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**TEST REPORT**

**CONCENTRIC CONSTRUCTION LIMITED**

**OPERATION OF PUBLIC FILL  
RECEPTION FACILITIES AT  
TSEUNG KWAN O AREA 137,  
QUARRY BAY AND MUI WO  
(CONTRACT NO.: CV/2005/12)**

**TSEUNG KWAN O AREA 137**

**MONTHLY EM&A REPORT  
(APRIL 2006)**

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## BMT Asia Pacific Limited

15 May 2006  
Our Ref: 8116/2723

By Hand

Concentric Construction Limited  
Unit D, 10/F, Skyline Tower  
18 Tong Mei Road  
Mongkok, Kowloon  
Hong Kong

For the attention of Mr. Stephen Choi

Dear Sir

**Contract No. CV/2005/12**  
**Fill Bank at Tseung Kwan O Area 137**  
**Monthly EM&A Report**

Following review of the Monthly EM&A Report No. 4 for the reporting period April 2006, the IEC has verified the information presented.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned.

Yours sincerely  
**BMT Asia Pacific Limited**

Ben Ridley  
IEC

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## **EXECUTIVE SUMMARY**

This is the fourth monthly Environmental Monitoring and Audit (EM&A) report prepared by ETS-Testconsult Ltd (ET) for the "Contract No. CV/2005/12 Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Wo" (The Project).

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tseung Kwan O Area 137 in April 2006.

### **Construction Progress**

As informed by the Contractor, the construction activities in this reporting month were as below:

- *Manage the incoming public fill dump trucks arriving through land access;*
- *Transport temporary stockpiled public fill from the Barge Handling Area (BHA) to Stockpile Areas or the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);*
- *Transport stockpile public fill from Stockpile Areas to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);*
- *Direct some incoming public fill dump trucks to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2) for unloading;*
- *Routine site cleaning and maintenance of internal haul roads and access roads; and*
- *Routine implementation of environmental mitigation measures such as dust suppression by water spraying, cleaning of nearby public roads by using road sweeper and collection of floating debris inside a berthing basin within the site boundary; and*
- *Landscaping works in the vicinity of the main entrance of the Fill Bank at Tseung Kwan O Area 137 and in front of the Engineer's Site Office.*

### **Environmental Monitoring Progress**

The summary of the monitoring activities in this monitoring month is listed below:

- *Noise Monitoring (Day-time): 1 Occasion at 1 designated location*
- *24-hour TSP Monitoring: 6 Occasions at 2 designated locations*
- *1-hour TSP Monitoring: 18 Occasions at 2 designated locations*
- *Marine Water Quality Monitoring: 11 Occasions at 2 designated locations*
- *Weekly-site inspection: 4 Occasions*

### **Noise Monitoring**

No exceedances of Action and Limit levels for noise monitoring were recorded in the reporting month.

### **Air Monitoring**

No exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring in the reporting month.

### **Marine Water Quality Monitoring**

According to the summary of marine water monitoring results, one exceedance of Limit Level on Turbidity at Monitoring Station C1 was recorded on 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.

### **Site Inspection**

Environmental site inspections conducted in this reporting month are presented as follows:

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
ET Weekly site inspection	04, 10, 19, 24
IEC site inspection	24

In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting month. The major findings observed during site inspections are presented in the Section 7.0.



### **Landscape and Visual**

The germination rate on the panel at Portion A, B, G, H and I was satisfactory in this reporting month. The Contractor should properly maintain the panel properly.

### **Environmental Complaints, Notification of summons and successful prosecutions**

No complaints, notification of summons and prosecutions with respect to environmental issues were received in this monitoring month. The investigation report of the complaint received on 27 March 2006 had been sent to EPD, CEDD and IEC on 11 April 2006.

### **Permits and Licenses**

An Amended Environmental Permit (No.: EP-134/2002/F) (the EP) was granted to the Project by EPD on 26 January 2006. Effluent discharge licence (Ref. No.: TE/D1152/839/1) for the site toilet and shower room issued on 06 June 2003 obtained from the previous contract continued to be valid in this Project. Chemical Waste Producer Licence (WPN No.: 5213-839-P2800-23) was also valid from 04 August 2005.

### **Future Key Issues**

Based on the site inspections and forecast of engineering works in the coming month, key issues to be considered are as follows:

- *Noise and air quality impact due to construction works;*
- *Maintain wheel washing facilities properly;*
- *Maintain all drainage and desilting facilities properly;*
- *Use and maintain silt curtain properly;*
- *Clean up the fill material on concrete pavement along the BHA frequently;*
- *Watering, hydroseeding or covering all opening slopes and stockpiles with tarpaulin to avoid wind and water erosion;*
- *Sufficient drip trays for all oil drums / chemical containers;*
- *Implement all necessary preventive measures to avoid oil leakage. In the event an oil leakage happens, the Contractor should properly remove the leaked oil and handle the contaminated soil and all materials using for this cleaning works as chemical waste;*
- *Maintain good site practice and waste management to minimize environmental impacts at the site; and*
- *Follow-up improvements on waste management issues.*



## 1.0 INTRODUCTION

Concentric Construction Ltd (CCL) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for the "Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Wo" (Contract No.: CV/2005/12) (The Project).

In accordance with the Amended Environmental Permit (No.: EP-134/2002/F) (the EP), an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-060/2002). The EM&A programme for this study as stated in Section 2.3.1 of the EM&A Manual covers the following environmental aspects during the establishment, operation and removal phases of the Fill Bank at Tseung Kwan O Area 137:

- Fugitive Dust;
- Noise generation from onsite activities;
- Water Quality; and
- Landscape and Visual.

The EM&A programme requires environmental monitoring for air quality, noise and water quality and environmental site inspections for air quality, noise, water quality, landscape and visual, and waste management. The EM&A requirements for each parameter described in the following sections include:

- All monitoring parameters;
- Monitoring schedules for the reporting month and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event/Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

Baseline monitoring was completed in August and September 2002 by Materialab. Action and Limit Levels were established for air and water quality parameters based on the baseline monitoring results.

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tseung Kwan O Area 137 in April 2006.



## 2.0 PROJECT INFORMATION

### 2.1 Scope of the Project

The scale and scope of the Project as stated in the EP include:

- Site clearance;
- Construction of a temporary storm water system;
- Stockpiling of 6 million m<sup>3</sup> of public fill;
- Setting up two barging points: one at the Tseung Kwan O Basin (TKO Basin) and one at the Construction and Demolition Material Sorting Facility (C&DMSF) for transporting the stockpiled public fill by barges;
- Setting up a temporary barging point at the existing Explosive Off-loading Barging Point located in the south-eastern part of Area 137 for the period of May 2004 to December 2004 for transporting the stockpiled public fill by barge;
- Construction and operation of a Construction and Demolition Material Sorting Facility (C&DMSF);
- Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin; and
- Remove the temporary fill bank.

### 2.2 Site Description

Tseung Kwan O Area 137 is located at the southern end of Wan Po Road. In the vicinity of the site are other industrial uses such as SENT landfill, TKO Industrial Estate, etc. Both Island Resort and Fullview Garden are also situated at more than 1.8km from the site. Other existing ASRs and NSRs, including resident developments and schools, are located at a further distance away from TKO Area 137.

### 2.3 Construction Programme

Details of construction programme are shown in Appendix G.

### 2.4 Project Organization and Management Structure

The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in Appendix A.

### 2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	Name of Key Staff	Project Role	Tel. No.	Fax No.
CEDD	Mr. H C TANG	Engineer	2762 5602	2714 0113
IEC (BMT)	Mr Ben Ridley	IEC	2815 2221	2815 3377
Contractor (CCL)	Mr. C P Lam	Project Manager	2398 8001 9212 9417	2398 8301
ET (ETL)	Mr C. L. Lau	ET Leader	2946 7791	2695 3944





### 3.0 CONSTRUCTION PROGRESS IN THIS REPORTING MONTH

As informed by the Contractor, the activities in the reporting month include:

- *Manage the incoming public fill dump trucks arriving through land access;*
- *Transport temporary stockpiled public fill from the Barge Handling Area (BHA) to Stockpile Areas or the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);*
- *Transport stockpile public fill from Stockpile Areas to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);*
- *Direct some incoming public fill dump trucks to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2) for unloading;*
- *Routine site cleaning and maintenance of internal haul roads and access roads;*
- *Routine implementation of environmental mitigation measures such as dust suppression by water spraying, cleaning of nearby public roads by using road sweeper and collection of floating debris inside a berthing basin within the site boundary; and*
- *Landscaping works in the vicinity of the main entrance of the Fill Bank at Tseung Kwan O Area 137 and in front of the Engineer's Site Office.*



#### 4.0 AIR QUALITY MONITORING

##### 4.1 Monitoring Requirement

TSP levels were monitored in the reporting month in accordance with the EM&A Manual. Table 4.5 shows the Action and Limit Levels for the environmental monitoring works.

##### 4.2 Monitoring Equipment

Both 1-hour and 24-hour TSP air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. Table 4.1 summarizes the equipment used in the air quality monitoring programme. A copy of the calibration certificates for the HVS and portable dust meter are attached in Appendix B1.

Table 4.1 Air Quality Monitoring Equipment

<i>Equipment</i>	<i>Model and Make</i>
<i>HVS</i>	<i>Greasby GMWS2310</i>
<i>Calibrator</i>	<i>Tisch TE-5025A</i>
<i>Wind Data Logger</i>	<i>Davis Weather Monitor II</i>

##### 4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring.

Table 4.2 Monitoring parameters, duration, frequency of air quality monitoring

<i>Parameter</i>	<i>Duration</i>	<i>Frequency</i>
<i>24-hr TSP</i>	<i>24 hr</i>	<i>Once every six days</i>
<i>1-hr TSP</i>	<i>1 hr</i>	<i>Three times per day every six days</i>

##### 4.4 Monitoring Locations and Schedule

Table 4.3 tabulates the air quality monitoring locations of this project.

Table 4.3 Air quality monitoring locations

<i>Monitoring station</i>	<i>Location</i>
<i>AA1</i>	<i>Outside CEDD Site Office</i>
<i>AA2</i>	<i>Site Egress</i>

During the reporting month, 1-hr and 24-hr TSP monitoring were carried out as the schedule. The details for 24-hr and 1-hr TSP monitoring carried out in this reporting month are summarized in table 4.4.





Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m<sup>3</sup>/min and 1.7m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air 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 air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling period of 24 hours. 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 transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C ± 3°C and the relative humidity (RH) <50% ±5%.
- All measurement procedures in Section 2.3 of the EM&A Manual were followed during the reporting month.

Maintenance & Calibration

- The HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

**Wind Data Monitoring**

Measuring Procedure

Upon installation of the wind data logger on site, temperature, wind speed and direction was automatically stored in the logger. Regular downloading of the information was carried out weekly.

Maintenance

Cleaning was provided for all the rotational parts of the wind data logger regularly. Replacement of battery was carried out weekly. The wind data logger was checked once per week and no calibration was required for the equipment as instructed by the manufacturer.

**4.6 Action and Limit Levels**

Table 4.5 shows the Action and Limit levels for 24-hr TSP and 1-hr TSP monitoring.

Table 4.5 Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Location	24-hr TSP (µg/m <sup>3</sup> )		1-hr TSP (µg/m <sup>3</sup> )	
	Action Level *	Limit Level *	Action Level *	Limit Level *
AA1	210	260	376	500
AA2	210	260	376	500

\* Traceable to Method Statement (Environmental Monitoring and Audit Manual) of Contract No.CV/2002/08, Rev. 2



#### 4.7 Event-Action Plans

Please refer to Appendix F for details.

#### 4.8 Results and Observation

##### 4.8.1 1-hour and 24-hour TSP Monitoring results

All monitoring data of both 1-hour and 24-hour TSP monitoring is provided in Appendix B2. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting month is shown in Appendix B3. Wind data, including wind speed and wind direction, are annexed in Appendix E. Table 4.6 summarizes 1-hr TSP and 24-hr TSP monitoring results.

Table 4.6 Summary of 1-hr TSP and 24-hr TSP Monitoring Results

Air quality monitoring Stations	Location	Monitoring Period						
		24-hr TSP			1-hr TSP			
		Date	Result ( $\mu\text{g}/\text{m}^3$ )	Exceedance #	Date	Start Time	Result ( $\mu\text{g}/\text{m}^3$ )	Exceedance #
AA1	Outside CEDD Site Office	04/04/06	188	X	04/04/06	09:30	323	X
						11:00	365	
						13:00	344	
		10/04/06	164	X	10/04/06	11:00	354	X
						13:00	329	
						14:15	316	
		13/04/06	153	X	13/04/06	09:30	299	X
						11:00	343	
						13:00	319	
		19/04/06	202	X	19/04/06	08:30	299	X
						11:00	367	
						13:00	345	
		25/04/06	195	X	25/04/06	08:30	264	X
						09:45	297	
11:00	351							
29/04/06	180	X	29/04/06	09:30	325	X		
				11:00	361			
				13:00	277			
A2	Site Egress	04/04/06	191	X	04/04/06	09:30	339	X
						11:00	370	
						13:00	353	
		10/04/06	181	X	10/04/06	11:00	363	X
						13:00	307	
						14:15	340	
		13/04/06	165	X	13/04/06	09:30	326	X
						11:00	350	
						13:00	294	
		19/04/06	190	X	19/04/06	08:30	297	X
						11:00	357	
						13:00	324	
		25/04/06	184	X	25/04/06	08:30	272	X
						09:45	283	
11:00	340							
29/04/06	167	X	29/04/06	09:30	310	X		
				11:00	353			
				13:00	266			

Remark (\*): L=Limit Level exceedance, A=Action Level exceedance and X= not an exceedance

No exceedances of Action and Limit Level of both 1-hour and 24-hour TSP monitoring results were recorded during the reporting month.

##### 4.8.2 Observation

Generally, the Contractor implemented sufficient dust mitigation measures, including operation of the mist spraying systems at the CEDD Combined Reception Office and the site egress area, wheel washing facilities, road dampening by water bowsers and automatic water sprinklers on the main haul roads. Furthermore, hydroseeded slopes on the stockpiling areas was maintained properly in order to prevent dust generation from wind erosion of the exposed surfaces. Besides the Fill Bank operation, the other dust sources near TKO Area 137 also included operation of the C&DMSF at PBR2 Project, the temporary C&DMSF at Portion K and dumping activities at the SENT Landfill.



## 5.0 Noise Monitoring

### 5.1 Monitoring Requirements

Noise monitoring was conducted at 1 monitoring station as specified in the approved EM&A Monitoring Proposal for good site practice. The equipment, parameter, frequency, duration, methodology, calibration details, results and observations of the noise monitoring for the reporting month are presented in this section.

### 5.2 Monitoring Equipment

An Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level ( $L_{eq}$ ) and percentile sound pressure level ( $L_x$ ). It complies with International Electro Technical Commission Publications 651:1979 (Type1) and 804:1985 (Type1), and speed in m/s was used to monitor the wind speed.

Table 5.1 summarizes noise monitoring equipment model being used. A copy of the calibration certificate for noise meter and calibrator are attached in Appendix C1.

Table 5.1 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-31 Sound Level Meter
Calibrator	Rion NC-73 Sound Level Calibrator
Portable Wind Speed Indicator	TSI Model 8340-M Air Velocity Meter

### 5.3 Monitoring Parameters, Duration and Frequency

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

Table 5.2 Duration, Frequencies and Parameters of Noise Monitoring

Time period	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal weekday	30	$L_{eq}$ , $L_{10}$ , $L_{90}$	Once per month

### 5.4 Monitoring Locations and Period

Noise monitoring was conducted at the noise monitoring location, N1 as shown in Figure 3.1 during the reporting month. Table 5.3 describes the location of the monitoring station.

Table 5.3 Noise Monitoring Locations

Monitoring station	Location	Type of Measurement
N1	Outside site Egress along Wan Po Road	Façade

The noise-monitoring period of monitoring station is summarized in Table 5.4.

Table 5.4 Monitoring Period for noise monitoring stations

Noise monitoring stations	Monitoring Period	
	Day-time	
N1	04/04/06	10:50

### 5.5 Monitoring Procedures and Calibration Details

#### Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.



- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weighting: A
  - Time weighting : Fast
  - Time measurement : 5 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Free Field correction to the measurements should be made. Correction factor of +3dB(A) should be made to the free Field measurements.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

#### Maintenance and Calibration

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth in quarterly intervals.
- The meter is sent to the supplier or HOKLAS laboratory to check and calibrated in yearly intervals.

## 5.6 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.5.

Table 5.5 Action and Limit Levels for noise monitoring

Time Period	Time Period	Action *	Limit *
Normal hours	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)

\*Traceable to Method Statement (Environmental Monitoring and Audit Manual) of Contract No.CV/2002/08, Rev. 2

## 5.7 Event-Action Plans

Please refer to the Appendix F for details.

## 5.8 Results and Observation

### 5.8.1 Results

Only Day-time noise monitoring was carried out at monitoring station, N1 in this reporting month. Noise level is provided in Appendix C2. Graphical presentation of the monitoring result for the reporting month is shown in Appendix C3. A summary of the monitoring result is presented in Table 5.6.

Table 5.6 Summary of Impact Noise Level

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)		
		$L_{eq(30min)}$	$L_{10}$	$L_{90}$
04/04/06	10:50	71.6	76.8	70.2

No Day-time noise monitoring result at monitoring station N1 exceeded the Action Level since no documented complaints on noise issue were received in this reporting month. Besides, no exceedances in Limit Level were recorded according to the result from Day-time noise monitoring.



### **5.8.2 Observation**

The major noise source during the monitoring event was the dump truck traffic. Operation of the Fill Bank was from 08:00 to 21:00 from Monday to Sunday in the reporting month. Whereas the operation hours for barge activities in the TKO Basin was from 08:00 to 23:00. The monitoring result complied with the noise limit of 75 dB(A).





## 6.0 MARINE WATER QUALITY MONITORING

### 6.1 Monitoring Requirements

In accordance with the EM&A Manual, impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-flood and mid-ebb tides at three depths (i.e. 1m below surface, mid depth and 1m from seabed) at the Control Station, C1 and Monitoring Station, M4.

### 6.2 Monitoring Locations

For the Reclamation Project, there were 4 Designated Monitoring Stations and 2 Designated Control Stations specified in the EM&A Manual. Upon the completion of the monitoring programme under Stage 2 reclamation works, the ET started monitoring events at the impact station M4 and the control station C1 from 18 May 2004 onwards. Figure 4.1 shows the location of the marine water quality monitoring stations. Table 6.1 describes the locations of the monitoring stations in the reporting month.

Table 6.1 Location of Marine Water Monitoring Stations

Station Description	Code	HK Metric Grid E	HK Metric Grid N
Control Station (Ebb tide)	C1	844 740.208	815 371.502
Monitoring Station, Tung Lung Chau Fish Culture Zone	M4	847 741.029	812 977.878

### 6.3 Monitoring Parameters

Monitoring of the marine water quality parameters are listed in Table 6.2.

Table 6.2 Marine Water Quality Monitoring Parameters

In-situ measurement	Laboratory analysis
Depth (m)	Suspended solids (mg/L)
Temperature (°C)	
Dissolved Oxygen (mg/L and % saturation)	
Turbidity (NTU)	
Salinity (ppt)	

### 6.4 Monitoring Frequency

The monitoring frequency of the marine water monitoring is summarized in Table 6.3.

Table 6.3 The monitoring frequency of the marine water

Parameter	Frequency	No. of Location	No. of Depths
Temperature	3 days/week, 2 tides/day	2 (C1 and M4)	3 (Surface, mid- depth & bottom)
Salinity			
DO			
Turbidity			
pH value			
Suspended solids			

### 6.5 Monitoring Methodology and Equipment Used

#### For Location of the monitoring stations

##### **Global Positioning System (GPS)**

A hand-held digital GPS was used to identify the designated monitoring stations prior to water sampling.



**For Water Depth measurement**

**Echo Sounder**

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

**For In-situ Water Quality Measurement**

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals or sometimes longer throughout all stages of the water quality monitoring.

**Dissolved Oxygen (DO) and temperature measuring equipment**

A portable, weatherproof DO-measuring meter with built-in salinity compensation (YSI model 95) was used in the impact monitoring. It can be capable for measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200 % saturation; and
- a temperature of 0-45 degree Celsius

This type of DO-measuring meter has a membrane electrode with automatic temperature compensation complete with a 50-foot cable. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring location

**Turbidity Measurement Instrument**

A portable and weatherproof turbidity meter (HACH model 2100P) was used during impact monitoring. It has a photoelectric sensor capable of measuring turbidity between 0-1000 NTU. Response of the sensor was checked with certified standard Turbidity solutions before the start of measurement.

**Salinity Meter**

A portable salinity meter capable of measuring salinity in the range 0-40 ppt (YSI Model 30M) was provided for measuring salinity of the water at each monitoring location. It was checked with standard 30 ppt Salinity solutions before the start of measurement.

**For Water Sampling and Sample Analysis**

In-situ monitoring was carried out at three depths: 1 meter below water surface, at mid-depth and 1 meter above the seabed. If the water depth is less than 6 m, the mid-depth station shall be omitted and if the water depth is below 3 m, only the mid depth station shall be monitored.

**Water Sampler**

A water sampler comprising a transparent PVC cylinder, with a capacity of not less than 2 liters, was lowered into the water body at the predetermined depth. The both opening ends of the sampler were then closed accordingly by dead weight and water samples were collected.

**Water Container**

The sample container, made by high-density polythene, was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4°C. The water samples were then delivered to a local HOKLAS-accredited laboratory (Environmental Laboratory, ETS-Testconsult Ltd, HOKLAS Registration No. 022) on the same day for analysis.

The summary of testing method of testing parameter as recommended by EIA or required by EPD, with the QA/QC results in accordance with the requirement of HOKLAS or international accredited scheme is shown in Table 6.4.

Table 6.4 Summary of testing procedures

<i>Laboratory Analysis</i>	<i>Testing Procedure</i>	<i>Detection Limit</i>
<i>Total suspended solids</i>	<i>In house method based on APHA 19<sup>th</sup> ed 2540D</i>	<i>1.0 mg/L</i>



### In-situ measurement

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring location.

At each measurement/sampling depth, two consecutive measurements of dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity and salinity were taken. For turbidity measurement, the sample was collected by using sampler and then transferred to the cell. The reading of turbidity of the sample was directly recorded from the Turbidimeter (HACH 2100P) after inserting the cell to the Turbidimeter. For DO, DOS and Salinity, duplicate measurements were performed by dropping the calibrated probes of the corresponding monitoring equipments to the designated depths of the water column and taking readings after stabilized. The duplicate measurements were averaged if the difference was not greater than 25%.

Table 6.5 shows the equipment used for in-situ monitoring of water quality. The calibration certificates are attached in Appendix D1.

Table 6.5 Details of Marine Water Quality Monitoring Equipment (In-site measurement)

Parameter	Model	Date of Calibration	Due Date	Equipment No.
Coordinate of Monitoring stations	MLR GPS Navigator, SP24	----	----	EW/005/01*
Dissolved Oxygen (Saturation), Temperature	YSI Dissolved Oxygen Meter, YSI 95	01-03-2006	31-05-2006	EW/003/001*
Turbidity	HACH Model 2100P Turbid Meter	28-01-2006 28-04-2006	28-04-2006 28-07-2006	ET/0505/002
Salinity	YSI Model 30M	28-01-2006 28-04-2006	28-04-2006 28-07-2006	ET/0527/001
Water Depth	EAGLE Strata 128 Sonar	----	----	EW/002/02

Remark: (\*) indicates the instrument should be calibrated on use.

### 6.6 Action and Limit Level

The water quality criteria, namely Action and Limit (A/L) levels are presented in the table below.

Table 6.6 Water Quality Action and Limit Levels

Parameter	Action Level *	Limit Level *
DO (mg/L)	<u>Surface &amp; Middle</u> <5.45 mg/L (5%-ile of baseline data)  <u>Bottom</u> <4.72 mg/L (5%-ile of baseline data)	<u>Surface &amp; Middle</u> <5.10 mg/L (1%-ile of baseline data)  <u>Bottom</u> <2.00 mg/L
SS (mg/L) (Depth-averaged)	>6.74 mg/L (95%-ile of baseline data) or >120% of the upstream control station's SS at the same tide on the same day	>7.67 mg/L (99%-ile of baseline data) or >130% of the upstream control station's SS at the same tide on the same day
Turbidity (NTU) (Depth-averaged)	>4.28 NTU (95%-ile of Impact data) or >120% of the upstream control station's turbidity at the same tide on the same day	>4.58 NTU (99%-ile of Impact data) or >130% of the upstream control station's turbidity at the same tide on the same day

\* Traceable to Method Statement (Marine Water Quality Monitoring and Audit Manual) of Contract No. CV/2002/08, Rev. 2, Section 3.1 – 3.21

### 6.7 Event and Action Plan

Please refer to the Appendix F for details.



### 6.8 Monitoring Duration and Period in this reporting month

Below is the time schedule that water quality monitoring was conducted in this reporting month:

Table 6.7 Time Schedule of Water Quality Monitoring

April 2006						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 ▼	4	5	6 ▼	7	8 ▼
9	10 ▼	11	12 ▼	13	14 ◆	15
16	17	18 ▼	19	20 ▼	21	22 ▼
23	24 ▼	25	26 ▼	27	28 ▼	29
30						

▼ = Marine water quality monitoring carried out by ET and ◆ = Monitoring was cancelled due to no construction works on Public Holiday

The daily marine water quality monitoring duration are detailed in Appendix D2.

### 6.9 Marine Water Quality Monitoring Results

The impact water quality measurement results are detailed in Appendix D2. Appendix D3 presents the water quality monitoring data and graphical presentations of monitoring results respectively.

The summary of marine water quality exceedances is shown in Table 6.8.

Table 6.8 Summary of Marine Water Quality Exceedances in this reporting month

Station	Exceedance Level	DO		Turbidity		SS		Total	
		Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb
C1	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	1	0	0	0	1
M4	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0

According to the summary of marine water monitoring results, one exceedance of Limit Level on Turbidity at Monitoring Station C1 was recorded on 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.



## 7.0 IEC SITE AUDIT AND WEEKLY ET SITE INSPECTIONS

### 7.1 IEC Site Audit

7.1.1 During this reporting period, the IEC team conducted independent site audits of both the Contract CV 2005/12 site (Fill Bank at TKO Area 137) and the Contract CV 2004/13 site (Temporary CWSF at TKO Area 137).

7.1.2 Findings of the site audits have been recorded on site checklists, copies of which were submitted to the Contractor for their further action as appropriate, and to the Client for their records. Key issues were highlighted to the Contractor's representative at the completion of each site audit to ensure that they were aware of the problem(s) identified and where necessary, to take immediate corrective actions. A copy of the completed checklists are appended to this report in Appendix H.

Table 7.1: Dates of Site Audits in March 2006

Date of Audit	Work Period	Site Audit Checklist Submitted Under IEC's Ref No.
10 April 2006	Operation of Fill Bank & Construction of CWSF	8116/2581 & 8116/2580
19 April 2006	Operation of Fill Bank & Construction of CWSF	8116/2614 & 8116/2615
24 April 2006	Operation of Fill Bank	8116/2652

7.1.3 The major findings recorded during the site audits conducted during this reporting period are summarized below. Full details are provided in the site audit checklists presented in Appendix H.

Table 7.2: Key Findings of Site Audits in April 2006 for Contract No. CV/2005/12

Date	Key Findings	Action Taken by the Contractor
10 Apr 06	<ul style="list-style-type: none"> <li>Silt was observed on the paved access road heading to Point I. Road sweeping should be provided.</li> </ul>	<ul style="list-style-type: none"> <li>Ad-hoc additional road sweeping has been arranged on the paved access road heading to Point I</li> </ul>
	<ul style="list-style-type: none"> <li>An area of ~0.3m wide x ~1m long next to the generator in the water filling station was stained by oil. The Contractor should remove the stained soil and treat it as chemical waste.</li> </ul>	<ul style="list-style-type: none"> <li>The stained oil observed next to the generator in the water filling station has been removed and treated as chemical waste</li> </ul>
	<ul style="list-style-type: none"> <li>A waste skip was observed near the Marine Workshop Area and was full of wastes. The Contractor was reminded to dispose the wastes regularly.</li> </ul>	<ul style="list-style-type: none"> <li>Disposal of wastes for the waste skip concerned has been arranged</li> </ul>
	<ul style="list-style-type: none"> <li>Debris (plastic bottles, cardboard box, newspaper etc) was observed on surface of water in Chamber B.</li> </ul>	<ul style="list-style-type: none"> <li>Debris observed inside the Chamber B has been removed.</li> </ul>



Date	Key Findings	Action Taken by the Contractor
19 Apr 06	<ul style="list-style-type: none"> <li>A hole was found at the oil &amp; grease trap at DP4 next to CEDD's office which was fully filled with sand. Runoff was directly discharged to DP4 through that hole. The Contractor was requested to reseal the hole, clear the sand and reinstall a submersible pump for the oil &amp; grease trap to pump the collected surface run-off into the oil &amp; grease separation tank before being discharged.</li> </ul>	<ul style="list-style-type: none"> <li>The mud and silt accumulated inside the desilting trap next to the CEDD's site office had been cleaned up properly. Moreover, it is to clarify that the trap was for desilting purpose only in the collection of natural surface runoff but not for collection of oil and grease. The drain hole shall be maintained as a discharge outlet for the desilting trap. Anyhow, an electric pump had been set up for pumping away floating oil &amp; grease, if any, for special separation arrangement whenever necessary.</li> </ul>
	<ul style="list-style-type: none"> <li>Woodblocks had been provided at the edges of the bridge which formed part of the paved haul road over the open channel (downstream of DP3). The Contractor was reminded seal the woodblocks to ensure there are no gaps between the woodblocks and the edges of bridge (which may lead to surface runoff entering the open surface channel).</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor would arrange to seal the woodblocks to eliminate the gaps for preventing surface runoff entering the open surface channel.</li> </ul>
	<ul style="list-style-type: none"> <li>Rubbish including lunch boxes were observed to be disposed into open cardboard boxes in the Marine Workshop Area. The Contractor was reminded to cover waste collection bins to prevent any hygiene problems.</li> </ul>	<ul style="list-style-type: none"> <li>All the rubbish has been collected and disposed away properly. Moreover, a rubbish bin had been provided at the workshop for future collection of rubbish.</li> </ul>
24 Apr 06	<ul style="list-style-type: none"> <li>Engine oil leakage from equipment located in the maintenance workshop was observed. The Contractor was requested to remove the oil from the ground for proper disposal to avoid land contamination.</li> </ul>	<ul style="list-style-type: none"> <li>The engine oil leaked from equipment at the maintenance workshop has been removed and disposed properly as chemical waste.</li> </ul>
	<ul style="list-style-type: none"> <li>Water ponds were observed in several areas around the site. The Contractor is reminded to fill in the ponds or apply approved insecticide to prevent mosquito breeding during rainy season.</li> </ul>	<ul style="list-style-type: none"> <li>Anti-malarial oil had been applied to water ponds to control possible mosquito breeding.</li> </ul>

7.1.4 Following from the previous two reporting periods (February 2006 and March 2006), there were again no air quality exceedances recorded during this reporting period. Based on observations recorded during site inspections and site supervision events, the Contractor was observed to have implemented most of their dust prevention measures during the reporting period. However, on occasion fugitive dust emission was observed when the trucks were travelling on the main haul road. As such, the CV/2005/12 Contractor was reminded to ensure that all dust mitigation measures, particularly those near the site entrance, were operated according to their design merits to ensure that fugitive dust impacts to neighbouring land users was minimized.



- 7.1.5 The frequency of road / platform watering was considered to be acceptable in the reporting period. Nevertheless, the Contractor has been reminded to regularly review the frequency of road watering in light of the seasonally dry weather conditions in Hong Kong.
- 7.1.6 As was observed during site inspections in April 2006, the water spray generated by the mist fan at the site entrance was still found to be weak and ineffective at wetting the incoming section of the haul road. The Contractor was requested to relocate the mist fan closer to the incoming section of the haul road.
- 7.1.7 Overgrowth of vegetation at trapezoidal drainage channels particularly in DP4 was observed. The Contractor was reminded to clear the mentioned vegetation so as to ensure trapezoidal drainage channel works efficiently under rainy conditions. Debris, soil and rocks were found inside the trapezoidal drainage channels and chambers. The Contractor was reminded to clear any debris, soil and rocks found inside the drainage channel on a regular basis.
- 7.1.8 Some chemical containers were observed to be uncapped, unlabelled and/or stored without drip trays. The Contractor was notified of the spillage potential and instructed to cap all the containers, affix labels on all containers and to place all containers into drip trays as per EPD's guidelines and as outlined in their latest Waste Management Plan. Also, the Chemical Waste Storage Shed was not labelled. Although the Contractor stated (during the Progress Meeting) that they would rectify this issue, it was not observed to have been completely addressed as at the end of the reporting period.
- 7.1.9 The Contractor was reminded to confirm whether the separation between the silt curtain is 80m in accordance with CEDD's drawing FM10035-16. In addition, the silt curtain should be properly secured to weights at the seabed bottom.

## 7.2 Weekly ET Site Inspections

Weekly ET site inspections were carried out by ET to monitor the timely implementation of proper environmental pollution control and mitigation measures for the Project. In this reporting month, four weekly site inspections were conducted (04, 10, 19 and 24 April 2006). After each site inspection, the Contractor was notified of the ET's observations and recommendations. A follow-up action plan detailing the environmental observations had also been prepared by the ET. The Contractor then completed this plan to propose / report their remedial works. The Contractor should also submit the completed the follow-up action report to ET by e-mail. This follow-up action plan submission procedure was adopted for each subsequent ET's inspection to notify all the relevant parties of the Contractor's follow up actions. The weekly site inspection reports are attached in Appendix I. Summaries of the weekly site inspection findings in this reporting month are described as follows:

### **Air Quality**

- The major dust sources were dump truck movement on the unpaved haul roads and loading & unloading activities on various working platforms in the Fill Bank. The Contractor deployed water bowsers to dampen the haul roads and the working platforms;
- A road sweeper was used to remove settled dust particulates outside the site egress on Wan Po Road;
- Several automatic sprinklers served to dampen the haul roads outside the site office and on the ramp to the stockpiling area;
- Wheel washing facilities were operating during weekly site inspections. Besides, the Contractor operated several mist spraying systems at the site egress and weighbridge respectively. The truckloads were dampened during inspection of fill material at the CEDD Combined Reception Office;
- No potential fugitive dust from vehicle movement was observed in this reporting month. The Contractor was still reminded to water the haul road more frequently during dry season;
- The dump trucks were operating below the speed limit in the Fill Bank. There were sufficient speed limit signs on site to advise the drivers;



- The fill material was usually dampened on the barge. Dust impact was minimal from the barge delivery and unloading activity at the BHA;
- No dark emission was noted from the site machines in the reporting month. Generally, all the Powered Mechanical Equipment (PME) were maintained regularly; and
- Other than the Fill Bank operation, dust sources also included road paving works of Wan Po Road outside the site egress, operation of PBR2 at Portion J of the Fill Bank, temp C&DMSF at Portion K, delivery of rock fill material from the SENT Landfill to the EPD's barging point and associated dumping activity, operation of the SENT Landfill, vehicular movement and wind erosion on Wan Po Road.

#### **Noise**

- The major noise source was dump truck traffic in the Fill Bank. Since the nearby NSR were remote from the Fill Bank, the noise impact was minimal. There was no specific observation noted regarding noise issue.

#### **Water Quality**

- Debris, mud and vegetation was observed to have accumulated at the Chamber A, Chamber B and drainage channel at DP4 during the ET weekly site inspections on 19 and 24 April 2006. The Contractor should clean up the drainage channel regularly. Since the finding was still observed during the last weekly site inspection in this reporting month, the finding will be verified in the coming month;
- During the weekly site inspection on 24 April 2006, wastewater generated from the site office was found directly discharged to DP4 through a small hole at oil & grease trap next to CEDD's site office. The Contractor should seal the hole immediately and divert the wastewater to appropriate wastewater treatment system before discharge;
- Fill materials had accumulated on the concrete embankment at the BHA. The Contractor should clean up the fill materials as soon as each unloading activity is completed to avoid the fill materials from being washed into the sea; and
- Large amount of stragant water was observed to be accumulated at BHA during weekly site inspection on 24 April 2006. The Contractor was reminded to pump out the accumulated water and fill the area by using sand or soil.

#### **Chemical and Waste Management**

- The Contractor provided waste skips to collect general refuse and disposal of them regularly to the SENT Landfill. In this reporting month, 2.59 tons C&D waste were disposed to SENT Landfill and no waste oil was collected by licensed waste collector;
- The chemical waste was stored in the Chemical Waste Storage Area (CWSA). The Contractor should dispose chemical wastes regularly to avoid over accumulation of chemical waste on site;
- Some containers without labels were found stored in a temporary shed near the water truck filling station. The Contractor should label the containers and relocated them to appropriate chemical storage area. Since the finding was still observed during the last weekly site inspection, it will be verified in the coming month;
- Since chemical containers were found without drip trays at different works areas on several occasions during previous site inspections, the Contractor should remind the site workers to provide appropriate drip trays for all chemical containers; and
- Equipment maintenance was undertaken at the workshop area. Oil spillage from the maintenance and repairing works was observed at Workshop during the last weekly site inspection. The Contractor was reminded to clean up the leaked oil and properly dispose the material as chemical waste. Tarpaulin sheeting and containers should be laid underneath the equipment undergoing maintenance to collect leaked oil and avoid further contamination.

#### **Landscape and Visual**

- The germination rate on the hydroseeded panels at Portion A, B, G, H and I were observed to be satisfactory in this reporting month. The Contractor was still advised to maintain the panel properly;
- Sufficient lighting was provided for the Fill Bank operation in the evening.





### **Site Practices**

- Sufficient rubbish skips had been provided at site by the Contractor and the site area was found tidy and clean;
- The Contractor had provided drip tray for all generators in order to avoid oil spillage; and

### **Landfill Gas**

- The registered safety officer carried out landfill gas monitoring (oxygen, carbon dioxide and methane) twice per day for each temporary office in this reporting month;
- The equipments used in the monitoring have been calibrated for all these three parameters; and
- All the monitoring results were satisfactory.

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

The monitoring works conducted by the Environmental Team were inspected regularly. The observations for the monitoring works were recorded and summarized as follows:

### **Air Quality Monitoring**

- The monitoring team recorded the observations around the monitoring stations within and outside of the construction site.
- The monitoring team recorded the temperature, air pressure and general weather condition on the monitoring day.

### **Noise Monitoring**

- The monitoring team recorded the observations around the monitoring station, which might affect the results.
- Major noise sources were identified and recorded.

### **Water Quality Monitoring**

The monitoring team recorded the observations around the monitoring stations, which might affect the results.

## **7.4 Assessment of Environmental Monitoring Results**

All monitoring results were audited against the Action and Limit levels and any exceedances would be validated.

According to the summary of marine water monitoring results, one exceedance of Limit Level on Turbidity at Monitoring Station C1 was recorded on 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.

No exceedances were recorded in air quality and noise monitoring in this reporting month.

The monitoring results in this reporting period were comparable with those of baseline period. Detailed discussions were given in Section 2, 3 and 4 of this Report.

## **7.5 Advice on the Solid and Liquid Waste Management Status**

The Contractor should provide sufficient preventive measures during equipment maintenance works so as to avoid oil leakage on the ground. In the event of any oil leakage, the Contractor should clean up the polluted soil and handle all the materials used for this cleaning works as chemical waste.

Concrete bundings were erected outside the CEDD combined reception office and near the automatic wheel washing facilities for storing generator sets and oil drums. The drain outlet of all the bunded areas should be plugged properly. Besides, pre-cast drip trays were provided for oil drums at several areas, such as workshop and chemical storage area. The Contractor should



collect and dispose of any stagnant water accumulated in the concrete bunding and drip trays and handle them as chemical waste.

The Contractor should use suitable containers with proper labels to store chemical wastes in accordance with Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The Contractor should also advise their workers of the proper procedures in handling the chemical waste. All the trip tickets for chemical waste disposal were properly kept in the site office. No chemical waste disposal was undertaken in the reporting month.

The Contractor was reminded to increase the frequency of inspection and cleaning of the site drainage system, including permanent desilting chambers, desilting facilities, oil interceptor bypass tank, DP3 and DP4 and all the trapezoidal channels. Moreover, the Contractor should apply approved pesticides in the stagnant water ponds.

All the runoff from the parking area should be pumped to the desilting facilities and oil interceptors to remove suspended solids and oil & grease prior to discharge.



## 8.0 Status of Environmental Licensing and Permitting

All permits/licenses valid in this reporting month are summarized in Table 8.1.

Table 8.1 Summary of environmental licensing and permit status

Description	Permit No.	Valid Period		Section
		From	To	
Amended Environmental Permit	EP-134/2002/F	26/01/06	---	(Valid) <ul style="list-style-type: none"> <li>▪ Site clearance</li> <li>▪ Construction of a temporary storm water system</li> <li>▪ Stockpiling of 6 million m<sup>3</sup> of public fill</li> <li>▪ Setting up two barging points for transporting the stockpiled public fill by barges</li> <li>▪ Setting up a temporary barging point at the existing Explosive Off-loading Barging Point for the period of May 2004 to December 2004 for transporting the stockpiled public fill by barge</li> <li>▪ Construction of operation of a construction and Demolition Material Sorting Facility (C&amp;DMSF)</li> <li>▪ Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin</li> <li>▪ Remove the temporary fill bank</li> </ul>
Effluent Discharge License	TE/D1152/839/1	06/06/03	30/06/08	<ul style="list-style-type: none"> <li>▪ For effluent from site toilet and shower room</li> <li>▪ For aerobic wastewater treatment plant</li> </ul>
Chemical Waste Producer	5213-839-P2800-23	04/08/05	---	<ul style="list-style-type: none"> <li>▪ Spent Lubricating Oil</li> <li>▪ Solvent &amp; Battery</li> <li>▪ Surplus Paint Bank &amp; Fuel</li> <li>▪ Contaminated Soil</li> <li>▪ Empty Chemical Containers</li> </ul>



## 9.0 ENVIRONMENTAL NON-CONFORMANCE

### 9.1 Summary of air quality, noise and marine water quality

No exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month.

No day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month.

According to the summary of marine water monitoring results, one exceedance of Limit Level on Turbidity at Monitoring Station C1 was recorded on 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.

### 9.2 Summary of Environmental Complaints

No complaint was received in the coming month. The investigation report of the complaint received on 27 March 2006 had been sent to EPD, CEDD and IEC on 11 April 2006.

### 9.3 Summary of Notification of Summons and Prosecution

There was no notification of summons respect to environmental issues registered in this month.

## 10.0 IMPLEMENTATION STATUS

### 10.1 Implementation Status of Environmental Mitigation Measures

An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix J. Most of the necessary mitigation measures were implemented properly. Any deficiencies were noted in the remarks of the schedule.

### 10.2 Implementation Status of Event and Action Plan

There was no exceedance on air quality and noise monitoring parameters recorded in this monitoring month. Hence no further actions were required.

According to the summary of marine water monitoring results, one exceedance of Turbidity on Limit Level at Monitoring Station C1 was recorded at 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.

### 10.3 Implementation Status of Environmental Complaint, Notifications of Summons and Successful Prosecutions Handling

No complaints, notifications of summons and successful prosecutions were received in this reporting month. A summary of environmental complaints, notifications of summons and successful prosecutions was given in Table 10.1. Further details of the Complaint Log present in Appendix M.

Table 10.1 Summary of Environmental Complaints and Prosecutions

<i>Complaints logged</i>		<i>Summons served</i>		<i>Successful Prosecution</i>	
<i>April 2006</i>	<i>Cumulative</i>	<i>April 2006</i>	<i>Cumulative</i>	<i>April 2006</i>	<i>Cumulative</i>
0	1	0	0	0	0



## 11.0 CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

Impact monitoring of air quality and noise were carried out at designated locations in accordance with the EM&A Manual in this reporting month.

According to the summary of air monitoring results, no exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month.

Impact noise level monitoring was performed on 04 April 2006. The noise level measured at the monitoring station complied with the Limit Level of 75dB(A). No complaint was received regarding noise issue.

According to the summary of marine water monitoring results, one exceedance of Limit Level on Turbidity at Monitoring Station C1 was recorded on 12 April 2006 (mid-ebb). Exceedance was not due to the operation of Fill Bank since the station was located at the upstream of the works area. Hence, no further actions were required.

According to the ET weekly site inspections and IEC site audits carried out in this reporting month, it indicated that site practices of the Contractor were generally undertaken in an environmentally acceptable manner. The Contractor generally implemented sufficient dust mitigation measures, including operation of the mist spraying systems and automatic wheel washing facilities, dampening of haul roads and stockpiling areas. However, the silt curtain enclosed the Marine Barging Area was found damaged during the site inspections. The Contractor should repair it immediately.

No complaints, prosecutions or notifications of summons were received in this reporting month. The investigation report of the complaint received on 27 March 2006 had been sent to EPD, CEDD and IEC on 11 April 2006.

### Recommendations

According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

#### **Air Quality**

- Ensure the frequency of water spraying on haul roads, unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke;
- Provide water spraying onto the truckloads during inspection of fill material;
- Conduct road sweeping on the public road and the main haul roads outside and near the site egress by the road sweeper. Undertake water spraying on stockpiling area by water bowers;
- Erect adequate speed limit signs to advise the truck drivers of the speed limit;
- Operate mist spraying systems and automatic water sprinklers in the Fill Bank;
- Implement the dust mitigation measures for the construction activities;
- Designate proper haul roads to ensure effective water spraying; and
- Ensure all vehicles to be washed before leaving the site egress b provision, operation and maintenance of automatic wheel washing facilities.

#### **Noise**

- Conduct noisy activities at a farther location from the NSRs.



### **Water Quality**

- Maintain the drainage system, including the trapezoidal channels, permanent desilting chambers, DP3 & DP4 regularly;
- Operate and maintain the silt curtains regularly;
- Operate the cleaning vessel within the TKO Basin regularly;
- Provide proper treatment for the oil discharge from the area near air monitoring station AA1;
- Clean up the fill material on the concrete pavement at BHA frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water in the permanent desilting chambers, if any.

### **Chemical and Waste Management**

- Remove waste materials from the site to avoid accumulation regularly;
- Handle and store chemical wastes properly;
- Remove unwanted material in the existing stockpiles and avoid further dumping of such material;
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain mesh screen on top of the additional drainage, DP3 to avoid improper dumping of rubbish;
- Maintain good housekeeping at the workshop area;
- Ensure sufficient tarpaulin sheets are provided to cover drip trays; and
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

### **Landscape and Visual**

- Provide hydroseeding on the exposed slopes, on which the final profile has been formed;
- Erect all the site hoarding / chaining fences in accordance with agreed design at proper location; and
- Maintain the hydroseeded slopes in accordance with the Landscape Plan.



## 12.0 FUTURE KEY ISSUES

### 12.1 Construction Programme for the Coming Month

As informed by the Contractor, the activities to be conducted by them in the next month included:

- Manage the incoming public fill dump trucks arriving through land access;
- Transport temporary stockpiled public fill from the Barge Handling Area (BHA) to Stockpile Areas or the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);
- Transport stockpile public fill from Stockpile Areas to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2);
- Direct some incoming public fill dump trucks to the Sorting Facility for Penny's Bay Reclamation Stage 2 (PBR2) for unloading;
- Routine site cleaning and maintenance of internal haul roads and access roads; and
- Routine implementation of environmental mitigation measures such as dust suppression by water spraying, cleaning of nearby public roads by using road sweeper and collection of floating debris inside a berthing basin within the site boundary; and
- Landscaping works in the vicinity of the main entrance of the Fill Bank at Tseung Kwan O Area 137 and in front of the Engineer's Site Office.

