Dragages-Nishimatsu Joint Venture

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

Quarterly EM&A Report

(version 1.0)

April to June 2009

Approved By	(Environmental Team Leader)

REMARKS:

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 5th Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the "Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel" (the Project). This summary report presents EM&A works performed in the period between April and June 2009.

2. The construction activities undertaken in the reporting quarter were:

- Further establishment of project organization and staffing;
- TBM assembly and installation of temporary facilities at Eastern Portal;
- Initial TBM excavation, TBM excavation and installation of temporary facilities at Western Portal;
- Initial TBM excavation, installation of temporary facilities and permanent slope works at Eastern Portal;
- Construction of temporary cofferdam and ELS works at Intake W0;
- Site establishment works at Intakes SM1 and THR2;
- Utilities trial pits and additional site investigation works at 9 locations (April);
- Utilities trial pits and additional site investigation works at 10 locations (May);
- Utilities trial pits and additional site investigation works at 5 locations (June);
- Approved in Principle (AIP) & Detailed Design Approval (DDA) submissions for Adit/Main Tunnel Intersection, Adits, Stilling Chambers and Turning Bays and temporary and permanent works for Dropshafts and Intake Structure;
- Environmental impact monitoring;
- Casting of tunnel segments;
- Delivery and inland transportation of East TBM; and
- Casting of tunnel segments.

Environmental Monitoring Works

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

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

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

Parameter	Number of Exceedances due to the Project		Action Taken	Results of Action Taken
	Action Level	Limit Level		
Eastern Portal				
April 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
May 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
June 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
Ground Borne Noise	0		N.A.	N.A.
Western Portal				
April 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
Water Quality	0	0	N.A.	N.A.
Ground Borne Noise	0		N.A.	N.A.
May 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
Water Quality	0	0	N.A.	N.A.
Ground Borne Noise	0		N.A.	N.A.
June 2009				
1-hr TSP	0	0	N.A.	N.A.
24-hr TSP	0	0	N.A.	N.A.
Noise	0	0	N.A.	N.A.
Water Quality	0	0	N.A.	N.A.
Ground Borne Noise	0		N.A.	N.A.
Intake W0				
April 2009				
Noise	0	0	N.A.	N.A.
May 2009				
Noise	0	0	N.A.	N.A.
June 2009				
Noise	0	0	N.A.	N.A.

Air Quality

1-hour TSP Monitoring

5. 1-hour TSP monitoring at 2 monitoring stations, AQ1 and AQ2, was conducted as scheduled in the reporting period. No Action/Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting quarter.

24-hour TSP Monitoring

6. 24-hr TSP monitoring at 2 monitoring station, AQ1 and AQ3, was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting quarter.

Construction Airborne Noise

7. Noise monitoring at 4 monitoring stations, NC1/NC1a, NC2, NC3 and NC15 was conducted as schedule in the reporting period except noise monitoring on 26 June 2009 during the period between 1900 and 0700 was cancelled due to the adverse weather condition (Tropical Cyclone Warning Signal. No. 3). No Action/Limit Level exceedance was recorded.

Construction Ground Borne Noise

8. Construction ground borne noise monitoring at GNC1, GNC2, GNC3 and GNC4 was conducted as scheduled in the reporting period except noise monitoring on 26 June 2009 during the period between 1900 and 0700 was cancelled due to the adverse weather condition (Tropical Cyclone Warning Signal. No. 3). No exceedance was recorded.

9. Construction Ground Borne Noise Monitoring at GNC3 was temporary suspended since 7 May 2009 as the ISS EastPoint Property Management Ltd. received an instruction from the Incorporated Owners of Aegean Terrace that we are not permitted to conduct any noise monitoring inside Aegean Terrace for the Project.

Water Quality

10. Water quality monitoring was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded.

Environmental Licensing and Permitting

11. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, An Environmental Permit No. EP-272/2007 was issued on 26 April 2007 and Environmental Permit No. EP-272/2007/A was issue on 26 October 2007. Later, the further Environmental Permit (FEP-01/272/2007/A) and (FEP-01/272/2007/B) was issued on 28 January 2008 and 25 June 2009 to Dragages-Nishimatsu Joint Venture.

12. Registration of Chemical Waste Producer (License: 5213-148-D2393-02 for Eastern Portal and No. 5213-172-D2393-01 for Western Portal), Water Discharge License (License No.: EP860/W10/XY0175 for Area of Mount Butler Office, EP860/W10/XY0177 for Eastern Portal, EP820/W9/XT086 for Western Portal, EP680/W10/XY0183 for Intake W0, WT00003372-2009 for Intake SM1, WT00003737-2009 for Intake MB16 and WT00003738-2009 for THR2) and Construction Noise Permit (License No.: GW-RS0300-09 for Eastern Portal, GW-RS0213-09 for Western Portal and GW-RS0299-09 for Intake W0) in April 2009, CNP (Construction Noise Permit (License No.: GW-RS0300-09 for Eastern Portal, GW-RS0382-09 for Western Portal and GW-RS0299-09 for Intake W0) in May 2009 and CNP (License No.: GW-RS0404-09 for Eastern Portal, GW-RS0382-09 for Western Portal and GW-RS0408-09 for Intake W0) in June 2009.

Key Information in the Reporting Quarter

13. Summary of key information in the reporting quarter is tabulated in Table II.

Table II Summary Table for Key Information in the Reporting Quarter

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received (April 09)	2	Construction Noise at Western Portal (3)	Complaint of Construction Noise at WP	Verified by IEC	Closed
	1		Complaint of Construction Noise generated at night by The Hong Kong West Drainage Tunnel Construction Works at Western Portal		
Complaint received (May 09)	3	Construction Noise at Western Portal (2)	Complaint of Construction Noise at WP		
		Construction Noise at Eastern Portal	Complaint of Construction Noise at EP		
Complaint received (June 09)	3	Waste Management at Western Portal	Complaint of transportation and disposal of construction wastes from Hong Kong West Drainage Tunnel Construction Site at Cyberport		
		Construction Noise at Eastern Portal (2)	Complaint of Construction Noise at EP		
Changes to the assumptions and key construction / operation activities recorded	0	---	N.A.	N.A.	---
Notifications of any summons & prosecutions received	0	---	N.A.	N.A.	---

Complaints and Prosecutions

14. Nine environmental complaints were received during the reporting quarter.

15. No warning, summon and notification of successful prosecution was received in the reporting period.

Future Key Issues

16. Key environmental issues at both Eastern and Western Portals in the coming month include:

Both Eastern and Western Portal

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

Only at Western Portal

- Contamination of marine water.

1. INTRODUCTION

1.1 The Project "Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel" involves the construction of a drainage tunnel deep into the ground in Mid-levels of the Northern Hong Kong Island from Tai Hang to Pokfulam to intercept and convey the stormwater from the upper catchment directly to the sea near Cyberport. The Drainage tunnel alignment starts from the Eastern Portal near Haw Par Mansion in Tai Hang and ends at the Western Portal located to the north of Cyberport running underneath the Pok Fu Lam, Tai Tam, Aberdeen and Lung Fu Shan Country Parks. The underground main drainage tunnel is 6.25m-7.25m in diameter and about 11km long. Two portals and a series of connecting adits and drop shafts are also been constructed. The layout plan of the Project is shown in **Figure 1**.

1.2 The Environmental Impact Assessment (EIA) Report for the Project was approved on 7 April 2006 under the Environmental Impact Assessment Ordinance (EIAO). An Environmental Permit (EP-272/2007) for the works was also granted on 26 April 2007. A varied Environmental Permit (EP) (EP-272/2007/A) was issued in 26 October 2007. Later, the further Environmental Permit (FEP-01/272/2007/A) and (FEP-01/272/2007/B) was issued on 28 January 2008 and 25 June 2009 to Dragages-Nishimatsu Joint Venture. Environmental Monitoring and Audit (EM&A) Manual for the Project was also included as part of the EIA reports in the register. An updated EM&A Manual has been issued on 7 May 2008.

1.3 Drainage Services Department awarded the construction of the Project to Dragages-Nishimatsu Joint Venture (hereinafter called "the Contractor"). The construction works commenced on 30 November 2007 and are scheduled to be completed by 2012.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by the Contractor to undertake the Environmental Team (ET) Services for the Project. All environmental and audit works were conducted by Cinotech and the laboratory testing works were conducted by a HOKLAS laboratory, Wellab Limited. This is the 5th quarterly EM&A report summarizing the EM&A works for the Project in the period between April and June 2009.

2. PROJECT CHARACTERISTICS

Project Organization and Contacts of Key Management

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

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

2.2 The responsibilities of respective parties are detailed in Sections 1.14 to 1.28 of the Updated EM&A Manual of the Project. The project organization chart is presented in **Figure 2**.

2.3 The key contacts of the Project are shown in Table 2.1.

Table 2.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
DNJV	Permit Holder	Mr. ALTIER Daniel	Project Manager	2671 7333	2671 9300
		Mr. UETAKE H.	Deputy Project Manager		
ARUP	Supervising Officer	Mr. Ted Tang	CRE	6117 6639	2436 1012
		Mr. Jackson Wong	SRE	6117 6636	
		Mr. Alan Ng	RE	9668 8350	
		Mr. Bernard Cheng	RE	98614939	
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
AEC	Independent Environmental Checker	Ms. Claudine Lee	Independent Environmental Checker	2815 7028	2815 5399
DNJV	Contractor	Mr. Ben Ho	Environmental Officer	2671 7333	2671 9300

Construction Programme and Synopsis of Work

2.4 The construction programme is presented in **Appendix A**.

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

3.1 The EM&A Manual designates locations for the ET to monitor environmental impacts in terms of air quality, noise and water quality due to the Project. When alternative monitoring locations are proposed, the criteria listed in Section 2.4.3 of the updated EM&A Manual shall be followed and the updated monitoring locations shall be approved by ER and agreed with IEC. The Project area and monitoring locations are depicted in **Figures 3a-c, 4a-b and 5**. **Appendix B** gives details of monitoring requirements.

Monitoring Methodology and Calibration Details

3.2 Monitoring works/equipments were conducted/calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices of the Monthly Reports.

Environmental Quality Performance Limits (Action and Limit Levels)

3.3 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix C**.

Environmental Mitigation Measures

3.4 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for the Contractor to implement. A list of mitigation measures is given in **Appendix G**.

4. MONITORING RESULTS

Weather Conditions

4.1 The weather during monitoring sessions was mainly sunny. The weather conditions for each individual monitoring session were presented in the field record sheets.

Air Quality

1-hour TSP Monitoring

4.2 1-hour TSP monitoring at 2 monitoring stations, AQ1 and AQ2, was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting quarter.

24-hour TSP Monitoring

4.3 24-hr TSP monitoring at 2 monitoring station, AQ1 and AQ3 was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting quarter.

4.4 The graphical presentations of the air quality monitoring results are shown in **Appendix D**.

Construction Airborne Noise

4.5 Noise monitoring at 4 monitoring stations, NC1/NC1a, NC2, NC3 and NC15 was conducted as schedule in the reporting period except noise monitoring on 26 June 2009 during the period between 1900 and 0700 was cancelled due to the adverse weather condition (Tropical Cyclone Warning Signal. No. 3). No Action/Limit Level exceedance was recorded.

Construction Ground Borne Noise

4.6 Construction ground borne noise monitoring at GNC1, GNC2, GNC3 and GNC4 was conducted as scheduled in the reporting period except noise monitoring on 26 June 2009 during the period between 1900 and 0700 was cancelled due to the adverse weather condition (Tropical Cyclone Warning Signal. No. 3). No exceedance was recorded.

4.7 Construction Ground Borne Noise Monitoring at GNC3 was temporary suspended since 7 May 2009 as the ISS EastPoint Property Management Ltd. received an instruction from the Incorporated Owners of Aegean Terrace that we are not permitted to conduct any noise monitoring inside Aegean Terrace for the Project.

4.8 The graphical presentations of the noise monitoring results are shown in **Appendix E**.

Water Quality

4.9 Water quality monitoring was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded.

4.10 The summary of exceedances for each water quality parameters are provided in Table 4.1.

Table 4.1 Summary of Water Quality Exceedances in the Reporting Quarter

Water Quality	No. of Exceedances		Action Taken	Results of Action Taken	Remarks
	Action Level	Limit Level			
April 2009					
DO (Surface and Middle)	0	0	N/A	N/A	N/A
DO(Bottom)	0	0			
Turbidity	0	0			
SS	0	0			
May 2009					
DO (Surface and Middle)	0	0	N/A	N/A	N/A
DO(Bottom)	0	0			
Turbidity	0	0			
SS	0	0			
June 2009					
DO (Surface and Middle)	0	0	N/A	N/A	N/A
DO(Bottom)	0	0			
Turbidity	0	0			
SS	0	0			

4.11 No Action/Limit Level exceedance was recorded.

4.12 The graphical presentations of the water quality monitoring results are shown in **Appendix F**.

Underground water level

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

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

Table 4.2 Ground Water Level Monitoring Data at Location ADH48 in Reporting Quarter

Date	Water Level (from ground)/m
23 April 2009	Dry
6 May 2009	9.63
21 May 2009	9.96
25 May 2009	8.05
5 June 2009	8.25
17 June 2009	8.12

5. ENVIRONMENTAL AUDIT

Implementation Status of Environmental Mitigation Measures

5.1 The implementation status of environmental mitigation measures (EMIS) is given in **Appendix G**.

Site Audit Summary

5.2 During site inspections in the reporting period, one non-conformance was identified. The observations and recommendations made during the reporting period are summarized in **Appendix H**.

5.3 The major deficiencies identified by ET in the reporting quarter are summarized as follow:

Water Quality

- Standing water was observed at the uneven area and the area that may retain water at Eastern and Western Portal and HKU1.
- Standing water with chemical oil was observed at the drip tray at Eastern Portal.
- Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal.
- Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal.
- General refuse was observed at near the outfall at Western Portal (within the silt curtain).
- Sand bag bund was not observed at the outlet of the access road.
- Silty water was observed discharging to the nullah at Eastern Portal.
- Stream diversion was observed not implemented well at Intake THR2.

Air Quality

- Over 20 cement bags were observed without cover at Eastern and Western Portal.
- Sediment was observed at the site boundary of Intake W0.
- Dust generation was observed due to the dry site area and during dust-generation works at Eastern and Western Portal.

Noise

- Full noise enclosure at Eastern Portal was observed still under construction during the

TBM excavation.

- Gap was observed at the noise enclosure at Eastern Portal.

Waste/ Chemical Management

- Oil drum was observed without drip tray and appropriate labels at Western Portal.
- Standing water with chemical oil was observed at the drip tray at Eastern Portal.
- Standing water with chemical oil was observed at the drip tray at inside the tunnel of Western Portal.
- Oil leakage from air compressor was observed at Intake W0.
- Oil stains were observed at underneath of the plant at Intake W0.
- Polystyrene foam box and water bottle were observed within the silt curtain at Western Portal.
- General refuse was observed at near the outfall at Western Portal (within the silt curtain).
- Suspected oil containers were observed to place near the sea at Western Portal.
- Construction waste was observed not stored properly before disposal at Eastern Portal.
- General refuse and C&D waste were observed accumulated at the material skip at Eastern Portal.
- General refuse was observed disposed not properly at Western Portal.
- Vegetation waste was observed accumulated at the stream of Intake THR2.

Ecology

- Seepage of silty water at the stream at THR2 was observed.
- Seepage of silty water from the rock crack was observed at Intake MA14.
- Silty water was observed nearly overflow at the water recycling tank at Intake MA14.

Marine Ecology

- Silt curtain was observed cannot function properly at Western Portal but no wastewater was observed to discharge into the sea from site as the marine based construction works have finished..

5.4 The major deficiencies identified by IEC in the reporting quarter are summarized as follow:

30th April 2009

Intake THR2

- Seepage of silty water into water stream was surrounded by sand bags. However the sandbags level was not high enough to stop possible overflow. Modification of bund is needed.

- Vegetation waste was observed inside the stream. Prompt removal is needed.
- Storage capacity of water tanks was not adequate. Overflow of water into storm drain was observed. Rectification is needed.

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

20th May 2009

Eastern Portal
- The water quality inside the sedimentation compartment was silty. Regular clean up to ensure efficient performance of water treatment plant is recommended.

Non-compliance
Intake MA14
- Muddy water from GI works was accumulated in a sump pit at the existing stream. This arrangement not only may cause water pollution problem, but also may affect the ecological environment of the existing stream. The effluent collection system should be reviewed promptly.

Western Portal
- Silt curtain was not observed. Although marine works were not carried out, silt curtain should still be maintained unless the removal is approved by the EPD.

25th June 2009

Eastern Portal
- Enclosure was not provided for grouting area. Prompt provision of enclosure is required before grouting works commencement.
- Noise enclosure was partially completed. The Contractor should complete the noise enclosure construction as soon as possible. All gaps and opening should be sealed to avoid noise emission.
- Some tree branches were shaded by the noise enclosure, which may affect the health of tree. Mitigation measures should be sought as soon as possible.

Western Portal
- Silt curtain was partially provided. Further improvement is needed to fulfill the EP condition.
- Oil leakage (water proofing oil) was observed near the waterfront at segment storage area. Prompt clean up is needed.

Eastern, Western Portals and Intake W0

- Stagnant water was observed at the sites. At EP, a number of water ponds were found near nullah. At W0, drip tray under sedimentation plant was full of water. At WP, drip trays for oil drum were full of water and stagnant water was found at segment storage area, U-Channel and next to water treatment plant. Prompt clean up and protection measures should be provided.

Effectiveness of Mitigation Measures

5.5 The mitigation measures recommended in the EIA report and required by the EP are considered effective in minimizing environmental impacts. The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage, it is however considered that the Contractor could put greater efforts into proper implementation of these measures, especially for the construction of noise enclosure, installation and maintenance of silt curtain and use of quiet PME, to ensure their intended effects are fully achieved.

Status of Environmental Licensing and Permitting

5.6 Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, An Environmental Permit No. EP-272/2007 was issued on 26 April 2007 and Environmental Permit No. EP-272/2007/A was issue on 26 October 2007. Later, the further Environmental Permit (FEP-01/272/2007/A) and (FEP-01/272/2007/B) was issued on 28 January 2008 and 25 June 2009 to Dragages-Nishimatsu Joint Venture.

5.7 Registration of Chemical Waste Producer (License: 5213-148-D2393-02 for Eastern Portal and No. 5213-172-D2393-01 for Western Portal), Water Discharge License (License No.: EP860/W10/XY0175 for Area of Mount Butler Office, EP860/W10/XY0177 for Eastern Portal, EP820/W9/XT086 for Western Portal, EP680/W10/XY0183 for Intake W0, WT00003372-2009 for Intake SM1, WT00003737-2009 for Intake MB16 and WT00003738-2009 for THR2) and Construction Noise Permit (License No.: GW-RS0300-09 for Eastern Portal, GW-RS0213-09 for Western Portal and GW-RS0299-09 for Intake W0) in April 2009, CNP (Construction Noise Permit (License No.: GW-RS0300-09 for Eastern Portal, GW-RS0382-09 for Western Portal and GW-RS0299-09 for Intake W0) in May 2009 and CNP (License No.: GW-RS0404-09 for Eastern Portal, GW-RS0382-09 for Western Portal and GW-RS0408-09 for Intake W0) in June 2009.

5.8 The status of these licenses and permits obtained for the Project is summarized in **Appendix I**.

Status of Waste Management

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

5.10 During this reporting quarter, a total 38 nos. of dump trucks of waste were delivered to SENT, 440 nos. of C&D waste was delivered to Public Fill Reception Facilities. Both the trip ticket system and chit accounting system for disposal of waste were operating

smoothly to date. No overloading case was recorded during this reporting period. No disposal of inert C&D material to public sorting facilities and no dump truck without cover were reported from CEDD. In respect of the dump truck cover, DNJV keeps on take record photos and inspection to ensure that all dump trucks have fully covered the skip before leaving the site.

5.11 The monthly summary of waste flow table for April – June 2009 are provided in **Appendix J**.

6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

6.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedances is attached in **Appendix K**. The details of each exceedance were attached in the Monthly Reports.

Air Quality

6.2 No Action/ Limit Level exceedance was recorded in the reporting quarter.

Construction Airborne Noise

6.3 No Action/ Limit Level exceedance was recorded in the reporting quarter.

Construction Ground Borne Noise

6.4 No was recorded in the reporting quarter.

Water Quality

6.5 No Action/ Limit Level exceedance was recorded in the reporting quarter.

Construction Impacts on Suspended Solids

6.6 The measured mean levels of suspended solid for impact monitoring stations during baseline monitoring and impact monitoring (this quarter) are summarized in Table 6.1a-b. Measured mean levels of SS at all Impact Stations of are well within 130% of mean value of Baseline data

Table 6.1a Summary of Measured levels of Suspended Solids at Mid-Ebb

Station No.	Measured Mean Level of Suspended Solids (mg/l)				Within 130% of mean value of Baseline data (Yes/No)	
	Baseline Impact Station	Baseline Control Station	Control Station (CE)	Impact Station	Control Station (CE)	Impact Station
			(Apr – Jun09)	(Apr – Jun09)	(Apr – Jun09)	(Apr – Jun09)
I1	11.7	12.3	8.0	7.3	Yes	Yes
I2	11.5			7.3		Yes
Intake A	10.2			7.7		Yes
Intake B	11.1			7.2		Yes

Table 6.1b Summary of Measured levels of Suspended Solids at Mid-Flood

Station No.	Measured Mean Level of Suspended Solids (mg/l)				Within 130% of mean value of Baseline data (Yes/No)	
	Baseline Impact Station	Baseline Control Station	Control Station (CF)	Impact Station	Control Station (CF)	Impact Station
			(Apr – Jun09)	(Apr – Jun09)	(Apr – Jun09)	(Apr – Jun09)
I1	11.6	11.7	7.8	7.3	Yes	Yes
I2	10.9			7.8		Yes
Intake A	11.0			7.7		Yes
Intake B	11.4			7.7		Yes

Review of the Reasons for and the Implications of Non-compliance

6.7 There was one non-compliance from the site audits in the reporting quarter. The observations and recommendations made in each individual site audit session were attached in the Monthly Reports.

7. ENVIRONMENTAL COMPLAINTS AND PROSECUTIONS

7.1 Nine environmental complaints were received during the reporting quarter. The updated Complaint Log is attached in **Appendix L**.

7.2 No warning, summon and notification of successful prosecution was received in the reporting period.

7.3 There were a total of 26 environmental complaints, no warnings, summons and successful prosecutions received since the commencement of the Project.

8. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

8.1 The major construction activities in the coming month include:

- Initial TBM excavation, site installation for TBM operation and permanent slope excavation for River Channel at Eastern Portal;
- TBM excavation and site installation for TBM operation at Western Portal;
- Excavation of intake structure at Intake W0;
- Bend block supporting works and temporary cofferdam at Intake SM1;
- Site preparation of Intakes THR2 and MB16;
- Utilities trial pits and additional site investigation works at available intakes; and
- Casting of tunnel segments in China.

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

Air Quality Impact

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

Noise Impact

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

Water Impact

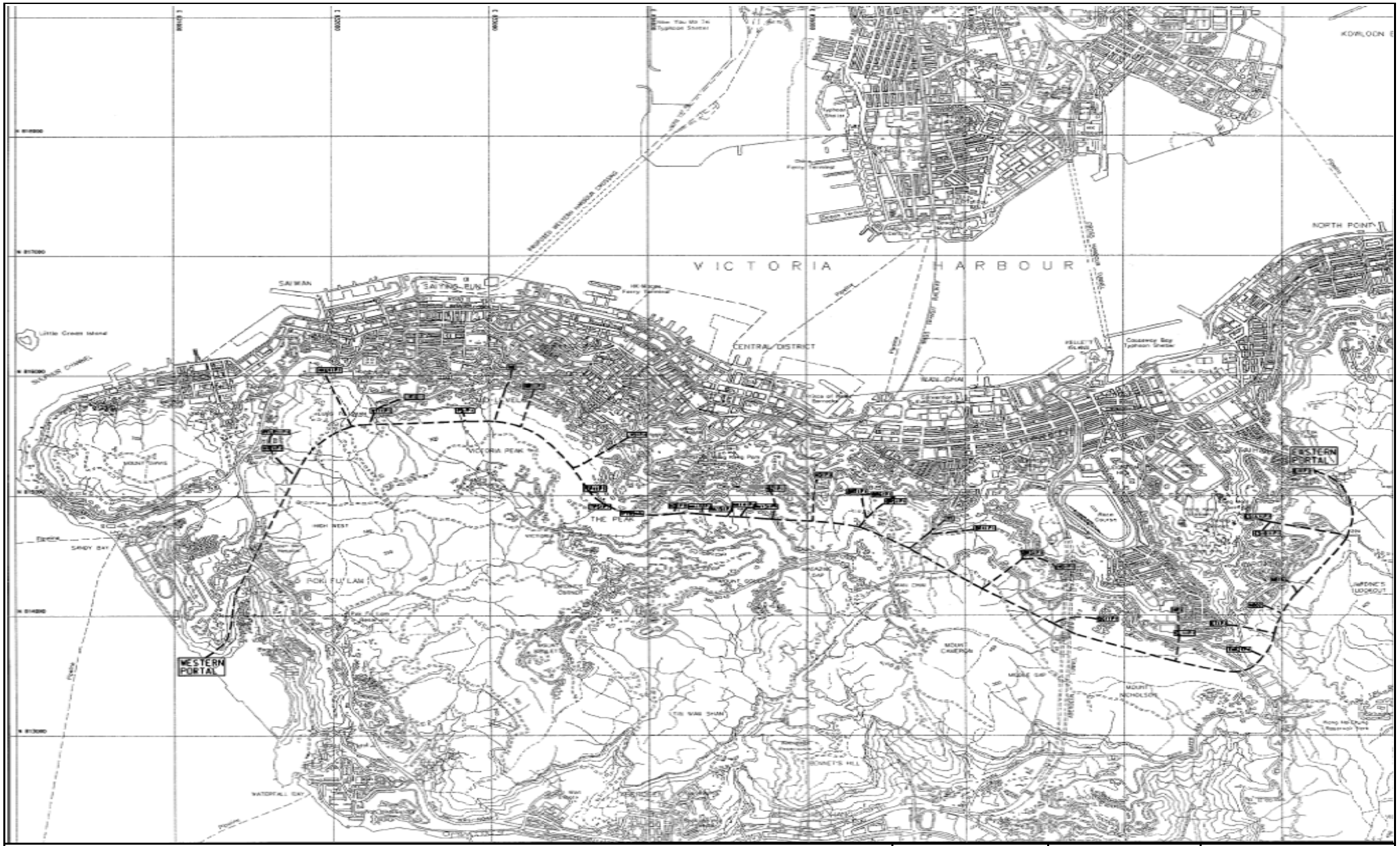
- To prevent any surface runoff discharge into any stream course.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review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

- To avoid accumulation of stagnant and ponding water on site.

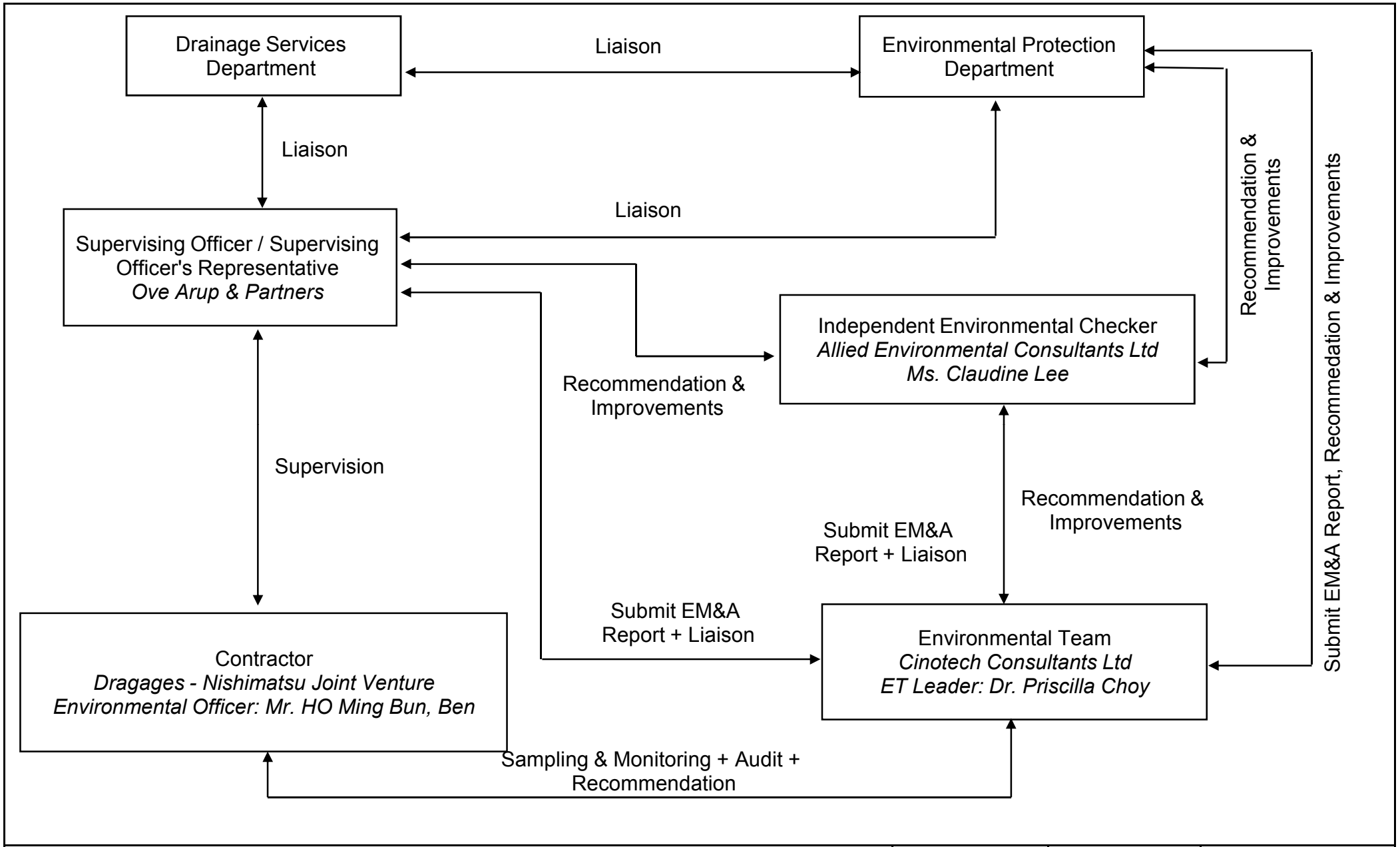
Waste/Chemical Management

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

FIGURES

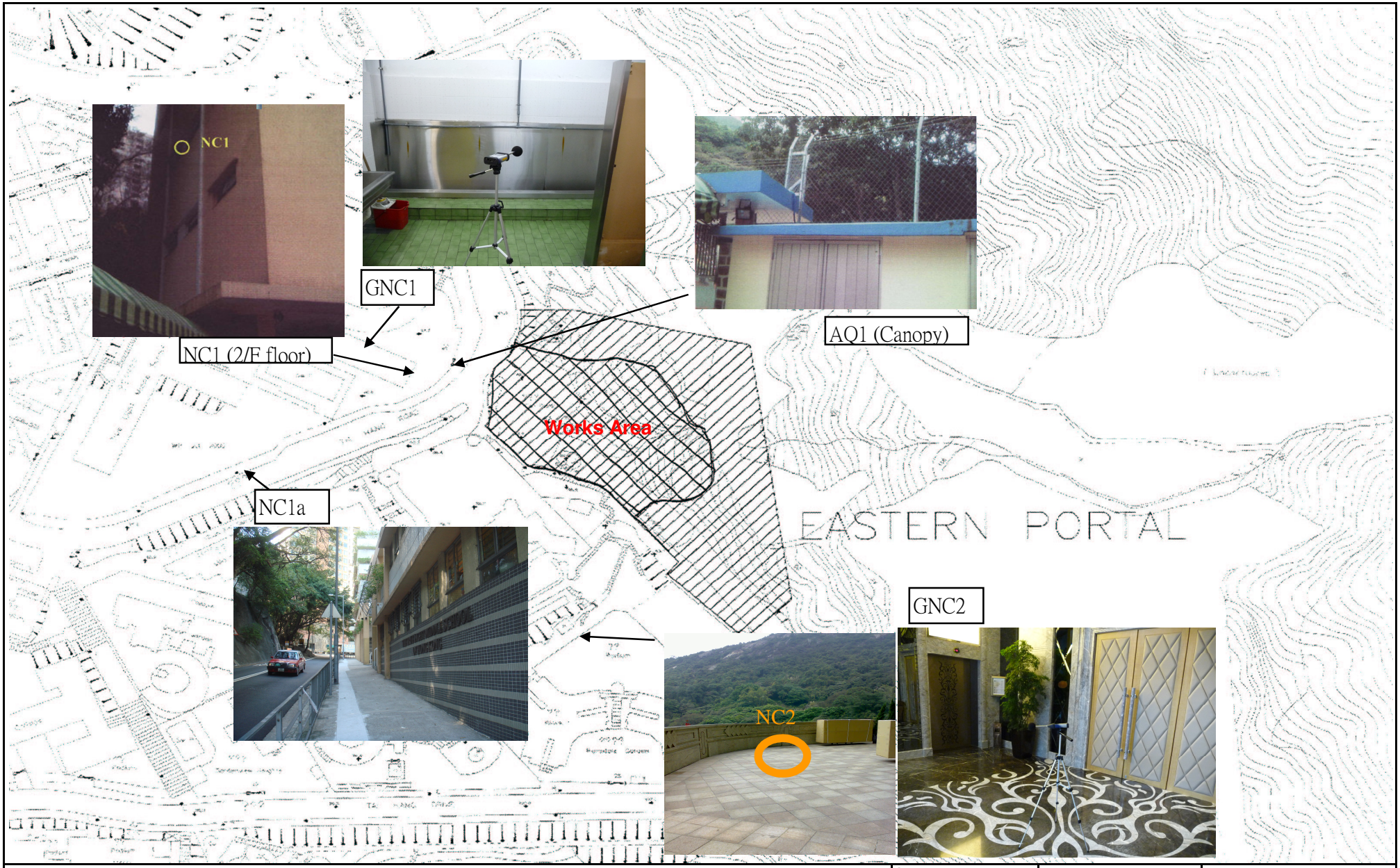


Title Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Site Layout Plan	Scale N.T.S	Project No. MA8001	CINOTECH
	Date Jun-08	Figure 1	



