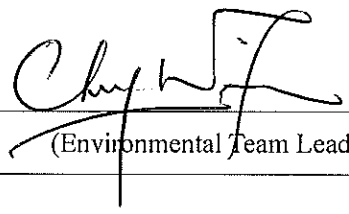
Dragages-Nishimatsu Joint Venture

Contract No. DC/2007/10
Design and Construction of Hong Kong West Drainage Tunnel

Monthly EM&A Report

(version 1.0)

April 2009

Approved By 

(Environmental Team Leader)

REMARKS:

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

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
CEDD	Civil Engineering & Development Department
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
TSP	Total Suspended Particulates
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan

EXECUTIVE SUMMARY

Introduction

1. This is the 13th Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the "Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel" (the Project). This report documents the findings of EM&A Works conducted in April 2009.

2. The site activities undertaken in the reporting month included:

- Further establishment of project organization and staffing;
- TBM assembly and installation of temporary facilities at Eastern Portal;
- Initial TBM excavation and installation of temporary facilities at Western Portal;
- Construction of temporary cofferdam at Intake W0;
- Utilities trial pits and additional site investigation works at 9 locations;
- Detailed Design Approval (DDA) submissions for temporary works at both portals;
- Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary and permanent works for 32 nos. Intakes;
- AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
- Environmental impact monitoring;
- Casting of tunnel segments; and
- Delivery and inland transportation of East TBM.

Environmental Monitoring Works

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

4. Summary of the non-compliance of the reporting month is tabulated in Table I.

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

Parameter	No. of Exceedance		No. of Exceedance Due to the Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
Eastern Portal					
1-hr TSP	0	0	0	0	N/A
24-hr TSP	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Western Portal					
1-hr TSP	0	0	0	0	N/A
24-hr TSP	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Water	0	0	0	0	N/A
Intake W0					
Noise	0	0	0	0	N/A
No. of Exceedance					**Action Taken**
Near Western Portal					
Ground Borne Noise	0				N/A

Eastern Portal

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

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

Western Portal

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

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

Water Quality

11. All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Near Western Portal

Construction Ground Borne Noise

12. All construction ground borne noise monitoring was conducted as scheduled in the reporting month. No exceedance was recorded.

Intake W0

Construction Noise

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

Environmental Licenses and Permits

14. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, An Environmental Permit No. EP-272/2007 was issued on 26 April 2007 and Environmental Permit No. EP-272/2007/A was issue on 26 October 2007. Later, the further Environmental Permit (FEP-01/272/2007/A) was issued on 28 January 2008 to Dragages-Nishimatsu Joint

Venture as the Permit Holder.

15. Registration of Chemical Waste Producer (License: 5213-148-D2393-02 for Eastern Portal and No. 5213-172-D2393-01 for Western Portal), Water Discharge License (License No.: EP860/W10/XY0175 for Area of Mount Butler Office, EP860/W10/XY0177 for Eastern Portal, EP820/W9/XT086 for Western Portal and EP680/W10/XY0183 for Intake W0) and Construction Noise Permit (License No.: GW-RS0300-09 for Eastern Portal, GW-RS0213-09 for Western Portal and GW-RS0299-09 for Intake W0).

Key Information in the Reporting Month

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

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	2	Construction Noise at Western Portal (3)	Complaint of Construction Noise at WP (Investigation Report Submitted)	Closed	---
	1		Complaint of Construction Noise at generated at night by The Hong Kong West Drainage Tunnel Construction Works at Western Portal	Under Preparation of Investigation Report	
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	1	Monthly EM&A Report (March 2009)	Submitted to EPD on 21 April 2009 (EP condition 3.3)	Verified by IEC	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---
Future Key Issues:					
Major site activities for the coming month include: • Delivery and assembly of TBM, initial TBM excavation, site installation for TBM operation and permanent slope excavation for River Channel at Eastern Portal. • Initial TBM excavation and site installation for TBM operation at Western Portal. • Construction of temporary cofferdam at Intake W0.					

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
• Utilities trial pits and additional site investigation works at available intakes. • Casting of tunnel segments in China.					

1. INTRODUCTION

Background

1.1 Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel is a Designated Project (hereafter referred to as "the Project") under the Environmental Impact Assessment Ordinance (Cap. 449). A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, ecological, construction waste, landscape and visual, land use, cultural impacts, and identify possible mitigation measures associated with the works. An EIA Report was approved by the Environmental Protection Department (EPD) on 7 April 2006.

1.2 The project comprises the construction of a drainage tunnel deep into the ground in Mid-levels of the Northern Hong Kong Island from Tai Hang to Pokfulam to intercept and convey the stormwater from the upper catchment directly to the sea near Cyberport. The Drainage tunnel alignment starts from the Eastern Portal near Haw Par Mansion in Tai Hang and ends at the Western Portal located to the north of Cyberport running underneath the Pok Fu Lam, Tai Tam, Aberdeen and Lung Fu Shan Country Parks. The underground main drainage tunnel is 6.25m-7.25m in diameter and about 11km long. Two portals and a series of connecting adits and drop shafts are also been constructed. The general layout of the Project is shown in **Figure 1.1**.

1.3 An Environmental Permit (EP) No. EP-272/2007 was issued on 26 April 2007 for Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel to Drainage Services Department as the Permit Holder. Later, the further Environmental Permit (FEP-01/272/2007/A) was issued on 28 January 2008 to Dragages-Nishimatsu Joint Venture as the Permit Holder.

1.4 Cinotech Consultants Limited was commissioned by the Dragages-Nishimatsu Joint Venture (the Contractor) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The Updated EM&A Manual was prepared by Cinotech to fulfill the requirements of the EP. The construction commencement of this Contract at Eastern Portal was on 17th April 2008 and 2nd May 2008 at Western Portal (land-based). The marine construction works was commenced on 30 May 2008. This is the 13th monthly EM&A report summarizing the EM&A works for the Project in April 2009.

Project Organizations

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

- Project Proponent – Drainage Services Department (DSD).
- The Supervising Officer or Supervising Officer's Representative (SO or SOR) – Ove Arup & Partners (ARUP).
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – Allied Environmental Consultants Limited (AEC).
- Contractor - Dragages-Nishimatsu Joint Venture (DNJV).

1.6 The responsibilities of respective parties are detailed in Sections 1.14 to 1.28 of the updated EM&A Manual of the Project.

1.7 The key contacts of the Project are shown in Table 1.1 and the organization chart of ET is shown in **Figure 2.1**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
DNJV	Permit Holder	Mr. ALTIER Daniel	Project Manager	2671 7333	2671 9300
		Mr. UETAKE H.	Deputy Project Manager		
ARUP	Supervising Officer	Mr. Ted Tang	CRE	6117 6639	2436 1012
		Mr. Jackson Wong	SRE	6117 6636	
		Mr. Alan Ng	RE	9668 8350	
		Mr. Bernard Cheng	RE	98614939	
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Mr. Alex Ngai	Project Coordinator	2151 2076	
		Ms. Ivy Tam	Audit Team Leader	2151 2095	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
AEC	Independent Environmental Checker	Ms. Claudine Lee	Independent Environmental Checker	2815 7028	2815 5399
DNJV	Contractor	Mr. Ben Ho	Environmental Officer	2671 7333	2671 9300

Construction Programme

1.8 The site activities undertaken in the reporting month included:

- Further establishment of project organization and staffing;
- TBM assembly and installation of temporary facilities at Eastern Portal;
- Initial TBM excavation and installation of temporary facilities at Western Portal;
- Construction of temporary cofferdam at Intake W0;
- Utilities trial pits and additional site investigation works at 9 locations;
- Detailed Design Approval (DDA) submissions for temporary works at both portals;
- Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary and permanent works for 32 nos. Intakes;

- AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays;
- Environmental impact monitoring;
- Casting of tunnel segments; and
- Delivery and inland transportation of East TBM.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
Further establishment of project organization and staffing	Nil	Nil
TBM assembly and installation of temporary facilities at Eastern Portal	Noise, dust impact, water quality and waste generation	Provided water spraying during dust generation works On-site waste sorting and implementation of trip ticket system Appropriate desilting/sedimentation devices provided on site for treatment before discharge Provide sufficient mitigation measures as recommended in Approved EIA Report
Initial TBM excavation and installation of temporary facilities at Western Portal		
Construction of temporary cofferdam at Intake W0		
Utilities trial pits and additional site investigation works at 9 locations	Nil	Nil
Detailed Design Approval (DDA) submissions for temporary works at both portals	Nil	Nil
Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for temporary and permanent works for 32 nos. Intakes	Nil	Nil
AIP & DDA submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays	Nil	Nil
Environmental impact monitoring	Nil	Nil
Casting of tunnel segments	Nil	Nil
Delivery and inland transportation of East TBM	Noise Impact and ground water	Double-shielded Tunnel Boring Machine to minimize seepage of groundwater

Summary of EM&A Requirements

1.9 The EM&A programme requires construction phase monitoring construction noise, air quality and water quality and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

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

1.11 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality, water quality and noise levels and audit works for the Project in April 2009.

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

2.2 Three designated monitoring stations, AQ1, AQ2 and AQ3 were selected for impact dust monitoring. Table 2.1 describes the air quality monitoring locations, which are also depicted in **Figure 3.1a-b.**

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations
AQ1	True Light Middle School of Hong Kong
AQ2	Outside Aegean Terrace
AQ3	Outside The Site Office at Western Portal

Monitoring Equipment

2.3 Table 2.2 summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix B**.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	G25A; S/N: 1536	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD3	3
HVS Sampler	GMWS 2310 c/w of TSP sampling inlet	2

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

Measuring Procedures

2.5 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG with once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

Maintenance/Calibration

2.6 The following maintenance/calibration was required for the direct dust meters:

- Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

2.8 Operating/analytical procedures for the operation of HVS were as follows:

- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.

- Airflow around the sampler was unrestricted.
- The sampler was more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

2.9 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.10 For TSP sampling, fiberglass filters (G810) were used [Note: these filters have a collection efficiency of > 99% for particles of 0.3 mm diameter].

2.11 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

2.13 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

2.14 The shelter lid was closed and secured with the aluminum strip.

2.15 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

2.16 After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.

2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

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

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using GMW-25 Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

Eastern Portal (AQ1)

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

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

Western Portal (AQ2)

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

Western Portal (AQ3)

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

2.23 Wind data was obtained from the Meteorological Observations for King's Park Automatic Weather Station for Eastern Portal and Wong Chuk Hang Automatic Weather Station for Western Portal. These wind data for the reporting period is summarized in **Appendix J.**

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

2.25 In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website http://www.cinotech.com.hk/projects/WestDrainageTunnel/.

2.26 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Area	Station	Major Noise Source
Eastern Portal	NC1 – True Light Middle School of Hong Kong	Road Traffic Dust Loading/unloading activities
	NC2 – The Legend	
Western Portal	NC3 – Outside Aegean Terrace	Road Traffic Dust Loading/unloading activities TBM works Excavation Works
Intake W0	NC15 – Hong Kong Academy	Road Traffic Dust Excavation Works

Table 2.4 Summary Table of Air Quality Monitoring Results during the reporting month

Parameter	Date	Concentration (µg/m3)	Action Level, µg/m3	Limit Level, µg/m3
Eastern Portal				
1-hr TSP (AQ1)	1-Apr-09	313.6	345	500
	2-Apr-09	241.2		
	6-Apr-09	147.7		
	7-Apr-09	136.5		
	9-Apr-09	211.3		
	14-Apr-09	128.9		
	15-Apr-09	99.2		
	16-Apr-09	58.1		
	21-Apr-09	52.5		
	22-Apr-09	247.5		
	23-Apr-09	217.0		
	27-Apr-09	279.0		
	28-Apr-09	258.2		
	29-Apr-09	153.2		
24-hr TSP (AQ1)	3-Apr-09	92.9	201	260
	9-Apr-09	114.1		
	15-Apr-09	60.3		
	21-Apr-09	115.6		
	27-Apr-09	127.9		
Western Portal				
1-hr TSP (AQ2)	1-Apr-09	54.6	321	500
	2-Apr-09	41.5		
	6-Apr-09	107.5		
	7-Apr-09	96.4		
	9-Apr-09	34.5		
	14-Apr-09	44.9		
	15-Apr-09	140.5		
	16-Apr-09	222.4		
	21-Apr-09	50.6		
	22-Apr-09	106.3		
	23-Apr-09	45.0		
	27-Apr-09	44.6		
	28-Apr-09	97.0		
	29-Apr-09	44.8		
24-hr TSP (AQ3)	3-Apr-09	59.4	156	260
	9-Apr-09	123.9		
	15-Apr-09	101.6		
	21-Apr-09	142.2		
	27-Apr-09	82.1		

3. NOISE

Monitoring Requirements

3.1 Four noise monitoring stations, namely NC1, NC2, NC3 and NC15 were selected for impact monitoring in the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Noise monitoring was conducted at four designated monitoring stations as listed in Table 3.1. **Figure 3.1a-c** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations
NC1/NC1a	True Light Middle School of Hong Kong/Outside True Light Middle School of Hong Kong
NC2	The Legend
NC3	Outside Aegean Terrace
NC15	Hong Kong Academy

Monitoring Equipment

3.3 Table 3.2 summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	B&K Model 2238 and SVAN 959	5
Calibrator	B&K 4231 and SVAN 30A	3

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
NC1 NC2 NC3 *NC15	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
NC1a NC2 NC3	L_{10}(5 min.) dB(A) L_{90}(5 min.) dB(A) L_{eq}(5 min.) dB(A)	1900 - 2300 hrs on all other days 0700 - 2300 hrs holidays & 2300 – 0700 hrs of next day		

*Free Field Measurement

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- 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 : 30 minutes / 5 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

3.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

3.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

3.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

3.8 Noise monitoring (0700-1900 hrs on normal weekdays, 1900-2300 hrs on all other days, 2300-0700 hrs of next day and 0700-1900 hrs on holidays) at the three designated locations (NC1/NC1a (for restricted hours), NC2 and NC3) was conducted as scheduled in the reporting month for Eastern and Western Portal.

3.9 As noise monitoring for evening time inside the True Light Middle School of Hong Kong (NC1) throughout the construction period will cause disturbance to them. Thus, the noise monitoring for evening time will be conducted at outside the school (NC1a) at the nearest of the staff accommodation. As no baseline noise monitoring has been conducted at NC1a and the major noise source was the traffic noise along Tai Hang Road. The noise monitoring results will be adjusted with the reference baseline noise level at NC1 (1900-2300 on all other days and 0700 - 2300 hrs holidays & 2300 – 0700 hrs of next day) and will be used as reference only.

3.10 Noise monitoring (0700-1900 hrs on normal weekdays) at NC15 was conducted as scheduled in the reporting month for Intake W0.

Eastern Portal (NC1 & NC2) - 0700-1900 hrs on normal weekdays

3.11 No Action/Limit Level exceedance was recorded.

Eastern Portal (NC1a & NC2) - 1900-2300 hrs on all other days and 0700-2300 hrs on holidays

3.12 No Action/Limit Level exceedance was recorded.

Eastern Portal (NC1a & NC2) - 2300-0700 hrs of next day

3.13 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) - 0700-1900 hrs on normal weekdays

3.14 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) - 1900-2300 hrs on all other days and 0700-2300 hrs on holidays

3.15 No Action/Limit Level exceedance was recorded.

Western Portal (NC3) – 2300-0700 hrs of next day

3.16 No Action/Limit Level exceedance was recorded.

Intake W0 (NC15) - 0700-1900 hrs on normal weekdays

3.17 No Action/Limit Level exceedance was recorded.

3.18 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = Measured CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented at Table 3.4.

3.19 Noise monitoring results and graphical presentations are shown in **Appendix G**. In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website http://www.cinotech.com.hk/projects/WestDrainageTunnel/.

3.20 The major noise source identified at the designated noise monitoring stations are as follows:

Area	Station	Major Noise Source
Eastern Portal	NC1 – True Light Middle School of Hong Kong	Traffic Noise Loading/unloading activities
	NC2 – The Legend	
Western Portal	NC3 – Outside Aegean Terrace	Traffic Noise Loading/unloading activities TBM works
Intake W0	NC15 – Hong Kong Academy	Traffic Noise Piling Works

Table 3.4 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
NC1 – True Light Middle School of Hong Kong	70.2 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
NC1a – Outside True Light Middle School of Hong Kong (the nearest of staff accommodation)	65.8 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 60.7 (at 2300 – 0700 hrs of next day) **(reference)**	65 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 50 (at 2300 – 0700 hrs of next day)
NC2 – The Legend	64.8 (at 0700 – 1900 hrs on normal weekdays) 59.1 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 53.9 (at 2300 – 0700 hrs of next day)	75 (at 0700 – 1900 hrs on normal weekdays) 65 (at 0700 - 2300 hrs

NC3 – Outside Aegean Terrace	57.7 (at 0700 – 1900 hrs on normal weekdays) 53.8 (at 0700 - 2300 hrs holidays & 1900 - 2300 hrs on all other days) 52.0 (at 2300 – 0700 hrs of next day)	holidays & 1900 - 2300 hrs on all other days) 50 (at 2300 – 0700 hrs of next day)
NC15 – Hong Kong Academy	63.5 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)

(*) reduce to 65 dB(A) during school examination periods.

Table 3.5 Summary Table of Noise Monitoring Results during the Reporting Month

Parameter	Date	Construction Noise Level : Leq(30min) dB (A)	Action Level	Limit Level,
Eastern Portal				
NC1	2-Apr-09	66.8, Measured ≦ Baseline	When one documented complaint is received	70*dB(A)
	7-Apr-09	66.8, Measured ≦ Baseline		
	16-Apr-09	65.4, Measured ≦ Baseline		
	23-Apr-09	68.1, Measured ≦ Baseline		
	29-Apr-09	66.8, Measured ≦ Baseline		
NC2	2-Apr-09	54.6		75dB(A)
	7-Apr-09	62.5		
	16-Apr-09	64.2, Measured ≦ Baseline		
	23-Apr-09	63.7		
	29-Apr-09	60.6		
Western Portal				
NC3	2-Apr-09	52.3, Measured ≦ Baseline	When one documented complaint is received	75dB(A)
	7-Apr-09	53.7, Measured ≦ Baseline		
	16-Apr-09	57.1, Measured ≦ Baseline		
	23-Apr-09	52.3, Measured ≦ Baseline		
	29-Apr-09	50.8, Measured ≦ Baseline		
Intake W0				
NC15	7-Apr-09	61.4	When one documented complaint is received	70*dB(A)
	16-Apr-09	56.6		
	23-Apr-09	62.9		
	29-Apr-09	62.9		
(Restricted Hours - 07:00 - 23:00 hrs holidays & 19:00 - 23:00 hrs on all other days)				
Parameter	**Date**	**Construction Noise Level : Leq(5min) dB (A)**	**Action Level**	**Limit Level,**
Eastern Portal				
NC1a (Reference)	2-Apr-09	62.3	When one documented complaint is received	65dB(A)
	5-Apr-09	65.5 Measured ≦ Baseline		
	7-Apr-09	62		
	12-Apr-09	55.6		
	16-Apr-09	58.2		
	19-Apr-09	65.3 Measured ≦ Baseline		
	23-Apr-09	62.3		
	26-Apr-09	63.2		
	29-Apr-09	62.3		
NC2	2-Apr-09	61.2		
	5-Apr-09	58.5 Measured ≦ Baseline		
	7-Apr-09	61.5		
	12-Apr-09	62.6		
	16-Apr-09	60.2		
	19-Apr-09	58.5 Measured ≦ Baseline		
	23-Apr-09	61.5		
	26-Apr-09	54.5		
	29-Apr-09	61.1		

Western Portal				
NC3	2-Apr-09	49.9 Measured ≦ Baseline	When one documented complaint is received	65dB(A)
	5-Apr-09	52.6 Measured ≦ Baseline		
	7-Apr-09	50.1 Measured ≦ Baseline		
	12-Apr-09	51.5		
	16-Apr-09	54.9		
	19-Apr-09	51.5 Measured ≦ Baseline		
	23-Apr-09	50.2 Measured ≦ Baseline		
	26-Apr-09	53.5 Measured ≦ Baseline		
	29-Apr-09	50.1 Measured ≦ Baseline		
(Restricted Hours – 23:00 – 07:00 hrs of next day)				
Eastern Portal				
NC1a (Reference)	5-Mar-09	60.7, Measured ≦ Baseline	When one documented complaint is received	50dB(A)
	12-Mar-09	59.6, Measured ≦ Baseline		
	20-Mar-09	59.6, Measured ≦ Baseline		
	27-Mar-09	60.2, Measured ≦ Baseline		
NC2	4-Mar-09	37.6		
	12-Mar-09	52.4, Measured ≦ Baseline		
	20-Mar-09	53.3, Measured ≦ Baseline		
	27-Mar-09	53.7, Measured ≦ Baseline		
Western Portal				
NC3	5-Mar-09	50.7, Measured ≦ Baseline	When one documented complaint is received	50dB(A)
	12-Mar-09	51.5, Measured ≦ Baseline		
	20-Mar-09	50.5, Measured ≦ Baseline		
	27-Mar-09	51.8, Measured ≦ Baseline		

(*) reduce to 65 dB(A) during school examination periods.

Ground Borne Construction Noise Monitoring

Monitoring Requirements

3.21 In accordance with the recommendations of the EIA study, ground borne noise monitoring is required to carry out during the TBM operation. Eight designated monitoring stations (GNC1 to GNC8) are designated for construction groundborne noise monitoring to check for compliance.

Monitoring Locations

3.22 Ground borne noise monitoring was conducted at GNC3 – Aegean Terrace in the reporting month during the TBM operation. **Figure 3.1b** shows the locations of the monitoring stations.

Monitoring Equipment

3.23 The noise monitoring equipment shall be the same as stated in Section 3.4.

Monitoring Parameters, Frequency and Duration

3.24 Table 3.6 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.6 Ground Borne Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
GNC3	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week
	L_{10}(5 min.) dB(A) L_{90}(5 min.) dB(A) L_{eq}(5 min.) dB(A)	1900 - 2300 hrs on all other days 0700 - 2300 hrs holidays	

Results and Observations

3.25 Groundborne Noise monitoring (0700-1900 hrs on normal weekdays, 1900 – 2300 hrs on all other days and 0700 – 2300 hrs holidays) at Aegean Terrace (GNC3) was conducted as scheduled in the reporting month. The construction ground borne noise standards are presented at Table 3.7.

Aegean Terrace (GNC3) - 0700-1900 hrs on normal weekdays

3.26 No exceedance was recorded.

Aegean Terrace (GNC3) - 1900-2300 hrs on all other days and 0700-2300 hrs on holidays

3.27 No exceedance was recorded.

Table 3.7 Construction Ground Borne Noise Standards

	Ground Borne Noise Criteria, dB(A) (Leq 30 min)		
Uses	Daytime (except General Holidays and Sundays)*	Daytime during general holidays and Sundays and all days during Evening (1900 to 2300 hrs)**	Night time (2300 to 0700 hrs)
Domestic Premises	65	55	40
Educational Institutions (normal periods)	60	55	(1)
Education Institutions (during examination periods)	55	55	(1)

*10dB(A) below the noise criteria stipulated in EIAO-TM
**10dB(A) below the noise criteria stipulated in GW-TM
(1) No sensitive uses usually present during these periods

Table 3.8 Summary Table of Ground Borne Noise Monitoring Results during the Reporting Month

Parameter	Date	Construction Ground Borne Noise Level : Leq(30min)/(5min) dB (A)	Standards
Near Western Portal			
GNC3	2-Apr-09	48.5	65dB(A)
	7-Apr-09	49.7	
	16-Apr-09	47.1	
	23-Apr-09	49.4	
	29-Apr-09	49.5	
(Restricted Hours - 07:00 - 23:00 hrs holidays & 19:00 - 23:00 hrs on all other days)			
GNC3	2-Apr-09	48.5	55 dB(A)
	5-Apr-09	49.3	
	7-Apr-09	48.8	
	12-Apr-09	48.5	
	16-Apr-09	48.5	
	19-Apr-09	48.3	
	23-Apr-09	49.2	
	26-Apr-09	49.3	
	29-Apr-09	49.3	

4. WATER QUALITY

Monitoring Requirements

4.1 Dissolved oxygen (DO concentration in mg/L and DO saturation in percentage), Turbidity (Tby in NTU), Suspended Solid (SS in mg/L), pH, salinity and both water and ambient temperature monitoring were conducted to monitor the water quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

4.2 Locations of designated Water Quality Monitoring Stations are shown in **Figure 4.1a-b** and described in Table 4.1. Samples shall be taken at all designated Monitoring and Control Stations.

Table 4.1 Locations for Water Quality Monitoring

Monitoring Stations	Coordinates	
	Northing	Easting
Control Stations		
CE (Ebb)	814956	830026
CF (Flood)	812420	831778
Impact Stations		
I1	813654	831088
I2	813582	831105
Intake A	813044	831603
Intake B	814583	830606

Monitoring Equipment

4.3 Table 4.2 summarizes the equipment used in the water quality monitoring program. All the monitoring equipment complied with the specifications stipulated in the Updated EM&A Manual. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 4.2 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820	2
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1

Monitoring Parameters, Frequency and Duration

4.4 Table 4.3 summarizes the monitoring parameters, monitoring period and frequencies of water quality monitoring.

Table 4.3 Frequency and Parameters of Water Quality Monitoring

Station	Parameters	Frequency	No. of depth sampled	Depth	No. of samples events
CE	• Temperature (℃) • pH (pH unit) • turbidity (NTU) • water depth (m) • salinity (mg/L) • dissolved oxygen (DO) (mg/L and % of saturation) • suspended solids (SS) (mg/L)	3 times per week during the course of the marine works	3	• 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If the water depth is less than 6m, omit mid-depth sampling.	2 per monitoring day (1 for mid-ebb and 1 for mid-flood)
CF			2		
I1			3		
I2			3		
Intake A			3		
Intake B			3		

Monitoring Methodology, Calibration Details and QA/QC Procedures

Instrumentation

4.5 A multi-parameter meter (Model YSI 6820 C-M) was used to measure DO, DO saturation, turbidity, salinity and temperature.

Operating/Analytical Procedures

4.6 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity and temperature were taken. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

4.7 For SS measurement, duplicate water samples for SS were taken and analysed at each monitoring station at each sample depth. The sample bottles were then packed in cool-boxes

(without being frozen), and delivered to a HOKLAS accredited laboratory for analysis of suspended solids concentrations within 24 hours.

Maintenance and Calibration

4.8 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of YSI 6820-C-M. The probe was then calibrated with a solution of known NTU.

4.9 QA/QC procedures as attached in **Appendix C** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

4.10 All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. The monitoring data and graphical presentations of the monitoring results are shown in **Appendix H**.

4.11 In accordance with Condition 4.2 of the EP, all environmental monitoring data was made available to the public via internet access at the website http://www.cinotech.com.hk/projects/WestDrainageTunnel/.

4.12 During the water quality monitoring, the areas of inspection included the general environmental conditions in the vicinity of the site, pollution control and mitigation measures within the site; and also review on the environmental conditions outside the site area that are likely to be affected, directly or indirectly, by site activities. The findings have been recorded in our Field Record Sheets.

4.13 No Action/Limit Level exceedance was recorded.

4.14 The summary of exceedance record in reporting month is shown in **Appendix I**.

Underground water level

4.15 Ground water levels were measured once per month during the construction phase in order to ensure the water levels at those intakes near to the natural stream courses and thus on the surrounding habitats will not be significantly affected.

4.16 Locations of designated ground water level (borehole with piezometer) monitoring station UC1 at Eastern Portal has been changed to ADH48 which was verified by IEC on 5th June 2008. Ground water level monitoring location is shown in **Figure 4.2** and the Monitoring data are shown in Table 4.4.

Table 4.4 Ground Water Level Monitoring Data at Location ADH48

Date	Water Level (from ground)/m
23 April 2009	Dry

5. ENVIRONMENTAL AUDIT

Site Audits

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

5.2 Site audits were conducted on 1st, 8th, 15th, 22nd and 30th April 2009. IEC site inspections were conducted on 30th April 2009. No non-compliance was observed during the site audits.

Review of Environmental Monitoring Procedures

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

Air Quality Monitoring

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

Noise Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

Water Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the weather condition on the monitoring day.

Status of Environmental Licensing and Permitting

5.4 All permits/licenses obtained for the Project are summarized in Table 5.1.

Status of Waste Management

5.5 The waste management of the Project has to follow the requirements and procedures stated in the Waste Management Plan which was prepared by the Contractor.

5.6 During this reporting period, a total 13 nos. of dump trucks of waste were delivered to SENT

landfill and 113 nos. of C&D waste was delivered to Public Fill Reception Facilities. Both the trip ticket system and chit accounting system for disposal of waste were operating smoothly to date. No overloading case was recorded during this reporting period. No disposal of inert C&D material to public sorting facilities and no dump truck without cover were reported from CEDD. In respect of the dump truck cover, DNJV keeps on take record photos and inspection to ensure that all dump trucks have fully covered the skip before leaving the site.

5.7 The amount of wastes generated by the activities of the Project during the reporting month is shown in **Appendix P**.

Table 5.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
FEP-01/272/2007/A	28/1/08	N/A	Construction of a 6.25m-7.25m in diameter and about 11 km long underground main drainage tunnel, 2 portals and a series of connecting adits and drop shafts.	Valid
Effluent Discharge License				
EP860/W10/XY0175	23/06/08	30/06/13	Industrial discharge (Area of Mount Butler Office)	Valid
EP860/W10/XY0177	23/06/08	30/06/13	Industrial discharge (Eastern Portal Site)	Valid
EP820/W9/XT086	22/07/08	31/07/13	Industrial discharge (Western Portal Site)	Valid
EP680/W10/XY0183	19/11/08	30/11/13	Industrial discharge (Intake W0, Stubbs Road, Wan Chai, HK)	Valid
Registration of Chemical Waste Producer				
5213-148-D2393-02	---	N/A	Chemical waste types: Spent oil	Valid
5213-172-D2393-01	---	N/A	Chemical waste types: Spent oil	Valid
Construction Noise Permit (CNP)				
GW-RS0184-09	17/03/09	16/07/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid
GW-RS0300-09	23/04/09	16/07/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid
GW-RS0213-09	01/04/09	23/06/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. Dc/2007/10).	Valid
GW-RS0299-09	25/04/09	24/10/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at a construction site of "Hong Kong West Drainage Tunnel" near Stubbs Road Garden, Wan Chai, Hong Kong	Valid

Implementation Status of Environmental Mitigation Measures

5.8 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 5.2.

Table 5.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	01/04/2009	Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area and clear the standing water.	The item was not rectified during the follow-up audit session.
	01/04/2009	Standing water was observed at the pipe storage tank at Western Portal. The Contractor was reminded to dry it out and cover the containers that may retain the stagnant water.	The item was not rectified during the follow-up audit session.
	01/04/2009	Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	The item was not rectified during the follow-up audit session.
	01/04/2009	A bucket of standing water with chemical oil was observed at Eastern Portal. The Contractor was reminded to clean them up to prevent overflow.	Rectification/improvement was observed during the follow-up audit session.
	01/04/2009	Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	The item was not rectified during the follow-up audit session.
	08/04/2009	Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	Rectification/improvement was observed during the follow-up audit session.
	08/04/2009	*Marine Works* Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal. The Contractor was reminded to clear the waste as soon as possible.	Rectification/improvement was observed during the follow-up audit session.
	08/04/2009	Standing water was observed at the discarded sedimentation tank at Western Portal. The Contractor was reminded to dry it out to prevent mosquito breed.	The item was not rectified during the follow-up audit session.
	08/04/2009	Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area properly.	The item was not rectified during the follow-up audit session.
	08/04/2009	Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	Rectification/improvement was observed during the follow-up audit session.
	15/04/2009	Standing water was observed at the discarded sedimentation tank at Western Portal. The Contractor was reminded to dry it out to prevent mosquito breed.	Rectification/improvement was observed during the follow-up audit session.

Parameters	Date	Observations and Recommendations	Follow-up
	15/04/2009	Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area properly.	Rectification/improvement was observed during the follow-up audit session.
	15/04/2009	Sand bag bund was not observed at the outlet of the access road. The Contractor was reminded to provide bund of sand bag to prevent any wastewater from construction site discharging to the stream.	Rectification/improvement was observed during the follow-up audit session.
	22/04/2009	Standing water was observed at the container that may retain the water at Eastern Portal. The Contractor was reminded to dry it out.	Rectification/improvement was observed during the follow-up audit session.
	22/04/2009	Standing water with chemical oil was observed nearly overflow at underneath of water pump at Intake THR2. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	30/04/2009	Stream diversion was observed implemented at Intake THR2. However, The Contractor was reminded to critical review the capacity if the water recycling tank for recycling the silty water from the sand bag bund area at the stream and ensure no wastewater from discharging out to the public storm drain.	*Follow-up action was needed for the item.
Air Quality	08/04/2009	Over 20 cement bags were observed without cover at Western Portal. The Contractor was reminded to cover them with tarpaulin to prevent dust generation.	Rectification/improvement was observed during the follow-up audit session.
	15/04/2009	Sediment was observed at the site boundary of Intake W0. The Contractor was reminded to clean them up.	Rectification/improvement was observed during the follow-up audit session.
	30/04/2009	Dust generation was observed due to the dry site area at Western Portal. The Contractor was reminded to provide water-spray more frequently.	*Follow-up action was needed for the item.
Waste / Chemical Management	01/04/2009	Oil drum was observed without drip tray and appropriate labels at Western Portal. The Contractor was reminded to provide them with drip tray and attach with appropriate chemical labels.	Rectification/improvement was observed during the follow-up audit session.
	01/04/2009	Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	The item was not rectified during the follow-up audit session.
	01/04/2009	A bucket of standing water with chemical oil was observed at Eastern Portal. The Contractor was reminded to clean them up to prevent overflow.	The item was not rectified during the follow-up audit session.
	01/04/2009	Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	The item was not rectified during the follow-up audit session.
	08/04/2009	Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	Rectification/improvement was observed during the follow-up audit session.
	08/04/2009	Oil leakage from air compressor was	The item was not rectified

Parameters	Date	Observations and Recommendations	Follow-up
		observed at Intake W0. The Contractor was reminded to clear the chemical oil at the drip tray and well-maintained the plant equipment properly.	during the follow-up audit session.
	08/04/2009	Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal. The Contractor was reminded to clear the waste as soon as possible.	Rectification/improvement was observed during the follow-up audit session.
	08/04/2009	Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	Rectification/improvement was observed during the follow-up audit session.
	15/04/2009	Oil drum was observed without drip tray and appropriate label. The Contractor was reminded to store it properly and attach with appropriate chemical label.	The item was not rectified during the follow-up audit session.
	15/04/2009	Oil leakage from air compressor was observed at Intake W0. The Contractor was reminded to clear the chemical oil at the drip tray and well-maintained the plant equipment properly.	Rectification/improvement was observed during the follow-up audit session.
	22/04/2009	Standing water with chemical oil was observed nearly overflow at underneath of water pump at Intake THR2. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	22/04/2009	Suspected oil containers were observed to place near the sea at Western Portal. The Contractor was reminded to store them properly.	The item was not rectified during the follow-up audit session.
	22/04/2009	Oil drum was observed without drip tray and appropriate label. The Contractor was reminded to store it properly and attach with appropriate chemical label.	The item was not rectified during the follow-up audit session.
	30/04/2009	Construction waste was observed not stored properly before disposal at Eastern Portal. The Contractor was reminded to provide material skip for temporary storage of C&D waste.	Rectification/improvement was observed during the follow-up audit session.
	30/04/2009	Vegetation waste was observed accumulated at the stream of Intake THR2. The Contractor was reminded to clear them properly.	The item was not rectified during the follow-up audit session.
	30/04/2009	Suspected oil containers were observed to place near the sea at Western Portal. The Contractor was reminded to store them properly.	Rectification/improvement was observed during the follow-up audit session.
	30/04/2009	Oil drum was observed without drip tray and appropriate label at Western Portal. The Contractor was reminded to store it properly and attach with appropriate chemical label.	The item was not rectified during the follow-up audit session.
Ecology	15/04/2009	Seepage of silty water at the stream at THR2 was observed. The Contractor was reminded to provide mitigation measures to prevent any silty water from discharging out to affect the water quality of the stream.	The item was not rectified during the follow-up audit session.

Parameters	Date	Observations and Recommendations	Follow-up
	22/04/2009	Seepage of silty water at the stream at THR2 was observed. The Contractor was reminded to provide mitigation measures to prevent any silty water from discharging out to affect the water quality of the stream.	The item was not rectified during the follow-up audit session.
Marine Ecology	15/04/2009	Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	#The item was not rectified during the follow-up audit session.
	22/04/2009	Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	#The item was not rectified during the follow-up audit session.
	30/04/2009	Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	#The item was not rectified during the follow-up audit session.
Reminders	01/04/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.
	01/04/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.
	08/04/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.
	08/04/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.
	15/04/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.
	15/04/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.
	22/04/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.

Parameters	Date	Observations and Recommendations	Follow-up
	22/04/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.
	30/04/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.
	30/04/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.

Note: (*) The Environmental deficiencies have been rectified by the Contractor. However, the item was reoccurred during the follow-up site audit due to construction activities/rainstorm. The Contractor was reminded to rectify the deficiencies more frequently.

(#) The marine based construction works have finished and no waste water was discharged into the sea from site during inspection.

5.9 The monthly IEC audit was carried out on 30th April 2009, the observations were recorded and they are presented as follows:

5.10 Follow-up and rectification works in response to IEC observations on 27 March 2009 were inspected and the rectification measures were satisfactory.

30th April 2009

Intake THR2

- Seepage of silty water into water stream was surrounded by sand bags. However the sandbags level was not high enough to stop possible overflow. Modification of bund is needed.
- Vegetation waste was observed inside the stream. Prompt removal is needed.
- Storage capacity of water tanks was not adequate. Overflow of water into storm drain was observed. Rectification is needed.

Western Portal

- Dust emission from paved area was observed. More frequent watering of dry and dusty area is necessary.
- Chemical drums/containers were placed on ground without drip tray. Prompt provision of drip tray is required.
- It is observed that the conveyor belt was in operation. However enclosure was not provided. Prompt rectification is needed.
- Surface channel next to wheel washing sedimentation tank was accumulated with rubbish and mud. Prompt cleaning up is needed.
- Silt curtain was not properly located. Rectification is needed.

Non-compliance Recorded during Site Inspections

5.11 No non-compliance was recorded in the reporting month.

Summary of Mitigation Measures Implemented

5.12 The Contractor has implemented the mitigation measures as recommended in the EIA and the updated EM&A Manual in the reporting period except those mitigation measures not applicable at this stage. Status of the implementation of mitigation measures is presented in Table 1.2 and **Appendix L**.

5.13 According to the updated EM&A Manual and EP condition, mitigation measures such as noise enclosure and use of quiet PME are required to be implemented.

5.14 The actual implementation status of major mitigation measures required under the EP is as follows:

- Installation of silt curtain during the course of marine works.
- Design of noise enclosure at Eastern Portal.
- Submitted the Alternative Plant Inventory (EP condition 2.8(c)).

5.15 An updated summary of the EMIS is provided in **Appendix L**.

Implementation Status of Event Action Plans

5.16 The Event Action Plans for air quality and noise are presented in **Appendix M.**

Eastern Portal

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Western Portal

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

5.22 No Action/Limit Level exceedance was recorded for construction noise.

Water Quality

5.23 No Action/Limit Level exceedance was recorded for water quality.

Near Western Portal

Construction Ground Borne Noise

5.24 No exceedance was recorded for construction ground borne noise.

Intake W0

Construction Noise

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

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

5.26 Three environmental complaints were received in the reporting month. For the details, please refer to the following table: -

Complaint No.	Date	Complaint Details
COM-2009-04-028	7 April 2009	The complaint was lodged by one of the residents of Aegean Terrace at Sassoon Road regarding the noise generated from the construction works conducted till 11:00pm at Western Portal for the Hong Kong West Drainage Tunnel Project.
COM-2009-04-029	10 April 2009	The complaint was lodged by one of the residents of Aegean Terrace at Sassoon Road regarding the noise generated by TBM works at Western Portal.
COM-2009-04-030	30 April 2009	The complaint was raised by the property Management Manager of Aegean Terrace at Sassoon Road regarding the construction noise generated at night at Western Portal

5.27 No warning, summon and notification of successful prosecution was received in the reporting month.

5.28 There were a total of 20 environmental complaints, no warning, summons and successful prosecution received since the commencement of the Project. The Complaint Log is attached in **Appendix N**.

6. FUTURE KEY ISSUES

Key Issues for the Coming Month

6.1 Key environmental issues at Eastern and Western Portals and Intake W0 in the coming month include:

Both Eastern and Western Portals and Intake W0

- Noise from operation of the equipment, especially for rock-breaking activities and machinery on-site;
- Dust generation from stockpiles of dusty materials, excavation works and rock breaking activities;
- Runoff from exposed slope;
- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks;
- Review and implementation of temporary drainage system for the surface runoff;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Watering for rock breaking activity, soil nailing and on haul road;
- Accumulation of general and construction waste on site.

Only at Western Portal

- Contamination of marine water.

6.2 The tentative program of major site activities and the impact prediction and control measures for the coming two month, i.e. April 2009 to May 2009 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
- Excavation permanent slope, segment storage yard formation, fabrication of the TBM, installation of the conveyors system and Main Tunnel excavation at Eastern Portal. - Main Tunnel excavation, gantries	Air impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	d) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; e) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; f) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and g) Provision of measures to prevent discharge into the stream.

Construction Works	Major Impact Prediction	Control Measures
and conveyor system erection, noise enclosure installation and installation of temporary facilities for TBM operation at Western Portal. - Pre-drilling, grouting and driving of sheet piling at Intake W0. - Preparation works, utilities trial pits and additional site investigation works at available intakes	Noise Impact	h) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; i) Controlling the number of plants use on site; j) Regular maintenance of machines; and k) Use of acoustic barriers if necessary.

Monitoring Schedule for the Next Month

6.3 The tentative environmental monitoring schedules for the next month are shown in **Appendix D**.

Construction Program for the Next Month

6.4 The tentative construction program for the Project is provided in **Appendix O**.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

7.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise Monitoring

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

Construction Ground Borne Noise Monitoring

7.5 All construction noise monitoring was conducted as scheduled in the reporting month. No exceedance was recorded.

Water Quality

7.6 All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Complaint and Prosecution

7.7 Three environmental relevant complaints and no environmental prosecution were received in the reporting month.

Recommendations

7.8 According to the environmental audit performed in the reporting period, the following recommendations were made:

Air Quality Impact

- To prohibit any open burning on site.
- To regularly maintain the machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To provide hoarding

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.

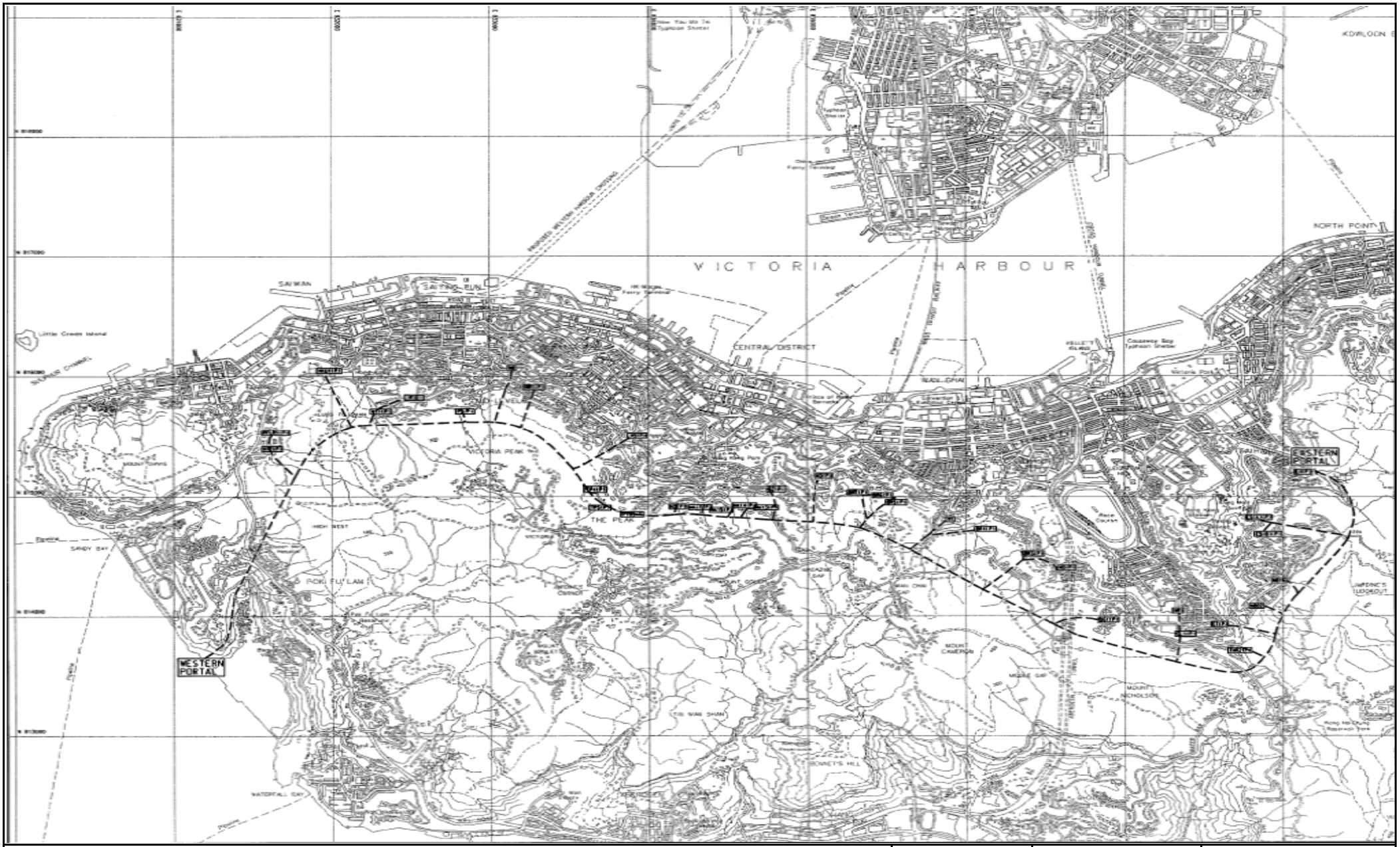
Water Impact

- To prevent any surface runoff discharge into any stream course.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

FIGURES



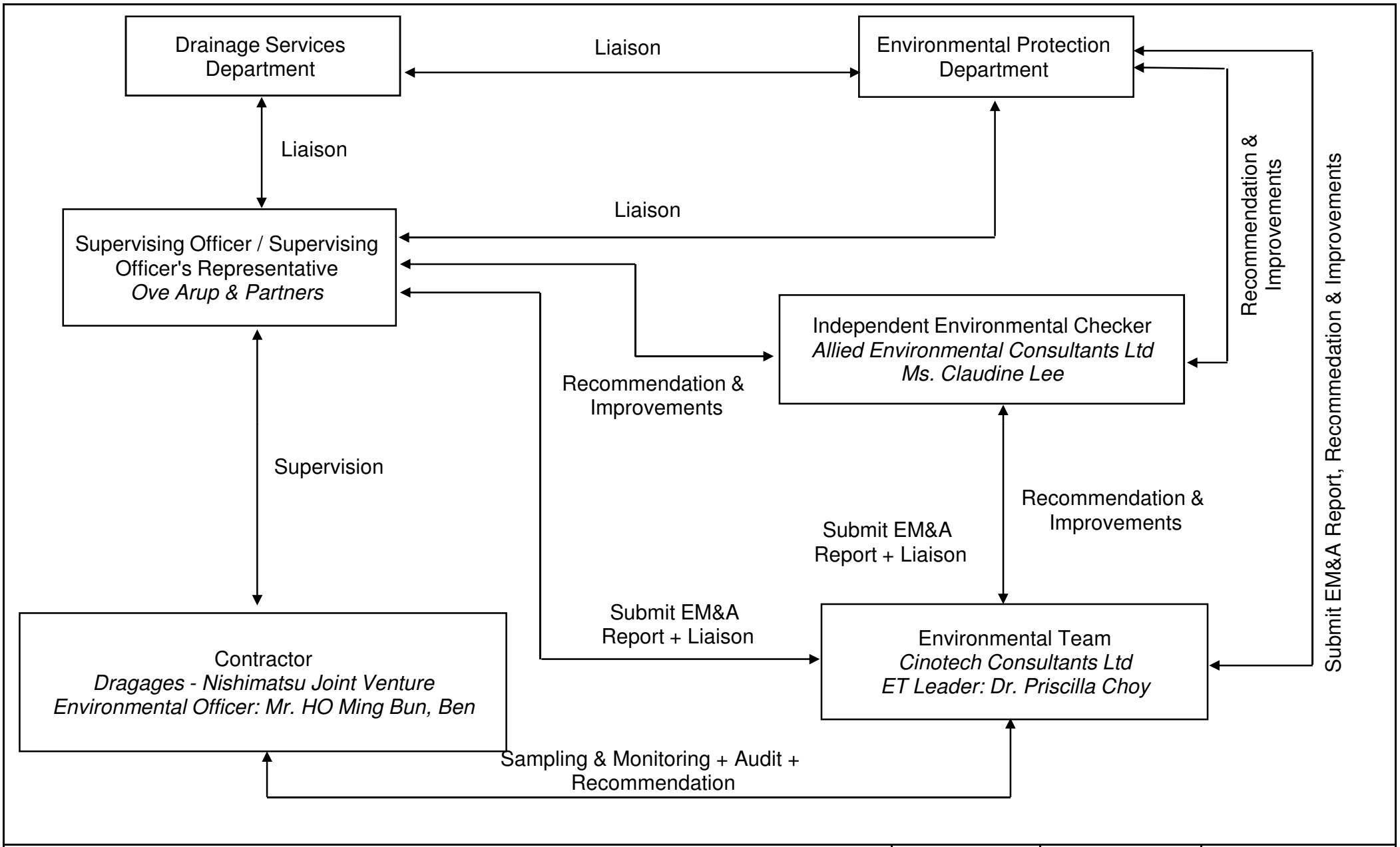
Title

Contract No. DC/2007/10
Design and Construction of Hong Kong West Drainage Tunnel

Site Layout Plan

Scale	N.T.S
Project No.	MA8001
Date	Apr-08
Figure	1.1

CINOTECH



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Organization Chart	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Apr-08	Figure: 2.1	

Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal) Locations of Air Quality and Noise Monitoring Station	Scale: N.T.S Date: Nov-08	Project No.: MA8001 Figure: 3.1a

CINOTECH

Title

Contract No. DC/2007/10

Design and Construction of Hong Kong West Drainage Tunnel

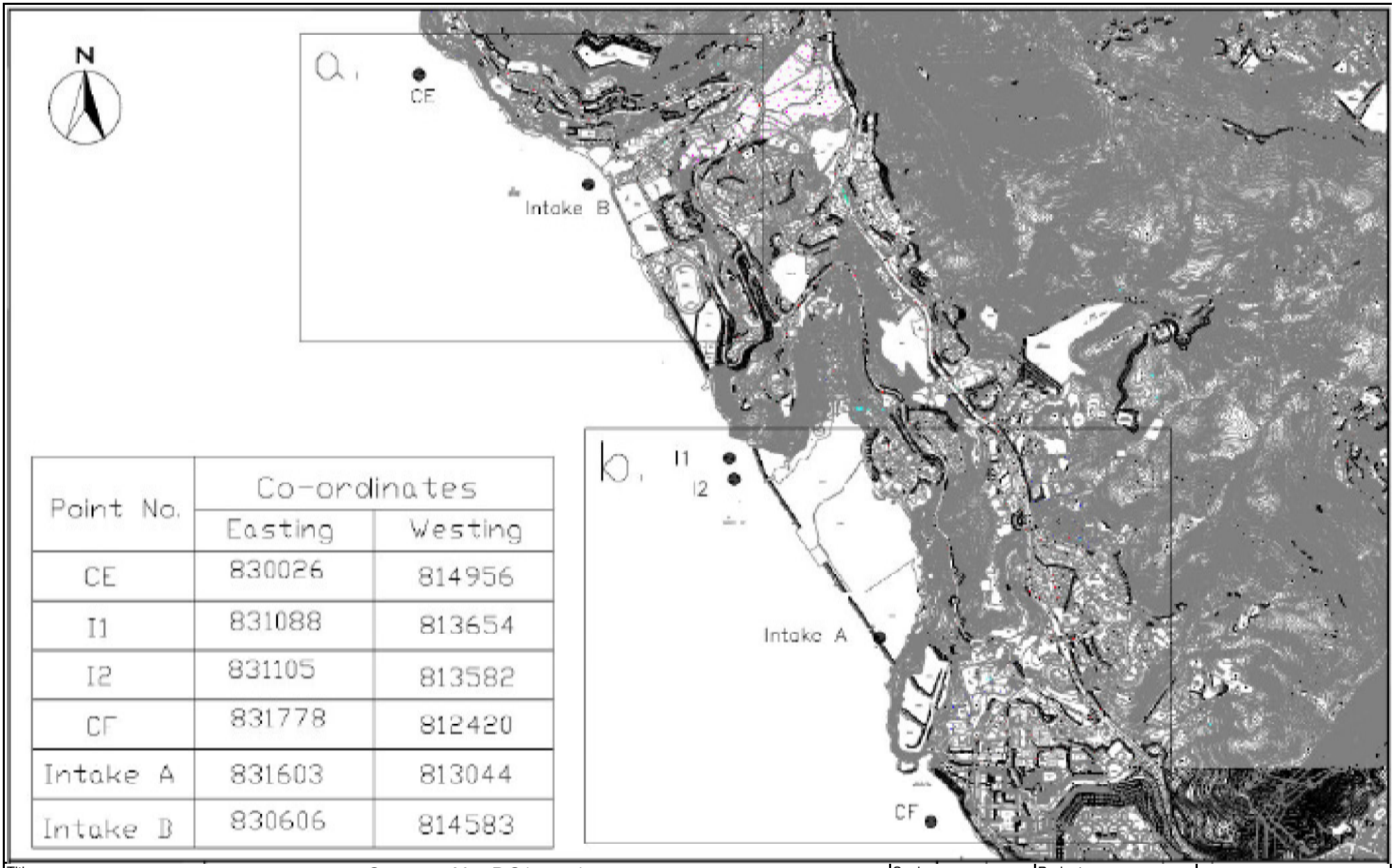
(Western Portal)

Locations of Air Quality and Noise Monitoring Station

Scale	N.T.S
Project No.	MA8001
Date	May-09
Figure	3.1b

CINOTECH

Title	Scale	Proposal No.	
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel (Intake W0) Locations of Noise Monitoring Stations	N.T.S	MA8001	CINOTECH
	Date May-09	Figure 3c	



Point No.	Co-ordinates	
	Easting	Westing
CE	830026	814956
I1	831088	813654
I2	831105	813582
CF	831778	812420
Intake A	831603	813044
Intake B	830606	814583

Title

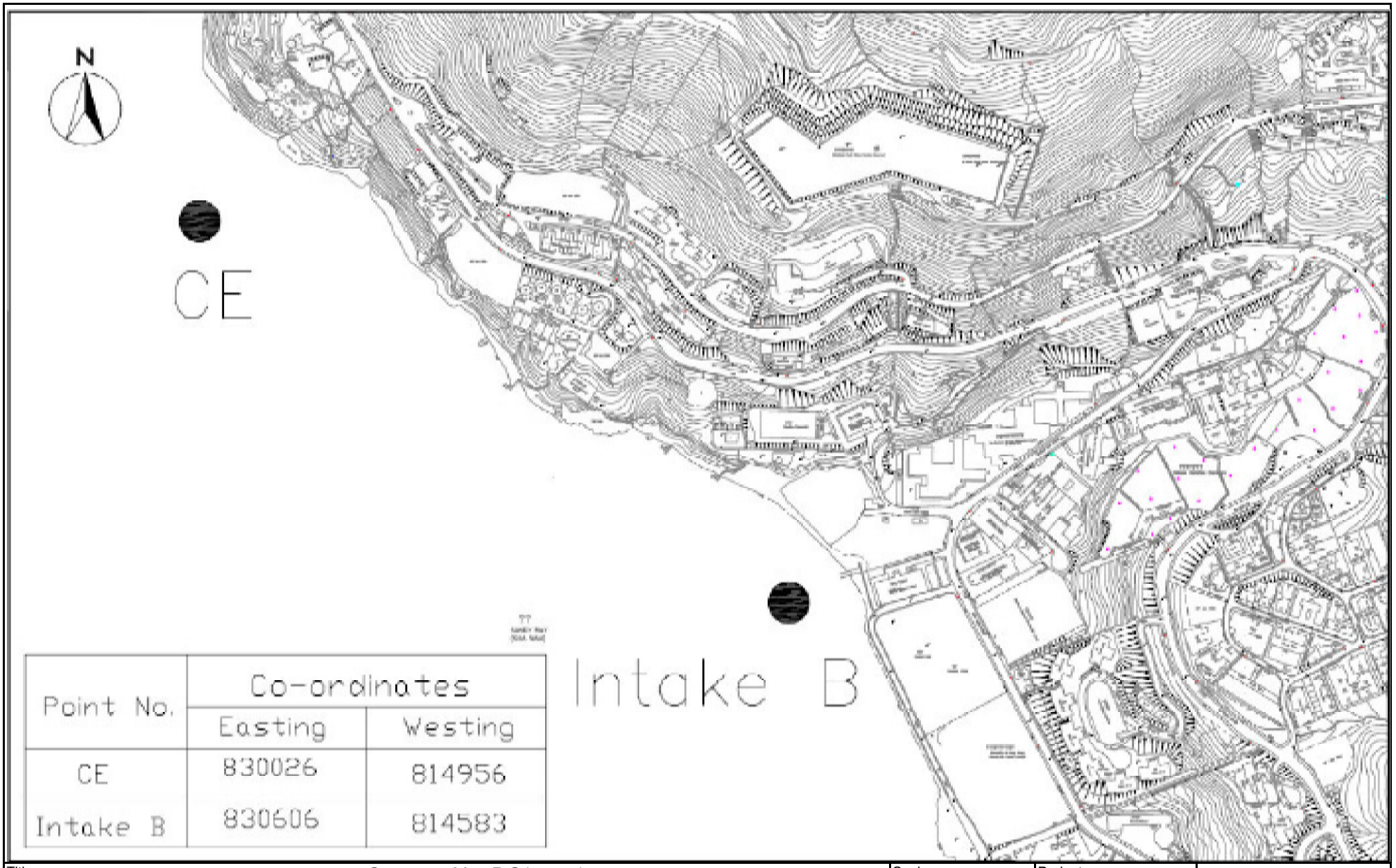
Contract No. DC/2007/10

Design and Construction of Hong Kong West Drainage Tunnel

Locations of Water Quality Monitoring Stations

Scale	N.T.S	Project No.	MA8001
Date	Jun-08	Figure	4.1

CINOTECH



Point No.	Co-ordinates	
	Easting	Westing
CE	830026	814956
Intake B	830606	814583

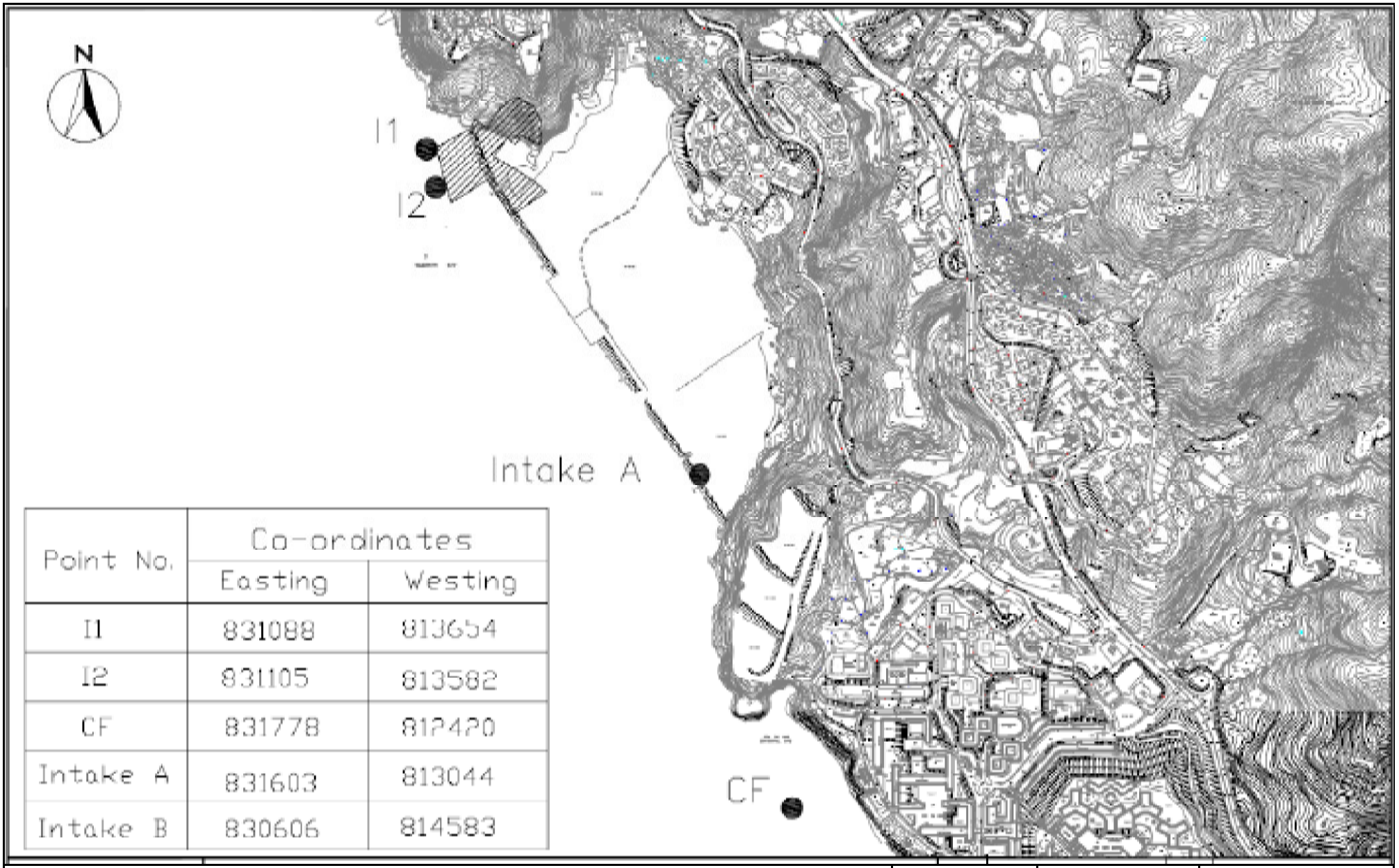
Title

Contract No. DC/2007/10
Design and Construction of Hong Kong West Drainage Tunnel

Locations of Water Quality Monitoring Stations

Scale	N.T.S	Project No.	MA8001
Date	Jun-08	Figure	4.1a

CINOTECH



Point No.	Co-ordinates	
	Easting	Westing
I1	831088	813654
I2	831105	813582
CF	831778	812420
Intake A	831603	813044
Intake B	830606	814583

Title

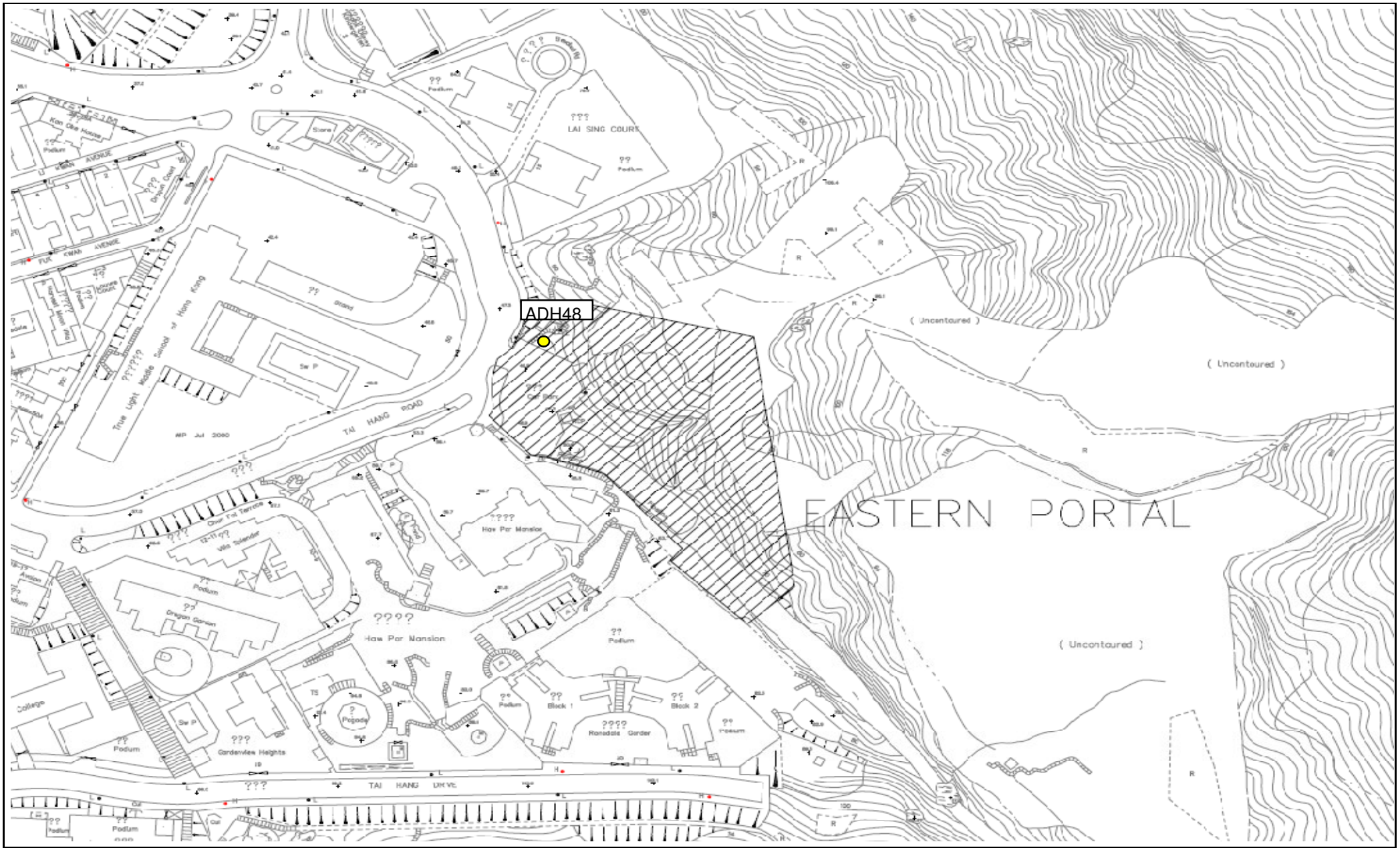
Contract No. DC/2007/10

Design and Construction of Hong Kong West Drainage Tunnel

Locations of Water Quality Monitoring Stations

Scale	N.T.S	Project No.	MA8001
Date	Jun-08	Figure	4.1b

CINOTECH



Title		Scale	Project
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal) Location of ground water level Monitoring Station		N.T.S	No. MA8001
		Date	Figure
		Jun-08	4.2

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

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

Location	Action Level, μg/m^3	Limit Level, μg/m^3
AQ1	345	500
AQ2	321	

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

Location	Action Level, μg/m^3	Limit Level, μg/m^3
AQ1	201	260
AQ3	156	

Table A-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70** dB(A)
2300-0700 hrs of next day		45/50/55** dB(A)

(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.
(**) to be selected based on Area Sensitivity Rating.

