

MTR Corporation Limited

**Shatin to Central Link –  
Tai Wai to Hung Hom Section and  
Mong Kok East to Hung Hom Section**

Monthly EM&A Report No. 35

[Period from 1 to 31 July 2015]

(August 2015)

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Verified by:                     Fredrick Leong                     

Position: Independent Environmental Checker

Date:                     13 Aug 2015

MTR Corporation Limited

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Certified by: Richard Kwan 

Position: Environmental Team Leader

Date: 13 August 2015



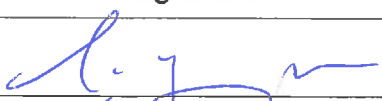

**MTR Corporation Limited**

Consultancy Agreements  
No. C11033 & C11033B

**Shatin to Central Link - Tai Wai to Hung  
Hom Section and Mong Kok East  
to Hung Hom Section**

**Monthly EM&A Report No. 35**

[Period from 1 to 31 July 2015]

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Version: A Date: 13 August 2015

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## Table of Contents

	Page
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 Background.....	1
1.2 Project Programme.....	1
1.3 Purpose of the Report.....	2
<b>2 ENVIRONMENTAL MONITORING AND AUDIT .....</b>	<b>2</b>
<b>3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>12</b>

### List of Tables

Table 1.1	Summary of Awarded Works Contracts
Table 2.1	Summary of Major Construction Activities in the Reporting Period
Table 2.2	Summary of 24-Hour TSP Monitoring Results in the Reporting Period
Table 2.3	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 2.4	Summary of Continuous Noise Monitoring Results in the Reporting Period
Table 2.5	Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month
Table 3.1	Summary of Status of Required Submissions for EP-438/2012/H
Table 3.2	Summary of Status of Required Submissions for EP-437/2012

### List of Appendices

Appendix A	35 <sup>th</sup> Monthly EM&A Report for Works Contract 1108A – Kai Tak Barging Point Facilities
Appendix B	35 <sup>th</sup> Monthly EM&A Report for Works Contract 1109 – Stations and Tunnels of Kowloon City Section
Appendix C	32 <sup>nd</sup> Monthly EM&A Report for Works Contract 1101 – Ma On Shan Line Modification Works
Appendix D	31 <sup>st</sup> Monthly EM&A Report for Works Contract 1111 – Hung Hom North Approach Tunnels
Appendix E	30 <sup>th</sup> Monthly EM&A Report for Works Contract 1103 – Hin Keng to Diamond Hill Tunnels
Appendix F	29 <sup>th</sup> Monthly EM&A Report for Works Contract 1106 – Diamond Hill Station
Appendix G	27 <sup>th</sup> Monthly EM&A Report for Works Contract 1107 – Diamond Hill to Kai Tak Tunnels
Appendix H	26 <sup>th</sup> Monthly EM&A Report for Works Contract 1112 – Hung Hom Station and Stabling Sidings
Appendix I	26 <sup>th</sup> Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels
Appendix J	22 <sup>nd</sup> Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures

## 1 INTRODUCTION

### 1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] and Shatin to Central Link – Mong Kok East to Hung Hom Section [SCL (MKK-HUH) (hereafter referred to as “the Project”) are parts of the SCL. Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings option for SCL (TAW – HUH) at the former freight yard in Hung Hom.
- 1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012), SCL (MKK-HUH) (Register No.: AEIAR-165/2012) and SCL (HHS) (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS) (EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/H) was issued by Director of Environmental Protection (DEP) on 10 September 2014.

### 1.2 Project Programme

- 1.2.1 Ten civil construction works contracts of the Project have been awarded since July 2012. The construction of the Project commenced in September 2012 and is expected to complete in 2019 tentatively. **Table 1.1** summarises the information of the awarded Works Contracts.

