





Maeda - CREC - SELI Joint Venture

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

Monthly EM&A Report (May 2010)

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EXECUTIVE SUMMARY

- 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 May 2010.
- 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 the non restricted hours, major construction activities undertaken by the Contractor at TWDT included site cleaning and tidying at I-1, I-2, I-3 and Outfall; drilling and rock breaking for shaft excavation at I3; pre-bored H-pile drilling for spiral ramp excavation at Outfall; structural steelwork erection for much hopper and conveyor support at Outfall; excavation of man access shaft & vortex shaft at I2; cascade and channel modification concrete structure works at I-1; installation of noise enclosure to gantry carne structure at I2; soil nail works and pipe jacking pit excavation at portion G at I2; and pre-assembly of TBM and TBM drilling of the tunnel at Outfall. During restricted hours, only delivery of TBM backup plants was carried out within the reporting month.
- 4. No exceedances have been recorded for air quality and noise monitoring during the reporting
- 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	Two recorded at I-1 on 5 and 28 May 2010.	Nil

- 6. The status of waste generation in the reporting month are:
 - A total of 1036.4 m³ C&D material was disposed of to public fill at Tuen Mun and 1215.0 m³ inert C&D materials were reused in other Contracts. Detail information could be referred to Section 5.1.1 of this report.
 - About 15.5 m³ general waste was disposed of to NENT Landfill;



- No paper/cardboard was recycled in the reporting month;
- No metals was generated in the reporting month;
- No plastic waste was disposed of in the reporting month; and
- 240 kg chemical waste was disposed of in the reporting month.
- 7. 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.
- 8. As advised by the Contractor and verified by ET:
 - No non-compliance regarding the site inspection 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.
- 9. The major construction works for the upcoming three months will be:
 - Site Cleaning and Tidying at I1, I2, I3 and Outfall;
 - Erection of Muck Hopper and Conveyor Support steel structure at Outfall;
 - Drilling and Excavation of Man Access Shaft & Vortex Shaft at I2;
 - Construction of Approach Channel Structure at I2;
 - Erosion Control Mat and Green Wire Mesh at Outfall;
 - Cascade and Channel Modification concrete structure works at I-1;
 - Construction of Skin Wall at I-3;
 - Assembly of TBM, TBM Drilling of the Tunnel at Outfall;
 - Installation of noise enclosure at Outfall and I2;
 - Pipe jacking installation at Portion G at I2;
 - Drilling and Excavation of Spiral Ramp at Outfall;
 - Drilling and Excavation of Vortex Shaft at I3;
 - Restricted Hours Delivery of TBM Backup Plants.



1 INTRODUCTION

- 1.1.1 The Drainage Services Department (DSD) proposed 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 twenty-sixth monthly EM&A report summarising the impact monitoring results and audit findings of the EM&A program in May 2010.



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 Cleaning and Tidying I-1, I-2, I-3 and Outfall;
 - Drilling and rock breaking for shaft excavation at I3;
 - Pre-bored H-pile drilling for Spiral Ramp Excavation at Outfall;
 - Structural Steelwork Erection for Muck Hopper and Conveyor Support at Outfall;
 - Excavation of Man Access Shaft & Vortex Shaft at I2;
 - Cascade and Channel Modification concrete structure works at I-1;
 - Installation of Noise Enclosure to gantry crane structure at I-2;
 - Soil nail works and pipe jacking installation at Portion G at I-2;
 - Assembly of TBM, TBM Drilling of the Tunnel at Outfall;
- 2.2.3 During restricted hours, only delivery of TBM backup plants was carried out within the reporting month.

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 desiccators 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 5points 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	1559	ASR 1
HVAS	BM2000HX	5875	1559	ASR 3
HVAS	TE5005X	0390	1559	ASR 8
HVAS	TE5005X	0646	1559	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.

1-hr TSP Level in μg/m³		
Action Level	Limit Level	
307	500	
327	500	
337	500	
329	500	
	Action Level 307 327 337	

Table 3-3 Action & Limit Levels for Air Quality



EVENT	ACTION				
EVENT	ET	IEC	SOR	CONTRACTOR	
ACTION LEVEL					
Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and SOR; Repeat measurement o confirm finding; Increase monitoring frequency to daily. 		Notify Contractor.	 Rectify any unacceptable practice; Amend working methods if appropriate. 	
Exceedance for two or more consecutive samples	 Identify source; Inform IEC and SOR; Advise SOR on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and SOR; If exceedance stops, cease additional monitoring. 	 ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	measures properly implemented.	 Submit proposals for remedial to SOR within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	
Exceedance for cosample	one • Identify source, investigate the causes of exceedance and propose remedial measures;	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and 	Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working 	



EVENIT	ACTION			
EVENT	ET	IEC	SOR	CONTRACTOR
	 Inform IEC, SOR, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results. 	Contractor on possible remedial measures; • Advise SOR on the effectiveness of the proposed remedial measures; • Supervise implementation of remedial measures.	measures properly implemented.	days of notification; Implement the agreed proposals; Amend proposal if appropriate.
	 Notify IEC, SOR, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and SOR to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results; If exceedance stops, cease additional monitoring. 	 Discuss amongst SOR, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly; Supervise the implementation of remedial measures. 	the IEC, agree with the Contractor on the remedial measures to be implemented; • Ensure remedial measures properly implemented; • If exceedance	 agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by SOR until the exceedance is abated.

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 $L_{eq(30min)}$, 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 $L_{eq(30\ min)}$ 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 Rion Precision Sound Level Meters of Type NA-27 and Type NL-18 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 in this reporting month.
- 3.2.6 Prior to and following each noise measurement, the accuracy of the sound level meters is checked using an acoustic calibrators (Rion Type NC-73) 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.

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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	Rion	NA-27	00201194	NSR1, NSR3, NSR6, NSR8 and
Sound Level Meter	Rion	NL-18	00360030	NSR9
Sound Level Calibrator	r Rion	NC-73	10786708	
Sound Level Calibrator	r Rion	NC-73	10997142	

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. All the locations below are in façade measurement.

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	Craenview Terroce (Block 1)	Podium (up to 6 July2009)
	Greenview Terrace (Block 1)	Roof* (from 16 July 2009)

^{*} The noise monitoring location of NSR9 had been adjusted at rooftop from 16 July 2009.

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

Action **Event ET Leader IEC** SOR Contractor Action Level . Notify IEC and the • Review with analysed • Confirm receipt of • Submit noise Contractor. results submitted by notification of mitigation proposals to ET. exceedance in writing. IEC. Carry out investigation. • Review the proposed • Notify the Contractor. • Implement noise remedial measures by • Require the Contractor mitigation proposals. · Report the results of the Contractor and investigation to IEC to propose remedial advise SOR and the Contractor. measures for the accordingly. analysed noise · Discuss with the Supervise the problem. Contractor and implement of remedial • Ensure remedial formulate remedial measures. measures. measures are properly implemented. · Increase monitoring frequency to check mitigation measures. • Take immediate action Limit Level • Identify the source. Discuss amongst · Confirm receipt of SOR, ET Leader and notification of to avoid further • Notify IEC, SOR, EPD the Contractor on the exceedance in writing. exceedance. and the Contractor. potential remedial • Notify the Contractor. • Submit proposals for Repeat measurement actions. remedial actions to • Require the Contractor



Frank	Action				
Event	ET Leader	IEC	SOR	Contractor	
	to confirm findings. Increase monitoring frequency. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. Inform IEC, SOR, and EPD the causes & actions taken for the exceedances. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and SOR informed of the results. If exceedance stops, cease additional monitoring.	Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly. Supervise the implementation of remedial measures.	to propose remedial measures for the analysed noise problem. • Ensure remedial measures are properly implemented. • 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.	control. • Stop the relevant activity of works as determined by the SOR until the exceedance is abated.	

Table 3-8 Event/Action Plan for Noise

3.3 Water Quality

3.3.1 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 Meter / 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 recalibrated 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 basin at the seashore has not been started, monitoring of marine water quality is only required during which the stilling basin is placed at the seashore area. These four monitoring stations are listed in Table 3-10 below and shown in Appendix G.

Monitoring Station ID	Name of Premises	
<u>l-1</u>	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) & (ET) Outfall 1During Flood Tide and 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	

^{*}The upper stream location (I-3-C*) had been relocated from end of February 2009 due to coarse stone blockage.

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	Surface & Middle
(Surface, Middle &	5%-ile of baseline data for surface	4mg/l except 5mg/l for FCZ or
Bottom)	and middle layer.	1%-ile of baseline data for surface and middle layer
	<u>Bottom</u>	Bottom
	5%-ile of baseline data for bottom layer.	2mg/l or 1%-ile of baseline data for bottom layer
SS in mg/l	95%-ile of baseline data or 120% of	99%-ile of baseline or 130% of
(depth-averaged)	upstream control station's SS at the same tide of the same day	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 NTI (depth-averaged)	J 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	 Repeat in-situ measurement to confirm finding; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; and Repeat measurement on next day of exceedance. 	Contractor on the mitigation measures Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and Assess the	 Make agreement on the mitigation measures to be implemented. 	confirm notification ; of the non- compliance in
Action Level being exceeded by more than one consecutive sampling day	 Repeat in-situ measurement to confirm finding; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; and Repeat 	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and Assess the effectiveness of the implemented mitigation measures.	 Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; and Assess the effectiveness of the implemented mitigation measures. 	 Inform the Engineer and confirm notification of the non- compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and SOR within 3 working days; and Implement the agreed mitigation measures.



Event	ET Leader	IEC	SOR	Contractor
	measurement on next day of exceedance.			
Limit Level being exceeded by one sampling day	 Repeat in-situ measurement to confirm finding; Identify source(s) of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SOR and Contractor; Ensure mitigation measures are implemented; and Increase the monitoring frequency to daily until no exceedance of Limit level. 	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; and Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; and Assess the effectiveness of the implemented mitigation measures.	 Inform the Engineer and confirm notification of the non- compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days; and Implement the agreed mitigation measures.
Limit Level being exceeded by more than one consecutive sampling day	 Repeat in-situ measurement to confirm finding; Identify source(s) of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with 	 Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and Assess the effectiveness of the implemented mitigation 	 Discuss with IEC, ET and Contractor on the proposed mitigation measures; and Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of 	 Inform the SOR and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and SOR



Event	ET Leader	IEC	SOR	Contractor
	IEC, SOR and Contractor; • Ensure mitigation measures are implemented; and • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	measures.	the implemented mitigation measures; and 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.	and propose mitigation measures to IEC and SOR within 3 working days; • Implement the agreed mitigation measures; and • As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.

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 0.1μg/m³ 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 (μg/m3)	Action/Limit Levels (μg/m3)
		149.0	
	05-May-10	147.8	
		129.8	
		129.8	
	11-May-10	98.9	
		84.8	
		66.8	
ASR 1	17-May-10	82.2	307/500
		82.2	
	20-May-10 26-May-10	61.7	
		75.8	
		30.8	
		84.8	
		88.7	
		64.2	
		125.3	
	05-May-10	127.8	
		84.8	
ASR 3		104.5	327/500
	11-May-10	103.2	
		87.2	
	17-May-10	62.7	



Station	Monitoring Date	Monitoring Result (μg/m3)	Action/Limit Levels (μg/m3)
		35.6	
		68.8	
		57.8	
	20-May-10	82.3	
		55.3	
		86.0	
	26-May-10	129.0	
		66.4	
		74.7	
	05-May-10	83.6	
		45.6	
		97.5	
	11-May-10	86.1	
		62.1	
	17-May-10	186.2	
ASR 8		32.9	337/500
		25.3	
		57.0	
	20-May-10	53.2	
		43.1	
		44.3	
	26-May-10	49.4	
		54.5	
		164.4	
	05-May-10	127.1	
		156.1	
100.0		135.4	000/500
ASR 9	11-May-10	81.5	329/500
		63.5	
	47.14 40	182.3	
	17-May-10	59.4	



Station	Monitoring Date	Monitoring Result (μg/m3)	Action/Limit Levels (μg/m3)
		49.7	
		73.2	
	20-May-10	69.1	_
		52.5	
		78.7	
	26-May-10	69.1	
		49.7	

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 No project related exceedance was recorded in the reporting month.

4.2 Noise

4.2.1 The noise monitoring schedule of the reporting period is given in Appendix H. Results of measured noise level, in terms of Leq (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)
	05-May-10	62.2	
NOD 4	11-May-10	64.6	7 0
NSR 1	17-May-10	63.5	 70
	26-May-10	63.7	
	05-May-10	68.9	
NCD 0	11-May-10	68.6	
NSR 3	17-May-10	70.2	
	26-May-10	70.3	
	05-May-10	66.6	75
NOD C	11-May-10	68.1	
NSR 6	17-May-10	63.2	
	26-May-10	69.9	
NSR 8	05-May-10	63.0	



Station	Monitoring Date	L _{eq (30 min)} dB(A)	Limit Levels dB(A)
	11-May-10	64.3	
	17-May-10	63.0	
	26-May-10	61.7	
NSR 9	05-May-10	66.8	
	11-May-10	68.8	
	17-May-10	68.1	
	26-May-10	64.1	

Table 4-2 Noise Monitoring Results

4.2.2 No exceedances of Action and Limit Levels were recorded in our regular noise monitoring 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. Summaries of exceedances for water quality monitoring are provided in Table 4-3 to Table 4-5.

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Two recorded on 5 and 28 May 2010	Nil
Total	2	Nil

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 Two non-project related exceedances were recorded for the water quality monitoring within the reporting month.
- 4.3.4 The exceedance of Control Action Levels of SS (120% higher than I-1-C) recorded at I-1 on 5 May 2010 was below baseline Action/Limit Levels and was within the range of baseline SS concentration. Construction activities including general site cleaning and housekeeping, erect formwork for spiral ramp, strip off formwork for spiral ramp, erect scaffold working platform and fabrication of steel rebar were undertaken during the measurement and no direct disturbance was observed from the site. Thus, the exceedance of SS levels recorded on 5 May 2010 at I-1 was considered to be contributed by natural variation and no action was therefore required.
- 4.3.5 The exceedance of Baseline Action Levels of SS recorded at I-1 on 28 May 2010 was slightly above baseline Action Level but below baseline Limit Level and were within the range of baseline SS concentration. Construction activities including general site cleaning and housekeeping; erect formwork for spiral ramp; strip off formwork for spiral ramp; erect scaffold working platform for spiral ramp were undertaken during the measurement and no direct disturbance was observed from the site. Thus, the exceedance of SS levels recorded on 28 May 2010 at I-1 was considered to be contributed by natural variation and no action was therefore required.
- 4.3.6 The above mentioned exceedances were considered as non project related, however, proper mitigation measures had been implemented during measurements. Details of the above mentioned investigations could 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)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-1	03-May-10	24.80	5.15	3.42 / 3.34	7.42	3.23	9.75 / 12.47	3.50	8.85 / 10.17
	05-May-10	24.20	5.85		7.44	4.31	_	2.95	
	08-May-10	24.20	5.26		7.60	7.14	_	3.85	
	10-May-10	22.35	5.35		7.16	5.38	_	2.00	
	12-May-10	27.10	5.27		7.81	3.77	_	2.25	
	14-May-10	25.20	6.10		7.90	3.68	_	2.00	
	17-May-10	27.50	5.72		7.80	3.64	_	4.90	
	19-May-10	22.80	5.48		7.47	2.22	_	2.00	
	22-May-10	22.50	5.06		7.66	2.88	_	2.00	
	24-May-10	28.00	5.49		7.92	3.72	_	2.25	
	26-May-10	28.70	5.55		7.07	8.06	_	2.95	
	28-May-10	28.00	6.06		7.15	8.63	_	8.90	
	31-May-10	24.50	5.49		7.27	4.26	_	2.00	



Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NT	J)Action/Limit Level for Turbidity (NTI	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-1-C	03-May-10	25.00	5.24	- / -	7.47	3.23	-/-	3.20	- / -
	05-May-10	23.95	5.92		7.42	4.78		2.30	
	08-May-10	23.75	5.17		7.61	7.10		3.25	
	10-May-10	22.45	5.25		7.11	5.49		2.00	
	12-May-10	27.00	5.20		7.80	3.98		2.00	
	14-May-10	25.05	5.99		7.87	3.68		2.00	
	17-May-10	27.15	5.87		7.67	3.72		5.05	
	19-May-10	22.45	5.63		7.41	2.26		2.00	
	22-May-10	22.10	5.15		7.60	2.97		2.00	
	24-May-10	27.65	5.75		7.91	3.88		2.15	
	26-May-10	28.85	5.51		7.04	8.19		2.75	
	28-May-10	28.25	6.03		7.11	8.60		8.20	
	31-May-10	24.60	5.42		7.25	4.69		2.00	



Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NT	U)Action/Limit Level for Turbidity (NTU	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-2	03-May-10	24.40	5.56	3.66 / 3.63	7.51	1.87	6.63 / 6.99	2.00	7.68 / 8.34
	05-May-10	24.60	5.73		7.58	1.92		2.00	
	08-May-10	23.20	5.02		7.20	5.88		4.00	
	10-May-10	22.60	5.10		7.05	5.88		5.30	
	12-May-10	26.60	5.34		7.92	1.95		2.00	
	14-May-10	25.30	6.12		7.70	2.07		2.20	
	17-May-10	27.00	5.79		7.82	2.30		2.80	
	19-May-10	22.05	5.24		7.55	2.68		2.00	
	22-May-10	23.30	4.97		7.60	2.46		2.00	
	24-May-10	27.00	5.45		7.59	2.48		2.00	
	26-May-10	28.60	4.77		7.16	1.99	_	2.00	
	28-May-10	27.40	6.14		7.25	2.66		2.00	
	31-May-10	25.00	4.58		7.36	1.85		2.00	



Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NT	J)Action/Limit Level for Turbidity (NTI	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-2-C	03-May-10	24.45	5.64	- / -	7.51	1.92	-/-	2.10	-/-
	05-May-10	24.50	5.82		7.60	1.93	_	2.00	
	08-May-10	24.00	5.08		7.16	5.75	_	6.90	
	10-May-10	22.00	5.03		7.07	6.05		4.90	
	12-May-10	27.00	5.41		7.90	2.02		2.00	
	14-May-10	24.95	6.19		7.75	2.10		2.00	
	17-May-10	26.80	5.76		7.86	2.46		2.55	
	19-May-10	21.85	5.38		7.52	2.78		2.50	
	22-May-10	23.00	5.03		7.56	2.58		2.00	
	24-May-10	26.90	5.54		7.65	2.58		2.00	
	26-May-10	28.50	4.96		7.16	2.15		2.00	
	28-May-10	27.65	5.92		7.22	2.79		2.00	
	31-May-10	24.80	4.71		7.31	1.95		2.00	



Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU	J)Action/Limit Level for Turbidity (NTL	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-3	03-May-10	24.95	6.00	3.65 / 3.51	7.58	2.05	3.99 / 4.18	2.10	6.13 / 7.23
	05-May-10	24.80	5.71		7.61	2.02		2.00	
	08-May-10	24.05	4.87		7.27	2.77		2.15	
	10-May-10	22.20	5.12		7.19	2.74		2.00	
	12-May-10	26.65	5.10		7.61	2.05		2.00	
	14-May-10	25.45	5.85		7.60	1.91		2.00	
	17-May-10	27.50	5.53		7.88	2.13		2.00	
	19-May-10	23.30	5.14		7.78	2.13		2.00	
	22-May-10	23.85	5.13		7.69	2.64		2.00	
	24-May-10	27.00	5.36		7.36	2.23	_	2.00	
	26-May-10	28.50	4.56		7.18	3.08	_	2.00	
	28-May-10	27.10	5.82		7.26	3.08		2.00	
	31-May-10	24.00	5.04		7.42	2.89	_	2.00	



Station	Date	Temperature	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (N	ITU)Action/Limit Level for Turbidity (NTU)	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-3-C	03-May-10	24.80	5.93	- / -	7.55	2.08	- / -	2.10	- / -
	05-May-10	25.00	5.79		7.62	2.08		2.25	
	08-May-10	23.60	4.94		7.24	2.89		2.00	
	10-May-10	22.85	4.99		7.15	2.87		2.30	
	12-May-10	26.20	5.03		7.56	2.14		2.00	
	14-May-10	25.20	5.89		7.56	1.92		2.00	_
	17-May-10	27.30	5.60		7.90	2.32		2.00	_
	19-May-10	23.05	5.31		7.76	2.45		2.00	_
	22-May-10	23.50	4.93		7.61	2.72		2.00	_
	24-May-10	26.70	5.52		7.41	2.40		2.00	_
	26-May-10	28.10	4.62		7.20	3.13		2.00	_
	28-May-10	27.25	5.86		7.22	3.14		2.05	_
	31-May-10	24.20	4.95		7.40	3.01		2.00	

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

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 May 2010. 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
Air Quality	60	0	0	0	0
Noise	20	0	0	0	0
Water	78	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 (m³)	1036.4
Inert C&D Material Reused in other Contracts* (m³)	1215.0
Metals Generated (kg)	Nil
Paper / Cardboard Packaging (kg)	Nil
Plastics (kg)	Nil
Chemical Waste (kg)	240
General Waste Disposed of to NENT Landfill (m ³)	15.5

^{*} Other Contracts include DC/2007/17, ST/2008/02 and HY/2007/09.

Table 5-1 Waste Generated in May 2010



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
6 May 2010	1. Chemical waste containers and oil drums were observed without any mitigation measures at Outfall. 2. Exposed slope, which may cause muddy water during raining, was observed at I3.	 The Contractor was reminded to provide drip tray to the chemical waste drums or removed them to the designated storage area. The Contractor was reminded to provide tarpaulin cover to minimize the muddy runoff. 	 A drip tray has been provided in the later on site inspection. (Closed) During the later on site inspection, the slope at I-3 was found covered with tarpaulin. (Closed)
28 May 2010		1. The Contractor was reminded to water the access road regularly to avoid dust generation. 2. The Contractor was reminded to store the chemical regularly.	 During the later on site inspection, the access road was found watered. (Closed) The chemical waste was put at the designated storage area. (Closed)

Table 6-1 Site Inspection by ET



7 COMPLAINT

- 7.1.1 A complaint hotline at <u>9850 3241</u> of the Contractor has been established for the Project.
- 7.1.2 No environmental complaint was received during the reporting month. Details of the complaint investigation can be referred to Appendix K.
- 7.1.3 Cumulative statistics of environmental complaints are shown in Table 7-1.

Complaints Received in the Reporting Month
Cumulative Number of Complaints

0 17

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 Su	ımmons	Successful Pros	secution	
May 2010	Cumulative	May 2010	Cumulative	
0	0	0	0	

Table 8-1 Cumulative Statistics of Notification of Summons and Successful Prosecutions



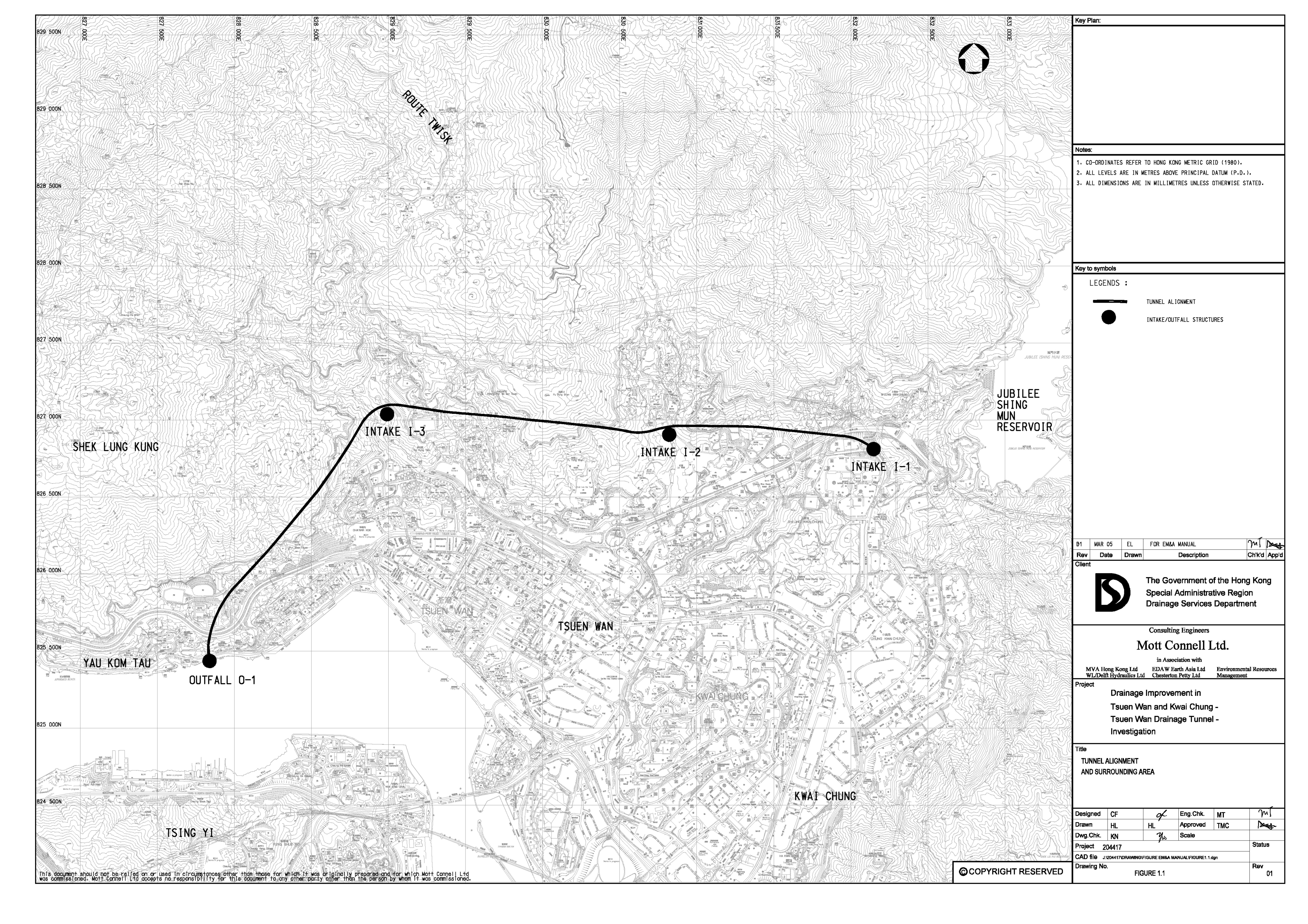
9 FUTURE KEY ISSUE

- 9.1.1 The forecast of construction works for the upcoming three months are:
 - Site Cleaning and Tidying at I1, I2, I3 and Outfall;
 - Erection of Muck Hopper and Conveyor Support steel structure at Outfall;
 - Drilling and Excavation of Man Access Shaft & Vortex Shaft at I2;
 - Construction of Approach Channel Structure at I2;
 - Erosion Control Mat and Green Wire Mesh at Outfall;
 - Cascade and Channel Modification concrete structure works at I-1;
 - Construction of Skin Wall at I-3;
 - Assembly of TBM, TBM Drilling of the Tunnel at Outfall;
 - Installation of noise enclosure at Outfall and I2;
 - Pipe jacking installation at Portion G at I2;
 - Drilling and Excavation of Spiral Ramp at Outfall;
 - Drilling and Excavation of Vortex Shaft at I3;
 - Restricted Hours Delivery of TBM Backup Plants.



Appendix A

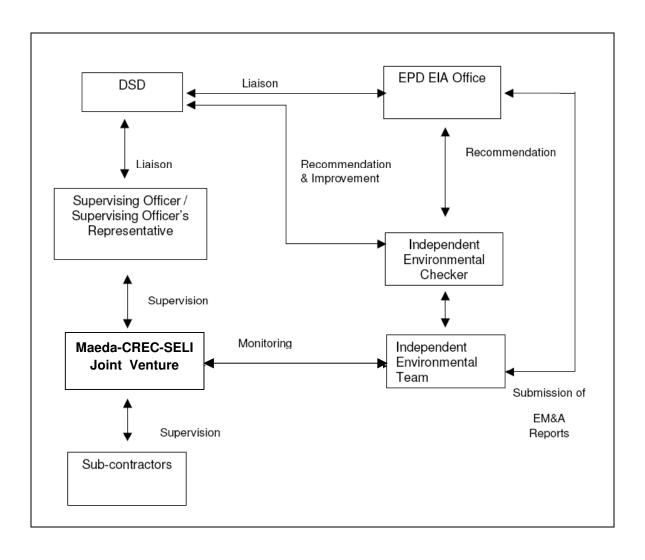
Site Map and Works Area





Appendix B

Organization Chart





Appendix C

Construction Programme

QI .		Activity. Description	D04 WP3D Dur Dur	MP3D AD04 Dur Start	AD04 Finish	WP3D	WP3D	Ō	Total	2908	2010 2011 2012	2013
Preliminaries	S							E				
Project Dates			Ť					H				
0180000000	Tonder less to Date		c	ATOM II AC O	6	ATUNI 190		c				
01R0000004	Tender Closing Date	a)	0	98	1 0	050CT07A		2 61	T	-		
01R0000006	Letter of Acceptance Issued Date	se Issued Date	0	0 14DEC07A		14DEC07A		2	•			
01R0000008	Contract Commencement Date	sement Date	0	0 28DEC07A	8	28DEC07A		2	•	14 days after LC	er L@A	
01R0000010	Completion of Section 1 of the Works	ion 1 of the Works	0	0	07DEC12		18JAN13		-462		Contract completion date on 02/09/11	414
01R0000012	Completion of Section 2 of the Works	ion 2 of the Works	0	0	22MAR12		22MAR12	2	-239		Con ract completion date on 27/07/11 ◆	
01R0000014	Completion of Section 3 of the Works	ion 3 of the Works	0	0	23MAR12		23MAR12	2	-240		Concract completion date on 27/07/11◆	
01R0000016	Completion of Section 4 of the Works	ion 4 of the Works	0	0	04FEB12		04FEB12	2	-192	0	Contract completion date on 27/07/11	
01R0000018	Completion of Section 5 of the Works	ion 5 of the Works	0	0	07DEC12		18JAN13	2	-485		Contract completion date on 10/08/11	41
01R0000020	Completion of Section 6 of the Works	ion 6 of the Works	0	0	27JUL11		27JUL11	23	0	Contract cor	ct completion date on 27/07/11	
01R0000022	Completion of Section 7 of the Works	ion 7 of the Works	0	0	07DEC13		18JAN14	7	-462		Contract completion date on 01/09/12◆	ite on 01/09/12.
Possession of	of Airea											
01R00A0102	Possession Portion A - 90d of DOC	A-90d of DOC	0	0 27FEB08A	2	27FEB08A		2	Ť	Permane	Permanent land allocation area was possessed on 19/03/08	03/08
01R00A0104	Handover of Section	Handover of Section 1 of Works at Portion A	0		22MAR12		22MAR12		-239		•	
01R00B0102	Possession of Portion B - 90d of DOC	on B - 90d of DOC	0	0 07MAR08A	0	07MAR08A		N		٥		100
01R00B0104	Handover of Portion B	8 -	0	0	23MAR12		23MAR12	7	-240		•	
01R00C0102	Possession of Portion C - 90d of DOC	on C - 90d of DOC	0	0 26MAR08A	Š	26MAR08A		7		•		
01R00C0104	Handover of Portion C	0 -	0	0	04FEB12		04FEB12	7	-192		•	3072
01R00D0102	Possession of Portion D on DOC	on D on DOC	0	0 28DEC07A	2	28DEC07A		2	•			
01R00D0104	Handover of Portion D	O L	0	0	07DEC12		18JAN13	2	-485			*
01R00E0102	Possession of Portion E - 650d of DOC	on E - 650d of DOC	0	0 07OCT09	0	07OCT09		2	0		•	
01R00E0104	Handover of Portion E	J-E	0	0	07DEC12		18JAN13	2	-462			•
01R00F0102	Possession of Portion F on DOC	on F on DOC	0	0 28DEC07A	2	28DEC07A		2	•			
01R00F0104	Handover of Portion F	nF	0	0	07DEC12		18JAN13	2	-462			•
01R00G0102	Possession of Portion G	on G - 700d of DOC	0	0 26NOV09	8	26NOV09		2	0		•	
01R00G0104	Handover of Portion G	94	0	0	11MAR11		11MAR11	2	175		•	
01R00I0102	Possession of Portion I on DOC	on I on DOC	0	0 28DEC07A	[2]	28DEC07A		2	•			55
01R00l0104	Handover of Portion I	le le	0	0	07DEC12		18JAN13	5	-462			•
01R00J0102	Possession of Portion J	L no	0	0: 15MAR10	**	15MAR10		2	-268		•	
01R00J0104	Handover of Portion J	71	0	0	03SEP10		03SEP10	2	0		•	(03)
01R0H10102	Possession of Portion H1 on DOC	on H1 on DOC	0	0 28DEC07A	8	28DEC07A		2	•	1000		
01R0H10104	Handover of Portion H1	H	0	0	30DEC13		10FEB14	2	0			•
01R0H20102	Possession of Portic	Possession of Portion H2 - 300d of DOC	0	0 04NOV08A	8	04NOV08A		7		•		000
Start Date	70NLIL.92		AD04		Maeda-CREC-SELI JV	\ \ \ \	Sheet 1 of 58	58			Addendum to Works Programme "WP04"	
Finish Date	30DEC13				CONTRACT NO. DC/2007/12	3/2007/12					Revision	ed Approved
Data Date	28MAY09			Design	Design and Construction of	action of		22JUN09		forks Program forks Program	Works Program Revision "WP02" Morks Program Revision "WP35"	
Run Date	22OCT09 10:37			Tsuen Addendum t	Isuen Wan Drainage Tunnel ndum to Works Programme "WP04"	je Tunnel ramme "W	/P04"	04SEP09	П	P3D-TBM Ha	WP3D-TBM Halft Speed at WSD Turnel#3	
© Primavera	© Primavera Systems, Inc.	Critical Activity			•			220CT09		WP04		

Page 68 of 125

O4DOLLOOMO														
100000000000000000000000000000000000000	Handover of Portion H2	0	0		30DEC13		10FEB14	2	0					*
Section of V	Section of Works - DOP to Completion						I							
01R1000202	S1-Works in Portions A to F except works in S2-7	1,308	1,308 1,308	28DEC07A	07DEC12 28DEC07A	- 3	18JAN13	2	462		100			
01R1000204	S1-Maintenance Period (365 days)	365	365	08DEC12	07DEC13 19JAN13	19JAN13	18JAN14	7	-462					
01R20A0206	S2-Slope Stabilization works within Portion A	1,247	1,247	27FEB08A	22MAR12 2	27FEB08A	22MAR12	2	-239				25	
01R20A0208	S2-Maintenance Period (365 days)	365	365	23MAR12	22MAR13 2	23MAR12	22MAR13	2	-202				l	
01R30B0210	S3-Slope Stabilization works within Portion B	1,238	1,238	07MAR08A	23MAR12 0	07MAR08A	23MAR12	2	-240					
01R30B0212	S3-Maintenance Period (365 days)	365	365	24MAR12	23MAR13 2	24MAR12	23MAR13	N	-203				Ī	
01R40C0214	S4-Slope Stabilization works within Portion C	1,219	1,219 1,219	26MAR08A	04FEB12 2	26MAR08A	04FEB12	2	-192				8/8	
01R40C0216	S4-Maintenance Period (365 days)	365	365	05FEB12	03FEB13 0	05FEB12	03FEB13	2	-155	70.00			1	
01R50D0218	S5-Slope Stabilization works within Portion D	1,308	1,308	28DEC07A	07DEC12 2	28DEC07A	18JAN13	2	-485				ĺ	
01R50D0220	S5-Maintenance Period (365 days)	365	365	08DEC12	07DEC13 1	19JAN13	18JAN14	2	-462				i	İ
01R60G0222	S6-Works within Portion G	609	609	26NOV09	27JUL11 2	26NOV09	27JUL11	2	0			1		
01R60G0224	S6-Maintenance Period (365 days)	365	365	28JUL11	26JUL12 2	28JUL11	26JUL12	2	37				11	
01R7000226	S7-Ladscape softworks & establishment works	1,673	1,673	28DEC07A	30NOV13 2	28DEC07A	11JAN14	2	-455					Ī
01R7000228	S7-Maintenance Period (30 days)	30	30	01DEC13	30DEC13 12JAN14	12JAN14	10FEB14	2	-455					
Facilities fo	Facilities for the SO as per ER 12													
		r		420000	ATOOTION ACCOUNTS	A700700	4E IANIOBA	c		OS edition of the CO		FR 12 3 1 refere		
01R0000302	Provide temporary accommodation			ZSUECULA	- HOUNIAGE	WINDER TO	YOUNG!	7		To nic squared		5		Ī
01R0000304	Design the SO's principle office	95		28DEC07A	28AUG08A 28DEC07A	28DEC07A	28AUG08A	2						
01R0000305	Erect Hoarding/Signboard/Gate/Fencing	35	35	28MAR08A	16MAR09A 28MAR08A	28MAR08A	16MAR09A	-			at Potions H & I			
01R0000306	Erect SO's principle office in Portion H1/H2	100	100	19MAY08A	13SEP08A 19MAY08A	19MAY08A	13SEP08A	-		to the sa			S.	Ī
01R0000308	Provide secondary offices, directed by SO	94	8	14SEP08A	13JUN09 14SEP08A	14SEP08A	13JUN09	2	276		170	inths after the in	struction	
01R0000310	Provide transport for the SO as per App. ER,M	6	90	28DEC07A	02MAY08A 28DEC07A	28DEC07A	02MAY08A	2	٥	ER 12.4; 3 n	_	4 days of DOC		
01R0000311	Provide survey equipments as per App. ER,M	30	30		19AUG08A 28DEC07A	28DEC07A	19AUG08A	2		within 1	month of DOCtemporary equipment provied on 18/02/08	rary equipment p	provied on 18	/02/08
01R0000314	Maintain & Service the Principle Office	1,539	1,539 1,539	14SEP08A	30NOV13 14SEP08A	14SEP08A	11JAN14	2	0					
01R0000316	Maintain & Service the Secondary Office	1,495	1,495 1,495	280CT08A	30NOV13	280CT08A	11JAN14	2	0	ı				
01R0000318	Maintain & Service the transportation	1,785	1,785	1,785 1,785 12JAN08A		12JAN08A	11JAN14	2	0					
01R0000319	Maintain & Service the survey equipments	1,748	1,748 1,748	18FEB08A	30NOV13 1	18FEB08A	11JAN14	2	0					
01R00000372	Demolish & removal of Principle Office	30	30	01DEC13	30DEC13 1	12JAN14	10FEB14	2	0					I.MI
Contractor	Contractor's Accommodation as per ER.B					į		1	ń					
									Ī					
01R0001402	Design Contractor's main office	30	30		19MAY08A 01FEB08A	01FEB08A	19MAY08A	N	I	to the sausic	Staction of SO			
01R0001406	Maintain & service Contractor's office	1,597	1,597		30NOV13 18JUL08A	18JUL08A	11JAN14	6	0					
01R0001408	Demolish & removal of Contractor's main office	30	30	01DEC13	30DEC13 12JAN14	12JAN14	10FEB14	2	0					i Mi
01R000141	Erect Contractor's main office in Portion H1	-09	-09	19MAY08A	17JUL08A 19MAY08A	19MAY08A	17JUL08A	•	7.1	to the se	to the satisfaction of the SO			
01R0001412	Construct base slab	10	10	19MAY08A	30MAY08A 19MAY08A	19MAY08A	30MAY08A	-						
01R0001413	Install steel frames	12	12	31MAY08A	21JUN08A 31MAY08A	31MAY08A	21JUN08A	•		22				
01R0001414	Install wall/roof panels, windows etc	ω	9	23JUN08A	30JUN08A 23JUN08A	23JUN08A	30JUN08A	•		-			a d	
01R0001415	Install & E& M/ceiling/floor panels	00	80	02JUL08A	12JUL08A 02JUL08A	02JUL08A	12JUL08A							
01R0001416	Site clearance	×	•	44444	400 HH 47 400 HH 47	VOO 11 11 77	47 11 11 00 4	•		-				

2011 2012 2013					(A.5.)					to be included	i i			Δ.					988																				70 -5 405
2006 2009 2010								0					within 14 days of LOA	within 7 days from the submission of DSP	within 35 days of LOA					as per SCC9, ISCC10 & SCC45.		as per SCC 74 within 14 days of DOC	=within 28 days o LOA	within 28 days of DOC			as per ER B.1 Clause 1.74A1(2)	per Notes to Tenderer (AA)	SCC69, within 21 days of LOA	as per SCC69	as per SCC69, within 45 days of LOA		al of the S	for approval of the SO & EPD		8	for approval of the SO		
Total				n	D	to:				364	364		N.	2	!!	364	364			e e		a	ď,		364		ğ	•	S		<u>U</u>	364	,				5/ 1	364	
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WP3D	17JUL08A		21DEC07A	23JAN08A	15FEB08A	03JAN08A	28MAR08A	30SEP08A	28FEB09A	18JAN13	18JAN13		29DEC07A	09JAN08A	26FEB08A	18JAN13	18JAN13			02SEP08A		02JAN08A	22JAN08A	14MAR08A	18JAN13		21DEC07A	02JAN08A	02JAN08A	21FEB08A	21FEB08A	18JAN13	02JAN08A	18JAN08A	31JAN08A	20MAR08A	28MAR08A	18JAN13	
WP3D	4JUL08A		4DEC07A	2DEC07A	4JAN08A	4DEC07A	6FEB08A	8AUG08A	2OCT08A	18JAN08A	22JAN08A		4DEC07A	1DEC07A	4DEC07A	20MAR08A	28DEC07A					8DEC07A	4DEC07A	8DEC07A	5JAN08A	Ì	4DEC07A	4DEC07A	4DEC07A	4JAN08A	4DEC07A	8JAN08A	4DEC07A	8DEC07A	8JAN08A	1FEB08A	1MAR08A	1APR08A	88
AD04 Finish	17JUL08A 14JUL08A	į	21DEC07A 14DEC07A	23JAN08A 22DEC07A	15FEB08A 24JAN08A	03JAN08A 14DEC07A	28MAR08A 16FEB08A	30SEP08A 28AUG08A	28FEB09A 02OCT08A	31DEC12 1	31DEC12 2		29DEC07A 14DEC07A	09JAN08A 31DEC07A	26FEB08A 14DEC07A	31DEC12 2	31DEC12 2			02SEP08A 14DEC07A		02JAN08A 28DEC07A	22JAN08A 14DEC07A	14MAR08A 28DEC07A	31DEC12 25JAN08A	į	21DEC07A 14DEC07A	02JAN08A 14DEC07A	02JAN08A 14DEC07A	21FEB08A 04JAN08A	21FEB08A 14DEC07A	31DEC12 28JAN08A	02JAN08A 14DEC07A	18JAN08A 28DEC07A	31JAN08A 18JAN08A	20MAR08A 11FEB08A	28MAR08A 21MAR08A	31DEC12 01APR08A	Sheet 3 of 58
AD04 Start	14JUL08A 1	e Gabriel	14DEC07A 2	-	1	14DEC07A 0	16FEB08A 28	28AUG08A 3	020CT08A 2	18JAN08A 3	22JAN08A		14DEC07A	31DEC07A 0	14DEC07A 2	20MAR08A	28DEC07A 3			14DEC07A			14DEC07A		25JAN08A		14DEC07A 2	14DEC07A 0	14DEC07A	04JAN08A	14DEC07A 2	28JAN08A	14DEC07A	28DEC07A	18JAN08A	11FEB08A 2	21MAR08A	01APR08A	
Dur Dur	7	1	7	4	28	4	4	4	4	1,779	1,775		4	7	35	1,747	1,830		H	21		4	28	28	1,802	ı	4	21	21	14	45	1,769	21	21	21:	37	20	1,705 1,705	
Doo4	2		2	41	28	14	4	4	14	1,779 1,779	1,775 1,775		4	7	35	1,747	1,830			21		14	28	28	1,802	ì	14	21	21	14	45	1,769	21	21	21	37	20	1,705	
Activity Description	Install furnitures/internet & move in	Works Programme & Monthly Report as per SCC 27	Prepare/Submit draft Works Programme	SO's review/comment on draft Works Programme	Prepare/Submit draft Works Programme Rev. 1	Prepare/Submit 1st 3-Month Rolling Programme	SO's approval on draft Works Programme	Submit Revised Works Programme	SO's Approval of Revised Works Programme	Monthly Update for all Programme	Contractor's Monthly Progress Report	Safety Plan as per SCC 35	Submit draff Safety Plan	Hold an ad hoc meeting with RE on Safety Plan	Submit 6 copies of the Safety Plan	Submit updated safety orgainiza, chart monthly	Fulfill all relevant safety obligation	Contractor's All Insurances		Submit documents for all insurances are effected	Quality System as per ER 9.3	Appoint a Quality Manager	Submit proposed Quality System for SO's consent	Submit QSSP for approval of the SO	Maintain & update Quality System	The second secon	Nominate Environmental Officer	Establish a billing account for disposal	Submit draft EMP	Revise draft EMP within 7 days of SO's notice	Submit final version of EMP	Review/update/submit EMP monthly	Employ IET	Submit Baseline Monitoring Plan	Seek for EPD's Agreement on WQML & schedule	Carry out baseline monitoring	Prepare/submit reports for baseline monitoring	Impact monitoring & reporting	
Ol	01R0001417	Works Progr	0180000502	01R0000504	01R0000505	01R0000506	01R0000507	01R0000508	01R0000510	01R0000512	01R0000514	Safety Plan	01R0000602	01R0000604	01R0000606	01R0000608	17R0000602	Contractor's		01R0000704	Quality Syst	01R0000802	01R0000804	01R0000806	01R0000808	Environment	01R0000902	01R0000903	01R0000904	01R0000906	01R0000908	01R0000910	01R0000912	01R0000914	01R0000915	01R0000916	01R0000918	01R0000920	

March Description Description Description Description Description Description Description Description Description Table Start
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AD04 WP3D AD04 Dur Dur Start 1,800 1,800 28DEC07A 14 14 16JAN08A 7 7 7 28DEC07A 21 21 29FEB08A 20 20 10MAR08A 7 7 7 21JAN08A 7 7 7 21JAN08A 7 7 7 21JAN08A 7 0
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ADD4 WP Dar D0 1,800 1,8
About WP 1,800 1,8 1,8 1,8 1,8 1,8 1,8 1,8 1,8 1,8 1,8
TR00000902 Fulfill all relevant environmental on Excavation Permit/Utilities per SCC 54 O1R0001002 Nominate IIUMS co-ordinator o1R0001004 SO approve IIUMS co-ordinator o1R0001010 Utilities detection & report to the \$100001010 Utilities detection & report to the \$101R0001010 Utilities detection & report to the affect of \$101R000102 Utilities & Prediminaries

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		n n	A.B	500	7	100		5.0				01					,S					â					-16		8.0	0	A.A.	'n	65			with	364			(6)	
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WP3D Finish		07JUN08A	12JUN08A	09FEB09A		13JUN08A	18JUN08A	09FEB09A		06JUN08A	16JUN08A	09FEB09A		10JAN09A	24MAR09A		15JAN09A	10JUN09		03JAN08A	28FEB08A	31JAN08A	01APR08A	19APR08A	19APR08A	i	12JAN08A	18JAN13			16AUG08A										
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AD04 Finish		07JUN08A 30APR08A	02MAY08A 12JUN08A 02MAY08A	09FEB09A 13JUN08A		13JUN08A 09MAY08A	18JUN08A 04JUN08A	09FEB09A 19JUN08A		01APR08A 06JUN08A 01APR08A	16JUN08A 02JUN08A	09FEB09A 17JUN08A		10JAN09A 28AUG08A	24MAR09A 12JAN09A		15JAN09A 28AUG08A	10JUN09 16JAN09A	1	03JAN08A 14DEC07A	28FEB08A 28DEC07A	31JAN08A 04JAN08A	01APR08A 01FEB08A	19APR08A 02APR08A	19APR08A 02APR08A	Ì	4DEC07A 12JAN08A 14DEC07A 12JAN08A	31DEC12 0	j		16AUG08A	0.70									
AD04 Start		30APR08A 0	MAY08A 1	13JUN08A 0		09MAY08A 1	04JUN08A 1	19JUN08A 0		APR08A 0	02JUN08A 1	17JUN08A 0		28AUG08A 1	2JAN09A 2		28AUG08A 1	2JAN09A 2		28AUG08A 1	2JAN09A 2		,144,	2JAN09A 2		28AUG08A 1	6JAN09A	i	14DEC07A 0	28DEC07A 2	04JAN08A 3	01FEB08A 0	02APR08A 1	02APR08A 1		DEC07A	03JUL08A			-	
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Activity Description	PCS Stage 2 between H2 & H3	Carry out stg 2 PCS between I-2 & I-3	Prepare/submit reports for stg 2 PCS bet I-2&I-3	Review/accept reports for stg 2 PCS bet I-2&I-3	PCS Stage 2 between I-3 & O-1	Carry out stg 2 PCS between I-3 & O-1	Prepare/submit reports for stg 2 PCS bet I-3&O-1	Review/accept reports for stg 2 PCS bet I-3&O-1	at Vicinity of 0-1	Carry out stg 2 PCS at vicinity of 0-1	Prepare/submit reports for stg 2 PCS at 0-1	Review/accept reports for stg 2 PCS at 0-1	Pre-const. condition structural survey; I-1	Prepare/submit reports for EBS at I-1	Review/accept reports for EBS at I-1	Pre-const. condition structural survey; I-2	Prepare/submit reports for EBS at I-2	Review/accept reports for EBS at I-2	Pre-const. condition structural survey; I-3	Prepare/submit reports for EBS at I-3	Review/accept reports for EBS at I-3	Pre-const. condition structural survey; 0-1	Prepare/submit reports for EBS at 0-1	Review/accept reports for EBS at O-1	Pre-const. condition structural survey; Tunnel	Prepare/submit reports for EBS along Tunnel alig	Review/accept reports for EBS along Tunnel align	The second secon	Appoint Traffic Consultant/Traffic Engineer	Eng's Approval of Traffic Consultant	Prepare/submit TTA Schemes (ingress & egress)	Obtain endorsement of TTA schemes from TMLG	Approval of TTA schemes by the Authorities	Approval of TTA schemes by the Authorities	Management of Sub-contractors as per SCC 44	Submit a Sub-contractor Management Plan	Submit Quarterly the Updated SMP		Sin Ho Wan as a New Tree Transplanting Area	Receive VO28 for new tree transplanting area	
O)	PCS Stage 2 b	01R0001136	01R0001138	01R0001140	PCS Stage 2 b	01R0001148	01R0001150	01R0001152	PCS Stage 2 a	01R0001112	01R0001114	01R0001116	Pre-const. col	01R0001154	01R0001156	Pre-const. cor	01R0001158	01R0001160	Pre-const. col	01R0001162	01R0001164	Pre-const. col	01R0001166	01R0001168	Pre-const. col	01R0001170	01R0001172	Traffic	01R0001202	01R0001204	01R0001206	01R0001216	01R0001234	01R0001236	Managemer	01R0001302	01R0001304	Trope	Sin Ho Wan	VO028-02	