Table A-4 Action and Limit Levels for Water Quality

Parameter		Action	Limit
DO, mg/L	Surface and Middle	6.3	6.2
	Bottom	6.0	5.8
SS, mg/L		15.7 or 120% of upstream control station's SS at the same tide of the same day	16.4 or 130% of SS readings at the upstream control station at the same tide of same day and specific sensitive receiver water quality requirements
Turbidity, NTU		10.2 or 120% of upstream control station's turbidity at the same tide of the same day	11.1 or 130% of turbidity at the upstream control station at the same tide of same day

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/44/0007

Station: AQ1 - True Light Middle School of Hong Kong Operator: WK

Date: 10-Feb-09 Next Due Date: 9-Apr-09

Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	293.4	Pressure, Pa (mmHg)	766.3

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.48	59.77	8.4	2.93
2	9.5	3.12	53.56	6.9	2.66
3	7.0	2.68	45.88	5.1	2.29
4	5.1	2.29	39.06	3.2	1.81
5	3.2	1.81	30.80	2.0	1.43

By Linear Regression of Y on X

Slope , mw = 0.0532 **Intercept, bw =** -0.2122

Correlation coefficient* = 0.9973

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.20

Remarks:

Conducted by: Ivk. Tang Signature: Date: 10/2/09

Checked by: LAV Signature: Date: 10 Feb 2009

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/44/0008

Station: AQI - True Light Middle School of Hong Kong Operator: WK
Date: 9-Apr-09 Next Due Date: 8-Jun-09
Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	294.6	Pressure, Pa (mmHg)	766.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	6-Mar-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	5-Mar-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.47	59.64	8.4	2.93
2	9.6	3.13	53.73	6.8	2.63
3	7.2	2.71	46.44	5.0	2.26
4	5.3	2.32	39.75	3.3	1.83
5	3.1	1.78	30.24	1.8	1.35

By Linear Regression of Y on X

Slope , mw = 0.0542 **Intercept, bw =** -0.2872

Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.09**

Remarks:

Conducted by: Wk. Tang Signature: Kwan Date: 9/4/09
Checked by: [illegible] Signature: Date: 9 April 2009

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/18/0006

Station: AQ3 - Outside Site Office (Western Portal) Operator: WK

Date: 10-Feb-09 Next Due Date: 9-Apr-09

Equipment No.: A-01-18 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	294	Pressure, Pa (mmHg)	765.8

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.7	3.46	59.43	7.9	2.84
2	9.4	3.10	53.20	6.8	2.64
3	7.0	2.67	45.81	4.9	2.24
4	5.0	2.26	38.61	3.3	1.84
5	3.3	1.84	31.24	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0502 **Intercept, bw =** -0.0872

Correlation coefficient* = 0.9973

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.19

Remarks:

Conducted by: WK. Tang Signature: Kwai Date: 10/2/09

Checked by: [illegible] Signature: [illegible] Date: 10 Feb 2009

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA8001/18/0007

Station: AQ3 - Outside Site Office (Western Portal) Operator: WK

Date: 9-Apr-09 Next Due Date: 8-Jun-09

Equipment No.: A-01-18 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	295.1	Pressure, Pa (mmHg)	765.6

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	6-Mar-09	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	5-Mar-10	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.5	3.42	58.80	7.8	2.82
2	9.5	3.11	53.38	6.9	2.65
3	7.2	2.71	46.38	4.8	2.21
4	5.0	2.26	38.54	3.2	1.80
5	3.3	1.83	31.18	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0509 **Intercept, bw =** -0.1345

Correlation coefficient* = 0.9972

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.14

Remarks:

Conducted by: W.K. Tang Signature: Date: 9/4/09

Checked by: Signature: Date: 9 April 2009

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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 06, 2009 Rootsmeter S/N 9833640 Ta (K) - 296
Operator Tisch Orifice I.D. - 0999 Pa (mm) - 747.20

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3890	3.2	2.00
2	NA	NA	1.00	0.9850	6.3	4.00
3	NA	NA	1.00	0.8810	7.8	5.00
4	NA	NA	1.00	0.8410	8.6	5.50
5	NA	NA	1.00	0.6950	12.5	8.00

DATA TABULATION

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

CALCULATIONS

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

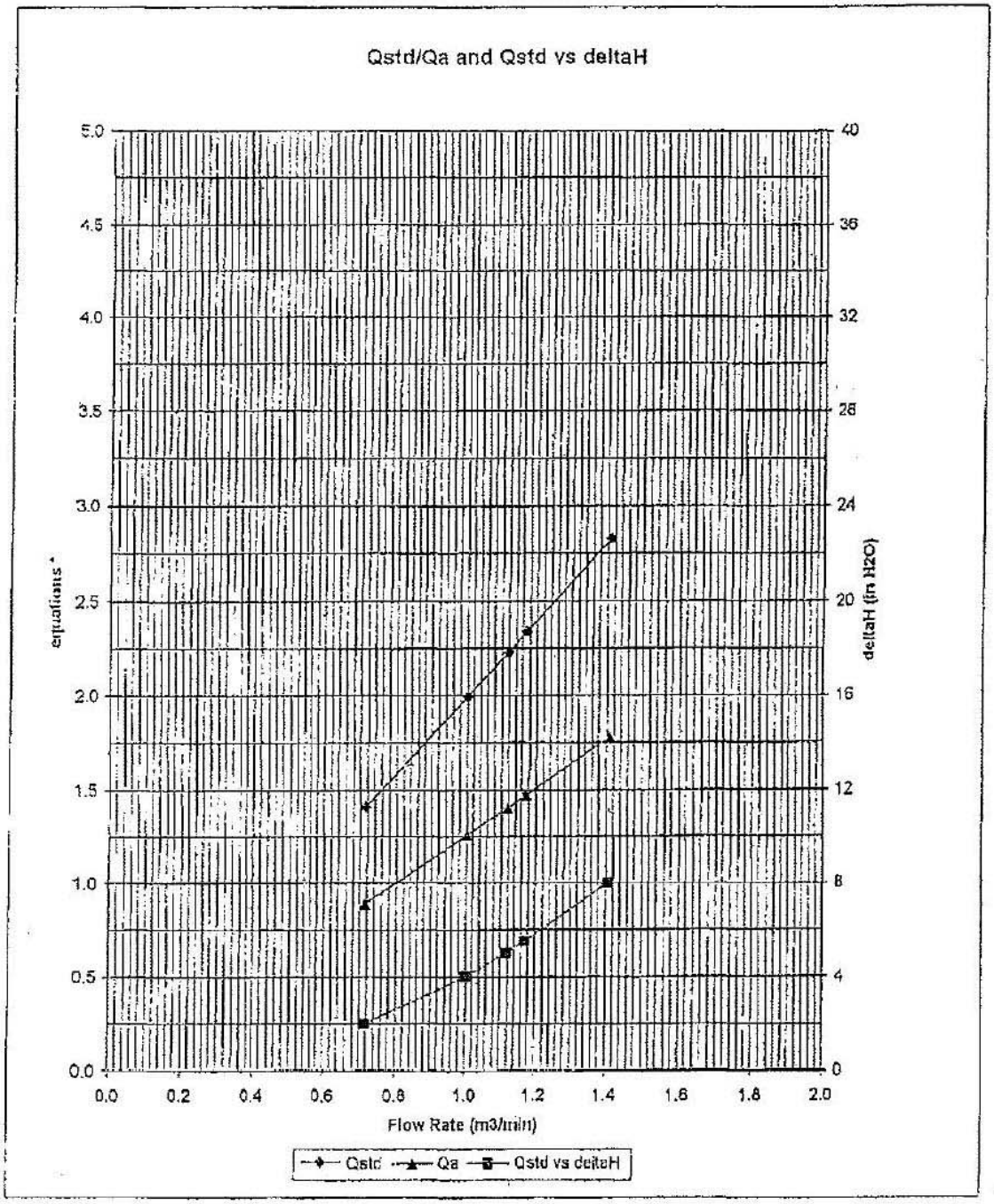
Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

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

TISCH ENVIRONMENTAL, 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: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

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

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

TEST REPORT

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

ATTN: **Mr. Henry Leung**

Test Report No.:	C/07/80502
Date of Issue:	2008-05-03
Date Received:	2008-05-02
Date Tested:	2008-05-02
Date Completed:	2008-05-03
Next Due Date:	2009-05-02
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: RS232 Integral Vane Digital Anemometer
Manufacturer	: AZ Instrument
Model No.	: 451104
Serial No.	: 9020746
Equipment No.	: A-03-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 65%
Pressure	: 101.3 kPa

Methodology:

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

Results:

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

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

Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/090219/1A
Date of Issue:	2009-02-20
Date Received:	2009-02-19
Date Tested:	2009-02-20
Date Completed:	2009-02-20
Next Due Date:	2009-04-19

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 62%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	0.0030

****

PREPARED AND CHECKED BY:
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TEST REPORT

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

Test Report No.:	C/090417/1A
Date of Issue:	2009-04-18
Date Received:	2009-04-17
Date Tested:	2009-04-18
Date Completed:	2009-04-18
Next Due Date:	2009-06-17

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 64%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	0.0032

****

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. Henry Leung**

Test Report No.:	C/090219/1B
Date of Issue:	2009-02-20
Date Received:	2009-02-19
Date Tested:	2009-02-20
Date Completed:	2009-02-20
Next Due Date:	2009-04-19
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 281835
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 666 CPM
Equipment No.	: A-02-02

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 62%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	0.0033

****

PREPARED AND CHECKED BY:
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TEST REPORT

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

ATTN: **Mr. Henry Leung**

Test Report No.:	C/090417/1B
Date of Issue:	2009-04-18
Date Received:	2009-04-17
Date Tested:	2009-04-18
Date Completed:	2009-04-18
Next Due Date:	2009-06-17
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 281835
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 666 CPM
Equipment No.	: A-02-02

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 64%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	0.0034

****

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. Henry Leung**

Test Report No.:	C/090313/1
Date of Issue:	2009-03-14
Date Received:	2009-03-13
Date Tested:	2009-03-13
Date Completed:	2009-03-14
Next Due Date:	2009-05-13
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 59%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	0.0034

****

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TEST REPORT

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

ATTN: **Mr. Henry Leung**

Test Report No.:	C/N/81215/1
Date of Issue:	2008-12-16
Date Received:	2008-12-15
Date Tested:	2008-12-15
Date Completed:	2008-12-16
Next Due Date:	2009-12-15
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2337665
Microphone No.	: 2289749
Equipment No.	: N-01-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 60%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.: Date of Issue: Date Received: Date Tested: Date Completed: Next Due Date:	C/N/80903-2 2008-09-03 2008-09-02 2008-09-02 2008-09-03 2009-09-02
ATTN:	**Mr. Henry Leung**	Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2359303
Equipment No.	: N-01-04

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 61%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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TEST REPORT

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

Test Report No.:	C/N/80929/1
Date of Issue:	2008-09-29
Date Received:	2008-09-27
Date Tested:	2008-09-27
Date Completed:	2008-09-29
Next Due Date:	2009-09-28

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 959
Serial No.	: 11275
Microphone No.	: 86553
Equipment No.	: N-08-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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ATTN: **Mr. Henry Leung**

Test Report No.:	C/N/80925/1
Date of Issue:	2008-09-26
Date Received:	2008-09-25
Date Tested:	2008-09-25
Date Completed:	2008-09-26
Next Due Date:	2009-09-25
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:
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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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ATTN: **Mr. Henry Leung**

Test Report No.:	C/N/80929/3
Date of Issue:	2008-09-29
Date Received:	2008-09-27
Date Tested:	2008-09-27
Date Completed:	2008-09-29
Next Due Date:	2009-09-28
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
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Test Report No.:	C/N/81115/1
Date of Issue:	2008-11-15
Date Received:	2008-11-14
Date Tested:	2008-11-14
Date Completed:	2008-11-15
Next Due Date:	2009-11-14

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 59%
Pressure	: 1015.2 hPa

Methodology:

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

Results:

Sound Pressure Level	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB

PREPARED AND CHECKED BY:
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	C/N/80903-3
Date of Issue:	2008-09-03
Date Received:	2008-09-02
Date Tested:	2008-09-02
Date Completed:	2008-09-03
Next Due Date:	2009-09-02

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 61%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:
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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	C/N/80925/2
Date of Issue:	2008-09-26
Date Received:	2008-09-25
Date Tested:	2008-09-25
Date Completed:	2008-09-26
Next Due Date:	2009-09-25
Page:	1 of 1

ATTN: **Mr. Henry Leung**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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ATTN: **Mr. Henry Leung**

Test Report No.:	C/W/90204-1
Date of Issue:	2009-02-05
Date Received:	2009-02-04
Date Tested:	2009-02-04
Date Completed:	2009-02-05
Next Due Date:	2009-05-04
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0126AA
Equipment No.	: W.03.01
Project No.	: C013

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 63%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 05A1209
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, S/N: 04A0145
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 05A1610AJ
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, S/N: 01J
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

PREPARED AND CHECKED BY:
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TEST REPORT

Test Report No.:	C/W/90204-1
Date of Issue:	2009-02-05
Date Received:	2009-02-04
Date Tested:	2009-02-04
Date Completed:	2009-02-05
Next Due Date:	2009-05-04
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1421	1420	2	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

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

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E-mail: wellab@wellab.com.hk

TEST REPORT

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

ATTN: **Mr. Henry Leung**

Test Report No.:	C/W/90204-2
Date of Issue:	2009-02-05
Date Received:	2009-02-04
Date Tested:	2009-02-04
Date Completed:	2009-02-05
Next Due Date:	2009-05-04
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0293AA
Equipment No.	: W.03.02
Project No.	: C013

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 63%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 02C0886
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution

Dissolved Oxygen Sensor, Model: 6562, S/N: 0261137
1. Performance check against Winkler titration

Turbidity Sensor, Model: 6136, S/N: 05F2030AQ
1. Calibration check with Formazin standard solution

pH Meter, Model: 6561, S/N: 02A
1. Calibration check with standard pH buffer

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing and Research

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TEST REPORT

Test Report No.:	C/W/90204-2
Date of Issue:	2009-02-05
Date Received:	2009-02-04
Date Tested:	2009-02-04
Date Completed:	2009-02-05
Next Due Date:	2009-05-04

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.1	30.0	0.1	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.0	9.0	0.0	± 0.2
Half-saturated	5.8	5.8	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.01	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

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

APPENDIX C
QUALITY CONTROL REPORTS FOR SS LABORATORY ANALYSIS

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08295
Date of Issue:	2009/04/02
Date Received:	2009/04/01
Date Tested:	2009/04/01
Date Completed:	2009/04/02

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/01
Number of Sample: 58
Custody No.: MA8001/90401

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	6	6	10	105

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

PREPARED AND CHECKED BY:
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Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08320
Date of Issue:	2009/04/06
Date Received:	2009/04/03
Date Tested:	2009/04/03
Date Completed:	2009/04/06

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/03
Number of Sample: 30
Custody No.: MA8001/90403

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
I1bf	11	11	0	116

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

PREPARED AND CHECKED BY:
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Patrick Tse

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Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08334
Date of Issue:	2009/04/07
Date Received:	2009/04/06
Date Tested:	2009/04/06
Date Completed:	2009/04/07

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/06
Number of Sample: 58
Custody No.: MA8001/90406

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
I1bf	6	6	6	95

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

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

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Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08349
Date of Issue:	2009/04/09
Date Received:	2009/04/08
Date Tested:	2009/04/08
Date Completed:	2009/04/09

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/08
Number of Sample: 58
Custody No.: MA8001/90408

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	3	3	6	95

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

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

Patrick Tse

PATRICK TSE
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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08381
Date of Issue:	2009/04/15
Date Received:	2009/04/10
Date Tested:	2009/04/10
Date Completed:	2009/04/15

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/10
Number of Sample: 58
Custody No.: MA8001/90410

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	3	3	8	101

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

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

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Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08382
Date of Issue:	2009/04/15
Date Received:	2009/04/13
Date Tested:	2009/04/13
Date Completed:	2009/04/15

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/13
Number of Sample: 58
Custody No.: MA8001/90413

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	6	6	14	102

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

PREPARED AND CHECKED BY:
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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08393
Date of Issue:	2009/04/16
Date Received:	2009/04/15
Date Tested:	2009/04/15
Date Completed:	2009/04/16

ATTN: Mr. Henry Leung

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/15
Number of Sample: 58
Custody No.: MA8001/90415

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	5	5	6	100

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08406
Date of Issue:	2009/04/20
Date Received:	2009/04/17
Date Tested:	2009/04/17
Date Completed:	2009/04/20
Page:	1 of 1

ATTN: Mr. Henry Leung

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/17
Number of Sample: 58
Custody No.: MA8001/90417

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake B mf	5	6	11	101

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08417
Date of Issue:	2009/04/21
Date Received:	2009/04/20
Date Tested:	2009/04/20
Date Completed:	2009/04/21

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/20
Number of Sample: 58
Custody No.: MA8001/90420

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	<2.5	<2.5	N/A	97

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

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

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Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08431
Date of Issue:	2009/04/23
Date Received:	2009/04/22
Date Tested:	2009/04/22
Date Completed:	2009/04/23
Page:	1 of 1

ATTN: Mr. Henry Leung

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/22
Number of Sample: 58
Custody No.: MA8001/90422

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	3	3	18	96

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

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

PATRICK TSE
Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08442
Date of Issue:	2009/04/27
Date Received:	2009/04/24
Date Tested:	2009/04/24
Date Completed:	2009/04/27
Page:	1 of 1

ATTN: Mr. Henry Leung

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/24
Number of Sample: 58
Custody No.: MA8001/90424

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	8	9	12	97

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

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

Patrick Tse

PATRICK TSE
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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08455
Date of Issue:	2009/04/28
Date Received:	2009/04/27
Date Tested:	2009/04/27
Date Completed:	2009/04/28

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/27
Number of Sample: 58
Custody No.: MA8001/90427

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Intake A se	9	10	11	98

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

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

Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT
QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	08468
Date of Issue:	2009/04/30
Date Received:	2009/04/29
Date Tested:	2009/04/29
Date Completed:	2009/04/30

ATTN: Mr. Henry Leung Page: 1 of 1

Sampling Site: Design and Construction of Hong Kong West Drainage Tunnel
Project No.: MA8001
Sampling Date: 2009/04/29
Number of Sample: 58
Custody No.: MA8001/90429

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
CE me	9	10	11	98

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

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

PATRICK TSE
Laboratory Manager

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Air and Noise Monitoring Schedule for April 2009 (Eastern Portal)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29-Mar	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	**4-Apr**
*Noise Daytime (07:00-19:00)		1 hr TSP	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)	24 hrs TSP	
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	**10-Apr**	**11-Apr**
*Noise Daytime (07:00-19:00)	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)		1 hr TSP 24 hrs TSP		
12-Apr	**13-Apr**	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
*Noise Daytime (07:00-19:00)		1 hr TSP	1 hr TSP 24 hrs TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)		
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
*Noise Daytime (07:00-19:00)		1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)		
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
*Noise Daytime (07:00-19:00)	1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & Night-time (23:00-07:00)			

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

Air Quality Monitoring Station

AQ1 - True Light Middle School of HK

Noise Monitoring Station

NC1 - True Light Middle School of HK
NC2 - The Legend
*NC1a - Outside True Light Middle School of HK

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Air and Noise Monitoring Schedule for April 2009 (Western Portal)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29-Mar	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	**4-Apr**
Noise Daytime (07:00-19:00)		1 hr TSP	1 hr TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	24 hrs TSP	
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	**10-Apr**	**11-Apr**
#Noise Daytime (07:00-19:00)	1 hr TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)		1 hr TSP 24 hrs TSP		
12-Apr	**13-Apr**	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
#Noise Daytime (07:00-19:00)		1 hr TSP	1 hr TSP 24 hrs TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)		
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
#Noise Daytime (07:00-19:00)		1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)		
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
#Noise Daytime (07:00-19:00)	1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)			

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

#Remark: Ground Borne Noise Monitoring will be conducted.(Day time, 0700-1900hrs and Evening Time, 1900-2300 hrs)

Air Quality Monitoring Station

AQ2 - Outside Aegean Terrace (1 hour TSP)
AQ3 - Outside Site Office at Western Portal (24 hours TSP)

Noise Monitoring Station

NC3 - Outside Aegean Terrace

Ground Borne Construction Noise Monitoring Staiton

GNC3 - Aegean Terrace

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Water Quality Monitoring Schedule for April 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Apr	2-Apr	3-Apr	**4-Apr**
			Mid-Flood 08:48 Mid-Ebb 16:19		Mid-Flood 10:00 Mid-Ebb N/A	
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	**10-Apr**	**11-Apr**
	Mid-Ebb 10:43 Mid-Flood 16:10		Mid-Ebb 11:49 Mid-Flood 17:00		Mid-Ebb 12:50 Mid-Flood 18:00	
12-Apr	**13-Apr**	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
	Mid-Flood 08:00 Mid-Ebb 14:35		Mid-Flood 08:08 Mid-Ebb 15:47		Mid-Flood 09:00 Mid-Ebb 17:00	
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
	Mid-Ebb 10:07 Mid-Flood 14:48		Mid-Ebb 11:10 Mid-Flood 16:50		Mid-Ebb 12:00 Mid-Flood 17:00	
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
	Mid-Flood 08:00 Mid-Ebb 13:52		Mid-Flood 08:16 Mid-Ebb 15:34			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
NA indicated favourable tide occurs during non-working hours

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Impact Noise Monitoring Schedule for April 2009 (Intake W0)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29-Mar	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	**4-Apr**
5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	**10-Apr**	**11-Apr**
		Noise Daytime (07:00-19:00)				
12-Apr	**13-Apr**	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr
				Noise Daytime (07:00-19:00)		
19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr
				Noise Daytime (07:00-19:00)		
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
			Noise Daytime (07:00-19:00)			

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

Noise Monitoring Station

Intake W0 - Hong Kong Academy (NC15)

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for May 2009 (Eastern Portal)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
Noise *Daytime (07:00-19:00)	1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & *Night-time (23:00-07:00)			24 hrs TSP
3-May	4-May	5-May	6-May	7-May	8-May	9-May
Noise *Daytime (07:00-19:00)		1 hr TSP	1 hr TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & *Night-time (23:00-07:00)	24 hrs TSP	
10-May	11-May	12-May	13-May	14-May	15-May	16-May
Noise *Daytime (07:00-19:00)	1 hr TSP	1 hr TSP		24 hrs TSP	1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & *Night-time (23:00-07:00)	
17-May	18-May	19-May	20-May	21-May	22-May	23-May
Noise *Daytime (07:00-19:00)		1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & *Night-time (23:00-07:00)	1 hr TSP 24 hrs TSP	1 hr TSP		
24-May	25-May	26-May	27-May	**28-May**	29-May	30-May
Noise *Daytime (07:00-19:00)		1 hr TSP 24 hrs TSP	1 hr TSP		1 hr TSP Noise Daytime (07:00-19:00) , *Evening time (19:00-23:00) & *Night-time (23:00-07:00)	

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

Air Quality Monitoring Station

AQ1 - True Light Middle School of HK

Noise Monitoring Station

NC1 - True Light Middle School of HK
NC2 - The Legend
*NC1a - Outside True Light Middle School of HK

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Air and Noise Monitoring Schedule for May 2009 (Western Portal)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
#Noise Daytime (07:00-19:00)	1 hr TSP 24 hrs TSP	1 hr TSP	1 hr TSP #Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)			24 hrs TSP
3-May	4-May	5-May	6-May	7-May	8-May	9-May
#Noise Daytime (07:00-19:00)	1 hr TSP	1 hr TSP		1 hr TSP Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	24 hrs TSP	
10-May	11-May	12-May	13-May	14-May	15-May	16-May
#Noise Daytime (07:00-19:00)	1 hr TSP	1 hr TSP		24 hrs TSP	1 hr TSP Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	
17-May	18-May	19-May	20-May	21-May	22-May	23-May
#Noise Daytime (07:00-19:00)		1 hr TSP Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	1 hr TSP 24 hrs TSP	1 hr TSP		
24-May	25-May	26-May	27-May	**28-May**	29-May	30-May
Noise Daytime (07:00-19:00)		1 hr TSP 24 hrs TSP	1 hr TSP		1 hr TSP Noise Daytime (07:00-19:00) , Evening time (19:00-23:00) & Night-time (23:00-07:00)	

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

#Remark: Ground Borne Noise Monitoring will be conducted.(Day time, 0700-1900hrs and Evening Time, 1900-2300 hrs)

Ground Borne Noise Monitoring was temporary suspended since 7 May 2009 as Aegean Terrace rejected ET to conduct the monitoring at their premises

Air Quality Monitoring Station

AQ2 - Outside Aegean Terrace (1 hour TSP)
AQ3 - Outside Site Office at Western Portal (24 hours TSP)

Noise Monitoring Station

NC3 - Outside Aegean Terrace

Ground Borne Construction Noise Monitoring Staiton

GNC3 - Aegean Terrace

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Water Quality Monitoring Schedule for May 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
					Mid-Flood 09:43 Mid-Ebb 17:00	
3-May	4-May	5-May	6-May	7-May	8-May	9-May
	Mid-Ebb 09:21 Mid-Flood 14:52		Mid-Ebb 10:47 Mid-Flood 17:00		Mid-Ebb 11:55 Mid-Flood 17:00	
10-May	11-May	12-May	13-May	14-May	15-May	16-May
	Mid-Flood 08:00 Mid-Ebb 13:40		Mid-Flood 08:00 Mid-Ebb 14:49		Mid-Flood N/A Mid-Ebb 16:00	
17-May	18-May	19-May	20-May	21-May	22-May	23-May
	Mid-Ebb 08:12 Mid-Flood 13:00		Mid-Ebb 09:48 Mid-Flood 15:20		Mid-Ebb 10:50 Mid-Flood 17:00	
24-May	25-May	26-May	27-May	**28-May**	29-May	30-May
	Mid-Flood 08:00 Mid-Ebb 13:00		Mid-Flood 08:00 Mid-Ebb 14:37		Mid-Flood 09:08 Mid-Ebb 16:25	

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
NA indicated favourable tide occurs during non-working hours

Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel
Tentative Impact Noise Monitoring Schedule for May 2009 (Intake W0)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Apr	27-Apr	28-Apr	29-Apr	30-Apr	**1-May**	**2-May**
			Noise Daytime (07:00-19:00)			
3-May	4-May	5-May	6-May	7-May	8-May	9-May
				Noise Daytime (07:00-19:00)		
10-May	11-May	12-May	13-May	14-May	15-May	16-May
					Noise Daytime (07:00-19:00)	
17-May	18-May	19-May	20-May	21-May	22-May	23-May
		Noise Daytime (07:00-19:00)				
24-May	25-May	26-May	27-May	**28-May**	29-May	30-May
					Noise Daytime (07:00-19:00)	

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

Noise Monitoring Station

Intake W0 - Hong Kong Academy (NC15)

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

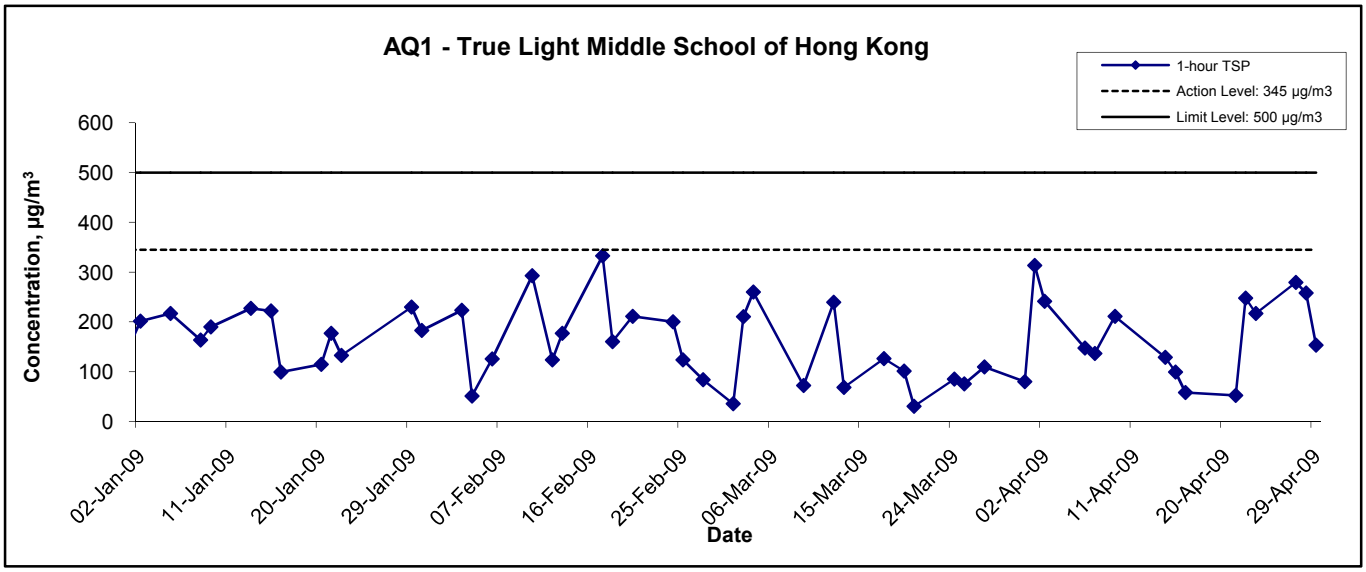
Station AQ1 (True Light Middle School of Hong Kong)

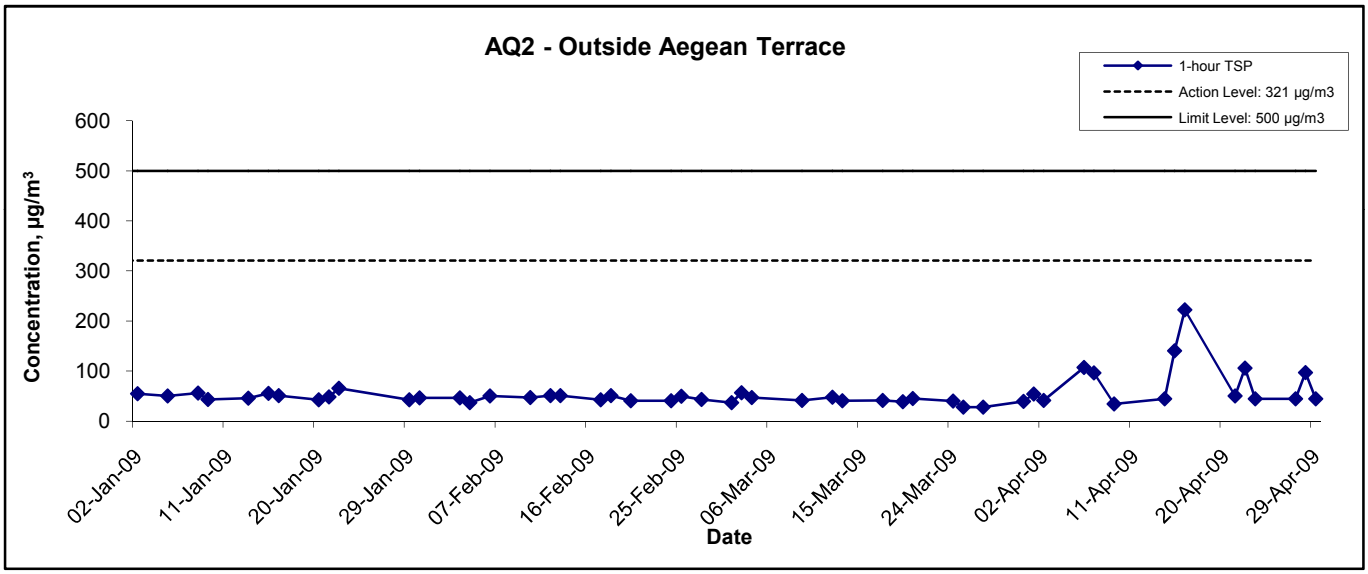
Date	Sampling Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
1-Apr-09	09:00	Cloudy	293.6	768.4	4.1917	4.2146	0.0229	2838.3	2839.3	1.0	1.22	1.22	1.22	73.0	313.6
2-Apr-09	09:00	Cloudy	290.9	769.3	4.1786	4.1963	0.0177	2839.3	2840.3	1.0	1.22	1.22	1.22	73.4	241.2
6-Apr-09	16:00	Cloudy	291.0	763.9	4.1987	4.2095	0.0108	2864.3	2865.3	1.0	1.22	1.22	1.22	73.1	147.7
7-Apr-09	09:00	Cloudy	290.8	765.8	4.2038	4.2138	0.0100	2865.3	2866.3	1.0	1.22	1.22	1.22	73.2	136.5
9-Apr-09	09:00	Sunny	294.3	766.7	4.2037	4.2191	0.0154	2866.3	2867.3	1.0	1.21	1.21	1.21	72.9	211.3
14-Apr-09	14:35	Sunny	299.9	757.8	2.8286	2.8379	0.0093	2891.3	2892.3	1.0	1.20	1.20	1.20	72.1	128.9
15-Apr-09	09:00	Sunny	297.0	761.4	2.8462	2.8534	0.0072	2892.3	2893.3	1.0	1.21	1.21	1.21	72.6	99.2
16-Apr-09	15:05	Sunny	297.6	755.4	2.7941	2.7983	0.0042	2917.3	2918.3	1.0	1.20	1.20	1.20	72.3	58.1
21-Apr-09	09:00	Sunny	297.9	758.3	2.8482	2.8520	0.0038	2918.3	2919.3	1.0	1.21	1.21	1.21	72.4	52.5
22-Apr-09	16:00	Cloudy	294.9	759.3	2.8182	2.8362	0.0180	2943.3	2944.3	1.0	1.21	1.21	1.21	72.7	247.5
23-Apr-09	09:00	Cloudy	295.2	761.8	2.8313	2.8471	0.0158	2944.3	2945.3	1.0	1.21	1.21	1.21	72.8	217.0
27-Apr-09	09:00	Cloudy	293.6	765.3	2.8482	2.8686	0.0204	2945.3	2946.3	1.0	1.22	1.22	1.22	73.1	279.0
28-Apr-09	15:00	Sunny	296.2	764.3	2.8318	2.8506	0.0188	2970.3	2971.3	1.0	1.21	1.21	1.21	72.8	258.2
29-Apr-09	09:00	Sunny	294.1	765.8	2.7976	2.8088	0.0112	2971.3	2972.3	1.0	1.22	1.22	1.22	73.1	153.2
														Min	52.5
														Max	313.6
														Average	181.7

Appendix E - 1-hour TSP Monitoring Results

Station AQ2 (Outside Aegean Terrace)			
Date	Time	Weather	Particulate Concentration (μg/m^3)
1-Apr-09	16:20	Cloudy	54.6
2-Apr-09	15:00	Cloudy	41.5
6-Apr-09	15:30	Cloudy	107.5
7-Apr-09	14:30	Cloudy	96.4
9-Apr-09	16:00	Sunny	34.5
14-Apr-09	15:00	Sunny	44.9
15-Apr-09	13:30	Cloudy	140.5
16-Apr-09	16:20	Sunny	222.4
21-Apr-09	13:00	Sunny	50.6
22-Apr-09	10:50	Cloudy	106.3
23-Apr-09	13:00	Cloudy	45.0
27-Apr-09	13:00	Cloudy	44.6
28-Apr-09	13:35	Sunny	97.0
29-Apr-09	16:10	Sunny	44.8
		Average	80.8
		Maximum	222.4
		Minimum	34.5

1-hr TSP Concentration Levels





Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
	Date Apr 09	Appendix E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

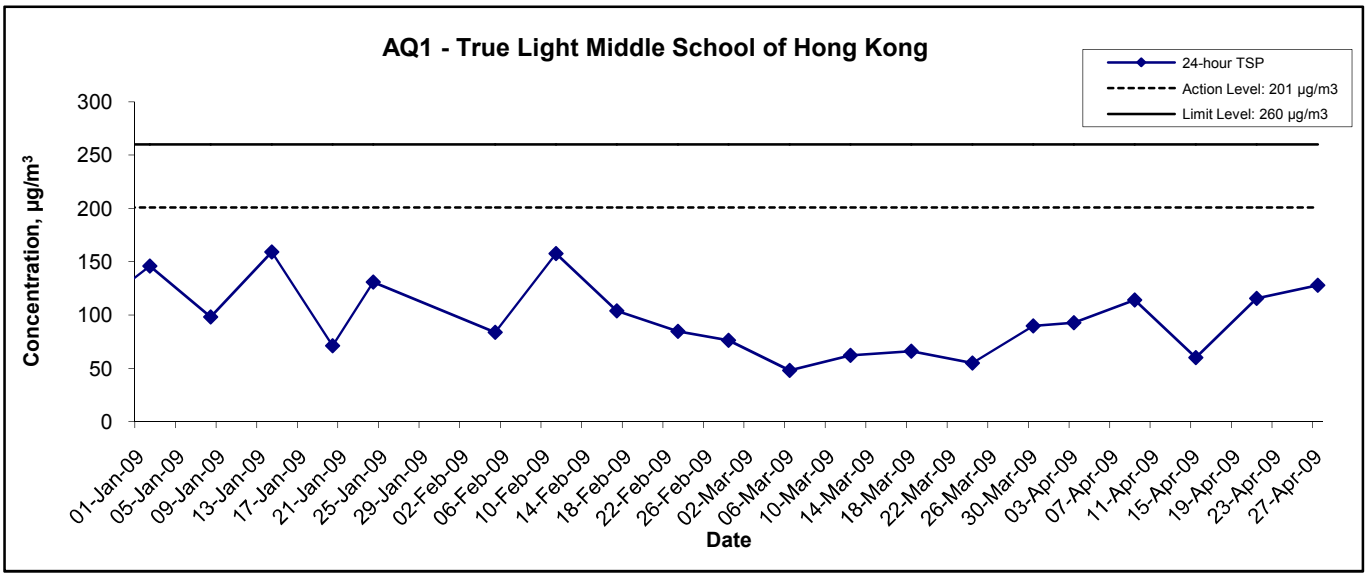
Station AQ1 - True Light Middle School of Hong Kong

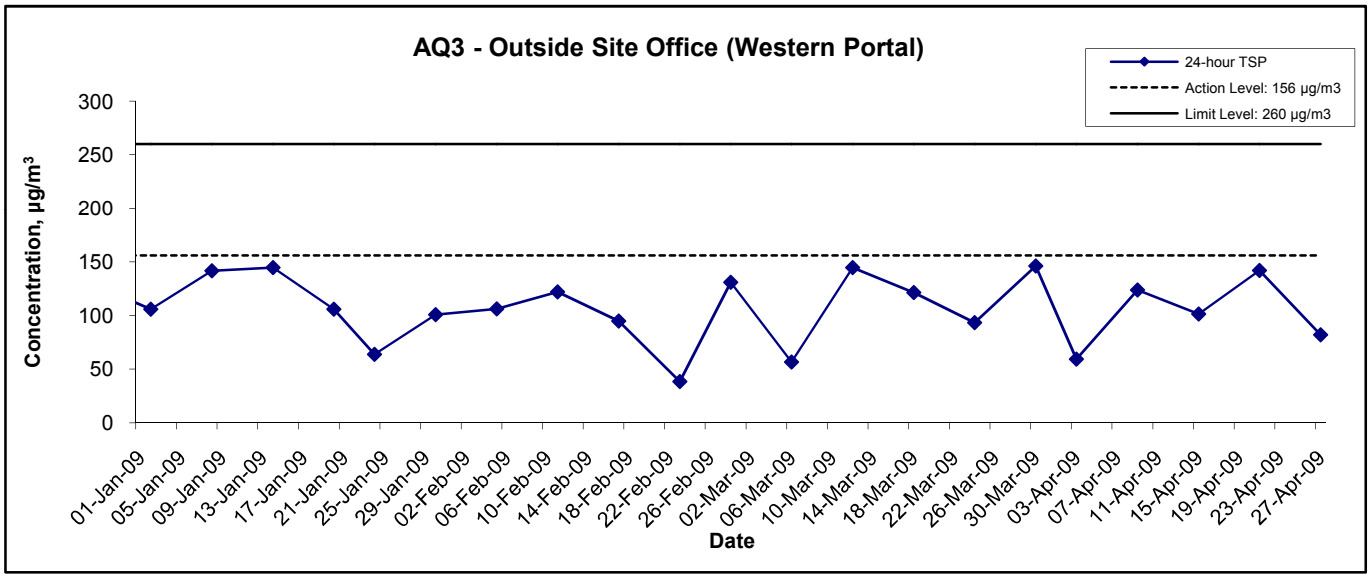
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
3-Apr-09	Cloudy	291.8	767.1	4.1885	4.3517	0.1632	2840.3	2864.3	24.0	1.22	1.22	1.22	1756.5	92.9
9-Apr-09	Sunny	295.6	765.1	2.8394	3.0390	0.1996	2867.3	2891.3	24.0	1.22	1.21	1.22	1749.6	114.1
15-Apr-09	Sunny	297.1	759.4	2.8235	2.9284	0.1049	2893.3	2917.3	24.0	1.21	1.21	1.21	1740.1	60.3
21-Apr-09	Cloudy	299.8	756.3	2.8403	3.0403	0.2000	2919.3	2943.3	24.0	1.20	1.20	1.20	1730.2	115.6
27-Apr-09	Cloudy	296.5	763.5	2.8298	3.0531	0.2233	2946.3	2970.3	24.0	1.21	1.21	1.21	1745.7	127.9
													Min	60.3
													Max	127.9
													Average	102.2

Station AQ3 - Outside Site Office (Western Portal)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure (Pa)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
3-Apr-09	Cloudy	291.8	767.1	2.8601	2.9646	0.1045	6971.1	6995.1	24.0	1.22	1.22	1.22	1760.0	59.4
9-Apr-09	Sunny	294.3	766.7	4.2125	4.4288	0.2163	6995.1	7019.1	24.0	1.21	1.21	1.21	1746.2	123.9
15-Apr-09	Sunny	297.0	761.4	2.8794	3.0555	0.1761	7019.1	7043.1	24.0	1.20	1.20	1.20	1733.0	101.6
21-Apr-09	Cloudy	297.9	758.3	2.7954	3.0410	0.2456	7043.1	7067.1	24.0	1.20	1.20	1.20	1727.2	142.2
27-Apr-09	Cloudy	293.6	765.3	2.8667	3.0101	0.1434	7067.1	7091.1	24.0	1.21	1.21	1.21	1746.6	82.1
													Min	59.4
													Max	142.2
													Average	101.8

24-hr TSP Concentration Levels





Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

Location NC1 - True Light Middle School of Hong Kong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Apr-09	13:00	Cloudy	66.8	68.5	64.0	70.2	66.8, Measured ≦ Baseline
7-Apr-09	13:30	Cloudy	66.2	68.6	63.6		66.8, Measured ≦ Baseline
16-Apr-09	13:00	Sunny	65.4	68.2	60.1		65.4, Measured ≦ Baseline
23-Apr-09	15:50	Sunny	68.1	69.5	65.0		68.1, Measured ≦ Baseline
29-Apr-09	13:00	Sunny	66.8	68.0	63.5		66.8, Measured ≦ Baseline

Location NC2 - The Legend							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Apr-09	13:40	Cloudy	65.2	67.0	63.1	64.8	54.6
7-Apr-09	13:45	Cloudy	66.8	68.7	64.0		62.5
16-Apr-09	13:40	Sunny	64.2	67.1	68.3		64.2, Measured ≦ Baseline
23-Apr-09	16:30	Sunny	67.3	69.0	64.0		63.7
29-Apr-09	13:40	Sunny	66.2	67.5	63.0		60.6

Location NC3 - Outside Aegean Terrace							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Apr-09	15:00	Cloudy	52.3	54.0	50.0	57.7	52.3, Measured ≦ Baseline
7-Apr-09	15:35	Cloudy	53.7	56.0	51.2		53.7, Measured ≦ Baseline
16-Apr-09	16:15	Sunny	57.1	63.6	51.8		57.1, Measured ≦ Baseline
23-Apr-09	13:00	Sunny	52.3	54.0	50.5		52.3, Measured ≦ Baseline
29-Apr-09	16:10	Sunny	50.8	52.0	49.0		50.8, Measured ≦ Baseline

Location NC15 - Hong Kong Academy							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
7-Apr-09	14:50	Cloudy	65.6	67.6	62.4	63.5	61.4
16-Apr-09	14:40	Sunny	64.3	67.0	55.2		56.6
23-Apr-09	14:35	Sunny	66.2	68.0	64.5		62.9
29-Apr-09	17:50	Sunny	66.2	68.0	64.0		62.9

Location GNC3 - Aegean Terrace					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L_{eq}	L_{10}	L_{90}
2-Apr-09	16:00	Cloudy	48.5	50.0	47.0
7-Apr-09	16:15	Cloudy	49.7	51.3	48.0
16-Apr-09	15:40	Sunny	47.1	50.5	44.3
23-Apr-09	13:35	Cloudy	49.4	50.5	48.5
29-Apr-09	16:55	Sunny	49.5	50.5	48.5

Appendix G - Noise Monitoring Results

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

Location NC1a - Outside True Light Middle School of Hong Kong								
Date	Time	Weather	dB (A) (5-min)				(Reference) Baseline Level	(Reference) Construction Noise Level, L_{eq}
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	
2-Apr-09	19:00	Cloudy	67.7	68.5	65.0	67.4	65.8	62.3
	19:05		67.3	68.5	65.0			
	19:10		67.2	68.5	64.5			
5-Apr-09	13:00	Cloudy	65.3	67.0	63.0	65.5		65.5 Measured ≦ Baseline
	13:05		65.0	67.0	63.0			
	13:10		66.0	68.0	64.0			
7-Apr-09	19:00	Cloudy	67.3	69.0	63.2	67.3		62.0
	19:05		67.5	69.2	63.1			
	19:10		67.2	69.0	63.0			
12-Apr-09	14:55	Sunny	66.3	68.5	64.5	66.2		55.6
	15:00		66.4	68.5	64.5			
	15:05		66.0	67.5	64.0			
16-Apr-09	19:00	Fine	66.5	67.5	61.1	66.5		58.2
	19:05		66.7	67.3	60.0			
	19:10		66.2	67.8	60.7			
19-Apr-09	13:00	Fine	65.6	69.0	58.0	65.3		65.3 Measured ≦ Baseline
	13:05		64.9	68.0	58.0			
	13:10		65.3	68.5	57.5			
23-Apr-09	19:00	Cloudy	67.2	68.5	65.5	67.4		62.3
	19:05		67.7	69.0	65.0			
	19:10		67.3	68.5	65.0			
26-Apr-09	13:00	Cloudy	67.6	69.0	66.5	67.7		63.2
	13:05		67.9	69.0	66.5			
	13:10		67.6	68.5	66.5			
29-Apr-09	19:00	Cloudy	67.3	68.5	64.5	67.4		62.3
	19:05		67.5	68.5	64.5			
	19:10		67.3	68.5	65.0			

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

Location NC2 - The Legend								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Apr-09	19:30	Cloudy	63.2	64.0	62.0	63.3	59.1	61.2
	19:35		63.3	64.0	62.0			
	19:40		63.3	64.5	62.0			
5-Apr-09	13:45	Cloudy	58.8	60.0	56.5	58.5		58.5 Measured ≦ Baseline
	13:50		58.6	60.0	56.5			
	13:55		58.2	59.0	55.5			
7-Apr-09	19:35	Cloudy	63.7	65.2	60.8	63.5		61.5
	19:40		63.5	65.1	60.5			
	19:45		63.3	64.8	60.2			
12-Apr-09	14:25	Sunny	64.0	66.5	62.5	64.2		62.6
	14:30		64.4	66.5	63.0			
	14:35		64.1	66.5	62.5			
16-Apr-09	19:25	Fine	63.3	67.4	58.3	62.7		60.2
	19:30		62.8	66.5	54.2			
	19:35		62.0	65.3	54.0			
19-Apr-09	13:45	Fine	57.9	61.5	55.0	58.5		58.5 Measured ≦ Baseline
	13:50		58.8	62.0	55.5			
	13:55		58.7	62.0	55.5			
23-Apr-09	19:25	Cloudy	63.6	64.5	60.5	63.5		61.5
	19:30		63.5	64.5	60.5			
	19:40		63.5	64.5	61.0			
26-Apr-09	13:45	Cloudy	60.3	62.5	58.5	60.4		54.5
	13:50		60.2	62.5	58.5			
	13:55		60.7	63.0	59.0			
29-Apr-09	19:25	Cloudy	63.1	64.5	61.5	63.2		61.1
	19:30		63.3	64.5	61.0			
	19:35		63.3	64.0	61.0			

Appendix G - Noise Monitoring Results

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

Location NC3 - Outside Aegean Terrace								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Apr-09	20:10	Cloudy	50.2	51.0	49.0	49.9	53.8	49.9 Measured ≦ Baseline
	20:15		49.8	50.5	49.0			
	20:20		49.8	50.5	49.0			
5-Apr-09	15:00	Cloudy	52.6	55.0	49.5	52.6		52.6 Measured ≦ Baseline
	15:05		52.9	55.5	49.5			
	15:10		52.4	55.0	49.0			
7-Apr-09	20:20	Cloudy	50.1	52.0	48.7	50.1		50.1 Measured ≦ Baseline
	20:05		50.3	52.0	48.5			
	20:10		49.9	51.8	48.3			
12-Apr-09	13:00	Sunny	55.7	57.5	52.5	55.8		51.5
	13:05		55.4	57.5	52.5			
	13:10		56.3	58.5	53.0			
16-Apr-09	20:30	Fine	56.4	62.1	50.3	57.4		54.9
	20:35		58.3	63.4	51.2			
	20:40		57.3	61.5	50.8			
19-Apr-09	15:00	Fine	51.2	54.5	48.0	51.5		51.5 Measured ≦ Baseline
	15:05		51.6	54.5	48.0			
	15:10		51.6	54.5	48.0			
23-Apr-09	20:15	Cloudy	50.2	51.0	49.0	50.2		50.2 Measured ≦ Baseline
	20:20		50.0	51.0	49.0			
	20:25		50.4	51.5	49.0			
26-Apr-09	15:00	Cloudy	53.6	55.0	51.0	53.5		53.5 Measured ≦ Baseline
	15:05		53.6	55.0	51.0			
	15:10		53.4	55.0	51.0			
29-Apr-09	20:25	Cloudy	50.1	51.0	49.0	50.1		50.1 Measured ≦ Baseline
	20:30		50.2	51.0	49.5			
	20:35		50.1	51.0	49.5			

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

Location GNC3 - Aegean Terrace						
Date	Time	Weather	dB (A) (5-min)			
			L_{eq}	L_{10}	L_{90}	Average L_{eq}
2-Apr-09	20:45	Cloudy	48.3	50.5	47.0	48.5
	20:50		48.4	50.5	47.0	
	20:55		48.9	51.0	47.0	
5-Apr-09	16:00	Cloudy	49.3	51.5	47.5	49.3
	16:05		49.5	51.5	47.5	
	16:10		49.2	51.5	47.5	
7-Apr-09	20:40	Cloudy	48.9	50.7	46.3	48.8
	20:45		48.7	50.6	46.5	
	20:50		48.8	50.7	46.5	
12-Apr-09	13:30	Sunny	48.0	49.5	46.0	48.5
	13:35		48.8	50.5	46.5	
	13:40		48.6	50.5	46.5	
16-Apr-09	20:10	Fine	48.7	52.1	46.3	48.5
	20:15		48.5	51.8	45.3	
	20:20		48.2	51.6	45.2	
19-Apr-09	15:30	Fine	47.9	51.0	45.5	48.3
	15:35		48.3	51.5	46.0	
	15:40		48.7	51.5	46.0	
23-Apr-09	20:35	Cloudy	49.1	50.0	48.5	49.2
	20:40		49.3	50.0	48.5	
	20:45		49.3	50.5	48.5	
26-Apr-09	15:30	Cloudy	49.0	51.0	47.0	49.3
	15:40		49.6	51.5	47.0	
	15:35		49.3	51.0	47.0	
29-Apr-09	20:05	Cloudy	49.2	50.0	48.5	49.3
	20:10		49.3	50.0	48.5	
	20:15		49.3	50.0	48.5	

Appendix G - Noise Monitoring Results

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

Location NC1a - Outside True Light Middle School of Hong Kong								
Date	Time	Weather	dB (A) (5-min)				(Reference) Baseline Level	(Reference) Construction Noise Level, L_{eq}
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	
2-Apr-09	23:40	Cloudy	59.9	62.0	57.0	59.7	60.7	59.7 Measured ≦ Baseline
	23:45		59.6	62.0	57.0			
	23:50		59.7	62.0	57.0			
7-Apr-09	23:35	Cloudy	59.8	60.5	57.5	59.5		59.5 Measured ≦ Baseline
	23:40		59.3	60.5	57.5			
	23:45		59.4	60.5	57.5			
16-Apr-09	23:35	Cloudy	58.3	61.0	56.5	58.2		58.2 Measured ≦ Baseline
	23:40		58.0	61.0	56.5			
	23:45		58.3	61.0	56.5			
23-Apr-09	23:40	Cloudy	58.3	59.5	56.5	58.6		58.6 Measured ≦ Baseline
	23:45		58.8	59.5	56.5			
	23:50		58.6	59.5	56.5			
29-Apr-09	23:25	Fine	61.0	64.1	54.8	60.6		60.6 Measured ≦ Baseline
	23:30		60.2	63.9	54.5			
	23:35		60.6	63.9	54.6			

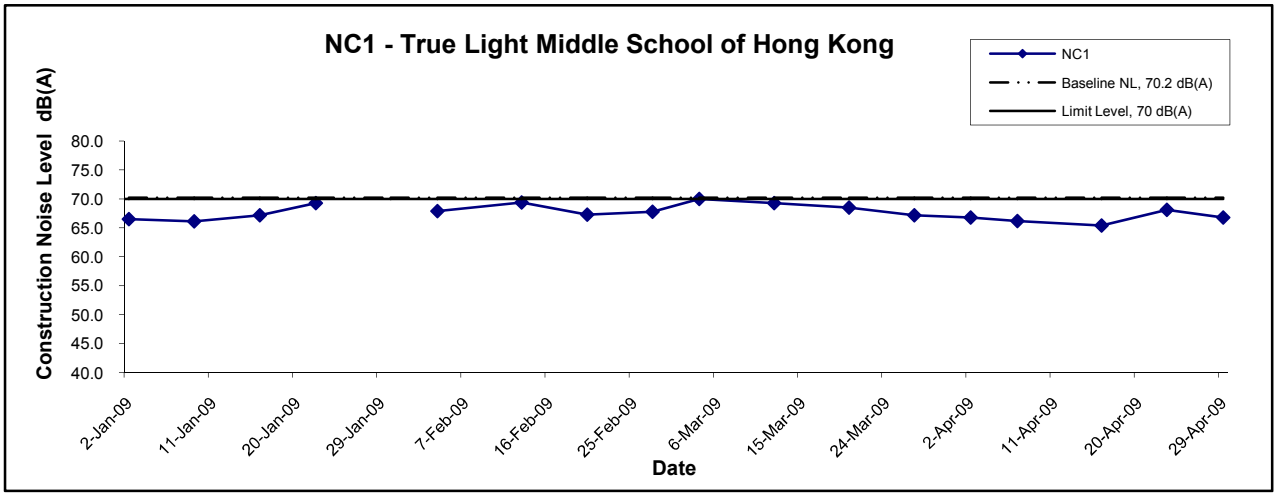
(Restricted Hours - 23:00 to 07:00 on all days)

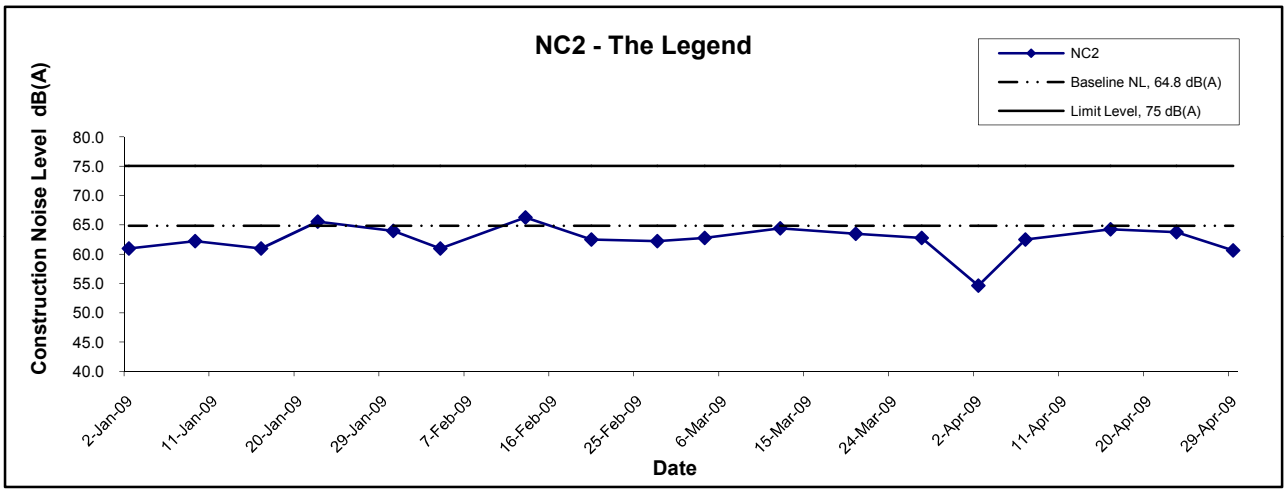
Location NC2 - The Legend								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Apr-09	23:00	Cloudy	53.0	55.0	51.0	53.3	53.9	53.3 Measured ≦ Baseline
	23:05		53.2	55.0	51.0			
	23:10		53.7	55.5	51.5			
7-Apr-09	23:00	Cloudy	53.0	56.5	51.0	53.2		53.2 Measured ≦ Baseline
	23:05		53.5	57.0	51.0			
	23:10		53.2	57.5	51.0			
16-Apr-09	23:00	Fine	53.6	57.0	51.0	53.7		53.7 Measured ≦ Baseline
	23:05		53.5	56.5	51.0			
	23:10		53.9	57.0	51.0			
23-Apr-09	23:00	Cloudy	52.4	55.0	51.0	52.6		52.6 Measured ≦ Baseline
	23:05		52.6	55.0	51.0			
	23:10		52.7	55.0	51.0			
29-Apr-09	23:00	Fine	54.1	57.7	50.5	53.8		53.8 Measured ≦ Baseline
	23:05		53.7	57.5	50.4			
	23:10		53.7	57.3	50.3			

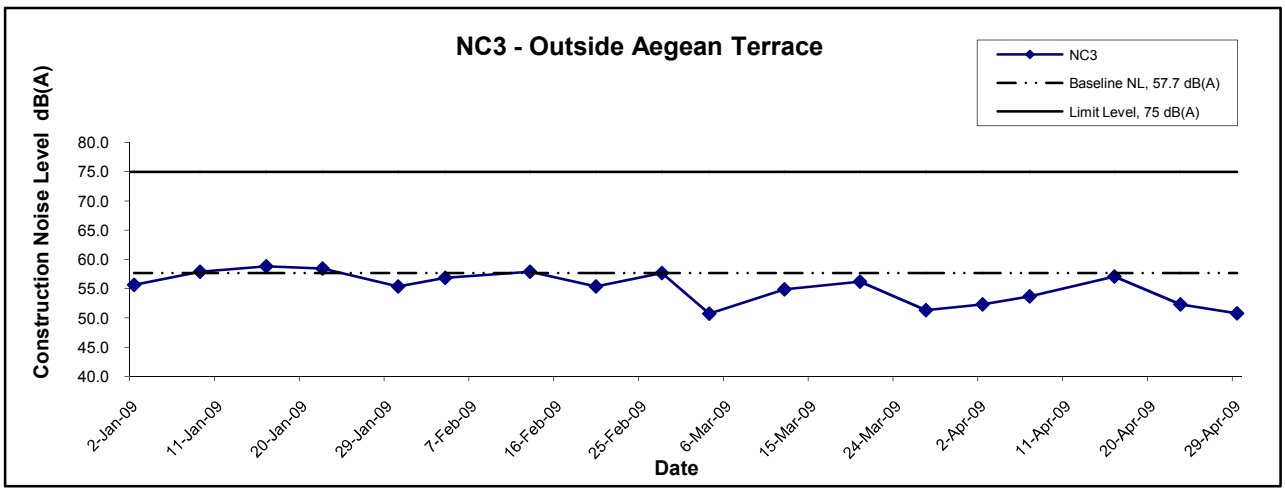
(Restricted Hours - 23:00 to 07:00 on all days)

Location NC3 - Outside Aegean Terrace								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
3-Apr-09	00:25	Cloudy	50.7	52.5	48.5	50.6	52.0	50.6 Measured ≦ Baseline
	00:30		50.3	52.0	48.0			
	00:35		50.8	52.5	48.5			
8-Apr-09	00:30	Cloudy	51.8	55.0	48.5	51.8		51.8 Measured ≦ Baseline
	00:35		51.7	55.0	48.5			
	00:40		51.8	55.0	48.5			
17-Apr-09	00:20	Fine	51.1	54.0	45.5	51.4		51.4 Measured ≦ Baseline
	00:25		51.4	54.0	46.0			
	00:30		51.8	54.5	46.5			
24-Apr-09	00:30	Cloudy	51.7	54.5	49.0	51.3		51.3 Measured ≦ Baseline
	00:35		51.2	54.5	49.0			
	00:40		51.0	54.0	49.0			
30-Apr-09	00:45	Fine	49.1	52.6	44.1	49.1		49.1 Measured ≦ Baseline
	00:50		48.7	52.5	44.1			
	00:55		49.4	52.8	44.1			