**Table 1.1 Summary of Awarded Works Contracts**

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1101	Ma On Shan Line Modification Works <sup>(1)</sup>	December 2012	Sun Fook Kong Joint Venture (SFKJV)	ANewR Consulting Ltd. (ANewR)
1102	Hin Keng Station and Approach Structures	October 2013	Penta-Ocean Construction Co. Ltd.	Cinotech Consultants Ltd. (Cinotech)
1103	Hin Keng to Diamond Hill Tunnels	February 2013	Vinci Construction Grands Projets	Ove Arup & Partners Hong Kong Ltd.
1106	Diamond Hill Station	March 2013	Sembawang – Leader Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1107	Diamond Hill to Kai Tak Tunnels	May 2013	Chun Wo - SELI Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1108	Kai Tak Station and Associated Tunnels	June 2013	Kaden -Chun Wo Joint Venture	Environmental Pioneers & Solutions Ltd.
1108A	Kai Tak Barging Point Facilities	September 2012	Concentric – Hong Kong River Joint Venture (CCL-HKR JV)	Cinotech Consultants Ltd. (Cinotech)

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1109	Stations and Tunnels of Kowloon City Section	September 2012	Samsung-Hsin Chong JV (SSHCV)	ERM-Hong Kong Limited (ERM)
1111	Hung Hom North Approach Tunnels	January 2013	Gammon-Kaden SCL1111 JV	AECOM Asia Co. Ltd.
1112	Hung Hom Station and Stabling Sidings	June 2013	Leighton Contractors (Asia) Limited	SMEC Asia Ltd., HK

Note:

- (1) Only the EM&A works for works areas at Tai Wai Mei Tin Road and the offsite temporary storage areas are included in this Report.

### 1.3 Purpose of the Report

- 1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in September 2012. This is the thirty-fifth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 July 2015.

## 2 ENVIRONMENTAL MONITORING AND AUDIT

- 2.1.1 The construction of SCL has been divided into different civil construction works contracts which are covered by EP No. EP-437/2012 and/or EP-438/2012/H. As per the EP Conditions, EM&A Reports for the works contracts as shown in the table below have been prepared by the respective Contractor's ETs.

Works Contract	Contract Title	Works Covered in Environmental Permit No.
1101	Ma On Shan Modification Works	EP-438/2012/H
1102	Hin Keng Station and Approach Structures	EP-438/2012/H
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/H
1106	Diamond Hill Station	EP-438/2012/H
1107	Diamond Hill to Kai Tak Tunnels	EP-438/2012/H
1108	Kai Tak Station and Associated Tunnels	EP-438/2012/H
1108A	Kai Tak Barging Point Facilities	EP-438/2012/H
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/H
1111	Hung Hom North Approach Tunnels	EP-437/2012 & EP-438/2012/H
1112	Hung Hom Station and Stabling Sidings	EP-437/2012 & EP-438/2012/H

- 2.1.2 The EM&A Reports for Works Contracts 1108A, 1109, 1101, 1111, 1103, 1106, 1107, 1112, 1108 and 1102 prepared by the respective Contractor's ETs are provided in **Appendices A to J**, respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- 2.1.3 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in **Table 2.1**.

**Table 2.1 Summary of Major Construction Activities in the Reporting Period**

<b>Works Contract</b>	<b>Site</b>	<b>Construction Activities</b>
1101 <sup>(1)</sup>	Tai Wai Mei Tin Road	<ul style="list-style-type: none"> <li>All the construction activities were completed in September 2013.</li> </ul>
1102	Hin Keng Station and Approach Structures	<ul style="list-style-type: none"> <li>Slope improvement works;</li> <li>Pumping test;</li> <li>ELS structure installation at at-grade box;</li> <li>Pier and pile cap construction of viaduct;</li> <li>Steel structure and ABWF works at Hin Keng Station; and</li> <li>Modification of retaining wall and installation of noise barrier.</li> </ul>
1103	Diamond Hill Area	<ul style="list-style-type: none"> <li>Tunnel Boring Machine (TBM) tunneling and machinery site assembly.</li> </ul>
	Hin Keng Area	<ul style="list-style-type: none"> <li>Pipe piling, grouting and tunnel blasting.</li> </ul>
	Fung Tak Area	<ul style="list-style-type: none"> <li>Shaft excavation and ELS and sheet piling for retaining wall.</li> </ul>
	Ma Chai Hang Area	<ul style="list-style-type: none"> <li>Shaft Excavation and ELS.</li> </ul>
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> <li>Construction of slabs/beams, columns and walls at SCL-DIH station area, Interchange Adit, West Unpaid Link Adit and Entrance A1;</li> <li>Concreting works; and</li> <li>Preparation of piling works and pre-drilling works.</li> </ul>
1107	Tunnel section next to Kai Tak Station	<ul style="list-style-type: none"> <li>Tunnel construction at cut and cover tunnels;</li> <li>Backfilling works at cut and cover tunnels;</li> <li>TBM excavation; and</li> <li>Reprovision of box culvert.</li> </ul>
1108	Kai Tak Station	<ul style="list-style-type: none"> <li>Open Cut Tunnel: sump pit cast concrete, staircase corridor roof cast concrete</li> <li>Cut and Cover Tunnel: Defect rectification, temporary drainage system maintenance and monitoring</li> <li>Package 4.5: Sheetpile extraction, excavation, base slab cast, wall and roof construction,</li> <li>Station structure: North vent shaft, ground slab concreting, wall concreting, lower ground slab concreting, water proofing,</li> <li>Launching Shaft: Tunnel mining, excavation, rebar fixing, strut installation</li> <li>Receiving Shaft: Base slab cast concrete, base slab formwork erection, concrete props at cast concrete, tunnel mining</li> </ul>
1108A	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> <li>Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.</li> <li>Temporary stockpiling of received spoil in the Barging Point Facilities.</li> <li>Marine transportation of received spoil to receptor sites for beneficial reuse.</li> </ul>
1109	Ma Tau Wai (MTW) Works Area	<ul style="list-style-type: none"> <li>TKW/MTW Road Garden – Operation of bentonite plant and EEP construction; and</li> <li>Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, trial pits for</li> </ul>