2013										200			1			3/08	3)																								
2008 2009 2010 2011				0	ERB 26.02A; within 45 dyas of LOA	=ER 1.5.3 (2); within 3 mths from DOC	◆ER 1.5.3(2) within 3 months from DOC					11				"As per ER. B30 30.06(2) SOR.s approval obtained on 13/02/08					awarded to Kin Lee	awarded to VSC Steel Co. Ltd by PR	Geotech Eng Ltd	awarded to Kin Wing			awarded to Long Faith		awarded to Soldata		11	awaded to Seli			awarded to Intelibuild	■awarded to Ch Yau	awarded to Ming Kee	awarded to Pilot Electronic	Anderson	awarded to Soldata	=awarded to Lam
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Activity	Prenaration works for new T T area	I reparation works for new 1.1. allea	Appoint Landscape Specialist Contractor	SO's Approval of Landscape Contractor	Nominate competent person to oversee tree works	Obtain Tree Removal Permit by Others	Remove / Transplant Trees start			Appoint Surveyors	SO's Approval of Surveyor	Initial Survey	Maintain & carry out survey works	Smart Card System as per ER B.30		Submit Smart Card Sys for SO's Approval	Install & start Operating Smart-Card System	Operate & Maintain Smart-Card System	Procurement of Sub-contractor	Spoil Disposal	Earthwork for Outfall O-1	Re-bar Supply	Soil Nailing	H-piling Works	Fabrication of Pre-cast Lining	Drainage/Road Works for Access Road at I-3	Temp. steel decking over Shing Mun Nullah at I-1	Design/Install Communication System	Design/install Flow Monitoring Devices	Procurement & delivery of Communication System	Procurement/delivery of Flow Measurement Devices	Supply TBM/Main Tunnel Construction	Security	Progress Photo/Vedio	Webpage/Physical Model/3D Animation	Hoarding/Fencing Erection	Erection of Contractor's Office	Remote Control CCTV	Concrete Supply	Geotechnical Instrumentation	Drilling/Grouting for Geotchnical Instrumentat.
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Exercised Non-thick & Chinest Material Displays Section Se	<u>a</u>	Activity Description	D04	Do4 WP3D Dur Dur	AD04 Start	AD04 W	WP3D WP3D Start Finish	0	Float	2008 2009 2010 2011 2012 2018
Prepare Sub-fine	Physical Mor	dels & Other Material Display		107						
Progressive as part ER 4.4.7 Progressive as part ER 4.4.2 Progressive as part Progressive as part ER 4.4.2 Progressive as part ER 4.4.4 Progressive as part Progressiv										
Prepare Junit a 2-D arimation model 308 19F EBD8A 27F EBD8A 27F EBD8A 27F EBD8A 2 2 2 2 2 2 2 2 2	01R0002302	Prepare/submit a physical models	255		B08A	27NOV08A 15FE		200		the
1433 1433 25DECO7A 05FEB08A 25DECO7A 05FEB08A 2 24FEB08A 17LAN14 2 30 30 22LINNOBA 14FEB08A 17LAN14 2 30 30 22LINNOBA 14FEB08A 17LAN14 2 30 30 22LINNOBA 24FEB08A 2 4 4 4 4 4 4 4 4 4	01R0002304	Prepare/submit a 3-D animation model	308	-	B08A	27FEB09A 15FE		_		he acceptance of the SOas per ER's Note
18 19 19 19 19 19 19 19	Internet Web	osite as per ER 4.4.7								
21 211 100AARGA A 1FEBORA 20PECO7A 09FEBORA 2										
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OC 0 0 27JuAR09A 2 ZIMAR09A 2 ZIMAR09A 2 ZIMAR09A 2 ZIMAR09A 2 ZIMAR09 2 ZIMAR09 2 ZIMAR09 2 ZIMAR09 2 ZIMAR09 2 ZIMAR09 3 ZIMAR09	17R0003104	17R 4; On complet of all wks for 12 mth fm DOC	0	0		27DEC08A	27DEC	_		O
OC 0 0 27JUN09 15JUL09 2 1,647 ◆of all sactors OC 0 0 26SEP09 14OCT09 2 1,556 ♦of all sactors OC 0 0 26DEC09 13JAN10 2 1,856 ♦of all sactors OC 0 0 26SEP10 15JUL10 2 1,282 ♦of all sactors C 0 0 26SEP10 14OCT10 2 1,190 ♦of all sactors C 0 0 26SEP10 14OCT11 2 1,100 ♦of all sactors C 0 0 26SEP10 15JUL13 2 1,100 ♦of all sactors C 0 0 26SEP11 15JUL13 2 756 of all sactors Acritical sactors C 0	17R0003105	17R 5; On complet of all wks for 15 mth fm DOC	0	0		27MAR09A	27MAR			of all safety & env. obligations 15 mths frm DOC
OC 0 0 26SEP09 14OCT09 2 1,556 ◆ofall OC 0 0 26DEC09 13JAN10 2 1,455 ◆ofall OC 0 0 28MAR10 15APR10 2 1,373 ♦ofall C 0 0 27JUN10 15JUL10 2 1,191 ♦ofall C 0 0 26SEP10 14OCT10 2 1,191 ♦ofall C 0 0 26SEP10 13JAN11 2 1,108 ♦ofall C 0 0 26SEP11 15JUL11 2 1,108 ♦ofall C 0 0 27JUN11 15JUL11 2 1917 ♦ofall C 0 0 26SEP11 14OCT11 2 193 ♦ofall C 0 0 27JUN11 13JAN12 2 297 ofall C 0 0 0 0 0 0 0 MP 0 0 0 0 0	17R0003106	17R 6; On complet of all wks for 18 mth frm DOC	0	0		27JUN09	15JUL0			◆of all safety & env. obligations 18 mths frm DOC
OC 0 0 26DEC09 13JAN10 2 1,465 ♦ • • • • • • • • • • • • • • • • • • •	17R0003107	17R 7; On complet of all wks for 21 mth frm DOC	0	0		26SEP09	140CT			♦of all safety & env. obligations 21 mths fm DOC
OC 0 0 28MAR10 15APR10 2 1,373 CC 0 0 27JUN10 15JUL10 2 1,282 CC 0 0 26SEP10 14OCT10 2 1,190 CC 0 0 26DEC10 13JAN11 2 1,100 CC 0 0 28MAR11 15APR11 2 1,100 CC 0 0 27JUN11 15APR11 2 1,100 CC 0 0 28SEP11 14OCT11 2 275 CC 0 0 28BAR11 2 275 0 13APR13 MP 0	17R0003108	17R 8; On complet of all wks for 24 mth frm DOC	0	0		26DEC09	13JAN			♦of all safety & env. obligations 24 mths frm DOC
CC 0 0 27JUN10 15JUL10 2 1,282 ◆of all safety & ◆o	17R0003109	17R 9; On complet of all wks for 27 mth fm DOC	0	0		28MAR10	15APR			♦of all safety & env. obligations 27 miths frm DO
CC 0 0 26SEP10 14OCT10 2 1,191 ♦ of all safety CC 0 0 26DEC10 13JAN11 2 1,100 A of all safety CC 0 0 22MAR11 2 1,008 A of all safety A of all safety CC 0 0 22SEP11 14OCT11 2 826 A fall safety A of all s	17R0003110	17R 10; On complet all wks for 30 mth frm DOC	0	0		27JUN10	15JUL1			♦of all satety & env. obligations 30 mths frm
CC 0 0 26DEC10 13JAN11 2 1,100 CC 0 0 28MAR11 15APR11 2 1,008 CC 0 0 27JUN11 15JUL11 2 917 CC 0 0 27JUN11 14JUL11 2 826 CC 0 0 26SEP11 14JUL13 2 297 of all safety & env. obligations 48 mths frm DO CC 0 0 0 08MAR13 19JUL13 2 297 of all safety & env. obligations 3 mths frm DO MP 0 0 0 07JUN13 19JUL13 2 296 of all safety & env. obligations 9 mths frm DO MP 0 0 0 07JUN13 19CT13 2 206 of all safety & env. obligations 9 mths frm DO MP 0 0 0 07JUN13 19CT13 2 206 of all safety & env. obligations 9 mths frm DO MP 0 0 0 07JUN13 10FEB14 2 0 0 all safety & env. obligations 9 mths frm DO Re 1	17R0003111	17R 11; On complet all wks for 33 mth frm DOC	0	0		26SEP10	140CT			of all safety & env. obligations 33 mths fr
CC 0 0 28MAR11 15APR11 2 1,008 CC 0 0 27JUN11 15JUL11 2 917 CC 0 0 26SEP11 14OCT11 2 826 CC 0 0 26SEP11 13JAN12 2 735 of all safety & en. Obligations 48 mths frm DC MP 0 0 0 38MAR13 19APR13 2 297 of all safety & en. Obligations 3 mths frm DC MP 0 0 0 07JUN13 19APR13 2 206 of all safety & en. Obligations 3 mths frm DC MP 0 0 0 07JUN13 19CT13 2 206 of all safety & en. Obligations 5 mths frm DC MP 0 0 0 07JUN13 19CT13 2 206 of all safety & en. Obligations 5 mths frm DC Re 0 0 0 07SEP13 10FEB14 2 0 of all safety & en. Obligations 9 mths frm DC 1 1 1	17R0003112	17R 12; On complet all wks for 36 mth frm DOC	0	0		26DEC10	13JAN			◆of all safety & env. obligations 36 mth
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IC 0 0 26SEP11 14OCT11 2 826 IC 0 0 26DEC11 13JAN12 2 735 of all safety & env. obligations 48 mths frm DOW MP 0 0 08MAR13 2 297 of all safety & env. obligations 3 mths frm DOW MP 0 0 07JUN13 19JUL13 2 206 of all safety & env. obligations 3 mths frm DOW MP 0 0 07SEP13 19OCT13 19OCT13 2 14 of all safety & env. obligations 5 mths frm DOW Report 0 0 07SEP13 19OCT13 2 14 of all safety & env. obligations 9 mths frm DOW Report 0 0 0 07SEP13 10FEB14 2 0	17R0003114	17R 14; On complet all wks for 42 mth frm DOC	0	0		27JUN11	15JUL1			♦of all safety & env. obligations 4
IC 0 0 26DEC11 13JAN12 2 735 of all safety & env. obligations 48 mths frm DO0e. MP 0 0 08MAR13 19APR13 2 297 of all safety & env. obligations 3 mths frm DOMexcluding Section 7 MP 0 0 07JUN13 19JUL13 2 206 of all safety & env. obligations 3 mths frm DOMexcluding Section 7 MP 0 0 07JUN13 19OCT13 2 114 of all safety & env. obligations 9 mths frm DOMexcluding Section 7 Report N 0 0 07JUN13 10FEB14 2 0 all safety & env. obligations 9 mths frm DOMexcluding Section 7 Report N 0 0 0 07SEP13 10FEB14 2 0 all safety & env. obligations 9 mths frm DOMexcluding Section 7 Report N 0 0 0 07SEP13 10FEB14 2 0 all safety & env. obligations 9 mths frm DOMexcluding Section 7 1 0 0 0 07SEP13 10FEB14 2 0 all safety & env. obligations 9 mths frm DOMexcluding Section 7 <td>17R0003115</td> <td>17R 15; On complet all wks for 45 mth frm DOC</td> <td>0</td> <td>0</td> <td></td> <td>26SEP11</td> <td>140CT</td> <td></td> <td></td> <td>♦of all safety & env. obligation</td>	17R0003115	17R 15; On complet all wks for 45 mth frm DOC	0	0		26SEP11	140CT			♦of all safety & env. obligation
MP 0 0 08MAR13 19APR13 2 297 of all safety & env. obligations 3 mths frm DOMexcluding Section 7 MP 0 0 07JUN13 19JUL13 2 206 of all safety & env. obligations 6 mths frm DOMexcluding Section 7 MP 0 0 07JUN13 19DCT13 2 114 of all safety & env. obligations 9 mths frm DOMexcluding Section 7 MP 0 0 0 07JUN13 2 10FEB14 2 0 MP 0 0 0 07JUN13 19DEC13 10FEB14 2 0 MP 0 0 0 07JUN13 10FEB14 2 0	17R0003116	17R 16; On complet all wks for 48 mth frm DOC	0	0		26DEC11	13JAN			of all safety & env. obligations 48 mths frm DOC.
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10 10 10 10 10 10 10 10	17R0003119	17R 19; On complet of all wks for 9 mth fm CMP	0	0		07SEP13	190CT	SN		all safety & ehv. obligations 9 mths frm DOMexcluding Ser
7 7 7 14DEC07A 20DEC07A 14DEC07A 20DEC07A 20DEC07A 2 Image: FR 5.4.1, within 28 28 28 14DEC07A 26FEB08A 14DEC07A 26FEB08A 2 Image: FR 5.4.1, within 28 28 28 27FEB08A 18MAR08A 27FEB08A 18MAR08A 2 Image: FR 5.4.1, within 28 28 28 19MAR08A 21AUG08A 19MAR08A 2 Image: FR 5.4.1, within 28	17R0003120	17R 20; On issuance of maintenance certificate	0	0		30DEC13	10FEB	-		• oertificate
7 7 14DEC07A 20DEC07A 14DEC07A 20DEC07A 20DEC07A 2 20DEC07A 2 2 4.1. within 28 28 28 27FEB08A 18MAR08A 27FEB08A 18MAR08A 2 2 28 28 19MAR08A 21AUG08A 19MAR08A 2 2	Design/Des	ign Check for Permanent Works						ı		
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Prepare & submit Project Design Plan (PDP) 28 28 14DEC07A 26FEB08A 14DEC07A 26FEB08A 2 26FEB08A 2 26FEB08A 2 26FEB08A 2 27FEB08A 18MAR08A 2 <t< td=""><td>02L10D0102</td><td>Employ Independent Designer</td><td>7</td><td></td><td>4DEC07A</td><td>20DEC07A 14DF</td><td>CO7A 20DEC</td><td></td><td></td><td></td></t<>	02L10D0102	Employ Independent Designer	7		4DEC07A	20DEC07A 14DF	CO7A 20DEC			
SO's review & comment on PDP 28 27 FEB08A 18MAR08A 2 I 8MAR08A 3 I 8MAR0A 3 I 8MAR0A 3 I 8MAR0A	02L10D0104	Prepare & submit Project Design Plan (PDP)	28		4DEC07A	26FEB08A 14DF	_	_		within 28
Provide further information of (PDP) 28 28 19MAR08A 21AUG08A 19MAR08A 21AUG08A	02L10D0106	SO's review & comment on PDP	28		7FEB08A	18MAR08A 27FE				
	02L10D0108	Provide further information of (PDP)	28		MAR08A	21AUG08A 19M	AR08A 21AUG	_		

2	Activity Description	Our Dur	Dur	Start	Finish Start	Finish)	Float							
02L10D0110	SO approves PDP	4	14	14MAY08A	04SEP08A 14MAY08A 04SEP08A	8A 04SEP08	1A 2								
02L10D0112	Employ Independent Design Checker	4	14	28DEC07A	01FEB08A 28DEC07A	7A 01FEB08A	A 2		n						
02L10D0114	Approval of Design Checker by the SO	28	28	02FEB08A	28FEB08A 02FEB08A	3A 28FEB08A	A 2		***						
sign for Corr	Design for Communication System								- 1						
02L1FE0102	Design preparation for the AIP submission	15	15	27JUN09	11JUL09 27JUN09	11JUL09	2	356		0					
02L1FE0103	Design (AIP) submission for the DC's approval	-	٢	13JUL09	13JUL09 13JUL09	13JUL09	·	288	R (5		
02L1FE0104	Design (AIP) certification by the Design Checker	28	28	14JUL09	10AUG09 14JUL09	10AUG09	9 2	356	50	-					
02L1FE0106	Design (AIP) submission for the SO's approval	-	۳	13JUL09	13JUL09 13JUL09	13JUL09	*	294	751						
02L1FE0108	Design (AIP) review by the SO	09	9	21JUL09	18SEP09 21JUL09	18SEP09	2	356			10		1.8		
02L1FE0110	AIP submission for rel. authorities' approval	-	-	13JUL09	13JUL09 13JUL09	13JUL09	*	321	100				5-4		
02L1FE0112	Design (AIP) review by the rel. authorities	28	28	21JUL09	17AUG09 21JUL09	17AUG09	9 2	387							
02L1FE0114	Obtain rel. authorities's approval for AIP	-	-	18AUG09	18AUG09 18AUG09	9 18AUG09		315							
02L1FE0116	Obtain SO's consent for design (AIP)	0	0		19SEP09	19SEP09	2	356			*				
02L1FE0118	Design preparation for the DDA submission	90	30	28AUG09	26SEP09 28AUG09	9 26SEP09	3	356							
02L1FE0119	Design (DDA) submission for the DC's approval	-	₩.	28SEP09	28SEP09 28SEP09	3 28SEP09	-	288			_				
02L1FE0120	Design (DDA) certification by the Design Checker	78	28	29SEP09	26OCT09 29SEP09	3 26OCT09	9	356			10				
02L1FE0122	Design (DDA) submission for the SO's approval	*	-	28SEP09	28SEP09 28SEP09	9 28SEP09	1	293			_				
02L1FE0124	Design (DDA) review by the SO	09	09	06OCT09	04DEC09 06OCT09	9 04DEC09	2	356			11				
02L1FE0126	DDA submission for rel. authorities' approval		-	28SEP09	28SEP09 28SEP09	9 28SEP09		319							
02L1FE0128	Design (DDA) review by the rel. authorities	28	28	06OCT09	02NOV09 06OCT09	9 02NOV09	9 2	388			2.0				
02L1FE0130	Obtain rel. authorities's approval for DDA	•	-	03NOV09	03NOV09 03NOV09	9 03NOV09	-	316							
02L1FE0132	Obtain SO's consent for design (DDA)	0	0		05DEC09	05DEC09	2	356			•			25	
ign for Flow	Design for Flow Measurement System												-		
02L1FE0202	Design preparation for the AIP submission	0	0		11MAY09A	11MAY09A	9A 2		- 21					28	
02L1FE0203	Design (AIP) submission for the DC's approval	-	,	29MAY09	29MAY09 29MAY09	9 29MAY09	т т	410		v.			X		
02L1FE0204	Design (AIP) certification by the Design Checker	28	28		26JUN09 30MAY09	9 26JUN09	01	502		-			-10		
02L1FE0206	Design (AIP) submission for the SO's approval	-		12MAY09A	12MAY09A 12MAY09A		1 Ye							149	Ī
02L1FE0208	Design (AIP) review by the SO	09	. 09	13MAY09A	24JUL09 13MAY09A		23	502	d	1					Ī
02L1FE0210	AIP submission for rel. authorities' approval	-	•	29MAY09	Vest I		9	432	_39						
02L1FE0212	Design (AIP) review by the ref. authorities	28	28	60NUC90	60NUL09 06JUL09		2	522					-12		
02L1FE0214	Obtain rel. authorities's approval for AIP	-	-	04JUL09	04JUL09 04JUL09		-	427	5-3	-		17.			
02L1FE0216	Obtain SO's consent for design (AIP)	0	0		25JUL09	25JUL09	2	502		-					
02L1FE0218	Design preparation for the DDA submission	30	30	03JUL09	01AUG09 03JUL09	01AUG09	9	502							
02L1FE0219	Design (DDA) submission for the DC's approval	÷	۲	03AUG09	03AUG09 03AUG09	9 03AUG09	£	410				10)			
02L1FE0220	Design (DDA) certification by the Design Checker	28	28	04AUG09	31AUG09 04AUG09	9 31AUG09	9	501			111				
02L1FE0222	Design (DDA) submission for the SO's approval	-	,	03AUG09	03AUG09 03AUG09	9 03AUG09	1	416						8	
02L1FE0224	Design (DDA) review by the SO	09	09	11AUG09	09OCT09 11AUG09	9 09OCT09	9 2	501			D				
02L1FE0226	DDA submission for rel. authorities' approval	-	,	03AUG09	03AUG09 03AUG09	9 03AUG09	1	440						-2	
02L1FE0228	Design (DDA) review by the rel. authorities	28	28	11AUG09	07SEP09 11AUG09	9 07SEP09	2	533			11			5,1	
02L1FE0230	Obtain rel. authorities's approval for DDA	-	-	08SEP09	08SEP09 08SEP09	9 08SEP09	1	431							
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Float					1503										0			330	269	330	269	330	330											124	105	126	103	124	128	155	129	124
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FINISH	ì		15MAY08A	26MAY08A	26MAY08A	30JUN08A	30JUN08A		16FEB09A	17FEB09A	17FEB09A	17FEB09A	14MAR09A	03MAR09A	31MAY09	24MAR09A		18JAN10	19JAN10	16FEB10	19JAN10	02MAR10	02MAR10		28FEB09A	02MAR09A	18MAR09A	19MAR09A	20MAR09A	19AUG08A	12NOV08A	12NOV08A	20MAR09A	12JUN09	13JUN09	11JUL09	13JUN09	18AUG09	20JUN09	18JUL09	2010109	19AUG09
Start	j		22FEB08A	16MAY08A	26MAY08A	27MAY08A			02MAY08A	10JUL08A	11JUL08A	12AUG08A	13AUG08A	03FEB09A	04MAR09A			04JAN10*	19JAN10	20JAN10	19JAN10	20JAN10			02JUN08A	12JUL08A	14JUL08A	15JUL08A	16JUL08A	14JUL08A	15JUL08A	03NOV08A		21MAR09A	13JUN09	14JUN09	13JUN09	14JUN09	20JUN09	21JUN09	20JUL09	
Finish			15MAY08A 22FEB08A	26MAY08A 16MAY08A	26MAY08A 26MAY08A	30JUN08A 27MAY08A	30JUN08A		16FEB09A 02MAY08A	17FEB09A 10JUL08A	17FEB09A 11JUL08A	17FEB09A 12AUG08A	14MAR09A 13AUG08A	03MAR09A 03FEB09A	31MAY09 04MAR09A	24MAR09A		18JAN10 04JAN10*	19JAN10	16FEB10	19JAN10 19JAN10	02MAR10 20JAN10	02MAR10		28FEB09A 02JUN08A	02MAR09A 12JUL08A	18MAR09A 14JUL08A	19MAR09A 15JUL08A	20MAR09A 16JUL08A	19AUG08A 14JUL08A	12NOV08A 15JUL08A	12NOV08A 03NOV08A	20MAR09A	12JUN09	13JUN09	11JUL09	13JUN09	18AUG09	20JUN09	18JUL09	20JUL09	19AUG09
Start				16MAY08A	26MAY08A	27MAY08A			02MAY08A	10JUL08A	11JUL08A	12AUG08A	13AUG08A	03FEB09A	04MAR09A			04JAN10*	19JAN10	20JAN10	19JAN10	20JAN10			02JUN08A	12JUL08A	14JUL08A	15JUL08A	16JUL08A	14JUL08A	15JUL08A	03NOV08A		21MAR09A	13JUN09	14JUN09	13JUN09	14JUN09	20JUN09	21JUN09	20JUL09	
Dur			4	4	_	21	0		158	2	30	2	68	-	28	0		15	-	28	-	42	0		30	60	243	2	99	-	28	-	0	30	-	28	-	99	-	28	-	0
Dur			4	14	-	21	0		158	2	30	2	68	-	28	0		15	-	28	-	42	0		30	က	243	2	99	e ser	28	5 -	0	30		28	-	99		28	-	0
Description	Design Packages for Works in Portion A	Temp. Steel Decking Design Over Shing Mun Nullah	Design preparation by the Designer	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	ELS Design for Spiral Ramp/Cascade/Box Culvert	Design preparation for the DDA submission	Design submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	Temp. Platform Design for H-Piling	Design preparation by the Designer	Design submission for the DC's approval	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Cascade & Box Culver Design for Portion A	Design preparation for the AIP submission	Design (AIP) submission for the DC's approval	Design (AIP) certification by the Design Checker	Design (AIP) submission for the SO's approval	Design (AIP) review by the SO	AIP submission for rel. authorities' approval	Design (AIP) review by the rel. authorities	Obtain rel. authorities's approval for AIP	Obtain SO's consent for design (AIP)	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel, authorities	Obtain rel. authorities's approval for DDA	Obtain SO's consent for design (DDA)
	Design Pack	Temp. Steel De	02L1AA0102	02L1AA0104	02L1AA0106	02L1AA0108	02L1AA0110	ELS Design for	02L1AA0202	02L1AA0203	02L1AA0204	02L1AA0206	02L1AA0208	02L1AA0216	02L1AA0218	02L1AA0238	Temp. Platform	02L1AA0302	02L1AA0303	02L1AA0304	02L1AA0306	02L1AA0308	02L1AA0310	Cascade & Box	02L1AA0402	02L1AA0403	02L1AA0404	02L1AA0406	02L1AA0408	02L1AA0410	02L1AA0412	02L1AA0414	02L1AA0420	02L1AA0422	02L1AA0423	02L1AA0424	02L1AA0426	02L1AA0428	02L1AA0430	02L1AA0432	02L1AA0434	02L1AA0440

Impact Assess	Impact Assessment on WSD Wo YIp Hop V. S. P. H.									
02L1AA0502	Design preparation for the DDA submission	30	30 02MAY08A	3A 26FEB09A 02MAY08A	A 26FEB09A	2				
02L1AA0503	Design (DDA) submission for the DC's approval	-	1 26JUN08A	A 27FEB09A 26JUN08A	A 27FEB09A	-				
02L1AA0504	Design (DDA) certification by the Design Checker	9	60 27JUN08A	3A 11MAR09A 27JUN08A	A 11MAR09A	2	1st ICE cer	ICE cert on 02/12/08		
02L1AA0506	Design (DDA) submission for the SO's approval	2	2 14JUL08A	3A 24MAR09A 14JUL08A	AMAR09A					
02L1AA0508	Design (DDA) review by the SO	99	66 15JUL08A	34 31MAR09A 15JUL08A	A 31MAR09A	2				
02L1AA0510	DDA submission for rel, authorities' approval	2	2 10JUL08A	3A 14MAR09A 10JUL08A	14MAR09A		I			
02L1AA0512	Design (DDA) review by the rel. authorities	28	28 14JUL08A	31MAY09 14JUL08A	31MAY09	2 0				
02L1AA0514	Obtain rel. authorities's approval for DDA	-	1 01JUN09	9 01JUN09 01JUN09	90NUL10	0				
02L1AA0520	Obtain SO's consent for design (DDA)	0	0	31MAR09A	31MAR09A	2	•			
Temporary Pla	Temporary Platform for Pipe Pilling						- 7			
02L1AA0602	Design preparation by the Designer	11	11 21JUL08A	3A 23AUG08A 21JUL08A	1 23AUG08A	2				
02L1AA0603	Design submission for the DC's approval	-	1 01AUG08A	8A 25AUG08A 01AUG08A	A 25AUG08A		•			
02L1AA0604	Design certification by the Design Checker	21	21 02AUG08A	8A 26SEP08A 02AUG08A	A 26SEP08A	2	11			
02L1AA0606	Design submission for the SO's approval	*	1 08AUG08A	8A 27SEP08A 08AUG08A	A 27SEP08A	-	11			
02L1AA0608	Design review by the SO	28	28 09AUG08A	BA 170CT08A 09AUG08A	A 170CT08A	7	10			
02L1AA0610	Obtain design approval from the SO	0	0	17OCT08A	17OCT08A	23	•			
Temporary We	Temporary Works Design for Retrieval of TBM									1
02L1AA0702	Design preparation by the Designer	8	30 28FEB09A	3A 22JUN09 28FEB09A	4 22JUN09	2 139	I			
021 1AA0703	Design submission for the DC's approval	-	1 23JUN09	9 23JUN09 23JUN09	23JUN09	1 115				
02L1AA0704	Design certification by the Design Checker	28	28 24JUND9	9 21JUL09 24JUN09	21JUL09	2 139			V IN	
02L1AA0706	Design submission for the SO's approval	*	1 23JUN09	9 23JUN09 23JUN09	23JUN09	1 115			400	
02L1AA0708	Design review by the SO	42	42 24JUN09	9 04AUG09 24JUN09	04AUG09	2 139	11			WA F
02L1AA0710	Obtain design approval from the SO	0	0	04AUG09	04AUG09	2 139	*			
Temporary Dr.	Temporary Drainage Management Plan for Portion A									
02L1AA0802	TDMP preparation by the Designer	208	208 18AUG08A	8A 23MAY09A 18AUG08A	A 23MAY09A	0				
02L1AA0804	TDMP submission for the DC's approval	2	2 24SEP08A	8A 25MAY09A 24SEP08A	A 25MAY09A					
02L1AA0806	TDMP certification by the Design Checker	28	28 240CT08A	-		2 142				
02L1AA0808	TDMP submission for the SO's approval	2	2 05NOV08A	8A 04JUN09 05NOV08A	A 04JUN09	1 165				
02L1AA0810	TDMP review by the SO	90	90 05NOV08A	8A 16JUL09 05NOV08A	A 16JUL09	2 192				112
02L1AA0812	TDMP submission for DSD's approval	-	1 04JUN09	04JUN09		1 119				-
02L1AA0814	TDMP review by the DSD	8	90 05JUN09	02SEP09		2 144				
02L1AA0816	Obtain DSD's approval for DDA	*	1 03SEP09	39 03SEP09 03SEP09		117				
02L1AA0818	Obtain SO's consent for TDMP	0	0	03SEP09	03SEP09	2 144	•			
Geotechnical	Geotechnical Instrumentation Stg 1 for GL Works									3210
3DL1AAG102	Design preparation by the Designer	14	14 22FEB08A	8A 28APR08A 22FEB08A		2				
3DL1AAG104	Design certification by the Design Checker	7	7 29APR08A	8A 16JUN08A 29APR08A	A 16JUN08A	2				
3DL1AAG106	Design submission for the SO's approval	٠	1 10MAY08A			-				
3DL1AAG108	Design review by the SO	14	14 12MAY08A	8A 28AUG08A 12MAY08A	A 28AUG08A	2				
3DL1AAG110	Obtain design approval from the SO	0	0	28AUG08A	-	2	•		00	
3DL1AAG112	Install Geotechnical Instruments	9	6 26MAY08A	8A 26MAY08A 26MAY08A	A 26MAY08A	-				
3DI 1AAG114	Constitution Contract	42	AN OZNANORA	SA 31MAYORA 27MAYORA	A 31MAY08A	·				

OI	Activity	100	P3D	AD04			1	Total	2008	2010	100	2002	2013
	Description	Dur	Dur	Start	Finish Start	t Finish	9	Float					
Geotechnical I	Geotechnical Instrumentation Stg 2 for Deep Exc.												
3DL1AAG202	Design preparation by the Designer	4	14 0	01DEC08A 2	24FEB09A 01DEC08A	38A 24FEB09A	2		0				
3DL1AAG204	Design certification by the Design Checker	7	7 1	7 15DEC08A 2	25FEB09A 15DEC08A	38A 25FEB09A	2		U				
3DL1AAG206	Design submission for the SO's approval	-	-	07JAN09A	25FEB09A 07JAN09A	9A 25FEB09A			0				18
3DL1AAG208	Design review by the SO	28	28 (08JAN09A 2	24MAR09A 08JAN09A	1033	2		11				8=3
3DL1AAG210	Obtain design approval from the SO	0	0	2	24MAR09A	24MAR09A	2		•				
3DL1AAG212	Install Geotechnical Instruments	28	28 (09FEB09A	04JUN09 09FEB09A	9A 04JUN09	-	0	1				553
3DL1AAG214	Baseline Monitoring	9	9	18FEB09A 2	25MAR09A 18FEB09A	BA 25MAR09A	2		111			~ {	
3DL1AAG216	Monitor/report Geotechnical Instrumentation	1,643 1,643	-	02JUN08A	04FEB13 02JUN08A	ISA 04FEB13	2	0			l	İ	1
Design Pack	Design Packages for Works in Portion B												
Piling Platform	Piling Platform to Construct H-pile Wall			E									
02L1BB0202	Design preparation by the Designer	15	15 2	4MAR08A 0	24MAR08A 09MAY08A 24MAR08A 09MAY08A	28A 09MAY08A	2		п			100	(18)
02L1BB0204	Design certification by the Design Checker	4	14	10MAY08A 0	08AUG08A 10MAY08A	38A 08AUG08A	2						0.
02L1BB0206	Design submission for the SO's approval	-	1	1 21MAY08A 0	08AUG08A 21MAY08A	D8A D8AUG08A	-		8				
02L1BB0208	Design review by the SO	21	21 2	22MAY08A	25SEP08A 22MAY08A	38A 25SEP08A	2		1			200	
02L1BB0210	Obtain design approval from the SO	0	0		25SEP08A	25SEP08A	2		•				
Temp. Platform	Temp. Platform to Construct Drop Shafts												
02L1BB0302	Design preparation by the Designer	22	22 0	4AUG08A 1	04AUG08A 11DEC08A 04AUG08A	38A 11DEC08A	2	90	I			3 ·	
02L1BB0303	Design submission for the DC's approval	2	2	2 11DEC08A 1	12FEB09A 11DEC08A	38A 12FEB09A	٠		IJ				
02L1BB0304	Design certification by the Design Checker	41	4	12DEC08A 2	25FEB09A 12DEC08A	38A 25FEB09A	2	7.0	0				8
02L1BB0306	Design submission for the SO's approval	2	2	2 12DEC08A 2	25FEB09A 12DEC08A	38A 25FEB09A	-		ij		a		
02L1BB0308	Design review by the SO	21	21	21 13DEC08A 1	11MAR09A 13DEC08A	38A 11MAR09A	2		1)				(82)
02L1BB0310	Obtain design approval from the SO	0	0	_	11MAR09A	11MAR09A	350		•				188
Temporary Dra	Temporary Drainage Management Plan												
02L1BB0402	TDMP preparation by the Designer	313	313 0	313 05MAY08A 2	21MAR09A 05MAY08A	08A 21MAR09A	1 2						
02L1BB0403	TDMP submission for the DC's approval	2	2 0	2 05AUG08A 2	23MAR09A 05AUG08A	38A 23MAR09A	-		1				
02L1BB0404	TDMP certification by the Design Checker	213	213 0	213 06AUG08A 1	13APR09A 06AUG08A	38A 13APR09A	7	135					10
02L1BB0406	TDMP submission for the SO's approval	2	2	2 24SEP08A 1	14APR09A 24SEP08A	38A 14APR09A	τ		1			58	
02L1BB0408	TDMP review by the SO	90	90 25	SEP08A	03JUN09 25SEP08A	98A 03JUN09	8	-210					25
02L1BB0410	TDMP submission for DSD's approval	-	1 23	SEP08A	23SEP08A 23SEP08A	18A 23SEP08A	,						
02L1BB0412	TDMP review by the DSD	06	90	24SEP08A	04JUN09 24SEP08A	98A 04JUN09	2	-211	1				
02L1BB0414	Obtain DSD's approval for DDA	-	٠-	60NUC90	esuucso esuucso		•	-168					
02L1BB0416	Obtain SO's consent for TDMP	0	0		60NUC50	60NUL20	2	-211	•				
Temp. Suppor	Temp. Support Design for MAA/MAS/VDS/DC					I							
02L1BB0502	Design preparation for the AIP submission	272	272 (23UN08A	02JUN08A 19MAR09A 02JUN08A	19MAR09A	1 2						000
02L1BB0503	Design (AIP) submission for the DC's approval	2	2	11JUL08A 2	20MAR09A 11JUL08A	8A 20MAR09A	-						33
02L1BB0504	Design (AIP) certification by the Design Checker	90	09	12JUL08A (04APR09A 12JUL08A	8A 04APR09A	2						
02L1BB0506	Design (AIP) submission for the SO's approval	23	2	24JUL08A (06APR09A 24JUL08A	8A 06APR09A	-						
02L1BB0508	Design (AIP) review by the SO	99	99	25JUL08A 1	11MAY09A 25JUL08A	8A 11MAY09A	2						
02L1BB0510	AIP submission for rel. authorities' approval	-	~	12JUL08A	12JUL08A 12JUL08A	8A 12JUL08A	٠						(SS
02L1BB0512	Design (AIP) review by the rel. authorities	28	28	14JUL08A 1	10NOV08A 14JUL08A	8A 10NOV08A	2		1			i i	e 97 i
02L1BB0514	Obtain rel. authorities's approval for AIP	-	-	11NOV08A 1	11NOV08A 11NOV08A	38A 11NOV08A	1						
02L1BB0516	SO submit design (AIP) for approval of GEO	-	-	29MAY09	29MAY09 29MAY09	39 29MAY09		0				8	àya
					Shoot 44 of E0		¥						

1	Description	pur	Dur	Start	Finish 51	Start	Finish)	Float				
02L1BB0518	Design (AIP) review/approval by the GEO	28	28	30MAY09	26JUN09 30MAY09		26JUN09	2	0	.991			
02L1BB0520	Obtain SO's consent for design (AIP)	0	0		11MAY09A	-	11MAY09A	5		•			
02L1BB0522	Design preparation for the DDA submission	30	30	28MAY09	26JUN09 28MAY09		26JUN09	2	0	.90			
02L1BB0523	Design (DDA) submission for the DC's approval		-	27JUN09	27JUN09 27JUN09		27JUN09		0				
02L1BB0524	Design (DDA) certification by the Design Checker	28	28	28JUN09	25JUL09 28JUN09		25JUL09	2	•	1181			
02L1BB0526	Design (DDA) submission for the SO's approval	-	Ψ-	27JUN09	27JUN09 27JUN09		27JUN09	+	0				
02L1BB0528	Design (DDA) review by the SO	99	99	28JUN09	01SEP09 28JUN09		01SEP09	2	0	1			
02L1BB0530	DDA submission for rel. authorities' approval	-	٠	04JUL09	04JUL09 04JUL09		04JUL09	•	26				
02L1BB0532	Design (DDA) review by the rel. authorities	28	28	05JUL09	01AUG09 05JUL09		01AUG09	2	£	11			
02L1BB0534	Obtain rel. authorities's approval for DDA	-	•	03AUG09	03AUG09 03AUG09		03AUG09	-	56				
02L1BB0536	SO submit design (DDA) for approval of GEO	-	-	03AUG09	03AUG09 03AUG09		03AUG09	-	0				
02L1BB0538	Design (DDA) review/approval by the GEO	28	28	04AUG09	31AUG09 04AUG09		31AUG09	2	0				
02L1BB0540	Obtain SO's consent for design (DDA)	0	0		02SEP09	J	02SEP09	2	0	•			
emp. Suppor	Temp. Support Design for MA and MA/MT Connection											0 0	
02L1BB0602	Design preparation for the AIP submission	110	110	09JUN08A	OZJUNO9 09JUN08A		60NNC30	2	0				
02L1BB0603	Design (AIP) submission for the DC's approval) 5 77	*	18MAY09A	29MAY09 18MAY09A		29MAY09	-	m				
02L1BB0604	Design (AIP) certification by the Design Checker	28	28	19MAY09A	14JUN09 19MA	19MAY09A	14JUN09	2	0	*			
02L1BB0606	Design (AIP) submission for the SO's approval	•	*	93JUN09	60NULEO 60NULEO		60NULE0		0				
02L1BB0608	Design (AIP) review by the SO	99	99	04JUN09	08AUG09 04JUN09		08AUG09	2	0	1			
02L1BB0610	AIP submission for rel. authorities' approval	·-	-	93JUN09	BONULEO BONULEO		93JUN09	ų.	30				
02L1BB0612	Design (AIP) review by the rel. authorities	28	28	04JUN09	01JUL09 04JUN09	-20	01JUL09	7	36	n			
02L1BB0614	Obtain rel. authorities's approval for AIP	-	-	05JUL09	02JUL09 02JUL09		02JUL09	-	31				- CO
02L1BB0616	SO submit design (AIP) for approval of GEO		۳	22JUN09	22JUN09 22JUN09	5-50	22JUN09	-	0				100
02L1BB0618	Design (AIP) review/approval by the GEO	28	28	23JUN09	20JUL09 23JUN09		20JUL09	7	0				88
02L1BB0620	Obtain SO's consent for design (AIP)	0	0		09AUG09	7	09AUG09	2	0	•			
02L1BB0622	Design preparation for the DDA submission	30	30	18JUL09	16AUG09 18JUL09		16AUG09	7	0				
02L1BB0623	Design (DDA) submission for the DC's approval	-	-	17AUG09	17AUG09 17AUG09		17AUG09	4-	0	- /			
02L1BB0624	Design (DDA) certification by the Design Checker	28	28	18AUG09	14SEP09 18AUG09		14SEP09	7	0	•			200
02L1BB0626	Design (DDA) submission for the SO's approval	-	7	17AUG09	17AUG09 17AUG09		17AUG09	-	0			1111	
02L1BB0628	Design (DDA) review by the SO	99	99	18AUG09			22OCT09	7	0		1		
02L1BB0630	DDA submission for rel. authorities' approval	-	_	24AUG09	24AUG09 24AUG09		24AUG09		27				122
02L1BB0632	Design (DDA) review by the rel. authorities	28	28	25AUG09	21SEP09 25AUG09		21SEP09	01	3				
02L1BB0634	Obtain rel, authorities's approval for DDA	.	-	22SEP09	22SEP09 22SEP09		22SEP09		52			7	700
02L1BB0636	SO submit design (DDA) for approval of GEO	F	٠	22SEP09			22SEP09		0				
02L1BB0638	Design (DDA) review/approval by the GEO	28	28	23SEP09	200CT09 23SEP09		200CT09	7	0				
02L1BB0640	Obtain SO's consent for design (DDA)	0	0		23OCT09		23OCT09	2	0		•		NAV.
ermanent De	Permanent Design for MAA/MAS/VDS/DC												
02L1BB0702	Design preparation for the AIP submission	285	285	02JUN08A	OZJUNO9 OZJUNO8A		90NUCZ0	01	0				
02L1BB0703	Design submission for the DC's approval	2	2	23JUL08A	03JUN09 23JU	23JUL08A (93JUN09		0				
02L1BB0704	Design (AIP) certification by the Design Checker	9	9	24JUL08A	19JUN09 24JU	24JUL08A	19JUN09	2	0	Ì			
02L1BB0706	Design (AIP) submission for the SO's approval	2	2	04JUL08A	03JUN09 04JU	04JUL08A (93JUN09		-				
02L1BB0708	Design (AIP) review by the SO	99	99	05JUL08A	19JUN09 05JU	05JUL08A	19JUN09	7	·				12
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Q	Activity	D04 1	D04 WP3D	AD04 Slart	ADD4 WP3D Finish Start	WP3D Finish	Total	8002 8002	2010	1100	2012	2013
02L1BB0906	Design submission for the SO's approval	-		9	9 154	15AUG09	1 70					
02L1BB0908	Design review by the SO	42	42	16AUG09	26SEP09 16AUG09	26SEP09	2 86	D			i e	
02L1BB0910	Obtain design approval from the SO	0	0		26SEP09	26SEP09	2 86	*				
Platform for R	Platform for RCD Operation (Air Vent Shaft)											
02L1BB1602	Prepare design/method statement	9	6 2	22NOV08A	01DEC08A 22NOV08A	01DEC08A						
02L1BB1604	Submit design/method statement to Design Checker	T	1 0.	1 02DEC08A	23DEC08A 02DEC08A	23DEC08A	-					
02L1BB1606	Certify design/m.s. by Design Checker	7	7 0;	03DEC08A	24DEC08A 03DEC08A	A 24DEC08A	2	•				
02L1BB1608	Submit design/m.s. to SO	-	1 2	24DEC08A 3	24DEC08A 24DEC08A	24DEC08A	•					
02L1BB1610	Design/m.s. review by SO	14	14 25	DEC08A	11MAR09A 25DEC08A		2	11				
02L1BB1612	Obtain design/m.s. approval from the SO	0	0		11MAR09A	11MAR09A	-	•				
Temporary Wo	Temporary Works for Air Vent Shaft Construction											
02L1BB1702	Prepare design/method statement	21	21 00	3NOV08A	03NOV08A 16DEC08A 03NOV08A	16DEC08A	-	n				
02L1BB1704	Submit design/method statement to Design Checker	-	1 17	DEC08A	17DEC08A 17DEC08A	17DEC08A	-			550		
02L1BB1706	Certify design/m.s. by Design Checker	41	14 1	18DEC08A	23JAN09A 18DEC08A	ASJAN09A	2	B				
02L1BB1708	Submit design/m.s. to SO	-	1 2	23JAN09A	23JAN09A 23JAN09A	23JAN09A	r					
02L1BB1710	Design/m.s. review by SO	7	7 2	24JAN09A	23MAR09A 24JAN09A	23MAR09A	2	n				
02L1BB1712	Obtain design/m.s. approval from the SO	0	0	. 1	23MAR09A	23MAR09A	7,400	•				
Permanet Desi	Permanet Design for Air Vent Shaft					3						
02L1BB1802	Prepare design/method statement	56	26 0	5NOV08A	26 05NOV08A 11DEC08A 05NOV08A 11DEC08A	11DEC08A		13		B		
02L1BB1804	Submit design/method statement to Design Checker	-	11	1 12DEC08A	12DEC08A 12DEC08A	12DEC08A						
02L1BB1806	Certify design/m.s. by Design Checker	21	21 1		24MAR09A 13DEC08A		2	II			101	
02L1BB1808	Submit design/m.s. to SO	-	1	17DEC08A 3	24MAR09A 17DEC08A	A 24MAR09A	-	II				
02L1BB1810	Design/m.s. review by SO	42	42 1	18DEC08A	31MAY09 18DEC08A	31MAY09	2 150					
02L1BB1812	Submit design to rel. authorities	÷	1 2	1 25MAR09A	25MAR09A 25MAR09A	A 25MAR09A	ν-					
02L1BB1814	Obtain design approval from rel. authorities	28	28 01	MAR09A	28MAY09 01MAR09A	A 28MAY09	2 153				bine	
02L1BB1816	Obtain design/m.s. approval from the SO	0	0		30MAY09	30MAY09	1 125	*				
ELS Design fo	ELS Design for Construction of Vortex Shaft											
02L1BB1902	Design preparation by the Designer	25	25 2	23FEB09A	02JUN09 23FEB09A	02JUN09	2 -205	1			551	-17.5
02L1BB1904	Design submission for the DC's approval		·	93JUN09		GONNICO	1 -163			-V		
02L1BB1906	Design certification by the Design Checker	28	28	04JUN09		01JUL09	2 -205					
02L1BB1908	Design submission for the SO's approval	-		60NULE0		93JUN09					201	
02L1BB1910	Design review by the SO	42	42	11JUN09	15JUL09 11JUN09	15JUL09						
02L1BB1912	Obtain design approval from the SO	0	٥		15JUL09	15JUL09	2 -205	•				
Geotechnical	Geotechnical Instrumentation Stg 1 for GL Works	3										
3DL1BBG102	Design preparation by the Designer	4	14 2		05MAY08A 22FEB08A		2	11				
3DL1BBG104	Design certification by the Design Checker	7	7 0		29AUG08A 06MAY08A	A 29AUG08A	0					
3DL1BBG106	Design submission for the SO's approval	*	<u></u>	10MAY08A	10MAY08A 10MAY08A 10MAY08A	10MAY08A						
3DL1BBG108	Design review by the SO	14	14	12MAY08A	14JUL08A 12MAY08A	4 14 JUL08A	63	n				
3DL1BBG110	Obtain design approval from the SO	0	0		14JUL08A	14JUL08A	61	•				
3DL1BBG112	Install Geotechnical Instruments	9	6 1	11JUN08A	19JUL08A 11JUN08A	19JUL08A	**:	8				
3DL1BBG114	Baseline Monitoring	14	14 2	1JUL08A	26JUL08A 21JUL08A	26JUL08A	23	-			13)	
Geotechnical	Geotechnical Instrumentation Stg 2 for Deep Exc.										200	
3DL1BBG202	Design preparation by the Designer	40	40 31	1AUG08A	AUG08A 240CT08A 31AUG08A 240CT08A	3 240CT08A	2					

Design centrication by the Design Checker 14 14 240CT064 COCCT064 CODECO64 CODECO64 CODECO64 CODECO64 CODECO664 CODECO64 CODECO664 CODECO	9	Activity	Dur Dur	Dur	Start	Finish Start	Finish		Float					
1 1 1 1 1 1 1 1 1 1	3DL1BBG204	Design certification by the Design Checker	41	**	_	02DEC08A 24OCT08/		2		Ш			353	
12 28 28 CRNOVORA 10JUNO9 CRNOVORA 10JUNO9 2 -114	3DL1BBG206	Design submission for the SO's approval	,		2.5	O2DEC08A 05NOV08/		•	_53	13				
10 10 10 10 10 10 10 10	3DL1BBG208	Design review by the SO	28		D6NOV08A	10JUN09 06NOV08/			14					
12 12 14 14 14 14 14 14	3DL1BBG210	om the	0	0		10JUN09	10JUN09		14				\$\$ 1	
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Activity	Description	Design preparation for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	Permanent Design for MA and MA/MT Connection	Design preparation for the AIP submission	Design (AIP) submission for the DC's approval	Design (AIP) certification by the Design Checker	Design (AIP) submission for the SO's approval	Design (AIP) review by the SO	AIP submission for rel. authorities' approval	Design (AIP) review by the rel. authorities	Obtain rel. authorities's approval for AIP	SO submit design (AIP) for approval of GEO	Design (AIP) review/approval by the GEO	Obtain SO's consent for design (AIP)	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	Boulder Assessment & Design for Stabili. Measure	Boulder Surevey	Prepare/submit boulder surevey report	SO review boulder survey report	Temporary Drainage Management Plan	TDMP preparation by the Designer	TDMP submission for the DC's approval	TDMP certification by the Design Checker	
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WP3D	14NOV08A	14NOV08A	04DEC08A	04DEC08A		09MAY09A	15MAY09A	16MAY09A	60NULE0	60NULE0		23APR09A	24APR09A	15MAY09A	15MAY09A	18JUN09	24JUN09	18JUN09		11MAY09A	12MAY09A	13MAY09A	13MAY09A	19MAY09A	28AUG08A	27MAR09A	19MAY09A	28FEB09A	28MAY09	19MAY09A	05JUN09	60NNC90	04JUL09	60NUC90	11AUG09	13JUN09	11JUL09	13JUL09	13JUL09	10AUG09	12AUG09		26JUN09
WP3D	17APR08A	25APR08A	26APR08A			14APR08A	15MAY09A 05MAY08A	16MAY09A 10MAY08A	12MAY08A			23APR09A 28AUG08A	16JAN09A	19JAN09A	02FEB09A	03FEB09A	28MAY09			21APR08A	28JUL08A	21AUG08A	28JUL08A	29JUL08A	28AUG08A 28AUG08A	28FEB09A		28FEB09A	01MAR09A		07MAR09A	60NUL80	90NUL70	06JUN09	90NUL70	13JUN09	14JUN09	13JUL09	13JUL09	14JUL09			26JUN09 28FEB09A
AD04 Finish	14NOV08A 17APR08A	14NOV08A 25APR08A	04DEC08A 26APR08A	04DEC08A		4APR08A 09MAY09A 14APR08A	15MAY09A	16MAY09A	93JUN09	93JUN09		23APR09A	24APR09A 16JAN09A	15MAY09A 19JAN09A	15MAY09A 02FEB09A	18JUN09	24JUN09	18JUN09		11MAY09A 21APR08A	12MAY09A 28JUL08A	13MAY09A 21AUG08A	13MAY09A 28JUL08A	19MAY09A 29JUL08A	28AUG08A	27MAR09A 28FEB09A	19MAY09A	28FEB09A	28MAY09	19MAY09A	90NUL30	60NUL90	04JUL09	90NUL90	11AUG09	13JUN09	11JUL09	13JUL09	13JUL09	10AUG09	12AUG09		
AD04 Start	17APR08A	25APR08A	26APR08A			14APR08A	05MAY08A	10MAY08A	12MAY08A			28AUG08A	16JAN09A	19JAN09A	02FEB09A	03FEB09A	28MAY09			21APR08A	28JUL08A	21AUG08A	28JUL08A	29JUL08A	28AUG08A	28FEB09A		28FEB09A	01MAR09A		07MAR09A	60NUL.00	90NUL70	90NUL80	90NUL70	13JUN09	14JUN09	13JUL09	13JUL09	14JUL09			28FEB09A
WP3D	150	2	90	0		120	145	2	90	0		9	2	28	2	63	28	0		381	က	37	ო	280	7	28	0	5	28	0	30	-	28	•	99	7	28	-	-	28	0	8	119
AD04 Dur	150	2	8	0		120	145	2	06	0		09	2	28	2	63	28	0		381	m	37	ო	280	*	28	0	•	28	0	30		28	-	99	_	28	-	-	28	0		119
Activity Description	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Site Formation Design; +40mPD to +24mPD	Design preparation by the Designer	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Site Formation Design; +24mPD to 14mPD	Design preparation by the Designer	Design submission for the DC's approval	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Design review by GEO	Obtain design approval from the SO	ng Chamber Design	Design (AIP) preparation by the Designer	Design (AIP) submission for the DC's approval	Design (AIP) certification by the Design Checker	Design (AIP) submission for the SO's approval	Design (AIP) review by the SO	AIP submission for rel. authorities' approval	Design (AIP) review by the rel. authorities	Obtain rel. authorities's approval for AIP	SO submit Design (AIP) for approval of GEO	Design (AIP) review/approval by the GEO	Obtain SO's consent for design (AIP)	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)		Design preparation by the Designer
Q	02L1DD0404	02L1DD0406	02L1DD0408	02L1DD0412	Site Formation	02L1DD0502	02L1DD0504	02L1DD0506	02L1DD0508	02L1DD0512	Site Formation	02L1DD0602	02L1DD0603	02L1DD0604	02L1DD0606	02L1DD0608	02L1DD0610	02L1DD0612	TBM Launching	02L1DD0702	02L1DD0703	02L1DD0704	02L1DD0706	02L1DD0708	02L1DD0710	02L1DD0712	02L1DD0714	02L1DD0716	02L1DD0718	02L1DD0720	02L1DD0722	02L1DD0723	02L1DD0724	02L1DD0726	02L1DD0728	02L1DD0730	02L1DD0732	02L1DD0734	02L1DD0736	02L1DD0738	02L1DD0740	Hopper Design	02L1DD0802

