



Maeda-CRGL-SELI Joint Venture

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

Quarterly EM&A Report (July to September 2013)

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Report No EB000364R1041

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Report No EB000364R1041

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Executive Summary

- 1 This quarterly EM&A summary report under the Main Contract for the Design and Construction of Tsuen Wan Drainage Tunnel (hereafter referred to as the “Project”) to Maeda-CRGL-SELI Joint Venture (MCSJV), which summarises the findings of environmental impact monitoring works during the period from July to September 2013 (‘reporting period’).
- 2 In this reporting period, air-borne noise monitoring was performed at five monitoring stations (NSR1, NSR3, NSR6, NSR8 and NSR9). Air quality monitoring was carried out at four monitoring stations (ASR1, ASR3, ASR8 and ASR9). Water quality monitoring was carried out at four monitoring stations (Intake I-1, Intake I-2, Intake I-3 and Outfall O-1). Noise level was measured in terms of $L_{eq(30\text{ min})}$, L_{10} and L_{90} . Air quality was measured in terms of 1-hour Total Suspended Particulates (TSP). Water quality was measured in terms of Temperature, pH, Dissolved Oxygen (DO), Turbidity (Tby) and Suspended Solids (SS).
- 3 Details of all monitoring stations are summarized in the table below.

Type of Monitoring	Monitoring Station ID	Name of Premises	Status of Monitoring Works during the Reporting Period
Air Quality Monitoring	ASR1	Sik Sik Yuen Ho Fung College	Ongoing
	ASR3	Hong Hoi Chee Hong Temple	Ongoing
	ASR8	Beach Tower (Long Beach Garden)	Ongoing
	ASR9	Greenview Terrace (Block 1)	Ongoing
Air-borne Noise Monitoring	NSR1	Sik Sik Yuen Ho Fung College	Ongoing
	NSR3	Hong Hoi Chee Hong Temple	Ongoing
	NSR6	Squatters	Ongoing
	NSR8	Beach Tower (Long Beach Garden)	Ongoing
	NSR9	Greenview Terrace (Block 1)	Ongoing
Water Quality Monitoring	I-1	Intake I-1	Ongoing
	I-2	Intake I-2	Ongoing
	I-3	Intake I-3	Ongoing
	O-1	Outfall O-1	Ongoing

- 4 The major construction activities undertaken by the Contractor during the period from July to September 2013 include site cleaning and tidying at Outfall, I-1, I-2 and I-3, construction of surface drainage at Outfall, footpath reinstatement works at Outfall, landscape works at Outfall, installation of miscellaneous steel works at Outfall, installation of additional irrigation system at Outfall, construction of permanent access road and surface drainage at I-3, landscape works at I-3, excavation and construction of associated drainage of access platform next to man access shaft at I-2, reinstatement of footway at the entrance of vortex shaft and man access shaft at I-2, reinstatement of vehicle parapet at the entrance of vortex shaft at I-2, tiling works for spiral ramp at Outfall, permanent diversion of DN100mm water main at I-2 and landscape maintenance works at Outfall.

- 5 Planting trees at intake I-3 was undertaken during the restricted hours in the reporting period. As confirmed by the Contractor, no marine mud dredging works for basin scheme at Portion E was conducted in the reporting period.
- 6 No project related exceedance of air quality, noise and water quality monitoring was recorded. No environmental complaint was received in the reporting period. The table below summarizes the exceedances of air quality, noise and water quality in the reporting period.

Parameter	Action Level Exceedance	Limit Level Exceedance
1-hour TSP	Nil	Nil
L _{eq} (30 min)	Nil	Nil
DO	Nil	Nil
Turbidity	Nil	Four records at I-1 on 15 July 2013, 26 July 2013, 2 August 2013 and 4 September 2013. Five records at I-2 on 26 July 2013, 2 August 2013, 30 August 2013, 4 September 2013 and 23 September 2013. Twelve records at I-3 on 8 July 2013, 15 July 2013, 24 July 2013, 26 July 2013, 2 August 2013, 16 August 2013, 19 August 2013, 23 August 2013, 30 August 2013, 4 September 2013, 6 September 2013 and 23 September 2013.
SS	Two records at I-1 on 4 September 2013 and 13 September 2013.	Three records at I-1 on 15 July 2013, 26 July 2013 and 2 August 2013. One record at I-2 on 4 September 2013. Four records at I-3 on 24 July 2013, 26 July 2013, 4 September 2013 and 23 September 2013.

- 7 Waste figures during the reporting period are summarized in the table below.

Status of Waste Management	Quantity
Inert C&D Material Disposed of to Public Fill at Tuen Mun (m ³)	426.5
Inert C&D Material Reused in this Contract (m ³)	0
Inert C&D Material Reused in other Contract (m ³)	0
Metals Generated (kg)	24.0
Paper / Cardboard Packaging (kg)	1,400.0
Plastics (kg)	20.0
Chemical Waste (kg)	0
General Waste Disposed of to NENT Landfill (m ³)	97.5

- 8 No complaint was received during the reporting period.
- 9 No Notification of Summons was received since the commencement of the Project.

1 Introduction

- 1.1.1 The Drainage Services Department (DSD) proposes to construct a tunnel of an internal diameter of 6.5 m and length 5.13 km, with the purpose to alleviate the flooding risk in Tsuen Wan and Kwai Chung.
- 1.1.2 This project is a Designated Project under Schedule 2 Part I Category Q of the Environmental Impact Assessment Ordinance (EIAO) as part of the proposed Tsuen Wan Drainage Tunnel (TWDT) passes underneath the existing Tai Mo Shan Country Park. An Environmental Impact Assessment (EIA) Study was undertaken to provide information on the nature and extent of environmental impacts arising from the construction and operation of the proposed project and related activities taking place concurrently. From the EIA, the recommendations for monitoring contained herein are made.
- 1.1.3 The Maeda-CRGL-SELI Joint Venture (MCSJV) was awarded by DSD with the Contract – Design and Construction of Tsuen Wan Drainage Tunnel.
- 1.1.4 Hyder was commissioned by the MCSJV as the ET to implement an EM&A programme in accordance with the EM&A Manual. The proposed tunnel section flows from the junction of Shing Mun Road and Wo Yi Hop Road and discharges to south of Yau Kom Tau underneath Castle Peak Road, as shown in Appendix A.
- 1.1.5 The construction works of the Project commenced in April 2008. This is the twenty-second Quarterly EM&A Report summarising the impact monitoring results and audit findings of the EM&A programme during the reporting period between July and September 2013.

2 Project Information

2.1 Project Organization and Management Structure

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

2.2 Construction Progress

- 2.2.1 It is anticipated that the overall project programme from the detail design to completion of all civil works shall take approximately 67 months. The construction programme is presented in Appendix C.

The major construction activities undertaken in the reporting period were:

- Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
- Construction of surface drainage at Outfall;
- Footpath reinstatement works at Outfall;
- Landscape works at Outfall;
- Installation of miscellaneous steel works at Outfall;
- Installation of additional irrigation system at Outfall;

- Construction of permanent access road and surface drainage at I-3;
- Landscape works at I-3;
- Excavation and construction of associated drainage of access platform next to man access shaft at I-2;
- Reinstatement of footway at the entrance of vortex shaft and man access shaft at I-2;
- Reinstatement of vehicle parapet at the entrance of vortex shaft at I-2;
- Tiling works for spiral ramp at Outfall;
- Permanent diversion of DN100mm water main at I-2; and
- Landscape maintenance works at Outfall.

2.3 Mitigation Measures

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

3 EM&A Requirement

3.1 General

3.1.1 The EM&A requirements are stipulated in the approved EM&A Manual. The principal purposes of the EM&A programme are to assess the compliance with applicable environmental legislation and associated regulations, to ensure the implementation of mitigation measures specified in the EM&A Manual, and to identify any remedial works necessary for redressing any unacceptable or unanticipated environmental impacts.

3.2 EM&A on Air Quality, Noise and Water Quality

Monitoring Parameters

3.2.1 The air quality, noise and water quality monitoring frequencies and parameters are shown in Table 3-1.

Type of Monitoring	Monitoring Station ID	Parameter	Frequency
Air Quality Monitoring	ASR1; ASR3; ASR8 and ASR9	1-hour TSP ($\mu\text{g}/\text{m}^3$)	Once every 6 days
Air-borne Noise Monitoring	NSR1; NSR3; NSR6; NSR8 and NSR9	$L_{\text{eq}}(30 \text{ min})$ (dB(A))	Once every week
Water Quality Monitoring	I-1, I-1-C, I-2, I-2-C, I-3, I-3-C	DO (mg/L)	Three days per week
		SS (mg/L)	
		Turbidity (NTU)	
		pH	
		Temperature ($^{\circ}\text{C}$)	

Table 3-1 Frequency of Air Quality, Noise and Water Quality Monitoring

3.3 Monitoring Locations

3.3.1 The monitoring locations for air quality, noise and water quality are shown in Tables 3-2, 3-3, 3-4 and Appendix E.

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

Table 3-2 Air Quality Monitoring Locations

Monitoring Station ID	Name of Premises	Floor Level
NSR1	Sik Sik Yuen Ho Fung College	G/F
NSR3	Hong Hoi Chee Hong Temple	Podium
NSR6	Squatters	G/F
NSR8	Beach Tower (Long Beach Garden)	G/F
NSR9	Greenview Terrace (Block 1)	Podium (up to 6 July 2009) Roof* (from 16 July 2009)

* The noise monitoring location of NSR9 had been relocated to the rooftop from 16 July 2009.

Table 3-3 Noise Monitoring Locations

Monitoring Station ID	Name of Premises
I-1	Intake I-1
I-1-C	Control of Intake I-1
I-2	Intake I-2
I-2-C	Control of Intake I-2
I-3	Intake I-3
I-3-C*	Control of Intake I-3

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

Table 3-4 Water Quality Monitoring Locations

3.3.2 Referring to Section 4.4 of the approved Contract Specific EM&A Manual (Report No. EB000364R0981, dated 25 July 2013), while the construction of the Outfall requires minor dredging, water quality monitoring at the Outfall shall be undertaken during the period of the dredging works. As advised by the Contractor, all relevant marine works at Portion E of the site were completed in April 2012. As such, the ET submitted a proposal to EPD on 30 April 2012 to terminate the marine water quality monitoring effective from 1 May 2012. EPD had no objection to the proposal in their reply on 7 May 2012.

3.4 Performance Limits (AL Levels)

3.4.1 In accordance with the EM&A Manual, the appropriate Action and Limit Levels for air quality, air-borne noise and water quality were established. They are presented in Table 3-5, Table 3-6 and Table 3-7. Should non-compliance of the air quality, noise and water quality criteria occur, actions in accordance with the Event / Action Plan stipulated in contract specific EM&A Manual should be carried out.

Station	1-hr TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level
ASR1	307	500
ASR3	327	500
ASR8	337	500
ASR9	329	500

Table 3-5 Action & Limit Levels for Air Quality

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

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

Table 3-6 Action & Limit Levels for Air-borne Noise

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

Parameters	Action	Limit
(Depth-averaged)	upstream control station's Tby at the same tide of the same day	upstream control station's Tby at the same tide of the same day

Notes:

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

Table 3-7 Action & Limit Levels for Water Quality

3.5 Monitoring Result

3.5.1 All measured air quality monitoring levels were complying with the Action and Limit Levels in the reporting period. A summary of air quality monitoring results is presented in Table 3-8 and Appendix F.

Monitoring Station	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
		Range			
ASR1	14.5	-	134.1	307	500
ASR3	18.1	-	196.8	327	500
ASR8	13.2	-	158.5	337	500
ASR9	24.6	-	191.3	329	500

Italic indicates the exceedances of *Action Levels*

Bold indicates the exceedances of **Limit Levels**

Table 3-8 Summary of Air Quality Monitoring Results

3.5.2 All measured air-borne noise monitoring levels were complying with the Limit Level in the reporting period.

3.5.3 A summary of noise monitoring results is presented in Table 3-9 and Appendix F.

Monitoring Station	$L_{\text{eq}} (30 \text{ min})$ dB(A)			Limit Level dB(A)
		Range		
NSR1	62.9	-	64.1	65/70 [#]
NSR3	56.6	-	63.7	75
NSR6	51.6	-	64.3	75
NSR8	61.3	-	64.5	75
NSR9	61.3	-	64.5	75

Note: **Bold** indicates the exceedances of **Limit Levels**

- Noise Limit Level was reduced to 65 dB(A) from 70 dB(A) during school examination period.

Table 3-9 Summary of Impact Air-borne Noise Monitoring Results

3.5.4 A summary of water quality monitoring results is presented in Table 3-10 and Appendix F.

3.5.5 None of exceedance related to project construction activities was recorded during the reporting quarter but a total of **31** non-project related exceedances were recorded.

River Water Quality Monitoring

3.5.6 A total of **11** non-project related exceedances were recorded in **July 2013**, including:

Turbidity

- One exceedance of turbidity limit level was recorded at I-1 on 15 July 2013. The measured turbidity level (21.75 NTU) was higher than the baseline limit level, but lower than 120% of the turbidity level (21.65 NTU) of the upstream control station (I-1-C). No construction activities were conducted on the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 41 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 15:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-1 on 26 July 2013. The measured turbidity level (75.25 NTU) was higher than the baseline limit level, but lower than the turbidity level (75.45 NTU) of the upstream control station (I-1-C). No construction activities were conducted on the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-2 on 26 July 2013. The measured turbidity level (8.85 NTU) was higher than the baseline limit level, but lower than the turbidity level (8.91 NTU) of the upstream control station (I-2-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 8 July 2013. The measured turbidity level (4.58 NTU) was higher than the baseline limit level, but lower than the turbidity level (4.67 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 15 July 2013. The measured turbidity level (33.85 NTU) was higher than the baseline limit level, but lower than the turbidity level (34.05 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 38 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 14:45 on the monitoring day. Therefore, the

exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

- One exceedance of turbidity limit level was recorded at I-3 on 24 July 2013. The measured turbidity level (72.95 NTU) was higher than the baseline limit level, but lower than the turbidity level (73.05 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 23 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 0:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 26 July 2013. The measured turbidity level (54.45 NTU) was higher than the baseline limit level, but lower than the turbidity level (54.65 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 69 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

Suspended Solids

- One exceedance of SS limit level was recorded at I-1 on 15 July 2013. The measured SS level (10.80 mg/L) was higher than the baseline limit level, and lower than 120% of the SS level (10.50 mg/L) of the upstream control station (I-1-C). No construction activities were conducted on the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 41 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 15:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of SS limit level was recorded at I-1 on 26 July 2013. The measured SS level (53.20 mg/L) was higher than the baseline limit level, but lower than 120% of the SS level (46.95 mg/L) of the upstream control station (I-1-C). No construction activities were conducted on the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of SS limit level was recorded at I-3 on 24 July 2013. The measured SS level (27.90 mg/L) was higher than the baseline limit level, but lower than the SS level (28.55 mg/L) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No

direct disturbance was observed from the site. Heavy rain was observed and about 23 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 0:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

- One exceedance of SS limit level was recorded at I-3 on 26 July 2013. The measured SS level (33.05 mg/L) was higher than the baseline limit level, but lower than 120% of the SS level (32.00 mg/L) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 69 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

3.5.7 A total of **9** non-project related exceedances were recorded in **August 2013**, including:

Turbidity

- One exceedance of turbidity limit level was recorded at I-1 on 2 August 2013. The measured turbidity level (36.45 NTU) was higher than the baseline limit level, and same as the turbidity level (36.45 NTU) of the upstream control station (I-1-C). No construction activities were conducted on the monitoring day. No direct disturbance was observed from the site. About 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-2 on 2 August 2013. The measured turbidity level (8.54 NTU) was higher than the baseline limit level, but lower than the turbidity level (8.68 NTU) of the upstream control station (I-2-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. About 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-2 on 30 August 2013. The measured turbidity level (11.25 NTU) was higher than the baseline limit level, but lower than the turbidity level (11.35 NTU) of the upstream control station (I-2-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. Heavy rain was observed and about 133 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 1:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

- One exceedance of turbidity limit level was recorded at I-3 on 2 August 2013. The measured turbidity level (24.35 NTU) was higher than the baseline limit level, but lower than the turbidity level (24.55 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 15 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 16 August 2013. The measured turbidity level (18.35 NTU) was higher than the baseline limit level, but lower than the turbidity level (18.55 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 22 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 2:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 19 August 2013. The measured turbidity level (7.59 NTU) was higher than the baseline limit level, but lower than the turbidity level (7.77 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 23 August 2013. The measured turbidity level (4.52 NTU) was higher than the baseline limit level, but lower than 120% of the turbidity level (4.45 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 30 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 4:45 and 12:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 30 August 2013. The measured turbidity level (12.35 NTU) was higher than the baseline limit level, but lower than the turbidity level (12.05 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 135 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 1:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

Suspended Solids

- One exceedance of SS limit level was recorded at I-1 on 2 August 2013. The measured SS level (23.20 mg/L) was higher than the baseline limit level, but lower than the SS level (23.40 mg/L) of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

3.5.8 A total of **11** non-project related exceedances were recorded in **September 2013**, including:

Turbidity

- One exceedance of turbidity limit level was recorded at I-1 on 4 September 2013. The measured turbidity level (12.85 NTU) was higher than the baseline limit level, but lower than 120% of the turbidity level (12.75 NTU) of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 157 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-2 on 4 September 2013. The measured turbidity level (28.65 NTU) was higher than the baseline limit level, but lower than the turbidity level (28.95 NTU) of the control station (I-2-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-2 on 23 September 2013. The measured turbidity level (8.17 NTU) was higher than the baseline limit level, but lower than the turbidity level (8.48 NTU) of the control station (I-2-C). No construction work was undertaken during the monitoring day. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 09:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 4 September 2013. The measured turbidity level (89.05 NTU) was higher than the baseline limit level, but lower than the turbidity level (89.85 NTU) of the control station (I-3-C). No construction activities were undertaken during the monitoring day. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong

Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

- One exceedance of turbidity limit level was recorded at I-3 on 6 September 2013. The measured turbidity level (4.23 NTU) was higher than the baseline limit level, and lower than 120% of the turbidity level (4.15 NTU) of the control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
- One exceedance of turbidity limit level was recorded at I-3 on 23 September 2013. The measured turbidity level (35.75 NTU) was higher than the baseline limit level, but lower than 120% of the turbidity level (35.45 NTU) of the control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

Suspended Solids

- One exceedance of SS action level was recorded at I-1 on 4 September 2013. The measured SS level (9.60 mg/L) was higher than the baseline action level, but lower than 120% of the SS level (9.55 mg/L) of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 157 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of SS action level was recorded at I-1 on 13 September 2013. The measured SS level (2.55 mg/L) was lower than the baseline action / limit level, but higher than 120% of the SS level (<2.00 mg/L) of the control station (I-1-C). No construction work was undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
- One exceedance of SS limit level was recorded at I-2 on 4 September 2013. The measured SS level (16.50 mg/L) was higher than the baseline limit level, but lower than the SS level (16.80 mg/L) of the control station (I-2-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. No direct disturbance was observed from the site. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was

considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

- One exceedance of SS limit level was recorded at I-3 on 4 September 2013. The measured SS level (49.85 mg/L) was higher than the baseline limit level, but lower than 120% of the SS level (45.35 mg/L) of the control station (I-3-C). No construction activities were undertaken during the monitoring day. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
- One exceedance of SS limit level was recorded at I-3 on 23 September 2013. The measured SS level (22.50 mg/L) was higher than the baseline limit level, but lower than the SS level (22.55 mg/L) of the control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix G. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

3.5.9 The above mentioned exceedances were considered non-project related. However, proper mitigation measures had been implemented during measurements. Details of the above mentioned investigations can be referred to the Interim Notifications of Environmental Quality Limits Exceedances as enclosed in Appendix G.

Monitoring Station	Temperature (°C)	DO (mg/L)		pH	Turbidity (NTU)		Suspended Solid (mg/L)	
	Range	Range	Action / Limit Level	Range	Range	Action / Limit Level	Range	Action / Limit Level
I-1	24.00 - 27.80	7.42 - 9.17	3.42/3.34	7.57-7.98	2.54 - 75.25	9.75 / 12.47	<2.00- 53.20	8.85 / 10.17
I-1-C	24.00 - 27.80	7.46 - 9.20	-	7.57-7.98	2.63 - 75.45	-	<2.00-46.95	-
I-2	24.10 - 27.90	7.42 - 9.40	3.66/3.63	7.60-7.98	1.38 - 28.65	6.63 / 6.99	<2.00- 16.50	7.68 / 8.34
I-2-C	24.10 - 27.90	7.37 - 9.32	-	7.60-7.98	1.36 - 28.95	-	<2.00-16.80	-
I-3	24.00 - 27.90	7.45 - 9.14	3.65/3.51	7.60-8.05	1.81- 89.05	3.99 / 4.18	<2.00- 49.85	6.13 / 7.23
I-3-C	24.00 - 27.80	7.44 - 9.14	-	7.60-8.05	1.88 - 89.85	-	<2.00-45.35	-

Note: *Italic* indicates the exceedances of Action Levels

Bold indicates the exceedances of Limit Levels

Table 3-10 Summary of Impact Water Quality Monitoring Results

4 Quarterly Summary, Environmental Condition and Non-Compliance Records

4.1 Summary of Waste Disposal Records

4.1.1 According to the information provided by the Contractor, the quantities of C&D materials and other wastes in the reporting period are summarized in Table 4-1

Status of Waste Management	July 2013	August 2013	September 2013
Inert C&D Material Disposed of to Public Fill at Tuen Mun (m ³)	93.1	245.2	88.2
Inert C&D Material Reused in this Contract (m ³)	0	0	0
Inert C&D Material Reused in other Contract (m ³)	0	0	0
Metals Generated (kg)	0	24.0	0
Paper / Cardboard Packaging (kg)	0	400.0	1,000
Plastics (kg)	0	20.0	0
Chemical Waste (kg)	0	0	0
General Waste Disposed of to NENT Landfill (m ³)	15.6	8.5	73.4

Table 4-1 Waste Generated from July to September 2013

4.2 Weather Conditions

4.2.1 The weather conditions during the period from July to September 2013 were mainly sunny, rainy and cloudy.

4.3 Summary of Project-Related Exceedances

4.3.1 Summary of exceedance results are summarized in Table 4-2. Appendix G shows the Interim Notifications of Environmental Quality Limits Exceedances issued in the reporting period.

Environmental Monitoring	Total No. of Measurement	Action Level Exceedance	% of Action Level Exceedance	Limit Level Exceedance	% of Limit Level Exceedance
Air Quality	192	0	0	0	0
Air-borne Noise	65	0	0	0	0
Water	234	0	0	0	0

Table 4-2 Summary of Project-Related Exceedances

5 Complaint

5.1.1 A complaint hotline at 9850 3241 of the Contractor has been established for the Project.

5.1.2 No environmental complaint was received during the reporting period.

5.1.3 Details of the past complaint investigation and observations can also be referred to Appendix H.

5.1.4 Cumulative statistics of environmental complaints are shown in Table 5-1.

Complaints Received in the Reporting Period	Cumulative Number of Complaints
0	27

Table 5-1 Cumulative Statistics of Environmental Complaints

6 Summary of Notification of Summons, Successful Prosecutions and Corrective Actions

6.1.1 No summons and successful prosecution was received during the reporting period.

6.1.2 Cumulative statistics of Notification of Summon, Successful Prosecutions and Convictions are shown in Table 6-1.

Notification of Summons		Successful Prosecution	
July – September 2013	Cumulative	July – September 2013	Cumulative
0	0	0	0

Table 6-1 Cumulative Statistics of Notification of Summons and Successful Prosecutions

7 Comments, Recommendations and Conclusion

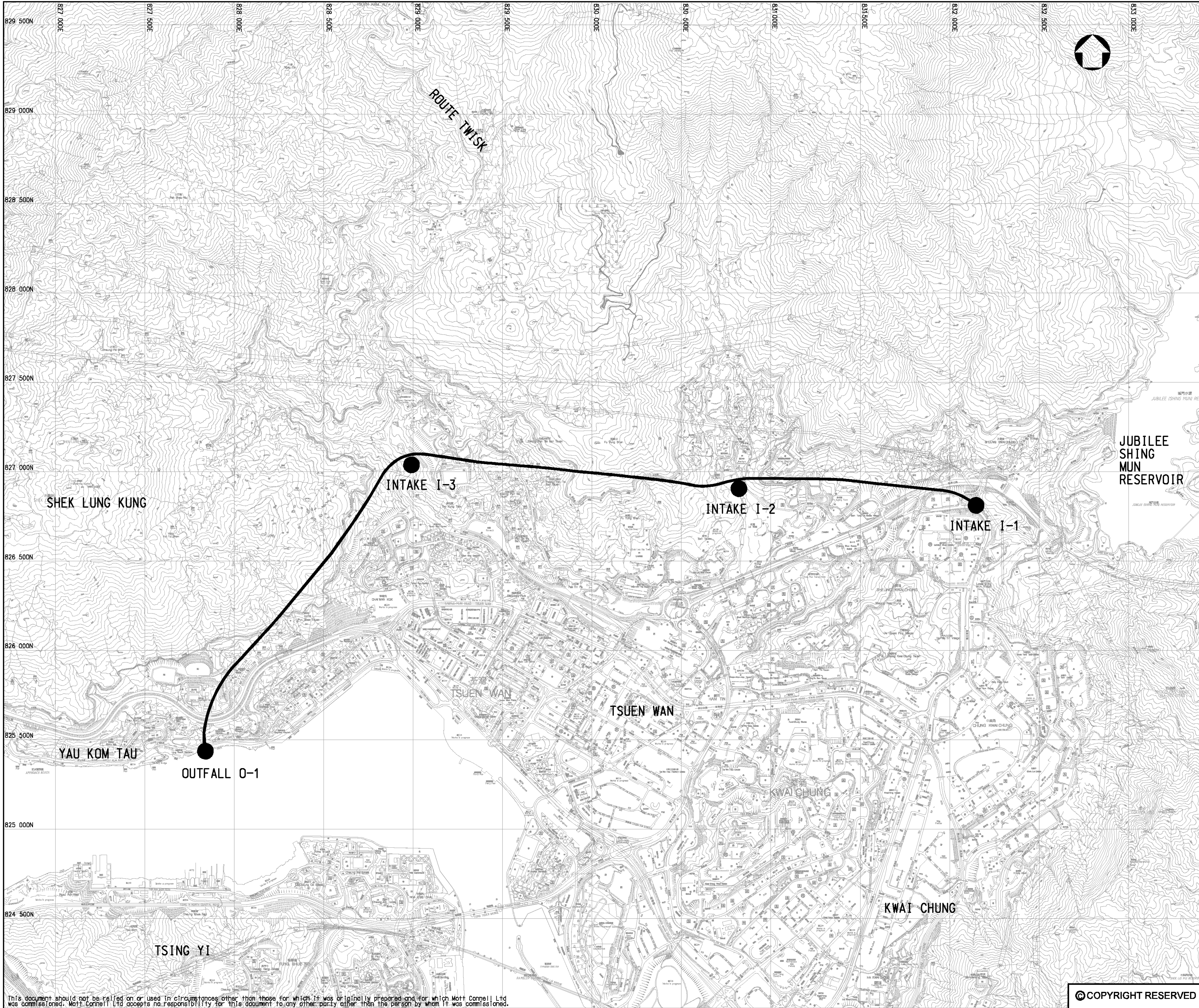
- 7.1.1 During the reporting period, no project related exceedance of air quality monitoring and air-borne noise monitoring was recorded. Details of the exceedance are given in Appendix G. Exceedances of water quality monitoring were recorded but none of these exceedances were related to Project's construction activities.
- 7.1.2 No Notification of Summon has been received since the commencement of the Project.
- 7.1.3 Waste management mitigation measures have been implemented by the Contractor within the reporting period. Waste figures during the reporting period are summarized in Table 7-1.