Title: Project Organization Chart	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel	Scale: N.T.S Date: Jun-08	Project No.: MA8001 Figure: 2

CINOTECH



Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal) Locations of Air Quality and Noise Monitoring Station	Scale: N.T.S Date: Jun-09	Project No.: MA8001 Figure: 3a

CINOTECH

Title

Contract No. DC/2007/10

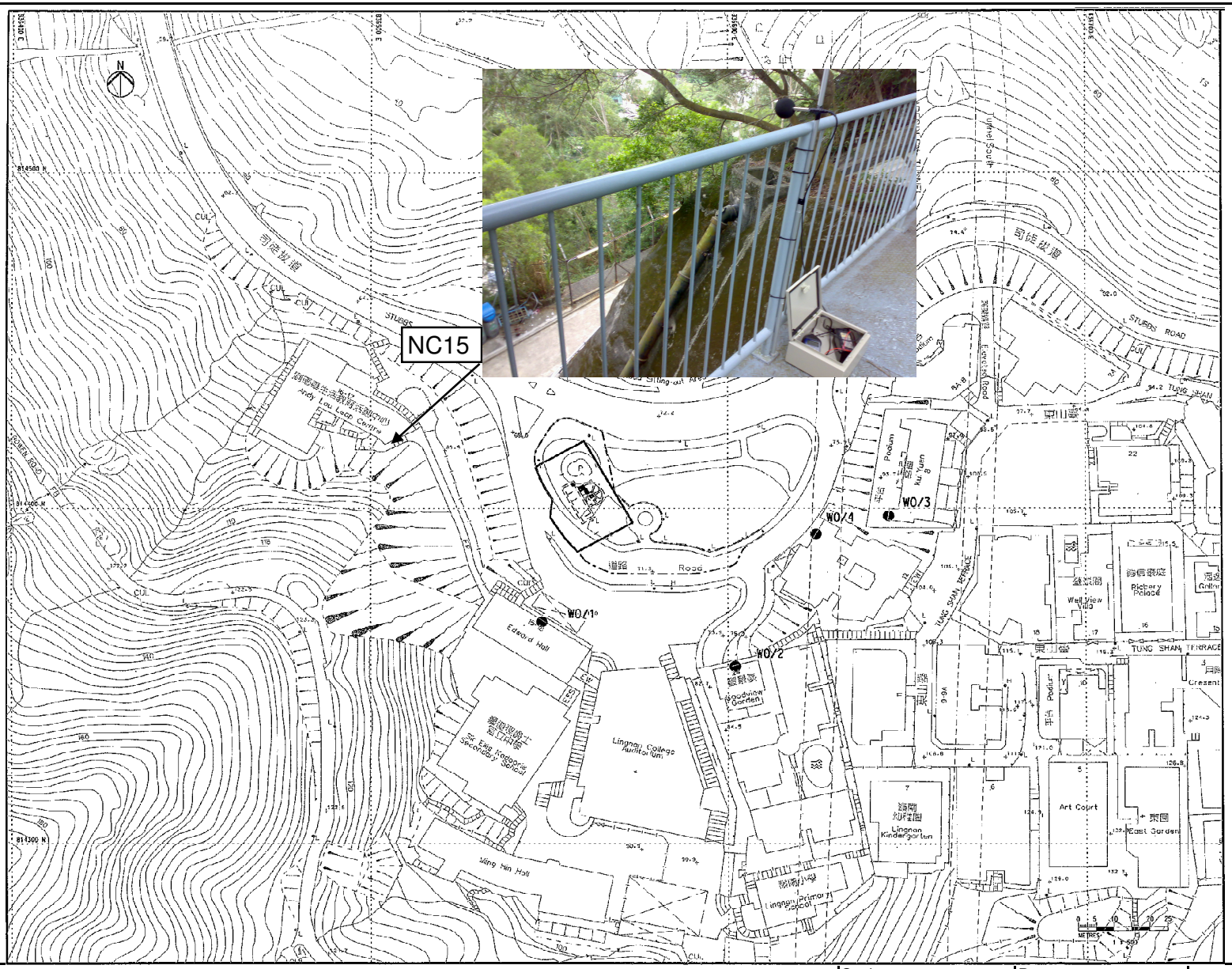
Design and Construction of Hong Kong West Drainage Tunnel

(Western Portal)

Locations of Air Quality and Noise Monitoring Station

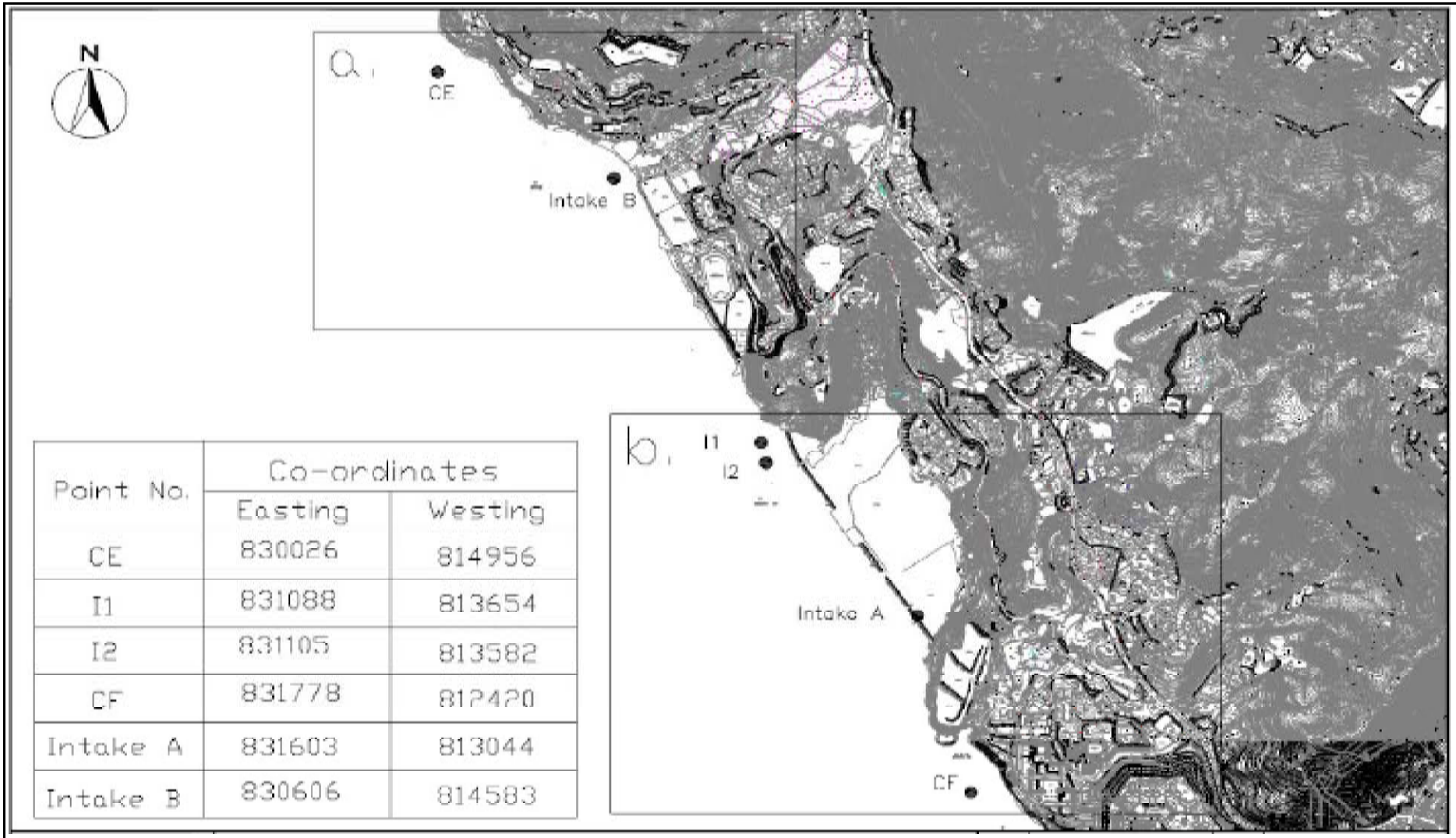
Scale: N.T.S	Project No.: MA8001
Date: Jun-09	Figure: 3b

CINOTECH



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

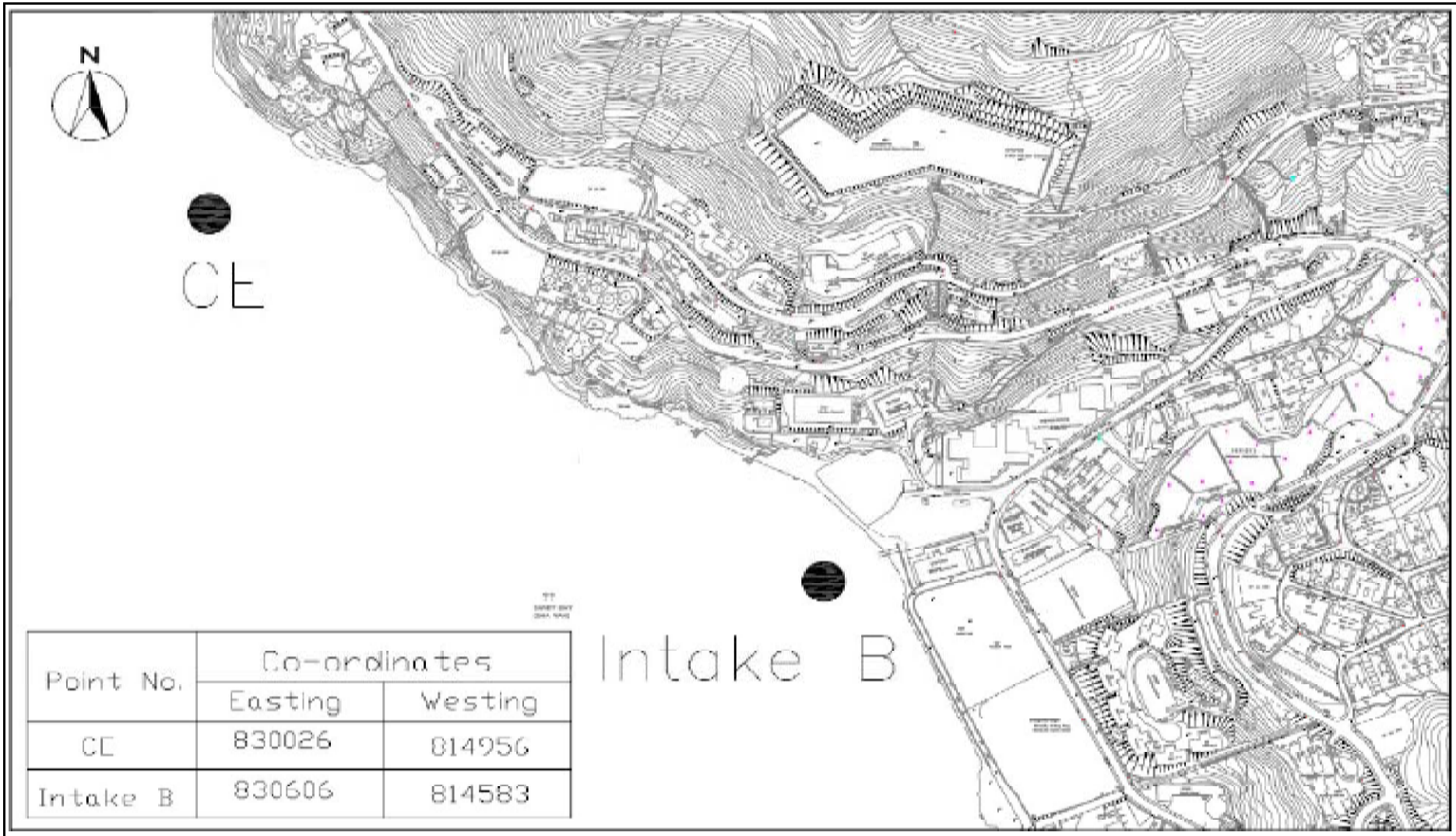
CINOTECH



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

Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Locations of Water Quality Monitoring Stations	Scale: N.T.S Date: Jul-08	project No.: MA8001 Figure: 4

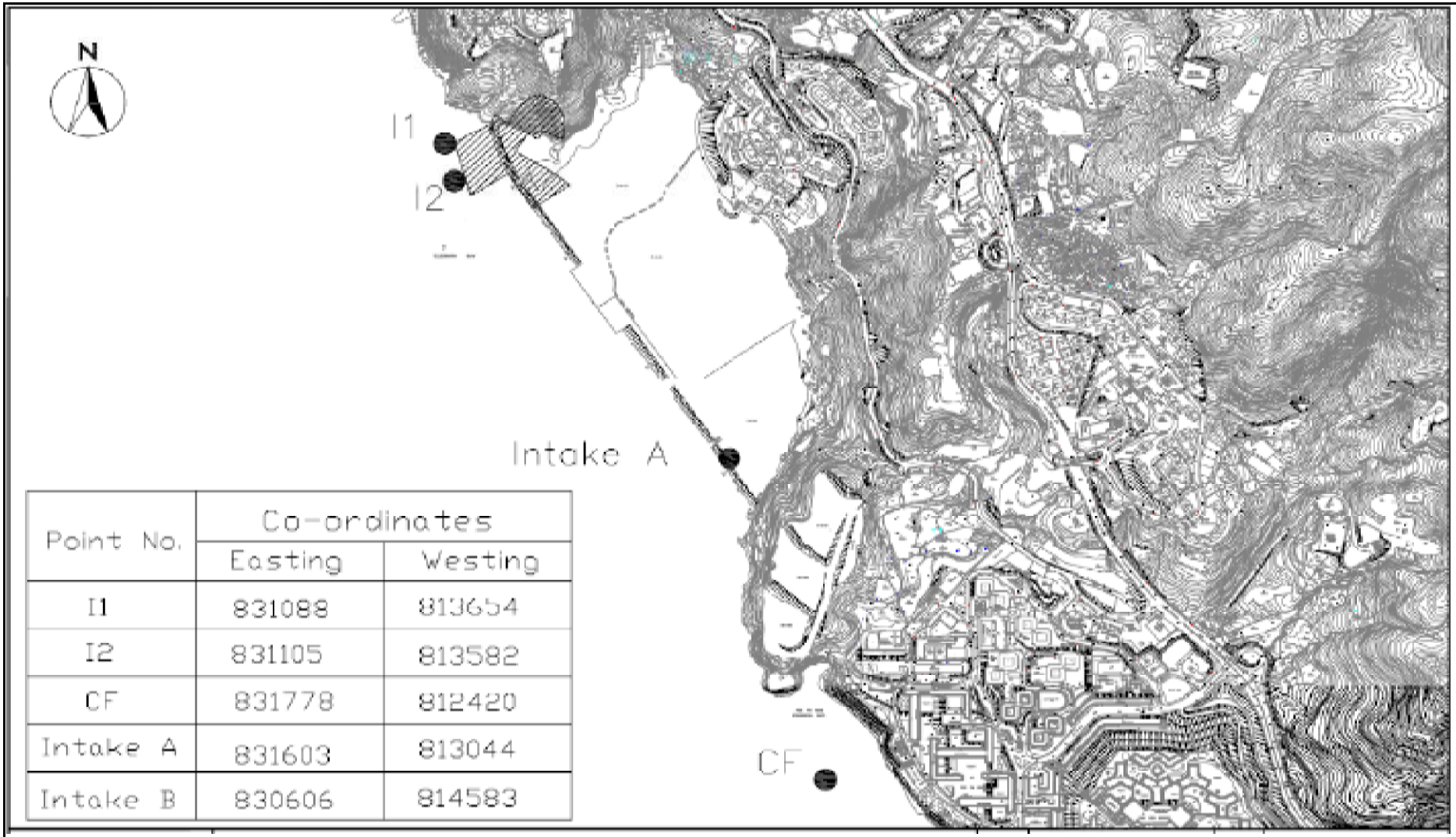
CINOTECH



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

Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Locations of Water Quality Monitoring Stations	Scale: N.T.S Date: Jul-08	project No. MA8001 Figure: 4a

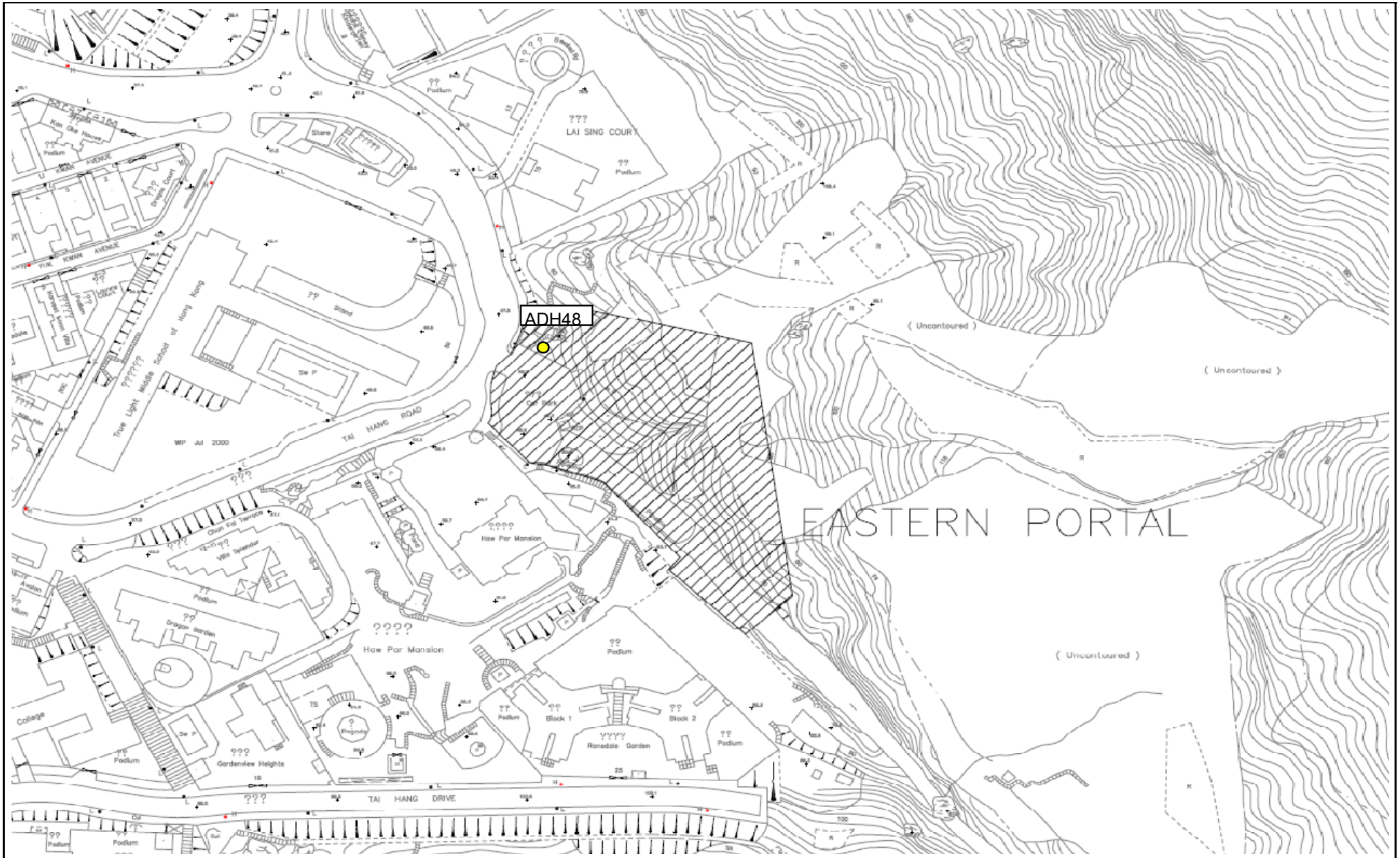
CINOTECH



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

Title		Scale	project
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	No. MA8001
Locations of Water Quality Monitoring Stations		Date: Jul-08	Figure: 4b

CINOTECH



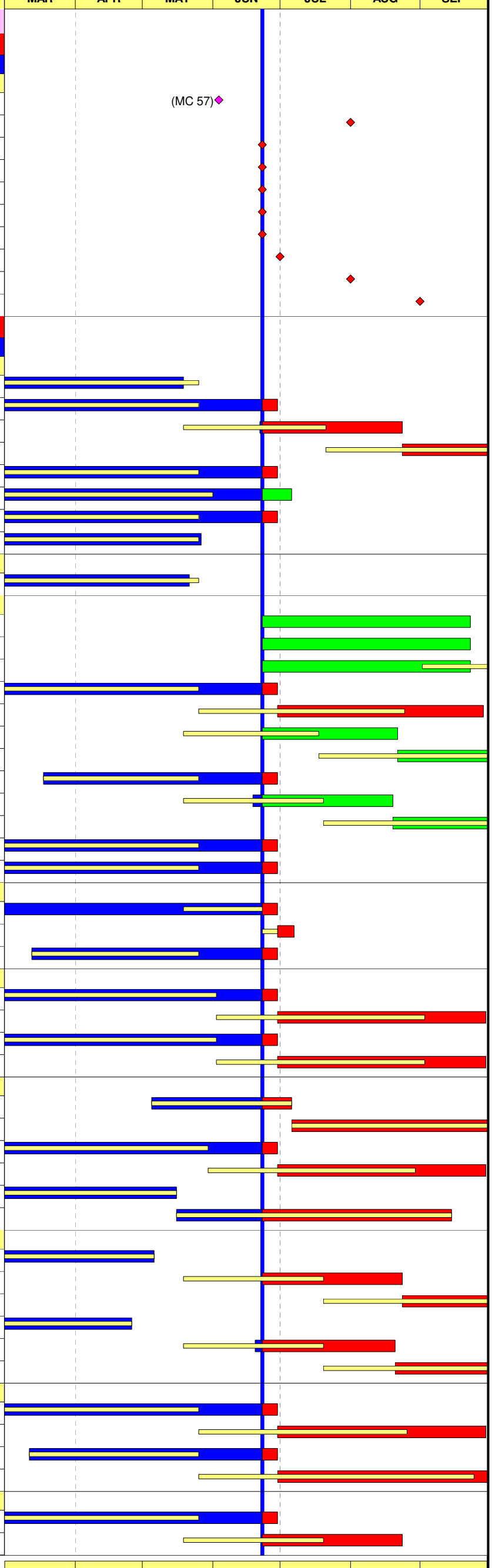
Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel (Eastern Portal) Location of ground water level Monitoring Station	Scale: N.T.S Date: Jul-08	Porject No.: MA8001 Figure: 5

CINOTECH

APPENDIX A
CONSTRUCTION PROGRAMME

HK West Drainage Project

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 905A EF Variance	Approved Works Prog 9032 EF Variance
CC01 - PRELIMINARIES & GENERAL REQUIREMENTS								
Milestone								
General								
M1-1130	1.13-Complete of All Obligat's From 481to540d	0	0		03JUN09A		-3	-3
M1-1140	1.14-Complete of All Obligat's From 541to600d	0	0		31JUL09*	0	0	0
M1-1430	1.43-Acceptance of Monthly Report on TDMS(14M)	0	0		22JUN09*	-142	-35	-126
M1-1440	1.44-Acceptance of Monthly Report on TDMS(15M)	0	0		22JUN09*	-114	-35	-114
M1-1450	1.45-Acceptance of Monthly Report on TDMS(16M)	0	0		22JUN09*	-83	-35	-83
M1-1460	1.46-Acceptance of Monthly Report on TDMS(17M)	0	0		22JUN09*	-53	-35	-53
M1-1470	1.47-Acceptance of Monthly Report on TDMS(18M)	0	0		22JUN09*	-22	-22	-22
M1-1480	1.48-Acceptance of Monthly Report on TDMS(19M)	0	0		30JUN09*	0	0	0
M1-1490	1.49-Acceptance of Monthly Report on TDMS(20M)	0	0		31JUL09*	0	0	0
M1-1500	1.50-Acceptance of Monthly Report on TDMS(21M)	0	0		31AUG09*	0	0	0
CC02 - DESIGN & DESIGN CHECKING OF THE WORKS								
Design Stage								
Secton 1 (Eastern Portal)								
D00255	APP East P Temp Drainage Divrsn Main Stream DDA	90	0	29NOV08A	18MAY09A		7	-69
D00275	APP Cofferdam for Intake Shaft DDA	42	7	21MAY08A	29JUN09	-451	-35	-126
D00278	P&S Reinst Perm Slope at Coff Intake Shaft DDA	63	62	22JUN09A	23AUG09	-53	-34	-82
D00279	APP Reinst Perm Slope at Coff Intake Shaft DDA	92	92	24AUG09	23NOV09	-53	-34	-82
D00282	APP Temp&Perm Supt EP Non-TBM Tunl to ch250 AIP	42	7	13SEP08A	29JUN09	-266	-35	-126
D00287	APP Perm Supt EP Non-TBM Tunnel to Ch250 - DDA	92	13	01FEB09A	05JUL09	409	-35	-63
D02334	APP East P Temp Drainage Divn Side Stream-DDA	76	7	28MAR08A	29JUN09	-90	-35	-126
D02374	APP Temp Drain Divsn Main Stream ELS - DDA	52	0	29NOV08A	26MAY09A		-1	-92
Section 1 (Western Portal)								
D00375	APP West Portal ELS for Soft Ground Tunnel DDA	42	0	12JUN08A	21MAY09A		4	-87
Section 1 Dropshaft								
D00604	APP Softground Excav for Dropshaft W5 DDA	92	92	23JUN09	22SEP09	323	103	103
D00616	APP Softground Excav for Dropshaft RR1 DDA	92	92	23JUN09	22SEP09	247	120	103
D00619	APP Softground Excav for Dropshaft W8 AIP	92	92	23JUN09	22SEP09	390	71	71
D00630	P&S Dropshaft Temp Rock Supt (Excl. W0) AIP	70	7	23OCT08A	29JUN09	-93	-35	-126
D00633	APP Dropshaft Temp Rock Supt (Excl. W0) AIP	91	91	30JUN09	28SEP09	-93	-35	-126
D00636	P&S Dropshaft Temp Rock Supt (Excl. W0) DDA	60	60	23JUN09*	21AUG09	124	-35	-126
D00639	APP Dropshaft Temp Rock Supt (Excl. W0) DDA	92	92	22AUG09	21NOV09	124	-35	-126
D00645	APP Dropshaft Permanent Lining (Excl W0) AIP	47	7	18MAR09A	29JUN09	-12	-35	-61
D00648	P&S Dropshaft Permanent Lining(Excl W0) DDA	62	58	19JUN09A	19AUG09	456	-31	-79
D00651	APP Dropshaft Permanent Lining(Excl W0) DDA	92	92	20AUG09	19NOV09	456	-31	-79
D00663	APP Dropshaft & SC at W0 Temp Rock Supt DDA	42	7	23JAN09A	29JUN09	-133	-35	-116
D00671	APP Dropshaft&SC at W0 Temp Rock Supt DDA VO10	7	7	23JAN09A	29JUN09	-111	-35	-85
Section 1 (Portion W0)								
D01164	P&S W0-Permanent Works Intake DDA VO10	35	7	23AUG08A	29JUN09	-118	-7	-92
D01166	APP W0-Permanent Works Intake DDA VO10	7	7	30JUN09	06JUL09	-118	-7	-92
D01188	APP W0-Temp Works&Drainage Diversion DDA VO10	21	7	13MAR09A	29JUN09	-151	-35	-85
Section 7 (Portion THR2)								
D00950	P&S THR2-Permanent Works Intake DDA	62	7	20FEB09A	29JUN09	-108	-27	-71
D00955	APP THR2-Permanent Works Intake DDA	92	92	30JUN09	29SEP09	-108	-27	-71
D00958	P&S THR2-Temp Works & Drainage Diversion DDA	62	7	20FEB09A	29JUN09	-108	-27	-71
D00959	APP THR2-Temp Works & Drainage Diversion DDA	92	92	30JUN09	29SEP09	-108	-27	-71
Section 4 (Portion MB16)								
D00790	P&S MB16-Permanent Works Intake DDA	62	13	05MAY09A	05JUL09	-70	0	-65
D00795	APP MB16-Permanent Works Intake DDA	92	92	06JUL09	05OCT09	-70	0	-65
D00798	P&S MB16-Temp Works & Drainage Diversion - DDA	62	7	01DEC08A	29JUN09	-64	-31	-122
D00799	APP MB16-Temp Works & Drainage Diversion - DDA	92	92	30JUN09	29SEP09	-64	-31	-122
D00826	P&S MB16-Permanent Slopeworks DDA	62	0	10DEC08A	15MAY09A		0	-75
D00828	APP MB16-Permanent Slopeworks DDA	122	84	16MAY09A	14SEP09	-49	0	-75
Section 31 (Portion PFLR1)								
D02255	APP PFLR1-Permanent Works Intake AIP	92	0	20SEP08A	05MAY09A		0	-71
D02260	P&S PFLR1-Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	-131	-35	-119
D02265	APP PFLR1-Permanent Works Intake DDA	92	92	24AUG09	23NOV09	-131	-35	-119
D02267	APP PFLR1-Temp Works & Drainage Diversion AIP	92	0	10DEC08A	25APR09A		0	-46
D02268	P&S PFLR1-Temp Works & Drainage Diversion DDA	62	59	20JUN09A	20AUG09	-128	-32	-101
D02269	APP PFLR1-Temp Works & Drainage Diversion DDA	92	92	21AUG09	20NOV09	-128	-32	-101
Section30 (Portion HKU1)								
D02210	P&S HKU1-Permanent Works Intake DDA	62	7	02OCT08A	29JUN09	-45	-35	-126
D02215	APP HKU1-Permanent Works Intake DDA	92	92	30JUN09	29SEP09	-45	-35	-126
D02218	P&S HKU1-Temp Works & Drainage Diversion DDA	62	7	12MAR09A	29JUN09	-72	-35	-71
D02219	APP HKU1-Temp Works & Drainage Diversion DDA	122	122	30JUN09	29OCT09	-72	-35	-71
Section 6 (Portion E7)								
D00885	APP E7 - Permanent Works Intake AIP	92	7	20SEP08A	29JUN09	-40	-35	-126
D00890	P&S E7 - Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	-95	-35	-114



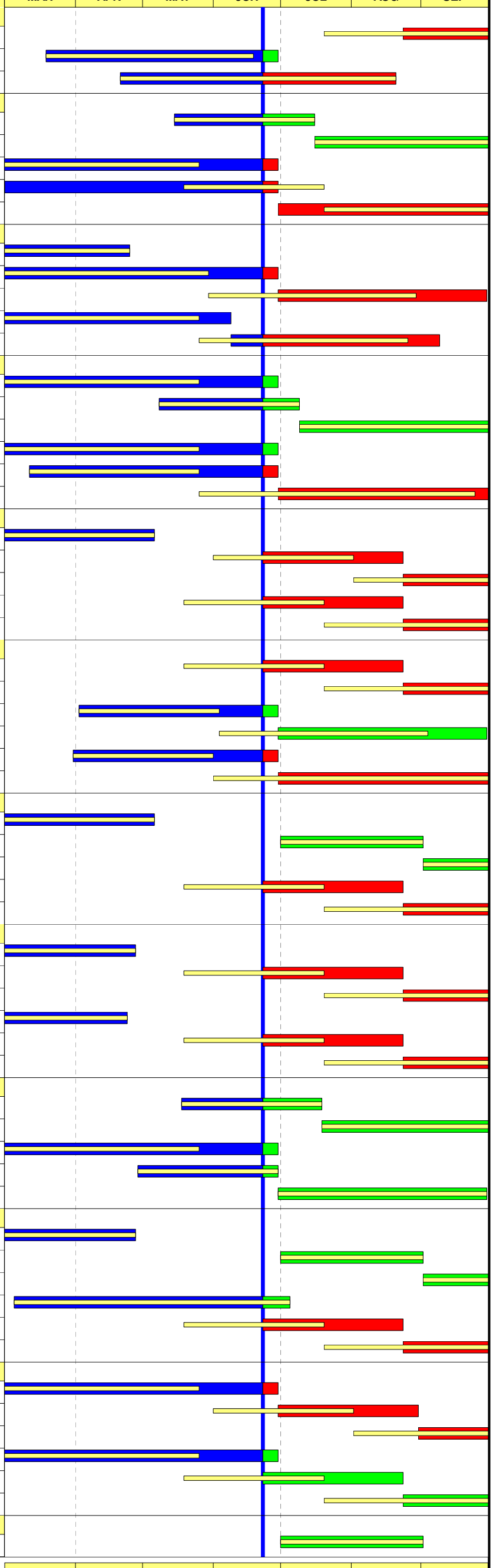
Start Date 30NOV07
Finish Date 26MAY12
Data Date 23JUN09
Run Date 25JUN09 14:14

