



MAEDA



Maeda - CREC - SELI Joint Venture

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

Monthly EM&A Report (March 2011)

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Report No EB000364R0592

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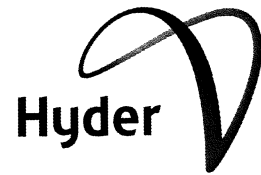
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Report No EB000364R0592

Date 14 April 2011

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EXECUTIVE SUMMARY

1. Drainage Services Department (DSD) has awarded the contract for the Design and Construction of Tsuen Wan Drainage Tunnel (hereafter referred to as the "Project") to Maeda-CREC-SELI Joint Venture (MCSJV). MCSJV has appointed Hyder Consulting Limited (HCL) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works in accordance with the Environmental Monitoring and Audit Manual (EM&A Manual) and Environmental Permit (EP). Commencement of the construction work had been notified to the Environmental Protection Department (EPD) in January 2008. This Monthly EM&A Report summarises the EM&A works undertaken in March 2011.
2. According to the EM&A Manual, there are four designated air quality monitoring locations, five designated noise monitoring locations and five 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 Tsuen Wan Drainage Tunnel included site cleaning and tidying at Outfall, I-1, I-2 and I-3; drilling, excavation and rock splitting at spiral ramp at Outfall; tunnel boring machine (TBM) drilling of the tunnel and mucking out of tunnel spoil at Outfall; removal of existing retaining wall and hanging support for existing utilities at fast lane of Castle Peak Road (CPR) at Outfall; excavation and soil nailing for box culvert construction at fast lane of CPR east bound at Outfall; excavation and disposal of excavated material from existing arch bridge underneath CPR at Outfall; placing levelling stone and bagged concrete for sea wall formation at Portion E; Installation of precast sea wall blocks at Portion E; drilling and excavation of vortex shaft at I-3; construction of PB wall structure skin wall and copping beam at I-3; construction of approach channel at I-3; construction of boulder traps at I-3; installation of concrete blocks for temporary bund wall at I-3; drilling, excavation and rock splitting of man access shaft and vortex drop shaft at I-2; pipe jacking at Portion G at I-2; pre-bored H-pile construction for skin wall at Portion G at I-2; construction of approach channel structure at I-2; construction of 750 step channel and catchpit at Portion G at I-2; cascade and channel modification concrete structure works at I-1; construction of horizontal pipe pile (pipe roofing) for TBM break-through at I-1; and construction of vehicular access at I-1 within the reporting month.
4. During restricted hours, mining works and probe drilling were conducted within the reporting month.
5. No exceedances have been recorded for air quality monitoring during the reporting month.
6. No exceedances have been recorded for air borne noise monitoring and ground borne noise monitoring during the reporting month.
7. Exceedances for river water quality monitoring are summarised in the following table:

| Parameter | Action Level Exceedance | Limit Level Exceedance |
|-----------|---------------------------------|----------------------------------------|
| DO | Nil | Nil |
| Turbidity | One record at I-1 on 2 Mar 2011 | Nil |
| SS | Nil | Two records at I-1 on 2 and 4 Mar 2011 |

8. Exceedances for marine water quality monitoring are summarised in the following table:

| Parameter | Action Level Exceedance | Limit Level Exceedance |
|-----------|---------------------------------------------------|----------------------------------------------|
| DO | Nil | Nil |
| Turbidity | Nil | Nil |
| SS | Two records at O-1(FT) and O-1(ET) on 11 Mar 2011 | Two records at O-1(FT) on 18 and 28 Mar 2011 |

9. The status of waste generation in the reporting month is:

- A total of 7,562.7 m³ C&D material was disposed of to public fill at Tuen Mun. A quantity of 8.6 m³ and 11,348.5 m³ inert C&D materials were reused in the Contract and other Contracts, respectively. Detail information could be referred to Section 5.1.1 of this report.
- About 100.6 m³ general waste was disposed of to NENT Landfill;
- About 350.0 kg paper/cardboard was recycled in the reporting month;
- About 13.6 kg metal was generated in the reporting month;
- About 264.0 kg plastic waste was disposed of in the reporting month; and
- About 2,405.8 kg chemical waste was disposed of in the reporting month.

10. 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 site inspection checklists, were passed to the Contractor together with the ET's recommendations.

11. 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 the reporting month.

12. The major construction works for the upcoming three months will be:

- Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
- TBM drilling of the tunnel and mucking out of tunnel spoil at Outfall;
- Drilling, excavation and rock splitting at spiral ramp at Outfall;
- Removal of existing retaining wall and hanging support for existing utilities at fast lane of CPR at Outfall;
- Excavation and soil nailing for box culvert construction at fast lane of CPR east bound at Outfall;
- Removal of existing sea wall and armour rocks for basin scheme at Portion E;
- Placing levelling stone and bagged concrete for sea wall formation at Portion E;

- Installation of precast seawall blocks and panels for construction of outfall apron at Portion E;
- Drilling and excavation of vortex shaft at I-3;
- Construction of PB wall structure skin wall and coping beam and backfilling at I-3;
- Construction of approach channel at I-3;
- Construction of boulder traps at I-3;
- Drilling, excavation and rock splitting of man access shaft and vortex drop shaft at I-2;
- Pipe jacking at Portion G at I-2;
- Pre-bored H-pile construction for skin wall at Portion G at I-2;
- Construction of approach channel structure at I-2;
- Construction of 750 step channel and catchpit at Portion G at I-2;
- Cascade and channel modification concrete structure works at I-1;
- Construction of horizontal pipe pile (pipe roofing) for TBM break-through at I-1; and
- Construction of vehicular access at I-1.

1 INTRODUCTION

- 1.1.1 The Drainage Services Department (DSD) proposed to construct a tunnel with an internal diameter of 6.5 m and a length of 5.13 km, 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 programme 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 thirty-sixth monthly EM&A report summarising the impact monitoring results and audit findings of the EM&A programme in March 2011.

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 at Outfall, I-1, I-2 and I-3;
- Drilling, excavation and rock splitting at spiral ramp at Outfall;
- Tunnel boring machine (TBM) drilling of the tunnel and mucking out of tunnel spoil at Outfall;
- Removal of existing retaining wall and hanging support for existing utilities at fast lane of Castle Peak Road (CPR) at Outfall;
- Excavation and soil nailing for box culvert construction at fast lane of CPR east bound at Outfall;
- Excavation and disposal of excavated material from existing arch bridge underneath CPR (Outfall)
- Placing leveling stone and bagged concrete for sea wall formation at Portion E;
- Installation of precast sea wall blocks at Portion E;
- Drilling and excavation of vortex shaft at I-3;
- Construction of PB wall structure skin wall and coping beam at I-3;
- Construction of approach channel at I-3;
- Construction of boulder traps at I-3;
- Installation of concrete blocks for temporary bund wall at I-3;
- Drilling, excavation and rock splitting of man access shaft and vortex drop shaft at I-2;
- Pipe jacking at Portion G at I-2;
- Pre-bored H-pile construction for skin wall at Portion G at I-2;
- Construction of approach channel structure at I-2;
- Construction of 750 step channel and catchpit at Portion G at I-2;
- Cascade and channel modification concrete structure works at I-1;
- Construction of horizontal pipe pile (pipe roofing) for TBM break-through at I-1; and
- Construction of vehicular access at I-1.

2.2.3 As confirmed by the Contractor, no marine mud dredging works for basin scheme at Portion E was conducted in the reporting month.

2.2.4 Underground mining works and probe drilling were conducted during restricted hours in this reporting period.

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 One-hour total suspended particulates (TSP) levels were 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 One-hour TSP monitoring was 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 was 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 was kept in a clean and tightly sealed plastic bag. The filter paper was then re-conditioned in desiccators for 24 hours before obtaining the weight under laboratory conditions.
- 3.1.4 The average concentrations of the TSP were 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 were 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 was carried out by ALS Technichem (HK) Pty Limited (HOKLAS Registration Number 066).

Monitoring Equipment and Calibration

- 3.1.6 High Volume Air Samplers (HVASs) were 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 were calibrated before commencement of monitoring using standard orifice 5-points calibration method with orifice calibrator to determine the actual flow rate of each HVAS. This was used for the calculation of the TSP level. Calibration Kit Model - TE5025A was used for calibration of the HVAS. Recalibration of the HVAS was carried out after motor maintenance, at least once every six months, which was 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 | 1785 | ASR 1 |
| HVAS | BM2000HX | 5875 | 1785 | ASR 3 |
| HVAS | TE5005X | 1059 | 1785 | ASR 8 |
| HVAS | TE5005X | 1713 | 1785 | 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 are shown in Table 3-3. In case exceedances of Action and/or Limit levels for air quality occur, Event Contingency Plans (ECPs) would be implemented. The ECPs for Action and Limit levels exceedances are shown in Table 3-4.

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

Table 3-3 Action & Limit Levels for Air Quality

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

| EVENT | ACTION | | | |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | ET | IEC | SOR | CONTRACTOR |
| | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Contractor on possible remedial measures; • Advise SOR on the effectiveness of the proposed remedial measures; • Supervise implementation of remedial measures. | <ul style="list-style-type: none"> • measures properly implemented. | <ul style="list-style-type: none"> • days of notification; • Implement the agreed proposals; • Amend proposal if appropriate. |
| Exceedance for two or more consecutive samples | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Confirm receipt of notification of exceedance in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; • Ensure remedial measures properly implemented; • If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. | <ul style="list-style-type: none"> • Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the 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 was measured in terms of equivalent A-weighted sound pressure level (L_{eq}) measured in decibels (dB(A)). Monitoring of $L_{eq(30\text{ min})}$ was 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, were also recorded during monitoring. Major noise sources observed, both on-site and off-site, were recorded on the field data sheet. All measurements were recorded and presented to the nearest 0.1 dB(A) 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, were used. Noise levels for the A-weighted levels $L_{eq(30\text{min})}$, L_{10} and L_{90} were measured throughout the impact monitoring. An average, by sound power, of six consecutive 5 minutes readings was used to provide $L_{eq(30\text{ min})}$ for non-restricted hours (07:00-19:00 hours from Monday to Saturday except public holidays). A facade correction of 3 dB(A) was applied to the measurements that were 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 were 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 NL-31 and B&K Integrating Sound Level Meter of Type 2238 in compliance with the International Electrotechnical Commission Publication specifications (Paragraph 3.2.3) were 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 was checked using an acoustic calibrator (B&K 4231) generating a known sound pressure level at a known frequency. Measurements were considered as valid only if the calibration levels from before and after the noise measurement agreed to within 1.0 dB(A). Sound level meters and calibrators were calibrated annually to ensure they performed to the same level of accuracy as stated in the manufacturer's specifications.

The noise monitoring equipments used during the reporting month are 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 | NL-31 | 00410224 | NSR1, NSR3, |
| Sound Level Meter | B&K | 2238 | 2562782 | NSR6, NSR8 and NSR9 |
| Sound Level Meter | B&K | 2238 | 2448529 | |
| Sound Level Calibrator | B&K | 4231 | 2699361 | |

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 facade 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 | Greenview Terrace (Block 1) | Podium (up to 6 July 2009) Roof* (since 16 July 2009) |

* The noise monitoring location of NSR9 had been adjusted to rooftop since 16 July 2009.

Table 3-6 Noise Monitoring Locations

Construction Ground Borne Noise

3.2.8 Prediction of construction ground borne 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 hours) at these NSRs. In order to ensure proper control of ground borne 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. Ground borne noise impact monitoring will be carried out only when operation of TBM is conducted within area under monitoring requirement. Detail of the monitoring area and period can be referred to a stand-alone document of *Ground Borne Noise Monitoring Methodology*.

3.2.9 Ground borne noise impact monitoring will be carried out once per week during the monitoring period at NSR 3 and NSR 6, respectively. Parameters such as date, weather condition, equipments used, measurement results and major noise sources will be

recorded on the field data record sheet. Monitoring should be carried out at the ground floor inside the building with all windows, doors and openings being closed. Electrical appliances, such as air conditioners and television, and any other that may emit sound during operation will be switched off or removed to minimise disturbance to the monitoring. If ground borne noise criterion is exceeded, the monitoring shall continue daily until acceptance has been restored against the criterion. Otherwise the monitoring can be discontinued.

3.2.10 The ground borne noise monitoring at NSR 6 has been commenced in March 2011 and will be continued in April, during the period that the TBM is operating in the tunnel section between chainage 3067 m and 3342 m. For NSR 3, the monitoring will be commenced around June 2011 in estimation according to the progress of works. A layout plan showing the chainage and the location of ground borne noise monitoring station at NSR6 is shown in Figure 7 of Appendix G.

3.2.11 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 ground borne construction noise criterion of 60 dB(A) therefore applies with reference to Technical Memorandum on Environmental Impact Assessment Process (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 ground borne noise criteria, ground borne 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 the TM-EIAO.

Action and Limit Levels

3.2.12 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 hours on normal weekdays | When one documented complaint is received | 75 dB(A)* |

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

Table 3-7 Action & Limit Levels for Air Borne Noise

| Event | Action | | | |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| | ET Leader | IEC | SOR | Contractor |
| Action Level | <ul style="list-style-type: none"> Notify IEC and the Contractor. Carry out investigation. Report the results of | <ul style="list-style-type: none"> Review with analysed results submitted by ET. Review the proposed remedial measures by | <ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor | <ul style="list-style-type: none"> Submit noise mitigation proposals to IEC. Implement noise mitigation proposals. |

| Event | Action | | | |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | ET Leader | IEC | SOR | Contractor |
| | <ul style="list-style-type: none"> investigation to IEC and the Contractor. Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check mitigation measures. | <ul style="list-style-type: none"> the Contractor and advise SOR accordingly. Supervise the implement of remedial measures. | <ul style="list-style-type: none"> to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented. | |
| Limit Level | <ul style="list-style-type: none"> Identify the source. Notify IEC, SOR, EPD and the Contractor. Repeat measurement 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 and 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. | <ul style="list-style-type: none"> Discuss amongst SOR, ET Leader and the Contractor on the potential remedial actions. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly. Supervise the implementation of remedial measures. | <ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor 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. | <ul style="list-style-type: none"> Take immediate action to avoid further exceedance. Submit proposals for remedial actions to IEC within 3 working days of notification. Implement the agreed proposals. Resubmit proposals if problem still not under control. Stop the relevant activity of works as determined by the SOR until the exceedance is abated. |

Table 3-8 Event/Action Plan for Airborne Noise

3.2.13 The Action and Limit levels for construction ground borne noise are defined in Table 3-9. If non-compliance of the criteria occurs, actions in accordance with the Action Plan in Table 3-10 would be carried out.

| Monitoring Station ID | NSR 3 | NSR 6 |
|-----------------------|----------------------------------------------------------------------|-----------|
| Name of Premises | Hong Hoi Chee Hong Temple | Squatters |
| Action Level | When one documented complaint is received | |
| Limit Level | Working days during daytime (0700-1900 hours) ($L_{eq(30min)}$) | 65 dB(A) |

Table 3-9 Action & Limit Levels for Ground Borne Noise

| Event | Action | | | |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | ET Leader | IEC | SOR | Contractor |
| Action Level | <ul style="list-style-type: none"> Notify IEC and the Contractor. Carry out investigation. Report the results of investigation to IEC and the Contractor. Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to daily until exceedance is abated. | <ul style="list-style-type: none"> Review with analysed results submitted by ET. Review the proposed remedial measures by the Contractor and advise SOR accordingly. Supervise the implementation of remedial measures. | <ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented. | <ul style="list-style-type: none"> Submit noise mitigation proposals to IEC. Implement noise mitigation proposals. |
| Limit Level | <ul style="list-style-type: none"> Identify the source. Notify IEC, SOR, EPD and the Contractor. 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. Increase monitoring frequency to daily until | <ul style="list-style-type: none"> Discuss amongst SOR, ET Leader and the Contractor on the potential remedial actions. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly. Supervise the implementation of remedial measures. | <ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor 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 | <ul style="list-style-type: none"> Take immediate action to avoid further exceedance. Submit proposals for remedial actions to IEC within 3 working days of notification. Implement the agreed proposals. Resubmit proposals if problem still not under control. Stop the relevant activity of works as determined by the SOR until the exceedance is abated. |

| Event | Action | | | |
|-------|-----------------------|-----|---------------------------------|------------|
| | ET Leader | IEC | SOR | Contractor |
| | exceedance is abated. | | until the exceedance is abated. | |

Table 3-10 Event/Action Plan for Ground Borne 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 effectiveness of these mitigation measures in 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 were measured at all designated monitoring locations including control points at an interval of 3 days per week. DO, temperature, turbidity, pH and SS measurements were undertaken at designated monitoring locations.

3.3.5 It should be noted that water samples for all monitoring parameters were collected, stored, preserved and analysed according to Standard Methods, APHA 17 ed. and/or methods agreed by the Director of Environmental Protection.

3.3.6 Each sample was 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. 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 were transferred to clearly labelled and pre-cleaned sample containers with necessary preservatives immediately after collection. The sample containers were provided by a HOKLAS accredited laboratory. About 1 L of

samples was collected for all laboratory analysis. Following sampling, samples should be stored in a cool box at temperature 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 3-11 below.

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

Table 3-11 Water Quality Monitoring Equipment

- 3.3.8 All in situ monitoring equipments were checked and calibrated prior to use. They were calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters were 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" was observed. The calibration certificates are included in Appendix F.

Monitoring Location

- 3.3.9 Five designated impact monitoring locations (three river stations and two marine stations) and five control locations (three river control stations and two marine stations) were identified in the contract specific EM&A Manual for river and marine water quality monitoring. These monitoring stations are listed in Table 3-12 below and shown in Appendix G.

| Monitoring Station ID | Name of Premises |
|-----------------------|--------------------------------------------|
| <i>River</i> | |
| I-1 | Intake I-1 |
| I-1-C | Control of Intake I-1 |
| I-2 | Intake I-2 |
| I-2-C | Control of Intake I-2 |
| I-3 | Intake I-3 |
| I-3-C* | Control of Intake I-3 |
| <i>Marine</i> | |
| O-1 (FT) and (ET) | Outfall O-1 during 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 3-12 Water Quality Monitoring Locations

- 3.3.10 Note that there were 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 was sampled during each sampling. Control station to be sampled was 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 3-13. In case of any exceedance, appropriate actions would be undertaken in accordance with the Event and Action Plan as described in Table 3-14.

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

| Parameters | Action | Limit |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| | | suspended solids levels for concerned sea water intakes) |
| Turbidity (Tby) in NTU (depth-averaged) | 95%-ile of baseline data or 120% of upstream control station's Tby at the same tide of the same day | 99%-ile of baseline or 130% of upstream control station's Tby at the same tide of the same day |

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limit.
- 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 necessary.

Table 3-13 Action/Limit Levels for Water Quality

| Event | ET Leader | IEC | SOR | Contractor |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Action Level being exceeded by one sampling day | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; and Make agreement on the mitigation measures to be implemented. | <ul style="list-style-type: none"> 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 propose mitigation measures to IEC and SOR; and Implement the agreed mitigation measures. |
| Action Level being exceeded by more than one consecutive sampling day | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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; <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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; <ul style="list-style-type: none"> • 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 3-14 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-hour TSP Monitoring

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

| Station | Monitoring Date | Monitoring Result ($\mu\text{g}/\text{m}^3$) | Action/Limit Levels ($\mu\text{g}/\text{m}^3$) |
|-----------|-----------------|---------------------------------------------------|-----------------------------------------------------|
| ASR 1 | 01-Mar-11 | 76.7 | 307/500 |
| | | 46.8 | |
| | 07-Mar-11 | 89.9 | |
| | | 92.3 | |
| | | 100.7 | |
| | | 67.2 | |
| | 11-Mar-11 | 58.8 | |
| | | 63.6 | |
| | | 57.6 | |
| | 17-Mar-11 | 100.7 | |
| | | 126.5 | |
| | 23-Mar-11 | 114.9 | |
| | | 91.6 | |
| | | 52.9 | |
| 72.3 | | | |
| 29-Mar-11 | 42.6 | | |
| | 68.4 | | |
| ASR 3 | 01-Mar-11 | 116.2 | 327/500 |
| | | 129.5 | |
| | 07-Mar-11 | 67.8 | |
| | | 26.6 | |
| | | 73.8 | |
| | | 75.0 | |
| | 11-Mar-11 | 83.5 | |
| | | 81.1 | |
| | 17-Mar-11 | 44.8 | |
| | | 82.3 | |
| | | 117.5 | |
| | | 150.6 | |
| | | 104.1 | |

| Station | Monitoring Date | Monitoring Result ($\mu\text{g}/\text{m}^3$) | Action/Limit Levels ($\mu\text{g}/\text{m}^3$) |
|-----------|-----------------|---------------------------------------------------|-----------------------------------------------------|
| ASR 8 | 23-Mar-11 | 101.6 | 337/500 |
| | | 86.9 | |
| | | 73.5 | |
| | 29-Mar-11 | 74.7 | |
| | | 68.6 | |
| | | 90.6 | |
| | 01-Mar-11 | 107.2 | |
| | | 95.0 | |
| | | 73.3 | |
| | 07-Mar-11 | 92.3 | |
| | | 203.6 | |
| | | 95.0 | |
| | 11-Mar-11 | 146.6 | |
| | | 73.3 | |
| | | 55.7 | |
| | 17-Mar-11 | 133.0 | |
| 152.1 | | | |
| 129.1 | | | |
| 23-Mar-11 | 131.7 | | |
| | 122.7 | | |
| | 117.6 | | |
| 29-Mar-11 | 145.8 | | |
| | 69.0 | | |
| | 179.0 | | |
| ASR 9 | 01-Mar-11 | 113.5 | 329/500 |
| | | 131.8 | |
| | | 118.8 | |
| | 07-Mar-11 | 168.4 | |
| | | 116.2 | |
| | | 95.3 | |
| | 11-Mar-11 | 142.3 | |
| | | 69.2 | |
| | | 71.8 | |
| | 17-Mar-11 | 214.3 | |
| | | 163.9 | |
| | | 86.5 | |
| | 23-Mar-11 | 143.3 | |
| | | 140.7 | |
| | | 68.4 | |
| | 29-Mar-11 | 95.5 | |
| 65.8 | | | |

| Station | Monitoring Date | Monitoring Result ($\mu\text{g}/\text{m}^3$) | Action/Limit Levels ($\mu\text{g}/\text{m}^3$) |
|---------|-----------------|------------------------------------------------|--------------------------------------------------|
| | | 198.8 | |

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 air quality exceedance was recorded in the reporting month.

4.2 Noise

Air Borne Noise Monitoring

4.2.1 The air borne noise monitoring schedule of the reporting period is given in Appendix H. Results of measured noise level, in terms of $L_{eq(30min)}$, during the construction are shown in Table 4-2. All measurements including L_{10} and L_{90} are recorded and presented to the nearest 0.1 dB(A) in this report. Detailed results including weather conditions and graphical presentation are presented in Appendix I.

| Station | Monitoring Date | $L_{eq(30min)}$ dB(A) | Limit Levels dB(A) |
|---------|-----------------|-----------------------|--------------------|
| NSR 1 | 01-Mar-11 | 64.1 | 70 |
| | 07-Mar-11 | 64.5 | |
| | 17-Mar-11 | 63.9 | |
| | 23-Mar-11 | 65.4 | |
| | 29-Mar-11 | 64.2 | |
| NSR 3 | 01-Mar-11 | 59.2 | 75 |
| | 07-Mar-11 | 57.3 | |
| | 17-Mar-11 | 61.4 | |
| | 23-Mar-11 | 63.9 | |
| | 29-Mar-11 | 62.7 | |
| NSR 6 | 01-Mar-11 | 66.1 | 75 |
| | 07-Mar-11 | 67.7 | |
| | 17-Mar-11 | 59.6 | |
| | 23-Mar-11 | 69.0 | |
| | 29-Mar-11 | 60.8 | |
| NSR 8 | 01-Mar-11 | 63.7 | 75 |
| | 07-Mar-11 | 67.6 | |
| | 17-Mar-11 | 72.3 | |
| | 23-Mar-11 | 67.4 | |
| NSR 9 | 29-Mar-11 | 69.9 | 75 |
| | 01-Mar-11 | 71.5 | |

| Station | Monitoring Date | L_{eq} (30 min) dB(A) | Limit Levels dB(A) |
|---------|-----------------|-------------------------|--------------------|
| | 07-Mar-11 | 73.1 | |
| | 17-Mar-11 | 73.4 | |
| | 23-Mar-11 | 70.4 | |
| | 29-Mar-11 | 70.8 | |

Table 4-2 Air Borne Noise Monitoring Results

4.2.2 No project related air borne noise exceedance was recorded in the reporting month.

Ground Borne Noise Monitoring

4.2.3 The ground borne noise monitoring schedule of the reporting period is given in Appendix H. Results of measured noise level, in terms of L_{eq} (30min), during the monitoring period are shown in Table 4-3. All measurements including L_{10} and L_{90} are recorded and presented to the nearest 0.1 dB(A) in this report. Detailed results including weather conditions and graphical presentation are presented in Appendix I.

| Station | Monitoring Date | TBM Location Chainage (m) | L_{eq} (30 min) dB(A) | Limit Levels dB(A) |
|---------|-----------------|---------------------------|-------------------------|--------------------|
| NSR 6 | 01-Mar-11 | 3406 | 45.1 | 65 |
| | 07-Mar-11 | 3336 | 45.5 | |
| | 09-Mar-11 | 3329 | 41.7 | |
| | 17-Mar-11 | 3269 | 47.4 | |
| | 23-Mar-11 | 3244 | 43.6 | |
| | 29-Mar-11 | 3189 | 45.3 | |

Table 4-3 Ground Borne Noise Monitoring Results

4.2.4 No project related ground borne noise exceedance was recorded in 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 4-4 to Table 4-8.

| Parameter | Action Level Exceedance | Limit Level Exceedance |
|-----------|----------------------------|-----------------------------------|
| DO | Nil | Nil |
| Turbidity | One record on 2 March 2011 | Nil |
| SS | Nil | Two records on 2 and 4 March 2011 |
| Total | 1 | 2 |

Table 4-4 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 4-5 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 4-6 Summary of Exceedances for I-3

| Parameter | Action Level Exceedance | Limit Level Exceedance |
|-----------|-----------------------------|-------------------------------------|
| DO | Nil | Nil |
| Turbidity | Nil | Nil |
| SS | One record on 11 March 2011 | Two records on 18 and 28 March 2011 |
| Total | 1 | 2 |

Table 4-7 Summary of Exceedances for O-1(FT)

| Parameter | Action Level Exceedance | Limit Level Exceedance |
|-----------|-----------------------------|------------------------|
| DO | Nil | Nil |
| Turbidity | Nil | Nil |
| SS | One record on 11 March 2011 | Nil |
| Total | 1 | Nil |

Table 4-8 Summary of Exceedances for O-1(ET)

4.3.2 Results of measured water quality parameters during the reporting month are shown in Table 4-9. Detailed results including weather conditions and graphical presentations are enclosed in Appendix I.

River Water Quality Monitoring

4.3.3 Three non-project related exceedances were recorded for the river water quality monitoring within the reporting month.

Exceedances of Turbidity Level

Action Level at I-1 on 2 March 2011

- 4.3.4 One exceedance of turbidity action level was recorded at I-1 on 2 March 2011. The measured turbidity level (10.60 NTU) was above the baseline action level, but lower than the turbidity level of the control station (I-1-C) (10.88 NTU). General site cleaning, rebar fixing at cascade, formwork for cascade, breaking slab of nullah, erecting working platform and geotechnical instrumentation monitoring were undertaken during the measurement. No direct disturbance was observed from the site. Thus, the exceedance was considered to be contributed by natural variation and no action was required.

Exceedances of Suspended Solids Level

Limit Level at I-1 on 2 and 4 March 2011

- 4.3.5 Two exceedances of SS limit level were recorded at I-1 on 2 and 4 March 2011. The measured SS level on 2 and 4 March (13.40 and 11.25 mg/L, respectively) were above the baseline limit level but lower than the corresponding SS levels recorded at the control station (I-1-C) (13.65 and 12.00 mg/L, respectively). The construction activities conducted on 2 March 2011 included general site cleaning, rebar fixing at cascade, formwork for cascade, breaking slab of nullah, erecting working platform and geotechnical instrumentation monitoring; and the construction activities conducted on 4 March 2011 included general site cleaning, cascade Bay 1 formwork for staircase, breaking slab of nullah, installation of rebar at spiral ramp roof slab, and geotechnical instrumentation monitoring. Since no direct disturbance was observed from the site during the monitoring on these days, the exceedances were considered to be contributed by the natural variation and no action was required.

Marine Water Quality Monitoring

- 4.3.6 Four exceedances were recorded for the marine water quality monitoring within the reporting month.

Exceedances of Suspended Solids Level

Action Level at O-1(FT) on 11 March 2011

- 4.3.7 One exceedance of SS action level was recorded at O-1(FT) on 11 March 2011. The measured SS level (depth-averaged) at O-1(FT) (7.00 mg/L) was below the baseline action/limit level but was higher than 120% of the control station's SS level (O-1-C(FT)) (5.78 mg/L) at the same tide of the same day. Only silt curtain maintenance and relocation of excavated materials from derrick to split barge were undertaken and there was no other marine works during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required.

Action Level at O-1(ET) on 11 March 2011

- 4.3.8 One exceedance of SS action level was recorded at O-1(ET) on 11 March 2011. The measured SS level at O-1(ET) (3.30 mg/L) was below the baseline action/limit level but higher than 120% of the control station's SS level (O-1-C(ET)) (2.58 mg/L) at the same tide of the same day. Only silt curtain maintenance and relocation of excavated materials from derrick to split barge were undertaken and there was no other marine works during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required.

Limit Level at O-1(FT) on 18 and 28 March 2011

- 4.3.9 Two exceedances of SS limit level were recorded at O-1(FT) on 18 and 28 March 2011. The measured SS levels at O-1(FT) on 18 and 28 March (4.58 and 3.28 mg/L, respectively) were below the baseline action/limit level but were higher than 130% of the control station's SS level (O-1-C(FT)) at the same tide of the same day (3.30 and 2.22 mg/L, respectively). Besides placing rockfill for formation of seawall blocks on 18 March and installation and adjustment of seawall blocks on 28 March, there was no other marine works undertaken during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedances were considered to be contributed by natural variation and no further action was required.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|--------------|----------------------------------|
| I-1 | 02-Mar-11 | 20.95 | 7.82 | 3.42 / 3.34 | 8.08 | <i>10.60</i> | 9.75 / 12.47 | 13.40 | 8.85 / 10.17 |
| | 04-Mar-11 | 19.00 | 7.25 | | 8.16 | 8.70 | | 11.25 | |
| | 07-Mar-11 | 20.60 | 6.57 | | 7.97 | 6.07 | | 8.45 | |
| | 09-Mar-11 | 17.60 | 7.26 | | 8.60 | 6.54 | | 4.30 | |
| | 11-Mar-11 | 19.60 | 7.15 | | 8.10 | 5.88 | | 3.60 | |
| | 14-Mar-11 | 21.70 | 7.30 | | 8.10 | 5.66 | | 4.65 | |
| | 16-Mar-11 | 20.60 | 7.53 | | 8.08 | 4.64 | | 5.05 | |
| | 18-Mar-11 | 17.25 | 8.29 | | 8.04 | 6.72 | | 5.45 | |
| | 21-Mar-11 | 21.80 | 6.88 | | 8.56 | 5.44 | | 4.40 | |
| | 23-Mar-11 | 17.80 | 7.80 | | 9.01 | 9.63 | | 8.20 | |
| | 25-Mar-11 | 19.45 | 8.03 | | 8.20 | 7.60 | | 6.80 | |
| | 28-Mar-11 | 23.20 | 7.53 | | 7.80 | 7.69 | | 6.75 | |
| | 30-Mar-11 | 17.55 | 8.39 | | 8.32 | 5.43 | | 3.80 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|-----------|----------------------------------|
| I-1-C | 02-Mar-11 | 20.90 | 7.58 | - / - | 8.07 | 10.88 | - / - | 13.65 | - / - |
| | 04-Mar-11 | 18.90 | 7.40 | | 8.16 | 8.94 | | 12.00 | |
| | 07-Mar-11 | 20.60 | 6.24 | | 7.96 | 6.09 | | 8.20 | |
| | 09-Mar-11 | 17.10 | 7.39 | | 8.64 | 6.51 | | 5.20 | |
| | 11-Mar-11 | 19.50 | 7.31 | | 8.11 | 6.09 | | 3.20 | |
| | 14-Mar-11 | 21.90 | 7.42 | | 8.10 | 5.65 | | 4.80 | |
| | 16-Mar-11 | 20.65 | 7.70 | | 8.10 | 4.72 | | 5.10 | |
| | 18-Mar-11 | 17.40 | 8.12 | | 8.07 | 6.72 | | 5.25 | |
| | 21-Mar-11 | 21.60 | 6.75 | | 8.55 | 5.43 | | 4.70 | |
| | 23-Mar-11 | 18.00 | 7.70 | | 9.04 | 9.92 | | 7.45 | |
| | 25-Mar-11 | 19.30 | 8.05 | | 8.20 | 7.51 | | 6.25 | |
| | 28-Mar-11 | 23.20 | 7.63 | | 7.80 | 7.86 | | 5.95 | |
| | 30-Mar-11 | 17.40 | 8.49 | | 8.33 | 5.46 | | 3.85 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|-----------|----------------------------------|
| I-2 | 02-Mar-11 | 20.95 | 7.86 | 3.66 / 3.63 | 7.96 | 1.28 | 6.63 / 6.99 | <2.00 | 7.68 / 8.34 |
| | 04-Mar-11 | 19.30 | 7.35 | | 8.00 | 2.00 | | <2.00 | |
| | 07-Mar-11 | 20.80 | 8.16 | | 8.04 | 1.67 | | <2.00 | |
| | 09-Mar-11 | 17.65 | 8.02 | | 8.12 | 1.53 | | <2.00 | |
| | 11-Mar-11 | 19.80 | 8.18 | | 8.05 | 1.77 | | <2.00 | |
| | 14-Mar-11 | 21.20 | 7.58 | | 8.03 | 1.57 | | <2.00 | |
| | 16-Mar-11 | 20.10 | 7.91 | | 8.06 | 1.30 | | <2.00 | |
| | 18-Mar-11 | 17.00 | 8.82 | | 8.10 | 1.23 | | <2.00 | |
| | 21-Mar-11 | 21.05 | 7.85 | | 8.01 | 1.08 | | <2.00 | |
| | 23-Mar-11 | 18.10 | 8.28 | | 7.96 | 1.64 | | <2.00 | |
| | 25-Mar-11 | 18.80 | 8.37 | | 8.05 | 1.39 | | <2.00 | |
| | 28-Mar-11 | 21.00 | 8.39 | | 7.88 | 1.15 | | <2.00 | |
| | 30-Mar-11 | 18.10 | 8.71 | | 8.24 | 1.62 | | <2.00 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|-----------|----------------------------------|
| I-2-C | 02-Mar-11 | 20.70 | 7.87 | - / - | 7.95 | 1.32 | - / - | <2.00 | - / - |
| | 04-Mar-11 | 19.20 | 7.44 | | 8.00 | 2.07 | | 2.15 | |
| | 07-Mar-11 | 20.90 | 8.21 | | 8.03 | 1.70 | | <2.00 | |
| | 09-Mar-11 | 18.00 | 8.28 | | 8.10 | 1.56 | | <2.00 | |
| | 11-Mar-11 | 19.70 | 8.37 | | 8.06 | 1.79 | | <2.00 | |
| | 14-Mar-11 | 21.20 | 7.68 | | 8.06 | 1.60 | | <2.00 | |
| | 16-Mar-11 | 20.10 | 7.98 | | 8.07 | 1.32 | | <2.00 | |
| | 18-Mar-11 | 17.10 | 8.72 | | 8.10 | 1.23 | | <2.00 | |
| | 21-Mar-11 | 21.00 | 7.96 | | 8.02 | 1.10 | | <2.00 | |
| | 23-Mar-11 | 17.90 | 8.04 | | 7.95 | 1.70 | | <2.00 | |
| | 25-Mar-11 | 18.65 | 8.30 | | 8.06 | 1.46 | | <2.00 | |
| | 28-Mar-11 | 20.80 | 8.34 | | 7.87 | 1.18 | | <2.00 | |
| | 30-Mar-11 | 17.95 | 8.80 | | 8.24 | 1.59 | | <2.00 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|-----------|----------------------------------|
| I-3 | 02-Mar-11 | 21.10 | 7.55 | 3.65 / 3.51 | 9.48 | 2.29 | 3.99 / 4.18 | <2.00 | 6.13 / 7.23 |
| | 04-Mar-11 | 19.50 | 7.49 | | 7.96 | 1.79 | | 2.05 | |
| | 07-Mar-11 | 20.85 | 7.82 | | 8.21 | 2.05 | | <2.00 | |
| | 09-Mar-11 | 17.80 | 8.20 | | 7.97 | 1.82 | | <2.00 | |
| | 11-Mar-11 | 19.50 | 8.28 | | 7.99 | 1.80 | | <2.00 | |
| | 14-Mar-11 | 21.60 | 7.10 | | 8.11 | 1.87 | | <2.00 | |
| | 16-Mar-11 | 20.10 | 8.08 | | 8.16 | 1.82 | | <2.00 | |
| | 18-Mar-11 | 17.40 | 8.74 | | 8.08 | 1.32 | | <2.00 | |
| | 21-Mar-11 | 21.70 | 7.59 | | 7.97 | 1.28 | | <2.00 | |
| | 23-Mar-11 | 18.35 | 8.09 | | 8.00 | 2.07 | | <2.00 | |
| | 25-Mar-11 | 19.15 | 8.37 | | 8.00 | 1.22 | | <2.00 | |
| | 28-Mar-11 | 20.65 | 7.90 | | 9.52 | 1.50 | | <2.00 | |
| | 30-Mar-11 | 18.00 | 8.61 | | 9.25 | 1.09 | | <2.00 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Temperature | DO (mg/L) | Action/Limit Level for DO (mg/L) | pH | Turbidity (NTU) | Action/Limit Level for Turbidity (NTU) | SS (mg/L) | Action/Limit Level for SS (mg/L) |
|---------|-----------|-------------|-----------|----------------------------------|------|-----------------|----------------------------------------|-----------|----------------------------------|
| I-3-C | 02-Mar-11 | 21.00 | 7.31 | - / - | 9.48 | 2.35 | - / - | <2.00 | - / - |
| | 04-Mar-11 | 19.50 | 7.41 | | 7.95 | 1.88 | | <2.00 | |
| | 07-Mar-11 | 21.00 | 7.43 | | 8.20 | 2.05 | | <2.00 | |
| | 09-Mar-11 | 17.60 | 8.13 | | 7.96 | 1.85 | | <2.00 | |
| | 11-Mar-11 | 19.60 | 8.18 | | 7.99 | 1.88 | | <2.00 | |
| | 14-Mar-11 | 21.50 | 7.18 | | 8.10 | 1.91 | | <2.00 | |
| | 16-Mar-11 | 20.00 | 7.94 | | 8.15 | 1.88 | | <2.00 | |
| | 18-Mar-11 | 17.50 | 8.63 | | 8.07 | 1.30 | | <2.00 | |
| | 21-Mar-11 | 21.50 | 7.62 | | 7.98 | 1.32 | | <2.00 | |
| | 23-Mar-11 | 18.50 | 8.19 | | 8.01 | 2.11 | | <2.00 | |
| | 25-Mar-11 | 19.00 | 8.28 | | 8.00 | 1.27 | | <2.00 | |
| | 28-Mar-11 | 20.30 | 8.11 | | 9.51 | 1.48 | | <2.00 | |
| | 30-Mar-11 | 18.10 | 8.61 | | 9.26 | 1.05 | | <2.00 | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|---------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1(FT) | 02-Mar-11 | Surface | | 8.52 | 6.84 / 6.81 | 8.54 | 4.50 | 10.35 / 13.15 | 6.43 | 14.10 / 18.08 |
| | | Middle | 19.05 | 8.34 | | | | | | |
| | | Bottom | | 8.22 | | | | | | |
| | 04-Mar-11 | Surface | | 8.16 | 6.84 / 6.81 | 8.28 | 1.91 | | 2.72 | |
| | | Middle | 19.92 | 7.98 | | | | | | |
| | | Bottom | | 7.99 | | | | | | |
| | 07-Mar-11 | Surface | | 7.52 | 6.84 / 6.81 | 8.25 | 5.36 | | 8.02 | |
| | | Middle | 20.72 | 7.80 | | | | | | |
| | | Bottom | | 7.91 | | | | | | |
| | 09-Mar-11 | Surface | | 9.26 | 6.84 / 6.81 | 8.36 | 4.82 | | 7.55 | |
| | | Middle | 16.38 | 9.26 | | | | | | |
| | | Bottom | | 9.28 | | | | | | |
| | 11-Mar-11 | Surface | | 8.43 | 6.84 / 6.81 | 8.35 | 4.55 | | 7.00 | |
| | | Middle | 19.28 | 8.60 | | | | | | |
| | | Bottom | | 8.74 | | | | | | |
| | 14-Mar-11 | Surface | | 7.67 | 6.84 / 6.81 | 8.36 | 2.20 | | 3.38 | |
| | | Middle | 20.30 | 7.46 | | | | | | |
| | | Bottom | | 7.66 | | | | | | |
| | 16-Mar-11 | Surface | | 7.75 | 6.84 / 6.81 | 8.33 | 4.19 | | 5.63 | |
| | | Middle | 18.75 | 7.48 | | | | | | |
| | | Bottom | | 7.76 | | | | | | |

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|---------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1(FT) | 18-Mar-11 | Surface | | 8.16 | 6.84 / 6.81 | 8.35 | 2.83 | 10.35 / 13.15 | 4.58 | 14.10 / 18.08 |
| | | Middle | 17.65 | 8.29 | | | | | | |
| | | Bottom | | 8.20 | | | | | | |
| | 21-Mar-11 | Surface | | 7.87 | 6.84 / 6.81 | 8.33 | 6.76 | | 9.67 | |
| | | Middle | 21.62 | 7.95 | | | | | | |
| | | Bottom | | 7.89 | | | | | | |
| | 23-Mar-11 | Surface | | 7.67 | 6.84 / 6.81 | 8.17 | 5.36 | | 11.08 | |
| | | Middle | 18.02 | 7.79 | | | | | | |
| | | Bottom | | 7.73 | | | | | | |
| | 25-Mar-11 | Surface | | 8.31 | 6.84 / 6.81 | 8.30 | 3.27 | | 3.78 | |
| | | Middle | 20.88 | 8.42 | | | | | | |
| | | Bottom | | 8.26 | | | | | | |
| | 28-Mar-11 | Surface | | 7.92 | 6.84 / 6.81 | 8.28 | 3.21 | | 3.28 | |
| | | Middle | 20.70 | 7.68 | | | | | | |
| | | Bottom | | 7.85 | | | | | | |
| | 30-Mar-11 | Surface | | 7.94 | 6.84 / 6.81 | 8.38 | 4.06 | | 4.48 | |
| | | Middle | 18.43 | 8.20 | | | | | | |
| | | Bottom | | 8.01 | | | | | | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|-----------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1-C(FT) | 02-Mar-11 | Surface | | 8.36 | - / - | | | - / - | | - / - |
| | | Middle | 19.15 | 8.49 | - / - | 8.54 | 5.08 | | 8.07 | |
| | | Bottom | | 8.43 | - / - | | | | | |
| | 04-Mar-11 | Surface | | 8.00 | - / - | | | | | |
| | | Middle | 19.90 | 7.88 | - / - | 8.27 | 1.98 | | 2.95 | |
| | | Bottom | | 8.06 | - / - | | | | | |
| | 07-Mar-11 | Surface | | 7.69 | - / - | | | | | |
| | | Middle | 20.63 | 7.61 | - / - | 8.25 | 5.88 | | 8.85 | |
| | | Bottom | | 7.92 | - / - | | | | | |
| | 09-Mar-11 | Surface | | 9.41 | - / - | | | | | |
| | | Middle | 16.43 | 9.40 | - / - | 8.36 | 4.97 | | 8.87 | |
| | | Bottom | | 9.30 | - / - | | | | | |
| | 11-Mar-11 | Surface | | 8.66 | - / - | | | | | |
| | | Middle | 19.28 | 8.60 | - / - | 8.35 | 5.20 | | 5.78 | |
| | | Bottom | | 8.58 | - / - | | | | | |
| | 14-Mar-11 | Surface | | 7.52 | - / - | | | | | |
| | | Middle | 20.05 | 7.47 | - / - | 8.36 | 2.26 | | 3.32 | |
| | | Bottom | | 7.57 | - / - | | | | | |
| | 16-Mar-11 | Surface | | 7.56 | - / - | | | | | |
| | | Middle | 18.67 | 7.77 | - / - | 8.33 | 4.24 | | 7.03 | |
| | | Bottom | | 7.49 | - / - | | | | | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|-----------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1-C(FT) | 18-Mar-11 | Surface | | 8.32 | - / - | | | - / - | | - / - |
| | | Middle | 17.65 | 8.18 | - / - | 8.35 | 2.99 | | 3.30 | |
| | | Bottom | | 8.39 | - / - | | | | | |
| | 21-Mar-11 | Surface | | 7.74 | - / - | | | | | |
| | | Middle | 21.62 | 7.82 | - / - | 8.33 | 6.97 | | 10.95 | |
| | | Bottom | | 7.76 | - / - | | | | | |
| | 23-Mar-11 | Surface | | 7.53 | - / - | | | | | |
| | | Middle | 17.98 | 7.67 | - / - | 8.33 | 5.20 | | 10.12 | |
| | | Bottom | | 7.86 | - / - | | | | | |
| | 25-Mar-11 | Surface | | 8.42 | - / - | | | | | |
| | | Middle | 20.92 | 8.17 | - / - | 8.30 | 3.27 | | 6.00 | |
| | | Bottom | | 8.29 | - / - | | | | | |
| | 28-Mar-11 | Surface | | 8.00 | - / - | | | | | |
| | | Middle | 20.58 | 7.64 | - / - | 8.27 | 3.43 | | 2.22 | |
| | | Bottom | | 7.64 | - / - | | | | | |
| | 30-Mar-11 | Surface | | 8.03 | - / - | | | | | |
| | | Middle | 18.38 | 8.08 | - / - | 8.39 | 4.24 | | 4.90 | |
| | | Bottom | | 8.22 | - / - | | | | | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|---------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1(ET) | 02-Mar-11 | Surface | | 8.49 | | | | 11.87/13.44 | 7.17 | 13.25/14.39 |
| | | Middle | 19.55 | 8.51 | 7.02 / 6.94 | 8.54 | 4.99 | | | |
| | | Bottom | | 8.23 | 6.7 / 6.48 | | | | | |
| | 04-Mar-11 | Surface | | 7.87 | 7.02 / 6.94 | | | 2.58 | | |
| | | Middle | 19.67 | 7.84 | 8.27 | 2.31 | | | | |
| | | Bottom | | 7.55 | 6.7 / 6.48 | | | | | |
| | 07-Mar-11 | Surface | | 7.99 | 7.02 / 6.94 | | | 6.92 | | |
| | | Middle | 17.58 | 7.92 | 8.25 | 4.95 | | | | |
| | | Bottom | | 7.81 | 6.7 / 6.48 | | | | | |
| | 09-Mar-11 | Surface | | 9.28 | 7.02 / 6.94 | | | 3.57 | | |
| | | Middle | 16.43 | 9.23 | 8.36 | 2.73 | | | | |
| | | Bottom | | 9.20 | 6.7 / 6.48 | | | | | |
| | 11-Mar-11 | Surface | | 8.52 | 7.02 / 6.94 | | | 3.30 | | |
| | | Middle | 19.05 | 8.66 | 8.36 | 2.69 | | | | |
| | | Bottom | | 8.66 | 6.7 / 6.48 | | | | | |
| | 14-Mar-11 | Surface | | 7.68 | 7.02 / 6.94 | | | 2.37 | | |
| | | Middle | 20.55 | 7.64 | 8.35 | 1.86 | | | | |
| | | Bottom | | 7.69 | 6.7 / 6.48 | | | | | |
| | 16-Mar-11 | Surface | | 7.92 | 7.02 / 6.94 | | | 3.47 | | |
| | | Middle | 18.48 | 7.89 | 8.33 | 3.79 | | | | |
| | | Bottom | | 7.75 | 6.7 / 6.48 | | | | | |

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

Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|---------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1(ET) | 18-Mar-11 | Surface | | 8.33 | | | | 11.87/13.44 | 3.85 | 13.25/14.39 |
| | | Middle | 17.35 | 8.14 | 7.02 / 6.94 | 8.36 | 4.28 | | | |
| | | Bottom | | 8.20 | 6.7 / 6.48 | | | | | |
| | 21-Mar-11 | Surface | | | 7.70 | 7.02 / 6.94 | | | 3.70 | |
| | | Middle | 21.40 | 7.51 | | 8.32 | 4.52 | | | |
| | | Bottom | | 7.80 | 6.7 / 6.48 | | | | | |
| | 23-Mar-11 | Surface | | | 7.73 | 7.02 / 6.94 | | | 8.88 | |
| | | Middle | 18.38 | 7.63 | | 8.33 | 2.42 | | | |
| | | Bottom | | 7.78 | 6.7 / 6.48 | | | | | |
| | 25-Mar-11 | Surface | | | 8.28 | 7.02 / 6.94 | | | 3.88 | |
| | | Middle | 21.02 | 8.17 | | 8.30 | 3.04 | | | |
| | | Bottom | | 8.29 | 6.7 / 6.48 | | | | | |
| | 28-Mar-11 | Surface | | | 7.74 | 7.02 / 6.94 | | | 4.07 | |
| | | Middle | 20.18 | 7.66 | | 8.30 | 3.19 | | | |
| | | Bottom | | 7.75 | 6.7 / 6.48 | | | | | |
| | 30-Mar-11 | Surface | | | 7.91 | 7.02 / 6.94 | | | 5.20 | |
| | | Middle | 18.27 | 7.74 | | 8.37 | 4.75 | | | |
| | | Bottom | | 7.98 | 6.7 / 6.48 | | | | | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|-----------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1-C(ET) | 02-Mar-11 | Surface | | 8.46 | - / - | | | - / - | | - / - |
| | | Middle | 19.53 | 8.38 | - / - | 8.54 | 5.13 | | 8.67 | |
| | | Bottom | | 8.27 | - / - | | | | | |
| | 04-Mar-11 | Surface | | 7.75 | - / - | | | | | |
| | | Middle | 19.67 | 7.81 | - / - | 8.27 | 2.52 | | 2.87 | |
| | | Bottom | | 7.61 | - / - | | | | | |
| | 07-Mar-11 | Surface | | 7.90 | - / - | | | | | |
| | | Middle | 20.52 | 7.65 | - / - | 8.26 | 5.11 | | 8.05 | |
| | | Bottom | | 7.82 | - / - | | | | | |
| | 09-Mar-11 | Surface | | 9.28 | - / - | | | | | |
| | | Middle | 16.40 | 9.33 | - / - | 8.36 | 2.80 | | 3.52 | |
| | | Bottom | | 9.20 | - / - | | | | | |
| | 11-Mar-11 | Surface | | 8.41 | - / - | | | | | |
| | | Middle | 19.03 | 8.52 | - / - | 8.35 | 2.78 | | 2.58 | |
| | | Bottom | | 8.57 | - / - | | | | | |
| | 14-Mar-11 | Surface | | 7.62 | - / - | | | | | |
| | | Middle | 20.50 | 7.82 | - / - | 8.35 | 1.86 | | 2.22 | |
| | | Bottom | | 7.81 | - / - | | | | | |
| | 16-Mar-11 | Surface | | 7.84 | - / - | | | | | |
| | | Middle | 18.75 | 7.86 | - / - | 8.34 | 3.76 | | 3.77 | |
| | | Bottom | | 7.63 | - / - | | | | | |

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

Bold indicates the occurrence of exceedance of **Limit level**.

| Station | Date | Depth | Temperature (°C) (depth-averaged) | DO (mg/L) | Action / Limit Level for DO (mg/L) | pH (depth-averaged) | Turbidity (NTU) (depth-averaged) | Action / Limit Level for Turbidity (NTU) | SS (mg/L) (depth-averaged) | Action / Limit Level for SS (mg/L) |
|-----------|-----------|---------|-----------------------------------|-----------|------------------------------------|---------------------|----------------------------------|------------------------------------------|----------------------------|------------------------------------|
| O-1-C(ET) | 18-Mar-11 | Surface | | 8.07 | - / - | | | - / - | | - / - |
| | | Middle | 17.43 | 8.10 | - / - | 8.35 | 4.34 | | 4.78 | |
| | | Bottom | | 8.15 | - / - | | | | | |
| | 21-Mar-11 | Surface | | 7.65 | - / - | | | | | |
| | | Middle | 21.60 | 7.57 | - / - | 8.33 | 4.56 | | 4.03 | |
| | | Bottom | | 7.47 | - / - | | | | | |
| | 23-Mar-11 | Surface | | 7.59 | - / - | | | | | |
| | | Middle | 18.23 | 7.78 | - / - | 8.34 | 2.47 | | 8.62 | |
| | | Bottom | | 7.49 | - / - | | | | | |
| | 25-Mar-11 | Surface | | 8.18 | - / - | | | | | |
| | | Middle | 20.97 | 8.35 | - / - | 8.30 | 3.06 | | 3.45 | |
| | | Bottom | | 8.26 | - / - | | | | | |
| | 28-Mar-11 | Surface | | 7.74 | - / - | | | | | |
| | | Middle | 20.20 | 7.77 | - / - | 8.29 | 3.22 | | 4.43 | |
| | | Bottom | | 7.86 | - / - | | | | | |
| | 30-Mar-11 | Surface | | 7.88 | - / - | | | | | |
| | | Middle | 18.23 | 7.80 | - / - | 8.37 | 4.65 | | 5.08 | |
| | | Bottom | | 7.90 | - / - | | | | | |

Note: *Italic* indicates the occurrence of exceedance of *Action level*.
Bold indicates the occurrence of exceedance of **Limit level**.

Table 4-9 Water Quality Monitoring Results

4.4 Summary of Project-Related Exceedances

4.4.1 Table 4-10 summarises the project-related exceedance results recorded in March 2011. 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 | 72 | 0 | 0 | 0 | 0 |
| Air Borne Noise | 25 | 0 | 0 | 0 | 0 |
| Ground Borne Noise | 6 | 0 | 0 | 0 | 0 |
| Water | 130 | 0 | 0 | 0 | 0 |

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

Table 4-10 Summary of Project-Related Exceedances

5 WASTE MANAGEMENT

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

| Status of waste management | Quantity |
|-----------------------------------------------------------------------------|----------|
| Inert C&D Material Disposed of to Public Fill at Tuen Mun (m ³) | 7,562.7 |
| Inert C&D Material Reused in this Contracts (m ³) | 8.6 |
| Inert C&D Material Reused in other Contracts* (m ³) | 11,348.5 |
| Metals Generated (kg) | 13.6 |
| Paper / Cardboard Packaging (kg) | 350.0 |
| Plastics (kg) | 264.0 |
| Chemical Waste (kg) | 2,405.8 |
| General Waste Disposed of to NENT Landfill (m ³) | 100.6 |

* Other Contracts include DC/2007/08, YL/2009/01, HY/2007/10, Wo Shang Wai, DC/2007/17, CV/2009/14, Tailor Recycle Aggregate, XRL 823A and 823B, XRL 825 and TW7.

Table 5-1 Waste Generated in March 2011

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 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 3 March 2011 | 1. Equipments and construction materials at the nullah were not properly screened off by sand bags bunds at Intake I-1. | 1. The Contractor was reminded to screen off the equipments and construction materials at the nullah by sand bag bunds properly. | 1. Equipments and construction materials at the nullah were found screened off by sand bags bunds properly on 4 March 2011. (Closed) |
| 18 March 2011 | 1. Proper drip trays have not been provided for chemical containers temporary stored on-site at I-2 next to the man access shaft. | 1. The Contractor was reminded to provide proper drip trays for chemical containers temporary stored on-site. | 1. Proper drip trays were found being provided for chemical containers stored on-site on 21 March 2011. (Closed) |

Table 6-1 Site Inspection by ET

7 COMPLAINT

- 7.1.1 A complaint hotline at **9850 3241** of the Contractor has been established for the Project.
- 7.1.2 No environmental complaint was received during the reporting month. Details of the past complaint investigation and observations 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 | 21 |

Table 7-1 Cumulative Statistics of Environmental Complaints

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

- 8.1.1 No summons and successful prosecution was received during the reporting month.
- 8.1.2 Cumulative statistics of notification of summons, successful prosecutions and convictions are shown in Table 8-1.

| Notification of Summons | | Successful Prosecution and conviction | |
|-------------------------|------------|---------------------------------------|------------|
| March 2011 | Cumulative | March 2011 | Cumulative |
| 0 | 0 | 0 | 0 |

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

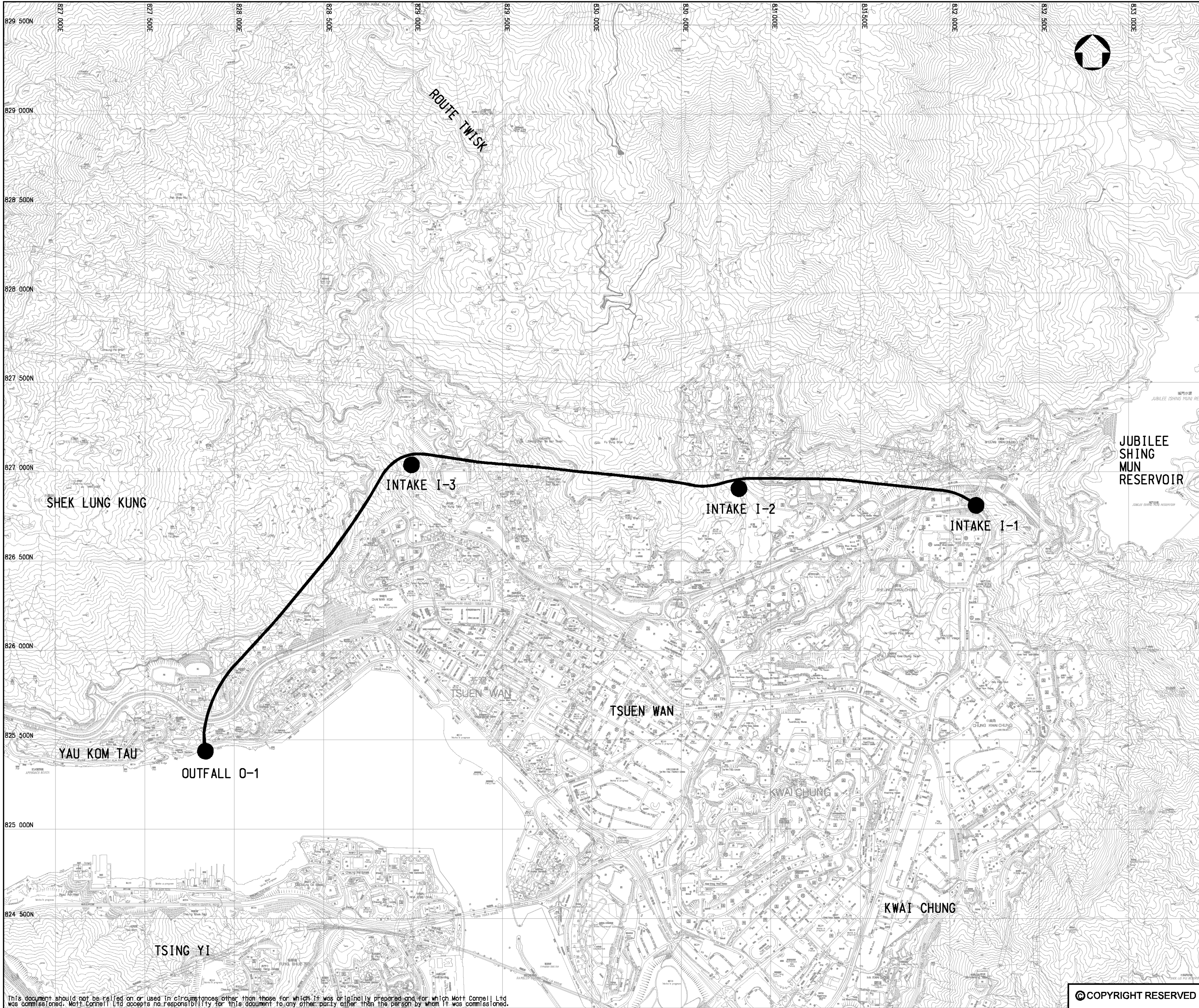
9 FUTURE KEY ISSUE

9.1.1 The forecast of construction works for the upcoming three months are:

- Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
- TBM drilling of the tunnel and mucking out of tunnel spoil at Outfall;
- Drilling, excavation and rock splitting at spiral ramp at Outfall;
- Removal of existing retaining wall and hanging support for existing utilities at fast lane of CPR at Outfall;
- Excavation and soil nailing for box culvert construction at fast lane of CPR east bound at Outfall;
- Removal of existing sea wall and armour rocks for basin scheme at Portion E;
- Placing levelling stone and bagged concrete for sea wall formation at Portion E;
- Installation of precast seawall blocks and panels for construction of outfall apron at Portion E;
- Drilling and excavation of vortex shaft at I-3;
- Construction of PB wall structure skin wall and copping beam and backfilling at I-3;
- Construction of approach channel at I-3;
- Construction of boulder traps at I-3;
- Drilling, excavation and rock splitting of man access shaft and vortex drop shaft at I-2;
- Pipe jacking at Portion G at I-2;
- Pre-bored H-pile construction for skin wall at Portion G at I-2;
- Construction of approach channel structure at I-2;
- Construction of 750 step channel and catchpit at Portion G at I-2;
- Cascade and channel modification concrete structure works at I-1;
- Construction of horizontal pipe pile (pipe roofing) for TBM break-through at I-1; and
- Construction of vehicular access at I-1.

Appendix A

Site Map and Works Area



Key Plan:

Notes:

1. CO-ORDINATES REFER TO HONG KONG METRIC GRID (1980).
2. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM (P.D.).
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

Key to symbols

LEGENDS :

- TUNNEL ALIGNMENT
- INTAKE/OUTFALL STRUCTURES

| B1 | MAR 05 | EL | FOR EMA&A MANUAL | <i>M</i> | <i>De</i> |
|-----|--------|-------|------------------|----------|-----------|
| Rev | Date | Drawn | Description | Ch'kd | App'd |

Client

The Government of the Hong Kong
Special Administrative Region
Drainage Services Department

Consulting Engineers
Mott Connell Ltd.
in Association with
MVA Hong Kong Ltd EDAW Earth Asia Ltd Environmental Resources
WL/Delft Hydraulics Ltd Chesterton Petty Ltd Management

Project
**Drainage Improvement in
Tsuen Wan and Kwai Chung -
Tsuen Wan Drainage Tunnel -
Investigation**

Title
**TUNNEL ALIGNMENT
AND SURROUNDING AREA**

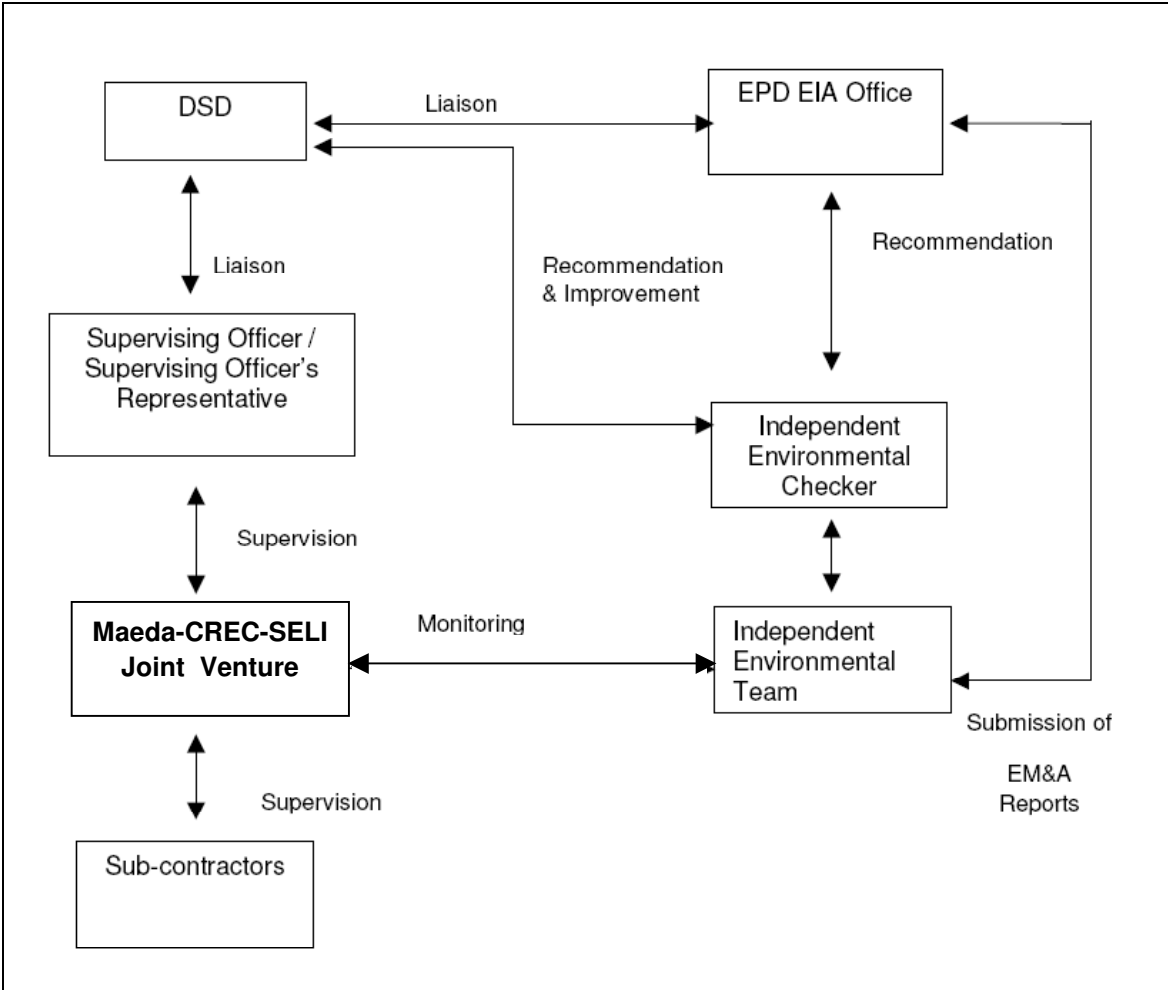
| | | | | | |
|-------------|-----------------------------------------------------|-----------|----------|-----|-----------|
| Designed | CF | <i>cf</i> | Eng.Chk. | MT | <i>M</i> |
| Drawn | HL | HL | Approved | TMC | <i>De</i> |
| Dwg.Chk. | KN | <i>KN</i> | Scale | | |
| Project | 204417 | | | | Status |
| CAD file | J:\204417\DRAWING\FIGURE EMA&A MANUAL\FIGURE1.1.dgn | | | | |
| Drawing No. | FIGURE 1.1 | | | | Rev 01 |

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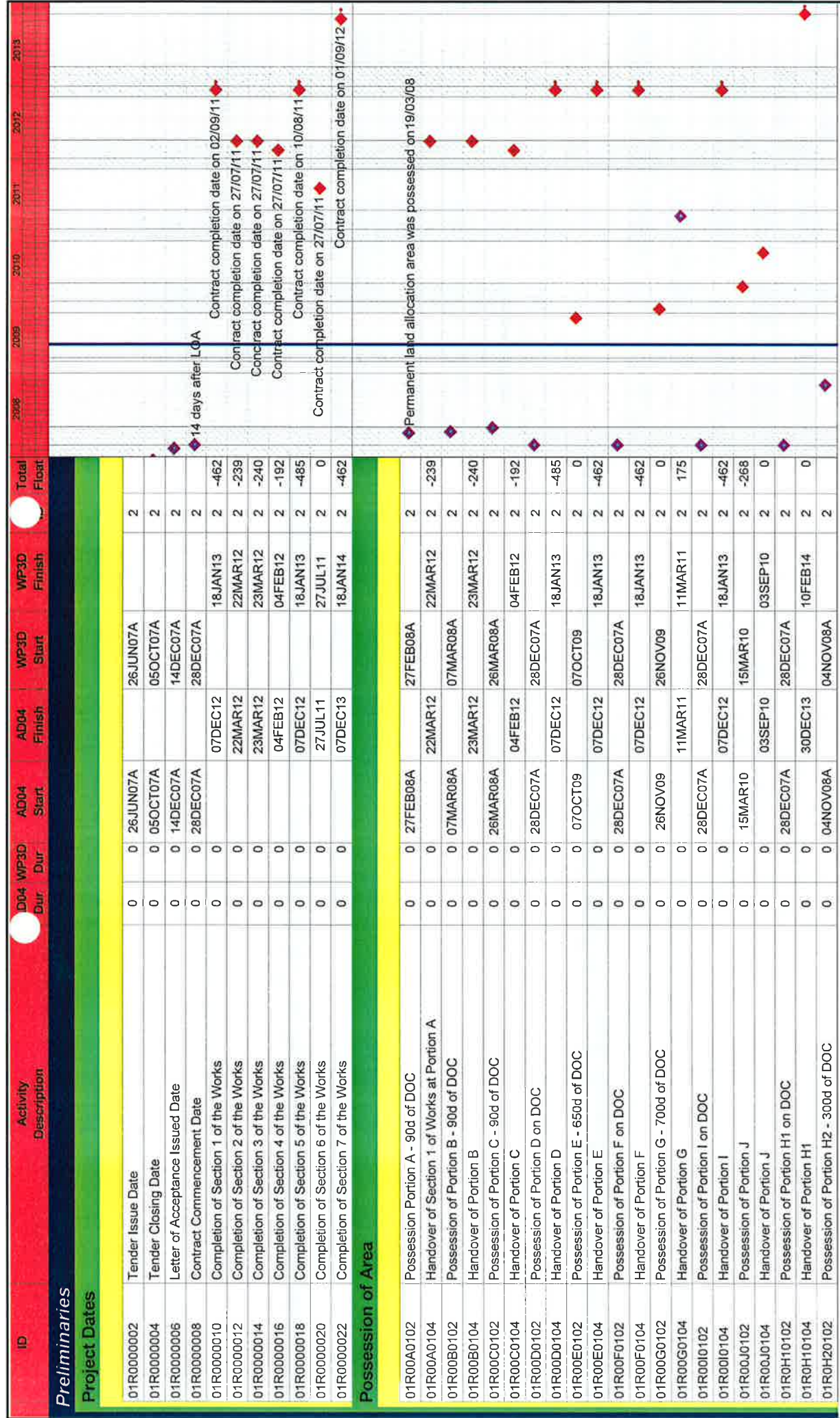
Appendix B

Organization Chart



Appendix C

Construction Programme



| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|---------------------------|---------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|
| 01R0000002 | Tender Issue Date | 0 | 0 | 26JUN07A | | 26JUN07A | | 2 |
| 01R0000004 | Tender Closing Date | 0 | 0 | 05OCT07A | | 05OCT07A | | 2 |
| 01R0000006 | Letter of Acceptance Issued Date | 0 | 0 | 14DEC07A | | 14DEC07A | | 2 |
| 01R0000008 | Contract Commencement Date | 0 | 0 | 28DEC07A | | 28DEC07A | | 2 |
| 01R0000010 | Completion of Section 1 of the Works | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -462 |
| 01R0000012 | Completion of Section 2 of the Works | 0 | 0 | 22MAR12 | 22MAR12 | | 22MAR12 | -239 |
| 01R0000014 | Completion of Section 3 of the Works | 0 | 0 | 23MAR12 | 23MAR12 | | 23MAR12 | -240 |
| 01R0000016 | Completion of Section 4 of the Works | 0 | 0 | 04FEB12 | 04FEB12 | | 04FEB12 | -192 |
| 01R0000018 | Completion of Section 5 of the Works | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -485 |
| 01R0000020 | Completion of Section 6 of the Works | 0 | 0 | 27JUL11 | 27JUL11 | | 27JUL11 | 0 |
| 01R0000022 | Completion of Section 7 of the Works | 0 | 0 | 07DEC13 | 18JAN14 | | 18JAN14 | -462 |
| Possession of Area | | | | | | | | |
| 01R00A0102 | Possession Portion A - 90d of DOC | 0 | 0 | 27FEB08A | | 27FEB08A | | 2 |
| 01R00A0104 | Handover of Section 1 of Works at Portion A | 0 | 0 | 22MAR12 | 22MAR12 | | 22MAR12 | -239 |
| 01R00B0102 | Possession of Portion B - 90d of DOC | 0 | 0 | 07MAR08A | | 07MAR08A | | 2 |
| 01R00B0104 | Handover of Portion B | 0 | 0 | 23MAR12 | 23MAR12 | | 23MAR12 | -240 |
| 01R00C0102 | Possession of Portion C - 90d of DOC | 0 | 0 | 26MAR08A | | 26MAR08A | | 2 |
| 01R00C0104 | Handover of Portion C | 0 | 0 | 04FEB12 | 04FEB12 | | 04FEB12 | -192 |
| 01R00D0102 | Possession of Portion D on DOC | 0 | 0 | 28DEC07A | | 28DEC07A | | 2 |
| 01R00D0104 | Handover of Portion D | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -485 |
| 01R00E0102 | Possession of Portion E - 650d of DOC | 0 | 0 | 07OCT09 | | 07OCT09 | | 2 |
| 01R00E0104 | Handover of Portion E | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -462 |
| 01R00F0102 | Possession of Portion F on DOC | 0 | 0 | 28DEC07A | | 28DEC07A | | 2 |
| 01R00F0104 | Handover of Portion F | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -462 |
| 01R00G0102 | Possession of Portion G - 700d of DOC | 0 | 0 | 26NOV09 | | 26NOV09 | | 2 |
| 01R00G0104 | Handover of Portion G | 0 | 0 | 11MAR11 | 11MAR11 | | 11MAR11 | 175 |
| 01R00I0102 | Possession of Portion I on DOC | 0 | 0 | 28DEC07A | | 28DEC07A | | 2 |
| 01R00I0104 | Handover of Portion I | 0 | 0 | 07DEC12 | 18JAN13 | | 18JAN13 | -462 |
| 01R00J0102 | Possession of Portion J | 0 | 0 | 15MAR10 | | 15MAR10 | | 2 |
| 01R00J0104 | Handover of Portion J | 0 | 0 | 03SEP10 | 03SEP10 | | 03SEP10 | -268 |
| 01R0H10102 | Possession of Portion H1 on DOC | 0 | 0 | 28DEC07A | | 28DEC07A | | 2 |
| 01R0H10104 | Handover of Portion H1 | 0 | 0 | 30DEC13 | 10FEB14 | | 10FEB14 | 0 |
| 01R0H20102 | Possession of Portion H2 - 300d of DOC | 0 | 0 | 04NOV08A | | 04NOV08A | | 2 |

| Date | Revision | Checked | Approved |
|---------|-------------------------------------|---------|----------|
| 22JUN09 | Works Program Revision "WP02" | | |
| 10AUG09 | Works Program Revision "WP3D" | | |
| 04SEP09 | WP3D-TBM Halt Speed at WSD Tunnel#3 | | |
| 07OCT09 | WP3E | | |
| 22OCT09 | WP04 | | |

Maeda-CREC-SELI JV
 CONTRACT NO. DC/2007/12
 Design and Construction of
 Tsuen Wan Drainage Tunnel
 Addendum to Works Programme "WP04"

| | |
|-------------|---------------|
| Start Date | 29JUN07 |
| Finish Date | 30DEC13 |
| Data Date | 28MAY09 |
| Run Date | 22OCT09 10:37 |

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| ID | Activity Description | AD04 | | AD04 | | AD04 | | WP3D Finish | WP3D Start | Cal ID | Total Float | Year | | | | | |
|-----------------------------------------------|--------------------------------------------------|-------|----------|----------|----------|----------|------|-------------|------------|--------|-------------|------|------|------|------|--|--|
| | | Dur | WP3D Dur | Start | Finish | 2008 | 2009 | | | | | 2010 | 2011 | 2012 | 2013 | | |
| 01R0H20104 | Handover of Portion H2 | 0 | 0 | | | 30DEC13 | | 10FEB14 | | 2 | 0 | | | | | | |
| Section of Works - DOP to Completion | | | | | | | | | | | | | | | | | |
| 01R1000202 | S1-Works in Portions A to F except works in S2-7 | 1,308 | 1,308 | 28DEC07A | 07DEC12 | 28DEC07A | | 18JAN13 | | 2 | -462 | | | | | | |
| 01R1000204 | S1-Maintenance Period (365 days) | 365 | 365 | 08DEC12 | 07DEC13 | 19JAN13 | | 18JAN14 | | 2 | -462 | | | | | | |
| 01R20A0206 | S2-Slope Stabilization works within Portion A | 1,247 | 1,247 | 27FEB08A | 22MAR12 | 27FEB08A | | 22MAR12 | | 2 | -239 | | | | | | |
| 01R20A0208 | S2-Maintenance Period (365 days) | 365 | 365 | 23MAR12 | 22MAR13 | 23MAR12 | | 22MAR13 | | 2 | -202 | | | | | | |
| 01R30B0210 | S3-Slope Stabilization works within Portion B | 1,238 | 1,238 | 07MAR08A | 23MAR12 | 07MAR08A | | 23MAR12 | | 2 | -240 | | | | | | |
| 01R30B0212 | S3-Maintenance Period (365 days) | 365 | 365 | 24MAR12 | 23MAR13 | 24MAR12 | | 23MAR13 | | 2 | -203 | | | | | | |
| 01R40C0214 | S4-Slope Stabilization works within Portion C | 1,219 | 1,219 | 26MAR08A | 04FEB12 | 26MAR08A | | 04FEB12 | | 2 | -192 | | | | | | |
| 01R40C0216 | S4-Maintenance Period (365 days) | 365 | 365 | 05FEB12 | 03FEB13 | 05FEB12 | | 03FEB13 | | 2 | -155 | | | | | | |
| 01R50D0218 | S5-Slope Stabilization works within Portion D | 1,308 | 1,308 | 28DEC07A | 07DEC12 | 28DEC07A | | 18JAN13 | | 2 | -485 | | | | | | |
| 01R50D0220 | S5-Maintenance Period (365 days) | 365 | 365 | 06DEC12 | 07DEC13 | 19JAN13 | | 18JAN14 | | 2 | -462 | | | | | | |
| 01R60G0222 | S6-Works within Portion G | 609 | 609 | 26NOV09 | 27JUL11 | 26NOV09 | | 27JUL11 | | 2 | 0 | | | | | | |
| 01R60G0224 | S6-Maintenance Period (365 days) | 365 | 365 | 28JUL11 | 26JUL12 | 28JUL11 | | 26JUL12 | | 2 | 37 | | | | | | |
| 01R7000226 | S7-Landscape softworks & establishment works | 1,673 | 1,673 | 28DEC07A | 30NOV13 | 28DEC07A | | 11JAN14 | | 2 | -455 | | | | | | |
| 01R7000228 | S7-Maintenance Period (30 days) | 30 | 30 | 01DEC13 | 30DEC13 | 12JAN14 | | 10FEB14 | | 2 | -455 | | | | | | |
| Facilities for the SO as per ER 12 | | | | | | | | | | | | | | | | | |
| 01R0000302 | Provide temporary accommodation | 7 | 7 | 28DEC07A | 15JAN08A | 28DEC07A | | 15JAN08A | | 2 | | | | | | | |
| 01R0000304 | Design the SO's principle office | 95 | 95 | 28DEC07A | 28AUG08A | 28DEC07A | | 28AUG08A | | 2 | | | | | | | |
| 01R0000305 | Erect Hoarding/Signboard/Gate/Fencing | 35 | 35 | 28MAR08A | 16MAR09A | 28MAR08A | | 16MAR09A | | 1 | | | | | | | |
| 01R0000306 | Erect SO's principle office in Portion H1/H2 | 100 | 100 | 19MAY08A | 13SEP08A | 19MAY08A | | 13SEP08A | | 1 | | | | | | | |
| 01R0000308 | Provide secondary offices, directed by SO | 64 | 64 | 14SEP08A | 13JUN09 | 14SEP08A | | 13JUN09 | | 2 | 276 | | | | | | |
| 01R0000310 | Provide transport for the SO as per App. ER,M | 90 | 90 | 28DEC07A | 02MAY08A | 28DEC07A | | 02MAY08A | | 2 | | | | | | | |
| 01R0000311 | Provide survey equipments as per App. ER,M | 30 | 30 | 28DEC07A | 19AUG08A | 28DEC07A | | 19AUG08A | | 2 | | | | | | | |
| 01R0000314 | Maintain & Service the Principle Office | 1,539 | 1,539 | 14SEP08A | 30NOV13 | 14SEP08A | | 11JAN14 | | 2 | 0 | | | | | | |
| 01R0000316 | Maintain & Service the Secondary Office | 1,495 | 1,495 | 28OCT08A | 30NOV13 | 28OCT08A | | 11JAN14 | | 2 | 0 | | | | | | |
| 01R0000318 | Maintain & Service the transportation | 1,785 | 1,785 | 12JAN08A | 30NOV13 | 12JAN08A | | 11JAN14 | | 2 | 0 | | | | | | |
| 01R0000319 | Maintain & Service the survey equipments | 1,748 | 1,748 | 18FEB08A | 30NOV13 | 18FEB08A | | 11JAN14 | | 2 | 0 | | | | | | |
| 01R0000372 | Demolish & removal of Principle Office | 30 | 30 | 01DEC13 | 30DEC13 | 12JAN14 | | 10FEB14 | | 2 | 0 | | | | | | |
| Contractor's Accommodation as per ER.B | | | | | | | | | | | | | | | | | |
| 01R0001402 | Design Contractor's main office | 30 | 30 | 01FEB08A | 19MAY08A | 01FEB08A | | 19MAY08A | | 2 | | | | | | | |
| 01R0001406 | Maintain & service Contractor's office | 1,597 | 1,597 | 18JUL08A | 30NOV13 | 18JUL08A | | 11JAN14 | | 2 | 0 | | | | | | |
| 01R0001408 | Demolish & removal of Contractor's main office | 30 | 30 | 01DEC13 | 30DEC13 | 12JAN14 | | 10FEB14 | | 2 | 0 | | | | | | |
| 01R000141 | Erect Contractor's main office in Portion H1 | 50* | 50* | 19MAY08A | 17JUL08A | 19MAY08A | | 17JUL08A | | 1 | | | | | | | |
| 01R0001412 | Construct base slab | 10 | 10 | 19MAY08A | 30MAY08A | 19MAY08A | | 30MAY08A | | 1 | | | | | | | |
| 01R0001413 | Install steel frames | 12 | 12 | 31MAY08A | 21JUN08A | 31MAY08A | | 21JUN08A | | 1 | | | | | | | |
| 01R0001414 | Install wall/roof panels, windows etc | 6 | 6 | 23JUN08A | 30JUN08A | 23JUN08A | | 30JUN08A | | 1 | | | | | | | |
| 01R0001415 | Install & E& M/ceiling/floor panels | 8 | 8 | 02JUL08A | 12JUL08A | 02JUL08A | | 12JUL08A | | 1 | | | | | | | |
| 01R0001416 | Site clearance | 1 | 1 | 14JUL08A | 17JUL08A | 14JUL08A | | 17JUL08A | | 1 | | | | | | | |

| ID | Activity Description | ID04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|-----------------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|-------------|
| 01R0001417 | Install furnitures/internet & move in | 2 | 2 | 14JUL08A | 17JUL08A | 14JUL08A | 17JUL08A | 1 |
| Works Programme & Monthly Report as per SCC 27 | | | | | | | | |
| 01R0000502 | Prepare/Submit draft Works Programme | 7 | 7 | 14DEC07A | 21DEC07A | 14DEC07A | 21DEC07A | 2 |
| 01R0000504 | SO's review/comment on draft Works Programme | 14 | 14 | 22DEC07A | 23JAN08A | 22DEC07A | 23JAN08A | 2 |
| 01R0000505 | Prepare/Submit draft Works Programme Rev. 1 | 28 | 28 | 24JAN08A | 15FEB08A | 24JAN08A | 15FEB08A | 2 |
| 01R0000506 | Prepare/Submit 1st 3-Month Rolling Programme | 14 | 14 | 14DEC07A | 03JAN08A | 14DEC07A | 03JAN08A | 2 |
| 01R0000507 | SO's approval on draft Works Programme | 14 | 14 | 16FEB08A | 28MAR08A | 16FEB08A | 28MAR08A | 2 |
| 01R0000508 | Submit Revised Works Programme | 14 | 14 | 28AUG08A | 30SEP08A | 28AUG08A | 30SEP08A | 2 |
| 01R0000510 | SO's Approval of Revised Works Programme | 14 | 14 | 02OCT08A | 28FEB09A | 02OCT08A | 28FEB09A | 2 |
| 01R0000512 | Monthly Update for all Programme | 1,779 | 1,779 | 18JAN08A | 31DEC12 | 18JAN08A | 18JAN13 | 2 |
| 01R0000514 | Contractor's Monthly Progress Report | 1,775 | 1,775 | 22JAN08A | 31DEC12 | 22JAN08A | 18JAN13 | 2 |
| Safety Plan as per SCC 35 | | | | | | | | |
| 01R0000602 | Submit draft Safety Plan | 14 | 14 | 14DEC07A | 29DEC07A | 14DEC07A | 29DEC07A | 2 |
| 01R0000604 | Hold an ad hoc meeting with RE on Safety Plan | 7 | 7 | 31DEC07A | 09JAN08A | 31DEC07A | 09JAN08A | 2 |
| 01R0000606 | Submit 6 copies of the Safety Plan | 35 | 35 | 14DEC07A | 26FEB08A | 14DEC07A | 26FEB08A | 2 |
| 01R0000608 | Submit updated safety organiza. chart monthly | 1,747 | 1,747 | 20MAR08A | 31DEC12 | 20MAR08A | 18JAN13 | 2 |
| 17R0000602 | Fulfill all relevant safety obligation | 1,830 | 1,830 | 28DEC07A | 31DEC12 | 28DEC07A | 18JAN13 | 2 |
| Contractor's All Insurances | | | | | | | | |
| 01R0000704 | Submit documents for all insurances are effected | 21 | 21 | 14DEC07A | 02SEP08A | 14DEC07A | 02SEP08A | 2 |
| Quality System as per ER 9.3 | | | | | | | | |
| 01R0000802 | Appoint a Quality Manager | 14 | 14 | 28DEC07A | 02JAN08A | 28DEC07A | 02JAN08A | 2 |
| 01R0000804 | Submit proposed Quality System for SO's consent | 28 | 28 | 14DEC07A | 22JAN08A | 14DEC07A | 22JAN08A | 2 |
| 01R0000806 | Submit QSSP for approval of the SO | 28 | 28 | 28DEC07A | 14MAR08A | 28DEC07A | 14MAR08A | 2 |
| 01R0000808 | Maintain & update Quality System | 1,802 | 1,802 | 25JAN08A | 31DEC12 | 25JAN08A | 18JAN13 | 2 |
| Environment | | | | | | | | |
| 01R0000902 | Nominate Environmental Officer | 14 | 14 | 14DEC07A | 21DEC07A | 14DEC07A | 21DEC07A | 2 |
| 01R0000903 | Establish a billing account for disposal | 21 | 21 | 14DEC07A | 02JAN08A | 14DEC07A | 02JAN08A | 2 |
| 01R0000904 | Submit draft EMP | 21 | 21 | 14DEC07A | 02JAN08A | 14DEC07A | 02JAN08A | 2 |
| 01R0000906 | Revise draft EMP within 7 days of SO's notice | 14 | 14 | 04JAN08A | 21FEB08A | 04JAN08A | 21FEB08A | 2 |
| 01R0000908 | Submit final version of EMP | 45 | 45 | 14DEC07A | 21FEB08A | 14DEC07A | 21FEB08A | 2 |
| 01R0000910 | Review/update/submit EMP monthly | 1,769 | 1,769 | 28JAN08A | 31DEC12 | 28JAN08A | 18JAN13 | 2 |
| 01R0000912 | Employ IET | 21 | 21 | 14DEC07A | 02JAN08A | 14DEC07A | 02JAN08A | 2 |
| 01R0000914 | Submit Baseline Monitoring Plan | 21 | 21 | 28DEC07A | 18JAN08A | 28DEC07A | 18JAN08A | 2 |
| 01R0000915 | Seek for EPD's Agreement on WQML & schedule | 21 | 21 | 18JAN08A | 31JAN08A | 18JAN08A | 31JAN08A | 2 |
| 01R0000916 | Carry out baseline monitoring | 37 | 37 | 11FEB08A | 20MAR08A | 11FEB08A | 20MAR08A | 2 |
| 01R0000918 | Prepare/submit reports for baseline monitoring | 20 | 20 | 21MAR08A | 28MAR08A | 21MAR08A | 28MAR08A | 2 |
| 01R0000920 | Impact monitoring & reporting | 1,705 | 1,705 | 01APR08A | 31DEC12 | 01APR08A | 18JAN13 | 2 |

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float | 2013 | | | | | 2012 | | | | | 2011 | | | | | 2010 | | | | | 2009 | | | | |
|------------------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|------|--|--|--|--|------|--|--|--|--|------|--|--|--|--|------|--|--|--|--|------|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17R0000902 | Fulfill all relevant environmental obligation | 1,800 | 1,800 | 28DEC07A | 31DEC12 | 28DEC07A | 18JAN13 | 2 | 364 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Excavation Permit/Utilities per SCC 54 & SCC 83 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001002 | Nominate IUIMS co-ordinator | 7 | 7 | 14DEC07A | 15JAN08A | 14DEC07A | 15JAN08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001004 | SO approve IUIMS co-ordinator | 14 | 14 | 16JAN08A | 29FEB08A | 16JAN08A | 29FEB08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001006 | Submit brand name of UGS detection equipment | 7 | 7 | 28DEC07A | 18FEB08A | 28DEC07A | 18FEB08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001008 | Utilities detection & report to the SO | 21 | 21 | 29FEB08A | 05APR08A | 29FEB08A | 05APR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001010 | Liaison with UJs | 21 | 21 | 04JAN08A | 29FEB08A | 04JAN08A | 29FEB08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001012 | Apply XP for site entrance construction | 7 | 7 | 21JAN08A | 08MAR08A | 21JAN08A | 08MAR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001014 | HyD process XP for site entrance construction | 20 | 20 | 10MAR08A | 28MAY08A | 10MAR08A | 28MAY08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001016 | HyD issue XP for site entrance construction | 0 | 0 | | 28MAY08A | | 28MAY08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001018 | Apply XP for GI works at I-1 & I-2 | 1 | 1 | 22APR08A | 20MAY08A | 22APR08A | 20MAY08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001020 | HyD process XP for GI works at I-1 & I-2 | 30 | 30 | 23APR08A | 26SEP08A | 23APR08A | 26SEP08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001022 | HyD issue XP for GI works at I-1 & I-2 | 0 | 0 | | 26SEP08A | | 26SEP08A | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001024 | Apply XP for trial grout at Fault F1 | 1 | 1 | 22APR08A | 20MAY08A | 22APR08A | 20MAY08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001026 | HyD process XP for trial grout at Fault F1 | 30 | 30 | 23APR08A | 22JUL08A | 23APR08A | 22JUL08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001028 | HyD issue XP for trial grout at Fault F1 | 0 | 0 | | 22JUL08A | | 22JUL08A | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-construction Condition Survey | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preliminaries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001102 | Appoint a Qualified Structural Engineer | 30 | 30 | 28DEC07A | 19MAR08A | 28DEC07A | 19MAR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001104 | Submit nos. & extent of the affected EBS | 30 | 30 | 28DEC07A | 19MAR08A | 28DEC07A | 19MAR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCS Stage 1 between I-1 & I-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001118 | Carry out stg 1 PCS between I-1 & I-2 | 6 | 6 | 22APR08A | 23APR08A | 22APR08A | 23APR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001120 | Prepare/submit reports for stg 1 PCS bet I-1&I-2 | 60 | 60 | 24APR08A | 22SEP08A | 24APR08A | 22SEP08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001122 | Review/accept reports for stg 1 PCS bet I-1&I-2 | 60 | 60 | 31MAY08A | 20JAN09A | 31MAY08A | 20JAN09A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCS Stage 1 between I-2 & I-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001130 | Carry out stg 1 PCS between I-2 & I-3 | 5 | 5 | 25MAR08A | 30APR08A | 25MAR08A | 30APR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001132 | Prepare/submit reports for stg 1 PCS bet I-2&I-3 | 60 | 60 | 24APR08A | 22SEP08A | 24APR08A | 22SEP08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001134 | Review/accept reports for stg 1 PCS bet I-2&I-3 | 60 | 60 | 24MAY08A | 04FEB09A | 24MAY08A | 04FEB09A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCS Stage 1 between I-3 & O-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001142 | Carry out stg 1 PCS between I-3 & O-1 | 5 | 5 | 25MAR08A | 26MAR08A | 25MAR08A | 26MAR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001144 | Prepare/submit reports for stg 1 PCS bet I-3&O-1 | 60 | 60 | 26MAR08A | 11SEP08A | 26MAR08A | 11SEP08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001146 | Review/accept reports for stg 1 PCS bet I-3&O-1 | 60 | 60 | 31MAY08A | 04FEB09A | 31MAY08A | 04FEB09A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCS Stage 1 at vicinity of O-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001106 | Carry out stg 1 PCS at vicinity of O-1 | 5 | 5 | 25MAR08A | 29MAR08A | 25MAR08A | 29MAR08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001108 | Prepare/submit reports for stg 1 PCS at O-1 | 60 | 60 | 31MAR08A | 10SEP08A | 31MAR08A | 10SEP08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001110 | Review/accept reports for stg 1 PCS at O-1 | 60 | 60 | 27MAY08A | 09FEB09A | 27MAY08A | 09FEB09A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCS Stage 2 between I-1 & I-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001124 | Carry out stg 2 PCS between I-1 & I-2 | 5 | 5 | 22APR08A | 02JUN08A | 22APR08A | 02JUN08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001126 | Prepare/submit reports for stg 2 PCS bet I-1&I-2 | 60 | 60 | 24APR08A | 10JUN08A | 24APR08A | 10JUN08A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001128 | Review/accept reports for stg 2 PCS bet I-1&I-2 | 60 | 60 | 11JUN08A | 09FEB09A | 11JUN08A | 09FEB09A | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |

| ID | Activity Description | E04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float | Year | | | | | | | | | | | | | |
|-------------------------------------------------------|---------------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|
| | | | | | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | | | | |
| PCS Stage 2 between I-2 & I-3 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001136 | Carry out stg 2 PCS between I-2 & I-3 | 5 | 5 | 30APR08A | 07JUN08A | 30APR08A | 07JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001138 | Prepare/submit reports for stg 2 PCS bet I-2&I-3 | 60 | 60 | 02MAY08A | 12JUN08A | 02MAY08A | 12JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001140 | Review/accept reports for stg 2 PCS bet I-2&I-3 | 60 | 60 | 13JUN08A | 09FEB09A | 13JUN08A | 09FEB09A | 2 | | | | | | | | | | | | | | |
| PCS Stage 2 between I-3 & O-1 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001148 | Carry out stg 2 PCS between I-3 & O-1 | 5 | 5 | 09MAY08A | 13JUN08A | 09MAY08A | 13JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001150 | Prepare/submit reports for stg 2 PCS bet I-3&O-1 | 60 | 60 | 04JUN08A | 18JUN08A | 04JUN08A | 18JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001152 | Review/accept reports for stg 2 PCS bet I-3&O-1 | 60 | 60 | 19JUN08A | 09FEB09A | 19JUN08A | 09FEB09A | 2 | | | | | | | | | | | | | | |
| PCS Stage 2 at Vicinity of O-1 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001112 | Carry out stg 2 PCS at vicinity of O-1 | 12 | 12 | 01APR08A | 06JUN08A | 01APR08A | 06JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001114 | Prepare/submit reports for stg 2 PCS at O-1 | 60 | 60 | 02JUN08A | 16JUN08A | 02JUN08A | 16JUN08A | 2 | | | | | | | | | | | | | | |
| 01R0001116 | Review/accept reports for stg 2 PCS at O-1 | 60 | 60 | 17JUN08A | 09FEB09A | 17JUN08A | 09FEB09A | 2 | | | | | | | | | | | | | | |
| Pre-const. condition structural survey; I-1 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001154 | Prepare/submit reports for EBS at I-1 | 28 | 28 | 28AUG08A | 10JAN09A | 28AUG08A | 10JAN09A | 2 | | | | | | | | | | | | | | |
| 01R0001156 | Review/accept reports for EBS at I-1 | 28 | 28 | 12JAN09A | 24MAR09A | 12JAN09A | 24MAR09A | 2 | | | | | | | | | | | | | | |
| Pre-const. condition structural survey; I-2 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001158 | Prepare/submit reports for EBS at I-2 | 28 | 28 | 28AUG08A | 10JAN09A | 28AUG08A | 10JAN09A | 2 | | | | | | | | | | | | | | |
| 01R0001160 | Review/accept reports for EBS at I-2 | 28 | 28 | 12JAN09A | 24MAR09A | 12JAN09A | 24MAR09A | 2 | | | | | | | | | | | | | | |
| Pre-const. condition structural survey; I-3 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001162 | Prepare/submit reports for EBS at I-3 | 28 | 28 | 28AUG08A | 10JAN09A | 28AUG08A | 10JAN09A | 2 | | | | | | | | | | | | | | |
| 01R0001164 | Review/accept reports for EBS at I-3 | 28 | 28 | 12JAN09A | 24MAR09A | 12JAN09A | 24MAR09A | 2 | | | | | | | | | | | | | | |
| Pre-const. condition structural survey; O-1 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001166 | Prepare/submit reports for EBS at O-1 | 28 | 28 | 28AUG08A | 10JAN09A | 28AUG08A | 10JAN09A | 2 | | | | | | | | | | | | | | |
| 01R0001168 | Review/accept reports for EBS at O-1 | 28 | 28 | 12JAN09A | 24MAR09A | 12JAN09A | 24MAR09A | 2 | | | | | | | | | | | | | | |
| Pre-const. condition structural survey; Tunnel | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001170 | Prepare/submit reports for EBS along Tunnel align | 28 | 28 | 28AUG08A | 15JAN09A | 28AUG08A | 15JAN09A | 2 | | | | | | | | | | | | | | |
| 01R0001172 | Review/accept reports for EBS along Tunnel align | 28 | 28 | 16JAN09A | 10JUN09 | 16JAN09A | 10JUN09 | 2 | | | | | | | | | | | | | | |
| Traffic | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001202 | Appoint Traffic Consultant/Traffic Engineer | 14 | 14 | 14DEC07A | 03JAN08A | 14DEC07A | 03JAN08A | 2 | | | | | | | | | | | | | | |
| 01R0001204 | Eng's Approval of Traffic Consultant | 7 | 7 | 28DEC07A | 28FEB08A | 28DEC07A | 28FEB08A | 2 | | | | | | | | | | | | | | |
| 01R0001206 | Prepare/submit TTA Schemes (ingress & egress) | 14 | 14 | 04JAN08A | 31JAN08A | 04JAN08A | 31JAN08A | 2 | | | | | | | | | | | | | | |
| 01R0001216 | Obtain endorsement of TTA schemes from TMLG | 21 | 21 | 01FEB08A | 01APR08A | 01FEB08A | 01APR08A | 2 | | | | | | | | | | | | | | |
| 01R0001234 | Approval of TTA schemes by the Authorities | 14 | 14 | 02APR08A | 19APR08A | 02APR08A | 19APR08A | 2 | | | | | | | | | | | | | | |
| 01R0001236 | Approval of TTA schemes by the Authorities | 14 | 14 | 02APR08A | 19APR08A | 02APR08A | 19APR08A | 2 | | | | | | | | | | | | | | |
| Management of Sub-contractors as per SCC 44 | | | | | | | | | | | | | | | | | | | | | | |
| 01R0001302 | Submit a Sub-contractor Management Plan | 30 | 30 | 14DEC07A | 12JAN08A | 14DEC07A | 12JAN08A | 2 | | | | | | | | | | | | | | |
| 01R0001304 | Submit Quarterly the Updated SMP | 1,642 | 1,642 | 03JUL08A | 31DEC12 | 03JUL08A | 18JAN13 | 2 | | | | | | | | | | | | | | |
| Trees | | | | | | | | | | | | | | | | | | | | | | |
| Siu Ho Wan as a New Tree Transplanting Area | | | | | | | | | | | | | | | | | | | | | | |
| VO028-02 | Receive VO28 for new tree transplanting area | 0 | 0 | | 16AUG08A | | 16AUG08A | 1 | | | | | | | | | | | | | | |

1st TMLG scheduled on 11/03/08 1st TMLG was held on 12/02/08
Hyd & Police ER.B1 1.15 (9) refers
Hyd & Police ER.B1 1.15 (9) refers

within 30 days of LOA

Per SCC 44

◆ Area Within Siu Ho Wan Sewage Treatment Works

| ID | Activity Description | AD04 | | AD04 | | AD04 | | WP3D Start | WP3D Finish | Cal ID | Total Float |
|-----------------------------------------|--------------------------------------------------|-------|----------|----------|----------|----------|----------|------------|-------------|--------|-------------|
| | | Dur | WP3D Dur | Start | Finish | Start | Finish | | | | |
| VO028-04 | Preparation works for new T.T. area | 20 | 20 | 18AUG08A | 07SEP08A | 18AUG08A | 07SEP08A | 18AUG08A | 07SEP08A | 2 | |
| 01R0001502 | Appoint Landscape Specialist Contractor | 14 | 14 | 14DEC07A | 14JAN08A | 14DEC07A | 14JAN08A | 14DEC07A | 14JAN08A | 2 | |
| 01R0001504 | SO's Approval of Landscape Contractor | 7 | 7 | 15JAN08A | 28FEB08A | 15JAN08A | 28FEB08A | 15JAN08A | 28FEB08A | 2 | |
| 01R0001506 | Nominate competent person to oversee tree works | 45 | 45 | 14DEC07A | 29JAN08A | 14DEC07A | 29JAN08A | 14DEC07A | 29JAN08A | 2 | |
| 01R0001510 | Obtain Tree Removal Permit by Others | 90 | 90 | 28DEC07A | 06MAR08A | 28DEC07A | 06MAR08A | 28DEC07A | 06MAR08A | 2 | |
| 01R0001512 | Remove / Transplant Trees start | 0 | 0 | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 2 | |
| Survey | | | | | | | | | | | |
| 01R0001602 | Appoint Surveyors | 14 | 14 | 28DEC07A | 10JAN08A | 28DEC07A | 10JAN08A | 28DEC07A | 10JAN08A | 2 | |
| 01R0001604 | SO's Approval of Surveyor | 7 | 7 | 11JAN08A | 16APR08A | 11JAN08A | 16APR08A | 11JAN08A | 16APR08A | 2 | |
| 01R0001608 | Initial Survey | 28 | 28 | 18JAN08A | 10MAR08A | 18JAN08A | 10MAR08A | 18JAN08A | 10MAR08A | 1 | |
| 01R0001610 | Maintain & carry out survey works | 1,378 | 1,378 | 23FEB08A | 07DEC12 | 23FEB08A | 18JAN13 | 23FEB08A | 18JAN13 | 2 | 0 |
| Smart Card System as per ER B.30 | | | | | | | | | | | |
| 01R0001802 | Submit Smart Card Sys for SO's Approval | 7 | 7 | 28DEC07A | 15JAN08A | 28DEC07A | 15JAN08A | 28DEC07A | 15JAN08A | 2 | |
| 01R0001804 | Install & start Operating Smart-Card System | 60 | 60 | 28DEC07A | 23FEB08A | 28DEC07A | 23FEB08A | 28DEC07A | 23FEB08A | 2 | |
| 01R0001806 | Operate & Maintain Smart-Card System | 1,771 | 1,771 | 25FEB08A | 30NOV13 | 25FEB08A | 11JAN14 | 25FEB08A | 11JAN14 | 2 | 0 |
| Procurement of Sub-contractor | | | | | | | | | | | |
| 01R0001904 | Spoil Disposal | 60 | 60 | 28AUG08A | 27MAR09A | 28AUG08A | 27MAR09A | 28AUG08A | 27MAR09A | 2 | |
| 01R0001906 | Earthwork for Outfall O-1 | 60 | 60 | 14DEC07A | 05JUN08A | 14DEC07A | 05JUN08A | 14DEC07A | 05JUN08A | 2 | |
| 01R0001910 | Re-bar Supply | 90 | 90 | 14DEC07A | 30MAY08A | 14DEC07A | 30MAY08A | 14DEC07A | 30MAY08A | 2 | |
| 01R0001912 | Soil Nailing | 60 | 60 | 28DEC07A | 02APR08A | 28DEC07A | 02APR08A | 28DEC07A | 02APR08A | 2 | |
| 01R0001914 | H-piling Works | 90 | 90 | 14DEC07A | 09MAY08A | 14DEC07A | 09MAY08A | 14DEC07A | 09MAY08A | 2 | |
| 01R0001916 | Fabrication of Pre-cast Lining | 80 | 80 | 02JUN08A | 05JAN09A | 02JUN08A | 05JAN09A | 02JUN08A | 05JAN09A | 2 | |
| 01R0001920 | Drainage/Road Works for Access Road at I-3 | 60 | 60 | 08AUG08A | 03NOV08A | 08AUG08A | 03NOV08A | 08AUG08A | 03NOV08A | 2 | |
| 01R0001922 | Temp. steel decking over Shing Mun Nullah at I-1 | 90 | 90 | 14DEC07A | 25APR08A | 14DEC07A | 25APR08A | 14DEC07A | 25APR08A | 2 | |
| 01R0001924 | Design/Install Communication System | 344 | 344 | 28JUN08A | 26JUN09 | 28JUN08A | 26JUN09 | 28JUN08A | 26JUN09 | 2 | 356 |
| 01R0001925 | Design/install Flow Monitoring Devices | 78 | 78 | 14JUL08A | 01AUG08A | 14JUL08A | 01AUG08A | 14JUL08A | 01AUG08A | 2 | |
| 01R0001936 | Procurement & delivery of Communication System | 180 | 180 | 06DEC09 | 03JUN10 | 06DEC09 | 03JUN10 | 06DEC09 | 03JUN10 | 2 | 356 |
| 01R0001938 | Procurement/delivery of Flow Measurement Devices | 120 | 120 | 11OCT09 | 07FEB10 | 11OCT09 | 07FEB10 | 11OCT09 | 07FEB10 | 2 | 501 |
| 01R0018A02 | Supply TBM/Main Tunnel Construction | 7 | 7 | 14DEC07A | 21DEC07A | 14DEC07A | 21DEC07A | 14DEC07A | 21DEC07A | 2 | |
| 01R0018A04 | Security | 17 | 17 | 17DEC07A | 02JAN08A | 17DEC07A | 02JAN08A | 17DEC07A | 02JAN08A | 2 | |
| 01R0018A06 | Progress Photo/Vedio | 25 | 25 | 29DEC07A | 22JAN08A | 29DEC07A | 22JAN08A | 29DEC07A | 22JAN08A | 2 | |
| 01R0018A08 | Webpage/Physical Model/3D Animation | 48 | 48 | 14DEC07A | 14FEB08A | 14DEC07A | 14FEB08A | 14DEC07A | 14FEB08A | 2 | |
| 01R0018A10 | Hoarding/Fencing Erection | 60 | 60 | 04JAN08A | 03MAR08A | 04JAN08A | 03MAR08A | 04JAN08A | 03MAR08A | 2 | |
| 01R0018A12 | Erection of Contractor's Office | 67 | 67 | 28DEC07A | 03MAR08A | 28DEC07A | 03MAR08A | 28DEC07A | 03MAR08A | 2 | |
| 01R0018A14 | Remote Control CCTV | 60 | 60 | 04JAN08A | 03MAR08A | 04JAN08A | 03MAR08A | 04JAN08A | 03MAR08A | 2 | |
| 01R0018A16 | Concrete Supply | 45 | 45 | 14DEC07A | 11MAR08A | 14DEC07A | 11MAR08A | 14DEC07A | 11MAR08A | 2 | |
| 01R0018A18 | Geotechnical Instrumentation | 60 | 60 | 15JAN08A | 14MAR08A | 15JAN08A | 14MAR08A | 15JAN08A | 14MAR08A | 2 | |
| 01R0018A20 | Drilling/Grouting for Geotechnical Instrumental. | 60 | 60 | 16JAN08A | 15MAR08A | 16JAN08A | 15MAR08A | 16JAN08A | 15MAR08A | 2 | |

