

Maeda - CREC - SELI Joint Venture



# Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel

---

Monthly EM&A Report  
(November 2008)

December 2008

Report no: EB000364R0142

**Hyder Consulting Ltd**  
**Incorporated in Hong Kong with limited liability**  
COI Number 126012  
47th Floor, Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong  
Tel: +852 2911 2233 Fax: +852 2805 5028  
[www.hyderconsulting.com](http://www.hyderconsulting.com)



Maeda - CREC - SELI Joint Venture



# Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel

---

Monthly EM&A Report (November 2008)

Author: Winnie MA

Checker: Antony Wong

Approver: Alexi BHANJA

Report no: EB000364R0142

Date: December 2008

This report has been prepared for Maeda - CREC - SELI Joint Venture in accordance with the terms and conditions of appointment for Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel dated 18 December 2007. Hyder Consulting Ltd (COI Number 126012) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

Certified by Environmental  
Team Leader  
Antony WONG

Verified by Independent  
Environmental Checker  
David YEUNG

Hyder

Consulting

# Contents

Executive Summary.....	1
1 INTRODUCTION.....	3
2 PROJECT INFORMATION .....	4
2.1 Project Organization and Management Structure .....	4
2.2 Construction Progress .....	4
2.3 Mitigation Measures .....	4
2.4 Status of License and Permit.....	4
3 SUMMARY OF EM&A REQUIREMENT .....	5
3.1 Air Quality .....	5
3.2 Noise .....	9
3.3 Water Quality.....	13
4 MONITORING RESULT .....	18
4.1 Air Quality .....	18
4.2 Noise .....	20
4.3 Water Quality Monitoring .....	20
4.4 Summary of Project-Related Exceedances .....	26
5 WASTE MANAGEMENT.....	26
6 NON-COMPLIANCE AND DEFICIENCY .....	26
6.1 Site Audit by ET .....	26
7 COMPLAINT .....	28
8 SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS .....	28
9 FUTURE KEY ISSUE.....	28

## Appendices

Appendix A	Site Map and Works Area
Appendix B	Organization Chart
Appendix C	Construction Programme
Appendix D	Implementation Status of Environmental Mitigation Measures
Appendix E	Status of License and Permit
Appendix F	Calibration Certificates
Appendix G	Monitoring Locations
Appendix H	EM&A Schedule
Appendix I	Monitoring Results
Appendix J	Interim Notifications of Environmental Quality Limits Exceedances

## List of Tables

Table 3-1	Air Quality Monitoring Equipment
Table 3-2	Air Quality Monitoring Locations
Table 3-3	Action & Limit Levels for Air Quality
Table 3-4	Event/Action Plan for Air Quality
Table 3-5	Noise Monitoring Equipment
Table 3-6	Noise Monitoring Locations
Table 3-7	Action & Limit Levels for Noise
Table 3-8	Event/Action Plan for Noise
Table 3-9	Water Quality Monitoring Equipment
Table 3-10	Water Quality Monitoring Locations
Table 3-11	Action/Limit Levels for Water Quality
Table 3-12	Event/Action Plan for Water Quality
Table 4-1	Air Quality Monitoring Results
Table 4-2	Noise Monitoring Results
Table 4-3	Summary of exceedances for I-1
Table 4-4	Summary of exceedances for I-2
Table 4-5	Summary of exceedances for I-3
Table 4-6	Water Quality Monitoring Results
Table 4-7	Summary of Project-Related Exceedances
Table 5-1	Waste Generated in November 2008
Table 6-1	Site Inspection by ET
Table 7-1	Cumulative Statistic of Environmental Complaint
Table 8-1	Cumulative Statistics of notification of summons and successful prosecutions

## Executive Summary

1. Drainage Services Department (DSD) has awarded the contract for the Design and Construction of Tsuen Wan Drainage Tunnel (hereafter referred to as the "Project") to Maeda-CREC-SELI Joint Venture (MCSJV). MCSJV has appointed Hyder Consulting Limited (HCL) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works in accordance with the Environmental Monitoring and Audit Manual (EM&A Manual) and Environmental Permit (EP). Commencement of the construction work had been notified to the Environmental Protection Department (EPD) in January 2008. This Monthly EM&A Report summarises the EM&A works undertaken in November 2008.
2. According to the EM&A Manual, there are four designated air quality monitoring locations, five designated noise monitoring locations and four water quality monitoring locations during the construction phase: (i) Sik Sik Yuen Ho Fung College (ASR 1, NSR 1 and Intake I-1); (ii) Hong Hoi Chee Hong Temple (ASR 3, NSR 3 and Intake I-2); (iii) Squatters (NSR 6 and Intake I-3); (iv) Beach Tower (Long Beach Gardens) (ASR 8, NSR 8 and Outfall O-1); and (v) Greenview Terrace (Block 1) (ASR 9, NSR 9 and Outfall O-1).
3. During non-restricted hours, major construction activities undertaken by the Contractor at TWDT included site clearance at I-1, I-2, I-3 and Outfall; hoarding & fencing erection at I-3 and Outfall; tree transplanting at I-1, I-3 and Outfall; slope stabilization at Outfall; pre-construction survey at I-1, I-2, I-3 and Outfall; soil nailing at I-3; relocation of verified boulder at I-1, I-2 and Outfall; formation of access road at Outfall; and pre-bore H-piling at I-2. No construction activities were undertaken during restricted hours.
4. No exceedance has been recorded for noise monitoring during the reporting month. During the reporting month, the 1<sup>st</sup> measurement of 1-hr TSP monitoring at ASR 9 measured on 27 November 2008 has exceeded Action Level. Contractor was requested to provide dust suppression measures. Detail interpretation of the result could be referred to Section 4.1 of this report.
5. Exceedances for water quality monitoring are summarized in the following table:

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Nil	One recorded at I-1 on 17 November

6. These exceedances were considered not to be project-related as no direct disturbance was observed contributed by the project construction activities. Detail interpretation could be referred to Section 4.3 of this report.
7. The status of waste generation in the reporting month are:

- A total of 60.3m<sup>3</sup> C&D material was disposed of to public fill at Tuen Mun and no inert C&D materials were reused in KDB 400, a line extension project of MTR Corporation at Tai Kok Tsui;
  - About 12.1m<sup>3</sup> general waste was disposed of to NENT Landfill;
  - About 250kg of paper/cardboard was recycled;
  - No chemical waste was disposed of in the reporting month; and
  - No metal was generated in the reporting month.
8. In this reporting month, two site inspections and one monthly site audit were carried out by ET and Independent Environmental Checker (IEC) respectively, to ensure proper implementation of environmental mitigation measures specified in the EM&A Manual and compliance with environmental legislation. All observations, which were recorded on the inspection checklists, were passed to the Contractor together with the ET's recommendations.
9. As advised by the Contractor and verified by ET:
- No non-compliance was received in the reporting month;
  - No environmental complaint was received during the reporting month; and
  - No summons and prosecution was received in this reporting month.
10. The major construction works for the upcoming three months will be:
- Site clearance at I-1, I-2, I-3 and Outfall;
  - Hoarding & fencing erection at I-3 and Outfall;
  - Trees transplanting at I-1, I-3 and Outfall;
  - Slope stabilization at Outfall;
  - Soil nailing at I-3;
  - Pipe pile at I-1;
  - Relocation of verified boulder at Outfall;
  - Formation of access road at Outfall;
  - Pre-bore H-piling at I-3; and
  - Air vent shaft construction at I-2.

# 1 INTRODUCTION

---

- 1.1.1 The Drainage Services Department (DSD) proposes to construct a tunnel with an internal diameter of 6.5m and a length of 5.13km, with the purpose to alleviate the flooding risk in Tsuen Wan and Kwai Chung.
- 1.1.2 This project is a Designated Project under Schedule 2 Part I Category Q, of the Environmental Impact Assessment Ordinance (EIAO) as part of the proposed Tsuen Wan Drainage Tunnel (TWDT) passes underneath the existing Tai Mo Shan Country Park. An Environmental Impact Assessment (EIA) Study has therefore been undertaken to provide information on the nature and extent of environmental impacts arising from the construction and operation of the proposed designed project and related activities taking place concurrently. From the EIA the recommendations for monitoring contained herein, are made.
- 1.1.3 The Maeda - CREC - SELI Joint Venture (MCSJV) was awarded by DSD with the Contract – Design and Construction of Tsuen Wan Drainage Tunnel.
- 1.1.4 Hyder was commissioned by the MCSJV as the Environmental Team (ET) to implement an EM&A program in accordance with the EM&A Manual. The proposed tunnel section flows from the junction of Shing Mun Road and Wo Yi Hop Road and discharges to south of Yau Kom Tau underneath Castle Peak Road as shown in Appendix A.
- 1.1.5 The construction works of the Project was commenced in January 2008. This is the eighth monthly EM&A report summarising the impact monitoring results and audit findings of the EM&A program in November 2008.

## 2 PROJECT INFORMATION

---

### 2.1 Project Organization and Management Structure

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

### 2.2 Construction Progress

2.2.1 The overall project programme from the detail design to completion of all civil works shall take approximately 54 months. The construction programme is presented in Appendix C.

2.2.2 The major construction activities undertaken in the reporting month were:

- Site clearance at I-1, I-2, I-3 and Outfall;
- Hoarding & fencing erection at I-3 and Outfall;
- Tree transplanting at I-1, I-3 and Outfall;
- Slope stabilization at Outfall;
- Pre-construction survey at I-1, I-2, I-3 and Outfall;
- Soil nailing at I-3;
- Relocation of verified boulder at I-1, I-2 and Outfall;
- Formation of access road at Outfall; and
- Pre-bore H-piling at I-2.

2.2.3 No construction activities were undertaken for TWDT during the restricted hours.

### 2.3 Mitigation Measures

2.3.1 The implemented environmental mitigation measures and their statuses are given in Appendix D.

### 2.4 Status of License and Permit

2.4.1 A summary of relevant permits and licences for the Project is given in Appendix E.



## 3 SUMMARY OF EM&A REQUIREMENT

---

### 3.1 Air Quality

#### Air Quality Parameters

- 3.1.1 1-hour Total Suspended Particulates (TSP) levels are measured at the designated air monitoring locations in accordance with the EM&A Manual. Information such as date of monitoring, duration, weather condition, equipment used and monitoring results were recorded on the field data sheet developed for the Project. The monitoring results are presented in Section 4.

#### Monitoring Methodology

- 3.1.2 1-hour TSP monitoring is carried out under typical weather conditions (with no adverse weather such as typhoon signal or rain storm warning) three times every six days using High Volume Air Samplers (HVASs). Monitoring should be conducted in accordance with the standard sampling method as set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.
- 3.1.3 After each sampling, the filter paper loaded with dust is kept in a clean and tightly sealed plastic bag. The filter paper is then re-conditioned in a dessicator for 24 hours before obtaining the weight under laboratory conditions.
- 3.1.4 The average concentrations of the TSP are calculated based on the following information obtained from monitoring:
- Flow rate;
  - Weight of the filter paper before and after sampling; and
  - Sampling period indicated by the elapsed-time meter.
- 3.1.5 All samples should be kept in good condition (i.e. stored in sealed plastic bags, with brief description of the monitoring dates and locations) for a period of 6 months before disposal. Sample analysis is carried out by ALS Technichem (HK) Pty Limited (HOKLAS Registration Number 066).

#### Monitoring Equipment and Calibration

- 3.1.6 High Volume Air Samplers (HVASs) are used for 1-hour TSP monitoring to comply with the USEPA specifications in Appendix B Part 5 - Reference Method for the Determination of Suspended Particulate matter in the Atmosphere (High-Volume Method) of the Code of Federal Regulation dated June 1, 1991.
- 3.1.7 All HVASs are calibrated before commencement of monitoring using standard orifice 5-points calibration method with orifice calibrator to determine the actual flow rate of each HVAS. This shall be used for the calculation of the TSP level. Calibration Kit Model - TE5025A is used for calibration of the HVAS. Recalibration of the HVAS shall be carried out after motor maintenance, at least once every six months, which is about the expected life of carbon brush. The air

quality monitoring equipment used during the reporting month is shown in Table 3-1 below. The calibration certificates are included in Appendix F.

Equipment Type	Model	Serial Number	Calibration Orifice Number	Location
HVAS	BM2000HX	4994	517N	ASR 1
HVAS	BM2000HX	5875	517N	ASR 3
HVAS	TE5005X	0390	517N	ASR 8
HVAS	TE5005X	0646	517N	ASR 9

**Table 3-1 Air Quality Monitoring Equipment**

## Monitoring Location

- 3.1.8 Four designated air quality monitoring locations were identified in the contract specific EM&A manual. They are listed in Table 3-2 below and shown in Appendix G.

Monitoring Station ID	Name of Premises	Floor Level
ASR1	Sik Sik Yuen Ho Fung College	G/F
ASR3	Hong Hoi Chee Hong Temple	Podium
ASR8	Beach Tower (Long Beach Gardens)	G/F
ASR9	Greenview Terrace (Block 1)	G/F

**Table 3-2 Air Quality Monitoring Locations**

## Action and Limit Levels

- 3.1.9 The Action and Limit Levels for the 1-hour TSP monitoring is shown in Table 3-3. In case exceedances of Action and/or Limit levels for air quality occur, Event Contingency Plans (ECPs) would be implemented. The ECPs for Action and Limit levels exceedances are shown in Table 3-4.

Station	1-hr TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level
ASR 1	307	500
ASR 3	327	500
ASR 8	337	500
ASR 9	329	500

**Table 3-3 Action & Limit Levels for Air Quality**

EVENT	ACTION			
	ET	IEC	SOR	CONTRACTOR
<b>ACTION LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and SOR;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC and SOR;</li> <li>Advise SOR on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and SOR;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>Supervise Implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit proposals for remedial to SOR within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>
<b>LIMIT LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for</li> </ul>

EVENT	ACTION			
	ET	IEC	SOR	CONTRACTOR
	measures; <ul style="list-style-type: none"> <li>• Inform IEC, SOR, Contractor and EPD;</li> <li>• Repeat measurement to confirm finding;</li> <li>• Increase monitoring frequency to daily;</li> <li>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results.</li> </ul>	working method; <ul style="list-style-type: none"> <li>• Discuss with ET and Contractor on possible remedial measures;</li> <li>• Advise SOR on the effectiveness of the proposed remedial measures;</li> <li>• Supervise implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Notify Contractor;</li> <li>• Ensure remedial measures properly implemented.</li> </ul>	remedial actions to IEC within 3 working days of notification; <ul style="list-style-type: none"> <li>• Implement the agreed proposals;</li> <li>• Amend proposal if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>• Notify IEC, SOR, Contractor and EPD;</li> <li>• Identify source;</li> <li>• Repeat measurement to confirm findings;</li> <li>• Increase monitoring frequency to daily;</li> <li>• Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>• Arrange meeting with IEC and SOR to discuss the remedial actions to be taken;</li> <li>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results;</li> <li>• If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss amongst SOR, ET, and Contractor on the potential remedial actions;</li> <li>• Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly;</li> <li>• Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Confirm receipt of notification of exceedance in writing;</li> <li>• Notify Contractor;</li> <li>• In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>• Ensure remedial measures properly implemented;</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Take immediate action to avoid further exceedance;</li> <li>• Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>• Implement the agreed proposals;</li> <li>• Resubmit proposals if problem still not under control;</li> <li>• Stop the relevant portion of works as determined by SOR until the exceedance is abated.</li> </ul>

**Table 3-4 Event/Action Plan for Air Quality**

## 3.2 Noise

### Noise Parameters

- 3.2.1 The construction noise level is measured in terms of equivalent A-weighted sound pressure level ( $L_{eq}$ ) measured in decibels (dB(A)). Monitoring of  $L_{eq(30\text{ min})}$  is carried out at the noise monitoring locations on a weekly basis during normal construction working hours (0700-1900 hours from Monday to Saturday except public holidays). For all other time periods (i.e. restricted hours),  $L_{eq(5\text{ min})}$  would be employed for comparison with the Noise Control Ordinance (NCO) criteria if necessary.
- 3.2.2 The two statistical sound levels  $L_{10}$  and  $L_{90}$ : the level exceeded for 10 and 90 percent of the time respectively, are also recorded during monitoring. Major noise sources observed, both on-site and off-site, are recorded on the field data sheet. All measurements are recorded to the nearest 0.1 dB(A) and presented in round numbers in this report. Results are presented in Section 4.

### Monitoring Methodology

- 3.2.3 Sound level meters, which comply with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications as referred to the Technical Memorandum (TM) issued under the Noise Control Ordinance, are used. Noise levels for the A-weighted levels  $L_{eq(30\text{ min})}$ ,  $L_{10}$  and  $L_{90}$  are measured throughout the impact monitoring. Average, by sound power, of six consecutive 5 minutes readings is used to provide  $L_{eq(30\text{ min})}$  for non-restricted hours (07:00-19:00 hours from Monday to Saturday except public holidays). A facade correction of 3dB(A) is applied to the measurements that are carried out under free field conditions.
- 3.2.4 During the impact monitoring, parameters such as dates, weather condition, equipment used, measurement results and major noise sources are recorded on the field data record sheet. Monitoring would not be carried out in the presence of fog, rain or strong wind with a steady speed exceeding 5 m/s. In relation to the monitored noise levels, other noise sources such as road traffic might make a significant contribution to the overall noise environment. Therefore, noise monitoring activities would take into account such influencing factors, which were not present during the baseline monitoring period.

### Monitoring Equipment and Calibration

- 3.2.5 Bruel & Kjaer (B&K) Precision Integrating Sound Level Meters of Type 2238 in compliance with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) Specifications, stated in the Technical Memorandum (TM) issued under the NCO, are used for noise monitoring.
- 3.2.6 Prior to and following each noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator (B&K Type 4231, (S/N 1770806) generating a known sound pressure level at a known frequency. Measurements are considered as valid only if the calibration levels from before and after the noise measurement agrees to within 1.0 dB(A). The sound level meters and the

calibrator are calibrated annually to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. The noise monitoring equipment used during the reporting month is shown in Table 3-5 below. The calibration certificates are included in Appendix F.

Equipment Type	Manufacturer	Type Number	Serial Number	Location
Sound Level Meter	Bruel & Kjaer	2238	2285726	NSR1, NSR3, NSR6, NSR8 and NSR9
Sound Level Calibrator	Bruel & Kjaer	4231	1770806	NSR1, NSR3, NSR6, NSR8 and NSR9

**Table 3-5 Noise Monitoring Equipment**

## Monitoring Location

3.2.7 Five designated noise monitoring locations were identified in the contract specific EM&A manual. They are listed in Table 3-6 below and shown in Appendix G.

Monitoring Station ID	Name of Premises	Floor Level
NSR1	Sik Sik Yuen Ho Fung College	G/F
NSR3	Hong Hoi Chee Hong Temple	Podium
NSR6	Squatters	G/F
NSR8	Beach Tower (Long Beach Gardens)	G/F
NSR9	Greenview Terrace (Block 1)	G/F

**Table 3-6 Noise Monitoring Locations**

## Construction Groundborne Noise

3.2.8 Prediction of construction groundborne noise indicates the criteria will be achieved at most NSRs except exceedances are predicted at Hong Hoi Chee Hong Temple (NSR3) and Squatters (NSR6). It is recommended to restrict the TBM operation in non-restricted period (i.e. 0700 - 1900) at these NSRs. In order to ensure proper control of groundborne noise is executed by the contractor, a monitoring requirement is recommended at the Hong Hoi Chee Hong Temple at Intake 2 and Squatters at Intake 3 for compliance checking. According to the monitoring schedule, TBM operation will be carried out for about 3 months in the vicinity of Hong Hoi Chee Hong Temple at Intake 2 and Squatters at Intake 3. If groundborne noise criterion is exceeded, the monitoring shall continue daily until acceptance has been restored against the criterion. Otherwise the monitoring can be discontinued.

3.2.9 The criteria including Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (TM-Places) under the NCO stipulates that noise transmitted primarily through the structural elements of building, or buildings, shall be 10 dB(A) less than the relevant ANLs. Daytime groundborne construction noise criterion of 60 dB(A) therefore applies with reference to TM-EIAO 70 dB(A) criterion for schools and taking account of the minus 10 dB(A) requirement under the NCO TM-Places. Following the same principle for groundborne noise criteria, groundborne

construction noise levels inside domestic premises relying on opened window for ventilation will be limited to 65 dB(A), with reference to the daytime airborne noise criterion of 75 dB(A) in accordance with TM-EIAO.

## Action and Limit Levels

3.2.10 The Action and Limit levels for construction noise are defined in Table 3-7. If non-compliance of the criteria occurs, actions in accordance with the Action Plan in Table 3-8 would be carried out.

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

\* For educational establishments the limit level shall be 70dB(A) and reduced to 65dB(A) during examination periods between 0700-1900 hrs on normal weekdays.

**Table 3-7 Action & Limit Levels for Noise**

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

**Table 3-8 Event/Action Plan for Noise**



## 3.3 Water Quality

- 3.3.1 As there is no dredging or reclamation required for the project, the water quality impact would be insignificant with the protection measures recommended in Section 5.6 of the EIA report. However in view of the sensitive nature of the rivers/streams and bathing beaches in the Study Area, it is suggested that a programme of monitoring should be established to confirm the mitigation measures are protecting these water bodies.

### Water Quality Parameters

- 3.3.2 Monitoring for Dissolved Oxygen (DO), temperature, turbidity, pH and suspended solids (SS) should be undertaken at designated monitoring locations. It should be noted that DO, temperature, turbidity and pH should be measured in-situ whereas SS is assayed in a laboratory.
- 3.3.3 In association with the water quality parameters, other relevant data should also be measured, such as monitoring location/position, time, weather conditions, and any special phenomena and description of work underway at the construction site etc.

### Monitoring Methodology

- 3.3.4 In accordance with the EM&A Manual, the water quality monitoring for all specified parameters shall be measured at all designated monitoring locations including control points at an interval of 3 days per week. DO, temperature, turbidity, pH and SS shall be undertaken at designated monitoring locations.
- 3.3.5 It should be noted that water samples for all monitoring parameters should be collected, stored, preserved and analysis according to Standard Methods, APHA 17 ed. and/or methods agreed by the Director of Environmental Protection.
- 3.3.6 Each sample shall be analysed in accordance with the APHA Standard Methods for the Examination of Water and Wastewater, 18th edition, or an equivalent method approved by the EPD. If an in-house or non-standard method is proposed, details of the method verification may require to be submitted to the EPD. In any circumstance, the sample testing should comply with a comprehensive quality assurance and quality control programme. The laboratory should be prepared to demonstrate the quality programmes to the EPD when requested.

### Monitoring Equipment and Calibration

- 3.3.7 All the water samples collected should be transferred to clearly labelled and pre-cleaned sample containers with necessary preservatives immediately after collection. The sample containers should be provided by a HOKLAS accredited laboratory. Sufficient quantity of samples should be collected for all laboratory analyses. Following sampling, samples should be stored in a cool box at temperature of between 0 and 4°C, and transported to the laboratory within the sample retention time as advised by the laboratory under proper chain-of-custody system. The water quality monitoring equipment used during the reporting month is shown in Table 3-9 below.

Equipment Type	Manufacturer	Model	Quantity
pH / DO / Temperature Meter	WTW	PH/Oxi 340i	1
Turbidimeter	EUTECH	TN-100	1

**Table 3-9 Water Quality Monitoring Equipment**

3.3.8 All pH meters, DO meters and turbidimeters shall be checked and calibrated prior to use. DO meters and turbidimeters shall be calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters shall be carried out before measurement at each monitoring location. For the on site calibration of field equipment, BS 127:1993, "Guide to field and on-site test methods for the analysis of waters" should be observed. The calibration certificates are included in Appendix F.

## Monitoring Location

3.3.9 Four designated monitoring locations were identified in the contract specific EM&A Manual for water quality monitoring. While the construction of the outfall does not require dredging or reclamation, monitoring of water quality is only required during which the rip rap is placed. These four monitoring stations are listed in Table 3-10 below and shown in Appendix G.

Monitoring Station ID	Name of Premises
I-1	Intake I-1
I-1-C	Control of Intake I-1
I-2	Intake I-2
I-2-C	Control of Intake I-2
I-3	Intake I-3
I-3-C	Control of Intake I-3
O-1 (FT)	Outfall 1 During Flood Tide
O-1 (ET)	Outfall 1 During Ebb Tide
O-1-C (FT)	Control of Outfall O-1 During Flood Tide
O-1-C (ET)	Control of Outfall O-1 During Ebb Tide

**Table 3-10 Water Quality Monitoring Locations**

3.3.10 Note that there are two control stations for Outfall O-1, one for sampling during flood tide and one for sampling during ebb tide. Only one of those control stations for Outfall O-1 shall be sampled during each sampling. Control station to be sampled will be determined based on the tidal information provided by the Hong Kong Observatory.

## Action and Limit Levels

3.3.11 The Action and Limit levels for water quality monitoring parameters are defined in Table 3-11. In case of any exceedance, appropriate actions will be undertaken in accordance with the Event and Action Plan as described in Table 3-12.

Parameters	Action	Limit
DO in mg/l (Surface, Middle & Bottom)	<u>Surface &amp; Middle</u> 5%-ile of baseline data for surface and middle layer.  <u>Bottom</u> 5%-ile of baseline data for bottom layer.	<u>Surface &amp; Middle</u> 4mg/l except 5mg/l for FCZ or 1%-ile of baseline data for surface and middle layer  <u>Bottom</u> 2mg/l or 1%-ile of baseline data for bottom layer
SS in mg/l (depth-averaged)	95%-ile of baseline data or 120% of upstream control station's SS at the same tide of the same day	99%-ile of baseline or 130% of upstream control station's SS at the same tide of the same day and specific sensitive receiver water quality requirements (e.g. required suspended solids levels for concerned sea water intakes)
Turbidity (Tby) in NTU (depth-averaged)	95%-ile of baseline data or 120% of upstream control station's Tby at the same tide of the same day	99%-ile of baseline or 130% of upstream control station's Tby at the same tide of the same day

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- For SS and Tby, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.

**Table 3-11 Action/Limit Levels for Water Quality**

Event	ET Leader	IEC	SOR	Contractor
Action Level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm finding;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor; and</li> <li>Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with ET and Contractor on the mitigation measures;</li> <li>Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IEC on the proposed mitigation measures; and</li> <li>Make agreement on the mitigation measures to be implemented.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the SOR and confirm notification of the non-compliance in writing;</li> <li>Rectify unacceptable practice;</li> <li>Check all plant and equipment;</li> <li>Consider changes of working methods;</li> <li>Discuss with ET and IEC and propose mitigation measures to IEC and SOR; and</li> <li>Implement the agreed mitigation measures.</li> </ol>
Action Level being exceeded by more than one consecutive sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm finding;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor;</li> <li>Ensure mitigation measures are implemented;</li> <li>Prepare to increase the monitoring frequency to daily; and</li> <li>Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with ET and Contractor on the mitigation measures;</li> <li>Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IEC on the proposed mitigation measures;</li> <li>Make agreement on the mitigation measures to be implemented; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>Rectify unacceptable practice;</li> <li>Check all plant and equipment;</li> <li>Consider changes of working methods;</li> <li>Discuss with ET and IEC and propose mitigation measures to IEC and SOR within 3 working days; and</li> <li>Implement the agreed mitigation measures.</li> </ol>

Event	ET Leader	IEC	SOR	Contractor
Limit Level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, SOR and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented; and</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Limit Level being exceeded by more than one consecutive sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, SOR and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures; and</li> <li>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the SOR and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days;</li> <li>6. Implement the agreed mitigation measures; and</li> <li>7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.</li> </ol>

**Table 3-12 Event/Action Plan for Water Quality**

## 4 MONITORING RESULT

### 4.1 Air Quality

4.1.1 The air quality monitoring schedule of the reporting period is given in Appendix H.

#### 1-hr TSP Monitoring

4.1.2 Results of 1-hours TSP level are shown in Table 4-1. All measurements were recorded to the nearest  $0.1\mu\text{g}/\text{m}^3$  and presented in round numbers in this report. Detail results including weather conditions, and graphical presentations are presented in Appendix I.

Station	Monitoring Date	Monitoring Result ( $\mu\text{g}/\text{m}^3$ )	Action/Limit Levels ( $\mu\text{g}/\text{m}^3$ )
ASR 1	4-Nov-08	38	307/500
		33	
		35	
	10-Nov-08	73	
		59	
		78	
	15-Nov-08	74	
		81	
		113	
	21-Nov-08	49	
		77	
		49	
	27-Nov-08	150	
		157	
		166	
ASR 3	4-Nov-08	55	327/500
		49	
		76	
	10-Nov-08	30	
		26	
		22	
	15-Nov-08	58	
		60	
		100	
	21-Nov-08	83	
		87	
		67	
	27-Nov-08	135	
		215	
		190	

Station	Monitoring Date	Monitoring Result ( $\mu\text{g}/\text{m}^3$ )	Action/Limit Levels ( $\mu\text{g}/\text{m}^3$ )
ASR 8	4-Nov-08	48	337/500
		36	
		45	
	10-Nov-08	126	
		113	
		97	
	15-Nov-08	62	
		79	
		78	
	21-Nov-08	69	
		117	
		92	
	27-Nov-08	255	
		259	
177			
ASR 9	4-Nov-08	38	329/500
		45	
		46	
	10-Nov-08	76	
		69	
		65	
	15-Nov-08	34	
		28	
		65	
	21-Nov-08	102	
		94	
		79	
	27-Nov-08	376	
		170	
135			

**Note:** *Italic* indicates the occurrence of exceedance of *Action level*

**Bold** indicates the occurrence of exceedance of **Limit Level**

**Table 4-1 Air Quality Monitoring Results**

- 4.1.3 One project related exceedance was recorded in the reporting month.
- 4.1.4 During the reporting month, the 1<sup>st</sup> of 1-hr TSP monitoring at ASR 9 measured on 27 November 2008 has exceeded Action Level. In accordance with site investigation, fugitive dust generated from tree logging and site tidiness was observed during the measurement of 1<sup>st</sup> 1-hr TSP monitoring. Contractor had immediately provided water spraying for dust suppression. The subsequent monitoring results were below Action and Limit Levels. Dust suppression measures were effective. Details of the investigation can be referred to the notifications of exceedances as enclosed in Appendix J.

## 4.2 Noise

The noise monitoring schedule of the reporting period is given in Appendix H. Results of measured noise level, in terms of  $L_{eq}(30min)$ , during the construction are shown in Table 4-2. All measurements including L10 and L90 are recorded to the nearest 0.1 dB(A) and presented in round numbers in this report. Detail results including weather conditions and graphical presentation are presented in Appendix I.

Station	Monitoring Date	$L_{eq}(30 min)$ dB(A)	Limit Levels dB(A)
NSR 1	4-Nov-08	65	70
	10-Nov-08	66	
	21-Nov-08	67	
	27-Nov-08	68	
NSR 3	4-Nov-08	68	75
	10-Nov-08	70	
	21-Nov-08	68	
	27-Nov-08	61	
NSR 6	4-Nov-08	63	
	10-Nov-08	63	
	21-Nov-08	63	
	27-Nov-08	60	
NSR 8	4-Nov-08	66	
	10-Nov-08	65	
	21-Nov-08	63	
	27-Nov-08	67	
NSR 9	4-Nov-08	64	
	10-Nov-08	63	
	21-Nov-08	65	
	27-Nov-08	66	

**Table 4-2 Noise Monitoring Results**

4.2.1 No exceedances of Action / Limit Level were recorded during the reporting month.

## 4.3 Water Quality Monitoring

4.3.1 The water quality monitoring schedule of the reporting period is given in Appendix H. In accordance with the monitoring results, one exceedance was identified. Summaries of exceedances for water quality monitoring are provided in Tables 4-3 to 4-5.



Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Nil	One recorded on 17 November
Total	Nil	Two

**Table 4-3 Summary of exceedances for I-1**

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Nil	Nil
Total	Nil	Nil

**Table 4-4 Summary of exceedances for I-2**

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Nil	Nil
Total	Nil	Nil

**Table 4-5 Summary of exceedances for I-3**

- 4.3.2 Results of measured water quality parameters during the reporting month are shown in Table 4-6 and detailed results including weather conditions and graphical presentations are enclosed in Appendix I.
- 4.3.3 The exceedance of Control Limit Level of SS (130% higher than I-1-C) recorded at I-1 on 17 November was well below both Baseline Action & Limit Levels and no direct disturbance was observed contributed by the project construction activities including site tidiness, drilling temporary pipe pile for spiral ramp construction and no exceedance was recorded for the consecutive measurement on 19 November. No action was taken as there was no evidence to show the exceedance was project related.
- 4.3.4 Details of the above mentioned investigations can be referred to the notifications of exceedances as enclosed in Appendix J which have been provided to the IEC for review.

Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	pH	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU)	SS (mg/L)	Action/Limit Level for SS (mg/L)
<b>I-1</b>	4-Nov-08	24.45	4.20	3.42 / 3.34	7.72	3.39	9.75 / 12.47	2.0	8.85 / 10.17
	6-Nov-08	25.35	4.52		7.54	4.42		2.0	
	8-Nov-08	23.70	4.99		7.49	3.51		2.0	
	10-Nov-08	21.15	4.90		7.71	3.08		2.0	
	12-Nov-08	18.40	5.50		7.43	3.29		2.0	
	14-Nov-08	23.60	4.64		7.75	3.21		2.0	
	17-Nov-08	22.20	4.76		7.51	3.94		<b>7.0</b>	
	19-Nov-08	20.00	5.05		8.00	3.59		5.1	
	21-Nov-08	21.30	4.85		7.71	3.71		2.0	
	24-Nov-08	20.90	4.61		7.23	4.70		3.0	
	26-Nov-08	20.90	4.61		7.23	4.86		6.8	
	28-Nov-08	15.80	5.18		8.22	3.40		2.0	
<b>I-1-C</b>	4-Nov-08	24.50	4.36	- / -	7.66	3.44	- / -	2.0	- / -
	6-Nov-08	25.45	4.67		7.67	4.59		2.0	
	8-Nov-08	24.30	4.95		7.57	3.54		2.9	
	10-Nov-08	21.20	5.40		7.71	3.14		2.0	
	12-Nov-08	18.70	5.58		7.65	3.32		2.0	
	14-Nov-08	23.70	4.74		7.73	3.25		2.0	
	17-Nov-08	22.45	4.62		7.62	4.87		4.0	

Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	pH	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU)	SS (mg/L)	Action/Limit Level for SS (mg/L)
	19-Nov-08	20.00	4.85		7.84	3.66		5.2	
	21-Nov-08	21.50	4.68		7.62	3.70		2.0	
	24-Nov-08	21.10	4.63		7.48	4.95		3.0	
	26-Nov-08	21.10	4.63		7.56	4.94		6.1	
	28-Nov-08	15.80	5.20		8.70	3.53		2.0	
<b>I-2</b>	4-Nov-08	25.20	4.52	3.66 / 3.63	7.88	4.33	6.63 / 6.99	2.0	7.68 / 8.34
	6-Nov-08	25.60	4.39		7.96	3.46		2.0	
	8-Nov-08	25.00	4.62		7.84	3.28		2.0	
	10-Nov-08	21.90	5.26		7.66	3.10		2.0	
	12-Nov-08	20.25	4.68		7.83	4.40		2.0	
	14-Nov-08	23.40	4.67		8.12	5.20		2.0	
	17-Nov-08	23.00	4.63		7.49	3.40		2.0	
	19-Nov-08	20.50	4.74		7.65	3.50		2.0	
	21-Nov-08	21.00	4.96		7.48	3.49		2.0	
	24-Nov-08	20.00	4.41		7.62	3.28		2.2	
	26-Nov-08	22.00	4.41		7.62	3.30		2.0	
	28-Nov-08	16.50	4.38		7.83	3.33		2.0	
<b>I-2-C</b>	4-Nov-08	24.40	4.58	- / -	7.83	4.32	- / -	2.0	- / -
	6-Nov-08	25.80	4.54		8.10	3.49		2.0	

Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	pH	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU)	SS (mg/L)	Action/Limit Level for SS (mg/L)
	8-Nov-08	25.20	4.45		8.00	3.39		2.3	
	10-Nov-08	22.00	5.45		7.65	3.10		2.0	
	12-Nov-08	19.90	4.99		7.73	4.99		2.0	
	14-Nov-08	23.65	4.64		8.15	5.23		2.0	
	17-Nov-08	23.85	4.46		7.51	3.44		2.0	
	19-Nov-08	20.50	4.97		7.64	3.55		2.0	
	21-Nov-08	21.20	5.15		7.53	3.55		2.0	
	24-Nov-08	20.10	4.45		7.63	3.40		2.4	
	26-Nov-08	22.00	4.46		7.63	3.38		2.0	
	28-Nov-08	16.80	5.37		7.83	3.43		2.0	
<b>I-3</b>	4-Nov-08	25.50	4.41	3.65 / 3.51	7.82	3.57	3.99 / 4.18	2.0	6.13 / 7.23
	6-Nov-08	25.55	4.78		8.13	3.32		2.0	
	8-Nov-08	24.50	5.36		8.00	3.19		2.0	
	10-Nov-08	21.10	5.40		7.74	3.19		2.0	
	12-Nov-08	20.30	5.16		7.78	3.05		2.0	
	14-Nov-08	22.30	4.53		8.10	3.08		2.0	
	17-Nov-08	24.60	4.23		7.74	3.24		2.0	
	19-Nov-08	20.20	5.19		7.67	3.15		2.0	
	21-Nov-08	20.70	5.66		7.77	3.12		2.0	

Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	pH	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU)	SS (mg/L)	Action/Limit Level for SS (mg/L)
	24-Nov-08	20.80	4.96		7.73	3.06		2.0	
	26-Nov-08	22.30	5.22		8.21	3.16		2.0	
	28-Nov-08	18.20	5.45		7.93	3.49		2.0	
<b>I-3-C</b>	4-Nov-08	24.50	4.37	- / -	7.77	3.68	- / -	2.0	- / -
	6-Nov-08	25.50	4.89		8.11	3.34		2.0	
	8-Nov-08	25.50	5.39		8.00	3.23		2.0	
	10-Nov-08	21.10	5.47		7.80	3.27		2.0	
	12-Nov-08	20.30	5.32		8.01	3.17		2.0	
	14-Nov-08	22.70	4.65		8.00	3.15		2.0	
	17-Nov-08	24.40	4.38		7.78	3.25		2.0	
	19-Nov-08	20.20	5.24		7.82	3.18		2.0	
	21-Nov-08	20.10	5.54		7.78	3.16		2.0	
	24-Nov-08	20.70	4.84		7.81	3.13		2.0	
	26-Nov-08	22.40	4.80		8.52	3.23		2.0	
28-Nov-08	18.30	5.44	7.92	3.54	2.0				

**Note:**

1. *Italic* indicates the occurrence of exceedance of *Action level*.
2. **Bold** indicates the occurrence of exceedance of **Limit level**.

**Table 4-6 Water Quality Monitoring Results**

## 4.4 Summary of Project-Related Exceedances

4.4.1 Table 4-7 summarises the project-related exceedance results recorded in November 2008. Note that exceedances that are considered not related to the construction activities are not included in this table.

Environmental Monitoring	Total No. of Measurement	Action Level Exceedance	% of Action Level Exceedance	Limit Level Exceedance	% of Limit Level Exceedance
<b>Air Quality</b>	60	1	1.7	0	0
<b>Noise</b>	20	0	0	0	0
<b>Water</b>	72	0	0	0	0

Note: Exceedances that are considered not related to the construction activities are not included in this table.

Table 4-7 Summary of Project-Related Exceedances

## 5 WASTE MANAGEMENT

5.1.1 The status of waste management is summarized in Table 5-1 below.

Status of waste management	Quantity
Inert C&D Material Disposed of to Public Fill at Tuen Mun (m <sup>3</sup> )	60.3
Inert C&D Material Reused in other Contracts (m <sup>3</sup> )	Nil
Metals Generated (kg)	Nil
Paper / Cardboard Packaging (kg)	250
Plastics (kg)	Nil
Chemical Waste (kg)	Nil
General Waste Disposed of to NENT Landfill (m <sup>3</sup> )	12.1

Table 5-1 Waste Generated in November 2008

## 6 NON-COMPLIANCE AND DEFICIENCY

### 6.1 Site Audit by ET

6.1.1 ET has carried out two site inspections in the reporting month. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the audit checklists that were passed to the Contractor. Major environmental deficiencies observed during site inspection/audits and recommendation, which were made by the ET, are summarised in Table 6-1 below. No non-compliance was observed.

Inspection Date	Observation	Recommendation	Status
7 November 2008	<ol style="list-style-type: none"> <li>1. Provision of dust screen was observed at Outfall near Greenview. But the dust screen was not installed properly.</li> <li>2. At Intake 2, the sound insulation measures for bore piling machine was not sufficient.</li> </ol>	<ol style="list-style-type: none"> <li>1. The Contractor was requested to maintain the dust screen properly.</li> <li>2. The Contractor was requested to improve sound insulation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. During site inspection on 27 November, dust screen had been installed properly. (Closed)</li> <li>2. Supplementary sound insulation measures was observed in the site inspection on 27 November. (Closed)</li> </ol>
28 November 2008	<ol style="list-style-type: none"> <li>1. Some chemical containers were observed without drip trays at Intake 3.</li> <li>2. More than 20 bags of cement were observed without tarpaulin sheet cover.</li> <li>3. Stagnant water was observed at Intake 2.</li> </ol>	<ol style="list-style-type: none"> <li>1. The Contractor was requested to provide drip trays.</li> <li>2. The Contractor was requested to cover the cement bags.</li> <li>3. The Contractor was requested to clear the stagnant water.</li> </ol>	<ol style="list-style-type: none"> <li>1. During site inspection on 5 December, chemical containers had been provided drip trays and covered properly. (Closed).</li> <li>2. During site inspection on 5 December, the cement bags were covered entirely. (Closed)</li> <li>3. No stagnant water was observed during site inspection on 5 December. (Closed)</li> </ol>

**Table 6-1 Site Inspection by ET**

## 7 COMPLAINT

- 7.1.1 A complaint hotline at **9850 3241** of the Contractor has been established for the Project.
- 7.1.2 No complaints were received during the reporting month. Cumulative statistics of environmental complaints are shown in Table 7-1.

Complaints Received in the Reporting Month	Cumulative Number of Complaints
0	0

Table 7-1 Cumulative Statistic of Environmental Complaint

## 8 SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS

- 8.1.1 No summons and successful prosecution was received during the reporting month.
- 8.1.2 Cumulative statistics of Notification of Summons, Successful Prosecutions and Convictions are shown in Table 8-1.

Notification of Summons		Successful Prosecution	
November 08	Cumulative	November 08	Cumulative
0	0	0	0

Table 8-1 Cumulative Statistics of notification of summons and successful prosecutions

## 9 FUTURE KEY ISSUE

- 9.1.1 The forecast of construction works for the upcoming three months are:
- Site clearance at I-1, I-2, I-3 and Outfall;
  - Hoarding & fencing erection at I-3 and Outfall;
  - Trees transplanting at I-1, I-3 and Outfall;
  - Slope stabilization at Outfall;
  - Soil nailing at I-3;
  - Pipe pile at I-1;
  - Relocation of verified boulder at Outfall;
  - Formation of access road at Outfall;
  - Pre-bore H-piling at I-3; and
  - Air vent shaft construction at I-2.



# Appendix A

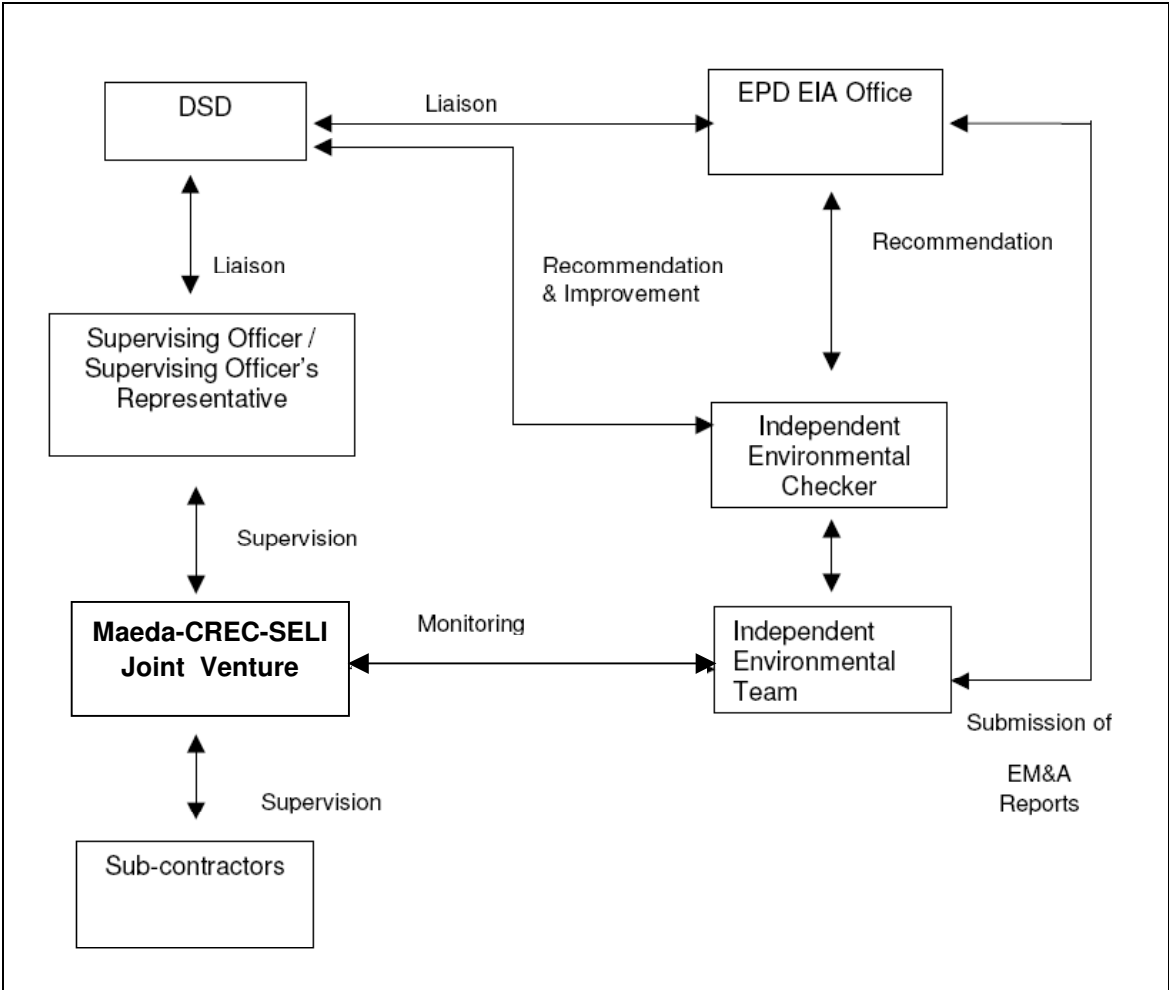
---

## Site Map and Works Area

# Appendix B

---

## Organization Chart



# Appendix C

---

## Construction Programme



ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
01R0H10104	Handover of Portion H1	0		24SEP12	2	0
01R0H20102	Possession of Portion H2 - 300d of DOC	0	22OCT08		2	0
01R0H20104	Handover of Portion H2	0		24SEP12	2	0
<b>SECTION WORKS TOP COMPLETION</b>						
01R1000202	S1-Works in Portions A to F except works in S2-7	1,308	28DEC07	27JUL11	2	0
01R1000204	S1-Maintenance Period (365 days)	365	28JUL11	26JUL12	2	0
01R20A0206	S2-Slope Stabilization works within Portion A	1,218	26MAR08	26JUL11	2	0
01R20A0208	S2-Maintenance Period (365 days)	365	27JUL11	25JUL12	2	0
01R30B0210	S3-Slope Stabilization works within Portion B	1,218	26MAR08	26JUL11	2	0
01R30B0212	S3-Maintenance Period (365 days)	365	27JUL11	25JUL12	2	0
01R40C0214	S4-Slope Stabilization works within Portion C	1,218	26MAR08	26JUL11	2	0
01R40C0216	S4-Maintenance Period (365 days)	365	27JUL11	25JUL12	2	0
01R50D0218	S5-Slope Stabilization works within Portion D	1,308	28DEC07	27JUL11	2	0
01R50D0220	S5-Maintenance Period (365 days)	365	28JUL11	26JUL12	2	0
01R60G0222	S6-Works within Portion G	608	26NOV09	26JUL11	2	0
01R60G0224	S6-Maintenance Period (365 days)	365	27JUL11	25JUL12	2	0
01R7000226	S7-Landscape softworks & establishment works	1,673	28DEC07	26JUL12	2	0
01R7000228	S7-Maintenance Period (30 days)	30	27JUL12	25AUG12	2	0
<b>AGILITIES FOR THE SO S2-S16-12</b>						
01R0000302	Provide temporary accommodation	7	28DEC07	03JAN08	2	1
01R0000304	Design the SO's principle office	30	28DEC07	26JAN08	2	1
01R0000305	Erect Hoarding/Signboard/Gate/Fencing	35	28JAN08	11MAR08	1	0
01R0000306	Erect SO's principle office in Portion H1/H2	60	28JAN08	14APR08	1	0
01R0000308	Provide secondary offices, directed by SO	64	14MAR08	16MAY08	2	0
01R0000310	Provide transport for the SO as per App. ER,M	90	28DEC07	26MAR08	2	0
01R0000311	Provide survey equipments as per App. ER,M	30	28DEC07	26JAN08	2	0
01R0000314	Maintain & Service the Principle Office	1,594	15APR08	25AUG12	2	0
01R0000316	Maintain & Service the Secondary Office	1,585	24APR08	25AUG12	2	0
01R0000318	Maintain & Service the transportation	1,688	12JAN08	25AUG12	2	0
01R0000319	Maintain & Service the survey equipments	1,673	27JAN08	25AUG12	2	0
01R0000320	Demolish & removal of Principle Office	30	26AUG12	24SEP12	2	0
<b>CONTRACTOR'S ACCOMMODATION S2-S16-12</b>						
01R0001402	Design Contractor's main office	30	28DEC07	26JAN08	2	1
01R0001404	Erect Contractor's main office in Portion H1/H2	60	28JAN08	14APR08	1	0
01R0001406	Maintain & Service the Contractor's office	1,594	15APR08	25AUG12	2	0
01R0001408	Demolish & removal of Contractor's main office	30	26AUG12	24SEP12	2	0

Activity Description	Orig. Dur.	Early Start	Early Finish	Cal. ID	Total Float
01R0000502 Prepare/Submit draft Works Programme	7	14DEC07	20DEC07	2	0
01R0000504 SO's review/comment on draft Works Programme	14	21DEC07	03JAN08	2	0
01R0000506 Prepare/Submit 1st 3-Month Rolling Programme	14	14DEC07	27DEC07	2	7
01R0000508 Submit Detailed Works Programme	7	04JAN08	10JAN08	2	0
01R0000510 SO's Approval of Works Programme	7	11JAN08	17JAN08	2	0
01R0000512 Monthly Update for all Programme	1,682	18JAN08	25AUG12	2	0
01R0000514 Contractor's Monthly Progress Report	1,678	22JAN08	25AUG12	2	0
<b>Safety Plan (per SCC3)</b>					
01R0000602 Submit draft Safety Plan	14	14DEC07	27DEC07	2	0
01R0000604 Hold an ad hoc meeting with RE on Safety Plan	7	28DEC07	03JAN08	2	7
01R0000606 Submit 6 copies of the Safety Plan	35	14DEC07	17JAN08	2	0
01R0000608 Submit updated safety organization chart monthly	1,682	18JAN08	25AUG12	2	0
17R0000602 Fulfill all relevant safety obligation	1,703	28DEC07	25AUG12	2	0
<b>Contractors All-inurances</b>					
01R0000704 Submit documents for all insurances are effected	21	14DEC07	03JAN08	2	0
<b>Quality System (per ER 9)</b>					
01R0000802 Appoint a Quality Manager	14	28DEC07	10JAN08	2	0
01R0000804 Submit proposed Quality System for SO's consent	28	14DEC07	10JAN08	2	0
01R0000806 Submit QSSP for approval of the SO	28	28DEC07	24JAN08	2	0
01R0000808 Maintain & update Quality System	1,675	25JAN08	25AUG12	2	0
<b>EM/Environmental</b>					
01R0000902 Nominate Environmental Officer	14	14DEC07	27DEC07	2	0
01R0000903 Establish a billing account for disposal	21	14DEC07	03JAN08	2	0
01R0000904 Submit draft EMP	21	14DEC07	03JAN08	2	0
01R0000906 Revise draft EMP within 7 days of SO's notice	14	04JAN08	17JAN08	2	0
01R0000908 Submit final version of EMP	45	14DEC07	27JAN08	2	0
01R0000910 Review/update/submit EMP monthly	1,642	28JAN08	26JUL12	2	0
01R0000912 Employ IET	21	14DEC07	03JAN08	2	0
01R0000914 Submit Baseline Monitoring Plan	21	28DEC07	17JAN08	2	0
01R0000915 Seek for EPD's Agreement on WQML & schedule	21	18JAN08	07FEB08	2	0
01R0000916 Carry out baseline monitoring	37	31JAN08	07MAR08	2	0
01R0000918 Prepare/submit reports for baseline monitoring	20	27FEB08	17MAR08	2	0
01R0000920 Impact monitoring & reporting	1,592	18MAR08	26JUL12	2	0
17R0000902 Fulfill all relevant environmental obligation	1,673	28DEC07	26JUL12	2	0

to be

within 14 days of LOA

within 7 days from the submission of DSP

within 35 days of LOA

as per SCC9, SCC10 & SCC45

as per SCC 74 within 14 days of DOC

within 28 days of LDA

within 28 days of DOC

as per ER B.1 Clause 174A1(2) per Notes to Tenderer (AA)

