3-Jul-2008	16:00	0.4	WSW
3-Jul-2008	17:00	0.4	NE
3-Jul-2008	18:00	0.0	NE
3-Jul-2008	19:00	0.4	SW
3-Jul-2008	20:00	0.0	SW
3-Jul-2008	21:00	0.0	---
3-Jul-2008	22:00	0.0	SSE
3-Jul-2008	23:00	0.0	E
4-Jul-2008	0:00	0.0	SE
4-Jul-2008	1:00	0.0	---
4-Jul-2008	2:00	0.0	---
4-Jul-2008	3:00	0.0	---
4-Jul-2008	4:00	0.0	---
4-Jul-2008	5:00	0.4	---
4-Jul-2008	6:00	0.4	---
4-Jul-2008	7:00	0.4	---
4-Jul-2008	8:00	0.4	SE
4-Jul-2008	9:00	0.4	ESE
4-Jul-2008	10:00	0.4	SW
4-Jul-2008	11:00	0.4	SW
4-Jul-2008	12:00	0.9	SSW
4-Jul-2008	13:00	0.9	SW
4-Jul-2008	14:00	0.9	SW
4-Jul-2008	15:00	1.3	SW
4-Jul-2008	16:00	0.9	SW
4-Jul-2008	17:00	0.4	NE
4-Jul-2008	18:00	0.4	SSW
4-Jul-2008	19:00	0.0	WNW
4-Jul-2008	20:00	0.0	SW
4-Jul-2008	21:00	0.0	SW
4-Jul-2008	22:00	0.0	---
4-Jul-2008	23:00	0.0	SW
5-Jul-2008	0:00	0.0	E
5-Jul-2008	1:00	0.0	---
5-Jul-2008	2:00	0.0	---
5-Jul-2008	3:00	0.0	---
5-Jul-2008	4:00	0.0	E
5-Jul-2008	5:00	0.0	---
5-Jul-2008	6:00	0.0	E
5-Jul-2008	7:00	0.0	ENE
5-Jul-2008	8:00	0.0	---
5-Jul-2008	9:00	0.0	---
5-Jul-2008	10:00	0.9	N
5-Jul-2008	11:00	0.9	NE
5-Jul-2008	12:00	0.9	---
5-Jul-2008	13:00	0.9	SSW
5-Jul-2008	14:00	0.9	SW
5-Jul-2008	15:00	0.4	SW
5-Jul-2008	16:00	0.4	NNE
5-Jul-2008	17:00	0.4	N
5-Jul-2008	18:00	0.4	N
5-Jul-2008	19:00	0.0	WSW
5-Jul-2008	20:00	0.0	WSW
5-Jul-2008	21:00	0.0	WSW
5-Jul-2008	22:00	0.0	WSW
5-Jul-2008	23:00	0.0	SW
6-Jul-2008	0:00	0.0	---
6-Jul-2008	1:00	0.0	SW
6-Jul-2008	2:00	0.0	---
6-Jul-2008	3:00	0.0	SW
6-Jul-2008	4:00	0.0	SW
6-Jul-2008	5:00	0.0	---

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
6-Jul-2008	6:00	0.0	---
6-Jul-2008	7:00	0.0	SW
6-Jul-2008	8:00	0.0	---
6-Jul-2008	9:00	0.0	WSW
6-Jul-2008	10:00	0.9	WSW
6-Jul-2008	11:00	1.3	W
6-Jul-2008	12:00	1.3	WNW
6-Jul-2008	13:00	1.3	NNW
6-Jul-2008	14:00	0.9	WNW
6-Jul-2008	15:00	0.9	N
6-Jul-2008	16:00	0.4	N
6-Jul-2008	17:00	0.0	WSW
6-Jul-2008	18:00	0.0	W
6-Jul-2008	19:00	0.4	SW
6-Jul-2008	20:00	0.4	SW
6-Jul-2008	21:00	0.4	SW
6-Jul-2008	22:00	0.4	SW
6-Jul-2008	23:00	0.4	---
7-Jul-2008	0:00	0.4	---
7-Jul-2008	1:00	0.4	SW
7-Jul-2008	2:00	0.0	SW
7-Jul-2008	3:00	0.0	---
7-Jul-2008	4:00	0.0	---
7-Jul-2008	5:00	0.0	SW
7-Jul-2008	6:00	0.0	SW
7-Jul-2008	7:00	0.0	---
7-Jul-2008	8:00	0.0	SW
7-Jul-2008	9:00	0.0	SW
7-Jul-2008	10:00	0.0	SW
7-Jul-2008	11:00	0.4	WNW
7-Jul-2008	12:00	0.0	WNW
7-Jul-2008	13:00	0.4	WNW
7-Jul-2008	14:00	0.4	W
7-Jul-2008	15:00	1.3	ENE
7-Jul-2008	16:00	0.0	ENE
7-Jul-2008	17:00	0.0	ENE
7-Jul-2008	18:00	0.0	SW
7-Jul-2008	19:00	0.0	---
7-Jul-2008	20:00	0.0	SW
7-Jul-2008	21:00	0.0	ENE
7-Jul-2008	22:00	0.0	ENE
7-Jul-2008	23:00	0.0	---
8-Jul-2008	0:00	0.0	ENE
8-Jul-2008	1:00	0.4	SW
8-Jul-2008	2:00	0.0	NE
8-Jul-2008	3:00	0.0	ENE
8-Jul-2008	4:00	0.4	W
8-Jul-2008	5:00	0.4	SW
8-Jul-2008	6:00	0.4	SSW
8-Jul-2008	7:00	0.4	NE
8-Jul-2008	8:00	0.4	N
8-Jul-2008	9:00	0.0	SW
8-Jul-2008	10:00	0.4	ESE
8-Jul-2008	11:00	0.9	W
8-Jul-2008	12:00	0.9	SW
8-Jul-2008	13:00	0.9	W
8-Jul-2008	14:00	0.4	W
8-Jul-2008	15:00	0.4	W
8-Jul-2008	16:00	0.9	W
8-Jul-2008	17:00	0.9	N
8-Jul-2008	18:00	0.9	N
8-Jul-2008	19:00	0.0	NE
8-Jul-2008	20:00	0.0	ENE