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WP3D Finish	27JUN09	25JUL09 ;		08AUG09	08AUG09		24MAR09A	25MAR09A	60NUL80	60NUL80		21JUL09		14JUN09	15JUN09	13JUL09	15JUN09	27JUL09	27JUL09		26JUN09	27JUN09	25JUL09	27JUN09		04JUL09		03AUG09	-		02SEP09				_	-	-	03AUG09	31AUG09	01SEP09		29SEP09	020CT09
AD04 WP3D Finish Start	60NUL72 60NUL72	25JUL09 28JUN09	27JUN09 27JUN09	08AUG09 28JUN09	08AUG09		24MAR09A 02JAN09A	25MAR09A 25MAR09A	08JUN09 26MAR09A	60NULGO GONULGO	21JUL09 10JUN09	21JUL09		14JUN09 02JAN09A	15JUN09 15JUN09	13JUL09 16JUN09	15JUN09 15JUN09	27JUL09 16JUN09	27JUL09		26JUN09 28MAY09	27JUN09 27JUN09	25JUL09 28JUN09	27JUN09 27JUN09	01SEP09 28JUN09	04JUL09 04JUL09		03AUG09 03AUG09	03AUG09 03AUG09	31AUG09 04AUG09	02SEP09		-	_	330		01OCT09 28JUL09	03AUG09 03AUG09	31AUG09 04AUG09			29SEP09 02SEP09	02OCT09
D AD04	1 27JUN09	28 28JUN09	1 27JUN09	42 28JUN09 C	0		82 02JAN09A 2	1 25MAR09A 2	28 26MAR09A	1 09JUN09	42 10JUN09	0		82 02JAN09A	15JUND9	28 16JUN09	1 15JUN09	42 16JUN09	0		30 28MAY09	1 27JUN09	28 28JUN09	1 27JUN09	66 28JUN09	1 04JUL09		1 03AUG09 (04AUG09	0		27JUN09	27JUL09	28JUL09		66 28JUL09 (1 03AUG09 (28 04AUG09	1 01SEP09		28 02SEP09	0
Dur Dur		28 2	-	42 4	0		82 8	-	28	-	42	0		82 8		28	-	42 4	0		30	•	28 2	1	9 99		28	-	-		0			-	28	r	99	·-	28 2	-	·	28	0
Activity Description	Design submission for the DC's approval	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Design	Design preparation by the Designer	Design submission for the DC's approval	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Overhead Gantry Support & Noise Enclosure Design	Design preparation by the Designer	Design submission for the DC's approval	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	ELS Design for Spiral Ramp & Vehicular Access	Design preparation for the AIP submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	ELS Design for Box Culvert & Open Channel	Design preparation for the AIP submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel, authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)
9	02L1DD0803	02L1DD0804	02L1DD0806	02L1DD0808	02L1DD0810	Steel Platform Design	02L1DD0902	02L1DD0903	02L1DD0904	02L1DD0906	02L1DD0908	02L1DD0910	Overhead Gantry	02L1DD1002	02L1DD1003	02L1DD1004	02L1DD1006	02L1DD1008	02L1DD1010	ELS Design for	02L1DD1102	02L1DD1103	02L1DD1104	02L1DD1106	02L1DD1108	02L1DD1110	02L1DD1112	02L1DD1114	02L1DD1116	02L1DD1118	02L1DD1120	ELS Design for	02L1DD1202	02L1DD1203	02L1DD1204	02L1DD1206	02L1DD1208	02L1DD1210	02L1DD1212	02L1DD1214	02L1DD1216	02L1DD1218	02L1DD1220

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Total			10	12	16	12		0	0	0										195	195	163	195	195	161	195	0			u				-176				0	0	-176	-176	-138	-176
Cal		2	-	2	-	2	-	7	-	2		2	2	-	2	2	÷	2		2	2	-	2	2		2	2			2	-	2		2		5	-		2	2	5	÷	2
WP3D Finish		27MAR09A	29MAY09	60NUC90	60NUL80	04JUL09	17NOV08A	16JUL09	17JUL09	17JUL09		24APR08A	16JUN08A	16JUN08A	14JUL08A	14JUL08A	05JUL08A	09JUL08A		10JUN09	24JUN09	11JUN09	09JUL09	997NL09	30JUL09	13AUG09	31DEC12			27MAR09A	27MAR09A	27MAR09A	27MAR09A	60NULE0	08JUL08A	05MAR09A	06MAR09A	29MAY09	26JUN09	04JUN09	11JUN09	12JUN09	10JUL09
WP3D Start		27MAR09A 05MAY08A	29MAY09 08AUG08A	06JUN09 09AUG08A	08JUN09 08AUG08A	08AUG08A	17NOV08A 17NOV08A	18NOV08A	17JUL09			24APR08A 22FEB08A	16JUN08A 25APR08A	16JUN08A 25APR08A	14JUL08A 26APR08A		05JUL08A 04JUN08A	09JUL08A 18JUN08A		28MAY09*	11JUN09	11JUN09	12JUN09		10JUL09	13AUG09 31JUL09	10JUL08A			27MAR09A 08FEB08A	27MAR09A 02MAY08A	27MAR09A 03MAY08A	27MAR09A 10JUL08A	03JUN09 11JUL08A	OBJULOSA OSJULOSA	OSMARO9A 09JUL08A	DEMARDSA DEMARDSA	29MAY09	30MAY09		04NOV08A	12JUN09	13JUN09
AD04 Finish		27MAR09	-			04JUL09		16JUL09	17JUL09	17JUL09		24APR08/	16JUN08/	16JUN08/	14JUL08/	14JUL08A	05JUL084	09JUL084		10JUN09	24JUN09	11JUN09	0970L09	09JUL09	30JUL09	13AUG09	31DEC12			27MAR09			27MAR09	60NULE0	08701084	05MAR09		29MAY09	26JUN09	04JUN09	11JUN09	12JUN09	10JUL09
AD04 Start		05MAY08A	08AUG08A	09AUG08A	08AUG08A	08AUG08A	17NOV08A	18NOV08A	17JUL09			22FEB08A	25APR08A	25APR08A	26APR08A		04JUN08A	18JUN08A		28MAY09*	11JUN09	11JUN09	12JUN09		10JUL09	31JUL09	10JUL08A			08FEB08A	2 OZMAYOBA	28 03MAY08A	10JUL08A	11JUL08A	08JUL08A	09JUL08A	06MAR09A	29MAY09	30MAY09		04NOV08A	12JUN09	13JUN09
ADD4 WP3D Dur Dur		225	2	28	2	06	-	90	-	0		14	7	-	14	0	10	14		14	4	-	28	0	200	14	1,605 1,605			414	2	28	۳	99	7	28	7	-	28	0	30	-	28
AD04 Dur		225	2	78	2	06	٠	06	-	0		4	7	÷	4	0	10	4		4	4	<u>.</u>	28	0	18	4	1,605			414	2	28	-	99	*	28	<u>.</u>	2	28	0	8	٠	28
Activity Description	Temporary Drainage Management Plan	TDMP preparation by the Designer	TDMP submission for the DC's approval	TDMP certification by the Design Checker	TDMP submission for the SO's approval	TDMP review by the SO	TDMP submission for DSD's approval	TDMP review by the DSD	Obtain DSD's approval for DDA	Obtain SO's consent for TDMP	Geotechnical Instrumentation Stg 1 for GL Works	Design preparation by the Designer	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Install Geotechnical Instruments	Initial reading	Geotechnical Instrumentation Stg 2 for Deep Exc.	Design preparation by the Designer	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	Obtain design approval from the SO	Install Geotechnical Instruments	Baseline Monitoring	Monitor/report Geotechnical Insturmentatation	Design Packages for Works in Portion F	Jesign	Design preparation for the AIP submission	Design (AIP) submission for the DC's approval	Design (AIP) certification by the Design Checker	Design (AIP) submission for the SO's approval	Design (AIP) review by the SO	AIP submission for rel. authorities' approval	Design (AIP) review by the rel. authorities	Obtain rel. authorities's approval for AIP	SO submit design (AIP) for approval of GEO	Design (AIP) review/approval by the GEO	Obtain SO's consent for design (AIP)	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker
QI.	Temporary Dra	02L1DD1302	02L1DD1303	02L1DD1304	02L1DD1306	02L1DD1308	02L1DD1310	02L1DD1312	02L1DD1314	02L1DD1316	Geotechnical	3DL1DDG102	3DL1DDG104	3DL1DDG106	3DL1DDG108	3DL1DDG110	3DL1DDG112	3DL1DDG114	Geotechnical	3DL1DDG202	3DL1DDG204	3DL1DDG206	3DL1DDG208	3DL1DDG210	3DL1DDG212	3DL1DDG214	3DL1DDG216	Design Pack	Main Tunnel Design	02L1FF0102	02L1FF0103	02L1FF0104	02L1FF0106	02L1FF0108	02L1FF0110	02L1FF0112	02L1FF0114	02L1FF0116	02L1FF0118	02L1FF0120	02L1FF0122	02L1FF0123	02L1FF0124

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Float	-136	-176	-121	-152	-123	-140	-176	-176							0.0	0	0			1690		0		0	8 7	28	23	0	0	0	1		60)	eg/		133		000		26	115	115
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Finish	12JUN09	10AUG09	19JUN09	17JUL09	18JUL09	13JUL09	10AUG09	11AUG09		30JUN08A	03JUL08A	18MAR09A	18MAR09A	31MAR09A	02APR09A	10JUN09	11JUN09	31MAR09A		27JUN08A	27JUN08A	60NUL80	15JUL08A	13JUL09	10JUL08A	15JUN09	16JUN09	16JUN09	14JUL09	14JUL09		26JUN08A	26JUN08A	02APR09A	03APR09A	60NUL80	14JUL08A	11MAR09A	11MAR09A	29MAY09	26JUN09	97.II IN09
Start	12JUN09	16JUN09	19JUN09	20JUN09	18JUL09	13JUL09	10AUG09 14JUL09			30JUN08A 29APR08A	03JUL08A 03JUL08A	18MAR09A 04JUL08A	18MAR09A 15JUL08A	31MAR09A 16JUL08A	02APR09A 10JUL08A	10JUN09 11JUL08A	11JUN09 11JUN09			27JUN08A 14APR08A	27JUN08A 27JUN08A	28JUN08A	15JUL08A 15JUL08A	16JUL08A	10JUL08A 10JUL08A	11JUL08A			17JUN09			26JUN08A 28APR08A	26JUN08A 26JUN08A	02APR09A 27JUN08A	03APR09A 15JUL08A	08JUN09 16JUL08A	14JUL08A 14JUL08A	11MAR09A 15JUL08A	11MAR09A 12MAR09A		30MAY09	
Finish	12JUN09	10AUG09	19JUN09	17JUL09	18JUL09	13JUL09	10AUG09	11AUG09		30JUN08A	03JUL08A	18MAR09/	18MAR09/	31MAR09/	02APR09A	10JUN09	11JUN09	31MAR09A		27JUN08A	27JUN08A	98JUN09	15JUL08A	13JUL09	10JUL08A	15JUN09	16JUN09	16JUN09	14JUL09	14JUL09			26JUN084	02APR09/	03APR09/	08JUN09	14JUL08A	11MAR09/		29MAY09	26JUN09	97.II IND9
Start	12JUN09	16JUN09	19JUN09	20JUN09	18JUL09	13JUL09	14JUL09			29APR08A	03JUL08A	04JUL08A	15JUL08A	16JUL08A	10JUL08A	11JUL08A	11JUN09			14APR08A	27JUN08A	28JUN08A	15JUL08A	16JUL08A	10JUL08A	11JUL08A	16JUN09	16JUN09	17JUN09					27JUN08A	15JUL08A	16JUL08A	14JUL08A	15JUL08A	12MAR09A	29MAY09	30MAY09	
Our Dur	-	56	-	28	_	₩.	28	0		09	-	260	750	99	-	28		0		32	-	285		99	1	28		1577	28	0		30	•	90	0	267	-	28	-	-	28	C
Dur	-	26	-	28	-	•	28	0		9	-	260	•	99		28	-	0		32	**	285	-	99	_	28	-	•	28	0		8	•	90	2	267	-	28	-	æ	28	C
Description	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	Impact Assessment on WSD Yau Kam Tau WTW	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	Obtain SO's consent for design (DDA)	Impact Assessment on WSD Tai Lam Chung WT No. 3	Design preparation for the DDA submission	Design submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)	Impact Assessment on KCRC West Rail Tunnel	Design preparation for the DDA submission	Design submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	SO submit design (DDA) for approval of GEO	Design (DDA) review/approval by the GEO	Obtain SO's consent for design (DDA)
9	02L1FF0126	02L1FF0128	02L1FF0130	02L1FF0132	02L1FF0134	02L1FF0136	02L1FF0138	02L1FF0140	Impact Assessm	02L1FF0202	02L1FF0203	02L1FF0204	02L1FF0206	02L1FF0208	02L1FF0210	02L1FF0212	02L1FF0214	02L1FF0220	Impact Assessm	02L1FF0302	02L1FF0303	02L1FF0304	02L1FF0306	02L1FF0308	02L1FF0310	02L1FF0312	02L1FF0314	02L1FF0316	02L1FF0318	02L1FF0320	Impact Assessm	02L1FF0402	02L1FF0403	02L1FF0404	02L1FF0406	02L1FF0408	02L1FF0410	02L1FF0412	02L1FF0414	02L1FF0416	02L1FF0418	001 4050400

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Total						221		226	187	221								-195		-160		-195	-156	-194	-156	-188	-188			182	182	182	186	227	182	227	227		261	211	263	210	261
Cal		2	7	2	-	2	-	2	₹	2		2	77	2	2		2	2	-	2	-	2	-	7	•	2	7			•	-	-	-	2	+	2	2		2	-	2	-	2
WP3D Finish		02JUL08A	03JUL08A	01APR09A	01APR09A	16JUN09	10JUL08A	10JUN09	11JUN09	17JUN09		20MAY08A	21MAY08A	17JUL08A	17JUL08A		23JAN09A	10JUN09	26MAR09A	20JUN09	14MAR09	23JUL09	24JUL09	24JUL09	10NOV09	24NOV09	08MAR13			2010109	31AUG09	14SEP09	15SEP09	190CT09	03NOV09	24NOV09	24NOV09		19AUG09	20AUG09	17SEP09	20AUG09	17OCT09
WP3D		02JUL08A 05MAY08A	03JUL08A 03JUL08A	01APR09A 04JUL08A	01APR09A 15JUL08A	16JUL08A	10JUL08A 10JUL08A	10JUN09 11JUL08A	9 11JUN09	6		20MAY08A 02MAY08A	21MAY08A 21MAY08A	17JUL08A 22MAY08A	3A		23JAN09A 28AUG08A	9 24JAN09A	26MAR09A 24JAN09A	9 24JAN09A	14MAR09A 14MAR09A 14MAR09A	9 15MAR09A	9 24JUL09	0	9 25JUL09	24NOV09 11NOV09	13 25NOV09			\$ 22JUN09*	9 21JUL09	9 01SEP09		9 22SEP09	9 200CT09	24NOV09 04NOV09	60		19AUG09 21JUL09	20AUG09 20AUG09	-	9 20AUG09	19 21AUG09
AD04 Finish		OZJULO	O370LO	01APR0	01APR0	16JUN09	10JUL0	10JUNG	11JUN09	17JUN09					17JUL08A		10-	10JUN09	26MAR0	20JUN09		23JUL09	24JUL09	24JUL09	10NOV09	24NOV(08MAR13	1		20JUL09	31AUG09	14SEP09	15SEP09	190CT09	03NOV09	24NOV	24NOV09	-	19AUG	20AUG	17SEP09	20AUG09	17OCT09
AD04 Start		05MAY08A	03JUL08A	04JUL08A	15JUL08A	16JUL08A	10JUL08A	11JUL08A	11JUN09			O2MAY08A	21MAY08A	22MAY08A			28AUG08A	24JAN09A	24JAN09A	24JAN09A	14MAR09A	15MAR09A	24JUL09		25JUL09	11NOV09	25NOV09	21		22JUN09*	21JUL09	01SEP09	15SEP09	22SEP09	200CT09	04NOV09			21JUL09	20AUG09	21AUG09	20AUG09	21AUG09
ADDA WP3D Dur Dur		30	۳	260	2	9	-	28	۲	0		12	-	24	0		09	14	2	56	٠	56	•	0	8	14	1,200	ij		24	36	12	•	28	12	57	0		30	-	28	Ņ.	58
AD04 Dur		30		260	0	09	-	28	-	0		12	-	24	0		09	4	2	56	-	56	-	0	90	4	1,200 1,200	ş		24	36	12		28	12	21	0		30	-	28		58
Activity Description	Impact Assessment on WSD Tsuen Wan Reservoir G.	Design preparation for the DDA submission	Design submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	Obtain SO's consent for design (DDA)	Grout Trial at Foult Zone F1	MS preparation for the DDA submission	Ms (DDA) submission for the SO's approval	MS (DDA) review by the SO	Obtain SO's consent for MS (DDA)	Geotechniucal Instrumentation	Design preparation by the Designer	Design certification by the Design Checker	Design submission for the SO's approval	Design review by the SO	DDA submission for rel. authorities' approval	Design (DDA) review by the rel. authorities	Obtain rel. authorities's approval for DDA	Obtain design approval from the SO	Install geotechnical instrumentsation	Baseline Monitoring	Maintain/monitor geotechnical instrumentation	Design Packages for Works in Portion G	Drainage Impact Assessment	Quatation and award consultant	Prepare preliminary DIA report	Prepare final DIA report	Submission of DIA report to SOR/DSD	SOR/DSD review/comment DIA report	Revise DIA incorporating comments	SOR/DSD review/approve DIA report	Obtain consent from SOR and DSD	Temp. Platform Design for H-Piling at Portion G	Design preparation for the DDA submission	Design (DDA) submission for the DC's approval	Design (DDA) certification by the Design Checker	Design (DDA) submission for the SO's approval	Design (DDA) review by the SO
QI	Impact Assess	02L1FF0502	02L1FF0503	02L1FF0504	02L1FF0506	02L1FF0508	02L1FF0510	02L1FF0512	02L1FF0514	02L1FF0520	Grout Trial at	02L1FF0602	02L1FF0606	02L1FF0608	02L1FF0620	Geotechniuca	3DL1FFGI02	3DL1FFG104	3DL1FFG106	3DL1FFG108	3DL1FFGI10	3DL1FFGI12	3DL1FFGI14	3DL1FFG116	3DL1FFGI18	3DL1FFGI20	3DL1FT0208	Design Pack	Drainage Impa	02L1GG0105	02L1GG0115	02L1GG0125	02L1GG0135	02L1GG0145	02L1GG0155	02L1GG0165	02L1GG0175	Temp. Platform	02L1GG0202	02L1GG0203	02L1GG0204	02L1GG0206	02L1GG0208

Description	Our Dur	r Start	r rinish	n Start	Finish		Float				
DDA submission for rel. authorities' approval	-	1 27AUG09		27AUG09 27AUG09	27AUG09	-	228		75		
Design (DDA) review by the rel. authorities	28	28 28AUG09		24SEP09 28AUG09	24SEP09	2	284		13		
Obtain rel. authorities's approval for DDA	-	1 25SEP09	P09 25SEP09	09 25SEP09	25SEP09	-	226		==		
Obtain design (DDA) approval from the SO	0	0	18OCT09	60	18OCT09	2	261		*		
ELS Design for Pipe Jacking at Portion G						i					
Design preparation for the DDA submission	. 51	15 20AUG09		03SEP09 20AUG09	03SEP09	2	284				
Design (DDA) submission for the DC's approval	÷	1 04SEP09	P09 04SEP09	09 04SEP09	04SEP09	~	229				
Design (DDA) certification by the Design Checker	28	28 05SEP09	P09 020CT09	09 05SEP09	02OCT09	2	286		111		
Design (DDA) submission for the SO's approval	-	1 04SEP09	P09 04SEP09	09 04SEP09	04SEP09	τ-	228				
Design (DDA) review by the SO	288	58 05SEP09	P09 01NOV09	60 05SEP09	01NOV09	2	284		11		
DDA submission for rel. authorities' approval	÷	1 11SEP09	P09 11SEP09	09 11SEP09	11SEP09	•	246		-		26
Design (DDA) review by the rel. authorities	28	28 12SEP09		09OCT09 12SEP09	09OCT09	2	307				
Obtain rel. authorities's approval for DDA		1 10OCT09	T09 100CT09	09 10OCT09	10OCT09	-	248				
Obtain design (DDA) approval from the SO	0	0	OZNOVOS	60,	02NOV09	~	284		•	,0	
Schedule of Milestones for Cost Centre No. 2L		ł	i								
1; On submission of PDP to the SO	0	0	40JAN08A	18A	10JAN08A	7	•				
2; On acception of PDP by the SO	0	0	04SEP08A	98A	04SEP08A	2		•			
3; On submission of AIP to the SO; Portion A	0	0	12MAY09A	A60	12MAY09A	2			•		ijav
4; On acceptance of AIP by the SO; Portion A	0	0	25JUL09	60	25JUL09	CN.	1,619		•	Ecwi	ijeni
2L 5; On suburnission of DDA to the SO; Portion A	0	0	28SEP09	60	28SEP09	C)	1,554		•		
2L 6; On acceptance of DDA by the SO; Portion A	0	0	100CT09	60.	10OCT09	64	1,542		*		200
2L 7, On submission of AIP to the SO; Portion B	0	0	607NF00	60	07JUL09	2	1,637		*		
2L 8; On acceptance of AIP by the SO; Portion B	0	0	12AUG09	601	12AUG09	2	1,601		*		
2L 9; On submission of DDA to the SO; Portion B	0	0	28SEP09	60	28SEP09	2	1,554		•		
2L 10; On acceptance of DDA by the SO; Portion B	0	0	26OCT09	60.	26OCT09	N	1,526		*		
2L 11; On submission of AIP to the SO; Portion C	0	0	25JUL09	60	25JUL09	8	1,619		*		07
2L 12; On acceptance of AIP by the SO; Portion C	0	0	10AUG09	60:	10AUG09	0	1,603		•		
2L 13; On submission of DDA to the SO; Portion C	0	0	28SEP09	60	28SEP09	0	1,554		•		23
2L 14; On acceptance of DDA by the SO; Portion C	0	0	23OCT09	60.	23OCT09	2	1,529		*		
2L 15; On acceptance of AIP by the SO; Portion D	0	0	25JUL09	60	25JUL09	7	1,619		•		107c
2L 16; On acceptance of DDA by the SO; Portion D	0	0	10OCT09	60.	10OCT09	2	1,542		•		
2L 17; On submission of AIP to the SO; Portion F	0	0	13JUL09	60	13JUL09	2	1,631		*		
2L 18: On acceptance of AIP by the SO; Portion F	o	0	19SEP09	60,	19SEP09	N	1,563		•		
19; On submission of DDA to the SO; Portion F	0	0	28SEP09	60,	28SEP09	2	1,554		•		
2L 20; On acceptance of DDA by the SO; Portion F	0	0	0SDEC09	600	05DEC09	0	1,486				
2L 21; On acceptance of AIP by the SO; Portion G	0	0	27MAY09	60,	27MAY09	2	1,678		•		
2L 22; On acceptance of DDA by the SO; Portion G	0	0	24NOV09	60/	24NOV09	2	1,497		•		
23. On completion of all works under this CC	c	•	0010111	000	OO/ (CIAPO	•	107		4		

2013			200																																					234	
2031 2012						n grouting at F1				nths of DOC		7	è																						-8	100					
2009 2010						sign of pre-excavation grouting				27.73(5), within 6 months of DOC								280				=			-		-0		-	-	-	-	-	-	-				L.		
2008			•			ffor the de	I	63		uting at F11ER.B27			D		-	D				30						80															
Il Total			1				- 1			- 7-				1201				-161	-130	-130		-130	-129	-122	-121	-122	-121		-121	-80	-77	-79	-76	-78	-75		-219	-210	-210	-210	-210
- Cal			8A 2	1 18	18A 1	1 A80	1 A80	18A 1	1 480	1 Y80			8A 2	2 A80	38A 2	38A 2			1 1	1		1	1	1	1	1	1	1	1	1	1	1 1	1	1	1		0 1	1	0 1	1	0
WP3D Finish	Ŀ	ı	Z3JUL08A	30JUL08A	04AUG08A	13AUG08A	15NOV08A	22NOV08A	04SEP08A	05SEP08A			12JAN08A	28SEP08A	08OCT08A	24DEC08A		04AUG09	07AUG09	04SEP09		12SEP09	11SEP09	18SEP09	18SEP09	24SEP09	24SEP09	30SEP09	30SEP09	080CT09	080CT09	14OCT09	140CT09	200CT09	200CT09		02JAN10	04JAN10	05JAN10	06JAN10	07JAN10
ADO4 WP3D Finish Start			23JUL08A	30JUL08A 24JUL08A	04AUG08A 31JUL08A	13AUG08A 05AUG08A	15NOV08A 14AUG08A	22NOV08A 17NOV08A	11AUG08A 04SEP08A 11AUG08A	5SEP08A 05SEP08A 05SEP08A			12JAN08A 14DEC07A	28SEP08A 21DEC07A	040CT08A 080CT08A 040CT08A	24DEC08A 09OCT08A		04AUG09 06JUL09*	07AUG09 05AUG09	04SEP09 08AUG09		12SEP09 05SEP09	11SEP09 05SEP09	18SEP09 12SEP09	- 1	24SEP09 19SEP09	24SEP09 19SEP09	-	30SEP09 25SEP09	08OCT09 02OCT09	08OCT09 02OCT09	14OCT09 09OCT09	14OCT09 09OCT09	200CT09 150CT09	200CT09 150CT09		02JAN10 02JAN10	04JAN10 04JAN10	05JAN10 05JAN10	06JAN10 06JAN10	07JAN10 07JAN10
A E		H	23.31			1			8A 04SF	3A 05SE			7A 12J/		8A 080								-	_			-							1	OY.						
AD04 Start				24JUL08A	31JUL08A	05AUG08A	14AUG08A	17NOV08A	11AUG0	05SEP0			14DEC07A	21DEC07A	04OCTD	090CT08A		*6070L60	05AUG09	08AUG09		05SEP09	05SEP09	12SEP09	14SEP09	19SEP09	19SEP09	25SEP09	25SEP09	02OCT09	02OCT09	09OCT09	09OCT09	150CT09	150CT09		02JAN10	04JAN10	05JAN10	06JAN10	07JAN10
ADO4 WP3D Dur Dur			0	9	4	7	45	9	17	-			30	252	7	21: 0		30	m	24		7	9	9	S	9	S	2	2	2	2	S	S	เก	ß		-	-	-	_	7
AD04 Dur		ì	0	9	4	7	45	9	17	-			30	252	7	21		30	ო	24		7	9	9	S	2	ഗ	ω	တ	ດ	5	2	ς.	r.	5		-	-	-	_	-
Activity Description	Construction of Main Tunnel	Trial Grout at Fault Zone F1	HvD issue XP	Adavance notice to HyD/Road advice	Trial pit excavation	Scaffolding, mobilize & set up	Drill & test for 2m Arrangement Test	Backfill drilled holes, demobilization & Tidy up	Drill & test for single hole arrangement test	Backfill drilled hole, demobilization & tidy up	FBM Manufacture/Testing/Delivery	of TBM & Back-ups	TBM & Excavation Sys Procurement	TBM design & manufacturing	TBM workshop tests	TBM dismounting & packing		TBM shipment to Hong Kong	TBM arriving Portion I	Destuffing Containers/Cleaning & lubrication	TBM Pre-assembly/Test & Commis. at Portion I	Cutterhead	Bearing	Backup # 1	Backup #2	Backup # 3	Backup # 4	Baackup # 5	Backup # 6	Backup # 7	Backup # 8	Backup # 9	Backup # 10	Backup #11	Backup # 12	TBM Transport from Portion I to Outfall	Cutterhead	Shield # 1	Shield # 2	Bearing	Erector
Œ	Constructio	Trial Grout a	3AL1FT0002	3AL1FT0004	3AL1FT0006	3AL1FT0010	3AL1FT0012	3AL1FT0014	3AL1FT0016	3AL1FT0018	TBM Manufa	Manufacture o	3AL1FT0302	3AL1FT0304	3AL1FT0306	3AL1FT0308	Delivery of TBM	3AL1FT0105	3AL1FT0110	3AL1FT0115	TBM Pre-asset	3AL1FT0205	3AL1FT0210	3AL1FT0215	3AL1FT0220	3AL1FT0225	3AL1FT0230	3AL1FT0240	3AL1FT0245	3AL1FT0250	3AL1FT0255	3AL1FT0260	3AL1FT0365	3AL1FT0370	3AL1FT0375	TBM Transport	3AL1FT0405	3AL1FT0415	3AL1FT0425	3AL1FT0435	3AL1FT0445

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2011 2012 2013			33		stemp dwon transformer											■WSD approval in 2 months advance				-219 betent person authorizes entryinclude 24 hrs ventilation before man entry &									\$25 \$25											000		
2009 2010		-			stemp dwor					-						QSW.			-	uthorizes entry include 24				31			118			-	-			-								
Total 2008 Float	-219	-219	-219		-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	-219	0	-219	-219	-219	-219 betent person at	-219	-219		-219	-219	-219	0	12	0	0	0	0		0	0			-219	-219	-219	1 1 2 22 22 2	-219
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WP3D	01APR10	08APR10	12APR10		31MAR10	13MAR10	13MAR10	31MAR10	17MAR10	19MAR10	20MAR10	25MAR10	29MAR10	31MAR10	01APR10	03SEP10	01APR10	07APR10	08APR10	13APR10	15APR10	17APR10		25JUN10	26JUN10	12JUL10	18AUG10		19AUG10	21AUG10	25AUG10	26AUG10		03SEP10	03SEP10			06JAN10	11JAN10	12JAN10	*********	15JAN10
ADD4 WP3D Finish Start	0 30N	08APR10 07APR10	12APR10 09APR10		31MAR10 27MAR10	13MAR10 13MAR10	13MAR10 11MAR10	31MAR10 30MAR10	17MAR10 15MAR10	19MAR10 18MAR10	20MAR10 20MAR10	25MAR10 22MAR10	29MAR10 26MAR10	31MAR10 30MAR10	01APR10 01APR10	03SEP10 26MAR10	01APR10 01APR10	07APR10 07APR10	08APR10 08APR10	13APR10 09APR10	15APR10 14APR10	17APR10 16APR10		25JUN10 19APR10	26JUN10 26JUN10	12JUL10 28JUN10	18AUG10 13JUL10		19AUG10 19AUG10	21AUG10 20AUG10		26AUG10 26AUG10		03SEP10 27AUG10	03SEP10 03SEP10			06JAN10 04JAN10	11JAN10 07JAN10	12JAN10 12JAN10	071441	15JAN10 13JAN10
AD04 Start	9	07APR10 08	09APR10 12		27MAR10 31	13MAR10 13	11MAR10 13	30MAR10 31	15MAR10 17	18MAR10 15	20MAR10 20	22MAR10 25	26MAR10 29	30MAR10 31	01APR10 0	26MAR10 03	01APR10 0	07APR10 07	08APR10 08	09APR10 13	14APR10 18	16APR10 17		19APR10 2	26JUN10 28		13JUL10 18		19AUG10 18	20AUG10 27		26AUG10 26		27AUG10 03	03SEP10 03			04JAN10 0		12JAN10 1:	t	13JAN10
MP3D	m.	2	e		4	ete ATE	n	2	m	2	·	4	ю	2	T	131*	•	-	~	4	2	2		56	-	12	32		7	2	m	-		7	-			ø	4	-		m
ADO4 WP3D	ო	2	က		4	+	က	2	က	2	*	4	က	2	+	131	•		*	4	2	2		56	7	12	32		-	2	က			7	-			ю	4		33	m
Activity Description	Connect exhaust fan to valve shaft	Connect new vent pipe to exhaust fan(s)	Test and commission exhaust fan(s)	Preparation Works at Chai Wan Kok Shaft	Install electricity take off, switch board &	Install waste reception/disposal area	Install toilet and shower	Set up generatior, two 2" water pumps	UU detection	Excavate to lower platform apprx. 0.5m-1m	Set out & align sheet pilling	Install sheet piles & excavate to install rails	Excavate to the bottom of DN1200 pipe	Lay conrete blinding to pit	ICE checking	WSD-Tunnel Shut Down Period	WSD Tunnel #3 commences shut down	Cut & clean invert and inner face of DN1200	Plug DN1200 pipe at the face near valve house	Fabricate trolly & trial	Install longituditual tensioned wire	Temporary plug main tunnel to form air seal	duct	Install instruments	Inspection	TBM crossing affected 120m section	De-install instruments		Remove trolley system	Remove the plug at Ting Kau	Remove ventilation system, reinstate T.K. valve	Remove temporary portal at junction	Works	Reinstate opening at Chai Wan Kok	WSD Tunnel #3 re-operates	TBM Assembly & Initial Driving; Day Time Work	TBM Assembly/Test & Commiss. at Outfall	Cutterhead	Shield (bottom)	Bearing		Erector & Conveyor Belt
Q)	3AL1WT3B52	3AL1WT3B62	3AL1WT3B72	Preparation W	3AL1FTCT02	3AL1FTCT12	3AL1FTCT22	3AL1FTCT32	3AL1FTCW02	3AL1FTCW04	3AL1FTCW06	3AL1FTCW08	3AL1FTCW10	3AL1FTCW12	3AL1FTCW14	3AL1FTCW16	3AL1FTCW18	3AL1FTCW20	3AL1FTCW22	3AL1FTCW24	3AL1FTCW26	3AL1FTCW36	Works In Aqueduct	3AL1FTAD04	3AL1FTAD06	3AL1FTAD08	3AL1FTAD10	Demobilisation	3AL1FTAE04	3AL1FTAE14	3AL1FTAE24	3AL1FTAE34	Reinstatement Works	3AL1FTRS02	3AL1FTRS04	TBM Assemi	TBM Assembly	3AL1FT0605	3AL1FT0615	3AL1FT0625	SALACTORSE	3AL 11 10933

3AL1FT0665 Ba 3AL1FT0675 Ba 3AL1FT0695 Ba 3AL1FT0705 Ba 3AL1FT0715 Ba 3AL1FT0775 Ba 3AL1FT0775 Ba	Description Backup # 3 Test & commission stage 1		3 25	25 IAN10		ı	,	LIDGI				
	mission stade	0			27 IANI 10 25 IANI 10	27 IAN10		-219				
	ckup # 3 commission stage 1		L	t			T	2 6				100
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		9	6 01	01FEB10	06FEB10 01FEB10	06FEB10	-	-219				
	Backup # 4	က	3 24	24FEB10	26FEB10 24FEB10	26FEB10	-	-199				
	Backup # 5	က	3 27	27FEB10	02MAR10 27FEB10	02MAR10	-	-199		-		
	Backup # 6	ო	3 03	03MAR10	05MAR10 03MAR10	05MAR10	-	-199				
	Backup # 7	ო	3 29	29MAR10	31MAR10 29MAR10	31MAR10	-	-218				200
	Backup # 8	n	3 01,	01APR10	08APR10 01APR10	08APR10	-	-218				
	Backup # 9	ю	3 09,	09APR10	12APR10 09APR10	12APR10	÷	-218				
	Backup # 10	ю	3 13,	3APR10	15APR10 13APR10	15APR10	-	-218		-		
3AL1FT0765 Ba	Backup # 11	ო	3 16,	6APR10	19APR10 16APR10	19APR10	-	-218				
3AL1FT0775 Ba	Backup # 12	е	3 20,	20APR10	22APR10 20APR10	22APR10	-	-218		-		
3AL1FT0785 Te	Test & commission stage 2	12	12 23,	23APR10	07MAY10 23APR10	07MAY10	-	-218		•		
TBM Initial Advacing; Day Time Work	g; Day Time Work											
3AL1FT0704 TB	TBM advancing; Ch. 5098 to Ch. 5084	9	90	08FEB10	17FEB10 08FEB10	17FEB10	-	-219				
3AL1FT0708 TB	TBM advances; CH5084-4963	54	54 18	8FEB10	26APR10 18FEB10	26APR10	-	-219				
3AL1FT0720 TB	TBM stop to install rem, items	10	10 27,	27APR10	08MAY10 27APR10	08MAY10	-	-219				
Main Tunnel Wo	Main Tunnel Works; Day & Night Work											
TBM Advancing up	TBM Advancing upto Crossing WSD Tunnel #3											
3AI 1FT0816 TB	TBM advances: CH4963-4415 (to WSD Tunnel # 3)	40	40 101	10MAY10	26JUN10 10MAY10	26JUN10	-	-219		•		
	TBM crossing WSD Tunnel # 3; CH4415- 4295	12	12 28	28JUN10	12JUL10 28JUN10	12JUL10	-	-219				
TBM Advancing upt	upto Breakthrough											-
1	TBM advances; CH4295-4250	ß	5 13	13JUL10	17JUL10 13JUL10	17JUL10		-219		-		200
3AL1FT0820 TB	TBM advances; P6 CH4250-4220	2	2 19	19JUL10	20JUL10 19JUL10	20JUL10	-	-219		-		187
3AL1FT0822 TB	TBM advances; CH4220-3940	4	14 21	21JUL10	05AUG10 21JUL10	05AUG10	-	-219		crit	criterion 1	9,82
3AL1FT0824 TB	TBM advances; CH3940-3560	24	24 06,	DEAUG10	02SEP10 06AUG10	02SEP10	-	-219		P5 (5m)■K(P5 (5m) KCRC WRTL Tunnel Protection Area ch39	Protection Are
3AL1FT0826 TB	TBM advances CH3560-2970	40	40 03	33SEP10	220CT10 03SEP10	220CT10	-	-219	Intake I-2	(Ch3160-3100)	Intake I-2 (Ch3160-3100) PP4 (10m) & P3 (50m)	rick A
3AL1FT0828 TB	TBM advances; WSD WS Reservior CH2970-2860	13	13 23	230CT10	06NOV10 23OCT10	06NOV10	-	-219				
3AL1FT0830 TB	TBM advances; CH2860-1250	83	83 08	08NOV10	18FEB11 08NOV10) 18FEB11	-	-219	Intake I-	Intake I/3 (CH1370-1250)	15	n), F3(20m)
3AL1FT0832 TB	TBM advances; CH1250-0	91	91 19	19FEB11	11JUN11 19FEB11	11JUN11	-	-219			F2(20m), P2(25m), P1(10m) & F	(25m), P1(10
3AL1FT0890 De	Desembly & demobilization of TBM	20	50 13	13JUN11	10AUG11 13JUN11	10AUG11	~	-114				106
3AL1FT0892 Ba	Back grouting (daytime); CH5100-00	382	382 041	34MAR10	18JUN11 04MAR10	18JUN11	~	-20			1.79m3/m, V	1.79m3/m, W/C=44%, W=590kg
3AL1FT0894 Cc	Complete maintennce access & dry weather channel	9	60 11,	11AUG11	220CT11 11AUG11	I 220CT11	·	94				
3AL1FT0896 Ins	Installation of communication system (Daytime)	09	60 11,	11AUG11	220CT11 11AUG11	1 220CT11	-	49		-11	1	
3AL1FT0898 Te	Testing & Commissioning; daytime	28	28 10	0NOV12	07DEC12 22DEC12	18JAN13	7	-462				
3AL1FT0902 Cc	Contractor serve notice for Works completion	7	7 08	38DEC12	14DEC12 19JAN13	25JAN13	2	0				-
3AL1FT0904 Ha	Handover of Portion F	0	0		07DEC12	18JAN13	τ-	-375				•
3AL1FT0906 SC	SO issues completion certificate	21	21 15	5DEC12	04JAN13 26JAN13	15FEB13	2	0				
Schedule of Mile	Schedule of Milestones for Cost Centre No. 6aR	İ			THE STATE OF		1					
								Ī				
	6aR 1; On completion of grouting at P7	0	0		31MAR10	31MAR10		1,370		•		33k
6AR1FT0904 6a	6aR 2; On completion of grouting at F6c	0	0		19MAY10	19MAY10	2 1	1,321		•		53

	Description	Die										
6AR1FT0906	6aR 3: On completion of arouting at F6b	0			0	27MAY10		1.313		٠		
6AR1FT0908	grouting	0	0	15	15JUN10	15JUN10		1,294		•		88
6AR1FT0910	grouting	0	0	17	17JUL10	17JUL10		1,262		•		
6AR1FT0912	6aR 6; On completion of 20% grout by Ith at P6	0	0	17	17JUL10	17JUL10	2	1,262		•		
6AR1FT0914	6aR 7; On completion of 40% grout by Ith at P6	0	0	23	23JUL10	23JUL10	2	1,256		•		Ŋ.
6AR1FT0916	6aR 8; On completion of 60% grout by Ith at P6	0	0	28	29JUL10	29JUL10	2	1,250		•		
6AR1FT0918	6aR 9; On completion of 80% grout by Ith at P6	0	0	17	17JUL10	17JUL10	2	1,262		•		
6AR1FT0920	6aR 10; On completion of grouting works at P6	0	o	20	20JUL10	20JUL10	2	1,259		•		
6AR1FT0922	6aR 11; On completion of grouting wks at P5	0	0	90	06AUG10	06AUG10	2	1,242		•		
6AR1FT0924	6aR 12; On completion of grouting wks at P4	0	0	49	04SEP10	04SEP10	2	1,213		•		
6AR1FT0926	6aR 13; On completion of grouting wks at P3	0	0	0.5	07OCT10	07OCT10	2	1,180		•		
6AR1FT0928	6aR 14; On completion of grouting wks at WSD's	0	0	90	06NOV10	06NOV10	2	1,150	O	CH 2865-2970	Tsuen Wan West Service Reservior G	Service Reservic
6AR1FT0930	6aR 15; On completion of grouting wks at F5	0	0	13	13NOV10	13NOV10	2	1,143		•		
6AR1FT0932	6aR 16; On completion of grouting wks at F4	0	0	26	26NOV10	26NOV10	2	1,130				
6AR1FT0934		0	0	22	22DEC10	22DEC10		1,104				
6AR1FT0936	6aR 18; On completion of grouting wks at F2	0	0	21	21FEB11	21FEB11	I. I	1,043			♦	
6AR1FT0938	6aR 19; On completion of grouting wks at P2	0	0	31	31MAR11	31MAR11	2	1,005			•	
6AR1FT0940	6aR 20; On completion of grouting wks at P1	0	0	27.	27APR11	27APR11	2	978			•	The state of the s
6AR1FT0942	6aR 21; On completion of 10% grout by Ith at F1	0	10	21	21MAY11	21MAY11	8	954			•	
6AR1FT0944	6aR 22; On completion of 20% grout by Ith at F1	0	0	23	23MAY11	23MAY11	2	952			•	
6AR1FT0946	6aR 23; On completion of 30% grout by Ith at F1	0	0	24	24MAY11	24MAY11	2	951			•	
6AR1FT0948	6aR 24; On completion of 40% grout by Ith at F1	0	0	25	25MAY11	25MAY11	2	950			•	
6AR1FT0950	6aR 25; On completion of 50% grout by Ith at F1	0	0	261	26MAY11	26MAY11	2	949			•	
6AR1FT0952	6aR 26; On completion of 60% grout by Ith at F1	0	0	27	27MAY11	27MAY11	2	948			•	Ž.
6AR1FT0954	6aR 27; On completion of 70% grout by Ith at F1	0	0	281	28MAY11	28MAY11	2	947			•	5-3
6AR1FT0956	6aR 28; On completion of 80% grout by Ith at F1	0	0	30	30MAY11	30MAY11	2	945			•	SV
6AR1FT0958	6aR 29, On completion of 90% grout by Ith at F1	0	0	31	31MAY11	31MAY11	2	944			•	
6AR1FT0960	6aR 30, On completion of grouting works at F1	0	0	01	01JUN11	01JUN11	2	943			•	33
6AR1FT0970	6aR 31; On completion of all works under this CC	0	0	18	18JUN11	18JUN11	2	926			♦under this Cost Centre	tost Centre
Schedule of	Schedule of Milestones for Cost Centre No. 3aL											
3AL1FT1002	3aL 1: On providing evidence of procuring TBM	0	0	19.	19JAN08A	19JAN08A	2	•				
3AL1FT1004	3aL 2; On providing evidence of TBM Factory Test	0	0	080	08OCT08A	080CT08A	2		•			
3AL1FT1006	3aL 3; On delivery of all parts of TBM to the Si	0	0	20	07AUG09	07AUG09		1,606	•			
3AL1FT1008	3aL 4; On completion of site comm. & test. of TB	0	0	170	07MAY10	07MAY10	- 27	1,333		\$		
3AL1FT1010	3aL 5; On completion of 5% perm. tunnel lining	0	0	18	18MAY10	18MAY10	2 1	1,322	-	•		
3AL1FT1012	3aL 6; On completion of 10% perm, tunnel lining	0	0	60	01NUL60	09JUN10	2	1,300		•	100	
3AL1FT1014	3aL 7; On completion of 15% perm. tunnel lining	0	0	02	02JUL10	02JUL10	2	1,277			10	000 Nos
3AL1FT1016	3aL 8; On completion of 20% perm. tunnel lining	0	0	28	28JUL10	28JUL10	2	1,251		•		
3AL1FT1018	3aL 9; On completion of 25% perm. tunnel lining	0	0	13,	13AUG10	13AUG10	2 1	1,235		•		
3AL1FT1020	3al. 10; On completion of 30% perm. tunnel lining	0	0	02	02SEP10	02SEP10	2	1,215		•		
3AL1FT1022	3al. 11; On completion of 35% perm. tunnel lining	0	0	22	22SEP10	22SEP10	2 1	1,195	-	•		
3AL1FT1024	3at. 12: On completion of 40% perm. tunnel lining	c	(00		Carlotte and the Control of the Control		1 4 3 4		*		

SAL1FT1026 3aL 13; On completion of 45% perm. tunnel lining 0 3AL1FT1028 3aL 14; On completion of 50% perm. tunnel lining 0 3AL1FT1032 3aL 14; On completion of 50% perm. tunnel lining 0 3AL1FT1032 3aL 15; On completion of 50% perm. tunnel lining 0 3AL1FT1034 3aL 15; On completion of 50% perm. tunnel lining 0 3AL1FT1034 3aL 15; On completion of 70% perm. tunnel lining 0 3AL1FT1040 3aL 17; On completion of 70% perm. tunnel lining 0 3AL1FT1040 3aL 20; On completion of 75% perm. tunnel lining 0 3AL1FT1040 3aL 20; On completion of 75% perm. tunnel lining 0 3AL1FT1044 3aL 22; On completion of 85% perm. tunnel lining 0 3AL1FT1046 3aL 22; On completion of 85% perm. tunnel lining 0 3AL1FT1040 3aL 22; On completion of perw tunnel lining 0 3AL1FT1040 3aL 22; On completion of perw tunnel lining 0 3AL1FT1040 3aL 22; On completion of perw tunnel lining 0 3AL1FT1050 3aL 25; On completion of perw tunnel lining 0 3AL1FT1050 3aL 25; On completion of perw tender this CC 0 3AL1FT1050 3aL 25; On completion of perw tender this CC 0 3AL1FT1050 3aL 25; On completion of perw tender this CC 0 3AL1FT1050 3aL 25; On completion of maint. to 24 3AL1FT1050 3aL 25; On completion of maint. Strong SaL1FT1050 3aL 25; On completion of FMD at Portion B 3DL10T1212 3aL 2; On installation of FMD at Portion B 3DL10T1212 3aL 17; On installation of FMD at Portion C 3DL10T1224 3aL 12; On completion of maint. Strong SaL1FT 3aL2FT	Dur Start	10NOV10	10NOV10	2 1,146		
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tion of FMD at Portion A tion of FMD at Portion B tion of FMD at Portion C ation of FMD at Portion D letion of maint. & monit. of FMD letion of all works under this CC	0	0	08MAR13	08MAR13	2 297	monitoring for installed instruments
tion of FMD at Portion B tion of FMD at Portion C ation of FMD at Portion D letion of maint. & monit. of FMD letion of all works under this CC	0	0	29DEC11	29DEC11	2 732	flow measurement devices at Portion A.◆
tion of FMD at Portion C ation of FMD at Portion D letion of maint. & monit. of FMD letion of all works under this CC	0	0	20FEB12	20FEB12	-	flow measurement devices for Portion B.
ation of FMD at Portion D letion of maint. & monit. of FMD letion of all works under this CC	0	0	28JAN12	28JAN12	2 702	flow measurement devices for Portion C.
letion of maint. & monit. of FMD letion of all works under this CC	0	0	17APR12	17APR12	2 622	flow measurement devices for Portion D◆
letion of all works under this CC	0	0	07DEC13	18JAN14	+	flow monitoring to issue of Maint. Certificate
Construction of Intake I-1 Preliminary Works VO#07; Transperant Hoarding at I-1	0	0	07DEC13	18JAN14	2 23	annear triscolor and a second
Preliminary Works VO#07; Transperant Hoarding at I-1						
VO#07; Transperant Hoarding at H1					Ì	
VO007-02 Receive VO7 for transparent hoarding 0	0	0	19MAY08A	19MAY08A	-	•
VO007-04 Procure/prepare/install transparent hoarding 70	70	70 20MAY08/	20MAY08A 11AUG08A 20MAY08A	11AUG08A	-	8
01R1A1102 Possession of site 0	0	0 19MAR08A	A 19MAR08A		_	◆90d after DOE
01R1Al1104 Obtain TTA (ingress & egress) approval 0	0	0 19APR08A	19APR08A		2	•
01R1A11106 Site clearance 30	30	30 21APR08A	26MAY08A 21APR08A	26MAY08A	_	
01R1Al1108 Obtain tree 6	9	6 13MAY08A			_	
01R1AI1110 Hoarding erection enclosing the Site	18	18 23MAY08A			-	
01R1A1112 Site entrance construction 6	9	6 23JUND8A		25JUL08A	_	
01R1Al1114 Install wheel wahing facilities 7	7	7 03JUN08A	07JUN08A 03JUN08A	07JUN08A	_	

OI .	Activity	AD04 WP3D	WP3D AD04	ADD4 WP3D	D WP3D	Cal Total	2008	2008 2010	Ser.	2012	2013
	Description	Dur	Dur Start	_	_	ID Float					
.01R1AI1116	Erect SOR's secondary site office	ဖ	6 28AUG08A	A 03SEP08A 28AUG08A	08A 03SEP08A	-	-				
01R1AI1118	Footing for temp. bridge span over Shing M. Nul.	26	26 10JUN08A	16JUL08A 10JUN08A	38A 16JUL08A	÷	ij				
01R1AI1120	Decking for temp. bridge span over Shing M. Nul.	5	13 17JUL08A	01AUG08A 17JUL08A	ISA 01AUG08A	,-	e.				
01R1AI1122	Install remote control CCTV as per ER 4.4.10	12	12 04SEP08A	18SEP08A 04SEP08A	38A 18SEP08A	٠	•				
16R1AI1101	Tree Identification & Report	4	14 14MAR08A	4 01APR08A 14MAR08A	08A 01APR08A	2					
16R7Al1102	1st tree pruning for small 3 nos. trees	-	1 03JUN08A	A 03JUN08A 03JUN08A	SA 03JUND8A	-					
16R7AI1104	2nd tree pruning for small 3 nos. trees	~	1 04JUL08A	04JUL08A 04JUL08A	18A 04JUL08A	-					
16R7AI1106	Final pruning & uplifting of 3 nos. small trees	2	2 08SEP08A	4 09SEP08A 08SEP08A	38A 09SEP08A	·-					
16R7AI1108	Confirm location for trees to be transplanted	51	51 02APR08A	A 27AUG08A 02APR08A	08A 27AUG08A	*					
16R7Al1114	One stg transplant for big 4 nos. big trees	o	9 11FEB09A	19FEB09A 11FEB09A	39A 19FEB09A	,					
Permanent S	Permanent Soil Nailing Works										
11R2AI1302	Erect working platform & mobilization	00	8 17MAY08A	A 24MAY08A 17MAY08A	08A 24MAY08A						
11R2AI1304	Install test nails & proof loading test, 2 nos.	00	8 24JUN08A	N 08JUL08A 24JUN08A	SSA OSJULOSA		20				i Asi
11R2AI1306	Soil nailing for A to C rows; 69 nos.	9	16 02JUL08A	14JUL08A 02JUL08A	14JUL08A	-					
11R2AI1308	Soil nailing for D to F rows, 71 nos.	58	29 15JUL08A	05SEP08A 15JUL08A	18A 05SEP08A	-	0				
11R2AI1310	Constrcut soil nail heads; 140 nos.	22	22 19JUL08A	06SEP08A 19JUL08A	8A 06SEP08A		B			33	
11R2AI1312	Demobilization	m	3 08SEP08A	10SEP08A 08SEP08A	08A 10SEP08A	-				*	
Construction	Construction of Spiral Ramp & Cascade										
Additional GI V	Additional Gl Woks to Fnalize Design						ă.				002
AGIA-02	Drill for 5 nos, additional GI works	21	21 09SEP08A	SEP08A 04OCT08A 09SEP08A	38A 04OCT08A		0				
Temp. Pipe-pile cofferdam	e cofferdam										
04L1AI1202	Erect piling platform	43	43 220CT08A			-					
04L1AI1203	Mobilization & set up piling rig	ო		A 01NOV08A 30OCT08A	11	-	I			3	
04L1AI1204	Install 273 mm dia. temp. pipe piles; 144 nos.	43	43 08NOV08A	-		-	11				
04L1AI1226	Demobilize all plant and materials	9	6 06JAN09A	13JAN09A 06JAN09A	13JAN09A						
Excavate +104.	Excavate +104.0 to +100.5mPD; Row 7						200				
04L1AI1402	Mobilization	·	1 23FEB09A	A 23FEB09A 23FEB09A	39A 23FEB09A	Ţ				50!	
04L1AI1404	Bulk excavation; soil (155m3)	4	4 24FEB09A	A 27FEB09A 24FEB09A		-	700				
04L1AI1406	Install test tie-back & proof load test	4	4 28FEB09A		39A 04MAR09A						303
04L1AI1408	Install tie backs/wailing & shortcrete	4	4 03MAR09A	4 DEMAROSA D3MAROSA	OSA DEMAROSA	-					
Excavate +100.	Excavate +100.5 to +99.0mPD; Rows 1 & 8						V. C.				
04L1AI1410	Bulk excavation; soil (219m3)	2	2 07MAR09A	A D9MAR09A 07MAR09A		-					×1,11
04L1AI1412	Install tie backs/wailing & shorcrete	9	6 10MAR09A	10MAR09A 16MAR09A 10MAR09A	09A 16MAR09A	-		alia.			
Excavate +99.0) to +96.5mPD; Rows 2, 9 & 18										
04L1Al1414	Bulk excavation; soil (710m3)	m	3 17MAR09	17MAR09A 19MAR09A 17MAR09A	19MAR09A	-	(S)				
04L1AI1416	Install test tie-back & proof load test	4	4 26MAR09	26MAR09A 01APR09A 26MAR09A 01APR09A	09A 01APR09A	•				9.4	
04L1Al1418	Install tie backs/wailing & shortcrete	9	6 23MAR09A	23MAR09A 28MAR09A 23MAR09A	09A 28MAR09A	i i			-		
Excavate +96.5	Excavate +96.5 to +95.0mPD; Rows3, 10 & 19										
04L1AI1420	Bulk excavation; soil (721m3)	က	3 30MAR09A	30MAR09A 04APR09A 30MAR09A 04APR09A	09A 04APR09A	·					
04L1AI1422	Install tie backs/wailing & shortcrete	4	4 02APR09A	A 20APR09A 02APR09A 20APR09A	39A 20APR09A	-	11-	22			