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | Total Float |
|-------------------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | |
| 01R0018A22 | Site Clearance | 60 | 60 | 26JAN08A | 25MAR08A | 26JAN08A | 25MAR08A | 26JAN08A | 25MAR08A | 2 |
| 01R0018A24 | Erection of SOR's Office | 95 | 95 | 02JAN08A | 05APR08A | 02JAN08A | 05APR08A | 02JAN08A | 05APR08A | 2 |
| 01R0018A26 | Carry out Grout Trial at Fault F1 | 90 | 90 | 02APR08A | 30JUN08A | 02APR08A | 30JUN08A | 02APR08A | 30JUN08A | 2 |
| 01R0018A28 | Design/Fabricate Segmental Lining Mould | 90 | 90 | 23APR08A | 21JUL08A | 23APR08A | 21JUL08A | 23APR08A | 21JUL08A | 2 |
| 01R0018A30 | Construction of Skin Walls | 90 | 90 | 21JUL08A | 03JAN09A | 21JUL08A | 03JAN09A | 21JUL08A | 03JAN09A | 2 |
| 01R0018A32 | Design/Fabricate/Supply/Install Conveyor Belt | 90 | 90 | 14JUL08A | 05JAN09A | 14JUL08A | 05JAN09A | 14JUL08A | 05JAN09A | 2 |
| 01R0018A34 | Supply of Locomotive | 90 | 90 | 14JUL08A | 10OCT08A | 14JUL08A | 10OCT08A | 14JUL08A | 10OCT08A | 2 |
| 01R0018A36 | Excavation Works at I-1 | 60 | 60 | 28AUG08A | 21JAN09A | 28AUG08A | 21JAN09A | 28AUG08A | 21JAN09A | 2 |
| 01R0018A38 | Construction of Steel Platform at O-1 | 50 | 50 | 28AUG08A | 14MAR09A | 28AUG08A | 14MAR09A | 28AUG08A | 14MAR09A | 2 |
| 01R0018A40 | Construction of Steel Platform at I-2 | 50 | 50 | 28AUG08A | 27DEC08A | 28AUG08A | 27DEC08A | 28AUG08A | 27DEC08A | 2 |
| 01R0018A42 | Pre-excavation Grouting for Shaft Excavation | 60 | 60 | 28AUG08A | 11MAR09A | 28AUG08A | 11MAR09A | 28AUG08A | 11MAR09A | 2 |
| 01R0018A44 | Excavation/Construction of TBM Launching Chamber | 70 | 70 | 28AUG08A | 18DEC08A | 28AUG08A | 18DEC08A | 28AUG08A | 18DEC08A | 2 |
| 01R0018A46 | Construction of Subgrade Structure at I-1 | 333 | 333 | 28AUG08A | 26JUL09 | 28AUG08A | 26JUL09 | 28AUG08A | 26JUL09 | 2 |
| 01R0018A50 | Shaft Excavation by RCD at I-2 | 90 | 90 | 28AUG08A | 26NOV08A | 28AUG08A | 26NOV08A | 28AUG08A | 26NOV08A | 2 |
| 01R0018A52 | Excavation/Construction of Shafts/Adits/Chambers | 90 | 90 | 28AUG08A | 26MAR09A | 28AUG08A | 26MAR09A | 28AUG08A | 26MAR09A | 2 |
| 01R0018A54 | Construction of Hopper at O-1 | 90 | 90 | 28AUG08A | 31JAN09A | 28AUG08A | 31JAN09A | 28AUG08A | 31JAN09A | 2 |
| 01R0018A56 | Suttering of Spiral Ramp | 233 | 233 | 28AUG08A | 26JUL09 | 28AUG08A | 26JUL09 | 28AUG08A | 26JUL09 | 2 |
| 01R0018A58 | Open Cut Excavation & Construction at I-3 | 90 | 90 | 28AUG08A | 02MAY09A | 28AUG08A | 02MAY09A | 28AUG08A | 02MAY09A | 2 |
| 01R0018A60 | Lining Formworks for Underground Structures | 233 | 233 | 28AUG08A | 05AUG09 | 28AUG08A | 05AUG09 | 28AUG08A | 05AUG09 | 2 |
| 01R0018A61 | Tunnel Data Management System (TDMS) | 90 | 90 | 28AUG08A | 03APR09A | 28AUG08A | 03APR09A | 28AUG08A | 03APR09A | 2 |
| 01R0018A62 | Supply of Rail Track | 90 | 90 | 28AUG08A | 26MAR09A | 28AUG08A | 26MAR09A | 28AUG08A | 26MAR09A | 2 |
| 01R0018A64 | Supply of Aggregate | 120 | 120 | 28FEB09A | 28JUL09 | 28FEB09A | 28JUL09 | 28FEB09A | 28JUL09 | 2 |
| 01R0018A68 | Construct Box Culvert/Cascade/Spiral Ramp at O-1 | 200 | 200 | 28FEB09A | 16SEP09 | 28FEB09A | 16SEP09 | 28FEB09A | 16SEP09 | 2 |
| 01R0018A70 | Metal Works | 200 | 200 | 28FEB09A | 16OCT09 | 28FEB09A | 16OCT09 | 28FEB09A | 16OCT09 | 2 |
| 01R0018A72 | Pipe Jacking Works at Lo Wai | 250 | 250 | 28FEB09A | 16OCT09 | 28FEB09A | 16OCT09 | 28FEB09A | 16OCT09 | 2 |
| 01R0018A74 | Finishing Works | 250 | 250 | 28FEB09A | 05DEC09 | 28FEB09A | 05DEC09 | 28FEB09A | 05DEC09 | 2 |
| Others | | | | | | | | | | |
| 01R0001928 | Submit Contractor's Management Team | 0 | 0 | | 10JAN08A | | 10JAN08A | | 10JAN08A | 2 |
| 01R0001930 | Submit Photographer for Monthly Progress Photo | 0 | 0 | 28JAN08A | | 28JAN08A | | 28JAN08A | | 2 |
| 01R0001932 | Install Project Signboards at Portions A,B,C & D | 30 | 30 | 28FEB09A | 29MAY09 | 28FEB09A | 29MAY09 | 28FEB09A | 29MAY09 | 2 |
| 01R0001934 | Presentation of TDMS to SOR/ Employer; ER 4.4.6 | 6 | 6 | 27MAR09A | 06MAY09A | 27MAR09A | 06MAY09A | 27MAR09A | 06MAY09A | 2 |
| 01R0001940 | Prepare/submit Operation & Maintenance Manual | 90 | 90 | 11NOV11 | 08FEB12 | 23DEC11 | 21MAR12 | 21MAR12 | 21MAR12 | 2 |
| 01R0001942 | Prepare/submit As-built Drawings | 90 | 90 | 08DEC12 | 07MAR13 | 19JAN13 | 18APR13 | 18APR13 | 18APR13 | 2 |
| 01R0001944 | Produce 2 documentary video for tunnel | 30 | 30 | 08DEC12 | 05JAN13 | 19JAN13 | 17FEB13 | 17FEB13 | 17FEB13 | 2 |
| Construction Risk Assessment (CRA) as per ER 7 | | | | | | | | | | |
| PCRA for Works at Portion A (I-1) | | | | | | | | | | |
| 01R000PCRA2 | Prepare/submit PCRA for works at I-1 | 21 | 21 | 07APR08A | 20AUG08A | 07APR08A | 20AUG08A | 07APR08A | 20AUG08A | 2 |
| 01R000PCRA4 | DC review & certify PCRA for works at I-1 | 60 | 60 | 22MAY08A | 13OCT08A | 22MAY08A | 13OCT08A | 22MAY08A | 13OCT08A | 2 |
| 01R000PCRA6 | SOR review & accept PCRA at works at I-1 | 60 | 60 | 12MAY08A | 25SEP08A | 12MAY08A | 25SEP08A | 12MAY08A | 25SEP08A | 2 |
| 01R000PCRA8 | GEO review/agree PCRA | 28 | 28 | 31OCT08A | 09DEC08A | 31OCT08A | 09DEC08A | 31OCT08A | 09DEC08A | 2 |
| PCRA for Works at Portion B (I-2) | | | | | | | | | | |
| 01R000PCRB2 | Prepare/submit PCRA for works at I-2 | 21 | 21 | 14APR08A | 20AUG08A | 14APR08A | 20AUG08A | 14APR08A | 20AUG08A | 2 |

| ID | Activity Description | AD04 | | AD04 | | AD04 | | WP3D Start | WP3D Finish | Cal ID | Total Float |
|----------------------------------------------------|------------------------------------------------|------|----------|----------|----------|----------|----------|------------|-------------|--------|-------------|
| | | Dur | WP3D Dur | Start | Finish | Start | Finish | | | | |
| 01R00PCRB4 | DC review & certify PCRA for works at I-2 | 60 | 60 | 22MAY08A | 13OCT08A | 22MAY08A | 13OCT08A | 2 | | | |
| 01R00PCRB6 | SOR review & accept PCRA at works at I-2 | 60 | 60 | 22MAY08A | 25SEP08A | 22MAY08A | 25SEP08A | 2 | | | |
| 01R00PCRB8 | GEO review/agree PCRA | 28 | 28 | 31OCT08A | 09DEC08A | 31OCT08A | 09DEC08A | 2 | | | |
| PCRA for Works at Portion C (I-3) | | | | | | | | | | | |
| 01R00PCRC2 | Prepare/submit PCRA for works at I-3 | 21 | 21 | 01APR08A | 20AUG08A | 01APR08A | 20AUG08A | 2 | | | |
| 01R00PCRC4 | DC review & certify PCRA for works at I-3 | 60 | 60 | 21MAY08A | 13OCT08A | 21MAY08A | 13OCT08A | 2 | | | |
| 01R00PCRC6 | SOR review & accept PCRA at works at I-3 | 60 | 60 | 21MAY08A | 25SEP08A | 21MAY08A | 25SEP08A | 2 | | | |
| 01R00PCRC8 | GEO review/agree PCRA | 28 | 28 | 31OCT08A | 09DEC08A | 31OCT08A | 09DEC08A | 2 | | | |
| PCRA for Works at Portion D/E (O-1) | | | | | | | | | | | |
| 01R00PCRD2 | Prepare/submit PCRA for works at O-1 | 21 | 21 | 01APR08A | 20AUG08A | 01APR08A | 20AUG08A | 2 | | | |
| 01R00PCRD4 | DC review & certify PCRA for works at O-1 | 60 | 60 | 21MAY08A | 13OCT08A | 21MAY08A | 13OCT08A | 2 | | | |
| 01R00PCRD6 | SOR review & accept PCRA at works at O-1 | 60 | 60 | 12MAY08A | 25SEP08A | 12MAY08A | 25SEP08A | 2 | | | |
| 01R00PCRD8 | GEO review/agree PCRA | 28 | 28 | 31OCT08A | 09DEC08A | 31OCT08A | 09DEC08A | 2 | | | |
| PCRA for Works at Portion F/J (Main Tunnel) | | | | | | | | | | | |
| 01R00PCRF2 | Prepare/submit PCRA for main tunnel works | 21 | 21 | 09JUN08A | 23APR09A | 09JUN08A | 23APR09A | 2 | | | |
| 01R00PCRF4 | DC review & certify PCRA for main tunnel works | 60 | 60 | 14JUL08A | 08JUN09 | 14JUL08A | 08JUN09 | 2 | | | |
| 01R00PCRF6 | SOR review & accept PCRA for main tunnel works | 60 | 60 | 16JUL08A | 16JUN09 | 16JUL08A | 16JUN09 | 2 | | | |
| 01R00PCRF8 | GEO review/agree PCRA | 28 | 28 | 28FEB09A | 09JUN09 | 28FEB09A | 09JUN09 | 2 | | | |
| DCRA for Works at Portion A (I-1) | | | | | | | | | | | |
| 01R00DCRA2 | Prepare/submit DCRA for works at I-1 | 14 | 14 | 02OCT08A | 27OCT08A | 02OCT08A | 27OCT08A | 2 | | | |
| 01R00DCRA4 | DC review & certify DCRA for works at I-1 | 21 | 21 | 28OCT08A | 17FEB09A | 28OCT08A | 17FEB09A | 2 | | | |
| 01R00DCRA6 | SOR review & accept DCRA at works at I-1 | 49 | 49 | 05NOV08A | 26MAR09A | 05NOV08A | 26MAR09A | 2 | | | |
| 01R00DCRA8 | GEO review/agree DCRA | 28 | 28 | 28FEB09A | 27MAR09A | 28FEB09A | 27MAR09A | 2 | | | |
| DCRA for Works at Portion B (I-2) | | | | | | | | | | | |
| 01R00DCRB2 | Prepare/submit DCRA for works at I-2 | 14 | 14 | 14OCT08A | 02JUN09 | 14OCT08A | 02JUN09 | 2 | | | |
| 01R00DCRB4 | DC review & certify DCRA for works at I-2 | 21 | 21 | 05DEC08A | 09JUN09 | 05DEC08A | 09JUN09 | 2 | | | |
| 01R00DCRB6 | SOR review & accept DCRA at works at I-2 | 49 | 49 | 10DEC08A | 16JUN09 | 10DEC08A | 16JUN09 | 2 | | | |
| 01R00DCRB8 | GEO review/agree DCRA | 28 | 28 | 10JUN09 | 07JUL09 | 10JUN09 | 07JUL09 | 2 | | | |
| DCRA for Works at Portion C (I-3) | | | | | | | | | | | |
| 01R00DCRC2 | Prepare/submit DCRA for works at I-3 | 14 | 14 | 14OCT08A | 03JUN09 | 14OCT08A | 03JUN09 | 2 | | | |
| 01R00DCRC4 | DC review & certify DCRA for works at I-3 | 21 | 21 | 31OCT08A | 10JUN09 | 31OCT08A | 10JUN09 | 2 | | | |
| 01R00DCRC6 | SOR review & accept DCRA at works at I-3 | 49 | 49 | 07NOV08A | 17JUN09 | 07NOV08A | 17JUN09 | 2 | | | |
| 01R00DCRC8 | GEO review/agree DCRA | 28 | 28 | 11JUN09 | 08JUL09 | 11JUN09 | 08JUL09 | 2 | | | |
| DCRA for Works at Portion D/E (O-1) | | | | | | | | | | | |
| 01R00DCRD2 | Prepare/submit DCRA for works at O-1 | 14 | 14 | 03NOV08A | 03JUN09 | 03NOV08A | 03JUN09 | 2 | | | |
| 01R00DCRD4 | DC review & certify DCRA for works at O-1 | 21 | 21 | 15NOV08A | 10JUN09 | 15NOV08A | 10JUN09 | 2 | | | |
| 01R00DCRD6 | SOR review & accept DCRA at works at O-1 | 49 | 49 | 15NOV08A | 17JUN09 | 15NOV08A | 17JUN09 | 2 | | | |
| 01R00DCRD8 | GEO review/agree DCRA | 28 | 28 | 11JUN09 | 08JUL09 | 11JUN09 | 08JUL09 | 2 | | | |
| DCRA for Works at Portion F/J (Main Tunnel) | | | | | | | | | | | |
| 01R00DCRF2 | Prepare/submit DCRA for main tunnel works | 21 | 21 | 14MAR09A | 23JUN09 | 14MAR09A | 23JUN09 | 2 | | | |
| 01R00DCRF4 | DC review & certify DCRA for main tunnel works | 21 | 21 | 24JUN09 | 14JUL09 | 24JUN09 | 14JUL09 | 2 | | | |
| 01R00DCRF6 | SOR review & accept DCRA for main tunnel works | 49 | 49 | 24JUN09 | 11AUG09 | 24JUN09 | 11AUG09 | 2 | | | |
| 01R00DCRF8 | GEO review/agree DCRA | 28 | 28 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | 2 | | | |

| ID | Activity Description | D04 | | AD04 | | WP3D | | Total Float |
|------------------------------------------------------|-------------------------------------------------|-------|-------|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 01R0002302 | Prepare/submit a physical models | 255 | 255 | 15FEB08A | 27NOV08A | 15FEB08A | 27NOV08A | 2 |
| 01R0002304 | Prepare/submit a 3-D animation model | 308 | 308 | 15FEB08A | 27FEB09A | 15FEB08A | 27FEB09A | 2 |
| Internet Website as per ER 4.4.7 | | | | | | | | |
| 01R0002402 | Propose the design of web page | 30 | 30 | 28DEC07A | 09FEB08A | 28DEC07A | 09FEB08A | 2 |
| 01R0002404 | Produce the web page for approval of SO | 211 | 211 | 10MAR08A | 19FEB09A | 10MAR08A | 19FEB09A | 2 |
| 01R0002406 | SO's approval of web page | 30 | 30 | 02JUN08A | 24FEB09A | 02JUN08A | 24FEB09A | 2 |
| 01R0002408 | Submit updated web pages monthly | 1,433 | 1,433 | 25FEB09A | 30NOV13 | 25FEB09A | 11JAN14 | 2 30 |
| Schedule of Milestones for Cost Centre No. 1R | | | | | | | | |
| 01R0002501 | 1R 1; On provision of SO's Accommodation | 0 | 0 | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 2 |
| 01R0002502 | 1R 2; On providing documents of effected CWI | 0 | 0 | 03JAN08A | 03JAN08A | 03JAN08A | 03JAN08A | 2 |
| 01R0002503 | 1R 3; On providing documents of effected TPI | 0 | 0 | 03JAN08A | 03JAN08A | 03JAN08A | 03JAN08A | 2 |
| 01R0002504 | 1R 4; On Pproviding documents of effected PII | 0 | 0 | 03JAN08A | 03JAN08A | 03JAN08A | 03JAN08A | 2 |
| 01R0002505 | 1R 5; On delivery of all Land Transport for SO | 0 | 0 | 02MAY08A | 02MAY08A | 02MAY08A | 02MAY08A | 2 |
| 01R0002506 | 1R 6; On install. of computer facilities for SO | 0 | 0 | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 2 |
| 01R0002507 | 1R 7; On accept. of detailed CRA incl. PCS | 0 | 0 | 11AUG09 | 11AUG09 | 11AUG09 | 11AUG09 | 2 1,602 |
| 01R0002508 | 1R 8; On acceptance of Physical Model by the SO | 0 | 0 | 27NOV08A | 27NOV08A | 27NOV08A | 27NOV08A | 2 |
| 01R0002509 | 1R 9; On acceptance of 3-D Animation Model | 0 | 0 | 27FEB09A | 27FEB09A | 27FEB09A | 27FEB09A | 2 |
| 01R0002510 | 1R 10; On satisf. operation of CCTV for 3 mth | 0 | 0 | 17JUN09 | 17JUN09 | 17JUN09 | 17JUN09 | 2 1,657 |
| 01R0002511 | 1R 11; On acceptance of O&MM | 0 | 0 | 08FEB12 | 08FEB12 | 08FEB12 | 21MAR12 | 2 691 |
| 01R0002512 | 1R 12; On acceptance of as-built dwggs. | 0 | 0 | 07MAR13 | 18APR13 | 07MAR13 | 18APR13 | 2 298 |
| 01R0002513 | 1R 13; On acceptance of T.R/Video/Brouchure | 0 | 0 | 06JAN13 | 17FEB13 | 06JAN13 | 17FEB13 | 2 358 |
| 01R0002514 | 1R 14; On complete all wks for 3 mth frm DOC | 0 | 0 | 27MAR08A | 27MAR08A | 27MAR08A | 27MAR08A | 2 |
| 01R0002515 | 1R 15; On complete all wks for 6 mth frm DOC | 0 | 0 | 27JUN08A | 27JUN08A | 27JUN08A | 27JUN08A | 2 |
| 01R0002516 | 1R 16; On complete all wks for 9 mth frm DOC | 0 | 0 | 25SEP08A | 25SEP08A | 25SEP08A | 25SEP08A | 2 |
| 01R0002517 | 1R 17; On complete all wks for 12 mth frm DOC | 0 | 0 | 27DEC08A | 27DEC08A | 27DEC08A | 27DEC08A | 2 |
| 01R0002518 | 1R 18; On complete all wks for 15 mth frm DOC | 0 | 0 | 27MAR09A | 27MAR09A | 27MAR09A | 27MAR09A | 2 |
| 01R0002519 | 1R 19; On complete all wks for 18 mth frm DOC | 0 | 0 | 26JUN09 | 26JUN09 | 26JUN09 | 26JUN09 | 2 1,163 |
| 01R0002520 | 1R 20; On complete all wks for 21 mth frm DOC | 0 | 0 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 2 1,072 |
| 01R0002521 | 1R 21; On complete all wks for 24 mth frm DOC | 0 | 0 | 26DEC09 | 26DEC09 | 26DEC09 | 26DEC09 | 2 980 |
| 01R0002522 | 1R 22; On complete all wks for 27 mth frm DOC | 0 | 0 | 27MAR10 | 27MAR10 | 27MAR10 | 27MAR10 | 2 889 |
| 01R0002523 | 1R 23; On complete all wks for 30 mth frm DOC | 0 | 0 | 26JUN10 | 26JUN10 | 26JUN10 | 26JUN10 | 2 798 |
| 01R0002524 | 1R 24; On complete all wks for 33 mth frm DOC | 0 | 0 | 25SEP10 | 25SEP10 | 25SEP10 | 25SEP10 | 2 707 |
| 01R0002525 | 1R 25; On complete all wks for 36 mth frm DOC | 0 | 0 | 26DEC10 | 26DEC10 | 26DEC10 | 26DEC10 | 2 615 |
| 01R0002526 | 1R 26; On complete all wks for 39 mth frm DOC | 0 | 0 | 27MAR11 | 27MAR11 | 27MAR11 | 27MAR11 | 2 524 |
| 01R0002527 | 1R 27; On complete all wks for 42 mth frm DOC | 0 | 0 | 26JUN11 | 26JUN11 | 26JUN11 | 26JUN11 | 2 433 |
| 01R0002528 | 1R 28; On complete all wks for 45 mth frm DOC | 0 | 0 | 25SEP11 | 25SEP11 | 25SEP11 | 25SEP11 | 2 342 |
| 01R0002529 | 1R 29; On issuance of completion certificates | 0 | 0 | 04JAN13 | 15FEB13 | 04JAN13 | 15FEB13 | 2 360 |
| 01R0002530 | 1R 30; On complete all wks for 3 mth frm CMP | 0 | 0 | 08MAR13 | 19APR13 | 08MAR13 | 19APR13 | 2 297 |

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

within 1 month from DOC
within 2 months from DOC

accommodation for occupation as per App. ER.M
care of the works insurance has been effected
3rd party insurance has been effected
P. I. Insurance has been effected.
land transport delivered for use of the SO
computer facilities for use of the SO
detailed CRA incl. pre-condition survey
physical model completed as per ER 4.4.8
3-D animation model completed as per ER 4.4.9
as per ER 4.4.10 for 3 mths of the remote CCTV installed in
O&MM completed as per ER 4.4.11
built dwggs. completed as per ER 4.4.12
tunnel report & vedeo & brocher submitted as per ER 4.4.13
of all obligations by this C.S. 3-mths from DOC
of all obligations by this CS 6 mths from DOC
of all obligations by this CS 9 mths from DOC
of all obligations by this CS 12 mths frm DOC
of all obligations by this CS 15 mths frm DOC
of all obligations by this CS 18 mths frm DOC
of all obligations by this CS 21 mths frm DOC
of all obligations by this CS 24 mths frm DOC
of all obligations by this CS 27 mths frm DOC
of all obligations by this CS 30 mths frm DO
of all obligations by this CS 33 mths frm
of all obligations by this CS 36 mths fr
of all obligations by this CS 39 mth
of all obligations by this CS 42 mth
of all obligations by this CS 45 mths frm DOC
of completion except Section 7
of all obligations 3 mths frm DOM exd. Sec. 7

| ID | Activity Description | AD04 WP3D | | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float | |
|-------------------------------------------------------|--------------------------------------------------|-----------|-----|------------|-------------|------------|-------------|--------|----------------------------------------------------------------|--|
| | | Dur | Dur | | | | | | | |
| 01R0002531 | 1R 31: On complete all wks for 6 mth frm CMP | 0 | 0 | | 07JUN13 | 19JUL13 | 2 | 206 | | |
| 01R0002532 | 1R 32: On complete all wks for 9 mth frm CMP | 0 | 0 | | 06SEP13 | 18OCT13 | 2 | 115 | | |
| 01R0002533 | 1R 33: On issuance of maintenance certificate | 0 | 0 | | 30DEC13 | 10FEB14 | 2 | 0 | | |
| Schedule of Milestones for Cost Centre No. 16R | | | | | | | | | | |
| 16R7003001 | 16R 1: On completion of landscape wks; Portion A | 0 | 0 | | 01MAR12 | 01MAR12 | 2 | 669 | | |
| 16R7003002 | 16R 2: On completion of landscape wks; Portion B | 0 | 0 | | 16MAR12 | 16MAR12 | 2 | 654 | | |
| 16R7003003 | 16R 3: On completion of landscape wks; Portion C | 0 | 0 | | 28JAN12 | 28JAN12 | 2 | 702 | | |
| 16R7003004 | 16R 4: On completion of landscape wks; Portion D | 0 | 0 | | 30NOV12 | 11JAN13 | 2 | 395 | | |
| 16R7003005 | 16R 5: On completion of establish wks; Portion A | 0 | 0 | | 01MAR13 | 01MAR13 | 2 | 304 | | |
| 16R7003006 | 16R 6: On completion of establish wks; Portion B | 0 | 0 | | 16MAR13 | 16MAR13 | 2 | 289 | | |
| 16R7003007 | 16R 7: On completion of establish wks; Portion C | 0 | 0 | | 27JAN13 | 27JAN13 | 2 | 337 | | |
| 16R7003008 | 16R 8: On completion of establish wks; Portion D | 0 | 0 | | 30NOV13 | 11JAN14 | 2 | 30 | | |
| Schedule of Milestones for Cost Centre No. 17R | | | | | | | | | | |
| 17R0003101 | 17R 1: On complet of all wks for 3 mth frm DOC | 0 | 0 | | 27MAR08A | 27MAR08A | 2 | | of all safety & env. obligations 3 mths frm DOC | |
| 17R0003102 | 17R 2: On complet of all wks for 6 mth frm DOC | 0 | 0 | | 27JUN08A | 27JUN08A | 2 | | of all safety & env. obligations 6 mths frm DOC | |
| 17R0003103 | 17R 3: On complet of all wks for 9 mth frm DOC | 0 | 0 | | 26SEP08A | 26SEP08A | 2 | | of all safety & env. obligations 9 mths frm DOC | |
| 17R0003104 | 17R 4: On complet of all wks for 12 mth frm DOC | 0 | 0 | | 27DEC08A | 27DEC08A | 2 | | of all safety & env. obligations 12 mths frm DOC | |
| 17R0003105 | 17R 5: On complet of all wks for 15 mth frm DOC | 0 | 0 | | 27MAR09A | 27MAR09A | 2 | | of all safety & env. obligations 15 mths frm DOC | |
| 17R0003106 | 17R 6: On complet of all wks for 18 mth frm DOC | 0 | 0 | | 27JUN09 | 15JUL09 | 2 | 1,647 | of all safety & env. obligations 18 mths frm DOC | |
| 17R0003107 | 17R 7: On complet of all wks for 21 mth frm DOC | 0 | 0 | | 26SEP09 | 14OCT09 | 2 | 1,556 | of all safety & env. obligations 21 mths frm DOC | |
| 17R0003108 | 17R 8: On complet of all wks for 24 mth frm DOC | 0 | 0 | | 26DEC09 | 13JAN10 | 2 | 1,465 | of all safety & env. obligations 24 mths frm DOC | |
| 17R0003109 | 17R 9: On complet of all wks for 27 mth frm DOC | 0 | 0 | | 28MAR10 | 15APR10 | 2 | 1,373 | of all safety & env. obligations 27 mths frm DOC | |
| 17R0003110 | 17R 10: On complet of all wks for 30 mth frm DOC | 0 | 0 | | 27JUN10 | 15JUL10 | 2 | 1,282 | of all safety & env. obligations 30 mths frm DOC | |
| 17R0003111 | 17R 11: On complet all wks for 33 mth frm DOC | 0 | 0 | | 26SEP10 | 14OCT10 | 2 | 1,191 | of all safety & env. obligations 33 mths frm DOC | |
| 17R0003112 | 17R 12: On complet all wks for 36 mth frm DOC | 0 | 0 | | 26DEC10 | 13JAN11 | 2 | 1,100 | of all safety & env. obligations 36 mth frm DOC | |
| 17R0003113 | 17R 13: On complet all wks for 39 mth frm DOC | 0 | 0 | | 28MAR11 | 15APR11 | 2 | 1,008 | of all safety & env. obligations 39 mth frm DOC | |
| 17R0003114 | 17R 14: On complet all wks for 42 mth frm DOC | 0 | 0 | | 27JUN11 | 15JUL11 | 2 | 917 | of all safety & env. obligations 42 mths frm DOC | |
| 17R0003115 | 17R 15: On complet all wks for 45 mth frm DOC | 0 | 0 | | 26SEP11 | 14OCT11 | 2 | 826 | of all safety & env. obligations 45 mths frm DOC | |
| 17R0003116 | 17R 16: On complet all wks for 48 mth frm DOC | 0 | 0 | | 26DEC11 | 13JAN12 | 2 | 735 | of all safety & env. obligations 48 mths frm DOC | |
| 17R0003117 | 17R 17: On complet of all wks for 3 mth frm CMP | 0 | 0 | | 08MAR13 | 19APR13 | 2 | 297 | of all safety & env. obligations 3 mths frm DOMexcl. Section 7 | |
| 17R0003118 | 17R 18: On complet of all wks for 6 mth frm CMP | 0 | 0 | | 07JUN13 | 19JUL13 | 2 | 206 | of all safety & env. obligations 6 mths frm DOMexcl. Section 7 | |
| 17R0003119 | 17R 19: On complet of all wks for 9 mth frm CMP | 0 | 0 | | 07SEP13 | 19OCT13 | 2 | 114 | of all safety & env. obligations 9 mths frm DOMexcl. Section 7 | |
| 17R0003120 | 17R 20: On issuance of maintenance certificate | 0 | 0 | | 30DEC13 | 10FEB14 | 2 | 0 | certificate | |
| Design/Design Check for Permanent Works | | | | | | | | | | |
| Project -wide Packages | | | | | | | | | | |
| Project Design Plan (PDP) | | | | | | | | | | |
| 02L10D0102 | Employ Independent Designer | 7 | 7 | 14DEC07A | 20DEC07A | 14DEC07A | 20DEC07A | 2 | | |
| 02L10D0104 | Prepare & submit Project Design Plan (PDP) | 28 | 28 | 14DEC07A | 26FEB08A | 14DEC07A | 26FEB08A | 2 | | |
| 02L10D0106 | SO's review & comment on PDP | 28 | 28 | 27FEB08A | 18MAR08A | 27FEB08A | 18MAR08A | 2 | | |
| 02L10D0108 | Provide further information of (PDP) | 28 | 28 | 19MAR08A | 21AUG08A | 19MAR08A | 21AUG08A | 2 | | |

| ID | Activity Description | 004 | | AD04 | | WP3D | | Total Float |
|-------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 02L10D00110 | SO approves PDP | 14 | 14 | 14MAY08A | 04SEP08A | 14MAY08A | 04SEP08A | 2 |
| 02L10D00112 | Employ Independent Design Checker | 14 | 14 | 28DEC07A | 01FEB08A | 28DEC07A | 01FEB08A | 2 |
| 02L10D00114 | Approval of Design Checker by the SO | 28 | 28 | 02FEB08A | 28FEB08A | 02FEB08A | 28FEB08A | 2 |
| Design for Communication System | | | | | | | | |
| 02L1FE0102 | Design preparation for the AIP submission | 15 | 15 | 27JUN09 | 11JUL09 | 27JUN09 | 11JUL09 | 2 356 |
| 02L1FE0103 | Design (AIP) submission for the DC's approval | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 288 |
| 02L1FE0104 | Design (AIP) certification by the Design Checker | 28 | 28 | 14JUL09 | 10AUG09 | 14JUL09 | 10AUG09 | 2 356 |
| 02L1FE0106 | Design (AIP) submission for the SO's approval | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 294 |
| 02L1FE0108 | Design (AIP) review by the SO | 60 | 60 | 21JUL09 | 18SEP09 | 21JUL09 | 18SEP09 | 2 356 |
| 02L1FE0110 | AIP submission for rel. authorities' approval | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 321 |
| 02L1FE0112 | Design (AIP) review by the rel. authorities | 28 | 28 | 21JUL09 | 17AUG09 | 21JUL09 | 17AUG09 | 2 387 |
| 02L1FE0114 | Obtain rel. authorities's approval for AIP | 1 | 1 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 1 315 |
| 02L1FE0116 | Obtain SO's consent for design (AIP) | 0 | 0 | | 19SEP09 | | 19SEP09 | 2 356 |
| 02L1FE0118 | Design preparation for the DDA submission | 30 | 30 | 28AUG09 | 26SEP09 | 28AUG09 | 26SEP09 | 2 356 |
| 02L1FE0119 | Design (DDA) submission for the DC's approval | 1 | 1 | 28SEP09 | 28SEP09 | 28SEP09 | 28SEP09 | 1 288 |
| 02L1FE0120 | Design (DDA) certification by the Design Checker | 28 | 28 | 29SEP09 | 26OCT09 | 29SEP09 | 26OCT09 | 2 356 |
| 02L1FE0122 | Design (DDA) submission for the SO's approval | 1 | 1 | 28SEP09 | 28SEP09 | 28SEP09 | 28SEP09 | 1 293 |
| 02L1FE0124 | Design (DDA) review by the SO | 60 | 60 | 06OCT09 | 04DEC09 | 06OCT09 | 04DEC09 | 2 356 |
| 02L1FE0126 | DDA submission for rel. authorities' approval | 1 | 1 | 28SEP09 | 28SEP09 | 28SEP09 | 28SEP09 | 1 319 |
| 02L1FE0128 | Design (DDA) review by the rel. authorities | 28 | 28 | 06OCT09 | 02NOV09 | 06OCT09 | 02NOV09 | 2 388 |
| 02L1FE0130 | Obtain rel. authorities's approval for DDA | 1 | 1 | 03NOV09 | 03NOV09 | 03NOV09 | 03NOV09 | 1 316 |
| 02L1FE0132 | Obtain SO's consent for design (DDA) | 0 | 0 | | 05DEC09 | | 05DEC09 | 2 356 |
| Design for Flow Measurement System | | | | | | | | |
| 02L1FE0202 | Design preparation for the AIP submission | 0 | 0 | | 11MAY09A | | 11MAY09A | 2 |
| 02L1FE0203 | Design (AIP) submission for the DC's approval | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 410 |
| 02L1FE0204 | Design (AIP) certification by the Design Checker | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 502 |
| 02L1FE0206 | Design (AIP) submission for the SO's approval | 1 | 1 | 12MAY09A | 12MAY09A | 12MAY09A | 12MAY09A | 1 |
| 02L1FE0208 | Design (AIP) review by the SO | 60 | 60 | 13MAY09A | 24JUL09 | 13MAY09A | 24JUL09 | 2 502 |
| 02L1FE0210 | AIP submission for rel. authorities' approval | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 432 |
| 02L1FE0212 | Design (AIP) review by the rel. authorities | 28 | 28 | 06JUN09 | 03JUL09 | 06JUN09 | 03JUL09 | 2 522 |
| 02L1FE0214 | Obtain rel. authorities's approval for AIP | 1 | 1 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 1 427 |
| 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 | 2 502 |
| 02L1FE0219 | Design (DDA) submission for the DC's approval | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 410 |
| 02L1FE0220 | Design (DDA) certification by the Design Checker | 28 | 28 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 2 501 |
| 02L1FE0222 | Design (DDA) submission for the SO's approval | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 416 |
| 02L1FE0224 | Design (DDA) review by the SO | 60 | 60 | 11AUG09 | 09OCT09 | 11AUG09 | 09OCT09 | 2 501 |
| 02L1FE0226 | DDA submission for rel. authorities' approval | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 440 |
| 02L1FE0228 | Design (DDA) review by the rel. authorities | 28 | 28 | 11AUG09 | 07SEP09 | 11AUG09 | 07SEP09 | 2 533 |
| 02L1FE0230 | Obtain rel. authorities's approval for DDA | 1 | 1 | 08SEP09 | 08SEP09 | 08SEP09 | 08SEP09 | 1 431 |
| 02L1FE0232 | Obtain design (DDA) approval from the SO | 0 | 0 | | 10OCT09 | | 10OCT09 | 2 501 |

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float | Year | | | | | | | | | | | | | | |
|---------------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | | | | | |
| Design Packages for Works in Portion A | | | | | | | | | | | | | | | | | | | | | | | | |
| Temp. Steel Decking Design Over Shing Mun Nullah | | | | | | | | | | | | | | | | | | | | | | | | |
| 02L1AA0102 | Design preparation by the Designer | 14 | 14 | 22FEB08A | 15MAY08A | 22FEB08A | 15MAY08A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0104 | Design certification by the Design Checker | 14 | 14 | 16MAY08A | 26MAY08A | 16MAY08A | 26MAY08A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0106 | Design submission for the SO's approval | 1 | 1 | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0108 | Design review by the SO | 21 | 21 | 27MAY08A | 30JUN08A | 27MAY08A | 30JUN08A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0110 | Obtain design approval from the SO | 0 | 0 | | 30JUN08A | | 30JUN08A | 2 | | | | | | | | | | | | | | | | |
| ELS Design for Spiral Ramp/Cascade/Box Culvert | | | | | | | | | | | | | | | | | | | | | | | | |
| 02L1AA0202 | Design preparation for the DDA submission | 158 | 158 | 02MAY08A | 16FEB09A | 02MAY08A | 16FEB09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0203 | Design submission for the DC's approval | 2 | 2 | 10JUL08A | 17FEB09A | 10JUL08A | 17FEB09A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0204 | Design (DDA) certification by the Design Checker | 30 | 30 | 11JUL08A | 17FEB09A | 11JUL08A | 17FEB09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0206 | Design (DDA) submission for the SO's approval | 2 | 2 | 12AUG08A | 17FEB09A | 12AUG08A | 17FEB09A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0208 | Design (DDA) review by the SO | 68 | 68 | 13AUG08A | 14MAR09A | 13AUG08A | 14MAR09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0216 | SO submit design (DDA) for approval of GEO | 1 | 1 | 03FEB09A | 03MAR09A | 03FEB09A | 03MAR09A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0218 | Design (DDA) review/approval by the GEO | 28 | 28 | 04MAR09A | 31MAY09 | 04MAR09A | 31MAY09 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0238 | Obtain SO's consent for design (DDA) | 0 | 0 | | 24MAR09A | | 24MAR09A | 2 | | | | | | | | | | | | | | | | |
| Temp. Platform Design for H-Piling | | | | | | | | | | | | | | | | | | | | | | | | |
| 02L1AA0302 | Design preparation by the Designer | 15 | 15 | 04JAN10* | 18JAN10 | 04JAN10* | 18JAN10 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0303 | Design submission for the DC's approval | 1 | 1 | 19JAN10 | 19JAN10 | 19JAN10 | 19JAN10 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0304 | Design certification by the Design Checker | 28 | 28 | 20JAN10 | 16FEB10 | 20JAN10 | 16FEB10 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0306 | Design submission for the SO's approval | 1 | 1 | 19JAN10 | 19JAN10 | 19JAN10 | 19JAN10 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0308 | Design review by the SO | 42 | 42 | 20JAN10 | 02MAR10 | 20JAN10 | 02MAR10 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0310 | Obtain design approval from the SO | 0 | 0 | | 02MAR10 | | 02MAR10 | 2 | | | | | | | | | | | | | | | | |
| Cascade & Box Culvert Design for Portion A | | | | | | | | | | | | | | | | | | | | | | | | |
| 02L1AA0402 | Design preparation for the AIP submission | 30 | 30 | 02JUN08A | 28FEB09A | 02JUN08A | 28FEB09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0403 | Design (AIP) submission for the DC's approval | 3 | 3 | 12JUL08A | 02MAR09A | 12JUL08A | 02MAR09A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0404 | Design (AIP) certification by the Design Checker | 243 | 243 | 14JUL08A | 18MAR09A | 14JUL08A | 18MAR09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0406 | Design (AIP) submission for the SO's approval | 2 | 2 | 15JUL08A | 19MAR09A | 15JUL08A | 19MAR09A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0408 | Design (AIP) review by the SO | 66 | 66 | 16JUL08A | 20MAR09A | 16JUL08A | 20MAR09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0410 | AIP submission for rel. authorities' approval | 1 | 1 | 14JUL08A | 19AUG08A | 14JUL08A | 19AUG08A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0412 | Design (AIP) review by the rel. authorities | 28 | 28 | 15JUL08A | 12NOV08A | 15JUL08A | 12NOV08A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0414 | Obtain rel. authorities' approval for AIP | 1 | 1 | 03NOV08A | 12NOV08A | 03NOV08A | 12NOV08A | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0420 | Obtain SO's consent for design (AIP) | 0 | 0 | | 20MAR09A | | 20MAR09A | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0422 | Design preparation for the DDA submission | 30 | 30 | 21MAR09A | 12JUN09 | 21MAR09A | 12JUN09 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0423 | Design (DDA) submission for the DC's approval | 1 | 1 | 13JUN09 | 13JUN09 | 13JUN09 | 13JUN09 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0424 | Design (DDA) certification by the Design Checker | 28 | 28 | 14JUN09 | 11JUL09 | 14JUN09 | 11JUL09 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0426 | Design (DDA) submission for the SO's approval | 1 | 1 | 13JUN09 | 13JUN09 | 13JUN09 | 13JUN09 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0428 | Design (DDA) review by the SO | 66 | 66 | 14JUN09 | 18AUG09 | 14JUN09 | 18AUG09 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0430 | DDA submission for rel. authorities' approval | 1 | 1 | 20JUN09 | 20JUN09 | 20JUN09 | 20JUN09 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0432 | Design (DDA) review by the rel. authorities | 28 | 28 | 21JUN09 | 18JUL09 | 21JUN09 | 18JUL09 | 2 | | | | | | | | | | | | | | | | |
| 02L1AA0434 | Obtain rel. authorities' approval for DDA | 1 | 1 | 20JUL09 | 20JUL09 | 20JUL09 | 20JUL09 | 1 | | | | | | | | | | | | | | | | |
| 02L1AA0440 | Obtain SO's consent for design (DDA) | 0 | 0 | | 19AUG09 | | 19AUG09 | 2 | | | | | | | | | | | | | | | | |

7 days after ICE certification

1st ICE on 17/09/09 2hd ICE cert on 02/12/08

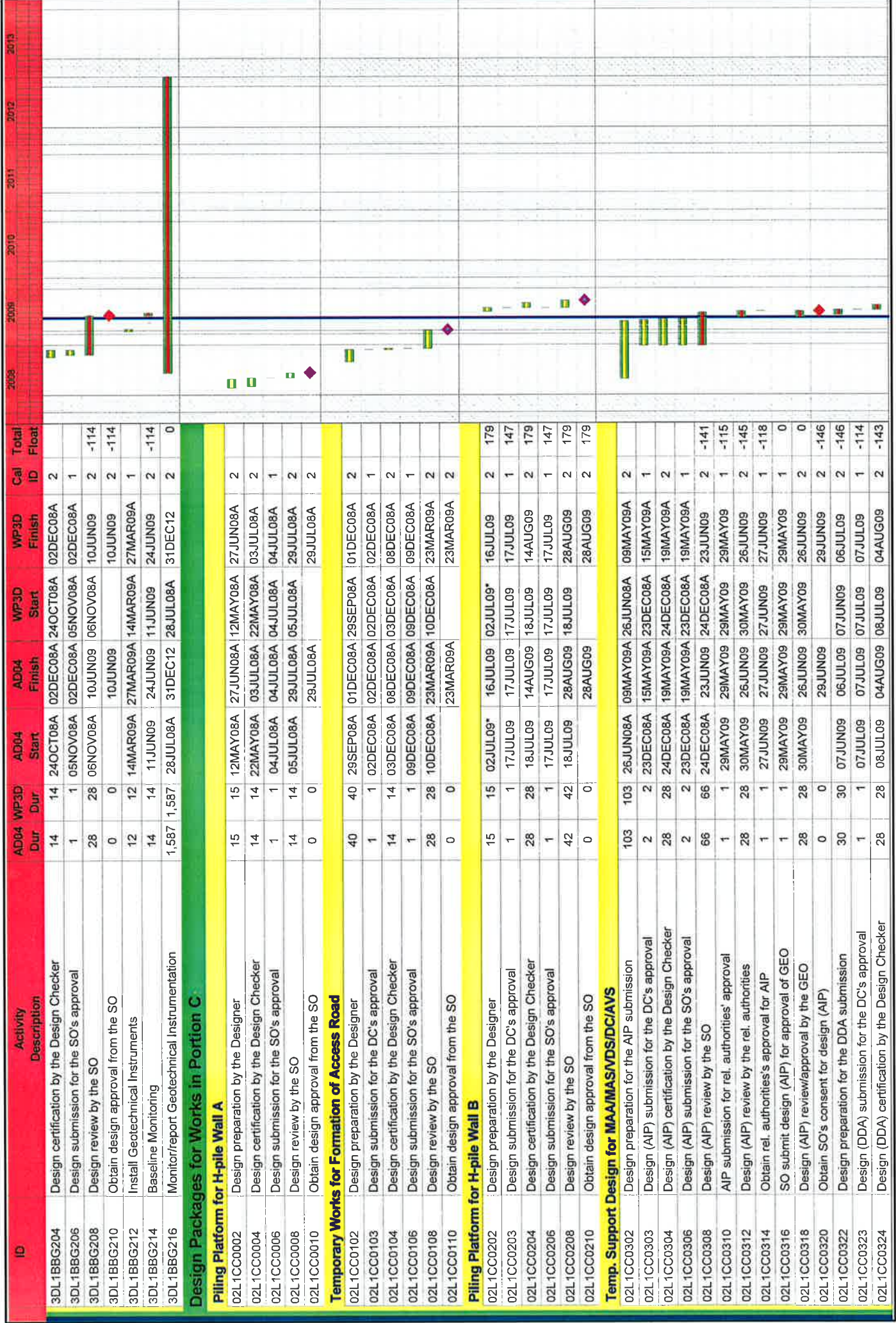
| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float | Year | | | | | | |
|---------------------------------------------------------|--------------------------------------------------|------------|-------------|---------------|----------------|---------------|----------------|----------------|------|------|------|------|------|------|--|
| | | | | | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | |
| Impact Assessment on WSD Wo Yip Hop V. S. P. H. | | | | | | | | | | | | | | | |
| 02L1AA0502 | Design preparation for the DDA submission | 30 | 30 | 02MAY08A | 26FEB09A | 02MAY08A | 26FEB09A | 2 | | | | | | | |
| 02L1AA0503 | Design (DDA) submission for the DC's approval | 1 | 1 | 26JUN08A | 27FEB09A | 26JUN08A | 27FEB09A | 1 | | | | | | | |
| 02L1AA0504 | Design (DDA) certification by the Design Checker | 60 | 60 | 27JUN08A | 11MAR09A | 27JUN08A | 11MAR09A | 2 | | | | | | | |
| 02L1AA0505 | Design (DDA) submission for the SO's approval | 2 | 2 | 14JUL08A | 24MAR09A | 14JUL08A | 24MAR09A | 1 | | | | | | | |
| 02L1AA0508 | Design (DDA) review by the SO | 66 | 66 | 15JUL08A | 31MAR09A | 15JUL08A | 31MAR09A | 2 | | | | | | | |
| 02L1AA0510 | DDA submission for rel. authorities' approval | 2 | 2 | 10JUL08A | 14MAR09A | 10JUL08A | 14MAR09A | 1 | | | | | | | |
| 02L1AA0512 | Design (DDA) review by the rel. authorities | 28 | 28 | 14JUL08A | 31MAY09 | 14JUL08A | 31MAY09 | 2 | | | | | | | |
| 02L1AA0514 | Obtain rel. authorities's approval for DDA | 1 | 1 | 01JUN09 | 01JUN09 | 01JUN09 | 01JUN09 | 1 | | | | | | | |
| 02L1AA0520 | Obtain SO's consent for design (DDA) | 0 | 0 | 31MAR09A | 31MAR09A | 31MAR09A | 31MAR09A | 2 | | | | | | | |
| Temporary Platform for Pipe Piling | | | | | | | | | | | | | | | |
| 02L1AA0602 | Design preparation by the Designer | 11 | 11 | 21JUL08A | 23AUG08A | 21JUL08A | 23AUG08A | 2 | | | | | | | |
| 02L1AA0603 | Design submission for the DC's approval | 1 | 1 | 01AUG08A | 25AUG08A | 01AUG08A | 25AUG08A | 1 | | | | | | | |
| 02L1AA0604 | Design certification by the Design Checker | 21 | 21 | 02AUG08A | 26SEP08A | 02AUG08A | 26SEP08A | 2 | | | | | | | |
| 02L1AA0605 | Design submission for the SO's approval | 1 | 1 | 08AUG08A | 27SEP08A | 08AUG08A | 27SEP08A | 1 | | | | | | | |
| 02L1AA0608 | Design review by the SO | 28 | 28 | 09AUG08A | 17OCT08A | 09AUG08A | 17OCT08A | 2 | | | | | | | |
| 02L1AA0610 | Obtain design approval from the SO | 0 | 0 | 17OCT08A | 17OCT08A | 17OCT08A | 17OCT08A | 2 | | | | | | | |
| Temporary Works Design for Retrieval of TBM | | | | | | | | | | | | | | | |
| 02L1AA0702 | Design preparation by the Designer | 30 | 30 | 28FEB09A | 22JUN09 | 28FEB09A | 22JUN09 | 2 | | | | | | | |
| 02L1AA0703 | Design submission for the DC's approval | 1 | 1 | 23JUN09 | 23JUN09 | 23JUN09 | 23JUN09 | 1 | | | | | | | |
| 02L1AA0704 | Design certification by the Design Checker | 28 | 28 | 24JUN09 | 21JUL09 | 24JUN09 | 21JUL09 | 2 | | | | | | | |
| 02L1AA0706 | Design submission for the SO's approval | 1 | 1 | 23JUN09 | 23JUN09 | 23JUN09 | 23JUN09 | 1 | | | | | | | |
| 02L1AA0708 | Design review by the SO | 42 | 42 | 24JUN09 | 04AUG09 | 24JUN09 | 04AUG09 | 2 | | | | | | | |
| 02L1AA0710 | Obtain design approval from the SO | 0 | 0 | 04AUG09 | 04AUG09 | 04AUG09 | 04AUG09 | 2 | | | | | | | |
| Temporary Drainage Management Plan for Portion A | | | | | | | | | | | | | | | |
| 02L1AA0802 | TDMP preparation by the Designer | 208 | 208 | 18AUG08A | 23MAY09A | 18AUG08A | 23MAY09A | 2 | | | | | | | |
| 02L1AA0804 | TDMP submission for the DC's approval | 2 | 2 | 24SEP08A | 25MAY09A | 24SEP08A | 25MAY09A | 1 | | | | | | | |
| 02L1AA0806 | TDMP certification by the Design Checker | 28 | 28 | 24OCT08A | 03JUN09 | 24OCT08A | 03JUN09 | 2 | | | | | | | |
| 02L1AA0808 | TDMP submission for the SO's approval | 2 | 2 | 05NOV08A | 04JUN09 | 05NOV08A | 04JUN09 | 1 | | | | | | | |
| 02L1AA0810 | TDMP review by the SO | 90 | 90 | 05NOV08A | 16JUL09 | 05NOV08A | 16JUL09 | 2 | | | | | | | |
| 02L1AA0812 | TDMP submission for DSD's approval | 1 | 1 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 1 | | | | | | | |
| 02L1AA0814 | TDMP review by the DSD | 90 | 90 | 05JUN09 | 02SEP09 | 05JUN09 | 02SEP09 | 2 | | | | | | | |
| 02L1AA0816 | Obtain DSD's approval for DDA | 1 | 1 | 03SEP09 | 03SEP09 | 03SEP09 | 03SEP09 | 1 | | | | | | | |
| 02L1AA0818 | Obtain SO's consent for TDMP | 0 | 0 | 03SEP09 | 03SEP09 | 03SEP09 | 03SEP09 | 2 | | | | | | | |
| Geotechnical Instrumentation Stg 1 for GL Works | | | | | | | | | | | | | | | |
| 3DL1AAG102 | Design preparation by the Designer | 14 | 14 | 22FEB08A | 28APR08A | 22FEB08A | 28APR08A | 2 | | | | | | | |
| 3DL1AAG104 | Design certification by the Design Checker | 7 | 7 | 29APR08A | 16JUN08A | 29APR08A | 16JUN08A | 2 | | | | | | | |
| 3DL1AAG106 | Design submission for the SO's approval | 1 | 1 | 10MAY08A | 10MAY08A | 10MAY08A | 10MAY08A | 1 | | | | | | | |
| 3DL1AAG108 | Design review by the SO | 14 | 14 | 12MAY08A | 28AUG08A | 12MAY08A | 28AUG08A | 2 | | | | | | | |
| 3DL1AAG110 | Obtain design approval from the SO | 0 | 0 | 28AUG08A | 28AUG08A | 28AUG08A | 28AUG08A | 2 | | | | | | | |
| 3DL1AAG112 | Install Geotechnical Instruments | 6 | 6 | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 1 | | | | | | | |
| 3DL1AAG114 | Baseline Monitoring | 14 | 14 | 27MAY08A | 31MAY08A | 27MAY08A | 31MAY08A | 2 | | | | | | | |

| ID | Activity Description | AD04 | | AD04 | | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float |
|---------------------------------------------------------|--------------------------------------------------|-------|----------|----------|----------|----------|------------|-------------|------------|-------------|--------|-------------|
| | | Dur | WP3D Dur | Start | Finish | | | | | | | |
| Geotechnical Instrumentation Stg 2 for Deep Exc. | | | | | | | | | | | | |
| 3DL1AAG202 | Design preparation by the Designer | 14 | 14 | 01DEC08A | 24FEB09A | 01DEC08A | 24FEB09A | 2 | | | | |
| 3DL1AAG204 | Design certification by the Design Checker | 7 | 7 | 15DEC08A | 25FEB09A | 15DEC08A | 25FEB09A | 2 | | | | |
| 3DL1AAG206 | Design submission for the SO's approval | 1 | 1 | 07JAN09A | 25FEB09A | 07JAN09A | 25FEB09A | 1 | | | | |
| 3DL1AAG208 | Design review by the SO | 28 | 28 | 08JAN09A | 24MAR09A | 08JAN09A | 24MAR09A | 2 | | | | |
| 3DL1AAG210 | Obtain design approval from the SO | 0 | 0 | | 24MAR09A | | 24MAR09A | 2 | | | | |
| 3DL1AAG212 | Install Geotechnical Instruments | 28 | 28 | 09FEB09A | 04JUN09 | 09FEB09A | 04JUN09 | 1 | | | | 0 |
| 3DL1AAG214 | Baseline Monitoring | 6 | 6 | 18FEB09A | 25MAR09A | 18FEB09A | 25MAR09A | 2 | | | | |
| 3DL1AAG216 | Monitor/report Geotechnical Instrumentation | 1,643 | 1,643 | 02JUN08A | 04FEB13 | 02JUN08A | 04FEB13 | 2 | | | | 0 |
| Design Packages for Works in Portion B | | | | | | | | | | | | |
| Piling Platform to Construct H-pile Wall | | | | | | | | | | | | |
| 02L1BB0202 | Design preparation by the Designer | 15 | 15 | 24MAR08A | 09MAY08A | 24MAR08A | 09MAY08A | 2 | | | | |
| 02L1BB0204 | Design certification by the Design Checker | 14 | 14 | 10MAY08A | 08AUG08A | 10MAY08A | 08AUG08A | 2 | | | | |
| 02L1BB0206 | Design submission for the SO's approval | 1 | 1 | 21MAY08A | 08AUG08A | 21MAY08A | 08AUG08A | 1 | | | | |
| 02L1BB0208 | Design review by the SO | 21 | 21 | 22MAY08A | 25SEP08A | 22MAY08A | 25SEP08A | 2 | | | | |
| 02L1BB0210 | Obtain design approval from the SO | 0 | 0 | | 25SEP08A | | 25SEP08A | 2 | | | | |
| Temp. Platform to Construct Drop Shafts | | | | | | | | | | | | |
| 02L1BB0302 | Design preparation by the Designer | 22 | 22 | 04AUG08A | 11DEC08A | 04AUG08A | 11DEC08A | 2 | | | | |
| 02L1BB0303 | Design submission for the DC's approval | 2 | 2 | 11DEC08A | 12FEB09A | 11DEC08A | 12FEB09A | 1 | | | | |
| 02L1BB0304 | Design certification by the Design Checker | 14 | 14 | 12DEC08A | 25FEB09A | 12DEC08A | 25FEB09A | 2 | | | | |
| 02L1BB0306 | Design submission for the SO's approval | 2 | 2 | 12DEC08A | 25FEB09A | 12DEC08A | 25FEB09A | 1 | | | | |
| 02L1BB0308 | Design review by the SO | 21 | 21 | 13DEC08A | 11MAR09A | 13DEC08A | 11MAR09A | 2 | | | | |
| 02L1BB0310 | Obtain design approval from the SO | 0 | 0 | | 11MAR09A | | 11MAR09A | 2 | | | | |
| Temporary Drainage Management Plan | | | | | | | | | | | | |
| 02L1BB0402 | TDMP preparation by the Designer | 313 | 313 | 05MAY08A | 21MAR09A | 05MAY08A | 21MAR09A | 2 | | | | |
| 02L1BB0403 | TDMP submission for the DC's approval | 2 | 2 | 05AUG08A | 23MAR09A | 05AUG08A | 23MAR09A | 1 | | | | |
| 02L1BB0404 | TDMP certification by the Design Checker | 213 | 213 | 06AUG08A | 13APR09A | 06AUG08A | 13APR09A | 2 | | | | |
| 02L1BB0406 | TDMP submission for the SO's approval | 2 | 2 | 24SEP08A | 14APR09A | 24SEP08A | 14APR09A | 1 | | | | |
| 02L1BB0408 | TDMP review by the SO | 90 | 90 | 25SEP08A | 03JUN09 | 25SEP08A | 03JUN09 | 2 | | | | -210 |
| 02L1BB0410 | TDMP submission for DSD's approval | 1 | 1 | 23SEP08A | 23SEP08A | 23SEP08A | 23SEP08A | 1 | | | | |
| 02L1BB0412 | TDMP review by the DSD | 90 | 90 | 24SEP08A | 04JUN09 | 24SEP08A | 04JUN09 | 2 | | | | -211 |
| 02L1BB0414 | Obtain DSD's approval for DDA | 1 | 1 | 05JUN09 | 05JUN09 | 05JUN09 | 05JUN09 | 1 | | | | -168 |
| 02L1BB0416 | Obtain SO's consent for TDMP | 0 | 0 | | 05JUN09 | | 05JUN09 | 2 | | | | -211 |
| Temp. Support Design for MAA/MAS/DS/DC | | | | | | | | | | | | |
| 02L1BB0502 | Design preparation for the AIP submission | 272 | 272 | 02JUN08A | 19MAR09A | 02JUN08A | 19MAR09A | 2 | | | | |
| 02L1BB0503 | Design (AIP) submission for the DC's approval | 2 | 2 | 11JUL08A | 20MAR09A | 11JUL08A | 20MAR09A | 1 | | | | |
| 02L1BB0504 | Design (AIP) certification by the Design Checker | 60 | 60 | 12JUL08A | 04APR09A | 12JUL08A | 04APR09A | 2 | | | | |
| 02L1BB0506 | Design (AIP) submission for the SO's approval | 2 | 2 | 24JUL08A | 06APR09A | 24JUL08A | 06APR09A | 1 | | | | |
| 02L1BB0508 | Design (AIP) review by the SO | 66 | 66 | 25JUL08A | 11MAY09A | 25JUL08A | 11MAY09A | 2 | | | | |
| 02L1BB0510 | AIP submission for rel. authorities' approval | 1 | 1 | 12JUL08A | 12JUL08A | 12JUL08A | 12JUL08A | 1 | | | | |
| 02L1BB0512 | Design (AIP) review by the rel. authorities | 28 | 28 | 14JUL08A | 10NOV08A | 14JUL08A | 10NOV08A | 2 | | | | |
| 02L1BB0514 | Obtain rel. authorities' approval for AIP | 1 | 1 | 11NOV08A | 11NOV08A | 11NOV08A | 11NOV08A | 1 | | | | |
| 02L1BB0516 | SO submit design (AIP) for approval of GEO | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 | | | | 0 |

| ID | Activity Description | D04 | | AD04 | | AD04 | | AD04 | | Total Float | |
|--------------------------------------------------------|--------------------------------------------------|-----|----------|----------|----------|----------|----------|----------|----------|-------------|--|
| | | Dur | WP3D Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 02L1BB0518 | Design (AIP) review/approval by the GEO | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 | |
| 02L1BB0520 | Obtain SO's consent for design (AIP) | 0 | 0 | | 11MAY09A | | 11MAY09A | | 11MAY09A | 2 | |
| 02L1BB0522 | Design preparation for the DDA submission | 30 | 30 | 28MAY09 | 26JUN09 | 28MAY09 | 26JUN09 | 28MAY09 | 26JUN09 | 2 | |
| 02L1BB0523 | Design (DDA) submission for the DC's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | |
| 02L1BB0524 | Design (DDA) certification by the Design Checker | 28 | 28 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 2 | |
| 02L1BB0526 | Design (DDA) submission for the SO's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | |
| 02L1BB0528 | Design (DDA) review by the SO | 66 | 66 | 28JUN09 | 01SEP09 | 28JUN09 | 01SEP09 | 28JUN09 | 01SEP09 | 2 | |
| 02L1BB0530 | DDA submission for rel. authorities' approval | 1 | 1 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 1 | |
| 02L1BB0532 | Design (DDA) review by the rel. authorities | 28 | 28 | 05JUL09 | 01AUG09 | 05JUL09 | 01AUG09 | 05JUL09 | 01AUG09 | 2 | |
| 02L1BB0534 | Obtain rel. authorities' approval for DDA | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 | |
| 02L1BB0536 | SO submit design (DDA) for approval of GEO | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 | |
| 02L1BB0538 | Design (DDA) review/approval by the GEO | 28 | 28 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 2 | |
| 02L1BB0540 | Obtain SO's consent for design (DDA) | 0 | 0 | | 02SEP09 | | 02SEP09 | | 02SEP09 | 2 | |
| Temp. Support Design for MA and MAMT Connection | | | | | | | | | | | |
| 02L1BB0602 | Design preparation for the AIP submission | 110 | 110 | 09JUN08A | 02JUN09 | 09JUN08A | 02JUN09 | 09JUN08A | 02JUN09 | 2 | |
| 02L1BB0603 | Design (AIP) submission for the DC's approval | 1 | 1 | 18MAY09A | 29MAY09 | 18MAY09A | 29MAY09 | 18MAY09A | 29MAY09 | 1 | |
| 02L1BB0604 | Design (AIP) certification by the Design Checker | 28 | 28 | 19MAY09A | 14JUN09 | 19MAY09A | 14JUN09 | 19MAY09A | 14JUN09 | 2 | |
| 02L1BB0606 | Design (AIP) submission for the SO's approval | 1 | 1 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 1 | |
| 02L1BB0608 | Design (AIP) review by the SO | 66 | 66 | 04JUN09 | 08AUG09 | 04JUN09 | 08AUG09 | 04JUN09 | 08AUG09 | 2 | |
| 02L1BB0610 | AIP submission for rel. authorities' approval | 1 | 1 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 1 | |
| 02L1BB0612 | Design (AIP) review by the rel. authorities | 28 | 28 | 04JUN09 | 01JUL09 | 04JUN09 | 01JUL09 | 04JUN09 | 01JUL09 | 2 | |
| 02L1BB0614 | Obtain rel. authorities' approval for AIP | 1 | 1 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 1 | |
| 02L1BB0616 | SO submit design (AIP) for approval of GEO | 1 | 1 | 22JUN09 | 22JUN09 | 22JUN09 | 22JUN09 | 22JUN09 | 22JUN09 | 1 | |
| 02L1BB0618 | Design (AIP) review/approval by the GEO | 28 | 28 | 23JUN09 | 20JUL09 | 23JUN09 | 20JUL09 | 23JUN09 | 20JUL09 | 2 | |
| 02L1BB0620 | Obtain SO's consent for design (AIP) | 0 | 0 | | 09AUG09 | | 09AUG09 | | 09AUG09 | 2 | |
| 02L1BB0622 | Design preparation for the DDA submission | 30 | 30 | 18JUL09 | 16AUG09 | 18JUL09 | 16AUG09 | 18JUL09 | 16AUG09 | 2 | |
| 02L1BB0623 | Design (DDA) submission for the DC's approval | 1 | 1 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 1 | |
| 02L1BB0624 | Design (DDA) certification by the Design Checker | 28 | 28 | 18AUG09 | 14SEP09 | 18AUG09 | 14SEP09 | 18AUG09 | 14SEP09 | 2 | |
| 02L1BB0626 | Design (DDA) submission for the SO's approval | 1 | 1 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 1 | |
| 02L1BB0628 | Design (DDA) review by the SO | 66 | 66 | 18AUG09 | 22OCT09 | 18AUG09 | 22OCT09 | 18AUG09 | 22OCT09 | 2 | |
| 02L1BB0630 | DDA submission for rel. authorities' approval | 1 | 1 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 1 | |
| 02L1BB0632 | Design (DDA) review by the rel. authorities | 28 | 28 | 25AUG09 | 21SEP09 | 25AUG09 | 21SEP09 | 25AUG09 | 21SEP09 | 2 | |
| 02L1BB0634 | Obtain rel. authorities' approval for DDA | 1 | 1 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 1 | |
| 02L1BB0636 | SO submit design (DDA) for approval of GEO | 1 | 1 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 1 | |
| 02L1BB0638 | Design (DDA) review/approval by the GEO | 28 | 28 | 23SEP09 | 20OCT09 | 23SEP09 | 20OCT09 | 23SEP09 | 20OCT09 | 2 | |
| 02L1BB0640 | Obtain SO's consent for design (DDA) | 0 | 0 | | 23OCT09 | | 23OCT09 | | 23OCT09 | 2 | |
| Permanent Design for MAA/MAS/VDS/DC | | | | | | | | | | | |
| 02L1BB0702 | Design preparation for the AIP submission | 285 | 285 | 02JUN08A | 02JUN09 | 02JUN08A | 02JUN09 | 02JUN08A | 02JUN09 | 2 | |
| 02L1BB0703 | Design submission for the DC's approval | 2 | 2 | 23JUL08A | 03JUN09 | 23JUL08A | 03JUN09 | 23JUL08A | 03JUN09 | 1 | |
| 02L1BB0704 | Design (AIP) certification by the Design Checker | 60 | 60 | 24JUL08A | 19JUN09 | 24JUL08A | 19JUN09 | 24JUL08A | 19JUN09 | 2 | |
| 02L1BB0706 | Design (AIP) submission for the SO's approval | 2 | 2 | 04JUL08A | 03JUN09 | 04JUL08A | 03JUN09 | 04JUL08A | 03JUN09 | 1 | |
| 02L1BB0708 | Design (AIP) review by the SO | 66 | 66 | 05JUL08A | 19JUN09 | 05JUL08A | 19JUN09 | 05JUL08A | 19JUN09 | 2 | |
| 02L1BB0710 | AIP submission for rel. authorities' approval | 1 | 1 | 03JUL08A | 03JUL08A | 03JUL08A | 03JUL08A | 03JUL08A | 03JUL08A | 1 | |

| ID | Activity Description | AD04 | | AD04 | | AD04 Finish | AD04 Start | WP3D Dur | WP3D Dur | WP3D Start | WP3D Finish | Cal ID | Total Float |
|-----------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|-------------|------------|----------|----------|------------|-------------|--------|-------------|
| | | Dur | Dur | Start | Finish | | | | | | | | |
| 02L1BB0712 | Design (AIP) review by the rel. authorities | 28 | 28 | 04JUL08A | 08JUN09 | 04JUL08A | 08JUN09 | 2 | 2 | 04JUL08A | 08JUN09 | 2 | 10 |
| 02L1BB0714 | Obtain rel. authorities' approval for AIP | 1 | 1 | 09JUN09 | 09JUN09 | 09JUN09 | 09JUN09 | 1 | 1 | 09JUN09 | 09JUN09 | 1 | 9 |
| 02L1BB0716 | SO submit design (AIP) for approval of GEO | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | 0 | 27JUN09 | 27JUN09 | 1 | 0 |
| 02L1BB0718 | Design (AIP) review/approval by the GEO | 28 | 28 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 2 | 0 | 28JUN09 | 25JUL09 | 2 | 0 |
| 02L1BB0720 | Obtain SO's consent for design (AIP) | 0 | 0 | | 20JUN09 | | 20JUN09 | 2 | 1 | | 20JUN09 | 2 | 1 |
| 02L1BB0722 | Design preparation for the DDA submission | 30 | 30 | 17NOV08A | 27JUN09 | 17NOV08A | 27JUN09 | 2 | 1 | 17NOV08A | 27JUN09 | 2 | 1 |
| 02L1BB0723 | Design submission for the DC's approval | 1 | 1 | 29JUN09 | 29JUN09 | 29JUN09 | 29JUN09 | 1 | 0 | 29JUN09 | 29JUN09 | 1 | 0 |
| 02L1BB0724 | Design (DDA) certification by the Design Checker | 28 | 28 | 30JUN09 | 27JUL09 | 30JUN09 | 27JUL09 | 2 | 0 | 30JUN09 | 27JUL09 | 2 | 0 |
| 02L1BB0726 | Design (DDA) submission for the SO's approval | 1 | 1 | 29JUN09 | 29JUN09 | 29JUN09 | 29JUN09 | 1 | 269 | 29JUN09 | 29JUN09 | 1 | 269 |
| 02L1BB0728 | Design (DDA) review by the SO | 66 | 66 | 30JUN09 | 03SEP09 | 30JUN09 | 03SEP09 | 2 | 332 | 30JUN09 | 03SEP09 | 2 | 332 |
| 02L1BB0730 | DDA submission for rel. authorities' approval | 1 | 1 | 29JUN09 | 29JUN09 | 29JUN09 | 29JUN09 | 1 | 299 | 29JUN09 | 29JUN09 | 1 | 299 |
| 02L1BB0732 | Design (DDA) review by the rel. authorities | 28 | 28 | 07JUL09 | 03AUG09 | 07JUL09 | 03AUG09 | 2 | 363 | 07JUL09 | 03AUG09 | 2 | 363 |
| 02L1BB0734 | Obtain rel. authorities' approval for DDA | 1 | 1 | 04AUG09 | 04AUG09 | 04AUG09 | 04AUG09 | 1 | 294 | 04AUG09 | 04AUG09 | 1 | 294 |
| 02L1BB0736 | SO submit design (DDA) for approval of GEO | 1 | 1 | 04AUG09 | 04AUG09 | 04AUG09 | 04AUG09 | 1 | 0 | 04AUG09 | 04AUG09 | 1 | 0 |
| 02L1BB0738 | Design (DDA) review/approval by the GEO | 28 | 28 | 05AUG09 | 01SEP09 | 05AUG09 | 01SEP09 | 2 | 0 | 05AUG09 | 01SEP09 | 2 | 0 |
| 02L1BB0740 | Obtain SO's consent for design (DDA) | 0 | 0 | | 04SEP09 | | 04SEP09 | 2 | 332 | | 04SEP09 | 2 | 332 |
| Permanent Design for MA and MA/MT Connection | | | | | | | | | | | | | |
| 02L1BB0802 | Design preparation for AIP submission | 90 | 90 | 09JUN08A | 17JUN09 | 09JUN08A | 17JUN09 | 2 | 120 | 09JUN08A | 17JUN09 | 2 | 120 |
| 02L1BB0803 | Design (AIP) submission for the DC's approval | 2 | 2 | 30JUN08A | 18JUN09 | 30JUN08A | 18JUN09 | 1 | 100 | 30JUN08A | 18JUN09 | 1 | 100 |
| 02L1BB0804 | Design (AIP) certification by the Design Checker | 28 | 28 | 24JUL08A | 06JUL09 | 24JUL08A | 06JUL09 | 2 | 120 | 24JUL08A | 06JUL09 | 2 | 120 |
| 02L1BB0806 | Design (AIP) submission for the SO's approval | 2 | 2 | 25JUL08A | 07JUL09 | 25JUL08A | 07JUL09 | 1 | 102 | 25JUL08A | 07JUL09 | 1 | 102 |
| 02L1BB0808 | Design (AIP) review by the SO | 66 | 66 | 26JUL08A | 11AUG09 | 26JUL08A | 11AUG09 | 2 | 120 | 26JUL08A | 11AUG09 | 2 | 120 |
| 02L1BB0810 | AIP submission for rel. authorities' approval | 1 | 1 | 25JUL08A | 07AUG08A | 25JUL08A | 07AUG08A | 1 | | 25JUL08A | 07AUG08A | 1 | |
| 02L1BB0812 | Design (AIP) review by the rel. authorities | 28 | 28 | 26JUL08A | 13JUL09 | 26JUL08A | 13JUL09 | 2 | 148 | 26JUL08A | 13JUL09 | 2 | 148 |
| 02L1BB0814 | Obtain rel. authorities' approval for AIP | 1 | 1 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 1 | 124 | 14JUL09 | 14JUL09 | 1 | 124 |
| 02L1BB0816 | SO submit design (AIP) for approval of GEO | 1 | 1 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 1 | 100 | 14JUL09 | 14JUL09 | 1 | 100 |
| 02L1BB0818 | Design (AIP) review/approval by the GEO | 28 | 28 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | 2 | 120 | 15JUL09 | 11AUG09 | 2 | 120 |
| 02L1BB0820 | Obtain SO's consent for design (AIP) | 0 | 0 | | 12AUG09 | | 12AUG09 | 2 | 120 | | 12AUG09 | 2 | 120 |
| 02L1BB0822 | Design preparation for the DDA submission | 30 | 30 | 21JUL09 | 19AUG09 | 21JUL09 | 19AUG09 | 2 | 120 | 21JUL09 | 19AUG09 | 2 | 120 |
| 02L1BB0823 | Design (DDA) submission for the DC's approval | 1 | 1 | 20AUG09 | 20AUG09 | 20AUG09 | 20AUG09 | 1 | 101 | 20AUG09 | 20AUG09 | 1 | 101 |
| 02L1BB0824 | Design (DDA) certification by the Design Checker | 28 | 28 | 21AUG09 | 17SEP09 | 21AUG09 | 17SEP09 | 2 | 122 | 21AUG09 | 17SEP09 | 2 | 122 |
| 02L1BB0826 | Design (DDA) submission for the SO's approval | 1 | 1 | 20AUG09 | 20AUG09 | 20AUG09 | 20AUG09 | 1 | 100 | 20AUG09 | 20AUG09 | 1 | 100 |
| 02L1BB0828 | Design (DDA) review by the SO | 66 | 66 | 21AUG09 | 25OCT09 | 21AUG09 | 25OCT09 | 2 | 120 | 21AUG09 | 25OCT09 | 2 | 120 |
| 02L1BB0830 | DDA submission for rel. authorities' approval | 1 | 1 | 20AUG09 | 20AUG09 | 20AUG09 | 20AUG09 | 1 | 129 | 20AUG09 | 20AUG09 | 1 | 129 |
| 02L1BB0832 | Design (DDA) review by the rel. authorities | 28 | 28 | 28AUG09 | 24SEP09 | 28AUG09 | 24SEP09 | 2 | 151 | 28AUG09 | 24SEP09 | 2 | 151 |
| 02L1BB0834 | Obtain rel. authorities' approval for DDA | 1 | 1 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 1 | 120 | 25SEP09 | 25SEP09 | 1 | 120 |
| 02L1BB0836 | SO submit design (DDA) for approval of GEO | 1 | 1 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 1 | 98 | 25SEP09 | 25SEP09 | 1 | 98 |
| 02L1BB0838 | Design (DDA) review/approval by the GEO | 28 | 28 | 26SEP09 | 23OCT09 | 26SEP09 | 23OCT09 | 2 | 122 | 26SEP09 | 23OCT09 | 2 | 122 |
| 02L1BB0840 | Obtain SO's consent for design (DDA) | 0 | 0 | | 26OCT09 | | 26OCT09 | 2 | 120 | | 26OCT09 | 2 | 120 |
| ELS for Perm. Approach Channel Construction | | | | | | | | | | | | | |
| 02L1BB0902 | Design preparation by the Designer | 14 | 14 | 01AUG09* | 14AUG09 | 01AUG09* | 14AUG09 | 2 | 86 | 01AUG09* | 14AUG09 | 2 | 86 |
| 02L1BB0903 | Design submission for the DC's approval | 1 | 1 | 15AUG09 | 15AUG09 | 15AUG09 | 15AUG09 | 1 | 70 | 15AUG09 | 15AUG09 | 1 | 70 |
| 02L1BB0904 | Design certification by the Design Checker | 28 | 28 | 16AUG09 | 12SEP09 | 16AUG09 | 12SEP09 | 2 | 86 | 16AUG09 | 12SEP09 | 2 | 86 |

| ID | Activity Description | B04 | | AD04 | | AD04 | | AD04 | | Total Float | |
|---------------------------------------------------------|--------------------------------------------------|-----|----------|----------|----------|----------|----------|----------|----------|-------------|------|
| | | Dur | WF3D Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 02L1BB0906 | Design submission for the SO's approval | 1 | 1 | 15AUG09 | 15AUG09 | 15AUG09 | 15AUG09 | 15AUG09 | 15AUG09 | 1 | 70 |
| 02L1BB0908 | Design review by the SO | 42 | 42 | 16AUG09 | 26SEP09 | 16AUG09 | 26SEP09 | 16AUG09 | 26SEP09 | 2 | 86 |
| 02L1BB0910 | Obtain design approval from the SO | 0 | 0 | | 26SEP09 | | 26SEP09 | | 26SEP09 | 2 | 86 |
| Platform for RCD Operation (Air Vent Shaft) | | | | | | | | | | | |
| 02L1BB1602 | Prepare design/method statement | 6 | 6 | 22NOV08A | 01DEC08A | 22NOV08A | 01DEC08A | 22NOV08A | 01DEC08A | 1 | |
| 02L1BB1604 | Submit design/method statement to Design Checker | 1 | 1 | 02DEC08A | 23DEC08A | 02DEC08A | 23DEC08A | 02DEC08A | 23DEC08A | 1 | |
| 02L1BB1606 | Certify design/m.s. by Design Checker | 7 | 7 | 03DEC08A | 24DEC08A | 03DEC08A | 24DEC08A | 03DEC08A | 24DEC08A | 2 | |
| 02L1BB1608 | Submit design/m.s. to SO | 1 | 1 | 24DEC08A | 24DEC08A | 24DEC08A | 24DEC08A | 24DEC08A | 24DEC08A | 1 | |
| 02L1BB1610 | Design/m.s. review by SO | 14 | 14 | 25DEC08A | 11MAR09A | 25DEC08A | 11MAR09A | 25DEC08A | 11MAR09A | 2 | |
| 02L1BB1612 | Obtain design/m.s. approval from the SO | 0 | 0 | | 11MAR09A | | 11MAR09A | | 11MAR09A | 1 | |
| Temporary Works for Air Vent Shaft Construction | | | | | | | | | | | |
| 02L1BB1702 | Prepare design/method statement | 21 | 21 | 03NOV08A | 16DEC08A | 03NOV08A | 16DEC08A | 03NOV08A | 16DEC08A | 1 | |
| 02L1BB1704 | Submit design/method statement to Design Checker | 1 | 1 | 17DEC08A | 17DEC08A | 17DEC08A | 17DEC08A | 17DEC08A | 17DEC08A | 1 | |
| 02L1BB1706 | Certify design/m.s. by Design Checker | 14 | 14 | 18DEC08A | 23JAN09A | 18DEC08A | 23JAN09A | 18DEC08A | 23JAN09A | 2 | |
| 02L1BB1708 | Submit design/m.s. to SO | 1 | 1 | 23JAN09A | 23JAN09A | 23JAN09A | 23JAN09A | 23JAN09A | 23JAN09A | 1 | |
| 02L1BB1710 | Design/m.s. review by SO | 7 | 7 | 24JAN09A | 23MAR09A | 24JAN09A | 23MAR09A | 24JAN09A | 23MAR09A | 2 | |
| 02L1BB1712 | Obtain design/m.s. approval from the SO | 0 | 0 | | 23MAR09A | | 23MAR09A | | 23MAR09A | 1 | |
| Permanent Design for Air Vent Shaft | | | | | | | | | | | |
| 02L1BB1802 | Prepare design/method statement | 26 | 26 | 05NOV08A | 11DEC08A | 05NOV08A | 11DEC08A | 05NOV08A | 11DEC08A | 1 | |
| 02L1BB1804 | Submit design/method statement to Design Checker | 1 | 1 | 12DEC08A | 12DEC08A | 12DEC08A | 12DEC08A | 12DEC08A | 12DEC08A | 1 | |
| 02L1BB1806 | Certify design/m.s. by Design Checker | 21 | 21 | 13DEC08A | 24MAR09A | 13DEC08A | 24MAR09A | 13DEC08A | 24MAR09A | 2 | |
| 02L1BB1808 | Submit design/m.s. to SO | 1 | 1 | 17DEC08A | 24MAR09A | 17DEC08A | 24MAR09A | 17DEC08A | 24MAR09A | 1 | |
| 02L1BB1810 | Design/m.s. review by SO | 42 | 42 | 18DEC08A | 31MAY09 | 18DEC08A | 31MAY09 | 18DEC08A | 31MAY09 | 2 | 150 |
| 02L1BB1812 | Submit design to rel. authorities | 1 | 1 | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 1 | |
| 02L1BB1814 | Obtain design approval from rel. authorities | 28 | 28 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 2 | 153 |
| 02L1BB1816 | Obtain design/m.s. approval from the SO | 0 | 0 | | 30MAY09 | | 30MAY09 | | 30MAY09 | 1 | 125 |
| ELS Design for Construction of Vortex Shaft | | | | | | | | | | | |
| 02L1BB1902 | Design preparation by the Designer | 25 | 25 | 23FEB09A | 02JUN09 | 23FEB09A | 02JUN09 | 23FEB09A | 02JUN09 | 2 | -205 |
| 02L1BB1904 | Design submission for the DC's approval | 1 | 1 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 1 | -163 |
| 02L1BB1906 | Design certification by the Design Checker | 28 | 28 | 04JUN09 | 01JUL09 | 04JUN09 | 01JUL09 | 04JUN09 | 01JUL09 | 2 | -205 |
| 02L1BB1908 | Design submission for the SO's approval | 1 | 1 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 03JUN09 | 1 | -157 |
| 02L1BB1910 | Design review by the SO | 42 | 42 | 11JUN09 | 15JUL09 | 11JUN09 | 15JUL09 | 11JUN09 | 15JUL09 | 2 | -205 |
| 02L1BB1912 | Obtain design approval from the SO | 0 | 0 | | 15JUL09 | | 15JUL09 | | 15JUL09 | 2 | -205 |
| Geotechnical Instrumentation Stg 1 for GL Works | | | | | | | | | | | |
| 3DL1BBG102 | Design preparation by the Designer | 14 | 14 | 22FEB08A | 05MAY08A | 22FEB08A | 05MAY08A | 22FEB08A | 05MAY08A | 2 | |
| 3DL1BBG104 | Design certification by the Design Checker | 7 | 7 | 06MAY08A | 29AUG08A | 06MAY08A | 29AUG08A | 06MAY08A | 29AUG08A | 2 | |
| 3DL1BBG106 | Design submission for the SO's approval | 1 | 1 | 10MAY08A | 10MAY08A | 10MAY08A | 10MAY08A | 10MAY08A | 10MAY08A | 1 | |
| 3DL1BBG108 | Design review by the SO | 14 | 14 | 12MAY08A | 14JUL08A | 12MAY08A | 14JUL08A | 12MAY08A | 14JUL08A | 2 | |
| 3DL1BBG110 | Obtain design approval from the SO | 0 | 0 | | 14JUL08A | | 14JUL08A | | 14JUL08A | 2 | |
| 3DL1BBG112 | Install Geotechnical Instruments | 6 | 6 | 11JUN08A | 19JUL08A | 11JUN08A | 19JUL08A | 11JUN08A | 19JUL08A | 1 | |
| 3DL1BBG114 | Baseline Monitoring | 14 | 14 | 21JUL08A | 26JUL08A | 21JUL08A | 26JUL08A | 21JUL08A | 26JUL08A | 2 | |
| Geotechnical Instrumentation Stg 2 for Deep Exc. | | | | | | | | | | | |
| 3DL1BBG202 | Design preparation by the Designer | 40 | 40 | 31AUG08A | 24OCT08A | 31AUG08A | 24OCT08A | 31AUG08A | 24OCT08A | 2 | |



| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float |
|-----------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|
| 3DL1BBG204 | Design certification by the Design Checker | 14 | 14 | 24OCT08A | 02DEC08A | 24OCT08A | 02DEC08A | 2 | |
| 3DL1BBG206 | Design submission for the SO's approval | 1 | 1 | 05NOV08A | 02DEC08A | 05NOV08A | 02DEC08A | 1 | |
| 3DL1BBG208 | Design review by the SO | 28 | 28 | 06NOV08A | 10JUN09 | 06NOV08A | 10JUN09 | 2 | -114 |
| 3DL1BBG210 | Obtain design approval from the SO | 0 | 0 | | 10JUN09 | | 10JUN09 | 2 | -114 |
| 3DL1BBG212 | Install Geotechnical Instruments | 12 | 12 | 14MAR09A | 27MAR09A | 14MAR09A | 27MAR09A | 1 | |
| 3DL1BBG214 | Baseline Monitoring | 14 | 14 | 11JUN09 | 24JUN09 | 11JUN09 | 24JUN09 | 2 | -114 |
| 3DL1BBG216 | Monitor/report Geotechnical Instrumentation | 1,587 | 1,587 | 28JUL08A | 31DEC12 | 28JUL08A | 31DEC12 | 2 | 0 |
| Design Packages for Works in Portion C | | | | | | | | | |
| Piling Platform for H-pile Wall A | | | | | | | | | |
| 02L1CC0002 | Design preparation by the Designer | 15 | 15 | 12MAY08A | 27JUN08A | 12MAY08A | 27JUN08A | 2 | |
| 02L1CC0004 | Design certification by the Design Checker | 14 | 14 | 22MAY08A | 03JUL08A | 22MAY08A | 03JUL08A | 2 | |
| 02L1CC0006 | Design submission for the SO's approval | 1 | 1 | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 1 | |
| 02L1CC0008 | Design review by the SO | 14 | 14 | 05JUL08A | 29JUL08A | 05JUL08A | 29JUL08A | 2 | |
| 02L1CC0010 | Obtain design approval from the SO | 0 | 0 | | 29JUL08A | | 29JUL08A | 2 | |
| Temporary Works for Formation of Access Road | | | | | | | | | |
| 02L1CC0102 | Design preparation by the Designer | 40 | 40 | 29SEP08A | 01DEC08A | 29SEP08A | 01DEC08A | 2 | |
| 02L1CC0103 | Design submission for the DC's approval | 1 | 1 | 02DEC08A | 02DEC08A | 02DEC08A | 02DEC08A | 1 | |
| 02L1CC0104 | Design certification by the Design Checker | 14 | 14 | 03DEC08A | 08DEC08A | 03DEC08A | 08DEC08A | 2 | |
| 02L1CC0106 | Design submission for the SO's approval | 1 | 1 | 09DEC08A | 09DEC08A | 09DEC08A | 09DEC08A | 1 | |
| 02L1CC0108 | Design review by the SO | 28 | 28 | 10DEC08A | 23MAR09A | 10DEC08A | 23MAR09A | 2 | |
| 02L1CC0110 | Obtain design approval from the SO | 0 | 0 | | 23MAR09A | | 23MAR09A | 2 | |
| Piling Platform for H-pile Wall B | | | | | | | | | |
| 02L1CC0202 | Design preparation by the Designer | 15 | 15 | 02JUL09* | 16JUL09 | 02JUL09* | 16JUL09 | 2 | 179 |
| 02L1CC0203 | Design submission for the DC's approval | 1 | 1 | 17JUL09 | 17JUL09 | 17JUL09 | 17JUL09 | 1 | 147 |
| 02L1CC0204 | Design certification by the Design Checker | 28 | 28 | 18JUL09 | 14AUG09 | 18JUL09 | 14AUG09 | 2 | 179 |
| 02L1CC0206 | Design submission for the SO's approval | 1 | 1 | 17JUL09 | 17JUL09 | 17JUL09 | 17JUL09 | 1 | 147 |
| 02L1CC0208 | Design review by the SO | 42 | 42 | 18JUL09 | 28AUG09 | 18JUL09 | 28AUG09 | 2 | 179 |
| 02L1CC0210 | Obtain design approval from the SO | 0 | 0 | | 28AUG09 | | 28AUG09 | 2 | 179 |
| Temp. Support Design for MAA/MS/MS/DC/AVS | | | | | | | | | |
| 02L1CC0302 | Design preparation for the AIP submission | 103 | 103 | 26JUN08A | 09MAY09A | 26JUN08A | 09MAY09A | 2 | |
| 02L1CC0303 | Design (AIP) submission for the DC's approval | 2 | 2 | 23DEC08A | 15MAY09A | 23DEC08A | 15MAY09A | 1 | |
| 02L1CC0304 | Design (AIP) certification by the Design Checker | 28 | 28 | 24DEC08A | 19MAY09A | 24DEC08A | 19MAY09A | 2 | |
| 02L1CC0306 | Design (AIP) submission for the SO's approval | 2 | 2 | 23DEC08A | 19MAY09A | 23DEC08A | 19MAY09A | 1 | |
| 02L1CC0308 | Design (AIP) review by the SO | 66 | 66 | 24DEC08A | 23JUN09 | 24DEC08A | 23JUN09 | 2 | -141 |
| 02L1CC0310 | AIP submission for rel. authorities' approval | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 | -115 |
| 02L1CC0312 | Design (AIP) review by the rel. authorities | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 | -145 |
| 02L1CC0314 | Obtain rel. authorities' approval for AIP | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | -118 |
| 02L1CC0316 | SO submit design (AIP) for approval of GEO | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 | 0 |
| 02L1CC0318 | Design (AIP) review/approval by the GEO | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 | 0 |
| 02L1CC0320 | Obtain SO's consent for design (AIP) | 0 | 0 | | 29JUN09 | | 29JUN09 | 2 | -146 |
| 02L1CC0322 | Design preparation for the DDA submission | 30 | 30 | 07JUN09 | 06JUL09 | 07JUN09 | 06JUL09 | 2 | -146 |
| 02L1CC0323 | Design (DDA) submission for the DC's approval | 1 | 1 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | 1 | -114 |
| 02L1CC0324 | Design (DDA) certification by the Design Checker | 28 | 28 | 08JUL09 | 04AUG09 | 08JUL09 | 04AUG09 | 2 | -143 |