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
8-Jul-2008	21:00	0.0	ENE
8-Jul-2008	22:00	0.0	ESE
8-Jul-2008	23:00	0.0	ESE
9-Jul-2008	0:00	0.0	SE
9-Jul-2008	1:00	0.0	SE
9-Jul-2008	2:00	0.0	SSE
9-Jul-2008	3:00	0.0	SSE
9-Jul-2008	4:00	0.0	SSE
9-Jul-2008	5:00	0.4	WSW
9-Jul-2008	6:00	0.0	W
9-Jul-2008	7:00	0.0	WNW
9-Jul-2008	8:00	0.4	WSW
9-Jul-2008	9:00	0.4	SSE
9-Jul-2008	10:00	0.0	SSE
9-Jul-2008	11:00	0.4	SSE
9-Jul-2008	12:00	0.4	ESE
9-Jul-2008	13:00	0.4	ESE
9-Jul-2008	14:00	0.4	SE
9-Jul-2008	15:00	0.0	SSE
9-Jul-2008	16:00	0.0	SSE
9-Jul-2008	17:00	0.0	NNE
9-Jul-2008	18:00	0.0	SW
9-Jul-2008	19:00	0.0	W
9-Jul-2008	20:00	0.0	---
9-Jul-2008	21:00	0.0	NE
9-Jul-2008	22:00	0.0	---
9-Jul-2008	23:00	0.4	ENE
10-Jul-2008	0:00	0.4	ENE
10-Jul-2008	1:00	0.0	ESE
10-Jul-2008	2:00	0.4	SW
10-Jul-2008	3:00	0.4	SE
10-Jul-2008	4:00	0.4	W
10-Jul-2008	5:00	0.4	N
10-Jul-2008	6:00	0.4	NE
10-Jul-2008	7:00	0.4	WNW
10-Jul-2008	8:00	0.4	NE
10-Jul-2008	9:00	0.4	SW
10-Jul-2008	10:00	0.4	SSW
10-Jul-2008	11:00	0.9	SW
10-Jul-2008	12:00	0.9	W
10-Jul-2008	13:00	1.3	NE
10-Jul-2008	14:00	0.9	WNW
10-Jul-2008	15:00	0.9	WNW
10-Jul-2008	16:00	0.9	WNW
10-Jul-2008	17:00	0.9	WNW
10-Jul-2008	18:00	0.4	ENE
10-Jul-2008	19:00	0.0	SE
10-Jul-2008	20:00	0.0	SE
10-Jul-2008	21:00	0.0	N
10-Jul-2008	22:00	0.0	ENE
10-Jul-2008	23:00	0.0	ENE
11-Jul-2008	0:00	0.0	N
11-Jul-2008	1:00	0.0	E
11-Jul-2008	2:00	0.0	NNE
11-Jul-2008	3:00	0.0	SE
11-Jul-2008	4:00	0.0	NNE
11-Jul-2008	5:00	0.0	E
11-Jul-2008	6:00	0.0	W
11-Jul-2008	7:00	0.0	NW
11-Jul-2008	8:00	0.4	NE
11-Jul-2008	9:00	0.4	NE
11-Jul-2008	10:00	0.9	ENE
11-Jul-2008	11:00	0.9	W

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
11-Jul-2008	12:00	0.9	SW
11-Jul-2008	13:00	0.9	NE
11-Jul-2008	14:00	0.9	SW
11-Jul-2008	15:00	0.4	W
11-Jul-2008	16:00	0.4	NE
11-Jul-2008	17:00	0.4	NE
11-Jul-2008	18:00	0.0	NE
11-Jul-2008	19:00	0.0	NE
11-Jul-2008	20:00	0.0	ESE
11-Jul-2008	21:00	0.0	ESE
11-Jul-2008	22:00	0.0	ESE
11-Jul-2008	23:00	0.0	SE
12-Jul-2008	0:00	0.0	SSE
12-Jul-2008	1:00	0.0	SSE
12-Jul-2008	2:00	0.0	---
12-Jul-2008	3:00	0.0	---
12-Jul-2008	4:00	0.0	---
12-Jul-2008	5:00	0.0	---
12-Jul-2008	6:00	0.0	---
12-Jul-2008	7:00	0.0	---
12-Jul-2008	8:00	0.0	SSE
12-Jul-2008	9:00	0.4	SSE
12-Jul-2008	10:00	0.4	SW
12-Jul-2008	11:00	0.4	SSW
12-Jul-2008	12:00	0.9	SW
12-Jul-2008	13:00	0.4	WSW
12-Jul-2008	14:00	0.9	SW
12-Jul-2008	15:00	0.4	SW
12-Jul-2008	16:00	0.9	SW
12-Jul-2008	17:00	0.4	SW
12-Jul-2008	18:00	0.4	SW
12-Jul-2008	19:00	0.4	NE
12-Jul-2008	20:00	0.0	ENE
12-Jul-2008	21:00	0.0	ENE
12-Jul-2008	22:00	0.0	SE
12-Jul-2008	23:00	0.0	E
13-Jul-2008	0:00	0.0	SSE
13-Jul-2008	1:00	0.0	SSE
13-Jul-2008	2:00	0.0	SSE
13-Jul-2008	3:00	0.0	SSE
13-Jul-2008	4:00	0.0	S
13-Jul-2008	5:00	0.0	S
13-Jul-2008	6:00	0.4	S
13-Jul-2008	7:00	0.4	S
13-Jul-2008	8:00	0.4	S
13-Jul-2008	9:00	0.4	ENE
13-Jul-2008	10:00	0.4	W
13-Jul-2008	11:00	0.4	SSW
13-Jul-2008	12:00	0.4	SW
13-Jul-2008	13:00	0.9	WSW
13-Jul-2008	14:00	0.9	WSW
13-Jul-2008	15:00	0.9	WSW
13-Jul-2008	16:00	0.9	WSW
13-Jul-2008	17:00	0.4	NE
13-Jul-2008	18:00	0.9	E
13-Jul-2008	19:00	0.4	ENE
13-Jul-2008	20:00	0.0	WSW
13-Jul-2008	21:00	0.0	ESE
13-Jul-2008	22:00	0.0	NE
13-Jul-2008	23:00	0.0	E
14-Jul-2008	0:00	0.0	SW
14-Jul-2008	1:00	0.0	SW
14-Jul-2008	2:00	0.0	SW

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Jul-2008	3:00	0.0	SW
14-Jul-2008	4:00	0.0	---
14-Jul-2008	5:00	0.0	SW
14-Jul-2008	6:00	0.0	SW
14-Jul-2008	7:00	0.0	SW
14-Jul-2008	8:00	0.9	SW
14-Jul-2008	9:00	0.4	WSW
14-Jul-2008	10:00	0.4	SW
14-Jul-2008	11:00	1.3	SW
14-Jul-2008	12:00	1.8	SW
14-Jul-2008	13:00	1.3	SW
14-Jul-2008	14:00	0.9	W
14-Jul-2008	15:00	0.4	ESE
14-Jul-2008	16:00	0.4	N
14-Jul-2008	17:00	0.4	WSW
14-Jul-2008	18:00	0.4	NNW
14-Jul-2008	19:00	0.4	N
14-Jul-2008	20:00	0.0	NE
14-Jul-2008	21:00	0.0	SW
14-Jul-2008	22:00	0.0	S
14-Jul-2008	23:00	0.0	ESE
15-Jul-2008	0:00	0.0	ESE
15-Jul-2008	1:00	0.0	ESE
15-Jul-2008	2:00	0.0	---
15-Jul-2008	3:00	0.0	---
15-Jul-2008	4:00	0.0	ESE
15-Jul-2008	5:00	0.4	ESE
15-Jul-2008	6:00	0.4	---
15-Jul-2008	7:00	0.4	---
15-Jul-2008	8:00	0.4	---
15-Jul-2008	9:00	0.0	ENE
15-Jul-2008	10:00	0.4	SW
15-Jul-2008	11:00	0.9	N
15-Jul-2008	12:00	0.9	N
15-Jul-2008	13:00	0.9	W
15-Jul-2008	14:00	0.9	SW
15-Jul-2008	15:00	0.4	SW
15-Jul-2008	16:00	0.9	SW
15-Jul-2008	17:00	0.4	SW
15-Jul-2008	18:00	0.4	WNW
15-Jul-2008	19:00	0.0	WSW
15-Jul-2008	20:00	0.4	WSW
15-Jul-2008	21:00	0.0	E
15-Jul-2008	22:00	0.0	E
15-Jul-2008	23:00	0.0	E
16-Jul-2008	0:00	0.0	E
16-Jul-2008	1:00	0.0	E
16-Jul-2008	2:00	0.0	---
16-Jul-2008	3:00	0.0	---
16-Jul-2008	4:00	0.0	ESE
16-Jul-2008	5:00	0.4	ESE
16-Jul-2008	6:00	0.4	---
16-Jul-2008	7:00	0.4	---
16-Jul-2008	8:00	0.4	---
16-Jul-2008	9:00	0.4	ENE
16-Jul-2008	10:00	0.4	N
16-Jul-2008	11:00	0.4	SW
16-Jul-2008	12:00	0.9	WSW
16-Jul-2008	13:00	1.3	SSW
16-Jul-2008	14:00	0.0	NE
16-Jul-2008	15:00	0.0	NW
16-Jul-2008	16:00	0.4	N
16-Jul-2008	17:00	0.9	N