Early Bar
Previous Month (905A)
Progress Bar
Critical Activity

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

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 905A EF Variance	Approved Works Prog 9032 EF Variance
Section 6 (Portion E7)								
D00895	APP E7 - Permanent Works Intake DDA	92	92	24AUG09	23NOV09	-95	-35	-114
D00899	APP E7 - Temp Works & Drainage Diversion - DDA	92	7	19MAR09A	29JUN09	52	-11	21
D00935	APP E7 - Permanent Slopeworks DDA	122	59	21APR09A	20AUG09	0	0	-37
Section 29 (Portion W10)								
D02160	P&S W10-Permanent Works Intake DDA	62	23	15MAY09A	15JUL09	8	0	-44
D02165	APP W10-Permanent Works Intake DDA	92	92	16JUL09	15OCT09	8	0	-44
D02167	APP W10-Temp Works & Drainage Diversion AIP	122	7	19NOV08A	29JUN09	-13	-35	-101
D02168	P&S W10-Temp Works & Drainage Diversion DDA	62	7	01MAR09A	29JUN09	-13	20	-59
D02169	APP W10-Temp Works & Drainage Diversion DDA	122	122	30JUN09	29OCT09	-13	20	-59
Section 32 (Portion SM1)								
D02305	APP SM1-Permanent Works Intake AIP	92	0	20SEP08A	24APR09A		0	-60
D02310	P&S SM1-Permanent Works Intake DDA	63	7	05NOV08A	29JUN09	-123	-31	-122
D02315	APP SM1-Permanent Works Intake DDA	92	92	30JUN09	29SEP09	-123	-31	-122
D02318	P&S SM1-Temp Works & Drainage Diversion DDA	62	0	13JAN09A	08JUN09A		-14	-85
D02319	APP SM1-Temp Works & Drainage Diversion DDA	92	78	09JUN09A	08SEP09	-102	-14	-85
Section 26 (Portion RR1)								
D02005	APP RR1-Permanent Works Intake AIP	92	7	09DEC08A	29JUN09	23	-35	-111
D02010	P&S RR1-Permanent Works Intake DDA	62	16	08MAY09A	08JUL09	14	0	-37
D02015	APP RR1-Permanent Works Intake DDA	92	92	09JUL09	08OCT09	14	0	-37
D02017	APP RR1-Temp Works & Drainage Diversion AIP	122	7	13JAN09A	29JUN09	115	-35	-46
D02018	P&S RR1-Temp Works & Drainage Diversion DDA	62	7	12MAR09A	29JUN09	-7	-35	-71
D02019	APP RR1-Temp Works & Drainage Diversion DDA	122	122	30JUN09	29OCT09	-7	-35	-71
Section 5 (Portion MBD2)								
D00835	APP MBD2-Permanent Works Intake AIP	92	0	09JAN09A	05MAY09A		0	-25
D00840	P&S MBD2-Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	-17	-22	-22
D00845	APP MBD2-Permanent Works Intake DDA	92	92	24AUG09	23NOV09	-17	-22	-22
D00860	P&S MBD2-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	-17	-35	-83
D00865	APP MBD2-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	-17	-35	-83
Section 23 (Portion TP4)								
D01850	P&S TP4-Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	-31	-35	-53
D01855	APP TP4-Permanent Works Intake DDA	92	92	24AUG09	23NOV09	-31	-35	-53
D01858	P&S TP4-Temp Works & Drainage Diversion DDA	62	7	03APR09A	29JUN09	24	-26	-71
D01859	APP TP4-Temp Works & Drainage Diversion DDA	92	92	30JUN09	29SEP09	24	-26	-71
D01890	P&S TP4-Permanent Slopeworks DDA	62	7	31MAR09A	29JUN09	-6	-29	-71
D01895	APP TP4-Permanent Slopeworks DDA	122	122	30JUN09	29OCT09	-6	-29	-71
Section 28 (Portion P5)								
D02105	APP P5-Permanent Works Intake AIP	92	0	11NOV08A	05MAY09A		0	-65
D02110	P&S P5-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	26	0	0
D02115	APP P5-Permanent Works Intake DDA	92	92	02SEP09	02DEC09	26	0	0
D02118	P&S P5-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	-25	-35	-83
D02119	APP P5-Temp Works & Drainage Diversion DDA	122	122	24AUG09	23DEC09	-25	-35	-83
Section 22 (Portion TP5)								
D01795	APP TP5-Permanent Works Intake AIP	92	0	11NOV08A	27APR09A		0	-57
D01800	P&S TP5-Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	-4	-35	-53
D01805	APP TP5-Permanent Works Intake DDA	92	92	24AUG09	23NOV09	-4	-35	-53
D01807	APP TP5-Temp Works & Drainage Diversion AIP	92	0	28NOV08A	23APR09A		0	-59
D01808	P&S TP5-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	-4	-35	-83
D01809	APP TP5-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	-4	-35	-83
Section 21 (Portion TP789)								
D01740	P&S TP789-Permanent Works Intake DDA	62	26	18MAY09A	18JUL09	36	0	-17
D01745	APP TP789-Permanent Works Intake DDA	92	92	19JUL09	18OCT09	36	0	-17
D01747	APP TP789-Temp Works & Drainage Diversion AIP	92	7	03DEC08A	29JUN09	55	-35	-126
D01748	P&S TP789-Temp Works & Drainage Diversion DDA	62	7	29APR09A	29JUN09	55	0	-59
D01749	APP TP789-Temp Works & Drainage Diversion DDA	92	92	30JUN09	29SEP09	55	0	-59
Section 24 (Portion W5)								
D01905	APP W5-Permanent Works Intake AIP	92	0	09JAN09A	27APR09A		0	-17
D01906	P&S W5-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	3	0	0
D01907	APP W5-Permanent Works Intake DDA	92	92	02SEP09	02DEC09	3	0	0
D01911	APP W5-Temp Works & Drainage Diversion AIP	122	12	05MAR09A	04JUL09	154	0	-5
D01912	P&S W5-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	-18	-35	-126
D01913	APP W5-Temp Works & Drainage Diversion DDA	122	122	24AUG09	23DEC09	-18	-35	-126
Section 2 (Portion E5A)								
D00682	APP E5A-Permanent Works Intake AIP	92	7	11NOV08A	29JUN09	-3	-35	-126
D00684	P&S E5A-Permanent Works Intake DDA	62	62	30JUN09*	30AUG09	-3	-29	-29
D00686	APP E5A-Permanent Works Intake DDA	92	92	31AUG09	30NOV09	-3	-29	-29
D00688	APP E5A-Temp Works & Drainage Diversion AIP	92	7	18OCT08A	29JUN09	59	-35	-126
D00690	P&S E5A-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	4	-35	-53
D00695	APP E5A-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	4	-35	-53
Section 27 (Portion W8)								
D02060	P&S W8-Permanent Works Intake DDA	63	63	01JUL09*	01SEP09	11	0	0



Start Date	30NOV07
Finish Date	26MAY12
Data Date	23JUN09
Run Date	25JUN09 14:14

Early Bar
Previous Month (905A)
Progress Bar
Critical Activity

Design & Construction of HK. West Drainage Tunnel
Contract No. DC/2007/10
3 MONTH ROLLING PROGRAMME
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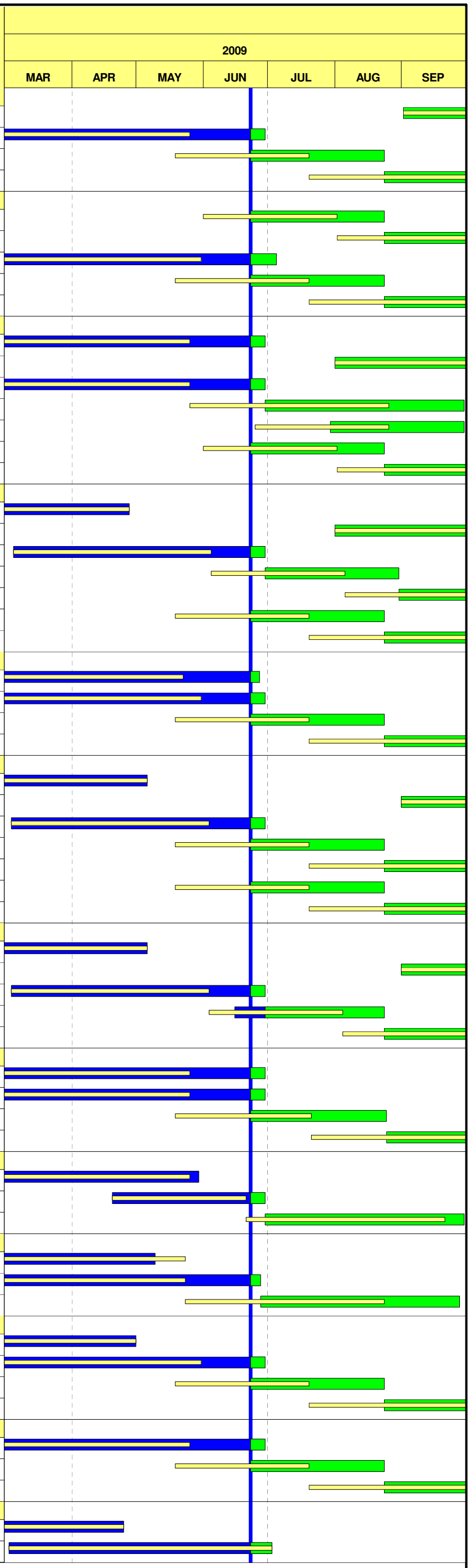
Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 905A EF Variance	Approved Works Prog 9032 EF Variance
Section 27 (Portion W8)								
D02065	APP W8-Permanent Works Intake DDA	122	122	02SEP09	01JAN10	11	0	0
D02067	APP W8-Temp Works & Drainage Diversion AIP	92	7	12DEC08A	29JUN09	75	-35	-105
D02068	P&S W8-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	20	-35	-53
D02069	APP W8-Temp Works & Drainage Diversion DDA	122	122	24AUG09	23DEC09	20	-35	-53
Section 3 (Portion E5B)								
D00740	P&S E5B-Permanent Works Intake DDA	62	62	23JUN09*	23AUG09	38	-22	-22
D00745	APP E5B-Permanent Works Intake DDA	92	92	24AUG09	23NOV09	38	-22	-22
D00747	APP E5B-Temp Works & Drainage Diversion AIP	92	12	28FEB09A	04JUL09	88	-35	-39
D00748	P&S E5B-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	38	-35	-53
D00749	APP E5B-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	38	-35	-53
Section 20 (Portion M3)								
D01675	APP M3-Permanent Works Intake AIP	92	7	09JAN09A	29JUN09	188	-35	-80
D01680	P&S M3-Permanent Works Intake DDA	62	62	01AUG09*	01OCT09	94	0	0
D01686	P&S M3-Temp Works & Drainage Diversion AIP	62	7	08OCT08A	29JUN09	35	-35	-126
D01687	APP M3-Temp Works & Drainage Diversion AIP	92	92	30JUN09	29SEP09	35	-35	-126
D01688	P&S M3-Temp Works & Drainage Diversion DDA	62	62	30JUL09*	29SEP09	35	-35	-90
D01720	P&S M3-Permanent Slopeworks DDA	62	62	23JUN09*	23AUG09	42	-22	-22
D01725	APP M3-Permanent Slopeworks DDA	122	122	24AUG09	23DEC09	42	-22	-22
Section 19 (Portion MA17)								
D01615	APP MA17-Permanent Works Intake AIP	92	0	09JAN09A	27APR09A		0	-17
D01620	P&S MA17-Permanent Works Intake DDA	62	62	01AUG09*	01OCT09	47	0	0
D01627	APP MA17-Temp Works & Drainage Diversion AIP	92	7	05MAR09A	29JUN09	79	-25	-34
D01628	P&S MA17-Temp Works & Drainage Diversion DDA	62	62	30JUN09*	30AUG09	79	-25	-34
D01629	APP MA17-Temp Works & Drainage Diversion DDA	92	92	31AUG09	30NOV09	79	-25	-34
D01660	P&S MA17-Permanent Slopeworks DDA	62	62	23JUN09*	23AUG09	56	-35	-53
D01665	APP MA17-Permanent Slopeworks DDA	122	122	24AUG09	23DEC09	56	-35	-53
Section 15 (Portion W3)								
D01405	APP W3-Permanent Works Intake AIP	92	4	23JAN09A	26JUN09	140	-35	-63
D01417	APP W3-Temp Works & Drainage Diversion AIP	92	7	28FEB09A	29JUN09	199	-30	-34
D01418	P&S W3-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	144	-35	-114
D01419	APP W3-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	144	-35	-89
Section 17 (Portion MA14)								
D01505	APP MA14-Permanent Works Intake AIP	92	0	09JAN09A	05MAY09A		0	24
D01510	P&S MA14-Permanent Works Intake DDA	62	62	01SEP09*	01NOV09	50	0	0
D01517	APP MA14-Temp Works & Drainage Diversion AIP	92	7	04MAR09A	29JUN09	175	-26	-31
D01518	P&S MA14-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	120	-35	-126
D01519	APP MA14-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	120	-35	-86
D01550	P&S MA14-Permanent Slopeworks DDA	62	62	23JUN09*	23AUG09	90	-35	-114
D01555	APP MA14-Permanent Slopeworks DDA	122	122	24AUG09	23DEC09	90	-35	-114
Section 18 (Portion MA15)								
D01565	APP MA15-Permanent Works Intake AIP	92	0	09JAN09A	05MAY09A		0	-25
D01570	P&S MA15-Permanent Works Intake DDA	62	62	01SEP09*	01NOV09	54	0	0
D01585	APP MA15-Temp Works & Drainage Diversion AIP	92	7	04MAR09A	29JUN09	124	-26	-34
D01590	P&S MA15-Temp Works & Drainage Diversion DDA	62	55	16JUN09A	23AUG09	124	-19	-22
D01595	APP MA15-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	124	-19	-22
Section 10 (Portion DG1)								
D01095	APP DG1-Permanent Works Intake AIP	92	7	29NOV08A	29JUN09	181	-35	-121
D01107	APP DG1-Temp Works & Drainage Diversion AIP	92	7	13JAN09A	29JUN09	181	-35	-76
D01108	P&S DG1-Temp Works & Drainage Diversion DDA	63	63	23JUN09*	24AUG09	125	-35	-53
D01109	APP DG1-Temp Works & Drainage Diversion DDA	92	92	25AUG09	24NOV09	125	-35	-53
Section 9 (Portion HR1)								
D01045	APP HR1-Permanent Works Intake AIP	92	0	11NOV08A	29MAY09A		-4	-95
D01056	P&S HR1-Temp Works & Drainage Diversion AIP	62	7	20APR09A	29JUN09	94	-9	-71
D01057	APP HR1-Temp Works & Drainage Diversion AIP	92	92	30JUN09	29SEP09	94	-9	-71
Section 14 (Portion BR6)								
D01355	APP BR6-Permanent Works Intake AIP	92	0	24JAN09A	09MAY09A		14	-14
D01370	P&S BR6-Temp Works & Drainage Diversion AIP	62	5	23FEB09A	27JUN09	75	-35	-69
D01375	APP BR6-Temp Works & Drainage Diversion AIP	92	92	28JUN09	27SEP09	75	-35	-69
Section 12 (Portion W1)								
D01255	APP W1-Permanent Works Intake AIP	92	0	09JAN09A	30APR09A		0	-20
D01267	APP W1-Temp Works & Drainage Diversion AIP	92	7	28FEB09A	29JUN09	261	-30	-34
D01268	P&S W1-Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	206	-35	-83
D01269	APP W1-Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	206	-35	-83
Section 8 (Portion GL1)								
D01007	APP GL1-Temp Works & Drainage Diversion AIP	92	7	23NOV08A	29JUN09	261	-35	-126
D01008	P&S GL1--Temp Works & Drainage Diversion DDA	62	62	23JUN09*	23AUG09	206	-35	-53
D01009	APP GL1--Temp Works & Drainage Diversion DDA	92	92	24AUG09	23NOV09	206	-35	-53
Section 25 (Portion CR1)								
D01955	APP CR1-Permanent Works Intake AIP	92	0	09JAN09A	24APR09A		0	-14
D01967	APP CR1-Temp Works & Drainage Diversion AIP	122	10	03MAR09A	02JUL09	323	0	-7



Start Date 30NOV07
Finish Date 26MAY12
Data Date 23JUN09
Run Date 25JUN09 14:14

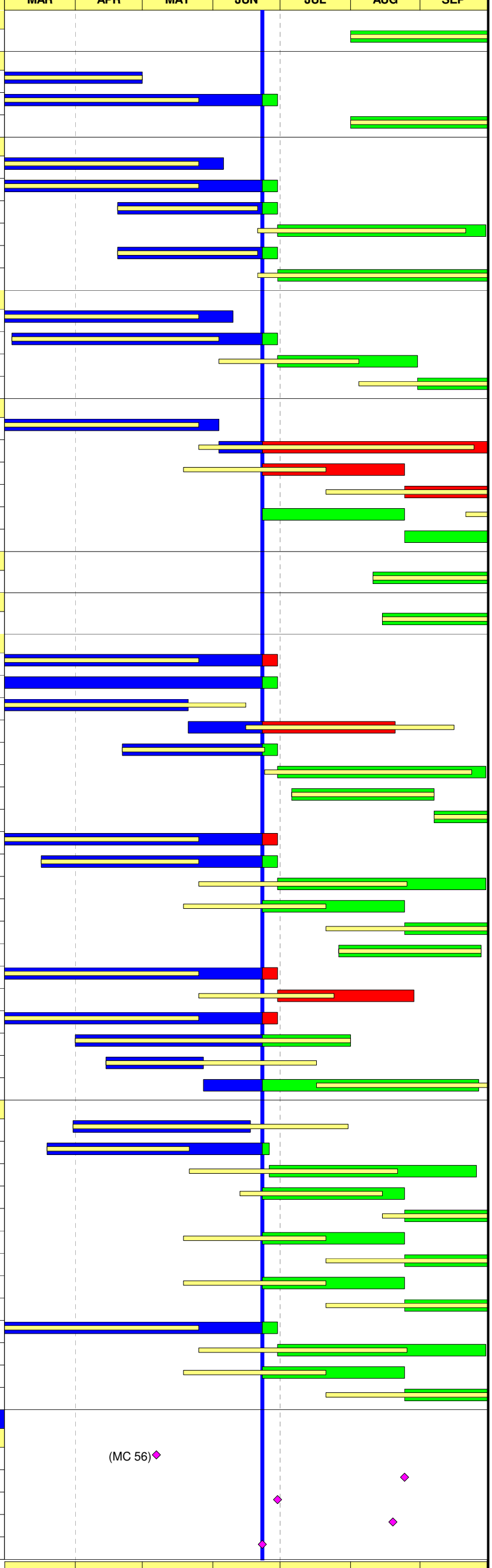
Early Bar
Previous Month (905A)
Progress Bar
Critical Activity

906A Sheet 3 of 9

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

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 905A EF Variance	Approved Works Prog 9032 EF Variance
Section 25 (Portion CR1)								
D01968	P&S CR1-Temp Works & Drainage Diversion DDA	62	62	01AUG09*	01OCT09	232	0	0
Section 13 (Portion BR5)								
D01305	APP BR5-Permanent Works Intake AIP	92	0	09JAN09A	30APR09A		0	-20
D01317	APP BR5-Temp Works & Drainage Diversion AIP	92	7	11FEB09A	29JUN09	212	-35	-47
D01318	P&S BR5-Temp Works & Drainage Diversion DDA	62	62	01AUG09*	01OCT09	180	0	0
Section 11 (Portion BR4)								
D01195	APP BR4-Permanent Works Intake AIP	92	0	08JAN09A	05JUN09A		-11	-57
D01207	APP BR4-Temp Works & Drainage Diversion AIP	92	7	12DEC08A	29JUN09	336	-35	-108
D01208	P&S BR4-Temp Works & Drainage Diversion DDA	62	7	20APR09A	29JUN09	336	-9	-71
D01209	APP BR4-Temp Works & Drainage Diversion DDA	92	92	30JUN09	29SEP09	336	-9	-71
D01240	P&S BR4-Permanent Slopeworks DDA	62	7	20APR09A	29JUN09	374	-9	-71
D01245	APP BR4-Permanent Slopeworks DDA	122	122	30JUN09	29OCT09	374	-9	-71
Section 16 (Portion B2)								
D01455	APP B2-Permanent Works Intake AIP	92	0	09JAN09A	09JUN09A		-15	-60
D01467	APP B2-Temp Works & Drainage Diversion AIP	92	7	04MAR09A	29JUN09	357	-26	-34
D01468	P&S B2-Temp Works & Drainage Diversion DDA	62	62	30JUN09*	30AUG09	357	-26	-29
D01469	APP B2-Temp Works & Drainage Diversion DDA	92	92	31AUG09	30NOV09	357	-26	-29
Adits & Stilling Chambers								
D00530	P&S Adits & Stilling Chamber Temp Support DDA	63	0	03FEB09A	03JUN09A		-9	-58
D00535	APP Adits & Stilling Chamber Temp Support DDA	122	103	04JUN09A	03OCT09	0	-9	-58
D00550	P&S Adits & SC Permanent Lining DDA	63	63	23JUN09	24AUG09	-29	-35	-27
D00555	APP Adits & SC Permanent Lining DDA	92	92	25AUG09	24NOV09	-29	-35	-27
D00570	P&S SC Permanent Lining DDA	63	63	23JUN09*	24AUG09	383	90	-27
D00575	APP SC Permanent Lining DDA	92	92	25AUG09	24NOV09	383	90	-27
E&M								
D02350	P&S E&M AIP	86	86	11AUG09*	04NOV09	265	0	0
Landscaping								
D02370	P&S Landscaping AIP	85	85	15AUG09*	07NOV09	200	0	0
Project Wide								
D00145	APP Detailed Const Risk Assess(Portals) DDA	42	7	02AUG08A	29JUN09	-233	-35	-126
D00148	APP Det Const Risk Assess Vol 1-(W0) DDA	92	7	30JAN09A	29JUN09	1,062	0	-91
D00149	P&S DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc	63	0	16DEC08A	20MAY09A		26	-37
D00150	APP DCRA V2-PFLR1,SM1,HKU1,E7,MBD2,MB16,etc	92	59	21MAY09A	20AUG09	-54	26	-37
D00151	P&S DCRA V3-W10,P5,W8,RR1,CR1,W5,TP4,TP5,etc	63	7	22APR09A	29JUN09	9	-6	-49
D00152	APP DCRA V3-W10,P5,W8,RR1,CR1,W5,TP4,TP5,etc	92	92	30JUN09	29SEP09	9	-6	-49
D00153	P&S DCRA V4-M3,MA17,MA15,MA14,B3,W3,BR6,etc	63	63	06JUL09*	06SEP09	58	0	0
D00154	APP DCRA V4-M3,MA17,MA15,MA14,B3,W3,BR6,etc	92	92	07SEP09	07DEC09	58	0	0
D00161	APP Impact Assess Rep Waterwork Fac V 1-(W0) DDA	40	7	06DEC08A	29JUN09	-216	-35	-126
D00162	P&S Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	63	7	17MAR09A	29JUN09	25	-35	-70
D00163	APP Impact ARW V 2-PFLR1,SM1,HKU1,THR2,etc DDA	92	92	30JUN09	29SEP09	25	-35	-70
D00164	P&S Impact ARW V 3-W10,P5,W8,RR1,CR1,W5,etc DDA	63	63	23JUN09*	24AUG09	261	-35	-83
D00165	APP Impact ARW V 3-W10,P5,W8,RR1,CR1,W5,etc DDA	92	92	25AUG09	24NOV09	261	-35	-83
D00166	P&S Impact ARW V 4-M3,MA17,MA15,MA14,B2,etc DDA	63	63	27JUL09*	27SEP09	189	0	0
D00168	P&S Water Inflow Assess Rep(Tunnel, Adit & DS)	61	7	30OCT08A	29JUN09	-158	-35	-126
D00169	APP Water Inflow Assess Rep(Tunnel, Adit & DS)	60	60	30JUN09	28AUG09	-158	-35	-126
D00189	APP Blasting Assessment - Volume 2B(Adit W0)	92	7	17OCT08A	29JUN09	-163	-35	-126
D00191	APP Blasting Assessment - Vol 3A(East Adits)	122	39	01APR09A	31JUL09	88	0	-33
D00192	P&S Blasting Assessment - Vol 3B(West Adits)	93	0	15APR09A	27MAY09A		50	-46
D00193	APP Blasting Assessment - Vol 3B (West Adits)	122	96	28MAY09A	26SEP09	28	50	-46
Main Tunnel								
D00445	APP Adit/main tun intrct Temp Sup(excl W0) AIP	122	0	31MAR09A	17JUN09A		43	8
D00450	P&S Adit/main tun intrct Temp Sup(excl W0) DDA	63	3	20MAR09A	25JUN09	81	-35	19
D00455	APP Adit/main tun intrct Temp Sup(excl W0) DDA	92	92	26JUN09	25SEP09	81	-35	19
D00470	P&S Adit/main tun intrct Perm Ling(exc W0) DDA	63	63	23JUN09*	24AUG09	272	-10	-10
D00475	APP Adit/main tun intrct Perm Ling(exc W0) DDA	92	92	25AUG09	24NOV09	272	-10	-10
D00480	P&S Adit/main tun intrct Perm Ling at W0 AIP	63	63	23JUN09*	24AUG09	293	-35	-85
D00485	APP Adit/main tun intrct Perm Ling at W0 AIP	92	92	25AUG09	24NOV09	293	-35	-85
D00490	P&S Adit/main tunl intrsct Perm Ling at W0 DDA	63	63	23JUN09*	24AUG09	447	-35	-54
D00495	APP Adit/main tunl intrsct Perm Ling at W0 DDA	92	92	25AUG09	24NOV09	447	-35	-54
D00500	P&S TBM Dismantle Chamber Temp Supt at W0 AIP	194	7	16MAY08A	29JUN09	334	-35	-126
D00505	APP TBM Dismantle Chamber Temp Supt at W0 AIP	92	92	30JUN09	29SEP09	334	-35	-126
D00510	P&S TBM Dismantle Chamber Temp Supt at W0 DDA	63	63	23JUN09*	24AUG09	278	-35	-126
D00515	APP TBM Dismantle Chamber Temp Supt at W0 DDA	92	92	25AUG09	24NOV09	278	-35	-126
Milestone								
Design Submission								
M2-1080	2.08-AIP-Adits&Stilling Chambers Consent	0	0		06MAY09A		0	20
M2-1090	2.09-DDA-Adits&Stilling Chambers Submission	0	0		24AUG09	1,006	-35	-27
M2-1120	2.12-AIP-Dropshaft Consent	0	0		29JUN09	1,062	-35	-61
M2-1130	2.13-DDA-Dropshaft Submission	0	0		19AUG09	1,011	-31	-79
M2-1200	2.20-AIP Slope Consent (other than E&W Portals)	0	0		22JUN09	1,069	-35	6



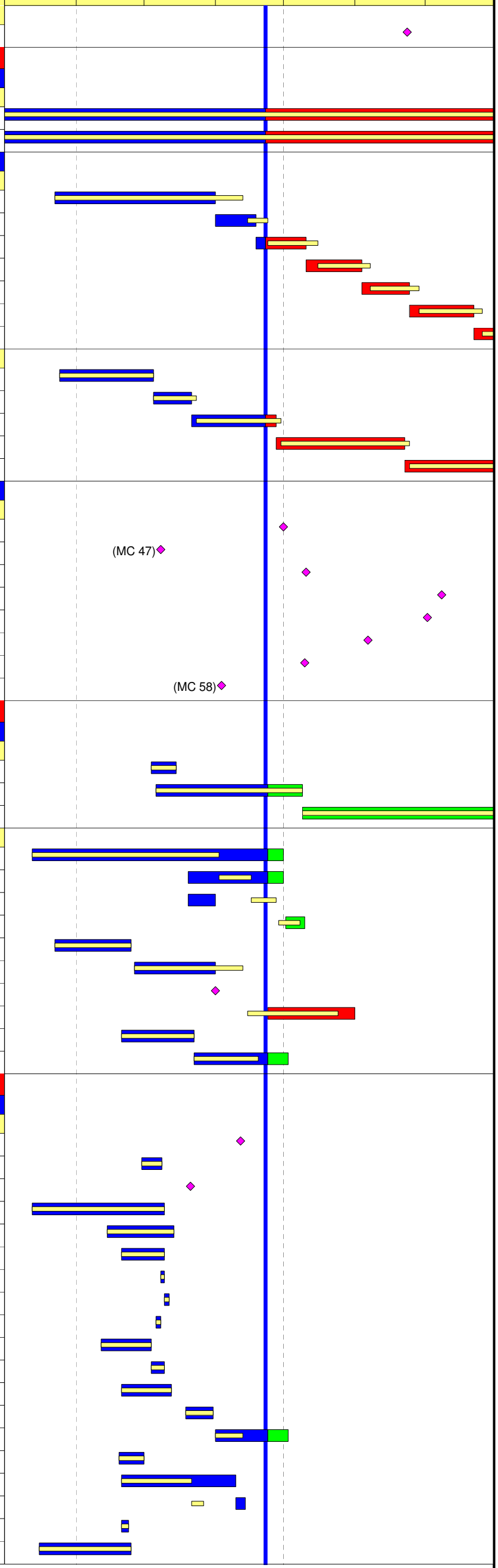
Start Date 30NOV07
Finish Date 26MAY12
Data Date 23JUN09
Run Date 25JUN09 14:14

Early Bar
Previous Month (905A)
Progress Bar
Critical Activity

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

Date	Revision	Checked	Approved

Act ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	Previous Month 905A EF Variance	Approved Works Prog 9032 EF Variance
Design Submission								
M2-1210	2.21-DDA Slope Protective(other thanE&W Portals)	0	0		23AUG09	1,007	-22	-22
CC03-PART OF SECTION 1 OF THE WORKS(MAIN TUNNEL)								
Preliminary and General Requirements								
Prefabrication Precast Segment for Main Tunnel								
B2240	Precast Segment Fabrication (E.Tunnel)	592	432	16DEC08A	28AUG10	-16	0	-28
B2280	Precast Segment Fabrication (W.Tunnel)	745	527	17DEC08A	01DEC10	-23	0	30
Construction								
TBM Excavation (Eastern Tunnel)								
E1410	East TBM Assembly-(MT)	60	0	23MAR09A	31MAY09A		10	10
E1440	TBM Excavation (CH179 to CH197) =18m	8	0	01JUN09A	18JUN09A		4	4
E1450	TBM Excavation (CH197 to CH250) =53m	18	15	19JUN09A	10JUL09	-7	4	4
E1460	Preparation for Main Drive	18	18	11JUL09	03AUG09	-7	3	3
E1470	TBM Excav (CH250 to CH380) =130m	18	18	04AUG09	24AUG09	-8	4	4
E1480	TBM Excav (CH380 to CH640) =260m	23	23	25AUG09	21SEP09	-8	4	4
E1500	TBM Excav (CH640 to CH844-E5A,E5B)+200m =404m	33	33	22SEP09	31OCT09	-8	4	4
TBM Excavation (Western Tunnel)								
W1092	TBM Excav (CH10533 to CH10410) =123m	29	0	25MAR09A	04MAY09A		0	-7
W1094	TBM Excav (CH10410 to CH10310) =100m	23	0	05MAY09A	21MAY09A		2	-1
W1096	TBM Excav (CH10310 to CH10110) =200m	37	5	22MAY09A	27JUN09	-127	2	-1
W1098	TBM Excav (CH10110 to CH9610) =500m	56	56	28JUN09	22AUG09	-127	2	-1
W1148	TBM Excav (CH9610toCH8799-SM1,PFLR1)+200m	94	94	23AUG09	24NOV09	-127	2	-1
Milestone								
Section 1 (Main Tunnel)								
M3-1041	3.04-Commission&Compln 100mExcav(6.25mDia.)100%	0	0		30JUN09	1,061	-7	-7
M3-1091	3.09-Commissioning of 100m Excav(7.25m dia)100%	0	0		07MAY09A		0	-10
M3-1111	3.11-Junction Bet M.Tunnel& E.Portal&CH250 100%	0	0		10JUL09	1,051	5	5
M3-1120	3.12-Excavation, Support & Lining CH250 to 500	0	0		07SEP09	992	4	4
M3-1490	3.49-Excavation, Support & Lining CH9500 to 9750	0	0		01SEP09	998	2	-1
M3-1500	3.50-Excavation, Support &Lining CH9750 to 10000	0	0		06AUG09	1,024	2	-1
M3-1510	3.51-Excavation, Support & Lining CH10000-10250	0	0		09JUL09	1,052	2	-1
M3-1520	3.52-M.Tunnel CH10250 & Junction w/ W Portal	0	0		03JUN09A		0	-66
CC5-PART OF SECTION 1 OF THE WORKS (EAST PORTAL)								
Construction								
East Portal River Channel Works								
EPC0305	Install Temporary Decking	25	0	04MAY09A	14MAY09A		0	29
EPC0310	Rock Excav&Slope Stabilization North Side Row A	49	12	06MAY09A	08JUL09	8	0	11
EPC0311	Rock Excav&Slope Stabilization North Side Row B	80	80	09JUL09	20OCT09	8	0	11
Site Installation - Phase 2								
EPA0300	Spoil Tremie/Storage Construction	60	6	13MAR09A	30JUN09	836	-21	-35
EPA0310	Construct Spoil Storage Noise Enclosure	10	6	20MAY09A	30JUN09	12	-11	-25
EPA0320	Construct Portal Entrance Noise Enclosure	9	0	20MAY09A	31MAY09A		21	7
EPA0330	Construct Stub Train Track Noise Enclosure	7	7	02JUL09	09JUL09	12	-2	-16
EPA0400	Cutterhead and Shield Assembly	24	0	23MAR09A	24APR09A		0	0
EPA0420	Assemble Backups up to 10B	36	0	27APR09A	31MAY09A		10	10
EPA0430	COMMENCE EAST TBM DRIVE	0	0	01JUN09A			10	10
EPA0450	Assemble Backups up to 13B	30	30	24JUN09	31JUL09	-5	-5	-5
EPA0500	Conveyor - Construct Tower Frame T1 & T2	12	0	21APR09A	22MAY09A		0	-61
EPA0505	Install Conveyor T1 & T2	21	7	23MAY09A	02JUL09	18	-9	-70
CC6-PART OF SECTION 1 OF THE WORKS (WEST PORTAL)								
Construction								
Site Installation - Phase 2								
WPT0150	RESTART IN FULL CONFIGURATION	0	0		11JUN09A		7	-30
WPT0155	Track installation during learning curve	13	0	30APR09A	08MAY09A		0	9
WPT0160	END OF 223m LENGTH OF TUNNEL(10m/day)	0	0		20MAY09A		3	0
WPT0330	Conveyor T2,T3,T6 assemb on top basin+sea side	23	0	13MAR09A	09MAY09A		0	-18
WPT0397	Start use of T4 to T6 Conveyor for Barge Loading	15	0	15APR09A	13MAY09A		0	-19
WPT0430	Conveyor T1 assembly	5	0	21APR09A	09MAY09A		0	-23
WPT0450	Conveyor T1 Belts installation + vulcanisation	2	0	08MAY09A	09MAY09A		0	-16
WPT0470	CONVEYOR COMMISSIONING FULL INSTALLATION	2	0	10MAY09A	11MAY09A		0	-15
WPT0492	Conveyor Belt Cassette Assembly End parts T1&T2	2	0	06MAY09A	07MAY09A		0	-27
WPT0670	25 T installation	5	0	12APR09A	03MAY09A		0	-13
WPT0690	25 T Crane Test and Commissioning	6	0	04MAY09A	09MAY09A		0	-12
WPT0770	Set up area for Pipes and rails	15	0	21APR09A	12MAY09A		0	-14
WPT0835	Mortar for TBM -Fabrication+pumping test on site	10	0	19MAY09A	30MAY09A		0	-69
WPT0837	Mortar for TBM - Setup Equipment on site	10	7	01JUN09A	02JUL09	835	-14	-53
WPT0859	Grouting Equipment-Install on Gantry BU10B+Tests	10	0	20APR09A	30APR09A		0	-7
WPT1037	Site installation Permanent Wet Sep Stage 2	12	0	21APR09A	09JUN09A		-14	-51
WPT1050	Water Treatment Plant Commisioning	4	0	10JUN09A	13JUN09A		-13	-50
WPT1092	Set up Water tank & Booster pumps	3	0	21APR09A	23APR09A		0	-40
WPT1094	Set up return loop from tank from TBM(hot water)	8	0	16MAR09A	24APR09A		0	-33