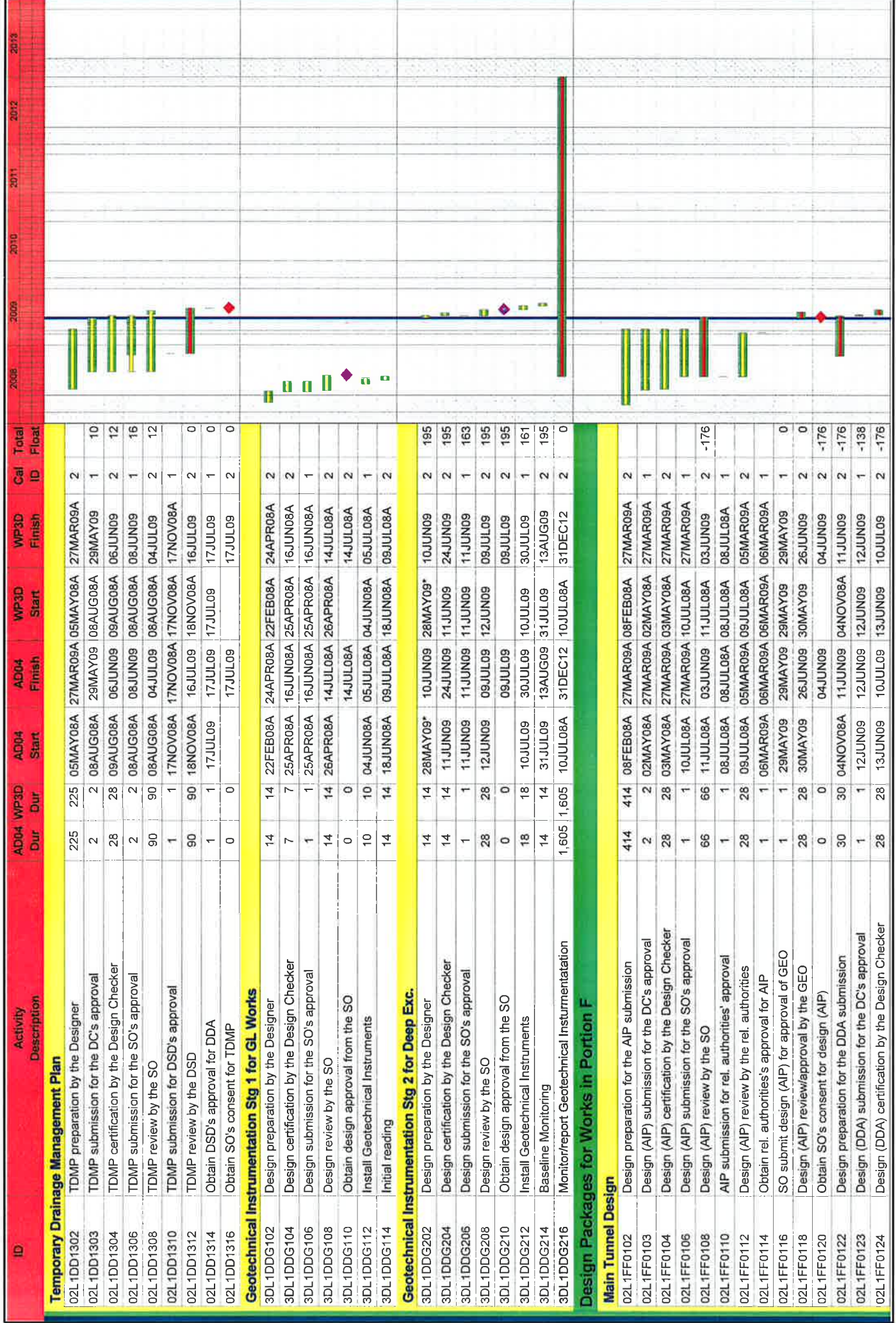
| ID | Activity Description | D04 | | WP3D | | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|-------------------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|------------|-------------|------------|-------------|-------------|
| | | Dur | Dur | Dur | Dur | | | | | |
| 02L1CC0326 | Design (DDA) submission for the SO's approval | 1 | 1 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | -117 |
| 02L1CC0328 | Design (DDA) review by the SO | 66 | 66 | 08JUL09 | 11SEP09 | 08JUL09 | 11SEP09 | 08JUL09 | 11SEP09 | -146 |
| 02L1CC0330 | DDA submission for rel. authorities' approval | 1 | 1 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | 07JUL09 | -85 |
| 02L1CC0332 | Design (DDA) review by the rel. authorities | 28 | 28 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | -116 |
| 02L1CC0334 | Obtain rel. authorities's approval for DDA | 1 | 1 | 12AUG09 | 12AUG09 | 12AUG09 | 12AUG09 | 12AUG09 | 12AUG09 | -95 |
| 02L1CC0336 | SO submit design (DDA) for approval of GEO | 28 | 28 | 13AUG09 | 09SEP09 | 13AUG09 | 09SEP09 | 13AUG09 | 09SEP09 | 0 |
| 02L1CC0338 | Design (DDA) review/approval by the GEO | 28 | 28 | 13AUG09 | 09SEP09 | 13AUG09 | 09SEP09 | 13AUG09 | 09SEP09 | 2 |
| 02L1CC0340 | Obtain SO's consent for design (DDA) | 0 | 0 | | 12SEP09 | | 12SEP09 | | 12SEP09 | -146 |
| Temp Support Design for MA and MAMT Connection | | | | | | | | | | |
| 02L1CC0402 | Design preparation for the AIP submission | 110 | 110 | 18AUG08A | 03JUN09 | 18AUG08A | 03JUN09 | 18AUG08A | 03JUN09 | 2 |
| 02L1CC0403 | Design (AIP) submission for the DC's approval | 2 | 2 | 05MAY09A | 30MAY09 | 05MAY09A | 30MAY09 | 05MAY09A | 30MAY09 | 1 |
| 02L1CC0404 | Design (AIP) certification by the Design Checker | 28 | 28 | 06MAY09A | 15JUN09 | 06MAY09A | 15JUN09 | 06MAY09A | 15JUN09 | 2 |
| 02L1CC0406 | Design (AIP) submission for the SO's approval | 1 | 1 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 1 |
| 02L1CC0408 | Design (AIP) review by the SO | 66 | 66 | 05JUN09 | 09AUG09 | 05JUN09 | 09AUG09 | 05JUN09 | 09AUG09 | 2 |
| 02L1CC0410 | AIP submission for rel. authorities' approval | 1 | 1 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 1 |
| 02L1CC0412 | Design (AIP) review by the rel. authorities | 28 | 28 | 05JUN09 | 02JUL09 | 05JUN09 | 02JUL09 | 05JUN09 | 02JUL09 | 2 |
| 02L1CC0414 | Obtain rel. authorities's approval for AIP | 1 | 1 | 03JUL09 | 03JUL09 | 03JUL09 | 03JUL09 | 03JUL09 | 03JUL09 | 1 |
| 02L1CC0416 | SO submit design (AIP) for approval of GEO | 1 | 1 | 23JUN09 | 23JUN09 | 23JUN09 | 23JUN09 | 23JUN09 | 23JUN09 | 1 |
| 02L1CC0418 | Design (AIP) review/approval by the GEO | 28 | 28 | 24JUN09 | 21JUL09 | 24JUN09 | 21JUL09 | 24JUN09 | 21JUL09 | 2 |
| 02L1CC0420 | Obtain SO's consent for design (AIP) | 0 | 0 | | 10AUG09 | | 10AUG09 | | 10AUG09 | 2 |
| 02L1CC0422 | Design preparation for the DDA submission | 30 | 30 | 18JUL09 | 17AUG09 | 18JUL09 | 17AUG09 | 18JUL09 | 17AUG09 | 2 |
| 02L1CC0423 | Design submission for the DC's approval | 1 | 1 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 1 |
| 02L1CC0424 | Design (DDA) certification by the Design Checker | 28 | 28 | 19AUG09 | 15SEP09 | 19AUG09 | 15SEP09 | 19AUG09 | 15SEP09 | 2 |
| 02L1CC0426 | Design (DDA) submission for the SO's approval | 1 | 1 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 1 |
| 02L1CC0428 | Design (DDA) review by the SO | 66 | 66 | 19AUG09 | 23OCT09 | 19AUG09 | 23OCT09 | 19AUG09 | 23OCT09 | 2 |
| 02L1CC0430 | DDA submission for rel. authorities' approval | 1 | 1 | 25AUG09 | 25AUG09 | 25AUG09 | 25AUG09 | 25AUG09 | 25AUG09 | 1 |
| 02L1CC0432 | Design (DDA) review by the rel. authorities | 28 | 28 | 26AUG09 | 22SEP09 | 26AUG09 | 22SEP09 | 26AUG09 | 22SEP09 | 2 |
| 02L1CC0434 | Obtain rel. authorities's approval for DDA | 1 | 1 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 1 |
| 02L1CC0436 | SO submit design (DDA) for approval of GEO | 1 | 1 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 23SEP09 | 1 |
| 02L1CC0438 | Design (DDA) review/approval by the GEO | 28 | 28 | 24SEP09 | 21OCT09 | 24SEP09 | 21OCT09 | 24SEP09 | 21OCT09 | 2 |
| 02L1CC0440 | Obtain SO's consent for design (DDA) | 0 | 0 | | 23OCT09 | | 23OCT09 | | 23OCT09 | 2 |
| Permanent Design for MA/MAS/VDS/DC/AVS | | | | | | | | | | |
| 02L1CC0502 | Design preparation for the AIP submission | 103 | 103 | 26JUN08A | 04MAY09A | 26JUN08A | 04MAY09A | 26JUN08A | 04MAY09A | 2 |
| 02L1CC0503 | Design submission for the DC's approval | 2 | 2 | 11OCT08A | 05MAY09A | 11OCT08A | 05MAY09A | 11OCT08A | 05MAY09A | 1 |
| 02L1CC0504 | Design (AIP) certification by the Design Checker | 28 | 28 | 13OCT08A | 19MAY09A | 13OCT08A | 19MAY09A | 13OCT08A | 19MAY09A | 2 |
| 02L1CC0506 | Design (AIP) submission for the SO's approval | 4 | 4 | 05NOV08A | 19MAY09A | 05NOV08A | 19MAY09A | 05NOV08A | 19MAY09A | 1 |
| 02L1CC0508 | Design (AIP) review by the SO | 66 | 66 | 06NOV08A | 16JUN09 | 06NOV08A | 16JUN09 | 06NOV08A | 16JUN09 | 2 |
| 02L1CC0510 | AIP submission for rel. authorities' approval | 1 | 1 | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 1 |
| 02L1CC0512 | Design (AIP) review by the rel. authorities | 28 | 28 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 2 |
| 02L1CC0514 | Obtain rel. authorities's approval for AIP | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 |
| 02L1CC0516 | SO submit design (AIP) for approval of GEO | 1 | 1 | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 1 |
| 02L1CC0518 | Design (AIP) review/approval by the GEO | 28 | 28 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 2 |
| 02L1CC0520 | Obtain SO's consent for design (AIP) | 0 | 0 | | 17JUN09 | | 17JUN09 | | 17JUN09 | 2 |

| ID | Activity Description | AD04 | | WP3D | | AD04 | AD04 | AD04 | WP3D | WP3D | Cal ID | Total Float |
|-------------------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|----------|----------|----------|----------|------|--------|-------------|
| | | Dur | Dur | Start | Start | | | | | | | |
| 02L1CC0522 | Design preparation for the DDA submission | 30 | 30 | 09MAR09A | 24JUN09 | 09MAR09A | 24JUN09 | 09MAR09A | 24JUN09 | 2 | 0 | |
| 02L1CC0523 | Design submission for the DC's approval | 1 | 1 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 1 | 0 | |
| 02L1CC0524 | Design (DDA) certification by the Design Checker | 28 | 28 | 26JUN09 | 23JUL09 | 26JUN09 | 23JUL09 | 26JUN09 | 23JUL09 | 2 | 0 | |
| 02L1CC0526 | Design (DDA) submission for the SO's approval | 1 | 1 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 25JUN09 | 1 | 152 | |
| 02L1CC0528 | Design (DDA) review by the SO | 66 | 66 | 26JUN09 | 30AUG09 | 26JUN09 | 30AUG09 | 26JUN09 | 30AUG09 | 2 | 183 | |
| 02L1CC0530 | DDA submission for rel. authorities' approval | 1 | 1 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 1 | 177 | |
| 02L1CC0532 | Design (DDA) review by the rel. authorities | 28 | 28 | 03JUL09 | 30JUL09 | 03JUL09 | 30JUL09 | 03JUL09 | 30JUL09 | 2 | 214 | |
| 02L1CC0534 | Obtain rel. authorities' approval for DDA | 1 | 1 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 1 | 174 | |
| 02L1CC0536 | SO submit design (DDA) for approval of GEO | 1 | 1 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 31JUL09 | 1 | 0 | |
| 02L1CC0538 | Design (DDA) review/approval by the GEO | 28 | 28 | 01AUG09 | 28AUG09 | 01AUG09 | 28AUG09 | 01AUG09 | 28AUG09 | 2 | 0 | |
| 02L1CC0540 | Obtain SO's consent for design (DDA) | 0 | 0 | 31AUG09 | 31AUG09 | 31AUG09 | 31AUG09 | 31AUG09 | 31AUG09 | 2 | 183 | |
| Permanent Design for MA and M/MT Connection | | | | | | | | | | | | |
| 02L1CC0602 | Design preparation for the AIP submission | 84 | 84 | 01JUL08A | 17JUN09 | 01JUL08A | 17JUN09 | 01JUL08A | 17JUN09 | 2 | 0 | |
| 02L1CC0603 | Design (AIP) submission for the DC's approval | 2 | 2 | 25JUL08A | 18JUN09 | 25JUL08A | 18JUN09 | 25JUL08A | 18JUN09 | 1 | 0 | |
| 02L1CC0604 | Design (AIP) certification by the Design Checker | 28 | 28 | 26JUL08A | 06JUL09 | 26JUL08A | 06JUL09 | 26JUL08A | 06JUL09 | 2 | 0 | |
| 02L1CC0606 | Design (AIP) submission for the SO's approval | 2 | 2 | 26JUL08A | 07JUL09 | 26JUL08A | 07JUL09 | 26JUL08A | 07JUL09 | 1 | 0 | |
| 02L1CC0608 | Design (AIP) review by the SO | 66 | 66 | 28JUL08A | 08AUG09 | 28JUL08A | 08AUG09 | 28JUL08A | 08AUG09 | 2 | 0 | |
| 02L1CC0610 | AIP submission for rel. authorities' approval | 1 | 1 | 25JUL08A | 08AUG08A | 25JUL08A | 08AUG08A | 25JUL08A | 08AUG08A | 1 | 0 | |
| 02L1CC0612 | Design (AIP) review by the rel. authorities | 28 | 28 | 26JUL08A | 13JUL09 | 26JUL08A | 13JUL09 | 26JUL08A | 13JUL09 | 2 | 24 | |
| 02L1CC0614 | Obtain rel. authorities' approval for AIP | 1 | 1 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 1 | 21 | |
| 02L1CC0616 | SO submit design (AIP) for approval of GEO | 1 | 1 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 14JUL09 | 1 | 0 | |
| 02L1CC0618 | Design (AIP) review/approval by the GEO | 28 | 28 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | 15JUL09 | 11AUG09 | 2 | 0 | |
| 02L1CC0620 | Obtain SO's consent for design (AIP) | 0 | 0 | 09AUG09 | 09AUG09 | 09AUG09 | 09AUG09 | 09AUG09 | 09AUG09 | 2 | 0 | |
| 02L1CC0622 | Design preparation for the DDA submission | 30 | 30 | 18JUL09 | 16AUG09 | 18JUL09 | 16AUG09 | 18JUL09 | 16AUG09 | 2 | 0 | |
| 02L1CC0623 | Design (DDA) submission for the DC's approval | 1 | 1 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 1 | 0 | |
| 02L1CC0624 | Design (DDA) certification by the Design Checker | 28 | 28 | 18AUG09 | 14SEP09 | 18AUG09 | 14SEP09 | 18AUG09 | 14SEP09 | 2 | 0 | |
| 02L1CC0626 | Design (DDA) submission for the SO's approval | 1 | 1 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 17AUG09 | 1 | 419 | |
| 02L1CC0628 | Design (DDA) review by the SO | 66 | 66 | 18AUG09 | 22OCT09 | 18AUG09 | 22OCT09 | 18AUG09 | 22OCT09 | 2 | 515 | |
| 02L1CC0630 | DDA submission for rel. authorities' approval | 1 | 1 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 24AUG09 | 1 | 442 | |
| 02L1CC0632 | Design (DDA) review by the rel. authorities | 28 | 28 | 25AUG09 | 21SEP09 | 25AUG09 | 21SEP09 | 25AUG09 | 21SEP09 | 2 | 546 | |
| 02L1CC0634 | Obtain rel. authorities' approval for DDA | 1 | 1 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 1 | 442 | |
| 02L1CC0636 | SO submit design (DDA) for approval of GEO | 1 | 1 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 22SEP09 | 1 | 0 | |
| 02L1CC0638 | Design (DDA) review/approval by the GEO | 28 | 28 | 23SEP09 | 20OCT09 | 23SEP09 | 20OCT09 | 23SEP09 | 20OCT09 | 2 | 0 | |
| 02L1CC0640 | Obtain SO's consent for design (DDA) | 0 | 0 | 23OCT09 | 23OCT09 | 23OCT09 | 23OCT09 | 23OCT09 | 23OCT09 | 2 | 515 | |
| Boulder Assessment & Design for Stabili. Measure | | | | | | | | | | | | |
| 02L1CC0702 | Boulder Surety | 30 | 30 | 02JUN08A | 15AUG08A | 02JUN08A | 15AUG08A | 02JUN08A | 15AUG08A | 1 | 0 | |
| 02L1CC0704 | Prepare/submit boulder survey report | 25 | 25 | 14JUL08A | 05SEP08A | 14JUL08A | 05SEP08A | 14JUL08A | 05SEP08A | 1 | 0 | |
| 02L1CC0706 | SO review boulder survey report | 14 | 14 | 06SEP08A | 19SEP08A | 06SEP08A | 19SEP08A | 06SEP08A | 19SEP08A | 2 | 0 | |
| Temporary Drainage Management Plan | | | | | | | | | | | | |
| 02L1CC0802 | TDMP preparation by the Designer | 14 | 14 | 04AUG08A | 03SEP08A | 04AUG08A | 03SEP08A | 04AUG08A | 03SEP08A | 2 | 0 | |
| 02L1CC0803 | TDMP submission for the DC's approval | 1 | 1 | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 08SEP08A | 1 | 0 | |
| 02L1CC0804 | TDMP certification by the Design Checker | 28 | 28 | 09SEP08A | 10DEC08A | 09SEP08A | 10DEC08A | 09SEP08A | 10DEC08A | 2 | 0 | |
| 02L1CC0806 | TDMP submission for the SO's approval | 2 | 2 | 20OCT08A | 11DEC08A | 20OCT08A | 11DEC08A | 20OCT08A | 11DEC08A | 1 | 0 | |

| ID | Activity Description | D04 | | WP3D | | AD04 | AD04 | AD04 | AD04 | WP3D | WP3D | Total Float |
|-------------------------------------------------------------|---------------------------------------------|-------|-------|----------|----------|----------|----------|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | | | | | | | |
| 02L1CC0808 | TDMP review by the SO | 90 | 90 | 21OCT08A | 08JAN09A | 21OCT08A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 2 |
| 02L1CC0810 | TDMP submission for DSD's approval | 1 | 1 | 21OCT08A | 21OCT08A | 21OCT08A | 21OCT08A | 21OCT08A | 21OCT08A | 21OCT08A | 21OCT08A | 1 |
| 02L1CC0812 | TDMP review by the DSD | 90 | 90 | 22OCT08A | 08JAN09A | 22OCT08A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 2 |
| 02L1CC0814 | Obtain DSD's approval for DDA | 1 | 1 | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 1 |
| 02L1CC0816 | Obtain SO's consent for TDMP | 0 | 0 | | 08JAN09A | | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 08JAN09A | 2 |
| ELS for Permanent Approach Channel Construction | | | | | | | | | | | | |
| 02L1CC0902 | Design preparation by the Designer | 15 | 15 | 03AUG09* | 17AUG09 | 03AUG09* | 17AUG09 | 03AUG09* | 17AUG09 | 17AUG09 | 17AUG09 | 2 |
| 02L1CC0903 | Design submission for the DC's approval | 1 | 1 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 1 |
| 02L1CC0904 | Design certification by the Design Checker | 28 | 28 | 19AUG09 | 15SEP09 | 19AUG09 | 15SEP09 | 15SEP09 | 15SEP09 | 15SEP09 | 15SEP09 | 2 |
| 02L1CC0906 | Design submission for the SO's approval | 1 | 1 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 18AUG09 | 1 |
| 02L1CC0908 | Design review by the SO | 42 | 42 | 19AUG09 | 29SEP09 | 19AUG09 | 29SEP09 | 29SEP09 | 29SEP09 | 29SEP09 | 29SEP09 | 2 |
| 02L1CC0910 | Obtain design approval from the SO | 0 | 0 | | 29SEP09 | | 29SEP09 | 29SEP09 | 29SEP09 | 29SEP09 | 29SEP09 | 2 |
| Geotechnical Instrumentation Stg 1 for GL Works | | | | | | | | | | | | |
| 3DL1CCG102 | Design preparation by the Designer | 14 | 14 | 22FEB08A | 29APR08A | 22FEB08A | 29APR08A | 29APR08A | 29APR08A | 29APR08A | 29APR08A | 2 |
| 3DL1CCG104 | Design certification by the Design Checker | 7 | 7 | 30APR08A | 26MAY08A | 30APR08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 2 |
| 3DL1CCG106 | Design submission for the SO's approval | 1 | 1 | 10MAY08A | 26MAY08A | 10MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 1 |
| 3DL1CCG108 | Design review by the SO | 14 | 14 | 12MAY08A | 14JUL08A | 12MAY08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 2 |
| 3DL1CCG110 | Obtain design approval from the SO | 0 | 0 | | 14JUL08A | | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 2 |
| 3DL1CCG112 | Install Geotechnical Instruments | 19 | 19 | 24JUN08A | 09AUG08A | 24JUN08A | 09AUG08A | 09AUG08A | 09AUG08A | 09AUG08A | 09AUG08A | 1 |
| 3DL1CCG114 | Baseline Monitoring | 14 | 14 | 26JUL08A | 16AUG08A | 26JUL08A | 16AUG08A | 16AUG08A | 16AUG08A | 16AUG08A | 16AUG08A | 2 |
| Geotechnical Instrumentation Stg 2 for Deep Exc. | | | | | | | | | | | | |
| 3DL1CCG202 | Design preparation by the Designer | 60 | 60 | 28AUG08A | 04NOV08A | 28AUG08A | 04NOV08A | 04NOV08A | 04NOV08A | 04NOV08A | 04NOV08A | 2 |
| 3DL1CCG204 | Design certification by the Design Checker | 14 | 14 | 11NOV08A | 01DEC08A | 11NOV08A | 01DEC08A | 01DEC08A | 01DEC08A | 01DEC08A | 01DEC08A | 2 |
| 3DL1CCG206 | Design submission for the SO's approval | 2 | 2 | 04NOV08A | 02DEC08A | 04NOV08A | 02DEC08A | 02DEC08A | 02DEC08A | 02DEC08A | 02DEC08A | 1 |
| 3DL1CCG210 | Design review by the SO | 28 | 28 | 05NOV08A | 11JUN09 | 05NOV08A | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 2 |
| 3DL1CCG212 | Obtain design approval from the SO | 0 | 0 | | 11JUN09 | | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 2 |
| 3DL1CCG214 | Install Geotechnical Instruments | 18 | 18 | 14MAR09A | 18JUN09 | 14MAR09A | 18JUN09 | 18JUN09 | 18JUN09 | 18JUN09 | 18JUN09 | 1 |
| 3DL1CCG216 | Baseline Monitoring | 14 | 14 | 19JUN09 | 02JUL09 | 19JUN09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 02JUL09 | 2 |
| 3DL1CCG218 | Monitor/report Geotechnical Instrumentation | 1,566 | 1,566 | 18AUG08A | 31DEC12 | 18AUG08A | 31DEC12 | 18AUG08A | 31DEC12 | 18AUG08A | 31DEC12 | 2 |
| Design Packages for Works in Portion D | | | | | | | | | | | | |
| Temp. Access Rd Design at P. D; +14mPD to +69mPD | | | | | | | | | | | | |
| 02L1DD0102 | Design preparation by the Designer | 14 | 14 | 17JAN08A | 16APR08A | 17JAN08A | 16APR08A | 16APR08A | 16APR08A | 16APR08A | 16APR08A | 2 |
| 02L1DD0104 | Design certification by the Design Checker | 150 | 150 | 17APR08A | 13SEP08A | 17APR08A | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 2 |
| 02L1DD0106 | Design submission for the SO's approval | 2 | 2 | 25APR08A | 24SEP08A | 25APR08A | 24SEP08A | 24SEP08A | 24SEP08A | 24SEP08A | 24SEP08A | 1 |
| 02L1DD0108 | Design review by the SO | 90 | 90 | 26APR08A | 04FEB09A | 26APR08A | 04FEB09A | 04FEB09A | 04FEB09A | 04FEB09A | 04FEB09A | 2 |
| 02L1DD0110 | Design review by GEO | 28 | 28 | 23JUN08A | 29NOV08A | 23JUN08A | 29NOV08A | 29NOV08A | 29NOV08A | 29NOV08A | 29NOV08A | 2 |
| 02L1DD0112 | Obtain design approval from the SO | 0 | 0 | | 04FEB09A | | 04FEB09A | 04FEB09A | 04FEB09A | 04FEB09A | 04FEB09A | 2 |
| Boulder Assessment & Design for Stabili. Measure | | | | | | | | | | | | |
| 02L1DD0302 | Boulder Surety | 14 | 14 | 03APR08A | 11APR08A | 03APR08A | 11APR08A | 11APR08A | 11APR08A | 11APR08A | 11APR08A | 1 |
| 02L1DD0304 | Prepare/submit boulder survey report | 25 | 25 | 12APR08A | 26MAY08A | 12APR08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 26MAY08A | 1 |
| 02L1DD0306 | SO review boulder survey report | 14 | 14 | 27MAY08A | 16JUN08A | 27MAY08A | 16JUN08A | 16JUN08A | 16JUN08A | 16JUN08A | 16JUN08A | 2 |
| Site Formation Design; +69mPD to +40mPD | | | | | | | | | | | | |
| 02L1DD0402 | Design preparation by the Designer | 14 | 14 | 17JAN08A | 16APR08A | 17JAN08A | 16APR08A | 16APR08A | 16APR08A | 16APR08A | 16APR08A | 2 |

| ID | Activity Description | ADD4 | | WP3D | | ADD4 | | WP3D | | Cal ID | Total Float |
|------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|----------|----------|-------|--------|--------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 02L1DD0404 | Design certification by the Design Checker | 150 | 150 | 17APR08A | 14NOV08A | 17APR08A | 14NOV08A | 2 | | | |
| 02L1DD0406 | Design submission for the SO's approval | 2 | 2 | 25APR08A | 14NOV08A | 25APR08A | 14NOV08A | 1 | | | |
| 02L1DD0408 | Design review by the SO | 90 | 90 | 26APR08A | 04DEC08A | 26APR08A | 04DEC08A | 2 | | | |
| 02L1DD0412 | Obtain design approval from the SO | 0 | 0 | | 04DEC08A | | 04DEC08A | 2 | | | |
| Site Formation Design; +40mPD to +24mPD | | | | | | | | | | | |
| 02L1DD0502 | Design preparation by the Designer | 120 | 120 | 14APR08A | 09MAY09A | 14APR08A | 09MAY09A | 2 | | | |
| 02L1DD0504 | Design certification by the Design Checker | 145 | 145 | 05MAY08A | 15MAY09A | 05MAY08A | 15MAY09A | 2 | | | |
| 02L1DD0506 | Design submission for the SO's approval | 2 | 2 | 10MAY08A | 16MAY09A | 10MAY08A | 16MAY09A | 1 | | | |
| 02L1DD0508 | Design review by the SO | 90 | 90 | 12MAY08A | 03JUN09 | 12MAY08A | 03JUN09 | 2 | | | -201 |
| 02L1DD0512 | Obtain design approval from the SO | 0 | 0 | | 03JUN09 | | 03JUN09 | 2 | | | -201 |
| Site Formation Design; +24mPD to 14mPD | | | | | | | | | | | |
| 02L1DD0602 | Design preparation by the Designer | 60 | 60 | 28AUG08A | 23APR09A | 28AUG08A | 23APR09A | 2 | | | |
| 02L1DD0603 | Design submission for the DC's approval | 2 | 2 | 16JAN09A | 24APR09A | 16JAN09A | 24APR09A | 1 | | | |
| 02L1DD0604 | Design certification by the Design Checker | 28 | 28 | 19JAN09A | 15MAY09A | 19JAN09A | 15MAY09A | 2 | | | |
| 02L1DD0606 | Design submission for the SO's approval | 2 | 2 | 02FEB09A | 15MAY09A | 02FEB09A | 15MAY09A | 1 | | | |
| 02L1DD0608 | Design review by the SO | 63 | 63 | 03FEB09A | 18JUN09 | 03FEB09A | 18JUN09 | 2 | | | -213 |
| 02L1DD0610 | Design review by GEO | 28 | 28 | 28MAY09 | 24JUN09 | 28MAY09 | 24JUN09 | 2 | | | 0 |
| 02L1DD0612 | Obtain design approval from the SO | 0 | 0 | | 18JUN09 | | 18JUN09 | 2 | | | -213 |
| TBM Launching Chamber Design | | | | | | | | | | | |
| 02L1DD0702 | Design (AIP) preparation by the Designer | 381 | 381 | 21APR08A | 11MAY09A | 21APR08A | 11MAY09A | 2 | | | |
| 02L1DD0703 | Design (AIP) submission for the DC's approval | 3 | 3 | 28JUL08A | 12MAY09A | 28JUL08A | 12MAY09A | 1 | | | |
| 02L1DD0704 | Design (AIP) certification by the Design Checker | 37 | 37 | 21AUG08A | 13MAY09A | 21AUG08A | 13MAY09A | 2 | | | |
| 02L1DD0706 | Design (AIP) submission for the SO's approval | 3 | 3 | 28JUL08A | 13MAY09A | 28JUL08A | 13MAY09A | 1 | | | |
| 02L1DD0708 | Design (AIP) review by the SO | 280 | 280 | 29JUL08A | 19MAY09A | 29JUL08A | 19MAY09A | 2 | | | |
| 02L1DD0710 | AIP submission for rel. authorities' approval | 1 | 1 | 28AUG08A | 28AUG08A | 28AUG08A | 28AUG08A | 1 | | | |
| 02L1DD0712 | Design (AIP) review by the rel. authorities | 28 | 28 | 28FEB09A | 27MAR09A | 28FEB09A | 27MAR09A | 2 | | | |
| 02L1DD0714 | Obtain rel. authorities's approval for AIP | 0 | 0 | | 19MAY09A | | 19MAY09A | 1 | | | |
| 02L1DD0716 | SO submit Design (AIP) for approval of GEO | 1 | 1 | 28FEB09A | 28FEB09A | 28FEB09A | 28FEB09A | 1 | | | |
| 02L1DD0718 | Design (AIP) review/approval by the GEO | 28 | 28 | 01MAR09A | 28MAY09 | 01MAR09A | 28MAY09 | 2 | | | -176 |
| 02L1DD0720 | Obtain SO's consent for design (AIP) | 0 | 0 | | 19MAY09A | | 19MAY09A | 2 | | | |
| 02L1DD0722 | Design preparation for the DDA submission | 30 | 30 | 07MAR09A | 05JUN09 | 07MAR09A | 05JUN09 | 2 | | | -183 |
| 02L1DD0723 | Design (DDA) submission for the DC's approval | 1 | 1 | 06JUN09 | 06JUN09 | 06JUN09 | 06JUN09 | 1 | | | -142 |
| 02L1DD0724 | Design (DDA) certification by the Design Checker | 28 | 28 | 07JUN09 | 04JUL09 | 07JUN09 | 04JUL09 | 2 | | | -180 |
| 02L1DD0726 | Design (DDA) submission for the SO's approval | 1 | 1 | 06JUN09 | 06JUN09 | 06JUN09 | 06JUN09 | 1 | | | -144 |
| 02L1DD0728 | Design (DDA) review by the SO | 66 | 66 | 07JUN09 | 11AUG09 | 07JUN09 | 11AUG09 | 2 | | | -183 |
| 02L1DD0730 | DDA submission for rel. authorities' approval | 1 | 1 | 13JUN09 | 13JUN09 | 13JUN09 | 13JUN09 | 1 | | | 0 |
| 02L1DD0732 | Design (DDA) review by the rel. authorities | 28 | 28 | 14JUN09 | 11JUL09 | 14JUN09 | 11JUL09 | 2 | | | 1 |
| 02L1DD0734 | Obtain rel. authorities's approval for DDA | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 | | | 0 |
| 02L1DD0736 | SO submit design (DDA) for approval of GEO | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 | | | 0 |
| 02L1DD0738 | Design (DDA) review/approval by the GEO | 28 | 28 | 14JUL09 | 10AUG09 | 14JUL09 | 10AUG09 | 2 | | | 0 |
| 02L1DD0740 | Obtain SO's consent for design (DDA) | 0 | 0 | | 12AUG09 | | 12AUG09 | 2 | | | -183 |
| Hopper Design | | | | | | | | | | | |
| 02L1DD0802 | Design preparation by the Designer | 119 | 119 | 28FEB09A | 26JUN09 | 28FEB09A | 26JUN09 | 2 | | | -212 |

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | Total Float | |
|-------------------------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|----------|----------|----------|----------|-------------|-------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 02L1DD0803 | Design submission for the DC's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | -169 |
| 02L1DD0804 | Design certification by the Design Checker | 28 | 28 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 2 | -212 |
| 02L1DD0806 | Design submission for the SO's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | -169 |
| 02L1DD0808 | Design review by the SO | 42 | 42 | 28JUN09 | 08AUG09 | 28JUN09 | 08AUG09 | 28JUN09 | 08AUG09 | 2 | -212 |
| 02L1DD0810 | Obtain design approval from the SO | 0 | 0 | | 08AUG09 | | 08AUG09 | | 08AUG09 | 2 | -212 |
| Steel Platform Design | | | | | | | | | | | |
| 02L1DD0902 | Design preparation by the Designer | 82 | 82 | 02JAN09A | 24MAR09A | 02JAN09A | 24MAR09A | 02JAN09A | 24MAR09A | 2 | |
| 02L1DD0903 | Design submission for the DC's approval | 1 | 1 | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 25MAR09A | 1 | |
| 02L1DD0904 | Design certification by the Design Checker | 28 | 28 | 26MAR09A | 08JUN09 | 26MAR09A | 08JUN09 | 26MAR09A | 08JUN09 | 2 | -194 |
| 02L1DD0906 | Design submission for the SO's approval | 1 | 1 | 09JUN09 | 09JUN09 | 09JUN09 | 09JUN09 | 09JUN09 | 09JUN09 | 1 | -153 |
| 02L1DD0908 | Design review by the SO | 42 | 42 | 10JUN09 | 21JUL09 | 10JUN09 | 21JUL09 | 10JUN09 | 21JUL09 | 2 | -194 |
| 02L1DD0910 | Obtain design approval from the SO | 0 | 0 | | 21JUL09 | | 21JUL09 | | 21JUL09 | 2 | -194 |
| Overhead Gantry Support & Noise Enclosure Design | | | | | | | | | | | |
| 02L1DD1002 | Design preparation by the Designer | 82 | 82 | 02JAN09A | 14JUN09 | 02JAN09A | 14JUN09 | 02JAN09A | 14JUN09 | 2 | -157 |
| 02L1DD1003 | Design submission for the DC's approval | 1 | 1 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 1 | -124 |
| 02L1DD1004 | Design certification by the Design Checker | 28 | 28 | 16JUN09 | 13JUL09 | 16JUN09 | 13JUL09 | 16JUN09 | 13JUL09 | 2 | -157 |
| 02L1DD1006 | Design submission for the SO's approval | 1 | 1 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 15JUN09 | 1 | -124 |
| 02L1DD1008 | Design review by the SO | 42 | 42 | 16JUN09 | 27JUL09 | 16JUN09 | 27JUL09 | 16JUN09 | 27JUL09 | 2 | -157 |
| 02L1DD1010 | Obtain design approval from the SO | 0 | 0 | | 27JUL09 | | 27JUL09 | | 27JUL09 | 2 | -157 |
| ELS Design for Spiral Ramp & Vehicular Access | | | | | | | | | | | |
| 02L1DD1102 | Design preparation for the AIP submission | 30 | 30 | 28MAY09 | 26JUN09 | 28MAY09 | 26JUN09 | 28MAY09 | 26JUN09 | 2 | 130 |
| 02L1DD1103 | Design (DDA) submission for the DC's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | 109 |
| 02L1DD1104 | Design (DDA) certification by the Design Checker | 28 | 28 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 28JUN09 | 25JUL09 | 2 | 132 |
| 02L1DD1106 | Design (DDA) submission for the SO's approval | 1 | 1 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 27JUN09 | 1 | 107 |
| 02L1DD1108 | Design (DDA) review by the SO | 66 | 66 | 28JUN09 | 01SEP09 | 28JUN09 | 01SEP09 | 28JUN09 | 01SEP09 | 2 | 130 |
| 02L1DD1110 | DDA submission for rel. authorities' approval | 1 | 1 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 04JUL09 | 1 | 134 |
| 02L1DD1112 | Design (DDA) review by the rel. authorities | 28 | 28 | 05JUL09 | 01AUG09 | 05JUL09 | 01AUG09 | 05JUL09 | 01AUG09 | 2 | 160 |
| 02L1DD1114 | Obtain rel. authorities' approval for DDA | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 | 131 |
| 02L1DD1116 | SO submit design (DDA) for approval of GEO | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 | 110 |
| 02L1DD1118 | Design (DDA) review/approval by the GEO | 28 | 28 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 2 | 131 |
| 02L1DD1120 | Obtain SO's consent for design (DDA) | 0 | 0 | | 02SEP09 | | 02SEP09 | | 02SEP09 | 2 | 130 |
| ELS Design for Box Culvert & Open Channel | | | | | | | | | | | |
| 02L1DD1202 | Design preparation for the AIP submission | 30 | 30 | 27JUN09 | 26JUL09 | 27JUN09 | 26JUL09 | 27JUN09 | 26JUL09 | 2 | 1,550 |
| 02L1DD1203 | Design (DDA) submission for the DC's approval | 1 | 1 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 1 | 1,260 |
| 02L1DD1204 | Design (DDA) certification by the Design Checker | 28 | 28 | 28JUL09 | 24AUG09 | 28JUL09 | 24AUG09 | 28JUL09 | 24AUG09 | 2 | 1,551 |
| 02L1DD1206 | Design (DDA) submission for the SO's approval | 1 | 1 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 27JUL09 | 1 | 1,259 |
| 02L1DD1208 | Design (DDA) review by the SO | 66 | 66 | 28JUL09 | 01OCT09 | 28JUL09 | 01OCT09 | 28JUL09 | 01OCT09 | 2 | 1,550 |
| 02L1DD1210 | DDA submission for rel. authorities' approval | 1 | 1 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 03AUG09 | 1 | 1,285 |
| 02L1DD1212 | Design (DDA) review by the rel. authorities | 28 | 28 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 04AUG09 | 31AUG09 | 2 | 1,581 |
| 02L1DD1214 | Obtain rel. authorities' approval for DDA | 1 | 1 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 1 | 1,283 |
| 02L1DD1216 | SO submit design (DDA) for approval of GEO | 1 | 1 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 01SEP09 | 1 | 1,260 |
| 02L1DD1218 | Design (DDA) review/approval by the GEO | 28 | 28 | 02SEP09 | 29SEP09 | 02SEP09 | 29SEP09 | 02SEP09 | 29SEP09 | 2 | 1,552 |
| 02L1DD1220 | Obtain SO's consent for design (DDA) | 0 | 0 | | 02OCT09 | | 02OCT09 | | 02OCT09 | 2 | 1,550 |



| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float |
|---------------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|
| Temporary Drainage Management Plan | | | | | | | | | |
| 02L1DD1302 | TDMP preparation by the Designer | 225 | 225 | 05MAY08A | 27MAR09A | 05MAY08A | 27MAR09A | 2 | 0 |
| 02L1DD1303 | TDMP submission for the DC's approval | 2 | 2 | 08AUG08A | 29MAY09 | 08AUG08A | 29MAY09 | 1 | 10 |
| 02L1DD1304 | TDMP certification by the Design Checker | 28 | 28 | 09AUG08A | 06JUN09 | 09AUG08A | 06JUN09 | 2 | 12 |
| 02L1DD1306 | TDMP submission for the SO's approval | 2 | 2 | 08AUG08A | 08JUN09 | 08AUG08A | 08JUN09 | 1 | 16 |
| 02L1DD1308 | TDMP review by the SO | 90 | 90 | 08AUG08A | 04JUL09 | 08AUG08A | 04JUL09 | 2 | 12 |
| 02L1DD1310 | TDMP submission for DSD's approval | 1 | 1 | 17NOV08A | 17NOV08A | 17NOV08A | 17NOV08A | 1 | 0 |
| 02L1DD1312 | TDMP review by the DSD | 90 | 90 | 18NOV08A | 16JUL09 | 18NOV08A | 16JUL09 | 2 | 0 |
| 02L1DD1314 | Obtain DSD's approval for DDA | 1 | 1 | 17JUL09 | 17JUL09 | 17JUL09 | 17JUL09 | 1 | 0 |
| 02L1DD1316 | Obtain SO's consent for TDMP | 0 | 0 | 17JUL09 | 17JUL09 | 17JUL09 | 17JUL09 | 2 | 0 |
| Geotechnical Instrumentation Stg 1 for GL Works | | | | | | | | | |
| 3DL1DDG102 | Design preparation by the Designer | 14 | 14 | 22FEB08A | 24APR08A | 22FEB08A | 24APR08A | 2 | 0 |
| 3DL1DDG104 | Design certification by the Design Checker | 7 | 7 | 25APR08A | 16JUN08A | 25APR08A | 16JUN08A | 2 | 0 |
| 3DL1DDG106 | Design submission for the SO's approval | 1 | 1 | 25APR08A | 16JUN08A | 25APR08A | 16JUN08A | 1 | 0 |
| 3DL1DDG108 | Design review by the SO | 14 | 14 | 26APR08A | 14JUL08A | 26APR08A | 14JUL08A | 2 | 0 |
| 3DL1DDG110 | Obtain design approval from the SO | 0 | 0 | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 2 | 0 |
| 3DL1DDG112 | Install Geotechnical Instruments | 10 | 10 | 04JUN08A | 05JUL08A | 04JUN08A | 05JUL08A | 1 | 0 |
| 3DL1DDG114 | Initial reading | 14 | 14 | 18JUN08A | 09JUL08A | 18JUN08A | 09JUL08A | 2 | 0 |
| Geotechnical Instrumentation Stg 2 for Deep Exc. | | | | | | | | | |
| 3DL1DDG202 | Design preparation by the Designer | 14 | 14 | 28MAY09* | 10JUN09 | 28MAY09* | 10JUN09 | 2 | 195 |
| 3DL1DDG204 | Design certification by the Design Checker | 14 | 14 | 11JUN09 | 24JUN09 | 11JUN09 | 24JUN09 | 2 | 195 |
| 3DL1DDG206 | Design submission for the SO's approval | 1 | 1 | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 1 | 163 |
| 3DL1DDG208 | Design review by the SO | 28 | 28 | 12JUN09 | 09JUL09 | 12JUN09 | 09JUL09 | 2 | 195 |
| 3DL1DDG210 | Obtain design approval from the SO | 0 | 0 | 09JUL09 | 09JUL09 | 09JUL09 | 09JUL09 | 2 | 195 |
| 3DL1DDG212 | Install Geotechnical Instruments | 18 | 18 | 10JUL09 | 30JUL09 | 10JUL09 | 30JUL09 | 1 | 161 |
| 3DL1DDG214 | Baseline Monitoring | 14 | 14 | 31JUL09 | 13AUG09 | 31JUL09 | 13AUG09 | 2 | 195 |
| 3DL1DDG216 | Monitor/report Geotechnical Instrumentation | 1,605 | 1,605 | 10JUL08A | 31DEC12 | 10JUL08A | 31DEC12 | 2 | 0 |
| Design Packages for Works in Portion F | | | | | | | | | |
| Main Tunnel Design | | | | | | | | | |
| 02L1FF0102 | Design preparation for the AIP submission | 414 | 414 | 08FEB08A | 27MAR09A | 08FEB08A | 27MAR09A | 2 | 0 |
| 02L1FF0103 | Design (AIP) submission for the DC's approval | 2 | 2 | 02MAY08A | 27MAR09A | 02MAY08A | 27MAR09A | 1 | 0 |
| 02L1FF0104 | Design (AIP) certification by the Design Checker | 28 | 28 | 03MAY08A | 27MAR09A | 03MAY08A | 27MAR09A | 2 | 0 |
| 02L1FF0106 | Design (AIP) submission for the SO's approval | 1 | 1 | 10JUL08A | 27MAR09A | 10JUL08A | 27MAR09A | 1 | 0 |
| 02L1FF0108 | Design (AIP) review by the SO | 66 | 66 | 11JUL08A | 03JUN09 | 11JUL08A | 03JUN09 | 2 | -176 |
| 02L1FF0110 | AIP submission for rel. authorities' approval | 1 | 1 | 08JUL08A | 08JUL08A | 08JUL08A | 08JUL08A | 1 | 0 |
| 02L1FF0112 | Design (AIP) review by the rel. authorities | 28 | 28 | 09JUL08A | 05MAR09A | 09JUL08A | 05MAR09A | 2 | 0 |
| 02L1FF0114 | Obtain rel. authorities's approval for AIP | 1 | 1 | 06MAR09A | 06MAR09A | 06MAR09A | 06MAR09A | 1 | 0 |
| 02L1FF0116 | SO submit design (AIP) for approval of GEO | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 | 0 |
| 02L1FF0118 | Design (AIP) review/approval by the GEO | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 | 0 |
| 02L1FF0120 | Obtain SO's consent for design (AIP) | 0 | 0 | 04JUN09 | 04JUN09 | 04JUN09 | 04JUN09 | 2 | -176 |
| 02L1FF0122 | Design preparation for the DDA submission | 30 | 30 | 04NOV08A | 11JUN09 | 04NOV08A | 11JUN09 | 2 | -176 |
| 02L1FF0123 | Design (DDA) submission for the DC's approval | 1 | 1 | 12JUN09 | 12JUN09 | 12JUN09 | 12JUN09 | 1 | -138 |
| 02L1FF0124 | Design (DDA) certification by the Design Checker | 28 | 28 | 13JUN09 | 10JUL09 | 13JUN09 | 10JUL09 | 2 | -176 |

| ID | Activity Description | D04 | | AD04 | | WP3D | | Total Float |
|--------------------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 02L1FF0126 | Design (DDA) submission for the SO's approval | 1 | 1 | 12JUN09 | 12JUN09 | 12JUN09 | 12JUN09 | 1 |
| 02L1FF0128 | Design (DDA) review by the SO | 56 | 56 | 16JUN09 | 10AUG09 | 16JUN09 | 10AUG09 | 2 |
| 02L1FF0130 | DDA submission for rel. authorities' approval | 1 | 1 | 19JUN09 | 19JUN09 | 19JUN09 | 19JUN09 | 1 |
| 02L1FF0132 | Design (DDA) review by the rel. authorities | 28 | 28 | 20JUN09 | 17JUL09 | 20JUN09 | 17JUL09 | 2 |
| 02L1FF0134 | Obtain rel. authorities' approval for DDA | 1 | 1 | 18JUL09 | 18JUL09 | 18JUL09 | 18JUL09 | 1 |
| 02L1FF0136 | SO submit design (DDA) for approval of GEO | 1 | 1 | 13JUL09 | 13JUL09 | 13JUL09 | 13JUL09 | 1 |
| 02L1FF0138 | Design (DDA) review/approval by the GEO | 28 | 28 | 14JUL09 | 10AUG09 | 14JUL09 | 10AUG09 | 2 |
| 02L1FF0140 | Obtain SO's consent for design (DDA) | 0 | 0 | | 11AUG09 | | 11AUG09 | 2 |
| Impact Assessment on WSD Yau Kam Tau WTW | | | | | | | | |
| 02L1FF0202 | Design preparation for the DDA submission | 60 | 60 | 29APR08A | 30JUN08A | 29APR08A | 30JUN08A | 2 |
| 02L1FF0203 | Design (DDA) submission for the DC's approval | 1 | 1 | 03JUL08A | 03JUL08A | 03JUL08A | 03JUL08A | 1 |
| 02L1FF0204 | Design (DDA) certification by the Design Checker | 260 | 260 | 04JUL08A | 18MAR09A | 04JUL08A | 18MAR09A | 2 |
| 02L1FF0206 | Design (DDA) submission for the SO's approval | 1 | 1 | 15JUL08A | 18MAR09A | 15JUL08A | 18MAR09A | 1 |
| 02L1FF0208 | Design (DDA) review by the SO | 66 | 66 | 16JUL08A | 31MAR09A | 16JUL08A | 31MAR09A | 2 |
| 02L1FF0210 | DDA submission for rel. authorities' approval | 1 | 1 | 10JUL08A | 02APR09A | 10JUL08A | 02APR09A | 1 |
| 02L1FF0212 | Design (DDA) review by the rel. authorities | 28 | 28 | 11JUL08A | 10JUN09 | 11JUL08A | 10JUN09 | 2 |
| 02L1FF0214 | Obtain rel. authorities' approval for DDA | 1 | 1 | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | 1 |
| 02L1FF0220 | Obtain SO's consent for design (DDA) | 0 | 0 | | 31MAR09A | | 31MAR09A | 2 |
| Impact Assessment on WSD Tai Lam Chung WT No. 3 | | | | | | | | |
| 02L1FF0302 | Design preparation for the DDA submission | 32 | 32 | 14APR08A | 27JUN08A | 14APR08A | 27JUN08A | 2 |
| 02L1FF0303 | Design submission for the DC's approval | 1 | 1 | 27JUN08A | 27JUN08A | 27JUN08A | 27JUN08A | 1 |
| 02L1FF0304 | Design (DDA) certification by the Design Checker | 285 | 285 | 28JUN08A | 08JUN09 | 28JUN08A | 08JUN09 | 2 |
| 02L1FF0306 | Design (DDA) submission for the SO's approval | 1 | 1 | 15JUL08A | 15JUL08A | 15JUL08A | 15JUL08A | 1 |
| 02L1FF0308 | Design (DDA) review by the SO | 66 | 66 | 16JUL08A | 13JUL09 | 16JUL08A | 13JUL09 | 2 |
| 02L1FF0310 | DDA submission for rel. authorities' approval | 1 | 1 | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 1 |
| 02L1FF0312 | Design (DDA) review by the rel. authorities | 28 | 28 | 11JUL08A | 15JUN09 | 11JUL08A | 15JUN09 | 2 |
| 02L1FF0314 | Obtain rel. authorities' approval for DDA | 1 | 1 | 16JUN09 | 16JUN09 | 16JUN09 | 16JUN09 | 1 |
| 02L1FF0316 | SO submit design (DDA) for approval of GEO | 1 | 1 | 16JUN09 | 16JUN09 | 16JUN09 | 16JUN09 | 1 |
| 02L1FF0318 | Design (DDA) review/approval by the GEO | 28 | 28 | 17JUN09 | 14JUL09 | 17JUN09 | 14JUL09 | 2 |
| 02L1FF0320 | Obtain SO's consent for design (DDA) | 0 | 0 | | 14JUL09 | | 14JUL09 | 2 |
| Impact Assessment on KCRC West Rail Tunnel | | | | | | | | |
| 02L1FF0402 | Design preparation for the DDA submission | 30 | 30 | 28APR08A | 26JUN08A | 28APR08A | 26JUN08A | 2 |
| 02L1FF0403 | Design submission for the DC's approval | 1 | 1 | 26JUN08A | 26JUN08A | 26JUN08A | 26JUN08A | 1 |
| 02L1FF0404 | Design (DDA) certification by the Design Checker | 90 | 90 | 27JUN08A | 02APR09A | 27JUN08A | 02APR09A | 2 |
| 02L1FF0406 | Design (DDA) submission for the SO's approval | 2 | 2 | 15JUL08A | 03APR09A | 15JUL08A | 03APR09A | 1 |
| 02L1FF0408 | Design (DDA) review by the SO | 267 | 267 | 16JUL08A | 08JUN09 | 16JUL08A | 08JUN09 | 2 |
| 02L1FF0410 | DDA submission for rel. authorities' approval | 1 | 1 | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 1 |
| 02L1FF0412 | Design (DDA) review by the rel. authorities | 28 | 28 | 15JUL08A | 11MAR09A | 15JUL08A | 11MAR09A | 2 |
| 02L1FF0414 | Obtain rel. authorities' approval for DDA | 1 | 1 | 12MAR09A | 11MAR09A | 12MAR09A | 11MAR09A | 1 |
| 02L1FF0416 | SO submit design (DDA) for approval of GEO | 1 | 1 | 29MAY09 | 29MAY09 | 29MAY09 | 29MAY09 | 1 |
| 02L1FF0418 | Design (DDA) review/approval by the GEO | 28 | 28 | 30MAY09 | 26JUN09 | 30MAY09 | 26JUN09 | 2 |
| 02L1FF0420 | Obtain SO's consent for design (DDA) | 0 | 0 | | 27JUN09 | | 27JUN09 | 2 |

| ID | Activity Description | AD04 | | AD04 | | AD04 | | WP3D Dur | WP3D Start | WP3D Finish | Cal ID | Total Float |
|--------------------------------------------------------|--------------------------------------------------|-------|-------|----------|----------|----------|----------|----------|------------|-------------|--------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | | | | | |
| Impact Assessment on WSD Tsuen Wan Reservoir G. | | | | | | | | | | | | |
| 02L1FF0502 | Design preparation for the DDA submission | 30 | 30 | 05MAY08A | 02JUL08A | 05MAY08A | 02JUL08A | | | | | |
| 02L1FF0503 | Design submission for the DC's approval | 1 | 1 | 03JUL08A | 03JUL08A | 03JUL08A | 03JUL08A | | | | | |
| 02L1FF0504 | Design (DDA) certification by the Design Checker | 260 | 260 | 04JUL08A | 01APR09A | 04JUL08A | 01APR09A | | | | | |
| 02L1FF0506 | Design (DDA) submission for the SO's approval | 2 | 2 | 15JUL08A | 01APR09A | 15JUL08A | 01APR09A | | | | | |
| 02L1FF0508 | Design (DDA) review by the SO | 60 | 60 | 16JUL08A | 16JUN09 | 16JUL08A | 16JUN09 | | | | | |
| 02L1FF0510 | DDA submission for rel. authorities' approval | 1 | 1 | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | | | | | |
| 02L1FF0512 | Design (DDA) review by the rel. authorities | 28 | 28 | 11JUL08A | 10JUN09 | 11JUL08A | 10JUN09 | | | | | |
| 02L1FF0514 | Obtain rel. authorities's approval for DDA | 1 | 1 | 11JUN09 | 11JUN09 | 11JUN09 | 11JUN09 | | | | | |
| 02L1FF0520 | Obtain SO's consent for design (DDA) | 0 | 0 | | 17JUN09 | | 17JUN09 | | | | | |
| Grout Trial at Fault Zone F1 | | | | | | | | | | | | |
| 02L1FF0602 | MS preparation for the DDA submission | 12 | 12 | 02MAY08A | 20MAY08A | 02MAY08A | 20MAY08A | | | | | |
| 02L1FF0606 | Ms (DDA) submission for the SO's approval | 1 | 1 | 21MAY08A | 21MAY08A | 21MAY08A | 21MAY08A | | | | | |
| 02L1FF0608 | MS (DDA) review by the SO | 24 | 24 | 22MAY08A | 17JUL08A | 22MAY08A | 17JUL08A | | | | | |
| 02L1FF0620 | Obtain SO's consent for MS (DDA) | 0 | 0 | | 17JUL08A | | 17JUL08A | | | | | |
| Geotechnical Instrumentation | | | | | | | | | | | | |
| 3DL1FFG102 | Design preparation by the Designer | 60 | 60 | 28AUG08A | 23JAN09A | 28AUG08A | 23JAN09A | | | | | |
| 3DL1FFG104 | Design certification by the Design Checker | 14 | 14 | 24JAN09A | 10JUN09 | 24JAN09A | 10JUN09 | | | | | |
| 3DL1FFG106 | Design submission for the SO's approval | 2 | 2 | 24JAN09A | 26MAR09A | 24JAN09A | 26MAR09A | | | | | |
| 3DL1FFG108 | Design review by the SO | 56 | 56 | 24JAN09A | 20JUN09 | 24JAN09A | 20JUN09 | | | | | |
| 3DL1FFG110 | DDA submission for rel. authorities' approval | 1 | 1 | 14MAR09A | 14MAR09A | 14MAR09A | 14MAR09A | | | | | |
| 3DL1FFG112 | Design (DDA) review by the rel. authorities | 56 | 56 | 15MAR09A | 23JUL09 | 15MAR09A | 23JUL09 | | | | | |
| 3DL1FFG114 | Obtain rel. authorities's approval for DDA | 1 | 1 | 24JUL09 | 24JUL09 | 24JUL09 | 24JUL09 | | | | | |
| 3DL1FFG116 | Obtain design approval from the SO | 0 | 0 | | 24JUL09 | | 24JUL09 | | | | | |
| 3DL1FFG118 | Install geotechnical instrumentations | 90 | 90 | 25JUL09 | 10NOV09 | 25JUL09 | 10NOV09 | | | | | |
| 3DL1FFG120 | Baseline Monitoring | 14 | 14 | 11NOV09 | 24NOV09 | 11NOV09 | 24NOV09 | | | | | |
| 3DL1FT0208 | Maintain/monitor geotechnical instrumentation | 1,200 | 1,200 | 25NOV09 | 08MAR13 | 25NOV09 | 08MAR13 | | | | | |
| Design Packages for Works in Portion G | | | | | | | | | | | | |
| Drainage Impact Assessment | | | | | | | | | | | | |
| 02L1GG0105 | Quotation and award consultant | 24 | 24 | 22JUN09* | 20JUL09 | 22JUN09* | 20JUL09 | | | | | |
| 02L1GG0115 | Prepare preliminary DIA report | 36 | 36 | 21JUL09 | 31AUG09 | 21JUL09 | 31AUG09 | | | | | |
| 02L1GG0125 | Prepare final DIA report | 12 | 12 | 01SEP09 | 14SEP09 | 01SEP09 | 14SEP09 | | | | | |
| 02L1GG0135 | Submission of DIA report to SOR/DSD | 1 | 1 | 15SEP09 | 15SEP09 | 15SEP09 | 15SEP09 | | | | | |
| 02L1GG0145 | SOR/DSD review/comment DIA report | 28 | 28 | 22SEP09 | 19OCT09 | 22SEP09 | 19OCT09 | | | | | |
| 02L1GG0155 | Revise DIA incorporating comments | 12 | 12 | 20OCT09 | 03NOV09 | 20OCT09 | 03NOV09 | | | | | |
| 02L1GG0165 | SOR/DSD review/approve DIA report | 21 | 21 | 04NOV09 | 24NOV09 | 04NOV09 | 24NOV09 | | | | | |
| 02L1GG0175 | Obtain consent from SOR and DSD | 0 | 0 | | 24NOV09 | | 24NOV09 | | | | | |
| Temp. Platform Design for H-Piling at Portion G | | | | | | | | | | | | |
| 02L1GG0202 | Design preparation for the DDA submission | 30 | 30 | 21JUL09 | 19AUG09 | 21JUL09 | 19AUG09 | | | | | |
| 02L1GG0203 | Design (DDA) submission for the DC's approval | 1 | 1 | 20AUG09 | 20AUG09 | 20AUG09 | 20AUG09 | | | | | |
| 02L1GG0204 | Design (DDA) certification by the Design Checker | 28 | 28 | 21AUG09 | 17SEP09 | 21AUG09 | 17SEP09 | | | | | |
| 02L1GG0206 | Design (DDA) submission for the SO's approval | 1 | 1 | 20AUG09 | 20AUG09 | 20AUG09 | 20AUG09 | | | | | |
| 02L1GG0208 | Design (DDA) review by the SO | 58 | 58 | 21AUG09 | 17OCT09 | 21AUG09 | 17OCT09 | | | | | |

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | Total Float |
|------------------------------------------------------|--------------------------------------------------|-----|-----|---------|----------|---------|----------|---------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | |
| 02L1GG0210 | DDA submission for rel. authorities' approval | 1 | 1 | 27AUG09 | 27AUG09 | 27AUG09 | 27AUG09 | 27AUG09 | 27AUG09 | 1 |
| 02L1GG0212 | Design (DDA) review by the rel. authorities | 28 | 28 | 28AUG09 | 24SEP09 | 28AUG09 | 24SEP09 | 28AUG09 | 24SEP09 | 2 |
| 02L1GG0214 | Obtain rel. authorities' approval for DDA | 1 | 1 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 25SEP09 | 1 |
| 02L1GG0228 | Obtain design (DDA) approval from the SO | 0 | 0 | | 18OCT09 | | 18OCT09 | | 18OCT09 | 2 |
| ELS Design for Pipe Jacking at Portion G | | | | | | | | | | |
| 02L1GG0302 | Design preparation for the DDA submission | 15 | 15 | 20AUG09 | 03SEP09 | 20AUG09 | 03SEP09 | 20AUG09 | 03SEP09 | 2 |
| 02L1GG0303 | Design (DDA) submission for the DC's approval | 1 | 1 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 1 |
| 02L1GG0304 | Design (DDA) certification by the Design Checker | 28 | 28 | 05SEP09 | 02OCT09 | 05SEP09 | 02OCT09 | 05SEP09 | 02OCT09 | 2 |
| 02L1GG0306 | Design (DDA) submission for the SO's approval | 1 | 1 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 04SEP09 | 1 |
| 02L1GG0308 | Design (DDA) review by the SO | 58 | 58 | 05SEP09 | 01NOV09 | 05SEP09 | 01NOV09 | 05SEP09 | 01NOV09 | 2 |
| 02L1GG0310 | DDA submission for rel. authorities' approval | 1 | 1 | 11SEP09 | 11SEP09 | 11SEP09 | 11SEP09 | 11SEP09 | 11SEP09 | 1 |
| 02L1GG0314 | Design (DDA) review by the rel. authorities | 28 | 28 | 12SEP09 | 09OCT09 | 12SEP09 | 09OCT09 | 12SEP09 | 09OCT09 | 2 |
| 02L1GG0316 | Obtain rel. authorities' approval for DDA | 1 | 1 | 10OCT09 | 10OCT09 | 10OCT09 | 10OCT09 | 10OCT09 | 10OCT09 | 1 |
| 02L1GG0318 | Obtain design (DDA) approval from the SO | 0 | 0 | | 02NOV09 | | 02NOV09 | | 02NOV09 | 2 |
| Schedule of Milestones for Cost Centre No. 2L | | | | | | | | | | |
| 02L10D1002 | 2L 1; On submission of PDP to the SO | 0 | 0 | | 10JAN08A | | 10JAN08A | | 10JAN08A | 2 |
| 02L10D1004 | 2L 2; On acceptance of PDP by the SO | 0 | 0 | | 04SEP08A | | 04SEP08A | | 04SEP08A | 2 |
| 02L10D1006 | 2L 3; On submission of AIP to the SO; Portion A | 0 | 0 | | 12MAY09A | | 12MAY09A | | 12MAY09A | 2 |
| 02L10D1008 | 2L 4; On acceptance of AIP by the SO; Portion A | 0 | 0 | | 25JUL09 | | 25JUL09 | | 25JUL09 | 2 |
| 02L10D1010 | 2L 5; On submission of DDA to the SO; Portion A | 0 | 0 | | 28SEP09 | | 28SEP09 | | 28SEP09 | 2 |
| 02L10D1012 | 2L 6; On acceptance of DDA by the SO; Portion A | 0 | 0 | | 10OCT09 | | 10OCT09 | | 10OCT09 | 2 |
| 02L10D1014 | 2L 7; On submission of AIP to the SO; Portion B | 0 | 0 | | 07JUL09 | | 07JUL09 | | 07JUL09 | 2 |
| 02L10D1016 | 2L 8; On acceptance of AIP by the SO; Portion B | 0 | 0 | | 12AUG09 | | 12AUG09 | | 12AUG09 | 2 |
| 02L10D1018 | 2L 9; On submission of DDA to the SO; Portion B | 0 | 0 | | 28SEP09 | | 28SEP09 | | 28SEP09 | 2 |
| 02L10D1020 | 2L 10; On acceptance of DDA by the SO; Portion B | 0 | 0 | | 26OCT09 | | 26OCT09 | | 26OCT09 | 2 |
| 02L10D1022 | 2L 11; On submission of AIP to the SO; Portion C | 0 | 0 | | 25JUL09 | | 25JUL09 | | 25JUL09 | 2 |
| 02L10D1024 | 2L 12; On acceptance of AIP by the SO; Portion C | 0 | 0 | | 10AUG09 | | 10AUG09 | | 10AUG09 | 2 |
| 02L10D1026 | 2L 13; On submission of DDA to the SO; Portion C | 0 | 0 | | 28SEP09 | | 28SEP09 | | 28SEP09 | 2 |
| 02L10D1028 | 2L 14; On acceptance of DDA by the SO; Portion C | 0 | 0 | | 23OCT09 | | 23OCT09 | | 23OCT09 | 2 |
| 02L10D1030 | 2L 15; On acceptance of AIP by the SO; Portion D | 0 | 0 | | 25JUL09 | | 25JUL09 | | 25JUL09 | 2 |
| 02L10D1032 | 2L 16; On acceptance of DDA by the SO; Portion D | 0 | 0 | | 10OCT09 | | 10OCT09 | | 10OCT09 | 2 |
| 02L10D1034 | 2L 17; On submission of AIP to the SO; Portion F | 0 | 0 | | 13JUL09 | | 13JUL09 | | 13JUL09 | 2 |
| 02L10D1036 | 2L 18; On acceptance of AIP by the SO; Portion F | 0 | 0 | | 19SEP09 | | 19SEP09 | | 19SEP09 | 2 |
| 02L10D1038 | 2L 19; On submission of DDA to the SO; Portion F | 0 | 0 | | 28SEP09 | | 28SEP09 | | 28SEP09 | 2 |
| 02L10D1040 | 2L 20; On acceptance of DDA by the SO; Portion F | 0 | 0 | | 05DEC09 | | 05DEC09 | | 05DEC09 | 2 |
| 02L10D1042 | 2L 21; On acceptance of AIP by the SO; Portion G | 0 | 0 | | 27MAY09 | | 27MAY09 | | 27MAY09 | 2 |
| 02L10D1044 | 2L 22; On acceptance of DDA by the SO; Portion G | 0 | 0 | | 24NOV09 | | 24NOV09 | | 24NOV09 | 2 |
| 02L10D1046 | 2L 23; On completion of all works under this CC | 0 | 0 | | 24NOV09 | | 24NOV09 | | 24NOV09 | 2 |

| ID | Activity Description | AD04 | | WP3D | | AD04 | | WP3D | | Cal ID | Total Float |
|--------------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|----------|----------|-------|----------|--------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| Construction of Main Tunnel | | | | | | | | | | | |
| Trial Grout at Fault Zone F1 | | | | | | | | | | | |
| 3AL1FT0002 | Hyd issue XP | 0 | 0 | | 23JUL08A | | 23JUL08A | | 23JUL08A | 2 | |
| 3AL1FT0004 | Advance notice to Hyd/Road advice | 6 | 6 | 24JUL08A | 30JUL08A | 24JUL08A | 30JUL08A | | 30JUL08A | 1 | |
| 3AL1FT0006 | Trial pit excavation | 4 | 4 | 31JUL08A | 04AUG08A | 31JUL08A | 04AUG08A | | 04AUG08A | 1 | |
| 3AL1FT0010 | Scaffolding, mobilize & set up | 7 | 7 | 05AUG08A | 13AUG08A | 05AUG08A | 13AUG08A | | 13AUG08A | 1 | |
| 3AL1FT0012 | Drill & test for 2m Arrangement Test | 45 | 45 | 14AUG08A | 15NOV08A | 14AUG08A | 15NOV08A | | 15NOV08A | 1 | |
| 3AL1FT0014 | Backfill drilled holes, demobilization & Tidy up | 6 | 6 | 17NOV08A | 22NOV08A | 17NOV08A | 22NOV08A | | 22NOV08A | 1 | |
| 3AL1FT0016 | Drill & test for single hole arrangement test | 17 | 17 | 11AUG08A | 04SEP08A | 11AUG08A | 04SEP08A | | 04SEP08A | 1 | |
| 3AL1FT0018 | Backfill drilled hole, demobilization & tidy up | 1 | 1 | 05SEP08A | 05SEP08A | 05SEP08A | 05SEP08A | | 05SEP08A | 1 | |
| TBM Manufacture/Testing/Delivery | | | | | | | | | | | |
| Manufacture of TBM & Back-ups | | | | | | | | | | | |
| 3AL1FT0302 | TBM & Excavation Sys Procurement | 30 | 30 | 14DEC07A | 12JAN08A | 14DEC07A | 12JAN08A | | 12JAN08A | 2 | |
| 3AL1FT0304 | TBM design & manufacturing | 252 | 252 | 21DEC07A | 28SEP08A | 21DEC07A | 28SEP08A | | 28SEP08A | 2 | |
| 3AL1FT0306 | TBM workshop tests | 7 | 7 | 04OCT08A | 08OCT08A | 04OCT08A | 08OCT08A | | 08OCT08A | 2 | |
| 3AL1FT0308 | TBM dismounting & packing | 21 | 21 | 09OCT08A | 24DEC08A | 09OCT08A | 24DEC08A | | 24DEC08A | 2 | |
| Delivery of TBM | | | | | | | | | | | |
| 3AL1FT0105 | TBM shipment to Hong Kong | 30 | 30 | 06JUL09* | 04AUG09 | 06JUL09* | 04AUG09 | | 04AUG09 | 2 | -161 |
| 3AL1FT0110 | TBM arriving Portion I | 3 | 3 | 05AUG09 | 07AUG09 | 05AUG09 | 07AUG09 | | 07AUG09 | 1 | -130 |
| 3AL1FT0115 | Destuffing Containers/Cleaning & lubrication | 24 | 24 | 08AUG09 | 04SEP09 | 08AUG09 | 04SEP09 | | 04SEP09 | 1 | -130 |
| TBM Pre-assembly/Test & Comms. at Portion I | | | | | | | | | | | |
| 3AL1FT0205 | Cutterhead | 7 | 7 | 05SEP09 | 12SEP09 | 05SEP09 | 12SEP09 | | 12SEP09 | 1 | -130 |
| 3AL1FT0210 | Bearing | 6 | 6 | 05SEP09 | 11SEP09 | 05SEP09 | 11SEP09 | | 11SEP09 | 1 | -129 |
| 3AL1FT0215 | Backup # 1 | 6 | 6 | 12SEP09 | 18SEP09 | 12SEP09 | 18SEP09 | | 18SEP09 | 1 | -122 |
| 3AL1FT0220 | Backup # 2 | 5 | 5 | 14SEP09 | 18SEP09 | 14SEP09 | 18SEP09 | | 18SEP09 | 1 | -121 |
| 3AL1FT0225 | Backup # 3 | 5 | 5 | 19SEP09 | 24SEP09 | 19SEP09 | 24SEP09 | | 24SEP09 | 1 | -122 |
| 3AL1FT0230 | Backup # 4 | 5 | 5 | 19SEP09 | 24SEP09 | 19SEP09 | 24SEP09 | | 24SEP09 | 1 | -121 |
| 3AL1FT0240 | Backup # 5 | 5 | 5 | 25SEP09 | 30SEP09 | 25SEP09 | 30SEP09 | | 30SEP09 | 1 | -122 |
| 3AL1FT0245 | Backup # 6 | 5 | 5 | 25SEP09 | 30SEP09 | 25SEP09 | 30SEP09 | | 30SEP09 | 1 | -121 |
| 3AL1FT0250 | Backup # 7 | 5 | 5 | 02OCT09 | 08OCT09 | 02OCT09 | 08OCT09 | | 08OCT09 | 1 | -80 |
| 3AL1FT0255 | Backup # 8 | 5 | 5 | 02OCT09 | 08OCT09 | 02OCT09 | 08OCT09 | | 08OCT09 | 1 | -77 |
| 3AL1FT0260 | Backup # 9 | 5 | 5 | 09OCT09 | 14OCT09 | 09OCT09 | 14OCT09 | | 14OCT09 | 1 | -79 |
| 3AL1FT0365 | Backup # 10 | 5 | 5 | 09OCT09 | 14OCT09 | 09OCT09 | 14OCT09 | | 14OCT09 | 1 | -76 |
| 3AL1FT0370 | Backup # 11 | 5 | 5 | 15OCT09 | 20OCT09 | 15OCT09 | 20OCT09 | | 20OCT09 | 1 | -78 |
| 3AL1FT0375 | Backup # 12 | 5 | 5 | 15OCT09 | 20OCT09 | 15OCT09 | 20OCT09 | | 20OCT09 | 1 | -75 |
| TBM Transport from Portion I to Outfall | | | | | | | | | | | |
| 3AL1FT0405 | Cutterhead | 1 | 1 | 02JAN10 | 02JAN10 | 02JAN10 | 02JAN10 | | 02JAN10 | 1 | -219 |
| 3AL1FT0415 | Shield # 1 | 1 | 1 | 04JAN10 | 04JAN10 | 04JAN10 | 04JAN10 | | 04JAN10 | 1 | -210 |
| 3AL1FT0425 | Shield # 2 | 1 | 1 | 05JAN10 | 05JAN10 | 05JAN10 | 05JAN10 | | 05JAN10 | 1 | -210 |
| 3AL1FT0435 | Bearing | 1 | 1 | 06JAN10 | 06JAN10 | 06JAN10 | 06JAN10 | | 06JAN10 | 1 | -210 |
| 3AL1FT0445 | Erector | 1 | 1 | 07JAN10 | 07JAN10 | 07JAN10 | 07JAN10 | | 07JAN10 | 1 | -210 |



Construction of Main Tunnel

Trial Grout at Fault Zone F1

TBM Manufacture/Testing/Delivery

Manufacture of TBM & Back-ups

Delivery of TBM

TBM Pre-assembly/Test & Comms. at Portion I

TBM Transport from Portion I to Outfall

| ID | Activity Description | D04 | | AD04 | | AD04 | | AD04 | | Total Float | |
|--------------------------------------------------------|-------------------------------------------------|-----|-----|----------|----------|----------|----------|----------|----------|-------------|------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 3AL1FT0455 | Conveyor | 1 | 1 | 08JAN10 | 08JAN10 | 08JAN10 | 08JAN10 | 08JAN10 | 08JAN10 | 1 | -210 |
| 3AL1FT0465 | Backup # 1 | 1 | 1 | 09JAN10 | 09JAN10 | 09JAN10 | 09JAN10 | 09JAN10 | 09JAN10 | 1 | -210 |
| 3AL1FT0475 | Backup # 2 | 1 | 1 | 11JAN10 | 11JAN10 | 11JAN10 | 11JAN10 | 11JAN10 | 11JAN10 | 1 | -208 |
| 3AL1FT0485 | Backup # 3 | 1 | 1 | 12JAN10 | 12JAN10 | 12JAN10 | 12JAN10 | 12JAN10 | 12JAN10 | 1 | -206 |
| 3AL1FT0495 | Backup # 4 | 1 | 1 | 13JAN10 | 13JAN10 | 13JAN10 | 13JAN10 | 13JAN10 | 13JAN10 | 1 | -206 |
| 3AL1FT0505 | Backup # 5 | 1 | 1 | 29JAN10 | 29JAN10 | 29JAN10 | 29JAN10 | 29JAN10 | 29JAN10 | 1 | -219 |
| 3AL1FT0515 | Backup # 6 | 1 | 1 | 30JAN10 | 30JAN10 | 30JAN10 | 30JAN10 | 30JAN10 | 30JAN10 | 1 | -219 |
| 3AL1FT0525 | Backup # 7 | 1 | 1 | 27MAR10 | 27MAR10 | 27MAR10 | 27MAR10 | 27MAR10 | 27MAR10 | 1 | -218 |
| 3AL1FT0535 | Backup # 8 | 1 | 1 | 31MAR10 | 31MAR10 | 31MAR10 | 31MAR10 | 31MAR10 | 31MAR10 | 1 | -218 |
| 3AL1FT0545 | Backup # 9 | 1 | 1 | 08APR10 | 08APR10 | 08APR10 | 08APR10 | 08APR10 | 08APR10 | 1 | -218 |
| 3AL1FT0555 | Backup # 10 | 1 | 1 | 12APR10 | 12APR10 | 12APR10 | 12APR10 | 12APR10 | 12APR10 | 1 | -218 |
| 3AL1FT0565 | Backup # 11 | 1 | 1 | 15APR10 | 15APR10 | 15APR10 | 15APR10 | 15APR10 | 15APR10 | 1 | -218 |
| 3AL1FT0575 | Backup # 12 | 1 | 1 | 19APR10 | 19APR10 | 19APR10 | 19APR10 | 19APR10 | 19APR10 | 1 | -218 |
| Manufacture Pre-cast Lining/Delivery | | | | | | | | | | | |
| Segmental Lining Mould | | | | | | | | | | | |
| 3AL1FTSM02 | Procure sub-contract for segmental mould | 0 | 0 | 21JUL08A | 21JUL08A | 21JUL08A | 21JUL08A | 21JUL08A | 21JUL08A | 2 | |
| 3AL1FTSM04 | Prepare shop drwgs for segmental mould | 60 | 60 | 02FEB09A | 05MAR09A | 02FEB09A | 05MAR09A | 05MAR09A | 05MAR09A | 2 | |
| 3AL1FTSM06 | Fabrication of segmental mould | 90 | 90 | 06MAR09A | 16MAY09A | 06MAR09A | 06MAR09A | 16MAY09A | 16MAY09A | 2 | |
| 3AL1FTSM08 | Inspection in Korea | 7 | 7 | 18MAY09A | 20MAY09A | 18MAY09A | 20MAY09A | 20MAY09A | 20MAY09A | 2 | |
| 3AL1FTSM10 | Painting & packing | 7 | 7 | 21MAY09A | 27MAY09A | 21MAY09A | 27MAY09A | 27MAY09A | 27MAY09A | 2 | |
| 3AL1FTSM12 | Delivery of segmental moulds to HKG | 7 | 7 | 28MAY09 | 03JUN09 | 28MAY09 | 03JUN09 | 03JUN09 | 03JUN09 | 2 | -107 |
| Pre-cast Segmental Lining | | | | | | | | | | | |
| 3AL1FT0404 | Prepare/submit QA/QC System | 30 | 30 | 12JAN09A | 04MAR09A | 12JAN09A | 04MAR09A | 04MAR09A | 04MAR09A | 2 | |
| 3AL1FT0410 | SO approve QA/QC system | 28 | 28 | 05MAR09A | 06JUN09 | 05MAR09A | 06JUN09 | 06JUN09 | 06JUN09 | 1 | -88 |
| 3AL1FT0412 | Approval of Tunnel Lining Design | 0 | 0 | 11AUG09 | 11AUG09 | 11AUG09 | 11AUG09 | 11AUG09 | 11AUG09 | 2 | -176 |
| 3AL1FT0416 | Manufacturer of segments | 330 | 330 | 12AUG09 | 20SEP10 | 12AUG09 | 20SEP10 | 20SEP10 | 20SEP10 | 1 | -143 |
| 3AL1FT0418 | Delivery of Segments | 400 | 400 | 02JAN10 | 12MAY11 | 02JAN10 | 12MAY11 | 12MAY11 | 12MAY11 | 1 | -200 |
| 3AL1FTSL02 | Procure sub-contract for segment lining | 0 | 0 | 05JAN09A | 05JAN09A | 05JAN09A | 05JAN09A | 05JAN09A | 05JAN09A | 1 | |
| Geotech Instrumentation at WSD Tunnel Using PPE | | | | | | | | | | | |
| Method Statement to Install G.I. Works | | | | | | | | | | | |
| 3AL1FTMS02 | Prepare method statement | 69 | 69 | 12MAR09A | 26MAR09A | 12MAR09A | 26MAR09A | 26MAR09A | 26MAR09A | 1 | |
| 3AL1FTMS04 | Method statement endorsement by ICE & APRE | 30 | 30 | 29MAY09A | 03JUL09 | 29MAY09A | 03JUL09 | 03JUL09 | 03JUL09 | 1 | -68 |
| 3AL1FTMS08 | Method statement endorsement by LD | 18 | 18 | 04JUL09 | 24JUL09 | 04JUL09 | 24JUL09 | 24JUL09 | 24JUL09 | 1 | -68 |
| 3AL1FTMS12 | Method statement endorsement by SOR | 12 | 12 | 25JUL09 | 07AUG09 | 25JUL09 | 07AUG09 | 07AUG09 | 07AUG09 | 1 | -68 |
| 3AL1FTMS14 | Method statement endorsement by WSD | 24 | 24 | 08AUG09 | 04SEP09 | 08AUG09 | 04SEP09 | 04SEP09 | 04SEP09 | 1 | -68 |
| 3AL1FTMS24 | Application for electrical power | 45 | 45 | 22DEC09* | 18FEB10 | 22DEC09* | 18FEB10 | 18FEB10 | 18FEB10 | 1 | -188 |
| At Ting Kau Air Valve House | | | | | | | | | | | |
| 3AL1WT3B02 | Arrange WSD to open the valve house | 1 | 1 | 19MAR10 | 19MAR10 | 19MAR10 | 19MAR10 | 19MAR10 | 19MAR10 | 1 | -219 |
| 3AL1WT3B12 | Set up exhaust fans & arrange temp. electricity | 3 | 3 | 20MAR10 | 23MAR10 | 20MAR10 | 23MAR10 | 23MAR10 | 23MAR10 | 1 | -219 |
| 3AL1WT3B22 | Arrange 2 nrs. set of water pumps | 2 | 2 | 24MAR10 | 25MAR10 | 24MAR10 | 25MAR10 | 25MAR10 | 25MAR10 | 1 | -219 |
| 3AL1WT3B32 | Remove the air vent pipe (DN250) | 2 | 2 | 26MAR10 | 27MAR10 | 26MAR10 | 27MAR10 | 27MAR10 | 27MAR10 | 1 | -219 |
| 3AL1WT3B42 | Remove connection flange (DN900) | 1 | 1 | 29MAR10 | 29MAR10 | 29MAR10 | 29MAR10 | 29MAR10 | 29MAR10 | 1 | -219 |

Total 3176 rings; 1 ring = 5 segments
Delivery commences a week before

to lower down the water level following water tunnel shut down

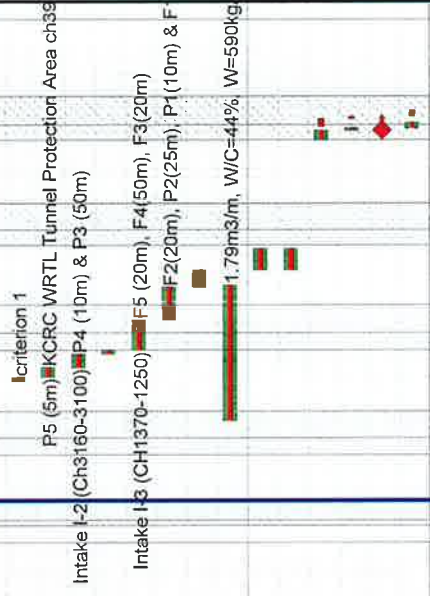
| ID | Activity Description | AD04 | | AD04 | | AD04 | | AD04 | | WP3D Finish | WP3D Start | Cal ID | Total Float | Year | | | | | | | | |
|----------------------------------------------------------|-------------------------------------------------|------|----------|---------|---------|---------|---------|------|------|-------------|------------|--------|-------------|------|------|------|------|--|--|--|--|--|
| | | Dur | WP3D Dur | Start | Finish | Start | Finish | 2008 | 2009 | | | | | 2010 | 2011 | 2012 | 2013 | | | | | |
| 3AL1WT3B52 | Connect exhaust fan to valve shaft | 3 | 3 | 30MAR10 | 01APR10 | 30MAR10 | 01APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1WT3B62 | Connect new vent pipe to exhaust fan(s) | 2 | 2 | 07APR10 | 08APR10 | 07APR10 | 08APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1WT3B72 | Test and commission exhaust fan(s) | 3 | 3 | 09APR10 | 12APR10 | 09APR10 | 12APR10 | 1 | -219 | | | | | | | | | | | | | |
| Preparation Works at Chai Wan Kok Shaft | | | | | | | | | | | | | | | | | | | | | | |
| 3AL1FTCT02 | Install electricity take off, switch board & | 4 | 4 | 27MAR10 | 31MAR10 | 27MAR10 | 31MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCT12 | Install waste reception/disposal area | 1 | 1 | 13MAR10 | 13MAR10 | 13MAR10 | 13MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCT22 | Install toilet and shower | 3 | 3 | 11MAR10 | 13MAR10 | 11MAR10 | 13MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCT32 | Set up generator, two 2" water pumps | 2 | 2 | 30MAR10 | 31MAR10 | 30MAR10 | 31MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW02 | UU detection | 3 | 3 | 15MAR10 | 17MAR10 | 15MAR10 | 17MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW04 | Excavate to lower platform approx. 0.5m-1m | 2 | 2 | 18MAR10 | 19MAR10 | 18MAR10 | 19MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW06 | Set out & align sheet piling | 1 | 1 | 20MAR10 | 20MAR10 | 20MAR10 | 20MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW08 | Install sheet piles & excavate to install rails | 4 | 4 | 22MAR10 | 25MAR10 | 22MAR10 | 25MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW10 | Excavate to the bottom of DN1200 pipe | 3 | 3 | 26MAR10 | 29MAR10 | 26MAR10 | 29MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW12 | Lay concrete blinding to pit | 2 | 2 | 30MAR10 | 31MAR10 | 30MAR10 | 31MAR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW14 | ICE checking | 1 | 1 | 01APR10 | 01APR10 | 01APR10 | 01APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW16 | WSD Tunnel Shut Down Period | 131* | 131* | 26MAR10 | 03SEP10 | 26MAR10 | 03SEP10 | 1 | 0 | | | | | | | | | | | | | |
| 3AL1FTCW18 | WSD Tunnel #3 commences shut down | 1 | 1 | 01APR10 | 01APR10 | 01APR10 | 01APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW20 | Cut & clean invert and inner face of DN1200 | 1 | 1 | 07APR10 | 07APR10 | 07APR10 | 07APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW22 | Plug DN1200 pipe at the face near valve house | 1 | 1 | 08APR10 | 08APR10 | 08APR10 | 08APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW24 | Fabricate trolley & trial | 4 | 4 | 09APR10 | 13APR10 | 09APR10 | 13APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW26 | Install longitudinal tensioned wire | 2 | 2 | 14APR10 | 15APR10 | 14APR10 | 15APR10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTCW36 | Temporary plug main tunnel to form air seal | 2 | 2 | 16APR10 | 17APR10 | 16APR10 | 17APR10 | 1 | -219 | | | | | | | | | | | | | |
| Works in Aqueeduct | | | | | | | | | | | | | | | | | | | | | | |
| 3AL1FTAD04 | Install instruments | 56 | 56 | 19APR10 | 25JUN10 | 19APR10 | 25JUN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTAD06 | Inspection | 1 | 1 | 26JUN10 | 26JUN10 | 26JUN10 | 26JUN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTAD08 | TBM crossing affected 120m section | 12 | 12 | 28JUN10 | 12JUL10 | 28JUN10 | 12JUL10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FTAD10 | De-install instruments | 32 | 32 | 13JUL10 | 18AUG10 | 13JUL10 | 18AUG10 | 1 | 0 | | | | | | | | | | | | | |
| Demobilisation | | | | | | | | | | | | | | | | | | | | | | |
| 3AL1FTAEO4 | Remove trolley system | 1 | 1 | 19AUG10 | 19AUG10 | 19AUG10 | 19AUG10 | 1 | 0 | | | | | | | | | | | | | |
| 3AL1FTAEL4 | Remove the plug at Ting Kau | 2 | 2 | 20AUG10 | 21AUG10 | 20AUG10 | 21AUG10 | 1 | 0 | | | | | | | | | | | | | |
| 3AL1FTAEL24 | Remove ventilation system, reinstate T.K. valve | 3 | 3 | 23AUG10 | 25AUG10 | 23AUG10 | 25AUG10 | 1 | 0 | | | | | | | | | | | | | |
| 3AL1FTAEL34 | Remove temporary portal at junction | 1 | 1 | 26AUG10 | 26AUG10 | 26AUG10 | 26AUG10 | 1 | 0 | | | | | | | | | | | | | |
| Reinstatement Works | | | | | | | | | | | | | | | | | | | | | | |
| 3AL1FTRS02 | Reinstate opening at Chai Wan Kok | 7 | 7 | 27AUG10 | 03SEP10 | 27AUG10 | 03SEP10 | 1 | 0 | | | | | | | | | | | | | |
| 3AL1FTRS04 | WSD Tunnel #3 re-operates | 1 | 1 | 03SEP10 | 03SEP10 | 03SEP10 | 03SEP10 | 1 | 0 | | | | | | | | | | | | | |
| TBM Assembly & Initial Driving; Day Time Work | | | | | | | | | | | | | | | | | | | | | | |
| TBM Assembly/Test & Commiss. at Outfall | | | | | | | | | | | | | | | | | | | | | | |
| 3AL1FT0605 | Cutterhead | 3 | 3 | 04JAN10 | 06JAN10 | 04JAN10 | 06JAN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FT0615 | Shield (bottom) | 4 | 4 | 07JAN10 | 11JAN10 | 07JAN10 | 11JAN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FT0625 | Bearing | 1 | 1 | 12JAN10 | 12JAN10 | 12JAN10 | 12JAN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FT0635 | Erector & Conveyor Belt | 3 | 3 | 13JAN10 | 15JAN10 | 13JAN10 | 15JAN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FT0645 | Shield (top) | 4 | 4 | 16JAN10 | 20JAN10 | 16JAN10 | 20JAN10 | 1 | -219 | | | | | | | | | | | | | |
| 3AL1FT0655 | Backup # 1 | 3 | 3 | 21JAN10 | 23JAN10 | 21JAN10 | 23JAN10 | 1 | -219 | | | | | | | | | | | | | |

stemp dwon transformer

WSD approval in 2 months advance

percent person authorizes entry include 24 hrs ventilation before man entry &

| ID | Activity Description | D04 WP3D | | AD04 | | WP3D | | Total Float |
|-------------------------------------------------------|---------------------------------------------------|----------|-----|---------|---------|---------|---------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 3AL1FT0665 | Backup # 2 | 3 | 3 | 25JAN10 | 27JAN10 | 25JAN10 | 27JAN10 | 1 -219 |
| 3AL1FT0675 | Backup # 3 | 3 | 3 | 28JAN10 | 30JAN10 | 28JAN10 | 30JAN10 | 1 -219 |
| 3AL1FT0685 | Test & commission stage 1 | 6 | 6 | 01FEB10 | 06FEB10 | 01FEB10 | 06FEB10 | 1 -219 |
| 3AL1FT0695 | Backup # 4 | 3 | 3 | 24FEB10 | 26FEB10 | 24FEB10 | 26FEB10 | 1 -199 |
| 3AL1FT0705 | Backup # 5 | 3 | 3 | 27FEB10 | 02MAR10 | 27FEB10 | 02MAR10 | 1 -199 |
| 3AL1FT0715 | Backup # 6 | 3 | 3 | 03MAR10 | 05MAR10 | 03MAR10 | 05MAR10 | 1 -199 |
| 3AL1FT0725 | Backup # 7 | 3 | 3 | 29MAR10 | 31MAR10 | 29MAR10 | 31MAR10 | 1 -218 |
| 3AL1FT0735 | Backup # 8 | 3 | 3 | 01APR10 | 08APR10 | 01APR10 | 08APR10 | 1 -218 |
| 3AL1FT0745 | Backup # 9 | 3 | 3 | 09APR10 | 12APR10 | 09APR10 | 12APR10 | 1 -218 |
| 3AL1FT0755 | Backup # 10 | 3 | 3 | 13APR10 | 15APR10 | 13APR10 | 15APR10 | 1 -218 |
| 3AL1FT0765 | Backup # 11 | 3 | 3 | 16APR10 | 19APR10 | 16APR10 | 19APR10 | 1 -218 |
| 3AL1FT0775 | Backup # 12 | 3 | 3 | 20APR10 | 22APR10 | 20APR10 | 22APR10 | 1 -218 |
| 3AL1FT0785 | Test & commission stage 2 | 12 | 12 | 23APR10 | 07MAY10 | 23APR10 | 07MAY10 | 1 -218 |
| TBM Initial Advancing; Day Time Work | | | | | | | | |
| 3AL1FT0704 | TBM advancing; Ch. 5098 to Ch. 5084 | 6 | 6 | 08FEB10 | 17FEB10 | 08FEB10 | 17FEB10 | 1 -219 |
| 3AL1FT0708 | TBM advances; CH5084-4963 | 54 | 54 | 18FEB10 | 26APR10 | 18FEB10 | 26APR10 | 1 -219 |
| 3AL1FT0720 | TBM stop to install rem. items | 10 | 10 | 27APR10 | 08MAY10 | 27APR10 | 08MAY10 | 1 -219 |
| Main Tunnel Works; Day & Night Work | | | | | | | | |
| TBM Advancing upto Crossing WSD Tunnel # 3 | | | | | | | | |
| 3AL1FT0816 | TBM advances; CH4963-4415 (to WSD Tunnel # 3) | 40 | 40 | 10MAY10 | 26JUN10 | 10MAY10 | 26JUN10 | 1 -219 |
| 3AL1FT0818 | TBM crossing WSD Tunnel # 3; CH4415- 4295 | 12 | 12 | 28JUN10 | 12JUL10 | 28JUN10 | 12JUL10 | 1 -219 |
| TBM Advancing upto Breakthrough | | | | | | | | |
| 3AL1FT0819 | TBM advances; CH4295-4250 | 5 | 5 | 13JUL10 | 17JUL10 | 13JUL10 | 17JUL10 | 1 -219 |
| 3AL1FT0820 | TBM advances; P6 CH4250-4220 | 2 | 2 | 19JUL10 | 20JUL10 | 19JUL10 | 20JUL10 | 1 -219 |
| 3AL1FT0822 | TBM advances; CH4220-3940 | 14 | 14 | 21JUL10 | 05AUG10 | 21JUL10 | 05AUG10 | 1 -219 |
| 3AL1FT0824 | TBM advances; CH3940-3560 | 24 | 24 | 06AUG10 | 02SEP10 | 06AUG10 | 02SEP10 | 1 -219 |
| 3AL1FT0826 | TBM advances CH3560-2970 | 40 | 40 | 03SEP10 | 22OCT10 | 03SEP10 | 22OCT10 | 1 -219 |
| 3AL1FT0828 | TBM advances; WSD WS Reservoir CH2970-2860 | 13 | 13 | 23OCT10 | 06NOV10 | 23OCT10 | 06NOV10 | 1 -219 |
| 3AL1FT0830 | TBM advances; CH2860-1250 | 83 | 83 | 08NOV10 | 18FEB11 | 08NOV10 | 18FEB11 | 1 -219 |
| 3AL1FT0832 | TBM advances; CH1250-0 | 91 | 91 | 19FEB11 | 11JUN11 | 19FEB11 | 11JUN11 | 1 -219 |
| 3AL1FT0890 | Desemby & demobilization of TBM | 50 | 50 | 13JUN11 | 10AUG11 | 13JUN11 | 10AUG11 | 1 -114 |
| 3AL1FT0892 | Back grouting (daytime); CH5100-00 | 382 | 382 | 04MAR10 | 16JUN11 | 04MAR10 | 16JUN11 | 1 -20 |
| 3AL1FT0894 | Complete maintenance access & dry weather channel | 60 | 60 | 11AUG11 | 22OCT11 | 11AUG11 | 22OCT11 | 1 -64 |
| 3AL1FT0896 | Installation of communication system (Daytime) | 60 | 60 | 11AUG11 | 22OCT11 | 11AUG11 | 22OCT11 | 1 -64 |
| 3AL1FT0898 | Testing & Commissioning; daytime | 28 | 28 | 10NOV12 | 07DEC12 | 10NOV12 | 22DEC12 | 2 -462 |
| 3AL1FT0902 | Contractor serve notice for Works completion | 7 | 7 | 08DEC12 | 14DEC12 | 19JAN13 | 25JAN13 | 2 0 |
| 3AL1FT0904 | Handover of Portion F | 0 | 0 | | 07DEC12 | | 18JAN13 | 1 -375 |
| 3AL1FT0906 | SO issues completion certificate | 21 | 21 | 15DEC12 | 04JAN13 | 26JAN13 | 15FEB13 | 2 0 |
| Schedule of Milestones for Cost Centre No. 6aR | | | | | | | | |
| 6AR1FT0902 | 6aR 1; On completion of grouting at P7 | 0 | 0 | | 31MAR10 | | 31MAR10 | 2 1,370 |
| 6AR1FT0904 | 6aR 2; On completion of grouting at F6c | 0 | 0 | | 19MAY10 | | 19MAY10 | 2 1,321 |



| ID | Activity Description | AD04 WP3D | | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float | |
|-------------------------------------------------------|--------------------------------------------------|-----------|-----|------------|-------------|------------|-------------|--------|-------------|--|
| | | Dur | Dur | | | | | | | |
| 6AR1FT0906 | 6aR 3; On completion of grouting at F6b | 0 | 0 | 27MAY10 | 27MAY10 | 27MAY10 | 27MAY10 | 2 | 1,313 | |
| 6AR1FT0908 | 6aR 4; On completion of grouting at F6a | 0 | 0 | 15JUN10 | 15JUN10 | 15JUN10 | 15JUN10 | 2 | 1,294 | |
| 6AR1FT0910 | 6aR 5; On completion of grouting at WSD T. 3 | 0 | 0 | 17JUL10 | 17JUL10 | 17JUL10 | 17JUL10 | 2 | 1,262 | |
| 6AR1FT0912 | 6aR 6; On completion of 20% grout by lth at P6 | 0 | 0 | 17JUL10 | 17JUL10 | 17JUL10 | 17JUL10 | 2 | 1,262 | |
| 6AR1FT0914 | 6aR 7; On completion of 40% grout by lth at P6 | 0 | 0 | 23JUL10 | 23JUL10 | 23JUL10 | 23JUL10 | 2 | 1,256 | |
| 6AR1FT0916 | 6aR 8; On completion of 60% grout by lth at P6 | 0 | 0 | 29JUL10 | 29JUL10 | 29JUL10 | 29JUL10 | 2 | 1,250 | |
| 6AR1FT0918 | 6aR 9; On completion of 80% grout by lth at P6 | 0 | 0 | 17JUL10 | 17JUL10 | 17JUL10 | 17JUL10 | 2 | 1,262 | |
| 6AR1FT0920 | 6aR 10; On completion of grouting works at P6 | 0 | 0 | 20JUL10 | 20JUL10 | 20JUL10 | 20JUL10 | 2 | 1,259 | |
| 6AR1FT0922 | 6aR 11; On completion of grouting wks at P5 | 0 | 0 | 06AUG10 | 06AUG10 | 06AUG10 | 06AUG10 | 2 | 1,242 | |
| 6AR1FT0924 | 6aR 12; On completion of grouting wks at P4 | 0 | 0 | 04SEP10 | 04SEP10 | 04SEP10 | 04SEP10 | 2 | 1,213 | |
| 6AR1FT0926 | 6aR 13; On completion of grouting wks at P3 | 0 | 0 | 07OCT10 | 07OCT10 | 07OCT10 | 07OCT10 | 2 | 1,180 | |
| 6AR1FT0928 | 6aR 14; On completion of grouting wks at WSD's | 0 | 0 | 06NOV10 | 06NOV10 | 06NOV10 | 06NOV10 | 2 | 1,150 | |
| 6AR1FT0930 | 6aR 15; On completion of grouting wks at F5 | 0 | 0 | 13NOV10 | 13NOV10 | 13NOV10 | 13NOV10 | 2 | 1,143 | |
| 6AR1FT0932 | 6aR 16; On completion of grouting wks at F4 | 0 | 0 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 2 | 1,130 | |
| 6AR1FT0934 | 6aR 17; On completion of grouting wks at F3 | 0 | 0 | 22DEC10 | 22DEC10 | 22DEC10 | 22DEC10 | 2 | 1,104 | |
| 6AR1FT0936 | 6aR 18; On completion of grouting wks at F2 | 0 | 0 | 21FEB11 | 21FEB11 | 21FEB11 | 21FEB11 | 2 | 1,043 | |
| 6AR1FT0938 | 6aR 19; On completion of grouting wks at P2 | 0 | 0 | 31MAR11 | 31MAR11 | 31MAR11 | 31MAR11 | 2 | 1,005 | |
| 6AR1FT0940 | 6aR 20; On completion of grouting wks at P1 | 0 | 0 | 27APR11 | 27APR11 | 27APR11 | 27APR11 | 2 | 978 | |
| 6AR1FT0942 | 6aR 21; On completion of 10% grout by lth at F1 | 0 | 0 | 21MAY11 | 21MAY11 | 21MAY11 | 21MAY11 | 2 | 954 | |
| 6AR1FT0944 | 6aR 22; On completion of 20% grout by lth at F1 | 0 | 0 | 23MAY11 | 23MAY11 | 23MAY11 | 23MAY11 | 2 | 952 | |
| 6AR1FT0946 | 6aR 23; On completion of 30% grout by lth at F1 | 0 | 0 | 24MAY11 | 24MAY11 | 24MAY11 | 24MAY11 | 2 | 951 | |
| 6AR1FT0948 | 6aR 24; On completion of 40% grout by lth at F1 | 0 | 0 | 25MAY11 | 25MAY11 | 25MAY11 | 25MAY11 | 2 | 950 | |
| 6AR1FT0950 | 6aR 25; On completion of 50% grout by lth at F1 | 0 | 0 | 26MAY11 | 26MAY11 | 26MAY11 | 26MAY11 | 2 | 949 | |
| 6AR1FT0952 | 6aR 26; On completion of 60% grout by lth at F1 | 0 | 0 | 27MAY11 | 27MAY11 | 27MAY11 | 27MAY11 | 2 | 948 | |
| 6AR1FT0954 | 6aR 27; On completion of 70% grout by lth at F1 | 0 | 0 | 28MAY11 | 28MAY11 | 28MAY11 | 28MAY11 | 2 | 947 | |
| 6AR1FT0956 | 6aR 28; On completion of 80% grout by lth at F1 | 0 | 0 | 30MAY11 | 30MAY11 | 30MAY11 | 30MAY11 | 2 | 945 | |
| 6AR1FT0958 | 6aR 29; On completion of 90% grout by lth at F1 | 0 | 0 | 31MAY11 | 31MAY11 | 31MAY11 | 31MAY11 | 2 | 944 | |
| 6AR1FT0960 | 6aR 30; On completion of grouting works at F1 | 0 | 0 | 01JUN11 | 01JUN11 | 01JUN11 | 01JUN11 | 2 | 943 | |
| 6AR1FT0970 | 6aR 31; On completion of all works under this CC | 0 | 0 | 18JUN11 | 18JUN11 | 18JUN11 | 18JUN11 | 2 | 926 | |
| Schedule of Milestones for Cost Centre No. 3aL | | | | | | | | | | |
| 3AL1FT1002 | 3aL 1; On providing evidence of procuring TBM | 0 | 0 | 19JAN08A | 19JAN08A | 19JAN08A | 19JAN08A | 2 | | |
| 3AL1FT1004 | 3aL 2; On providing evidence of TBM Factory Test | 0 | 0 | 08OCT08A | 08OCT08A | 08OCT08A | 08OCT08A | 2 | | |
| 3AL1FT1006 | 3aL 3; On delivery of all parts of TBM to the SI | 0 | 0 | 07AUG09 | 07AUG09 | 07AUG09 | 07AUG09 | 2 | 1,606 | |
| 3AL1FT1008 | 3aL 4; On completion of site comm. & test. of TB | 0 | 0 | 07MAY10 | 07MAY10 | 07MAY10 | 07MAY10 | 2 | 1,333 | |
| 3AL1FT1010 | 3aL 5; On completion of 5% perm. tunnel lining | 0 | 0 | 18MAY10 | 18MAY10 | 18MAY10 | 18MAY10 | 2 | 1,322 | |
| 3AL1FT1012 | 3aL 6; On completion of 10% perm. tunnel lining | 0 | 0 | 09JUN10 | 09JUN10 | 09JUN10 | 09JUN10 | 2 | 1,300 | |
| 3AL1FT1014 | 3aL 7; On completion of 15% perm. tunnel lining | 0 | 0 | 02JUL10 | 02JUL10 | 02JUL10 | 02JUL10 | 2 | 1,277 | |
| 3AL1FT1016 | 3aL 8; On completion of 20% perm. tunnel lining | 0 | 0 | 28JUL10 | 28JUL10 | 28JUL10 | 28JUL10 | 2 | 1,251 | |
| 3AL1FT1018 | 3aL 9; On completion of 25% perm. tunnel lining | 0 | 0 | 13AUG10 | 13AUG10 | 13AUG10 | 13AUG10 | 2 | 1,235 | |
| 3AL1FT1020 | 3aL 10; On completion of 30% perm. tunnel lining | 0 | 0 | 02SEP10 | 02SEP10 | 02SEP10 | 02SEP10 | 2 | 1,215 | |
| 3AL1FT1022 | 3aL 11; On completion of 35% perm. tunnel lining | 0 | 0 | 22SEP10 | 22SEP10 | 22SEP10 | 22SEP10 | 2 | 1,195 | |
| 3AL1FT1024 | 3aL 12; On completion of 40% perm. tunnel lining | 0 | 0 | 22OCT10 | 22OCT10 | 22OCT10 | 22OCT10 | 2 | 1,165 | |