Status of Waste Management	Quantity
Inert C&D Material Disposed of to Public Fill at Tuen Mun (m ³)	426.5
Inert C&D Material Reused in this Contract (m ³)	0
Inert C&D Material Reused in other Contract (m ³)	0
Metals Generated (kg)	24.0
Paper / Cardboard Packaging (kg)	1,400.0
Plastics (kg)	20.0
Chemical Waste (kg)	0
General Waste Disposed of to NENT Landfill (m ³)	97.5

Table 7-1 Total Wastes Generated From July to September 2013

Appendix A

Site Map and Works Area



Key Plan:

Notes:

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

Key to symbols

LEGENDS :

- TUNNEL ALIGNMENT
- INTAKE/OUTFALL STRUCTURES

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

Client

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

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

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

Title
**TUNNEL ALIGNMENT
AND SURROUNDING AREA**

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

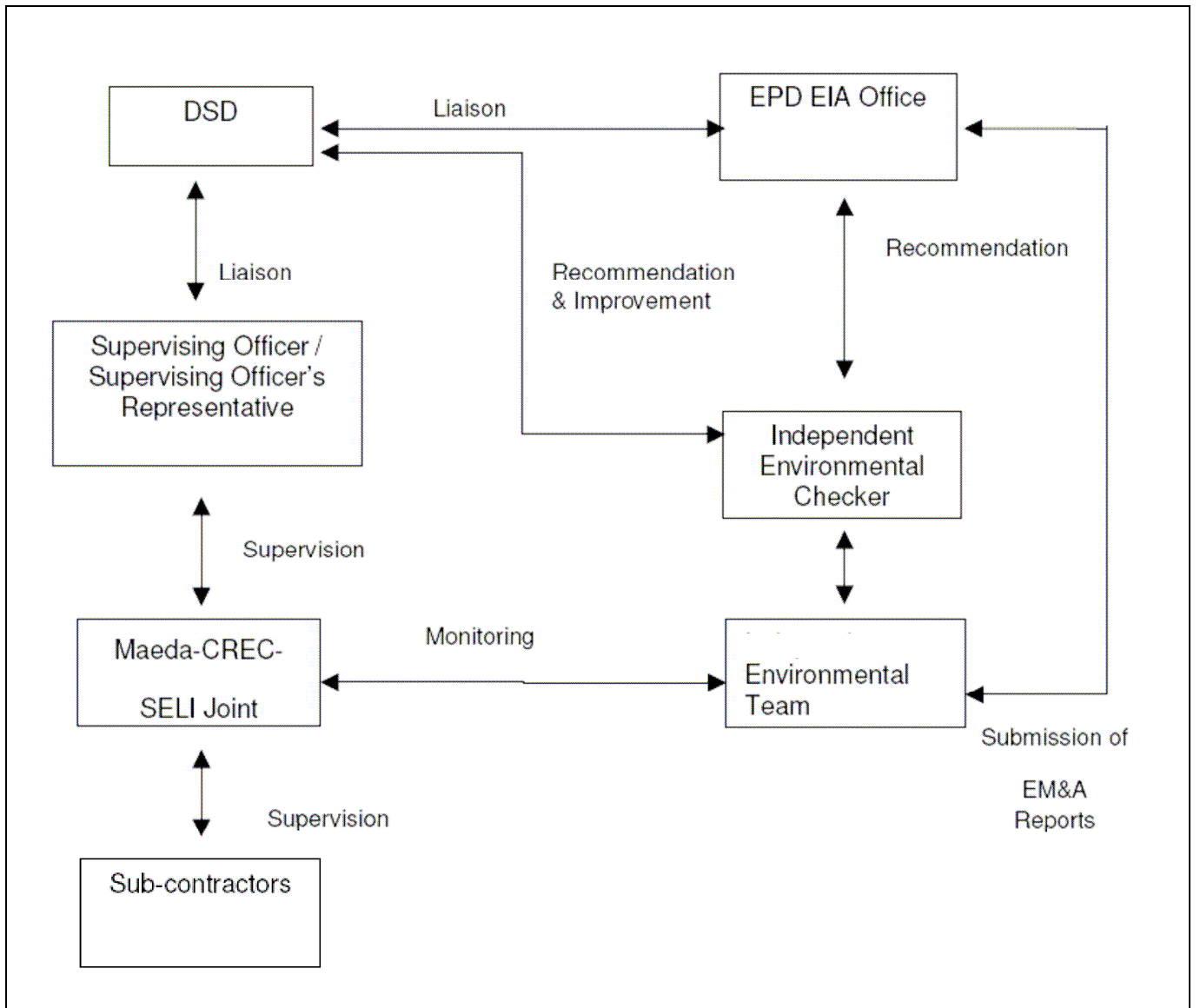
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Appendix B



Organization Chart



Appendix C



Works Programme

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012												2013												2014												2015											
										A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A															
										63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95															
17R0000902	Fulfill all relevant environmental obligation	1,950	1,950	28DEC07A	14MAR14	84	28DEC07A	29APR13	0																																																
Excavation Permit/Utilities per SCC 54 & SCC 83																																																									
01R0001002	Nominate IIUMS co-ordinator	7	7	14DEC07A	15JAN08A	100	14DEC07A	15JAN08A																																																	
01R0001004	SO approve IIUMS co-ordinator	14	14	16JAN08A	29FEB08A	100	16JAN08A	29FEB08A																																																	
01R0001006	Submit brand name of UGS detection equipment	7	7	28DEC07A	18FEB08A	100	28DEC07A	18FEB08A																																																	
01R0001008	Utilities detection & report to the SO	21	21	29FEB08A	05APR08A	100	29FEB08A	05APR08A																																																	
01R0001010	Liaison with UUs	21	21	04JAN08A	29FEB08A	100	04JAN08A	29FEB08A																																																	
01R0001012	Apply XP for site entrance construction	7	7	21JAN08A	08MAR08A	100	21JAN08A	08MAR08A																																																	
01R0001014	HyD process XP for site entrance construction	20	20	10MAR08A	28MAY08A	100	10MAR08A	28MAY08A																																																	
01R0001016	HyD issue XP for site entrance construction	0	0		28MAY08A	100		28MAY08A																																																	
01R0001018	Apply XP for GI works at I-1 & I-2	1	1	22APR08A	20MAY08A	100	22APR08A	20MAY08A																																																	
01R0001020	HyD process XP for GI works at I-1 & I-2	30	30	23APR08A	26SEP08A	100	23APR08A	26SEP08A																																																	
01R0001022	HyD issue XP for GI works at I-1 & I-2	0	0		26SEP08A	100		26SEP08A																																																	
01R0001024	Apply XP for trial grout at Fault F1	1	1	22APR08A	20MAY08A	100	22APR08A	20MAY08A																																																	
01R0001026	HyD process XP for trial grout at Fault F1	30	30	23APR08A	22JUL08A	100	23APR08A	22JUL08A																																																	
01R0001028	HyD issue XP for trial grout at Fault F1	0	0		22JUL08A	100		22JUL08A																																																	
Pre-construction Condition Survey																																																									
Preliminaries																																																									
01R0001102	Appoint a Qualified Structural Engineer	30	30	28DEC07A	19MAR08A	100	28DEC07A	19MAR08A																																																	
01R0001104	Submit nos. & extent of the affected EBS	30	30	28DEC07A	19MAR08A	100	28DEC07A	19MAR08A																																																	
PCS Stage 1 between I-1 & I-2																																																									
01R0001118	Carry out stg 1 PCS between I-1 & I-2	6	6	22APR08A	23APR08A	100	22APR08A	23APR08A																																																	
01R0001120	Prepare/submit reports for stg 1 PCS bet I-1&I-2	60	60	24APR08A	22SEP08A	100	24APR08A	22SEP08A																																																	
01R0001122	Review/accept reports for stg 1 PCS bet I-1&I-2	60	60	31MAY08A	20JAN09A	100	31MAY08A	20JAN09A																																																	
PCS Stage 1 between I-2 & I-3																																																									
01R0001130	Carry out stg 1 PCS between I-2 & I-3	5	5	25MAR08A	30APR08A	100	25MAR08A	30APR08A																																																	
01R0001132	Prepare/submit reports for stg 1 PCS bet I-2&I-3	60	60	24APR08A	22SEP08A	100	24APR08A	22SEP08A																																																	
01R0001134	Review/accept reports for stg 1 PCS bet I-2&I-3	60	60	24MAY08A	04FEB09A	100	24MAY08A	04FEB09A																																																	
PCS Stage 1 between I-3 & O-1																																																									
01R0001142	Carry out stg 1 PCS between I-3 & O-1	5	5	25MAR08A	26MAR08A	100	25MAR08A	26MAR08A																																																	
01R0001144	Prepare/submit reports for stg 1 PCS bet I-3&O-1	60	60	26MAR08A	11SEP08A	100	26MAR08A	11SEP08A																																																	
01R0001146	Review/accept reports for stg 1 PCS bet I-3&O-1	60	60	31MAY08A	04FEB09A	100	31MAY08A	04FEB09A																																																	
PCS Stage 1 at vicinity of O-1																																																									
01R0001106	Carry out stg 1 PCS at vicinity of O-1	5	5	25MAR08A	29MAR08A	100	25MAR08A	29MAR08A																																																	
01R0001108	Prepare/submit reports for stg 1 PCS at O-1	60	60	31MAR08A	10SEP08A	100	31MAR08A	10SEP08A																																																	
01R0001110	Review/accept reports for stg 1 PCS at O-1	60	60	27MAY08A	09FEB09A	100	27MAY08A	09FEB09A																																																	
PCS Stage 2 between I-1 & I-2																																																									
01R0001124	Carry out stg 2 PCS between I-1 & I-2	5	5	22APR08A	02JUN08A	100	22APR08A	02JUN08A																																																	
01R0001126	Prepare/submit reports for stg 2 PCS bet I-1&I-2	60	60	24APR08A	10JUN08A	100	24APR08A	10JUN08A																																																	
01R0001128	Review/accept reports for stg 2 PCS bet I-1&I-2	60	60	11JUN08A	09FEB09A	100	11JUN08A	09FEB09A																																																	

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012												2013												2014												2015									
										A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A													
										63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95													
05L1BI2818	Construct wall & crown	20	20	03OCT12	26OCT12	0	11AUG12	03SEP12	-377																																														
Junction Between Main Tunnel & Adit Tunnel																																																							
3BL1BI2100	Remove TBM services/delivery of steel arches	0	0		24APR12A	100		03MAY12																																															
3BL1BI2106	Install steel arches from main tunnel	19	24	25APR12A	18MAY12A	100	04MAY12	31MAY12																																															
3BL1BI2107	Excavate (breathrough);2m	69	32	09JUL12A	26SEP12	45	14JUL12	20AUG12	-377																																														
3BL1BI2108	Construct invert	8	8	05OCT12	13OCT12	0	21AUG12	29AUG12	-363																																														
3BL1BI2118	Construct wall & crown	34	34	15OCT12	23NOV12	0	30AUG12	09OCT12	-343																																														
3BL1BI2128	Remove steel arches	6	6	24NOV12	30NOV12	0	10OCT12	16OCT12	-343																																														
Remaining Works Prior to Handover																																																							
Radio Communication System																																																							
VO180I205	Construct equipment room	18	18	20NOV12	10DEC12	0	03DEC12	22DEC12	-345																																														
VO180I210	Lay tiles on equipment room	12	12	11DEC12	24DEC12	0	24DEC12	09JAN13	-345																																														
VO180I215	Install radio communication system	18	18	27DEC12	17JAN13	0	10JAN13	30JAN13	-345																																														
08R1BI2102	Finishing & reinstatement works; Portion B	36	36	22JAN14	07MAR14	0	30JAN13	15MAR13	-679																																														
08R1BI2103	Pre-handover inspections and remedial works	30	30	08FEB14	14MAR14	0	16FEB13	22MAR13	-679																																														
16R7BI2102	Landscaping works at Portion B	30	30	15APR13	21MAY13	0	16FEB13	22MAR13	-466																																														
16R7BI2104	Establishment Works at Portion B	365	365	22MAY13	21MAY14	0	23MAR13	22MAR14	-576																																														
Schedule of Milestones for Cost Centre No. 3bL																																																							
3BL1BI2A02	3bL 1; On establishing tunnelling equipments	0	0		20FEB12A	100		20FEB12A																																															
3BL1BI2A04	3bL 2; On completion of 12.5% perm. tunnel lining	0	0		20OCT12	0		27JUL12	875	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A06	3bL 3; On completion of 25% perm. tunnel lining	0	0		29OCT12	0		03AUG12	866	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A08	3bL 4; On completion of 37.5% perm. tunnel lining	0	0		05NOV12	0		10AUG12	859	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A10	3bL 5; On completion of 50% perm. tunnel lining	0	0		12NOV12	0		17AUG12	852	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A12	3bL 6; On completion of 62.5% perm. tunnel lining	0	0		19NOV12	0		24AUG12	845	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A14	3bL 7; On completion of 75% perm. tunnel lining	0	0		26NOV12	0		31AUG12	838	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A16	3bL 8; On completion of 87.5% perm. tunnel lining	0	0		03DEC12	0		07SEP12	831	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A18	3bL 9; On completion of perm. tunnel lining	0	0		24DEC12	0		28SEP12	810	◆ for Adit Tunnel at Intake I-2																																													
3BL1BI2A20	3bL 10; On completion of all works under this CC	0	0		24DEC12	0		16OCT12	810	◆ under this Cost Centre																																													
Schedule of Milestones for Cost Centre No. 5L																																																							
05L1BI2M02	5L 1; On completion of 25% of excavation	0	0		27MAY11A	100		27MAY11A																																															
05L1BI2M04	5L 2; On completion of 50% of excavation	0	0		27DEC11A	100		27DEC11A																																															
05L1BI2M06	5L 3; On completion of 75% of excavation	0	0		14MAR12A	100		14MAR12																																															
05L1BI2M08	5L 4; On completion of all excavation	0	0		26SEP12	0		20AUG12	899	◆ below G.L. except for Adit Intake I-2																																													
05L1BI2M10	5L 5; On completion of drop shaft & vortex shaft	0	0		17NOV12	0		29NOV12	847	◆ vortex shaft at Intake I-2																																													
05L1BI2M12	5L 6; On completion of de-aeration chamber	0	0		05OCT12	0		27NOV12	890	◆ chamber at Intake I-2																																													
05L1BI2M14	5L 7; On completion of air vent shaft	0	0		11JAN13	0		29JAN13	792	◆ shaft at Intake I-2																																													
05L1BI2M16	5L 8; On completion of man access shaft	0	0		10DEC12	0		09FEB13	824	◆ shaft at Intake I-2																																													
05L1BI2M18	5L 9; On completion of man access adit	0	0		09FEB13	0		21MAY12	763	◆ adit at Intake I-2																																													

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012				2013				2014				2015																			
										A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
										63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
VO-095-02	Green slope arrangement as per VO# 095	24	24	15MAY13	13JUN13	0	04DEC12	03JAN13	-473																																
Preliminary Works for Works included VO#043																																									
VO043-010	Receive VO for revising design	0	0		02FEB09A	100		02FEB09A																																	
VO043-020	Recieve amendment to VO#043	0	0		05MAY09A	100		05MAY09A																																	
VO043-030	Procurement of lean mix concrete	12	12	06MAY09A	14MAY09A	100	06MAY09A	14MAY09A																																	
VO043-040	Testing & approval of lean mix concrete	18	18	15MAY09A	06JUN09A	100	15MAY09A	06JUN09A																																	
Mass Wall to Protect Retained Trees; VO #043																																									
VO043-120	Setting out at site	69	69	03FEB09A	28APR09A	100	03FEB09A	28APR09A																																	
VO043-130	Excavate & muck out manually; 50m @ 4m/day	2	2	29APR09A	30APR09A	100	29APR09A	30APR09A																																	
VO043-140	Erect formwork; 70m2 @ 14m2/day	5	5	04MAY09A	08MAY09A	100	04MAY09A	08MAY09A																																	
VO043-150	Set up for concreting	2	2	08MAY09A	09MAY09A	100	08MAY09A	09MAY09A																																	
VO043-160	Pour concrete & removal of formwork	2	2	09MAY09A	11MAY09A	100	09MAY09A	11MAY09A																																	
Ch.460 to 370; VO# 043																																									
VO043-060	Bulk excavation for benching;1061 @ 45m3/day	12	12	29MAY09A	09JUL09A	100	29MAY09A	09JUL09A																																	
VO043-070	Fill & compaction; 39 layers @ 1 day/layer	39	39	08JUN09A	09JUL09A	100	08JUN09A	09JUL09A																																	
Ch. 370 to Ch. 270; VO #043																																									
VO043-090	Excavation for access road Ch. 370 to 310	4	4	07AUG09A	15AUG09A	100	07AUG09A	15AUG09A																																	
VO043-100	Bulk excavation for benching; Ch. 310 to 270	7	7	28AUG09A	05SEP09A	100	28AUG09A	05SEP09A																																	
VO043-110	Fill & compaction lean mix concrete; 15 layers	7	7	07SEP09A	09SEP09A	100	07SEP09A	09SEP09A																																	
Works On & Above Access Road; Ch. 460-270																																									
09R1CI3610	Temporary concrete paving & curing	16	16	21AUG09A	11SEP09A	100	21AUG09A	11SEP09A																																	
09R1CI3620	Excavation of slope batter above access road	135	135	13JUL09A	19DEC09A	100	13JUL09A	19DEC09A																																	
Ch. 270 to Ch. 210																																									
09R1CI3624	Excavation & soil nailing	54	54	03AUG09A	17NOV09A	100	03AUG09A	17NOV09A																																	
09R1CI3626	Backfill (grade 200) & compaction	3	3	18NOV09A	20NOV09A	100	18NOV09A	20NOV09A																																	
Ch. 210 to Ch. 130																																									
09R1CI3630	Excavation as per conforming design	48	48	12DEC08A	11MAY09A	100	12DEC08A	11MAY09A																																	
09R1CI3632	Temporary road paving from Ch. 270 to 100	7	7	11MAR10A	12MAR10A	100	11MAR10A	12MAR10A																																	
VO-084-02	VO#084 revising the design received	0	0	12MAY09A		100	12MAY09A																																		
VO-084-12	Works resumed as per VO #084	0	0	16MAY09A		100	16MAY09A																																		
VO-084-22	Excavate slope profile as per VO#084	34	34	16MAY09A	25JUN09A	100	16MAY09A	25JUN09A																																	
VO-084-26	Remove excavated material off site; 6000m3	18	18	07OCT09A	29OCT09A	100	07OCT09A	29OCT09A																																	
VO-084-32	Soil nailing at Ch. 198 to 210	4	4	13NOV09A	17NOV09A	100	13NOV09A	17NOV09A																																	
VO-084-42	Excavate to access road formation	26	26	23NOV09A	10MAR10A	100	23NOV09A	10MAR10A																																	
VO-127-02	VO#127 received	0	0		26NOV09A	100		26NOV09A																																	
VO-127-12	Excavation & formation	24	24	30NOV09A	29DEC09A	100	30NOV09A	29DEC09A																																	
VO-127-22	Permanent soil nailing #24	18	18	30DEC09A	22JAN10A	100	30DEC09A	22JAN10A																																	
VO-127-32	Placing grade 200 rockfill	6	6	23JAN10A	26JAN10A	100	23JAN10A	26JAN10A																																	
Ch. 130 to Ch. 0; up to Temp. Access to Wall PB																																									
09R1CI3634	55 deg. cut slope & soil nailing	62	62	27OCT09A	27MAR10A	100	27OCT09A	27MAR10A																																	
09R1CI3636	Temporary access to wall PB	15	15	22JAN10A	27MAR10A	100	22JAN10A	27MAR10A																																	
09R1CI3646	10# additional soil nails instructed by SOR	0	0		25JAN10A	100		25JAN10A																																	

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Implementation Status of Environmental Mitigation Measures

IMPLEMENTATION SCHEDULE July 2013

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

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

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EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
4.6.1	<ul style="list-style-type: none"> ● plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs; 	DSD's Contractor	Construction Work Sites	PN 2/93 Noise from Construction Activities & EIAO	✓
	<ul style="list-style-type: none"> ● mobile plant should be sited as far away from NSRs as possible; and 				✓
	<ul style="list-style-type: none"> ● material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 				✓
	<i>For Drill and Blast Works</i> <ul style="list-style-type: none"> ● Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay. 				N/A
	<ul style="list-style-type: none"> ● Smaller blasthole patterns and longer delays should be used between dependent charges. 				N/A
	<ul style="list-style-type: none"> ● Times of blasting should be established to suit the situation and firing blasts when neighbours are busy with their daily tasks (and at a regular time such as lunch time). 				N/A
	<i>For TBM Tunnelling</i> <ul style="list-style-type: none"> ● For the tunnel excavation, it is anticipated that beyond the initial length (say within 30m), excavation will be carried out well within the tunnel and door should be provided to further minimize the noise nuisance to the nearby receivers. 				N/A
4.6.2	<p>During Operation</p> <p>Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction</p> <ul style="list-style-type: none"> ● only well-maintained plant should be operated on-site; ● machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; and ● plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs. 	DSD's Contractor	Project Area	NCO & EIAO	N/A N/A N/A
Water Quality					
5.9.1	<p>During Construction</p> <p>Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.</p> <p><i>Precautions to be taken at any time of year when rainstorms are likely:</i></p> <ul style="list-style-type: none"> ● Temporarily exposed surfaces should be covered e.g. by tarpaulin. ● Temporary access roads should be protected by crushed stone or gravel. ● Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches. <p><i>Actions to be taken when a rainstorm is imminent or forecast:</i></p> <ul style="list-style-type: none"> ● Silt removal facilities, should be checked to ensure that they can function properly. 	DSD's Contractor	Construction Work Sites	Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO	✓ ✓ ✓ ✓ ✓

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

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

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

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

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

Appendix D

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

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

Remarks:

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

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

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

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EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
4.6.1	<ul style="list-style-type: none"> ● plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs; 	DSD's Contractor	Construction Work Sites	PN 2/93 Noise from Construction Activities & EIAO	✓
	<ul style="list-style-type: none"> ● mobile plant should be sited as far away from NSRs as possible; and 				✓
	<ul style="list-style-type: none"> ● material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 				✓
	<i>For Drill and Blast Works</i> <ul style="list-style-type: none"> ● Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay. 				N/A
	<ul style="list-style-type: none"> ● Smaller blasthole patterns and longer delays should be used between dependent charges. 				N/A
	<ul style="list-style-type: none"> ● Times of blasting should be established to suit the situation and firing blasts when neighbours are busy with their daily tasks (and at a regular time such as lunch time). 				N/A
	<i>For TBM Tunnelling</i> <ul style="list-style-type: none"> ● For the tunnel excavation, it is anticipated that beyond the initial length (say within 30m), excavation will be carried out well within the tunnel and door should be provided to further minimize the noise nuisance to the nearby receivers. 				N/A
4.6.2	<p>During Operation</p> <p>Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction</p> <ul style="list-style-type: none"> ● only well-maintained plant should be operated on-site; ● machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; and ● plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs. 	DSD's Contractor	Project Area	NCO & EIAO	N/A N/A N/A
Water Quality					
5.9.1	<p>During Construction</p> <p>Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.</p> <p><i>Precautions to be taken at any time of year when rainstorms are likely:</i></p> <ul style="list-style-type: none"> ● Temporarily exposed surfaces should be covered e.g. by tarpaulin. ● Temporary access roads should be protected by crushed stone or gravel. ● Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches. <p><i>Actions to be taken when a rainstorm is imminent or forecast:</i></p> <ul style="list-style-type: none"> ● Silt removal facilities, should be checked to ensure that they can function properly. 	DSD's Contractor	Construction Work Sites	Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO	✓ ✓ ✓ ✓ ✓

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

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

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

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

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Ecology					
7.7.1	<p>Avoidance</p> <p>The surface structures are located mainly on existing disturbed areas (ie pollution and urbanisation) and have generally avoided the natural stream sections of higher species diversity and abundance of aquatic organisms.</p> <p>The major construction activities at streams are scheduled to avoid wet season of high water flow which may adversely affect the downstream natural habitats due to the construction runoff.</p>	DSD's Contractor	Construction Work Sites	EIAO	✓
7.7.2	<p>Minimisation</p> <p>The previous discussion in Section 7.6.4 has indicated that the impacts on ecological resources due to the construction and operation of the proposed Project are generally expected to be low. The following mitigation measures to minimise impacts and disturbance to the surrounding habitats, are recommended.</p> <p><i>Measures for Construction Runoff</i> Install sheet piles/cofferdam/weir along the boundary of the works area within the stream habitats in particular Sam Dip Tam Stream and Tso Kung Tam Stream before the commencement of works to prevent construction runoff during construction. Provision of adequate designed sand/ silt removal facilities such as sand traps, silt traps and sediment basin in the areas which could potentially be affected may be required.</p> <p><i>Good Construction Practice</i></p> <p>Erect fences along the boundary of the works area before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel onto adjacent areas, particularly the stream habitats.</p> <p>Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the remaining and surrounding natural stream habitats.</p> <p>Regularly check the work site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas.</p> <p>Prohibit and prevent open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.</p> <p>Treat any damage that may have occurred to individual major trees in the adjacent area with surgery.</p>	DSD's Contractor	Construction Work Sites	EIAO	✓
					✓
					✓
					✓
					✓
					✓

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

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

Remarks:

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

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EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
Air Quality					
3.6.1	<p data-bbox="279 435 1144 560">Specific</p> <p data-bbox="279 483 1144 560">As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact.</p> <p data-bbox="279 565 1144 690">The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust) Regulation</i>, in fact, are more extensive. Therefore, it is expected that with watering the construction site every four times daily together with strict implementation of dust suppression measures as stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, the dust level is expected to be reduced by over 75%.</p> <p data-bbox="279 695 1144 893">General</p> <p data-bbox="279 743 1144 893">To further ensure compliance with the guideline and AQO limit at the ASRs at all time, it is recommended to implement the <i>Air Pollution Control (Construction Dust) Regulation</i> and include good site practice in the contract clauses to minimize cumulative dust impact. In addition, a comprehensive dust monitoring and audit programme is recommended to ensure proper implementation of the identified mitigation measures. Details of the monitoring and audit requirements are provided in a separate EM&A Manual.</p> <ul data-bbox="279 898 1144 1218" style="list-style-type: none"> <li data-bbox="279 898 1144 998">• effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding where a scaffolding is erected around the perimeter of a building under construction; <li data-bbox="279 1003 1144 1031">• dump truck for material transport should be totally enclosed by impervious sheeting; <li data-bbox="279 1036 1144 1112">• any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading; <li data-bbox="279 1117 1144 1161">• stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones; <li data-bbox="279 1166 1144 1218">• dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; 	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	<p data-bbox="1806 483 1953 503">✓</p> <p data-bbox="1806 609 1953 628">✓</p> <p data-bbox="1806 933 1953 953">N/A</p> <p data-bbox="1806 1006 1953 1026">✓</p> <p data-bbox="1806 1031 1953 1050">✓</p> <p data-bbox="1806 1112 1953 1131">✓</p> <p data-bbox="1806 1161 1953 1180">✓</p>

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

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EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
4.6.1	<ul style="list-style-type: none"> • plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs; 	DSD's Contractor	Construction Work Sites	PN 2/93 Noise from Construction Activities & EIAO	✓
	<ul style="list-style-type: none"> • mobile plant should be sited as far away from NSRs as possible; and 				✓
	<ul style="list-style-type: none"> • material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 				✓
	<i>For Drill and Blast Works</i> <ul style="list-style-type: none"> • Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay. 				N/A
	<ul style="list-style-type: none"> • Smaller blasthole patterns and longer delays should be used between dependent charges. 				N/A
	<ul style="list-style-type: none"> • Times of blasting should be established to suit the situation and firing blasts when neighbours are busy with their daily tasks (and at a regular time such as lunch time). 				N/A
4.6.2	During Operation Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction	DSD's Contractor	Project Area	NCO & EIAO	N/A
	<ul style="list-style-type: none"> • only well-maintained plant should be operated on-site; 				N/A
	<ul style="list-style-type: none"> • machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; and 				N/A
	<ul style="list-style-type: none"> • plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs. 				N/A
Water Quality					
5.9.1	During Construction Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.	DSD's Contractor	Construction Work Sites	Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO	✓
	<i>Precautions to be taken at any time of year when rainstorms are likely:</i> <ul style="list-style-type: none"> • Temporarily exposed surfaces should be covered e.g. by tarpaulin. 				✓
	<ul style="list-style-type: none"> • Temporary access roads should be protected by crushed stone or gravel. 				✓
	<ul style="list-style-type: none"> • Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches. 				✓
	<i>Actions to be taken when a rainstorm is imminent or forecast:</i> <ul style="list-style-type: none"> • Silt removal facilities, should be checked to ensure that they can function properly. 				✓

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

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

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

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

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

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

Appendix D

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

Remarks:

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

Appendix E

Monitoring Locations

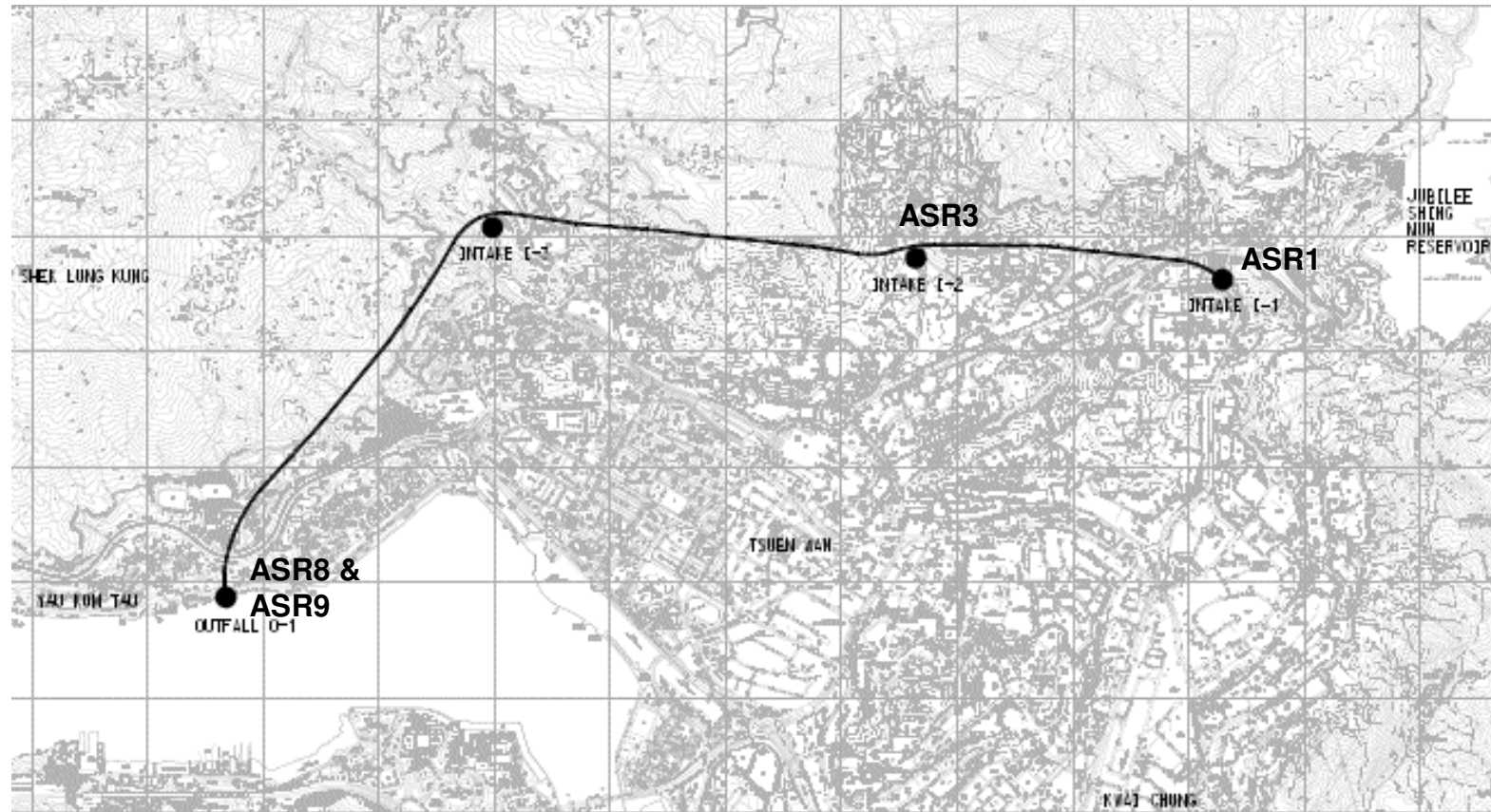


Figure 1 Air Quality Monitoring Stations

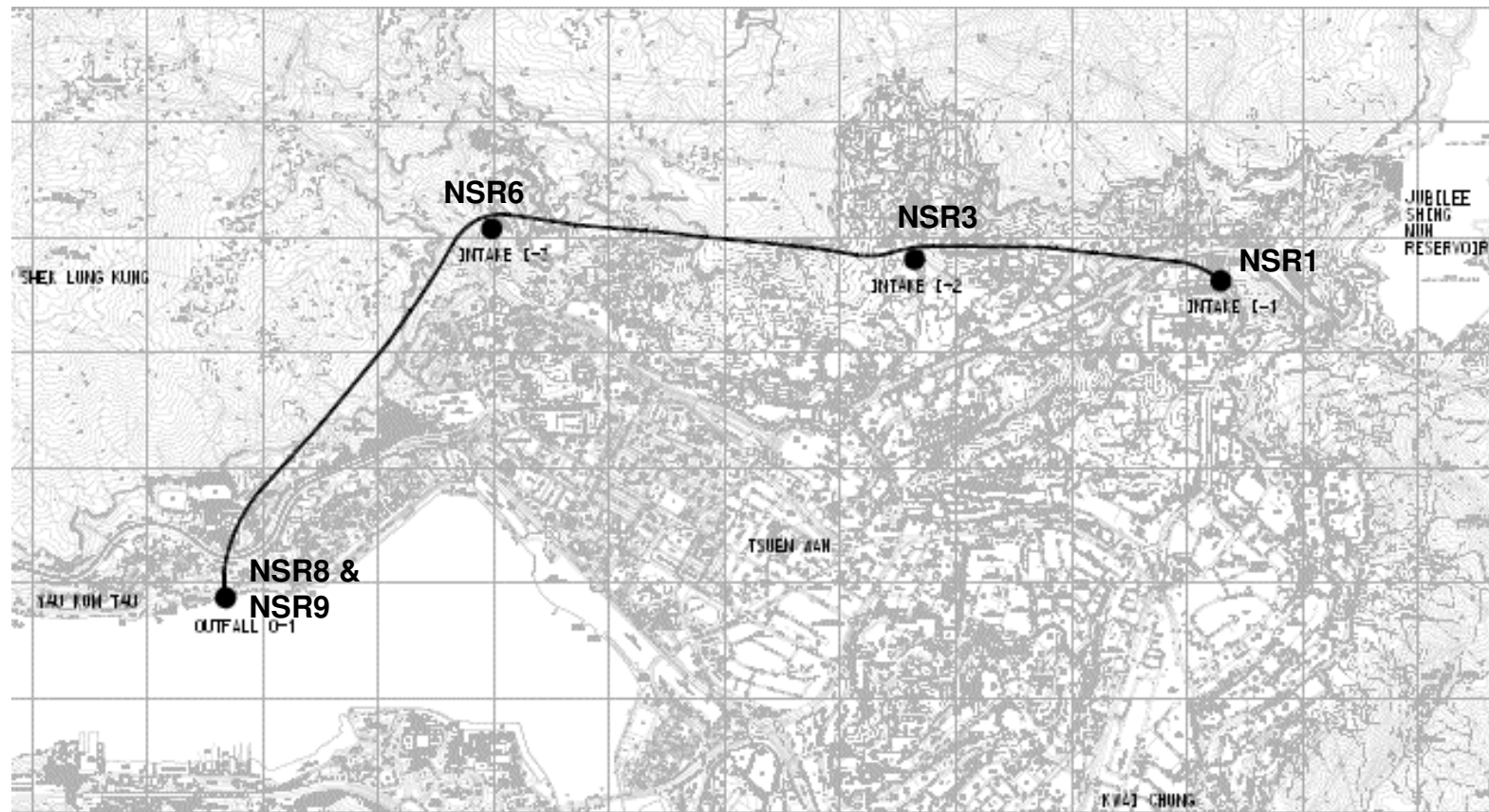


Figure 2 Noise Monitoring Stations

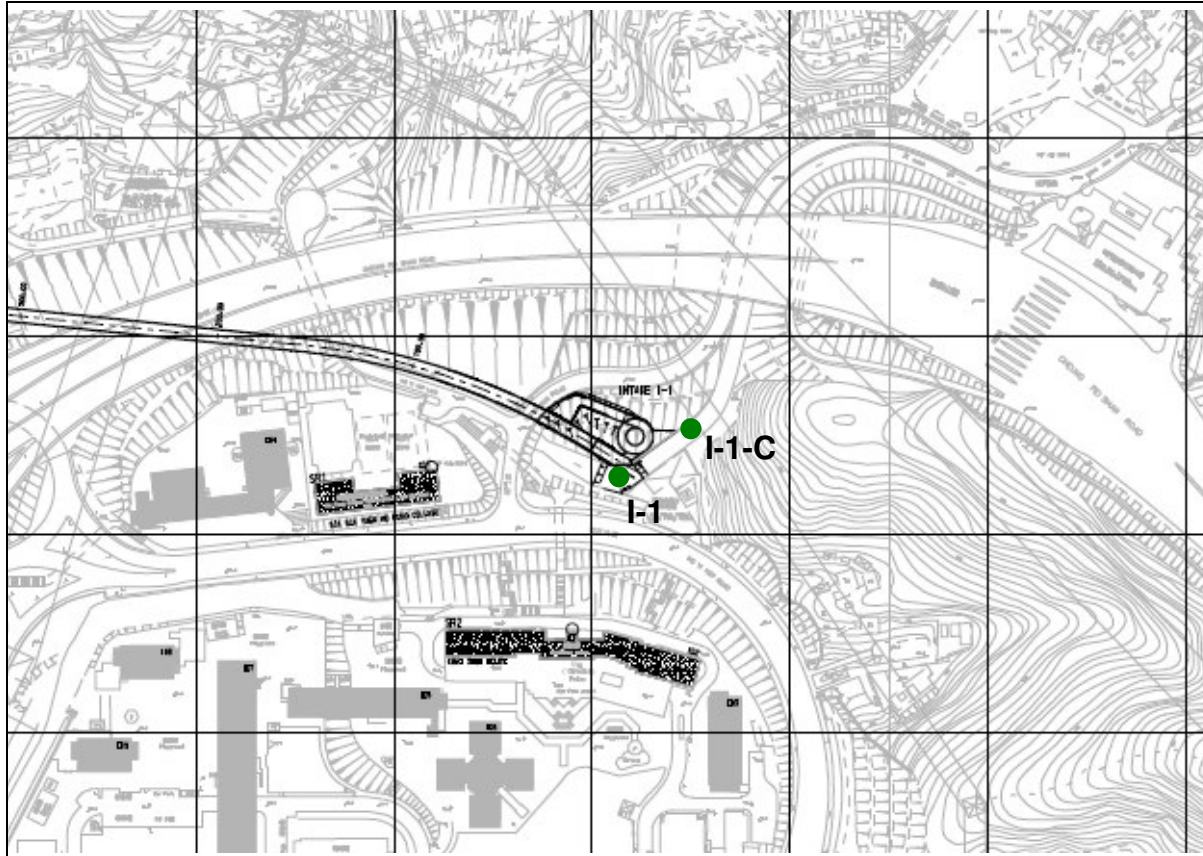


Figure 3 Water Quality Monitoring Stations: I-1 & I-1-C at Intake I-1

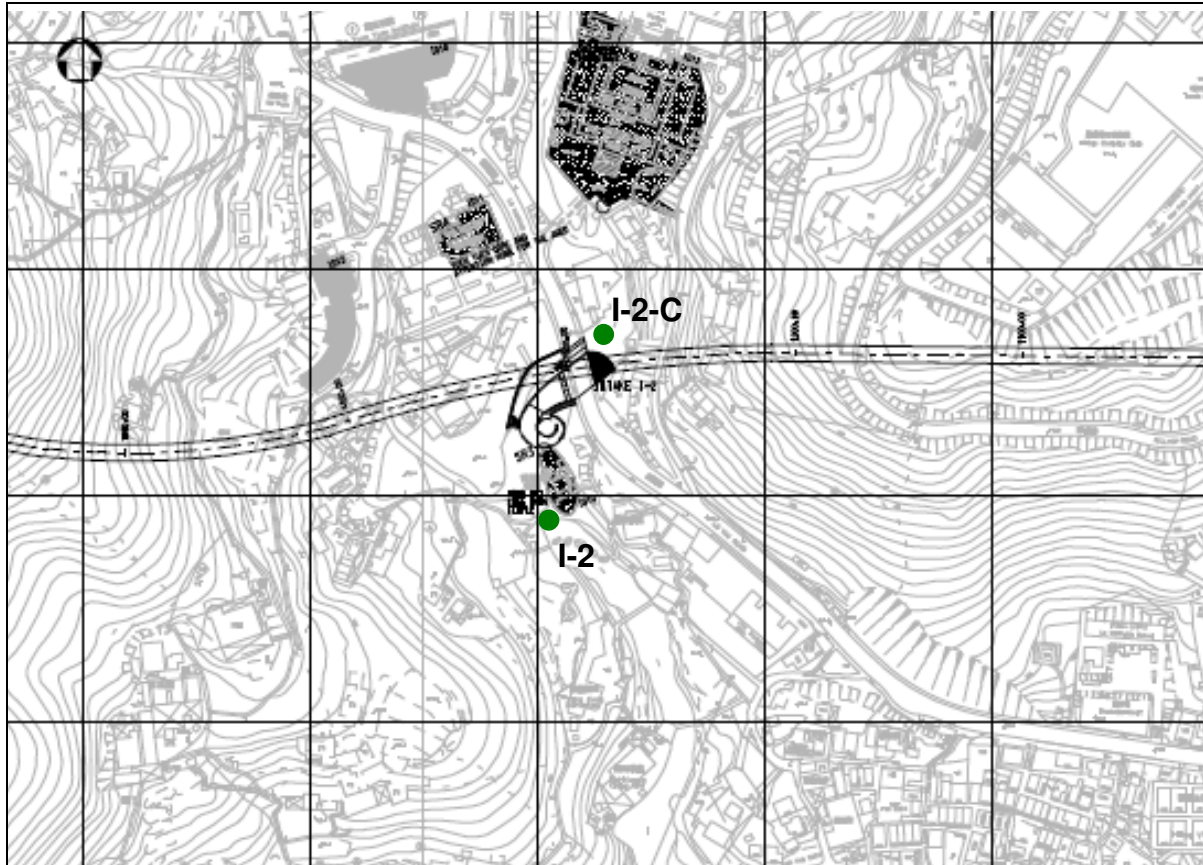


Figure 4 Water Quality Monitoring Stations: I-2 & I-2-C at Intake I-2



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

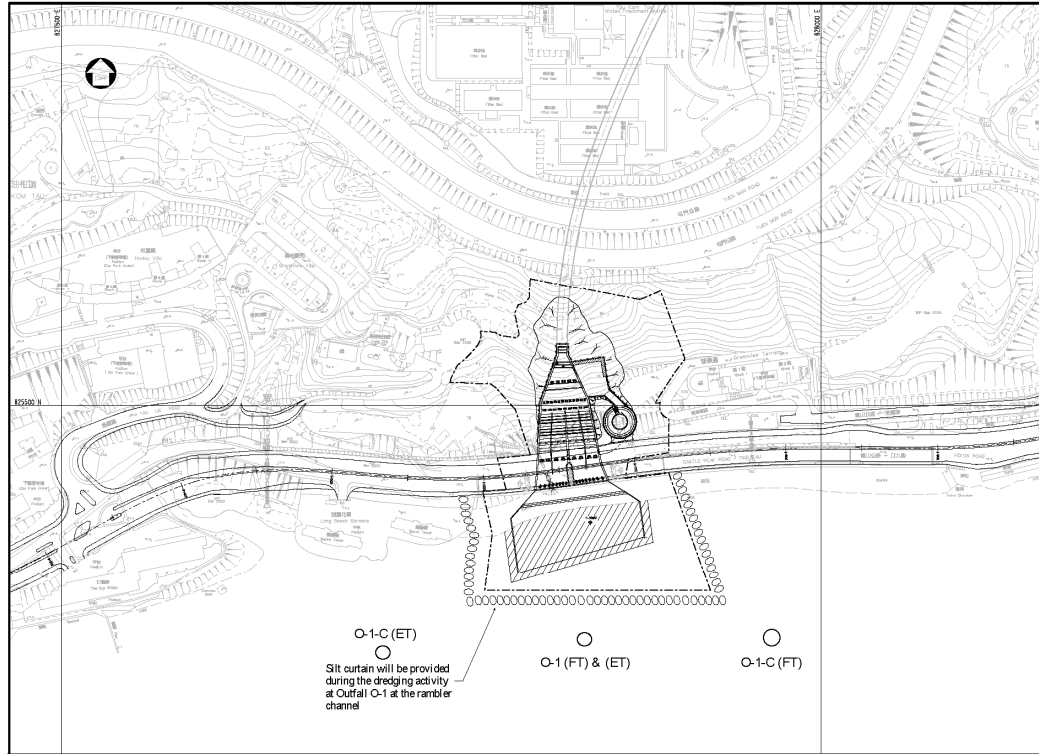
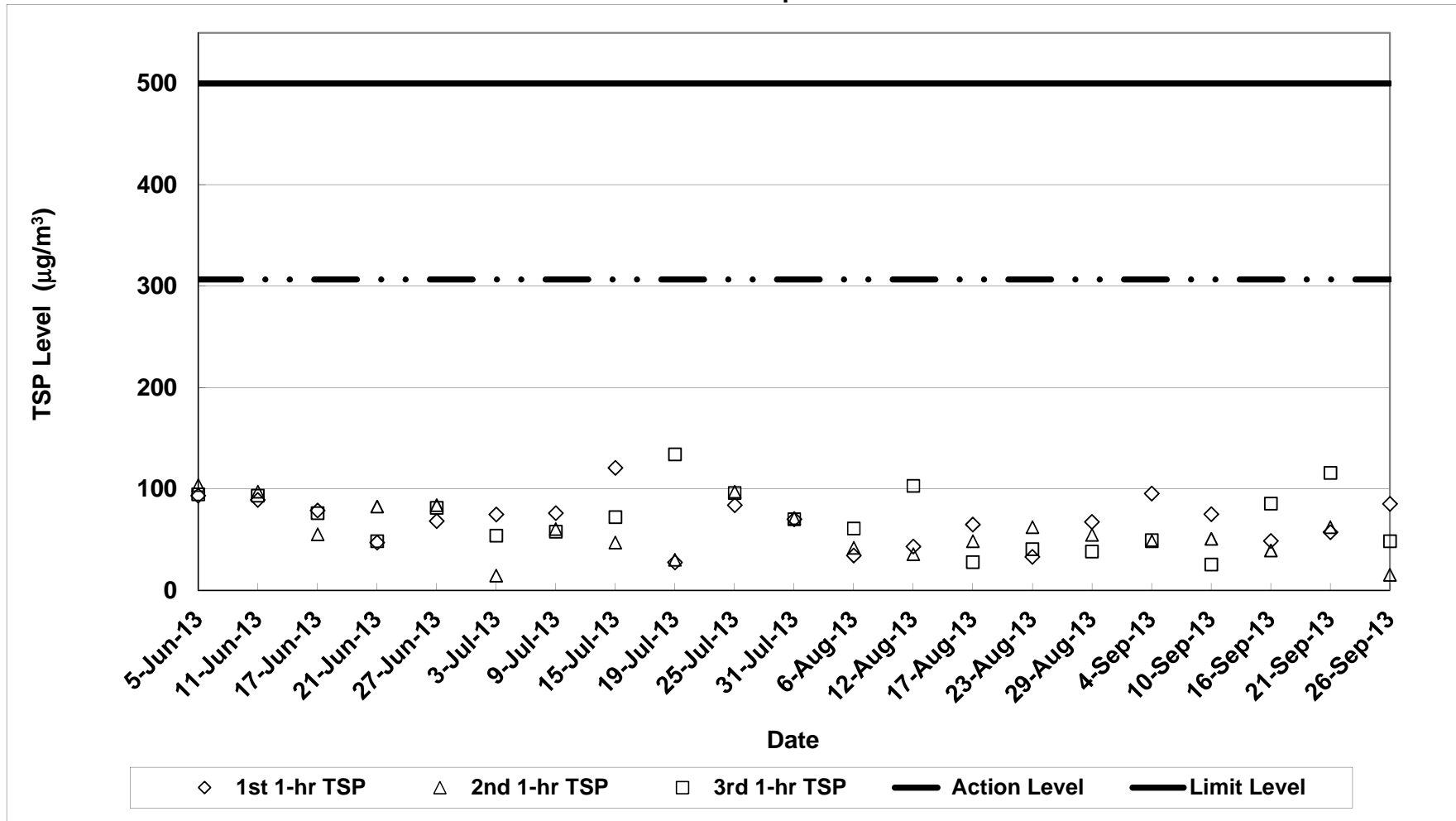


Figure 6 Water Quality Monitoring Stations: O-1 (FT) & (ET), O-1-C(FT) & O-1-C(FT) at Outfall O-1

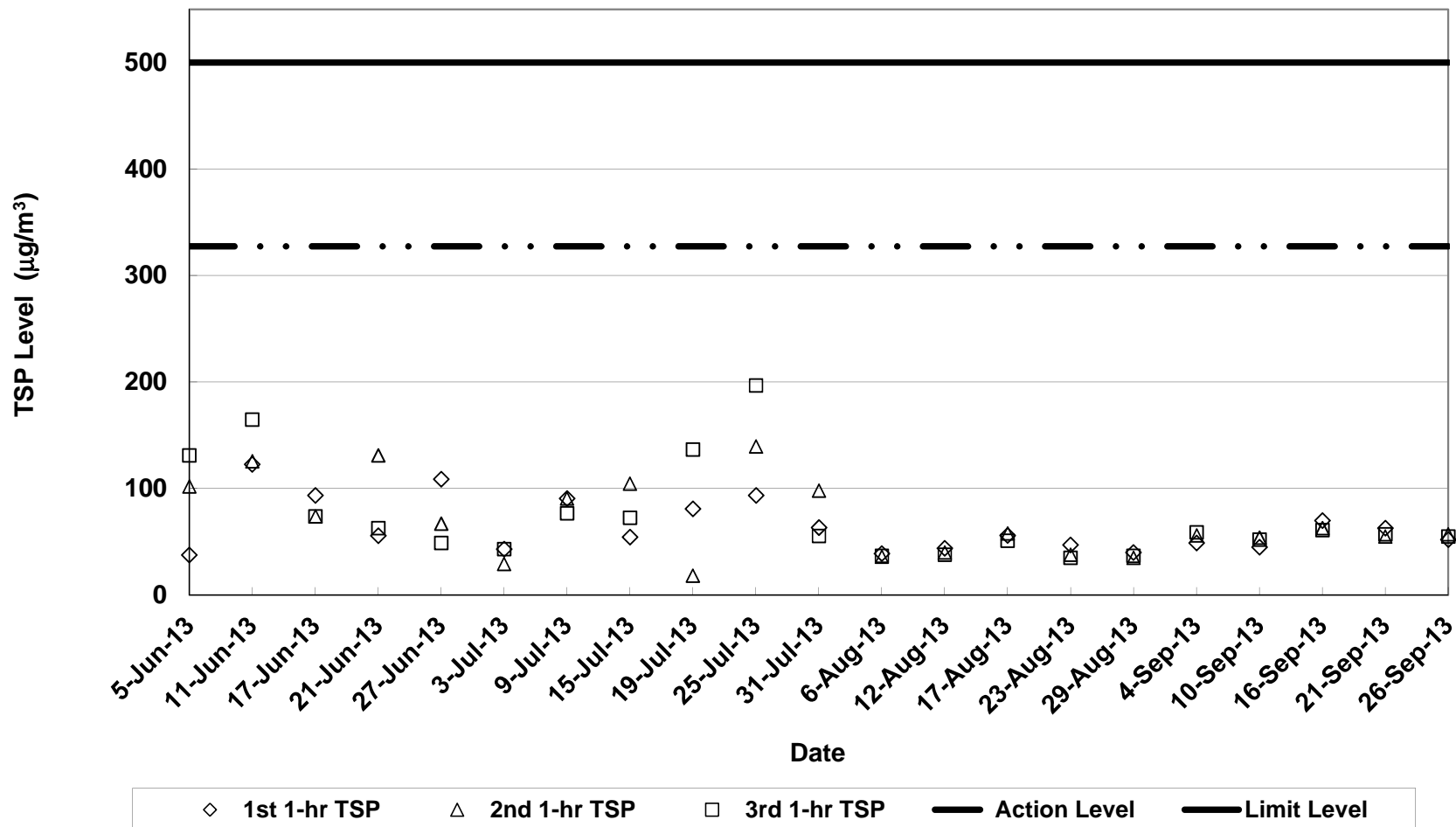
Appendix F

Monitoring Results

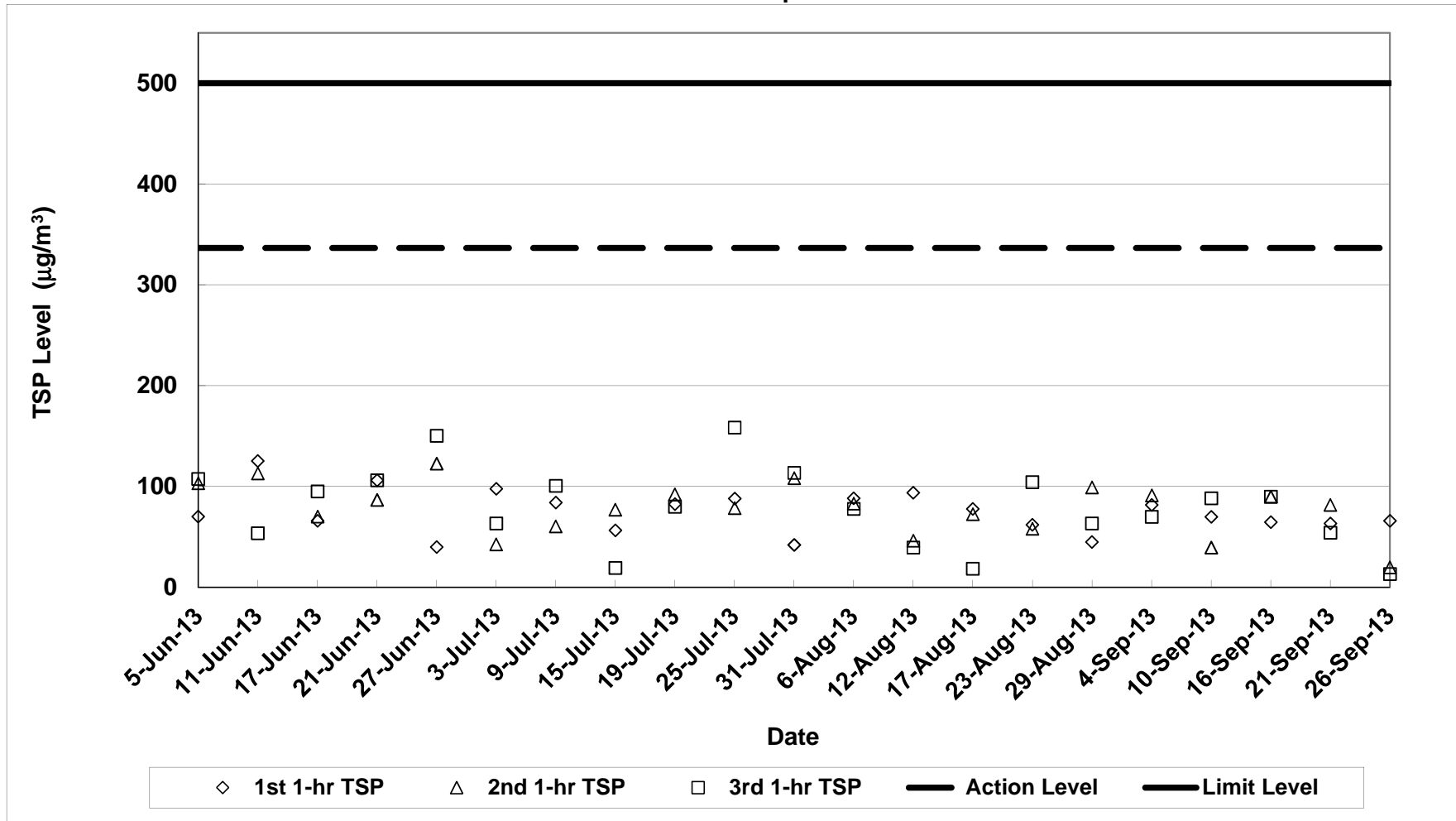
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College - Intake (ASR1)
 Jun-13 to Sep-13**



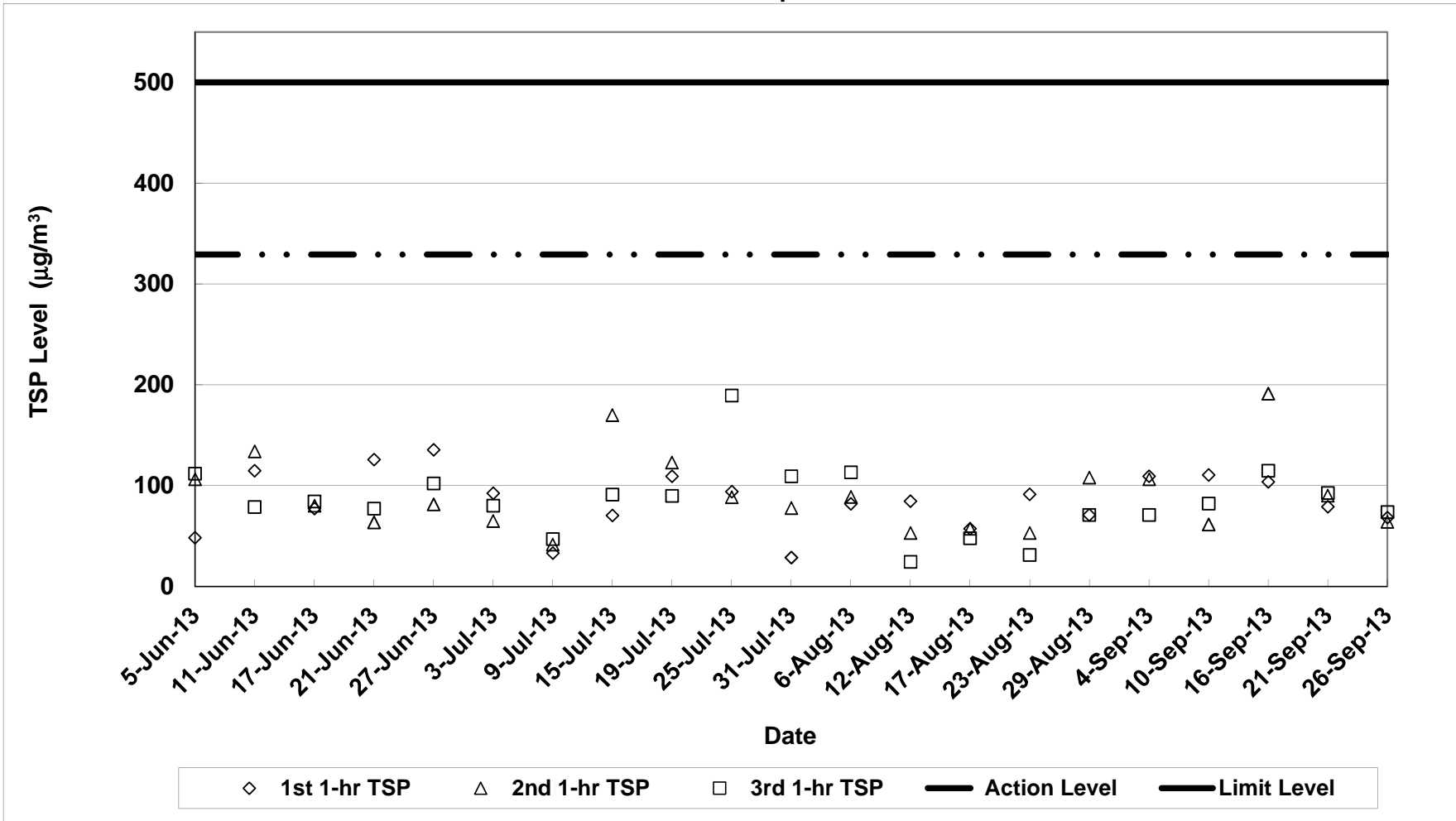
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Air Quality Monitoring (1-hr TSP) Results at Hong Hoi Chee Hong Temple - Intake (ASR3)
Jun-13 to Sep-13**



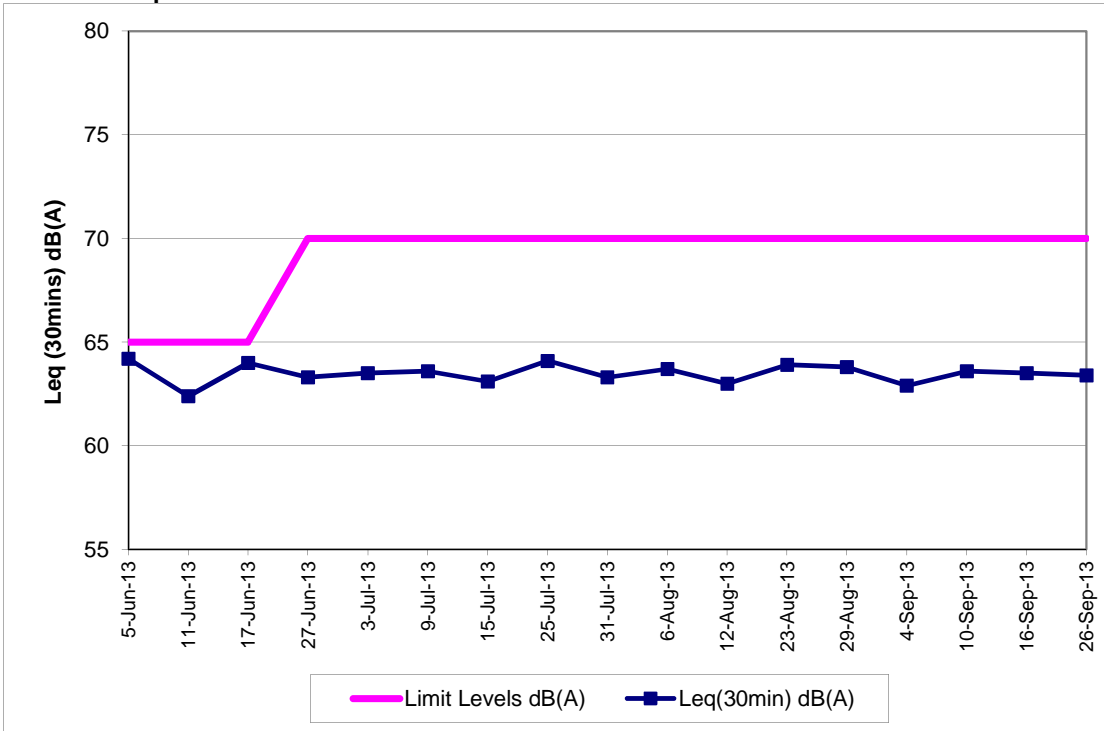
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Long Beach Gardens - Outfall (ASR8)
 Jun-13 to Sep-13**



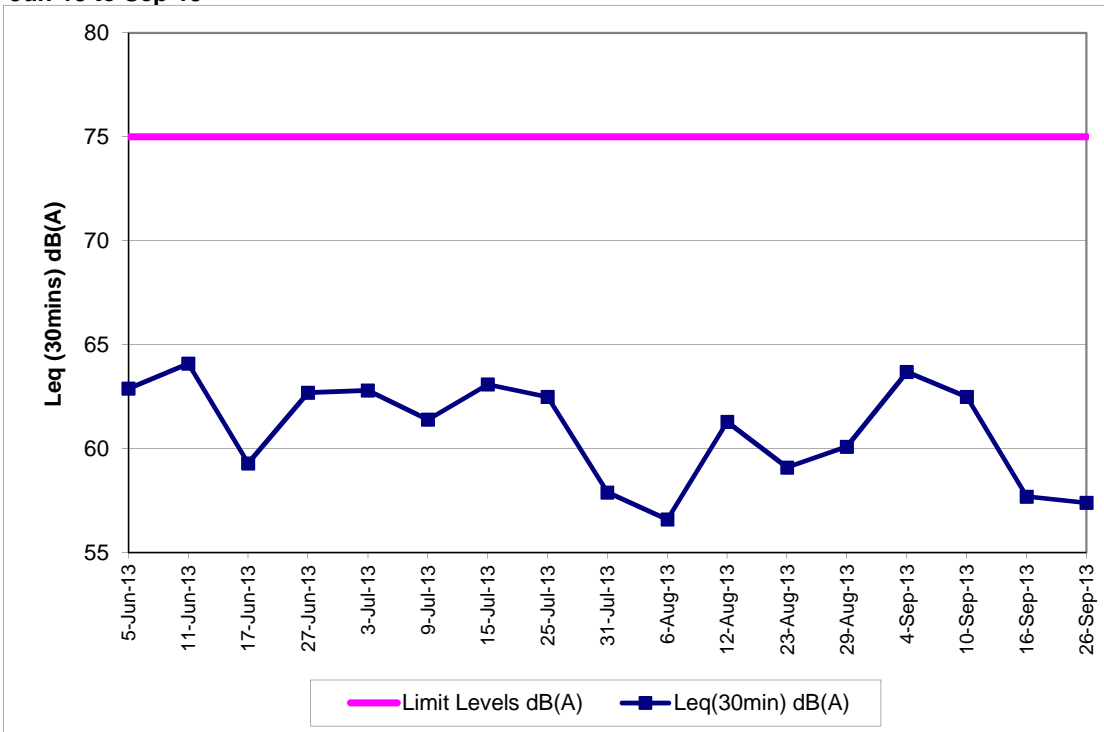
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Air Quality Monitoring (1-hr TSP) Results at Greenview Terrace - Outfall (ASR9)
 Jun-13 to Sep-13**