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Page 102 of 125	ů.			Sheet 35 of 58				
		-	09OCT10 1	09OCT10 17SEP10	18 17SEP10		Cast roof slabs	04L1AI1478
	31	-22	16SEP10 1	16SEP10 27AUG10	18 27AUG10	<u>©</u>	Cast walls 2nd lift, 200mm down from soffit	04L1AI1476
			26AUG10 1	26AUG10 06AUG10	18 06AUG10	0	Cast walls 1st lift	04L1AI1474
	*	-22	05AUG10 1	05AUG10 23JUL10	12 23.II.JL 10	12	Cast base slabs	DAI 1AI1472
		-	+				do denote of the property of t	Ę
		Н	24AUG10 1			7	Construct RC soiral ramp top	07R1AI1420
	@ 5m3/5minutes	103	06AUG10 1	06AUG10 23JUL10	13 23JUL10	13	Backfill spiral ramp; 2496m3 @ 200m3/day	07R1AI1418
		-22	22JUL10 1	22JUL10 06JUL10	15 06JUL10	5	Cast ramp up to +102,31mPD	07R1AI1416
		-22	05JUL10 1	05JUL10 17JUN10	15 17JUN10	15	Cast ramp up to 98.01mPD	07R1AI1414
	•	-22	15JUN10 1	15JUN10 29MAY10	15 29MAY10	15	Cast ramp up to 93.71mPD	07R1AI1412
	1000	-22	28MAY10 1	28MAY10 11MAY10	15 11MAY10	15	Cast ramp up to 89.41mPD	07R1AI1410
	•	-52	10MAY10 1	10MAY10 22APR10	15 22APR10	15	Cast ramp up to +85.10mPD	07R1AI1408
1			21APR10 1	21APR10 31MAR10	15 31MAR10	15	Cast ramp up to +80.81mPD	07R1AI1406
				30MAR10 13MAR10		15	Cast ramp up to +76.51mPD	07R1AI1404
				12MAR10 27FEB10	2.7	12	Cast base slab	07R1AI1402
		H					0,	Construction of
	•	-22	26FEB10 1	26FEB10 10FEB10	12 10FEB10	12	Cast roof slab	04L1AI1456
	-	\exists	09FEB10 1		235	12	Cast walls	04L1AI1454
			26JAN10 1	26JAN10 20JAN10	6 20JAN10	9	Cast base slab	04L1AI1452
							of Vehiucular Access	Construcion of
#15,089m3 rock@90m3/day with 2 work fronts	371m3 sql 115,089m3 rock@	Н	19JAN10 1	19JAN10 30JUN09	168 30JUN09	168 1	Rock excavation/mucking out/temp. support	07R1AI1444
	=	-22	29JUN09	29JUN09 20JUN09	8 20JUN09	ω	Set up for dewatering	07R1AI1442
-513							Excavate +88.5 to 71.5mPD; Rows 27 to 31	Excavate +88.5
	-	-22	19JUN09 1	19JUN09 17JUN09	3 17JUN09	က	Install tie backs/wailing & shorcrete	04L1AI1450
			16JUN09 1		60NUL30 6	o	Bulk excavation; soil (269m3) & rock (690m3)	04L1AI1448
							5 to 88.5mPD; Rows 15 & 26	Excavate +89.5
		H	05JUN09 1	05JUN09 02JUN09	4 02JUN09	4	Install tie backs/wailing & shorcrete	04L1AI1446
		-22		4	ار	12	Bulk excavation; soil (724m3) & rock (811m3)	04L1AI1444
							1 to 89.5mPD; Rows 14, 17 & 25	Excavate +91.1
			27MAY09A 1	27MAY09A 18MAY09A	4 18MAY09A	4	Install tie backs/wailing & shorcrete	04L1AI1442
			25MAY09A 1	25MAY09A 08MAY09A	4 08MAY09A	4	Install test tie-back & proof load test	04L1AI1440
			23MAY09A 1		8 OGMAY09A	80	Bulk excavation; soil (1002m3) & rock (342m3)	04L1AI1438
							5 to 91.1mPD; Rows 6,13,16,17&23	Excavate +92.5
			27MAY09A 1	19MAY09A 27MAY09A 19MAY09A 27MAY09A	2 19MAY09A	2	Install tie backs/wailing & shorcrete	04L1AI1436
			18MAY09A 1	04MAY09A 18MAY09A 04MAY09A 18MAY09A	3 04MAY09A	ന	Bulk excavation; soil (423m3) & rock (52m3)	04L1AI1434
							Excavate +93.0 to +92.5mPD; Row 22	Excavate +93.0
	f.a	3	16MAY09A 1	16MAY09A 21APR09A	5 21APR09A	n n	Install tie backs/wailing & shorcrete	04L1AI1432
			16MAY09A 1			4	Install test tie-back & proof load test	04L1AI1430
			27APR09A 1	1	4 20APR09A	4	Bulk excavation; soil (818m3)	04L1AI1428
							Excavate +94.0 to + 93.0mPD; Rows 5,12,16,21&24	Excavate +94.0
	52		30APR09A 1	03APR09A 30APR09A 03APR09A 30APR09A	5 03APR09A :	co.	Install tie backs/wailing & shorcrete	04L1AI1426
	***		18APR09A 1	6APR09A 18APR09A 06APR09A		n	Bulk excavation; soil (701m3)	04L1AI1424
							Excavate +95.0 to +94.0 mPD; Rows 4, 11 & 20	Excavate +95.0
		Float	Finish	-		Dur Dur	Description	ı
70 2012	2008 2009 2010 2011	Total	WP3D	-	3D AD94	D04 WP3D	Activity	Q

Description	Dur	o ma	-	CHIEST COUNTY					
Dismantle & Removal of TBM									
Backfill & form cranage platform	24	24 110	110CT10	08NOV10 110CT10	08NOV10	1 -22			
TBM break through	0	0		11JUN11*	11JUN11*	1 -195		•	3 3
Dissembly & demobilization of TBM	20	50 13J	13JUN11	10AUG11 13JUN11	10AUG11	1 -195			50
Cast lower base slab	12	12 06J	06JUL10	19JUL10 06JUL10	19JUL10	1-19		before TBM retrieval	
Construction of Box Culvert Structure				- 1					8)8
Cast upper base	9	6 11A	11AUG11	17AUG11 11AUG11	17AUG11	1 -195			
Cast walls 1st lift	42	18 18A	18AUG11	07SEP11 18AUG11	07SEP11	1 -195	after retrieval of TBM & gantry crane	k gantry crane#	
Cast walls 2nd lift, 200mm down from soffit	18	18 085	08SEP11	29SEP11 08SEP11	29SEP11	1 -195			8
Cast roof slabs	18	18 305	30SEP11	220CT11 30SEP11	220CT11	1 -195			
Backfill & compaction above box culvert; ~13m	22	22 24C	24OCT11	17NOV11 240CT11	17NOV11	1 -195			34
Modification of Existing Channel in Dry Season									7
Channel Modification (Varied)Works (Civil Works)									
Break wall & slab at pipe pile location	00	8 02N	*80VON20	10NOV09 02NOV09*	10NOV09	1 70	ar 14		
Set up pipe pile rig	es	3 11N	11NOV09	13NOV09 11NOV09	13NOV09	1 70			
Install pipe piles (30n*12m)	10		14NOV09	25NOV09 14NOV09	25NOV09	1 70			
Break existing masonry wall	4	4 26N	26NOV09	30NOV09 26NOV09	30NOV09	1 70			
PC blcok/sand back bund wall for water diversion	2	2 010	01DEC09	02DEC09 01DEC09	02DEC09	1 70			
Cut existing slab	·	1 03	03DEC09	03DEC09 03DEC09	03DEC09	4 70			
Demolish Wo Yi Hop Nullah wall & slab	9	6 04E	04DEC09	10DEC09 04DEC09	10DEC09	1 70	-		
Construct WYH Nullah wall below slab	ဖ	6 110	11DEC09	17DEC09 11DEC09	17DEC09	1 70			3.0
Backfill & SRT behind wall below slab	18	18 18E	18DEC09	11JAN10 18DEC09	11JAN10	1 70			
Demolish Shing Mun Nullah wall with struts	9	6 12.	12JAN10	18JAN10 12JAN10	18JAN10	1 70	***		
Demolish Shing Mun Nullah slab	4		19JAN10	_	22JAN10				
Construct slab	80	8 23.	23JAN10		01FEB10	H			
Construct wall for WYH Nullah	10	10 02F	02FEB10	12FEB10 02FEB10	12FEB10				30
Constrtuct wall for SM Nullah	10	10 178	17FEB10	27FEB10 17FEB10	27FEB10				
Assoc. RC works for trash grill & stop slogs	18	18 01	01MAR10	20MAR10 01MAR10	20MAR10	1 70			4
Mass concrete infill	ო		22MAR10		24MAR10				
PC block & san bag bund wall	ო	3 25N	25MAR10	27MAR10 25MAR10	27MAR10	1 70			
Channel Modification Works (Steel Works)									
Install steelworks, Phase 3	36	36 01N	01NOV11*	12DEC11 01NOV11*	12DEC11	1 -143		JIII -	5
Pling Works Along Crest Plarform									
Erect piling platform for upper piles	12	12 228	22SEP10	07OCT10 22SEP10	07OCT10	1 103		•	382
Mobilize piling rig & set up	ဖ	6 080	080CT10	140CT10 080CT10	14OCT10	1 103			Val.
350mm dia. pre-bored H-piles (upper); 36 nos.	36	36 150	150CT10	26NOV10 15OCT10	26NOV10	1 103		■@ 1no/day	
Demobilize piling rig	æ	6 271	27NOV10	03DEC10 27NOV10	03DEC10	1 103		-	33
Crest Platform									100
Excavate & hack off grout	80	8 04[04DEC10	13DEC10 04DEC10	13DEC10				N.
Construct skin wall	12	12 14[14DEC10	29DEC10 14DEC10	29DEC10	1 103			
Construct capping hearn	α	200	0.01	OF CHOCK PERSON	7717	,			8

2008 2009 2510 2011 2012 2013					■@ 1no/day										201			150nos. climber, 200nos. woodland#63nos. trees, 2072nos.					♦for Cascade at Intake I-1	♦for Cascade at Intake I-1	◆ for Cascade at Intake I-1	◆for Cascade at Intake I-1	◆for Cascade at Intake I-1	◆at Intake I-1	◆box culvert at Intake I-1	within this Cost Centre				spiral allip at make I-	◆spiral ramp at Intake I-1	♦spiral ramp at Intake I-1	◆for spiral ramb at Intake I-1	♦ spiral ramp at Intake I-1	♦spiral ramp at Intake I-1	♦spiral ramp at Intake I-1
Total 2	103	103		-195	-195	-195		-195	-195	-195	-195	-195	i	-195	-195	0	0	-183	-181	-143	-118		1,645	1,441	1,403	1,222	1,178	800	800	648	1	740	, (T,645	1,557	1,489	1,441	1,349	1,307	1,266
0 5	<u>-</u> چ	1		1	2 1	2 1		2 1	2 1	2 1	2 1	12 1		12 1	12 1	12 2	2 2	12 1	13 2		12 2	1	19 2	-	0 2	10 2	10 2	11 2		12 2	Ţ	, c	+	+	+	+		10 2	10 2	0 2
WP3D Finish	13JAN11	27 JAN11		24NOV11	02JAN12	09JAN12		16JAN12	02FEB12	11FEB12	16FEB12	01MAR12	Ì	15MAR12	22MAR12	29MAR12	19APR12	01MAR12	01MAR13	29DEC11	28DEC12	j	29JUN09	19JAN10	26FEB10	26AUG10	09OCT10	220CT11	220CT11	22MAR12		420EC44	משות שו	SONOFES	25SEP09	02DEC09	19JAN10	21APR10	02JUN10	13JUL10
WP3D	10JAN11	4JAN11		18NOV11	25NOV11	03JAN12		10JAN12	17JAN12	03FEB12	13FEB12	7FEB12		03FEB12	17FEB12	23MAR12	30MAR12	27JAN12	02MAR12	13DEC11	30DEC11										Ì									
AD04 Finish	13JAN11 1	27JAN11 14JAN11		24NOV11	02JAN12 2	09JAN12 C		16JAN12	02FEB12 1	11FEB12 (16FEB12 '	01MAR12 17FEB12		15MAR12 (22MAR12	29MAR12 2	19APR12	_	01MAR13 (28DEC12	i	29JUN09	19JAN10	26FEB10	26AUG10	090CT10	220CT11	220CT11	22MAR12	j	40000	IZDECIII	29JUN09	25SEP09	02DEC09	19JAN10	21APR10	02JUN10	13JUL10
AD04 Start	10JAN11	14JAN11		1BNOV11 2	25NOV11 (03JAN12 (10JAN12	17JAN12 (03FEB12 ·	13FEB12	17FEB12 (03FEB12 1	17FEB12 2	23MAR12 2	30MAR12	27JAN12 (02MAR12 (30DEC11	i									ı						.X			
WP3D Dur	4 10	12 14		6 18	29 25	6 03		6 10	12 17	8 03	4 13	12 17		36 03	30 17	7 23	21 30	30 27	365 02		365 30		0	0	0	0	0	0	0	0	ì	C	o (0	0	0	0	0	0	0
DO4 W	4	12		9	29	9		9	12	ω	4	12		36	30	7	21	30	365	12	365		0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0
Activity	Backfill & construct U-channel	Fix rebar/ erect fwk/concrete ramp	Piling Works Above Inclined Access Ramp	Mobilize piling rig & set up	350mm dia. pre-bored H-piles (lower); 29 nos.	Demobilize piling rig	Inclined Access Ramp	Excavate & hack off grout	Construct skin wall	Construct capping beam	Backfill & construct U-channel	Fix rebar/erect fwk/concrete ramp	Remaining Works Prior to Handover	Finishing & reinstatement works; Portion A	Pre-handover inspections and remedial works	Contractor serve notice for Works completion	SO issues completion certificate	Landscaping works at Portion A	Establishment Works at Portion A	Install flow measurement devices at Intake I-1	Maintain & monitor flow monitoring	Schedule of Milestones for Cost Center No. 4L	4L 1; On completion of 50% excavation	4L 2; On completion of excavation	4L 3; On completion of 25% concreting	4L 4; On completion of 50% concreting	4L 5; On completion of 75% concreting	4L 6; On completion of Cascade	4L 7; On completion of connecting BC	4L 8; On completion of all works under this CC	of Milestones for Cost Centre No. 7R	: :	/R 1; On completion of trash grills	7R 2; On completion of 25% excavation	7R 3; On completion of 50% excavation	7R 4; On completion of 75% excavation	7R 5; On completion of all excavation	7R 6; On completion of spiral ramp to +80mPD	7R 7; On completion of spiral ramp to +90mPD	7R 8; On completion of spiral ramp to +100mPD
9	11R2AI1216	11R2AI1218	Piling Works A	11R2AI1220	11R2Al1222	11R2AI1224	Skin Wall & Inc	11R2AI1226	11R2AI1228	11R2AI1230	11R2AI1232	11R2AI1234	Remaining W	07R1AI1606	07R1AI1608	07R1AI1610	07R1AI1612	16R7AI1602	16R7AI1604	3DL1Al1602	3DL1AI1604	Schedule of	04L1AI1802	04L1AI1804	04L1AI1806	04L1AI1808	04L1AI1B10	04L1AI1812	04L1AI1814	04L1AI1816	Schedule of		07R1AI1902	07R1AI1904	07R1AI1906	07R1AI1908	07R1AI1910	07R1AI1912	07R1AI1914	07R1AI1916

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	♦at Intake I-1	under this Cost Centre			Vat Intake I-1	wall at platform at Intake I-1	wall at branch access at Intake I-1◆	♦under this Cost Centre																														1			
				•	al							-	0	D		п		П	-	9	- X	E3	•			1		•	10		•		•	•		l					•
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FIMSh	24AUG10	22MAR12	1		06SEP08A	26NOV10	02JAN12	03DEC10	H			16SEP08A	03NOV08A	24NOV08A		OCT08A		05DEC08A	03OCT08A	04NOV08A	07NOV08A	18NOV08A	19NOV08A	21NOV08A	25NOV08A	05DEC08A		14JUL08A	13SEP08A		16SEP08A	17NOV08A		19APRORA	05SEP08A	16MAR09A	13MAR09A	23APR09A			10JUL08A
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	24AUG10	22MAR12			06SEP08A	26NOV10	02JAN12	03DEC10				16SEP08A 12SEP08A	03NOV08A 17SEP08A	11NOV08A 24NOV08A 11NOV08A		02SEP08A 17OCT08A 02SEP08A 17OCT08A		03OCT08A 05DEC08A 03OCT08A	03OCT08A 03OCT08A 03OCT08A	04NOV08A 04OCT08A	07NOV08A 05NOV08A	18NOV08A 08NOV08A	19NOV08A	21NOV08A 20NOV08A	ZZNOV08A Z5NOV08A ZZNOV08A	26NOV08A 05DEC08A 26NOV08A		14JUL08A	13SEP08A 15JUL08A		16SEP08A	17SEP08A 17NOV08A 17SEP08A		TOAPPORA	05SEP08A 02MAY08A	16MAR09A 05JUN08A	13MAR09A 28FEB09A	23APR09A 10DEC08A			10JUL08A
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oliano.												12SEP08A	17SEP08A	11NOV0		02SEP0		озосто	озосто	04OCT08A	05NOV08A	08NOV08A		20NOV08A	SZNOVO	SENOVO			15JUL08A			17SEP0	26MAR08A		OZMAYOBA	05JUN08A	28FEB09A	10DEC08A	1		
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nond	7R 9; On completion of spiral access ramp	7R 10; On completion of all works under this CC	itre No. 11R		11R 1; On completion of soil nailing works	11R 2; On completion of piling at platform	11R 3; On completion of piling at branch access	11R 4; On completion of all works under this CC				Erect platform/mibilization & set up GI rig	Structures	Drill 1 hole for Intersection with Main Tunnel		Temporary diversion of CLP overhead cable		Temporary Diversion of 100mm dia. Watermain	۲.				. support		r sample	۵		hoarding	Procure/prepare/install transparent hoarding	nce	Receive VO-32 for replacing hoarding by CLF	Procure/prepare/install transparent hoarding	of DOC	annual	5.0.145		Install remote contorl CCTV as per ER 4.4.10		Channel/H-Pile Wall		Received VO22 for revised layout of pile wall
Description	of spiral &	of all wo	st Cen		n of soil n	of piling	of piling	ι of all wα			ign	ation & se	or Intake	ction with		of CLP or		of 100mr	diversion				for temp		ake water	n by WS		nsparent	all transpa	Link Fe	placing h	all transp⊱	b -90d c	2 parace)	200		CCTV as	10.	hanne		evised lay
	npletion	mpletion	for Co		mpletion	mpletion	mpletion	mpletion	1-2		ize Des	n/mibiliz	I holes f	or Interse	Cable	iversion	ain	iversion	for temp.	works	support	ermain	ertificate	به	pipe & t	connectic	ng at 1-2	11 for tra	are/insta	/ Chalin	32 for re	are/inst	of Portion	ingroce	200	200	e contor	anting; 1		at I-2)22 for re
	3 9; On car	₹ 10; On cc	Schedule of Milestones for Cost Centre No.		R 1; On C	R 2; On CC	R 3; On a	R 4; On CC	Construction of Intake I-2	KS	Additional GI Works to Finalize Design	ect platfon	Drill 3 nos. Gl holes for Intake Structures	rill 1 hole fo	Diversion of CLP Overhead Cable	emporary d	Dievrsion of 100mm Watermain	emporary L	Issue VO35 for temp. diversion	Preparation works	Install steel support	Lay new watermain	Obtain ICE certificate for temp. support	Pressure test	Sterilise new pipe & take water sample	Watermain connection by WSD	VO #11; Transperant Hoarding at I-2	Receive VO11 for transparent hoarding	ocure/prep	VO#32; Replace Hoarding by Chain Link Fence	eceive VO-	ocure/prep	Possession of Portion B -90d of DOC	Obtain TTA (ingress & soress) and	Site clearance	Frect hoarding	stall remote	Tree transplanting; 1 no.	Stream Diversion/Approach	Revised Layout of Pile Wall at I-2	eceived VC
			of Mile						tion of	Preliminary Works	GI Work	ū	Ğ	۵	of CLP o	227	of 100mm				-20		ec.			8	anspera	œ	ď	place Ho									iversio	ayout of	쬬
	07R1Al1918	07R1AI1920	edule		11R2AI1R02	11R2Al1R04	11R2Al1R06	11R2AI1R08	struc	limina	litional	AGIB-02	AGIB-04	AGIB-06	ersion	01R1BU0102	vrsion	01R1BU0202	01R1BU0204	01R1BU0206	01R1BU0208	01R1BU0210	01R1BU0212	01R1BU0214	01R1BU0216	01R1BU0218	#11; Tr	VO011-02	VO011-04	#32; Re	VO032-I202	VO032-1204	01R1BI2102	0464812404	01R1R12108	01R1BI2112	01R1BI2116	16R7BI2002	eam D	rised L	VO022-02
	07F	07F	Sc		17	7	115	118	Co	Pre	Ad	AG	AG	AG	ă	016	ă	01F	01F	40	910	110	01	011	01	014	8	9	8	8	9	8	150	5	2 2	15	15	19	Š	S.	8

	Contraction of the Contraction o												
VO022-04	SOR confirmed to demolish exit ret. wall	38	38	11JUL08A	3A 11J	21,	-		8				
VO022-06	Demolish existing retaining wall	,	-	13SEP08A	13SEP08A 13SEP08A	A 13SEP08A						žč.	
VO022-16	Reinstate piling platform	2	2	16SEP08A	17SEP08A 16SEP08A	A 17SEP08A	-		-			725	
Phase 1: Cons	Phase 1: Construct 550 dia. H-pile Wall							y T					
12R3BI2202	Form temp, access ramp along west side of stream	44	44	10JUN08A	31JUL08A 10JUN08A	A 31JUL08A	-		n				
12R3BI2204	Additional SI & engineering works	76	26 2	25AUG08A	24SEP08A 25AUG08A	3A 24SEP08A	·						
12R3BI2206	Mobilize piling rig & set up	2	5	25SEP08A	30SEP08A 25SEP08A	A 30SEP08A						A L	
12R3BI2208	Construct piles 1 to 18	13	13 (020CT08A	17OCT08A 02OCT08A	3A 170CT08A	ν-						
12R3BI2210	Piling works stopped by the SOR	80	00	180CT08A	270CT08A 180CT08A	3A 270CT08A	-						
12R3BI2212	Construct piles 19-58	28	28 2	280CT08A	26NOV08A 28OCT08A	3A Z6NOV08A	-		n				
12R3BI2214	SOR's instruction to delet pile 59	0	0		02DEC08A	02DEC08A	, -		•				
12R3Bl2216	Demobilize piling rig	4	4	03DEC08A	06DEC08A 03DEC08A	3A 06DEC08A	Ψ.		-				
12R3BI2218	Construct skin wall/caping beam/u-channel	*0 <i>L</i>	70*	25JUN09	15SEP09 25JUN09	15SEP09	-	80		==58 nos; @ 750mm c/c	50mm c/c		
12R3BI2220	Excavate for skin wall, 4 bays	130	18	25JUN09	16JUL09 25JUN09	16JUL09	-	80		11		200	
12R3BI2222	Construct for skin wall; 4 bays	24	24	17JUL09	13AUG09 17JUL09	13AUG09	-	80		n			
12R3BI2224	Construct capping beam; 4 bays	16	16	14AUG09	01SEP09 14AUG09	9 01SEP09	-	80				531	
12R3BI2226	Construct drainage, 4 bays	12	12:	02SEP09	15SEP09 02SEP09	15SEP09		80		=3		812	
Phase 1; Cons	Phase 1: Construct Dry Weather Flow Channel												
08R1BI2202	Excavate for new low flow channel	9	9	27MAR09A	03APR09A 27MAR09A							UN.	
08R1BI2204	Construct new low flow channel	9	9	11JUN09	17JUN09 11JUN09	17JUN09	n.	-196					
08R3BI2208	Remove blcock wall/excavate for gantry footing	12	12	18JUN09	02JUL09 18JUN09	02JUL09	*	-196					
08R3BI2212	Construct PC bund wall to protect gantry footing	9	9	0370109	09JUL09 03JUL09	09JUL09		-196		_			
Phase 2; Cons	Phase 2; Construct Approach Channel West												
08R1BI2218	Construct temp. concrete block bund	12	12	*e0VON20	14NOV09 02NOV09*	9* 14NOV09	-	43		Provision (provision of water pump		
08R1BI2220	Excavate for western portion guide wall & slab	12	12	16NOV09	28NOV09 16NOV09	9 28NOV09		43		C3			
08R1BI2222	Construct western portion of guide wall & slab	20	20	30NOV09	29JAN10 30NOV09	9 29JAN10		43		0			
08R1BI2224	Remove concrete block bund	9	9	30JAN10	05FEB10 30JAN10	05FEB10	,-	43				5.0	
Phase 3; Cons	Phase 3; Construct Approach Channel North												
08R1BI2226	Construct temp. concrete block bund	9	9	01NOV10*	06NOV10 01NOV10*		-	22			provision of water pump	t bnmb	
08R1BI2228	Excavate for L-shaped retaining wall	12	12	08NOV10	20NOV10 08NOV10	0 20NOV10		22					
08R1BI2230	Construct L-shaped retaining wall	18	18	22NOV10	11DEC10 22NOV10	0 11DEC10		22				261	
08R1BI2232	Excavate eastern portion of guide wall & slab	12	12	13DEC10	28DEC10 13DEC10		-	22					
08R1BI2234	Construction of boulder traps; 7nos.	24	24	29DEC10	26JAN11 29DEC10	26JAN11		22				201	
08R1BI2236	Construct eastern portion of guide wall & slab	24	24	27JAN11	26FEB11 27JAN11	26FEB11	•	22			1		
08R1BI2240	Remove temp, concrete blook bund	9	9	28FEB11	05MAR11 28FEB11	05MAR11	-	22			-		
Phase 4 - Com	Phase 4 - Construct Remaining Appr. Channel	e.											
08R1BI2242	Remove gantry crane & steel deck	18	18	16DEC11	10JAN12 16DEC11	1 10JAN12		-196					
08R1BI2244	Excavation for remaining approach channel	12	12	11JAN12	27JAN12 11JAN12	27JAN12	•	-196					
08R1BI2246	Construct remaining approach channel	24	24	28JAN12	24FEB12 28JAN12	24FEB12		-196					
08R1BI2248	Close out last section of guide wall	12	12	25FEB12	09MAR12 25FEB12	09MAR12		-196				- 11	
08R1BI2250	Construct trach arill	4	4	SEEEDAS	CAUTATION CAUTAINO	CACAMACA	,	000					

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24 24 20.JANUG9A 21FEBGBA 201ANUG9A 21FEBGBA 1	2	Activity	AD04 WP3D	WP3D	AD04 Street	AD04 WP3D	WP3D	3 9	Float		
24 24 24 20.04N09A 21FEBORA 2014N09A 1 1 1 2 1 2 1 2 1 2 1 2 2 2 2 2 2 2 2		the distance of the state of th							H		Ę
Every Currented Register 24 27 27 21 21 27 27 27 27	Excavate &	Construct Vortexionop Smail		l	ı			l			Ş.
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Construct of Nos. min places 12 2 2 2 2 2 2 2 2	05L18I2300	Construct 8 nos, mini piles	47 7		SULFERNA	26FFB09A 23FFB09A		- -	Ī		73
Construction for footingfale capes 12 12 13 AAARGBA 20AAARGBA 20AAARGBA 14 15 15 15 15 15 15 15	051 1812307	Construct & nos mini piles	- 12		27FEB09A	12MAR09A 27FEB09A		-			
Construction of federing-piles cape 12 27/AMORGA 14APROBA 14APROBA 14APROBA 1475 177	05L1B(2502	Excavation for footing/oile caps	12			26MAR09A 13MAR09A	_	-	Ī		
Construct focusing torgathy crane 25 25 CAMANYOBA 30,UULOB 01404YOBA 17166 17166	05L1BI2304	Construction of footing/oile caps	12			18APR09A 27MAR09A		-			183
Construct footing for gantry crane 12 12 25AUGOB 078EPOB 25OCTOB 1-156	05L1BI2305	Install steel deck	25		04MAY09A				-175	1	33
Problem gentry crane & noise enclosure 42 42 085EP08 290CT09 11JUL09	05L1BI2316	Construct footing for gantry crane	12	12	25AUG09		07SEP09		-196		
Senting with the construction of Vortex Shaft 37 13.0UL09 11.0UL09	05L1BI2318	Install gantry crane & noise enclosure	45	42	08SEP09	29OCT09 08SEP09	29OCT09		-196		200
Setting up Setting ground shaft 2 2 2 (10,010.09 11,010.09 11,010.09 1 1166 1 1166 1 1166 1 1	Ground Treat	ment Works for Vortex Shaft									
Proting & curtain ground sheft 37 37 13.0U.09 54AUG09 13.0B 1.18 18 0.0CT09 23AAR10 30.0CT09 23AAR10 1.196 24AUG09 1.196 24AUG09 24AUG09 24AUG09 2.196 2.106 2.20AR10 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.106 2.20AR10 2.2	05L1BI2306	Setting up	2	2	10JUL09	11JUL09 10JUL09	11JUL09		-196	following chanell diversion to west	is.
Percentage of Vortex Shaft	05L1BI2308	Probing & curtain grouting around shaft	37	37	13JUL09	24AUG09 13JUL09	24AUG09	Ĭ	-196	:	
Standard Shaft +89mPD to +65mPD (39m) 118 118 300CT09 23MAR10 17NOV11 17NOV11 1966 Standard African Shaft +89mPD to +65mPD (39m) 6 6 11NOV11 17NOV11 17NOV11 17NOV11 1966 Construct Permanent lining 30m @4m/4days	Excavation ar	nd Construction of Vortex Shaft									
Set up for lining construction 6 6 11NOV11 17NOV11 17NOV11 1-196	05L1BI2320	Excavate shaft, +99mPD to +65mPD (30m)	118	118	30OCT09	23MAR10 300CT09	23MAR10		-196		- 17
Construct Air Vent Shaft 30 11NOV11 15DEC11 1 - 196 Construct Air Vent Shaft Final Address Action of Table Construct Air Vent Shaft Final Address Action Air Action Air Action Air Action Action Air Action Ac	05L1BI2321	Set up for lining construction	ဖ	ဖ	11NOV11	17NOV11 11NOV11	17NOV11		-196		357
Construct Air Vent Shaft	05L1BI2322	Construct permanent lining; 30m @ 4m/ 4days	8	30	11NOV11	15DEC11 11NOV11	15DEC11		-196	200	100
15 15 08DECO68A 27DECO8A 08DECO68A 1 1 1 1 1 1 1 1 1		Construct Air Vent Shaft		Ħ	Ī		i	Ī	1		S. 1885
15 15 15 15 15 15 15 15											
## 54 54 07JANU9A 13MAR09A 13MAR09A 1 provision of Tanabaros 13MAR09A 13MAR09B 13MAR	05L1B12418	Enlarge the platform for RCD operation	15	15	08DEC08A	27DEC08A 08DEC08A		-			
## 54 54 07JAN09A 13MAR09A 13MAR09A 1 19MAR09A 1 1 2 19MAR09A 28APR09A 28APR09A 28APR09A 1 -196 1 1 2 11 2 11 2 11 2 11 2 11 2 11 2	05L1BI2420	Mobilize & set up RCD for excavation	മ	ω	29DEC08A	06JAN09A 29DEC08A	-	-			
5 5 14MARO9A 19MARO9A 14MARO9A 1 1 1 21MARO9A 23MARO9A 23MARO9A 21MARO9A 20MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 21MARO9A 1 196 1	05L1BI2422	Bore shaft with RCD; 37.5m @1m/day	54	24	07JAN09A	13MAR09A 07JAN09A	13MAR09A	-		0	
3 3 20MARO9A 20MARO9A 20MARO9A 1 1 1 1 1 1 1 1 1	05L1BI2424	Demobilize RCD rig	ιΩ	2	14MAR09A	19MAR09A 14MAR09A	19MAR09A	٠			
1 1 21MAR09A 25APR09A 1 1 1 21MAR09A 25APR09A 1 1 1 21MAR09A 25APR09A 1 1 1 1 21 25APR09A 25APR09A 1 1 1 1 1 1 1 1 1	05L1BI2426	Install permanent steel liner	m		20MAR09A	23MAR09A 20MAR09A	7.2	-			31.5
1	05L1BI2427	Preparation works for casting concrete		-	21MAR09A	25APR09A 21MAR09A	21	-			
17 17 05JUN09 27APRO9A 04JUN09 1 -196 1 1 1 1 1 1 1 1 1	05L1BI2428	Damage found on installed steel liner	0	0		25APR09A	25APR09A	-	né;	•	
17 17 05JUN09 25JUN09 24JUN09 1 -196 1 1	05L1BI2429	Removal of steel liner	31	31	27APR09A		-	-	-196		
12 12 25JUNO9 09JULO9 1 -196 1-196 1 -196	05L1BI2430	Remove RCD platform	17	17	05JUN09		24JUN09		-196		355
12 12 09JULO9 09JULO9 1 -196 1 1 1 1 1 1 1 1 1	05L1BI2432	Construct PC bund wall	12	12	25JUN09		607NF60	-	-196		
12 12 12 12 12 14 14 15 15 15 15 15 15	05L1BI2434	Divert channel to West	0	0		607NF60	607NF60	•	-196	•	
36 36 16NOV09 29DEC09 16NOV09 29DEC09 1 -96 6 6 30DEC09 06JAN10 20FEB10 1 -96 3 3 22FEB10 27FEB10 27FEB10 1 -96 3 3 25FEB10 27FEB10 27FEB10 1 -96 3 3 25FEB10 27FEB10 27FEB10 1 -96 3 4 24 01MAR10 27MAR10 01MAR10 27MAR10 1 -96 144UG09 10JUL09 14AUG09 15AUG09 1 -50 15 12 15AUG09 28AUG09 15AUG09 1 -50 16 16 16 16 16 16 16 16 16 16 16 16 16 1	05L1BI2436	Footing for gantry crane	12	12	02NOV09*	14NOV09 02NOV09*	14NOV09		96-		
6 6 8 30DEC09 06JAN10 20FEB10 1 -96 36 36 07JAN10 20FEB10 1 -96 3 3 22FEB10 24FEB10 27FEB10 1 -96 3 3 25FEB10 27FEB10 27FEB10 1 -96 24 24 01MAR10 27MAR10 01MAR10 27MAR10 1 -96 naft 31 31 10JUL09 14AUG09 10JUL09 1 4AUG09 1 -50 flootings 12 12 15AUG09 28AUG09 15AUG09 1 -50	05L1BI2438	Erection of gantry crane	36	36	16NOV09	29DEC09 16NOV09	29DEC09		96-		
36 36 07JAN10 20FEB10 27FEB10 1 -96 3 3 22FEB10 24FEB10 24FEB10 1 -96 3 3 25FEB10 24FEB10 24FEB10 1 -96 3 24 24 01MAR10* 27MAR10 01MAR10* 27MAR10 1 -96 aft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 -50 flootings 12 12 15AUG09 28AUG09 15AUG09 1 -50	05L1BI2440	Set up sliding system	9	9	30DEC09	-	06JAN10	-	96-		
3 3 22FEB10 24FEB10 24FEB10 1 -96 3 3 25FEB10 27FEB10 27FEB10 1 -96 24 24 01MAR10* 27MAR10 01MAR10* 27MAR10 1 -96 aft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 -50 flootings 12 12 15AUG09 28AUG09 15AUG09 1 -50	05L1BI2446	Install steel casing	98	36	07JAN10		20FEB10	-	96-		
3 3 25FEB10 27FEB10 1 -96 24 24 01MAR10* 27MAR10 01MAR10* 27MAR10 1 -96 1aft 31 10JUL09 14AUG09 10JUL09 14AUG09 1 -50 12 12 15AUG09 28AUG09 15AUG09 1 -50 Indicided	05L1BI2448	Survey checking & capping concrete	က	m	22FEB10	24FEB10 22FEB10	24FEB10	÷	96-		
24 24 24 24 01MAR10* 27MAR10 01MAR10* 27MAR10 1 -96 naft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 -50 II -60 footings 12 12 15AUG09 28AUG09 15AUG09 15AUG09 1 -50 II -50 II	05L1BI2450	Preparation & concreting	m	ო	25FEB10	27FEB10 25FEB10	27FEB10	-	-98	Ifollowing consent from the SOR	
naft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 4AUG09 1 50 rootings 12 12 15AUG09 28AUG09 15AUG09 15AUG09 15AUG09 15AUG09 10JUL09 10J	05L1BI2452	Construct upstand wall	24	24	01MAR10*	27MAR10 01MAR10*		-	96-	100	8
around shaft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 -50 Shaft 12 12 15AUG09 28AUG09 15AUG09 1 -50	Excavate &	Construct Man Access Shaff									
around shaft 31 31 10JUL09 14AUG09 10JUL09 14AUG09 1 4AUG09 1 5AUG09 1 5AUG0	Ground Treat	ment for Man Access Shaft									
ine & Noise Enclosure at M. A. Shaft Excavate & construct 4 nos. gantry footings 12 12 15AUG09 28AUG09 15AUG09 28AUG09 1 -50	05L1B12502	Probing & curtain grouting around shaft	31	31	10JUL09	14AUG09 10JUL09	14AUG09	-	-50	***	
Excavate & construct 4 nos, gantry footings 12 12 15AUG09 28AUG09 15AUG09 28AUG09 1 -50	Gantry Crane	& Noise Enclosure at M. A. Shaft							i		
	05L1BI2504	Excavate & construct 4 nos. gantry footings	12	12	15AUG09	28AUG09 15AUG09	28AUG09	-	-50	including 1 wk concrete strength	3

250 250	QJ	Activity	004 WP3D	MP3D	AD04	AD04 WP3D	WP3D	Total	Sums	00 mm mm mm mm mm mm mm mm mm mm mm mm m
tr 127 12 04NOV09 12AUR09 15AUG09 12AUG09 1 -44 18 130CT09 03NOV09 13APR10 13MAR11 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 13MAR11 1 1 1 13MAR11 1 1 1 13MAR11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	051 1R12505	Install gaptiv crane & noise enclosure	36	36	29AUG09	12OCT09 29AUG09			09	■provision of TTA
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tr. 127 127 0ANOV08 12APR10 0ANOV08 12APR10 1 -50 after construction only) 6 6 (19MAR11 15MAR11 15MAR11 113JUL11 1 -50 after construction only) 8 6 (19MAR11 25MAR11 15MAR11 13JUL11 1 -50 after construction only) 12 12 23JUL11 25MAR11 23JUL11 13JUL11 1 -50 after construction only) 12 12 23JUL11 23JUL11 23JUL11 13JUL11 1 -50 after construction only) 12 12 23JUL11 23JUL11 23JUL11 13JUL11 1 -50 after construction only) 12 12 23JUL11 23JUL11 33JUL11 1 -196 after construction only) 13 12 24 24 21SEP11 20SEP11 20SEP11 1 -196 after construction only) 14 12 24 24 21SEP11 20SEP11 20SEP11 1 20SEP11 1 -196 after construction only) 15 2 25AUG10 22OCT10 13JUL11 1 2SAUG10 1 -196 after construction only) 15 2 25AUG10 22OCT11 21SEP11 1 -196 after construction only) 15 2 25AUG10 22OCT11 21SEP11 20SEP11 1 -196 after construction only) 15 2 25AUG10 22JUN11 23AUG10 23AUG10 1 -196 after construction only) 15 2 2 25AUG10 22AUN11 23AUG10 23AUG10 1 -196 after construction only) 16 3 4 4 4 6 99EC10 23AUG10 23AUG10 23AUG10 23AUG10 1 -50 after construction only) 17 2 2 25AUG10 23AUG10 05L1BI2506	Excavation to rock head level	48	18	130CT09	03NOV09 13OCT09			90		
127 127 127 124	_	construction of Man Access Shaft								
1	0.000	Excavation/muck out/temporoary support	127	127	04NOV09	12APR10 04NOV09			00	
1	05L1BI2522	Construct base	4	4	15MAR11	18MAR11 15MAR11				ion of man access adit
yelland 75 75 28/MAR11 28/MAR11 1 -50 8 8 1 14/LU11 23/LU11 1 24/LU11 1 -50 8 8 8 1 14/LU11 23/LU11 1 22/LU11 1 1 -50 12 12 23/UL11 23/UL11 1 23/UL11 1 -50 12 12 23/UL11 23/UL11 1 23/UL11 1 -50 13 23/UL12 23/UL11 23/UL11 1 1 -196 14 12 12 23/UL12 23/UL11 23/UL11 1 1 -196 15 0 50 23/UL12 23/UL11 23/UL11 1 1 -196 16 0 50 23/UL12 23/UL11 23/UL11 1 1 -196 17 1 2 24/UL12 20/UL11 23/UL11 1 1 -196 18 13 21/UL11 20/UL11 20/UL11 1 1 -196 19 12 24/UL12 20/UL11 23/UL11 1 1 -196 19 14/UL12 20/UL11 23/UL11 1 1 -196 19 15 23/UL11 20/UL11 23/UL11 1 1 -196 10 13/APR10 20/UL11 23/UL11 1 1 -196 10 13/APR10 23/UL11 23/UL11 1 1 -196 10 10/VI) 22 23/UL11 23/UL11 23/UL11 1 1 -196 10 10/VI) 22 23/UL11 23/UL11 23/UL11 1 1 -196 10 10/VI) 23/UL11 23/UL11 23/UL11 1 1 -196 10 10/VI) 23/UL11 23/UL11 23/UL11 1 1 -196 10 10/VI) 23/UL11 23/UL11 23/UL11 1 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/DECTO 23/UL11 23/UL11 23/UL11 1 -196 10 14/UL11 23/U	05L1BI2524	Set up for 37m shaft construction (wall only)	9	9	19MAR11	25MAR11 19MAR11			00	•
12 12 23JUN11 13JUL11 13JUL11 1 560 8 8 14JUL11 12JUL11 12JUL11 15JUL11 1 550 12 23JUL11 105AUG11 13JUL11 1 5GJUL11 05L1BI2526	Construct wall/stair, 25 landings @ 3 days/land	75	75	26MAR11	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			09	1	
8 8 14JUL11 22JUL11 12JUL11 1 56DUG11 1 550 Table bench 50 50 24JUN10 23JUN10 24MAR10 23JUN10 1 -196 Table bench 50 50 24JUN10 21AUG10 23JUN10 1 -196 Table bench 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 21AUG10 22CCT10 1 -196 Table 50 50 24JUN10 22CCT10 1 20EP11 1 -196 Table 50 50 24JUN10 22CCT10 1 20CCT11 1 -196 Table 50 50 24JUN10 22CCT10 1 20CCT11 1 -196 Table 50 50 24JUN11 25AUG11 2CCT11 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 24JUN11 2CCT11 1 1 -196 Table 50 50 50 50 50 50 50 50 50 50 50 50 50	05L1BI2528	Removal of gantry crane	12	12	29JUN11		13JUL11		00	
12 12 23JUL11 05AUG11 23JUL11 05AUG11 1 -50 10p heading 4m cheanth 50 50 24JUN10 21AUG10 21AUG10 21AUG10 1 -196 10p heading 4m cheanth 50 50 24JUN10 21AUG10 22AUG10 1 -196 10p shefts 18 18 21OCT11 20CT11 21SEP11 1 -196 10p shefts 18 18 21OCT11 20CT11 21DCT11 1 -196 10p shefts 18 18 21OCT11 20CT11 22AUG11 1 -196 10p shefts 18 18 21OCT11 22AUG11 22AUG11 1 -196 10p shefts 22 22AUG11 22AUG11 22AUG11 1 -196 10p shefts 22 22AUG11 22AUG11 22AUG11 22AUG11 1 -50 22AUG10	05L1BI2530	Construct wall above ground level	œ	co	14JUL11	22JUL11 14JUL11	22JUL11		00	_ `
upport 72 72 24MAR10 23JUN10 24MAR10 23JUN10 1-196 top heading 4m r bench 50 50 24JUN10 21AUG10 22AUG10 1-196 1-196 4m r bottom 50 50 22AUN11 23AUG10 22AUG11 1-196 1-196 4m 1-196 1-196 4m 1-196 4m 1-196 1-196 4m 1-196 1-196 1-196 4m 1-196	05L1BI2532	Construct shaft roof	12	12	23JUL11	05AUG11 23JUL11	05AUG11		09	•
And the support 72 24MAR10 23JUN10 24MAR10 1-196 and for beards 50 24JUN10 21AUG10 24JUN10 1740610 1 -196 and for beards 50 24JUN10 21AUG10 24JUN10 1740610 1 -196 and for beatness 50 50 24JUN10 21AUG10 24JUN10 1740610 1 -196 and for beatness 50 50 24JUN10 22AUG10 22AUG10 1 -196 and for beatness 50 50 24JUN10 22AUG10 22AUG10 1 -196 and for beatness 18 18 210CT11 10NOV11 1 -196 and for beatness 50 50 24 218EP11 20SEP11 20SEP11 1 -196 and for beatness 50 200 23OCT10 27JUN11 25AUG11 1 -196 and for beatness 50 50 24JUN11 25AUG11 24JUN11 1 -196 and for beatness 50 50 24JUN11 25AUG11 24JUN11 1 -196 and for beatness 50 50 24JUN11 25AUG11 24JUN11 1 -196 and for beatness 50 50 24JUN11 25AUG11 24JUN11 1 -196 and for beatness 50 50 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 25AUG11 24JUN11 1 -50 24JUN11 24JUN11 24JUN11 1 -50 24JUN11 24JUN11 24JUN11 1 -50 24JUN11 1 24JUN11 1 24JUN11 1 -50 24JUN11 24JUN11 24JUN11 1 -50 24JUN11 1 24JUN11 1 24JUN11 1 -50 24JUN11 1 24JUN11	Excavate & C	Construct Deseration Chamber						1		
ring support 72 72 24MAR10 23JUN10 24MAR10 23JUN10 1 -196 top heading 4m ort for bench 50 50 50 24JUN10 21AUG10 22JUN10 1 -196 1 -196 4 ort for bench 50 50 23AUG10 22AUG11 20CPCT1 1 -196 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 1 -196 4 4 4 4 1 -196 4 4 4 4 4 4 4										
A drop shafts by Sa 230CT10	05L1BI2602	Probing/grout/excavate/muckout/temp.support	72	72	24MAR10	23JUN10 24MAR10				N
ation/muck out 200 230CT10 220CT10 23AUG10 22OCT10 1 -196 2	05L1BI2604	Drill/excavate/muckout/temp. support for bench	20	20	24JUN10	21AUG10 24JUN10	21AUG10		96	4.5m deep=22*4.5*9=891m3, 17.8m3/day
12 12 28ALGH1 08SEP11 20SEP11 1 -196	05L1BI2607	Drill/excavate/muckout/temp. support for bottom	20	20	23AUG10	220CT10 23AUG10			96	4.5m deep=22*4.5*9=891m3, 17.8m3/day
8 9 9 095EP11 20SEP11 10NOV11 1 -196 action/muck out 200 230CT10 27JUN11 230CT10 10NOV11 1 -196 antion/muck out 200 230CT10 27JUN11 230CT10 27JUN11 1 -196 antion/muck out 200 230CT10 27JUN11 230CT10 27JUN11 1 -196 antion/muck out 200 230CT10 27JUN11 230CT10 27JUN11 1 -196 antion/muck out 200 230CT10 27JUN11 230CT10 27JUN11 1 -196 antion/muck out 200 230CT10 27JUN11 230CT10 1 -50 antion/muck out 200 230CT10 27JUN11 230CT10 1 -50 antion/muck out 200 230CT10 27JUN11 230CT10 1 -50 antion/muck out 200 230CT10 27JUN11 230CT10 1 -50 antion/muck out 200 230CT10 27JUN11 27JUN11 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230CT10 230CT10 1 -50 antion/muck out 200 230CT10 230C	05L1BI2608	Set up for lining construction	12	12	26AUG11		08SEP11		98	-
8 drop shafts 24 24 2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2 (2	05L1BI2610	Construct base; 3 bays	o	o	09SEP11		20SEP11		98	_
## Support Support 18 18 10 210CT11 10NOV11 10NOV11 1 196	05L1BI2612	Construct walls 2 lifts; 3 bays	24	24	21SEP11		200CT11		98	
ation/muck out 200 230CT10 27JUN11 230CT10 27JUN11 1 -196 including 5 days for setup of mouldes amperately support 50 50 28JUN11 25AUG11 25AUG11 1 -196 including 5 days for setup of mouldes amperately support 50 50 28JUN11 25AUG11 25AUG11 1 -50 including 5 days for setup of mouldes amperately support 5 2 25JUN11 27AUG10 25JUN11 01FEB11 1 -50 including 5 days for setup of mouldes and an arrangement of a 2 2 25AUG11 25AUG11 27AUG10 1 -50 including 5 days for setup of mouldes and arrangement 2 2 2 25AUG11 25AUG11 27AUG10 1 -50 including 5 days for setup of mouldes and arrangement 2 2 2 25AUG11 25AUG11 25AUG11 1 -50 including 5 days for setup of mouldes and arrangement 2 2 2 25AUG11 25AUG11 25AUG11 1 -50 including 5 days for setup of mouldes and arrangement 2 2 2 25AUG11 25AUG11 25AUG11 1 -50 including 5 days for setup of mouldes and arrangement 2 2 2 25SEP10 300EC10 100EC10 1 -50 including 2 2 2 25SEP10 300EC10 100EC10 1 -50 including 2 2 2 25SEP10 300EC10 100EC10 1 -50 including 2 2 2 25SEP10 300EC10 100EC10 1 -50 including 2 2 2 20EC10 100EC10 100EC10 1 -50 including 2 2 2 20EC10 100EC10 100EC10 1 -50 including 2 2 2 20EC10 100EC10 100EC10 1 -50 including 2 2 2 20EC10 100EC10 100EC10 1 -50 including 2 2 2 20EC10 1 -50 including 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	05L1BI2614	Const. crown/underpin. of air vent & drop shafts	18	18	210CT11				96	-
action/muck out 200 230CT10 27JUN11 25AUG11 1 -196 including 5 days for setup of mould and	Excavate & C	Construct Main Adit Tunnel							3.4	
ation/muck out 200 23OCT10 27JUN11 23OCT10 27JUN11 1 -196 including § days for setup of moulding and among support 50 50 28JUN11 25AUG11 1 25AUG11 1 -196 including § days for setup of moulding and among support 50 50 50 13APR10 30JUL10 13APR10 30JUL10 1 -196 including § days for setup of moulding and among support 51 22 28AUG11 1 25AUG11 1 -196 including § days for setup of moulding and among start 52 2 28AUG11 1 25AUG11 1 -196 including § days for setup of moulding and among start 52 2 28AUG10 27AUG10 1 -196 including § days for setup of moulding and among start 52 2 28AUG10 28AUG10 28AUG10 27AUG10 1 -196 including § days for setup of moulding and among start 52 2 28AUG10 28AUG10 28AUG10 27AUG10 1 -196 including § days for setup of moulding and among start 52 2 28EPP10 28AUG10 28AUG10 27AUG10 1 -196 including § days for setup of moulding and among start 52 2 28EPP10 28EPP10 28EPP10 1 -196 including § days for sight including start 52 2 28EPP10 28EPP10 28EPP10 28EPP10 1 -196 including § days for sight including start 52 2 28EPP10 28EPP10 28EPP10 28EPP10 1 -196 including start 52 2 28EPP10 28EP										
So So 28JUN11 25AUG11 25AUG11 1 -196 including 6 days for setup of moulding Library support So 13APR10 30JUL10 1 -50 -50	3BL1BI2102	Probing/grout/temp. support/excavation/muck out	200	200	230CT10	27JUN11 23OCT10			-	56m @ 4m/11 days
State	3BL1BI2104	Construct permanent lining	20	20	28JUN11	25AUG11 28JUN11	25AUG11			b days for setup of mould■
Probing/goru/texcavate/muckout/temporary support 90 90 13APR10 30JUL10 1 APR10	Excavate & C	Construct Man Access Adit						i	200	
Probing/gonut/excavate/muckout/temporary support 6 6 26JaN11 01FEB11 1-50	Upper Horizon	tal Section							= ('	
Set up for 23m upper adit construction 6 6 28JaN11 01FEB11 26.0 1 -50 ction Construction of permanent lining 2 2 22FEB11 14MAR11 02FEB11 14MAR11 01FEB11 1 -50 Probing & curtain grouting around shaft 24 2 23 JUL10 27AUG10 27AUG10 27AUG10 27AUG10 27AUG10 27AUG10 1 -50 Set up for 7.Zm raise (shaft) excavation 2 2 28AUG10 28AUG10 28AEP10 1 -50 Construct base of raise shaft mover adit excavation 4 4 09DEC10 13DEC10 20DEC11 15DEC10 25DEC10 14DEC10 25DEC10 15DEC10 25DEC10 25DEC10 <td>05L1BI2806</td> <td>Probing/gorut/excavate/muckout/temporary support</td> <td>06</td> <td>90</td> <td>13APR10</td> <td>30JUL10 13APR10</td> <td></td> <td></td> <td>20</td> <td>@ 4 m/9 day</td>	05L1BI2806	Probing/gorut/excavate/muckout/temporary support	06	90	13APR10	30JUL10 13APR10			20	@ 4 m/9 day
ction Probing & curtain grouting around shaft 24 24 31JUL10 27AUG10 31JUL10 27AUG10 1 -50 Probing & curtain grouting around shaft 24 24 31JUL10 27AUG10 31JUL10 27AUG10 1 -50 #@0.3m/day & night Set up for 7.2m raise (shaft) excavation 2 2 28AUG10 38AUG10 28AUG10 3AAUG10 28ABP10 1 -50 #@0.3m/day & night Excavate/removal of rock/temporary support 24 24 31AUG10 28SEP10 31AUG10 28ABPC10 1 -50 #@0.3m/day & night Construct base of raise shaft 4	05L1Bl2830	Set up for 23m upper adit construction	9	ω	26JAN11	01FEB11 26JAN11	01FEB11		20	
ction Probing & curtain grouting around shaft 24 24 31JUL10 27AUG10 11JUL10 27AUG10 28AUG10 31JUL10 27AUG10 28AUG10 28A	05L1Bl2834	Construction of permanent lining	32	32	02FEB11	14MAR11 02FEB11	14MAR11		20	
Probing & curtain grouting around shaft 24 31JUL10 27AUG10 31JUL10 27AUG10 1 -50	Vertical Section	_								
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Excavate/removal of rock/temporary support 24 31AUG10 28SEP10 31AUG10 28SEP10 1 -50 Construct base of raise shaft 4 4 09DEC10 13DEC10 13DEC10 1 -50 Set up for 9m raise stair, 7 landings @4days/landin 28 28 21DEC10 20DEC10 14DEC10 20DEC10 1 -50 Construct wall & stair, 7 landings @4days/landin 28 28 21DEC10 25JAN11 1 -50 Set up for 9m raise stair, 7 landings @4days/landin 2 2 29SEP10 25JAN11 1 -50 Set up for 9m raise stair, 7 landings @4days/landin 2 2 29SEP10 30SEP10 1 -50 Set up for 9m lower adit excavation 31 31 31 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 1 -50	05L1BI2808	Set up for 7.2m raise (shaft) excavation	2	7	28AUG10	30AUG10 28AUG10	- 1	-	20	1000
Construct base of raise shaft 4 4 09DEC10 13DEC10 13DEC10 1 -50 Set up for 9m raise stairway const. (wall only) 6 6 14DEC10 20DEC10 1 -50 Zonstruct wall & stair, 7 landings @4days/landin 28 28 21DEC10 25JAN11 1 -50 Set up for 9.3m lower adit excavation 2 2 29SEP10 30SEP10 1 -50 Excavate/removal of rock/temporary support 31 31 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 1 -50	05L1BI2810	Excavate/removal of rock/temporary support	24	24	31AUG10	28SEP10 31AUG10			20	■@ 0.3m/day & night
Set up for 9m raise stairway const. (wall only) 6 6 14DEC10 20DEC10 14DEC10 20DEC10 1 -50 Zontal Section Construct wall & stair, 7 landings @4days/landin 28 21DEC10 25JAN11 21DEC10 25JAN11 11 -50 Set up for 9.3m lower adit excavation 2 2 29SEP10 30SEP10 1 -50 Excavate/removal of rock/temporary support 31 31 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 1 -50	05L1BI2822	Construct base of raise shaft	4	4	09DEC10	13DEC10 09DEC10			20	
Zontal Section Construct wall & stair, 7 landings @4days/landin 28 28 L1DEC10 25JAN11 21DEC10 25JAN11 1 -50 Zontal Section Set up for 9.3m lower adit excavation 2 2 29SEP10 30SEP10 1 -50 Excavate/removal of rock/temporary support 31 31 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 1 -50	05L1BI2824	Set up for 9m raise stairway const. (wall only)	9	ű	14DEC10	20DEC10 14DEC10		-	20	
Zontal Section 2 2 2 29SEP10 30SEP10 29SEP10 1-50 Set up for 9.3m lower adit excavation 31 31 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 1 -50	05L1BI2826	Construct wall & stair, 7 landings @4days/landin	28	28	21DEC10				20	**
Set up for 9.3m lower adit excavation 2 2 29SEP10 30SEP10 20SEP10 1 -50 Excavate/removal of rock/temporary support 31 31 31 02OCT10 08NOV10 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 08DEC10 1 -50	Lower Horizon	tal Section								
Excavate/removal of rock/temporary support 31 31 02OCT10 08NOV10 02OCT10 08NOV10 1 -50 Set up for 7m lower adit construction 6 6 09NOV10 15NOV10 15NOV10 1 -50 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 1 -50	05L1BI2812	Set up for 9.3m lower adit excavation	2	2	29SEP10	30SEP10 29SEP10			50	-
Set up for 7m lower adit construction 6 6 6 6 09NOV10 15NOV10 09NOV10 15NOV10 15NOV10 15NOV10 Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 16NOV10 <td>05L1BI2814</td> <td>Excavate/removal of rock/temporary support</td> <td>31</td> <td>31</td> <td>020CT10</td> <td>08NOV10 02OCT10</td> <td></td> <td></td> <td>20</td> <td>■@0.3m/day & night</td>	05L1BI2814	Excavate/removal of rock/temporary support	31	31	020CT10	08NOV10 02OCT10			20	■@0.3m/day & night
Construction of permanent lining for lower adit 20 20 16NOV10 08DEC10 16NOV10 08DEC10 1 -50	05L1BI2816	Set up for 7m lower adit construction	9	ယ	09NOV10	15NOV10 09NOV10		-	20	
	05L1BI2818	Construction of permanent lining for lower adit	20	20	16NOV10	08DEC10 16NOV10		-	20	