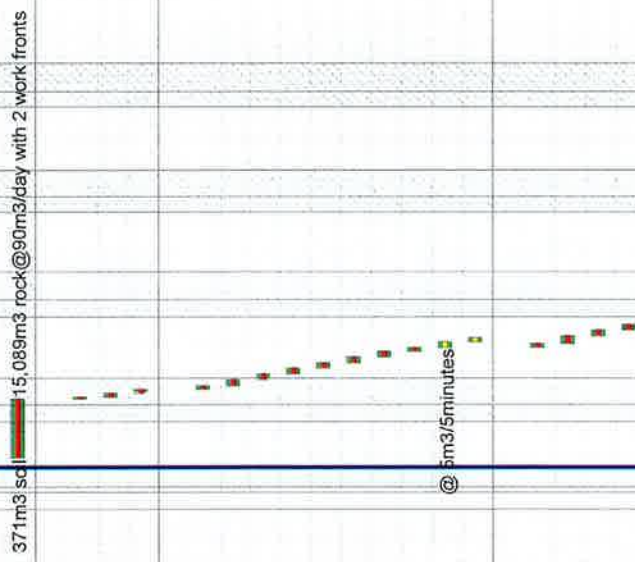
CH 2865-2970 - Tsuen Wan West Service Reservoir G

under this Cost Centre

| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|-------------------------------------------------------|--------------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|
| 3AL1FT1026 | 3aL 13; On completion of 45% perm. tunnel lining | 0 | 0 | 10NOV10 | 10NOV10 | | 10NOV10 | 2 1,146 |
| 3AL1FT1028 | 3aL 14; On completion of 50% perm. tunnel lining | 0 | 0 | 25NOV10 | 25NOV10 | | 25NOV10 | 2 1,131 |
| 3AL1FT1030 | 3aL 15; On completion of 55% perm. tunnel lining | 0 | 0 | 10DEC10 | 10DEC10 | | 10DEC10 | 2 1,116 |
| 3AL1FT1032 | 3aL 16; On completion of 60% perm. tunnel lining | 0 | 0 | 29DEC10 | 29DEC10 | | 29DEC10 | 2 1,097 |
| 3AL1FT1034 | 3aL 17; On completion of 65% perm. tunnel lining | 0 | 0 | 14JAN11 | 14JAN11 | | 14JAN11 | 2 1,081 |
| 3AL1FT1036 | 3aL 18; On completion of 70% perm. tunnel lining | 0 | 0 | 29JAN11 | 29JAN11 | | 29JAN11 | 2 1,066 |
| 3AL1FT1038 | 3aL 19; On completion of 75% perm. tunnel lining | 0 | 0 | 17FEB11 | 17FEB11 | | 17FEB11 | 2 1,047 |
| 3AL1FT1040 | 3aL 20; On completion of 80% perm. tunnel lining | 0 | 0 | 10MAR11 | 10MAR11 | | 10MAR11 | 2 1,026 |
| 3AL1FT1042 | 3aL 21; On completion of 85% perm. tunnel lining | 0 | 0 | 01APR11 | 01APR11 | | 01APR11 | 2 1,004 |
| 3AL1FT1044 | 3aL 22; On completion of 90% perm. tunnel lining | 0 | 0 | 28APR11 | 28APR11 | | 28APR11 | 2 977 |
| 3AL1FT1046 | 3aL 23; On completion of 95% perm. tunnel lining | 0 | 0 | 21MAY11 | 21MAY11 | | 21MAY11 | 2 954 |
| 3AL1FT1048 | 3aL 24; On completion of perm. tunnel lining | 0 | 0 | 11JUN11 | 11JUN11 | | 11JUN11 | 2 933 |
| 3AL1FT1050 | 3aL 25; On completion of maint. access/flow chan | 0 | 0 | 22OCT11 | 22OCT11 | | 22OCT11 | 2 800 |
| 3AL1FT1052 | 3aL 26; On completion of provision of communic. | 0 | 0 | 22OCT11 | 22OCT11 | | 22OCT11 | 2 800 |
| 3AL1FT1054 | 3aL 27; On completion of all works under this CC | 0 | 0 | 07DEC12 | 07DEC12 | | 18JAN13 | 2 388 |
| Schedule of Milestones for Cost Centre No. 3dL | | | | | | | | |
| 3DL10T1202 | 3dL 1; On complet. of install geo instrument. | 0 | 0 | 10NOV09 | 10NOV09 | | 10NOV09 | 2 1,511 |
| 3DL10T1204 | 3dL 2; Maint./monit. geo. inst. for 12 mth | 0 | 0 | 27DEC08A | 27DEC08A | | 27DEC08A | 2 |
| 3DL10T1206 | 3dL 3; Maint./monitor geo. inst. for 24 | 0 | 0 | 26DEC09 | 26DEC09 | | 26DEC09 | 2 1,465 |
| 3DL10T1208 | 3dL 4; Maint./monitor geo. inst. for 36 | 0 | 0 | 26DEC10 | 26DEC10 | | 26DEC10 | 2 1,100 |
| 3DL10T1210 | 3dL 5; Maint./monitor geo. inst. for 48 | 0 | 0 | 26DEC11 | 26DEC11 | | 26DEC11 | 2 735 |
| 3DL10T1212 | 3dL 6; On completion of maint. & monit. of geo. | 0 | 0 | 08MAR13 | 08MAR13 | | 08MAR13 | 2 297 |
| 3DL10T1214 | 3dL 7; On installation of FMD at Portion A | 0 | 0 | 29DEC11 | 29DEC11 | | 29DEC11 | 2 732 |
| 3DL10T1216 | 3dL 8; On installation of FMD at Portion B | 0 | 0 | 20FEB12 | 20FEB12 | | 20FEB12 | 2 679 |
| 3DL10T1218 | 3dL 9; On installation of FMD at Portion C | 0 | 0 | 28JAN12 | 28JAN12 | | 28JAN12 | 2 702 |
| 3DL10T1220 | 3dL 10; On installation of FMD at Portion D | 0 | 0 | 17APR12 | 17APR12 | | 17APR12 | 2 622 |
| 3DL10T1222 | 3dL 11; On completion of maint. & monit. of FMD | 0 | 0 | 07DEC13 | 07DEC13 | | 18JAN14 | 2 23 |
| 3DL10T1224 | 3dL 12; On completion of all works under this CC | 0 | 0 | 07DEC13 | 07DEC13 | | 18JAN14 | 2 23 |
| Construction of Intake I-1 | | | | | | | | |
| Preliminary Works | | | | | | | | |
| VO#07; Transparent Hoarding at I-1 | | | | | | | | |
| VO007-02 | Receive VO7 for transparent hoarding | 0 | 0 | 19MAY08A | 19MAY08A | | 19MAY08A | 1 |
| VO007-04 | Procure/prepare/install transparent hoarding | 70 | 70 | 20MAY08A | 11AUG08A | 20MAY08A | 11AUG08A | 1 |
| 01R1A11102 | Possession of site | 0 | 0 | 19MAR08A | 19MAR08A | | 19MAR08A | 1 |
| 01R1A11104 | Obtain TTA (ingress & egress) approval | 0 | 0 | 19APR08A | 19APR08A | | 19APR08A | 2 |
| 01R1A11106 | Site clearance | 30 | 30 | 21APR08A | 26MAY08A | 21APR08A | 26MAY08A | 1 |
| 01R1A11108 | Obtain tree | 6 | 6 | 13MAY08A | 31JUL08A | 13MAY08A | 31JUL08A | 1 |
| 01R1A11110 | Hoarding erection enclosing the Site | 18 | 18 | 23MAY08A | 11AUG08A | 23MAY08A | 11AUG08A | 1 |
| 01R1A11112 | Site entrance construction | 6 | 6 | 23JUN08A | 25JUL08A | 23JUN08A | 25JUL08A | 1 |
| 01R1A11114 | Install wheel washing facilities | 7 | 7 | 03JUN08A | 07JUN08A | 03JUN08A | 07JUN08A | 1 |

| ID | Activity Description | AD04 | | WP3D | | AD04 | Finish | AD04 | Finish | WP3D | Start | WP3D | Start | Cal | Total | Float |
|--------------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----|-------|-------|
| | | Dur | Dur | Dur | Dur | | | | | | | | | | | |
| 01R1A1116 | Erect SOR's secondary site office | 6 | 6 | 28AUG08A | 03SEP08A | 28AUG08A | 03SEP08A | 28AUG08A | 03SEP08A | 28AUG08A | 03SEP08A | 28AUG08A | 03SEP08A | 1 | | |
| 01R1A1118 | Footing for temp. bridge span over Shing M. Nul. | 26 | 26 | 10JUN08A | 16JUL08A | 10JUN08A | 16JUL08A | 10JUN08A | 16JUL08A | 10JUN08A | 16JUL08A | 10JUN08A | 16JUL08A | 1 | | |
| 01R1A1120 | Decking for temp. bridge span over Shing M. Nul. | 13 | 13 | 17JUL08A | 01AUG08A | 17JUL08A | 01AUG08A | 17JUL08A | 01AUG08A | 17JUL08A | 01AUG08A | 17JUL08A | 01AUG08A | 1 | | |
| 01R1A1122 | Install remote control CCTV as per ER 4.4-10 | 12 | 12 | 04SEP08A | 18SEP08A | 04SEP08A | 18SEP08A | 04SEP08A | 18SEP08A | 04SEP08A | 18SEP08A | 04SEP08A | 18SEP08A | 1 | | |
| 16R1A1101 | Tree Identification & Report | 14 | 14 | 14MAR08A | 01APR08A | 14MAR08A | 01APR08A | 14MAR08A | 01APR08A | 14MAR08A | 01APR08A | 14MAR08A | 01APR08A | 2 | | |
| 16R7A1102 | 1st tree pruning for small 3 nos. trees | 1 | 1 | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 03JUN08A | 1 | | |
| 16R7A1104 | 2nd tree pruning for small 3 nos. trees | 1 | 1 | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 1 | | |
| 16R7A1106 | Final pruning & uplifting of 3 nos. small trees | 2 | 2 | 08SEP08A | 09SEP08A | 08SEP08A | 09SEP08A | 08SEP08A | 09SEP08A | 08SEP08A | 09SEP08A | 08SEP08A | 09SEP08A | 1 | | |
| 16R7A1108 | Confirm location for trees to be transplanted | 51 | 51 | 02APR08A | 27AUG08A | 02APR08A | 27AUG08A | 02APR08A | 27AUG08A | 02APR08A | 27AUG08A | 02APR08A | 27AUG08A | 1 | | |
| 16R7A1114 | One stg transplant for big 4 nos. big trees | 9 | 9 | 11FEB09A | 19FEB09A | 11FEB09A | 19FEB09A | 11FEB09A | 19FEB09A | 11FEB09A | 19FEB09A | 11FEB09A | 19FEB09A | 1 | | |
| Permanent Soil Nailing Works | | | | | | | | | | | | | | | | |
| 11R2A1302 | Erect working platform & mobilization | 8 | 8 | 17MAY08A | 24MAY08A | 17MAY08A | 24MAY08A | 17MAY08A | 24MAY08A | 17MAY08A | 24MAY08A | 17MAY08A | 24MAY08A | 1 | | |
| 11R2A1304 | Install test nails & proof loading test; 2 nos. | 8 | 8 | 24JUN08A | 08JUL08A | 24JUN08A | 08JUL08A | 24JUN08A | 08JUL08A | 24JUN08A | 08JUL08A | 24JUN08A | 08JUL08A | 1 | | |
| 11R2A1306 | Soil nailing for A to C rows; 69 nos. | 16 | 16 | 02JUL08A | 14JUL08A | 02JUL08A | 14JUL08A | 02JUL08A | 14JUL08A | 02JUL08A | 14JUL08A | 02JUL08A | 14JUL08A | 1 | | |
| 11R2A1308 | Soil nailing for D to F rows; 71 nos. | 29 | 29 | 15JUL08A | 05SEP08A | 15JUL08A | 05SEP08A | 15JUL08A | 05SEP08A | 15JUL08A | 05SEP08A | 15JUL08A | 05SEP08A | 1 | | |
| 11R2A1310 | Construct soil nail heads; 140 nos. | 22 | 22 | 19JUL08A | 06SEP08A | 19JUL08A | 06SEP08A | 19JUL08A | 06SEP08A | 19JUL08A | 06SEP08A | 19JUL08A | 06SEP08A | 1 | | |
| 11R2A1312 | Demobilization | 3 | 3 | 08SEP08A | 10SEP08A | 08SEP08A | 10SEP08A | 08SEP08A | 10SEP08A | 08SEP08A | 10SEP08A | 08SEP08A | 10SEP08A | 1 | | |
| Construction of Spiral Ramp & Cascade | | | | | | | | | | | | | | | | |
| Additional GI Woks to Finalize Design | | | | | | | | | | | | | | | | |
| AGIA-02 | Drill for 5 nos. additional GI works | 21 | 21 | 09SEP08A | 04OCT08A | 09SEP08A | 04OCT08A | 09SEP08A | 04OCT08A | 09SEP08A | 04OCT08A | 09SEP08A | 04OCT08A | 1 | | |
| Temp. Pipe-pile cofferdam | | | | | | | | | | | | | | | | |
| 04L1A11202 | Erect piling platform | 43 | 43 | 22OCT08A | 24DEC08A | 22OCT08A | 24DEC08A | 22OCT08A | 24DEC08A | 22OCT08A | 24DEC08A | 22OCT08A | 24DEC08A | 1 | | |
| 04L1A11203 | Mobilization & set up piling rig | 3 | 3 | 30OCT08A | 01NOV08A | 30OCT08A | 01NOV08A | 30OCT08A | 01NOV08A | 30OCT08A | 01NOV08A | 30OCT08A | 01NOV08A | 1 | | |
| 04L1A11204 | Install 273 mm dia. temp. pipe piles; 144 nos. | 43 | 43 | 08NOV08A | 05JAN09A | 08NOV08A | 05JAN09A | 08NOV08A | 05JAN09A | 08NOV08A | 05JAN09A | 08NOV08A | 05JAN09A | 1 | | |
| 04L1A11226 | Demobilize all plant and materials | 6 | 6 | 06JAN09A | 13JAN09A | 06JAN09A | 13JAN09A | 06JAN09A | 13JAN09A | 06JAN09A | 13JAN09A | 06JAN09A | 13JAN09A | 1 | | |
| Excavate +104.0 to +100.5mPD; Row 7 | | | | | | | | | | | | | | | | |
| 04L1A11402 | Mobilization | 1 | 1 | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 23FEB09A | 1 | | |
| 04L1A11404 | Bulk excavation; soil (155m3) | 4 | 4 | 24FEB09A | 27FEB09A | 24FEB09A | 27FEB09A | 24FEB09A | 27FEB09A | 24FEB09A | 27FEB09A | 24FEB09A | 27FEB09A | 1 | | |
| 04L1A11406 | Install test tie-back & proof load test | 4 | 4 | 28FEB09A | 04MAR09A | 28FEB09A | 04MAR09A | 28FEB09A | 04MAR09A | 28FEB09A | 04MAR09A | 28FEB09A | 04MAR09A | 1 | | |
| 04L1A11408 | Install tie backs/walling & shortcrete | 4 | 4 | 03MAR09A | 06MAR09A | 03MAR09A | 06MAR09A | 03MAR09A | 06MAR09A | 03MAR09A | 06MAR09A | 03MAR09A | 06MAR09A | 1 | | |
| Excavate +100.5 to +99.0mPD; Rows 1 & 8 | | | | | | | | | | | | | | | | |
| 04L1A11410 | Bulk excavation; soil (219m3) | 2 | 2 | 07MAR09A | 09MAR09A | 07MAR09A | 09MAR09A | 07MAR09A | 09MAR09A | 07MAR09A | 09MAR09A | 07MAR09A | 09MAR09A | 1 | | |
| 04L1A11412 | Install tie backs/walling & shortcrete | 6 | 6 | 10MAR09A | 16MAR09A | 10MAR09A | 16MAR09A | 10MAR09A | 16MAR09A | 10MAR09A | 16MAR09A | 10MAR09A | 16MAR09A | 1 | | |
| Excavate +99.0 to +96.5mPD; Rows 2, 9 & 18 | | | | | | | | | | | | | | | | |
| 04L1A11414 | Bulk excavation; soil (710m3) | 3 | 3 | 17MAR09A | 19MAR09A | 17MAR09A | 19MAR09A | 17MAR09A | 19MAR09A | 17MAR09A | 19MAR09A | 17MAR09A | 19MAR09A | 1 | | |
| 04L1A11416 | Install test tie-back & proof load test | 4 | 4 | 26MAR09A | 01APR09A | 26MAR09A | 01APR09A | 26MAR09A | 01APR09A | 26MAR09A | 01APR09A | 26MAR09A | 01APR09A | 1 | | |
| 04L1A11418 | Install tie backs/walling & shortcrete | 6 | 6 | 23MAR09A | 28MAR09A | 23MAR09A | 28MAR09A | 23MAR09A | 28MAR09A | 23MAR09A | 28MAR09A | 23MAR09A | 28MAR09A | 1 | | |
| Excavate +96.5 to +95.0mPD; Rows 3, 10 & 19 | | | | | | | | | | | | | | | | |
| 04L1A11420 | Bulk excavation; soil (721m3) | 3 | 3 | 30MAR09A | 04APR09A | 30MAR09A | 04APR09A | 30MAR09A | 04APR09A | 30MAR09A | 04APR09A | 30MAR09A | 04APR09A | 1 | | |
| 04L1A11422 | Install tie backs/walling & shortcrete | 4 | 4 | 02APR09A | 20APR09A | 02APR09A | 20APR09A | 02APR09A | 20APR09A | 02APR09A | 20APR09A | 02APR09A | 20APR09A | 1 | | |

| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float | Year | | | | | | | | | | | | | | |
|-----------------------------------------------------------|-----------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | | | | | | | | |
| Excavate +95.0 to +94.0 mPD; Rows 4, 11 & 20 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11424 | Bulk excavation; soil (701m3) | 3 | 3 | 06APR09A | 18APR09A | 06APR09A | 18APR09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11426 | Install tie backs/walling & shorcrete | 5 | 5 | 03APR09A | 30APR09A | 03APR09A | 30APR09A | 1 | | | | | | | | | | | | | | | |
| Excavate +94.0 to +93.0mPD; Rows 5,12,16,21&24 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11428 | Bulk excavation; soil (818m3) | 4 | 4 | 20APR09A | 27APR09A | 20APR09A | 27APR09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11430 | Install test tie-back & proof load test | 4 | 4 | 21APR09A | 16MAY09A | 21APR09A | 16MAY09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11432 | Install tie backs/walling & shorcrete | 5 | 5 | 21APR09A | 16MAY09A | 21APR09A | 16MAY09A | 1 | | | | | | | | | | | | | | | |
| Excavate +93.0 to +92.5mPD; Row 22 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11434 | Bulk excavation; soil (423m3) & rock (52m3) | 3 | 3 | 04MAY09A | 18MAY09A | 04MAY09A | 18MAY09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11436 | Install tie backs/walling & shorcrete | 2 | 2 | 19MAY09A | 27MAY09A | 19MAY09A | 27MAY09A | 1 | | | | | | | | | | | | | | | |
| Excavate +92.5 to 91.1mPD; Rows 6,13,16,17&23 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11438 | Bulk excavation; soil (1002m3) & rock (342m3) | 8 | 8 | 06MAY09A | 23MAY09A | 06MAY09A | 23MAY09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11440 | Install test tie-back & proof load test | 4 | 4 | 08MAY09A | 25MAY09A | 08MAY09A | 25MAY09A | 1 | | | | | | | | | | | | | | | |
| 04L1A11442 | Install tie backs/walling & shorcrete | 4 | 4 | 18MAY09A | 27MAY09A | 18MAY09A | 27MAY09A | 1 | | | | | | | | | | | | | | | |
| Excavate +91.1 to 89.5mPD; Rows 14, 17 & 25 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11444 | Bulk excavation; soil (724m3) & rock (811m3) | 12 | 12 | 18MAY09A | 01JUN09 | 18MAY09A | 01JUN09 | 1 | | | | | | | | | | | | | | | |
| 04L1A11446 | Install tie backs/walling & shorcrete | 4 | 4 | 02JUN09 | 05JUN09 | 02JUN09 | 05JUN09 | 1 | | | | | | | | | | | | | | | |
| Excavate +89.5 to 88.5mPD; Rows 15 & 26 | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11448 | Bulk excavation; soil (269m3) & rock (690m3) | 9 | 9 | 06JUN09 | 16JUN09 | 06JUN09 | 16JUN09 | 1 | | | | | | | | | | | | | | | |
| 04L1A11450 | Install tie backs/walling & shorcrete | 3 | 3 | 17JUN09 | 19JUN09 | 17JUN09 | 19JUN09 | 1 | | | | | | | | | | | | | | | |
| Excavate +88.5 to 71.5mPD; Rows 27 to 31 | | | | | | | | | | | | | | | | | | | | | | | |
| 07R1A11442 | Set up for dewatering | 8 | 8 | 20JUN09 | 29JUN09 | 20JUN09 | 29JUN09 | 1 | | | | | | | | | | | | | | | |
| 07R1A11444 | Rock excavation/mucking out/temp. support | 168 | 168 | 30JUN09 | 19JAN10 | 30JUN09 | 19JAN10 | 1 | | | | | | | | | | | | | | | |
| Construction of Vehicular Access | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11452 | Cast base slab | 6 | 6 | 20JAN10 | 26JAN10 | 20JAN10 | 26JAN10 | 1 | | | | | | | | | | | | | | | |
| 04L1A11454 | Cast walls | 12 | 12 | 27JAN10 | 09FEB10 | 27JAN10 | 09FEB10 | 1 | | | | | | | | | | | | | | | |
| 04L1A11456 | Cast roof slab | 12 | 12 | 10FEB10 | 26FEB10 | 10FEB10 | 26FEB10 | 1 | | | | | | | | | | | | | | | |
| Construction of Spiral Ramp Structure | | | | | | | | | | | | | | | | | | | | | | | |
| 07R1A11402 | Cast base slab | 12 | 12 | 27FEB10 | 12MAR10 | 27FEB10 | 12MAR10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11404 | Cast ramp up to +76.51mPD | 15 | 15 | 13MAR10 | 30MAR10 | 13MAR10 | 30MAR10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11406 | Cast ramp up to +80.81mPD | 15 | 15 | 31MAR10 | 21APR10 | 31MAR10 | 21APR10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11408 | Cast ramp up to +85.10mPD | 15 | 15 | 22APR10 | 10MAY10 | 22APR10 | 10MAY10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11410 | Cast ramp up to 89.41mPD | 15 | 15 | 11MAY10 | 28MAY10 | 11MAY10 | 28MAY10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11412 | Cast ramp up to 93.71mPD | 15 | 15 | 29MAY10 | 15JUN10 | 29MAY10 | 15JUN10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11414 | Cast ramp up to 98.01mPD | 15 | 15 | 17JUN10 | 05JUL10 | 17JUN10 | 05JUL10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11416 | Cast ramp up to +102.31mPD | 15 | 15 | 06JUL10 | 22JUL10 | 06JUL10 | 22JUL10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11418 | Backfill spiral ramp; 2496m3 @ 200m3/day | 13 | 13 | 23JUL10 | 06AUG10 | 23JUL10 | 06AUG10 | 1 | | | | | | | | | | | | | | | |
| 07R1A11420 | Construct RC spiral ramp top | 15 | 15 | 07AUG10 | 24AUG10 | 07AUG10 | 24AUG10 | 1 | | | | | | | | | | | | | | | |
| Construction of Cascade Structure | | | | | | | | | | | | | | | | | | | | | | | |
| 04L1A11472 | Cast base slabs | 12 | 12 | 23JUL10 | 05AUG10 | 23JUL10 | 05AUG10 | 1 | | | | | | | | | | | | | | | |
| 04L1A11474 | Cast walls 1st lift | 18 | 18 | 06AUG10 | 26AUG10 | 06AUG10 | 26AUG10 | 1 | | | | | | | | | | | | | | | |
| 04L1A11476 | Cast walls 2nd lift, 200mm down from soffit | 18 | 18 | 27AUG10 | 16SEP10 | 27AUG10 | 16SEP10 | 1 | | | | | | | | | | | | | | | |
| 04L1A11478 | Cast roof slabs | 18 | 18 | 17SEP10 | 09OCT10 | 17SEP10 | 09OCT10 | 1 | | | | | | | | | | | | | | | |



| ID | Activity Description | AD04 WP3D | | AD04 | | WP3D Start | WP3D Finish | Cal ID | Total Float | Year | | | | | | |
|----------------------------------------------------------|--------------------------------------------------|-----------|-----|----------|----------|------------|-------------|--------|-------------|------|------|------|------|------|------|--|
| | | Dur | Dur | Start | Finish | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | |
| Dismantle & Removal of TBM | | | | | | | | | | | | | | | | |
| 04L1A11458 | Backfill & form craneage platform | 24 | 24 | 11OCT10 | 08NOV10 | 11OCT10 | 08NOV10 | 1 | -22 | | | | | | | |
| 04L1A11460 | TBM break through | 0 | 0 | | 11JUN11* | | 11JUN11* | 1 | -195 | | | | | | | |
| 04L1A11461 | Disassembly & demobilization of TBM | 50 | 50 | 13JUN11 | 10AUG11 | 13JUN11 | 10AUG11 | 1 | -195 | | | | | | | |
| 04L1A11462 | Cast lower base slab | 12 | 12 | 06JUL10 | 19JUL10 | 06JUL10 | 19JUL10 | 1 | -19 | | | | | | | |
| Construction of Box Culvert Structure | | | | | | | | | | | | | | | | |
| 04L1A11463 | Cast upper base | 6 | 6 | 11AUG11 | 17AUG11 | 11AUG11 | 17AUG11 | 1 | -195 | | | | | | | |
| 04L1A11464 | Cast walls 1st lift | 18 | 18 | 18AUG11 | 07SEP11 | 18AUG11 | 07SEP11 | 1 | -195 | | | | | | | |
| 04L1A11466 | Cast walls 2nd lift, 200mm down from soffit | 18 | 18 | 08SEP11 | 29SEP11 | 08SEP11 | 29SEP11 | 1 | -195 | | | | | | | |
| 04L1A11468 | Cast roof slabs | 18 | 18 | 30SEP11 | 22OCT11 | 30SEP11 | 22OCT11 | 1 | -195 | | | | | | | |
| 04L1A11470 | Backfill & compaction above box culvert; ~13m | 22 | 22 | 24OCT11 | 17NOV11 | 24OCT11 | 17NOV11 | 1 | -195 | | | | | | | |
| Modification of Existing Channel in Dry Season | | | | | | | | | | | | | | | | |
| Channel Modification (Varied) Works (Civil Works) | | | | | | | | | | | | | | | | |
| 07R1A11502 | Break wall & slab at pipe pile location | 8 | 8 | 02NOV09* | 10NOV09 | 02NOV09* | 10NOV09 | 1 | 70 | | | | | | | |
| 07R1A11504 | Set up pipe pile rig | 3 | 3 | 11NOV09 | 13NOV09 | 11NOV09 | 13NOV09 | 1 | 70 | | | | | | | |
| 07R1A11506 | Install pipe piles (30n*12m) | 10 | 10 | 14NOV09 | 25NOV09 | 14NOV09 | 25NOV09 | 1 | 70 | | | | | | | |
| 07R1A11508 | Break existing masonry wall | 4 | 4 | 26NOV09 | 30NOV09 | 26NOV09 | 30NOV09 | 1 | 70 | | | | | | | |
| 07R1A11510 | PC block/sand back bund wall for water diversion | 2 | 2 | 01DEC09 | 02DEC09 | 01DEC09 | 02DEC09 | 1 | 70 | | | | | | | |
| 07R1A11512 | Cut existing slab | 1 | 1 | 03DEC09 | 03DEC09 | 03DEC09 | 03DEC09 | 1 | 70 | | | | | | | |
| 07R1A11514 | Demolish Wo Yi Hop Nullah wall & slab | 6 | 6 | 04DEC09 | 10DEC09 | 04DEC09 | 10DEC09 | 1 | 70 | | | | | | | |
| 07R1A11518 | Construct WYH Nullah wall below slab | 6 | 6 | 11DEC09 | 17DEC09 | 11DEC09 | 17DEC09 | 1 | 70 | | | | | | | |
| 07R1A11520 | Backfill & SRT behind wall below slab | 18 | 18 | 18DEC09 | 11JAN10 | 18DEC09 | 11JAN10 | 1 | 70 | | | | | | | |
| 07R1A11522 | Demolish Shing Mun Nullah wall with struts | 6 | 6 | 12JAN10 | 18JAN10 | 12JAN10 | 18JAN10 | 1 | 70 | | | | | | | |
| 07R1A11524 | Demolish Shing Mun Nullah slab | 4 | 4 | 19JAN10 | 22JAN10 | 19JAN10 | 22JAN10 | 1 | 70 | | | | | | | |
| 07R1A11626 | Construct slab | 8 | 8 | 23JAN10 | 01FEB10 | 23JAN10 | 01FEB10 | 1 | 70 | | | | | | | |
| 07R1A11628 | Construct wall for WYH Nullah | 10 | 10 | 02FEB10 | 12FEB10 | 02FEB10 | 12FEB10 | 1 | 70 | | | | | | | |
| 07R1A11630 | Construct wall for SM Nullah | 10 | 10 | 17FEB10 | 27FEB10 | 17FEB10 | 27FEB10 | 1 | 70 | | | | | | | |
| 07R1A11632 | Assoc. RC works for trash grill & stop slogs | 18 | 18 | 01MAR10 | 20MAR10 | 01MAR10 | 20MAR10 | 1 | 70 | | | | | | | |
| 07R1A11634 | Mass concrete infill | 3 | 3 | 22MAR10 | 24MAR10 | 22MAR10 | 24MAR10 | 1 | 70 | | | | | | | |
| 07R1A11636 | PC block & san bag bund wall | 3 | 3 | 25MAR10 | 27MAR10 | 25MAR10 | 27MAR10 | 1 | 70 | | | | | | | |
| Channel Modification Works (Steel Works) | | | | | | | | | | | | | | | | |
| 07R1A1150T | Install steelworks; Phase 3 | 36 | 36 | 01NOV11* | 12DEC11 | 01NOV11* | 12DEC11 | 1 | -143 | | | | | | | |
| Piling Works | | | | | | | | | | | | | | | | |
| Piling Works Along Crest Platform | | | | | | | | | | | | | | | | |
| 11R2A11202 | Erect piling platform for upper piles | 12 | 12 | 22SEP10 | 07OCT10 | 22SEP10 | 07OCT10 | 1 | 103 | | | | | | | |
| 11R2A11204 | Mobilize piling rig & set up | 6 | 6 | 08OCT10 | 14OCT10 | 08OCT10 | 14OCT10 | 1 | 103 | | | | | | | |
| 11R2A11206 | 350mm dia. pre-bored H-piles (upper); 36 nos. | 36 | 36 | 15OCT10 | 26NOV10 | 15OCT10 | 26NOV10 | 1 | 103 | | | | | | | |
| 11R2A11208 | Demobilize piling rig | 6 | 6 | 27NOV10 | 03DEC10 | 27NOV10 | 03DEC10 | 1 | 103 | | | | | | | |
| Skin Wall & Crest Platform | | | | | | | | | | | | | | | | |
| 11R2A11210 | Excavate & hack off grout | 8 | 8 | 04DEC10 | 13DEC10 | 04DEC10 | 13DEC10 | 1 | 103 | | | | | | | |
| 11R2A11212 | Construct skin wall | 12 | 12 | 14DEC10 | 29DEC10 | 14DEC10 | 29DEC10 | 1 | 103 | | | | | | | |
| 11R2A11214 | Construct capping beam | 8 | 8 | 30DEC10 | 08JAN11 | 30DEC10 | 08JAN11 | 1 | 103 | | | | | | | |

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | Total Float |
|------------------------------------------------------|------------------------------------------------|-----|---------|---------|---------|---------|-------|--------|--|-------------|
| | | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 11R2AI1216 | Backfill & construct U-channel | 4 | 10JAN11 | 13JAN11 | 10JAN11 | 13JAN11 | 1 | 103 | | |
| 11R2AI1218 | Fix rebar/ erect fwk/concrete ramp | 12 | 14JAN11 | 27JAN11 | 14JAN11 | 27JAN11 | 1 | 103 | | |
| Piling Works Above Inclined Access Ramp | | | | | | | | | | |
| 11R2AI1220 | Mobilize piling rig & set up | 6 | 18NOV11 | 24NOV11 | 18NOV11 | 24NOV11 | 1 | -195 | | |
| 11R2AI1222 | 350mm dia. pre-bored H-piles (lower); 29 nos. | 29 | 25NOV11 | 02JAN12 | 25NOV11 | 02JAN12 | 1 | -195 | | |
| 11R2AI1224 | Demobilize piling rig | 6 | 03JAN12 | 09JAN12 | 03JAN12 | 09JAN12 | 1 | -195 | | |
| Skin Wall & Inclined Access Ramp | | | | | | | | | | |
| 11R2AI1226 | Excavate & hack off grout | 6 | 10JAN12 | 16JAN12 | 10JAN12 | 16JAN12 | 1 | -195 | | |
| 11R2AI1228 | Construct skin wall | 12 | 17JAN12 | 02FEB12 | 17JAN12 | 02FEB12 | 1 | -195 | | |
| 11R2AI1230 | Construct capping beam | 8 | 03FEB12 | 11FEB12 | 03FEB12 | 11FEB12 | 1 | -195 | | |
| 11R2AI1232 | Backfill & construct U-channel | 4 | 13FEB12 | 16FEB12 | 13FEB12 | 16FEB12 | 1 | -195 | | |
| 11R2AI1234 | Fix rebar/erect fwk/concrete ramp | 12 | 17FEB12 | 01MAR12 | 17FEB12 | 01MAR12 | 1 | -195 | | |
| Remaining Works Prior to Handover | | | | | | | | | | |
| 07R1AI1606 | Finishing & reinstatement works; Portion A | 36 | 03FEB12 | 15MAR12 | 03FEB12 | 15MAR12 | 1 | -195 | | |
| 07R1AI1608 | Pre-handover inspections and remedial works | 30 | 17FEB12 | 22MAR12 | 17FEB12 | 22MAR12 | 1 | -195 | | |
| 07R1AI1610 | Contractor serve notice for Works completion | 7 | 23MAR12 | 29MAR12 | 23MAR12 | 29MAR12 | 2 | 0 | | |
| 07R1AI1612 | SO issues completion certificate | 21 | 30MAR12 | 19APR12 | 30MAR12 | 19APR12 | 2 | 0 | | |
| 16R7AI1602 | Landscaping works at Portion A | 30 | 27JAN12 | 01MAR12 | 27JAN12 | 01MAR12 | 1 | -183 | | |
| 16R7AI1604 | Establishment Works at Portion A | 365 | 02MAR12 | 01MAR13 | 02MAR12 | 01MAR13 | 2 | -181 | | |
| 3DL1AI1602 | Install flow measurement devices at Intake I-1 | 12 | 13DEC11 | 29DEC11 | 13DEC11 | 29DEC11 | 1 | -143 | | |
| 3DL1AI1604 | Maintain & monitor flow monitoring | 365 | 30DEC11 | 28DEC12 | 30DEC11 | 28DEC12 | 2 | -118 | | |
| Schedule of Milestones for Cost Center No. 4L | | | | | | | | | | |
| 04L1AI1802 | 4L 1; On completion of 50% excavation | 0 | 0 | 29JUN09 | 29JUN09 | 29JUN09 | 2 | 1,645 | | |
| 04L1AI1804 | 4L 2; On completion of excavation | 0 | 0 | 19JAN10 | 19JAN10 | 19JAN10 | 2 | 1,441 | | |
| 04L1AI1806 | 4L 3; On completion of 25% concreting | 0 | 0 | 26FEB10 | 26FEB10 | 26FEB10 | 2 | 1,403 | | |
| 04L1AI1808 | 4L 4; On completion of 50% concreting | 0 | 0 | 26AUG10 | 26AUG10 | 26AUG10 | 2 | 1,222 | | |
| 04L1AI1810 | 4L 5; On completion of 75% concreting | 0 | 0 | 09OCT10 | 09OCT10 | 09OCT10 | 2 | 1,178 | | |
| 04L1AI1812 | 4L 6; On completion of Cascade | 0 | 0 | 22OCT11 | 22OCT11 | 22OCT11 | 2 | 800 | | |
| 04L1AI1814 | 4L 7; On completion of connecting BC | 0 | 0 | 22OCT11 | 22OCT11 | 22OCT11 | 2 | 800 | | |
| 04L1AI1816 | 4L 8; On completion of all works under this CC | 0 | 0 | 22MAR12 | 22MAR12 | 22MAR12 | 2 | 648 | | |
| Schedule of Milestones for Cost Centre No. 7R | | | | | | | | | | |
| 07R1AI1902 | 7R 1; On completion of trash grills | 0 | 0 | 12DEC11 | 12DEC11 | 12DEC11 | 2 | 749 | | |
| 07R1AI1904 | 7R 2; On completion of 25% excavation | 0 | 0 | 29JUN09 | 29JUN09 | 29JUN09 | 2 | 1,645 | | |
| 07R1AI1906 | 7R 3; On completion of 50% excavation | 0 | 0 | 25SEP09 | 25SEP09 | 25SEP09 | 2 | 1,557 | | |
| 07R1AI1908 | 7R 4; On completion of 75% excavation | 0 | 0 | 02DEC09 | 02DEC09 | 02DEC09 | 2 | 1,489 | | |
| 07R1AI1910 | 7R 5; On completion of all excavation | 0 | 0 | 19JAN10 | 19JAN10 | 19JAN10 | 2 | 1,441 | | |
| 07R1AI1912 | 7R 6; On completion of spiral ramp to +80mPD | 0 | 0 | 21APR10 | 21APR10 | 21APR10 | 2 | 1,349 | | |
| 07R1AI1914 | 7R 7; On completion of spiral ramp to +90mPD | 0 | 0 | 02JUN10 | 02JUN10 | 02JUN10 | 2 | 1,307 | | |
| 07R1AI1916 | 7R 8; On completion of spiral ramp to +100mPD | 0 | 0 | 13JUL10 | 13JUL10 | 13JUL10 | 2 | 1,266 | | |

| ID | Activity Description | AD04 | | WP3D | | AD04 | AD04 | | AD04 | WP3D | WP3D | Cal ID | Total Float |
|-------------------------------------------------------|-------------------------------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|-------------|
| | | Dur | WP3D Dur | Start | Finish | | Start | Finish | | | | | |
| 07R1A11918 | 7R 9; On completion of spiral access ramp | 0 | 0 | 24AUG10 | 24AUG10 | 24AUG10 | 24AUG10 | 24AUG10 | 24AUG10 | 24AUG10 | 24AUG10 | 2 | 1,224 |
| 07R1A11920 | 7R 10; On completion of all works under this CC | 0 | 0 | 22MAR12 | 22MAR12 | 22MAR12 | 22MAR12 | 22MAR12 | 22MAR12 | 22MAR12 | 22MAR12 | 2 | 648 |
| Schedule of Milestones for Cost Centre No. 11R | | | | | | | | | | | | | |
| 11R2A11R02 | 11R 1; On completion of soil nailing works | 0 | 0 | 06SEP08A | 06SEP08A | 06SEP08A | 06SEP08A | 06SEP08A | 06SEP08A | 06SEP08A | 06SEP08A | 2 | |
| 11R2A11R04 | 11R 2; On completion of piling at platform | 0 | 0 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 26NOV10 | 2 | 1,130 |
| 11R2A11R06 | 11R 3; On completion of piling at branch access | 0 | 0 | 02JAN12 | 02JAN12 | 02JAN12 | 02JAN12 | 02JAN12 | 02JAN12 | 02JAN12 | 02JAN12 | 2 | 728 |
| 11R2A11R08 | 11R 4; On completion of all works under this CC | 0 | 0 | 03DEC10 | 03DEC10 | 03DEC10 | 03DEC10 | 03DEC10 | 03DEC10 | 03DEC10 | 03DEC10 | 2 | 1,123 |
| Construction of Intake I-2 | | | | | | | | | | | | | |
| Preliminary Works | | | | | | | | | | | | | |
| Additional GI Works to Finalize Design | | | | | | | | | | | | | |
| AGIB-02 | Erect platform/mobilization & set up GI rig | 3 | 3 | 12SEP08A | 16SEP08A | 12SEP08A | 12SEP08A | 12SEP08A | 16SEP08A | 12SEP08A | 16SEP08A | 1 | |
| AGIB-04 | Drill 3 nos. GI holes for Intake Structures | 22 | 22 | 17SEP08A | 03NOV08A | 17SEP08A | 03NOV08A | 17SEP08A | 03NOV08A | 03NOV08A | 03NOV08A | 1 | |
| AGIB-06 | Drill 1 hole for Intersection with Main Tunnel | 12 | 12 | 11NOV08A | 24NOV08A | 11NOV08A | 11NOV08A | 11NOV08A | 24NOV08A | 11NOV08A | 24NOV08A | 1 | |
| Diversion of CLP Overhead Cable | | | | | | | | | | | | | |
| 01R1BU0102 | Temporary diversion of CLP overhead cable | 30 | 30 | 02SEP08A | 17OCT08A | 02SEP08A | 17OCT08A | 02SEP08A | 17OCT08A | 02SEP08A | 17OCT08A | 2 | |
| Diversion of 100mm Watermain | | | | | | | | | | | | | |
| 01R1BU0202 | Temporary Diversion of 100mm dia. Watermain | 64* | 64* | 03OCT08A | 05DEC08A | 03OCT08A | 03OCT08A | 03OCT08A | 05DEC08A | 03OCT08A | 05DEC08A | 2 | |
| 01R1BU0204 | Issue VO35 for temp. diversion | 1 | 1 | 03OCT08A | 03OCT08A | 03OCT08A | 03OCT08A | 03OCT08A | 03OCT08A | 03OCT08A | 03OCT08A | 1 | |
| 01R1BU0206 | Preparation works | 26 | 26 | 04OCT08A | 04NOV08A | 04OCT08A | 04OCT08A | 04OCT08A | 04NOV08A | 04OCT08A | 04NOV08A | 1 | |
| 01R1BU0208 | Install steel support | 3 | 3 | 05NOV08A | 07NOV08A | 05NOV08A | 05NOV08A | 05NOV08A | 07NOV08A | 05NOV08A | 07NOV08A | 1 | |
| 01R1BU0210 | Lay new watermain | 2 | 2 | 08NOV08A | 18NOV08A | 08NOV08A | 08NOV08A | 08NOV08A | 18NOV08A | 08NOV08A | 18NOV08A | 1 | |
| 01R1BU0212 | Obtain ICE certificate for temp. support | 0 | 0 | 19NOV08A | 19NOV08A | 19NOV08A | 19NOV08A | 19NOV08A | 19NOV08A | 19NOV08A | 19NOV08A | 1 | |
| 01R1BU0214 | Pressure test | 2 | 2 | 20NOV08A | 21NOV08A | 20NOV08A | 20NOV08A | 20NOV08A | 21NOV08A | 20NOV08A | 21NOV08A | 1 | |
| 01R1BU0216 | Sterilise new pipe & take water sample | 3 | 3 | 22NOV08A | 25NOV08A | 22NOV08A | 22NOV08A | 22NOV08A | 25NOV08A | 22NOV08A | 25NOV08A | 1 | |
| 01R1BU0218 | Watermain connection by WSD | 10 | 10 | 26NOV08A | 05DEC08A | 26NOV08A | 26NOV08A | 26NOV08A | 05DEC08A | 26NOV08A | 05DEC08A | 2 | |
| VO #11; Transparent Hoarding at I-2 | | | | | | | | | | | | | |
| VO011-02 | Receive VO11 for transparent hoarding | 0 | 0 | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 14JUL08A | 1 | |
| VO011-04 | Procure/prepare/install transparent hoarding | 51 | 51 | 15JUL08A | 13SEP08A | 15JUL08A | 15JUL08A | 15JUL08A | 13SEP08A | 15JUL08A | 13SEP08A | 1 | |
| VO#32; Replace Hoarding by Chain Link Fence | | | | | | | | | | | | | |
| VO032-I202 | Receive VO-32 for replacing hoarding by CLF | 0 | 0 | 16SEP08A | 16SEP08A | 16SEP08A | 16SEP08A | 16SEP08A | 16SEP08A | 16SEP08A | 16SEP08A | 1 | |
| VO032-I204 | Procure/prepare/install transparent hoarding | 51 | 51 | 17SEP08A | 17NOV08A | 17SEP08A | 17SEP08A | 17SEP08A | 17NOV08A | 17SEP08A | 17NOV08A | 1 | |
| 01R1BI2102 | Possession of Portion B -90d of DOC | 0 | 0 | 26MAR08A | 26MAR08A | 26MAR08A | 26MAR08A | 26MAR08A | 26MAR08A | 26MAR08A | 26MAR08A | 2 | |
| 01R1BI2104 | Obtain TTA (ingress & egress) approval | 0 | 0 | 19APR08A | 19APR08A | 19APR08A | 19APR08A | 19APR08A | 19APR08A | 19APR08A | 19APR08A | 2 | |
| 01R1BI2108 | Site clearance | 30 | 30 | 02MAY08A | 05SEP08A | 02MAY08A | 02MAY08A | 02MAY08A | 05SEP08A | 02MAY08A | 05SEP08A | 1 | |
| 01R1BI2112 | Erect hoarding | 30 | 30 | 05JUN08A | 16MAR09A | 05JUN08A | 05JUN08A | 05JUN08A | 16MAR09A | 05JUN08A | 16MAR09A | 1 | |
| 01R1BI2116 | Install remote control CCTV as per ER 4.4.10 | 12 | 12 | 28FEB09A | 13MAR09A | 28FEB09A | 28FEB09A | 28FEB09A | 13MAR09A | 28FEB09A | 13MAR09A | 1 | |
| 16R7BI2002 | Tree transplanting; 1 no. | 72 | 72 | 10DEC08A | 23APR09A | 10DEC08A | 10DEC08A | 10DEC08A | 23APR09A | 10DEC08A | 23APR09A | 1 | |
| Stream Diversion/Approach Channel/H-Pile Wall | | | | | | | | | | | | | |
| Revised Layout of Pile Wall at I-2 | | | | | | | | | | | | | |
| VO022-02 | Received VO22 for revised layout of pile wall | 0 | 0 | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 10JUL08A | 1 | |

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | AD04 | | Total Float |
|----------------------------------------------------|--------------------------------------------------|-----|----------|----------|----------|----------|----------|----------|----------|------|--|-------------|
| | | Dur | WP3D Dur | Start | Finish | Start | Finish | Start | Finish | | | |
| VO022-04 | SOR confirmed to demolish exit: ret. wall | 38 | 38 | 11JUL08A | 21AUG08A | 11JUL08A | 21AUG08A | 11JUL08A | 21AUG08A | 1 | | |
| VO022-06 | Demolish existing retaining wall | 1 | 1 | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 13SEP08A | 1 | | |
| VO022-16 | Reinstate piling platform | 2 | 2 | 16SEP08A | 17SEP08A | 16SEP08A | 17SEP08A | 16SEP08A | 17SEP08A | 1 | | |
| Phase 1; Construct 550 dia. H-pile Wall | | | | | | | | | | | | |
| 12R3BI2202 | Form temp. access ramp along west side of stream | 44 | 44 | 10JUN08A | 31JUL08A | 10JUN08A | 31JUL08A | 10JUN08A | 31JUL08A | 1 | | |
| 12R3BI2204 | Additional SI & engineering works | 26 | 26 | 25AUG08A | 24SEP08A | 25AUG08A | 24SEP08A | 25AUG08A | 24SEP08A | 1 | | |
| 12R3BI2206 | Mobilize piling rig & set up | 5 | 5 | 25SEP08A | 30SEP08A | 25SEP08A | 30SEP08A | 25SEP08A | 30SEP08A | 1 | | |
| 12R3BI2208 | Construct piles 1 to 18 | 13 | 13 | 02OCT08A | 17OCT08A | 02OCT08A | 17OCT08A | 02OCT08A | 17OCT08A | 1 | | |
| 12R3BI2210 | Piling works stopped by the SOR | 8 | 8 | 18OCT08A | 27OCT08A | 18OCT08A | 27OCT08A | 18OCT08A | 27OCT08A | 1 | | |
| 12R3BI2212 | Construct piles 19-58 | 28 | 28 | 28OCT08A | 26NOV08A | 28OCT08A | 26NOV08A | 28OCT08A | 26NOV08A | 1 | | |
| 12R3BI2214 | SOR's instruction to delete pile 59 | 0 | 0 | | 02DEC08A | | 02DEC08A | | 02DEC08A | 1 | | |
| 12R3BI2216 | Demobilize piling rig | 4 | 4 | 03DEC08A | 06DEC08A | 03DEC08A | 06DEC08A | 03DEC08A | 06DEC08A | 1 | | |
| 12R3BI2218 | Construct skin wall/capping beam/u-channel | 70* | 70* | 25JUN09 | 15SEP09 | 25JUN09 | 15SEP09 | 25JUN09 | 15SEP09 | 1 | | |
| 12R3BI2220 | Excavate for skin wall: 4 bays | 18 | 18 | 25JUN09 | 16JUL09 | 25JUN09 | 16JUL09 | 25JUN09 | 16JUL09 | 1 | | |
| 12R3BI2222 | Construct for skin wall: 4 bays | 24 | 24 | 17JUL09 | 13AUG09 | 17JUL09 | 13AUG09 | 17JUL09 | 13AUG09 | 1 | | |
| 12R3BI2224 | Construct capping beam: 4 bays | 16 | 16 | 14AUG09 | 01SEP09 | 14AUG09 | 01SEP09 | 14AUG09 | 01SEP09 | 1 | | |
| 12R3BI2226 | Construct drainage: 4 bays | 12 | 12 | 02SEP09 | 15SEP09 | 02SEP09 | 15SEP09 | 02SEP09 | 15SEP09 | 1 | | |
| Phase 1; Construct Dry Weather Flow Channel | | | | | | | | | | | | |
| 08R1BI2202 | Excavate for new low flow channel | 6 | 6 | 27MAR09A | 03APR09A | 27MAR09A | 03APR09A | 27MAR09A | 03APR09A | 1 | | |
| 08R1BI2204 | Construct new low flow channel | 6 | 6 | 11JUN09 | 17JUN09 | 11JUN09 | 17JUN09 | 11JUN09 | 17JUN09 | 1 | | |
| 08R3BI2208 | Remove block wall/excavate for gantry footing | 12 | 12 | 18JUN09 | 02JUL09 | 18JUN09 | 02JUL09 | 18JUN09 | 02JUL09 | 1 | | |
| 08R3BI2212 | Construct PC bund wall to protect gantry footing | 6 | 6 | 03JUL09 | 09JUL09 | 03JUL09 | 09JUL09 | 03JUL09 | 09JUL09 | 1 | | |
| Phase 2; Construct Approach Channel West | | | | | | | | | | | | |
| 08R1BI2218 | Construct temp. concrete block bund | 12 | 12 | 02NOV09* | 14NOV09 | 02NOV09* | 14NOV09 | 02NOV09* | 14NOV09 | 1 | | |
| 08R1BI2220 | Excavate for western portion guide wall & slab | 12 | 12 | 16NOV09 | 28NOV09 | 16NOV09 | 28NOV09 | 16NOV09 | 28NOV09 | 1 | | |
| 08R1BI2222 | Construct western portion of guide wall & slab | 50 | 50 | 30NOV09 | 29JAN10 | 30NOV09 | 29JAN10 | 30NOV09 | 29JAN10 | 1 | | |
| 08R1BI2224 | Remove concrete block bund | 6 | 6 | 30JAN10 | 05FEB10 | 30JAN10 | 05FEB10 | 30JAN10 | 05FEB10 | 1 | | |
| Phase 3; Construct Approach Channel North | | | | | | | | | | | | |
| 08R1BI2226 | Construct temp. concrete block bund | 6 | 6 | 01NOV10* | 06NOV10 | 01NOV10* | 06NOV10 | 01NOV10* | 06NOV10 | 1 | | |
| 08R1BI2228 | Excavate for L-shaped retaining wall | 12 | 12 | 08NOV10 | 20NOV10 | 08NOV10 | 20NOV10 | 08NOV10 | 20NOV10 | 1 | | |
| 08R1BI2230 | Construct L-shaped retaining wall | 18 | 18 | 22NOV10 | 11DEC10 | 22NOV10 | 11DEC10 | 22NOV10 | 11DEC10 | 1 | | |
| 08R1BI2232 | Excavate eastern portion of guide wall & slab | 12 | 12 | 13DEC10 | 28DEC10 | 13DEC10 | 28DEC10 | 13DEC10 | 28DEC10 | 1 | | |
| 08R1BI2234 | Construction of boulder traps; 7nos. | 24 | 24 | 29DEC10 | 26JAN11 | 29DEC10 | 26JAN11 | 29DEC10 | 26JAN11 | 1 | | |
| 08R1BI2236 | Construct eastern portion of guide wall & slab | 24 | 24 | 27JAN11 | 26FEB11 | 27JAN11 | 26FEB11 | 27JAN11 | 26FEB11 | 1 | | |
| 08R1BI2240 | Remove temp. concrete block bund | 6 | 6 | 28FEB11 | 05MAR11 | 28FEB11 | 05MAR11 | 28FEB11 | 05MAR11 | 1 | | |
| Phase 4 - Construct Remaining Appr. Channel | | | | | | | | | | | | |
| 08R1BI2242 | Remove gantry crane & steel deck | 18 | 18 | 16DEC11 | 10JAN12 | 16DEC11 | 10JAN12 | 16DEC11 | 10JAN12 | 1 | | |
| 08R1BI2244 | Excavation for remaining approach channel | 12 | 12 | 11JAN12 | 27JAN12 | 11JAN12 | 27JAN12 | 11JAN12 | 27JAN12 | 1 | | |
| 08R1BI2246 | Construct remaining approach channel | 24 | 24 | 28JAN12 | 24FEB12 | 28JAN12 | 24FEB12 | 28JAN12 | 24FEB12 | 1 | | |
| 08R1BI2248 | Close out last section of guide wall | 12 | 12 | 25FEB12 | 09MAR12 | 25FEB12 | 09MAR12 | 25FEB12 | 09MAR12 | 1 | | |
| 08R1BI2250 | Construct trash grill | 12 | 12 | 25FEB12 | 09MAR12 | 25FEB12 | 09MAR12 | 25FEB12 | 09MAR12 | 1 | | |

58 nos; @ 750mm c/c

provision of water pump

provision of water pump

| ID | Activity Description | AD04 | | WP3D | | Cal ID | Total Float |
|----------------------------------------------------------|---------------------------------------------|------|-----|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | | |
| Excavate & Construct Vortex/Drop Shaft | | | | | | | |
| Steel Deck & Gantry Crane/Noise Enclosure | | | | | | | |
| 05L1B12300 | Construct 8 nos. mini piles | 24 | 24 | 20JAN09A | 21FEB09A | 20JAN09A | 21FEB09A |
| 05L1B12301 | Erect timber platform for mini piling | 4 | 4 | 23FEB09A | 26FEB09A | 23FEB09A | 26FEB09A |
| 05L1B12302 | Construct 6 nos. mini piles | 12 | 12 | 27FEB09A | 12MAR09A | 27FEB09A | 12MAR09A |
| 05L1B12303 | Excavation for footing/pile caps | 12 | 12 | 13MAR09A | 26MAR09A | 13MAR09A | 26MAR09A |
| 05L1B12304 | Construction of footing/pile caps | 12 | 12 | 27MAR09A | 18APR09A | 27MAR09A | 18APR09A |
| 05L1B12305 | Install steel deck | 25 | 25 | 04MAY09A | 30JUL09 | 04MAY09A | 30JUL09 |
| 05L1B12316 | Construct footing for gantry crane | 12 | 12 | 25AUG09 | 07SEP09 | 25AUG09 | 07SEP09 |
| 05L1B12318 | Install gantry crane & noise enclosure | 42 | 42 | 08SEP09 | 29OCT09 | 08SEP09 | 29OCT09 |
| Ground Treatment Works for Vortex Shaft | | | | | | | |
| 05L1B12306 | Setting up | 2 | 2 | 10JUL09 | 11JUL09 | 10JUL09 | 11JUL09 |
| 05L1B12308 | Probing & curtain grouting around shaft | 37 | 37 | 13JUL09 | 24AUG09 | 13JUL09 | 24AUG09 |
| Excavation and Construction of Vortex Shaft | | | | | | | |
| 05L1B12320 | Excavate shaft: +99mPD to +65mPD (30m) | 118 | 118 | 30OCT09 | 23MAR10 | 30OCT09 | 23MAR10 |
| 05L1B12321 | Set up for lining construction | 6 | 6 | 11NOV11 | 17NOV11 | 11NOV11 | 17NOV11 |
| 05L1B12322 | Construct permanent lining; 30m @ 4m/4days | 30 | 30 | 11NOV11 | 15DEC11 | 11NOV11 | 15DEC11 |
| Excavate & Construct Air Vent Shaft | | | | | | | |
| 05L1B12418 | Enlarge the platform for RCD operation | 15 | 15 | 08DEC08A | 27DEC08A | 08DEC08A | 27DEC08A |
| 05L1B12420 | Mobilize & set up RCD for excavation | 6 | 6 | 29DEC08A | 06JAN09A | 29DEC08A | 06JAN09A |
| 05L1B12422 | Bore shaft with RCD; 37.5m @ 1m/day | 54 | 54 | 07JAN09A | 13MAR09A | 07JAN09A | 13MAR09A |
| 05L1B12424 | Demobilize RCD rig | 5 | 5 | 14MAR09A | 19MAR09A | 14MAR09A | 19MAR09A |
| 05L1B12426 | Install permanent steel liner | 3 | 3 | 20MAR09A | 23MAR09A | 20MAR09A | 23MAR09A |
| 05L1B12427 | Preparation works for casting concrete | 1 | 1 | 21MAR09A | 25APR09A | 21MAR09A | 25APR09A |
| 05L1B12428 | Damage found on installed steel liner | 0 | 0 | 25APR09A | 25APR09A | 25APR09A | 25APR09A |
| 05L1B12429 | Removal of steel liner | 31 | 31 | 27APR09A | 04JUN09 | 27APR09A | 04JUN09 |
| 05L1B12430 | Remove RCD platform | 17 | 17 | 05JUN09 | 24JUN09 | 05JUN09 | 24JUN09 |
| 05L1B12432 | Construct PC bund wall | 12 | 12 | 25JUN09 | 09JUL09 | 25JUN09 | 09JUL09 |
| 05L1B12434 | Divert channel to West | 0 | 0 | 09JUL09 | 09JUL09 | 09JUL09 | 09JUL09 |
| 05L1B12436 | Footing for gantry crane | 12 | 12 | 02NOV09* | 14NOV09 | 02NOV09* | 14NOV09 |
| 05L1B12438 | Erection of gantry crane | 36 | 36 | 16NOV09 | 29DEC09 | 16NOV09 | 29DEC09 |
| 05L1B12440 | Set up sliding system | 6 | 6 | 30DEC09 | 06JAN10 | 30DEC09 | 06JAN10 |
| 05L1B12446 | Install steel casing | 36 | 36 | 07JAN10 | 20FEB10 | 07JAN10 | 20FEB10 |
| 05L1B12448 | Survey checking & capping concrete | 3 | 3 | 22FEB10 | 24FEB10 | 22FEB10 | 24FEB10 |
| 05L1B12450 | Preparation & concreting | 3 | 3 | 25FEB10 | 27FEB10 | 25FEB10 | 27FEB10 |
| 05L1B12452 | Construct upstand wall | 24 | 24 | 01MAR10* | 27MAR10 | 01MAR10* | 27MAR10 |
| Excavate & Construct Man Access Shaft | | | | | | | |
| Ground Treatment for Man Access Shaft | | | | | | | |
| 05L1B12502 | Probing & curtain grouting around shaft | 31 | 31 | 10JUL09 | 14AUG09 | 10JUL09 | 14AUG09 |
| Gantry Crane & Noise Enclosure at M. A. Shaft | | | | | | | |
| 05L1B12504 | Excavate & construct 4 nos. gantry footings | 12 | 12 | 15AUG09 | 28AUG09 | 15AUG09 | 28AUG09 |

Wan Kei

following channel diversion to west

provision of TTA

provision of TTA

following consent from the SOR

including 1 wk concrete strength

| ID | Activity Description | 904 WP3D | | AD04 | | WP3D | | Total Float |
|----------------------------------------------------------|--------------------------------------------------|----------|-----|---------|---------|---------|---------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 05L1B12505 | Install gantry crane & noise enclosure | 36 | 36 | 29AUG09 | 12OCT09 | 29AUG09 | 12OCT09 | 1 -50 |
| ELS and Excavation upto Rock Head Level at M.A. | | | | | | | | |
| 05L1B12503 | Install sheet piles | 6 | 6 | 15AUG09 | 21AUG09 | 15AUG09 | 21AUG09 | 1 -44 |
| 05L1B12506 | Excavation to rock head level | 18 | 18 | 13OCT09 | 03NOV09 | 13OCT09 | 03NOV09 | 1 -50 |
| Excavation & Construction of Man Access Shaft | | | | | | | | |
| 05L1B12508 | Excavation/muck out/temporary support | 127 | 127 | 04NOV09 | 12APR10 | 04NOV09 | 12APR10 | 1 -50 |
| 05L1B12522 | Construct base | 4 | 4 | 15MAR11 | 18MAR11 | 15MAR11 | 18MAR11 | 1 -50 |
| 05L1B12524 | Set up for 37m shaft construction (wall only) | 6 | 6 | 19MAR11 | 25MAR11 | 19MAR11 | 25MAR11 | 1 -50 |
| 05L1B12526 | Construct wall/stair, 25 landings @ 3 days/land | 75 | 75 | 26MAR11 | 28JUN11 | 26MAR11 | 28JUN11 | 1 -50 |
| 05L1B12528 | Removal of gantry crane | 12 | 12 | 29JUN11 | 13JUL11 | 29JUN11 | 13JUL11 | 1 -50 |
| 05L1B12530 | Construct wall above ground level | 8 | 8 | 14JUL11 | 22JUL11 | 14JUL11 | 22JUL11 | 1 -50 |
| 05L1B12532 | Construct shaft roof | 12 | 12 | 23JUL11 | 05AUG11 | 23JUL11 | 05AUG11 | 1 -50 |
| Excavate & Construct Deaeration Chamber | | | | | | | | |
| 05L1B12602 | Probing/grout/excavate/muckout/temp.support | 72 | 72 | 24MAR10 | 23JUN10 | 24MAR10 | 23JUN10 | 1 -196 |
| 05L1B12604 | Drill/excavate/muckout/temp. support for bench | 50 | 50 | 24JUN10 | 21AUG10 | 24JUN10 | 21AUG10 | 1 -196 |
| 05L1B12607 | Drill/excavate/muckout/temp. support for bottom | 50 | 50 | 23AUG10 | 22OCT10 | 23AUG10 | 22OCT10 | 1 -196 |
| 05L1B12608 | Set up for lining construction | 12 | 12 | 26AUG11 | 08SEP11 | 26AUG11 | 08SEP11 | 1 -196 |
| 05L1B12610 | Construct base, 3 bays | 9 | 9 | 09SEP11 | 20SEP11 | 09SEP11 | 20SEP11 | 1 -196 |
| 05L1B12612 | Construct walls 2 lifts, 3 bays | 24 | 24 | 21SEP11 | 20OCT11 | 21SEP11 | 20OCT11 | 1 -196 |
| 05L1B12614 | Const. crown/underpin. of air vent & drop shafts | 18 | 18 | 21OCT11 | 10NOV11 | 21OCT11 | 10NOV11 | 1 -196 |
| Excavate & Construct Main Adit Tunnel | | | | | | | | |
| 38L1B12102 | Probing/grout/temp. support/excavation/muck out | 200 | 200 | 23OCT10 | 27JUN11 | 23OCT10 | 27JUN11 | 1 -196 |
| 38L1B12104 | Construct permanent lining | 50 | 50 | 28JUN11 | 25AUG11 | 28JUN11 | 25AUG11 | 1 -196 |
| Excavate & Construct Man Access Adit | | | | | | | | |
| Upper Horizontal Section | | | | | | | | |
| 05L1B12806 | Probing/gorut/excavate/muckout/temporary support | 90 | 90 | 13APR10 | 30JUL10 | 13APR10 | 30JUL10 | 1 -50 |
| 05L1B12830 | Set up for 23m upper adit construction | 6 | 6 | 26JAN11 | 01FEB11 | 26JAN11 | 01FEB11 | 1 -50 |
| 05L1B12834 | Construction of permanent lining | 32 | 32 | 02FEB11 | 14MAR11 | 02FEB11 | 14MAR11 | 1 -50 |
| Vertical Section | | | | | | | | |
| 05L1B12807 | Probing & curtain grouting around shaft | 24 | 24 | 31JUL10 | 27AUG10 | 31JUL10 | 27AUG10 | 1 -50 |
| 05L1B12808 | Set up for 7.2m raise (shaft) excavation | 2 | 2 | 28AUG10 | 30AUG10 | 28AUG10 | 30AUG10 | 1 -50 |
| 05L1B12810 | Excavate/removal of rock/temporary support | 24 | 24 | 31AUG10 | 28SEP10 | 31AUG10 | 28SEP10 | 1 -50 |
| 05L1B12822 | Construct base of raise shaft | 4 | 4 | 09DEC10 | 13DEC10 | 09DEC10 | 13DEC10 | 1 -50 |
| 05L1B12824 | Set up for 9m raise stairway const. (wall only) | 6 | 6 | 14DEC10 | 20DEC10 | 14DEC10 | 20DEC10 | 1 -50 |
| 05L1B12826 | Construct wall & stair, 7 landings @4days/landin | 28 | 28 | 21DEC10 | 25JAN11 | 21DEC10 | 25JAN11 | 1 -50 |
| Lower Horizontal Section | | | | | | | | |
| 05L1B12812 | Set up for 9.3m lower adit excavation | 2 | 2 | 29SEP10 | 30SEP10 | 29SEP10 | 30SEP10 | 1 -50 |
| 05L1B12814 | Excavate/removal of rock/temporary support | 31 | 31 | 02OCT10 | 08NOV10 | 02OCT10 | 08NOV10 | 1 -50 |
| 05L1B12816 | Set up for 7m lower adit construction | 6 | 6 | 09NOV10 | 15NOV10 | 09NOV10 | 15NOV10 | 1 -50 |
| 05L1B12818 | Construction of permanent lining for lower adit | 20 | 20 | 16NOV10 | 08DEC10 | 16NOV10 | 08DEC10 | 1 -50 |

provision of TTA

after construction of man access adit

top heading
 4m deep @ 0.2m/day = 72
 4.5m deep @ 22*4.5*9=891m³, 17.8m³/day
 4.5m deep @ 22*4.5*9=891m³, 17.8m³/day

including 5 days for setup of mould @ 56m @ 4m/11 days

26m, @ 4 m/9 day

@ 0.3m/day & night

@ 0.3m/day & night

| ID | Activity Description | AD04 | | WP3D | | Cal ID | Total Float | Year | | | | | |
|-------------------------------------------------------|--------------------------------------------------|------|---------|------|---------|---------|-------------|-------|------|------|------|------|------|
| | | Dur | Start | Dur | Start | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Junction Between Main Tunnel & Adit Tunnel | | | | | | | | | | | | | |
| 3BL1B12106 | Temp. support & excavation breakthrough | 48 | 26AUG11 | 48 | 26AUG11 | 24OCT11 | 1 | | | | | | |
| 3BL1B12108 | Construct collar between MT & AT | 48 | 25OCT11 | 48 | 25OCT11 | 19DEC11 | 1 | | | | | | |
| Remaining Works Prior to Handover | | | | | | | | | | | | | |
| 08R1B12102 | Finishing & reinstatement works; Portion B | 36 | 04FEB12 | 36 | 04FEB12 | 16MAR12 | 1 | | | | | | |
| 08R1B12103 | Pre-handover inspections and remedial works | 30 | 18FEB12 | 30 | 18FEB12 | 23MAR12 | 1 | | | | | | |
| 08R1B12104 | Contractor serve notice for Works completion | 7 | 24MAR12 | 7 | 24MAR12 | 30MAR12 | 2 | | | | | | |
| 08R1B12105 | SO issues completion certificate | 21 | 31MAR12 | 21 | 31MAR12 | 20APR12 | 2 | | | | | | |
| 16R7B12102 | Landscaping works at Portion B | 72 | 16DEC11 | 72 | 16DEC11 | 16MAR12 | 1 | | | | | | |
| 16R7B12104 | Establishment Works at Portion B | 365 | 17MAR12 | 365 | 17MAR12 | 16MAR13 | 2 | | | | | | |
| 3DL1B12101 | Install flow measurement devices at Intake I-2 | 12 | 07FEB12 | 12 | 07FEB12 | 20FEB12 | 1 | | | | | | |
| 3DL1B12105 | Maintain & monitor flow monitoring | 365 | 21FEB12 | 365 | 21FEB12 | 19FEB13 | 2 | | | | | | |
| Schedule of Milestones for Cost Centre No. 3bL | | | | | | | | | | | | | |
| 3BL1B12A02 | 3bL 1; On establishing tunnelling equipments | 0 | 0 | 0 | 22OCT10 | 22OCT10 | 2 | 1,165 | | | | | |
| 3BL1B12A04 | 3bL 2; On completion of 12.5% perm. tunnel linin | 0 | 0 | 0 | 18NOV10 | 18NOV10 | 2 | 1,138 | | | | | |
| 3BL1B12A06 | 3bL 3; On completion of 25% perm. tunnel lining | 0 | 0 | 0 | 16DEC10 | 16DEC10 | 2 | 1,110 | | | | | |
| 3BL1B12A08 | 3bL 4; On completion of 37.5% perm. tunnel linin | 0 | 0 | 0 | 15JAN11 | 15JAN11 | 2 | 1,080 | | | | | |
| 3BL1B12A10 | 3bL 5; On completion of 50% perm. tunnel lining | 0 | 0 | 0 | 15FEB11 | 15FEB11 | 2 | 1,049 | | | | | |
| 3BL1B12A12 | 3bL 6; On completion of 62.5% perm. tunnel linin | 0 | 0 | 0 | 15MAR11 | 15MAR11 | 2 | 1,021 | | | | | |
| 3BL1B12A14 | 3bL 7; On completion of 75% perm. tunnel lining | 0 | 0 | 0 | 12APR11 | 12APR11 | 2 | 993 | | | | | |
| 3BL1B12A16 | 3bL 8; On completion of 87.5% perm. tunnel linin | 0 | 0 | 0 | 09JUL11 | 09JUL11 | 2 | 905 | | | | | |
| 3BL1B12A18 | 3bL 9; On completion of perm. tunnel lining | 0 | 0 | 0 | 25AUG11 | 25AUG11 | 2 | 858 | | | | | |
| 3BL1B12A20 | 3bL 10; On completion of all works under this CC | 0 | 0 | 0 | 19DEC11 | 19DEC11 | 2 | 742 | | | | | |
| Schedule of Milestones for Cost Centre No. 5L | | | | | | | | | | | | | |
| 05L1B12M02 | 5L 1; On completion of 25% of excavation | 0 | 0 | 0 | 08DEC09 | 08DEC09 | 2 | 1,483 | | | | | |
| 05L1B12M04 | 5L 2; On completion of 50% of excavation | 0 | 0 | 0 | 12APR10 | 12APR10 | 2 | 1,358 | | | | | |
| 05L1B12M06 | 5L 3; On completion of 75% of excavation | 0 | 0 | 0 | 23JUN10 | 23JUN10 | 2 | 1,286 | | | | | |
| 05L1B12M08 | 5L 4; On completion of all excavation | 0 | 0 | 0 | 22OCT10 | 22OCT10 | 2 | 1,165 | | | | | |
| 05L1B12M10 | 5L 5; On completion of drop shaft & vortex shaft | 0 | 0 | 0 | 15DEC11 | 15DEC11 | 2 | 746 | | | | | |
| 05L1B12M12 | 5L 6; On completion of de-aeration chamber | 0 | 0 | 0 | 10NOV11 | 10NOV11 | 2 | 781 | | | | | |
| 05L1B12M14 | 5L 7; On completion of air vent shaft | 0 | 0 | 0 | 27MAR10 | 27MAR10 | 2 | 1,374 | | | | | |
| 05L1B12M16 | 5L 8; On completion of man access shaft | 0 | 0 | 0 | 05AUG11 | 05AUG11 | 2 | 878 | | | | | |
| 05L1B12M18 | 5L 9; On completion of man access adit | 0 | 0 | 0 | 14MAR11 | 14MAR11 | 2 | 1,022 | | | | | |
| 05L1B12M20 | 5L 10; On completion of all works under this CC | 0 | 0 | 0 | 23MAR12 | 23MAR12 | 2 | 647 | | | | | |
| Schedule of Milestones for Cost Centre No. 8R | | | | | | | | | | | | | |
| 08R1B12R02 | 8R 1; On completion of approach channel | 0 | 0 | 0 | 09MAR12 | 09MAR12 | 2 | 661 | | | | | |
| 08R1B12R04 | 8R 2; On completion of trash grill | 0 | 0 | 0 | 09MAR12 | 09MAR12 | 2 | 661 | | | | | |

◆ equipment for tunnelling at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ for Adit Tunnel at Intake I-2
 ◆ under this Cost Centre

◆ below G.L. except for Adit at Intake I-2
 ◆ below G.L. except for Adit at Intake I-2
 ◆ below G.L. except for Adit at Intake I-2
 ◆ below G.L. except for Adit Intake I-2
 ◆ vortex shaft at Intake I-2
 ◆ chamber at Intake I-2
 ◆ shaft at Intake I-2
 ◆ shaft at Intake I-2
 ◆ adit at Intake I-2
 ◆ under this Cost Centre

channel and associated decking at Intake I-2
 ◆ at Intake I-2

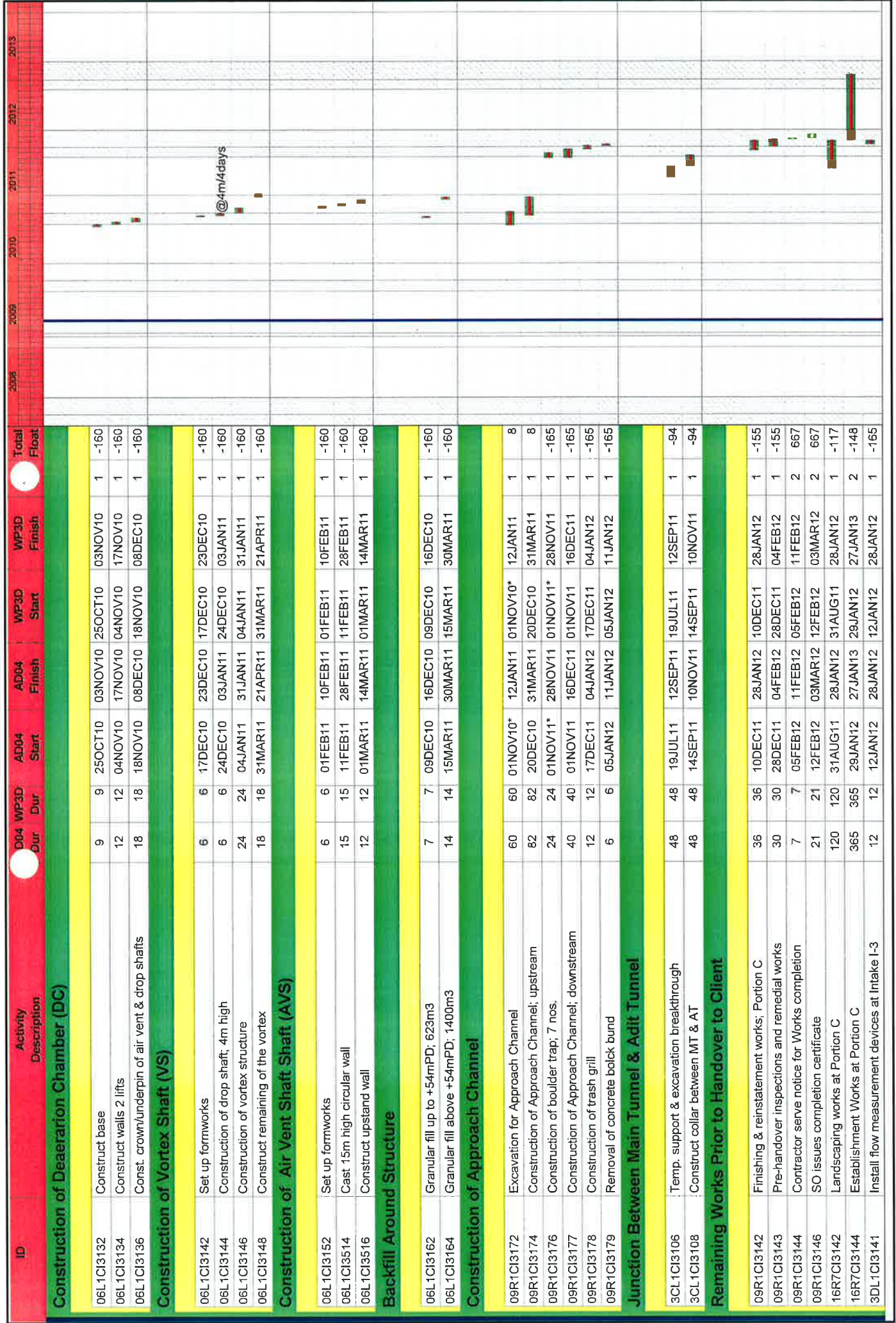
| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|-------------------------------------------------------|-------------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|
| 06R1B12R06 | 8R 3; On completion of all works under this CC | 0 | 0 | 23MAR12 | 23MAR12 | | | 2 |
| Schedule of Milestones for Cost Centre No. 12R | | | | | | | | |
| 12R3B12S02 | 12R 1; On completion of 50% pile retain. wall | 0 | 0 | 06NOV08A | 06NOV08A | | | 2 |
| 12R3B12S04 | 12R 2; On completion of pile retain. wall | 0 | 0 | 26NOV08A | 26NOV08A | | | 2 |
| 12R3B12S06 | 12R 3; On completion of boulder traps | 0 | 0 | 26JAN11 | 26JAN11 | | | 2 |
| 12R3B12S08 | 12R 4; On completion of all works under this CC | 0 | 0 | 23MAR12 | 23MAR12 | | | 2 |
| Construction of Intake I-3 | | | | | | | | |
| Preliminary Works | | | | | | | | |
| Additional GI Works To Finalize Design | | | | | | | | |
| AGIC-02 | Erect platform/mobilization & set up GI rig | 3 | 3 | 03NOV08A | 05NOV08A | 03NOV08A | 05NOV08A | 1 |
| AGIC-04 | Drill 3 nos. GI holes for Intake Structures | 12 | 12 | 06NOV08A | 19NOV08A | 06NOV08A | 19NOV08A | 1 |
| VO#32; Replace Hoarding by Chain Link Fence | | | | | | | | |
| VO032-1302 | Received VO-32 for replacing hoarding by CLF | 0 | 0 | 16SEP08A | 16SEP08A | | | 1 |
| VO032-1304 | Procure/prepare/install transparent hoarding | 80 | 80 | 17SEP08A | 06MAR09A | 17SEP08A | 06MAR09A | 1 |
| Tree Transplanting Works | | | | | | | | |
| 01R1C13102 | Possession of Portion C--90d of DOC | 0 | 0 | 26MAR08A | 26MAR08A | | | 2 |
| 01R1C13104 | Site clearance | 40 | 40 | 22APR08A | 20SEP08A | 22APR08A | 20SEP08A | 1 |
| 01R1C13106 | Hoarding at slope crest | 48 | 48 | 03JUN08A | 30JUL08A | 03JUN08A | 30JUL08A | 1 |
| 01R1C13110 | Set-up wheel washing facilities | 6 | 6 | 30JUN08A | 03JUL08A | 30JUN08A | 03JUL08A | 1 |
| 01R1C13118 | Install remote comfot CCTV as per ER 4.4.10 | 12 | 12 | 28OCT08A | 10NOV08A | 28OCT08A | 10NOV08A | 1 |
| Tree Transplanting Works | | | | | | | | |
| 16R7C13202 | Tree inspection & report | 7 | 7 | 01APR08A | 26APR08A | 01APR08A | 26APR08A | 2 |
| 16R7C13204 | Tree transplant for upper parts; 8 nos. | 86* | 86* | 04JUN08A | 13SEP08A | 04JUN08A | 13SEP08A | 1 |
| 16R7C13206 | 1st stg tree pruning | 2 | 2 | 04JUN08A | 21JUN08A | 04JUN08A | 21JUN08A | 1 |
| 16R7C13208 | 2nd stg tree pruning | 2 | 2 | 04JUL08A | 04JUL08A | 04JUL08A | 04JUL08A | 1 |
| 16R7C13210 | Final stg. tree pruning & tree uplifting | 6 | 6 | 08SEP08A | 13SEP08A | 08SEP08A | 13SEP08A | 1 |
| 16R7C13212 | Tree transplanting at Ch250-Ch200; 20 nos. | 214* | 214* | 21JUN08A | 09MAR09A | 21JUN08A | 09MAR09A | 1 |
| 16R7C13214 | 1st stg tree pruning | 3 | 3 | 21JUN08A | 15JUL08A | 21JUN08A | 15JUL08A | 1 |
| 16R7C13216 | 2nd stg tree pruning | 3 | 3 | 15JUL08A | 12SEP08A | 15JUL08A | 12SEP08A | 1 |
| 16R7C13218 | Final stg tree pruning & tree uplifting | 8 | 8 | 28FEB09A | 09MAR09A | 28FEB09A | 09MAR09A | 1 |
| 16R7C13220 | Tree transplanting at Ch100-Ch0 | 66* | 66* | 12NOV09 | 30JAN10 | 12NOV09 | 30JAN10 | 1 |
| 16R7C13222 | 1st stg tree pruning | 4 | 4 | 12NOV09 | 16NOV09 | 12NOV09 | 16NOV09 | 1 |
| 16R7C13224 | 2nd stg tree pruning | 4 | 4 | 15DEC09 | 18DEC09 | 15DEC09 | 18DEC09 | 1 |
| 16R7C13226 | Final stg tree pruning & tree uplifting | 10 | 10 | 20JAN10 | 30JAN10 | 20JAN10 | 30JAN10 | 1 |
| H-Pile Retaining Wall for Wall A | | | | | | | | |
| Piling Works | | | | | | | | |
| 13R4C13400 | Mobilize & set up piling rig | 6 | 6 | 11AUG08A | 16AUG08A | 11AUG08A | 16AUG08A | 1 |
| 13R4C13401 | Drill 28 nos. grout (partially) 11 nos. piles | 1 | 1 | 18AUG08A | 28AUG08A | 18AUG08A | 28AUG08A | 1 |
| 13R4C13402 | Piling stopped due to accessive grout loss | 1 | 1 | 29AUG08A | 22OCT08A | 29AUG08A | 22OCT08A | 1 |
| 13R4C13403 | Piling resumed date | 1 | 1 | 26NOV08A | 26NOV08A | 26NOV08A | 26NOV08A | 1 |

| ID | Activity Description | AD04 | | WP3D | | AD04 | AD04 | | AD04 | WP3D | WP3D | Cal ID | Total Float |
|------------------------------------------------------|--------------------------------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|-------------|
| | | Dur | WP3D Dur | Start | Finish | | Start | Finish | | | | | |
| 13R4CI3405 | Complete all H-piles, Wall A; 347nos. | 70 | 70 | 18AUG08A | 21JAN09A | 18AUG08A | 21JAN09A | 18AUG08A | 21JAN09A | 18AUG08A | 21JAN09A | 1 | |
| Skin Wall | | | | | | | | | | | | | |
| 13R4CI3406 | Excavate for skin wall construction; 2130m3 | 60 | 60 | 14JAN09A | 02MAR09A | 14JAN09A | 02MAR09A | 14JAN09A | 02MAR09A | 14JAN09A | 02MAR09A | 1 | |
| 13R4CI3408 | Hack off piles; piles 1 to 347 | 48 | 48 | 04FEB09A | 02APR09A | 04FEB09A | 02APR09A | 04FEB09A | 02APR09A | 04FEB09A | 02APR09A | 1 | |
| 13R4CI3410 | Construct skin wall; | 60 | 60 | 28FEB09A | 19MAY09A | 28FEB09A | 19MAY09A | 28FEB09A | 19MAY09A | 28FEB09A | 19MAY09A | 1 | |
| 13R4CI3414 | Construct for capping beams; | 24 | 24 | 14APR09A | 04JUN09 | 14APR09A | 04JUN09 | 14APR09A | 04JUN09 | 14APR09A | 04JUN09 | 1 | 401 |
| 13R4CI3416 | Construct U-channels | 37 | 37 | 06MAY09A | 18JUN09 | 06MAY09A | 18JUN09 | 06MAY09A | 18JUN09 | 06MAY09A | 18JUN09 | 1 | 394 |
| Soil Nailing Works | | | | | | | | | | | | | |
| Soil Nailing Outside Excavation Area | | | | | | | | | | | | | |
| 13R1CI3502 | Scaffolding platform for soil nailing | 18 | 18 | 08SEP08A | 28OCT08A | 08SEP08A | 28OCT08A | 08SEP08A | 28OCT08A | 08SEP08A | 28OCT08A | 1 | |
| 13R1CI3504 | Mobilize & set up drilling & grouting plants | 4 | 4 | 12SEP08A | 17SEP08A | 12SEP08A | 17SEP08A | 12SEP08A | 17SEP08A | 12SEP08A | 17SEP08A | 1 | |
| 13R1CI3506 | Install & grout soil nails; 193 nos. + 8 Test N. | 69 | 69 | 18SEP08A | 09DEC08A | 18SEP08A | 09DEC08A | 18SEP08A | 09DEC08A | 18SEP08A | 09DEC08A | 1 | |
| Soil Nailing Within Excavation; Ch. 270-210 | | | | | | | | | | | | | |
| 13R1CI3508 | Install & grout soil nails | 58* | 58* | 29JUL09 | 06OCT09 | 29JUL09 | 06OCT09 | 29JUL09 | 06OCT09 | 29JUL09 | 06OCT09 | 1 | -160 |
| Soil Nailing Within Excavation; Ch. 210-130 | | | | | | | | | | | | | |
| 13R1CI3510 | Install & grout soil nails | 117* | 117* | 12DEC08A | 11MAY09A | 12DEC08A | 11MAY09A | 12DEC08A | 11MAY09A | 12DEC08A | 11MAY09A | 1 | |
| Soil Nailing Within Excavation; Ch.130-0 | | | | | | | | | | | | | |
| 13R1CI3512 | Install & grout soil nails | 267* | 267* | 30OCT09 | 22SEP10 | 30OCT09 | 22SEP10 | 30OCT09 | 22SEP10 | 30OCT09 | 22SEP10 | 1 | 17 |
| Rem. Soil Nailing Outside Excavation | | | | | | | | | | | | | |
| 13R1CI3522 | Scaffolding platform for soil nailing | 12 | 12 | 10OCT09 | 23OCT09 | 10OCT09 | 23OCT09 | 10OCT09 | 23OCT09 | 10OCT09 | 23OCT09 | 1 | 235 |
| 13R1CI3532 | Install & grout soil nails; 261 no.s + 3 Test N. | 100 | 100 | 24OCT09 | 25FEB10 | 24OCT09 | 25FEB10 | 24OCT09 | 25FEB10 | 24OCT09 | 25FEB10 | 1 | 235 |
| Access Road Construction | | | | | | | | | | | | | |
| Preliminary Works for Works Included VO#043 | | | | | | | | | | | | | |
| VO043-010 | Receive VO for revising design | 0 | 0 | | 02FEB09A | | 02FEB09A | | 02FEB09A | | 02FEB09A | 1 | |
| VO043-020 | Receive amendment to VO#043 | 0 | 0 | | 05MAY09A | | 05MAY09A | | 05MAY09A | | 05MAY09A | 2 | |
| VO043-030 | Procurement of lean mix concrete | 12 | 12 | 06MAY09A | 14MAY09A | 06MAY09A | 14MAY09A | 06MAY09A | 14MAY09A | 06MAY09A | 14MAY09A | 1 | |
| VO043-040 | Testing & approval of lean mix concrete | 18 | 18 | 15MAY09A | 06JUN09 | 15MAY09A | 06JUN09 | 15MAY09A | 06JUN09 | 15MAY09A | 06JUN09 | 1 | -156 |
| Mass Wall to Protect Retained Trees; VO #043 | | | | | | | | | | | | | |
| VO043-120 | Setting out at site | 69 | 69 | 03FEB09A | 28APR09A | 03FEB09A | 28APR09A | 03FEB09A | 28APR09A | 03FEB09A | 28APR09A | 1 | |
| VO043-130 | Excavate & muck out manually; 50m @ 4m/day | 2 | 2 | 29APR09A | 30APR09A | 29APR09A | 30APR09A | 29APR09A | 30APR09A | 29APR09A | 30APR09A | 1 | |
| VO043-140 | Erect formwork; 70m2 @ 14m2/day | 5 | 5 | 04MAY09A | 08MAY09A | 04MAY09A | 08MAY09A | 04MAY09A | 08MAY09A | 04MAY09A | 08MAY09A | 1 | |
| VO043-150 | Set up for concreting | 2 | 2 | 08MAY09A | 09MAY09A | 08MAY09A | 09MAY09A | 08MAY09A | 09MAY09A | 08MAY09A | 09MAY09A | 1 | |
| VO043-160 | Pour concrete & removal of formwork | 2 | 2 | 09MAY09A | 11MAY09A | 09MAY09A | 11MAY09A | 09MAY09A | 11MAY09A | 09MAY09A | 11MAY09A | 1 | |
| Ch.460 to 370; VO# 043 | | | | | | | | | | | | | |
| VO043-060 | Bulk excavation for benching; 1061 @ 45m3/day | 12 | 12 | 29MAY09 | 11JUN09 | 29MAY09 | 11JUN09 | 29MAY09 | 11JUN09 | 29MAY09 | 11JUN09 | 1 | -160 |
| VO043-070 | Fill & compaction; 39 layers @ 1 day/layer | 39 | 39 | 12JUN09 | 28JUL09 | 12JUN09 | 28JUL09 | 12JUN09 | 28JUL09 | 12JUN09 | 28JUL09 | 1 | -160 |
| Ch. 370 to Ch. 270; VO #043 | | | | | | | | | | | | | |
| VO043-090 | Excavation for access road Ch. 370 to 310 | 4 | 4 | 29JUL09 | 01AUG09 | 29JUL09 | 01AUG09 | 29JUL09 | 01AUG09 | 29JUL09 | 01AUG09 | 1 | -160 |
| VO043-100 | Bulk excavation for benching; Ch. 310 to 270 | 5 | 5 | 03AUG09 | 07AUG09 | 03AUG09 | 07AUG09 | 03AUG09 | 07AUG09 | 03AUG09 | 07AUG09 | 1 | -160 |
| VO043-110 | Fill & compaction lean mix concrete; 15 layers | 15 | 15 | 08AUG09 | 25AUG09 | 08AUG09 | 25AUG09 | 08AUG09 | 25AUG09 | 08AUG09 | 25AUG09 | 1 | -160 |
| Works On & Above Access Road; Ch. 460-270 | | | | | | | | | | | | | |
| 09R1CI3610 | Temporary concrete paving & curing | 16 | 16 | 26AUG09 | 12SEP09 | 26AUG09 | 12SEP09 | 26AUG09 | 12SEP09 | 26AUG09 | 12SEP09 | 1 | -139 |

| ID | Activity Description | D04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float | Year | | | | | | |
|-------------------------------------------------------|--------------------------------------------------|---------|----------|------------|-------------|------------|-------------|-------------|------|------|------|------|------|------|--|
| | | | | | | | | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | |
| 09R1CI3620 | Excavation of slope batter above access road | 47 | 47 | 14SEP09 | 10NOV09 | 14SEP09 | 10NOV09 | 1 | 321 | | | | | | |
| Ch. 270 to Ch. 210 | | | | | | | | | | | | | | | |
| 09R1CI3624 | Excavation & soil nailing | 54 | 54 | 25JUL09 | 29SEP09 | 25JUL09 | 29SEP09 | 1 | -160 | | | | | | |
| 09R1CI3626 | Backfill (grade 200) & compaction | 3 | 3 | 07OCT09 | 09OCT09 | 07OCT09 | 09OCT09 | 1 | -160 | | | | | | |
| 09R1CI3628 | Temporary concrete paving & curing | 10 | 10 | 10OCT09 | 21OCT09 | 10OCT09 | 21OCT09 | 1 | -160 | | | | | | |
| Ch. 210 to Ch. 130 | | | | | | | | | | | | | | | |
| 09R1CI3630 | Excavation as per conforming design | 48 | 48 | 12DEC08A | 11MAY09A | 12DEC08A | 11MAY09A | 1 | | | | | | | |
| 09R1CI3632 | Temporary concrete paving & curing | 12 | 12 | 13NOV09 | 26NOV09 | 13NOV09 | 26NOV09 | 1 | 55 | | | | | | |
| VO-084-02 | VO#084 revising the design received | 0 | 0 | 12MAY09A | | 12MAY09A | | 1 | | | | | | | |
| VO-084-12 | Works resumed as per VO #084 | 0 | 0 | 16MAY09A | | 16MAY09A | | 1 | | | | | | | |
| VO-084-22 | Excavate slope profile as per VO#084 | 34 | 34 | 16MAY09A | 25JUN09 | 16MAY09A | 25JUN09 | 1 | -79 | | | | | | |
| VO-084-26 | Remove excavated material off site: 6000m3 | 18 | 18 | 22OCT09 | 12NOV09 | 22OCT09 | 12NOV09 | 1 | 55 | | | | | | |
| VO-084-32 | Soil nailing at Ch. 198 to 210 | 4 | 4 | 30SEP09 | 06OCT09 | 30SEP09 | 06OCT09 | 1 | -160 | | | | | | |
| VO-084-42 | Excavate to access road formation | 18 | 18 | 26APR11 | 17MAY11 | 26APR11 | 17MAY11 | 1 | -160 | | | | | | |
| Ch. 130 to Ch. 0; up to +74.5mPD | | | | | | | | | | | | | | | |
| 09R1CI3634 | Excavation & soil nailing | 62 | 62 | 30OCT09 | 13JAN10 | 30OCT09 | 13JAN10 | 1 | 17 | | | | | | |
| 09R1CI3636 | Temporary concrete paving & curing | 15 | 15 | 14JAN10 | 30JAN10 | 14JAN10 | 30JAN10 | 1 | 17 | | | | | | |
| Ch. 130 to Ch. 0; below +74.5mPD | | | | | | | | | | | | | | | |
| 09R1CI3638 | Excavate & soil nailing (+74.5 to 88.5mPD) | 41 | 41 | 06AUG10 | 22SEP10 | 06AUG10 | 22SEP10 | 1 | 17 | | | | | | |
| 09R1CI3640 | Excavate rock (88.5 to 63mPD); 3239m3 @ 80m3/day | 40 | 40 | 24SEP10 | 11NOV10 | 24SEP10 | 11NOV10 | 1 | 17 | | | | | | |
| 09R1CI3642 | Backfill (grade 200) & compaction | 7 | 7 | 12NOV10 | 19NOV10 | 12NOV10 | 19NOV10 | 1 | 17 | | | | | | |
| Drainage & Road Paving; Ch. 460 to Ch. 270 | | | | | | | | | | | | | | | |
| 09R1CI3664 | Construct drainage as per VO#090; 190m @ 5m/day | 32 | 32 | 29JUN11 | 05AUG11 | 29JUN11 | 05AUG11 | 1 | -160 | | | | | | |
| 09R1CI3674 | Road formation; 190m @ 12m/day | 20 | 20 | 06AUG11 | 29AUG11 | 06AUG11 | 29AUG11 | 1 | -157 | | | | | | |
| 09R1CI3684 | Lay sub-base and kerb; 190m @ 12m/day | 16 | 16 | 30AUG11 | 17SEP11 | 30AUG11 | 17SEP11 | 1 | -157 | | | | | | |
| 09R1CI3694 | Concrete paving; 190m @ 12m/day | 16 | 16 | 19SEP11 | 08OCT11 | 19SEP11 | 08OCT11 | 1 | -157 | | | | | | |
| VO-095-02 | Green slope arrangement as per VO# 095 | 24 | 24 | 08JUL11 | 05AUG11 | 09JUL11 | 05AUG11 | 1 | -157 | | | | | | |
| Drainage & Road Paving; Ch. 270 to Ch. 130 | | | | | | | | | | | | | | | |
| 09R1CI3644 | Construct drainage; 140m @ 4m/day | 35 | 35 | 18MAY11 | 28JUN11 | 18MAY11 | 28JUN11 | 1 | -160 | | | | | | |
| 09R1CI3646 | Backfill trench & road formation; 140m @ 12m/day | 12 | 12 | 29JUN11 | 13JUL11 | 29JUN11 | 13JUL11 | 1 | -137 | | | | | | |
| 09R1CI3648 | Lay sub-base and kerb; 140m @ 12m/day | 12 | 12 | 14JUL11 | 27JUL11 | 14JUL11 | 27JUL11 | 1 | -125 | | | | | | |
| 09R1CI3654 | Concrete paving; 140m @ 12m/day | 12 | 12 | 28JUL11 | 10AUG11 | 28JUL11 | 10AUG11 | 1 | -125 | | | | | | |
| Drainage & Road paving; Ch. 130 to Ch. 0 | | | | | | | | | | | | | | | |
| 09R1CI3704 | Construct drainage; 130m @ 4m/day | 33 | 33 | 06AUG11 | 14SEP11 | 06AUG11 | 14SEP11 | 1 | -160 | | | | | | |
| 09R1CI3714 | Backfill trench & road formation; 130m @ 12m/day | 11 | 11 | 15SEP11 | 27SEP11 | 15SEP11 | 27SEP11 | 1 | -160 | | | | | | |
| 09R1CI3724 | Lay sub-base & kerb; 130m @ 12m/day | 11 | 11 | 28SEP11 | 12OCT11 | 28SEP11 | 12OCT11 | 1 | -160 | | | | | | |
| 09R1CI3734 | Concrete paving; 130m @ 12m/day | 11 | 11 | 13OCT11 | 25OCT11 | 13OCT11 | 25OCT11 | 1 | -160 | | | | | | |
| H-Pile Retaining Wall for Wall B | | | | | | | | | | | | | | | |
| Piling Works | | | | | | | | | | | | | | | |
| 13R4CI3701 | Form piling platform for Wall B | 12 | 12 | 01FEB10 | 17FEB10 | 01FEB10 | 17FEB10 | 1 | 17 | | | | | | |
| 13R4CI3702 | Mobilize & set up piling rig | 6 | 6 | 18FEB10 | 24FEB10 | 18FEB10 | 24FEB10 | 1 | 17 | | | | | | |
| 13R4CI3704 | 350mm dia. pre-bored H-piles, Wall B; 98 nos. | 53 | 53 | 25FEB10 | 03MAY10 | 25FEB10 | 03MAY10 | 1 | 17 | | | | | | |

| ID | Activity Description | AD04 | | WP3D | | AD04 | AD04 | AD04 | AD04 | WP3D | WP3D | Cal | Total |
|---------------------------------------------------|--------------------------------------------------|------|-----|----------|----------|----------|----------|----------|----------|----------|----------|-----|-------|
| | | Dur | Dur | Start | Finish | | | | | | | | |
| 13R4CI3705 | Demobilize piling rig | 6 | 6 | 04MAY10 | 10MAY10 | 04MAY10 | 10MAY10 | 04MAY10 | 10MAY10 | 04MAY10 | 10MAY10 | 1 | 17 |
| Skin Wall | | | | | | | | | | | | | |
| 13R4CI3706 | Excavate for skin wall: 48m ³ | 18 | 18 | 11MAY10 | 01JUN10 | 11MAY10 | 01JUN10 | 11MAY10 | 01JUN10 | 11MAY10 | 01JUN10 | 1 | 17 |
| 13R4CI3708 | Hack off piles; piles 1 to 98 | 24 | 24 | 26MAY10 | 23JUN10 | 26MAY10 | 23JUN10 | 26MAY10 | 23JUN10 | 26MAY10 | 23JUN10 | 1 | 17 |
| 13R4CI3710 | Construct skin wall; 6 bays | 24 | 24 | 09JUN10 | 08JUL10 | 09JUN10 | 08JUL10 | 09JUN10 | 08JUL10 | 09JUN10 | 08JUL10 | 1 | 17 |
| 13R4CI3712 | Excavate for capping beams; | 12 | 12 | 02JUL10 | 15JUL10 | 02JUL10 | 15JUL10 | 02JUL10 | 15JUL10 | 02JUL10 | 15JUL10 | 1 | 17 |
| 13R4CI3714 | Construct for capping beams; | 18 | 18 | 09JUL10 | 29JUL10 | 09JUL10 | 29JUL10 | 09JUL10 | 29JUL10 | 09JUL10 | 29JUL10 | 1 | 17 |
| 13R4CI3716 | Construct U-channels | 18 | 18 | 16JUL10 | 05AUG10 | 16JUL10 | 05AUG10 | 16JUL10 | 05AUG10 | 16JUL10 | 05AUG10 | 1 | 17 |
| Channel Modification Works (Dry Season) | | | | | | | | | | | | | |
| River Diversion for Underground Works | | | | | | | | | | | | | |
| 09R1CI3802 | Form a temporary plant access to stream | 60 | 60 | 12DEC08A | 04FEB09A | 12DEC08A | 04FEB09A | 12DEC08A | 04FEB09A | 12DEC08A | 04FEB09A | 1 | |
| 09R1CI3804 | Break boulders | 32 | 32 | 05FEB09A | 24FEB09A | 05FEB09A | 24FEB09A | 05FEB09A | 24FEB09A | 05FEB09A | 24FEB09A | 1 | |
| 09R1CI3806 | Concrete bedding for bund wall (gabion) | 11 | 11 | 25FEB09A | 09MAR09A | 25FEB09A | 09MAR09A | 25FEB09A | 09MAR09A | 25FEB09A | 09MAR09A | 1 | |
| 09R1CI3808 | Construct bund wall (gabion) | 22 | 22 | 10MAR09A | 30APR09A | 10MAR09A | 30APR09A | 10MAR09A | 30APR09A | 10MAR09A | 30APR09A | 1 | |
| 09R1CI3810 | Divert channel to south west | 0 | 0 | | 30APR09A | | 30APR09A | | 30APR09A | | 30APR09A | 1 | |
| Channel Modification Works | | | | | | | | | | | | | |
| 09R1CI3812 | Breaking of large boulders | 30 | 30 | 02NOV09* | 05DEC09 | 02NOV09* | 05DEC09 | 02NOV09* | 05DEC09 | 02NOV09* | 05DEC09 | 1 | 21 |
| 09R1CI3814 | Excavation of the stream bed & make good | 24 | 24 | 07DEC09 | 06JAN10 | 07DEC09 | 06JAN10 | 07DEC09 | 06JAN10 | 07DEC09 | 06JAN10 | 1 | 21 |
| 09R1CI3816 | Laying of rock armour | 24 | 24 | 07JAN10 | 03FEB10 | 07JAN10 | 03FEB10 | 07JAN10 | 03FEB10 | 07JAN10 | 03FEB10 | 1 | 21 |
| 09R1CI3818 | Construct bund wall for approach channel const. | 24 | 24 | 04FEB10 | 06MAR10 | 04FEB10 | 06MAR10 | 04FEB10 | 06MAR10 | 04FEB10 | 06MAR10 | 1 | 21 |
| 09R1CI3820 | Divert channel to south west | 0 | 0 | | 06MAR10 | | 06MAR10 | | 06MAR10 | | 06MAR10 | 1 | 21 |
| Excavation for AVS/VS/DC/MAS/MAA | | | | | | | | | | | | | |
| Open Excavation for Underground Structures | | | | | | | | | | | | | |
| 06L1CI3906 | Mobilize drilling rig, backhoes | 1 | 1 | 30OCT09 | 30OCT09 | 30OCT09 | 30OCT09 | 30OCT09 | 30OCT09 | 30OCT09 | 30OCT09 | 1 | -160 |
| 06L1CI3908 | Excavate/mucking out/temporary support | 200 | 200 | 31OCT09 | 07JUL10 | 31OCT09 | 07JUL10 | 31OCT09 | 07JUL10 | 31OCT09 | 07JUL10 | 1 | -160 |
| Excavation & Construction of Main Adit | | | | | | | | | | | | | |
| 3CL1CI3102 | Excavation/mucking out/temporary support | 40 | 40 | 08JUL10 | 23AUG10 | 08JUL10 | 23AUG10 | 08JUL10 | 23AUG10 | 08JUL10 | 23AUG10 | 1 | -134 |
| 3CL1CI3104 | Construction of permanent lining | 24 | 24 | 24AUG10 | 20SEP10 | 24AUG10 | 20SEP10 | 24AUG10 | 20SEP10 | 24AUG10 | 20SEP10 | 1 | -134 |
| Construction of Man Access Adit (MAA) | | | | | | | | | | | | | |
| 06L1CI3112 | Cast invert; 1 bay | 7 | 7 | 15SEP10 | 22SEP10 | 15SEP10 | 22SEP10 | 15SEP10 | 22SEP10 | 15SEP10 | 22SEP10 | 1 | -160 |
| 06L1CI3114 | Cast walls | 12 | 12 | 24SEP10 | 08OCT10 | 24SEP10 | 08OCT10 | 24SEP10 | 08OCT10 | 24SEP10 | 08OCT10 | 1 | -160 |
| 06L1CI3116 | Cast crown | 12 | 12 | 09OCT10 | 23OCT10 | 09OCT10 | 23OCT10 | 09OCT10 | 23OCT10 | 09OCT10 | 23OCT10 | 1 | -160 |
| Construction of Man Access Shaft (MAS) | | | | | | | | | | | | | |
| 06L1CI3122 | Cast base | 3 | 3 | 08JUL10 | 10JUL10 | 08JUL10 | 10JUL10 | 08JUL10 | 10JUL10 | 08JUL10 | 10JUL10 | 1 | -160 |
| 06L1CI3124 | Set up formworks | 6 | 6 | 12JUL10 | 17JUL10 | 12JUL10 | 17JUL10 | 12JUL10 | 17JUL10 | 12JUL10 | 17JUL10 | 1 | -160 |
| 06L1CI3126 | Construct wall/stair; 14 landings @ 6 days/land. | 84 | 84 | 19JUL10 | 27OCT10 | 19JUL10 | 27OCT10 | 19JUL10 | 27OCT10 | 19JUL10 | 27OCT10 | 1 | -160 |
| 06L1CI3128 | Construct wall above ground level | 6 | 6 | 31MAR11 | 07APR11 | 31MAR11 | 07APR11 | 31MAR11 | 07APR11 | 31MAR11 | 07APR11 | 1 | -9 |
| 06L1CI3129 | Construct shaft roof | 12 | 12 | 08APR11 | 21APR11 | 08APR11 | 21APR11 | 08APR11 | 21APR11 | 08APR11 | 21APR11 | 1 | -9 |





| ID | Activity Description | AD04 | | AD04 | | AD04 | | WP3D Finish | Cal ID | Total Float |
|-------------------------------------------------------|---------------------------------------------------|------|---------|------|---------|----------|---------|-------------|--------|-------------|
| | | Dur | Start | Dur | Start | Dur | Start | | | |
| 3DL1C13143 | Maintain & monitor flow monitoring | 365 | 29JAN12 | 365 | 29JAN12 | 27JAN13 | 29JAN12 | 27JAN13 | 2 | -148 |
| Schedule of Milestones for Cost Centre No. 3cL | | | | | | | | | | |
| 3CL1C13A02 | 3cL 1: On establishing tunnelling equipments | 0 | 0 | 0 | 0 | 14JUL10 | | 14JUL10 | 2 | 1,265 |
| 3CL1C13A04 | 3cL 2: On completion of 12.5% perm. tunnel lining | 0 | 0 | 0 | 0 | 23JUL10 | | 23JUL10 | 2 | 1,256 |
| 3CL1C13A06 | 3cL 3: On completion of 25% perm. tunnel lining | 0 | 0 | 0 | 0 | 02AUG10 | | 02AUG10 | 2 | 1,246 |
| 3CL1C13A08 | 3cL 4: On completion of 37.5% perm. tunnel lining | 0 | 0 | 0 | 0 | 11AUG10 | | 11AUG10 | 2 | 1,237 |
| 3CL1C13A10 | 3cL 5: On completion of 50% perm. tunnel lining | 0 | 0 | 0 | 0 | 20AUG10 | | 20AUG10 | 2 | 1,228 |
| 3CL1C13A12 | 3cL 6: On completion of 62.5% perm. tunnel lining | 0 | 0 | 0 | 0 | 30AUG10 | | 30AUG10 | 2 | 1,218 |
| 3CL1C13A14 | 3cL 7: On completion of 75% perm. tunnel lining | 0 | 0 | 0 | 0 | 08SEP10 | | 08SEP10 | 2 | 1,209 |
| 3CL1C13A16 | 3cL 8: On completion of 87.5% perm. tunnel lining | 0 | 0 | 0 | 0 | 20SEP10 | | 20SEP10 | 2 | 1,197 |
| 3CL1C13A18 | 3cL 9: On completion of perm. tunnel lining | 0 | 0 | 0 | 0 | 10NOV11 | | 10NOV11 | 2 | 781 |
| 3CL1C13A20 | 3cL 10: On completion of all works under this CC | 0 | 0 | 0 | 0 | 10NOV11 | | 10NOV11 | 2 | 781 |
| Schedule of Milestones for Cost Centre No. 6L | | | | | | | | | | |
| 06L1C13M02 | 6L 1: On completion of 50% of excavation | 0 | 0 | 0 | 0 | 26FEB10 | | 26FEB10 | 2 | 1,403 |
| 06L1C13M04 | 6L 2: On completion of excavation works | 0 | 0 | 0 | 0 | 07JUL10 | | 07JUL10 | 2 | 1,272 |
| 06L1C13M08 | 6L 3: On completion of vortex shaft | 0 | 0 | 0 | 0 | 21APR11 | | 21APR11 | 2 | 984 |
| 06L1C13M10 | 6L 4: On completion of de-aeration chamber | 0 | 0 | 0 | 0 | 08DEC10 | | 08DEC10 | 2 | 1,118 |
| 06L1C13M12 | 6L 5: On completion of vent shaft | 0 | 0 | 0 | 0 | 14MAR11 | | 14MAR11 | 2 | 1,022 |
| 06L1C13M14 | 6L 6: On completion of man access shaft | 0 | 0 | 0 | 0 | 21APR11 | | 21APR11 | 2 | 984 |
| 06L1C13M16 | 6L 7: On completion of man access adit | 0 | 0 | 0 | 0 | 23OCT10 | | 23OCT10 | 2 | 1,164 |
| 06L1C13M18 | 6L 8: On completion of all works under this CC | 0 | 0 | 0 | 0 | 21APR11 | | 21APR11 | 2 | 984 |
| Schedule of Milestone for Cost Centre No. 9R | | | | | | | | | | |
| 09R1C13R02 | 9R 1: On completion of access road | 0 | 0 | 0 | 0 | 25OCT11 | | 25OCT11 | 2 | 797 |
| 09R1C13R04 | 9R 2: On completion of 25% of excavation at G.L | 0 | 0 | 0 | 0 | 11JUN09 | | 11JUN09 | 2 | 1,663 |
| 09R1C13R06 | 9R 3: On completion of 50% of excavation at G.L | 0 | 0 | 0 | 0 | 01AUG09 | | 01AUG09 | 2 | 1,612 |
| 09R1C13R08 | 9R 4: On completion of 75% of excavation at G.L | 0 | 0 | 0 | 0 | 13JAN10 | | 13JAN10 | 2 | 1,447 |
| 09R1C13R10 | 9R 5: On completion of excavation at G.L. | 0 | 0 | 0 | 0 | 12JAN11 | | 12JAN11 | 2 | 1,083 |
| 09R1C13R12 | 9R 6: On completion of 50% of approach channel | 0 | 0 | 0 | 0 | 22FEB11 | | 22FEB11 | 2 | 1,042 |
| 09R1C13R14 | 9R 7: On completion of approach channel | 0 | 0 | 0 | 0 | 31MAR11 | | 31MAR11 | 2 | 1,005 |
| 09R1C13R16 | 9R 8: On completion of trash grill | 0 | 0 | 0 | 0 | 04JAN12 | | 04JAN12 | 2 | 726 |
| 09R1C13R18 | 9R 9: On completion of all works under this CC | 0 | 0 | 0 | 0 | 04FEB12 | | 04FEB12 | 2 | 695 |
| Schedule of Milestones for Cost Centre No. 13R | | | | | | | | | | |
| 13R4C13S01 | 13R 1: On completion of 30% soil nailing | 0 | 0 | 0 | 0 | 29SEP09 | | 29SEP09 | 2 | 1,553 |
| 13R4C13S02 | 13R 2: On completion of 60% soil nailing | 0 | 0 | 0 | 0 | 25FEB10 | | 25FEB10 | 2 | 1,404 |
| 13R4C13S03 | 13R 3: On completion of all soil nailing works | 0 | 0 | 0 | 0 | 22SEP10 | | 22SEP10 | 2 | 1,195 |
| 13R4C13S04 | 13R 4: On completion of 10% piles by number | 0 | 0 | 0 | 0 | 05DEC08A | | 05DEC08A | 2 | |
| 13R4C13S05 | 13R 5: On completion of 20% piles by number | 0 | 0 | 0 | 0 | 13DEC08A | | 13DEC08A | 2 | |
| 13R4C13S06 | 13R 6: On completion of 30% piles by number | 0 | 0 | 0 | 0 | 18DEC08A | | 18DEC08A | 2 | |

◆ equipment for tunnelling at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ Adit Tunnel at Intake I-3
 ◆ under this Cost Centre

◆ below G.L. except for Adit Tunnel at Intake I-3
 ◆ below G.L. except for Adit Tunnel at Intake I-3
 ◆ at Intake I-3
 ◆ chamber at Intake I-3
 ◆ at Intake I-3
 ◆ shaft at Intake I-3
 ◆ adit at Intake I-3
 ◆ under this Cost Centre

◆ at Intake I-3
 ◆ at Intake I-3
 ◆ at Intake I-3
 ◆ at G.L. at Intake I-3
 ◆ channel at Intake I-3
 ◆ channel and associated decking at
 ◆ at Intake I-3
 ◆ under this Cost Centre

◆ at intake I-3
 ◆ at Intake I-3
 ◆ at Intake I-3
 ◆ at Intake I-3
 ◆ at Intake I-3
 ◆ at Intake I-3