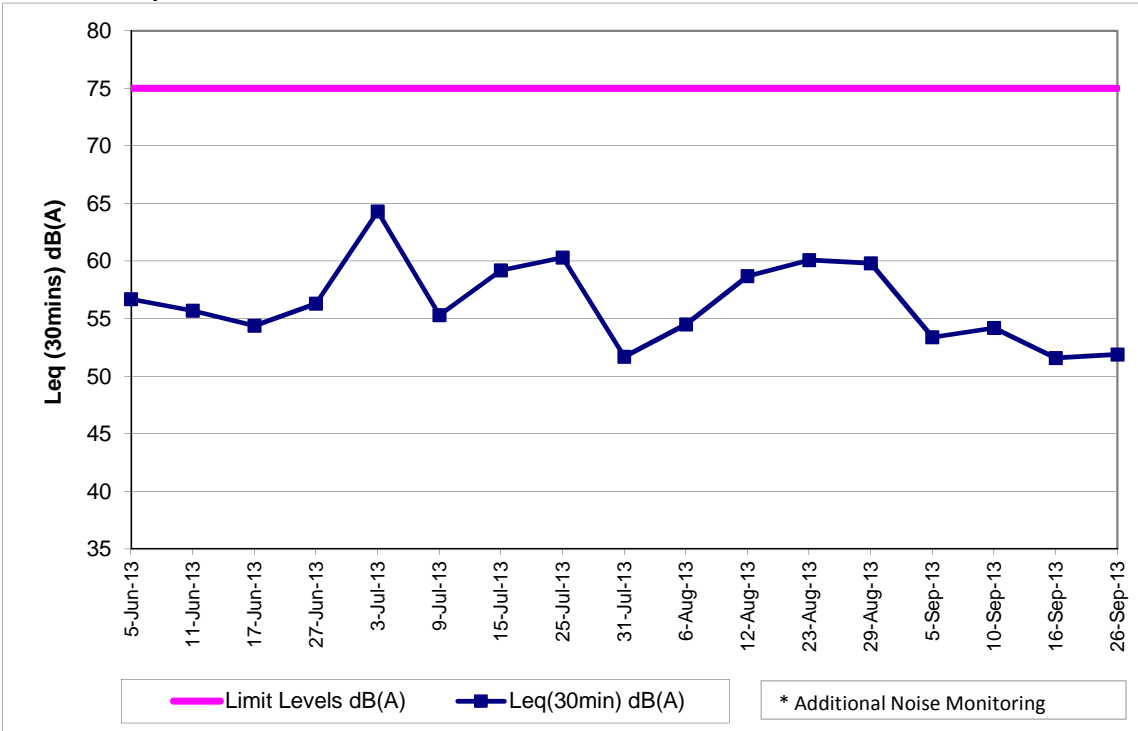
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR 1)
Jun-13 to Sep-13**



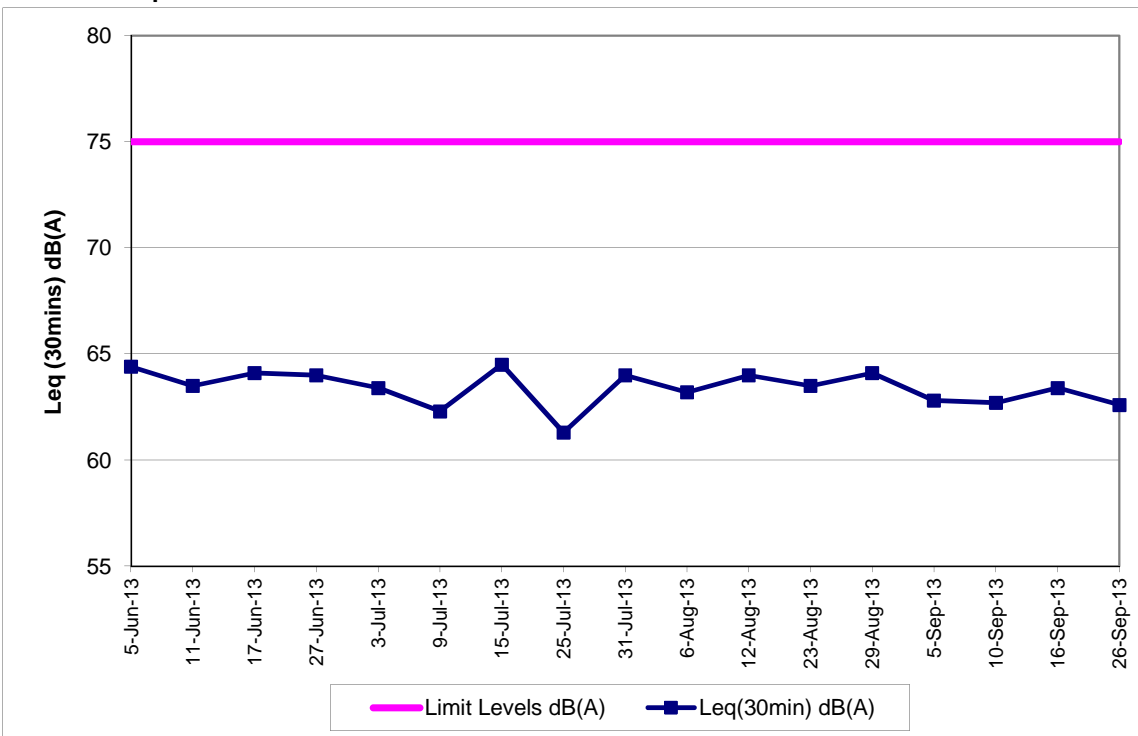
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR 3)
Jun-13 to Sep-13**



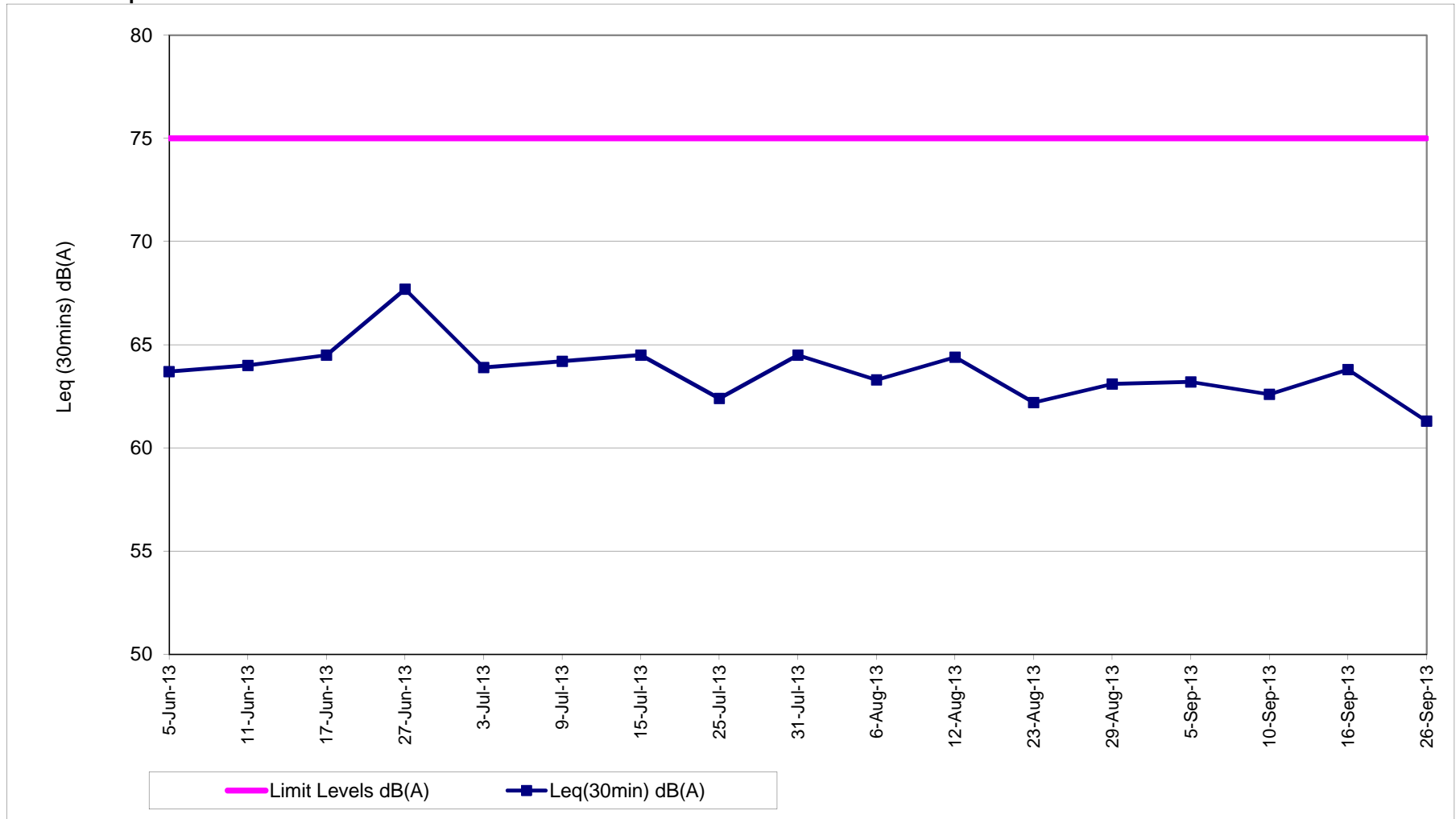
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Noise Monitoring Results at Squatters (NSR 6)
Jun-13 to Sep-13**



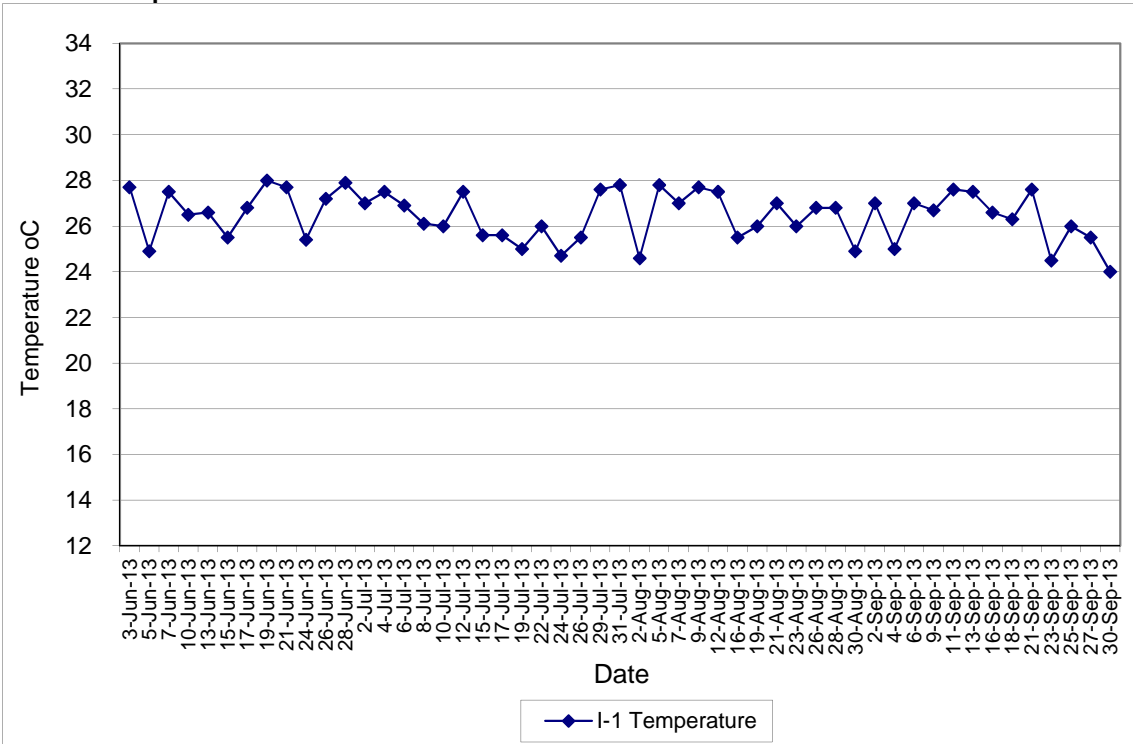
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Noise Monitoring Results at Long Beach Gardens (NSR 8)
Jun-13 to Sep-13**



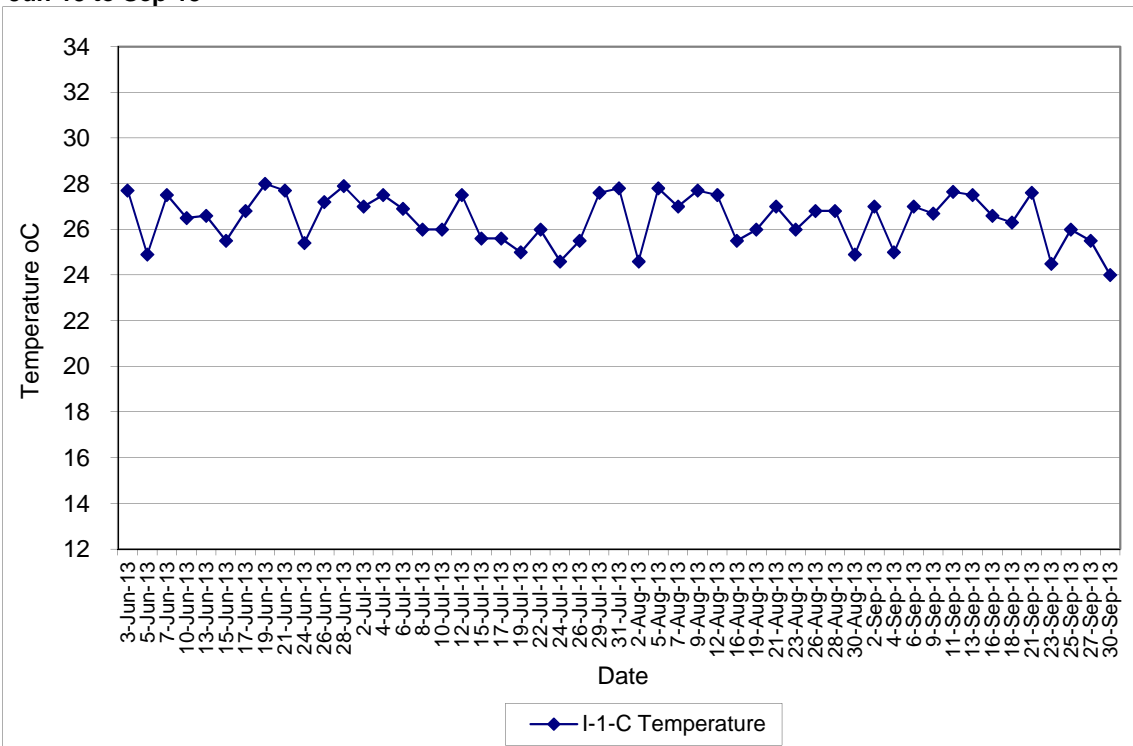
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Noise Monitoring Results at Greenview Terrace (NSR 9)
Jun-13 to Sep-13



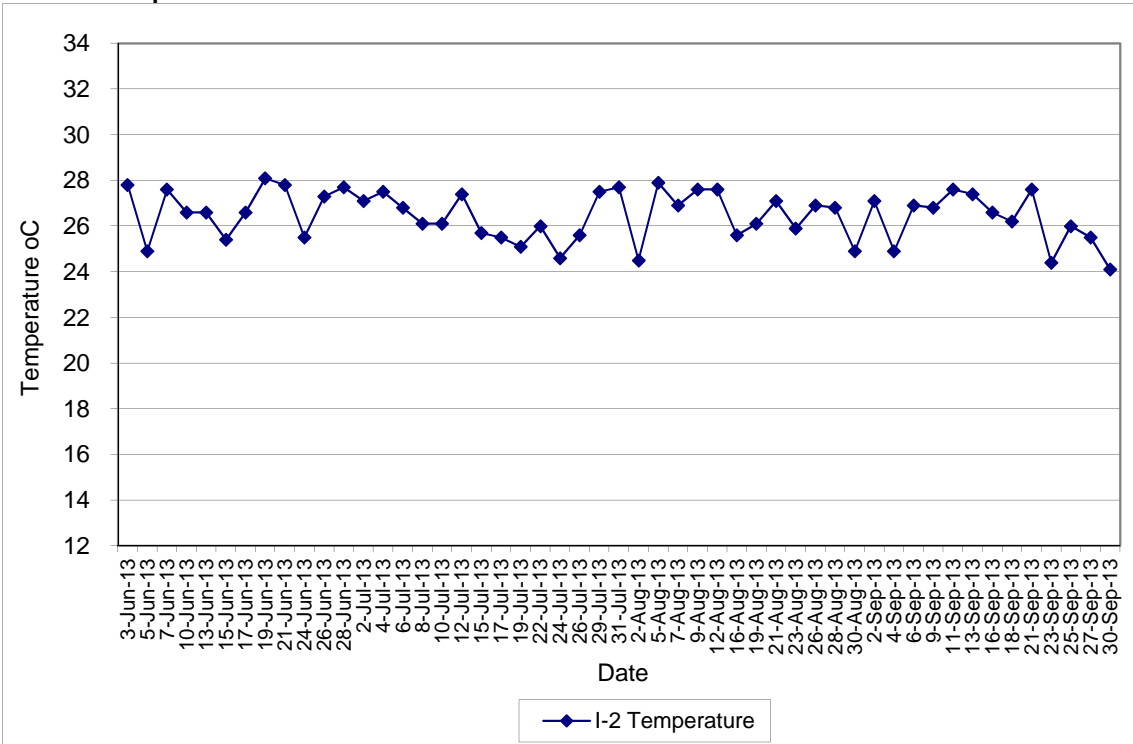
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Jun-13 to Sep-13**



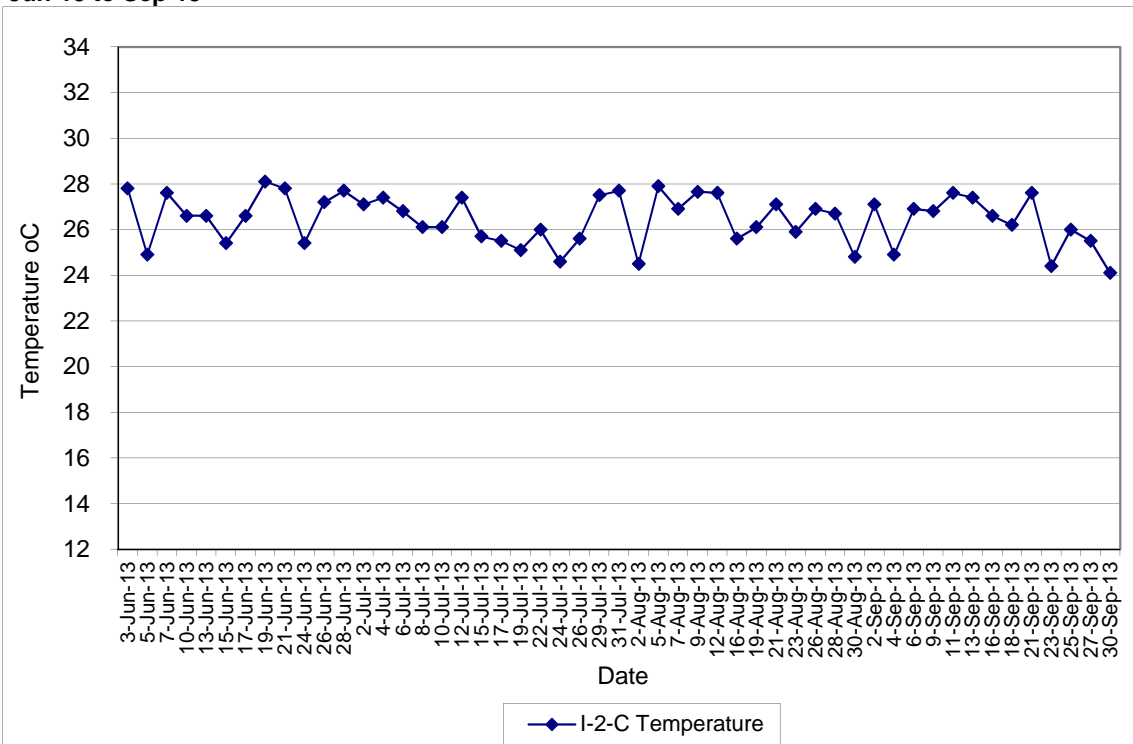
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Jun-13 to Sep-13**



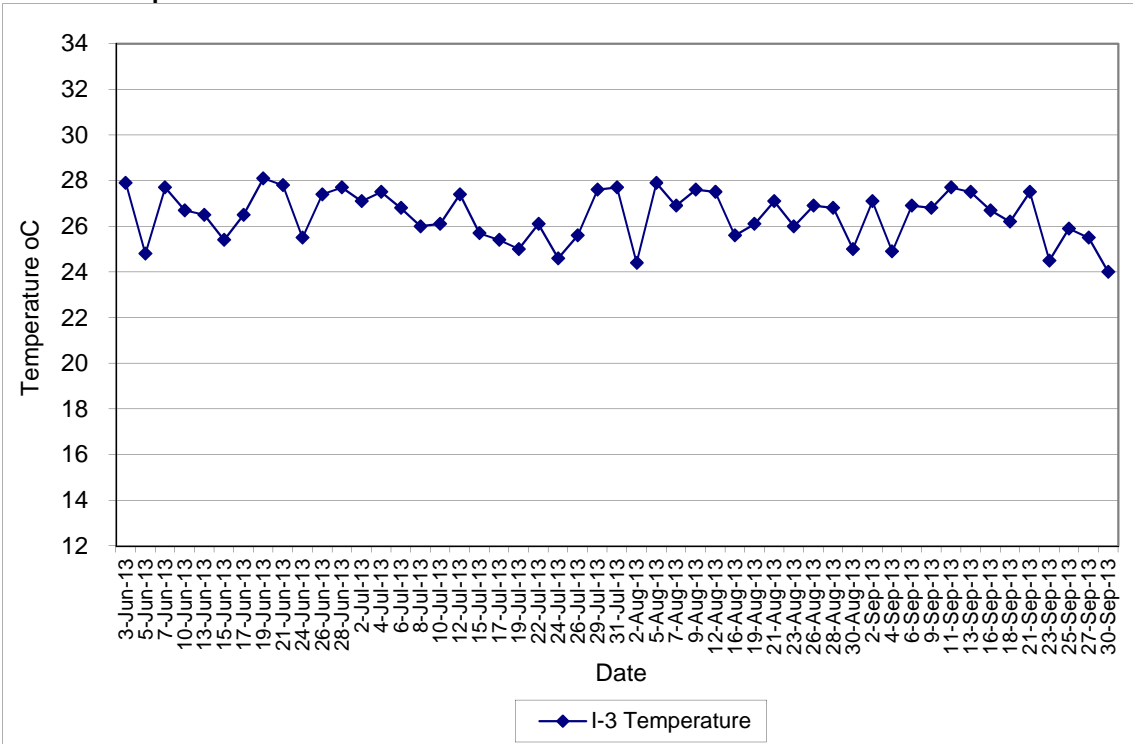
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
 Jun-13 to Sep-13**



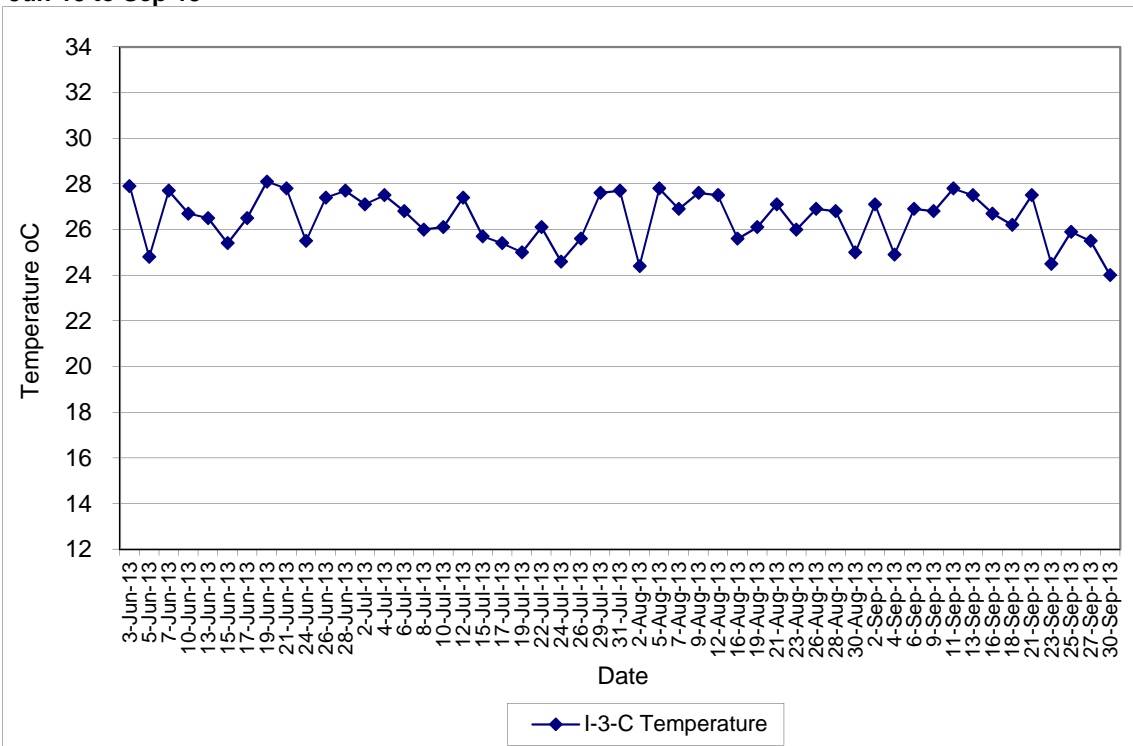
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
 Jun-13 to Sep-13**



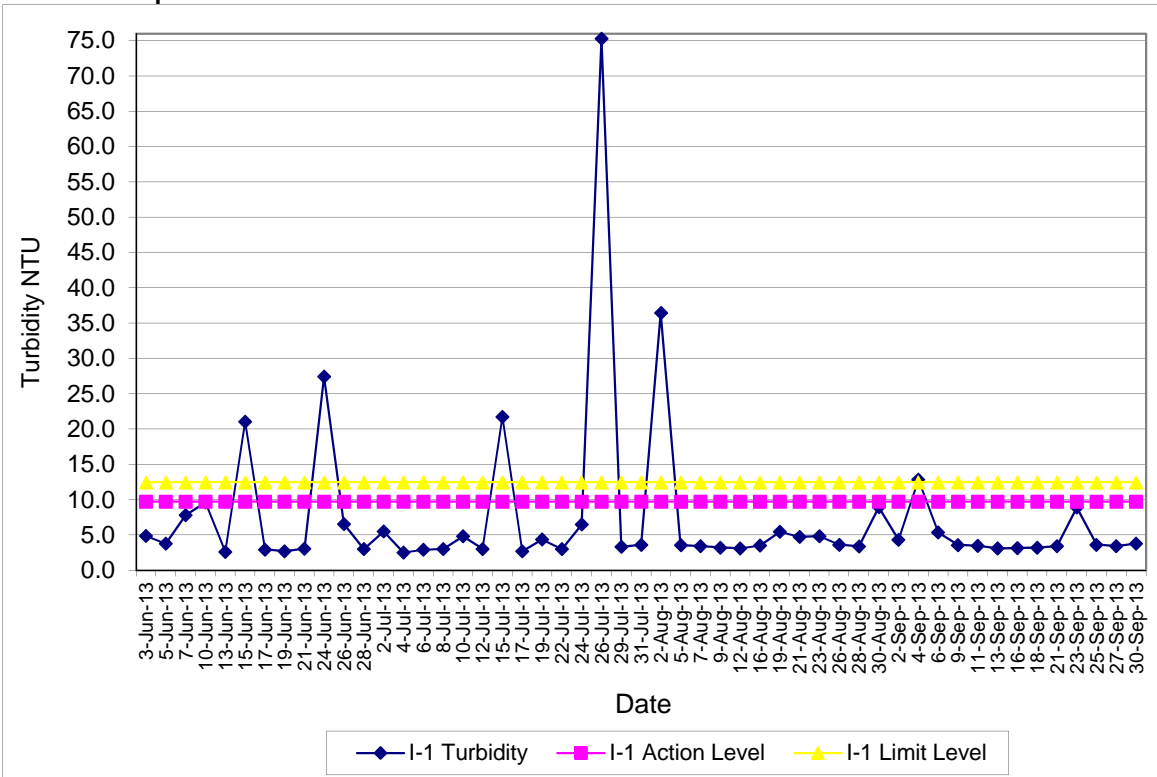
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Squatters (I-3)
 Jun-13 to Sep-13**



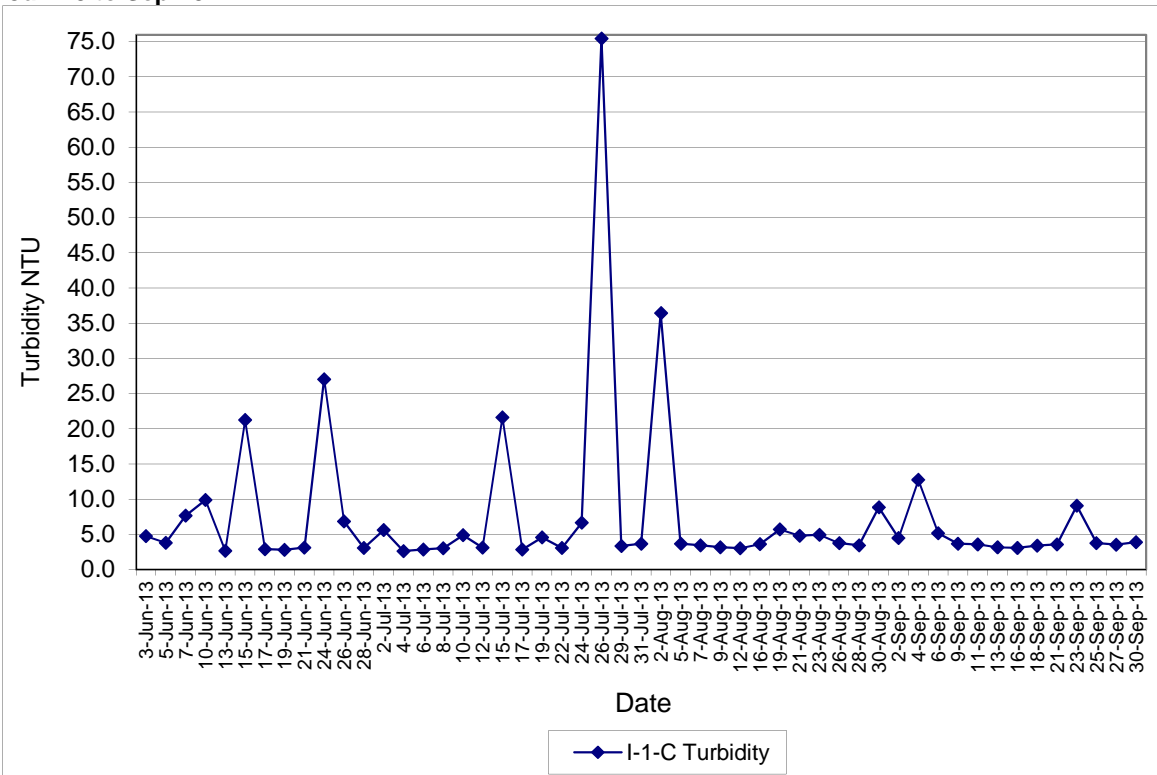
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Squatters (I-3-C)
 Jun-13 to Sep-13**