Works Contract	Site	Construction Activities
		location of utilities and station excavation.
	To Kwa Wan (TKW) Works Area	<ul style="list-style-type: none"> <li>• Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;</li> <li>• TKW Station – Pump installation, open cut excavation, and tunnelling works;</li> <li>• Tam Kung Road – Shaft construction; and</li> <li>• Nam Kok Road – Installation of pipe pile.</li> </ul>
	Mong Kok Freight Terminal <sup>(1)</sup>	<ul style="list-style-type: none"> <li>• All the construction activities were completed in May 2015.</li> </ul>
1111	Hung Hom Area	<ul style="list-style-type: none"> <li>• Excavation work, site clearance, slope work, cable detection, excavation lateral support, form work erection, reinforcement fixing,</li> <li>• Construction of drainage and man hole, foul water diversion</li> <li>• Trial pit, trial trench, pre-drilling, piling works, pre-grouting, grouting, post-grouting, pre-spilt, backfilling, abutment works,</li> <li>• Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary link walkway, temporary working platform, abandoned utilities, utilities protection,</li> <li>• Tie back installation, lifting works, construction of noise enclosure footing, decking installation, installation of temporary support for OB2, modification work for OB2,</li> <li>• Dismantling of scaffolding, pumping test,</li> <li>• Architectural Builders Works and Finishes (ABWF) &amp; Electrical and Mechanical (E&amp;M) works.</li> </ul>
1112	Hong Hom (HUH and HHS) Works Area	<ul style="list-style-type: none"> <li>• Piling for HUH, NAT, HHS and SAT</li> <li>• Diaphragm wall construction at HUH</li> <li>• Initial excavation at HUH and HHS</li> <li>• Barging point operation at Hung Hom Freight Pier</li> <li>• Operation of Material Receiving Hopper at Hung Hom Freight Pier</li> <li>• Marine transportation and disposal of spoil to designated dumping ground(s)</li> <li>• Underpinning works at HUH</li> </ul>

Note:

(1) Construction works were completed.

2.1.4 Impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual in the reporting period. Under Works Contract 1109, continuous noise monitoring was conducted according to the Continuous Noise Monitoring Plan (CNMP) in the reporting period. The air quality, construction noise and continuous noise monitoring results for this reporting month are summarised in **Tables 2.2 to 2.4**. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the EM&A Reports as provided in **Appendices A to J**.

2.1.5 Water quality monitoring was not carried out during this reporting period since no dredging activity was conducted in the reporting month.