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Jul-2008	18:00	0.4	WNW
16-Jul-2008	19:00	0.0	WNW
16-Jul-2008	20:00	0.0	W
16-Jul-2008	21:00	0.0	W
16-Jul-2008	22:00	0.0	W
16-Jul-2008	23:00	0.0	W
17-Jul-2008	0:00	0.0	---
17-Jul-2008	1:00	0.0	---
17-Jul-2008	2:00	0.0	W
17-Jul-2008	3:00	0.0	---
17-Jul-2008	4:00	0.0	---
17-Jul-2008	5:00	0.0	---
17-Jul-2008	6:00	0.0	W
17-Jul-2008	7:00	0.0	W
17-Jul-2008	8:00	0.0	W
17-Jul-2008	9:00	0.4	W
17-Jul-2008	10:00	0.4	SW
17-Jul-2008	11:00	1.3	WSW
17-Jul-2008	12:00	1.3	W
17-Jul-2008	13:00	1.3	WSW
17-Jul-2008	14:00	1.3	W
17-Jul-2008	15:00	1.8	WSW
17-Jul-2008	16:00	1.8	W
17-Jul-2008	17:00	0.9	WSW
17-Jul-2008	18:00	1.3	WSW
17-Jul-2008	19:00	0.4	WSW
17-Jul-2008	20:00	0.4	SW
17-Jul-2008	21:00	0.4	SW
17-Jul-2008	22:00	0.0	SW
17-Jul-2008	23:00	0.0	SW
18-Jul-2008	0:00	0.0	SW
18-Jul-2008	1:00	0.0	S
18-Jul-2008	2:00	0.0	---
18-Jul-2008	3:00	0.0	S
18-Jul-2008	4:00	0.0	---
18-Jul-2008	5:00	0.0	S
18-Jul-2008	6:00	0.0	S
18-Jul-2008	7:00	0.0	---
18-Jul-2008	8:00	0.0	S
18-Jul-2008	9:00	0.4	W
18-Jul-2008	10:00	1.3	W
18-Jul-2008	11:00	1.3	W
18-Jul-2008	12:00	1.3	W
18-Jul-2008	13:00	1.3	W
18-Jul-2008	14:00	2.7	WSW
18-Jul-2008	15:00	2.7	WSW
18-Jul-2008	16:00	2.2	WSW
18-Jul-2008	17:00	1.3	SW
18-Jul-2008	18:00	1.3	SW
18-Jul-2008	19:00	0.9	SW
18-Jul-2008	20:00	0.4	SW
18-Jul-2008	21:00	0.0	SSW
18-Jul-2008	22:00	0.4	SSW
18-Jul-2008	23:00	0.0	SSW
19-Jul-2008	0:00	0.4	S
19-Jul-2008	1:00	0.4	NE
19-Jul-2008	2:00	0.4	NE
19-Jul-2008	3:00	0.4	ENE
19-Jul-2008	4:00	0.0	ENE
19-Jul-2008	5:00	0.9	W
19-Jul-2008	6:00	0.4	WSW
19-Jul-2008	7:00	0.9	W
19-Jul-2008	8:00	1.3	W

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Jul-2008	9:00	1.8	W
19-Jul-2008	10:00	2.2	W
19-Jul-2008	11:00	2.7	W
19-Jul-2008	12:00	3.6	W
19-Jul-2008	13:00	3.1	W
19-Jul-2008	14:00	2.7	W
19-Jul-2008	15:00	3.1	W
19-Jul-2008	16:00	2.7	NNW
19-Jul-2008	17:00	1.8	W
19-Jul-2008	18:00	0.4	WNW
19-Jul-2008	19:00	0.4	WNW
19-Jul-2008	20:00	0.9	WSW
19-Jul-2008	21:00	0.0	WSW
19-Jul-2008	22:00	0.0	WSW
19-Jul-2008	23:00	0.0	WSW
20-Jul-2008	0:00	0.0	---
20-Jul-2008	1:00	0.0	WSW
20-Jul-2008	2:00	0.0	WSW
20-Jul-2008	3:00	0.0	WSW
20-Jul-2008	4:00	0.0	WSW
20-Jul-2008	5:00	0.0	WSW
20-Jul-2008	6:00	0.0	WSW
20-Jul-2008	7:00	0.0	WSW
20-Jul-2008	8:00	0.4	SW
20-Jul-2008	9:00	1.3	WSW
20-Jul-2008	10:00	1.8	WSW
20-Jul-2008	11:00	2.2	WSW
20-Jul-2008	12:00	2.2	W
20-Jul-2008	13:00	1.8	WNW
20-Jul-2008	14:00	1.8	W
20-Jul-2008	15:00	2.2	WSW
20-Jul-2008	16:00	2.2	SW
20-Jul-2008	17:00	1.3	SSW
20-Jul-2008	18:00	0.4	W
20-Jul-2008	19:00	0.4	W
20-Jul-2008	20:00	0.4	SW
20-Jul-2008	21:00	1.8	SW
20-Jul-2008	22:00	0.9	SW
20-Jul-2008	23:00	1.8	SE
21-Jul-2008	0:00	0.4	ENE
21-Jul-2008	1:00	0.0	SSE
21-Jul-2008	2:00	0.0	SSE
21-Jul-2008	3:00	0.0	SW
21-Jul-2008	4:00	0.0	---
21-Jul-2008	5:00	0.0	---
21-Jul-2008	6:00	0.0	SW
21-Jul-2008	7:00	0.0	---
21-Jul-2008	8:00	0.0	SW
21-Jul-2008	9:00	0.0	SW
21-Jul-2008	10:00	0.4	SW
21-Jul-2008	11:00	0.9	SSW
21-Jul-2008	12:00	0.4	SSW
21-Jul-2008	13:00	0.9	WSW
21-Jul-2008	14:00	0.4	W
21-Jul-2008	15:00	0.4	SW
21-Jul-2008	16:00	0.4	SW
21-Jul-2008	17:00	0.9	SW
21-Jul-2008	18:00	0.4	N
21-Jul-2008	19:00	0.0	NE
21-Jul-2008	20:00	0.0	E
21-Jul-2008	21:00	0.0	E
21-Jul-2008	22:00	0.0	---
21-Jul-2008	23:00	0.0	---