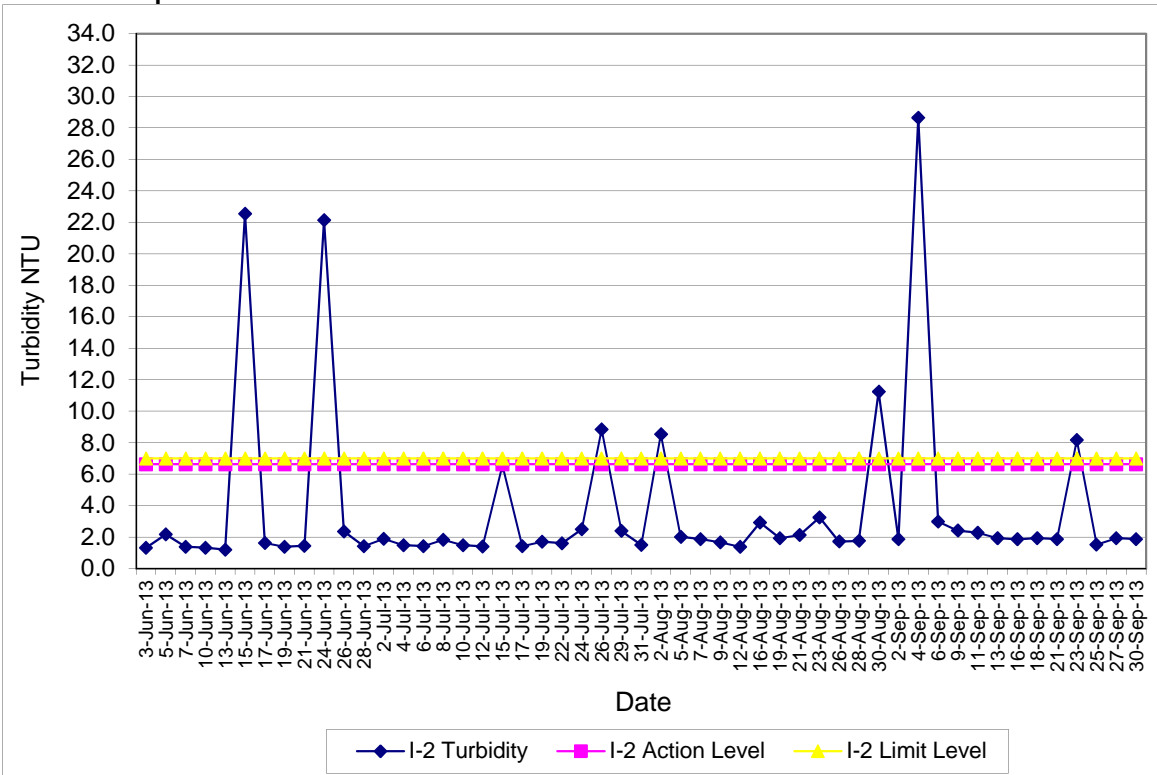
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
Jun-13 to Sep-13**



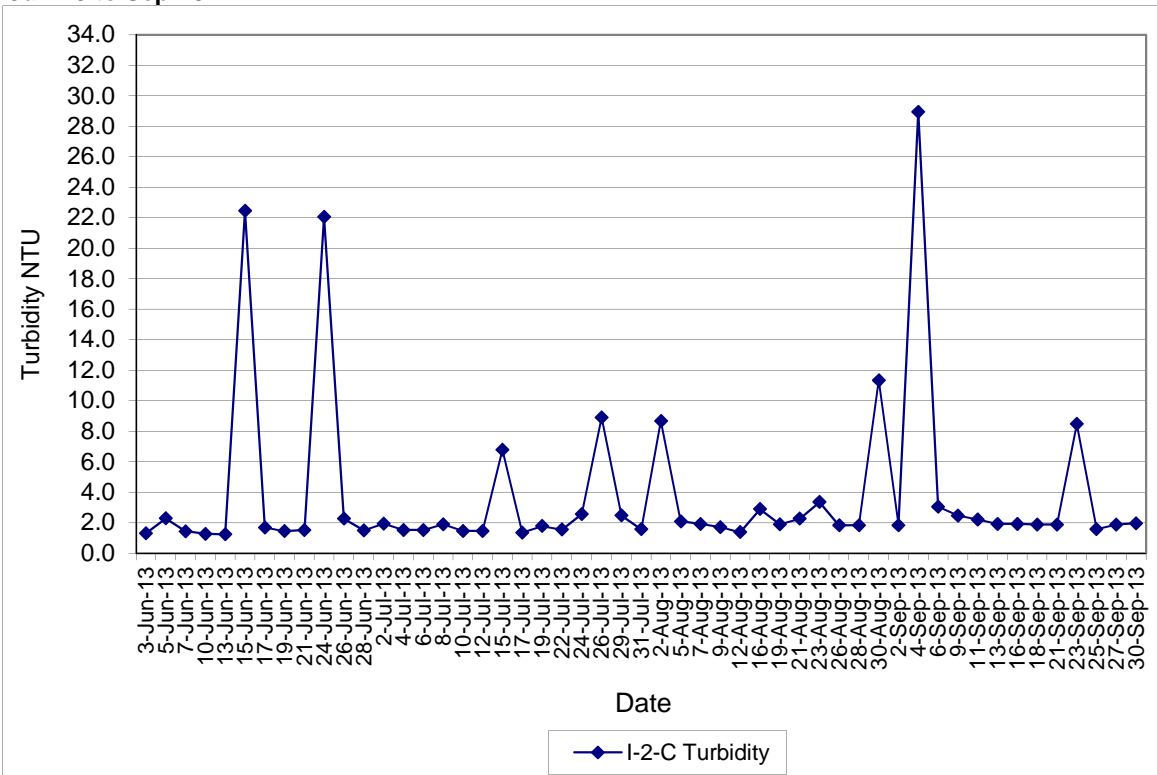
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
Jun-13 to Sep-13**



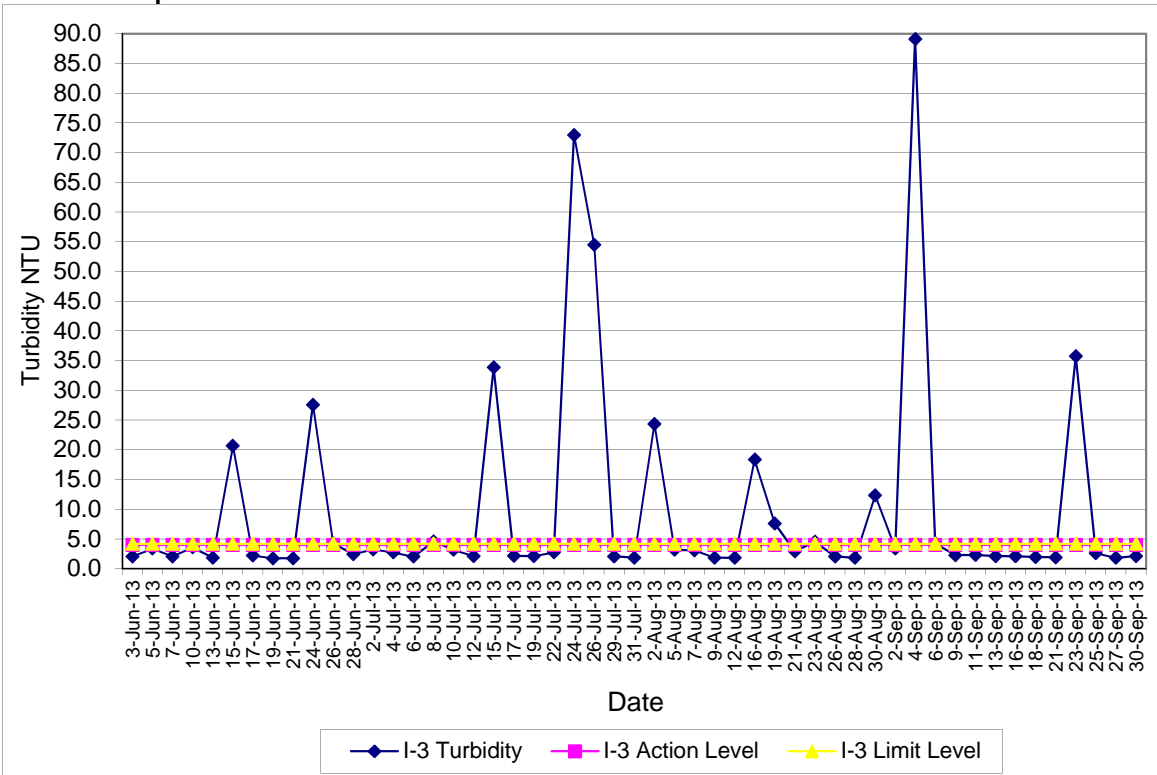
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Jun-13 to Sep-13**



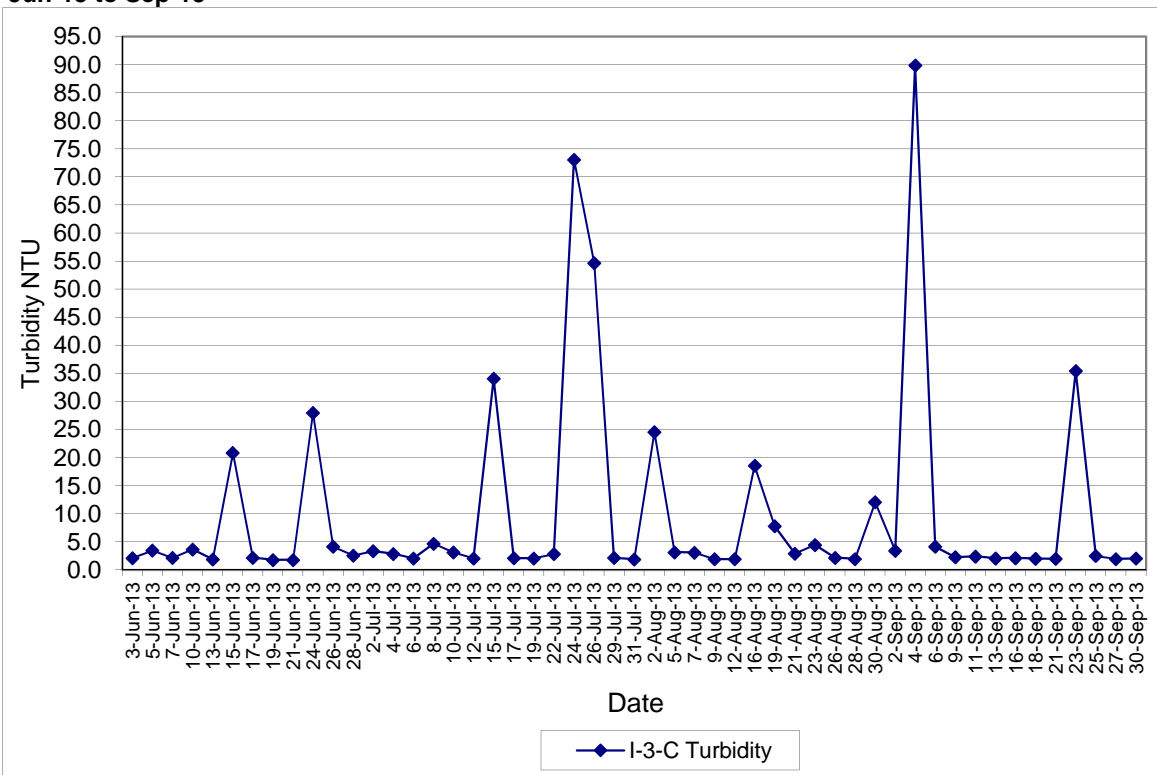
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Jun-13 to Sep-13**



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Jun-13 to Sep-13

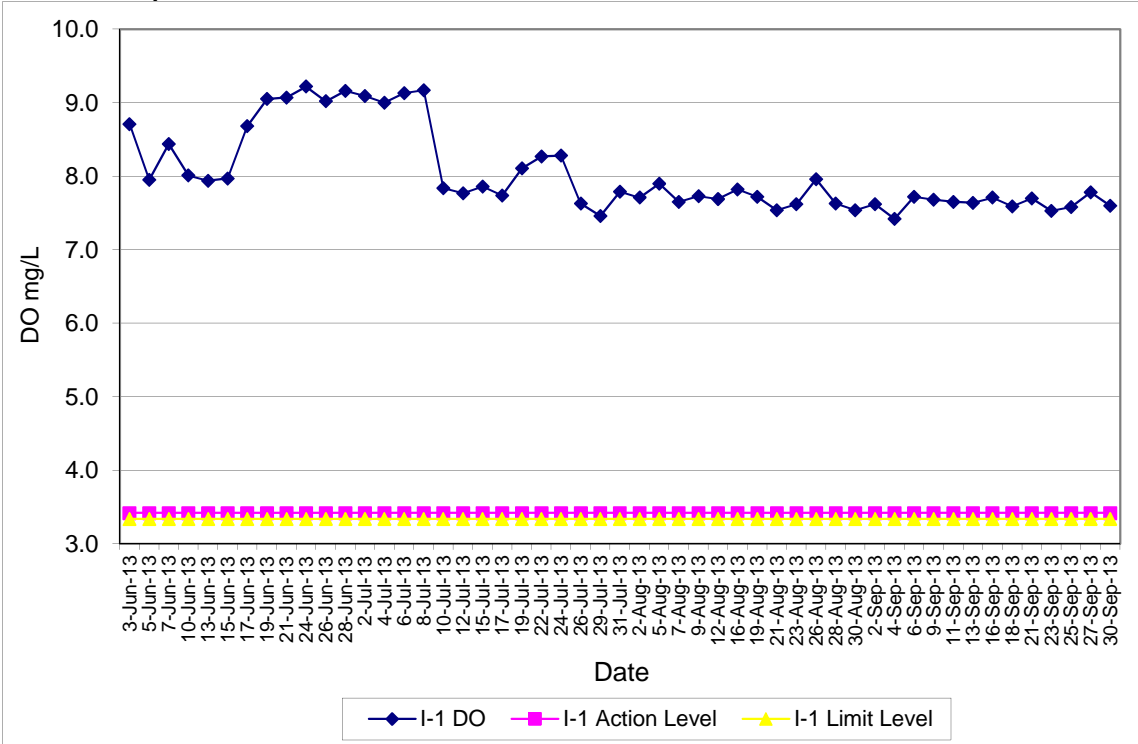


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Jun-13 to Sep-13

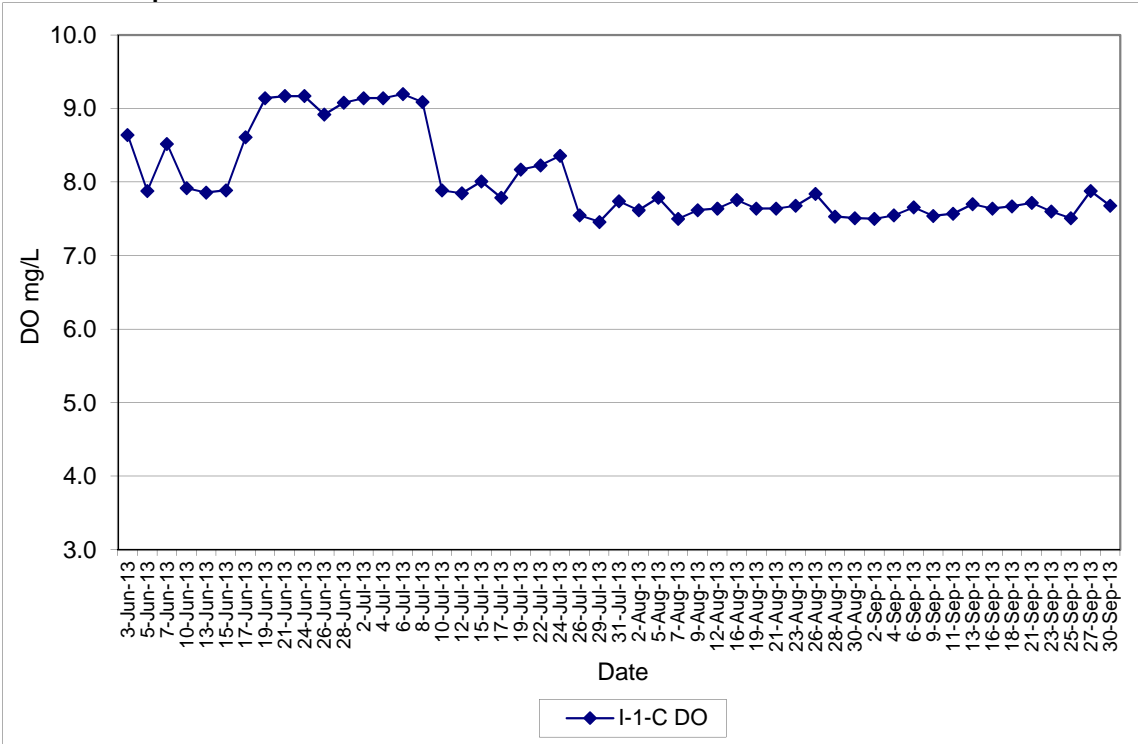


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Jun-13 to Sep-13**

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

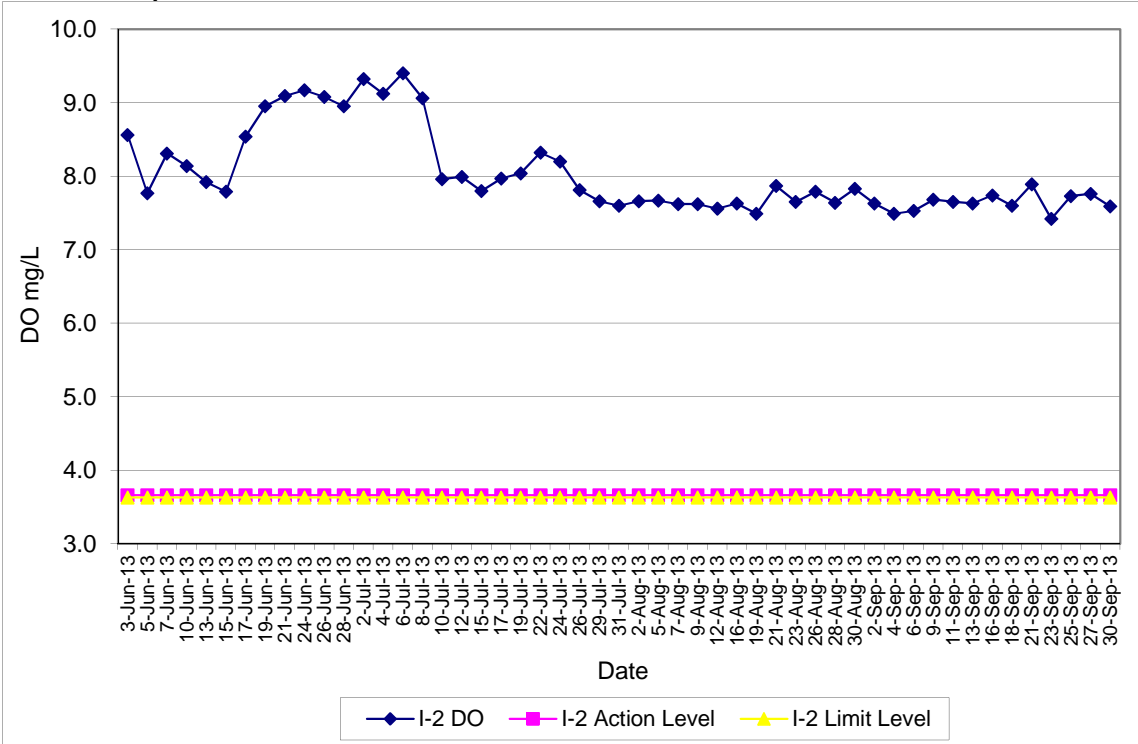


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Jun-13 to Sep-13**

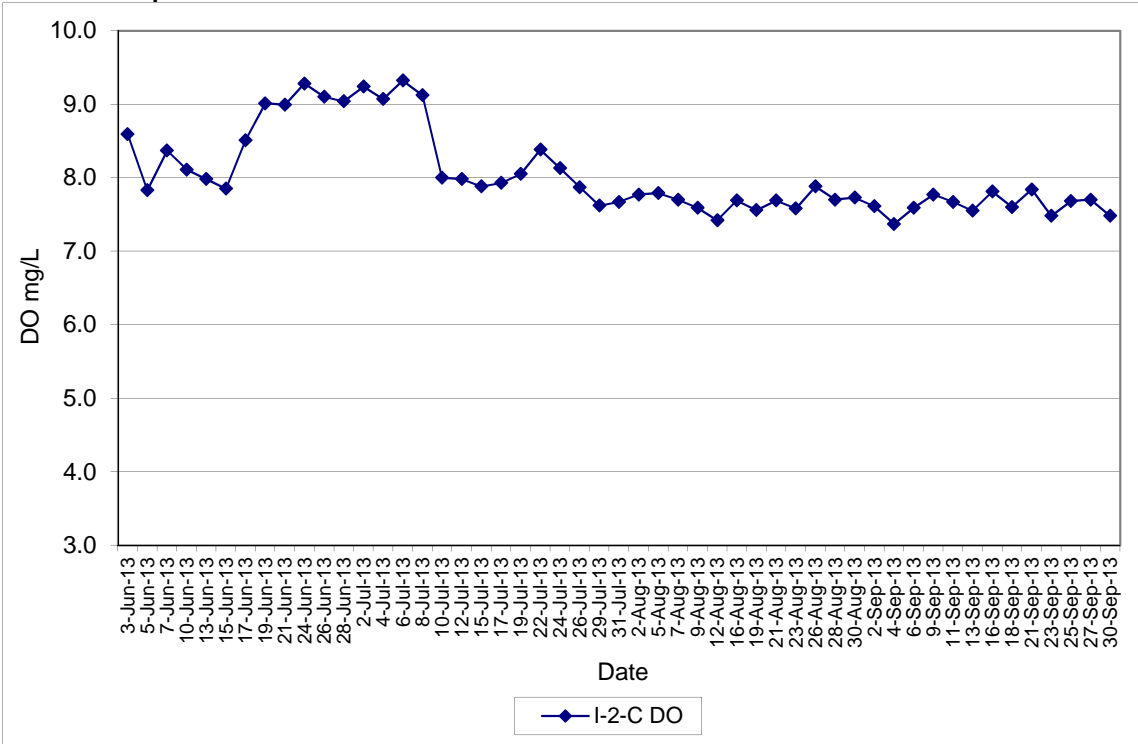


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Jun-13 to Sep-13**

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

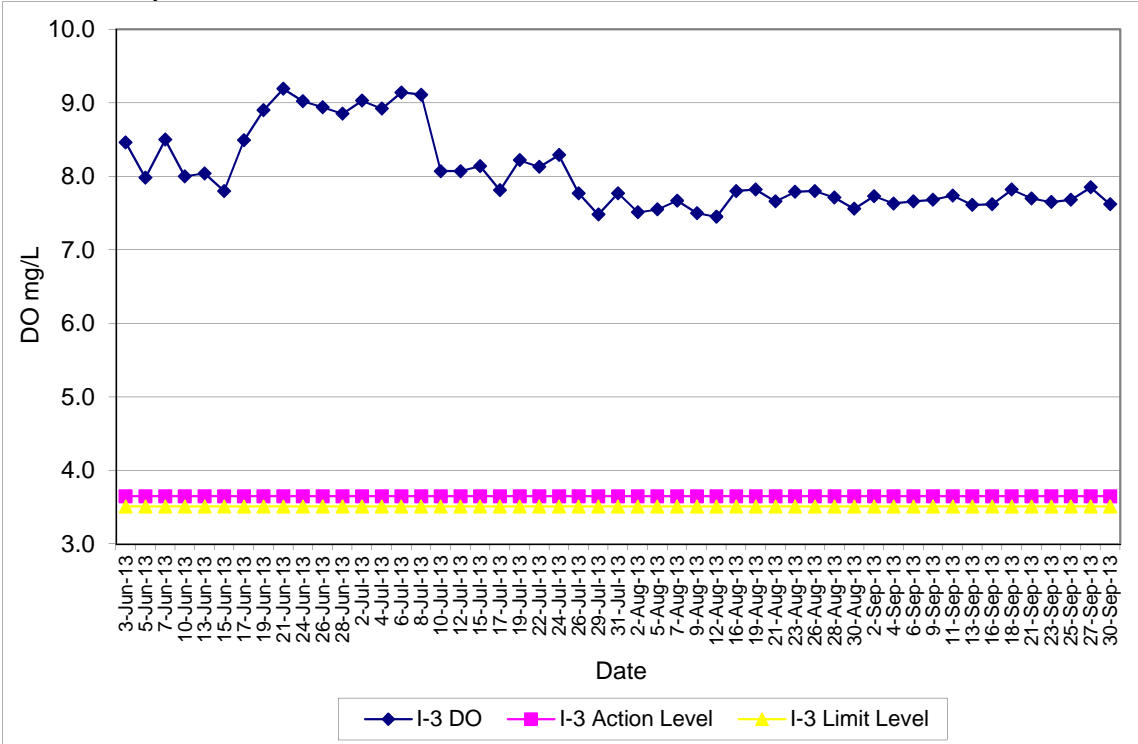


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Jun-13 to Sep-13**

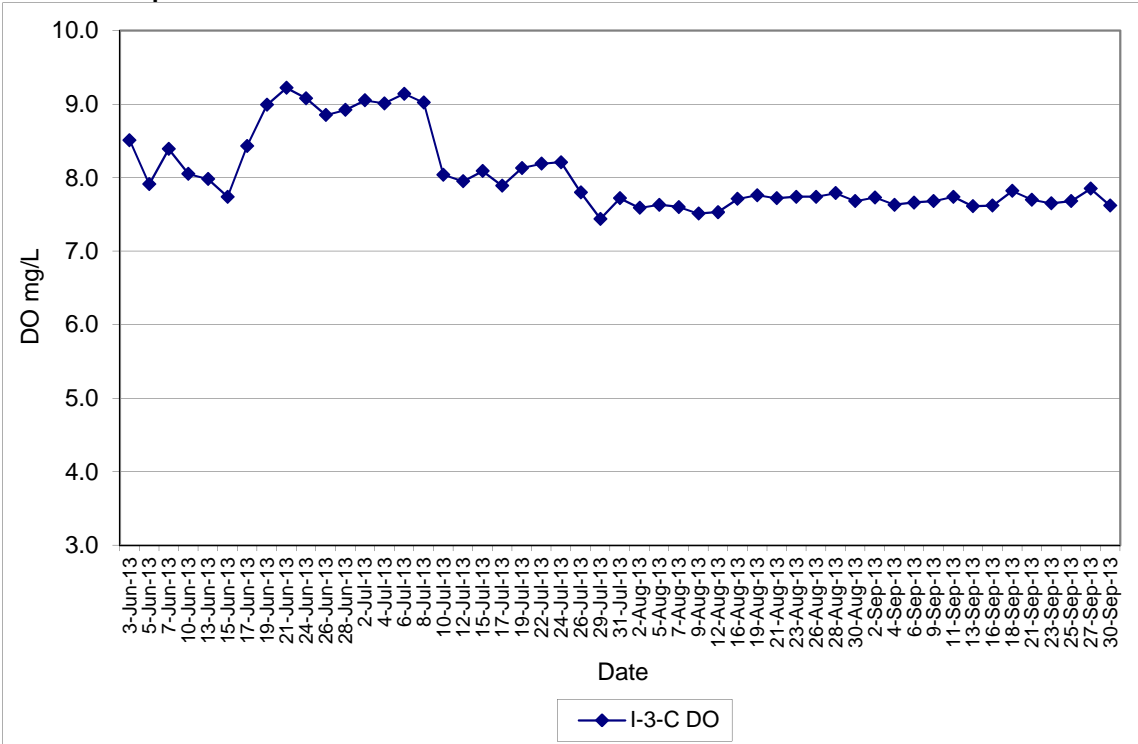


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Jun-13 to Sep-13

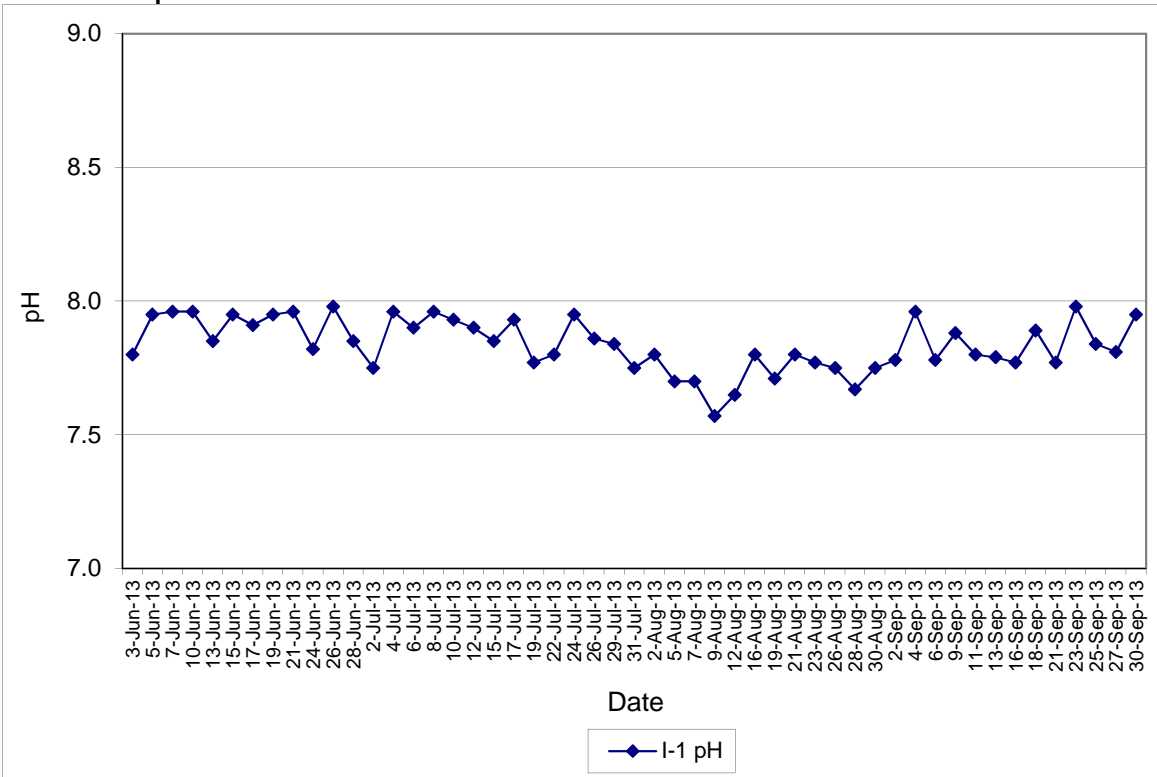
Note: Exceedances of Action / Limit Levels occur when the levels of DO are below the respective limit levels.