- 2.1.6 Under Works Contract 1109, exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 2 to 4 and 6 to 8 July 2015.
- 2.1.7 Under Works Contracts 1103 and 1106, one public complaint was received on 21 July 2015 regarding construction noise impact during restricted hours including Sundays near Diamond Hill Station. Investigations had been carried out as per EM&A programme.
- 2.1.8 No notification of summons, and successful prosecutions were received in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions are provided in **Table 2.5**.
- 2.1.9 Regular site inspections were conducted by the respective Contractor's ETs on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

**Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period**

Monitoring Station ID	Location	TSP Concentration ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )	Exceedance due to the Project Construction (Yes/No)
<b>Works Contract 1101</b> <sup>(5)</sup>					
<b>Works Contract 1102 and 1103</b>					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	26.5 – 44.6	148.7	260	No
<b>Works Contract 1103</b>					
DMS-2	Price Memorial Catholic Primary School	7.5 – 27.4	167.4	260	No
<b>Works Contracts 1103 and 1106</b>					
DMS-3	Hong Kong S.K.H Nursing Home <sup>(1)</sup>	6.8 – 19.8	159.1	260	No
<b>Works Contract 1106 and 1107</b>					
DMS-4	Block 1, Rhythm Garden	12.8 – 62.1	160.4	260	No
<b>Works Contract 1108</b> <sup>(5)</sup>					
<b>Works Contract 1108A</b> <sup>(5)</sup>					
<b>Works Contract 1109</b>					
DMS-6	Katherine Building <sup>(2)</sup>	58 – 67	156.8	260	No
DMS-7	Parc 22 <sup>(3)</sup>	(10)	166.7	260	(10)
DMS-8	SKH Good Shepherd Primary School	56 – 73	152.2	260	No
DMS-9	No. 12 Pau Chung Street <sup>(4)(9)</sup>	62 – 69	160.9	260	No
DMS-10	Chat Ma Mansion	57 – 70	170.4	260	No
<b>Works Contract 1111</b>					
AM1 <sup>(6)</sup>	No. 234 – 238 Chatham Road North <sup>(7)</sup>	27.7 – 64.6	183.9	260	No
<b>Works Contract 1112</b>					
AM2	Site Boundary of Finger Pier Adjacent To Harbourfront Horizon <sup>(8)</sup>	17.7 – 61.0	182	260	No

Note:

- (1) Alternative monitoring location to Shek On House
- (2) Alternative monitoring location to Prosperity House
- (3) Alternative monitoring location to Skytower Tower 2
- (4) Alternative monitoring location to Lucky Building
- (5) No TSP monitoring is required under this contract
- (6) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Alternative monitoring location to Wing Fung Building
- (8) Alternative monitoring location to Harbourfront Horizon
- (9) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road (alternative location of Lucky Building) has been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring was resumed on 12 June 2014.
- (10) 24-hour averaged dust monitoring at DMS-7 Parc-22 has been temporary suspended since July 2015 due to request from the management office.



**Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period**

Monitoring Station ID	Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected <sup>(7)</sup>		
<b>Works Contract 1101</b> <sup>(6)</sup>						
<b>Works Contract 1102 and 1103</b>						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	57.4 – 59.0	57.0	= Baseline – 54.7	70 (65 during examination period)	No
<b>Works Contract 1103</b>						
NMS-CA-2	Price Memorial Catholic Primary School	65.7 – 66.9	66.0	< Baseline – 59.6	70 (65 during examination period)	No
<b>Works Contracts 1103 and 1106</b>						
NMS-CA-3	Hong Kong S.K.H Nursing Home <sup>(1)</sup>	70.4 – 71.4	73.0	< Baseline	70	No
<b>Works Contract 1106 and 1107</b>						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	69.4 – 72.6	71.0	< Baseline – 67.5	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) <sup>(2)</sup>	65.3 – 72.2	74.0	< Baseline	70 (65 during examination period)	No
<b>Works Contract 1108</b> <sup>(6)</sup>						
<b>Works Contract 1108A</b> <sup>(6)</sup>						
<b>Works Contract 1109</b>						
NMS-CA-6	No. 16-23 Nam Kok Road <sup>(3)</sup>	63.8 – 64.0	76.1	< Baseline	75	No
NMS-CA-7	Skytower Tower 2	65.6 – 66.1	70.0	< Baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	73.3 – 75.0	75.4	< Baseline	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) <sup>(8)</sup>	No
NMS-CA-9	Kong Yiu Mansion <sup>(4)</sup>	72.7 – 74.1	69.2	70.1 – 72.4	75	No
NMS-CA-10	Chat Ma Mansion	76.2 – 77.0	76.6	< Baseline – 66.4	75	No
<b>Works Contract 1111</b>						