### 12.2 Key Issues for the Coming Month

**Key issues to be considered in the coming month include:**

- Chemical and waste management
- Treatment of runoff and wastewater prior to discharge
- Dust generated from loading and unloading activities; and
- Dust generated from dump trucks traffic.

**Mitigation measures to be required in the coming month:**

#### Air Quality Impact

- To provide adequate water spraying on haul roads and working platform;
- To operate and maintain automatic wheel washing facilities properly;
- To dampen the fill material prior to unloading or movement;
- To provide road sweeping on the haul road near site egress and the public roads outside site egress;
- To ensure implementation of the dust mitigation measures for the construction activities;
- To maintain proper operation of the mist spraying system;
- To provide proper maintenance for vehicles and machines on site; and
- To investigate any other dust sources around the air sensitive receivers.

#### Noise

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site;
- To follow up any exceedance caused by the Fill Bank operation; and
- To re-schedule the work activities in the event of valid noise exceedance.

#### Water Quality Impact

- To maintain the drainage system in the Fill Bank;
- To ensure the cleanliness of oil interceptor bypass tanks and all the drainage channels;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To repair, inspect and maintain the silt curtains regularly;
- To provide covers for the drip trays to avoid stagnant water pond due to rainfall;
- To provide proper treatment for oily water discharged from the area around air monitoring station AA1;



- To deploy a cleaning vessel to remove floating rubbish in the TKO Basin;
- To clean up the concrete paved area at Portion I every night to avoid fill materials from being washed into the sea; and
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding in the Fill Bank.

Chemical and Waste Management

- To remove waste from the site regularly;
- To properly store and handle chemical wastes on site;
- To implement trip ticket system for all the imported public fill and general refuse disposal;
- To provide and manage sufficiently sized drip trays for diesel drums or chemical containers;
- To remove existing unwanted material in the stockpiles and avoid improper disposal at the Fill Bank through inspection of imported truckloads;
- To maintain proper housekeeping at the workshop area;
- To remove the oil stains in the event of leakage and handle all materials using for this cleaning works as chemical waste;
- To maintain mesh screen on top of the additional drainage, DP3 opening to avoid improper dumping of rubbish into this channel; and
- To identify C&D material by packaging, labeling, storage, transportation and disposal in accordance with statutory regulations.

**12.3 Monitoring Schedule for the Coming Month**

The proposed EM&A program of the coming month is attached in Appendix L.





## **Appendix A**

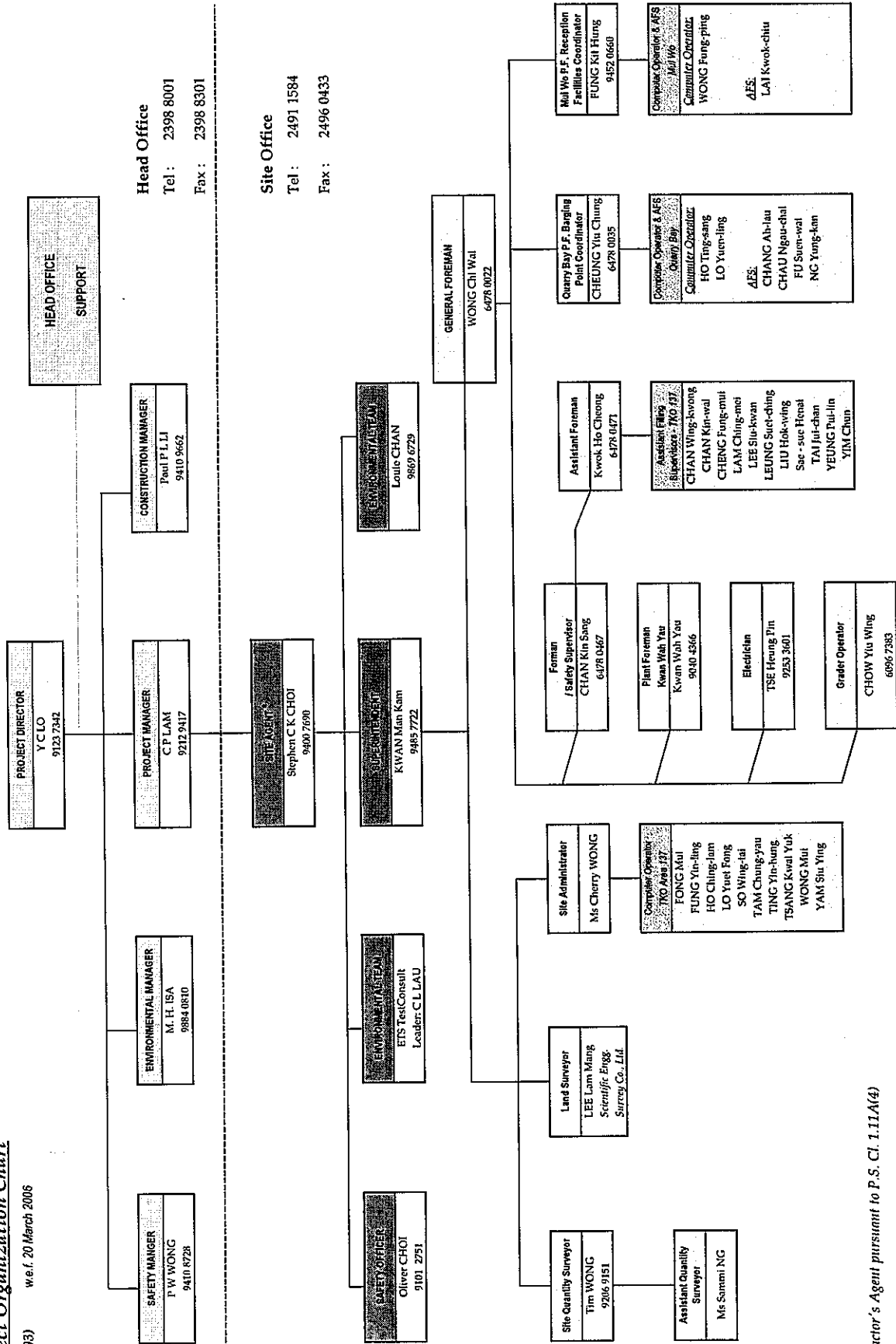
### **Organization Chart and Lines of Communication**



CEDD Contract No. CV/2005/12  
 Operation of Public Fill Reception Facilities at  
 Tseung Kwan O Area 137, Quarry Bay and Mui Wo

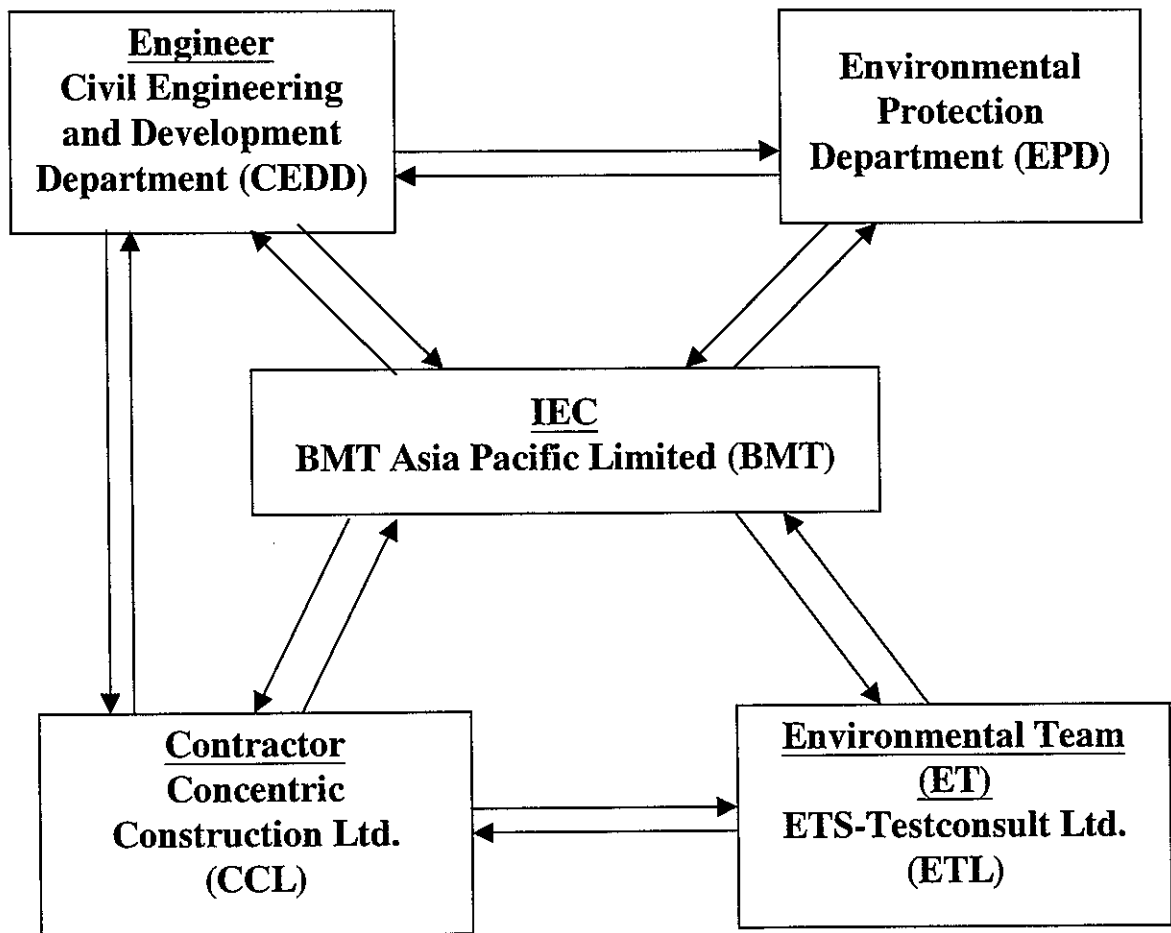
Project Organization Chart

(Rev. 03) w.e.f. 20 March 2006



\* Contractor's Agent pursuant to P.S. Cl. 1.11A(4)

# Lines of Communication





## **Appendix B1**

### **Calibration Certificates for Air Quality Monitoring Equipments**





東業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong  
Tel : 2695 8318 E-mail : etl@ets-testconsult.com  
Fax : 2695 3944 Web site : www.ets-testconsult.com

**TEST REPORT**

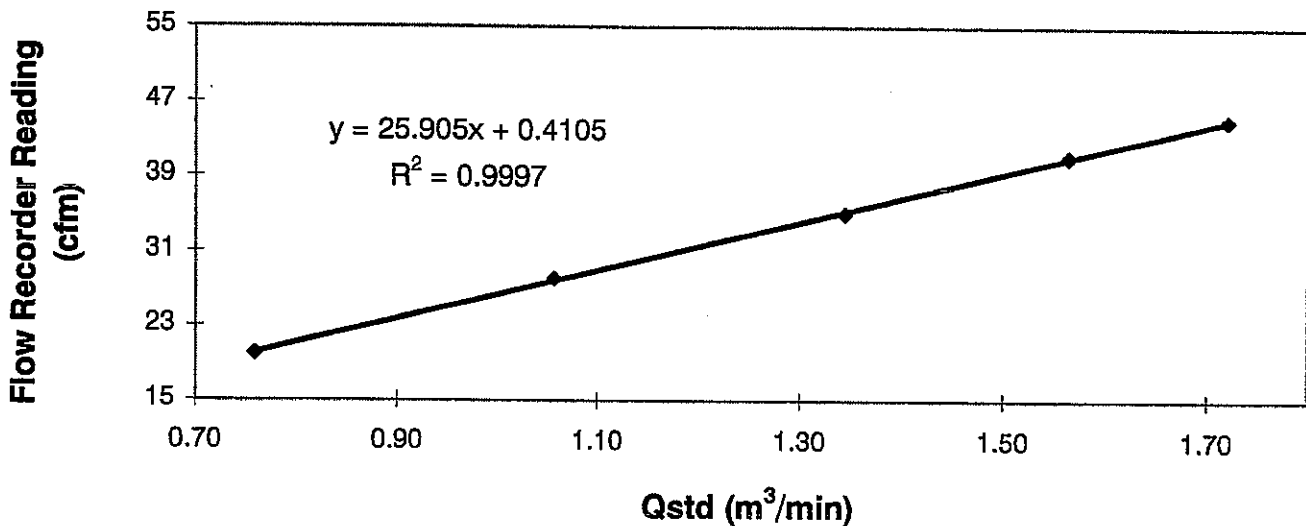
**Calibration Report**  
of  
**High Volume Air Sampler**

**Manufacturer** : Greasby GMW Date of Calibration : 20 March 2006  
**Serial No.** : 1176 ( ET / EA / 003 / 05 ) Calibration Due Date : 19 May 2006  
**Method** : Based on Operations Manual for in series calibration method by TISCH  
ENVIROMENTAL Model Te-5025A calibration kit

**Results** :

Flow recorder reading (cfm)	45	41	35	28	20
Qstd (Actual flow rate, m <sup>3</sup> /min)	1.72	1.56	1.34	1.06	0.76
Pressure :	761.46 mm Hg			Temp. : 291.3 K	

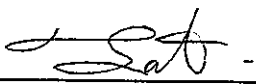
**Air Sampler 1176 Calibration Curve**  
**Site: Tseung Kwan O (AA2)**  
**Date of Calibration: 20 March 2006**




Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies \* / ~~does not comply~~ \* with the specified requirements and is deemed acceptable \* / unacceptable \* for use.

Calibrated by :

  
H. T. Chow  
(Asst. Environmental Officer)

Approved by :

  
Linda Law  
(Environmental Officer)



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 24, 2005 Rootsmeter S/N 9833620 Ta (K) - 292  
 Operator Tisch Orifice I.D. - 0873 Pa (mm) - 761.24

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	1.4090	3.1	2.00
2	NA	NA	1.00	0.9980	6.2	4.00
3	NA	NA	1.00	0.8930	7.8	5.00
4	NA	NA	1.00	0.8510	8.6	5.50
5	NA	NA	1.00	0.7020	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0180	0.7225	1.4298	0.9959	0.7068	0.8759
1.0139	1.0159	2.0221	0.9919	0.9938	1.2387
1.0118	1.1330	2.2608	0.9898	1.1084	1.3849
1.0106	1.1876	2.3711	0.9887	1.1618	1.4525
1.0054	1.4322	2.8597	0.9835	1.4010	1.7518
Qstd slope (m) =		2.01640	Qa slope (m) =		1.26264
intercept (b) =		-0.02588	intercept (b) =		-0.01585
coefficient (r) =		0.99998	coefficient (r) =		0.99998
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

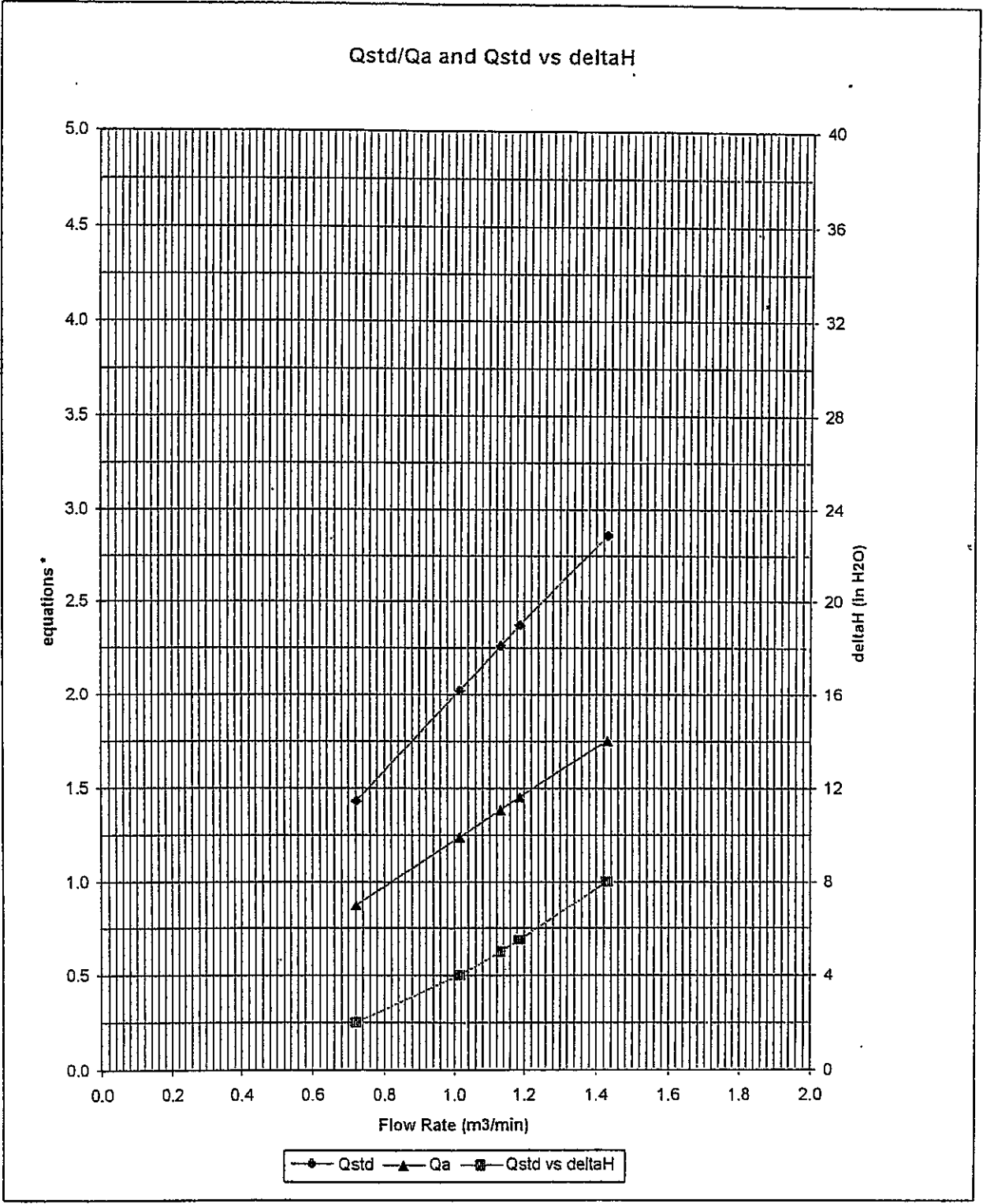
For subsequent flow rate calculations:

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



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

AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

Qstd series:  $\sqrt{\Delta H \left( \frac{P_a}{P_{std}} \right) \left( \frac{T_{std}}{T_a} \right)}$

Qa series:  $\sqrt{(\Delta H (T_a / P_a))}$

#0873





## **Appendix B2**

### **Air Quality Monitoring Results**

## Summary of 24-hr TSP Monitoring Results

Monitoring Station : AA1  
Location : Outside CEDD Site Office

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min.)		Average (m <sup>3</sup> /min.)	Filter Weight (g)		Conc. (µg/m <sup>3</sup> )
		Date	Time	Initial	Final		Initial	Final		Initial	Final	
04/04/06	14:15	05/04/06	14:21	8622.42	8646.52	24.10	1.09	1.09	1.09	2.8429	3.1392	188
10/04/06	15:30	11/04/06	16:07	8649.52	8674.13	24.61	1.06	1.06	1.06	2.8492	3.1059	164
13/04/06	14:15	14/04/06	14:32	8677.13	8701.42	24.29	1.06	1.06	1.06	2.8616	3.0980	153
19/04/06	14:10	20/04/06	14:28	8704.42	8728.72	24.30	1.03	1.03	1.03	2.8457	3.1490	202
25/04/06	13:15	26/04/06	13:52	8731.72	8756.33	24.61	0.92	0.92	0.92	2.8411	3.1060	195
29/04/06	14:15	30/04/06	14:17	8759.33	8783.37	24.01	0.95	0.95	0.95	2.8734	3.1201	180

Monitoring Station : AA2  
Location : Site Egress

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min.)		Average (m <sup>3</sup> /min.)	Filter Weight (g)		Conc. (µg/m <sup>3</sup> )
		Date	Time	Initial	Final		Initial	Final		Initial	Final	
04/04/06	14:15	05/04/06	14:53	11911.84	11936.48	24.64	1.45	1.45	1.45	2.8298	3.2392	191
10/04/06	15:30	11/04/06	15:37	11939.48	11963.59	24.11	1.45	1.45	1.45	2.8671	3.2468	181
13/04/06	14:15	14/04/06	14:30	11966.59	11990.84	24.25	1.49	1.49	1.49	2.8338	3.1915	165
19/04/06	14:10	20/04/06	14:33	11993.84	12018.23	24.39	1.45	1.45	1.45	2.8656	3.2688	190
25/04/06	13:15	26/04/06	13:53	12020.23	12044.87	24.64	1.41	1.41	1.41	2.8525	3.2360	184
29/04/06	14:15	30/04/06	14:56	12047.87	12072.55	24.68	1.45	1.45	1.45	2.8539	3.2125	167

## Summary of 1-hr TSP Monitoring Results

Monitoring Station : AA1  
Location : Outside CEDD Site Office

Date	Time		Elapse Time		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min.)		Average (m <sup>3</sup> /min.)	Filter Weight (g)		Conc. (µg/m <sup>3</sup> )
	Start	Finish	Initial	Final		Initial	Final		Initial	Final	
04/04/06	09:30	10:30	8619.42	8620.42	1.00	1.09	1.09	1.09	2.8382	2.8593	323
	11:00	12:00	8620.42	8621.42	1.00	1.09	1.09	1.09	2.8956	2.9195	365
	13:00	14:00	8621.42	8622.42	1.00	1.09	1.09	1.09	2.8872	2.9097	344
10/04/06	11:00	12:00	8646.52	8647.52	1.00	1.06	1.06	1.06	2.8422	2.8647	354
	13:00	14:00	8647.52	8648.52	1.00	1.06	1.06	1.06	2.8396	2.8605	329
	14:15	15:15	8648.52	8649.52	1.00	1.06	1.06	1.06	2.8577	2.8778	316
13/04/06	09:30	10:30	8674.13	8675.13	1.00	1.06	1.06	1.06	2.8692	2.8882	299
	11:00	12:00	8675.13	8676.13	1.00	1.06	1.06	1.06	2.8717	2.8935	343
	13:00	14:00	8676.13	8677.13	1.00	1.06	1.06	1.06	2.8495	2.8698	319
19/04/06	08:30	09:30	8701.42	8702.42	1.00	1.03	1.03	1.03	2.8432	2.8617	299
	11:00	12:00	8702.42	8703.42	1.00	1.03	1.03	1.03	2.8314	2.8541	367
	13:00	14:00	8703.42	8704.42	1.00	1.03	1.03	1.03	2.8511	2.8724	345
25/04/06	08:30	09:30	8728.72	8729.72	1.00	0.92	0.92	0.92	2.8532	2.8678	264
	09:45	10:45	8729.72	8730.72	1.00	0.92	0.92	0.92	2.8917	2.9071	297
	11:00	12:00	8730.72	8731.72	1.00	0.92	0.92	0.92	2.8644	2.8838	351
29/04/06	09:30	10:30	8756.33	8757.33	1.00	0.95	0.95	0.95	2.8623	2.8808	325
	11:00	12:00	8757.33	8758.33	1.00	0.95	0.95	0.95	2.8712	2.8918	361
	13:00	14:00	8758.33	8759.33	1.00	0.95	0.95	0.95	2.8449	2.8607	277

Monitoring Station : AA2  
Location : Site Egress

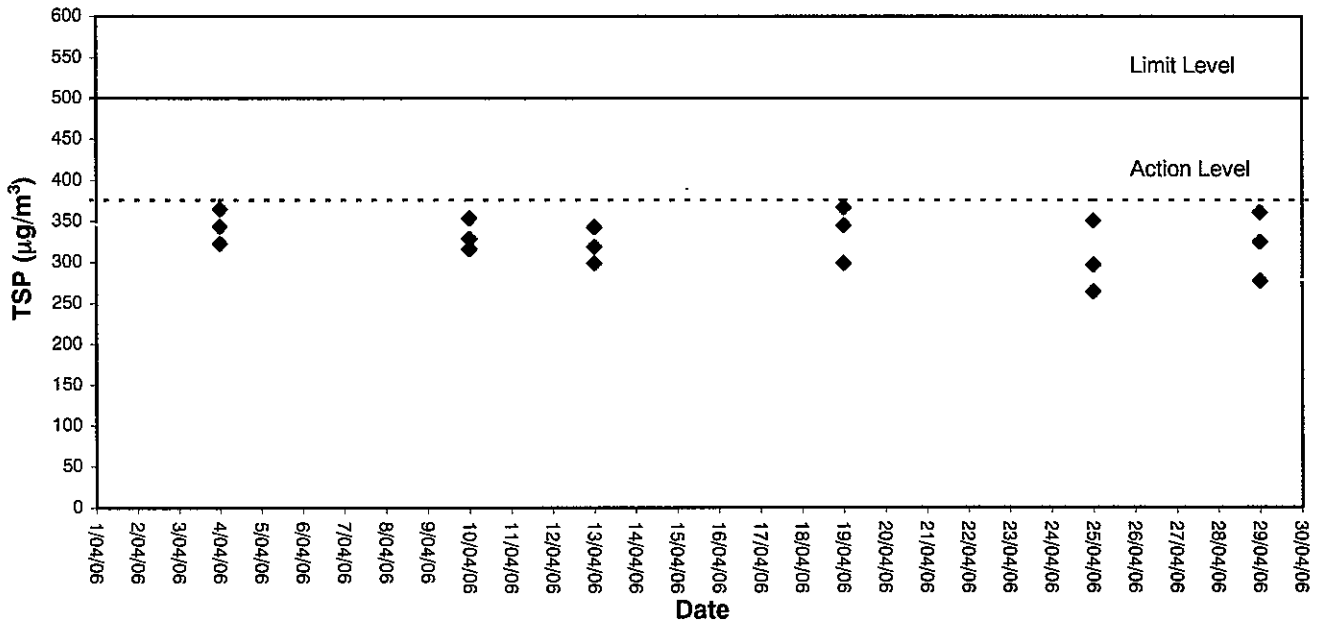
Date	Time		Elapse Time		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min.)		Average (m <sup>3</sup> /min.)	Filter Weight (g)		Conc. (µg/m <sup>3</sup> )
	Start	Finish	Initial	Final		Initial	Final		Initial	Final	
04/04/06	09:30	10:30	11908.84	11909.84	1.00	1.45	1.45	1.45	2.8793	2.9088	339
	11:00	12:00	11909.84	11910.84	1.00	1.45	1.45	1.45	2.8658	2.8980	370
	13:00	14:00	11910.84	11911.84	1.00	1.45	1.45	1.45	2.8877	2.9184	353
10/04/06	11:00	12:00	11936.48	11937.48	1.00	1.45	1.45	1.45	2.8534	2.8850	363
	13:00	14:00	11937.48	11938.48	1.00	1.45	1.45	1.45	2.8393	2.8660	307
	14:15	15:15	11938.48	11939.48	1.00	1.45	1.45	1.45	2.8585	2.8881	340
13/04/06	09:30	10:30	11963.59	11964.59	1.00	1.49	1.49	1.49	2.8552	2.8843	326
	11:00	12:00	11964.59	11965.59	1.00	1.49	1.49	1.49	2.8714	2.9027	350
	13:00	14:00	11965.59	11966.59	1.00	1.49	1.49	1.49	2.8777	2.9040	294
19/04/06	08:30	09:30	11990.84	11991.84	1.00	1.45	1.45	1.45	2.8607	2.8865	297
	11:00	12:00	11991.84	11992.84	1.00	1.45	1.45	1.45	2.8484	2.8795	357
	13:00	14:00	11992.84	11993.84	1.00	1.45	1.45	1.45	2.8362	2.8644	324
25/04/06	08:30	09:30	12018.23	12019.23	1.00	1.41	1.41	1.41	2.8775	2.9005	272
	09:45	10:45	12019.23	12020.23	1.00	1.41	1.41	1.41	2.8686	2.8925	283
	11:00	12:00	12020.23	12021.23	1.00	1.41	1.41	1.41	2.8305	2.8593	340
29/04/06	09:30	10:30	12045.87	12046.87	1.00	1.45	1.45	1.45	2.8373	2.8643	310
	11:00	12:00	12046.87	12047.87	1.00	1.45	1.45	1.45	2.8514	2.8821	353
	13:00	14:00	12047.87	12048.87	1.00	1.45	1.45	1.45	2.8662	2.8893	266



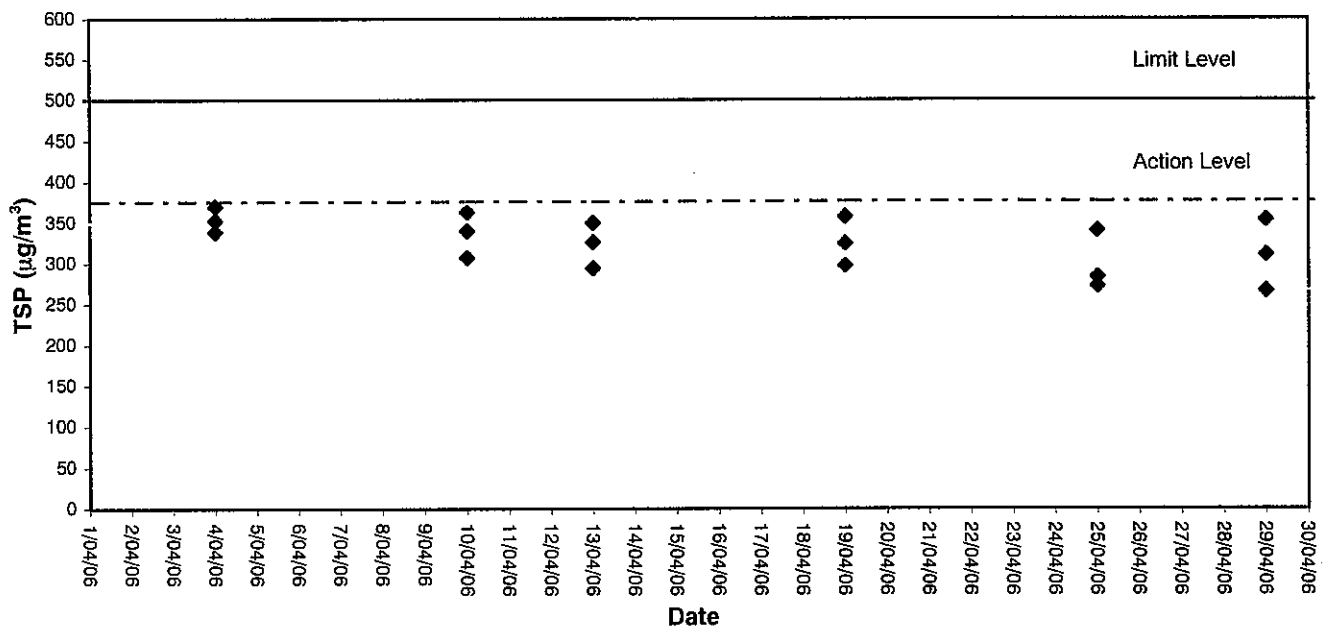
## **Appendix B3**

### **Graphical Plots of Air Quality Monitoring Data**

**1-hour TSP level at AA1 (Outside CEDD Site Office)**

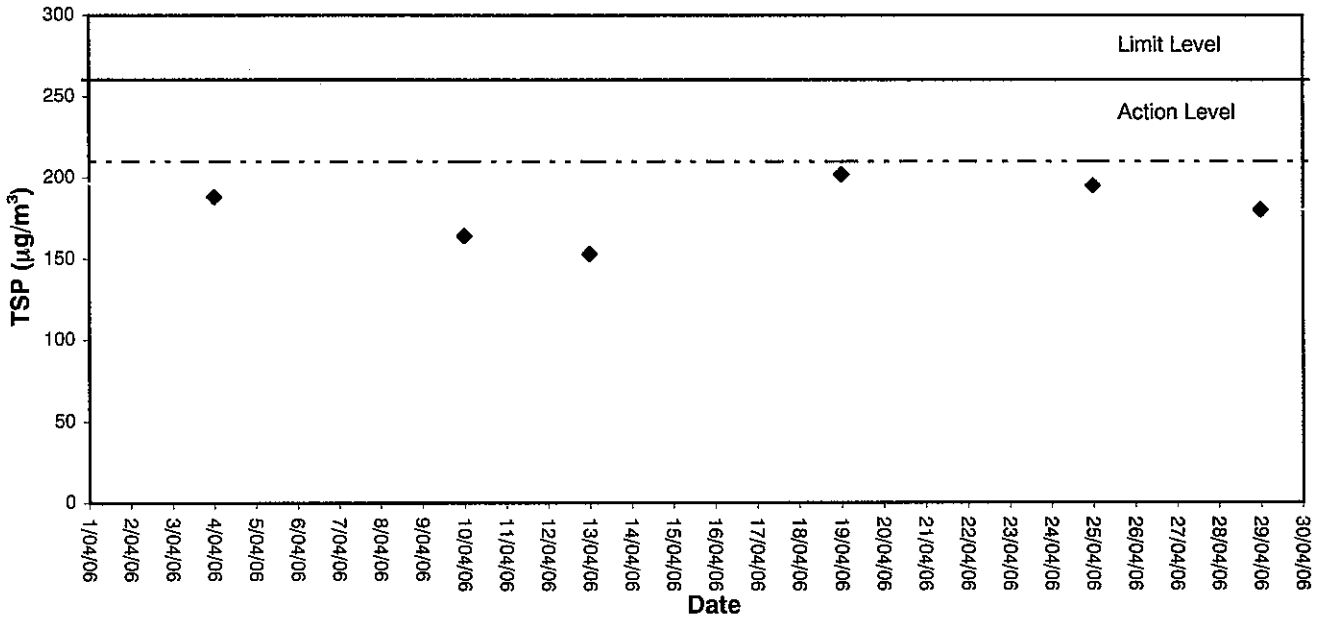


**1-hour TSP level at AA2 (Site Egress)**

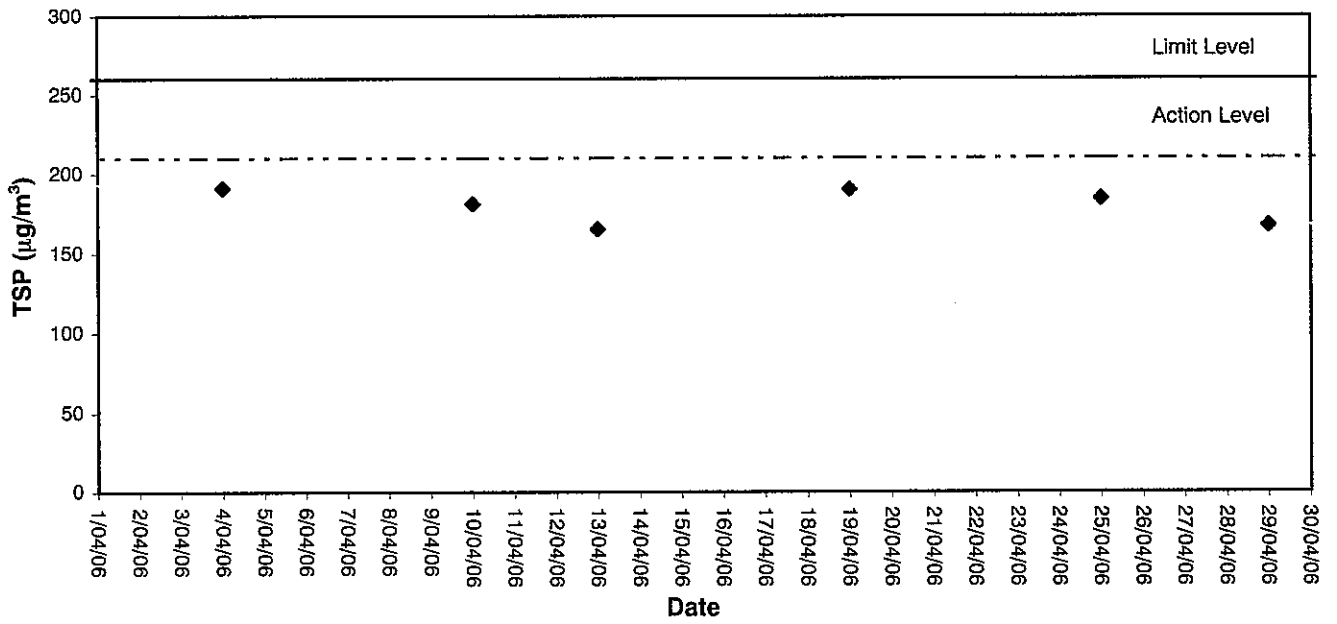




### 24-hour TSP level at AA1 (Outside CEDD Site Office)



### 24-hour TSP level at AA2 (Site Egress)





## **Appendix C1**

### **Calibration Certificates for Noise Monitoring Equipments**



# Calibration Certificate

Certificate No. **61398**

Page 1 of 3 Pages

**Customer :** ETS-Testconsult Limited

**Address :** 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

**Order No. :** Q60555

**Date of receipt :** 29-Mar-06

## Item Tested

**Description :** Precision Integrating Sound Level Meter

**Manufacturer :** Rion

**Model :** NL-31

**Serial No. :** 00110024

## Test Conditions

**Date of Test :** 4-Apr-06

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Calibration procedure : Z01.

## Test Results

All results were within the IEC 651 Type 1 and IEC 804 Type 1 specification.

The results are shown in the attached page(s).

Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Function Generator	C051022	21-Mar-07	HKGSC
S024	Calibrator	S41431	22-May-06	PRC-NIM

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

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
P.F. Wong

**Approved by :**   
Dorothy Cheuk

This Certificate is issued by:  
Hong Kong Calibration Ltd.  
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.  
Tel: 2425 8801 Fax: 2425 8646

**Date:** 4-Apr-06





# Calibration Certificate

Certificate No. 61398

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 – 100	L <sub>A</sub>	Fast	94.0	93.8
		Slow		93.8
	L <sub>C</sub>	Fast		93.8
		L <sub>p</sub>		Fast
30 – 120	L <sub>A</sub>	Fast	94.0	93.8
		Slow		93.7
	L <sub>C</sub>	Fast		93.8
		L <sub>p</sub>		Fast
30 – 120	L <sub>A</sub>	Fast	113.9	113.8
		Slow		113.7
	L <sub>C</sub>	Fast		113.8
		L <sub>p</sub>		Fast

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.2 dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB



# Calibration Certificate

Certificate No. 61398

Page 3 of 3 Pages

### 3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.5	- 39.4 dB, $\pm 1.5$ dB
63 Hz	- 26.2	- 26.2 dB, $\pm 1.5$ dB
125 Hz	- 16.2	- 16.1 dB, $\pm 1$ dB
250 Hz	- 8.8	- 8.6 dB, $\pm 1$ dB
500 Hz	- 3.3	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref.)	0 dB, $\pm 1$ dB
2 kHz	+ 1.2	+ 1.2 dB, $\pm 1$ dB
4 kHz	+ 1.1	+ 1.0 dB, $\pm 1$ dB
8 kHz	- 1.2	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB ~ $\infty$

Uncertainty :  $\pm 0.1$  dB

### 4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.8	$\pm 0.5$ dB
1/10 <sup>2</sup>	40.0	40.0	
1/10 <sup>3</sup>	40.0	40.0	$\pm 1.0$ dB
1/10 <sup>4</sup>	40.0	40.0	

Uncertainty :  $\pm 0.1$  dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 000 hPa.

----- END -----



# Calibration Certificate

Certificate No. **61399**

Page 1 of 2 Pages

**Customer :** ETS-Testconsult Limited**Address :** 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.**Order No. :** Q60555**Date of receipt :** 29-Mar-06**Item Tested****Description :** Sound Level Calibrator**Manufacturer :** Rion**Model :** NC-73**Serial No. :** 10644871**Test Conditions****Date of Test :** 4-Apr-06**Supply Voltage :** --**Ambient Temperature :** (23 ± 3)°C**Relative Humidity :** (50 ± 25) %**Test Specifications**

Calibration check.

Calibration procedure : F21, Z02.

**Test Results**

All results were within the manufacturer's specification.

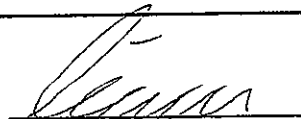
The results are shown in the attached page(s).

Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	53024	7-Jul-06	PRC-NIM
S024	Calibrator	S41431	22-May-06	PRC-NIM
S041	Universal Counter	53972	26-Aug-06	HKGSCCL

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

The test equipment used for calibration are traceable to International System of Units (SI).  
The test results apply to the above Unit-Under-Test only

**Calibrated by :**  
P.F. Wong**Approved by :**  
Dorothy Cheuk

Date: 4-Apr-06

This Certificate is issued by:  
Hong Kong Calibration Ltd.  
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.  
Tel: 2425 8801 Fax: 2425 8646

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# Calibration Certificate

Certificate No. 61399

Page 2 of 2 Pages

Results :

## 1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value		Mfr's Spec.
	Before Adjust.	After Adjust.	
94 dB	94.7	94.2	$\pm 1$ dB

Uncertainty :  $\pm 0.2$  dB

## 2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.984 kHz	$\pm 2$ %

Uncertainty :  $\pm 0.1$  %

## 3. Level Stability : 0.0 dB

Uncertainty :  $\pm 0.01$  dB

## 4. Total Harmonic Distortion : $< 0.3$ %

Mfr's Spec. :  $< 3$  %

Uncertainty :  $\pm 2.3$  % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. The above measured values are the mean of 3 measurement.

4. Atmospheric Pressure : 1 000 hPa

----- END -----



## **Appendix C2**

### **Noise Monitoring Results**



## Day-time Noise Monitoring

**Monitoring Location: N1 (Site Egress)**

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L <sub>eq(30min)</sub>	L <sub>10</sub>	L <sub>90</sub>		
04/04/06	10:50	71.6	76.8	70.2	0.8	Sunny

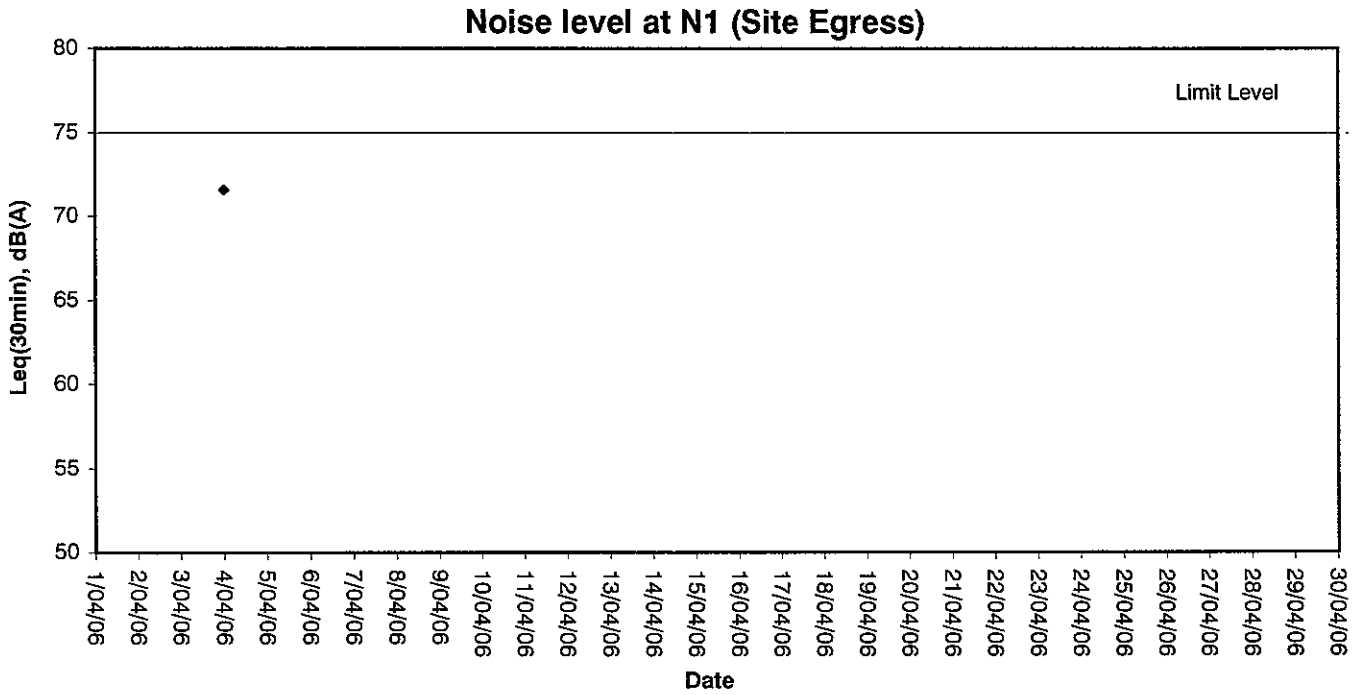


## **Appendix C3**

### **Graphical Plots of Noise Monitoring Data**



## Noise Monitoring (Day-time)







## **Appendix D1**

### **Calibration Certificates for Marine Water Quality Monitoring Equipments**



## Performance Check of Salinity Meter

Equipment Ref. No. : 27 / 0527 / 001      Manufacturer : YSI  
Model No. : Model 30      Serial No. : 9991183  
Date of Calibration : 27 / 11 / 06      Due Date : 28 / 14 / 06

Ref. No. of Salinity Standard used (30ppt)

J 196A

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30	29.6	1.3 %

Acceptance Criteria

Difference : <10 %

The salinity meter complies \* / ~~does not comply~~ \* with the specified requirements and is deemed acceptable \* / ~~unacceptable~~ \* for use. Measurements are traceable to national standards.

Checked by : Tk

Approved by : Wick Law



## Performance Check of Salinity Meter

Equipment Ref. No. : ET / 0527 / 001      Manufacturer : YSI  
Model No. : Model 30      Serial No. : 99G1183  
Date of Calibration : 28 14 106      Due Date : 28 17 106

Ref. No. of Salinity Standard used (30ppt)

J 196A

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30	29.3	2.4%

Acceptance Criteria

Difference : <10 %

The salinity meter complies \* / ~~does not comply~~ \* with the specified requirements and is deemed acceptable \* / ~~unacceptable~~ \* for use. Measurements are traceable to national standards.

Checked by : RA

Approved by : Gda Law



## Internal Calibration Report of Turbidimeter

Equipment Ref. No. : ET / 0505 / 002      Manufacturer : HACH  
Model No. : 2100 P      Serial No. : 930900003728  
Date of Calibration : 27 / 11 / 06      Calibration Due : 28 / 11 / 06

### Data

(4.95) 0 - 10 NTU Gelex Vial	(49.0) 10 - 100 NTU Gelex Vial	(409) 100 - 1000 NTU Gelex Vial
4.93	48.5	405

The equipment complies \* / ~~does not comply~~ \* with the specified requirements and is deemed acceptable \* / ~~unacceptable~~ \* for use.

\* Delete as appropriate

Calibrated by : [Signature]

Approved by : [Signature]



## Internal Calibration Report of Turbidimeter

Equipment Ref. No. : ET/0505/002

Manufacturer : HACH

Model No. : 2100P

Serial No. : 930900003728

Date of Calibration : 28/4/06

Calibration Due : 28/17/06

### Data

(4.95)	(49.0)	(409)
0 - 10 NTU Gelex Vial	10 - 100 NTU Gelex Vial	100 - 1000 NTU Gelex Vial
4.91	48.3	406

The equipment complies \* / does not comply \* with the specified requirements and is deemed acceptable \* / ~~unacceptable~~ \* for use.