SCC69, within 21 days of LOA

as per SCC69

as per SCC69, within 45 days of LOA

to the approval of the SO

for approval of the SO & EPD

for approval of the SO





ID	Activity Description	DU	Early Start	Early Finish	Call ID	Total
01R0001802	Submit Smart Card Sys for SO's Approval	7	28DEC07	03JAN08	2	0
01R0001804	Install & start Operating Smart-Card System	60	28DEC07	25FEB08	2	0
01R0001806	Operate & Maintain Smart-Card System	1,643	28FEB08	25AUG12	2	0
<b>Others</b>						
01R0001902	Procurement of G.I./Grouting Sub-contractor	60	14DEC07	11FEB08	2	74
01R0001904	Procurement of Spoil Disposal Sub-contractor	60	14DEC07	11FEB08	2	31
01R0001906	Procurement of Earthwork Sub-contractor	60	14DEC07	11FEB08	2	35
01R0001908	Procurement of Concrete Supplier	45	14DEC07	27JAN08	2	0
01R0001910	Procurement of Re-bar Supplier	90	14DEC07	12MAR08	2	506
01R0001912	Procurement of Soil Nailing Sub-contractor	60	28DEC07	25FEB08	2	30
01R0001914	Procurement of Piling Sub-contractor	90	14DEC07	12MAR08	2	119
01R0001916	Procurement of Pre-cast Lining Sub-contractor	80	14DEC07	02MAR08	2	8
01R0001918	Procurement of R.C. Works Sub-contractor	90	14DEC07	12MAR08	2	506
01R0001920	Procurement of Drainage works Sub-contractor	90	14DEC07	12MAR08	2	837
01R0001922	Procurement of Steelworks Sub-contractor	90	14DEC07	08APR08	1	51
01R0001924	Procurement of Comm. Syst. Sub-contractor	45	17MAY08	30JUN08	2	466
01R0001925	Procurement of Flow Monit. Syst. Sub-contractor	45	17MAY08	30JUN08	2	816
01R0001926	Procurement of Pipe Jacking Sub-contractor	45	09OCT08	22NOV08	2	708
01R0001928	Submit Contractor's Management Team	0	0	10JAN08	2	0
01R0001930	Submit Photographer for Monthly Progress Photo	0	27JAN08	25APR08	2	0
01R0001932	Install Project Signboards at Potions A, B, C & D	120	28DEC07	25APR08	2	0
01R0001934	Develop/implement TDMS	60	22JUN08	20AUG08	2	30
01R0001936	Procurement & delivery of Communication System	180	03JAN09	01JUL09	2	464
01R0001938	Procurement/delivery of Flow Monitoring Devices	120	30OCT08	26FEB09	2	818
01R0001940	Prepare/submit Operation & Maintenance Manual	90	02AUG11	30OCT11	2	330
01R0001942	Prepare/submit As-built Drawings	90	28JUL11	25OCT11	2	335
01R0001944	Produce 2 documentary video for tunnel	30	28JUL11	26AUG11	2	395
<b>Construction Risk Assessment/CRA as per ER 4.4.8</b>						
01R0002202	Prepare/submit preliminary CRA	366	14DEC07	13DEC08	2	9
01R0002204	SO's acceptance of preliminary CRA	420	08MAR08	01MAY09	2	9
01R0002206	Prepare/submit detailed CRA	418	20APR08	11JUN09	2	9
01R0002208	SO's acceptance of detailed CRA	455	28JUN08	25SEP09	2	9
<b>Physical Model &amp; Other Material Display</b>						
01R0002302	Prepare/submit a physical model as per ER 4.4.8	90	14DEC07	12MAR08	2	0
01R0002304	Prepare/submit a 3-D animation model	90	14DEC07	12MAR08	2	0

As per ER.B30 30.06(2)

Including temporary works

Per SCC 74

Per ER10.7

Representation of the TDMS to the SO & DSD before 3 months of the Tunnel excavation

As per ER4.4.11

As per ER4.4.12

ER 4.4.13

AIP submission

DDA submission

the acceptance of the SO

the acceptance of the SO as per ER's Note 4.4.9

ID	Activity Description	Orig. Dur.	Early Start	Early Finish	Chg. ID	Total Float
01R0002402	Propose the design of web page	30	28DEC07	26JAN08	2	0
01R0002404	Produce the web page for approval of SO	30	27JAN08	25FEB08	2	0
01R0002406	SO's approval of web page	30	26FEB08	26MAR08	2	0
01R0002408	Submit updated web pages monthly	1,613	27MAR08	25AUG12	2	0

**Schedule Milestones to NOBI Centre No. 16**

01R0002501	1R 1; On provision of SO's Accommodation	0		14APR08	2	1,624	
01R0002502	1R 2; On providing documents of effected CWI	0		03JAN08	2	1,726	◆ accommodation for occupation as per App. ER.M
01R0002503	1R 3; On providing documents of effected TPI	0		03JAN08	2	1,726	◆ care of the works insurance has been effected
01R0002504	1R 4; On P-providing documents of effected PII	0		03JAN08	2	1,726	◆ 3rd party insurance has been effected
01R0002505	1R 5; On delivery of all Land Transport for SO	0		26MAR08	2	1,643	◆ P. I. insurance has been effected.
01R0002506	1R 6; On install. of computer facilities for SO	0		14APR08	2	1,624	◆ land transport delivered for use of the SO
01R0002507	1R 7; On accept. of detailed CRA incl. PCS	0		25SEP09	2	1,095	◆ computer facilities for use of the SO
01R0002508	1R 8; On acceptance of Physical Model by the SO	0		12MAR08	2	1,657	◆ detailed CRA incl. pre-condition survey
01R0002509	1R 9; On acceptance of 3-D Animation Model	0		12MAR08	2	1,657	◆ physical model completed as per ER 4.4.8
01R0002510	1R 10; On satisf. operation of CCTV for 3 mth	0		31JUL08	2	1,516	◆ 3-D animation model completed as per ER 4.4.9
01R0002511	1R 11; On acceptance of O&MM	0		30OCT11	2	330	◆ for 3mths of the remote CCTV intalled in Portions A, B, C & D as per ER 4.4.10;
01R0002512	1R 12; On acceptance of as-built drwgs.	0		25OCT11	2	335	◆ O&MM completed as per ER 4.4.11
01R0002513	1R 13; On acceptance of T.R/Video/Brouchure	0		26AUG11	2	395	◆ built drwgs. completed as per ER 4.4.12
01R0002514	1R 14; On complete all wks for 3 mth frm DOC	0		27MAR08	2	1,582	◆ tunnel report & vedeo & brocher submitted as per ER 4.4.13
01R0002515	1R 15; On complete all wks for 6 mth frm DOC	0		26JUN08	2	1,491	◆ of all obligations by this C.S. 3-mths frm DOC
01R0002516	1R 16; On complete all wks for 9 mth frm DOC	0		25SEP08	2	1,400	◆ of all obligations by this CS 6 mths frm DOC
01R0002517	1R 17; On complete all wks for 12 mth frm DOC	0		26DEC08	2	1,308	◆ of all obligations by this CS 9 mths frm DOC
01R0002518	1R 18; On complete all wks for 15 mth frm DOC	0		27MAR09	2	1,217	◆ of all obligations by this CS 12 mths frm DOC
01R0002519	1R 19; On complete all wks for 18 mth frm DOC	0		26JUN09	2	1,126	◆ of all obligations by this CS 15 mths frm DOC
01R0002520	1R 20; On complete all wks for 21 mth frm DOC	0		25SEP09	2	1,035	◆ of all obligations by this CS 18 mths frm DOC
01R0002521	1R 21; On complete all wks for 24 mth frm DOC	0		26DEC09	2	943	◆ of all obligations by this CS 21 mths frm DOC
01R0002522	1R 22; On complete all wks for 27 mth frm DOC	0		27MAR10	2	852	◆ of all obligations by this CS 24 mths frm DOC
01R0002523	1R 23; On complete all wks for 30 mth frm DOC	0		26JUN10	2	761	◆ of all obligations by this CS 27 mths frm DOC
01R0002524	1R 24; On complete all wks for 33 mth frm DOC	0		25SEP10	2	670	◆ of all obligations by this CS 30 mths frm DOC
01R0002525	1R 25; On complete all wks for 36 mth frm DOC	0		26DEC10	2	578	◆ of all obligations by this CS 33 mths frm DOC
01R0002526	1R 26; On complete all wks for 39 mth frm DOC	0		27MAR11	2	487	◆ of all obligations by this CS 36 mths frm DOC
01R0002527	1R 27; On complete all wks for 42 mth frm DOC	0		26JUN11	2	396	◆ of all obligations by this CS 39 mths frm DOC
01R0002528	1R 28; On complete all wks for 45 mth frm DOC	0		25SEP11	2	305	◆ of all obligations by this CS 42 mths frm DOC
01R0002529	1R 29; On issuance of completion certificates	0		13AUG11	2	408	◆ of all obligations by this CS 45 mths frm DOC
01R0002530	1R 30; On complete all wks for 3 mth frm CMP	0		26OCT11	2	334	◆ of completion except Section 7
01R0002531	1R 31; On complete all wks for 6 mth frm CMP	0		25JAN12	2	243	◆ of all obligations 3 mths frm DOM excl. Sec. 7
01R0002532	1R 32; On complete all wks for 9 mth frm CMP	0		25APR12	2	152	◆ of all obligations 6 mths frm DOM excl. Sec. 7
01R0002533	1R 33; On issuance of maintenance certificate	0		25AUG12	2	30	◆ of all obligations 9 mths frm DOM excl. Sec. 7



ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1DD00114	Approval of Design Checker by the SO	28	11JAN08	07FEB08	2	1
<b>Design Packages for Work Submittal</b>						
<b>Temp. Access Rd Design at P. D; +14mPD to +69mPD</b>						
02L1DD0102	Design preparation by the Designer	14	17JAN08	30JAN08	2	2
02L1DD0104	Design certification by the Design Checker	14	01FEB08	14FEB08	2	1
02L1DD0106	Design submission for the SO's approval	1	15FEB08	15FEB08	1	1
02L1DD0108	Design review by the SO	28	16FEB08	14MAR08	2	2
02L1DD0110	Obtain design approval from the SO	0		14MAR08	2	2
<b>Boulder Assessment &amp; Design for Stabili. Measure</b>						
02L1DD0302	Design preparation for the AIP submission	15	31JAN08	14FEB08	2	3
02L1DD0304	Design (AIP) certification by the Design Checker	14	15FEB08	28FEB08	2	19
02L1DD0306	Design (AIP) submission for the SO's approval	1	29FEB08	29FEB08	1	16
02L1DD0308	Design (AIP) review by the SO	14	01MAR08	14MAR08	2	19
02L1DD0310	Obtain design (AIP) approval from the SO	0		14MAR08	2	19
02L1DD0312	AIP submission for rel. authorities' approval	1	15MAR08	15MAR08	1	13
02L1DD0314	Design (AIP) review by the rel. authorities	28	16MAR08	12APR08	2	20
02L1DD0316	Obtain rel. authorities' approval for AIP	1	14APR08	14APR08	1	16
02L1DD0318	Obtain SO's consent for design (AIP)	0		15APR08	2	20
02L1DD0320	Design preparation for the DDA submission	30	24MAR08	22APR08	2	20
02L1DD0322	Design (DDA) certification by the Design Checker	14	23APR08	06MAY08	2	20
02L1DD0324	Design (DDA) submission for the SO's approval	1	07MAY08	07MAY08	1	16
02L1DD0326	Design (DDA) review by the SO	14	08MAY08	21MAY08	2	20
02L1DD0328	Obtain design (DDA) approval from the SO	0		21MAY08	2	20
02L1DD0330	DDA submission for rel. authorities' approval	1	22MAY08	22MAY08	1	16
02L1DD0332	Design (DDA) review by the rel. authorities	28	23MAY08	19JUN08	2	20
02L1DD0334	Obtain rel. authorities' approval for DDA	1	20JUN08	20JUN08	1	16
02L1DD0336	Obtain SO's consent for design (DDA)	0		21JUN08	2	20
<b>Site Formation Design; +69mPD to +40mPD</b>						
02L1DD0402	Design preparation for the AIP submission	14	17JAN08	30JAN08	2	2
02L1DD0404	Design (AIP) certification by the Design Checker	14	27JAN08	09FEB08	2	2
02L1DD0406	Design (AIP) submission for the SO's approval	1	11FEB08	11FEB08	1	1
02L1DD0408	Design (AIP) review by the SO	14	12FEB08	25FEB08	2	1
02L1DD0410	Obtain design (AIP) approval from the SO	0		25FEB08	2	1
02L1DD0412	AIP submission for rel. authorities' approval	1	26FEB08	26FEB08	1	1
02L1DD0414	Design (AIP) review by the rel. authorities	12	27FEB08	09MAR08	2	1
02L1DD0416	Obtain rel. authorities' approval for AIP	1	10MAR08	10MAR08	1	1
02L1DD0418	Obtain SO's consent for design (AIP)	0		11MAR08	2	1
02L1DD0420	Design preparation for the DDA submission	14	05MAR08	18MAR08	2	1
02L1DD0422	Design (DDA) certification by the Design Checker	14	12MAR08	25MAR08	2	1
02L1DD0424	Design (DDA) submission for the SO's approval	1	26MAR08	26MAR08	1	1
02L1DD0426	Design (DDA) review by the SO	14	27MAR08	09APR08	2	1
02L1DD0428	Obtain design (DDA) approval from the SO	0		09APR08	2	1







ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1FF0106	Design (AIP) submission for the SO's approval	1	25MAR08	25MAR08	1	1
02L1FF0108	Design (AIP) review by the SO	60	26MAR08	24MAY08	2	1
02L1FF0110	Obtain design (AIP) approval from the SO	0		24MAY08	2	1
02L1FF0112	AIP submission for rel. authorities' approval	1	26MAY08	26MAY08	1	0
02L1FF0114	Design (AIP) review by the rel. authorities	28	27MAY08	23JUN08	2	0
02L1FF0116	Obtain rel. authorities' approval for AIP	1	24JUN08	24JUN08	1	0
02L1FF0118	Obtain SO's consent for design (AIP)	0		25JUN08	2	0
02L1FF0120	Design preparation for the DDA submission	30	03JUN08	02JUL08	2	0
02L1FF0122	Design (DDA) certification by the Design Checker	15	03JUL08	17JUL08	2	0
02L1FF0124	Design (DDA) submission for the SO's approval	1	18JUL08	18JUL08	1	0
02L1FF0126	Design (DDA) review by the SO	60	19JUL08	16SEP08	2	0
02L1FF0128	Obtain design (DDA) approval from the SO	0		16SEP08	2	0
02L1FF0130	DDA submission for rel. authorities' approval	1	17SEP08	17SEP08	1	0
02L1FF0132	Design (DDA) review by the rel. authorities	28	18SEP08	15OCT08	2	0
02L1FF0134	Obtain rel. authorities' approval for DDA	1	16OCT08	16OCT08	1	0
02L1FF0136	Obtain SO's consent for design (DDA)	0		17OCT08	2	0
<b>Impact Assessment on WSD Yau Kam Tau WTW</b>						
02L1FF0202	Design preparation for the AIP submission	30	09MAR08	07APR08	2	107
02L1FF0204	Design (AIP) certification by the Design Checker	15	09APR08	22APR08	2	107
02L1FF0206	Design (AIP) submission for the SO's approval	1	23APR08	23APR08	1	88
02L1FF0208	Design (AIP) review by the SO	45	24APR08	07JUN08	2	107
02L1FF0210	Obtain design (AIP) approval from the SO	0		07JUN08	2	107
02L1FF0212	AIP submission for rel. authorities' approval	1	10JUN08	10JUN08	1	88
02L1FF0214	Design (AIP) review by the rel. authorities	28	11JUN08	08JUL08	2	105
02L1FF0216	Obtain rel. authorities' approval for AIP	1	09JUL08	09JUL08	1	87
02L1FF0218	Obtain SO's consent for design (AIP)	0		10JUL08	2	105
02L1FF0220	Design preparation for the DDA submission	30	18JUN08	17JUL08	2	105
02L1FF0222	Design (DDA) certification by the Design Checker	15	18JUL08	01AUG08	2	105
02L1FF0224	Design (DDA) submission for the SO's approval	1	02AUG08	02AUG08	1	87
02L1FF0226	Design (DDA) review by the SO	45	03AUG08	16SEP08	2	105
02L1FF0228	Obtain design (DDA) approval from the SO	0		16SEP08	2	105
02L1FF0230	DDA submission for rel. authorities' approval	1	17SEP08	17SEP08	1	86
02L1FF0232	Design (DDA) review by the rel. authorities	28	18SEP08	15OCT08	2	106
02L1FF0234	Obtain rel. authorities' approval for DDA	1	16OCT08	16OCT08	1	85
02L1FF0236	Obtain SO's consent for design (DDA)	0		17OCT08	2	107
<b>Impact Assessment on WSD Tai Lam Chung WT No. 3</b>						
02L1FF0302	Design preparation for the AIP submission	30	08FEB08	08MAR08	2	3
02L1FF0304	Design (AIP) certification by the Design Checker	15	09MAR08	23MAR08	2	3
02L1FF0306	Design (AIP) submission for the SO's approval	1	25MAR08	25MAR08	1	2
02L1FF0308	Design (AIP) review by the SO	50	26MAR08	14MAY08	2	2
02L1FF0310	Obtain design (AIP) approval from the SO	0		14MAY08	2	2
02L1FF0312	AIP submission for rel. authorities' approval	1	15MAY08	15MAY08	1	2



ID	Activity Description	Child Dur	Early Start	Early Finish	CSI ID	Total Float
02L1FF0314	Design (AIP) review by the rel. authorities	28	16MAY08	12JUN08	2	3
02L1FF0316	Obtain rel. authorities' approval for AIP	1	13JUN08	13JUN08	1	2
02L1FF0318	Obtain SO's consent for design (AIP)	0		14JUN08	2	3
02L1FF0320	Design preparation for the DDA submission	30	23MAY08	21JUN08	2	3
02L1FF0322	Design (DDA) certification by the Design Checker	15	22JUN08	06JUL08	2	3
02L1FF0324	Design (DDA) submission for the SO's approval	1	07JUL08	07JUL08	1	3
02L1FF0326	Design (DDA) review by the SO	50	08JUL08	26AUG08	2	3
02L1FF0328	Obtain design (DDA) approval from the SO	0		26AUG08	2	3
02L1FF0330	DDA submission for rel. authorities' approval	1	27AUG08	27AUG08	1	3
02L1FF0332	Design (DDA) review by the rel. authorities	28	28AUG08	24SEP08	2	4
02L1FF0334	Obtain rel. authorities' approval for DDA	1	25SEP08	25SEP08	1	3
02L1FF0336	Obtain SO's consent for design (DDA)	0		26SEP08	2	5

<b>Impact Assessment on KCRC West Rail Tunnel</b>						
ID	Activity Description	Child Dur	Early Start	Early Finish	CSI ID	Total Float
02L1FF0402	Design preparation for the AIP submission	30	08APR08	07MAY08	2	190
02L1FF0404	Design (AIP) certification by the Design Checker	15	08MAY08	22MAY08	2	190
02L1FF0406	Design (AIP) submission for the SO's approval	1	23MAY08	23MAY08	1	158
02L1FF0408	Design (AIP) review by the SO	60	24MAY08	22JUL08	2	191
02L1FF0410	Obtain design (AIP) approval from the SO	0		22JUL08	2	191
02L1FF0412	AIP submission for rel. authorities' approval	1	23JUL08	23JUL08	1	155
02L1FF0414	Design (AIP) review by the rel. authorities	28	24JUL08	20AUG08	2	191
02L1FF0416	Obtain rel. authorities' approval for AIP	1	21AUG08	21AUG08	1	155
02L1FF0418	Obtain SO's consent for design (AIP)	0		22AUG08	2	192
02L1FF0420	Design preparation for the DDA submission	30	31JUL08	29AUG08	2	192
02L1FF0422	Design (DDA) certification by the Design Checker	15	30AUG08	13SEP08	2	192
02L1FF0424	Design (DDA) submission for the SO's approval	1	16SEP08	16SEP08	1	155
02L1FF0426	Design (DDA) review by the SO	60	17SEP08	15NOV08	2	190
02L1FF0428	Obtain design (DDA) approval from the SO	0		15NOV08	2	190
02L1FF0430	DDA submission for rel. authorities' approval	1	17NOV08	17NOV08	1	150
02L1FF0432	Design (DDA) review by the rel. authorities	28	18NOV08	15DEC08	2	189
02L1FF0434	Obtain rel. authorities' approval for DDA	1	16DEC08	16DEC08	1	149
02L1FF0436	Obtain SO's consent for design (DDA)	0		17DEC08	2	189
<b>Impact Assessment on WSD Tsuen Wan Reservoir G.</b>						
02L1FF0502	Design preparation for the AIP submission	30	08MAY08	06JUN08	2	251
02L1FF0504	Design (AIP) certification by the Design Checker	15	07JUN08	21JUN08	2	251
02L1FF0506	Design (AIP) submission for the SO's approval	1	23JUN08	23JUN08	1	205
02L1FF0508	Design (AIP) review by the SO	60	24JUN08	22AUG08	2	250
02L1FF0510	Obtain design (AIP) approval from the SO	0		22AUG08	2	250
02L1FF0512	AIP submission for rel. authorities' approval	1	23AUG08	23AUG08	1	201
02L1FF0514	Design (AIP) review by the rel. authorities	28	24AUG08	20SEP08	2	251
02L1FF0516	Obtain rel. authorities' approval for AIP	1	22SEP08	22SEP08	1	200
02L1FF0518	Obtain SO's consent for design (AIP)	0		23SEP08	2	251
02L1FF0520	Design preparation for the DDA submission	30	01SEP08	30SEP08	2	251



ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Final
02L1AA0404	Design (AIP) certification by the Design Checker	15	07APR08	21APR08	2	627
02L1AA0406	Design (AIP) submission for the SO's approval	1	22APR08	22APR08	1	511
02L1AA0408	Design (AIP) review by the SO	60	23APR08	21JUN08	2	628
02L1AA0410	Obtain design (AIP) approval from the SO	0		21JUN08	2	628
02L1AA0412	AIP submission for rel. authorities' approval	1	23JUN08	23JUN08	1	511
02L1AA0414	Design (AIP) review by the rel. authorities	28	24JUN08	21JUL08	2	627
02L1AA0416	Obtain rel. authorities' approval for AIP	1	22JUL08	22JUL08	1	508
02L1AA0418	Obtain SO's consent for design (AIP)	0		23JUL08	2	628
02L1AA0420	Design preparation for the DDA submission	30	01JUL08	30JUL08	2	628
02L1AA0422	Design (DDA) certification by the Design Checker	15	31JUL08	14AUG08	2	628
02L1AA0424	Design (DDA) submission for the SO's approval	1	15AUG08	15AUG08	1	507
02L1AA0426	Design (DDA) review by the SO	60	16AUG08	14OCT08	2	628
02L1AA0428	Obtain design (DDA) approval from the SO	0		14OCT08	2	628
02L1AA0430	DDA submission for rel. authorities' approval	1	15OCT08	15OCT08	1	507
02L1AA0432	Design (DDA) review by the rel. authorities	28	16OCT08	12NOV08	2	628
02L1AA0434	Obtain rel. authorities' approval for DDA	1	13NOV08	13NOV08	1	507
02L1AA0436	Obtain SO's consent for design (DDA)	0		14NOV08	2	628
<b>Overhead Gantry Design for Retrieval of TBM</b>						
02L1AA0502	Design preparation by the Designer	15	07APR08	21APR08	2	694
02L1AA0504	Design certification by the Design Checker	15	22APR08	06MAY08	2	694
02L1AA0506	Design submission for the SO's approval	1	07MAY08	07MAY08	1	566
02L1AA0508	Design review by the SO	30	08MAY08	06JUN08	2	699
02L1AA0510	Obtain design approval from the SO	0		06JUN08	2	699
<b>Design Packages for Work in Position B</b>						
<b>Temp. Platform Design for RCD for Air Vent Shaft</b>						
02L1BB0302	Design preparation by the Designer	15	07MAR08	21MAR08	2	17
02L1BB0304	Design certification by the Design Checker	15	22MAR08	05APR08	2	17
02L1BB0306	Design submission for the SO's approval	1	07APR08	07APR08	1	14
02L1BB0308	Design review by the SO	28	08APR08	05MAY08	2	16
02L1BB0310	Obtain design approval from the SO	0		05MAY08	2	16
<b>ELS Design for Intake Structure Construction</b>						
02L1BB0402	Design preparation by the Designer	15	22MAR08	05APR08	2	162
02L1BB0404	Design certification by the Design Checker	15	06APR08	20APR08	2	162
02L1BB0406	Design submission for the SO's approval	1	21APR08	21APR08	1	134
02L1BB0408	Design review by the SO	28	22APR08	19MAY08	2	162
02L1BB0410	Obtain design approval from the SO	0		19MAY08	2	162
<b>Temp. Support Design for MAAMAS/VDS/DC/AVS</b>						
02L1BB0502	Design preparation for the AIP submission	30	07MAR08	05APR08	2	25
02L1BB0504	Design (AIP) certification by the Design Checker	15	06APR08	20APR08	2	25
02L1BB0506	Design (AIP) submission for the SO's approval	1	21APR08	21APR08	1	20
02L1BB0508	Design (AIP) review by the SO	60	22APR08	20JUN08	2	25

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1BB0510	Obtain design (AIP) approval from the SO	0		20JUN08	2	25
02L1BB0512	AIP submission for rel. authorities' approval	1	21JUN08	21JUN08	1	20
02L1BB0514	Design (AIP) review by the rel. authorities	15	22JUN08	06JUL08	2	25
02L1BB0516	Obtain rel. authorities's approval for AIP	1	07JUL08	07JUL08	1	22
02L1BB0518	Obtain SO's consent for design (AIP)	0		08JUL08	2	25
02L1BB0520	Design preparation for the DDA submission	30	16JUN08	15JUL08	2	25
02L1BB0522	Design (DDA) certification by the Design Checker	15	16JUL08	30JUL08	2	25
02L1BB0524	Design (DDA) submission for the SO's approval	1	31JUL08	31JUL08	1	21
02L1BB0526	Design (DDA) review by the SO	60	01AUG08	29SEP08	2	25
02L1BB0528	Obtain design (DDA) approval from the SO	0		29SEP08	2	25
02L1BB0530	DDA submission for rel. authorities' approval	1	30SEP08	30SEP08	1	20
02L1BB0532	Design (DDA) review by the rel. authorities	28	01OCT08	28OCT08	2	26
02L1BB0534	Obtain rel. authorities's approval for DDA	1	29OCT08	29OCT08	1	22
02L1BB0536	Obtain SO's consent for design (DDA)	0		30OCT08	2	26

**Temp. Support Design for MA and MAMT Connection**

02L1BB0602	Design preparation for the AIP submission	30	21APR08	20MAY08	2	527
02L1BB0604	Design (AIP) certification by the Design Checker	15	21MAY08	04JUN08	2	804
02L1BB0606	Design (AIP) submission for the SO's approval	1	05JUN08	05JUN08	1	653
02L1BB0608	Design (AIP) review by the SO	60	06JUN08	04AUG08	2	804
02L1BB0610	Obtain design (AIP) approval from the SO	0		04AUG08	2	804
02L1BB0612	AIP submission for rel. authorities' approval	1	05AUG08	05AUG08	1	652
02L1BB0614	Design (AIP) review by the rel. authorities	15	06AUG08	20AUG08	2	804
02L1BB0616	Obtain rel. authorities's approval for AIP	1	21AUG08	21AUG08	1	652
02L1BB0618	Obtain SO's consent for design (AIP)	0		22AUG08	2	804
02L1BB0620	Design preparation for the DDA submission	30	31JUL08	29AUG08	2	804
02L1BB0622	Design (DDA) certification by the Design Checker	15	30AUG08	13SEP08	2	804
02L1BB0624	Design (DDA) submission for the SO's approval	1	16SEP08	16SEP08	1	652
02L1BB0626	Design (DDA) review by the SO	60	17SEP08	15NOV08	2	803
02L1BB0628	Obtain design (DDA) approval from the SO	0		15NOV08	2	803
02L1BB0630	DDA submission for rel. authorities' approval	1	17NOV08	17NOV08	1	651
02L1BB0632	Design (DDA) review by the rel. authorities	28	18NOV08	15DEC08	2	802
02L1BB0634	Obtain rel. authorities's approval for DDA	1	16DEC08	16DEC08	1	648
02L1BB0636	Obtain SO's consent for design (DDA)	0		17DEC08	2	803

**Permanent Design for MA/MAS/VDS/DC/AVS**

02L1BB0702	Design preparation for the AIP submission	30	21MAY08	19JUN08	2	527
02L1BB0704	Design (AIP) certification by the Design Checker	15	20JUN08	04JUL08	2	730
02L1BB0706	Design (AIP) submission for the SO's approval	1	05JUL08	05JUL08	1	591
02L1BB0708	Design (AIP) review by the SO	60	06JUL08	03SEP08	2	730
02L1BB0710	Obtain design (AIP) approval from the SO	0		03SEP08	2	730
02L1BB0712	AIP submission for rel. authorities' approval	1	04SEP08	04SEP08	1	592
02L1BB0714	Design (AIP) review by the rel. authorities	15	05SEP08	19SEP08	2	730
02L1BB0716	Obtain rel. authorities's approval for AIP	1	20SEP08	20SEP08	1	592

ID	Activity Description	Orig. Dur.	Early Start	Early Finish	Cal. ID	Total Float
02L1BB0718	Obtain SO's consent for design (AIP)	0		22SEP08	2	729
02L1BB0720	Design preparation for the DDA submission	30	31AUG08	29SEP08	2	729
02L1BB0722	Design (DDA) certification by the Design Checker	15	30SEP08	14OCT08	2	729
02L1BB0724	Design (DDA) submission for the SO's approval	1	15OCT08	15OCT08	1	592
02L1BB0726	Design (DDA) review by the SO	60	16OCT08	14DEC08	2	729
02L1BB0728	Obtain design (DDA) approval from the SO	0		14DEC08	2	729
02L1BB0730	DDA submission for rel. authorities' approval	1	15DEC08	15DEC08	1	591
02L1BB0732	Design (DDA) review by the rel. authorities	28	16DEC08	12JAN09	2	729
02L1BB0734	Obtain rel. authorities' approval for DDA	1	13JAN09	13JAN09	1	591
02L1BB0736	Obtain SO's consent for design (DDA)	0		14JAN09	2	729
<b>Permanent Design for MA and MAMT Connection</b>						
02L1BB0802	Design preparation for AIP submission	30	20JUN08	19JUL08	2	527
02L1BB0804	Design (AIP) certification by the Design Checker	15	20JUL08	03AUG08	2	527
02L1BB0806	Design (AIP) submission for the SO's approval	1	04AUG08	04AUG08	1	429
02L1BB0808	Design (AIP) review by the SO	60	05AUG08	03OCT08	2	527
02L1BB0810	Obtain design (AIP) approval from the SO	0		03OCT08	2	527
02L1BB0812	AIP submission for rel. authorities' approval	1	04OCT08	04OCT08	1	427
02L1BB0814	Design (AIP) review by the rel. authorities	15	05OCT08	19OCT08	2	527
02L1BB0816	Obtain rel. authorities' approval for AIP	1	20OCT08	20OCT08	1	429
02L1BB0818	Obtain SO's consent for design (AIP)	0		21OCT08	2	531
02L1BB0820	Design preparation for the DDA submission	30	29SEP08	28OCT08	2	531
02L1BB0822	Design (DDA) certification by the Design Checker	15	29OCT08	12NOV08	2	531
02L1BB0824	Design (DDA) submission for the SO's approval	1	13NOV08	13NOV08	1	428
02L1BB0826	Design (DDA) review by the SO	60	14NOV08	12JAN09	2	531
02L1BB0828	Obtain design (DDA) approval from the SO	0		12JAN09	2	531
02L1BB0830	DDA submission for rel. authorities' approval	1	13JAN09	13JAN09	1	428
02L1BB0832	Design (DDA) review by the rel. authorities	28	14JAN09	10FEB09	2	531
02L1BB0834	Obtain rel. authorities' approval for DDA	1	11FEB09	11FEB09	1	430
02L1BB0836	Obtain SO's consent for design (DDA)	0		12FEB09	2	531
<b>Boulder Assessment &amp; Design of Stabfl. Measure</b>						
02L1BB0902	Design preparation for the AIP submission	15	06APR08	20APR08	2	50
02L1BB0904	Design (AIP) certification by the Design Checker	15	21APR08	05MAY08	2	50
02L1BB0906	Design (AIP) submission for the SO's approval	1	06MAY08	06MAY08	1	41
02L1BB0908	Design (AIP) review by the SO	21	07MAY08	27MAY08	2	50
02L1BB0910	Obtain design (AIP) approval from the SO	0		27MAY08	2	50
02L1BB0912	AIP submission for rel. authorities' approval	1	28MAY08	28MAY08	1	41
02L1BB0914	Design (AIP) review by the rel. authorities	28	29MAY08	25JUN08	2	50
02L1BB0916	Obtain rel. authorities' approval for AIP	1	26JUN08	26JUN08	1	42
02L1BB0918	Obtain SO's consent for design (AIP)	0		27JUN08	2	50
02L1BB0920	Design preparation for the DDA submission	30	05JUN08	04JUL08	2	50
02L1BB0922	Design (DDA) certification by the Design Checker	15	05JUL08	19JUL08	2	50
02L1BB0924	Design (DDA) submission for the SO's approval	1	21JUL08	21JUL08	1	42

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1BB0926	Design (DDA) review by the SO	21	22JUL08	11AUG08	2	49
02L1BB0928	Obtain design (DDA) approval from the SO	0		11AUG08	2	49
02L1BB0930	DDA submission for rel. authorities' approval	1	12AUG08	12AUG08	1	41
02L1BB0932	Design (DDA) review by the rel. authorities	28	13AUG08	09SEP08	2	50
02L1BB0934	Obtain rel. authorities' approval for DDA	1	10SEP08	10SEP08	1	40
02L1BB0936	Obtain SO's consent for design (DDA)	0		11SEP08	2	50

Design Packages to Work in Position						
<b>ELS Design for Intake Structure Construction</b>						
02L1CC0102	Design preparation by the Designer	15	08FEB08	22FEB08	2	30
02L1CC0104	Design certification by the Design Checker	15	23FEB08	08MAR08	2	30
02L1CC0106	Design submission for the SO's approval	1	10MAR08	10MAR08	1	21
02L1CC0108	Design review by the SO	28	11MAR08	07APR08	2	29
02L1CC0110	Obtain design approval from the SO	0		07APR08	2	29

Temp. Support Design for MA/MAS/VS/DC/AVS						
02L1CC0302	Design preparation for the AIP submission	30	09MAR08	07APR08	2	262
02L1CC0304	Design (AIP) certification by the Design Checker	15	08APR08	22APR08	2	262
02L1CC0306	Design (AIP) submission for the SO's approval	1	23APR08	23APR08	1	215
02L1CC0308	Design (AIP) review by the SO	60	24APR08	22JUN08	2	262
02L1CC0310	Obtain design (AIP) approval from the SO	0		22JUN08	2	262
02L1CC0312	AIP submission for rel. authorities' approval	1	23JUN08	23JUN08	1	215
02L1CC0314	Design (AIP) review by the rel. authorities	15	24JUN08	08JUL08	2	262
02L1CC0316	Obtain rel. authorities' approval for AIP	1	09JUL08	09JUL08	1	216
02L1CC0318	Obtain SO's consent for design (AIP)	0		10JUL08	2	263
02L1CC0320	Design preparation for the DDA submission	30	18JUN08	17JUL08	2	263
02L1CC0322	Design (DDA) certification by the Design Checker	15	18JUL08	01AUG08	2	263
02L1CC0324	Design (DDA) submission for the SO's approval	1	02AUG08	02AUG08	1	212
02L1CC0326	Design (DDA) review by the SO	60	03AUG08	01OCT08	2	263
02L1CC0328	Obtain design (DDA) approval from the SO	0		01OCT08	2	263
02L1CC0330	DDA submission for rel. authorities' approval	1	02OCT08	02OCT08	1	211
02L1CC0332	Design (DDA) review by the rel. authorities	28	03OCT08	30OCT08	2	263
02L1CC0334	Obtain rel. authorities' approval for DDA	1	31OCT08	31OCT08	1	211
02L1CC0336	Obtain SO's consent for design (DDA)	0		01NOV08	2	263

Temp. Support Design for MA and MA/MT Connection						
02L1CC0402	Design preparation for the AIP submission	30	08MAY08	06JUN08	2	395
02L1CC0404	Design (AIP) certification by the Design Checker	15	07JUN08	21JUN08	2	395
02L1CC0406	Design (AIP) submission for the SO's approval	1	23JUN08	23JUN08	1	320
02L1CC0408	Design (AIP) review by the SO	60	24JUN08	22AUG08	2	394
02L1CC0410	Obtain design (AIP) approval from the SO	0		22AUG08	2	394
02L1CC0412	AIP submission for rel. authorities' approval	1	23AUG08	23AUG08	1	320
02L1CC0414	Design (AIP) review by the rel. authorities	15	24AUG08	07SEP08	2	394
02L1CC0416	Obtain rel. authorities' approval for AIP	1	08SEP08	08SEP08	1	319
02L1CC0418	Obtain SO's consent for design (AIP)	0		09SEP08	2	394

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1CC0420	Design preparation for the DDA submission	30	18AUG08	16SEP08	2	394
02L1CC0422	Design (DDA) certification by the Design Checker	15	17SEP08	01OCT08	2	394
02L1CC0424	Design (DDA) submission for the SO's approval	1	02OCT08	02OCT08	1	320
02L1CC0426	Design (DDA) review by the SO	60	03OCT08	01DEC08	2	394
02L1CC0428	Obtain design (DDA) approval from the SO	0		01DEC08	2	394
02L1CC0430	DDA submission for rel. authorities' approval	1	02DEC08	02DEC08	1	319
02L1CC0432	Design (DDA) review by the rel. authorities	28	03DEC08	30DEC08	2	394
02L1CC0434	Obtain rel. authorities' approval for DDA	1	31DEC08	31DEC08	1	320
02L1CC0436	Obtain SO's consent for design (DDA)	0		02JAN09	2	394
<b>Permanent Design for MA/MAS/VDS/DC/AVS</b>						
02L1CC0502	Design preparation for the AIP submission	30	08APR08	07MAY08	2	285
02L1CC0504	Design (AIP) certification by the Design Checker	15	08MAY08	22MAY08	2	285
02L1CC0506	Design (AIP) submission for the SO's approval	1	23MAY08	23MAY08	1	233
02L1CC0508	Design (AIP) review by the SO	60	24MAY08	22JUL08	2	285
02L1CC0510	Obtain design (AIP) approval from the SO	0		22JUL08	2	285
02L1CC0512	AIP submission for rel. authorities' approval	1	23JUL08	23JUL08	1	229
02L1CC0514	Design (AIP) review by the rel. authorities	15	24JUL08	07AUG08	2	285
02L1CC0516	Obtain rel. authorities' approval for AIP	1	08AUG08	08AUG08	1	229
02L1CC0518	Obtain SO's consent for design (AIP)	0		09AUG08	2	285
02L1CC0520	Design preparation for the DDA submission	30	18JUL08	16AUG08	2	285
02L1CC0522	Design (DDA) certification by the Design Checker	15	17AUG08	31AUG08	2	285
02L1CC0524	Design (DDA) submission for the SO's approval	1	01SEP08	01SEP08	1	229
02L1CC0526	Design (DDA) review by the SO	60	02SEP08	31OCT08	2	286
02L1CC0528	Obtain design (DDA) approval from the SO	0		31OCT08	2	286
02L1CC0530	DDA submission for rel. authorities' approval	1	01NOV08	01NOV08	1	231
02L1CC0532	Design (DDA) review by the rel. authorities	28	02NOV08	29NOV08	2	286
02L1CC0534	Obtain rel. authorities' approval for DDA	1	01DEC08	01DEC08	1	231
02L1CC0536	Obtain SO's consent for design (DDA)	0		02DEC08	2	286
<b>Permanent Design for MA and MA/MT Connection</b>						
02L1CC0602	Design preparation for the AIP submission	30	07JUN08	06JUL08	2	414
02L1CC0604	Design (AIP) certification by the Design Checker	15	07JUL08	21JUL08	2	414
02L1CC0606	Design (AIP) submission for the SO's approval	1	22JUL08	22JUL08	1	338
02L1CC0608	Design (AIP) review by the SO	60	23JUL08	20SEP08	2	414
02L1CC0610	Obtain design (AIP) approval from the SO	0		20SEP08	2	414
02L1CC0612	AIP submission for rel. authorities' approval	1	22SEP08	22SEP08	1	335
02L1CC0614	Design (AIP) review by the rel. authorities	15	23SEP08	07OCT08	2	413
02L1CC0616	Obtain rel. authorities' approval for AIP	1	08OCT08	08OCT08	1	337
02L1CC0618	Obtain SO's consent for design (AIP)	0		09OCT08	2	413
02L1CC0620	Design preparation for the DDA submission	30	17SEP08	16OCT08	2	413
02L1CC0622	Design (DDA) certification by the Design Checker	15	17OCT08	31OCT08	2	413
02L1CC0624	Design (DDA) submission for the SO's approval	1	01NOV08	01NOV08	1	337
02L1CC0626	Design (DDA) review by the SO	60	02NOV08	31DEC08	2	414

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1CC0628	Obtain design (DDA) approval from the SO	0		31DEC08	2	414
02L1CC0630	DDA submission for rel. authorities' approval	1	02JAN09	02JAN09	1	334
02L1CC0632	Design (DDA) review by the rel. authorities	28	03JAN09	30JAN09	2	413
02L1CC0634	Obtain rel. authorities' approval for DDA	1	31JAN09	31JAN09	1	337
02L1CC0636	Obtain SO's consent for design (DDA)	0		02FEB09	2	413
<b>Boulder Assessment &amp; Design for Stabili. Measure</b>						
02L1CC0702	Design preparation for the AIP submission	15	23FEB08	08MAR08	2	262
02L1CC0704	Design (AIP) certification by the Design Checker	15	09MAR08	23MAR08	2	319
02L1CC0706	Design (AIP) submission for the SO's approval	1	25MAR08	25MAR08	1	259
02L1CC0708	Design (AIP) review by the SO	28	26MAR08	22APR08	2	318
02L1CC0710	Obtain design (AIP) approval from the SO	0		22APR08	2	318
02L1CC0712	AIP submission for rel. authorities' approval	1	23APR08	23APR08	1	260
02L1CC0714	Design (AIP) review by the rel. authorities	28	24APR08	21MAY08	2	319
02L1CC0716	Obtain rel. authorities' approval for AIP	1	22MAY08	22MAY08	1	261
02L1CC0718	Obtain SO's consent for design (AIP)	0		23MAY08	2	319
02L1CC0720	Design preparation for the DDA submission	30	01MAY08	30MAY08	2	319
02L1CC0722	Design (DDA) certification by the Design Checker	15	31MAY08	14JUN08	2	319
02L1CC0724	Design (DDA) submission for the SO's approval	1	16JUN08	16JUN08	1	259
02L1CC0726	Design (DDA) review by the SO	28	17JUN08	14JUL08	2	321
02L1CC0728	Obtain design (DDA) approval from the SO	0		14JUL08	2	321
02L1CC0730	DDA submission for rel. authorities' approval	1	15JUL08	15JUL08	1	259
02L1CC0732	Design (DDA) review by the rel. authorities	28	16JUL08	12AUG08	2	321
02L1CC0734	Obtain rel. authorities' approval for DDA	1	13AUG08	13AUG08	1	259
02L1CC0736	Obtain SO's consent for design (DDA)	0		14AUG08	2	322

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
02L1GG0102	Design preparation for the AIP submission	30	15AUG08	13SEP08	2	322
02L1GG0104	Design (AIP) certification by the Design Checker	15	14SEP08	28SEP08	2	322
02L1GG0106	Design (AIP) submission for the SO's approval	1	29SEP08	29SEP08	1	260
02L1GG0108	Design (AIP) review by the SO	60	30SEP08	28NOV08	2	322
02L1GG0110	Obtain design (AIP) approval from the SO	0		28NOV08	2	322
02L1GG0112	AIP submission for rel. authorities' approval	1	29NOV08	29NOV08	1	260
02L1GG0114	Design (AIP) review by the rel. authorities	15	30NOV08	14DEC08	2	323
02L1GG0116	Obtain rel. authorities' approval for AIP	1	15DEC08	15DEC08	1	260
02L1GG0118	Obtain SO's consent for design (AIP)	0		16DEC08	2	323
02L1GG0120	Design preparation for the DDA submission	30	24NOV08	23DEC08	2	323
02L1GG0122	Design (DDA) certification by the Design Checker	15	24DEC08	07JAN09	2	323
02L1GG0124	Design (DDA) submission for the SO's approval	1	08JAN09	08JAN09	1	263
02L1GG0126	Design (DDA) review by the SO	60	09JAN09	09MAR09	2	323
02L1GG0128	Obtain design (DDA) approval from the SO	0		09MAR09	2	323
02L1GG0130	DDA submission for rel. authorities' approval	1	10MAR09	10MAR09	1	263
02L1GG0132	Design (DDA) review by the rel. authorities	28	11MAR09	07APR09	2	323

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
<b>Drainage Impact Assessment</b>						
02L1GG0102	Design preparation for the AIP submission	30	15AUG08	13SEP08	2	322
02L1GG0104	Design (AIP) certification by the Design Checker	15	14SEP08	28SEP08	2	322
02L1GG0106	Design (AIP) submission for the SO's approval	1	29SEP08	29SEP08	1	260
02L1GG0108	Design (AIP) review by the SO	60	30SEP08	28NOV08	2	322
02L1GG0110	Obtain design (AIP) approval from the SO	0		28NOV08	2	322
02L1GG0112	AIP submission for rel. authorities' approval	1	29NOV08	29NOV08	1	260
02L1GG0114	Design (AIP) review by the rel. authorities	15	30NOV08	14DEC08	2	323
02L1GG0116	Obtain rel. authorities' approval for AIP	1	15DEC08	15DEC08	1	260
02L1GG0118	Obtain SO's consent for design (AIP)	0		16DEC08	2	323
02L1GG0120	Design preparation for the DDA submission	30	24NOV08	23DEC08	2	323
02L1GG0122	Design (DDA) certification by the Design Checker	15	24DEC08	07JAN09	2	323
02L1GG0124	Design (DDA) submission for the SO's approval	1	08JAN09	08JAN09	1	263
02L1GG0126	Design (DDA) review by the SO	60	09JAN09	09MAR09	2	323
02L1GG0128	Obtain design (DDA) approval from the SO	0		09MAR09	2	323
02L1GG0130	DDA submission for rel. authorities' approval	1	10MAR09	10MAR09	1	263
02L1GG0132	Design (DDA) review by the rel. authorities	28	11MAR09	07APR09	2	323



Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40
41	41	41	41	41	41	41	41	41	41
42	42	42	42	42	42	42	42	42	42
43	43	43	43	43	43	43	43	43	43
44	44	44	44	44	44	44	44	44	44
45	45	45	45	45	45	45	45	45	45
46	46	46	46	46	46	46	46	46	46
47	47	47	47	47	47	47	47	47	47
48	48	48	48	48	48	48	48	48	48
49	49	49	49	49	49	49	49	49	49
50	50	50	50	50	50	50	50	50	50

IB	Activity Description	Orig Dtl	Early Start	Early Finish	Cal ID	Total Float
02L1GG0134	Obtain rel. authorities' approval for DDA	1	08APR09	08APR09	1	261
02L1GG0136	Obtain SO's consent for design (DDA)	0		09APR09	2	323
<b>Temp. Platform Design for H-Piling at Portion G</b>						
02L1GG0202	Design preparation for the AIP submission	30	14SEP08	13OCT08	2	439
02L1GG0204	Design (AIP) certification by the Design Checker	15	14OCT08	28OCT08	2	439
02L1GG0206	Design (AIP) submission for the SO's approval	1	29OCT08	29OCT08	1	356
02L1GG0208	Design (AIP) review by the SO	28	30OCT08	26NOV08	2	439
02L1GG0210	Obtain design (AIP) approval from the SO	0		26NOV08	2	439
02L1GG0220	Design preparation for the DDA submission	30	11NOV08	10DEC08	2	439
02L1GG0222	Design (DDA) certification by the Design Checker	15	11DEC08	25DEC08	2	439
02L1GG0224	Design (DDA) submission for the SO's approval	1	27DEC08	27DEC08	1	354
02L1GG0226	Design (DDA) review by the SO	28	28DEC08	24JAN09	2	438
02L1GG0228	Obtain design (DDA) approval from the SO	0		24JAN09	2	438
<b>ELS Design for Pipe Jacking at Portion G</b>						
02L1GG0302	Design preparation for the AIP submission	15	14OCT08	28OCT08	2	630
02L1GG0304	Design (AIP) certification by the Design Checker	15	29OCT08	12NOV08	2	630
02L1GG0306	Design (AIP) submission for the SO's approval	1	13NOV08	13NOV08	1	509
02L1GG0308	Design (AIP) review by the SO	28	14NOV08	11DEC08	2	630
02L1GG0310	Obtain design (AIP) approval from the SO	0		11DEC08	2	630
02L1GG0320	Design preparation for the DDA submission	30	26NOV08	25DEC08	2	630
02L1GG0322	Design (DDA) certification by the Design Checker	15	26DEC08	09JAN09	2	630
02L1GG0324	Design (DDA) submission for the SO's approval	1	10JAN09	10JAN09	1	510
02L1GG0326	Design (DDA) review by the SO	28	11JAN09	07FEB09	2	631
02L1GG0328	Obtain design (DDA) approval from the SO	0		07FEB09	2	631
<b>Design Package for ELS Works</b>						
<b>Design for Communication System</b>						
02L1FE0102	Design preparation for the AIP submission	15	01JUL08	15JUL08	2	466
02L1FE0104	Design (AIP) certification by the Design Checker	15	16JUL08	30JUL08	2	466
02L1FE0106	Design (AIP) submission for the SO's approval	1	31JUL08	31JUL08	1	379
02L1FE0108	Design (AIP) review by the SO	30	01AUG08	30AUG08	2	466
02L1FE0110	Obtain design (AIP) approval from the SO	0		30AUG08	2	466
02L1FE0112	AIP submission for rel. authorities' approval	1	01SEP08	01SEP08	1	379
02L1FE0114	Design (AIP) review by the rel. authorities	28	02SEP08	29SEP08	2	465
02L1FE0116	Obtain rel. authorities' approval for AIP	1	30SEP08	30SEP08	1	377
02L1FE0118	Obtain SO's consent for design (AIP)	0		02OCT08	2	464
02L1FE0120	Design preparation for the DDA submission	30	17SEP08	16OCT08	2	464
02L1FE0122	Design (DDA) certification by the Design Checker	15	17OCT08	31OCT08	2	464
02L1FE0124	Design (DDA) submission for the SO's approval	1	01NOV08	01NOV08	1	377
02L1FE0126	Design (DDA) review by the SO	30	02NOV08	01DEC08	2	464
02L1FE0128	Obtain design (DDA) approval from the SO	0		01DEC08	2	464
02L1FE0130	DDA submission for rel. authorities' approval	1	02DEC08	02DEC08	1	375
02L1FE0132	Design (DDA) review by the rel. authorities	28	03DEC08	30DEC08	2	464