Monitoring Station ID	Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected <sup>(7)</sup>		
NM1	Carmel Secondary School (South Block)	63.4 – 68.1	68.0	< Baseline – 51.7	70 (65 during examination period) (68 during the period of conducting the continuous noise monitoring) <sup>(9)</sup>	No
NM2	No. 234 – 238 Chatham Road North <sup>(5)</sup>	69.2 – 73.3	79.0	< Baseline	75 (77) <sup>(10)</sup>	No
<b>Works Contract 1112</b> <sup>(6)</sup>						

Note:

- (1) Alternative monitoring location to Shek On House.
- (2) Alternative monitoring location to Canossa Primary School (San Po Kong).
- (3) Alternative monitoring location to Prosperity House.
- (4) Alternative monitoring location to Lucky Building.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) No construction noise monitoring is required under this contract.
- (7) The measured noise levels are corrected against the corresponding baseline noise levels.
- (8) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.
- (9) The Limit of 68 dB(A) was updated on 20 Jan 2014 as per the latest CNMMP and CNMP which were approved by EPD.
- (10) Daytime noise Limit Level of 77 dB(A) applies during the continuous noise monitoring period.

**Table 2.4 Summary of Continuous Noise Monitoring Results in the Reporting Period**

NSR ID	NSR Description	Continuous Noise Monitoring Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Action/Limit Level <sup>(3)</sup> dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected <sup>(2)</sup>		
<b>Works Contract 1101<sup>(1)</sup></b>							
<b>Works Contract 1102<sup>(1)</sup></b>							
<b>Works Contract 1103</b>							
TAW-6-7	C.U.H.K.A.A. Thomas Cheung School	TAW-6-7 (C.U.H.K.A.A. Thomas Cheung School)	(4)	(4)	(4)	66 <sup>(7)</sup>	(4)
<b>Works Contract 1103 &amp; 1106</b>							
DIH-9-1 <sup>(1)</sup>	Shek On Building	N/A	N/A	N/A	N/A	N/A	N/A
DIH-13-1 <sup>(1)</sup>	Canossa Primary School	N/A	N/A	N/A	N/A	N/A	N/A
<b>Works Contract 1106 &amp; 1107</b>							
DIH-14-1 <sup>(1)</sup>	Rhythm Garden Block 2	N/A	N/A	N/A	N/A	N/A	N/A
DIH-14-5 <sup>(1)</sup>	Rhythm Garden Block 1	N/A	N/A	N/A	N/A	N/A	N/A
<b>Works Contract 1103, 1106 &amp; 1107</b>							
DIH-14-4 <sup>(1)</sup>	Canossa Primary School (San Po Kong)	N/A	N/A	N/A	N/A	N/A	N/A
<b>Works Contract 1108<sup>(1)</sup></b>							
<b>Works Contract 1108A<sup>(1)</sup></b>							
<b>Works Contract 1109</b>							
TKW-1-1 <sup>(1)</sup>	Parc 22	N/A	N/A	N/A	N/A	N/A	N/A
TKW-2-2 <sup>(1)</sup>	Skytower Tower 2	N/A	N/A	N/A	N/A	N/A	N/A
TKW-3-2	Prosperity House	TKW-3-2(B) (Hing Fu Building)	(4)	(4)	(4)	80	(4)
MTW-12-3	Lucky Mansion	MTW-12-3(A) (SKH Good Shepherd Primary School)	(4)	(4)	(4)	80	(4)
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	MTW-12-4(A) (Kong Yiu Mansion)	(4)	(4)	(4)	80	(4)
MTW-12-4-1	352-354 Ma Tau Wai Rd (North Facade)	MTW-12-4-1(A) (59 Maidstone Road)	(4)	(4)	(4)	82	(4)
MTW-12-10	Lucky Building	MTW-12-10 (Lucky Building)	(4)	(4)	(4)	84	(4)