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
22-Jul-2008	0:00	0.0	---
22-Jul-2008	1:00	0.0	E
22-Jul-2008	2:00	0.0	---
22-Jul-2008	3:00	0.0	---
22-Jul-2008	4:00	0.0	---
22-Jul-2008	5:00	0.4	E
22-Jul-2008	6:00	0.4	ENE
22-Jul-2008	7:00	1.3	N
22-Jul-2008	8:00	1.3	ENE
22-Jul-2008	9:00	0.4	ENE
22-Jul-2008	10:00	0.4	WSW
22-Jul-2008	11:00	0.4	WSW
22-Jul-2008	12:00	0.4	WSW
22-Jul-2008	13:00	0.4	WSW
22-Jul-2008	14:00	0.4	SSW
22-Jul-2008	15:00	0.9	SW
22-Jul-2008	16:00	0.4	SW
22-Jul-2008	17:00	0.4	NW
22-Jul-2008	18:00	0.4	SW
22-Jul-2008	19:00	0.4	SW
22-Jul-2008	20:00	0.4	---
22-Jul-2008	21:00	0.4	WSW
22-Jul-2008	22:00	0.0	WSW
22-Jul-2008	23:00	0.0	WSW
23-Jul-2008	0:00	0.0	WSW
23-Jul-2008	1:00	0.0	WSW
23-Jul-2008	2:00	0.0	WSW
23-Jul-2008	3:00	0.0	---
23-Jul-2008	4:00	0.0	---
23-Jul-2008	5:00	0.0	---
23-Jul-2008	6:00	0.0	WSW
23-Jul-2008	7:00	0.0	WSW
23-Jul-2008	8:00	0.0	---
23-Jul-2008	9:00	0.0	WSW
23-Jul-2008	10:00	0.0	NE
23-Jul-2008	11:00	0.4	ENE
23-Jul-2008	12:00	0.4	SW
23-Jul-2008	13:00	0.9	SW
23-Jul-2008	14:00	0.9	SW
23-Jul-2008	15:00	0.4	SW
23-Jul-2008	16:00	0.4	W
23-Jul-2008	17:00	0.4	W
23-Jul-2008	18:00	0.4	SW
23-Jul-2008	19:00	0.4	E
23-Jul-2008	20:00	0.4	E
23-Jul-2008	21:00	0.4	---
23-Jul-2008	22:00	0.0	---
23-Jul-2008	23:00	0.0	---
24-Jul-2008	0:00	0.0	---
24-Jul-2008	1:00	0.0	E
24-Jul-2008	2:00	0.0	E
24-Jul-2008	3:00	0.0	E
24-Jul-2008	4:00	0.0	E
24-Jul-2008	5:00	0.0	---
24-Jul-2008	6:00	0.0	---
24-Jul-2008	7:00	0.0	---
24-Jul-2008	8:00	0.0	---
24-Jul-2008	9:00	0.0	---
24-Jul-2008	10:00	0.4	NE
24-Jul-2008	11:00	0.4	N
24-Jul-2008	12:00	0.4	WSW
24-Jul-2008	13:00	0.4	SE
24-Jul-2008	14:00	0.4	N

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
24-Jul-2008	15:00	0.9	SW
24-Jul-2008	16:00	0.4	SW
24-Jul-2008	17:00	0.4	SSW
24-Jul-2008	18:00	0.0	WNW
24-Jul-2008	19:00	0.0	SW
24-Jul-2008	20:00	0.0	SSW
24-Jul-2008	21:00	0.0	SE
24-Jul-2008	22:00	0.0	---
24-Jul-2008	23:00	0.0	---
25-Jul-2008	0:00	0.0	---
25-Jul-2008	1:00	0.0	---
25-Jul-2008	2:00	0.0	SE
25-Jul-2008	3:00	0.0	SE
25-Jul-2008	4:00	0.0	---
25-Jul-2008	5:00	0.0	---
25-Jul-2008	6:00	0.0	SE
25-Jul-2008	7:00	0.0	SE
25-Jul-2008	8:00	0.0	---
25-Jul-2008	9:00	0.4	NNE
25-Jul-2008	10:00	0.4	NNE
25-Jul-2008	11:00	0.4	NNE
25-Jul-2008	12:00	0.9	N
25-Jul-2008	13:00	0.9	WSW
25-Jul-2008	14:00	0.4	SW
25-Jul-2008	15:00	0.4	WSW
25-Jul-2008	16:00	0.4	SW
25-Jul-2008	17:00	0.4	NW
25-Jul-2008	18:00	0.4	W
25-Jul-2008	19:00	0.4	SW
25-Jul-2008	20:00	0.0	S
25-Jul-2008	21:00	0.0	S
25-Jul-2008	22:00	0.0	---
25-Jul-2008	23:00	0.0	S
26-Jul-2008	0:00	1.4	WNW
26-Jul-2008	1:00	1.3	WNW
26-Jul-2008	2:00	1.6	W
26-Jul-2008	3:00	3.3	S
26-Jul-2008	4:00	0.2	SW
26-Jul-2008	5:00	0.4	W
26-Jul-2008	6:00	0.8	WSW
26-Jul-2008	7:00	1.3	W
26-Jul-2008	8:00	1.3	W
26-Jul-2008	9:00	1.1	SW
26-Jul-2008	10:00	1.4	WSW
26-Jul-2008	11:00	2.0	W
26-Jul-2008	12:00	2.0	WNW
26-Jul-2008	13:00	3.4	WNW
26-Jul-2008	14:00	2.0	SSW
26-Jul-2008	15:00	1.4	WSW
26-Jul-2008	16:00	2.4	W
26-Jul-2008	17:00	1.4	W
26-Jul-2008	18:00	1.4	WSW
26-Jul-2008	19:00	1.4	W
26-Jul-2008	20:00	1.4	W
26-Jul-2008	21:00	1.9	W
26-Jul-2008	22:00	1.7	W
26-Jul-2008	23:00	1.7	WSW
27-Jul-2008	0:00	1.7	WSW
27-Jul-2008	1:00	1.3	W
27-Jul-2008	2:00	1.3	SSW
27-Jul-2008	3:00	0.8	SW
27-Jul-2008	4:00	0.5	SW
27-Jul-2008	5:00	0.3	SW