\* Delete as appropriate

Calibrated by : RK

Approved by : [Signature]



### Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No. : <u>ET/EW/003/001</u>	Manufacturer : <u>YCI</u>
Model No. : <u>95</u>	Serial No. : <u>97H 04071 AD</u>
Date of Calibration : <u>01/03/06</u>	Calibration Due Date : <u>31/05/06</u>

Ref. No. of Reference Thermometer : ET/2403/01

Ref. No. of Potassium Dichromate : ET/0520/003/02

#### Temperature Verification

	Temperature (°C)
Thermometer reading	20.0
Meter reading	20.0

#### Linearity Checking

Purging time, min	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
2	7.46	7.44	7.45	7.31	7.29	7.30	2.03
5	5.66	5.64	5.65	5.66	5.64	5.65	0.00
10	4.01	3.99	4.00	3.82	3.80	3.81	4.87
Linear regression coefficient						0.9968	

#### Zero Point Checking

DO meter reading, mg/L	0.00
------------------------	------

#### Salinity Checking

Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	7.16	7.14	7.15	7.01	7.01	7.01	1.98
30	6.56	6.54	6.55	6.32	6.30	6.31	3.73

#### Acceptance Criteria

- (1) Difference between temperature readings from temperature sensor of DO probe and reference thermometer : < 0.5 °C
- (2) Linear regression coefficient : > 0.99
- (3) Zero checking: 0.0mg/L
- (4) Difference (%) of DO content from the meter reading and by winkler titration : within ± 5%

The equipment complies \* / ~~does not comply~~ \* with the specified requirements and is deemed acceptable \* / ~~unacceptable~~ \* for use.

\* Delete as appropriate

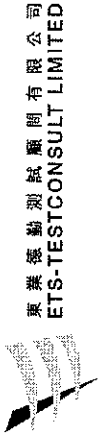
Calibrated by : (Signature)

Approved by : (Signature)

## **Appendix D2**

### **Impact Marine Water Quality Monitoring Results**

# Mid-Flood Tide



業業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : C1

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	
03/04/06	09:12 - 09:28	24/Sunny	Surface	20.9	32.2	32.2	6.22	6.20	84.1	83.8	3.41	3.47	3.5	3.7	3.5			
			Middle	20.2	32.6	32.6	5.84	5.82	79.0	78.8	3.29	3.33	3.5	3.5				
			Bottom	20.0	32.7	32.7	5.23	5.21	70.7	70.5	3.04	3.06	3.2	3.2				
06/04/06	07:00 - 07:16	20/Cloudy	Surface	20.7	32.1	32.1	6.98	6.94	95.4	94.9	2.11	2.06	2.5	2.5	2.4			
			Middle	20.8	32.4	32.4	6.51	6.46	89.6	89.3	1.92	1.87	2.3	2.3				
			Bottom	20.5	32.5	32.5	6.31	6.26	86.3	85.8	1.99	2.04	2.3	2.3				
08/04/06	08:15 - 08:28	23/Cloudy	Surface	21.4	31.6	31.6	6.72	6.71	91.3	91.1	3.76	3.77	4.0	3.9	3.6			
			Middle	21.1	32.8	32.8	6.47	6.45	87.9	87.7	3.52	3.52	3.5	3.5				
			Bottom	20.8	33.0	33.0	6.30	6.32	85.6	85.8	3.10	3.11	3.2	3.3				
10/04/06	16:30 - 16:44	27/Fine	Surface	23.7	32.2	32.1	6.41	6.39	86.5	86.2	2.81	2.81	3.0	3.1	3.1			
			Middle	22.5	32.4	32.4	5.98	5.94	80.7	80.2	2.98	2.98	3.2	3.1				
			Bottom	21.9	32.6	32.6	5.76	5.74	77.8	77.5	2.90	2.90	3.0	3.0				
12/04/06	18:24 - 18:36	28/Cloudy	Surface	22.0	32.4	32.4	6.73	6.68	95.1	94.6	4.11	4.06	4.5	4.4	4.3			
			Middle	22.2	33.1	33.1	6.86	6.83	96.0	95.5	3.88	3.93	4.0	4.0				
			Bottom	22.4	33.0	33.0	6.44	6.49	92.2	92.7	4.47	4.44	4.5	4.5				
18/04/06	07:00 - 07:15	28/Cloudy	Surface	23.1	31.9	31.9	6.56	6.55	87.2	87.0	3.67	3.66	4.0	3.9	3.7			
			Middle	22.8	32.5	32.5	6.27	6.26	82.7	82.5	3.72	3.72	4.0	4.0				
			Bottom	22.6	32.8	32.8	5.94	5.93	78.4	78.2	3.14	3.14	3.2	3.2				
20/04/06	08:44 - 08:58	28/Cloudy	Surface	22.7	32.4	32.4	6.60	6.56	90.9	90.5	2.00	1.95	2.5	2.4	2.4			
			Middle	21.6	32.5	32.5	6.33	6.28	87.2	86.7	1.87	1.84	2.2	2.2				
			Bottom	21.2	32.5	32.5	6.19	6.24	85.2	85.7	2.46	2.43	2.5	2.5				



# Mid-Flood Tide



興業 振動 測試 顧問 有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : C1

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	
22/04/06	08:00 - 08:15	28/Cloudy	Surface	23.7	31.6	31.6	6.74	6.73	6.62	92.3	92.1	3.94	3.93	4.5	4.4	4.2		
			Middle	23.4	32.2	32.2	6.52	6.51	6.62	88.6	88.4	3.79	3.79	4.5	4.5			
			Bottom	23.2	32.5	32.5	6.30	6.32	6.32	88.2	85.8	3.52	3.52	3.8	3.8			
24/04/06	16:14 - 16:30	23/Cloudy	Surface	20.3	32.4	32.4	6.63	6.62	6.49	91.1	90.9	2.14	2.16	2.5	2.4	2.4		
			Middle	19.5	32.6	32.6	6.39	6.36	6.49	87.8	87.6	1.95	1.97	2.0	2.0			
			Bottom	19.2	32.7	32.7	6.40	6.38	6.38	87.3	87.1	2.40	2.43	2.7	2.7			
26/04/06	17:46 - 18:04	26/Cloudy	Surface	21.9	32.0	32.0	6.85	6.80	6.69	94.4	93.9	3.15	3.20	3.5	3.5	3.6		
			Middle	21.6	32.4	32.4	6.61	6.57	6.69	91.1	90.7	3.31	3.27	4.0	4.0			
			Bottom	21.0	32.2	32.2	6.33	6.28	6.28	87.2	86.8	3.00	2.95	3.3	3.3			
28/04/06	11:45 - 11:58	25/Rainy	Surface	23.9	31.5	31.5	6.16	6.17	6.14	86.8	87.3	2.64	2.64	3.0	3.0	3.2		
			Middle	23.5	32.4	32.4	6.18	6.11	6.14	87.7	86.4	3.02	3.02	3.2	3.2			
			Bottom	23.4	33.0	33.0	6.43	6.41	6.41	91.1	90.9	2.98	2.98	3.5	3.5			

# Mid-Flood Tide



英業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : M4

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Value	Average	Depth-average	Value	Average	Depth-average
03/04/06	09:50 - 10:03	24/Sunny	Surface	21.1	32.1	32.2	6.45	6.43	87.3	87.1	2.76	2.79	3.0	3.0	3.1		
			Middle	20.3	32.5	5.91	5.88	79.9	79.6	3.20	3.22	3.2	3.2				
			Bottom	20.1	32.7	5.54	5.52	74.9	74.7	2.94	2.97	3.2	3.2				
06/04/06	07:47 - 08:07	20/Cloudy	Surface	20.8	32.4	32.4	7.07	7.04	96.4	95.9	2.58	2.54	2.8	2.8	2.5		
			Middle	20.7	32.5	6.66	6.63	91.1	90.6	2.19	2.15	2.2	2.3				
			Bottom	20.6	32.5	6.22	6.27	85.1	85.6	2.00	1.95	2.3	2.3				
08/04/06	08:58 - 09:11	23/Cloudy	Surface	21.5	31.7	31.7	6.84	6.82	93.0	92.7	2.98	2.98	3.2	3.2	3.2		
			Middle	21.0	32.9	6.53	6.52	88.8	88.6	3.02	3.03	3.5	3.5				
			Bottom	20.9	33.1	6.62	6.64	90.0	90.2	2.88	2.88	3.0	3.0				
10/04/06	17:00 - 17:14	27/Fine	Surface	23.2	32.3	32.4	6.32	6.30	85.3	85.1	2.84	2.84	3.0	3.0	2.9		
			Middle	23.0	32.4	6.03	5.99	81.4	80.9	2.75	2.75	3.0	3.0				
			Bottom	22.7	32.8	5.71	5.68	77.1	76.6	2.88	2.89	2.7	2.7				
12/04/06	17:45 - 17:58	28/Cloudy	Surface	22.0	32.6	32.6	6.98	6.94	99.9	99.5	3.21	3.16	3.3	3.3	3.8		
			Middle	22.1	32.7	6.76	6.73	96.2	95.7	3.92	3.87	4.0	4.0				
			Bottom	22.1	32.4	6.68	6.64	94.4	93.9	4.00	3.98	4.2	4.3				
18/04/06	07:45 - 08:00	28/Cloudy	Surface	23.2	31.9	32.0	6.63	6.63	88.1	88.0	3.53	3.54	4.0	4.0	3.6		
			Middle	22.9	32.5	6.31	6.33	83.9	84.2	3.29	3.33	3.5	3.5				
			Bottom	22.8	32.4	6.35	6.35	84.4	80.2	3.36	3.04	3.5	3.2				
20/04/06	08:00 - 08:16	28/Cloudy	Surface	22.4	31.9	31.9	6.51	6.47	89.7	89.4	2.27	2.32	2.5	2.5	2.7		
			Middle	21.6	32.1	6.20	6.16	85.4	84.9	2.55	2.50	2.7	2.8				
			Bottom	21.5	32.4	6.31	6.36	86.9	87.4	2.66	2.63	2.7	2.8				

# Mid-Flood Tide

## Monitoring Station : M4

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average
22/04/06	08:45 - 09:00	28/Cloudy	Surface	23.8	31.6	31.6	6.85	6.83	6.62	93.8	93.5	3.63	3.64	4.0	4.0	4.0	3.5	
					31.6		6.81			93.2		3.65			4.0			
					32.2		6.43			88.0		3.07			3.2			
24/04/06	15:30 - 15:46	23/Cloudy	Middle	23.5	32.3	32.3	6.40	6.42	6.36	87.6	87.8	3.06	3.07	3.2	3.2	3.2	2.8	
					32.3		6.54			88.9		3.14			2.7			
					32.4		6.51			88.5		3.16			2.8			
24/04/06	15:30 - 15:46	23/Cloudy	Bottom	23.4	32.5	32.5	6.54	6.53	6.53	88.9	88.7	3.14	3.15	3.4	3.5	3.4	2.8	
					32.5		6.54			88.5		3.16			2.8			
					32.3		6.50			89.1		2.83			3.0			
24/04/06	15:30 - 15:46	23/Cloudy	Surface	20.1	32.3	32.3	6.50	6.52	6.36	89.6	89.9	2.89	2.86	3.0	3.0	3.0	2.8	
					32.3		6.23			85.5		2.64			2.7			
					32.4		6.17			85.0		2.72			2.8			
26/04/06	16:50 - 17:06	26/Cloudy	Middle	19.8	32.6	32.6	6.52	6.20	6.81	89.0	88.8	2.16	2.20	2.5	2.5	2.5	3.1	
					32.6		6.48			88.6		2.23			2.5			
					32.1		6.94			95.6		2.88			3.2			
26/04/06	16:50 - 17:06	26/Cloudy	Surface	21.7	32.1	32.1	6.84	6.89	6.47	95.0	95.3	2.80	2.84	3.2	3.2	3.2	2.8	
					32.1		6.70			92.3		2.67			2.5			
					32.1		6.77			93.0		2.60			2.5			
28/04/06	12:28 - 12:42	25/Rainy	Middle	23.4	32.4	32.4	6.50	6.74	6.33	89.6	89.3	2.79	2.84	3.0	3.0	3.0	3.2	
					32.4		6.44			89.0		2.89			3.0			
					32.3		6.31			89.4		2.95			3.0			
28/04/06	12:28 - 12:42	25/Rainy	Bottom	23.4	32.1	32.2	6.27	6.29	6.38	88.9	89.2	2.96	2.96	3.0	3.0	3.0	2.8	
					32.1		6.36			90.1		2.33			2.5			
					32.9		6.39			90.3		2.36			2.5			
28/04/06	12:28 - 12:42	25/Rainy	Surface	23.4	33.0	32.9	6.39	6.38	6.38	90.7	90.2	3.64	2.35	2.5	2.5	2.5	3.2	
					32.8		6.36			90.3		3.63			4.0			
					32.9		6.38			90.5		3.64			4.0			

# Mid-Ebb Tide



東業德勤測試顧問有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : C1

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average
03/04/06	15:03 - 15:17	26/Sunny	Surface	22.2	32.0	32.0	6.07	6.06	5.88	82.1	81.9	3.17	3.20	3.5	3.5	3.2	3.0	3.0
			Middle	20.3	32.4	5.72	5.70	77.3	77.1	2.64	2.69	3.0	3.0	3.0				
			Bottom	20.0	32.6	5.67	4.99	76.8	67.7	2.69	3.02	3.0	3.2	3.2				
06/04/06	18:16 - 18:31	22/Cloudy	Surface	20.8	32.2	32.2	7.21	7.16	6.96	98.6	98.3	1.88	1.84	2.3	2.3	2.5	2.5	2.5
			Middle	20.6	32.5	6.80	6.75	93.0	92.5	2.17	2.22	2.5	2.5	2.5				
			Bottom	20.4	32.5	6.70	6.46	92.0	88.5	2.27	2.25	2.7	2.8	2.8				
08/04/06	18:30 - 18:43	23/Cloudy	Surface	21.2	31.6	31.6	6.85	6.83	6.75	93.1	92.9	3.14	3.15	3.1	3.1	2.9	3.0	3.0
			Middle	20.7	32.8	6.69	6.67	90.9	90.7	2.82	2.83	3.0	3.0	3.0				
			Bottom	20.4	32.7	6.65	6.19	90.4	83.4	2.83	2.56	2.5	2.5	2.5				
10/04/06	11:00 - 11:15	27/Fine	Surface	23.1	32.1	32.1	6.28	6.31	6.12	84.8	85.2	3.28	3.28	3.5	3.5	3.3	3.2	3.2
			Middle	22.6	32.2	5.95	5.93	80.3	80.1	3.27	3.19	3.2	3.2	3.2				
			Bottom	22.5	32.6	5.91	5.40	79.8	72.9	3.18	3.07	3.2	3.2	3.2				
12/04/06	12:28 - 12:45	28/Cloudy	Surface	22.3	32.0	32.0	6.64	6.67	6.71	93.2	93.6	4.39	4.35	4.5	4.5	5.4	5.3	5.3
			Middle	22.4	32.9	6.78	6.74	95.8	95.4	4.93	4.88	5.2	5.2	5.2				
			Bottom	22.7	32.1	6.70	6.57	95.0	93.8	4.83	6.18	5.3	5.3	5.3				
18/04/06	13:45 - 13:58	28/Cloudy	Surface	23.7	32.1	32.1	6.53	6.57	6.57	93.5	93.8	6.10	6.14	6.5	6.5	3.4	3.3	3.3
			Middle	23.4	32.5	6.43	6.42	85.5	85.3	2.92	2.93	3.3	3.3	3.3				
			Bottom	22.8	32.9	6.40	6.12	85.1	80.7	3.05	3.05	3.5	3.5	3.5				
20/04/06	16:50 - 17:06	28/Cloudy	Surface	22.1	32.1	32.1	6.71	6.66	6.53	92.1	91.6	2.21	2.16	2.2	2.2	2.6	2.5	2.5
			Middle	21.4	32.4	6.44	6.39	88.8	88.4	2.40	2.35	2.5	2.5	2.5				
			Bottom	21.0	32.6	6.34	6.21	88.0	84.7	2.30	2.77	3.0	3.0	3.0				

# Mid-Ebb Tide



英業德動測試驗有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : C1

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average
22/04/06	17:30 - 17:45	28/Cloudy	Surface	24.4	31.7	31.7	6.89	6.87	6.74	94.3	94.1	3.43	3.44	3.5	3.5	3.3		
			Middle	24.1	32.4	6.63	6.62	90.8	90.6	2.94	2.94	3.0	3.0	3.0				
			Bottom	23.7	32.5	6.60	6.22	84.3	84.5	3.06	3.07	3.5	3.5	3.5				
24/04/06	11:10 - 11:25	23/Cloudy	Surface	20.2	32.3	32.3	6.72	6.70	6.58	92.3	92.1	2.64	2.66	3.0	3.0	3.0		
			Middle	19.4	32.6	6.45	6.47	89.1	88.9	2.75	2.80	3.2	3.2	3.2				
			Bottom	19.0	32.6	6.48	6.28	88.6	85.3	2.85	2.52	2.7	2.7	2.7				
26/04/06	11:14 - 11:28	26/Cloudy	Surface	22.1	31.7	31.7	7.07	7.11	6.94	96.5	97.0	2.92	2.88	3.5	3.4	3.1		
			Middle	21.6	32.0	6.80	6.76	92.8	92.4	2.17	2.14	2.5	2.5	2.5				
			Bottom	21.1	32.0	6.72	6.48	88.9	88.5	3.00	2.95	3.5	3.5	3.5				
28/04/06	17:30 - 17:43	25/Rainy	Surface	23.6	32.0	32.0	6.52	6.51	6.36	91.9	91.7	3.07	3.07	3.3	3.3	3.1		
			Middle	23.4	32.5	6.24	6.22	87.3	87.1	2.89	2.90	2.7	2.8	2.8				
			Bottom	23.2	32.6	6.20	6.13	86.9	86.4	3.12	3.13	3.2	3.2	3.2				

# Mid-Ebb Tide



英業泰動測試驗有限公司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : M4

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average	Value	Average	Depth-average
03/04/06	15:42 - 15:58	26/Sunny	Surface	22.0	31.9	6.19	6.16	83.7	83.4	3.59	3.61	3.2	3.1	2.9				
			Middle	20.3	32.3	5.80	5.78	78.4	78.2	2.27	2.30	3.0	3.0					
			Bottom	20.1	32.5	5.75	5.64	77.9	76.3	2.33	3.01	3.0	2.7					
	17:20 - 17:45		Surface	20.7	32.1	6.82	6.77	93.7	93.4	2.98	2.92	2.7	2.1	2.2				
			Middle	2.7	33.0	6.49	6.45	87.8	87.4	2.37	2.04	2.0	2.2					
			Bottom	20.6	33.1	6.22	6.27	90.7	90.3	2.51	2.47	2.3	2.3					
06/04/06	19:13 - 19:28	22/Cloudy	Surface	21.0	31.5	7.01	7.03	95.3	95.5	2.63	2.64	2.8	2.8	2.5				
			Middle	20.7	32.8	6.75	6.73	91.1	90.8	2.27	2.28	2.2	2.3					
			Bottom	20.5	33.0	6.62	6.64	89.3	89.5	2.12	2.12	2.5	2.5					
	11:46 - 11:59		Surface	23.4	32.2	6.40	6.44	86.4	87.0	2.84	2.84	3.0	3.0	3.2				
			Middle	22.8	32.4	6.12	6.09	82.6	82.2	2.71	2.71	3.0	3.1					
			Bottom	22.6	32.6	5.76	5.73	77.8	77.4	2.70	2.82	3.2	3.5					
10/04/06	11:45 - 12:00	27/Fine	Surface	23.1	31.0	7.16	7.13	102.3	101.8	2.78	2.74	3.2	3.1	3.5				
			Middle	23.2	32.1	6.99	6.95	100.5	100.0	3.28	3.24	3.0	3.5					
			Bottom	22.7	32.7	6.51	6.47	93.8	93.4	3.94	3.89	4.0	4.0					
	14:28 - 14:42		Surface	23.8	32.1	6.85	6.83	91.1	90.8	2.96	2.97	3.0	3.0	2.9				
			Middle	23.2	32.5	6.57	6.56	86.7	86.5	2.87	2.88	3.0	2.9					
			Bottom	22.9	32.9	6.19	6.17	81.7	81.4	2.65	2.66	2.7	2.8					
18/04/06	16:00 - 16:16	28/Cloudy	Surface	22.4	32.1	6.59	6.55	90.3	89.8	3.06	3.03	2.8	2.9	2.6				
			Middle	21.5	32.1	6.37	6.34	87.3	86.8	2.72	2.67	2.5	2.5					
			Bottom	21.2	32.2	6.17	6.14	84.5	84.0	2.52	2.48	2.5	2.5					
	11:45 - 12:00		Surface	23.1	31.0	7.10	7.10	101.3	101.8	2.70	2.74	3.0	3.1	3.5				
			Middle	23.2	32.1	6.90	6.95	99.5	100.0	3.20	3.24	3.5	3.5					
			Bottom	22.7	32.7	6.43	6.47	93.0	93.4	3.84	3.89	4.0	4.0					

# Mid-Ebb Tide



東業 港 勘 測 試 驗 有 限 公 司  
ETS-TESTCONSULT LIMITED

## Monitoring Station : M4

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)	Temp (°C)	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)			Turbidity (NTU)			Suspended Solids (mg/L)		
					Value	Average	Value	Average	Depth-average	Value	Average	Value	Average	Depth-average	Value	Average	Depth-average	
22/04/06	18:15 - 18:30	28/Cloudy	Surface	24.3	31.7	31.7	6.94	6.96	95.0	95.3	2.98	2.98	3.0	3.0	3.1			
			Middle	24.0	32.5	32.5	6.57	6.55	90.0	89.7	2.89	2.89	3.2	3.3				
			Bottom	23.9	32.6	32.5	6.42	6.41	87.9	87.7	2.90	2.91	2.8	2.9				
24/04/06	10:32 - 10:48	23/Cloudy	Surface	20.0	32.4	32.4	6.61	6.58	90.4	90.2	3.16	3.19	3.0	3.0	2.8			
			Middle	19.6	32.5	32.5	6.41	6.39	87.4	87.2	2.88	2.90	2.5	2.5				
			Bottom	19.3	32.6	32.6	6.22	6.20	84.7	84.5	2.57	2.62	2.7	2.8				
26/04/06	12:00 - 12:15	26/Cloudy	Surface	22.0	32.0	32.0	7.22	7.17	98.6	98.3	3.07	3.04	3.0	3.0	3.1			
			Middle	21.6	32.4	32.4	6.67	6.64	91.1	90.6	3.27	3.24	3.2	3.2				
			Bottom	21.5	32.6	32.4	6.39	6.35	87.3	86.8	3.19	3.15	3.0	3.0				
28/04/06	18:13 - 18:28	25/Rainy	Surface	23.7	32.2	32.2	6.67	6.66	94.0	93.8	2.76	2.77	2.8	2.9	2.8			
			Middle	23.4	32.8	32.7	6.40	6.42	90.2	90.4	2.53	2.53	2.5	2.7				
			Bottom	23.3	33.0	33.0	6.29	6.27	88.6	88.4	2.69	2.68	2.8	2.8				