Junction Between Main Tunnel & Adit Tunnel							1	
		ı	i					
Temp, support & excavation breakthrough	48	48	26AUG11	240CT11 26AUG11	240CT11	-	-127	11
Construct collar between MT & AT	48		+	19DEC11 25OCT11	19DEC11	-	-127	
Remaining Works Prior to Handover		Ä						
Finishing & reinstatement works; Portion B	36	36 0	04FEB12	16MAR12 04FEB12	16MAR12	-	-196	130
Pre-handover inspections and remedial works	30	30	18FEB12	23MAR12 18FEB12	23MAR12	-	-196	303
Contractor serve notice for Works completion	2	7 2	24MAR12	30MAR12 24MAR12	30MAR12	2	0	
SO issues completion certificate	23	21 3	31MAR12	20APR12 31MAR12	20APR12	2	0	
Landscaping works at Portion B	72	1	16DEC11	16MAR12 16DEC11	16MAR12	-	-158	
Establishment Works at Portion B	-	365 1	7MAR12	16MAR13 17MAR12	16MAR13	2 -	-196	
Install flow measurement devices at Intake I-2	12	12 0	07FEB12	20FEB12 07FEB12	20FEB12		-184	
Maintain & monitor flow monitoring	365	365 2	21FEB12	19FEB13 21FEB12	19FEB13	7	0	
Schedule of Milestones for Cost Centre No. 3bL								
3bL 1; On establishing tunnelling equipments	0	0		220CT10	220CT10	2 1,	1,165	equipment for tunnelling at Intake I-2
3bL 2; On completion of 12,5% perm. tunnel linin	0	0		18NOV10	18NOV10	2 1,	1,138	♦for Adit Tunnel at Intake I-2
3bL 3; On completion of 25% perm. tunnel lining	0	0		16DEC10	16DEC10	2 1,	1,110	◆for Adit Tunnel at Intake I-2
3bL 4; On completion of 37.5% perm. tunnel linin	0	0		15JAN11	15JAN11	2 1,	1,080	◆for Adit Tunnel at Intake I-2
3bL 5; On completion of 50% perm. tunnel lining	0	0		15FEB11	15FEB11	2 1,	1,049	◆for Adit Tunnel at Intake I-2
3bL 6; On completion of 62.5% perm. tunnel linin	0	0		15MAR11	15MAR11	2 1,	1,021	♦for Adit Tunnel at Intake I-2
3bL 7; On completion of 75% perm. tunnel lining	0	0		12APR11	12APR11	7	993	♦for Adit Tunnel at Intake I-2
3bL 8; On completion of 87.5% perm. tunnel linin	0	0		09JUL11	09JUL11	2	905	◆for Adit Tunnel at Intake I-2
3bL 9; On completion of perm. tunnel lining	0	0		25AUG11	25AUG11	2	858	♦for Adit Tunnel at Intake I-2
3bL 10; On completion of all works under this CC	0	0		19DEC11	19DEC11	2	742	◆under this Cost Centre
Schedule of Milestones for Cost Centre No. 5L								
51 1. On completion of 25% of excavation	0	0		08DEC09	08DEC09	2 1	1,483	♦below G.L except for Adit at Intake I-2
5L 2: On completion of 50% of excavation	0	0		12APR10	12APR10	2 7	1,358	♦ below G.L. except for Adit at Intake I-2
5L 3; On completion of 75% of excavation	0	0		23JUN10	23JUN10	2 1,	1,286	♦ belowe G.L. except for Adit at Intake I-2
5L 4; On completion of all excavation	0	0		220CT10	22OCT10	2 1,	1,165	♦below G.L. except for Adit Intake I-2
5L 5, On completion of drop shaft & vortex shaft	0	0		15DEC11	15DEC11	2	746	◆vortex shaft at Intake I-2
5L 6; On completion of de-aeration chamber	0	0		10NOV11	10NOV11	2	781	♦ chamber at Intake I-2
5L 7; On completion of air vent shaft	0	0		27MAR10	27MAR10	2 1,	1,374	♦shaft at Intake I-2
5L 8; On completion of man access shaft	0	0		05AUG11	05AUG11	2	878	◆shaft at Intake I-2
5L 9; On completion of man access adit	0	0		14MAR11	14MAR11	2 1,	1,022	◆adit at Intake I-2
5L 10; On completion of all works under this CC	0	0		23MAR12	23MAR12	2	647	under this Cost Centre◆
Schedule of Milestones for Cost Centre No. 8R						ă		
						Ì		
8R 1; On completion of approach channel	0	0		09MAR12	09MAR12	2	661	channel and assictated decking at Intake I-2
8R 2: On completion of trash grill							1000	C

Laj -2008 2010 2011 2012 2013 3et 3et 3et 3et 3et	647 under this Cost Centre		◆wall at Intake I-2	◆wall at Intake I-2	69 Atraps at Intake I-2	647 under this Cost Centre							•						7					9				52				1.1	1							
Total	2	ş	2	7	2 1,069	2 6	1			-	-		-	-		7		-	-	-		2	-	4-	-	τ-	~	-	<u> </u>	-	-	-	-	-		l	-	_	-	-
WP3D	23MAR12	L	06NOV08A	26NOV08A	26JAN11	23MAR12				05NOV08A	19NOV08A		16SEP08A	06MAR09A			20SEP08A	30JUL08A	03JUL08A	10NOV08A		26APR08A	13SEP08A	21JUN08A	04JUL08A	13SEP08A	O9MAR09A	15JUL08A	12SEP08A	09MAR09A	30JAN10	16NOV09	18DEC09	30JAN10			16AUG08A	28AUG08A		26NOV0RA
AD04 WP3D Finish Start	23MAR12		06NOV08A	26NOV08A	26JAN11	23MAR12				03NOV08A 05NOV08A 03NOV08A 05NOV08A	06NOV08A 19NOV08A 06NOV08A 19NOV08A		16SEP08A	06MAR09A 17SEP08A		ZeMARUSA	20SEP08A 22APR08A	30JUL08A 03JUN08A	03JUL08A 30JUN08A	10NOV08A 28OCT08A		26APR08A 01APR08A	13SEP08A 04JUN08A	21JUN08A 04JUN08A	04JUL08A 04JUL08A	13SEP08A 08SEP08A	09MAR09A 21JUN08A	15JUL08A 21JUN08A	12SEP08A 15JUL08A	09MAR09A 28FEB09A	30JAN10 12NOV09	16NOV09 12NOV09	18DEC09 15DEC09	30JAN10 20JAN10			AUG08A 16AUG08A 11AUG08A	28AUG08A 18AUG08A		
AD04 Start	0	i	0	0	0	0	i.			3 03NOV08A			0	17SEP08A		U ZEMAKUSA				280CT08A		7 01APR08A	* 04JUN08A	2 04JUN08A		6 08SEP08A	Ŋ	3 21JUN08A	3 15JUL08A	8: 28FEB09A	_	4 12NOV09	4 15DEC09	20JAN10			6 11AUG08A	20	1 29AUG08A	1 SENOVORA
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Activity Description	8R 3; On completion of all works under this CC	Schedule of Milestones for Cost Centre No. 12R	12R 1; On completion of 50% pile retain. wall	12R 2; On completion of pile retain. wall	12R 3; On completion of boulder traps	12R 4; On completion of all works under this CC	Construction of Intake I-3	Works	Additional GI Works To Finalize Design	Erect platform/mibilization & set up GI rig	Drill 3 nos. GI holes for Intake Structures	VO#32; Replace Hoarding by Chain ∐nk Fence	Received VO-32 for replacing hoarding by CLF	Procure/prepare/install transparent hoarding		Possession of Portion C -908 of DOC	Site clearance	Haording at slope crest	Set-up wheel washing facilities	Install remote contorl CCTV as per ER 4.4.10	Tree Transplanting Works	Tree inspection & report	Tree transplant for upper parts; 8 nos.	1st stg tree pruning	2nd stg tree pruning	Final stg. tree pruning & tree uplifting	Tree transplanting at Ch250-Ch200); 20 nos.	1st stg tree pruning	2nd stg tree pruning	Final stg tree pruning & tree uplifting	Tree transplanting at Ch100-Ch0	1st stg tree pruning	2nd stg tree pruning	Final stg tree pruning & tree uplifting	H-Pile Retaining Wall for Wall A		Mobilize & set up piling rig	Drill 28 nos. grout (partially) 11 nos. piles	Piling stopped due to accessive grout loss	Piling resumed date
Q	08R1BI2R06	Schedule of	12R3BI2S02	12R3BI2S04	12R3BI2S06	12R3BI2S08	Constructio	Preliminary Works	Additional GIV	AGIC-02	AGIC-04	VO#32; Replac	VO032-I302	V0032-I304		01R1Cl310Z	01R1CI3104	01R1CI3106	01R1Cl3110	01R1CI3118	Tree Transpi	16R7CI3202	16R7CI3204	16R7CI3206	16R7CI3208	16R7CI3210	16R7Cl3212	16R7Cl3214	16R7Cl3216	16R7Cl3218	16R7Cl3220	16R7CI3222	16R7CI3224	16R7Cl3226	H-Pile Retair	Piling Works	13R4CI3400	13R4Cl3401	13R4CI3402	13R4CI3403

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13R4C13406 Complete all H-piles, Wall A; 347nos, 13R4C13406 Excavate for skin wall construction, 2130m3 66 13R4C13406 Hack off piles, piles 1 to 347 13R4C13414 Construct skin wall, 13R4C13414 Construct skin wall, 13R4C13414 Construct for capping beams; 13R4C13414 Construct by the construct for capping beams; 13R4C13502 Soil Nailing Works Soil Nailing Works Soil Nailing Outside Excavation Area 13R4C13504 Mobilize & set up drilling & grouting plants 14R4C13504 Mobilize & set up drilling & grouting plants 14R4C13504 Mobilize & set up drilling & grout soil nails; 193 nos. + 8 Test N. Soil Nailing Within Excavation; Ch. 270-210 13R4C13502 Install & grout soil nails; 193 nos. + 8 Test N. Soil Nailing Within Excavation; Ch. 210-130 13R4C13512 Install & grout soil nails Soil Nailing Within Excavation; Ch. 210-130 13R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512 Install & grout soil nails; 261 nos. + 3 Test N. 10R4C13512	7 4 4 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18AUG08A 14JAN09A 04FEB09A 14APR09A 06MAY09A 06MAY09A 12SEP08A 12SEP08A 12SEP08A 12DEC08A 29JUL09 29JUL09 29JUL09 29JUL09	18AUG08A 21JAN09A 18AUG08A 14JAN09A 02MAR09A 14JAN09A 04FEB09A 02APR09A 14JAN09A 28FEB09A 18MAY09A 28FEB09A 14APR09A 04JUN09 14APR09A 06MAY09A 18JUN09 06MAY09A 12SEP08A 17SEP08A 12SEP08A 12SEP08A 17SEP08A 18SEP08A 12SEP08A 17SEP08A 12SEP08A 12DEC08A 11MAY09A 12DEC08A 12DEC08A 11MAY09A 12DEC08A 10OCT09 23OCT09 10OCT09 24OCT09 25FEB10 24OCT09	21JAN09A 02MAR09A 19MAY09A 04JUN09 18JUN09 17SEP08A 09DEC08A 06OCT09 11MAY09A 22SEP10	1 1 1 401 1 394 1 335 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
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Ch. 210-130 I nails Ch.130-0 I nails ation Immor soil nailing II nails; 261 no.s + 3 Test N. Suluded VC#043 San mix concrete al of lean mix concrete al of lean mix concrete cout manually, 50m @ 4m/day font @ 14m2/day or benching;1061 @ 45m3/day								
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Ch.130-0 In ails ation In ails, 261 no.s + 3 Test N. Inded VO#043 evising design ent to VO#043 ean mix concrete al of lean mix concrete cout manually, 50m @ 4m/day fonz @ 14m2/day ing removal of formwork or benching;1061 @ 45m3/day is 9 layers @ 1 day/layer		300CT09 100CT09 240CT09	22SEP10 30OCT09 23OCT09 10OCT09 25FEB10 24OCT09	22SEP10 23OCT09 25FEB10				
ation mr for soil nailing il nails, 261 no.s + 3 Test N, sluded VO#043 evising design tent to VO#043 ean mix concrete al of lean mix concrete al of lean mix concrete cout manually, 50m @ 4m/day fom 2 @ 14m2/day for benching:1061 @ 45m3/day or benching:1061 @ 45m3/day or benching:1061 @ 45m3/day or benching:1061 @ 45m3/day		300CT09 100CT09 240CT09	22SEP10 300CT09 230CT09 100CT09 25FEB10 24OCT09	22SEP10 23OCT09 25FEB10				
in ails, 261 no.s + 3 Test N, in ails, 261 no.s + 2 Test N, in ail			23OCT09 10OCT09 25FEB10 24OCT09	23OCT09 25FEB10	-			
In nails; 261 no.s + 3 Test N, In nails; 261 no.s + 3 Test N, Iluded Vo#643 evising design tent to VO#043 ean mix concrete al of lean mix concrete rees; VO #043 from @ 14m2/day ng removal of formwork or benching; 1061 @ 45m3/day is 9 layers @ 1 day/layer			23OCT09 10OCT09 25FEB10 24OCT09	230CT09 25FEB10	_4			
Il nails; 261 no.s + 3 Test N, Iluded Vo#043 evising design tent to VO#043 ean mix concrete al of lean mix concrete frees; VO #043 cout manually; 50m @ 4m/day from @ 14m2/day ing free or henching; 1061 @ 45m3/day		24OCT09	25FEB10 24OCT09	25FEB10				Ī
avising design tent to VO#043 san mix concrete al of lean mix concrete tees; VO #043 to tut manually, 50m @ 4m/day fom2 @ 14m2/day ng removal of formwork or benching; 1061 @ 45m3/day ; 39 layers @ 1 day/layer					1 235			
y Works for Works included VO#043 Receive VO for revising design Recieve amendment to VO#043 Procurement of lean mix concrete Testing & approval of lean mix concrete Testing out at site Excavate & muck out manually, 50m @ 4m/day Erect formwork, 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork Set up for conceing Pour concrete & removal of formwork Set up for conceing Pour concrete & removal of formwork Set up for conceing Pour concrete & removal of formwork Set up for conceing Pour concrete & removal of formwork Set up for conceing for servery of day/layer Ch. 270; VO# 043 Excavation for perceer good Ch. 370 to 310 Excavation for perceer good Ch. 370 to 310								
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Procurement of lean mix concrete Testing & approval of lean mix concrete Testing out at site Excavate & muck out manually, 50m @ 4m/day Erect formwork; 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching; 1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Excavation for percee road Ch 370 to 310	0		05MAY09A	05MAY09A	2	*		
to Protect Retained Trees; VO #043 Setting out at site Excavate & muck out manually; 50m @ 4m/day Erect formwork; 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching; 1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Excavation for percee read Ch 270 to 310	12 12	06MAY09A	14MAY09A 06MAY09A	14MAY09A				ī
to Protect Retained Trees; VO #043 Setting out at site Excavate & muck out manually, 50m @ 4m/day Erect formwork; 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching;1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Expansion for access tread Ch. 370 to 310	18 18	15MAY09A	06JUN09 15MAY09A	60ND(90	1 -156			
Setting out at site Excavate & muck out manually, 50m @ 4m/day Erect formwork; 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching; 1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Excavation for access road Ch 370 to 310								
Excavate & muck out manually, 50m @ 4m/day Erect formwork, 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching;1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Excavation for access road Ch 370 to 310	69 69	03FEB09A	28APR09A 03FEB09A	28APR09A	•	11		Ī
Erect formwork: 70m2 @ 14m2/day Set up for conreting Pour concrete & removal of formwork 370; VO# 043 Bulk excavation for benching:1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Excavation for access road Ch. 370 to 310					•			
Set up for connetting Pour concrete & removal of formwork 370; VC# 043 Bulk excavation for benching:1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Excavation for access road Ch. 370 to 310	5 5	04MAY09A	08MAY09A 04MAY09A		-			
370; VO# 043 Bulk excavation for benching;1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Excavation for access road Ch. 370 to 310	2 2				-			
370; VO# 043 Bulk excavation for benching;1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Excavation for access road Ch. 370 to 310	2 2	09MAY09A	11MAY09A 09MAY09A	11MAY09A	_			
Bulk excavation for benching;1061 @ 45m3/day Fill & compaction; 39 layers @ 1 day/layer Ch. 270; VO #043 Expansion for access road Ch. 370 to 310								
Ch. 270; VO #043 Evanuation for access road Ch. 370 to 310	12 12	29MAY09	11JUN09 29MAY09	11JUN09	1 -160			
Ch. 270; VO #043 Everyation for across road Ch. 370 to 340	39 39	12JUN09	28JUL09 12JUN09	28JUL09	1 -160			
Excavation for access road Ch 370 to 310								
Lycavalion of access load on one	4 4	29JUL09	01AUG09 29JUL09	01AUG09	1 -160	7/1/ 7/2/ 7/2/ 7/2/ 7/2/ 7/2/ 7/2/ 7/2/	201	
VO043-100 Bulk excavation for benching; Ch. 310 to 270	5	03AUG09	07AUG09 03AUG09	07AUG09	1 -160			
V0043-110 Fill & compaction lean mix concerete; 15 layers	15 15	08AUG09	25AUG09 08AUG09	25AUG09	1 -160			
Works On & Above Access Road; Ch. 460-270								
09R1Cl3610 Temporary concrete paving & curing	16 16	26AUG09	12SEP09 26AUG09	12SEP09	1 -139	10.00		

2013		250				N	- 1						V.SOY		- A		3.5		81		:0		8		30							33(2			.8		200				38	
2010 2011 2012	=10,513m3 @ 225m3/day							13								11			11	1)			3		•						150mm thick			•			58			-	**	=2 nos. pile/rig
								-11-	•	•																																
Total Float	321		-160	-160	-160			22			-79	55	-160	-160		17	17		17	17	17		-160	-157	-157	-157	-157		-160	-137	-125	-125		-160	-160	-160	-160		F	17	17	12
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WP3D Finish	10NOV09		29SEP09	09OCT09	21OCT09		11MAY09A	26NOV09			25JUN09	12NOV09	06OCT09	17MAY11		13JAN10	30JAN10		22SEP10	11NOV10	19NOV10		05AUG11	29AUG11	17SEP11	080CT11	05AUG11		28JUN11	13JUL11	27JUL11	10AUG11		14SEP11	27SEP11	120CT11	250CT11			17FEB10	24FEB10	03MAY10
WP3D Start	10NOV09 14SEP09		29JUL09	09OCT09 07OCT09	21OCT09 10OCT09		11MAY09A 12DEC08A	26NOV09 13NOV09	12MAY09A	16MAY09A	16MAY09A	9 220CT09	30SEP09	26APR11		13JAN10 30OCT09	30JAN10 14JAN10		22SEP10 06AUG10	24SEP10	19NOV10 12NOV10		1 29JUN11	_	30AUG11	19SEP11	05AUG11 09JUL11		18MAY11	29JUN11		1 28JUL11				1 28SEP11	1 130CT11	K		17FEB10 01FEB10	24FEB10 18FEB10	0 25FEB10
AD04 Finish	10NOV08		29SEP09	09OCT08	210CT08		11MAY09	26NOV0			25JUN09	12NOV09	06OCT09	17MAY11		13JAN10	30JAN10		22SEP1(11NOV10	19NOV1		05AUG11	29AUG11	17SEP11	080CT11	05AUG1		28JUN11	13JUL11	27JUL11	10AUG11		14SEP11	27SEP11	120CT11	250CT11	i		17FEB1	24FEB1	D3MAY10
AD04 Start	14SEP09		29JUL09	07OCT09	100CT09		12DEC08A	13NOV09	12MAY09A	16MAY09A	16MAY09A	22OCT09	30SEP09	26APR11		300CT09	14JAN10		06AUG10	24SEP10	12NOV10		29JUN11	06AUG11	30AUG11	19SEP11	09JUL11		18MAY11	29JUN11	14JUL11	28JUL11		06AUG11	15SEP11	28SEP11	130CT11			01FEB10	18FEB10	25FEB10
Do4 WP3D Dur Dur	47		54	m	10		48	12	0	0	34	18	4	18		62	15		41	40	7		32	20	16	16	24		35	12	12	12		33	1	11	÷			12	ဖ	53
Do4	47		75	က	10		48	12	0	0	34	18	4	18		62	15		4	40	7		32	20	16	16	24		35	12	12	12		33	=	F	F			12	ဖ	53
Activity Description	Excavation of slope batter above access road	. 210	Excavation & soil nailing	Backfill (grade 200) & compaction	Temporary concrete paving & curing	. 130	Excavation as per conforming design	Temporary concrete paving & curing	VO#084 revising the design received	Works resumed as per VO #084	Excavate slope profile as per VO#084	Remove excavated material off site; 6000m3	Soil nailing at Ch. 198 to 210	Excavate to access road formation	Ch. 130 to Ch. 0; up to +74.5mPD	Excavation & soil nailing	Temporary concrete paving & curing	Ch. 130 to Ch. 0; below +74.5mPD	Excavate & soil nailing (+74.5 to 88.5mPD)	Excavate rock (88.5 to 63mPD; 3239m3 @ 80m3/day	Backfill (grade 200) & compaction	Road Paving; Ch. 460 to Ch. 270	Construct drainage as per VO#090; 190m @ 5m/day	Road formation; 190m @ 12m/day	Lay sub-bse and kerb; 190m @ 12m/day	Concrete paving; 190m @ 12m/day	Green slope arrangement as per VO# 095	Drainage & Road Paving; Ch. 270 to Ch. 130	Construct drainage; 140m @ 4m/day	Backfill trench & road formation; 140m @ 12m/day	Lay sub-base and kerb; 140m @12m/day	Concrete paving; 140m @ 12m/day	Drainage & Road paving: Ch. 130 to Ch. 0	Construct drainage; 130m @ 4m/day	Backfill trench & road formation; 130m @ 12m/day	Lay sub-base & kerb; 130m @12m/day	Concrete paving; 130m @ 12m/day	H-Pile Retaining Wall for Wall B		Form piling platform for Wall B	Mobilize & set up piling rig	350mm dia. pre-bored H-piles, Wall B, 98 nos.
Q	09R1Cl3620	Ch. 270 to Ch. 210	09R1CI3624	09R1CI3626	09R1CI3628	Ch. 210 to Ch.	09R1CI3630	09R1CI3632	VO-084-02	VO-084-12	VO-084-22	VO-084-26	VO-084-32	VO-084-42	Ch. 130 to Ch.	09R1CI3634	09R1Cl3636	Ch. 130 to Ch.	09R1CI3638	09R1CI3640	09R1CI3642	Drainage & R		09R1CI3674	09R1CI3684	09R1CI3694	VO-095-02	Drainage & Ro	09R1CI3644	09R1CI3646	09R1CI3648	09R1CI3654	Drainage & Ro	09R1Cl3704	09R1Cl3714	09R1Cl3724	09R1CI3734	H-Pile Retail	Piling Works	13R4CI3701	13R4Cl3702	13R4Cl3704

13R4Cl3705 Der Skin Wall 13R4Cl3706 Exc 13R4Cl3710 Cor 13R4Cl3714 Cor 13R4Cl3714 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3806 Cor	Skin Wall 13R4Cl3705 Demobilize piling rig Skin Wall 13R4Cl3706 Excavate for skin wall; 48m3 13R4Cl3708 Hack off piles; piles 1 to 98 13R4Cl3710 Construct skin wall; 6 bays 13R4Cl3714 Construct for capping beams; 13R4Cl3714 Construct U-channels Channel Modification Works (Dry Season) River Diversion for Underground Works 09R1Cl3802 Form a temporay plant access to stream Break boulders	6 Dur	Dur Start 6 04MAY10	Finish 10MAY10 04	Start Finish MAY10 10MAY10	9 -	Float 17			
Skin Wall Der 13R4Cl3705 Exc 13R4Cl3706 Exc 13R4Cl3708 Hax 13R4Cl3712 Exc 13R4Cl3714 Co 13R4Cl3714 Co 13R4Cl3714 Co 13R4Cl3716 Co 13R4Cl3716 Co 09R1Cl3802 Fo 09R1Cl3806 Co 09R1Cl3808 Co 09R1Cl3808 Co 09R1Cl3808 Co	emobilize piling rig cavate for skin wall; 48m3 tok off piles; piles 1 to 98 nestruct skin wall; 6 bays cavate for capping beams; nnstruct U-channels ation Works (Dry Season) Underground Works mm a temporay plant access to stream eak boulders	o 6				-	17		•	
Skin Wall 13R4Cl3706 Exc 13R4Cl3708 Hac 13R4Cl3710 Cor 13R4Cl3712 Exc 13R4Cl3714 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor 13R4Cl3716 Cor OPRTCl3802 For 09R1Cl3808 Cor 09R1Cl3808 Cor 09R1Cl3808 Cor 09R1Cl3808 Cor	cavate for skin wall; 48m3 ccavate for skin wall; 48m3 anstruct skin wall; 6 bays ccavate for capping beams; anstruct U-channels ation Works (Dry Season) underground Works are a temporay plant access to stream eak boulders	18								
13R4Cl3706 Exc 13R4Cl3710 Cor 13R4Cl3712 Exc 13R4Cl3714 Cor 13R4Cl3714 Cor 13R4Cl3714 Cor 13R4Cl3714 Cor 09R1Cl3802 Cor 09R1Cl3804 Bre 09R1Cl3806 Cor 09R1Cl3808 Cor	ack off piles; piles 1 to 98 nortruct skin wall; 6 bays covate for capping beams; construct for capping beams; nortruct U-channels ation Works (Dry Season) Underground Works mm a temporay plant access to stream eak boulders	18								
13R4Cl3710 Cor 13R4Cl3712 Exc 13R4Cl3714 Cor 13R4Cl3714 Cor 13R4Cl3714 Cor Channel Modifica River Diversion for I 09R1Cl3804 Bre 09R1Cl3806 Co	ack off piles; piles 1 to 98 nnstruct skin wall; 6 bays cavate for capping beams; nnstruct U-channels ation Works (Dry Season) Underground Works mm a temporay plant access to stream eak boulders	1200	18 11MAY10	01JUN10 11MAY10	AY10 01JUN10	1	17		0	
13R4Cl3712 Exc 13R4Cl3714 Cor 13R4Cl3714 Cor 13R4Cl3714 Cor Channel Modifice River Diversion for 1 09R1Cl3802 For 09R1Cl3808 Cor 09R1Cl3808 Cor	nnstruct skin wall; 6 bays ccavate for capping beams; nnstruct for capping beams; nnstruct U-channels ation Works (Dry Season) Underground Works mm a temporay plant access to stream eak boulders	54	24 26MAY10	23JUN10	26MAY10 23JUN10	•	17			
13R4Cl3712 Ex 13R4Cl3714 Cor 13R4Cl3716 Cor Channel Modifica River Diversion for I 09R1Cl3802 For 09R1Cl3806 Cor 09R1Cl3808 Cor 09R1Cl3808 Cor 09R1Cl3808 Cor	ccavate for capping beams; onstruct for capping beams, onstruct U-channels ation Works (Dry Season) Underground Works orm a temporay plant access to stream eak boulders	24	24 09JUN10	08JUL10 09JUN10	JN10 08JUL10	-	17			
13R4C 3714 Cor 13R4C 3716 Cor Channel Modifica River Diversion for 1 09R1C 3802 For 09R1C 3804 Bre 09R1C 3806 Cor 09R1C 3808 Cor	onstruct for capping beams, onstruct U-channels ation Works (Dry Season) Underground Works orm a temporay plant access to stream eak boulders	12	12 02JUL10	15JUL10 02JUL10	JL10 15JUL10	,	17		•	
13R4C 3716 Cor Channel Modifica River Diversion for 1 09R1C 3802 For 09R1C 3804 Bre 09R1C 3806 Cor 09R1C 3808 Cor	ation Works (Dry Season) Underground Works orm a temporay plant access to stream eak boulders	80	18 09JUL10	29JUL10 09JUL10	JL10 29JUL10	-	17		•	
Channel Modifica River Diversion for L 09R1Cl3802 For 09R1Cl3804 Bre 09R1Cl3806 Co 09R1Cl3808 Co	ation Works (Dry Season) Underground Works orm a temporay plant access to stream eak boulders	8	18 16JUL10	05AUG10 16JUL10	JL10 05AUG10	1	17		232	
River Diversion for L 09R1Cl3802 For 09R1Cl3804 Bre 09R1Cl3806 Co 09R1Cl3808 Co 09R1Cl3808 Co	Underground Works orm a temporay plant access to stream eak boulders									
09R1Cl3802 For 09R1Cl3804 Bre 09R1Cl3806 Co 09R1Cl3808 Co	orm a temporay plant access to stream eak boulders									
	eak boulders	9	60 12DEC08A	A 04FEB09A 12DEC08A	EC08A 04FEB09A	1 A		U		
		32	32 05FEB09A	A 24FEB09A 05FEB09A	B09A 24FEB09A	۱.		**		
	Concrete bedding for bund wall (gabion)	Ε	11 25FEB09A	A 09MAR09A 25FEB09A	BOSA OSMAROSA	9A 1		E >		-700
	Construct bund wall (gabion)	22	22 10MAR09A	A 30APR09A 10MAR09A	AR09A 30APR09A	1 A(II		
	Divert channel to south west	0	0	30APR09A	30APR09A	1 Y		•		
Channel Modification Works	on Works						<			
09R1Cl3812 Bre	Breaking of large boulders	30	30 02NOV09*	1* 05DEC09 02NOV09*	OV09* 05DEC09	-	21		***	
09R1Cl3814 Exc	Excavation of the stream bed & make good	24	24 07DEC09	06JAN10	07DEC09 06JAN10	-	21		***	
09R1Cl3816 Lay	Laying of rock armour	24	24 07JAN10	03FEB10	07JAN10 03FEB10	+	21		10	
09R1Cl3818 Cor	Construct bund wall for approach channel const.	24	24 04FEB10	06MAR10 04FEB10	EB10 06MAR10	1	21		27.00	
09R1CI3820 Div	Divert channel to south west	0	0	06MAR10	06MAR10	-	21		•	
Excavation for A	Excavation for AVS/VS/DC/IMAS/IMAA	i								
Open Excavation for	Open Excavation for Underground Structures									
06L1Cl3906 Mo	Mobilize drilling rig, backhoes	-	1 300CT09	9 300CT09 300CT09	CT09 300CT09	-	-160			
06L1Cl3908 Exc	Excavate/mucking out/temporary support	200	200 31OCT09	07JUL10	31OCT09 07JUL10		-160		6000m3, 30m3/day = 200	y = 200
Excavation & Co.	Excavation & Construction of Main Adit									200
3CL1Cl3102 Exc	Excavation/mucking out/temporary support	4	40 08JUL10	23AUG10 08JUL10	JL10 23AUG10		-134		■10m, @0.3m/day	
3CL1Cl3104 Cor	Construction of permanent lining	24	24 24AUG10	0 20SEP10 24AUG10	JG10 20SEP10		-134			
Construction of I	Construction of Man Access Adit (MAA)									
							1			
	Cast invert; 1 bay	7		-		-	-160		•	
06L1Cl3114 Cas	Cast walls	12				-	-160			25
06L1Cl3116 Ca	Cast crown	12	12 09OCT10	230CT10	09OCT10 23OCT10	-	-160		-	
Construction of I	Construction of Man Access Shaft (MAS)					i		-11 -		
		2								
06L1Cl3122 Ca	Cast base	m		10JUL10	Ţ		-160			7
	Set up formworks	ဖ	6 12JUL10	17JUL10	12JUL10 17JUL10	-	-160		-	
	Construct wall/stair, 14 landings @ 6 days/land.	28	84 19JUL10	27OCT10		-	-160	(a)	days/ landing 22m & 14 landings	lings
06L1Cl3128 Col	Construct wall above ground level	ω	6 31MAR11	07APR11	31MAR11 07APR11	-	6			
06L1Cl3129 Cor	Construct shaft roof	12	12 08APR11	21APR11	08APR11 21APR11	-	6,			

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O)	Activity Description	D04 WP3D Dur Dur	WP3D Dur	AD04 Start	AD64 WP3D. Finish Start	D WP3D t Finish	•	Total 2008 Float	2009 2010 2011 2012 2013
Construction	Construction of Deaerarion Chamber (DC)								
06L1Cl3132	Construct base	თ	6	250CT10	03NOV10 25OCT10	10 03NOV10	-	-160	
06L1CI3134	Construct walls 2 lifts	12	12	04NOV10	17NOV10 04NOV10	17NOV10	-	-160	
06L1Cl3136	Const. crown/underpin of air vent & drop shafts	18	18	18NOV10	08DEC10 18NOV10	10 08DEC10	-	-160	1
Construction	Construction of Vortex Shaft (VS)								
06L1Cl3142	Set up formworks	9	ω	17DEC10	23DEC10 17DEC10	10 23DEC10	-	-160	
06L1Cl3144	Construction of drop shaft; 4m high	9	9	24DEC10			-	-160	@4m/4days
06L1CI3146	Construction of vortex structure	24	24	04JAN11	31JAN11 04JAN11		-	-160	
06L1Cl3148	Construct remaining of the vortex	18	18	31MAR11	21APR11 31MAR11	11 21APR11	1	-160	
Construction	Construction of Air Vent Shaft Shaft (AVS)	Ĭ	H						
06L1Cl3152	Set up formworks	9	φ	01FEB11	10FEB11 01FEB11	1 10FEB11	٦	-160	
06L1Cl3514	Cast 15m high circular wall	15	15	11FEB11	28FEB11 11FEB11	1 28FEB11	-	-160	_
06L1Cl3516	Construct upstand wall	12	12	01MAR11	14MAR11 01MAR11	11 14MAR11	-	-160	
Backfill Arou	Backfill Around Structure								
06L1Cl3162	Granular fill up to +54mPD; 623m3	7	7	09DEC10	16DEC10 09DEC10	16DEC10	-	-160	
06L1Cl3164	Granular fill above +54mPD; 1400m3	41	4	15MAR11	30MAR11 15MAR11	11 30MAR11	-	-160	
Construction							i.		
09R1Cl3172	Excavation for Approach Channel	9	9	01NOV10*	12JAN11 01NOV10*	10* 12JAN11	-	80	1
09R1CI3174	Construction of Approach Channel; upstream	82	82	20DEC10				80	1
09R1Cl3176	Construction of boulder trap; 7 nos.	24	24	01NOV11*	28NOV11 01NOV11*	11* 28NOV11	-	-165	
09R1Cl3177	Construction of Approach Channel; downstream	40	40	01NOV11	16DEC11 01NOV11	11 16DEC11	-	-165	10
09R1Cl3178	Construction of trash grill	12	12	17DEC11	04JAN12 17DEC11	11 04JAN12	-	-165	
09R1Cl3179	Removal of concrete bolck bund	9	9	05JAN12	11JAN12 05JAN12	2 11JAN12	-	-165	
Junction Be	Junction Between Main Tunnel & Adit Tunnel								
3CL1Cl3106	Temp. support & excavation breakthrough	48	48	19JUL11	12SEP11 19JUL11	1 12SEP11	-	-94	•
3CL1Cl3108	Construct collar between MT & AT	48	48	14SEP11	10NOV11 14SEP11	11 10NOV11	۳-	-94	
Remaining V	Works Prior to Handover to Client								
09R1CI3142	Finishing & reinstatement works; Portion C	36	36	10DEC11	28JAN12 10DEC11	11 28JAN12	۳	-155	
09R1CI3143	Pre-handover inspections and remedial works	30	30	28DEC11	04FEB12 28DEC11	11 04FEB12	τ.	-155	
09R1CI3144	Contractor serve notice for Works completion	7	7	05FEB12	11FEB12 05FEB12	2 11FEB12	7	299	
09R1Cl3146	SO issues completion certificate	21	21	12FEB12	03MAR12 12FEB12	2 03MAR12	2	299	
16R7CI3142	Landscaping works at Portion C	120	120	31AUG11	28JAN12 31AUG11		-	-117	
16R7CI3144	Establishment Works at Portion C	365	365	29JAN12	27JAN13 29JAN12	2 27JAN13	2	-148	
3DL1CI3141	Install flow measurement devices at Intake I-3	12	12	12JAN12	28JAN12 12JAN12	2 28JAN12	T	-165	
					Sheet 47 of 58				

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Page

		(Sheet 48 of 58			(
at II land 1-2		7	18DECU8A	18DECU8A		٥	0	13R 6; On completion of 30% piles by number	13R4Cl3S06
• at Intake I-3		2	13DEC08A	13DEC08A		0	0	13R 5; On completion of 20% piles by number	13R4Cl3S05
◆at Inake I-3		2	05DEC08A	05DEC08A		0	0	13R 4; On completion of 10% piles by number	13R4Cl3S04
◆at Intake I-3	1,195	7	22SEP10	22SEP10		0	0	13R 3; On completion of all soil naing works	13R4CI3S03
◆at Intake I-3	1,404	1	25FEB10	25FEB10		0	0	13R 2; On completion of 60% soil nailing	13R4Cl3S02
◆at intake I-3	1.553	2	29SEP09	29SEP09		0	0	13B 1. On completion of 30% soil nailing	13B4CI3S01
	Y	į				ì	Ĭ	Schedule of Milestones for Cost Centre No. 13R	Schedule of
◆under this Cost Centre	695	2	04FEB12	04FEB12		٥	0	9R 9; On completion of all works under this CC	09R1CI3R18
◆at Intake I-3	726	7	04JAN12	04JAN12		0	0	9R 8; On completion of trash grill	09R1CI3R16
Channel and associated decking at	1,005		31MAR11	31MAR11		٥	0	9R 7; On completion of approach channel	09R1CI3R14
◆channel at Intake I-3	1,042		22FEB11	22FEB11		0	0	9R 6; On completion of 50% of approach channel	09R1CI3R12
◆at G.L. at Intake I-3	1,083		12JAN11	12JAN11		0	٥	9R 5; On completion of excavation at G.L.	09R1CI3R10
◆at Intake I-3	1,447		13JAN10	13JAN10		0	0	9R 4; On completion of 75% of excavation at G.L.	09R1CI3R08
◆at Intake I-3	1,612		01AUG09	01AUG09		0	0	9R 3; On completion of 50% of excavation at G.L.	09R1CI3R06
◆at Intake I-3	1,663		11JUN09	11JUN09		0	0	9R 2; On completion of 25% of excavation at G.L.	09R1CI3R04
♦at Intake I-3	797		250CT11	250CT11		0	0	9R 1; On completion of access road	09R1CI3R02
						١.			Compone
								Schooling of Milastone for Cost Contro No 9R	Cabadalla
◆under this Cost Centre	984	2	21APR11	21APR11		0	0	6L 8; On completion of all works under this CC	06L1CI3M18
◆adit at Intake I-3	1,164		23OCT10	230CT10		0	0	6L 7; On completion of man access adit	06L1CI3M16
♦shaft at Intake I-3	984	2	21APR11	21APR11		0	0	6L 6; On completion of man access shaft	06L1CI3M14
◆at Intake I-3	1,022	2	14MAR11	14MAR11		0	0	6L 5: On completion of vent shaft	06L1CI3M12
◆chamber at Intake I-3	1,118	2	08DEC10	08DEC10		0	0	6L 4; On completion of de-aeration chamber	06L1CI3M10
◆at Intake I-3	984	7	21APR11	21APR11		0	0	6L 3; On completion of vortex shaft	06L1CI3M08
◆belowe G.L. escept for Adit Tunnel at Intake	1,272	2	07JUL10	07JUL10		0	0	6L 2; On completion of excavation works	06L1CI3M04
♦below G.L. except for Adit Tunnel at Intake I-3	1,403	2	26FEB10	26FEB10		0	0	6L 1; On completion of 50% of excavation	06L1CI3M02
		1			ł			Schedule of Milestones for Cost Centre No. 6L	Schedule of
◆under this Cost Centre	781	2	10NOV11	10NOV11		٥	0	3cL 10; On completion of all works under this CC	3CL1CI3A20
◆Adit Tunnel at Intake I-3	781	2	10NOV11	10NOV11	171.77	0	0	3cL 9; On completion of perm. tunnel lining	3CL1Cl3A18
♦ Adit Tunnel at Intake I-3	1,197	2	20SEP10	20SEP10		0	0	3cL 8; On completion of 87.5% perm. tunnel linin	3CL1CI3A16
◆Adit Tunnel at Intake I-3	1,209		08SEP10	08SEP10		0	0	3cL 7; On completion of 75% perm, tunnel lining	3CL1CI3A14
♦Adit Tunnel at Intake I-3	1,218	5	30AUG10	30AUG10		0	0	3cL 6; On completion of 62,5% perm. tunnel linin	3CL1Cl3A12
♦ Adit Tunnel at Intake I-3	1,228	2	20AUG10	20AUG10		0	0	3cL 5; On completion of 50% perm. tunnel lining	3CL1CI3A10
♦ Adit Tunnel at Intake I-3	1,237	5	11AUG10	11AUG10		0	0	3cL 4; On completion of 37.5 perm. tunnel lining	3CL1CI3A08
♦ Adit Tunnel at Intake I-3	1,246	2	02AUG10	02AUG10		0	0	3cL 3; On completion of 25% perm. tunnel lining	3CL1CI3A06
◆Adit Tunnel at Intake I-3	1,256	5	23JUL10	23JUL10		0	0	3cL 2; On completion of 12.5% perm. tunnel linin	3CL1Cl3A04
♦euipment for tunnelling at Intake I-3	1,265	5	14JUL10	14JUL10		0	0	3cL 1; On establishing tunnelling equipments	3CL1Cl3A02
						Н			
						K		Schedule of Milestones for Cost Centre No. 3cL	Schedule of
	-148	2	27JAN13	27JAN13 29JAN12	29JAN12	365	365	Maintain & monitor flow monitoring	3DL1Cl3143
	Float	100	Finish			Dur	Dur	Description)
2008 2010 2011 2012 2013	Total		WP3D			AD04 WP3D	ADD4	Activity	QI.