Noise Levels

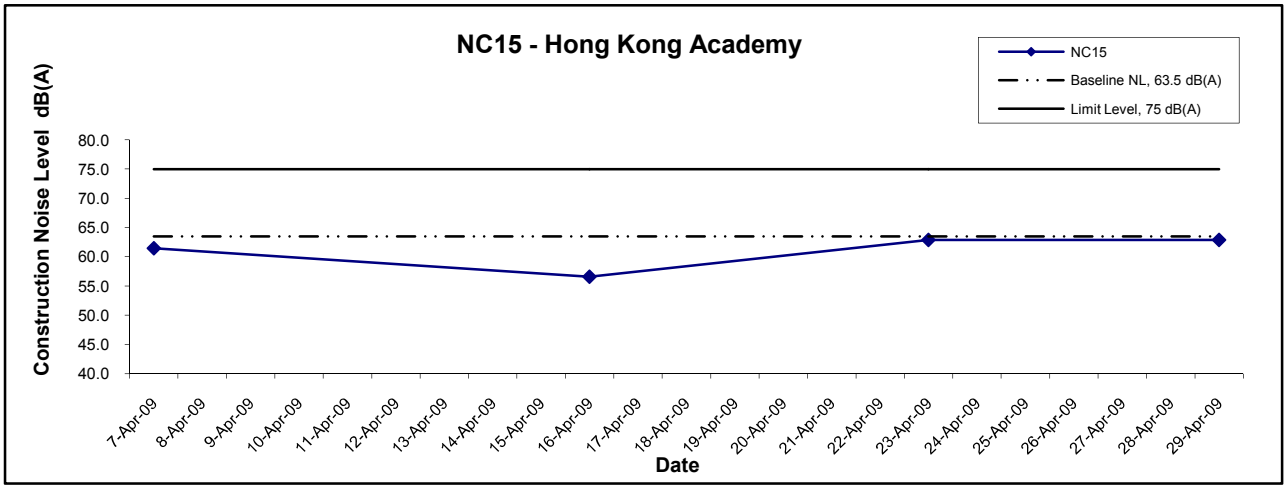


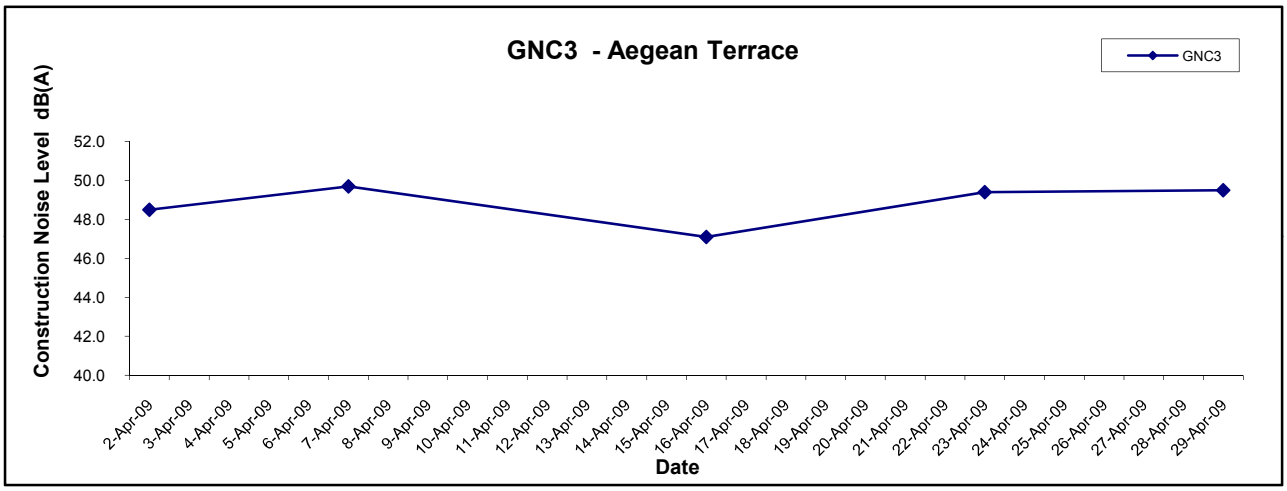




Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: G	CINOTECH

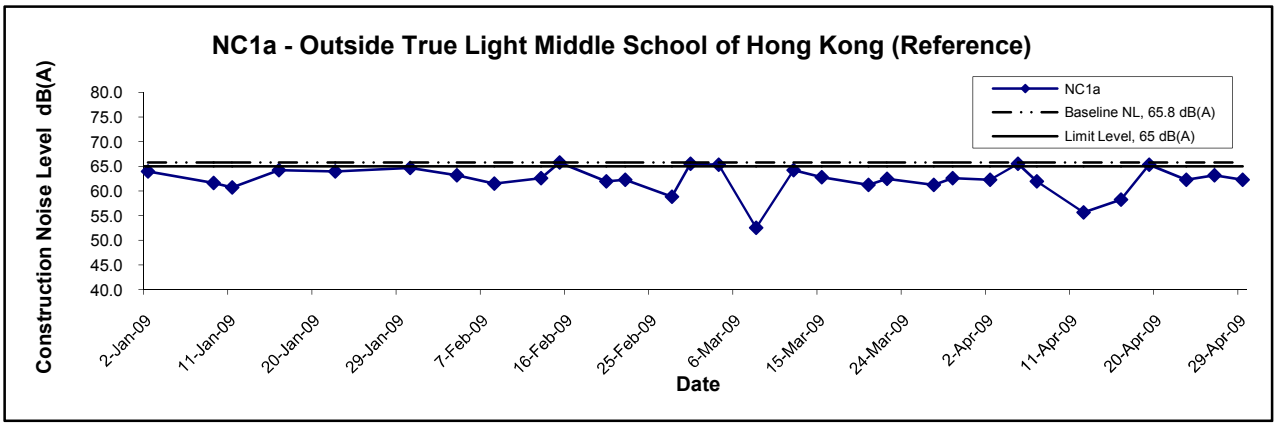
Noise Levels

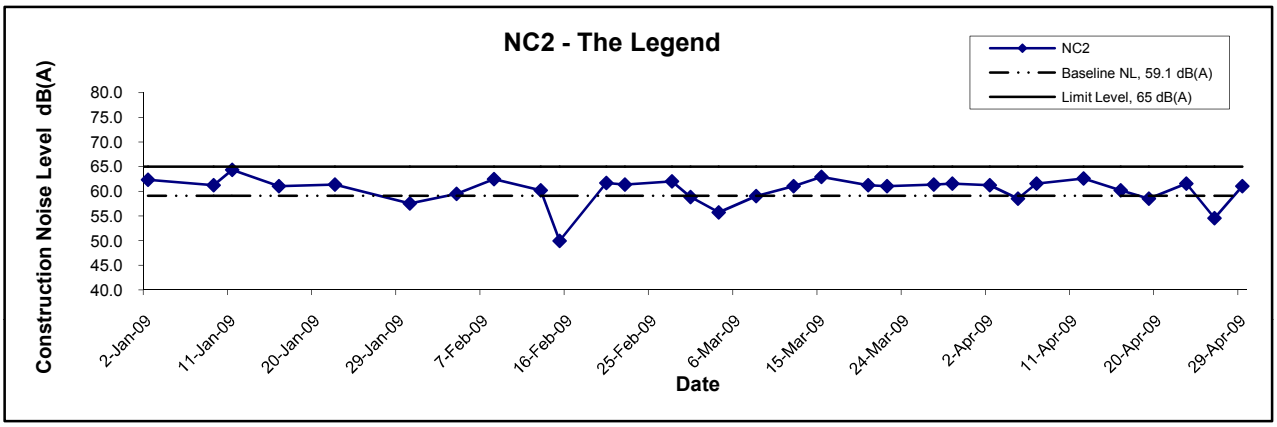


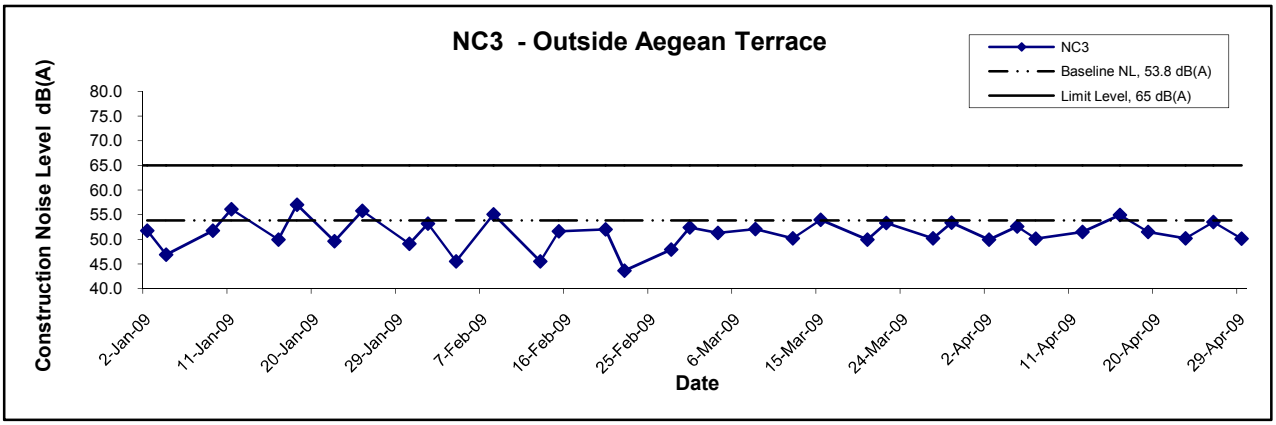


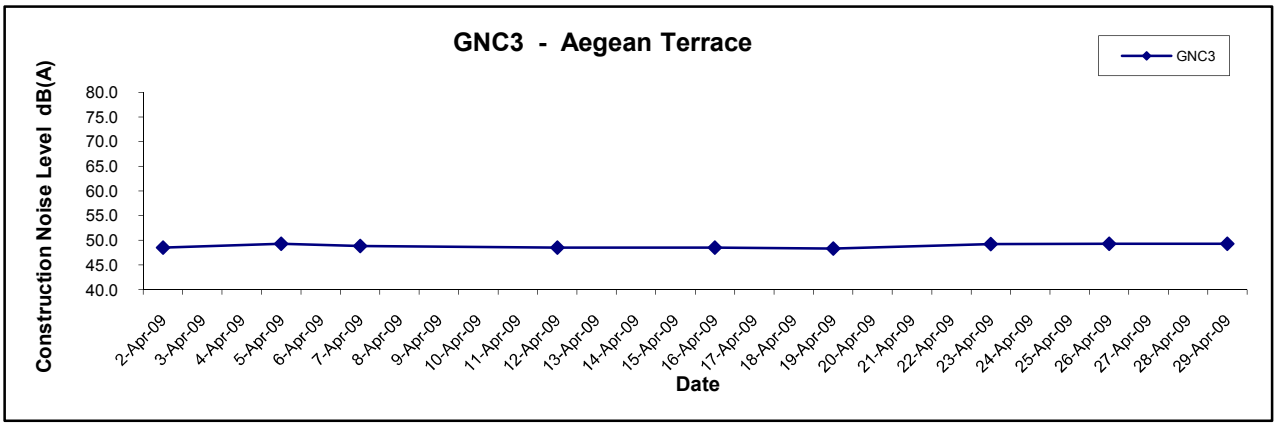
Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
		Date Apr 09	Appendix G	

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



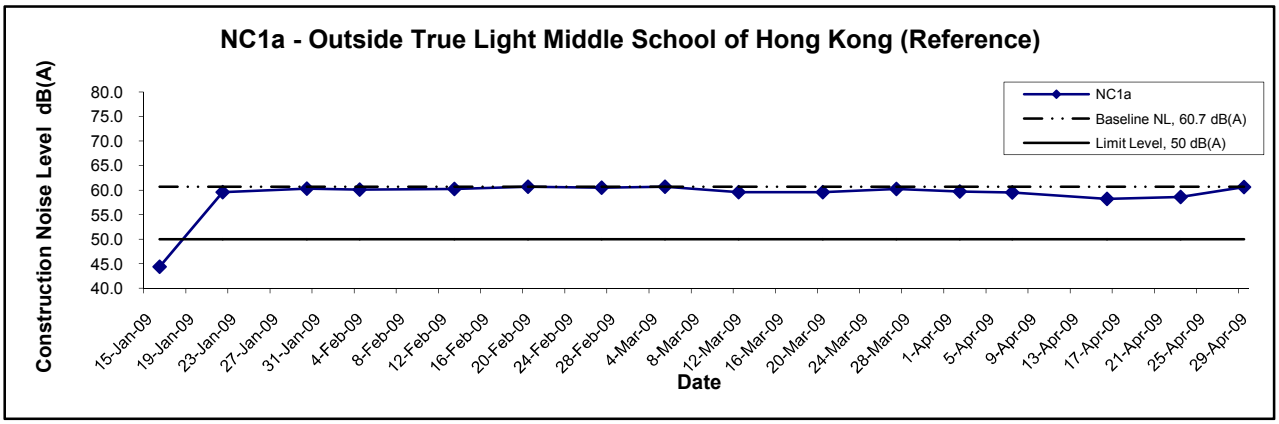


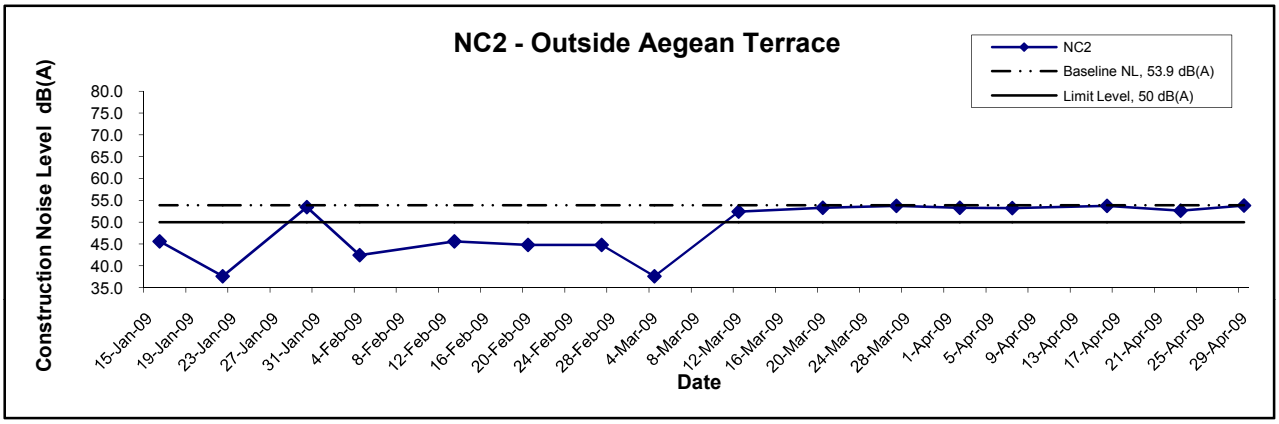


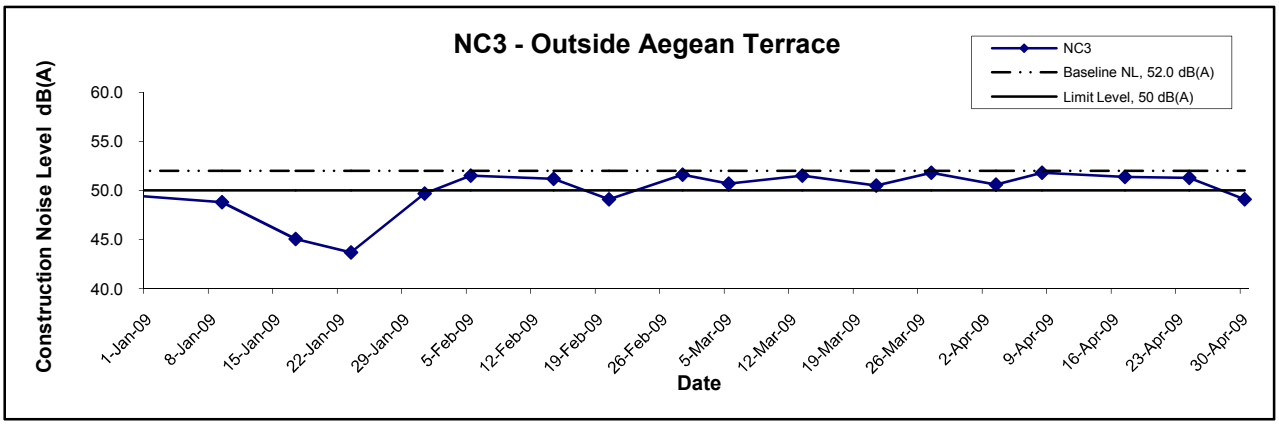


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: G	CINOTECH

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







Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: G	CINOTECH

APPENDIX H
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

Water Quality Monitoring Results at CE - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	15:44	Surface	1	23.0 23.0	23.0	8.3 7.4	7.9	35.5 35.6	35.6	107.7 107.8	107.8	7.3 7.3	7.3	7.2	3.7 4.3	4.0	3.6	9.0 9.0	9.0	7.5
				Middle	5.5	22.5 22.5	22.5	8.4 7.5	8.0	36.0 36.0	36.0	102.5 101.7	102.1	7.0 6.9	7.0		3.7 3.9	3.8		6.0 7.0	6.5	
				Bottom	10	22.1 22.1	22.1	7.7 7.5	7.6	36.3 36.2	36.3	96.1 94.2	95.2	6.5 6.4	6.5	6.5	3.1 2.9	3.0		7.0 7.0	7.0	
6-Apr-09	Cloudy	Calm	10:41	Surface	1	20.8 20.9	20.9	7.8 7.8	7.8	35.3 35.1	35.2	87.3 87.2	87.3	6.4 6.4	6.4	6.4	2.1 2.1	2.1	2.8	8.0 8.0	8.0	6.8
				Middle	5.5	21.0 21.0	21.0	8.0 7.9	8.0	36.6 33.8	35.2	87.2 87.2	87.2	6.3 6.4	6.4		2.8 2.8	2.8		8.0 8.0	8.0	
				Bottom	10	21.0 21.0	21.0	7.7 7.8	7.8	36.6 37.1	36.9	85.9 85.7	85.8	6.2 6.2	6.2	6.2	3.5 3.5	3.5		4.0 5.0	4.5	
8-Apr-09	Sunny	Calm	11:34	Surface	1	21.1 21.1	21.1	7.8 7.8	7.8	36.5 35.2	35.9	91.2 88.6	89.9	6.6 6.5	6.6	6.4	6.8 6.8	6.8	9.3	5.0 5.0	5.0	7.2
				Middle	5.5	21.0 21.0	21.0	7.7 7.8	7.8	36.5 36.3	36.4	84.2 84.2	84.2	6.1 6.1	6.1		9.8 9.9	9.9		7.0 7.0	7.0	
				Bottom	10	21.0 21.0	21.0	8.0 7.9	8.0	36.4 34.1	35.3	87.5 87.5	87.5	6.3 6.3	6.3	6.3	10.8 11.3	11.1		10.0 9.0	9.5	
10-Apr-09	Sunny	Calm	12:28	Surface	1	21.6 21.6	21.6	7.9 7.9	7.9	36.9 36.9	36.9	89.1 88.6	88.9	6.5 6.4	6.5	6.4	2.4 2.5	2.5	2.8	3.0 3.0	3.0	4.0
				Middle	5.5	21.6 21.6	21.6	7.9 8.0	8.0	37.0 37.0	37.0	87.0 86.6	86.8	6.3 6.3	6.3		2.3 2.4	2.4		5.0 5.0	5.0	
				Bottom	10	21.6 21.6	21.6	7.9 7.9	7.9	37.1 37.0	37.1	86.4 86.4	86.4	6.3 6.3	6.3	6.3	3.6 3.4	3.5		4.0 4.0	4.0	
13-Apr-09	Fine	Calm	14:28	Surface	1	22.9 22.9	22.9	8.2 8.1	8.2	36.1 34.8	35.5	84.0 84.1	84.1	6.3 6.3	6.3	6.3	4.8 4.8	4.8	4.5	7.0 7.0	7.0	7.8
				Middle	5.5	22.8 22.8	22.8	8.6 8.7	8.7	36.8 35.9	36.4	84.4 84.8	84.6	6.3 6.3	6.3		4.4 4.5	4.5		11.0 11.0	11.0	
				Bottom	10	22.8 22.8	22.8	8.3 8.3	8.3	35.9 33.8	34.9	85.8 85.7	85.8	6.4 6.4	6.4	6.4	4.2 4.2	4.2		5.0 6.0	5.5	
15-Apr-09	Sunny	Calm	16:49	Surface	1	22.0 22.1	22.1	8.0 7.6	7.8	36.5 36.3	36.4	97.1 96.1	96.6	7.1 7.0	7.1	6.9	3.2 3.2	3.2	3.5	3.0 3.0	3.0	3.5
				Middle	5.5	22.3 22.4	22.4	8.2 8.4	8.3	36.2 36.2	36.2	93.4 92.2	92.8	6.7 6.6	6.7		3.3 3.3	3.3		4.0 3.0	3.5	
				Bottom	10	22.4 22.4	22.4	7.7 8.2	8.0	36.2 36.2	36.2	89.3 88.9	89.1	6.4 6.4	6.4	6.4	3.9 4.0	4.0		4.0 4.0	4.0	
17-Apr-09	Fine	Calm	16:46	Surface	1	22.4 22.3	22.4	7.9 7.8	7.9	36.7 36.7	36.7	92.3 92.5	92.4	6.5 6.5	6.5	6.6	1.9 1.9	1.9	2.6	3.0 3.0	3.0	3.8
				Middle	5.5	22.2 22.2	22.2	7.7 8.0	7.9	36.9 36.1	36.5	93.5 93.8	93.7	6.6 6.6	6.6		2.1 2.4	2.3		3.0 3.0	3.0	
				Bottom	10	22.1 22.1	22.1	7.9 7.8	7.9	35.3 36.4	35.9	92.7 91.8	92.3	6.6 6.5	6.6	6.6	3.4 3.5	3.5		6.0 5.0	5.5	
20-Apr-09	Sunny	Calm	10:06	Surface	1	25.3 25.3	25.3	8.0 7.9	8.0	35.0 33.8	34.4	90.5 88.0	89.3	6.6 6.5	6.6	6.4	3.3 3.3	3.3	3.4	4.0 4.0	4.0	5.2
				Middle	5.5	25.5 25.4	25.5	8.2 8.1	8.2	35.3 35.4	35.4	83.7 83.7	83.7	6.1 6.2	6.2		3.6 3.6	3.6		5.0 6.0	5.5	
				Bottom	10	25.4 25.4	25.4	7.9 8.0	8.0	35.4 35.4	35.4	83.2 83.1	83.2	6.2 6.2	6.2	6.2	3.4 3.4	3.4		6.0 6.0	6.0	
22-Apr-09	Fine	Calm	10:49	Surface	1	22.8 22.8	22.8	7.8 7.7	7.8	36.6 37.0	36.8	91.3 91.1	91.2	6.4 6.4	6.4	6.4	2.4 2.3	2.4	2.5	5.0 5.0	5.0	6.3
				Middle	5.5	22.8 22.8	22.8	7.9 7.9	7.9	37.0 36.8	36.9	91.1 90.8	91.0	6.4 6.4	6.4		2.3 2.3	2.3		6.0 6.0	6.0	
				Bottom	10	22.8 22.8	22.8	7.9 8.0	8.0	36.5 36.2	36.4	90.6 89.9	90.3	6.4 6.4	6.4	6.4	2.6 2.8	2.7		8.0 8.0	8.0	

Water Quality Monitoring Results at CE - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
24-Apr-09	Sunny	Calm	11:36	Surface	1	20.8 20.8	20.8	7.9 7.9	7.9	36.2 36.2	36.2	91.1 90.5	90.8	6.6 6.5	6.6	6.5	2.5 2.6	2.6	3.2	10.0 10.0	10.0	9.8
				Middle	5.5	20.8 20.8	20.8	8.2 8.3	8.3	36.3 36.3	36.3	88.9 88.5	88.7	6.4 6.4	6.4		2.3 2.4	2.4		9.0 10.0	9.5	
				Bottom	10	20.8 20.8	20.8	7.8 8.0	7.9	36.3 36.3	36.3	88.2 88.2	88.2	6.4 6.4	6.4	6.4	4.6 4.7	4.7		10.0 10.0	10.0	
27-Apr-09	Sunny	Calm	13:42	Surface	1	22.6 22.6	22.6	8.2 8.0	8.1	35.0 36.7	35.9	89.6 89.4	89.5	6.6 6.5	6.6	6.6	3.5 3.5	3.5	3.4	9.0 9.0	9.0	8.8
				Middle	5.5	22.5 22.5	22.5	8.3 8.1	8.2	37.0 35.4	36.2	89.7 90.0	89.9	6.5 6.6	6.6		3.5 3.4	3.5		9.0 9.0	9.0	
				Bottom	10	22.4 22.4	22.4	7.9 7.9	7.9	35.1 36.0	35.6	90.1 90.2	90.2	6.6 6.6	6.6	6.6	3.4 3.1	3.3		8.0 9.0	8.5	
29-Apr-09	Sunny	Calm	15:17	Surface	1	22.4 22.4	22.4	7.9 7.9	7.9	36.7 36.4	36.6	86.7 86.7	86.7	6.4 6.4	6.4	6.4	3.7 3.8	3.8	3.8	8.0 8.0	8.0	8.2
				Middle	5.5	22.3 22.3	22.3	7.7 7.9	7.8	36.3 36.9	36.6	86.8 86.9	86.9	6.4 6.4	6.4		3.4 3.3	3.4		9.0 9.0	9.0	
				Bottom	10	22.2 22.2	22.2	7.8 7.6	7.7	37.0 37.0	37.0	86.8 86.8	86.8	6.4 6.4	6.4	6.4	4.3 4.3	4.3		7.0 8.0	7.5	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at CF - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	09:23	Surface	1	22.2 22.3	22.3	7.9 8.1	8.0	36.0 36.1	36.1	104.5 104.5	104.5	7.1 7.1	7.1	7.1	2.1 2.0	2.1	3.4	6.0 6.0	6.0	10.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	21.9 21.8	21.9	7.7 8.1	7.9	35.4 35.4	35.4	105.7 104.6	105.2	7.2 7.1	7.2	7.2	4.5 4.6	4.6		15.0 14.0	14.5	
3-Apr-09	Fine	Calm	10:32	Surface	1	20.8 20.9	20.9	7.9 8.0	8.0	36.7 36.8	36.8	89.1 87.5	88.3	6.4 6.3	6.4	6.4	2.3 2.5	2.4	2.5	12.0 12.0	12.0	11.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	20.9 20.9	20.9	7.9 7.6	7.8	34.1 36.2	35.2	84.9 84.8	84.9	6.2 6.1	6.2	6.2	2.6 2.6	2.6		12.0 11.0	11.5	
6-Apr-09	Cloudy	Calm	15:42	Surface	1	21.1 21.2	21.2	7.8 7.9	7.9	36.2 36.1	36.2	92.9 91.3	92.1	6.7 6.6	6.7	6.7	3.1 3.1	3.1	3.2	8.0 8.0	8.0	7.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	21.1 21.1	21.1	7.9 8.0	8.0	36.0 35.0	35.5	90.4 90.3	90.4	6.5 6.5	6.5	6.5	3.2 3.2	3.2		6.0 6.0	6.0	
8-Apr-09	Fine	Calm	16:50	Surface	1	21.3 21.2	21.3	7.7 7.8	7.8	36.8 36.8	36.8	101.0 99.6	100.3	7.3 7.2	7.3	7.3	4.1 4.0	4.1	4.1	4.0 4.0	4.0	4.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	21.2 21.2	21.2	7.8 7.7	7.8	36.8 36.9	36.9	94.6 94.5	94.6	6.8 6.8	6.8	6.8	4.0 4.1	4.1		6.0 7.0	6.5	
10-Apr-09	Sunny	Calm	17:31	Surface	1	21.6 21.7	21.7	7.8 7.8	7.8	36.2 36.7	36.5	90.3 88.0	89.2	6.6 6.4	6.5	6.5	2.6 2.6	2.6	3.3	3.0 3.0	3.0	4.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	21.7 21.7	21.7	8.1 8.1	8.1	37.1 37.0	37.1	87.4 87.5	87.5	6.3 6.4	6.4	6.4	3.9 3.9	3.9		5.0 5.0	5.0	
13-Apr-09	Fine	Calm	08:25	Surface	1	22.5 22.4	22.5	8.0 8.3	8.2	35.7 36.1	35.9	104.0 102.6	103.3	7.6 7.5	7.6	7.6	3.2 3.4	3.3	3.2	3.0 3.0	3.0	6.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.4 22.4	22.4	8.7 8.4	8.6	36.1 35.8	36.0	97.7 97.6	97.7	7.2 7.2	7.2	7.2	3.1 3.1	3.1		10.0 10.0	10.0	
15-Apr-09	Sunny	Calm	08:13	Surface	1	22.4 22.4	22.4	7.7 8.0	7.9	35.4 35.4	35.4	94.5 93.6	94.1	6.9 6.8	6.9	6.9	4.3 4.3	4.3	4.3	<2.5 <2.5	<2.5	2.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.4 22.4	22.4	8.2 8.0	8.1	35.4 35.4	35.4	89.2 88.2	88.7	6.5 6.4	6.5	6.5	4.2 4.3	4.3		3.0 3.0	3.0	
17-Apr-09	Sunny	Calm	09:18	Surface	1	22.5 22.5	22.5	8.1 8.1	8.1	35.8 36.0	35.9	99.3 98.9	99.1	7.0 7.0	7.0	7.0	1.2 1.2	1.2	1.7	4.0 4.0	4.0	5.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.2 22.2	22.2	7.9 8.1	8.0	36.8 36.8	36.8	98.3 98.3	98.3	6.9 6.9	6.9	6.9	2.0 2.1	2.1		7.0 6.0	6.5	
20-Apr-09	Sunny	Calm	15:03	Surface	1	25.2 25.2	25.2	8.0 8.2	8.1	35.1 34.9	35.0	100.0 98.6	99.3	7.3 7.2	7.3	7.3	3.1 3.0	3.1	3.0	4.0 4.0	4.0	4.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	25.2 25.2	25.2	8.3 8.1	8.2	34.9 32.8	33.9	93.8 93.7	93.8	6.8 6.8	6.8	6.8	2.7 2.9	2.8		5.0 5.0	5.0	

Water Quality Monitoring Results at CF - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
22-Apr-09	Fine	Calm	16:43	Surface	1	22.8 22.8	22.8	7.9 8.0	8.0	36.7 36.2	36.5	99.9 99.8	99.9	7.0 7.0	7.0	7.0	5.2 4.9	5.1	5.0	8.0 8.0	8.0	6.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.8 22.8	22.8	8.1 7.9	8.0	36.4 34.5	35.5	99.9 99.9	99.9	7.0 7.0	7.0	7.0	4.7 5.0	4.9		5.0 6.0	5.5	
24-Apr-09	Fine	Calm	16:49	Surface	1	20.8 20.8	20.8	8.2 8.3	8.3	35.5 36.0	35.8	92.2 89.8	91.0	6.7 6.5	6.6	6.6	4.2 3.8	4.0	3.7	10.0 10.0	10.0	9.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	20.8 20.8	20.8	8.2 8.2	8.2	36.3 36.3	36.3	89.3 89.2	89.3	6.4 6.4	6.4	6.4	3.4 3.2	3.3		9.0 10.0	9.5	
27-Apr-09	Sunny	Calm	07:42	Surface	1	22.5 22.5	22.5	7.8 8.2	8.0	36.7 36.7	36.7	108.2 107.7	108.0	7.8 7.8	7.8	7.8	3.4 3.4	3.4	3.6	9.0 9.0	9.0	9.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.5 22.5	22.5	8.5 8.3	8.4	36.7 36.7	36.7	106.7 106.6	106.7	7.7 7.7	7.7	7.7	3.7 3.7	3.7		9.0 9.0	9.0	
29-Apr-09	Sunny	Calm	07:47	Surface	1	22.5 22.5	22.5	7.8 7.8	7.8	36.2 34.6	35.4	97.5 96.7	97.1	6.8 6.8	6.8	6.8	3.9 3.6	3.8	3.9	7.0 8.0	7.5	7.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	22.6 22.6	22.6	7.8 7.8	7.8	34.6 35.5	35.1	95.4 95.3	95.4	6.7 6.7	6.7	6.7	4.0 3.9	4.0		8.0 8.0	8.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	16:10	Surface	1	22.7 22.7	22.7	8.1 7.7	7.9	35.9 35.9	35.9	101.1 101.2	101.2	6.9 6.9	6.9	6.6	3.9 4.0	4.0	3.8	7.0 7.0	7.0	7.3
				Middle	4.5	22.1 22.1	22.1	8.3 7.9	8.1	35.6 35.6	35.6	91.8 90.7	91.3	6.2 6.2	6.2		3.8 3.6	3.7		7.0 7.0	7.0	
				Bottom	8	21.5 21.5	21.5	7.4 7.2	7.3	35.8 35.8	35.8	89.8 88.0	88.9	6.3 6.2	6.3	6.3	3.6 3.8	3.7		8.0 8.0	8.0	
6-Apr-09	Cloudy	Calm	10:53	Surface	1	21.1 21.1	21.1	7.8 7.7	7.8	36.6 36.6	36.6	88.7 88.5	88.6	6.4 6.4	6.4	6.4	3.0 2.9	3.0	2.7	7.0 7.0	7.0	8.0
				Middle	4.5	21.1 21.1	21.1	7.9 7.8	7.9	36.8 36.7	36.8	88.2 88.1	88.2	6.3 6.3	6.3		2.5 2.8	2.7		8.0 8.0	8.0	
				Bottom	8	21.0 21.0	21.0	7.9 7.8	7.9	36.7 36.7	36.7	88.6 88.6	88.6	6.4 6.4	6.4	6.4	2.4 2.3	2.4		9.0 9.0	9.0	
8-Apr-09	Sunny	Calm	11:57	Surface	1	21.1 21.1	21.1	7.5 7.5	7.5	33.6 35.4	34.5	86.6 86.6	86.6	6.3 6.3	6.3	6.3	7.1 7.3	7.2	8.2	4.0 4.0	4.0	5.8
				Middle	4.5	21.1 21.1	21.1	7.5 7.6	7.6	35.1 36.1	35.6	87.1 87.1	87.1	6.3 6.3	6.3		8.9 8.6	8.8		7.0 7.0	7.0	
				Bottom	8	21.1 21.1	21.1	7.5 7.5	7.5	36.6 34.3	35.5	87.1 87.1	87.1	6.3 6.3	6.3	6.3	8.6 8.8	8.7		6.0 7.0	6.5	
10-Apr-09	Sunny	Calm	12:37	Surface	1	21.6 21.6	21.6	7.9 7.8	7.9	36.9 36.9	36.9	88.5 88.3	88.4	6.4 6.4	6.4	6.4	2.4 2.4	2.4	3.2	4.0 4.0	4.0	4.2
				Middle	4.5	21.7 21.7	21.7	7.9 7.9	7.9	36.9 37.0	37.0	87.9 87.9	87.9	6.4 6.4	6.4		3.7 3.8	3.8		6.0 5.0	5.5	
				Bottom	8	21.7 21.7	21.7	8.0 7.8	7.9	35.7 37.0	36.4	87.9 87.9	87.9	6.4 6.4	6.4	6.4	3.4 3.4	3.4		3.0 3.0	3.0	
13-Apr-09	Fine	Calm	14:56	Surface	1	22.5 22.5	22.5	8.0 8.2	8.1	33.0 34.6	33.8	85.8 85.5	85.7	6.5 6.4	6.5	6.4	4.1 4.2	4.2	4.4	6.0 6.0	6.0	6.3
				Middle	4.5	22.4 22.4	22.4	7.9 8.1	8.0	34.8 35.4	35.1	84.8 84.8	84.8	6.3 6.3	6.3		4.6 4.4	4.5		5.0 5.0	5.0	
				Bottom	8	22.4 22.4	22.4	8.2 8.3	8.3	36.0 33.6	34.8	85.6 85.9	85.8	6.4 6.4	6.4	6.4	4.3 4.5	4.4		8.0 8.0	8.0	
15-Apr-09	Sunny	Calm	16:16	Surface	1	22.2 22.3	22.3	7.8 8.1	8.0	36.4 36.3	36.4	89.9 90.3	90.1	6.5 6.5	6.5	6.5	3.7 3.6	3.7	3.4	5.0 4.0	4.5	3.3
				Middle	4.5	22.4 22.4	22.4	7.9 8.0	8.0	36.1 36.1	36.1	89.6 89.2	89.4	6.4 6.4	6.4		3.3 3.3	3.3		<2.5 <2.5	<2.5	
				Bottom	8	22.4 22.4	22.4	8.1 8.1	8.1	36.1 36.1	36.1	88.5 88.5	88.5	6.4 6.4	6.4	6.4	3.1 3.1	3.1		<2.5 3.0	2.8	
17-Apr-09	Fine	Calm	17:02	Surface	1	22.3 22.4	22.4	8.1 7.7	7.9	35.7 36.7	36.2	91.8 89.7	90.8	6.5 6.3	6.4	6.5	1.1 1.1	1.1	1.4	3.0 3.0	3.0	3.0
				Middle	4.5	22.2 22.2	22.2	8.2 8.1	8.2	36.9 33.3	35.1	92.4 92.5	92.5	6.5 6.7	6.6		1.3 1.4	1.4		3.0 3.0	3.0	
				Bottom	8	22.1 22.1	22.1	8.1 7.9	8.0	34.7 33.4	34.1	91.8 91.8	91.8	6.6 6.6	6.6	6.6	1.5 1.6	1.6		3.0 3.0	3.0	
20-Apr-09	Sunny	Calm	10:16	Surface	1	25.4 25.5	25.5	7.9 8.0	8.0	31.5 31.9	31.7	89.8 89.6	89.7	6.7 6.7	6.7	6.5	3.2 3.5	3.4	3.8	3.0 3.0	3.0	3.7
				Middle	4.5	25.4 25.3	25.4	7.9 7.9	7.9	35.2 35.2	35.2	84.7 83.5	84.1	6.2 6.1	6.2		4.2 4.2	4.2		4.0 4.0	4.0	
				Bottom	8	25.3 25.4	25.4	8.0 8.0	8.0	35.2 35.3	35.3	84.9 85.1	85.0	6.3 6.3	6.3	6.3	3.8 3.6	3.7		4.0 4.0	4.0	
22-Apr-09	Fine	Calm	10:59	Surface	1	22.8 22.8	22.8	7.7 7.8	7.8	37.0 36.9	37.0	90.0 89.9	90.0	6.4 6.4	6.4	6.4	2.1 2.1	2.1	2.3	5.0 6.0	5.5	5.2
				Middle	4.5	22.8 22.8	22.8	7.7 7.7	7.7	37.1 37.1	37.1	89.7 89.4	89.6	6.3 6.4	6.4		2.0 2.0	2.0		5.0 5.0	5.0	
				Bottom	8	22.8 22.8	22.8	7.8 7.7	7.8	36.0 36.3	36.2	89.2 89.1	89.2	6.3 6.4	6.4	6.4	2.6 2.8	2.7		5.0 5.0	5.0	

Water Quality Monitoring Results at I1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
24-Apr-09	Sunny	Calm	11:44	Surface	1	20.8 20.8	20.8	7.9 8.1	8.0	36.2 36.2	36.2	90.4 90.2	90.3	6.5 6.5	6.5	6.5	4.1 4.2	4.2	3.7	9.0 9.0	9.0	10.7
				Middle	4.5	20.8 20.8	20.8	7.9 7.9	7.9	36.2 36.2	36.2	90.2 90.2	90.2	6.5 6.5	6.5		3.4 3.8	3.6		11.0 11.0	11.0	
				Bottom	8	20.8 20.8	20.8	8.2 8.0	8.1	35.0 36.3	35.7	89.8 89.8	89.8	6.5 6.5	6.5	6.5	3.2 3.3	3.3		12.0 12.0	12.0	
27-Apr-09	Sunny	Calm	13:53	Surface	1	22.6 22.6	22.6	8.1 7.9	8.0	33.1 33.4	33.3	95.8 94.9	95.4	7.1 7.0	7.1	7.0	3.7 3.7	3.7	3.3	9.0 9.0	9.0	8.7
				Middle	4.5	22.6 22.6	22.6	8.2 8.2	8.2	37.0 36.6	36.8	93.6 93.5	93.6	6.8 6.8	6.8		3.3 3.1	3.2		9.0 9.0	9.0	
				Bottom	8	22.5 22.5	22.5	8.0 8.2	8.1	36.5 34.9	35.7	93.6 93.6	93.6	6.8 6.9	6.9	6.9	2.9 3.3	3.1		8.0 8.0	8.0	
29-Apr-09	Sunny	Calm	15:24	Surface	1	22.4 22.5	22.5	7.6 7.6	7.6	34.0 34.9	34.5	88.0 88.0	88.0	6.5 6.5	6.5	6.5	3.7 3.7	3.7	3.2	8.0 8.0	8.0	9.2
				Middle	4.5	22.3 22.3	22.3	7.8 7.8	7.8	36.1 37.0	36.6	88.3 88.2	88.3	6.5 6.5	6.5		2.4 2.2	2.3		11.0 11.0	11.0	
				Bottom	8	22.2 22.2	22.2	7.7 7.8	7.8	34.2 36.0	35.1	88.1 88.1	88.1	6.6 6.5	6.6	6.6	3.2 3.9	3.6		8.0 9.0	8.5	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	09:05	Surface	1	21.7 21.7	21.7	8.2 7.8	8.0	36.6 36.6	36.6	99.7 99.6	99.7	6.8 6.8	6.8	6.5	2.5 2.5	2.5	3.9	3.0 4.0	3.5	5.8
				Middle	4.5	21.0 21.0	21.0	7.0 8.0	7.5	35.6 35.6	35.6	89.3 88.6	89.0	6.1 6.0	6.1		4.5 4.5	4.5		7.0 7.0	7.0	
				Bottom	8	20.4 20.3	20.4	8.0 7.5	7.8	35.9 35.9	35.9	89.3 89.3	89.3	6.4 6.4	6.4	6.4	5.1 4.5	4.8		7.0 7.0	7.0	
3-Apr-09	Fine	Calm	10:17	Surface	1	21.0 21.0	21.0	7.9 7.8	7.9	37.0 37.0	37.0	95.6 93.4	94.5	6.9 6.7	6.8	6.7	2.4 2.1	2.3	3.0	15.0 15.0	15.0	11.3
				Middle	4.5	20.9 20.9	20.9	7.8 7.8	7.8	37.0 37.0	37.0	91.6 90.7	91.2	6.6 6.5	6.6		3.0 3.1	3.1		8.0 8.0	8.0	
				Bottom	8	20.9 20.9	20.9	8.0 7.7	7.9	37.0 37.0	37.0	89.4 88.9	89.2	6.4 6.4	6.4	6.4	3.4 3.5	3.5		11.0 11.0	11.0	
6-Apr-09	Cloudy	Calm	15:56	Surface	1	21.1 21.1	21.1	7.7 7.7	7.7	36.9 36.9	36.9	88.5 88.3	88.4	6.4 6.4	6.4	6.4	3.0 2.8	2.9	2.3	9.0 9.0	9.0	7.3
				Middle	4.5	21.1 21.1	21.1	7.9 7.8	7.9	36.1 36.5	36.3	87.9 87.7	87.8	6.4 6.4	6.4		2.1 2.0	2.1		7.0 7.0	7.0	
				Bottom	8	21.1 21.1	21.1	7.9 8.1	8.0	36.9 36.9	36.9	87.3 87.3	87.3	6.3 6.3	6.3	6.3	2.0 2.0	2.0		6.0 6.0	6.0	
8-Apr-09	Fine	Calm	17:09	Surface	1	21.2 21.2	21.2	8.0 8.0	8.0	33.3 36.5	34.9	92.8 92.8	92.8	6.7 6.7	6.7	6.7	4.7 4.8	4.8	4.5	6.0 6.0	6.0	4.2
				Middle	4.5	21.2 21.2	21.2	7.7 7.8	7.8	36.6 35.6	36.1	92.8 92.8	92.8	6.7 6.7	6.7		4.6 4.6	4.6		6.0 6.0	6.0	
				Bottom	8	21.2 21.2	21.2	7.9 7.8	7.9	36.8 34.6	35.7	91.1 91.1	91.1	6.6 6.6	6.6	6.6	4.2 4.0	4.1		6.0 6.0	6.0	
10-Apr-09	Sunny	Calm	17:44	Surface	1	21.7 21.7	21.7	7.7 7.6	7.7	37.0 37.0	37.0	89.4 89.3	89.4	6.5 6.5	6.5	6.7	3.8 3.8	3.8	3.8	3.0 3.0	3.0	3.2
				Middle	4.5	21.6 21.7	21.7	7.9 7.7	7.8	37.0 36.8	36.9	92.9 92.4	92.7	6.8 6.7	6.8		3.9 3.8	3.9		4.0 3.0	3.5	
				Bottom	8	21.7 21.7	21.7	7.8 8.1	8.0	36.9 36.9	36.9	89.8 89.7	89.8	6.5 6.5	6.5	6.5	3.9 3.7	3.8		3.0 3.0	3.0	
13-Apr-09	Fine	Calm	08:34	Surface	1	22.4 22.5	22.5	7.9 8.0	8.0	32.6 35.2	33.9	94.4 91.8	93.1	7.0 6.9	7.0	6.8	4.0 4.1	4.1	3.8	7.0 6.0	6.5	6.5
				Middle	4.5	22.4 22.4	22.4	8.5 8.0	8.3	35.4 34.7	35.1	87.5 87.5	87.5	6.5 6.5	6.5		3.9 3.9	3.9		5.0 5.0	5.0	
				Bottom	8	22.4 22.4	22.4	8.0 8.6	8.3	35.9 33.8	34.9	85.0 84.9	85.0	6.3 6.4	6.4	6.4	3.6 3.4	3.5		8.0 8.0	8.0	
15-Apr-09	Sunny	Calm	08:35	Surface	1	21.2 21.3	21.3	7.6 7.8	7.7	37.3 37.2	37.3	98.2 100.4	99.3	7.2 7.4	7.3	7.2	2.9 2.9	2.9	3.4	<2.5 <2.5	<2.5	2.6
				Middle	4.5	22.2 22.3	22.3	8.0 7.7	7.9	36.4 36.3	36.4	96.3 94.8	95.6	7.0 6.9	7.0		3.1 3.3	3.2		<2.5 <2.5	<2.5	
				Bottom	8	22.4 22.4	22.4	7.7 8.2	8.0	36.2 36.2	36.2	90.7 89.8	90.3	6.5 6.5	6.5	6.5	4.1 4.3	4.2		<2.5 3.0	2.8	
17-Apr-09	Sunny	Calm	09:31	Surface	1	22.7 22.5	22.6	8.0 7.9	8.0	36.4 36.5	36.5	90.8 90.7	90.8	6.4 6.4	6.4	6.4	0.9 0.9	0.9	0.9	6.0 6.0	6.0	4.3
				Middle	4.5	22.3 22.3	22.3	8.2 8.1	8.2	36.7 36.7	36.7	90.7 90.7	90.7	6.4 6.4	6.4		0.8 0.8	0.8		3.0 3.0	3.0	
				Bottom	8	22.2 22.2	22.2	7.8 8.1	8.0	36.7 36.7	36.7	99.6 99.6	99.6	7.0 7.0	7.0	7.0	0.9 0.9	0.9		4.0 4.0	4.0	
20-Apr-09	Sunny	Calm	15:19	Surface	1	25.2 25.2	25.2	8.0 7.8	7.9	32.4 35.0	33.7	85.6 85.4	85.5	6.5 6.4	6.5	6.5	3.0 3.0	3.0	3.4	4.0 4.0	4.0	5.0
				Middle	4.5	25.2 25.2	25.2	8.0 7.9	8.0	35.1 34.3	34.7	84.9 85.1	85.0	6.3 6.4	6.4		3.4 3.4	3.4		6.0 6.0	6.0	
				Bottom	8	25.3 25.3	25.3	8.0 8.2	8.1	35.0 35.2	35.1	83.7 84.2	84.0	6.2 6.2	6.2	6.2	3.6 3.8	3.7		5.0 5.0	5.0	

Water Quality Monitoring Results at I1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
22-Apr-09	Fine	Calm	16:56	Surface	1	22.8 22.8	22.8	7.9 7.9	7.9	36.1 36.1	36.1	91.3 91.5	91.4	6.4 6.4	6.4	6.4	4.0 3.8	3.9	4.0	7.0 7.0	7.0	5.7
				Middle	4.5	22.8 22.8	22.8	8.0 8.0	8.0	37.1 37.1	37.1	91.5 91.5	91.5	6.4 6.4	6.4		3.7 3.6	3.7		6.0 6.0	6.0	
				Bottom	8	22.8 22.8	22.8	7.9 8.0	8.0	37.2 35.6	36.4	90.7 90.3	90.5	6.3 6.3	6.3	6.3	4.3 4.3	4.3		4.0 4.0	4.0	
24-Apr-09	Fine	Calm	17:03	Surface	1	20.8 20.8	20.8	7.9 7.8	7.9	36.2 36.2	36.2	90.3 90.4	90.4	6.5 6.5	6.5	6.6	3.8 3.7	3.8	3.8	12.0 12.0	12.0	9.2
				Middle	4.5	20.7 20.8	20.8	8.3 8.1	8.2	36.2 36.1	36.2	92.4 91.9	92.2	6.7 6.6	6.7		3.9 3.8	3.9		8.0 8.0	8.0	
				Bottom	8	20.8 20.8	20.8	7.9 8.4	8.2	36.1 36.1	36.1	90.3 90.2	90.3	6.5 6.5	6.5	6.5	3.7 3.7	3.7		7.0 8.0	7.5	
27-Apr-09	Sunny	Calm	07:58	Surface	1	22.5 22.5	22.5	7.7 7.9	7.8	36.4 36.3	36.4	93.5 93.4	93.5	6.8 6.8	6.8	6.9	4.3 4.2	4.3	3.8	12.0 12.0	12.0	10.3
				Middle	4.5	22.5 22.5	22.5	8.0 7.9	8.0	36.5 36.4	36.5	93.9 93.3	93.6	6.9 6.8	6.9		3.6 3.6	3.6		10.0 10.0	10.0	
				Bottom	8	22.5 22.5	22.5	8.2 8.3	8.3	37.1 35.1	36.1	93.0 93.0	93.0	6.8 6.8	6.8	6.8	3.7 3.3	3.5		9.0 9.0	9.0	
29-Apr-09	Sunny	Calm	08:04	Surface	1	22.5 22.5	22.5	7.7 7.6	7.7	34.4 33.5	34.0	90.5 89.6	90.1	6.7 6.7	6.7	6.7	3.4 3.6	3.5	3.8	6.0 6.0	6.0	6.5
				Middle	4.5	22.4 22.4	22.4	7.9 7.8	7.9	34.1 37.0	35.6	89.2 89.1	89.2	6.6 6.5	6.6		3.5 3.6	3.6		7.0 7.0	7.0	
				Bottom	8	22.3 22.3	22.3	7.7 7.6	7.7	35.1 35.1	35.1	88.8 88.7	88.8	6.6 6.6	6.6	6.6	4.0 4.3	4.2		6.0 7.0	6.5	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	16:06	Surface	1	22.7 22.7	22.7	8.2 7.3	7.8	36.9 37.0	37.0	103.4 102.7	103.1	7.1 7.0	7.1	6.5	3.1 3.1	3.1	3.5	5.0 6.0	5.5	6.5
				Middle	4.5	22.0 21.9	22.0	7.9 7.7	7.8	35.5 35.5	35.5	87.1 86.2	86.7	5.9 5.9	5.9		3.2 3.2	3.2		7.0 7.0	7.0	
				Bottom	8	21.7 21.7	21.7	7.5 7.8	7.7	35.7 35.7	35.7	90.5 89.5	90.0	6.4 6.3	6.4	6.4	4.0 4.6	4.3		7.0 7.0	7.0	
6-Apr-09	Cloudy	Calm	10:56	Surface	1	21.1 21.1	21.1	7.7 7.8	7.8	37.0 36.9	37.0	89.1 88.6	88.9	6.4 6.4	6.4	6.4	2.5 2.5	2.5	3.3	8.0 8.0	8.0	7.8
				Middle	4.5	21.1 21.1	21.1	7.8 7.7	7.8	36.9 36.9	36.9	87.8 87.8	87.8	6.3 6.3	6.3		3.8 3.9	3.9		8.0 9.0	8.5	
				Bottom	8	21.0 21.0	21.0	7.9 7.8	7.9	37.0 35.0	36.0	87.1 87.1	87.1	6.3 6.3	6.3	6.3	3.5 3.5	3.5		7.0 7.0	7.0	
8-Apr-09	Sunny	Calm	11:58	Surface	1	21.0 21.0	21.0	7.5 7.5	7.5	33.7 36.5	35.1	86.8 86.8	86.8	6.3 6.3	6.3	6.4	7.7 7.7	7.7	7.9	6.0 6.0	6.0	4.7
				Middle	4.5	21.0 21.0	21.0	7.8 7.6	7.7	36.6 35.7	36.2	88.2 88.3	88.3	6.4 6.4	6.4		8.2 8.2	8.2		4.0 4.0	4.0	
				Bottom	8	21.1 21.1	21.1	7.8 7.9	7.9	36.5 36.6	36.6	90.2 90.2	90.2	6.2 6.2	6.2	6.2	7.7 7.6	7.7		4.0 4.0	4.0	
10-Apr-09	Sunny	Calm	12:40	Surface	1	21.6 21.7	21.7	7.7 7.8	7.8	36.7 36.2	36.5	88.7 87.5	88.1	6.5 6.4	6.5	6.5	2.8 2.8	2.8	3.2	3.0 3.0	3.0	3.0
				Middle	4.5	21.7 21.7	21.7	8.0 8.0	8.0	37.1 37.1	37.1	86.8 87.5	87.2	6.3 6.4	6.4		3.8 3.7	3.8		3.0 3.0	3.0	
				Bottom	8	21.7 21.7	21.7	7.7 7.9	7.8	37.2 37.2	37.2	88.4 88.6	88.5	6.4 6.4	6.4	6.4	3.2 3.0	3.1		3.0 3.0	3.0	
13-Apr-09	Fine	Calm	14:58	Surface	1	22.4 22.4	22.4	8.4 8.1	8.3	33.0 35.9	34.5	85.4 85.2	85.3	6.4 6.3	6.4	6.4	4.6 4.6	4.6	4.4	8.0 8.0	8.0	5.7
				Middle	4	22.5 22.5	22.5	8.5 8.1	8.3	35.9 35.0	35.5	84.7 84.9	84.8	6.3 6.3	6.3		5.0 4.6	4.8		5.0 5.0	5.0	
				Bottom	7	22.4 22.4	22.4	8.5 8.0	8.3	35.9 35.8	35.9	85.5 86.0	85.8	6.3 6.4	6.4	6.4	3.8 3.8	3.8		4.0 4.0	4.0	
15-Apr-09	Sunny	Calm	15:54	Surface	1	22.3 22.3	22.3	8.2 8.0	8.1	36.3 36.3	36.3	93.5 93.5	93.5	6.8 6.8	6.8	6.7	2.9 2.9	2.9	3.0	5.0 5.0	5.0	4.0
				Middle	4.5	22.4 22.4	22.4	8.2 8.0	8.1	36.1 36.1	36.1	91.0 90.3	90.7	6.6 6.5	6.6		2.8 2.8	2.8		4.0 4.0	4.0	
				Bottom	8	22.4 22.4	22.4	8.3 7.9	8.1	36.1 36.1	36.1	88.7 88.3	88.5	6.4 6.4	6.4	6.4	3.2 3.3	3.3		3.0 3.0	3.0	
17-Apr-09	Fine	Calm	17:05	Surface	1	22.1 22.1	22.1	7.8 7.7	7.8	36.2 36.1	36.2	89.5 89.5	89.5	6.4 6.4	6.4	6.4	3.5 3.4	3.5	2.5	3.0 3.0	3.0	4.0
				Middle	4.5	22.2 22.2	22.2	7.8 8.2	8.0	35.9 36.3	36.1	90.2 90.8	90.5	6.4 6.4	6.4		2.1 2.4	2.3		3.0 3.0	3.0	
				Bottom	8	22.2 22.2	22.2	8.0 8.0	8.0	35.8 33.1	34.5	91.4 91.8	91.6	6.5 6.6	6.6	6.6	1.6 1.7	1.7		6.0 6.0	6.0	
20-Apr-09	Sunny	Calm	10:17	Surface	1	25.4 25.5	25.5	8.1 7.9	8.0	31.9 35.0	33.5	87.2 86.4	86.8	6.6 6.4	6.5	6.5	4.4 4.1	4.3	4.0	6.0 6.0	6.0	6.0
				Middle	4.5	25.4 25.4	25.4	8.2 7.9	8.1	35.1 34.2	34.7	85.6 85.7	85.7	6.4 6.4	6.4		3.8 3.7	3.8		6.0 6.0	6.0	
				Bottom	8	25.4 25.4	25.4	8.1 7.9	8.0	35.3 33.3	34.3	83.8 83.9	83.9	6.2 6.3	6.3	6.3	3.9 3.7	3.8		6.0 6.0	6.0	
22-Apr-09	Fine	Calm	11:01	Surface	1	22.8 22.8	22.8	7.8 7.7	7.8	35.4 34.5	35.0	89.4 89.6	89.5	6.4 6.3	6.4	6.4	2.1 2.1	2.1	2.1	6.0 6.0	6.0	5.3
				Middle	4.5	22.8 22.8	22.8	8.0 7.8	7.9	37.1 33.4	35.3	89.4 88.9	89.2	6.4 6.3	6.4		2.0 2.0	2.0		5.0 5.0	5.0	
				Bottom	8	22.8 22.8	22.8	8.0 7.8	7.9	35.1 36.2	35.7	88.6 88.6	88.6	6.3 6.3	6.3	6.3	2.2 2.2	2.2		5.0 5.0	5.0	

Water Quality Monitoring Results at I2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
24-Apr-09	Sunny	Calm	11:48	Surface	1	21.0 20.8	20.9	8.2 7.9	8.1	35.9 35.5	35.7	90.4 89.1	89.8	6.5 6.5	6.5	6.5	4.2 4.4	4.3	3.7	8.0 9.0	8.5	10.5
				Middle	4.5	20.8 20.8	20.8	8.2 8.0	8.1	36.4 36.4	36.4	88.4 89.1	88.8	6.4 6.4	6.4		3.8 3.6	3.7		12.0 12.0	12.0	
				Bottom	8	20.8 20.8	20.8	8.1 7.9	8.0	36.5 36.5	36.5	90.1 90.3	90.2	6.5 6.5	6.5	6.5	3.2 2.8	3.0		11.0 11.0	11.0	
27-Apr-09	Sunny	Calm	13:54	Surface	1	22.6 22.6	22.6	8.1 8.2	8.2	36.4 35.9	36.2	93.5 93.2	93.4	6.8 6.8	6.8	6.8	3.6 3.5	3.6	3.7	9.0 9.0	9.0	9.2
				Middle	4.5	22.6 22.6	22.6	8.0 8.0	8.0	36.3 36.3	36.3	93.0 93.0	93.0	6.8 6.8	6.8		3.9 4.0	4.0		9.0 9.0	9.0	
				Bottom	8	22.5 22.5	22.5	8.2 8.1	8.2	37.1 36.5	36.8	93.0 93.0	93.0	6.8 6.8	6.8	6.8	3.5 3.5	3.5		10.0 9.0	9.5	
29-Apr-09	Sunny	Calm	15:25	Surface	1	22.4 22.4	22.4	7.6 7.8	7.7	35.9 36.0	36.0	88.0 88.2	88.1	6.5 6.5	6.5	6.5	3.5 3.5	3.5	3.6	8.0 8.0	8.0	8.5
				Middle	4.5	22.3 22.3	22.3	7.8 7.7	7.8	36.7 36.3	36.5	88.4 88.4	88.4	6.5 6.5	6.5		2.9 2.8	2.9		7.0 7.0	7.0	
				Bottom	8	22.2 22.2	22.2	7.9 7.9	7.9	36.3 36.3	36.3	88.2 88.2	88.2	6.5 6.5	6.5	6.5	3.9 4.6	4.3		11.0 10.0	10.5	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at I2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	08:59	Surface	1	21.7 21.7	21.7	8.2 8.3	8.3	36.2 36.3	36.3	102.7 102.0	102.4	7.0 7.0	7.0	6.5	3.9 3.9	3.9	3.9	7.0 7.0	7.0	8.5
				Middle	4.5	20.9 20.9	20.9	7.8 7.8	7.8	36.2 36.2	36.2	88.6 87.1	87.9	6.0 5.9	6.0		3.9 3.8	3.9		8.0 8.0	8.0	
				Bottom	8	20.7 20.7	20.7	8.3 7.3	7.8	36.5 36.6	36.6	92.5 91.3	91.9	6.6 6.5	6.6	6.6	3.8 3.8	3.8		11.0 10.0	10.5	
3-Apr-09	Fine	Calm	10:14	Surface	1	20.9 20.9	20.9	7.9 7.8	7.9	34.3 33.0	33.7	96.7 96.7	96.7	7.0 7.0	7.0	7.0	3.2 3.2	3.2	2.9	4.0 5.0	4.5	10.3
				Middle	4.5	20.9 20.9	20.9	8.0 7.7	7.9	36.5 37.0	36.8	97.6 96.7	97.2	7.0 7.0	7.0		2.8 3.0	2.9		15.0 14.0	14.5	
				Bottom	8	20.9 20.9	20.9	7.9 8.0	8.0	37.0 36.5	36.8	96.8 97.3	97.1	7.0 7.0	7.0	7.0	2.6 2.6	2.6		12.0 12.0	12.0	
6-Apr-09	Cloudy	Calm	15:53	Surface	1	21.1 21.1	21.1	7.8 7.7	7.8	36.9 36.9	36.9	89.3 88.7	89.0	6.5 6.4	6.5	6.5	2.1 2.3	2.2	3.5	8.0 7.0	7.5	7.5
				Middle	4.5	21.1 21.1	21.1	7.6 7.6	7.6	36.1 36.2	36.2	88.3 88.2	88.3	6.4 6.4	6.4		3.0 3.3	3.2		7.0 7.0	7.0	
				Bottom	8	21.1 21.1	21.1	7.7 7.7	7.7	37.0 36.2	36.6	87.3 87.1	87.2	6.3 6.3	6.3	6.3	5.1 5.3	5.2		8.0 8.0	8.0	
8-Apr-09	Fine	Calm	17:07	Surface	1	21.2 21.3	21.3	7.9 7.8	7.9	32.8 33.3	33.1	90.3 90.3	90.3	6.7 6.7	6.7	6.7	5.4 5.1	5.3	4.6	5.0 6.0	5.5	3.0
				Middle	4.5	21.2 21.1	21.2	7.9 7.8	7.9	36.6 36.7	36.7	90.3 90.3	90.3	6.7 6.7	6.7		4.7 4.5	4.6		6.0 6.0	6.0	
				Bottom	8	21.2 21.1	21.2	8.0 7.7	7.9	36.7 36.8	36.8	90.3 90.3	90.3	6.7 6.7	6.7	6.7	4.1 3.9	4.0		5.0 5.0	5.0	
10-Apr-09	Sunny	Calm	17:43	Surface	1	21.7 21.7	21.7	7.6 7.6	7.6	37.0 37.0	37.0	88.4 88.5	88.5	6.4 6.4	6.4	6.6	3.8 4.2	4.0	3.9	3.0 3.0	3.0	4.0
				Middle	4.5	21.6 21.7	21.7	7.5 7.6	7.6	36.8 36.8	36.8	93.3 92.4	92.9	6.8 6.7	6.8		3.8 3.8	3.8		5.0 5.0	5.0	
				Bottom	8	21.7 21.7	21.7	7.6 7.5	7.6	36.9 36.9	36.9	90.3 90.1	90.2	6.6 6.5	6.6	6.6	3.8 3.9	3.9		4.0 4.0	4.0	
13-Apr-09	Fine	Calm	08:33	Surface	1	22.4 22.5	22.5	8.0 7.9	8.0	32.1 32.6	32.4	87.0 86.2	86.6	6.6 6.4	6.5	6.5	4.2 4.3	4.3	3.8	4.0 4.0	4.0	5.5
				Middle	4.5	22.4 22.3	22.4	7.9 8.1	8.0	35.9 36.0	36.0	85.4 85.5	85.5	6.3 6.4	6.4		3.8 3.8	3.8		9.0 9.0	9.0	
				Bottom	8	22.4 22.3	22.4	8.0 8.0	8.0	36.0 35.6	35.8	85.6 85.7	85.7	6.3 6.4	6.4	6.4	3.5 3.3	3.4		3.0 4.0	3.5	
15-Apr-09	Sunny	Calm	08:29	Surface	1	22.3 22.4	22.4	7.6 7.7	7.7	36.1 36.1	36.1	88.8 88.5	88.7	6.4 6.4	6.4	6.4	2.8 2.7	2.8	3.0	3.0 3.0	3.0	3.0
				Middle	4.5	22.4 22.4	22.4	7.7 7.6	7.7	36.0 36.0	36.0	88.0 88.0	88.0	6.3 6.3	6.3		2.8 2.8	2.8		3.0 3.0	3.0	
				Bottom	8	22.4 22.4	22.4	7.6 7.7	7.7	36.0 36.1	36.1	87.1 87.2	87.2	6.3 6.3	6.3	6.3	3.4 3.5	3.5		3.0 3.0	3.0	
17-Apr-09	Sunny	Calm	09:30	Surface	1	22.5 22.5	22.5	8.1 8.0	8.1	36.5 36.5	36.5	90.8 90.8	90.8	6.4 6.5	6.5	6.5	1.3 1.3	1.3	1.6	3.0 3.0	3.0	3.0
				Middle	4.5	22.2 22.2	22.2	7.9 8.1	8.0	35.3 36.4	35.9	90.4 90.4	90.4	6.4 6.4	6.4		1.3 1.3	1.3		3.0 3.0	3.0	
				Bottom	8	22.1 22.1	22.1	8.0 7.7	7.9	36.4 36.1	36.3	89.4 89.7	89.6	6.3 6.3	6.3	6.3	1.9 2.2	2.1		3.0 3.0	3.0	
20-Apr-09	Sunny	Calm	15:18	Surface	1	25.3 25.3	25.3	7.9 7.9	7.9	32.3 34.0	33.2	84.2 84.3	84.3	6.4 6.3	6.4	6.4	2.8 2.8	2.8	3.4	4.0 4.0	4.0	4.7
				Middle	4.5	25.3 25.3	25.3	7.8 7.9	7.9	33.7 34.7	34.2	84.6 85.0	84.8	6.4 6.4	6.4		3.8 3.8	3.8		3.0 3.0	3.0	
				Bottom	8	25.3 25.3	25.3	7.9 7.8	7.9	35.1 32.9	34.0	84.0 83.9	84.0	6.2 6.3	6.3	6.3	3.5 3.5	3.5		7.0 7.0	7.0	