NSR ID	NSR Description	Continuous Noise Monitoring Location	Noise Level (L <sub>Aeq,30mins</sub> , dB(A))			Action/Limit Level <sup>(3)</sup> dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected <sup>(2)</sup>		
	(South Facade)	(South Façade))					
MTW-12-10-1	Lucky Building (East Facade)	MTW-12-10-1 (Lucky Building (East Façade))	(4)	(4)	(4)	80	(4)
MTW-12-11	Jing Ming Building	MTW-12-11(A) (SKH Good Shepherd Primary School)	(4)	(4)	(4)	81	(4)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 (SKH Good Shepherd Primary School)	70.2 – 90.7	75.4	< Baseline – 90.5	79	Yes
MTW-18-2 <sup>(8)</sup>	No. 2 Kowloon City Road	N/A	N/A	N/A	N/A	N/A	N/A
HOM-2-1--A <sup>(1)</sup>	Faerie Court (East Façade)	N/A	N/A	N/A	N/A	N/A	N/A
<b>Works Contract 1111</b>							
OM4a	Carmel Secondary School (South Block)	NM1 (Carmel Secondary School (South Block))	(4)	(4)	(4)	68 <sup>(7)</sup>	(4)
HH2 <sup>(6)</sup>	Wing Fung Building	NM2 (No. 234-238 Chatham Road North <sup>(5)</sup> )	(4)	(4)	(4)	77	(4)
<b>Works Contract 1112 <sup>(1)</sup></b>							

Note:

- (1) No continuous noise monitoring is required under this contract.
  - (2) Measured noise level (above the baseline noise level) was corrected against the corresponding baseline level.
  - (3) Reference to the predicted maximum noise level as contained in the corresponding CNMMP.
  - (4) According to the CNMMP and CNMP, continuous noise monitoring is not required during this reporting month.
  - (5) Alternative monitoring location to Wing Fung Building.
  - (6) HH2 named as HUH-1-3 in SCL (TAW-HUH) and SCL(HHS) EIA Reports.
  - (7) Action/Limit level will only be applicable during the examination period.
  - (8) The building at MTW-18-2 has been demolished. During the period of residual noise impact exceeding criteria predicted in the corresponding CNMMP, there will be no NSR occupied at this location. It is therefore not necessary carry out continuous noise monitoring at this location.
  - (9) Investigations for some exceedances are being conducted and detail investigation results will be provided in next reporting month.
- N/A Not applicable

**Table 2.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month**

<b>Works Contract</b>	<b>Environmental Complaints</b>	<b>Notification of Summons</b>	<b>Successful Prosecutions</b>
1101	0	0	0
1102	0	0	0
1103	1 <sup>(1)</sup>	0	0
1106		0	0
1107	0	0	0
1108	0	0	0
1108A	0	0	0
1109	0	0	0
1111	0	0	0
1112	0	0	0

Note:

- (1) The complaint case under Works Contracts 1103 and 1106 referred to the same complaints as referred by the EPD.

### 3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Reports, EM&A Manuals and EP (EP-438/2012/H and EP-437/2012). The status of required submissions under the EPs as of the reporting period are summarised in **Tables 3.1** and **3.2**.

**Table 3.1 Summary of Status of Required Submissions for EP-438/2012/H**

EP Condition (EP-438/2012/H)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	1 Aug 2012
Condition 2.3	Notification of Information of Community Liaison Groups	13 Jul 2012 (1 <sup>st</sup> submission) 31 Aug 2012 (2 <sup>nd</sup> submission) 30 Nov 2012 (3 <sup>rd</sup> submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1 <sup>st</sup> submission) 21 Aug 2012 (2 <sup>nd</sup> submission) 19 Dec 2012 (3 <sup>rd</sup> submission) 22 Jan 2013 (4 <sup>th</sup> submission) 30 Apr 2013 (5 <sup>th</sup> submission) 21 May 2013 (6 <sup>th</sup> submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1 <sup>st</sup> submission) 28 Sep 2012 (2 <sup>nd</sup> submission) 30 Nov 2012 (3 <sup>rd</sup> submission) 11 Jan 2013 (4 <sup>th</sup> submission) 8 Feb 2013 (Approved) 8 Feb 2013 (5 <sup>th</sup> submission) 26 Apr 2013 (6 <sup>th</sup> submission) 11 Jun 2013 (7 <sup>th</sup> submission) 12 July 2013 (Approved) 26 July 2013 (8 <sup>th</sup> submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 <sup>th</sup> submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 <sup>th</sup> submission) 26 Feb 2014 (Approved) 31 Mar 2015 (Contract 1106 submission only) 13 Apr 2015 (Contract 1106 submission only) 15 Apr 2015 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1 <sup>st</sup> submission) 28 Sep 2012 (2 <sup>nd</sup> submission) 30 Nov 2012 (3 <sup>rd</sup> submission) 11 Jan 2013 (4 <sup>th</sup> submission) 8 Feb 2013 (Approved) 8 Feb 2013 (5 <sup>th</sup> submission) 26 Apr 2013 (6 <sup>th</sup> submission) 11 Jun 2013 (7 <sup>th</sup> submission) 12 July 2013 (Approved) 26 July 2013 (8 <sup>th</sup> submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 <sup>th</sup> submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 <sup>th</sup> submission) 26 Feb 2014 (Approved) 7 Oct 2014 (11 <sup>th</sup> submission) 23 Oct 2014 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 <sup>st</sup> submission) 12 Sep 2012 (2 <sup>nd</sup> submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st submission)