MAR APR MAY JUN JUL AUG SEP
2009

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Previous Month (905A)
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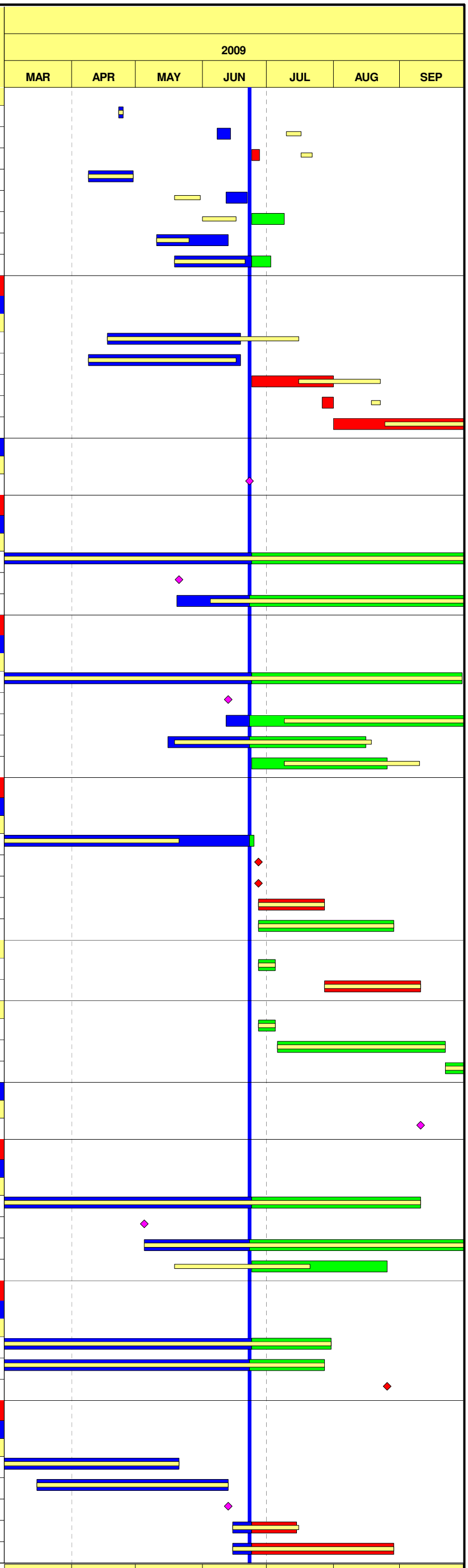
Site Installation - Phase 2								
WPT1096	Commissioning water booster pumps + chiller	3	0	23APR09A	24APR09A		0	-30
WPT1262	Final Ventilation Installation & Commission	5	0	08JUN09A	13JUN09A		25	-3
WPT1265	Installation & Test of Chiller for ventilation	4	4	24JUN09	27JUN09	-53	18	-10
WPT1505	Pea Gravel-Civil work on yard+Temp trans install	13	0	09APR09A	29APR09A		0	-36
WPT1540	Pea Gravel tank into shaft install&Commissioning	10	0	12JUN09A	21JUN09A		-16	-69
WPT1560	Pea Gravel transfer conveyors to the tank	12	12	24JUN09	08JUL09	830	-17	-79
WPT1780	Install Noise Cover below bridge	18	0	11MAY09A	12JUN09A		-14	-66
WPT1790	Install Noise cover pea gravel/spoil basin side	26	7	19MAY09A	02JUL09	835	-8	-54
CC7 -PART OF SECTION 1 OF THE WORKS (PORTION W0)								
Construction								
Intakes - External Structures (Stage1)								
S010190	Cofferdam Wall Driving-(W0)	73	0	18APR09A	18JUN09A		20	20
S010220	Pre-drilling & Grouting Works-(W0)	48	0	09APR09A	18JUN09A		-2	-5
S010230	Temp Diversion Natural Stream(Drain)-(W0)	30	30	24JUN09	31JUL09	-117	17	17
S010240	Mobilization for Shaft Excavaton	4	4	27JUL09	31JUL09	-117	17	17
S010248	Excavation to +65mPD	49	49	01AUG09	03OCT09	-117	17	2
Milestone								
Section 1 (Portion W0)								
M7-1010	7.01-Pre-drilling&Grouting Works(Dropshaft)	0	0		22JUN09	919	-6	-11
CC8 - SECTION 2 OF THE WORKS (PORTION E5A)								
Construction								
Preliminary Works								
S020040	Notify,Coord&Obtain Permit-Utility Prov - E5A	240	123	19JAN09A	26NOV09	6	0	0
S020100	Notify SO for Portion Possession - E5A	0	0		20MAY09A		12	12
S020110	25 wks prior to Portion Possess Date-(E5A)	175	141	20MAY09A	10NOV09	16	16	16
CC9 - SECTION 3 OF THE WORKS (PORTION E5B)								
Construction								
Preliminary Works								
S030020	Notify,Coord&Obtain Permit-Utility Prov - E5B	265	76	24OCT08A	29SEP09	74	0	0
S030100	Notify SO for Portion Possession - E5B)	0	0		12JUN09A		26	26
S030110	25 wks prior to Portion Possess Date-(E5B)	175	165	12JUN09A	04DEC09	26	26	26
S030119	GI & Inspection Pits - Advance Works(E5B)	92	54	16MAY09A	15AUG09	137	3	0
S030240	TMLG submission, coordination & Approval - E5B	48	48	24JUN09	25AUG09	102	12	12
CC10-SECTION 4 OF THE WORKS (PORTION MB16)								
Construction								
Preliminary Works								
S040110	25 wks prior to Portion Possess Date-(MB16)	175	2	27NOV08A	24JUN09	2	-35	-7
S040125	Complete Utility Diversion by Others - MB16	0	0		26JUN09*	0	0	0
S040130	Site Possession - (MB16)	0	0	27JUN09*		0	0	0
S040140	Site Setting up/Mobilization-(MB16)	24	24	27JUN09	27JUL09	0	0	0
S4-1140U	Cut Slope at the Western for Working Platform	48	48	27JUN09	28AUG09	10	0	0
Preparation Works								
S040150	Install Geotech Monitoring Instruments-(MB16)	6	6	27JUN09	04JUL09	52	0	0
S040170	Pre-drilling & Grouting Works-(MB16)	34	34	28JUL09	10SEP09	0	0	0
Pipe Laying								
S040120	Implement TTM-(MB16)	6	6	27JUN09	04JUL09	96	0	0
S040160	Manhole SMH1 to SMH3	60	60	06JUL09	21SEP09	96	0	0
S040190	Manhole SMH2 to SMH3	30	30	22SEP09	29OCT09	96	0	0
Milestone								
Section 4 (Portion MB16)								
M101010	10.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		10SEP09	471	0	0
CC11-SECTION 5 OF THE WORKS (PORTION MBD2)								
Construction								
Preliminary Works								
S050030	Notify,Coord&Obtain Permit-Utility Prov - MBD2	149	61	19JAN09A	10SEP09	44	0	-30
S050100	Notify SO for Portion Possession - MBD2	0	0		04MAY09A		0	8
S050110	25 wks prior to Portion Possess Date-(MBD2)	175	127	05MAY09A	27OCT09	9	-1	9
S050125	TMLG submission, coordination & Approval - MBD2	48	48	24JUN09	25AUG09	57	-27	-30
CC12-SECTION 6 OF THE WORKS (PORTION E7)								
Construction								
Preliminary Works								
S060030	Notify,Coord&Obtain Permit-Utility Prov - E7	225	29	16OCT08A	30JUL09	16	0	0
S060110	25 wks prior to Portion Possess Date-(E7)	175	35	03FEB09A	27JUL09	24	0	0
S060127	Complete All Utility Diversions by Others- (E7)	0	0		25AUG09*	-3	0	0
CC13-SECTION 7 OF THE WORKS (PORTION THR2)								
Construction								
Preliminary Works								
S070110	25 wks prior to Portion Possess Date-(THR2)	175	0	27NOV08A	20MAY09A		0	0
S070119	GI & Inspection Pits - Advance Works (THR2)	90	0	16MAR09A	12JUN09A		0	0
S070150	Site Possession - THR2	0	0	13JUN09A			0	0
S070160	Site Setting up/Mobilization-(THR2)	24	16	15JUN09A	14JUL09	0	1	1
S070180	Rail System & Overhead Gantry Installation	58	51	15JUN09A	28AUG09	0	0	0



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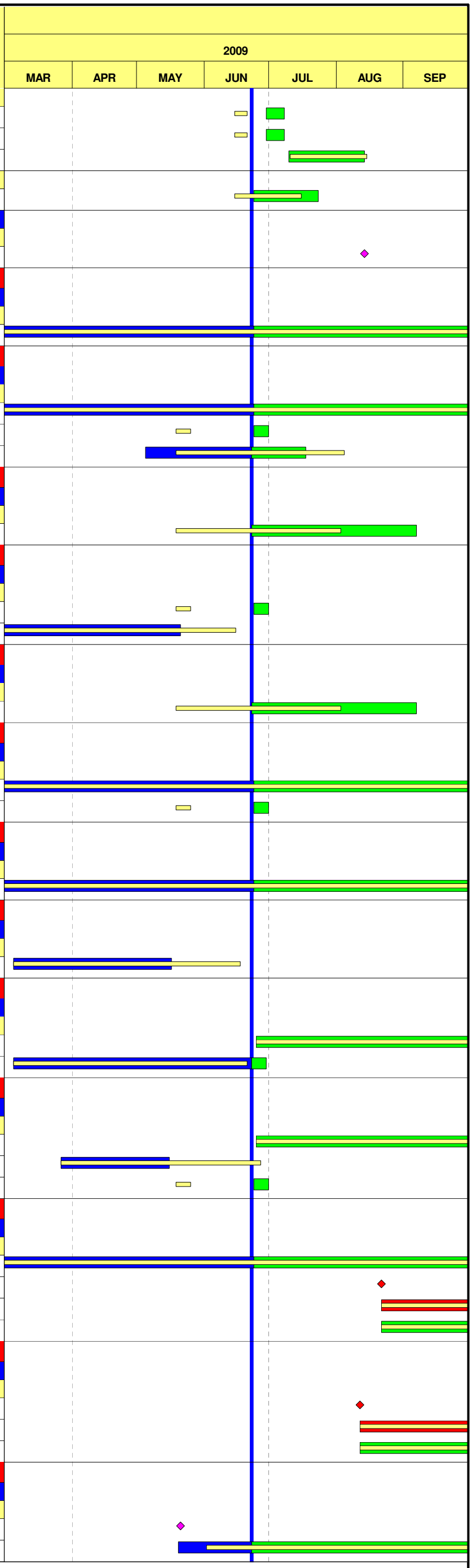
Preparation Works								
S070190	Install Geotech Monitoring Instruments-(THR2)	6	6	30JUN09	07JUL09	14	-12	-12
S070191	Existing Bldg & Structure(EBS) Survey - (THR2)	6	6	30JUN09	07JUL09	14	-12	-12
S070200	Pre-drilling & Grouting Works-(THR2)	26	26	10JUL09	13AUG09	12	1	1
Intakes - External Structures (Stage1)								
S070170	Temp Diversion Natural Stream(Drain)-(THR2)	24	24	24JUN09	23JUL09	27	-7	-7
Milestone								
Section 7 (Portion THR2)								
M13-1010	13.01-Pre-drilling & Grouting Works(Dropshaft)	0	0		13AUG09	485	1	1
CC14-SECTION 8 OF THE WORKS (PORTION GL1)								
Construction								
Preliminary Works								
S080030	Notify,Coord&Obtain Permit-Utility Prov - GL1	364	245	19JAN09A	30APR10	35	0	0
CC15-SECTION9 OF THE WORKS(PORTION HR1)								
Construction								
Preliminary Works								
S090030	Notify,Coord&Obtain Permit-Utility Prov - HR1	315	126	24OCT08A	30NOV09	156	0	0
S090120	P & S Tree Survey Report (HR1)	6	6	24JUN09	30JUN09	276	-27	-96
S090122	GI & Inspection Pits - Advance Works (HR1)	78	25	05MAY09A	17JUL09	339	18	0
CC17-SECTION 11 OF THE WORKS (PORTION BR4)								
Construction								
Preliminary Works								
S110122	GI & Inspection Pits - Advance Works (BR4)	76	76	23JUN09*	06SEP09	296	-35	0
CC18-SECTION 12 OF THE WORKS (PORTION W1)								
Construction								
Preliminary Works								
S120120	P & S Tree Survey Report (W1)	6	6	24JUN09	30JUN09	279	-27	-96
S120122	GI - Advance Works (W1)	109	0	27FEB09A	20MAY09A		26	0
CC19-SECTION 13 OF WORKS (PORTION BR5)								
Construction								
Preliminary Works								
S130122	GI & Inspection Pits - Advance Works (BR5)	76	76	23JUN09*	06SEP09	345	-35	0
CC20-SECTION 14 OF THE WORKS (PORTION BR6)								
Construction								
Preliminary Works								
S140030	Notify,Coord&Obtain Permit-Utility Prov - BR6	408	246	24NOV08A	03MAY10	9	0	0
S140120	P & S Tree Survey Report (BR6)	6	6	24JUN09	30JUN09	249	-27	-96
CC21-SECTION 15 OF THE WORKS (PORTION W3)								
Construction								
Preliminary Works								
S150030	Notify,Coord&Obtain Permit-Utility Prov - W3	359	196	24NOV08A	26FEB10	58	0	0
CC22-SECTION 16 OF THE WORKS (PORTION B2)								
Construction								
Preliminary Works								
S160122	GI & Inspection Pits - Advance Works (B2)	105	0	05MAR09A	16MAY09A		32	0
CC23-SECTION 17 OF THE WORKS (PORTION MA14)								
Construction								
Preliminary Works								
S170020	Notify,Coord&Obtain Permit-Utility Prov - MA14	149	149	25JUN09*	30DEC09	70	0	0
S170117	GI & Inspection Pits - Advance Works (MA14)	105	7	05MAR09A	29JUN09	270	-9	0
CC24-SECTION 18 OF THE WORKS (PORTION MA15)								
Construction								
Preliminary Works								
S180020	Notify,Coord&Obtain Permit-Utility Prov - MA15	149	149	25JUN09*	30DEC09	76	0	0
S180117	GI & Inspection Pits - Advance Works (MA15)	92	0	27MAR09A	15MAY09A		42	0
S180120	P & S Tree Survey Report (MA15)	6	6	24JUN09	30JUN09	220	-27	-96
CC25-SECTION 19 OF THE WORKS (PORTION MA17)								
Construction								
Preliminary Works								
S190030	Notify,Coord&Obtain Permit-Utility Prov - MA17	312	150	24NOV08A	30DEC09	42	0	0
S190100	Notify SO for Portion Possession - (MA17)	0	0		21AUG09*	0	0	0
S190110	25 wks prior to Portion Possess Date-(MA17)	175	175	22AUG09	12FEB10	0	0	0
S190125	TMLG submission, coordination & Approval - MA17	48	48	22AUG09	22OCT09	98	0	0
CC26-SECTION 20 OF THE WORKS (PORTION M3)								
Construction								
Preliminary Works								
S200100	Notify SO for Portion Possession - (M3)	0	0		11AUG09*	0	0	0
S200110	25 wks prior to Portion Possess Date-(M3)	175	175	12AUG09	02FEB10	0	0	0
S200125	TMLG submission, coordination & Approval - M3	48	48	12AUG09	12OCT09	95	0	0
CC27-SECTION 21 OF THE WORKS (PORTION TP789)								
Construction								
Preliminary Works								
S210100	Notify SO for Portion Possession - (TP789)	0	0		20MAY09A		9	9
S210110	25 wks prior to Portion Possess Date-(TP789)	175	141	20MAY09A	10NOV09	13	13	13



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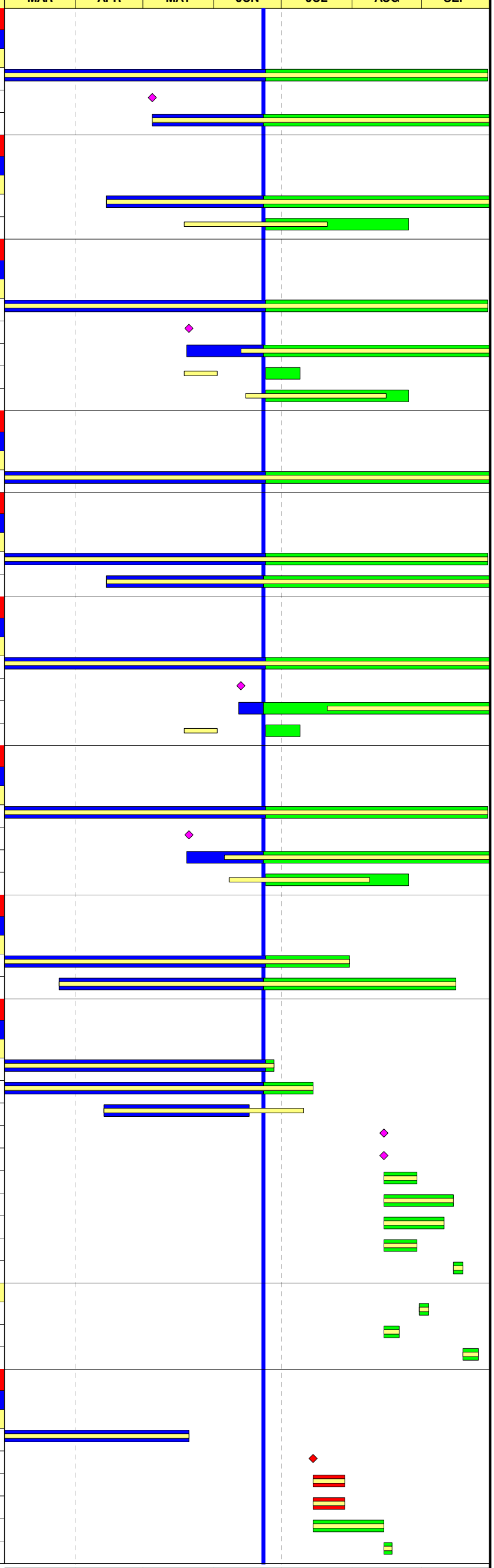
CC28-SECTION 22 OF THE WORKS (PORTION TP5)								
Construction								
Preliminary Works								
S220030	Notify,Coord&Obtain Permit-Utility Prov - TP5	265	76	24OCT08A	29SEP09	38	0	0
S220100	Notify SO for Portion Possession - (TP5)	0	0		04MAY09A		0	19
S220110	25 wks prior to Portion Possess Date-(TP5)	175	126	05MAY09A	26OCT09	21	0	23
CC29-SECTION 23 OF THE WORKS (PORTION TP4)								
Construction								
Preliminary Works								
S230110	25 wks prior to Portion Possess Date-(TP4)	175	106	15APR09A	06OCT09	16	0	16
S230125	TMLG submission, coordination & Approval - TP4	48	48	24JUN09	25AUG09	46	-27	-39
CC30-SECTION 24 OF THE WORKS (PORTION W5)								
Construction								
Preliminary Works								
S240030	Notify,Coord&Obtain Permit-Utility Prov - W5	239	76	24NOV08A	29SEP09	60	0	0
S240100	Notify SO for Portion Possession - (W5)	0	0		20MAY09A		18	18
S240110	25 wks prior to Portion Possess Date-(W5)	175	142	20MAY09A	11NOV09	23	23	23
S240116	P & S Environmental Base Monitoring Report(W5)	12	12	24JUN09	08JUL09	124	-27	-79
S240125	TMLG submission, coordination & Approval - W5	48	48	24JUN09	25AUG09	88	-7	-7
CC31-SECTION 25 OF THE WORKS (PORTION CR1)								
Construction								
Preliminary Works								
S250030	Notify,Coord&Obtain Permit-Utility Prov - CR1	327	138	24OCT08A	14DEC09	150	0	0
CC32-SECTION 26 OF THE WORKS (PORTION RR1)								
Construction								
Preliminary Works								
S260030	Notify,Coord&Obtain Permit-Utility Prov - RR1	265	76	24OCT08A	29SEP09	20	0	0
S260110	25 wks prior to Portion Possess Date-(RR1)	175	106	15APR09A	06OCT09	15	0	15
CC33-SECTION 27 OF THE WORKS (PORTION W8)								
Construction								
Preliminary Works								
S270030	Notify,Coord&Obtain Permit-Utility Prov - W8	278	112	20NOV08A	13NOV09	56	0	0
S270100	Notify SO for Portion Possession - (W8)	0	0		12JUN09A		28	28
S270110	25 wks prior to Portion Possess Date-(W8)	175	164	12JUN09A	03DEC09	39	39	39
S270116	P & S Environmental Base Monitoring Report(W8)	12	12	24JUN09	08JUL09	156	-27	-79
CC34-SECTION 28 OF THE WORKS (PORTION P5)								
Construction								
Preliminary Works								
S280030	Notify,Coord&Obtain Permit-Utility Prov - P5	247	76	14NOV08A	29SEP09	84	0	0
S280100	Notify SO for Portion Possession - (P5)	0	0		20MAY09A		13	13
S280110	25 wks prior to Portion Possess Date-(P5)	175	141	20MAY09A	10NOV09	17	17	17
S280121	TMLG submission, coordination & Approval - P5	48	48	24JUN09	25AUG09	112	-12	-12
CC35-SECTION 29 OF THE WORKS (PORTION W10)								
Construction								
Preliminary Works								
S290030	Notify,Coord&Obtain Permit-Utility Prov - W10	190	29	26NOV08A	30JUL09	52	0	0
S290110	25 wks prior to Portion Possess Date-(W10)	175	85	25MAR09A	15SEP09	22	0	22
CC36-SECTION 30 OF THE WORKS (PORTION HKU1)								
Construction								
Preliminary Works								
S300020	Notify,Coord&Obtain Permit-Utility Prov - HKU1	192	4	24OCT08A	27JUN09	39	0	0
S300110	25 wks prior to Portion Possess Date-(HKU1)	175	22	21JAN09A	14JUL09	31	0	0
S300117	GI & Utility Inspection - Advance Works (HKU1)	88	0	14APR09A	16JUN09A		24	0
S300120	Site Possession - HKU1	0	0	15AUG09*		3	0	0
S300121	Complete All Diversions by Others - HKU1	0	0		14AUG09*	3	0	0
S300130	Tree Felling-(HKU1)	12	12	15AUG09	29AUG09	18	0	0
S300160	Power & Water Points-(HKU1)	24	24	15AUG09	14SEP09	3	0	0
S300170	Cut/Fill/Place Concrete Block&Platform-(HKU1)	21	21	15AUG09	10SEP09	9	0	0
S300180	Hoarding/Fencing-(HKU1)	12	12	15AUG09	29AUG09	15	0	0
S300210	Site Office-(HKU1)	3	3	15SEP09	18SEP09	3	0	0
Preparation Works								
S300220	Install Geotech Monitoring Instruments-(HKU1)	3	3	31AUG09	03SEP09	15	0	0
S300221	Existing Bldg & Structure(EBS) Survey - (HKU1)	6	6	15AUG09	21AUG09	24	0	0
S300230	Mobilization&Setup(Pre-drill & Grouting)-(HKU1)	6	6	19SEP09	25SEP09	3	0	0
CC37-SECTION 31 OF THE WORKS (PORTION PFLR1)								
Construction								
Preliminary Works								
S310930	25 wks prior to Portion Possess Date-(PFLR1)	175	0	27NOV08A	20MAY09A		0	28
S310940	Site Possession - (PFLR1)	0	0	15JUL09*		0	0	0
S310970	Hoarding/Fencing-(PFLR1)	12	12	15JUL09	28JUL09	0	0	0
S310980	Implement TTM - (Occupy Pedestrain)	12	12	15JUL09	28JUL09	0	0	0
S310990	Power & Water Points-(PFLR1)	24	24	15JUL09	14AUG09	3	0	0
S311100	Site Office-(PFLR1)	3	3	15AUG09	18AUG09	3	0	0



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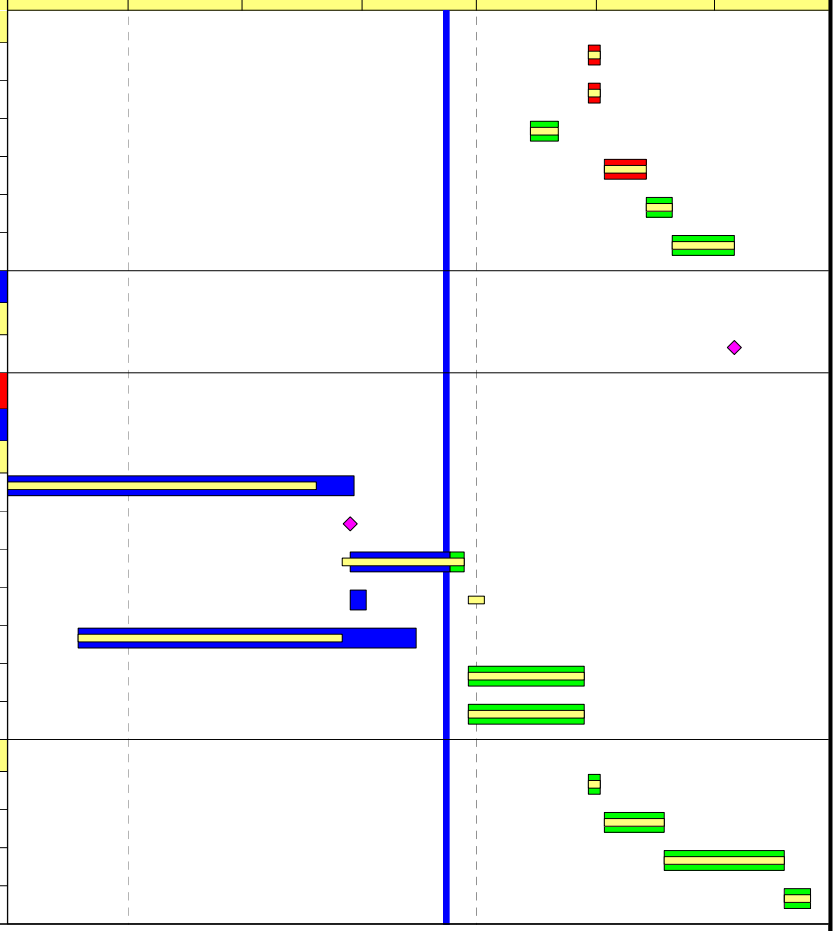
Preparation Works								
S311120	Mobilization&Setup(Pre-drill & Grouting)-(PFLR1)	3	3	30JUL09	01AUG09	0	0	0
S311130	Install Geotech Monitoring Instruments-(PFLR1)	3	3	30JUL09	01AUG09	0	0	0
S311131	Existing Bldg & Structure(EBS) Survey - (PFLR1)	6	6	15JUL09	21JUL09	9	0	0
S311140	Pre-drilling-(PFLR1)	8	8	03AUG09	13AUG09	0	0	0
S311150	Analysis of the SI-(PFLR1)	6	6	14AUG09	20AUG09	44	0	0
S311160	Grouting Works-(PFLR1)	12	12	21AUG09	05SEP09	44	0	0
Milestone								
Section 31 (Portion PFLR1)								
M371010	37.01-Pre-drilling & Grouting Works (Dropshaft)	0	0		05SEP09	494	0	0
CC38-SECTION 32 OF THE WORKS (PORTION SM1)								
Construction								
Preliminary Works								
S320930	25 wks prior to Portion Possess Date-(SM1)	175	0	26NOV08A	29MAY09A		-10	-10
S320950	Site Possession - SM1	0	0	29MAY09A			0	0
S320970	Power & Water Points-(SM1)	24	4	29MAY09A	27JUN09	57	0	1
S320980	Site Office-(SM1)	3	0	29MAY09A	01JUN09A		23	24
S321010	Hoarding/Fencing/Gate Construction-(SM1)	12	0	19MAR09A	14JUN09A		-13	0
S321040	Modification of the Noise Barrier Footings	24	24	29JUN09	28JUL09	57	0	0
S321090	Modification of the WSD Bend Blocks	24	24	29JUN09	28JUL09	57	0	0
Preparation Works								
S321030	Install Geotech Monitoring Instruments-(SM1)	3	3	30JUL09	01AUG09	57	0	-35
S321050	Mobilization&Setup(Pre-drill & Grouting)-(SM1)	12	12	03AUG09	18AUG09	57	0	-29
S321060	Pre-drilling-(SM1)	24	24	19AUG09	18SEP09	57	0	-29
S321070	Analysis of the SI-(SM1)	6	6	19SEP09	25SEP09	57	0	-29



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APPENDIX B
MONITORING REQUIREMENTS

Appendix B - Environmental Impact Monitoring Requirements

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Air Quality	1 hour TSP	Three times / 6 days	• AQ1 (True Light Middle School of Hong Kong) • AQ2 (Outside Aegean Terrace)	AQ1 – Canopy AQ2 – Roadside AQ3 – Roadside
	24 hour TSP	Once / 6 days	• AQ1 (True Light Middle School of Hong Kong) • AQ3 (Outside Site Office at Western Portal)	

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Airborne Noise	L_{eq}, L_{90} & L_{10} at 30 minute intervals during (0700 to 1900 on normal weekdays)	Once per week	• NC1 (True Light Middle School of Hong Kong) • NC1a (Outside True Light Middle School of Hong Kong (the nearest of staff accommodation) – for restricted hours (reference only) • NC2 (The Legend) • NC3 (Outside Aegean Terrace) • NC15 (Hong Kong Academy)	• NC1 - Facade measurement • NC1a – Façade measurement • NC2 - Facade measurement • NC3 - Facade measurement • NC15 – Free field measurement
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (1900 to 2300)[(1)]	Once per week (include 3 consecutive 5-min measurements)		
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (2300 to 0700 of next day)[(1)]	Once per week (include 3 consecutive 5-min measurements)		
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (0700 to 2300 on holidays)[(1)]	Once per week (include 3 consecutive 5-min measurements)		

Remarks:

[(1)] – Conduct noise monitoring only when construction work is carried out.

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Ground Borne Noise	L_{eq}, L_{90} & L_{10} at 30 minute intervals during (0700 to 1900 on normal weekdays)	Once per week	• GNC1 (True Light Middle School of Hong Kong) • GNC2 (The Legend) • GNC3 (Aegean Terrace) • GNC4 (Crane Court)	• Ground floor inside the nearest building during the TBM construction work
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (1900 to 2300)[(1)]	Once per week (include 3 consecutive 5-min measurements)		
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (2300 to 0700 of next day)[(1)]	Once per week (include 3 consecutive 5-min measurements)		
	L_{eq}, L_{90} & L_{10} at 5 minute intervals during (0700 to 2300 on holidays)[(1)]	Once per week (include 3 consecutive 5-min measurements)		

Remarks:

[(1)] – Conduct noise monitoring only when TBM construction work is carried out.

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Water Quality	• Temperature (oC) • pH (pH unit) • Turbidity (NTU) • Water depth (m) • Salinity (mg/L) • Dissolved oxygen (DO) (mg/L and % of saturation) • Suspended solids (SS) (mg/L)	Three times per week	• CE (830026E, 814956N) • CF (831778E, 812420N) • I1 (831088E, 813654N) • I2 (831105E, 813582N) • Intake A (831603E, 813044N) • Intake B (830606E, 814583N)	• 3 water depths except CF, omit mid-depth sampling.

APPENDIX C
ACTION AND LIMIT LEVELS FOR AIR QUALITY, NOISE AND WAER QUALITY

Appendix C - Action and Limit Levels

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

Location	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AQ1	345	500
AQ2	321	

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

Location	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AQ1	201	260
AQ3	156	

Table C-3 Action and Limit Levels for Construction Noise

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

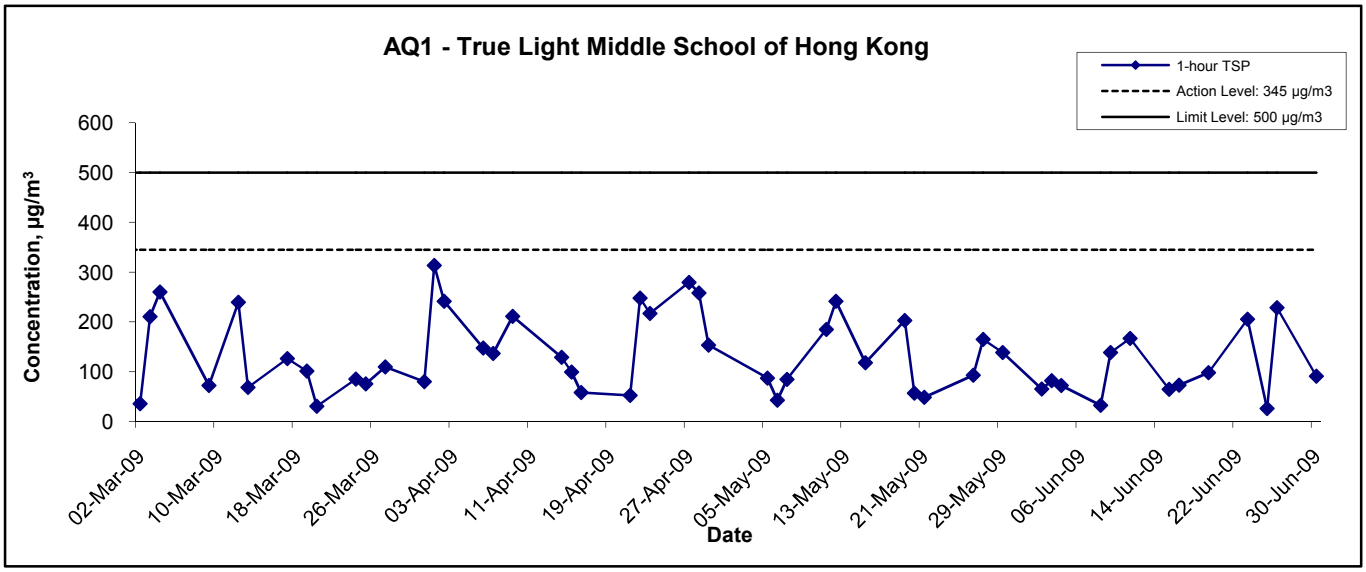
(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.
(**) to be selected based on Area Sensitivity Rating.