	Description	ano)	3	Cielly.								
13R4CI3S07	13R 7; On completion of 40% piles by number	0	0		23DEC08A	23DEC08A	2		♦at Inta	take I-3		
13R4Cl3S08	13R 8; On completion of 50% piles by number	0	0		02JAN09A	02JAN09A	2		♦at Inta	take I-3		
13R4CI3S09	13R 9; On completion of 60% piles by number	0	0		DOJANOSA	09JAN09A	2		◆at Ihta	ntake I-3		
13R4Cl3S10	13R 10; On completion of 70% piles by number	0	0		16JAN09A	16JAN09A	2		♦at mt	ntake I-3		
13R4Cl3S11	13R 11; On completion of 80% piles by number	0	0		21JAN09A	21JAN09A	2		♦at Int	ntake I-3		
13R4CI3S12	13R 12; On completion of 90% piles by number	0	0		17MAR10	17MAR10	2 1,	1,384		♦at Intake I-3		
13R4Cl3S13	13R 13; On completion of all piling works	0	0		03MAY10	03MAY10	2 1,	1,337		♦at Intake I-3		
13R4CI3S14	13R 14; On completion of boulder traps	0	0		28NOV11	28NOV11	2	763			traps at Intake I-3	m
13R4Cl3S15	13R 15; On completion of all work under this CC	0	0		28NOV11	28NOV11	2	763			under this Cost Centre	entre
nstruction	Construction of Outfall 0-1											
Preliminary Works	Vorks											
# 06: Trans	VO # 06: Transperant Hoarding at Outfall											
01R1D00106	Receive VO6 for transperant hoarding	0	o		16APR08A	16APR08A	-		•			
01R1D00108	Procurement for transperent hoarding	21	21	17APR08A	20MAY08A 17APR08A	ZOMAYOBA	-		11			
01R1D00110	Erect hoarding	18	8	21APR08A	02JUL08A 21APR08A	02JUL08A	_		n			
#16; Chain	VO #16; Chain Link Fence at 0-1											
V01602	Issue VO16 for chain link fence	0	0		02JUL08A	02JUL08A	-					
V01612	Preparation works for chain link fence	-	T	03JUL08A	18AUG08A 03JUL08A	18AUG08A	S.		(1			Ī
V01622	Erect chain link fence; 460m	38	38	19AUG08A	19SEP08A 19AUG08A	19SEP08A	· -		n			
Temporary CLP	P Power Supply for TBM Operation											
01R1DCLP02	Application/approval for temp. CLP Power Supply	200	200	07MAR08A	01AUG08A 07MAR08A	, 01AUG08A	2	fi				
01R1DCLP14	Appoint sub-contractor for design & build TX Rm	67	29	14JUL08A	07NOV08A 14JUL08A	07NOV08A	.		11		900	
01R1DCLP24	Design for transformer room	24	24	08NOV08A	11MAR09A 08NOV08A		-				98Å	Ī
01R1DCLP34	Constuct transformer room	9	9	12MAR09A			3 77		II.			
01R1DCLP44	CLP inspection & defect rectification	14	14	15MAY09A	10JUN09 15MAY09A	- 1	· 1	-181	4			
01R1DCLP54	CLP cabling to TX room & commissioning	32	32	11JUN09	18JUL09 11JUN09	18JUL09		-181				
01R1DCLP74	CLPE cabling from TX room to 24mPD platform	18	8	19SEP09	120CT09 19SEP09	120CT09	-	-165				
VO#25; Revised	ed Fencig Details at O-1 Next to GVT											
V025-02	Receive VO16 for revised details next to GVT	0	0		17SEP08A		7 0					Ī
V025-12	Preparation works	73	24	22JAN09A	07FEB09A 22JAN09A							
V025-22	Erect proposed transparent hoarding	4	4	09FEB09A	O2MAR09A 09FEB09A	02MAR09A		i	-follo	owing transplanting of T160/T293/T140	0/T293/T140	
V055-02	Receive VO#55 in lieu of VO#25	0	0		21JAN09A	21JAN09A			•			
01R1DO0102	Obtain TTA (ingress & egress) approval	0	0		18APR08A		7		•			Ī
01R1D00103	Implment TTA for diverting footpath	-	•	19APR08A	19APR08A 19APR08A		-					
01R1D00104	Obtain excavation permit	0	0		29MAY08A	-	2		•			
01R1D00112	Erect catch fencing	10		26MAY08A		- 1	-		0			
01R1D00114	Site establishment	30	30	21APR08A	15JUL08A 21APR08A	15JUL08A	-	מ	faci Re-align footpath,	tpath, erect hoarding/catchfence	chfence,	
01R1D00116	Site clearance	30	30	21APR08A			-		1			
01R1D00118	Install remote contorl CCTV as per ER 4.4.10	12	12	280CT08A	10NOV08A 28OCT08A	10NOV08A	÷	Ī	•			
0770007007	Transfer of motions over the	1		ASSABASA	ACCUMENT ACCUMENTATION ACCUMEN	ACALANDO	,		-			

2	10AUG08A 2 2 24DEC08A 1 1 8JUL08A 1 1 8JUL08A 1 1 25OCT08A 1 1 27OCT08A 1 1 27OCT08A 1 1 24DEC08A 1 1 24DEC08A 1 1 24DEC08A 1 1 2NOV08A 1 1 6DEC08A 1 1 2AUG09 1 -184 06JAN09A 1 1 6JAN09A 1 1 6JAN09A 1 1 7FEB0P0A 1 1 7FEB0P0A 1 1 7FEB0P0A 1 1 7FEB0P0A 1 1 7FEB0P0A 1 1 7FEB0P0A 1 1 7	2
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2006 2010 2011		11	1	I	I	soil 450m3/day & rock 185m3/day			•		-		•	-		1	•		•		•				•	•							11				_				130	18	
2008																																	7 11			0.70							10
Float	-219		-219	-219	-219	-219	-219	-219	-219		-212	-219	-219	-217		-181	-172	-172	-172	-172	-172	-181		-219	-219	-219		-181	-157	-157	-207		-159			-181	-181		-120			-195	-195
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WP3D	13AUG09	27MAY09A	17AUG09	24AUG09	04SEP09	. 08OCT09	16SEP09	21SEP09	05OCT09		28SEP09	22DEC09	22DEC09	29DEC09		20AUG09	*e0NUL90	20JUN09	20JUN09	08JUL09	08JUL09	20AUG09		22DEC09	31DEC09			29AUG09	10SEP09	11SEP09	24APR12		04AUG09	12SEP09	28OCT09	11NOV09	14NOV09		10AUG09	08OCT09	300CT09	24FEB10	27FEB10
WP3D	13AUG09 20APR09A	27MAY09A 21APR09A	11MAY09A	21MAY09A	12MAY09A	27MAY09A	16SEP09 05SEP09	02SEP09	22SEP09		18SEP09	22DEC09 09OCT09	22DEC09 09DEC09	29DEC09 23DEC09		60NUL80		90NUL80		22JUN09		20JUL09		22DEC09 16DEC09	31DEC09 16DEC09	02JAN10		29AUG09 21AUG09	10SEP09 08SEP09	11SEP09	24APR12 11APR12		04AUG09 18JUN09*	12SEP09 31AUG09	14SEP09	290CT09	14NOV09 12NOV09		10AUG09 22JUN09*	23SEP09		27JAN10	25FEB10
AD04 Fluish	13AUG09	27MAY09A	17AUG09	24AUG09	04SEP09	08OCT09	16SEP09	21SEP09 02SEP09	05OCT09 22SEP09		28SEP09	22DEC09	22DEC09	29DEC09		20AUG09 08JUN09	.60NN090	20JUN09	20JUN09	08JUL09	08JUL09	20AUG09		22DEC09	31DEC09			29AUG09	10SEP09	11SEP09	24APR12		04AUG09	12SEP09	28OCT09	11NOV09	14NOV09		10AUG09	08OCT09	300CT09	24FEB10	27FEB10
AD04 Start	20APR09A	21APR09A	11MAY09A	21MAY09A	12MAY09A	27MAY09A	05SEP09	02SEP09	22SEP09		18SEP09	09OCT09	09DEC09	23DEC09		60NUL80		08JUN09		22JUN09		2010109		16DEC09	16DEC09	02JAN10		21AUG09	08SEP09	11SEP09	11APR12		18JUN09*	31AUG09	14SEP09	290CT09	12NOV09		22JUN09*	23SEP09	09OCT09	27JAN10	25FEB10
DO4 WP3D Jur Dur	43	30	22	12	5	95	5	17	10		ത	63	12	4		63*	0	12	0	14	0	28		9	12	0		œ	က	-	12		40	12	38	12	m		42	12	18	22	m
00d	43	30	22	12	5	98	10	17	10		6	63	12	4		63*	0	12	0	14	0	28		9	12	0		œ	ო	<u>.</u>	12		40	12	36	12	ю		42	12	18	22	က
Activity Description	Excavation; 40 to 30mPD; soil 8291m3/rock 2778m3	Reinstate temp, access	Erect working platfrom for rows Q to U	Test nails for P6, P7, P8 & P11	Drill/install/grout Q1 to U10; 99 nos.	Excavation; 30 to 24mPD; soil 4197m3/rock 7592m3	Drill/install/grout V1 to X14; 37 nos.	Construct nail heads/remove platform; row V to X	Erosion mat, wire mesh & hydroseed; rows V to X	Chamber	Pipe pile roof support	Excavate/construct TBM launching chamber	Form launching chamber cradle	Ground treatment prior to TBM commence boring	TBM Access Road; +24 to +14mPD	+24 to +14mPD	Relocate sedimentation tank	Form access for big breaker	Mobilization of big breaker	Form new TBM access +14mPD to +24mPD	Divert access to new TBM access	Demolish masonry & ret. wall at +14mPD	urea at +24mPD	Construct temporary draiange	Concrete slab	Commence TBM initial assembly		Foundation	Erection	Test & commissioning	Removal of tower crane & reinstatement		Pre-fabrication	Foundation	Erect steel framework	Install platform	ICE certification		Pre-fabrication	Foundation	Erect steel framework	Cladding	ICE certification
0	10R1DO131	10R1DO132	10R1DO133	10R1DO134	10R1DO135	10R1DO136	10R1DO137	10R1DO138	10R1DO139	TBM Launching	10R1DO1305	10R1DO1310	10R1DO1315	10R1DO1325	Slope Cut & TBN		10R1DO240	10R1DO250	10R1DO260	10R1DO270	10R1D0280	10R1D0290	TBM Assembly Area at +24mPD	10R1DO185	10R1DO195	3AL1D00314	Tower Crane	3AL1DO2005	3AL1DO2010	3AL1DO2015	3AL1DO2025	TBM Platform	3AL1DO2505	3AL1D02515	3AL1D02525	3AL1D02535	3AL1D02545	Noise Enclosure	3AL1D03005	3AL1D03015	3AL1D03025	3AL1DO3035	3AL1D03045

Q	Activity	ADD4 WP3D	3D AD04	ADO4 WP3D Finish Start	WP3D	Cal Total	2006 2010 2011 2012	2013
3AL1FT0802	Apply to EPD for CNP for 24 hrs. tunnel work		<u>~</u>	27FEB10 11F	27FEB10			W.
3AL1FT0804	EPD process/approve CNP application	36	36 28FEB10	0 04APR10 28FEB10	04APR10	2 -237		Sale:
105 Ton Gantry	Crane							8.0
3AL1D03505	Manufacture	66	99 29MAY09	22SEP09	22SEP09	1 -159		202
3AL1D03515	Shipping to Hong Kong	9	6 23SEP09	29SEP09	29SEP09	1 -159		
3AL1DO3525	Assembly	œ	8 30SEP09	9 10OCT09 30SEP09	10OCT09	1 -159	3000	
3AL1D03535	Install rails	4	4 230CT09	9 28OCT09 23OCT09	28OCT09	1 -169		
3AL1D03545	Test & commission	က	3 29OCT09	9 31OCT09 29OCT09	31OCT09	1 -169		
3AL1DO3555	Receive initial segments and stock	ധ	6 02JAN10	0 08JAN10 02JAN10	08JAN10	1 -209		
Muck Hopper								-10"
3AL1DO4005	Pre-fabrication	75	75 22JUN09*	3* 17SEP09 22JUN09*	17SEP09	1 -83	1	33
3AL1D04015	Foundation	82	18 14SEP09	9 06OCT09 14SEP09	06OCT09	1 -97		
3AL1DO4025	Erect steelwork	18	18 12NOV09	9 02DEC09 12NOV09	02DEC09	1 -127	***	
3AL1DO4035	Erect hopper	18	18 03DEC09	9 23DEC09 03DEC09	23DEC09	1 -127		
3AL1D04045	Install transfer conveyor	4	4 24DEC09	9 30DEC09 24DEC09	30DEC09	1 -127		
3AL1DO4055	M&E works	9	6 31DEC09	9 07JAN10 31DEC09	07JAN10	1 -127		iss
3AL1DO4065	Test & commissioning	က	3 08JAN10	0 11JAN10 08JAN10	11JAN10	1 -127		
Marti Conveyor								
3AL1DO4505	Engineering	20	50 29MAY09	19 27JUL09 29MAY09	27JUL09	1 -105		
3AL1D04515	Pre-fabrication	9	60 28JUL09	9 07OCT09 28JUL09	07OCT09	1 -105	•	
3AL1DO4525	Delivery to Hong Kong	22	25 23SEP09	230CT09	23OCT09	1 -105		pois
3AL1D04535	Pre-assembly at Portion I	9	6 240CT09	9 31OCT09 24OCT09	31OCT09	1 -105		
3AL1D04545	Foundation	က	3 02JAN10	0 05JAN10 02JAN10	05JAN10	1 -155		
3AL1D04555	Install belt conveyor stage 1	24	24 06JAN10		02FEB10	1 -155		
3AL1D04565	Install transfer conveyor		1 03FEB10	0 03FEB10 03FEB10	03FEB10	1 -155		
3AL1DO4575	Install belt conveyor stage 2	9	6 27APR10		04MAY10	1 -218		351
3AL1DO4585	M&E works	2	2 05MAY10	0 06MAY10 05MAY10	06MAY10	1 -218		
3AL1DO4595	Test & commission	*	1 07MAY10	0 07MAY10 07MAY10	07MAY10	1 -218		
LV Station								80.
3AL1DO5005	Delivery & install containers 1/2/3	4		-9.5	16SEP09	1 -157		
3AL1DO5015	M&E works		12 17SEP09		30SEP09	1 -157		20
3AL1D05025	Test & commission	12	12 13OCT09	9 27OCT09 13OCT09	27OCT09	1 -165		83
Cooling Water System	System							323
3AL1D05505	Pre-fabrication	53	53 09JUL09		08SEP09	1 -129		
3AL1D05515	Foundation			19SEP09	19SEP09	1 -129		20%
3AL1D05525	Erect cooling system	12	12 21SEP09	9 06OCT09 21SEP09	06OCT09	1 -129	•	- 3
3AL1D05535	M&E works	4	4 07OCT09	100CT09 07OCT09	100CT09	1 -129		
3AL1D05545	Test & commission	2	2 12OCT09	13OCT09 12OCT09	13OCT09	1 -129		3/5
Grout System								535
3AL1DO6005	Pre-fabrication	06	90 22JUN09*	07OCT09	07OCT09	1 -134		
3AL1D06015	Erect system	9	6 16NOV09	21NOV09	21NOV09	1 -166		3-1
3AL1D06025	M&E works	e	3 23NOV09	25NOV09	25NOV09	1-166		533
3AL1DO6035	Test & commission		1 26NOV09	9 26NOV09 26NOV09	26NOV09	1 -166		

(II)	Activity Description	DO4 WP3D Our Dur	MP3D Dur	AD04 Start	AD04 Finish	WP3D Start	WP3D	0	Total 20	2006	2008	2010	2011	2012	2013
Pea Gravel Plant	nt													57	
3AL1D07505	Pre-fabrication	36	38	22JUN09	03AUG09 22.	22JUN09 (03AUG09	*-	-82		•				
3AL1D07515	Install hopper	4		06OCT09	09OCT09 06OCT09		09OCT09		-134				0		
3AL1D07525	Erect conveyor	2	2	100CT09	12OCT09 10OCT09		12OCT09		-134		~		A		
3AL1DO7535	M&E works	4		130CT09	16OCT09 13OCT09		16OCT09	-	-134						
3AL1D07545	Test & commission	2	2	170CT09	19OCT09 170		19OCT09		-134						
3AL1D07555	Install conveyor connecting to TBM	4	4	27APR10	30APR10 27/	27APR10	30APR10		-213		-			-8	
Ventilation System	tem														
3AL1DO8005	Pre-fabrication	72	72	29MAY09			21AUG09	-	41-		1			(CII)	
3AL1DO8015	Erect system	2	7	27APR10	28APR10 27	27APR10	28APR10	-	-213		-				
3AL1DO8025	M&E works	•	NT-	29APR10		29APR10	29APR10	-	-213					10.1	
3AL1D08035	Test & commission	5	*	30APR10	30APR10 30/	30APR10	30APR10	-	-213						
Micsellaneous															
3AL1DO8502	Install transformer & hormonic filter	2	8	27APR10	28APR10 27	27APR10	28APR10	- -	-218		-			28	
3AL1D08512	Remove invert segments; 19 nos.	2		27APR10	28APR10 27/	27APR10	28APR10	-	-218		-				
3AL1D08522	Make good slab	က	m	28APR10	30APR10 28/	28APR10	30APR10	-	-218		-				
3AL1D08532	Install rail switch	F	-	03MAY10	03MAY10 03N	03MAY10 (03MAY10	-	-214						
VO#49 & 53; A	VO # 49 & 53; Additional Drainage & Stairway														
VO-04910	Received Variation orders	0	0		26FEB09A		26FEB09A	·		*					
VO-04920	Preparation works for varied works	14	14 2	7FEB09A	14MAR09A 27FEB09A		14MAR09A	*-		N.W.					
VO-04930	Construct u-channel & stairway; +71mPD to +55mPD	09	1 09	16MAR09A	29MAY09 16N	16MAR09A	29MAY09	***	-179	*					
VO-04940	Construct u-channel & stairway;+55mPD to +47mPD	27	27	05JUN09	07JUL09 05JUN09		07JUL09	-	-184						
VO-04950	Construct u-channel & stairway; +47mPD to +41mPD	49	40	08JUL09	22AUG09 08JUL09		22AUG09	-	-184						
VO-04960	Construct u-channel & stairway; +41 to +24 mPD	09	09	060CT09	15DEC09 06OCT09		15DEC09	-	-219		1		//		
VO #88; Revise	VO #88; Revised Slope Profile with Add. Supports														
VO-088000	Received VO #088	0	Ō		27MAY09A	Lu.	27MAY09A			×					
VO-088005	Excavate from 38.5mPD to 36.5mPD	9	9	29MAY09	04JUN09 29F	29MAY09 (04JUN09	-	-218						
VO-088010	Procure and prepare materials	6	0	29MAY09	08JUN09 29N	29MAY09 (60NUL80		-219						
VO-088015	SOR confirm soil nails location	2	2	60NUL20	06JUN09 05.	05JUN09	60NDC90		-218				c.w.e		
VO-088020	Drill/install/grout soil nails; rows AA-AB	7	7	60NNC60	16JUN09 09JUN09		16JUN09		-219						
VO-088025	Install wire mesh & shorcrete 150mm	က	ĺλ	17JUN09	19JUN09 17JUN09		19JUN09	-	-219						
VO-088030	Excavate from +36.5 mPD to 34.5mPD	9	9	20JUN09	26JUN09 20.	20JUN09	26JUN09	-	-219		_		2-3		
VO-088035	SOR confirm soil nails location	2	2	27JUN09	29JUN09 27.		29JUN09	-	-219						
VO-088040	Drill/install/grout soil nails; rows AC-AD	7		30JUN09	08JUL09 30.	30JUN09	08JUL09	-	-219		_				
VO-088045	Install wire mesh & shorcrete 150mm	ന	ო	607NF60	11JUL09 09.	. 6070L60	11JUL09	-	-219		-		5.00		
VO-088050	Excavate from +34.5 mPD to 32.5mPD	9	9	13JUL09	18JUL09 13.	13JUL09	18JUL09	-	-219		_				
VO-088055	SOR confirm soil nails location	2	2	20JUL09	21JUL09 20.	20JUL09	21JUL09	-	-219						
VO-088060	Drill/install/grout soil nails; rows AE-AF		~	22JUL09	29JUL09 22.	22JUL09	29JUL09	-	-219		-				
VO-088065	Install wire mesh & shorcrete 150mm	က	m	307NL09	01AUG09 30.	3070109	01AUG09	-	-219					120	
VO-088070	Excavate from +34.5 mPD to 32.5mPD	9	9	03AUG09	08AUG09 03/	03AUG09 (08AUG09		-219		_				
VO-088075	SOR confirm soil nails location	2	2	10AUG09	11AUG09 10AUG09		11AUG09	-	-219		-				
VO-088080	Drill/install/grout soil nails; row AG	2	ιΩ	12AUG09	17AUG09 12/		17AUG09	-	-219						
VO-088085	Install wire mesh & shorcrete 150mm	ო	ო	18AUG09	20AUG09 18AUG09		20AUG09	-	-219		_			-0	
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Suspension of rock drilling & breaking	· ·	•	20JUN09*	20JUN09 20JUN09*		-	-219	
Erection of noise bearriers	ю	m	22JUN09	24JUN09 22JUN09	24JUN09	۳	-219	
Construct Spiral Ramp & Associ. Vehicular Access							H	
Install 273mm dia. temp. pipe piles; 40 nos.	12	12	08MAY10	22MAY10 08MAY10	3 22MAY10	-	-938Ms	-93 M starts operating day & nightl40 nos."13m long
Soil excavation & install wailing & tie backs	24	24	24MAY10	21JUN10 24MAY10	21JUN10	•	-93	432m3 soil#including temp. supports mesures
Rock excavation for spiral ramp; 4629m3	20	20	22JUN10	11SEP10 22JUN10	11SEP10		-63	4000m3 rock—including temp. supports mesures
Construct base of spiral ramp, Outfall O-1	12	12	13SEP10	27SEP10 13SEP10	27SEP10	-	-93	
Cast sprial ramp up to +6.73mPD	15	15	28SEP10	15OCT10 28SEP10	15OCT10		-93	
Cast sprial ramp up to +11.58mPD	15	15	18OCT10	03NOV10 18OCT10	03NOV10	۳	-93	
Cast sprial ramp up to +16.00mPD	15	15	04NOV10	20NOV10 04NOV10	3 20NOV10	-	-93	
Cast sprial ramp up to +20.00mPD	5	15	22NOV10	08DEC10 22NOV10	0 08DEC10	-	-93	
Cast sprial ramp up to +24.23mPD	5	15	09DEC10	28DEC10 09DEC10	3 28DEC10	-	6-	
Backfill spiral ramp; 1700m3	4	4	29DEC10	03JAN11 29DEC10	03JAN11		-93	@ 5m3/5minutes/480m3/day
Construct spiral ramp top; Outfall O-1	20	20	04JAN11	26JAN11 04JAN11	26JAN11	•	-93	1981
Construct vehicular access bet, tunnel & s. ramp	10	10	12JUL11	22JUL11 12JUL11	22JUL11	•	-5	
Commission of Spiral Ramp	9	9	27JAN11	02FEB11 27JAN11	02FEB11		-93	
Install 40 nos. roof piles # 375mm c/c	24	24	110CT10	08NOV10 02NOV10	0 29NOV10		-128	1
Excavation for vehicular access underneath CPR	2	20	09NOV10	01FEB11 30NOV10		-		sheet pile roofing & lagging ~180m2=soil 450m3 + rock 50m3
Construct base for vehicular access	12	12	02FEB11		11MAR11	÷	-128	
Construct wall & roof for vehicular access	24	24	19FEB11	18MAR11 12MAR11	1 09APR11	<u>.</u>	-128	:4:
Box Culvert/Open Channel By Mining							1	
Site possession of Portion E-650d of DOC	0	0	080CT09	080CT09		5	453	•
Divert exist. outfall "W" under CPR arch bridge	36	36	60AON60			-	-395	
Remove rock armour & form platform @+2.3mPD	36	36	21DEC09	03FEB10 14JAN10		-	-395	=9 40m3
Install temp, pile for pipe roofing	96	96	04FEB10	05JUN10 01MAR10	0 28JUN10	-	-395	cells; 210 nos.
Excavate for box-culvert, 2 cells	44	44	07JUN10	29JUL10 29JUN10	19AUG10	•	-395	-soil 2900m3
Construct base slabs of box culvert; 2 cells	20	20	30JUL10	21AUG10 20AUG10	0 11SEP10	•	-395	Concete 160m3
Construt wall & roof of box culvert; 2 cells	40	40	23AUG10	09OCT10 13SEP10	01NOV10	÷	-395	Foncete 390m3
Excavate for box-culvert, 2 cells	44	44	110CT10	01DEC10 02NOV10	0 22DEC10	-	-395	Soil 2900m3
Construct base slabs of box culivert; 2 cells	20	20	02DEC10	24DEC10 23DEC10	18JAN11	•	-395	Concete 160m3
Construt wall & roof of box culvert; 2 cells	40	40	28DEC10	16FEB11 19JAN11	09MAR11	-	-395	Econcrete 390m3
Excavate for open channel	24	54	17FEB11	16MAR11 10MAR11	1 07APR11	-	-395	•
Construct open channel at 2.3 mPD	24	24	17MAR11	14APR11 08APR11	1 09MAY11	-	-395	
Reinstate existing outfall "W"	9	9	08APR11	14APR11 03MAY11	1 09MAY11	-	-395	
Construct Portal Head & Associated Strutures							Ì	
Excavate tapered open channel/ upper cascade	24	24	12JUL11				-219	•
Chococo roughly bearing harden		1000	the table of or a to be desired	The state of the s	· · · · ·	*		

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						×								- 1																	-				Ū=		Town						
Float	200	285-	-395	-395	-395	-395	-395	-395	-395	-395	-395	-250	-250	-345	-251	-251	-251	-251	-395	-395	-395	-287	-287	-395	-395	-395	-287	-250	-244	-250	-244	-250	-250	-287	-395	1	-395	-395	0	0	-369	-455	-219
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Finish	04 A LO 4 4	U4AUG11	18AUG11	29AUG11	02SEP11	09SEP11	100CT11	240CT11	10NOV11	15NOV11	22NOV11	08DEC11	03JAN12	24SEP11	110CT11	09DEC11	28JAN12	09FEB12	20DEC11	07JAN12	27FEB12	13APR12	25APR12	02MAY12	11DEC12	27DEC12	25MAY12	17JAN12	03FEB12	03FEB12	17FEB12	24FEB12	16MAR12	22JUN12	27DEC12		11JAN13	18JAN13	25JAN13	15FEB13	11JAN13	11JAN14	17APR12
MP3D	00 II IN14.4	Zaudnii	16SEP11 05AUG11	12AUG11	30AUG11	03SEP11	10SEP11	110CT11	250CT11	20DEC11 11NOV11	16NOV11	23NOV11	09DEC11	10SEP11	26SEP11	120CT11	10DEC11	30JAN12	23NOV11	21DEC11	09JAN12	28FEB12	14APR12	28FEB12	13MAR12	27MAR12	26APR12	04JAN12	09MAR12 18JAN12		04FEB12	04FEB12	25FEB12	26MAY12		į	28NOV12	12DEC12	19JAN13	26JAN13	18AUG12	12JAN13	30MAR12
AD04	PEALICA	25AUG11	16SEP11	060CT11	110CT11	180CT11	14NOV11	28NOV11	15DEC11	20DEC11	30DEC11	17JAN12	10FEB12	290CT11	12NOV11	16JAN12	01MAR12	13MAR12	11JAN12	28JAN12	13MAR12	30APR12	12MAY12	30MAR12	02NOV12	16NOV12	09JUN12	24FEB12	09MAR12	09MAR12	23MAR12	30MAR12	25APR12	10JUL12	16NOV12		30NOV12	07DEC12	14DEC12	04JAN13	30NOV12	30NOV13	17APR12
ADB4	SIBIR 07 II INI44	27JUN11	26AUG11	17SEP11	07OCT11	120CT11	190CT11	15NOV11	29NOV11	16DEC11	21DEC11	02JAN12	18JAN12	190CT11	310CT11	14NOV11	17JAN12	02MAR12	02JAN12	12JAN12	30JAN12	14MAR12	02MAY12	14MAR12	31MAR12	19APR12	14MAY12	11FEB12	25FEB12	25FEB12	10MAR12	10MAR12	31MAR12	11JUN12		į	190CT12	03NOV12	08DEC12	15DEC12	11JUL12	01DEC12	30MAR12
MP3D		36	12	15	4	9	23	12	15	4	9	14	60	12	12	51	36	9	24	12	4	36	9	20	224	224	24	12	12	12	12	18	13	24	0	3	36	30	2	27	120	365	12
AD04 WP3D	unc :	25	18	15	4	9	23	12	15	4	9	44	80	9	12	51	36	9	o	12	38	36	9	15	175	175	24	12	12	12	12	13	18	24	0		36	30	7	21	120	365	12
Activity	Description	Dredge in rock armour to -3.75mPD	Place grade 400 rockfill & levelling layer	Form seawall type 2(W)	Construct detail Y	Construct mass concrete	Form seawall type 1	Construct mass concrete	Form seawall type 2 (E)	Construct detail X	Construct mass concrete	Construct coping	Place infill blocks M1 & M4	Dredge in sea bed to -3.75mPD for seawall (W)	Place grade 400 rockfill & levelling layer	Form seawall type 5, 2B, 4 & 1A (W)	Backfill sea walls west & north (half)	Place type 2 armour	Dredge in sea bed to -3.75mPD for seawall (E)	Place grade 400 rockfill & levelling layer	Form seawall type 6, 3 & 2A (E)	Backfill sea walls east & north (half)	Place type 2 armour	Dredge in sea bed for stepped blocks	Place levelling layer	Place stepped blocks	Place type 2 armour to reinstate exist. seawall	Form ground beam (W)	Form ground beam (E)	Form invert slab (W)	Form invert slab (E)	Form end wall (W)	Form end wall (E)	Reinstate rock armour	Complete basin	Remaining Works Prior to Handover	Finishing & reinstatement works; Portion D	Pre-handover inspections and remedial works	Contractor serve notice for Works completion	SO issues completion certificate	Landscaping works at Portion D	Establishment Works at Portion D	Install flow measurement devices at Outfall O-1
Q		VO61-055	VO61-060	VO61-065	VO61-070	VO61-075	VO61-080	VO61-085	VO61-090	VO61-095	VO61-100	VO61-105	VO61-110	VO61-115	VO61-120	V061-125	V061-130	V061-135	VO61-140	V061-145	VO61-150	VO61-155	VO61-160	VO61-165	VO61-170	VO61-175	VO61-180	VO61-185	VO61-190	VO61-195	VO61-200	VO61-205	VO61-210	V061-215	VO61-220	Remaining V	10R1D00904	10R1D00906	10R1D00908	10R1D00910	16R7D00902	16R7D00904	3DL1D00902

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2006 2006 2000 2004				◆Dutfil O-1	♦Outfall O-1	◆Outfall O-1	♦Outfall 0-1	◆at Outfall O-1	♦at Outfall O-1	◆at Ouffall O-1	♦at Ouffall 0-1	and open channel underneath CPR❖	protection works at Outfall O-1	under this Cost Centre			-Outrali O-I	◆humber at Outfall O-1	♦ hailing at Outfall 0-1	◆under this Cost Centre				•	•	•		•				•					■45m, @ 1,3m/day	w.a	(1)	≣35m, @ 1,3m/day
Total 2	-219	0			1,600	1,544	1,206	069	629	1,136	1,062	713	409	388			מ		1,566	919				181	0	0	165	0	0	0		209	165	165	165	165	165	165	165	165
	<u>ب</u>	7		2	2 1,6	2 1,5	2 1,	2	2	2 1,	2 1,0	2		2		-	+	7		2			l	-	2	2	·	7	-	-	Ą	-	-	·	·	-	<u>-</u>	-	·	+
WP3D Finish	10MAY12	10MAY13		09APR09A	13AUG09	080CT09	11SEP10	09FEB12	10APR12	20NOV10	02FEB11	03JAN12	27DEC12	18JAN13	į	77141100	LLNDrzz	07APR09A	16SEP09	22JUN11				24NOV09	25NOV09		02JAN10	25NOV09	09DEC09	29DEC12		17OCT09	12DEC09	03MAY10	06MAY10	18JUN10	30JUL10	22JUN10	24JUL10	25AUG10
WP3D Start	2 02APR12	10MAY13 11MAY12		٥		6			-	0			01	21	1			A								26NOV09	26NOV09	6	26NOV09	10DEC09	Ì		12DEC09 10DEC09	14DEC09	06MAY10 04MAY10	07MAY10	19JUN10	19JUN10	23JUN10	26JUL10
AD04 Finish	10MAY12	10MAY13		09APR09A	13AUG09	080CT09	11SEP10	09FEB12	10APR12	20NOV10	02FEB11	17JAN12	16NOV12	07DEC12	ł	70	LINOCCZ	07APR09A	16SEP09	25JUN11		100		24NOV09	25NOV09		02JAN10	25NOV09	09DEC09	29DEC12	I	17OCT09	12DEC09	03MAY10	06MAY10	18JUN10	30JUL10	22JUN10	24JUL10	25AUG10
AD04 Start	02APR12	11MAY12	i												i											26NOV09	26NOV09		26NOV09	10DEC09	į		10DEC09	14DEC09	04MAY10	07MAY10	19JUN10	19JUN10	23JUN10	26JUL10
Dur Dur	28	365		0	0	0	0	0	0	0	0	0	0	0		C	5	ō	Ö	0				0	0	0	30	0	12	904		0	က	110	ო	35	35	က	27	27
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Activity Description	T & C for flow measurement system	Maintain & monitor flow monitoring	Schedule of Milestones for Cost Centre No. 10R	10R 1; On completion of 20% excavation works	10R 2; On completion of 40% excavation works	10R 3; On completion of 60% excavation works	10R 4; On completion of 80% excavation works	10R 5; On completion all excavation works	10R 6; On completion of cascade structure	10R 7; On completion of spiral ramp to +16mPD	10R 8; On completion of spiral access ramp	10R 9; On completion box-culvert & open channel	10R 10; On completion of seabed protection wks	10R 11; On completion of all works under this CC	Schedule of Milestones for Cost Centre No. 14R		14R I, On complet, or remove exist, rock armour	14R 2; On complet, of 50% soil nailing by number	14R 3; On completion all soiling works	14R 4; On completion of all works under this CC	Drainage Improvement Works at Portion G	Works		SO consent Drainage Impact Assessment Report.	Obtain TTA (ingress & egress) approval	Possession of Portion G -700d of DOC	Site clearance/Site Establishment	Obtain approval for Geotechnical Instrumentation	Installation of Geotechnical Instrumentation	Monitor/report Geotechnical Instrumentation		Obtain SO's consent for temp, works design	Mibilization & set up for temp. platform	Construct steel working platform for H-piling	Mibilization & set up for H-piling; Wall 1	52 nos. 600mm dia. H-piles; Wall 1 @1.5 nr/day	Excavate & construct skin wall 1 at Portion G	Mibilization & set up for H-piling; Wall 2	40 nos. 600mm dia. H-piles; Wall 2 @1.5 nr/day	Excavate & construct skin wall 2 at Portion G
Q	3DL1D00903	3DL1D00904	Schedule of	10R1DO1002	10R1DO1004	10R1DO1006	10R1DO1008	10R1DO1010	10R1DO1012	10R1DO1014	10R1DO1016	10R1DO1018	10R1DO1020	10R1DO1022	Schedule of	7	14K3DO110Z	14R5DO1104	14R5DO1106	14R5DO1108	Drainage Im	Preliminary Works		01R6GG0102	01R6GG0112	01R6GG0114	01R6GG0116	3DL6GG0104	3DL6GG0106	3DL6GG0108	Piling Works	15R6GG0200	15R6GG0202	15R6GG0204	15R6GG0206	15R6GG0208	15R6GG0210	15R6GG0212	15R6GG0214	15R6GG0216

QI	Activity Description	AD04 WP3D Dur Dur	WP3D Dur	AD04 Start	AD04 Finish	WP3D	WP3D Finish	<u> </u>	Total Float	2000					2
Drainage Im	Drainage Improvement Works														301
															22
15R6GG0301	Obtain approval of ELS design package incl MS	0	0		02NOV09		02NOV09	7	284		•	as per ER.E	328.08, 4 we	seks prior to w	as per ER.B28.08, 4 weeks prior to work commence
15R6GG0302	Install ELS & construct shaft for pipe jacking	8	06	04JAN10	26APR10 04JAN10	4JAN10	26APR10		180			I			
15R6GG0304	Construct 1.5m dia. drainage by pipe jacking	85	85	27APR10	07AUG10 27APR10	7APR10	07AUG10	*	180			85	==85m, @1m/day		588
15R6GG0306	Construct 1.5m dia. drainage by open trenching	24	24 (01NOV10*	27NOV10 01NOV10*	1NOV10*	27NOV10	-	111				72m, @3m/day	/day	9.53
15R6GG0308	Construct .75m & 1.5m U and Stepped Channel	12	12	29NOV10	11DEC10 29NOV10	9NOV10	11DEC10	•	111				\$56m, @5m/day	ı/day	
15R6GG0310	Construct 3 nos. manhole & 2 nos. catchpit	35	35	13DEC10	25JAN11 13DEC10	3DEC10	25JAN11	-	111				@1nr/week	*	339
Remaining V	Remaining Works Prior to Handover to Client														200
												-!-			763
15R6GG0312	Reinstate carnageway & footway	24	24	26JAN11	25FEB11 26JAN11	5JAN11	25FEB11	77	11		EII-)		■72m, @3m/day	3m/day	
15R6GG0402	Pre-handover inspections and remedial works	42	12	26FEB11	11MAR11 26FEB11	SFEB11	11MAR11		111				fincludin	fincluding CCTV inspection	ction
15R6GG0404	Contractor serve notice for Works completion	7	1	12MAR11	18MAR11 12MAR11	2MAR11	18MAR11	2	266		1711				2,8
15R6GG0408	SO issues completion certificate	21	21	19MAR11	08APR11 19MAR11	9MAR11	08APR11	2	266						
Schedule of	Schedule of Milestones for Cost Centre No. 15R														770
		c	c		0640040		26 A D D 4 O	c	1 244			Onnior	orommon of	Portion to commence one jacking at Portion 6	at Portion G
15K6GGU5UZ	15K 1, On completion of all terrip, works	0	0		מועו עסק		2011	i.	5						
15R6GG0504	15R 2; On completion of 25% of pipejacking	0	0		06MAY10		06MAY10	2	1,334			• bibe	jacking met	 pipe jacking method at Portion G 	o_
15R6GG0506	15R 3; On completion of 50% of pipejacking	0	0		14MAY10		14MAY10	7	1,326			♦ pipe	jacking met	pipe jacking method at Portion G	9
15R6GG0508	15R 4; On completion of 75% of pipejacking	0	0		25MAY10		25MAY10	7	1,315			♦ pipe	jacking me	pipe jacking method at Portion G	g
15R6GG0510	15R 5; On completion of all pipejacking	0	0		07AUG10		07AUG10	2	1,241			o o	pe jacking n	pipe jacking method at Portion G	on G
15R6GG0512	15R 6; On completion of all wks under this CC	0	0		11MAR11		11MAR11	2	1,025				♦ nuder	under this Cost Centre	e e



Appendix D

Implementation Status of Environmental Mitigation Measures

IMPLEMENTATION SCHEDULE May 2010

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
Air Q	<u>uality</u>				
3.6.1	Specific As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	✓
	levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact. The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust)</i>				
	Regulation, 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 Air Pollution Control (Construction Dust) Regulation, the dust level is expected to be reduced by over 75%.				✓
	General				
	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&A Manual.				
	• 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;				N/A
	• dump truck for material transport should be totally enclosed by impervious sheeting;				✓
	 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; 				✓
	stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones;				✓
	 dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; 				✓

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Appendix D

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	 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; 	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	✓
	 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; 				✓
	 every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet; 				✓
	 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; 				✓
	 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; 	_			✓
	all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;				✓
	vehicle speed should be limited to 10 kph except on completed access roads;				✓
	 every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites; 				✓
	 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 				✓
27.4	• 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.				✓
Noise 4.6.1	During Construction	DSD's Contractor	Construction Work	PN 2/93 Noise from Construction Activities &	
	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		Sites	EIAO	✓
	Good Site Practice 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:				
	 only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works; 				✓
	 machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; 				✓

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Appendix D

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	• plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;	DSD's Contractor	Construction Work	PN 2/93 Noise from Construction Activities &	✓
	mobile plant should be sited as far away from NSRs as possible; and		Sites	EIAO	✓
	• material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.				✓
	 For Drill and Blast Works Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay. 				N/A
	Smaller blasthole patterns and longer delays should be used between dependent charges.				N/A
	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). For TBM Tunnelling	-			N/A
	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.				N/A
4.6.2	During Operation 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	DSD's Contractor	Project Area	NCO & EIAO	
	only well-maintained plant should be operated on-site;	1			N/A
	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				N/A
	• plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.				N/A
	Quality	_			
5.9.1	During Construction Mitigation measures and a spill control and response plan have been prepared for works at	DSD's Contractor	Construction Work Sites	Practice Note for Professional Persons with regard to site drainage	✓
	the intakes and work sites.			(ProPECC PN 1/94) and	
	Precautions to be taken at any time of year when rainstorms are likely:			WQO	✓
	Temporarily exposed surfaces should be covered e.g. by tarpaulin. Temporary access roads should be protected by crushed stone or gravel.	-			√
	Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.	_			↓
	Actions to be taken when a rainstorm is imminent or forecast: • Silt removal facilities, should be checked to ensure that they can function properly.				✓

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	Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric.	DSD's Contractor	Construction Work Sites	WQO	✓
	All temporary covers to slopes and stockpiles should be secured.				✓
	Actions to be taken during or after rainstorms: • Silt removal facilities should be checked and maintained to ensure satisfactory working conditions.				✓
Ī	Spill Control and Response Plan				
l	1 Prevention and Precaution Measures	1			
	General PrecautionsNo discharge of silty water into watercourses.				✓
	• All materials to be used during construction and operation shall be identified and their hazard potential evaluated.				✓
	 Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken with the areas appropriately equipped to control these discharges. 				✓
	 Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials. 				✓
ſ	 Any construction plant which causes pollution to catchwaters or water gathering ground due to leakage of oil or fuel shall be removed off-site immediately. 				✓
Ī	 Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport 	-			✓
Ī	Chemical waste containers shall be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents.	-			✓
Ī	Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area.	-			✓
	Prevent obstructions and tripping hazards.				\checkmark
Ī	Storage Precautions • All chemical storage containers shall be correctly labelled.]			✓
-	Solid and impermeable enclosure walls or storage shelves shall be used.	-			✓
_	Only compatible chemical wastes shall be stored in the same storage area.	-			✓
	 The storage areas shall be inspected to detect any leakages or defective containers on a regular basis. 	4			✓
	 Suitable notices warning of hazards, emergency response plans, telephone numbers etc shall be posted around the site, including storage areas. 	1			✓
Ī	Large and heavy containers shall be stored at ground level.	1			✓

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EIA Ref.	Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	What requirements or standards for the measure to achieve?	Status
	Chemical waste containers shall be stored below eye level.				✓
5.9.1	Adequate space for handling of the containers shall be provided	DSD's	Construction	WQO	✓
	Spill response kits shall be located adjacent/near to the storage areas.	Contractor	Work Sites		✓
	A log of chemical wastes shall be maintained.				✓
	Incompatible chemicals shall be stored separately.				✓
	2 Responses/Action Plan				
	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:				✓
	• Only trained personnel who are equipped with protective clothing and equipment shall be allowed to enter the spillage area for clean up.				✓
	• Spills shall be transferred appropriate back into containers using suitable equipment.				✓
	 Absorbent materials shall be used to clean up the spills and shall be disposed of as chemical wastes. 				✓
	 Where appropriate suitable solvents may be used to clean the contaminated area after removal of all contaminated materials. 				✓
	 All necessary protective devices, safety equipment, containers and clean up materials for emergency use shall be maintained to a high standard. 				✓
	3 Spill Clean Up and Disposal				
	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.				✓
	Safety equipment includes but is not limited to: • Fire extinguishers.				✓
	• Spades, brushes, dustpan, mop and bucket (or similar readily available on site).				✓
	 Absorbent material such as dry sand, tissues and toweling (all materials readily available on-site). 				✓
	Containers including plaster bags, drums, etc.				✓
	Absorbing materials.	1			✓
	• Pumps.	1			✓
	Personal protective equipment includes as appropriate: • First-aid kits.	1			✓
	Safety helmet and goggles.	1			✓
	Gloves which can resist chemical reaction.	1			✓

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve?	Status
	Protective boot and clothing.	DSD's	Construction	WQO	✓
5.9.1	Respirators and gas masks.	Contractor	Work Sites		✓
	Face visor and masks.				✓
5.9.2	Emergency Responses to Spillages				
	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.				
	The emergency plans should include the procedures for:				✓
	• spill prevention and precaution;				,
	response actions; and				√
	spill clean up and disposal.				✓
	Spill prevention and precaution embraces good site practice and covers: • good housekeeping practices;				✓
	chemical storage requirements; and				✓
	chemical transfer and transport.				✓
5.9.3	During Operation	DSD's Contractor	Project Area		
	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.				N/A
	Management		T		
6.5.1	During Construction Vegetation Removed from Site Clearance 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.	DSD's Contractor	Construction Work Sites	Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Wastes) (General) Regulation (Cap 354) and ETWBTC No.	✓
	Construction and Demolition Materials The Contractor should reuse any C&D material on-site. C&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.			15/2003, Waste anagement on Construction Site	√

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	project is suitable for public fill. The public fill reception facility at Tuen Mun Area 38		Construction Work Sites	WDO (Cap.354), ETWBTC No. 15/2003, ETWBTC No.	
	provides a suitable facility for the reuse of surplus inert C&D material generated from the project.			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.				\checkmark
	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	√
	Excavated Materials 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. Municipal Waste	DSD's Contractor	Construction Work Sites	WDO (Cap.354) and ETWBTC No. 15/2003	√
	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	Waste Management Plan 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
Ecology					
7.7.1	Avoidance 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. 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	DSD's Contractor	Construction Work Sites	EIAO	√ √
7.7.2	runoff. Minimisation 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.				
	Measures for Construction Runoff 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.				✓
	Good Construction Practice	-			✓
	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.	DSD's Contractor	Construction Work Sites	EIAO	✓
	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the remaining and surrounding natural stream habitats.				✓
	Regularly check the work site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas. Prohibit and prevent open fires within the site boundary during construction and provide				✓
	temporary fire fighting equipment in the work areas. Treat any damage that may have occurred to individual major trees in the adjacent area with				√
	surgery.				✓

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,	DSD's Contractor	Construction Work Sites	EIAO	
	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				V
	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				
7.7.3	Compensation				
	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				N/A
	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.	_			
	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				N/A
	aquatic fauna, and while it will be developed during detailed design may draw on concepts				
	shown in Figure 2.18.				
	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				N/A
	order to allow natural colonisation of aquatic fauna.				
	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-				N/A
	3 and 0.5 ha of compensatory tree planting over the cascade (by constructing intermediate				1 1// 1
	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.				
	Provide armour rocks for the affected intertidal habitat in order to allow natural colonisation				N/A
	of intertidal organisms.				11/71

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
Cultural	Heritage				
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	√
	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	√
Fisherie		1	•		
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
Remarks	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 Not applicable x

N/A



Appendix E

Status of License and Permit







Updated Status of Environmental Permit & Licence

Application Date	Environmental Permit / Licence	Issued Date	Ref No.	Account No.	Permit / Licence No.	Permit / Licence Validity Date	Remarks
2 Jan 2008	Registration as a Waste Producer	3 Jan 2008	001026707				Contractor had received the acknowledge receipt on 3 Jan 2008.
2 Jan 2008	Waste Disposal (Chemical Waste) (General) - Chemical Waste Producer	26 Feb 2008		5111-324-M2703-01			
2 Jan 2008	Waste Disposal (Charges for Disposal of Construction Waste) Regulation - Billing Account	17 Jan 2008		7006574			
10 Jan 2008	Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation	10 Jan 2008	001026901				Contractor had received the acknowledge receipt on 10 Jan 2008.
25 Feb 2008	Water Pollution Control Ordinance – Outfall O-1	7 Aug 2008	001028154		EP760/323/012997I	7 Aug 2008 - 31 Aug 2013	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	Notification of Change in the Registration of Chemical Waste Producer	29 Apr 2008		5111-324-M2703-01			MCSJV's Managing Director had been changed from Mr. Richard Myrans to Mr. Christopher Shaw.
10 Apr 2008	Further Environmental Permit	6 May 2008	FEP-088/2008		FEP-01/275/2007		Contractor had received the acknowledge receipt on 17 April 2008. FEP had been issued on 6 May 2008.
18 Apr 2008	Water Pollution Control Ordinance – Intake I-1	19 Jun 2008	001029978		EP760/327/013315I	19 Jun 2008 - 30 Jun 2013	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	Water Pollution Control Ordinance – Intake I-2	2 Jul 2008	001029959		EP760/321/013020I	2 Jul 2008 - 31 Jul 2013	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	Water Pollution Control Ordinance – Intake I-3	5 Aug 2008	001029960		EP760/323/013324I	5 Aug 2008 - 31 Aug 2013	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	Water Pollution Control Ordinance – Portion I	26 Jun 2008	001029974		EP760/350/013334I	26 Jun 2008 - 30 Jun 2013	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.
3 Jun 2008	Variation of Environmental Permit	27 Jun 2008	VEP-264/2008		EP-275/2007/A		Application was submitted by DSD on 3 June 2008. Licence had been issued on 27 June 2008.
18 Jun 2008	Variation of Environmental Permit	27 Jun 2008	VEP-266/2008		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	Water Pollution Control Ordinance – Intake I-1 (Intersection of Wo Yi Hop Lane and Ho Fung College)	27 Aug 2008	001031974		EP760/325/013536I	27 Aug 2008 - 31 Aug 2013	Contractor had received the acknowledge receipt on 25 July 2008. Application fees had been paid on 19 Aug 2008. Licence had been issued on 27 Aug 2008.
2 Sep 2008	Variation of Environmental Permit	25 Sep 2008	VEP-271/2008		EP-275/2007/B		Application was submitted by DSD on 2 Sept 2008. Licence had been issued on 25 Sept 2008.







Updated Status of Environmental Permit & Licence

Application Date	Environmental Permit / Licence	Issued Date	Ref No.	Account No.	Permit / Licence No.	Permit / Licence Validity Date	Remarks
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)		001034930				Contractor had applied the permit on 21 Nov 2008. Contractor had received the acknowledge receipt on 2 Dec 2008. Notice of Refusal had been received on 6 Dec 2008.
13 Jan 2009	Construction Noise Permit - Outfall O-1		301201				Contractor had applied the permit on 13 Jan 2009. Contractor had received the acknowledge receipt on 13 Jan 2009. Notice of Refusal had been received on 20 Jan 2009.
19 Jan 2009	Construction Noise Permit - Intake I-1	3 Feb 2009	301401		GW-RW0052-09	23 Feb 2009 - 22 Aug 2009	Contractor had applied the permit on 19 Jan 2009. Contractor had received the acknowledge receipt on 20 Jan 2009. CNP had been issued on 3 Feb 2009.
22 Jan 2009	Construction Noise Permit - Intake I-3		301474				Contractor had applied the permit on 22 Jan 2009. Contractor had received the acknowledge receipt on 22 Jan 2009. Notice of Refusal had been received on 2 Feb 2009.
3 Feb 2009	Construction Noise Permit - Outfall O-1		301841				Contractor had applied the permit on 3 Feb 2009. Contractor had received the acknowledge receipt on 6 Feb 2009. Notice of Refusal had been received on 12 Feb 2009.
25 Feb 2009	Construction Noise Permit - Intake I-3	10 Mar 2009	302429		GW-RW0079-09	16 March 2009 - 15 Sept 2009	Contractor had applied the permit on 25 Feb 2009. Contractor had received the acknowledge receipt on 26 Feb 2009. CNP had been issued on 10 March 2009.
2 Mar 2009	Construction Noise Permit - Outfall O-1	12 Mar 2009	302525		GW-RW0080-09	16 March 2009 - 15 May 2009	Contractor had applied the permit on 2 March 2009. Contractor had received the acknowledge receipt on 2 March 2009. CNP had been issued on 12 March 2009.
23 Mar 2009	Construction Noise Permit - Intake I-1	3 Apr 2009	303326		GW-RW0108-09	6 April 2009 - 5 Oct 2009	Contractor had applied the permit on 23 March 2009. Contractor had received the acknowledge receipt on 24 March 2009. CNP had been issued on 3 April 2009.
29 Apr 2009	Water Pollution Control Ordinance – Intake I-3 (Additional Discharge Point)	25 Mar 2010	305058		WT00005917-2010	25 March 2010 - 31 March 2015	Contractor had applied the Licence on 29 April 2009. Contractor had received the acknowledge receipt on 11 May 2009. Public notices had been issued on 21 Dec 2009. Waiting for EPD further notification.
12 May 2009	Construction Noise Permit - Outfall O-1	29 May 2009	305266		GW-RW0198-09	29 May 2009 - 24 Nov 2009	Contractor had applied the permit on 12 May 2009. Contractor had received the acknowledge receipt on 15 May 2009. CNP had been issued on 29 May 2009.
5 Oct 2009	Further Environmental Permit	27 Oct 2009	FEP-096/2009		FEP-01/275/2007/B		Contractor had received the acknowledge receipt on 7 Oct 2009. FEP had been issued on 27 Oct 2009.
19 Jan 2010	Construction Noise Permit - Outfall O-1		313499				Contractor had applied the permit on 19 Jan 2010. Contractor had received the acknowledge receipt on 19 Jan 2010. Notice of Refusal had been received on 25 Jan 2010.