Water Quality Monitoring Results at I2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
22-Apr-09	Fine	Calm	16:54	Surface	1	22.8 22.8	22.8	8.0 7.8	7.9	37.0 36.9	37.0	90.5 91.1	90.8	6.3 6.3	6.3	6.4	4.7 4.9	4.8	4.6	7.0 7.0	7.0	6.3
				Middle	4.5	22.8 22.8	22.8	8.0 7.8	7.9	37.2 37.2	37.2	92.7 92.5	92.6	6.4 6.4	6.4		4.1 4.0	4.1		6.0 6.0	6.0	
				Bottom	8	22.8 22.8	22.8	7.8 7.8	7.8	37.2 34.4	35.8	91.7 91.3	91.5	6.4 6.5	6.5	6.5	4.8 5.1	5.0		6.0 6.0	6.0	
24-Apr-09	Fine	Calm	17:02	Surface	1	20.8 20.8	20.8	7.8 7.9	7.9	36.3 36.2	36.3	90.2 90.3	90.3	6.5 6.5	6.5	6.7	2.9 3.3	3.1	3.6	9.0 9.0	9.0	11.3
				Middle	4.5	20.8 20.8	20.8	7.8 8.0	7.9	36.1 36.1	36.1	95.3 94.4	94.9	6.9 6.8	6.9		3.8 3.8	3.8		11.0 11.0	11.0	
				Bottom	8	20.8 20.8	20.8	7.9 7.9	7.9	36.2 36.2	36.2	92.2 92.0	92.1	6.7 6.6	6.7	6.7	3.7 3.9	3.8		14.0 14.0	14.0	
27-Apr-09	Sunny	Calm	07:56	Surface	1	22.6 22.6	22.6	7.6 7.7	7.7	37.0 34.1	35.6	96.3 96.1	96.2	7.0 7.1	7.1	7.0	3.6 3.9	3.8	3.8	10.0 11.0	10.5	9.5
				Middle	4.5	22.5 22.5	22.5	8.0 7.7	7.9	37.0 36.7	36.9	95.1 95.0	95.1	6.9 6.9	6.9		4.0 4.2	4.1		8.0 8.0	8.0	
				Bottom	8	22.5 22.5	22.5	7.8 8.0	7.9	33.5 36.9	35.2	94.5 94.4	94.5	7.0 6.9	7.0	7.0	3.6 3.6	3.6		10.0 10.0	10.0	
29-Apr-09	Sunny	Calm	08:00	Surface	1	22.7 22.6	22.7	7.4 7.7	7.6	36.4 36.9	36.7	93.9 92.9	93.4	6.9 6.8	6.9	6.9	2.9 2.9	2.9	3.0	7.0 7.0	7.0	6.7
				Middle	4.5	22.3 22.3	22.3	7.6 7.6	7.6	37.0 37.0	37.0	92.8 92.8	92.8	6.8 6.8	6.8		3.0 2.8	2.9		6.0 6.0	6.0	
				Bottom	8	22.3 22.3	22.3	7.7 7.5	7.6	36.9 37.0	37.0	92.4 92.5	92.5	6.8 6.8	6.8	6.8	2.9 3.2	3.1		7.0 7.0	7.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	16:18	Surface	1	22.7 22.6	22.7	7.3 8.3	7.8	35.9 36.0	36.0	101.5 100.9	101.2	6.9 6.9	6.9	6.6	3.1 3.1	3.1	3.6	6.0 6.0	6.0	7.2
				Middle	5	22.1 22.1	22.1	7.9 7.7	7.8	35.6 35.6	35.6	90.5 90.5	90.5	6.2 6.2	6.2		3.0 3.0	3.0		7.0 7.0	7.0	
				Bottom	9	21.6 21.6	21.6	7.6 7.6	7.6	35.7 35.7	35.7	88.1 88.2	88.2	6.2 6.2	6.2	6.2	4.3 5.2	4.8		9.0 8.0	8.5	
6-Apr-09	Cloudy	Calm	11:00	Surface	1	21.2 21.2	21.2	7.8 7.7	7.8	36.9 36.8	36.9	90.2 90.3	90.3	6.5 6.5	6.5	6.5	2.3 2.3	2.3	2.7	7.0 7.0	7.0	7.7
				Middle	5	21.1 21.1	21.1	7.9 8.1	8.0	36.9 36.9	36.9	89.4 89.5	89.5	6.4 6.4	6.4		3.1 3.3	3.2		8.0 8.0	8.0	
				Bottom	9	21.0 21.0	21.0	7.8 7.9	7.9	37.0 37.0	37.0	87.7 87.5	87.6	6.3 6.3	6.3	6.3	2.5 2.4	2.5		8.0 8.0	8.0	
8-Apr-09	Sunny	Calm	12:04	Surface	1	21.1 21.1	21.1	8.0 7.8	7.9	33.4 34.7	34.1	89.7 89.7	89.7	6.5 6.5	6.5	6.4	6.2 6.3	6.3	7.1	3.0 3.0	3.0	6.0
				Middle	5	21.1 21.1	21.1	7.8 7.7	7.8	36.5 36.5	36.5	91.2 91.2	91.2	6.2 6.2	6.2		7.2 7.2	7.2		7.0 7.0	7.0	
				Bottom	9	21.1 21.1	21.1	7.6 7.6	7.6	36.6 34.4	35.5	91.2 91.2	91.2	6.2 6.2	6.2	6.2	7.7 7.7	7.7		8.0 8.0	8.0	
10-Apr-09	Sunny	Calm	12:51	Surface	1	21.7 21.7	21.7	7.9 7.9	7.9	36.8 36.8	36.8	90.3 88.1	89.2	6.6 6.4	6.5	6.4	3.2 3.4	3.3	2.7	3.0 3.0	3.0	3.0
				Middle	5	21.7 21.7	21.7	7.8 7.8	7.8	37.0 37.0	37.0	86.7 86.7	86.7	6.3 6.3	6.3		2.6 2.7	2.7		3.0 3.0	3.0	
				Bottom	9	21.7 21.7	21.7	7.8 7.7	7.8	37.1 37.1	37.1	87.2 87.5	87.4	6.3 6.4	6.4	6.4	2.2 2.2	2.2		3.0 3.0	3.0	
13-Apr-09	Fine	Calm	15:05	Surface	1	22.4 22.4	22.4	8.7 7.8	8.3	32.7 34.0	33.4	96.7 95.9	96.3	7.1 7.1	7.1	7.0	3.3 3.4	3.4	3.0	6.0 6.0	6.0	5.7
				Middle	5	22.5 22.5	22.5	8.4 8.6	8.5	35.9 35.9	35.9	93.6 93.3	93.5	6.9 6.9	6.9		3.1 3.1	3.1		3.0 3.0	3.0	
				Bottom	9	22.4 22.4	22.4	8.0 8.0	8.0	35.9 33.9	34.9	92.9 92.8	92.9	6.9 6.8	6.9	6.9	2.6 2.6	2.6		8.0 8.0	8.0	
15-Apr-09	Sunny	Calm	15:41	Surface	1	21.9 22.1	22.0	8.3 7.8	8.1	36.4 36.2	36.3	90.6 91.5	91.1	6.6 6.6	6.6	6.6	2.8 2.9	2.9	3.1	5.0 6.0	5.5	3.8
				Middle	5	22.4 22.4	22.4	8.3 8.4	8.4	35.9 35.9	35.9	89.5 88.9	89.2	6.5 6.4	6.5		3.1 3.2	3.2		<2.5 3.0	2.8	
				Bottom	9	22.4 22.4	22.4	7.9 8.0	8.0	36.0 36.0	36.0	87.9 87.9	87.9	6.3 6.3	6.3	6.3	3.2 3.2	3.2		3.0 3.0	3.0	
17-Apr-09	Fine	Calm	17:17	Surface	1	22.2 22.2	22.2	7.8 7.7	7.8	35.9 35.8	35.9	92.0 92.0	92.0	6.5 6.5	6.5	6.5	1.2 1.3	1.3	1.7	3.0 4.0	3.5	3.5
				Middle	5	22.2 22.2	22.2	8.0 7.9	8.0	36.1 35.2	35.7	91.9 91.9	91.9	6.5 6.5	6.5		1.5 1.7	1.6		4.0 4.0	4.0	
				Bottom	9	22.1 22.1	22.1	8.0 8.1	8.1	33.3 36.3	34.8	91.3 90.6	91.0	6.6 6.4	6.5	6.5	2.1 2.2	2.2		3.0 3.0	3.0	
20-Apr-09	Sunny	Calm	10:23	Surface	1	25.4 25.4	25.4	8.0 7.9	8.0	35.0 35.0	35.0	92.8 92.0	92.4	6.8 6.7	6.8	6.7	1.7 1.7	1.7	2.2	<2.5 3.0	2.8	3.1
				Middle	4.5	25.3 25.3	25.3	8.2 8.1	8.2	31.6 31.7	31.7	89.7 89.4	89.6	6.5 6.5	6.5		2.2 2.5	2.4		4.0 3.0	3.5	
				Bottom	8	25.3 25.3	25.3	7.8 8.0	7.9	34.8 35.3	35.1	89.0 88.9	89.0	6.5 6.5	6.5	6.5	2.4 2.7	2.6		3.0 3.0	3.0	
22-Apr-09	Fine	Calm	11:06	Surface	1	22.8 22.8	22.8	8.0 7.8	7.9	36.7 37.0	36.9	90.2 90.5	90.4	6.4 6.4	6.4	6.4	2.1 2.0	2.1	2.3	3.0 4.0	3.5	4.8
				Middle	5	22.8 22.8	22.8	8.0 8.0	8.0	36.9 36.9	36.9	90.5 90.2	90.4	6.4 6.4	6.4		2.2 2.4	2.3		6.0 6.0	6.0	
				Bottom	9	22.8 22.8	22.8	7.7 7.7	7.7	37.0 36.9	37.0	88.4 90.7	89.6	6.3 6.5	6.4	6.4	2.6 2.6	2.6		5.0 5.0	5.0	

Water Quality Monitoring Results at Intake A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
24-Apr-09	Sunny	Calm	11:55	Surface	1	20.8 20.8	20.8	8.1 7.8	8.0	36.1 36.1	36.1	92.3 90.0	91.2	6.7 6.5	6.6	6.5	3.2 3.4	3.3	2.7	8.0 8.0	8.0	9.5
				Middle	5	20.8 20.8	20.8	8.2 8.2	8.2	36.3 36.3	36.3	88.6 88.6	88.6	6.4 6.4	6.4		2.6 2.7	2.7		12.0 12.0	12.0	
				Bottom	9	20.8 20.8	20.8	7.8 7.9	7.9	36.4 36.4	36.4	89.1 89.4	89.3	6.4 6.4	6.4	6.4	2.3 2.1	2.2		8.0 9.0	8.5	
27-Apr-09	Sunny	Calm	13:58	Surface	1	22.5 22.6	22.6	8.4 7.8	8.1	36.6 37.0	36.8	93.9 93.7	93.8	6.9 6.8	6.9	6.9	4.1 3.3	3.7	3.4	9.0 9.0	9.0	9.3
				Middle	4.5	22.5 22.5	22.5	8.3 8.5	8.4	34.7 36.2	35.5	93.1 93.1	93.1	6.9 6.8	6.9		3.1 2.8	3.0		9.0 9.0	9.0	
				Bottom	8	22.5 22.5	22.5	7.9 8.0	8.0	36.5 33.5	35.0	92.7 92.6	92.7	6.8 6.9	6.9	6.9	3.3 3.4	3.4		10.0 10.0	10.0	
29-Apr-09	Sunny	Calm	15:30	Surface	1	22.5 22.4	22.5	7.8 7.8	7.8	36.9 35.9	36.4	89.5 89.6	89.6	6.6 6.6	6.6	6.7	3.6 3.5	3.6	3.6	7.0 7.0	7.0	7.0
				Middle	5	22.3 22.3	22.3	7.9 8.0	8.0	34.2 37.0	35.6	89.6 89.6	89.6	6.7 6.6	6.7		2.9 2.7	2.8		7.0 7.0	7.0	
				Bottom	9	22.2 22.2	22.2	7.9 7.8	7.9	36.5 37.0	36.8	89.5 89.4	89.5	6.6 6.6	6.6	6.6	4.2 4.5	4.4		7.0 7.0	7.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	09:15	Surface	1	21.7 21.7	21.7	7.8 8.0	7.9	36.0 36.3	36.2	100.9 100.2	100.6	6.9 6.8	6.9	6.5	3.8 3.7	3.8	4.0	10.0 10.0	10.0	6.0
				Middle	5	21.1 21.1	21.1	7.7 7.4	7.6	35.6 35.6	35.6	87.4 87.3	87.4	6.0 5.9	6.0		4.0 4.1	4.1		4.0 4.0	4.0	
				Bottom	9	20.6 20.6	20.6	7.3 7.9	7.6	35.8 35.8	35.8	88.8 88.0	88.4	6.4 6.3	6.4	6.4	4.0 3.9	4.0		4.0 4.0	4.0	
3-Apr-09	Fine	Calm	10:08	Surface	1	21.1 21.1	21.1	7.9 7.8	7.9	36.5 35.0	35.8	97.6 96.7	97.2	7.0 7.0	7.0	6.9	1.9 1.9	1.9	2.6	9.0 9.0	9.0	12.5
				Middle	5	20.9 20.9	20.9	7.9 8.0	8.0	36.8 36.9	36.9	92.5 92.3	92.4	6.7 6.6	6.7		2.8 2.9	2.9		15.0 15.0	15.0	
				Bottom	9	20.9 20.9	20.9	8.2 8.1	8.2	36.9 36.9	36.9	94.9 94.7	94.8	6.8 6.8	6.8	6.8	2.8 2.9	2.9		13.0 14.0	13.5	
6-Apr-09	Cloudy	Calm	15:48	Surface	1	21.1 21.1	21.1	7.5 7.6	7.6	36.9 36.9	36.9	90.4 90.3	90.4	6.5 6.5	6.5	6.5	1.6 1.5	1.6	2.8	6.0 6.0	6.0	5.8
				Middle	5	21.1 21.1	21.1	8.0 7.8	7.9	36.2 36.2	36.2	89.3 89.0	89.2	6.4 6.4	6.4		2.5 2.6	2.6		5.0 5.0	5.0	
				Bottom	9	21.0 21.0	21.0	7.8 8.0	7.9	36.7 36.7	36.7	87.5 87.5	87.5	6.3 6.3	6.3	6.3	4.3 4.3	4.3		6.0 7.0	6.5	
8-Apr-09	Fine	Calm	16:56	Surface	1	21.2 21.2	21.2	8.1 7.7	7.9	36.6 36.6	36.6	93.6 92.8	93.2	6.8 6.7	6.8	6.7	1.9 1.9	1.9	2.5	5.0 5.0	5.0	3.0
				Middle	5	21.2 21.2	21.2	7.9 8.1	8.0	36.8 36.8	36.8	90.4 90.1	90.3	6.5 6.5	6.5		2.4 2.7	2.6		7.0 7.0	7.0	
				Bottom	9	21.2 21.2	21.2	7.8 7.8	7.8	36.2 36.8	36.5	89.7 89.6	89.7	6.5 6.5	6.5	6.5	3.0 2.9	3.0		4.0 4.0	4.0	
10-Apr-09	Sunny	Calm	17:39	Surface	1	21.7 21.7	21.7	7.7 7.8	7.8	37.2 37.2	37.2	88.5 88.6	88.6	6.4 6.4	6.4	6.5	3.6 3.4	3.5	3.0	4.0 4.0	4.0	4.7
				Middle	5	21.7 21.7	21.7	7.8 7.7	7.8	36.9 36.9	36.9	90.6 90.1	90.4	6.6 6.5	6.6		2.8 2.8	2.8		6.0 6.0	6.0	
				Bottom	9	21.7 21.7	21.7	7.8 8.0	7.9	37.0 37.0	37.0	88.5 88.4	88.5	6.4 6.4	6.4	6.4	2.6 2.8	2.7		4.0 4.0	4.0	
13-Apr-09	Fine	Calm	08:28	Surface	1	22.4 22.4	22.4	8.1 8.1	8.1	35.2 35.5	35.4	93.7 93.5	93.6	7.1 7.0	7.1	6.9	2.8 2.8	2.8	2.5	4.0 4.0	4.0	5.3
				Middle	5	22.4 22.4	22.4	8.4 8.1	8.3	35.6 35.6	35.6	88.5 87.3	87.9	6.6 6.5	6.6		2.4 2.3	2.4		8.0 8.0	8.0	
				Bottom	9	22.4 22.4	22.4	8.5 8.5	8.5	35.0 36.1	35.6	86.7 86.9	86.8	6.4 6.4	6.4	6.4	2.3 2.4	2.4		4.0 4.0	4.0	
15-Apr-09	Sunny	Calm	08:24	Surface	1	22.3 22.4	22.4	7.7 7.8	7.8	36.1 36.1	36.1	93.4 92.0	92.7	6.7 6.6	6.7	6.6	3.1 3.1	3.1	3.2	<2.5 <2.5	<2.5	2.8
				Middle	5	22.4 22.4	22.4	7.8 7.9	7.9	36.0 36.0	36.0	89.2 89.2	89.2	6.4 6.4	6.4		3.3 3.3	3.3		<2.5 3.0	2.8	
				Bottom	9	22.4 22.4	22.4	8.0 8.1	8.1	36.0 36.0	36.0	87.1 87.1	87.1	6.3 6.3	6.3	6.3	3.2 3.2	3.2		3.0 3.0	3.0	
17-Apr-09	Sunny	Calm	09:25	Surface	1	22.4 22.4	22.4	8.0 7.7	7.9	36.7 36.7	36.7	98.6 98.8	98.7	6.9 6.9	6.9	7.0	1.3 1.3	1.3	1.4	5.0 4.0	4.5	3.8
				Middle	5	22.3 22.2	22.3	8.3 8.1	8.2	36.7 36.6	36.7	98.8 98.6	98.7	7.0 6.9	7.0		1.2 1.1	1.2		4.0 4.0	4.0	
				Bottom	9	22.1 22.1	22.1	7.9 8.1	8.0	36.9 36.9	36.9	94.3 94.1	94.2	6.6 6.6	6.6	6.6	1.7 1.7	1.7		3.0 3.0	3.0	
20-Apr-09	Sunny	Calm	15:07	Surface	1	25.3 25.3	25.3	7.8 7.9	7.9	35.0 35.0	35.0	86.0 85.7	85.9	6.5 6.4	6.5	6.4	2.8 2.9	2.9	2.5	4.0 4.0	4.0	5.3
				Middle	4.5	25.3 25.3	25.3	8.1 8.0	8.1	34.4 34.3	34.4	85.0 85.0	85.0	6.3 6.3	6.3		2.3 2.3	2.3		6.0 6.0	6.0	
				Bottom	8	25.4 25.4	25.4	8.0 8.1	8.1	32.2 35.3	33.8	83.8 84.1	84.0	6.2 6.3	6.3	6.3	2.3 2.4	2.4		6.0 6.0	6.0	

Water Quality Monitoring Results at Intake A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
22-Apr-09	Fine	Calm	16:47	Surface	1	22.8 22.8	22.8	8.0 7.9	8.0	36.9 37.0	37.0	95.3 95.9	95.6	6.6 6.7	6.7	6.8	3.8 3.9	3.9	4.4	6.0 6.0	6.0	5.8
				Middle	5	22.8 22.8	22.8	7.9 8.0	8.0	36.1 37.0	36.6	97.1 97.1	97.1	6.8 6.8	6.8		4.3 4.5	4.4		5.0 6.0	5.5	
				Bottom	9	22.8 22.8	22.8	7.9 8.0	8.0	35.1 33.5	34.3	95.9 96.2	96.1	6.8 6.8	6.8	6.8	5.1 4.8	5.0		6.0 6.0	6.0	
24-Apr-09	Fine	Calm	16:54	Surface	1	20.8 20.8	20.8	8.0 7.9	8.0	36.5 36.5	36.5	91.3 91.2	91.3	6.6 6.6	6.6	6.8	3.6 3.2	3.4	2.8	14.0 14.0	14.0	11.0
				Middle	5	20.8 20.8	20.8	8.3 8.0	8.2	36.2 36.2	36.2	94.9 94.4	94.7	6.9 6.8	6.9		2.3 2.4	2.4		10.0 10.0	10.0	
				Bottom	9	20.8 20.8	20.8	8.1 8.3	8.2	36.3 36.3	36.3	91.7 91.6	91.7	6.6 6.6	6.6	6.6	2.6 2.8	2.7		9.0 9.0	9.0	
27-Apr-09	Sunny	Calm	07:48	Surface	1	22.6 22.6	22.6	8.0 7.8	7.9	37.0 36.9	37.0	102.8 102.4	102.6	7.5 7.4	7.5	7.5	3.5 3.4	3.5	3.8	9.0 9.0	9.0	9.3
				Middle	5	22.5 22.5	22.5	8.1 7.9	8.0	36.1 36.4	36.3	100.9 100.8	100.9	7.4 7.3	7.4		4.6 4.4	4.5		9.0 9.0	9.0	
				Bottom	9	22.5 22.5	22.5	8.2 8.2	8.2	34.2 35.4	34.8	100.3 100.1	100.2	7.4 7.3	7.4	7.4	3.8 3.1	3.5		10.0 10.0	10.0	
29-Apr-09	Sunny	Calm	07:52	Surface	1	22.5 22.5	22.5	7.7 7.8	7.8	34.8 36.1	35.5	93.4 93.0	93.2	6.7 6.7	6.7	6.7	3.6 3.6	3.6	4.0	7.0 7.0	7.0	7.0
				Middle	5	22.3 22.3	22.3	7.6 7.5	7.6	35.5 36.4	36.0	92.0 91.7	91.9	6.6 6.6	6.6		4.1 4.2	4.2		7.0 7.0	7.0	
				Bottom	9	22.2 22.2	22.2	7.6 7.5	7.6	36.9 37.0	37.0	95.9 95.8	95.9	7.0 7.0	7.0	7.0	4.1 4.0	4.1		7.0 7.0	7.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake B - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	15:55	Surface	1	23.2 23.2	23.2	7.4 7.3	7.4	35.8 35.8	35.8	108.6 108.7	108.7	7.4 7.4	7.4	7.2	3.0 3.0	3.0	3.1	8.0 8.0	8.0	7.3
				Middle	6	22.2 22.0	22.1	7.2 7.9	7.6	36.2 36.2	36.2	100.8 101.0	100.9	6.8 6.9	6.9		3.0 2.9	3.0		7.0 7.0	7.0	
				Bottom	11	21.6 21.6	21.6	7.6 6.9	7.3	36.5 36.5	36.5	89.9 88.2	89.1	6.3 6.2	6.3	6.3	3.3 3.4	3.4		7.0 7.0	7.0	
6-Apr-09	Cloudy	Calm	10:47	Surface	1	21.1 21.1	21.1	7.8 7.7	7.8	36.9 36.9	36.9	89.2 88.9	89.1	6.5 6.4	6.5	6.5	2.5 2.8	2.7	2.8	7.0 7.0	7.0	7.5
				Middle	6	21.1 21.1	21.1	7.9 7.9	7.9	36.9 36.1	36.5	88.5 88.4	88.5	6.4 6.4	6.4		2.7 2.7	2.7		8.0 8.0	8.0	
				Bottom	11	21.0 21.0	21.0	7.8 8.0	7.9	37.0 36.9	37.0	86.6 86.5	86.6	6.3 6.2	6.3	6.3	2.9 2.9	2.9		7.0 8.0	7.5	
8-Apr-09	Sunny	Calm	11:48	Surface	1	21.1 21.1	21.1	7.6 7.5	7.6	36.5 36.4	36.5	88.5 86.9	87.7	6.5 6.3	6.4	6.4	6.2 6.5	6.4	7.4	3.0 3.0	3.0	3.8
				Middle	6	21.1 21.1	21.1	7.9 7.6	7.8	35.9 35.7	35.8	85.1 85.0	85.1	6.3 6.3	6.3		8.1 8.0	8.1		3.0 4.0	3.5	
				Bottom	11	21.2 21.1	21.2	7.7 8.0	7.9	33.5 36.7	35.1	83.8 84.7	84.3	6.2 6.2	6.2	6.2	7.9 7.3	7.6		5.0 5.0	5.0	
10-Apr-09	Sunny	Calm	12:34	Surface	1	21.6 21.7	21.7	7.9 7.8	7.9	36.9 36.9	36.9	89.4 88.8	89.1	6.5 6.5	6.5	6.5	3.2 2.8	3.0	2.7	4.0 4.0	4.0	4.0
				Middle	6	21.7 21.7	21.7	8.0 7.8	7.9	36.9 37.0	37.0	88.6 88.4	88.5	6.4 6.4	6.4		2.8 2.6	2.7		4.0 4.0	4.0	
				Bottom	11	21.7 21.7	21.7	7.9 7.9	7.9	37.1 37.2	37.2	88.3 88.3	88.3	6.4 6.4	6.4	6.4	2.3 2.4	2.4		4.0 4.0	4.0	
13-Apr-09	Fine	Calm	14:45	Surface	1	22.4 22.4	22.4	7.8 8.0	7.9	36.1 35.7	35.9	90.7 89.2	90.0	6.7 6.6	6.7	6.6	3.6 3.5	3.6	3.1	3.0 3.0	3.0	7.2
				Middle	5	22.5 22.5	22.5	8.3 7.9	8.1	35.1 34.9	35.0	85.4 85.4	85.4	6.4 6.4	6.4		2.9 2.8	2.9		9.0 9.0	9.0	
				Bottom	9	22.4 22.4	22.4	8.3 8.5	8.4	32.9 36.0	34.5	86.1 87.0	86.6	6.5 6.4	6.5	6.5	2.7 2.8	2.8		10.0 9.0	9.5	
15-Apr-09	Sunny	Calm	16:31	Surface	1	21.3 21.8	21.6	7.8 8.1	8.0	37.2 36.7	37.0	99.3 99.5	99.4	7.3 7.2	7.3	7.1	1.7 1.8	1.8	2.3	3.0 3.0	3.0	2.7
				Middle	6	22.3 22.3	22.3	8.2 7.8	8.0	36.3 36.3	36.3	93.9 92.7	93.3	6.8 6.7	6.8		2.3 2.4	2.4		<2.5 <2.5	<2.5	
				Bottom	11	22.4 22.4	22.4	7.9 8.0	8.0	36.3 36.3	36.3	90.6 90.2	90.4	6.5 6.5	6.5	6.5	2.7 2.8	2.8		<2.5 <2.5	<2.5	
17-Apr-09	Fine	Calm	16:53	Surface	1	22.1 22.1	22.1	8.1 8.3	8.2	37.0 36.1	36.6	90.5 89.5	90.0	6.4 6.4	6.4	6.4	4.1 4.1	4.1	2.9	3.0 3.0	3.0	3.3
				Middle	6	22.1 22.1	22.1	7.9 8.2	8.1	35.5 35.9	35.7	88.8 89.3	89.1	6.3 6.4	6.4		3.3 3.4	3.4		4.0 4.0	4.0	
				Bottom	11	22.3 22.4	22.4	8.0 8.2	8.1	36.8 36.8	36.8	89.7 90.4	90.1	6.3 6.4	6.4	6.4	1.3 1.3	1.3		3.0 3.0	3.0	
20-Apr-09	Sunny	Calm	10:09	Surface	1	25.5 25.5	25.5	7.8 7.8	7.8	35.1 35.2	35.2	92.6 90.5	91.6	6.9 6.7	6.8	6.6	3.7 3.4	3.6	3.4	4.0 4.0	4.0	6.0
				Middle	6	25.4 25.4	25.4	8.0 8.0	8.0	35.3 35.3	35.3	83.9 84.3	84.1	6.4 6.4	6.4		3.3 3.2	3.3		7.0 7.0	7.0	
				Bottom	11	25.4 25.4	25.4	7.9 8.0	8.0	34.7 35.4	35.1	85.0 85.0	85.0	6.3 6.3	6.3	6.3	3.2 3.2	3.2		7.0 7.0	7.0	
22-Apr-09	Fine	Calm	10:54	Surface	1	22.8 22.8	22.8	7.7 7.7	7.7	35.3 37.0	36.2	90.7 90.6	90.7	6.4 6.4	6.4	6.4	1.9 1.9	1.9	2.2	4.0 4.0	4.0	5.2
				Middle	6	22.8 22.8	22.8	7.9 7.8	7.9	37.0 37.1	37.1	90.1 89.3	89.7	6.4 6.3	6.4		1.9 2.1	2.0		5.0 5.0	5.0	
				Bottom	11	22.8 22.8	22.8	8.0 8.2	8.1	36.7 36.6	36.7	89.1 86.1	87.6	6.3 6.0	6.2	6.2	2.6 3.0	2.8		7.0 6.0	6.5	

Water Quality Monitoring Results at Intake B - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
24-Apr-09	Sunny	Calm	11:42	Surface	1	20.8 20.8	20.8	7.9 7.9	7.9	36.2 36.2	36.2	91.2 90.6	90.9	6.6 6.5	6.6	6.6	3.2 2.9	3.1	2.8	10.0 10.0	10.0	9.3
				Middle	6	20.8 20.8	20.8	8.1 7.9	8.0	36.2 36.3	36.3	90.4 90.2	90.3	6.5 6.5	6.5		2.8 2.6	2.7		9.0 9.0	9.0	
				Bottom	11	20.8 20.8	20.8	8.2 8.2	8.2	36.4 36.5	36.5	90.0 90.2	90.1	6.5 6.5	6.5	6.5	2.6 2.6	2.6		9.0 9.0	9.0	
27-Apr-09	Sunny	Calm	13:50	Surface	1	22.6 22.6	22.6	8.0 7.9	8.0	36.2 36.5	36.4	100.1 97.1	98.6	7.3 7.1	7.2	7.1	3.0 3.1	3.1	2.8	9.0 10.0	9.5	9.8
				Middle	6	22.6 22.5	22.6	7.9 8.0	8.0	37.0 33.7	35.4	95.5 95.7	95.6	6.9 7.1	7.0		2.8 2.8	2.8		11.0 11.0	11.0	
				Bottom	11	22.5 22.4	22.5	7.9 8.0	8.0	37.0 35.3	36.2	96.8 99.1	98.0	7.0 7.3	7.2	7.2	2.5 2.6	2.6		9.0 9.0	9.0	
29-Apr-09	Sunny	Calm	15:19	Surface	1	22.4 22.4	22.4	8.0 7.9	8.0	36.6 36.6	36.6	87.3 87.4	87.4	6.4 6.4	6.4	6.5	4.0 3.8	3.9	3.8	8.0 8.0	8.0	6.7
				Middle	6	22.3 22.3	22.3	7.7 7.9	7.8	34.2 36.7	35.5	87.6 87.6	87.6	6.5 6.4	6.5		3.2 2.9	3.1		6.0 6.0	6.0	
				Bottom	11	22.2 22.2	22.2	7.6 7.7	7.7	36.1 36.3	36.2	87.5 87.4	87.5	6.5 6.4	6.5	6.5	4.1 4.5	4.3		6.0 6.0	6.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at Intake B - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
1-Apr-09	Sunny	Calm	08:49	Surface	1	22.1 22.1	22.1	7.5 7.5	7.5	36.2 36.5	36.4	108.7 108.9	108.8	7.4 7.4	7.4	6.9	2.9 3.5	3.2	3.5	11.0 11.0	11.0	8.2
				Middle	6	20.9 20.9	20.9	8.4 8.0	8.2	35.8 36.0	35.9	93.9 93.9	93.9	6.4 6.4	6.4		3.1 3.4	3.3		7.0 7.0	7.0	
				Bottom	11	20.6 20.7	20.7	7.7 8.2	8.0	36.0 36.1	36.1	88.1 87.5	87.8	6.2 6.2	6.2	6.2	4.1 4.0	4.1		6.0 7.0	6.5	
3-Apr-09	Fine	Calm	10:26	Surface	1	20.9 20.9	20.9	7.7 7.8	7.8	37.0 37.0	37.0	89.7 88.9	89.3	6.5 6.4	6.5	6.5	3.8 3.5	3.7	2.9	14.0 14.0	14.0	11.0
				Middle	6	20.9 20.9	20.9	7.9 7.9	7.9	36.7 37.0	36.9	89.1 88.7	88.9	6.5 6.4	6.5		2.5 2.4	2.5		8.0 8.0	8.0	
				Bottom	11	20.9 20.9	20.9	7.8 8.0	7.9	37.1 37.1	37.1	87.5 87.2	87.4	6.3 6.3	6.3	6.3	2.5 2.7	2.6		11.0 11.0	11.0	
6-Apr-09	Cloudy	Calm	16:04	Surface	1	21.1 21.1	21.1	8.0 7.9	8.0	35.2 36.6	35.9	89.9 88.1	89.0	6.6 6.4	6.5	6.4	2.3 2.6	2.5	3.7	6.0 6.0	6.0	5.7
				Middle	6	21.0 21.0	21.0	7.9 7.8	7.9	36.3 36.2	36.3	86.8 86.6	86.7	6.3 6.3	6.3		3.5 3.9	3.7		5.0 5.0	5.0	
				Bottom	11	20.9 20.9	20.9	7.7 7.8	7.8	35.8 35.5	35.7	86.1 86.1	86.1	6.3 6.3	6.3	6.3	4.6 4.9	4.8		6.0 6.0	6.0	
8-Apr-09	Fine	Calm	17:18	Surface	1	21.2 21.2	21.2	7.8 7.8	7.8	36.4 36.5	36.5	90.2 90.1	90.2	6.5 6.5	6.5	6.5	3.3 3.2	3.3	4.6	5.0 5.0	5.0	4.0
				Middle	6	21.1 21.1	21.1	8.1 8.2	8.2	32.9 33.1	33.0	90.1 90.1	90.1	6.5 6.5	6.5		4.3 4.6	4.5		6.0 7.0	6.5	
				Bottom	11	21.1 21.1	21.1	7.6 7.9	7.8	36.2 36.7	36.5	88.9 88.9	88.9	6.4 6.4	6.4	6.4	5.8 5.9	5.9		5.0 5.0	5.0	
10-Apr-09	Sunny	Calm	17:48	Surface	1	21.7 21.7	21.7	8.1 8.0	8.1	36.9 36.9	36.9	89.1 88.9	89.0	6.5 6.5	6.5	6.5	3.4 3.2	3.3	3.0	4.0 4.0	4.0	4.5
				Middle	6	21.7 21.7	21.7	7.9 7.8	7.9	36.9 36.9	36.9	90.0 88.2	89.1	6.5 6.4	6.5		3.7 3.1	3.4		3.0 4.0	3.5	
				Bottom	11	21.7 21.7	21.7	7.8 7.7	7.8	36.2 36.2	36.2	87.9 87.9	87.9	6.4 6.4	6.4	6.4	2.4 2.4	2.4		6.0 6.0	6.0	
13-Apr-09	Fine	Calm	08:39	Surface	1	22.4 22.4	22.4	8.7 8.5	8.6	35.5 35.6	35.6	92.5 90.3	91.4	6.8 6.7	6.8	6.6	3.1 3.4	3.3	3.7	7.0 7.0	7.0	7.5
				Middle	4.5	22.3 22.3	22.3	8.5 8.0	8.3	32.2 32.3	32.3	83.7 84.1	83.9	6.3 6.4	6.4		4.1 4.1	4.1		7.0 8.0	7.5	
				Bottom	8	22.3 22.3	22.3	8.0 8.0	8.0	35.4 36.3	35.9	86.8 86.8	86.8	6.5 6.4	6.5	6.5	3.8 3.6	3.7		8.0 8.0	8.0	
15-Apr-09	Sunny	Calm	08:47	Surface	1	22.4 22.4	22.4	8.3 8.1	8.2	36.2 36.2	36.2	89.4 89.4	89.4	6.4 6.4	6.4	6.4	2.5 2.5	2.5	2.5	<2.5 <2.5	<2.5	3.0
				Middle	6	22.4 22.4	22.4	8.0 7.7	7.9	36.1 36.1	36.1	89.5 89.3	89.4	6.4 6.4	6.4		2.3 2.4	2.4		<2.5 <2.5	<2.5	
				Bottom	11	22.4 22.4	22.4	7.9 7.7	7.8	36.1 36.1	36.1	88.7 88.5	88.6	6.4 6.4	6.4	6.4	2.5 2.6	2.6		4.0 4.0	4.0	
17-Apr-09	Sunny	Calm	09:36	Surface	1	22.4 22.3	22.4	7.9 7.8	7.9	33.3 36.7	35.0	95.5 95.4	95.5	6.8 6.7	6.8	6.7	1.4 1.6	1.5	1.7	5.0 5.0	5.0	4.5
				Middle	6	22.1 22.1	22.1	7.8 8.2	8.0	36.3 35.3	35.8	93.0 92.3	92.7	6.6 6.6	6.6		1.8 1.8	1.8		5.0 5.0	5.0	
				Bottom	11	22.1 22.1	22.1	7.9 8.3	8.1	37.0 36.4	36.7	89.4 89.3	89.4	6.3 6.3	6.3	6.3	1.9 1.9	1.9		3.0 4.0	3.5	
20-Apr-09	Sunny	Calm	15:27	Surface	1	25.3 25.3	25.3	8.1 8.1	8.1	32.0 33.3	32.7	90.9 89.3	90.1	6.8 6.6	6.7	6.6	3.6 3.9	3.8	3.3	4.0 4.0	4.0	5.2
				Middle	6	25.3 25.3	25.3	8.1 7.9	8.0	35.1 35.1	35.1	85.6 85.6	85.6	6.4 6.4	6.4		3.4 2.8	3.1		5.0 6.0	5.5	
				Bottom	11	25.3 25.3	25.3	8.0 8.0	8.0	35.1 33.1	34.1	82.3 83.2	82.8	6.1 6.1	6.1	6.1	3.1 3.0	3.1		6.0 6.0	6.0	

Water Quality Monitoring Results at Intake B - Mid-Flood Tide

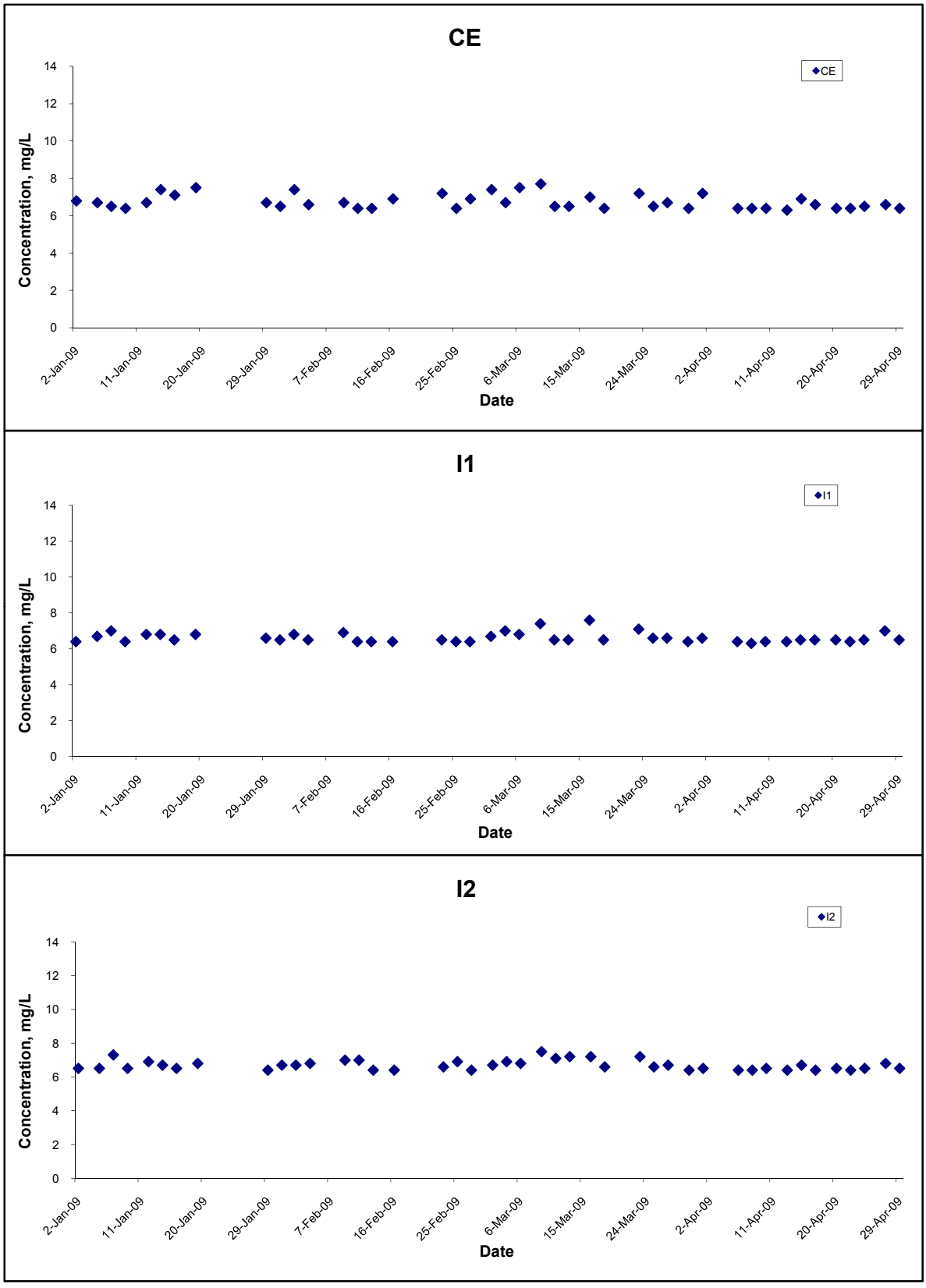
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
22-Apr-09	Fine	Calm	17:07	Surface	1	22.7 22.7	22.7	7.9 7.9	7.9	35.0 36.2	35.6	89.2 90.0	89.6	6.3 6.3	6.3	6.4	3.1 2.8	3.0	3.0	5.0 5.0	5.0	5.3
				Middle	6	22.8 22.8	22.8	8.0 7.9	8.0	35.7 36.2	36.0	92.3 92.5	92.4	6.5 6.5	6.5		2.4 2.3	2.4		5.0 5.0	5.0	
				Bottom	11	22.8 22.8	22.8	7.8 7.8	7.8	36.0 37.2	36.6	90.0 87.4	88.7	6.3 6.1	6.2	6.2	3.5 3.4	3.5		6.0 6.0	6.0	
24-Apr-09	Fine	Calm	17:06	Surface	1	20.8 20.8	20.8	8.5 8.3	8.4	36.2 36.2	36.2	90.9 90.7	90.8	6.6 6.5	6.6	6.6	3.1 3.2	3.2	3.1	9.0 9.0	9.0	11.2
				Middle	6	20.8 20.8	20.8	8.1 8.0	8.1	36.2 36.2	36.2	91.8 89.9	90.9	6.6 6.5	6.6		3.7 3.2	3.5		11.0 12.0	11.5	
				Bottom	11	20.8 20.8	20.8	7.9 7.9	7.9	35.5 35.5	35.5	89.6 89.6	89.6	6.5 6.5	6.5	6.5	2.6 2.5	2.6		13.0 13.0	13.0	
27-Apr-09	Sunny	Calm	08:09	Surface	1	22.6 22.6	22.6	8.1 8.1	8.1	36.5 36.2	36.4	89.7 89.3	89.5	6.6 6.5	6.6	6.6	4.4 4.3	4.4	3.7	10.0 10.0	10.0	10.2
				Middle	6	22.5 22.5	22.5	8.2 7.8	8.0	36.5 36.7	36.6	89.0 89.0	89.0	6.5 6.5	6.5		3.3 3.3	3.3		11.0 12.0	11.5	
				Bottom	11	22.4 22.4	22.4	7.9 8.1	8.0	36.9 36.5	36.7	90.0 90.2	90.1	6.6 6.6	6.6	6.6	3.4 3.4	3.4		9.0 9.0	9.0	
29-Apr-09	Sunny	Calm	08:15	Surface	1	22.5 22.5	22.5	7.5 7.7	7.6	35.7 36.3	36.0	87.9 87.3	87.6	6.5 6.4	6.5	6.5	3.6 3.6	3.6	3.5	8.0 8.0	8.0	9.0
				Middle	6	22.3 22.3	22.3	7.7 7.6	7.7	34.3 37.0	35.7	86.5 86.4	86.5	6.4 6.4	6.4		3.3 3.3	3.3		10.0 10.0	10.0	
				Bottom	11	22.2 22.2	22.2	7.9 8.2	8.1	34.8 34.4	34.6	86.2 86.2	86.2	6.4 6.4	6.4	6.4	3.4 4.0	3.7		9.0 9.0	9.0	

Remarks: The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

* DA: Depth-Averaged

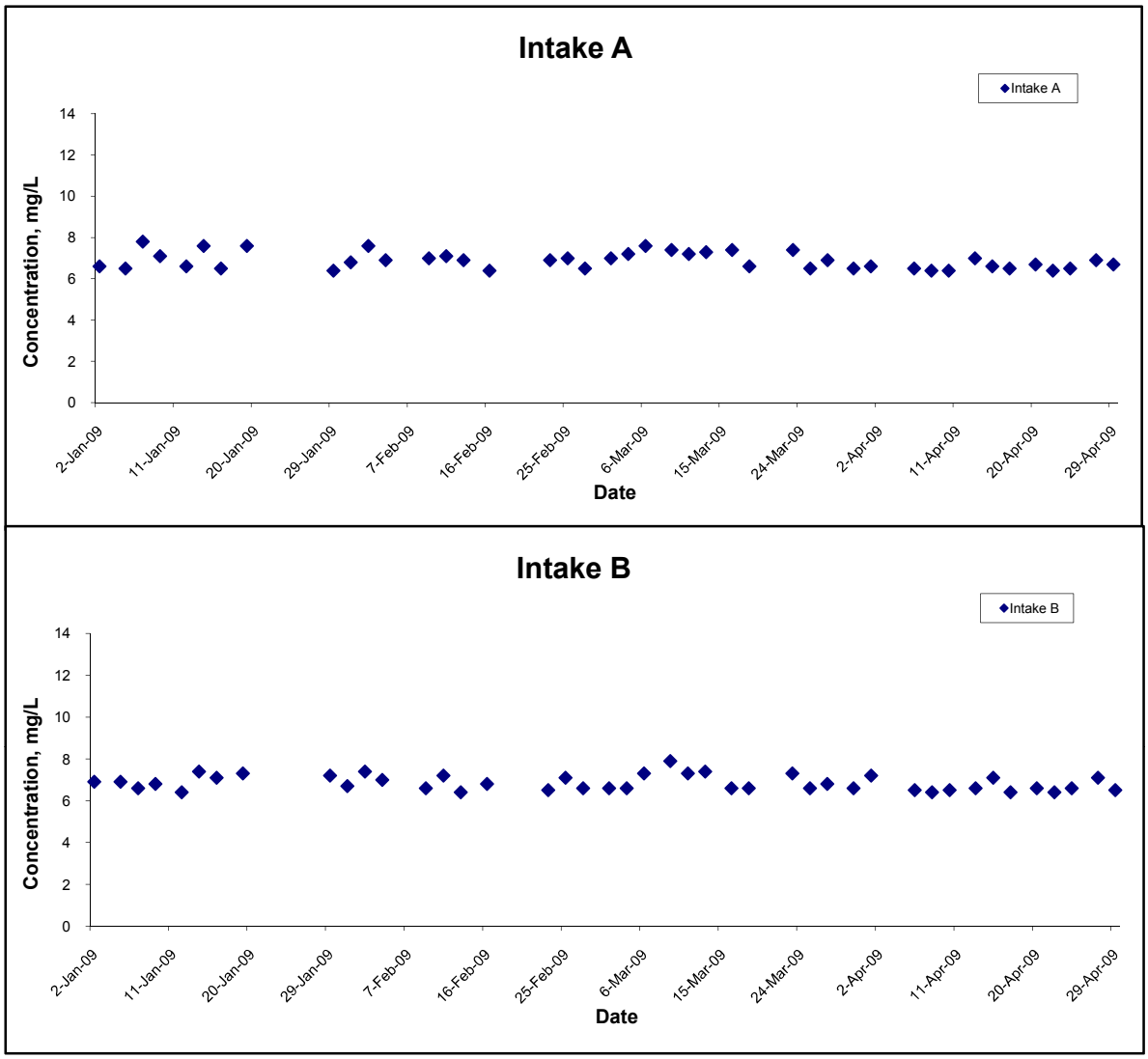
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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



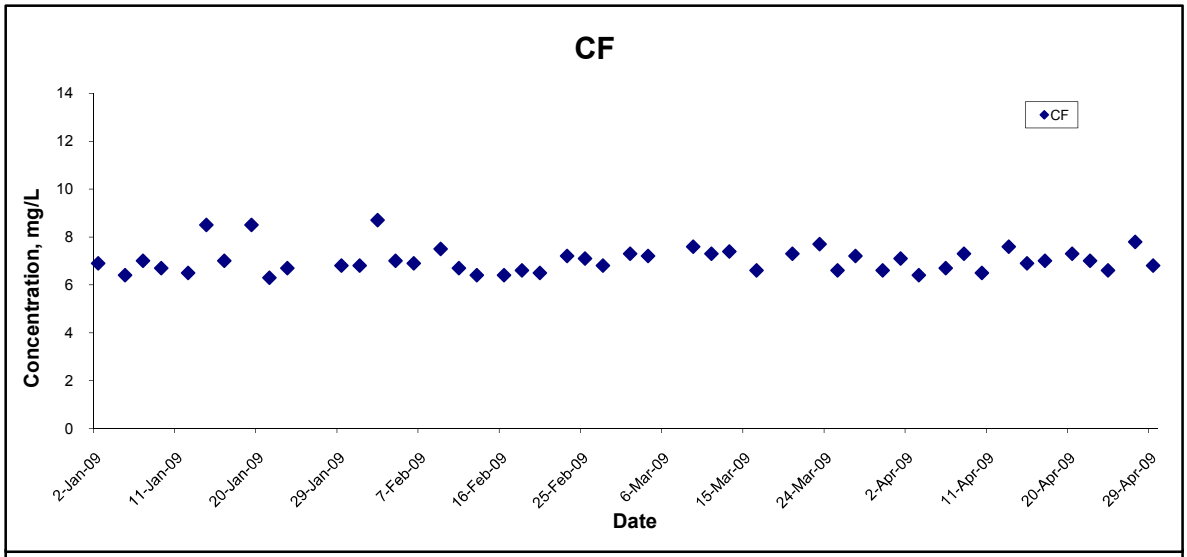
Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Apr 09	Appendix: H	

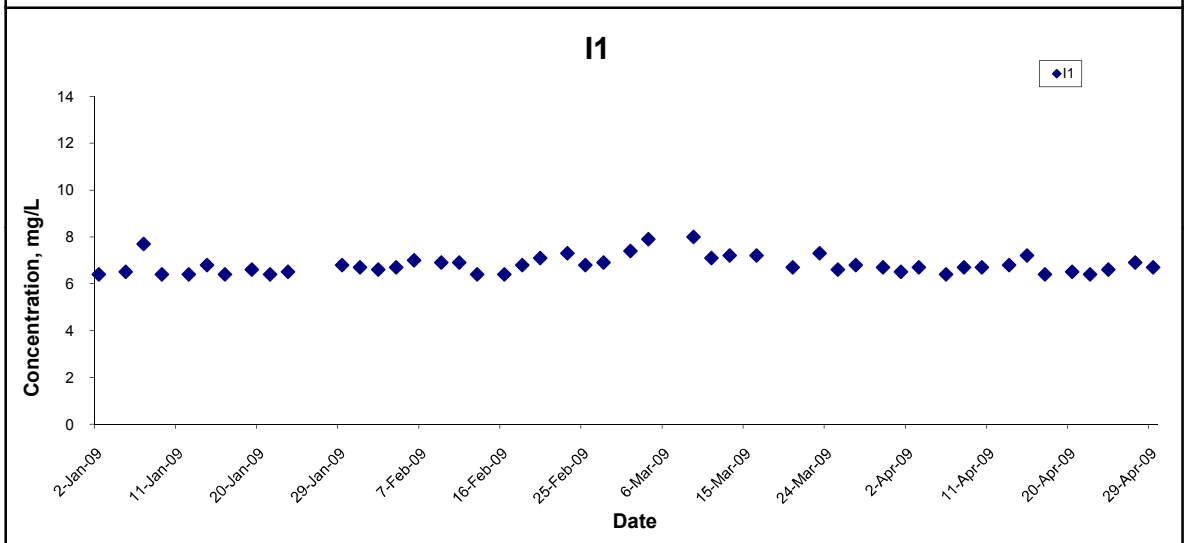
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide

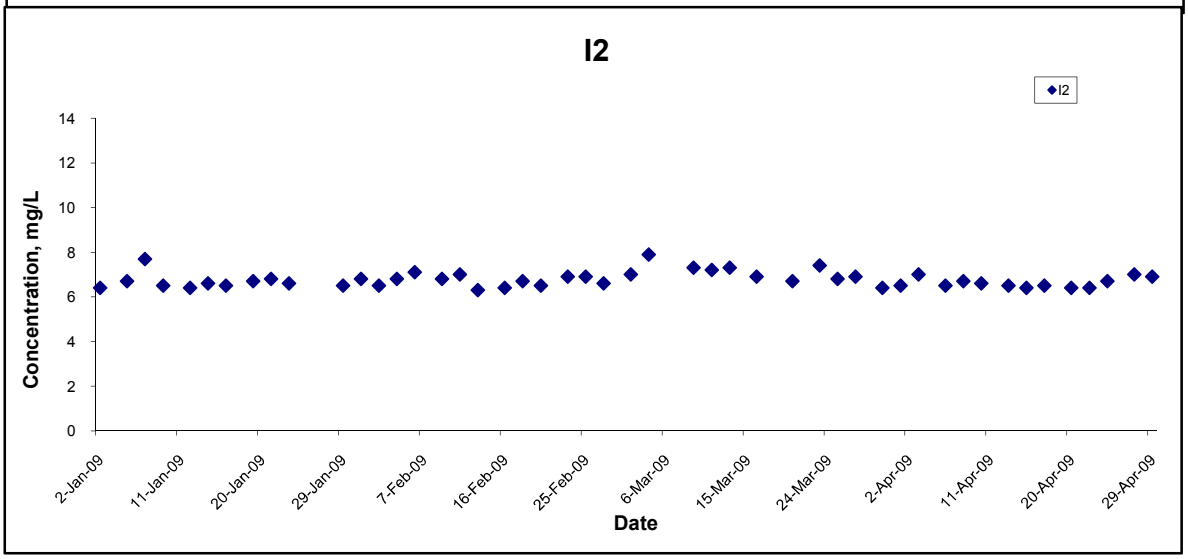


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

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



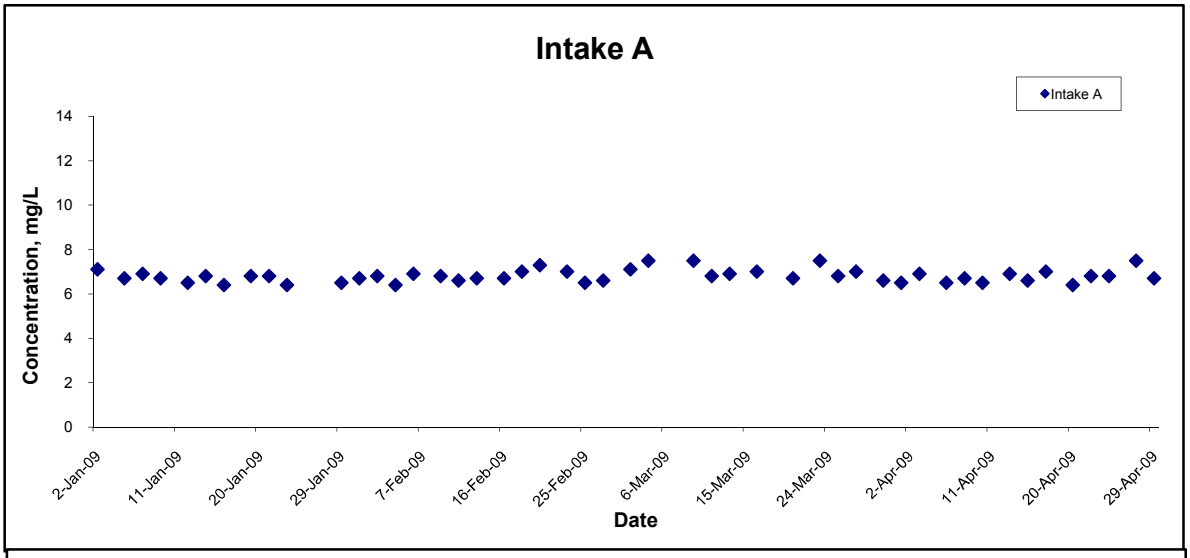


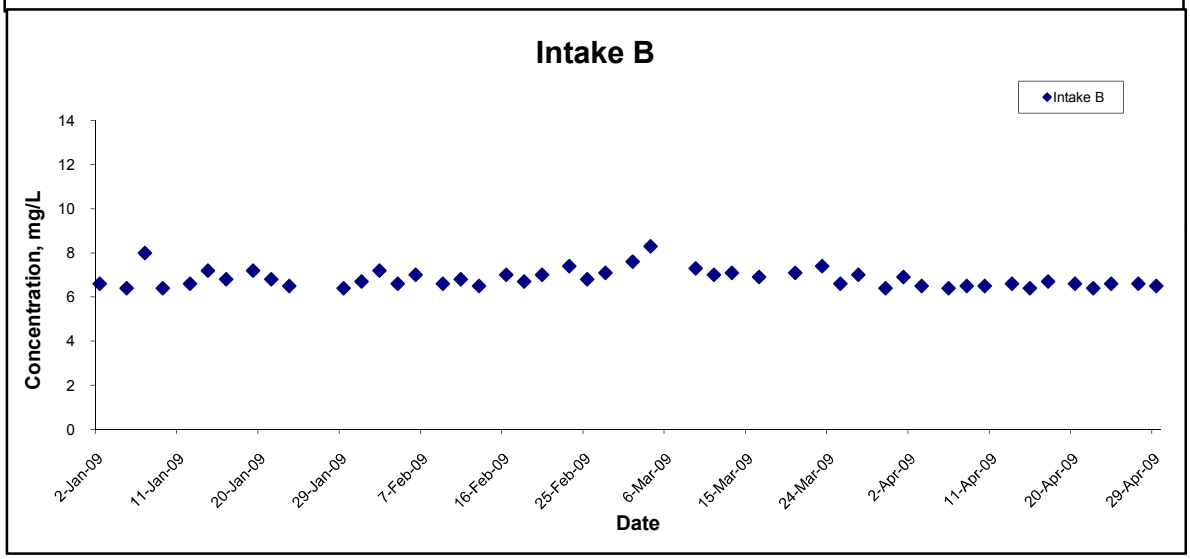


Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Apr 09	Appendix: H

CINOTECH

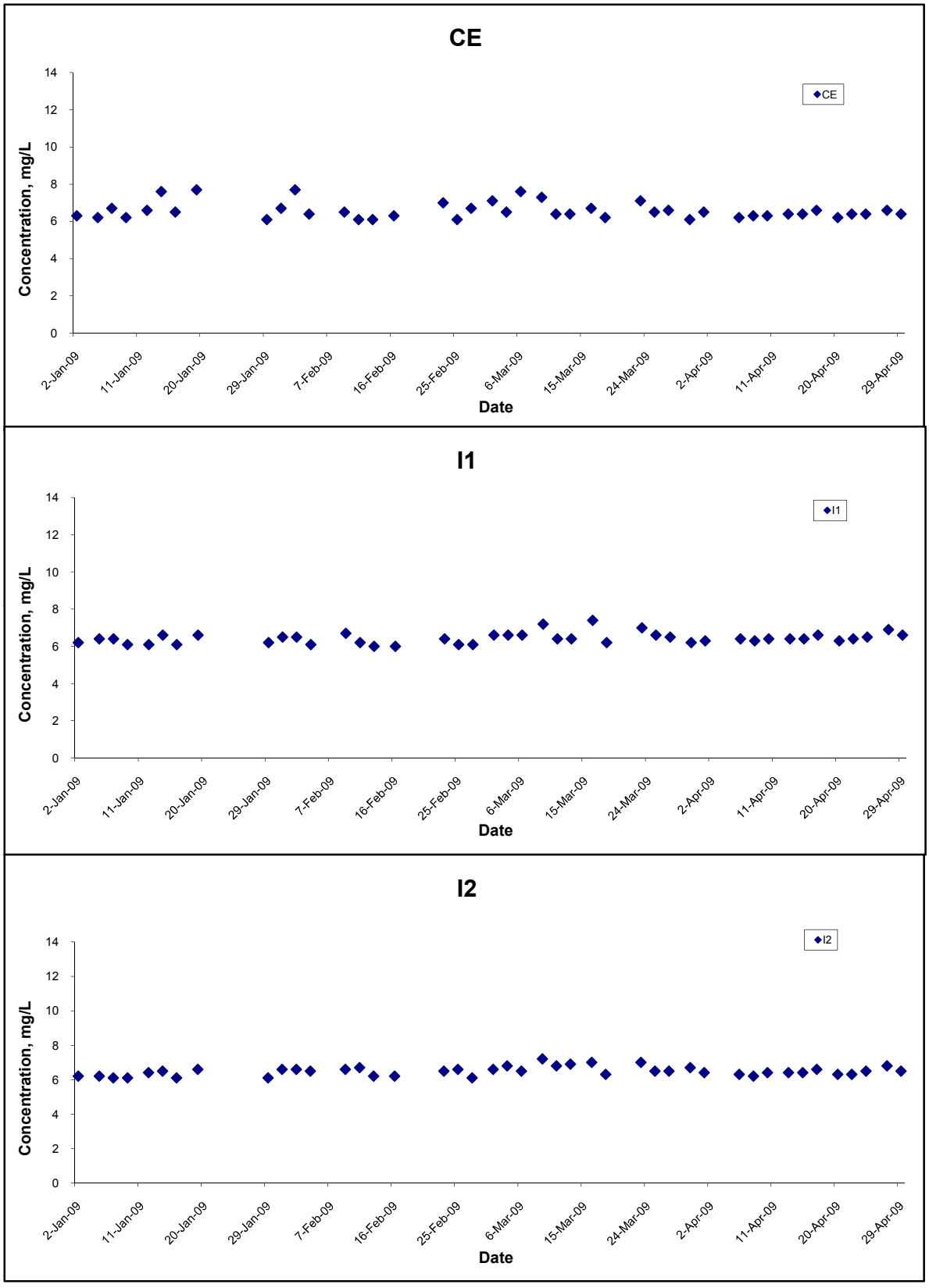
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide





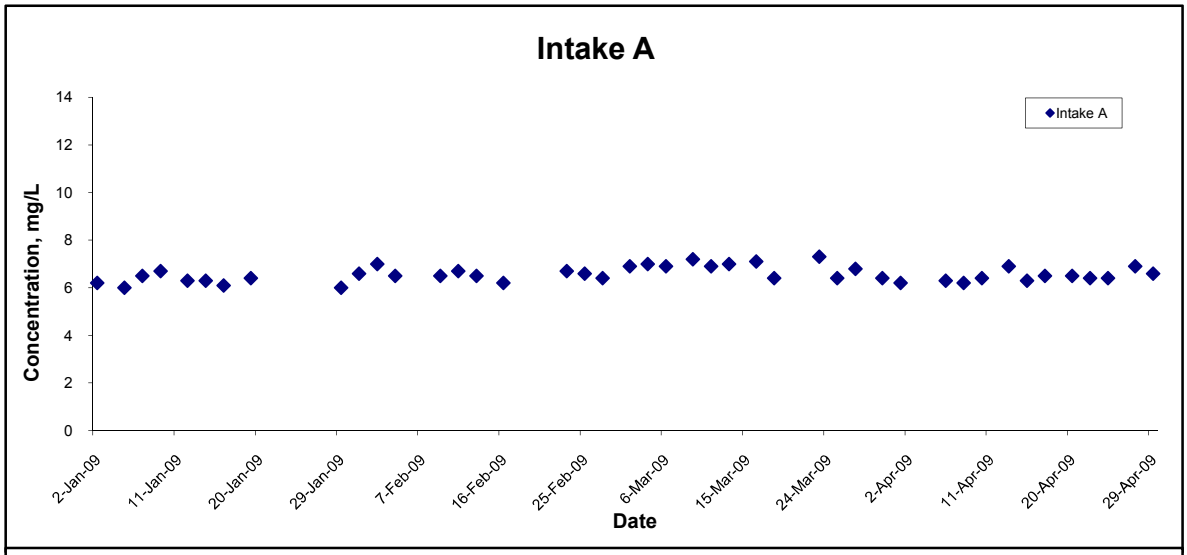
Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