2008 2009 2010  
 BUREAU OF TRANSPORTATION (BENTON) DIVISION OF HIGHWAYS  
 70910 11233 14510 17081 20222 25267 28230 32233 39341 43447 49451 52935 53565 56586 59601 62634 656

ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
3AL1FT0618	Verify method statement	3	24APR09	26APR09	2	0
3AL1FT0620	Monitoring of geotechnical instrumentation	45*	27APR09	10JUN09	2	0
3AL1FT0622	Subsequent Inspection/ repair damages (if any)	2	11JUN09	12JUN09	2	0
3AL1FT0624	WSD Tunnel starts operation	0	13JUN09		2	0

**TBM Assembly & Initial Drilling Day Time Work**

3AL1FT0700	Carry out grouting trials from the surface at F1	30	26MAY08	30JUN08	1	109
3AL1FT0702	TBM initial assembly & start-up test	25	10NOV08	08DEC08	1	0
3AL1FT0704	TBM mobilization to tunnel face (CH5085)	2	09DEC08	10DEC08	1	0
3AL1FT0706	Install back-up system (3 decks + 3 platforms)	7	11DEC08	18DEC08	1	0
3AL1FT0708	TBM advances; CH5085-5075	2	19DEC08	20DEC08	1	0
3AL1FT0710	TBM advances; P7 CH5075-5033	11	22DEC08	06JAN09	1	0
3AL1FT0712	Install back-up system (6 decks)	10	07JAN09	17JAN09	1	0
3AL1FT0714	TBM advances; P7 CH5033-5005	7	19JAN09	29JAN09	1	0
3AL1FT0716	Install back-up system (1 decks)	1	30JAN09	30JAN09	1	0
3AL1FT0718	TBM advances; CH 5005-5000	1	31JAN09	31JAN09	1	0
3AL1FT0719	TBM advances; WSDYKWTW/F6c CH5000-4963	9	02FEB09	11FEB09	1	0
3AL1FT0720	Conveyor belt sys	10	12FEB09	23FEB09	1	0
3AL1FT0722	Install noise enclosure	20	12FEB09	06MAR09	1	0

**Main Tunnel Works Day & Night Work**

3AL1FT0802	Apply to EPD for CNP for 24 hrs. tunnel work	14	23OCT08	05NOV08	2	76
3AL1FT0804	EPD process/approve CNP application	45	06NOV08	20DEC08	2	76
3AL1FT0806	TBM advances; WSD YKWTW/F6c CH4963-4830	16	07MAR09	25MAR09	1	0
3AL1FT0808	TBM advances; CH4830-4760	3	26MAR09	28MAR09	1	0
3AL1FT0810	TBM advances; F6b CH4760-4740	3	30MAR09	01APR09	1	0
3AL1FT0812	TBM advances; CH4740-4555	9	02APR09	16APR09	1	0
3AL1FT0814	TBM advances; F6a CH4555-4510	6	17APR09	23APR09	1	0
3AL1FT0816	TBM advances; CH4510-4460	2	24APR09	25APR09	1	0
3AL1FT0818	TBM advances; WSD T3/P6 CH4460-4250	36	27APR09	10JUN09	1	0
3AL1FT0820	TBM advances; P6 CH4250-4220	4	11JUN09	15JUN09	1	8
3AL1FT0822	TBM advances; CH4220-3840	18	16JUN09	07JUL09	1	8
3AL1FT0824	TBM advances; P5 CH3840-3820	3	08JUL09	10JUL09	1	8
3AL1FT0826	TBM advances CH3820-3575	12	11JUL09	24JUL09	1	8
3AL1FT0828	TBM advances; P4 CH3575-3525	6	25JUL09	31JUL09	1	8
3AL1FT0830	TBM advances; CH3525-3308	10	01AUG09	12AUG09	1	8
3AL1FT0832	TBM advances; Noise sensitive area CH3308-3175	13	13AUG09	27AUG09	1	8
3AL1FT0834	TBM advances; P3/Noise sensitive area CH3175-3143	6	28AUG09	03SEP09	1	8
3AL1FT0836	TBM advances; P3 CH3143-3125	2	04SEP09	05SEP09	1	8
3AL1FT0838	TBM advances; CH3125-2970	7	07SEP09	14SEP09	1	8
3AL1FT0840	TBM advances; WSD WS Reservoir CH2970-2865	13	15SEP09	29SEP09	1	8

CH4460-4250 Concurrent with TBM advances; WSD T3/P6

PRELIMINARY B27.73(5), within 6 months of DOG for the design of pre-excavation grouting at F1

#Fault P7; CH5075-5033

#Fault P7; CH5033-5005

CH5000-4963 WSD Yau Kom Water Treatment Works & Fault F6c

#pre-excavation grouting @20m/1.5dayexcavation/pea-gravel/lining @21m/day

@ 21m/day

#pre-excavation grouting @ 20m/1.5day

#Fault F6a; CH4555-4510pre-excavation grouting @ 20m/1.5day

@ 21m/day

#Fault P6 & WSD T3pre-excavation grouting @ 20m/1.5day

#Fault P6; CH4250-4220pre-excavation grouting @ 20m/1.5day

@ 21m/day

#Fault P5; CH3840-3820pre-excavation grouting @ 20m/1.5day

@ 21m/day

#pre-excavation grouting @ 20m/1.5day#Fault P4; @ 21m/day

TBM advance rate 10.5m/day#TBM operates 0700 to 1900

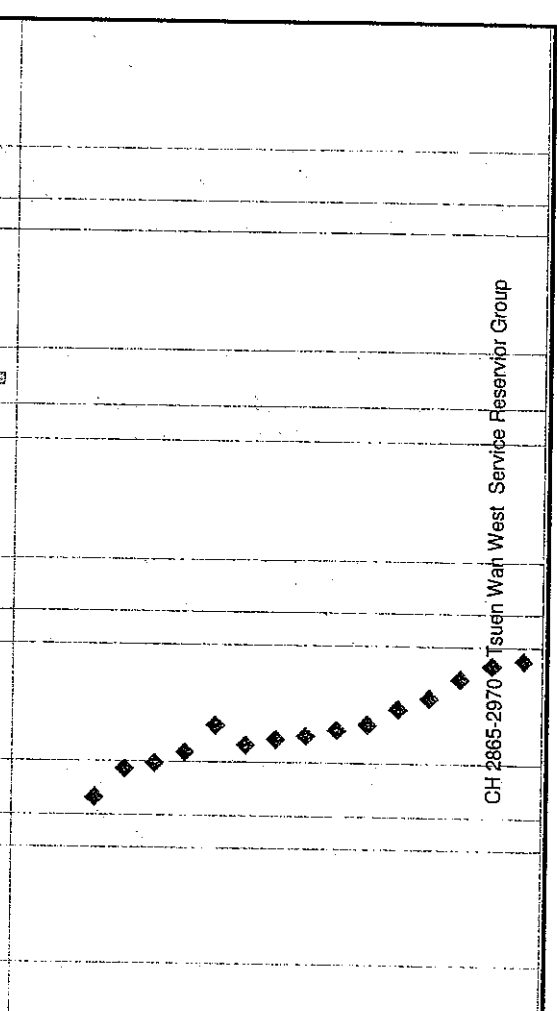
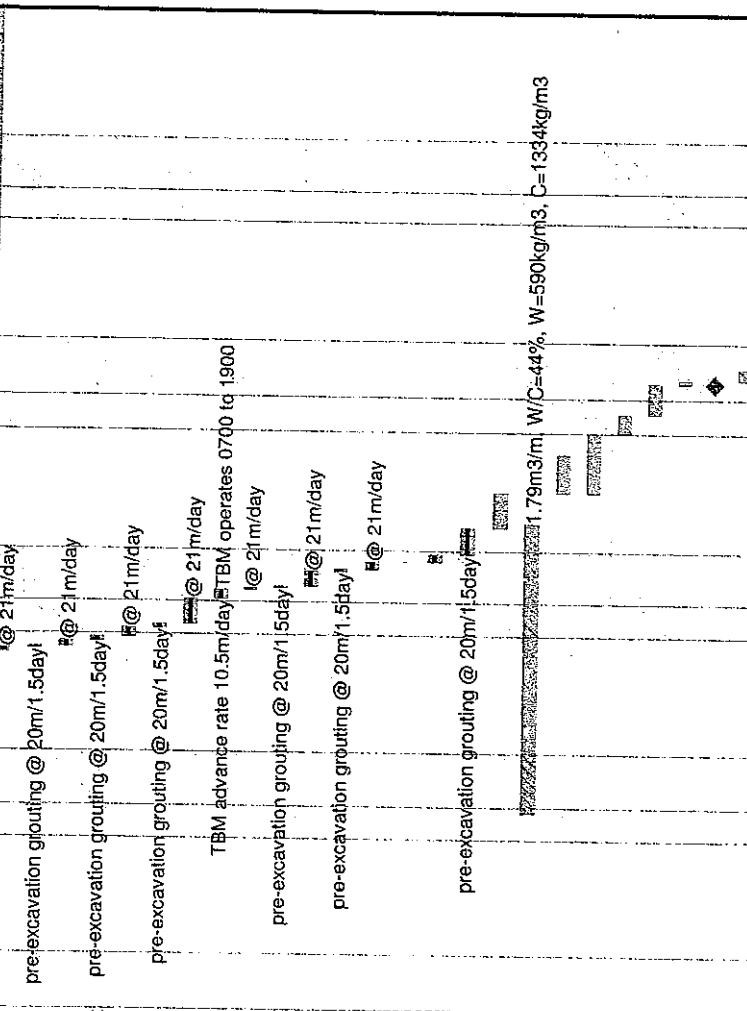
TBM advance rate 10.5m/day#TBM operates 0700 to 1900

pre-excavation grouting @ 20m/1.5day#Fault P3; CH3175-3125

@ 21m/day

pre-excavation grouting @ 20m/1.5day#

2009  
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
 2012  
 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



ID	Activity Description	Orig Dur	Early Start	Early Finish	Earl Float	Cal Total ID
3AL1FT0842	TBM advances; CH2865-2765	5	30SEP09	07OCT09	1	8
3AL1FT0844	TBM advances; F5 CH2765-2745	3	08OCT09	10OCT09	1	8
3AL1FT0846	TBM advances; CH2745-2685	8	12OCT09	20OCT09	1	8
3AL1FT0848	TBM advances; F4 CH2585-2535	6	21OCT09	28OCT09	1	8
3AL1FT0850	TBM advances; CH2535-2255	13	29OCT09	12NOV09	1	8
3AL1FT0852	TBM advances; F3 CH2255-2205	6	13NOV09	19NOV09	1	8
3AL1FT0854	TBM advances; CH2205-1449	36	20NOV09	04JAN10	1	8
3AL1FT0856	TBM advances; Noise sensitive area CH1449-1295	15	05JAN10	21JAN10	1	8
3AL1FT0858	TBM advances; CH1295-1250	2	22JAN10	23JAN10	1	8
3AL1FT0860	TBM advances; F2 CH1250-1230	3	25JAN10	27JAN10	1	8
3AL1FT0862	TBM advances; CH1230-795	21	28JAN10	24FEB10	1	8
3AL1FT0864	TBM advances; P2 CH795-770	3	25FEB10	27FEB10	1	8
3AL1FT0866	TBM advances; CH770-540	11	01MAR10	12MAR10	1	8
3AL1FT0868	TBM advances; P1 CH540-530	1	13MAR10	13MAR10	1	8
3AL1FT0870	TBM advances; CH530-300	11	15MAR10	26MAR10	1	8
3AL1FT0872	TBM advances; F1 CH300-0	37	27MAR10	14MAY10	1	8
3AL1FT0873	Desemby & demobilization of TBM	50*	15MAY10	15JUL10	1	17
3AL1FT0874	Back grouting (daytime); CH5100-00	414	22DEC08	20MAY10	1	116
3AL1FT0876	Complete maintenance access & dry weather channel	60	16JUL10	24SEP10	1	129
3AL1FT0878	Installation of communication system (Daytime)	90	16JUL10	01NOV10	1	71
3AL1FT0880	Testing & Commissioning; daytime	28	02NOV10	03DEC10	1	71
3AL1FT0882	Authorities' inspection/remedial works; daytime	45	04DEC10	28JAN11	1	71
3AL1FT0884	Contractor serve notice for Works completion	7	29JAN11	04FEB11	2	577
3AL1FT0886	Handover of Portion F	0		28JAN11	1	144
3AL1FT0888	SO issues completion certificate	21	05FEB11	25FEB11	2	577

**Schedule of Milestones for Cos Centre No. 6-R**

6AR1FT0902	6aR 1; On completion of grouting at P7	0		29JAN09	2	1,334
6AR1FT0904	6aR 2; On completion of grouting at F6c	0		25MAR09	2	1,279
6AR1FT0906	6aR 3; On completion of grouting at F6b	0		01APR09	2	1,272
6AR1FT0908	6aR 4; On completion of grouting at F6a	0		29APR09	2	1,250
6AR1FT0910	6aR 5; On completion of grouting at WSD T. 3	0		10JUN09	2	1,202
6AR1FT0912	6aR 6; On completion of 20% grout by lth at P6	0		07MAY09	2	1,236
6AR1FT0914	6aR 7; On completion of 40% grout by lth at P6	0		16MAY09	2	1,227
6AR1FT0916	6aR 8; On completion of 60% grout by lth at P6	0		26MAY09	2	1,217
6AR1FT0918	6aR 9; On completion of 80% grout by lth at P6	0		05JUN09	2	1,207
6AR1FT0920	6aR 10; On completion of grouting works at P6	0		15JUN09	2	1,197
6AR1FT0922	6aR 11; On completion of grouting wks at P5	0		10JUL09	2	1,172
6AR1FT0924	6aR 12; On completion of grouting wks at P4	0		31JUL09	2	1,151
6AR1FT0926	6aR 13; On completion of grouting wks at P3	0		05SEP09	2	1,115
6AR1FT0928	6aR 14; On completion of grouting wks at WSD's	0		29SEP09	2	1,091
6AR1FT0930	6aR 15; On completion of grouting wks at F5	0		10OCT09	2	1,080

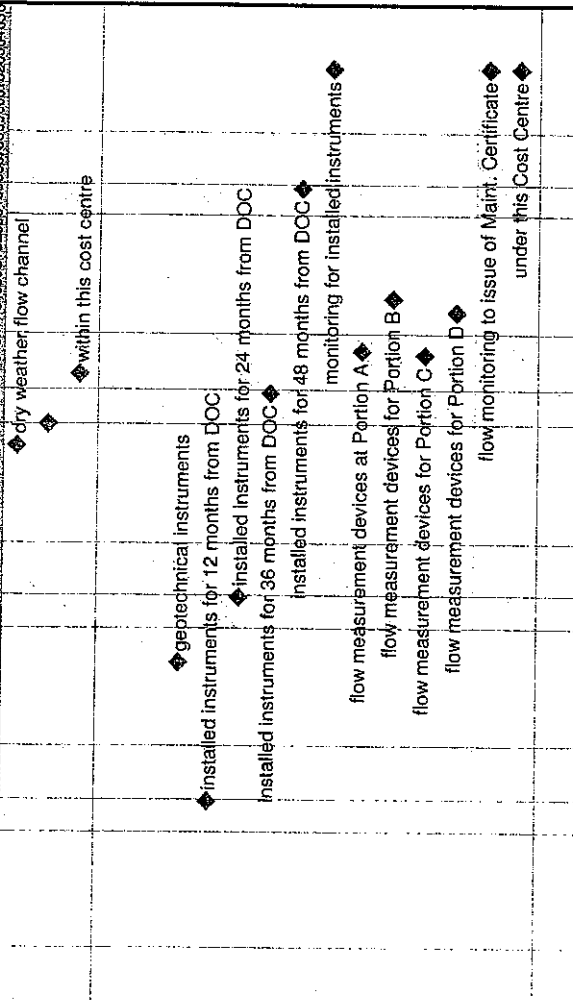
2008 2009 2010 2011 2012  
 01 JAN 01 02 JAN 03 JAN 04 JAN 05 JAN 06 JAN 07 JAN 08 JAN 09 JAN 10 JAN 11 JAN 12 JAN 13 JAN 14 JAN 15 JAN 16 JAN 17 JAN 18 JAN 19 JAN 20 JAN 21 JAN 22 JAN 23 JAN 24 JAN 25 JAN 26 JAN 27 JAN 28 JAN 29 JAN 30 JAN 31 FEB 01 FEB 02 FEB 03 FEB 04 FEB 05 FEB 06 FEB 07 FEB 08 FEB 09 FEB 10 FEB 11 FEB 12 FEB 13 FEB 14 FEB 15 FEB 16 FEB 17 FEB 18 FEB 19 FEB 20 FEB 21 FEB 22 FEB 23 FEB 24 FEB 25 FEB 26 FEB 27 FEB 28 FEB 29 FEB 30 MAR 01 MAR 02 MAR 03 MAR 04 MAR 05 MAR 06 MAR 07 MAR 08 MAR 09 MAR 10 MAR 11 MAR 12 MAR 13 MAR 14 MAR 15 MAR 16 MAR 17 MAR 18 MAR 19 MAR 20 MAR 21 MAR 22 MAR 23 MAR 24 MAR 25 MAR 26 MAR 27 MAR 28 MAR 29 MAR 30 MAR 31 APR 01 APR 02 APR 03 APR 04 APR 05 APR 06 APR 07 APR 08 APR 09 APR 10 APR 11 APR 12 APR 13 APR 14 APR 15 APR 16 APR 17 APR 18 APR 19 APR 20 APR 21 APR 22 APR 23 APR 24 APR 25 APR 26 APR 27 APR 28 APR 29 APR 30 MAY 01 MAY 02 MAY 03 MAY 04 MAY 05 MAY 06 MAY 07 MAY 08 MAY 09 MAY 10 MAY 11 MAY 12 MAY 13 MAY 14 MAY 15 MAY 16 MAY 17 MAY 18 MAY 19 MAY 20 MAY 21 MAY 22 MAY 23 MAY 24 MAY 25 MAY 26 MAY 27 MAY 28 MAY 29 MAY 30 JUN 01 JUN 02 JUN 03 JUN 04 JUN 05 JUN 06 JUN 07 JUN 08 JUN 09 JUN 10 JUN 11 JUN 12 JUN 13 JUN 14 JUN 15 JUN 16 JUN 17 JUN 18 JUN 19 JUN 20 JUN 21 JUN 22 JUN 23 JUN 24 JUN 25 JUN 26 JUN 27 JUN 28 JUN 29 JUN 30 JUL 01 JUL 02 JUL 03 JUL 04 JUL 05 JUL 06 JUL 07 JUL 08 JUL 09 JUL 10 JUL 11 JUL 12 JUL 13 JUL 14 JUL 15 JUL 16 JUL 17 JUL 18 JUL 19 JUL 20 JUL 21 JUL 22 JUL 23 JUL 24 JUL 25 JUL 26 JUL 27 JUL 28 JUL 29 JUL 30 AUG 01 AUG 02 AUG 03 AUG 04 AUG 05 AUG 06 AUG 07 AUG 08 AUG 09 AUG 10 AUG 11 AUG 12 AUG 13 AUG 14 AUG 15 AUG 16 AUG 17 AUG 18 AUG 19 AUG 20 AUG 21 AUG 22 AUG 23 AUG 24 AUG 25 AUG 26 AUG 27 AUG 28 AUG 29 AUG 30 SEP 01 SEP 02 SEP 03 SEP 04 SEP 05 SEP 06 SEP 07 SEP 08 SEP 09 SEP 10 SEP 11 SEP 12 SEP 13 SEP 14 SEP 15 SEP 16 SEP 17 SEP 18 SEP 19 SEP 20 SEP 21 SEP 22 SEP 23 SEP 24 SEP 25 SEP 26 SEP 27 SEP 28 SEP 29 SEP 30 OCT 01 OCT 02 OCT 03 OCT 04 OCT 05 OCT 06 OCT 07 OCT 08 OCT 09 OCT 10 OCT 11 OCT 12 OCT 13 OCT 14 OCT 15 OCT 16 OCT 17 OCT 18 OCT 19 OCT 20 OCT 21 OCT 22 OCT 23 OCT 24 OCT 25 OCT 26 OCT 27 OCT 28 OCT 29 OCT 30 NOV 01 NOV 02 NOV 03 NOV 04 NOV 05 NOV 06 NOV 07 NOV 08 NOV 09 NOV 10 NOV 11 NOV 12 NOV 13 NOV 14 NOV 15 NOV 16 NOV 17 NOV 18 NOV 19 NOV 20 NOV 21 NOV 22 NOV 23 NOV 24 NOV 25 NOV 26 NOV 27 NOV 28 NOV 29 NOV 30 DEC 01 DEC 02 DEC 03 DEC 04 DEC 05 DEC 06 DEC 07 DEC 08 DEC 09 DEC 10 DEC 11 DEC 12 DEC 13 DEC 14 DEC 15 DEC 16 DEC 17 DEC 18 DEC 19 DEC 20 DEC 21 DEC 22 DEC 23 DEC 24 DEC 25 DEC 26 DEC 27 DEC 28 DEC 29 DEC 30

ID	Activity Description	Orig Dur	Early Start	Early Finisht	Cal ID	Total Float
6AR1FT0932	6aR 16; On completion of grouting wks at F4	0	28OCT09	2	1,062	
6AR1FT0934	6aR 17; On completion of grouting wks at F3	0	19NOV09	2	1,040	
6AR1FT0936	6aR 18; On completion of grouting wks at F2	0	27JAN10	2	971	
6AR1FT0938	6aR 19; On completion of grouting wks at P2	0	27FEB10	2	940	
6AR1FT0940	6aR 20; On completion of grouting wks at P1	0	13MAR10	2	926	
6AR1FT0942	6aR 21; On completion of 10% grout by lift at F1	0	31MAR10	2	908	
6AR1FT0944	6aR 22; On completion of 20% grout by lift at F1	0	09APR10	2	899	
6AR1FT0946	6aR 23; On completion of 30% grout by lift at F1	0	14APR10	2	894	
6AR1FT0948	6aR 24; On completion of 40% grout by lift at F1	0	19APR10	2	889	
6AR1FT0950	6aR 25; On completion of 50% grout by lift at F1	0	23APR10	2	885	
6AR1FT0952	6aR 26; On completion of 60% grout by lift at F1	0	28APR10	2	880	
6AR1FT0954	6aR 27; On completion of 70% grout by lift at F1	0	04MAY10	2	874	
6AR1FT0956	6aR 28; On completion of 80% grout by lift at F1	0	10MAY10	2	868	
6AR1FT0958	6aR 29; On completion of 90% grout by lift at F1	0	11MAY10	2	867	
6AR1FT0960	6aR 30; On completion of grouting works at F1	0	14MAY10	2	864	
6AR1FT0970	6aR 31; On completion of all works under this CC	0	20MAY10	2	858	

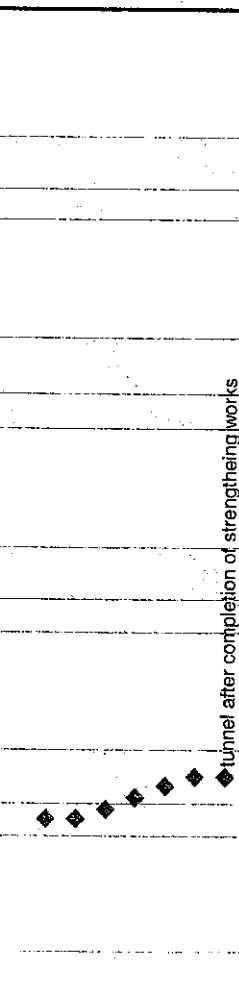
**Schedule of Milestones to Coast Centre No. 3aL**

3AL1FT1002	3aL 1; On providing evidence of procuring TBM	0	19JAN08	2	1,710
3AL1FT1004	3aL 2; On providing evidence of TBM Factory Test	0	04SEP08	2	1,481
3AL1FT1006	3aL 3; On delivery of all parts of TBM to the SI	0	09NOV08	2	1,415
3AL1FT1008	3aL 4; On completion of site comm. & test. of TB	0	08DEC08	2	1,386
3AL1FT1010	3aL 5; On completion of 5% perm. tunnel lining	0	25MAR09	2	1,279
3AL1FT1012	3aL 6; On completion of 10% perm. tunnel lining	0	09APR09	2	1,264
3AL1FT1014	3aL 7; On completion of 15% perm. tunnel lining	0	22MAY09	2	1,221
3AL1FT1016	3aL 8; On completion of 20% perm. tunnel lining	0	22JUN09	2	1,190
3AL1FT1018	3aL 9; On completion of 25% perm. tunnel lining	0	10JUL09	2	1,172
3AL1FT1020	3aL 10; On completion of 30% perm. tunnel lining	0	24JUL09	2	1,158
3AL1FT1022	3aL 11; On completion of 35% perm. tunnel lining	0	10AUG09	2	1,141
3AL1FT1024	3aL 12; On completion of 40% perm. tunnel lining	0	09SEP09	2	1,111
3AL1FT1026	3aL 13; On completion of 45% perm. tunnel lining	0	03OCT09	2	1,087
3AL1FT1028	3aL 14; On completion of 50% perm. tunnel lining	0	24OCT09	2	1,066
3AL1FT1030	3aL 15; On completion of 55% perm. tunnel lining	0	09NOV09	2	1,050
3AL1FT1032	3aL 16; On completion of 60% perm. tunnel lining	0	27NOV09	2	1,032
3AL1FT1034	3aL 17; On completion of 65% perm. tunnel lining	0	09DEC09	2	1,020
3AL1FT1036	3aL 18; On completion of 70% perm. tunnel lining	0	21DEC09	2	1,008
3AL1FT1038	3aL 19; On completion of 75% perm. tunnel lining	0	22JAN10	2	976
3AL1FT1040	3aL 20; On completion of 80% perm. tunnel lining	0	05FEB10	2	962
3AL1FT1042	3aL 21; On completion of 85% perm. tunnel lining	0	01MAR10	2	938
3AL1FT1044	3aL 22; On completion of 90% perm. tunnel lining	0	15MAR10	2	924
3AL1FT1046	3aL 23; On completion of 95% perm. tunnel lining	0	07APR10	2	901
3AL1FT1048	3aL 24; On completion of perm. tunnel lining	0	14MAY10	2	864

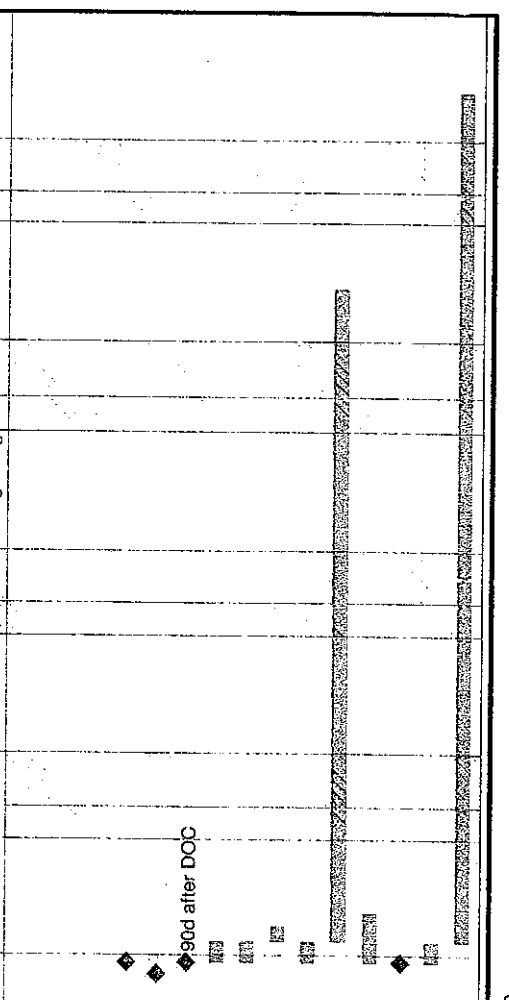
under this Coast Centre



ID	Activity Description	Orig. Dur.	Entry Start	Entry Finish	Total Cal. ID	Total Float
3AL1FT1050	3aL 25; On completion of maint. access/flow chan	0	24SEP10	2	731	
3AL1FT1052	3aL 26; On completion of provision of communic.	0	01NOV10	2	693	
3AL1FT1054	3aL 27; On completion of all works under this CC	0	28JAN11	2	605	
<b>Schedule of Milestones for Cost Centre No. 3dL</b>						
3DL10T1202	3dL 1; On complet. of install geo instrument.	0	02SEP09	2	1,118	
3DL10T1204	3dL 2; Maint./monit. geo. inst. for 12 mth	0	26DEC08	2	1,368	
3DL10T1206	3dL 3; Maint./monitor geo. inst. for 24	0	26DEC09	2	1,003	
3DL10T1208	3dL 4; Maint./monitor geo. inst. for 36	0	26DEC10	2	638	
3DL10T1210	3dL 5; Maint./monitor geo. inst. for 48	0	26DEC11	2	273	
3DL10T1212	3dL 6; On completion of maint. & monit. of geo.	0	26JUL12	2	60	
3DL10T1214	3dL 7; On installation of FMD at Portion A	0	12MAR11	2	562	
3DL10T1216	3dL 8; On installation of FMD at Portion B	0	10JUN11	2	472	
3DL10T1218	3dL 9; On installation of FMD at Portion C	0	05MAR11	2	569	
3DL10T1220	3dL 10; On installation of FMD at Portion D	0	19MAY11	2	494	
3DL10T1222	3dL 11; On completion of maint. & monit. of FMD	0	26JUL12	2	60	
3DL10T1224	3dL 12; On completion of all works under this CC	0	26JUL12	2	60	



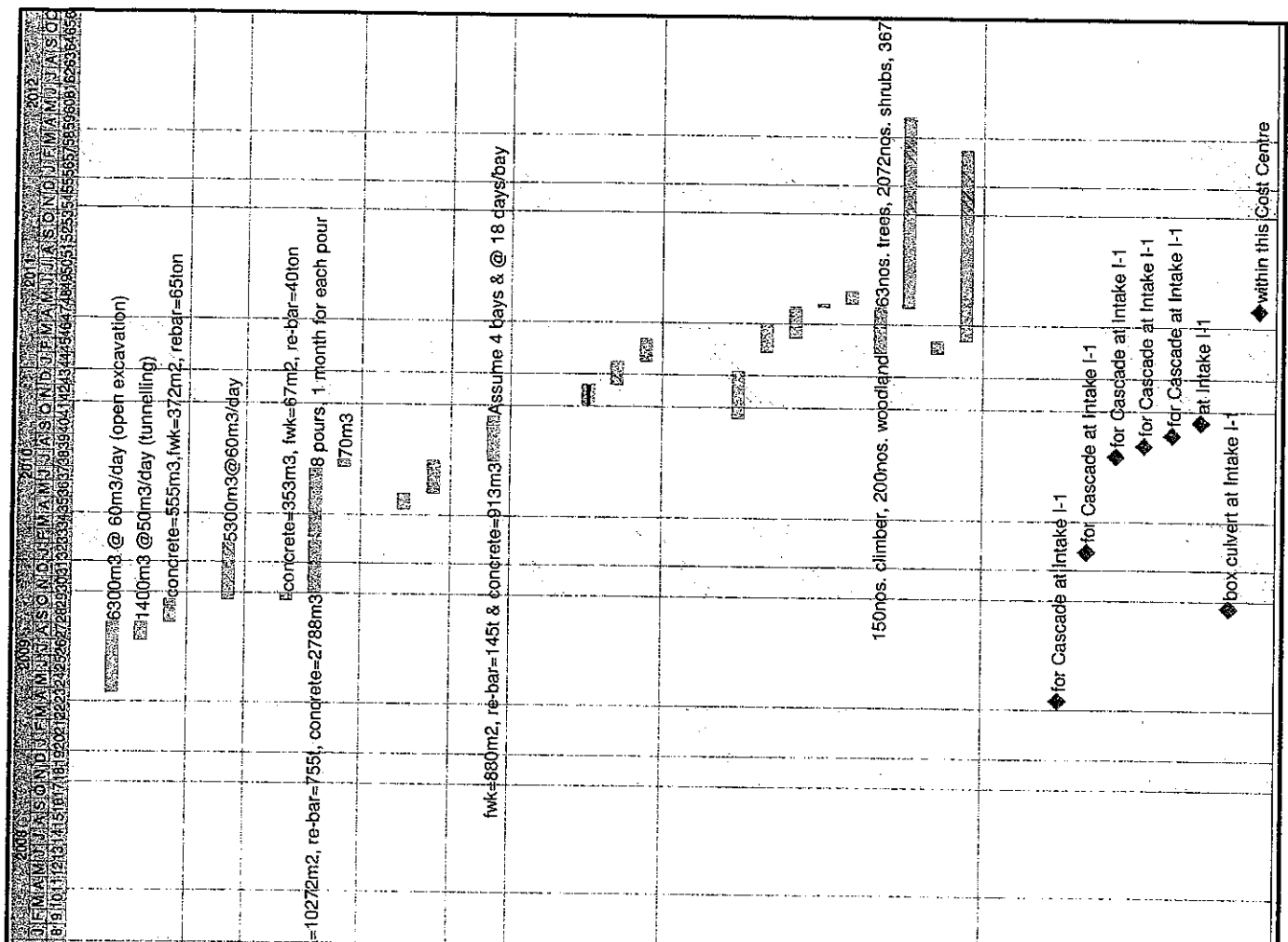
ID	Activity Description	Orig. Dur.	Entry Start	Entry Finish	Total Cal. ID	Total Float
10AR1JT131	10aR 1; On installation of temp. ventilation	0	03DEC08	2	1,391	
10AR1JT132	10aR 2; On installation temp. lighting	0	03DEC08	2	1,391	
10AR1JT133	10aR 3; On completion of 25% strengthening wks	0	20DEC08	2	1,374	
10AR1JT134	10aR 4; On completion of 50% strengthening wks	0	10JAN09	2	1,353	
10AR1JT135	10aR 5; On completion of 75% strengthening wks	0	31JAN09	2	1,332	
10AR1JT136	10aR 6; On completion of strengthening works	0	16FEB09	2	1,316	
10AR1JT137	10aR 7; On rechange of the water after wrk comp	0	18FEB09	2	1,314	



ID	Activity Description	Orig. Dur.	Entry Start	Entry Finish	Total Cal. ID	Total Float
01R1AI1108	Obtain tree felling permit	0	26MAR08	2	90	
01R1AI1110	Obtain TTA (ingress & egress) approval	0	07MAR08	2	59	
01R1AI1112	Possession of site	0	26MAR08	1	12	
01R1AI1114	Site establishment	30	27MAR08	02MAY08	1	31
01R1AI1116	Site clearance	30	27MAR08	02MAY08	1	31
01R1AI1117	Erect temp. steel decking spanning Shing M. Nui	24	03MAY08	31MAY08	1	31
01R1AI1122	Install remote control CCTV as per ER 4.4.10	30	27MAR08	02MAY08	1	12
01R1AI1124	Maintain & operate CCTV	1,165	03MAY08	11JUL11	2	16
16R7AI1102	Tree transplanting; 4 nos.	72	27MAR08	23JUN08	1	73
3DL1AI1104	Obtain approval for Geotechnical Instrumentation	0	26MAR08	2	29	
3DL1AI1106	Installation of Geotechnical Instrumentation	30	27MAR08	02MAY08	1	24
3DL1AI1108	Monitor/report Geotechnical Instrumentation	1,230	03MAY08	27JUN12	1	24

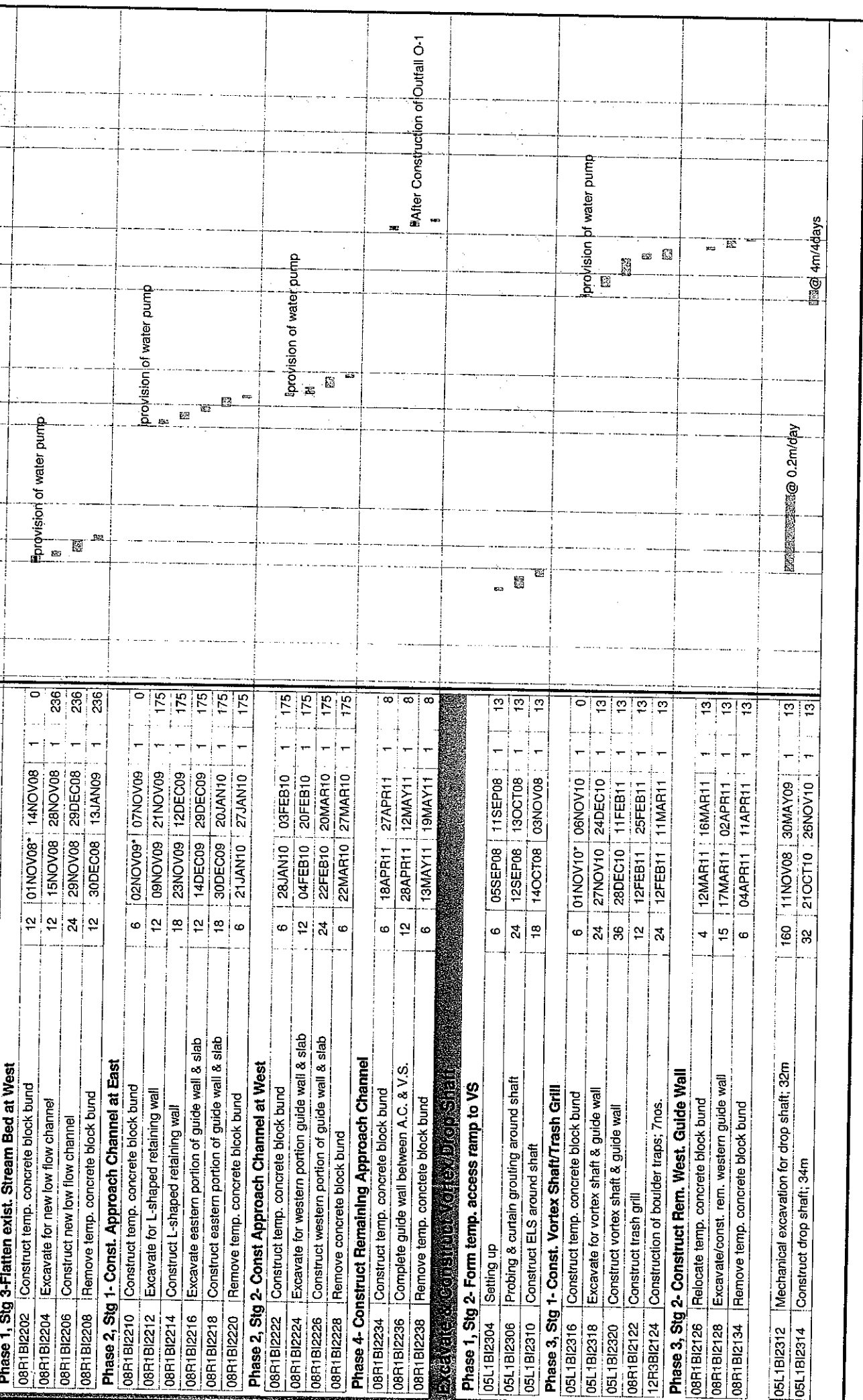






ID	Activity Description	Orig. Dur.	Early Start	Early Finish	Cal. ID	Total Float
<b>Excavation from +88.5mPD to +72.5mPD; North</b>						
04L1A11442	Bulk excavation; rock (6300m3)	110	25APR09	04SEP09	1	17
07R1A11444	Bulk excavation for vehicular access; 1400m3	30	01AUG09	04SEP09	1	17
07R1A11446	Construct vehicular access	36	05SEP09	19OCT09	1	17
<b>Excavation to Bottom Level to south west of SR</b>						
04L1A11448	Bulk excavation; rock (5300m3)	88	20OCT09	03FEB10	1	71
<b>Construction of Spiral Ramp Structure</b>						
07R1A11402	Raft foundation	12	20OCT09	03NOV09	1	17
07R1A11404	Construct RC spiral ramp	192	04NOV09	30JUN10	1	17
07R1A11406	Construct RC spiral ramp top	12	02JUL10	15JUL10	1	17
<b>Dismantle &amp; removal of TBM</b>						
04L1A11450	Install temporary steel works for removal of TBM	24	16APR10	14MAY10	1	17
04L1A11452	Disassembly & demobilization of TBM	50	15MAY10	15JUL10	1	17
<b>Construction of Cascade Structure</b>						
04L1A11454	Construct box culvert & cascade	72	16JUL10	09OCT10	1	17
<b>Modification of Existing Channel to Dry Season</b>						
07R1A11502	Modify channel bed & construct weir; Phase 1	36	01NOV10	11DEC10	1	0
07R1A11504	Modify channel bed and orifice; Phase 2	36	13DEC10	26JAN11	1	61
07R1A11506	Modify channel bed and orifice; Phase 3	36	27JAN11	12MAR11	1	61
<b>Remaining Works to be Handover</b>						
07R1A11602	Backfill & compaction above box culvert; Port. A	72	11OCT10	06JAN11	1	90
07R1A11606	Finishing & reinstatement works; Portion A	48	14FEB11	11APR11	1	61
07R1A11608	Pre-handover inspections and remedial works	48	14MAR11	13MAY11	1	61
07R1A11610	Contractor serve notice for Works completion	7	14MAY11	20MAY11	2	412
07R1A11612	SO issues completion certificate	21	21MAY11	10JUN11	2	412
16R7A11602	Landscaping works at Portion A	72	14FEB11	13MAY11	1	62
16R7A11604	Establishment Works at Portion A	365	14MAY11	12MAY12	2	75
3DL1A11602	Install flow measurement devices at Intake I-1	24	14FEB11	12MAR11	1	82
3DL1A11604	Maintain & monitor flow monitoring	365	13MAR11	11MAR12	2	137
<b>Schedule of Milestones of Cost Centre No. 1</b>						
04L1A11802	4L 1; On completion of 50% excavation	0		24APR09	2	1,249
04L1A11804	4L 2; On completion of excavation	0		03FEB10	2	964
04L1A11806	4L 3; On completion of 25% concreting	0		05AUG10	2	781
04L1A11808	4L 4; On completion of 50% concreting	0		26AUG10	2	760
04L1A11810	4L 5; On completion of 75% concreting	0		16SEP10	2	739
04L1A11812	4L 6; On completion of Cascade	0		09OCT10	2	716
04L1A11814	4L 7; On completion of connecting BC	0		19OCT09	2	1,071
04L1A11816	4L 8; On completion of all works under this CC	0		13MAY11	2	500



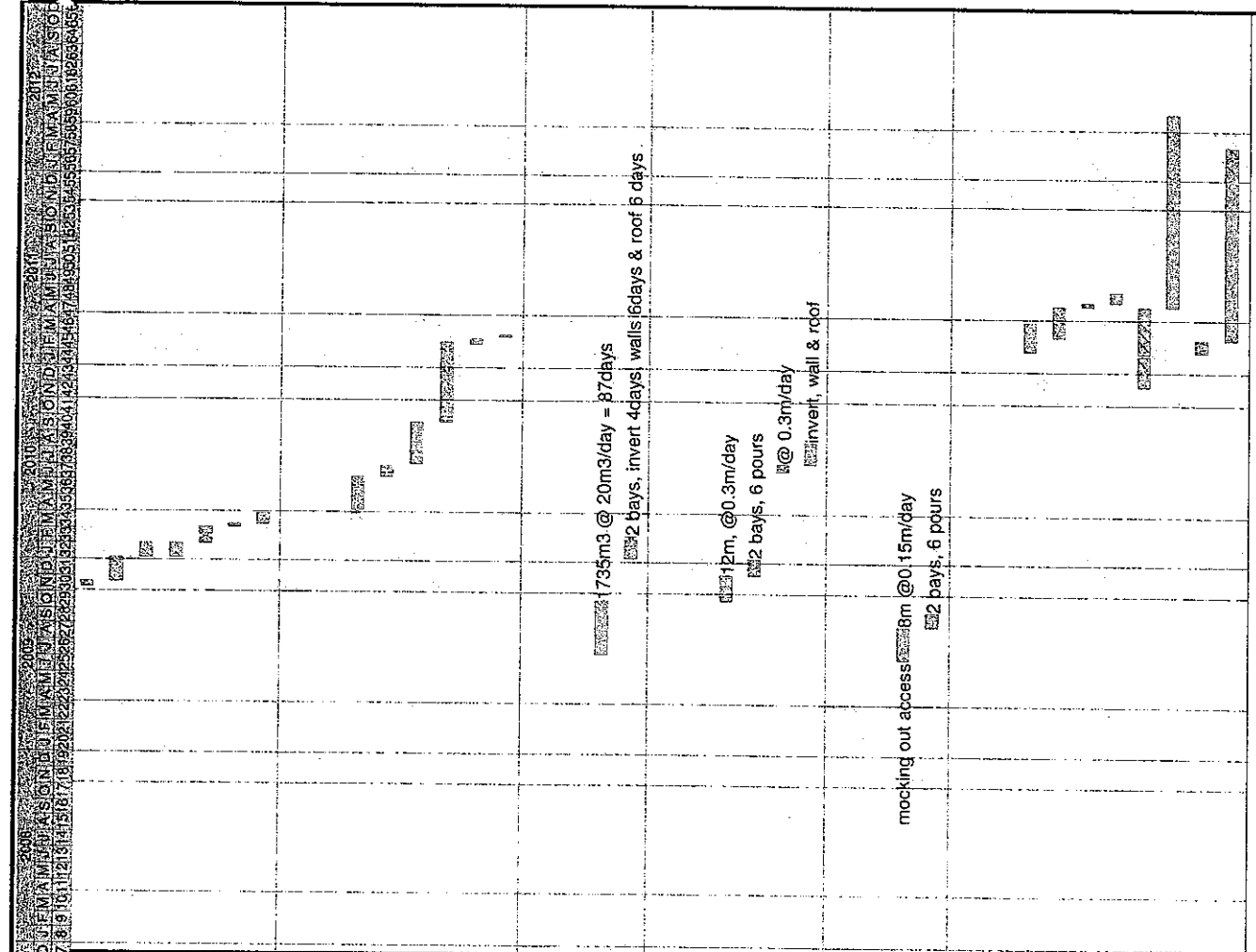


ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
<b>Excavate &amp; Construct Air Vent Shaft</b>						
<b>Phase 1, Stg 2- Form temp. access ramp to VS</b>						
05L1B12302	Form temp. access ramp; Lo Wai Rd to Drop Shaft	24	07JUN08	07JUL08	1	13
05L1B12402	Construct temp. platform for RCD	10	08JUL08	18JUL08	1	13
05L1B12404	Mobilize & set up plans for RCD excavation	6	19JUL08	25JUL08	1	13
05L1B12406	Excavate by RCD; 34m @ 1m/day	34	26JUL08	03SEP08	1	13
05L1B12408	Demobilize RCD	1	04SEP08	04SEP08	1	13
05L1B12410	Dismante & remove temp platform	6	04NOV08	10NOV08	1	13
35L1B12412	Construct air vent shaft; 34m	34	27NOV10	08JAN11	1	67
<b>Excavate &amp; Construct Man Access Shaft</b>						
05L1B12502	Construct ELS around shaft	24	01NOV08	28NOV08	1	0
05L1B12504	Probing & curtain grouting around shaft	24	29NOV08	29DEC08	1	443
05L1B12512	Mechanical excavation for man access shaft; 38m	190	30DEC08	21AUG09	1	443
05L1B12514	Construct man access shaft including stairs; 38m	76	27NOV10	02MAR11	1	67
<b>Excavate &amp; Construct De-aeration Chamber</b>						
05L1B12602	Mechanical excavation for chamber; 22.5m	132	01JUN09	05NOV09	1	13
05L1B12604	Construct de-aeration chamber	32	10SEP10	20OCT10	1	13
<b>Excavate &amp; Construct Adit Tunnel</b>						
35L1B12102	Mechanical excavation for Adit Tunnel	200	06NOV09	13JUL10	1	13
35L1B12104	Construct adit tunnel; 60m	50	14JUL10	09SEP10	1	13
35L1B12106	Mechanical excavation breakthrough	12	12JAN11	25JAN11	1	38
35L1B12108	Construct collar between MT & AT	36	26JAN11	11MAR11	1	38
<b>Excavate &amp; Construct Man Access Tunnel</b>						
05L1B12802	Mechanical excavation for Man Access Tunnel	240	06NOV09	28AUG10	1	109
05L1B12804	Mechanical excavation breakthrough	3	30AUG10	01SEP10	1	109
05L1B12806	Construct man access tunnel; 35m	36	27NOV10	11JAN11	1	38
<b>Remaining Works Prior to Handover</b>						
08R1B12102	Finishing & reinstatement works; Portion B	48	18APR11	17JUN11	1	8
08R1B12103	Pre-handover inspections and remedial works	48	20MAY11	16JUL11	1	8
08R1B12104	Contractor serve notice for Works completion	7	17JUL11	23JUL11	2	348
08R1B12105	SO issues completion certificate	21	24JUL11	13AUG11	2	348
16R7512102	Landscaping works at Portion B	72	18APR11	16JUL11	1	8
16R7512104	Establishment Works at Portion B	365	17JUL11	15JUL12	2	11
3DL1B12101	Install flow measurement devices at Intake I-2	24	13MAY11	10JUN11	1	11









ID	Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
09R1C18804	Removal of large boulders	10	09NOV09	19NOV09	1	67
09R1C18806	Excavation of the stream bed	36	20NOV09	04JAN10	1	67
09R1C18808	Laying of granular filter	24	05JAN10	01FEB10	1	91
09R1C18810	Laying of rock armour	24	05JAN10	01FEB10	1	67
09R1C18812	Construction of boulder trap; 7 nos.	24	02FEB10	04MAR10	1	67
09R1C18814	Removal of sand bag bund	4	05MAR10	09MAR10	1	67
09R1C18816	Construct temporary concrete block bund	18	10MAR10	30MAR10	1	67
<b>Excavate &amp; Construct Approach Channel</b>						
<b>Phase 3</b>						
09R1C18902	Excavation of the Stream Bed	54	31MAR10	08JUN10	1	67
09R1C18904	Laying Granular Filter within Stream Bed	18	09JUN10	30JUN10	1	67
09R1C18908	Open excavation for Approach Channel	69	02JUL10	20SEP10	1	67
09R1C18910	Construction of Approach Channel	122	21SEP10	19FEB11	1	67
09R1C18912	Construction of trash grill	12	14FEB11	26FEB11	1	67
09R1C18914	Removal of concrete block bund	6	28FEB11	05MAR11	1	67
<b>Excavate &amp; Construct De-aeration Chamber</b>						
<b>Phase 2</b>						
06L1C13102	Excavation for de-aeration chamber	87	10JUL09	21OCT09	1	83
06L1C13104	Construction of de-aeration chamber	32	09JAN10	18FEB10	1	83
<b>Excavate &amp; Construct Adit Tunnel</b>						
<b>Phase 2</b>						
3CL1C13102	Mechanical excavation for Adit Tunnel	40	22OCT09	08DEC09	1	83
3CL1C13104	Construction of Adit Tunnel	24	09DEC09	08JAN10	1	83
3CL1C13106	Mechanical excavation breakthrough	12	22JUN10	06JUL10	1	206
3CL1C13108	Construct collar between MT & AT	36	07JUL10	17AUG10	1	206
<b>Excavate &amp; Construct Man Access Tunnel</b>						
<b>Phase 2</b>						
06L1C13122	Mechanical excavation for man access tunnel	53	02JUL09	01SEP09	1	170
06L1C13124	Construction of man access tunnel	24	02SEP09	29SEP09	1	170
<b>Remaining Works Prior to Handover to Client</b>						
09R1C13142	Finishing & reinstatement works; Portion C	48	07FEB11	02APR11	1	67
09R1C13143	Pre-handover inspections and remedial works	48	07MAR11	05MAY11	1	67
09R1C13144	Contractor serve notice for Works completion	7	06MAY11	12MAY11	2	480
09R1C13146	SO issues completion certificate	21	13MAY11	02JUN11	2	480
16R7C13142	Landscaping works at Portion C	120	06DEC10	05MAY11	1	68
16R7C13144	Establishment Works at Portion C	365	06MAY11	04MAY12	2	83
3DL1C13141	Install flow measurement devices at intake I-3	24	07FEB11	05MAR11	1	88
3DL1C13143	Maintain & monitor flow monitoring	365	06MAR11	04MAR12	2	144