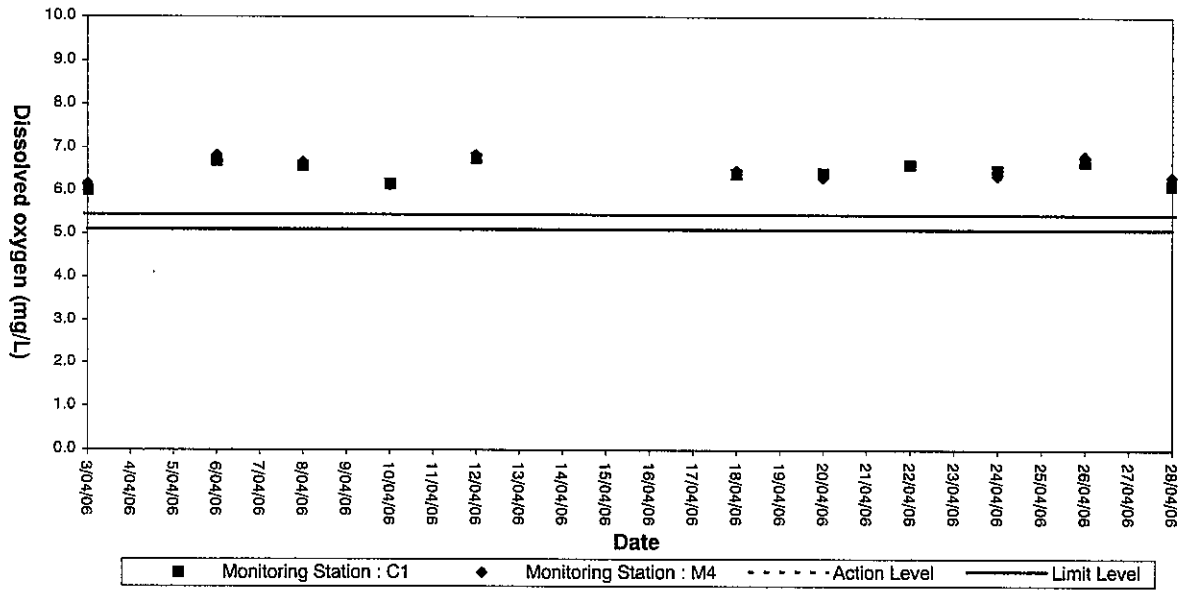
## **Appendix D3**

### **Graphical Plots of Impact Marine Water Quality Monitoring Data**

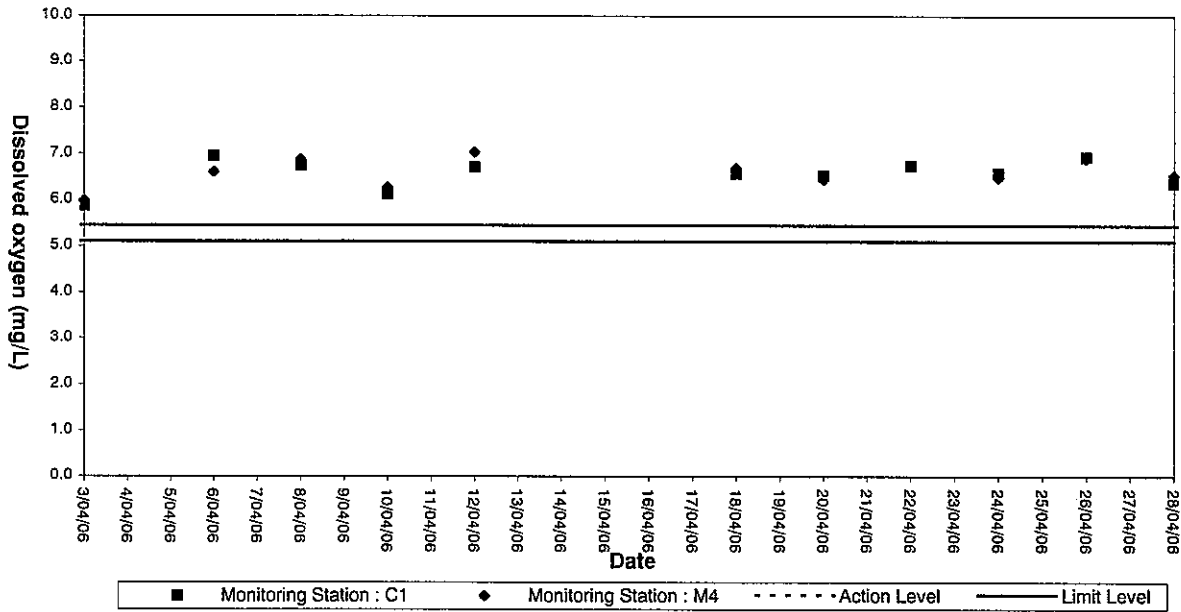




### Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide

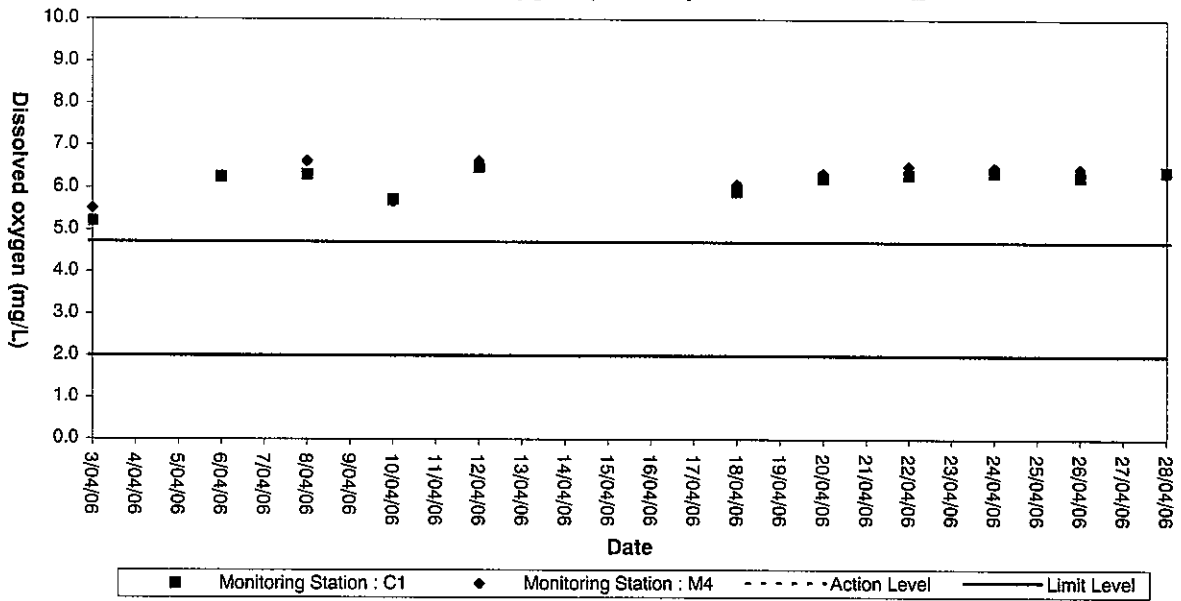


### Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide

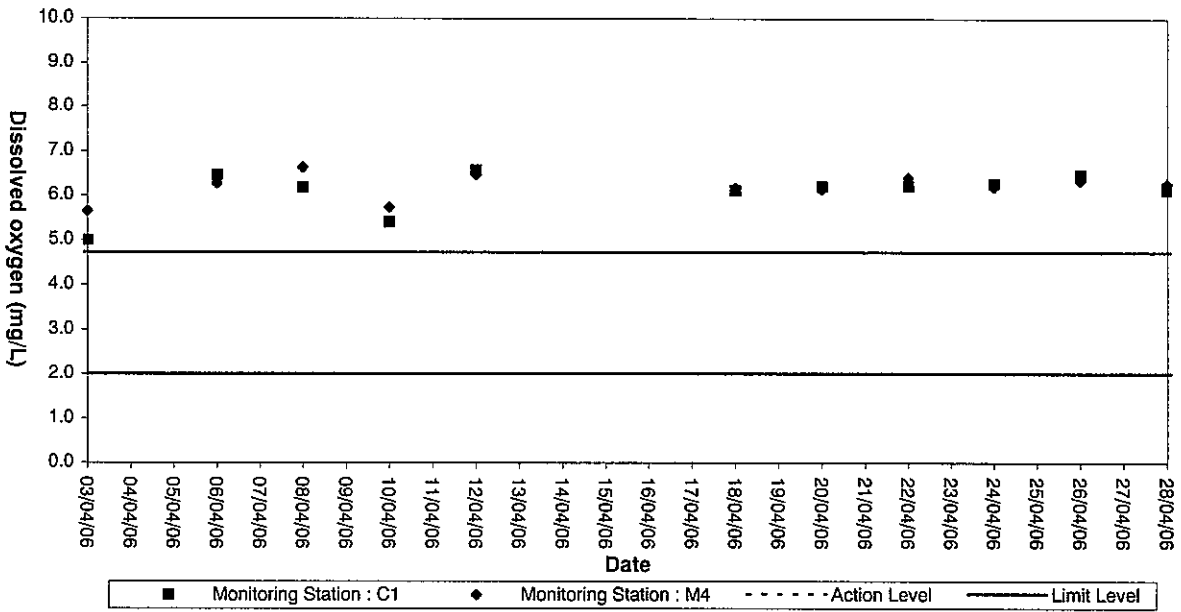




### Dissolved Oxygen (Bottom) at Mid-Flood Tide

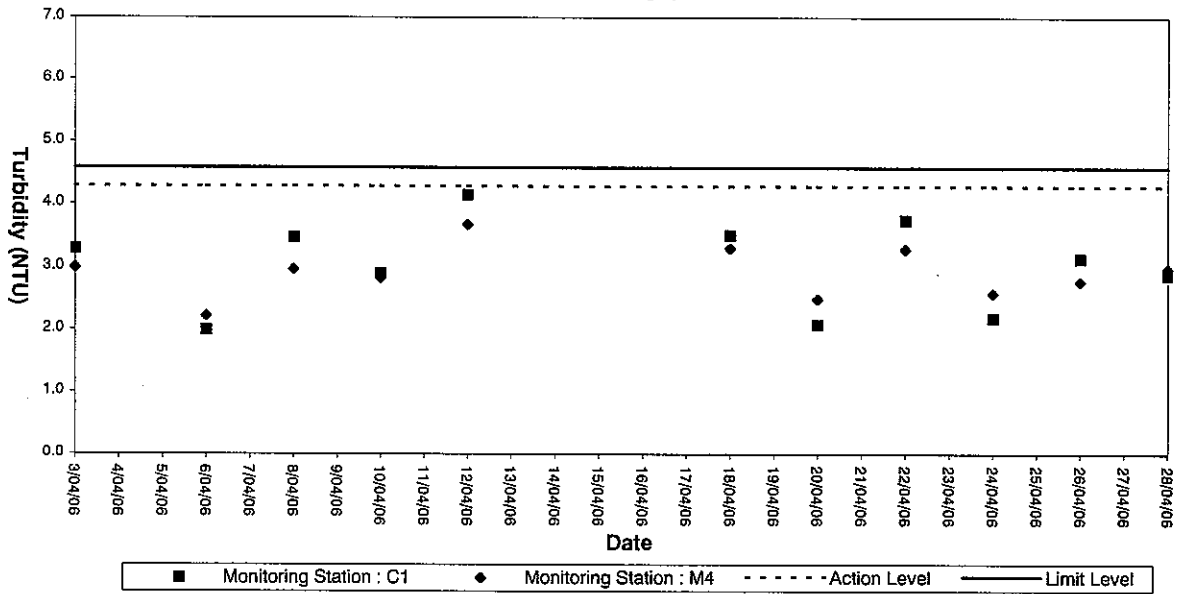


### Dissolved Oxygen (Bottom) at Mid-Ebb Tide

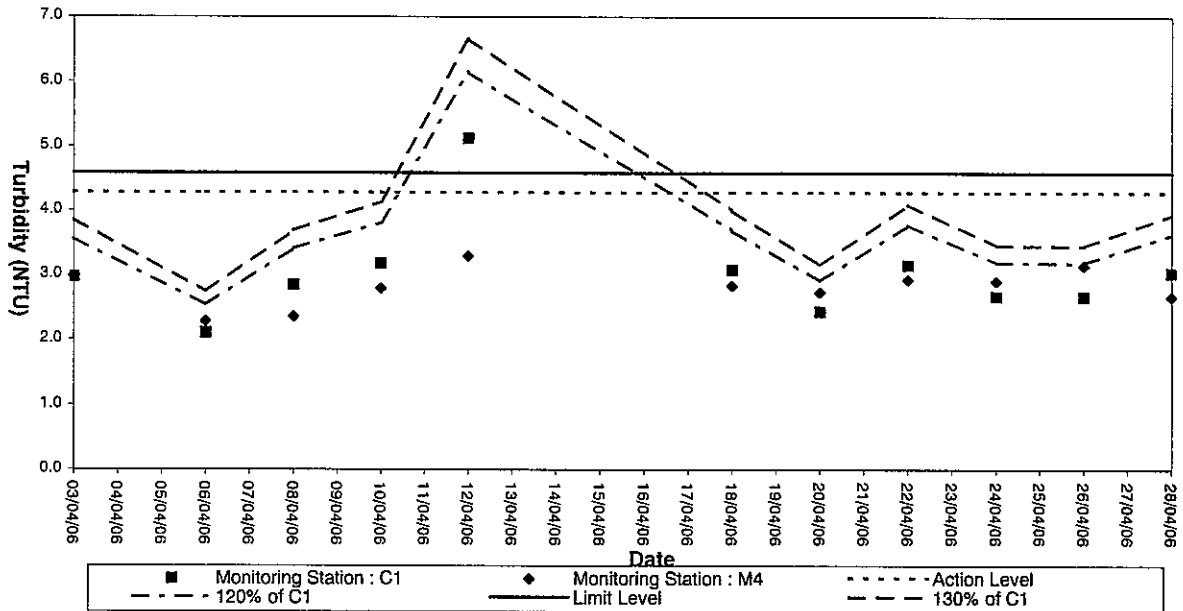




### Turbidity (Depth-average) at Mid-Flood Tide

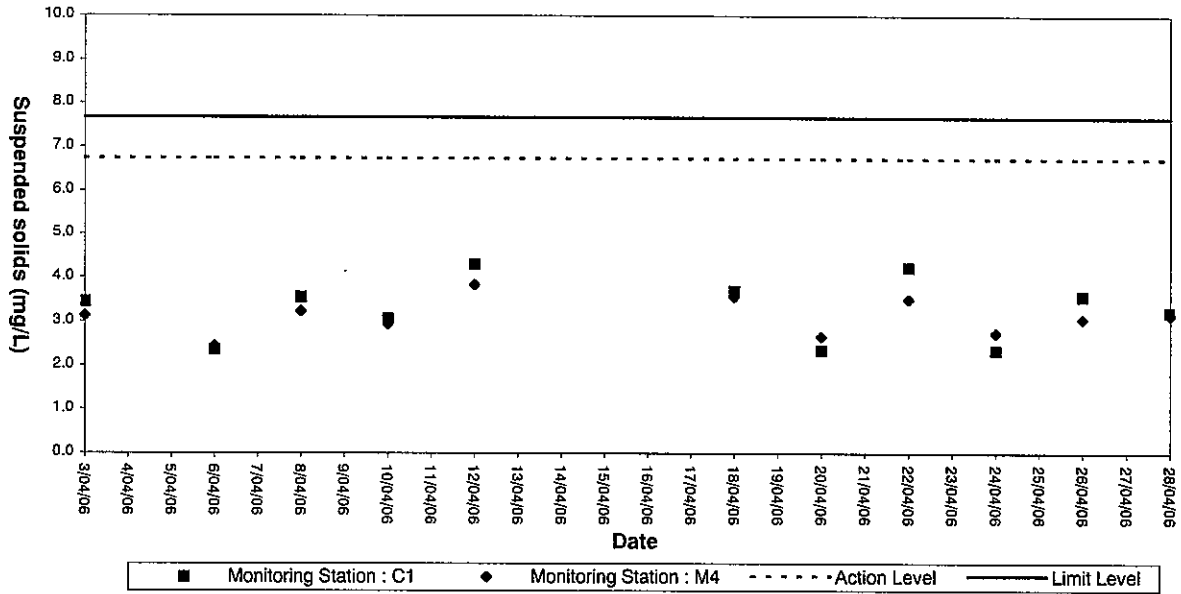


### Turbidity (Depth-average) at Mid-Ebb Tide

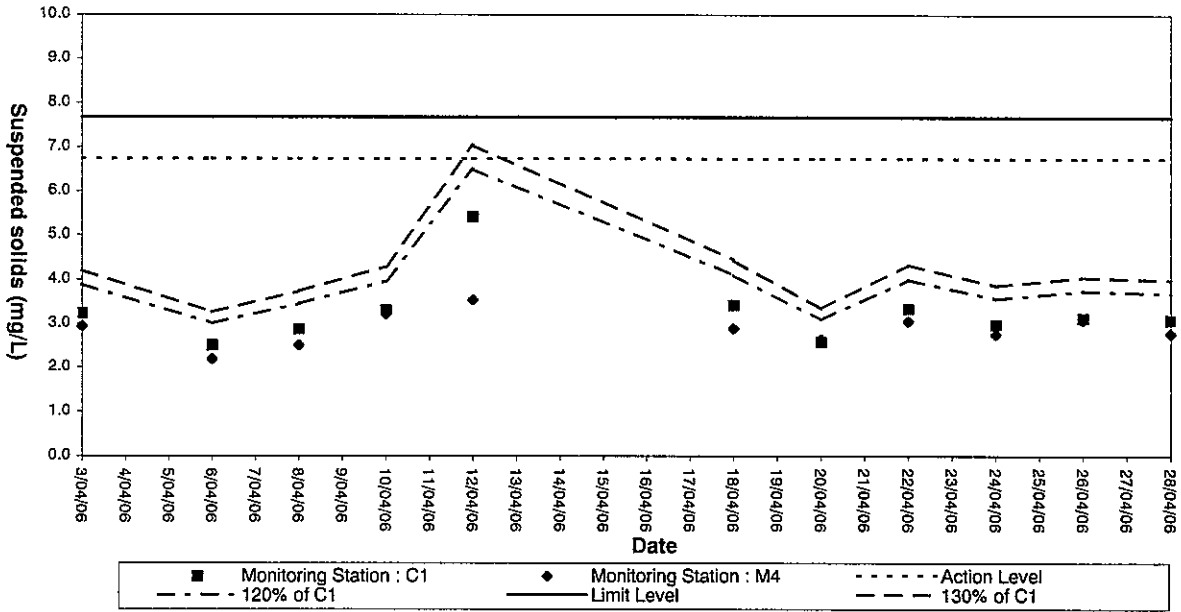




### Suspended solids (Depth-average) at Mid-Flood Tide



### Suspended Solids (Depth-average) at Mid-Ebb Tide





## **Appendix E**

### **Weather Condition**



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
01/04/06	12:00 AM	20.3	20.7	20.0	2.5	2.8	NEE	30
01/04/06	12:30 AM	20.3	20.7	20.1	2.1	4.1	NEE	30
01/04/06	1:00 AM	20.3	20.3	20.2	2.2	3.1	E	30
01/04/06	1:30 AM	20.3	20.6	20.3	1.7	1.9	E	30
01/04/06	2:00 AM	20.3	20.4	20.1	2.2	3.8	NE	30
01/04/06	2:30 AM	20.2	20.6	20.1	2.2	4.2	NE	30
01/04/06	3:00 AM	20.2	20.6	20.0	2.2	3.5	NE	30
01/04/06	3:30 AM	20.2	20.3	20.1	1.9	2.2	NE	30
01/04/06	4:00 AM	20.0	20.3	19.9	2.3	3.8	NE	30
01/04/06	4:30 AM	20.1	20.3	20.0	1.8	2.0	NE	30
01/04/06	5:00 AM	20.1	20.2	20.0	2.1	2.4	E	30
01/04/06	5:30 AM	20.2	20.3	20.2	0.6	1.2	NE	30
01/04/06	6:00 AM	20.2	20.3	20.0	0.7	2.4	NEE	30
01/04/06	6:30 AM	20.2	20.6	20.2	0.1	0.9	NW	30
01/04/06	7:00 AM	20.3	20.5	20.1	1.2	2.8	N	30
01/04/06	7:30 AM	20.5	20.8	20.2	1.6	1.7	N	30
01/04/06	8:00 AM	20.9	21.2	20.9	1.6	3.4	NE	30
01/04/06	8:30 AM	21.3	21.5	21.1	0.8	2.6	NEE	30
01/04/06	9:00 AM	21.6	21.8	21.4	0.6	1.3	NEE	30
01/04/06	9:30 AM	21.9	22.0	21.9	1.1	2.7	NE	30
01/04/06	10:00 AM	22.1	22.4	21.8	1.0	2.8	N	30
01/04/06	10:30 AM	23.0	23.3	22.8	1.1	3.2	N	30
01/04/06	11:00 AM	24.0	24.2	24.0	2.2	2.7	NEE	30
01/04/06	11:30 AM	24.1	24.4	23.9	1.6	2.0	NEE	30
01/04/06	12:00 PM	25.2	25.4	24.9	1.0	2.8	NE	30
01/04/06	12:30 PM	26.0	26.4	25.8	1.6	1.9	NE	30
01/04/06	1:00 PM	26.5	26.7	26.5	2.0	2.6	NE	30
01/04/06	1:30 PM	26.0	26.3	25.8	1.8	3.8	N	30
01/04/06	2:00 PM	26.2	26.6	26.2	1.2	3.5	NE	30
01/04/06	2:30 PM	25.8	26.1	25.7	1.1	2.9	NE	30
01/04/06	3:00 PM	25.6	25.9	25.5	0.8	1.9	NE	30
01/04/06	3:30 PM	25.3	25.3	25.1	1.2	2.3	E	30
01/04/06	4:00 PM	25.0	25.0	24.8	1.6	2.4	E	30
01/04/06	4:30 PM	24.0	24.0	23.8	1.2	2.5	NE	30
01/04/06	5:00 PM	23.6	23.8	23.5	1.9	3.5	NE	30
01/04/06	5:30 PM	23.4	23.7	23.2	2.2	3.5	NE	30
01/04/06	6:00 PM	23.0	23.2	22.7	1.5	2.8	NEE	30
01/04/06	6:30 PM	22.8	22.9	22.5	1.2	2.6	NEE	30
01/04/06	7:00 PM	22.7	22.9	22.6	1.4	1.9	NE	30
01/04/06	7:30 PM	22.5	22.8	22.3	0.7	2.9	N	30
01/04/06	8:00 PM	22.4	22.4	22.1	0.5	2.7	N	30
01/04/06	8:30 PM	22.1	22.3	21.9	0.2	2.1	N	30
01/04/06	9:00 PM	21.9	22.2	21.6	1.6	3.2	NE	30
01/04/06	9:30 PM	21.7	21.9	21.5	1.5	2.0	NEE	30
01/04/06	10:00 PM	21.5	21.7	21.4	2.1	2.2	NEE	30
01/04/06	10:30 PM	21.4	21.6	21.2	1.8	3.7	NEE	30
01/04/06	11:00 PM	21.4	21.7	21.4	2.4	3.1	NE	30
01/04/06	11:30 PM	21.3	21.5	21.2	2.1	3.4	NE	30
02/04/06	12:00 AM	21.3	21.4	21.1	1.6	2.3	NE	30
02/04/06	12:30 AM	21.2	21.5	21.1	1.2	1.3	N	30
02/04/06	1:00 AM	21.2	21.2	21.1	1.3	1.5	NEE	30
02/04/06	1:30 AM	21.1	21.2	20.8	1.4	2.0	NE	30
02/04/06	2:00 AM	21.2	21.4	21.0	0.9	2.7	NE	30
02/04/06	2:30 AM	21.1	21.1	20.9	0.2	0.2	NE	30
02/04/06	3:00 AM	21.1	21.3	20.9	0.4	2.3	NE	30
02/04/06	3:30 AM	21.1	21.3	20.9	1.3	2.4	NEE	30
02/04/06	4:00 AM	21.0	21.2	20.9	1.9	2.1	NEE	30
02/04/06	4:30 AM	21.1	21.2	20.9	2.3	2.7	NEE	30
02/04/06	5:00 AM	21.1	21.2	20.8	2.5	3.3	NEE	30
02/04/06	5:30 AM	21.2	21.6	20.9	1.6	2.9	NEE	30
02/04/06	6:00 AM	21.4	21.8	21.3	1.4	2.1	NE	30
02/04/06	6:30 AM	21.5	21.5	21.2	1.9	2.9	NE	30
02/04/06	7:00 AM	21.9	22.1	21.8	1.1	1.4	NE	30
02/04/06	7:30 AM	22.0	22.2	21.8	0.8	2.4	N	30
02/04/06	8:00 AM	22.3	22.5	22.3	0.2	2.0	NE	30
02/04/06	8:30 AM	22.6	22.7	22.4	0.4	2.4	NE	30
02/04/06	9:00 AM	22.8	22.9	22.7	0.3	0.3	N	30
02/04/06	9:30 AM	23.0	23.0	22.9	0.2	1.3	NE	30
02/04/06	10:00 AM	23.0	23.4	22.8	0.3	0.9	NE	30
02/04/06	10:30 AM	23.2	23.4	22.9	0.0	1.9	N	30
02/04/06	11:00 AM	23.2	23.3	23.1	0.0	2.1	N	30
02/04/06	11:30 AM	24.0	24.0	23.8	0.0	1.0	N	30
02/04/06	12:00 PM	24.8	25.2	24.7	0.0	0.4	N	30
02/04/06	12:30 PM	24.3	24.3	24.0	0.0	2.3	N	30
02/04/06	1:00 PM	24.2	24.3	24.1	0.0	1.1	N	30
02/04/06	1:30 PM	24.3	24.3	24.0	0.4	1.8	SES	30
02/04/06	2:00 PM	24.3	24.3	24.2	0.5	2.6	SE	30
02/04/06	2:30 PM	24.5	24.6	24.3	0.7	2.9	SES	30
02/04/06	3:00 PM	24.7	25.0	24.6	0.1	0.3	N	30
02/04/06	3:30 PM	25.2	25.2	25.0	0.0	1.7	N	30
02/04/06	4:00 PM	25.0	25.0	24.8	0.1	2.0	N	30
02/04/06	4:30 PM	24.3	24.5	24.1	0.0	1.7	N	30
02/04/06	5:00 PM	24.0	24.2	24.0	0.0	0.3	N	30
02/04/06	5:30 PM	23.7	24.0	23.5	0.0	0.7	N	30
02/04/06	6:00 PM	23.3	23.6	23.1	0.0	0.6	N	30
02/04/06	6:30 PM	22.9	23.3	22.8	0.0	0.9	N	30
02/04/06	7:00 PM	22.7	22.9	22.4	0.0	0.6	N	30
02/04/06	7:30 PM	22.3	22.4	22.3	0.0	1.6	N	30
02/04/06	8:00 PM	22.2	22.4	22.1	0.0	0.6	N	30
02/04/06	8:30 PM	22.2	22.3	22.1	0.1	2.4	N	30
02/04/06	9:00 PM	22.1	22.3	21.9	0.0	0.1	N	30
02/04/06	9:30 PM	22.1	22.3	21.9	0.0	1.5	N	30
02/04/06	10:00 PM	22.0	22.3	21.9	0.0	1.6	N	30
02/04/06	10:30 PM	22.0	22.2	21.7	0.2	0.7	N	30
02/04/06	11:00 PM	22.0	22.2	21.9	0.0	1.0	N	30
02/04/06	11:30 PM	21.9	21.9	21.7	0.0	1.6	N	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
03/04/06	12:00 AM	21.8	21.8	21.8	0.0	0.6	N	30
03/04/06	12:30 AM	21.7	22.0	21.6	0.0	0.4	N	30
03/04/06	1:00 AM	21.7	21.7	21.6	0.0	1.4	N	30
03/04/06	1:30 AM	21.6	21.7	21.3	0.0	0.0	N	30
03/04/06	2:00 AM	21.6	21.7	21.6	0.0	1.2	N	30
03/04/06	2:30 AM	21.5	21.8	21.4	0.0	0.3	N	30
03/04/06	3:00 AM	21.6	21.9	21.4	0.1	2.0	W	30
03/04/06	3:30 AM	21.7	21.8	21.5	0.0	2.1	N	30
03/04/06	4:00 AM	21.3	21.5	21.2	0.2	1.6	N	30
03/04/06	4:30 AM	21.3	21.4	21.0	0.1	0.6	N	30
03/04/06	5:00 AM	21.2	21.3	21.1	0.0	1.3	N	30
03/04/06	5:30 AM	21.2	21.3	21.1	0.0	1.0	N	30
03/04/06	6:00 AM	21.2	21.2	21.2	0.0	0.1	N	30
03/04/06	6:30 AM	21.1	21.1	20.9	0.0	2.1	N	30
03/04/06	7:00 AM	21.3	21.6	21.2	0.0	1.5	N	30
03/04/06	7:30 AM	21.8	22.1	21.7	0.0	1.9	N	30
03/04/06	8:00 AM	22.3	22.7	22.2	0.0	0.6	N	30
03/04/06	8:30 AM	23.8	24.0	23.8	1.5	3.6	NEE	30
03/04/06	9:00 AM	24.4	24.7	24.2	1.6	2.1	NEE	30
03/04/06	9:30 AM	24.6	24.7	24.6	2.8	2.9	E	30
03/04/06	10:00 AM	24.1	24.3	23.9	2.0	3.2	NE	30
03/04/06	10:30 AM	24.3	24.5	24.1	2.1	2.3	NE	30
03/04/06	11:00 AM	24.7	24.9	24.4	2.1	3.7	N	30
03/04/06	11:30 AM	25.0	25.1	24.9	2.5	2.7	NE	30
03/04/06	12:00 PM	25.1	25.5	24.8	3.3	4.0	NEN	30
03/04/06	12:30 PM	26.2	26.2	26.0	2.2	3.9	E	30
03/04/06	1:00 PM	25.6	25.8	25.5	1.2	2.7	SE	30
03/04/06	1:30 PM	26.3	26.6	26.2	1.6	3.2	E	30
03/04/06	2:00 PM	25.8	26.0	25.6	3.2	4.5	NEN	30
03/04/06	2:30 PM	25.7	26.0	25.5	1.6	3.3	SE	30
03/04/06	3:00 PM	25.6	25.8	25.5	3.3	3.6	NE	30
03/04/06	3:30 PM	25.0	25.4	24.9	2.4	3.9	NE	30
03/04/06	4:00 PM	25.3	25.4	25.2	2.7	3.9	NE	30
03/04/06	4:30 PM	24.2	24.5	24.1	3.1	4.9	NE	30
03/04/06	5:00 PM	24.2	24.5	24.0	2.8	4.3	NE	30
03/04/06	5:30 PM	23.8	24.0	23.6	2.0	3.7	SE	30
03/04/06	6:00 PM	23.8	24.1	23.5	1.2	1.8	SE	30
03/04/06	6:30 PM	23.6	23.9	23.3	2.0	2.1	SEE	30
03/04/06	7:00 PM	23.4	23.6	23.4	0.1	2.3	N	30
03/04/06	7:30 PM	23.3	23.3	23.3	1.0	3.0	E	30
03/04/06	8:00 PM	23.2	23.5	22.9	1.6	2.8	SE	30
03/04/06	8:30 PM	23.2	23.2	23.0	0.6	0.8	N	30
03/04/06	9:00 PM	23.0	23.1	23.0	1.5	1.8	SE	30
03/04/06	9:30 PM	23.0	23.3	22.9	0.3	2.5	E	30
03/04/06	10:00 PM	22.7	22.7	22.6	1.7	3.3	NEN	30
03/04/06	10:30 PM	22.6	22.7	22.5	0.3	1.2	NE	30
03/04/06	11:00 PM	22.7	22.7	22.6	0.2	1.6	N	30
03/04/06	11:30 PM	22.8	22.9	22.8	0.1	0.9	SE	30
04/04/06	12:00 AM	22.9	23.3	22.7	0.2	1.1	SE	30
04/04/06	12:30 AM	23.0	23.1	22.8	0.8	2.4	NEE	30
04/04/06	1:00 AM	23.1	23.2	23.0	1.6	2.9	SEE	30
04/04/06	1:30 AM	23.1	23.4	23.1	0.8	2.1	E	30
04/04/06	2:00 AM	23.2	23.4	23.2	0.3	2.5	N	30
04/04/06	2:30 AM	23.2	23.3	23.1	1.6	3.1	E	30
04/04/06	3:00 AM	23.3	23.6	23.2	0.2	1.0	N	30
04/04/06	3:30 AM	23.2	23.3	23.2	0.2	0.4	N	30
04/04/06	4:00 AM	23.2	23.6	23.0	0.1	0.7	N	30
04/04/06	4:30 AM	23.3	23.4	23.2	0.1	1.6	N	30
04/04/06	5:00 AM	23.2	23.5	23.1	0.0	0.2	N	30
04/04/06	5:30 AM	23.3	23.5	23.1	0.0	1.1	N	30
04/04/06	6:00 AM	23.2	23.6	22.9	0.0	0.7	N	30
04/04/06	6:30 AM	23.1	23.2	23.0	0.0	1.4	N	30
04/04/06	7:00 AM	23.2	23.5	23.0	0.0	1.5	N	30
04/04/06	7:30 AM	23.8	23.9	23.8	0.0	0.3	N	30
04/04/06	8:00 AM	24.1	24.2	23.9	1.7	3.6	E	30
04/04/06	8:30 AM	24.3	24.4	24.1	1.6	3.1	S	30
04/04/06	9:00 AM	24.8	25.2	24.6	0.8	2.0	SW	30
04/04/06	9:30 AM	24.8	25.0	24.8	0.7	0.8	SW	30
04/04/06	10:00 AM	25.2	25.6	25.0	1.2	3.4	SW	30
04/04/06	10:30 AM	25.9	26.1	25.7	1.3	2.9	SW	30
04/04/06	11:00 AM	26.4	26.5	26.3	1.8	2.6	S	30
04/04/06	11:30 AM	27.0	27.3	26.8	0.4	2.6	S	30
04/04/06	12:00 PM	27.8	28.0	27.8	0.9	2.4	SW	30
04/04/06	12:30 PM	27.6	27.8	27.6	1.2	2.0	SW	30
04/04/06	1:00 PM	27.5	27.7	27.4	1.9	3.1	SW	30
04/04/06	1:30 PM	27.4	27.7	27.2	2.0	3.8	S	30
04/04/06	2:00 PM	27.2	27.4	27.0	1.3	2.8	S	30
04/04/06	2:30 PM	27.0	27.1	26.8	1.6	2.2	S	30
04/04/06	3:00 PM	26.8	27.1	26.6	1.9	2.7	S	30
04/04/06	3:30 PM	26.7	27.1	26.6	2.1	2.6	SE	30
04/04/06	4:00 PM	26.4	26.6	26.2	1.7	1.9	S	30
04/04/06	4:30 PM	26.1	26.2	26.0	2.2	2.5	SW	30
04/04/06	5:00 PM	25.7	26.1	25.6	1.8	3.3	SW	30
04/04/06	5:30 PM	25.4	25.8	25.1	0.4	0.9	S	30
04/04/06	6:00 PM	25.3	25.6	25.2	0.9	0.9	SW	30
04/04/06	6:30 PM	25.3	25.6	25.1	1.2	3.3	S	30
04/04/06	7:00 PM	25.2	25.3	25.0	1.6	3.2	S	30
04/04/06	7:30 PM	25.0	25.3	25.0	1.2	2.4	S	30
04/04/06	8:00 PM	25.0	25.3	24.7	1.5	2.2	S	30
04/04/06	8:30 PM	25.0	25.3	24.9	1.5	3.4	SW	30
04/04/06	9:00 PM	24.9	25.1	24.6	1.9	3.5	SW	30
04/04/06	9:30 PM	25.0	25.1	24.7	1.0	1.5	SW	30
04/04/06	10:00 PM	24.8	24.8	24.6	0.8	1.2	SW	30
04/04/06	10:30 PM	24.8	25.2	24.8	1.2	1.3	S	30
04/04/06	11:00 PM	24.8	24.8	24.6	1.3	1.8	S	30
04/04/06	11:30 PM	24.9	25.3	24.8	1.9	2.1	S	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
05/04/06	12:00 AM	24.8	25.1	24.6	2.2	3.7	S	30
05/04/06	12:30 AM	24.7	25.1	24.5	1.5	3.4	SES	30
05/04/06	1:00 AM	24.7	25.0	24.6	1.6	3.2	S	30
05/04/06	1:30 AM	24.7	25.1	24.5	1.1	1.2	S	30
05/04/06	2:00 AM	24.7	25.1	24.7	1.9	2.6	S	30
05/04/06	2:30 AM	24.7	25.0	24.4	1.0	2.4	SW	30
05/04/06	3:00 AM	24.8	25.1	24.6	1.8	2.0	SW	30
05/04/06	3:30 AM	24.7	25.1	24.4	1.3	2.7	S	30
05/04/06	4:00 AM	24.7	24.9	24.6	1.8	3.5	SW	30
05/04/06	4:30 AM	24.6	24.8	24.6	0.9	1.1	W	30
05/04/06	5:00 AM	24.7	24.8	24.7	1.6	2.2	SW	30
05/04/06	5:30 AM	24.8	24.8	24.8	1.9	2.9	S	30
05/04/06	6:00 AM	25.0	25.0	24.8	2.2	4.1	S	30
05/04/06	6:30 AM	25.2	25.3	25.0	1.3	2.0	S	30
05/04/06	7:00 AM	25.4	25.7	25.3	1.2	2.8	SW	30
05/04/06	7:30 AM	25.9	26.0	25.9	0.4	2.4	SW	30
05/04/06	8:00 AM	26.2	26.5	26.1	1.3	3.4	SW	30
05/04/06	8:30 AM	26.7	26.8	26.4	1.9	2.6	SW	30
05/04/06	9:00 AM	26.8	27.1	26.6	2.4	3.6	SW	30
05/04/06	9:30 AM	27.0	27.3	27.0	2.1	2.6	S	30
05/04/06	10:00 AM	27.2	27.2	27.1	1.7	3.8	S	30
05/04/06	10:30 AM	27.6	27.9	27.3	1.3	2.8	S	30
05/04/06	11:00 AM	27.9	28.1	27.8	1.9	3.1	SW	30
05/04/06	11:30 AM	28.2	28.4	28.1	2.1	3.0	SW	30
05/04/06	12:00 PM	28.5	28.7	28.3	1.8	2.9	S	30
05/04/06	12:30 PM	29.0	29.4	28.8	1.6	2.5	S	30
05/04/06	1:00 PM	29.0	29.4	29.0	2.5	3.9	S	30
05/04/06	1:30 PM	29.6	29.7	29.5	1.5	2.2	S	30
05/04/06	2:00 PM	30.0	30.1	30.0	1.7	1.8	S	30
05/04/06	2:30 PM	29.8	30.1	29.8	1.8	2.7	S	30
05/04/06	3:00 PM	29.0	29.4	28.9	2.1	3.1	S	30
05/04/06	3:30 PM	28.7	29.0	28.4	1.3	2.1	SW	30
05/04/06	4:00 PM	28.1	28.2	28.1	0.8	0.9	S	30
05/04/06	4:30 PM	28.0	28.2	27.9	1.7	2.7	S	30
05/04/06	5:00 PM	27.7	27.7	27.7	1.7	3.5	SES	30
05/04/06	5:30 PM	27.3	27.5	27.1	1.6	3.6	S	30
05/04/06	6:00 PM	27.0	27.0	26.8	0.8	1.4	SE	30
05/04/06	6:30 PM	26.6	26.6	26.4	1.2	3.3	SE	30
05/04/06	7:00 PM	26.0	26.0	25.9	0.4	1.3	S	30
05/04/06	7:30 PM	26.0	26.1	25.7	0.8	0.9	SE	30
05/04/06	8:00 PM	25.7	26.0	25.5	1.2	3.4	SE	30
05/04/06	8:30 PM	25.3	25.6	25.1	0.5	2.3	SE	30
05/04/06	9:00 PM	25.1	25.1	25.1	1.2	1.5	S	30
05/04/06	9:30 PM	25.0	25.4	24.9	0.2	2.3	SE	30
05/04/06	10:00 PM	25.0	25.2	24.9	0.1	0.9	N	30
05/04/06	10:30 PM	25.0	25.1	24.7	0.3	1.5	SE	30
05/04/06	11:00 PM	24.9	24.9	24.7	0.2	0.8	S	30
05/04/06	11:30 PM	24.7	24.8	24.7	0.1	0.4	E	30
06/04/06	12:00 AM	24.6	24.9	24.3	0.1	1.5	N	30
06/04/06	12:30 AM	24.5	24.8	24.5	0.3	0.7	S	30
06/04/06	1:00 AM	24.7	24.9	24.5	0.2	1.3	S	30
06/04/06	1:30 AM	24.7	24.9	24.7	0.2	1.9	S	30
06/04/06	2:00 AM	24.8	25.0	24.6	1.1	2.2	SWS	30
06/04/06	2:30 AM	24.9	24.9	24.9	0.1	1.1	N	30
06/04/06	3:00 AM	24.6	24.8	24.4	1.0	1.8	S	30
06/04/06	3:30 AM	24.6	25.0	24.5	0.1	1.6	N	30
06/04/06	4:00 AM	24.1	24.3	24.0	0.7	1.7	SW	30
06/04/06	4:30 AM	24.1	24.3	24.0	0.7	2.6	SW	30
06/04/06	5:00 AM	24.1	24.3	23.8	0.1	2.2	SW	30
06/04/06	5:30 AM	24.1	24.5	24.0	0.1	1.9	N	30
06/04/06	6:00 AM	24.2	24.3	24.2	0.2	2.3	N	30
06/04/06	6:30 AM	24.1	24.3	24.1	0.0	0.9	N	30
06/04/06	7:00 AM	24.6	25.0	24.4	0.5	0.8	N	30
06/04/06	7:30 AM	24.8	25.2	24.7	0.0	0.3	N	30
06/04/06	8:00 AM	25.2	25.6	25.0	0.8	1.4	SW	30
06/04/06	8:30 AM	25.5	25.7	25.2	0.8	2.6	S	30
06/04/06	9:00 AM	26.3	26.3	26.0	0.8	2.5	S	30
06/04/06	9:30 AM	25.3	25.3	25.3	3.0	5.1	E	30
06/04/06	10:00 AM	23.5	23.7	23.4	4.1	5.9	NE	30
06/04/06	10:30 AM	22.7	23.0	22.6	2.1	4.2	NE	30
06/04/06	11:00 AM	22.1	22.3	22.1	3.8	4.3	NE	30
06/04/06	11:30 AM	22.0	22.2	21.9	2.0	4.2	E	30
06/04/06	12:00 PM	21.8	22.0	21.7	3.5	4.5	NE	30
06/04/06	12:30 PM	21.7	22.1	21.5	2.7	4.5	NE	30
06/04/06	1:00 PM	21.7	21.8	21.5	2.9	4.0	NE	30
06/04/06	1:30 PM	21.5	21.5	21.5	2.1	3.5	NE	30
06/04/06	2:00 PM	21.6	21.8	21.4	2.9	3.3	NE	30
06/04/06	2:30 PM	21.6	22.0	21.5	2.9	4.7	NE	30
06/04/06	3:00 PM	21.5	21.8	21.4	2.8	3.0	N	30
06/04/06	3:30 PM	21.4	21.5	21.3	3.0	3.6	NEN	30
06/04/06	4:00 PM	21.5	21.7	21.3	1.7	2.4	NE	30
06/04/06	4:30 PM	21.2	21.4	21.0	2.4	3.8	N	30
06/04/06	5:00 PM	21.2	21.4	21.1	3.2	4.6	N	30
06/04/06	5:30 PM	21.0	21.1	21.0	2.2	4.3	N	30
06/04/06	6:00 PM	21.1	21.2	20.9	2.1	3.9	N	30
06/04/06	6:30 PM	21.3	21.5	21.0	1.6	2.5	NE	30
06/04/06	7:00 PM	21.3	21.5	21.1	1.7	4.0	N	30
06/04/06	7:30 PM	21.2	21.5	21.1	2.1	3.7	N	30
06/04/06	8:00 PM	21.2	21.3	21.1	1.5	3.1	NE	30
06/04/06	8:30 PM	21.1	21.2	20.8	1.7	3.1	N	30
06/04/06	9:00 PM	21.1	21.4	20.9	1.1	3.3	NEN	30
06/04/06	9:30 PM	21.2	21.6	21.1	1.4	3.4	N	30
06/04/06	10:00 PM	21.3	21.4	21.0	1.7	2.8	N	30
06/04/06	10:30 PM	21.4	21.5	21.4	1.7	1.8	NE	30
06/04/06	11:00 PM	21.5	21.7	21.2	2.2	2.5	N	30
06/04/06	11:30 PM	21.6	21.7	21.6	2.2	3.1	N	30





Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
07/04/06	12:00 AM	21.6	22.0	21.5	2.3	3.3	N	30
07/04/06	12:30 AM	21.7	21.7	21.7	2.1	3.8	NEN	30
07/04/06	1:00 AM	21.8	22.0	21.8	2.0	3.3	NEN	30
07/04/06	1:30 AM	21.6	21.9	21.5	1.7	3.2	N	30
07/04/06	2:00 AM	21.6	21.7	21.3	1.0	2.7	N	30
07/04/06	2:30 AM	21.6	21.9	21.5	1.1	2.2	N	30
07/04/06	3:00 AM	21.4	21.6	21.1	1.8	2.7	NE	30
07/04/06	3:30 AM	21.5	21.7	21.4	1.8	2.3	NE	30
07/04/06	4:00 AM	21.4	21.6	21.4	1.7	2.1	N	30
07/04/06	4:30 AM	21.3	21.7	21.1	2.1	2.9	N	30
07/04/06	5:00 AM	21.3	21.6	21.2	2.1	2.5	N	30
07/04/06	5:30 AM	21.2	21.2	20.9	1.2	3.4	N	30
07/04/06	6:00 AM	21.2	21.2	21.0	1.7	2.8	N	30
07/04/06	6:30 AM	21.2	21.5	21.1	0.7	2.2	E	30
07/04/06	7:00 AM	21.3	21.3	21.2	1.6	2.3	E	30
07/04/06	7:30 AM	21.2	21.4	21.2	1.6	3.1	SE	30
07/04/06	8:00 AM	21.1	21.3	20.8	1.7	3.5	SEE	30
07/04/06	8:30 AM	21.0	21.3	20.9	1.4	3.0	E	30
07/04/06	9:00 AM	21.1	21.2	20.9	1.2	1.2	NE	30
07/04/06	9:30 AM	21.3	21.3	21.2	1.5	1.6	E	30
07/04/06	10:00 AM	21.6	21.6	21.6	1.6	2.8	NE	30
07/04/06	10:30 AM	21.6	21.7	21.4	1.7	2.2	N	30
07/04/06	11:00 AM	22.0	22.3	21.8	2.2	4.1	N	30
07/04/06	11:30 AM	22.2	22.3	22.2	1.6	3.5	NE	30
07/04/06	12:00 PM	21.4	21.7	21.1	2.3	4.2	NE	30
07/04/06	12:30 PM	21.8	22.0	21.6	1.3	2.4	N	30
07/04/06	1:00 PM	21.7	21.8	21.5	2.1	2.2	N	30
07/04/06	1:30 PM	22.0	22.1	22.0	2.0	2.7	NE	30
07/04/06	2:00 PM	22.0	22.2	21.7	2.8	4.5	NEN	30
07/04/06	2:30 PM	21.8	21.8	21.8	2.4	4.7	NEN	30
07/04/06	3:00 PM	21.9	22.0	21.8	2.5	3.1	NEN	30
07/04/06	3:30 PM	21.8	21.9	21.5	2.4	3.9	NE	30
07/04/06	4:00 PM	21.6	21.8	21.3	3.1	3.9	NE	30
07/04/06	4:30 PM	21.6	21.8	21.3	3.9	5.4	NE	30
07/04/06	5:00 PM	21.0	21.1	20.9	2.5	4.1	NE	30
07/04/06	5:30 PM	20.6	20.7	20.4	2.6	3.3	NE	30
07/04/06	6:00 PM	20.5	20.8	20.3	2.5	4.6	NE	30
07/04/06	6:30 PM	20.5	20.7	20.5	0.3	0.6	N	30
07/04/06	7:00 PM	20.5	20.8	20.3	1.7	3.8	SEE	30
07/04/06	7:30 PM	20.7	20.9	20.6	0.7	2.2	SE	30
07/04/06	8:00 PM	20.8	21.1	20.6	1.6	3.1	SE	30
07/04/06	8:30 PM	20.6	20.9	20.3	1.3	2.2	N	30
07/04/06	9:00 PM	20.5	20.6	20.3	0.8	1.8	N	30
07/04/06	9:30 PM	21.0	21.3	20.9	1.6	3.1	NE	30
07/04/06	10:00 PM	21.0	21.2	20.9	1.8	2.6	NE	30
07/04/06	10:30 PM	21.0	21.1	21.0	2.5	4.5	NE	30
07/04/06	11:00 PM	21.0	21.1	20.7	3.1	5.1	NE	30
07/04/06	11:30 PM	20.8	21.0	20.7	3.3	3.9	NEN	30
08/04/06	12:00 AM	20.7	21.0	20.6	2.6	2.6	NE	30
08/04/06	12:30 AM	20.3	20.5	20.3	3.3	4.3	NE	30
08/04/06	1:00 AM	20.0	20.3	19.7	2.8	4.8	NE	30
08/04/06	1:30 AM	20.0	20.3	19.8	2.9	5.0	NE	30
08/04/06	2:00 AM	19.8	19.9	19.6	3.1	5.1	N	30
08/04/06	2:30 AM	19.9	20.0	19.6	1.7	2.8	N	30
08/04/06	3:00 AM	19.8	19.9	19.6	2.2	3.2	N	30
08/04/06	3:30 AM	19.6	20.0	19.3	0.9	2.2	NE	30
08/04/06	4:00 AM	19.5	19.8	19.3	2.3	4.5	NE	30
08/04/06	4:30 AM	19.5	19.8	19.4	1.8	3.1	NEN	30
08/04/06	5:00 AM	19.5	19.5	19.3	1.7	3.1	NE	30
08/04/06	5:30 AM	19.6	20.0	19.6	2.1	2.3	NE	30
08/04/06	6:00 AM	19.8	20.0	19.5	1.8	1.8	N	30
08/04/06	6:30 AM	19.8	19.9	19.6	1.6	3.1	NE	30
08/04/06	7:00 AM	20.0	20.2	19.8	1.6	3.3	N	30
08/04/06	7:30 AM	20.5	20.7	20.5	2.4	3.4	N	30
08/04/06	8:00 AM	20.7	20.9	20.4	2.4	3.9	NE	30
08/04/06	8:30 AM	20.9	20.9	20.7	2.5	2.9	NE	30
08/04/06	9:00 AM	21.0	21.1	20.9	2.6	2.6	NE	30
08/04/06	9:30 AM	21.0	21.3	21.0	2.8	3.2	NE	30
08/04/06	10:00 AM	21.8	22.1	21.6	3.1	4.0	N	30
08/04/06	10:30 AM	22.2	22.3	22.0	2.5	3.0	NE	30
08/04/06	11:00 AM	22.5	22.6	22.2	2.0	2.9	NE	30
08/04/06	11:30 AM	22.5	22.7	22.2	1.8	3.0	N	30
08/04/06	12:00 PM	22.9	23.3	22.9	1.4	1.9	NEE	30
08/04/06	12:30 PM	23.1	23.4	22.9	1.9	2.8	E	30
08/04/06	1:00 PM	23.3	23.7	23.2	2.2	4.3	E	30
08/04/06	1:30 PM	23.9	23.9	23.9	2.3	3.9	E	30
08/04/06	2:00 PM	24.0	24.2	24.0	2.1	4.4	NE	30
08/04/06	2:30 PM	23.8	24.1	23.8	2.8	4.0	NE	30
08/04/06	3:00 PM	23.8	23.9	23.6	2.5	3.0	NE	30
08/04/06	3:30 PM	23.4	23.4	23.2	2.1	4.1	NE	30
08/04/06	4:00 PM	23.0	23.3	22.8	1.4	2.5	N	30
08/04/06	4:30 PM	22.6	22.7	22.6	1.9	2.3	NE	30
08/04/06	5:00 PM	22.4	22.7	22.4	2.1	3.4	NE	30
08/04/06	5:30 PM	22.5	22.5	22.4	2.3	3.1	NE	30
08/04/06	6:00 PM	22.1	22.5	21.9	2.7	2.7	E	30
08/04/06	6:30 PM	21.7	22.1	21.5	2.5	3.7	E	30
08/04/06	7:00 PM	21.7	22.0	21.7	2.1	3.6	E	30
08/04/06	7:30 PM	21.6	21.7	21.4	1.8	3.1	E	30
08/04/06	8:00 PM	21.8	22.0	21.6	2.3	3.2	E	30
08/04/06	8:30 PM	21.6	21.8	21.4	0.9	2.8	NE	30
08/04/06	9:00 PM	21.4	21.7	21.3	1.8	2.0	NE	30
08/04/06	9:30 PM	21.3	21.6	21.3	1.9	2.4	NE	30
08/04/06	10:00 PM	21.2	21.6	21.1	2.1	2.8	NE	30
08/04/06	10:30 PM	21.0	21.3	20.8	2.6	2.7	NE	30
08/04/06	11:00 PM	21.1	21.3	21.0	2.1	2.4	NE	30
08/04/06	11:30 PM	21.1	21.3	20.9	2.6	4.2	NEE	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
09/04/06	12:00 AM	21.1	21.1	21.0	1.4	2.5	E	30
09/04/06	12:30 AM	21.0	21.1	20.8	1.8	3.0	NE	30
09/04/06	1:00 AM	21.0	21.1	20.8	2.1	3.0	NE	30
09/04/06	1:30 AM	21.0	21.3	20.9	1.4	2.0	N	30
09/04/06	2:00 AM	21.1	21.5	21.0	1.2	1.6	E	30
09/04/06	2:30 AM	21.3	21.4	21.2	1.0	2.0	N	30
09/04/06	3:00 AM	21.1	21.3	21.1	1.9	2.0	N	30
09/04/06	3:30 AM	21.0	21.2	20.9	1.5	2.9	NE	30
09/04/06	4:00 AM	21.0	21.2	21.0	1.9	3.7	NE	30
09/04/06	4:30 AM	20.9	20.9	20.8	2.0	3.6	N	30
09/04/06	5:00 AM	20.9	21.3	20.6	3.1	4.4	N	30
09/04/06	5:30 AM	20.9	21.3	20.8	2.5	2.6	N	30
09/04/06	6:00 AM	21.1	21.1	21.0	1.3	3.4	N	30
09/04/06	6:30 AM	21.3	21.5	21.3	1.5	2.3	N	30
09/04/06	7:00 AM	21.6	21.6	21.4	1.2	1.5	N	30
09/04/06	7:30 AM	21.7	21.8	21.5	1.9	4.1	N	30
09/04/06	8:00 AM	21.9	22.0	21.8	2.3	3.5	NE	30
09/04/06	8:30 AM	22.1	22.1	22.0	1.4	2.5	NE	30
09/04/06	9:00 AM	22.1	22.4	22.0	1.9	3.2	NE	30
09/04/06	9:30 AM	22.4	22.4	22.2	2.3	4.0	N	30
09/04/06	10:00 AM	22.4	22.7	22.2	1.8	2.4	N	30
09/04/06	10:30 AM	22.5	22.6	22.4	1.1	1.5	NE	30
09/04/06	11:00 AM	22.6	22.8	22.4	2.1	3.2	NE	30
09/04/06	11:30 AM	23.0	23.3	22.8	1.4	3.1	E	30
09/04/06	12:00 PM	23.1	23.3	23.1	1.3	1.5	NE	30
09/04/06	12:30 PM	23.7	23.9	23.6	1.8	3.9	NE	30
09/04/06	1:00 PM	23.8	23.9	23.7	1.9	2.0	NE	30
09/04/06	1:30 PM	23.6	23.7	23.4	1.1	3.1	NE	30
09/04/06	2:00 PM	24.0	24.1	23.9	1.0	2.4	NE	30
09/04/06	2:30 PM	24.4	24.6	24.3	1.6	3.5	E	30
09/04/06	3:00 PM	24.8	24.9	24.6	1.2	2.1	NE	30
09/04/06	3:30 PM	24.7	24.9	24.5	0.1	1.4	N	30
09/04/06	4:00 PM	25.0	25.0	24.9	0.2	0.4	N	30
09/04/06	4:30 PM	24.8	25.0	24.7	0.0	0.0	N	30
09/04/06	5:00 PM	24.7	24.7	24.6	0.8	1.0	SWS	30
09/04/06	5:30 PM	24.7	24.8	24.6	0.1	0.9	N	30
09/04/06	6:00 PM	24.6	25.0	24.3	0.0	0.2	N	30
09/04/06	6:30 PM	24.5	24.6	24.4	1.2	2.4	N	30
09/04/06	7:00 PM	24.1	24.3	24.0	0.4	2.3	S	30
09/04/06	7:30 PM	23.9	23.9	23.7	0.3	2.0	E	30
09/04/06	8:00 PM	23.8	23.9	23.6	0.0	2.1	N	30
09/04/06	8:30 PM	23.8	23.8	23.7	0.5	0.5	SW	30
09/04/06	9:00 PM	23.7	24.0	23.5	0.0	1.2	N	30
09/04/06	9:30 PM	23.6	24.0	23.6	0.0	0.6	N	30
09/04/06	10:00 PM	23.3	23.6	23.3	0.2	2.0	N	30
09/04/06	10:30 PM	23.4	23.6	23.4	0.2	1.4	N	30
09/04/06	11:00 PM	23.4	23.6	23.3	0.0	0.1	N	30
09/04/06	11:30 PM	23.3	23.6	23.2	0.0	2.1	N	30
10/04/06	12:00 AM	23.4	23.8	23.3	0.3	1.4	SW	30
10/04/06	12:30 AM	23.6	23.8	23.5	0.5	1.7	SW	30
10/04/06	1:00 AM	23.7	23.7	23.7	0.0	0.6	N	30
10/04/06	1:30 AM	23.8	24.1	23.6	0.0	1.5	N	30
10/04/06	2:00 AM	23.8	23.9	23.8	0.0	0.3	N	30
10/04/06	2:30 AM	23.8	24.1	23.7	0.8	1.4	N	30
10/04/06	3:00 AM	24.0	24.1	23.8	0.2	1.0	N	30
10/04/06	3:30 AM	25.2	25.6	25.2	2.7	4.3	SW	30
10/04/06	4:00 AM	24.9	25.3	24.7	0.8	2.7	S	30
10/04/06	4:30 AM	25.0	25.1	24.7	1.7	3.0	SW	30
10/04/06	5:00 AM	25.3	25.4	25.3	2.1	2.6	S	30
10/04/06	5:30 AM	25.4	25.7	25.1	2.2	2.8	SW	30
10/04/06	6:00 AM	25.8	26.1	25.7	1.7	1.8	SW	30
10/04/06	6:30 AM	25.9	26.3	25.9	2.1	2.3	SW	30
10/04/06	7:00 AM	26.0	26.1	25.7	3.0	3.4	SW	30
10/04/06	7:30 AM	26.0	26.2	25.8	3.0	3.1	SW	30
10/04/06	8:00 AM	26.4	26.5	26.1	2.9	4.6	SW	30
10/04/06	8:30 AM	26.5	26.8	26.4	2.5	3.9	SW	30
10/04/06	9:00 AM	27.2	27.6	27.1	1.8	3.8	SW	30
10/04/06	9:30 AM	27.5	27.6	27.3	2.8	3.1	SW	30
10/04/06	10:00 AM	28.5	28.6	28.5	2.3	3.3	SW	30
10/04/06	10:30 AM	28.4	28.4	28.2	3.3	5.4	SW	30
10/04/06	11:00 AM	27.7	28.1	27.4	2.9	2.9	SW	30
10/04/06	11:30 AM	27.5	27.6	27.5	3.6	4.9	SW	30
10/04/06	12:00 PM	27.9	28.2	27.7	2.8	3.3	SW	30
10/04/06	12:30 PM	27.6	27.8	27.4	2.7	3.5	S	30
10/04/06	1:00 PM	27.9	28.3	27.6	2.5	3.1	S	30
10/04/06	1:30 PM	27.9	27.9	27.7	2.6	3.1	SW	30
10/04/06	2:00 PM	27.8	28.0	27.8	3.6	3.6	SWS	30
10/04/06	2:30 PM	27.8	28.2	27.6	3.3	5.1	SWS	30
10/04/06	3:00 PM	27.8	28.1	27.7	3.7	5.7	SW	30
10/04/06	3:30 PM	27.7	27.7	27.6	4.3	5.2	SW	30
10/04/06	4:00 PM	27.7	28.0	27.5	3.5	4.0	SW	30
10/04/06	4:30 PM	27.5	27.8	27.4	3.1	4.9	SW	30
10/04/06	5:00 PM	27.4	27.6	27.3	3.2	3.8	SW	30
10/04/06	5:30 PM	27.3	27.5	27.1	2.5	4.4	SW	30
10/04/06	6:00 PM	27.1	27.4	27.0	2.0	3.7	SWS	30
10/04/06	6:30 PM	27.0	27.3	27.0	2.4	3.8	SW	30
10/04/06	7:00 PM	26.9	27.2	26.8	2.2	2.5	SW	30
10/04/06	7:30 PM	26.8	27.1	26.5	2.3	3.7	SW	30
10/04/06	8:00 PM	26.8	26.9	26.6	2.2	3.8	SW	30
10/04/06	8:30 PM	26.8	27.0	26.6	2.4	4.1	SW	30
10/04/06	9:00 PM	26.8	26.9	26.8	1.6	2.8	SW	30
10/04/06	9:30 PM	26.7	26.8	26.4	2.5	3.8	SW	30
10/04/06	10:00 PM	26.6	26.7	26.5	1.6	3.2	SW	30
10/04/06	10:30 PM	26.6	26.7	26.4	1.3	3.0	SW	30
10/04/06	11:00 PM	26.6	26.6	26.5	1.6	3.0	SW	30
10/04/06	11:30 PM	26.7	27.0	26.7	1.7	1.9	SW	30



## Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
11/04/06	12:00 AM	26.7	26.7	26.6	2.3	3.0	SW	30
11/04/06	12:30 AM	26.7	26.7	26.6	1.7	2.9	SW	30
11/04/06	1:00 AM	26.7	26.9	26.6	2.2	2.7	SW	30
11/04/06	1:30 AM	26.5	26.6	26.4	2.4	3.6	SW	30
11/04/06	2:00 AM	26.7	27.1	26.4	1.9	4.1	SW	30
11/04/06	2:30 AM	26.5	26.6	26.4	1.7	2.5	SW	30
11/04/06	3:00 AM	26.0	26.4	25.7	1.5	3.1	SW	30
11/04/06	3:30 AM	26.0	26.2	25.9	2.5	2.6	SW	30
11/04/06	4:00 AM	26.0	26.3	25.7	0.9	2.9	SW	30
11/04/06	4:30 AM	26.1	26.3	26.0	1.3	2.5	SW	30
11/04/06	5:00 AM	26.0	26.3	25.9	0.8	1.4	SW	30
11/04/06	5:30 AM	26.1	26.5	25.9	0.6	2.8	N	30
11/04/06	6:00 AM	26.0	26.1	26.0	1.4	2.0	SWS	30
11/04/06	6:30 AM	26.0	26.1	25.8	0.7	1.5	SW	30
11/04/06	7:00 AM	26.0	26.3	26.0	1.3	3.2	S	30
11/04/06	7:30 AM	26.2	26.6	26.1	1.9	2.8	S	30
11/04/06	8:00 AM	26.7	27.0	26.6	0.8	1.2	SW	30
11/04/06	8:30 AM	27.0	27.1	26.8	2.5	4.7	SW	30
11/04/06	9:00 AM	27.2	27.2	26.9	2.1	3.3	S	30
11/04/06	9:30 AM	28.0	28.3	27.7	2.9	4.1	SWS	30
11/04/06	10:00 AM	28.3	28.4	28.1	2.8	2.9	SWS	30
11/04/06	10:30 AM	28.8	28.9	28.5	2.4	4.6	S	30
11/04/06	11:00 AM	29.2	29.5	29.1	2.3	4.2	SWS	30
11/04/06	11:30 AM	29.5	29.5	29.3	2.6	3.7	S	30
11/04/06	12:00 PM	29.7	29.9	29.4	1.9	2.7	S	30
11/04/06	12:30 PM	29.6	29.7	29.6	2.2	3.1	SWS	30
11/04/06	1:00 PM	29.5	29.7	29.4	2.7	4.2	S	30
11/04/06	1:30 PM	29.0	29.2	28.9	2.8	4.4	S	30
11/04/06	2:00 PM	29.0	29.4	28.8	2.6	3.8	S	30
11/04/06	2:30 PM	29.0	29.3	29.0	2.4	3.4	S	30
11/04/06	3:00 PM	28.7	29.1	28.6	2.5	3.5	S	30
11/04/06	3:30 PM	28.3	28.4	28.1	2.0	3.5	S	30
11/04/06	4:00 PM	28.0	28.2	27.7	1.7	3.6	S	30
11/04/06	4:30 PM	28.1	28.3	27.9	2.6	4.0	S	30
11/04/06	5:00 PM	27.8	28.2	27.5	1.7	2.5	S	30
11/04/06	5:30 PM	27.6	27.8	27.5	2.5	3.8	S	30
11/04/06	6:00 PM	27.4	27.4	27.1	2.6	4.8	S	30
11/04/06	6:30 PM	27.1	27.2	26.9	1.6	2.7	S	30
11/04/06	7:00 PM	26.9	27.3	26.9	2.1	4.0	S	30
11/04/06	7:30 PM	26.9	27.0	26.6	2.1	2.4	S	30
11/04/06	8:00 PM	26.8	26.9	26.6	1.7	3.2	S	30
11/04/06	8:30 PM	26.6	26.8	26.4	2.3	4.3	S	30
11/04/06	9:00 PM	26.6	26.7	26.4	2.6	2.6	S	30
11/04/06	9:30 PM	26.8	26.9	26.5	3.0	3.9	S	30
11/04/06	10:00 PM	26.7	26.8	26.5	2.7	4.4	SW	30
11/04/06	10:30 PM	26.7	26.8	26.7	2.0	3.9	S	30
11/04/06	11:00 PM	26.7	26.7	26.7	2.2	2.9	S	30
11/04/06	11:30 PM	26.6	26.8	26.4	1.7	1.9	S	30
12/04/06	12:00 AM	26.5	26.6	26.4	2.2	3.0	S	30
12/04/06	12:30 AM	26.4	26.7	26.3	3.6	5.1	SWS	30
12/04/06	1:00 AM	26.5	26.6	26.3	2.1	2.6	S	30
12/04/06	1:30 AM	26.2	26.4	26.1	1.8	2.9	S	30
12/04/06	2:00 AM	26.3	26.4	26.2	1.7	2.7	SWS	30
12/04/06	2:30 AM	26.2	26.2	26.0	1.1	2.2	S	30
12/04/06	3:00 AM	26.2	26.4	25.9	2.4	4.5	SW	30
12/04/06	3:30 AM	26.4	26.6	26.4	2.3	3.1	SW	30
12/04/06	4:00 AM	26.3	26.6	26.1	2.6	3.1	SWS	30
12/04/06	4:30 AM	26.2	26.6	25.9	1.7	3.9	S	30
12/04/06	5:00 AM	26.2	26.5	26.2	2.2	2.2	SW	30
12/04/06	5:30 AM	25.9	26.3	25.9	1.2	2.7	SWS	30
12/04/06	6:00 AM	26.1	26.4	26.0	2.2	4.1	S	30
12/04/06	6:30 AM	26.0	26.1	25.7	1.7	2.0	S	30
12/04/06	7:00 AM	26.6	26.8	26.5	1.2	3.0	SWS	30
12/04/06	7:30 AM	27.0	27.4	26.8	2.5	3.4	S	30
12/04/06	8:00 AM	27.1	27.4	27.0	3.2	4.0	S	30
12/04/06	8:30 AM	27.2	27.6	27.1	2.2	3.8	S	30
12/04/06	9:00 AM	27.5	27.6	27.2	1.5	2.8	S	30
12/04/06	9:30 AM	27.7	28.0	27.6	2.1	4.4	SW	30
12/04/06	10:00 AM	28.4	28.7	28.3	2.3	3.8	S	30
12/04/06	10:30 AM	28.5	28.7	28.4	3.2	4.4	S	30
12/04/06	11:00 AM	28.7	28.8	28.6	3.7	4.4	S	30
12/04/06	11:30 AM	28.6	28.8	28.5	2.9	3.6	S	30
12/04/06	12:00 PM	28.6	28.8	28.6	3.1	4.8	S	30
12/04/06	12:30 PM	28.8	29.0	28.7	2.7	4.1	S	30
12/04/06	1:00 PM	28.9	29.3	28.9	3.6	5.6	S	30
12/04/06	1:30 PM	28.7	28.9	28.7	2.5	3.4	S	30
12/04/06	2:00 PM	28.2	28.6	27.9	2.5	3.9	SSW	30
12/04/06	2:30 PM	28.5	28.8	28.5	3.1	4.2	S	30
12/04/06	3:00 PM	28.5	28.6	28.2	3.1	3.5	S	30
12/04/06	3:30 PM	28.5	28.9	28.3	3.3	4.9	S	30
12/04/06	4:00 PM	28.3	28.5	28.1	2.9	2.9	S	30
12/04/06	4:30 PM	28.0	28.4	28.0	4.2	5.6	SSW	30
12/04/06	5:00 PM	28.0	28.3	27.8	2.5	2.7	S	30
12/04/06	5:30 PM	27.5	27.8	27.4	2.2	4.3	SSW	30
12/04/06	6:00 PM	27.3	27.6	27.1	3.2	4.0	SSW	30
12/04/06	6:30 PM	27.2	27.6	27.1	2.2	2.8	S	30
12/04/06	7:00 PM	27.0	27.1	26.7	3.3	3.8	SSW	30
12/04/06	7:30 PM	27.0	27.4	26.7	2.6	2.6	SSW	30
12/04/06	8:00 PM	27.0	27.1	27.0	2.3	2.9	S	30
12/04/06	8:30 PM	27.0	27.4	26.8	1.9	3.1	S	30
12/04/06	9:00 PM	26.7	26.9	26.4	2.5	3.7	S	30
12/04/06	9:30 PM	26.7	26.8	26.7	1.7	3.5	S	30
12/04/06	10:00 PM	26.8	26.9	26.6	1.0	2.0	SW	30
12/04/06	10:30 PM	26.5	26.6	26.3	1.3	2.4	S	30
12/04/06	11:00 PM	26.2	26.2	26.1	0.2	1.6	S	30
12/04/06	11:30 PM	26.1	26.1	25.9	1.4	2.3	SSE	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
13/04/06	12:00 AM	26.0	26.1	26.0	0.3	1.7	S	30
13/04/06	12:30 AM	26.0	26.4	25.8	1.4	2.8	S	30
13/04/06	1:00 AM	26.0	26.1	25.7	0.8	1.0	S	30
13/04/06	1:30 AM	26.0	26.2	25.8	0.3	0.5	N	30
13/04/06	2:00 AM	25.9	26.1	25.7	0.1	0.9	N	30
13/04/06	2:30 AM	25.6	25.9	25.4	0.0	1.8	N	30
13/04/06	3:00 AM	25.9	26.3	25.8	0.8	1.2	SSW	30
13/04/06	3:30 AM	25.9	25.9	25.7	0.3	1.4	SW	30
13/04/06	4:00 AM	25.9	26.3	25.8	0.5	1.5	SW	30
13/04/06	4:30 AM	26.0	26.3	25.9	0.4	0.4	SW	30
13/04/06	5:00 AM	26.0	26.3	25.9	1.7	3.2	SW	30
13/04/06	5:30 AM	26.0	26.2	26.0	0.1	1.5	SW	30
13/04/06	6:00 AM	26.0	26.2	25.8	1.3	3.2	SW	30
13/04/06	6:30 AM	25.0	25.2	24.8	1.8	3.2	SWW	30
13/04/06	7:00 AM	24.0	24.1	23.8	2.9	4.4	NWW	30
13/04/06	7:30 AM	23.0	23.4	23.0	1.7	2.8	NWW	30
13/04/06	8:00 AM	22.8	23.0	22.6	2.2	3.1	NWW	30
13/04/06	8:30 AM	22.9	23.1	22.9	1.5	3.0	SWW	30
13/04/06	9:00 AM	23.0	23.3	22.8	0.8	2.5	SW	30
13/04/06	9:30 AM	23.5	23.8	23.4	1.3	1.5	W	30
13/04/06	10:00 AM	23.5	23.8	23.4	1.7	2.9	W	30
13/04/06	10:30 AM	23.9	24.1	23.7	2.9	4.2	NW	30
13/04/06	11:00 AM	24.3	24.7	24.2	2.4	4.4	N	30
13/04/06	11:30 AM	24.9	25.2	24.8	2.0	3.3	N	30
13/04/06	12:00 PM	25.4	25.5	25.1	2.2	2.6	NW	30
13/04/06	12:30 PM	26.0	26.2	25.9	2.6	3.4	NW	30
13/04/06	1:00 PM	25.9	25.9	25.7	2.4	4.3	N	30
13/04/06	1:30 PM	25.7	25.7	25.5	2.4	4.5	N	30
13/04/06	2:00 PM	25.5	25.6	25.5	2.9	4.2	N	30
13/04/06	2:30 PM	25.1	25.3	25.1	1.8	2.2	N	30
13/04/06	3:00 PM	24.8	24.9	24.6	2.1	3.1	N	30
13/04/06	3:30 PM	24.5	24.7	24.3	2.8	5.1	N	30
13/04/06	4:00 PM	24.4	24.6	24.1	1.7	4.0	N	30
13/04/06	4:30 PM	24.3	24.4	24.2	1.0	1.3	NWN	30
13/04/06	5:00 PM	23.3	23.4	23.1	2.2	2.8	NW	30
13/04/06	5:30 PM	22.1	22.3	21.9	2.4	2.6	N	30
13/04/06	6:00 PM	21.9	22.2	21.9	2.6	4.6	N	30
13/04/06	6:30 PM	20.0	20.3	19.9	2.1	3.0	N	30
13/04/06	7:00 PM	19.3	19.7	19.2	2.7	4.8	N	30
13/04/06	7:30 PM	19.3	19.5	19.3	2.4	4.3	N	30
13/04/06	8:00 PM	19.2	19.3	19.2	2.5	3.7	N	30
13/04/06	8:30 PM	19.2	19.3	19.1	2.1	3.9	N	30
13/04/06	9:00 PM	19.3	19.3	19.1	2.6	4.5	N	30
13/04/06	9:30 PM	19.2	19.3	19.1	2.9	4.8	N	30
13/04/06	10:00 PM	19.2	19.4	19.1	2.1	2.5	NE	30
13/04/06	10:30 PM	19.1	19.3	18.9	1.9	4.2	N	30
13/04/06	11:00 PM	19.1	19.5	18.9	2.1	3.2	N	30
13/04/06	11:30 PM	18.9	19.1	18.9	2.3	4.5	N	30
14/04/06	12:00 AM	18.6	18.8	18.3	2.4	4.6	N	30
14/04/06	12:30 AM	18.5	18.8	18.4	2.5	3.5	NW	30
14/04/06	1:00 AM	18.3	18.3	18.1	2.9	3.2	W	30
14/04/06	1:30 AM	18.3	18.6	18.3	2.4	3.0	W	30
14/04/06	2:00 AM	18.2	18.4	18.0	2.4	3.4	W	30
14/04/06	2:30 AM	18.2	18.2	18.0	1.8	3.3	N	30
14/04/06	3:00 AM	17.9	18.3	17.7	1.9	2.2	NW	30
14/04/06	3:30 AM	17.7	18.0	17.5	2.2	2.4	NW	30
14/04/06	4:00 AM	17.6	17.8	17.4	2.1	3.6	NW	30
14/04/06	4:30 AM	17.5	17.9	17.3	2.2	3.7	N	30
14/04/06	5:00 AM	17.7	17.8	17.4	2.9	4.5	N	30
14/04/06	5:30 AM	17.8	18.0	17.7	3.2	5.1	N	30
14/04/06	6:00 AM	17.8	18.2	17.5	2.4	4.1	N	30
14/04/06	6:30 AM	17.9	17.9	17.6	2.5	3.9	N	30
14/04/06	7:00 AM	17.9	18.2	17.9	1.9	2.3	N	30
14/04/06	7:30 AM	18.0	18.3	17.8	2.2	4.0	N	30
14/04/06	8:00 AM	18.3	18.7	18.1	2.7	2.8	N	30
14/04/06	8:30 AM	18.5	18.5	18.3	2.6	4.0	N	30
14/04/06	9:00 AM	18.9	19.2	18.7	2.9	5.1	N	30
14/04/06	9:30 AM	19.0	19.3	18.8	2.4	4.0	NE	30
14/04/06	10:00 AM	19.1	19.1	19.0	2.5	3.0	N	30
14/04/06	10:30 AM	19.2	19.3	19.2	1.0	1.9	N	30
14/04/06	11:00 AM	19.4	19.8	19.4	2.1	4.2	N	30
14/04/06	11:30 AM	19.5	19.7	19.4	2.1	3.9	N	30
14/04/06	12:00 PM	19.6	19.9	19.4	2.3	2.7	N	30
14/04/06	12:30 PM	19.4	19.6	19.2	2.9	4.8	N	30
14/04/06	1:00 PM	19.4	19.4	19.3	2.2	4.0	N	30
14/04/06	1:30 PM	19.6	19.7	19.5	2.4	3.6	N	30
14/04/06	2:00 PM	19.5	19.5	19.4	2.9	4.3	N	30
14/04/06	2:30 PM	19.3	19.4	19.2	2.4	2.7	N	30
14/04/06	3:00 PM	19.3	19.7	19.3	2.5	4.1	N	30
14/04/06	3:30 PM	19.1	19.1	19.0	2.1	2.2	N	30
14/04/06	4:00 PM	19.1	19.3	18.8	1.9	2.6	NE	30
14/04/06	4:30 PM	18.6	18.7	18.3	2.3	3.1	NE	30
14/04/06	5:00 PM	18.2	18.3	18.0	2.8	5.0	NE	30
14/04/06	5:30 PM	18.0	18.2	17.8	2.9	4.5	N	30
14/04/06	6:00 PM	17.5	17.8	17.4	3.0	4.4	N	30
14/04/06	6:30 PM	17.1	17.2	17.0	2.4	3.7	N	30
14/04/06	7:00 PM	16.7	16.9	16.5	2.8	4.1	N	30
14/04/06	7:30 PM	16.4	16.7	16.2	2.1	2.9	NE	30
14/04/06	8:00 PM	16.2	16.3	16.1	2.5	3.7	NE	30
14/04/06	8:30 PM	16.2	16.5	15.9	2.6	3.1	N	30
14/04/06	9:00 PM	15.8	16.0	15.7	2.1	3.0	N	30
14/04/06	9:30 PM	15.7	15.9	15.6	2.9	4.6	N	30
14/04/06	10:00 PM	15.7	16.0	15.6	2.1	2.1	N	30
14/04/06	10:30 PM	15.5	15.7	15.5	2.6	2.9	N	30
14/04/06	11:00 PM	15.3	15.7	15.2	2.0	3.5	N	30
14/04/06	11:30 PM	15.2	15.3	15.0	2.7	2.8	N	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
15/04/06	12:00 AM	15.0	15.3	15.0	2.4	4.1	N	30
15/04/06	12:30 AM	14.9	15.3	14.7	2.3	3.0	N	30
15/04/06	1:00 AM	14.8	15.0	14.7	2.3	4.5	N	30
15/04/06	1:30 AM	14.8	15.2	14.7	2.9	4.5	N	30
15/04/06	2:00 AM	14.7	14.7	14.5	2.4	4.7	N	30
15/04/06	2:30 AM	14.5	14.5	14.3	2.4	3.3	N	30
15/04/06	3:00 AM	14.5	14.8	14.3	2.1	3.3	NE	30
15/04/06	3:30 AM	14.4	14.5	14.4	1.3	3.3	N	30
15/04/06	4:00 AM	14.4	14.8	14.1	2.9	4.1	N	30
15/04/06	4:30 AM	14.3	14.4	14.1	2.5	3.2	N	30
15/04/06	5:00 AM	14.4	14.5	14.2	2.1	3.7	NW	30
15/04/06	5:30 AM	14.5	14.8	14.5	2.9	4.5	NW	30
15/04/06	6:00 AM	14.8	15.2	14.8	2.7	4.3	NW	30
15/04/06	6:30 AM	14.9	15.0	14.7	2.4	2.8	N	30
15/04/06	7:00 AM	15.0	15.2	14.9	2.0	2.3	N	30
15/04/06	7:30 AM	15.5	15.9	15.3	2.1	2.4	N	30
15/04/06	8:00 AM	15.6	15.9	15.5	2.3	3.6	N	30
15/04/06	8:30 AM	15.9	16.0	15.7	2.6	3.8	N	30
15/04/06	9:00 AM	16.0	16.3	16.0	2.1	4.4	N	30
15/04/06	9:30 AM	16.2	16.5	16.0	2.6	3.4	N	30
15/04/06	10:00 AM	16.3	16.6	16.2	2.5	4.3	N	30
15/04/06	10:30 AM	16.4	16.7	16.2	2.6	2.9	N	30
15/04/06	11:00 AM	17.0	17.0	16.8	2.4	4.6	N	30
15/04/06	11:30 AM	17.2	17.4	17.1	2.9	3.5	N	30
15/04/06	12:00 PM	17.2	17.3	17.1	2.8	3.8	N	30
15/04/06	12:30 PM	17.4	17.7	17.2	2.9	4.9	N	30
15/04/06	1:00 PM	17.5	17.6	17.4	3.1	3.5	N	30
15/04/06	1:30 PM	17.5	17.6	17.5	2.8	3.9	NE	30
15/04/06	2:00 PM	17.4	17.5	17.3	2.4	4.3	N	30
15/04/06	2:30 PM	17.3	17.6	17.2	2.9	3.6	N	30
15/04/06	3:00 PM	17.3	17.7	17.1	2.1	4.0	N	30
15/04/06	3:30 PM	17.3	17.5	17.1	2.3	3.9	E	30
15/04/06	4:00 PM	17.2	17.2	16.9	2.1	4.3	N	30
15/04/06	4:30 PM	16.9	17.0	16.9	2.1	4.3	N	30
15/04/06	5:00 PM	16.5	16.8	16.5	2.0	3.1	N	30
15/04/06	5:30 PM	16.4	16.6	16.3	2.9	3.9	N	30
15/04/06	6:00 PM	16.2	16.5	15.9	2.4	4.0	N	30
15/04/06	6:30 PM	16.0	16.3	15.9	2.6	3.3	N	30
15/04/06	7:00 PM	15.8	16.1	15.7	2.0	3.9	NE	30
15/04/06	7:30 PM	15.7	15.9	15.6	2.8	4.6	NE	30
15/04/06	8:00 PM	15.7	15.8	15.4	2.4	4.1	NE	30
15/04/06	8:30 PM	15.6	15.9	15.4	2.6	3.6	NE	30
15/04/06	9:00 PM	15.6	15.8	15.6	2.5	4.1	N	30
15/04/06	9:30 PM	15.6	16.0	15.4	2.9	3.8	N	30
15/04/06	10:00 PM	15.5	15.6	15.5	2.4	4.0	N	30
15/04/06	10:30 PM	15.5	15.7	15.2	2.6	3.1	N	30
15/04/06	11:00 PM	15.5	15.8	15.3	2.1	3.4	N	30
15/04/06	11:30 PM	15.4	15.6	15.1	1.9	4.2	N	30
16/04/06	12:00 AM	15.5	15.6	15.3	1.7	3.5	N	30
16/04/06	12:30 AM	15.3	15.7	15.2	1.8	3.7	N	30
16/04/06	1:00 AM	15.2	15.4	15.0	1.9	3.6	N	30
16/04/06	1:30 AM	15.2	15.3	15.0	2.5	3.6	N	30
16/04/06	2:00 AM	15.1	15.4	14.9	2.4	3.2	NE	30
16/04/06	2:30 AM	15.1	15.4	15.0	2.6	3.9	NE	30
16/04/06	3:00 AM	15.0	15.2	14.9	2.1	2.5	E	30
16/04/06	3:30 AM	15.0	15.0	14.9	2.6	2.9	E	30
16/04/06	4:00 AM	14.9	15.0	14.7	2.7	4.6	NE	30
16/04/06	4:30 AM	14.9	14.9	14.7	2.2	2.3	NE	30
16/04/06	5:00 AM	14.9	15.1	14.7	2.6	3.0	N	30
16/04/06	5:30 AM	14.9	15.1	14.8	2.4	3.6	N	30
16/04/06	6:00 AM	15.1	15.2	15.0	2.1	4.1	N	30
16/04/06	6:30 AM	15.4	15.6	15.3	2.3	2.9	N	30
16/04/06	7:00 AM	15.8	16.0	15.7	2.9	4.2	N	30
16/04/06	7:30 AM	16.0	16.1	15.8	1.9	2.4	N	30
16/04/06	8:00 AM	16.1	16.1	16.0	1.5	3.3	N	30
16/04/06	8:30 AM	16.4	16.8	16.4	2.5	4.7	N	30
16/04/06	9:00 AM	16.8	17.0	16.6	2.9	3.1	N	30
16/04/06	9:30 AM	17.0	17.2	16.8	3.2	3.3	N	30
16/04/06	10:00 AM	17.3	17.4	17.2	2.5	2.7	N	30
16/04/06	10:30 AM	17.5	17.8	17.4	2.9	5.0	N	30
16/04/06	11:00 AM	17.9	17.9	17.8	2.8	2.9	NE	30
16/04/06	11:30 AM	18.3	18.6	18.3	2.7	3.5	N	30
16/04/06	12:00 PM	18.5	18.9	18.4	2.4	2.7	N	30
16/04/06	12:30 PM	18.4	18.6	18.4	2.1	3.2	N	30
16/04/06	1:00 PM	18.5	18.7	18.4	2.5	3.2	N	30
16/04/06	1:30 PM	18.4	18.4	18.3	2.3	2.6	N	30
16/04/06	2:00 PM	18.2	18.6	18.1	2.9	4.4	N	30
16/04/06	2:30 PM	18.0	18.1	17.7	2.9	3.6	N	30
16/04/06	3:00 PM	17.9	18.2	17.7	2.5	3.5	NE	30
16/04/06	3:30 PM	17.9	18.0	17.8	2.4	4.6	NE	30
16/04/06	4:00 PM	17.9	17.9	17.9	2.1	3.6	NE	30
16/04/06	4:30 PM	17.7	17.7	17.7	1.9	3.3	N	30
16/04/06	5:00 PM	17.4	17.5	17.2	2.3	3.6	NE	30
16/04/06	5:30 PM	17.4	17.5	17.1	2.1	3.7	N	30
16/04/06	6:00 PM	17.3	17.6	17.0	2.1	4.4	N	30
16/04/06	6:30 PM	17.2	17.5	17.1	2.9	4.7	N	30
16/04/06	7:00 PM	17.1	17.5	17.1	2.2	4.4	N	30
16/04/06	7:30 PM	17.1	17.1	17.0	2.5	2.7	N	30
16/04/06	8:00 PM	17.0	17.1	16.9	2.3	2.5	N	30
16/04/06	8:30 PM	16.8	17.0	16.6	2.5	4.1	N	30
16/04/06	9:00 PM	16.8	17.2	16.5	2.4	3.2	N	30
16/04/06	9:30 PM	16.8	17.1	16.6	2.6	4.7	N	30
16/04/06	10:00 PM	16.8	16.9	16.7	2.1	2.9	N	30
16/04/06	10:30 PM	16.7	16.7	16.7	2.1	4.0	N	30
16/04/06	11:00 PM	16.7	17.1	16.4	1.8	3.4	N	30
16/04/06	11:30 PM	16.8	16.9	16.6	1.3	1.7	N	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
17/04/06	12:00 AM	16.7	16.9	16.6	2.6	3.6	N	30
17/04/06	12:30 AM	16.7	17.1	16.7	2.5	2.6	N	30
17/04/06	1:00 AM	16.6	16.9	16.5	3.2	5.4	N	30
17/04/06	1:30 AM	16.6	16.8	16.4	2.9	5.1	N	30
17/04/06	2:00 AM	16.6	16.6	16.5	2.1	2.3	N	30
17/04/06	2:30 AM	16.6	16.6	16.4	2.2	4.1	N	30
17/04/06	3:00 AM	16.6	16.8	16.6	2.9	3.1	N	30
17/04/06	3:30 AM	16.7	17.0	16.4	2.6	3.9	N	30
17/04/06	4:00 AM	16.6	16.6	16.4	2.6	3.1	N	30
17/04/06	4:30 AM	16.6	16.9	16.3	2.6	2.7	N	30
17/04/06	5:00 AM	16.6	16.9	16.4	2.4	2.4	NNE	30
17/04/06	5:30 AM	16.7	16.8	16.5	2.2	4.3	NE	30
17/04/06	6:00 AM	16.8	17.0	16.7	2.9	4.8	NE	30
17/04/06	6:30 AM	17.0	17.3	16.9	2.8	3.4	N	30
17/04/06	7:00 AM	17.5	17.7	17.3	2.2	2.9	N	30
17/04/06	7:30 AM	17.9	18.1	17.8	3.0	3.3	N	30
17/04/06	8:00 AM	18.2	18.5	18.1	2.4	3.7	NE	30
17/04/06	8:30 AM	18.7	19.0	18.7	2.6	3.6	N	30
17/04/06	9:00 AM	19.0	19.2	18.9	2.5	4.0	N	30
17/04/06	9:30 AM	19.6	19.8	19.4	2.6	4.9	N	30
17/04/06	10:00 AM	20.5	20.8	20.3	2.0	2.9	N	30
17/04/06	10:30 AM	21.2	21.4	21.0	2.8	4.4	N	30
17/04/06	11:00 AM	21.9	22.0	21.6	2.7	4.3	N	30
17/04/06	11:30 AM	22.6	22.8	22.4	3.0	4.9	NEE	30
17/04/06	12:00 PM	22.7	22.9	22.6	2.2	3.2	SE	30
17/04/06	12:30 PM	23.0	23.1	22.7	2.5	3.0	SEE	30
17/04/06	1:00 PM	22.3	22.3	22.3	2.5	3.3	SE	30
17/04/06	1:30 PM	23.0	23.2	22.7	2.2	3.6	E	30
17/04/06	2:00 PM	23.0	23.1	22.8	2.2	2.9	E	30
17/04/06	2:30 PM	22.8	23.2	22.8	2.8	4.7	NE	30
17/04/06	3:00 PM	22.7	22.8	22.6	1.7	1.7	E	30
17/04/06	3:30 PM	22.1	22.2	21.9	3.1	5.1	NEE	30
17/04/06	4:00 PM	21.6	22.0	21.6	1.4	3.2	SSE	30
17/04/06	4:30 PM	21.7	21.8	21.6	1.1	3.3	E	30
17/04/06	5:00 PM	21.2	21.4	21.1	1.7	3.1	SE	30
17/04/06	5:30 PM	21.5	21.5	21.2	1.1	1.3	NEE	30
17/04/06	6:00 PM	21.3	21.4	21.2	0.9	3.2	NEE	30
17/04/06	6:30 PM	21.2	21.4	20.9	1.7	3.8	NEE	30
17/04/06	7:00 PM	21.2	21.4	21.1	0.6	2.5	NE	30
17/04/06	7:30 PM	20.9	21.0	20.7	1.1	1.2	NE	30
17/04/06	8:00 PM	21.0	21.1	20.8	1.9	2.5	NNE	30
17/04/06	8:30 PM	20.9	21.2	20.6	2.2	3.0	NNE	30
17/04/06	9:00 PM	20.9	21.1	20.8	1.4	2.1	N	30
17/04/06	9:30 PM	21.0	21.0	21.0	2.2	4.4	N	30
17/04/06	10:00 PM	21.0	21.2	20.7	2.0	3.6	NEE	30
17/04/06	10:30 PM	21.0	21.1	20.9	1.1	2.4	NNE	30
17/04/06	11:00 PM	21.0	21.1	20.8	1.7	3.9	NEE	30
17/04/06	11:30 PM	21.0	21.2	20.8	1.1	2.5	NEE	30
18/04/06	12:00 AM	21.0	21.1	20.8	1.1	2.1	NEE	30
18/04/06	12:30 AM	21.0	21.1	20.8	1.7	3.6	NEE	30
18/04/06	1:00 AM	21.0	21.2	21.0	2.0	3.4	NE	30
18/04/06	1:30 AM	20.9	21.0	20.9	2.2	4.2	E	30
18/04/06	2:00 AM	20.8	20.8	20.7	1.7	3.5	E	30
18/04/06	2:30 AM	20.8	21.0	20.6	0.9	1.1	NE	30
18/04/06	3:00 AM	20.6	20.8	20.5	2.0	3.3	NE	30
18/04/06	3:30 AM	20.6	20.9	20.3	2.2	3.8	E	30
18/04/06	4:00 AM	20.6	20.8	20.4	0.8	2.3	N	30
18/04/06	4:30 AM	20.6	20.7	20.5	1.9	3.2	SEE	30
18/04/06	5:00 AM	20.5	20.9	20.5	1.7	1.7	N	30
18/04/06	5:30 AM	20.4	20.8	20.2	2.2	3.3	NNE	30
18/04/06	6:00 AM	20.2	20.5	20.0	2.2	2.5	N	30
18/04/06	6:30 AM	20.2	20.5	20.1	2.4	4.1	NNE	30
18/04/06	7:00 AM	20.1	20.3	19.9	2.2	3.2	NNE	30
18/04/06	7:30 AM	20.2	20.2	20.2	1.7	3.7	N	30
18/04/06	8:00 AM	20.2	20.5	20.1	0.9	2.6	N	30
18/04/06	8:30 AM	20.6	20.8	20.6	1.7	3.5	N	30
18/04/06	9:00 AM	20.8	21.2	20.7	1.7	2.5	N	30
18/04/06	9:30 AM	21.2	21.3	21.0	1.4	3.1	E	30
18/04/06	10:00 AM	21.6	21.9	21.4	1.7	3.6	NNE	30
18/04/06	10:30 AM	21.8	22.2	21.7	2.0	3.6	NEE	30
18/04/06	11:00 AM	22.2	22.6	22.2	2.0	4.2	E	30
18/04/06	11:30 AM	22.8	23.0	22.7	1.7	3.4	NEE	30
18/04/06	12:00 AM	23.1	23.3	22.8	2.1	3.4	NE	30
18/04/06	12:30 PM	23.3	23.6	23.2	2.5	3.4	NEE	30
18/04/06	1:00 PM	24.7	25.1	24.6	2.8	4.3	NEE	30
18/04/06	1:30 PM	24.4	24.7	24.2	2.7	3.5	NEE	30
18/04/06	2:00 PM	24.8	24.8	24.6	2.7	2.9	NNE	30
18/04/06	2:30 PM	25.0	25.2	25.0	2.5	3.5	NE	30
18/04/06	3:00 PM	25.0	25.1	24.8	2.8	4.8	NEE	30
18/04/06	3:30 PM	25.2	25.4	25.1	2.4	2.9	NE	30
18/04/06	4:00 PM	25.0	25.4	25.0	2.4	4.4	NEE	30
18/04/06	4:30 PM	24.6	24.8	24.4	2.2	4.3	NEE	30
18/04/06	5:00 PM	24.2	24.5	24.2	2.0	4.2	NEE	30
18/04/06	5:30 PM	23.8	23.9	23.8	2.7	3.1	NNE	30
18/04/06	6:00 PM	23.2	23.4	22.9	1.9	2.1	NNE	30
18/04/06	6:30 PM	22.6	22.7	22.5	1.1	1.3	NNE	30
18/04/06	7:00 PM	22.0	22.4	21.7	0.4	1.4	NEE	30
18/04/06	7:30 PM	21.1	21.4	20.9	0.1	1.0	N	30
18/04/06	8:00 PM	20.8	21.1	20.6	0.6	2.2	N	30
18/04/06	8:30 PM	20.5	20.7	20.3	1.0	1.4	NNE	30
18/04/06	9:00 PM	20.2	20.5	20.1	0.4	2.0	NW	30
18/04/06	9:30 PM	20.0	20.0	19.7	0.3	1.2	N	30
18/04/06	10:00 PM	19.9	20.2	19.8	0.1	0.1	NNW	30
18/04/06	10:30 PM	20.0	20.0	19.7	0.3	1.7	NNW	30
18/04/06	11:00 PM	20.0	20.0	19.9	0.7	2.8	N	30
18/04/06	11:30 PM	20.0	20.1	19.8	0.1	1.0	N	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
19/04/06	12:00 AM	19.8	19.9	19.7	1.1	3.1	NNW	30
19/04/06	12:30 AM	19.9	20.2	19.9	0.2	1.6	N	30
19/04/06	1:00 AM	19.9	19.9	19.7	0.0	0.8	N	30
19/04/06	1:30 AM	20.1	20.2	19.8	0.1	2.3	N	30
19/04/06	2:00 AM	20.0	20.0	19.7	0.1	0.6	N	30
19/04/06	2:30 AM	19.9	20.0	19.7	0.0	1.9	N	30
19/04/06	3:00 AM	19.8	20.0	19.7	0.3	0.8	NW	30
19/04/06	3:30 AM	19.8	19.8	19.6	0.0	0.7	NWW	30
19/04/06	4:00 AM	19.8	19.9	19.8	0.2	1.0	N	30
19/04/06	4:30 AM	20.0	20.1	20.0	0.0	1.7	N	30
19/04/06	5:00 AM	19.9	20.1	19.9	0.2	0.6	NNW	30
19/04/06	5:30 AM	19.9	19.8	19.8	0.3	1.0	N	30
19/04/06	6:00 AM	20.0	20.4	19.7	0.0	2.2	N	30
19/04/06	6:30 AM	20.2	20.2	19.9	0.0	1.2	N	30
19/04/06	7:00 AM	21.0	21.4	20.8	0.1	0.3	N	30
19/04/06	7:30 AM	22.0	22.3	21.9	0.6	2.4	NNE	30
19/04/06	8:00 AM	23.0	23.2	23.0	0.9	2.0	NE	30
19/04/06	8:30 AM	24.5	24.7	24.5	1.4	1.5	E	30
19/04/06	9:00 AM	25.3	25.5	25.2	1.6	3.4	NEE	30
19/04/06	9:30 AM	26.5	26.7	26.4	1.3	1.4	SSE	30
19/04/06	10:00 AM	27.0	27.3	26.7	1.7	3.2	SE	30
19/04/06	10:30 AM	28.0	28.3	28.0	2.2	4.0	SEE	30
19/04/06	11:00 AM	28.0	28.1	27.9	1.7	3.8	SSE	30
19/04/06	11:30 AM	29.0	29.0	28.8	2.8	4.5	SEE	30
19/04/06	12:00 PM	29.0	29.1	28.8	2.6	4.8	SEE	30
19/04/06	12:30 PM	29.5	29.6	29.3	2.4	4.6	SE	30
19/04/06	1:00 PM	30.1	30.5	29.9	1.8	2.4	S	30
19/04/06	1:30 PM	29.6	29.9	29.4	1.9	4.2	E	30
19/04/06	2:00 PM	29.2	29.2	28.9	2.4	3.7	E	30
19/04/06	2:30 PM	29.0	29.4	29.0	2.0	2.5	E	30
19/04/06	3:00 PM	28.7	29.0	28.4	1.2	1.7	SWS	30
19/04/06	3:30 PM	28.8	29.1	28.6	1.1	1.3	S	30
19/04/06	4:00 PM	29.0	29.3	28.7	1.1	1.7	SE	30
19/04/06	4:30 PM	28.4	28.7	28.3	0.3	2.2	S	30
19/04/06	5:00 PM	28.0	28.3	27.8	0.3	1.5	S	30
19/04/06	5:30 PM	27.7	27.8	27.5	1.8	1.9	E	30
19/04/06	6:00 PM	27.0	27.0	27.0	0.6	0.7	S	30
19/04/06	6:30 PM	25.8	26.0	25.6	0.5	1.2	S	30
19/04/06	7:00 PM	24.8	25.0	24.5	0.2	0.7	N	30
19/04/06	7:30 PM	24.0	24.1	24.0	0.0	0.6	N	30
19/04/06	8:00 PM	23.5	23.9	23.5	0.1	1.2	N	30
19/04/06	8:30 PM	23.3	23.6	23.0	0.0	0.0	N	30
19/04/06	9:00 PM	23.1	23.1	23.0	1.4	2.3	NW	30
19/04/06	9:30 PM	22.9	23.1	22.8	0.3	1.2	N	30
19/04/06	10:00 PM	22.9	23.3	22.7	0.0	0.1	N	30
19/04/06	10:30 PM	22.5	22.7	22.3	0.1	2.0	N	30
19/04/06	11:00 PM	22.3	22.7	22.1	0.0	2.2	N	30
19/04/06	11:30 PM	22.2	22.4	22.2	0.8	2.0	NW	30
20/04/06	12:00 AM	22.1	22.3	21.9	0.2	0.3	N	30
20/04/06	12:30 AM	22.0	22.2	21.9	0.2	0.9	N	30
20/04/06	1:00 AM	21.9	21.9	21.6	0.1	1.3	N	30
20/04/06	1:30 AM	21.8	21.9	21.7	0.2	0.8	NW	30
20/04/06	2:00 AM	21.8	22.1	21.5	0.0	1.7	N	30
20/04/06	2:30 AM	21.7	22.0	21.5	0.0	1.7	N	30
20/04/06	3:00 AM	21.7	22.1	21.4	0.0	1.2	N	30
20/04/06	3:30 AM	21.7	22.1	21.7	0.0	0.4	N	30
20/04/06	4:00 AM	21.6	21.8	21.3	0.2	1.3	N	30
20/04/06	4:30 AM	21.8	22.1	21.7	0.0	0.7	N	30
20/04/06	5:00 AM	21.9	22.3	21.7	0.0	1.1	N	30
20/04/06	5:30 AM	21.8	21.8	21.6	0.2	1.8	N	30
20/04/06	6:00 AM	22.0	22.2	21.9	0.0	1.2	N	30
20/04/06	6:30 AM	22.1	22.3	22.0	0.0	1.4	N	30
20/04/06	7:00 AM	22.5	22.6	22.5	0.3	0.6	N	30
20/04/06	7:30 AM	23.0	23.3	23.0	0.0	0.8	N	30
20/04/06	8:00 AM	23.8	24.1	23.5	0.2	1.8	N	30
20/04/06	8:30 AM	25.0	25.4	24.8	0.1	0.9	N	30
20/04/06	9:00 AM	26.0	26.1	25.7	0.2	0.6	N	30
20/04/06	9:30 AM	26.5	26.6	26.5	0.5	0.7	E	30
20/04/06	10:00 AM	27.0	27.3	26.8	2.8	4.1	NEE	30
20/04/06	10:30 AM	27.8	27.8	27.5	3.2	3.4	E	30
20/04/06	11:00 AM	27.9	28.0	27.9	3.1	3.5	E	30
20/04/06	11:30 AM	28.6	28.7	28.5	3.1	4.9	NE	30
20/04/06	12:00 PM	29.0	29.2	29.0	2.8	4.6	SWS	30
20/04/06	12:30 PM	29.3	29.6	29.3	1.3	3.6	S	30
20/04/06	1:00 PM	29.5	29.7	29.5	1.3	3.2	SE	30
20/04/06	1:30 PM	29.6	30.0	29.3	3.6	5.6	NE	30
20/04/06	2:00 PM	29.1	29.1	28.9	3.4	5.1	NE	30
20/04/06	2:30 PM	27.0	27.3	26.8	3.3	4.7	N	30
20/04/06	3:00 PM	25.8	25.9	25.6	1.9	2.7	SE	30
20/04/06	3:30 PM	24.4	24.6	24.1	2.2	3.1	E	30
20/04/06	4:00 PM	24.1	24.4	24.0	2.5	3.0	NE	30
20/04/06	4:30 PM	23.8	24.1	23.5	2.5	4.3	NE	30
20/04/06	5:00 PM	23.2	23.3	23.2	2.9	4.0	E	30
20/04/06	5:30 PM	23.0	23.1	23.0	3.3	4.4	NE	30
20/04/06	6:00 PM	22.8	22.9	22.5	3.2	4.6	E	30
20/04/06	6:30 PM	22.0	22.3	21.9	2.5	3.2	E	30
20/04/06	7:00 PM	21.7	22.1	21.5	2.5	3.1	E	30
20/04/06	7:30 PM	21.7	21.8	21.6	2.8	4.8	NE	30
20/04/06	8:00 PM	21.7	21.8	21.6	2.4	3.7	NE	30
20/04/06	8:30 PM	21.6	22.0	21.5	2.2	2.6	E	30
20/04/06	9:00 PM	21.8	21.8	21.7	2.5	4.0	E	30
20/04/06	9:30 PM	21.9	22.1	21.6	3.2	4.6	E	30
20/04/06	10:00 PM	21.9	21.9	21.8	2.5	4.1	NEE	30
20/04/06	10:30 PM	21.7	21.7	21.4	2.5	4.7	E	30
20/04/06	11:00 PM	21.9	22.3	21.7	2.5	4.4	NE	30
20/04/06	11:30 PM	21.9	22.0	21.7	2.5	2.9	NEE	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
21/04/06	12:00 AM	21.9	22.2	21.6	2.3	3.9	NE	30
21/04/06	12:30 AM	21.7	22.1	21.4	2.9	4.0	NE	30
21/04/06	1:00 AM	21.7	21.8	21.7	3.3	4.0	NE	30
21/04/06	1:30 AM	21.5	21.7	21.3	2.5	3.3	NE	30
21/04/06	2:00 AM	21.4	21.6	21.3	2.9	4.8	E	30
21/04/06	2:30 AM	21.4	21.6	21.2	3.0	4.6	NE	30
21/04/06	3:00 AM	21.3	21.3	21.1	2.8	4.5	NE	30
21/04/06	3:30 AM	21.3	21.6	21.0	1.7	2.9	NE	30
21/04/06	4:00 AM	21.3	21.3	21.3	1.7	3.0	E	30
21/04/06	4:30 AM	21.2	21.2	21.0	2.1	3.6	NE	30
21/04/06	5:00 AM	21.2	21.3	21.2	1.6	3.4	NEN	30
21/04/06	5:30 AM	21.1	21.5	21.0	2.1	3.9	NEN	30
21/04/06	6:00 AM	21.0	21.4	20.9	2.2	3.8	NE	30
21/04/06	6:30 AM	21.0	21.3	20.8	1.8	4.0	NE	30
21/04/06	7:00 AM	21.0	21.2	20.9	2.5	3.0	NE	30
21/04/06	7:30 AM	21.0	21.3	20.8	1.9	3.6	NEE	30
21/04/06	8:00 AM	21.1	21.5	21.0	1.7	4.0	N	30
21/04/06	8:30 AM	21.2	21.2	21.1	3.3	4.9	NEE	30
21/04/06	9:00 AM	21.8	22.0	21.6	2.8	5.0	E	30
21/04/06	9:30 AM	21.7	21.9	21.7	3.1	4.4	E	30
21/04/06	10:00 AM	22.1	22.5	22.0	1.4	2.7	S	30
21/04/06	10:30 AM	22.0	22.0	21.8	2.9	4.2	NE	30
21/04/06	11:00 AM	22.3	22.5	22.2	2.7	4.9	N	30
21/04/06	11:30 AM	22.4	22.6	22.3	3.5	4.2	E	30
21/04/06	12:00 PM	22.8	23.2	22.6	2.5	3.4	NE	30
21/04/06	12:30 PM	22.7	23.0	22.6	3.6	4.9	E	30
21/04/06	1:00 PM	23.9	24.2	23.7	3.3	5.0	E	30
21/04/06	1:30 PM	24.0	24.2	23.8	3.2	5.3	NE	30
21/04/06	2:00 PM	24.3	24.4	24.0	3.2	4.1	E	30
21/04/06	2:30 PM	25.1	25.4	24.8	2.8	4.6	E	30
21/04/06	3:00 PM	25.0	25.3	24.8	3.2	3.9	E	30
21/04/06	3:30 PM	24.5	24.6	24.2	3.3	4.5	NE	30
21/04/06	4:00 PM	24.3	24.4	24.2	2.7	4.4	NE	30
21/04/06	4:30 PM	23.9	24.3	23.6	3.3	3.5	NEE	30
21/04/06	5:00 PM	23.8	23.9	23.8	2.3	3.3	NE	30
21/04/06	5:30 PM	23.3	23.4	23.3	2.8	4.9	NE	30
21/04/06	6:00 PM	23.2	23.4	23.0	2.3	2.7	NE	30
21/04/06	6:30 PM	22.8	23.1	22.6	2.4	4.3	NEN	30
21/04/06	7:00 PM	22.7	22.7	22.5	1.1	2.1	NE	30
21/04/06	7:30 PM	22.9	23.1	22.9	0.3	2.0	SE	30
21/04/06	8:00 PM	22.9	23.0	22.7	1.9	3.2	NE	30
21/04/06	8:30 PM	22.8	23.1	22.5	1.1	2.6	SE	30
21/04/06	9:00 PM	22.8	23.2	22.5	1.4	1.6	SE	30
21/04/06	9:30 PM	22.8	23.2	22.8	0.2	1.1	NE	30
21/04/06	10:00 PM	22.9	23.3	22.7	1.0	2.6	SE	30
21/04/06	10:30 PM	22.8	23.0	22.7	1.1	1.8	SE	30
21/04/06	11:00 PM	23.0	23.2	23.0	1.2	1.4	SE	30
21/04/06	11:30 PM	23.0	23.4	22.7	0.6	2.3	E	30
22/04/06	12:00 AM	22.9	23.1	22.7	0.5	1.2	E	30
22/04/06	12:30 AM	22.8	22.9	22.8	0.0	2.3	N	30
22/04/06	1:00 AM	22.8	22.8	22.5	0.0	1.0	N	30
22/04/06	1:30 AM	22.8	23.1	22.8	0.0	1.6	N	30
22/04/06	2:00 AM	22.7	23.1	22.4	1.8	3.0	NEE	30
22/04/06	2:30 AM	22.7	22.8	22.7	0.0	0.4	N	30
22/04/06	3:00 AM	22.7	23.0	22.5	0.6	1.6	E	30
22/04/06	3:30 AM	22.6	22.9	22.3	1.0	1.9	E	30
22/04/06	4:00 AM	22.6	22.7	22.5	1.2	1.4	NE	30
22/04/06	4:30 AM	22.6	23.0	22.4	0.2	2.4	N	30
22/04/06	5:00 AM	22.5	22.5	22.4	0.0	1.2	N	30
22/04/06	5:30 AM	22.2	22.3	22.2	0.0	0.4	N	30
22/04/06	6:00 AM	22.2	22.4	22.2	0.0	1.4	N	30
22/04/06	6:30 AM	22.2	22.2	22.2	1.8	3.3	E	30
22/04/06	7:00 AM	22.6	22.7	22.4	0.3	0.8	NE	30
22/04/06	7:30 AM	23.1	23.1	23.0	0.6	1.2	E	30
22/04/06	8:00 AM	23.9	24.1	23.8	1.0	1.9	E	30
22/04/06	8:30 AM	24.8	25.0	24.5	1.7	1.9	E	30
22/04/06	9:00 AM	25.0	25.3	25.0	0.7	1.6	E	30
22/04/06	9:30 AM	25.8	25.8	25.6	1.6	2.8	S	30
22/04/06	10:00 AM	26.1	26.3	25.9	1.0	3.0	S	30
22/04/06	10:30 AM	26.7	27.1	26.6	1.5	3.7	S	30
22/04/06	11:00 AM	27.2	27.3	27.0	1.5	1.5	S	30
22/04/06	11:30 AM	27.7	27.8	27.6	1.2	3.5	S	30
22/04/06	12:00 PM	28.2	28.5	28.0		1.8	SE	30
22/04/06	12:30 PM	28.5	28.5	28.2	1.0	2.6	SE	30
22/04/06	1:00 PM	28.9	29.2	28.9	1.6	3.1	S	30
22/04/06	1:30 PM	28.8	29.1	28.8	1.3	1.5	S	30
22/04/06	2:00 PM	28.7	28.9	28.5	1.1	2.4	S	30
22/04/06	2:30 PM	28.5	28.6	28.2	1.3	2.6	S	30
22/04/06	3:00 PM	28.1	28.4	28.1	1.1	3.2	SE	30
22/04/06	3:30 PM	28.0	28.1	27.9	1.8	3.9	SE	30
22/04/06	4:00 PM	27.9	28.0	27.8	1.4	2.5	SE	30
22/04/06	4:30 PM	27.6	27.7	27.6	1.1	2.3	S	30
22/04/06	5:00 PM	27.4	27.5	27.2	0.8	2.7	S	30
22/04/06	5:30 PM	27.0	27.4	26.9	1.3	1.3	S	30
22/04/06	6:00 PM	26.5	26.9	26.4	1.2	2.4	S	30
22/04/06	6:30 PM	26.1	26.4	26.1	1.6	3.2	S	30
22/04/06	7:00 PM	25.6	26.0	25.5	1.5	3.4	S	30
22/04/06	7:30 PM	25.4	25.7	25.2	1.7	3.8	S	30
22/04/06	8:00 PM	25.0	25.3	24.8	1.5	2.2	S	30
22/04/06	8:30 PM	24.9	25.1	24.8	1.4	1.5	S	30
22/04/06	9:00 PM	24.8	24.8	24.6	0.9	2.0	S	30
22/04/06	9:30 PM	24.7	24.9	24.6	0.8	2.6	S	30
22/04/06	10:00 PM	24.5	24.6	24.3	0.4	1.5	S	30
22/04/06	10:30 PM	24.4	24.7	24.2	1.8	4.0	S	30
22/04/06	11:00 PM	24.3	24.6	24.0	1.2	1.9	S	30
22/04/06	11:30 PM	24.1	24.5	23.9	1.6	2.9	SE	30





Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
23/04/06	12:00 AM	24.0	24.3	23.8	1.5	1.7	SE	30
23/04/06	12:30 AM	24.0	24.0	24.0	1.3	2.6	SE	30
23/04/06	1:00 AM	23.9	24.2	23.7	1.4	1.9	S	30
23/04/06	1:30 AM	23.9	23.9	23.8	1.2	1.6	SE	30
23/04/06	2:00 AM	23.9	24.2	23.8	1.6	2.3	S	30
23/04/06	2:30 AM	23.8	23.8	23.5	1.9	3.6	S	30
23/04/06	3:00 AM	23.9	24.1	23.8	1.9	2.6	S	30
23/04/06	3:30 AM	23.8	23.9	23.7	2.2	3.4	S	30
23/04/06	4:00 AM	23.8	24.1	23.6	1.8	4.1	S	30
23/04/06	4:30 AM	23.8	23.9	23.7	1.2	3.2	S	30
23/04/06	5:00 AM	23.7	23.8	23.5	1.2	2.3	S	30
23/04/06	5:30 AM	23.7	23.7	23.4	0.8	1.3	S	30
23/04/06	6:00 AM	23.9	24.2	23.7	0.9	2.4	SE	30
23/04/06	6:30 AM	24.3	24.5	24.1	0.4	0.6	S	30
23/04/06	7:00 AM	24.7	24.9	24.6	1.3	3.6	S	30
23/04/06	7:30 AM	25.0	25.3	24.9	1.6	3.5	S	30
23/04/06	8:00 AM	25.3	25.4	25.1	1.5	1.9	S	30
23/04/06	8:30 AM	25.9	26.0	25.7	1.4	3.7	S	30
23/04/06	9:00 AM	26.4	26.4	26.2	1.9	2.8	S	30
23/04/06	9:30 AM	27.2	27.6	27.1	2.1	3.0	S	30
23/04/06	10:00 AM	28.5	28.8	28.2	1.9	2.0	S	30
23/04/06	10:30 AM	29.0	29.1	28.9	1.7	2.6	S	30
23/04/06	11:00 AM	29.4	29.6	29.3	2.4	3.6	S	30
23/04/06	11:30 AM	30.0	30.0	29.9	2.4	4.1	S	30
23/04/06	12:00 PM	30.5	30.8	30.3	2.2	2.3	S	30
23/04/06	12:30 PM	30.6	30.9	30.5	1.9	2.9	S	30
23/04/06	1:00 PM	30.9	30.9	30.7	2.5	3.4	S	30
23/04/06	1:30 PM	31.0	31.3	30.9	2.1	3.4	S	30
23/04/06	2:00 PM	30.9	31.2	30.9	2.4	3.4	SE S	30
23/04/06	2:30 PM	30.6	31.0	30.5	2.5	3.1	S	30
23/04/06	3:00 PM	29.7	29.8	29.7	2.8	2.9	S	30
23/04/06	3:30 PM	29.1	29.1	29.1	2.3	4.1	S	30
23/04/06	4:00 PM	29.0	29.3	28.8	2.1	2.8	S	30
23/04/06	4:30 PM	28.8	28.8	28.6	3.3	3.6	S	30
23/04/06	5:00 PM	28.7	29.1	28.5	2.6	3.8	S	30
23/04/06	5:30 PM	28.0	28.4	27.8	2.4	3.1	S	30
23/04/06	6:00 PM	27.8	28.1	27.6	1.9	2.3	S	30
23/04/06	6:30 PM	27.0	27.1	26.8	1.4	1.9	S	30
23/04/06	7:00 PM	26.8	26.8	26.7	0.7	0.9	SW	30
23/04/06	7:30 PM	26.7	26.9	26.6	1.4	2.1	SW	30
23/04/06	8:00 PM	26.5	26.7	26.2	0.7	2.5	SW	30
23/04/06	8:30 PM	26.4	26.8	26.3	0.3	0.6	S	30
23/04/06	9:00 PM	26.2	26.3	26.0	0.6	1.5	S	30
23/04/06	9:30 PM	26.1	26.3	25.8	1.1	2.9	S	30
23/04/06	10:00 PM	26.0	26.3	25.8	0.7	1.8	SW	30
23/04/06	10:30 PM	25.5	25.7	25.5	0.1	0.4	N	30
23/04/06	11:00 PM	25.2	25.4	24.9	0.1	0.3	N	30
23/04/06	11:30 PM	25.4	25.5	25.1	0.2	1.9	E	30
24/04/06	12:00 AM	25.4	25.8	25.3	1.4	3.4	NE	30
24/04/06	12:30 AM	25.4	25.7	25.2	1.1	1.1	NE	30
24/04/06	1:00 AM	25.1	25.5	24.9	2.2	3.2	N	30
24/04/06	1:30 AM	24.5	24.6	24.3	0.6	0.6	W	30
24/04/06	2:00 AM	24.3	24.5	24.1	1.3	3.5	NW	30
24/04/06	2:30 AM	23.0	23.1	22.9	1.4	3.4	SW	30
24/04/06	3:00 AM	23.0	23.3	22.8	1.6	1.7	SW	30
24/04/06	3:30 AM	22.9	23.3	22.7	1.0	1.1	NW	30
24/04/06	4:00 AM	23.0	23.1	22.9	0.2	2.1	N	30
24/04/06	4:30 AM	23.0	23.3	22.9	0.2	0.3	N	30
24/04/06	5:00 AM	23.0	23.3	22.8	0.0	0.5	N	30
24/04/06	5:30 AM	23.2	23.4	23.2	1.0	3.2	NWW	30
24/04/06	6:00 AM	23.2	23.5	22.9	0.5	1.4	S	30
24/04/06	6:30 AM	22.8	22.9	22.7	1.2	2.1	SW	30
24/04/06	7:00 AM	22.9	23.0	22.6	1.8	4.0	NW	30
24/04/06	7:30 AM	23.2	23.6	23.1	1.1	2.8	E	30
24/04/06	8:00 AM	23.4	23.4	23.1	0.3	2.2	E	30
24/04/06	8:30 AM	23.8	24.0	23.6	0.0	2.1	N	30
24/04/06	9:00 AM	24.4	24.5	24.4	0.1	2.4	N	30
24/04/06	9:30 AM	24.7	24.9	24.5	1.1	1.2	S	30
24/04/06	10:00 AM	24.8	24.8	24.8	0.3	1.9	N	30
24/04/06	10:30 AM	24.6	24.9	24.4	1.0	1.1	E	30
24/04/06	11:00 AM	24.6	24.8	24.5	2.5	4.5	SEE	30
24/04/06	11:30 AM	24.8	25.2	24.6	1.1	3.1	SE	30
24/04/06	12:00 PM	23.9	24.2	23.6	2.2	3.3	SE	30
24/04/06	12:30 PM	23.6	23.6	23.3	2.4	3.8	N	30
24/04/06	1:00 PM	24.0	24.2	23.8	3.3	3.8	NE	30
24/04/06	1:30 PM	23.9	24.0	23.8	2.5	3.1	NE	30
24/04/06	2:00 PM	24.5	24.9	24.2	3.3	3.5	NE	30
24/04/06	2:30 PM	24.6	24.9	24.4	3.4	4.2	N	30
24/04/06	3:00 PM	24.0	24.1	23.9	3.2	4.1	N	30
24/04/06	3:30 PM	24.1	24.4	24.0	1.7	3.4	NE	30
24/04/06	4:00 PM	24.1	24.4	23.8	2.0	3.4	NE	30
24/04/06	4:30 PM	23.3	23.6	23.0	3.3	4.1	N	30
24/04/06	5:00 PM	23.3	23.6	23.2	3.2	4.8	N	30
24/04/06	5:30 PM	23.8	24.1	23.5	1.1	2.2	N	30
24/04/06	6:00 PM	23.5	23.8	23.4	2.7	3.8	N	30
24/04/06	6:30 PM	23.3	23.4	23.1	1.4	2.1	NE	30
24/04/06	7:00 PM	23.2	23.4	23.1	3.2	4.6	NE	30
24/04/06	7:30 PM	23.1	23.2	23.0	2.2	4.1	NE	30
24/04/06	8:00 PM	23.2	23.4	23.1	2.8	4.9	NE	30
24/04/06	8:30 PM	23.3	23.5	23.0	2.3	2.9	E	30
24/04/06	9:00 PM	23.3	23.6	23.1	2.2	2.8	E	30
24/04/06	9:30 PM	23.1	23.1	22.9	2.0	2.3	NE	30
24/04/06	10:00 PM	23.1	23.3	23.0	2.3	4.5	N	30
24/04/06	10:30 PM	23.1	23.5	22.9	1.7	2.6	E	30
24/04/06	11:00 PM	23.2	23.3	22.9	1.1	1.8	NE	30
24/04/06	11:30 PM	23.0	23.3	22.8	2.6	3.9	NE	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
25/04/06	12:00 AM	22.8	23.1	22.7	3.1	5.1	N	30
25/04/06	12:30 AM	22.8	22.9	22.5	2.2	2.2	E	30
25/04/06	1:00 AM	22.7	22.8	22.6	2.4	2.6	SEE	30
25/04/06	1:30 AM	22.6	22.8	22.5	2.5	3.0	NE	30
25/04/06	2:00 AM	22.4	22.7	22.2	2.8	3.2	N	30
25/04/06	2:30 AM	22.3	22.5	22.2	2.9	4.7	NEN	30
25/04/06	3:00 AM	22.2	22.3	21.9	3.2	3.8	N	30
25/04/06	3:30 AM	22.2	22.5	22.2	3.3	5.3	NE	30
25/04/06	4:00 AM	22.1	22.1	22.0	2.5	2.7	N	30
25/04/06	4:30 AM	22.2	22.4	22.0	2.3	2.5	SEE	30
25/04/06	5:00 AM	22.1	22.4	22.0	3.0	4.1	N	30
25/04/06	5:30 AM	22.0	22.3	21.9	3.3	4.1	NEN	30
25/04/06	6:00 AM	22.0	22.1	21.9	2.8	3.0	N	30
25/04/06	6:30 AM	22.0	22.3	21.9	3.4	4.2	N	30
25/04/06	7:00 AM	22.0	22.0	21.8	2.6	3.5	N	30
25/04/06	7:30 AM	22.1	22.1	22.0	1.4	2.4	NEE	30
25/04/06	8:00 AM	21.9	22.0	21.9	3.0	4.3	N	30
25/04/06	8:30 AM	22.0	22.3	21.9	2.3	2.6	NE	30
25/04/06	9:00 AM	21.9	22.2	21.8	1.9	2.6	NE	30
25/04/06	9:30 AM	22.0	22.3	22.0	2.3	2.9	NE	30
25/04/06	10:00 AM	22.4	22.6	22.3	2.2	3.2	NE	30
25/04/06	11:00 AM	22.6	22.9	22.3	2.4	3.6	NE	30
25/04/06	11:30 AM	22.7	22.8	22.6	2.6	4.3	E	30
25/04/06	12:00 PM	22.8	22.9	22.8	2.1	3.9	NE	30
25/04/06	12:30 PM	22.5	22.7	22.4	1.3	3.4	N	30
25/04/06	1:00 PM	22.4	22.8	22.1	1.2	2.8	N	30
25/04/06	1:30 PM	22.3	22.5	22.3	1.7	3.7	N	30
25/04/06	2:00 PM	22.3	22.4	22.1	1.7	3.5	N	30
25/04/06	2:30 PM	22.5	22.6	22.4	2.4	4.1	NE	30
25/04/06	3:00 PM	22.8	23.2	22.5	1.1	2.1	N	30
25/04/06	3:30 PM	22.7	23.0	22.6	2.1	2.7	N	30
25/04/06	4:00 PM	22.8	23.0	22.6	0.6	1.7	N	30
25/04/06	4:30 PM	22.8	23.0	22.7	1.8	2.9	NW	30
25/04/06	5:00 PM	22.7	23.0	22.7	2.2	3.2	N	30
25/04/06	5:30 PM	22.9	23.2	22.8	1.7	2.9	NE	30
25/04/06	6:00 PM	22.8	23.1	22.6	2.2	4.3	NE	30
25/04/06	6:30 PM	22.7	23.1	22.5	2.0	2.9	NE	30
25/04/06	7:00 PM	22.6	22.9	22.4	1.7	3.2	N	30
25/04/06	7:30 PM	22.7	23.0	22.6	2.4	4.3	N	30
25/04/06	8:00 PM	22.7	22.9	22.4	1.7	1.9	NE	30
25/04/06	8:30 PM	22.7	23.0	22.5	2.2	3.0	NE	30
25/04/06	9:00 PM	22.7	22.9	22.6	1.5	3.2	NEN	30
25/04/06	9:30 PM	22.7	23.0	22.6	1.6	2.6	NE	30
25/04/06	10:00 PM	22.8	23.0	22.7	2.7	4.2	E	30
25/04/06	10:30 PM	22.8	23.2	22.6	0.2	0.9	N	30
25/04/06	11:00 PM	22.8	23.1	22.8	1.0	2.1	N	30
25/04/06	11:30 PM	22.9	22.9	22.7	0.0	2.2	N	30
26/04/06	12:00 AM	22.7	23.1	22.7	0.1	2.1	N	30
26/04/06	12:30 AM	22.6	22.9	22.4	0.0	0.6	N	30
26/04/06	1:00 AM	22.7	23.0	22.5	0.0	1.7	N	30
26/04/06	1:30 AM	22.9	23.3	22.8	0.3	1.8	N	30
26/04/06	2:00 AM	22.9	23.0	22.8	0.6	1.4	NE	30
26/04/06	2:30 AM	22.9	22.9	22.8	0.0	1.4	N	30
26/04/06	3:00 AM	23.0	23.1	22.9	0.1	1.1	N	30
26/04/06	3:30 AM	23.1	23.4	23.1	0.0	0.6	N	30
26/04/06	4:00 AM	23.2	23.4	23.2	0.0	0.3	N	30
26/04/06	4:30 AM	23.3	23.6	23.1	0.0	0.4	N	30
26/04/06	5:00 AM	23.3	23.4	23.0	0.4	2.2	NE	30
26/04/06	5:30 AM	23.3	23.7	23.3	0.0	1.4	N	30
26/04/06	6:00 AM	23.2	23.2	22.9	0.0	0.7	N	30
26/04/06	6:30 AM	23.4	23.8	23.2	0.0	0.4	N	30
26/04/06	7:00 AM	23.7	24.0	23.6	0.0	0.3	N	30
26/04/06	7:30 AM	23.9	24.0	23.7	0.0	2.2	N	30
26/04/06	8:00 AM	24.2	24.6	24.1	0.0	0.8	N	30
26/04/06	8:30 AM	24.9	25.2	24.8	1.1	2.8	S	30
26/04/06	9:00 AM	25.2	25.4	24.9	1.3	2.4	S	30
26/04/06	9:30 AM	25.6	25.8	25.4	1.7	2.6	S	30
26/04/06	10:00 AM	26.3	26.4	26.2	1.3	2.1	S	30
26/04/06	10:30 AM	26.4	26.5	26.4	1.7	3.1	S	30
26/04/06	11:00 AM	27.3	27.5	27.2	2.5	2.5	S	30
26/04/06	11:30 AM	27.6	27.8	27.3	2.4	2.9	S	30
26/04/06	12:00 PM	27.0	27.3	26.7	2.9	3.7	S	30
26/04/06	12:30 PM	27.7	28.0	27.5	1.7	2.9	SE	30
26/04/06	1:00 PM	27.9	28.2	27.7	1.4	2.2	SW	30
26/04/06	1:30 PM	27.5	27.7	27.2	3.2	3.4	SW	30
26/04/06	2:00 PM	28.1	28.4	27.8	4.9	6.0	SW	30
26/04/06	2:30 PM	28.1	28.4	27.9	3.0	3.2	S	30
26/04/06	3:00 PM	28.0	28.2	27.8	3.2	4.0	S	30
26/04/06	3:30 PM	28.2	28.5	28.1	2.0	3.7	S	30
26/04/06	4:00 PM	27.8	28.2	27.6	2.6	4.6	SW	30
26/04/06	4:30 PM	27.7	27.9	27.4	1.7	2.1	SWS	30
26/04/06	5:00 PM	27.2	27.4	27.1	2.5	3.3	S	30
26/04/06	5:30 PM	27.2	27.4	27.1	2.5	2.8	SW	30
26/04/06	6:00 PM	27.0	27.0	26.8	2.6	4.7	SW	30
26/04/06	6:30 PM	27.0	27.2	26.8	3.2	4.1	SW	30
26/04/06	7:00 PM	26.7	27.0	26.4	2.1	2.8	SW	30
26/04/06	7:30 PM	26.4	26.4	26.3	0.4	1.4	S	30
26/04/06	8:00 PM	26.0	26.0	25.9	0.8	2.2	S	30
26/04/06	8:30 PM	25.8	26.2	25.6	0.7	2.7	SE	30
26/04/06	9:00 PM	25.4	25.7	25.2	0.9	1.1	E	30
26/04/06	9:30 PM	25.3	25.5	25.2	0.5	1.3	N	30
26/04/06	10:00 PM	25.7	26.0	25.5	0.3	1.4	SW	30
26/04/06	10:30 PM	25.5	25.8	25.5	0.9	2.2	S	30
26/04/06	11:00 PM	25.4	25.5	25.3	0.1	0.9	N	30
26/04/06	11:30 PM	25.3	25.5	25.1	1.1	2.5	SW	30
27/04/06	12:00 AM	25.2	25.4	25.2	0.9	1.8	NW	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind	Period
		Temp	Temp	Temp	Average	Hi	Direction	
27/04/06	12:30 AM	25.0	25.0	24.9	1.0	2.3	SW	30
27/04/06	1:00 AM	24.8	25.1	24.6	0.2	1.7	N	30
27/04/06	1:30 AM	24.8	24.8	24.6	0.0	1.1	N	30
27/04/06	2:00 AM	24.8	24.8	24.5	1.1	1.1	SWW	30
27/04/06	2:30 AM	24.8	25.1	24.8	0.1	1.5	N	30
27/04/06	3:00 AM	24.8	24.8	24.5	0.1	0.2	N	30
27/04/06	3:30 AM	24.8	25.1	24.7	0.3	0.3	N	30
27/04/06	4:00 AM	24.8	25.0	24.8	1.3	1.7	SW	30
27/04/06	4:30 AM	24.7	25.0	24.5	0.2	1.5	N	30
27/04/06	5:00 AM	24.7	25.1	24.5	0.0	1.6	N	30
27/04/06	5:30 AM	24.6	24.9	24.4	0.1	1.7	N	30
27/04/06	6:00 AM	24.5	24.7	24.4	0.0	0.6	N	30
27/04/06	6:30 AM	24.5	24.8	24.3	0.0	1.2	N	30
27/04/06	7:00 AM	24.7	24.9	24.5	0.1	0.4	N	30
27/04/06	7:30 AM	25.0	25.0	24.8	0.1	1.8	N	30
27/04/06	8:00 AM	25.1	25.4	25.0	0.0	0.8	N	30
27/04/06	8:30 AM	25.2	25.5	25.0	0.9	3.0	SEE	30
27/04/06	9:00 AM	25.8	26.0	25.5	0.7	0.9	SE	30
27/04/06	9:30 AM	26.7	27.1	26.6	1.7	3.1	S	30
27/04/06	10:00 AM	27.0	27.0	27.0	1.9	2.9	S	30
27/04/06	10:30 AM	26.6	27.0	26.6	2.0	4.2	S	30
27/04/06	11:00 AM	26.8	27.2	26.8	1.9	3.3	S	30
27/04/06	11:30 AM	26.8	26.9	26.8	1.1	1.5	S	30
27/04/06	12:00 PM	27.6	27.6	27.4	1.4	3.4	SE	30
27/04/06	12:30 PM	28.0	28.3	27.9	1.7	3.5	S	30
27/04/06	1:00 PM	28.1	28.4	28.0	2.4	3.6	S	30
27/04/06	1:30 PM	27.8	28.0	27.5	2.6	4.6	SWS	30
27/04/06	2:00 PM	28.0	28.2	27.8	3.1	4.2	SW	30
27/04/06	2:30 PM	27.9	28.2	27.7	2.0	3.2	S	30
27/04/06	3:00 PM	27.9	28.3	27.7	2.6	4.6	S	30
27/04/06	3:30 PM	28.1	28.2	27.8	2.0	2.4	S	30
27/04/06	4:00 PM	28.0	28.2	27.7	2.2	3.1	S	30
27/04/06	4:30 PM	27.8	28.2	27.6	2.1	2.5	S	30
27/04/06	5:00 PM	27.4	27.5	27.1	2.1	2.5	S	30
27/04/06	5:30 PM	27.2	27.5	27.1	2.0	3.9	S	30
27/04/06	6:00 PM	26.9	27.3	26.9	2.2	3.4	S	30
27/04/06	6:30 PM	26.5	26.8	26.3	1.8	3.7	S	30
27/04/06	7:00 PM	26.3	26.4	26.1	1.2	3.5	S	30
27/04/06	7:30 PM	26.2	26.6	26.0	2.0	4.2	S	30
27/04/06	8:00 PM	26.0	26.2	25.9	1.8	3.5	S	30
27/04/06	8:30 PM	26.1	26.2	26.1	1.2	3.4	S	30
27/04/06	9:00 PM	26.1	26.5	26.1	2.1	2.3	S	30
27/04/06	9:30 PM	26.0	26.2	26.0	0.6	1.8	SE	30
27/04/06	10:00 PM	26.1	26.2	25.8	2.1	3.0	S	30
27/04/06	10:30 PM	26.3	26.4	26.1	1.8	3.9	S	30
27/04/06	11:00 PM	25.9	26.0	25.7	1.2	2.1	S	30
27/04/06	11:30 PM	25.7	25.8	25.6	1.7	3.6	S	30
28/04/06	12:00 AM	25.8	26.1	25.6	1.3	1.7	S	30
28/04/06	12:30 AM	25.8	26.0	25.8	1.0	1.5	S	30
28/04/06	1:00 AM	25.9	25.9	25.7	1.2	1.8	S	30
28/04/06	1:30 AM	25.9	26.2	25.7	1.7	2.0	S	30
28/04/06	2:00 AM	26.0	26.0	25.8	1.8	3.2	SWS	30
28/04/06	2:30 AM	26.0	26.2	25.7	2.2	3.2	S	30
28/04/06	3:00 AM	26.1	26.3	26.0	2.5	3.7	S	30
28/04/06	3:30 AM	26.0	26.1	25.7	2.4	2.9	S	30
28/04/06	4:00 AM	25.7	26.1	25.6	2.4	2.7	S	30
28/04/06	4:30 AM	25.5	25.9	25.4	3.3	3.6	S	30
28/04/06	5:00 AM	25.4	25.4	25.2	3.3	3.5	S	30
28/04/06	5:30 AM	25.2	25.6	24.9	1.7	2.1	NW	30
28/04/06	6:00 AM	24.9	25.1	24.6	1.2	1.5	N	30
28/04/06	6:30 AM	24.8	25.0	24.6	1.6	1.6	SW	30
28/04/06	7:00 AM	24.8	25.0	24.7	1.2	1.9	NEE	30
28/04/06	7:30 AM	23.0	23.0	22.9	3.6	4.1	NE	30
28/04/06	8:00 AM	23.0	23.1	22.8	3.2	4.0	NEE	30
28/04/06	8:30 AM	23.0	23.3	22.9	0.5	0.7	N	30
28/04/06	9:00 AM	22.8	23.1	22.6	2.8	4.4	NEE	30
28/04/06	9:30 AM	22.6	22.7	22.3	2.5	4.1	E	30
28/04/06	10:00 AM	22.2	22.4	22.2	2.7	3.7	NE	30
28/04/06	10:30 AM	22.4	22.7	22.3	3.5	4.2	N	30
28/04/06	11:00 AM	22.7	23.0	22.7	1.6	3.8	NEE	30
28/04/06	11:30 AM	22.5	22.8	22.4	2.5	4.2	E	30
28/04/06	12:00 PM	22.3	22.4	22.2	2.5	3.4	NE	30
28/04/06	12:30 PM	22.0	22.4	21.8	2.4	2.7	NE	30
28/04/06	1:00 PM	21.7	21.9	21.4	2.0	2.4	NEE	30
28/04/06	1:30 PM	21.3	21.4	21.1	3.1	3.3	NE	30
28/04/06	2:00 PM	20.9	20.9	20.8	3.8	6.0	NE	30
28/04/06	2:30 PM	20.8	21.1	20.7	3.6	5.0	NE	30
28/04/06	3:00 PM	20.7	21.0	20.6	1.9	2.8	NE	30
28/04/06	3:30 PM	20.9	21.1	20.7	2.4	3.2	E	30
28/04/06	4:00 PM	20.7	21.0	20.5	2.7	3.1	NE	30
28/04/06	4:30 PM	20.8	21.1	20.7	3.9	5.5	NEN	30
28/04/06	5:00 PM	20.8	20.9	20.6	2.8	4.9	N	30
28/04/06	5:30 PM	20.8	20.8	20.7	2.3	4.1	N	30
28/04/06	6:00 PM	20.7	21.0	20.5	2.5	4.7	N	30
28/04/06	6:30 PM	20.7	20.8	20.4	2.8	3.6	NEN	30
28/04/06	7:00 PM	20.4	20.5	20.3	0.8	1.8	N	30
28/04/06	7:30 PM	20.4	20.5	20.2	0.7	2.0	N	30
28/04/06	8:00 PM	20.6	20.8	20.6	1.0	3.1	NE	30
28/04/06	8:30 PM	20.6	20.7	20.5	0.8	2.1	E	30
28/04/06	9:00 PM	20.6	20.6	20.4	1.7	3.0	NE	30
28/04/06	9:30 PM	20.7	21.0	20.6	2.3	3.4	NE	30
28/04/06	10:00 PM	20.7	20.8	20.4	1.0	2.8	NE	30
28/04/06	10:30 PM	20.5	20.6	20.4	1.2	2.9	NE	30
28/04/06	11:00 PM	20.5	20.8	20.3	1.0	2.0	N	30
28/04/06	11:30 PM	20.4	20.8	20.2	1.4	3.2	NE	30
29/04/06	12:00 AM	20.3	20.5	20.2	1.0	1.9	NE	30



Weather information in April 2006

Date (DMY)	Time	Average	Hi	Low	Wind Speed (m/s)		Wind Direction	Period
		Temp	Temp	Temp	Average	Hi		
29/04/06	12:30 AM	20.4	20.4	20.2	0.0	0.1	N	30
29/04/06	1:00 AM	20.5	20.8	20.3	0.2	0.3	N	30
29/04/06	1:30 AM	20.3	20.5	20.2	1.3	2.9	NE	30
29/04/06	2:00 AM	20.3	20.5	20.2	0.7	2.0	NE	30
29/04/06	2:30 AM	20.4	20.4	20.2	1.7	2.1	NE	30
29/04/06	3:00 AM	20.7	20.9	20.4	0.9	2.8	NE	30
29/04/06	3:30 AM	20.7	20.8	20.6	0.0	2.2	N	30
29/04/06	4:00 AM	20.7	21.0	20.7	0.7	0.8	NEN	30
29/04/06	4:30 AM	20.7	21.1	20.4	0.7	1.5	N	30
29/04/06	5:00 AM	20.8	21.0	20.7	0.0	1.1	N	30
29/04/06	5:30 AM	20.8	21.0	20.5	0.0	0.6	N	30
29/04/06	6:00 AM	20.7	20.9	20.7	1.0	2.9	NE	30
29/04/06	6:30 AM	20.8	20.9	20.7	1.6	3.9	N	30
29/04/06	7:00 AM	20.8	21.2	20.7	1.1	2.6	NE	30
29/04/06	7:30 AM	20.3	20.5	20.1	2.0	2.3	NE	30
29/04/06	8:00 AM	20.3	20.6	20.2	1.2	2.6	NE	30
29/04/06	8:30 AM	20.3	20.5	20.1	2.1	3.2	NEE	30
29/04/06	9:00 AM	20.6	20.9	20.6	1.1	3.4	NW	30
29/04/06	9:30 AM	20.8	21.2	20.5	1.7	3.2	E	30
29/04/06	10:00 AM	20.9	21.1	20.9	1.0	3.2	E	30
29/04/06	10:30 AM	21.5	21.8	21.5	0.0	1.3	N	30
29/04/06	11:00 AM	22.6	22.7	22.5	1.8	3.4	E	30
29/04/06	11:30 AM	23.5	23.6	23.3	2.4	2.9	E	30
29/04/06	12:00 PM	24.0	24.4	23.9	1.9	3.1	E	30
29/04/06	12:30 PM	24.2	24.2	24.1	1.5	2.9	E	30
29/04/06	1:00 PM	24.1	24.3	23.9	1.2	3.3	E	30
29/04/06	1:30 PM	24.0	24.1	24.0	1.2	1.4	E	30
29/04/06	2:00 PM	24.0	24.1	23.7	1.6	3.7	NE	30
29/04/06	2:30 PM	23.9	24.1	23.9	1.5	3.2	NE	30
29/04/06	3:00 PM	23.8	24.1	23.8	1.2	1.4	N	30
29/04/06	3:30 PM	23.8	23.9	23.6	1.3	2.8	NE	30
29/04/06	4:00 PM	23.6	23.7	23.6	1.1	2.2	NE	30
29/04/06	4:30 PM	23.5	23.6	23.3	1.9	3.1	E	30
29/04/06	5:00 PM	23.3	23.5	23.2	1.5	2.3	E	30
29/04/06	5:30 PM	23.0	23.3	22.7	1.3	3.1	E	30
29/04/06	6:00 PM	22.9	23.1	22.9	0.9	3.1	E	30
29/04/06	6:30 PM	23.0	23.3	22.9	0.7	2.2	E	30
29/04/06	7:00 PM	22.9	23.0	22.8	0.5	1.8	E	30
29/04/06	7:30 PM	22.9	23.1	22.7	1.2	1.5	E	30
29/04/06	8:00 PM	22.8	23.0	22.5	1.6	2.9	NE	30
29/04/06	8:30 PM	22.8	23.1	22.8	1.2	2.0	NE	30
29/04/06	9:00 PM	22.8	23.1	22.8	1.3	1.5	E	30
29/04/06	9:30 PM	22.7	23.0	22.6	1.1	2.3	E	30
29/04/06	10:00 PM	22.7	22.8	22.6	1.2	1.3	E	30
29/04/06	10:30 PM	22.6	23.0	22.6	1.3	3.2	E	30
29/04/06	11:00 PM	22.6	23.0	22.5	0.9	1.9	E	30
29/04/06	11:30 PM	22.5	22.6	22.2	0.8	1.4	E	30
30/04/06	12:00 AM	22.5	22.5	22.2	0.7	2.9	E	30
30/04/06	12:30 AM	22.5	22.7	22.2	0.8	1.6	SE	30
30/04/06	1:00 AM	22.5	22.8	22.4	1.1	2.9	E	30
30/04/06	1:30 AM	22.3	22.3	22.2	1.3	2.1	E	30
30/04/06	2:00 AM	22.1	22.2	21.9	1.3	2.2	E	30
30/04/06	2:30 AM	22.0	22.0	21.9	1.0	2.3	SE	30
30/04/06	3:00 AM	22.0	22.1	21.8	0.8	1.6	SE	30
30/04/06	3:30 AM	21.9	22.1	21.6	1.3	3.1	SE	30
30/04/06	4:00 AM	21.9	22.3	21.8	0.8	1.4	SE	30
30/04/06	4:30 AM	22.0	22.1	21.7	0.7	2.5	SE	30
30/04/06	5:00 AM	21.9	22.1	21.7	0.6	2.8	SE	30
30/04/06	5:30 AM	21.8	22.2	21.8	0.3	1.0	E	30
30/04/06	6:00 AM	21.9	22.0	21.7	0.5	2.5	E	30
30/04/06	6:30 AM	22.0	22.2	21.9	0.3	1.6	E	30
30/04/06	7:00 AM	22.1	22.3	21.9	0.4	1.6	E	30
30/04/06	7:30 AM	22.3	22.7	22.2	0.6	0.7	E	30
30/04/06	8:00 AM	22.6	22.9	22.6	0.8	1.2	SE	30
30/04/06	8:30 AM	22.9	23.2	22.7	0.4	2.0	SE	30
30/04/06	9:00 AM	23.6	23.8	23.5	0.6	2.2	SE	30
30/04/06	9:30 AM	24.4	24.7	24.1	0.9	1.8	SE	30
30/04/06	10:00 AM	24.9	25.3	24.8	1.1	3.2	S	30
30/04/06	10:30 AM	25.5	25.8	25.4	0.8	2.3	S	30
30/04/06	11:00 AM	26.0	26.3	25.8	0.6	1.8	S	30
30/04/06	11:30 AM	27.5	27.5	27.3	0.4	2.7	S	30
30/04/06	12:00 PM	27.9	28.2	27.7	0.6	0.8	S	30
30/04/06	12:30 PM	28.2	28.4	28.2	0.6	1.1	S	30
30/04/06	1:00 PM	28.1	28.3	28.0	0.4	0.8	S	30
30/04/06	1:30 PM	28.0	28.1	27.7	0.5	1.8	SE	30
30/04/06	2:00 PM	27.8	27.9	27.7	0.6	2.0	SE	30
30/04/06	2:30 PM	27.8	28.1	27.8	0.7	2.2	SE	30
30/04/06	3:00 PM	27.5	27.6	27.4	0.6	2.1	S	30
30/04/06	3:30 PM	27.4	27.5	27.4	0.4	1.5	S	30
30/04/06	4:00 PM	27.0	27.1	26.8	0.3	1.2	SE	30
30/04/06	4:30 PM	26.8	26.8	26.5	0.8	1.6	SE	30
30/04/06	5:00 PM	26.2	26.3	26.2	0.3	0.8	S	30
30/04/06	5:30 PM	25.8	25.8	25.6	0.4	0.9	S	30
30/04/06	6:00 PM	25.6	25.8	25.3	0.3	2.4	S	30
30/04/06	6:30 PM	25.3	25.5	25.3	0.6	1.1	S	30
30/04/06	7:00 PM	25.0	25.3	24.8	0.8	2.5	S	30
30/04/06	7:30 PM	24.5	24.7	24.2	0.9	1.3	S	30
30/04/06	8:00 PM	24.2	24.5	24.2	0.4	2.4	S	30
30/04/06	8:30 PM	24.0	24.2	23.8	0.5	2.1	SE	30
30/04/06	9:00 PM	23.8	24.0	23.7	0.6	1.3	SE	30
30/04/06	9:30 PM	23.6	23.7	23.4	0.8	1.6	S	30
30/04/06	10:00 PM	23.5	23.8	23.2	0.5	2.1	S	30
30/04/06	10:30 PM	23.4	23.7	23.2	0.5	0.8	S	30
30/04/06	11:00 PM	23.1	23.3	22.8	0.6	1.3	S	30
30/04/06	11:30 PM	23.0	23.2	22.9	0.9	1.7	S	30



## **Appendix F**

### **Event-Action Plans**

## EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE

### ACTION

	ET Leader	IC(E)	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Inform ER, IC(E) and Contractor</li> <li>3. Repeat measurement to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check contractor's working method</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practise</li> <li>2. Amend working methods if appropriate</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Inform IC(E) and Contractor</li> <li>3. Repeat measurements to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> <li>5. Discuss with IC(E) and Contractor on remedial actions</li> <li>6. If exceedance continues, arrange meeting with IC(E) and ER.</li> <li>7. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with ET and Contractor on possible remedial measures</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures</li> <li>5. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify the Contractor</li> <li>3. Ensure remedial measures properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to IC(E) within 3 working days of notification</li> <li>2. Implement the agreed proposals</li> <li>3. Amend proposal if appropriate</li> </ol>
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Inform ER, Contractor and EPD</li> <li>3. Repeat measurement to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> <li>5. Assess the effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check Contractor's working method</li> <li>3. Discuss with ET and Contractor on possible remedial measures</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures</li> <li>5. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify the Contractor</li> <li>3. Ensure remedial measures properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Amend proposal if appropriate.</li> </ol>

## EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE

EVENT	ACTION			Contractor
	ET Leader	IC(E)	ER	
<p>2. Exceedance for two or more consecutive samples</p>	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Notify IC(E), ER, EPD and Contractor</li> <li>3. Repeat measurement to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> <li>5. Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented</li> <li>6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. In consultation with the IC(E), agree with the Contractor on the remedial measures to be implemented</li> <li>4. Ensure remedial measures are properly implemented if exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> <li>5. Stop the relevant activity of ER until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedances</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Resubmit proposals if problem still not under control</li> <li>5. Stop the relevant activity of ER until the exceedance is abated</li> </ol>

## EVENT/ACTION PLAN FOR NOISE EXCEEDANCE

EVENT	ACTION			
	ET Leader	IC(E)	ER	Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Notify the IC(E) and the Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to the IC(E) and the Contractor.</li> <li>4. Discuss with the Contractor and formulate remedial measures.</li> <li>5. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IC(E).</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify the IC(E), the ER, the EPD and the Contractor.</li> <li>2. Identify source.</li> <li>3. Repeat measurement to confirm findings.</li> <li>4. Increase monitoring frequency.</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>6. Inform the IC(E), the ER and the EPD the causes &amp; actions taken for the exceedances.</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results</li> <li>8. If exceedance due to the construction works stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions.</li> <li>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> <li>5. If exceedances continue, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedances is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification.</li> <li>3. Implement the agreed proposals.</li> <li>4. Resubmit proposals if problem still not under control.</li> <li>5. Stop the relevant activity of works as determined by the ER until the exceedances is abated.</li> </ol>



## EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE

Event	ACTION		
	ET Leader	Contractor	ER
<p>Action level being exceeded by one sampling day</p>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Repeat in-situ measurement to confirm findings;</li> <li>3. Notify Contractor in writing within 24 hours of identification of the exceedance</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Carry out investigation</li> <li>6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works</li> <li>7. Discuss mitigation measures with Contractor if exceedance is due to the construction works within 4 working days</li> <li>8. Repeat measurement on next day of exceedance if exceedance is due to the construction works</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the ER and IEC in writing within 24 hours of identification of exceedance</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Submit investigation report to IEC and ER within 3 working days of the identification of an exceedance</li> <li>5. Consider changes of working method if exceedance is due to the construction works</li> <li>6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER if exceedance is due to the construction works within 4 working days of identification of an exceedance</li> <li>7. Implement the agreed mitigation measures within reasonable time scale</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify EPD and other relevant governmental agencies in writing within 24 hours of the identification of the exceedance</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>3. Require contractor to propose remedial measures for the analysed problem if related to the construction works</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. Assess the effectiveness of the mitigation measure</li> </ol>
			<p>IEC</p> <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Confirm ET assessment if exceedance is due / not due to the works</li> <li>3. Discuss with ET, ER and Contractor on the mitigation measures</li> <li>4. Review contractor's mitigation measures whenever necessary to ensure their effectiveness and advise the ER accordingly</li> <li>5. Supervise the implementation of mitigation measures</li> </ol>

## EVENT AND ACTION PLAN FOR WATER QUALITY

Event	ACTION			
	ET Leader	Contractor	ER	IEC
<p>Action level being exceeded by more than one consecutive sampling days</p>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Repeat in-situ measurement to confirm findings</li> <li>3. Notify Contractor in writing within 24 hours of identification</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Carry out investigation</li> <li>6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works</li> <li>7. Discuss mitigation measures with IEC and Contractor within 4 working of identification of an exceedance</li> <li>8. Ensure mitigation measures are implemented;</li> <li>9. Prepare to increase the monitoring frequency to daily;</li> <li>10. Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify IEC and ER in writing within 24 hours of identification of exceedance</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance</li> <li>6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days of identification of an exceedance</li> <li>7. Implement the agreed mitigation measures within reasonable time scale</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify EPD and other relevant governmental agencies in writing within 24 hours of the identification of the exceedance</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>3. Require contractor to propose remedial measures for the analysed problem if related to the construction works</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. Assess the effectiveness of the mitigation measure</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Confirm ET assessment if exceedance is due / not due to the works</li> <li>3. Discuss with ET, ER and Contractor on the mitigation measures.</li> <li>4. Review contractor's mitigation measures whenever necessary to ensure their effectiveness and advise the ER accordingly</li> <li>5. Assess the effectiveness of the implemented mitigation measures.</li> </ol>

## EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE

Event	ACTION			IEC
	ET Leader	Contractor	ER	
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Notify Contractor in writing within 24 hours of identification of the exceedance</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Carry out investigation</li> <li>6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works</li> <li>7. Discuss mitigation measures with IEC, ER and Contractor within 4 working of identification of an exceedance</li> <li>8. Ensure mitigation measures are implemented;</li> <li>9. Increase the monitoring frequency to daily until no exceedance of Limit Level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify IEC and ER in writing; within 24 hours of the identification of the exceedance</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance</li> <li>6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days of the identification of an exceedance</li> <li>7. Implement the agreed mitigation measures within reasonable time scale</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify EPD and other relevant governmental agencies in writing within 24 hours of identification of exceedance</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>3. Request Contractor to critically review the working methods;</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Confirm ET assessment if exceedance is due / not due to the works</li> <li>3. Discuss with ET, ER and Contractor on the mitigation measures.</li> <li>4. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly.</li> <li>5. Assess the effectiveness of the implemented mitigation measures</li> </ol>

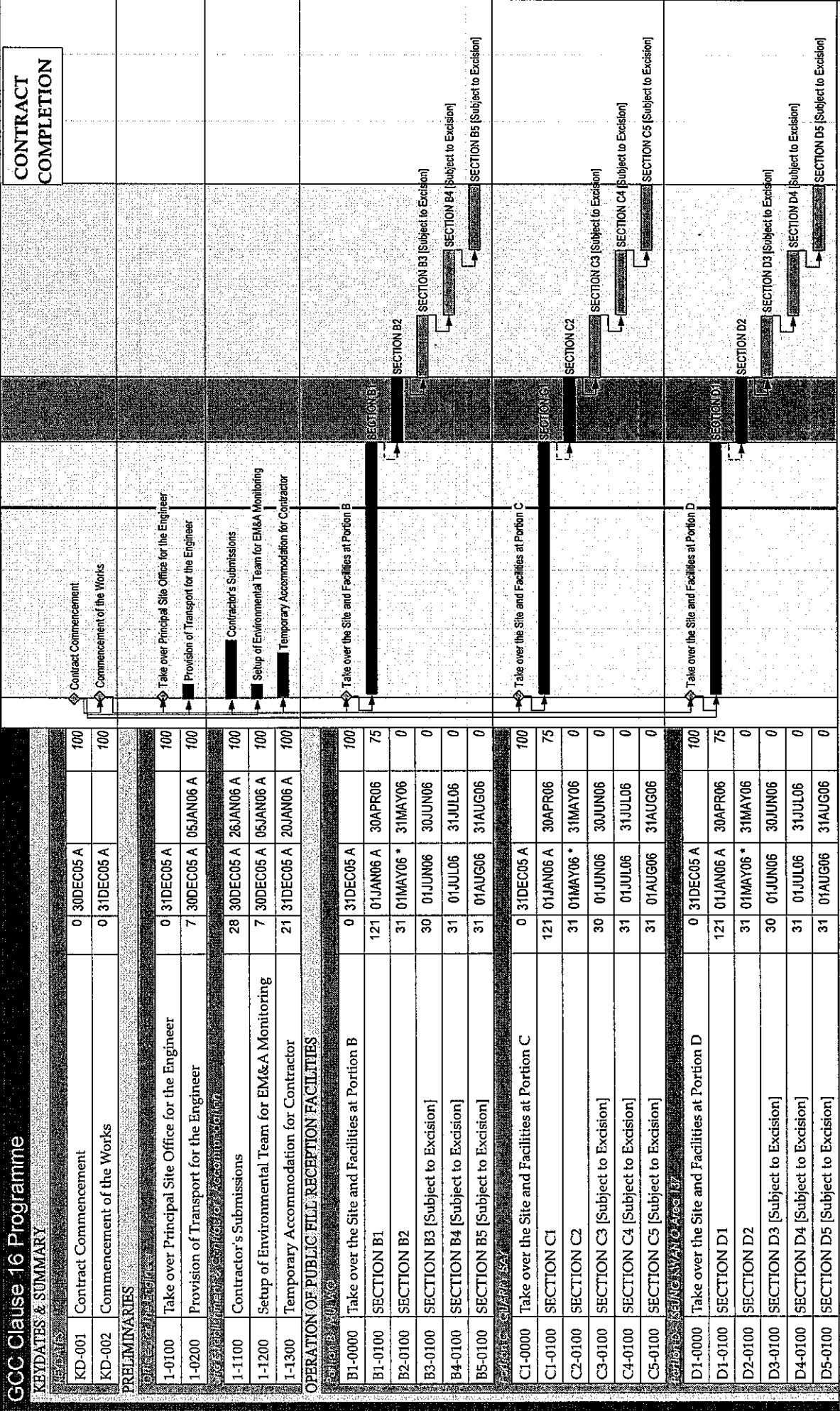
## EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE

Event	ACTION		
	ET Leader	Contractor	ER
Limit Level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Notify Contractor in writing within 24 hours of identification of the exceedance</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Carry out investigation</li> <li>6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works</li> <li>7. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>8. Ensure mitigation measures are implemented;</li> <li>9. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify ER and IEC in writing within 24 hours of the identification of the exceedance and</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>8. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance</li> <li>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days;</li> <li>6. Implement the agreed mitigation measures within reasonable time scale</li> <li>7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify EPD and other relevant governmental agencies in writing within 24 hours of identification of exceedance</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>3. Request Contractor to critically review the working methods;</li> <li>6. Ensure remedial measures are properly implemented</li> <li>4. Assess the effectiveness of the implemented mitigation measures;</li> <li>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.</li> </ol>
			<p style="text-align: center;">IEC</p> <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Confirm ET assessment if exceedance is due / not due to the works</li> <li>3. Discuss with ER, ET and Contractor on the mitigation measures.</li> <li>4. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly.</li> <li>5. Assess the effectiveness of the implemented mitigation measures.</li> </ol>



## **Appendix G**

### **Construction Programme**



Act ID	Description	Days	Early Start	Early Finish	%
<b>KEYDATES &amp; SUMMARY</b>					
KD-001	Contract Commencement	0	30DEC05 A		100
KD-002	Commencement of the Works	0	31DEC05 A		100
<b>PRELIMINARIES</b>					
<b>Site Preparation</b>					
1-0100	Take over Principal Site Office for the Engineer	0	31DEC05 A		100
1-0200	Provision of Transport for the Engineer	7	30DEC05 A	05JAN06 A	100
<b>Site Preparation &amp; Accommodation</b>					
1-1100	Contractor's Submissions	28	30DEC05 A	26JAN06 A	100
1-1200	Setup of Environmental Team for EM&A Monitoring	7	30DEC05 A	06JAN06 A	100
1-1300	Temporary Accommodation for Contractor	21	31DEC05 A	20JAN06 A	100
<b>OPERATION OF PUBLIC FILL RECEPTION FACILITIES</b>					
<b>Portion B - Quarry A</b>					
B1-0000	Take over the Site and Facilities at Portion B	0	31DEC05 A		100
B1-0100	SECTION B1	121	01JAN06 A	30APR06	75
B2-0100	SECTION B2	31	01MAY06 *	31MAY06	0
B3-0100	SECTION B3 [Subject to Excision]	30	01JUN06	30JUN06	0
B4-0100	SECTION B4 [Subject to Excision]	31	01JUL06	31JUL06	0
B5-0100	SECTION B5 [Subject to Excision]	31	01AUG06	31AUG06	0
<b>Portion C - Quarry B</b>					
C1-0000	Take over the Site and Facilities at Portion C	0	31DEC05 A		100
C1-0100	SECTION C1	121	01JAN06 A	30APR06	75
C2-0100	SECTION C2	31	01MAY06 *	31MAY06	0
C3-0100	SECTION C3 [Subject to Excision]	30	01JUN06	30JUN06	0
C4-0100	SECTION C4 [Subject to Excision]	31	01JUL06	31JUL06	0
C5-0100	SECTION C5 [Subject to Excision]	31	01AUG06	31AUG06	0
<b>Portion D - Quarry Area 137</b>					
D1-0000	Take over the Site and Facilities at Portion D	0	31DEC05 A		100
D1-0100	SECTION D1	121	01JAN06 A	30APR06	75
D2-0100	SECTION D2	31	01MAY06 *	31MAY06	0
D3-0100	SECTION D3 [Subject to Excision]	30	01JUN06	30JUN06	0
D4-0100	SECTION D4 [Subject to Excision]	31	01JUL06	31JUL06	0
D5-0100	SECTION D5 [Subject to Excision]	31	01AUG06	31AUG06	0

**CEDD**

CEDD Contract No. CV/2005/12  
 Operation of Public Fill Reception Facilities at  
 Tseung Kwan O Area 137, Quarry Bay and Mui Wo

Main Contractor: Concentric Construction Ltd.

Date	Rev. 0	Rev. 1	Revision	Checked	Approved	Early bar	Progress bar	Critical bar	Summary bar	Start milestone point	Finish milestone point
11JAN06			SC	SC	CPL						
31MAR06			SC	SC	CPL						



## **Appendix H**

### **IEC's Site Audit Records**

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Date of Site Audit:	10-Apr-06	Time of Site Audit:	11:00 AM
Site Auditor:	Antony Wong <i>AW</i>	Phase of Works:	Operational
Checked by:	Ben Ridley <i>BR</i>		

Checklist (FB)	Yes	No	Remarks
<b>Operational Phase</b>			
<b>Fugitive Dust Emission</b>			
Have dust control/mitigation measures been implemented to ensure full protection of the nearby ASRs?	X		
Are all installed air pollution control systems and measures operated and/or implemented in accordance with their design merits?	X		See observation 1
A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading/unloading and similar activities should be allowed.	X		
Truck speed limit shall be limited to within 10km per hour.	X		
Is the designated site main haul route (paved)?	X		
Are water lorries and/or road sweepers used in dust suppression? Frequency of watering at least four times per day (as per PS Clause 1.76)? The frequency shall be increased when the weather is dry, when the truckloads are high, and for haul roads located within 100m from the northern boundary of the site.	X		
All dusty fill material shall be sprayed with water or a dust suppression chemical prior to loading, unloading or transfer so as to maintain the fill material wet, except for situations where the moisture content of the dusty material is a matter of concern.	X		
Frequent watering (at least three times per day) of the worksites with active dusty operations. The frequency shall be increased when the weather is dry.	X		
Vehicle washing facilities including high pressure water jet installed at the existing exit shall be maintained and operated by designated staff to ensure that these dust control measures are being used.	X		
Before leaving the fill bank, every vehicle shall be washed to remove any dusty materials from its body and wheels.	X		
Trucks carrying dusty load entered to the site shall be sprayed with water once the impervious sheeting covering the load is removed.	X		
Have the temporary slope surfaces, especially those facing to the north of the site, been covered (tarpaulin sheeting or other impermeable sheeting), or sprayed (with water or a dust suppression chemical) or protected by other methods approved by CEDD?			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
Final slope surfaces, especially those facing to the north of the site, shall be treated by compaction, followed by hydroseeding, vegetation plating or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CEDD.			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
C&DMSF: When belt conveyor systems are in use for transfer of fill material, the conveyors shall be enclosed on top and 2 sides. Every transfer point between any two conveyors shall be enclosed.			N/A
C&DMSF: Is the belt scraper installed at the head pulley of every belt conveyor effective in dislodging fine particles that may adhere to the belt surface, and to reduce carrying back of fine particles on the return belt?			N/A
C&DMSF: The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the materials landing point is maintained at no more than 1m.			N/A
Note: Public fill at the stockpiling area should be handled to avoid segregation, deterioration, erosion or instability of the material, especially for the stockpiling surface facing to the north of the site.			
<b>Fixed Noise Impact</b>			
Have the approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) been adopted?	X		
Note: The noise standards specified in the Technical Memorandum for the Assessment of Noise From Places Other Than Domestic Premises, Public Places or Construction Sites shall be met.			



## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
<b>Water Quality</b>			
The existing/realigned intercepting channels and the sand/silt removal facilities should be used and maintained.	x		
Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bag barriers shall be used to assist the diversion of polluted stormwater to the silt removal facilities.	x		
Has a buffer distance of at least 100m been maintained between the boundary of the public fill stockpiling area and the sea front?	x		
Are materials properly covered when there is any chance for the materials to be washed away?	x		
Temporary slope surfaces shall be covered as far as practicable with tarpaulin sheets or other impermeable sheeting or protected by other methods approved by CED especially when a rainstorm is imminent or forecast.			Hydroseeded slopes in Portions A, B, G, H and I
Final slope surfaces shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CED to prevent the washing away of stockpiled material.			Hydroseeded slopes in Portions A, B, G, H and I
Existing and newly constructed catchpits, sand and silt removal facilities and intercepting channels should be maintained, and the deposited silt and grit should be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	x		
A wheel washing bay should be provided at the site exit and wash-water should have sand and silt settled out or removed before being discharged into storm drains.	x		
Is the section of construction road between the wheel washing bay the public road paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains?	x		
Sewage from toilets should be discharged into a foul sewer, or chemical toilets should be provided.	x		
Should the use of chemical toilets be necessary, these should be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	x		
Are the grease traps in the canteen kitchens put into use and effective?			N/A
If no communal sewer can be provided, has the sewage generated from the workforce at the site offices been diverted to septic tanks and regularly removed by using vacuum tankers.	x		Discharged to DP4 as per discharge licence.
The drainage system provided at car parking areas should be installed with oil interceptors in addition to sand/silt removal facilities. Has regular cleaning of the system been carried out?	x		
Has disturbance to seabed sediments and undue turbidity from vessel movement or propeller wash been minimized?	x		
Barges should not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents should be properly collected and treated before disposal.	x		
Is foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging point? Are these due to work activities?		x	
Have silt curtains been provided at the outward side of the basin near the barging point throughout the operational phase when there is public fill intake by barges (after Dec 2003)?	x		

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
Has a waste collection vessel been deployed to remove floating debris on the sea near the fill bank for proper disposal?	x		
Note: Effluent discharged from the site shall meet the relevant discharge limits specified in the Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.			
<u>Landfill Gas Hazard</u>			
Are gas detection equipment and appropriate breathing apparatus available and used when workers entering confined spaces or trenches deeper than 2 metres?	x		
A Safety Officer/Supervisor should be present on site throughout the operational stage.	x		
Has the Safety Officer/Supervisor been provided with intrinsically safe portable instrument(s), appropriately calibrated and capable of measuring the gases in the ranges as recommended in the EIA Report?	x		
Has a LFG monitoring programme been formulated by the Safety Officer/Supervisor or by a qualified person?	x		
Has periodic/routine monitoring been conducted during ground-works, in all excavations, and works in confined spaces, if any?	x		
<u>Landscape and Visual</u>			
Does the design of the fill bank and platform heights adopted allow the fill bank to fit into the general topography of the surrounding land? Straight edged slopes should be avoided.	x		
The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	x		
Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green/brown) once completed.	x		
The barging point and the C&DMSF at the fill bank shall not be in operation from 7:00pm to 8:00am daily to avoid potential visual impact from glare.	x		To 11pm as per latest EP.
<u>Other Environmental Factors</u>			
C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	x		
<u>Environmental Monitoring and Audit</u>			
Is a log book maintained by the ET?	x		Needs to be updated
At the time of site audit, was any monitoring underway?	x		
If yes, what parameters are being monitored and were the correct procedures adopted?	x		1-hr TSP
Have any mitigation measures been implemented as a result of exceedance of Action-Limit Levels? If so, do they appear to be effective?			N/A

Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Observations

Issue	Action Taken (to be filled in by Contractor)	Date Completed (to be filled in by Contractor)
<p>1) The water spray generated by the mist fan at the site entrance was found to be weak and ineffective at wetting the incoming section of the haul road.</p> <p>2) Silt was observed on the paved access road heading to Point I. Road sweeping should be provided.</p> <p>3) An area of ~0.3m wide x ~1m long next to the generator in the water filling station was stained by oil. The Contractor should remove the stained soil and treat it as chemical waste.</p> <p>4) A proper chemical waste label with the contact person details of the Contractor should be posted on the door of the Chemical Waste Storage Shed.</p> <p>5) More frequent water spraying should be provided at the BHA.</p> <p>6) No bunds were provided at the edges of bridge which formed part of the paved haul road over the open channel (downstream of DP3).</p> <p>7) A waste skip was observed near the Marine Workshop Area and was full of wastes. The Contractor should dispose the wastes regularly.</p> <p>8) DP4 needs to be cleared of overgrowth of vegetation to ensure trapezoidal drainage channel works efficiently under rainy conditions.</p> <p>9) DP4 needs to be cleared of overgrowth of vegetation to ensure trapezoidal drainage channel works efficiently under rainy conditions.</p> <p>10) Debris (plastic bottles, cardboard box, newspaper etc) was observed on surface of water in Chamber B.</p>		

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Date of Site Audit:	19-Apr-06	Time of Site Audit:	10:30 AM
Site Auditor:	Antony Wong	Phase of Works:	Operational
Checked by:	Ben Ridley		

Checklist (FB)			
Operational Phase	Yes	No	Remarks
<u>Fugitive Dust Emission</u>			
Have dust control/mitigation measures been implemented to ensure full protection of the nearby ASRs?	x		
Are all installed air pollution control systems and measures operated and/or implemented in accordance with their design merits?		x	See observation 1
A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading/unloading and similar activities should be allowed.	x		
Truck speed limit shall be limited to within 10km per hour.	x		
Is the designated site main haul route (paved)?	x		
Are water lorries and/or road sweepers used in dust suppression? Frequency of watering at least four times per day (as per PS Clause 1.76)? The frequency shall be increased when the weather is dry, when the truckloads are high, and for haul roads located within 100m from the northern boundary of the site.	x		
All dusty fill material shall be sprayed with water or a dust suppression chemical prior to loading, unloading or transfer so as to maintain the fill material wet, except for situations where the moisture content of the dusty material is a matter of concern.	x		
Frequent watering (at least three times per day) of the worksites with active dusty operations. The frequency shall be increased when the weather is dry.	x		
Vehicle washing facilities including high pressure water jet installed at the existing exit shall be maintained and operated by designated staff to ensure that these dust control measures are being used.	x		
Before leaving the fill bank, every vehicle shall be washed to remove any dusty materials from its body and wheels.	x		
Trucks carrying dusty load entered to the site shall be sprayed with water once the impervious sheeting covering the load is removed.	x		
Have the temporary slope surfaces, especially those facing to the north of the site, been covered (tarpaulin sheeting or other impermeable sheeting), or sprayed (with water or a dust suppression chemical) or protected by other methods approved by CEDD?			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
Final slope surfaces, especially those facing to the north of the site, shall be treated by compaction, followed by hydroseeding, vegetation plating or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CEDD.			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
C&DMSF: When belt conveyor systems are in use for transfer of fill material, the conveyors shall be enclosed on top and 2 sides. Every transfer point between any two conveyors shall be enclosed.			N/A
C&DMSF: Is the belt scraper installed at the head pulley of every belt conveyor effective in dislodging fine particles that may adhere to the belt surface, and to reduce carrying back of fine particles on the return belt?			N/A
C&DMSF: The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the materials landing point is maintained at no more than 1m.			N/A
Note: Public fill at the stockpiling area should be handled to avoid segregation, deterioration, erosion or instability of the material, especially for the stockpiling surfaces facing to the north of the site.			
<u>Fixed Noise Impact</u>			
Have the approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) been adopted?	x		

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
Note: The noise standards specified in the Technical Memorandum for the Assessment of Noise From Places Other Than Domestic Premises, Public Places or Construction Sites shall be met.			
<u>Water Quality</u>			
The existing/realigned intercepting channels and the sand/silt removal facilities should be used and maintained.		x	See observations 4, 7 & 8.
Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bag barriers shall be used to assist the diversion of polluted stormwater to the silt removal facilities.	x		
Has a buffer distance of at least 100m been maintained between the boundary of the public fill stockpiling area and the sea front?	x		
Are materials properly covered when there is any chance for the materials to be washed away?	x		
Temporary slope surfaces shall be covered as far as practicable with tarpaulin sheets or other impermeable sheeting or protected by other methods approved by CED especially when a rainstorm is imminent or forecast.			Hydroseeded slopes in Portions A, B, G, H and I
Final slope surfaces shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CED to prevent the washing away of stockpiled material.			Hydroseeded slopes in Portions A, B, G, H and I
Existing and newly constructed catchpits, sand and silt removal facilities and intercepting channels should be maintained, and the deposited silt and grit should be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	x		
A wheel washing bay should be provided at the site exit and wash-water should have sand and silt settled out or removed before being discharged into storm drains.	x		
Is the section of construction road between the wheel washing bay the public road paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains?	x		
Sewage from toilets should be discharged into a foul sewer, or chemical toilets should be provided.	x		
Should the use of chemical toilets be necessary, these should be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	x		
Are the grease traps in the canteen kitchens put into use and effective ?			N/A
If no communal sewer can be provided, has the sewage generated from the workforce at the site offices been diverted to septic tanks and regularly removed by using vacuum tankers.	x		Discharged to DP4 as per discharge licence.
The drainage system provided at car parking areas should be installed with oil interceptors in addition to sand/silt removal facilities. Has regular cleaning of the system been carried out?		x	See observation 3.
Has disturbance to seabed sediments and undue turbidity from vessel movement or propeller wash been minimized?	x		
Barges should not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents should be properly collected and treated before disposal.	x		
Is foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging point? Are these due to work activities?		x	
Have silt curtains been provided at the outward side of the basin near the barging point throughout the operational phase when there is public fill intake by barges (after Dec 2003)?	x		See observation 8

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
Has a waste collection vessel been deployed to remove floating debris on the sea near the fill bank for proper disposal?	x		
Note: Effluent discharged from the site shall meet the relevant discharge limits specified in the Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.			
<u>Landfill Gas Hazard</u>			
Are gas detection equipment and appropriate breathing apparatus available and used when workers entering confined spaces or trenches deeper than 2 metres?	x		
A Safety Officer/Supervisor should be present on site throughout the operational stage.	x		
Has the Safety Officer/Supervisor been provided with intrinsically safe portable instrument(s), appropriately calibrated and capable of measuring the gases in the ranges as recommended in the EIA Report?	x		
Has a LFG monitoring programme been formulated by the Safety Officer/Supervisor or by a qualified person?	x		
Has periodic/routine monitoring been conducted during ground-works, in all excavations, and works in confined spaces, if any?	x		
<u>Landscape and Visual</u>			
Does the design of the fill bank and platform heights adopted allow the fill bank to fit into the general topography of the surrounding land? Straight edged slopes should be avoided.	x		
The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	x		
Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green/brown) once completed.	x		
The barging point and the C&DMSF at the fill bank shall not be in operation from 7:00pm to 8:00am daily to avoid potential visual impact from glare.	x		To 11pm as per latest EP.
<u>Other Environmental Factors</u>			
C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	x		
<u>Environmental Monitoring and Audit</u>			
Is a log book maintained by the ET?	x		
At the time of site audit, was any monitoring underway?	x		
If yes, what parameters are being monitored and were the correct procedures adopted?	x		1-hr TSP
Have any mitigation measures been implemented as a result of exceedance of Action-Limit Levels? If so, do they appear to be effective?			N/A

Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Observations

Issue	Action Taken (to be filled in by Contractor)	Date Completed (to be filled in by Contractor)
<p>1) As was observed during the last site inspection on 10-Apr-06, the water spray generated by the mist fan at the site entrance was still found to be weak and ineffective at wetting the incoming section of the haul road.</p>		
<p>2) An unlabelled 200L drum was found in front of the container toilet outside the Contractor's office. The Contractor should properly label all the chemicals used on-site.</p>		
<p>3) A hole was found at the oil &amp; grease trap at DP4 next to CEDD's office which was fully filled with sand. Runoff was directly discharged to DP4 through that hole. The Contractor is requested to reseal the hole, clear the sand and reinstall a submersible pump for the oil &amp; grease trap to pump the collected surface run-off into the oil &amp; grease separation tank before being discharged.</p>		
<p>4) As was observed during the last site inspection on 10-Apr-06, overgrowth of vegetation at trapezoidal drainage channel near DP4 was still observed. The Contractor should clear the mentioned vegetation so as to ensure trapezoidal drainage channel works efficiently under rainy conditions.</p>		
<p>5) Four unlabelled 200L oil drums and one open bucket filled with oil were found to be stored inside a temporary structure in the water filling station. If they are chemical wastes they should be stored in the Chemical Waste Storage Shed for further collection. Otherwise if they are fuel or other chemicals, they should be properly labeled and a drip tray should be placed beneath the drums.</p>		
<p>6) As was observed during the last site inspection on 10-Apr-06, the contact details of the chemical waste labels posted in the Chemical Waste Storage Shed should be updated.</p>		
<p>7) Debris (plastic bottles, cardboard box, newspaper etc) which might be caused by CV/2004/13's Contractor was still found on surface of water in Chamber B and the trapezoidal drainage channel. The site agent of CV/2004/13's Contractor verbally agreed to clear the mentioned debris. The Contractor should follow up this issue with CV/2004/13's Contractor.</p>		
<p>8) Debris, soil and rocks were found inside the trapezoidal drainage channel between Chamber A and the outfall. The Contractor should clear any debris, soil and rocks found inside the drainage channel on a regular basis.</p>		
<p>9) The Contractor should confirm whether the separation between the silt curtain is 80m in accordance with CEDD's drawing FM10035-16. In addition, the silt curtain should be properly secured to weights at the seabed bottom.</p>		
<p>10) Woodblocks had been provided at the edges of the bridge which formed part of the paved haul road over the open channel (downstream of DP3). However, the Contractor should seal the woodblocks to ensure there are no gaps between the woodblocks and the edges of bridge (which may lead to surface runoff entering the open surface channel).</p>		
<p>11) Rubbish including lunch boxes were observed to be disposed into open cardboard boxes in the Marine Workshop Area. The Contractor should provide covered waste collection bins to prevent any hygiene problems.</p>		





## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Date of Site Audit:	24-Apr-06	Time of Site Audit:	2:15 PM
Site Auditor:	Derek Ho	Phase of Works:	Operational
Checked by:	Ben Ridley		

Checklist (FB)	Yes	No	Remarks
<b>Operational Phase</b>			
<b>Fugitive Dust Emission</b>			
Have dust control/mitigation measures been implemented to ensure full protection of the nearby ASRs?	x		
Are all installed air pollution control systems and measures operated and/or implemented in accordance with their design merits?		x	See observation 1
A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading/unloading and similar activities should be allowed.	x		
Truck speed limit shall be limited to within 10km per hour.	x		
Is the designated site main haul route (paved)?	x		
Are water lorries and/or road sweepers used in dust suppression? Frequency of watering at least four times per day (as per PS Clause 1.76)? The frequency shall be increased when the weather is dry, when the truckloads are high, and for haul roads located within 100m from the northern boundary of the site.	x		
All dusty fill material shall be sprayed with water or a dust suppression chemical prior to loading, unloading or transfer so as to maintain the fill material wet, except for situations where the moisture content of the dusty material is a matter of concern.	x		
Frequent watering (at least three times per day) of the worksites with active dusty operations. The frequency shall be increased when the weather is dry.	x		
Vehicle washing facilities including high pressure water jet installed at the existing exit shall be maintained and operated by designated staff to ensure that these dust control measures are being used.	x		
Before leaving the fill bank, every vehicle shall be washed to remove any dusty materials from its body and wheels.	x		
Trucks carrying dusty load entered to the site shall be sprayed with water once the impervious sheeting covering the load is removed.	x		
Have the temporary slope surfaces, especially those facing to the north of the site, been covered (tarpaulin sheeting or other impermeable sheeting), or sprayed (with water or a dust suppression chemical) or protected by other methods approved by CEDD?			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
Final slope surfaces, especially those facing to the north of the site, shall be treated by compaction, followed by hydroseeding, vegetation plating or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CEDD.			Finished Slopes in Portions A,B,G,H and I have been hydroseeded.
C&DMSF: When belt conveyor systems are in use for transfer of fill material, the conveyors shall be enclosed on top and 2 sides. Every transfer point between any two conveyors shall be enclosed.			N/A
C&DMSF: Is the belt scraper installed at the head pulley of every belt conveyor effective in dislodging fine particles that may adhere to the belt surface, and to reduce carrying back of fine particles on the return belt?			N/A
C&DMSF: The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the materials landing point is maintained at no more than 1m.			N/A
Note: Public fill at the stockpiling area should be handled to avoid segregation, deterioration, erosion or instability of the material, especially for the stockpiling surface facing to the north of the site.			
<b>Fixed Noise Impact</b>			
Have the approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) been adopted?	x		

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
Note: The noise standards specified in the Technical Memorandum for the Assessment of Noise From Places Other Than Domestic Premises, Public Places or Construction Sites shall be met.			
<b>Water Quality</b>			
The existing/realigned intercepting channels and the sand/silt removal facilities should be used and maintained.		x	See observations 6 - 8.
Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bag barriers shall be used to assist the diversion of polluted stormwater to the silt removal facilities.	x		
Has a buffer distance of at least 100m been maintained between the boundary of the public fill stockpiling area and the sea front?	x		
Are materials properly covered when there is any chance for the materials to be washed away?	x		
Temporary slope surfaces shall be covered as far as practicable with tarpaulin sheets or other impermeable sheeting or protected by other methods approved by CED especially when a rainstorm is imminent or forecast.			Hydroseeded slopes in Portions A, B, G, H and I
Final slope surfaces shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CED to prevent the washing away of stockpiled material.			Hydroseeded slopes in Portions A, B, G, H and I
Existing and newly constructed catchpits, sand and silt removal facilities and intercepting channels should be maintained, and the deposited silt and grit should be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	x		
A wheel washing bay should be provided at the site exit and wash-water should have sand and silt settled out or removed before being discharged into storm drains.	x		
Is the section of construction road between the wheel washing bay the public road paved with concrete, bituminous materials or hardcore to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains?	x		
Sewage from toilets should be discharged into a foul sewer, or chemical toilets should be provided.	x		
Should the use of chemical toilets be necessary, these should be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	x		
Are the grease traps in the canteen kitchens put into use and effective ?			N/A
If no communal sewer can be provided, has the sewage generated from the workforce at the site offices been diverted to septic tanks and regularly removed by using vacuum tankers.	x		Discharged to DP4 as per discharge licence.
The drainage system provided at car parking areas should be installed with oil interceptors in addition to sand/silt removal facilities. Has regular cleaning of the system been carried out?		x	See observation 10.
Has disturbance to seabed sediments and undue turbidity from vessel movement or propeller wash been minimized?	x		
Barges should not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents should be properly collected and treated before disposal.	x		
Is foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging point? Are these due to work activities?		x	
Have silt curtains been provided at the outward side of the basin near the barging point throughout the operational phase when there is public fill intake by barges (after Dec 2003)?	x		See observation 11

## Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Checklist (FB)	Yes	No	Remarks
Has a waste collection vessel been deployed to remove floating debris on the sea near the fill bank for proper disposal?	x		
Note: Effluent discharged from the site shall meet the relevant discharge limits specified in the Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.			
<b>Landfill Gas Hazard</b>			
Are gas detection equipment and appropriate breathing apparatus available and used when workers entering confined spaces or trenches deeper than 2 metres?	x		
A Safety Officer/Supervisor should be present on site throughout the operational stage.	x		
Has the Safety Officer/Supervisor been provided with intrinsically safe portable instrument(s), appropriately calibrated and capable of measuring the gases in the ranges as recommended in the EIA Report?	x		
Has a LFG monitoring programme been formulated by the Safety Officer/Supervisor or by a qualified person?	x		
Has periodic/routine monitoring been conducted during ground-works, in all excavations, and works in confined spaces, if any?	x		
<b>Landscape and Visual</b>			
Does the design of the fill bank and platform heights adopted allow the fill bank to fit into the general topography of the surrounding land? Straight edged slopes should be avoided.	x		
The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	x		
Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green/brown) once completed.	x		
The barging point and the C&DMSF at the fill bank shall not be in operation from 7:00pm to 8:00am daily to avoid potential visual impact from glare.	x		To 11pm as per latest EP.
<b>Other Environmental Factors</b>			
C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	x		
<b>Environmental Monitoring and Audit</b>			
Is a log book maintained by the ET?	x		
At the time of site audit, was any monitoring underway?	x		
If yes, what parameters are being monitored and were the correct procedures adopted?		x	
Have any mitigation measures been implemented as a result of exceedance of Action-Limit Levels? If so, do they appear to be effective?			N/A

Agreement No. 42/2002 Fill Bank at Tseung Kwan O Area 137 - Investigation

Observations		
Issue	Action Taken (to be filled in by Contractor)	Date Completed (to be filled in by Contractor)
<p>1) As observed during previous inspections, the water spray generated by the mist fan at the site entrance was still found to be weak and ineffective at wetting the incoming section of the haul road. The Contractor is requested to move the fan closer to the road.</p> <p>2) Engine oil leakage from equipment located in the maintenance workshop was observed. The Contractor is requested to remove the oil from the ground for proper disposal to avoid land contamination. As a reminder, drip trays or tarpaulin sheeting should be placed under equipment undergoing maintenance to collect any leakage.</p> <p>3) No drip trays or covers were provided for the oil drums in the maintenance workshop. The Contractor is requested to put the oil drums into properly sized drip trays and covered.</p> <p>4) Water ponds were observed in several areas around the site. The Contractor is reminded to fill in the ponds or apply approved insecticide to prevent mosquito breeding during rainy season.</p> <p>5) As observed in previous site inspections, the contact details of the chemical waste labels posted in the Chemical Waste Storage Shed should be updated.</p> <p>6) As remarked in previous site inspections, overgrowth of vegetation at trapezoidal drainage channel near DP4 was still observed. The Contractor should clear the mentioned vegetation as soon as possible so as to ensure the trapezoidal drainage channel works efficiently under rainy conditions.</p> <p>7) Overgrowth of vegetation at trapezoidal drainage channel leading to Chamber C; and channel section between Chambers B &amp; C along deflection wall was observed. The Contractor should clear the mentioned areas of vegetation so as to ensure the trapezoidal drainage channels work efficiently under rainy conditions.</p> <p>8) Debris, soil and rocks were found inside the trapezoidal drainage channel between Chamber A and the outfall. The Contractor should clear any debris, soil and rocks found inside the drainage channel on a regular basis.</p> <p>9) Oil drums were still found to be stored inside a temporary structure in the water filling station. If they are chemical wastes they should be stored in the Chemical Waste Storage Shed for further collection. Otherwise if they are fuel or other chemicals, they should be properly labeled and a drip tray should be placed beneath the drums.</p> <p>10) A hole was found at the oil &amp; grease trap at DP4 next to CEDD's office. Runoff was directly discharged to DP4 through that hole. The Contractor is requested to reseal the hole, clear the sand regularly and reinstall a submersible pump for the oil &amp; grease trap to pump the collected surface run-off into the oil &amp; grease separation tank before being discharged.</p> <p>11) The Contractor should confirm whether the separation between the silt curtain is 80m in accordance with CEDD's drawing FM10035-16. In addition, the silt curtain should be properly secured to weights at the seabed bottom.</p>		



## **Appendix I**

### **Weekly ET's Site Inspection Record**

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

Inspection Date : 04 April 2006  
Time : 11:05

Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Storm/Hazy  
Wind : Calm/Light/Breeze/Strong

Temperature : 28°C  
Humidity : High/Moderate/Low

### Environmental Checklist

	Implementation Stages*			Remark
	Yes	No	N/A	
<b>Fugitive Dust Emission</b>				
▪ Dust control / mitigation measures shall be provided to prevent dust nuisance.	✓			
▪ A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	✓			
▪ Water sprays shall be provided and used to dampen materials.	✓			
▪ Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	✓			
▪ All vehicles shall be restrict to a maximum speed of 10 km per hour.	✓			
▪ Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	✓			
▪ The designated site main haul road shall be paved or regular watering.	✓			
▪ Frequent watering of work site shall be at least three times per day.	✓			
▪ Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	✓			
▪ Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	✓			
▪ The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	✓			
▪ Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	✓			
▪ When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	✓			
▪ The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	✓			
▪ The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	✓			
<b>Noise Impact</b>				
▪ The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	✓			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	✓			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	✓			
▪ Air compressors and hand held breakers should have noise labels.	✓			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	✓			
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	✓			

Environmental Checklist		Implementation Stages*		Remark
		Yes	No / N/A	
<b>Water Quality</b>				
▪	The existing / realigned intercepting channels and the sand / silt removal facilities shall be used and maintained.	✓		Refer to item 3
▪	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	✓		
▪	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	✓		
▪	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	✓		
▪	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	✓		
▪	The material shall be properly covered to prevent washed away especially before rainstorm.	✓		
▪	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	✓		
▪	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	✓		
▪	Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	✓		
▪	A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.	✓		
▪	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcore to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	✓		
▪	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided.	✓		
▪	The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	✓		
▪	Wastewater collected from canteen kitchen, including that from basins, sinks and floor drains, shall be discharged into foul sewers via grease traps.	✓		
▪	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	✓		
▪	The barges shall be in right size such that adequate clearance is maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	✓		
▪	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	✓		
▪	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	✓		
▪	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	✓		
▪	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	✓		
▪	Existing silt curtain at the outward side of the basin near the Barging Handling Area throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	✓		
▪	A waste collection vessel shall be deployed to remove floating debris.	✓		

CEDD Contract No.: CV/2005/12  
 Project: Fill Bank at Tseung Kwun O Area 137

<b>Landscape and Visual</b>				
▪ The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	✓			
▪ The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	✓			
▪ Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	✓			
▪ The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	✓			
<b>Other Environmental Factors</b>				
▪ C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	✓			
▪ Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	✓			
▪ Any unused materials or those with remaining functional capacity should be recycled.	✓			
▪ All generators, fuel and oil storage are within bundle areas.	✓			
▪ Oil leakage from machinery, vehicle and plant is prevented.	✓			





**Summary of the Weekly Site Inspection:**





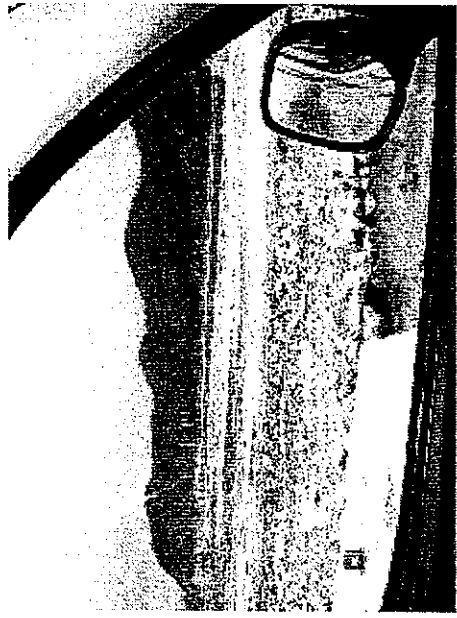

Item	Details of defective works or observations	Photo Ref.	Further Action Required (Yes/No)
1	Oily water was accumulated in the drip tray at the Chemical Waste Storage shed. The Contractor should drain out the oily water and treat as chemical waste.	060404_001	Yes
2	Four oil containers were found at the Workshop without drip tray and appropriate labels. Drip tray and labels should be provided for all chemical containers.	060404_002	Yes
3	Rubbish was found disposed on the Drainage Channel in front of "Screen C". The Contractor should collect and dispose of the rubbish as soon as possible.	060404_003	Yes
4	Follow up action to the previous comment on 30/03/06 (item 1), C&D materials and rubbish were found on the ground at Portion D7. However, the Contractor replied that Portion D7 had handover to other contract. As a result, no further action should be taken by the Contractor.	060404_004	No
5	Follow up action to the previous comment on 30/03/06 (item 3), standing water was drained out and the area was filled by sand.	060404_005	No
6	The rubbish skip at Marine Workshop Area was full. The Contractor was reminded to dispose the rubbish regularly.	060404_006	Yes
7	Follow up action to the previous comment on 30/03/06 (item 4), silt and mud accumulated at the manhole at DP3 was removed.	060404_007	No

Remark

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Name	Signature	Date
Inspected by H T Chow		04 April 2006
Checked by Linda Law		04 April 2006

**Photos**

 <p>Photo 060404_001</p>	 <p>Photo 060404_002</p>	 <p>Photo 060404_003</p>	 <p>Photo 060404_004</p>
 <p>Photo 060404_005</p>	 <p>Photo 060404_006</p>		

**Photos**

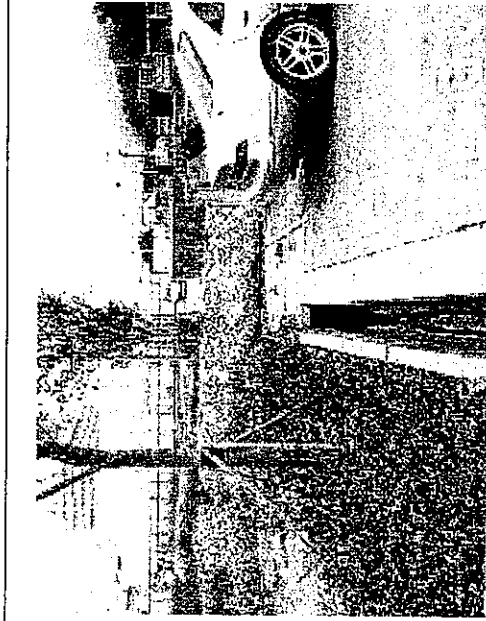
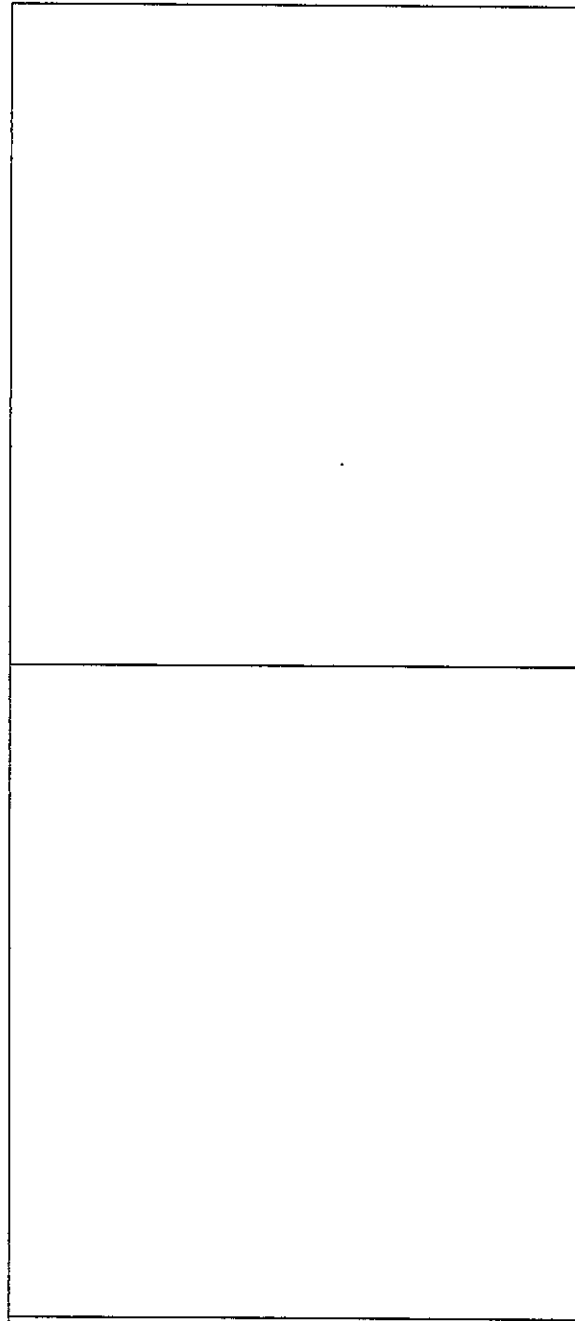


Photo 060404\_007





CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

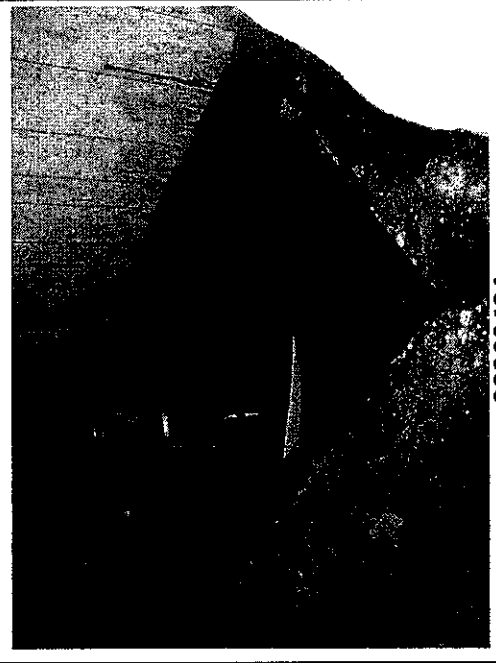
**Follow-up Action of the Weekly Site Inspection**

Inspection Date : 04 April 2006  
Time : 11:05  
Inspected by Name : H C Kwok  
(Contractor)  
(ET)

Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Storm/Hazy  
Wind : Calm /Light/Breeze/Strong  
Temperature : 28°C  
Humidity : High /Moderate/Low

Item	Details of defective works or observations	Response	Date of Action taken	Photo Ref.
1	Oily water was accumulated in the drip tray at the Chemical Waste Storage shed. The Contractor should drain out the oily water and treat as chemical waste.	Oily water accumulated inside the drip tray has been drained away and treated as chemical waste properly.	08 April 2006	20060404a
2	Four oil containers were found at the Workshop without drip tray and appropriate labels. Drip tray and labels should be provided for all chemical containers.	Drip tray and appropriate labels have been provided for all oil containers at the Workshop.	08 April 2006	20060404b
3	Rubbish was found disposed on the Drainage Channel in front of "Screen C". The Contractor should collect and dispose of the rubbish as soon as possible.	Since the site area in the vicinity of the Drainage Channel in front of "Screen C" is occupying by the Contractor of CEDD Contract No. CV/2004/13, the rubbish disposed was possibly caused by activities under that contract. The Contractor of CEDD Contract No. CV/2004/13 has been informed and required to clear the rubbish as soon as possible.	Not Applicable	-
4	The rubbish skip at Marine Workshop Area was full. The Contractor was reminded to dispose the rubbish regularly.	The rubbish contained in the rubbish skip at the Maintenance Workshop Area has been properly disposed.	17 April 2006	20060410d

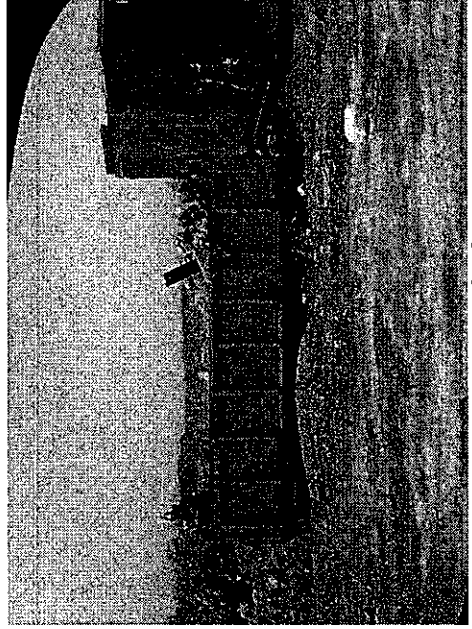
**Photo of Follow-up Action**



20060404a



20060404b



20060410d

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

Inspection Date : 10 April 2006  
Time : 10:50

Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Sterrn/Hazy  
Wind : Calm/Light/Breeze/Strong

Temperature : 27°C  
Humidity : High/Moderate/Low

### Environmental Checklist

	Implementation Stages*			Remark
	Yes	No	N/A	
<b>Fugitive Dust Emission</b>				
▪ Dust control / mitigation measures shall be provided to prevent dust nuisance.	✓			
▪ A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	✓			
▪ Water sprays shall be provided and used to dampen materials.	✓			
▪ Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	✓			
▪ All vehicles shall be restrict to a maximum speed of 10 km per hour.	✓			
▪ Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	✓			
▪ The designated site main haul road shall be paved or regular watering.		✓		Refer to item 5
▪ Frequent watering of work site shall be at least three times per day.	✓			
▪ Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	✓			
▪ Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	✓			
▪ The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	✓			
▪ Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	✓			
▪ When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	✓			
▪ The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	✓			
▪ The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	✓			
<b>Noise Impact</b>				
▪ The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	✓			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	✓			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	✓			
▪ Air compressors and hand held breakers should have noise labels.	✓			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	✓			
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	✓			

		Implementation Stages*		Remark
		Yes	No / N/A	
<b>Water Quality</b>				
	▪ The existing / realigned intercepting channels and the sand / silt removal facilities shall be used and maintained.	√		
	▪ Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	√		
	▪ A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	√		
	▪ A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	√		
	▪ The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	√		
	▪ The material shall be properly covered to prevent washed away especially before rainstorm.	√		
	▪ The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	√		
	▪ Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	√		
	▪ Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	√		
	▪ A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.	√		
	▪ The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcore to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	√		
	▪ Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided.	√		
	▪ The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	√		
	▪ Wastewater collected from canteen kitchen, including that from basins, sinks and floor drains, shall be discharged into foul sewers via grease traps.	√		
	▪ Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	√		
	▪ The barges shall be in right size such that adequate clearance is maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	√		
	▪ All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	√		
	▪ Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	√		
	▪ Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	√		
	▪ The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	√		
	▪ Existing silt curtain at the outward side of the basin near the Barging Handling Area throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	√		
	▪ A waste collection vessel shall be deployed to remove floating debris.	√		

Landscape and Visual				
▪ The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	√			
▪ The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	√			
▪ Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	√			
▪ The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	√			
Other Environmental Factors				
▪ C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	√			
▪ Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	√			
▪ Any unused materials or those with remaining functional capacity should be recycled.	√			
▪ All generators, fuel and oil storage are within bundle areas.	√			
▪ Oil leakage from machinery, vehicle and plant is prevented.		√		Refer to item 1





CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

**Summary of the Weekly Site Inspection:**

Item	Details of defective works or observations	Photo Ref.	Further Action Required (Yes/No)
1	Oil leakage from generator at Water Truck Filling Station was observed. The Contractor was reminded to cleanup the contaminated soil and treated as chemical waste. Besides, the Contractor also reminded to repair the generator to avoid oil leakage.	060410_001	Yes
2	Follow up action to the previous comment on 04/04/06 (item 2), labels were posted on the oil containers and drip tray was provided.	060410_002	No
3	Follow up action to the previous comment on 04/04/06 (item 1), oily water was still found accumulated in the drip tray at the Chemical Waste Storage shed. The Contractor should drain out the oily water and treat as chemical waste.	060410_003	Yes
4	Follow up action to the previous comment on 04/04/06 (item 3), rubbish disposed on the Drainage Channel in front of "Screen C" was collected.	060410_004	No
5	Haul road at BHA was dry and dust was generated while wind erosion. The Contractor should water the haul road regularly.	060410_005	Yes
6	Follow up action to the previous comment on 04/04/06 (item 6), the rubbish skip at Marine Workshop Area was still full. The Contractor was reminded to dispose the rubbish regularly.	060410_006	Yes
7	Rubbish was found deposited of on the ground in front of site office. The Contractor should remind all site workers to deposit rubbish into the rubbish bin provided.	060410_007	Yes

Remark

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Name	Signature	Date
Inspected by HT Chow		10 April 2006
Checked by Linda Law		10 April 2006

Photos



Photo 060410\_001



Photo 060410\_002



Photo 060410\_003



Photo 060410\_004



Photo 060410\_005



Photo 060410\_006

Photos



Photo 060410\_007

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

**Follow-up Action of the Weekly Site Inspection**

Inspection Date : 10 April 2006  
Time : 10:50

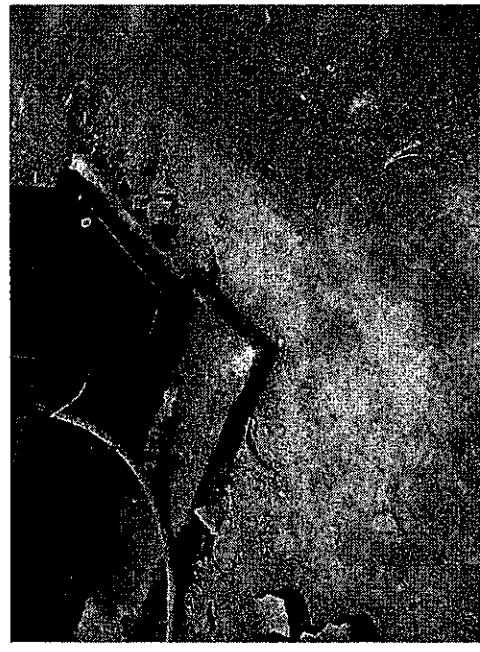
Inspected by Name : H C Kwok  
HT Chow  
(Contractor)  
(ET)

Weather : Sunny/Fine/Cloudy /Overcast/Drizzle/Rain/Sterrn/Hazy  
Wind : Calm/Light/Breeze/Strong

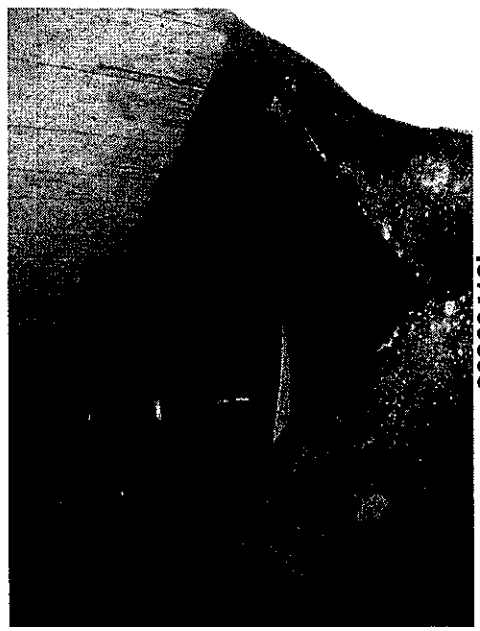
Temperature : 27°C  
Humidity : High /Moderate/Low

Item	Details of defective works or observations	Response	Date of Action taken	Photo Ref.
1	Oil leakage from generator at Water Truck Filling Station was observed. The Contractor was reminded to clean up the contaminated soil and treated as chemical waste. Besides, the Contractor also reminded to repair the generator to avoid oil leakage.	The contaminated soil has been cleared and treated as chemical waste properly. Moreover, the generator has been repaired to avoid oil leakage.	10 April 2006	20060410a
2	Follow up action to the previous comment on 04/04/06 (item 1), oily water was still found accumulated in the drip tray at the Chemical Waste Storage shed. The Contractor should drain out the oily water and treat as chemical waste.	Oily water accumulated inside the drip tray has been drained away and treated as chemical waste properly.	12 April 2006	20060410b
3	Haul road at BHA was dry and dust was generated while wind erosion. The Contractor should water the haul road regularly.	The watering on the haul road at the Barge Handling Area (BHA) has been improved.	15 April 2006	20060410c
4	Follow up action to the previous comment on 04/04/06 (item 4), the rubbish skip at Marine Workshop Area was still full. The Contractor was reminded to dispose the rubbish regularly.	The rubbish contained in the rubbish skip at the Maintenance Workshop Area has been properly disposed.	17 April 2006	20060410d
5	Rubbish was found deposited of on the ground in front of site office. The Contractor should remind all site workers to deposit rubbish into the rubbish bin provided.	The rubbish found in front of the site office has been cleared. Moreover, talks have been given to site workers to remind them the use of rubbish bin for litter disposal and to keep continuous cleanliness of all site areas.	17 April 2006	20060410e

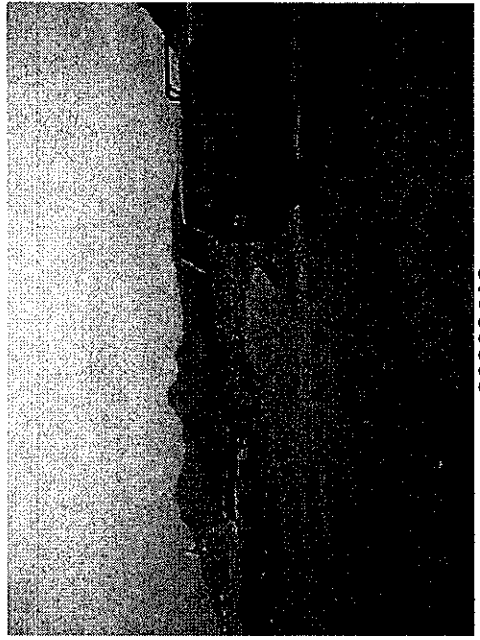
**Photo of Follow-up Action**



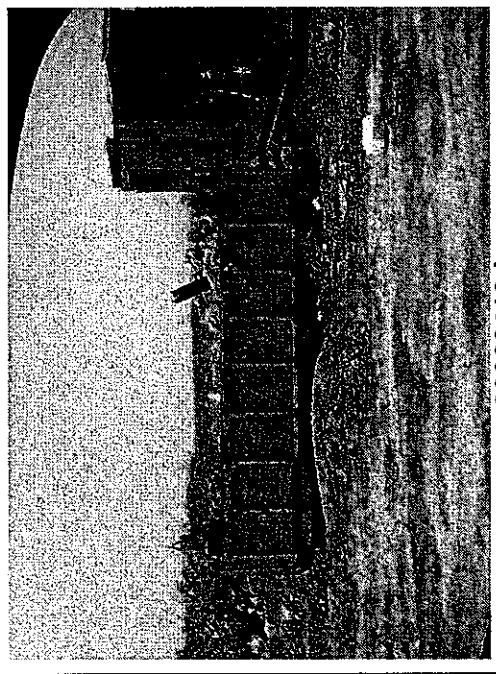
20060410a



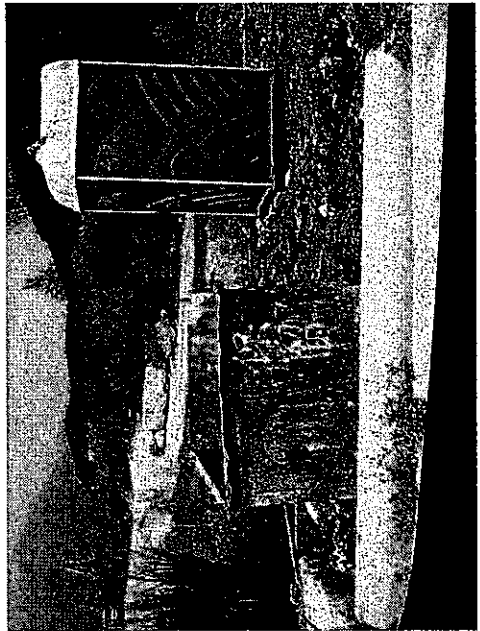
20060410b



20060410c



20060410d



20060410e

CEDD Contract No.: CV/2005/12  
 Project: Fill Bank at Tseung Kwun O Area 137

Inspection Date : 19 April 2006  
 Time : 10:20

Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Storm/Hazy  
 Wind : Calm/Light/Breeze/Strong

Temperature : 29°C  
 Humidity : High/Moderate/Low

Environmental Checklist		Implementation Stages*			Remark
		Yes	No	N/A	
<b>Fugitive Dust Emission</b>					
▪	Dust control / mitigation measures shall be provided to prevent dust nuisance.	√			
▪	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	√			
▪	Water sprays shall be provided and used to dampen materials.	√			
▪	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	√			
▪	All vehicles shall be restrict to a maximum speed of 10 km per hour.	√			
▪	Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	√			
▪	The designated site main haul road shall be paved or regular watering.	√			Refer to item 9
▪	Frequent watering of work site shall be at least three times per day.	√			
▪	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	√			
▪	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	√			
▪	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	√			
▪	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	√			
▪	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	√			
▪	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	√			
▪	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	√			
<b>Noise Impact</b>					
▪	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	√			
▪	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	√			
▪	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	√			
▪	Air compressors and hand held breakers should have noise labels.	√			
▪	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	√			
▪	Noisy equipment and mobile plant shall always be site away from NSRs.	√			

Implementation Stages*		Remark
<b>Water Quality</b>		
✓		The existing / realigned intercepting channels and the sand / silt removal facilities shall be used and maintained.
✓		Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.
✓		A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.
✓		A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.
✓		The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.
✓		The material shall be properly covered to prevent washed away especially before rainstorm.
✓		The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.
✓		Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.
✓		Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.
✓		A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.
✓		The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcore to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.
✓		Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided.
✓		The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.
✓		Wastewater collected from canteen kitchen, including that from basins, sinks and floor drains, shall be discharged into foul sewers via grease traps.
✓		Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.
✓		The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.
✓		All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.
✓		Adequate environmental control measures shall be provided to prevent / avoid droppling of fill material into the sea during the transfer.
✓		Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.
✓		The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.
✓		Existing silt curtain at the outward side of the basin near the Barging Handling Area throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.
✓		A waste collection vessel shall be deployed to remove floating debris.