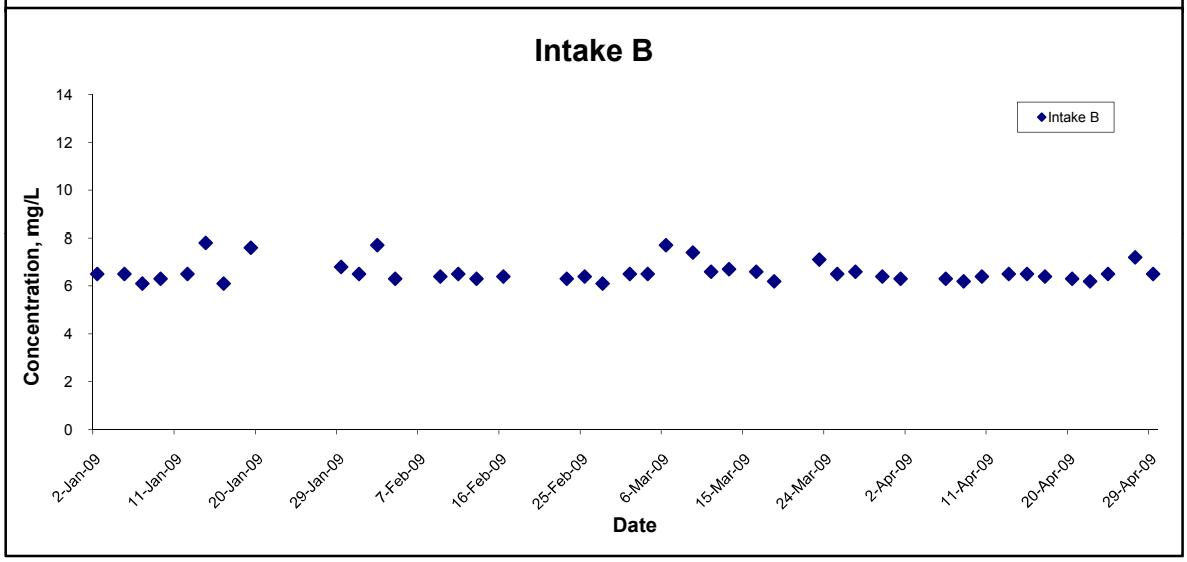
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Apr 09	Appendix: H	

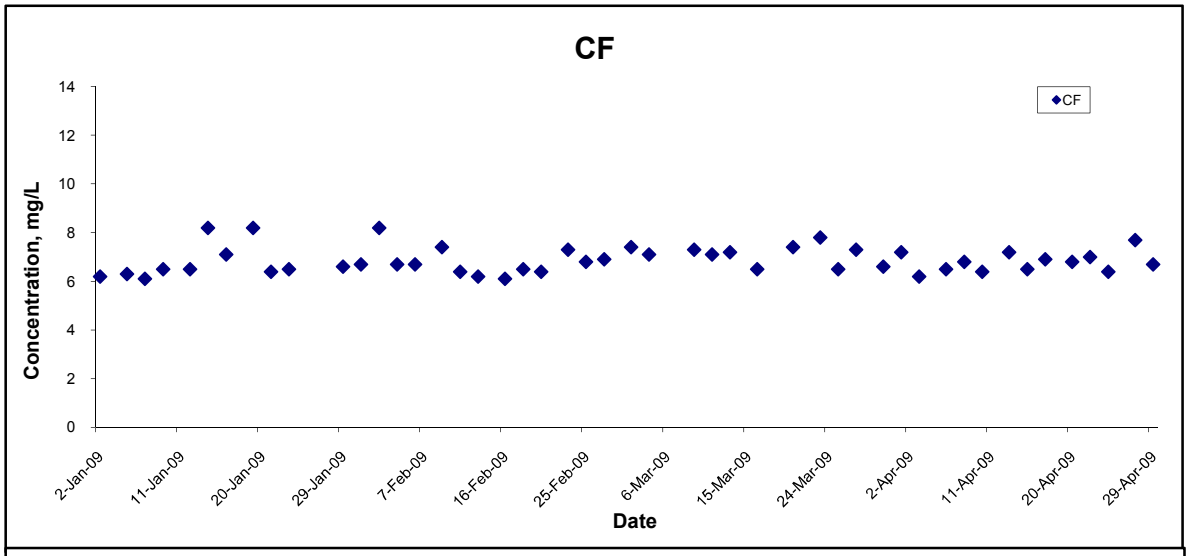
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

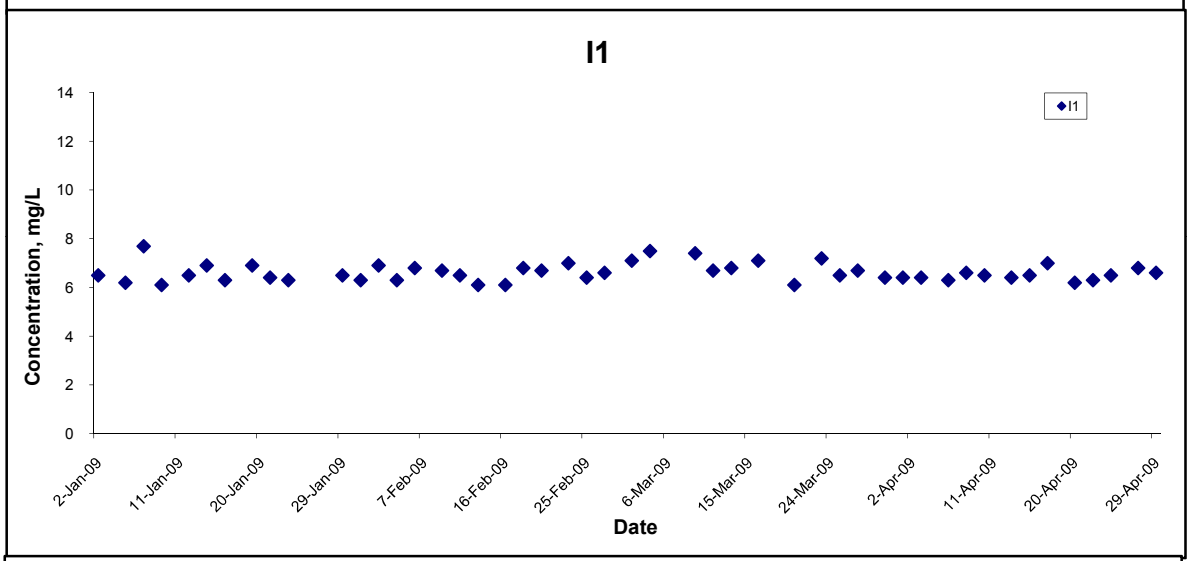


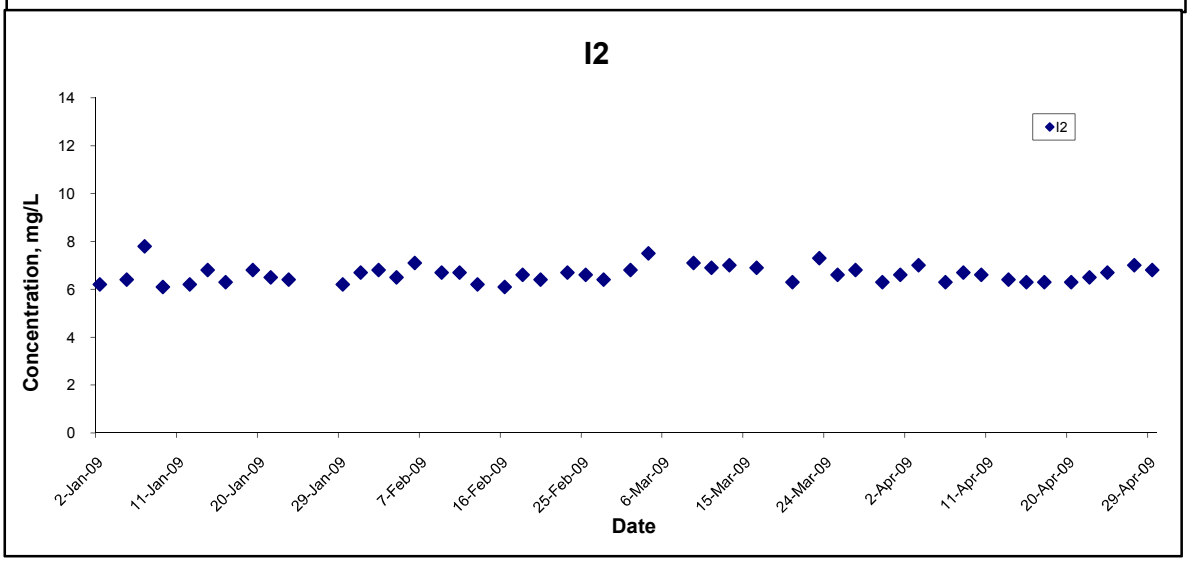


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

Dissolved Oxygen (Bottom) at Mid-Flood Tide



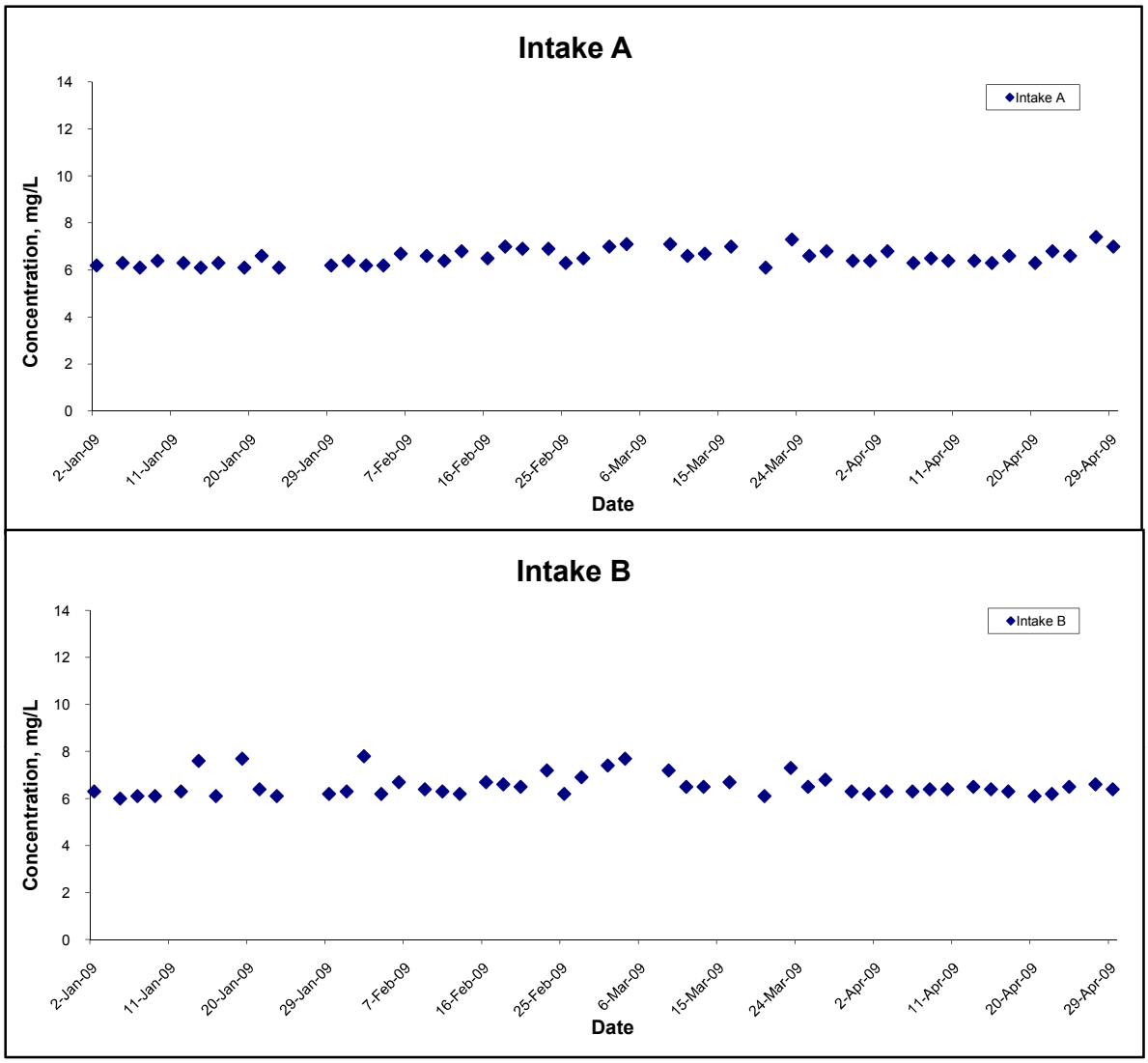




Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Apr 09	Appendix: H

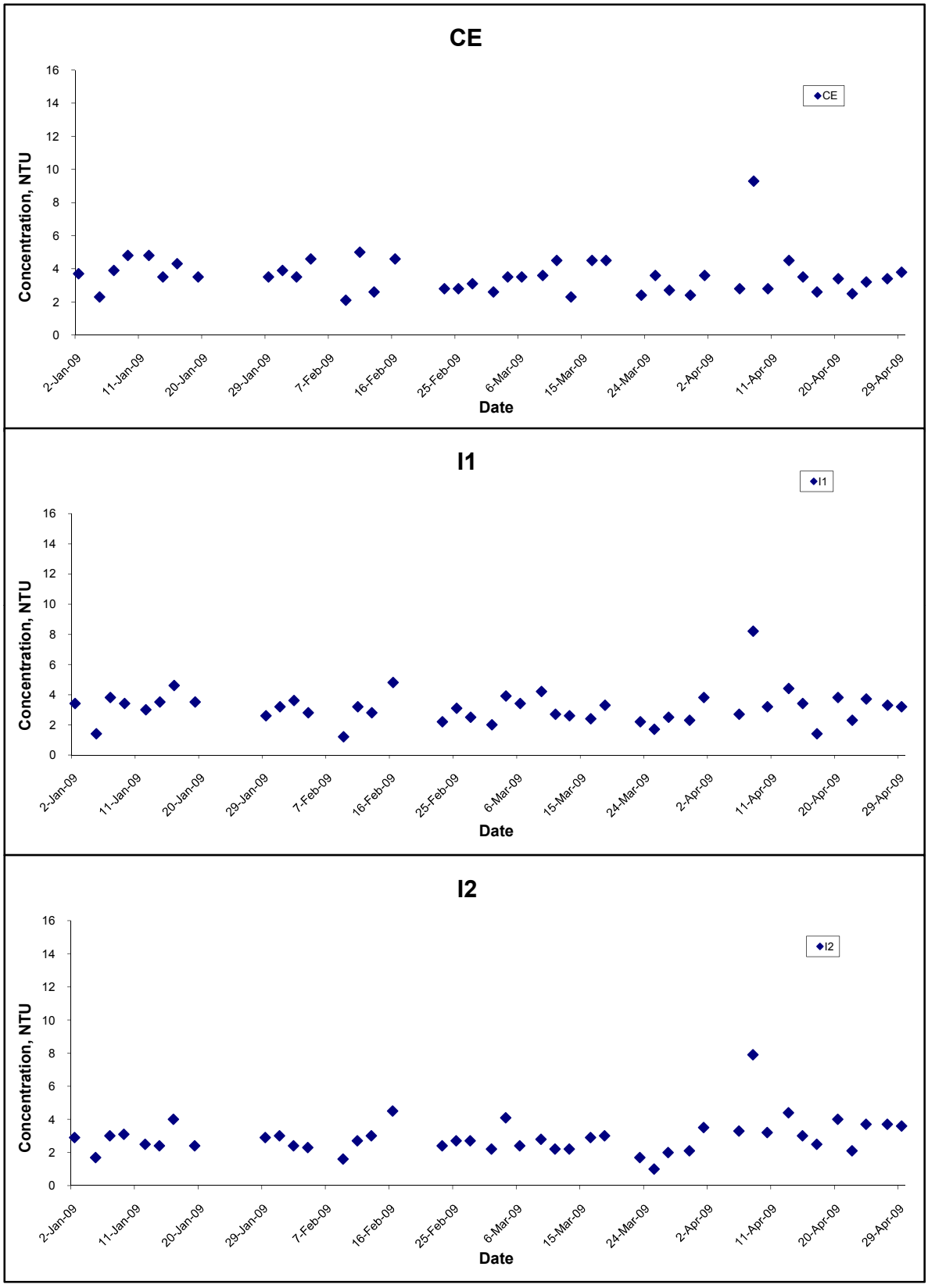
CINOTECH

Dissolved Oxygen (Bottom) at Mid-Flood Tide



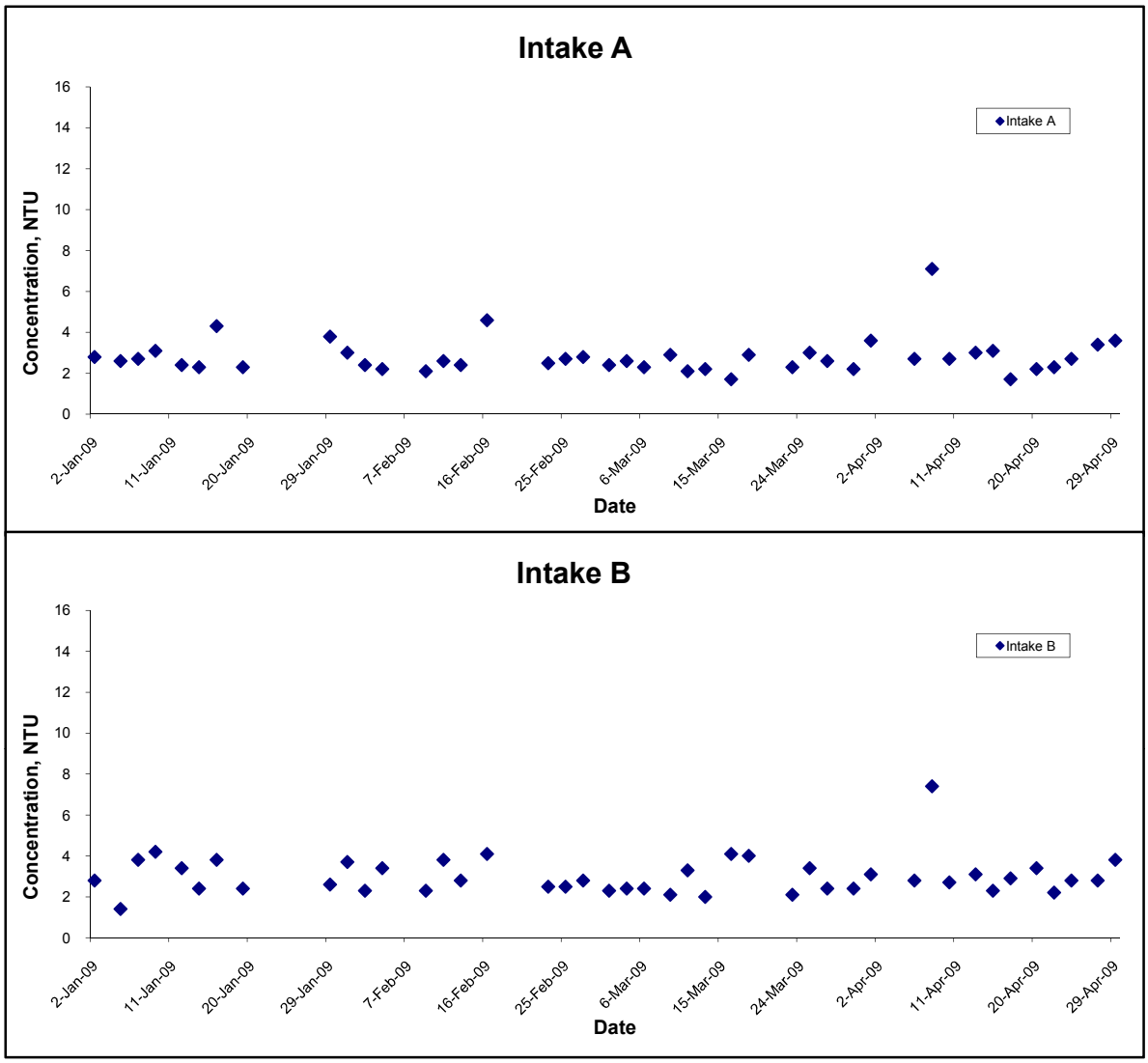
Title: Graphical Presentation of Water Quality Monitoring Results Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

Turbidity (Depth-averaged) at Mid-Ebb Tide



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Apr 09	Appendix: H	

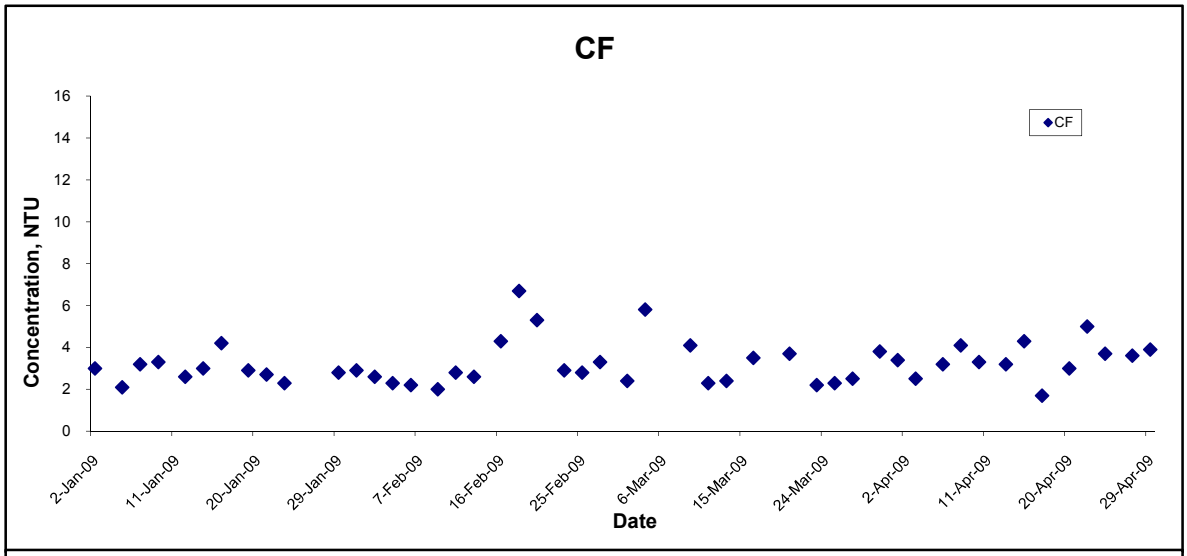
Turbidity (Depth-averaged) at Mid-Ebb Tide

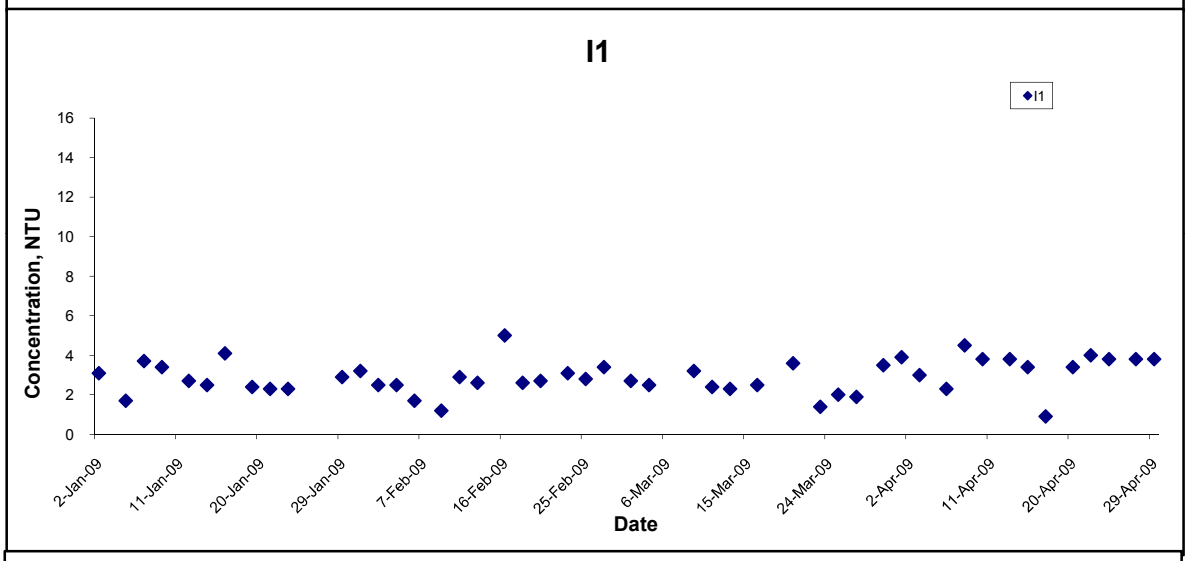


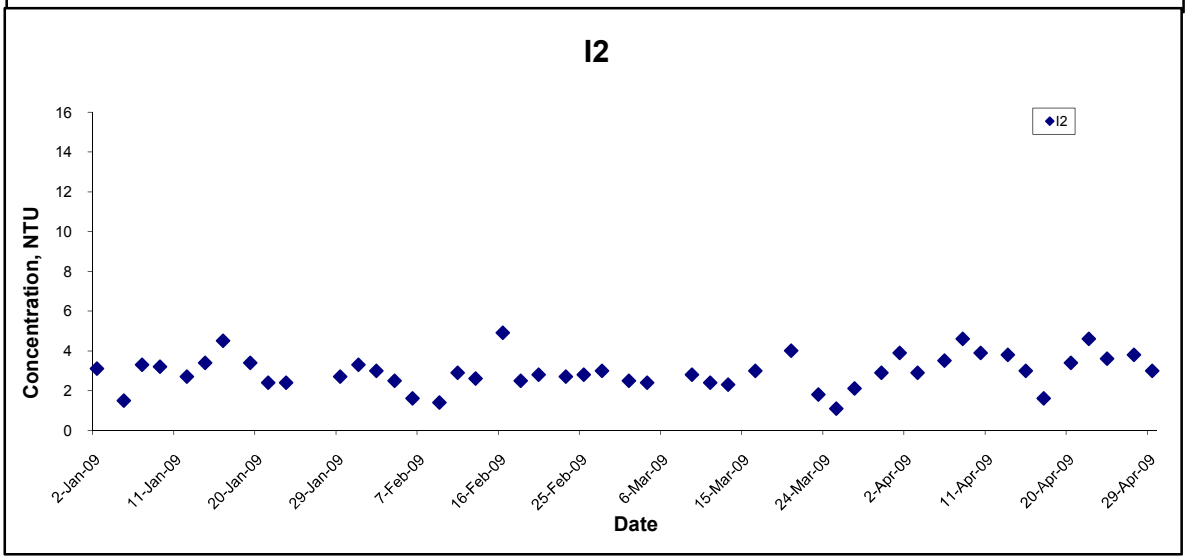
Title	Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	N.T.S	MA8001
	Date: Apr 09	Appendix: H

CINOTECH

Turbidity (Depth-averaged) at Mid-Flood Tide



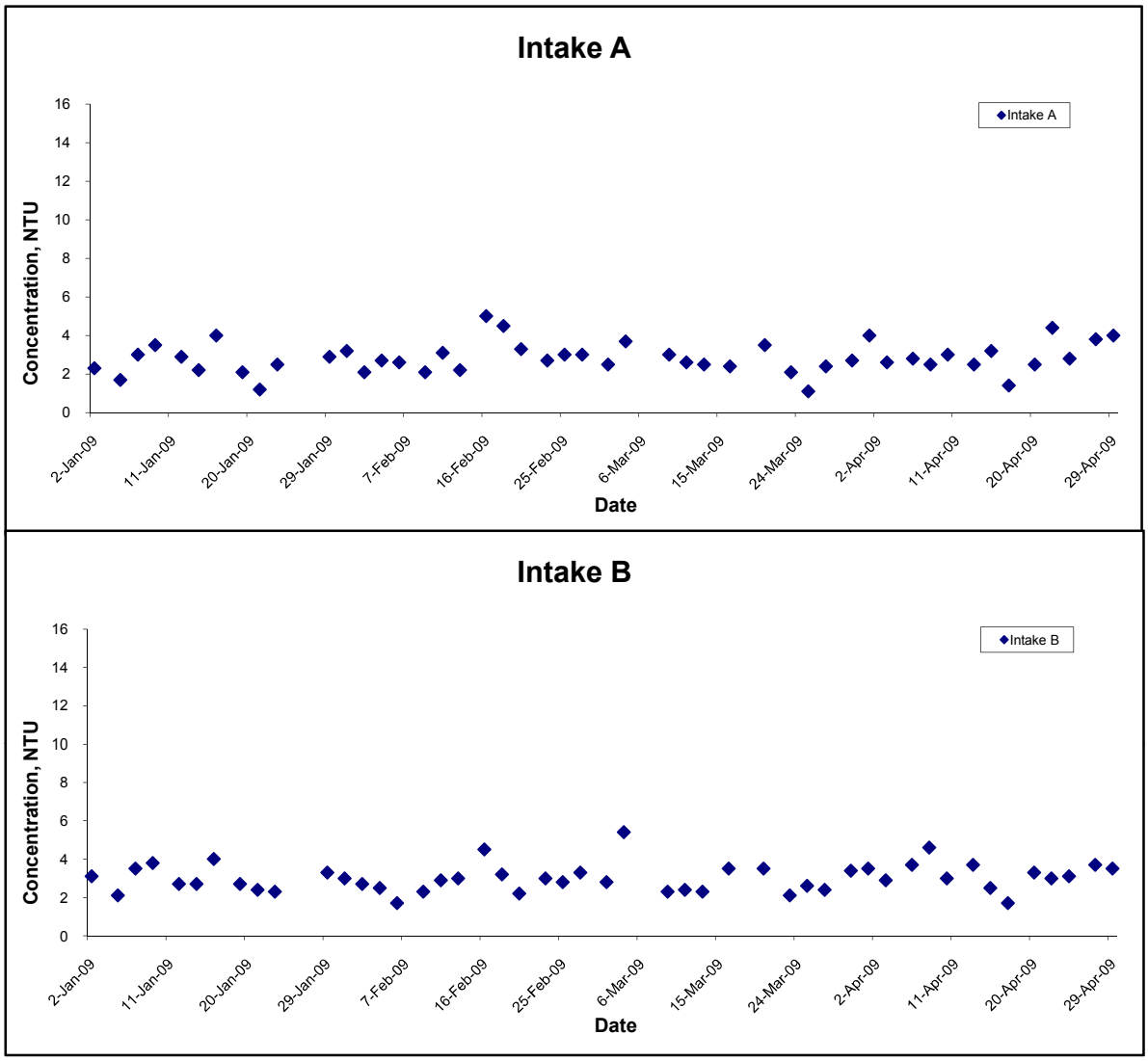




Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Apr 09	Appendix: H

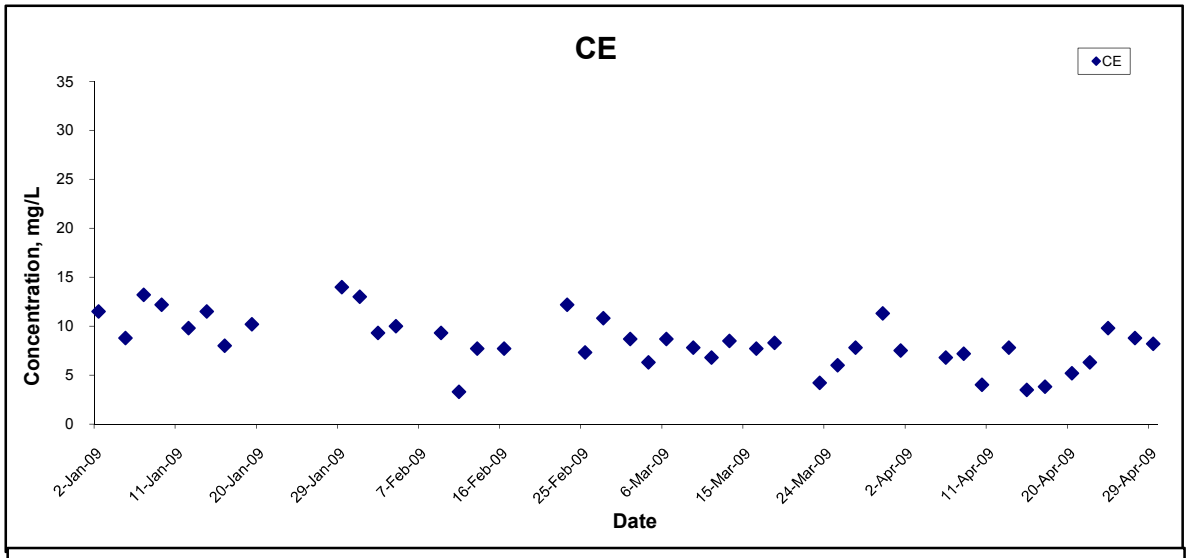
CINOTECH

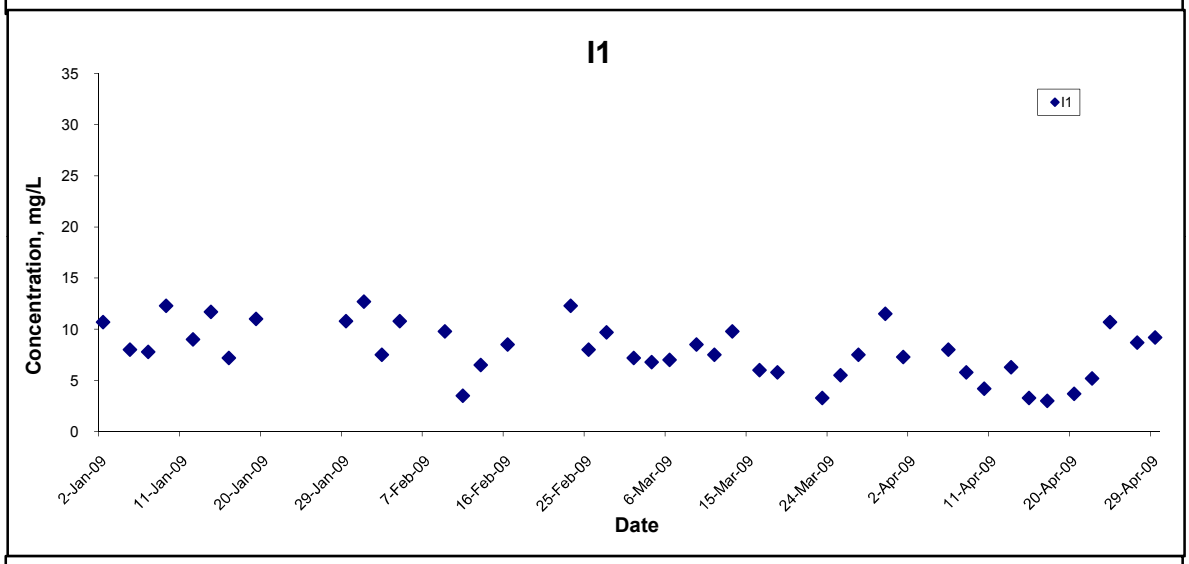
Turbidity (Depth-averaged) at Mid-Flood Tide

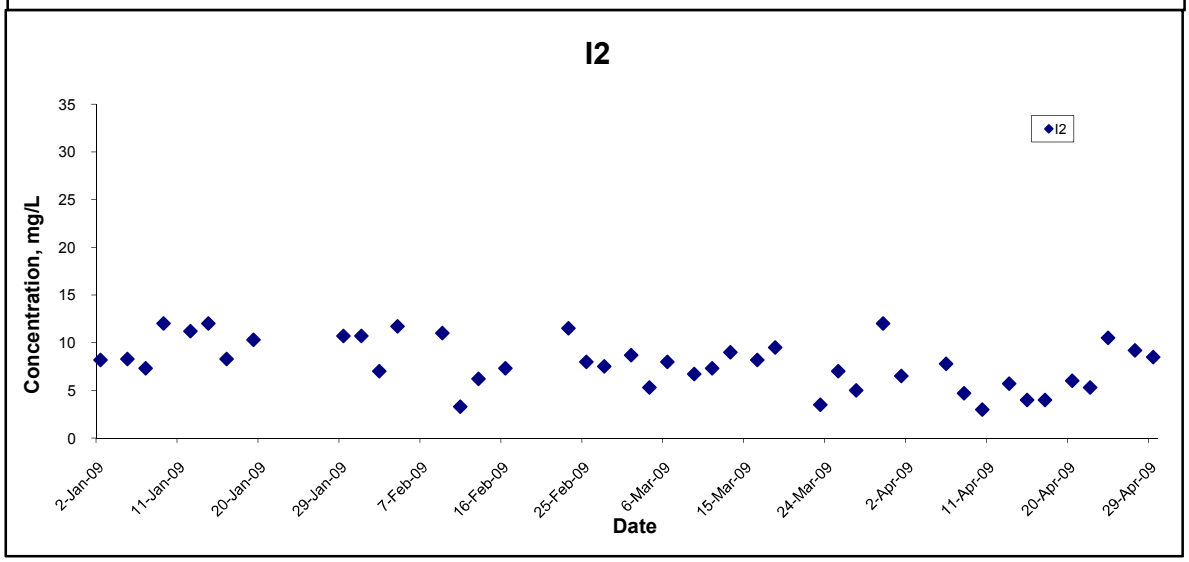


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



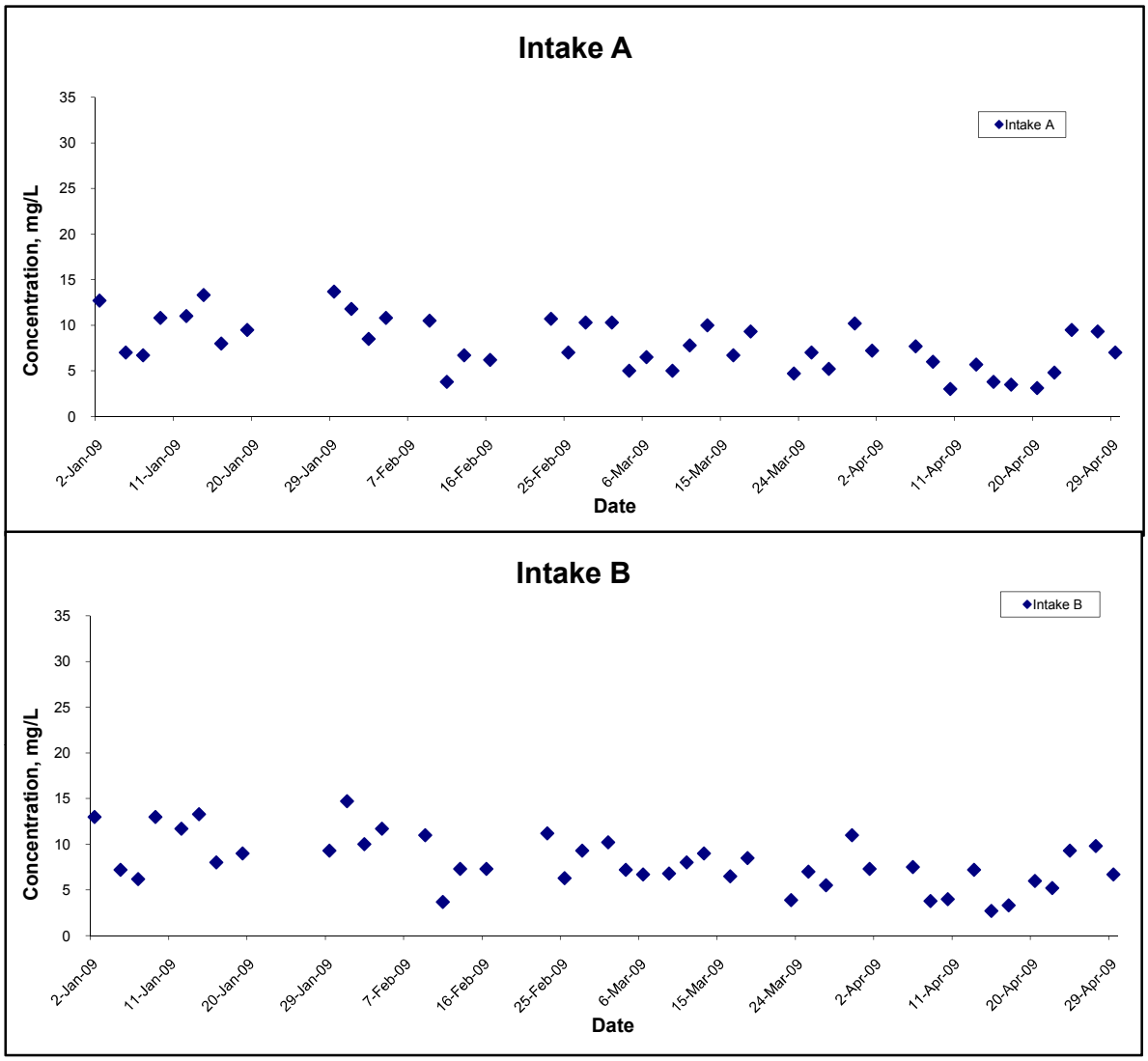




Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Apr 09	Appendix: H

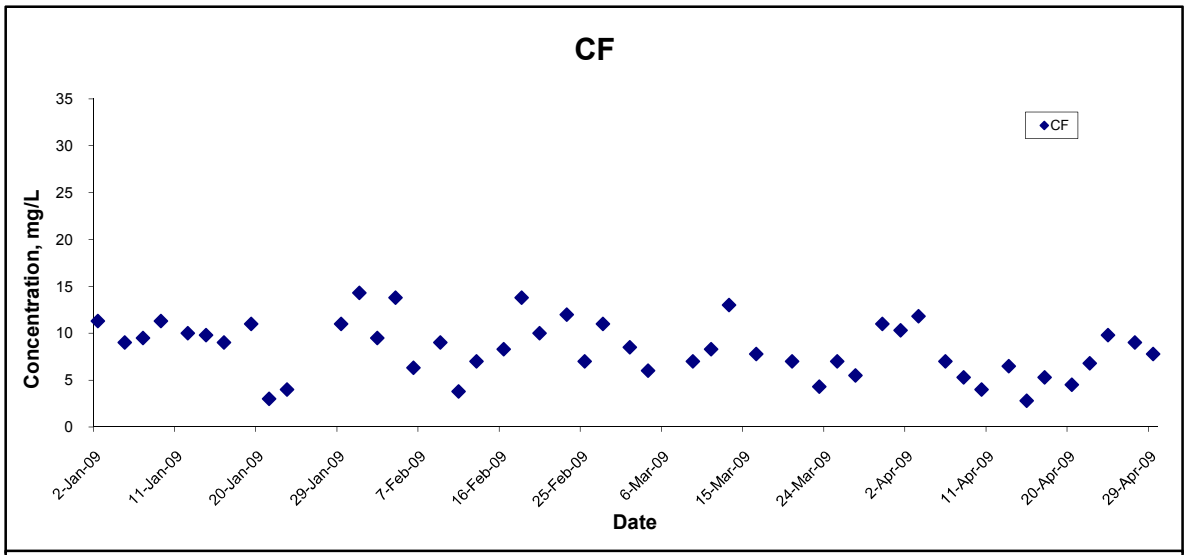
CINOTECH

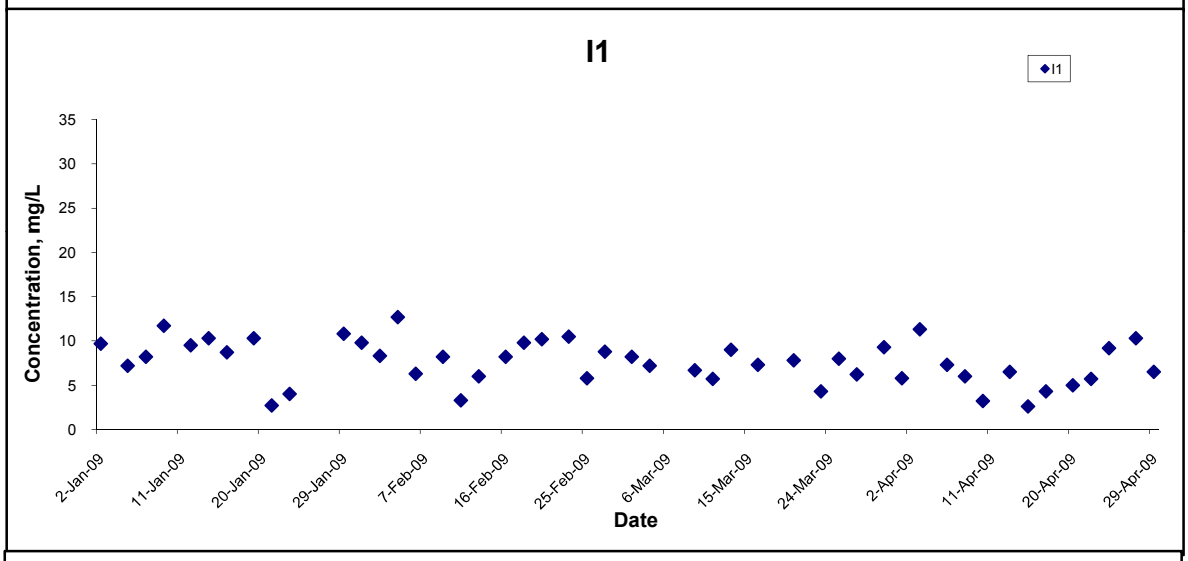
Suspended Solids (Depth-averaged) at Mid-Ebb Tide

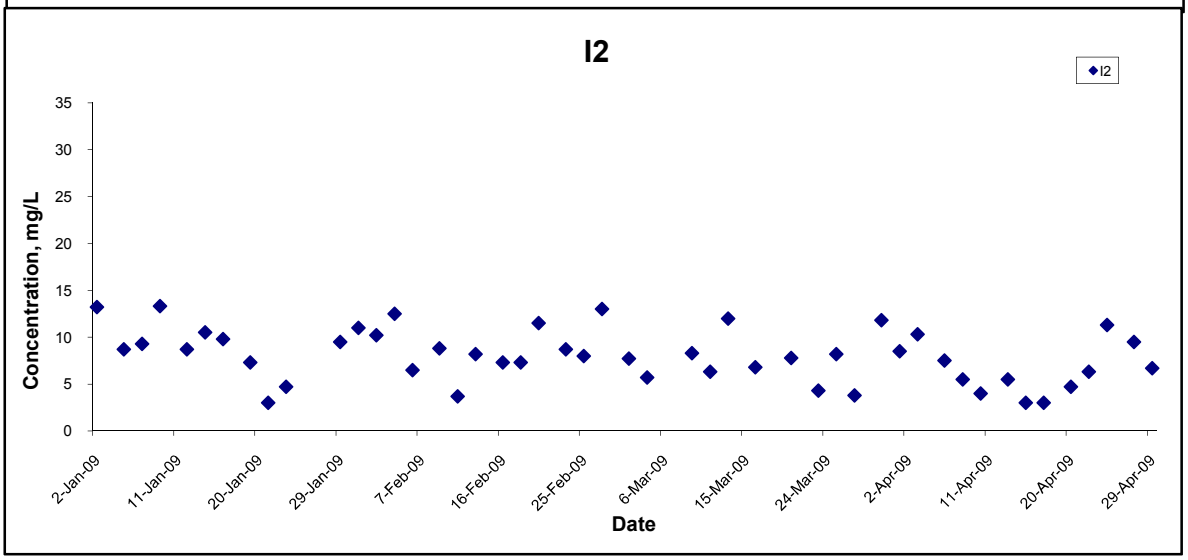


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

Suspended Solids (Depth-averaged) at Mid-Flood Tide



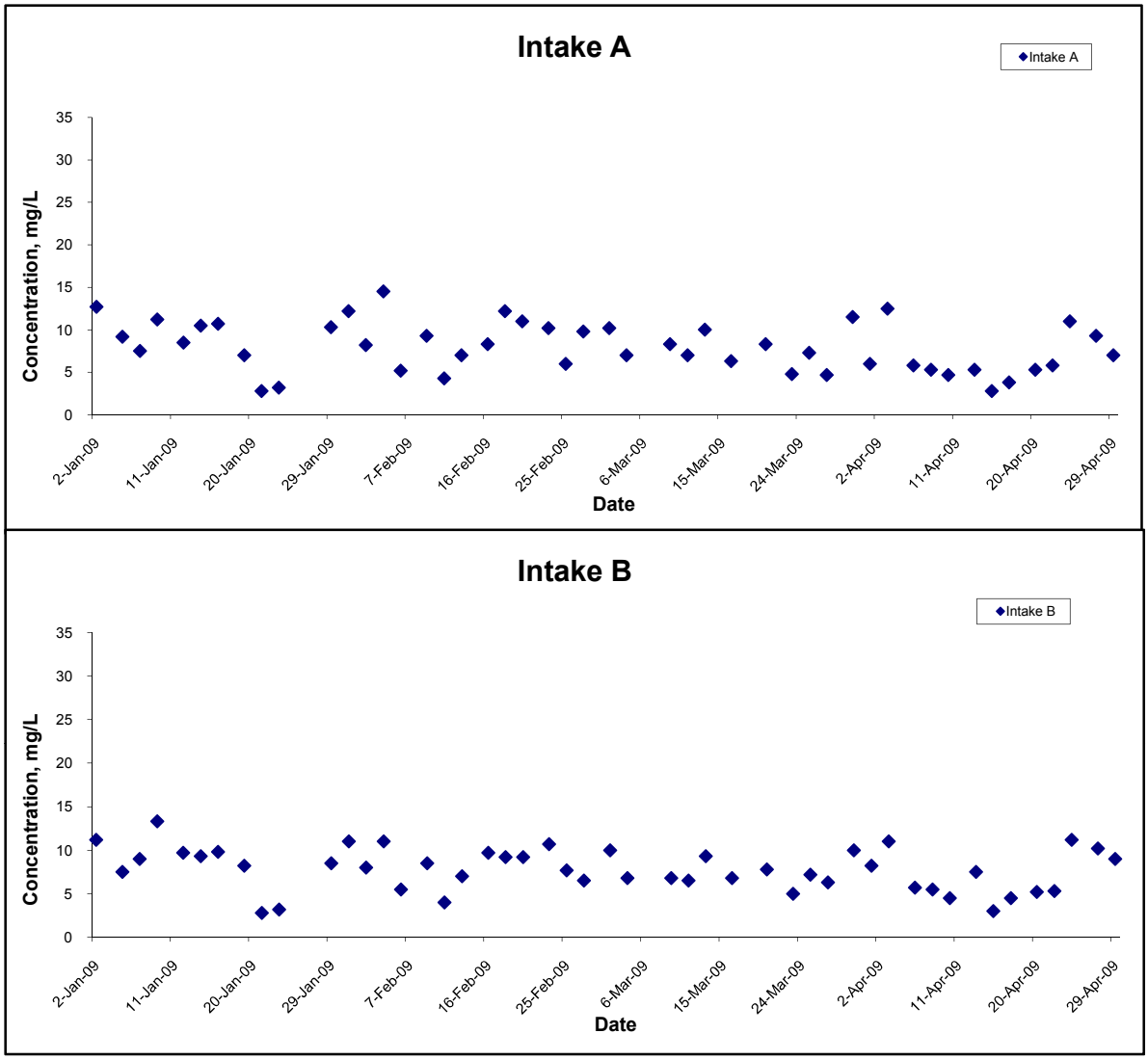




Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Apr 09	Appendix: H

CINOTECH

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Apr 09	Project No.: MA8001 Appendix: H	CINOTECH

APPENDIX I
SUMMARY OF EXCEEDANCE

Contract No. DC/2007/10 – Design and Construction of Hong Kong West Drainage Tunnel

Exceedance Report

Eastern Portal

(A) Exceedance Report for Air Quality (1 hour TSP)
(NIL in the reporting month)

(B) Exceedance Report for Air Quality (24 hours TSP)
(NIL in the reporting month)

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

Western Portal

(D) Exceedance Report for Air Quality (1 hour TSP)
(NIL in the reporting month)

(E) Exceedance Report for Air Quality (24 hours TSP)
(NIL in the reporting month)

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

(G) Exceedance Report for Water Quality
(NIL in the reporting month)

Near Western Portal

(H) Exceedance Report for Construction Ground Borne Noise
(NIL in the reporting month)

Intake W0

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

APPENDIX J
WIND DATA

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
1-Apr-2009	00:00	1.5	NNE
1-Apr-2009	01:00	1.5	NNE
1-Apr-2009	02:00	3.1	NNE
1-Apr-2009	03:00	2.7	NNE
1-Apr-2009	04:00	2.2	NE
1-Apr-2009	05:00	1.9	NE
1-Apr-2009	06:00	1.8	NE
1-Apr-2009	07:00	2.4	E
1-Apr-2009	08:00	3	E
1-Apr-2009	09:00	3	E
1-Apr-2009	10:00	2.4	E
1-Apr-2009	11:00	2.7	ENE
1-Apr-2009	12:00	3.3	E
1-Apr-2009	13:00	3.2	E
1-Apr-2009	14:00	3.4	ENE
1-Apr-2009	15:00	2.4	ENE
1-Apr-2009	16:00	3.3	E
1-Apr-2009	17:00	2.2	E
1-Apr-2009	18:00	2.1	E
1-Apr-2009	19:00	1.6	N
1-Apr-2009	20:00	2.2	N
1-Apr-2009	21:00	1.3	NE
1-Apr-2009	22:00	2.4	NNE
1-Apr-2009	23:00	2.8	NE
2-Apr-2009	00:00	3.3	NE
2-Apr-2009	01:00	2.7	NE
2-Apr-2009	02:00	2.7	E
2-Apr-2009	03:00	1.6	E
2-Apr-2009	04:00	1.6	E
2-Apr-2009	05:00	1	E
2-Apr-2009	06:00	0.9	SE
2-Apr-2009	07:00	1.2	SE
2-Apr-2009	08:00	0.9	ESE
2-Apr-2009	09:00	0.6	ESE
2-Apr-2009	10:00	0.9	ESE
2-Apr-2009	11:00	1.8	SE
2-Apr-2009	12:00	1.8	SSE
2-Apr-2009	13:00	1.3	SSE
2-Apr-2009	14:00	1.6	ESE
2-Apr-2009	15:00	1.3	E
2-Apr-2009	16:00	1.6	E
2-Apr-2009	17:00	2.4	ENE
2-Apr-2009	18:00	1.6	ENE
2-Apr-2009	19:00	1.5	E
2-Apr-2009	20:00	1.2	E
2-Apr-2009	21:00	1.8	E
2-Apr-2009	22:00	1.6	ENE
2-Apr-2009	23:00	1.2	ENE
3-Apr-2009	00:00	2.2	ENE
3-Apr-2009	01:00	3	ENE
3-Apr-2009	02:00	2.5	ENE
3-Apr-2009	03:00	1.9	ENE
3-Apr-2009	04:00	1.9	ENE
3-Apr-2009	05:00	1.8	NE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
3-Apr-2009	06:00	1.5	ENE
3-Apr-2009	07:00	3.3	NE
3-Apr-2009	08:00	3.9	ESE
3-Apr-2009	09:00	2.7	ENE
3-Apr-2009	10:00	1.9	ENE
3-Apr-2009	11:00	3.9	ESE
3-Apr-2009	12:00	4	ESE
3-Apr-2009	13:00	2.7	SE
3-Apr-2009	14:00	4.8	SE
3-Apr-2009	15:00	4.5	SSE
3-Apr-2009	16:00	3.6	SSE
3-Apr-2009	17:00	2.2	SE
3-Apr-2009	18:00	3	ENE
3-Apr-2009	19:00	3.1	SE
3-Apr-2009	20:00	2.7	SE
3-Apr-2009	21:00	3.4	N
3-Apr-2009	22:00	3.5	ENE
3-Apr-2009	23:00	2.7	ENE
4-Apr-2009	00:00	2.7	E
4-Apr-2009	01:00	3.4	NNE
4-Apr-2009	02:00	4.7	NE
4-Apr-2009	03:00	4	NE
4-Apr-2009	04:00	3.1	ENE
4-Apr-2009	05:00	4.9	NE
4-Apr-2009	06:00	3.6	NE
4-Apr-2009	07:00	3.7	ESE
4-Apr-2009	08:00	3.6	ESE
4-Apr-2009	09:00	3.3	ESE
4-Apr-2009	10:00	2.5	SE
4-Apr-2009	11:00	3.6	SSE
4-Apr-2009	12:00	3.7	SSE
4-Apr-2009	13:00	4.3	SSE
4-Apr-2009	14:00	4.9	SSE
4-Apr-2009	15:00	4.2	NE
4-Apr-2009	16:00	4.3	ENE
4-Apr-2009	17:00	3.4	ENE
4-Apr-2009	18:00	2.8	SE
4-Apr-2009	19:00	4	E
4-Apr-2009	20:00	4.8	SSE
4-Apr-2009	21:00	4.5	SSE
4-Apr-2009	22:00	4.8	SSE
4-Apr-2009	23:00	4.6	SSE
5-Apr-2009	00:00	4.3	ESE
5-Apr-2009	01:00	3.4	N
5-Apr-2009	02:00	3.8	WSW
5-Apr-2009	03:00	4.2	NNW
5-Apr-2009	04:00	4	N
5-Apr-2009	05:00	3	NE
5-Apr-2009	06:00	4.6	SW
5-Apr-2009	07:00	2.4	S
5-Apr-2009	08:00	4	ESE
5-Apr-2009	09:00	4.9	ESE
5-Apr-2009	10:00	4.3	ESE
5-Apr-2009	11:00	2.7	ESE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
5-Apr-2009	12:00	3.6	ESE
5-Apr-2009	13:00	3.4	ENE
5-Apr-2009	14:00	3.4	SW
5-Apr-2009	15:00	4.5	N
5-Apr-2009	16:00	3.4	N
5-Apr-2009	17:00	3.4	W
5-Apr-2009	18:00	4.6	SW
5-Apr-2009	19:00	3	SW
5-Apr-2009	20:00	3	SW
5-Apr-2009	21:00	2.3	SW
5-Apr-2009	22:00	4	WNW
5-Apr-2009	23:00	3.6	WSW
6-Apr-2009	00:00	4.2	SE
6-Apr-2009	01:00	4	E
6-Apr-2009	02:00	2.7	E
6-Apr-2009	03:00	3.1	ENE
6-Apr-2009	04:00	2.8	NE
6-Apr-2009	05:00	1.8	N
6-Apr-2009	06:00	1.5	NE
6-Apr-2009	07:00	1	NE
6-Apr-2009	08:00	1.3	NE
6-Apr-2009	09:00	1.9	ENE
6-Apr-2009	10:00	2.1	ENE
6-Apr-2009	11:00	2.4	ENE
6-Apr-2009	12:00	2.1	NE
6-Apr-2009	13:00	3	NE
6-Apr-2009	14:00	1.3	NE
6-Apr-2009	15:00	1.5	ENE
6-Apr-2009	16:00	3.1	NE
6-Apr-2009	17:00	2.1	ENE
6-Apr-2009	18:00	2.5	ENE
6-Apr-2009	19:00	2.4	ENE
6-Apr-2009	20:00	2.1	ENE
6-Apr-2009	21:00	1.3	ENE
6-Apr-2009	22:00	1.3	NE
6-Apr-2009	23:00	1	ENE
7-Apr-2009	00:00	1.2	ENE
7-Apr-2009	01:00	0.7	ENE
7-Apr-2009	02:00	0.6	ENE
7-Apr-2009	03:00	0.3	ENE
7-Apr-2009	04:00	0.1	ENE
7-Apr-2009	05:00	0.6	ENE
7-Apr-2009	06:00	0.1	ENE
7-Apr-2009	07:00	0.4	ENE
7-Apr-2009	08:00	0.6	ENE
7-Apr-2009	09:00	1.6	SW
7-Apr-2009	10:00	2.4	SW
7-Apr-2009	11:00	2.4	SW
7-Apr-2009	12:00	3.1	SW
7-Apr-2009	13:00	3.1	SW
7-Apr-2009	14:00	3.1	ENE
7-Apr-2009	15:00	3.6	ENE
7-Apr-2009	16:00	2.8	ENE
7-Apr-2009	17:00	2.7	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
7-Apr-2009	18:00	1.6	ENE
7-Apr-2009	19:00	0.9	ENE
7-Apr-2009	20:00	1	NE
7-Apr-2009	21:00	1.6	E
7-Apr-2009	22:00	1.6	ENE
7-Apr-2009	23:00	1	ENE
8-Apr-2009	00:00	1.2	ENE
8-Apr-2009	01:00	1.8	ESE
8-Apr-2009	02:00	1.5	ENE
8-Apr-2009	03:00	0.9	NE
8-Apr-2009	04:00	0.7	NE
8-Apr-2009	05:00	1	NE
8-Apr-2009	06:00	1	N
8-Apr-2009	07:00	1	NE
8-Apr-2009	08:00	1.5	ENE
8-Apr-2009	09:00	1.8	ENE
8-Apr-2009	10:00	2.4	NE
8-Apr-2009	11:00	2.8	NE
8-Apr-2009	12:00	2.5	NE
8-Apr-2009	13:00	2.5	NE
8-Apr-2009	14:00	2.8	ENE
8-Apr-2009	15:00	3.7	ENE
8-Apr-2009	16:00	1.6	ENE
8-Apr-2009	17:00	1.8	NE
8-Apr-2009	18:00	2.4	ENE
8-Apr-2009	19:00	2.4	ENE
8-Apr-2009	20:00	1.6	NE
8-Apr-2009	21:00	1.9	ENE
8-Apr-2009	22:00	1.5	NE
8-Apr-2009	23:00	1.6	NE
9-Apr-2009	00:00	1.9	ENE
9-Apr-2009	01:00	2.4	NE
9-Apr-2009	02:00	1.9	NE
9-Apr-2009	03:00	1.6	NE
9-Apr-2009	04:00	1	NNE
9-Apr-2009	05:00	1.5	ENE
9-Apr-2009	06:00	0.7	ENE
9-Apr-2009	07:00	1.2	ENE
9-Apr-2009	08:00	2.2	NE
9-Apr-2009	09:00	3.2	NE
9-Apr-2009	10:00	3.1	ENE
9-Apr-2009	11:00	2.7	ENE
9-Apr-2009	12:00	3.9	NNE
9-Apr-2009	13:00	3	NNE
9-Apr-2009	14:00	1.6	NE
9-Apr-2009	15:00	2.7	NE
9-Apr-2009	16:00	3	NE
9-Apr-2009	17:00	3.1	ENE
9-Apr-2009	18:00	1.9	NE
9-Apr-2009	19:00	1.8	NE
9-Apr-2009	20:00	1	NE
9-Apr-2009	21:00	1.2	NE
9-Apr-2009	22:00	0.9	ENE
9-Apr-2009	23:00	1.5	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
10-Apr-2009	00:00	1.5	ENE
10-Apr-2009	01:00	0.9	NE
10-Apr-2009	02:00	0.6	E
10-Apr-2009	03:00	0.4	ENE
10-Apr-2009	04:00	0.3	ENE
10-Apr-2009	05:00	0.6	ENE
10-Apr-2009	06:00	0.1	ENE
10-Apr-2009	07:00	0.3	ENE
10-Apr-2009	08:00	0.4	ENE
10-Apr-2009	09:00	0.7	ENE
10-Apr-2009	10:00	0.7	ENE
10-Apr-2009	11:00	1.5	ENE
10-Apr-2009	12:00	1.8	ENE
10-Apr-2009	13:00	1.5	NE
10-Apr-2009	14:00	1.6	SSE
10-Apr-2009	15:00	2.1	SSE
10-Apr-2009	16:00	1.8	SSE
10-Apr-2009	17:00	1.9	SSE
10-Apr-2009	18:00	1.5	SE
10-Apr-2009	19:00	0.6	SE
10-Apr-2009	20:00	1	SSE
10-Apr-2009	21:00	0.6	SSE
10-Apr-2009	22:00	0.3	SSE
10-Apr-2009	23:00	0.3	SSE
11-Apr-2009	00:00	0.3	SSE
11-Apr-2009	01:00	0.3	SSE
11-Apr-2009	02:00	0.1	SSE
11-Apr-2009	03:00	0.4	SSE
11-Apr-2009	04:00	0.4	ENE
11-Apr-2009	05:00	0.1	ENE
11-Apr-2009	06:00	0.1	ENE
11-Apr-2009	07:00	0.3	E
11-Apr-2009	08:00	0.4	E
11-Apr-2009	09:00	1	E
11-Apr-2009	10:00	1.3	E
11-Apr-2009	11:00	2.1	E
11-Apr-2009	12:00	2.1	E
11-Apr-2009	13:00	2.2	E
11-Apr-2009	14:00	2.2	NE
11-Apr-2009	15:00	2.2	NE
11-Apr-2009	16:00	1.5	NE
11-Apr-2009	17:00	1.8	NE
11-Apr-2009	18:00	1	NE
11-Apr-2009	19:00	1.2	NNE
11-Apr-2009	20:00	0.7	NNE
11-Apr-2009	21:00	1	NNE
11-Apr-2009	22:00	0.7	NNE
11-Apr-2009	23:00	0.7	NE
12-Apr-2009	00:00	0.6	ENE
12-Apr-2009	01:00	0.7	ENE
12-Apr-2009	02:00	0.4	ENE
12-Apr-2009	03:00	0.3	ENE
12-Apr-2009	04:00	0.6	NNE
12-Apr-2009	05:00	0.7	NNE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
12-Apr-2009	06:00	0.3	NNE
12-Apr-2009	07:00	0.4	NE
12-Apr-2009	08:00	1.2	ENE
12-Apr-2009	09:00	1.3	NE
12-Apr-2009	10:00	1.9	N
12-Apr-2009	11:00	2.5	ENE
12-Apr-2009	12:00	2.5	NE
12-Apr-2009	13:00	3.1	NE
12-Apr-2009	14:00	2.2	NE
12-Apr-2009	15:00	2.5	W
12-Apr-2009	16:00	1.9	N
12-Apr-2009	17:00	2.1	NE
12-Apr-2009	18:00	1.5	N
12-Apr-2009	19:00	2.7	N
12-Apr-2009	20:00	2.4	ENE
12-Apr-2009	21:00	1.2	ENE
12-Apr-2009	22:00	0.4	ENE
12-Apr-2009	23:00	0.7	ENE
13-Apr-2009	00:00	0.4	NNE
13-Apr-2009	01:00	0.6	NNE
13-Apr-2009	02:00	0.7	ESE
13-Apr-2009	03:00	0.7	SSE
13-Apr-2009	04:00	0.6	ESE
13-Apr-2009	05:00	0.6	ESE
13-Apr-2009	06:00	0.9	ESE
13-Apr-2009	07:00	0.7	ENE
13-Apr-2009	08:00	0.6	ENE
13-Apr-2009	09:00	1.8	E
13-Apr-2009	10:00	1.9	E
13-Apr-2009	11:00	2.4	E
13-Apr-2009	12:00	2.8	E
13-Apr-2009	13:00	2.5	ESE
13-Apr-2009	14:00	2.8	E
13-Apr-2009	15:00	2.2	E
13-Apr-2009	16:00	2.7	E
13-Apr-2009	17:00	2.2	NNE
13-Apr-2009	18:00	1.9	NE
13-Apr-2009	19:00	1	ENE
13-Apr-2009	20:00	0.9	ENE
13-Apr-2009	21:00	1.5	N
13-Apr-2009	22:00	0.7	ENE
13-Apr-2009	23:00	1	ENE
14-Apr-2009	00:00	1.2	ENE
14-Apr-2009	01:00	0.7	ENE
14-Apr-2009	02:00	1	E
14-Apr-2009	03:00	1.5	E
14-Apr-2009	04:00	0.4	ENE
14-Apr-2009	05:00	0.9	ENE
14-Apr-2009	06:00	0.3	ENE
14-Apr-2009	07:00	0.4	ENE
14-Apr-2009	08:00	1.6	ENE
14-Apr-2009	09:00	1.9	E
14-Apr-2009	10:00	1.6	E
14-Apr-2009	11:00	2.4	E