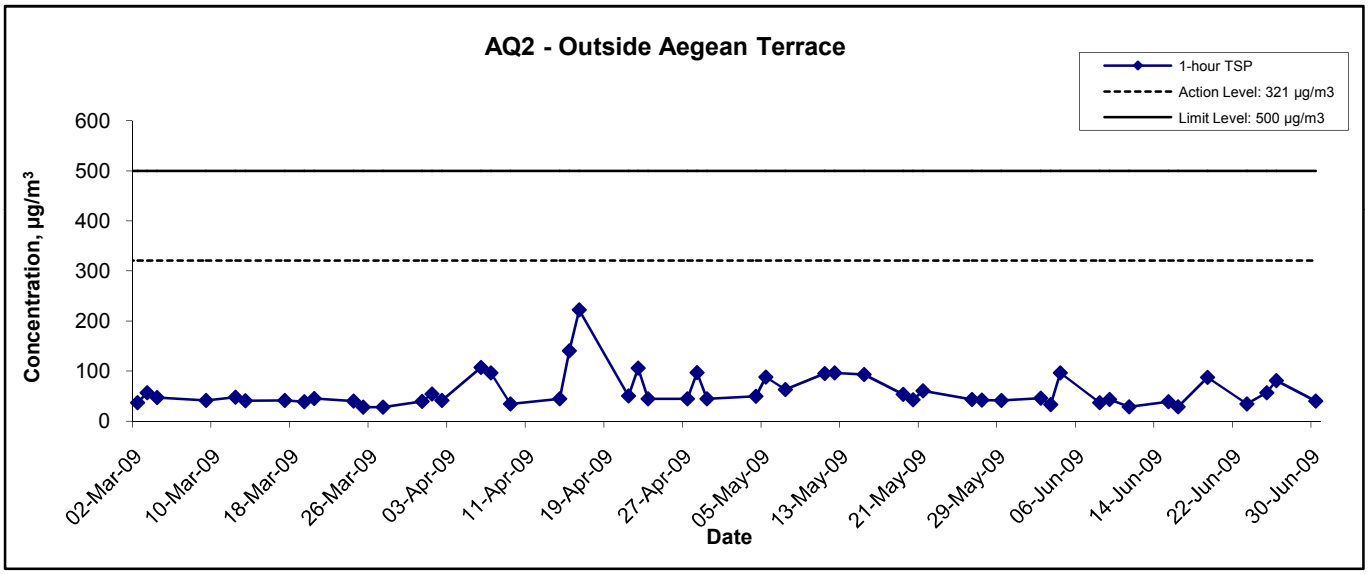
Table C-4 Action and Limit Levels for Water Quality

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

APPENDIX D
GRAPHICAL PRESENTATION OF AIR QUALITY MONITORING RESULTS

1-hr TSP Concentration Levels





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

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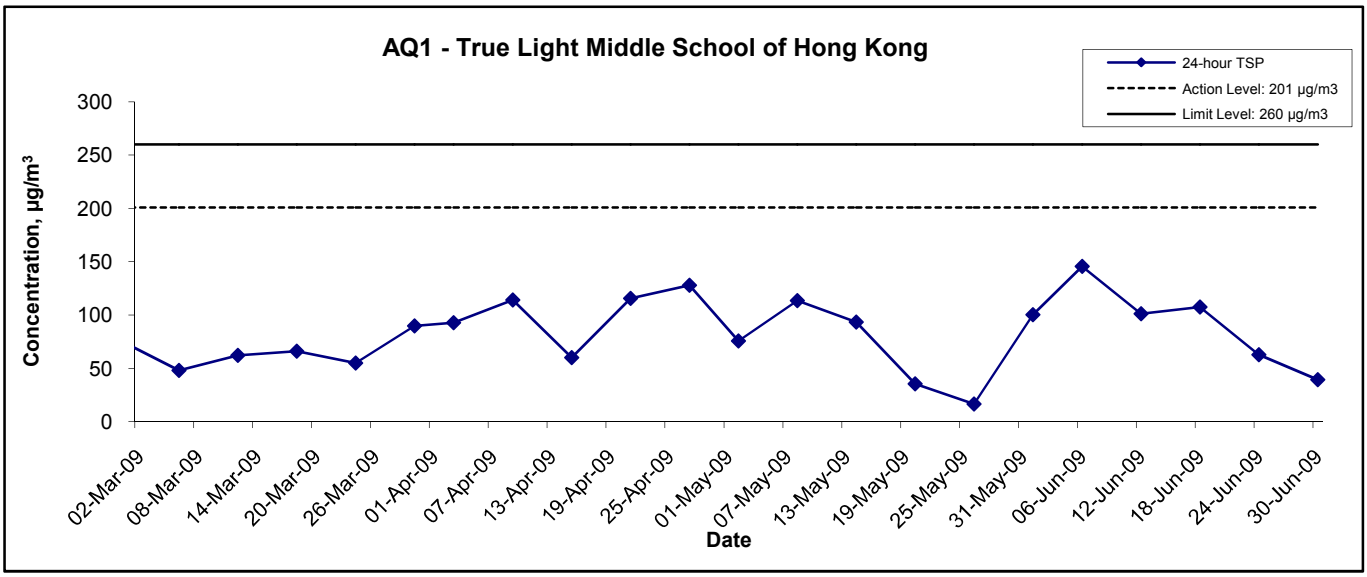
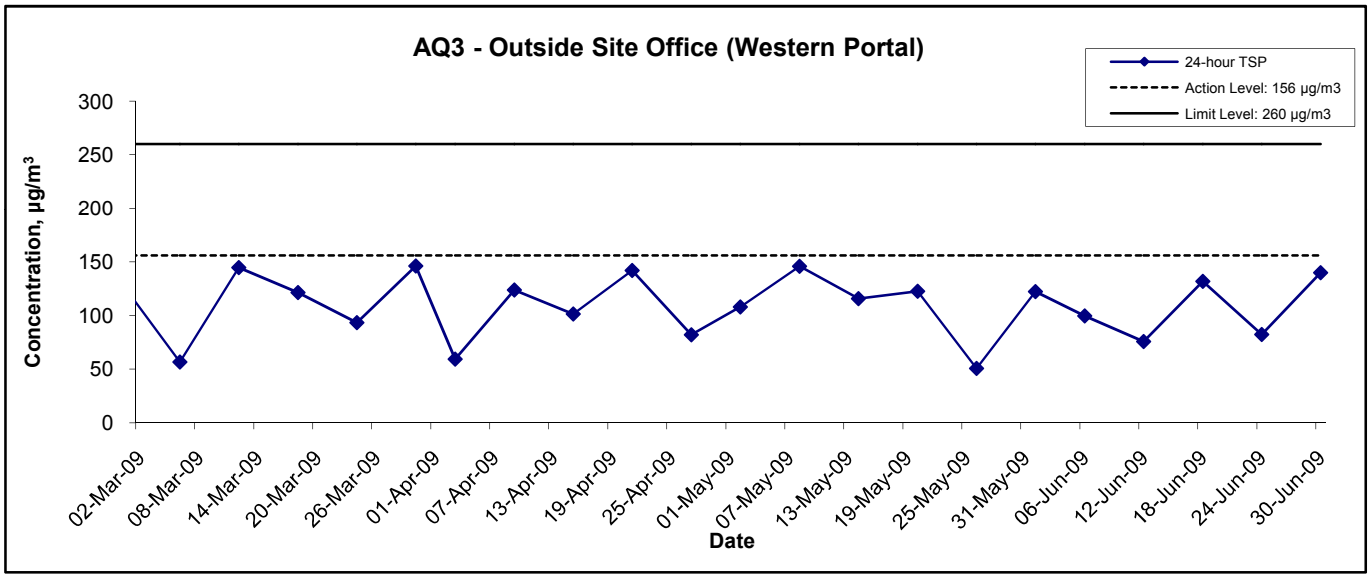
24-hr TSP Concentration Levels

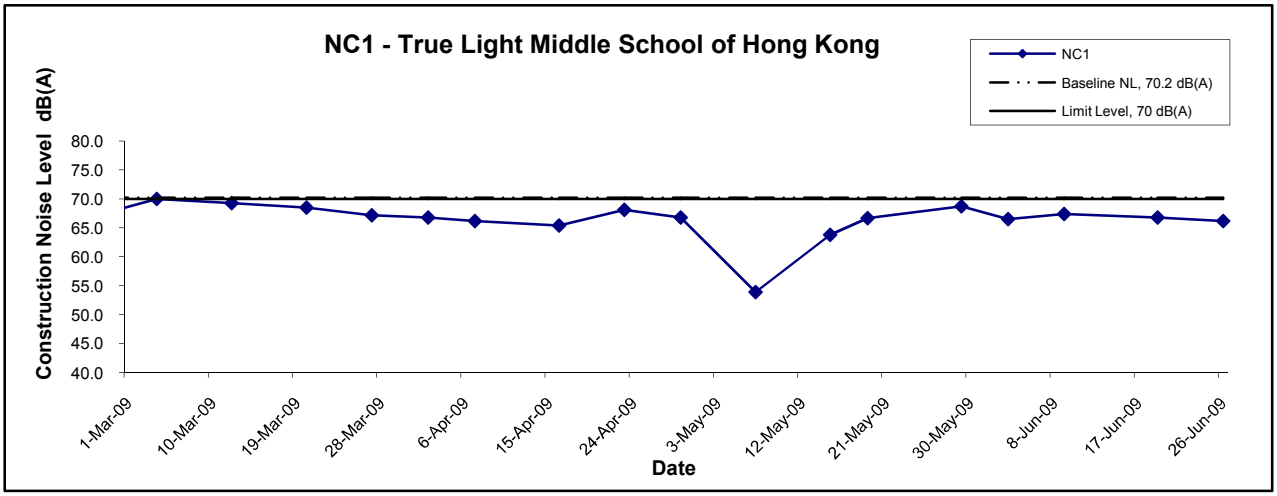


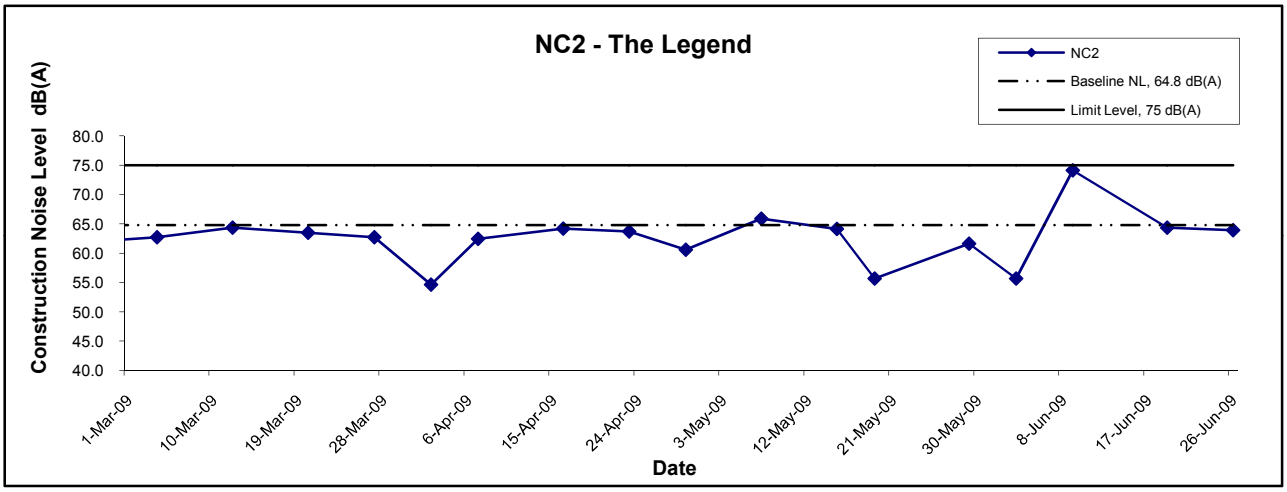


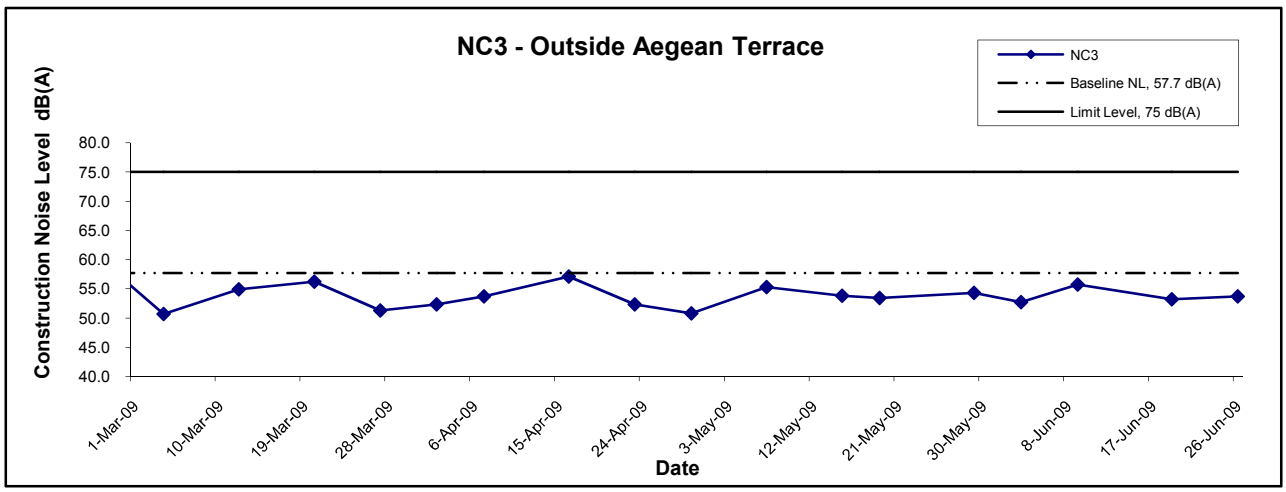
Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: D	CINOTECH

APPENDIX E
GRAPHICAL PRESENTATION OF NOISE MONITORING RESULTS

Noise Levels

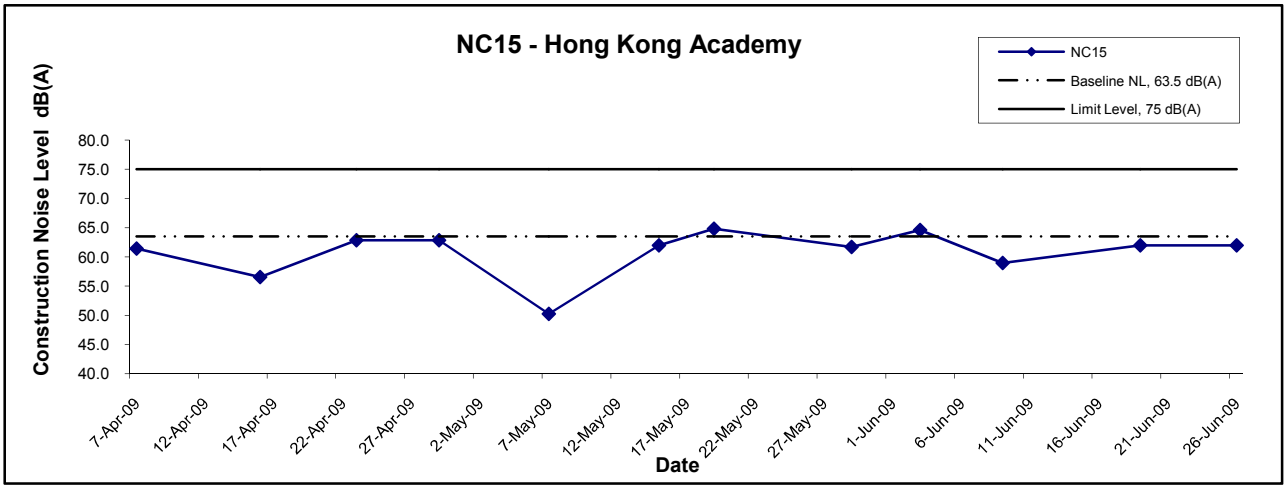


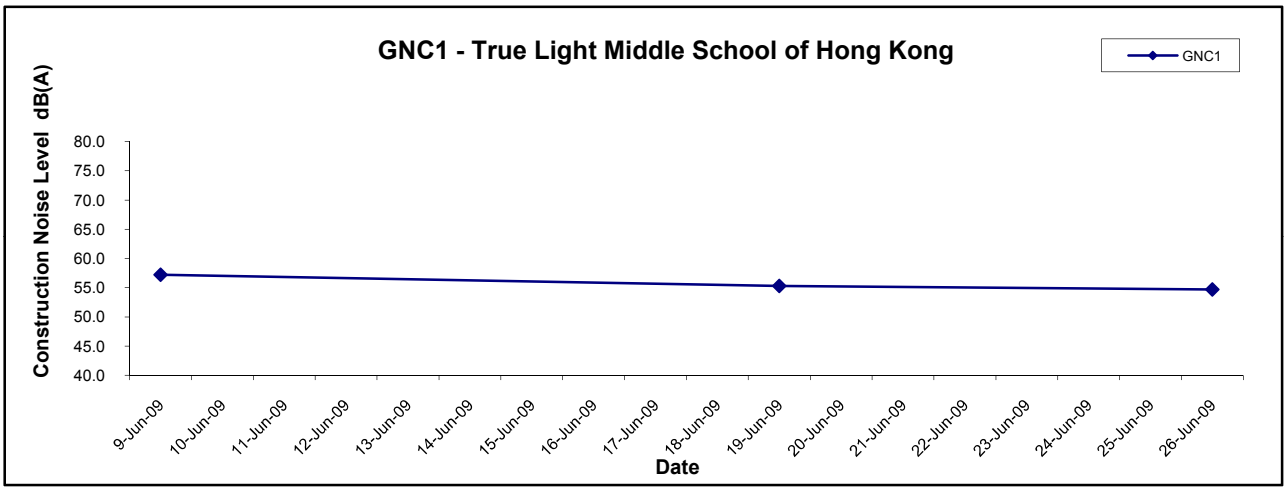


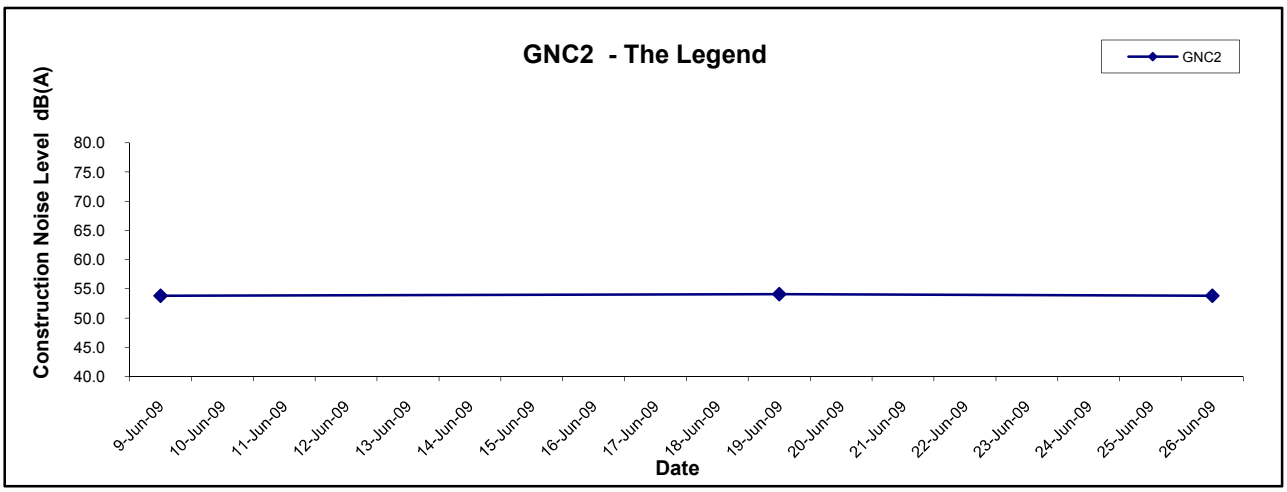


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: E	CINOTECH

Noise Levels

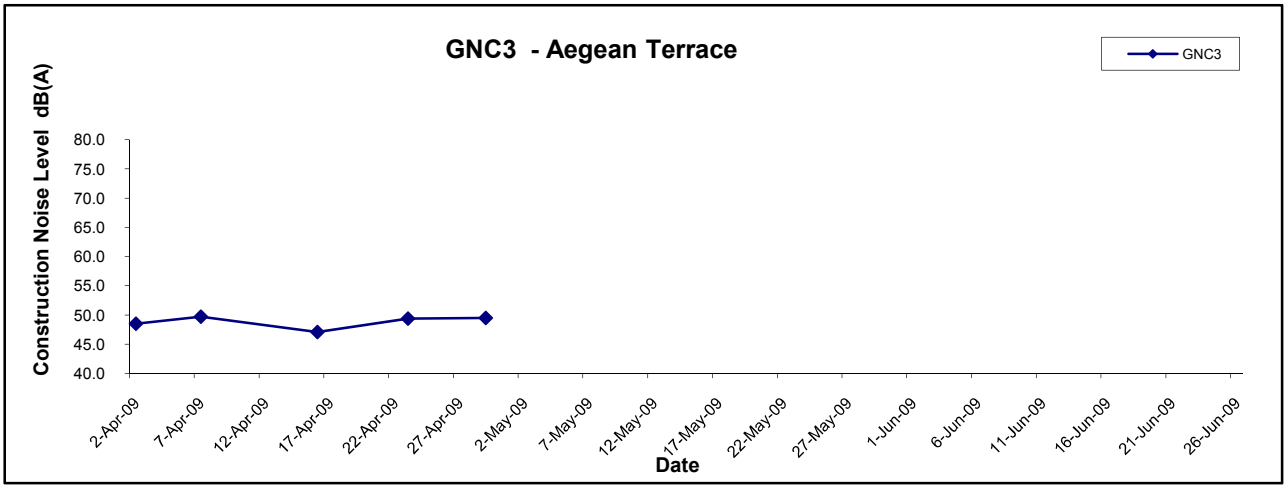


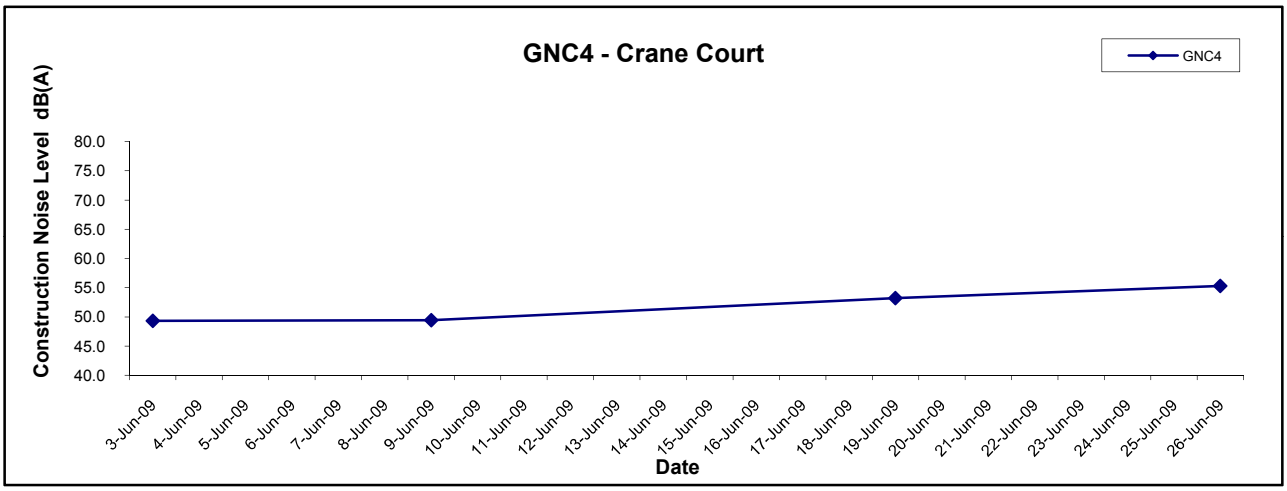




Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S Date Jun 09	Project No. MA8001 Appendix E	CINOTECH

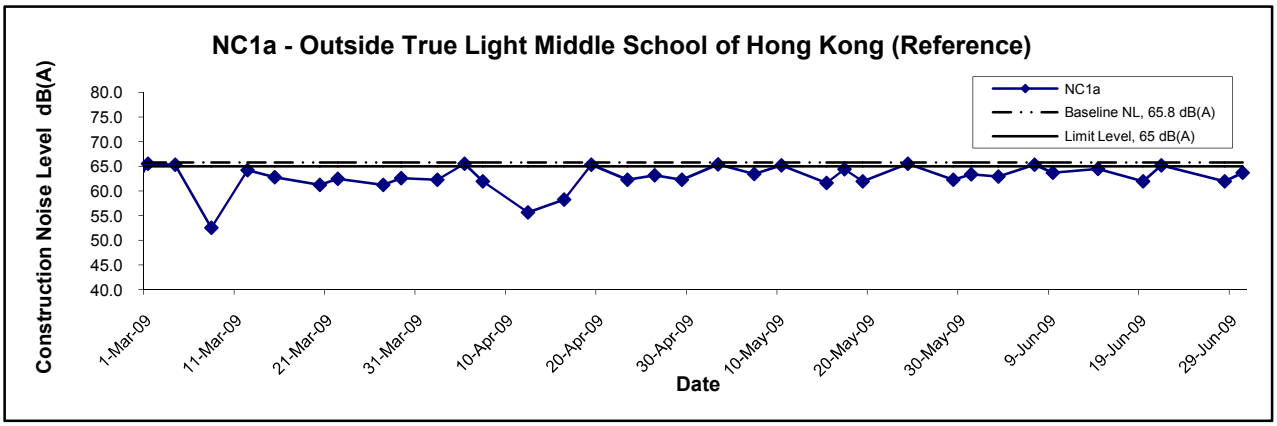
Noise Levels

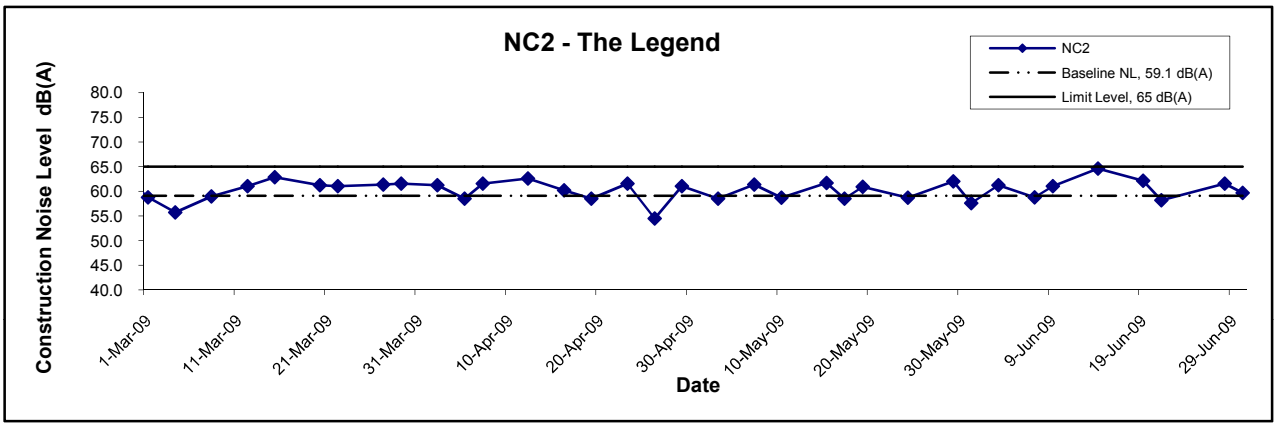


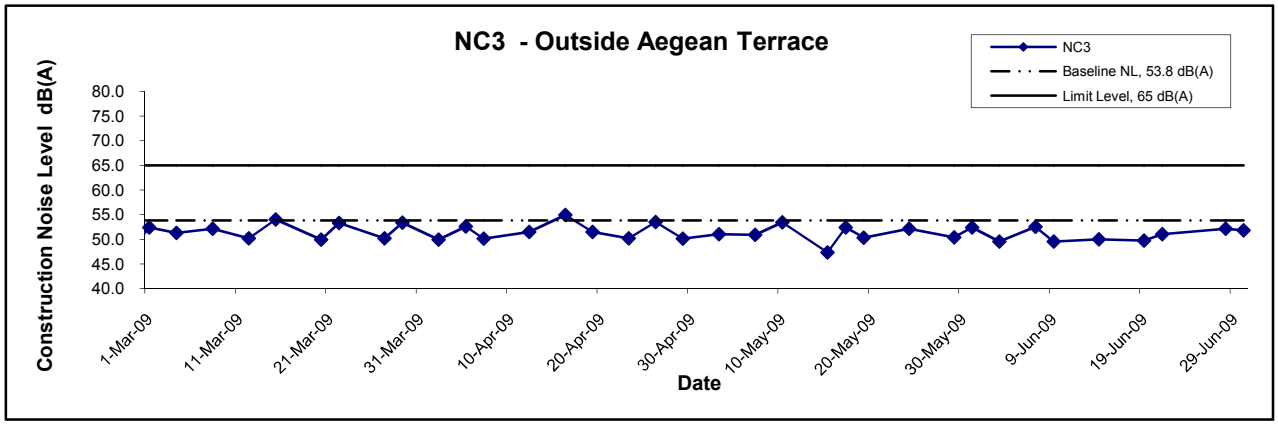


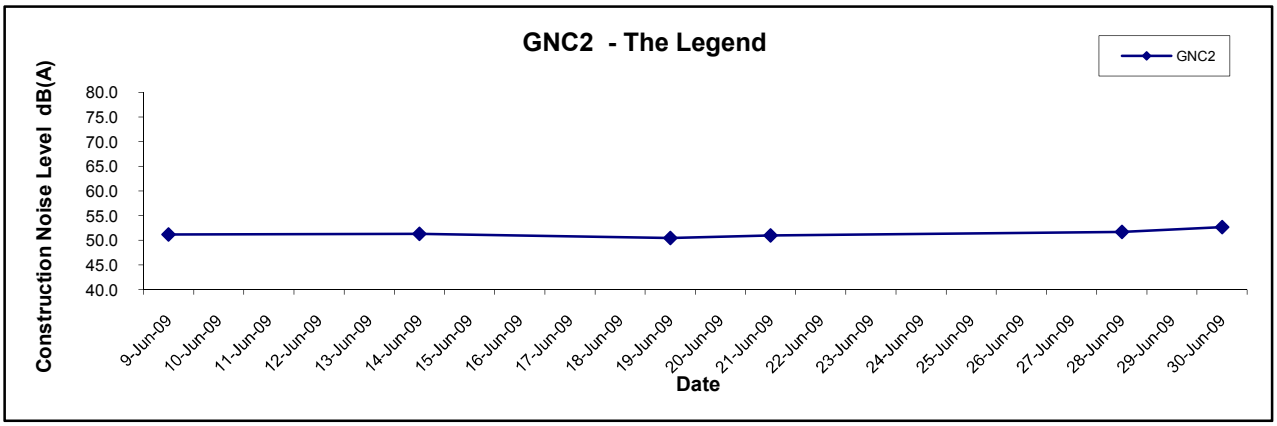
Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results		Scale: N.T.S	Project No.: MA8001	CINOTECH
		Date: Jun 09	Appendix: E	