<b>Landscape and Visual</b>			
▪	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	✓	
▪	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	✓	
▪	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	✓	
▪	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	✓	
<b>Other Environmental Factors</b>			
▪	C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	✓	
▪	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	✓	
▪	Any unused materials or those with remaining functional capacity should be recycled.	✓	
▪	All generators, fuel and oil storage are within bundle areas.	✓	
▪	Oil leakage from machinery, vehicle and plant is prevented.	✓	Refer to item 3





**Summary of the Weekly Site Inspection:**

Item	Details of defective works or observations	Photo Ref.	Further Action Required (Yes/No)
1	Follow up action to the previous comment on 10/04/06 (item 7), rubbish was still observed to be deposited on the ground in front of site office. The Contractor should remind all site workers to deposit rubbish into the rubbish bin provided.	---	Yes
2	Mud and over-grown vegetation were accumulated at the drainage channel at DP4. The Contractor should clean up the mud and over-grown vegetation, and maintain the drainage channel properly.	060419_001	Yes
3	Follow up action to the previous comment on 10/04/06 (item 1), the contaminated soil was cleaned up and no oil leakage was observed from the generator at Water Truck Filling Station.	060419_002	No
4	Some chemical containers were found without labels and drip trays at Water Truck Filling Station. The Contractor should provide appropriate labels and drip trays for all chemical containers.	060419_003	Yes
5	Follow up action to the previous comments on 04/04/06 (item 1) and item 3 (10/04/06), oily water accumulated in the drip tray at Chemical Waste Storage Shed was found to be drained out.	---	No
6	No warning panels were observed in the Chemical Waste Storage Shed. The Contractor was reminded to post the warning panels and also the contract details (e.g. updated license of Chemical Waster Producer) in the Chemical Waste Storage Shed.	060419_004	Yes
7	Rubbish (e.g. plastic bottles and newspaper) was accumulated at "Screen B". The Contractor was reminded to clean up the rubbish.	060419_005	Yes
8	Debris, mud and soil were found inside the drainage channel at Chamber A. The Contractor should clean up the debris, mud and soil inside the drainage channel regularly.	060419_006	Yes
9	Follow up action to the previous comment on 10/04/06 (item 5), no dust was found and watering was observed at Haul road near BHA.	060419_007	No
10	Follow up action to the previous comments on 04/04/06 (item 6) and 10/04/06 (item 6), the rubbish inside in the skip at Marine Workshop Area was observed to be deposit of.	060419_008	No
11	A 200L drum placed in front of the Contractor's toilet was found without label. The Contractor should label all chemical containers properly.	060419_009	Yes

Remark

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Name	Signature	Date
Inspected by H T Chow		19 April 2006
Checked by Linda Law		19 April 2006

Photos



Photo 060419\_001



Photo 060419\_002

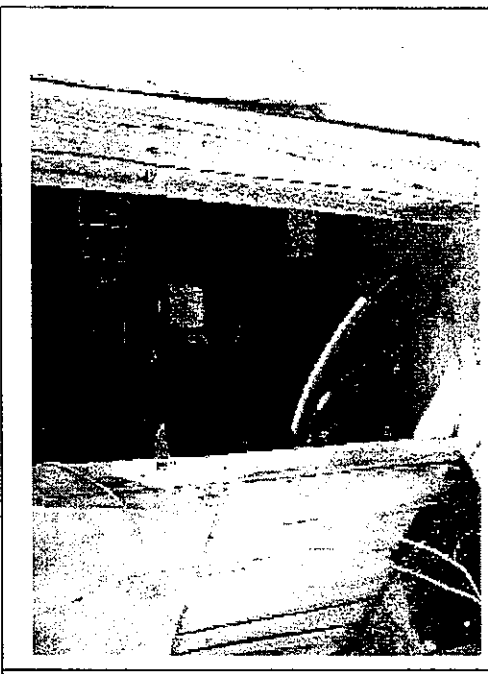


Photo 060419\_003

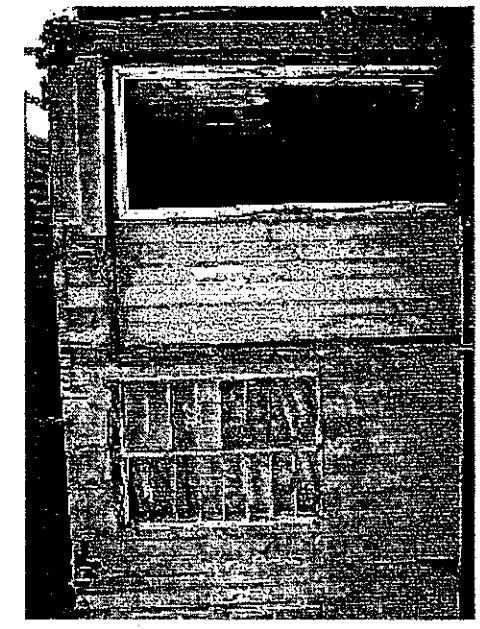


Photo 060419\_004

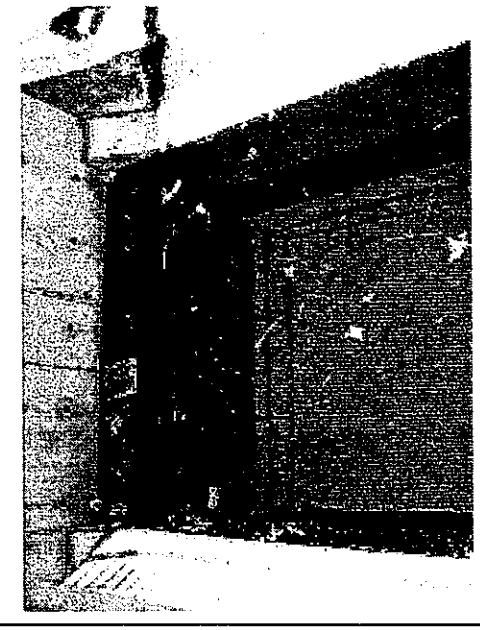


Photo 060419\_005



Photo 060419\_006

Photos



Photo 060419\_007



Photo 060419\_008

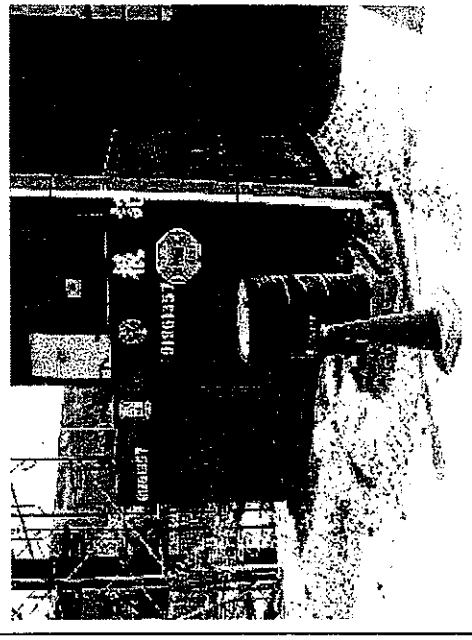


Photo 060419\_009

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

### Follow-up Action of the Weekly Site Inspection

Inspection Date : 19 April 2006  
Time : 10:20  
Inspected by : Antony Wong (IEC)  
Name : H C Kwok (Contractor)  
HT Chow (ET)

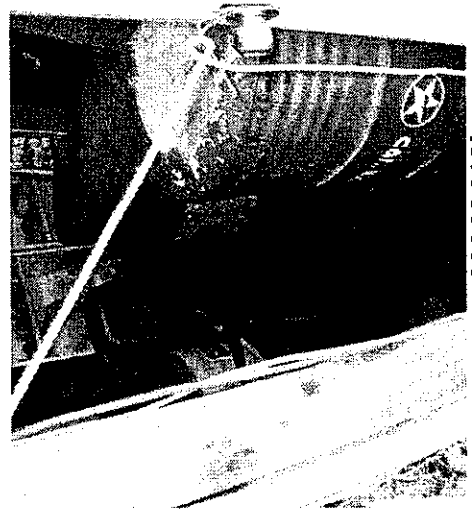
Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Storm/Hazy  
Wind : Calm/Light/Breeze/Strong  
Temperature : 29°C  
Humidity : High/Moderate/Low

Item	Details of defective works or observations	Response	Date of Action taken	Photo Ref.
1	Follow up action to the previous comment on 10/04/06 (item 7), rubbish was still observed to be deposited on the ground in front of site office. The Contractor should remind all site workers to deposit rubbish into the rubbish bin provided.	The rubbish deposited on the ground in front of the site office has been properly cleared. Site talks had been conducted for the workers to remind them to deposit rubbish into rubbish bins provided.	4 May 2006	20060419a
2	Mud and over-grown vegetation were accumulated at the drainage channel at DP4. The Contractor should clean up the mud and over-grown vegetation, and maintain the drainage channel properly.	Clearance of mud and over-grown vegetation at the drainage channel at DP4 is under arrangement and anticipated to be completed by 14 May 2006.	14 May 2006 (anticipated)	-
3	Some chemical containers were found without labels and drip trays at Water Truck Filling Station. The Contractor should provide appropriate labels and drip trays for all chemical containers.	Appropriate labels and drip trays had been provided for all chemical containers.	26 April 2006	20060419b
4	No warning panels were observed in the Chemical Waste Storage Shed. The Contractor was reminded to post the warning panels and also the contract details (e.g. updated license of Chemical Waste Producer) in the Chemical Waste Storage Shed.	Warning panels and a copy of updated license of Chemical Waste Producer had been posted in the Chemical Waste Storage Shed.	20 April 2006	20060419c
5	Rubbish (e.g. plastic bottles and newspaper) was accumulated at "Screen B". The Contractor was reminded to clean up the rubbish.	The rubbish accumulated at "Screen B" had been cleaned up.	20 April 2006	20060419d
6	Debris, mud and soil were found inside the drainage channel at Chamber A. The Contractor should clean up the debris, mud and soil inside the drainage channel regularly.	Debris, mud and soil accumulated inside the drainage channel at Chamber A had been cleaned up.	5 May 2006	20060419e
7	A 200L drum placed in front of the Contractor's toilet was found without label. The Contractor should label all chemical containers properly.	The Contractor had already labeled the chemical container concerned.	21 April 2006	20060419f

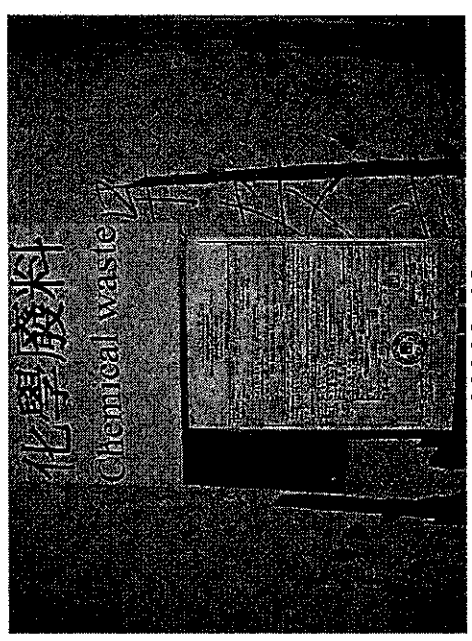
Photo of Follow-up Action



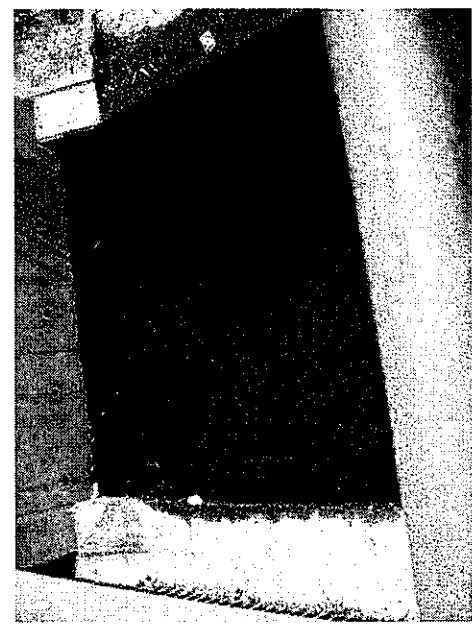
20060419a



20060419b



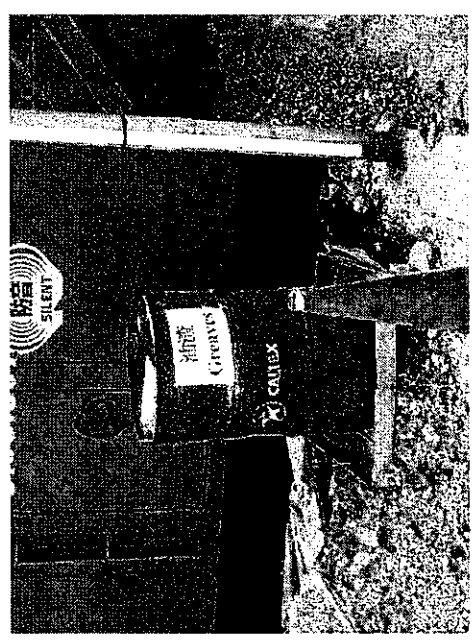
20060419c



20060419d



20060419e



20060419f

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

Inspection Date : 24 April 2006  
Time : 14:30

Weather : Sunny/Fine/Cloudy/Overcast/Drizzle/Rain/Storm/Hazy  
Wind : Calm/Light/Breeze/Strong

Temperature : 27°C  
Humidity : High/Moderate/Low

	Implementation Stages*		Remark
	Yes	No N/A	
<b>Environmental Checklist</b>			
<b>Fugitive Dust Emission</b>			
▪ Dust control / mitigation measures shall be provided to prevent dust nuisance.	√		
▪ A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	√		
▪ Water sprays shall be provided and used to dampen materials.	√		
▪ Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	√		
▪ All vehicles shall be restrict to a maximum speed of 10 km per hour.	√		
▪ Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	√		
▪ The designated site main haul road shall be paved or regular watering.	√		
▪ Frequent watering of work site shall be at least three times per day.	√		
▪ Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	√		
▪ Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	√		
▪ The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEED.	√		
▪ Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEED.	√		
▪ When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	√		
▪ The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	√		
▪ The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	√		
<b>Noise Impact</b>			
▪ The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	√		
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	√		
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	√		
▪ Air compressors and hand held breakers should have noise labels.	√		
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	√		
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	√		



CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwun O Area 137

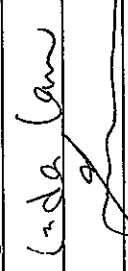

<b>Landscape and Visual</b>			
▪	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	√	
▪	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	√	
▪	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	√	
▪	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	√	
<b>Other Environmental Factors</b>			
▪	C&D waste sorted from mixed C&D material at the C&DMSF shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	√	
▪	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	√	
▪	Any unused materials or those with remaining functional capacity should be recycled.	√	
▪	All generators, fuel and oil storage are within bundle areas.	√	Refer to item 2 and 5
▪	Oil leakage from machinery, vehicle and plant is prevented.	√	Refer to item 6



**Summary of the Weekly Site Inspection:**

Item	Details of defective works or observations	Photo Ref.	Further Action Required (Yes/No)
1	Follow up action to previous comment on 19/04/06 (item 2), mud and over-grown vegetations were still observed at the drainage channel at DP4. The Contractor should clean up the mud and over-grown vegetation on a regular basis, and maintain the drainage channel properly.	060424_001	Yes
2	Follow up action to previous comment on 19/04/06 (item 4), the unlabelled chemical containers were still found stored inside a temporary shed at Water Truck Filling Station. The Contractor replied that all chemical containers will be relocated before next week and no chemicals will be stored at Water Truck Filling Station later.	060424_002	Yes
3	Follow up action to the previous comment on 19/04/06 (item 6), the updated license of Chemical Waster Producer) was post on the door of the Chemical Waste Storage Shed.	060424_003	No
4	Tarpauln sheet used to cover the chemical containers at Workshop was found dirty and damaged. The Contractor was reminded to replace the new one. Beside, the Contractor was also reminded to keep the Chemical Storage area tidy.	060424_004	Yes
5	Two 200L oil drums were found without drip trays at Workshop. The Contractor should provide sufficient drip tray for all chemical containers.	060424_005 & 060424_006	Yes
6	Oil spillage from the maintenance and repairing works was observed at Workshop. The Contractor was reminded to clean up the oil leaked and dispose the material used for cleaning as chemical waste. Besides, appropriate mitigation measures such as placing protective sheets on the ground should be implemented before repairing and maintenance works.	060424_007	Yes
7	Dead vegetation was found to be accumulated at the trapezoidal channel at Chamber C. The Contractor should clean up the channel immediately in order to avoid any blockage.	060424_008	Yes
8	Follow up action to the previous comment on 19/04/06 (item 7), no rubbish was observed at Chamber B.	060424_009	No
9	Follow up action to the previous comment on 19/04/06 (item 8), debris, mud and soil were still found inside the drainage channel at Chamber A. The Contractor should clean up the debris, mud and soil inside the drainage channel regularly.	060424_010	Yes
10	Rainy water was accumulated at the BHA. The Contractor should pump out the water immediately in order to avoid mosquito breeding.	060424_011	Yes
11	The fill materials were accumulated on the concrete embankment at the BHA. The Contractor was reminded to clean up the fill materials as soon as each unloading activity completed to avoid the fill materials from being washed into the sea.	060424_012	Yes
12	Follow up action to the previous comment on 19/04/06 (item 11), the 200L drum placed in front of the Contractor's toilet was found with label and drip tray.	060424_013	No
13	Site runoff was found directly discharged to DP4 through the small hole at the oil & grease trap at DP4 next to CEDD's site office. The Contractor should seal the hole immediately and direct the runoff to appropriate treatment system before discharge.	060424_014	Yes

Remark

Name	Signature	Date
Linda Law		24 April 2006
C L Lau		24 April 2006

**Photos**



Photo 060424\_001

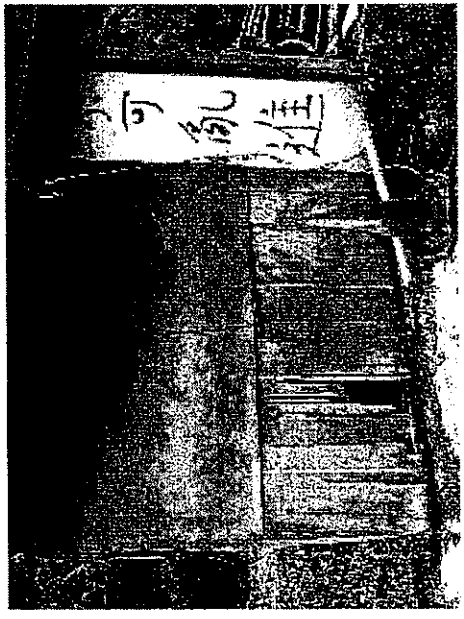


Photo 060424\_002



Photo 060424\_003

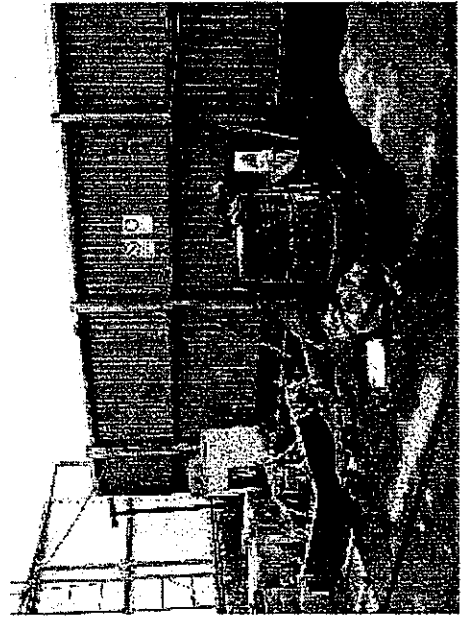


Photo 060424\_004

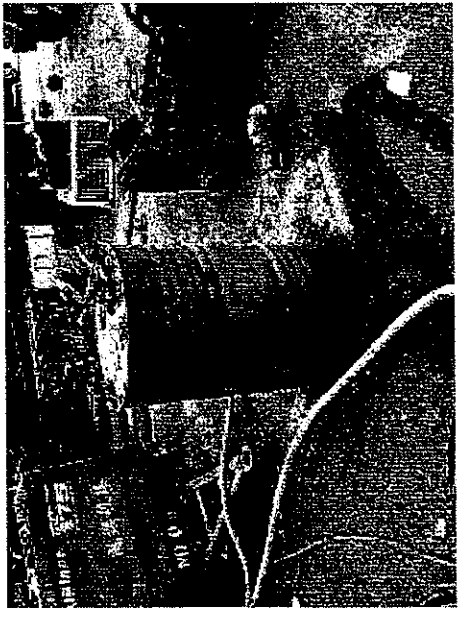


Photo 060424\_005



Photo 060424\_006

**Photos**



Photo 060424\_007



Photo 060424\_008

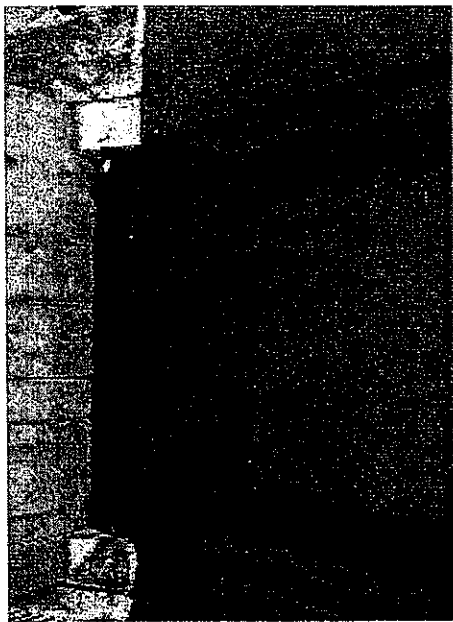


Photo 060424\_009



Photo 060424\_010



Photo 060424\_011



Photo 060424\_012

Photos



Photo 060424\_013



Photo 060424\_014

CEDD Contract No.: CV/2005/12  
Project: Fill Bank at Tseung Kwan O Area 137

### Follow-up Action of the Weekly Site Inspection

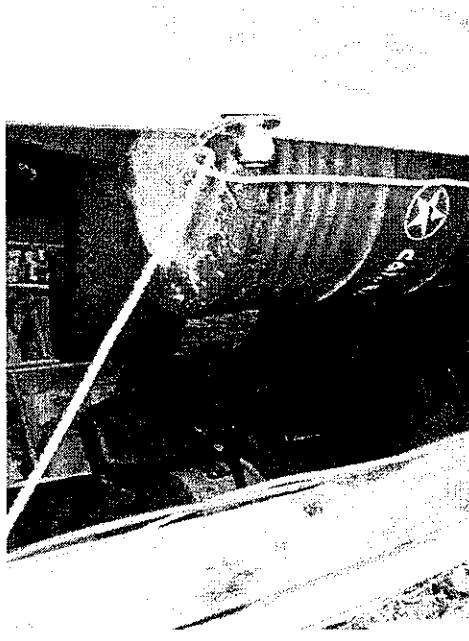
Inspection Date : 24 April 2006  
Time : 14:30  
Inspected by Name : Derek Ho (IEC)  
H C Kwok (Contractor)  
Linda Law (ET)

Weather : Sunny / Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy  
Wind : Calm / Light / Breeze / Strong  
Temperature : 27°C  
Humidity : High / Moderate / Low

Item	Details of defective works or observations	Response	Date of Action taken	Photo Ref.
1	Follow up action to previous comment on 19/04/06 (item 2), mud and over-grown vegetations were still observed at the drainage channel at DP4. The Contractor should clean up the mud and over-grown vegetation on a regular basis, and maintain the drainage channel properly.	Clearance of mud and over-grown vegetation at the drainage channel at DP4 is under arrangement and anticipated to be completed by 14 May 2006.	14 May 2006 (anticipated)	-
2	Follow up action to previous comment on 19/04/06 (item 4), the unlabelled chemical containers were still found stored inside a temporary shed at Water Truck Filling Station. The Contractor replied that all chemical containers will be relocated before next week and no chemicals will be stored at Water Truck Filling Station later.	Appropriate labels and drip trays had been provided for all chemical containers. Moreover, all chemical containers had been relocated and stored inside the Chemical Waste Storage Shed at the Workshop properly.	26 April 2006	20060424a
3	Tarpaulin sheet used to cover the chemical containers at Workshop was found dirty and damaged. The Contractor was reminded to replace the new one. Beside, the Contractor was also reminded to keep the Chemical Storage area tidy.	The damaged tarpaulin sheet had been replaced with a new one for covering the chemical containers at the Workshop.	24 April 2006	20060424b
4	Two 200L oil drums were found without drip trays at Workshop. The Contractor should provide sufficient drip tray for all chemical containers.	Sufficient drip trays had been provided for all chemical containers at the Workshop.	25 April 2006	20060424c
5	Oil spillage from the maintenance and repairing works was observed at Workshop. The Contractor was reminded to clean up the oil leaked and dispose the material used for cleaning as chemical waste. Besides, appropriate mitigation measures such as placing protective sheets on the ground should be implemented before repairing and maintenance works.	Oil leaked had been cleaned up and the materials concerned had been disposed as chemical waste properly.	25 April 2006	20060424d
6	Dead vegetation was found to be accumulated at the trapezoidal channel at Chamber C. The Contractor should clean up the channel immediately in order to avoid any blockage.	The dead vegetation accumulated at the trapezoidal channel at Chamber C had been cleaned up to prevent blockage.	26 April 2006	20060424e

7	Follow up action to the previous comment on 19/04/06 (item 8), debris, mud and soil was still found inside the drainage channel at Chamber A. The Contractor should clean up the debris, mud and soil inside the drainage channel regularly.	Debris, mud and soil accumulated inside the drainage channel at Chamber A had been cleaned up.	5 May 2006	20060424f
8	Rainy water was accumulated at the BHA. The Contractor should pump out the water immediately in order to avoid mosquito breeding.	Rainy water accumulated at the Barge Handling Area (BHA) had been pumped away.	5 May 2006	20060424g
9	The fill materials were accumulated on the concrete embankment at the BHA. The Contractor was reminded to clean up the fill materials as soon as each unloading activity completed to avoid the fill materials from being washed into the sea.	The fill materials accumulated at the concrete coping of the seawall at the BHA had been cleaned up.	7 May 2006	20060424h
10	Site runoff was found directly discharged to DP4 through the small hole at the oil & grease trap at DP4 next to CEDD's site office. The Contractor should seal the hole immediately and direct the runoff to appropriate treatment system before discharge.	The mud and silt accumulated inside the desilting trap next to the CEDD's site office had been cleaned up properly. Moreover, it is to clarify that the trap was for desilting purpose only in the collection of natural surface runoff but not for collection of oil and grease. The drain hole shall be maintained as a discharge outlet for the desilting trap.	Not Applicable	Not Applicable

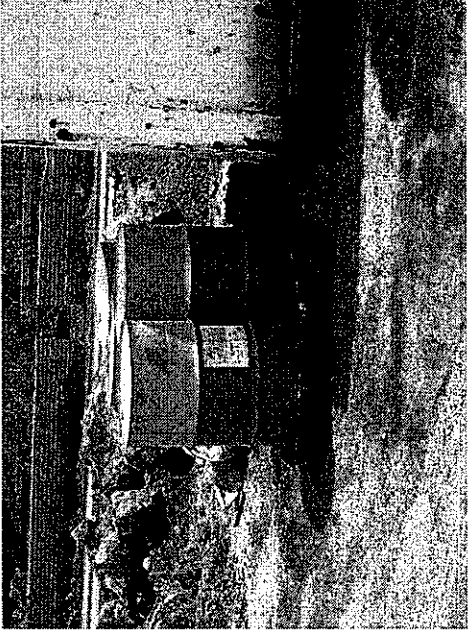
Photo of Follow-up Action



20060424a



20060424b



20060424c



20060424d

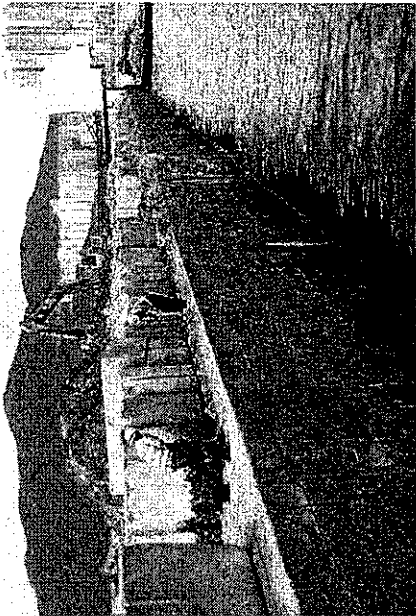



20060424e



20060424f

Photo of Follow-up Action (cont.)

	 <p>20060424h</p>	
		 <p>20060424g</p>





## **Appendix J**

### **Implementation Schedule of Mitigation Measures**







## **Appendix K**

### **Interim Notification of Environmental Quality Limits Exceedance**



**Appendix K**  
**Site General Layout plan**

**Contract No. CV/2005/12**  
**Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Woo**  
**Fill Bank at Tseung Kwan O Area 137**

**Interim Notification of Exceedances of Action / Limit Levels**

Part 1 – Turbidity

Date	Monitoring Location	Tide Mode	Measured Value (NTU)	Action Level* (NTU)	Limit Level* (NTU)	Possible Reason(S) for the Exceedance	Action taken to be taken	Remarks
12/04/06	C-1	Mid-ebb	5.12	4.28	4.58	Exceedance was not due to the operation of Fill Bank as the station was located at the upstream of the works area.	Nil	Nil

\* Traceable to Method Statement (Marine Water Quality Monitoring and Audit Manual) of Contract No.CV/2002/08, Rev. 2, Section 3.1 – 3.21





## **Appendix L**

### **Monitoring Schedule for the Coming Month**





**CEDD Contract No. CV/2005/12**  
**Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137,**  
**Quarry Bay and Mui Wo**

**Tseung Kwan O Fill Bank**

**Time Schedule for Water Quality Impact Monitoring (WQM),  
Impact Day-time Noise Monitoring (NM) and Impact Air Monitoring (1-hr TSP & 24-hr  
TSP) and Weekly Site Inspection (Weekly SI)**

**May 2006**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Public Holiday	2 WQM Mid-flood (07:30-09:30) Mid-ebb (14:30-16:30)	3	4 WQM Mid-flood (07:00-09:00) Mid-ebb (16:30-18:30)  1-hr TSP, 24-hr TSP  Weekly SI  NM	5 Public Holiday	6 WQM Mid-flood (07:00-09:00) Mid-ebb (16:30-18:30)
7	8 WQM Mid-ebb (09:00-11:00) Mid-flood (14:00-16:00)	9	10 WQM Mid-ebb (10:00-12:00) Mid-flood (16:00-18:00)  1-hr TSP, 24-hr TSP  Weekly SI	11	12 WQM Mid-ebb (11:00-13:00) Mid-flood (17:00-19:00)	13
14	15 WQM Mid-flood (07:00-09:00) Mid-ebb (12:00-14:00)  1-hr TSP, 24-hr TSP  Weekly SI	16 1-hr TSP, 24-hr TSP  Weekly SI	17 WQM Mid-flood (07:00-09:00) Mid-ebb (13:30-15:30)	18 1-hr TSP, 24-hr TSP	19 WQM Mid-flood (08:00-10:00) Mid-ebb (16:00-18:00)	20
21	22 WQM Mid-ebb (07:30-09:30) Mid-flood (13:00-15:00)  1-hr TSP, 24-hr TSP  Weekly SI	23	24 WQM Mid-ebb (09:30-11:30) Mid-flood (15:30-17:30)	25	26 WQM Mid-ebb (10:30-12:30) Mid-flood (17:30-19:30)	27 1-hr TSP, 24-hr TSP
28	29 WQM Mid-flood (07:00-09:00) Mid-ebb (12:30-14:30)	30	31 Public Holiday			



## **Appendix M**

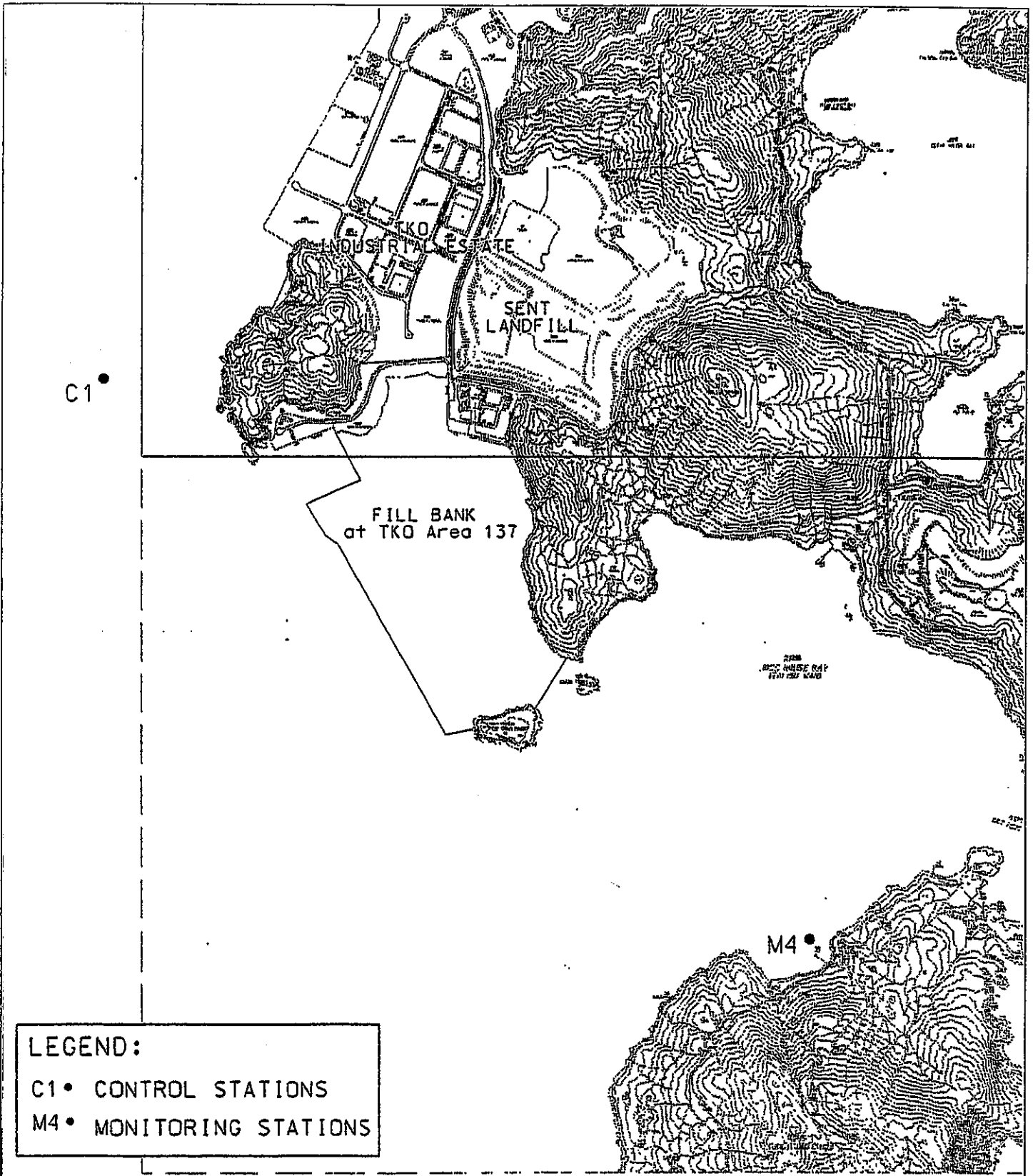
### **Complaint Log**

## Complaint Logs

Log Ref.	Location	Received Date	Details of Complaint	Investigation / Mitigation Action	Status
001	Wan Po Road near TVB City	27 March 2006	A complaint was received by EPD on 27 March 2006, concerning the dust and debris on Wan Po Road near TVB City Caused by dump trucks from CEDD site.	<p>In response to the complaint, EPD, RE and Contractor had taken a joint site investigation on 27 March 2006. During this joint site investigation, the performance of the wheel washing facilities was found satisfactory in cleaning the wheels of outgoing dump trucks. Besides, the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point was paved with concrete. It is no evidence to show the complaint was not related to the Fill Bank and it is believed that traffic other than Fill Bank (such as dump trucks from the Construction Waste Sorting Facility) deposited the mud and debris to road surface as they travel through Wan Po Road.</p> <p>Although the complaint was not related to the operation of Fill Bank, some mitigation measures has been taken by the Contractor to maintain the haul road and Public road:</p> <ul style="list-style-type: none"> <li>• The Contractor arranged water lorries to carry out ad-hoc additional washings on the section of Wan Po Road as well as the access road concerned during and after the joint site visit;</li> <li>• The Contractor arranged road sweeper to carry out routine cleaning the haul road and the public roads outside the Fill Bank including the section of Wan Po Road nearby TVB City;</li> <li>• All dump trucks and other vehicle were washed and removed all dusty materials from its body and wheels through wheel washing facilities before leaving the Fill Bank; and</li> <li>• Main haul road was sprayed with water by using mist-spraying system to maintain the road surface wet.</li> </ul> <p>From ET's weekly site inspection on 30 March 2006, it was noted that no dust and debris were observed on the Wan Po Road. The haul road and public road near the exit point were found wet and clean (Appendix C). Wheel washing facilities were operated properly and all dump trucks and other outgoing vehicles were washed by passing through the wheel washing facilities before leaving the Fill Bank. No violation relating depositing of debris and mud on road surface was observed during the site inspection. Hence, it was believed that the complaint was not related to the operation of Fill Bank and no further action was required to be implemented.</p>	Closed



## Figures



Contract No. CV/2005/12

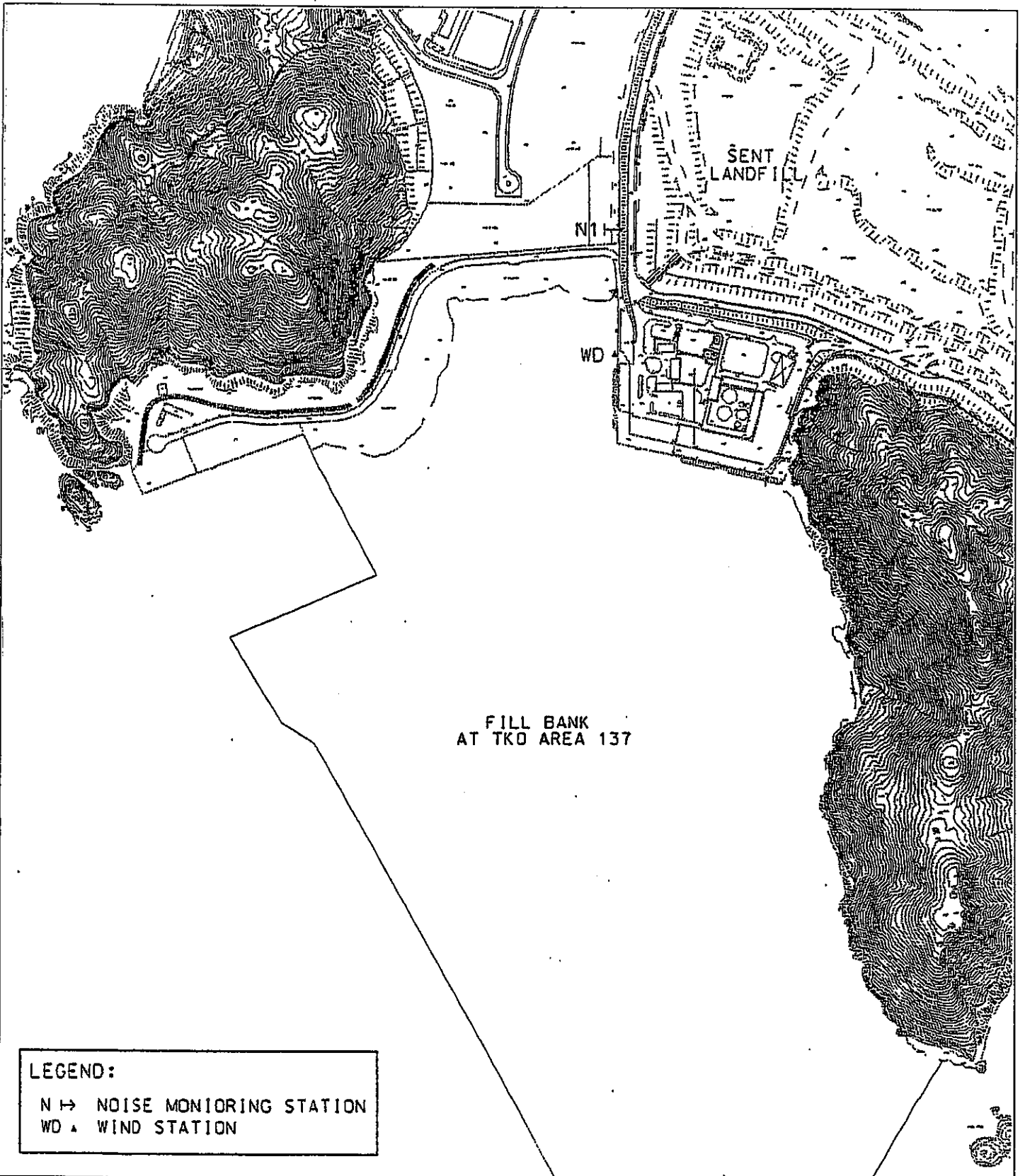
Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Wo

Figure 1

Locations of Water Quality Monitoring Stations –  
 Fill Bank at Tseung Kwan O Area 137



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Contract No. CV/2005/12

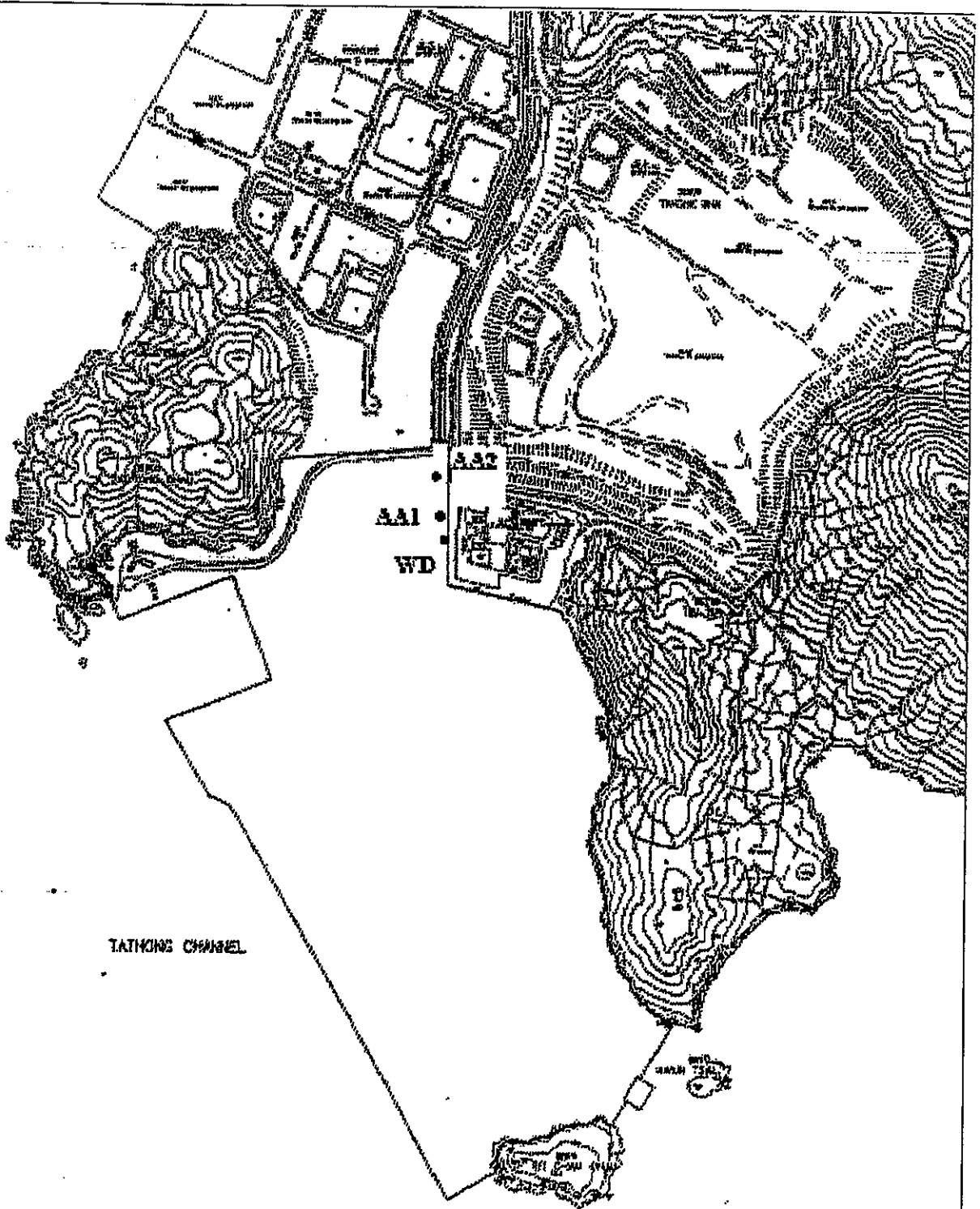
Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Wo

Figure 2

Locations of Noise Monitoring Station –  
Fill Bank at Tseung Kwan O Area 137



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**Legend:**

**AA ● Air Monitoring Stations**

**WD ■ Wind Station**

Contract No. CV/2005/12

Operation of Public Fill Reception Facilities at Tseung Kwan O Area 137, Quarry Bay and Mui Wo

Figure 3

Locations of Air Quality Monitoring Stations –  
Fill Bank at Tseung Kwan O Area 137



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