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
14-Apr-2009	12:00	2.1	ENE
14-Apr-2009	13:00	2.2	NE
14-Apr-2009	14:00	2.7	NE
14-Apr-2009	15:00	1.8	ENE
14-Apr-2009	16:00	1.3	NE
14-Apr-2009	17:00	1.3	ENE
14-Apr-2009	18:00	1.3	NE
14-Apr-2009	19:00	1.5	ENE
14-Apr-2009	20:00	1.5	ENE
14-Apr-2009	21:00	1.3	ENE
14-Apr-2009	22:00	1.5	ENE
14-Apr-2009	23:00	1.3	NNE
15-Apr-2009	00:00	1.3	NNE
15-Apr-2009	01:00	0.6	NNE
15-Apr-2009	02:00	0.9	NNE
15-Apr-2009	03:00	0.7	ENE
15-Apr-2009	04:00	1.5	ENE
15-Apr-2009	05:00	1.6	ENE
15-Apr-2009	06:00	1.3	E
15-Apr-2009	07:00	1.6	E
15-Apr-2009	08:00	1.6	E
15-Apr-2009	09:00	1.5	ENE
15-Apr-2009	10:00	1.2	ENE
15-Apr-2009	11:00	1.6	ENE
15-Apr-2009	12:00	1.8	NE
15-Apr-2009	13:00	1.6	NE
15-Apr-2009	14:00	1.5	ENE
15-Apr-2009	15:00	1.8	ENE
15-Apr-2009	16:00	2.2	ENE
15-Apr-2009	17:00	1.3	ENE
15-Apr-2009	18:00	0.9	NE
15-Apr-2009	19:00	0.7	ENE
15-Apr-2009	20:00	0.6	ENE
15-Apr-2009	21:00	0.7	NE
15-Apr-2009	22:00	0.6	ENE
15-Apr-2009	23:00	0.1	NE
16-Apr-2009	00:00	0.3	ENE
16-Apr-2009	01:00	1	ENE
16-Apr-2009	02:00	1	ENE
16-Apr-2009	03:00	1.6	ENE
16-Apr-2009	04:00	1.5	ENE
16-Apr-2009	05:00	1.2	ENE
16-Apr-2009	06:00	0.3	ENE
16-Apr-2009	07:00	0.9	ENE
16-Apr-2009	08:00	1	ENE
16-Apr-2009	09:00	1.6	E
16-Apr-2009	10:00	2.4	E
16-Apr-2009	11:00	1.9	E
16-Apr-2009	12:00	2.5	E
16-Apr-2009	13:00	2.2	E
16-Apr-2009	14:00	2.1	NNE
16-Apr-2009	15:00	2.2	ENE
16-Apr-2009	16:00	1.8	ENE
16-Apr-2009	17:00	1.9	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
16-Apr-2009	18:00	1.3	ENE
16-Apr-2009	19:00	1.8	ENE
16-Apr-2009	20:00	1.6	ENE
16-Apr-2009	21:00	1.8	ENE
16-Apr-2009	22:00	1.3	ENE
16-Apr-2009	23:00	1.9	ENE
17-Apr-2009	00:00	1.5	ENE
17-Apr-2009	01:00	1.5	NE
17-Apr-2009	02:00	1.3	ENE
17-Apr-2009	03:00	1.2	ENE
17-Apr-2009	04:00	1	ENE
17-Apr-2009	05:00	1.6	ENE
17-Apr-2009	06:00	1.5	ENE
17-Apr-2009	07:00	1.3	NE
17-Apr-2009	08:00	1.8	NE
17-Apr-2009	09:00	1.8	NE
17-Apr-2009	10:00	2.5	NE
17-Apr-2009	11:00	3	ENE
17-Apr-2009	12:00	3.4	NE
17-Apr-2009	13:00	3.1	ENE
17-Apr-2009	14:00	2.7	NE
17-Apr-2009	15:00	3	NE
17-Apr-2009	16:00	2.8	NE
17-Apr-2009	17:00	2.2	NE
17-Apr-2009	18:00	1.8	NE
17-Apr-2009	19:00	1.9	NE
17-Apr-2009	20:00	2.2	ENE
17-Apr-2009	21:00	2.7	NE
17-Apr-2009	22:00	2.1	NE
17-Apr-2009	23:00	1.8	ENE
18-Apr-2009	00:00	2.1	NE
18-Apr-2009	01:00	2.4	NE
18-Apr-2009	02:00	2.2	ENE
18-Apr-2009	03:00	1.5	NE
18-Apr-2009	04:00	1.3	ENE
18-Apr-2009	05:00	0.9	ENE
18-Apr-2009	06:00	1	ENE
18-Apr-2009	07:00	1.8	ENE
18-Apr-2009	08:00	1.9	NE
18-Apr-2009	09:00	2.2	ENE
18-Apr-2009	10:00	2.1	ENE
18-Apr-2009	11:00	2.2	ENE
18-Apr-2009	12:00	2.2	ENE
18-Apr-2009	13:00	2.5	ENE
18-Apr-2009	14:00	2.4	NNE
18-Apr-2009	15:00	2.4	NNE
18-Apr-2009	16:00	1.9	ENE
18-Apr-2009	17:00	1.8	ENE
18-Apr-2009	18:00	2.1	ENE
18-Apr-2009	19:00	1.5	ENE
18-Apr-2009	20:00	1.3	ENE
18-Apr-2009	21:00	1.8	ENE
18-Apr-2009	22:00	1.9	NE
18-Apr-2009	23:00	1.8	E

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
19-Apr-2009	00:00	1.3	ENE
19-Apr-2009	01:00	1.3	ENE
19-Apr-2009	02:00	0.7	ENE
19-Apr-2009	03:00	0.6	ESE
19-Apr-2009	04:00	0.6	ENE
19-Apr-2009	05:00	0.9	NE
19-Apr-2009	06:00	0.6	NE
19-Apr-2009	07:00	0.7	ENE
19-Apr-2009	08:00	2.2	ENE
19-Apr-2009	09:00	2.7	SW
19-Apr-2009	10:00	2.5	SW
19-Apr-2009	11:00	3	SW
19-Apr-2009	12:00	3	SW
19-Apr-2009	13:00	2.5	SSW
19-Apr-2009	14:00	2.5	ESE
19-Apr-2009	15:00	1.5	SSW
19-Apr-2009	16:00	2.2	SW
19-Apr-2009	17:00	2.1	WSW
19-Apr-2009	18:00	2.1	W
19-Apr-2009	19:00	1.2	WSW
19-Apr-2009	20:00	0.6	SW
19-Apr-2009	21:00	0.3	SSW
19-Apr-2009	22:00	0.1	SW
19-Apr-2009	23:00	0.3	SW
20-Apr-2009	00:00	0.1	SW
20-Apr-2009	01:00	0.4	W
20-Apr-2009	02:00	0.3	SSW
20-Apr-2009	03:00	0.4	SSW
20-Apr-2009	04:00	0.1	SSW
20-Apr-2009	05:00	0.4	SSW
20-Apr-2009	06:00	0.4	WSW
20-Apr-2009	07:00	0.7	SW
20-Apr-2009	08:00	0.9	WSW
20-Apr-2009	09:00	2.1	SSW
20-Apr-2009	10:00	2.4	SSW
20-Apr-2009	11:00	3.3	SSW
20-Apr-2009	12:00	2.5	SSW
20-Apr-2009	13:00	2.8	SSW
20-Apr-2009	14:00	1.9	ENE
20-Apr-2009	15:00	1.3	WSW
20-Apr-2009	16:00	1.3	ENE
20-Apr-2009	17:00	1.2	WSW
20-Apr-2009	18:00	0.9	NE
20-Apr-2009	19:00	0.7	SW
20-Apr-2009	20:00	0.6	SW
20-Apr-2009	21:00	0.3	SW
20-Apr-2009	22:00	0.1	NE
20-Apr-2009	23:00	0.2	E
21-Apr-2009	00:00	0.3	ENE
21-Apr-2009	01:00	0.4	N
21-Apr-2009	02:00	0.1	NE
21-Apr-2009	03:00	0.4	ENE
21-Apr-2009	04:00	0.1	ENE
21-Apr-2009	05:00	0.3	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
21-Apr-2009	06:00	0.1	ENE
21-Apr-2009	07:00	0.3	ENE
21-Apr-2009	08:00	0.4	ENE
21-Apr-2009	09:00	0.6	NE
21-Apr-2009	10:00	1.3	ENE
21-Apr-2009	11:00	1.2	NE
21-Apr-2009	12:00	1.9	N
21-Apr-2009	13:00	1.9	N
21-Apr-2009	14:00	1.3	NE
21-Apr-2009	15:00	1.3	NE
21-Apr-2009	16:00	1.9	NE
21-Apr-2009	17:00	1.8	N
21-Apr-2009	18:00	0.9	ENE
21-Apr-2009	19:00	0.4	ENE
21-Apr-2009	20:00	0.3	N
21-Apr-2009	21:00	0.3	NNE
21-Apr-2009	22:00	0.4	NNE
21-Apr-2009	23:00	0.3	N
22-Apr-2009	00:00	0.9	N
22-Apr-2009	01:00	0.4	NE
22-Apr-2009	02:00	0.7	NE
22-Apr-2009	03:00	0.3	NE
22-Apr-2009	04:00	1	ENE
22-Apr-2009	05:00	0.6	ENE
22-Apr-2009	06:00	0.1	ENE
22-Apr-2009	07:00	0.3	NE
22-Apr-2009	08:00	0.1	NE
22-Apr-2009	09:00	0.7	ENE
22-Apr-2009	10:00	0.9	NE
22-Apr-2009	11:00	1.6	NNE
22-Apr-2009	12:00	1.5	ENE
22-Apr-2009	13:00	1.8	NE
22-Apr-2009	14:00	2.2	NNE
22-Apr-2009	15:00	3.4	N
22-Apr-2009	16:00	3.3	NE
22-Apr-2009	17:00	2.7	NE
22-Apr-2009	18:00	2.5	NNE
22-Apr-2009	19:00	2.5	ENE
22-Apr-2009	20:00	2.4	ENE
22-Apr-2009	21:00	1.6	ENE
22-Apr-2009	22:00	1.8	NNE
22-Apr-2009	23:00	1.8	NE
23-Apr-2009	00:00	1	NE
23-Apr-2009	01:00	1	N
23-Apr-2009	02:00	0.7	NNE
23-Apr-2009	03:00	0.1	NNE
23-Apr-2009	04:00	0.4	NE
23-Apr-2009	05:00	0.3	ENE
23-Apr-2009	06:00	0.3	ENE
23-Apr-2009	07:00	0.3	ENE
23-Apr-2009	08:00	1.2	E
23-Apr-2009	09:00	1.6	ENE
23-Apr-2009	10:00	2.7	NE
23-Apr-2009	11:00	3.3	NNE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
23-Apr-2009	12:00	3.3	NNE
23-Apr-2009	13:00	4	NNE
23-Apr-2009	14:00	2.4	NNE
23-Apr-2009	15:00	3.9	NNE
23-Apr-2009	16:00	3.1	NNE
23-Apr-2009	17:00	2.8	N
23-Apr-2009	18:00	2.4	NNE
23-Apr-2009	19:00	2.1	NNE
23-Apr-2009	20:00	2.5	NNE
23-Apr-2009	21:00	3	NNE
23-Apr-2009	22:00	3.7	NNE
23-Apr-2009	23:00	3.7	NNE
24-Apr-2009	00:00	3.4	NNE
24-Apr-2009	01:00	2.5	NNE
24-Apr-2009	02:00	2.4	N
24-Apr-2009	03:00	1.6	NNE
24-Apr-2009	04:00	1.6	N
24-Apr-2009	05:00	1.9	N
24-Apr-2009	06:00	1.5	N
24-Apr-2009	07:00	1.9	NNE
24-Apr-2009	08:00	2.5	NNE
24-Apr-2009	09:00	3.1	NNE
24-Apr-2009	10:00	4.5	NNE
24-Apr-2009	11:00	4.6	NNE
24-Apr-2009	12:00	2.5	NNE
24-Apr-2009	13:00	2.8	NNE
24-Apr-2009	14:00	2.7	NNE
24-Apr-2009	15:00	2.5	NNE
24-Apr-2009	16:00	2.4	NNE
24-Apr-2009	17:00	2.4	NNE
24-Apr-2009	18:00	3.9	NNE
24-Apr-2009	19:00	3.9	NE
24-Apr-2009	20:00	3.6	ENE
24-Apr-2009	21:00	2.8	ENE
24-Apr-2009	22:00	3.1	NE
24-Apr-2009	23:00	3	NE
25-Apr-2009	00:00	3.4	NE
25-Apr-2009	01:00	3.1	NE
25-Apr-2009	02:00	3.3	N
25-Apr-2009	03:00	2.7	NE
25-Apr-2009	04:00	2.8	NE
25-Apr-2009	05:00	2.8	N
25-Apr-2009	06:00	2.2	NE
25-Apr-2009	07:00	2.2	N
25-Apr-2009	08:00	2.1	NE
25-Apr-2009	09:00	3.1	NNE
25-Apr-2009	10:00	2.7	NNE
25-Apr-2009	11:00	2.5	NNE
25-Apr-2009	12:00	2.5	NNE
25-Apr-2009	13:00	2.2	NE
25-Apr-2009	14:00	1.8	NNE
25-Apr-2009	15:00	1.6	NE
25-Apr-2009	16:00	2.2	NE
25-Apr-2009	17:00	1.2	ENE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
25-Apr-2009	18:00	1.3	ENE
25-Apr-2009	19:00	1.3	NE
25-Apr-2009	20:00	1.2	ENE
25-Apr-2009	21:00	1.6	ENE
25-Apr-2009	22:00	0.9	ENE
25-Apr-2009	23:00	1.3	N
26-Apr-2009	00:00	0.7	N
26-Apr-2009	01:00	0.6	NE
26-Apr-2009	02:00	0.9	N
26-Apr-2009	03:00	0.6	N
26-Apr-2009	04:00	0.6	NE
26-Apr-2009	05:00	0.4	NE
26-Apr-2009	06:00	0.4	N
26-Apr-2009	07:00	0.7	NNE
26-Apr-2009	08:00	0.7	WNW
26-Apr-2009	09:00	1	NE
26-Apr-2009	10:00	1.5	NNE
26-Apr-2009	11:00	1.8	NE
26-Apr-2009	12:00	2.7	N
26-Apr-2009	13:00	3.1	NNE
26-Apr-2009	14:00	1.5	NE
26-Apr-2009	15:00	1.2	NNE
26-Apr-2009	16:00	1.8	NNE
26-Apr-2009	17:00	1.9	NE
26-Apr-2009	18:00	1.9	ENE
26-Apr-2009	19:00	1.3	ENE
26-Apr-2009	20:00	0.6	ENE
26-Apr-2009	21:00	0.3	NNE
26-Apr-2009	22:00	0.1	NE
26-Apr-2009	23:00	0.4	NE
27-Apr-2009	00:00	0.1	NE
27-Apr-2009	01:00	0.3	NE
27-Apr-2009	02:00	0.3	NE
27-Apr-2009	03:00	0.3	NE
27-Apr-2009	04:00	0.3	NE
27-Apr-2009	05:00	0.6	NE
27-Apr-2009	06:00	0.3	NNE
27-Apr-2009	07:00	0.6	NNE
27-Apr-2009	08:00	0.7	NE
27-Apr-2009	09:00	0.7	ENE
27-Apr-2009	10:00	0.7	NE
27-Apr-2009	11:00	1.2	NNE
27-Apr-2009	12:00	1.9	NNE
27-Apr-2009	13:00	2.8	NNE
27-Apr-2009	14:00	2.8	NE
27-Apr-2009	15:00	3.1	NE
27-Apr-2009	16:00	2.4	NNE
27-Apr-2009	17:00	2.2	N
27-Apr-2009	18:00	1.8	NNE
27-Apr-2009	19:00	1.8	N
27-Apr-2009	20:00	1.3	NNE
27-Apr-2009	21:00	4	NNE
27-Apr-2009	22:00	0.4	NNE
27-Apr-2009	23:00	1	N

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
28-Apr-2009	00:00	0.9	NNE
28-Apr-2009	01:00	1	NNE
28-Apr-2009	02:00	1.2	NNE
28-Apr-2009	03:00	0.9	NNE
28-Apr-2009	04:00	0.6	NE
28-Apr-2009	05:00	0.1	NE
28-Apr-2009	06:00	0.4	NE
28-Apr-2009	07:00	0.7	NNE
28-Apr-2009	08:00	1.9	NE
28-Apr-2009	09:00	1.8	NNE
28-Apr-2009	10:00	1.9	NE
28-Apr-2009	11:00	2.1	NNE
28-Apr-2009	12:00	2.2	NNE
28-Apr-2009	13:00	2.1	NNE
28-Apr-2009	14:00	1.8	NNE
28-Apr-2009	15:00	1.2	NNE
28-Apr-2009	16:00	0.7	N
28-Apr-2009	17:00	0.9	NE
28-Apr-2009	18:00	0.7	NNE
28-Apr-2009	19:00	0.7	NNE
28-Apr-2009	20:00	0.7	NNE
28-Apr-2009	21:00	1.5	NE
28-Apr-2009	22:00	1.8	NNE
28-Apr-2009	23:00	1.5	N
29-Apr-2009	00:00	1.2	NE
29-Apr-2009	01:00	0.7	NNE
29-Apr-2009	02:00	0.9	NE
29-Apr-2009	03:00	0.9	NE
29-Apr-2009	04:00	0.4	NE
29-Apr-2009	05:00	0.7	E
29-Apr-2009	06:00	0.6	ENE
29-Apr-2009	07:00	0.9	SE
29-Apr-2009	08:00	1.6	ESE
29-Apr-2009	09:00	1.6	ESE
29-Apr-2009	10:00	2.4	ESE
29-Apr-2009	11:00	2.8	NNE
29-Apr-2009	12:00	2.7	NE
29-Apr-2009	13:00	2.7	ESE
29-Apr-2009	14:00	2.2	E
29-Apr-2009	15:00	2.1	ENE
29-Apr-2009	16:00	1.8	ENE
29-Apr-2009	17:00	1.6	ENE
29-Apr-2009	18:00	1.5	ENE
29-Apr-2009	19:00	0.4	ENE
29-Apr-2009	20:00	0.4	ENE
29-Apr-2009	21:00	0.3	NE
29-Apr-2009	22:00	0.6	NE
29-Apr-2009	23:00	0.4	NE
30-Apr-2009	00:00	0.4	NE
30-Apr-2009	01:00	0.4	NNE
30-Apr-2009	02:00	0.7	NNE
30-Apr-2009	03:00	0.6	NNE
30-Apr-2009	04:00	1.9	NNE
30-Apr-2009	05:00	1.6	NNE

Appendix J - Wind Data (Eastern Portal)

Date	Time	Wind Speed m/s	Direction
30-Apr-2009	06:00	1.8	NNE
30-Apr-2009	07:00	1.9	NNE
30-Apr-2009	08:00	1.9	NNE
30-Apr-2009	09:00	2.2	NNE
30-Apr-2009	10:00	2.2	NNE
30-Apr-2009	11:00	2.5	NNE
30-Apr-2009	12:00	3.3	NE
30-Apr-2009	13:00	3.3	NE
30-Apr-2009	14:00	3	NE
30-Apr-2009	15:00	2.1	NE
30-Apr-2009	16:00	2.1	NE
30-Apr-2009	17:00	1.6	NNE
30-Apr-2009	18:00	1.6	NNE
30-Apr-2009	19:00	1.5	NE
30-Apr-2009	20:00	1.3	NE
30-Apr-2009	21:00	1.5	NNE
30-Apr-2009	22:00	1.5	NE
30-Apr-2009	23:00	1.5	NNE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
1-Apr-2009	00:00	1.2	NE
1-Apr-2009	01:00	1.3	NE
1-Apr-2009	02:00	1.0	NNE
1-Apr-2009	03:00	1.2	ENE
1-Apr-2009	04:00	1.2	ENE
1-Apr-2009	05:00	1.5	NE
1-Apr-2009	06:00	1.2	N
1-Apr-2009	07:00	1.2	ENE
1-Apr-2009	08:00	1.5	NE
1-Apr-2009	09:00	1.2	NE
1-Apr-2009	10:00	1.0	NE
1-Apr-2009	11:00	1.0	W
1-Apr-2009	12:00	1.3	N
1-Apr-2009	13:00	1.5	NE
1-Apr-2009	14:00	1.8	N
1-Apr-2009	15:00	2.1	N
1-Apr-2009	16:00	1.9	ENE
1-Apr-2009	17:00	1.2	ENE
1-Apr-2009	18:00	1.0	ENE
1-Apr-2009	19:00	0.7	ENE
1-Apr-2009	20:00	0.6	E
1-Apr-2009	21:00	0.6	ENE
1-Apr-2009	22:00	0.9	SE
1-Apr-2009	23:00	0.4	SSE
2-Apr-2009	00:00	0.1	ESE
2-Apr-2009	01:00	0	---
2-Apr-2009	02:00	0	---
2-Apr-2009	03:00	0	---
2-Apr-2009	04:00	0	---
2-Apr-2009	05:00	0.3	ENE
2-Apr-2009	06:00	0.4	E
2-Apr-2009	07:00	0.1	E
2-Apr-2009	08:00	0.1	ENE
2-Apr-2009	09:00	0.4	ENE
2-Apr-2009	10:00	1.2	ENE
2-Apr-2009	11:00	1.0	SSW
2-Apr-2009	12:00	1.9	NE
2-Apr-2009	13:00	1.9	ENE
2-Apr-2009	14:00	1.8	ENE
2-Apr-2009	15:00	1.3	NE
2-Apr-2009	16:00	1.0	NE
2-Apr-2009	17:00	0.9	NE
2-Apr-2009	18:00	0.6	ENE
2-Apr-2009	19:00	0.4	NE
2-Apr-2009	20:00	0	---
2-Apr-2009	21:00	0	---
2-Apr-2009	22:00	0	---
2-Apr-2009	23:00	0.3	NE
3-Apr-2009	00:00	0.6	ENE
3-Apr-2009	01:00	0.3	NE
3-Apr-2009	02:00	0.1	NNE
3-Apr-2009	03:00	0.1	NNE
3-Apr-2009	04:00	0	---
3-Apr-2009	05:00	0.1	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
3-Apr-2009	06:00	0.1	ENE
3-Apr-2009	07:00	0.1	ENE
3-Apr-2009	08:00	0.4	ENE
3-Apr-2009	09:00	1.0	ENE
3-Apr-2009	10:00	1.9	NE
3-Apr-2009	11:00	1.5	NE
3-Apr-2009	12:00	1.2	NNE
3-Apr-2009	13:00	1.2	NNE
3-Apr-2009	14:00	1.3	NE
3-Apr-2009	15:00	1.0	NNE
3-Apr-2009	16:00	0.9	NNE
3-Apr-2009	17:00	1.6	NE
3-Apr-2009	18:00	0.7	NNE
3-Apr-2009	19:00	1.0	WNW
3-Apr-2009	20:00	0.7	WSW
3-Apr-2009	21:00	0.9	ESE
3-Apr-2009	22:00	1.0	ESE
3-Apr-2009	23:00	0.9	SSW
4-Apr-2009	00:00	1.0	ENE
4-Apr-2009	01:00	1.6	ENE
4-Apr-2009	02:00	1.6	ENE
4-Apr-2009	03:00	1.3	NE
4-Apr-2009	04:00	1.6	NE
4-Apr-2009	05:00	1.6	NE
4-Apr-2009	06:00	2.1	NE
4-Apr-2009	07:00	1.9	NNE
4-Apr-2009	08:00	2.4	NNE
4-Apr-2009	09:00	2.4	NNE
4-Apr-2009	10:00	2.4	NNE
4-Apr-2009	11:00	2.4	NNE
4-Apr-2009	12:00	2.4	NNE
4-Apr-2009	13:00	2.1	NNE
4-Apr-2009	14:00	2.2	NNE
4-Apr-2009	15:00	2.2	NNE
4-Apr-2009	16:00	2.1	NNE
4-Apr-2009	17:00	1.9	N
4-Apr-2009	18:00	1.6	ENE
4-Apr-2009	19:00	1.3	NE
4-Apr-2009	20:00	1.0	NE
4-Apr-2009	21:00	1.3	NNE
4-Apr-2009	22:00	1.0	NNE
4-Apr-2009	23:00	1.3	NNE
5-Apr-2009	00:00	1.6	E
5-Apr-2009	01:00	1.5	E
5-Apr-2009	02:00	1.9	E
5-Apr-2009	03:00	1.3	W
5-Apr-2009	04:00	1.0	NW
5-Apr-2009	05:00	1.9	WNW
5-Apr-2009	06:00	1.2	E
5-Apr-2009	07:00	0.9	WNW
5-Apr-2009	08:00	1.2	NNE
5-Apr-2009	09:00	1.5	NNE
5-Apr-2009	10:00	2.7	ENE
5-Apr-2009	11:00	2.5	W

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
5-Apr-2009	12:00	3.3	WSW
5-Apr-2009	13:00	2.8	WNW
5-Apr-2009	14:00	1.8	SSW
5-Apr-2009	15:00	1.5	W
5-Apr-2009	16:00	1.6	W
5-Apr-2009	17:00	1.5	WNW
5-Apr-2009	18:00	1.3	W
5-Apr-2009	19:00	0.3	W
5-Apr-2009	20:00	1.2	W
5-Apr-2009	21:00	1.2	WNW
5-Apr-2009	22:00	0.9	S
5-Apr-2009	23:00	0.9	SSW
6-Apr-2009	00:00	1.2	SW
6-Apr-2009	01:00	1.0	SSW
6-Apr-2009	02:00	0.6	SW
6-Apr-2009	03:00	0.6	ENE
6-Apr-2009	04:00	0.9	N
6-Apr-2009	05:00	0.9	NNE
6-Apr-2009	06:00	1.0	NNE
6-Apr-2009	07:00	0.7	NNE
6-Apr-2009	08:00	0.9	SSW
6-Apr-2009	09:00	1.3	S
6-Apr-2009	10:00	1.6	SSW
6-Apr-2009	11:00	1.9	NW
6-Apr-2009	12:00	1.8	SSE
6-Apr-2009	13:00	2.2	SSE
6-Apr-2009	14:00	2.4	SSW
6-Apr-2009	15:00	2.1	SSW
6-Apr-2009	16:00	1.6	SW
6-Apr-2009	17:00	1.9	ENE
6-Apr-2009	18:00	1.6	ENE
6-Apr-2009	19:00	1.0	NNE
6-Apr-2009	20:00	0.7	N
6-Apr-2009	21:00	0.6	WNW
6-Apr-2009	22:00	0.1	NE
6-Apr-2009	23:00	0.4	NE
7-Apr-2009	00:00	0.6	N
7-Apr-2009	01:00	0.6	N
7-Apr-2009	02:00	0.1	NNE
7-Apr-2009	03:00	0.4	N
7-Apr-2009	04:00	0.6	N
7-Apr-2009	05:00	0.6	N
7-Apr-2009	06:00	0.4	N
7-Apr-2009	07:00	0.3	W
7-Apr-2009	08:00	0.6	NNE
7-Apr-2009	09:00	0.9	N
7-Apr-2009	10:00	1.2	NE
7-Apr-2009	11:00	1.0	NE
7-Apr-2009	12:00	2.1	NE
7-Apr-2009	13:00	2.2	NNE
7-Apr-2009	14:00	2.1	ENE
7-Apr-2009	15:00	2.2	ENE
7-Apr-2009	16:00	1.8	NE
7-Apr-2009	17:00	1.8	N

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
7-Apr-2009	18:00	1.6	ENE
7-Apr-2009	19:00	1.5	NE
7-Apr-2009	20:00	1.0	NE
7-Apr-2009	21:00	1.2	NE
7-Apr-2009	22:00	1.0	W
7-Apr-2009	23:00	1.3	N
8-Apr-2009	00:00	1.6	NE
8-Apr-2009	01:00	1.8	N
8-Apr-2009	02:00	1.3	N
8-Apr-2009	03:00	1.3	ENE
8-Apr-2009	04:00	0.7	ENE
8-Apr-2009	05:00	1.0	ENE
8-Apr-2009	06:00	1.2	ENE
8-Apr-2009	07:00	1.0	E
8-Apr-2009	08:00	1.0	ENE
8-Apr-2009	09:00	1.2	SE
8-Apr-2009	10:00	2.1	SSE
8-Apr-2009	11:00	2.7	S
8-Apr-2009	12:00	3.6	SE
8-Apr-2009	13:00	3.0	SE
8-Apr-2009	14:00	2.7	SE
8-Apr-2009	15:00	3.0	NNE
8-Apr-2009	16:00	2.1	N
8-Apr-2009	17:00	1.6	NW
8-Apr-2009	18:00	1.8	NE
8-Apr-2009	19:00	1.9	ENE
8-Apr-2009	20:00	1.9	SSE
8-Apr-2009	21:00	2.4	SE
8-Apr-2009	22:00	1.6	ENE
8-Apr-2009	23:00	1.5	ENE
9-Apr-2009	00:00	1.8	NE
9-Apr-2009	01:00	1.2	ENE
9-Apr-2009	02:00	1.5	ENE
9-Apr-2009	03:00	1.3	NNE
9-Apr-2009	04:00	1.5	NNE
9-Apr-2009	05:00	1.8	ESE
9-Apr-2009	06:00	1.8	ESE
9-Apr-2009	07:00	2.2	ESE
9-Apr-2009	08:00	2.2	NE
9-Apr-2009	09:00	3.1	NE
9-Apr-2009	10:00	2.7	NE
9-Apr-2009	11:00	2.7	NE
9-Apr-2009	12:00	2.7	NE
9-Apr-2009	13:00	2.5	NE
9-Apr-2009	14:00	2.1	NE
9-Apr-2009	15:00	2.2	NE
9-Apr-2009	16:00	2.7	NE
9-Apr-2009	17:00	2.2	N
9-Apr-2009	18:00	1.9	N
9-Apr-2009	19:00	2.1	W
9-Apr-2009	20:00	1.6	NNE
9-Apr-2009	21:00	1.6	N
9-Apr-2009	22:00	1.9	NW
9-Apr-2009	23:00	1.8	N

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
10-Apr-2009	00:00	1.8	NNE
10-Apr-2009	01:00	1.3	N
10-Apr-2009	02:00	1.5	ENE
10-Apr-2009	03:00	1.5	N
10-Apr-2009	04:00	1.2	NNW
10-Apr-2009	05:00	1.2	N
10-Apr-2009	06:00	1.0	N
10-Apr-2009	07:00	1.3	N
10-Apr-2009	08:00	1.5	NNE
10-Apr-2009	09:00	1.6	W
10-Apr-2009	10:00	1.9	N
10-Apr-2009	11:00	1.8	N
10-Apr-2009	12:00	1.8	NW
10-Apr-2009	13:00	2.1	WNW
10-Apr-2009	14:00	2.2	WNW
10-Apr-2009	15:00	1.9	WNW
10-Apr-2009	16:00	1.8	W
10-Apr-2009	17:00	1.8	WNW
10-Apr-2009	18:00	1.5	N
10-Apr-2009	19:00	1.0	N
10-Apr-2009	20:00	1.0	NE
10-Apr-2009	21:00	0.9	N
10-Apr-2009	22:00	0.9	SE
10-Apr-2009	23:00	0.7	S
11-Apr-2009	00:00	1.2	SSW
11-Apr-2009	01:00	1.3	WSW
11-Apr-2009	02:00	0.9	W
11-Apr-2009	03:00	1.3	W
11-Apr-2009	04:00	1.5	WSW
11-Apr-2009	05:00	1.5	W
11-Apr-2009	06:00	1.6	W
11-Apr-2009	07:00	1.8	W
11-Apr-2009	08:00	2.2	W
11-Apr-2009	09:00	1.9	WSW
11-Apr-2009	10:00	1.5	WSW
11-Apr-2009	11:00	2.1	W
11-Apr-2009	12:00	1.9	SSW
11-Apr-2009	13:00	2.4	SW
11-Apr-2009	14:00	2.4	SW
11-Apr-2009	15:00	2.4	SW
11-Apr-2009	16:00	2.4	SW
11-Apr-2009	17:00	2.2	SW
11-Apr-2009	18:00	1.2	WNW
11-Apr-2009	19:00	1.3	WNW
11-Apr-2009	20:00	1.2	W
11-Apr-2009	21:00	1.3	SSW
11-Apr-2009	22:00	1.0	WNW
11-Apr-2009	23:00	1.2	ENE
12-Apr-2009	00:00	1.0	S
12-Apr-2009	01:00	1.3	E
12-Apr-2009	02:00	0.9	E
12-Apr-2009	03:00	1.2	W
12-Apr-2009	04:00	0.9	WSW
12-Apr-2009	05:00	0.9	WSW

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
12-Apr-2009	06:00	0.7	ENE
12-Apr-2009	07:00	0.9	ENE
12-Apr-2009	08:00	1.0	E
12-Apr-2009	09:00	1.3	E
12-Apr-2009	10:00	1.8	SW
12-Apr-2009	11:00	1.5	N
12-Apr-2009	12:00	1.9	NNE
12-Apr-2009	13:00	0.7	SSW
12-Apr-2009	14:00	1.2	WNW
12-Apr-2009	15:00	1.3	W
12-Apr-2009	16:00	1.3	SSW
12-Apr-2009	17:00	1.0	W
12-Apr-2009	18:00	0.9	WNW
12-Apr-2009	19:00	0.6	W
12-Apr-2009	20:00	1.2	WSW
12-Apr-2009	21:00	1.2	SSW
12-Apr-2009	22:00	0.9	SW
12-Apr-2009	23:00	1.2	SW
13-Apr-2009	00:00	1.2	SSW
13-Apr-2009	01:00	0.9	W
13-Apr-2009	02:00	1.5	WNW
13-Apr-2009	03:00	1.2	S
13-Apr-2009	04:00	0.9	WSW
13-Apr-2009	05:00	1.2	WSW
13-Apr-2009	06:00	1.3	W
13-Apr-2009	07:00	1.0	W
13-Apr-2009	08:00	1.2	WSW
13-Apr-2009	09:00	1.6	WSW
13-Apr-2009	10:00	1.8	W
13-Apr-2009	11:00	1.9	W
13-Apr-2009	12:00	2.1	W
13-Apr-2009	13:00	1.3	W
13-Apr-2009	14:00	1.5	W
13-Apr-2009	15:00	1.0	W
13-Apr-2009	16:00	1.5	W
13-Apr-2009	17:00	1.0	WSW
13-Apr-2009	18:00	1.0	W
13-Apr-2009	19:00	0.6	W
13-Apr-2009	20:00	0.4	SW
13-Apr-2009	21:00	0	---
13-Apr-2009	22:00	0.1	SSE
13-Apr-2009	23:00	0.3	WSW
14-Apr-2009	00:00	0.3	WSW
14-Apr-2009	01:00	0	---
14-Apr-2009	02:00	0.3	WSW
14-Apr-2009	03:00	0	---
14-Apr-2009	04:00	0.1	WNW
14-Apr-2009	05:00	0	---
14-Apr-2009	06:00	0	---
14-Apr-2009	07:00	0	---
14-Apr-2009	08:00	0.3	WNW
14-Apr-2009	09:00	0.3	N
14-Apr-2009	10:00	1.8	N
14-Apr-2009	11:00	2.1	NNE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
14-Apr-2009	12:00	1.9	NNE
14-Apr-2009	13:00	1.5	ENE
14-Apr-2009	14:00	1.8	ENE
14-Apr-2009	15:00	2.1	ENE
14-Apr-2009	16:00	1.9	E
14-Apr-2009	17:00	1.9	E
14-Apr-2009	18:00	1.6	E
14-Apr-2009	19:00	1.0	SSW
14-Apr-2009	20:00	0	---
14-Apr-2009	21:00	0	---
14-Apr-2009	22:00	0	---
14-Apr-2009	23:00	0	---
15-Apr-2009	00:00	0	---
15-Apr-2009	01:00	0	---
15-Apr-2009	02:00	0	---
15-Apr-2009	03:00	0.1	SW
15-Apr-2009	04:00	0.1	SW
15-Apr-2009	05:00	0.1	SW
15-Apr-2009	06:00	0.3	SSW
15-Apr-2009	07:00	0.4	SW
15-Apr-2009	08:00	1.0	SW
15-Apr-2009	09:00	1.5	SW
15-Apr-2009	10:00	1.8	SW
15-Apr-2009	11:00	1.9	SW
15-Apr-2009	12:00	1.9	SSW
15-Apr-2009	13:00	1.9	SE
15-Apr-2009	14:00	1.8	SE
15-Apr-2009	15:00	1.6	SE
15-Apr-2009	16:00	1.5	SSE
15-Apr-2009	17:00	1.0	SSE
15-Apr-2009	18:00	0.7	WSW
15-Apr-2009	19:00	0.6	ESE
15-Apr-2009	20:00	1.0	ENE
15-Apr-2009	21:00	0.9	ENE
15-Apr-2009	22:00	0.9	ENE
15-Apr-2009	23:00	1.0	ENE
16-Apr-2009	00:00	1.8	ENE
16-Apr-2009	01:00	1.6	ENE
16-Apr-2009	02:00	1.8	NE
16-Apr-2009	03:00	1.2	ENE
16-Apr-2009	04:00	1.6	ENE
16-Apr-2009	05:00	1.5	NE
16-Apr-2009	06:00	1.0	NE
16-Apr-2009	07:00	0.9	NE
16-Apr-2009	08:00	1.3	NE
16-Apr-2009	09:00	2.1	NE
16-Apr-2009	10:00	1.9	NE
16-Apr-2009	11:00	1.9	NE
16-Apr-2009	12:00	1.9	NE
16-Apr-2009	13:00	1.6	NE
16-Apr-2009	14:00	1.2	NE
16-Apr-2009	15:00	1.0	NE
16-Apr-2009	16:00	1.8	WNW
16-Apr-2009	17:00	1.5	W

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
16-Apr-2009	18:00	0.9	W
16-Apr-2009	19:00	1.3	SSW
16-Apr-2009	20:00	1.5	SSW
16-Apr-2009	21:00	1.6	SSW
16-Apr-2009	22:00	1.5	S
16-Apr-2009	23:00	1.2	W
17-Apr-2009	00:00	1.2	WNW
17-Apr-2009	01:00	1.2	SSW
17-Apr-2009	02:00	1.3	SSW
17-Apr-2009	03:00	0.9	SSE
17-Apr-2009	04:00	1.2	SSW
17-Apr-2009	05:00	1.5	SW
17-Apr-2009	06:00	1.0	SW
17-Apr-2009	07:00	1.0	SW
17-Apr-2009	08:00	1.6	WSW
17-Apr-2009	09:00	1.6	WSW
17-Apr-2009	10:00	2.2	WNW
17-Apr-2009	11:00	2.2	W
17-Apr-2009	12:00	2.7	WNW
17-Apr-2009	13:00	2.5	WNW
17-Apr-2009	14:00	2.2	W
17-Apr-2009	15:00	2.2	WNW
17-Apr-2009	16:00	2.2	W
17-Apr-2009	17:00	2.1	W
17-Apr-2009	18:00	1.8	W
17-Apr-2009	19:00	1.3	SW
17-Apr-2009	20:00	1.6	SSW
17-Apr-2009	21:00	1.5	S
17-Apr-2009	22:00	0.9	S
17-Apr-2009	23:00	0.4	SW
18-Apr-2009	00:00	0.7	SSW
18-Apr-2009	01:00	0.7	SSW
18-Apr-2009	02:00	0.6	SSW
18-Apr-2009	03:00	0.6	SSW
18-Apr-2009	04:00	0.7	WSW
18-Apr-2009	05:00	0.6	W
18-Apr-2009	06:00	0.6	SSW
18-Apr-2009	07:00	0.6	WNW
18-Apr-2009	08:00	1.2	W
18-Apr-2009	09:00	1.2	WNW
18-Apr-2009	10:00	1.8	WNW
18-Apr-2009	11:00	2.1	WNW
18-Apr-2009	12:00	2.2	NE
18-Apr-2009	13:00	2.2	NE
18-Apr-2009	14:00	3.3	NE
18-Apr-2009	15:00	2.7	NNE
18-Apr-2009	16:00	2.5	NNE
18-Apr-2009	17:00	2.1	NE
18-Apr-2009	18:00	1.5	E
18-Apr-2009	19:00	1.0	E
18-Apr-2009	20:00	0.9	NE
18-Apr-2009	21:00	0.7	NE
18-Apr-2009	22:00	1.2	NNE
18-Apr-2009	23:00	0.7	NNE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
19-Apr-2009	00:00	1.0	NE
19-Apr-2009	01:00	1.3	ESE
19-Apr-2009	02:00	1.3	NE
19-Apr-2009	03:00	1.2	NE
19-Apr-2009	04:00	0.9	ENE
19-Apr-2009	05:00	1.3	NE
19-Apr-2009	06:00	1.0	NE
19-Apr-2009	07:00	1.5	NE
19-Apr-2009	08:00	2.4	ENE
19-Apr-2009	09:00	3.0	ENE
19-Apr-2009	10:00	3.1	ENE
19-Apr-2009	11:00	3.3	ENE
19-Apr-2009	12:00	2.7	ENE
19-Apr-2009	13:00	3.1	E
19-Apr-2009	14:00	3.0	E
19-Apr-2009	15:00	3.3	NE
19-Apr-2009	16:00	3.1	NE
19-Apr-2009	17:00	2.8	NE
19-Apr-2009	18:00	1.3	NE
19-Apr-2009	19:00	1.0	NE
19-Apr-2009	20:00	1.0	NE
19-Apr-2009	21:00	0.4	NE
19-Apr-2009	22:00	1.0	NE
19-Apr-2009	23:00	0.9	NE
20-Apr-2009	00:00	1.2	NE
20-Apr-2009	01:00	1.2	NE
20-Apr-2009	02:00	1.0	NE
20-Apr-2009	03:00	1.0	NE
20-Apr-2009	04:00	0.7	WNW
20-Apr-2009	05:00	0.7	WNW
20-Apr-2009	06:00	0.7	WNW
20-Apr-2009	07:00	0.1	WNW
20-Apr-2009	08:00	1.3	SSW
20-Apr-2009	09:00	2.4	SW
20-Apr-2009	10:00	2.7	WNW
20-Apr-2009	11:00	2.7	W
20-Apr-2009	12:00	2.4	WSW
20-Apr-2009	13:00	2.4	WNW
20-Apr-2009	14:00	2.5	WSW
20-Apr-2009	15:00	2.8	WNW
20-Apr-2009	16:00	2.2	W
20-Apr-2009	17:00	1.3	WSW
20-Apr-2009	18:00	0.6	WSW
20-Apr-2009	19:00	0.6	SW
20-Apr-2009	20:00	1.3	SSW
20-Apr-2009	21:00	1.9	SSW
20-Apr-2009	22:00	1.9	SSW
20-Apr-2009	23:00	2.5	SSW
21-Apr-2009	00:00	1.6	SSW
21-Apr-2009	01:00	1.6	SSW
21-Apr-2009	02:00	1.2	NE
21-Apr-2009	03:00	0.9	W
21-Apr-2009	04:00	1.3	WNW
21-Apr-2009	05:00	0.9	W

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
21-Apr-2009	06:00	0.4	W
21-Apr-2009	07:00	0.3	WNW
21-Apr-2009	08:00	0.4	WNW
21-Apr-2009	09:00	1.3	WNW
21-Apr-2009	10:00	1.3	WNW
21-Apr-2009	11:00	1.0	WSW
21-Apr-2009	12:00	1.9	SE
21-Apr-2009	13:00	1.9	SE
21-Apr-2009	14:00	2.1	SE
21-Apr-2009	15:00	1.9	SE
21-Apr-2009	16:00	1.5	SE
21-Apr-2009	17:00	1.3	SE
21-Apr-2009	18:00	0.6	WNW
21-Apr-2009	19:00	0.1	WNW
21-Apr-2009	20:00	0	---
21-Apr-2009	21:00	0	---
21-Apr-2009	22:00	0	---
21-Apr-2009	23:00	0	---
22-Apr-2009	00:00	0	---
22-Apr-2009	01:00	0	---
22-Apr-2009	02:00	0	---
22-Apr-2009	03:00	0.9	E
22-Apr-2009	04:00	0.7	NNE
22-Apr-2009	05:00	1.0	NNE
22-Apr-2009	06:00	1.0	NNE
22-Apr-2009	07:00	1.3	NNE
22-Apr-2009	08:00	1.6	NNE
22-Apr-2009	09:00	2.1	NE
22-Apr-2009	10:00	2.5	NE
22-Apr-2009	11:00	3.3	NE
22-Apr-2009	12:00	2.4	NE
22-Apr-2009	13:00	2.2	NE
22-Apr-2009	14:00	2.4	NE
22-Apr-2009	15:00	2.4	NE
22-Apr-2009	16:00	1.9	NNE
22-Apr-2009	17:00	2.1	SSE
22-Apr-2009	18:00	1.3	SE
22-Apr-2009	19:00	1.5	ESE
22-Apr-2009	20:00	1.8	SE
22-Apr-2009	21:00	1.6	ESE
22-Apr-2009	22:00	1.0	ESE
22-Apr-2009	23:00	0.9	ESE
23-Apr-2009	00:00	0.9	ENE
23-Apr-2009	01:00	1.0	ENE
23-Apr-2009	02:00	1.0	ENE
23-Apr-2009	03:00	0.9	ENE
23-Apr-2009	04:00	0.7	ENE
23-Apr-2009	05:00	0.7	ENE
23-Apr-2009	06:00	0.7	ENE
23-Apr-2009	07:00	0.7	ENE
23-Apr-2009	08:00	1.0	ESE
23-Apr-2009	09:00	1.8	SSE
23-Apr-2009	10:00	2.4	SSE
23-Apr-2009	11:00	2.5	SSE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
23-Apr-2009	12:00	2.7	SSE
23-Apr-2009	13:00	2.8	SSE
23-Apr-2009	14:00	2.5	SSE
23-Apr-2009	15:00	2.5	SE
23-Apr-2009	16:00	2.5	SSE
23-Apr-2009	17:00	1.9	SSE
23-Apr-2009	18:00	1.5	SSE
23-Apr-2009	19:00	1.3	SSE
23-Apr-2009	20:00	1.2	SSE
23-Apr-2009	21:00	1.2	SSE
23-Apr-2009	22:00	0.6	SSE
23-Apr-2009	23:00	0.6	SSE
24-Apr-2009	00:00	0.6	SSE
24-Apr-2009	01:00	0.7	ENE
24-Apr-2009	02:00	0.6	E
24-Apr-2009	03:00	0.4	ENE
24-Apr-2009	04:00	0.9	ENE
24-Apr-2009	05:00	0.7	NE
24-Apr-2009	06:00	0.6	ENE
24-Apr-2009	07:00	0.7	E
24-Apr-2009	08:00	0.7	ESE
24-Apr-2009	09:00	1.6	ESE
24-Apr-2009	10:00	1.9	ESE
24-Apr-2009	11:00	2.1	ENE
24-Apr-2009	12:00	1.8	ENE
24-Apr-2009	13:00	1.0	E
24-Apr-2009	14:00	1.2	E
24-Apr-2009	15:00	1.6	E
24-Apr-2009	16:00	1.0	E
24-Apr-2009	17:00	1.0	ENE
24-Apr-2009	18:00	0.4	ENE
24-Apr-2009	19:00	0.3	ENE
24-Apr-2009	20:00	0.1	ENE
24-Apr-2009	21:00	0.1	ENE
24-Apr-2009	22:00	0	---
24-Apr-2009	23:00	0.3	ENE
25-Apr-2009	00:00	0	---
25-Apr-2009	01:00	0	---
25-Apr-2009	02:00	0	---
25-Apr-2009	03:00	0	---
25-Apr-2009	04:00	0	---
25-Apr-2009	05:00	0	---
25-Apr-2009	06:00	0.1	E
25-Apr-2009	07:00	0.7	ENE
25-Apr-2009	08:00	1.2	ENE
25-Apr-2009	09:00	1.3	ENE
25-Apr-2009	10:00	1.5	ENE
25-Apr-2009	11:00	1.3	ENE
25-Apr-2009	12:00	1.2	ENE
25-Apr-2009	13:00	1.0	ENE
25-Apr-2009	14:00	0.6	SSE
25-Apr-2009	15:00	1.2	NNE
25-Apr-2009	16:00	1.0	ENE
25-Apr-2009	17:00	1.3	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
25-Apr-2009	18:00	0.7	NE
25-Apr-2009	19:00	0.7	NE
25-Apr-2009	20:00	0.7	NE
25-Apr-2009	21:00	0.3	ENE
25-Apr-2009	22:00	0	---
25-Apr-2009	23:00	0	---
26-Apr-2009	00:00	0.5	ENE
26-Apr-2009	01:00	0.4	NE
26-Apr-2009	02:00	0.5	E
26-Apr-2009	03:00	1.1	NE
26-Apr-2009	04:00	0.1	NNE
26-Apr-2009	05:00	0.1	NE
26-Apr-2009	06:00	0.3	ENE
26-Apr-2009	07:00	0.6	NE
26-Apr-2009	08:00	1.0	ENE
26-Apr-2009	09:00	1.8	NNE
26-Apr-2009	10:00	2.0	NNE
26-Apr-2009	11:00	2.4	NNE
26-Apr-2009	12:00	2.6	NNE
26-Apr-2009	13:00	3.1	NE
26-Apr-2009	14:00	2.8	ENE
26-Apr-2009	15:00	2.5	ENE
26-Apr-2009	16:00	2.4	ENE
26-Apr-2009	17:00	2.0	ENE
26-Apr-2009	18:00	2.0	NNE
26-Apr-2009	19:00	1.8	NNE
26-Apr-2009	20:00	1.8	NNE
26-Apr-2009	21:00	2.0	N
26-Apr-2009	22:00	1.7	NE
26-Apr-2009	23:00	1.9	N
27-Apr-2009	00:00	2.1	ENE
27-Apr-2009	01:00	2.1	NNE
27-Apr-2009	02:00	1.9	NE
27-Apr-2009	03:00	1.9	NE
27-Apr-2009	04:00	1.3	NE
27-Apr-2009	05:00	1.6	NE
27-Apr-2009	06:00	1.4	NE
27-Apr-2009	07:00	1.8	NE
27-Apr-2009	08:00	1.9	NE
27-Apr-2009	09:00	2.4	NE
27-Apr-2009	10:00	2.9	NE
27-Apr-2009	11:00	3.1	NE
27-Apr-2009	12:00	2.6	N
27-Apr-2009	13:00	2.1	NNE
27-Apr-2009	14:00	2.6	NNE
27-Apr-2009	15:00	1.5	N
27-Apr-2009	16:00	2.2	NE
27-Apr-2009	17:00	2.0	NE
27-Apr-2009	18:00	1.6	ENE
27-Apr-2009	19:00	1.5	NE
27-Apr-2009	20:00	2.1	NE
27-Apr-2009	21:00	2.3	ENE
27-Apr-2009	22:00	1.7	ENE
27-Apr-2009	23:00	1.9	NE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
28-Apr-2009	00:00	1.5	ENE
28-Apr-2009	01:00	1.1	NE
28-Apr-2009	02:00	1.1	ENE
28-Apr-2009	03:00	1.5	NE
28-Apr-2009	04:00	1.0	NE
28-Apr-2009	05:00	0.9	NE
28-Apr-2009	06:00	0.8	NE
28-Apr-2009	07:00	0.8	NE
28-Apr-2009	08:00	0.9	NE
28-Apr-2009	09:00	0.9	NE
28-Apr-2009	10:00	1.5	NW
28-Apr-2009	11:00	1.6	NE
28-Apr-2009	12:00	2.3	NE
28-Apr-2009	13:00	3.2	NE
28-Apr-2009	14:00	2.4	NE
28-Apr-2009	15:00	2.2	NE
28-Apr-2009	16:00	2.5	NNE
28-Apr-2009	17:00	2.5	NE
28-Apr-2009	18:00	2.1	NE
28-Apr-2009	19:00	1.6	ENE
28-Apr-2009	20:00	0.3	ENE
28-Apr-2009	21:00	0.8	ENE
28-Apr-2009	22:00	0.6	NE
28-Apr-2009	23:00	0.7	NE
29-Apr-2009	00:00	1.1	NE
29-Apr-2009	01:00	1.1	W
29-Apr-2009	02:00	1.5	N
29-Apr-2009	03:00	2.1	NE
29-Apr-2009	04:00	1.5	N
29-Apr-2009	05:00	1.2	N
29-Apr-2009	06:00	1.8	ENE
29-Apr-2009	07:00	1.9	ENE
29-Apr-2009	08:00	2.5	ENE
29-Apr-2009	09:00	3.2	ENE
29-Apr-2009	10:00	4.0	E
29-Apr-2009	11:00	3.3	ENE
29-Apr-2009	12:00	3.5	SSE
29-Apr-2009	13:00	3.5	SSE
29-Apr-2009	14:00	2.9	SSE
29-Apr-2009	15:00	3.3	SSE
29-Apr-2009	16:00	2.7	E
29-Apr-2009	17:00	2.7	ENE
29-Apr-2009	18:00	2.8	ENE
29-Apr-2009	19:00	2.3	NE
29-Apr-2009	20:00	2.2	ENE
29-Apr-2009	21:00	2.9	ENE
29-Apr-2009	22:00	2.6	E
29-Apr-2009	23:00	2.6	NNE
30-Apr-2009	00:00	2.7	NNE
30-Apr-2009	01:00	2.9	ESE
30-Apr-2009	02:00	2.9	SSE
30-Apr-2009	03:00	2.9	ESE
30-Apr-2009	04:00	2.6	ESE
30-Apr-2009	05:00	2.3	ESE

Appendix J - Wind Data (Western Portal)

Date	Time	Wind Speed m/s	Direction
30-Apr-2009	06:00	2.1	NNE
30-Apr-2009	07:00	2.6	ENE
30-Apr-2009	08:00	2.4	E
30-Apr-2009	09:00	2.7	NNE
30-Apr-2009	10:00	3.1	NE
30-Apr-2009	11:00	3.0	ENE
30-Apr-2009	12:00	3.6	ENE
30-Apr-2009	13:00	3.4	N
30-Apr-2009	14:00	3.8	ENE
30-Apr-2009	15:00	3.4	ENE
30-Apr-2009	16:00	3.2	NE
30-Apr-2009	17:00	2.8	ENE
30-Apr-2009	18:00	2.4	N
30-Apr-2009	19:00	2.4	ENE
30-Apr-2009	20:00	2.7	ENE
30-Apr-2009	21:00	2.5	NE
30-Apr-2009	22:00	2.5	ENE
30-Apr-2009	23:00	2.7	ENE

APPENDIX K
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	90401
Date	1 April 2009 (Wednesday)
Time	15:00 – 17:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
90401-O02	• Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area and clear the standing water.	B15
90401-O03	• Standing water was observed at the pipe storage tank at Western Portal. The Contractor was reminded to dry it out and cover the containers that may retain the stagnant water.	B15
90401-O04	• Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	B15
90401-O05	• A bucket of standing water with chemical oil was observed at Eastern Portal. The Contractor was reminded to clean them up to prevent overflow.	B15
90401-O06	• Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	B15
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
90401-O01	• Oil drum was observed without drip tray and appropriate labels at Western Portal. The Contractor was reminded to provide them with drip tray and attach with appropriate chemical labels.	F3i. and 4
90401-O04	• Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	F2ii.
90401-O05	• A bucket of standing water with chemical oil was observed at Eastern Portal. The Contractor was reminded to clean them up to prevent overflow.	F2ii.
90401-O06	• Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	F2ii.
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
90401-R07	• Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	B7i.
90401-R08	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:90326), follow-up action is needed for the items (90326-O01, O04-O06, R07 and R08).	

Weekly Site Inspection Record Summary

	Name	Signature	Date
Recorded by	Ivy Tam		1 April 2009
Checked by	Dr. Priscilla Choy		1 April 2009

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	90408
Date	8 April 2009 (Wednesday)
Time	15:15 – 17:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
90408-O01	• Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	B15
90408-O03	*Marine Works* • Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal. The Contractor was reminded to clear the waste as soon as possible.	B22
90408-O04	• Standing water was observed at the discarded sedimentation tank at Western Portal. The Contractor was reminded to dry it out to prevent mosquito breed.	B15
90408-O05	• Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area properly.	B15
90408-O07	• Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	B15
	•	
	•	
	B. Air Quality	
90408-O06	• Over 20 cement bags were observed without cover at Western Portal. The Contractor was reminded to cover them with tarpaulin to prevent dust generation.	D6
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
90408-O01	• Stagnant water with chemical oil was observed at the drip tray at Eastern Portal. The Contractor was reminded to clear them and dispose as chemical waste.	F2ii.
90408-O02	• Oil leakage from air compressor was observed at Intake W0. The Contractor was reminded to clear the chemical oil at the drip tray and well-maintained the plant equipment properly.	F8
90408-O03	• Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal. The Contractor was reminded to clear the waste as soon as possible.	F5ii.
90408-O07	• Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal. The Contractor was reminded to clear them and dispose as chemical waste.	F2ii.
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	F. Marine Ecology	
	• No environmental deficiency was identified during site inspection.	
	G. Reminders	
90408-R08	• Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	B7i.
90408-R09	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	B15

Weekly Site Inspection Record Summary

	H. Others	
	• Follow-up on previous audit section (Ref. No.:90401), follow-up action is needed for the items (90401- O02-O04, O06, R07 and R08).	

	Name	Signature	Date
Recorded by	Ivy Tam	Ivy	8 April 2009
Checked by	Dr. Priscilla Choy		8 April 2009

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	90415
Date	15 April 2009 (Wednesday)
Time	15:00 – 17:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
90415-O02	• Standing water was observed at the discarded sedimentation tank at Western Portal. The Contractor was reminded to dry it out to prevent mosquito breed.	B15
90415-O03	• Standing water was observed at the uneven area at Western Portal. The Contractor was reminded to pave the uneven area properly.	B15
90415-O08	• Sand bag bund was not observed at the outlet of the access road. The Contractor was reminded to provide bund of sand bag to prevent any wastewater from construction site discharging to the stream.	B2 and 5
	B. Air Quality	
90415-O06	• Sediment was observed at the site boundary of Intake W0. The Contractor was reminded to clean them up.	D2
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
90415-O04	• Oil drum was observed without drip tray and appropriate label. The Contractor was reminded to store it properly and attach with appropriate chemical label.	F3i. and 4
90415-O05	• Oil leakage from air compressor was observed at Intake W0. The Contractor was reminded to clear the chemical oil at the drip tray and well-maintained the plant equipment properly.	F8
	E. Ecology	
90415-O07	• Seepage of silty water at the stream at THR2 was observed. The Contractor was reminded to provide mitigation measures to prevent any silty water from discharging out to affect the water quality of the stream.	G1
	F. Marine Ecology	
90415-O01	• Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	C2
	G. Reminders	
90415-R09	• Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	B7i.
90415-R10	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:90408), follow-up action is needed for the items (90408- O02, O04, O05, R08 and R09).	

Weekly Site Inspection Record Summary

	Name	Signature	Date
Recorded by	Ivy Tam		15 April 2009
Checked by	Dr. Priscilla Choy		15 April 2009

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	90422
Date	22 April 2009 (Wednesday)
Time	15:00 – 17:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
90422-O01	• Standing water was observed at the container that may retain the water at Eastern Portal. The Contractor was reminded to dry it out.	B15
90422-O02	• Standing water with chemical oil was observed nearly overflow at underneath of water pump at Intake THR2. The Contractor was reminded to clear them.	B15
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
90422-O02	• Standing water with chemical oil was observed nearly overflow at underneath of water pump at Intake THR2. The Contractor was reminded to clear them.	F2ii.
90422-O05	• Suspected oil containers were observed to place near the sea at Western Portal. The Contractor was reminded to store them properly.	F3i.
90422-O06	• Oil drum was observed without drip tray and appropriate label. The Contractor was reminded to store it properly and attach with appropriate chemical label.	F3i. and 4
	E. Ecology	
90422-O03	• Seepage of silty water at the stream at THR2 was observed. The Contractor was reminded to provide mitigation measures to prevent any silty water from discharging out to affect the water quality of the stream.	G1
	F. Marine Ecology	
90422-O04	• Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	C2
	G. Reminders	
90422-R07	• Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	B7i.
90422-R08	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:90415), follow-up action is needed for the items (90415- O01, O04, O07, R09 and R10).	

	Name	Signature	Date
Recorded by	Ivy Tam		22 April 2009
Checked by	Dr. Priscilla Choy		22 April 2009

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	90430
Date	30 April 2009 (Friday)
Time	14:00 – 17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
90430-O02	• Stream diversion was observed implemented at Intake THR2. However, The Contractor was reminded to critical review the capacity if the water recycling tank for recycling the silty water from the sand bag bund area at the stream and ensure no wastewater from discharging out to the public storm drain.	B7iii.
	B. Air Quality	
90430-O07	• Dust generation was observed due to the dry site area at Western Portal. The Contractor was reminded to provide water-spray more frequently.	D4 and 5
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Waste / Chemical Management	
90430-O01	• Construction waste was observed not stored properly before disposal at Eastern Portal. The Contractor was reminded to provide material skip for temporary storage of C&D waste.	F5ii.
90430-O03	• Vegetation waste was observed accumulated at the stream of Intake THR2. The Contractor was reminded to clear them properly.	F5ii.
90430-O05	• Suspected oil containers were observed to place near the sea at Western Portal. The Contractor was reminded to store them properly.	F3i.
90430-O06	• Oil drum was observed without drip tray and appropriate label at Western Portal. The Contractor was reminded to store it properly and attach with appropriate chemical label.	F3i. and F4
	E. Ecology	
	• No environmental deficiency was identified during site inspection.	
	F. Marine Ecology	
90430-O04	• Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	C2
	G. Reminders	
90430-R08	• Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	B7i.
90430-R09	• Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	B15
	H. Others	
	• Follow-up on previous audit section (Ref. No.:90422), follow-up action is needed for the items (90422- O03- O06, R07 and R08).	