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float | 2008 2009 2010 2011 2012 2013 | | | | | | | | | | | | | |
|---------------------------------------------------------|----------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | Gantt Chart | | | | | | | | | | | | | |
| Form Temporary Access/Tree Felling | | | | | | | | | | | | | | | | | | | | | | | |
| Works Suspension Due to Obstruct. from Villagers | | | | | | | | | | | | | | | | | | | | | | | |
| WS002 | Works suspension due to obstruct. frm villagers | 24 | 24 | 19JUL08A | 10AUG08A | 19JUL08A | 10AUG08A | | | | | | | | | | | | | | | | |
| 10R1DO0202 | Form temp. access road from +14mPD to +69mPD | 158* | 158* | 19JUN08A | 24DEC08A | 19JUN08A | 24DEC08A | | | | | | | | | | | | | | | | |
| 10R1DOAR04 | Const. temp. steel decking over exist Outfall W | 11 | 11 | 26AUG08A | 06SEP08A | 26AUG08A | 06SEP08A | | | | | | | | | | | | | | | | |
| 10R1DOAR08 | Form temp. access road from 14mPD to 28mPD | 12 | 12 | 19JUN08A | 18JUL08A | 19JUN08A | 18JUL08A | | | | | | | | | | | | | | | | |
| 10R1DOAR12 | Preparation works for transplanting T160 | 53 | 53 | 11AUG08A | 25OCT08A | 11AUG08A | 25OCT08A | | | | | | | | | | | | | | | | |
| 10R1DOAR42 | Mobilize & set up crane for tree transplant | 1 | 1 | 27OCT08A | 27OCT08A | 27OCT08A | 27OCT08A | | | | | | | | | | | | | | | | |
| 10R1DOAR44 | Crown pruning for T160 | 2 | 2 | 28OCT08A | 29OCT08A | 28OCT08A | 29OCT08A | | | | | | | | | | | | | | | | |
| 10R1DOAR46 | Cut root & uplift T160 | 1 | 1 | 30OCT08A | 30OCT08A | 30OCT08A | 30OCT08A | | | | | | | | | | | | | | | | |
| 10R1DOAR54 | Crown pruning/Cut root & uplift T142 | 10 | 10 | 21FEB09A | 21FEB09A | 21FEB09A | 21FEB09A | | | | | | | | | | | | | | | | |
| 10R1DOAR56 | Construct access road from +43 to +55mPD | 30 | 30 | 31OCT08A | 24DEC08A | 31OCT08A | 24DEC08A | | | | | | | | | | | | | | | | |
| 16R7DO0202 | Tree transplant at Outfall O-1 | 105 | 105 | 02JUN08A | 06MAR09A | 02JUN08A | 06MAR09A | | | | | | | | | | | | | | | | |
| 16R7DO0204 | Tree transplant above +62mPD | 11 | 11 | 31OCT08A | 12NOV08A | 31OCT08A | 12NOV08A | | | | | | | | | | | | | | | | |
| Form Temporary Launching Platform | | | | | | | | | | | | | | | | | | | | | | | |
| Slope Cut & Soil Nailing; +71mPD to +40mPD | | | | | | | | | | | | | | | | | | | | | | | |
| 10R1DO030 | +71 to +40mPD (rows to A to P) | 229* | 229* | 13NOV08A | 22AUG09 | 13NOV08A | 22AUG09 | | | | | | | | | | | | | | | | |
| 10R1DO031 | Remove boulder/Cut slope for rows A to D | 9 | 9 | 13NOV08A | 06DEC08A | 13NOV08A | 06DEC08A | | | | | | | | | | | | | | | | |
| 10R1DO032 | Erect scaffold & Drill/install/grout/P1at row C | 12 | 12 | 02DEC08A | 16DEC08A | 02DEC08A | 16DEC08A | | | | | | | | | | | | | | | | |
| 10R1DO033 | Drill/install/grout rows B to C; 18 nos. | 14 | 14 | 17DEC08A | 06JAN09A | 17DEC08A | 06JAN09A | | | | | | | | | | | | | | | | |
| 10R1DO034 | Drill/install/grout/testing for P2 at row D | 8 | 8 | 30DEC08A | 06JAN09A | 30DEC08A | 06JAN09A | | | | | | | | | | | | | | | | |
| 10R1DO035 | Drill/install/grout D1 to D11 | 7 | 7 | 07JAN09A | 16JAN09A | 07JAN09A | 16JAN09A | | | | | | | | | | | | | | | | |
| 10R1DO036 | Cut slope for E1 to G20; soil 620m3 | 2 | 2 | 15JAN09A | 20JAN09A | 15JAN09A | 20JAN09A | | | | | | | | | | | | | | | | |
| 10R1DO037 | Drill/install/grout E1 to G20; 51 nos. | 19 | 19 | 20JAN09A | 11FEB09A | 20JAN09A | 11FEB09A | | | | | | | | | | | | | | | | |
| 10R1DO038 | Construct nail heads/remove platform; rows B-G | 10 | 10 | 02FEB09A | 17FEB09A | 02FEB09A | 17FEB09A | | | | | | | | | | | | | | | | |
| 10R1DO039 | Erosion mat, wire mesh & hydroseed; rows B-G | 10 | 10 | 21FEB09A | 24FEB09A | 21FEB09A | 24FEB09A | | | | | | | | | | | | | | | | |
| 10R1DO040 | Cut slope for H1 to I25; soil 1819m3 | 12 | 12 | 02FEB09A | 17FEB09A | 02FEB09A | 17FEB09A | | | | | | | | | | | | | | | | |
| 10R1DO041 | Drill/install/grout H1 to I25; 47 nos. | 13 | 13 | 18FEB09A | 04MAR09A | 18FEB09A | 04MAR09A | | | | | | | | | | | | | | | | |
| 10R1DO042 | Cut slope for J1 to M37; soil 5834m3 | 20 | 20 | 19FEB09A | 13MAR09A | 19FEB09A | 13MAR09A | | | | | | | | | | | | | | | | |
| 10R1DO043 | Erect working platform for rows J to M | 14 | 14 | 28FEB09A | 16MAR09A | 28FEB09A | 16MAR09A | | | | | | | | | | | | | | | | |
| 10R1DO044 | Test nails for P3, P4, P5 & P10 | 12 | 12 | 05MAR09A | 07APR09A | 05MAR09A | 07APR09A | | | | | | | | | | | | | | | | |
| 10R1DO045 | Drill/install/grout J1 to M37; 134 nos. | 20 | 20 | 12MAR09A | 07APR09A | 12MAR09A | 07APR09A | | | | | | | | | | | | | | | | |
| 10R1DO047 | Construct nail heads/remove platform; rows H-M | 20 | 20 | 14MAR09A | 18APR09A | 14MAR09A | 18APR09A | | | | | | | | | | | | | | | | |
| 10R1DO048 | Erosion mat, wire mesh & hydroseed; rows H-M | 6 | 6 | 29MAY09 | 04JUN09 | 29MAY09 | 04JUN09 | | | | | | | | | | | | | | | | |
| 10R1DO049 | Excavate soil 5600m3 & boulders 229m3; Rows N to P | 22 | 22 | 14MAR09A | 18APR09A | 14MAR09A | 18APR09A | | | | | | | | | | | | | | | | |
| 10R1DO050 | Erect working platform for rows N to P | 10 | 10 | 20APR09A | 24APR09A | 20APR09A | 24APR09A | | | | | | | | | | | | | | | | |
| 10R1DO051 | Drill/install/grout N1 to P31; 111 nos. | 20 | 20 | 23APR09A | 13MAY09A | 23APR09A | 13MAY09A | | | | | | | | | | | | | | | | |
| 10R1DO053 | Construct nail heads/remove platform; row N to P | 14 | 14 | 14MAY09A | 02JUN09 | 14MAY09A | 02JUN09 | | | | | | | | | | | | | | | | |
| 10R1DO054 | Erosion mat, wire mesh & hydroseed; rows N to P | 6 | 6 | 03JUN09 | 09JUN09 | 03JUN09 | 09JUN09 | | | | | | | | | | | | | | | | |
| Slope Cut & Soil Nailing; +40mPD to +24mPD | | | | | | | | | | | | | | | | | | | | | | | |
| 10R1DO130 | +40 to +24mPD (rows Q to X) | 205* | 205* | 20APR09A | 22DEC09 | 20APR09A | 22DEC09 | | | | | | | | | | | | | | | | |

| ID | Activity Description | D04 | | AD04 | | WP3D | | Total Float |
|-------------------------------------------------------|--------------------------------------------------|-----|-----|----------|----------|----------|----------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | |
| 10R1DO131 | Excavation; 40 to 30mPD; soil 8291m3/rock 2778m3 | 43 | 43 | 20APR09A | 13AUG09 | 20APR09A | 13AUG09 | 1 -219 |
| 10R1DO132 | Reinstate temp. access | 30 | 30 | 21APR09A | 27MAY09A | 21APR09A | 27MAY09A | 1 -219 |
| 10R1DO133 | Erect working platform for rows Q to U | 22 | 22 | 11MAY09A | 17AUG09 | 11MAY09A | 17AUG09 | 1 -219 |
| 10R1DO134 | Test nails for P6, P7, P8 & P11 | 12 | 12 | 21MAY09A | 24AUG09 | 21MAY09A | 24AUG09 | 1 -219 |
| 10R1DO135 | Drill/install/grout Q1 to U10; 99 nos. | 13 | 13 | 12MAY09A | 04SEP09 | 12MAY09A | 04SEP09 | 1 -219 |
| 10R1DO136 | Excavation; 30 to 24mPD; soil 4197m3/rock 7592m3 | 95 | 95 | 27MAY09A | 08OCT09 | 27MAY09A | 08OCT09 | 1 -219 |
| 10R1DO137 | Drill/install/grout V1 to X14; 37 nos. | 10 | 10 | 05SEP09 | 16SEP09 | 05SEP09 | 16SEP09 | 1 -219 |
| 10R1DO138 | Construct nail heads/remove platform; row V to X | 17 | 17 | 02SEP09 | 21SEP09 | 02SEP09 | 21SEP09 | 1 -219 |
| 10R1DO139 | Erosion mat, wire mesh & hydroseed; rows V to X | 10 | 10 | 22SEP09 | 05OCT09 | 22SEP09 | 05OCT09 | 1 -219 |
| TBM Launching Chamber | | | | | | | | |
| 10R1DO1305 | Pipe pile roof support | 9 | 9 | 18SEP09 | 28SEP09 | 18SEP09 | 28SEP09 | 1 -212 |
| 10R1DO1310 | Excavate/construct TBM launching chamber | 63 | 63 | 09OCT09 | 22DEC09 | 09OCT09 | 22DEC09 | 1 -219 |
| 10R1DO1315 | Form launching chamber cradle | 12 | 12 | 09DEC09 | 22DEC09 | 09DEC09 | 22DEC09 | 1 -219 |
| 10R1DO1325 | Ground treatment prior to TBM commence boring | 4 | 4 | 23DEC09 | 29DEC09 | 23DEC09 | 29DEC09 | 1 -217 |
| Slope Cut & TBM Access Road; +24 to +14mPD | | | | | | | | |
| 10R1DO230 | +24 to +14mPD | 63* | 63* | 08JUN09 | 20AUG09 | 08JUN09 | 20AUG09 | 1 -181 |
| 10R1DO240 | Relocate sedimentation tank | 0 | 0 | 06JUN09* | 06JUN09* | 06JUN09* | 06JUN09* | 1 -172 |
| 10R1DO250 | Form access for big breaker | 12 | 12 | 08JUN09 | 20JUN09 | 08JUN09 | 20JUN09 | 1 -172 |
| 10R1DO260 | Mobilization of big breaker | 0 | 0 | 20JUN09 | 20JUN09 | 20JUN09 | 20JUN09 | 1 -172 |
| 10R1DO270 | Form new TBM access +14mPD to +24mPD | 14 | 14 | 22JUN09 | 08JUL09 | 22JUN09 | 08JUL09 | 1 -172 |
| 10R1DO280 | Divert access to new TBM access | 0 | 0 | 08JUL09 | 08JUL09 | 08JUL09 | 08JUL09 | 1 -172 |
| 10R1DO290 | Demolish masonry & ret. wall at +14mPD | 28 | 28 | 20JUL09 | 20AUG09 | 20JUL09 | 20AUG09 | 1 -181 |
| TBM Assembly Area at +24mPD | | | | | | | | |
| 10R1DO185 | Construct temporary drainage | 6 | 6 | 16DEC09 | 22DEC09 | 16DEC09 | 22DEC09 | 1 -219 |
| 10R1DO195 | Concrete slab | 12 | 12 | 16DEC09 | 31DEC09 | 16DEC09 | 31DEC09 | 1 -219 |
| 3AL1DO0314 | Commence TBM initial assembly | 0 | 0 | 02JAN10 | 02JAN10 | 02JAN10 | 02JAN10 | 1 -219 |
| Tower Crane | | | | | | | | |
| 3AL1DO2005 | Foundation | 8 | 8 | 21AUG09 | 29AUG09 | 21AUG09 | 29AUG09 | 1 -181 |
| 3AL1DO2010 | Erection | 3 | 3 | 08SEP09 | 10SEP09 | 08SEP09 | 10SEP09 | 1 -157 |
| 3AL1DO2015 | Test & commissioning | 1 | 1 | 11SEP09 | 11SEP09 | 11SEP09 | 11SEP09 | 1 -157 |
| 3AL1DO2025 | Removal of tower crane & reinstatement | 12 | 12 | 11APR12 | 24APR12 | 11APR12 | 24APR12 | 1 -207 |
| TBM Platform | | | | | | | | |
| 3AL1DO2505 | Pre-fabrication | 40 | 40 | 18JUN09* | 04AUG09 | 18JUN09* | 04AUG09 | 1 -159 |
| 3AL1DO2515 | Foundation | 12 | 12 | 31AUG09 | 12SEP09 | 31AUG09 | 12SEP09 | 1 -181 |
| 3AL1DO2525 | Erect steel framework | 36 | 36 | 14SEP09 | 28OCT09 | 14SEP09 | 28OCT09 | 1 -181 |
| 3AL1DO2535 | Install platform | 12 | 12 | 29OCT09 | 11NOV09 | 29OCT09 | 11NOV09 | 1 -181 |
| 3AL1DO2545 | ICE certification | 3 | 3 | 12NOV09 | 14NOV09 | 12NOV09 | 14NOV09 | 1 -181 |
| Noise Enclosure | | | | | | | | |
| 3AL1DO3005 | Pre-fabrication | 42 | 42 | 22JUN09* | 10AUG09 | 22JUN09* | 10AUG09 | 1 -120 |
| 3AL1DO3015 | Foundation | 12 | 12 | 23SEP09 | 08OCT09 | 23SEP09 | 08OCT09 | 1 -169 |
| 3AL1DO3025 | Erect steel framework | 18 | 18 | 09OCT09 | 30OCT09 | 09OCT09 | 30OCT09 | 1 -169 |
| 3AL1DO3035 | Cladding | 22 | 22 | 27JAN10 | 24FEB10 | 27JAN10 | 24FEB10 | 1 -195 |
| 3AL1DO3045 | ICE certification | 3 | 3 | 25FEB10 | 27FEB10 | 25FEB10 | 27FEB10 | 1 -195 |

soil 450m3/day & rock 185m3/day

| ID | Activity Description | AD04 | | WP3D | | AD04 | | WP3D | | Cal ID | Total Float |
|-----------------------------|----------------------------------------------|------|-----|----------|---------|----------|---------|----------|---------|--------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | | |
| 3AL1FT0802 | Apply to EPD for CNP for 24 hrs. tunnel work | 12 | 12 | 11FEB10 | 27FEB10 | 11FEB10 | 27FEB10 | 11FEB10 | 27FEB10 | 1 | -195 |
| 3AL1FT0804 | EPD process/approve CNP application | 36 | 36 | 28FEB10 | 04APR10 | 28FEB10 | 04APR10 | 28FEB10 | 04APR10 | 2 | -237 |
| 105 Ton Gantry Crane | | | | | | | | | | | |
| 3AL1DO3505 | Manufacture | 99 | 99 | 29MAY09 | 22SEP09 | 29MAY09 | 22SEP09 | 29MAY09 | 22SEP09 | 1 | -159 |
| 3AL1DO3515 | Shipping to Hong Kong | 6 | 6 | 23SEP09 | 29SEP09 | 23SEP09 | 29SEP09 | 23SEP09 | 29SEP09 | 1 | -159 |
| 3AL1DO3525 | Assembly | 8 | 8 | 30SEP09 | 10OCT09 | 30SEP09 | 10OCT09 | 30SEP09 | 10OCT09 | 1 | -159 |
| 3AL1DO3535 | Install rails | 4 | 4 | 23OCT09 | 28OCT09 | 23OCT09 | 28OCT09 | 23OCT09 | 28OCT09 | 1 | -169 |
| 3AL1DO3545 | Test & commission | 3 | 3 | 29OCT09 | 31OCT09 | 29OCT09 | 31OCT09 | 29OCT09 | 31OCT09 | 1 | -169 |
| 3AL1DO3555 | Receive initial segments and stock | 6 | 6 | 02JAN10 | 08JAN10 | 02JAN10 | 08JAN10 | 02JAN10 | 08JAN10 | 1 | -209 |
| Muck Hopper | | | | | | | | | | | |
| 3AL1DO4005 | Pre-fabrication | 75 | 75 | 22JUN09* | 17SEP09 | 22JUN09* | 17SEP09 | 22JUN09* | 17SEP09 | 1 | -83 |
| 3AL1DO4015 | Foundation | 18 | 18 | 14SEP09 | 06OCT09 | 14SEP09 | 06OCT09 | 14SEP09 | 06OCT09 | 1 | -97 |
| 3AL1DO4025 | Erect steelwork | 18 | 18 | 12NOV09 | 02DEC09 | 12NOV09 | 02DEC09 | 12NOV09 | 02DEC09 | 1 | -127 |
| 3AL1DO4035 | Erect hopper | 18 | 18 | 03DEC09 | 23DEC09 | 03DEC09 | 23DEC09 | 03DEC09 | 23DEC09 | 1 | -127 |
| 3AL1DO4045 | Install transfer conveyor | 4 | 4 | 24DEC09 | 30DEC09 | 24DEC09 | 30DEC09 | 24DEC09 | 30DEC09 | 1 | -127 |
| 3AL1DO4055 | M&E works | 6 | 6 | 31DEC09 | 07JAN10 | 31DEC09 | 07JAN10 | 31DEC09 | 07JAN10 | 1 | -127 |
| 3AL1DO4065 | Test & commissioning | 3 | 3 | 08JAN10 | 11JAN10 | 08JAN10 | 11JAN10 | 08JAN10 | 11JAN10 | 1 | -127 |
| Marti Conveyor | | | | | | | | | | | |
| 3AL1DO4505 | Engineering | 50 | 50 | 29MAY09 | 27JUL09 | 29MAY09 | 27JUL09 | 29MAY09 | 27JUL09 | 1 | -105 |
| 3AL1DO4515 | Pre-fabrication | 60 | 60 | 28JUL09 | 07OCT09 | 28JUL09 | 07OCT09 | 28JUL09 | 07OCT09 | 1 | -105 |
| 3AL1DO4525 | Delivery to Hong Kong | 25 | 25 | 23SEP09 | 23OCT09 | 23SEP09 | 23OCT09 | 23SEP09 | 23OCT09 | 1 | -105 |
| 3AL1DO4535 | Pre-assembly at Portion I | 6 | 6 | 24OCT09 | 31OCT09 | 24OCT09 | 31OCT09 | 24OCT09 | 31OCT09 | 1 | -105 |
| 3AL1DO4545 | Foundation | 3 | 3 | 02JAN10 | 05JAN10 | 02JAN10 | 05JAN10 | 02JAN10 | 05JAN10 | 1 | -155 |
| 3AL1DO4555 | Install belt conveyor stage 1 | 24 | 24 | 06JAN10 | 02FEB10 | 06JAN10 | 02FEB10 | 06JAN10 | 02FEB10 | 1 | -155 |
| 3AL1DO4565 | Install transfer conveyor | 1 | 1 | 03FEB10 | 03FEB10 | 03FEB10 | 03FEB10 | 03FEB10 | 03FEB10 | 1 | -155 |
| 3AL1DO4575 | Install belt conveyor stage 2 | 6 | 6 | 27APR10 | 04MAY10 | 27APR10 | 04MAY10 | 27APR10 | 04MAY10 | 1 | -218 |
| 3AL1DO4585 | M&E works | 2 | 2 | 05MAY10 | 06MAY10 | 05MAY10 | 06MAY10 | 05MAY10 | 06MAY10 | 1 | -218 |
| 3AL1DO4595 | Test & commission | 1 | 1 | 07MAY10 | 07MAY10 | 07MAY10 | 07MAY10 | 07MAY10 | 07MAY10 | 1 | -218 |
| LV Station | | | | | | | | | | | |
| 3AL1DO5005 | Delivery & install containers 1/2/3 | 4 | 4 | 12SEP09 | 16SEP09 | 12SEP09 | 16SEP09 | 12SEP09 | 16SEP09 | 1 | -157 |
| 3AL1DO5015 | M&E works | 12 | 12 | 17SEP09 | 30SEP09 | 17SEP09 | 30SEP09 | 17SEP09 | 30SEP09 | 1 | -157 |
| 3AL1DO5025 | Test & commission | 12 | 12 | 13OCT09 | 27OCT09 | 13OCT09 | 27OCT09 | 13OCT09 | 27OCT09 | 1 | -165 |
| Cooling Water System | | | | | | | | | | | |
| 3AL1DO5505 | Pre-fabrication | 53 | 53 | 09JUL09 | 08SEP09 | 09JUL09 | 08SEP09 | 09JUL09 | 08SEP09 | 1 | -129 |
| 3AL1DO5515 | Foundation | 10 | 10 | 09SEP09 | 19SEP09 | 09SEP09 | 19SEP09 | 09SEP09 | 19SEP09 | 1 | -129 |
| 3AL1DO5525 | Erect cooling system | 12 | 12 | 21SEP09 | 06OCT09 | 21SEP09 | 06OCT09 | 21SEP09 | 06OCT09 | 1 | -129 |
| 3AL1DO5535 | M&E works | 4 | 4 | 07OCT09 | 10OCT09 | 07OCT09 | 10OCT09 | 07OCT09 | 10OCT09 | 1 | -129 |
| 3AL1DO5545 | Test & commission | 2 | 2 | 12OCT09 | 13OCT09 | 12OCT09 | 13OCT09 | 12OCT09 | 13OCT09 | 1 | -129 |
| Grout System | | | | | | | | | | | |
| 3AL1DO6005 | Pre-fabrication | 90 | 90 | 22JUN09* | 07OCT09 | 22JUN09* | 07OCT09 | 22JUN09* | 07OCT09 | 1 | -134 |
| 3AL1DO6015 | Erect system | 6 | 6 | 16NOV09 | 21NOV09 | 16NOV09 | 21NOV09 | 16NOV09 | 21NOV09 | 1 | -166 |
| 3AL1DO6025 | M&E works | 3 | 3 | 23NOV09 | 25NOV09 | 23NOV09 | 25NOV09 | 23NOV09 | 25NOV09 | 1 | -166 |
| 3AL1DO6035 | Test & commission | 1 | 1 | 26NOV09 | 26NOV09 | 26NOV09 | 26NOV09 | 26NOV09 | 26NOV09 | 1 | -166 |

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Total Float |
|-------------------------------------------------------------|--------------------------------------------------|----------|----------|------------|-------------|------------|-------------|-------------|
| Pea Gravel Plant | | | | | | | | |
| 3AL1D07505 | Pre-fabrication | 36 | 36 | 22JUN09 | 03AUG09 | 22JUN09 | 03AUG09 | 1 -82 |
| 3AL1D07515 | Install hopper | 4 | 4 | 06OCT09 | 09OCT09 | 06OCT09 | 09OCT09 | 1 -134 |
| 3AL1D07525 | Erect conveyor | 2 | 2 | 10OCT09 | 12OCT09 | 10OCT09 | 12OCT09 | 1 -134 |
| 3AL1D07535 | M&E works | 4 | 4 | 13OCT09 | 16OCT09 | 13OCT09 | 16OCT09 | 1 -134 |
| 3AL1D07545 | Test & commission | 2 | 2 | 17OCT09 | 19OCT09 | 17OCT09 | 19OCT09 | 1 -134 |
| 3AL1D07555 | Install conveyor connecting to TBM | 4 | 4 | 27APR10 | 30APR10 | 27APR10 | 30APR10 | 1 -213 |
| Ventilation System | | | | | | | | |
| 3AL1D08005 | Pre-fabrication | 72 | 72 | 29MAY09 | 21AUG09 | 29MAY09 | 21AUG09 | 1 -14 |
| 3AL1D08015 | Erect system | 2 | 2 | 27APR10 | 28APR10 | 27APR10 | 28APR10 | 1 -213 |
| 3AL1D08025 | M&E works | 1 | 1 | 29APR10 | 29APR10 | 29APR10 | 29APR10 | 1 -213 |
| 3AL1D08035 | Test & commission | 1 | 1 | 30APR10 | 30APR10 | 30APR10 | 30APR10 | 1 -213 |
| Miscellaneous | | | | | | | | |
| 3AL1D08502 | Install transformer & harmonic filter | 2 | 2 | 27APR10 | 28APR10 | 27APR10 | 28APR10 | 1 -218 |
| 3AL1D08512 | Remove invert segments; 19 nos. | 2 | 2 | 27APR10 | 28APR10 | 27APR10 | 28APR10 | 1 -218 |
| 3AL1D08522 | Make good slab | 3 | 3 | 28APR10 | 30APR10 | 28APR10 | 30APR10 | 1 -218 |
| 3AL1D08532 | Install rail switch | 1 | 1 | 03MAY10 | 03MAY10 | 03MAY10 | 03MAY10 | 1 -214 |
| VO # 49 & 53; Additional Drainage & Stairway | | | | | | | | |
| VO-04910 | Received Variation orders | 0 | 0 | | 26FEB09A | | 26FEB09A | 1 |
| VO-04920 | Preparation works for varied works | 14 | 14 | 27FEB09A | 14MAR09A | 27FEB09A | 14MAR09A | 1 |
| VO-04930 | Construct u-channel & stairway; +71mPD to +55mPD | 60 | 60 | 16MAR09A | 29MAY09 | 16MAR09A | 29MAY09 | 1 -179 |
| VO-04940 | Construct u-channel & stairway; +55mPD to +47mPD | 27 | 27 | 05JUN09 | 07JUL09 | 05JUN09 | 07JUL09 | 1 -184 |
| VO-04950 | Construct u-channel & stairway; +47mPD to +41mPD | 40 | 40 | 08JUL09 | 22AUG09 | 08JUL09 | 22AUG09 | 1 -184 |
| VO-04960 | Construct u-channel & stairway; +41 to +24 mPD | 60 | 60 | 06OCT09 | 15DEC09 | 06OCT09 | 15DEC09 | 1 -219 |
| VO #88; Revised Slope Profile with Add. Supports | | | | | | | | |
| VO-088000 | Received VO #088 | 0 | 0 | | 27MAY09A | | 27MAY09A | 1 |
| VO-088005 | Excavate from 38.5mPD to 36.5mPD | 6 | 6 | 29MAY09 | 04JUN09 | 29MAY09 | 04JUN09 | 1 -218 |
| VO-088010 | Procure and prepare materials | 9 | 9 | 29MAY09 | 08JUN09 | 29MAY09 | 08JUN09 | 1 -219 |
| VO-088015 | SOR confirm soil nails location | 2 | 2 | 05JUN09 | 06JUN09 | 05JUN09 | 06JUN09 | 1 -218 |
| VO-088020 | Drill/install/grout soil nails; rows AA-AB | 7 | 7 | 09JUN09 | 16JUN09 | 09JUN09 | 16JUN09 | 1 -219 |
| VO-088025 | Install wire mesh & shorcrete 150mm | 3 | 3 | 17JUN09 | 19JUN09 | 17JUN09 | 19JUN09 | 1 -219 |
| VO-088030 | Excavate from +36.5 mPD to 34.5mPD | 6 | 6 | 20JUN09 | 26JUN09 | 20JUN09 | 26JUN09 | 1 -219 |
| VO-088035 | SOR confirm soil nails location | 2 | 2 | 27JUN09 | 29JUN09 | 27JUN09 | 29JUN09 | 1 -219 |
| VO-088040 | Drill/install/grout soil nails; rows AC-AD | 7 | 7 | 30JUN09 | 08JUL09 | 30JUN09 | 08JUL09 | 1 -219 |
| VO-088045 | Install wire mesh & shorcrete 150mm | 3 | 3 | 09JUL09 | 11JUL09 | 09JUL09 | 11JUL09 | 1 -219 |
| VO-088050 | Excavate from +34.5 mPD to 32.5mPD | 6 | 6 | 13JUL09 | 18JUL09 | 13JUL09 | 18JUL09 | 1 -219 |
| VO-088055 | SOR confirm soil nails location | 2 | 2 | 20JUL09 | 21JUL09 | 20JUL09 | 21JUL09 | 1 -219 |
| VO-088060 | Drill/install/grout soil nails; rows AE-AF | 7 | 7 | 22JUL09 | 29JUL09 | 22JUL09 | 29JUL09 | 1 -219 |
| VO-088065 | Install wire mesh & shorcrete 150mm | 3 | 3 | 30JUL09 | 01AUG09 | 30JUL09 | 01AUG09 | 1 -219 |
| VO-088070 | Excavate from +34.5 mPD to 32.5mPD | 6 | 6 | 03AUG09 | 08AUG09 | 03AUG09 | 08AUG09 | 1 -219 |
| VO-088075 | SOR confirm soil nails location | 2 | 2 | 10AUG09 | 11AUG09 | 10AUG09 | 11AUG09 | 1 -219 |
| VO-088080 | Drill/install/grout soil nails; row AG | 5 | 5 | 12AUG09 | 17AUG09 | 12AUG09 | 17AUG09 | 1 -219 |
| VO-088085 | Install wire mesh & shorcrete 150mm | 3 | 3 | 18AUG09 | 20AUG09 | 18AUG09 | 20AUG09 | 1 -219 |

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float |
|-------------------------------------------------------------|-----------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|
| Instruction from SOR | | | | | | | | | |
| SORI-10 | Suspension of rock drilling & breaking | 1 | 1 | 20JUN09* | 20JUN09 | 20JUN09 | 20JUN09 | 1 | -219 |
| SORI-20 | Erection of noise barriers | 3 | 3 | 22JUN09 | 24JUN09 | 22JUN09 | 24JUN09 | 1 | -219 |
| Construct Spiral Ramp & Associ. Vehicular Access | | | | | | | | | |
| Spiral Ramp | | | | | | | | | |
| 10R1DO0402 | Install 273mm dia. temp. pipe piles; 40 nos. | 12 | 12 | 08MAY10 | 22MAY10 | 08MAY10 | 22MAY10 | 1 | -93 |
| 10R1DO0404 | Soil excavation & install walling & tie backs | 24 | 24 | 24MAY10 | 21JUN10 | 24MAY10 | 21JUN10 | 1 | -93 |
| 10R1DO0406 | Rock excavation for spiral ramp; 4629m ³ | 70 | 70 | 22JUN10 | 11SEP10 | 22JUN10 | 11SEP10 | 1 | -93 |
| 10R1DO0414 | Construct base of spiral ramp; Outfall O-1 | 12 | 12 | 13SEP10 | 27SEP10 | 13SEP10 | 27SEP10 | 1 | -93 |
| 10R1DO0416 | Cast spiral ramp up to +6.73mPD | 15 | 15 | 28SEP10 | 15OCT10 | 28SEP10 | 15OCT10 | 1 | -93 |
| 10R1DO0418 | Cast spiral ramp up to +11.58mPD | 15 | 15 | 19OCT10 | 03NOV10 | 19OCT10 | 03NOV10 | 1 | -93 |
| 10R1DO0420 | Cast spiral ramp up to +16.00mPD | 15 | 15 | 04NOV10 | 20NOV10 | 04NOV10 | 20NOV10 | 1 | -93 |
| 10R1DO0422 | Cast spiral ramp up to +20.00mPD | 15 | 15 | 22NOV10 | 08DEC10 | 22NOV10 | 08DEC10 | 1 | -93 |
| 10R1DO0424 | Cast spiral ramp up to +24.23mPD | 15 | 15 | 09DEC10 | 26DEC10 | 09DEC10 | 26DEC10 | 1 | -93 |
| 10R1DO0425 | Backfill spiral ramp; 1700m ³ | 4 | 4 | 29DEC10 | 03JAN11 | 29DEC10 | 03JAN11 | 1 | -93 |
| 10R1DO0426 | Construct spiral ramp top; Outfall O-1 | 20 | 20 | 04JAN11 | 26JAN11 | 04JAN11 | 26JAN11 | 1 | -93 |
| 10R1DO0428 | Construct vehicular access bet. tunnel & s. ramp | 10 | 10 | 12JUL11 | 22JUL11 | 12JUL11 | 22JUL11 | 1 | -2 |
| 10R1DO0430 | Commission of Spiral Ramp | 6 | 6 | 27JAN11 | 02FEB11 | 27JAN11 | 02FEB11 | 1 | -93 |
| Vehicular Access | | | | | | | | | |
| 10R1DO0407 | Install 40 nos. roof piles # 375mm c/c | 24 | 24 | 11OCT10 | 08NOV10 | 02NOV10 | 29NOV10 | 1 | -128 |
| 10R1DO0408 | Excavation for vehicular access underneath CPR | 70 | 70 | 09NOV10 | 01FEB11 | 30NOV10 | 25FEB11 | 1 | -128 |
| 10R1DO0410 | Construct base for vehicular access | 12 | 12 | 02FEB11 | 18FEB11 | 26FEB11 | 11MAR11 | 1 | -128 |
| 10R1DO0412 | Construct wall & roof for vehicular access | 24 | 24 | 19FEB11 | 18MAR11 | 12MAR11 | 09APR11 | 1 | -128 |
| Lower Part Box Culvert/Open Channel By Mining | | | | | | | | | |
| 10R1DO0502 | Site possession of Portion E-650d of DOC | 0 | 0 | 08OCT09 | | 08OCT09 | | 2 | -453 |
| 10R1DO0504 | Divert exist. outfall "W" under CPR arch bridge | 36 | 36 | 09NOV09 | 19DEC09 | 30NOV09 | 13JAN10 | 1 | -395 |
| 10R1DO0506 | Remove rock armour & form platform @+2.3mPD | 36 | 36 | 21DEC09 | 03FEB10 | 14JAN10 | 27FEB10 | 1 | -395 |
| 10R1DO0508 | Install temp. pile for pipe roofing | 96 | 96 | 04FEB10 | 05JUN10 | 01MAR10 | 28JUN10 | 1 | -395 |
| 10R1DO0510 | Excavate for box-culvert; 2 cells | 44 | 44 | 07JUN10 | 29JUL10 | 29JUN10 | 19AUG10 | 1 | -395 |
| 10R1DO0512 | Construct base slabs of box culvert; 2 cells | 20 | 20 | 30JUL10 | 21AUG10 | 20AUG10 | 11SEP10 | 1 | -395 |
| 10R1DO0514 | Construct wall & roof of box culvert; 2 cells | 44 | 44 | 11OCT10 | 09OCT10 | 13SEP10 | 01NOV10 | 1 | -395 |
| 10R1DO0516 | Excavate for box-culvert; 2 cells | 20 | 20 | 02DEC10 | 24DEC10 | 02NOV10 | 22DEC10 | 1 | -395 |
| 10R1DO0518 | Construct base slabs of box culvert; 2 cells | 40 | 40 | 28DEC10 | 16FEB11 | 19JAN11 | 09MAR11 | 1 | -395 |
| 10R1DO0520 | Construct wall & roof of box culvert; 2 cells | 24 | 24 | 17FEB11 | 16MAR11 | 10MAR11 | 07APR11 | 1 | -395 |
| 10R1DO0522 | Excavate for open channel | 24 | 24 | 17MAR11 | 14APR11 | 08APR11 | 09MAY11 | 1 | -395 |
| 10R1DO0526 | Construct open channel at 2.3 mPD | 24 | 24 | 17MAR11 | 14APR11 | 08APR11 | 09MAY11 | 1 | -395 |
| 10R1DO0528 | Reinstate existing outfall "W" | 6 | 6 | 08APR11 | 14APR11 | 03MAY11 | 09MAY11 | 1 | -395 |
| Construct Portal Head & Associated Structures | | | | | | | | | |
| 10R1DO0602 | Excavate tapered open channel/ upper cascade | 24 | 24 | 12JUL11 | 08AUG11 | 12JUL11 | 08AUG11 | 1 | -219 |
| 10R1DO0604 | Construct tapered open channel & upper cascade | 48 | 48 | 09AUG11 | 06OCT11 | 09AUG11 | 06OCT11 | 1 | -131 |

3M starts operating day & night 40 nos. ~13m long
 432m³ soil including temp. supports measures
 4000m³ rock including temp. supports measures

@ 5m³/5minutes/480m³/day

sheet pile roofing & lagging ~180m² soil 450m³ + rock 50m³

soil 40m³

cells; 210 nos.

soil 2900m³

Concrete 160m³

concrete 390m³

soil 2900m³

Concrete 160m³

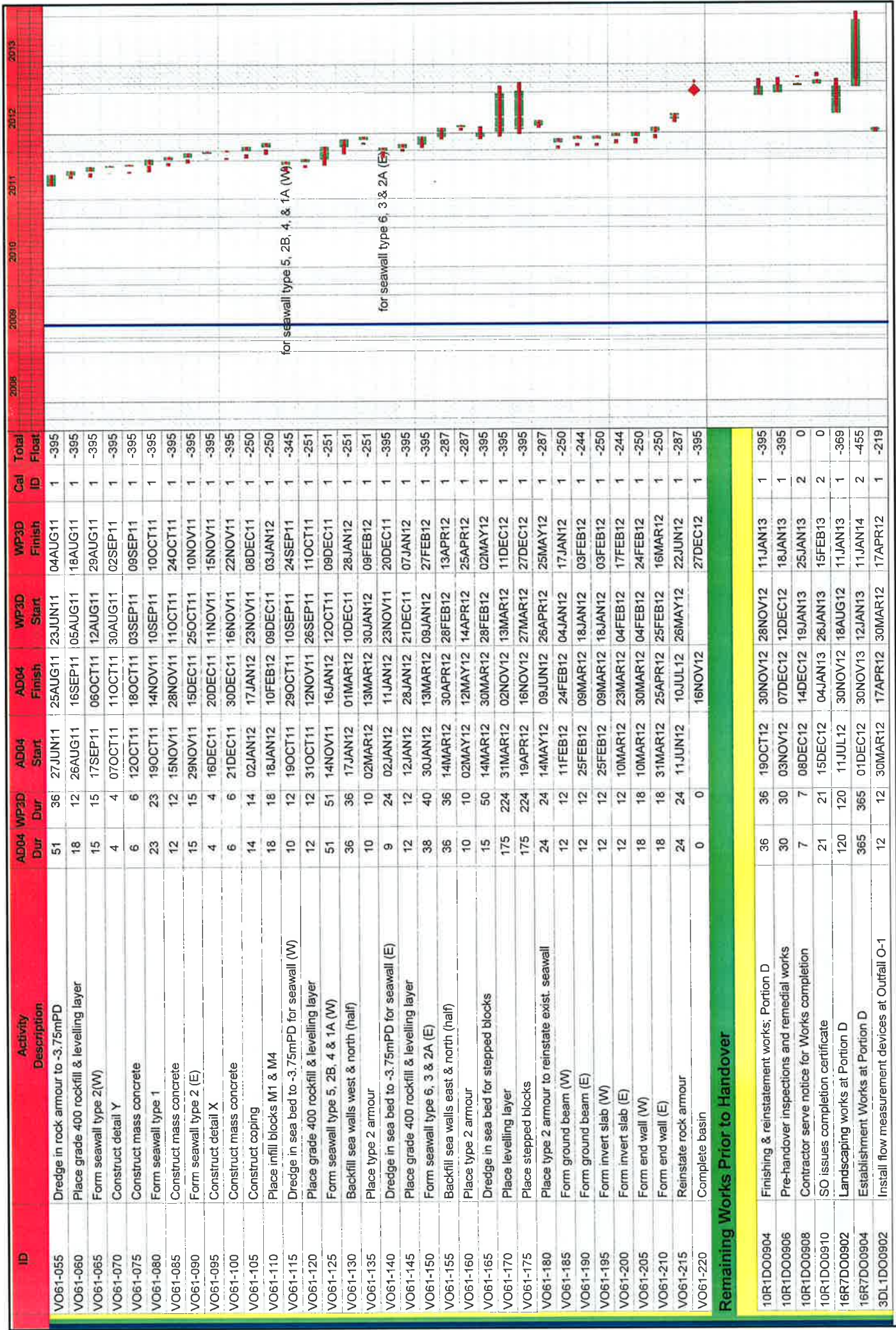
concrete 390m³

| ID | Activity Description | D04 | | WP3D | | AD04 | | WP3D | | Total Float |
|---------------------------------------------------------|-------------------------------------------------|-----|-----|---------|----------|---------|----------|-------|--------|-------------|
| | | Dur | Dur | Start | Finish | Start | Finish | Start | Finish | |
| 10R1DO0606 | Dismantle & removal of tower crane | 12 | 12 | 17NOV12 | 30NOV12 | 28DEC12 | 11JAN13 | 1 | -395 | |
| 3AL1DO0602 | Dismantle/remove TBM backup system | 24 | 24 | 13JUN11 | 11JUL11 | 13JUN11 | 11JUL11 | 1 | -219 | |
| 3AL1DO0606 | Construct portal head wall | 24 | 24 | 09AUG11 | 05SEP11 | 09AUG11 | 05SEP11 | 1 | -131 | |
| Cascade & Upper Part Box Culvert by Mining | | | | | | | | | | |
| Upper Cascade | | | | | | | | | | |
| 10R1DO0704 | Drive sheet piles | 18 | 18 | 12JUL11 | 01AUG11 | 12JUL11 | 01AUG11 | 1 | -219 | |
| 10R1DO0706 | Excavate & temp. support to services | 60 | 60 | 02AUG11 | 13OCT11 | 02AUG11 | 13OCT11 | 1 | -219 | |
| 10R1DO0708 | Construct base slab | 24 | 24 | 14OCT11 | 10NOV11 | 14OCT11 | 10NOV11 | 1 | -219 | |
| 10R1DO0710 | Construct side walls | 18 | 18 | 11NOV11 | 01DEC11 | 11NOV11 | 01DEC11 | 1 | -219 | |
| 10R1DO0712 | Construct roof | 24 | 24 | 02DEC11 | 03JAN12 | 02DEC11 | 03JAN12 | 1 | -219 | |
| 10R1DO0714 | Construct upstand | 12 | 12 | 04JAN12 | 17JAN12 | 04JAN12 | 17JAN12 | 1 | -219 | |
| 10R1DO0716 | Backfill | 6 | 6 | 16JAN12 | 21JAN12 | 16JAN12 | 21JAN12 | 1 | -219 | |
| 10R1DO0730 | Excavate for lower cascade construction | 13 | 13 | 26JAN12 | 09FEB12 | 26JAN12 | 09FEB12 | 1 | -219 | |
| 10R1DO0732 | Construct lower cascade | 48 | 48 | 10FEB12 | 10APR12 | 10FEB12 | 10APR12 | 1 | -219 | |
| 10R1DO0734 | Construct, baffle, railing etc. | 48 | 48 | 10FEB12 | 10APR12 | 10FEB12 | 10APR12 | 1 | -207 | |
| Seabed Protection Works | | | | | | | | | | |
| Preliminary Works for Outfall Basin Construction | | | | | | | | | | |
| VO061-002 | Receive VO # 061 | 0 | 0 | | 30JUN09* | | 30JUN09* | 1 | -395 | |
| VO061-004 | Appoint Independent Hydrographic Surveyor | 60 | 60 | 02JUL09 | 09SEP09 | 02JUL09 | 09SEP09 | 1 | -395 | |
| VO061-006 | Carry out sounding survey | 6 | 6 | 10SEP09 | 16SEP09 | 08OCT09 | 14OCT09 | 1 | -395 | |
| VO061-008 | Prepare/submit drwgs./report of sounding survey | 6 | 6 | 17SEP09 | 23SEP09 | 15OCT09 | 21OCT09 | 1 | -395 | |
| VO061-010 | SOR approves drwgs./report of sounding survey | 6 | 6 | 24SEP09 | 30SEP09 | 22OCT09 | 29OCT09 | 1 | -395 | |
| VO061-012 | SOR issue Supplm. Environmental Review Report | 30 | 30 | 02JUL09 | 05AUG09 | 02JUL09 | 05AUG09 | 1 | -59 | |
| VO061-014 | Apply for Variation Environmental Permit (VEP) | 6 | 6 | 06AUG09 | 12AUG09 | 06AUG09 | 12AUG09 | 1 | -59 | |
| VO061-016 | EPD review/issue VEP | 30 | 30 | 13AUG09 | 16SEP09 | 13AUG09 | 16SEP09 | 1 | -59 | |
| VO061-018 | Prepare/submit Revised EM&A Manual by ET | 30 | 30 | 17SEP09 | 23OCT09 | 17SEP09 | 23OCT09 | 1 | -59 | |
| VO061-020 | IEC endorse Revised EM&A Manual | 12 | 12 | 24OCT09 | 07NOV09 | 24OCT09 | 07NOV09 | 1 | -59 | |
| VO061-022 | EPD acknowledge Revised EM&A Manual | 6 | 6 | 09NOV09 | 14NOV09 | 09NOV09 | 14NOV09 | 1 | -59 | |
| VO061-024 | Carry out baseline monitoring | 28 | 28 | 16NOV09 | 17DEC09 | 16NOV09 | 17DEC09 | 1 | -59 | |
| VO061-026 | Prepare/submit baseline report by ET | 12 | 12 | 18DEC09 | 04JAN10 | 18DEC09 | 04JAN10 | 1 | -59 | |
| VO061-028 | IEC endorse baseline report | 12 | 12 | 05JAN10 | 18JAN10 | 05JAN10 | 18JAN10 | 1 | -59 | |
| VO061-030 | EPD approve baseline report | 30 | 30 | 19JAN10 | 25FEB10 | 19JAN10 | 25FEB10 | 1 | -59 | |
| VO061-032 | Appoint sub-contractor for varied works | 60 | 60 | 02JUL09 | 09SEP09 | 02JUL09 | 09SEP09 | 1 | -377 | |
| VO061-034 | Prepare/submit method statement | 30 | 30 | 02OCT09 | 07NOV09 | 10SEP09 | 16OCT09 | 1 | -395 | |
| VO061-036 | IEC endorse method statement | 12 | 12 | 09NOV09 | 21NOV09 | 17OCT09 | 31OCT09 | 1 | -7 | |
| VO061-038 | SOR approve method statement | 24 | 24 | 23NOV09 | 19DEC09 | 02NOV09 | 28NOV09 | 1 | -7 | |
| VO061-040 | Apply for marine notice | 6 | 6 | 09NOV09 | 14NOV09 | 30NOV09 | 05DEC09 | 1 | -395 | |
| VO061-042 | Review/issue marine notice by Marine Department | 30 | 30 | 16NOV09 | 19DEC09 | 07DEC09 | 13JAN10 | 1 | -395 | |
| VO061-044 | Apply for dumping permit | 6 | 6 | 09NOV09 | 14NOV09 | 30NOV09 | 05DEC09 | 1 | -37 | |
| VO061-046 | Review/issue dumping permit by EPD | 60 | 60 | 16NOV09 | 27JAN10 | 07DEC09 | 20FEB10 | 1 | -37 | |
| VO061-048 | Commence works for basin construction | 0 | 0 | 15APR11 | | 11MAY11 | | 1 | -395 | |
| VO #061; Outfall Basin Construction | | | | | | | | | | |
| VO061-050 | Excavation in rock armour to +2.3mPD | 57 | 36 | 15APR11 | 25JUN11 | 11MAY11 | 22JUN11 | 1 | -395 | |

Following removal of TBM & TBM facilities

including gantry crane

following construction of box culvert

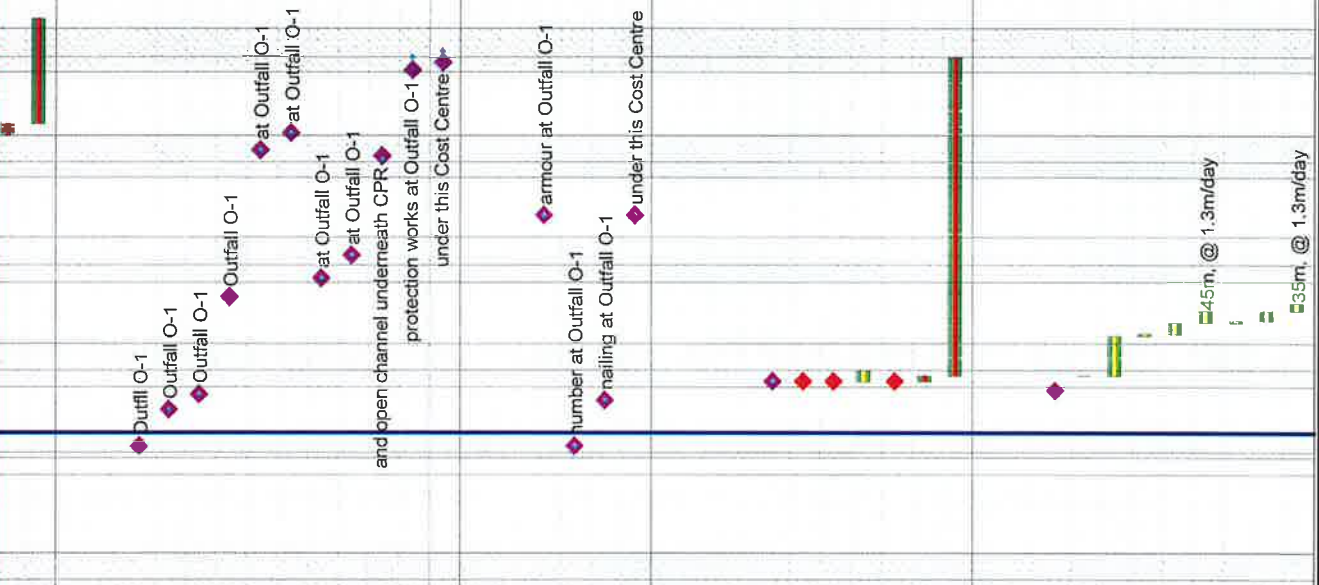


for seawall type 5, 2B, 4, & 1A (W)

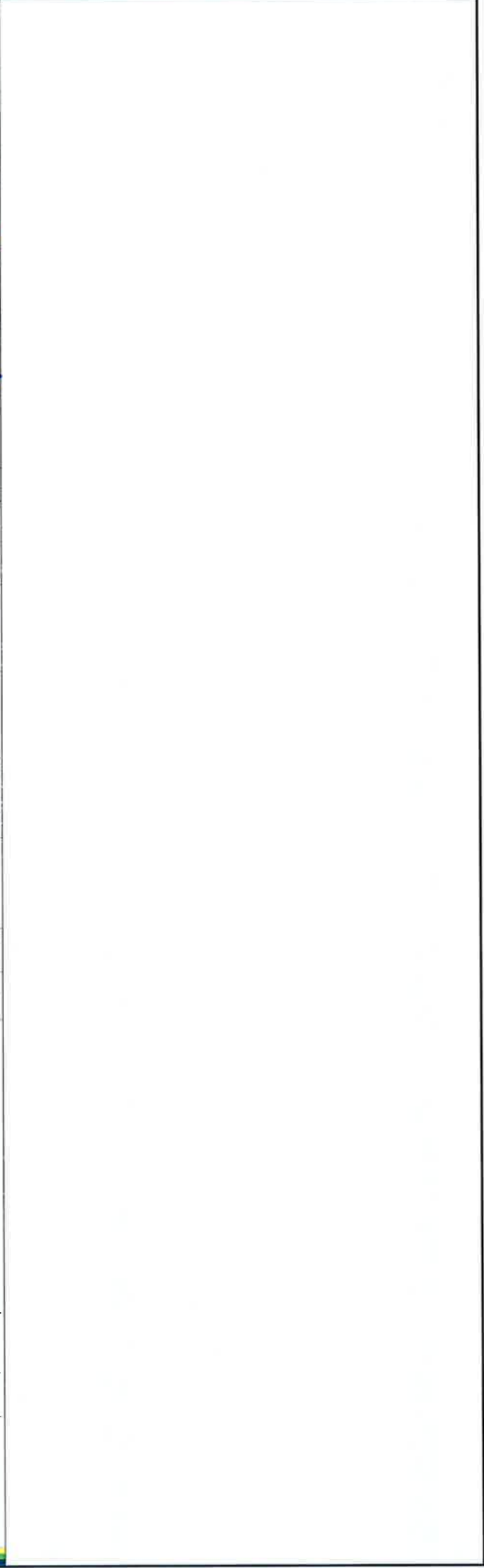
for seawall type 6, 3 & 2A (E)

| ID | Activity Description | AD04 Dur | WP3D Dur | AD04 Start | AD04 Finish | WP3D Start | WP3D Finish | Cal ID | Total Float |
|------------------------------------------|-------------------------------------------------|----------|----------|------------|-------------|------------|-------------|--------|-------------|
| VO61-055 | Dredge in rock armour to -3.75mPD | 51 | 36 | 27JUN11 | 25AUG11 | 23JUN11 | 04AUG11 | 1 | -395 |
| VO61-060 | Place grade 400 rockfill & levelling layer | 18 | 12 | 26AUG11 | 16SEP11 | 05AUG11 | 18AUG11 | 1 | -395 |
| VO61-065 | Form seawall type 2(W) | 15 | 15 | 17SEP11 | 06OCT11 | 12AUG11 | 29AUG11 | 1 | -395 |
| VO61-070 | Construct detail Y | 4 | 4 | 07OCT11 | 11OCT11 | 30AUG11 | 02SEP11 | 1 | -395 |
| VO61-075 | Construct mass concrete | 6 | 6 | 12OCT11 | 18OCT11 | 03SEP11 | 09SEP11 | 1 | -395 |
| VO61-080 | Form seawall type 1 | 23 | 23 | 19OCT11 | 14NOV11 | 10SEP11 | 10OCT11 | 1 | -395 |
| VO61-085 | Construct mass concrete | 12 | 12 | 15NOV11 | 28NOV11 | 11OCT11 | 24OCT11 | 1 | -395 |
| VO61-090 | Form seawall type 2 (E) | 15 | 15 | 29NOV11 | 15DEC11 | 25OCT11 | 10NOV11 | 1 | -395 |
| VO61-095 | Construct detail X | 4 | 4 | 16DEC11 | 20DEC11 | 11NOV11 | 15NOV11 | 1 | -395 |
| VO61-100 | Construct mass concrete | 6 | 6 | 21DEC11 | 30DEC11 | 16NOV11 | 22NOV11 | 1 | -395 |
| VO61-105 | Construct coping | 14 | 14 | 02JAN12 | 17JAN12 | 23NOV11 | 08DEC11 | 1 | -250 |
| VO61-110 | Place infill blocks M1 & M4 | 18 | 18 | 16JAN12 | 10FEB12 | 09DEC11 | 03JAN12 | 1 | -250 |
| VO61-115 | Dredge in sea bed to -3.75mPD for seawall (W) | 10 | 12 | 19OCT11 | 29OCT11 | 10SEP11 | 24SEP11 | 1 | -345 |
| VO61-120 | Place grade 400 rockfill & levelling layer | 12 | 12 | 31OCT11 | 12NOV11 | 26SEP11 | 11OCT11 | 1 | -251 |
| VO61-125 | Form seawall type 5, 2B, 4 & 1A (W) | 51 | 51 | 14NOV11 | 16JAN12 | 12OCT11 | 09DEC11 | 1 | -251 |
| VO61-130 | Backfill sea walls west & north (half) | 36 | 36 | 17JAN12 | 01MAR12 | 10DEC11 | 28JAN12 | 1 | -251 |
| VO61-135 | Place type 2 armour | 10 | 10 | 02MAR12 | 13MAR12 | 30JAN12 | 09FEB12 | 1 | -251 |
| VO61-140 | Dredge in sea bed to -3.75mPD for seawall (E) | 9 | 24 | 02JAN12 | 11JAN12 | 23NOV11 | 20DEC11 | 1 | -395 |
| VO61-145 | Place grade 400 rockfill & levelling layer | 12 | 12 | 12JAN12 | 28JAN12 | 21DEC11 | 07JAN12 | 1 | -395 |
| VO61-150 | Form seawall type 6, 3 & 2A (E) | 38 | 40 | 30JAN12 | 13MAR12 | 09JAN12 | 27FEB12 | 1 | -395 |
| VO61-155 | Backfill sea walls east & north (half) | 36 | 36 | 14MAR12 | 30APR12 | 28FEB12 | 13APR12 | 1 | -287 |
| VO61-160 | Place type 2 armour | 10 | 10 | 02MAY12 | 12MAY12 | 14APR12 | 25APR12 | 1 | -287 |
| VO61-165 | Dredge in sea bed for stepped blocks | 15 | 50 | 14MAR12 | 30MAR12 | 28FEB12 | 02MAY12 | 1 | -395 |
| VO61-170 | Place levelling layer | 175 | 224 | 31MAR12 | 02NOV12 | 13MAR12 | 11DEC12 | 1 | -395 |
| VO61-175 | Place stepped blocks | 175 | 224 | 19APR12 | 16NOV12 | 27MAR12 | 27DEC12 | 1 | -395 |
| VO61-180 | Place type 2 armour to reinstate exist. seawall | 24 | 24 | 14MAY12 | 09JUN12 | 26APR12 | 25MAY12 | 1 | -287 |
| VO61-185 | Form ground beam (W) | 12 | 12 | 11FEB12 | 24FEB12 | 04JAN12 | 17JAN12 | 1 | -250 |
| VO61-190 | Form ground beam (E) | 12 | 12 | 25FEB12 | 09MAR12 | 18JAN12 | 03FEB12 | 1 | -244 |
| VO61-195 | Form invert slab (W) | 12 | 12 | 25FEB12 | 09MAR12 | 18JAN12 | 03FEB12 | 1 | -244 |
| VO61-200 | Form invert slab (E) | 12 | 12 | 10MAR12 | 23MAR12 | 04FEB12 | 17FEB12 | 1 | -244 |
| VO61-205 | Form end wall (W) | 18 | 18 | 10MAR12 | 30MAR12 | 04FEB12 | 24FEB12 | 1 | -250 |
| VO61-210 | Form end wall (E) | 18 | 18 | 31MAR12 | 25APR12 | 25FEB12 | 16MAR12 | 1 | -250 |
| VO61-215 | Reinstate rock armour | 24 | 24 | 11JUN12 | 10JUL12 | 26MAY12 | 22JUN12 | 1 | -287 |
| VO61-220 | Complete basin | 0 | 0 | | 16NOV12 | | 27DEC12 | 1 | -395 |
| Remaining Works Prior to Handover | | | | | | | | | |
| 10R1DO0904 | Finishing & reinstatement works; Portion D | 36 | 36 | 19OCT12 | 30NOV12 | 28NOV12 | 11JAN13 | 1 | -395 |
| 10R1DO0906 | Pre-handover inspections and remedial works | 30 | 30 | 03NOV12 | 07DEC12 | 12DEC12 | 18JAN13 | 1 | -395 |
| 10R1DO0908 | Contractor serve notice for Works completion | 7 | 7 | 08DEC12 | 14DEC12 | 19JAN13 | 25JAN13 | 2 | 0 |
| 10R1DO0910 | SO issues completion certificate | 21 | 21 | 15DEC12 | 04JAN13 | 26JAN13 | 15FEB13 | 2 | 0 |
| 16R7DO0902 | Landscaping works at Portion D | 120 | 120 | 11JUL12 | 30NOV12 | 18AUG12 | 11JAN13 | 1 | -369 |
| 16R7DO0904 | Establishment Works at Portion D | 365 | 365 | 01DEC12 | 30NOV13 | 12JAN13 | 11JAN14 | 2 | -455 |
| 3DL1DO0902 | Install flow measurement devices at Outfall O-1 | 12 | 12 | 30MAR12 | 17APR12 | 30MAR12 | 17APR12 | 1 | -219 |

| ID | Activity Description | AD04 | | WP3D | | AD04 | WP3D | Total Float |
|-------------------------------------------------------|--------------------------------------------------|------|---------|------|---------|----------|----------|-------------|
| | | Dur | Start | Dur | Start | | | |
| 3DL1DO0903 | T & C for flow measurement system | 28 | 02APR12 | 28 | 02APR12 | 10MAY12 | 10MAY12 | 1 |
| 3DL1DO0904 | Maintain & monitor flow monitoring | 365 | 11MAY12 | 365 | 11MAY12 | 10MAY13 | 10MAY13 | 2 |
| Schedule of Milestones for Cost Centre No. 10R | | | | | | | | |
| 10R1DO1002 | 10R 1; On completion of 20% excavation works | 0 | | 0 | | 09APR09A | 09APR09A | 2 |
| 10R1DO1004 | 10R 2; On completion of 40% excavation works | 0 | | 0 | | 13AUG09 | 13AUG09 | 2 |
| 10R1DO1006 | 10R 3; On completion of 60% excavation works | 0 | | 0 | | 08OCT09 | 08OCT09 | 2 |
| 10R1DO1008 | 10R 4; On completion of 80% excavation works | 0 | | 0 | | 11SEP10 | 11SEP10 | 2 |
| 10R1DO1010 | 10R 5; On completion all excavation works | 0 | | 0 | | 09FEB12 | 09FEB12 | 2 |
| 10R1DO1012 | 10R 6; On completion of cascade structure | 0 | | 0 | | 10APR12 | 10APR12 | 2 |
| 10R1DO1014 | 10R 7; On completion of spiral ramp to +16mPD | 0 | | 0 | | 20NOV10 | 20NOV10 | 2 |
| 10R1DO1016 | 10R 8; On completion of spiral access ramp | 0 | | 0 | | 02FEB11 | 02FEB11 | 2 |
| 10R1DO1018 | 10R 9; On completion box-culvert & open channel | 0 | | 0 | | 17JAN12 | 17JAN12 | 2 |
| 10R1DO1020 | 10R 10; On completion of seabed protection wks | 0 | | 0 | | 16NOV12 | 16NOV12 | 2 |
| 10R1DO1022 | 10R 11; On completion of all works under this CC | 0 | | 0 | | 07DEC12 | 07DEC12 | 2 |
| Schedule of Milestones for Cost Centre No. 14R | | | | | | | | |
| 14R5DO1102 | 14R 1; On complet. of remove exist. rock armour | 0 | | 0 | | 25JUN11 | 25JUN11 | 2 |
| 14R5DO1104 | 14R 2; On complet. of 50% soil nailing by number | 0 | | 0 | | 07APR09A | 07APR09A | 2 |
| 14R5DO1106 | 14R 3; On completion all soiling works | 0 | | 0 | | 16SEP09 | 16SEP09 | 2 |
| 14R5DO1108 | 14R 4; On completion of all works under this CC | 0 | | 0 | | 25JUN11 | 25JUN11 | 2 |
| Drainage Improvement Works at Portion G | | | | | | | | |
| Preliminary Works | | | | | | | | |
| 01R6GG0102 | SO consent; Drainage Impact Assessment Report. | 0 | | 0 | | 24NOV09 | 24NOV09 | 1 |
| 01R6GG0112 | Obtain TTA (ingress & egress) approval | 0 | | 0 | | 25NOV09 | 25NOV09 | 2 |
| 01R6GG0114 | Possession of Portion G - 700d of DOC | 0 | | 0 | 26NOV09 | 26NOV09 | 26NOV09 | 2 |
| 01R6GG0116 | Site clearance/Site Establishment | 30 | 26NOV09 | 30 | 26NOV09 | 02JAN10 | 02JAN10 | 1 |
| 3DL6GG0104 | Obtain approval for Geotechnical Instrumentation | 0 | | 0 | | 25NOV09 | 25NOV09 | 2 |
| 3DL6GG0106 | Installation of Geotechnical Instrumentation | 12 | 26NOV09 | 12 | 26NOV09 | 09DEC09 | 09DEC09 | 1 |
| 3DL6GG0108 | Monitor/report Geotechnical Instrumentation | 904 | 10DEC09 | 904 | 10DEC09 | 29DEC12 | 29DEC12 | 1 |
| Piling Works | | | | | | | | |
| 15R6GG0200 | Obtain SO's consent for temp. works design | 0 | | 0 | | 17OCT09 | 17OCT09 | 1 |
| 15R6GG0202 | Mobilization & set up for temp. platform | 3 | 10DEC09 | 3 | 10DEC09 | 12DEC09 | 12DEC09 | 1 |
| 15R6GG0204 | Construct steel working platform for H-piling | 110 | 14DEC09 | 110 | 14DEC09 | 03MAY10 | 03MAY10 | 1 |
| 15R6GG0206 | Mobilization & set up for H-piling; Wall 1 | 3 | 04MAY10 | 3 | 04MAY10 | 06MAY10 | 06MAY10 | 1 |
| 15R6GG0208 | 52 nos. 600mm dia. H-piles; Wall 1 @1.5 nr/day | 35 | 07MAY10 | 35 | 07MAY10 | 18JUN10 | 18JUN10 | 1 |
| 15R6GG0210 | Excavate & construct skin wall 1 at Portion G | 35 | 19JUN10 | 35 | 19JUN10 | 30JUL10 | 30JUL10 | 1 |
| 15R6GG0212 | Mobilization & set up for H-piling; Wall 2 | 3 | 19JUN10 | 3 | 19JUN10 | 19JUN10 | 19JUN10 | 1 |
| 15R6GG0214 | 40 nos. 600mm dia. H-piles; Wall 2 @1.5 nr/day | 27 | 23JUN10 | 27 | 23JUN10 | 24JUL10 | 24JUL10 | 1 |
| 15R6GG0216 | Excavate & construct skin wall 2 at Portion G | 27 | 26JUL10 | 27 | 26JUL10 | 25AUG10 | 25AUG10 | 1 |



| ID | Activity Description | AD04 | | WP3D | | AD04 | AD04 | AD04 | WP3D | WP3D | Cal ID | Total Float |
|-------------------------------------------------------|------------------------------------------------|------|-----|----------|---------|------|-------|------|------|------|--------|-------------|
| | | Dur | Dur | Start | Finish | | | | | | | |
| Drainage Improvement Works | | | | | | | | | | | | |
| 15R6GG0301 | Obtain approval of ELS design package incl MS | 0 | 0 | 02NOV09 | 02NOV09 | 2 | 284 | | | | | |
| 15R6GG0302 | Install ELS & construct shaft for pipe jacking | 90 | 90 | 04JAN10 | 26APR10 | 1 | 180 | | | | | |
| 15R6GG0304 | Construct 1.5m dia. drainage by pipe jacking | 85 | 85 | 27APR10 | 07AUG10 | 1 | 180 | | | | | |
| 15R6GG0306 | Construct 1.5m dia. drainage by open trenching | 24 | 24 | 01NOV10* | 27NOV10 | 1 | 111 | | | | | |
| 15R6GG0308 | Construct .75m & 1.5m U and Stepped Channel | 12 | 12 | 29NOV10 | 11DEC10 | 1 | 111 | | | | | |
| 15R6GG0310 | Construct 3 nos. manhole & 2 nos. catchpit | 35 | 35 | 13DEC10 | 25JAN11 | 1 | 111 | | | | | |
| Remaining Works Prior to Handover to Client | | | | | | | | | | | | |
| 15R6GG0312 | Reinstate carriageway & footway | 24 | 24 | 26JAN11 | 25FEB11 | 1 | 111 | | | | | |
| 15R6GG0402 | Pre-handover inspections and remedial works | 12 | 12 | 26FEB11 | 11MAR11 | 1 | 111 | | | | | |
| 15R6GG0404 | Contractor serve notice for Works completion | 7 | 7 | 12MAR11 | 18MAR11 | 2 | 997 | | | | | |
| 15R6GG0408 | SO issues completion certificate | 21 | 21 | 19MAR11 | 08APR11 | 2 | 997 | | | | | |
| Schedule of Milestones for Cost Centre No. 15R | | | | | | | | | | | | |
| 15R6GG0502 | 15R 1; On completion of all temp. works | 0 | 0 | 25APR10 | 26APR10 | 2 | 1,344 | | | | | |
| 15R6GG0504 | 15R 2; On completion of 25% of pipejacking | 0 | 0 | 06MAY10 | 06MAY10 | 2 | 1,334 | | | | | |
| 15R6GG0506 | 15R 3; On completion of 50% of pipejacking | 0 | 0 | 14MAY10 | 14MAY10 | 2 | 1,326 | | | | | |
| 15R6GG0508 | 15R 4; On completion of 75% of pipejacking | 0 | 0 | 25MAY10 | 25MAY10 | 2 | 1,315 | | | | | |
| 15R6GG0510 | 15R 5; On completion of all pipejacking | 0 | 0 | 07AUG10 | 07AUG10 | 2 | 1,241 | | | | | |
| 15R6GG0512 | 15R 6; On completion of all wks under this CC | 0 | 0 | 11MAR11 | 11MAR11 | 2 | 1,025 | | | | | |



Appendix D

Implementation Status of Environmental Mitigation Measures

IMPLEMENTATION SCHEDULE March 2011

| 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 Quality | | | | | |
| 3.6.1 | <p>Specific</p> <p>As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact.</p> <p>The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust) Regulation</i>, in fact, are more extensive. Therefore, it is expected that with watering the construction site every four times daily together with strict implementation of dust suppression measures as stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, the dust level is expected to be reduced by over 75%.</p> <p>General</p> <p>To further ensure compliance with the guideline and AQO limit at the ASRs at all time, it is recommended to implement the <i>Air Pollution Control (Construction Dust) Regulation</i> and include good site practice in the contract clauses to minimize cumulative dust impact. In addition, a comprehensive dust monitoring and audit programme is recommended to ensure proper implementation of the identified mitigation measures. Details of the monitoring and audit requirements are provided in a separate EM&A Manual.</p> <ul style="list-style-type: none"> • 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; • 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; | DSD's Contractor | Construction Work Sites | Air Pollution Control (Construction Dust) Regulation | <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> |

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 | <ul style="list-style-type: none"> • 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 | ✓ |
| | <ul style="list-style-type: none"> • 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; | | | | ✓ |
| | <ul style="list-style-type: none"> • every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet; | | | | ✓ |
| | <ul style="list-style-type: none"> • 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; | | | | ✓ |
| | <ul style="list-style-type: none"> • 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; | | | | ✓ |
| | <ul style="list-style-type: none"> • all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet; | | | | ✓ |
| | <ul style="list-style-type: none"> • vehicle speed should be limited to 10 kph except on completed access roads; | | | | ✓ |
| | <ul style="list-style-type: none"> • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites; | | | | ✓ |
| | <ul style="list-style-type: none"> • 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 | | | | ✓ |
| | <ul style="list-style-type: none"> • 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 Sites | PN 2/93 Noise from Construction Activities & EIAO | ✓ |
| | 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 | | | | |
| | <i>Good Site Practice</i> 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: | | | | |
| | <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works; | | | | ✓ |
| <ul style="list-style-type: none"> • machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; | ✓ | | | | |

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 | <ul style="list-style-type: none"> • 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 Sites | PN 2/93 Noise from Construction Activities & EIAO | ✓ |
| | <ul style="list-style-type: none"> • mobile plant should be sited as far away from NSRs as possible; and | | | | ✓ |
| | <ul style="list-style-type: none"> • material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | | | | ✓ |
| | <i>For Drill and Blast Works</i> <ul style="list-style-type: none"> • Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay. | | | | N/A |
| | <ul style="list-style-type: none"> • Smaller blasthole patterns and longer delays should be used between dependent charges. | | | | N/A |
| | <ul style="list-style-type: none"> • 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). | | | | N/A |
| | <i>For TBM Tunnelling</i> <ul style="list-style-type: none"> • 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 | <p>During Operation</p> <p>Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site; • 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 • plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs. | DSD's Contractor | Project Area | NCO & EIAO | N/A N/A N/A |
| Water Quality | | | | | |
| 5.9.1 | <p>During Construction</p> <p>Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.</p> <p><i>Precautions to be taken at any time of year when rainstorms are likely:</i></p> <ul style="list-style-type: none"> • 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. <p><i>Actions to be taken when a rainstorm is imminent or forecast:</i></p> <ul style="list-style-type: none"> • Silt removal facilities, should be checked to ensure that they can function properly. | DSD's Contractor | Construction Work Sites | Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO | ✓ ✓ ✓ ✓ ✓ |

| EIA Ref. | Recommended Mitigation Measures | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------|-------------------------------------------------------------|--------|
| 5.9.1 | <ul style="list-style-type: none"> Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric. | DSD's Contractor | Construction Work Sites | WQO | ✓ |
| | <ul style="list-style-type: none"> All temporary covers to slopes and stockpiles should be secured. | | | | ✓ |
| | <p><i>Actions to be taken during or after rainstorms:</i></p> <ul style="list-style-type: none"> Silt removal facilities should be checked and maintained to ensure satisfactory working conditions. | | | | ✓ |
| | <u>Spill Control and Response Plan</u> | | | | |
| | 1 Prevention and Precaution Measures | | | | |
| | <i>General Precautions</i> | | | | |
| | <ul style="list-style-type: none"> No discharge of silty water into watercourses. | | | | ✓ |
| | <ul style="list-style-type: none"> All materials to be used during construction and operation shall be identified and their hazard potential evaluated. | | | | ✓ |
| | <ul style="list-style-type: none"> 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. | | | | ✓ |
| | <ul style="list-style-type: none"> Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials. | | | | ✓ |
| | <ul style="list-style-type: none"> 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. | | | | ✓ |
| | <ul style="list-style-type: none"> Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport | | | | ✓ |
| | <ul style="list-style-type: none"> Chemical waste containers shall be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents. | | | | ✓ |
| | <ul style="list-style-type: none"> Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area. | | | | ✓ |
| | <ul style="list-style-type: none"> Prevent obstructions and tripping hazards. | | | | ✓ |
| | <i>Storage Precautions</i> | | | | |
| | <ul style="list-style-type: none"> All chemical storage containers shall be correctly labelled. | | | | ✓ |
| | <ul style="list-style-type: none"> Solid and impermeable enclosure walls or storage shelves shall be used. | | | | ✓ |
| | <ul style="list-style-type: none"> Only compatible chemical wastes shall be stored in the same storage area. | | | | ✓ |
| <ul style="list-style-type: none"> The storage areas shall be inspected to detect any leakages or defective containers on a regular basis. | ✓ | | | | |
| <ul style="list-style-type: none"> Suitable notices warning of hazards, emergency response plans, telephone numbers etc shall be posted around the site, including storage areas. | ✓ | | | | |
| <ul style="list-style-type: none"> Large and heavy containers shall be stored at ground level. | ✓ | | | | |

| EIA Ref. | Recommended Mitigation Measures | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------|-------------------------------------------------------------|--------|
| | <ul style="list-style-type: none"> Chemical waste containers shall be stored below eye level. | | | | ✓ |
| 5.9.1 | <ul style="list-style-type: none"> Adequate space for handling of the containers shall be provided Spill response kits shall be located adjacent/near to the storage areas. A log of chemical wastes shall be maintained. Incompatible chemicals shall be stored separately. | DSD's Contractor | Construction Work Sites | WQO | ✓ |
| | <ul style="list-style-type: none"> A log of chemical wastes shall be maintained. | | | | ✓ |
| | <ul style="list-style-type: none"> 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: | | | | ✓ |
| | <ul style="list-style-type: none"> Only trained personnel who are equipped with protective clothing and equipment shall be allowed to enter the spillage area for clean up. | | | | ✓ |
| | <ul style="list-style-type: none"> Spills shall be transferred appropriate back into containers using suitable equipment. | | | | ✓ |
| | <ul style="list-style-type: none"> Absorbent materials shall be used to clean up the spills and shall be disposed of as chemical wastes. | | | | ✓ |
| | <ul style="list-style-type: none"> Where appropriate suitable solvents may be used to clean the contaminated area after removal of all contaminated materials. | | | | ✓ |
| | <ul style="list-style-type: none"> 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. | | | | ✓ |
| | <i>Safety equipment includes but is not limited to:</i> | | | | ✓ |
| | <ul style="list-style-type: none"> Fire extinguishers. | | | | ✓ |
| | <ul style="list-style-type: none"> Spades, brushes, dustpan, mop and bucket (or similar readily available on site). | | | | ✓ |
| | <ul style="list-style-type: none"> Absorbent material such as dry sand, tissues and toweling (all materials readily available on-site). | | | | ✓ |
| | <ul style="list-style-type: none"> Containers including plaster bags, drums, etc. | | | | ✓ |
| | <ul style="list-style-type: none"> Absorbing materials. | | | | ✓ |
| | <ul style="list-style-type: none"> Pumps. | | | | ✓ |
| | <i>Personal protective equipment includes as appropriate:</i> | | | | ✓ |
| | <ul style="list-style-type: none"> First-aid kits. | | | | ✓ |
| | <ul style="list-style-type: none"> Safety helmet and goggles. | | | | ✓ |
| | <ul style="list-style-type: none"> Gloves which can resist chemical reaction. | | | | ✓ |

| EIA Ref. | Recommended Mitigation Measures | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 5.9.1 | <ul style="list-style-type: none"> Protective boot and clothing. | DSD's Contractor | Construction Work Sites | WQO | ✓ |
| | <ul style="list-style-type: none"> Respirators and gas masks. | | | | ✓ |
| | <ul style="list-style-type: none"> Face visor and masks. | | | | ✓ |
| 5.9.2 | Emergency Responses to Spillages | DSD's Contractor | Construction Work Sites | WQO | |
| | 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. | | | | |
| | <i>The emergency plans should include the procedures for:</i> | | | | |
| | <ul style="list-style-type: none"> spill prevention and precaution; | | | | ✓ |
| | <ul style="list-style-type: none"> response actions; and | | | | ✓ |
| | <ul style="list-style-type: none"> spill clean up and disposal. | | | | ✓ |
| | <i>Spill prevention and precaution embraces good site practice and covers:</i> | | | | |
| <ul style="list-style-type: none"> good housekeeping practices; | ✓ | | | | |
| <ul style="list-style-type: none"> chemical storage requirements; and | ✓ | | | | |
| <ul style="list-style-type: none"> chemical transfer and transport. | ✓ | | | | |
| 5.9.3 | During Operation 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. | DSD's Contractor | Project Area | | N/A |
| Waste Management | | | | | |
| 6.5.1 | During Construction <i>Vegetation Removed from Site Clearance</i> Wastes generated from site clearance shall be sorted and excavated topsoil segregated from roots for re-use in landscaping works, thus eliminating the need for off-site disposal. | DSD's Contractor | Construction Work Sites | Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Wastes) (General) Regulation (Cap 354) and ETWBTC No. 15/2003, Waste anagement on Construction Site | ✓ |
| | <i>Construction and Demolition Materials</i> 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. | | | | ✓ |

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

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

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

| EIA Ref. | Recommended Mitigation Measures | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------|-------------------------------------------------------------|--------|
| 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 | ✓ |
| Fisheries | | | | | |
| 10.6 | In accordance with the guidelines in the <i>EIAO-TM</i> on fisheries impact assessment the general policy for mitigating impacts to fisheries, in order of priority are avoidance, minimization and compensation. | DSD's Contractor | Construction Work Sites | EIAO | N/A |
| | Impacts to fisheries resources and fishing operations have largely been avoided during the construction and operation of the drainage tunnel through the avoidance of dredging, reclamation and filling activities. Good construction practice and associated measures were recommended in Water Quality Assessment in Section 5 to control water quality impacts to within acceptable levels and are also expected to control impacts to fisheries resources. Hence, no fisheries-species mitigation measures are required during construction and operation of the drainage tunnel. | | | | N/A |

Remarks:

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

Appendix E

Status of License and Permit



Updated Status of Environmental Permit & Licence

| Application Date | 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 | ---- | ---- | ---- | Valid |
| 2 Jan 2008 | Waste Disposal (Chemical Waste) (General) - Chemical Waste Producer | 26 Feb 2008 | ---- | 5111-324-M2703-01 | ---- | ---- | Valid |
| 2 Jan 2008 | Waste Disposal (Charges for Disposal of Construction Waste) Regulation - Billing Account | 17 Jan 2008 | ---- | 7006574 | ---- | ---- | Valid |
| 10 Jan 2008 | Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation | 10 Jan 2008 | 001026901 | ---- | ---- | ---- | Valid |
| 25 Feb 2008 | Water Discharge Licence – Outfall O-1 | 7 Aug 2008 | 001028154 | ---- | EP760/323/012997I | 7 Aug 2008 - 31 Aug 2013 | Valid |
| 18 Apr 2008 | Water Discharge Licence – Intake I-1 | 19 Jun 2008 | 001029978 | ---- | EP760/327/013315I | 19 Jun 2008 - 30 Jun 2013 | Valid |
| 18 Apr 2008 | Water Discharge Licence – Intake I-2 | 2 Jul 2008 | 001029959 | ---- | EP760/321/013020I | 2 Jul 2008 - 31 Jul 2013 | Valid |
| 18 Apr 2008 | Water Discharge Licence – Intake I-3 | 5 Aug 2008 | 001029960 | ---- | EP760/323/013324I | 5 Aug 2008 - 31 Aug 2013 | Valid |
| 18 Apr 2008 | Water Discharge Licence – Portion I | 26 Jun 2008 | 001029974 | ---- | EP760/350/013334I | 26 Jun 2008 - 30 Jun 2013 | Valid |
| 23 Jul 2008 | Water Discharge Licence – 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 | Valid |
| 2 Sep 2008 | Variation of Environmental Permit | 25 Sep 2008 | VEP-271/2008 | ---- | EP-275/2007/B | ---- | Valid |
| 29 Apr 2009 | Water Discharge Licence – Intake I-3 (Additional Discharge Point) | 25 Mar 2010 | 305058 | ---- | WT00005917-2010 | 25 Mar 2010 - 31 Mar 2015 | Valid |
| 5 Oct 2009 | Further Environmental Permit | 27 Oct 2009 | FEP-096/2009 | ---- | FEP-01/275/2007/B | ---- | Valid |



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 |
|------------------|----------------------------------------------------------------------------------------------------------------------|-------------|---------|-------------|----------------------|--------------------------------|--------------------------------------------------------------------------------|
| 13 Jul 2010 | Application for Vessel Chits for Disposal of Construction Waste for Existing Account Holder (Billing Account) | 23 Jul 2010 | ---- | 7011131 | ---- | ---- | Valid |
| 22 Jul 2010 | Application for a Permit to Dump Material at Sea - Dredged / Excavated Sediment Requiring Type 1 - Open Sea Disposal | 20 Sep 2010 | 319729 | ---- | EP/MD/11-049 | 02 Oct 2010 - 01 Apr 2011 | Valid |
| 4 Sep 2010 | Water Discharge Licence – Portion G | 28 Oct 2010 | 321337 | ---- | WT00007685-2010 | 28 Oct 2010 - 31 Oct 2015 | Valid |
| 8 Nov 2010 | Construction Noise Permit - Intake 2 | 24 Nov 2010 | 323325 | ---- | GW-RW0629-10 | 24 Nov 2010 - 14 May 2011 | Valid |
| 12 Nov 2010 | Construction Noise Permit - Outfall (For Mining Works and Probe Drilling to 24hrs) | 29 Nov 2010 | 323497 | ---- | GW-RW0656-10 | 04 Dec 2010 - 03 Jun 2011 | Valid |
| 23 Nov 2010 | Construction Noise Permit - Valve House (Near the Wonderland at Castle Peak Road, Ting Kau - Ventilation Fan) | 23 Nov 2010 | 323886 | ---- | GW-RW0652-10 | 26 Nov 2010 - 25 May 2011 | Valid |
| 1 Dec 2010 | Construction Noise Permit - Chai Wan Kok - Valve House (Group A + B) | 9 Dec 2010 | 324176 | ---- | GW-RW0680-10 | 27 Dec 2010 - 26 Jun 2011 | Valid |
| 1 Dec 2010 | Construction Noise Permit - Intake I-1 | 13 Dec 2010 | 234178 | ---- | GW-RW0701-10 | 13 Dec 2010 - 03 Jun 2011 | Valid |
| 1 Dec 2010 | Construction Noise Permit - Intake I-3 | 9 Dec 2010 | 234179 | ---- | GW-RW0682-10 | 09 Dec 2010 - 02 Jun 2011 | Valid |
| 15 Dec 2010 | Water Discharge Licence – Outfall O-1 (Additional Discharge Point) | ---- | ---- | ---- | ---- | ---- | Submission made on 15 Dec 2010 and acknowledge received by EPD on 15 Dec 2010. |
| 12 Jan 2011 | Construction Noise Permit - Portion G - (Water Pump) | 27 Jan 2011 | 325763 | ---- | GW-RW0049-11 | 09 Feb 2011 - 08 Aug 2011 | Valid |
| 1 Mar 2011 | Application for a Permit to Dump Material at Sea - Dredged / Excavated Sediment Requiring Type 1 - Open Sea Disposal | 16 Mar 2011 | ---- | ---- | EP/MD/11-156 | 02 Apr 2011 - 01 Oct 2011 | To be effective on 02 April 2011 |



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 |
|------------------|---------------------------------------------------------------------------------------------------------------|-------------|---------|-------------|----------------------|--------------------------------|--------------------------------------------------------------------------------|
| 15 Mar 2011 | Construction Noise Permit - Intake 2 | 29 Mar 2011 | 327938 | ---- | GW-RW0219-11 | 15 May 2011 - 14 Nov 2011 | To be effective on 15 May 2011 |
| 18 Mar 2011 | Construction Noise Permit - Outfall (For Mining Works and Probe Drilling to 24hrs, Additional AquaSeq added) | 29 Mar 2011 | 328153 | ---- | GW-RW0212-11 | 15 Apr 2011 - 29 Oct 2011 | To be effective on 15 April 2011 |
| 30 Mar 2011 | Application for Vessel Chits for Disposal of Construction Waste for Existing Account Holder (Billing Account) | ---- | ---- | 7011131 | ---- | ---- | Submission made on 30 Mar 2011 by Mail and Fax. |
| 31 Mar 2011 | Construction Noise Permit - Intake I-3 | ---- | 328636 | ---- | ---- | ---- | Submission made on 31 Mar 2011 and acknowledge received by EPD on 31 Mar 2011. |

Appendix F

Calibration Certificates

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
 Monitoring Location: Ho Fung College (ASR 1)
 Calibration Date: 21-Jan-11
 Calibration Due Date: 20-Mar-11
 Time: 08:00

| | |
|-------------------------|----------|
| Sampler Model: | BM2000HX |
| Serial No.: | 4994 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 1.97702 |
| Intercept (b): | -0.00070 |
| Correction coeff. (r) | 0.99992 |

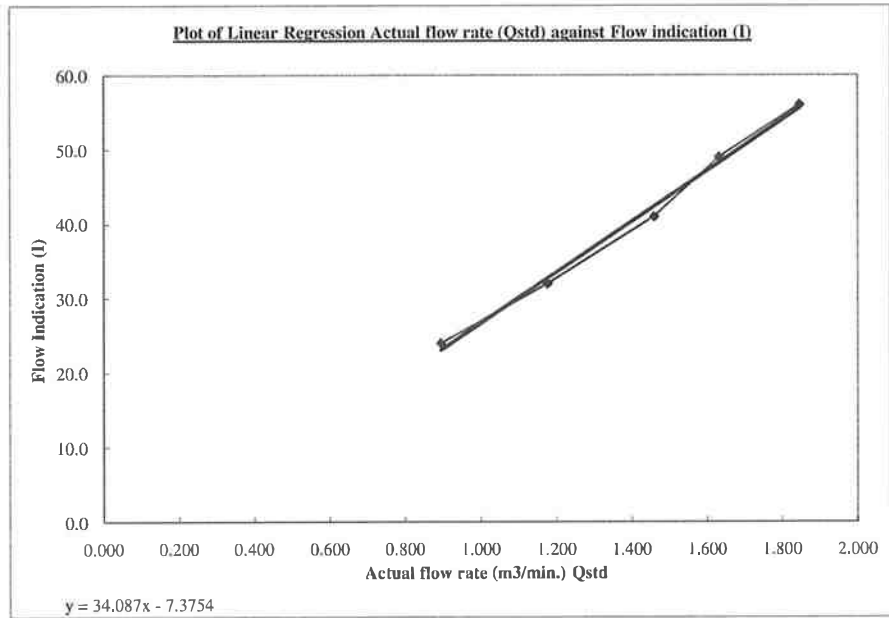
$$Flow(\text{corrected}) = \sqrt{H \times \frac{P_a}{P_{std}} \times \frac{T_{std}}{T_a}}$$

| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 764.5 |
| Calibration temp. (K) Ta: | 286.7 |

$$Q_{std} = \frac{1}{m} \times \left(\sqrt{H \times \frac{P_a}{P_{std}} \times \frac{T_{std}}{T_a}} - b \right)$$

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.8 | 3.649 | 1.846 | 56.0 |
| 2 | 10.0 | 3.225 | 1.632 | 49.0 |
| 3 | 8.0 | 2.885 | 1.459 | 41.0 |
| 4 | 5.2 | 2.326 | 1.177 | 32.0 |
| 5 | 3.0 | 1.767 | 0.894 | 24.0 |

Correlation Coefficient : 0.9969



Remark
 1HPa = 0.750062 mmHg

Calibrated by: **Arthur Chiu**
 (*Arthur Chiu*)

Date: 21/01/2011

Checked by: **F.C. Tsang**
 (*F.C. Tsang*)

Date: 21/01/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
 Monitoring Location: Heng Hoi Chi Hong Ship Temple (ASR 3)
 Calibration Date: 21-Jan-11
 Calibration Due Date: 20-Mar-11
 Time: 08:15

| | |
|-------------------------|----------|
| Sampler Model: | BM2000HX |
| Serial No.: | 5875 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 1.97702 |
| Intercept (b): | -0.00070 |
| Correction coeff. (r) | 0.99992 |

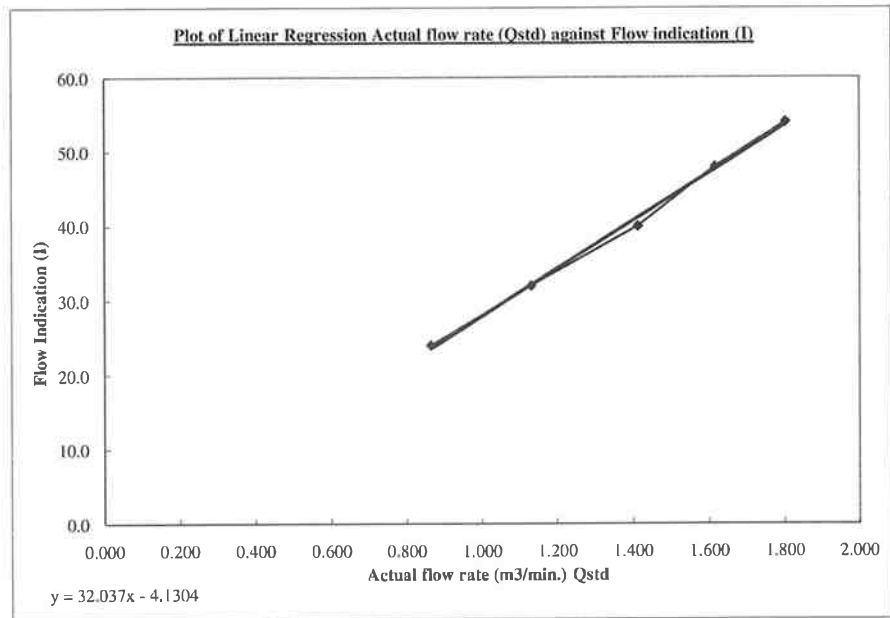
| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 764.5 |
| Calibration temp. (K) Ta: | 286.7 |

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

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (l), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.2 | 3.562 | 1.802 | 54.0 |
| 2 | 9.8 | 3.193 | 1.615 | 48.0 |
| 3 | 7.5 | 2.793 | 1.413 | 40.0 |
| 4 | 4.8 | 2.235 | 1.131 | 32.0 |
| 5 | 2.8 | 1.707 | 0.864 | 24.0 |

Correlation Coefficient : 0.9984



Remark
 1HPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 21/01/2011

Checked by: F.C. Tsang
 (*F.C. Tsang*)

Date: 21/01/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
 Monitoring Location: Long Beach Gardan (ASR 8)
 Calibration Date: 21-Jan-11
 Calibration Due Date: 20-Mar-11
 Time: 08:30

| | |
|-------------------------|----------|
| Sampler Model: | TE5005X |
| Serial No.: | 1059 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 1.97702 |
| Intercept (b): | -0.00070 |
| Correction coeff. (r) | 0.99992 |

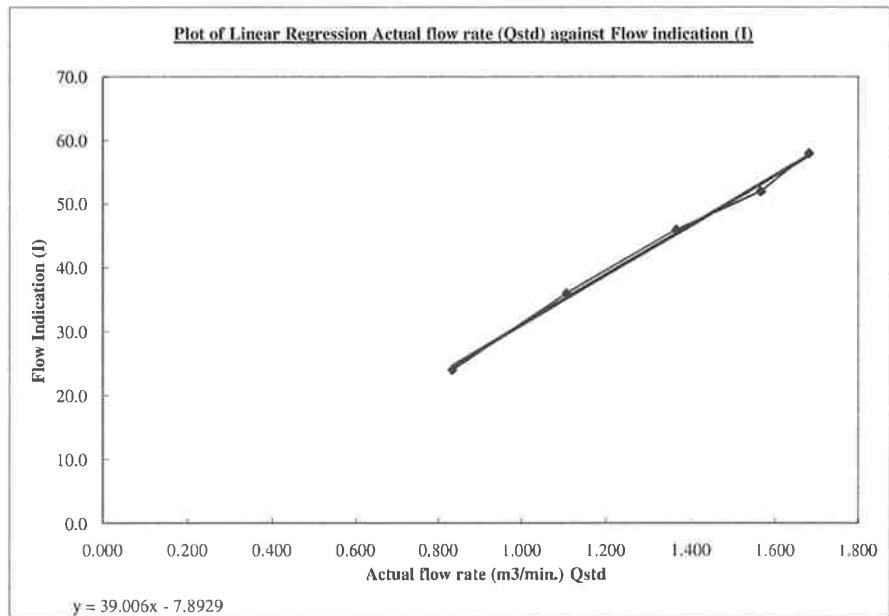
| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 764.5 |
| Calibration temp. (K) Ta: | 286.7 |

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

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 10.6 | 3.321 | 1.680 | 58.0 |
| 2 | 9.2 | 3.094 | 1.565 | 52.0 |
| 3 | 7.0 | 2.698 | 1.365 | 46.0 |
| 4 | 4.6 | 2.187 | 1.107 | 36.0 |
| 5 | 2.6 | 1.645 | 0.832 | 24.0 |

Correlation Coefficient : 0.9981



Remark
 IHPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 21/01/2011

Checked by: F.C. Tsang *F.C. Tsang*
 (TSANG, FAN CHEONG)

Date: 21/01/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
 Monitoring Location: Greenview Terrance (ASR 9)
 Calibration Date: 21-Jan-11
 Calibration Due Date: 20-Mar-11
 Time: 08:45

| | |
|-------------------------|----------|
| Sampler Model: | TE5005X |
| Serial No.: | 1713 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 1.97702 |
| Intercept (b): | -0.00070 |
| Correction coeff. (r) | 0.99992 |

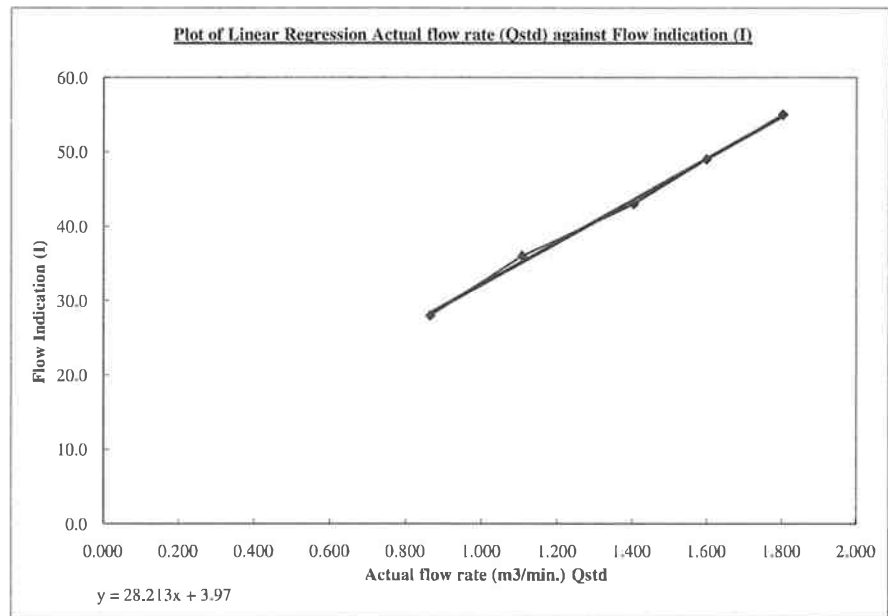
| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 764.5 |
| Calibration temp. (K) Ta: | 286.7 |

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

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.2 | 3.562 | 1.802 | 55.0 |
| 2 | 9.6 | 3.160 | 1.599 | 49.0 |
| 3 | 7.4 | 2.774 | 1.404 | 43.0 |
| 4 | 4.6 | 2.187 | 1.107 | 36.0 |
| 5 | 2.8 | 1.707 | 0.864 | 28.0 |

Correlation Coefficient : 0.9988



Remark
 1HPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 21/01/2011

Checked by: F.C. Tsang
 (*F.C. Tsang*, TSANG, FAN CHEONG)

Date: 21/01/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
Monitoring Location: Ho Fung College (ASR 1)
Calibration Date: 17-Mar-11
Calibration Due Date: 16-May-11
Time: 08:00

| | |
|-------------------------|----------|
| Sampler Model: | BM2000HX |
| Serial No.: | 4994 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 2.01637 |
| Intercept (b): | -0.02316 |
| Correction coeff. (r) | 0.99996 |

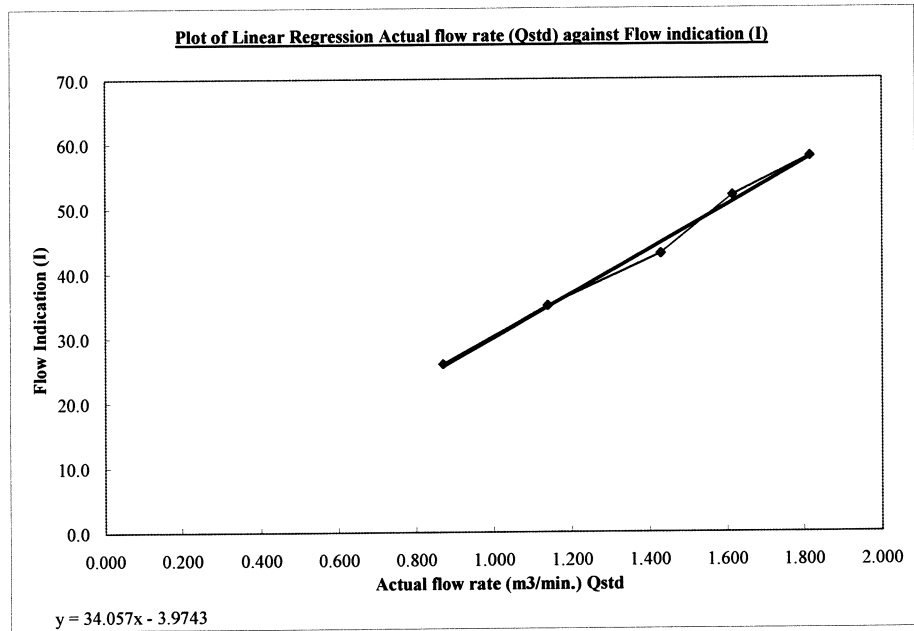
| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 766.3 |
| Calibration temp. (K) Ta: | 289.2 |

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

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.8 | 3.637 | 1.815 | 58.0 |
| 2 | 10.1 | 3.231 | 1.614 | 52.0 |
| 3 | 7.9 | 2.858 | 1.429 | 43.0 |
| 4 | 5.0 | 2.273 | 1.139 | 35.0 |
| 5 | 2.9 | 1.731 | 0.870 | 26.0 |

Correlation Coefficient : 0.9969



Remark
 1HPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 17/3/2011

Checked by: F.C. Tsang
 (*F.C. Tsang*)

Date: 17/3/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
 Monitoring Location: Heng Hoi Chi Hong Ship Temple (ASR 3)
 Calibration Date: 17-Mar-11
 Calibration Due Date: 16-May-11
 Time: 08:15

| | |
|-------------------------|----------|
| Sampler Model: | BM2000HX |
| Serial No.: | 5875 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 2.01637 |
| Intercept (b): | -0.02316 |
| Correction coeff. (r) | 0.99996 |

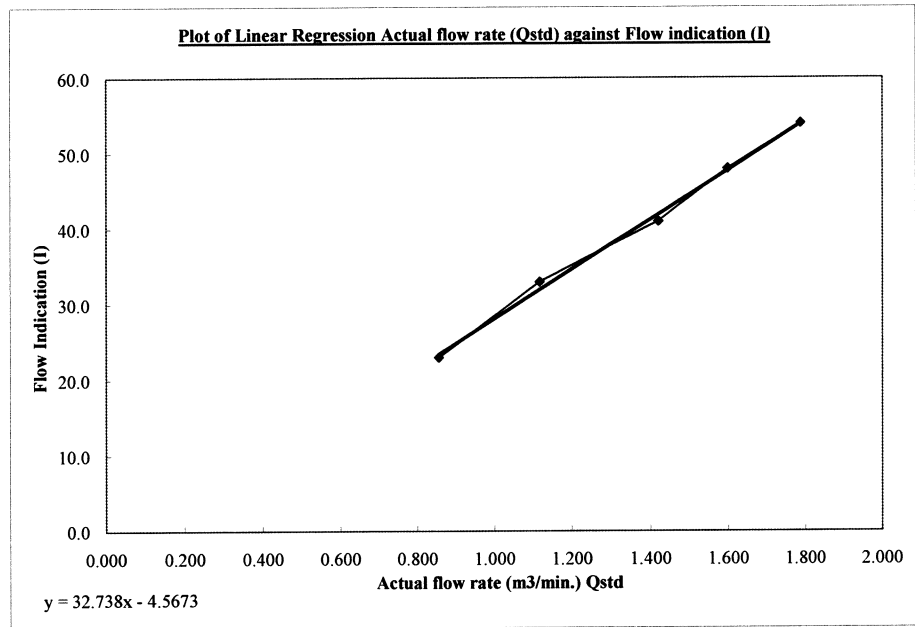
$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 766.3 |
| Calibration temp. (K) Ta: | 289.2 |

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.4 | 3.580 | 1.787 | 54.0 |
| 2 | 9.9 | 3.199 | 1.598 | 48.0 |
| 3 | 7.8 | 2.839 | 1.420 | 41.0 |
| 4 | 4.8 | 2.227 | 1.116 | 33.0 |
| 5 | 2.8 | 1.701 | 0.855 | 23.0 |

Correlation Coefficient : 0.9982



Remark
 1HPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 17/3/2011

Checked by: F.C. Tsang
 (*F.C. Tsang*)

Date: 17/3/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
Monitoring Location: Long Beach Gardan (ASR 8)
Calibration Date: 17-Mar-11
Calibration Due Date: 16-May-11
Time: 08:30

| | |
|-------------------------|----------|
| Sampler Model: | TE5005X |
| Serial No.: | 1059 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 2.01637 |
| Intercept (b): | -0.02316 |
| Correction coeff. (r) | 0.99996 |

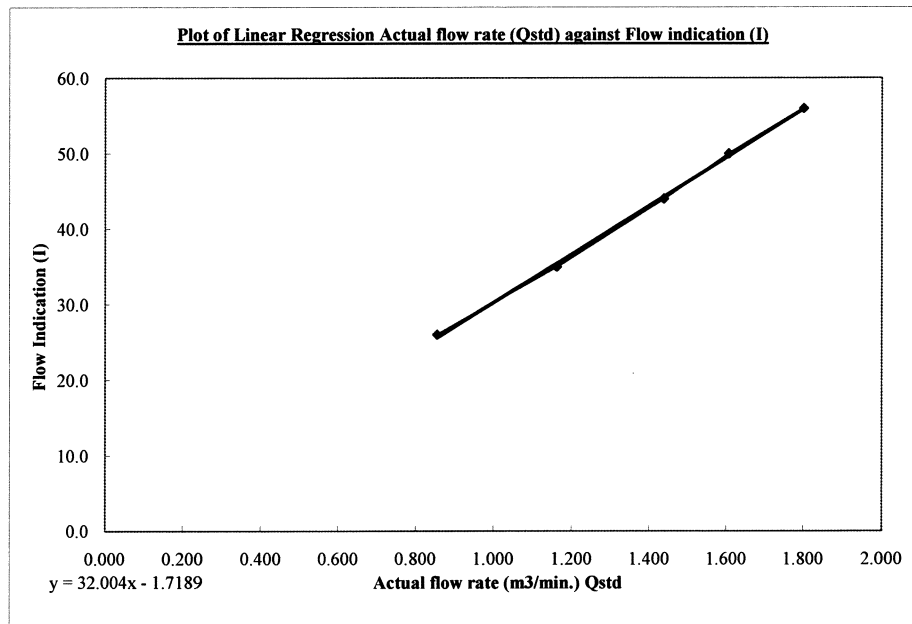
| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 766.3 |
| Calibration temp. (K) Ta: | 289.2 |

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

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.6 | 3.609 | 1.801 | 56.0 |
| 2 | 10.0 | 3.215 | 1.606 | 50.0 |
| 3 | 8.0 | 2.876 | 1.438 | 44.0 |
| 4 | 5.2 | 2.318 | 1.161 | 35.0 |
| 5 | 2.8 | 1.701 | 0.855 | 26.0 |

Correlation Coefficient : 0.9995



Remark
 1HPa = 0.750062 mmHg

Calibrated by: **Arthur Chiu**
 (*Arthur Chiu*)

Date: 17/3/2011

Checked by: **F.C. Tsang**
 (*F.C. Tsang*)

Date: 17/3/2011

High Volume Air Sampler Calibration Worksheet

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel
Monitoring Location: Greenview Terrace (ASR 9)
Calibration Date: 17-Mar-11
Calibration Due Date: 16-May-11
Time: 08:45

| | |
|-------------------------|----------|
| Sampler Model: | TE5005X |
| Serial No.: | 1713 |
| Calibrator Orifice no.: | 1785 |
| Slope (m): | 2.01637 |
| Intercept (b): | -0.02316 |
| Correction coeff. (r) | 0.99996 |

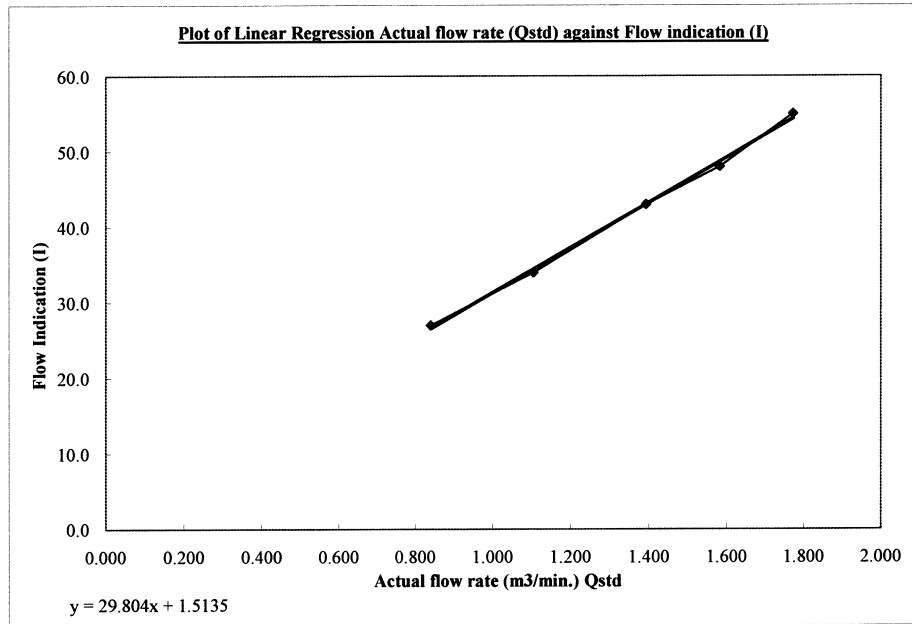
$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

| | |
|---------------------------------|-------|
| Standard pressure (mmHg) Pstd: | 763.9 |
| Standard temp. (K) Tstd: | 290.8 |
| Calibration pressure (mmHg) Pa: | 766.3 |
| Calibration temp. (K) Ta: | 289.2 |

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

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m ³ /min | Actual flow rate (Qstd), m ³ /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| 1 | 12.2 | 3.551 | 1.773 | 55.0 |
| 2 | 9.7 | 3.166 | 1.582 | 48.0 |
| 3 | 7.5 | 2.784 | 1.392 | 43.0 |
| 4 | 4.7 | 2.204 | 1.105 | 34.0 |
| 5 | 2.7 | 1.671 | 0.840 | 27.0 |

Correlation Coefficient : 0.9987



Remark
 1HPa = 0.750062 mmHg

Calibrated by: Arthur Chiu
 (*Arthur Chiu*)

Date: 17/3/2011

Checked by: F.C. Tsang
 (*F.C. Tsang*)

Date: 17/3/2011



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 10, 2010 Rootmeter S/N 9833620 Ta (K) - 296
 Operator Tisch Orifice I.D. - 1785 Pa (mm) - 750.57

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER | ORFICE |
|----------------------|-------------------------|------------------------|------------------------|-----------------------|--------------------|----------------------|
| | | | | | DIFF Hg (mm) | DIFF H2O (in.) |
| 1 | NA | NA | 1.00 | 1.3960 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9840 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8790 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8390 | 8.7 | 5.50 |
| 5 | NA | NA | 1.00 | 0.6940 | 12.7 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|------------------------------------|------------------|----------|---------------------------|----------------|----------|
| 0.9900 | 0.7092 | 1.4102 | 0.9957 | 0.7133 | 0.8881 |
| 0.9858 | 1.0018 | 1.9943 | 0.9915 | 1.0076 | 1.2560 |
| 0.9837 | 1.1191 | 2.2296 | 0.9894 | 1.1256 | 1.4042 |
| 0.9827 | 1.1713 | 2.3385 | 0.9884 | 1.1781 | 1.4728 |
| 0.9774 | 1.4084 | 2.8203 | 0.9830 | 1.4165 | 1.7762 |
| Qstd slope (m) = 2.01637 | | | Qa slope (m) = 1.26262 | | |
| intercept (b) = -0.02316 | | | intercept (b) = -0.01458 | | |
| coefficient (r) = 0.99996 | | | coefficient (r) = 0.99996 | | |
| y axis = SQRT[H2O(Pa/760)(298/Ta)] | | | y axis = SQRT[H2O(Ta/Pa)] | | |

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

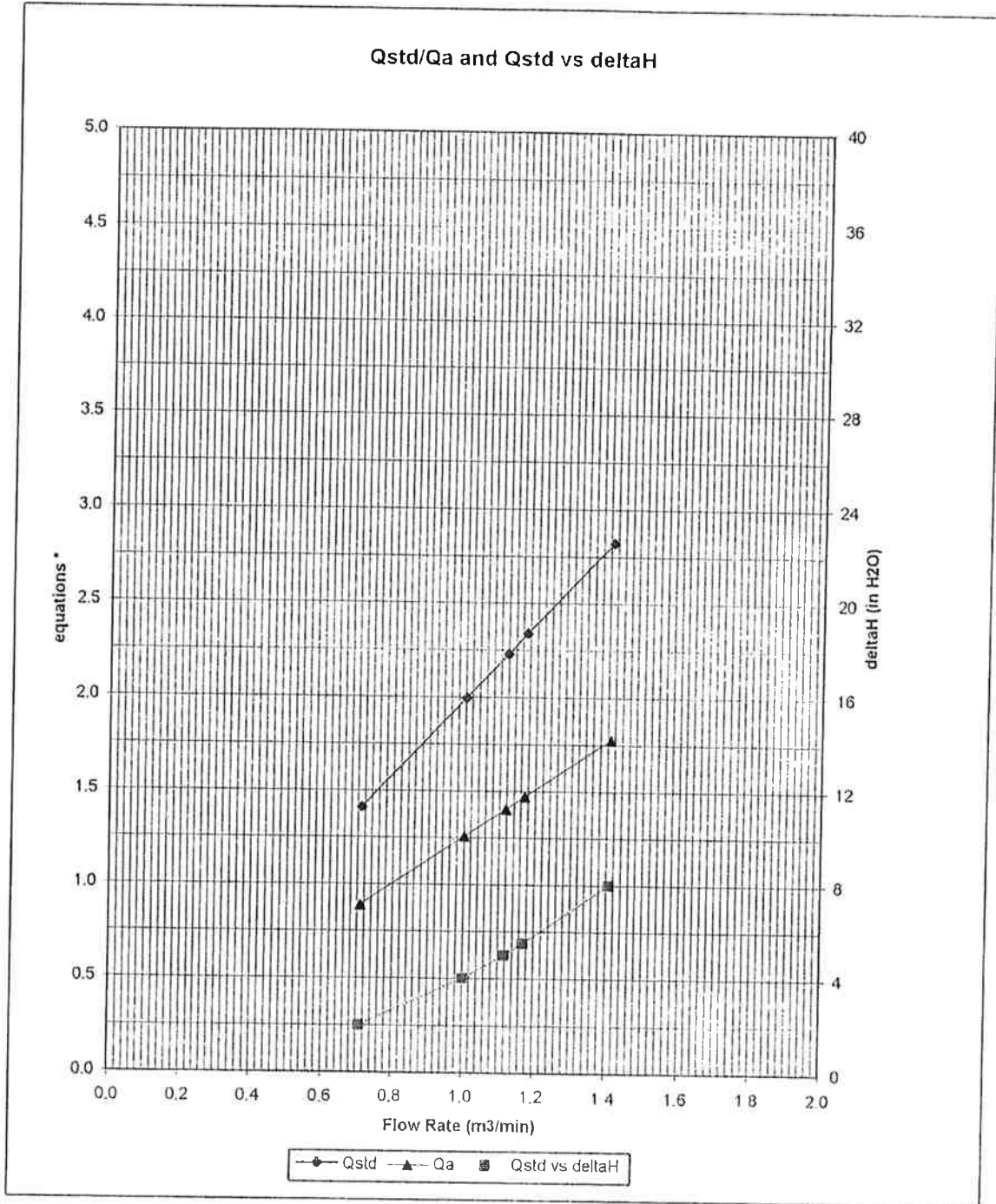
$$Qstd = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$$

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



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

#1785



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102904

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00410224

has been calibrated for the specific items and ranges.