ID	Activity Description	Orig Dur	Early Start	Early Finish	Cat IB	Cat Total
1394CI3S07	13R 7; On completion of 40% piles by number	0	27JUN08	27JUN08	2	1,550
1394CI3S08	13R 8; On completion of 50% piles by number	0	09JUL08	09JUL08	2	1,538
1394CI3S09	13R 9; On completion of 60% piles by number	0	19JUL08	19JUL08	2	1,528
1394CI3S10	13R 10; On completion of 70% piles by number	0	30JUL08	30JUL08	2	1,517
1394CI3S11	13R 11; On completion of 80% piles by number	0	07AUG08	07AUG08	2	1,509
1394CI3S12	13R 12; On completion of 90% piles by number	0	28AUG08	28AUG08	2	1,488
1394CI3S13	13R 13; On completion of all piling works	0	19SEP08	19SEP08	2	1,466
1394CI3S14	13R 14; On completion of boulder traps	0	04MAR10	04MAR10	2	935
1394CI3S15	13R 15; On completion of all work under this CC	0	26MAR10	26MAR10	2	913

**Construction of Outfall O-1**

**Preliminary Works**

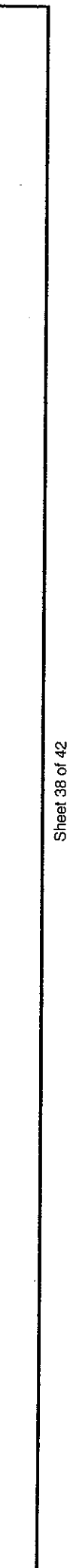
01R1DO0108	Obtain TTA (ingress & egress) approval	0	06MAR08	06MAR08	2	7
01R1DO0110	Obtain tree felling permit	0	26MAR08	26MAR08	2	0
01R1DO0112	Obtain excavation permit	0	20FEB08	20FEB08	2	22
01R1DO0114	Site establishment	30	14MAR08	22APR08	1	0
01R1DO0116	Site clearance	30	14MAR08	22APR08	1	0
01R1DO0118	Install remote control CCTV as per ER 4.4.10	30	14MAR08	22APR08	1	13
01R1DO0120	Maintain & operate CCTV	1,175	23APR08	11JUL11	2	16
01R1DO0126	Application/approval for temp. CLP Power Supply	200	28DEC07	14JUL08	2	9
01R1DO0128	Establish temp. CLP power sub-station	90	15JUL08	30OCT08	1	8
01R1DO0130	Apply for Marine Permit for Works at Portion E	14	30JUL09	12AUG09	2	58
01R1DO0132	Obtain marine permit from Marine Department	45	13AUG09	26SEP09	2	58
3DL1DO0104	Obtain approval for Geotechnical Instrumentation	0	14MAR08	14MAR08	2	2
3DL1DO0106	Installation of Geotechnical Instrumentation	30	08MAR08	16APR08	1	1
3DL1DO0108	Monitor/report Geotechnical Instrumentation	1,250	17APR08	06JUL12	1	17

**Form Temporary Access/Tree Felling**

10R1DO0202	Form 80m long (+14 to +69mPD) temp. access road	60	18MAR08	02JUN08	1	0
14R1DO0202	Existing boulder stabilization works	100	23JUN08	21OCT08	1	16
16R7DO0202	Tree transplanting; 164 nos.	120	28MAR08	20AUG08	1	0

**Form Temporary Launching Platform**

10R1DO0302	Cut slope (69 to 41mPD)/install perm. soil nails	90	26APR08	13AUG08	1	0
10R1DO0304	Cut slope & form launching platform; 41 to 24mPD	90	25JUN08	11OCT08	1	0
10R1DO0306	Cut rock benching & form platform; 14 to 24mPD	72	14AUG08	08NOV08	1	0
3AL1DO0302	Excavate TBM launching chamber; 15m long	24	19OCT08	08NOV08	1	0
3AL1DO0304	Install crane/gantry facilities	40	13OCT08	27NOV08	1	0
3AL1DO0306	Install steel platform, hopper & other facilities	120	13OCT08	07MAR09	1	0





ID	Activity Description	Orig Dur	Earlv Start	Earlv Finish	Cal ID	Total Float
10R1DO0706	Excavate for box culvert (upper part)	66	01SEP10	19NOV10	1	8
10R1DO0708	Construct box-culvert (upper part)	66	15OCT10	04JAN11	1	8
10R1DO0710	Excavate for cascade construction	36	05JAN11	18FEB11	1	8
10R1DO0712	Construct cascade	48	19FEB11	16APR11	1	8
10R1DO0714	Construct retaining wall, baffle, railing etc.	48	19FEB11	16APR11	1	33

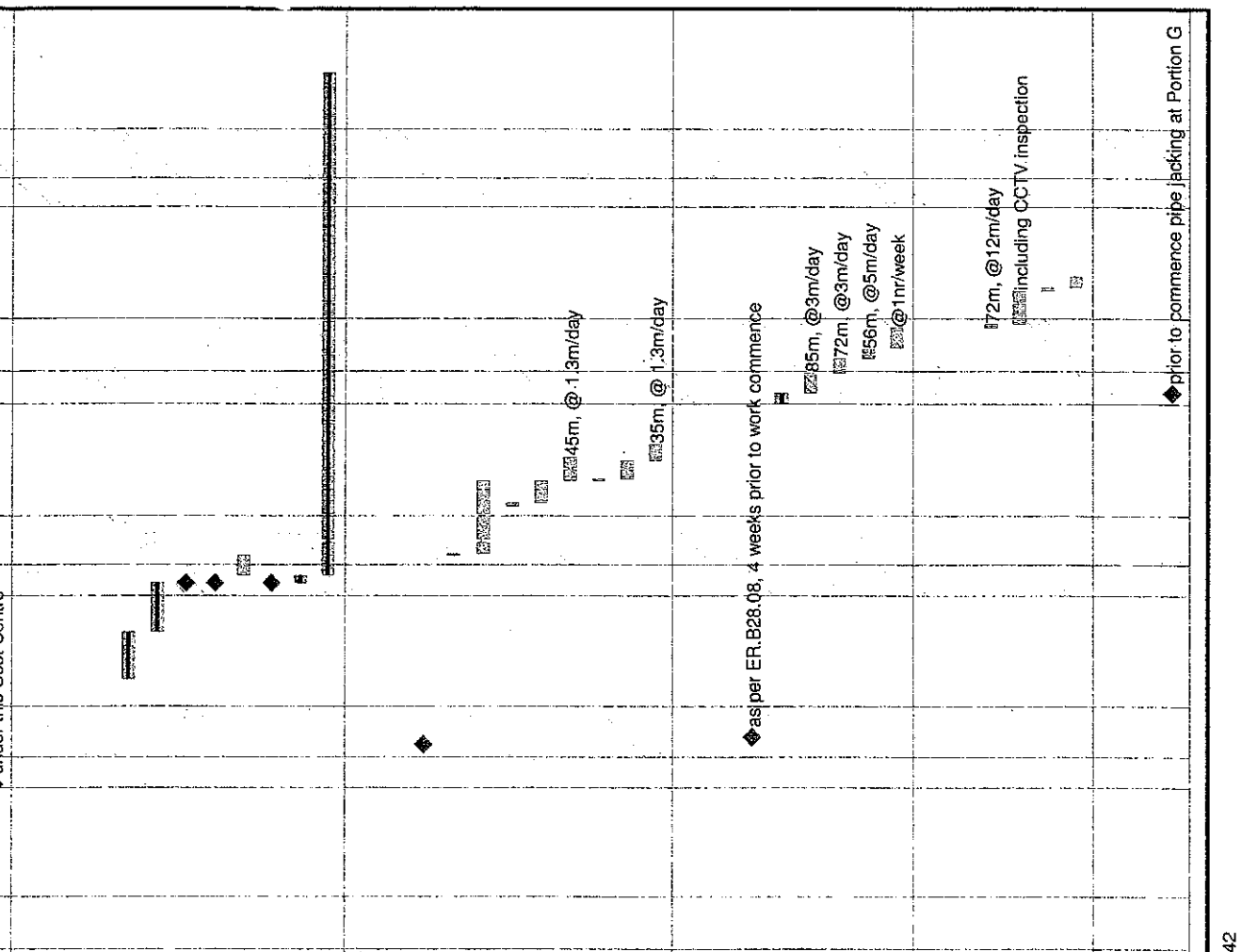
ID	Activity Description	Orig Dur	Earlv Start	Earlv Finish	Cal ID	Total Float
10R1DO0804	Excavate & formation for 100m*16m slab	72	11MAY10	05AUG10	1	93
10R1DO0806	Construct concrete apron with pre-cast RC slabs	72	26MAY10	19AUG10	1	93
10R1DO0808	Installation of precast stepped blocks	144	06AUG10	27JAN11	1	93
10R1DO0810	Removal of platform & formation	12	08MAR11	21MAR11	1	39
10R1DO0812	Install remain. Concrete apron for rem. Area	12	22MAR11	04APR11	1	39
14R5DO0802	Removal of sea wall armour	72	26APR10	22JUL10	1	93

ID	Activity Description	Orig Dur	Earlv Start	Earlv Finish	Cal ID	Total Float
10R1DO0904	Finishing & reinstatement works; Portion D	48	19MAR11	19MAY11	1	33
10R1DO0906	Pre-handover inspections and remedial works	48	18APR11	17JUN11	1	33
10R1DO0908	Contractor serve notice for Works completion	7	18JUN11	24JUN11	2	437
10R1DO0910	SO issues completion certificate	21	25JUN11	15JUL11	2	437
16R7DO0902	Landscaping works at Portion D	120	19JAN11	17JUN11	1	33
16R7DO0904	Establishment Works at Portion D	365	18JUN11	16JUN12	2	40
3DLDO0902	Install flow measurement devices at Outfall O-1	24	18APR11	19MAY11	1	29
3PLDO0904	Maintain & monitor flow monitoring	365	20MAY11	18MAY12	2	69

ID	Activity Description	Orig Dur	Earlv Start	Earlv Finish	Cal ID	Total Float
10R1DO1002	10R 1; On completion of 20% excavation works	0		09JUL08	2	1,538
10R1DO1004	10R 2; On completion of 40% excavation works	0		03SEP08	2	1,482
10R1DO1006	10R 3; On completion of 60% excavation works	0		08NOV08	2	1,416
10R1DO1008	10R 4; On completion of 80% excavation works	0		14OCT09	2	1,076
10R1DO1010	10R 5; On completion all excavation works	0		18FEB11	2	584
10R1DO1012	10R 6; On completion of cascade structure	0		16APR11	2	527
10R1DO1014	10R 7; On completion of spiral ramp to +16mPD	0		23FEB10	2	944
10R1DO1016	10R 8; On completion of spiral access ramp	0		25JUN10	2	822
10R1DO1018	10R 9; On completion box-culvert & open channel	0		07MAR11	2	567
10R1DO1020	10R 10; On completion of seabed protection wks	0		04APR11	2	539
10R1DO1022	10R 11; On completion of all works under this CC	0		17JUN11	2	465

ID	Activity Description	Orig Dur	Earlv Start	Earlv Finish	Cal ID	Total Float
14R5DO1102	14R 1; On complet. of remove exist. rock armour	0		23JUL10	2	795
14R5DO1104	14R 2; On complet. of 50% soil nailing by number	0		20JUN08	2	1,557
14R5DO1106	14R 3; On completion all soiling works	0		13AUG08	2	1,503

2012  
 2011  
 2010  
 2009  
 2008  
 2007  
 2006  
 2005  
 2004  
 2003  
 2002  
 2001  
 2000  
 1999  
 1998  
 1997  
 1996  
 1995  
 1994  
 1993  
 1992  
 1991  
 1990  
 1989  
 1988  
 1987  
 1986  
 1985  
 1984  
 1983  
 1982  
 1981  
 1980  
 1979  
 1978  
 1977  
 1976  
 1975  
 1974  
 1973  
 1972  
 1971  
 1970  
 1969  
 1968  
 1967  
 1966  
 1965  
 1964  
 1963  
 1962  
 1961  
 1960  
 1959  
 1958  
 1957  
 1956  
 1955  
 1954  
 1953  
 1952  
 1951  
 1950  
 1949  
 1948  
 1947  
 1946  
 1945  
 1944  
 1943  
 1942  
 1941  
 1940  
 1939  
 1938  
 1937  
 1936  
 1935  
 1934  
 1933  
 1932  
 1931  
 1930  
 1929  
 1928  
 1927  
 1926  
 1925  
 1924  
 1923  
 1922  
 1921  
 1920  
 1919  
 1918  
 1917  
 1916  
 1915  
 1914  
 1913  
 1912  
 1911  
 1910  
 1909  
 1908  
 1907  
 1906  
 1905  
 1904  
 1903  
 1902  
 1901  
 1900  
 1899  
 1898  
 1897  
 1896  
 1895  
 1894  
 1893  
 1892  
 1891  
 1890  
 1889  
 1888  
 1887  
 1886  
 1885  
 1884  
 1883  
 1882  
 1881  
 1880  
 1879  
 1878  
 1877  
 1876  
 1875  
 1874  
 1873  
 1872  
 1871  
 1870  
 1869  
 1868  
 1867  
 1866  
 1865  
 1864  
 1863  
 1862  
 1861  
 1860  
 1859  
 1858  
 1857  
 1856  
 1855  
 1854  
 1853  
 1852  
 1851  
 1850  
 1849  
 1848  
 1847  
 1846  
 1845  
 1844  
 1843  
 1842  
 1841  
 1840  
 1839  
 1838  
 1837  
 1836  
 1835  
 1834  
 1833  
 1832  
 1831  
 1830  
 1829  
 1828  
 1827  
 1826  
 1825  
 1824  
 1823  
 1822  
 1821  
 1820  
 1819  
 1818  
 1817  
 1816  
 1815  
 1814  
 1813  
 1812  
 1811  
 1810  
 1809  
 1808  
 1807  
 1806  
 1805  
 1804  
 1803  
 1802  
 1801  
 1800  
 1799  
 1798  
 1797  
 1796  
 1795  
 1794  
 1793  
 1792  
 1791  
 1790  
 1789  
 1788  
 1787  
 1786  
 1785  
 1784  
 1783  
 1782  
 1781  
 1780  
 1779  
 1778  
 1777  
 1776  
 1775  
 1774  
 1773  
 1772  
 1771  
 1770  
 1769  
 1768  
 1767  
 1766  
 1765  
 1764  
 1763  
 1762  
 1761  
 1760  
 1759  
 1758  
 1757  
 1756  
 1755  
 1754  
 1753  
 1752  
 1751  
 1750  
 1749  
 1748  
 1747  
 1746  
 1745  
 1744  
 1743  
 1742  
 1741  
 1740  
 1739  
 1738  
 1737  
 1736  
 1735  
 1734  
 1733  
 1732  
 1731  
 1730  
 1729  
 1728  
 1727  
 1726  
 1725  
 1724  
 1723  
 1722  
 1721  
 1720  
 1719  
 1718  
 1717  
 1716  
 1715  
 1714  
 1713  
 1712  
 1711  
 1710  
 1709  
 1708  
 1707  
 1706  
 1705  
 1704  
 1703  
 1702  
 1701  
 1700  
 1699  
 1698  
 1697  
 1696  
 1695  
 1694  
 1693  
 1692  
 1691  
 1690  
 1689  
 1688  
 1687  
 1686  
 1685  
 1684  
 1683  
 1682  
 1681  
 1680  
 1679  
 1678  
 1677  
 1676  
 1675  
 1674  
 1673  
 1672  
 1671  
 1670  
 1669  
 1668  
 1667  
 1666  
 1665  
 1664  
 1663  
 1662  
 1661  
 1660  
 1659  
 1658  
 1657  
 1656  
 1655  
 1654  
 1653  
 1652  
 1651  
 1650  
 1649  
 1648  
 1647  
 1646  
 1645  
 1644  
 1643  
 1642  
 1641  
 1640  
 1639  
 1638  
 1637  
 1636  
 1635  
 1634  
 1633  
 1632  
 1631  
 1630  
 1629  
 1628  
 1627  
 1626  
 1625  
 1624  
 1623  
 1622  
 1621  
 1620  
 1619  
 1618  
 1617  
 1616  
 1615  
 1614  
 1613  
 1612  
 1611  
 1610  
 1609  
 1608  
 1607  
 1606  
 1605  
 1604  
 1603  
 1602  
 1601  
 1600  
 1599  
 1598  
 1597  
 1596  
 1595  
 1594  
 1593  
 1592  
 1591  
 1590  
 1589  
 1588  
 1587  
 1586  
 1585  
 1584  
 1583  
 1582  
 1581  
 1580  
 1579  
 1578  
 1577  
 1576  
 1575  
 1574  
 1573  
 1572  
 1571  
 1570  
 1569  
 1568  
 1567  
 1566  
 1565  
 1564  
 1563  
 1562  
 1561  
 1560  
 1559  
 1558  
 1557  
 1556  
 1555  
 1554  
 1553  
 1552  
 1551  
 1550  
 1549  
 1548  
 1547  
 1546  
 1545  
 1544  
 1543  
 1542  
 1541  
 1540  
 1539  
 1538  
 1537  
 1536  
 1535  
 1534  
 1533  
 1532  
 1531  
 1530  
 1529  
 1528  
 1527  
 1526  
 1525  
 1524  
 1523  
 1522  
 1521  
 1520  
 1519  
 1518  
 1517  
 1516  
 1515  
 1514  
 1513  
 1512  
 1511  
 1510  
 1509  
 1508  
 1507  
 1506  
 1505  
 1504  
 1503  
 1502  
 1501  
 1500  
 1499  
 1498  
 1497  
 1496  
 1495  
 1494  
 1493  
 1492  
 1491  
 1490  
 1489  
 1488  
 1487  
 1486  
 1485  
 1484  
 1483  
 1482  
 1481  
 1480  
 1479  
 1478  
 1477  
 1476  
 1475  
 1474  
 1473  
 1472  
 1471  
 1470  
 1469  
 1468  
 1467  
 1466  
 1465  
 1464  
 1463  
 1462  
 1461  
 1460  
 1459  
 1458  
 1457  
 1456  
 1455  
 1454  
 1453  
 1452  
 1451  
 1450  
 1449  
 1448  
 1447  
 1446  
 1445  
 1444  
 1443  
 1442  
 1441  
 1440  
 1439  
 1438  
 1437  
 1436  
 1435  
 1434  
 1433  
 1432  
 1431  
 1430  
 1429  
 1428  
 1427  
 1426  
 1425  
 1424  
 1423  
 1422  
 1421  
 1420  
 1419  
 1418  
 1417  
 1416  
 1415  
 1414  
 1413  
 1412  
 1411  
 1410  
 1409  
 1408  
 1407  
 1406  
 1405  
 1404  
 1403  
 1402  
 1401  
 1400  
 1399  
 1398  
 1397  
 1396  
 1395  
 1394  
 1393  
 1392  
 1391  
 1390  
 1389  
 1388  
 1387  
 1386  
 1385  
 1384  
 1383  
 1382  
 1381  
 1380  
 1379  
 1378  
 1377  
 1376  
 1375  
 1374  
 1373  
 1372  
 1371  
 1370  
 1369  
 1368  
 1367  
 1366  
 1365  
 1364  
 1363  
 1362  
 1361  
 1360  
 1359  
 1358  
 1357  
 1356  
 1355  
 1354  
 1353  
 1352  
 1351  
 1350  
 1349  
 1348  
 1347  
 1346  
 1345  
 1344  
 1343  
 1342  
 1341  
 1340  
 1339  
 1338  
 1337  
 1336  
 1335  
 1334  
 1333  
 1332  
 1331  
 1330  
 1329  
 1328  
 1327  
 1326  
 1325  
 1324  
 1323  
 1322  
 1321  
 1320  
 1319  
 1318  
 1317  
 1316  
 1315  
 1314  
 1313  
 1312  
 1311  
 1310  
 1309  
 1308  
 1307  
 1306  
 1305  
 1304  
 1303  
 1302  
 1301  
 1300  
 1299  
 1298  
 1297  
 1296  
 1295  
 1294  
 1293  
 1292  
 1291  
 1290  
 1289  
 1288  
 1287  
 1286  
 1285  
 1284  
 1283  
 1282  
 1281  
 1280  
 1279  
 1278  
 1277  
 1276  
 1275  
 1274  
 1273  
 1272  
 1271  
 1270  
 1269  
 1268  
 1267  
 1266  
 1265  
 1264  
 1263  
 1262  
 1261  
 1260  
 1259  
 1258  
 1257  
 1256  
 1255  
 1254  
 1253  
 1252  
 1251  
 1250  
 1249  
 1248  
 1247  
 1246  
 1245  
 1244  
 1243  
 1242  
 1241  
 1240  
 1239  
 1238  
 1237  
 1236  
 1235  
 1234  
 1233  
 1232  
 1231  
 1230  
 1229  
 1228  
 1227  
 1226  
 1225  
 1224  
 1223  
 1222  
 1221  
 1220  
 1219  
 1218  
 1217  
 1216  
 1215  
 1214  
 1213  
 1212  
 1211  
 1210  
 1209  
 1208  
 1207  
 1206  
 1205  
 1204  
 1203  
 1202  
 1201  
 1200  
 1199  
 1198  
 1197  
 1196  
 1195  
 1194  
 1193  
 1192  
 1191  
 1190  
 1189  
 1188  
 1187  
 1186  
 1185  
 1184  
 1183  
 1182  
 1181  
 1180  
 1179  
 1178  
 1177  
 1176  
 1175  
 1174  
 1173  
 1172  
 1171  
 1170  
 1169  
 1168  
 1167  
 1166  
 1165  
 1164  
 1163  
 1162  
 1161  
 1160  
 1159  
 1158  
 1157  
 1156  
 1155  
 1154  
 1153  
 1152  
 1151  
 1150  
 1149  
 1148  
 1147  
 1146  
 1145  
 1144  
 1143  
 1142  
 1141  
 1140  
 1139  
 1138  
 1137  
 1136  
 1135  
 1134  
 1133  
 1132  
 1131  
 1130  
 1129  
 1128  
 1127  
 1126  
 1125  
 1124  
 1123  
 1122  
 1121  
 1120  
 1119  
 1118  
 1117  
 1116  
 1115  
 1114  
 1113  
 1112  
 1111  
 1110  
 1109  
 1108  
 1107  
 1106  
 1105  
 1104  
 1103  
 1102  
 1101  
 1100  
 1099  
 1098  
 1097  
 1096  
 1095  
 1094  
 1093  
 1092  
 1091  
 1090  
 1089  
 1088  
 1087  
 1086  
 1085  
 1084  
 1083  
 1082  
 1081  
 1080  
 1079  
 1078  
 1077  
 1076  
 1075  
 1074  
 1073  
 1072  
 1071  
 1070  
 1069  
 1068  
 1067  
 1066  
 1065  
 1064  
 1063  
 1062  
 1061  
 1060  
 1059  
 1058  
 1057  
 1056  
 1055  
 1054  
 1053  
 1052  
 1051  
 1050  
 1049  
 1048  
 1047  
 1046  
 1045  
 1044  
 1043  
 1042  
 1041  
 1040  
 1039  
 1038  
 1037  
 1036  
 1035  
 1034  
 1033  
 1032  
 1031  
 1030  
 1029  
 1028  
 1027  
 1026  
 1025  
 1024  
 1023  
 1022  
 1021  
 1020  
 1019  
 1018  
 1017  
 1016  
 1015  
 1014  
 1013  
 1012  
 1011  
 1010  
 1009



Activity Description	Orig Dur	Early Start	Early Finish	Cal ID	Total Float
14R5DO1108 14R 4; On completion of all works under this CC	0	08NOV08	2	1,416	
<b>Drainage Improvement Works at Portion G</b>					
<b>Preliminary Works</b>					
01R6GG0102 Prepare/submit Drainage Assessment Report	90	30MAY09	27AUG09	2	6
01R6GG0104 DAF reviewed/approved by SO and DSD	90	28AUG09	25NOV09	2	6
01R6GG0112 Obtain TTA (ingress & egress) approval	0		25NOV09	2	6
01R6GG0114 Possession of Portion G - 700d of DOC	0	26NOV09		2	6
01R6GG0116 Site clearance/Site Establishment	30	10DEC09	16JAN10	1	62
3DL6GG0104 Obtain approval for Geotechnical Instrumentation	0		25NOV09	2	6
3DL6GG0106 Installation of Geotechnical Instrumentation	12	26NOV09	09DEC09	1	5
3DL6GG0108 Monitor/report Geotechnical Instrumentation	770	10DEC09	20JUL12	1	5
<b>Piling Works</b>					
15R6GG0200 Obtain SO's consent for temp. works design	0		24JAN09	1	351
15R6GG0202 Mobilization & set up for temp. platform	3	18JAN10	20JAN10	1	62
15R6GG0204 Construct steel working platform for H-piling	110	21JAN10	08JUN10	1	62
15R6GG0206 Mobilization & set up for H-piling; Wall 1	3	23APR10	26APR10	1	62
15R6GG0208 52 nos. 600mm dia. H-piles; Wall 1 @ 1.5 nr/day	35	27APR10	08JUN10	1	62
15R6GG0210 Excavate & construct skin wall 1 at Portion G	35	09JUN10	21JUL10	1	62
15R6GG0212 Mobilization & set up for H-piling; Wall 2	3	09JUN10	11JUN10	1	62
15R6GG0214 40 nos. 600mm dia. H-piles; Wall 2 @ 1.5 nr/day	27	12JUN10	15JUL10	1	62
15R6GG0216 Excavate & construct skin wall 2 at Portion G	27	16JUL10	16AUG10	1	62
<b>Drainage Improvement Works</b>					
15R6GG0301 Obtain approval of ELS design package incl MS	0		07FEB09	2	631
15R6GG0302 Install ELS & excavate shaft for pipe jacking	18	01NOV10*	20NOV10	1	0
15R6GG0304 Construct 1.5m dia. drainage by pipe jacking	30	22NOV10	28DEC10	1	44
15R6GG0306 Construct 1.5m dia. drainage by open trenching	24	29DEC10	26JAN11	1	44
15R6GG0308 Construct .75m & 1.5m U and Stepped Channel	12	27JAN11	12FEB11	1	44
15R6GG0310 Construct 3 nos. manhole & 2 nos. catchpit	35	14FEB11	25MAR11	1	44
<b>Remaining Works to be Handover to Client</b>					
15R6GG0312 Reinstate carriageway & footway	6	26MAR11	01APR11	1	44
15R6GG0402 Pre-handover inspections and remedial works	48	02APR11	02JUN11	1	44
15R6GG0404 Contractor serve notice for Works completion	7	03JUN11	09JUN11	2	452
15R6GG0408 SO issues completion certificate	21	10JUN11	30JUN11	2	452
<b>Schedule of Milestones to Cost Centre No 15R</b>					
15R6GG0502 15R 1; On completion of all temp. works	0		20NOV10	2	674



# Appendix D

---

## Implementation Status of Environmental Mitigation Measures

## IMPLEMENTATION SCHEDULE

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
<b>Air Quality</b>					
3.6.1	<p><b>Specific</b></p> <p>As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact.</p> <p>The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust) Regulation</i>, in fact, are more extensive. Therefore, it is expected that with watering the construction site every four times daily together with strict implementation of dust suppression measures as stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, the dust level is expected to be reduced by over 75%.</p> <p><b>General</b></p> <p>To further ensure compliance with the guideline and AQO limit at the ASRs at all time, it is recommended to implement the <i>Air Pollution Control (Construction Dust) Regulation</i> and include good site practice in the contract clauses to minimize cumulative dust impact. In addition, a comprehensive dust monitoring and audit programme is recommended to ensure proper implementation of the identified mitigation measures. Details of the monitoring and audit requirements are provided in a separate EM&amp;A Manual.</p> <ul style="list-style-type: none"> <li>• effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding where a scaffolding is erected around the perimeter of a building under construction;</li> <li>• dump truck for material transport should be totally enclosed by impervious sheeting;</li> <li>• any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;</li> <li>• stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>



EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
3.6.1	<ul style="list-style-type: none"> <li>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• where a site boundary adjoins a road, street or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;</li> <li>• every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet;</li> <li>• the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• stockpile of dusty materials should be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;</li> <li>• all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;</li> <li>• vehicle speed should be limited to 10 kph except on completed access roads;</li> <li>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;</li> <li>• the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and</li> <li>• the working area of excavation should be sprayed with water immediately before, during and immediately after the operations so as to maintain the entire surface wet.</li> </ul>	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>
<b>Noise</b>					
4.6.1	<p><b>During Construction</b></p> <p>Appropriate mitigation measures such as the use of quiet equipment and movable barriers will be developed to ensure that noise can be reduced to acceptable levels without causing programme delays</p> <p><i>Good Site Practice</i></p> <p>Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during construction:</p> <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;</li> <li>• machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> </ul>	DSD's Contractor	Construction Work Sites	PN 2/93 Noise from Construction Activities & EIAO	<p style="text-align: center;">N/A</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
4.6.1	<ul style="list-style-type: none"> <li>plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;</li> </ul>	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	✓
	<ul style="list-style-type: none"> <li>mobile plant should be sited as far away from NSRs as possible; and</li> </ul>				✓
	<ul style="list-style-type: none"> <li>material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>				✓
	<i>For Drill and Blast Works</i> <ul style="list-style-type: none"> <li>Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.</li> </ul>				N/A
	<ul style="list-style-type: none"> <li>Smaller blasthole patterns and longer delays should be used between dependent charges.</li> </ul>				N/A
	<ul style="list-style-type: none"> <li>Times of blasting should be established to suit the situation and firing blasts when neighbours are busy with their daily tasks (and at a regular time such as lunch time).</li> </ul>				N/A
	<i>For TBM Tunnelling</i> <ul style="list-style-type: none"> <li>For the tunnel excavation, it is anticipated that beyond the initial length (say within 30m), excavation will be carried out well within the tunnel and door should be provided to further minimize the noise nuisance to the nearby receivers.</li> </ul>				N/A
4.6.2	<p><b>During Operation</b></p> <p>Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction</p> <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site;</li> <li>machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; and</li> <li>plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.</li> </ul>	DSD's Contractor	Project Area	NCO & EIAO	N/A
<b>Water Quality</b>					
5.9.1	<p><b>During Construction</b></p> <p>Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.</p> <p><i>Precautions to be taken at any time of year when rainstorms are likely:</i></p> <ul style="list-style-type: none"> <li>Temporarily exposed surfaces should be covered e.g. by tarpaulin.</li> <li>Temporary access roads should be protected by crushed stone or gravel.</li> <li>Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.</li> </ul> <p><i>Actions to be taken when a rainstorm is imminent or forecast:</i></p> <ul style="list-style-type: none"> <li>Silt removal facilities, should be checked to ensure that they can function properly.</li> </ul>	DSD's Contractor	Construction Work Sites	Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO	✓
					✓
					✓
					✓



EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	<ul style="list-style-type: none"> <li>Chemical waste containers shall be stored below eye level.</li> </ul>				✓
5.9.1	<ul style="list-style-type: none"> <li>Adequate space for handling of the containers shall be provided</li> <li>Spill response kits shall be located adjacent/near to the storage areas.</li> <li>A log of chemical wastes shall be maintained.</li> <li>Incompatible chemicals shall be stored separately.</li> </ul>	DSD's Contractor	Construction Work Sites	WQO	✓
	<ul style="list-style-type: none"> <li>Spill response kits shall be located adjacent/near to the storage areas.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>A log of chemical wastes shall be maintained.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Incompatible chemicals shall be stored separately.</li> </ul>				✓
	<b>2 Responses/Action Plan</b>				
	All Workers shall be made aware of emergency telephone numbers and the location of all relevant pollution control equipment. Training be given in emergency response/action plans. The action include the following steps:				✓
	<ul style="list-style-type: none"> <li>Only trained personnel who are equipped with protective clothing and equipment shall be allowed to enter the spillage area for clean up.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Spills shall be transferred appropriate back into containers using suitable equipment.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Absorbent materials shall be used to clean up the spills and shall be disposed of as chemical wastes.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Where appropriate suitable solvents may be used to clean the contaminated area after removal of all contaminated materials.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>All necessary protective devices, safety equipment, containers and clean up materials for emergency use shall be maintained to a high standard.</li> </ul>				✓
	<b>3 Spill Clean Up and Disposal</b>				
	Effect the response plan.				✓
	Control the leakage and absorb the spillage using suitably absorbent materials.				✓
	Provide safety equipment and personal protective equipment for handling of chemical wastes would be similar to that for handling of chemicals.				✓
	<i>Safety equipment includes but is not limited to:</i>				✓
	<ul style="list-style-type: none"> <li>Fire extinguishers.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Spades, brushes, dustpan, mop and bucket (or similar readily available on site).</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Absorbent material such as dry sand, tissues and toweling (all materials readily available on-site).</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Containers including plaster bags, drums, etc.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Absorbing materials.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Pumps.</li> </ul>				✓
	<i>Personal protective equipment includes as appropriate:</i>				✓
	<ul style="list-style-type: none"> <li>First-aid kits.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Safety helmet and goggles.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Gloves which can resist chemical reaction.</li> </ul>				✓

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
5.9.1	<ul style="list-style-type: none"> <li>Protective boot and clothing.</li> </ul>	DSD's Contractor	Construction Work Sites	WQO	✓
	<ul style="list-style-type: none"> <li>Respirators and gas masks.</li> </ul>				✓
	<ul style="list-style-type: none"> <li>Face visor and masks.</li> </ul>				
5.9.2	<p><b>Emergency Responses to Spillages</b></p> <p>Emergency plans and clean up procedures will need to be provided by the Contractor recognising his specific working methods and construction programme, activities and sequences. Agreement must be sought prior to commencement of the construction work but the following principles should be considered.</p> <p><i>The emergency plans should include the procedures for:</i></p> <ul style="list-style-type: none"> <li>spill prevention and precaution;</li> <li>response actions; and</li> <li>spill clean up and disposal.</li> </ul> <p><i>Spill prevention and precaution embraces good site practice and covers:</i></p> <ul style="list-style-type: none"> <li>good housekeeping practices;</li> <li>chemical storage requirements; and</li> <li>chemical transfer and transport.</li> </ul>				✓ ✓ ✓ ✓ ✓ ✓
5.9.3	<p><b>During Operation</b></p> <p>Regular inspection of the tunnels is essential to monitor the structural integrity and proper functioning of the drainage tunnel, which allows repairing of structural deterioration when it begins to develop. It is recommended that routine inspection shall be carried out at least two times per year for the drainage tunnel at the beginning and end of wet season from April to September.</p>	DSD's Contractor	Project Area		N/A
<b>Waste Management</b>					
6.5.1	<p><b>During Construction</b></p> <p><i>Vegetation Removed from Site Clearance</i> Wastes generated from site clearance shall be sorted and excavated topsoil segregated from roots for re-use in landscaping works, thus eliminating the need for off-site disposal.</p>	DSD's Contractor	Construction Work Sites	Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Wastes) (General) Regulation (Cap 354) and ETWBTC No. 15/2003, Waste anagement on Construction Site	✓
	<p><i>Construction and Demolition Materials</i> The Contractor should reuse any C&amp;D material on-site. C&amp;D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal. The use of wooden hoardings shall not be allowed. An alternative material, which can be reused or recycled, for example, metal (aluminium, alloy, etc) shall be used.</p>				✓

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
6.5.1	As referred to the section 6.4.1, the 317,936m <sup>3</sup> of inert surplus material generated by the project is suitable for public fill. The public fill reception facility at Tuen Mun Area 38 provides a suitable facility for the reuse of surplus inert C&D material generated from the project.	DSD's Contractor	Construction Work Sites	WDO (Cap.354), ETWBTC No. 15/2003, ETWBTC No. 12/2002 and ETWBTC No. 31/2004	
	Under the contract, the contractor will be required to minimise the generation of C&D material and reuse it on site through the following:				
	(a) to plan in the design and construction, methods to minimise the generation of C&D material;				✓
	(b) to submit a Waste Management Plan (WMP) in accordance with Environment Transport and Works Bureau Technical Circular (ETWBTC) No. 15/2003 or any superseding circular(s);				✓
	(c) to reuse recycled aggregates in accordance with ETWBTC No. 12/2002 or any superseding circular(s);				✓
	(d) to observe the requirements of the Trip-Ticket System, stipulated in ETWBTC No. 31/2004 or any superceding circular(s), for disposal of C&D material;				✓
	(e) to incorporate a Waste Management System into the WMP for effective management and control of C&D materials to avoid/reduce/minimise the generation of C&D material during construction.				✓
	The contractor will be required to properly sort into inert C&D materials, metals, timber and other non-inert C&D material in the workplace to prevent cross-contamination.				✓
	In addition, DSD will conduct site inspection to monitor the contractors' performance in the implementation of the WMP and other relevant specified requirements.	DSD	Construction Work Sites	WDO (Cap.354) and ETWBTC No. 15/2003	✓
	<i>Excavated Materials</i> Excavated materials should be segregated from other wastes to avoid contamination thereby ensuring acceptability at public filling areas and avoiding the need for disposal at landfill.	DSD's Contractor	Construction Work Sites	WDO (Cap.354) and ETWBTC No. 15/2003	✓
	<i>Municipal Waste</i> Temporary refuse collection facilities should be set-up by the contractor and wastes should be stored in appropriate containers prior to collection and disposal.				✓
	Domestic effluent generated by the workforce will be directed to foul sewer or chemical toilets if public facilities are not available.				✓
6.5.1	<i>Waste Management Plan</i> A Waste Management Plan (WMP) for the construction of the Project should be prepared as part of the contractors submission. It will provide recommendations for appropriate recycling or disposal route and should include method statement for stockpiling and transportation of the excavated material and other construction wastes should also be included in the WMP and approved before the commencement of construction. All mitigation measures arising from the approved WMP shall be fully implemented.	DSD's Contractor	Construction Work Sites	WDO (Cap.354), ETWBTC No. 15/2003 and ETWBTC No. 33/2002	✓

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	For the purpose of enhancing the management of C&D material including rock, and to minimize its generation at source, a C&D Material Management Plan (C&DMMP) has been prepared for this project and would be processed in accordance with the Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002 - Management of Construction and Demolition Material Including Rock.				N/A
<b>Ecology</b>					
7.7.1	<p><b>Avoidance</b></p> <p>The surface structures are located mainly on existing disturbed areas (ie pollution and urbanisation) and have generally avoided the natural stream sections of higher species diversity and abundance of aquatic organisms.</p> <p>The major construction activities at streams are scheduled to avoid wet season of high water flow which may adversely affect the downstream natural habitats due to the construction runoff.</p>	DSD's Contractor	Construction Work Sites	EIAO	✓
					✓
7.7.2	<p><b>Minimisation</b></p> <p>The previous discussion in Section 7.6.4 has indicated that the impacts on ecological resources due to the construction and operation of the proposed Project are generally expected to be low. The following mitigation measures to minimise impacts and disturbance to the surrounding habitats, are recommended.</p> <p><i>Measures for Construction Runoff</i> Install sheet piles/cofferdam/weir along the boundary of the works area within the stream habitats in particular Sam Dip Tam Stream and Tso Kung Tam Stream before the commencement of works to prevent construction runoff during construction. Provision of adequate designed sand/ silt removal facilities such as sand traps, silt traps and sediment basin in the areas which could potentially be affected may be required.</p> <p><i>Good Construction Practice</i></p>				✓
					✓
	<p>Erect fences along the boundary of the works area before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel onto adjacent areas, particularly the stream habitats.</p> <p>Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the remaining and surrounding natural stream habitats.</p> <p>Regularly check the work site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas.</p> <p>Prohibit and prevent open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.</p> <p>Treat any damage that may have occurred to individual major trees in the adjacent area with surgery.</p>	DSD's Contractor	Construction Work Sites	EIAO	✓
		✓			
		✓			
		✓			
		✓			
		✓			

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	Reinstate temporary work sites/disturbed areas, particularly stream of natural bottom and bank, plantation, intertidal habitat, and the areas located within the proposed Ecological Park, immediately after completion of the construction works, ie through on-site tree/shrub planting and reprovision of natural or semi-natural bottom (also refer to Section 7.7.3), in order to facilitate the recolonisation of the wildlife recorded during the baseline surveys. Tree/shrub species used should make reference from those in the surrounding area	DSD's Contractor	Construction Work Sites	EIAO	✓
7.7.3	<p><b>Compensation</b></p> <p>Provide natural stream bed (approximately 0.03 ha) for the new Dry Weather Flow Channel (created from village-orchard) by laying natural stones at Intake I-2 (Figure 7.7). The reinstated stream bed shall mimic the existing natural conditions with certain portion of big boulders creating the lentic and lotic zones for the aquatic fauna, and while it will be developed during detailed design may draw on concepts shown in Figure 2.18.</p> <p>Provide natural stream bed (approximately 0.5 ha,) for the Approach Channel and Dry Weather Flow Channel by laying natural stones at Intake I-3 (Figure 7.8). The reinstated stream bed shall mimic the existing natural conditions (rocky bottom with very limited aquatic plants) with certain portion of big boulders creating the lentic and lotic zones for the aquatic fauna, and while it will be developed during detailed design may draw on concepts shown in Figure 2.18.</p> <p>Provide natural bottom (ie retain the existing stream bed or reinstate the stream bed by providing boulders/ rocks, riprap or gabion) for the affected stream sections (Figure 7.8) in order to allow natural colonisation of aquatic fauna.</p> <p>Provide at least 2.2 ha of compensatory planting on the permanent and temporary affected plantation areas, particularly the slopes along access road and adjacent to Intake I-3 and cascade at Outfall O-1, after construction to stabilise the slope to present soil erosion and consequent stream sedimentation. Among the 2.2 ha compensatory planting, at least 0.5 ha of compensatory tree planting on the new formed slope along the access road of the Intake I-3 and 0.5 ha of compensatory tree planting over the cascade (by constructing intermediate platform) at Outfall O-1 will be provided (location refer to Figures 7.4 – 7.6). Species used for planting should take reference from the species identified in Appendix F and be native to Hong Kong or South China region.</p> <p>Provide armour rocks for the affected intertidal habitat in order to allow natural colonisation of intertidal organisms.</p>				N/A  N/A  N/A  N/A  N/A



EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
<b>Cultural Heritage</b>					
8.6	As no impacts on recorded archaeological sites or area with archaeological potential were identified within the Study Area, no mitigation measure for archaeological resources is considered necessary.				N/A
	The construction methods to be employed should seek to avoid potential vibration impacts to Kuen Yuen Tung Monastery at Lo Wai, the Western Monastery, Yuen Yuen Home for the Aged, Hong Hoi Chee Hong Temple, Chiu Yum Tsing Yuen, Tse's Grave, Wan Lin Bridge and Sam Dip Tam Rock Carving in Sam Dip Tam and the Tin Hau Temple, Yam Kom Tau Village Rural Committee and the Yeung's Ancestral Hall in Yau Kom Tau as these sites fall within 50 m of the Preferred Option of the drainage tunnel alignment or associated Intakes/Outfall construction activities. Construction works that generates excessive vibration in close proximity to these sites should be restricted to protect the building from adverse vibration impacts and to ensure that the building structures will not be damaged as a result of these impacts.	DSD's Contractor	Construction Work Sites	EIAO	N/A
	In order to ensure that no structural or superficial damage will be caused by the construction activities, a precautionary approach involving a pre-construction condition survey and establishment of appropriate vibration limits for the potentially impacted structures should be adopted. Protection measures for the potentially impacted structures, if considered necessary from the pre-construction condition survey, should be implemented prior to the commencement of construction works. Vibration monitoring during the construction phase should be undertaken as part of the EM&A programme.	Qualified archaeologist/ built heritage specialist	Construction Work Sites	EIAO	N/A
<b>Fisheries</b>					
10.6	In accordance with the guidelines in the <i>EIAO-TM</i> on fisheries impact assessment the general policy for mitigating impacts to fisheries, in order of priority are avoidance, minimization and compensation.	DSD's Contractor	Construction Work Sites	EIAO	N/A
	Impacts to fisheries resources and fishing operations have largely been avoided during the construction and operation of the drainage tunnel through the avoidance of dredging, reclamation and filling activities. Good construction practice and associated measures were recommended in Water Quality Assessment in Section 5 to control water quality impacts to within acceptable levels and are also expected to control impacts to fisheries resources. Hence, no fisheries-species mitigation measures are required during construction and operation of the drainage tunnel.				N/A

Remarks:

- ✓ Compliance of mitigation measure
- × Non-compliance of mitigation measure
- N/A Not applicable

# Appendix E

---

## Status of License and Permit



**Updated Status of Environmental Permit & Licence**

Application Date	Issued Date	Due Date	Environmental Permit / Licence	Ref No.	Account No.	Remarks
2-Jan-2008	3-Jan-2008	----	Registration as a Waste Producer	001026707	----	Contractor had received the acknowledge receipt on 3 Jan 2008.
2-Jan-2008	26-Feb-2008	----	Waste Disposal (Chemical Waste) (General) - Chemical Waste Producer	----	5111-324-M2703-01	----
2-Jan-2008	17-Jan-2008	----	Waste Disposal (Charges for Disposal of Construction Waste) Regulation - Billing Account	----	7006574	----
10-Jan-2008	10-Jan-2008	----	Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation	001026901	----	Contractor had received the acknowledge receipt on 10 Jan 2008.
25-Feb-2008	7-Aug-2008	31-Aug-2013	Water Pollution Control Ordinance – Outfall 1	001028154	Licence No.: EP760/323/012997 I	Contractor had received the acknowledge receipt on 3 March 2008. Public Notice had been issued on 16 June 2008. Application fees had been paid on 28 July 2008. Licence had been issued on 7 Aug 2008.
9-Apr-2008	29-Apr-2008	----	Notification of Change in the Registration of Chemical Waste Producer	----	5111-324-M2703-01	MCSJV's Managing Director had been changed from Mr. Richard Myrans to Mr. Christopher Shaw.
10-Apr-2008	6-May-2008	----	Further Environmental Permit	FEP-088/2008	Permit No.: FEP-01/275/2007	Contractor had received the acknowledge receipt on 17 April 2008. FEP had been issued on 6 May 2008.
11-Apr-2008	30-May-2008	----	Application for Issuance of Chits for Disposal of Construction Waste for Existing Account Holder	----	7006574	Contractor had applied extra 200 chits for further usage. Chits had been received on 10 June 2008.
18-Apr-2008	19-Jun-2008	30-Jun-2013	Water Pollution Control Ordinance – Intake 1	001029978	Licence No.: EP760/327/013315I	Contractor had received the acknowledge receipt on 8 May 2008. Application fees had been paid on 13 June 2008. Licence had been issued on 19 June 2008.

18-Apr-2008	2-Jul-08	31-Jul-2013	Water Pollution Control Ordinance – Intake 2	001029959	Licence No.: EP760/321/013020I	Contractor had received the acknowledge receipt on 8 May 2008. Application fees had been paid on 26 June 2008. Licence had been issued on 2 July 2008.
18-Apr-2008	5-Aug-2008	31-Aug-2013	Water Pollution Control Ordinance – Intake 3	001029960	Licence No.: EP760/323/013324 I	Contractor had received the acknowledge receipt on 8 May 2008. Public Notice had been issued on 16 June 2008. Application fees had been paid on 28 July 2008. Licence had been issued on 5 Aug 2008.
18-Apr-2008	26-Jun-2008	30-Jun-2013	Water Pollution Control Ordinance – Portion I	001029974	Licence No.: EP760/350/013334I	Contractor had received the acknowledge receipt on 8 May 2008. Application fees had been paid on 13 June 2008. Licence had been issued on 26 June 2008.
18-Jun-2008	27-Jun-2008	----	Variation of Environmental Permit	VEP-266/2008	Permit No.: FEP-01/275/2007/A	Contractor had received the acknowledge receipt on 23 June 2008. Licence had been issued on 27 June 2008.
23-Jul-2008	27-Aug-2008	31-Aug-2013	Water Pollution Control Ordinance – Intake 1 (Intersection of Wo Yi Hop Lane and Ho Fung College)	001031974	Licence No.: EP760/325/013536I	Contractor had applied the permit on 23 July 2008. Application fees had been paid on 19 Aug 2008. Licence had been issued on 27 Aug 2008.
21-Nov-2008	----	----	Construction Noise Permit 1) Chai Wan Kok Valve House (Near Summit Terrace - Tusen Wan) 2) Valve House (Near The Wonderland - Castle Peak Road- Ting Kau)	----	----	Waiting for EPD further notification on 21 Nov 2008.