	Name	Signature	Date
Recorded by	Ivy Tam		30 April 2009
Checked by	Dr. Priscilla Choy		30 April 2009

APPENDIX L
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Appendix L - Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
Construction Dust	*Dust Mitigation Measures*	
	• The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. Effective dust suppression measures should be installed to minimize air quality impacts, at the boundary of the site and at any sensitive receivers.	*
	• No blasting shall be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted (unless prior permission of the Commissioner of Mines is obtained).	^
	• Effective water sprays shall be used during the delivery and handling of all raw sand, aggregate and other similar materials, when dust is likely to be created, to dampen all stored materials during dry and windy weather. Watering of exposed surfaces shall be conducted as often as possible depending on the circumstances.	*
	• A watering programme of once every 2 hours in normal weather conditions, and hourly in dry/windy conditions.	*
	• Any stockpile of dusty material cannot be immediately transported out of the Site shall be either: a) covered entirely by impervious sheeting; b) placed in an area sheltered on the top and the three sides; or c) sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.	*
	• Should a conveyor system be used, the Contractor shall implement the following precautionary measures. Conveyor belts shall be fitted within windboards. Conveyor transfer points and hopper discharge areas shall be enclosed to minimize dust emission. All conveyors under control of the Contractor, and carrying materials which have the potential to create dust, shall be totally enclosed and fitted with belt cleaners.	*
	• Any dusty materials being discharged to vehicle from a conveying system at fixed transfer point, three-sided roofed enclosed with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented via a suitable fabric filter system.	N/A
	• The heights from excavated spoils are dropped should be minimise to reduce the fugitive dust arising from unloading/loading.	^
	• The Contractor shall confine haulage and delivery vehicles to designated roadways inside the site. If in the opinion of the Engineer, any motorising vehicle is causing dust nuisance, the Engineer may require that the vehicle be restricted to a maximum speed of 15km per hour while within the site area.	^
	• Areas within the site where there is a regular movement of vehicles shall have an approved hard surface, be kept clear of loose surface materials and / or be regularly watered.	^
	• Wheel cleaning facilities shall be installed for both portals and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel cleaning facilities shall be usable prior to any earthwork excavation activity on site. The Contractor shall provide a hard-surfaced road between any cleaning facility and the public road.	^
	• Chemical wetting agents shall only be used on completed cuts and fills to reduce wind erosion.	N/A

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
# Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	• No vehicle exhausts shall be directed towards the ground or downwards to minimize dust nuisance.	^
	• Ventilation system, equipped with proprietary filters, should be provided to ensure the safe working environment inside the tunnel. Particular attention should be paid to the location and direction of the ventilation exhausts. The exhausts should not be allowed to face any sensitive receivers directly. Consideration should also be given to the location of windows, doors and direction of prevailing winds in relation to the nearby sensitive receivers.	^
	• In the event of any spoil or debris from construction works being deposited on adjacent land, or stream, or any silt being washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Engineers.	*
	In addition, based on the *Air Pollution Control (Construction Dust) Regulation*, any works involved regulatory and notifiable works, such as stockpiling, loading and unloading of dusty materials, shall take precautions to suppress dust nuisance.	
	• The working area of any excavation or earthmoving operation shall spray with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;	^
	• Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies; and	*
	• Any stockpile of dusty materials (greater than $20m^3$) shall be either covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides; and sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.	*
	• Other suitable dust control measures as stipulated in Air Pollution Control (Construction Dust). Regulation, where appropriate, should be adopted.	^

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
# Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
Construction Noise	*Air borne noise* In general, potential construction noise impact can be minimized or avoided by imposing a combination of the following mitigation measures: • Noisy equipment and activities should be sited by the Contractor as far from close-proximity sensitive receivers as practical. Prolonged operation of noisy equipment close to dwellings should be avoided. • The Contractor should minimise construction noise exposure to the schools (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the works contract and to avoid noisy activities during these periods. • Noisy plant or processes should be replaced by quieter alternatives. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressor, can be readily obtained. • Noisy activities should be scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise. For example, noisy activities can be scheduled for midday, or at times coinciding with periods of high background noise (such as during peak traffic hours). • Idle equipment should be turned off of throttled down. Noisy equipment should be properly maintained and used no more often than is necessary. • The power units of non-electric stationary plant and earth-moving plant should be quietened by vibration isolation and partial or full acoustic enclosures for individual noise-generating components. • Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided, thus reducing the cumulative impacts between operations. The numbers of operating items of powered mechanical equipment should be minimised. Noise can be reduced by increasing the distance between the operating equipment and the NSRs or by reducing the number of items of equipment and/or construction activity in the area at any one time. • The use of quiet plant working methods can further reduce noise level. Quiet plant is defined as Powered Mechanical Equipment (PME) whose actual sound power level is less than the value specified in the TMs for the same piece of equipment. To allow the Contractor some flexibility to select equipment to suit his needs, it is considered too restrictive to specify which specific items of silenced equipment to be used for the construction operations. It should be noted that various types of silenced equipment can be found in Hong Kong and are readily available on the market. BS 5228 also provides examples of quiet construction plant and their SWL. • Construction plant should be properly maintained (well-greased, damage and worn parts promptly replaced) and operated. Construction equipment often has silencing measures built in or added on, e.g. bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilised. Rubber or damping materials should be introduced between metal panels to avoid rattle and reverberation of noise. • Equipment known to emit sound strongly in one direction should be oriented so that the noise is directed away from nearby NSRs. • Materials stockpile and other structures (such as site offices) should be effectively utilised to shield construction noise. Noise	^ ^ ^ ^ ^ ^ ^ ^ ^

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
* Recommendation was made during site audit but improved/rectified by the contractor;
\# Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	can also be reduced by construction of temporary noise barriers which screen the lower floors from viewing the sites. Temporary noise barriers should be installed at active parts of construction areas where construction equipment is being operated in close proximity to NSRs. • It is noted that under the WBTC No. 19/2001, all construction sites are required to use metallic site hoarding can be slightly modified (with the addition of steel backings) into temporary noise barriers. These barriers should be gap free and have a surface mass density of at least 7kg/m^2. • All hand-held percussive breakers and air compressors should comply the Noise Control (Hand-held Percussive Breakers) Regulations respectively under the NCO (Ordinance No. 75/88, NCO Amendment 1992 No.6). The Contractor shall devise, arrange methods of working and carry out the works in such manner as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these measures are implemented properly. <u>Level 2 Use of Barriers</u> Level 2 mitigation measures include providing movable barriers for sites which have sufficient space for installation, full enclosures during the drilling activities at Eastern Portal and at muck pit areas for Eastern portals and cantilever-typed high rise noise barrier for intake W5 (P) and W8. Before construction of the full enclosure at muck pit area, the use of full enclosure noise barrier (Stage A) for the drilling activities at the Eastern Portal area is required. A full enclosure for the muck pit area will then be constructed at this later stage (Stage B). The full enclosure shall be gap free apart from necessary entrance/exits, which shall face towards the entrance of eastern portal to minimize the amount of noise generated from affecting the nearest RNSRs especially school (True Light Middle School of Hong Kong). 5m high cantilever-typed hoarding barrier to be built at W5 (P) and W8. These enclosures/barriers should have no gaps and have a superficial surface density of at least 10kg/m^2. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period. To schedule the noise barrier erection and dismantling to the non sensitive periods of school to avoid adverse impact to W8/3. Movable barriers of 3 to 5m height with a small cantilevered upper portion and skid footing to be located within about 5 m or more for mobile equipment such that the line of sight is blocked. To provide purposes-built noise barriers or screens constructed of appropriate materials (minimum superficial density of 10kg/m^2) located close to the operating PME. Pre-drilling following by chemical splitting instead of using large excavator mounted breaker should be used as mitigation measure for rock breaking and rock drilling.	^ ^ ^ ^ ^ ^ ^

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Types of Impacts	Mitigation Measures	Status
	No construction activity is recommended during the examination period. <u>*Ground borne noise*</u> The noise level should be measured on the ground floor inside the nearest building during the TBM construction work in the daytime. If the daytime monitored ground borne noise exceeds the relevant evening/night ground borne noise criteria, evening/night construction work would not be carried out for the concerned tunnel section. Evening/night time construction work is subject to CNP application under the control of NCO. Public relationship strategy with 24-hour hotline system.	^ ^

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Types of Impacts	Mitigation Measures	Status
Water Quality	<u>Precautionary measures for construction work near natural streams</u> The government provides guidelines (ETWB TCW NO. 5/2005 and DSD TC 2/2004) are providing guidelines to minimize impacts when there is construction work carried out at near natural streams course. Relevant mitigation measures for the intakes are summarised as follows: • Temporary site access to the work sites should be carefully planned and located to minimize disturbance caused to the substrates of streams/rivers and riparian vegetation by construction plant. • Locations well away from the rivers/streams for temporary storage of materials (e.g equipment, filling materials, chemicals and fuel) and temporary stockpile of construction debris and spoil should be identified before commencement of works. • Proposed works site areas inside, or in the proximity of, natural rivers and streams should be temporarily isolated to prevent adverse impacts on the stream water qualities. • Stockpiling of construction materials, if necessary, should be completely properly covered and located away from any natural stream/river. • Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby rivers/streams by rain and local runoff. <u>Construction of temporary berthing point at the Western Portal</u> A refuse collection vessel shall be provided to collect refuse or materials lost into the sea. The respective areas of the marine works will be completely enclosed by the silt curtain. The curtain shall be extended from water surface down to the seabed where it is anchored using sinker blocks. The Contractor shall inspect the silt curtain on regular basis to ensure its integrity and it is serviceable for all times.	* * * * * ^ ^

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# Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

Types of Impacts	Mitigation Measures	Status
	Transfer of armour rock onto the seabed from barge at the temporary pier location should be conducted by careful grabbing and unloading to the seabed (to minimize sediment migration).	^
	The conveyor belt should be completely covered and muddy effluent from the temporary barge should be contained, treated and disposed. Where there is transfer of excavated wastes, the Contractor should provide appropriate measures to ensure that the waste is free from floatables, putrescibes, organic wastes and toxic materials and when required a refuse collection vessel be provided to collect float refuse.	^
	<u>Construction of stilling basin at Western Portal outfall</u>	
	All construction for the basin should be carried out inside the temporary cofferdam which is a temporary watertight enclosure built in the water and pumped dry to expose the bottom so that construction of stilling basin can be undertaken.	^
	During the dewatering process, appropriate desilting/sedimentation devices should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge.	^
	The cofferdam will remain on site until after the construction of stilling basin has been completed. The coffer dam shall be regularly inspected and maintained to ensure no spillage of waste or wastewater into the sea. Conveyance of dredged materials from the coffer dam shall be carried out cautiously to avoid spillage into the sea.	^
	The filled material for the stilling basin should be contained inside the temporary cofferdam. The top level of the cofferdam shall be constructed higher than the final backfilled level.	^
	The Contractor shall be responsible for the design, installation and maintenance of the silt curtains to minimize the impacts on the water quality and the protection of water quality. The design and specification of the silt curtains shall be submitted by the Contractor to the Engineer for approval.	^
	Silt curtains shall be formed from tough, abrasion resistant, permeable membranes, suitable for the purpose, supported on floating booms in such a way as to ensure that the sediment plume shall be restricted to within the limit of the works area. The silt curtain shall be formed and installed in such a way that tidal rise and fall are accommodated, with the silt curtains always extending from the surface to the bottom of the water column and held with anchor blocks. The removal and reinstallation of such curtains during typhoon conditions shall be as agreed with the Director of Marine Department. The contractor shall regularly inspect the silt curtains and check that they are moored and marked to avoid danger to marine traffic. Any damage to the silt curtain shall be repaired by the Contractor promptly and the works shall be stopped until the repair is fixed to the satisfaction of the Engineer.	*

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Types of Impacts	Mitigation Measures	Status
	Transfer of rock fill material (armour rock) from the barge onto the site location should be conducted by grabbing and placement on the seabed to minimize sediment migration. No free dropping of the material will be allowed.	^
	Prior to the construction of armor rock based panel, a silt curtain shall also be installed prior to carry out any marine works as a preventive mitigation measure.	^
	<u>Construction of TBM tunnel at both portals and intakes</u>	
	Recycled water will be used at the cutter face for cooling purposes. Used water will be collected and discharged to a settling tank for settlement. Excess water from the settling tank will be transferred to the water treatment plant on site where the addition of flocculants will assist in settlement of solids. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge.	^
	During the drilling process, all flushing water will be recycled for use. Discharge of the treated water to nearby drainage system shall be allowed provided that it has been treated to a level meeting with statutory requirements.	^
	Water flow at streams should be maintained by a temporary diversion system during the construction phase of intakes and manhole drop shafts.	^
	<u>General Construction Activities and Workforce</u>	
	A. Surface runoff	
	Effluent produced from construction activities are subjected to WPCO control. Effluent produced from sites should be diverted away from stream courses. Construction works near stream course should be scheduled in the dry season as far as practical to avoid excessive site runoff discharge.	*
	Under the *Water Pollution Control Ordinance* (WPCO), turbid water from construction sites must be treated to minimize the solids content before being discharged into storm drains. The suspended solids load can be reduced by directing the runoff into temporary sand traps or other silt-removal facilities, and other good and appropriate site management practices. Advice on the handling and disposal of construction site discharge is provided in the ProPECC Paper (PN 1/94) on Construction Site Drainage.	*
	A drainage system layout should be prepared by the Contractor for each of the works areas (portals and intakes), detailing the facilities and measures to manage pollution arising from surface runoff from those works areas. The drainage layout and an associated drainage management plan to reduce surface runoff sediments and pollutants entering watercourses, should be submitted to the Engineer for approval and to EPD for agreement.	*

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Types of Impacts	Mitigation Measures	Status
	The system should be capable of handling stormwater from the site and directing it to sediment removal facilities before discharge. If oil and grease is used on the site or brought to the site, the stormwater should pass through oil interceptors before discharge. The interceptors should have a bypass to prevent washout in heavy storms.	^
	A temporary channel system or earth bunds or sand barriers should be provided in works areas on site to direct stormwater to silt-removal facilities. Stockpiled materials, if susceptible to erosion of rain or wind, should be covered with tarpaulins (or/similar fabric0 or hydroseedings as far as practicable especially during the wet season.	*
	Silt removal facilities should be checked and the deposited silt and grit should be removed regularly to ensure these facilities are in good working condition and to prevent blockages.	^
	Vehicle washing areas should be drained into a settlement into a settlement basin to settle out the suspended solid before discharge to storm water drains. The water should be recycled on site whenever possible. It is suggested that the wash water from the wheel wash basin is either reused for road watering or pumped to the on-site settling tanks for treatment. Water used for dust depression purposes should be minimized and an alternative soil holding agent should be considered.	^
	B. Spillage, Oil and Solvents Any contractor generating waste oil or other chemicals as a result of his activities should register as a chemical waste producer and provide a safe storage area for chemicals on site. Oil interceptors need to be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity.	^
	Any spillage should be cleaned up immediately and the resulting contaminated absorbent material should be properly managed according to Waste Disposal Regulations. Spills should be contained to avoid spreading and contaminating the water resources.	*
	Oil and fuels should be used and stored properly in designated area. All fuel tanks and storage areas should be provided with locks and be sited on within sealed areas within surrounded by bunds of with a capacity equal to 110% of the storage capacity of the largest tank.	*
	Good housekeeping practices are required to minimize careless spillage and keep the work space in a tidy and clean condition. Appropriate training, including safety codes and relevant manuals, should be given to the personnel who regularly handle the chemicals on site.	*

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Types of Impacts	Mitigation Measures	Status
	C. On-Site Effluent Generation	
	Sewage arising from the additional population of workers on site should be collected in a suitable storage facility (chemical mobile toilets). Most of the work site locations are close to the public sewerage system, and therefore the use of septic tanks isare, therefore, not encouraged. Portable toilets should be used coupled with tickering away services provided by a licensed collector. They should be positioned at appropriate locations across the site to ensure no direct discharge of foul water off-site.	^
	D. Protection of Existing Flora and Fauna	
	The Contractor should provide details of the plant and operation plans at each site for approval by the Engineer before commencing construction. The plans should include how the existing flora and fauna will be protected. Locations required for groundwater levels monitoring are Eastern Portal, PFLR1(P), THR2(P), TP5, TP789 and W12.	^
	The construction and demolition of the temporary pier may create short term impacts on the local marine water quality. The situation will be restored once the work is finished by proper phasing of the works programme and implementation of the adequate mitigation measures (e.g. silt curtain) the impacts will be minimized.	^
	<u>Maintaining Baseflow in Downstream Watercourses</u>	
	The final design will be developed during the detailed design stage. The exact base flow rates to be maintained at each of the intakes will be subject to detailed site investigation at design stage.	
	• Purpose of the by-pass device is to maintain the base-flow of the affected stream course.	N/A
	• The by-pass system comprises an approach link and a trapezoidal channel.	N/A
	• The approach link is section with inclined profiled surface at a gradient of 1 in 100. It is used to direct the base flow to the bypass trapezoidal channel at its down stream end during the normal days.	N/A
	• The trapezoidal channel is sized such that it could handle the base flow in the affected stream course which is estimated to be no more than 20 l/s.	N/A
	• Whenever the flow in the stream course exceeding the base flow rate, the excessive flow will overflow into the intake structure via the bottom rack structure. The bottom rack structure has bar screen on the top and inclined channel at the bottom. The top level of the bar screen is level with the by-pass channel with an aim to receive the overflow from the by-pass channel.	N/A
	• The by-pass channel is designed requiring minimum maintenance. However, it is recommended that the maintenance authority carry out regular maintenance inspection prior to onset of seasons and after significant rainstorm event to prevent blockage of the by-pass and bottom rack structure.	N/A

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Types of Impacts	Mitigation Measures	Status
Waste/Chemical	<u>General</u> A proper waste management plan should be implemented to promote waste minimisation at source. Where waste generation is unavoidable then the potential for recycling or reuse should be explored and opportunities taken. If wastes cannot be recycled then the recommended disposal routes should be followed. All waste materials shall be segregated into categories covering: • Excavated material or construction waste suitable for reuse on-site • Excavated material or construction waste suitable for public filling areas • Remaining C&D waste for landfill • Chemical waste, and • General refuse Proper segregation and disposal of construction waste should be implemented. Separate containers for inert and non-inert wastes should be provided. The inert waste should be taken to public filling area and the non-inert waste should be transported to strategic landfills. A trip-ticket system on the solid waste transfer/disposal operations should be included as one of the contractual requirements (ETWB TCW No. 31/2004). The Independent Environmental Checker (IEC) should responsible for auditing this system. IEC should also responsible for auditing the well-documented record system which includes: (i) quantity of waste generation, (ii) quantity of recycled material, (iii) quantity of disposed material, (iv) disposal methods and (v) sites should be implemented during construction phase. Regular cleaning and maintenance of the waste storage area should be conducted throughout the construction stage. <u>Excavated spoil</u> Control measures for soil temporarily stockpiled on-site should be taken in order to minimize the noise, generation of dust, pollution of water and visual impact. Key impacts include:	* ^ ^ ^ ^ ^ ^ ^ ^ ^

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Types of Impacts	Mitigation Measures	Status
	• Surface of stockpiled soil should be wetted with water when necessary especially during dry season	^
	• Disturbance of stockpiled soil should be minimized	^
	• Stockpiled soil should be properly covered with tarpaulins especially heavy rain storms	*
	• Stockpiling areas should be enclosed if possible	^
	• Stockpiling location should be away from the shoreline	^
	• An independent surface water drainage system equipped with silt traps should be installed at the stockpiling area	^
	<u>Chemical wastes</u>	
	For those processes that generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	^
	Construction processes produce chemical waste, the contractor must register with EPD as a Chemical Waste Producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation (CWR). It should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Waste published by the EPD. A producer of chemical wastes should be registered as chemical waste producer and registered with EPD.	^
	The chemical waste generated shall be properly labelled, stored and disposed of according to the CWR. Proper storage area shall be allocated on site for storage of chemical waste. The chemical waste should only be collected by a licensed collector. An updated list of licensed chemical waste collector can be obtained from EPD.	*
	In case of spillage, spill absorbent material and emulsifiers should be available on site. This material should be replaced on a regular basis and the contaminated material stored in a designated, secure place.	*
	<u>General refuse</u> A reputable waste collector should be employed by the contractor to remove general refuse from the site, separate from C&DM and chemical wastes, and on regular basis in order to minimize odour, pest and litter impacts. The burning of refuse at site is not permitted under the Air Pollution Control Ordinance (Cap 311).	^
	Office waste can be reduced through recycling of paper if volumes are large enough to warrant collection.	^
	Good management practices should be implemented to ensure that refuse is properly stored and is transported for disposal of at licensed landfills.	*

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Types of Impacts	Mitigation Measures	Status
Terrestrial Ecology	During the detailed design stage, the following issues should also be considered as possible to further minimise the impacts: • Adjustment of site boundary to minimise temporary loss of natural stream habitat during construction. • Adjustment of site boundary to minimise use of mixed woodland as temporary works area. In particular, the woodland habitat in temporary works area of the Eastern Portal will be avoided, thereby greatly reducing the area of temporary loss of woodland habitat. • Minimizing felling of large trees. • About 20% of trees within the works area will be transplanted. The individual of Artocarpus hypargyreus recorded within the temporary works area of HKU1, if to be encroached, would also be transplanted. Standard site practices including the following, should be enforced to minimise the disturbance to the surroundings: • Treat any damage that may occur to large individual trees in the adjacent area using materials and methods appropriate for tree surgery. • Reinstate work sites/disturbed areas immediately after completion of the construction works, in particular, through on-site tree/shrub planting along the woodland and shrubland section within the temporary works area. Tree/shrub species used should make reference from those in the surrounding area. • Regularly check the work site boundaries to ensure that they are not exceeded and that no damage occurs to surrounding areas. A total of 1.02 ha would be replanted with woodland species, reaching almost a 1.5:1 ratio for compensatory planting. Tree/shrub species used should be based on those in the surrounding areas, including those which are commonly recorded during the baseline surveys. A low-flow channel would be provided within the channelised section to maintain a deeper water depth in the expanded channel, in particular during dry season as well as a basin at the end of the channelised section to provide living space for aquatic life. Step chute in the form of a series of descending water pools would be constructed between the low flow channel and the undisturbed stream course. There would also be openings for aquatic fauna between each chute step (pool). These could work like a "ladder" to help avoid isolating the aquatic fauna in the channelised section from natural habitats. Measures are also needed to maintain the flow of all affected streams/nullahs during the construction stages. Temporary bypass should be provided if the stream/nullah flows will be cut off by the construction works. After the construction works are finished, sections of temporary loss should be reinstated. Construction materials, wastes, and equipment should be cleared from the sites.	^ ^ ^ ^ ^ ^ ^ ^ ^

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Types of Impacts	Mitigation Measures	Status
	Surveys of amphibians at E4(P), PFLR1(P), W12(P), MB16, E5(B)(P), TP789(P) and P5(P) prior to commencement of construction is recommended. Frogs, including Hong Kong Cascade Frog and Lesser Spiny Frog, and tadpoles found at work areas of these proposed intake points will be collected and translocated to nearby streams that will not be affected by the project. These procedures should be performed by experienced herpetologists. A detailed translocation proposal will be submitted during the detailed design stage. Measures should also be taken to avoid runoff to streams and marine habitats. Stream/channel which could potentially be affected during construction should be prevented from sedimentation by erection of sediment barriers. Site runoff should be desilted by siltation traps in streams/channels or diverted, to reduce the potential for suspended sediments, organics and other contaminants to enter the local stream environment.	^ ^
Marine Ecology	Silt curtains will be deployed during the construction and demolition of the temporary berthing point. Deployment of silt curtains around the berthing point area would effectively avoid adverse water quality impacts due to barge filling. No significant ecological impact is anticipated. The invert of the stilling basin would be at -5.4 mPD. A cofferdam in the form of pipe-pile wall is to be constructed outside the stilling basin prior to the construction of basin. The cofferdam will be dewatered to provide a working area for construction of the stilling basin. The boulders from the seawall will then be removed by landbased grabs. Although the speed of the working vessels to be used in the Project (mainly barges) would not be high, a speed limit for marine traffic is proposed as a precautionary measure. A speed limit of 10 knots should be strictly enforced in the works area, in particular in the waters between the outfall location and the navigation channel in East Lamma Channel.	* N/A ^

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Types of Impacts	Mitigation Measures	Status
Landscape and Visual	The proposed landscape and visual mitigation measures during the construction phase include: CM1 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. CM2 - Existing trees to be retained on site should be carefully protected during construction. The detailed proposal for any trees felling and transplantation is subject to Lands Department's approval on tree felling application at the detailed design stage. CM3 - Trees unavoidably affected by the works should be transplanted where practical. CM4 - Compensatory tree planting should be provided to compensate for felled trees. CM5 - The extent of disturbance on the existing stream course should be minimized. Any temporary works areas within the stream course shall be reinstated after construction. CM7 – Control of night-time lighting CM8 – Erection of decorative screen hoarding	 ^ ^ ^ ^ ^ ^ ^

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Types of Impacts	Mitigation Measures	Status
Cultural Heritage	The Cultural Heritage Impact Assessment has identified the following resources which will require mitigation measures during the construction stage; <u>Haw Par Mansion (including boundary wall and gate)</u> A condition survey must be undertaken by a qualified professional prior to the commencement of construction works for the tunnel portal in order to assess the structural integrity of the mansion, wall and gate (with special attention paid to any fragile architectural features). A report containing description of the types of construction, identification of fragile elements, an appraisal of the condition and a photographic record must be prepared. The report must also provide an assessment indicating whether further precautionary measures will be necessary during the construction phase, and if so provide details for sufficient protective measures, including monitoring for vibration control to ensure that no damage to the structure and fabric of the house, wall and gate results from the construction works. The report must be submitted to AMO for approval before construction activities commence. Upon approval the appropriate monitoring and precautionary measures shall be put into place. A buffer zone with a minimum width of 3 metres and an obstruction free access point must be maintained between the boundary wall/gate and the temporary works area (during construction works associated for both the tunnel portal and the permanent vehicle access ramp). This is to enable access for routine maintenance works on the wall and to ensure that the wall is not damaged by machinery operation or related construction activities. The temporary works area will be enclosed by standard DSD site hoarding. <u>Former Explosive Magazine of Victoria Barracks</u> A condition survey must be undertaken by a qualified professional prior to the commencement of construction works in order to assess the structural integrity of the retaining wall and the extent of damage from cracks and vegetation growth. A report containing a description of the wall's construction materials, identification of fragile and/or endangered elements, an appraisal of the condition and a photographic record of the retaining wall must be prepared. The report must also provide an assessment indicating whether further precautionary measures will be necessary during the construction phase, and if so provide details for sufficient protective measures, such as monitoring for vibration control, to ensure that no damage to the retaining wall results from the construction works. The report must be submitted to AMO for approval before construction activities commence. Upon approval the appropriate monitoring and precautionary measures shall be put into place. A buffer zone with a minimum width of 3 metres and an obstruction free access point must be maintained between the retaining wall and the temporary works area (for the duration of the construction phase). The works area will be enclosed by standard DSD site hoarding.	^ ^ ^ ^

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Types of Impacts	Mitigation Measures	Status
Fisheries	Silt curtain will be deployed during the construction and demolition of the temporary berthing point. With the deployment of silt curtains around the berthing point area, adverse water quality impact associated with the filling would not be anticipated. No significant fisheries impact is anticipated. The invert of stilling basin will be found at -5.4 mPD. A cofferdam in the form of pipe-pipe wall is to be constructed outside the stilling basin prior to the construction of basin. The cofferdam will be dewatered to provide a working space for the construction of stilling basin. The boulders from the seawall will then be removed by landbased grabs.	^ N/A
Hazard to Life	There will be no overnight storage of explosives for this project. Transportation of explosives to site for the construction of adit will be undertaken on a daily basis. The contractor is required to destroy any unused explosives before nightfall. If contractor wishes to set up magazines for overnight storage of explosives, it is necessary to carry out risk assessment and seek the relevant approval following the EIAO process.	^

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APPENDIX M
EVENT ACTION PLANS

Appendix M - Event Action Plans

Event/Action Plan for Air Quality

	ACTION			
EVENT	**ET**	**IEC**	**SUPERVISING OFFICER'S REPRESENTATIVE**	**CONTRACTOR**
ACTION LEVEL				
1.Exceedance for one sample	1. Identify the source and investigate the causes and propose remedial measures 2. Inform Supervising Officer's Representative & IEC 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET 2.Check Contractor's working methods	1.Notify Contractor	1.Rectify any unacceptable practice 2.Amend working methods if appropriate
2.Exceedance for two or more consecutive samples	1. Identify the source 2. Inform Supervising Officer's Representative & IEC 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with Supervising Officer's Representative & IEC for remedial actions required 6. If exceedance continues, arrange meeting with Supervising Officer's Representative & IEC 7. If exceedance stops, cease additional monitoring	1.Checking monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET, IEC and Contractor on proposed remedial actions 4. Advise the Supervising Officer's Representative & ET on the effectiveness of the proposed remedial measures 5.Supervise the implementation of the remedial measures	1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.Ensure remedial actions properly implemented	1.Submit proposals for remedial actions to Supervising Officer's Representative within 3 working days of notification 2.Implement the agreed proposals 3.Amend proposal if appropriate
LIMIT LEVEL				
1.Exceedance for one sample	1. Identify source,,investigate the causes and propose remedial measures 2. Inform Supervising Officer's Representative & IEC and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep EPD and Supervising Officer's Representative & IEC informed of the results	1.Check monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET and Contractor on proposed remedial actions 4. Advise the Supervising Officer's Representative on the effectiveness of the proposed remedial measures 5.Supervise the implementation of the remedial measures	1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.Ensure remedial actions properly implemented	1.Take immediate action to avoid further exceedance 2.Submit proposals for remedial actions to Supervising Officer's Representative within 3 working days of notification 3.Implement the agreed proposals 4.Amend proposal if appropriate
2.Exceedance for two or more consecutive samples	1. Identify source 2. Inform Supervising Officer's Representative, IEC and EPD the causes & actions taken for the exceedances 3. Repeat measurement to confirm findings	1.Discuss amongst Supervising Officer's Representative, ET and Contractor on the potential remedial actions 2.Review Contractor's remedial actions to assure their effectiveness and advise the	1.Confirm receipt of notification of failure in writing 2.Notify Contractor 3.In consultation with the IEC, agree with the Contractor on the remedial measures to be	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to Supervising Officer's Representative within 3 working

	ACTION			
EVENT	**ET**	**IEC**	**SUPERVISING OFFICER'S REPRESENTATIVE**	**CONTRACTOR**
ACTION LEVEL				
	4. Increase monitoring frequency to daily 5. Investigate the causes of exceedance 6. Arrange meeting with & IEC and Supervising Officer's Representative to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep ER, IEC and EPD informed of the results 8. If exceedance stops, cease additional monitoring	Supervising Officer's Representative accordingly 3.Supervise the implementation of the remedial measures	implemented 4.Ensure remedial measure are properly implemented 5.If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**SUPERVISING OFFICER'S REPRESENTATIVE**	**Contractor**
Action Level	1. Notify IEC, Supervising Officer's Representative and Contractor 2. carry our investigation by reviewing all the relevant monitoring data and the corresponding construction activities. Exceedances should also be confirmed by immediate verification in the field as far as practical. 3. Report the results of investigation to the IEC, Supervising Officer's Representative and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. increase monitoring frequency to check mitigation effectiveness	1.Review the analysed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the Supervising Officer's Representative & ET accordingly 3.Supervise the implementation of remedial measures	1. Confirm receipt of notification of complaint in writing 2. Notify Contractor 3. require Contractor to proposed remedial measures for analyzed noise problem 4. Ensure remedial measures are properly implemented	1. Identify practicable measures to minimize the noise impact. Submit noise mitigation proposals to ET, IEC and ET. 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, Supervising Officer's Representative, EPD and Contractor 2. Identify the source(s) of impact by reviewing all the relevant monitoring data and the corresponding construction activities. Exceedances should also be confirmed by immediate verification in the field as far as practical. 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. inform IEC, Supervising Officer's Representative and EPD the cause & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Supervising Officer's Representative informed of the results 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst Supervising Officer's Representative, ET, and Contractor on the potential remedial actions 2. Review Contractor's remedial actions to assure their effectiveness and advise the Supervising Officer's Representative &ET accordingly 3.Supervise the implementation of the remedial measures	1. Confirm receipt of notification of exceedance in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continuous, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is aborted	1. Take immediate action to avoid further exceedance 2. Identify practicable measures to minimize the noise impact. Submit proposals for remedial actions to Supervising Officer's Representative within three working days of notification 3. Implement the agreed proposals 4. Resubmit proposal if problem still not under control 5. Stop the relevant portion of works as determined by the Supervising Officer's Representative until the exceedance is abated

Event/Action Plan for Water Quality

EVENT	ACTION			
	ET	**IEC**	**SUPERVISING OFFICER'S REPRESENTATIVE**	**CONTRACTOR**
ACTION LEVEL				
Action level being exceeded by one sampling day	1. Repeat in situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor and Supervising Officer's Representative; 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures. Review proposals on mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; and 2. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented.	1. Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative; 6. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures. Review proposals on mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; and 2. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented. 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Supervising Officer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and Supervising Officer's Representative within 3 working days; 6. Implement the agreed mitigation measures.
LIMIT LEVEL				
Limit level being exceeded by one sampling day	1. Repeat measurement on next of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, Supervising Officer's Representative and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor.	1. Check monitoring data submitted by ET and Contractor's working methods. 2. Discuss with ET and Contractor on possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly;	1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation. 3. Request Contractor to view the working methods. 4. Ensure mitigation measures are properly implemented.	1. Inform the Supervising Officer's Representative and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3 Check all plant and equipment and consider changes of working methods; 4. Discuss with ET, IEC and Supervising Officer's Representative and propose mitigation measures to Supervising Officer's Representative and IEC within 3 working days;

EVENT	ACTION			
	ET	IEC	SUPERVISING OFFICER'S REPRESENTATIVE	CONTRACTOR
				5. Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling days	1. Repeat measurement on next of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, Supervising Officer's Representative and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Supervising Officer's Representative and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Check monitoring data submitted by ET and Contractor's working methods. 2. Discuss with ET and Contractor on possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the Supervising Officer's Representative accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level	1. Take immediate action to avoid further exceedance 2. Discuss with ET, IEC and Supervising Officer's Representative and propose mitigation measures to Supervising Officer's Representative and IEC within 3 working days; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

APPENDIX N
COMPLAINT LOG

APPENDIX N – COMPLAINT LOG

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
Com-2008-05-003	Construction site at Eastern Portal	22 May 2008	The complaint was lodged by Ms. Ng on 22 May 2008 regarding noise nuisance generated from the construction activities at the construction site of Eastern Portal	According to the Contractor, only one excavator and one generator were operated for the excavation works around 8 am on 22 May 2008 at the Eastern portal. No other construction activities were conducted. In response to the complaint, The Contractor agreed to reschedule their current works activities, with immediate effect from 23 May 2008, that only site preparation works without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at the Eastern Portal area. Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in May and (2) no non-compliance or observation on noise was recorded.	Closed
Com-2008-05-004	Construction site at Western Portal (Marine Works)	31 May 2008	The complaint was lodged by one of the local resident on 31 May 2008 regarding the noise nuisance generated from the marine works at Western Portal.	According to the Contractor, only two derrick barges and one tug boat were operated for the seabed formation works around 18:00 hrs on 31 May 2008 at the Western Portal. No other construction activities were conducted.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in May and (2) no non-compliance or observation on noise was recorded.	
Com-2008-07-007	Construction site at Eastern Portal	2 July 2008	The complaint was lodged by a resident of The Legend on 2 July 2008 regarding noise nuisance generated from the construction activities at the construction site of Eastern Portal	According to the Contractor, only one generator and one drilling rig (Jumbo) were operated for the preparation works around 7:30a.m on 2 July 2008 at the Eastern portal. Construction noise was found from other construction site (Gammon Construction Limitied) adjacent to Eastern Portal area. In response to the complaint, The Contractor review his forthcoming operations within the Eastern Portal site as previous they agreed, reschedule their current works activities, with immediate effect from 23 May 2008, that only site preparation works without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at the Eastern Portal area. Additional noise monitoring was conducted on 16 and 17 July 2008 during the drilling rig (Jumbo), excavator and wheel loader were operated for drilling works.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				Base on the information collected and the monitoring results, the complaint was considered not justifiable since (1) no exceedance of the noise monitoring results was recorded in June and July 2008 and additional noise monitoring (2) no non-compliance or observation on noise was recorded.	
COM-2008-10-011	Construction site at Western Portal	11 October 2008	The complaint was lodged by one of the resident of Victoria Road, Ms Cheung on 11 October regarding about the noise nuisance generated from the construction works at Western Portal	According to the Contractor, excavation works and marine works including sheet piling works were also conducted at the time of complaint at Western Portal Additional noise monitoring was conducted on 15 October 2008, drilling works, excavation works and marine works including sheet piling works were also conducted. The construction noise levels measured during the construction works were well below the construction noise limit of 75 dB(A) The Contractor agreed to reschedule the starting time of the construction works to 8:15am on every Saturday that without noise nuisance from the construction works to the nearby residents will be carried out from 7:00 am to 8:15 am at the Western Portal area.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				Base on the information collected, the noise level measured at outside Aegean Terrace during the construction works at Western Portal site were well below the construction noise limit of 75 dB(A). Also, the Contractor has implemented the remedial measure that reschedule the starting time of the construction works to 8:15am on every Saturday immediately after receiving the complaint to minimize the noise nuisance to the nearby residents.	
COM-2008-10-012	Construction site at Intake TP5	15 October 2008	The complaint was lodged by Mr Choi on 15 October 2008 regarding about the noise generated from the GI works, which starts from 8:30 hrs to 17:30 hrs next to Aigburth at May Road.	According to the information provided by the Contractor, only rotary type drill rigs and water pumps were operated for the GI works at the time of complaint at Intake TP5. Additional site inspection and noise monitoring at the podium of the Valverde at May Road were conducted on 3 Nov 2008 and 24 Oct, 5 Nov, 7 Nov 2008 respectively. The Contractor agreed to reschedule the starting time of the construction works to 9:30am on every Saturday and 8:00 on normal weekdays that without noise nuisance to the nearby residents will be carried out from 7:00 am to 8:00 am at Intake TP5. Acoustic insulating materials	Closed
COM-2008-10-013	Construction site at Intake TP5	31 October 2008	The complaint was lodged by Mr Lai on 31 October 2008 regarding the black smoke is emitted and noise is generated from the machine at the site (Intake TP5), he needed to close the windows to prevent the black smoke from entering his flat and to attenuate the noise.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				have been applied for enclosing water pump and rotary type drill rigs to minimize the noise nuisance to the nearest residents.	
COM-2008-11-015	Construction site at Intake TP5	4 November 2008	The complaint was lodged by Ms Lee on 4 November regarding the noise nuisance generated from the construction works at Intake TP5.	Base on the information collected, the noise level measured at the podium of the Valverde at May Road were well below the construction noise limit of 75 dB(A) after the Contractor has implemented the remedial measure.	
COM-2008-11-016	Construction site at Western Portal	17 November 2008	The complaint was lodged by Mr Cheng on 17 November 2008 regarding dust nuisance arising from the soil nailing works at the roadside slope of Cyberport Road.	According to the information provided by the Contractor, soil nailing works were conducted and some plant equipments i.e air compressor and generator were operated at the time of complaint at Western Portal. Base on the regular air quality monitoring in November 2008 at Outside Aegean Terrace (AQ2) and Outside The Site Office at Western Portal (AQ3), the dust levels measured at AQ2 for 1 hour TSP and at AQ3 for 24 hour TSP were well below the Action Level (321µg/m3 for 1 hour TSP and 156µg/m3 for 24 hour TSP). Also, the Contractor has implemented the dust suppression measures to prevent dust nuisance from the construction activities including soil nailing works.	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2008-11-019	Construction site at Western Portal	29 November 2008	The complaint was lodged by Ms Cheung on 1 December 2008 regarding noise nuisance at Western Portal at 08:30 hrs approx on 29 November 2008 and 00:30 on 1 December 2008.	According to the information provided by The Contractor, no construction works was carried out at the temporary jetty at the time of complaint (00:30 on 1 December 2008) at Western Portal. However, base on the regular noise monitoring at Outside Aegean Terrace (NC3), the noise level measured during the construction works at Western Portal site were well below the construction noise limit of 75 dB(A).	Closed
COM-2008-12-020	Construction site at Western Portal	28 December 2008	The complaint was lodged by Ms Cheung on 28 December 2008 regarding the excavator was found working within Western Portal works area on Sunday.	The complaint was considered not justifiable as Construction Noise Permit (CNP) – CNP No. GW-RS0827-08 has been granted from EPD for carrying out the construction works at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. DC/2007/10) between 1 December 2008 at 1900 hours and 28 February 2009 at 2400 hours. The powered mechanical equipment can be operated during the hours as below: a) Any day not being a general holiday between 1900 – 2300 hours b) General holiday (**including Sundays**) between 0700 – 1900 hours	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2009-01-021	Muddy Water Discharged into Sea at Western Portal	21 January 2009	Muddy water was observed from discharging into the sea at Western Portal Site	Base on the information collected, the muddy water discharged into the sea is considered due to the operations of excavation of stilling basin and poor condition of the silt curtain. The Contractor agreed to review their current provisions to prevent any muddy water from discharging into the sea again and close check the condition of the silt curtain.	Closed
COM-2009-01-022(A)	Construction site at Western Portal	12 January 2009	The complaint was lodged by Mr Chan, the assistant of Mr CHAN Ngok pang (Southern District Councillor) about the resident in Baguio Villa near Victoria Road, Mr Ronald Chan concerns on the noisy activities carried out at Western Portal site.	Base on the information collected, the noise level measured at outside Aegean Terrace during the construction works at Western Portal site were well below the construction noise limit of 75 dB(A). Aegean Terrace is at location close to the major site activities compared with Baguio Vila. Also, The Contractor agreed to reschedule their current works activities, no noisy work will be carried out at Western Portal Site before 8:00a.m.	Closed
COM-2009-01-022(B)		21 January 2009	The complaint was lodged by resident of Aegean Terrace at Sassoon Road about the noise nuisance generated from Western Portal Site.		
COM-2009-01-022(C)		21 January 2009	The complaint was lodged by the resident in Baguio Villa near Victoria Road about noisy works at Western Portal Site.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2009-02-023	Construction site at Eastern Portal	7 February 2009	Complaint of Construction Noise at Early Morning (07:45hrs) at Eastern Portal Site	Based on the information collected, the construction noise at about 07:45hrs on 7 February 2009 was due to the checking of the backhole by the sub-contractor. The Contractor was reminded to strengthen their site supervision and provide sufficient site-specific environmental training for sub-contractor to ensure that such situation would not be recurred.	Closed
COM-2009-03-025	Construction site at Western Portal	2 March 2009 4 March 2009	Complaint of noise generated by midnight works and night-time lighting at Western Portal Site	Base on the information collected, the regular noise monitoring was conducted during the construction works at the restricted hours. The noise measurement results were well below the construction noise limit of 65dB(A) for the period of 0700-2300 hrs on holiday; and 1900-2300 hrs on all other days and baseline level during the night time. The Contractor was reminded to strengthen their site supervision and implement necessary noise mitigation measures to minimize and avoid the construction noise impact to the residents nearby especially during the restricted hours. Regarding the complaint of spotlight hanging on the plant at the site portion WP, The Contractor was reminded to implement the mitigation measures for Visual during the construction by controlling the night-	Under reviewed by IEC
COM-2009-03-026		7 March 2009	Complaint of pipe hitting noise at midnight at Western Portal Site.		

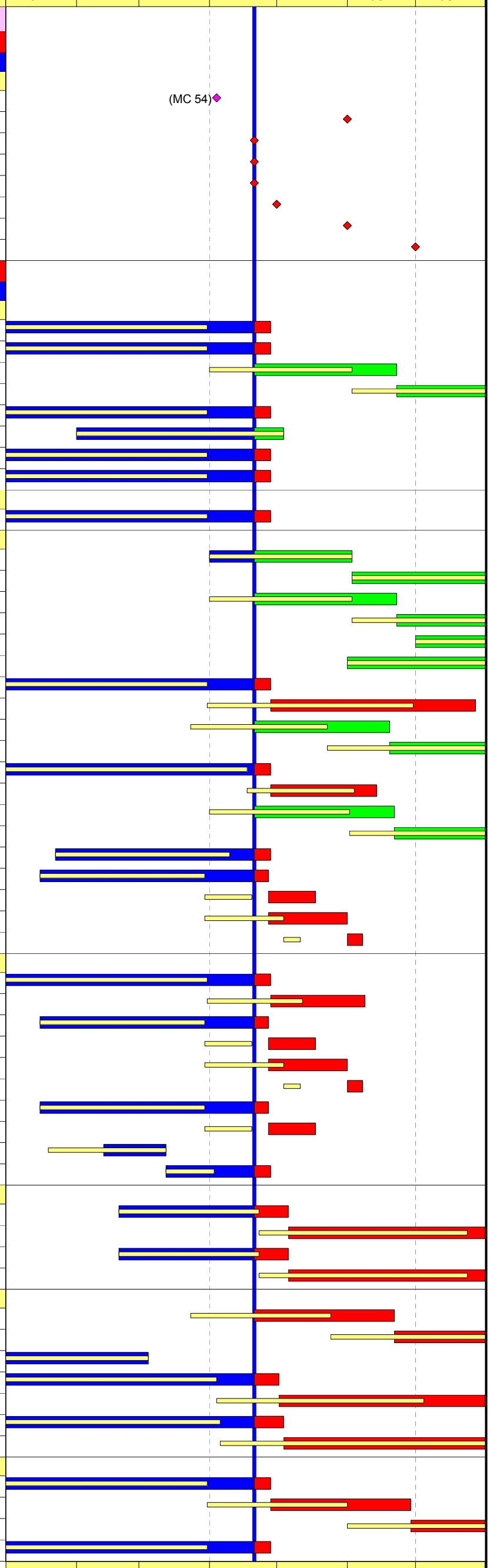
Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				time lighting so that the residual visual impacts can be accepted.	
COM-2009-04-028	Construction site at Western Portal	7 April 2009	Complaint of noise generated from the construction works conducted till 11:00pm at Western Portal of the Hong Kong West Drainage Tunnel.	According to the information provided by The Contractor, TBM, conveyor belt, ventilation fan, tower crane and cherry picker were operated for the construction works on 7 April 2009 before 11:00pm and only TBM works with conveyor belt and ventilation fan were operated on 10 April 09 (Sunday). No operation of derrick barge on 10 April 09. According to the photos taken on 8 April 2009, misplacement of plant was observed at Western Portal Site. Upon advice, The Contractor immediately moved the fan properly. Based on the information collected, the construction noise levels measured were well below the construction noise limit of 75 dB(A) for the period of 0700-1900 hrs on normal weekdays, 65 dB(A) for the period of 0700-2300 hrs on holiday; and 1900-2300 hrs on all other days and baseline level for the period of 2300-0700 hrs of next day. The ground borne noise levels measured were also well below the construction ground borne noise standards (i.e. 65	Closed
COM-2009-04-029		10 April 2009	Complaint of noise generated by TBM works at Western Portal.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				dB(A) – Daytime (except General Holiday and Sundays) and 55 dB(A) – Daytime during general holidays and Sunday and all days during Evening (1900 to 2300 hrs). No exceedances of noise level have been recorded in March and April 2009. The Contractor was advised to strictly follow the conditions of the permit to avoid any misplacement of plants in the future. Also, The Contractor should take sufficient noise mitigation measures to minimize the environmental impact on the nearby community as recommended in the approved EIA report. In addition, DNJV already arranged tailors made training for the Production Team including the senior management and foreman to explain the conditions and requirements listed on the CNP and delegated one Engineer to ensure all construction activities and PMEs to be used are fully complying with CNP and legislation requirements before the commencement of the construction activities during the restricted hour.	

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
COM-2009-04-030		30 April 2009	Complaint of Construction Noise Generated at Night at Western Portal	Base on the information collected, regular noise Monitoring was conducted during the night time to check the noise levels are complying with the construction noise criteria. The noise levels measured at NC3 during the construction works at night time were well below the construction noise limit. The Contractor was reminded to strengthen their site supervision by delegated Engineer to ensure all construction activities and PMEs to be used are fully complying with CNP and legislation requirements and implement necessary noise mitigation measures as recommended in the Approved EIA report to minimize and avoid the construction noise impact to the residents nearby especially during the restricted hours.	Under Preparation of the Investigation Report

APPENDIX O
CONSTRUCTION PROGRAMME

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
HK West Drainage Project								
CC01 - PRELIMINARIES & GENERAL REQUIREMENTS								
Milestone								
General								
M1-1120	1.12-Complete of All Obligat's From 421to480d	0	0		03APR09A		-3	-3
M1-1130	1.13-Complete of All Obligat's From 481to540d	0	0		31MAY09*	0	0	0
M1-1430	1.43-Acceptance of Monthly Report on TDMS(14M)	0	0		20APR09*	-79	-28	-63
M1-1440	1.44-Acceptance of Monthly Report on TDMS(15M)	0	0		20APR09*	-51	-28	-51
M1-1450	1.45-Acceptance of Monthly Report on TDMS(16M)	0	0		20APR09*	-20	-20	-20
M1-1460	1.46-Acceptance of Monthly Report on TDMS(17M)	0	0		30APR09*	0	0	0
M1-1470	1.47-Acceptance of Monthly Report on TDMS(18M)	0	0		31MAY09*	0	0	0
M1-1480	1.48-Acceptance of Monthly Report on TDMS(19M)	0	0		30JUN09*	0	0	0
CC02 - DESIGN & DESIGN CHECKING OF THE WORKS								
Design Stage								
Secton 1 (Eastern Portal)								
D00255	APP East P Temp Drainage Divrsn Main Stream DDA	90	7	29NOV08A	27APR09	-27	-28	-48
D00275	APP Cofferdam for Intake Shaft DDA	42	7	21MAY08A	27APR09	-388	-28	-63
D00278	P&S Reinst Perm Slope at Coff Intake Shaft DDA	63	63	21APR09*	22JUN09	9	-20	-20
D00279	APP Reinst Perm Slope at Coff Intake Shaft DDA	92	92	23JUN09	22SEP09	9	-20	-20
D00282	APP Temp&Perm Supt EP Non-TBM Tunl to ch250 AIP	42	7	13SEP08A	27APR09	-203	-28	-63
D00287	APP Perm Supt EP Non-TBM Tunnel to Ch250 - DDA	92	13	01FEB09A	03MAY09	472	0	0
D02334	APP East P Temp Drainage Divn Side Stream-DDA	76	7	28MAR08A	27APR09	-27	-28	-63
D02374	APP Temp Drain Divsn Main Stream ELS - DDA	52	7	29NOV08A	27APR09	-27	-28	-63
Section 1 (Western Portal)								
D00375	APP West Portal ELS for Soft Ground Tunnel DDA	42	7	12JUN08A	27APR09	-278	-28	-63
Section 1 Dropshaft								
D00600	P&S Softground Excav for Dropshaft W5 AIP	63	43	01APR09A	02JUN09	251	0	0
D00601	APP Softground Excav for Dropshaft W5 AIP	92	92	03JUN09	02SEP09	251	0	0
D00612	P&S Softground Excav for Dropshaft RR1 AIP	63	63	21APR09*	22JUN09	155	-20	-20
D00613	APP Softground Excav for Dropshaft RR1 AIP	92	92	23JUN09	22SEP09	155	-20	-20
D00618	P&S Softground Excav for Dropshaft W8 AIP	63	63	01JUL09*	01SEP09	319	0	0
D00624	P&S Softground Excav for Dropshaft P5 AIP	63	63	01JUN09*	02AUG09	141	0	0
D00630	P&S Dropshaft Temp Rock Supt (Excl. W0) AIP	70	7	23OCT08A	27APR09	-30	-28	-63
D00633	APP Dropshaft Temp Rock Supt (Excl. W0) AIP	91	91	28APR09	27JUL09	-30	-28	-63
D00636	P&S Dropshaft Temp Rock Supt (Excl. W0) DDA	60	60	21APR09*	19JUN09	187	-28	-63
D00639	APP Dropshaft Temp Rock Supt (Excl. W0) DDA	92	92	20JUN09	19SEP09	187	-28	-63
D00642	P&S Dropshaft Permanent Lining (Excl W0) AIP	45	7	31DEC08A	27APR09	-1	-10	-45
D00645	APP Dropshaft Permanent Lining (Excl W0) AIP	47	47	28APR09	13JUN09	-1	-10	-45
D00648	P&S Dropshaft Permanent Lining(Excl W0) DDA	62	62	21APR09*	21JUN09	515	-20	-20
D00651	APP Dropshaft Permanent Lining(Excl W0) DDA	92	92	22JUN09	21SEP09	515	-20	-20
D00663	APP Dropshaft & SC at W0 Temp Rock Supt DDA	42	7	23JAN09A	27APR09	-148	-18	-53
D00665	P&S Dropshaft&SC at W0 Temp Rock Supt AIP VO10	38	6	16JAN09A	26APR09	-167	-28	-63
D00667	APP Dropshaft&SC at W0 Temp Rock Supt AIP VO10	21	21	27APR09	17MAY09	-146	-28	-63
D00669	P&S Dropshaft&SC at W0 Temp Rock Supt DDA V010	35	35	27APR09	31MAY09	-167	-28	-63
D00671	APP Dropshaft&SC at W0 Temp Rock Supt DDA VO10	7	7	01JUN09	07JUN09	-167	-28	-63
Section 1 (Portion W0)								
D01150	P&S W0-Permanent Works Intake DDA	50	7	23AUG08A	27APR09	-162	-28	-63
D01155	APP W0-Permanent Works Intake DDA	42	42	28APR09	08JUN09	-162	-28	-63
D01160	P&S W0-Permanent Works Intake AIP VO10	38	6	16JAN09A	26APR09	-167	-28	-63
D01162	APP W0-Permanent Works Intake AIP VO10	21	21	27APR09	17MAY09	-146	-28	-63
D01164	P&S W0-Permanent Works Intake DDA VO10	35	35	27APR09	31MAY09	-167	-28	-63
D01166	APP W0-Permanent Works Intake DDA VO10	7	7	01JUN09	07JUN09	-167	-28	-63
D01182	P&S W0-Temp Works&Drainage Diversion AIP VO10	38	6	16JAN09A	26APR09	-166	-28	-63
D01184	APP W0-Temp Works&Drainage Diversion AIP VO10	21	21	27APR09	17MAY09	-146	-28	-63
D01186	P&S W0-Temp Works&Drainage Diversion DDA VO10	56	0	13FEB09A	12MAR09A		0	3
D01188	APP W0-Temp Works&Drainage Diversion DDA VO10	21	7	13MAR09A	27APR09	-166	-25	-22
Section 7 (Portion THR2)								
D00950	P&S THR2-Permanent Works Intake DDA	62	15	20FEB09A	05MAY09	-53	-13	-16
D00955	APP THR2-Permanent Works Intake DDA	92	92	06MAY09	05AUG09	-53	-13	-16
D00958	P&S THR2-Temp Works & Drainage Diversion DDA	62	15	20FEB09A	05MAY09	-53	-13	-16
D00959	APP THR2-Temp Works & Drainage Diversion DDA	92	92	06MAY09	05AUG09	-53	-13	-16
Section 4 (Portion MB16)								
D00790	P&S MB16-Permanent Works Intake DDA	62	62	21APR09*	21JUN09	-56	-28	-51
D00795	APP MB16-Permanent Works Intake DDA	92	92	22JUN09	21SEP09	-56	-28	-51
D00797	APP MB16-Temp Works & Drainage Diversion - AIP	92	0	13OCT08A	04MAR09A		0	-9
D00798	P&S MB16-Temp Works & Drainage Diversion - DDA	62	11	01DEC08A	01MAY09	-5	-28	-63
D00799	APP MB16-Temp Works & Drainage Diversion - DDA	92	92	02MAY09	01AUG09	-5	-28	-63
D00826	P&S MB16-Permanent Slopeworks DDA	62	13	10DEC08A	03MAY09	-37	-28	-63
D00828	APP MB16-Permanent Slopeworks DDA	122	122	04MAY09	02SEP09	-37	-28	-63
Section 31 (Portion PFLR1)								
D02255	APP PFLR1-Permanent Works Intake AIP	92	7	20SEP08A	27APR09	-75	-28	-63
D02260	P&S PFLR1-Permanent Works Intake DDA	62	62	28APR09*	28JUN09	-75	-28	-63
D02265	APP PFLR1-Permanent Works Intake DDA	92	92	29JUN09	28SEP09	-75	-28	-63
D02267	APP PFLR1-Temp Works & Drainage Diversion AIP	92	7	10DEC08A	27APR09	-75	-28	-48



Start Date	30NOV07
Finish Date	18JUN12
Data Date	21APR09
Run Date	24APR09 11:56

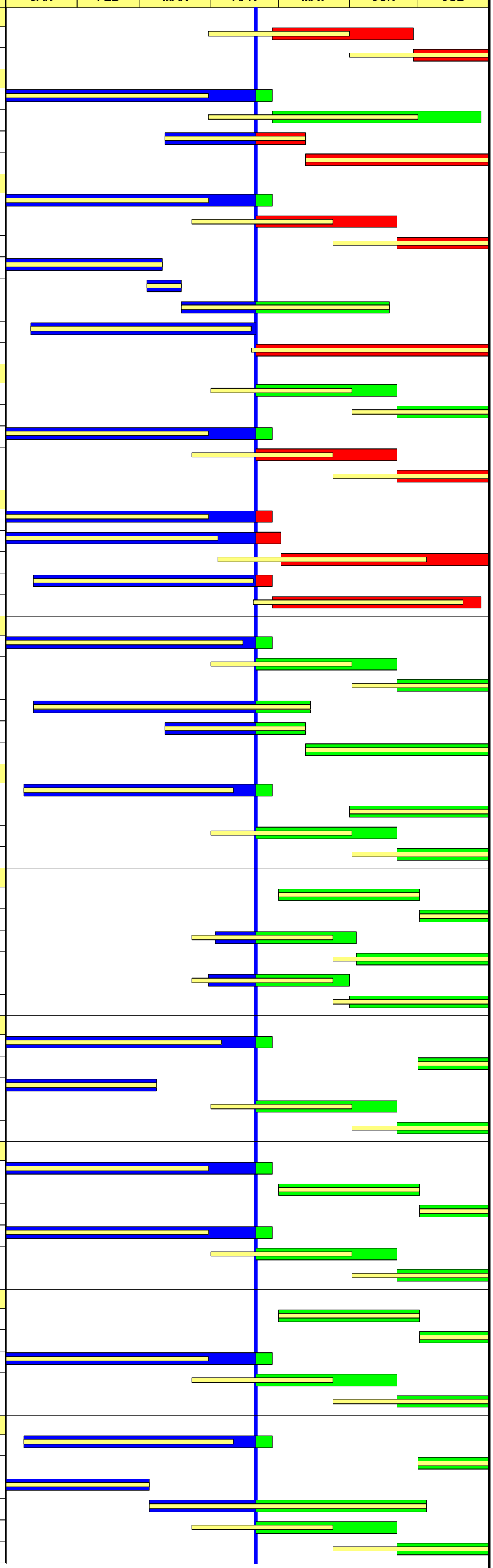
Early Bar
Previous Month (903A)
Progress Bar
Critical Activity

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
APRIL/2009 MONTHLY REPORT

Dragages - Nishimatsu Joint Venture 寶嘉 - 西松建設聯營

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
Section 31 (Portion PFLR1)								
D02268	P&S PFLR1-Temp Works & Drainage Diversion DDA	62	62	28APR09*	28JUN09	-75	-28	-48
D02269	APP PFLR1-Temp Works & Drainage Diversion DDA	92	92	29JUN09	28SEP09	-75	-28	-48
Section30 (Portion HKU1)								
D02210	P&S HKU1-Permanent Works Intake DDA	62	7	02OCT08A	27APR09	18	-28	-63
D02215	APP HKU1-Permanent Works Intake DDA	92	92	28APR09	28JUL09	18	-28	-63
D02218	P&S HKU1-Temp Works & Drainage Diversion DDA	62	22	12MAR09A	12MAY09	-24	0	-23
D02219	APP HKU1-Temp Works & Drainage Diversion DDA	122	122	13MAY09	11SEP09	-24	0	-23
Section 6 (Portion E7)								
D00885	APP E7 - Permanent Works Intake AIP	92	7	20SEP08A	27APR09	23	-28	-63
D00890	P&S E7 - Permanent Works Intake DDA	62	62	21APR09*	21JUN09	-32	-28	-51
D00895	APP E7 - Permanent Works Intake DDA	92	92	22JUN09	21SEP09	-32	-28	-51
D00897	APP E7 - Temp Works & Drainage Diversion - AIP	92	0	07DEC08A	10MAR09A		0	-15
D00898	P&S E7 - Temp Works & Drainage Diversion - DDA	62	0	04MAR09A	18MAR09A		0	32
D00899	APP E7 - Temp Works & Drainage Diversion - DDA	92	59	19MAR09A	18JUN09	63	0	32
D00930	P&S E7 - Permanent Slopeworks DDA	62	0	12JAN09A	20APR09A		-2	-37
D00935	APP E7 - Permanent Slopeworks DDA	122	122	21APR09	20AUG09	0	-2	-37
Section 29 (Portion W10)								
D02160	P&S W10-Permanent Works Intake DDA	62	62	21APR09*	21JUN09	32	-20	-20
D02165	APP W10-Permanent Works Intake DDA	92	92	22JUN09	21SEP09	32	-20	-20
D02167	APP W10-Temp Works & Drainage Diversion AIP	122	7	19NOV08A	27APR09	50	-28	-38
D02168	P&S W10-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	-5	-28	-51
D02169	APP W10-Temp Works & Drainage Diversion DDA	122	122	22JUN09	21OCT09	-5	-28	-51
Section 32 (Portion SM1)								
D02305	APP SM1-Permanent Works Intake AIP	92	7	20SEP08A	27APR09	-60	-28	-63
D02310	P&S SM1-Permanent Works Intake DDA	63	11	05NOV08A	01MAY09	-64	-28	-63
D02315	APP SM1-Permanent Works Intake DDA	92	92	02MAY09	01AUG09	-64	-28	-63
D02318	P&S SM1-Temp Works & Drainage Diversion DDA	62	7	13JAN09A	27APR09	-60	-8	-43
D02319	APP SM1-Temp Works & Drainage Diversion DDA	92	92	28APR09	28JUL09	-60	-8	-43
Section 26 (Portion RR1)								
D02005	APP RR1-Permanent Works Intake AIP	92	7	09DEC08A	27APR09	86	-13	-48
D02010	P&S RR1-Permanent Works Intake DDA	62	62	21APR09*	21JUN09	31	-20	-20
D02015	APP RR1-Permanent Works Intake DDA	92	92	22JUN09	21SEP09	31	-20	-20
D02017	APP RR1-Temp Works & Drainage Diversion AIP	122	24	13JAN09A	14MAY09	161	0	0
D02018	P&S RR1-Temp Works & Drainage Diversion DDA	62	22	12MAR09A	12MAY09	41	0	-23
D02019	APP RR1-Temp Works & Drainage Diversion DDA	122	122	13MAY09	11SEP09	41	0	-23
Section 5 (Portion MBD2)								
D00835	APP MBD2-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	101	-17	-17
D00840	P&S MBD2-Permanent Works Intake DDA	62	62	01JUN09*	01AUG09	5	0	0
D00860	P&S MBD2-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	46	-20	-20
D00865	APP MBD2-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	46	-20	-20
Section 23 (Portion TP4)								
D01850	P&S TP4-Permanent Works Intake DDA	62	62	01MAY09*	01JUL09	22	0	0
D01855	APP TP4-Permanent Works Intake DDA	92	92	02JUL09	01OCT09	22	0	0
D01858	P&S TP4-Temp Works & Drainage Diversion DDA	62	44	03APR09A	03JUN09	50	-10	-45
D01859	APP TP4-Temp Works & Drainage Diversion DDA	92	92	04JUN09	03SEP09	50	-10	-45
D01890	P&S TP4-Permanent Slopeworks DDA	62	41	31MAR09A	31MAY09	23	-7	-42
D01895	APP TP4-Permanent Slopeworks DDA	122	122	01JUN09	30SEP09	23	-7	-42
Section 28 (Portion P5)								
D02105	APP P5-Permanent Works Intake AIP	92	7	11NOV08A	27APR09	153	-22	-57
D02110	P&S P5-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	26	0	0
D02117	APP P5-Temp Works & Drainage Diversion AIP	122	0	15NOV08A	07MAR09A		0	11
D02118	P&S P5-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	38	-20	-20
D02119	APP P5-Temp Works & Drainage Diversion DDA	122	122	22JUN09	21OCT09	38	-20	-20
Section 22 (Portion TP5)								
D01795	APP TP5-Permanent Works Intake AIP	92	7	11NOV08A	27APR09	114	-28	-57
D01800	P&S TP5-Permanent Works Intake DDA	62	62	01MAY09*	01JUL09	49	0	0
D01805	APP TP5-Permanent Works Intake DDA	92	92	02JUL09	01OCT09	49	0	0
D01807	APP TP5-Temp Works & Drainage Diversion AIP	92	7	28NOV08A	27APR09	114	-28	-63
D01808	P&S TP5-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	59	-20	-20
D01809	APP TP5-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	59	-20	-20
Section 21 (Portion TP789)								
D01740	P&S TP789-Permanent Works Intake DDA	62	62	01MAY09*	01JUL09	53	0	0
D01745	APP TP789-Permanent Works Intake DDA	92	92	02JUL09	01OCT09	53	0	0
D01747	APP TP789-Temp Works & Drainage Diversion AIP	92	7	03DEC08A	27APR09	118	-28	-63
D01748	P&S TP789-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	63	-28	-51
D01749	APP TP789-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	63	-28	-51
Section 24 (Portion W5)								
D01905	APP W5-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	130	-17	-17
D01906	P&S W5-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	3	0	0
D01910	P&S W5-Temp Works & Drainage Diversion AIP	63	0	10NOV08A	04MAR09A		0	-5
D01911	APP W5-Temp Works & Drainage Diversion AIP	122	75	05MAR09A	04JUL09	154	0	-5
D01912	P&S W5-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	45	-28	-63
D01913	APP W5-Temp Works & Drainage Diversion DDA	122	122	22JUN09	21OCT09	45	-28	-63