The results are shown in the Calibration Report No. C102904.

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 : 31 May 2010

Certified by :

K C Lee

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.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o T.F. Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: call@suncreation.com Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C106297

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2448529

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C106297.*

The equipment is supplied by

Co. Name : Hyder Consulting Limited

*Address : 47/F., Hopewell Centre, 183 Queen's Road East,
Wanchai, Hong Kong*

Date of Issue : 16 November 2010

Certified by :

K/C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com



Calibration Certificate

Certificate No. **07436**

Page 1 of 3 Pages

Customer : Hyder Consulting Limited

Address : 47/F., Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong

Order No. : Q02884

Date of receipt : 28-Dec-10

Item Tested

Description : Sound Level Meter

Manufacturer : B&K

Model : 2238

Serial No. : 2562782

Test Conditions

Date of Test : 29-Dec-10

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

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

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

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|---------------------|
| S017A | Multi-Function Generator | 07279 | SCL-HKSAR |
| S024 | Sound Level Calibrator | 04062 | NIM-PRC & SCL-HKSAR |

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

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

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

Calibrated by : 

P. F. Wong

Approved by : 

Dorothy Cheuk

Date: 30-Dec-10

This Certificate is issued by:

Hong Kong Calibration Ltd.

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

Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. **07436**

Page 2 of 3 Pages

Results :

1. SPL Accuracy

| UUT Setting | | | | Applied Value (dB) | UUT Reading (dB) |
|-------------|------------|----------|--------------|-----------------------|---------------------|
| Range | Freq. Wgt. | Bandwith | Center Freq. | | |
| 20 ~ 100 | A | BB/F | -- | 94.0 | 94.1 |
| | A | BB/S | -- | | 94.1 |
| | C | BB/F | -- | | 94.0 |
| 40 ~ 120 | A | BB/F | -- | 94.0 | 94.1 |
| | A | BB/F | -- | 114.0 | 113.9 |

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. (Primary Indicator Range) |
|-------------------|-----------------------|---------------------|-------------------|---------------------------------------------------|
| 140 | 114.0 | 114.3 | +0.2 | ± 0.7 dB |
| 130 | 104.0 | 104.3 | +0.2 | |
| 120 | 94.0 | 94.1 (Ref.) | -- | |
| 110 | 84.0 | 83.9 | -0.2 | |
| 100 | 74.0 | 73.9 | -0.2 | |
| 90 | 64.0 | 63.9 | -0.2 | |
| 80 | 54.0 | 54.2 | +0.1 | |

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. **07436**

Page 3 of 3 Pages

3.2 Differential level linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. |
|----------------|--------------------|------------------|----------------|----------------------|
| 120 | 84.0 | 83.9 | -0.2 | ± 0.4 dB |
| | 94.0 | 94.1 (Ref.) | -- | |
| | 95.0 | 95.1 | 0.0 | ± 0.2 dB |

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

| Frequency | Attenuation (dB) | IEC 651 Type 1 Spec. |
|-----------|------------------|----------------------------|
| 31.5 Hz | -40.0 | - 39.4 dB, ± 1.5 dB |
| 63 Hz | -26.7 | - 26.2 dB, ± 1.5 dB |
| 125 Hz | -16.6 | - 16.1 dB, ± 1 dB |
| 250 Hz | -9.1 | - 8.6 dB, ± 1 dB |
| 500 Hz | -3.5 | - 3.2 dB, ± 1 dB |
| 1 kHz | 0.0 (Ref) | 0 dB, ± 1 dB |
| 2 kHz | +1.5 | + 1.2 dB, ± 1 dB |
| 4 kHz | +1.3 | + 1.0 dB, ± 1 dB |
| 8 kHz | -0.7 | - 1.1 dB, + 1.5 dB ~ -3 dB |
| 16 kHz | -6.3 | - 6.6 dB, + 3 dB ~ - ∞ |

Uncertainty : ± 0.1 dB

5. Time Averaging

| Applied Burst duty Factor | Applied Leq Value (dB) | UUT Reading (dB) | IEC 804 Type 1 Spec. |
|---------------------------|------------------------|------------------|----------------------|
| continuous | 40.0 | 40.0 | -- |
| 1/10 | 40.0 | 39.9 | ± 0.5 dB |
| 1/10 ² | 40.0 | 40.0 | |
| 1/10 ³ | 40.0 | 40.5 | ± 1.0 dB |
| 1/10 ⁴ | 40.0 | 41.0 | |

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

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

3. Atmospheric pressure : 1 012 hPa.

----- END -----



Calibration Certificate

Certificate No. 07437

Page 1 of 2 Pages

Customer : Hyder Consulting Limited

Address : 47/F., Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong

Order No. : Q02884

Date of receipt : 28-Dec-10

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231

Serial No. : 2699361

Test Conditions

Date of Test : 29-Dec-10

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

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

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|------------------------|------------------|---------------------|
| S014 | Spectrum Analyzer | 03926 | NIM-PRC & SCL-HKSAR |
| S024 | Sound Level Calibrator | 04062 | NIM-PRC & SCL-HKSAR |
| S041 | Universal Counter | 04461 | SCL-HKSAR |
| S206 | Sound Level Meter | 04462 | SCL-HKSAR |

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

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

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

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

Date: 30-Dec-10

This Certificate is issued by:

Hong Kong Calibration Ltd.

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Calibration Certificate

Certificate No. 07437

Page 2 of 2 Pages

Results :

1. Level Accuracy

| UUT Nominal Value (dB) | Measured Value (dB) | IEC 942 Class 1 Spec. |
|------------------------|---------------------|-----------------------|
| 94 | 94.02 | ± 0.3 dB |
| 114 | 114.10 | |

Uncertainty : ± 0.1 dB

2. Frequency

| UUT Nominal Value | Measured Value | IEC 942 Class 1 Spec. |
|-------------------|----------------|-----------------------|
| 1 kHz | 1.000 kHz | ± 2 % |

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.5 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

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

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

4. Atmospheric Pressure : 1012 hPa.

----- END -----

CERTIFICATE OF ANALYSIS



Work Order: HK1104774
Date of Issue: 02/03/2011
Client: HYDER CONSULTING LIMITED
Client Reference:

Calibration of Multimeter

Item : Multimeter Model No.: WTW pH/Oxi 340i
ALS Lab ID: HK1104774 -001 Serial No.: 08101283
Date of Calibration: 01 March 2011

Testing Results :

pH

| Expected Reading | Recording Reading |
|--------------------|-------------------|
| 4.00 | 4.10 |
| 7.00 | 7.10 |
| 10.0 | 10.18 |
| Allowing Deviation | ± 0.2 unit |

Testing Method:

APHA (20th edition), 4500-H⁺B

Temperature

| Expected Reading | Recording Reading |
|--------------------|-------------------|
| 17.0 °C | 16.5 °C |
| 21.0 °C | 20.5 °C |
| 34.5 °C | 34.3 °C |
| Allowing Deviation | ±2.0°C |

Testing Method:

In-House Method

Dissolved Oxygen

| Expected Reading | Recording Reading |
|--------------------|-------------------|
| 7.92 mg/L | 8.08 mg/L |
| 8.62 mg/L | 8.71 mg/L |
| 9.26 mg/L | 9.36 mg/L |
| Allowing Deviation | ± 0.2 mg/L |

Testing Method:

APHA (20th edition), 4500-OC & G


Mr Chan Kwok Fai Godfrey
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS



Work Order: HK1030685
Date of Issue: 31/12/2010
Client: HYDER CONSULTING LIMITED
Client Reference: DC2007/12 DESIGN AND CONSTRUCTION OF
TSUEN WAN DRAINAGE TUNNEL

Calibration of Turbidity System

Item : Turbidimeter Model No.: Eutech Instruments TN-100
ALS Lab ID: HK1030685 -001 Equipment No.: --
Date of Calibration: 28 December, 2010 Serial No.: 215619

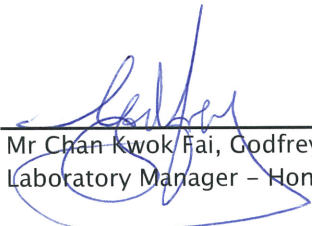
Testing Results :

Turbidity

| Expected Reading | Recording Reading |
|--------------------|-------------------|
| 0.00 NTU | 0.29 NTU |
| 4.00 NTU | 3.97 NTU |
| 40.0 NTU | 39.7 NTU |
| 80.0 NTU | 74.2 NTU |
| 400 NTU | 433 NTU |
| 800 NTU | 783 NTU |
| Allowing Deviation | ± 10% |

Testing Method:

APHA (19th edition), 2130B


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1106728
Date of Issue: 22/03/2011
Client: HYDER CONSULTING LIMITED



Description: Turbidimeter
Brand Name: Eutech Instruments
Model No.: TN-100
Serial No.: 215619
Equipment No.: N/A
Date of Calibration: 22 March, 2011

Date of next Calibration: 22 June, 2011

Parameters:

Turbidity

Method Ref: ALPHA 21st Ed. 2130B

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|----------------------------|-------------------------|---------------|
| 0 | 0.19 | -- |
| 4 | 3.99 | -0.2% |
| 40 | 37.8 | -5.5% |
| 80 | 74.2 | -7.3% |
| 400 | 419 | 4.8% |
| 800 | 744 | -7.0% |
| Tolerance Limit (\pm %) | | 10.0 |


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Appendix G

Monitoring Locations

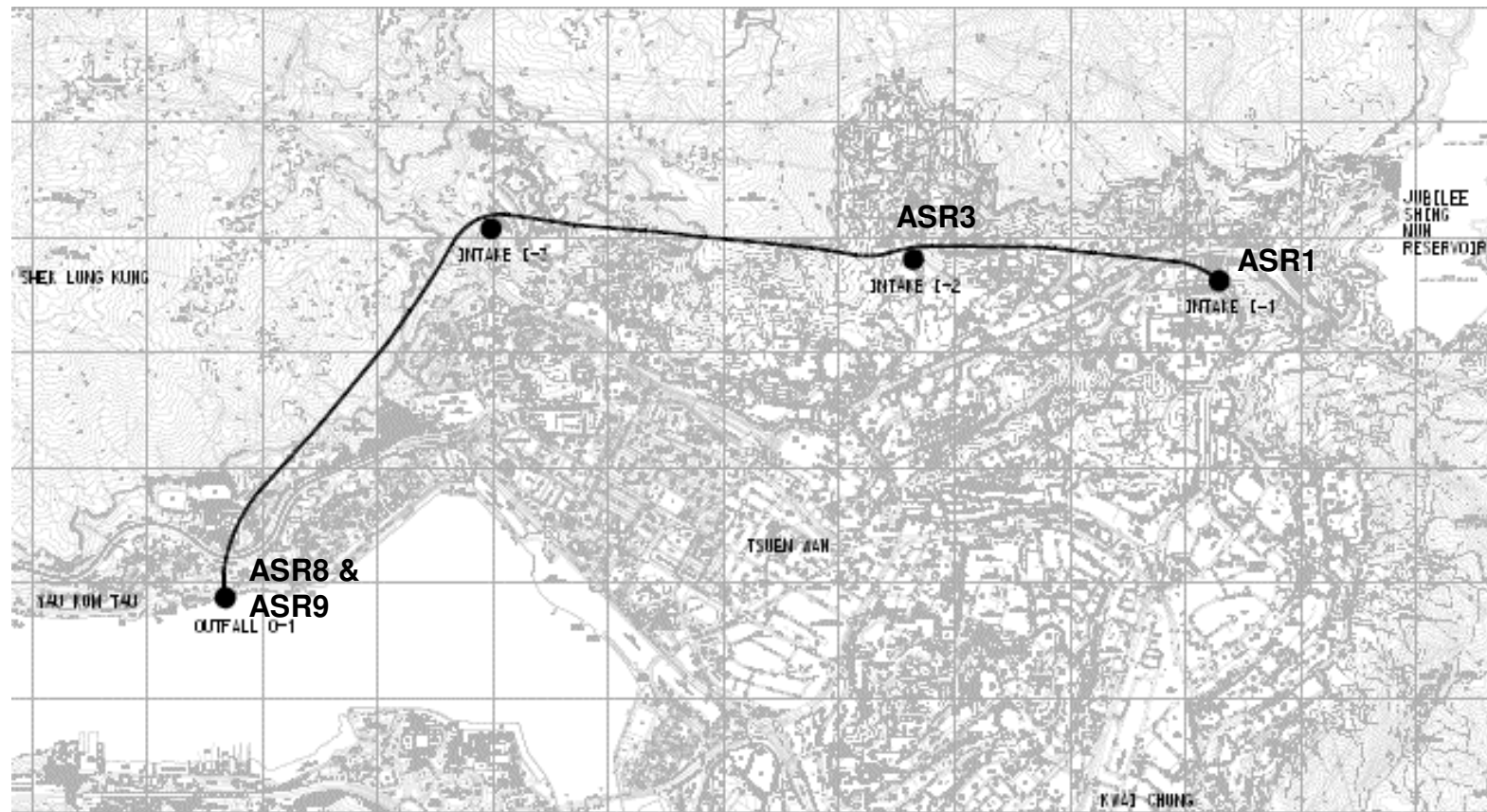


Figure 1 Air Quality Monitoring Stations

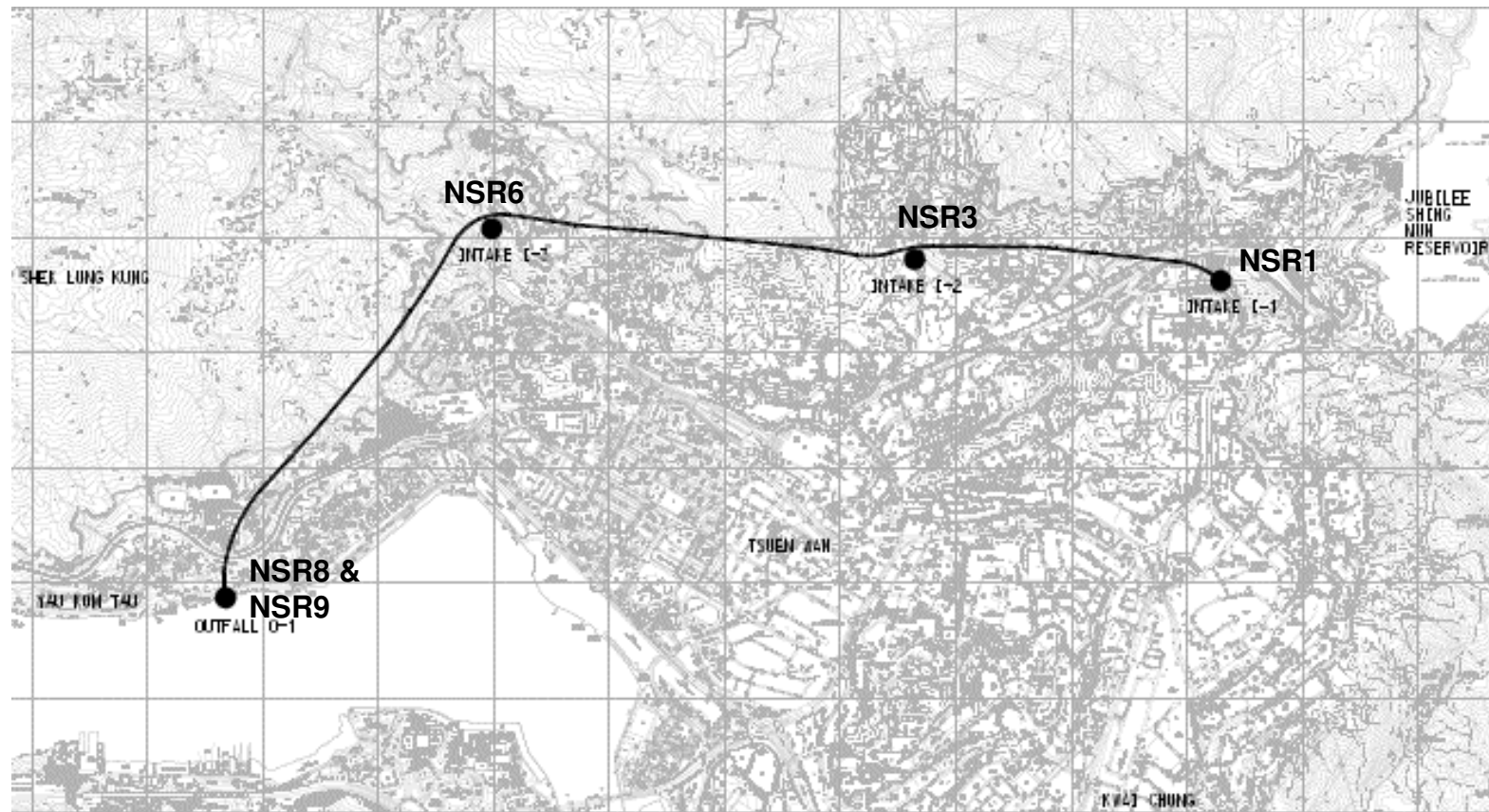


Figure 2 Noise Monitoring Stations

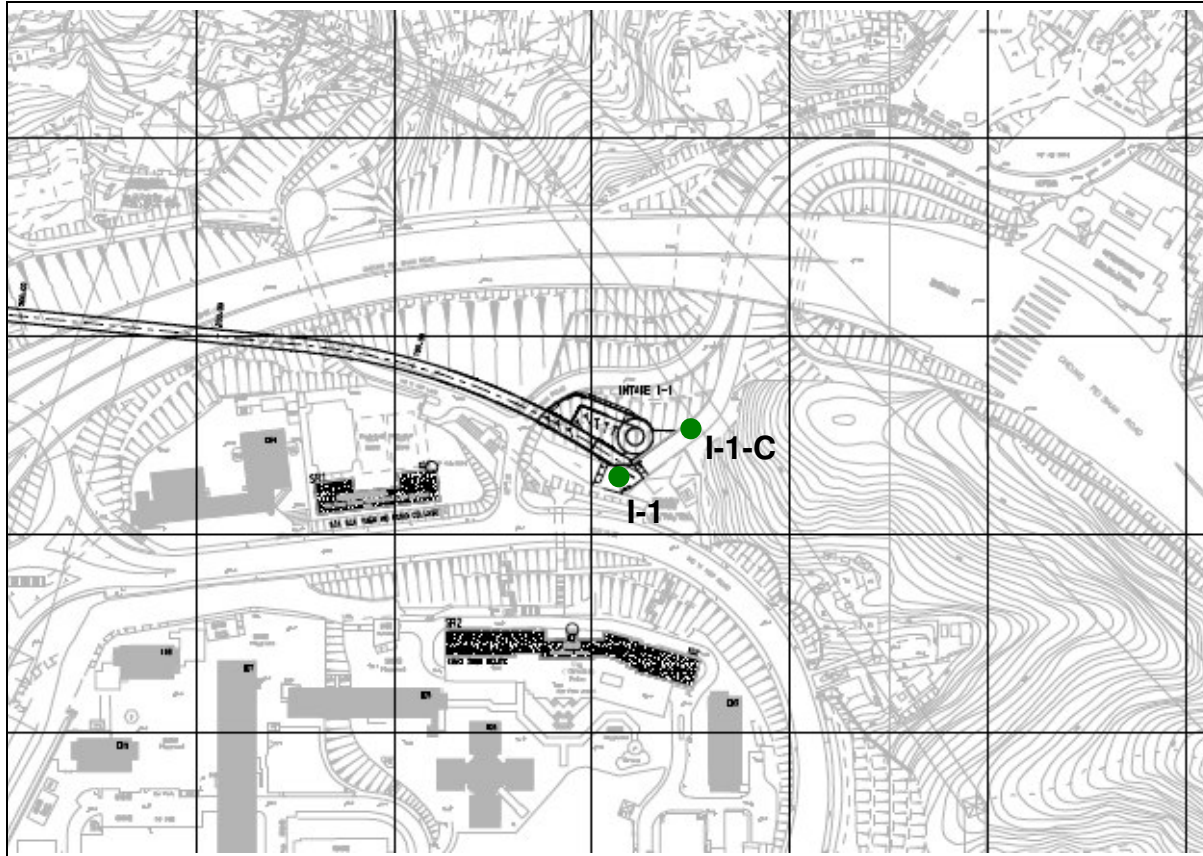


Figure 3 Water Quality Monitoring Stations: I-1 & I-1-C at Intake I-1

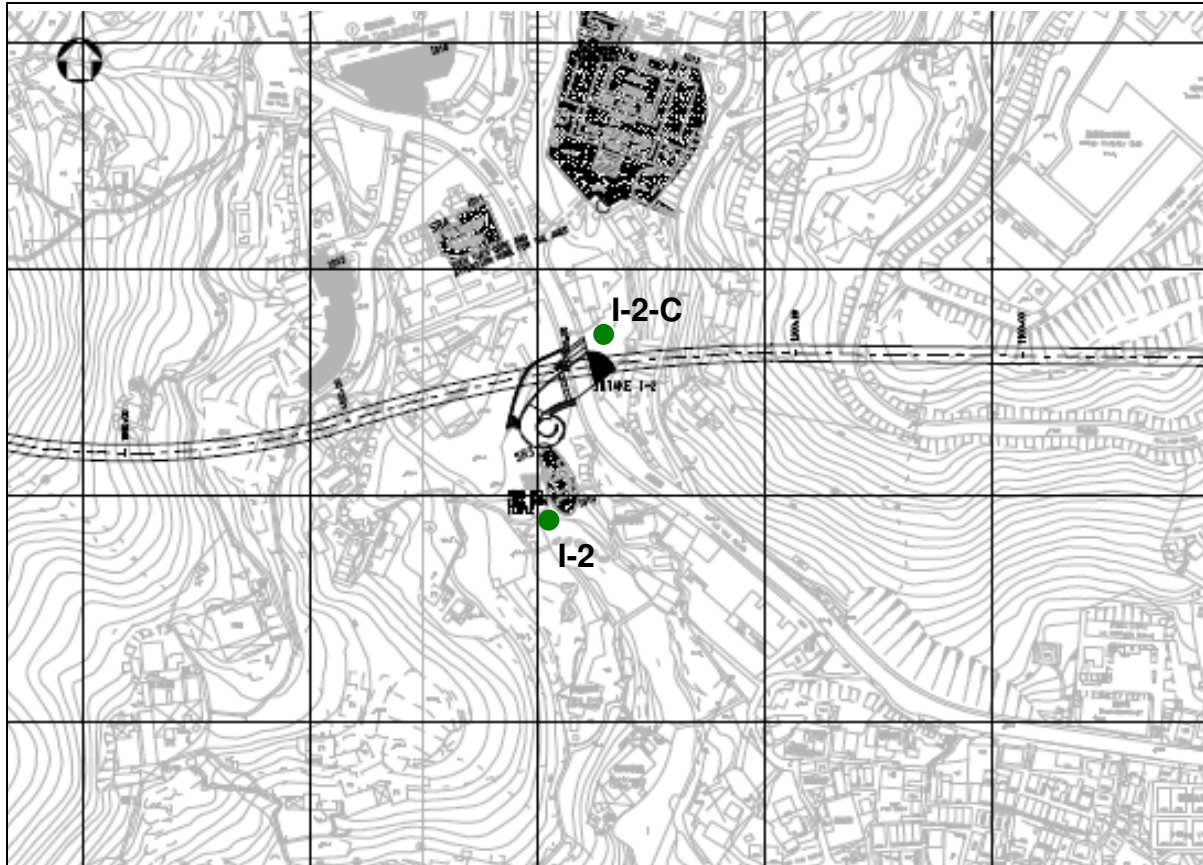


Figure 4 Water Quality Monitoring Stations: I-2 & I-2-C at Intake I-2



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

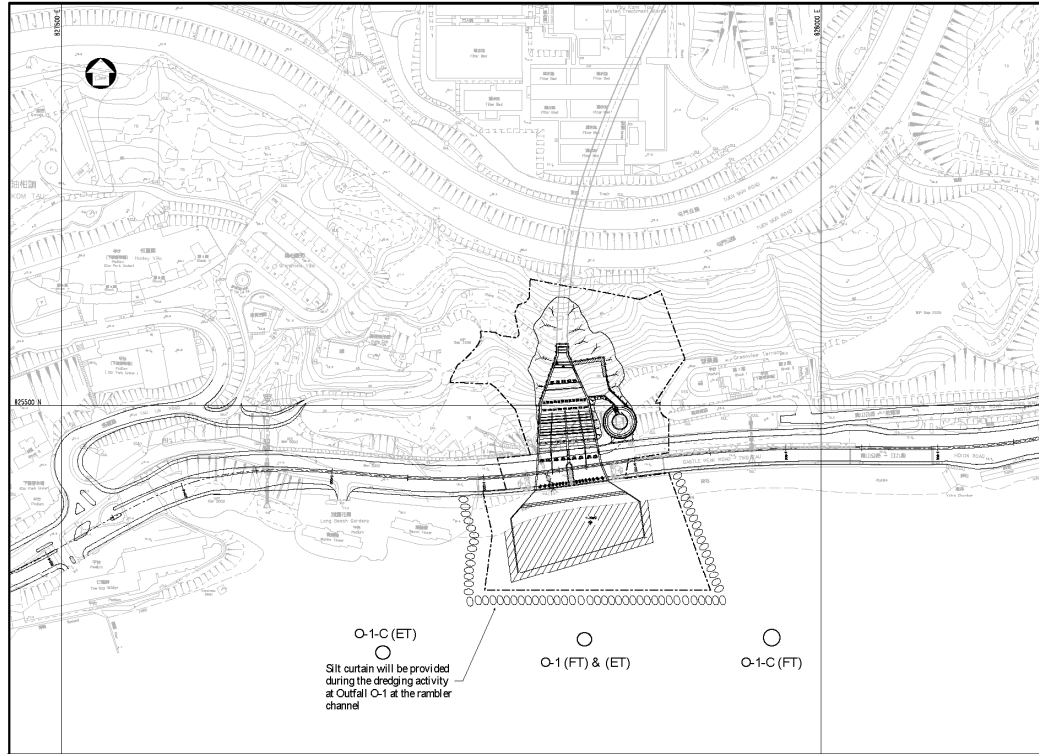


Figure 6 Water Quality Monitoring Stations: O-1 (FT) & (ET), O-1-C(FT) & O-1-C(FT) at Outfall O-1

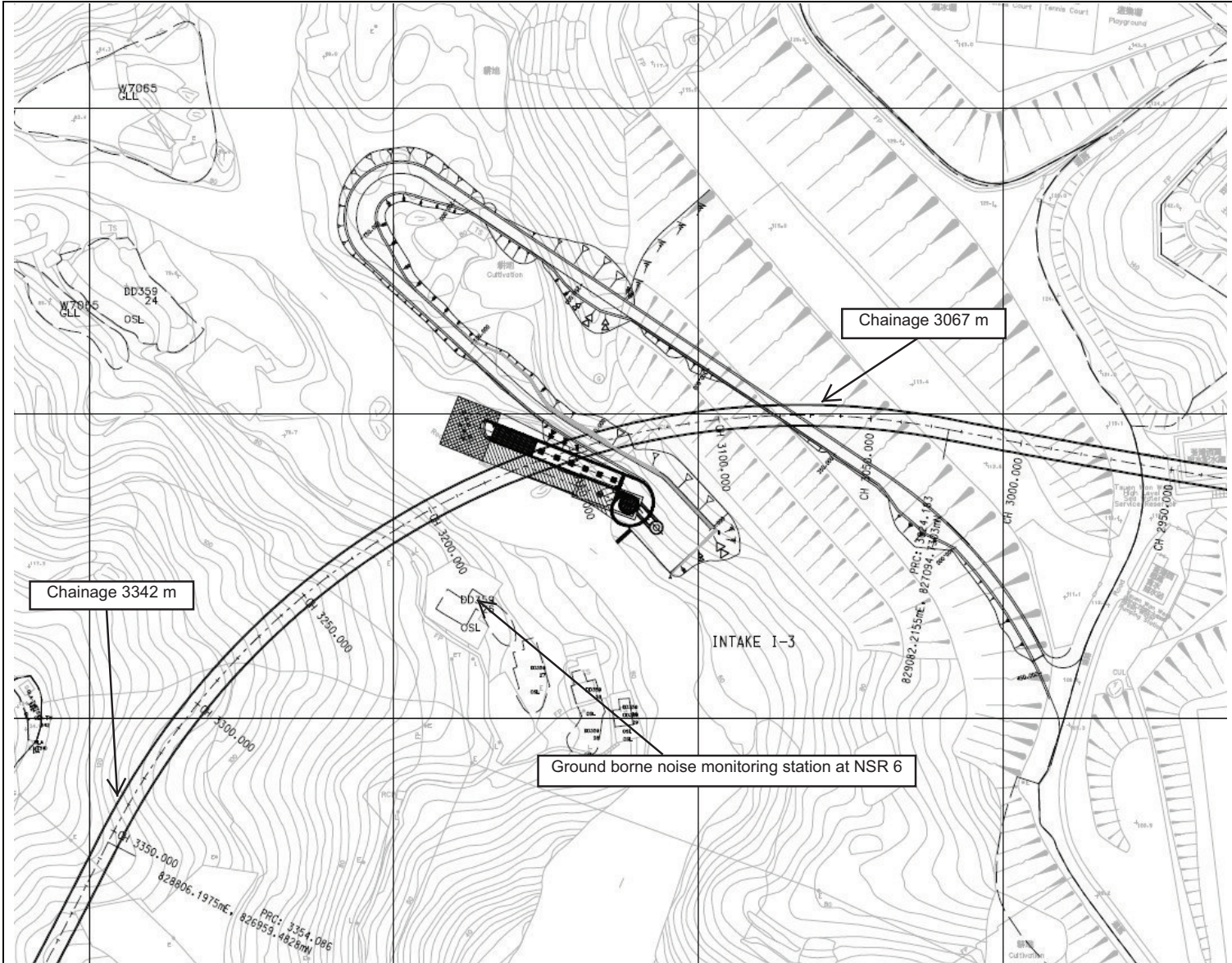


Figure 7 Ground borne noise monitoring station at NSR 6

Appendix H

EM&A Schedule

**Contract No. DC/2007/12 – Design and Construction of
Tsuen Wan Drainage Tunnel
Impact Monitoring Programme – March 11**

| Date | | Air | Noise | Water | Ground Borne Noise |
|-----------|-----|-----|-------|-------|--------------------|
| 01-Mar-11 | Tue | ✓ | ✓ | | ✓ (NSR 6) |
| 02-Mar-11 | Wed | | | ✓ | |
| 03-Mar-11 | Thu | | | | |
| 04-Mar-11 | Fri | | | ✓ | |
| 05-Mar-11 | Sat | | | | |
| 06-Mar-11 | Sun | | | | |
| 07-Mar-11 | Mon | ✓ | ✓ | ✓ | ✓ (NSR 6) |
| 08-Mar-11 | Tue | | | | |
| 09-Mar-11 | Wed | | | ✓ | ✓ (NSR 6) |
| 10-Mar-11 | Thu | | | | |
| 11-Mar-11 | Fri | ✓ | | ✓ | |
| 12-Mar-11 | Sat | | | | |
| 13-Mar-11 | Sun | | | | |
| 14-Mar-11 | Mon | | | ✓ | |
| 15-Mar-11 | Tue | | | | |
| 16-Mar-11 | Wed | | | ✓ | |
| 17-Mar-11 | Thu | ✓ | ✓ | | ✓ (NSR 6) |
| 18-Mar-11 | Fri | | | ✓ | |
| 19-Mar-11 | Sat | | | | |
| 20-Mar-11 | Sun | | | | |
| 21-Mar-11 | Mon | | | ✓ | |
| 22-Mar-11 | Tue | | | | |
| 23-Mar-11 | Wed | ✓ | ✓ | ✓ | ✓ (NSR 6) |
| 24-Mar-11 | Thu | | | | |
| 25-Mar-11 | Fri | | | ✓ | |
| 26-Mar-11 | Sat | | | | |
| 27-Mar-11 | Sun | | | | |
| 28-Mar-11 | Mon | | | ✓ | |
| 29-Mar-11 | Tue | ✓ | ✓ | | ✓ (NSR 6) |
| 30-Mar-11 | Wed | | | ✓ | |
| 31-Mar-11 | Thu | | | | |

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)

Ground borne Nose – Ground borne noise measurements is undertaken once every week at (0700-1900 Monday to Saturday) from chainage 3067m to 3042 m at NSR 6 and from 1224m to 1477m at NSR 3

Water – Water quality monitoring is undertaken three times per week

**Contract No. DC/2007/12 – Design and Construction of
Tsuen Wan Drainage Tunnel
Impact Monitoring Programme – April 11 (Tentative)**

| Date | | Air | Noise | Water | Ground Borne Noise |
|-----------|-----|-----|-------|-------|--------------------|
| 01-Apr-11 | Fri | | | ✓ | |
| 02-Apr-11 | Sat | | | | |
| 03-Apr-11 | Sun | | | | |
| 04-Apr-11 | Mon | ✓ | ✓ | ✓ | ✓ (NSR 6) |
| 05-Apr-11 | Tue | | | | |
| 06-Apr-11 | Wed | | | ✓ | |
| 07-Apr-11 | Thu | | | | |
| 08-Apr-11 | Fri | ✓ | | ✓ | |
| 09-Apr-11 | Sat | | | | |
| 10-Apr-11 | Sun | | | | |
| 11-Apr-11 | Mon | | | ✓ | |
| 12-Apr-11 | Tue | | | | |
| 13-Apr-11 | Wed | | | ✓ | |
| 14-Apr-11 | Thu | ✓ | ✓ | | ✓ (NSR 6) |
| 15-Apr-11 | Fri | | | ✓ | |
| 16-Apr-11 | Sat | | | | |
| 17-Apr-11 | Sun | | | | |
| 18-Apr-11 | Mon | | | ✓ | |
| 19-Apr-11 | Tue | | | | |
| 20-Apr-11 | Wed | ✓ | ✓ | ✓ | ✓ (NSR 6) |
| 21-Apr-11 | Thu | | | | |
| 22-Apr-11 | Fri | | | | |
| 23-Apr-11 | Sat | | | | |
| 24-Apr-11 | Sun | | | | |
| 25-Apr-11 | Mon | | | | |
| 26-Apr-11 | Tue | ✓ | ✓ | ✓ | ✓ (NSR 6) |
| 27-Apr-11 | Wed | | | | |
| 28-Apr-11 | Thu | | | ✓ | |
| 29-Apr-11 | Fri | ✓ | | | |
| 30-Apr-11 | 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)

Ground borne Nose – Ground borne noise measurements is undertaken once every week at (0700-1900 Monday to Saturday) from chainage 3067m to 3042 m at NSR 6 and from 1224m to 1477m at NSR 3

Water –Water quality monitoring is undertaken three times per week

**Contract No. DC/2007/12 – Design and Construction of
Tsuen Wan Drainage Tunnel
Impact Monitoring Programme – May 11 (Tentative)**

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

**Contract No. DC/2007/12 – Design and Construction of
Tsuen Wan Drainage Tunnel
Impact Monitoring Programme – June 11 (Tentative)**

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

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 quality monitoring is undertaken three times per week

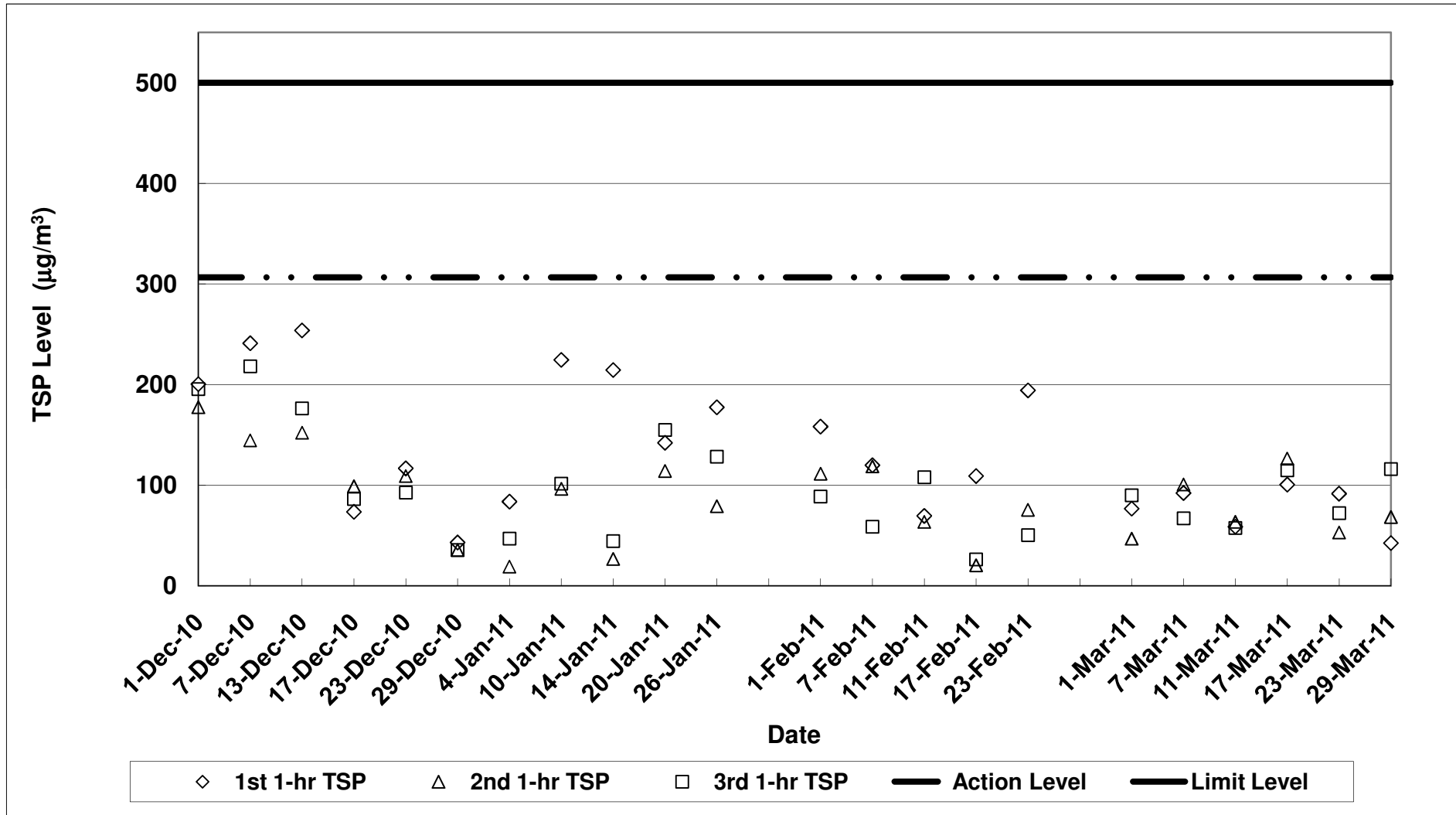
Appendix I

Monitoring Results

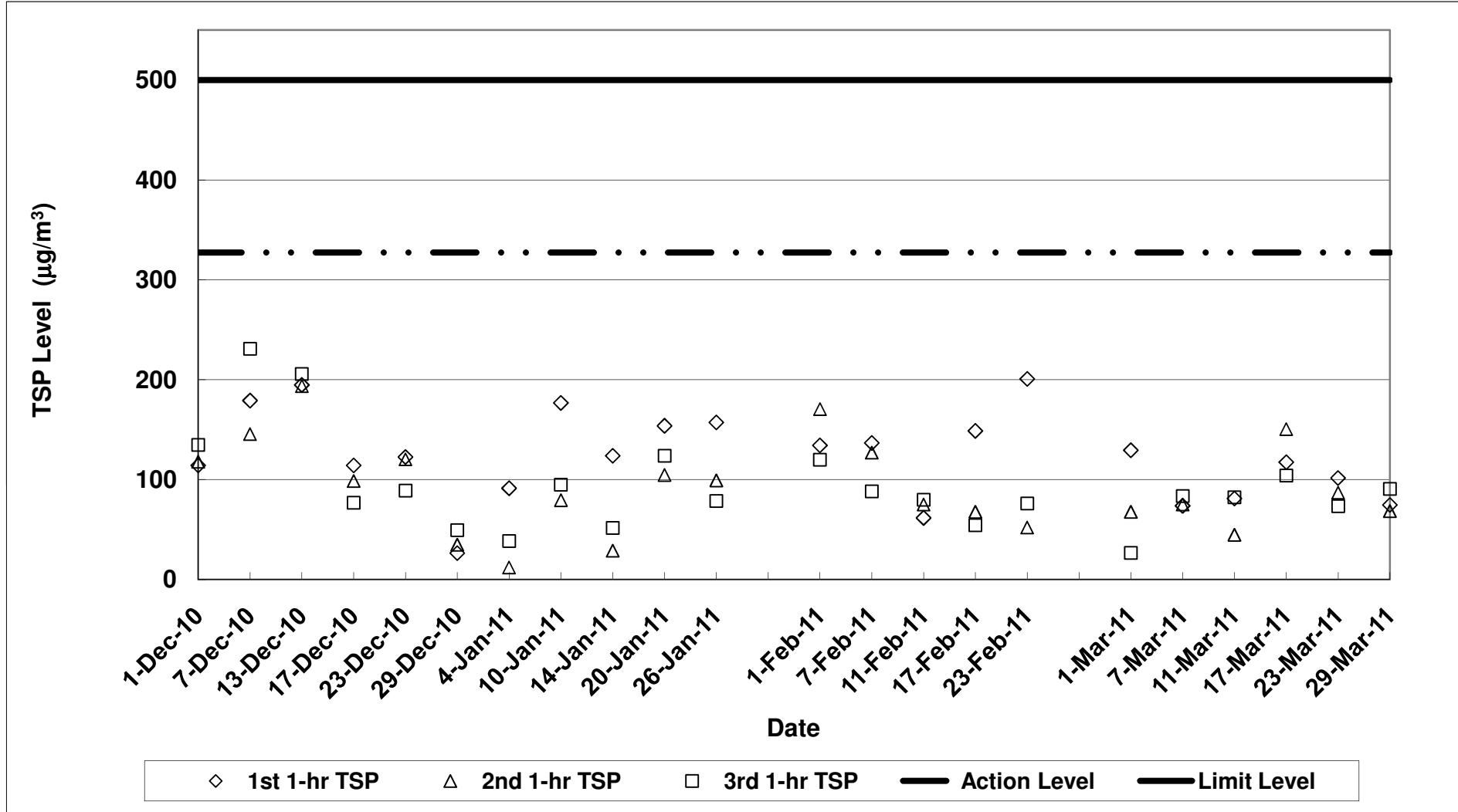
Air Quality Impact Monitoring Results (1-Hour TSP)

| Location | Monitoring Date | Weather Conditions | Wind Speed with Direction (m/s) | Temp (°C) | Timer-I | Timer-F | Time (mins) | Flow-I (CFM) | Flow-F (CFM) | Flow-I (m ³ /min) | Flow-F (m ³ /min) | Flow-avg (m ³ /min) | Volume (m ³) | Weight-I (g) | Weight-F (g) | Weight-diff. (g) | 1-hr TSP (µg/m ³) | Average 1-hr TSP (µg/m ³) | Action/Limit Levels (µg/m ³) | Observation / Site Condition | Remark |
|----------------------------------------------|-----------------|--------------------|---------------------------------|-----------|---------|---------|-------------|--------------|--------------|------------------------------|------------------------------|--------------------------------|--------------------------|--------------|--------------|------------------|-------------------------------|---------------------------------------|------------------------------------------|--------------------------------------|---------|
| Sik Sik Yuen Ho Fung College - Intake (ASR1) | 01-Mar-11 | Sunny | 0.2E | 21 | 609742 | 609842 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.7976 | 2.8040 | 0.0064 | 76.7 | 71.2 | 306.6/500 | Crane operation | Traffic |
| | | Sunny | 0.2E | 21 | 609842 | 609942 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.7991 | 2.8030 | 0.0039 | 46.8 | | | | |
| | | Sunny | 0.2E | 21 | 609942 | 610042 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.7999 | 2.8074 | 0.0075 | 89.9 | | | | |
| | 07-Mar-11 | Sunny | 0.2E | 22 | 610042 | 610142 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8638 | 2.8715 | 0.0077 | 92.3 | 86.7 | 306.6/500 | Crane operation and steel bending | Traffic |
| | | Sunny | 0.2E | 22 | 610142 | 610242 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8682 | 2.8766 | 0.0084 | 100.7 | | | | |
| | | Sunny | 0.2E | 22 | 610242 | 610342 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8511 | 2.8567 | 0.0056 | 67.2 | | | | |
| | 11-Mar-11 | Cloudy | 0.5E | 19 | 610342 | 610442 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8519 | 2.8568 | 0.0049 | 58.9 | 60.0 | 306.6/500 | Crane operation and steel bending | Traffic |
| | | Cloudy | 0.5E | 19 | 610442 | 610542 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8433 | 2.8486 | 0.0053 | 63.6 | | | | |
| | | Cloudy | 0.5E | 19 | 610542 | 610642 | 60.0 | 40 | 40 | 1.39 | 1.39 | 1.39 | 83.39 | 2.8539 | 2.8587 | 0.0048 | 57.6 | | | | |
| | 17-Mar-11 | Cloudy | 0.3E | 18 | 610642 | 610742 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8427 | 2.8505 | 0.0078 | 100.7 | 114.0 | 306.6/500 | Crane operation and steel bending | Traffic |
| | | Cloudy | 0.3E | 18 | 610742 | 610842 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8424 | 2.8522 | 0.0098 | 126.5 | | | | |
| | | Cloudy | 0.3E | 18 | 610842 | 610942 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8604 | 2.8693 | 0.0089 | 114.9 | | | | |
| 23-Mar-11 | Cloudy | 0.3E | 18 | 610942 | 611042 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8406 | 2.8477 | 0.0071 | 91.6 | 72.3 | 306.6/500 | Crane operation and concrete works | Traffic | |
| | Cloudy | 0.3E | 18 | 611042 | 611142 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8442 | 2.8483 | 0.0041 | 52.9 | | | | | |
| | Cloudy | 0.3E | 18 | 611142 | 611242 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8398 | 2.8454 | 0.0056 | 72.3 | | | | | |
| 29-Mar-11 | Fine | 0.3S | 18 | 611242 | 611342 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8359 | 2.8392 | 0.0033 | 42.6 | 75.7 | 306.6/500 | Crane operation and steel bending | Traffic | |
| | Fine | 0.3S | 18 | 611342 | 611442 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8331 | 2.8384 | 0.0053 | 68.4 | | | | | |
| | Fine | 0.3S | 18 | 611442 | 611542 | 60.0 | 40 | 40 | 1.29 | 1.29 | 1.29 | 77.47 | 2.8250 | 2.8340 | 0.0090 | 116.2 | | | | | |
| Hong Hai Chee Hong Temple - Intake (ASR3) | 01-Mar-11 | Sunny | 0.2E | 21 | 578290 | 578390 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.7949 | 2.8056 | 0.0107 | 129.5 | 74.6 | 327.4/500 | Drilling | Traffic |
| | | Sunny | 0.2E | 21 | 578390 | 578490 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.7997 | 2.8053 | 0.0056 | 67.8 | | | | |
| | | Sunny | 0.2E | 21 | 578490 | 578590 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.7922 | 2.7944 | 0.0022 | 26.6 | | | | |
| | 07-Mar-11 | Sunny | 0.2E | 22 | 578590 | 578690 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.7924 | 2.7985 | 0.0061 | 73.8 | 77.4 | 327.4/500 | Drilling | Traffic |
| | | Sunny | 0.2E | 22 | 578690 | 578790 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.7813 | 2.7875 | 0.0062 | 75.0 | | | | |
| | | Sunny | 0.2E | 22 | 578790 | 578890 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.8531 | 2.8600 | 0.0069 | 83.5 | | | | |
| | 11-Mar-11 | Cloudy | 0.3E | 19 | 578890 | 578990 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.8733 | 2.8800 | 0.0067 | 80.1 | 69.4 | 327.4/500 | Drilling | Traffic |
| | | Cloudy | 0.3E | 19 | 578990 | 579090 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.8398 | 2.8398 | 0.0037 | 44.8 | | | | |
| | | Cloudy | 0.3E | 19 | 579090 | 579190 | 60.0 | 40 | 40 | 1.38 | 1.38 | 1.38 | 82.65 | 2.8425 | 2.8493 | 0.0068 | 82.3 | | | | |
| | 17-Mar-11 | Cloudy | 0.3E | 18 | 579190 | 579290 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8459 | 2.8555 | 0.0096 | 117.5 | 124.1 | 327.4/500 | Drilling | Traffic |
| | | Cloudy | 0.3E | 18 | 579290 | 579390 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8536 | 2.8659 | 0.0123 | 150.6 | | | | |
| | | Cloudy | 0.3E | 18 | 579390 | 579490 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8546 | 2.8631 | 0.0085 | 104.1 | | | | |
| 23-Mar-11 | Cloudy | 0.3E | 18 | 579490 | 579590 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8557 | 2.8640 | 0.0083 | 101.6 | 87.3 | 327.4/500 | Crane operation and drilling | Traffic | |
| | Cloudy | 0.3E | 18 | 579590 | 579690 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8614 | 2.8685 | 0.0071 | 86.9 | | | | | |
| | Cloudy | 0.3E | 18 | 579690 | 579790 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8486 | 2.8546 | 0.0060 | 73.5 | | | | | |
| 29-Mar-11 | Fine | 0.2E | 18 | 579790 | 579890 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8522 | 2.8583 | 0.0061 | 74.7 | 77.9 | 327.4/500 | Drilling | Traffic | |
| | Fine | 0.2E | 18 | 579890 | 579990 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8316 | 2.8372 | 0.0056 | 68.6 | | | | | |
| | Fine | 0.2E | 18 | 579990 | 580090 | 60.0 | 40 | 40 | 1.36 | 1.36 | 1.36 | 81.68 | 2.8360 | 2.8434 | 0.0074 | 90.6 | | | | | |
| Long Beach Gardens - Outfall (ASR8) | 01-Mar-11 | Sunny | 0.5E | 21 | 572434 | 572534 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8022 | 2.8101 | 0.0079 | 107.2 | 91.9 | 336.6/500 | Crane operation and excavation works | Traffic |
| | | Sunny | 0.5E | 21 | 572534 | 572634 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.7792 | 2.7862 | 0.0070 | 95.0 | | | | |
| | | Sunny | 0.5E | 21 | 572634 | 572734 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.7791 | 2.7845 | 0.0054 | 73.3 | | | | |
| | 07-Mar-11 | Sunny | 0.3E | 22 | 572734 | 572834 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8536 | 2.8604 | 0.0068 | 92.3 | 130.3 | 336.6/500 | Crane operation and excavation works | Traffic |
| | | Sunny | 0.3E | 22 | 572834 | 572934 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8500 | 2.8650 | 0.0150 | 203.6 | | | | |
| | | Sunny | 0.3E | 22 | 572934 | 573034 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8577 | 2.8647 | 0.0070 | 95.0 | | | | |
| | 11-Mar-11 | Cloudy | 0.8E | 19 | 573034 | 573134 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8629 | 2.8937 | 0.0308 | 146.6 | 91.9 | 336.6/500 | Crane operation and excavator | Traffic |
| | | Cloudy | 0.8E | 19 | 573134 | 573234 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8477 | 2.8531 | 0.0054 | 73.3 | | | | |
| | | Cloudy | 0.8E | 19 | 573234 | 573334 | 60.0 | 40 | 40 | 1.23 | 1.23 | 1.23 | 73.67 | 2.8685 | 2.8726 | 0.0041 | 55.7 | | | | |
| | 17-Mar-11 | Cloudy | 0.3E | 18 | 573334 | 573434 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8587 | 2.8691 | 0.0104 | 133.0 | 138.1 | 336.6/500 | Crane operation and excavation works | Traffic |
| | | Cloudy | 0.3E | 18 | 573434 | 573534 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8550 | 2.8669 | 0.0119 | 152.1 | | | | |
| | | Cloudy | 0.3E | 18 | 573534 | 573634 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8750 | 2.8851 | 0.0101 | 129.1 | | | | |
| 23-Mar-11 | Cloudy | 0.3E | 18 | 573634 | 573734 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8544 | 2.8647 | 0.0103 | 131.7 | 124.0 | 336.6/500 | Excavation works and crane operation | Traffic | |
| | Cloudy | 0.3E | 18 | 573734 | 573834 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8378 | 2.8474 | 0.0096 | 122.7 | | | | | |
| | Cloudy | 0.3E | 18 | 573834 | 573934 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8500 | 2.8592 | 0.0092 | 117.6 | | | | | |
| 29-Mar-11 | Fine | 0.3E | 18 | 573934 | 574034 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8260 | 2.8374 | 0.0114 | 145.8 | 131.3 | 336.6/500 | Crane operation and excavation works | Traffic | |
| | Fine | 0.3E | 18 | 574034 | 574134 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8571 | 2.8625 | 0.0054 | 69.0 | | | | | |
| | Fine | 0.3E | 18 | 574134 | 574234 | 60.0 | 40 | 40 | 1.30 | 1.30 | 1.30 | 78.21 | 2.8672 | 2.8812 | 0.0140 | 179.0 | | | | | |
| Greenview Terrace - Outfall (ASR9) | 01-Mar-11 | Sunny | 0.4E | 21 | 565280 | 565380 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.7967 | 2.8054 | 0.0087 | 113.5 | 121.4 | 329.2/500 | Crane operation and breaker | Traffic |
| | | Sunny | 0.4E | 21 | 565380 | 565480 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.7930 | 2.8031 | 0.0101 | 131.8 | | | | |
| | | Sunny | 0.4E | 21 | 565480 | 565580 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.7999 | 2.8090 | 0.0091 | 118.8 | | | | |
| | 07-Mar-11 | Sunny | 0.3E | 22 | 565580 | 565680 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.8404 | 2.8533 | 0.0129 | 168.4 | 126.6 | 329.2/500 | Crane operation and breaker | Traffic |
| | | Sunny | 0.3E | 22 | 565680 | 565780 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.8578 | 2.8667 | 0.0089 | 116.2 | | | | |
| | | Sunny | 0.3E | 22 | 565780 | 565880 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.8545 | 2.8618 | 0.0073 | 95.3 | | | | |
| | 11-Mar-11 | Cloudy | 0.5E | 19 | 565880 | 565980 | 60.0 | 40 | 40 | 1.28 | 1.28 | 1.28 | 76.62 | 2.8416 | 2.8525 | 0.0109 | 142.3 | 94.4 | 329.2/500 | Crane operation and breaker | Traffic |
| | | Cloudy | 0.5 | | | | | | | | | | | | | | | | | | |

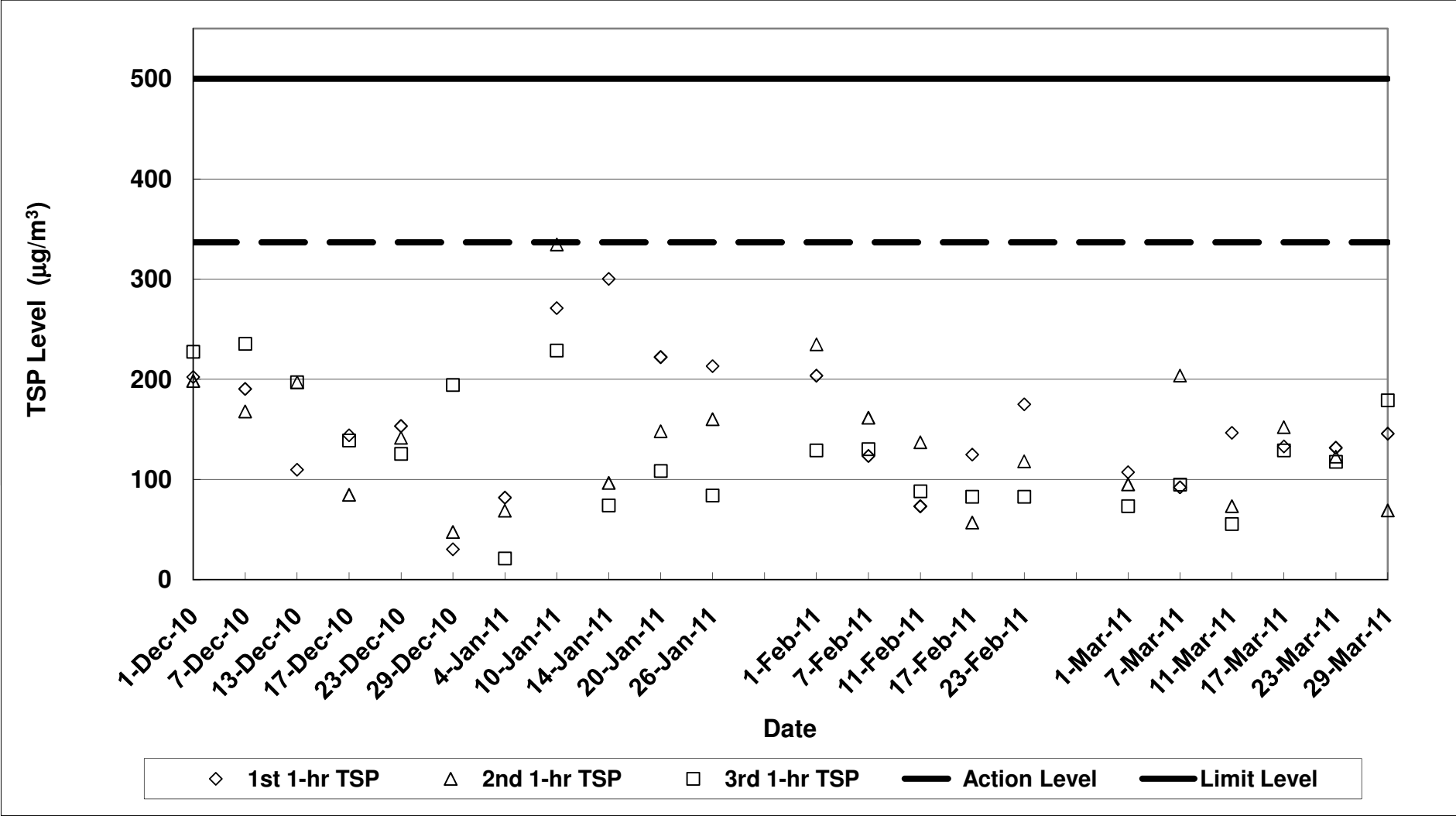
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College - Intake (ASR1)
 Dec-10 to Mar-11**



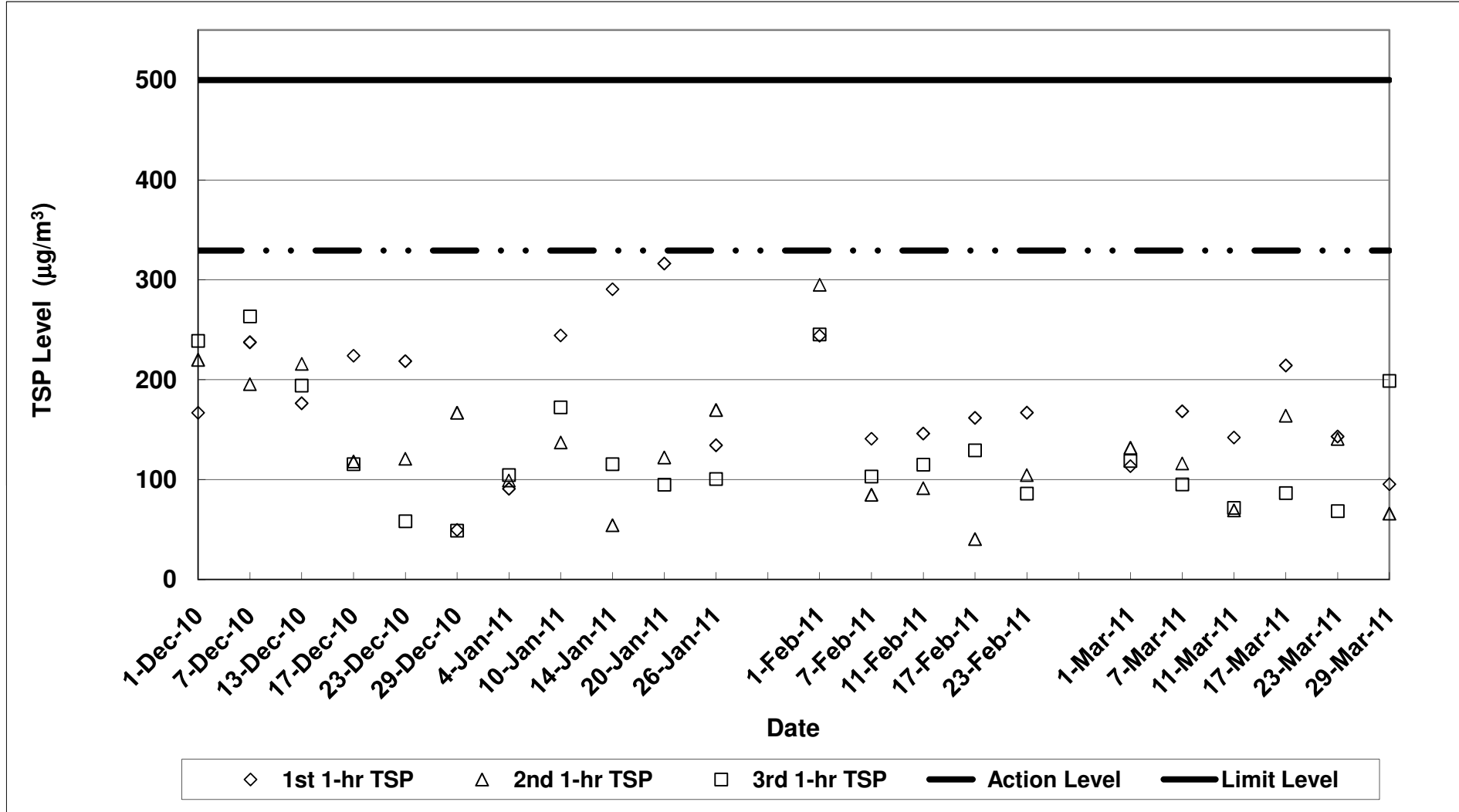
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Hong Hoi Chee Hong Temple - Intake (ASR3)
 Dec-10 to Mar-11**



**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)
 Dec-10 to Mar-11**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Greenview Terrace - Outfall (ASR9)
 Dec-10 to Mar-11**



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

Noise Impact Monitoring Results

| Monitoring Locations | Date | Weather Conditions | Temperature (°C) | Wind Speed (m/s) | Wind Direction | Start Time | End Time | BL ¹ dB(A) | LL ² dB(A) | L _{eq} (30min) dB(A) | L ₁₀ (30min) dB(A) | L ₉₀ (30min) dB(A) | CNL ³ dB(A) | Observation / Site Condition | Remark |
|---------------------------------------|-----------|--------------------|------------------|------------------|----------------|------------|----------|--------------------------|--------------------------|----------------------------------|----------------------------------|----------------------------------|---------------------------|--------------------------------------|----------------------------|
| | | | | | | | | | | | | | | | |
| Sik Sik Yuen Ho Fung College NSR 1 | 01-Mar-11 | Sunny | 21 | 0.2 | E | 15:18 | 15:48 | 66.1 | 70 | 64.1 | 66.5 | 60.1 | - | Crane operation | Traffic and aircraft noise |
| | 07-Mar-11 | Sunny | 22 | 0.2 | E | 16:20 | 16:50 | | 70 | 64.5 | 66.8 | 60.4 | - | Crane operation and steel bonding | Traffic and aircraft noise |
| | 17-Mar-11 | Cloudy | 18 | 0.3 | E | 17:07 | 17:37 | | 70 | 63.9 | 66.3 | 59.8 | - | Crane operation and steel bending | Traffic noise |
| | 23-Mar-11 | Cloudy | 18 | 0.3 | E | 16:50 | 17:20 | | 70 | 65.4 | 67.4 | 61.5 | - | Crane operation and concrete works | Traffic noise |
| | 29-Mar-11 | Fine | 18 | 0.3 | E | 15:05 | 15:35 | | 70 | 64.2 | 67.1 | 59.4 | - | Crane operation and steel bending | Traffic and aircraft noise |
| Hong Hoi Chee Hong Temple NSR 3 | 01-Mar-11 | Sunny | 21 | 0.2 | E | 14:33 | 15:03 | 57.9 | 75 | 59.2 | 61.2 | 55.9 | - | Drilling and excavation works | Traffic and aircraft noise |
| | 07-Mar-11 | Sunny | 22 | 0.2 | E | 15:35 | 16:05 | | 75 | 57.3 | 59.1 | 55.1 | - | Drilling | Traffic and aircraft noise |
| | 17-Mar-11 | Cloudy | 18 | 0.3 | E | 16:30 | 17:00 | | 75 | 61.4 | 63.0 | 59.7 | - | Drilling | Traffic noise |
| | 23-Mar-11 | Cloudy | 18 | 0.3 | E | 16:10 | 16:40 | | 75 | 63.9 | 65.9 | 58.5 | - | Crane operation and drilling | Traffic noise |
| | 29-Mar-11 | Fine | 18 | 0.2 | E | 15:44 | 16:14 | | 75 | 62.7 | 65.2 | 57.2 | - | Drilling | Traffic and aircraft noise |
| Squatters NSR 6 | 01-Mar-11 | Sunny | 21 | 0.3 | E | 11:09 | 11:39 | 61.2 | 75 | 66.1 | 68.3 | 60.1 | - | Drilling and breaker | Aircraft noise |
| | 07-Mar-11 | Sunny | 22 | 0.3 | E | 14:10 | 14:40 | | 75 | 67.7 | 69.3 | 65.3 | - | Drilling and breaker | Aircraft noise |
| | 17-Mar-11 | Cloudy | 18 | 0.2 | E | 15:02 | 15:32 | | 75 | 59.6 | 61.4 | 57.2 | - | Drilling and excavation works | Nil |
| | 23-Mar-11 | Cloudy | 18 | 0.2 | E | 15:15 | 15:45 | | 75 | 69.0 | 71.7 | 65.3 | - | Drilling and breaker | Nil |
| | 29-Mar-11 | Fine | 18 | 0.3 | E | 09:00 | 09:30 | | 75 | 60.8 | 62.3 | 58.6 | - | Drilling and breaker | Aircraft noise |
| Long Beach Gardens NSR 8 | 01-Mar-11 | Sunny | 21 | 0.5 | E | 09:55 | 10:25 | 60.9 | 75 | 63.7 | 66.0 | 61.0 | - | Crane operation and excavation works | Traffic and aircraft noise |
| | 07-Mar-11 | Sunny | 22 | 0.3 | E | 11:12 | 11:42 | | 75 | 67.6 | 69.4 | 64.9 | - | Crane operation and excavation works | Traffic and aircraft noise |
| | 17-Mar-11 | Cloudy | 18 | 0.3 | E | 13:30 | 14:00 | | 75 | 72.3 | 75.2 | 65.5 | - | Crane operation and excavation works | Traffic noise |
| | 23-Mar-11 | Cloudy | 18 | 0.3 | E | 11:05 | 11:35 | | 75 | 67.4 | 69.6 | 64.3 | - | Crane operation and excavation works | Traffic noise |
| | 29-Mar-11 | Fine | 18 | 0.3 | E | 10:30 | 11:00 | | 75 | 69.9 | 73.2 | 64.8 | - | Crane operation and excavation works | Traffic and aircraft noise |
| Greenview Terrace NSR 9 | 01-Mar-11 | Sunny | 21 | 0.4 | E | 13:45 | 14:15 | 59.7 | 75 | 71.5 | 74.4 | 66.7 | - | Crane operation and breaker | Traffic and aircraft noise |
| | 07-Mar-11 | Sunny | 22 | 0.3 | E | 13:25 | 13:55 | | 75 | 73.1 | 76.0 | 67.7 | - | Crane operation and breaker | Traffic and aircraft noise |
| | 17-Mar-11 | Cloudy | 18 | 0.5 | E | 15:45 | 16:15 | | 75 | 73.4 | 75.9 | 69.6 | - | Crane operation and breaker | Traffic noise |
| | 23-Mar-11 | Cloudy | 18 | 0.3 | E | 13:30 | 14:00 | | 75 | 70.4 | 73.3 | 65.8 | - | Drilling and breaker | Traffic noise |
| | 29-Mar-11 | Fine | 18 | 0.5 | E | 11:15 | 11:45 | | 75 | 70.8 | 73.5 | 64.3 | - | Crane operation and breaker | Traffic and aircraft noise |

1: Baseline Noise Level

2: Limit Level

3: Corrected Noise Level

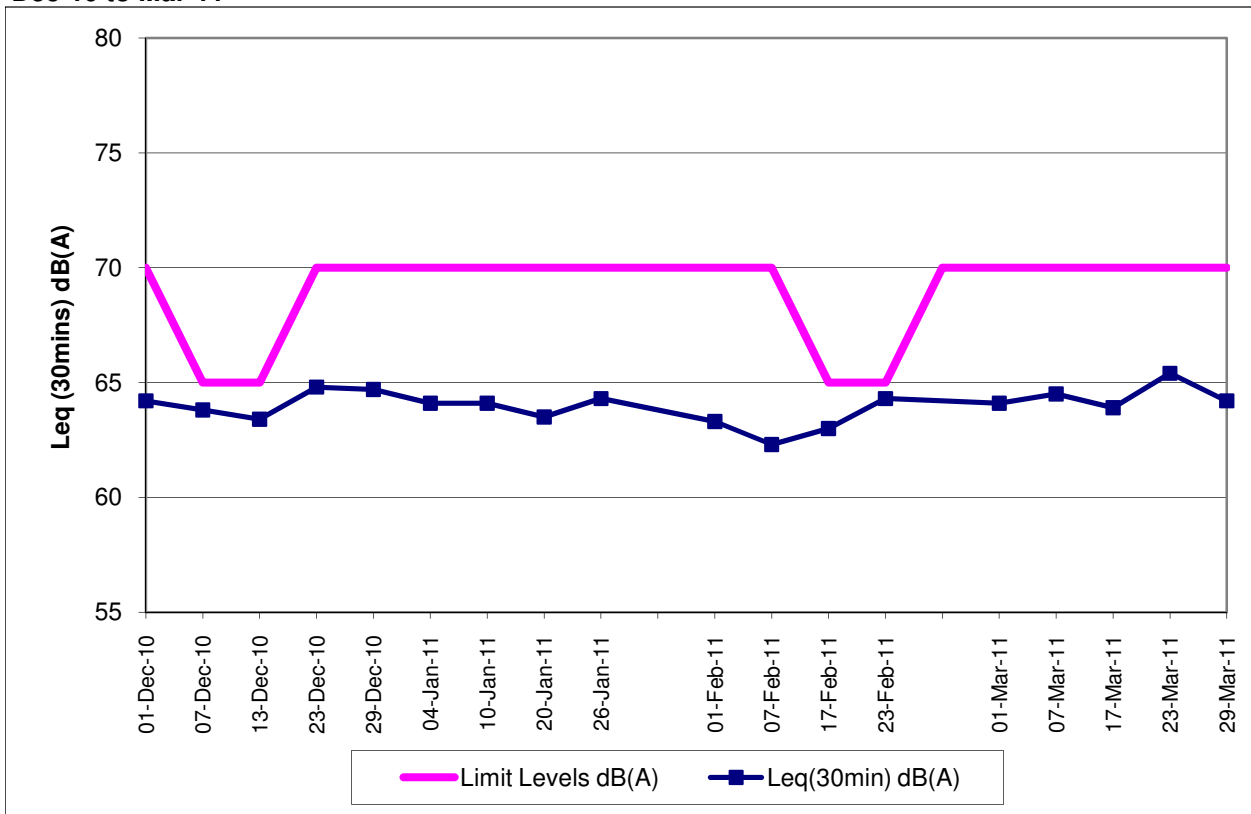
Note:

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

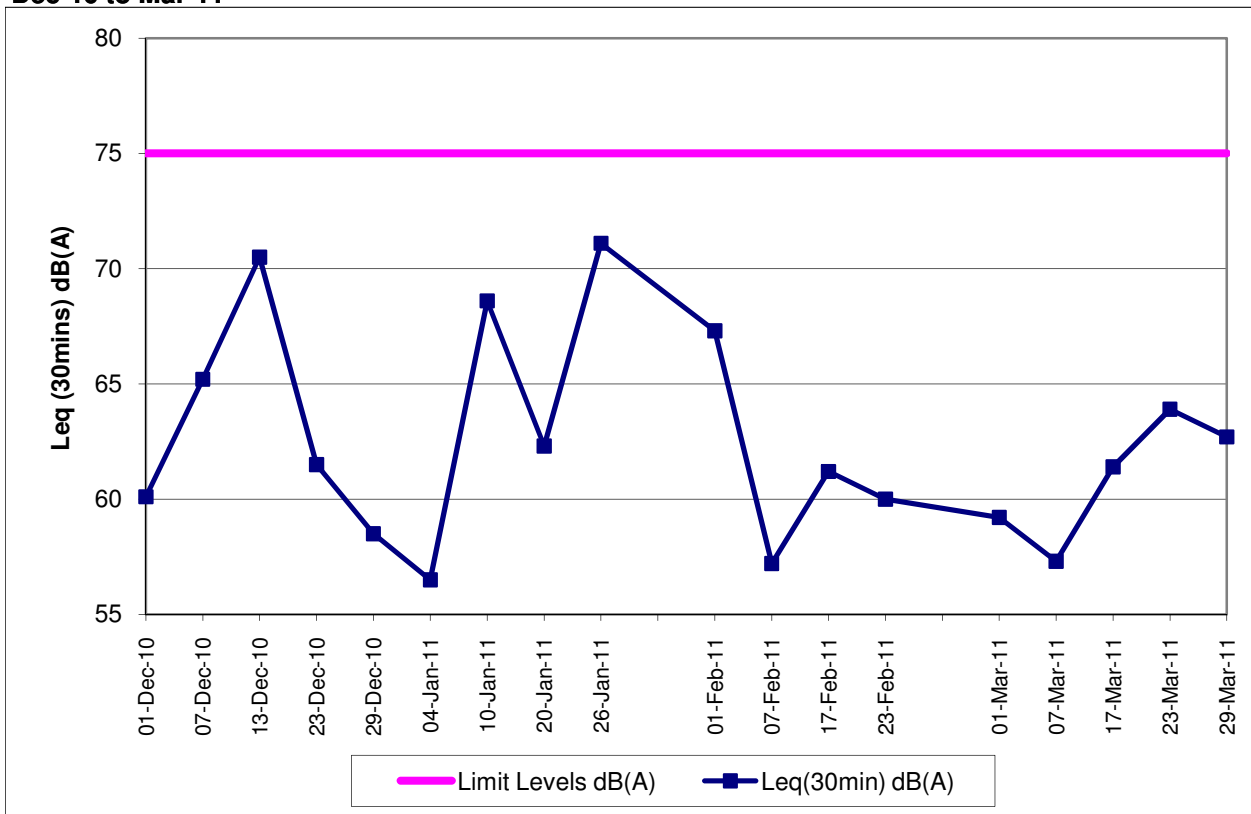
Red Bold indicates an exceedance of Limit Level

* means additional noise monitoring

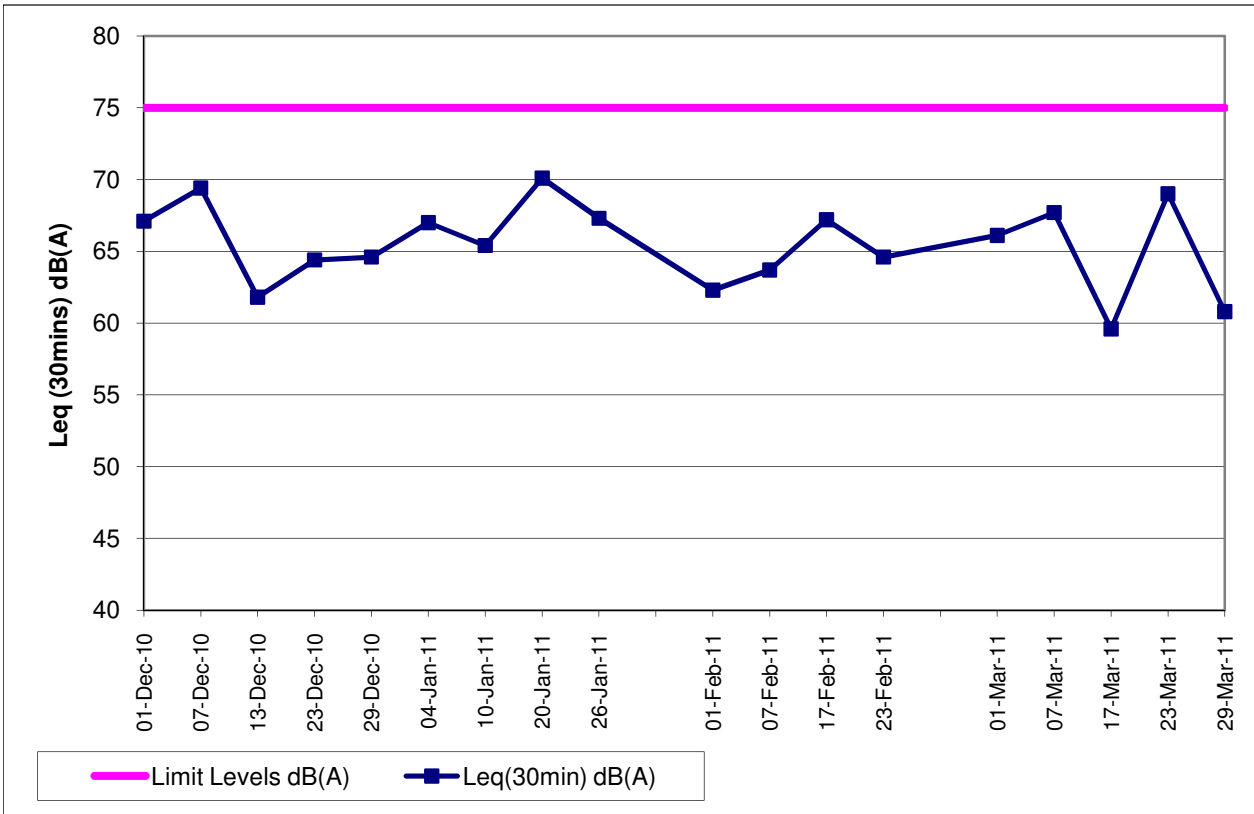
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR 1)
 Dec-10 to Mar-11**



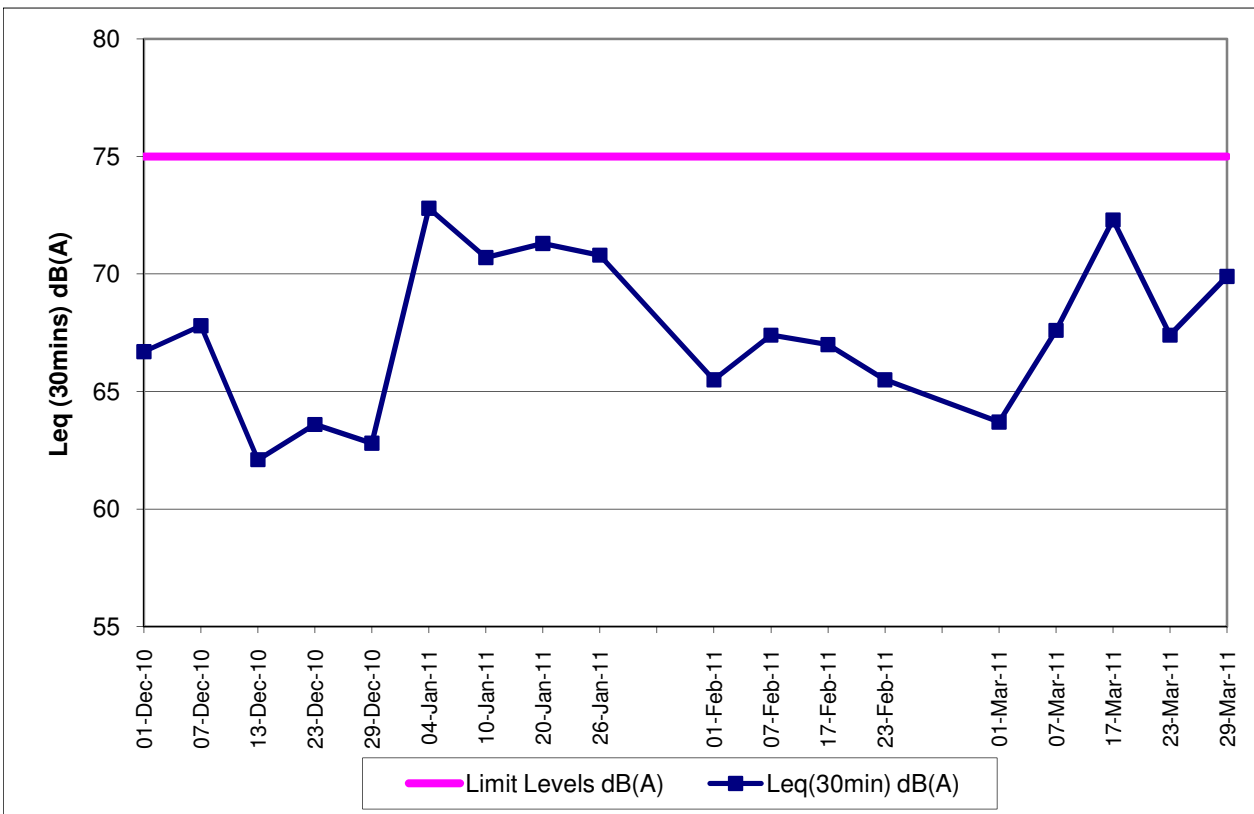
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR 3)
 Dec-10 to Mar-11**



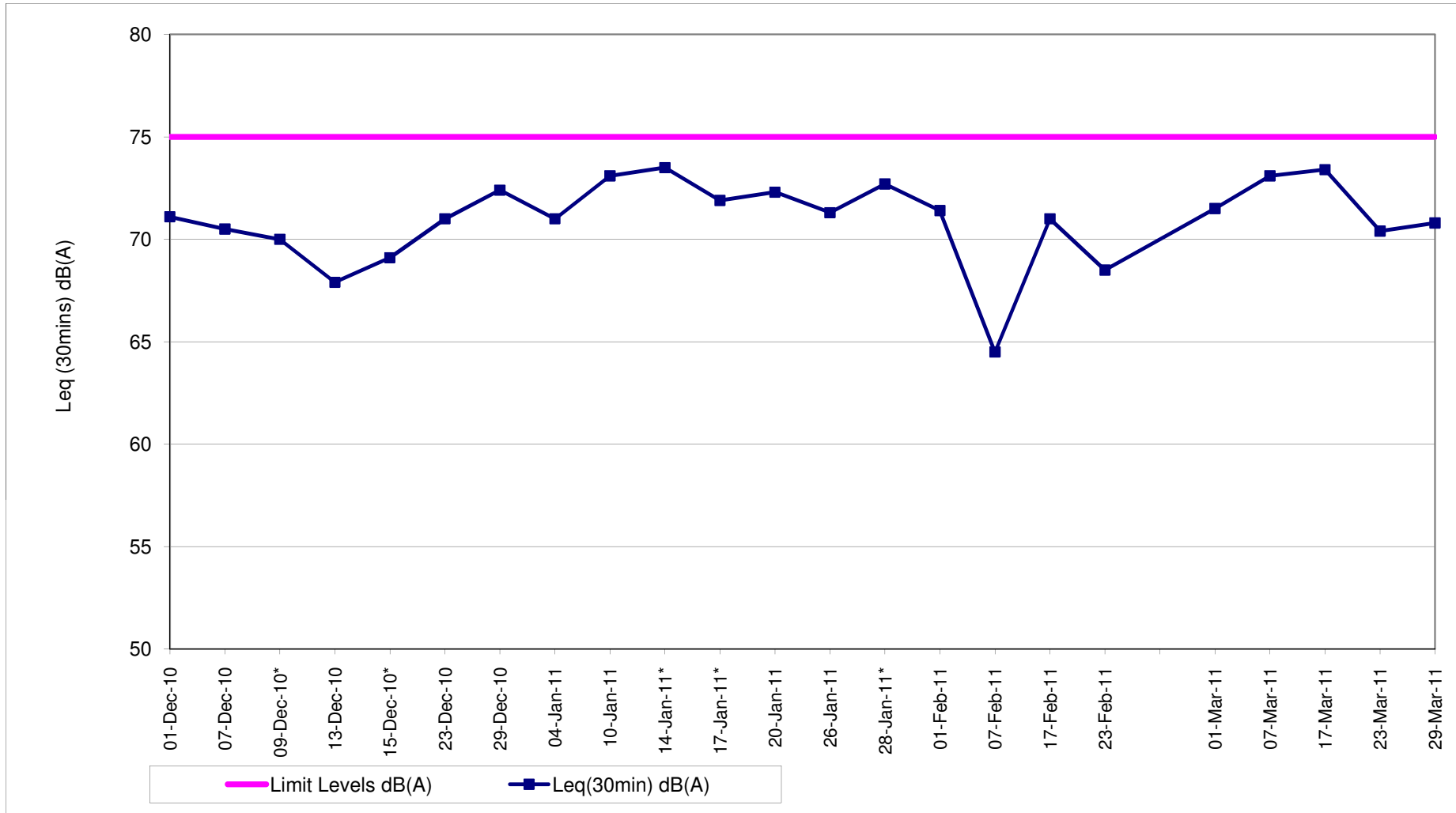
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Noise Monitoring Results at Squatters (NSR 6)
 Dec-10 to Mar-11**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Noise Monitoring Results at Long Beach Gardens (NSR 8)
 Dec-10 to Mar-11**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Noise Monitoring Results at Greenview Terrace (NSR 9)
 Dec-10 to Mar-11**



* Additional Noise Monitoring

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

Groundborne Noise Impact Monitoring Results

| Monitoring Locations | Date | TBM Location | Weather | Temperature | Start Time | End Time | Limit Level | L _{eq} (30min) | L ₁₀ (30min) | L ₉₀ (30min) | Observation / Site Condition | Remark |
|----------------------|-----------|--------------|------------|-------------|------------|----------|-------------|-------------------------|-------------------------|-------------------------|---------------------------------|--------|
| | | Chainage (m) | Conditions | (°C) | | | dB(A) | dB(A) | dB(A) | dB(A) | | |
| Squatters NSR 6 | 01-Mar-11 | 3406 | Sunny | 21 | 10:37 | 11:07 | 65 | 45.1 | 47.4 | 40.8 | Drilling and breaker | Nil |
| | 07-Mar-11 | 3336 | Sunny | 22 | 14:43 | 15:13 | 65 | 45.5 | 46.4 | 44.0 | Drilling | Nil |
| | 09-Mar-11 | 3329 | Cloudy | 16 | 10:50 | 11:20 | 65 | 41.7 | 43.3 | 38.7 | Drilling | Nil |
| | 17-Mar-11 | 3269 | Cloudy | 18 | 14:30 | 15:00 | 65 | 47.4 | 47.8 | 47.0 | Drilling | Nil |
| | 23-Mar-11 | 3244 | Cloudy | 18 | 15:18 | 15:48 | 65 | 43.6 | 45.2 | 41.0 | Drilling and breaker | Nil |
| | 29-Mar-11 | 3189 | Fine | 18 | 09:32 | 10:02 | 65 | 45.3 | 46.8 | 43.3 | Drilling and breaker | Nil |

1: Limit Level

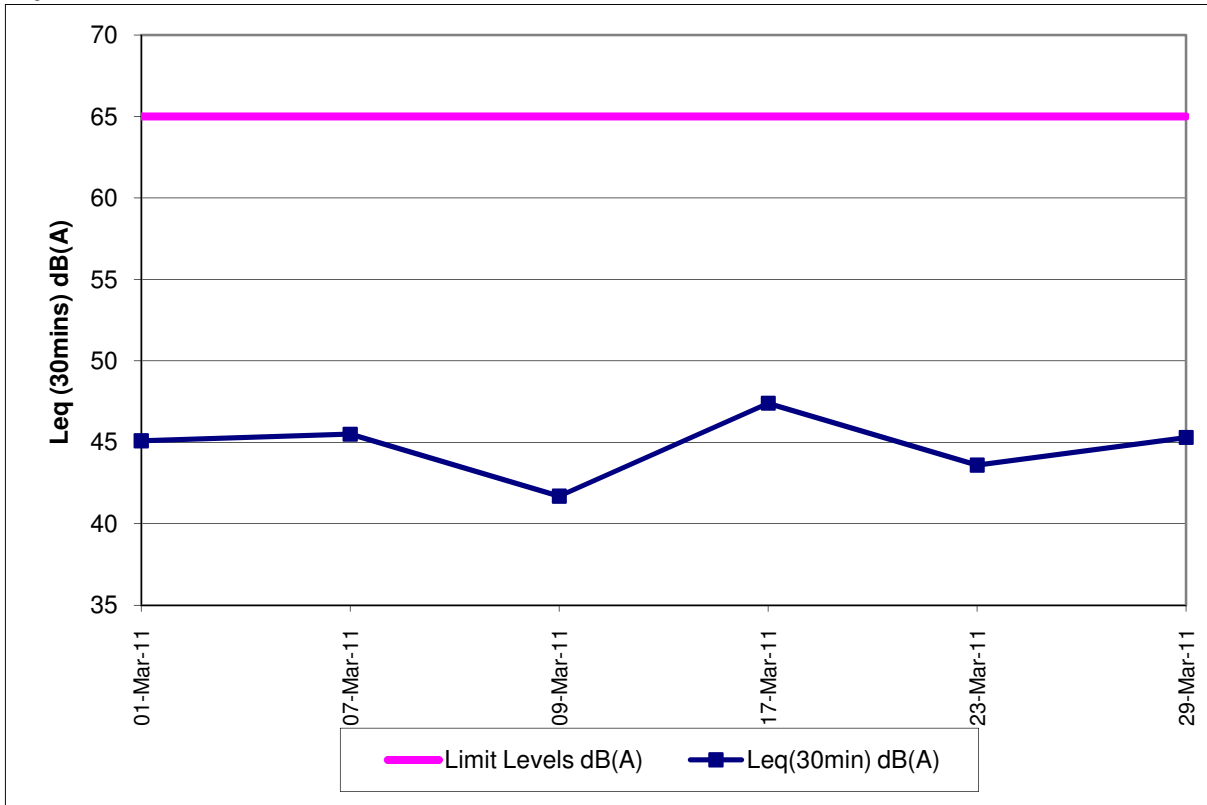
Note:

Red Bold indicates an exceedance of Limit Level

* means additional noise monitoring

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

Mar-11

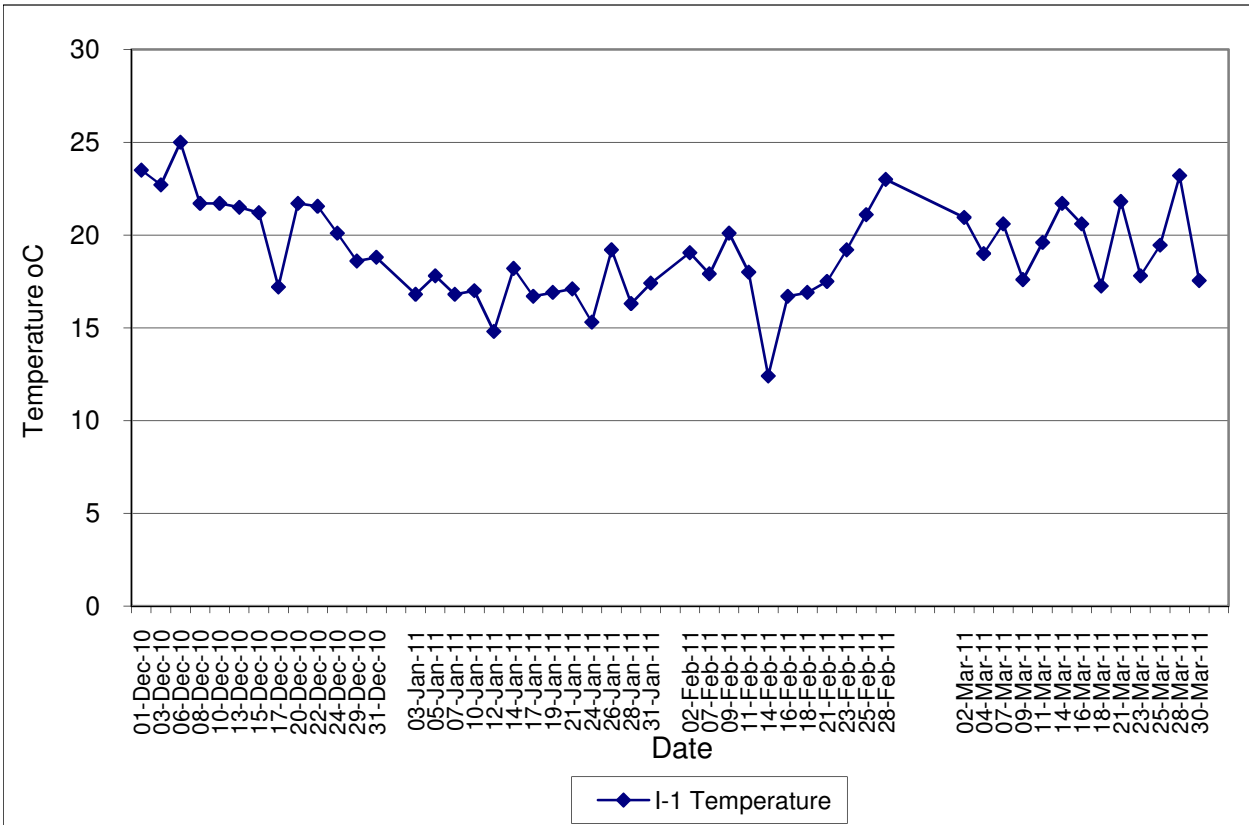


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

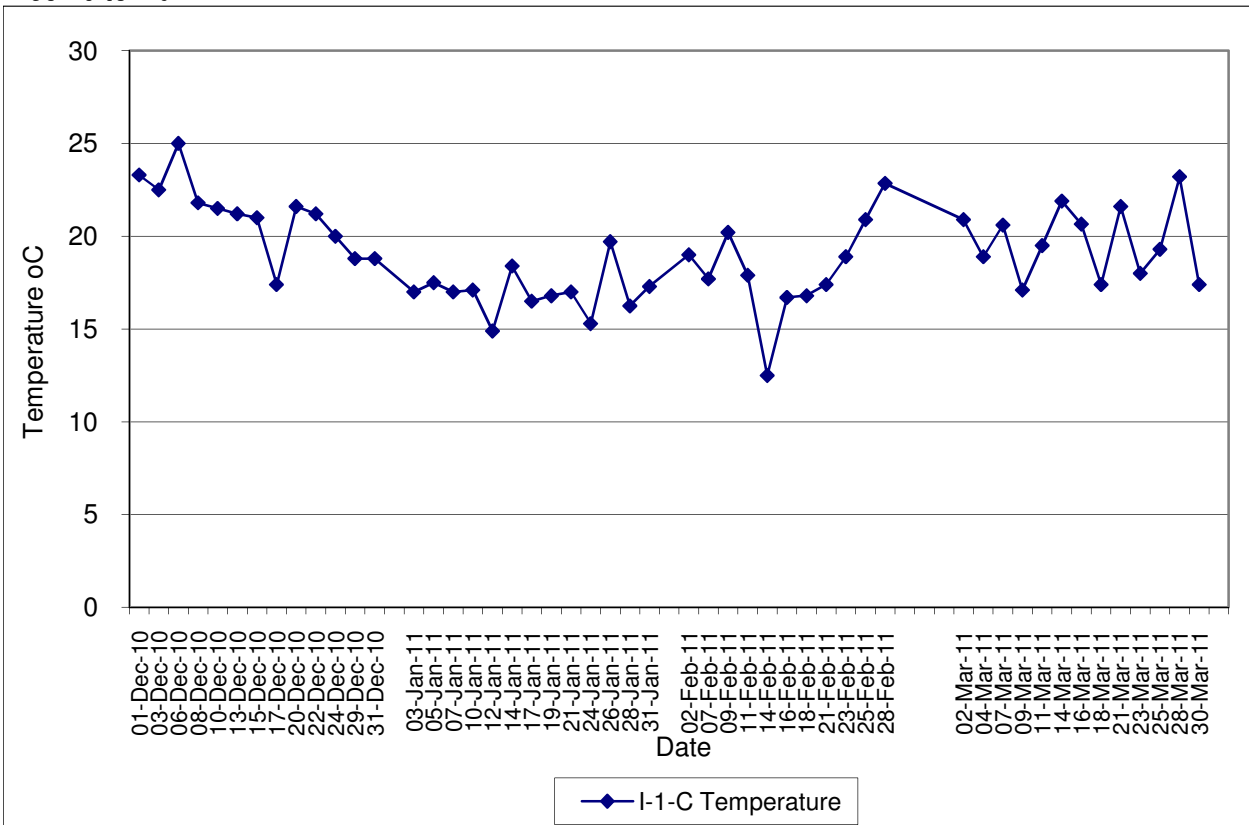
Water Quality Impact Monitoring Results

| Monitoring Locations | Date | Start Time | Weather | Water Depth(m) | Temp | | | DO(mg/L) | | | Action/Limit Level of DO(mg/L) | pH | | | Turbidity(NTU) | | | Action/Limit Level of Tby | SS (mg/L) | | | Action/Limit Level of SS(mg/L) | Remarks: | Action to be taken | | | | |
|----------------------------------|------------------------------------|------------|---------|----------------|-------|-------|-------|----------|------|------|--------------------------------|-------------|------|------|----------------|-------|-------|---------------------------|-------------|-------------|-------|--------------------------------|------------------------------------|--------------------|-------------------------------|-----|-----------------------------|-----|
| | | | | | 1 | 2 | Avg | 1 | 2 | Avg | | 1 | 2 | Avg | 1 | 2 | Avg | | 1 | 2 | Avg | | | | | | | |
| Sik Sik Yuen Ho Fung College I-1 | 02-Mar-11 | 10:12 | Fine | <1 | 21.00 | 20.90 | 20.95 | 7.83 | 7.80 | 7.82 | 3.42 / 3.34 | 8.08 | 8.08 | 8.08 | 10.50 | 10.70 | 10.60 | 9.75 / 12.47 | 13.00 | 13.80 | 13.40 | 8.85 / 10.17 | Crane operation and steel bending | Nil | | | | |
| | 04-Mar-11 | 10:28 | Sunny | <1 | 19.00 | 19.00 | 19.00 | 7.27 | 7.23 | 7.25 | | 8.15 | 8.16 | 8.16 | 8.66 | 8.73 | 8.70 | | 10.60 | 11.90 | 11.25 | | Crane operation and steel bending | Nil | | | | |
| | 07-Mar-11 | 16:40 | Sunny | <1 | 20.60 | 20.60 | 20.60 | 6.55 | 6.59 | 6.57 | | 7.97 | 7.97 | 7.97 | 6.02 | 6.12 | 6.07 | | 8.80 | 8.10 | 8.45 | | Crane operation and steel bending | Nil | | | | |
| | 09-Mar-11 | 12:27 | Cloudy | <1 | 17.70 | 17.50 | 17.60 | 7.24 | 7.28 | 7.26 | | 8.60 | 8.60 | 8.60 | 6.62 | 6.46 | 6.54 | | 4.00 | 4.60 | 4.30 | | Crane operation and steel bending | Nil | | | | |
| | 11-Mar-11 | 12:00 | Cloudy | <1 | 19.60 | 19.60 | 19.60 | 7.13 | 7.17 | 7.15 | | 8.10 | 8.10 | 8.10 | 5.90 | 5.85 | 5.88 | | 3.10 | 4.10 | 3.60 | | Crane operation and steel bending | Nil | | | | |
| | 14-Mar-11 | 15:37 | Sunny | <1 | 21.70 | 21.70 | 21.70 | 7.31 | 7.28 | 7.30 | | 8.10 | 8.10 | 8.10 | 5.70 | 5.62 | 5.66 | | 4.30 | 5.00 | 4.65 | | Crane operation | Nil | | | | |
| | 16-Mar-11 | 12:10 | Sunny | <1 | 20.60 | 20.60 | 20.60 | 7.48 | 7.57 | 7.53 | | 8.08 | 8.08 | 8.08 | 4.66 | 4.61 | 4.64 | | 5.00 | 5.10 | 5.05 | | Crane operation and steel bending | Nil | | | | |
| | 18-Mar-11 | 14:50 | Cloudy | <1 | 17.20 | 17.30 | 17.25 | 8.27 | 8.31 | 8.29 | | 8.03 | 8.04 | 8.04 | 6.79 | 6.65 | 6.72 | | 5.70 | 5.20 | 5.45 | | Crane operation and steel bending | Nil | | | | |
| | 21-Mar-11 | 11:10 | Sunny | <1 | 21.80 | 21.80 | 21.80 | 6.90 | 6.86 | 6.88 | | 8.55 | 8.56 | 8.56 | 5.40 | 5.47 | 5.44 | | 4.20 | 4.60 | 4.40 | | Concrete works | Nil | | | | |
| | 23-Mar-11 | 17:05 | Cloudy | <1 | 17.80 | 17.80 | 17.80 | 7.83 | 7.76 | 7.80 | | 9.01 | 9.01 | 9.01 | 9.57 | 9.68 | 9.63 | | 8.20 | 8.20 | 8.20 | | Concrete works and crane operation | Nil | | | | |
| | 25-Mar-11 | 11:45 | Fine | <1 | 19.50 | 19.40 | 19.45 | 8.05 | 8.01 | 8.03 | | 8.20 | 8.20 | 8.20 | 7.57 | 7.62 | 7.60 | | 7.40 | 6.20 | 6.80 | | Crane operation and steel bending | Nil | | | | |
| | 28-Mar-11 | 10:45 | Sunny | <1 | 23.20 | 23.20 | 23.20 | 7.55 | 7.50 | 7.53 | | 7.80 | 7.80 | 7.80 | 7.66 | 7.72 | 7.69 | | 7.70 | 5.80 | 6.75 | | Crane operation and steel bending | Nil | | | | |
| | 30-Mar-11 | 10:22 | Cloudy | <1 | 17.60 | 17.50 | 17.55 | 8.40 | 8.38 | 8.39 | | 8.32 | 8.32 | 8.32 | 5.45 | 5.40 | 5.43 | | 3.70 | 3.90 | 3.80 | | Crane operation and steel bending | Nil | | | | |
| | Sik Sik Yuen Ho Fung College I-1-C | 02-Mar-11 | 10:00 | Fine | <1 | 20.90 | 20.90 | 20.90 | 7.61 | 7.55 | | 7.58 | -/- | 8.07 | 8.06 | 8.07 | 10.90 | | 10.85 | 10.88 | -/- | | 13.80 | 13.50 | 13.65 | -/- | Nil | Nil |
| | 04-Mar-11 | 10:18 | Sunny | <1 | 18.90 | 18.90 | 18.90 | 7.43 | 7.36 | 7.40 | | 8.16 | | 8.16 | 8.16 | 8.90 | 8.98 | | 8.94 | 11.60 | | | 12.40 | 12.00 | Nil | | Nil | |
| 07-Mar-11 | 16:30 | Sunny | <1 | 20.60 | 20.60 | 20.60 | 6.22 | 6.26 | 6.24 | 7.96 | 7.96 | 7.96 | | 6.10 | 6.07 | 6.09 | 9.00 | 7.40 | 8.20 | Nil | | Nil | | | | | | |
| 09-Mar-11 | 12:18 | Cloudy | <1 | 17.10 | 17.10 | 17.10 | 7.36 | 7.42 | 7.39 | 8.62 | 8.66 | 8.64 | | 6.55 | 6.47 | 6.51 | 5.10 | 5.30 | 5.20 | Nil | | Nil | | | | | | |
| 11-Mar-11 | 11:50 | Cloudy | <1 | 19.50 | 19.50 | 19.50 | 7.29 | 7.33 | 7.31 | 8.10 | 8.11 | 8.11 | | 6.10 | 6.07 | 6.09 | 3.50 | 2.90 | 3.20 | Nil | | Nil | | | | | | |
| 14-Mar-11 | 15:28 | Sunny | <1 | 21.90 | 21.90 | 21.90 | 7.45 | 7.39 | 7.42 | 8.10 | 8.10 | 8.10 | | 5.69 | 5.60 | 5.65 | 4.80 | 4.80 | 4.80 | Nil | | Nil | | | | | | |
| 16-Mar-11 | 12:00 | Sunny | <1 | 20.60 | 20.70 | 20.65 | 7.72 | 7.67 | 7.70 | 8.10 | 8.09 | 8.10 | | 4.74 | 4.70 | 4.72 | 4.80 | 5.40 | 5.10 | Nil | | Nil | | | | | | |
| 18-Mar-11 | 14:40 | Cloudy | <1 | 17.40 | 17.40 | 17.40 | 8.08 | 8.15 | 8.12 | 8.07 | 8.06 | 8.07 | | 6.74 | 6.70 | 6.72 | 5.30 | 5.20 | 5.25 | Nil | | Nil | | | | | | |
| 21-Mar-11 | 11:00 | Sunny | <1 | 21.60 | 21.60 | 21.60 | 6.69 | 6.81 | 6.75 | 8.54 | 8.55 | 8.55 | | 5.35 | 5.50 | 5.43 | 4.40 | 5.00 | 4.70 | Nil | | Nil | | | | | | |
| 23-Mar-11 | 16:55 | Cloudy | <1 | 18.00 | 18.00 | 18.00 | 7.66 | 7.73 | 7.70 | 9.03 | 9.04 | 9.04 | | 9.90 | 9.94 | 9.92 | 7.60 | 7.30 | 7.45 | Nil | | Nil | | | | | | |
| 25-Mar-11 | 11:35 | Fine | <1 | 19.30 | 19.30 | 19.30 | 8.07 | 8.02 | 8.05 | 8.19 | 8.20 | 8.20 | | 7.47 | 7.55 | 7.51 | 5.80 | 6.70 | 6.25 | Nil | | Nil | | | | | | |
| 28-Mar-11 | 10:33 | Sunny | <1 | 23.20 | 23.20 | 23.20 | 7.60 | 7.65 | 7.63 | 7.80 | 7.79 | 7.80 | | 7.90 | 7.82 | 7.86 | 6.40 | 5.50 | 5.95 | Nil | | Nil | | | | | | |
| 30-Mar-11 | 10:12 | Cloudy | <1 | 17.40 | 17.40 | 17.40 | 8.47 | 8.51 | 8.49 | 8.33 | 8.32 | 8.33 | | 5.41 | 5.50 | 5.46 | 4.20 | 3.50 | 3.85 | Nil | | Nil | | | | | | |
| Hong Hoi Chee Hong Temple I-2 | 02-Mar-11 | 09:40 | Fine | <1 | 20.90 | 21.00 | 20.95 | 7.82 | 7.89 | 7.86 | 8.04 | 7.96 | | 7.95 | 7.96 | 1.30 | 1.25 | 1.28 | 6.63 / 6.99 | <2.00 | | <2.00 | <2.00 | 7.68 / 8.34 | Drilling | | Nil | |
| | 04-Mar-11 | 10:00 | Sunny | <1 | 19.30 | 19.30 | 19.30 | 7.36 | 7.33 | 7.35 | | 8.00 | | 8.00 | 8.00 | 1.96 | 2.03 | 2.00 | | <2.00 | | <2.00 | <2.00 | | Drilling and excavation works | | Nil | |
| | 07-Mar-11 | 15:55 | Sunny | <1 | 20.80 | 20.80 | 20.80 | 8.14 | 8.17 | 8.16 | | 8.04 | 8.03 | 8.04 | 1.69 | 1.64 | 1.67 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 09-Mar-11 | 12:00 | Cloudy | <1 | 17.60 | 17.70 | 17.65 | 8.01 | 8.03 | 8.02 | | 8.12 | 8.11 | 8.12 | 1.47 | 1.58 | 1.53 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 11-Mar-11 | 11:40 | Cloudy | <1 | 19.80 | 19.80 | 19.80 | 8.14 | 8.22 | 8.18 | | 8.05 | 8.05 | 8.05 | 1.74 | 1.79 | 1.77 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 14-Mar-11 | 15:10 | Sunny | <1 | 21.20 | 21.20 | 21.20 | 7.60 | 7.56 | 7.58 | | 8.02 | 8.03 | 8.03 | 1.52 | 1.61 | 1.57 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 16-Mar-11 | 11:45 | Sunny | <1 | 20.10 | 20.10 | 20.10 | 7.86 | 7.96 | 7.91 | | 8.06 | 8.06 | 8.06 | 1.27 | 1.33 | 1.30 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 18-Mar-11 | 14:18 | Cloudy | <1 | 17.00 | 17.00 | 17.00 | 8.79 | 8.84 | 8.82 | | 8.10 | 8.09 | 8.10 | 1.25 | 1.20 | 1.23 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 21-Mar-11 | 10:36 | Sunny | <1 | 21.00 | 21.10 | 21.05 | 7.87 | 7.83 | 7.85 | | 8.01 | 8.00 | 8.01 | 1.05 | 1.10 | 1.08 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 23-Mar-11 | 16:33 | Cloudy | <1 | 18.10 | 18.10 | 18.10 | 8.20 | 8.36 | 8.28 | | 7.95 | 7.96 | 7.96 | 1.60 | 1.67 | 1.64 | <2.00 | | <2.00 | <2.00 | Nil | Nil | | | | | |
| | 25-Mar-11 | 11:13 | Fine | <1 | 18.80 | 18.80 | 18.80 | 8.39 | 8.34 | 8.37 | | 8.05 | 8.05 | 8.05 | 1.40 | 1.37 | 1.39 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 28-Mar-11 | 10:10 | Sunny | <1 | 21.00 | 21.00 | 21.00 | 8.37 | 8.40 | 8.39 | | 7.88 | 7.88 | 7.88 | 1.18 | 1.12 | 1.15 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | 30-Mar-11 | 09:50 | Cloudy | <1 | 18.10 | 18.10 | 18.10 | 8.74 | 8.68 | 8.71 | | 8.24 | 8.24 | 8.24 | 1.57 | 1.66 | 1.62 | <2.00 | | <2.00 | <2.00 | Drilling | Nil | | | | | |
| | Hong Hoi Chee Hong Temple I-2-C | 02-Mar-11 | 09:30 | Fine | <1 | 20.70 | 20.70 | 20.70 | 7.91 | 7.83 | | 7.87 | -/- | 7.95 | 7.95 | 7.95 | 1.23 | 1.40 | | 1.32 | -/- | <2.00 | <2.00 | | <2.00 | -/- | Nil | Nil |
| | | 04-Mar-11 | 09:50 | Sunny | <1 | 19.20 | 19.20 | 19.20 | 7.42 | 7.46 | | 7.44 | | 8.00 | 7.99 | 8.00 | 2.02 | 2.12 | | 2.07 | | 2.30 | <2.00 | | 2.15 | | Nil | Nil |
| 07-Mar-11 | | 15:45 | Sunny | <1 | 20.90 | 20.90 | 20.90 | 8.19 | 8.23 | 8.21 | 8.03 | 8.03 | | 8.03 | 1.66 | 1.73 | 1.70 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 09-Mar-11 | | 11:50 | Cloudy | <1 | 18.00 | 18.00 | 18.00 | 8.26 | 8.30 | 8.28 | 8.10 | 8.10 | | 8.10 | 1.50 | 1.62 | 1.56 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 11-Mar-11 | | 11:32 | Cloudy | <1 | 19.70 | 19.70 | 19.70 | 8.35 | 8.38 | 8.37 | 8.05 | 8.06 | | 8.06 | 1.80 | 1.77 | 1.79 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 14-Mar-11 | | 15:00 | Sunny | <1 | 21.20 | 21.20 | 21.20 | 7.71 | 7.65 | 7.68 | 8.06 | 8.06 | | 8.06 | 1.58 | 1.62 | 1.60 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 16-Mar-11 | | 11:37 | Sunny | <1 | 20.10 | 20.10 | 20.10 | 8.00 | 7.95 | 7.98 | 8.07 | 8.07 | | 8.07 | 1.23 | 1.40 | 1.32 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 18-Mar-11 | | 14:05 | Cloudy | <1 | 17.10 | 17.10 | 17.10 | 8.70 | 8.74 | 8.72 | 8.10 | 8.10 | | 8.10 | 1.21 | 1.25 | 1.23 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 21-Mar-11 | | 10:27 | Sunny | <1 | 21.00 | 21.00 | 21.00 | 7.98 | 7.93 | 7.96 | 8.02 | 8.02 | | 8.02 | 1.07 | 1.12 | 1.10 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 23-Mar-11 | | 16:22 | Cloudy | <1 | 17.90 | 17.90 | 17.90 | 8.01 | 8.06 | 8.04 | 7.95 | 7.95 | | 7.95 | 1.66 | 1.74 | 1.70 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 25-Mar-11 | | 11:05 | Fine | <1 | 18.60 | 18.70 | 18.65 | 8.28 | 8.32 | 8.30 | 8.05 | 8.06 | | 8.06 | 1.50 | 1.42 | 1.46 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 28-Mar-11 | | 10:00 | Sunny | <1 | 20.80 | 20.80 | 20.80 | 8.32 | 8.36 | 8.34 | 7.87 | 7.87 | | 7.87 | 1.20 | 1.15 | 1.18 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| 30-Mar-11 | | 09:40 | Cloudy | <1 | 17.90 | 18.00 | 17.95 | 8.82 | 8.77 | 8.80 | 8.24 | 8.24 | | 8.24 | 1.55 | 1.63 | 1.59 | <2.00 | <2.00 | <2.00 | | Nil | Nil | | | | | |
| Squatters I-3 | | 02-Mar-11 | 09:00 | Fine | <1 | 21.10 | 21.10 | 21.10 | 7.58 | 7.52 | 7.55 | 3.65 / 3.51 | | 9.48 | 9.48 | 9.48 | 2.30 | 2.27 | 2.29 | 3.99 / 4.18 | | <2.00 | <2.00 | <2.00 | 6.13 / 7.23 | | Crane operation and breaker | Nil |
| | | 04-Mar-11 | 09 | | | | | | | | | | | | | | | | | | | | | | | | | |