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
27-Jul-2008	6:00	0.2	SW
27-Jul-2008	7:00	0.2	SW
27-Jul-2008	8:00	0.4	WNW
27-Jul-2008	9:00	0.9	WNW
27-Jul-2008	10:00	1.2	W
27-Jul-2008	11:00	0.9	SSW
27-Jul-2008	12:00	1.0	WNW
27-Jul-2008	13:00	1.0	ENE
27-Jul-2008	14:00	1.0	ENE
27-Jul-2008	15:00	1.0	ENE
27-Jul-2008	16:00	0.9	ENE
27-Jul-2008	17:00	1.4	ENE
27-Jul-2008	18:00	0.9	SSW
27-Jul-2008	19:00	0.4	S
27-Jul-2008	20:00	0.5	E
27-Jul-2008	21:00	0.6	E
27-Jul-2008	22:00	0.3	E
27-Jul-2008	23:00	1.3	ENE
28-Jul-2008	0:00	1.3	NE
28-Jul-2008	1:00	1.1	NE
28-Jul-2008	2:00	1.1	ENE
28-Jul-2008	3:00	0.9	NE
28-Jul-2008	4:00	1.1	ENE
28-Jul-2008	5:00	0.8	NE
28-Jul-2008	6:00	0.5	ENE
28-Jul-2008	7:00	0.5	ENE
28-Jul-2008	8:00	0.4	ENE
28-Jul-2008	9:00	0.5	ENE
28-Jul-2008	10:00	0.9	NNE
28-Jul-2008	11:00	0.8	NNE
28-Jul-2008	12:00	0.7	S
28-Jul-2008	13:00	2.1	WNW
28-Jul-2008	14:00	0.6	E
28-Jul-2008	15:00	0.4	NW
28-Jul-2008	16:00	0.4	WNW
28-Jul-2008	17:00	1.3	NNE
28-Jul-2008	18:00	1.0	N
28-Jul-2008	19:00	0.3	NNE
28-Jul-2008	20:00	0.6	NE
28-Jul-2008	21:00	1.0	N
28-Jul-2008	22:00	0.8	N
28-Jul-2008	23:00	0.9	NNE
29-Jul-2008	0:00	1.1	N
29-Jul-2008	1:00	1.4	N
29-Jul-2008	2:00	1.7	N
29-Jul-2008	3:00	2.7	N
29-Jul-2008	4:00	0.9	SSE
29-Jul-2008	5:00	0.9	SSE
29-Jul-2008	6:00	0.9	SSW
29-Jul-2008	7:00	0.3	SW
29-Jul-2008	8:00	0.5	WSW
29-Jul-2008	9:00	0.3	WSW
29-Jul-2008	10:00	2.5	ENE
29-Jul-2008	11:00	0.9	ENE
29-Jul-2008	12:00	0.2	E
29-Jul-2008	13:00	0.3	E
29-Jul-2008	14:00	0.3	SW
29-Jul-2008	15:00	1.0	N
29-Jul-2008	16:00	0.9	NNE
29-Jul-2008	17:00	0.4	SSW
29-Jul-2008	18:00	0.3	WNW
29-Jul-2008	19:00	0.6	W
29-Jul-2008	20:00	0.5	SSW

Appendix F - Wind Data

Date	Time	Wind Speed m/s	Direction
29-Jul-2008	21:00	1.0	W
29-Jul-2008	22:00	1.6	WNW
29-Jul-2008	23:00	1.0	W
30-Jul-2008	0:00	0.9	WSW
30-Jul-2008	1:00	1.0	SSW
30-Jul-2008	2:00	0.7	SW
30-Jul-2008	3:00	0.6	SW
30-Jul-2008	4:00	0.7	SSW
30-Jul-2008	5:00	0.7	W
30-Jul-2008	6:00	0.4	WNW
30-Jul-2008	7:00	0.5	S
30-Jul-2008	8:00	0.9	WSW
30-Jul-2008	9:00	1.3	WSW
30-Jul-2008	10:00	1.2	W
30-Jul-2008	11:00	0.9	W
30-Jul-2008	12:00	1.3	WSW
30-Jul-2008	13:00	1.1	WSW
30-Jul-2008	14:00	1.1	WSW
30-Jul-2008	15:00	1.2	W
30-Jul-2008	16:00	1.2	W
30-Jul-2008	17:00	0.9	W
30-Jul-2008	18:00	0.9	W
30-Jul-2008	19:00	1.0	W
30-Jul-2008	20:00	0.9	W
30-Jul-2008	21:00	0.7	W
30-Jul-2008	22:00	0.9	WSW
30-Jul-2008	23:00	0.6	W
31-Jul-2008	0:00	0.3	W
31-Jul-2008	1:00	0.3	SW
31-Jul-2008	2:00	0.3	SW
31-Jul-2008	3:00	0.4	SSE
31-Jul-2008	4:00	0.4	SSE
31-Jul-2008	5:00	0.4	---
31-Jul-2008	6:00	0.4	WSW
31-Jul-2008	7:00	0.4	WSW
31-Jul-2008	8:00	0.4	WNW
31-Jul-2008	9:00	0.7	WNW
31-Jul-2008	10:00	1.2	WNW
31-Jul-2008	11:00	1.3	W
31-Jul-2008	12:00	1.0	WNW
31-Jul-2008	13:00	0.9	WNW
31-Jul-2008	14:00	0.9	N
31-Jul-2008	15:00	0.9	N
31-Jul-2008	16:00	0.9	NNE
31-Jul-2008	17:00	0.9	NNE
31-Jul-2008	18:00	0.9	ENE
31-Jul-2008	19:00	0.7	ENE
31-Jul-2008	20:00	0.7	ENE
31-Jul-2008	21:00	0.6	E
31-Jul-2008	22:00	0.2	E
31-Jul-2008	23:00	0.1	E

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – Summary of Exceedance

(A) Exceedance Report for 1-hr TSP
(NIL in the reporting month)

(B) Exceedance Report for 24-hr TSP
(NIL in the reporting month)

(C) Exceedance Report for Construction Noise
(NIL in the reporting month)

APPENDIX H
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	80709
Date	9 July 2008
Time	09:30 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
80709-01	*Water Quality* • Formation of ponding water was observed around Works Area B and Daytank Storage Area after rain. The Contractor was reminded to clear the ponding water or provide larvicidal oil regularly to prevent mosquito breeding.	B12
80709-02	• Oil and silt were observed accumulated in the U-channel at Daytank Storage Area. The Contractor was reminded to clean it up and provide sufficient sandbags for desilting of surface runoff.	B2,B7,B15ii,E7i
	Air Quality • No environmental deficiency was identified during site inspection.	
	Noise • No environmental deficiency was identified during site inspection.	
80709-03	*Waste / Chemical Management* • General refuse (including discarded water bottles and cigarette box) was observed around Daytank Storage Area. The Contractor was reminded to clean it up and provide sufficient rubbish bin for this area.	E1ii,E1iii
	Permit / Licenses • No environmental deficiency was identified during site inspection.	
	Others • No environmental deficiency was identified during site inspection.	
	Follow-up on previous audit session (Ref. No. 80630), the environmental deficiency with item no. 80630-03 was rectified by the Contractor where item nos. 80630-01 and 80630-02 were not rectified due to the rainy weather. Follow-up action is needed for the outstanding area.	

	Name	Signature	Date
Recorded by	Robert Tsang		9 July 2008
Checked by	Dr. Priscilla Choy		9 July 2008

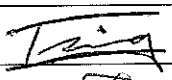
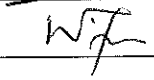
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	80716
Date	16 July 2008
Time	14:45 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
80716-01	*Water Quality* • Ponding water was observed at the wheel washing bay at Works Area B. As the wheel washing bay was not ready to use at the moment, the Contractor was reminded to dry out the ponding water or provide larvicidal oil regularly to prevent mosquito breeding.	B12
80716-02	• Overflow of silty water was observed at Daytank Storage Area. The Contractor was advised to provide extra sandbags for flood prevention or reduce the amount of excavated materials.	B2
	Air Quality • No environmental deficiency was identified during site inspection.	
	Noise • No environmental deficiency was identified during site inspection.	
	Waste / Chemical Management • No environmental deficiency was identified during site inspection.	
	Permit / Licenses • No environmental deficiency was identified during site inspection.	
	Others • No environmental deficiency was identified during site inspection.	
	Follow-up on previous audit session (Ref. No. 80709), all the environmental deficiencies identified were improved / rectified by the Contractor as observed during the site inspection.	