# Appendix F

---

## Calibration Certificates

**High Volume Air Sampler Calibration Worksheet**

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel  
 Monitoring Location: Greenview Terrace  
 Calibration Date: 10-Oct-08  
 Calibration Due Date: 10-Dec-08  
 Time: 16:15

Sampler Model:	TE5005X
Serial No.:	0646
Calibrator Orifice no.:	517N
Slope (m):	2.02953
Intercept (b):	-0.01939
Correction coeff. (r)	0.9999

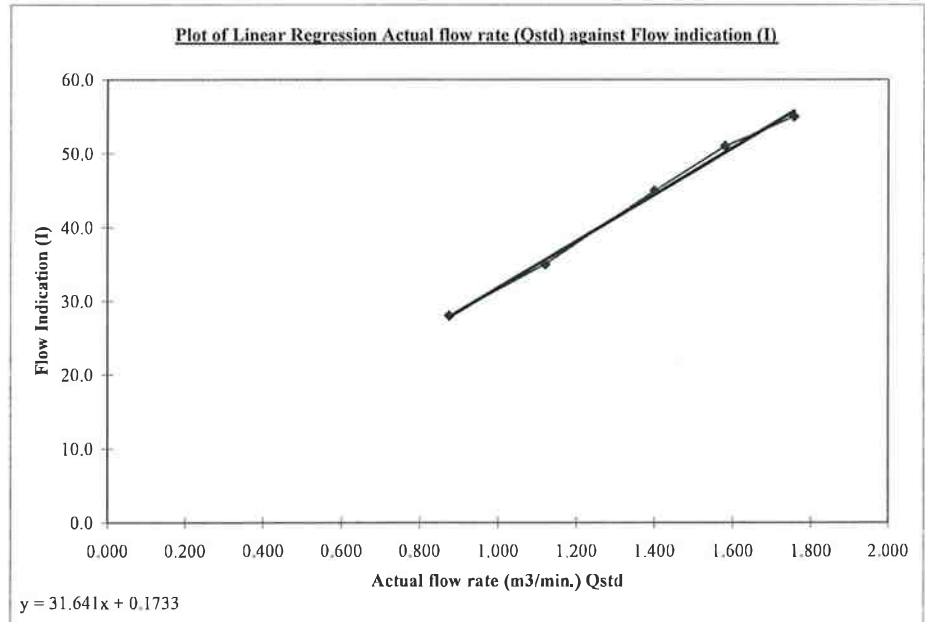
Standard pressure (mmHg) Pstd:	756.9
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	300.8

$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

$$Q_{std} = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	12.6	3.545	1.756	55.0
2	10.2	3.190	1.581	51.0
3	8.0	2.825	1.401	45.0
4	5.1	2.256	1.121	35.0
5	3.1	1.759	0.876	28.0

Correlation Coefficient : 0.9982



Remark  
 1HPa = 0.750062 mmHg

Calibrated by: **Mak Kei Ho**  
 ( *HK* )

Date: 10-10-08

Checked by: **Tang Hiu Yeung**  
 ( *HY* )

Date: 10-10-08

**High Volume Air Sampler Calibration Worksheet**

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel  
 Monitoring Location: Ho Fung College  
 Calibration Date: 10-Oct-08  
 Calibration Due Date: 10-Dec-08  
 Time: 08:30

Sampler Model:	BM2000HX
Serial No.:	4994
Calibrator Orifice no.:	517N
Slope (m):	2.02953
Intercept (b):	-0.01939
Correction coeff. (r)	0.9999

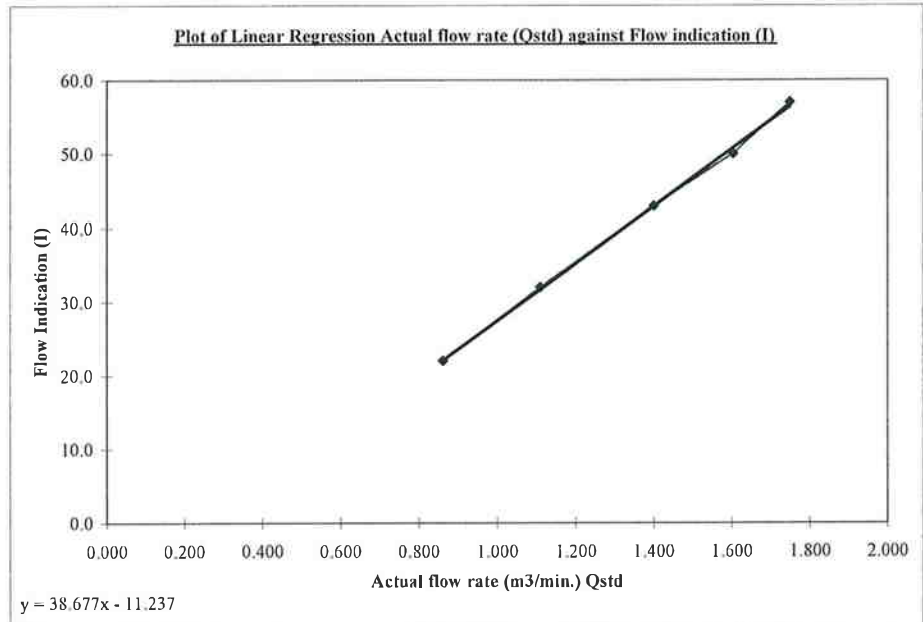
Standard pressure (mmHg) Pstd:	756.9
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	300.8

$$Flow (corrected) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

$$Q_{std} = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	12.5	3.531	1.749	57.0
2	10.5	3.236	1.604	50.0
3	8.0	2.825	1.401	43.0
4	5.0	2.233	1.110	32.0
5	3.0	1.730	0.862	22.0

Correlation Coefficient : 0.9993



Remark  
 1HPa = 0.750062 mmHg

Calibrated by: **Mak Kei Ho**  
 ( *MKH* )

Date: 10-10-08

Checked by: **Tang Hiu Yeung**  
 ( *HY* )

Date: 10-10-08

**High Volume Air Sampler Calibration Worksheet**

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel  
 Monitoring Location: Heng Hoi Chi Hong Ship Temple  
 Calibration Date: 10-Oct-08  
 Calibration Due Date: 10-Dec-08  
 Time: 10:58

Sampler Model:	BM2000HX
Serial No.:	5875
Calibrator Orifice no.:	517N
Slope (m):	2.02953
Intercept (b):	-0.01939
Correction coeff. (r)	0.9999

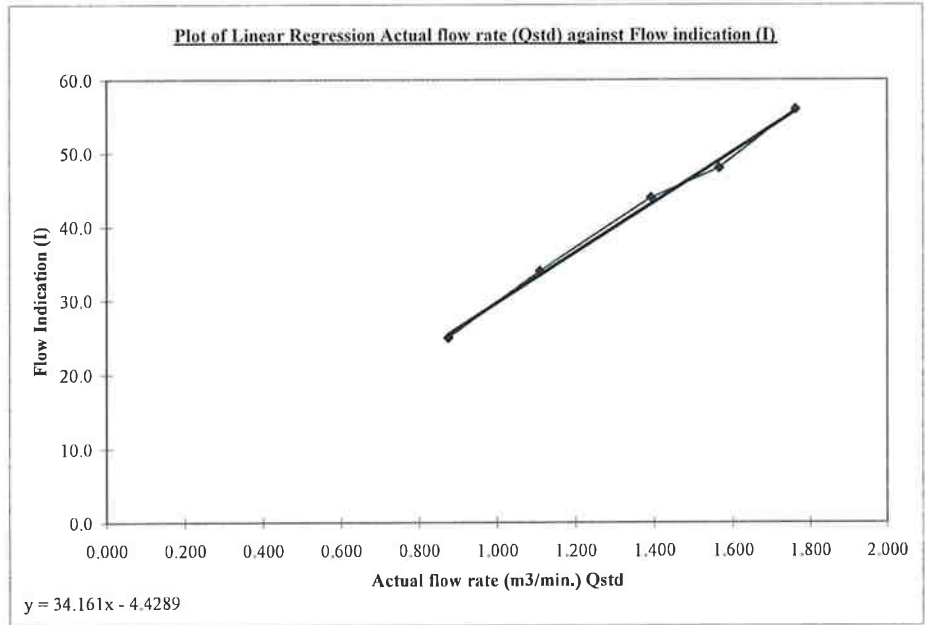
Standard pressure (mmHg) Pstd:	756.9
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	300.8

$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

$$Qstd = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	12.7	3.559	1.763	56.0
2	10.0	3.158	1.566	48.0
3	7.9	2.807	1.393	44.0
4	5.0	2.233	1.110	34.0
5	3.1	1.759	0.876	25.0

Correlation Coefficient : 0.9980



Remark  
 1HPa = 0.750062 mmHg

Calibrated by: **Mak Kei Ho**  
 ( *Ho* )

Date: 10-10-08

Checked by: **Tang Hiu Yeung**  
 ( *Hy* )

Date: 10-10-08



**High Volume Air Sampler Calibration Worksheet**

**Project Title:** Design and Construction of Tsuen Wan Drainage Tunnel  
**Monitoring Location:** Long Beach Gardan  
**Calibration Date:** 10-Oct-08  
**Calibration Due Date:** 10-Dec-08  
**Time:** 15:45

Sampler Model:	TE5005X
Serial No.:	0390
Calibrator Orifice no.:	517N
Slope (m):	2.02953
Intercept (b):	-0.01939
Correction coeff. (r)	0.9999

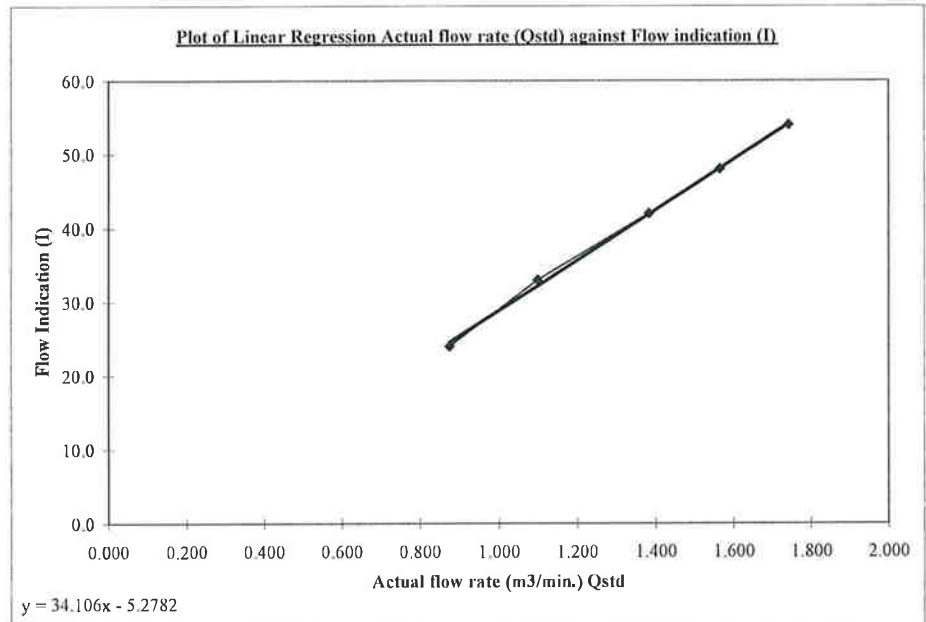
Standard pressure (mmHg) Pstd:	756.9
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	300.8

$$Flow(\text{corrected}) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

$$Q_{std} = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	12.4	3.517	1.742	54.0
2	10.0	3.158	1.566	48.0
3	7.8	2.789	1.384	42.0
4	4.9	2.211	1.099	33.0
5	3.1	1.759	0.876	24.0

Correlation Coefficient : 0.9991



Remark  
 1HPa = 0.750062 mmHg

**Calibrated by:** Mak Kei Ho  
 ( *MKH* )

**Date:** 10-10-08

**Checked by:** Tang Hiu Yeung  
 ( *THY* )

**Date:** 10-10-08



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 28, 2008 Rootsmeter S/N 9833620 Ta (K) - 296  
 Operator: Tisch Orifice I.D. - 517N Pa (mm) - 749.3

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	1.4040	3.2	2.00
2	NA	NA	1.00	0.9940	6.4	4.00
3	NA	NA	1.00	0.8860	7.9	5.00
4	NA	NA	1.00	0.8450	8.8	5.50
5	NA	NA	1.00	0.6980	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9883	0.7039	1.4090	0.9957	0.7092	0.8889
0.9841	0.9901	1.9926	0.9915	0.9975	1.2570
0.9820	1.1084	2.2278	0.9894	1.1167	1.4054
0.9809	1.1608	2.3365	0.9882	1.1695	1.4740
0.9756	1.3977	2.8179	0.9829	1.4082	1.7777
Qstd slope (m) = 2.02953			Qa slope (m) = 1.27086		
intercept (b) = -0.01939			intercept (b) = -0.01223		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

$$Vstd = \text{Diff. Vol} [(Pa - \text{Diff. Hg}) / 760] (298 / Ta)$$

$$Qstd = Vstd / \text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg}) / Pa]$$

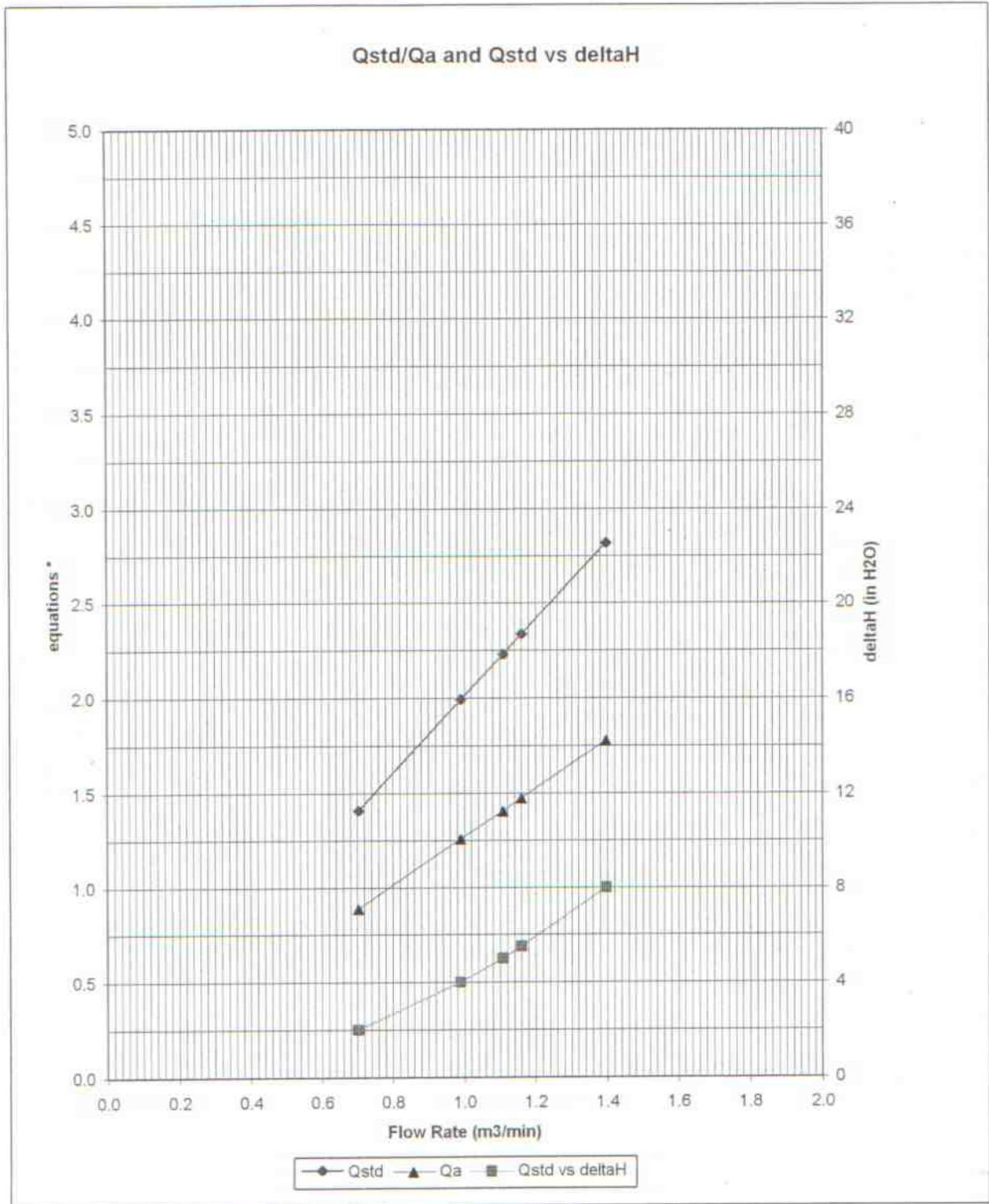
$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

$$Qa = 1/m \{ [\text{SQRT} \text{H2O}(\text{Ta}/\text{Pa})] - b \}$$

AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

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

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

#517N

# Calibration Certificate

Certificate No. **80026**

Page 1 of 3 Pages

**Customer :** Hyder Consulting Limited

**Address :** Room 3801., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

**Order No. :** Q72325

**Date of receipt :** 3-Jan-08

## Item Tested

**Description :** Sound Level Meter

**Manufacturer :** B&K

**Model :** 2238

**Serial No. :** 2285726

## Test Conditions

**Date of Test :** 17-Jan-08

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Calibration procedure : Z01.

## Test Results

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

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C071115	14-Mar-08	SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR

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

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

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

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

**Approved by :**   
Dorothy Cheuk

**Date:** 17-Jan-08

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

The copyright of this certificate is owned by Hong Kong Calibration Ltd. It may not be reproduced except in full.



# Calibration Certificate

Certificate No. **80026**

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

Range	UUT Setting			Applied Value (dB)	UUT Reading (dB)
	Freq. Wgt.	Bandwith	Center Freq.		
20 ~ 100	A	BB/F	--	94.03	93.9
	A	BB/S	--		93.9
	C	BB/F	--		93.9
40 ~ 120	A	BB/F	--	94.03	94.0
	A	BB/F	--	113.97	113.8

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB  
Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. :  $\pm 0.3$  dB  
Uncertainty :  $\pm 0.01$  dB

## 3. Linearity

### 3.1 Level Linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.0	0.0	$\pm 0.7$ dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	--	
110	84.0	84.0	0.0	
100	74.0	74.0	0.0	
90	64.0	64.0	0.0	
80	54.0	54.0	0.0	

Uncertainty :  $\pm 0.1$  dB

### 3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	0.0	$\pm 0.4$ dB
	94.0	94.0 (Ref.)	--	
	95.0	95.0	0.0	$\pm 0.2$ dB
	104.0	103.9	0.1	$\pm 0.3$ dB
	105.0	104.9	0.1	$\pm 1.0$ dB

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 80026

Page 3 of 3 Pages

## 4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.3	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.1	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.1	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- 8.6 dB, ± 1 dB
500 Hz	- 3.2	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+ 1.2	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.0	+ 1.0 dB, ± 1 dB
8 kHz	- 1.1	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB ~ -∞

Uncertainty : ± 0.1 dB

## 5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	± 0.5 dB
1/10 <sup>2</sup>	40.0	39.6	
1/10 <sup>3</sup>	40.0	39.4	± 1.0 dB
1/10 <sup>4</sup>	40.0	39.1	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

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

3. Atmospheric pressure : 1 015 hPa.

----- END -----



Hong Kong Calibration Ltd.  
香港校正有限公司

## Calibration Certificate

Certificate No. **80027**

Page 1 of 2 Pages

**Customer :** Hyder Consulting Limited

**Address :** Room 3801., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

**Order No. :** Q72325

**Date of receipt :** 3-Jan-08

### Item Tested

**Description :** Sound Level Calibrator

**Manufacturer :** B&K

**Model :** Type 4231

**Serial No. :** 1770806

### Test Conditions

**Date of Test :** 17-Jan-08

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

### Test Specifications

Calibration check.

Calibration procedure : F21, Z02.

### Test Results

All results were within the IEC 942 Class 1 specification.  
The results are shown in the attached page(s).


Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	73602	7-Jul-08	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR
S041	Universal Counter	73453	22-Aug-08	SCL-HKSAR

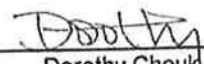
The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling,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

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

Calibrated by :

  
P.F. Wong

Approved by :

  
Dorothy Cheuk

Date: 17-Jan-08

This Certificate is issued by:  
Hong Kong Calibration Ltd.  
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-75, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.  
Tel: 2425 8801 Fax: 2425 8848

The copyright of this certificate is owned by Hong Kong Calibration Ltd.. It may not be reproduced except in full.



Wissenschaftlich-Technische Werkstätten GmbH  
Dr.Karl-Slevogt-Str.1 D-82362 Weilheim

## Manufacturer's Test Certificate Hersteller - Prüfzertifikat

Product / Produkt: **Multi-parameter instrument / Mehrparameter-Meßgerät**  
Model / Modell: **pH/Oxi 340i**  
Serial no. / Serien-Nr. **08101283**

The a.m. product has been checked by us and complies with the demanded specifications.

Das oben genannte Produkt wurde von uns geprüft und entspricht den geforderten Spezifikationen.

Accuracy of the pH measurement:  
 $\leq 0,01 \text{ pH} \pm 1 \text{ digit}$

Genauigkeit der pH-Messung:  
 $\leq 0,01 \text{ pH} \pm 1 \text{ Digit}$

Accuracy of the voltage measurement:  
 $\leq 1 \text{ mV} \pm 1 \text{ digit}$

Genauigkeit der Spannungsmessung:  
 $\leq 1 \text{ mV} \pm 1 \text{ Digit}$

Accuracy of the oxygen measurement:  
 $\leq 0,5\% \text{ of measured value} \pm 1 \text{ digit}$

Genauigkeit der Sauerstoff-Messung:  
 $\leq 0,5\% \text{ vom Meßwert} \pm 1 \text{ Digit}$

Accuracy of the temperature measurement:  
 $\leq 0,1 \text{ K} \pm 1 \text{ digit}$

Genauigkeit der Temperaturmessung:  
 $\leq 0,1 \text{ K} \pm 1 \text{ Digit}$

The test equipment used for checking is regularly calibrated by means of a precision multimeter (HP 3458A, Ser.-No. 2823 A 09038) which itself is annually calibrated in a laboratory accredited to the national German Calibration Service DKD (EADS Deutschland GmbH, DKD-K-01901). This ensures the traceability to national and international standards.

Die zur Prüfung eingesetzten Prüfmittel werden regelmäßig anhand eines Präzisionsmultimeters (HP 3458A, Ser.-Nr. 2823 A 09038) kalibriert, das seinerseits jährlich in einem DKD-Labor kalibriert wird (EADS Deutschland GmbH, DKD-K-01901). Damit ist der Anschluß an nationale und internationale Normale gewährleistet.

Weilheim, 07.04.2008

WISSENSCHAFTLICH-TECHNISCHE WERKSTÄTTEN GMBH

Dr.K.Löhnert

Quality Manager / Leiter Qualitätssicherung



**TEST REPORT**

**Report No.** : 107244N  
**Project Name** : Calibration of Field measurement equipment  
**Customer** : Hyder Consulting Limited  
**Address** : 47/F, Hopewell Centre, 183 Queen's Road East, Wanchai, Hong Kong

<b>Lab Job No.</b> : J651	<b>Lab Sample No.</b> : 21456/1
<b>Sample Description</b> : One Turbidimeter and four turbidity standards.	
<b>Sample Receipt Date</b> : 13-10-2008	<b>Test Period</b> : 14-10-2008

**Test Information**

Test Parameter	Test Procedure
Calibraion of Turbidimeter and Turbidity Standard	In-house Method IC 42

- Notes :
1. This report shall not be reproduced, except in full, without prior written approval from Lam Laboratories Limited.
  2. Results related to sample(s) as received.
  3. Results satisfy all in-house QA/QC protocols as attached.

**Authorized Signatory** :

  
 \_\_\_\_\_  
 WONG Yau Tim  
 (Operation Manager)

**Issue Date** :

14-10-2008

**TEST REPORT**

**Report No.** : 107244N  
**Project Name** : Calibration of Field measurement equipment  
**Customer** : Hyder Consulting Limited

---

**Lab Job No.** : J651 **Lab Sample No.** : 21456/1

---

**Test Results**

Value re-assignment for Turbidity Standards:

Customer Ref.	Measured value (NTU)
STD 1	0.00
STD 2	17.74
STD 3	102
STD 4	893

Linearity check for Turbidimeter:

Serial No.	Linearity range (NTU)
215619	0-100

**- End of Report -**

# CERTIFICATE OF ANALYSIS



**Batch:** HK0816176  
**Date of Issue:** 03/10/2008  
**Client:** HYDER CONSULTING LTD  
**Client Reference:**

## Calibration of pH System

**Item :** Multi-parameter Instrument / Mehrparameter-MeBgerat  
**Model No. :** WTW pH / Oxi 340i  
**Serial No. :** 08101283  
**Equipment No.:** --  
**Calibration Method :** This meter was calibrated in accordance with standard method APHA (19th Ed.) 4500-H<sup>+</sup>B  
**Date of Calibration :** 03 October, 2008

## Testing Results :

Expected Reading	Recording Reading
4.00	3.90
7.00	6.98
10.0	9.95
Allowing Deviation	± 0.2

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS



**Batch:** HK0816176  
**Date of Issue:** 03/10/2008  
**Client:** HYDER CONSULTING LTD  
**Client Reference:**

## Calibration of DO System

**Item :** Multi-parameter Instrument / Mehrparameter-Meßgerät  
**Model No. :** WTW pH / Oxi 340i  
**Serial No. :** 08101283  
**Equipment No. :** --  
**Calibration Method :** This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-OC & G  
**Date of Calibration :** 03 October, 2008

## Testing Results :

Expected Reading	Recording Reading
3.41 mg/L	3.46 mg/L
5.62 mg/L	5.48 mg/L
7.34 mg/L	7.37 mg/L
Allowing Deviation	±0.2 mg/L

  
Ms Wong Wai Man, Alice  
Laboratory Manager - Hong Kong

# Appendix G

---

## Monitoring Locations

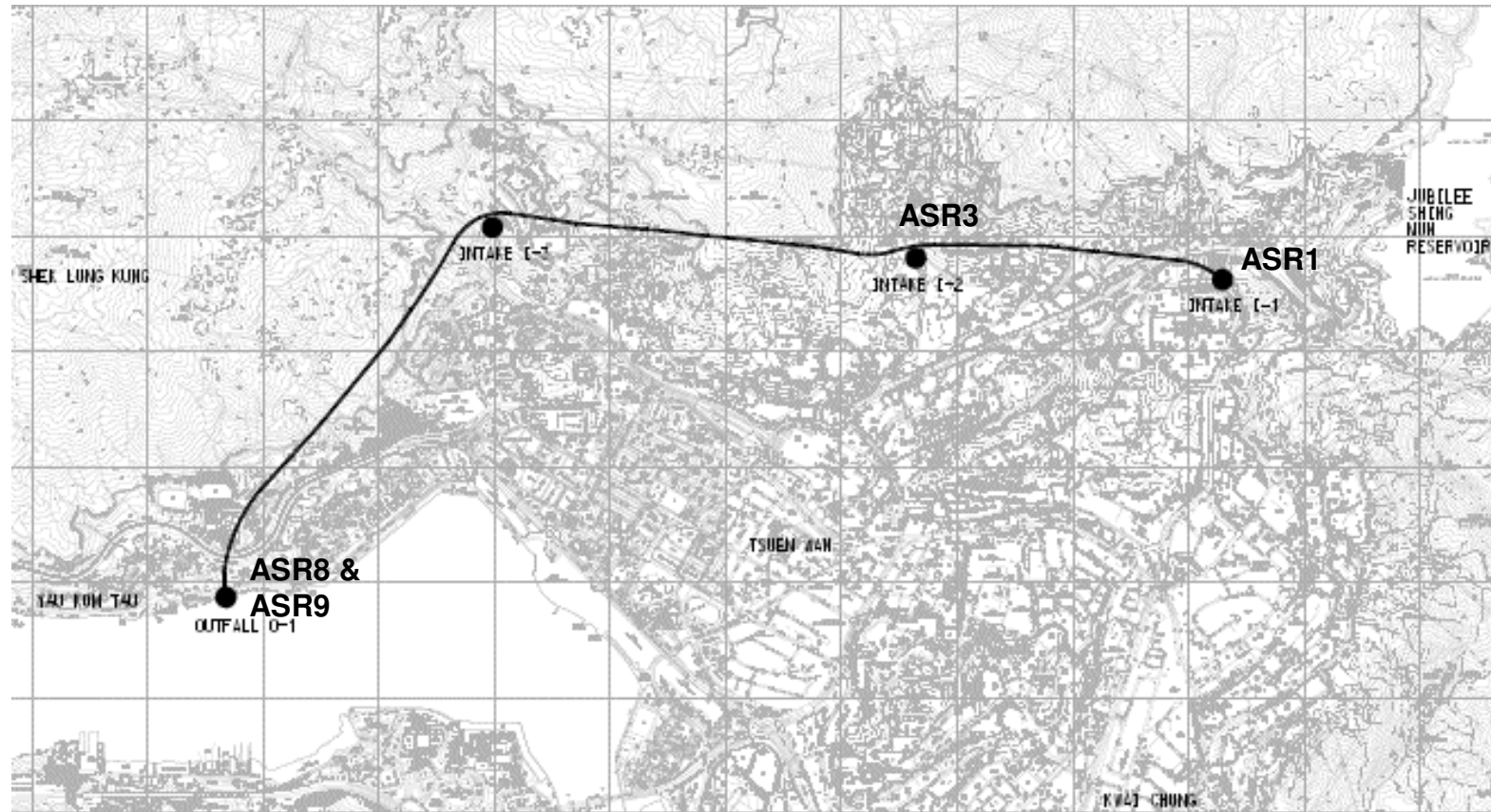


Figure 1 Air Quality Monitoring Stations

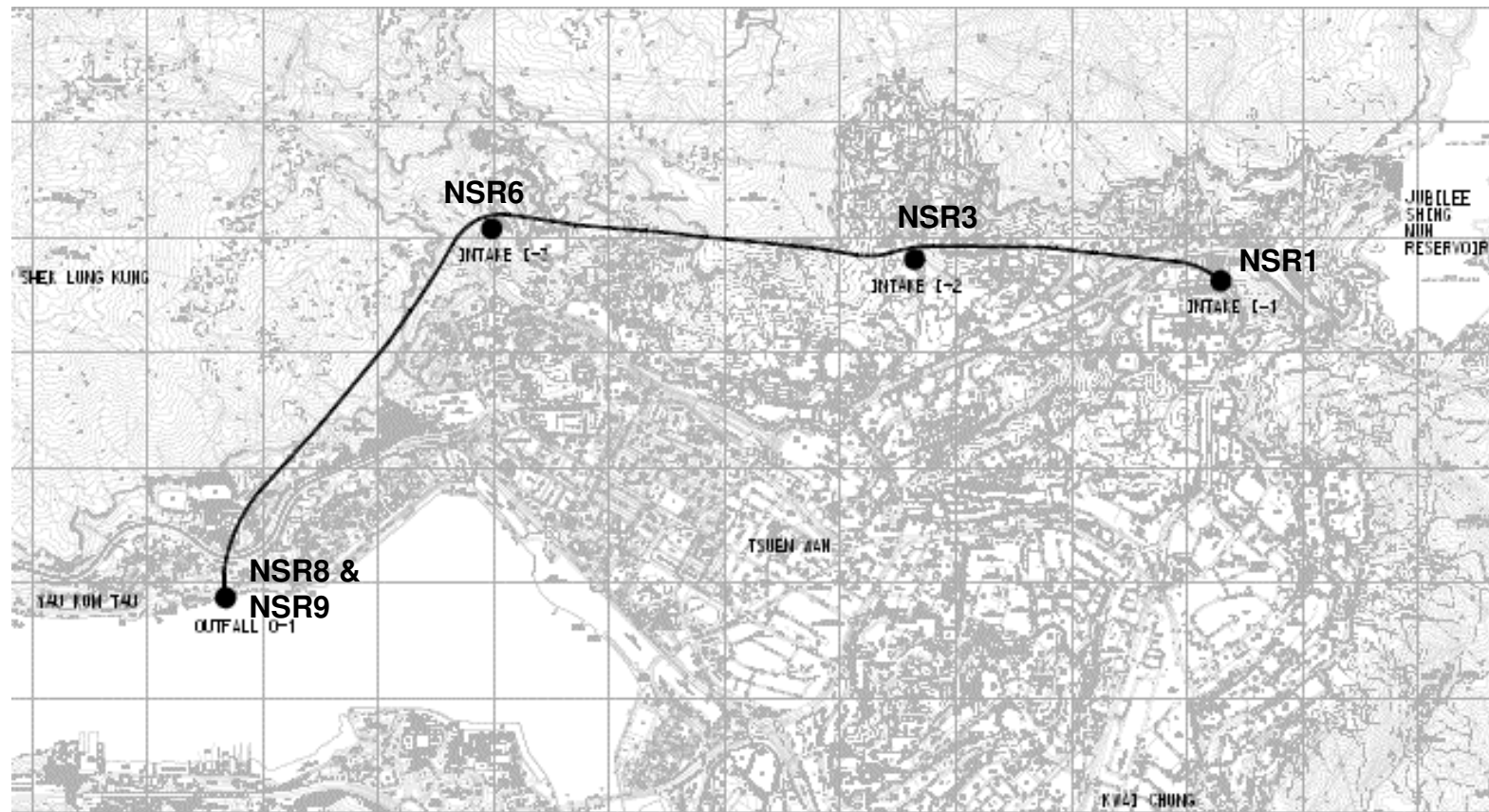


Figure 2 Noise Monitoring Stations

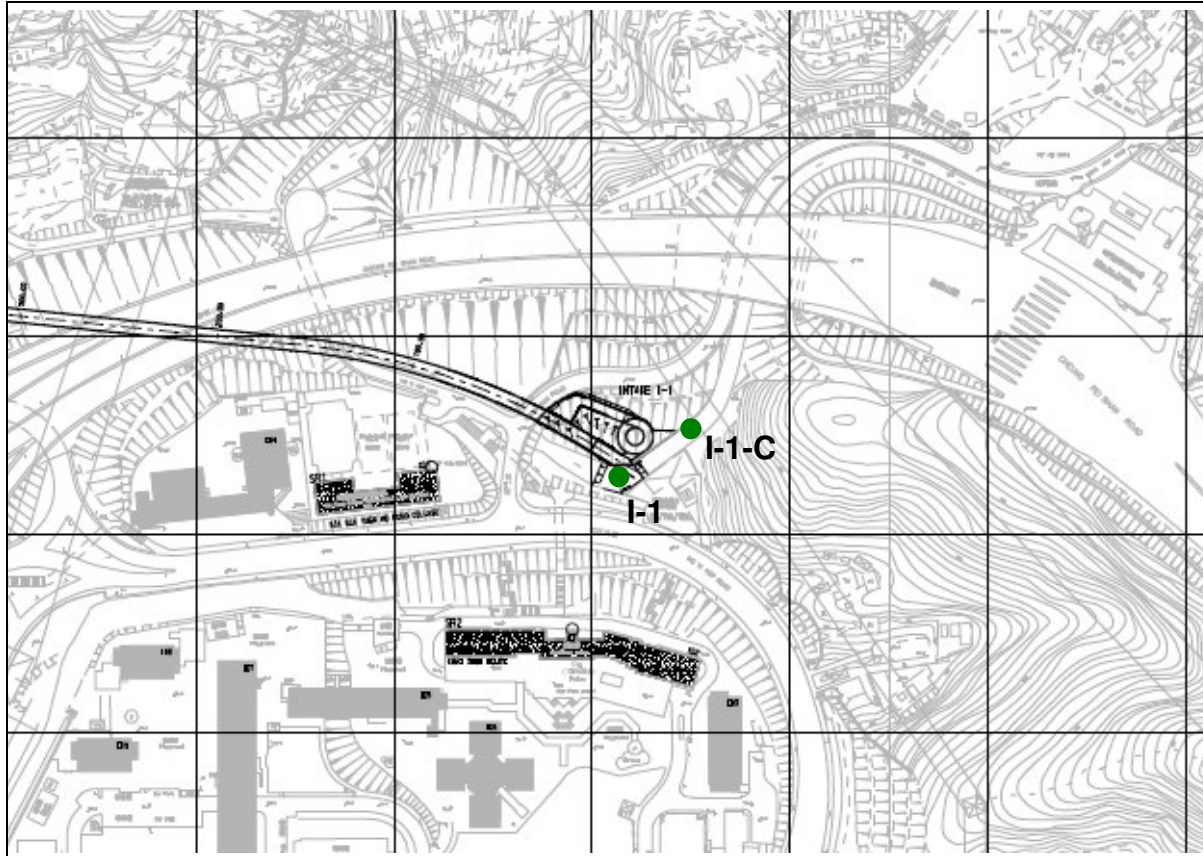


Figure 3 Water Quality Monitoring Stations: I-1 & I-1-C at Intake I-1



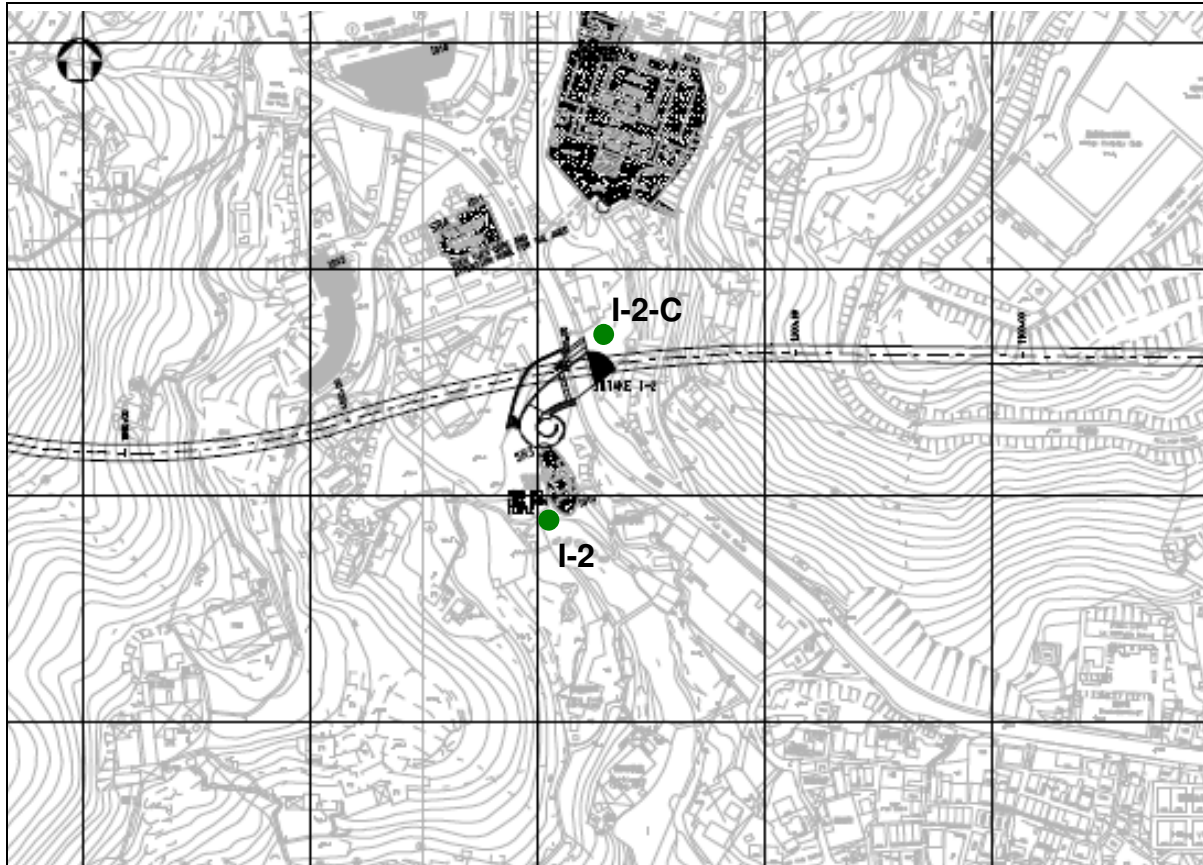


Figure 4 Water Quality Monitoring Stations: I-2 & I-2-C at Intake I-2

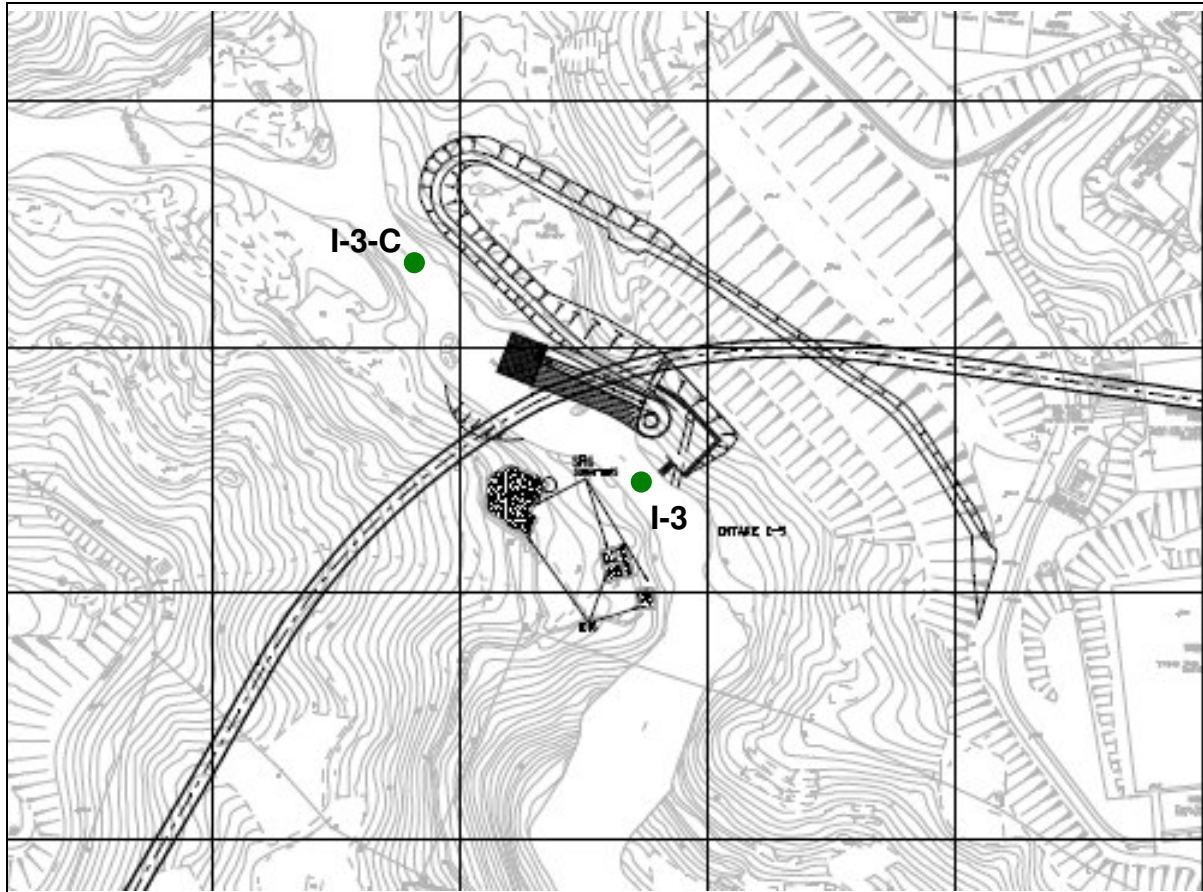


Figure 5 Water Quality Monitoring Stations: I-3 & I-3-C at Intake I-3

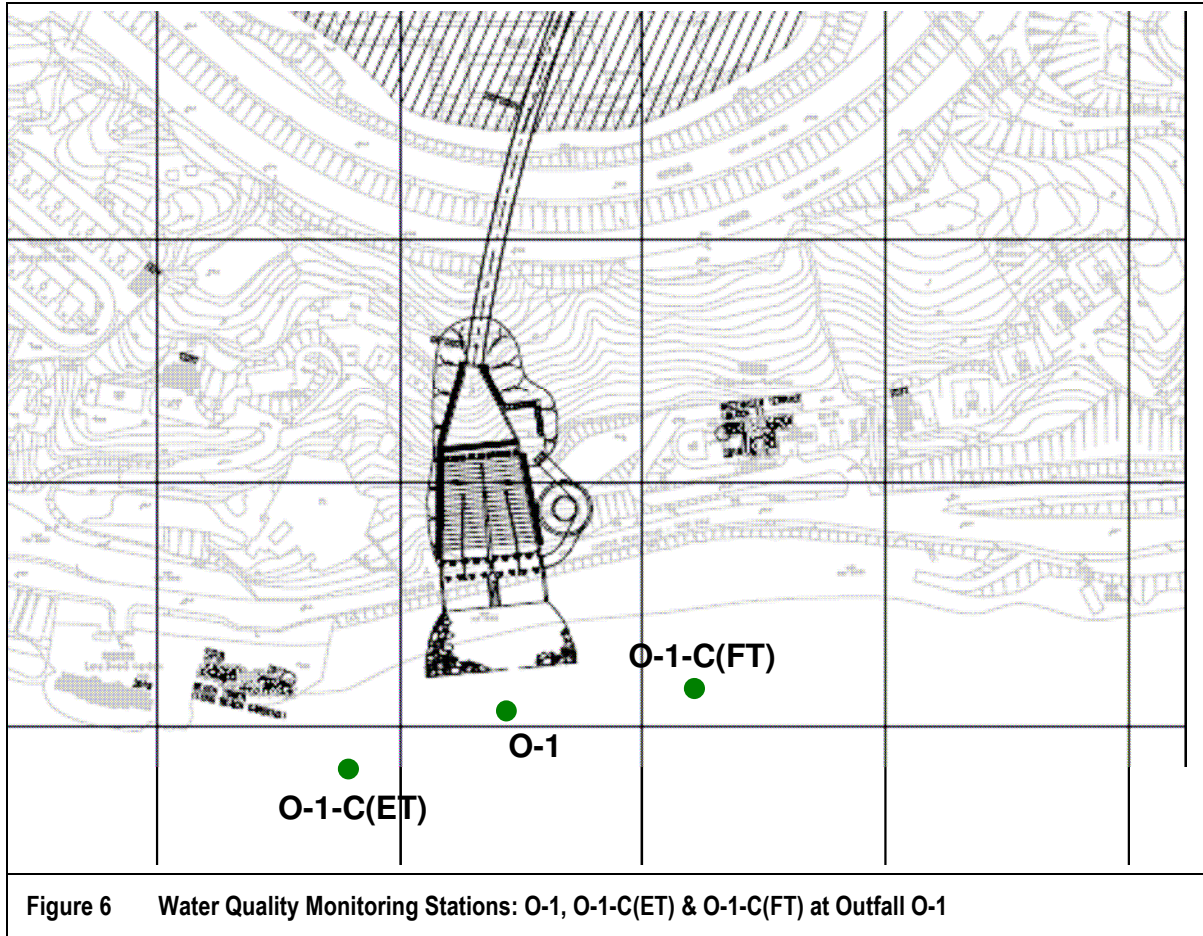


Figure 6 Water Quality Monitoring Stations: O-1, O-1-C(ET) & O-1-C(FT) at Outfall O-1

# Appendix H

---

## EM&A Schedule

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – November 2008**

Date		Air	Noise	Water
01-Nov-08	Sat			
02-Nov-08	Sun			
03-Nov-08	Mon			✓
04-Nov-08	Tue	✓	✓	
05-Nov-08	Wed			✓
06-Nov-08	Thu			
07-Nov-08	Fri			✓
08-Nov-08	Sat			
09-Nov-08	Sun			
10-Nov-08	Mon	✓	✓	✓
11-Nov-08	Tue			
12-Nov-08	Wed			✓
13-Nov-08	Thu			
14-Nov-08	Fri			✓
15-Nov-08	Sat	✓		
16-Nov-08	Sun			
17-Nov-08	Mon			✓
18-Nov-08	Tue			
19-Nov-08	Wed			✓
20-Nov-08	Thu			
21-Nov-08	Fri	✓	✓	✓
22-Nov-08	Sat			
23-Nov-08	Sun			
24-Nov-08	Mon			✓
25-Nov-08	Tue			
26-Nov-08	Wed			✓
27-Nov-08	Thu	✓	✓	
28-Nov-08	Fri			✓
29-Nov-08	Sat			
30-Nov-08	Sun			

Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

Noise – Noise measurements is undertaken once every week at (0700-1900 Monday to Saturday)

Water – Water measurements is undertaken three times per week

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – December 2008 (Tentative)**

Date		Air	Noise	Water
01-Dec-08	Mon			✓
02-Dec-08	Tue			
03-Dec-08	Wed	✓	✓	✓
04-Dec-08	Thu			
05-Dec-08	Fri			✓
06-Dec-08	Sat			
07-Dec-08	Sun			
08-Dec-08	Mon			✓
09-Dec-08	Tue	✓	✓	
10-Dec-08	Wed			✓
11-Dec-08	Thu			
12-Dec-08	Fri			✓
13-Dec-08	Sat			
14-Dec-08	Sun			
15-Dec-08	Mon	✓	✓	✓
16-Dec-08	Tue			
17-Dec-08	Wed			✓
18-Dec-08	Thu			
19-Dec-08	Fri			✓
20-Dec-08	Sat	✓		
21-Dec-08	Sun			
22-Dec-08	Mon			✓
23-Dec-08	Tue			
24-Dec-08	Wed	✓	✓	✓
25-Dec-08	Thu			
26-Dec-08	Fri			
27-Dec-08	Sat			✓
28-Dec-08	Sun			
29-Dec-08	Mon			✓
30-Dec-08	Tue	✓	✓	
31-Dec-08	Wed			✓

Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

Noise – Noise measurements is undertaken once every week at (0700-1900 Monday to Saturday)

Water – Water measurements is undertaken three times per week

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – January 2009 (Tentative)**

Date		Air	Noise	Water
01-Jan-09	Thu			
02-Jan-09	Fri			✓
03-Jan-09	Sat			
04-Jan-09	Sun			
05-Jan-09	Mon	✓	✓	✓
06-Jan-09	Tue			
07-Jan-09	Wed			✓
08-Jan-09	Thu			
09-Jan-09	Fri			✓
10-Jan-09	Sat	✓		
11-Jan-09	Sun			
12-Jan-09	Mon			✓
13-Jan-09	Tue			
14-Jan-09	Wed			✓
15-Jan-09	Thu			
16-Jan-09	Fri	✓	✓	✓
17-Jan-09	Sat			
18-Jan-09	Sun			
19-Jan-09	Mon			✓
20-Jan-09	Tue			
21-Jan-09	Wed			✓
22-Jan-09	Thu	✓	✓	
23-Jan-09	Fri			✓
24-Jan-09	Sat	✓		
25-Jan-09	Sun			
26-Jan-09	Mon			
27-Jan-09	Tue			
28-Jan-09	Wed			
29-Jan-09	Thu			✓
30-Jan-09	Fri	✓	✓	
31-Jan-09	Sat			✓

Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

Noise – Noise measurements is undertaken once every week at (0700-1900 Monday to Saturday)

Water – Water measurements is undertaken three times per week

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – February 2009 (Tentative)**

Date		Air	Noise	Water
01-Feb-09	Sun			
02-Feb-09	Mon			✓
03-Feb-09	Tue			
04-Feb-09	Wed			✓
05-Feb-09	Thu	✓	✓	
06-Feb-09	Fri			✓
07-Feb-09	Sat			
08-Feb-09	Sun			
09-Feb-09	Mon			✓
10-Feb-09	Tue			
11-Feb-09	Wed	✓	✓	✓
12-Feb-09	Thu			
13-Feb-09	Fri			✓
14-Feb-09	Sat			
15-Feb-09	Sun			
16-Feb-09	Mon			✓
17-Feb-09	Tue	✓	✓	
18-Feb-09	Wed			✓
19-Feb-09	Thu			
20-Feb-09	Fri			✓
21-Feb-09	Sat			
22-Feb-09	Sun			
23-Feb-09	Mon	✓	✓	✓
24-Feb-09	Tue			
25-Feb-09	Wed			✓
26-Feb-09	Thu			
27-Feb-09	Fri			✓
28-Feb-09	Sat	✓		

Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

Noise – Noise measurements is undertaken once every week at (0700-1900 Monday to Saturday)