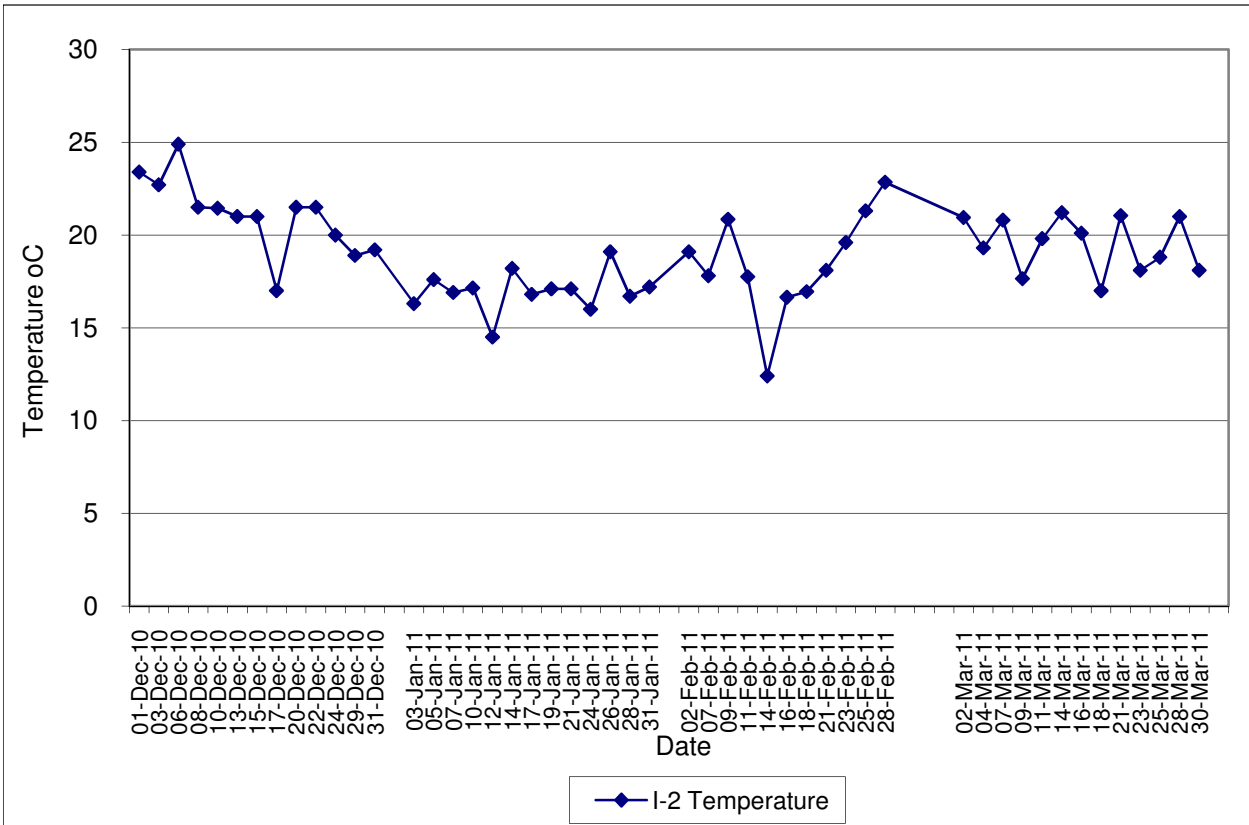
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Dec-10 to Mar-11**



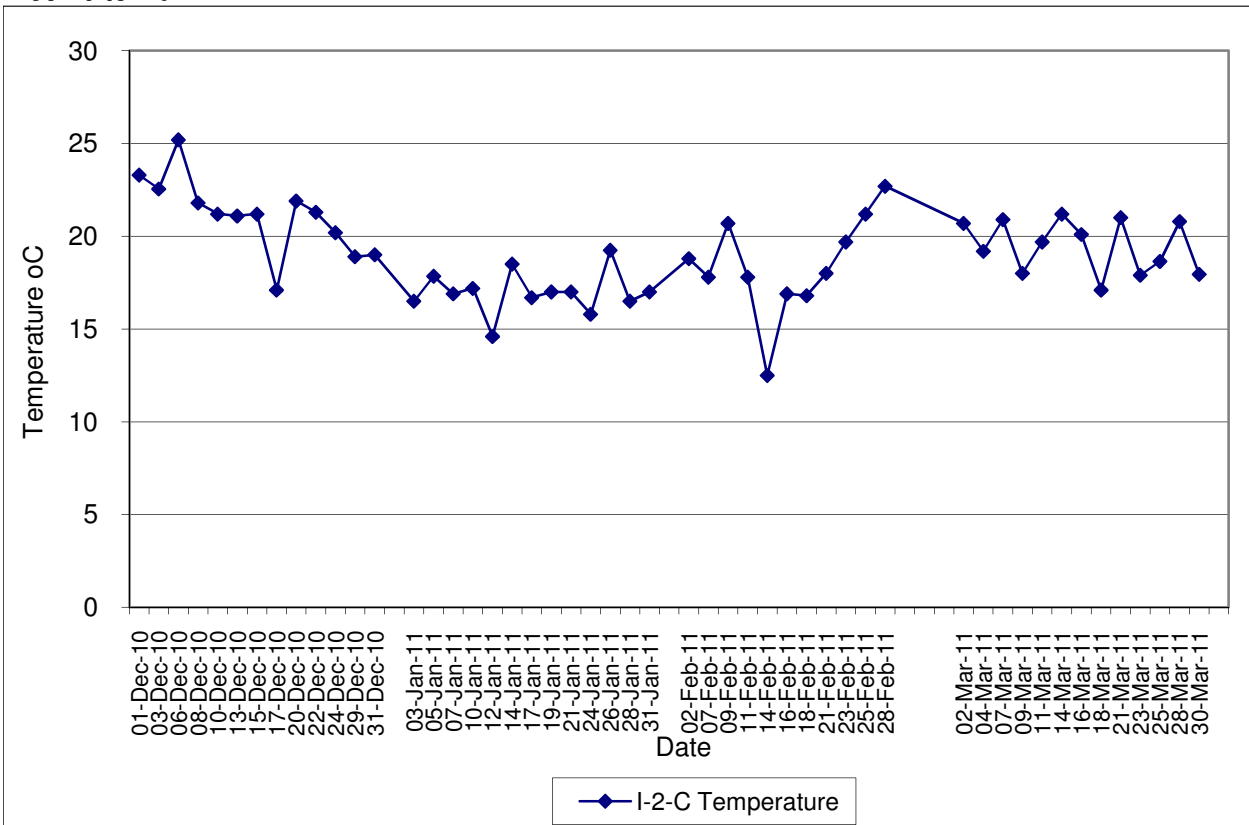
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Dec-10 to Mar-11**



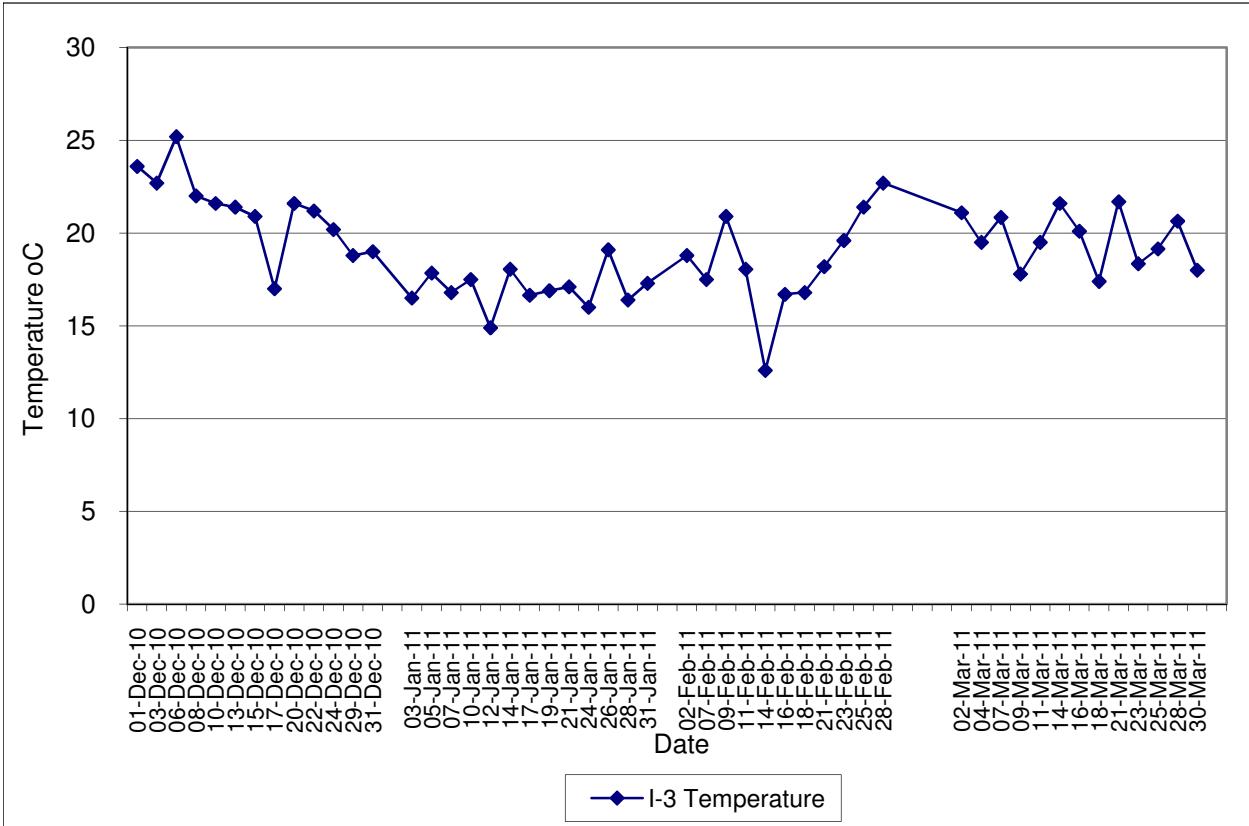
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Dec-10 to Mar-11



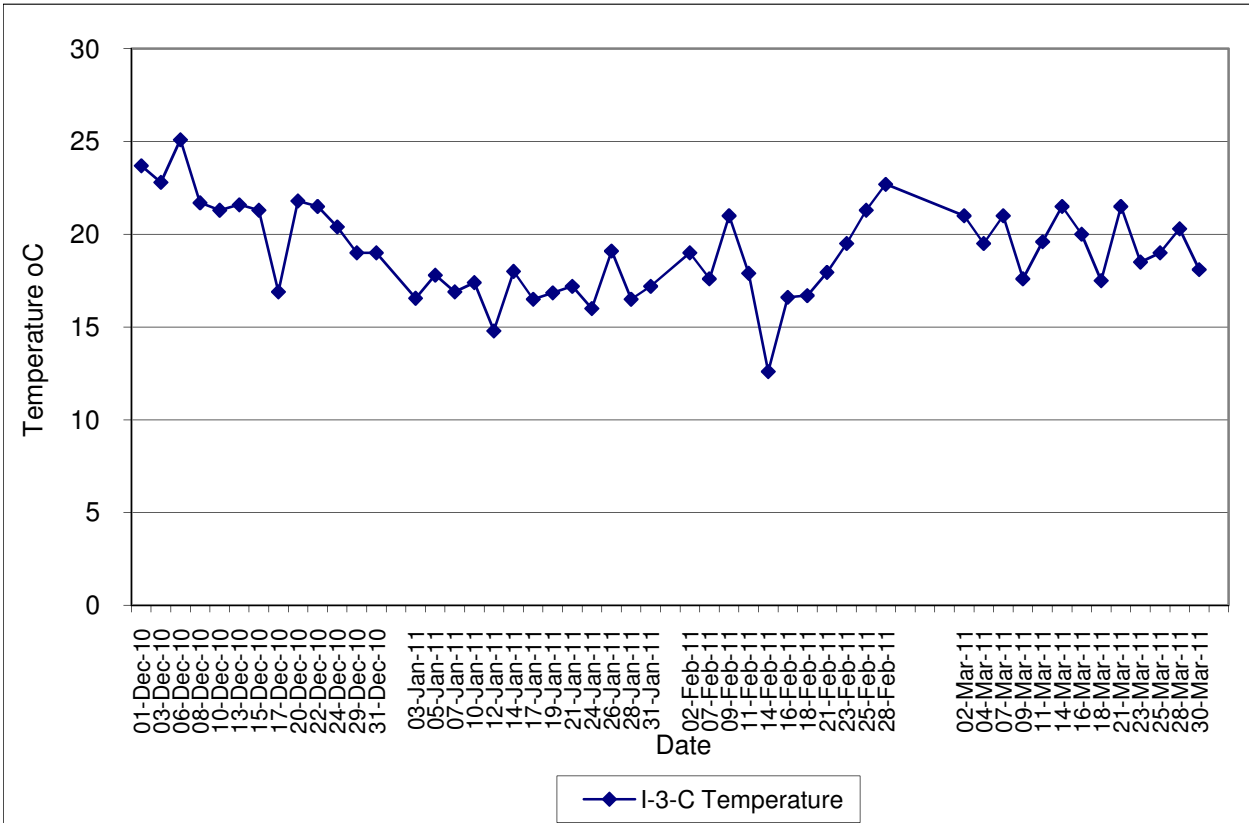
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Dec-10 to Mar-11



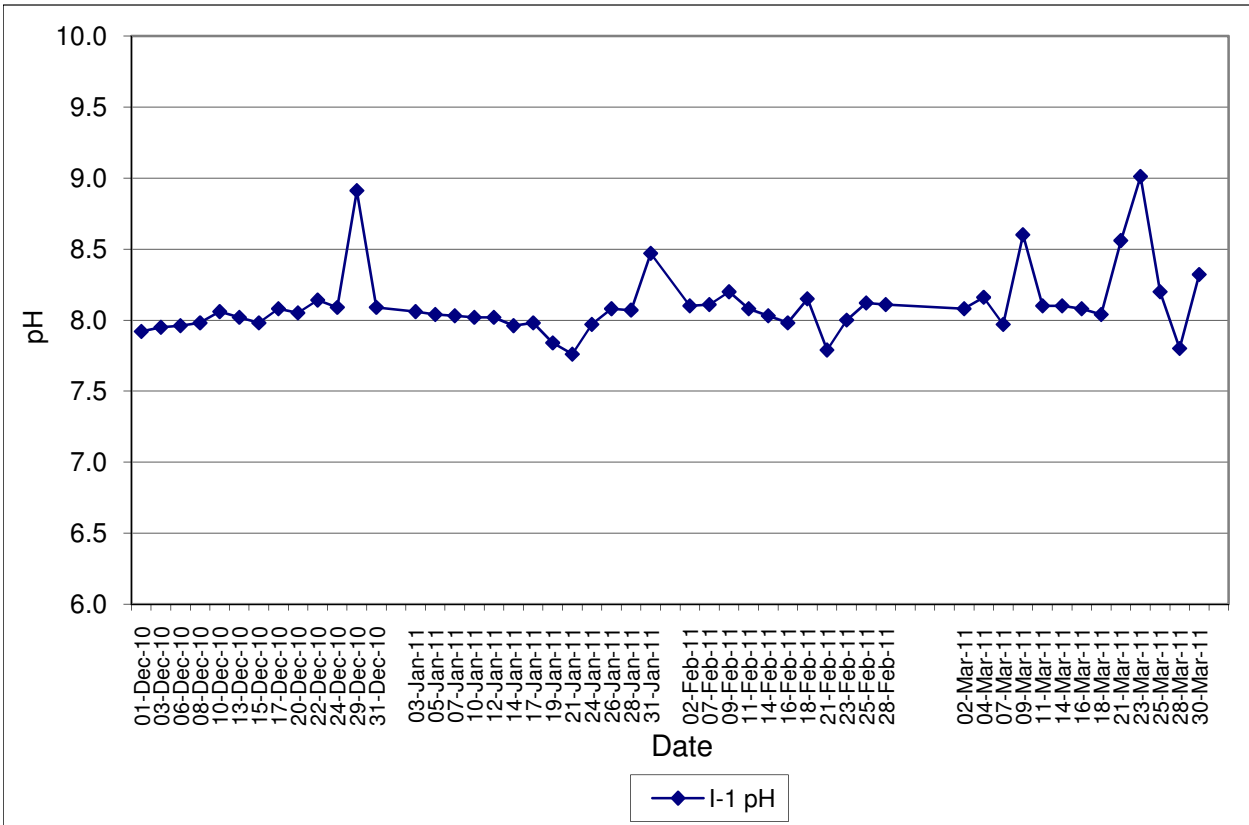
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Dec-10 to Mar-11



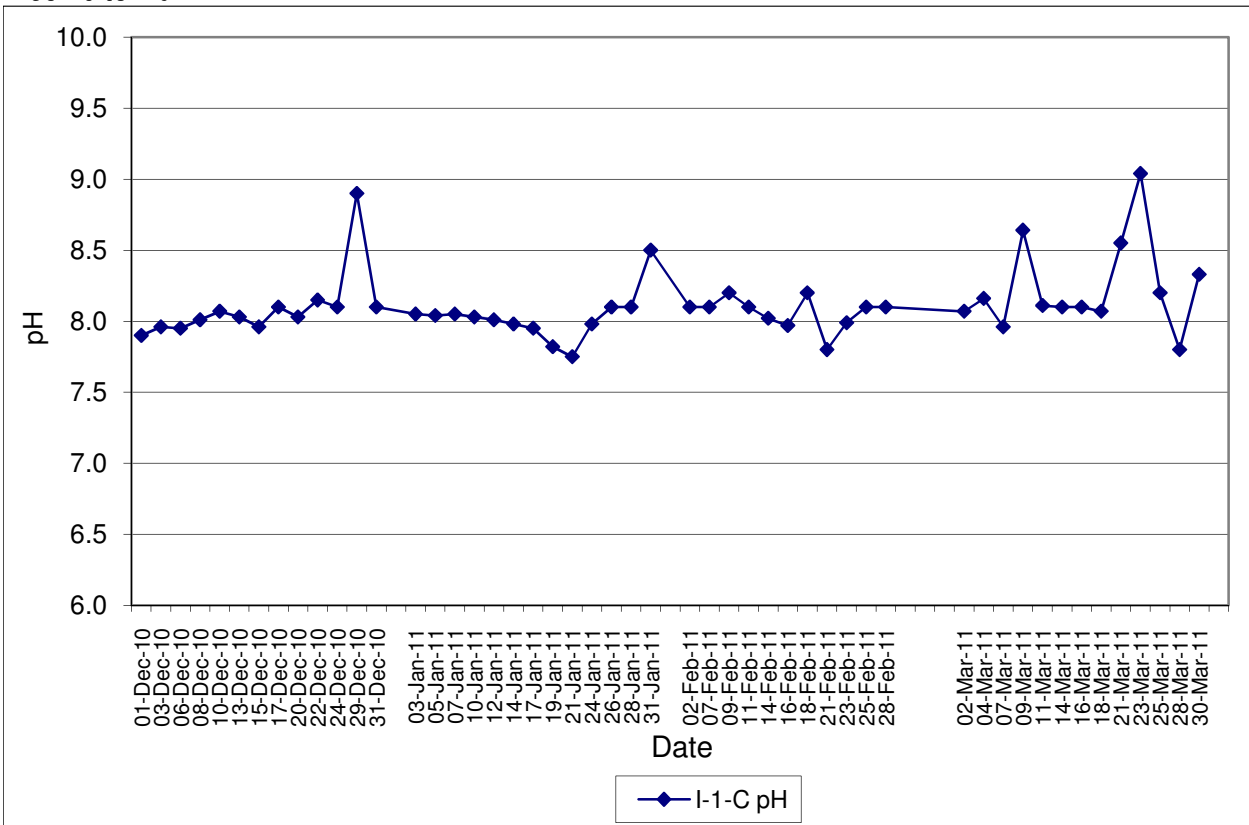
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Dec-10 to Mar-11



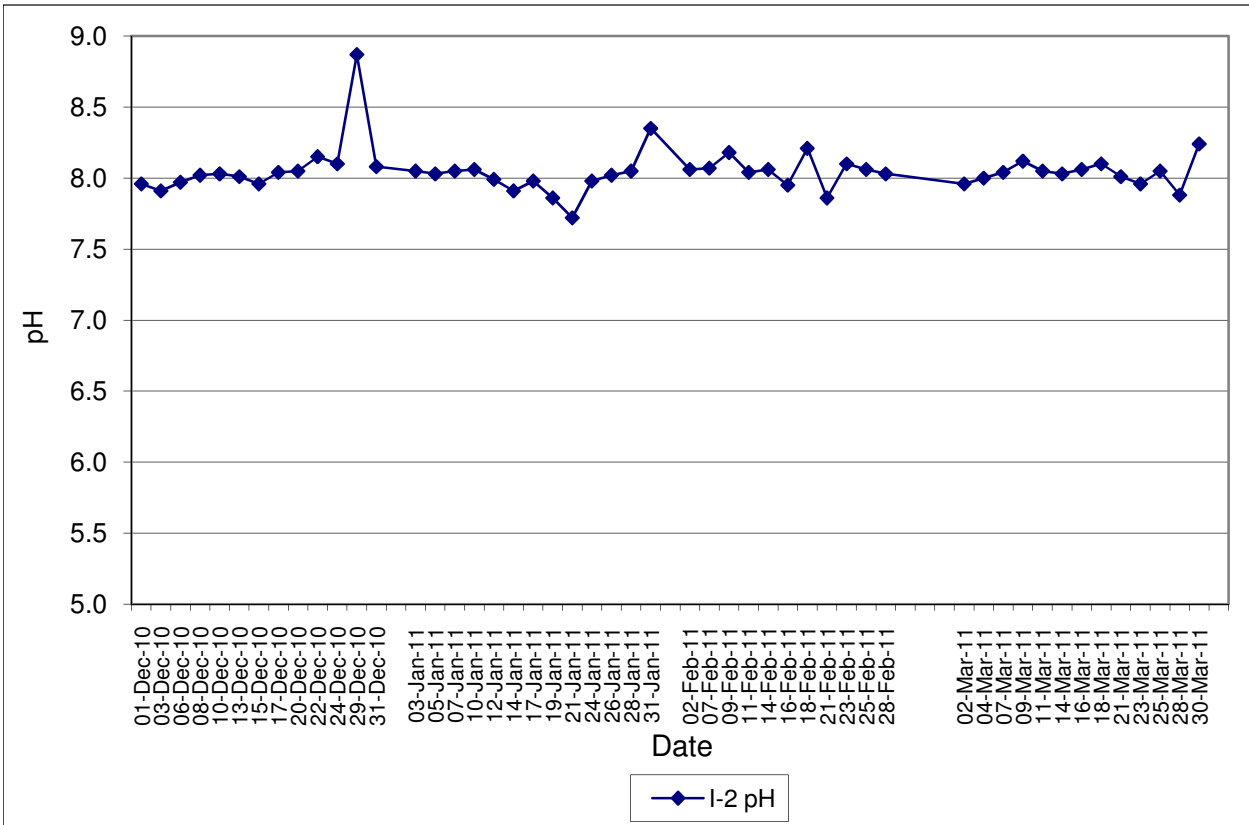
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Dec-10 to Mar-11**



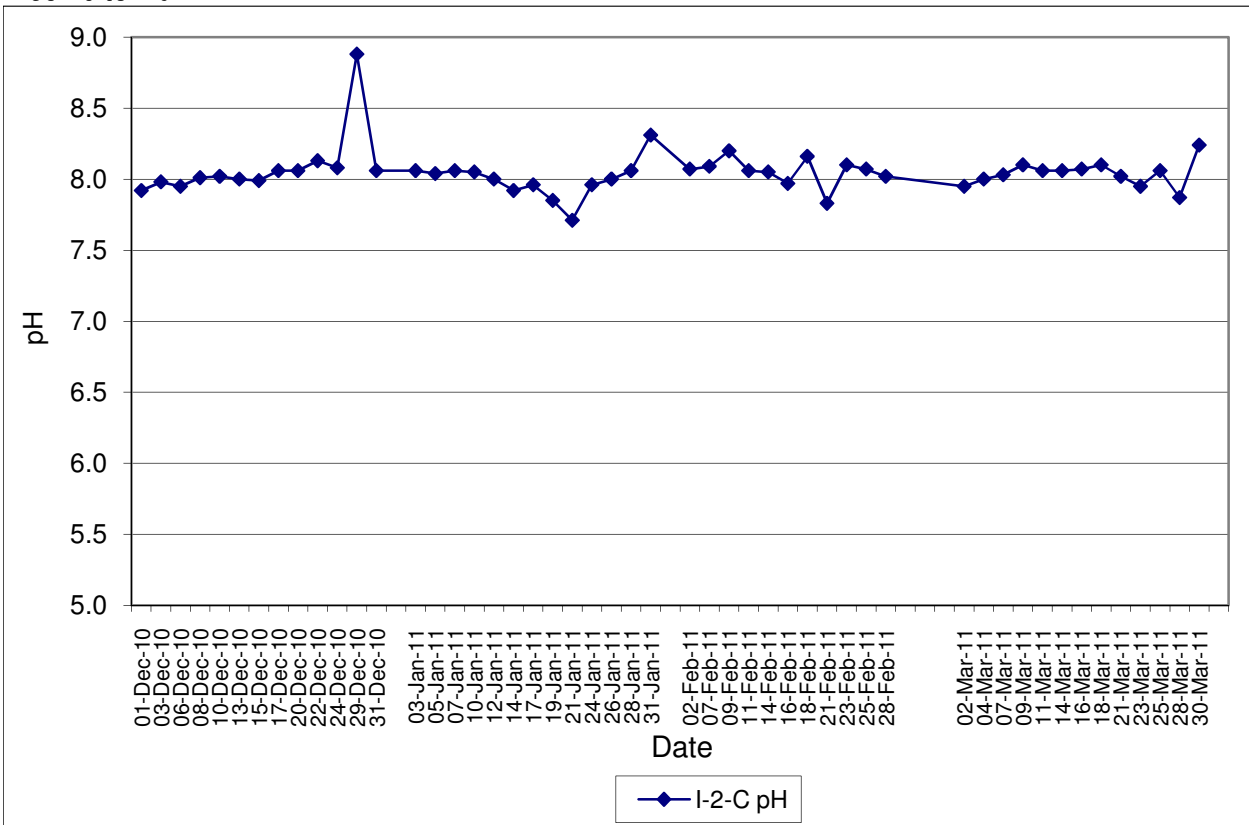
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Dec-10 to Mar-11**



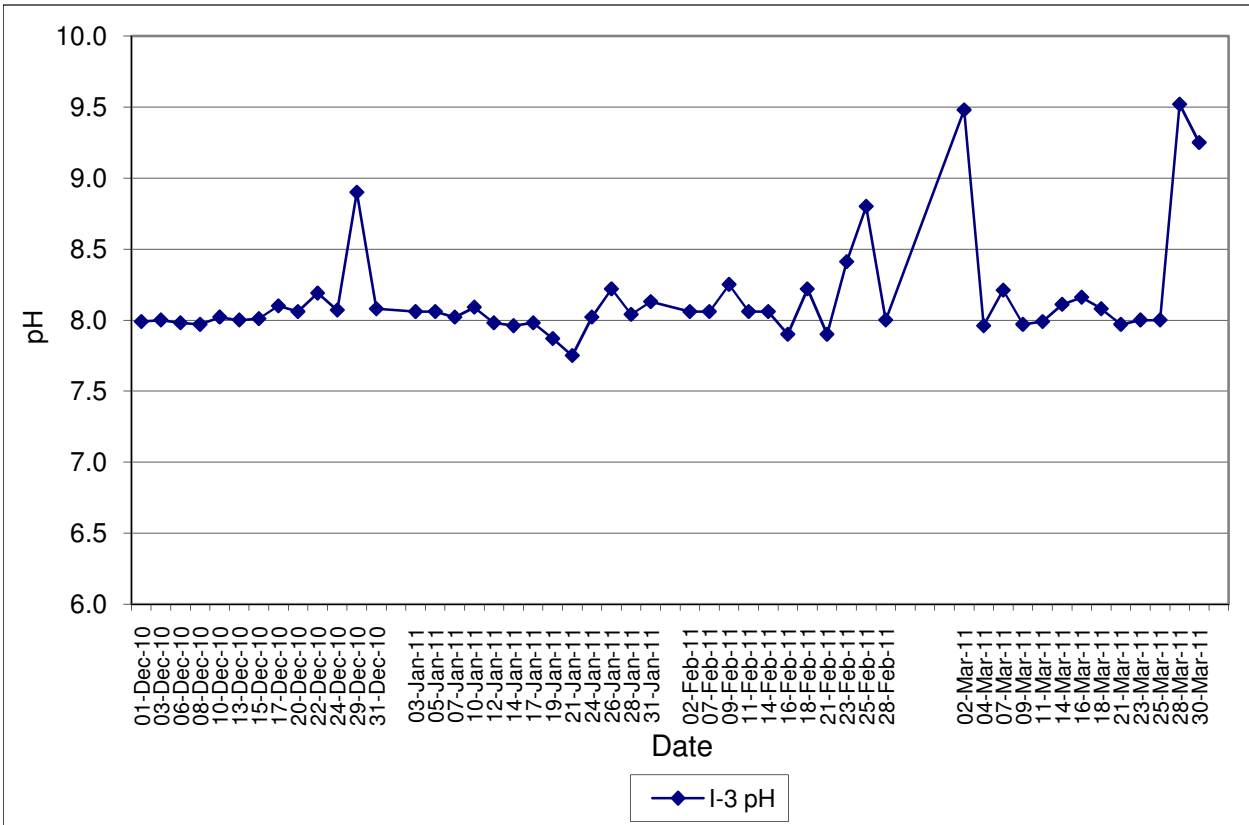
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Dec-10 to Mar-11



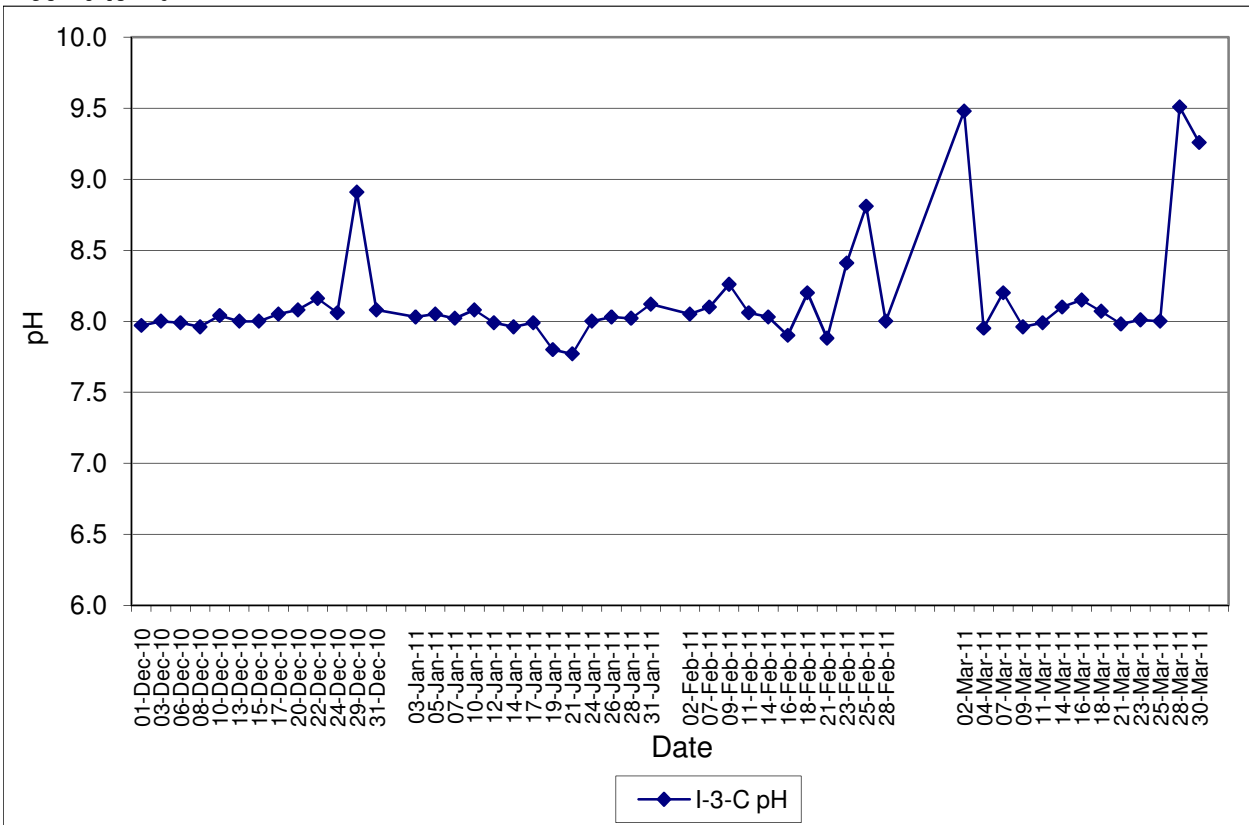
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Dec-10 to Mar-11



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Dec-10 to Mar-11

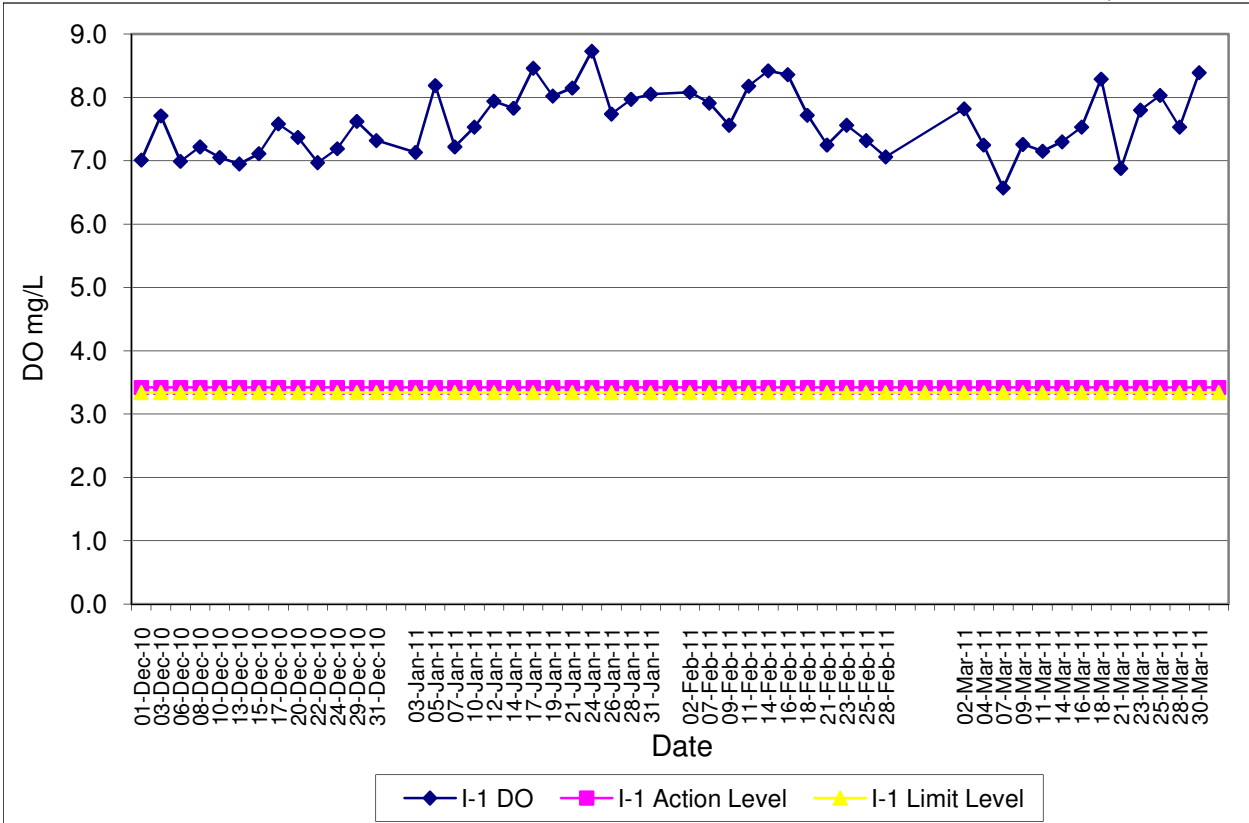


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Dec-10 to Mar-11

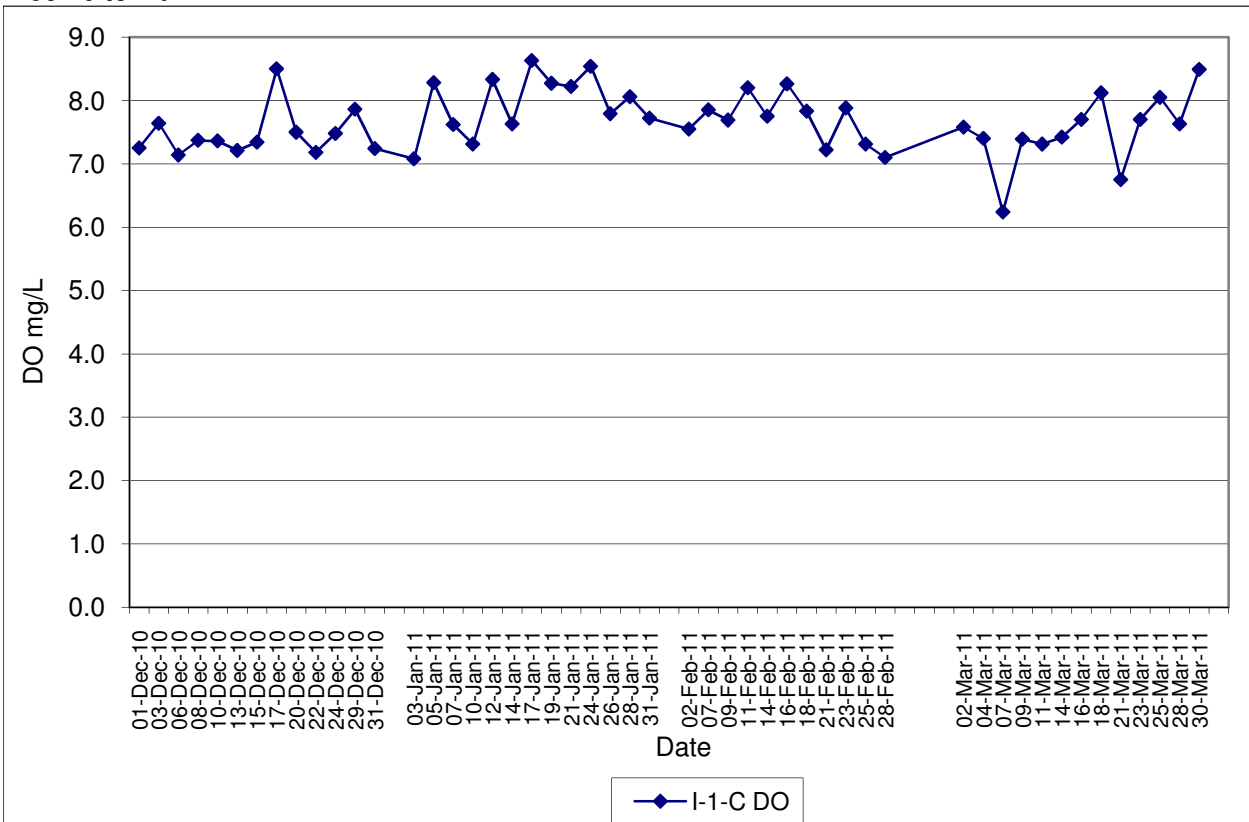


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
Dec-10 to Mar-11

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



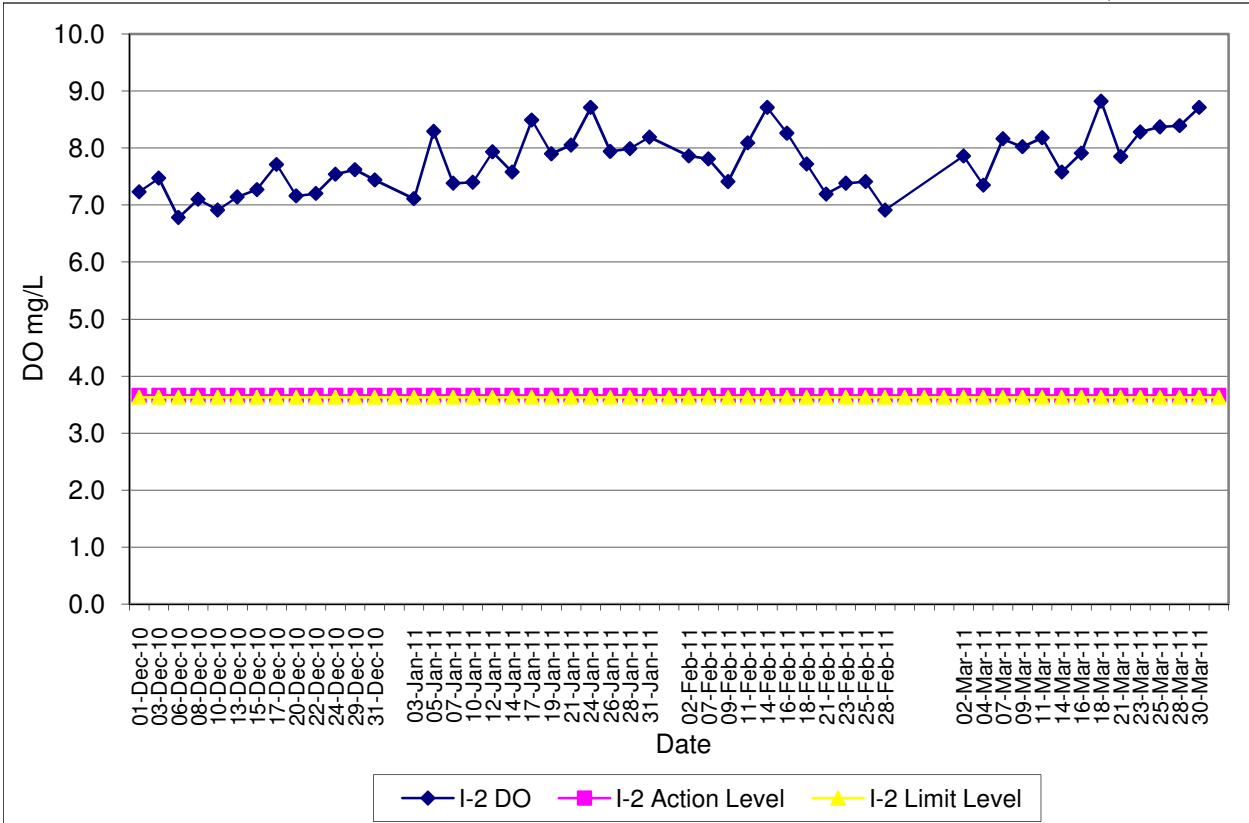
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
Dec-10 to Mar-11



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

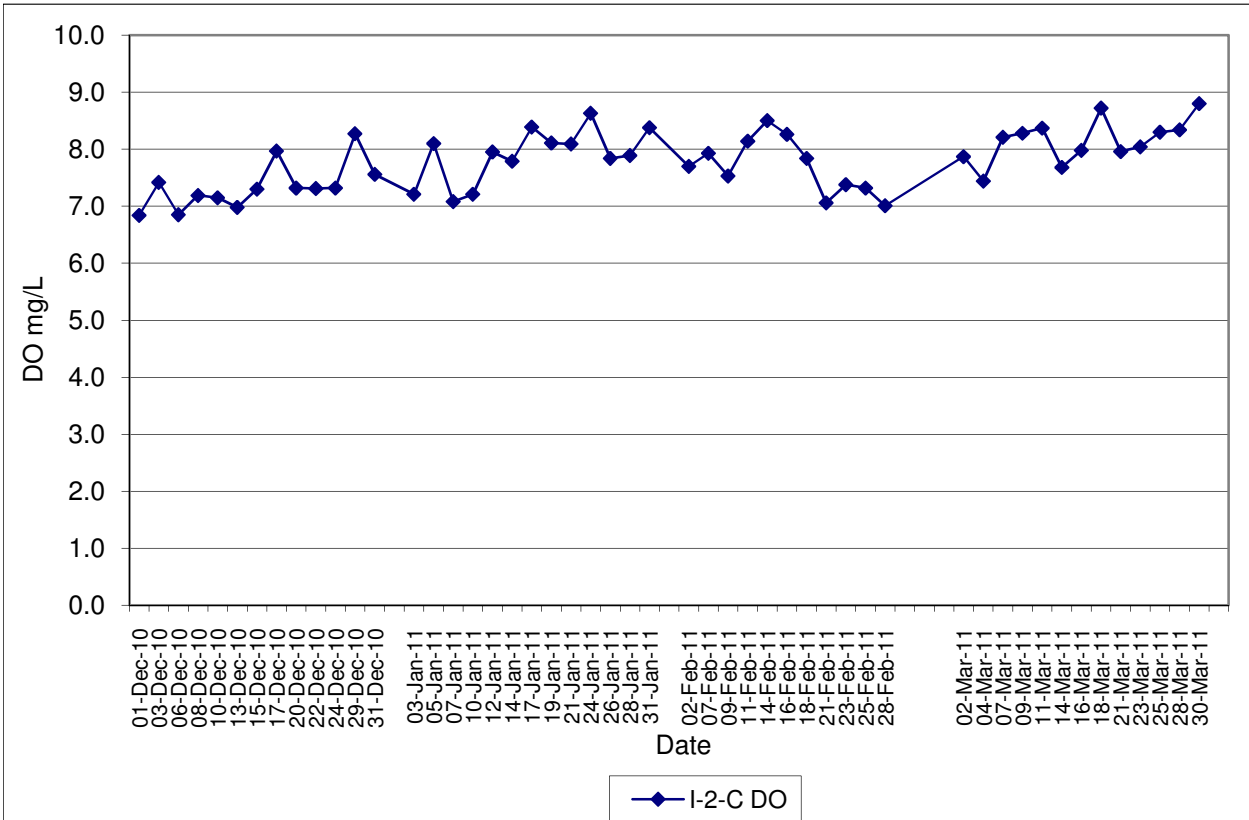
Dec-10 to Mar-11

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



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

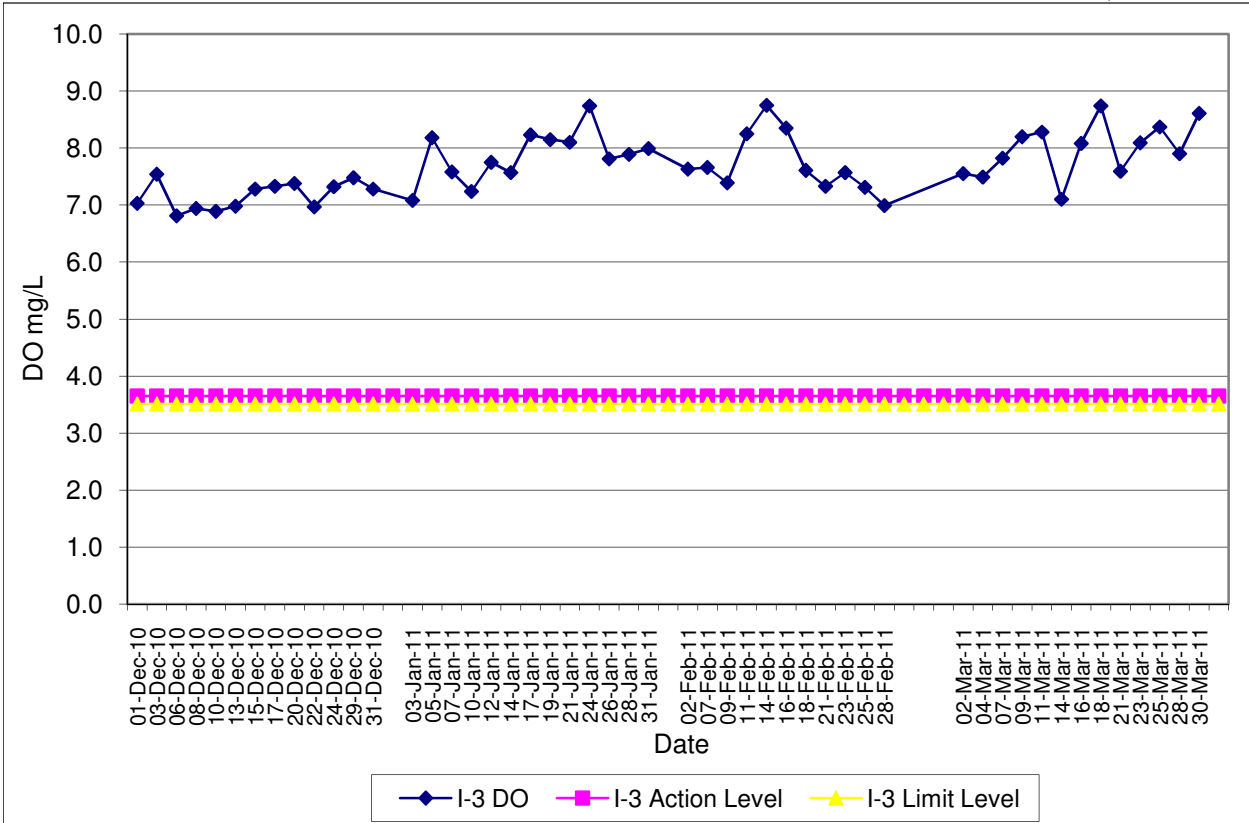
Dec-10 to Mar-11



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

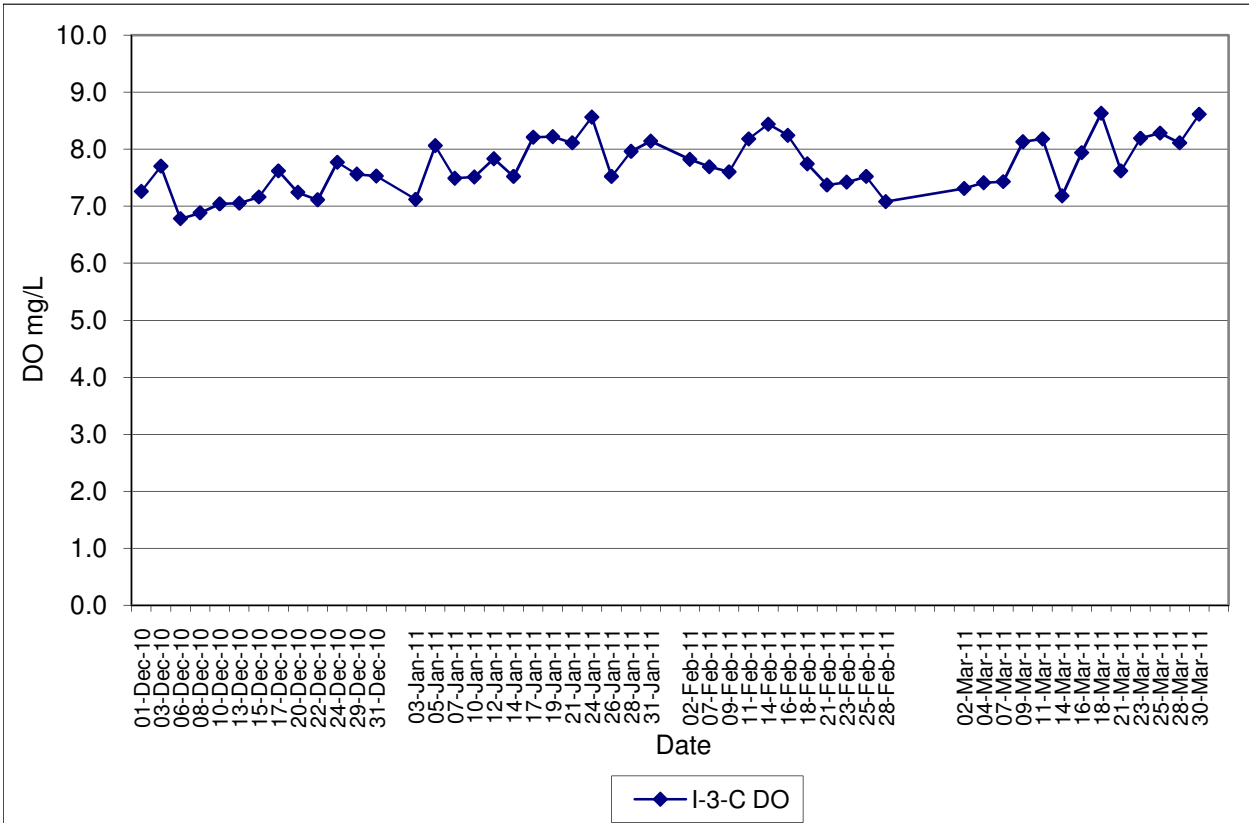
Dec-10 to Mar-11

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

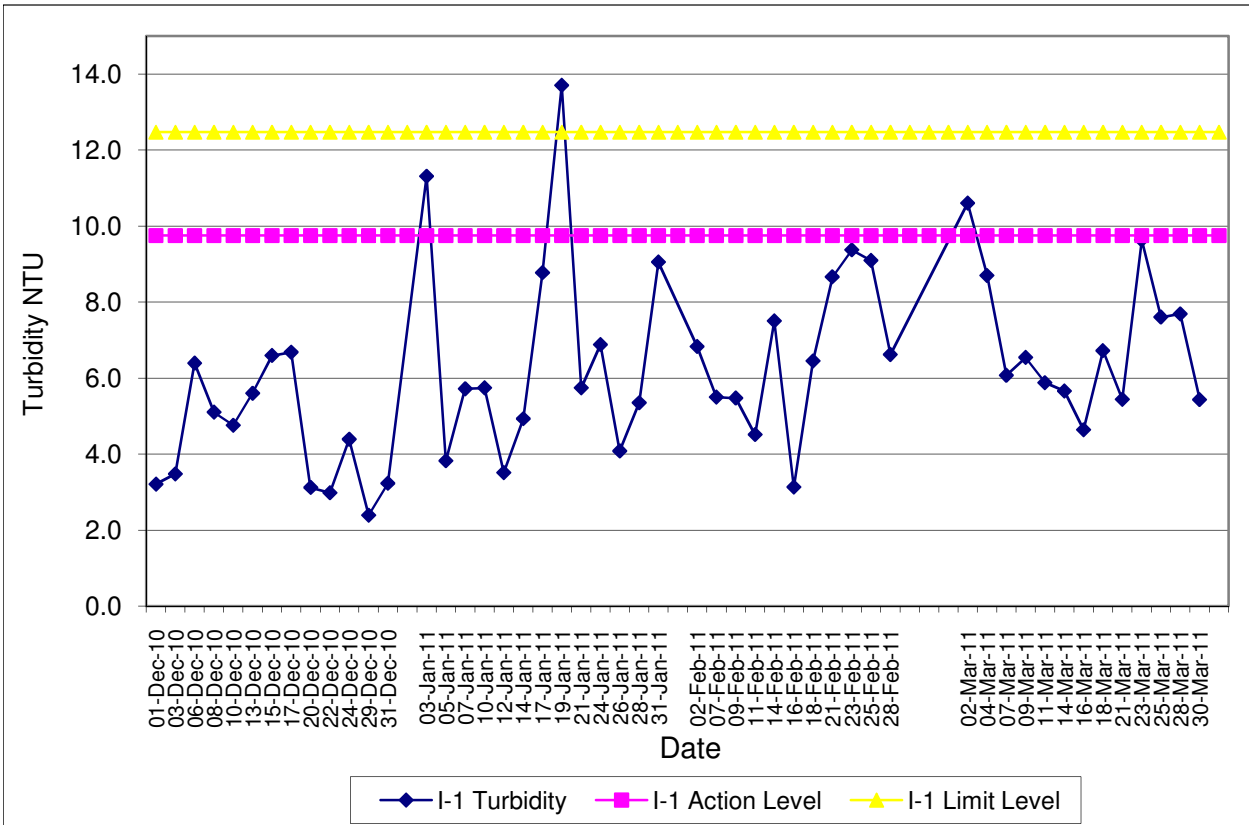


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)

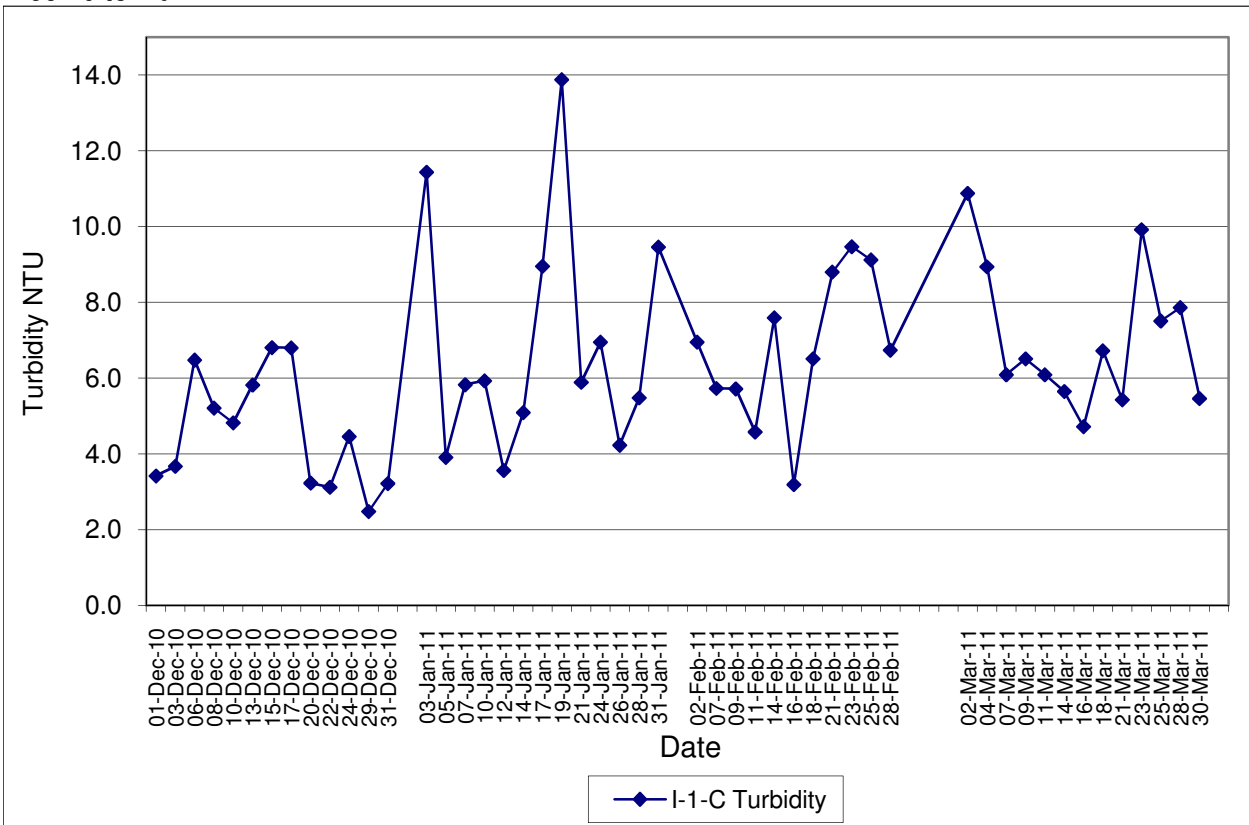
Dec-10 to Mar-11



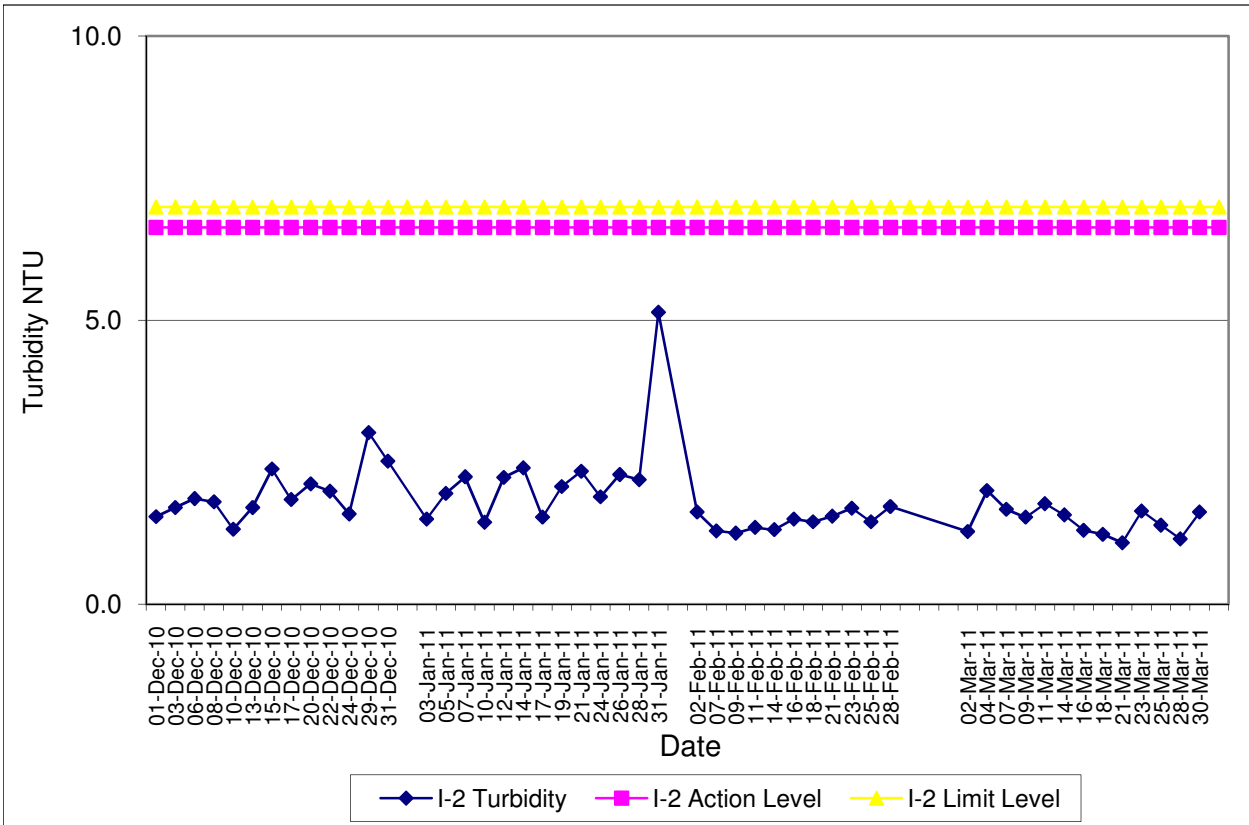
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
Dec-10 to Mar-11



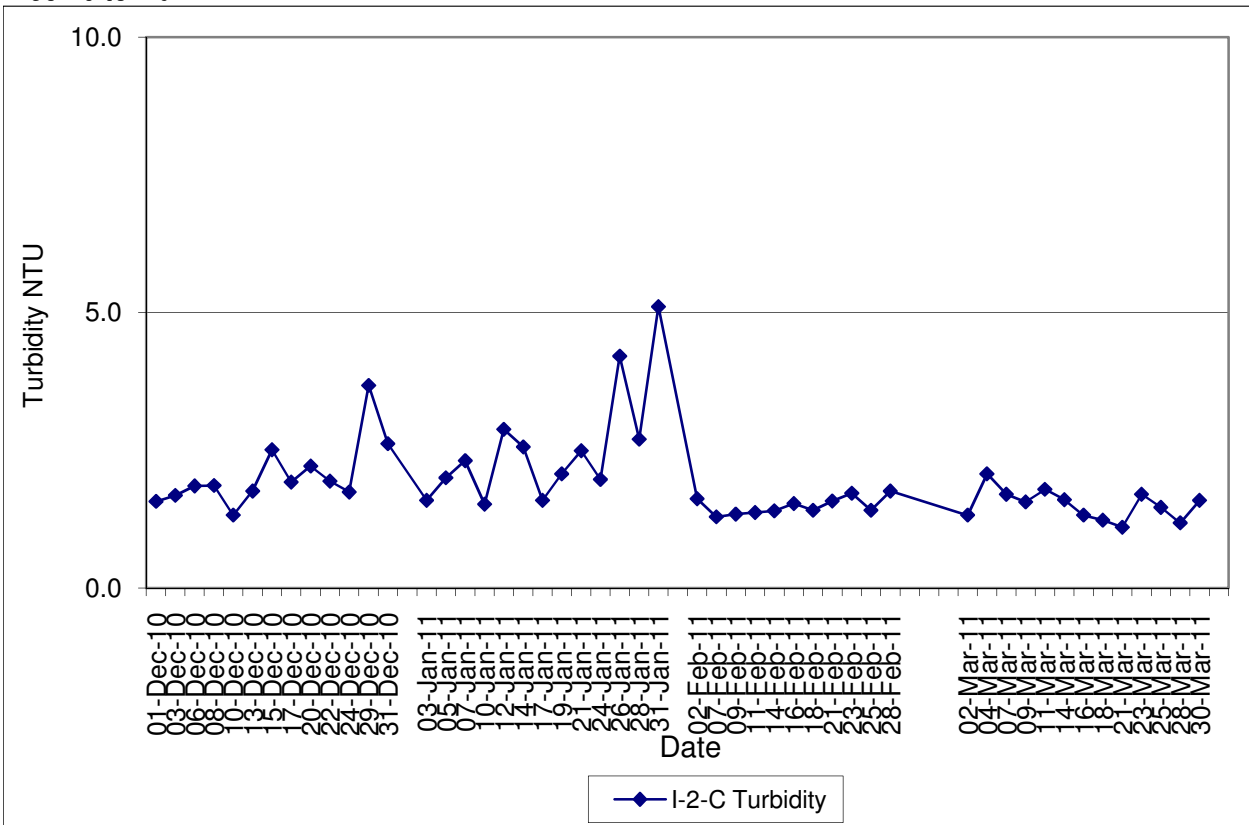
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
Dec-10 to Mar-11



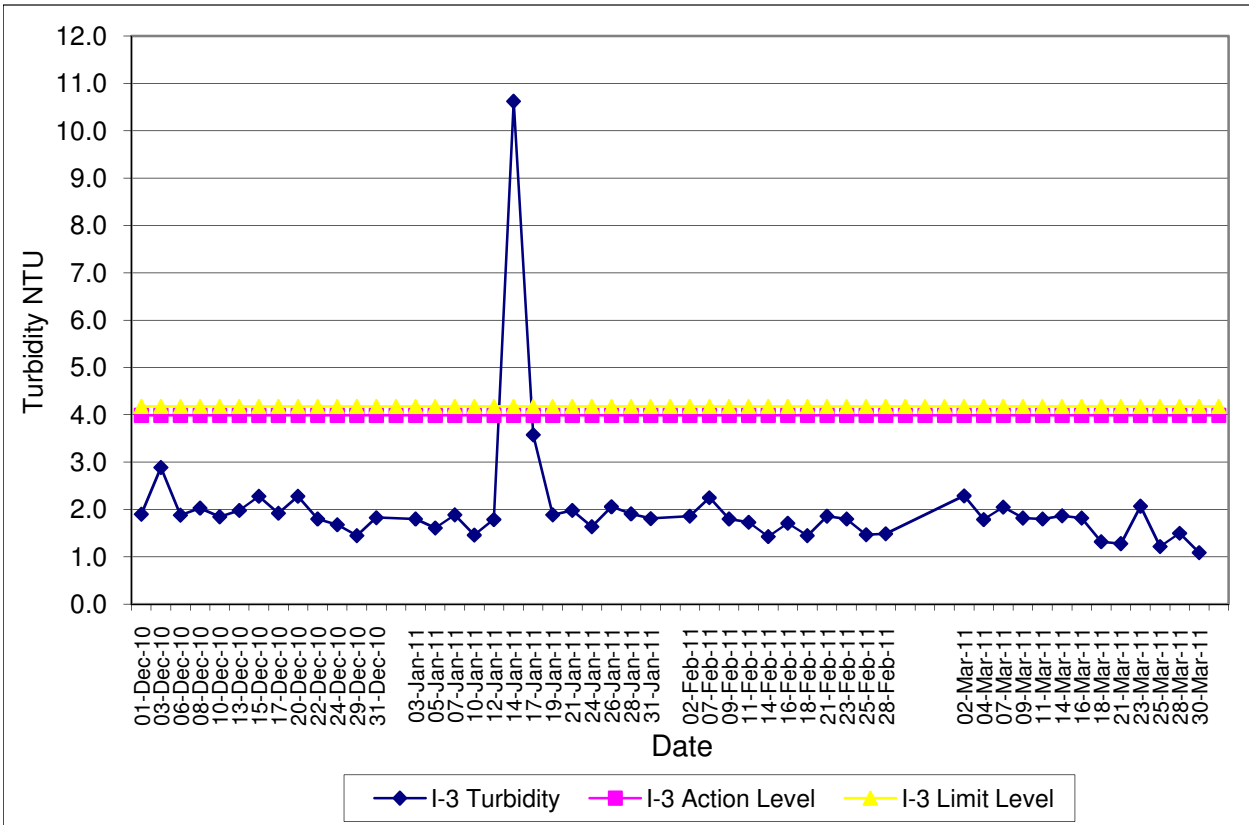
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Dec-10 to Mar-11



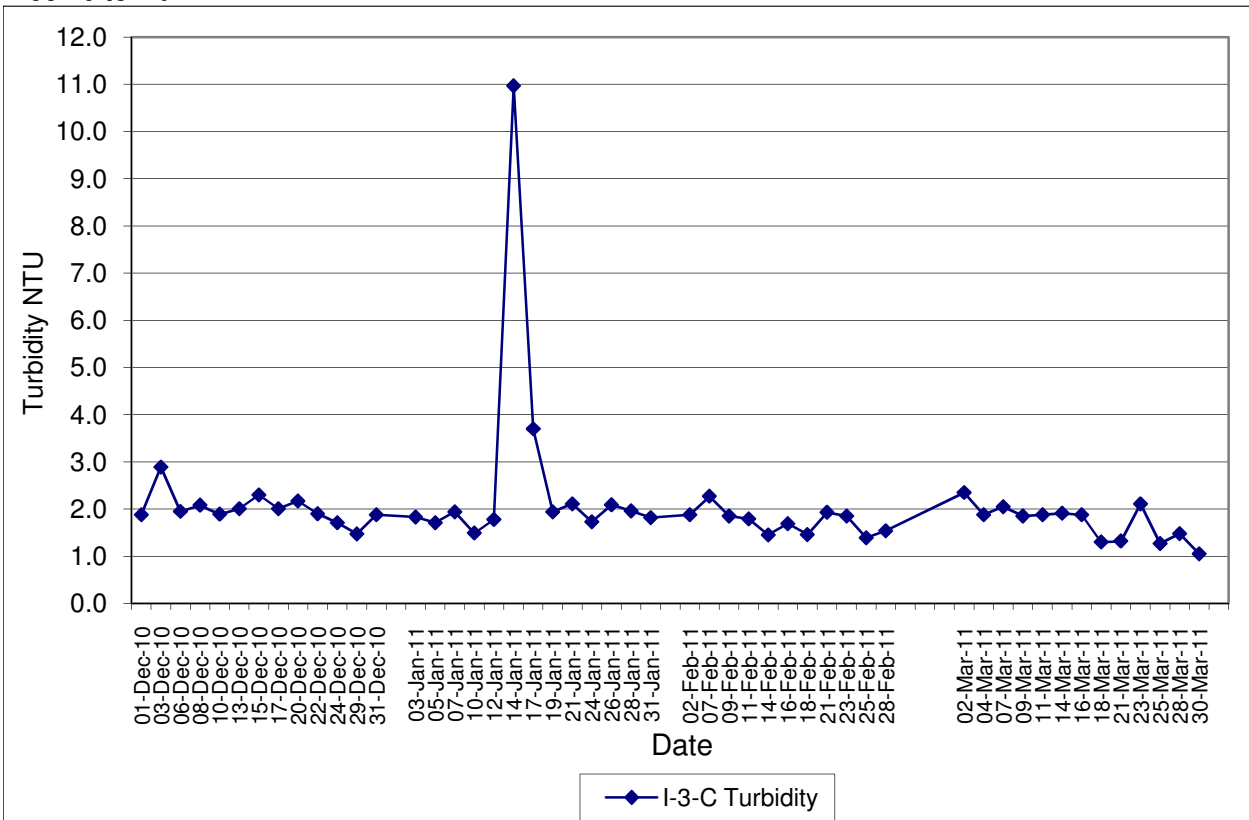
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Dec-10 to Mar-11



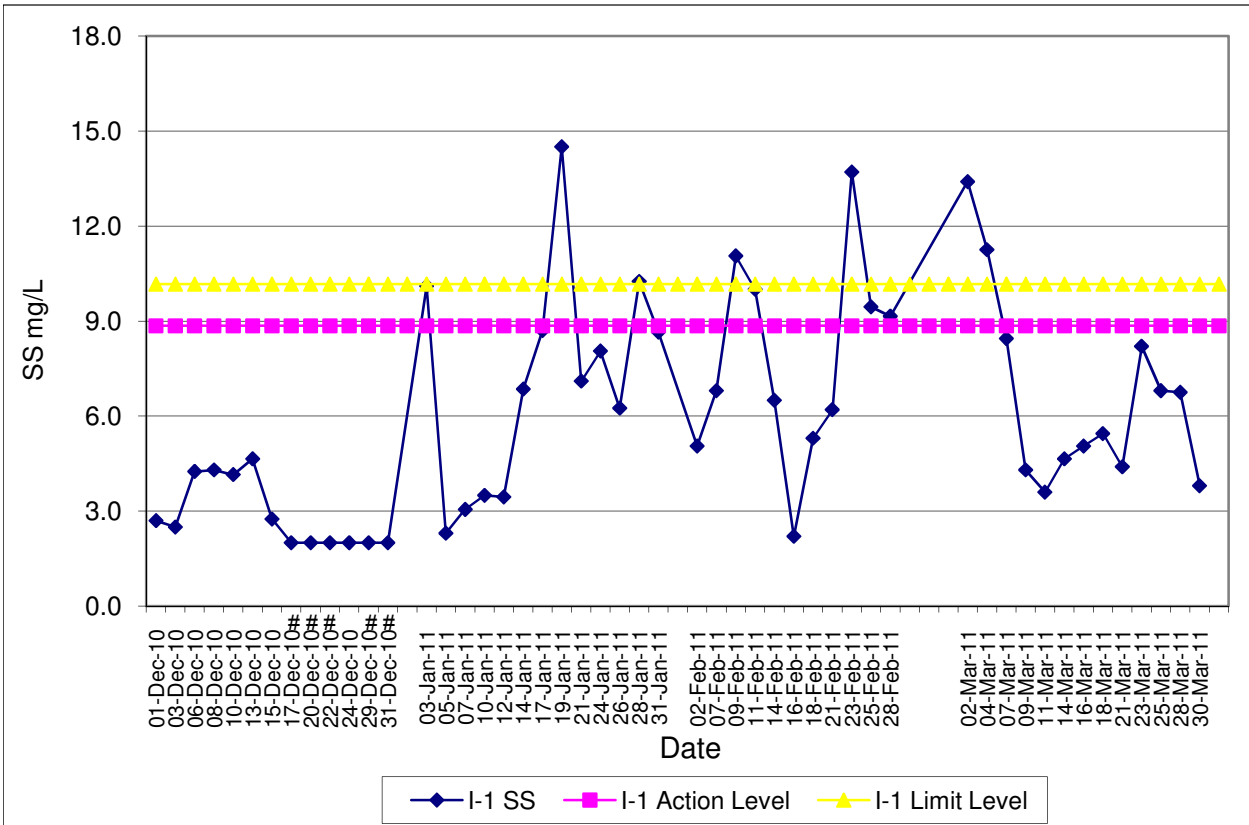
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Dec-10 to Mar-11



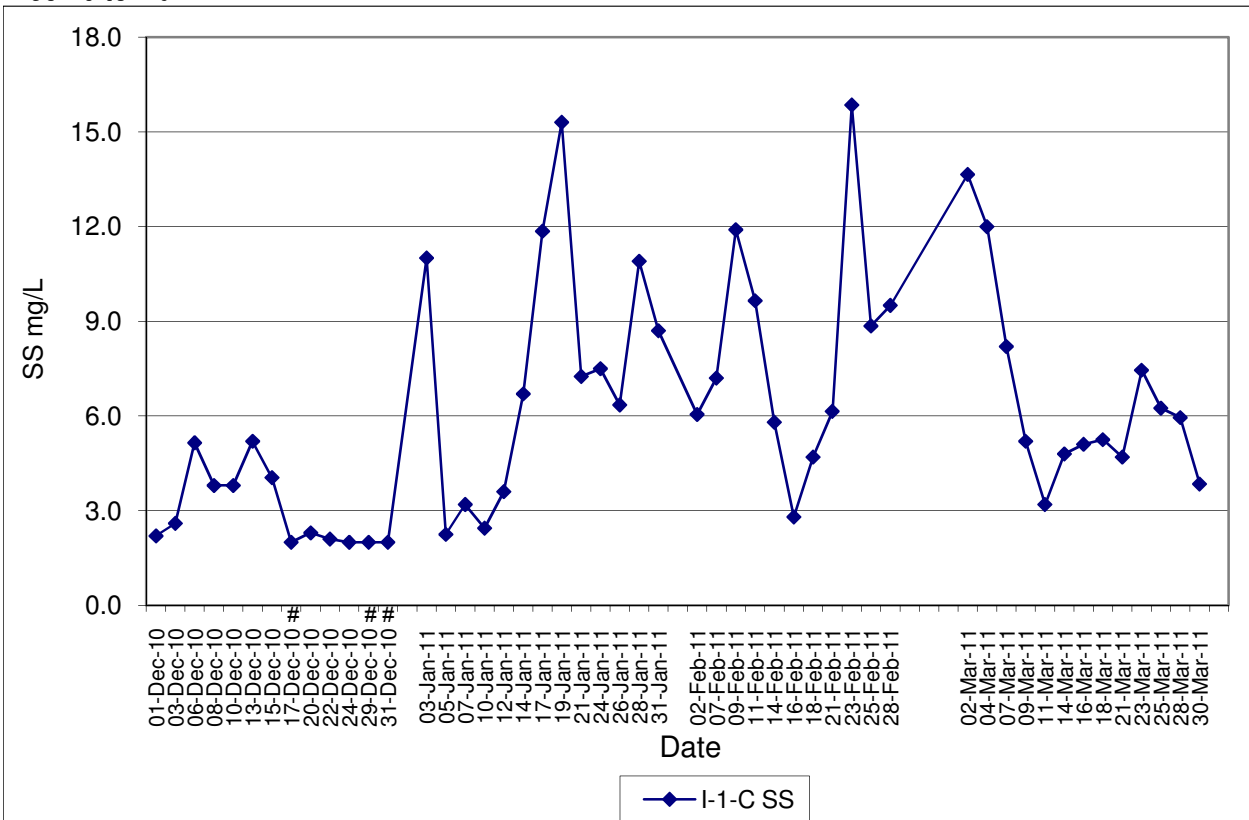
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Dec-10 to Mar-11



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
Dec-10 to Mar-11

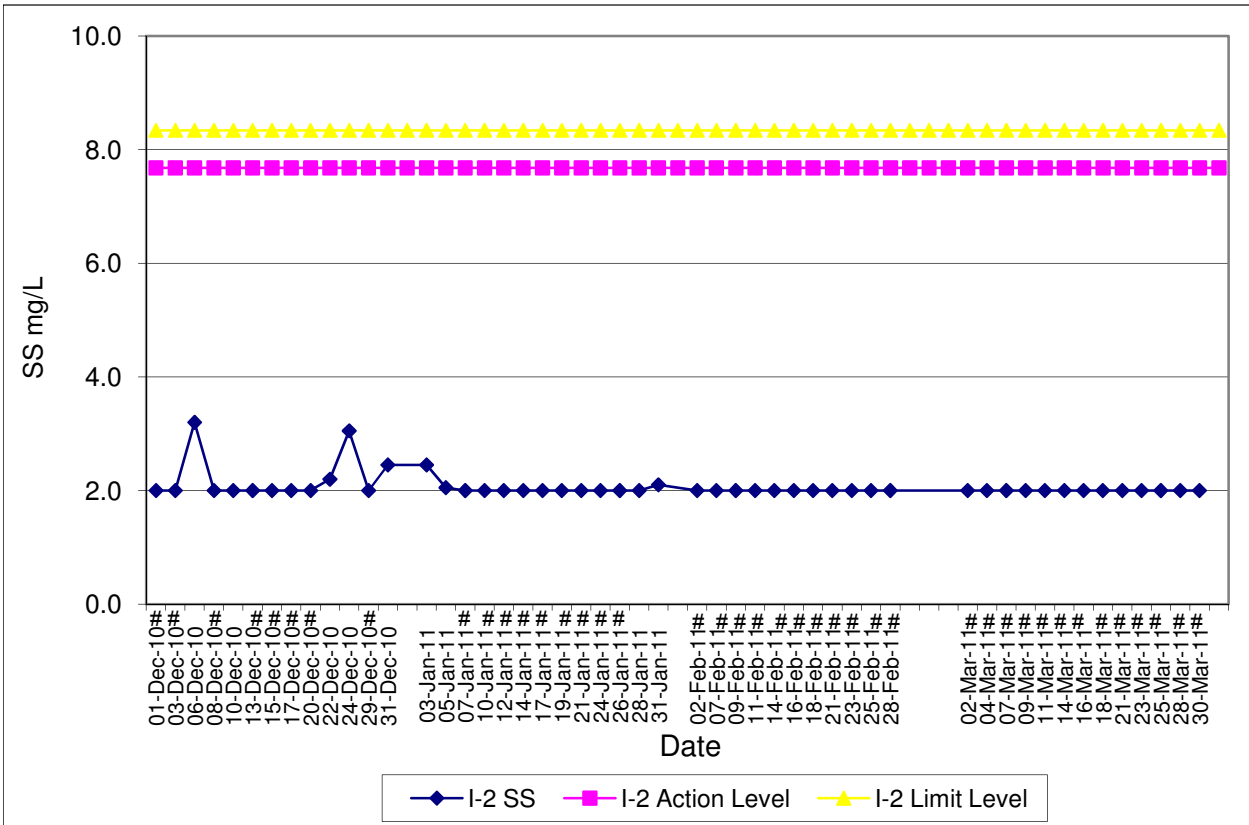


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
Dec-10 to Mar-11

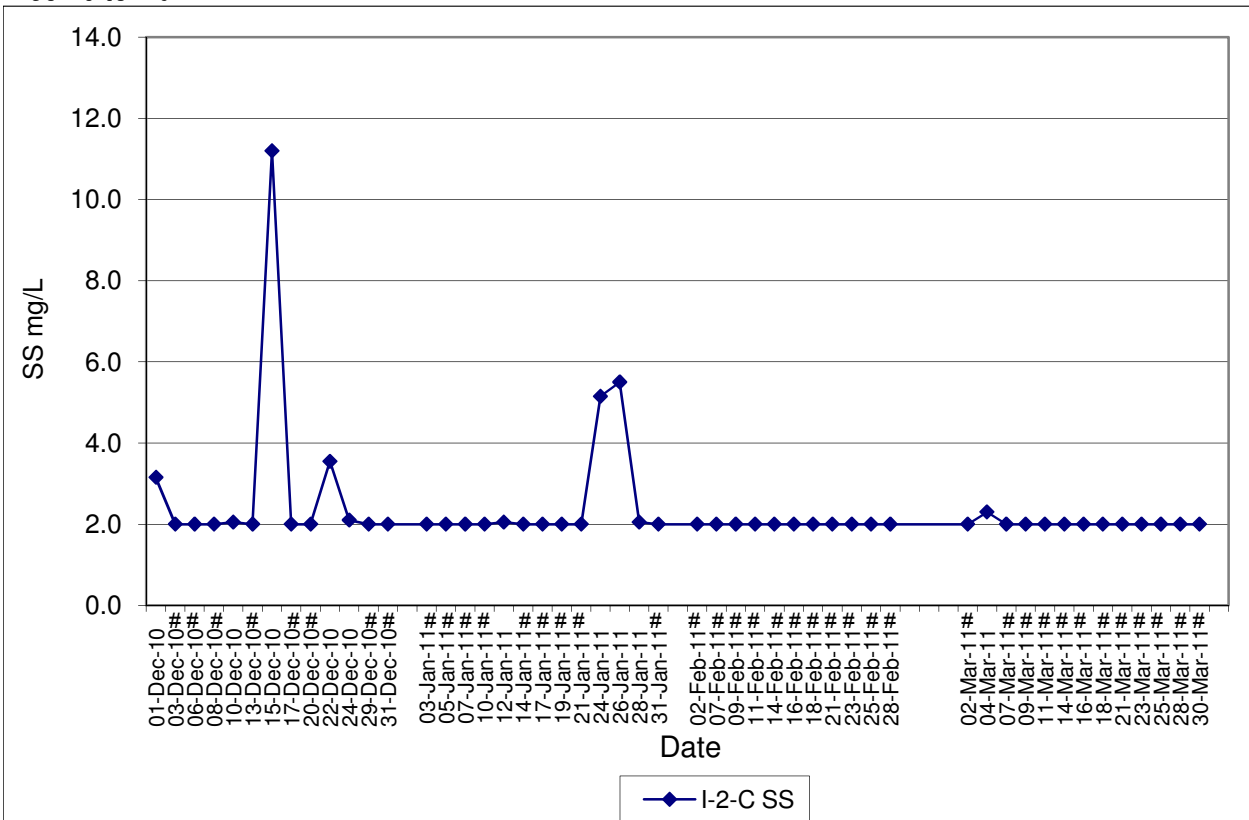


Note #: For SS level smaller than 2.00 mg/L,
 The level is plotted as 2.00 mg/L in the graph.

Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Dec-10 to Mar-11

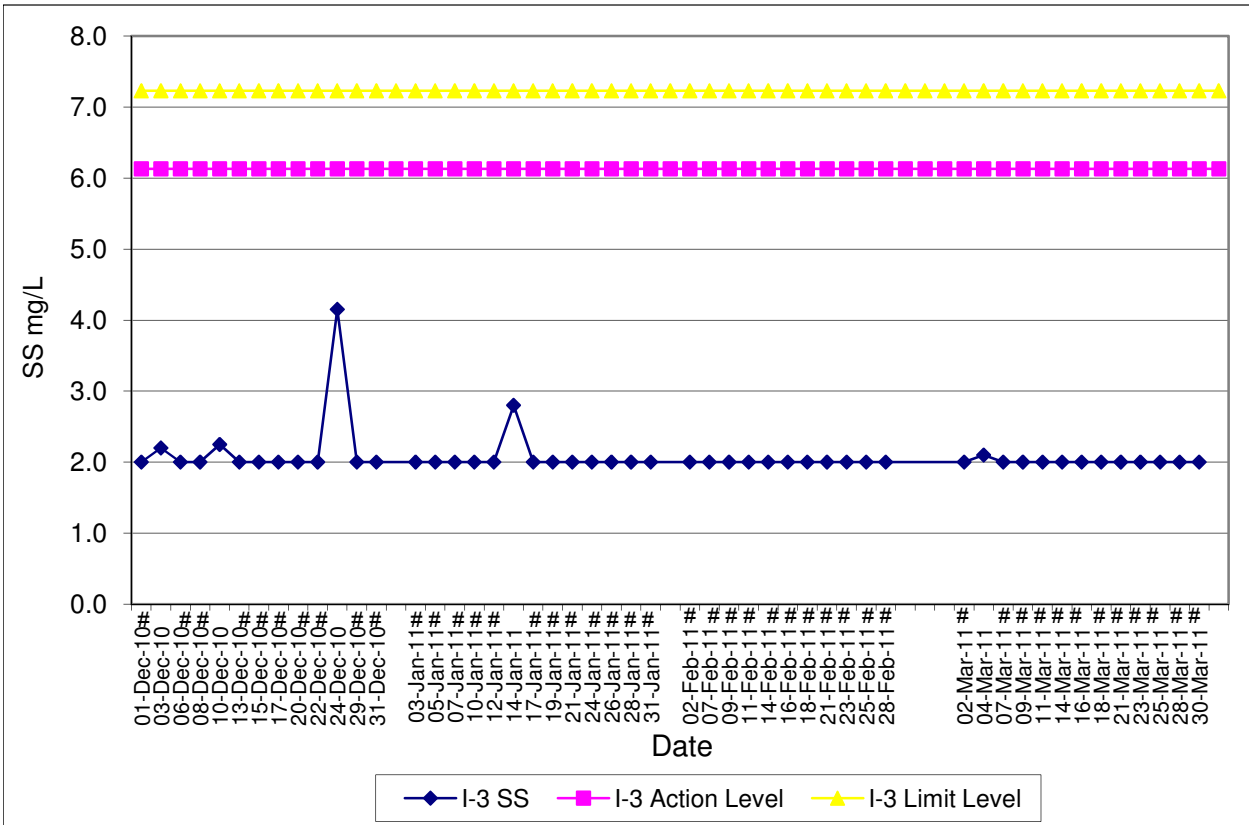


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Dec-10 to Mar-11

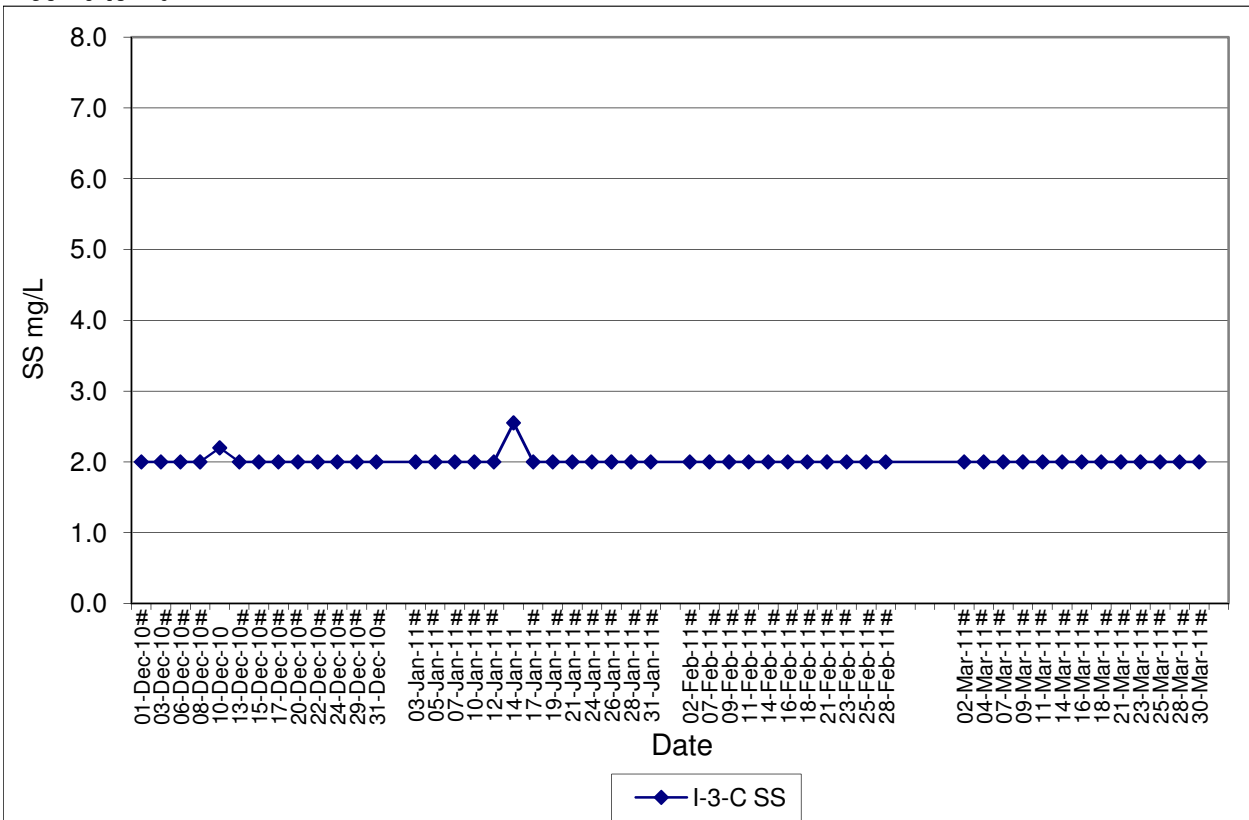


Note #: For SS level smaller than 2.00 mg/L,
 The level is plotted as 2.00 mg/L in the graph.

Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Dec-10 to Mar-11



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Dec-10 to Mar-11



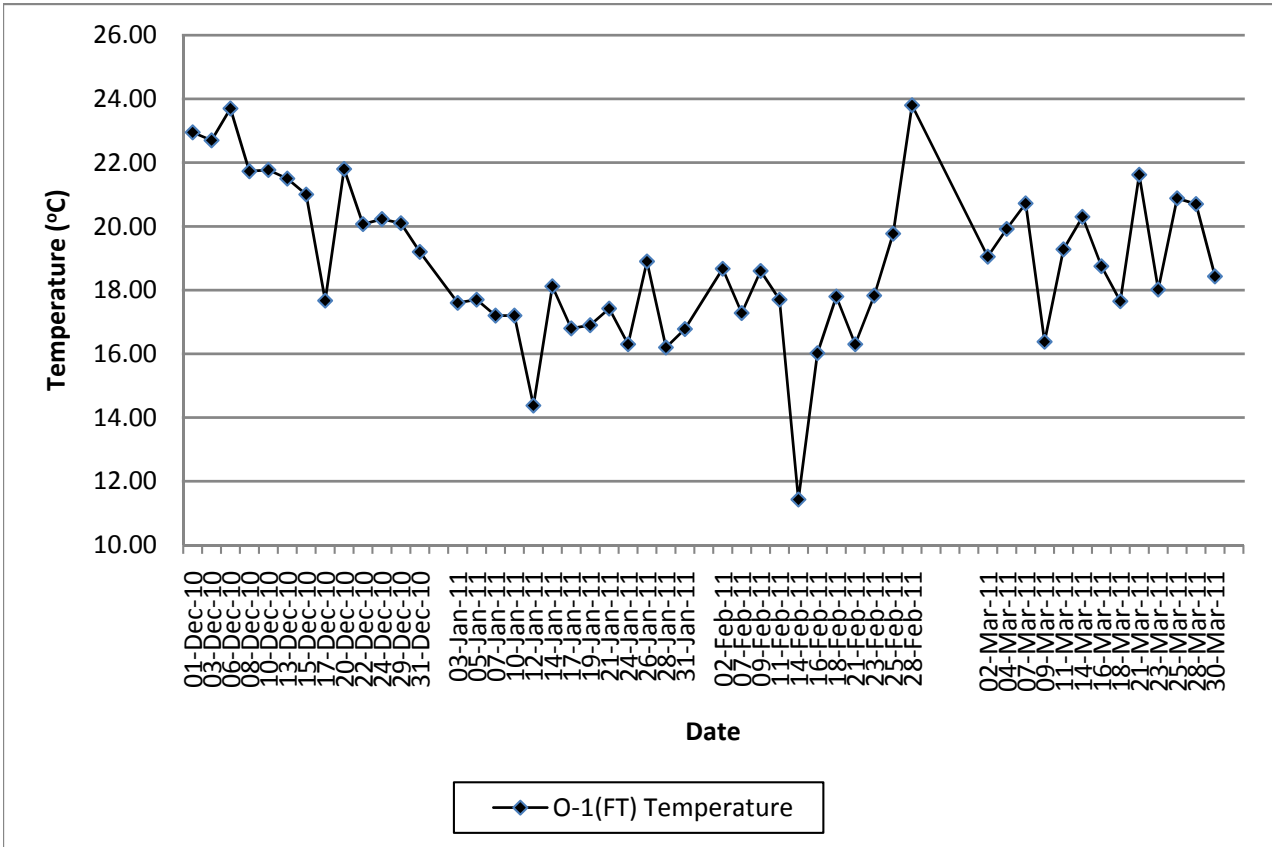
Note #: For SS level smaller than 2.00 mg/L,
 The level is plotted as 2.00 mg/L in the graph.