	Name	Signature	Date
Recorded by	Robert Tsang		16 July 2008
Checked by	Dr. Priscilla Choy		16 July 2008

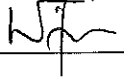
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	80723
Date	23 July 2008
Time	14:45 – 15:35

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

Ref. No.	Remarks/Observations	Related Item No.
80723-01	*Water Quality* • No environmental deficiency was identified during site inspection. *Air Quality* • Exposed stockpiles of excavated materials were observed at Works Area B and Daytank Storage Area. To prevent dust emission, the Contractor was reminded to remove them, cover them with tarpaulin or provide water spraying daily. *Noise* • No environmental deficiency was identified during site inspection.	C7,B9
80723-02	*Waste / Chemical Management* • General refuse was observed around the constructing RE's Site Office. The Contractor was reminded to clean it up. *Permit / Licenses* • No environmental deficiency was identified during site inspection. *Others* • No environmental deficiency was identified during site inspection. Follow-up on previous audit session (Ref. No. 80716), all the environmental deficiencies identified were improved / rectified by the Contractor as observed during the site inspection.	E1i,E1ii,E1iii

	Name	Signature	Date
Recorded by	Robert Tsang		23 July 2008
Checked by	Dr. Priscilla Choy		23 July 2008

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	80730
Date	**30** July 2008
Time	14:30 – 15:15

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

Ref. No.	Remarks/Observations	Related Item No.
80730-02	*Water Quality* • Silt was observed accumulated higher than the sandbags and close to the edge of the Site Area at Daytank Storage Area. The Contractor was advised to provide sufficient sandbags and clean up the floor to prevent silty surface runoff during rain. *Air Quality* • No environmental deficiency was identified during site inspection. *Noise* • No environmental deficiency was identified during site inspection.	B2,C3
80730-01	*Waste / Chemical Management* • Oil was observed on the ponding water at Daytank Storage Area. The Contractor was reminded to clean up the oil before discharging into public channel. *Permit / Licenses* • No environmental deficiency was identified during site inspection. *Others* • No environmental deficiency was identified during site inspection. Follow-up on previous audit session (Ref. No. 80723), all the environmental deficiencies identified were improved / rectified by the Contractor as observed during the site inspection.	E6,E7i

	Name	Signature	Date
Recorded by	Robert Tsang		30 July 2008
Checked by	Dr. Priscilla Choy		30 July 2008

APPENDIX I
EVENT/ACTION PLANS

APPENDIX I – Event / Action Plan

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 and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; and 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; and 2. Amend working methods if appropriate.
2.Exceedance for two or more consecutive samples	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; and 7. If exceedance stops, cease additional monitoring.	1. Checking monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; and 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; and 5. Conduct meeting with ET and IEC if exceedance continues.	1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within 3 working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal if appropriate.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1.Exceedance for one sample	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER and EPD; 3. Repeat measurement to confirm finding; and 4. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC 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; and 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; and 5. Conduct meeting with ET and IEC if exceedance continues.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within 3 working days of notification; and 4. Implement the agreed proposals.
2.Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results; and 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ER, ET and Contractor on possible remedial measures; and 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; and 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1.Take immediate action to avoid further exceedance; 2. Discuss with ET, ER and IEC on proper remedial actions; 3.Submit proposals for remedial actions to ER and IEC within 3 working days of notification; 3.Implement the agreed proposals; 4.Submit further proposals for remedial actions if problem still not under control; and 5. Stop the relevant portion of works as instructed 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; and 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; and 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; and 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposal to IEC and ER; and 2. Implement noise mitigation proposals.
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurement 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 Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; and 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance 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; and 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposal 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; and 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

APPENDIX J
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

APPENDIX J - Environmental Mitigation Implementation Schedule (EMIS)

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S3.29	Dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation should be incorporated to control dust emission from the site. Control measures relevant to this Project are listed below: • Skip hoist for material transport should be totally enclosed by impervious sheeting; • 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; • 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	Work sites / During the construction period	Contractor		√			EIAO-TM and Air Pollution Control (Construction Dust) Regulation

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	hour is 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; and • 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.							
S4.48 – S4.50	Use of quiet PME	Work sites / During the construction period	Contractor		√			EIAO-TM and Noise Control Ordinance
S4.51	*Good Site Practice* • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • Mobile plant, if any, should be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Work sites / During the construction period	Contractor		√			EIAO-TM and Noise Control Ordinance

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.56 & S13	Noise monitoring should be carried out to ensure that noise mitigation measures would be properly implemented. Details of the monitoring requirements are specified in the EM&A Manual.	Barrack / During the construction period	Contractor		√			EIAO-TM and Noise Control Ordinance
S5.212	The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted. It is recommended to install perimeter channels in the works areas to intercept runoff at site boundary prior to the commencement of any earthwork. To prevent storm runoff from washing across exposed soil surfaces, intercepting channels should be provided. Drainage channels are also required to convey site runoff to sand/silt traps and oil interceptors. Provision of regular cleaning and maintenance can ensure the normal operation of these facilities throughout the construction period. Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance
S5.213	There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Reuse and recycling of the treated effluent can minimise water consumption and reduce the effluent discharge volume. The beneficial uses of the treated effluent may include dust suppression, wheel washing and general cleaning. 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.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.214	The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from any stream courses so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. It is suggested that haul roads should be paved with concrete and the temporary access roads protected using crushed stone or gravel, wherever practicable. Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance
S5.215	Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance
S5.216	The presence of construction workers generates sewage. It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30 m from any watercourse. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis. The construction workers can also make use of the existing toilet facilities within the SCISTW as necessary.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.217	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	Work sites / During the construction period	Contractor		√			EIAO-TM and Water Pollution Control Ordinance
S5.218	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Work sites / During the construction period	Contractor		√			EIAO-TM and Waste Disposal Ordinance
S5.219	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.	Work sites / During the construction period	Contractor		√			EIAO-TM, Waste Disposal Ordinance and Water Pollution Control Ordinance
S5.220	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 labeled, to notify and warn the personnel who are handling the wastes, to avoid accidents.	Work sites / During the construction period	Contractor		√			EIAO-TM and Waste Disposal Ordinance

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.							
S10.21	*Good Site Practices* Recommendations for good site practices during the construction activities include: • 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 handling procedures • Provision of sufficient waste disposal points and regular collection of waste • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.	Work sites / During the construction period	Contractor		√			Waste Disposal Ordinance (Cap.54) ETWB TCW No. 19/2005

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S10.22	*Waste Reduction Measures* Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Segregation and storage of different types of waste indifferent containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce • Proper storage and site practices to minimise the potential for damage or contamination of construction materials • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. • A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	Work sites / During planning & design stage, and construction stage	Contractor	√	√			
S10.24	*General Refuse* General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	Work sites / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)