Water – Water measurements is undertaken three times per week



# Appendix I

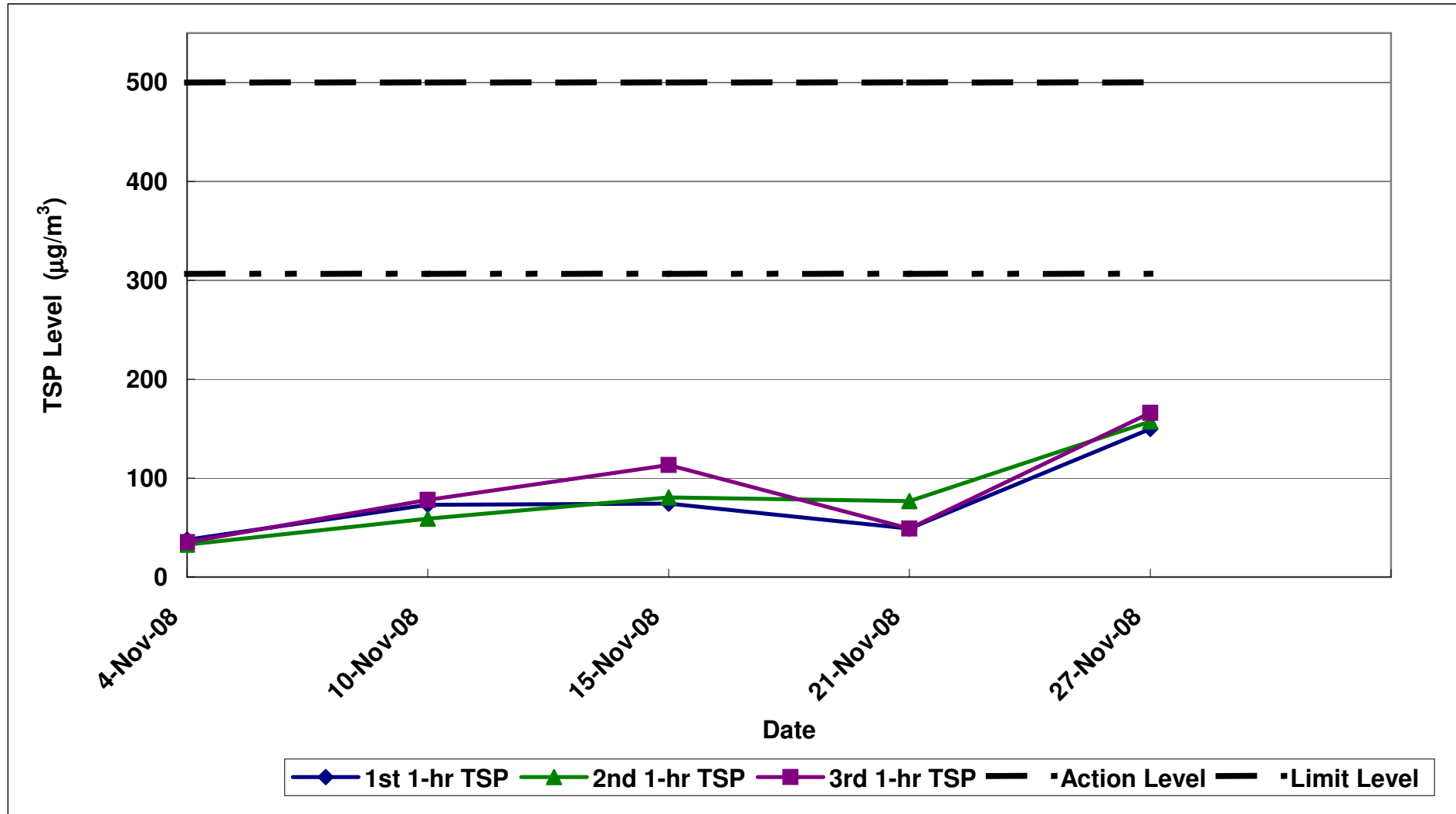
---

## Monitoring Results

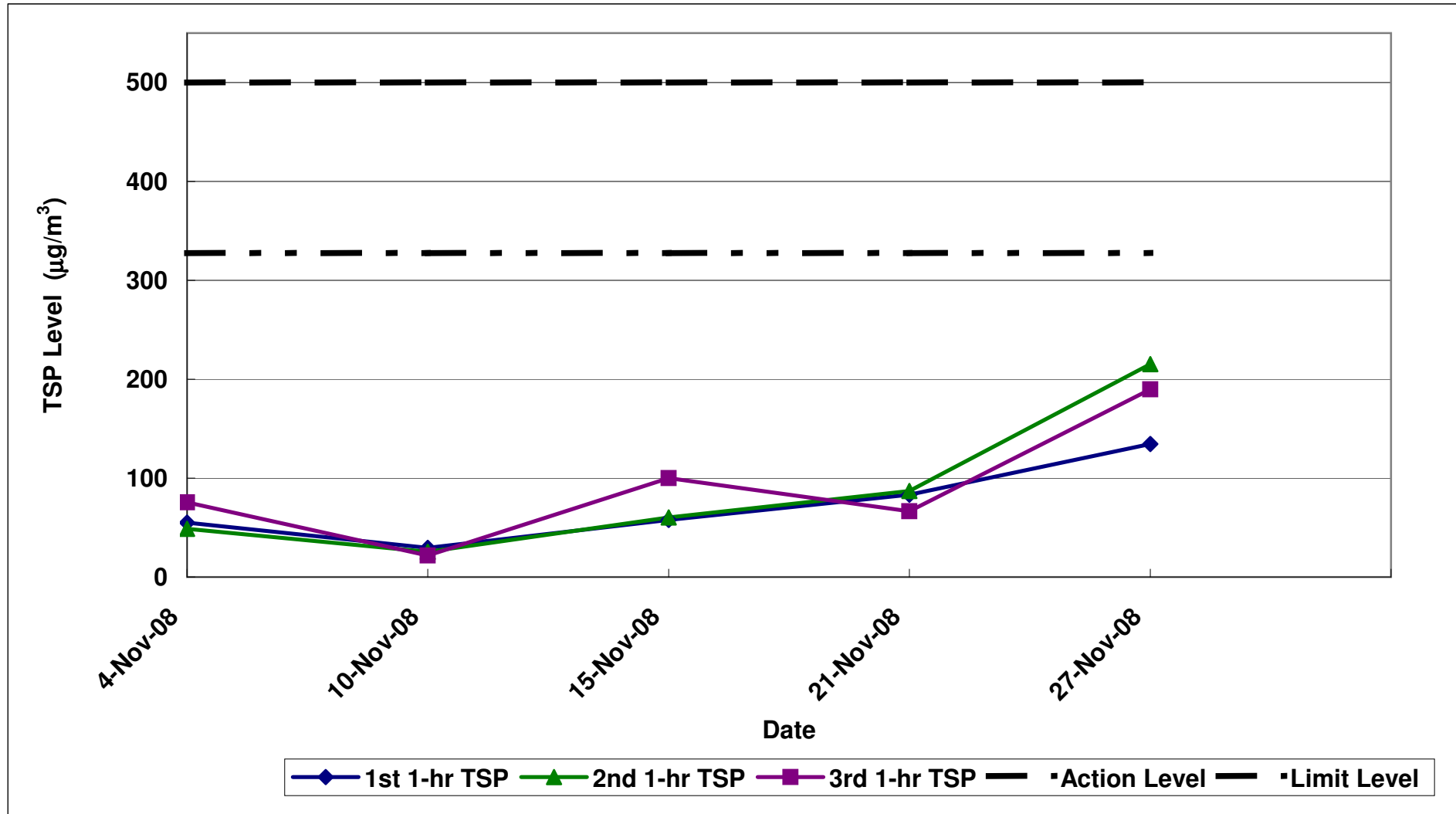
Air Quality Impact Monitoring Results (1-Hour TSP)

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (°C)	Timer-I (mins)	Timer-F (mins)	Time (mins)	Flow-I (CFM)	Flow-F (CFM)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-F (g)	Weight-diff. (g)	1-hr TSP (µg/m³)	Average 1-Hr TSP (µg/m³)	Action/Limit Levels (µg/m³)	Observation / Site Condition	Remark
Sik Sik Yuen Ho Fung College - Intake (ASR1)	4-Nov-08	Cloudy	0.5NE	26	563939	563939	60.0	40	40	1.32	1.32	1.32	79.48	2.6876	2.6906	0.0030	37.7	35.2	306.6/500	Nil	Nil
		Cloudy	0.5NE	26	563939	564039	60.0	40	40	1.32	1.32	1.32	79.48	2.6736	2.6762	0.0026	32.7				
		Cloudy	0.5NE	26	564039	564139	60.0	40	40	1.32	1.32	1.32	79.48	2.7092	2.7120	0.0028	35.2				
	10-Nov-08	Sunny	0.6NE	26	564139	564239	60.0	40	40	1.32	1.32	1.32	79.48	2.7314	2.7372	0.0058	73.0	70.0	306.6/500	Nil	Nil
		Sunny	0.6NE	26	564239	564339	60.0	40	40	1.32	1.32	1.32	79.48	2.7162	2.7209	0.0047	59.1				
		Sunny	0.6NE	26	564339	564439	60.0	40	40	1.32	1.32	1.32	79.48	2.7127	2.7169	0.0042	73.0				
	15-Nov-08	Sunny	0.5NE	26	564439	564539	60.0	40	40	1.32	1.32	1.32	79.48	2.7156	2.7215	0.0059	74.2	89.3	306.6/500	Nil	Nil
		Sunny	0.5NE	26	564539	564639	60.0	40	40	1.32	1.32	1.32	79.48	2.7140	2.7204	0.0064	80.5				
		Sunny	0.5NE	26	564639	564739	60.0	40	40	1.32	1.32	1.32	79.48	2.7034	2.7124	0.0090	113.2				
	21-Nov-08	Sunny	0.6NE	21	564739	564839	60.0	40	40	1.32	1.32	1.32	79.48	2.8335	2.8374	0.0039	49.1	58.3	306.6/500	Piling	Traffic Noise
		Sunny	0.6NE	21	564839	564939	60.0	40	40	1.32	1.32	1.32	79.48	2.8556	2.8417	0.0061	76.7				
		Sunny	0.6NE	21	564939	565039	60.0	40	40	1.32	1.32	1.32	79.48	2.7183	2.7222	0.0039	49.1				
27-Nov-08	Sunny	0.7N	20	565039	565139	60.0	40	40	1.32	1.32	1.32	79.48	2.8547	2.8566	0.0119	149.7	157.7	306.6/500	Excavation by backhoe x2	Nil	
	Sunny	0.7N	20	565139	565239	60.0	40	40	1.32	1.32	1.32	79.48	2.8536	2.8661	0.0125	157.3					
	Sunny	0.7N	20	565239	565339	60.0	40	40	1.32	1.32	1.32	79.48	2.8428	2.8560	0.0132	166.1					
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hong Hai Chee Hong Temple - Intake (ASR3)	4-Nov-08	Cloudy	0.6NE	24	532399	532399	60.0	40	40	1.30	1.30	1.30	78.03	2.7785	2.7828	0.0043	55.1	59.8	327.4/500	Piling work excavator	Nil
		Cloudy	0.6NE	24	532399	532499	60.0	40	40	1.30	1.30	1.30	78.03	2.7388	2.7426	0.0038	48.7				
		Cloudy	0.6NE	24	532499	532599	60.0	40	40	1.30	1.30	1.30	78.03	2.7551	2.7610	0.0059	75.6				
	10-Nov-08	Sunny	0.7E	26	532599	532699	60.0	40	40	1.30	1.30	1.30	78.03	2.7344	2.7367	0.0023	29.5	25.6	327.4/500	Piling and crane operation	Nil
		Sunny	0.7E	26	532699	532799	60.0	40	40	1.30	1.30	1.30	78.03	2.7385	2.7405	0.0020	25.6				
		Sunny	0.7E	26	532799	532899	60.0	40	40	1.30	1.30	1.30	78.03	2.7352	2.7369	0.0017	21.8				
	15-Nov-08	Sunny	0.4S	26	532899	532999	60.0	40	40	1.30	1.30	1.30	78.03	2.8565	2.8611	0.0045	57.7	72.6	327.4/500	Piling and crane operation	Nil
		Sunny	0.4S	26	532999	533099	60.0	40	40	1.30	1.30	1.30	78.03	2.8342	2.8389	0.0047	60.2				
		Sunny	0.4S	26	533099	533199	60.0	40	40	1.30	1.30	1.30	78.03	2.8241	2.8319	0.0078	100.0				
	21-Nov-08	Sunny	0.4E	19	533199	533299	60.0	40	40	1.30	1.30	1.30	78.03	2.8949	2.9014	0.0065	83.3	79.0	327.4/500	Piling and crane operation	Nil
		Sunny	0.4E	19	533299	533399	60.0	40	40	1.30	1.30	1.30	78.03	2.8998	2.8998	0.0068	87.1				
		Sunny	0.4E	19	533399	533499	60.0	40	40	1.30	1.30	1.30	78.03	2.8961	2.9013	0.0052	66.6				
27-Nov-08	Sunny	0.5N	20	533499	533599	60.0	40	40	1.30	1.30	1.30	78.03	2.7181	2.7286	0.0105	134.6	179.9	327.4/500	Crane operation	Nil	
	Sunny	0.5N	20	533599	533699	60.0	40	40	1.30	1.30	1.30	78.03	2.7553	2.7421	0.0168	215.3					
	Sunny	0.5N	20	533699	533799	60.0	40	40	1.30	1.30	1.30	78.03	2.7505	2.7653	0.0148	189.7					
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Long Beach Gardens - Outfall (ASR8)	4-Nov-08	Cloudy	0.5E	24	587393	587493	60.0	39	39	1.30	1.30	1.30	77.90	2.6848	2.6885	0.0037	47.5	42.8	336.6/500	Eoving of concrete block using backhoe	Nil
		Cloudy	0.5E	24	587493	587593	60.0	39	39	1.30	1.30	1.30	77.90	2.7620	2.7648	0.0028	35.9				
		Cloudy	0.5E	24	587593	587693	60.0	39	39	1.30	1.30	1.30	77.90	2.7569	2.7704	0.0055	44.9				
	10-Nov-08	Sunny	0.7E	26	587693	587793	60.0	40	40	1.33	1.33	1.33	79.65	2.8139	2.8239	0.0100	125.5	111.7	336.6/500	Tree logging	Nil
		Sunny	0.7E	26	587793	587893	60.0	40	40	1.33	1.33	1.33	79.65	2.7940	2.8030	0.0090	113.0				
		Sunny	0.7E	26	587893	587993	60.0	40	40	1.33	1.33	1.33	79.65	2.7432	2.7509	0.0077	96.7				
	15-Nov-08	Sunny	0.6E	26	587993	588093	60.0	40	40	1.33	1.33	1.33	79.65	2.6941	2.699	0.0049	61.5	72.8	336.6/500	Excavator , breaking by backhoe	Nil
		Sunny	0.6E	26	588093	588193	60.0	40	40	1.33	1.33	1.33	79.65	2.7162	2.7225	0.0063	79.1				
		Sunny	0.6E	26	588193	588293	60.0	40	40	1.33	1.33	1.33	79.65	2.6973	2.7055	0.0082	77.8				
	21-Nov-08	Sunny	0.5NE	19	588293	588393	60.0	40	40	1.33	1.33	1.33	79.65	2.8772	2.8827	0.0055	69.0	92.5	336.6/500	Excavator by backhoe X2	Nil
		Sunny	0.5NE	19	588393	588493	60.0	40	40	1.33	1.33	1.33	79.65	2.8637	2.8730	0.0093	116.8				
		Sunny	0.5NE	19	588493	588593	60.0	40	40	1.33	1.33	1.33	79.65	2.8402	2.8475	0.0073	91.6				
27-Nov-08	Sunny	0.5N	20	588593	588693	60.0	40	40	1.33	1.33	1.33	79.65	2.7612	2.7815	0.0203	254.9	230.2	336.6/500	Excavator by backhoe X2	Nil	
	Sunny	0.5N	20	588693	588793	60.0	40	40	1.33	1.33	1.33	79.65	2.7830	2.8036	0.0206	258.6					
	Sunny	0.5N	20	588793	588893	60.0	40	40	1.33	1.33	1.33	79.65	2.7580	2.7721	0.0141	177.0					
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greenview Terrace - Outfall (ASR9)	4-Nov-08	Cloudy	0.7E	24	519293	519393	60.0	40	40	1.26	1.26	1.26	75.52	2.7557	2.7586	0.0029	38.4	43.2	329.2/500	Moving of concrete block using backhoe	Nil
		Cloudy	0.7E	24	519393	519493	60.0	40	40	1.26	1.26	1.26	75.52	2.7967	2.8001	0.0034	45.0				
		Cloudy	0.7E	24	519493	519593	60.0	40	40	1.26	1.26	1.26	75.52	2.8093	2.8098	0.0005	45.3				
	10-Nov-08	Sunny	0.7E	26	519593	519693	60.0	40	40	1.26	1.26	1.26	75.52	2.6955	2.7012	0.0057	75.5	69.8	329.2/500	Tree logging	Nil
		Sunny	0.7E	26	519693	519793	60.0	40	40	1.26	1.26	1.26	75.52	2.6787	2.6839	0.0052	68.9				
		Sunny	0.7E	26	519793	519893	60.0	40	40	1.26	1.26	1.26	75.52	2.7003	2.7052	0.0049	64.9				
	15-Nov-08	Sunny	0.9E	26	519893	519993	60.0	40	40	1.26	1.26	1.26	75.52	2.7153	2.7179	0.0026	34.4	42.4	329.2/500	Excavator , breaking by backhoe	Nil
		Sunny	0.9E	26	520093	520193	60.0	40	40	1.26	1.26	1.26	75.52	2.6783	2.6804	0.0021	27.8				
		Sunny	0.9E	26	520193	520293	60.0	40	40	1.26	1.26	1.26	75.52	2.7121	2.7170	0.0049	64.9				
	21-Nov-08	Sunny	0.9NE	19	520293	520393	60.0	40	40	1.26	1.26	1.26	75.52	2.8718	2.8795	0.0077	102.0	91.8	329.2/500	Excavator by backhoe X2	Nil
		Sunny	0.9NE	19	520393	520493	60.0	40	40	1.26	1.26	1.26	75.52	2.8584	2.8655	0.0071	94.0				
		Sunny	0.9NE	19	520493	520593	60.0	40	40	1.26	1.26	1.26	75.52	2.8735	2.8795	0.0060	79.4				
27-Nov-08	Sunny	0.9N	20	520593	520693	60.0	40	40	1.26	1.26	1.26	75.52	2.864	2.8924	0.0284	376.0	226.9	329.2/500	Dust generated from equipment movement was observed during the measurement of 1st 1hr TSP monitoring.	Nil	
	Sunny	0.9N	20	520693	520793	60.0	40	40	1.26	1.26	1.26	75.52	2.8401	2.8529	0.0128	169.5					
	Sunny	0.9N	20	520793	520893	60.0															

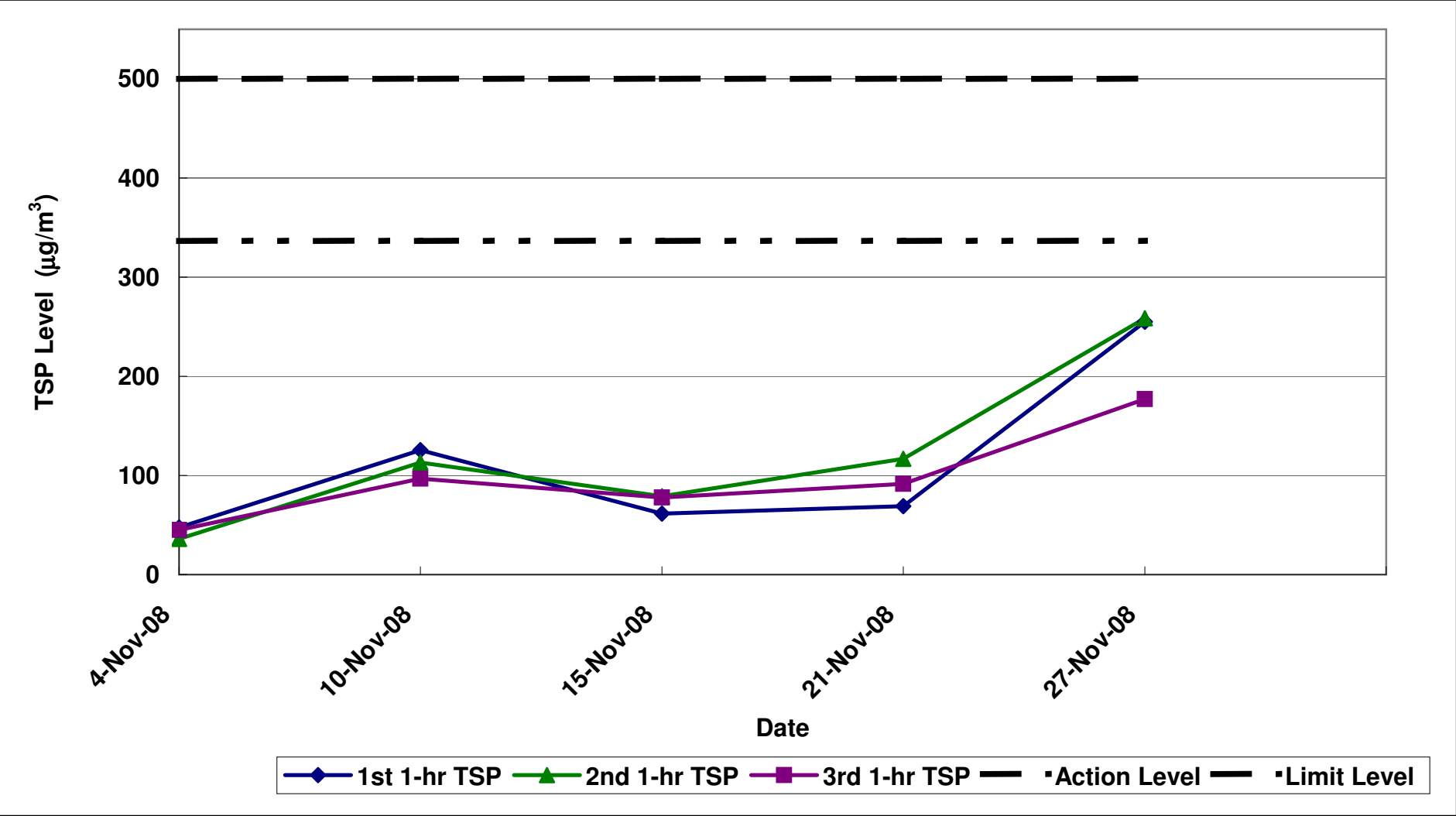
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College - Intake (ASR1)  
Nov-08



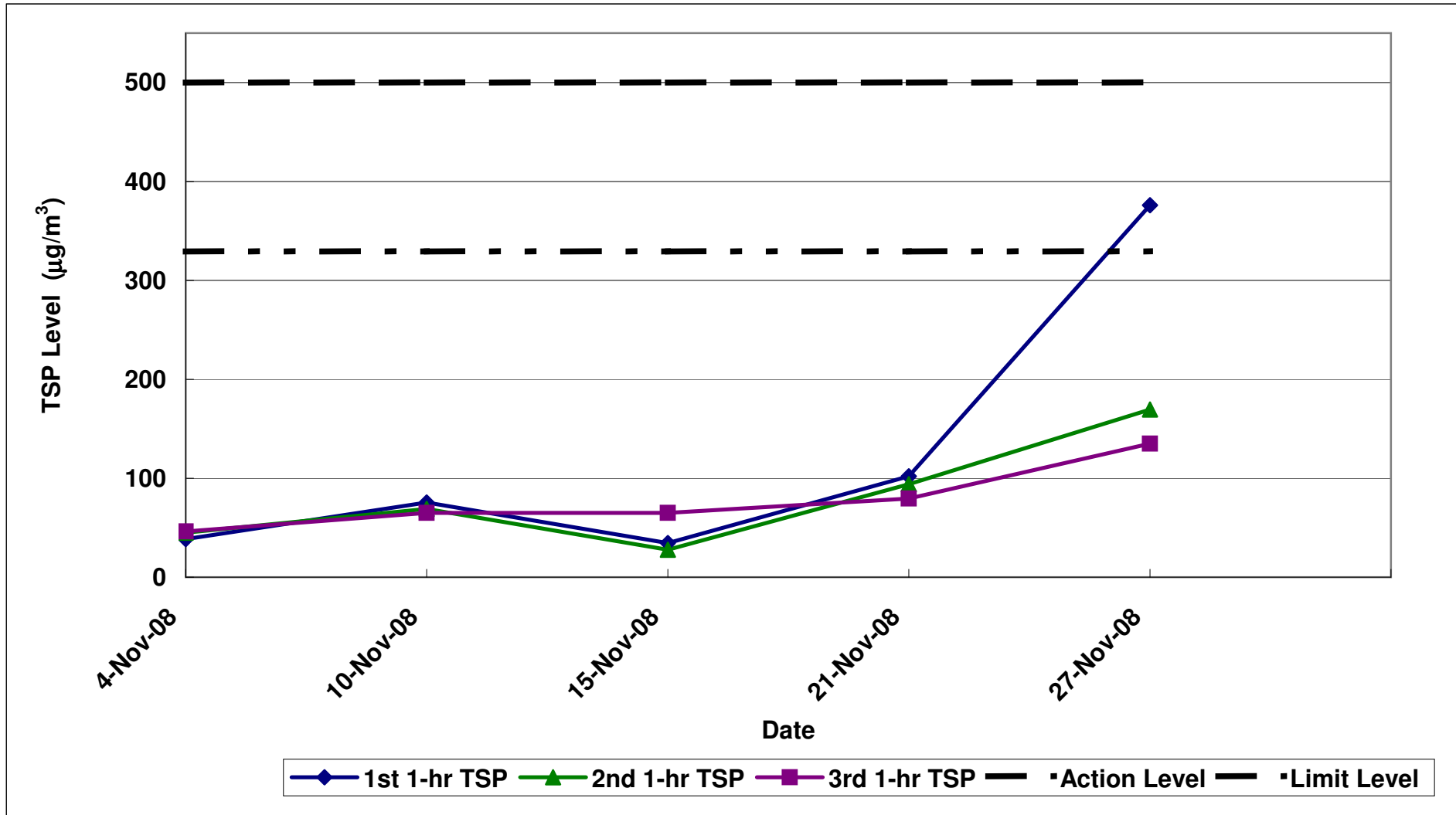
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Hong Hoi Chee Hong Temple - Intake (ASR3)  
Nov-08



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Long Beach Gardens - Outfall (ASR8)  
Nov-08



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Greenview Terrance - Outfall (ASR9)  
Nov-08



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

Noise Impact Monitoring Results

Monitoring Locations	Date	Weather Conditions	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Start Time	End Time	BL <sup>1</sup> dB(A)	LL <sup>2</sup> dB(A)	L <sub>eq</sub> (30min) dB(A)	L <sub>10</sub> (30min) dB(A)	L <sub>90</sub> (30min) dB(A)	CNL <sup>3</sup> dB(A)	Observation / Site Condition	Remark
Sik Sik Yuen Ho Fung College NSR 1	4-Nov-08	Cloudy	26	0.6	NE	16:30	17:00	66.1	70	65.0	66.6	63.4	-	Nil	Traffic noise, human activities
	10-Nov-08	Sunny	26	0.6	NE	17:00	17:30		70	65.9	67.4	63.4	-	Nil	Traffic noise,
	21-Nov-08	Sunny	21	0.6	NE	13:30	14:00		70	66.9	68.2	65.3	-	Piling working	Traffic noise, human activities
	27-Nov-08	Sunny	20	0.6	N	17:00	17:30		70	68.3	70.4	66.2	-	Piling, excavation by backhoe	Traffic noise
	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Hong Hoi Chee Hong Temple NSR 3	4-Nov-08	Cloudy	24	0.6	NE	11:30	12:00	57.9	75	68.2	70.6	63.0	-	crane operation , excavation by backhoe	Hammer working at other construction site
	10-Nov-08	Sunny	26	0.7	NE	11:15	11:45		75	70.3	72.7	66.9	-	crane operation	Hammer working at other construction site
	21-Nov-08	Sunny	19	0.4	E	11:30	12:00		75	67.9	70.8	64.8	-	Piling working , crane operation	Nil
	27-Nov-08	Sunny	20	0.4	N	11:30	12:00		75	60.5	63.5	57.6	-	Nil	Nil
	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Squatters NSR 6	4-Nov-08	Cloudy	24	0.4	E	15:20	15:50	61.2	75	63.2	65.0	60.5	-	Nil	Dog barking
	10-Nov-08	Sunny	26	0.5	E	15:00	15:30		75	62.6	65.7	59.6	-	Nil	Dog barking
	21-Nov-08	Sunny	19	0.4	E	15:00	15:30		75	63.0	66.2	59.8	-	Dog backing	Nil
	27-Nov-08	Sunny	20	0.4	N	13:00	13:30		75	60.4	63.3	57.5	-	Nil	Nil
	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Long Beach Gardens NSR 8	4-Nov-08	Cloudy	24	0.5	E	9:40	10:10	60.9	75	65.5	68.0	63.5	-	Moving of concrete block using backhoe	Traffic noise
	10-Nov-08	Sunny	26	0.7	E	9:10	9:40		75	64.9	66.3	62.5	-	Nil	Traffic noise
	21-Nov-08	Sunny	19	0.5	NE	9:10	9:40		75	62.9	64.2	60.8	-	Excavation by backhoe	Traffic noise
	27-Nov-08	Sunny	20	0.5	N	14:50	15:20		75	67.2	69.1	65.3	-	Excavation by backhoe	Traffic noise
	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Greenview Terrace NSR 9	4-Nov-08	Cloudy	24	0.7	E	8:40	9:10	59.7	75	64.0	65.2	62.3	-	Moving of concrete block using backhoe	Traffic noise
	10-Nov-08	Sunny	26	0.7	E	10:10	10:40		75	62.8	63.8	60.3	-	Backhoe	Traffic noise
	21-Nov-08	Sunny	19	0.9	NE	10:10	10:40		75	64.8	66.4	62.9	-	Excavation by backhoe	Traffic noise
	27-Nov-08	Sunny	20	0.9	N	13:50	14:20		75	65.8	67.6	63.1	-	Excavation by backhoe x2	Traffic noise
	-	-	-	-	-	-	-		-	-	-	-	-	-	-

1: Baseline Noise Level

2: Limit Level

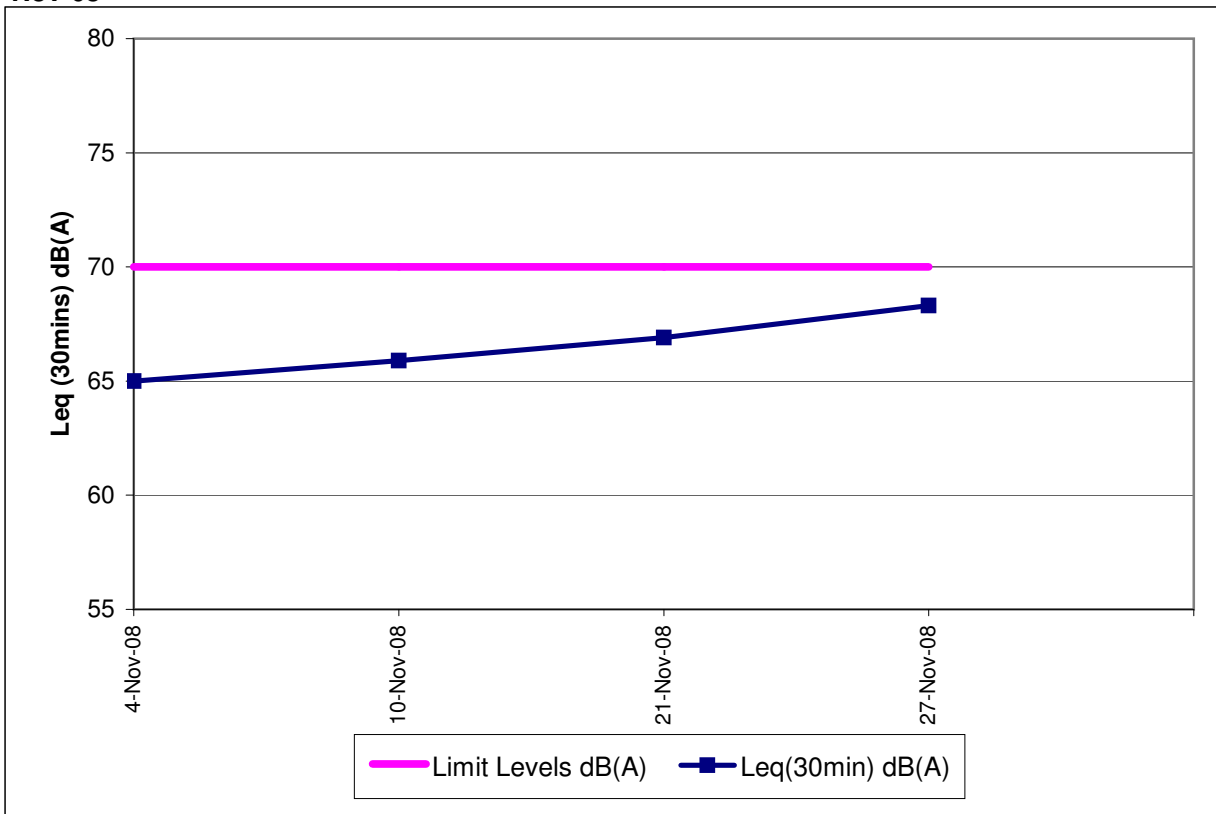
3: Corrected Noise Level

Note:

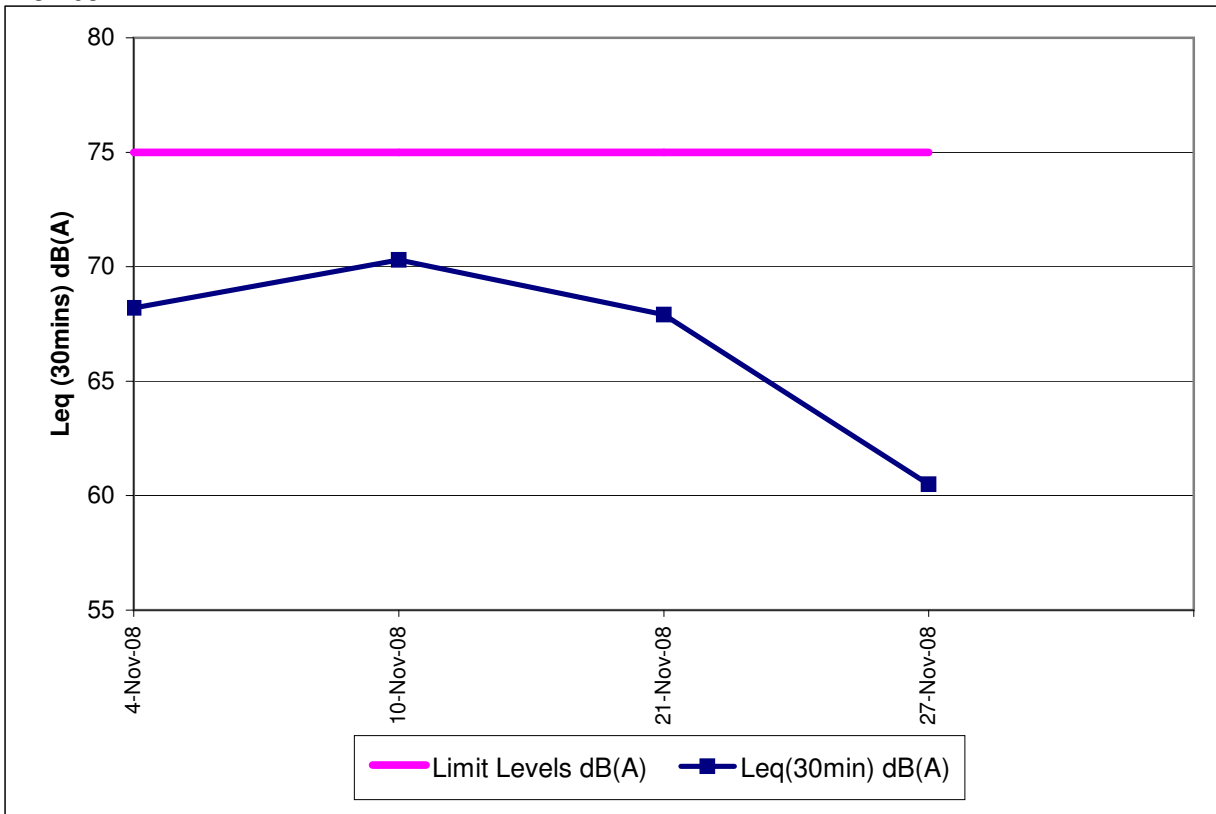
The limit level of NSR1 is 65dB(A) during school examination period.

**Red Bold indicates an exceedance of Limit Level**

**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR 1)  
Nov-08**

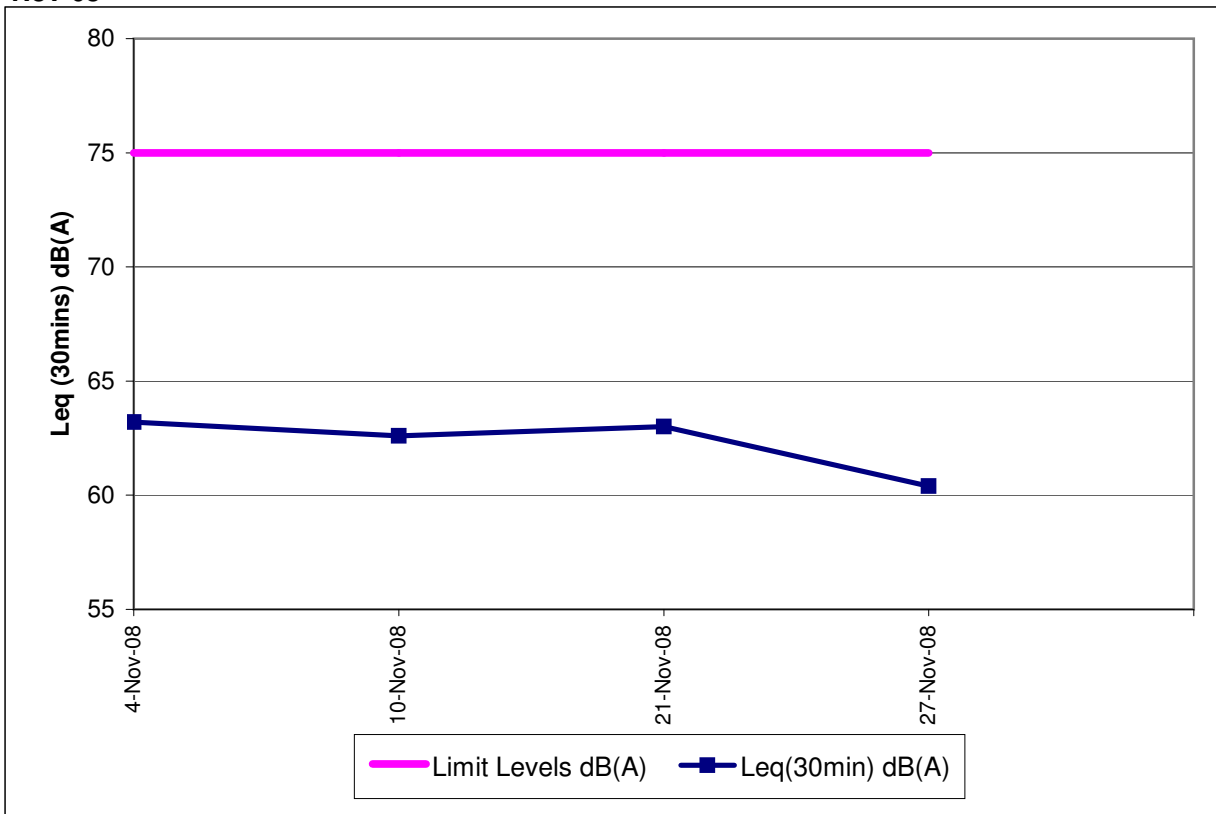


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR 3)  
Nov-08**

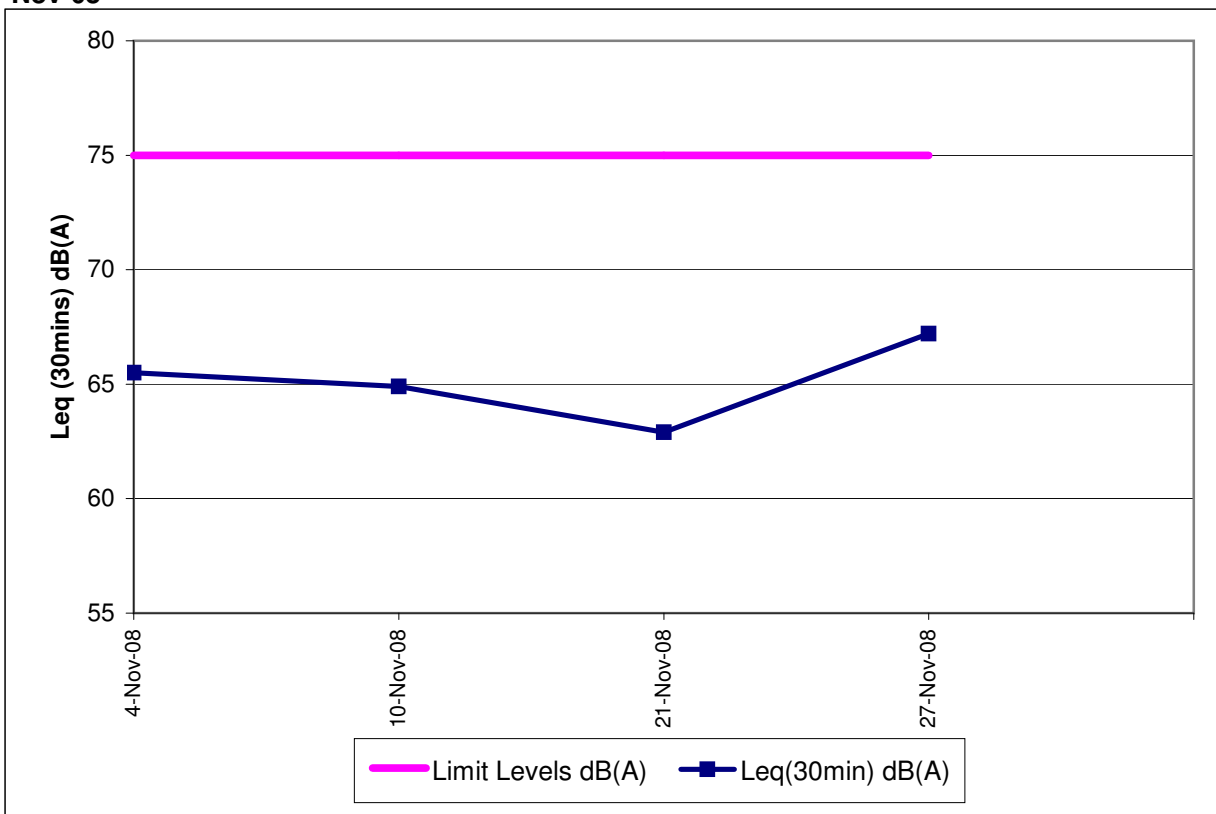




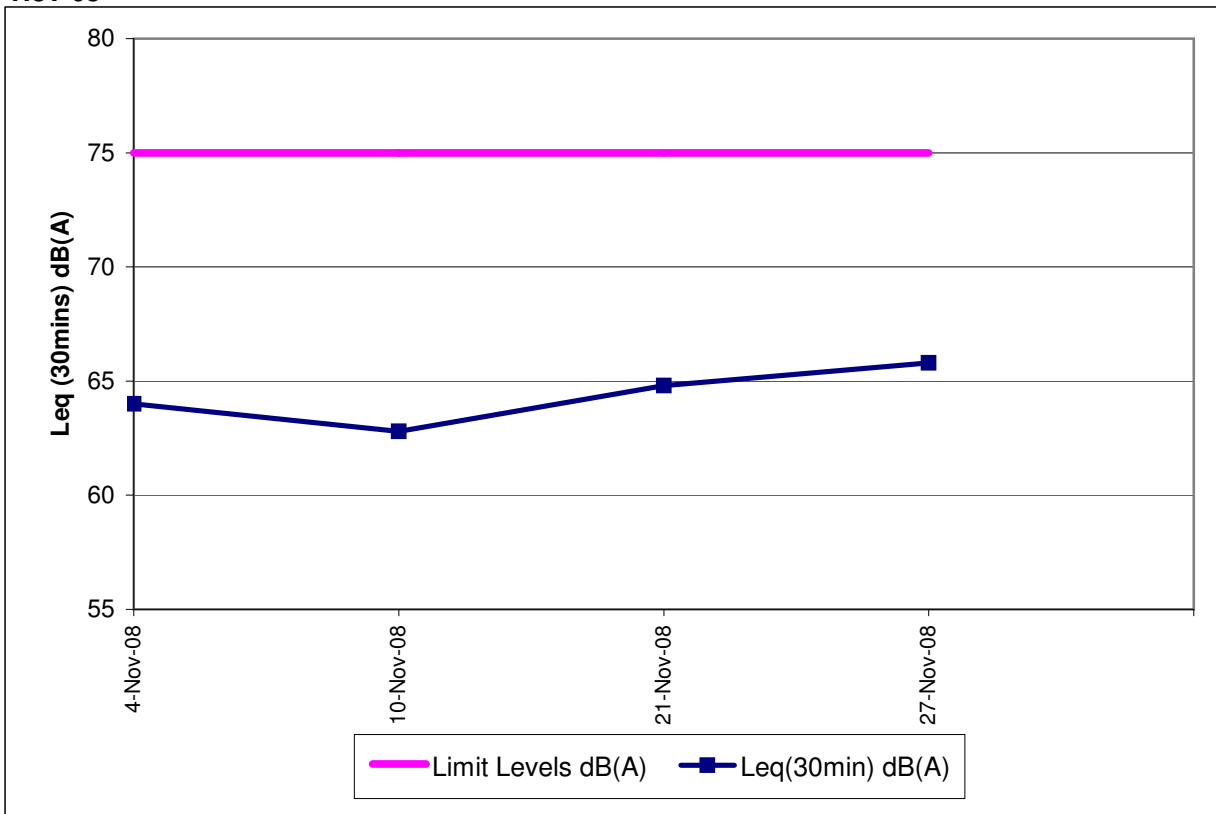
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Squatters (NSR 6)  
Nov-08**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Long Beach Gardens (NSR 8)  
Nov-08**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Greenview Terrace (NSR 9)  
Nov-08**