Updated Status of Environmental Permit & Licence

Application Date	Environmental Permit / Licence	Issued Date	Ref No.	Account No.	Permit / Licence No.	Permit / Licence Validity Date	Remarks
19 Jan 2010	Water Pollution Control Ordinance – Outfall O- 1 (Additional Discharge Point)		313803				Contractor had applied the permit on 19 Jan 2010. Contractor had received the acknowledge receipt on 28 Jan 2010. Waiting for EPD further notice.
27 Jan 2010	Construction Noise Permit - Outfall O-1	5 Feb 2010	313788		GW-RW0060-10	10 Feb 2010 - 31 March 2010	Contractor had applied the permit on 27 Jan 2010. Contractor had received the acknowledge receipt on 27 Jan 2010. CNP had been issued on 5 Feb 2010.
4 Feb 2010	Construction Noise Permit - Chai Wan Kok - Valve House	10 Feb 2010	314068		GW-RW007S-10	23 Feb 2010 - 06 March 2010	Contractor had applied the permit on 4 Feb 2010. Contractor had received the acknowledge receipt on 4 Feb 2010. CNP had been issued on 10 Feb 2010.
10 Mar 2010	Water Pollution Control Ordinance – Intake I-3	25 Mar 2010			WT00005917-2010	25 Mar 2010 - 31 Mar 2015	Extension of WT licence No. WT00005917- 2010. WT licence had been issued on 25 Mar 2010.
11 Mar 2010	Construction Noise Permit - Intake I-3	18 Mar 2010	315048		GW-RW0130-10	22 Mar 2010 - 21 Sept 2010	Extension of CNP No. GW-RW0079-09. CNP had been issued on 18 Mar 2010.
11 Mar 2010	Construction Noise Permit - Outfall O-1		315046				Contractor had applied the permit on 11 Mar 2010. Contractor had received the acknowledge receipt on 11 Mar 2010. Notice of Refusal had been received on 23 Mar 2010.
24 Mar 2010	Construction Noise Permit - Outfall O-1		315509		GW-RW0151-10	07 Apr 2010 - 30 June 2010	Contractor had applied the permit on 24 Mar 2010. Contractor had received the acknowledge receipt on 24 Mar 2010. CNP had been issued on 7 Apr 2010.
26 Mar 2010	Construction Noise Permit - Intak I-1		315605		GW-RW0156-10	16 Apr 2010 - 15 Oct 2010	Contractor had applied the permit on 26 Mar 2010. Contractor had received the acknowledge receipt on 26 Mar 2010. CNP had been issued on 13 Apr 2010.
29 Mar 2010	Construction Noise Permit - Intake I-2		315720				Contractor had applied the permit on 30 Mar 2010. Contractor had received the acknowledge receipt on 30 Mar 2010. Notice of Refusal had been received on 13 Apr 2010.
14 Apr 2010	Construction Noise Permit - Outfall O-1		315048		GW-RW0060-10		Extension of CNP No. GW-RW0079-09. Notice of Refusal had been received on 21 Apr 2010.
26 Apr 2010	Construction Noise Permit - Outfall O-1		316629		GW-RW0217-10	11 May 2010 - 30 June 2010	Extension of CNP No. GW-RW0079-09. CNP had been issued on 06 May 2010.



Appendix F

Calibration Certificates

Project Title:

Design and Construction of Tsuen Wan Drainage Tunnel

Monitoring Location:

Ho Fung College

Calibration Date:

29-Mar-10

Calibration Due Date

29-May-10

Time:

11:50

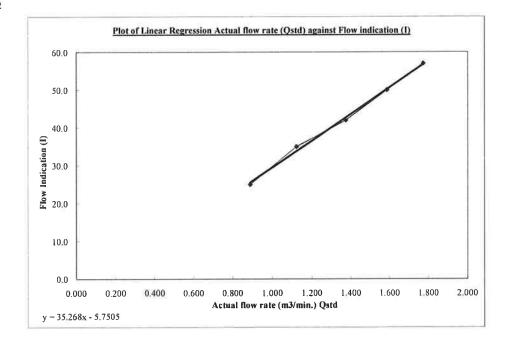
Sampler Model:	BM2000HX
Serial No.:	4994
Calibrator Orifice no.:	1559
Slope (m):	1.97702
Intercept (b):	-0.00070
Correction coeff. (r)	0.99992

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

$Qsid = \frac{1}{m} \times (\sqrt{\frac{1}{m}})$	H v Pa	Tstd	- h
m N	Psid	Ta	,

Sample no.	Pressure Drop (H), inch	Flow (correted), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
	12.0	3,505	1.773	57.0
2	9.6	3.135	1.586	50.0
3	7.2	2.715	1.374	42.0
4	4.8	2.217	1.122	35.0
5	3.0	1,753	0.887	25.0

Correlation Coefficient: 0.9982



Remark 1HPa = 0.750062 mmHg

Calibrated by:

Tsang Yu Man

Date: 29/3/2010.

Checked by:

Terence Kong

Project Title:

Design and Construction of Tsuen Wan Drainage Tunnel

Monitoring Location:

Heng Hoi Chi Hong Ship Temple

Calibration Date:

29-Mar-10 29-May-10

Calibration Due Date

Time:

11:15

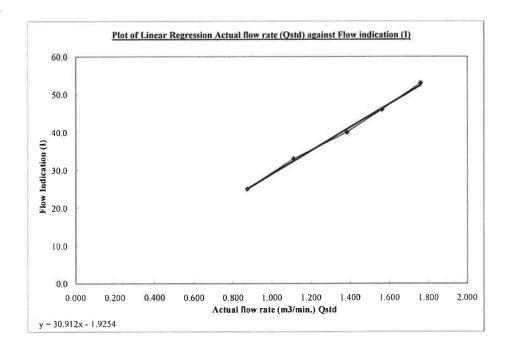
Sampler Model:	BM2000HX
Serial No.:	5875
Calibrator Orifice no.:	1559
Slope (m):	1.97702
Intercept (b):	-0.00070
Correction coeff. (r)	0.99992

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

$Qstd = \frac{1}{m} \times (\sqrt{\frac{1}{m}})$	u. Pa	Tstd
$Qsia = - \times ($	Pstd	Ta

Sample no.	Pressure Drop (H), inch	Flow (correted), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (1), arbitrary
i i	11.8	3.476	1.758	53,0
2	9.3	3.086	1.561	46,0
3	7.3	2.734	1.383	40.0
4	4.7	2.194	1,110	33.0
5	2.9	1.723	0.872	25.0

Correlation Coefficient: 0.9984



Remark 1HPa = 0.750062 mmHg

Calibrated by:

Tsang Yu Man

Checked by:

Terence Kong

Project Title:

Design and Construction of Tsuen Wan Drainage Tunnel

Monitoring Location:

Long Beach Gardan

Calibration Date:

29-Mar-10

Calibration Due Date

29-May-10

10:00

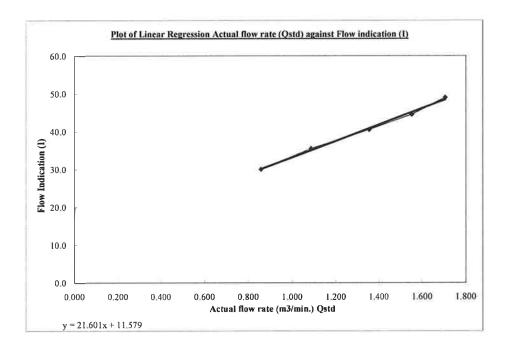
Sampler Model:	TE5005X
Serial No.:	0390
Calibrator Orifice no.:	1559
Slope (m):	1,97702
Intercept (b):	-0.00070
Correction coeff. (r)	0.99992

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

$Qstd = \frac{1}{m} \times (\sqrt{\frac{1}{m}})$	u Pa	Tstd	. 61
$QSRI = \frac{1}{m} \times (\sqrt{\frac{1}{m}})$	Pstd	Ta	- 0)

Sample no.	Pressure Drop (H), inch	Flow (correted), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
1	11.1	3.371	1,705	49.0
2	9.2	3.069	1.553	44.5
3	7.0	2.677	1,354	40.5
4	4.5	2.146	1.086	35.5
5	2.8	1.693	0.857	30.0

Correlation Coefficient: 0.9976



Remark

1 HPa = 0.750062 mmHg

Calibrated by:

Checked by:

Date: 29/3/2010

Project Title:

Design and Construction of Tsuen Wan Drainage Tunnel

Monitoring Location:

Greenview Terrance

Calibration Date: **Calibration Due Date** 29-Mar-10 29-May-10

Time:

10:40

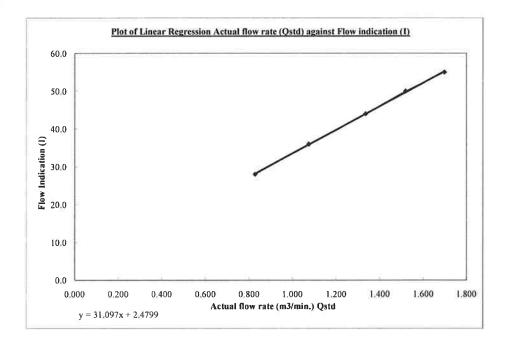
Sampler Model:	TE5005X
Serial No.:	0646
Calibrator Orifice no.:	1559
Slope (m):	1.97702
Intercept (b):	-0.00070
Correction coeff. (r)	0.99992

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

Octo	-1-4	$H \times \frac{Pa}{Psid}$	Tstd	<i>b</i>)
Qaiu	- m ^ (1	Psid	Ta	-0)

Sample no.	Pressure Drop (H), inch	Flow (correted), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
1	11.0	3,356	1.698	55.0
2	8.8	3.002	1.519	50.0
3	6.8	2.638	1,335	44.0
4	4.4	2.122	1.074	36.0
5	2.6	1.632	0.826	28,0

Correlation Coefficient: 0.9998



Remark 1HPa = 0.750062 mmHg

Calibrated by:

Checked by:

Terence Kong

Date: $\frac{29/3/200}{3/200}$



AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - M Operator		Rootsmeter Orifice I.I		833620 1559	Ta (K) - Pa (mm) -	293 - 765.81
PLATE OR Run # 1 2 3 4 5	VOLUME START (m3) NA NA NA NA NA NA NA	VOLUME STOP (m3) NA NA NA NA NA NA	DIFF VOLUME (m3) 1.00 1.00 1.00 1.00	DIFF TIME (min) 1.4130 0.9900 0.8850 0.8420 0.6970	METER DIFF Hg (mm) 3.2 6.4 7.9 8.7 12.7	ORFICE DIFF H2O (in.) 2.00 4.00 5.00 5.50 8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0205 1.0163 1.0142 1.0132 1.0078	0.7222 1.0266 1.1460 1.2033 1.4459	1.4317 2.0247 2.2637 2.3742 2.8633		0.9958 0.9917 0.9896 0.9886 0.9834	0.7047 1.0017 1.1182 1.1741 1.4109	0.8748 1.2371 1.3831 1.4506 1.7495
Qstd slop intercept coefficie y axis =	(b) = ent (r) =	1.97702 -0.00070 0.99992 	 [a)]	Qa slope intercept coefficie y axis =	= (b) $=$	1.23797 -0.00043 0.99992

CALCULATIONS

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

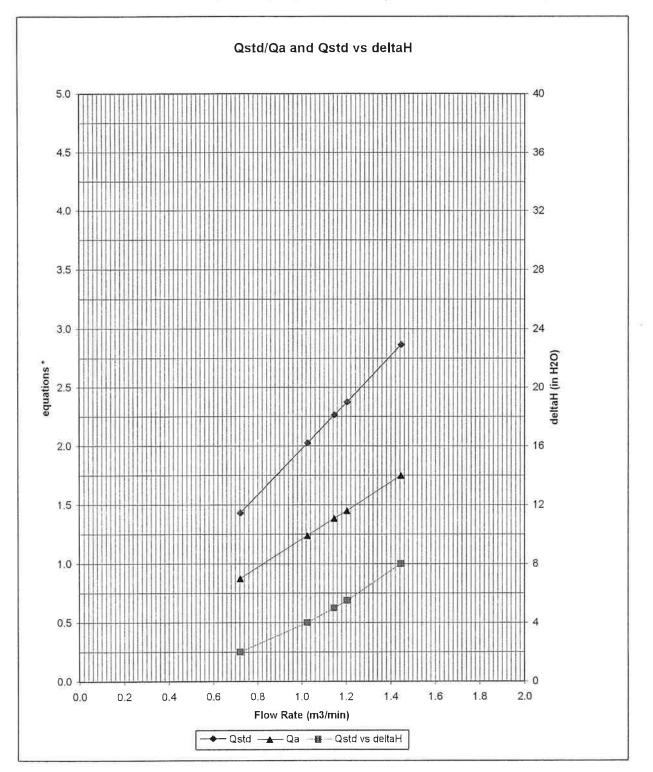
Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

For subsequent flow rate calculations:

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



AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:

$$\sqrt{\Delta H \left(\frac{P a}{P s t d}\right) \left(\frac{T s t d}{T a}\right)}$$

Qa series:

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

1559



AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Ma Operator		Rootsmeter Orifice I.I		833620 1785	Ta (K) - Pa (mm) -	296 - 750.57
PLATE OR Run # 1 2	VOLUME START (m3) NA NA NA	VOLUME STOP (m3) NA NA NA	DIFF VOLUME (m3) 1.00 1.00 1.00	DIFF TIME (min) 1.3960 0.9840 0.8790	METER DIFF Hg (mm) 3.2 6.4 7.9	ORFICE DIFF H2O (in.) 2.00 4.00 5.00
4 5	NA NA	NA NA	1.00	0.8390 0.6940	8.7 12.7	5.50 8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9900 0.9858 0.9837 0.9827 0.9774	0.7092 1.0018 1.1191 1.1713 1.4084	1.4102 1.9943 2.2296 2.3385 2.8203		0.9957 0.9915 0.9894 0.9884 0.9830	0.7133 1.0076 1.1256 1.1781 1.4165	0.8881 1.2560 1.4042 1.4728 1.7762
Qstd slop intercept coefficie y axis =	(b) = ent (r) =	2.01637 -0.02316 0.99996 	 Ta)]	Qa slope intercept coefficients	= (b)	1.26262 -0.01458 0.99996

CALCULATIONS

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

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

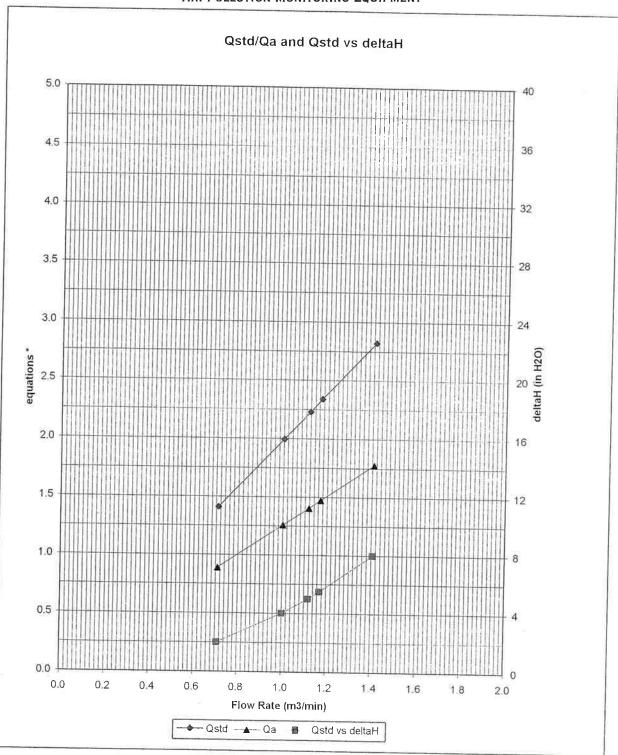
Qa = Va/Time

For subsequent flow rate calculations:

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



AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:

$$\sqrt{\Delta \ H \ \left(\ \frac{P \ a}{P \ s \ t \ d} \right) \left(\ \frac{T \ s \ t \ d}{T \ a} \right)}$$

Qa series:

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

#1785



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No.: C093599

Certificate of Calibration

This is to certify that the equipment

Description: Precision Sound Level Meter

Manufacturer: Rion

Model No.: NA-27

Serial No.: 00201194

has been calibrated for the specific items and ranges. The results are shown in the Calibration Report No. C093599.

The equipment is supplied by

Co. Name: Envirotech Services Co.

Address: Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue: 10 July 2009

Certified by: Chan Um HC Chan



輝 創 工 程 有 限 公 司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No.: C093598

Certificate of Calibration

This is to certify that the equipment

Description: Sound Level Calibrator

Manufacturer: Rion

Model No.: NC-73

Serial No.: 10786708

has been calibrated for the specific items and ranges. The results are shown in the Calibration Report No. C093598.

The equipment is supplied by

Co. Name: Envirotech Services Co.

Address: Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue: 10 July 2009

Certified by: Oran for C HC Chan

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No.: C093473

Certificate of Calibration

This is to certify that the equipment

Description: Precision Integrating Sound Level Meter

Manufacturer: Rion

Model No.: NL-18

Serial No.: 00360030

has been calibrated for the specific items and ranges. The results are shown in the Calibration Report No. C093473.

The equipment is supplied by

Co. Name: Envirotech Services Co.

Address: Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,

Hong Kong

Date of Issue: 6 July 2009

Certified by: Clan line (HC Chan



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No.: C093472

Certificate of Calibration

This is to certify that the equipment

Description: Sound Level Calibrator

Manufacturer: Rion

Model No.: NC-73

Serial No.: 10997142

has been calibrated for the specific items and ranges. The results are shown in the Calibration Report No. C093472.

The equipment is supplied by

Co. Name: Envirotech Services Co.

Address: Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue: 6 July 2009

Certified by: Clan iAn Chan



Batch:

HK1006361

Date of Issue: 29/03/2010

Client:

HYDER CONSULTING LIMITED

Client Reference:

Calibration of Turbidity System

Item:

Turbidimter

ALS Lab ID: HK1006361

-001

Model No.: Eutech Instruments TN-100

26 March, 2010

Equipment No.: --

Serial No.: 215619

Testing Results:

Date of Calibration:

Turbidity

Expected Reading	Recording Reading		
0.00 NTU	0.10 NTU		
4.00 NTU	3.75 NTU		
16.0 NTU	15.1 NTU		
40.0 NTU	42.9 NTU		
160 NTU	150 NTU		
Allowing Deviation	± 10%		

Testing Method:

APHA (19th edition), 2130B

Mr Chan Kwok Fall, Godfley Laboratory Manager - Hong Kong

ALS Technichem (HK) Pty Ltd **ALS Environmental**

Page 2 of 2

ALS

Batch:

HK1004131

Date of Issue:

02/03/2010

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⁺B

Date of Calibration:

01 March, 2010

Testing Results:

Expected Reading	Recording Reading
4.00 7.00 10.0	4.14 7.10 9.95
Allowing Deviation	<u>+</u> 0.2

Mr Chan Kwok Fai, Godfrey

Laboratory/Manager - Hong Kong

ALS

Batch:

HK1004131

Date of Issue:

02/03/2010

Client:

HYDER CONSULTING LTD

Client Reference:

Calibration of Thermometer

Item:

Multi-parameter Instrument / Mehrparameter-MeBgerat

Model No.:

WTW pH / Oxi 340i

Serial No.:

08101283

Equipment No.:

Calibration Method:

In-house Method

Date of Calibration:

01 March, 2010

Testing Results:

Reference Temperature (°C)	Recorded Temperature (⁰ C)
22.0 °C 35.0 °C	21.8 °C 34.2 °C
Allowing Deviation	±2.0°C

Mr Chan Kwok Fai, Godfrey

Laboratory Manager Hong Kong



Batch:

HK1004131

Date of Issue: Client: 02/03/2010

Client Reference:

HYDER CONSULTING LTD

Calibration of DO 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 (18th Ed.) 4500-O C & G

Date of Calibration:

01 March, 2010

Testing Results:

Expected Reading	Recording Reading
3.37 mg/L 5.31 mg/L 8.39 mg/L	3.38 mg/L 5.50 mg/L 8.47 mg/L
Allowing Deviation	±0.2 mg/L

Mr Chan Kwok Fai, Godfrey

Laboratory Manager - Hong Kong



Appendix G

Monitoring Locations

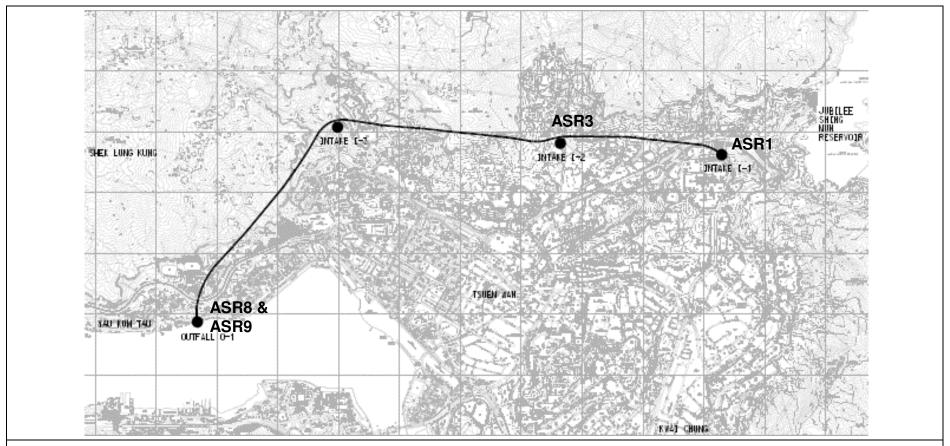


Figure 1 Air Quality Monitoring Stations

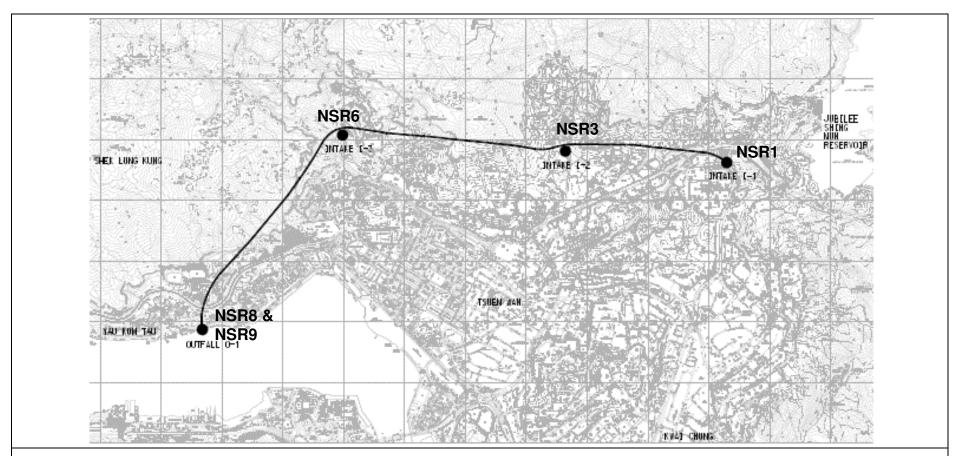


Figure 2 Noise Monitoring Stations

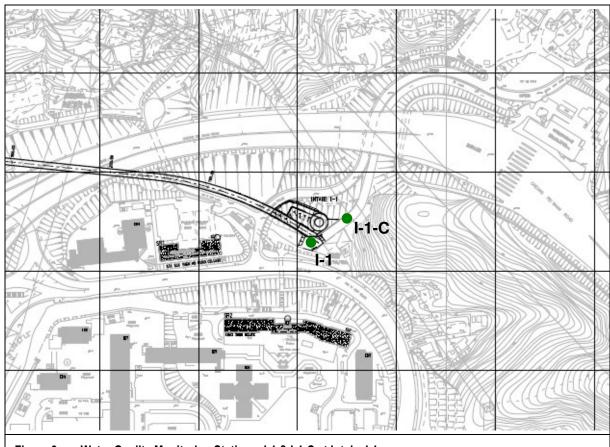
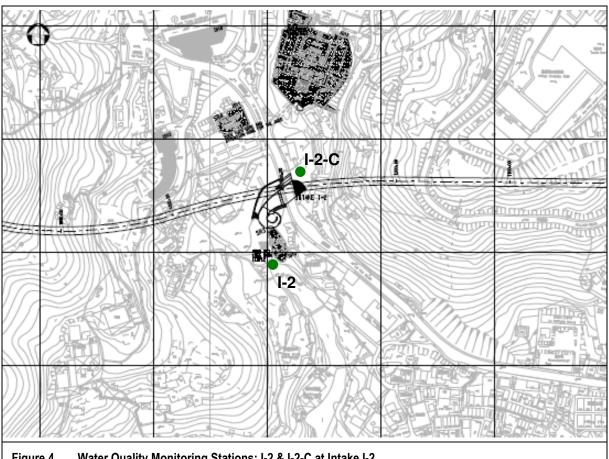
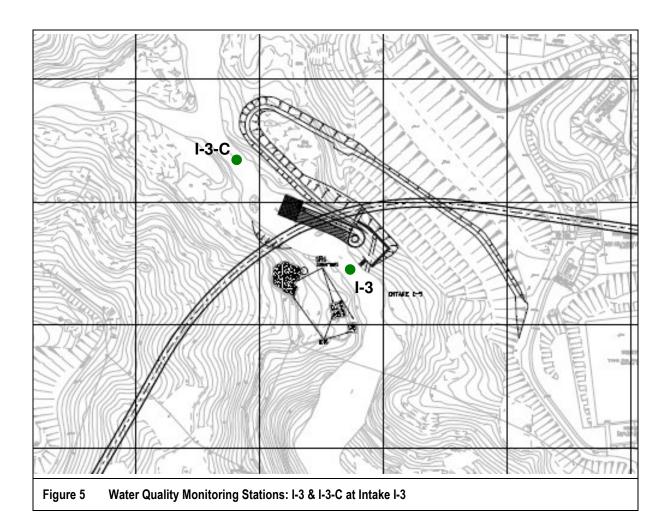


Figure 3 Water Quality Monitoring Stations: I-1 & I-1-C at Intake I-1



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



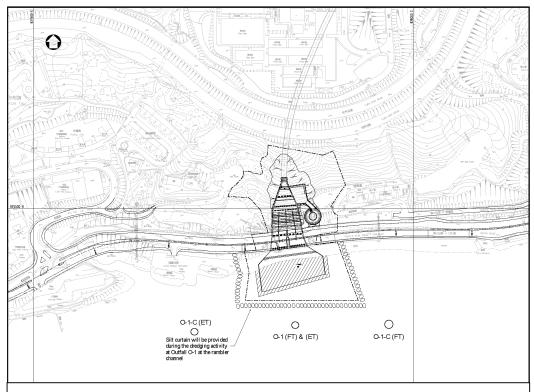


Figure 6 Water Quality Monitoring Stations: O-1 (FT) & (ET), O-1-C(FT) & O-1-C(FT) at Outfall O-1



Appendix H

EM&A Schedule

Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel Impact Monitoring Programme – May 2010

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

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

k:\eb000364 tsuen wan drainage tunnel\f-reports\monitoring schedule\monitoring_schedule may10-aug10.doc

Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel Impact Monitoring Programme – June 2010 (Tentative)

Date)	Air	Noise	Water
01-Jun-10	Tue	✓	✓	
02-Jun-10	Wed			✓
03-Jun-10	Thu			
04-Jun-10	Fri			✓
05-Jun-10	Sat			
06-Jun-10	Sun			
07-Jun-10	Mon	✓	✓	✓
08-Jun-10	Tue			
09-Jun-10	Wed			✓
10-Jun-10	Thu			
11-Jun-10	Fri	✓		✓
12-Jun-10	Sat			
13-Jun-10	Sun			
14-Jun-10	Mon			✓
15-Jun-10	Tue			
16-Jun-10	Wed			
17-Jun-10	Thu	✓	✓	✓
18-Jun-10	Fri			
19-Jun-10	Sat			✓
20-Jun-10	Sun			
21-Jun-10	Mon			✓
22-Jun-10	Tue			
23-Jun-10	Wed	✓	✓	✓
24-Jun-10	Thu			
25-Jun-10	Fri			✓
26-Jun-10	Sat			
27-Jun-10	Sun			
28-Jun-10	Mon			✓
29-Jun-10	Tue	✓	✓	
30-Jun-10	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 – July 2010 (Tentative)

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

k:\eb000364 tsuen wan drainage tunnel\f-reports\monitoring schedule\monitoring_schedule may10-aug10.doc

Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel Impact Monitoring Programme – August 2010 (Tentative)

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

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

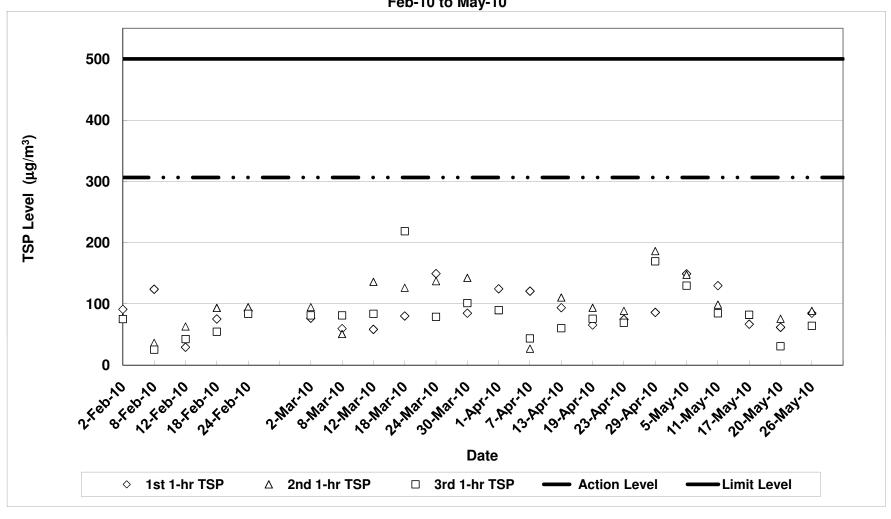
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

Air Quality Impact Monitoring Results (1-Hour TSP)

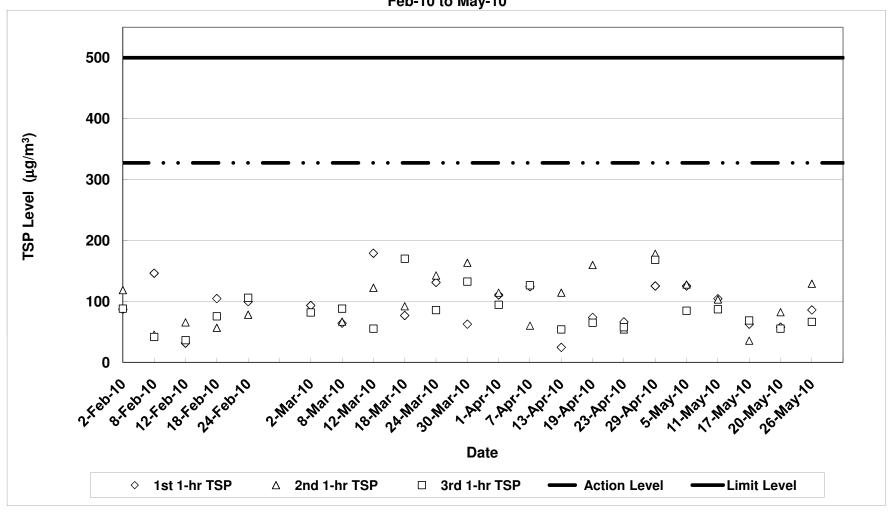
Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (°C)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM)	Flow-F (CFM)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-f (g)	Weight-diff. (g)	1-hr TSP (µg/m³)	Average 1-Hr TSP (μg/m³)	Action/Limit Levels (µg/m³)	Observation / Site Condition	Remark
		Cloudy	0.3E	26	593542	593642	60.0	40	40	1.30	1.30	1.30	77.83	2.8204	2.8320	0.0116	149.0				
	05-May-10	Cloudy	0.3E 0.3E	26 26	593642 593742	593742 593842	60.0 60.0	40 40	40 40	1.30	1.30	1.30	77.83 77.83	2.8231	2.8346 2.8146	0.0115 0.0101	147.8 129.8	142.2		Breaking & Cutting	Traffic
		Fine	0.3E	25	593842	593942	60.0	40	40	1.30	1.30	1.30	77.83	2.8635	2.8736	0.0101	129.8				
	11-May-10	Fine	0.3E	25	593942	594042	60.0	40	40	1.30	1.30	1.30	77.83	2.8512	2.8589	0.0077	98.9	104.5		Steel bending and erection	Traffic
		Fine	0.3E 0.5E	25	594042 594142	594142 594242	60.0	40 40	40 40	1.30	1.30	1.30	77.83 77.83	2.8601	2.8667 2.8480	0.0066	84.8 66.8				
	17-May-10	Sunny	0.5E	28 28	594142	594242	60.0	40	40	1.30	1.30	1.297	77.83	2.8428	2.8483	0.0052	82.2	77.1		Steel bending and erection	Traffic
Sik Sik Yuen Ho Fung		Sunny	0.5E	28	594342	594442	60.0	40	40	1.30	1.30	1.30	77.83	2.8495	2.8559	0.0064	82.2		306.6/500		
College - Intake (ASR1)		Cloudy	0.5E	28	594442	594542	60.0	40	40	1.30	1.30	1.30	77.83	2.8551	2.8599	0.0048	61.7	50.4	300.0/300	0. 11 . 1	T #
	20-May-10	Cloudy	0.5E	28 28	594542 594642	594642 594742	60.0 60.0	40	40 40	1.30	1.30	1.30	77.83 77.83	2.8535 2.8701	2.8594 2.8725	0.0059	75.8 30.8	56.1		Steel bending and erection	Traffic
		Sunny	0.3E	29	594742	594842	60.0	40	40	1.30	1.30	1.30	77.83	2.8465	2.8531	0.0024	84.8				
	26-May-10	Sunny	0.3E	29	594842	594942	60.0	40	40	1.30	1.30	1.30	77.83	2.8350	2.8419	0.0069	88.7	79.2		Steel bending and erection	Traffic
		Sunny	0.3E	29	594942	595042	60.0	40	40	1.30	1.30	1.30	77.83	2.8792	2.8842	0.0050	64.2				
				H				-	-	-	-	-	-	-		-					
			-	-	-	-	-	-	-		-	-	-			-					
		Cloudy	0.5E	26	562090	562190	60.0	40	40	1.36	1.36	1.36	81.38	2.8140	2.8242	0.0102	125.3				L
1	05-May-10	Cloudy	0.5E	26 26	562190 562290	562290 562390	60.0	40 40	40 40	1.36	1.36	1.36	81.38 81.38	2.8022	2.8126	0.0104	127.8 84.8	112.6		Steel bending and erection	Traffic
1		Fine	0.5E	25	562390	562490	60.0	40	40	1.36	1.36	1.36	81.38	2.8209	2.8278	0.0069	104.5				
1	11-May-10	Fine	0.3E	25	562490	562590	60.0	40	40	1.36	1.36	1.36	81.38	2.8422	2.8506	0.0084	103.2	98.3		Breaking work	Traffic
		Fine	0.3E	25	562590	562690	60.0	40	40	1.36	1.36	1.36	81.38	2.8708	2.8779	0.0071	87.2				
1	17-May-10	Sunny	0.4E	28 28	562690 562790	562790 562890	60.0	40	40	1.36	1.36	1.36	81.38 81.38	2.8542	2.8593 2.8142	0.0051	62.7 35.6	55.7		Drilling	Traffic
Hong Hoi Chee Hong	17 May 10	Sunny	0.4E	28	562890	562990	60.0	40	40	1.36	1.36	1.36	81.38	2.8468	2.8524	0.0029	68.8	55.7	007 4/500	Simily	Tano
Temple - Intake (ASR3)		Cloudy	0.7E	28	562980	563080	60.0	40	40	1.36	1.36	1.36	81.38	2.8192	2.8239	0.0047	57.8		327.4/500		
	20-May-10	Cloudy	0.7E	28	563080	563180	60.0	40	40	1.36	1.36	1.36	81.38	2.8095	2.8162	0.0067	82.3 55.3	65.1		Drilling	Traffic
		Cloudy Sunny	0.7E 0.5E	28 29	563180 563290	563280 563390	60.0	40	40 40	1.36	1.36	1.36	81.38 81.38	2.8602	2.8647 2.8410	0.0045	55.3 86.0				
	26-May-10	Sunny	0.5E	29	563390	563490	60.0	40	40	1.36	1.36	1.36	81.38	2.8321	2.8426	0.0105	129.0	93.8		Breaking work	Traffic
		Sunny	0.5E	29	563490	563590	60.0	40	40	1.36	1.36	1.36	81.38	2.8511	2.8565	0.0054	66.4				
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	-	-	-	-	-	-	-	-	-	-			-	-	-	-					
		Cloudy	0.5E	26	617080	617180	60.0	40	40	1.32	1.32	1.32	78.94	2.8081	2.8140	0.0059	74.7				
	05-May-10	Cloudy	0.5E	26	617180	617280	60.0	40	40	1.32	1.32	1.32	78.94	2.8127	2.8193	0.0066	83.6	68.0		Excavation work and Concrete Work	Traffic.
		Cloudy	0.5E	26	617280	617380	60.0	40	40	1.32	1.32	1.32	78.94	2.8279	2.8315	0.0036	45.6				
	11-May-10	Fine Fine	0.3E 0.3E	25 25	617380 617480	617480 617580	60.0	40 40	40 40	1.32	1.32	1.32	78.94 78.94	2.8327 2.8347	2.8404 2.8415	0.0077	97.5 86.1	81.9		Breaking & Excavation Work	Traffic
	TT May 10	Fine	0.3E	25	617580	617680	60.0	40	40	1.32	1.32	1.32	78.94	2.8456	2.8505	0.0049	62.1	01.5		Distanting & Excellent Work	Tano
		Sunny	0.5E	28	617680	617780	60.0	40	40	1.32	1.32	1.32	78.94	2.8180	2.8327	0.0147	186.2				
	17-May-10	Sunny	0.5E	28 28	617780 617780	617880 617880	60.0 60.0	40 40	40 40	1.32	1.32	1.32	78.94 78.94	2.8646 2.8350	2.8672 2.8370	0.0026	32.9 25.3	81.5		Rebar fixing	Traffic
Long Beach Gardens - Outfall (ASR8)		Sunny	0.5E	28	617980	618080	60.0	40	40	1.32	1.32	1.32	78.94	2.8350	2.8370	0.0020	25.3 57.0		336.6/500		
	20-May-10	Cloudy	0.5E	28	618080	618180	60.0	40	40	1.32	1.32	1.32	78.94	2.8782	2.8824	0.0042	53.2	51.1		Excavation work	Traffic
		Cloudy	0.5E	28	618180	618280	60.0	40	40	1.32	1.32	1.32	78.94	2.8153	2.8187	0.0034	43.1				
	26-May-10	Sunny	0.5E	29	618280	618380	60.0	40 40	40 40	1.32	1.32	1.32	78.94	2.8566	2.8601	0.0035	44.3	49.4		Grane Operation	Traffic
1	20-IVIAY-10	Sunny	0.5E	29 29	618380 618480	618480 618580	60.0	40	40	1.32	1.32	1.32	78.94 78.94	2.8293	2.8332 2.8691	0.0039	49.4 54.5	49.4		Grane Operation	Trainc
1		-	-	-		-		-	-	-	-		-	-	-	-					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ļ				
		Cloudy	0.3E	26	548980	549080	60.0	40	40	1.21	1.21	1.21	72.39	2.8335	2.8454	0.0119	164.4				
1	05-May-10	Cloudy	0.3E	26	549080	549180	60.0	40	40	1.21	1.21	1.21	72.39	2.8356	2.8448	0.0092	127.1	149.2		Excavation work and Concrete Work	Traffic.
1		Cloudy	0.3E	26	549180	549280	60.0	40	40	1.21	1.21	1.21	72.39	2.8180	2.8293	0.0113	156.1				
1	11-May-10	Fine	0.3E	25	549280	549380	60.0	40	40	1.21	1.21	1.21	72.39	2.8456	2.8554 2.8516	0.0098	135.4	93.5		Breaking and Excavation Work	Traffic
1	11-iviay-10	Fine Fine	0.3E 0.3E	25 25	549380 549480	549480 549580	60.0	40 40	40 40	1.21	1.21	1.21	72.39 72.39	2.8457 2.8382	2.8516	0.0059	81.5 63.5	55.5		Dictioning and Excavation Work	Trains
1		Sunny	0.5E	28	549580	549680	60.0	40	40	1.21	1.21	1.21	72.39	2.8671	2.8803	0.0132	182.3				
1	17-May-10	Sunny	0.5E	28	549680	549780	60.0	40	40	1.21	1.21	1.21	72.39	2.8004	2.8047	0.0043	59.4	97.2		Rebar fixing	Traffic
Greenview Terrance - Outfall (ASR9)		Sunny	0.5E	28 28	549780 549880	549880 549980	60.0	40 40	40 40	1.21	1.21	1.21	72.39 72.39	2.8571	2.8607	0.0036	49.7 73.2		329.2/500		
Contain (rioris)	20-May-10	Cloudy	0.5E	28	549880	550080	60.0	40	40	1.21	1.21	1.21	72.39	2.8231	2.8284	0.0053	69.1	64.9		Excavation work	Traffic
		Cloudy	0.5E	28	550080	550180	60.0	40	40	1.21	1.21	1.21	72.39	2.8392	2.8430	0.0038	52.5				
		Sunny	0.5E	29	550180	550280	60.0	40	40	1.21	1.21	1.21	72.39	2.8572	2.8629	0.0057	78.7			0 0 1	
	26-May-10	Sunny	0.5E	29	550280 550380	550380 550480	60.0	40 40	40 40	1.21	1.21	1.21	72.39 72.39	2.8252	2.8302 2.8498	0.0050	69.1 49.7	65.8		Crane Operation	Traffic
		- Suriny	U.SE -	- 29	- 220360	330460	- 00.0	40	40	1.21	1.21	1.21	- 12.39	2.0402	2.0490	0.0036	49./				
1	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-					
		-	-	-	-		-	-	-	-	-	-	-	-	-	-					

Note:
| Italic font and yellow shaded indicates an exceedance of Action Level
| Rolld font and red shaded area indicates an exceedance of 1 imit 1 eval

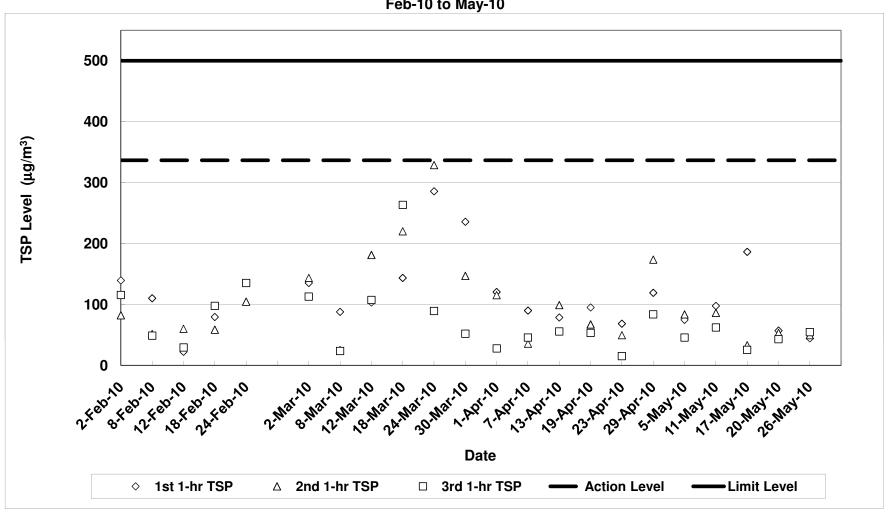
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College - Intake (ASR1) Feb-10 to May-10



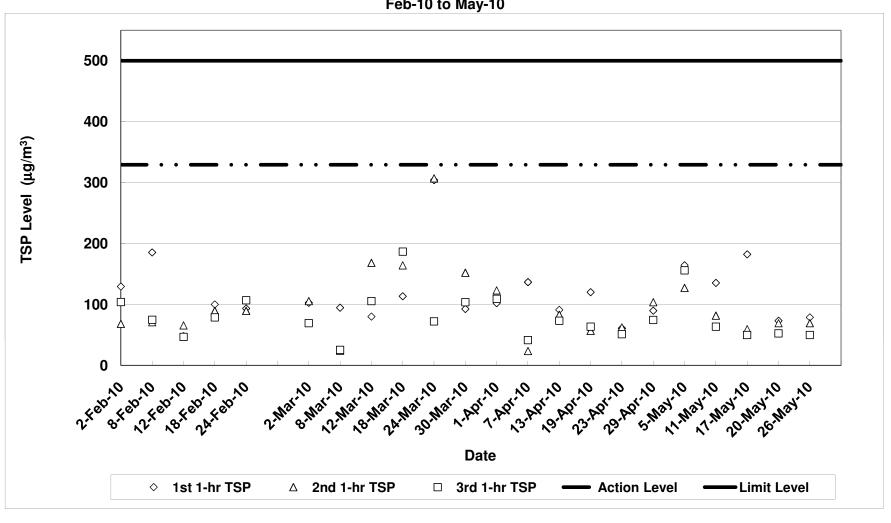
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Air Quality Monitoring (1-hr TSP) Results at Hong Hoi Chee Hong Temple - Intake (ASR3) Feb-10 to May-10



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) Feb-10 to May-10



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) Feb-10 to May-10



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

Noise Impact Monitoring Results

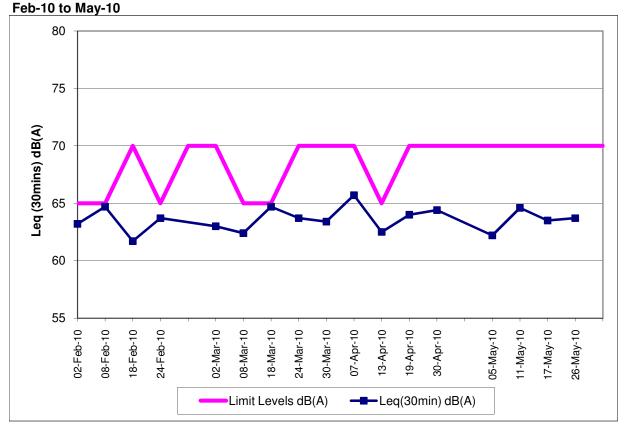
Monitoring Locations	Date	Weather	Temperature	Wind Speed	Wind	Start Time	End Time	BL ¹	LL ²	L _{eq(30min)}	L _{10(30min)}	L _{90(30min)}	CNL ³	Observation /	Remark
		Conditions	(°C)	(m/s)	Direction			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Site Condition	
Sik Sik Yuen Ho Fung College	05-May-10	Cloudy	26	0.3	Е	16:11	16:41		70	62.2	64.8	58.5	-	Steel bending and erection	Traffic noise
NSR 1	11-May-10	Fine	25	0.3	Е	16:17	16:47		70	64.6	67.4	60.5	-	Steel bending and erection	Traffic noise
	17-May-10	Sunny	28	0.5	Е	16:20	16:50	66.1	70	63.5	65.3	58.9	-	Steel bending and erection	Traffic noise
	26-May-10	Sunny	29	0.3	Е	14:55	15:25		70	63.7	65.8	59.5	-	Steel bending and erection	Traffic noise
													-		
Hong Hoi Chee Hong Temple	05-May-10	Cloudy	26	0.5	Е	15:25	15:55		75	68.9	72.1	62.5	-	Breaking & Cutting	Traffic noise
NSR 3	11-May-10	Fine	25	0.2	Е	15:35	16:05		75	68.6	71.5	65.3	-	Breaking	Traffic noise
	17-May-10	Sunny	28	0.4	Е	15:40	16:10	57.9	75	70.2	73.3	65.2	-	Drilling	Traffic noise
	26-May-10	Sunny	29	0.5	Е	14:12	14:42		75	70.3	73.4	65.9	-	Breaking	Traffic noise, Insect noise
													-		
Squatters	05-May-10	Cloudy	26	0.2	Е	11:05	11:35		75	66.6	68.8	62.2	-	Excavation work & breaking	Bird noise
NSR 6	11-May-10	Fine	25	0.3	Е	10:50	11:20		75	68.1	70.9	65.2	-	Breaking, excavation work	Bird noise
	17-May-10	Sunny	28	0.2	Е	11:18	11:48	61.2	75	63.2	66.4	55.8	-	Excavation work	Bird noise
	26-May-10	Sunny	29	0.2	Е	11:20	11:50		75	69.9	72.3	65.9	-	Breaking, excavation work	Bird noise
													-		
Long Beach Gardens	05-May-10	Cloudy	26	0.5	Е	14:33	15:03		75	63.0	64.4	61.4	-	Excavation work & concrete work	Traffic noise
NSR 8	11-May-10	Fine	25	0.5	E	14:47	15:17		75	64.3	65.9	62.6	-	Breaking & excavation work	Traffic noise
	17-May-10	Sunny	28	0.5	Е	14:33	15:03	60.9	75	63.0	65.5	60.1	-	Rebar fixing	Traffic noise
	26-May-10	Sunny	29	0.5	Е	15:46	16:16		75	61.7	63.8	59.9	-	Crane Operation	Traffic noise
													-		
Greenview Terrace	05-May-10	Cloudy	26	0.3	E	13:52	14:22		75	66.8	69.1	63.9	-	Excavation work & concrete work	Traffic noise
NSR 9	11-May-10	Fine	25	0.5	Ē	14:05	14:35		75	68.8	70.7	66.2	-	Breaking & excavation work	Traffic noise
	17-May-10	Sunny	28	0.5	E	13:50	14:20	59.7	75	68.1	70.4	64.9	-	Rebar fixing	Traffic noise
	26-May-10	Sunny	29	0.5	E	16:25	16:55		75	64.1	65.9	60.1	-	Crane Operation	Traffic noise
													-		

^{1:} Baseline Noise Level 2: Limit Level

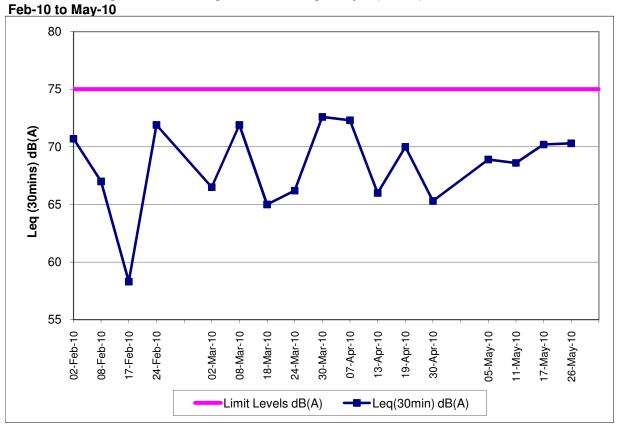
Note: The limit level of NSR1 is 65dB(A) during school examination period. Red Bold indicates an exceedance of Limit Level

^{3:} Corrected Noise Level

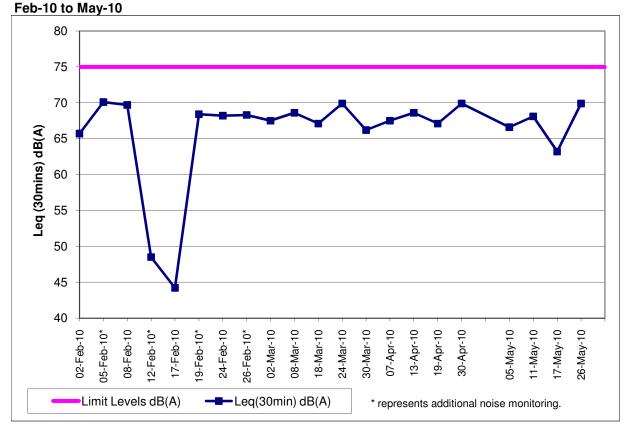
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR 1)



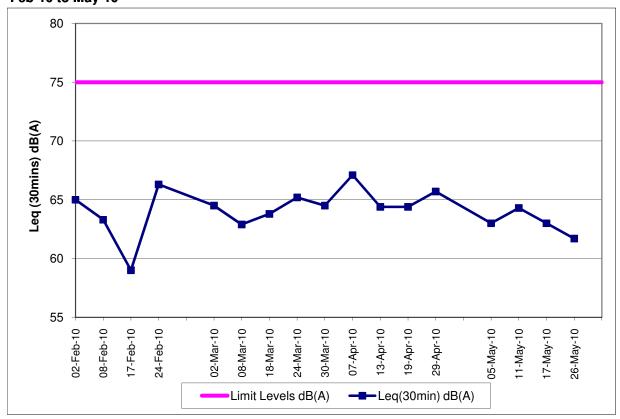
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR 3)



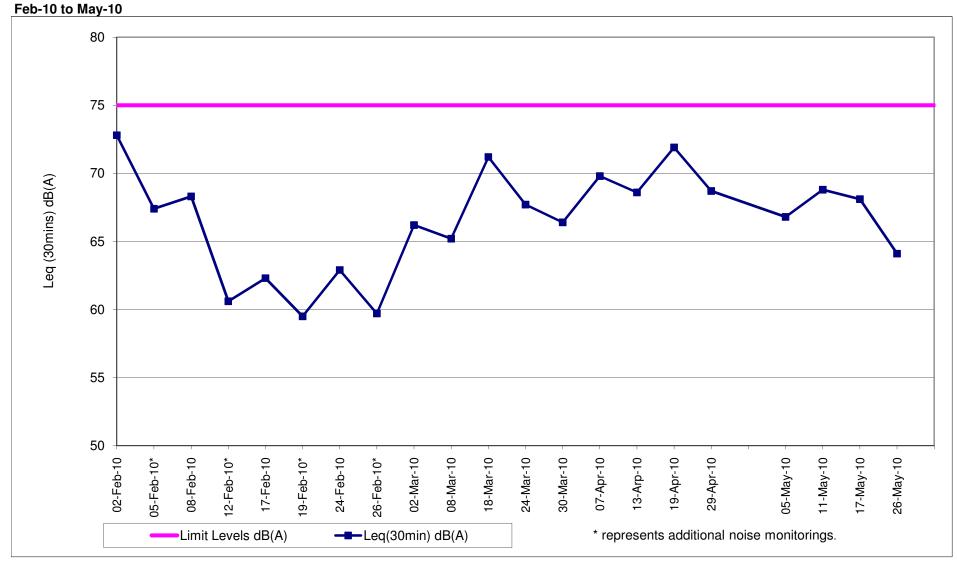
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Squatters (NSR 6)