EIA Ref	Environmental Protection Measures/Mitigation Measures	Location/Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S10.25	*Construction and Demolition Material* In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated material generated from excavation works for the proposed chlorination plant, dechlorination plant, day tank and pipe trenches should be reused on-site as backfilling material as far as practicable. The surplus excavated material should be disposed of at the designated public fill reception facility, as agreed with the Secretary of the Public Fill Committee, for other beneficial uses. C&D waste generated from site clearance and dismantling of formwork would require disposal to the designated landfill site. In order to monitor the disposal of C&D material at the public fill reception facility and landfill and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No. 31/2004 for details.	Work sites / During design stage and construction period	Contractor	√	√			ETWB TCW No. 33/2002 ETWB TCW No. 19/2005
S10.26	*Chemical Waste* 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.	Work sites / During the construction period	Contractor		√			Waste Disposal (Chemical Waste) (General) Regulation

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

APPENDIX K
SUMMARY OF WASTE GENERATION IN THE REPORTING MONTH

Appendix K

Contract No.: DC/2007/20

Monthly Summary Waste Flow Table For 2008 (year)

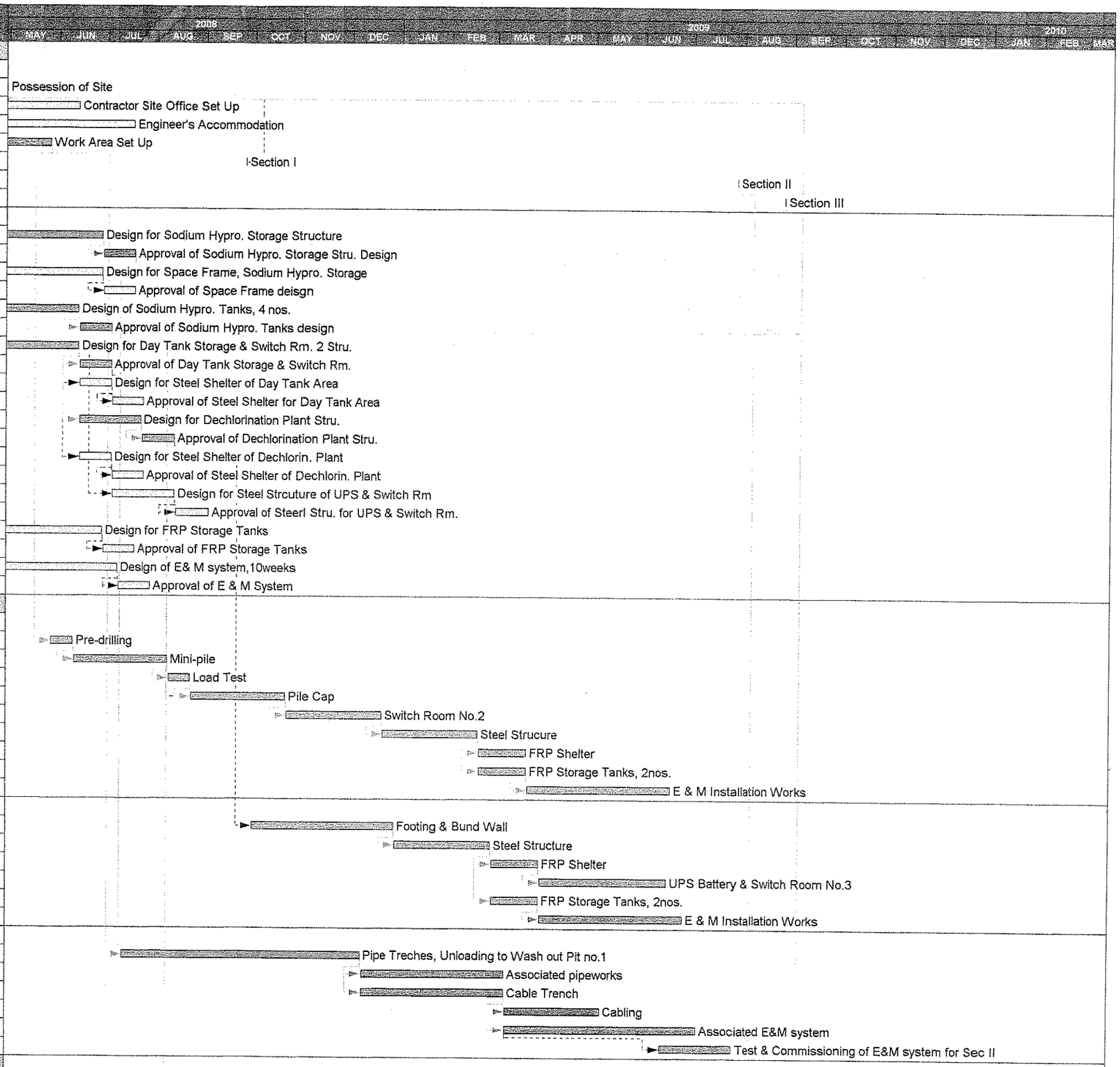
Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Waste Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 2)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 1)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan											
Feb											
Mar											
Apr											
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
Sub-total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.060**
July	0.008	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000
Aug											
Sep											
Oct											
Nov											
Dec											
Total	**0.008**	**0.000**	**0.000**	**0.000**	**0.008**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.060**

Notes: (1) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(2) Broken concrete for recycling into aggregates.