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



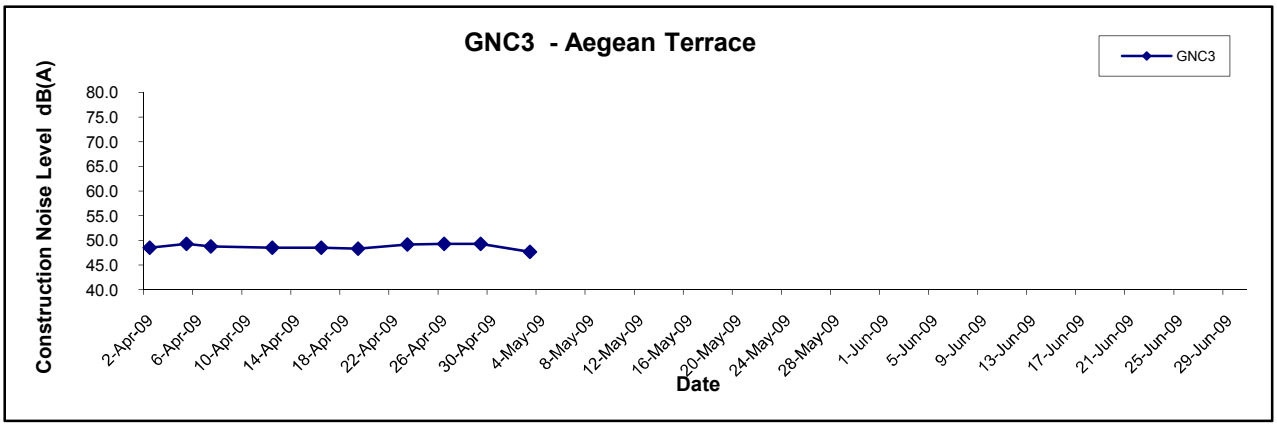


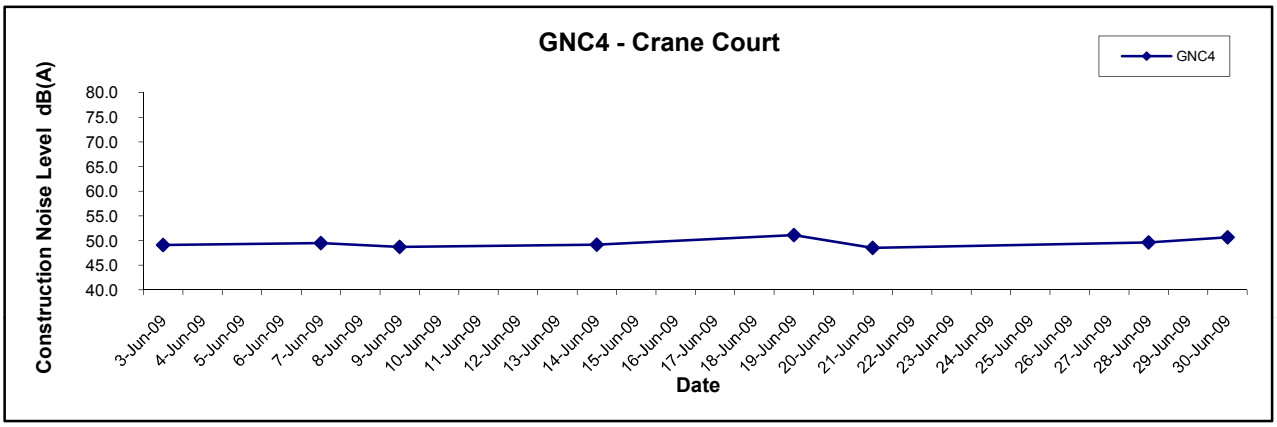




Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
		Date Jun 09	Appendix E	

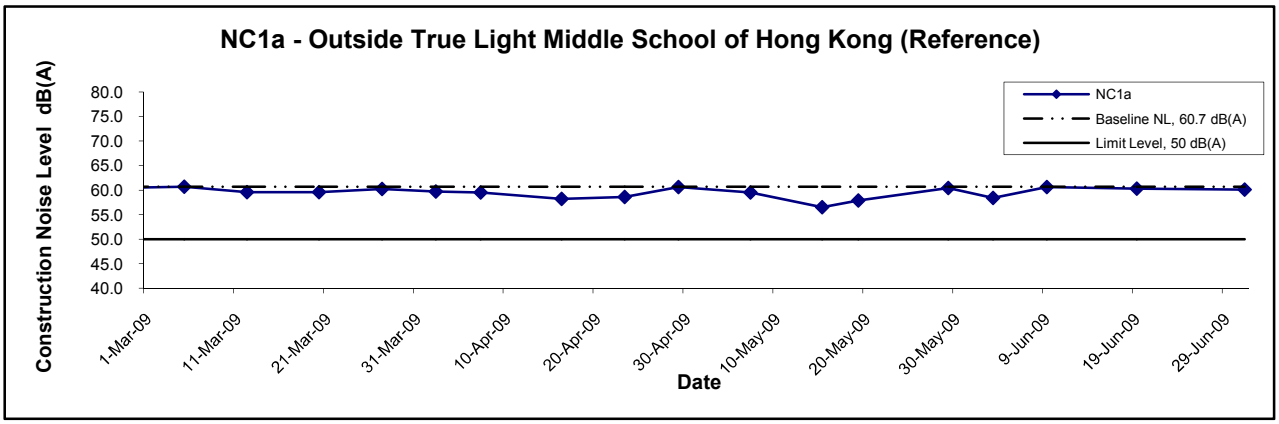
Noise Levels
(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)

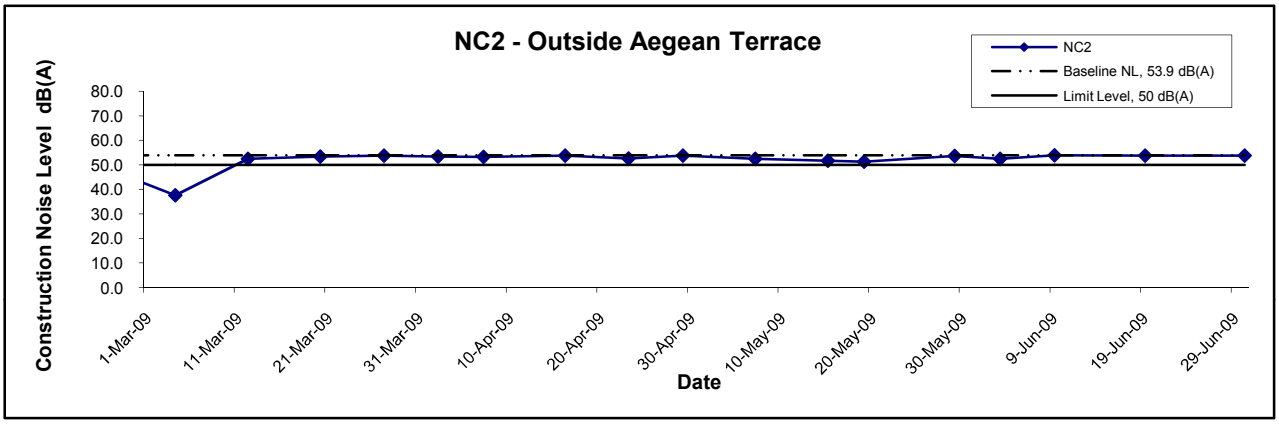


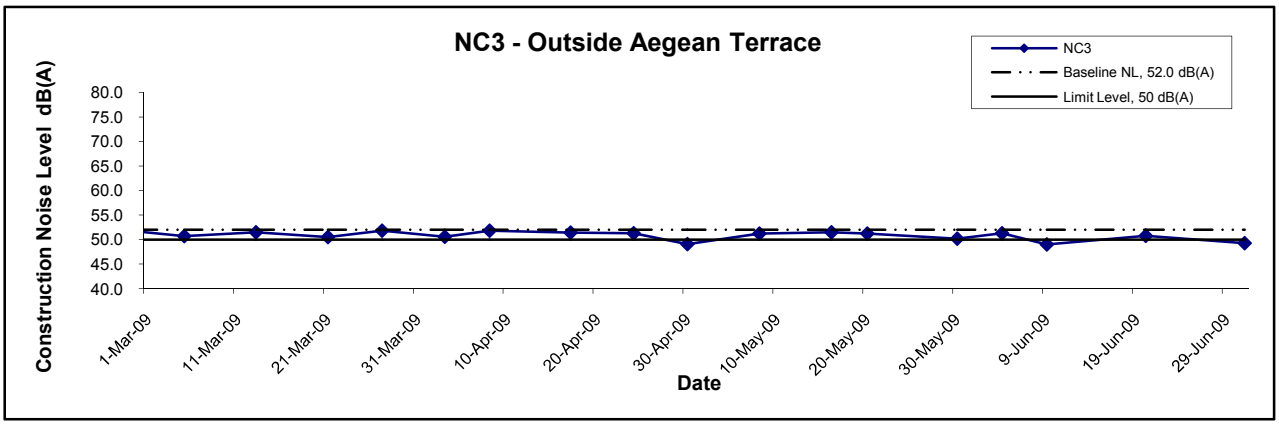


Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S Date Jun 09	Project No. MA8001 Appendix E	CINOTECH

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



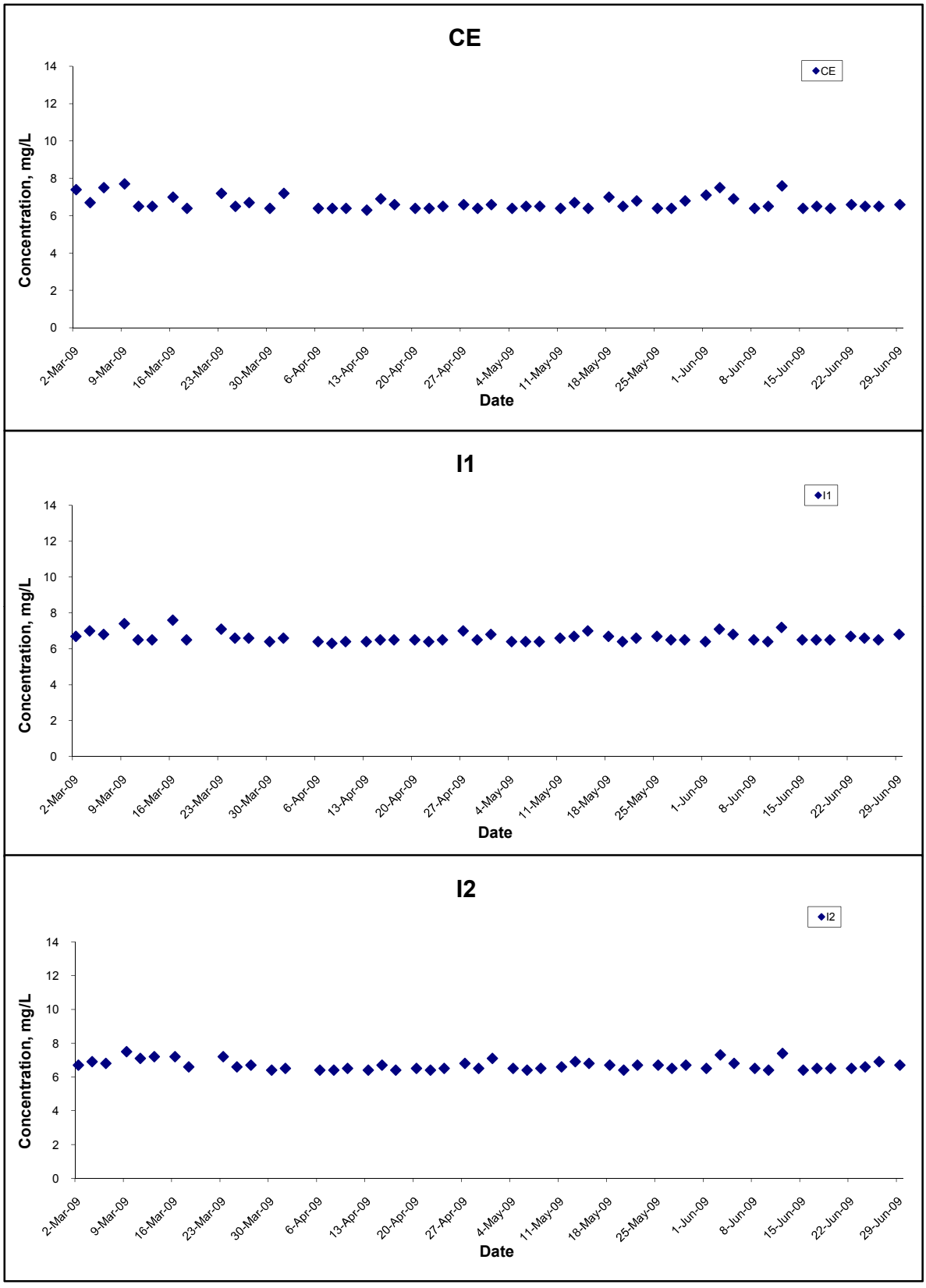




Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: E	CINOTECH

APPENDIX F
GRAPHICAL PRESENTATION OF WATER QUALITY MONITORING RESULTS

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



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
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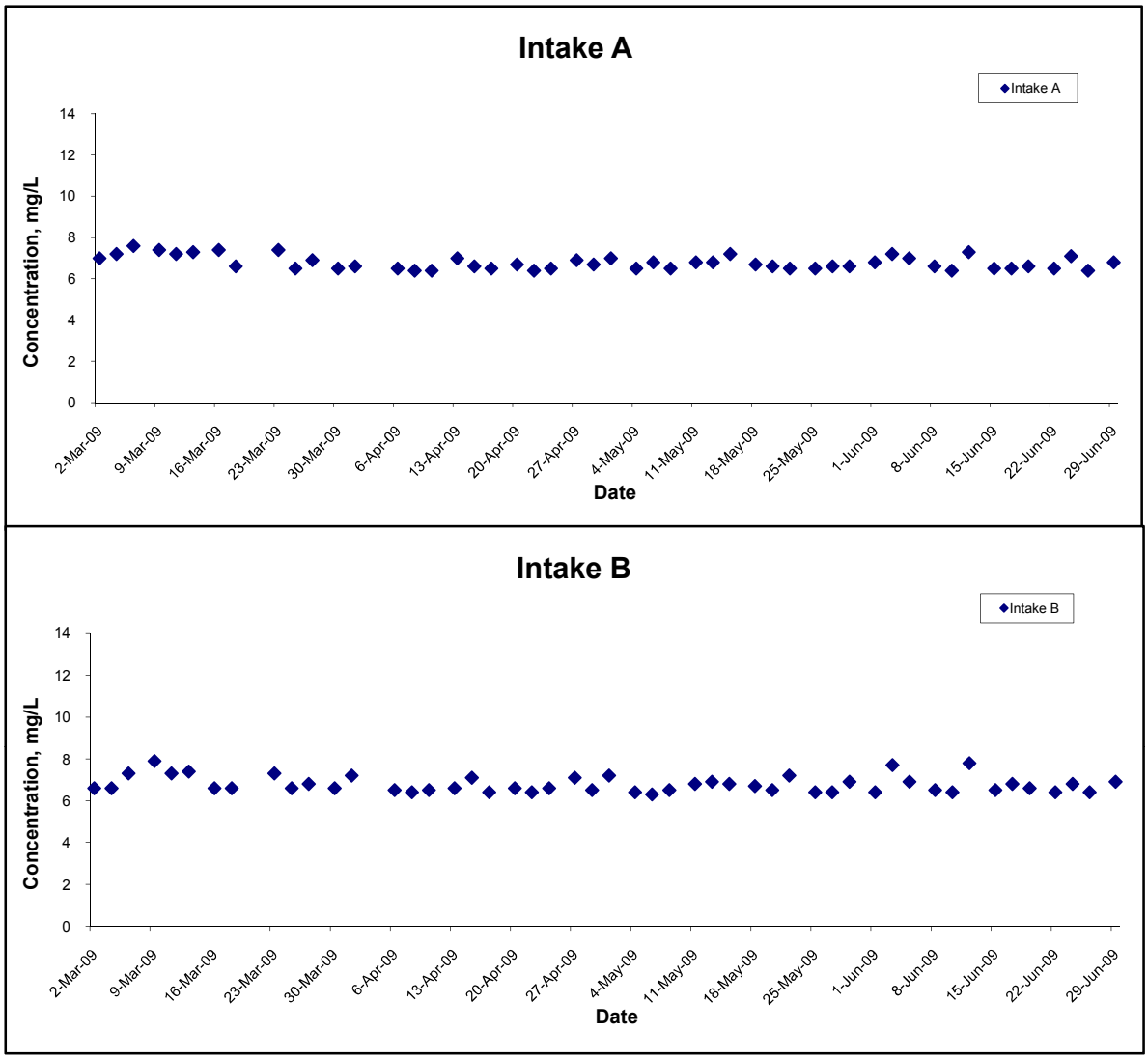
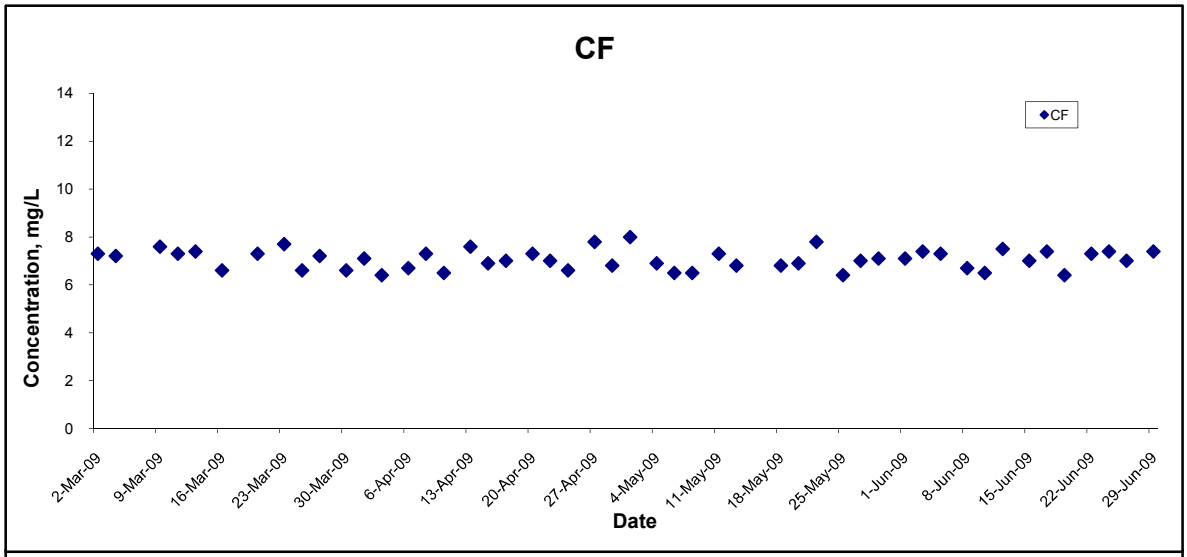
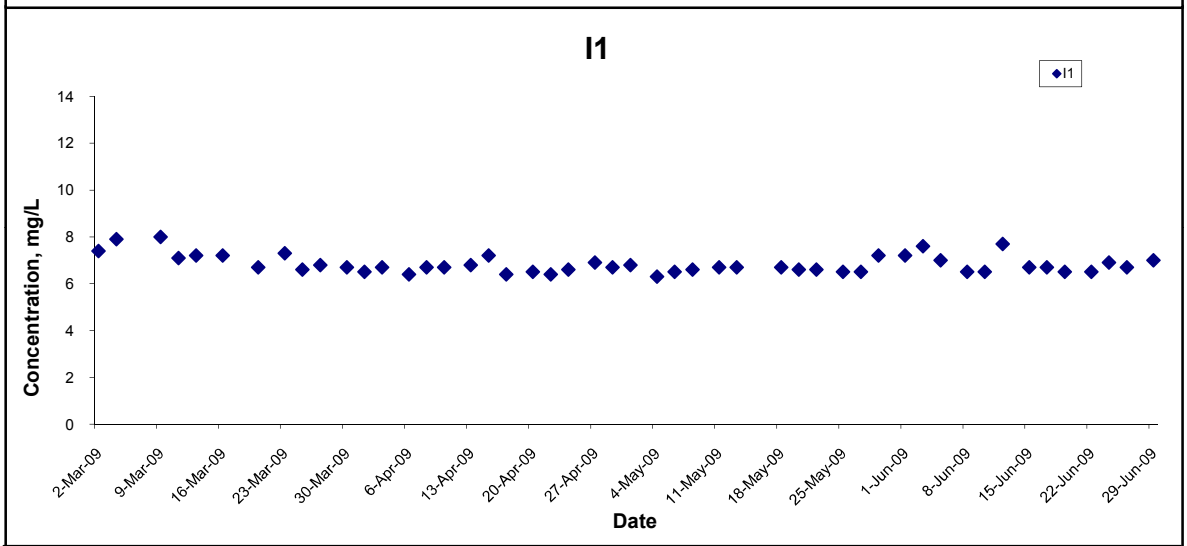
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide

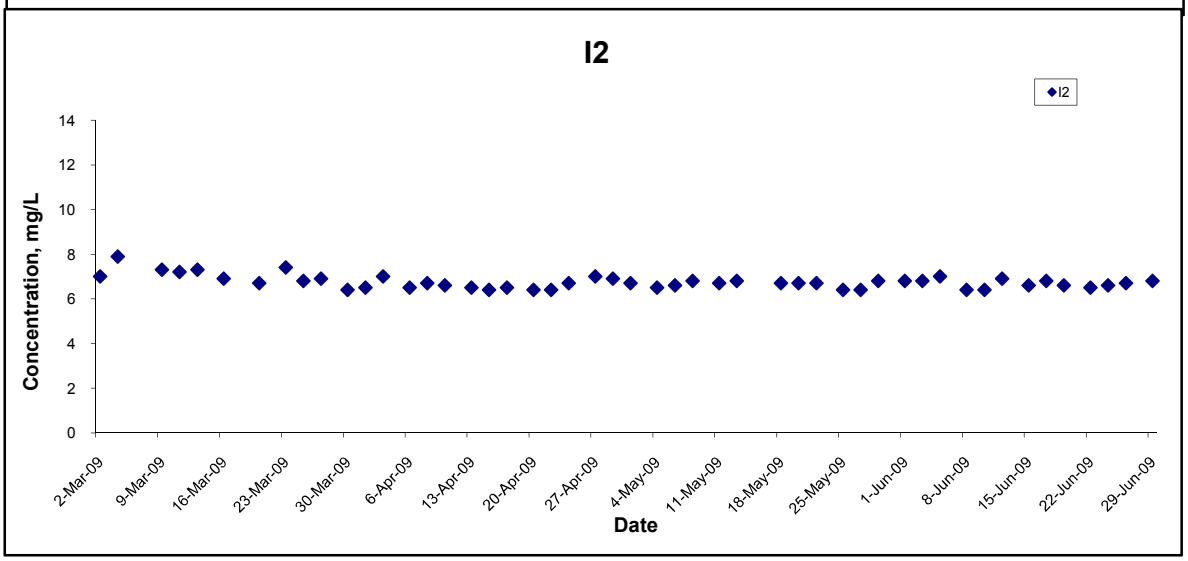


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: F	CINOTECH

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







Title	Scale	Project No.
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	Date: Jun 09	Appendix: F

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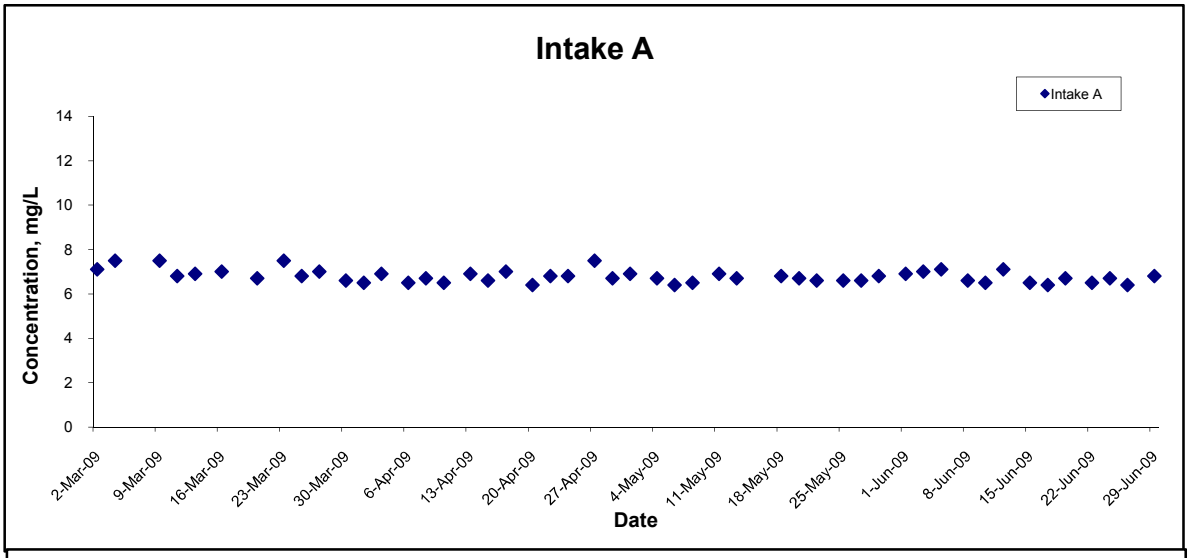
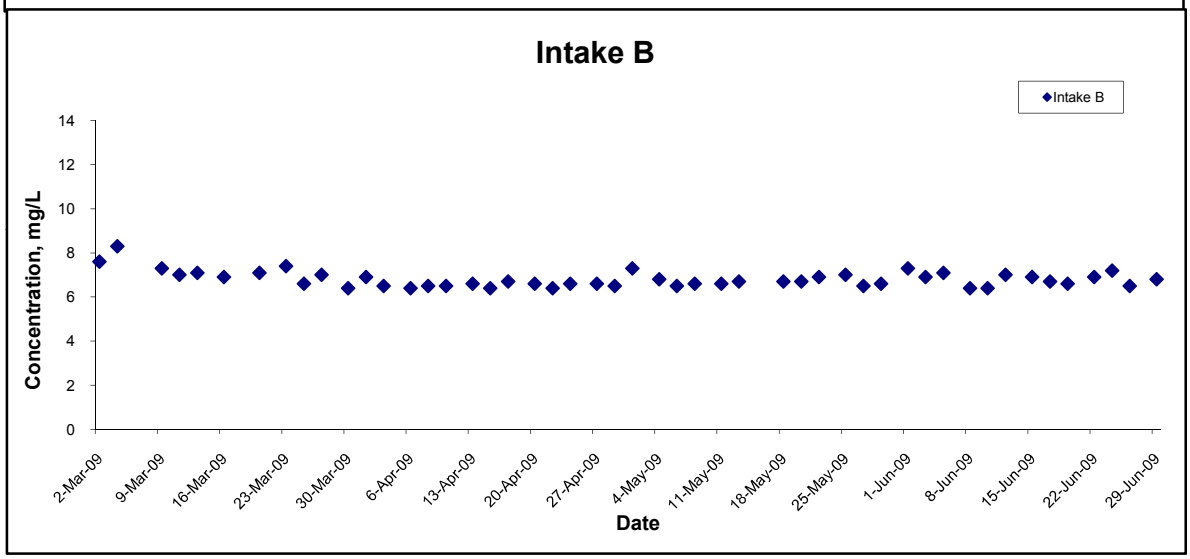
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide





Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
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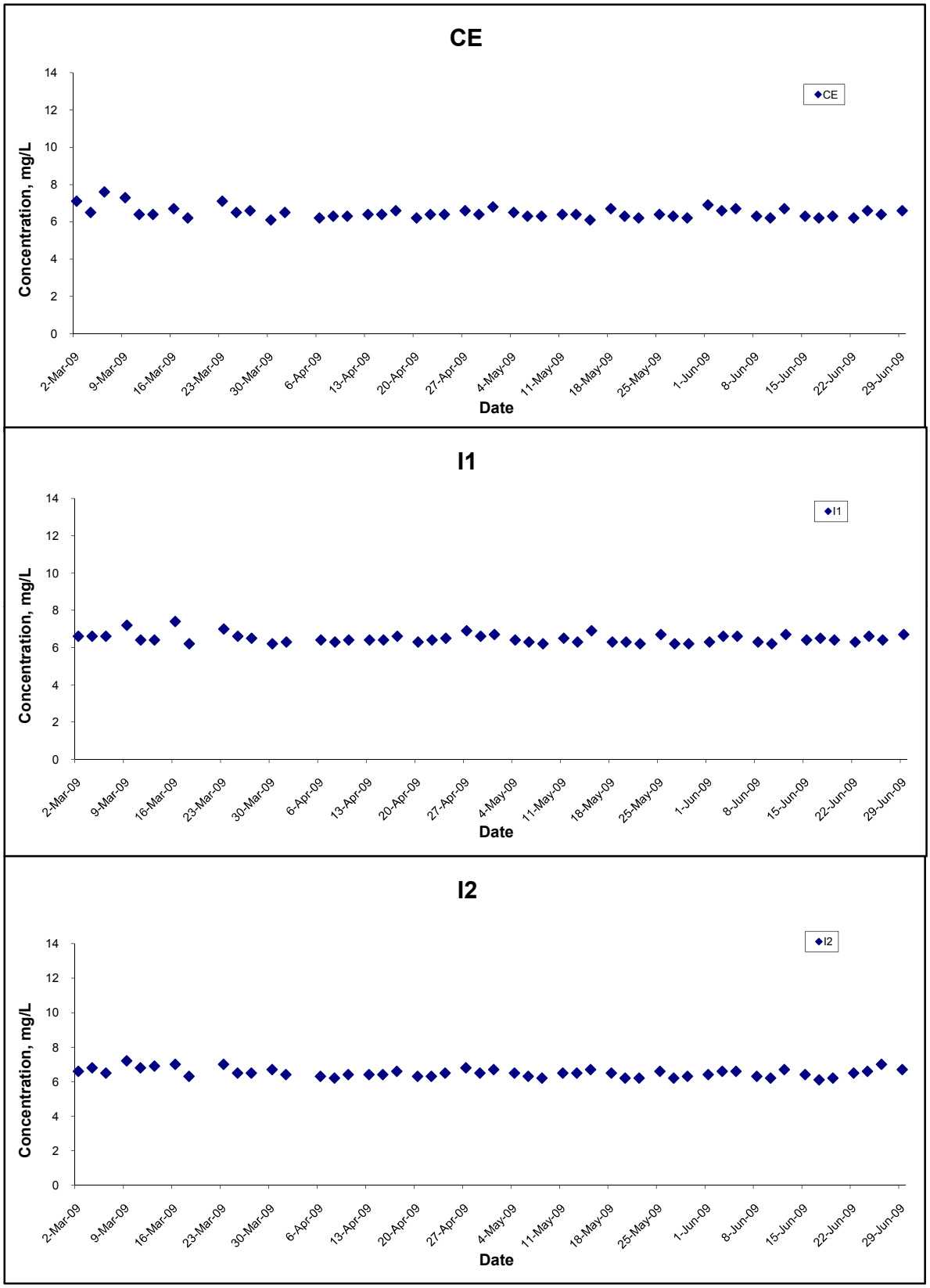
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
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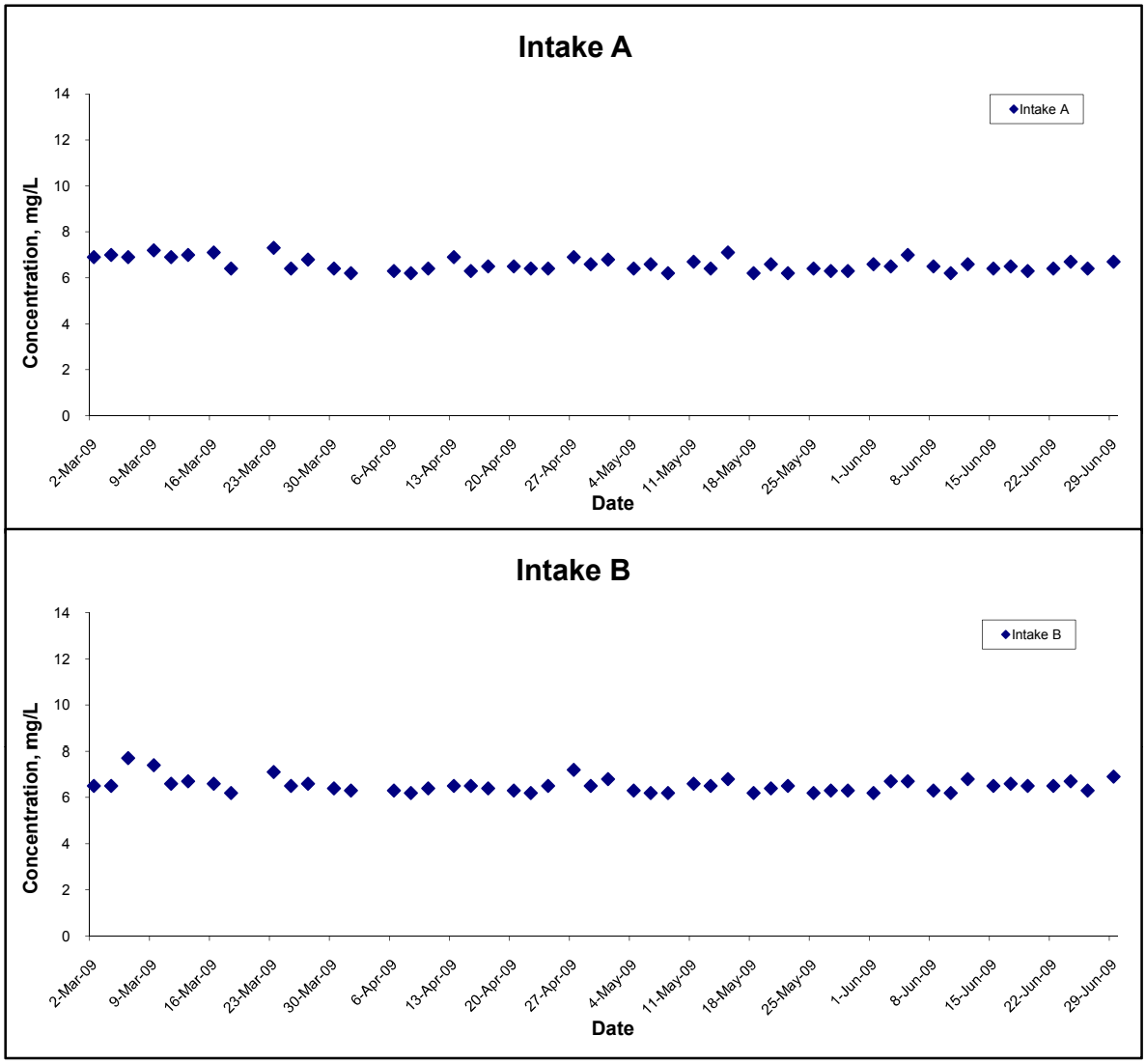
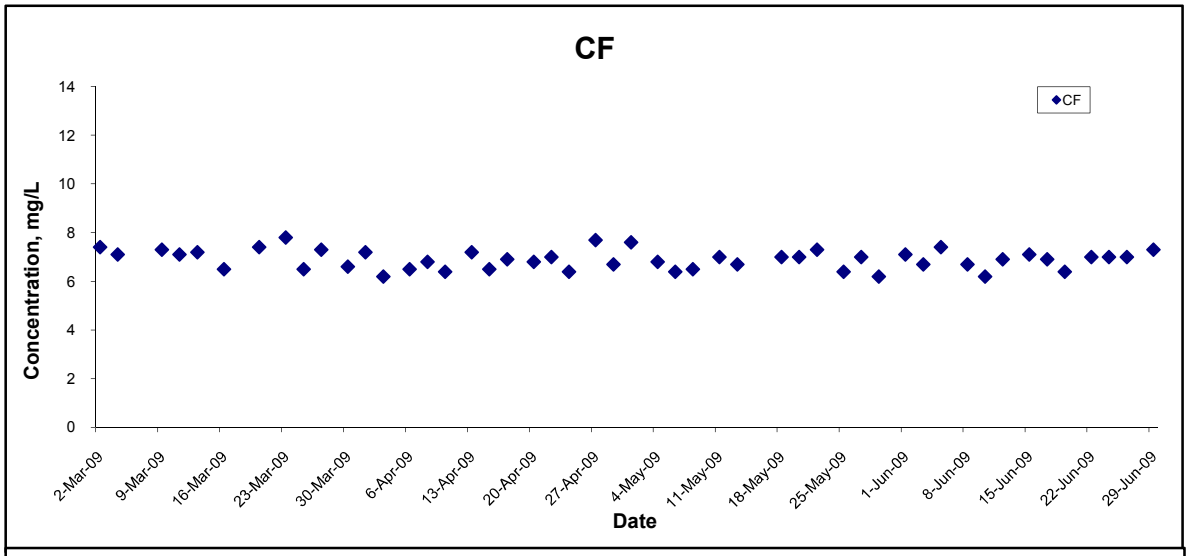
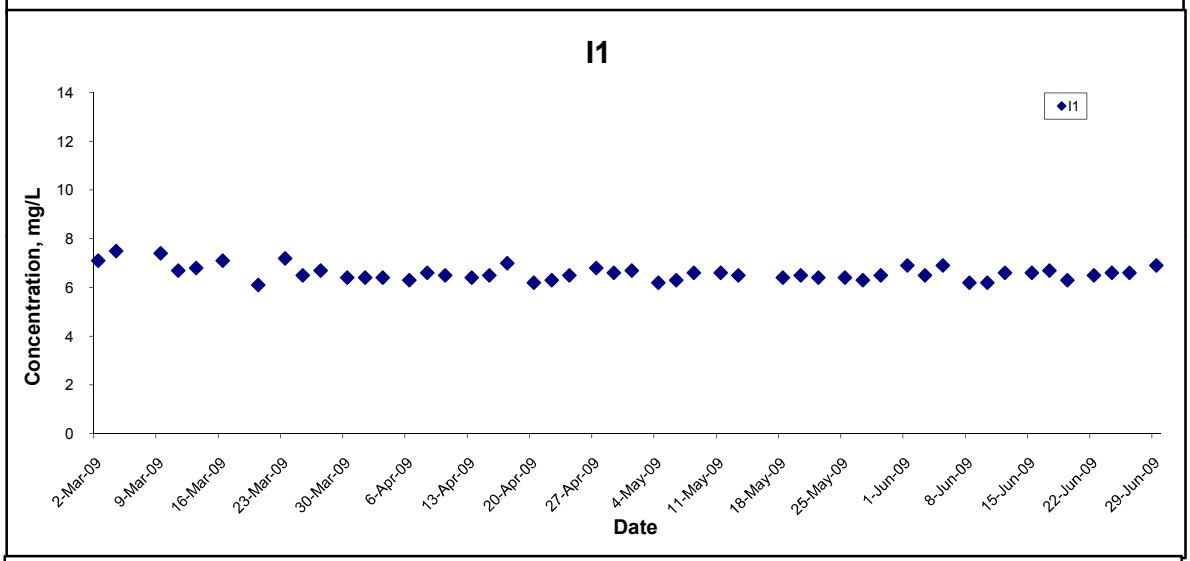
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