EP Condition (EP-438/2012/H)	Submission	Submission date
		12 Sep 2012 (2 <sup>nd</sup> submission) 5 Oct 2012 (3 <sup>rd</sup> submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4 <sup>th</sup> submission) 9 May 2013 (5 <sup>th</sup> submission) 24 July 2013 (6 <sup>th</sup> submission) 26 July 2013 (Approved)
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1 <sup>st</sup> submission) 30 Aug 2012 (2 <sup>nd</sup> submission) 3 Oct 2012 (3 <sup>rd</sup> submission) 13 Nov 2012 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4 <sup>th</sup> submission) 8 Feb 2013 (5 <sup>th</sup> submission) 18 Mar 2013 (6 <sup>th</sup> submission) 18 June 2013 (7 <sup>th</sup> submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1 <sup>st</sup> submission) 5 Oct 2012 (2 <sup>nd</sup> submission) 26 Nov 2012 (3 <sup>rd</sup> submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1 <sup>st</sup> submission) 18 Mar 2013 (2 <sup>nd</sup> submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1 <sup>st</sup> submission) 3 Sep 2012 (2 <sup>nd</sup> submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3 <sup>rd</sup> submission) 1 Nov 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1 <sup>st</sup> submission) 19 Mar 2013 (2 <sup>nd</sup> submission) 8 Apr 2013 (Approved)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)
Condition 3.3	Baseline Monitoring Report (Works Contract 1109 - Stations and Tunnels of Kowloon City Section )	27 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contract 1108A – Kai Tak Barging Point Facilities)	31 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Reports No. 1 - 33 Monthly EM&A Report No. 34	Reported in previous Monthly EM&A Reports 14 Jul 2015

**Table 3.2 Summary of Status of Required Submissions for EP-437/2012**

<b>EP Condition (EP-437/2012)</b>	<b>Submission</b>	<b>Submission date</b>
Condition 1.11	Notification of Commencement Date of Construction of the Project	30 Nov 2012
Condition 2.3	Notification of Information of Community Liaison Groups	30 Nov 2012
Condition 2.5	Management Organisation of Main Construction Companies	19 Dec 2012 (1 <sup>st</sup> submission) 30 Apr 2013 (2 <sup>nd</sup> submission)
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	30 Nov 2012 (1 <sup>st</sup> submission) 8 Feb 2013 (Approved ) 26 Apr 2013 (2 <sup>nd</sup> submission) 11 Jun 2013 (3 <sup>rd</sup> submission) 27 Aug 2013 (Approved) 20 Jan 2014 (4 <sup>th</sup> submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1 <sup>st</sup> submission) 11 Jan 2013 (2 <sup>nd</sup> submission) 8 Feb 2013 (Approved) 20 Jan 2014 (3 <sup>rd</sup> submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 <sup>st</sup> submission) 12 Sep 2012 (2 <sup>nd</sup> submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1 <sup>st</sup> submission) 12 Sep 2012 (2 <sup>nd</sup> submission) 5 Oct 2012 (3 <sup>rd</sup> submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan (VLTP)	14 Nov 2012 (1 <sup>st</sup> submission) 8 Feb 2013 (2 <sup>nd</sup> submission) 4 Feb 2015 (3 <sup>rd</sup> submission) 26 Jun 2015 (4 <sup>th</sup> submission)
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Reports No. 5 - 33 Monthly EM&A Report No. 34	Reported in previous Monthly EM&A Reports 14 Jul 2015