Start Date 30NOV07
Finish Date 18JUN12
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Early Bar
Previous Month (903A)
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Design & Construction of HK. West Drainage Tunnel
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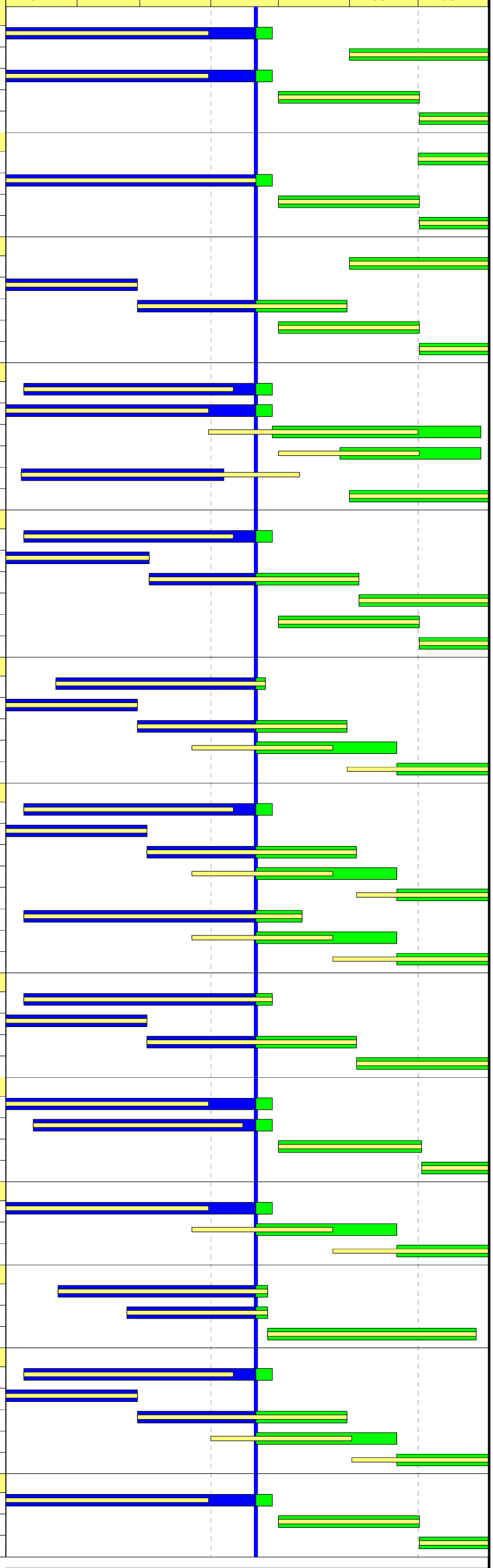
Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
Section 2 (Portion E5A)								
D00682	APP E5A-Permanent Works Intake AIP	92	7	11NOV08A	27APR09	60	-28	-63
D00684	P&S E5A-Permanent Works Intake DDA	62	62	01JUN09*	01AUG09	26	0	0
D00688	APP E5A-Temp Works & Drainage Diversion AIP	92	7	18OCT08A	27APR09	122	-28	-63
D00690	P&S E5A-Temp Works & Drainage Diversion DDA	62	62	01MAY09*	01JUL09	57	0	0
D00695	APP E5A-Temp Works & Drainage Diversion DDA	92	92	02JUL09	01OCT09	57	0	0
Section 27 (Portion W8)								
D02060	P&S W8-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	11	0	0
D02067	APP W8-Temp Works & Drainage Diversion AIP	92	7	12DEC08A	27APR09	138	-7	-42
D02068	P&S W8-Temp Works & Drainage Diversion DDA	62	62	01MAY09*	01JUL09	73	0	0
D02069	APP W8-Temp Works & Drainage Diversion DDA	122	122	02JUL09	31OCT09	73	0	0
Section 3 (Portion E5B)								
D00740	P&S E5B-Permanent Works Intake DDA	62	62	01JUN09*	01AUG09	60	0	0
D00746	P&S E5B-Temp Works & Drainage Diversion AIP	62	0	09SEP08A	27FEB09A		0	-4
D00747	APP E5B-Temp Works & Drainage Diversion AIP	92	40	28FEB09A	30MAY09	123	0	-4
D00748	P&S E5B-Temp Works & Drainage Diversion DDA	62	62	01MAY09*	01JUL09	91	0	0
D00749	APP E5B-Temp Works & Drainage Diversion DDA	92	92	02JUL09	01OCT09	91	0	0
Section 20 (Portion M3)								
D01675	APP M3-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	251	-17	-17
D01686	P&S M3-Temp Works & Drainage Diversion AIP	62	7	08OCT08A	27APR09	98	-28	-63
D01687	APP M3-Temp Works & Drainage Diversion AIP	92	92	28APR09	28JUL09	98	-28	-63
D01688	P&S M3-Temp Works & Drainage Diversion DDA	62	62	28MAY09*	28JUL09	98	-27	-27
D01715	APP M3-Permanent Slopeworks AIP	122	0	08JAN09A	06APR09A		33	33
D01720	P&S M3-Permanent Slopeworks DDA	62	62	01JUN09*	01AUG09	64	0	0
Section 19 (Portion MA17)								
D01615	APP MA17-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	142	-17	-17
D01626	P&S MA17-Temp Works & Drainage Diversion AIP	63	0	05NOV08A	04MAR09A		0	-9
D01627	APP MA17-Temp Works & Drainage Diversion AIP	92	45	05MAR09A	04JUN09	104	0	-9
D01628	P&S MA17-Temp Works & Drainage Diversion DDA	62	62	05JUN09*	05AUG09	104	0	-9
D01660	P&S MA17-Permanent Slopeworks DDA	62	62	01MAY09*	01JUL09	109	0	0
D01665	APP MA17-Permanent Slopeworks DDA	122	122	02JUL09	31OCT09	109	0	0
Section 15 (Portion W3)								
D01405	APP W3-Permanent Works Intake AIP	92	4	23JAN09A	24APR09	203	0	0
D01416	P&S W3-Temp Works & Drainage Diversion AIP	62	0	06NOV08A	27FEB09A		0	-4
D01417	APP W3-Temp Works & Drainage Diversion AIP	92	40	28FEB09A	30MAY09	229	0	-4
D01418	P&S W3-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	207	-28	-51
D01419	APP W3-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	207	-22	-26
Section 17 (Portion MA14)								
D01505	APP MA14-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	176	-17	32
D01516	P&S MA14-Temp Works & Drainage Diversion AIP	62	0	07NOV08A	03MAR09A		0	-5
D01517	APP MA14-Temp Works & Drainage Diversion AIP	92	44	04MAR09A	03JUN09	201	0	-5
D01518	P&S MA14-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	183	-28	-63
D01519	APP MA14-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	183	-18	-23
D01545	APP MA14-Permanent Slopeworks AIP	122	20	09JAN09A	10MAY09	320	0	49
D01550	P&S MA14-Permanent Slopeworks DDA	62	62	21APR09*	21JUN09	153	-28	-51
D01555	APP MA14-Permanent Slopeworks DDA	122	122	22JUN09	21OCT09	153	-28	-51
Section 18 (Portion MA15)								
D01565	APP MA15-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	180	0	-17
D01580	P&S MA15-Temp Works & Drainage Diversion AIP	62	0	01NOV08A	03MAR09A		0	-8
D01585	APP MA15-Temp Works & Drainage Diversion AIP	92	44	04MAR09A	03JUN09	143	0	-8
D01590	P&S MA15-Temp Works & Drainage Diversion DDA	62	62	04JUN09*	04AUG09	143	0	-3
Section 10 (Portion DG1)								
D01095	APP DG1-Permanent Works Intake AIP	92	7	29NOV08A	27APR09	244	-28	-58
D01107	APP DG1-Temp Works & Drainage Diversion AIP	92	7	13JAN09A	27APR09	244	-13	-13
D01108	P&S DG1-Temp Works & Drainage Diversion DDA	63	63	01MAY09*	02JUL09	178	0	0
D01109	APP DG1-Temp Works & Drainage Diversion DDA	92	92	03JUL09	02OCT09	178	0	0
Section 9 (Portion HR1)								
D01045	APP HR1-Permanent Works Intake AIP	92	7	11NOV08A	27APR09	249	-28	-63
D01056	P&S HR1-Temp Works & Drainage Diversion AIP	62	62	21APR09*	21JUN09	102	-28	-63
D01057	APP HR1-Temp Works & Drainage Diversion AIP	92	92	22JUN09	21SEP09	102	-28	-63
Section 14 (Portion BR6)								
D01355	APP BR6-Permanent Works Intake AIP	92	5	24JAN09A	25APR09	230	0	0
D01370	P&S BR6-Temp Works & Drainage Diversion AIP	62	5	23FEB09A	25APR09	138	0	-6
D01375	APP BR6-Temp Works & Drainage Diversion AIP	92	92	26APR09	26JUL09	138	0	-6
Section 12 (Portion W1)								
D01255	APP W1-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	262	-17	-17
D01266	P&S W1-Temp Works & Drainage Diversion AIP	62	0	04NOV08A	27FEB09A		0	-4
D01267	APP W1-Temp Works & Drainage Diversion AIP	92	40	28FEB09A	30MAY09	291	0	-4
D01268	P&S W1-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	269	-20	-20
D01269	APP W1-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	269	-20	-20
Section 8 (Portion GL1)								
D01007	APP GL1-Temp Works & Drainage Diversion AIP	92	7	23NOV08A	27APR09	324	-28	-63
D01008	P&S GL1--Temp Works & Drainage Diversion DDA	62	62	01MAY09*	01JUL09	259	0	0
D01009	APP GL1--Temp Works & Drainage Diversion DDA	92	92	02JUL09	01OCT09	259	0	0



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Early Bar
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904A Sheet 3 of 9

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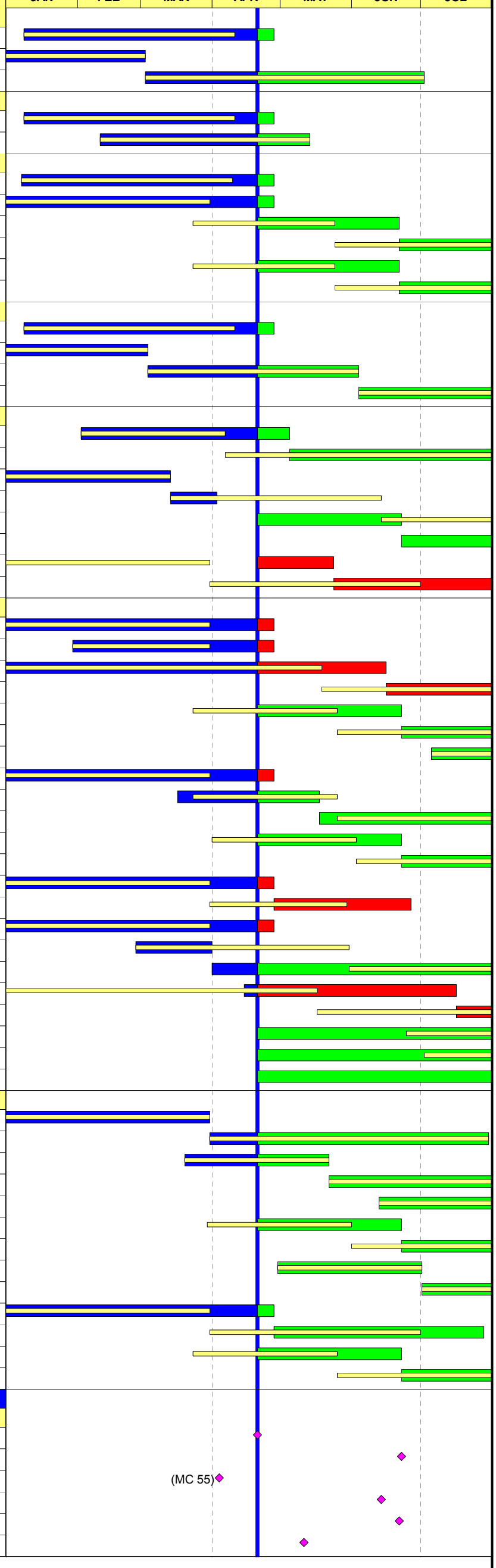
APRIL/2009 MONTHLY REPORT

Dragages - Nishimatsu Joint Venture 寶嘉 - 西松建設聯營

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
Section 25 (Portion CR1)								
D01955	APP CR1-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	419	-17	-17
D01966	P&S CR1-Temp Works & Drainage Diversion AIP	63	0	05DEC08A	02MAR09A		0	-7
D01967	APP CR1-Temp Works & Drainage Diversion AIP	122	73	03MAR09A	02JUL09	323	0	-7
Section 13 (Portion BR5)								
D01305	APP BR5-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	337	-17	-17
D01317	APP BR5-Temp Works & Drainage Diversion AIP	92	23	11FEB09A	13MAY09	259	0	0
Section 11 (Portion BR4)								
D01195	APP BR4-Permanent Works Intake AIP	92	7	08JAN09A	27APR09	337	-18	-18
D01207	APP BR4-Temp Works & Drainage Diversion AIP	92	7	12DEC08A	27APR09	399	-28	-45
D01208	P&S BR4-Temp Works & Drainage Diversion DDA	62	62	21APR09*	21JUN09	344	-28	-63
D01209	APP BR4-Temp Works & Drainage Diversion DDA	92	92	22JUN09	21SEP09	344	-28	-63
D01240	P&S BR4-Permanent Slopeworks DDA	62	62	21APR09*	21JUN09	382	-28	-63
D01245	APP BR4-Permanent Slopeworks DDA	122	122	22JUN09	21OCT09	382	-28	-63
Section 16 (Portion B2)								
D01455	APP B2-Permanent Works Intake AIP	92	7	09JAN09A	27APR09	420	-17	-17
D01466	P&S B2-Temp Works & Drainage Diversion AIP	62	0	25NOV08A	03MAR09A		0	-8
D01467	APP B2-Temp Works & Drainage Diversion AIP	92	44	04MAR09A	03JUN09	383	0	-8
D01468	P&S B2-Temp Works & Drainage Diversion DDA	62	62	04JUN09*	04AUG09	383	0	-3
Adits & Stilling Chambers								
D00530	P&S Adits & Stilling Chamber Temp Support DDA	63	14	03FEB09A	04MAY09	57	-28	-28
D00535	APP Adits & Stilling Chamber Temp Support DDA	122	122	05MAY09	03SEP09	57	-28	-28
D00540	P&S Adits & SC Permanent Lining AIP	33	0	31OCT08A	13MAR09A		0	-18
D00545	APP Adits & SC Permanent Lining AIP	92	0	14MAR09A	02APR09A		72	54
D00550	P&S Adits Permanent Lining DDA	63	63	21APR09	22JUN09	34	54	36
D00555	APP Adits Permanent Lining DDA	92	92	23JUN09	22SEP09	34	54	36
D00560	P&S SC Permanent Lining DDA	33	33	21APR09	23MAY09	-91	-54	-89
D00565	APP SC Permanent Lining DDA	92	92	24MAY09	23AUG09	-91	-54	-89
Project Wide								
D00145	APP Detailed Const Risk Assess(Portals) DDA	42	7	02AUG08A	27APR09	-170	-28	-63
D00148	APP Det Const Risk Assess(excl Portals) DDA	40	7	30JAN09A	27APR09	-168	-28	-28
D00149	P&S DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc	63	56	16DEC08A	15JUN09	-80	-28	-63
D00150	APP DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc	92	92	16JUN09	15SEP09	-80	-28	-63
D00151	P&S DCRA V3-W10,P5,W8,RR1,CR1,W5,TP4,TP5,etc	63	63	21APR09*	22JUN09	16	-28	-42
D00152	APP DCRA V3-W10,P5,W8,RR1,CR1,W5,TP4,TP5,etc	92	92	23JUN09	22SEP09	16	-28	-42
D00153	P&S DCRA V4-M3,MA17,MA15,MA14,B3,W3,BR6,etc	63	63	06JUL09*	06SEP09	58	0	0
D00161	APP Impact Assess Rep Waterwork Fac V 1-(W0) DDA	40	7	06DEC08A	27APR09	-153	-28	-63
D00162	P&S Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	63	27	17MAR09A	17MAY09	68	8	-27
D00163	APP Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	92	92	18MAY09	17AUG09	68	8	-27
D00164	P&S Impact ARW V 3-W10,P5,W8,RR1,CR1,W5,etc DDA	63	63	21APR09*	22JUN09	324	-20	-20
D00165	APP Impact ARW V 3-W10,P5,W8,RR1,CR1,W5,etc DDA	92	92	23JUN09	22SEP09	324	-20	-20
D00168	P&S Water Inflow Assess Rep(Tunnel, Adit & DS)	61	7	30OCT08A	27APR09	-95	-28	-63
D00169	APP Water Inflow Assess Rep(Tunnel, Adit & DS)	60	60	28APR09	26JUN09	-95	-28	-63
D00189	APP Blasting Assessment - Volume 2B(Adit W0)	92	7	17OCT08A	27APR09	-100	-28	-63
D00190	P&S Blasting Assessment - Vol 3A(East Adits)	93	0	27FEB09A	31MAR09A		60	-33
D00191	APP Blasting Assessment - Vol 3A(East Adits)	122	102	01APR09A	31JUL09	88	60	-33
D00192	P&S Blasting Assessment - Vol 3B(West Adits)	93	87	15APR09A	16JUL09	-22	-61	-96
D00193	APP Blasting Assessment - Vol 3B (West Adits)	122	122	17JUL09	15NOV09	-22	-61	-96
D00195	APP BA - Vol 3C (W5,CR1,RR1,W8,P5,W10)	122	122	21APR09	20AUG09	478	65	30
D00197	APP BA - Vol 3D (DG1,BR4,W1)	122	122	21APR09	20AUG09	461	73	73
D00199	APP BA - Vol 3E (BR5,BR6,W3,B2,MA14,MA15)	122	122	21APR09	20AUG09	333	134	134
Main Tunnel								
D00440	P&S Adit/main tun intrct Temp Sup(excl W0) AIP	51	0	15AUG08A	30MAR09A		0	-35
D00445	APP Adit/main tun intrct Temp Sup(excl W0) AIP	122	101	31MAR09A	30JUL09	92	0	-35
D00450	P&S Adit/main tun intrct Temp Sup(excl W0) DDA	63	31	20MAR09A	21MAY09	116	0	54
D00455	APP Adit/main tun intrct Temp Sup(excl W0) DDA	92	92	22MAY09	21AUG09	116	0	54
D00470	P&S Adit/main tun intrct Perm Ling(exc W0) DDA	63	63	13JUN09*	14AUG09	282	0	0
D00480	P&S Adit/main tun intrct Perm Ling at W0 AIP	63	63	21APR09*	22JUN09	356	-22	-22
D00485	APP Adit/main tun intrct Perm Ling at W0 AIP	92	92	23JUN09	22SEP09	356	-22	-22
D00490	P&S Adit/main tunl intrsct Perm Ling at W0 DDA	63	63	30APR09*	01JUL09	501	0	0
D00495	APP Adit/main tunl intrsct Perm Ling at W0 DDA	92	92	02JUL09	01OCT09	501	0	0
D00500	P&S TBM Dismantle Chamber Temp Supt at W0 AIP	194	7	16MAY08A	27APR09	397	-28	-63
D00505	APP TBM Dismantle Chamber Temp Supt at W0 AIP	92	92	28APR09	28JUL09	397	-28	-63
D00510	P&S TBM Dismantle Chamber Temp Supt at W0 DDA	63	63	21APR09*	22JUN09	341	-28	-63
D00515	APP TBM Dismantle Chamber Temp Supt at W0 DDA	92	92	23JUN09	22SEP09	341	-28	-63
Milestone								
Design Submission								
M2-1080	2.08-AIP-Adits&Stilling Chambers Consent	0	0		20APR09	1,155	54	36
M2-1090	2.09-DDA-Adits&Stilling Chambers Submission	0	0		22JUN09	1,092	54	36
M2-1110	2.11-AIP-Dropshaft Submission	0	0		03APR09A		14	-21
M2-1120	2.12-AIP-Dropshaft Consent	0	0		13JUN09	1,101	-10	-45
M2-1130	2.13-DDA-Dropshaft Submission	0	0		21JUN09	1,093	-20	-20
M2-1200	2.20-AIP Slope Consent (other than E&W Portals)	0	0		10MAY09	1,135	0	49



Start Date	30NOV07
Finish Date	18JUN12
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Early Bar
Previous Month (903A)
Progress Bar
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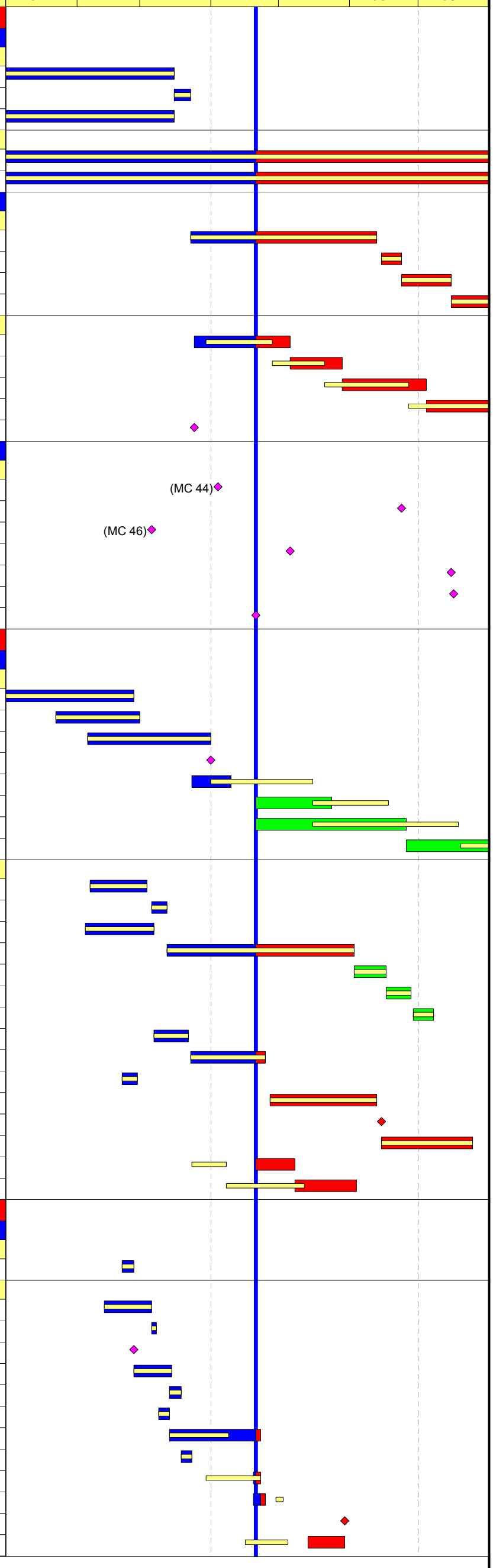
Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
APRIL/2009 MONTHLY REPORT

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
CC03-PART OF SECTION 1 OF THE WORKS(MAIN TUNNEL)								
Preliminary and General Requirements								
TBM Procurement & Delivery								
B2023	ETBM Shield/Cutter Head Transport&Pre-assembly	88	0	29SEP08A	15MAR09A		0	0
B2026	TBM Transport & Delivery to Site(Eastern Portal)	7	0	16MAR09A	22MAR09A		0	0
B2027	ETBM Electrics/Backup Transport&Pre-assembly	75	0	12OCT08A	15MAR09A		0	0
Prefabrication Precast Segment for Main Tunnel								
B2240	Precast Segment Fabrication (E.Tunnel)	592	495	16DEC08A	28AUG10	-16	-28	-28
B2280	Precast Segment Fabrication (W.Tunnel)	745	590	16DEC08A	01DEC10	-23	-28	30
Construction								
TBM Excavation (Eastern Tunnel)								
E1410	East TBM Assembly-(MT)	60	40	23MAR09A	12JUN09	-9	0	0
E1440	TBM Excavation (CH179 to CH197) =18m	8	8	15JUN09	23JUN09	-11	0	0
E1450	TBM Excavation (CH197 to CH250) =53m	18	18	24JUN09	15JUL09	-11	0	0
E1460	Preparation for Main Drive	18	18	16JUL09	07AUG09	-10	0	0
TBM Excavation (Western Tunnel)								
W1092	TBM Excav (CH10533 to CH10410) =123m	29	15	25MAR09A	05MAY09	-104	-8	-8
W1094	TBM Excav (CH10410 to CH10310) =100m	23	23	06MAY09	28MAY09	-104	-8	-8
W1096	TBM Excav (CH10310 to CH10110) =200m	37	37	29MAY09	04JUL09	-104	-8	-8
W1098	TBM Excav (CH10110 to CH9610) =500m	56	56	05JUL09	29AUG09	-104	-8	-8
WPT0135	COMMENCE TBM OPERATIONS	0	0	25MAR09A			4	4
Milestone								
Section 1 (Main Tunnel)								
M3-1031	3.03-Delivery of TBM to Site(6.25m dia.) 100%	0	0		03APR09A		-11	-12
M3-1041	3.04-Commission&Compln 100mExcav(6.25mDia.)100%	0	0		23JUN09	1,091	0	0
M3-1081	3.08-Delivery of TBM to Site (7.25m dia.) 100%	0	0		05MAR09A		0	-17
M3-1091	3.09-Commissioning of 100m Excav(7.25m dia)100%	0	0		05MAY09	1,140	-8	-8
M3-1111	3.11-Junction Bet M.Tunnel& E.Portal&CH250 100%	0	0		15JUL09	1,069	0	0
M3-1510	3.51-Excavation, Support & Lining CH10000-10250	0	0		16JUL09	1,068	-8	-8
M3-1520	3.52-M.Tunnel CH10250 & Junction w/ W Portal	0	0		20APR09	1,155	-22	-22
CC5-PART OF SECTION 1 OF THE WORKS (EAST PORTAL)								
Construction								
East Portal River Channel Works								
EPC0270	Soldier Pile & King Post Construction	60	0	15DEC08A	25FEB09A		0	-3
EPC0275	Construct upstream head wall for twin pipes	12	0	23JAN09A	28FEB09A		0	-5
EPC0280	Install 1.2m twin pipe & 800m pipe diversion	50	0	06FEB09A	31MAR09A		0	3
EPC0290	Commission Tai Hang Stream Diversion Pipes	0	0		31MAR09A		0	3
EPC0300	Curtain grouting	30	0	24MAR09A	09APR09A		23	26
EPC0305	Install West Piles & Temporary Decking	25	25	21APR09	23MAY09	18	18	21
EPC0310	Rock Excav&Slope Stabilization North Side Row A	49	49	21APR09	25JUN09	18	18	21
EPC0311	Rock Excav&Slope Stabilization North Side Row B	80	80	26JUN09	08OCT09	18	18	21
Site Installation - Phase 2								
EPA0235	Construct Main Tunnel Invert Slab CH44 - CH175	43	0	07FEB09A	03MAR09A		0	22
EPA0245	Construct Intake Tunnel & Shaft Invert Slab	8	0	06MAR09A	12MAR09A		0	22
EPA0265	Tower Crane Installation & Testing	8	0	05FEB09A	06MAR09A		0	-9
EPA0300	Spoil Tremie/Storage Construction	60	32	13MAR09A	02JUN09	-1	0	-14
EPA0310	Construct Spoil Storage Noise Enclosure	10	10	03JUN09	16JUN09	14	0	-14
EPA0320	Construct Portal Entrance Noise Enclosure	9	9	17JUN09	27JUN09	14	0	-14
EPA0330	Construct Stub Train Track Noise Enclosure	7	7	29JUN09	07JUL09	14	0	-14
EPA0390	VSL Jacking Assembly Installation	13	0	07MAR09A	21MAR09A		0	0
EPA0400	Cutterhead and Shield Assembly	24	4	23MAR09A	24APR09	-9	0	0
EPA0405	Track Set for TBM Driving	6	0	21FEB09A	27FEB09A		0	12
EPA0420	Assemble Backups up to 10B	36	36	27APR09	12JUN09	-9	0	0
EPA0430	COMMENCE EAST TBM DRIVE	0	0	15JUN09		-9	0	0
EPA0450	Assemble Backups up to 13B	32	32	15JUN09	24JUL09	-6	0	0
EPA0500	Conveyor - Construct Tower Frame T1 & T2	12	12	21APR09	07MAY09	-2	-19	-49
EPA0505	Install Conveyor T1 & T2	21	21	08MAY09	03JUN09	-2	-19	-49
CC6-PART OF SECTION 1 OF THE WORKS (WEST PORTAL)								
Construction								
Arch Tunnel								
WPF1000	Concrete Curing last Slab	5	0	21FEB09A	25FEB09A		0	0
Site Installation - Phase 2								
WPT0114	Shield assembly on the portal	18	0	13FEB09A	05MAR09A		0	0
WPT0116	SHIELD TRANSFER TO THE FACE INSIDE TUNNEL	2	0	06MAR09A	07MAR09A		0	0
WPT0118	END OF 50m TUNNEL CONCRETING & CURING	0	0		25FEB09A		0	0
WPT0120	Backup Unit(BU) 1to 8 assembly & transfer	15	0	26FEB09A	14MAR09A		0	0
WPT0121	Temp Concrete slab for backup transfer to Shield	4	0	14MAR09A	18MAR09A		0	0
WPT0122	Transfer BU 1+S1 segments on track behind Shield	5	0	09MAR09A	13MAR09A		0	0
WPT0130	Cabling - Piping on Gantries/Shield	21	2	14MAR09A	22APR09	-73	-8	-8
WPT0132	Finishing Assembly Works&Commissioning until BU8	10	0	19MAR09A	23MAR09A		0	5
WPT0140	BU9-13 Assembly during Initial Excavation	16	2	20APR09A	22APR09	-54	0	0
WPT0145	Stop For Full Assembly of TBM	3	2	20APR09A	24APR09	-69	8	8
WPT0150	RESTART IN FULL CONFIGURATION	0	0		29MAY09	-79	-20	-20
WPT0155	Track installation during learning curve	13	13	14MAY09	29MAY09	-79	-20	-7



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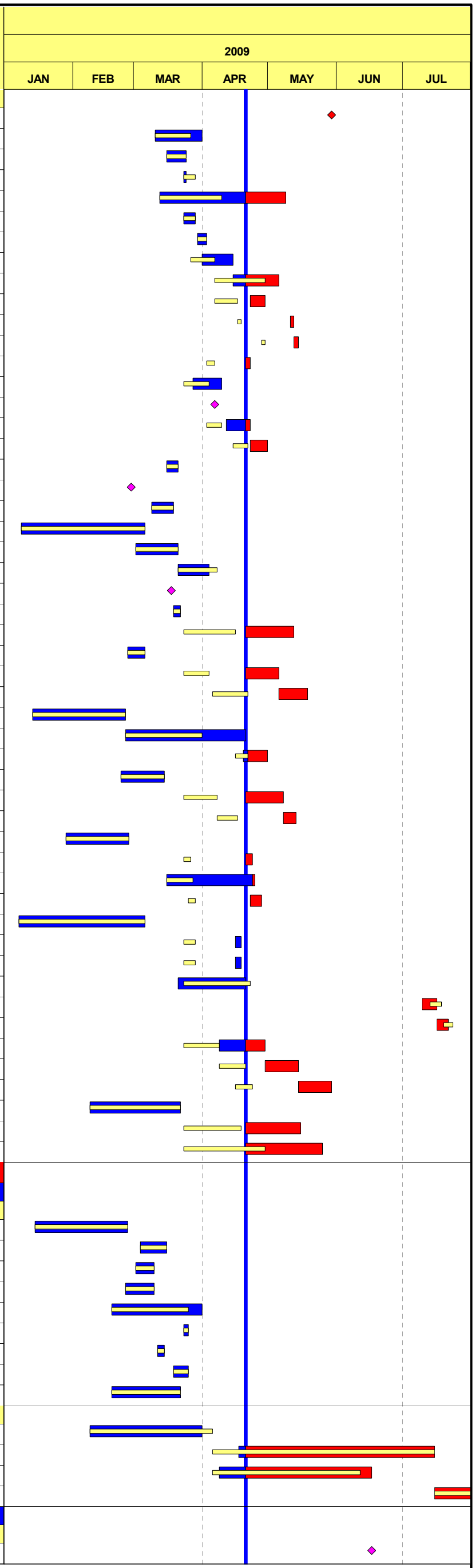
Early Bar
Previous Month (903A)
Progress Bar
Critical Activity

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
APRIL/2009 MONTHLY REPORT

Dragages - Nishimatsu Joint Venture 寶嘉 - 西松建設聯營

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
Site Installation - Phase 2								
WPT0160	END OF 223m LENGTH OF TUNNEL(10m/day)	0	0		29MAY09	-79	-20	-7
WPT0315	Conveyor Foundations for T4,T5 & Feeders	9	0	11MAR09A	31MAR09A		-4	-14
WPT0320	Conveyor T0 assembly	8	0	16MAR09A	24MAR09A		0	-12
WPT0325	Conveyor T0 assembly Commissioning	5	0	24MAR09A	24MAR09A		4	-5
WPT0330	Conveyor T2,T3,T6 assemb on top basin+sea side	23	13	13MAR09A	08MAY09	-67	-18	-18
WPT0335	Conveyor Belt cassette assemb Stag 1 MCC Install	5	0	24MAR09A	28MAR09A		0	-7
WPT0340	Conveyor MCC Installation and cabling Stage 1	4	0	30MAR09A	02APR09A		0	-7
WPT0375	Conveyor T4,T5 assembly + Extractors for Backhoe	8	0	01APR09A	14APR09A		-3	-13
WPT0397	Start use of T4 to T6 Conveyor for Barge Loading	15	10	15APR09A	05MAY09	-60	-3	-13
WPT0430	Conveyor T1 assembly	5	5	23APR09	29APR09	-61	-10	-17
WPT0450	Conveyor T1 Belts installation + vulcanisation	2	2	11MAY09	12MAY09	-67	-16	-18
WPT0470	CONVEYOR COMMISSIONING FULL INSTALLATION	2	2	13MAY09	14MAY09	-67	-10	-18
WPT0492	Conveyor Belt Cassette Assembly End parts T1&T2	2	2	21APR09	22APR09	-61	-10	-17
WPT0597	Steel Frame Erect Yard area 25T crane Stage 2	10	0	28MAR09A	09APR09A		-4	-5
WPT0600	25 T crane delivery	0	0	07APR09A			-2	-2
WPT0670	25 T installation	5	2	12APR09A	22APR09	-58	-7	-7
WPT0690	25 T Crane Test and Commissioning	6	6	23APR09	30APR09	-58	-7	-7
WPT0707	Temp Slab from steel bridge to retaining wall	5	0	16MAR09A	20MAR09A		0	-13
WPT0708	Partial delivery for TBM Starting(S1+ few rings)	0	0	28FEB09A			0	-1
WPT0710	Set up supports for segment in yard	12	0	09MAR09A	18MAR09A		0	9
WPT0715	Spoil Basin Excavation + Concrete	11	0	09JAN09A	05MAR09A		0	-12
WPT0717	Excavation & casting Spoil Basin Retaining wall	27	0	02MAR09A	20MAR09A		0	-18
WPT0719	Spoil Basin Conveyor Separating Wall	24	0	21MAR09A	03APR09A		2	-19
WPT0720	First delivery of segments to the yard	0	0	18MAR09A			0	1
WPT0750	Ring preparation and delivery for TBM test	3	0	19MAR09A	21MAR09A		0	0
WPT0770	Set up area for Pipes and rails	15	15	21APR09	12MAY09	-72	-19	-14
WPT0805	Install Rails Bay3+50m assemb&Transfer Shield	7	0	26FEB09A	05MAR09A		0	0
WPT0835	Mortar for TBM -Fabrication+pumping test on site	10	10	21APR09*	05MAY09	-70	-19	-49
WPT0837	Mortar for TBM - Setup Equipment on site	10	10	06MAY09	18MAY09	-70	-19	-19
WPT0855	Grouting Equipment - Fab in Europe+factory test	42	0	14JAN09A	24FEB09A		0	0
WPT0857	Grouting Equpment - Delivery to HongKong	30	0	25FEB09A	20APR09A		-12	-12
WPT0859	Grouting Equipment-Install on Gantry BU10B+Tests	10	7	20APR09A	30APR09	-53	-7	-7
WPT1035	Site installation Permanent Wet Sep Stage 1	18	0	23FEB09A	14MAR09A		0	0
WPT1037	Site installation Permanent Wet Sep Stage 2	12	12	21APR09	07MAY09	-66	-19	-26
WPT1050	Water Treatment Plant Commisioning	4	4	08MAY09	13MAY09	-66	-19	-26
WPT1090	Fresh Water Tank - Set up equipment below bridge	25	0	29JAN09A	26FEB09A		0	0
WPT1092	Set up Water tank & Booster pumps	3	3	21APR09	23APR09	-55	-19	-40
WPT1094	Set up return loop from tank from TBM(hot water)	8	1	16MAR09A	24APR09	-55	-19	-33
WPT1096	Commissioning water booster pumps + chiller	3	3	23APR09	27APR09	-55	-19	-31
WPT1170	Services - Pipes & electrical lines Installation	44	0	08JAN09A	05MAR09A		0	-2
WPT1190	Services-Commisioning for Tunnel (air,water)	5	0	16APR09A	18APR09A		-13	-29
WPT1235	Compressors Installation and commissioning	5	0	16APR09A	18APR09A		-13	-39
WPT1260	Temporary Ventilation Installation & Commission	21	0	21MAR09A	20APR09A		2	-28
WPT1262	Final Ventilation Installation & Commission	5	5	10JUL09*	16JUL09	-50	2	-28
WPT1265	Installation & Test of Chiller for ventilation	4	4	17JUL09	21JUL09	-50	2	-28
WPT1505	Pea Gravel-Civil work on yard+Temp trans install	13	7	09APR09A	29APR09	-79	-13	-36
WPT1540	Pea Gravel tank into shaft install&Commissioning	10	10	30APR09	14MAY09	-79	-17	-40
WPT1560	Pea Gravel transfer conveyors to the tank	12	12	15MAY09	29MAY09	-79	-26	-49
WPT1770	Install noise cover along Cyberport bridge area	12	0	09FEB09A	21MAR09A		0	-24
WPT1780	Install Noise Cover below bridge	18	18	21APR09	15MAY09	-76	-19	-44
WPT1790	Install Noise cover pea gravel/spoil basin side	26	26	21APR09	25MAY09	-76	-19	-26
CC7 -PART OF SECTION 1 OF THE WORKS (PORTION W0)								
Construction								
Preparation Works								
S010855	Hoarding Erection East Side	15	0	15JAN09A	25FEB09A		0	0
S010870	Construct Site Gate	3	0	04MAR09A	15MAR09A		0	-15
S010905	Construction of Drain Pipe for Site Discharge	3	0	02MAR09A	09MAR09A		0	-15
S010910	Construction of Wheel Wash Basin	7	0	25FEB09A	09MAR09A		0	-3
S010915	Hoarding Erect West Side incl Temp 2.4m hoarding	30	0	19FEB09A	31MAR09A		-5	1
S010920	Construction of U-Channel & Pits West Side	23	0	24MAR09A	25MAR09A		0	6
S010925	Removal of Garden Lighting	3	0	12MAR09A	14MAR09A		0	15
S010930	Install Geotech Monitoring Instruments-(W0)	6	0	19MAR09A	25MAR09A		0	6
S010950	Place Concrete Paving (A193 Mesh)	10	0	19FEB09A	21MAR09A		0	-17
Intakes - External Structures (Stage1)								
S010188	Subcontract Procurement	56	0	09FEB09A	31MAR09A		5	5
S010190	Cofferdam Wall Driving-(W0)	73	64	18APR09A	15JUL09	-134	0	0
S010220	Pre-drilling & Grouting Works-(W0)	48	42	09APR09A	16JUN09	-134	-3	-3
S010230	Temp Diversion Natural Stream(Drain)-(W0)	30	30	16JUL09	22AUG09	-134	0	0
Milestone								
Section 1 (Portion W0)								
M7-1010	7.01-Pre-drilling&Grouting Works(Dropshaft)	0	0		16JUN09	925	-5	-5



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2009

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Early Bar
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904A Sheet 6 of 9

Design & Construction of HK. West Drainage Tunnel
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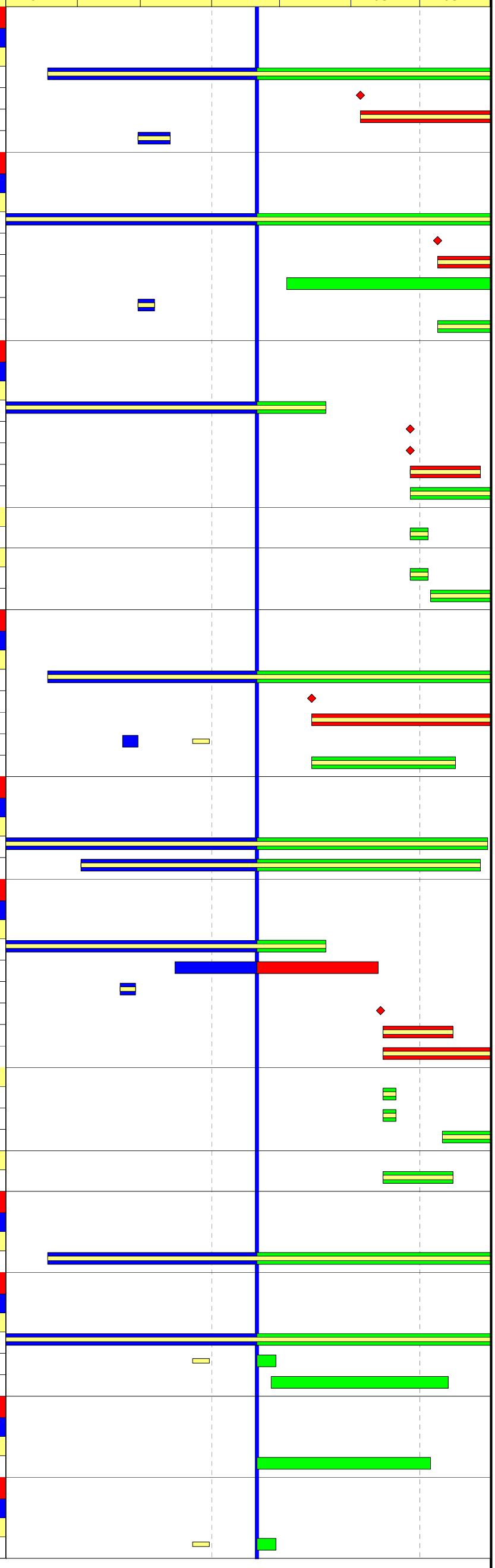
CC8 - SECTION 2 OF THE WORKS (PORTION E5A)								
Construction								
Preliminary Works								
S020040	Notify,Coord&Obtain Permit-Utility Prov - E5A	240	170	19JAN09A	26NOV09	6	0	0
S020100	Notify SO for Portion Possession - E5A	0	0		04JUN09*	0	0	0
S020110	25 wks prior to Portion Possess Date-(E5A)	175	175	05JUN09	26NOV09	0	0	0
S020116	P & S Environmental Base Monitoring Report(E5A)	12	0	28FEB09A	13MAR09A		0	-10
CC9 - SECTION 3 OF THE WORKS (PORTION E5B)								
Construction								
Preliminary Works								
S030020	Notify,Coord&Obtain Permit-Utility Prov - E5B	265	123	24OCT08A	29SEP09	74	0	0
S030100	Notify SO for Portion Possession - E5B)	0	0		08JUL09*	0	0	0
S030110	25 wks prior to Portion Possess Date-(E5B)	175	175	09JUL09	30DEC09	0	0	0
S030119	GI & Inspection Pits - Advance Works(E5B)	92	92	04MAY09*	03AUG09	149	0	0
S030120	P & S Tree Survey Report (E5B)	6	0	28FEB09A	06MAR09A		0	-10
S030240	TMLG submission, coordination & Approval - E5B	48	48	09JUL09	09SEP09	90	0	0
CC10-SECTION 4 OF THE WORKS (PORTION MB16)								
Construction								
Preliminary Works								
S040110	25 wks prior to Portion Possess Date-(MB16)	175	30	27NOV08A	20MAY09	37	0	28
S040125	Complete Utility Diversion by Others - MB16	0	0		26JUN09*	0	0	0
S040130	Site Possession - (MB16)	0	0	27JUN09*		0	0	0
S040140	Site Setting up/Mobilization-(MB16)	24	24	27JUN09	27JUL09	0	0	0
S4-1140U	Cut Slope at the Western for Working Platform	48	48	27JUN09	28AUG09	10	0	0
Preparation Works								
S040150	Install Geotech Monitoring Instruments-(MB16)	6	6	27JUN09	04JUL09	52	0	0
Pipe Laying								
S040120	Implement TTM-(MB16)	6	6	27JUN09	04JUL09	96	0	0
S040160	Manhole SMH1 to SMH3	60	60	06JUL09	21SEP09	96	0	0
CC11-SECTION 5 OF THE WORKS (PORTION MBD2)								
Construction								
Preliminary Works								
S050030	Notify,Coord&Obtain Permit-Utility Prov - MBD2	149	108	19JAN09A	10SEP09	44	0	-30
S050100	Notify SO for Portion Possession - MBD2	0	0		14MAY09*	0	0	0
S050110	25 wks prior to Portion Possess Date-(MBD2)	175	175	15MAY09	05NOV09	0	0	0
S050120	P & S Tree Survey Report (MBD2)	6	0	21FEB09A	27FEB09A		26	-4
S050125	TMLG submission, coordination & Approval - MBD2	48	48	15MAY09	16JUL09	87	0	0
CC12-SECTION 6 OF THE WORKS (PORTION E7)								
Construction								
Preliminary Works								
S060030	Notify,Coord&Obtain Permit-Utility Prov - E7	225	76	16OCT08A	30JUL09	16	0	0
S060110	25 wks prior to Portion Possess Date-(E7)	175	98	03FEB09A	27JUL09	24	0	0
CC13-SECTION 7 OF THE WORKS (PORTION THR2)								
Construction								
Preliminary Works								
S070110	25 wks prior to Portion Possess Date-(THR2)	175	30	27NOV08A	20MAY09	23	0	0
S070119	GI & Inspection Pits - Advance Works (THR2)	90	53	16MAR09A	12JUN09	0	0	0
S070120	P & S Tree Survey Report (THR2)	6	0	20FEB09A	26FEB09A		0	-3
S070150	Site Possession - THR2	0	0	14JUN09*		-1	-1	-1
S070160	Site Setting up/Mobilization-(THR2)	24	24	15JUN09	15JUL09	0	0	0
S070180	Rail System & Overhead Gantry Installation	58	58	15JUN09	28AUG09	0	0	0
Preparation Works								
S070190	Install Geotech Monitoring Instruments-(THR2)	6	6	15JUN09	20JUN09	26	0	0
S070191	Existing Bldg & Structure(EBS) Survey - (THR2)	6	6	15JUN09	20JUN09	26	0	0
S070200	Pre-drilling & Grouting Works-(THR2)	26	26	11JUL09	14AUG09	11	0	0
Intakes - External Structures (Stage1)								
S070170	Temp Diversion Natural Stream(Drain)-(THR2)	24	24	15JUN09	15JUL09	34	0	0
CC14-SECTION 8 OF THE WORKS (PORTION GL1)								
Construction								
Preliminary Works								
S080030	Notify,Coord&Obtain Permit-Utility Prov - GL1	364	292	19JAN09A	30APR10	35	0	0
CC15-SECTION9 OF THE WORKS(PORTION HR1)								
Construction								
Preliminary Works								
S090030	Notify,Coord&Obtain Permit-Utility Prov - HR1	315	173	24OCT08A	30NOV09	156	0	0
S090120	P & S Tree Survey Report (HR1)	6	6	21APR09	28APR09	323	-19	-49
S090122	GI & Inspection Pits - Advance Works (HR1)	78	78	27APR09*	13JUL09	343	0	0
CC17-SECTION 11 OF THE WORKS (PORTION BR4)								
Construction								
Preliminary Works								
S110122	GI & Inspection Pits - Advance Works (BR4)	76	76	21APR09*	05JUL09	359	0	0
CC18-SECTION 12 OF THE WORKS (PORTION W1)								
Construction								
Preliminary Works								
S120120	P & S Tree Survey Report (W1)	6	6	21APR09	28APR09	326	-19	-49



JAN FEB MAR APR MAY JUN JUL
2009

Start Date 30NOV07
Finish Date 18JUN12
Data Date 21APR09
Run Date 24APR09 11:56

Early Bar
Previous Month (903A)
Progress Bar
Critical Activity

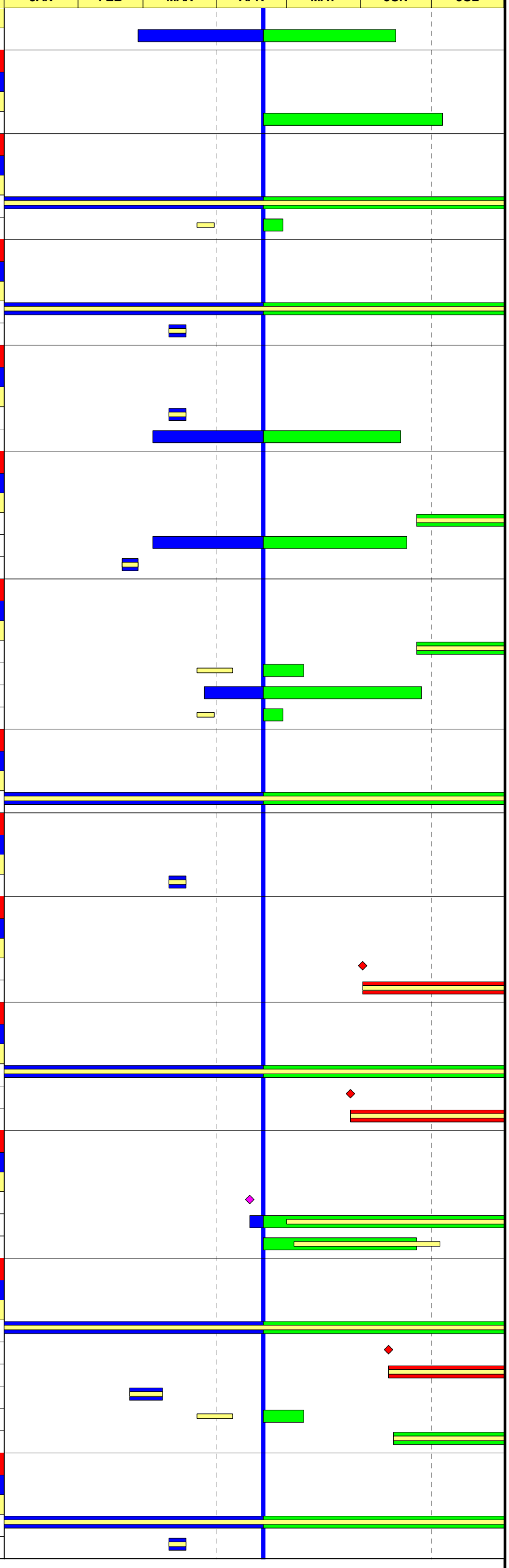
904A Sheet 7 of 9

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
APRIL/2009 MONTHLY REPORT

Dragages - Nishimatsu Joint Venture 寶嘉 - 西松建設聯營

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
Preliminary Works								
S120122	GI - Advance Works (W1)	109	56	27FEB09A	15JUN09	375	0	0
CC19-SECTION 13 OF WORKS (PORTION BR5)								
Construction								
Preliminary Works								
S130122	GI & Inspection Pits - Advance Works (BR5)	76	76	21APR09*	05JUL09	1,079	0	0
CC20-SECTION 14 OF THE WORKS (PORTION BR6)								
Construction								
Preliminary Works								
S140030	Notify,Coord&Obtain Permit-Utility Prov - BR6	408	293	24NOV08A	03MAY10	9	0	0
S140120	P & S Tree Survey Report (BR6)	6	6	21APR09	28APR09	296	-19	-49
CC21-SECTION 15 OF THE WORKS (PORTION W3)								
Construction								
Preliminary Works								
S150030	Notify,Coord&Obtain Permit-Utility Prov - W3	359	243	24NOV08A	26FEB10	58	0	0
S150120	P & S Tree Survey Report (W3)	6	0	12MAR09A	18MAR09A		0	-20
CC22-SECTION 16 OF THE WORKS (PORTION B2)								
Construction								
Preliminary Works								
S160120	P & S Tee Survey Report (B2)	6	0	12MAR09A	18MAR09A		0	-20
S160122	GI & Inspection Pits - Advance Works (B2)	105	58	05MAR09A	17JUN09	539	0	0
CC23-SECTION 17 OF THE WORKS (PORTION MA14)								
Construction								
Preliminary Works								
S170020	Notify,Coord&Obtain Permit-Utility Prov - MA14	149	149	25JUN09*	30DEC09	70	0	0
S170117	GI & Inspection Pits - Advance Works (MA14)	105	61	05MAR09A	20JUN09	279	0	0
S170119	P & S Tree Survey Report (MA14)	6	0	20FEB09A	26FEB09A		0	-3
CC24-SECTION 18 OF THE WORKS (PORTION MA15)								
Construction								
Preliminary Works								
S180020	Notify,Coord&Obtain Permit-Utility Prov - MA15	149	149	25JUN09*	30DEC09	76	0	0
S180116	P & S Environmental Base Monitoring Report(MA15)	12	12	21APR09	07MAY09	261	-19	-49
S180117	GI & Inspection Pits - Advance Works (MA15)	92	67	27MAR09A	26JUN09	1,088	0	0
S180120	P & S Tree Survey Report (MA15)	6	6	21APR09	28APR09	267	-19	-49
CC25-SECTION 19 OF THE WORKS (PORTION MA17)								
Construction								
Preliminary Works								
S190030	Notify,Coord&Obtain Permit-Utility Prov - MA17	312	197	24NOV08A	30DEC09	42	0	0
CC26-SECTION 20 OF THE WORKS (PORTION M3)								
Construction								
Preliminary Works								
S200120	P & S Tree Survey Report (M3)	6	0	12MAR09A	18MAR09A		0	-20
CC27-SECTION 21 OF THE WORKS (PORTION TP789)								
Construction								
Preliminary Works								
S210100	Notify SO for Portion Possession - (TP789)	0	0		01JUN09*	0	0	0
S210110	25 wks prior to Portion Possess Date-(TP789)	175	175	02JUN09	23NOV09	0	0	0
CC28-SECTION 22 OF THE WORKS (PORTION TP5)								
Construction								
Preliminary Works								
S220030	Notify,Coord&Obtain Permit-Utility Prov - TP5	265	123	24OCT08A	29SEP09	38	0	0
S220100	Notify SO for Portion Possession - (TP5)	0	0		27MAY09*	-2	0	0
S220110	25 wks prior to Portion Possess Date-(TP5)	175	175	28MAY09	18NOV09	-2	0	0
CC29-SECTION 23 OF THE WORKS (PORTION TP4)								
Construction								
Preliminary Works								
S230100	Notify SO for Portion Possession - (TP4)	0	0		14APR09A		13	13
S230110	25 wks prior to Portion Possess Date-(TP4)	175	169	15APR09A	06OCT09	16	16	16
S230125	TMLG submission, coordination & Approval - TP4	48	48	21APR09	24JUN09	93	8	8
CC30-SECTION 24 OF THE WORKS (PORTION W5)								
Construction								
Preliminary Works								
S240030	Notify,Coord&Obtain Permit-Utility Prov - W5	239	123	24NOV08A	29SEP09	60	0	0
S240100	Notify SO for Portion Possession - (W5)	0	0		12JUN09*	0	0	0
S240110	25 wks prior to Portion Possess Date-(W5)	175	175	13JUN09	04DEC09	0	0	0
S240114	Install ENV Instruments & start monitor(W5)	12	0	23FEB09A	08MAR09A		0	0
S240116	P & S Environmental Base Monitoring Report(W5)	12	12	21APR09	07MAY09	171	-19	-32
S240125	TMLG submission, coordination & Approval - W5	48	48	15JUN09	15AUG09	95	0	0
CC31-SECTION 25 OF THE WORKS (PORTION CR1)								
Construction								
Preliminary Works								
S250030	Notify,Coord&Obtain Permit-Utility Prov - CR1	327	185	24OCT08A	14DEC09	150	0	0
S250120	P & S Tree Survey Report (CR1)	6	0	12MAR09A	18MAR09A		0	-20



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2009

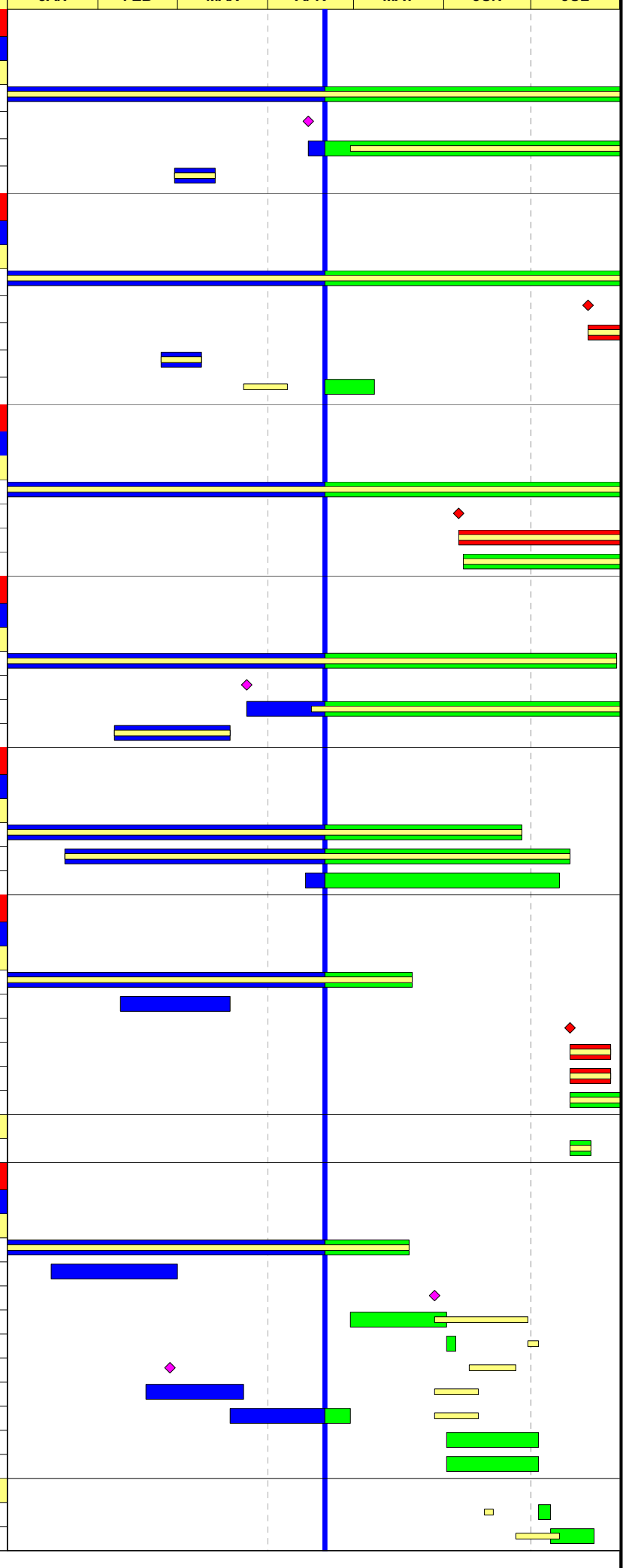
Start Date	30NOV07
Finish Date	18JUN12
Data Date	21APR09
Run Date	24APR09 11:56

Early Bar
Previous Month (903A)
Progress Bar
Critical Activity

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
APRIL/2009 MONTHLY REPORT

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 903A EF Variance	Approved Works Prog 9032 EF Variance
CC32-SECTION 26 OF THE WORKS (PORTION RR1)								
Construction								
Preliminary Works								
S260030	Notify,Coord&Obtain Permit-Utility Prov - RR1	265	123	24OCT08A	29SEP09	20	0	0
S260100	Notify SO for Portion Possession - (RR1)	0	0		14APR09A		12	12
S260110	25 wks prior to Portion Possess Date-(RR1)	175	169	15APR09A	06OCT09	15	15	15
S260116	P & S Environmental Base Monitoring Report(RR1)	12	0	28FEB09A	13MAR09A		0	-10
CC33-SECTION 27 OF THE WORKS (PORTION W8)								
Construction								
Preliminary Works								
S270030	Notify,Coord&Obtain Permit-Utility Prov - W8	278	159	20NOV08A	13NOV09	56	0	0
S270100	Notify SO for Portion Possession - (W8)	0	0		20JUL09*	0	0	0
S270110	25 wks prior to Portion Possess Date-(W8)	175	175	21JUL09	11JAN10	0	0	0
S270114	Install ENV Instruments & start monitor(W8)	12	0	23FEB09A	08MAR09A		0	0
S270116	P & S Environmental Base Monitoring Report(W8)	12	12	21APR09	07MAY09	203	-19	-32
CC34-SECTION 28 OF THE WORKS (PORTION P5)								
Construction								
Preliminary Works								
S280030	Notify,Coord&Obtain Permit-Utility Prov - P5	247	123	14NOV08A	29SEP09	84	0	0
S280100	Notify SO for Portion Possession - (P5)	0	0		05JUN09*	0	0	0
S280110	25 wks prior to Portion Possess Date-(P5)	175	175	06JUN09	27NOV09	0	0	0
S280121	TMLG submission, coordination & Approval - P5	48	48	08JUN09	08AUG09	124	0	0
CC35-SECTION 29 OF THE WORKS (PORTION W10)								
Construction								
Preliminary Works								
S290030	Notify,Coord&Obtain Permit-Utility Prov - W10	190	76	26NOV08A	30JUL09	52	0	0
S290100	Notify SO for Portion Possession - W10)	0	0		24MAR09A		14	14
S290110	25 wks prior to Portion Possess Date-(W10)	175	148	25MAR09A	15SEP09	22	22	22
S290120	P & S Tree Survey Report (W10)	6	0	07FEB09A	18MAR09A		0	-23
CC36-SECTION 30 OF THE WORKS (PORTION HKU1)								
Construction								
Preliminary Works								
S300020	Notify,Coord&Obtain Permit-Utility Prov - HKU1	192	51	24OCT08A	27JUN09	39	0	0
S300110	25 wks prior to Portion Possess Date-(HKU1)	175	85	21JAN09A	14JUL09	31	0	0
S300117	GI & Utility Inspection - Advance Works (HKU1)	88	81	14APR09A	10JUL09	1,074	0	0
CC37-SECTION 31 OF THE WORKS (PORTION PFLR1)								
Construction								
Preliminary Works								
S310930	25 wks prior to Portion Possess Date-(PFLR1)	175	30	27NOV08A	20MAY09	55	0	28
S310937	GI & Inspection pits - Advance Works(PFLR1)	6	0	09FEB09A	18MAR09A		0	0
S310940	Site Possession - (PFLR1)	0	0	15JUL09*		0	0	0
S310970	Hoarding/Fencing-(PFLR1)	12	12	15JUL09	28JUL09	0	0	0
S310980	Implement TTM - (Occupy Pedestrain)	12	12	15JUL09	28JUL09	0	0	0
S310990	Power & Water Points-(PFLR1)	24	24	15JUL09	14AUG09	3	0	0
Preparation Works								
S311131	Existing Bldg & Structure(EBS) Survey - (PFLR1)	6	6	15JUL09	21JUL09	9	0	0
CC38-SECTION 32 OF THE WORKS (PORTION SM1)								
Construction								
Preliminary Works								
S320930	25 wks prior to Portion Possess Date-(SM1)	175	29	26NOV08A	19MAY09	9	0	0
S320942	GI & Inspection pits - Advance Works (SM1)	6	0	16JAN09A	28FEB09A		0	0
S320950	Site Possession - SM1	0	0	29MAY09*		140	0	0
S320970	Power & Water Points-(SM1)	24	24	30APR09	01JUN09	77	21	21
S320980	Site Office-(SM1)	3	3	02JUN09	04JUN09	101	21	21
S320990	Implement TTM-(SM1)	0	0	26FEB09A			90	90
S321000	Cut/Fill/Place Concrete Block&Platform-(SM1)	12	0	18FEB09A	23MAR09A		59	59
S321010	Hoarding/Fencing/Gate Construction-(SM1)	12	7	19MAR09A	29APR09	77	33	33
S321040	Modification of the Noise Barrier Footings	24	24	02JUN09	03JUL09	77	0	0
S321090	Modification of the WSD Bend Blocks	24	24	02JUN09	03JUL09	77	0	0
Preparation Works								
S321030	Install Geotech Monitoring Instruments-(SM1)	3	3	04JUL09	07JUL09	77	-15	-15
S321050	Mobilization&Setup(Pre-drill & Grouting)-(SM1)	12	12	08JUL09	22JUL09	77	-9	-9



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Dragages - Nishimatsu Joint Venture 寶嘉 - 西松建設聯營

Date	Revision	Checked	Approved

APPENDIX P
WASTE GENERATED QUANTITY

DSD Contract No. DC/2007/10
Design & Construction of Hong Kong West Drainage Tunnel

Monthly Waste Flow Table

Quarter ending		Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see notes 2)	Chemical Waste	Others, e.g. general refuse
	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)
Jan-09			129 m3		9530 m3			2 m3		1.3 m3	39 m3
Feb-09			199 m3		5481 m3			3 m3			45 m3
Mar-09			61 m3		877 m3			3 m3		1.4 m3	78 m3
Apr-09			45 m3		544 m3			3 m3		0.4 m3	73 m3
May-09											
Jun-09											
Sub-Total			434 m3		16432 m3			11 m3		3.1 m3	235 m3
Jul-09											
Aug-09											
Sep-09											
Oct-09											
Nov-09											
Dec-09											
Total			3804 m3		35728 m3	18926 m3		21 m3		4.1 m3	606 m3

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Plastics refer to plastic bottles/containers, plastic/foam from packaging material.
(3) Broken concrete for recycling into aggregates.