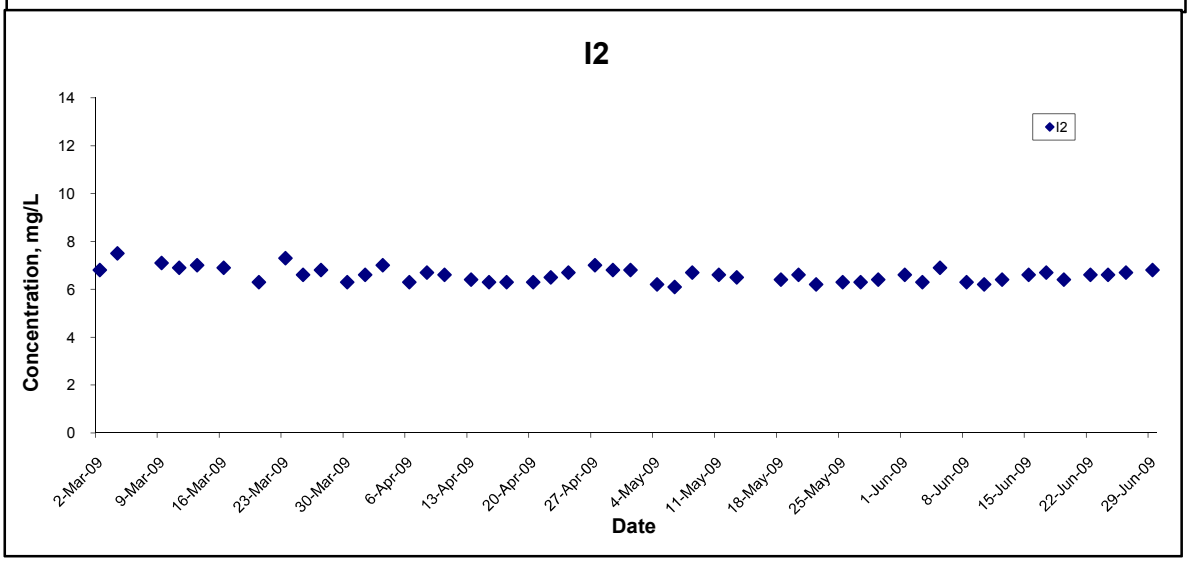


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: F	CINOTECH

Dissolved Oxygen (Bottom) at Mid-Flood Tide







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

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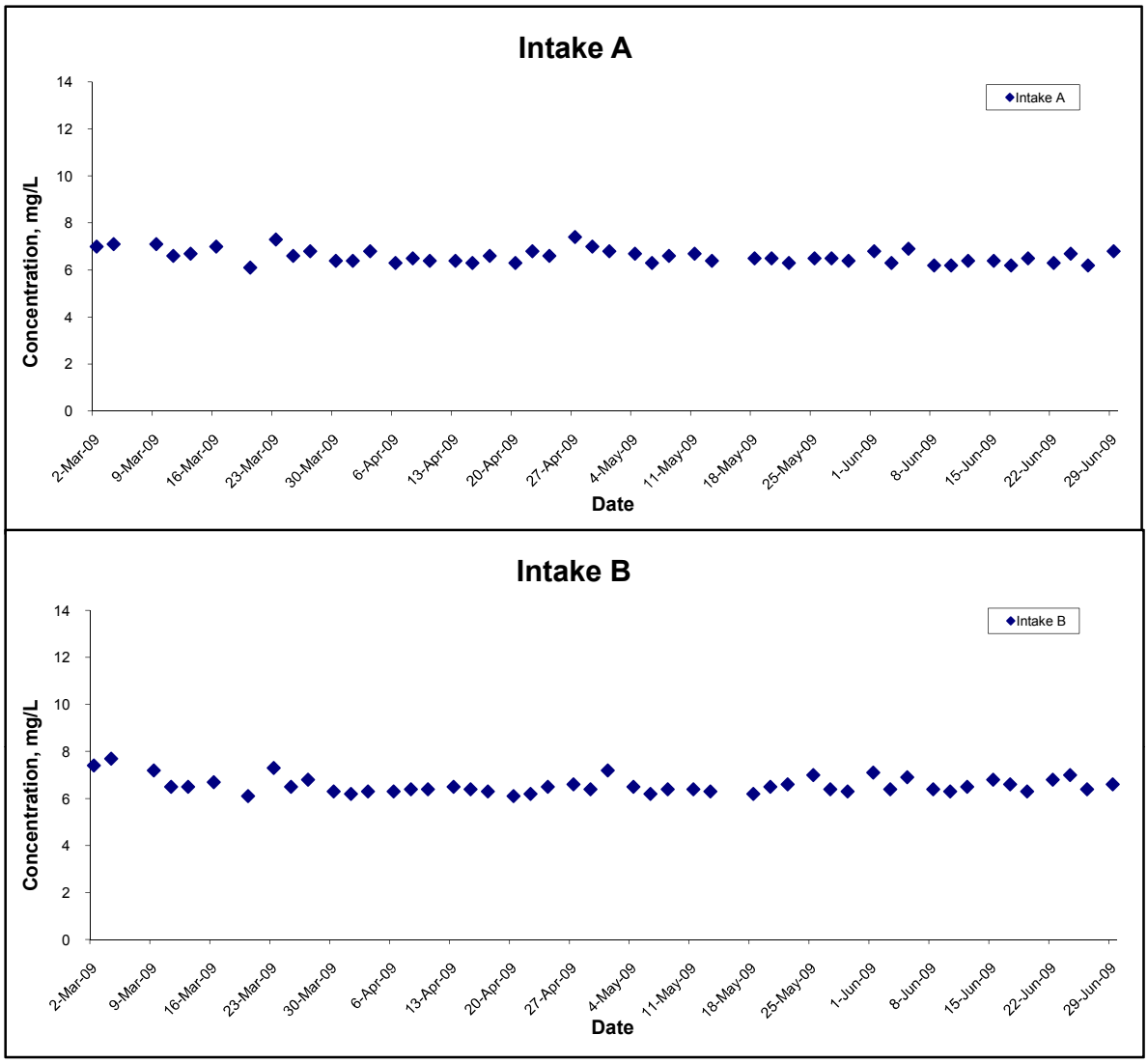
Dissolved Oxygen (Bottom) at Mid-Flood Tide



Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA8001	CINOTECH
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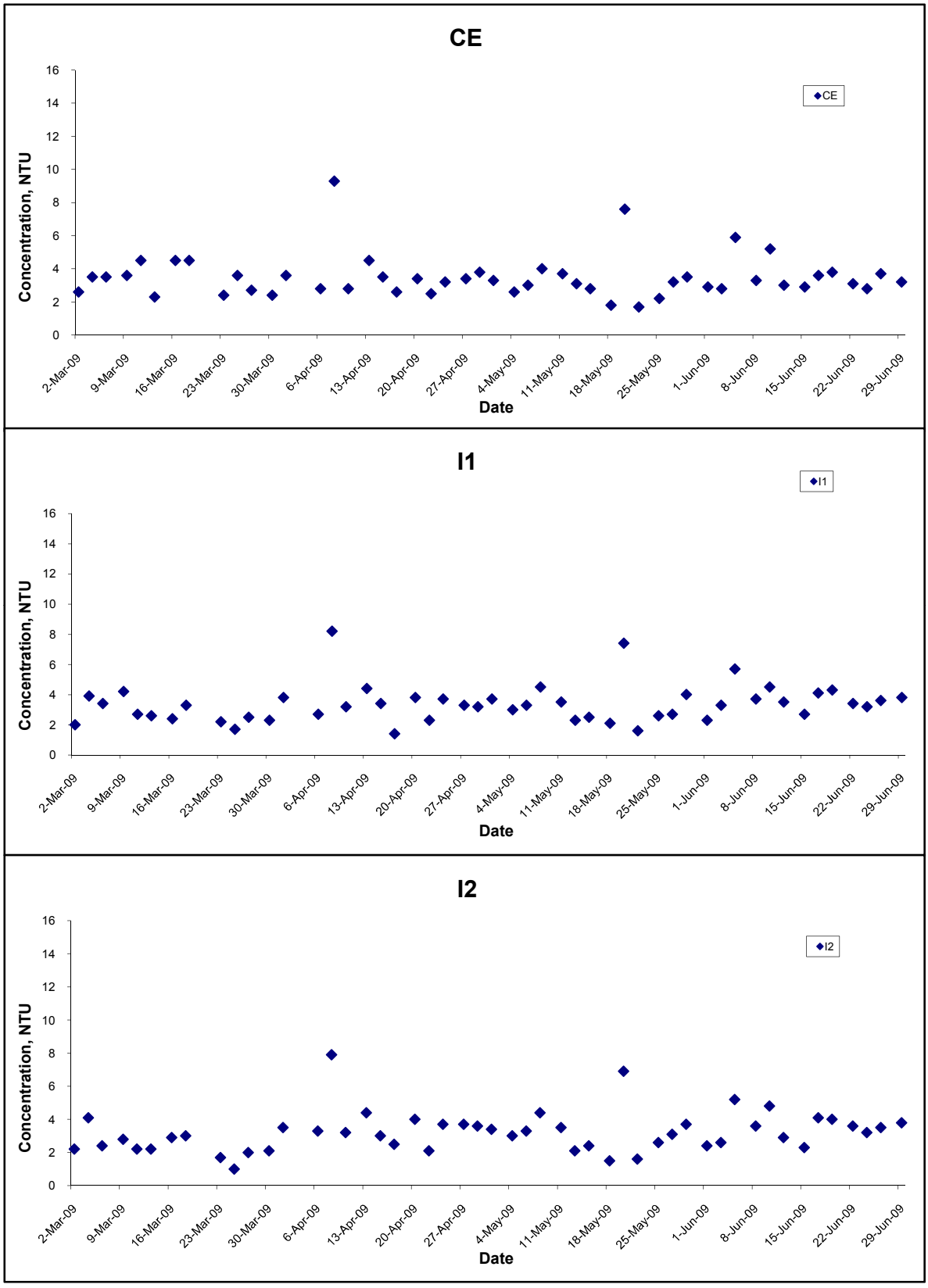
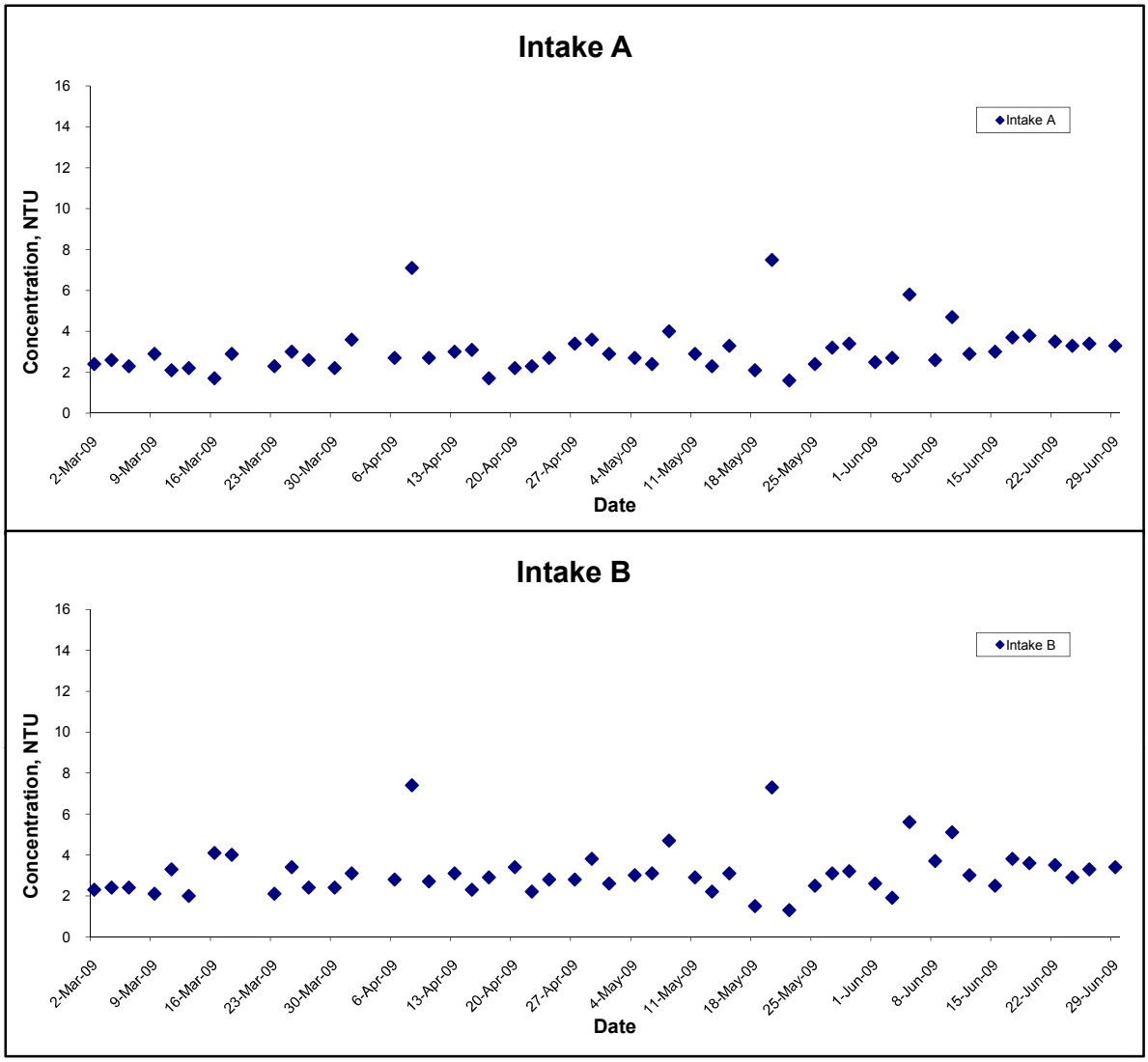
Turbidity (Depth-averaged) at Mid-Ebb Tide



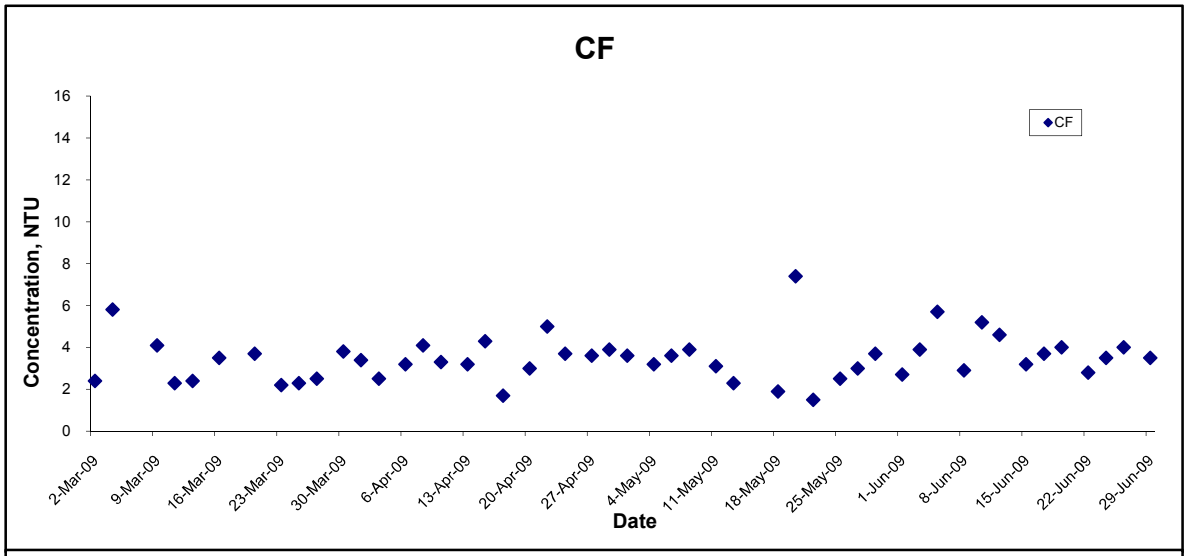
Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Jun 09	Appendix: F	

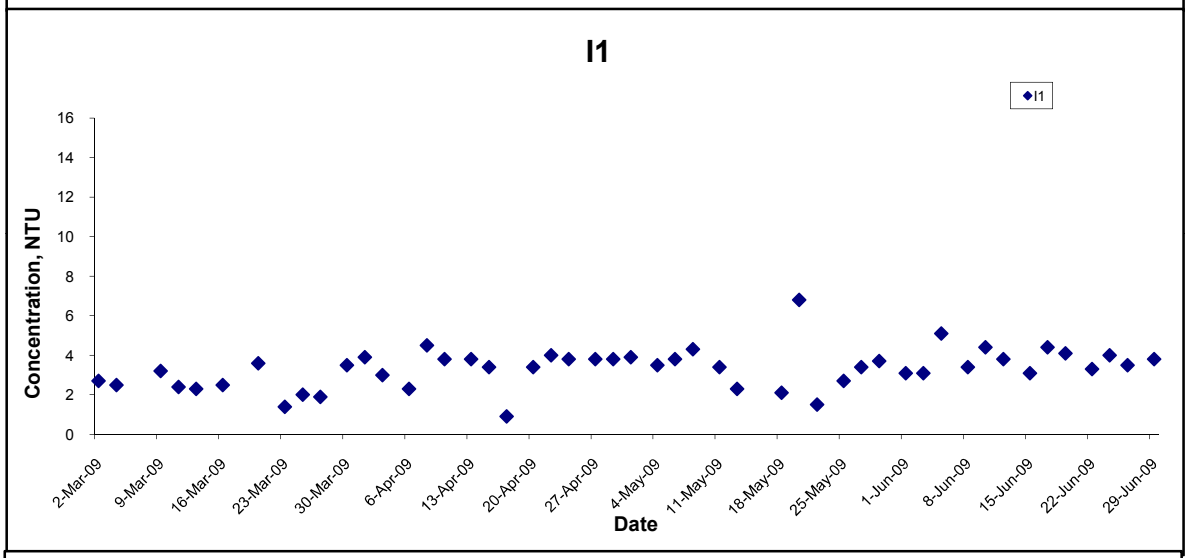
Turbidity (Depth-averaged) at Mid-Ebb Tide

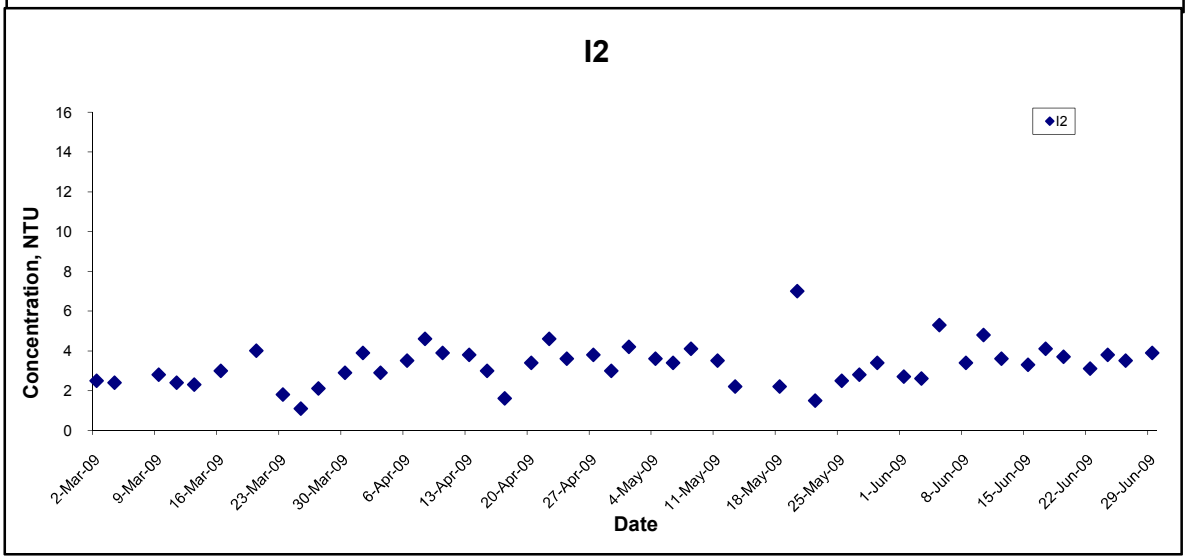


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
	Date: Jun 09	Appendix: F	

Turbidity (Depth-averaged) at Mid-Flood Tide

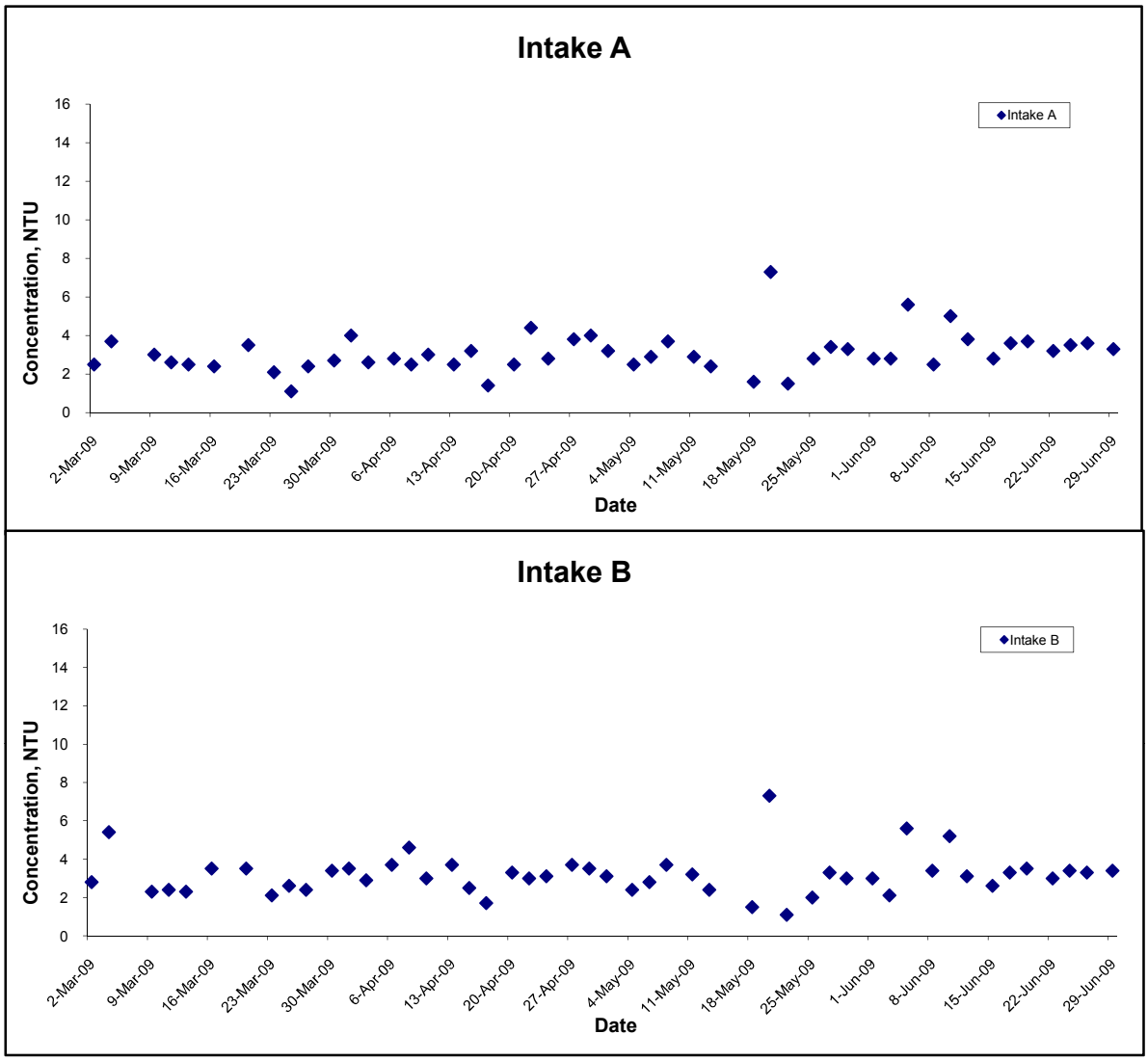






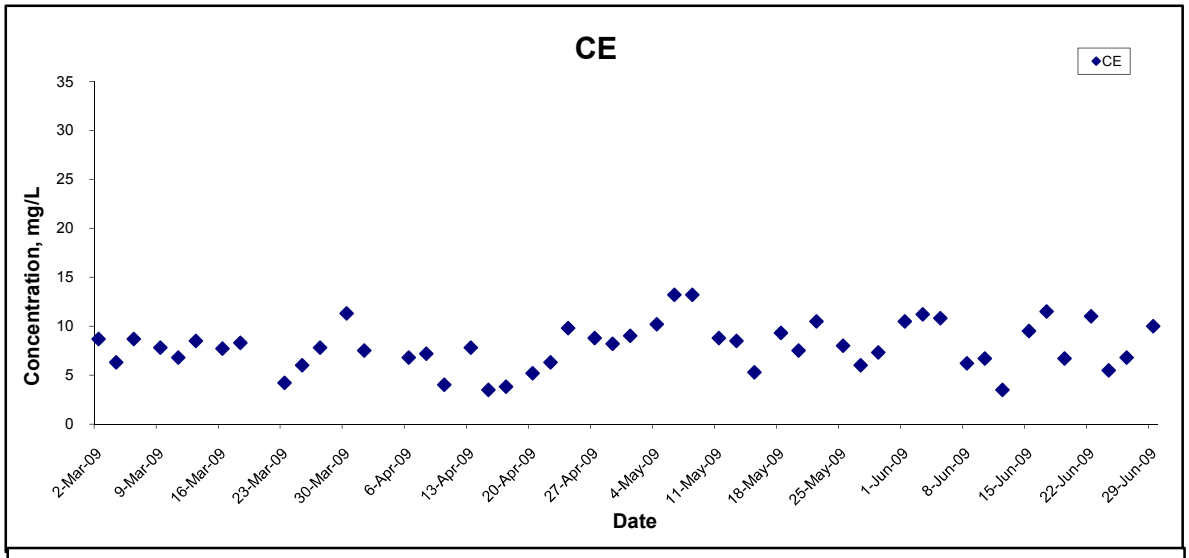
Title		Scale	Project No.	
	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel	N.T.S	MA8001	CINOTECH
	Graphical Presentation of Water Quality Monitoring Results	Date: Jun 09	Appendix: F	

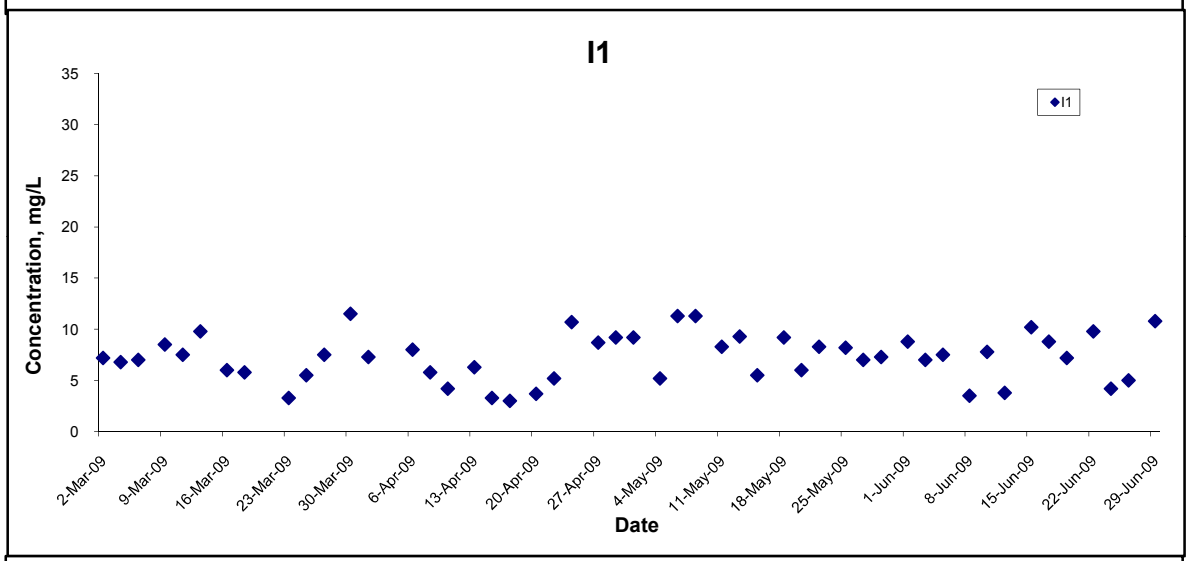
Turbidity (Depth-averaged) at Mid-Flood Tide

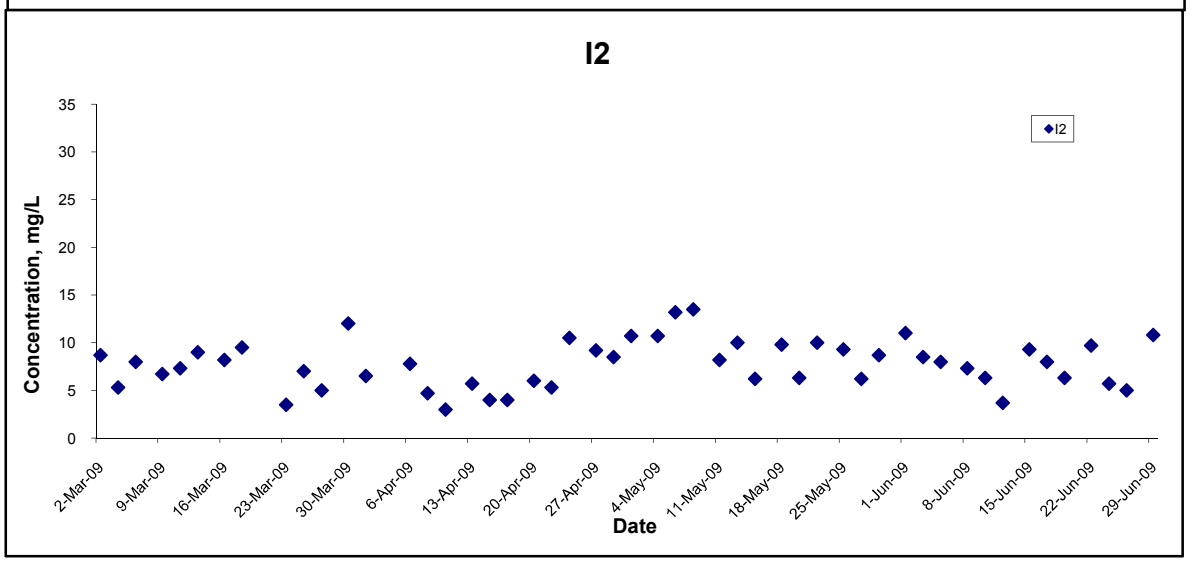


Title: Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Jun 09	Project No.: MA8001 Appendix: F	CINOTECH