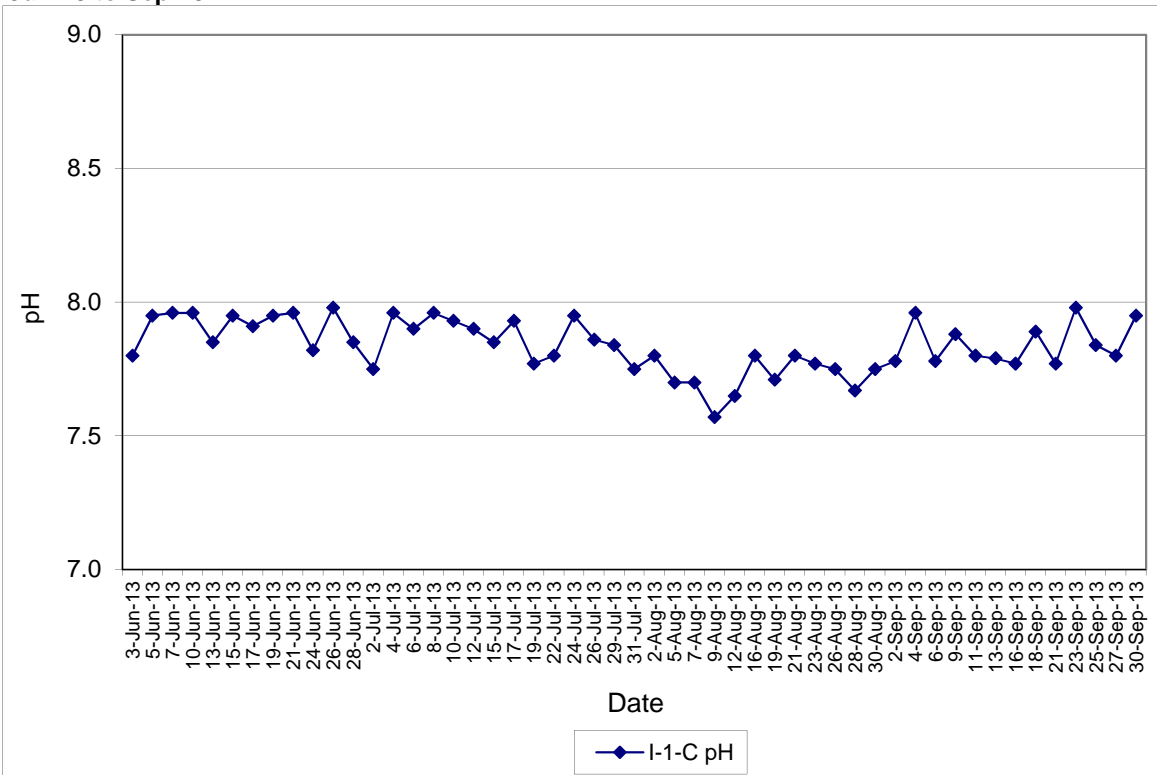
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Jun-13 to Sep-13



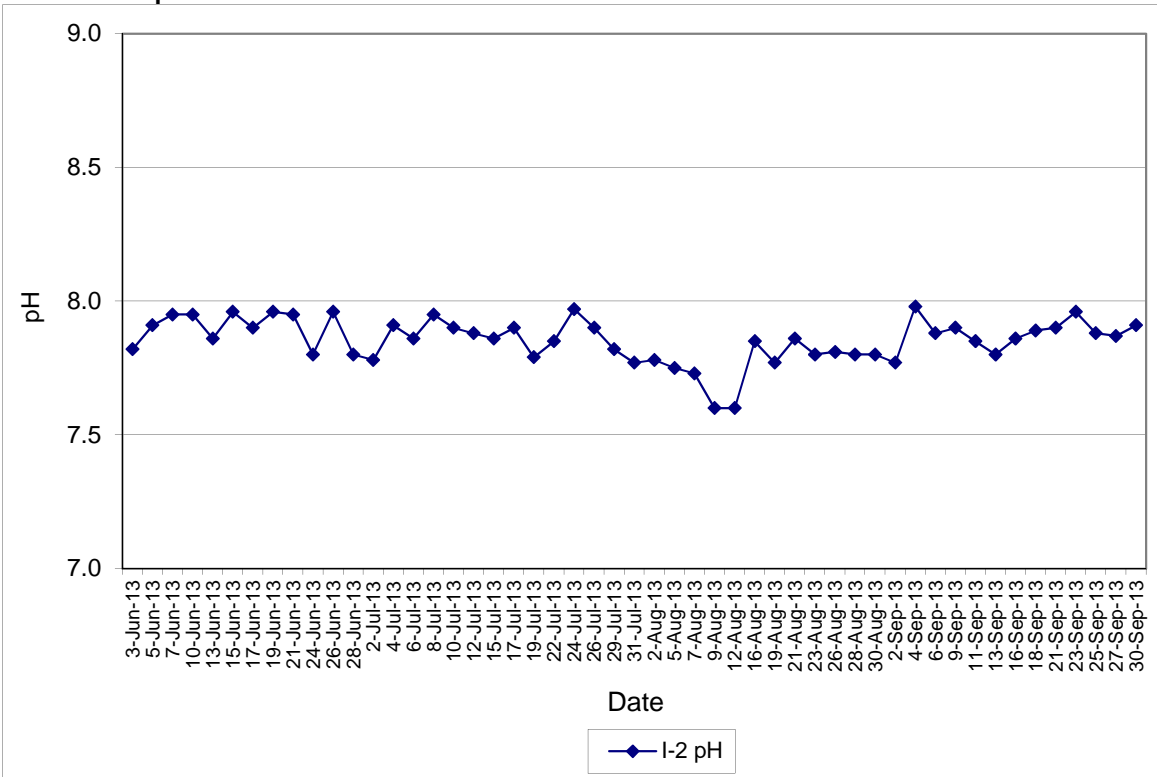
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Jun-13 to Sep-13**



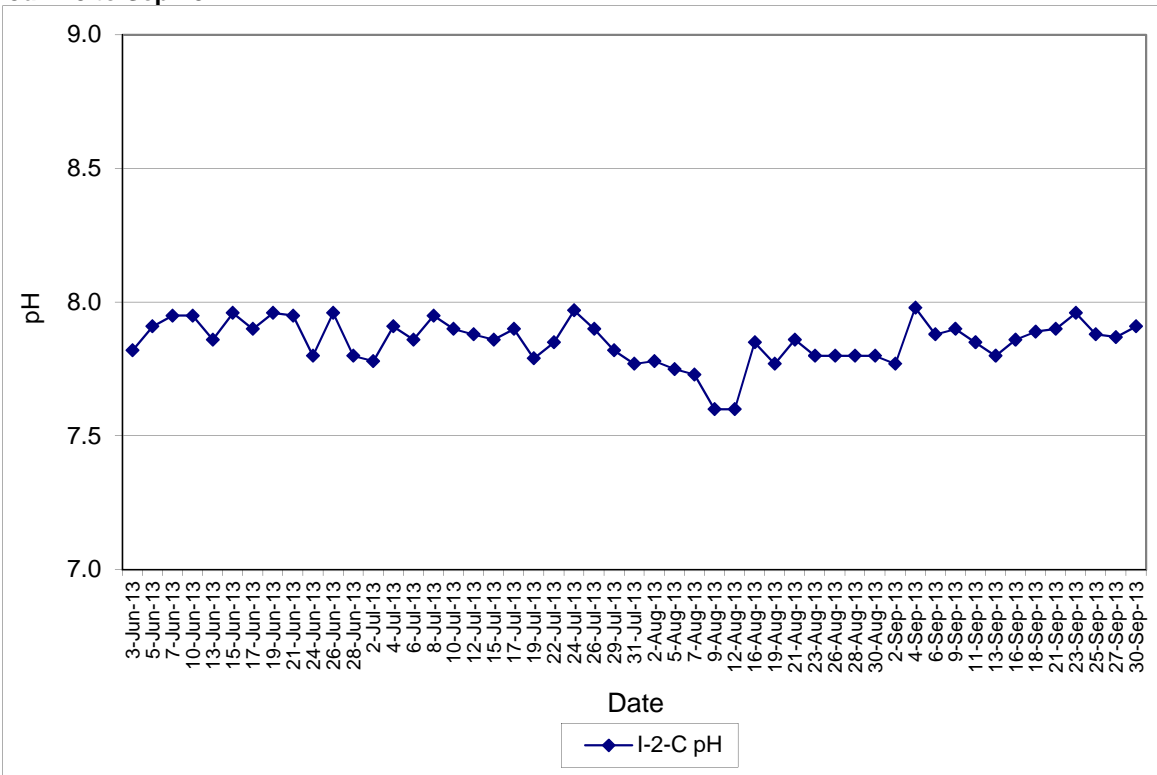
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Jun-13 to Sep-13**



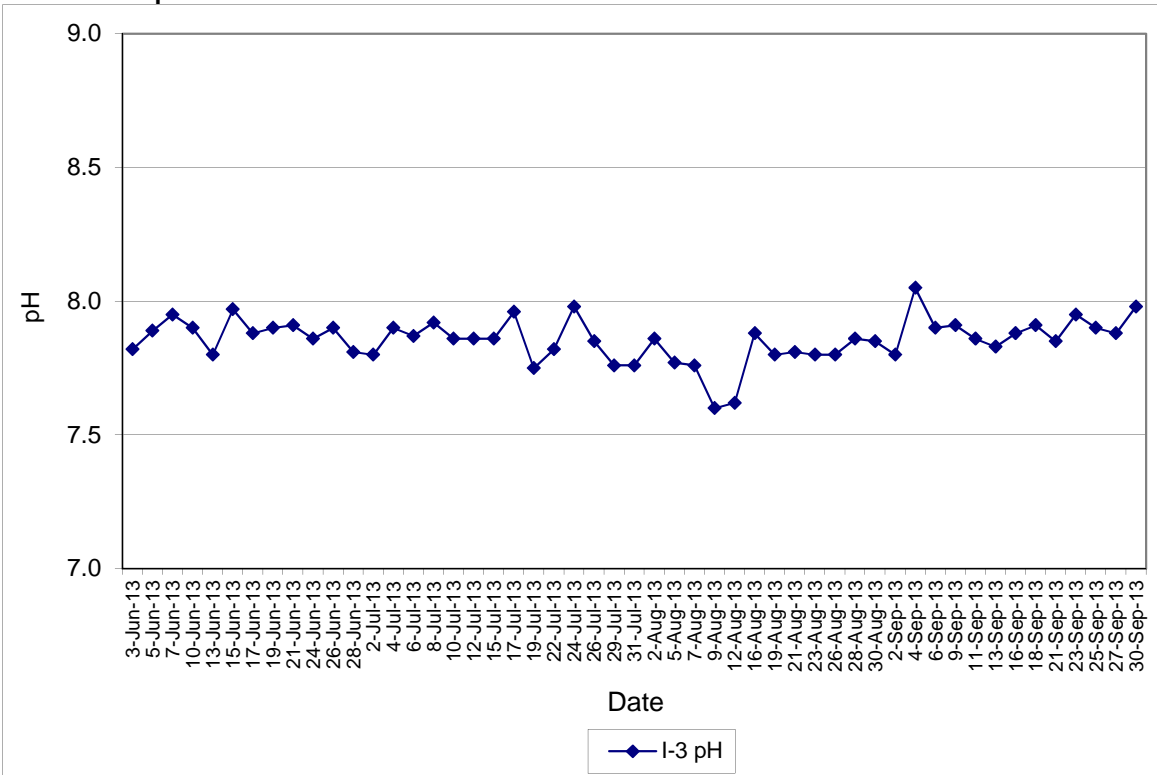
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
 Jun-13 to Sep-13**



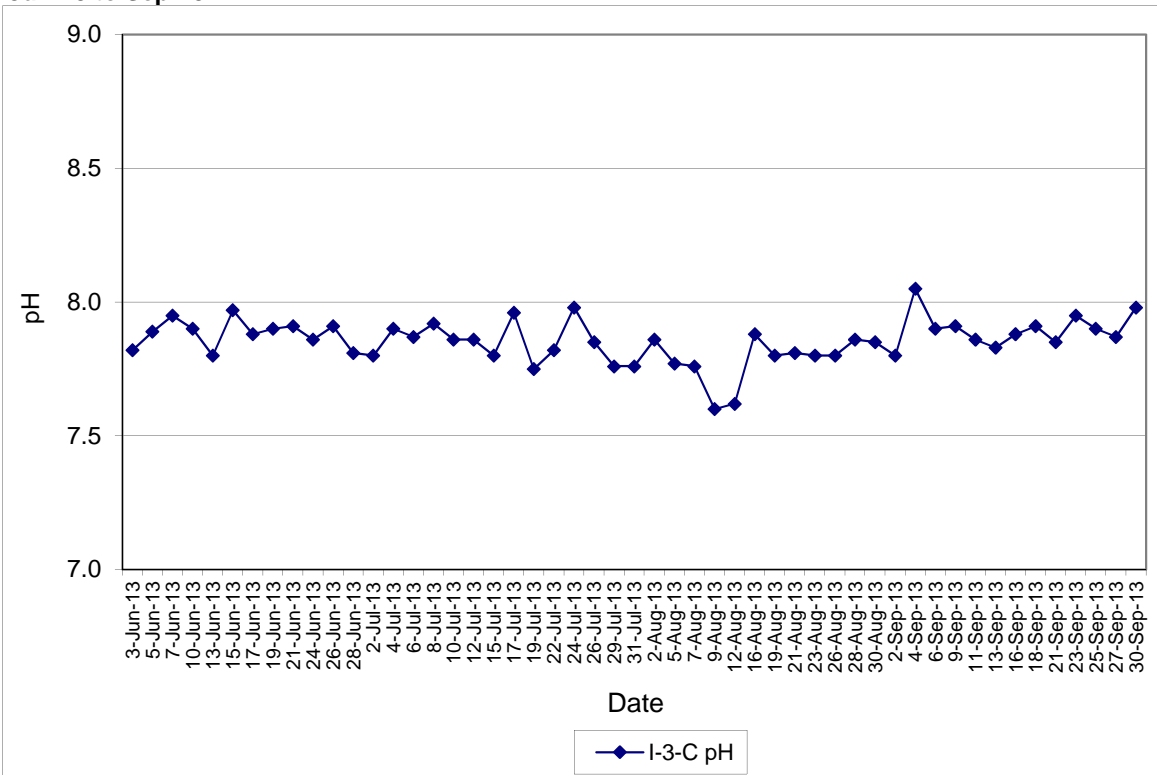
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
 Jun-13 to Sep-13**



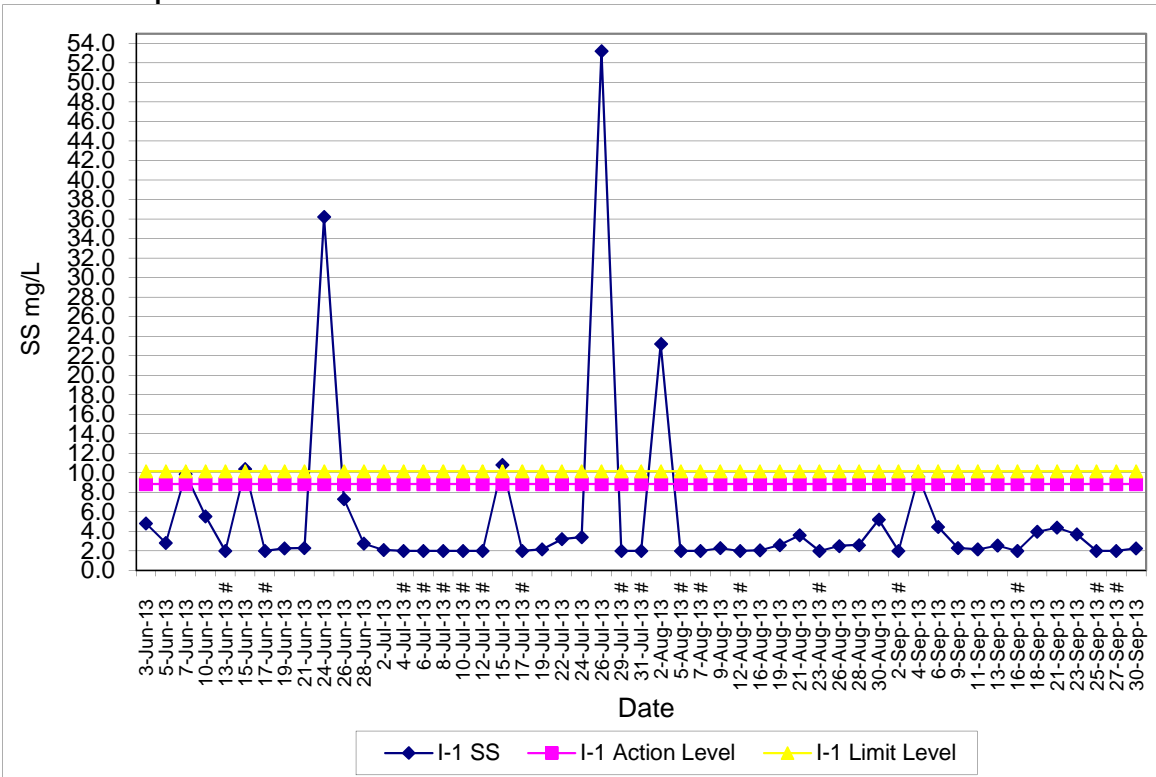
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Jun-13 to Sep-13



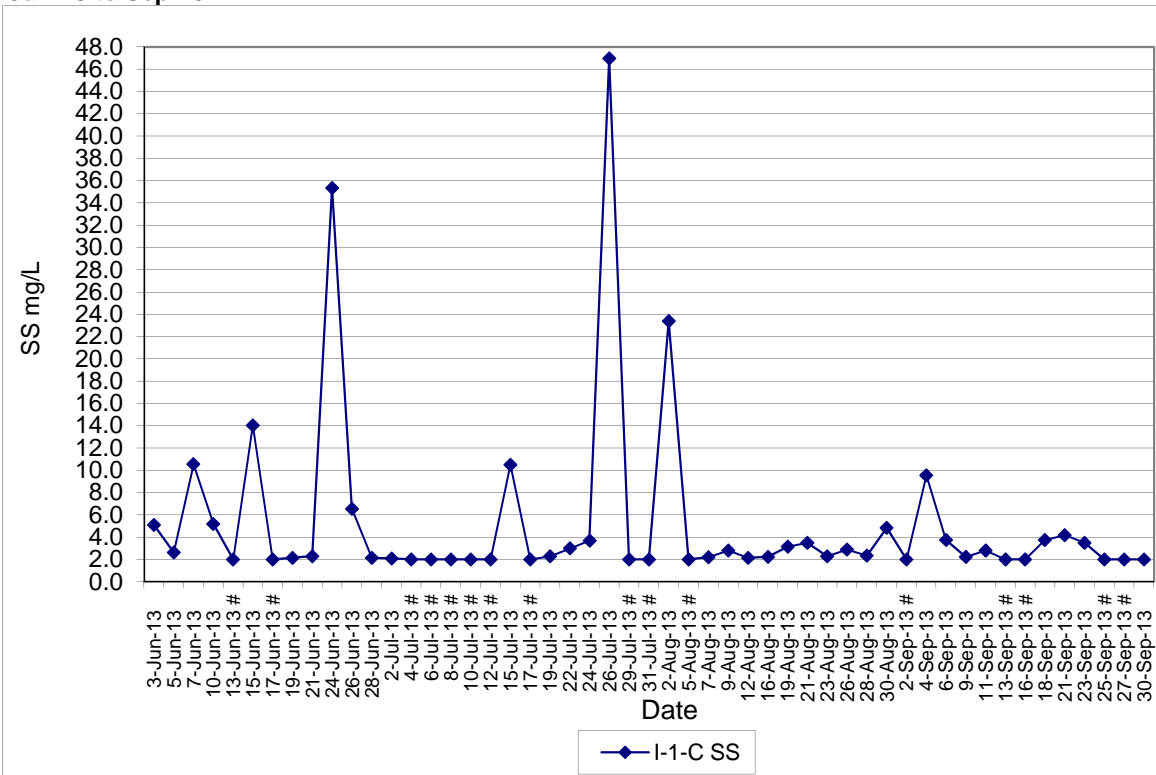
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Jun-13 to Sep-13



**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)
 Jun-13 to Sep-13**

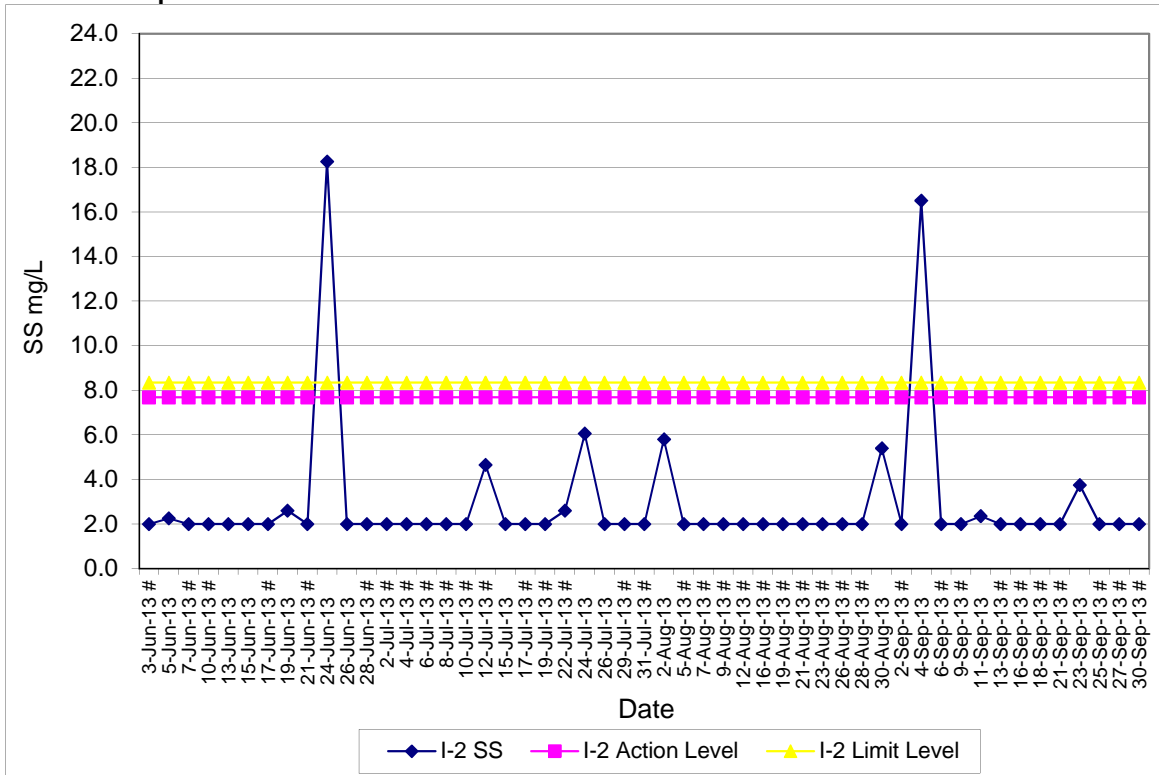


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
 Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)
 Jun-13 to Sep-13**

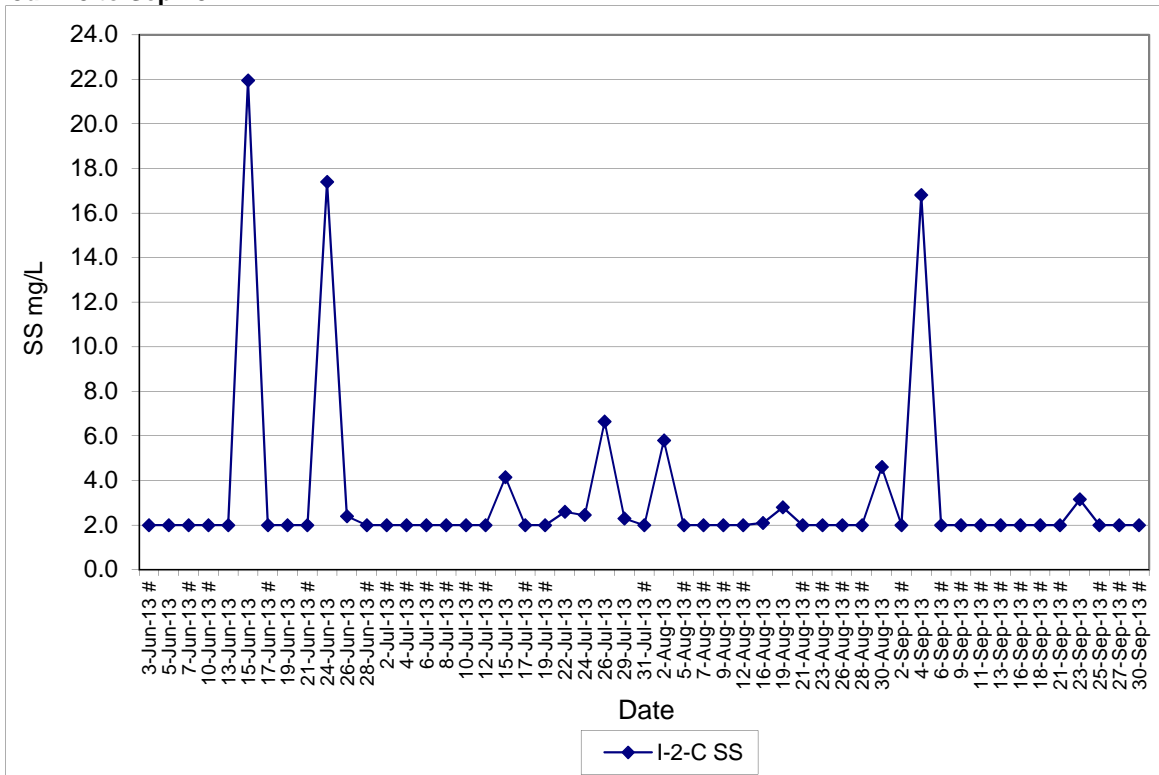


Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph

**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2)
Jun-13 to Sep-13**

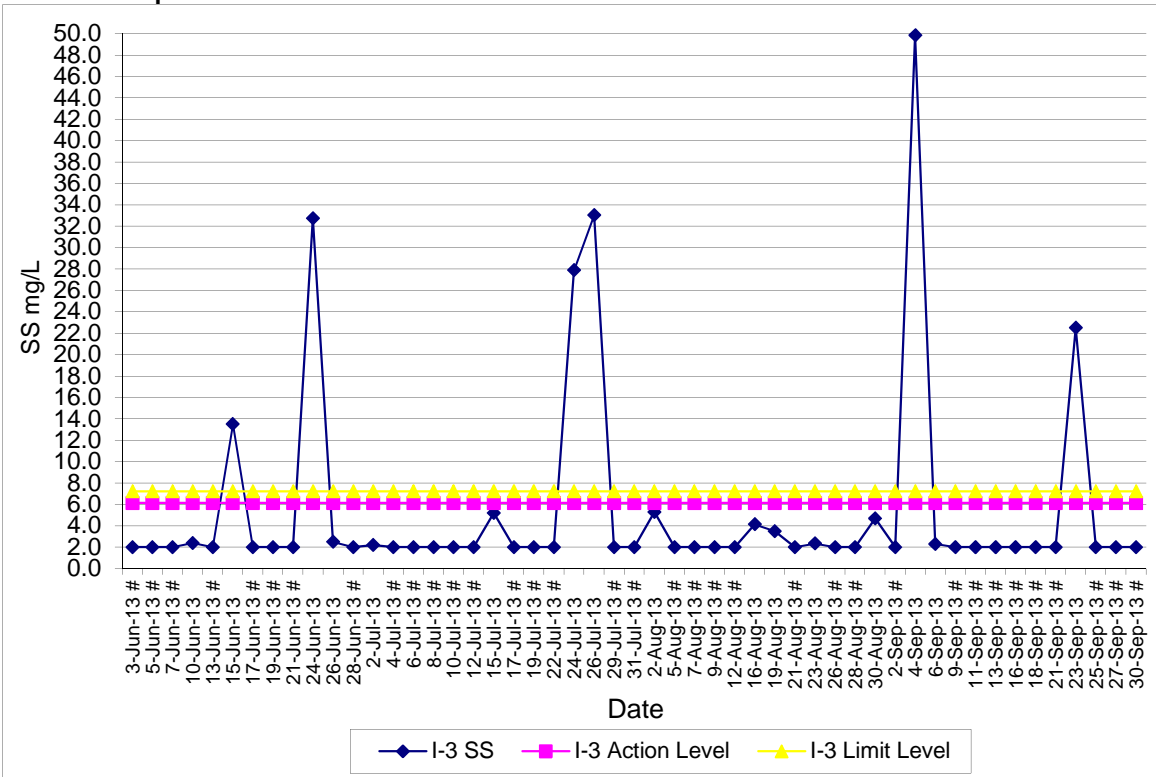


**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C)
Jun-13 to Sep-13**

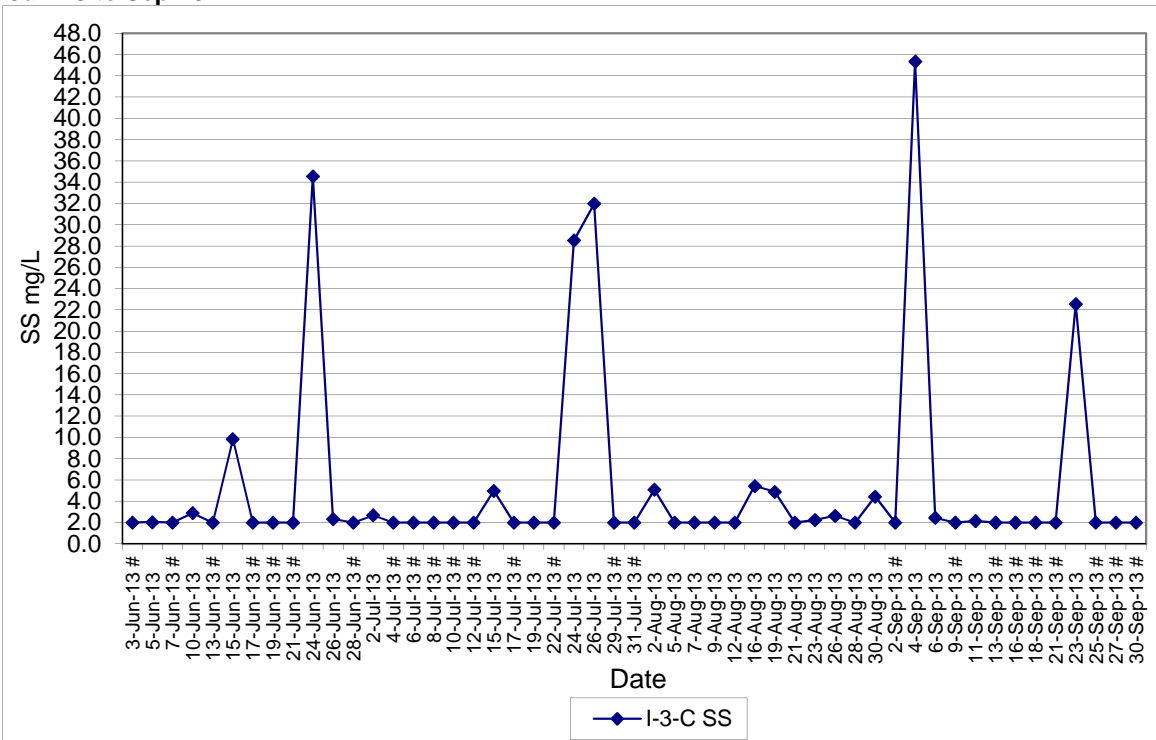


Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph

Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3)
Jun-13 to Sep-13



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel
Water Quality Results at Squatters (I-3-C)
Jun-13 to Sep-13



Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph


Appendix G

Interim Notifications of Environmental Quality Limits Exceedances

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	8-Jul-13
Time	10:47 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	4.58
Control Station	I-3-C
Measured Level at the Control Station (NTU)	4.67
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, installation of irrigation water pipe, installation of K1 kerb, and filling sub-base for permanent access road were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 11-Jul-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 08-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	15-Jul-13
Time	4:20 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	21.75
Control Station	I-1-C
Measured Level at the Control Station (NTU)	21.65
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than 120% of the turbidity level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 41 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 15:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there are no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 17-Jul-13

Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 15-Jul-13



Photo taken at I-1




Photo of I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	15-Jul-13
Time	3:12 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	33.85
Control Station	I-3-C
Measured Level at the Control Station (NTU)	34.05
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, site clearance at platform behind PA wall, modification of K1 kerb, and making good formation and lay sub-base for permanent access road were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 38 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 14:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 17-Jul-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 15-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	15-Jul-13
Time	4:20 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	10.80
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	10.50
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than 120% of the SS level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 41 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 8:45 and 15:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there are no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 24-Jul-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 15-Jul-13



Photo taken at I-1




Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	24-Jul-13
Time	11:00 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	72.95
Control Station	I-3-C
Measured Level at the Control Station (NTU)	73.05
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, maintenance work of planted tree, making good of K1 kerb and access road and dismantling of formwork for pavement bay 22 were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 23 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 0:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 31-Jul-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 24-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	26-Jul-13
Time	2:16 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	75.25
Control Station	I-1-C
Measured Level at the Control Station (NTU)	75.45
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there are no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 31-Jul-13

Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 26-Jul-13



Photo taken at I-1




Photo of I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	26-Jul-13
Time	1:52 PM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Turbidity
Action & Limit Levels (NTU)	6.63 / 6.99
Measured Level (NTU)	8.85
Control Station	I-2-C
Measured Level at the Control Station (NTU)	8.91
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-2-C). Erecting formwork for slab of access platform, reinstatement of footway at the entrance of 15 tonne gantry, placing mass concrete for access platform, and reinstatement of vehicle parapet at the entrance of 20 tonne gantry were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge for the above work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 31-Jul-13

Photographic record for exceedance of Turbidity recorded at Hong Hoi Chee Hong Temple (I-2) on 26-Jul-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	26-Jul-13
Time	12:10 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	54.45
Control Station	I-3-C
Measured Level at the Control Station (NTU)	54.65
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, and installation of K1 kerb were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 69 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 31-Jul-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 26-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	24-Jul-13
Time	11:00 AM
Monitoring Location	Squatters (I-3)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	6.13 / 7.23
Measured Level (mg/L)	27.90
Control Station	I-3-C
Measured Level at the Control Station (mg/L)	28.55
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than the SS level of the control station (I-3-C). General site cleaning and housekeeping, maintenance work of planted tree, making good of K1 kerb and access road and dismantling of formwork for pavement bay 22 were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 23 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 0:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 1-Aug-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Squatters (I-3) on 24-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	26-Jul-13
Time	2:16 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	53.20
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	46.95
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than 120% of the SS level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 73 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there were no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 1-Aug-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 26-Jul-13



Photo taken at I-1




Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	26-Jul-13
Time	12:10 PM
Monitoring Location	Squatters (I-3)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	6.13 / 7.23
Measured Level (mg/L)	33.05
Control Station	I-3-C
Measured Level at the Control Station (mg/L)	32.00
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than 120% of the SS level of the control station (I-3-C). General site cleaning and housekeeping, and installation of K1 kerb were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 69 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 6:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 1-Aug-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Squatters (I-3) on 26-Jul-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	2-Aug-13
Time	10:10 AM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	36.45
Control Station	I-1-C
Measured Level at the Control Station (NTU)	36.45
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, and same as the turbidity level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there were no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Aug-13

Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 02-Aug-13



Photo taken at I-1




Photo of I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	2-Aug-13
Time	10:33 AM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Turbidity
Action & Limit Levels (NTU)	6.63 / 6.99
Measured Level (NTU)	8.54
Control Station	I-2-C
Measured Level at the Control Station (NTU)	8.68
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-2-C). Reinstatement of vehicle parapet at the entrance of vortex shaft was undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge for the above work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Aug-13

Photographic record for exceedance of Turbidity recorded at Hong Hoi Chee Hong Temple (I-2) on 02-Aug-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	2-Aug-13
Time	11:12 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	24.35
Control Station	I-3-C
Measured Level at the Control Station (NTU)	24.55
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). Site clearance for maintenance staircase under PA wall, making good of road formation and installation of K1 kerb were undertaken during the monitoring day. Heavy rain was observed and about 15 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Aug-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 02-Aug-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	2-Aug-13
Time	10:10 AM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	23.20
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	23.40
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than the SS level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 6 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 3:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater discharge as there were no construction work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 8-Aug-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 02-Aug-13



Photo taken at I-1




Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	16-Aug-13
Time	1:12 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	18.35
Control Station	I-3-C
Measured Level at the Control Station (NTU)	18.55
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). Excavation for 350mm step-channel, making good of 375mm U-channel, dismantling formwork of maintenance staircase under PA wall, and concreting for access road bay 33 were undertaken during the monitoring day. Heavy rain was observed and about 22 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 2:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 21-Aug-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 16-Aug-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	19-Aug-13
Time	12:00 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	7.59
Control Station	I-3-C
Measured Level at the Control Station (NTU)	7.77
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). Erection of formwork for 350mm step-channel and concreting for access road bay 32 and 34 were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 26-Aug-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 19-Aug-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	23-Aug-13
Time	4:06 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	4.52
Control Station	I-3-C
Measured Level at the Control Station (NTU)	4.45
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than 120% of the turbidity level of the control station (I-3-C). Installation of steel staircase next to 900mm step-channel, mucking out at site entrance, and installation of wire mesh at 80 degree cut slope were undertaken during the monitoring day. Rainfall was observed and about 30 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 4:45 and 12:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 28-Aug-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 23-Aug-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	30-Aug-13
Time	10:33 AM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Turbidity
Action & Limit Levels (NTU)	6.63 / 6.99
Measured Level (NTU)	11.25
Control Station	I-2-C
Measured Level at the Control Station (NTU)	11.35
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-2-C). Erection of formwork for water main thrust block concrete at Lo Wai Road was undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 133 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 1:45 and 9:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 4-Sep-13

Photographic record for exceedance of Turbidity recorded at Hong Hoi Chee Hong Temple (I-2) on 30-Aug-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	30-Aug-13
Time	11:47 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	12.35
Control Station	I-3-C
Measured Level at the Control Station (NTU)	12.05
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than 120% of the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, maintenance works at PA wall slope, removal of temporary concrete pavement at site entrance, preparation works and application of joint sealant at concrete pavement and making good of 375 U-channel, and installation of K1 kerb bedding were undertaken during the monitoring day. Heavy rain was observed and about 135 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 1:45 and 10:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measure was provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 4-Sep-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 30-Aug-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	1:52 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	12.85
Control Station	I-1-C
Measured Level at the Control Station (NTU)	12.75
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than 120% of the turbidity level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 157 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the site

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Sep-13

Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 04-Sep-13



Photo taken at I-1




Photo of I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	1:26 PM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Turbidity
Action & Limit Levels (NTU)	6.63 / 6.99
Measured Level (NTU)	28.65
Control Station	I-2-C
Measured Level at the Control Station (NTU)	28.95
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-2-C). Casting concrete for 100 mm water pipe bend block and thrust block at Lo Wai Road was undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Sep-13

Photographic record for exceedance of Turbidity recorded at Hong Hoi Chee Hong Temple (I-2) on 04-Sep-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	11:48 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	89.05
Control Station	I-3-C
Measured Level at the Control Station (NTU)	89.85
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). No construction activities were undertaken during the monitoring day. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the site.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 6-Sep-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 04-Sep-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Action Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	3:50 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	9.60
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	9.55
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline action level, but lower than 120% of the SS level of the control station (I-1-C). No construction activities were undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 157 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 13:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the site

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 11-Sep-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 04-Sep-13



Photo taken at I-1




Photo taken at I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	1:26 PM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	7.68 / 8.34
Measured Level (mg/L)	16.50
Control Station	I-2-C
Measured Level at the Control Station (mg/L)	16.80
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than the SS level of the control station (I-2-C). Casting concrete for 100mm water pipe bend block and thrust block at Lo Wai Road was undertaken during the monitoring day. No direct disturbance was observed from the site. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 11-Sep-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Hong Hoi Chee Hong Temple (I-2) on 04-Sep-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	4-Sep-13
Time	11:48 AM
Monitoring Location	Squatters (I-3)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	6.13 / 7.23
Measured Level (mg/L)	49.85
Control Station	I-3-C
Measured Level at the Control Station (mg/L)	45.35
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than 120% of the SS level of the control station (I-3-C). No construction activities were undertaken during the monitoring day. Heavy rain was observed and about 155 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 5:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the site.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 11-Sep-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Squatters (I-3) on 04-Sep-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	6-Sep-13
Time	3:32 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	4.23
Control Station	I-3-C
Measured Level at the Control Station (NTU)	4.15
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, and lower than 120% of the turbidity level of the control station (I-3-C). Installation of K1 kerb, installation of handrail for steel staircase next to 900mm step-channel, and making good of formation and laying sub-base at site entrance were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the above work activities.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 11-Sep-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 06-Sep-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Action Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	13-Sep-13
Time	11:30 AM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	2.55
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	<2.0
Possible reason for Action or Limit Level Non-compliance	The measured SS level was lower than the baseline action / limit level, but higher than 120% of the SS level of the control station (I-1-C). No construction work was undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	None

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 23-Sep-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 13-Sep-13



Photo taken at I-1




Photo of I-1-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	23-Sep-13
Time	10:37 AM
Monitoring Location	Hong Hoi Chee Hong Temple (I-2)
Parameter	Turbidity
Action & Limit Levels (NTU)	6.63 / 6.99
Measured Level (NTU)	8.17
Control Station	I-2-C
Measured Level at the Control Station (NTU)	8.48
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-2-C). No construction work was undertaken during the monitoring day. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 09:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 23-Sep-13

Photographic record for exceedance of Turbidity recorded at Hong Hoi Chee Hong Temple (I-2) on 23-Sep-13



Photo taken at I-2




Photo of I-2-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	23-Sep-13
Time	11:52 AM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	35.75
Control Station	I-3-C
Measured Level at the Control Station (NTU)	35.45
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than 120% of the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, and making good of trees after typhoon were undertaken during the monitoring day. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 23-Sep-13

Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 23-Sep-13



Photo taken at I-3




Photo of I-3-C

Interim Notification of Environmental Quality Limit Exceedance

Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	23-Sep-13
Time	11:52 AM
Monitoring Location	Squatters (I-3)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	6.13 / 7.23
Measured Level (mg/L)	22.50
Control Station	I-3-C
Measured Level at the Control Station (mg/L)	22.55
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline limit level, but lower than the SS level of the control station (I-3-C). General cleaning and housekeeping, and making good of trees after typhoon were undertaken during the monitoring day. Heavy rain was observed and about 115 mm rainfall was recorded at Tsuen Wan by the Hong Kong Observatory between 00:45 and 11:45 on the monitoring day. Therefore, the exceedance was considered to be contributed by heavy rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	None
Remarks	No wastewater was discharged from the work activity.

Prepared by: Fan Cheong Tsang
 Designation: Environmental Team Leader
 Signature: 
 Date: 23-Sep-13

Photographic record for exceedance of Suspended Solids (SS) recorded at Squatters (I-3) on 23-Sep-13



Photo taken at I-3



Photo of I-3-C

Appendix H

Complaint Log

COMPLAINT LOG

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
1	CIR-001	9 March 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/04846-09) regarding to muddy effluent discharged from the outfall of the construction site from a public on 9 March 2009. Site investigation was also carried out by EPD with the Contractor on the same day.	<p><u>Findings/ Observations</u> In the afternoon on 9 March 2009, the Contractor was carrying out regular maintenance for removing silt accumulated in the wastewater treatment plant. During the maintenance works, some residual silt inside the plant was accidentally leaked out to the outfall discharge outlet. The reason was that a flexible pipe for disposing silt was found connecting to the concrete platform of the outfall discharge outlet.</p> <p><u>Conclusion/Remedial Action</u> The complaint was valid and it was due to maintenance works at the wastewater treatment plant at the outfall area. The contractor had cleaned up the silt at discharge outlet and the channel at the outfall area on 12 March 2009 as shown in the attached photo. The ET will closely inspect the discharge outlet and the channel during the routine site inspections and provide advice to the Contractor. The Contractor was also advised to provide mitigation measures during any occasion of the maintenance work on the wastewater treatment plant.</p> <p>The discharge pipe of the treatment plant should be plugged and ensure not functioned when carrying out maintenance works on the wastewater treatment plant in order to prevent the discharge of silt or muddy water to the outlet.</p> <p>Flexible pipe for discharge of sludge should not be placed on the concrete platform under the outfall discharge outlet. For disposal of slit or sludge in the wastewater treatment plant, tanker should be used.</p>	Closed
2	CIR-002	8 May 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/09755-09) regarding to construction dust from the outfall	<p><u>Findings/ Observations</u> Regular 1-hour TSP monitoring, in accordance with EM&A Manual, is performed by Environmental Team. The monitoring station concerned is ASR9 (i.e. at the podium level of Greenview Terrace facing to the construction site).</p> <p>The closest date for the 1-hour TSP concentration monitoring was on 6</p>	Closed

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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				<p>construction site on 8 May 2009. Site investigation was also carried out by EPD with the Contractor on 14 May 2009.</p>	<p>May 2009 and 12 May 2009 at Greenview Terrace, ASR9. Soil nailing works and loading & unloading excavated materials were observed during monitoring. In accordance with the EM&A Manual and the Baseline Monitoring Report, all 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 6 and 12 May 2009.</p> <p>The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows:</p> <ul style="list-style-type: none"> • Water spraying was provided to the exposed surface. • Several automatic sprinklers were provided at the outfall construction site for water spraying of the haul road. • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works). <p><u>Conclusion/Remedial Action</u></p> <p>Based on the site inspection and monitoring results, the complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified. Air quality mitigation measures as recommended in EIA have been implemented in order to control and minimise the air quality impact and nuisance arising from the construction activities. Nevertheless, in view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide more frequent water spraying especially in the dry and sunny weather.</p>	
3	CIR-003	14 May 2009 at Outfall	Public through EPD	<p>EPD has received a complaint (EPD ref: EP/RW/080206) regarding to daytime construction rock breaking at 7:15 am</p>	<p>The closest date to the complaint for the 1-hour TSP monitoring & daytime construction noise monitoring was on 12, 18 and 27 May 2009 at Greenview Terrace, ASR9 and NSR9. Soil nailing, excavation, rock breaking, loading and unloading the materials were observed during monitoring period. The measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No 1-hour TSP</p>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				and dusty at the outfall construction site on 14 May 2009.	<p>exceedance was recorded.</p> <p>The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, noise mitigation measures could be further improved.</p> <p>Based on our site inspection and monitoring results, the complaint for dust is considered not justifiable since no action & limit level exceedance on construction dust is identified. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air quality impact arising from the construction activities. In view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to enhance water spraying especially in the dry and sunny weather.</p> <p>On the other hand, the complaint for noise is considered due to works and the Contractor was agreed to improve the on-site noise mitigation measures such as the following measures. ET's site inspection and the joint inspection with relevant parties was conducted on 29 May 2009 and 4 June 2009 respectively to confirm all the below measures have been implemented.</p> <ul style="list-style-type: none"> • For the idling plant, it should be switched off to reduce noise level generated. • The sound insulation sheets and noise insulation materials should be placed to enclose the breaking tip tightly and also aside or surrounding the breaking activities as recommended in the following photos 1-3 in noise mitigation measures. • Noise monitoring frequency was increased in order to check the effectiveness of the mitigation measures. The additional measurement was taken on 27 May, 8 June, 10 June and 12 June 2009 after all the measures implemented. The noise levels ($L_{eq, 30 \text{ min}}$) were 70.9 dB (A), 70.5 dB (A), 70.3 dB (A) and 70.3 dB (A) respectively, which comply with the limit level in accordance with the EIAO-TM. Soil nailing, excavation and rock breaking were observed during monitoring period. 	

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 Design and Construction of Tsuen Drainage Tunnel
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					The measures were well in place and seemed effective during the measurement.	
4	CIR-004	10 July 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/15137-09) regarding to construction dust from the outfall construction site on 10 July 2009.	<p><u>Findings/ Observations</u> 1-hour TSP concentration monitoring was on 10 July 2009 at Greenview Terrace, ASR9. Soil nailing works, concrete breaking, excavation and loading & unloading excavated materials were observed during monitoring. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 10 July 2009.</p> <p>The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows:</p> <ul style="list-style-type: none"> • Water spraying was provided to the exposed surface. • Automatic sprinklers were provided at the outfall construction site for water spraying of the haul road. • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works). • Tarpaulin was used for covering the dusty works in the Portal area. <p><u>Conclusion/Remedial Action</u> The complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified</p>	Closed
5 & 6	CIR-005	29 July 2009 & 11 August 2009 at Outfall	Public through SOR	SOR has received two complaints (SOR ref: (DC/2007/12)/M45/500/02480, 02500) from Greenview Terrace regarding to daytime construction noise exceedance	<p><u>Findings/ Observations</u> Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels from 6 July 2009 to 25 August 2009.</p> <p><u>Conclusion/Remedial Action</u> The dust complaint on 22 July 2009 was due to the soil nailing works. The</p>	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				<p>recorded at NSR9 on 8, 22, 23, 27 and 29 July 2009 and a large amount dust generated at the outfall construction site. The complaint dates were corresponded to 29 July and 11 August 2009.</p>	<p>Contractor was reminded enhance the dust mitigation measures during soil nailing works. A designated staff was provided to spray water continuously during soil nailing. A nylon bag was placed on the drilling hole and keeping wet to suppress dust. A sprinkler was added at the hillside of the site and water spraying was provided continuously during operation of drilling to suppress dust.</p> <p>The documented complaint for noise is considered to trigger the action level and the Contractor was also reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows:</p> <ul style="list-style-type: none"> • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. • Movable noise barriers were placed on site and the movable noise barriers were also modified. • Existing 25 ton rock breaker had been replaced by the another breaker. • The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. • A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) between 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August</p>	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					2009. Noise levels ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace.	
7	CIR-006	12 August 2009 at Outfall	Public through SOR	SOR has received a complaint (SOR ref: (DC/2007/12)/M45/5 00/02527) from Greenview Terrace, via Apple Daily regarding to daytime construction noise level ($L_{eq(30min)}$) was sometimes more than 80 dB(A) and a large amount dust generated at the outfall construction site. The complaint date was corresponded to 12 August 2009.	<p><u>Findings/ Observations</u> Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels from 6 July 2009 to 25 August 2009.</p> <p><u>Conclusion/Remedial Action</u> The dust complaint was considered not justifiable since no action & limit level exceedance on construction dust were identified. However, it was a recurrent case from Greenview Terrace. The Contractor was recommended to enhance water spraying continuously especially in rock breaking activities. On the other hand, there was no noise levels ($L_{eq(30min)}$) from the measurement taken from ET was more than 80 dB(A). However, it was a recurrent case from Greenview Terrace. The Contractor was reminded to enhance the on-site noise mitigation measures. The enhanced mitigation measures are proposed as follows:</p> <ul style="list-style-type: none"> • A staff from the Contractor was designated to take the reading of L_{eq} (5mins) at the roof of Greenview Terrace. In case of the L_{eq} (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>much as possible.</p> <ul style="list-style-type: none"> Movable noise barriers were placed on site and the movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures.</p>	
8	CIR-007	14 August 2009 at Outfall	Public through EPD	<p>EPD has received a complaint (EPD ref: EP3/N22/RW/17978-09) from Greenview Terrace regarding to daytime construction noise from the outfall construction site. The complaint date was corresponded to 14 August 2009.</p>	<p><u>Findings/ Observations</u> Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM.</p> <p><u>Conclusion/Remedial Action</u> This was a recurrent case from Greenview Terrace. The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows:</p> <ul style="list-style-type: none"> A staff from the Contractor was designated to take the reading of L_{eq} 	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>(5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.</p> <ul style="list-style-type: none"> The designated staff was reminded to record all the weather condition including raining and wind speed. Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. Movable noise barriers were placed on site and the movable noise barriers were also modified. Existing 25 ton rock breaker had been replaced by the another breaker. The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. <p>From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency would be maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures.</p>	
9	CIR-008	17 August 2009 at Portion D of the Site	Public through SOR	SOR has received a complaint (SOR ref:(DC/2007/12)/M4 5/500/02546) from Long Bench Garden	<p><u>Findings/ Observations</u></p> <p>Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in August 2009. The monitoring results from 3 August 2009 to 31 August 2009 at NSR 8 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental</p>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				regarding to noise nuisance generated from the daytime construction work (rock-breaking) in Portion D of the Site. The complaint date was corresponded to 17 August 2009.	<p>team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint.</p> <p><u>Conclusion/Proposed Action</u></p> <p>The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are recommended as follows:</p> <ul style="list-style-type: none"> • Movable noise barriers had been placed towards the direction of Long Bench Garden, particular for the pipe pile works in the portal. • Tools box talk for construction team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. • The existing noisy 25 ton rock breaker had been replaced by the other breaker. • A joint filler wall had been fixed on the vertical face of west bound to absorb the noise generated towards Long Beach Garden. <p>Noise monitoring frequency was increased twice per week by ET due to this complaint. The measured noise levels were complied with the limit level in accordance with the EIAO-TM. No further complaint was received from Long Bench Garden within the reporting month.</p>	
10	CIR-009	22 August 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/5 00/02628) was received from Greenview Terrace regarding to daytime construction noise level (Leq(30min)) was sometimes exceeded 75 dB(A)	<p><u>Findings/ Observations</u></p> <p>Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. The monitoring results from 6 July 2009 to 31 August 2009 at NSR 9 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint.</p> <p><u>Conclusion/Proposed Action</u></p> <p>The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise</p>	Same Case with Complaint No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				at the outfall construction site. The complaint date was corresponded to 22 August 2009.	mitigation measures continuously. The enhanced mitigation measures are recommended as follows: <ul style="list-style-type: none"> • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. • Movable noise barriers were placed on site and the movable noise barriers were also modified. • Existing 25 ton rock breaker had been replaced by the another breaker. • The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. • A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. From the additional monitoring data and monitoring data under regular EM&A requirements, noise level ($L_{eq, 30 \text{ min}}$) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels ($L_{eq, 30 \text{ min}}$) were also re-measured after the implementation of the mitigation measures. Noise level ($L_{eq, 30 \text{ min}}$) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace.	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
11	CIR-010	24 September 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/500/02749) was received from Greenview Terrace regarding to daytime construction noise level (Leq(30min)) was sometimes exceeded 75 dB(A) at the outfall construction site.	<p><u>Findings/ Observations</u> Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and September 2009. The monitoring results from 6 July 2009 to 29 October 2009 at NSR 9 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures have been enhanced continuously due to this complaint.</p> <p><u>Conclusion/Proposed Action</u> The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures were implemented as follows:</p> <ul style="list-style-type: none"> • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level. • The designated staff was reminded to record all the weather condition including raining and wind speed. • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible. • Movable noise barriers were placed on site and the movable noise barriers were also modified. • Existing 25 ton rock breaker had been replaced by the another breaker. • The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap. • A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace. 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					From the additional monitoring data above and the regular monitoring under EM&A requirements, the measured noise levels were complied with the limit level in accordance with the EIAO-TM. From the noise level on 25 September 2009 and 2 October 2009, the trend of noise level seemed to be increased since the decoration work at 14/F Greenview Terrace was the domain noise source during the monitoring. The noise level during that time would be considered for reference only. There was no exceedance of the measured noise level at Greenview Terrace in our investigation.	
12	CIR-011	2 October 2009 at I-3	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/22016-09) regarding to construction dust at the Intake-3 on 2 October 2009.	<p><u>Findings/ Observations</u></p> <p>There is no representative air monitoring location as stated in the EM&A Manual. The contractor and the environmental team were undertaken site investigation on the subject area at 08-Oct-09 in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, the dust impact by exposed area could be further improved. The mitigation measures during the site investigation were observed as follows:</p> <ul style="list-style-type: none"> • Water spraying was provided to the exposed surface. • Wheel washing facilities for dump trucks was provided at the site exit. • Water spraying was provided during excavation and loading/unloading works <p><u>Conclusion/Proposed Action</u></p> <p>Based on our site inspection, the complaint for dust is considered justifiable as it is due to windy erosion on the exposed surface. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air quality impact arising from the construction activities. In view of the recent dry season, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide water spraying more frequently especially in the dry season.</p>	Closed

Contract No. DC/2007/12
 Design and Construction of Tsuen Drainage Tunnel
 Environmental Monitoring and Audit

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
13	(DC/2007/12)/M45/50/0/2923 & email on 11 November 2009 from MCSJV	9 November 2009 at Outfall	Greenview Terrace through EPD	Movable noise barrier was not placed close enough to the piling machine.	<p><u>Immediate Action</u> The rig was re-orientated and the barrier was placed closed to the drilling head.</p> <p><u>Follow-up Action</u></p> <ul style="list-style-type: none"> • Training was conducted to the operator to ensure that the workers aware that the barrier should be placed closed not the drilling head not the machine itself. • In order to prevent future occurrence, a permit to dig system was adopted. It should be checked by the Contractor and endorsed by the SOR before starting the drilling rig. <p>The follow up action was checked and a permit to dig system has been implemented.</p>	Closed
14	(DC/2007/12)/M45/50/0/2978 & email on 19 November 2009 from MCSJV	18 November 2009 at Outfall	Greenview Terrace through EPD	Rock-breaking activity carried out in the eastern area of Portion D, closest to Greenview Terrace, was not totally screened and line of sight of the breaker was observed from the NSR.	<p><u>Follow up Action</u></p> <ul style="list-style-type: none"> • The bamboo scaffold was extended further away from stage 3 scaffold to further screen off the activities to the Greenview. The length of the extension was about 8 to 10 m. • A strong reminded was given to the relevant staff and sub-contractor and the barrier should be placed in the right orientation before breaking. • The mitigation measures were strictly followed as stated in the proposal. <p>The follow up action and relevant records was checked.</p>	Closed
15.	CIR-12	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01270-10) regarding effluent discharge at Intake-3 construction site on 19 January 2010.	<p><u>Findings/ Observations</u> The effluent discharge on 19 January 2010 was due to the leakage of Gabion wall at I3. The water from the rock drilling work was flowing through the gap of the Gabion Wall to the watercourses at I3.</p> <p><u>Immediate Action</u> The contractor had sealed the gap at the Gabion Wall immediately after the incident.</p> <p><u>Conclusion/Proposed Action</u> Based on our site inspection, the complaint was due to leakage of Gabion</p>	Closed.