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

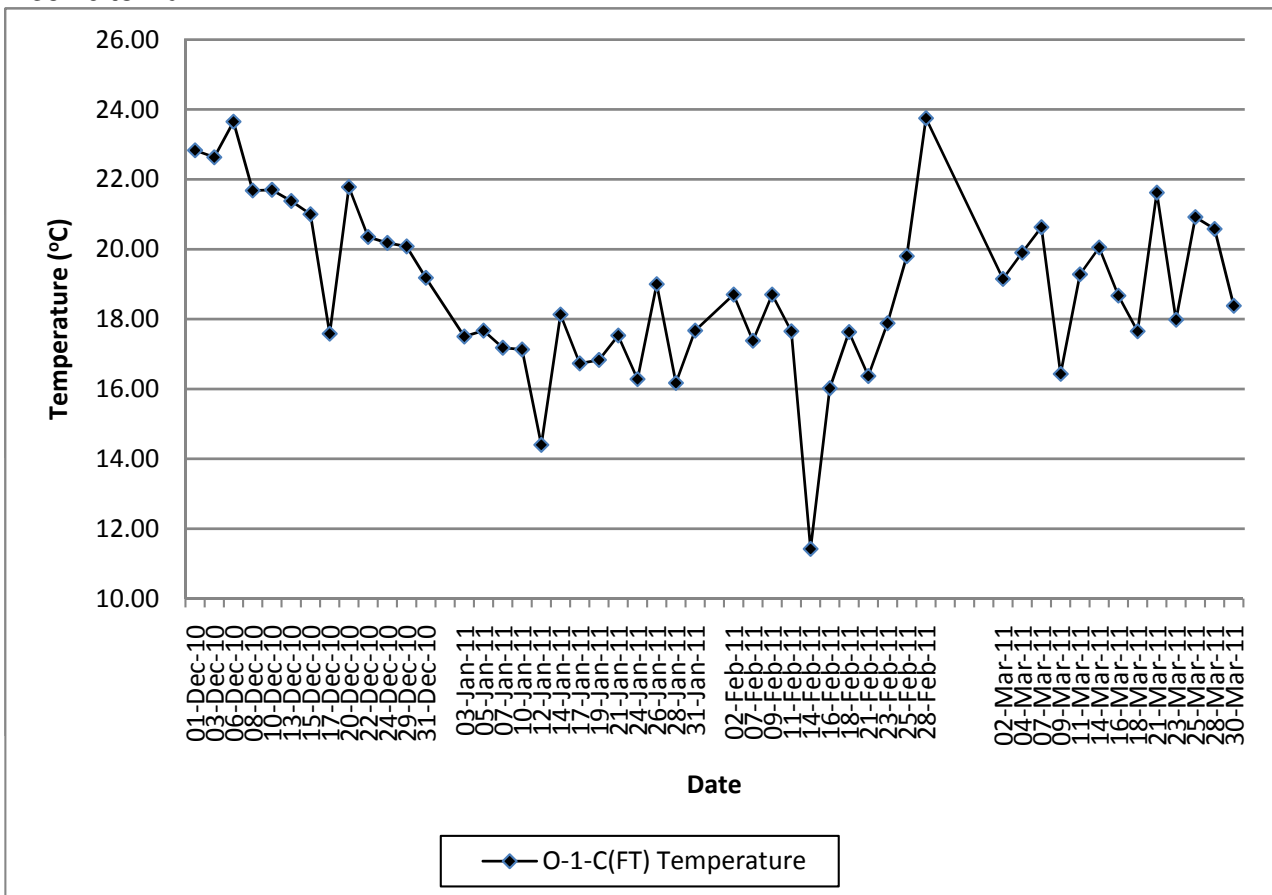
Marine Water Quality Impact Monitoring Results

| Monitoring Locations | Date | Depth | Start Time | Weather | Water Depth(m) | Temp | | | DO(mg/L) | | | pH | | | Turbidity(NTU) | | | SS (mg/L) | | | Remarks: | Action to be taken | |
|--------------------------------------------------|-----------|---------|------------|---------|----------------|-------|-------|-------|----------|------|-------------|-------------|-------------|------|----------------|------|------|-----------|-------|-------|----------|--------------------|------|
| | | | | | | 1 | 2 | Avg | 1 | 2 | Avg | 1 | 2 | Avg | 1 | 2 | Avg | 1 | 2 | Avg | | | |
| Outfall 1 During Flood Tide O-1(FT) | 02-Mar-11 | Surface | 15:27 | Fine | 1 | 19.00 | 19.00 | 19.05 | 8.55 | 8.48 | 8.52 | 6.84 / 6.81 | 8.54 | 8.54 | 8.54 | 4.15 | 4.23 | 4.50 | 4.90 | 6.40 | 6.43 | Works in Portion E | Nil |
| | | Middle | | | 4.75 | 19.10 | 19.10 | | 8.32 | 8.36 | 8.34 | | 8.54 | 8.54 | | 4.64 | 4.47 | | 7.00 | 5.70 | | | |
| | | Bottom | | | 8.5 | 19.10 | 19.00 | | 8.20 | 8.23 | 8.22 | | 6.99 / 6.96 | 8.54 | | 8.54 | 4.80 | | 4.72 | 6.20 | | | |
| | 04-Mar-11 | Surface | 16:22 | Sunny | 1 | 19.90 | 19.90 | 19.92 | 8.13 | 8.18 | 8.16 | 6.84 / 6.81 | 8.28 | 8.28 | 8.28 | 1.92 | 1.97 | 1.91 | 2.80 | 3.30 | 2.72 | Nil | Nil |
| | | Middle | | | 4.75 | 19.90 | 19.90 | | 7.99 | 7.96 | 7.98 | | 8.28 | 8.28 | | 1.86 | 1.83 | | 2.50 | 2.80 | | | |
| | | Bottom | | | 8.5 | 20.00 | 19.90 | | 8.02 | 7.95 | 7.99 | | 6.99 / 6.96 | 8.29 | | 8.29 | 1.95 | | 1.90 | <2.00 | | | |
| | 07-Mar-11 | Surface | 09:28 | Sunny | 1 | 20.80 | 20.70 | 20.72 | 7.49 | 7.54 | 7.52 | 6.84 / 6.81 | 8.26 | 8.26 | 8.25 | 5.16 | 5.37 | 5.36 | 7.30 | 5.50 | 8.02 | Works in Portion E | Nil |
| | | Middle | | | 4.75 | 20.70 | 20.70 | | 7.78 | 7.81 | 7.80 | | 8.25 | 8.25 | | 5.30 | 5.42 | | 8.10 | 8.60 | | | |
| | | Bottom | | | 8.5 | 20.70 | 20.70 | | 7.88 | 7.93 | 7.91 | | 6.99 / 6.96 | 8.25 | | 8.25 | 5.50 | | 5.43 | 9.10 | | | |
| | 09-Mar-11 | Surface | 09:50 | Cloudy | 1 | 16.40 | 16.40 | 16.38 | 9.28 | 9.23 | 9.26 | 6.84 / 6.81 | 8.35 | 8.36 | 8.36 | 4.88 | 4.93 | 4.82 | 6.90 | 6.50 | 7.55 | Nil | Nil |
| | | Middle | | | 4.5 | 16.30 | 16.40 | | 9.24 | 9.27 | 9.26 | | 8.36 | 8.36 | | 4.57 | 4.62 | | 7.50 | 7.00 | | | |
| | | Bottom | | | 8 | 16.40 | 16.40 | | 9.26 | 9.29 | 9.28 | | 6.99 / 6.96 | 8.36 | | 8.35 | 4.89 | | 5.01 | 8.30 | | | |
| | 11-Mar-11 | Surface | 10:28 | Cloudy | 1 | 19.20 | 19.30 | 19.28 | 8.40 | 8.46 | 8.43 | 6.84 / 6.81 | 8.35 | 8.35 | 8.35 | 4.98 | 4.74 | 4.55 | 7.00 | 6.80 | 7.00 | Works in Portion E | Nil |
| | | Middle | | | 4.5 | 19.30 | 19.30 | | 8.58 | 8.61 | 8.60 | | 8.35 | 8.35 | | 4.19 | 4.34 | | 8.00 | 6.70 | | | |
| | | Bottom | | | 8 | 19.30 | 19.30 | | 8.75 | 8.73 | 8.74 | | 6.99 / 6.96 | 8.35 | | 8.35 | 4.50 | | 4.55 | 6.60 | | | |
| | 14-Mar-11 | Surface | 12:30 | Sunny | 1 | 20.30 | 20.30 | 20.30 | 7.64 | 7.69 | 7.67 | 6.84 / 6.81 | 8.36 | 8.36 | 8.36 | 2.16 | 2.30 | 2.20 | 3.90 | 3.60 | 3.38 | Works in Portion E | Nil |
| | | Middle | | | 4.5 | 20.30 | 20.30 | | 7.44 | 7.47 | 7.46 | | 8.35 | 8.35 | | 2.18 | 2.06 | | 3.00 | 3.80 | | | |
| | | Bottom | | | 8 | 20.30 | 20.30 | | 7.70 | 7.62 | 7.66 | | 6.99 / 6.96 | 8.36 | | 8.36 | 2.20 | | 2.31 | 3.00 | | | |
| | 16-Mar-11 | Surface | 14:35 | Sunny | 1 | 18.80 | 18.80 | 18.75 | 7.78 | 7.71 | 7.75 | 6.84 / 6.81 | 8.32 | 8.33 | 8.33 | 4.30 | 4.21 | 4.19 | 6.80 | 4.90 | 5.63 | Works in Portion E | Nil |
| | | Middle | | | 4.5 | 18.70 | 18.80 | | 7.45 | 7.50 | 7.48 | | 8.33 | 8.33 | | 4.07 | 4.04 | | 6.80 | 4.70 | | | |
| | | Bottom | | | 8 | 18.70 | 18.70 | | 7.75 | 7.77 | 7.76 | | 6.99 / 6.96 | 8.33 | | 8.33 | 4.30 | | 4.20 | 6.40 | | | |
| | 18-Mar-11 | Surface | 15:40 | Cloudy | 1 | 17.60 | 17.60 | 17.65 | 8.11 | 8.21 | 8.16 | 6.84 / 6.81 | 8.35 | 8.35 | 8.35 | 2.66 | 2.74 | 2.83 | 4.30 | 4.90 | 4.58 | Nil | Nil |
| | | Middle | | | 4.5 | 17.70 | 17.70 | | 8.31 | 8.27 | 8.29 | | 8.35 | 8.34 | | 3.02 | 2.90 | | 4.50 | 4.60 | | | |
| | | Bottom | | | 8 | 17.70 | 17.60 | | 8.21 | 8.19 | 8.20 | | 6.99 / 6.96 | 8.34 | | 8.34 | 2.86 | | 2.80 | 4.40 | | | |
| | 21-Mar-11 | Surface | 09:12 | Sunny | 1 | 21.70 | 21.70 | 21.62 | 7.85 | 7.89 | 7.87 | 6.84 / 6.81 | 8.32 | 8.33 | 8.33 | 6.58 | 6.63 | 6.76 | 8.80 | 10.40 | 9.67 | Nil | Nil |
| | | Middle | | | 4.5 | 21.60 | 21.60 | | 7.96 | 7.93 | 7.95 | | 8.33 | 8.33 | | 6.90 | 6.80 | | 10.40 | 9.00 | | | |
| | | Bottom | | | 8 | 21.50 | 21.60 | | 7.91 | 7.86 | 7.89 | | 6.99 / 6.96 | 8.32 | | 8.32 | 6.90 | | 6.77 | 9.10 | | | |
| | 23-Mar-11 | Surface | 10:28 | Cloudy | 1 | 18.00 | 18.00 | 18.02 | 7.64 | 7.70 | 7.67 | 6.84 / 6.81 | 8.33 | 8.33 | 8.17 | 5.55 | 5.47 | 5.36 | 14.40 | 13.60 | 11.08 | Works in Portion E | Nil |
| | | Middle | | | 4.75 | 18.00 | 18.00 | | 7.76 | 7.81 | 7.79 | | 8.34 | 8.33 | | 5.31 | 5.42 | | 10.80 | 9.40 | | | |
| | | Bottom | | | 8.5 | 18.10 | 18.00 | | 7.75 | 7.71 | 7.73 | | 6.99 / 6.96 | 8.34 | | 7.34 | 5.18 | | 5.20 | 9.20 | | | |
| 25-Mar-11 | Surface | 10:30 | Fine | 1 | 20.90 | 20.90 | 20.88 | 8.28 | 8.34 | 8.31 | 6.84 / 6.81 | 8.30 | 8.30 | 8.30 | 3.37 | 3.48 | 3.27 | 3.50 | 3.80 | 3.78 | Nil | Nil | |
| | Middle | | | 4.5 | 20.90 | 20.90 | | 8.45 | 8.39 | 8.42 | | 8.30 | 8.29 | | 3.22 | 3.30 | | 4.50 | 3.80 | | | | |
| | Bottom | | | 8 | 20.90 | 20.80 | | 8.24 | 8.28 | 8.26 | | 6.99 / 6.96 | 8.29 | | 8.30 | 3.07 | | 3.15 | 3.70 | | | | 3.40 |
| 28-Mar-11 | Surface | 14:19 | Sunny | 1 | 20.70 | 20.70 | 20.70 | 7.90 | 7.94 | 7.92 | 6.84 / 6.81 | 8.28 | 8.28 | 8.28 | 3.07 | 3.16 | 3.21 | 2.70 | 3.70 | 3.28 | Nil | Nil | |
| | Middle | | | 4.5 | 20.70 | 20.70 | | 7.62 | 7.74 | 7.68 | | 8.28 | 8.27 | | 3.27 | 3.20 | | 3.30 | 3.90 | | | | |
| | Bottom | | | 8 | 20.70 | 20.70 | | 7.83 | 7.87 | 7.85 | | 6.99 / 6.96 | 8.27 | | 8.27 | 3.25 | | 3.31 | 3.20 | | | | 2.90 |
| 30-Mar-11 | Surface | 14:33 | Cloudy | 1 | 18.50 | 18.40 | 18.43 | 7.91 | 7.97 | 7.94 | 6.84 / 6.81 | 8.38 | 8.38 | 8.38 | 3.95 | 4.13 | 4.06 | 5.70 | 4.60 | 4.48 | Nil | Nil | |
| | Middle | | | 4.5 | 18.40 | 18.40 | | 8.23 | 8.16 | 8.20 | | 8.38 | 8.39 | | 4.02 | 3.98 | | 4.70 | 4.40 | | | | |
| | Bottom | | | 8 | 18.40 | 18.50 | | 8.06 | 7.96 | 8.01 | | 6.99 / 6.96 | 8.38 | | 8.38 | 4.10 | | 4.18 | 3.50 | | | | 4.00 |
| Control of Outfall 1 During Flood Tide O-1-C(FT) | 02-Mar-11 | Surface | 15:05 | Fine | 1 | 19.20 | 19.20 | 19.15 | 8.33 | 8.39 | 8.36 | - | 8.55 | 8.54 | 8.54 | 5.10 | 5.19 | 5.08 | 8.40 | 6.70 | 8.07 | Nil | Nil |
| | | Middle | | | 7.25 | 19.10 | 19.10 | | 8.47 | 8.50 | 8.49 | | 8.55 | 8.54 | | 5.20 | 5.02 | | 11.90 | 8.80 | | | |
| | | Bottom | | | 13.5 | 19.20 | 19.10 | | 8.46 | 8.39 | 8.43 | | 8.54 | 8.54 | | 5.01 | 4.96 | | 6.40 | 6.20 | | | |
| 04-Mar-11 | Surface | 16:00 | Sunny | 1 | 19.90 | 19.90 | 19.90 | 8.05 | 7.95 | 8.00 | - | 8.27 | 8.27 | 8.27 | 1.95 | 1.90 | 1.98 | 4.30 | 2.60 | 2.95 | Nil | Nil | |
| | Middle | | | 7.25 | 19.90 | 19.90 | | 7.89 | 7.86 | 7.88 | | 8.28 | 8.27 | | 1.87 | 1.98 | | 3.30 | 2.80 | | | | |
| | Bottom | | | 13.5 | 19.90 | 19.90 | | 8.07 | 8.05 | 8.06 | | 8.27 | 8.27 | | 2.03 | 2.13 | | 2.50 | 2.20 | | | | |
| 07-Mar-11 | Surface | 09:00 | Sunny | 1 | 20.60 | 20.60 | 20.63 | 7.67 | 7.71 | 7.69 | - | 8.25 | 8.25 | 8.25 | 5.97 | 5.86 | 5.88 | 8.10 | 9.20 | 8.85 | Nil | Nil | |
| | Middle | | | 7.25 | 20.60 | 20.70 | | 7.62 | 7.59 | 7.61 | | 8.25 | 8.24 | | 5.74 | 5.70 | | 10.70 | 10.00 | | | | |
| | Bottom | | | 13.5 | 20.60 | 20.70 | | 7.95 | 7.89 | 7.92 | | 8.24 | 8.24 | | 5.99 | 6.04 | | 8.10 | 7.00 | | | | |
| 09-Mar-11 | Surface | 09:20 | Cloudy | 1 | 16.50 | 16.40 | 16.43 | 9.39 | 9.42 | 9.41 | - | 8.35 | 8.35 | 8.36 | 5.41 | 5.62 | 4.97 | 6.80 | 8.50 | 8.87 | Nil | Nil | |
| | Middle | | | 7 | 16.40 | 16.40 | | 9.38 | 9.42 | 9.40 | | 8.36 | 8.36 | | 4.94 | 4.99 | | 6.90 | 8.20 | | | | |
| | Bottom | | | 13 | 16.40 | 16.50 | | 9.27 | 9.33 | 9.30 | | 8.37 | 8.37 | | 4.33 | 4.50 | | 10.70 | 12.10 | | | | |
| 11-Mar-11 | Surface | 10:00 | Cloudy | 1 | 19.20 | 19.30 | 19.28 | 8.63 | 8.68 | 8.66 | - | 8.35 | 8.35 | 8.35 | 5.16 | 5.10 | 5.20 | 6.20 | 4.90 | 5.78 | Nil | Nil | |
| | Middle | | | 7.25 | 19.30 | 19.30 | | 8.58 | 8.61 | 8.60 | | 8.36 | 8.35 | | 5.47 | 5.32 | | 5.60 | 6.90 | | | | |
| | Bottom | | | 13.5 | 19.30 | 19.30 | | 8.54 | 8.61 | 8.58 | | 8.35 | 8.35 | | 5.12 | 5.05 | | 6.20 | 4.90 | | | | |
| 14-Mar-11 | Surface | 12:05 | Sunny | 1 | 20.10 | 20.10 | 20.05 | 7.50 | 7.54 | 7.52 | - | 8.35 | 8.35 | 8.36 | 2.22 | 2.31 | 2.26 | 2.20 | 2.40 | 3.32 | Nil | Nil | |
| | Middle | | | 7 | 20.10 | 20.00 | | 7.45 | 7.49 | 7.47 | | 8.36 | 8.36 | | 2.14 | 2.26 | | 2.80 | 4.50 | | | | |
| | Bottom | | | 13 | 20.00 | 20.00 | | 7.53 | 7.60 | 7.57 | | 8.36 | 8.37 | | 2.30 | 2.33 | | 3.20 | 4.80 | | | | |
| 16-Mar-11 | Surface | 14:10 | Sunny | 1 | 18.60 | 18.60 | 18.67 | 7.53 | 7.58 | 7.56 | - | 8.32 | 8.33 | 8.33 | 4.40 | 4.33 | 4.24 | 5.90 | 6.10 | 7.03 | Nil | Nil | |
| | Middle | | | 7 | 18.70 | 18.70 | | 7.74 | 7.80 | 7.77 | | 8.33 | 8.33 | | 4.12 | 4.17 | | 8.40 | 9.60 | | | | |
| | Bottom | | | 13 | 18.70 | 18.70 | | 7.47 | 7.51 | 7.49 | | 8.32 | 8.32 | | 4.21 | 4.18 | | 5.70 | 6.50 | | | | |
| 18-Mar-11 | Surface | 15:06 | Cloudy | 1 | 17.70 | 17.70 | 17.65 | 8.34 | 8.29 | 8.32 | - | 8.35 | 8.35 | 8.35 | 2.88 | 2.91 | 2.99 | 3.40 | 3.30 | 3.30 | Nil | Nil | |
| | Middle | | | 6.75 | 17.60 | 17.50 | | 8.20 | 8.16 | 8.18 | | 8.35 | 8.34 | | 3.12 | 3.02 | | 3.30 | 3.00 | | | | |
| | Bottom | | | 12.5 | 17.70 | 17.70 | | 8.41 | 8.36 | 8.39 | | 8.34 | 8.35 | | 3.03 | 2.95 | | 3.50 | 3.30 | | | | |
| 21-Mar-11 | Surface | 08:40 | Sunny | 1 | 21.70 | 21.70 | 21.62 | 7.76 | 7.71 | 7.74 | - | 8.33 | 8.32 | 8.33 | 6.94 | 7.02 | 6.97 | 12.70 | 11.50 | 10.95 | Nil | Nil | |
| | Middle | | | 7 | 21.60 | 21.60 | | 7.80 | 7.84 | 7.82 | | 8.32 | 8.32 | | 6.85 | 6.73 | | 11.60 | 10.10 | | | | |
| | Bottom | | | 13 | 21.50 | 21.60 | | 7.78 | 7.74 | 7.76 | | 8.33 | 8.33 | | 7.12 | 7.17 | | 10.30 | 9.50 | | | | |
| 23-Mar- | | | | | | | | | | | | | | | | | | | | | | | |

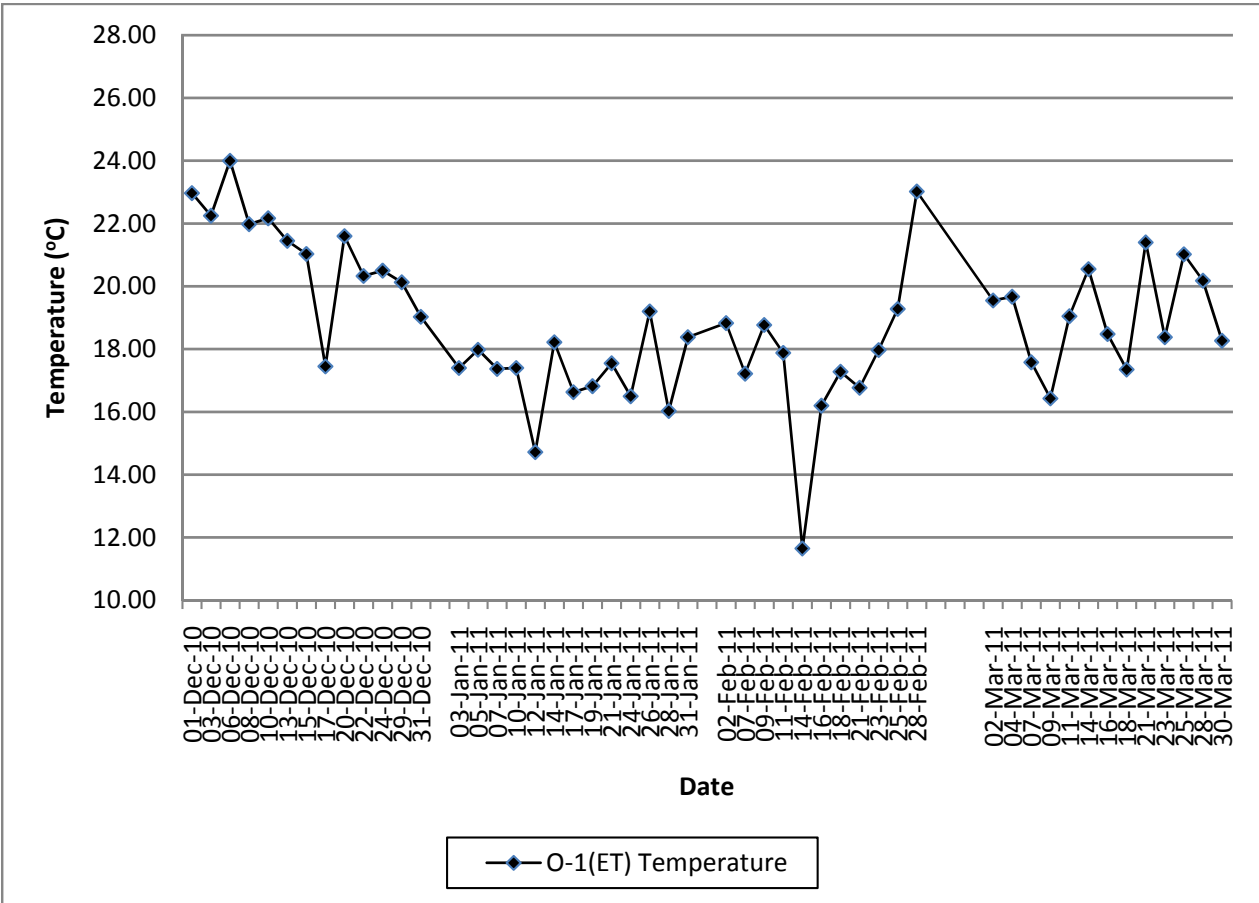
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Outfall 1 During Flood Tide (O-1(FT))
Dec-10 to Mar-11**



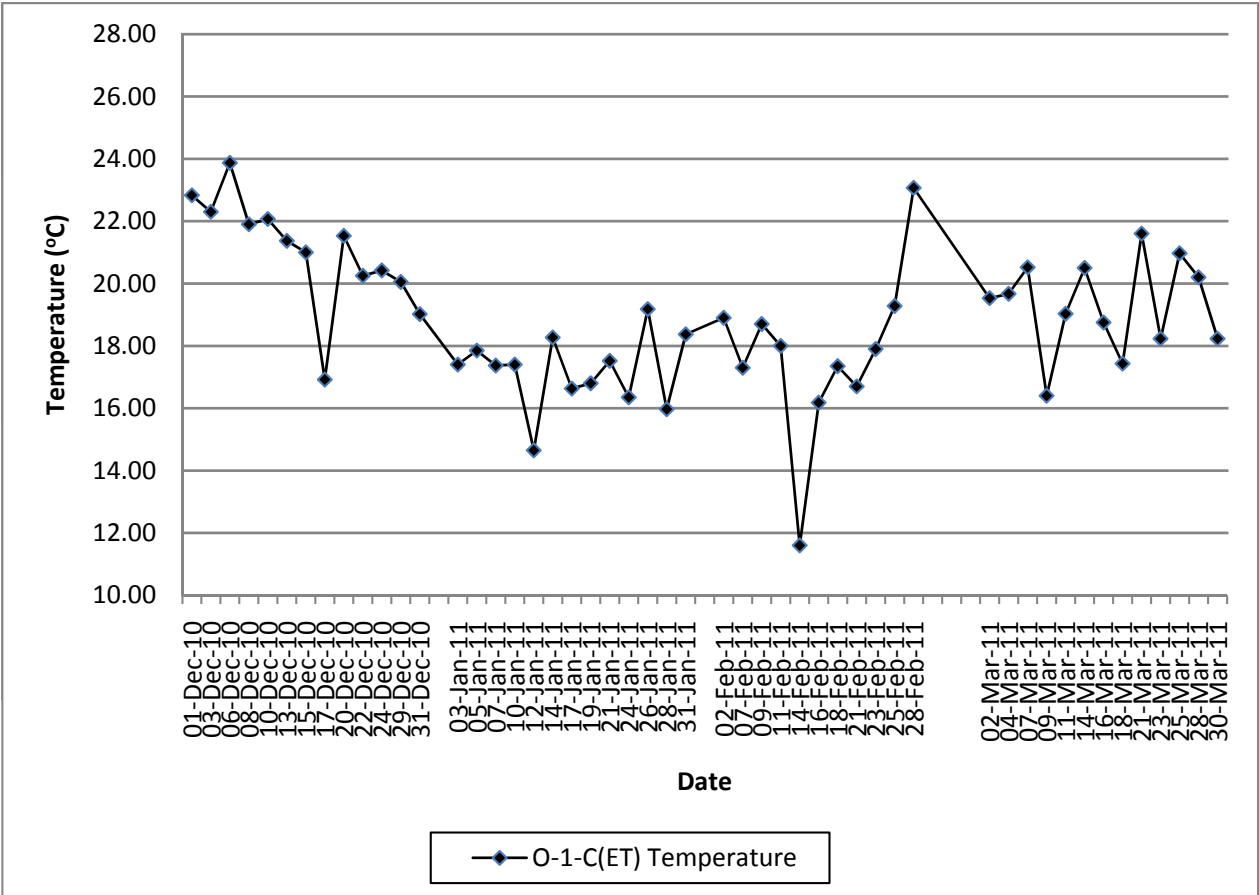
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Control of Outfall 1 During Flood Tide (O-1-C(FT))
Dec-10 to Mar-11**



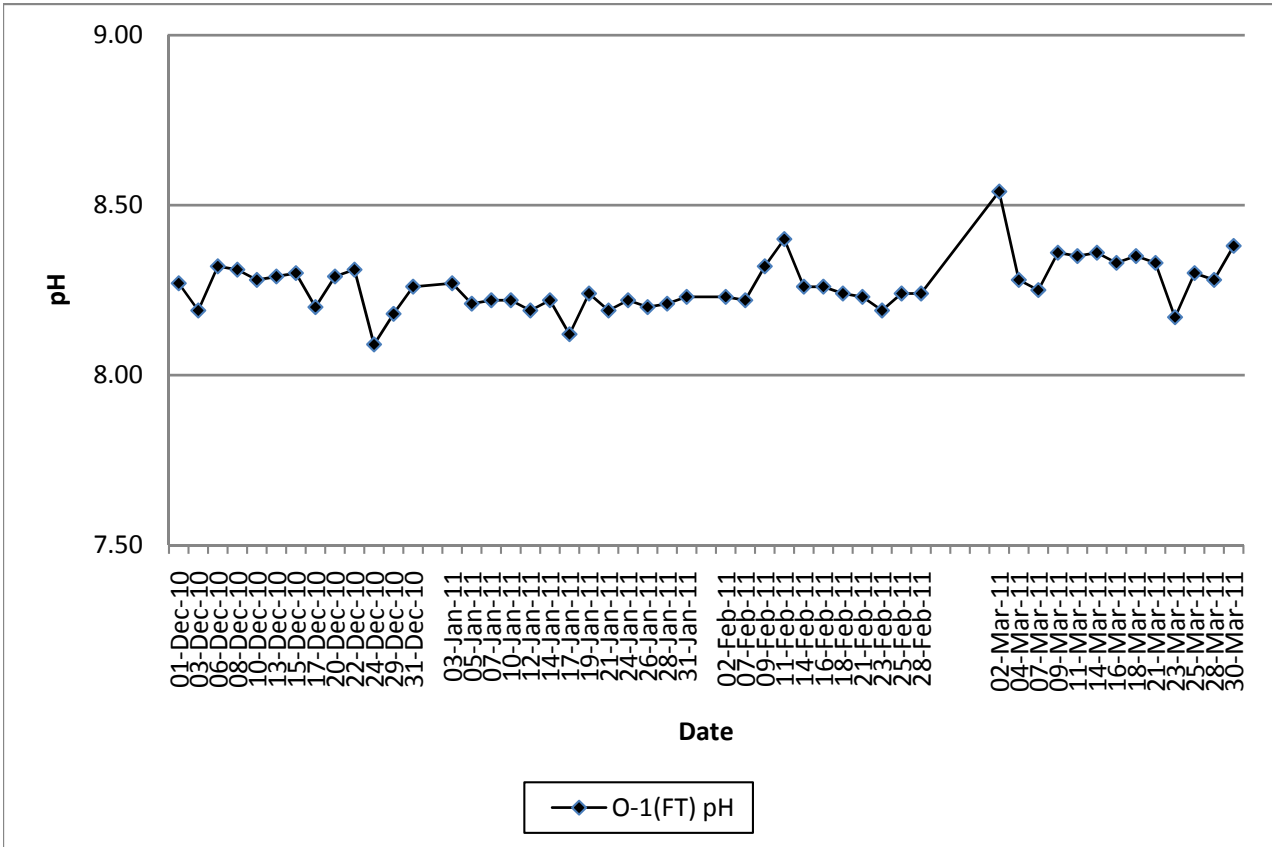
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Outfall 1 During Ebb Tide (O-1(ET))
 Dec-10 to Mar-11**



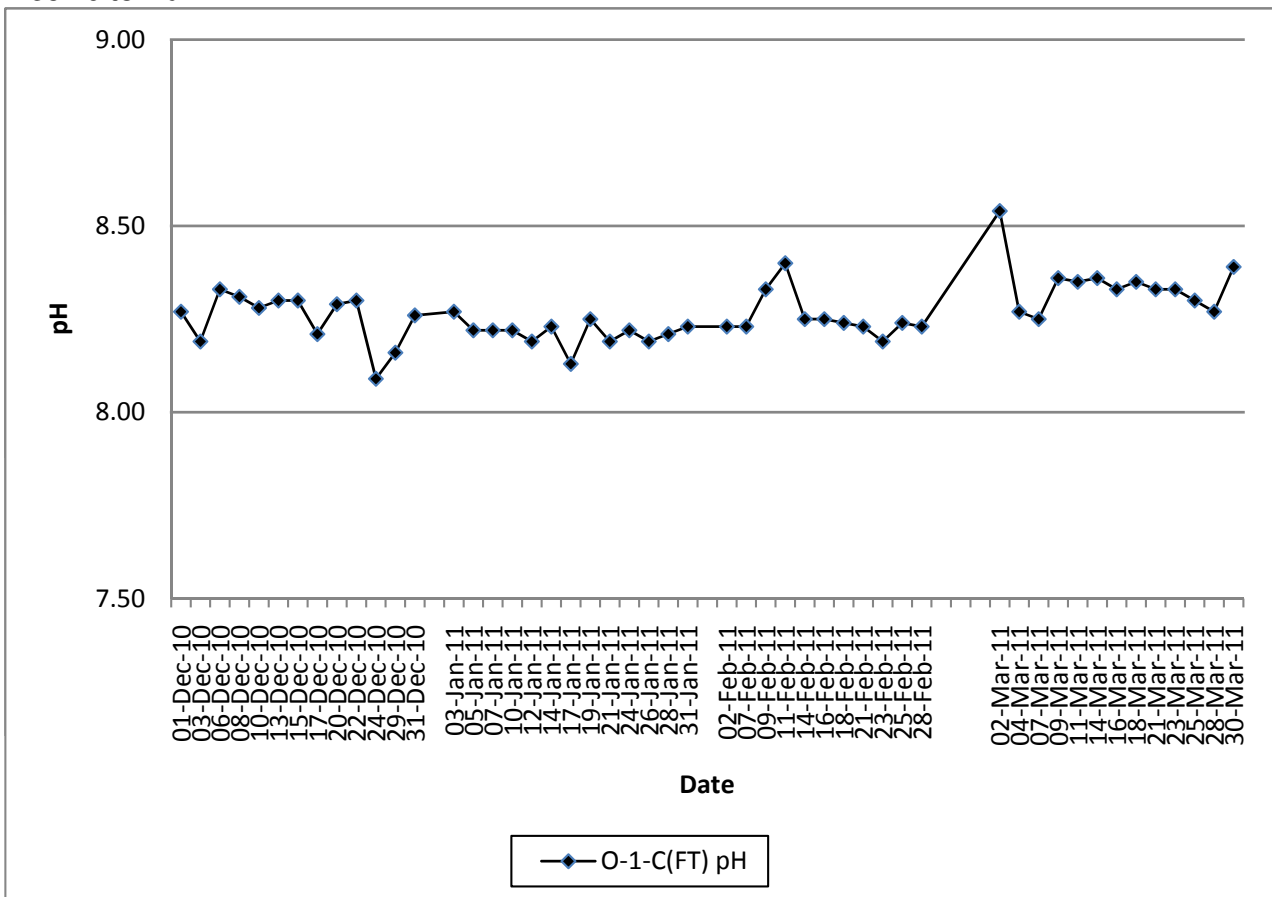
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 Water Quality Results at Control of Outfall 1 During Ebb Tide (O-1-C(ET))
 Dec-10 to Mar-11**



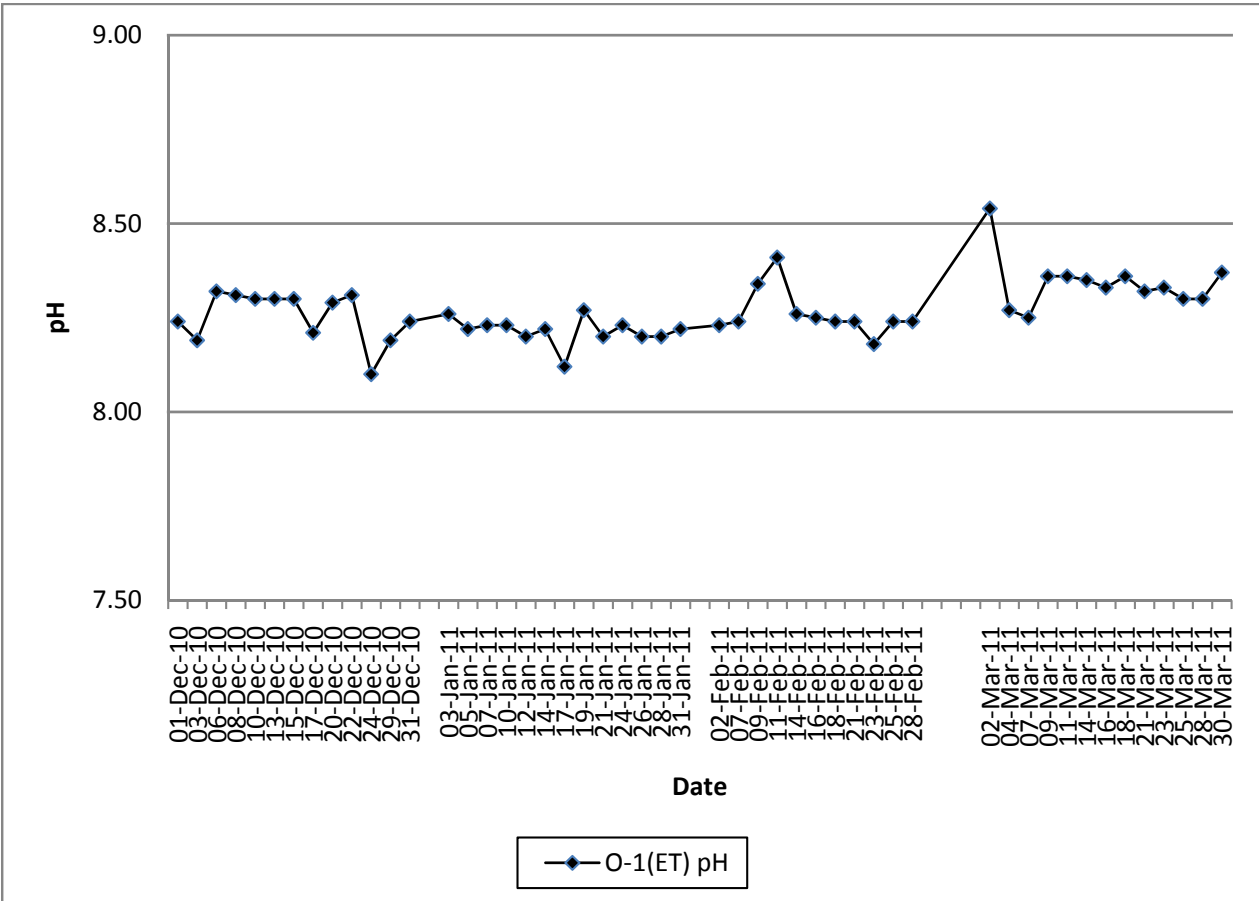
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Outfall 1 During Flood Tide (O-1(FT))
Dec-10 to Mar-11**



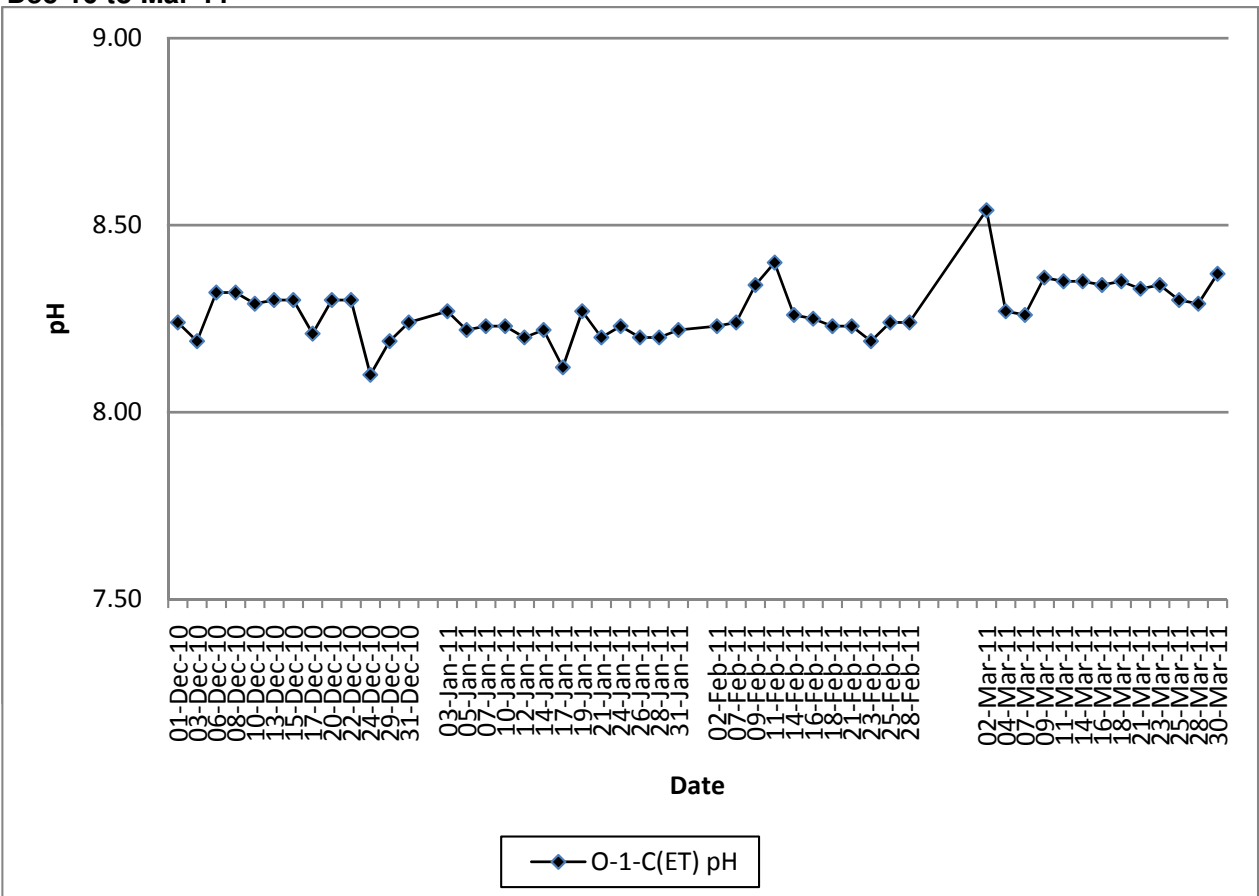
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Water Quality Results at Control of Outfall 1 During Flood Tide (O-1-C(FT))
Dec-10 to Mar-11**



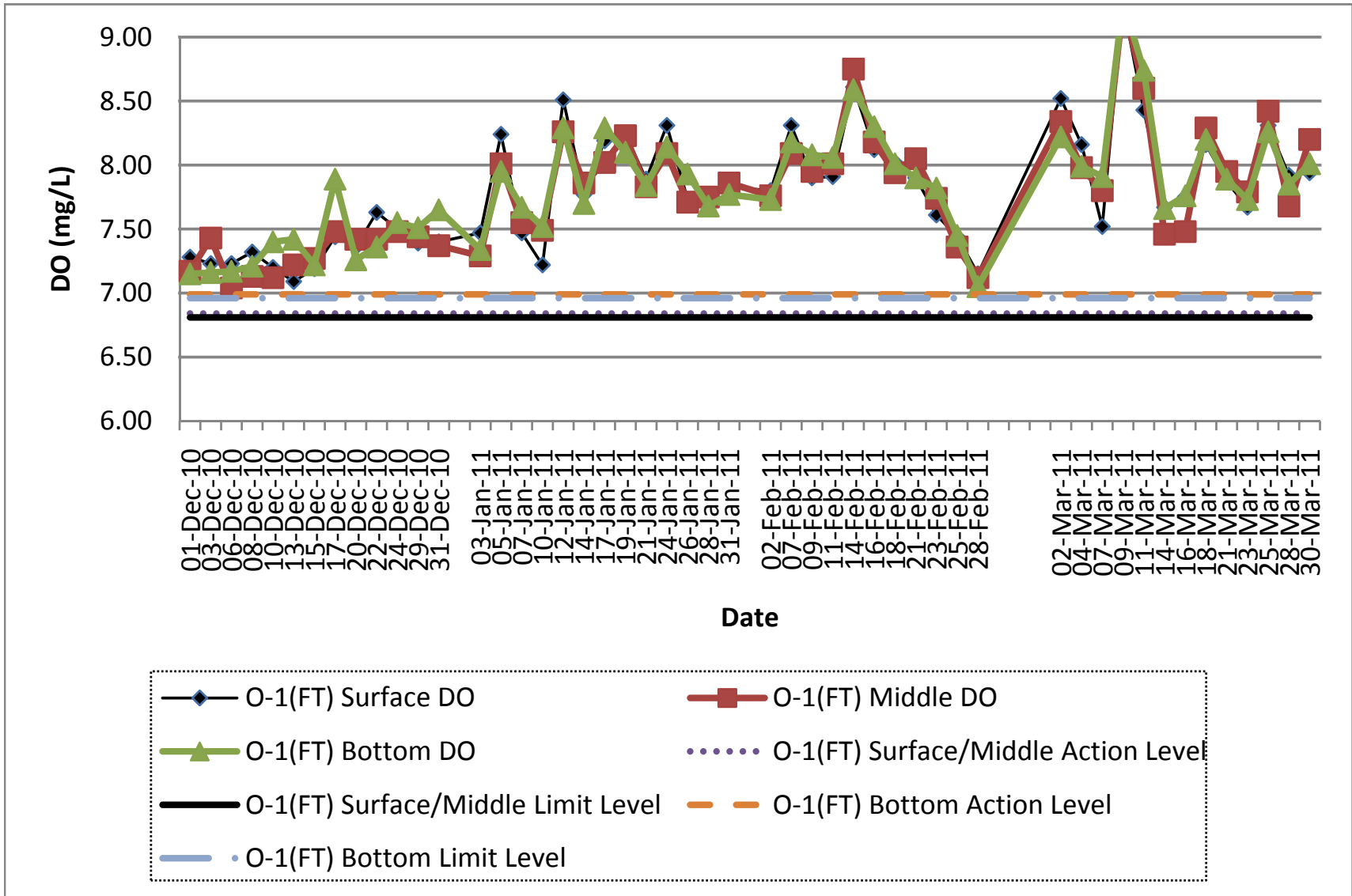
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Outfall 1 During Ebb Tide (O-1(ET))
 Dec-10 to Mar-11**



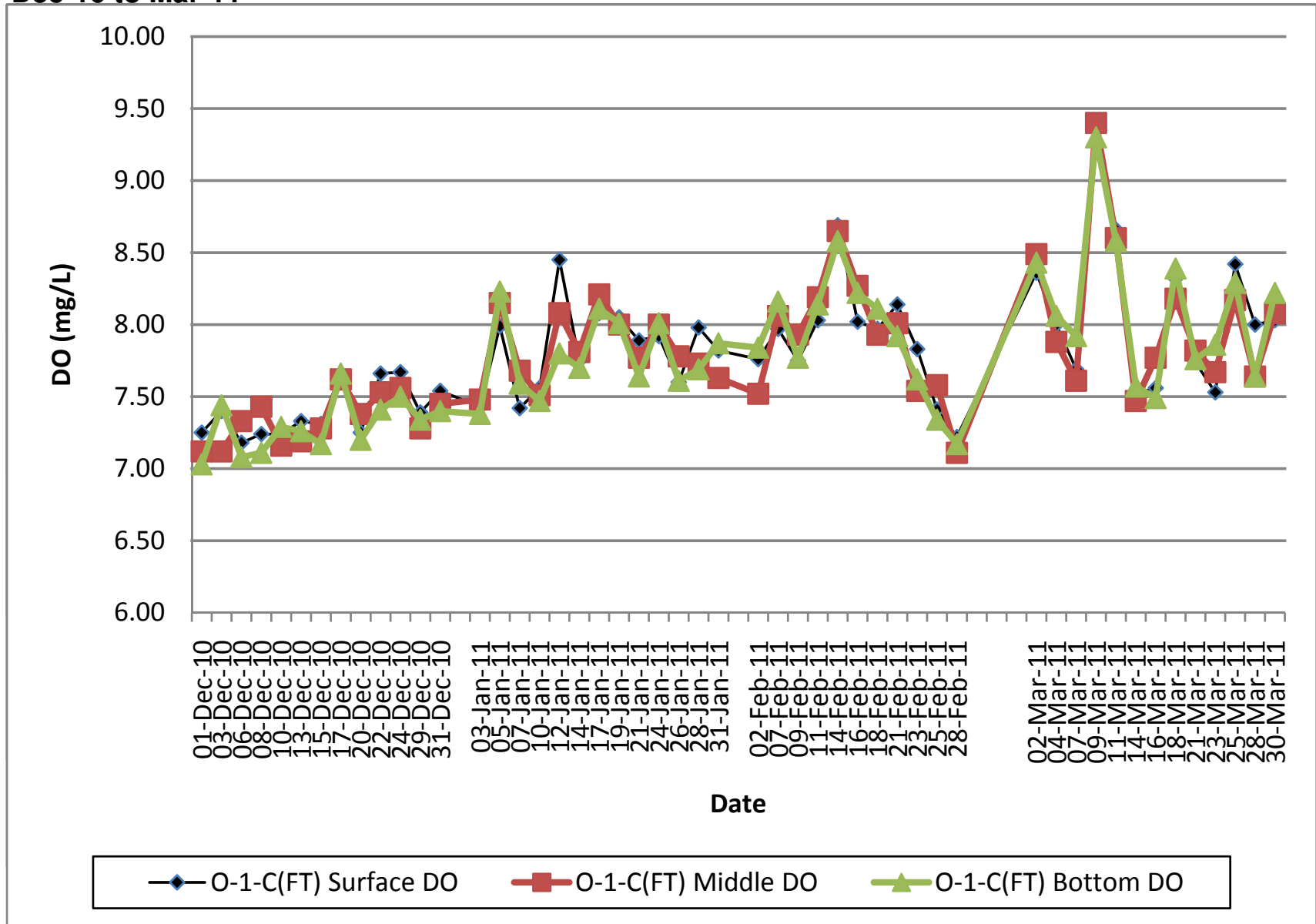
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Control of Outfall 1 During Ebb Tide (O-1-C(ET))
 Dec-10 to Mar-11**



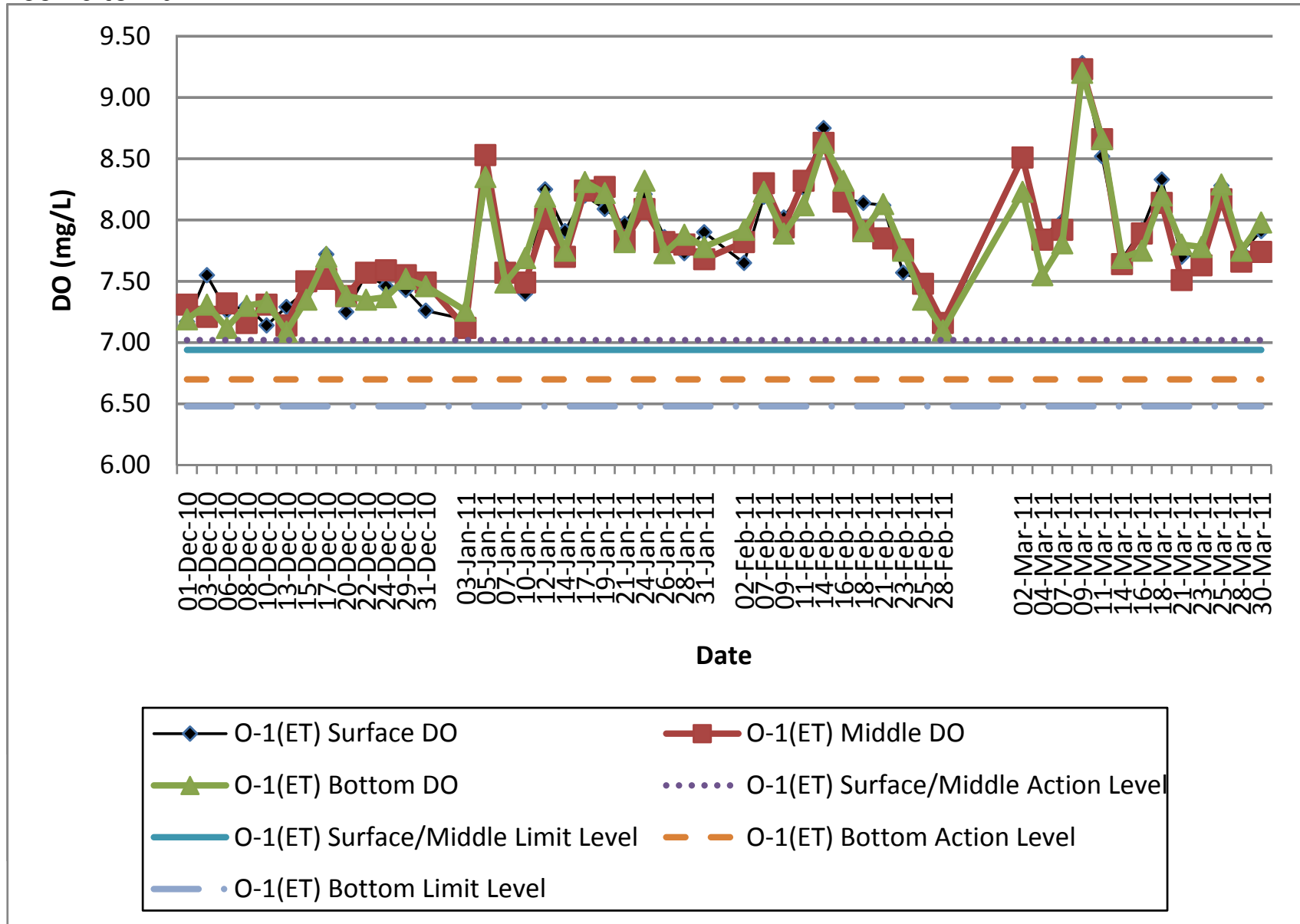
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 Water Quality Results at Outfall 1 During Flood Tide (O-1(FT))
 Dec-10 to Mar-11**



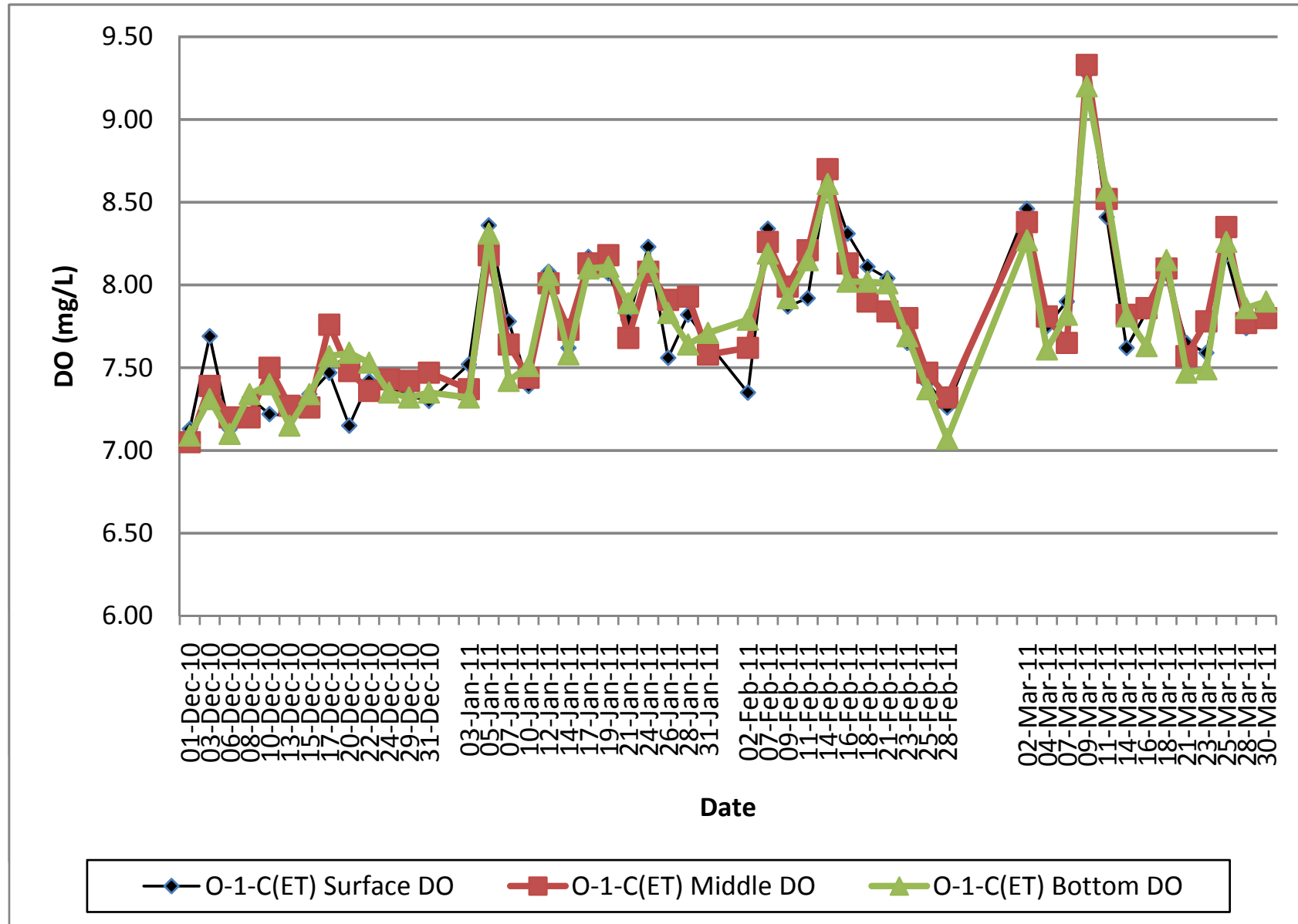
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 Water Quality Results at Control of Outfall 1 During Flood Tide (O-1-C(FT))
 Dec-10 to Mar-11**



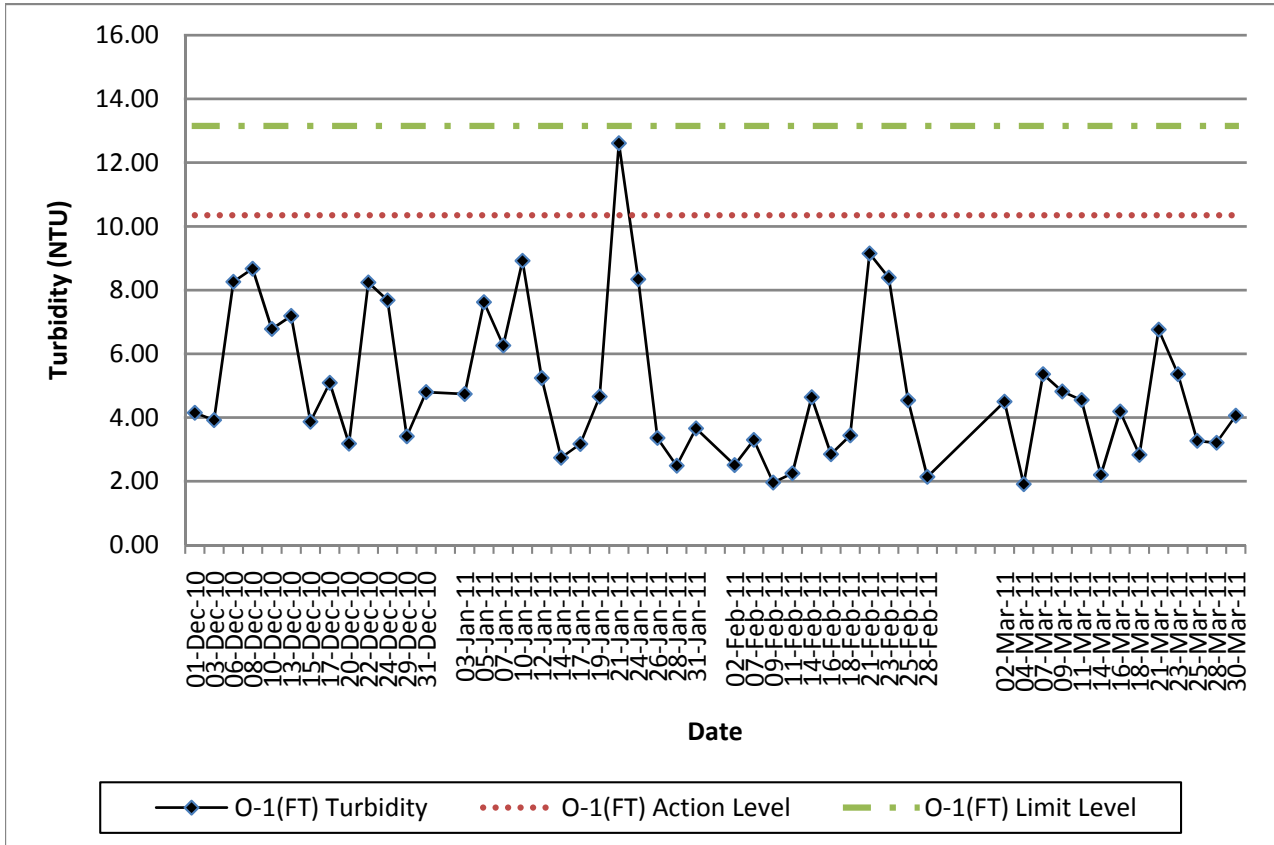
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Water Quality Results at Outfall 1 During Ebb Tide (O-1(ET))
Dec-10 to Mar-11



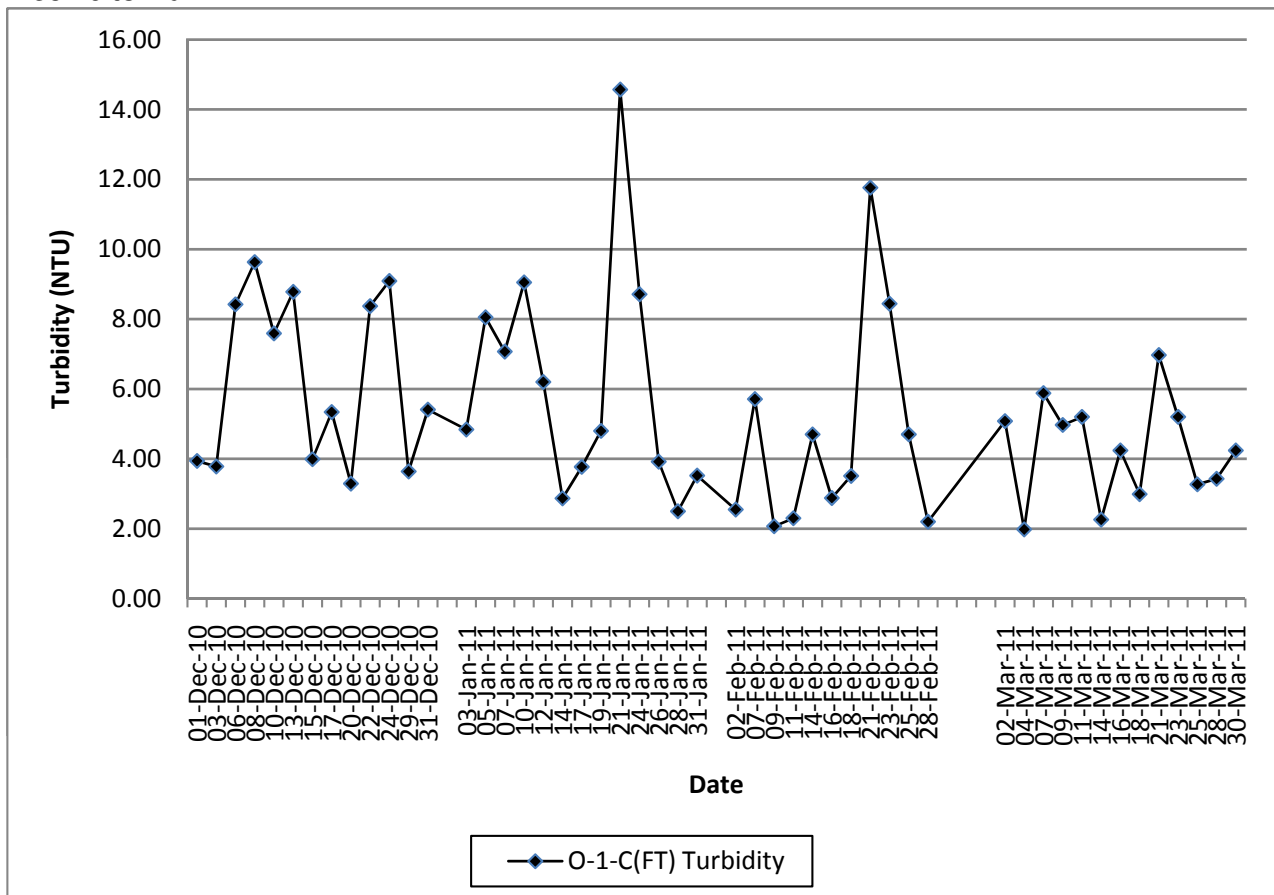
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 Water Quality Results at Control of Outfall 1 During Ebb Tide (O-1-C(ET))
 Dec-10 to Mar-11**



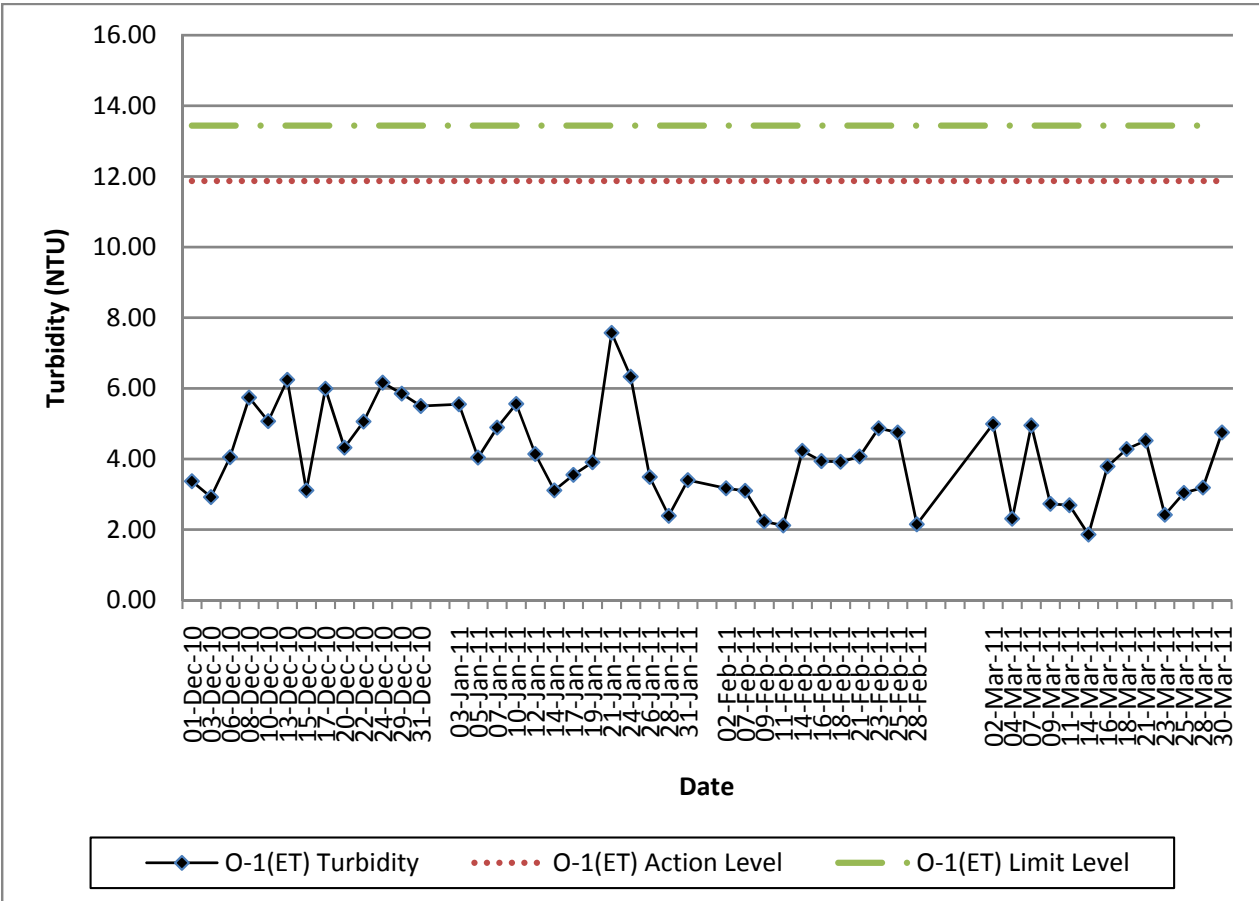
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 Water Quality Results at Outfall 1 During Flood Tide (O-1(FT))
 Dec-10 to Mar-11**



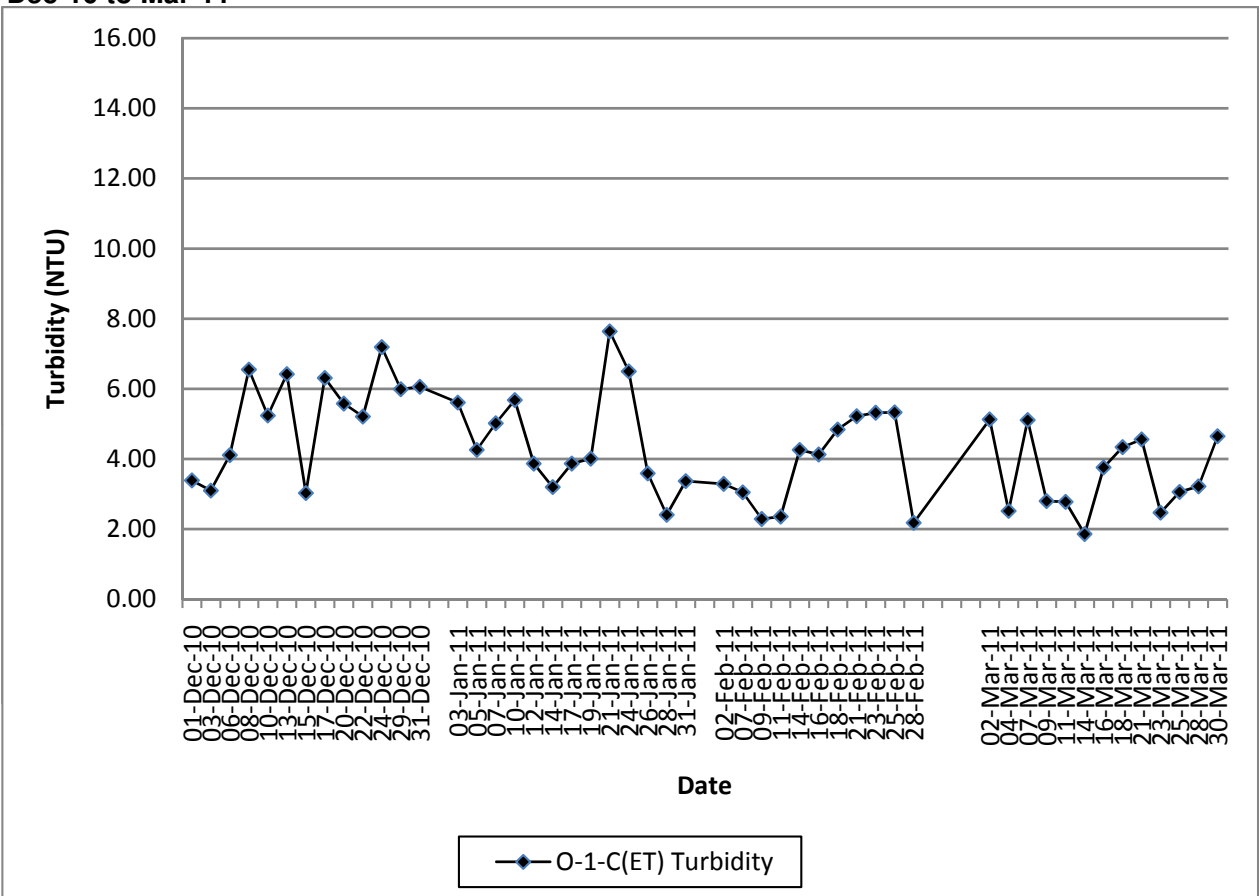
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 Water Quality Results at Control of Outfall 1 During Flood Tide (O-1-C(FT))
 Dec-10 to Mar-11**



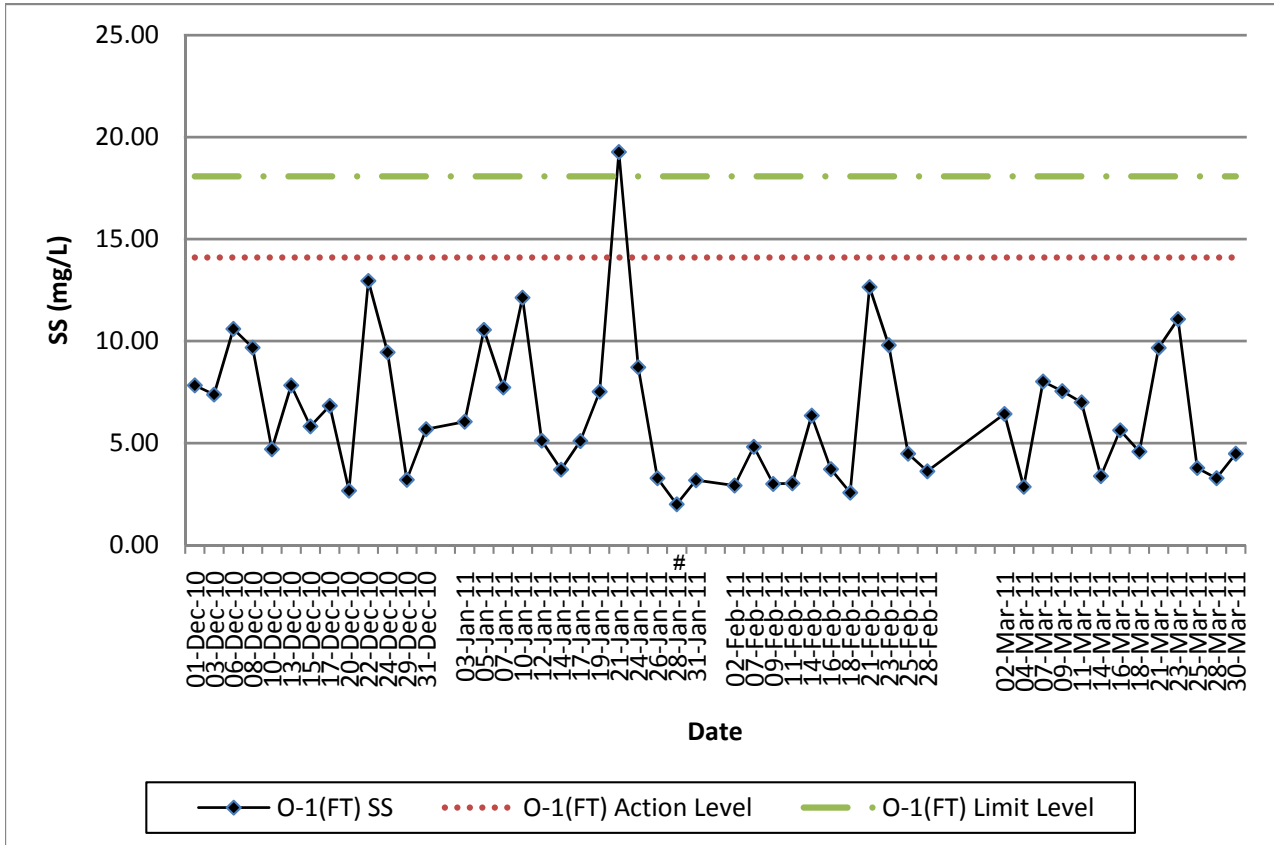
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Outfall 1 During Ebb Tide (O-1(ET))
Dec-10 to Mar-11**



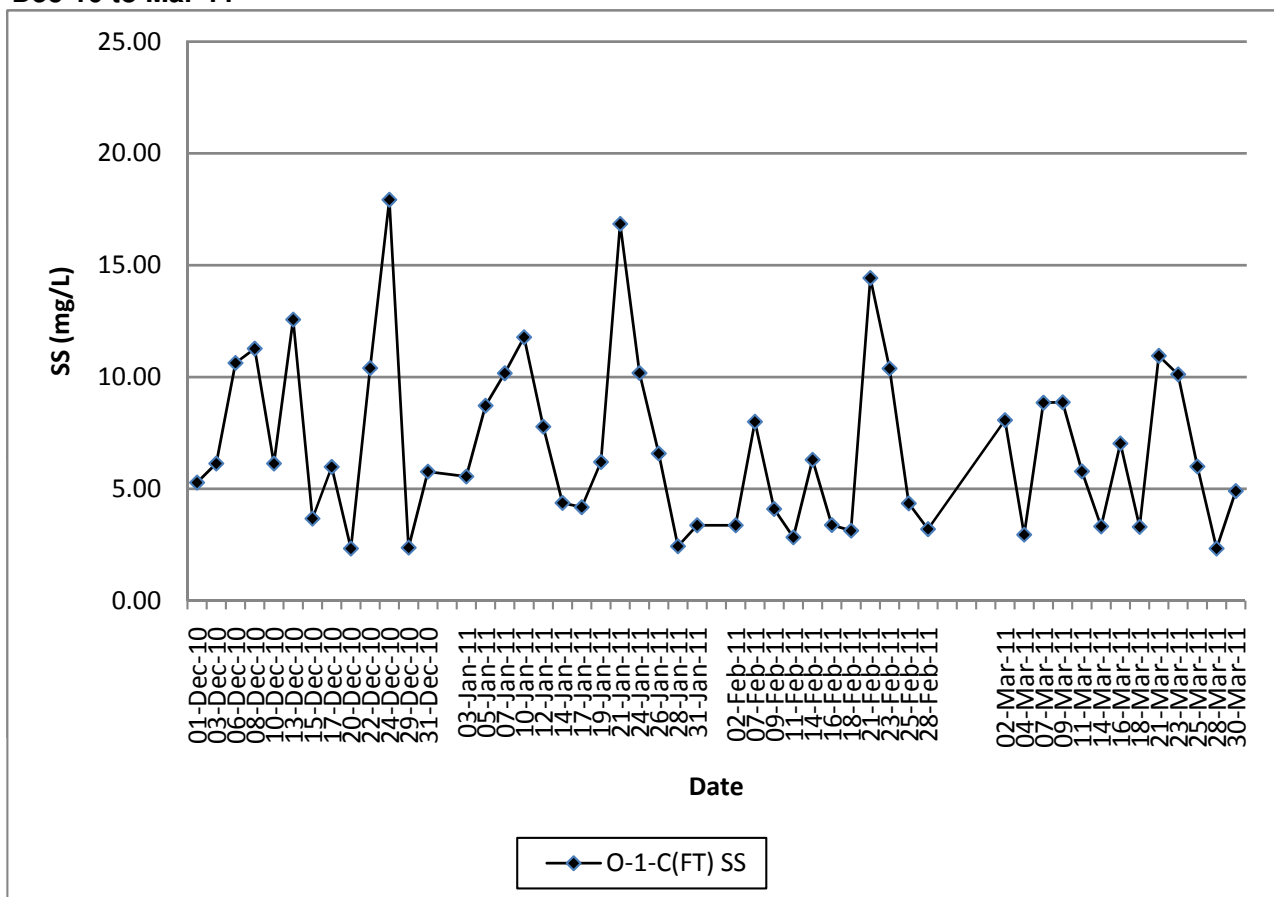
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Water Quality Results at Control of Outfall 1 During Ebb Tide (O-1-C(ET))
Dec-10 to Mar-11**



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Water Quality Results at Outfall 1 During Flood Tide (O-1(FT))
Dec-10 to Mar-11**

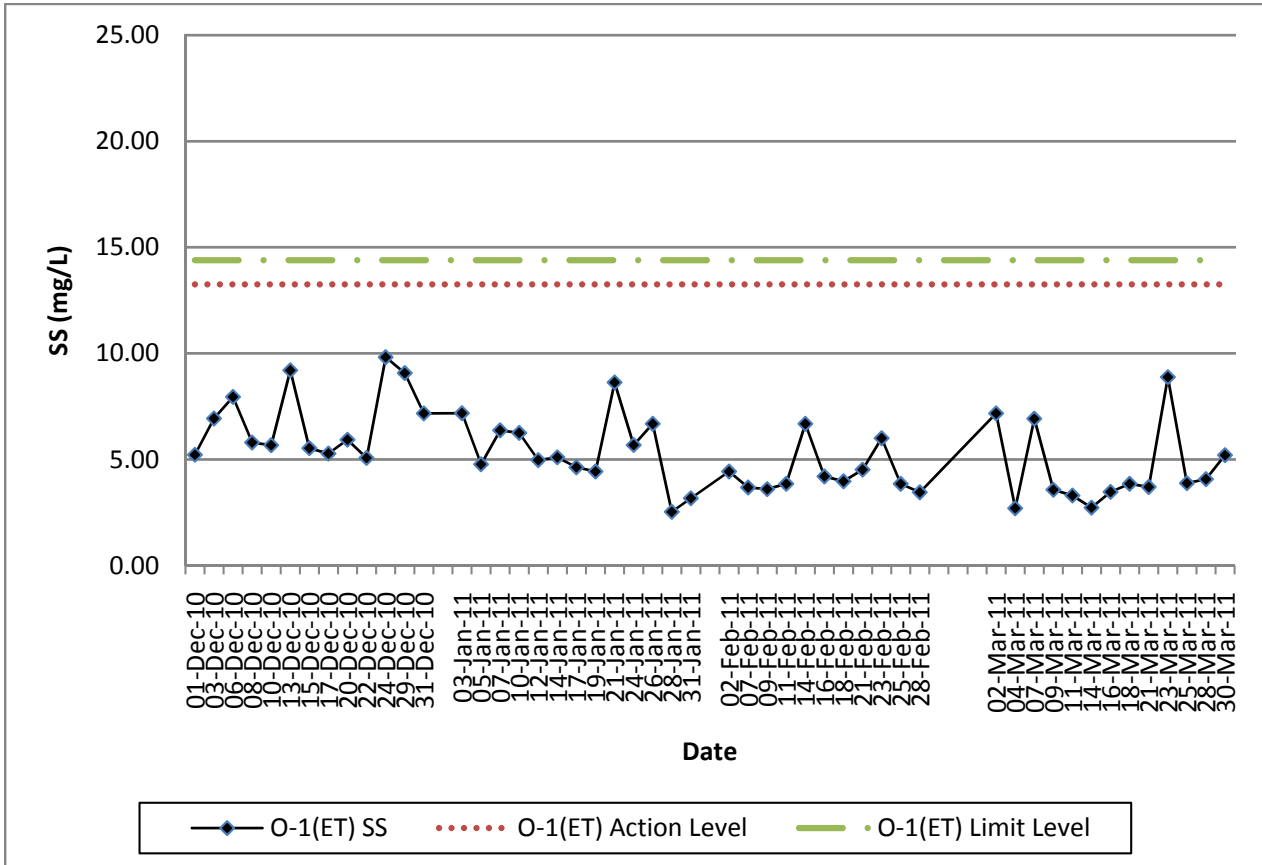


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Water Quality Results at Control of Outfall 1 During Flood Tide (O-1-C(FT))
Dec-10 to Mar-11**

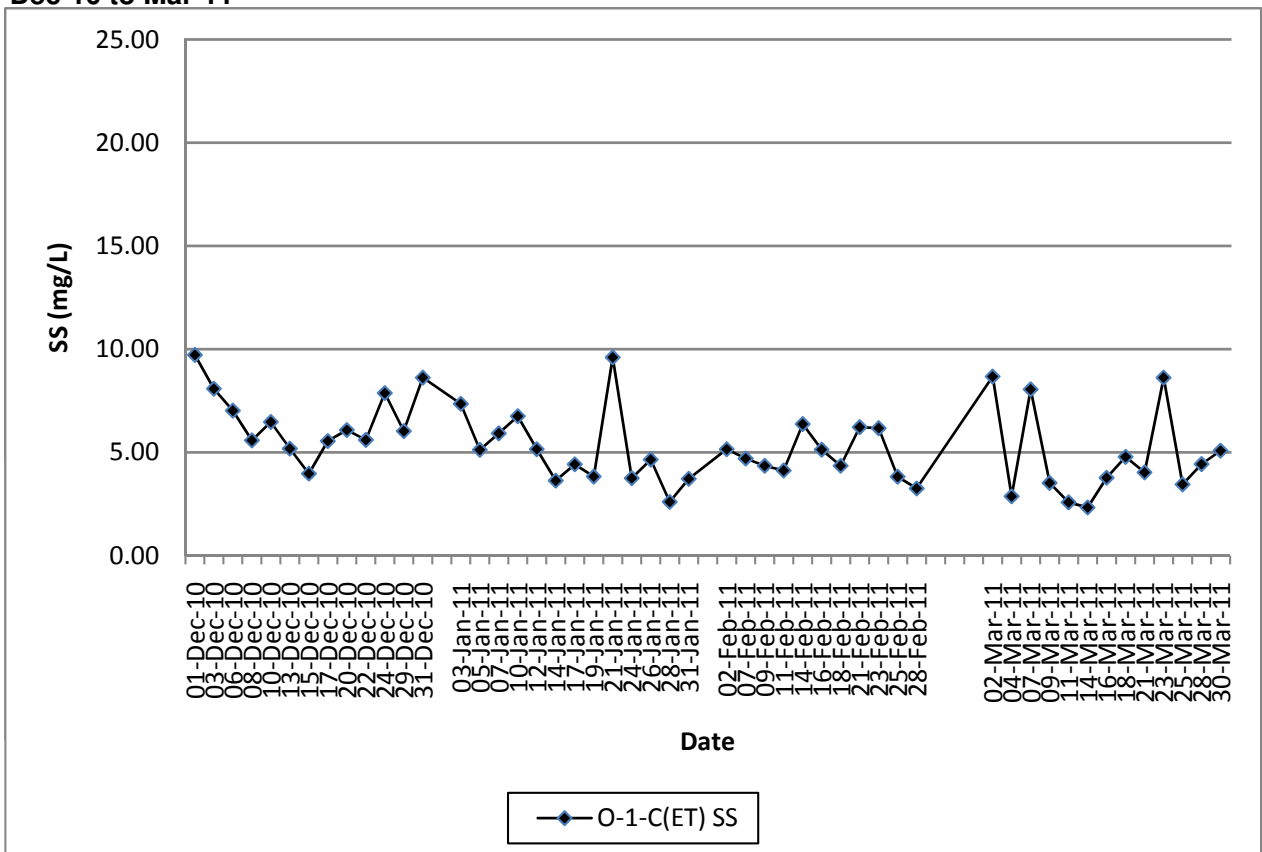


Note #: For SS level smaller than 2.00 mg/L,
The level is plotted as 2.00 mg/L in the graph.

**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Outfall 1 During Ebb Tide (O-1(ET))
 Dec-10 to Mar-11**



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Control of Outfall 1 During Ebb Tide (O-1-C(ET))
 Dec-10 to Mar-11**




Appendix J

Interim Notifications of Environmental Quality Limits Exceedances

Interim Notifications of Environmental Quality Limits Exceedances

Incident Report on Action Level Non-compliance

| | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 02-Mar-11 |
| Time | 10:12 AM |
| Monitoring Location | Sik Sik Yuen Ho Fung College (I-1) |
| Parameter | Turbidity |
| Action & Limit Levels (NTU) | 9.75 / 12.47 |
| Measured Level (NTU) | 10.60 |
| Possible reason for Action or Limit Level Non-compliance | A high turbidity level of 10.88 NTU was recorded at Control Station (I-1-C). |
| Actions taken / to be taken | The measured turbidity level was above the baseline Action Level, but lower than the turbidity level of the control station (I-1-C) and within the range of baseline turbidity concentration (3.13 - 13.15 NTU). General site cleaning, rebar fixing at cascade, formwork for cascade, breaking slab of nullah, erecting working platform and geotechnical instrumentation monitoring were undertaken during the measurement. No direct disturbance was observed from the site. Thus, the exceedance was considered to be contributed by natural variation and no action was required. |
| Remarks | Following mitigation measures were provided: (1) Waste water was collected and diverted to on-site waste water treatment plant for treatment before discharge; and (2) Nullah and site area were separated by sealed concrete block. |

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 04-Mar-11

Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1)
on 02-Mar-11



Site photo



Photo taken at I-1



Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

| | |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 02-Mar-11 |
| Time | 10:12 AM |
| Monitoring Location | Sik Sik Yuen Ho Fung College (I-1) |
| Parameter | Suspended Solids |
| Action & Limit Levels (mg/L) | 8.85 / 10.17 |
| Measured Level (mg/L) | 13.40 |
| Possible reason for Action or Limit Level Non-compliance | A high SS level of 13.65 mg/L was recorded at Control Station (I-1-C) |
| Actions taken / to be taken | The measured SS level was above the baseline limit level, but lower than the SS level of the control station (I-1-C). General site cleaning, rebar fixing at cascade, formwork for cascade, breaking slab of nullah, erecting working platform and geotechnical instrumentation monitoring were undertaken during the measurement. No direct disturbance was observed from the site. Thus, the exceedance was considered to be contributed by natural variation and no action was required. |
| Remarks | Following mitigation measures were provided: (1) Waste water was collected and diverted to on-site waste water treatment plant for treatment before discharge; and (2) Nullah and site area were separated by sealed concrete block. |

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader

Signature:



Date: 10-Mar-11

Photographic record for exceedance of Suspended Solids recorded at Sik Sik Yuen Ho Fung College (I-1) on 02-Mar-11



Site photo



Photo taken at I-1



Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

| | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 4-Mar-11 |
| Time | 10:28 AM |
| Monitoring Location | Sik Sik Yuen Ho Fung College (I-1) |
| Parameter | Suspended Solids |
| Action & Limit Levels (mg/L) | 8.85 / 10.17 |
| Measured Level (mg/L) | 11.25 |
| Possible reason for Action or Limit Level Non-compliance | A high SS level of 12.00 mg/L was recorded at Control Station (I-1-C) |
| Actions taken / to be taken | The measured SS level (11.25 mg/L) was above the baseline limit level (10.17 mg/L), but lower than the SS level of the upstream control station (I-1-C) (12.00 mg/L). General site cleaning, cascade Bay 1 formwork for staircase, breaking slab of nullah, installation of rebar at spiral ramp roof slab, and geotechnical instrumentation monitoring were undertaken during the measurement. No direct disturbance was observed from the site. Thus, the exceedance was considered to be contributed by natural variation and no action was required. |
| Remarks | Following mitigation measures were provided: (1) Waste water was collected and diverted to on-site waste water treatment plant for treatment before discharge; and (2) Nullah and site area were separated by sealed concrete block. |

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader

Signature:



Date: 11-Mar-11

Photographic record for exceedance of Suspended Solids recorded at Sik Sik Yuen Ho Fung College (I-1) on 04-Mar-11



Site photo



Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Action Level Non-compliance

| | |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 11-Mar-11 |
| Time | 10:28 AM |
| Monitoring Location | O-1(FT) |
| Parameter | Suspended Solids (SS) |
| Action & Limit Levels (mg/L) | 14.10 / 18.08 (derived from the baseline monitoring data) |
| Measured Level (depth-averaged) at Monitoring Location (mg/L) | 7.00 |
| Control Station | O-1-C(FT) |
| Measured Level (depth averaged) at Control Station (mg/L) | 5.78 |
| Possible reason for Action or Limit Level Non-compliance | The measured SS level (depth-averaged) at O-1(FT) was below the baseline Action/Limit Level but was higher than 120% of the control station's SS level (O-1-C(FT)) at the same tide of the same day. Only silt curtain maintenance and relocation of excavated materials from derrick to split barge were undertaken and there was no other marine works during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required. |
| Actions taken / to be taken | (1) Silt curtain had been provided along the Portion E boundary line and extended from seawater level to the bottom of seabed; (2) Floating type silt curtain had been employed at the inner side; (3) Sufficient slack of silt curtain was allowed to cope with the wave and tidal action to ensure the curtains (outer and inner) were rested on seabed. |
| Remarks | None |

Prepared by: F. C. Tsang
 Designation: Environmental Team Leader
 Signature:



Date: 18-Mar-11

Photographic record for exceedance of Suspended Solids (SS) recorded at O-1(FT) on 11-Mar-11



Site photo

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Action Level Non-compliance

| | |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 11-Mar-11 |
| Time | 2:45 PM |
| Monitoring Location | O-1(ET) |
| Parameter | Suspended Solids (SS) |
| Action & Limit Levels (mg/L) | 13.25 / 14.39 (derived from the baseline monitoring data) |
| Measured Level (depth-averaged) at Monitoring Location | 3.30 |
| Control Station | O-1-C(ET) |
| Measured Level (depth averaged) at Control Station (mg/L) | 2.58 |
| Possible reason for Action or Limit Level Non-compliance | The measured SS level (depth-averaged) at O-1(ET) was below the baseline Action/Limit Level but higher than 120% of the control station's SS level (O-1-C(ET)) at the same tide of the same day. Only silt curtain maintenance and relocation of excavated materials from derrick to split barge were undertaken and there was no other marine works during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required. |
| Actions taken / to be taken | (1) Silt curtain had been provided along the Portion E boundary line and extended from seawater level to the bottom of seabed; (2) Floating type silt curtain had been employed at the inner side; and (3) Sufficient slack of silt curtain was allowed to cope with the wave and tidal action to ensure the curtains (outer and inner) were rested on seabed. |
| Remarks | None |

Prepared by: F. C. Tsang

Designation: Environmental Team Leader

Signature:



Date: 18-Mar-11

Photographic record for exceedance of Suspended Solids (SS) recorded at O-1(ET) on 11-Mar-11



Site photo

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

| | |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 18-Mar-11 |
| Time | 3:40 PM |
| Monitoring Location | O-1(FT) |
| Parameter | Suspended Solids (SS) |
| Action & Limit Levels (mg/L) | 14.10 / 18.08 (derived from the baseline monitoring data) |
| Measured Level (depth-averaged) at Monitoring Location (mg/L) | 4.58 |
| Control Station | O-1-C(FT) |
| Measured Level (depth averaged) at Control Station (mg/L) | 3.30 |
| Possible reason for Action or Limit Level Non-compliance | The measured SS level (depth-averaged) at O-1(FT) was below the baseline Action/Limit Level but was higher than 130% of the control station's SS level (O-1-C(FT)) at the same tide of the same day. Besides placing rockfill for formation of seawall blocks, there was no other marine works undertaken during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required. |
| Actions taken / to be taken | (1) Silt curtain had been provided along the Portion E boundary line and extended from seawater level to the bottom of seabed; (2) Floating type silt curtain had been employed at the inner side; (3) Sufficient slack of silt curtain was allowed to cope with the wave and tidal action to ensure the curtains (outer and inner) were rested on seabed; (4) Condition of silt curtain was checked by the supervisor daily. |
| Remarks | None |

Prepared by: F. C. Tsang
 Designation: Environmental Team Leader
 Signature:



Date: 24-Mar-11

Photographic record for exceedance of Suspended Solids (SS) recorded at O-1(FT) on 18-Mar-11



Site photo

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

| | |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project | Tsuen Wan Drainage Tunnel |
| Date | 28-Mar-11 |
| Time | 2:19 PM |
| Monitoring Location | O-1(FT) |
| Parameter | Suspended Solids (SS) |
| Action & Limit Levels (mg/L) | 14.10 / 18.08 (derived from the baseline monitoring data) |
| Measured Level (depth-averaged) at Monitoring Location (mg/L) | 3.28 |
| Control Station | O-1-C(FT) |
| Measured Level (depth averaged) at Control Station (mg/L) | 2.22 |
| Possible reason for Action or Limit Level Non-compliance | The measured SS level (depth-averaged) at O-1(FT) was below the baseline Action/Limit Level but was higher than 130% of the control station's SS level (O-1-C(FT)) at the same tide of the same day. Besides installation and adjustment of the seawall blocks, there was no other marine works undertaken during monitoring. Silt curtain was deployed along the Portion E boundary line and extended from seawater level to seabed. Floating type silt curtain was also employed at the inner side. As such, the exceedance was considered to be contributed by natural variation and no further action was required. |
| Actions taken / to be taken | (1) Silt curtain had been provided along the Portion E boundary line and extended from seawater level to the bottom of seabed; (2) Floating type silt curtain had been employed at the inner side; (3) Sufficient slack of silt curtain was allowed to cope with the wave and tidal action to ensure the curtains (outer and inner) were rested on seabed; (4) Condition of silt curtain was checked by the supervisor daily; and (5) installation of seawall block was undertaken within the inner silt curtain area only. |
| Remarks | None |

Prepared by: F. C. Tsang
 Designation: Environmental Team Leader

Signature: 

Date: 01-Apr-11

Photographic record for exceedance of Suspended Solids (SS) recorded at O-1(FT) on 28-Mar-11



Site photo

Appendix K

Complaint Log

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. | <p><u>Findings/ Observations</u></p> <p>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.</p> <p><u>Conclusion/Remedial Action</u></p> <p>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.</p> <p>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.</p> <p>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</p> | 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. | <p><u>Findings/ Observations</u></p> <p>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).</p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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). <p><u>Conclusion/Remedial Action</u></p> <p>Based on the site inspection and monitoring results, the complaint is considered not justifiable since no</p> | Closed |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| | | | | | <p>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.</p> | |
| 3 | CIR-003 | 14 May 2009 at Outfall | Public through EPD | <p>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.</p> | <p>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.</p> <p>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.</p> <p>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</p> | Closed |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------|-------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| | | | | | <p>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.</p> <ul style="list-style-type: none"> • 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 ($L_{eq, 30 \text{ min}}$) 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. | <p><u>Findings/ Observations</u> 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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p><u>Conclusion/Remedial Action</u> The complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified</p> | 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 | <p><u>Findings/ Observations</u> 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</p> | Same Case with Complaint No. 11 |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| | | | | <p>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.</p> | <p>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.</p> <p><u>Conclusion/Remedial Action</u> 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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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 | |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| | | | | | <p>movable noise barriers were also modified.</p> <ul style="list-style-type: none"> • 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. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) 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 ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) 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.</p> | |
| 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 | <p><u>Findings/ Observations</u></p> <p>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</p> | Closed |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------|-------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| | | | | <p>generated at the outfall construction site. The complaint date was corresponded to 12 August 2009.</p> | <p>Action and Limit Levels from 6 July 2009 to 25 August 2009.</p> <p><u>Conclusion/Remedial Action</u></p> <p>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.</p> <p>On the other hand, there was no noise levels ($L_{eq(30min)}$) 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:</p> <ul style="list-style-type: none"> • 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 | |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
|---------------|----------|---------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| | | | | | <p>been replaced by another breaking tap.</p> <ul style="list-style-type: none"> 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. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) 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 ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) 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.</p> | |
| 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. | <p><u>Findings/ Observations</u> 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.</p> <p><u>Conclusion/Remedial Action</u> 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:</p> | Same Case with Complaint No. 11 |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
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| | | | | | <ul style="list-style-type: none"> • 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. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) 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 ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73</p> | |

| Complaint No. | Log Ref. | Date/Location | Complainant | Details of Complaint | Investigation / Mitigation Action | Status |
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| | | | | | 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. | <p><u>Findings/ Observations</u> 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.</p> <p><u>Conclusion/Proposed Action</u> 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:</p> <ul style="list-style-type: none"> • 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. <p>Noise monitoring frequency was increased twice per</p> | 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. | <p><u>Findings/ Observations</u> 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.</p> <p><u>Conclusion/Proposed Action</u> 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:</p> <ul style="list-style-type: none"> • 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 |
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| | | | | | <p>should be placed to the breaking activities as much as possible.</p> <ul style="list-style-type: none"> • 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. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) 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 ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) 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.</p> | |
| 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 | <p><u>Findings/ Observations</u></p> <p>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</p> | Closed |

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| | | | | (Leq(30min)) was sometimes exceeded 75 dB(A) at the outfall construction site. | <p>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.</p> <p><u>Conclusion/Proposed Action</u></p> <p>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:</p> <ul style="list-style-type: none"> • 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. | |

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| | | | | | <p>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.</p> | |
| 12 | CIR-011 | 2 October 2009 at I-3 | Public through EPD | <p>EPD has received a complaint (EPD ref: EP3/N22/RW/22016-09) regarding to construction dust at the Intake-3 on 2 October 2009.</p> | <p><u>Findings/ Observations</u></p> <p>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:</p> <ul style="list-style-type: none"> • 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 <p><u>Conclusion/Proposed Action</u></p> <p>Based on our site inspection, the complaint for dust is</p> | Closed |

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| | | | | | 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. | <p><u>Immediate Action</u> The rig was re-orientated and the barrier was placed closed to the drilling head.</p> <p><u>Follow-up Action</u></p> <ul style="list-style-type: none"> • 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. <p>The follow up action was checked and a permit to dig system has been implemented.</p> | 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. | <p><u>Follow up Action</u></p> <ul style="list-style-type: none"> • 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 |

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| | | | | | <ul style="list-style-type: none"> The mitigation measures were strictly followed as stated in the proposal. <p>The follow up action and relevant records was checked.</p> | |
| 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. | <p><u>Findings/ Observations</u> 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.</p> <p><u>Immediate Action</u> The contractor had sealed the gap at the Gabion Wall immediately after the incident.</p> <p><u>Conclusion/Proposed Action</u> 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.</p> | 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. | <p><u>Findings/ Observations</u> 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</p> | Closed. |

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| | | | | | <p>investigation on the subject area in response to complaint. The noise mitigation measures during the site investigation were recommended as follows:</p> <ul style="list-style-type: none"> • 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. <p><u>Conclusion/Proposed Action</u> 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.</p> | |
| 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 |
| 18 | CIR-14 | 27 August 2010 near Intake-2 construction site | Public through DSD | DSD has received a public complaint regarding choked sewage manhole (MH1) at Lo Wai Road construction site on 27 August 2010. | <p><u>Findings/ Observations</u> During DSD inspection on 30 August 2010, improper discharge from the site to manhole, MH3, which is located downstream of MH1 was observed. ET had received those information from the Contractor on 09</p> | Closed |

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| | | | | | <p>September 2010. Site investigation was also carried out by SOR's representative with the Contractor on 01 September 2010. Checking with the site log, the construction activity at Lo Wai on 27 August 2010 was pipe jacking only. No site formation works was undertaken. The contractor and SOR's representative have undertaken site investigation on the subject area on 01 September 2010. On-site flow test at Portion G had conducted.</p> <ul style="list-style-type: none"> ● Maeda works area is located at the lower section of Lo Wai Road and manhole MH3 is adjacent to the works area. MH1 (choked sewage manhole) is located at the upper section of Lo Wai Road. MH2 manhole is located middle section of Lo Wai Road. MH1 and MH2 are outside the works area. ● Water flow test for manhole MH2 and MH3 and no blockage was observed. ● Sewage overflow was found at MH1 during the joint site inspection on 01 September 2010 ● It was reported that there were water pipes connected between the site and the MH3. Discharge was found in MH3 during DSD inspection. ● The contractor claimed that the purpose of the water pipes was to direct the storm water and underground water inside the concrete pipe "pipe jacking". ● There was no discharge license for that portion. The Contractor had stopped on 01 September 2010 the water pumping to MH3 and apply the discharge license for the Lo Wai site. <p><u>Conclusion/Proposed Action</u> Based on the joint site inspection, the choked manhole MH1 was not due to works activities. The Contractor had clean up the choked manhole MH1</p> | |

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| | | | | | and no sewage overflow from MH1 was observed. The Contractor was requested to divert the storm water to desilting system prior to discharge while no such discharge can be made until a valid discharge license is granted. The ET will closely inspect the vicinity area during the routine site inspections and provide advice to the Contractor as necessary. | |
| 19&20 | CIR-15 | 17 November 2010 at outfall construction site | Public through EPD | EPD has received a public complaint (EPD ref: EP3/N22/RW/24002-10 and EP3/N22/RW/24006-10) regarding daytime construction noise about derrick barge squeaking and rock breaking at Outfall construction site on 17 November 2010. | <p><u>Findings/ Observations</u> Drilling, excavation, marine mud dredging, rock breaking, mucking-out process and crane operation were observed during site inspections on 2 and 17 December 2010. The monitoring results measured on 15 November 2010 and 25 November at NSR 9 showed that the measured noise levels complied with the limit level (75 dB(A)) in accordance with the EIAO-TM. As part of the investigation of the noise complaints, the Contractor and the ET conducted additional site inspections and reviewed and audited the current noise mitigation practices and the Contractor's environmental performance on-site.</p> <p><u>Conclusion / Proposed Action</u> The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:</p> <ul style="list-style-type: none"> ● Erection of temporary noise insulation sheet at the rim of the spiral ramp construction site; ● Moveable barriers for rock breaker; ● Wrapping noise absorptive material at the rock breaker head; ● Tailor made noise enclosure for drilling rig; ● Semi-enclosed muck out process at muck hopper; | Closed |

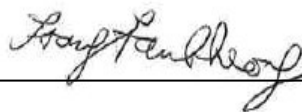
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| | | | | | <ul style="list-style-type: none"> ● Use of rock splitter (which is a relatively quieter method in contrast to rock breaker); and ● Noise insulation blanket enclosing the crane engine of derrick barge. <p>Noise monitoring was increased to twice per week and the results were reported in the Complaint Investigation Report submitted on 24 December 2010. The measured noise level after implementation of the noise mitigation measures ranged from 69 to 73 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.</p> | |
| 21 | CIR-16 | 10 January 2011 at outfall construction site | Public through EPD | EPD has received a public complaint (EPD ref: EP3/N22/RW/00484-11) regarding dark smoke emission from derrick barge and construction noise and dust at Outfall construction site on 10 January 2011. | <p><u>Findings/ Observations</u></p> <ol style="list-style-type: none"> 1. <u>Dark Smoke Emission from Derrick Barge</u> Dark smoke emitted from the derrick barge was promptly investigated after the receipt of the complaint. The issue was found specific to the mechanical operation of the barge working at the site at that moment. The derrick barge being complained was then replaced by another barge without the relevant mechanical issue. No further complaint was received since then. 2. <u>Construction Dust</u> Regular 1-hour TSP monitoring, in accordance with EM&A Manual, was carried out by the Environmental Team (ET). The monitoring station concerned is ASR 9, located at the podium level of Greenview Terrace facing the construction site. In January, 1 hour TSP | Closed |

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| | | | | | <p>concentration monitoring had been conducted on 4, 10, 14, 20 and 26 January 2011 at Greenview Terrace (ASR). Rock breaking, drilling and excavation were observed during monitoring. No exceedance was recorded.</p> <p>The contractor and the environmental team were also undertaken site investigation at the subject area on 21 January 2011 in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA had been provided by the Contractor. The mitigation measures are as follows:</p> <ul style="list-style-type: none"> ● Water spraying surrounding the spiral ramp; ● Water spraying for rock drilling and rock breaking; ● Water spraying for C&D material before loading and unloading to derrick barge; ● Water spraying for the exposed surface and the haul road; ● Water spraying for trucks and vehicles at the site exit. <p>3. <u>Construction Noise</u></p> <p>The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:</p> <ul style="list-style-type: none"> ● Extension of Temporary noise insulation barrier (made of noise blanket) at the rim of the spiral ramp construction site facing Greenview Terrace; ● Movable noise barriers to surround the rock breaking activities at the spiral ramp where it is in safe ground condition; ● Tailor made noise enclosure for rock drilling machine; | |

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| | | | | | <ul style="list-style-type: none"> ● Semi-enclosed muck out process at muck hopper (with noise curtain underneath); ● Use of temporary noise enclosure for piling work at Castle Peak Road; ● Noise insulation blanket enclosing the crane engine of derrick barge; ● Additional noise blanket along the railings of the spiral ramp; and ● Use of rock splitter (which is a relatively quieter method in contrast to rock breaker). <p>Noise monitoring has been increased to twice per week and the results will be reported in the Complaint Investigation Report to be submitted in mid-February 2011. The measured noise level after implementation of the noise mitigation measures ranged from 71 to 74 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.</p> <p><u>Conclusion / Proposed Action</u></p> <ol style="list-style-type: none"> 1. <u>Dark Smoke Emission from Derrick Barge</u> Dark smoke emitted from the derrick barge was considered a stand-alone incident and was specific to the derrick barge being complained. No further complaint was received after the barge was replaced by another. 2. <u>Construction Dust</u> Based on our site inspection and monitoring results, | |

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| | | | | | <p>the complaint was considered not justifiable since no action and limit level exceedance on construction dust were identified. Air quality mitigation measures as recommended in EIA were implemented in order to control and minimize the air quality impact and nuisance arising from the construction activities. Nevertheless, the Contractor was reminded to enhance the air quality mitigation measures such as increasing the water spraying frequency and ensure proper functioning of the automatic sprinklers at the Outfall construction site.</p> <p>3. <u>Construction Noise</u></p> <p>Noise measurement results between 10 and 28 January 2011 were below the limit level (75 dB(A)) and complied with the noise criterion. The Contractor had implemented various mitigation measures on site to alleviate the construction noise impact. The ET will remind the Contractor to enhance and maintain the normal functioning of the measures continuously to minimize the impact. The Contractor should also closely liaise with the nearby residents and inform the progress of the construction and the implementation of the environmental mitigation measures at the Outfall construction site.</p> | |

Signed by Environmental Team Leader:



Date:

1 April 2011