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



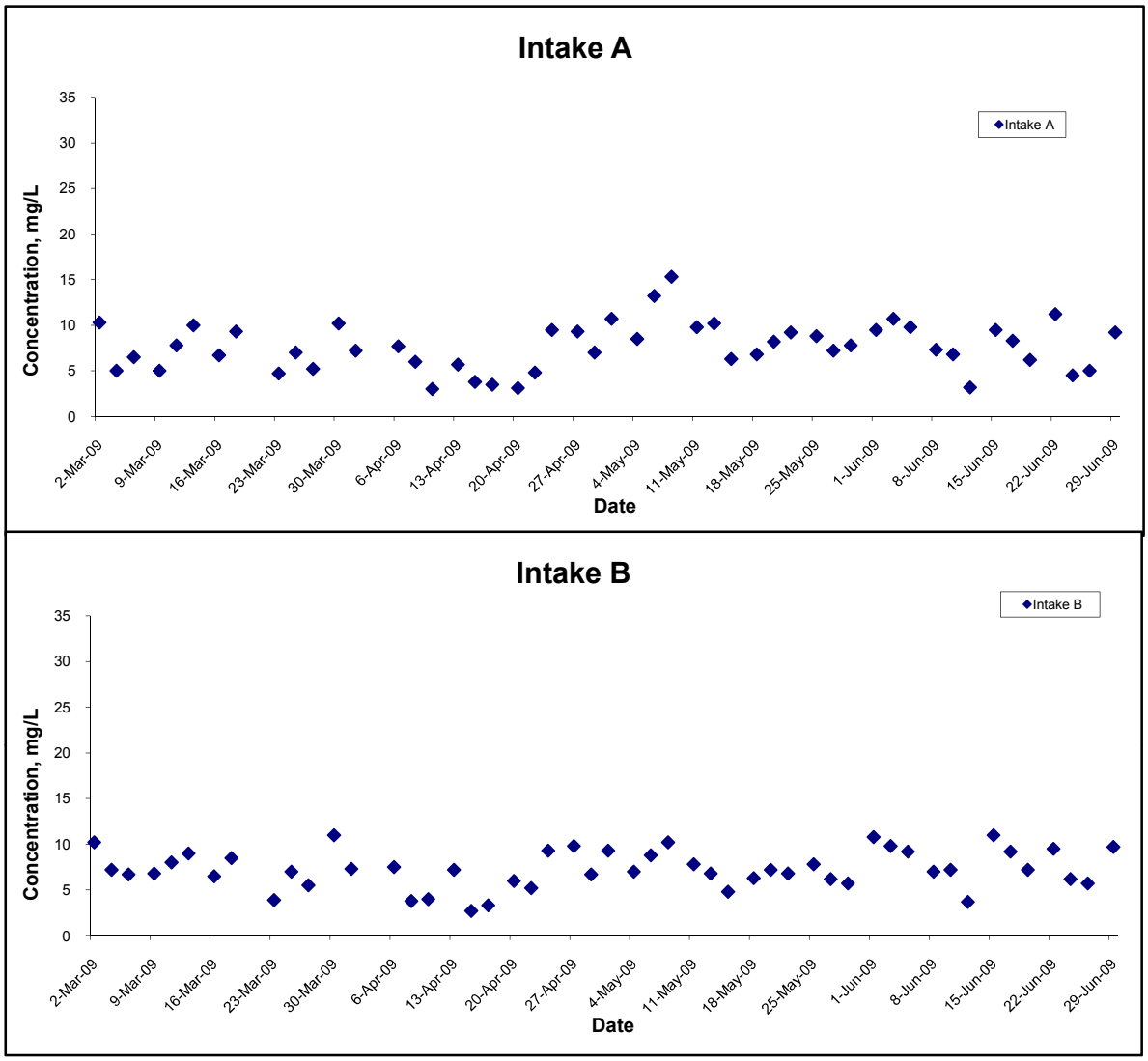




Title		Scale	Project No.
Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel		N.T.S	MA8001
Graphical Presentation of Water Quality Monitoring Results		Date: Jun 09	Appendix: F

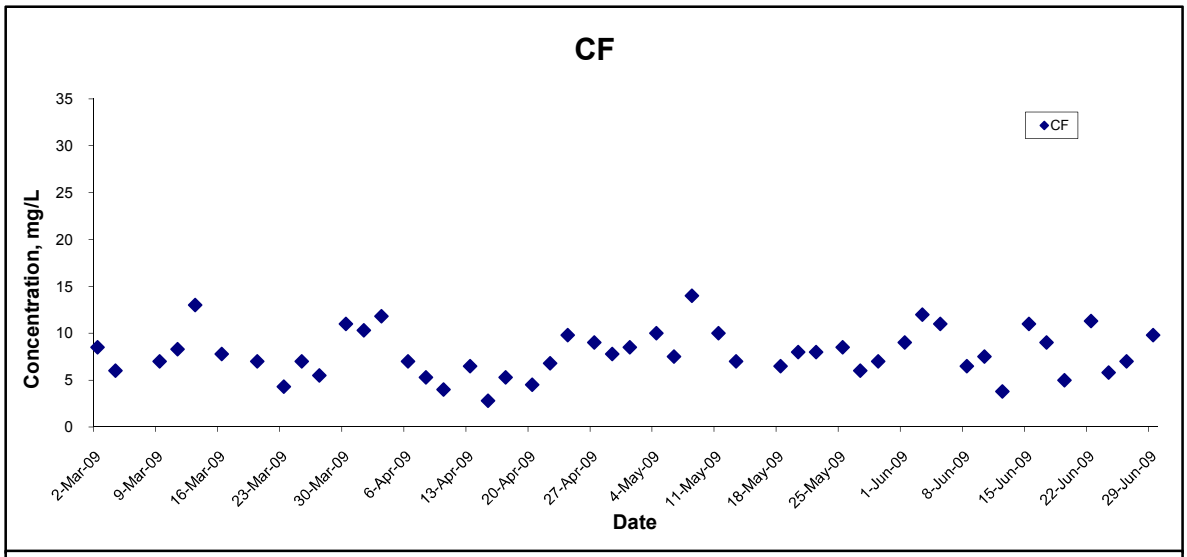
CINOTECH

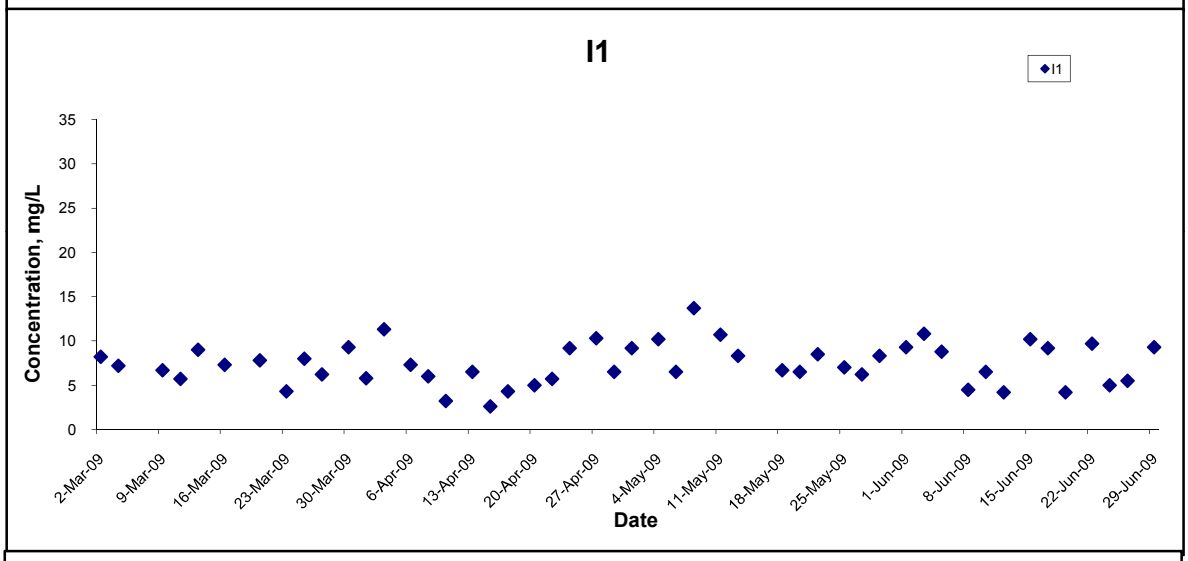
Suspended Solids (Depth-averaged) at Mid-Ebb Tide

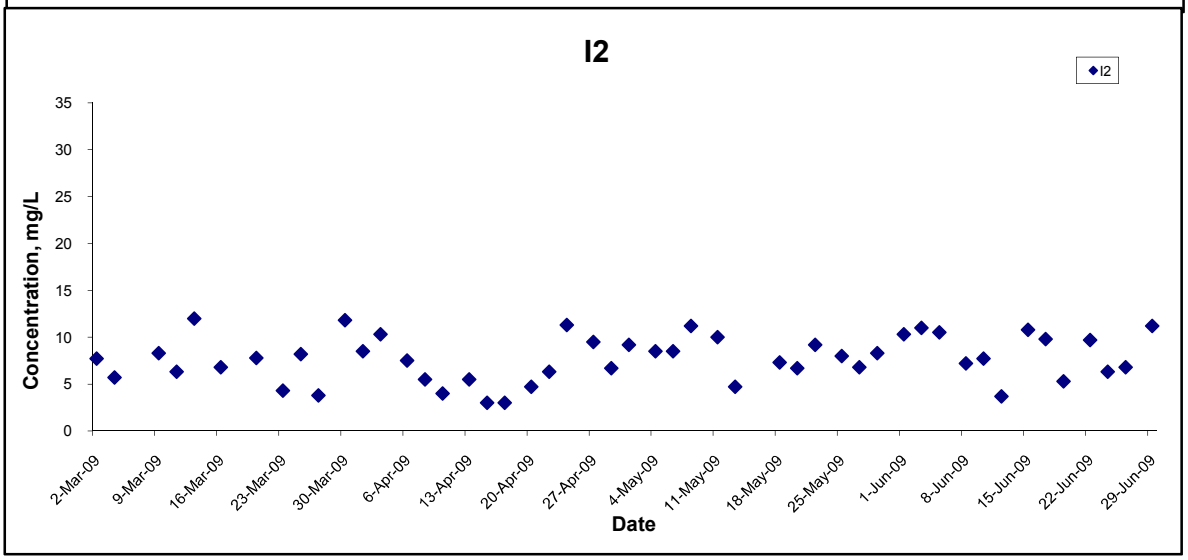


Title	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA8001	CINOTECH
		Date: Jun 09	Appendix: F	

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

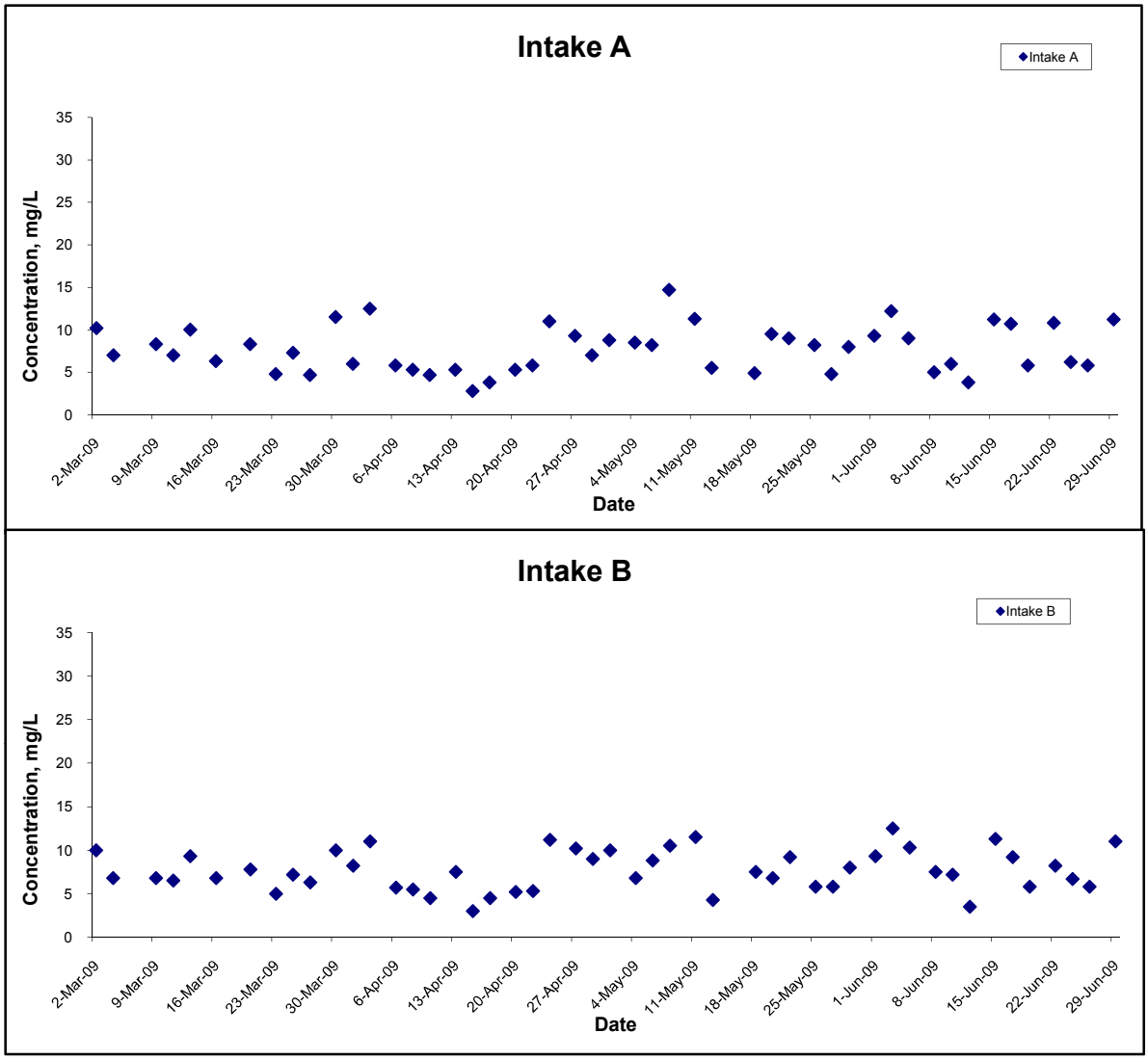






Title		Scale	Project No.	
	Contract No. DC/2007/10 Design and Construction of Hong Kong West Drainage Tunnel	N.T.S	MA8001	CINOTECH
	Graphical Presentation of Water Quality Monitoring Results	Date: Jun 09	Appendix: F	

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



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

APPENDIX G
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Appendix G - Summary of Environmental Mitigation Implementation Schedule

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

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

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

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N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
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Types of Impacts	Mitigation Measures	Status
Construction Noise	*Air borne noise* In general, potential construction noise impact can be minimized or avoided by imposing a combination of the following mitigation measures: • Noisy equipment and activities should be sited by the Contractor as far from close-proximity sensitive receivers as practical. Prolonged operation of noisy equipment close to dwellings should be avoided. • The Contractor should minimise construction noise exposure to the schools (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the works contract and to avoid noisy activities during these periods. • Noisy plant or processes should be replaced by quieter alternatives. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressor, can be readily obtained. • Noisy activities should be scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise. For example, noisy activities can be scheduled for midday, or at times coinciding with periods of high background noise (such as during peak traffic hours). • Idle equipment should be turned off of throttled down. Noisy equipment should be properly maintained and used no more often than is necessary. • The power units of non-electric stationary plant and earth-moving plant should be quietened by vibration isolation and partial or full acoustic enclosures for individual noise-generating components. • Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided, thus reducing the cumulative impacts between operations. The numbers of operating items of powered mechanical equipment should be minimised. Noise can be reduced by increasing the distance between the operating equipment and the NSRs or by reducing the number of items of equipment and/or construction activity in the area at any one time. • The use of quiet plant working methods can further reduce noise level. Quiet plant is defined as Powered Mechanical Equipment (PME) whose actual sound power level is less than the value specified in the TMs for the same piece of equipment. To allow the Contractor some flexibility to select equipment to suit his needs, it is considered too restrictive to specify which specific items of silenced equipment to be used for the construction operations. It should be noted that various types of silenced equipment can be found in Hong Kong and are readily available on the market. BS 5228 also provides examples of quiet construction plant and their SWL. • Construction plant should be properly maintained (well-greased, damage and worn parts promptly replaced) and operated. Construction equipment often has silencing measures built in or added on, e.g. bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilised. Rubber or damping materials should be introduced between metal panels to avoid rattle and reverberation of noise. • Equipment known to emit sound strongly in one direction should be oriented so that the noise is directed away from nearby NSRs. • Materials stockpile and other structures (such as site offices) should be effectively utilised to shield construction noise. Noise	^ ^ ^ ^ ^ ^ ^ ^ ^ *

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

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

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

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

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

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N/A Not Applicable at this stage; • Non-compliance but rectified by the contractor;
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# Non-compliance but rectified/improved by the contractor and awaiting IEC's further comment.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX H
SITE AUDIT SUMMARY

Appendix H Summary of Observation and Recommendation Made during Site Inspection

Summary of Observation and Recommendation Made during Site Inspection in April 2009

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

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

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

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

Parameters	Date	Observations and Recommendations	Follow-up
		followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	for the item.

Note: (*) The Environmental deficiencies have been rectified by the Contractor. However, the item was reoccurred during the follow-up site audit due to construction activities/rainstorm. The Contractor was reminded to rectify the deficiencies more frequently.
(#) The marine based construction works have finished and no waste water was discharged into the sea from site during inspection.

Summary of Observation and Recommendation Made during Site Inspection in May 2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	13/05/2009	Silty water was observed discharging to the nullah at Eastern Portal. The Contractor was reminded to divert all wastewater to the treatment unit for treatment before discharging out.	Rectification/improvement was observed during the follow-up audit session.
	27/05/2009	Standing water was observed at the hole of the concrete block and tank at Western Portal. The Contractor was reminded to clear them after the rain.	Rectification/improvement was observed during the follow-up audit session.
Air Quality	06/05/2009	Cement bags were observed without covered at Eastern Portal. The Contractor was reminded to cover them to prevent dust emission.	The item was not rectified during the follow-up audit session.
	13/05/2009	Remaining cement bags were observed without covered at Eastern Portal. The Contractor was reminded to cover them to prevent dust emission.	Rectification/improvement was observed during the follow-up audit session.
Waste / Chemical Management	06/05/2009	Oil drum was observed without drip tray and appropriate label at Western Portal. The Contractor was reminded to store it properly and attach with appropriate chemical label.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2009	General refuses were observed not disposed properly at Western Portal. The Contractor was reminded to clean them up.	Rectification/improvement was observed during the follow-up audit session.
	06/05/2009	Vegetation waste was observed accumulated at the stream of Intake THR2. The Contractor was reminded to clear them properly.	*Follow-up action was needed for the item. (The discarded leaves and the waste was flowing from the upstream not disposed by DNJV)
	13/05/2009	General refuse and C&D waste were observed accumulated at the material skip at Eastern Portal. The Contractor was reminded to sort the waste before disposing out.	Rectification/improvement was observed during the follow-up audit session.
	13/05/2009	Vegetation waste was observed accumulated at the stream of Intake THR2. The Contractor was reminded to clear them properly.	*Follow-up action was needed for the item. (The discarded leaves and the waste was flowing from the upstream not disposed by DNJV)
	13/05/2009	Oil stains were observed at underneath of the plant at Intake W0. The Contractor was reminded to clean them up and well-maintained the plant equipments.	This item was not observed during the site inspection.
	13/05/2009	Mud was observed at the U-Channel at Western Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	20/05/2009	Vegetation waste was observed at the stream of Intake THR2. The Contractor was reminded to clear them properly.	This item was not observed during the site inspection.
	27/05/2009	General refuse was observed at the tank at Western Portal. The Contractor was reminded to clean them up and maintain the site cleanliness properly.	Rectification/improvement was observed during the follow-up audit session.
Ecology	20/05/2009	Seepage of silty water from the rock crack was observed at Intake MA14. The Contractor was reminded to provide mitigation measures to minimize the water	This item was not observed during the site inspection.

Parameters	Date	Observations and Recommendations	Follow-up
		quality impact of the stream.	
Marine Ecology	06/05/2009	Silt curtain was observed cannot function properly at Western Portal. The Contractor was reminded to maintain the silt curtain in good condition.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	13/05/2009	Silt curtain was observed cannot function properly at Western Portal but no wastewater was observed to discharge into the sea from site as the marine based construction works have finished. However, The Contractor was reminded to maintain the silt curtain in good condition before receiving any approval.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	20/05/2009	Silt curtain was observed without deployed at Western Portal. The Contractor was reminded to deploy the silt curtain properly until receiving any approval to remove the silt curtain. However, no wastewater was observed discharging from site into the sea during the site inspection.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	27/05/2009	Silt curtain was observed deployed partly at Western Portal. The Contractor was reminded that EPD's approval is needed prior to remove the silt curtain although no wastewater was observed discharging from site into the sea during the site inspection.	#Follow-up action was needed for the item. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
Reminders	06/05/2009	The Contractor was reminded of the followings: - Properly maintain the water quality mitigation measures at Tai Hang Stream so that the wastewater will not be discharging to the nullah.	*Follow-up action was needed for the item.
	06/05/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees at Eastern, Western Portals especially the Intake sites.	*Follow-up action was needed for the item.
	13/05/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees for the project site area.	*Follow-up action was needed for the item.
	20/05/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees for the project site area.	*Follow-up action was needed for the item.
	27/05/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees for the project site area.	*Follow-up action was needed for the item.

Note: (*) The Environmental deficiencies have been rectified by the Contractor. However, the item was reoccurred during the follow-up site audit due to construction activities/rainstorm. The Contractor was reminded to rectify the deficiencies more frequently.
(#) DNJV was being prepared the variation of the FEP for this issue.

Summary of Observation and Recommendation Made during Site Inspection in June 2009

Parameters	Date	Non-Compliance	Follow-up
Noise	17/06/2009	Full noise enclosure at Eastern Portal was observed still under construction during the TBM excavation. In accordance with the Approved EIA Report and Environmental Permit, full noise enclosure should be available before the operation of TBM including the transportation of excavated spoil to the muck out area for temporary storage. The full noise enclosure should be the same as shown in the noise enclosure design plan submitted to EPD. Verbal warning was issued during the site inspection on 3 June 2009. The Contractor was reminded to rectify the situation as a matter of urgency.	Follow-up action was needed for the item.

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	03/06/2009	Stagnant water was observed at the pit area at near de-silting plant at Western Portal. The Contractor was reminded to dry it out.	Rectification/improvement was observed during the follow-up audit session.
	10/06/2009	Stagnant water was observed from blocking at the U-Channel at near the sedimentation tank at Western Portal. The Contractor was reminded to pump it out.	The item was not rectified during the follow-up audit session.
	10/06/2009	Standing water was observed at the drip tray at Intake HKU1. The Contractor was reminded to dry it out after the rain.	Rectification/improvement was observed during the follow-up audit session.
	17/06/2009	Stagnant water was observed from blocking at the U-Channel at near the sedimentation tank at Western Portal. The Contractor was reminded to pump it out.	Rectification/improvement was observed during the follow-up audit session.
	25/06/2009	General refuse was observed at near the outfall at Western Portal (within the silt curtain). The Contractor was reminded to clean them up.	Rectification/improvement was observed during the follow-up audit session.
Air Quality	10/06/2009	Dust generation was observed during the rock breaking with insufficient water-spray at Eastern Portal. The Contractor was reminded to provide water-spray more frequently.	Rectification/improvement was observed during the follow-up audit session.
	25/06/2009	Over 20 cement bags were observed without covering at Eastern Portal. The Contractor was reminded to cover them and provide three sides enclosure with top shelter during the de-bagging and grouting works.	Rectification/improvement was observed during the follow-up audit session.
Noise	25/06/2009	Gap was observed at the noise enclosure at Eastern Portal. However, no TBM works were operated. The Contractor was reminded to rectify the situation as soon as possible before the operation of TBM.	Follow-up action was needed for the item.
Waste / Chemical Management	03/06/2009	Construction waste was observed at the sedimentation tank at Western Portal. The Contractor was reminded to clear the waste and maintain the tank can function properly.	Rectification/improvement was observed during the follow-up audit session.
	03/06/2009	Empty oil drum was observed not stored properly at Western Portal. The Contractor	Rectification/improvement was observed during the

Parameters	Date	Observations and Recommendations	Follow-up
		was reminded to store them properly in the chemical waste storage area.	follow-up audit session.
	03/06/2009	General refuse was observed at inside the pile at Eastern Portal. The Contractor was reminded to clean them up.	*Follow-up action was needed for the item.
	10/06/2009	General refuse was observed at inside the pile at Eastern Portal. The Contractor was reminded to clean them up.	*Follow-up action was needed for the item.
	17/06/2009	General refuse was observed at inside the pile at Eastern Portal. The Contractor was reminded to clean them up.	*Follow-up action was needed for the item.
	13/05/2009	Oil stains were observed at underneath of the plant at Intake W0. The Contractor was reminded to clean them up and well-maintained the plant equipments.	This item was not observed during the site inspection.
	13/05/2009	Mud was observed at the U-Channel at Western Portal. The Contractor was reminded to clear them.	Rectification/improvement was observed during the follow-up audit session.
	20/05/2009	Vegetation waste was observed at the stream of Intake THR2. The Contractor was reminded to clear them properly.	This item was not observed during the site inspection.
	27/05/2009	General refuse was observed at the tank at Western Portal. The Contractor was reminded to clean them up and maintain the site cleanliness properly.	Rectification/improvement was observed during the follow-up audit session.
Ecology	03/06/2009	Silty water was observed nearly overflow at the water recycling tank at Intake MA14. The Contractor was reminded to review the capacity of the tank and ensure the construction activities will not cause any disturbance to the stream.	Rectification/improvement was observed during the follow-up audit session.
Marine Ecology	03/06/2009	Silt curtain was observed deployed partly at Western Portal. The Contractor was reminded to install the silt curtain properly.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	10/06/2009	Silt curtain was observed deployed partly at Western Portal. The Contractor was reminded to install the silt curtain properly.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	17/06/2009	Silt curtain was observed deployed partly at Western Portal. The Contractor was reminded to install the silt curtain properly.	#The item was not rectified during the follow-up audit session. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)
	25/06/2009	Silt curtain was observed deployed partly at Western Portal. The Contractor was reminded to install the silt curtain properly.	#Follow-up action was needed for the item. (The marine based construction works have finished and no waste water was discharged into the sea from site during inspection)

Parameters	Date	Observations and Recommendations	Follow-up
Reminders	03/06/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees for the project site area.	*Follow-up action was needed for the item.
	10/06/2009	The Contractor was reminded of the followings: - Keep clear the standing water in the label bags that secure around the trees for the project site area.	Rectification/improvement was observed during the follow-up audit session.
	17/06/2009	The Contractor was reminded of the followings: - Provide drip tray for the generator at Intake HR1.	This item was not observed during the site inspection.
	25/06/2009	The Contractor was reminded of the followings: - Clear the general refuse and stagnant water at near the water diversion pipe at Eastern Portal.	*Follow-up action was needed for the item.
	25/06/2009	The Contractor was reminded of the followings: - Clear the standing water at the drip tray at underneath the Wetsep at Intake W0.	Rectification/improvement was observed during the follow-up audit session.
	25/06/2009	The Contractor was reminded of the followings: - Clear the standing water at the drip tray and pit area at Western Portal.	Rectification/improvement was observed during the follow-up audit session.
	25/06/2009	The Contractor was reminded of the followings: - Clear the discarded bitumen oil at the pier at Western Portal.	The item was not rectified during the follow-up audit session.

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

(#) DNJV was being prepared the variation of the FEP for this issue. Approval has been granted from EPD on 25 June 09 for application of variation of environmental permit regarding the removal of the silt curtain when there is no marine-based construction works being carried out at the Western Portal.

APPENDIX I
SUMMARY STATUS OF ENVIRONMENTAL LICENCES AND PERMITS

Appendix I - Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
FEP-01/272/2007/A	28/1/08	N/A	Construction of a 6.25m-7.25m in diameter and about 11 km long underground main drainage tunnel, 2 portals and a series of connecting adits and drop shafts.	Valid
Effluent Discharge License				
EP860/W10/XY0175	23/06/08	30/06/13	Industrial discharge (Area of Mount Butler Office)	Valid
EP860/W10/XY0177	23/06/08	30/06/13	Industrial discharge (Eastern Portal Site)	Valid
EP680/W10/XY0183	19/11/08	30/11/13	Industrial discharge (Intake W0, Stubbs Road, Wan Chai, HK)	Valid
WT00003372-2009	-	30/4/14	Industrial discharge (Intake SM1)	Valid
WT00003737-2009	-	31/5/14	Industrial discharge (Intake MB16)	Valid
WT00003738-2009	-	31/5/14	Industrial discharge (Intake THR2)	Valid
Registration of Chemical Waste Producer				
5213-148-D2393-02	---	N/A	Chemical waste types: Spent oil	Valid
5213-172-D2393-01	---	N/A	Chemical waste types: Spent oil	Valid
Construction Noise Permit (CNP)				
GW-RS0184-09	17/03/09	16/07/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid
GW-RS0300-09	23/04/09	16/07/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid

Permit No.	Valid Period		Details	Status
	From	To		
GW-RS0213-09	01/04/09	23/06/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. Dc/2007/10).	Valid
GW-RS0299-09	25/04/09	24/10/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at a construction site of "Hong Kong West Drainage Tunnel" near Stubbs Road Garden, Wan Chai, Hong Kong	Valid
GW-RS0382-09	25/05/09	25/08/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work and performing prescribed construction work at Hong Kong West Drainage Tunnel (Western Portal), Cyberport Road, Cyberport, Hong Kong (DSD Contract No. Dc/2007/10).	Valid
GW-RS0404-09	04/06/09	03/09/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at Hong Kong West Drainage Tunnel (Eastern Portal) (DSD Contract No. DC/2007/10), Tai Hang Road, Causeway Bay, Hong Kong.	Valid
GW-RS0408-09	29/05/09	24/11/09	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work at a construction site of "Hong Kong West Drainage Tunnel" near Stubbs Road Garden, Wan Chai, Hong Kong	Valid

APPENDIX J
WASTE GENERATED QUANTITY

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

Monthly Waste Flow Table

Quarter ending		Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects (see notes 5 & 6)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see note 2)	Chemical Waste	Others, e.g. general refuse
	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)	(in ' 000 m^3)
Jan-09	9659 m^3		129 m^3		9530 m^3			2 m^3		1.3 m^3	39 m^3
Feb-09	5680 m^3		199 m^3		5481 m^3			3 m^3			45 m^3
Mar-09	938 m^3		61 m^3		877 m^3			3 m^3		1.4 m^3	78 m^3
Apr-09	5722 m^3		45 m^3	5133 m^3	544 m^3			3 m^3		0.4 m^3	73 m^3
May-09	12115 m^3			12028 m^3	191 m^3			3 m^3		0.8 m^3	58 m^3
Jun-09	11535 m^3		53 m^3		1449 m^3			3 m^3		6.7 m^3	73 m^3
Sub-Total	45649 m^3		487 m^3	17161 m^3	18072 m^3			17 m^3		10.6 m^3	366 m^3
Jul-09											
Aug-09											
Sep-09											
Oct-09											
Nov-09											
Dec-09											
Total	45649 m3		487 m3	17161 m3	18072 m3			17 m3		10.6 m3	366 m3

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Plastics refer to plastic bottles/containers, plastic/foam from packaging material.
(3) Broken concrete for recycling into aggregates.
(4) The Figures for June 09 are as of 30-06-09.
(5) Assuming the conversion factor from m3 to tonne for rock is 2.5.
(6) The materials reused in other Project shall not treated as waste under the Waste Disposal Ordinance (Cap 354). The figures are included for the sake of completeness of record.

APPENDIX K
SUMMARY OF EXCEEDANCES

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

Exceedance Report

Eastern Portal

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

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

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

Near Eastern Portal

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

Western Portal

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

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

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

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

Near Western Portal

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

Intake W0

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

APPENDIX L
COMPLAINT LOGS

APPENDIX L – COMPLAINT LOG

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

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

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

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

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

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

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

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

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

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

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				Base on the information collected, regular noise Monitoring was conducted during the night time to check the noise levels are complying with the construction noise criteria. The noise levels measured at NC3 during the construction works at night time were well below the construction noise limit. The Contractor was reminded to strengthen their site supervision by delegated Engineer to ensure all construction activities and PMEs to be used are fully complying with CNP and legislation requirements and implement necessary noise mitigation measures as recommended in the Approved EIA report to minimize and avoid the construction noise impact to the residents nearby especially during the restricted hours.	
COM-2009-04-030	Construction site at Western Portal	30 April 2009	Complaint of Construction Noise Generated at Night at Western Portal.	According to the site activities diaries, TBM chainage, TBM excavation, installation of segment ring, pea gravel & mortar injection and installation cables & pipes at gantries were the activities conducted in the night of 30 April 2009. In accordance with the night time visit on 15 May 2009, the noise levels at Aegean Terrace was not high but with occasionally	Closed
COM-2009-05-031		4 May 2009	Complaint of low frequency noise emitted from the construction site at Western Portal.		

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
		11 May 2009	Complaint of Construction Noise nuisance generated from the Western Portal Site from day to night.	sound of locomotive and tower crane operations. No exceedance of noise level was recorded since the commencement of the project works at Western Portal Site. The noise levels measured at NC3 during the construction works were well below the construction noise limit. The Contractor will continue implementing their mitigation measures (e.g. Instruct workers not to shout during work in the evening; no horn signal of locomotive after 6:55 pm).	
COM-2009-05-032	Construction site at Eastern Portal	13 May 2009	The complaint was lodged by a resident regarding the Construction Noise Nuisance from the construction works that were carried out from early morning till night time at Eastern Portal Site Area.	Based on the information collected, the noise levels measured at NC1/NC1a and NC2 during the construction works were well below the construction noise limit or baseline level. The Contractor is also committed to implement sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents especially during the restricted hours.	Closed
COM-2009-06-035	Hong Kong West Drainage Tunnel Construction Site at Cyberport	3 June 2009	EPD received a public complaint raised by Mr. Lee regarding the transportation and disposal of construction wastes from Hong Kong West	Base on the information collected, alternative disposal ground is proposed by The Contractor and they have been submitted the relevant information and sought the approval from Supervising	Closed

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			Drainage Tunnel Construction Site at Cyberport on 3 June 2009.	Officer. The Contractor also maintains the daily record with details of each disposal trip from the Site and the disposal ground.	
COM-2009-06-037	Construction site at Eastern Portal	23 June 2009	The few noise complaints were lodged by a resident of The Legend and Ronsdale Garden regarding the Construction Noise Nuisance from the construction works at Eastern Portal Site Area since 7:00a.m and in the afternoon.	Based on the information collected, the noise levels measured at NC1 and NC2 during the construction works were well below the construction noise limit or baseline level. In response to the complaints, the head of hydraulic breaker has been wrapped with sound proof materials and movable noise barriers were provided for rock excavation to reduce noise. The Contractor is also committed to implement sufficient noise mitigation measures as recommended in the approved EIA report to minimize the nuisance caused to the nearby residents.	Closed
COM-2009-06-038			The complaint was raised by Ms Wong of Goodwell Property Management, she wrote on behalf of the Estate Owner Committe of Legend at Tai Hang about noise nuisance arising from the excacvation works at Eastern Portal site portion. The Committe requested the Contractor to provide mitigation measures to mininise the impact.		