APPENDIX L
CONSTRUCTION PROGRAMME

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish
Preliminaries					
1000	Possession of Site	1d	1d	29APR08	29APR08
1010	Contractor Site Office Set Up	45d	45d	29APR08	12JUN08
1020	Engineer's Accommodation	80d	80d	29APR08	17JUL08
1030	Work Area Set Up	28d	28d	29APR08	26MAY08
1040	Section I	1d	1d	25SEP08	25SEP08
1090	Section II	1d	1d	27JUL09	27JUL09
1570	Section III	1d	1d	26AUG09	26AUG09
Design Submission					
1050	Design for Sodium Hypro. Storage Structure	60d	60d	29APR08	27JUN08
1055	Approval of Sodium Hypro. Storage Stru. Design	21d	21d	28JUN08	18JUL08
1060	Design for Space Frame, Sodium Hypro. Storage	60d	60d	29APR08	27JUN08
1065	Approval of Space Frame deisgn	21d	21d	28JUN08	18JUL08
1070	Design of Sodium Hypro. Tanks, 4 nos.	45d	45d	29APR08	12JUN08
1075	Approval of Sodium Hypro. Tanks design	21d	21d	13JUN08	03JUL08
1080	Design for Day Tank Storage & Switch Rm. 2 Stru.	45d	45d	29APR08	12JUN08
1085	Approval of Day Tank Storage & Switch Rm.	21d	21d	13JUN08	03JUL08
1100	Design for Steel Shelter of Day Tank Area	21d	21d	13JUN08	03JUL08
1105	Approval of Steel Shelter for Day Tank Area	21d	21d	04JUL08	24JUL08
1110	Design for Dechlorination Plant Stru.	40d	40d	13JUN08	22JUL08
1115	Approval of Dechlorination Plant Stru.	21d	21d	23JUL08	12AUG08
1120	Design for Steel Shelter of Dechlorin. Plant	21d	21d	13JUN08	03JUL08
1125	Approval of Steel Shelter of Dechlorin. Plant	21d	21d	04JUL08	24JUL08
1130	Design for Steel Strcuture of UPS & Switch Rm	40d	40d	04JUL08	12AUG08
1135	Approval of Steerl Stru. for UPS & Switch Rm.	21d	21d	13AUG08	02SEP08
1140	Design for FRP Storage Tanks	60d	60d	29APR08	27JUN08
1470	Approval of FRP Storage Tanks	21d	21d	28JUN08	18JUL08
1560	Design of E& M system,10weeks	70d	70d	29APR08	07JUL08
1565	Approval of E & M System	21d	21d	08JUL08	28JUL08
Day Tank Storage Area					
1150	Pre-drilling	14d	14d	27MAY08	09JUN08
1160	Mini-pile	60d	60d	10JUN08	08AUG08
1170	Load Test	14d	14d	09AUG08	22AUG08
1180	Pile Cap	60d	60d	23AUG08	21OCT08
1190	Switch Room No.2	60d	60d	22OCT08	20DEC08
1200	Steel Strucure	60d	60d	21DEC08	18FEB09
1210	FRP Shelter	30d	30d	19FEB09	20MAR09
1220	FRP Storage Tanks, 2nos.	30d	30d	19FEB09	20MAR09
1280	E & M Installation Works	90d	90d	21MAR09	18JUN09
Dechlorination Plant					
1230	Footing & Bund Wall	90d	90d	30SEP08 *	28DEC08
1240	Steel Structure	60d	60d	29DEC08	26FEB09
1250	FRP Shelter	30d	30d	27FEB09	28MAR09
1260	UPS Battery & Switch Room No.3	80d	80d	29MAR09	16JUN09
1270	FRP Storage Tanks, 2nos.	30d	30d	27FEB09	28MAR09
1290	E & M Installation Works	90d	90d	29MAR09	26JUN09
Associated Pipeworks & Utilities					
1300	Pipe Treches, Unloading to Wash out Pit no.1	150d	150d	11JUL08	07DEC08
1310	Associated pipeworks	90d	90d	08DEC08	07MAR09
1320	Cable Trench	90d	90d	08DEC08	07MAR09
1330	Cabling	60d	60d	08MAR09	06MAY09
1580	Associated E&M system	120d	120d	08MAR09	05JUL09
1590	Test & Commissioning of E&M system for Sec II	45d	45d	13JUN09	27JUL09

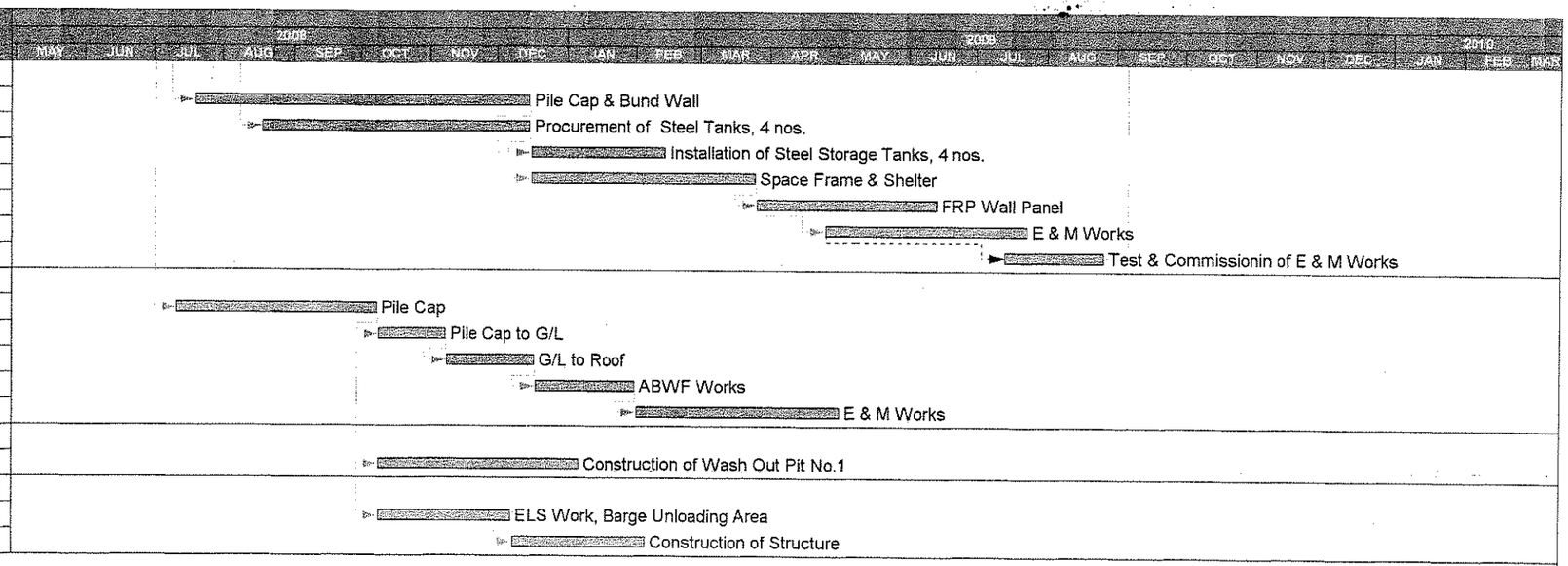


Start date	29APR08
Finish date	26AUG09
Data date	29APR08
Run date	18MAY08
Page number	1A

Outline Programme
for
Stonecutters Island Sewage Treatment Works

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish
Sodium Hypochlorite Storage Compund					
1340	Pile Cap & Bund Wall	150d	150d	19JUL08	15DEC08
1345	Procurement of Steel Tanks, 4 nos.	120d	120d	18AUG08	15DEC08
1350	Installation of Steel Storage Tanks, 4 nos.	60d	60d	16DEC08	13FEB09
1360	Space Frame & Shelter	100d	100d	16DEC08	25MAR09
1370	FRP Wall Panel	80d	80d	26MAR09	13JUN09
1380	E & M Works	90d	90d	25APR09	23JUL09
1480	Test & Commissionin of E & M Works	45d	45d	13JUL09	26AUG09
Switch Room No.1					
1390	Pile Cap	90d	90d	11JUL08	08OCT08
1400	Pile Cap to G/L	30d	30d	09OCT08	07NOV08
1410	G/L to Roof	40d	40d	08NOV08	17DEC08
1420	ABWF Works	45d	45d	18DEC08	31JAN09
1430	E & M Works	90d	90d	01FEB09	01MAY09
Washout Pit No.1					
1440	Construction of Wash Out Pit No.1	90d	90d	09OCT08	06JAN09
Barge Unloading Area					
1450	ELS Work, Barge Unloading Area	60d	60d	09OCT08	07DEC08
1460	Construction of Structure	60d	60d	08DEC08	05FEB09



Start date	29APR08
Finish date	26AUG09
Data date	29APR08
Run date	18MAY08
Page number	2A

Outline Programme
for
Stonecutters Island Sewage Treatment Works

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

APPENDIX M
COMPLAINT LOG

APPENDIX M – Complaint Log

Reporting Month: July 2008

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 from July 2008.