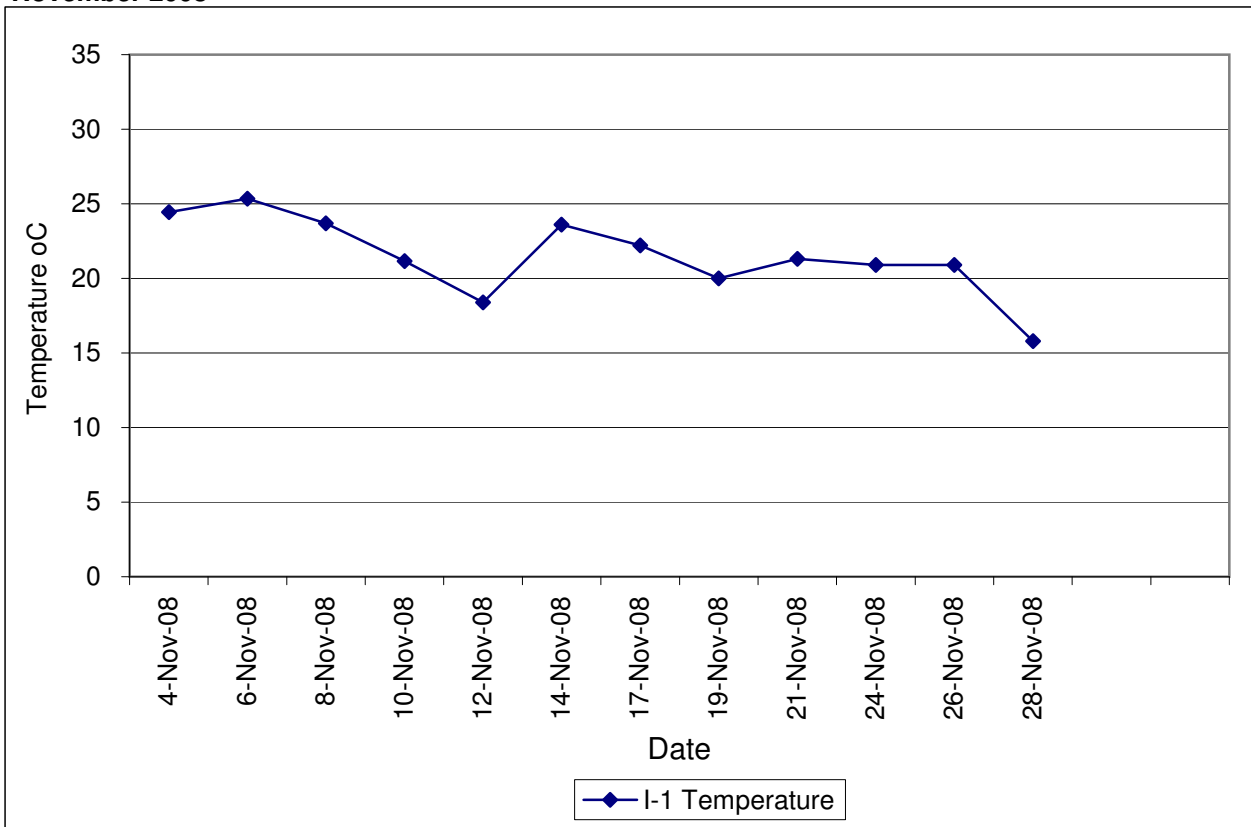


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

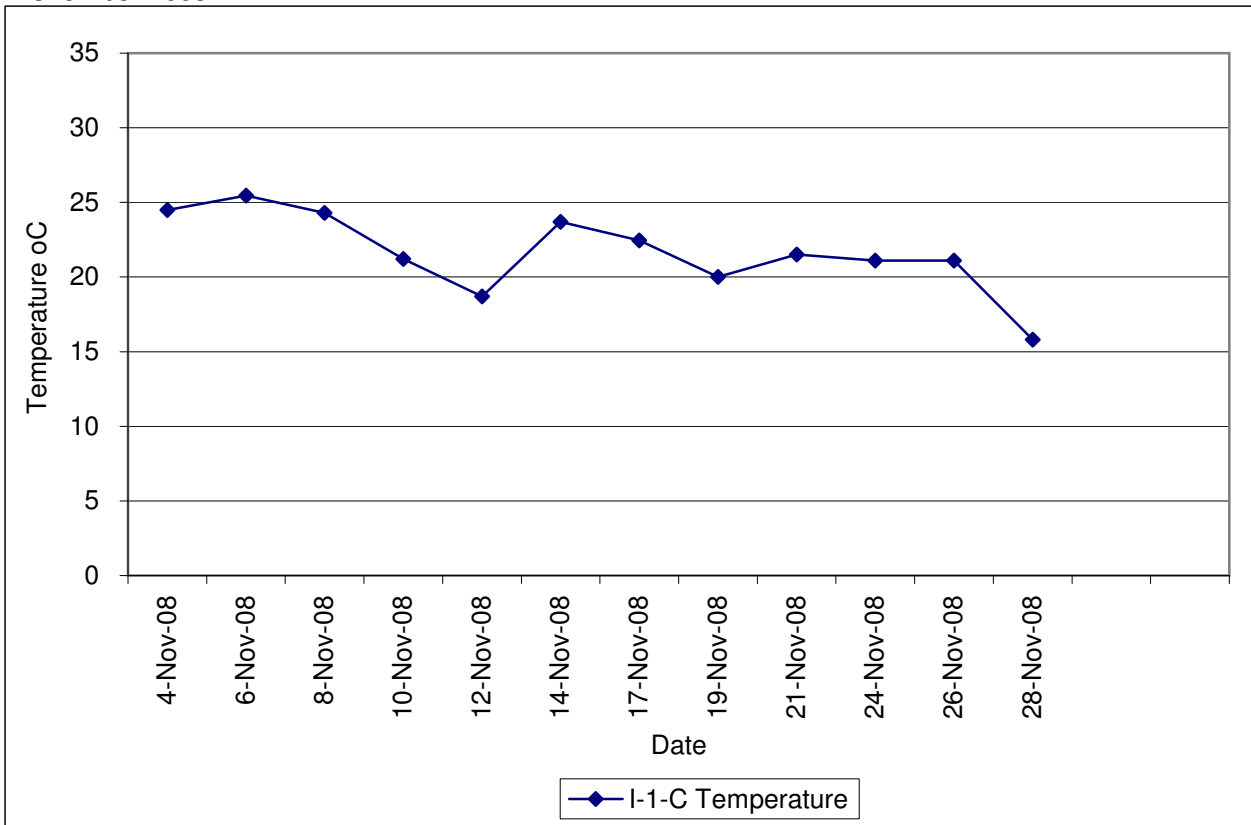
Water Quality Impact Monitoring Results

Monitoring Locations	Date	Start Time	Weather	Water Depth(m)	Temp			DO(mg/L)			Action/Limit Level of DO(mg/L)	pH			Turbidity(NTU)			Action/Limit Level of Tby	SS (mg/L)			Action/Limit Level of SS(mg/L)	Remarks:	Action to be taken			
					1	2	Avg	1	2	Avg		1	2	Avg	1	2	Avg		1	2	Avg						
Sik Sik Yuen Ho Fung College I-1	4-Nov-08	13:35	Cloudy	<1	24.40	24.50	24.45	4.21	4.19	4.20	3.42 / 3.34	7.72	7.72	7.72	3.38	3.29	3.39	9.75 / 12.47	2.0	2.0	2.0	8.85 / 10.17	No piling operation	Nil			
	6-Nov-08	9:40	Fine	<1	25.30	25.40	25.35	4.49	4.55	4.52		7.55	7.53	7.54	4.32	4.52	4.42		2.0	2.0	2.0		No piling operation	Nil			
	8-Nov-08	9:30	Sunny	<1	23.70	23.70	23.70	5.04	4.94	4.99		7.53	7.44	7.49	3.46	3.55	3.51		2.0	2.0	2.0		Piling working	Nil			
	10-Nov-08	13:45	Sunny	<1	21.10	21.20	21.15	4.41	5.38	4.90		7.71	7.71	7.71	3.07	3.09	3.08		2.0	2.0	2.0		Piling working	Nil			
	12-Nov-08	9:48	Sunny	<1	18.40	18.40	18.40	5.51	5.48	5.50		7.42	7.44	7.43	3.25	3.33	3.29		2.0	2.0	2.0		Piling working	Nil			
	14-Nov-08	14:23	Sunny	<1	23.60	23.60	23.60	4.62	4.66	4.64		7.75	7.75	7.75	3.20	3.21	3.21		2.0	2.0	2.0		Piling working , crane operation	Nil			
	17-Nov-08	9:37	Sunny	<1	22.20	22.20	22.20	4.85	4.66	4.76		7.51	7.51	7.51	3.87	4.00	3.94		7.1	6.9	<b>7.0</b>		Piling working , crane operation	Nil			
	19-Nov-08	9:40	Sunny	<1	20.00	20.00	20.00	5.03	5.06	5.05		8.00	7.99	8.00	3.56	3.61	3.59		5.1	5.1	5.1		Piling working	Nil			
	21-Nov-08	14:30	Sunny	<1	21.30	21.30	21.30	4.82	4.88	4.85		7.71	7.71	7.71	3.71	3.71	3.71		2.0	2.0	2.0		Piling working	Nil			
	24-Nov-08	9:49	Sunny	<1	20.90	20.90	20.90	4.63	4.59	4.61		7.25	7.20	7.23	4.77	4.63	4.70		3.1	2.9	3.0		Piling working	Nil			
	26-Nov-08	9:49	Sunny	<1	20.90	20.90	20.90	4.63	4.59	4.61		7.25	7.20	7.23	4.89	4.82	4.86		6.8	6.7	6.8		No piling operation	Nil			
	28-Nov-08	9:45	Sunny	<1	15.80	15.80	15.80	5.16	5.19	5.18		8.22	8.22	8.22	3.38	3.42	3.40		2.0	2.0	2.0		Piling working	Nil			
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
Sik Sik Yuen Ho Fung College I-1-C	4-Nov-08	13:05	Cloudy	<1	24.50	24.50	24.50	4.34	4.37	4.36	-/-	7.66	7.65	7.66	3.45	3.43	3.44	-/-	2.0	2.0	2.0	-/-	Nil	Nil			
	6-Nov-08	9:15	Fine	<1	25.40	25.50	25.45	4.67	4.66	4.67		7.70	7.63	7.67	4.55	4.62	4.59		2.0	2.0	2.0		Nil	Nil			
	8-Nov-08	9:11	Sunny	<1	24.30	24.30	24.30	4.98	4.91	4.95		7.57	7.57	7.57	3.63	3.44	3.54		2.8	2.9	2.9		Nil	Nil			
	10-Nov-08	13:20	Sunny	<1	21.20	21.20	21.20	5.41	5.38	5.40		7.71	7.71	7.71	3.11	3.16	3.14		2.0	2.0	2.0		Nil	Nil			
	12-Nov-08	9:32	Sunny	<1	18.70	18.70	18.70	5.60	5.55	5.58		7.73	7.57	7.65	3.22	3.42	3.32		2.0	2.0	2.0		Nil	Nil			
	14-Nov-08	14:15	Sunny	<1	23.70	23.70	23.70	4.73	4.75	4.74		7.73	7.73	7.73	3.22	3.28	3.25		2.0	2.0	2.0		Nil	Nil			
	17-Nov-08	9:15	Sunny	<1	22.50	22.40	22.45	4.67	4.57	4.62		7.70	7.53	7.62	4.88	4.86	4.87		3.9	4.0	4.0		Nil	Nil			
	19-Nov-08	9:20	Sunny	<1	20.00	20.00	20.00	4.89	4.80	4.85		7.84	7.84	7.84	3.65	3.66	3.66		4.8	5.5	5.2		Nil	Nil			
	21-Nov-08	14:00	Sunny	<1	21.50	21.50	21.50	4.67	4.68	4.68		7.62	7.62	7.62	3.72	3.68	3.70		2.0	2.0	2.0		Nil	Nil			
	24-Nov-08	9:30	Sunny	<1	21.10	21.10	21.10	4.64	4.62	4.63		7.56	7.40	7.48	5.03	4.87	4.95		2.8	3.2	3.0		Nil	Nil			
	26-Nov-08	9:30	Sunny	<1	21.10	21.10	21.10	4.64	4.62	4.63		7.56	7.55	7.56	4.80	5.08	4.94		5.6	6.6	6.1		Nil	Nil			
	28-Nov-08	9:15	Sunny	<1	15.80	15.80	15.80	5.24	5.16	5.20		8.70	8.70	8.70	3.52	3.54	3.53		2.0	2.0	2.0		Nil	Nil			
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
Hong Hoi Chee Hong Temple I-2	4-Nov-08	10:32	Cloudy	<1	25.20	25.20	25.20	4.51	4.53	4.52	3.66 / 3.63	7.88	7.88	7.88	4.32	4.33	4.33	6.63 / 6.99	2.0	2.0	2.0	7.68 / 8.34	Piling working , crane operation	Nil			
	6-Nov-08	10:45	Fine	<1	25.60	25.60	25.60	4.40	4.37	4.39		7.97	7.95	7.96	3.50	3.42	3.46		2.0	2.0	2.0		Piling working , crane operation	Nil			
	8-Nov-08	10:45	Sunny	<1	25.00	25.00	25.00	4.63	4.61	4.62		7.84	7.83	7.84	3.33	3.23	3.28		2.0	2.0	2.0		No piling operation	Nil			
	10-Nov-08	10:50	Sunny	<1	21.90	21.90	21.90	5.30	5.22	5.26		7.66	7.65	7.66	3.11	3.09	3.10		2.0	2.0	2.0		No piling operation	Nil			
	12-Nov-08	10:50	Sunny	<1	20.20	20.30	20.25	4.68	4.67	4.68		7.82	7.84	7.83	4.57	4.23	4.40		2.0	2.0	2.0		Piling working , crane operation	Nil			
	14-Nov-08	15:30	Sunny	<1	23.40	23.40	23.40	4.68	4.65	4.67		8.12	8.12	8.12	5.20	5.19	5.20		2.0	2.0	2.0		Piling working	Nil			
	17-Nov-08	10:50	Sunny	<1	23.00	23.00	23.00	4.68	4.58	4.63		7.46	7.52	7.49	3.39	3.41	3.40		2.0	2.0	2.0		Piling working	Nil			
	19-Nov-08	10:57	Sunny	<1	20.50	20.50	20.50	4.73	4.75	4.74		7.65	7.65	7.65	3.52	3.48	3.50		2.0	2.0	2.0		No piling operation	Nil			
	21-Nov-08	10:48	Sunny	<1	21.00	21.00	21.00	4.92	4.99	4.96		7.48	7.48	7.48	3.47	3.50	3.49		2.0	2.0	2.0		Piling working , crane operation	Nil			
	24-Nov-08	10:45	Sunny	<1	20.00	20.00	20.00	4.44	4.37	4.41		7.57	7.67	7.62	3.21	3.35	3.28		2.2	2.2	2.2		Piling working , crane operation	Nil			
	26-Nov-08	10:45	Sunny	<1	22.00	22.00	22.00	4.44	4.37	4.41		7.57	7.67	7.62	3.32	3.28	3.30		2.0	2.0	2.0		No piling operation	Nil			
	28-Nov-08	10:35	Sunny	<1	16.50	16.50	16.50	4.47	4.39	4.38		7.83	7.83	7.83	3.31	3.35	3.33		2.0	2.0	2.0		No piling operation	Nil			
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
Hong Hoi Chee Hong Temple I-2-C	4-Nov-08	10:15	Cloudy	<1	24.40	24.40	24.40	4.57	4.59	4.58	-/-	7.83	7.83	7.83	4.22	4.42	4.32	-/-	2.0	2.0	2.0	-/-	Nil	Nil			
	6-Nov-08	10:25	Fine	<1	25.80	25.80	25.80	4.59	4.48	4.54		8.10	8.10	8.10	3.52	3.46	3.49		2.0	2.0	2.0		Nil	Nil			
	8-Nov-08	10:30	Sunny	<1	25.20	25.20	25.20	4.50	4.39	4.45		8.00	8.00	8.00	3.53	3.24	3.39		2.3	2.2	2.3		Nil	Nil			
	10-Nov-08	10:30	Sunny	<1	22.00	22.00	22.00	5.55	5.35	5.45		7.65	7.65	7.65	3.03	3.17	3.10		2.0	2.0	2.0		Nil	Nil			
	12-Nov-08	10:35	Sunny	<1	19.90	19.90	19.90	5.01	4.97	4.99		7.73	7.72	7.73	5.05	4.93	4.99		2.0	2.0	2.0		Nil	Nil			
	14-Nov-08	15:19	Sunny	<1	23.70	23.60	23.65	4.66	4.61	4.64		8.15	8.15	8.15	5.22	5.23	5.23		2.0	2.0	2.0		Nil	Nil			
	17-Nov-08	10:35	Sunny	<1	23.70	24.00	23.85	4.48	4.43	4.46		7.51	7.51	7.51	3.42	3.45	3.44		2.0	2.0	2.0		Nil	Nil			
	19-Nov-08	10:44	Sunny	<1	20.50	20.50	20.50	4.95	4.98	4.97		7.64	7.64	7.64	3.54	3.55	3.55		2.0	2.0	2.0		Nil	Nil			
	21-Nov-08	10:29	Sunny	<1	21.20	21.20	21.20	5.13	5.17	5.15		7.53	7.53	7.53	3.52	3.57	3.55		2.0	2.0	2.0		Nil	Nil			
	24-Nov-08	10:30	Sunny	<1	20.00	20.20	20.10	4.46	4.43	4.45		7.60	7.65	7.63	3.37	3.42	3.40		2.4	2.4	2.4		Nil	Nil			
	26-Nov-08	10:30	Sunny	<1	22.00	22.00	22.00	4.46	4.46	4.46		7.60	7.65	7.63	3.37	3.39	3.38		2.0	2.0	2.0		Nil	Nil			
	28-Nov-08	10:15	Sunny	<1	16.80	16.80	16.80	5.40	5.33	5.37		7.83	7.82	7.83	3.42	3.44	3.43		2.0	2.0	2.0		Nil	Nil			
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-		-	-	-	-	-
Squatters I-3	4-Nov-08	11:45	Cloudy	<1	25.50	25.50	25.50	4.39	4.42	4.41	3.65 / 3.51	7.82	7.82	7.82	3.53	3.61	3.57	3.99 / 4.18	2.0	2.0	2.0	6.13 / 7.23	Nil	Nil			
	6-Nov-08	11																									

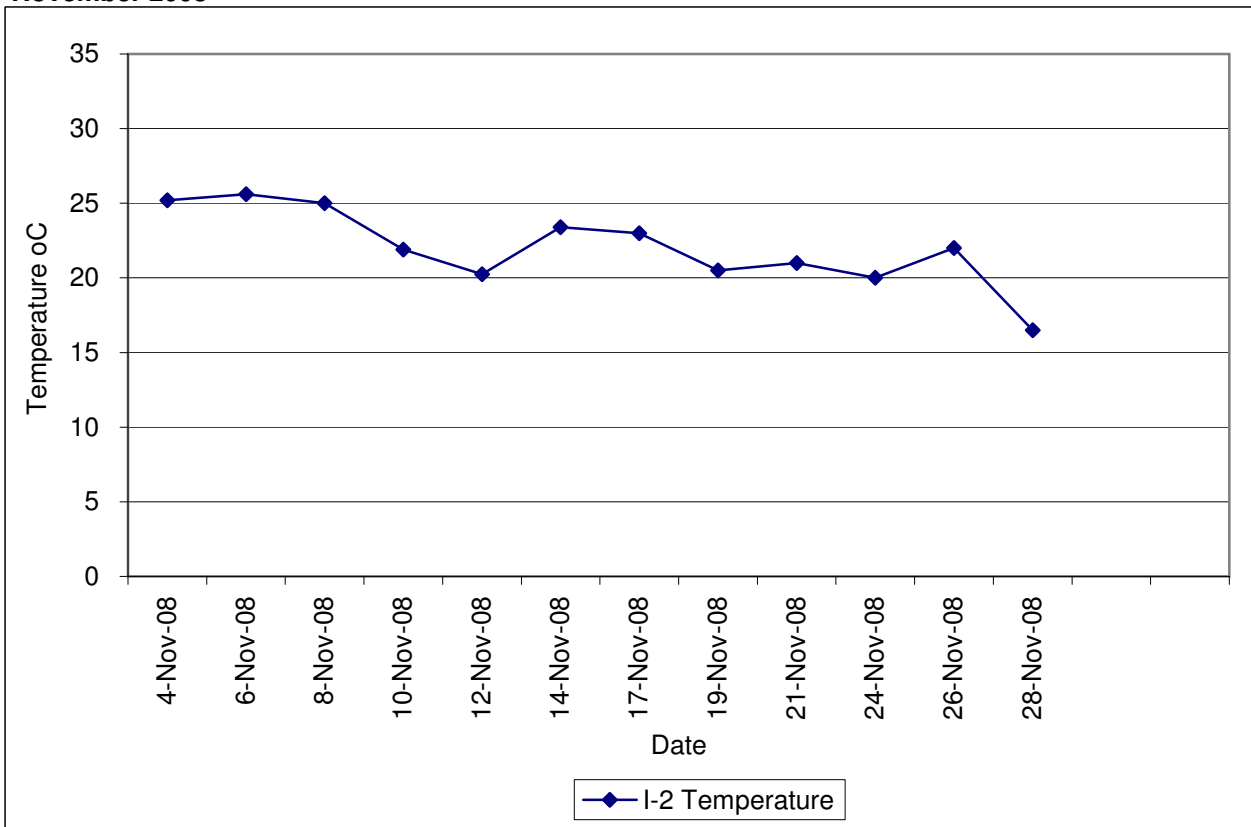
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)  
November 2008**



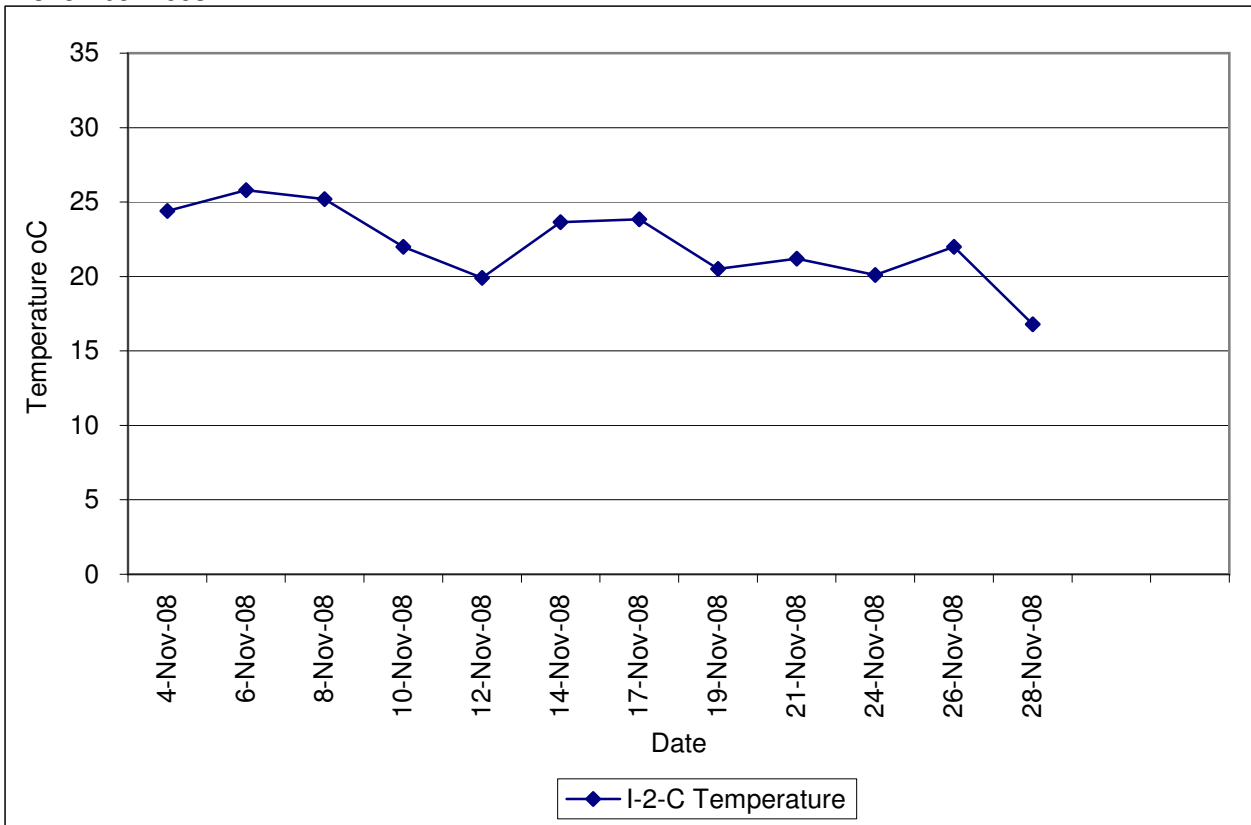
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)  
November 2008**



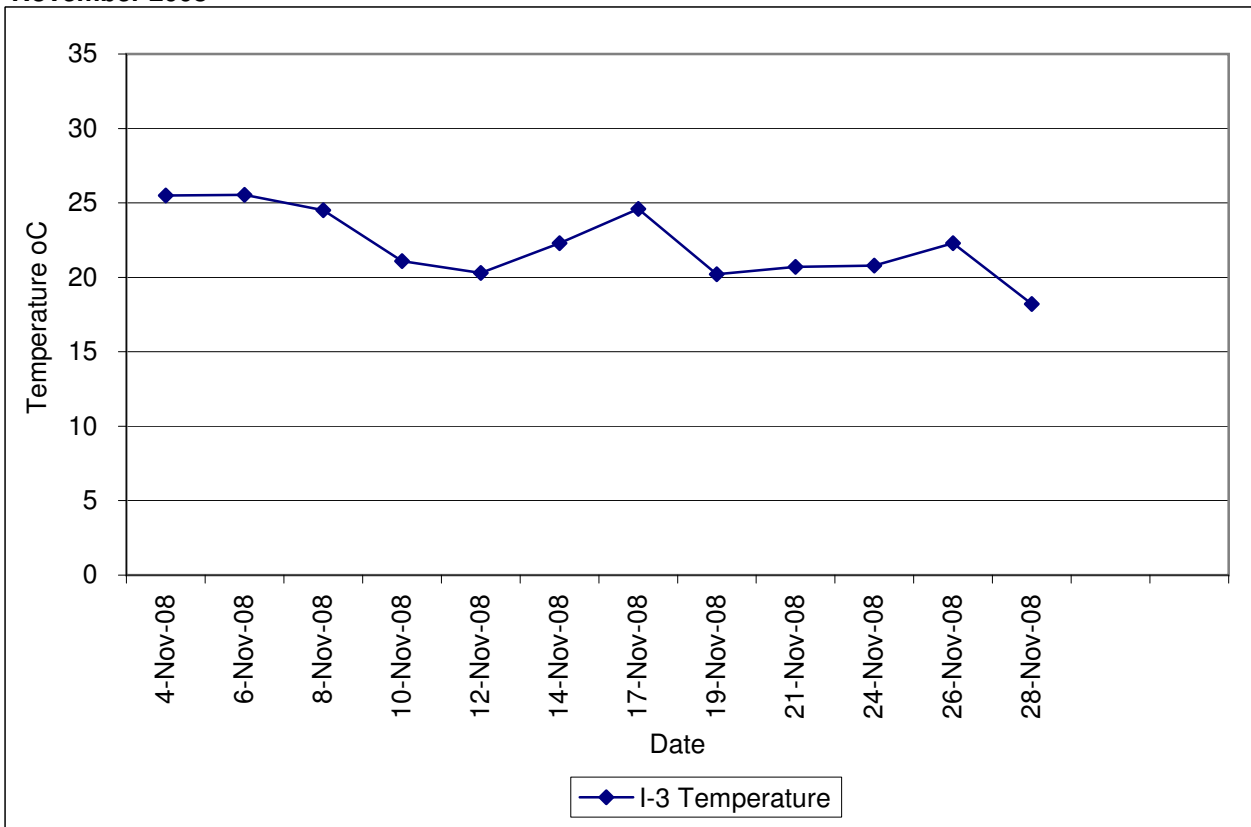
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2)  
 November 2008**



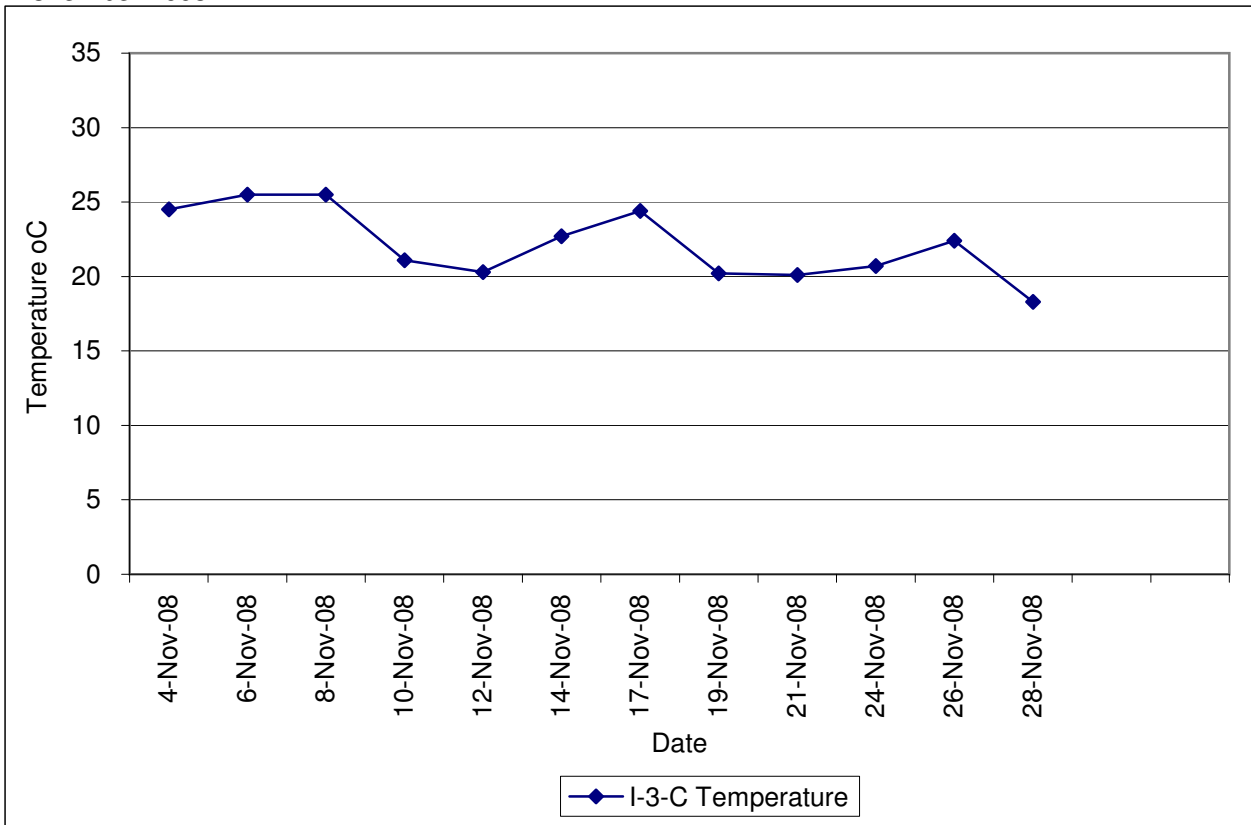
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)  
 November 2008**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3)  
November 2008**

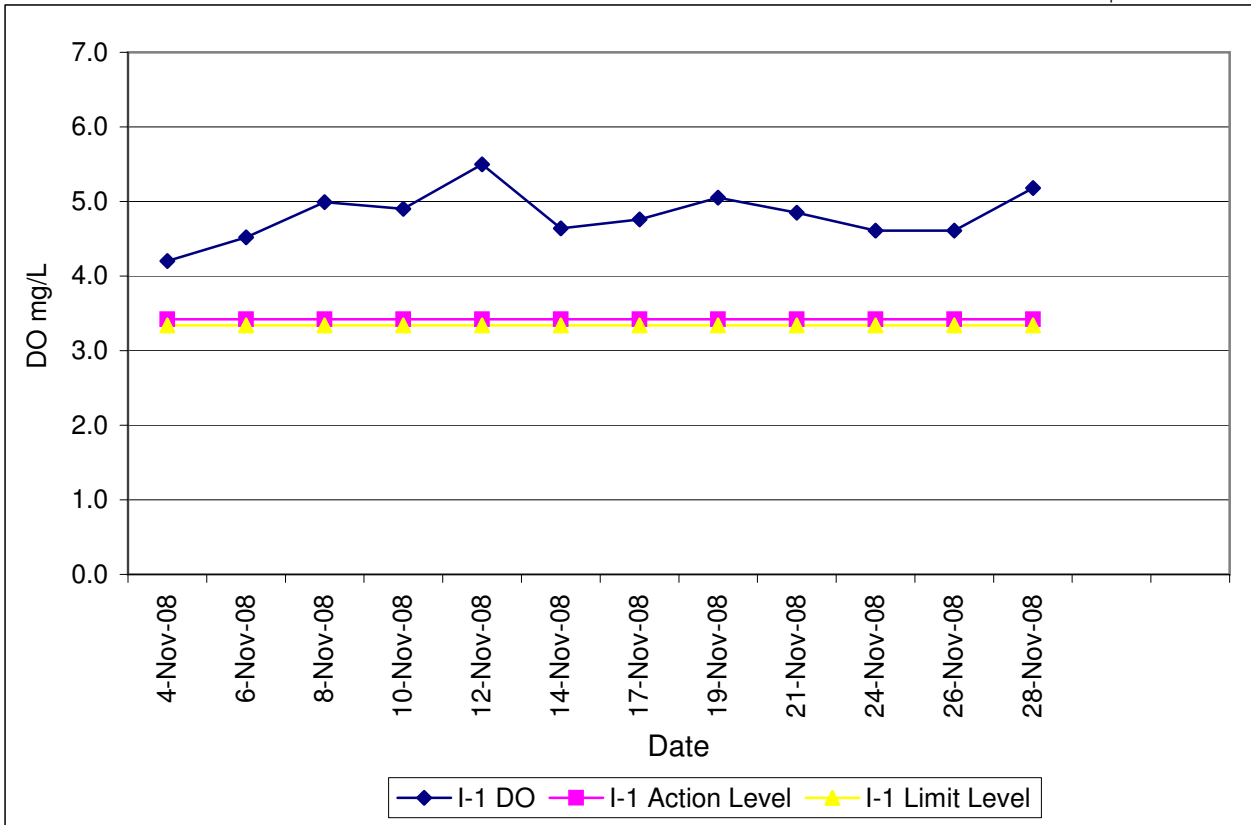


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3-C)  
November 2008**

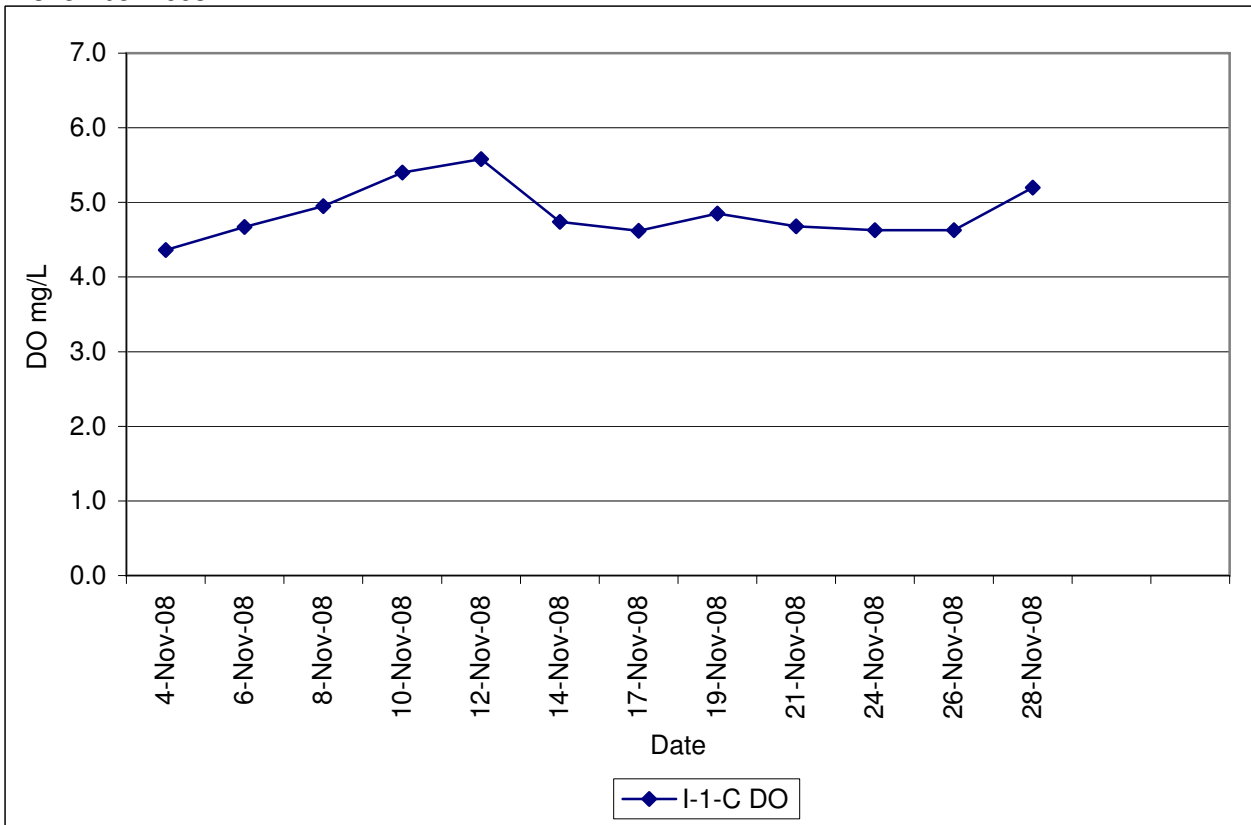


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)  
November 2008**

Note: Exceedances of Action / Limit Levels occur when the levels of DO are below the respective limit levels.

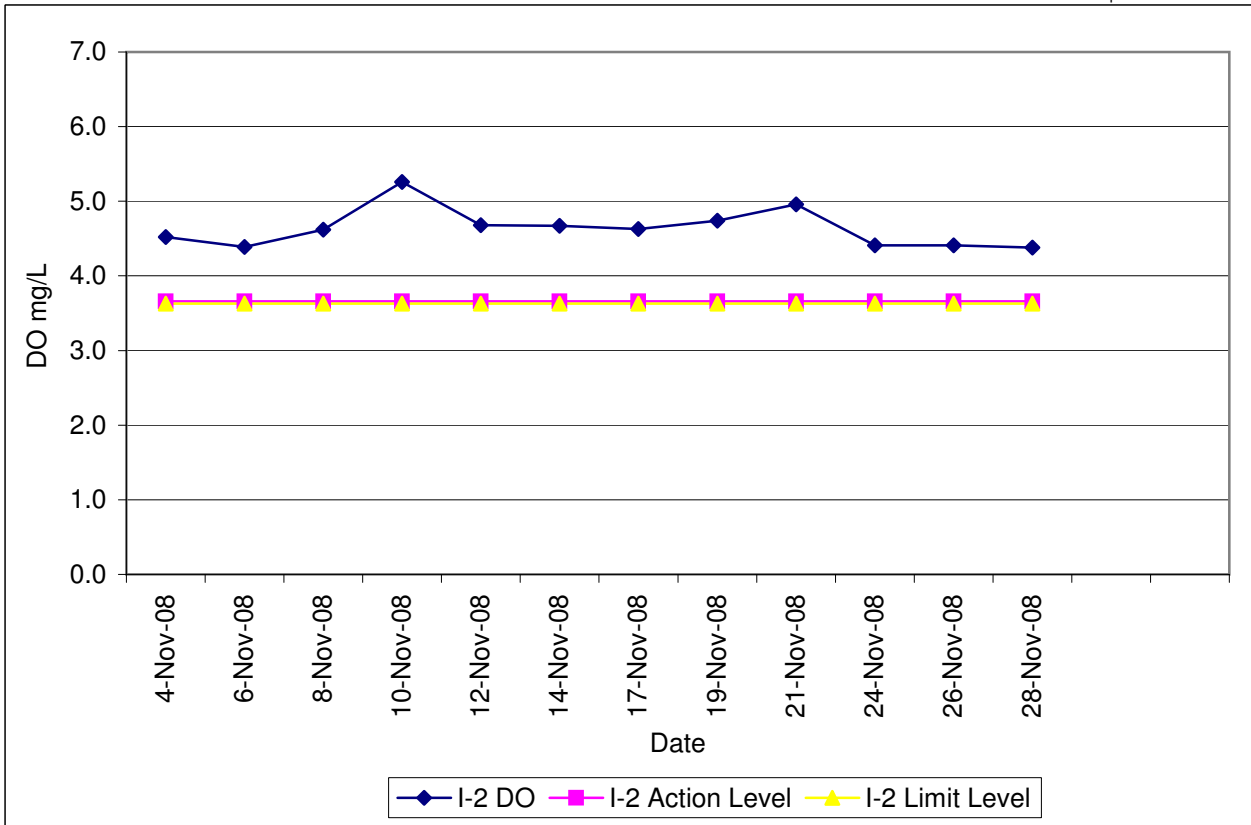


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)  
November 2008**

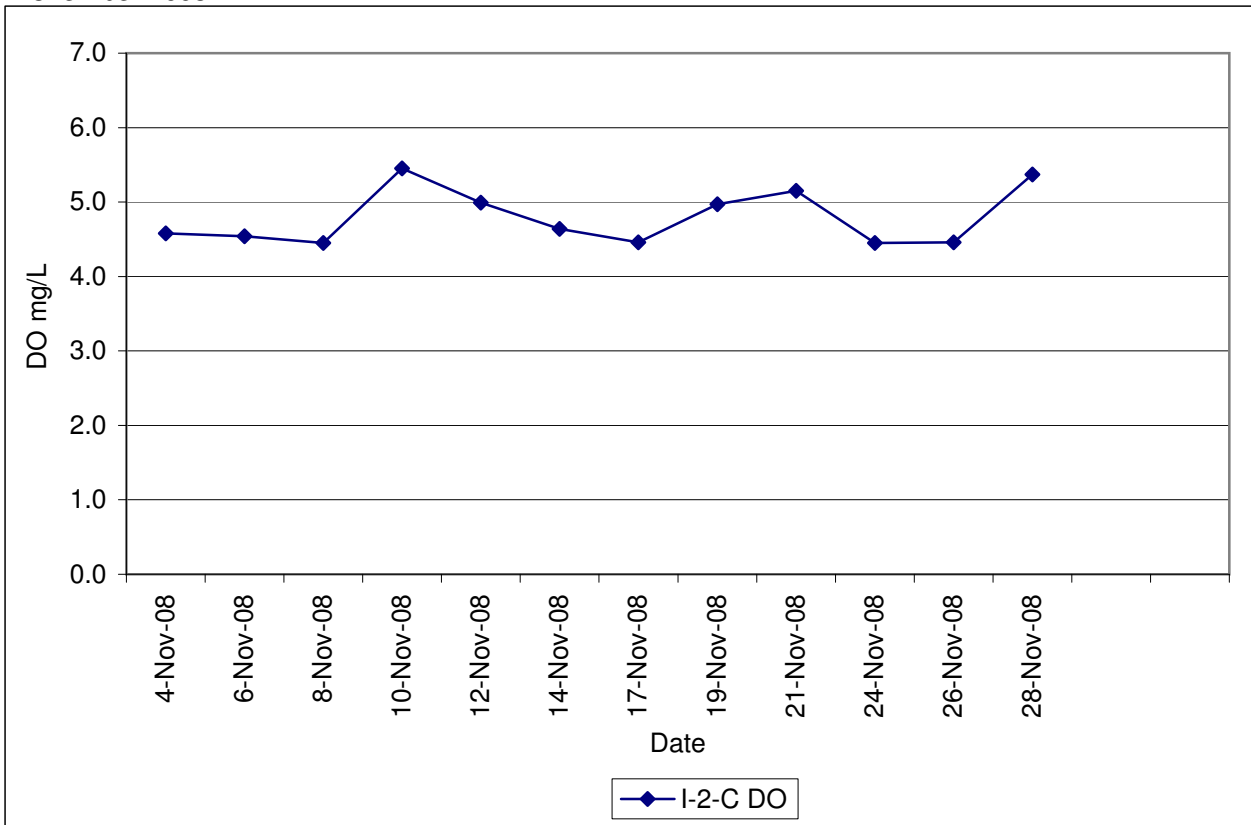


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)  
November 2008**

Note: Exceedances of Action / Limit Levels occur when the levels of DO are below the respective limit levels.



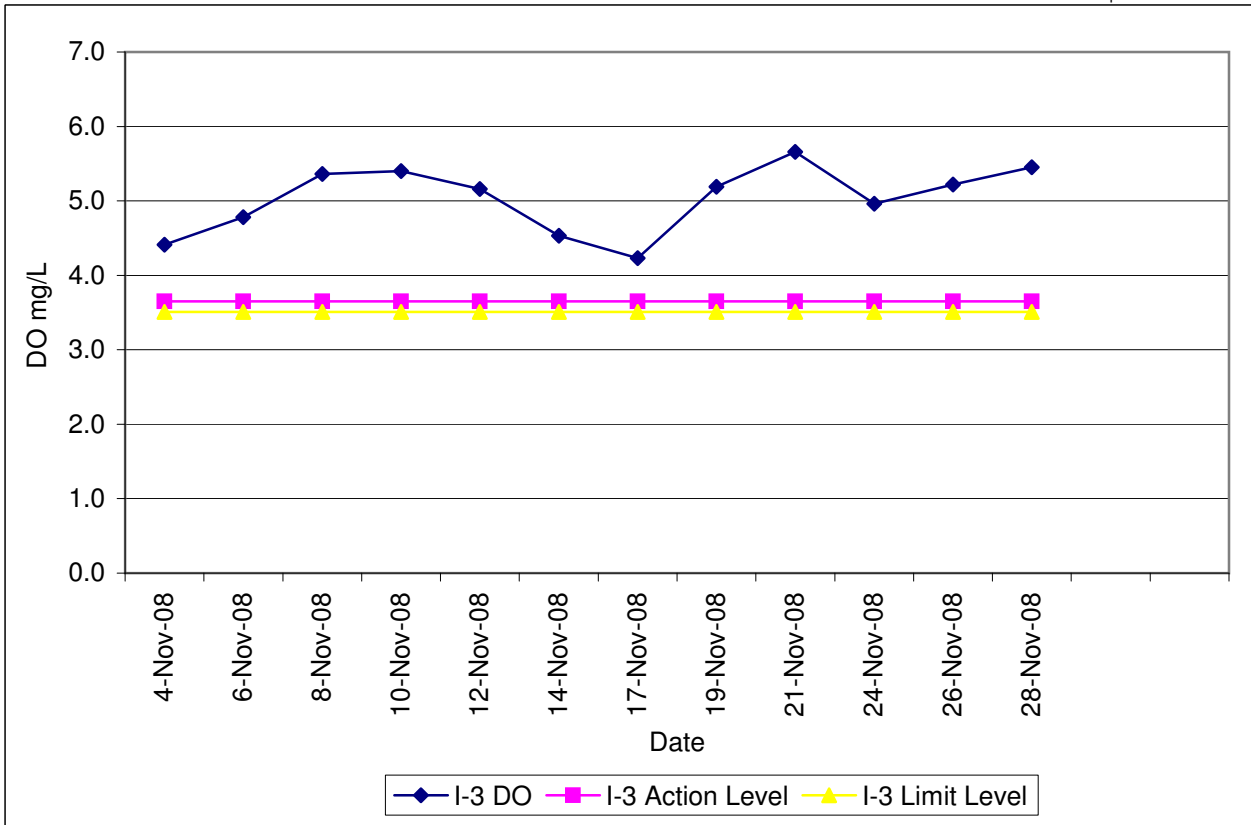
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)  
November 2008**



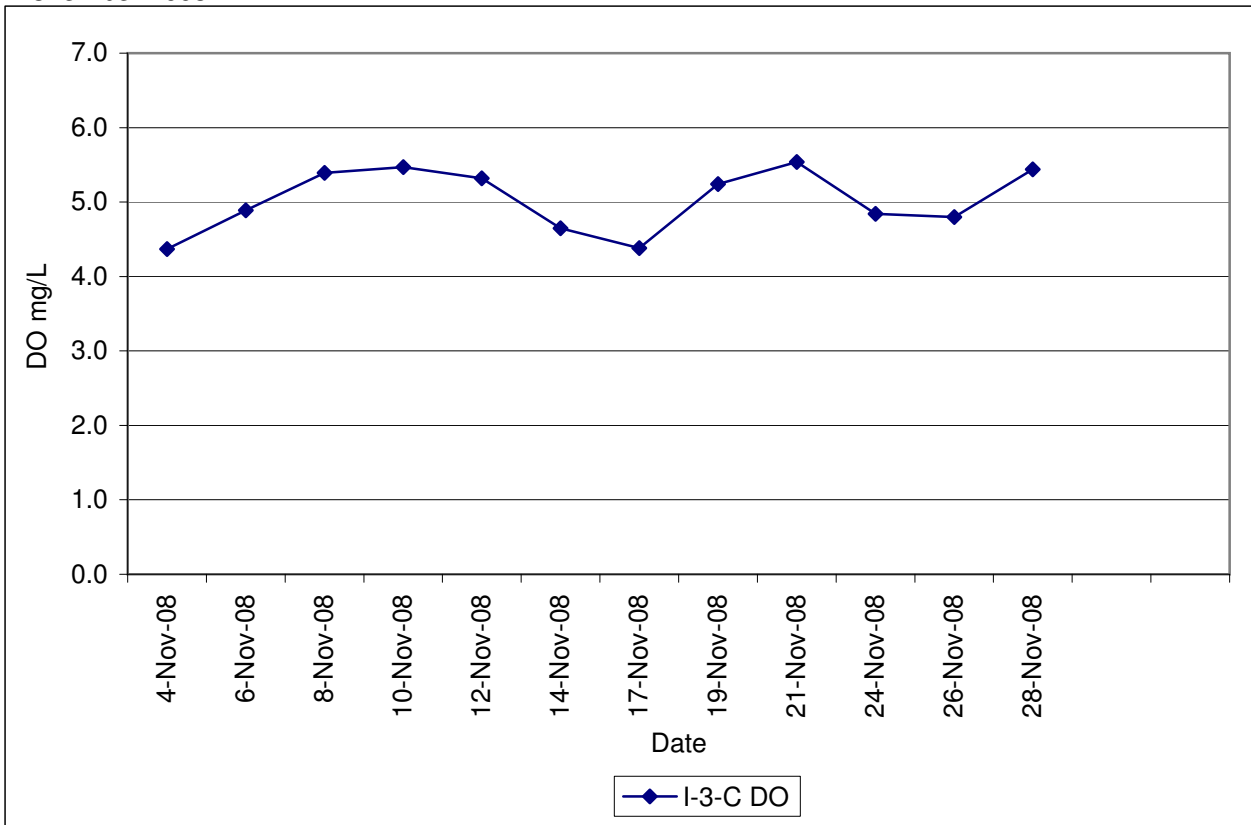


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3)  
November 2008**

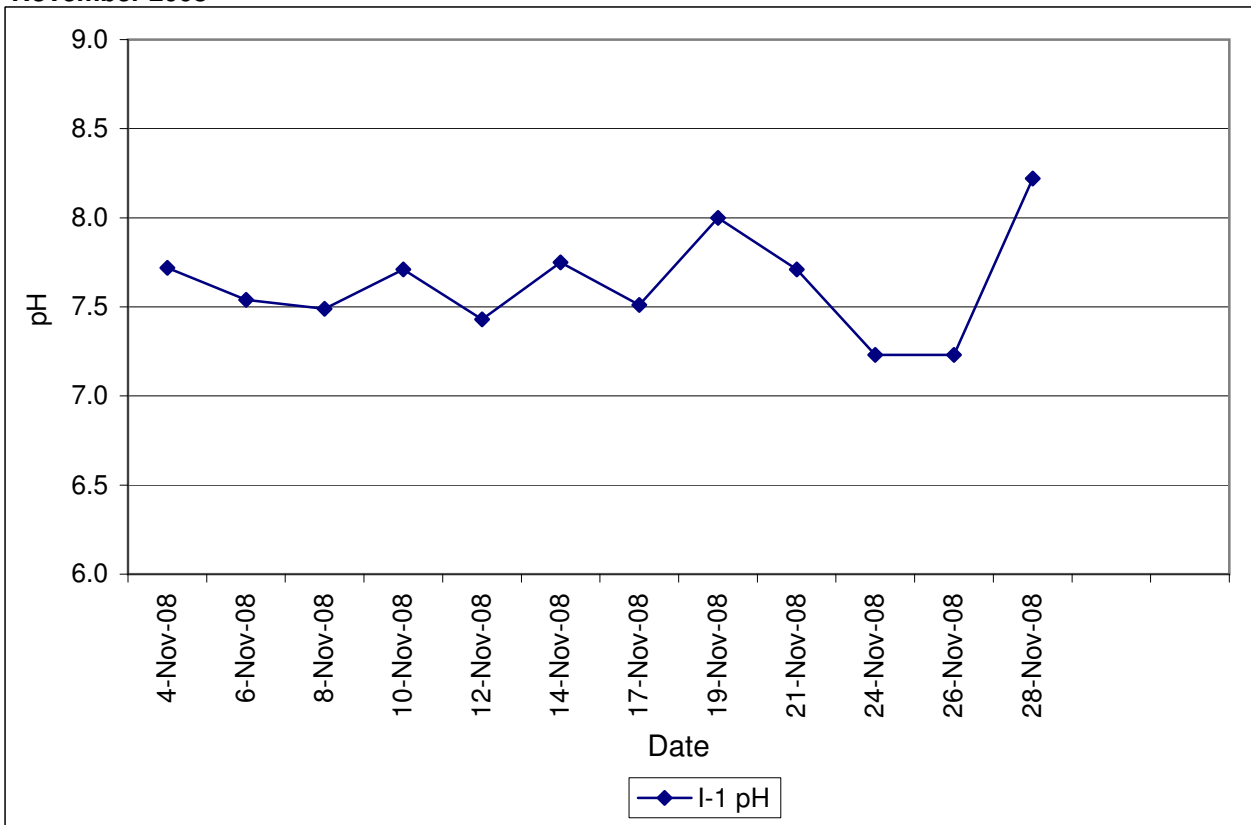
Note: Exceedances of Action / Limit Levels occur when the levels of DO are below the respective limit levels.