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Long Beach Gardens (NSR 8) Feb-10 to May-10



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



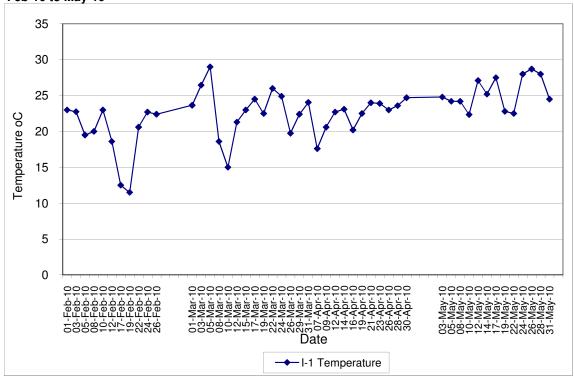
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

Water Quality Impact Monitoring Results

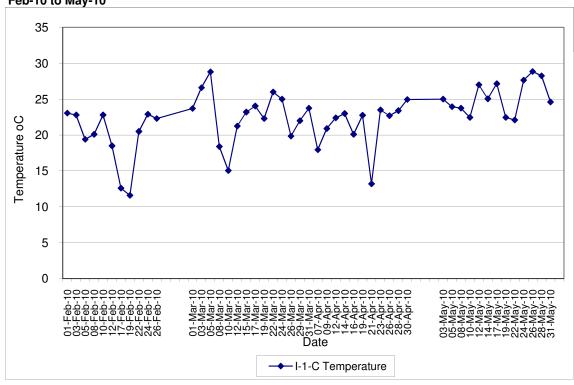
Monitoring Locations	Date	Start	Weather	Water	1	Temp		DO(mg/L)	Action/Limit	pH		Tu	rbidity(NTI	U) [/	Action/Limit		SS (mg/L)	A	Action/Limit	Remarks:	Action to be taken
3		Time		Depth(m)	1	2 Avç		2 Avg	Level of DO(mg/L)		Avg	1	2	Avg	Level of Tby	1	2	Avg L	evel of SS(mg/L)		
Sik Sik Yuen Ho Fung College								5.13 5.15		7.42 7.42						3.60		3.50		Concrete work	Nil
I-1	05-May-10		Cloudy					5.83 5.85		7.44 7.44						2.70	3.20	2.95		Steel bending and erection	Nil
	08-May-10		Cloudy			24.20 24.2		5.28 5.26 5.36 5.35			7.60 7.16					4.50	3.20	3.85		Steel bending and erection	NII NII
	10-May-10 12-May-10	11:28	Cloudy Fine	<1 <1				5.28 5.27	-	7.16 7.15 7.81 7.80			5.42 5.33 5 3.80 3.74 3			2.00	2.00	2.00	_	Steel bending and erection Steel bending and erection	Nil
	14-May-10		Fine	<1		25.20 25.2				7.90 7.90		3.62	3.73			2.00	2.00	2.00		Steel bending and erection	Nil
	17-May-10		Sunny	<1	27.50	27.50 27.5	5.70	5.74 5.72	3.42 / 3.34	7.79 7.80	7.80	3.60	3.67	3.64	9.75 / 12.47	5.00	4.80	4.90	8.85 / 10.17	Steel bending and erection	Nil
	19-May-10		Rainy	<1		22.80 22.8				7.47 7.47					9.75/12.47	2.00	2.00	2.00	6.65 / 10.17	Steel bending and erection	Nil
	22-May-10		Rainy	<1		22.50 22.5				7.65 7.66		2.86				2.00	2.00	2.00		Steel bending and erection	Nil
	24-May-10 26-May-10		Sunny	<1		28.00 28.0 28.70 28.7		5.50 5.49 5.56 5.55		7.92 7.92 7.07 7.07	7.92	8.00				2.50 2.70	2.00 3.20	2.25 2.95		Steel bending and erection	Nil
	28-May-10			<1				6.09 6.06		7.15 7.15		8.66				9.20	8.60	8.90		Steel bending and erection Steel bending and erection	Nil
	31-May-10		Cloudy	<1		24.50 24.5				7.27 7.26		4.25				2.00	2.00	2.00		Steel bending and erection	Nil
	,																				
Sik Sik Yuen Ho Fung College	03-May-10	11:40	Sunny	<1				5.21 5.24		7.47 7.47		3.18		3.23		3.20	3.20	3.20		Nil	Nil
I-1-C	05-May-10		Cloudy	<1		24.00 23.9				7.42 7.41			4.76	4.78		2.60	2.00	2.30		Nil	Nil
	08-May-10 10-May-10		Cloudy	<1 <1		23.80 23.7 22.40 22.4				7.60 7.61 7.10 7.11		7.07	7.12 5.42			3.60 2.00	2.90 2.00	3.25 2.00		NII NII	NII NEI
	12-May-10	10:28	Fine			27.00 27.0				7.80 7.80			3.95			2.00	2.00	2.00		Mil	Mil
	14-May-10							6.01 5.99		7.86 7.87		3.70				2.00	2.00	2.00		Nil	Nil
	17-May-10		Sunny	<1		27.10 27.1				7.66 7.67		3.70			,	4.80	5.30	5.05	,	Nil	Nil
	19-May-10	10:55	Rainy	<1	22.50	22.40 22.4	5.60	5.65 5.63		7.40 7.41		2.20			- /-	2.00	2.00	2.00	- /-	Nil	Nil
	22-May-10	10:30	Rainy	<1				5.16 5.15		7.60 7.60			3.01			2.00	2.00	2.00		Nil	Nil
	24-May-10		Sunny	<1				5.77 5.75		7.90 7.91		3.90				2.30	2.00	2.15		NII	NII NEI
	26-May-10 28-May-10		Sunny					5.52 5.51 6.05 6.03		7.03 7.04 7.10 7.11	7.04					2.80 8.20	2.70 8.20	2.75 8.20		Nil	IVII Nii
	31-May-10							5.43 5.42			7.11					2.00		2.00		Nil	Nil
	5ay 10	.5.77	Oloudy			2-7.0	0.71	0.42	7	7.20	0	,0				2.00	2.30				
Hong Hoi Chee Hong Temple	03-May-10	11:17	Sunny					5.58 5.56		7.51 7.50	7.51	1.85	1.88	1.87		2.00	2.00	2.00		Drilling	Nil
I-2	05-May-10	12:00	Cloudy	<1	24.60	24.60 24.6	5.70	5.76 5.73		7.58 7.57	7.58	1.90	1.94	1.92		2.00	2.00	2.00		Breaking	Nil
	08-May-10		Cloudy			23.20 23.2										3.60	4.40	4.00		Drilling	Nil
	10-May-10	10:53	Cloudy	<1				5.12 5.10 5.32 5.34			7.05		5.92			5.00	5.60	5.30		Drilling Broaking	Nil Nii
	12-May-10 14-May-10		Fine Fine	<1 <1		25.30 25.3					7.92 7.70	2.10	1.97			2.00	2.00	2.00		Breaking Drilling	Nil
	17-May-10		Sunny			27.00 27.0				7.82 7.82		2.10				2.80	2.80	2.80		Drilling	Nil
	19-May-10		Rainy			22.00 22.0				7.55 7.55		2.70			6.63 / 6.99	2.00	2.00	2.00	7.68 / 8.34	Drilling	Nil
	22-May-10	10:08	Rainy	<1	23.30	23.30 23.3	4.99	4.95 4.97		7.60 7.60	7.60	2.50	2.42	2.46		2.00	2.00	2.00		Drilling	Nil
	24-May-10		Sunny	<1		27.00 27.0				7.59 7.58		2.50				2.00	2.00	2.00		Drilling	Nil
	26-May-10					28.60 28.6					7.16					2.00	2.00	2.00		Breaking	Nil .
	28-May-10 31-May-10							6.15 6.14 4.56 4.58		7.25 7.25 7.36 7.36	7.25				_	2.00	2.00	2.00		Breaking	NII NEI
	31-May-10	10.20	Cloudy	<1	25.00	25.00 25.0	4.60	4.56 4.56	-	7.30 7.30	7.30	1.03	1.00	1.65		2.00	2.00	2.00		Breaking	INII
Hong Hoi Chee Hong Temple	03-May-10	11:05	Sunny	<1	24.50	24.40 24.4	5 5.66	5.62 5.64		7.51 7.51	7.51	1.90	1.94	1.92		2.00	2.20	2.10		Nil	Nil
I-2-C	05-May-10		Cloudy					5.80 5.82		7.60 7.60			1.95			2.00	2.00	2.00		Nil	Nil
	08-May-10	10:40	Cloudy	<1	24.00	24.00 24.0	0 5.10	5.06 5.08		7.15 7.16			5.72	5.75		7.30	6.50	6.90		Nil	Nil
	10-May-10		Cloudy	<1		22.00 22.0				7.06 7.07		5.97	6.13	6.05		5.00	4.80	4.90		Nil	Nil
	12-May-10		Fine	<1		27.00 27.0				7.90 7.90			2.04			2.00	2.00	2.00		Nil	Nil
	14-May-10 17-May-10		Fine			25.00 24.9		6.22 6.19 5.73 5.76	_	7.75 7.74 7.85 7.86	7.75	2.07				2.00	2.00 2.80	2.00		NII Nii	Nil
	19-May-10					21.90 21.8				7.52 7.52					- /-	3.00	2.00	2.50	- /-	Nil	Nil
	22-May-10		Rainy	<1		23.00 23.0				7.55 7.56		2.55				2.00	2.00	2.00		Nil	Nil
	24-May-10	10:10	Sunny	<1	26.90	26.90 26.9	5.50	5.58 5.54		7.65 7.64	7.65		2.55			2.00	2.00	2.00		Nil	Nil
	26-May-10		Sunny	<1		28.50 28.5				7.15 7.16		2.12				2.00	2.00	2.00		Nil	Nil
	28-May-10		Sunny	<1		27.70 27.6						2.80				2.00	2.00	2.00		Nil	Nil
	31-May-10	10:10	Cloudy	<1	24.80	24.80 24.8	4.68	4.73 4.71	_	7.31 7.31	7.31	1.98	1.92	1.95		2.00	2.00	2.00		NI	NII
Squatters	03-May-10	10:00	Sunny	<1	25.00	24.90 24.9	5 5 98	6.01 6.00		7.57 7.58	7.58	2 08	2.02	2.05		2.00	2.20	2.10		Breaking and Excavation work	Nil
Squatters I-3	05-May-10							5.68 5.71	=	7.61 7.61						2.00		2.00		Breaking and Excavation work	Nil
	08-May-10			<1	24.00	24.10 24.0	5 4.89	4.84 4.87		7.27 7.27	7.27	2.75	2.79	2.77		2.00	2.30	2.15		Breaking and Excavation work	Nil
	10-May-10							5.16 5.12	_		7.19					2.00	2.00	2.00		Breaking and Excavation work	Nil
	12-May-10	09:13	Fine	<1		26.70 26.6				7.60 7.61			2.08			2.00	2.00	2.00		Breaking and Excavation work	Nil
	14-May-10	10:02	Fine	<1		25.40 25.4		5.83 5.85 5.51 5.53		7.60 7.60		1.92	1.90 2.18			2.00	2.00	2.00		Breaking and Excavation work	NII Nii
	17-May-10 19-May-10		Sunny			23.30 23.3				7.87 7.88 7.78 7.78					3.99 / 4.18	2.00	2.00	2.00	6.13 / 7.23	Excavation work Breaking and Excavation work	Nil
		:-						5.15 5.13		7.68 7.69							2.00			Breaking and Excavation work	Nil
								5.37 5.36		7.35 7.36							2.00			Breaking and Excavation work	Nil
	26-May-10	11:38	Sunny	<1	28.50	28.50 28.5	0 4.53	4.58 4.56		7.18 7.18	7.18	3.10	3.05	3.08		2.00	2.00	2.00		Breaking and Excavation work	Nil
								5.84 5.82		7.25 7.26							2.00			Breaking and Excavation work	Nil
	31-May-10	09:31	Cloudy	<1	24.00	24.00 24.0	5.01	5.07 5.04	4	7.42 7.42	7.42	2.86	2.92	2.89		2.00	2.00	2.00		Breaking and Excavation work	Nil
Squatters	03-May 10	10:10	Suppy		24.00	24.80 24.0	0 5.01	5.94 5.93	-	7.55 7.55	7.55	2 02	2 12	2.00		2 20	2.00	2.10		Nii	Nil
I-3-C								5.76 5.79		7.62 7.61							2.50			Nil	Nil
[]								4.97 4.94		7.23 7.24							2.00			Nil	Nil
	10-May-10	10:00	Cloudy	<1	22.90	22.80 22.8	4.96	5.01 4.99		7.15 7.15	7.15	2.90	2.84	2.87		2.60	2.00	2.30		Nil	Nil
	12-May-10	09:05	Fine	<1	26.20	26.20 26.2	5.02	5.04 5.03		7.55 7.56	7.56	2.10	2.17	2.14			2.00			Nil	Nil
								5.86 5.89		7.55 7.56							2.00			Nil	Nil
								5.57 5.60		7.90 7.90					- /-				- /-	Nil Nil	Nil
								5.27 5.31 4.90 4.93		7.76 7.75 7.61 7.60						2.00	2.00	2.00		INII Nii	INII Nii
								5.50 5.52		7.40 7.41							2.00			Nil	Nil
								4.64 4.62		7.20 7.20							2.00			Nil	Nil
			Sunny	<1	27.20	27.30 27.2	5.83	5.89 5.86		7.22 7.22	7.22 7.22 7.22 3.12 3.16 3.14 7.40 7.40 7.40 3.00 3.02 3.01	3.14		2.00	2.05	2.05	Nil	Nil			
						04.00	4.07	100 105	1	7 40 7 40	7.40	2.00	2.02	2.01		2.00	2.00	2.00		Nil	N III
	31-May-10	09:18	Cloudy	<1	24.20	24.20 24.2	4.97	4.93 4.95		7.40 7.40	7.40	3.00	3.02	3.01		2.00	2.00	2.00		IVII	NII

Note:
Blue Italic indicates an exceedance of Action Level
Red Bold indicates an exceedance of Limit Level

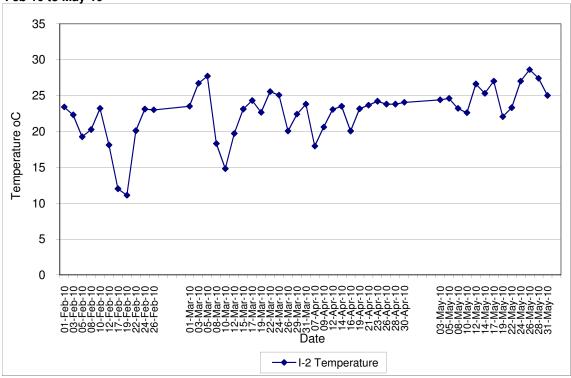
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1) Feb-10 to May-10



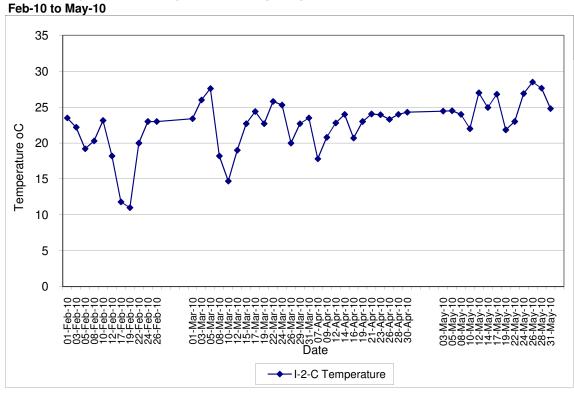
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C) Feb-10 to May-10



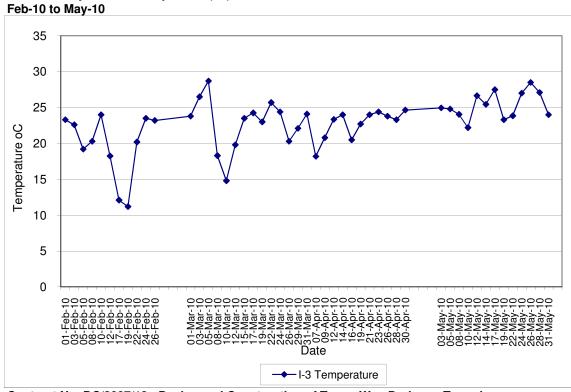
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2) Feb-10 to May-10



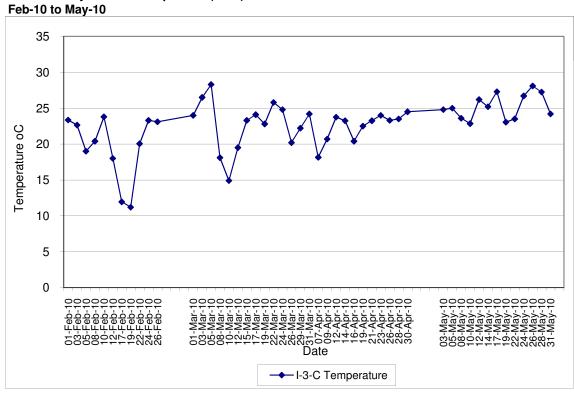
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)



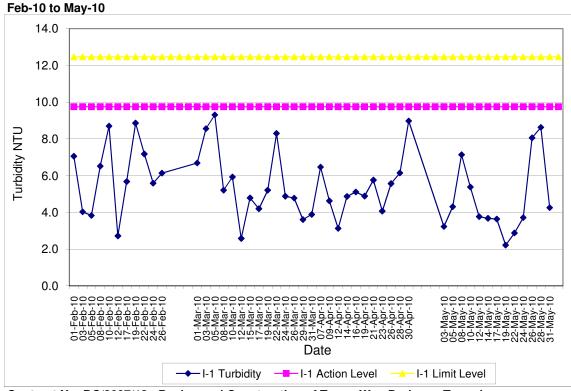
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



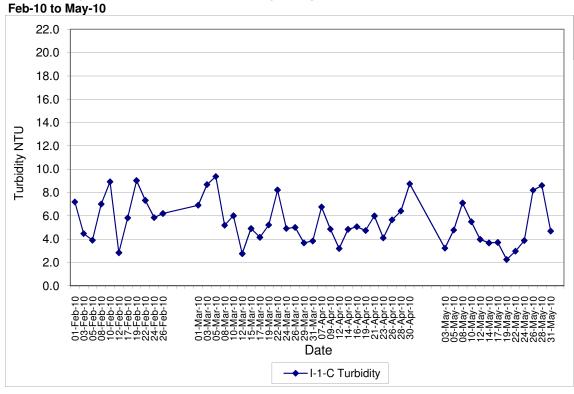
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



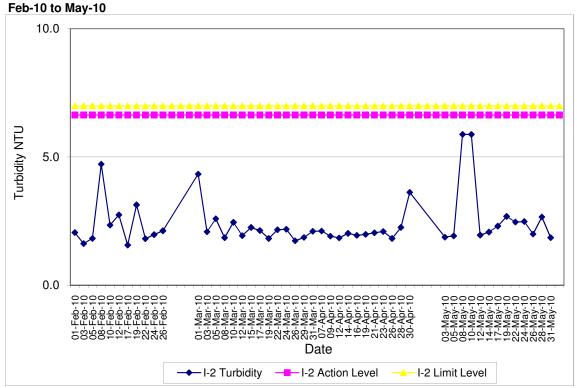
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



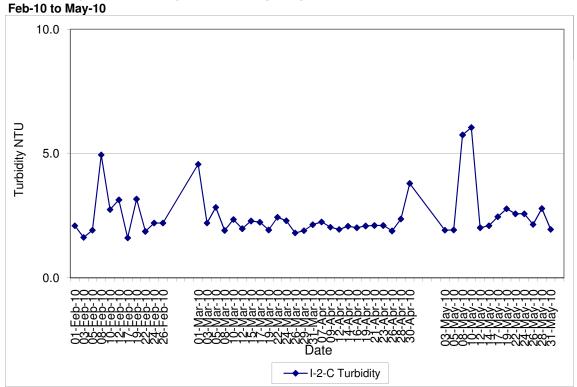
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)



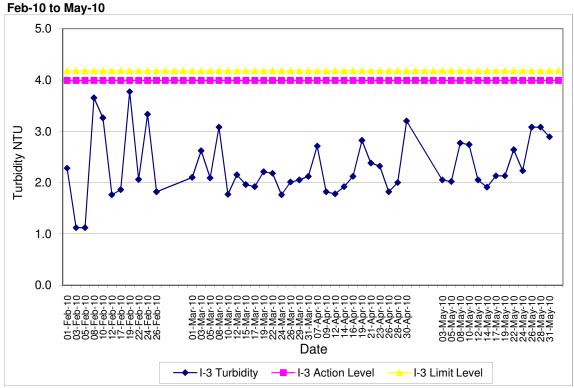
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)



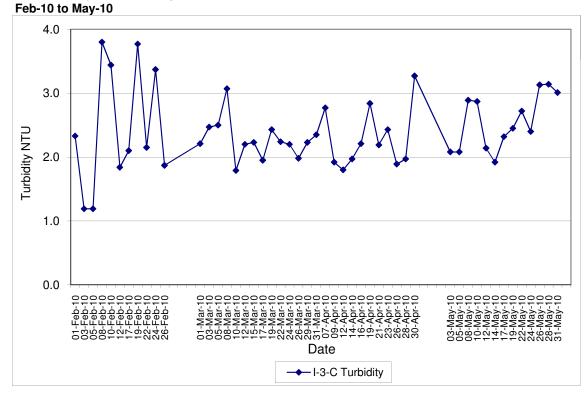
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)



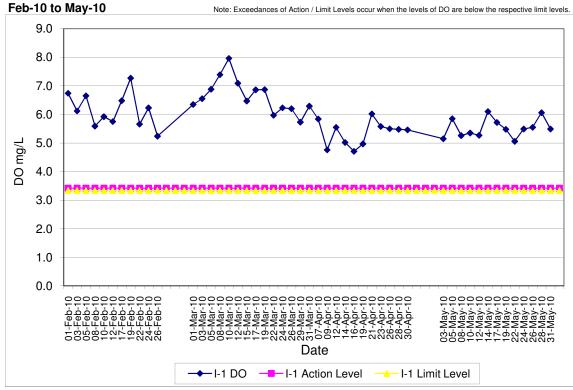
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



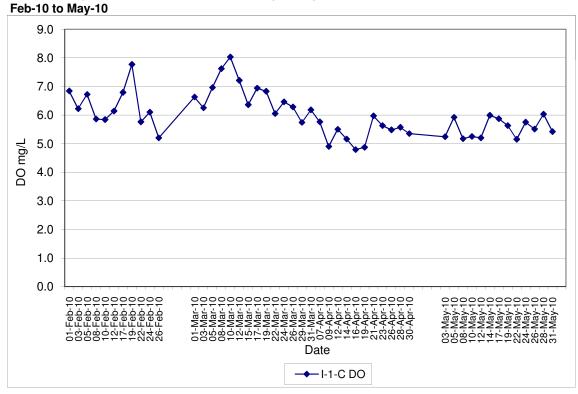
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



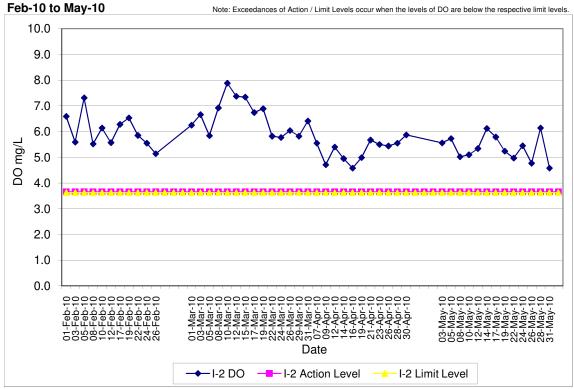
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



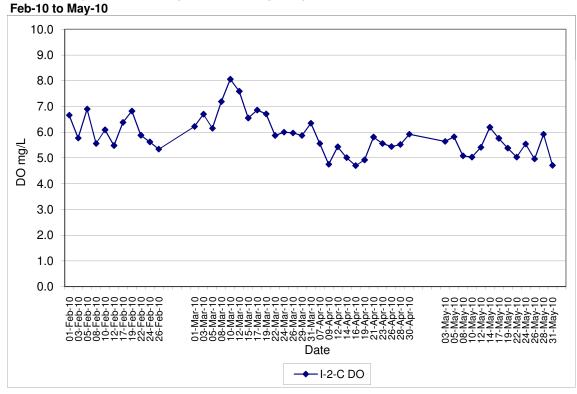
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)



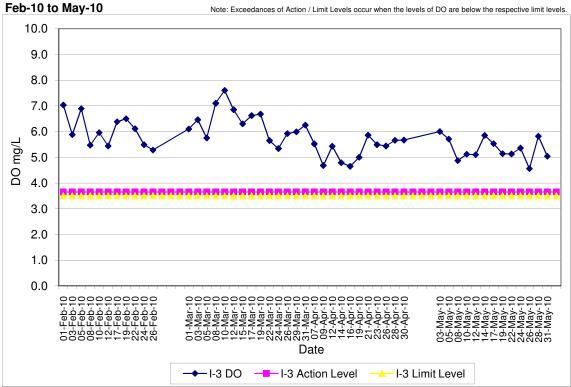
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)



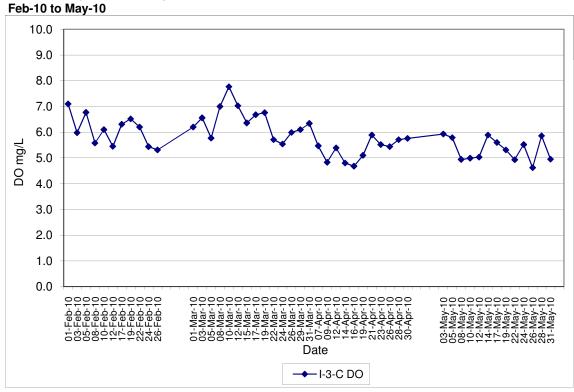
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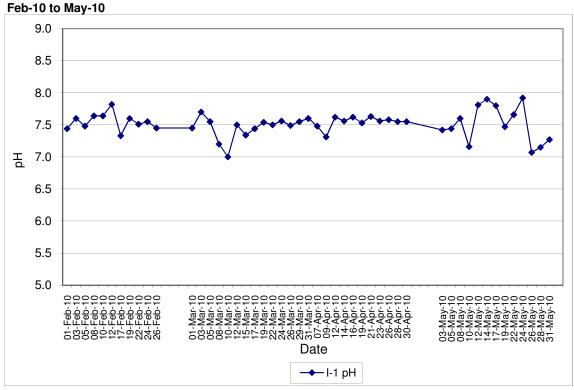
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



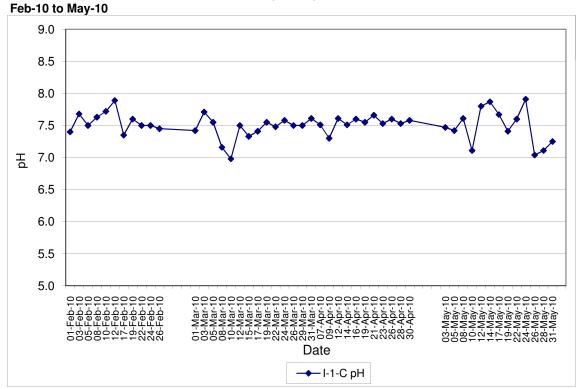
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



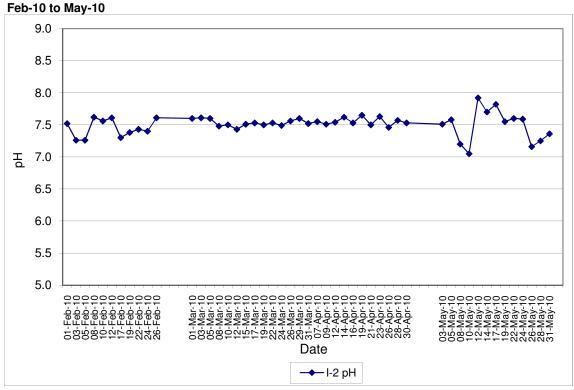
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



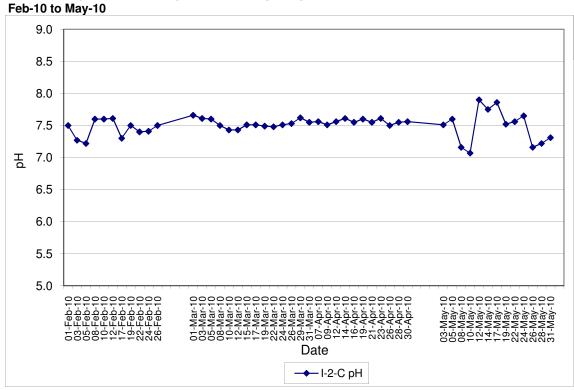
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)



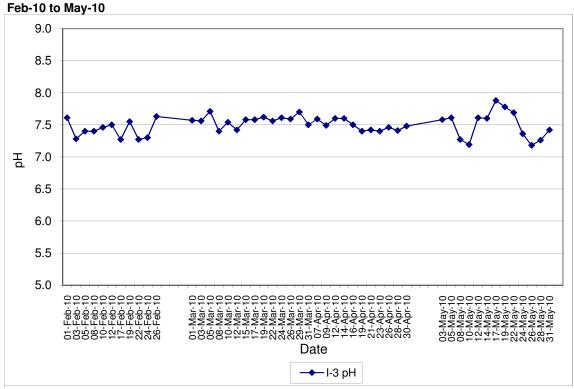
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)



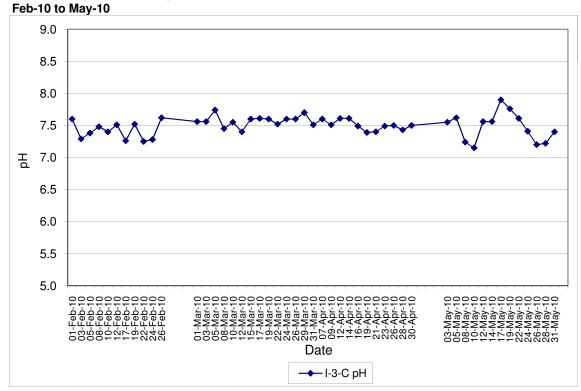
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)



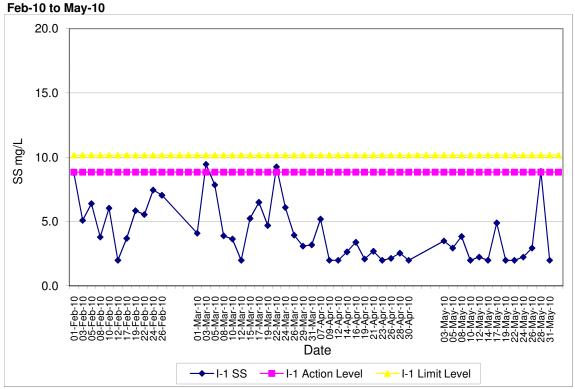
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



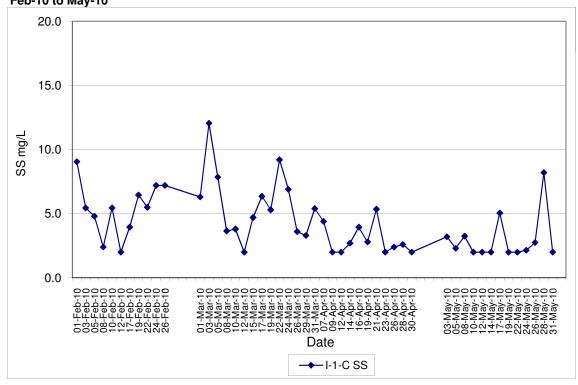
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



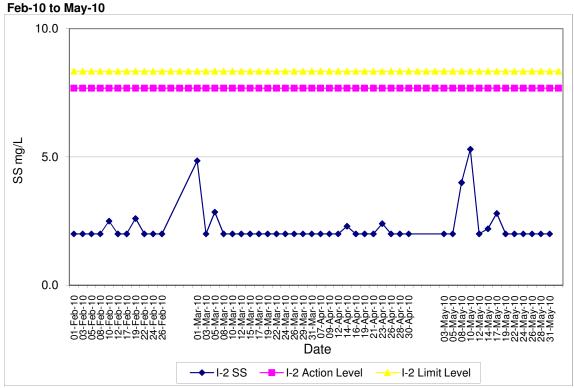
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



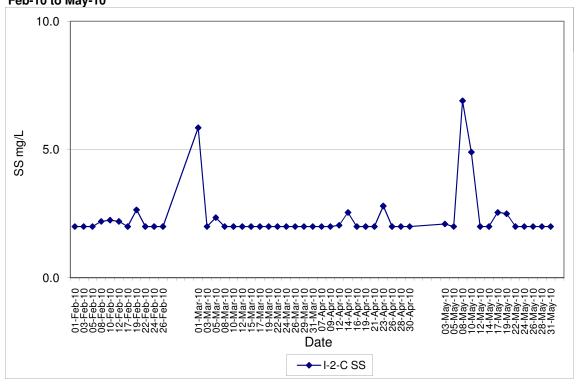
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C) Feb-10 to May-10



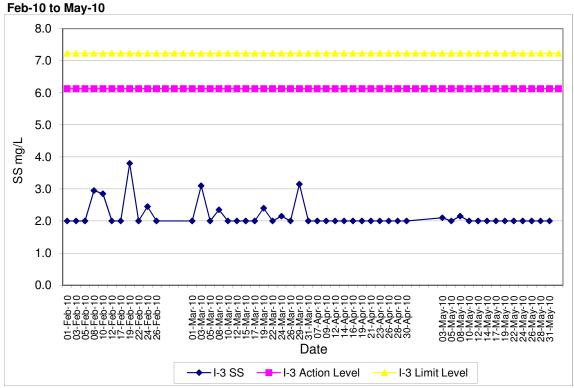
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)



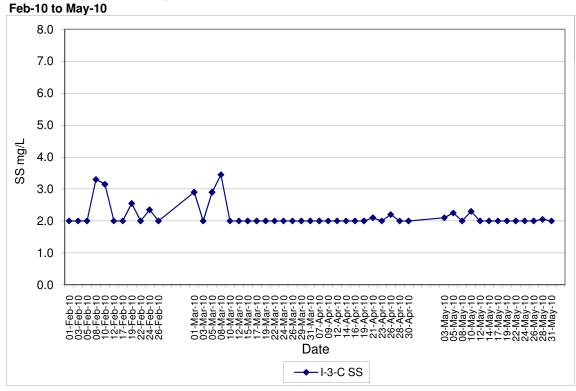
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Feb-10 to May-10



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



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





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	05-May-10
Time	10:10 AM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solid
Action & Limit Levels	8.85 / 10.17
Measured Level	2.95
Possible reason for Action or Limit Level Non-compliance	A low SS level of 2.30 is recorded at Control Station (I-1-C)
Actions taken / to be taken	The measured SS level was below baseline action level and Limit level. It was within the range of baseline SS concentration (1-10.5mg/L). Construction activities including general site cleaning and housekeeping, erect formwork for spiral ramp, strip off formwork for spiral ramp, erect scaffold working platform and fabrication of steel rebar were undertaken during the measurement and no direct disturbance was observed from the site. Thus, the exceedance is considered to be natural variation and no action should be taken.
Remarks	Following mitigation measures were provided: (1) sandbags were used at the gap of the bridge to avoid wastewater from site activities directly running down to the channel of I-1. (2) existing stream has been diverted and bunded by sealed concrete block wall and sand bag bund walls were also installed. No wastewater was observed down to the channel-I1. (3) Sand/silts removal facilities was installed at the location of I-1.

Prepared by: Terence Kong

Designation: Environmental Team Leader

Signature:

Date: 11-May-10

Photographic record for exceedance of Suspended Solid recorded at Sik Sik Yuen Ho Fung College (I-1) on 05-May-10





Site photo



Photo taken at I-1



Photo taken at I-1-C

Interim Notifications of Environmental Quality Limits Exceedances

Incident Report on Action Level or Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel					
Date	28-May-10					
Time	10:40 AM					
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)					
Parameter	Suspended Solid					
Action & Limit Levels	8.85 / 10.17					
Measured Level	8.90					
Possible reason for Action or Limit Level Non-compliance	SS level of 8.20 is recorded at Control Station (I-1-C)					
Actions taken / to be taken	The measured SS level was slightly above the baseline action level and below the Limit level. It was also within the range of baseline SS concentration (1-10.5mg/L). Construction activities including general site cleaning and house keeping; erect formwork for spiral ramp; strip off formwork for spiral ramp; erect scaffold working platform for spiral ramp were undertaken during the measurement and no direct disturbance was observed from the site. Thus, the exceedance is considered to be natural variation and no action should be taken.					
Remarks	Following mitigation measures were provided: (1) existing stream has been diverted and bunded by sealed concrete block wall and sand bag bund walls were also installed. No wastewater was observed down to the channel-I1. (2) Sand/silts removal facilities was installed at the location of I-1.					

Prepared by: Terence Kong

Designation: Environmental Team Leader

Signature:

Date: 03-Jun-10

Photographic record for exceedance of Suspended Solid recorded at Sik Sik Yuen Ho Fung College (I-1) on 28-May-10







Site photo



Photo taken at I-1



Photo taken at I-1-C



Appendix K

Complaint Log

APPENDIX K

COMPLAINT LOG

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
1	CIR-001	9 March 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/04846-09) regarding to muddy effluent discharged from the outfall of the construction site from a public on 9 March 2009. Site investigation was also carried out by EPD with the Contractor on the same day.	Findings/ Observations In the afternoon on 9 March 2009, the Contractor was carrying out regular maintenance for removing silt accumulated in the wastewater treatment plant. During the maintenance works, some residual silt inside the plant was accidentally leaked out to the outfall discharge outlet. The reason was that a flexible pipe for disposing silt was found connecting to the concrete platform of the outfall discharge outlet. Conclusion/Remedial Action The complaint was valid and it was due to maintenance works at the wastewater treatment plant at the outfall area. The contractor had cleaned up the silt at discharge outlet and the channel at the outfall area on 12 March 2009 as shown in the attached photo. The ET will closely inspect the discharge outlet and the channel during the routine site inspections and provide advice to the Contractor. The Contractor was also advised to provide mitigation measures during any occasion of the maintenance work on the wastewater treatment plant. The discharge pipe of the treatment plant should be plugged and ensure not functioned when carrying out maintenance works on the wastewater treatment plant in order to prevent the discharge of silt or muddy water to the outlet. Flexible pipe for discharge of sludge should not be placed on the concrete platform under the outfall discharge outlet. For disposal of slit or sludge in the	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					wastewater treatment plant, tanker should be used.	
2	CIR-002	8 May 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/09755-09) regarding to construction dust from the outfall construction site on 8 May 2009. Site investigation was also carried out by EPD with the Contractor on 14 May 2009.	Findings/ Observations Regular 1-hour TSP monitoring, in accordance with EM&A Manual, is performed by Environmental Team. The monitoring station concerned is ASR9 (i.e. at the podium level of Greenview Terrace facing to the construction site). The closest date for the 1-hour TSP concentration monitoring was on 6 May 2009 and 12 May 2009 at Greenview Terrace, ASR9. Soil nailing works and loading & unloading excavated materials were observed during monitoring. In accordance with the EM&A Manual and the Baseline Monitoring Report, all 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 6 and 12 May 2009. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows: • Water spraying was provided to the exposed surface. • Several automatic sprinklers were provided at the outfall construction site for water spraying of the haul road. • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works). Conclusion/Remedial Action	Closed
					Based on the site inspection and monitoring results, the complaint is considered not justifiable since no	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					action & limit level exceedance on construction dust are identified. Air quality mitigation measures as recommended in EIA have been implemented in order to control and minimise the air quality impact and nuisance arising from the construction activities. Nevertheless, in view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide more frequent water spraying especially in the dry and sunny weather.	
3	CIR-003	14 May 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP/RW/080206) regarding to daytime construction rock breaking at 7:15 am and dusty at the outfall construction site on 14 May 2009.	The closest date to the complaint for the 1-hour TSP monitoring & daytime construction noise monitoring was on 12, 18 and 27 May 2009 at Greenview Terrace, ASR9 and NSR9. Soil nailing, excavation, rock breaking, loading and unloading the materials were observed during monitoring period. The measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No 1-hour TSP exceedance was recorded. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, noise mitigation measures could be further improved. Based on our site inspection and monitoring results, the complaint for dust is considered not justifiable since no action & limit level exceedance on construction dust is identified. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					quality impact arising from the construction activities. In view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to enhance water spraying especially in the dry and sunny weather. On the other hand, the complaint for noise is considered due to works and the Contractor was agreed to improve the on-site noise mitigation measures such as the following measures. ET's site inspection and the joint inspection with relevant parties was conducted on 29 May 2009 and 4 June 2009 respectively to confirm all the below measures have been implemented. • For the idling plant, it should be switched off to reduce noise level generated. • The sound insulation sheets and noise insulation materials should be placed to enclose the breaking tip tightly and also aside or surrounding the breaking activities as recommended in the following photos 1-3 in noise mitigation measures. • Noise monitoring frequency was increased in order to check the effectiveness of the mitigation measures. The additional measurement was taken on 27 May, 8 June, 10 June and 12 June 2009 after all the measures implemented. The noise levels (Leq. 30 min) were 70.9 dB (A), 70.5 dB (A), 70.3 dB (A) and 70.3 dB (A) respectively, which comply with the limit level in accordance with the EIAO-TM. Soil nailing, excavation and rock breaking were observed during monitoring period. The measures were well in place and seemed effective during the measurement.	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
4	CIR-004	10 July 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/15137-09) regarding to construction dust from the outfall construction site on 10 July 2009.	Findings/ Observations 1-hour TSP concentration monitoring was on 10 July 2009 at Greenview Terrace, ASR9. Soil nailing works, concrete breaking, excavation and loading & unloading excavated materials were observed during monitoring. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 10 July 2009. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows: • Water spraying was provided to the exposed surface. • Automatic sprinklers were provided at the outfall construction site for water spraying of the haul road. • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works). • Tarpaulin was used for covering the dusty works in the Portal area. Conclusion/Remedial Action The complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified	Closed
5 & 6	CIR-005	29 July 2009 & 11 August 2009 at Outfall	Public through SOR	SOR has received two complaints (SOR ref: (DC/2007/12)/M45/500/02480, 02500) from Greenview Terrace	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				regarding to daytime construction noise exceedance recorded at NSR9 on 8, 22, 23, 27 and 29 July 2009 and a large amount dust generated at the outfall construction site. The complaint dates were corresponded to 29 July and 11 August 2009.	6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels from 6 July 2009 to 25 August 2009. Conclusion/Remedial Action The dust complaint on 22 July 2009 was due to the soil nailing works. The Contractor was reminded enhance the dust mitigation measures during soil nailing works. A designated staff was provided to spray water continuously during soil nailing. A nylon bag was placed on the drilling hole and keeping wet to suppress dust. A sprinkler was added at the hillside of the site and water spraying was provided continuously during operation of drilling to suppress dust. The documented complaint for noise is considered to trigger the action level and the Contractor was also reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows: • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.	
					as possible.Movable noise barriers were placed on site and the	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					 movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq, 30 min) between 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq, 30 min) were also re-measured after the implementation of the mitigation measures. Noise level (Leq, 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace. 	
7	CIR-006	12 August 2009 at Outfall	Public through SOR	SOR has received a complaint (SOR ref: (DC/2007/12)/M45/500/02527) from Greenview Terrace, via Apple Daily regarding to daytime construction noise level (L _{eq(30min)}) was sometimes more than 80 dB(A) and a large amount dust	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established	Closed

No.	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
		generated at the outfall construction site. The complaint date was corresponded to 12 August 2009.	Action and Limit Levels from 6 July 2009 to 25 August 2009. Conclusion/Remedial Action The dust complaint was considered not justifiable since no action & limit level exceedance on construction dust were identified. However, it was a recurrent case from Greenview Terrace. The Contractor was recommended to enhance water spraying continuously especially in rock breaking activities. On the other hand, there was no noise levels (Leq(30min)) from the measurement taken from ET was more than 80 dB(A). However, it was a recurrent case from Greenview Terrace. The Contractor was reminded to enhance the on-site noise mitigation measures. The enhanced mitigation measures are proposed as follows: • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. • Movable noise barriers were placed on site and the movable noise barriers were also modified. • Existing 25 ton rock breaker had been replaced by	
			 reminded to enhance the on-site noise mitigation measures. The enhanced mitigation measures are proposed as follows: A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. The designated staff was reminded to record all the weather condition including raining and wind speed. Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. Movable noise barriers were placed on site and the movable noise barriers were also modified. 	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					 been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq, 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq, 30 min) were also remeasured after the implementation of the mitigation measures. Noise level (Leq, 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. 	
8	CIR-007	14 August 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/17978-09) from Greenview Terrace regarding to daytime construction noise from the outfall construction site. The complaint date was corresponded to 14 August 2009.	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. Conclusion/Remedial Action This was a recurrent case from Greenview Terrace. The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows:	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
No.					 A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. The designated staff was reminded to record all the weather condition including raining and wind speed. Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. Movable noise barriers were placed on site and the movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq, 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency would be maintained in twice per week to check whether the mitigation 	
					measures are effective. From the information of the Contractor, all the mitigation measures were	
					implemented on 31 August 2009. Noise levels ($L_{eq, 30}$ $_{min}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 min}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					dB(A) to the nearest integer after the implementation of the mitigation measures.	
9	CIR-008	17 August 2009 at Portion D of the Site	Public through SOR	SOR has received a complaint (SOR ref:(DC/2007/12)/M45/500/02546) from Long Bench Garden regarding to noise nuisance generated from the daytime construction work (rock-breaking) in Portion D of the Site. The complaint date was corresponded to 17 August 2009.	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in August 2009. The monitoring results from 3 August 2009 to 31 August 2009 at NSR 8 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint. Conclusion/Proposed Action The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are recommended as follows: Movable noise barriers had been placed towards the direction of Long Bench Garden, particular for the pipe pile works in the portal. Tools box talk for construction team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. The existing noisy 25 ton rock breaker had been replaced by the other breaker. A joint filler wall had been fixed on the vertical face of west bound to absorb the noise generated towards Long Beach Garden. Noise monitoring frequency was increased twice per	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					week by ET due to this complaint. The measured noise levels were complied with the limit level in accordance with the EIAO-TM. No further complaint was received from Long Bench Garden within the reporting month.	
10	CIR-009	22 August 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/500/02628) was received from Greenview Terrace regarding to daytime construction noise level (Leq(30min)) was sometimes exceeded 75 dB(A) at the outfall construction site. The complaint date was corresponded to 22 August 2009.	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. The monitoring results from 6 July 2009 to 31 August 2009 at NSR 9 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint. Conclusion/Proposed Action The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are recommended as follows: • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					 should be placed to the breaking activities as much as possible. Movable noise barriers were placed on site and the movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq, 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq, 30 min) were also remeasured after the implementation of the mitigation measures. Noise level (Leq, 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace. 	
11	CIR-010	24 September 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/500/02749) was received from Greenview Terrace regarding to daytime construction noise level	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and September 2009. The monitoring results from 6 July 2009 to 29 October 2009 at NSR 9 showed the	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				(Leq(30min)) was sometimes exceeded 75 dB(A) at the outfall construction site.	measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures have been enhanced continuously due to this complaint. Conclusion/Proposed Action The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures were implemented as follows: A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. The designated staff was reminded to record all the weather condition including raining and wind speed. Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. Movable noise barriers were placed on site and the movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					From the additional monitoring data above and the regular monitoring under EM&A requirements, the measured noise levels were complied with the limit level in accordance with the EIAO-TM. From the noise level on 25 September 2009 and 2 October 2009, the trend of noise level seemed to be increased since the decoration work at 14/F Greenview Terrace was the domain noise source during the monitoring. The noise level during that time would be considered for reference only. There was no exceedance of the measured noise level at Greenview Terrace in our investigation.	
12	CIR-011	2 October 2009 at I-3	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/22016-09) regarding to construction dust at the Intake-3 on 2 October 2009.	Findings/ Observations There is no representative air monitoring location as stated in the EM&A Manual. The contractor and the environmental team were undertaken site investigation on the subject area at 08-Oct-09 in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, the dust impact by exposed area could be further improved. The mitigation measures during the site investigation were observed as follows: • Water spraying was provided to the exposed surface. • Wheel washing facilities for dump trucks was provided at the site exit. • Water spraying was provided during excavation and loading/unloading works Conclusion/Proposed Action	Closed
					Based on our site inspection, the complaint for dust is	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					considered justifiable as it is due to windy erosion on the exposed surface. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air quality impact arising from the construction activities. In view of the recent dry season, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide water spraying more frequently especially in the dry season.	
13	(DC/2007/12)/ M45/500/2923 & email on 11 November 2009 from MCSJV	9 November 2009 at Outfall	Greenview Terrace through EPD	Movable noise barrier was not placed close enough to the piling machine.	 Immediate Action The rig was re-orientated and the barrier was placed closed to the drilling head. Follow-up Action Training was conducted to the operator to ensure that the workers aware that the barrier should be placed closed not the drilling head not the machine itself. In order to prevent future occurrence, a permit to dig system was adopted. It should be checked by the Contractor and endorsed by the SOR before starting the drilling rig. The follow up action was checked and a permit to dig system has been implemented. 	Closed
14	(DC/2007/12)/ M45/500/2978 & email on 19 November 2009 from MCSJV	18 November 2009 at Outfall	Greenview Terrace through EPD	Rock-breaking activity carried out in the eastern area of Portion D, closest to Greenview Terrace, was not totally screened and line of sight of the breaker was observed from the NSR.	Follow up Action The bamboo scaffold was extended further away from stage 3 scaffold to further screen off the activities to the Greenview. The length of the extension was about 8 to 10 m. A strong reminded was given to the relevant staff and sub-contractor and the barrier should be placed in the right orientation before breaking.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					The mitigation measures were strictly followed as stated in the proposal. The follow up action and relevant records was checked.	
15.	CIR-12	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01270-10) regarding effluent discharge at Intake-3 construction site on 19 January 2010.	Findings/ Observations The effluent discharge on 19 January 2010 was due to the leakage of Gabion wall at I3. The water from the rock drilling work was flowing through the gap of the Gabion Wall to the watercourses at I3. Immediate Action The contractor had sealed the gap at the Gabion Wall immediately after the incident. Conclusion/Proposed Action Based on our site inspection, the complaint was due to leakage of Gabion wall. The area would be checked and maintained continuously to avoid recurrence case. The above identified mitigation measures have been implemented by the Contractor on 22 January 2010 and ET has also checked the implementation on 31 January 2010. The ET will closely inspect the watercourses during the routine site inspections and provide advice to the Contractor.	Closed.
16	CIR-13	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01319-10) regarding daytime construction noise at Intake-3 construction site on 19 January 2010.	Findings/ Observations The monitoring station concerned is NSR6 (i.e. at Squatter facing to the construction site). Excavation, soil nailing, rock drilling and breaking, loading and unloading the materials were generally observed during monitoring period in mid-January 2010. The measured noise levels in January 2010 complied with the limit level in accordance with the EM&A Manual. These cases would also be treated as two action level exceedances on noise. The Contractor and the Environmental Team were also undertaken site	Closed.

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					 investigation on the subject area in response to complaint. The noise mitigation measures during the site investigation were recommended as follows: Sound insulation sheets were installed covering the working area during breaking and rock drilling in order to block the line of sight to the NSR. Noise insulation materials were used to enclose the drilling rig tightly. Conclusion/Proposed Action Based on the site inspection and monitoring results, the complaint was due to noise generated by rock breaking work. The identified mitigation measures have been discussed with the Contractor and the Contractor has submitted the remedial proposal. The proposal was implemented by the Contractor on 25 January 2010 and ET has also checked the implementation on 31 January 2010. The Contractor was also advised to review the mitigation measures from time to time near the NSR at I3. The ET will closely inspect the area during the routine site inspections and provide advice to the Contractor. 	
17	CIR-13	21 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01444-10) regarding daytime construction noise at Intake-3 construction site on 21 January 2010.	Refers to Investigation /Mitigation Action for Complaint No. 16.	Closed

		site		noise at Intake-3 construction site on 21 January 2010.			
igned by Environmental Team Leader:		am Leader:	Turkon		Date:	7 June 2010	
				18			