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					wall. The area would be checked and maintained continuously to avoid recurrence case. The above identified mitigation measures have been implemented by the Contractor on 22 January 2010 and ET has also checked the implementation on 31 January 2010. The ET will closely inspect the watercourses during the routine site inspections and provide advice to the Contractor.	
16	CIR-13	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01319-10) regarding daytime construction noise at Intake-3 construction site on 19 January 2010.	<p><u>Findings/ Observations</u></p> <p>The monitoring station concerned is NSR6 (i.e. at Squatter facing to the construction site). Excavation, soil nailing, rock drilling and breaking, loading and unloading the materials were generally observed during monitoring period in mid-January 2010. The measured noise levels in January 2010 complied with the limit level in accordance with the EM&A Manual. These cases would also be treated as two action level exceedances on noise. The Contractor and the Environmental Team were also undertaken site investigation on the subject area in response to complaint. The noise mitigation measures during the site investigation were recommended as follows:</p> <ul style="list-style-type: none"> • Sound insulation sheets were installed covering the working area during breaking and rock drilling in order to block the line of sight to the NSR. • Noise insulation materials were used to enclose the drilling rig tightly. <p><u>Conclusion/Proposed Action</u></p> <p>Based on the site inspection and monitoring results, the complaint was due to noise generated by rock breaking work. The identified mitigation measures have been discussed with the Contractor and the Contractor has submitted the remedial proposal. The proposal was implemented by the Contractor on 25 January 2010 and ET has also checked the implementation on 31 January 2010. The Contractor was also advised to review the mitigation measures from time to time near the NSR at I3. The ET will closely inspect the area during the routine site inspections and provide advice to the Contractor.</p>	Closed.
17	CIR-13	21 January 2010 at Intake-3	Public through	EPD has received a public complaint (EPD ref:	Refers to Investigation /Mitigation Action for Complaint No. 16.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
		construction site	EPD	EP3/N22/RW/01444-10) regarding daytime construction noise at Intake-3 construction site on 21 January 2010.		
18	CIR-14	27 August 2010 near Intake-2 construction site	Public through DSD	DSD has received a public complaint regarding choked sewage manhole (MH1) at Lo Wai Road construction site on 27 August 2010.	<p><u>Findings/ Observations</u> During DSD inspection on 30 August 2010, improper discharge from the site to manhole, MH3, which is located downstream of MH1 was observed. ET had received those information from the Contractor on 09 September 2010. Site investigation was also carried out by SOR's representative with the Contractor on 01 September 2010. Checking with the site log, the construction activity at Lo Wai on 27 August 2010 was pipe jacking only. No site formation works was undertaken. The contractor and SOR's representative have undertaken site investigation on the subject area on 01 September 2010. On-site flow test at Portion G had conducted.</p> <ul style="list-style-type: none"> ● Maeda works area is located at the lower section of Lo Wai Road and manhole MH3 is adjacent to the works area. MH1 (choked sewage manhole) is located at the upper section of Lo Wai Road. MH2 manhole is located middle section of Lo Wai Road. MH1 and MH2 are outside the works area. ● Water flow test for manhole MH2 and MH3 and no blockage was observed. ● Sewage overflow was found at MH1 during the joint site inspection on 01 September 2010 ● It was reported that there were water pipes connected between the site and the MH3. Discharge was found in MH3 during DSD inspection. ● The contractor claimed that the purpose of the water pipes was to direct the storm water and underground water inside the concrete pipe "pipe jacking". ● There was no discharge license for that portion. The Contractor had stopped on 01 September 2010 the water pumping to MH3 and 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>apply the discharge license for the Lo Wai site.</p> <p><u>Conclusion/Proposed Action</u> Based on the joint site inspection, the choked manhole MH1 was not due to works activities. The Contractor had clean up the choked manhole MH1 and no sewage overflow from MH1 was observed. The Contractor was requested to divert the storm water to desilting system prior to discharge while no such discharge can be made until a valid discharge license is granted. The ET will closely inspect the vicinity area during the routine site inspections and provide advice to the Contractor as necessary.</p>	
19&20	CIR-15	17 November 2010 at outfall construction site	Public through EPD	<p>EPD has received a public complaint (EPD ref: EP3/N22/RW/24002-10 and EP3/N22/RW/24006-10) regarding daytime construction noise about derrick barge squeaking and rock breaking at Outfall construction site on 17 November 2010.</p>	<p><u>Findings/ Observations</u> Drilling, excavation, marine mud dredging, rock breaking, mucking-out process and crane operation were observed during site inspections on 2 and 17 December 2010. The monitoring results measured on 15 November 2010 and 25 November at NSR 9 showed that the measured noise levels complied with the limit level (75 dB(A)) in accordance with the EIAO-TM. As part of the investigation of the noise complaints, the Contractor and the ET conducted additional site inspections and reviewed and audited the current noise mitigation practices and the Contractor's environmental performance on-site.</p> <p><u>Conclusion / Proposed Action</u> The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:</p> <ul style="list-style-type: none"> ● Erection of temporary noise insulation sheet at the rim of the spiral ramp construction site; ● Moveable barriers for rock breaker; ● Wrapping noise absorptive material at the rock breaker head; ● Tailor made noise enclosure for drilling rig; ● Semi-enclosed muck out process at muck hopper; ● Use of rock splitter (which is a relatively quieter method in contrast to rock breaker); and ● Noise insulation blanket enclosing the crane engine of derrick barge. <p>Noise monitoring was increased to twice per week and the results were</p>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					reported in the Complaint Investigation Report submitted on 24 December 2010. The measured noise level after implementation of the noise mitigation measures ranged from 69 to 73 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.	
21	CIR-16	10 January 2011 at outfall construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/00484-11) regarding dark smoke emission from derrick barge and construction noise and dust at Outfall construction site on 10 January 2011.	<p><u>Findings/ Observations</u></p> <p>1. <u>Dark Smoke Emission from Derrick Barge</u> Dark smoke emitted from the derrick barge was promptly investigated after the receipt of the complaint. The issue was found specific to the mechanical operation of the barge working at the site at that moment. The derrick barge being complained was then replaced by another barge without the relevant mechanical issue. No further complaint was received since then.</p> <p>2. <u>Construction Dust</u> Regular 1-hour TSP monitoring, in accordance with EM&A Manual, was carried out by the Environmental Team (ET). The monitoring station concerned is ASR 9, located at the podium level of Greenview Terrace facing the construction site. In January, 1 hour TSP concentration monitoring had been conducted on 4, 10, 14, 20 and 26 January 2011 at Greenview Terrace (ASR). Rock breaking, drilling and excavation were observed during monitoring. No exceedance was recorded.</p> <p>The contractor and the environmental team were also undertaken site investigation at the subject area on 21 January 2011 in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA had been provided by the Contractor. The mitigation measures are as follows:</p> <ul style="list-style-type: none"> ● Water spraying surrounding the spiral ramp; ● Water spraying for rock drilling and rock breaking; ● Water spraying for C&D material before loading and unloading to 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>derrick barge;</p> <ul style="list-style-type: none"> ● Water spraying for the exposed surface and the haul road; ● Water spraying for trucks and vehicles at the site exit. <p>3. <u>Construction Noise</u> The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:</p> <ul style="list-style-type: none"> ● Extension of Temporary noise insulation barrier (made of noise blanket) at the rim of the spiral ramp construction site facing Greenview Terrace; ● Movable noise barriers to surround the rock breaking activities at the spiral ramp where it is in safe ground condition; ● Tailor made noise enclosure for rock drilling machine; ● Semi-enclosed muck out process at muck hopper (with noise curtain underneath); ● Use of temporary noise enclosure for piling work at Castle Peak Road; ● Noise insulation blanket enclosing the crane engine of derrick barge; ● Additional noise blanket along the railings of the spiral ramp; and ● Use of rock splitter (which is a relatively quieter method in contrast to rock breaker). <p>Noise monitoring has been increased to twice per week and the results will be reported in the Complaint Investigation Report to be submitted in mid-February 2011. The measured noise level after implementation of the noise mitigation measures ranged from 71 to 74 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.</p> <p><u>Conclusion / Proposed Action</u> 1. <u>Dark Smoke Emission from Derrick Barge</u> Dark smoke emitted from the derrick barge was considered a stand-alone</p>	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>incident and was specific to the derrick barge being complained. No further complaint was received after the barge was replaced by another.</p> <p>2. <u>Construction Dust</u> Based on our site inspection and monitoring results, the complaint was considered not justifiable since no action and limit level exceedance on construction dust were identified. Air quality mitigation measures as recommended in EIA were implemented in order to control and minimize the air quality impact and nuisance arising from the construction activities. Nevertheless, the Contractor was reminded to enhance the air quality mitigation measures such as increasing the water spraying frequency and ensure proper functioning of the automatic sprinklers at the Outfall construction site.</p> <p>3. <u>Construction Noise</u> Noise measurement results between 10 and 28 January 2011 were below the limit level (75 dB(A)) and complied with the noise criterion. The Contractor had implemented various mitigation measures on site to alleviate the construction noise impact. The ET will remind the Contractor to enhance and maintain the normal functioning of the measures continuously to minimize the impact. The Contractor should also closely liaise with the nearby residents and inform the progress of the construction and the implementation of the environmental mitigation measures at the Outfall construction site.</p>	
22	CIR-17	30 June 2011 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/12759-11) regarding construction dust and daytime construction noise from the Intake-3 construction site on 30 June	<p>1. <u>Findings / Observations</u> Checking with the site log, construction activities conducted at I-3 were breaking / mucking out and rock splitting inside the shaft, curing of planter wall, backfilling at tree pit, slope reinstatement and backfilling at PB wall, monitoring of de-deformation monitoring point, and general site cleaning and housekeeping. The Contractor and ET undertook site investigations on the subject area on 8 and 20 July 2011. The following dust and noise mitigation measures were implemented during site investigations: <u>Dust Mitigation Measures (implemented prior to the complaint)</u></p> <ul style="list-style-type: none"> ● All the main haul road was paved; 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				2011.	<ul style="list-style-type: none"> ● Material transported by a dump truck was covered with impervious sheeting; ● Exposed soil slope surface near the PB wall was covered by tarpaulin sheets; ● Hoardings (with 2.4 m high) were provided along the site boundary next to the access road; ● Regular watering on haul roads by sprinklers was observed; ● Vehicle speed limit of 5 km per hour was implemented within the construction site; ● Water spraying for dust suppression of on-going “dusty” activities (essentially including drilling and rock breaking within the shaft of about 16.5 m below ground) was observed; <p><u>Construction Noise Mitigation Measures (implemented prior to the complaint)</u></p> <ul style="list-style-type: none"> ● Temporary noise barriers (about 4 m high) were erected on the shaft concrete block wall; ● Quiet plant (rock splitter) was employed for shaft excavation; ● Noise from generator was screened by a temporary noise barrier; and ● Breaker heads of rock breaking machine were wrapped with sound insulating materials. <p>2. <u>Conclusion / Proposed Action</u></p> <p>As there are no substantial noise sources at I-3 other than the project construction activities, it is considered that the noise complaint is project-related. In accordance with the Event / Action Plan for Construction Noise specified in the EM&A Manual, noise monitoring frequency at the squatters (NSR 6) near I-3 were increased to twice per week (from 11 July 2011 to 30 July 2011) due to this complaint. The measured noise levels ($L_{eq, 30 \text{ min}}$) are shown in the following table. The measured noise levels, ranged from 60.0 dB(A) to 68.9 dB(A), are well below the limit level (75 dB(A)) in accordance with the EIAO-TM. During the site investigations on 8 and 20 July 2011, the above noise mitigation measures were continuously implemented. No further noise complaint was received in July 2011. Thus, with the consideration of the noise measurement results</p>	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status																																																
					<p>and implementation of the above noise mitigation measures, the construction noise is considered acceptable. The Contractor will maintain the noise mitigation measures mentioned above to minimise noise nuisance.</p> <table border="1" data-bbox="1020 488 1837 1053"> <thead> <tr> <th>Date</th> <th>Start Time</th> <th>End Time</th> <th>L_{eq}, dB(A)</th> <th>Limit Level, dB(A)</th> <th>Major Construction Noise Sources</th> </tr> </thead> <tbody> <tr> <td>6-Jul-11</td> <td>11:17</td> <td>11:47</td> <td>60.0</td> <td>75</td> <td>Crane operation</td> </tr> <tr> <td>14-Jul-11</td> <td>16:00</td> <td>16:30</td> <td>67.0</td> <td>75</td> <td>Drilling and rock breaking</td> </tr> <tr> <td>15-Jul-11</td> <td>17:00</td> <td>17:30</td> <td>68.9</td> <td>75</td> <td>Drilling and rock breaking</td> </tr> <tr> <td>18-Jul-11</td> <td>13:30</td> <td>14:00</td> <td>65.7</td> <td>75</td> <td>Drilling and crane operation</td> </tr> <tr> <td>20-Jul-11</td> <td>13:10</td> <td>13:40</td> <td>68.1</td> <td>75</td> <td>Drilling and rock breaking</td> </tr> <tr> <td>28-Jul-11</td> <td>13:35</td> <td>14:05</td> <td>64.9</td> <td>75</td> <td>Drilling and excavation</td> </tr> <tr> <td>30-Jul-11</td> <td>09:10</td> <td>09:40</td> <td>63.6</td> <td>75</td> <td>Drilling and crane operation</td> </tr> </tbody> </table> <p>Remark: The location of powered mechanical equipment (PME) will change occasionally and the utilization time for each PME may not be constant.</p> <p>As observed during the site investigation on 8 July 2011, dust suppression measures aforementioned were implemented on site. Additional dust control measures have been implemented at I-3 by the Contractor in early July 2011 to further suppress dust emission:</p> <ol style="list-style-type: none"> 1) Tailor-made frame with blankets has been installed for the drilling rig; 2) Water hoses have been installed to the drilling rig within the tailor-made frame during drilling; and 3) Water smog device installed at the edge of intermediate platform of 	Date	Start Time	End Time	L _{eq} , dB(A)	Limit Level, dB(A)	Major Construction Noise Sources	6-Jul-11	11:17	11:47	60.0	75	Crane operation	14-Jul-11	16:00	16:30	67.0	75	Drilling and rock breaking	15-Jul-11	17:00	17:30	68.9	75	Drilling and rock breaking	18-Jul-11	13:30	14:00	65.7	75	Drilling and crane operation	20-Jul-11	13:10	13:40	68.1	75	Drilling and rock breaking	28-Jul-11	13:35	14:05	64.9	75	Drilling and excavation	30-Jul-11	09:10	09:40	63.6	75	Drilling and crane operation	
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>the shaft.</p> <p>The Contractor have continuously applied all the above mentioned dust suppression measures to minimise airborne dust generation, as observed during the site investigation on 20 July 2011. No dust dispersion from the construction site was observed during the site investigations on 8 and 20 July 2011. In addition, no further construction dust complaint is received in July 2011. As such, it is considered that the dust suppression measures implemented on site are adequate to minimise dust nuisance. The Contractor will maintain these measures on site for construction dust control.</p> <p>3. <u>Follow Up Action(s)</u></p> <p>For this complaint, the Contractor has implemented adequate mitigation measures for construction dust and noise control. As no further complaint is received in July 2011, it is considered that the complaint is closed. Nevertheless, the ET will continuously review the condition of the site during the routine site inspections, inspect proper functioning of the aforementioned construction dust and noise mitigation measures, and provide advice to the Contractor to be vigilant and tailor mitigation measures in advance of future planned site work activities.</p>	
23	CIR-18	2 September 2011 at Sheung Kok Shan near Intake 2	Mr. Cheung through EPD	EPD have received a complaint from Mr. Cheung, who lived in Sheung Kok Shan, concerning construction noise arising from the use of the TBM at night time. He alleged that the noise emanated from the tunnelling works had caused	<p>1. <u>Findings / Observations</u></p> <p>According to the approved EIA Report, it is recommended to restrict the tunnel boring machine (TBM) operation in the non-restricted period for tunnel section from chainage 1295 m to 1449 m. Checking with the site log, the Contractor has strictly followed the EIA recommendation for the TBM operation within the non-restricted period between the chainage 1295 m to 1449 m. TBM moved from CH1449 on 11 August 2011 and passed through CH1295 on 23 August 2011, and the Contractor resumed night time TBM operation afterwards. TBM was operating at night time (from 01:10 to 07:00) on 26 August 2011 (about 55 m away from the EIA restricted zone and about 22 m away from Mr. Cheung's house, which is located near CH1218).</p>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status																		
				nuisance to him since 26 August 2011.	<p>First verbal complaint from Mr. Cheung was received in the morning of 26 August 2001 by the Contractor. The Contractor had stopped TBM night time operation from 26 August to 01 September 2011 accordingly. On 01 September 2011, TBM was located 38 m away from Mr. Cheung's house and the Contractor attempted to resume the night time operation.</p> <p>Second verbal complaint from Mr. Cheung was received on 02 September 2011 by EPD. The Contractor took immediate measure to stop the night time operation from 02 to 07 September 2011. On 08 September 2011, TBM moved 109 m away from Mr. Cheung's house. The Contractor attempted to resume night time operation and no further complaint was received after that.</p> <p>2. <u>Mitigation Measure Implemented after Receiving the Complaints</u></p> <p>Night time operation of the TBM was restricted as shown in the following table:</p> <table border="1" data-bbox="1018 836 1822 1390"> <thead> <tr> <th data-bbox="1018 836 1199 914">Period</th> <th data-bbox="1199 836 1394 914">Night Time Operation¹</th> <th data-bbox="1394 836 1822 914">Remark</th> </tr> </thead> <tbody> <tr> <td data-bbox="1018 914 1199 1101">25 - 26 Aug 2011</td> <td data-bbox="1199 914 1394 1101">From 01:10 to 07:00 (26 Aug)</td> <td data-bbox="1394 914 1822 1101">The Contractor received a verbal complaint in the morning (26 Aug 2011). The Contractor began to stop night time TBM operation. TBM was located about 22 m away from Mr. Cheung's house.</td> </tr> <tr> <td data-bbox="1018 1101 1199 1179">26 - 27 Aug 2011</td> <td data-bbox="1199 1101 1394 1179">-</td> <td data-bbox="1394 1101 1822 1179">No night time TBM operation</td> </tr> <tr> <td data-bbox="1018 1179 1199 1256">27 - 28 Aug 2011</td> <td data-bbox="1199 1179 1394 1256">-</td> <td data-bbox="1394 1179 1822 1256">No night time TBM operation</td> </tr> <tr> <td data-bbox="1018 1256 1199 1334">28 - 29 Aug 2011</td> <td data-bbox="1199 1256 1394 1334">-</td> <td data-bbox="1394 1256 1822 1334">No night time TBM operation</td> </tr> <tr> <td data-bbox="1018 1334 1199 1390">29 - 30 Aug 2011</td> <td data-bbox="1199 1334 1394 1390">-</td> <td data-bbox="1394 1334 1822 1390">No night time TBM operation</td> </tr> </tbody> </table>	Period	Night Time Operation ¹	Remark	25 - 26 Aug 2011	From 01:10 to 07:00 (26 Aug)	The Contractor received a verbal complaint in the morning (26 Aug 2011). The Contractor began to stop night time TBM operation. TBM was located about 22 m away from Mr. Cheung's house.	26 - 27 Aug 2011	-	No night time TBM operation	27 - 28 Aug 2011	-	No night time TBM operation	28 - 29 Aug 2011	-	No night time TBM operation	29 - 30 Aug 2011	-	No night time TBM operation	
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action			Status
					30 - 31 Aug 2011	-	No night time TBM operation	
					31 Aug - 01 Sep 2011	--	No night time TBM operation. TBM was located about 38 m away from Mr. Cheung's house.	
					01 - 02 Sep 2011	From 23:00 (01 Sep) to 04:50 (02 Sep)	The Contractor attempted to resume night time TBM operation on 01 Sep 2011. ET received a complaint via EPD in the morning (2 Sep 2011). The Contractor began to stop night time TBM operation on 02 Sep 2011.	
					02 - 03 Sep 2011	-	No night time TBM operation	
					03 - 04 Sep 2011	-	No night time TBM operation	
					04 - 05 Sep 2011	-	No night time TBM operation	
					05 - 06 Sep 2011	-	No night time TBM operation	
					06 - 07 Sep 2011	-	No night time TBM operation	
					07 - 08 Sep 2011	From 06:00 to 07:00 (08 Sep 2011)	TBM was located about 109 m away from Mr. Cheung's house. The Contractor attempted to resume TBM night time operation and no further complaint was received.	
					Remark: 1. "Night Time" refers to 23:00 to 07:00 of the following day. 3. <u>Conclusion / Proposed Action</u> Having reviewed the timing of the complaints and periods of TBM operation during the night time on 25 - 26 August 2011 and 1 - 2			

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>September 2011, it is believed that the complaints are related to the TBM operation during the night time. The Contractor has undertaken swift and appropriate action in response to Mr. Cheung's complaints. The night time operation of the TBM was restricted following the complaint. As the TBM continues to operate during the day time and moves further away from Mr. Cheung's house, the ground-borne noise nuisance upon Mr. Cheung gradually fades away. It is considered that the nuisance caused by TBM night time operation is then imperceptible from the complainant. No further complaint is received after 2 September 2011. As such, no further action is required.</p> <p>4. <u>Follow Up Action(s)</u></p> <p>For this complaint, the Contractor has implemented adequate mitigation measure (that is, restricting the TBM to operate during the day time only) for ground-borne noise control. The TBM has moved further away from Mr. Cheung's house and no further complaint is received after the Contractor resumed the TBM night time operation (08 September 2011). Thus, it is considered that the complaint is closed.</p>	
24	CIR-19	8 February 2012 at Intake-3 Construction Site	Mr. Cheng through SOR	SOR has received a public complaint regarding daytime construction noise from the Intake-3 construction site on 8 February 2012.	<p>1) <u>Findings / Observations</u></p> <p>Checking with the site log, construction activities conducted at I-3 in that morning was rock breaking by hydraulic breaker at the proposed access road. The Contractor and ET undertook site investigations on the subject area on 9 February 2012. The following noise mitigation measures were implemented during site investigations:</p> <p><u>Construction Noise Mitigation Measures (implemented prior to the complaint)</u></p> <ol style="list-style-type: none"> 1) Noise barrier on the top of vortex shaft was maintained; 2) Silent type breaker tip was utilized; and 3) Breaker tip was wrapped by acoustic insulating material. 	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status																								
					<p>2) <u>Conclusion / Proposed Action</u></p> <p>As there are no substantial noise sources at I-3 other than the project construction activities, it is considered that the noise complaint is project-related. In accordance with the Event / Action Plan for Construction Noise specified in the EM&A Manual, noise monitoring frequency at the squatters (NSR 6) near I-3 were increased to twice per week (from 10 February 2012 to 29 February 2012) due to this complaint. The measured noise levels ($L_{eq, 30 \text{ minutes}}$) are shown in the following table. The measured noise levels, ranged from 59.5 dB(A) to 68.1 dB(A), are well below the limit level (75 dB(A)) in accordance with the EIAO-TM. During the site investigations on 9 and 23 February 2012, the above noise mitigation measures were continuously implemented. No further noise complaint was received in February 2012. Thus, with the consideration of the noise measurement results and implementation of the above noise mitigation measures, the construction noise is considered acceptable. The Contractor will maintain the noise mitigation measures mentioned above to minimise noise nuisance.</p> <table border="1"> <thead> <tr> <th>Date</th> <th>Start Time</th> <th>End Time</th> <th>L_{eq}, dB(A)</th> <th>Limit Level, dB(A)</th> <th>Major Construction Noise Sources</th> </tr> </thead> <tbody> <tr> <td>7-Feb-2012</td> <td>13:28</td> <td>13:58</td> <td>60.2</td> <td>75</td> <td>Crane operation and rock breaking</td> </tr> <tr> <td>10-Feb-2012</td> <td>15:15</td> <td>15:45</td> <td>62.1</td> <td>75</td> <td>Crane operation and excavation works</td> </tr> <tr> <td>13-Feb-2012</td> <td>13:35</td> <td>14:05</td> <td>68.1</td> <td>75</td> <td>Crane operation and rock breaking</td> </tr> </tbody> </table>	Date	Start Time	End Time	L_{eq} , dB(A)	Limit Level, dB(A)	Major Construction Noise Sources	7-Feb-2012	13:28	13:58	60.2	75	Crane operation and rock breaking	10-Feb-2012	15:15	15:45	62.1	75	Crane operation and excavation works	13-Feb-2012	13:35	14:05	68.1	75	Crane operation and rock breaking	
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action						Status
					Date	Time	Time	LAeq	LAmax	Action	
					17-Feb-2012	16:20	16:50	60.2	75	Crane operation and excavation works	
					20-Feb-2012	13:33	14:03	66.4	75	Crane operation and rock breaking	
					23-Feb-2012	14:30	15:00	64.3	75	Crane operation and rock breaking	
					27-Feb-2012	11:10	11:40	63.4	75	Crane operation and rock breaking	
					29-Feb-2012	13:26	13:56	59.5	75	Crane operation and rock breaking	
					<p>Remark: The location of powered mechanical equipment (PME) will change occasionally and the utilization time for each PME may not be constant.</p> <p>Additional noise mitigation measures have been implemented at I-3 by the Contractor to further reduce the construction noise:</p> <ul style="list-style-type: none"> Noise barrier comprised of acoustic blankets installed close to the rock breaking area was erected on the site. <p>The Contractor have continuously applied all the above mentioned noise mitigation measures to minimise construction noise, as observed during the site investigation on 9 and 23 February 2012. No further construction noise complaint was received in February 2012. As such, it is considered that the noise mitigation measures implemented on site are adequate to minimise construction noise nuisance. The Contractor will maintain these measures on site for construction noise control.</p>						

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status																												
					<p>3) <u>FOLLOW UP ACTION(S)</u></p> <p>For this complaint, the Contractor has implemented adequate mitigation measures for construction noise control. As no further complaint is received in February 2012, it is considered that the complaint is closed. Nevertheless, the ET will continuously review the condition of the site during the routine site inspections, inspect proper functioning of the aforementioned construction noise mitigation measures, and provide advice to the Contractor to be vigilant and tailor mitigation measures in advance of future planned site work activities. This case will be reported as an action level exceedance on noise and also in the complaint log in the monthly EM&A Report (February 2012).</p>																													
25	CIR-20	10 August 2012 at Intake-3 Construction Site	Mr. Cheng through ICC	1823 Call Centre (ICC) received a verbal complaint regarding the deterioration of water quality at Tso Kung Tam due to the construction works at Intake 3 construction site on 10 August 2012.	<p>1) <u>Findings / Observations</u></p> <p>Routine water quality monitoring upstream (I-3-C) and downstream (I-3) of the construction site at Intake 3 has been carried out since the commencement of construction works. Monitoring was conducted on 8 August 2012 and 10 August 2012. The results, as presented in the following table, indicate full compliance of water quality at I-3 with the action / limit levels of the water quality monitoring programme.</p> <table border="1"> <thead> <tr> <th rowspan="2">Date</th> <th rowspan="2">Parameters</th> <th colspan="2">Stations</th> <th rowspan="2">Action Level</th> <th rowspan="2">Limit Level</th> <th rowspan="2">Exceedance</th> </tr> <tr> <th>Impact (I-3)</th> <th>Control (I-3-C)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">8 August 2012</td> <td>Water Temperature (°C)</td> <td>31.6</td> <td>31.7</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>pH</td> <td>7.91</td> <td>7.92</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Dissolved Oxygen (mg/L)</td> <td>6.89</td> <td>6.85</td> <td>3.65</td> <td>3.51</td> <td>No</td> </tr> </tbody> </table>	Date	Parameters	Stations		Action Level	Limit Level	Exceedance	Impact (I-3)	Control (I-3-C)	8 August 2012	Water Temperature (°C)	31.6	31.7	-	-	-	pH	7.91	7.92	-	-	-	Dissolved Oxygen (mg/L)	6.89	6.85	3.65	3.51	No	Closed
Date	Parameters	Stations		Action Level	Limit Level			Exceedance																										
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action							Status
						Turbidity (NTU)	2.21	2.25	3.99 NTU or 120% of upstream control station's turbidity	4.18 NTU or 130% of upstream control station's turbidity	No	
						Suspended Solids (SS) (mg/L)	< 2.00	< 2.00	6.13 mg/L or 120% of upstream control station's SS	7.23 mg/L or 130% of upstream control station's SS	No	
						Water Temperature (°C)	29.1	29.0	-	-	-	
						pH	7.90	7.90	-	-	-	
						Dissolved Oxygen (mg/L)	7.22	7.12	3.65	3.51	No	
					10 August 2012	Turbidity (NTU)	3.07	3.20	3.99 NTU or 120% of upstream control station's turbidity	4.18 NTU or 130% of upstream control station's turbidity	No	
						Suspended Solids (SS) (mg/L)	< 2.00	< 2.00	6.13 mg/L or 120% of upstream control station's SS	7.23 mg/L or 130% of upstream control station's SS	No	
<p>The following mitigation measures were implemented on-site during monitoring on 8 and 10 August 2012:</p> <p>(1) Wastewater was collected and diverted to waste water treatment plant prior to discharge; and</p> <p>(2) site area and existing stream were separated by sealed concrete block wall.</p>												

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<p>Clear flowing stream water was visually observed during the monitoring at I-3 on 10 August 2012. No significant water pollution source from the construction site was identified.</p> <p>2) <u>Conclusion / Proposed Action</u> Based on the site observation and the water quality monitoring data collected at I-3 and I-3-C on 8 and 10 August 2012, it is concluded that the construction works at I-3 did not generate unacceptable water quality impact at Tso Kung Tam. As such, the concerned complaint is not considered related to the construction works at Intake 3. No further action is, therefore, required.</p> <p>3) <u>FOLLOW UP ACTION(S)</u> Prior to the receipt of this complaint, the Contractor has already implemented adequate mitigation measures for construction effluent discharge. As no unacceptable water quality impact from the construction works was identified during the investigation, the complaint is considered as non-project related and is closed. Nevertheless, the ET will continuously monitor the water quality at Intake 3 under the current EM&A programme, review the condition of the site during the routine site inspections, and inspect proper functioning of the waste water treatment facilities.</p>	
26	CIR-21	5 September 2012 at Chung Kee Store at Lo Wai Road (NSR 3)	Through ICC	1823 Call Center (ICC) received a complaint (5 September 2012) regarding daytime construction noise nuisance generated by the power supply	<p>1) <u>Findings / Observations</u> Checking with the site log, an air compressor was located opposite to Chung Kee Store on 5 September 2012. As there was no other powered mechanical equipment located nearby and the construction was only undertaken during the daytime, it is considered that the complaint is about the noise nuisance generated from the air compressor during the daytime operation.</p>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status																		
				<p>machine opposite to Chung Kee Store at Lo Wai Road.</p>	<p>In response to the complaint, the Contractor has implemented the following measures:</p> <ul style="list-style-type: none"> The concerned air compressor (AC1) located opposite to Chung Kee Store near the Vortex Drop Shaft (VDS) entrance (as "L1" shown in the attached I-2 layout plan) was de-mobilised for maintenance on 7 September 2012 and replaced by another air compressor (AC2); A layer of acoustic sheet was installed next to AC2 at L1 to minimise the noise nuisance, as observed during the site investigation on 11 September 2012; A third air compressor (AC3) was mobilized on site and placed behind the sub-contractor's office container (as "L2" shown in the attached I-2 layout plan) that screened off the noise from AC3 and minimised potential noise nuisance to the public. AC3 had been operated for another stage of construction activities since 14 September 2012 (as observed during the site investigation on 20 September 2012); and AC2 at L1 had ceased operation since 14 September 2012 and was demobilised off-site on 18 September 2012. As observed during the site investigation on 20 September 2012, no air compressor or other mechanical equipment was located at L1. <p>Regular daytime construction noise monitoring is currently undertaken by the ET at NSR 3 (that is, Hong Hoi Chee Hong Temple) in accordance with the contract specific EM&A Manual. According to the Manual, the complaint was considered as an exceedance of action level of construction air-borne noise. Following the Event / Action Plan for air-borne noise in the Manual, the noise monitoring frequency at NSR 3 was increased from once to twice per week between 10 September and 26 September 2012. The noise measurement results (as $L_{eq(30-minute)}$) at NSR 3 in September 2012 were presented in the following table:</p> <table border="1"> <thead> <tr> <th>Date</th> <th>Start Time</th> <th>End Time</th> <th>L_{eq}, dB(A)</th> <th>Limit Level, dB(A)</th> <th>Dominant Noise Sources</th> </tr> </thead> <tbody> <tr> <td>4-Sep-12</td> <td>15:50</td> <td>16:20</td> <td>62.6</td> <td>75</td> <td>Drilling</td> </tr> <tr> <td>10-Sep-12</td> <td>14:05</td> <td>14:35</td> <td>62.2</td> <td>75</td> <td>Drilling and concrete work</td> </tr> </tbody> </table>	Date	Start Time	End Time	L_{eq} , dB(A)	Limit Level, dB(A)	Dominant Noise Sources	4-Sep-12	15:50	16:20	62.6	75	Drilling	10-Sep-12	14:05	14:35	62.2	75	Drilling and concrete work	
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Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action						Status
					14-Sep-12	11:00	11:30	64.1	75	Drilling	
					17-Sep-12	15:20	15:50	64.3	75	Drilling	
					20-Sep-12	14:02	14:32	64.8	75	Drilling and concrete work	
					24-Sep-12	13:20	13:50	63.7	75	Drilling and concrete work	
					26-Sep-12	16:00	16:30	64.6	75	Drilling and concrete work	
					<p>The measured noise levels, ranged from 62.2 dB(A) to 64.8 dB(A), are below the limit level (75 dB(A)) in accordance with the approved EIA Report and the Contract Specific EM&A Manual.</p> <p>2) <u>Conclusion / Proposed Action</u> With the consideration of the noise measurement results and implementation of the above noise mitigation measures, construction noise nuisance is considered minimised with no further complaint received. As the concerned air compressor has been demobilised and the air compressor currently deployed on site is screened by a site container to minimise construction noise nuisance to the public, no further action is considered necessary.</p> <p>3) <u>Follow Up Actions</u> As the noise source of complaint was removed from the site and no further complaint was received, it is considered that the complaint is closed. Nevertheless, the ET will continuously review the condition of the site during the routine site inspections, inspect proper functioning of the construction noise mitigation measures implemented on site, and provide advice to the Contractor to be vigilant and tailor mitigation measures in advance of future planned site work activities. This case will be reported as an action level exceedance on construction noise.</p>						
27	CIR-22	5 April 2013 at Outfall Basin	Through EPD	The incident was referred to the Contractor by EPD by phone on 5 April 2013 regarding	<p>1) <u>Findings / Observations</u> After throughout investigation (including checking the source of chemical containers, type of chemical, and existence of chemical containers left behind the tunnel, associated structures and intakes), it was considered</p>						Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				<p>chemical stain and containers observed at the Outfall Basin and on the sea in the vicinity. The ET was informed on 8 April 2013. As advised by the EPD, the incident was filed as a formal complaint on 9 April 2013.</p>	<p>that some used chemical containers, which contained residual chemical and were accidentally retained in the Man Access Adit at Intake I-2 (Lo Wai), were not properly stored and secured. The chemical was used for backfill grouting of the Adit Tunnel. According to the Contractor's record, the grouting was completed and all unused chemical containers were removed from the Adit Tunnel before the incident. Nevertheless, the used containers were mistakenly left inside on the site. When heavy rainfall occurred on 5 April 2013, the used chemical containers were flowed with the runoff along the Tunnel towards the Outfall. They were then stuck on the Outfall Basin by the rocks known as anti-pedestrian measure. Chemical stains were observed at the Outfall Basin and floating on the sea in the vicinity.</p> <p>In response to the event, the Contractor has implemented the following measures:</p> <ul style="list-style-type: none"> • Removed the chemical drums at the Outfall Basin in the afternoon of 5 April 2013; • Checked out any chemical drums left and retained in the Man Access Adit at Intake 2 on 6 April 2013 under safe weather condition; • Double checked the sea condition on 6 April 2013 and no more plume was found on the sea; • Inspected the tunnel and other intakes on 6 April 2013 and confirmed that there was no chemical container retained elsewhere within the Tunnel, associate structures and intakes; and • Conducted tool box talk to all site personnel in connection with tunnel works to remind them to check and remove any chemical or diesel containers or drums from the tunnel and all associated structures to prevent potential leakage right after the incident. <p>Site investigation at the Outfall Basin was undertaken by the ET on 9 April 2013. No containers and stain were observed on the Basin and no chemical plume was observed on the sea in the vicinity. The pre-event environmental condition of the site has been reinstated.</p> <p>2) <u>Conclusion / Proposed Action</u> Taking account of the corrective and preventive measures undertaken and</p>	