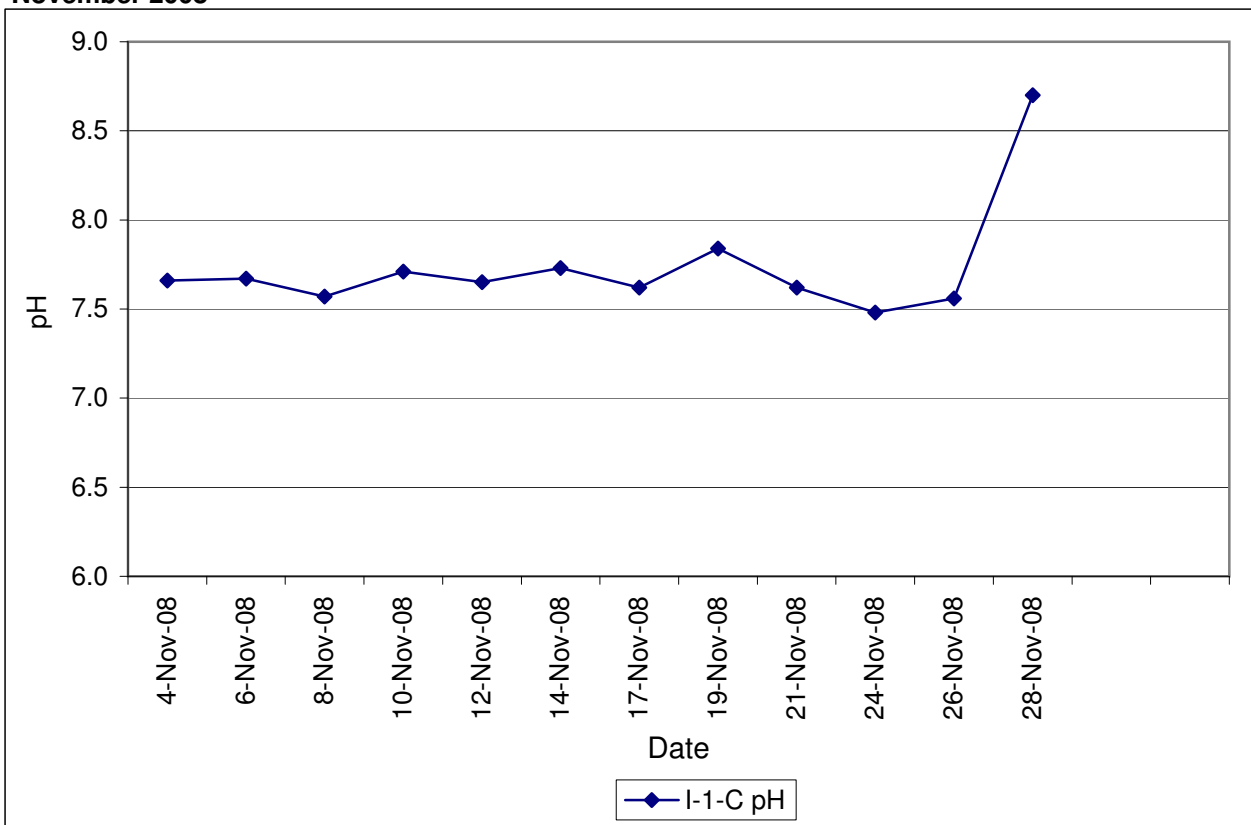
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3-C)  
November 2008**



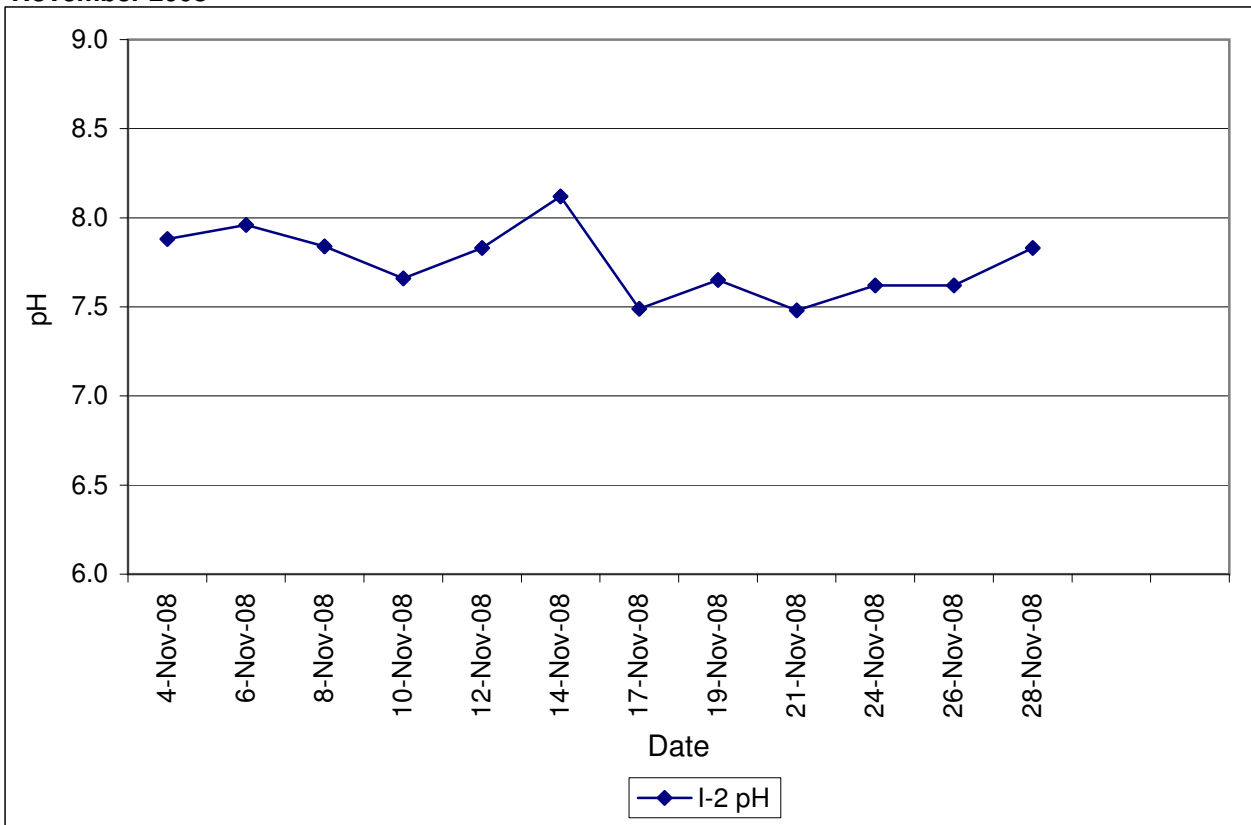
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)  
November 2008**



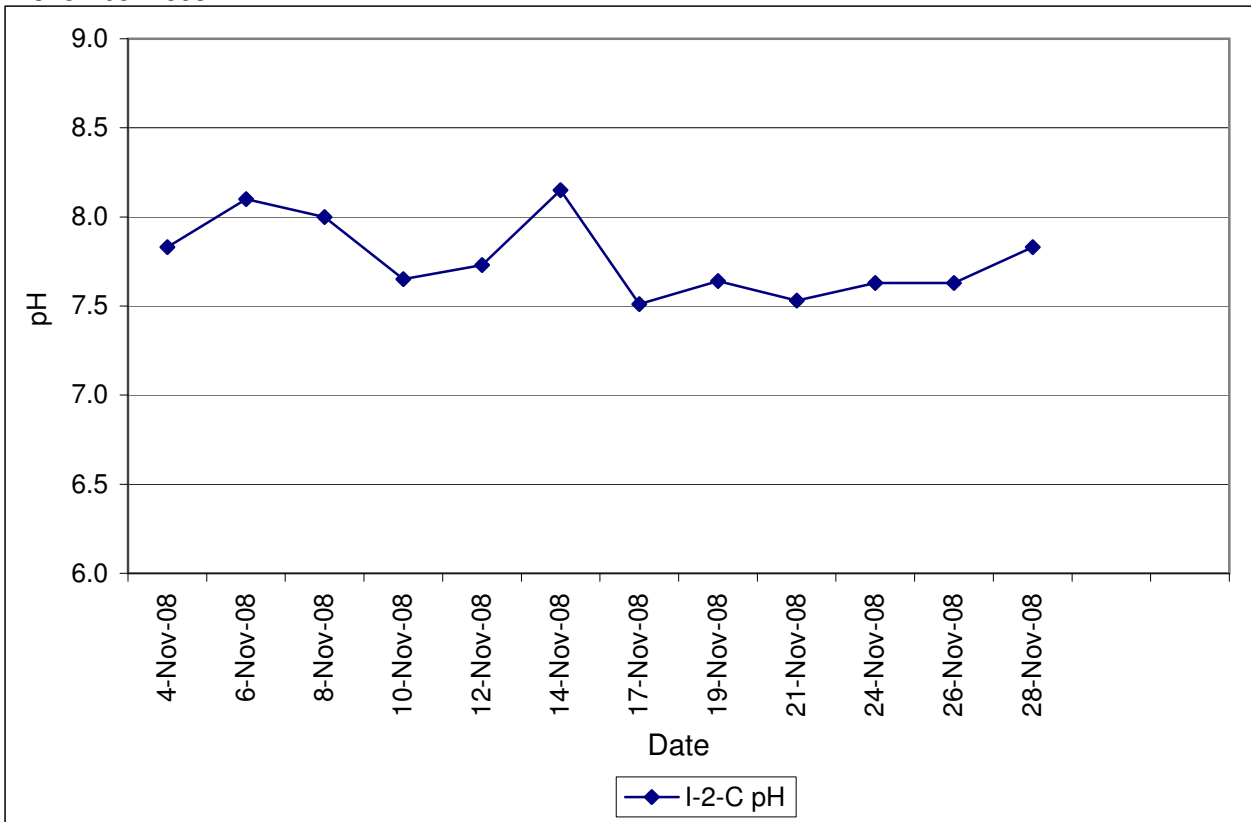
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)  
November 2008**



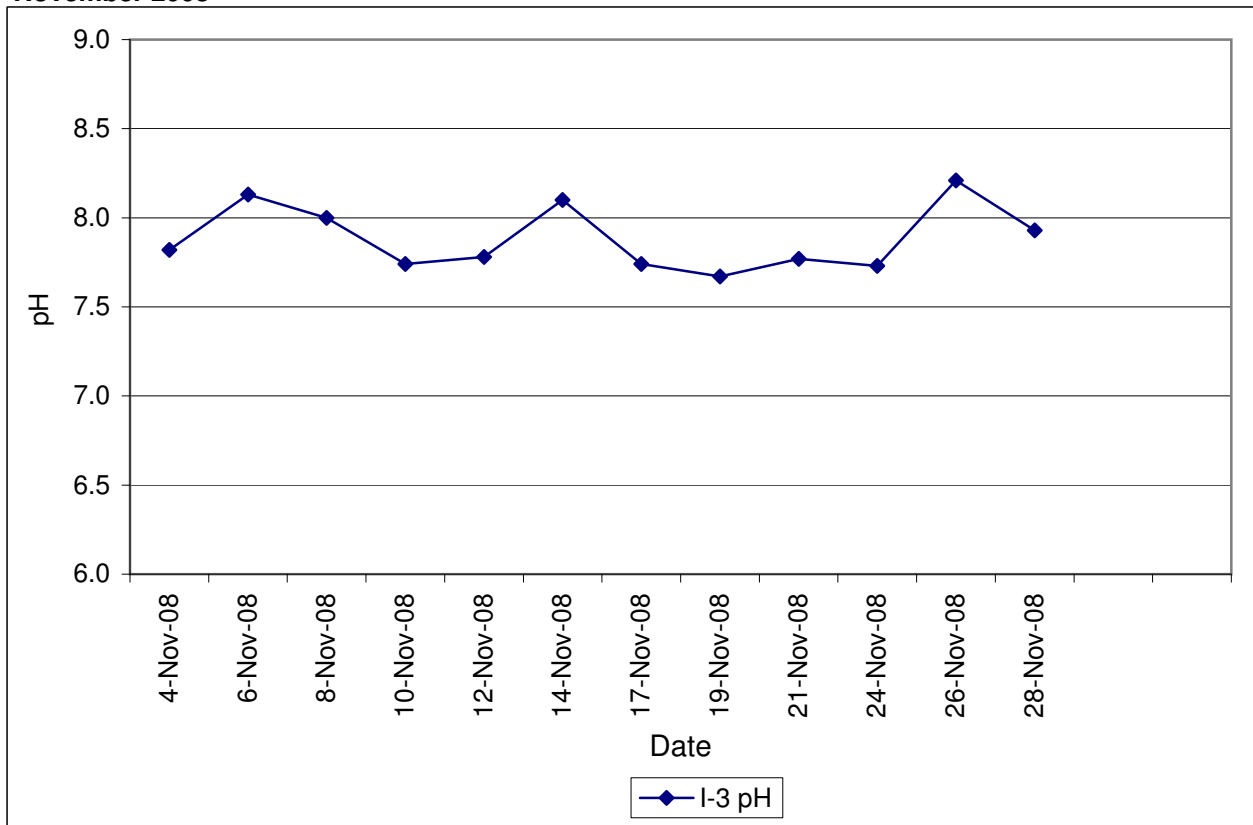
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)  
November 2008**



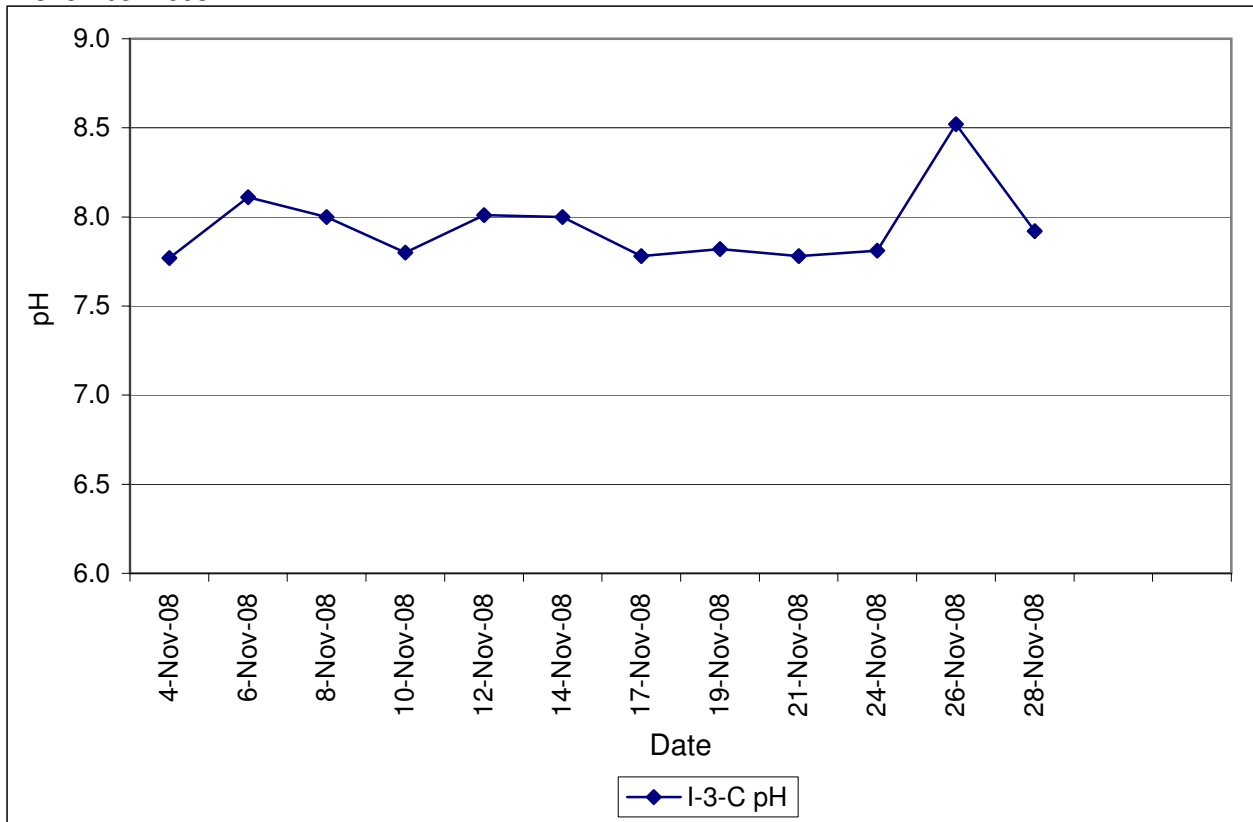
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)  
November 2008**



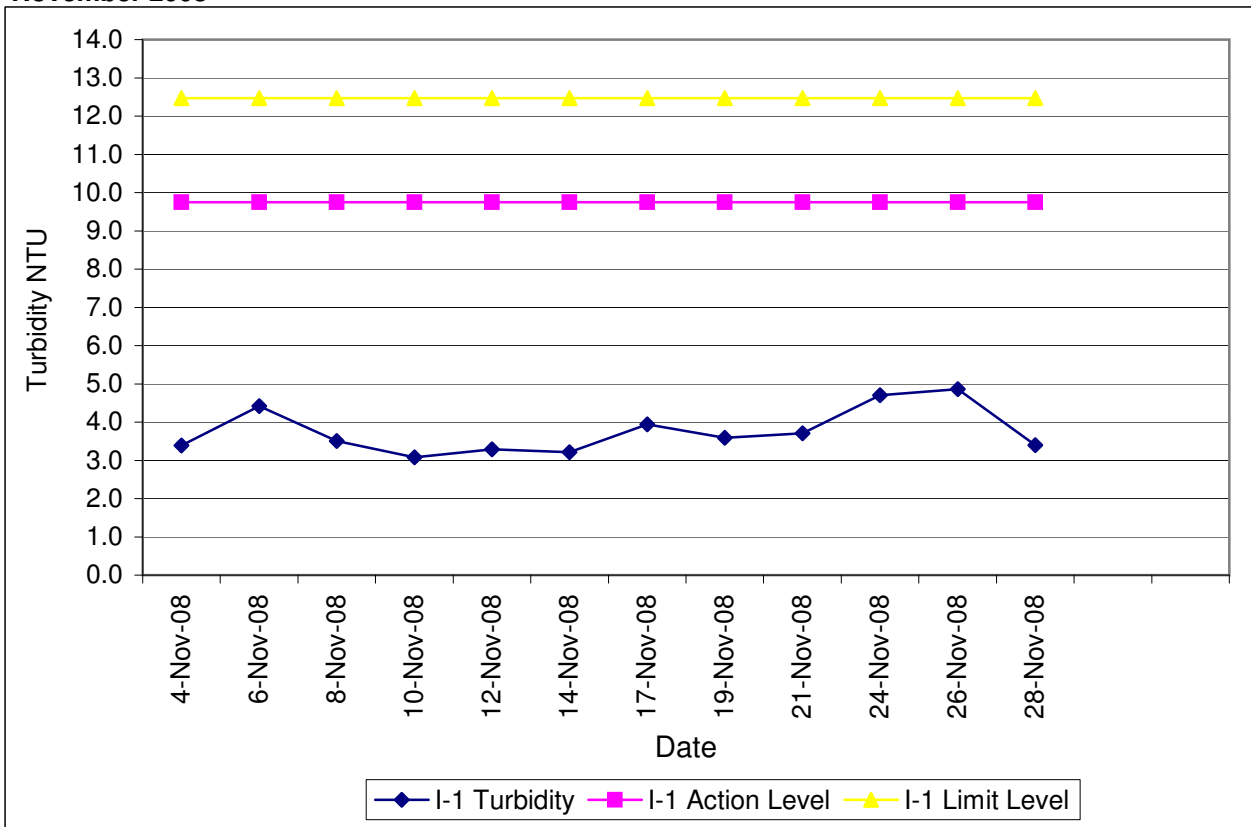
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3)  
November 2008**



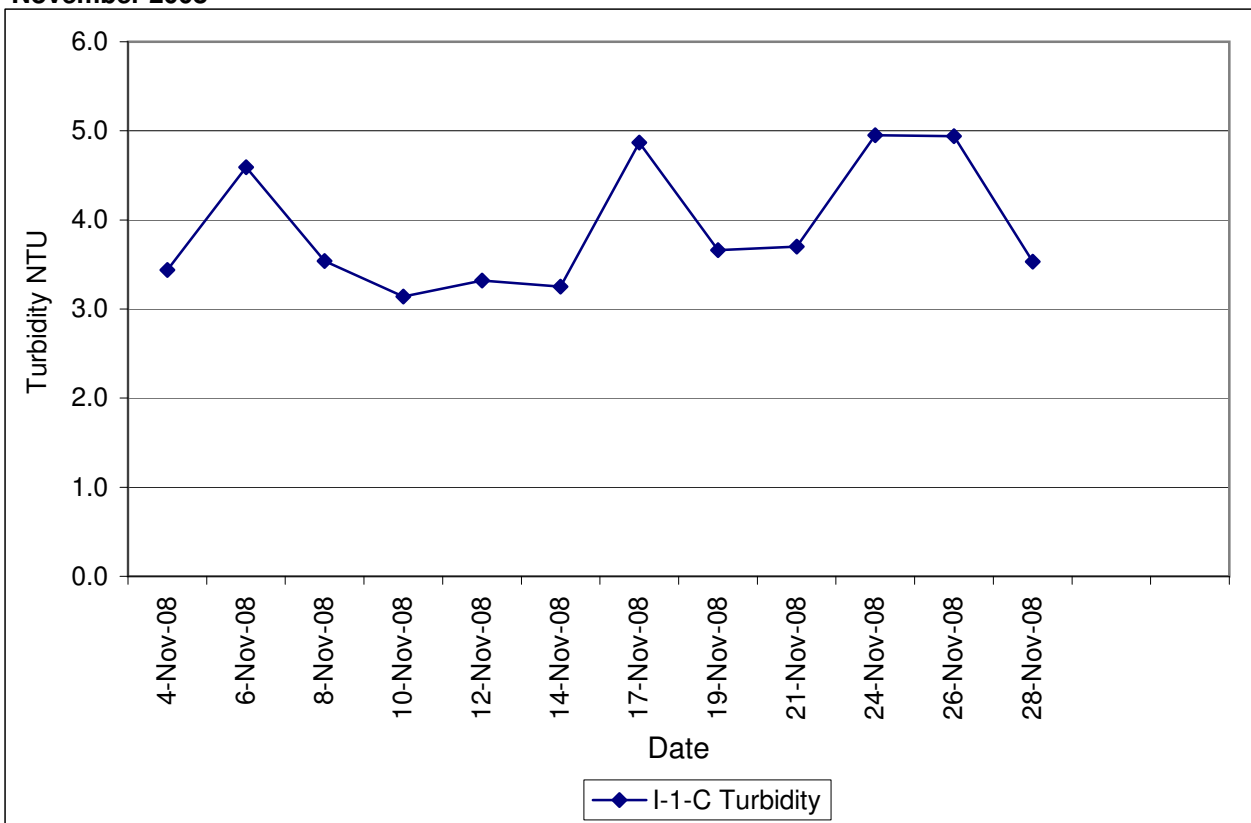
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3-C)  
November 2008**



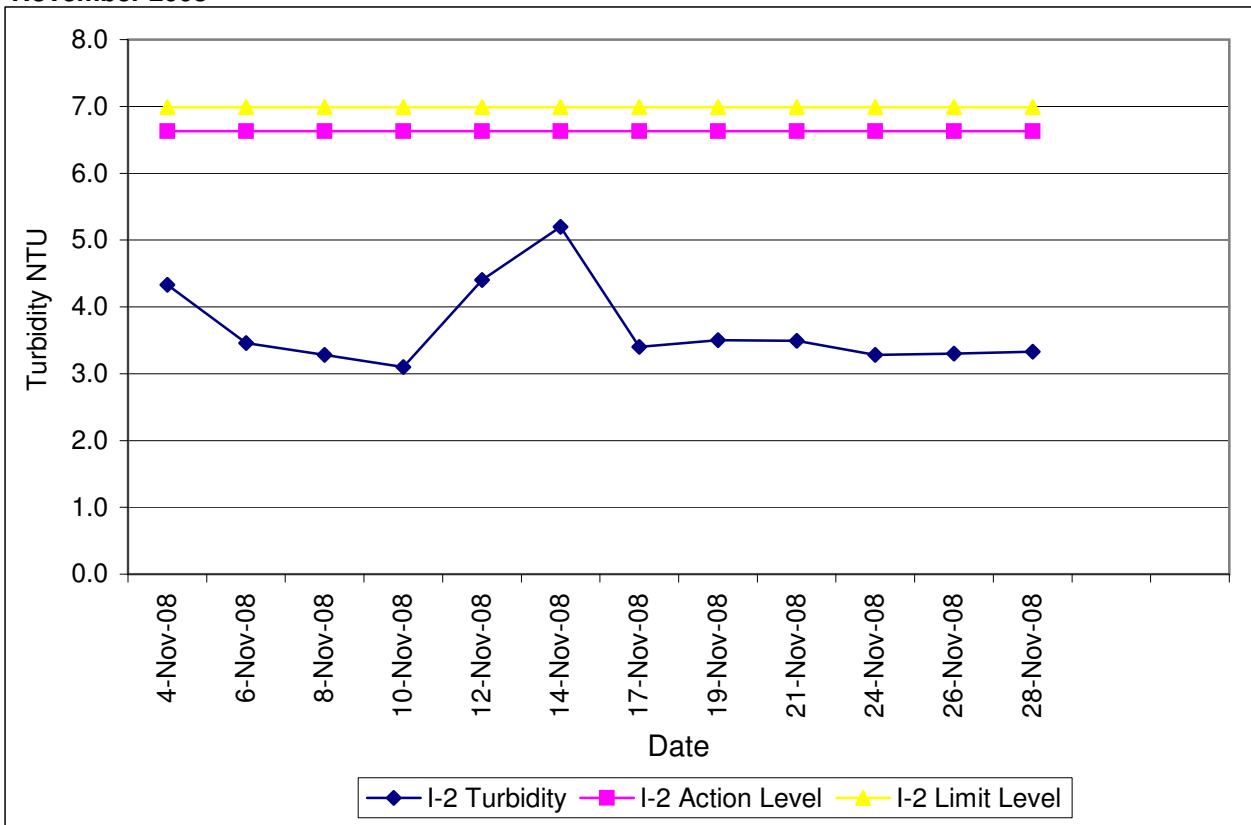
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)  
 November 2008**



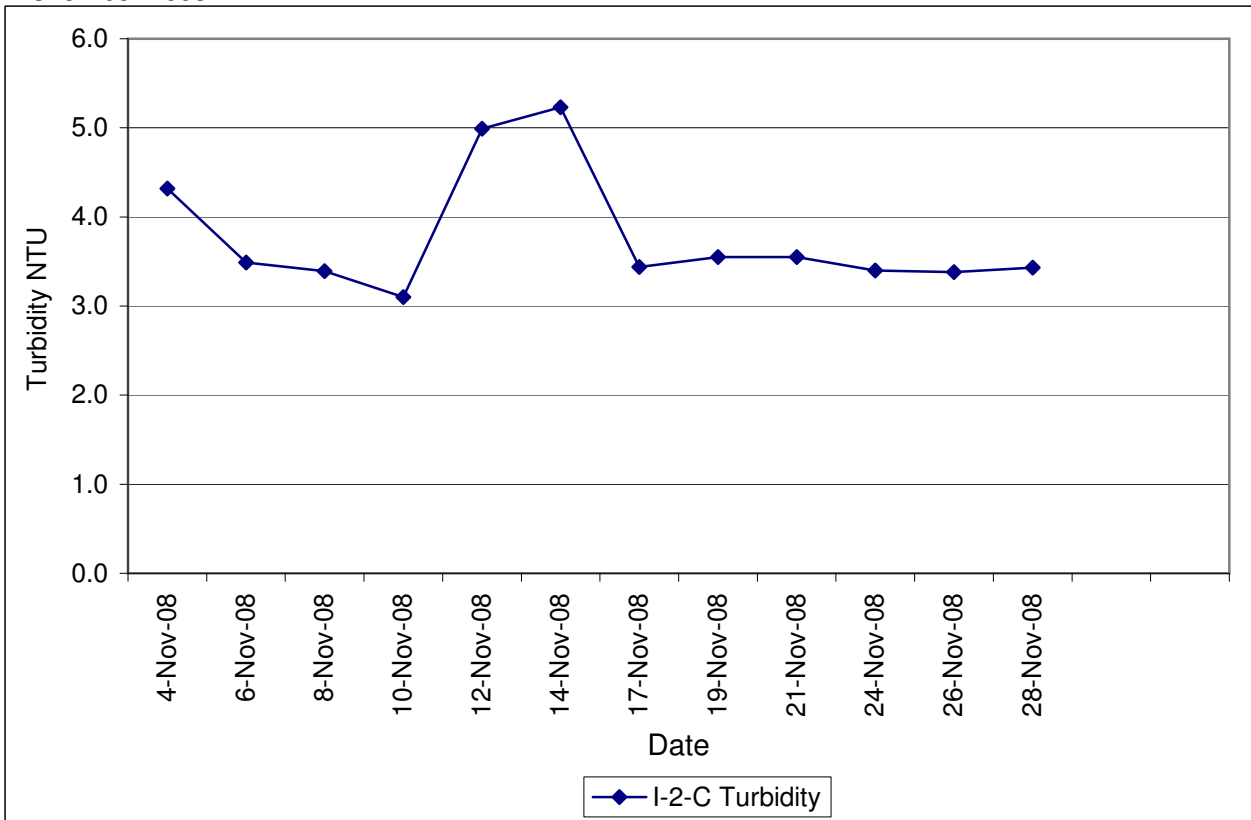
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)  
 November 2008**



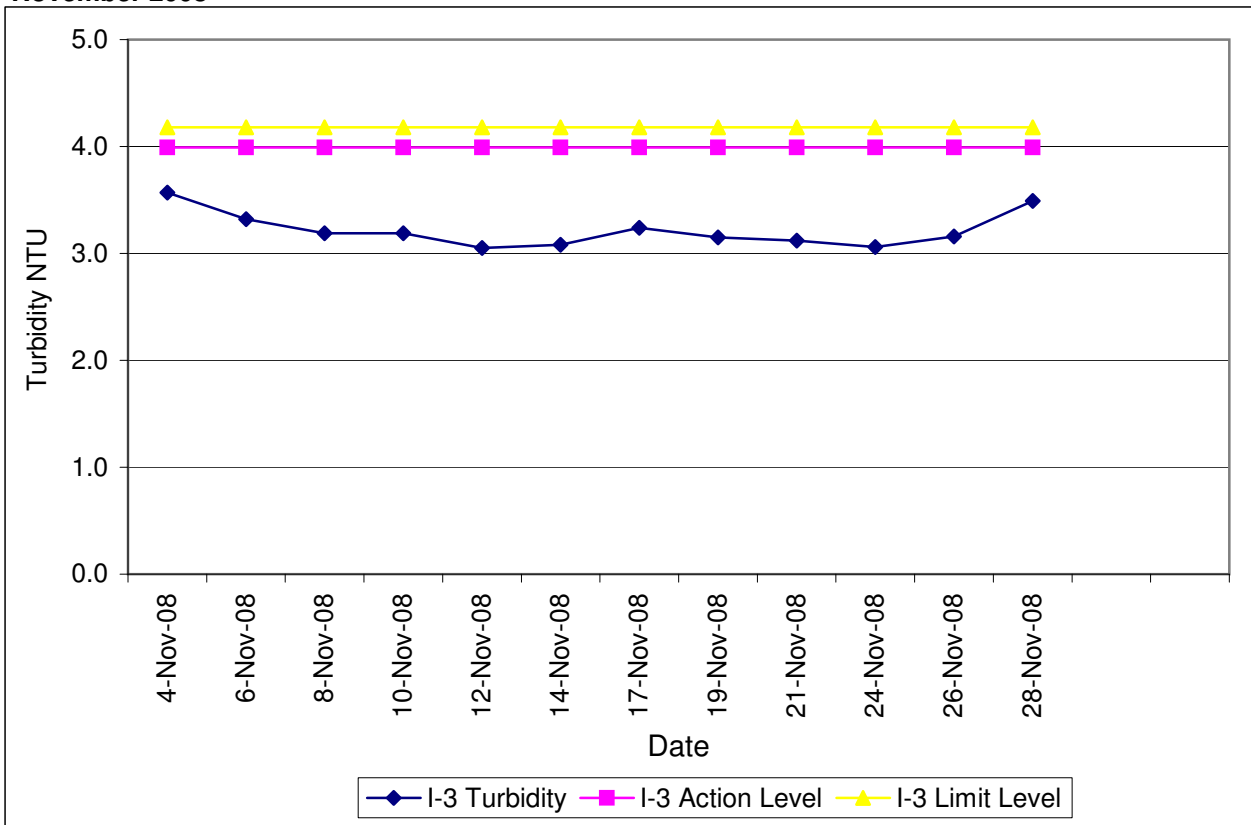
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2)  
 November 2008**



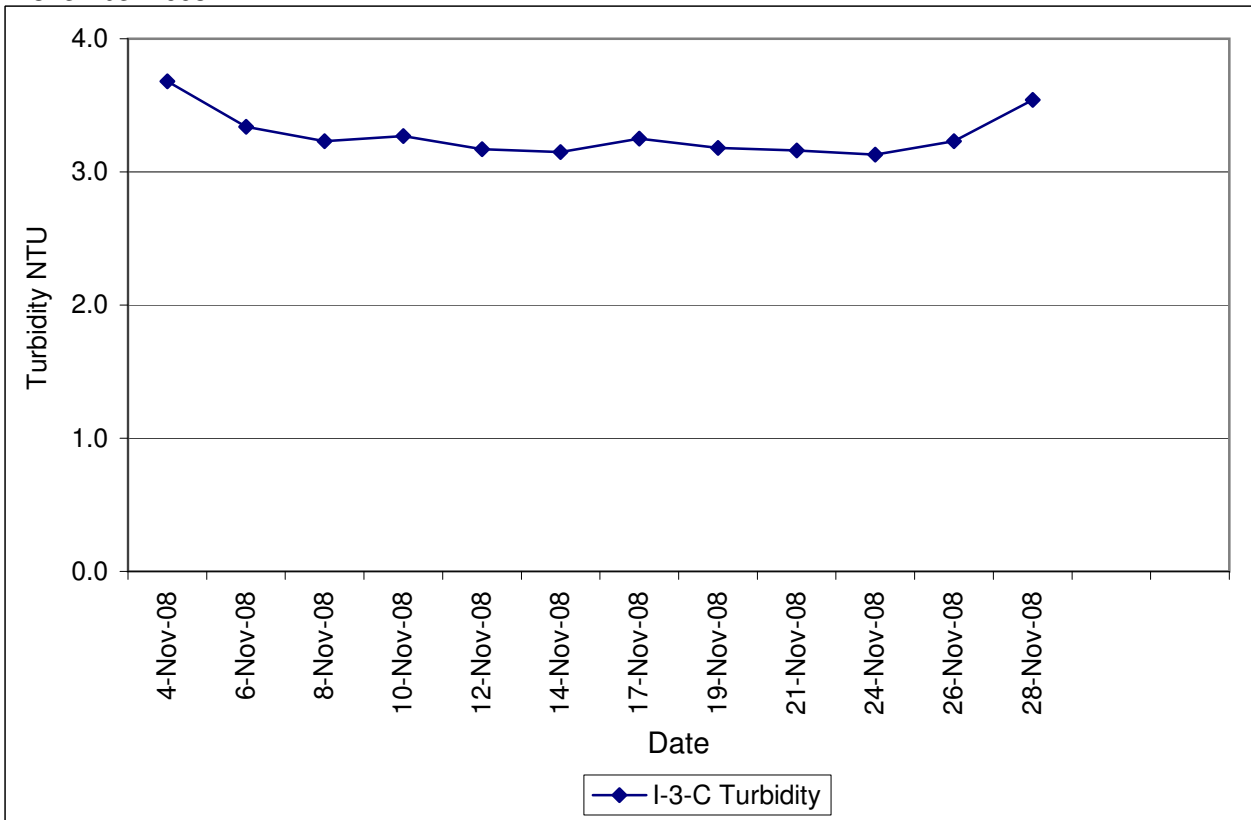
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)  
 November 2008**



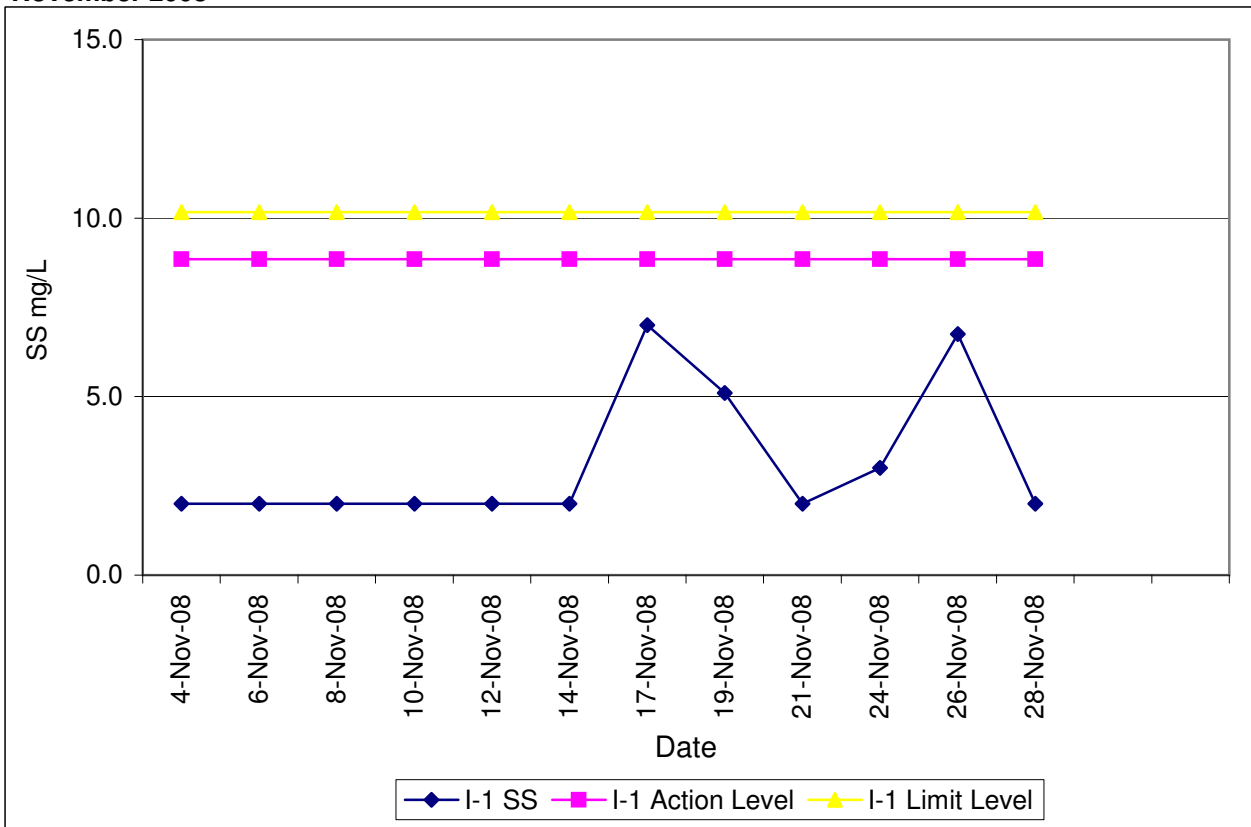
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Squatters (I-3)  
 November 2008**



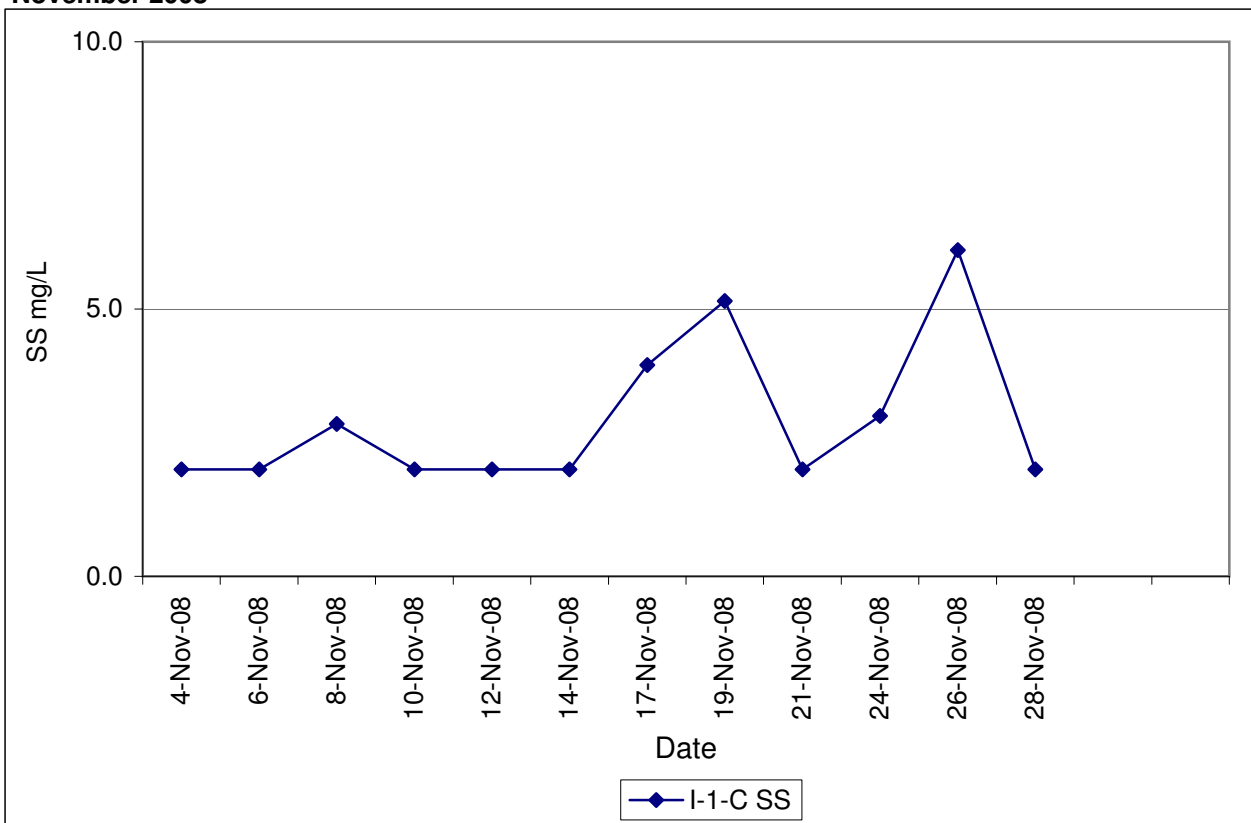
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Squatters (I-3-C)  
 November 2008**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)  
 November 2008**

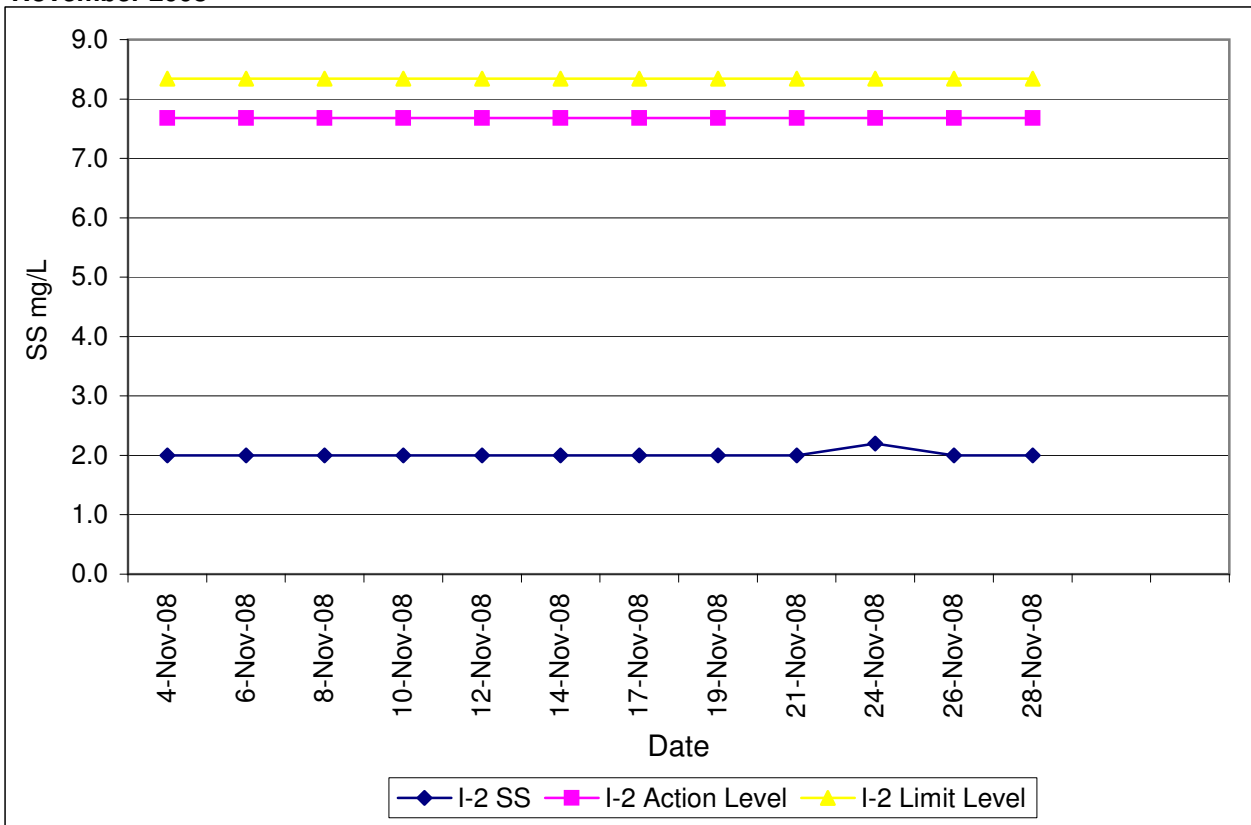


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)  
 November 2008**

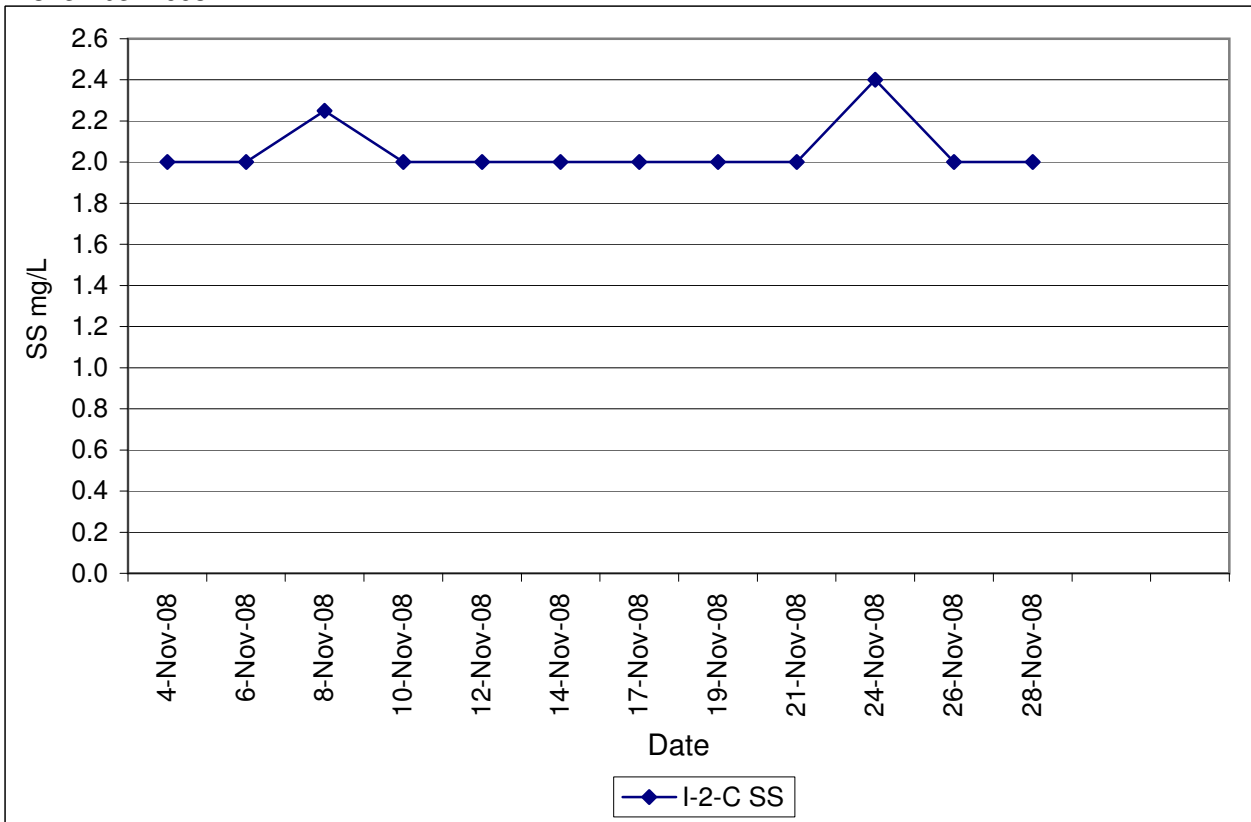




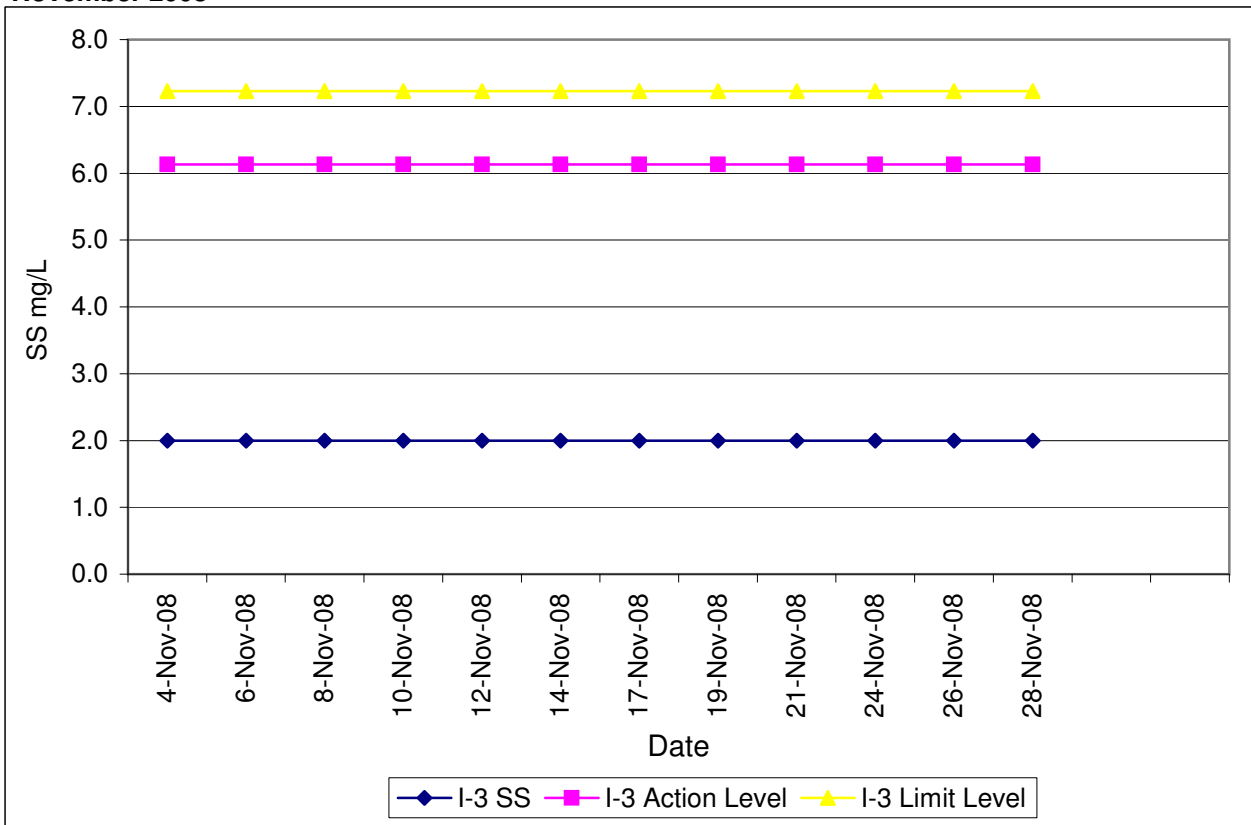
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2)  
 November 2008**



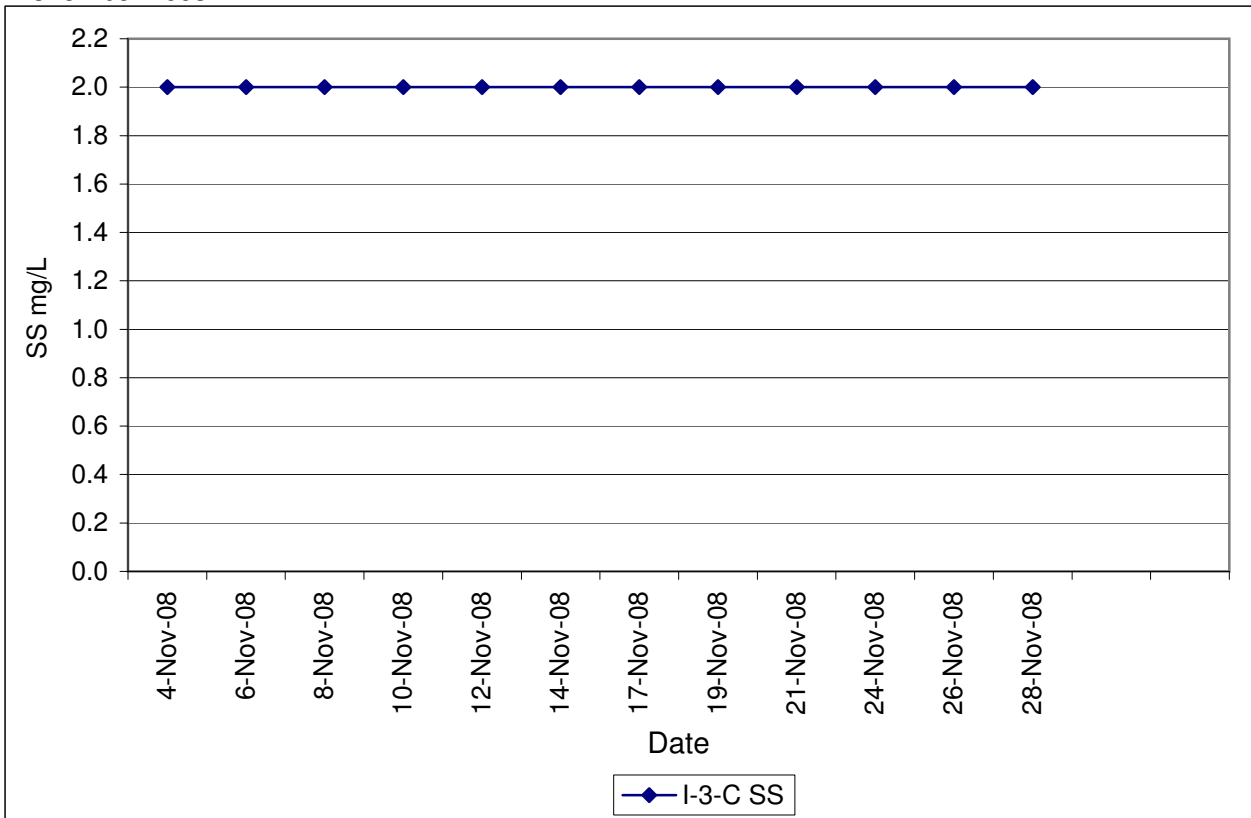
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)  
 November 2008**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3)  
November 2008**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Water Quality Results at Squatters (I-3-C)  
November 2008**



# Appendix J

---

## Interim Notifications of Environmental Quality Limits Exceedances

**Interim Notifications of Environmental Quality Limits Exceedances**

Incident Report on Action Level or Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	17-Nov-08
Time	9:40 AM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solid
Action & Limit Levels	8.85 / 10.17
Measured Level	7.0 (higher than 130% of control station's SS)
Possible reason for Action or Limit Level Non-compliance	A low SS level of 4.0 is recorded at Control Station (I-1-C)
Actions taken / to be taken	No action is taken as the monitoring result was well below both Baseline Action & Baseline Limit Levels and no direct disturbance was observed contributed by project construction activities including site tidiness, drilling temporary pipe pile for spiral ramp construction. No exceedance was recorded for the subsequence measurement performed on 19/11/2008.
Remarks	The control limit level exceedance is considered not project-related.

Prepared by: Desmond Chan

Designation: Senior Environmental Consultant

Signature: 

Date: 25-Nov-08

Photographic record for exceedance of Suspended Solid recorded at Sik Sik Yuen Ho Fung College (I-1) on 17-Nov-08



**Interim Notifications of Environmental Quality Limits Exceedances**

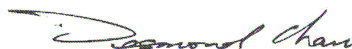
Incident Report on Action Level or Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	27-Nov-08
Time	1:30 PM
Monitoring Location	Greenview Terrace (ASR9)
Parameter	Total Suspended Particulate
Action & Limit Levels	329.2 / 500
Measured Level	376
Possible reason for Action or Limit Level Non-compliance	Fugitive dust generated from tree logging and site tidiness was observed during the measurement of 1st 1hr TSP monitoring.
Actions taken / to be taken	Contractor was requested to provide water spraying for dust suppression. Water spraying was immediately provided by Contractor. The consequent monitoring results (2nd, 169.5ug/m <sup>3</sup> and 3rd, 135.1 ug/m <sup>3</sup> ) were below Action and Limit Level. The recommended dust suppression measures were effective.
Remarks	Nil

Prepared by: Desmond Chan

Designation: Senior Environmental Consultant

Signature:



Date: 4-Dec-08

**Photographic record for exceedance of Total Suspended Particulate recorded at Greenview Terrace (ASR9) on 27-Nov-08**