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**Appendix A**

**35<sup>th</sup> EM&A Report for Works Contract 1108A –  
Kai Tak Barging Point Facilities**

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MTR Corporation Limited

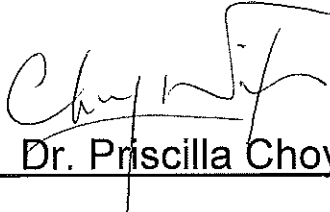
**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.35

[Period from 1 to 31 July 2015]

Works Contract 1108A – Kai Tak Barging Point  
Facilities

(July 2015)

Certified by:   
Dr. Priscilla Choy

Position: Environmental Team Leader

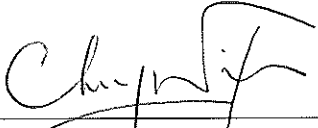
Date: 10<sup>th</sup> August 2015

**Concentric – Hong Kong River Joint Venture**

**Shatin to Central Link –  
Contract 1108A  
Kai Tak Barging Point Facilities**

**Monthly Environmental  
Monitoring and Audit Report  
for July 2015**

(Version 1.0)

Certified By   
(Contractor's Environmental Team Leader)

REMARKS:

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

CINOTECH accepts no responsibility for changes made to this report by third parties.

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## TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Introduction .....	1
Summary of Site Activities undertaken during Reporting Month.....	1
Environmental Monitoring and Audit Progress.....	1
Water Quality .....	1
Waste Management .....	1
Environmental Site Inspection .....	1
Ecology/Landscape and Visual .....	1
Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution.....	1
Future Key Issues .....	2
<b>1 INTRODUCTION .....</b>	<b>3</b>
Purpose of the report .....	3
Structure of the report.....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
Background .....	4
General Site Description.....	4
Construction Programme and Activities.....	4
Project Organisation .....	4
Status of Environmental Licences, Notification and Permits.....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS.....</b>	<b>8</b>
Water Quality Monitoring .....	8
Cultural Heritage .....	10
Landscape and Visual.....	11
Ecology.....	11
<b>4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>12</b>
<b>5 MONITORING RESULTS.....</b>	<b>13</b>
Water Quality .....	13
Waste Management .....	13
Landscape and Visual.....	13
Ecology.....	13
<b>6 ENVIRONMENTAL SITE INSPECTION .....</b>	<b>14</b>
Site Audits .....	14
Implementation Status of Environmental Mitigation Measures .....	14
<b>7 ENVIRONMENTAL NON-CONFORMANCE .....</b>	<b>17</b>
Summary of Exceedances.....	17
Summary of Environmental Non-Compliance .....	17
Summary of Environmental Complaint.....	17
Summary of Environmental Summon and Successful Prosecution .....	17
<b>8 FUTURE KEY ISSUES.....</b>	<b>18</b>
Key Issues in the Coming Month .....	18
Site Activities for the Next Month .....	18
<b>9 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>19</b>
Conclusions .....	19
Recommendations .....	19

## **LIST OF TABLES**

Table I	Summary Table for Events Recorded in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 2.1	Key Contacts of the Project
Table 2.2	Status of Environmental Licences, Notification and Permits
Table 3.1	Water Quality Monitoring Stations
Table 3.2	Water Quality Impact Monitoring Programme
Table 3.3	Laboratory analysis for SS
Table 4.1	Status of Required Submissions under EP
Table 5.1	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

## **LIST OF FIGURES**

Figure 1	Site Layout Plan
Figure 2	Locations of Water Quality Monitoring Stations

## **LIST OF APPENDICES**

Appendix A	Action and Limit Levels
Appendix B	Summary of Exceedance
Appendix C	Site Audit Summary
Appendix D	Event and Action Plans
Appendix E	Updated Environmental Mitigation Implementation Schedule
Appendix F	Waste Generation in the Reporting Month
Appendix G	Complaint Log
Appendix H	Tentative Construction Programme

## EXECUTIVE SUMMARY

### Introduction

1. This is the 35<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Contract no. 1108A “Shatin to Central Link - Kai Tak Barging Point Facilities”. This report documents the findings of EM&A Works conducted in July 2015.

### Summary of Site Activities undertaken during Reporting Month

2. The major site activities undertaken in the reporting month included:
  - Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
  - Temporary stockpiling of received spoil in the Barging Point Facilities.
  - Marine transportation of received spoil to receptor sites for beneficial reuse.

### Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:
  - Water Quality Monitoring at each monitoring station.....Nil
  - Environmental Site Inspection.....5 times

### Water Quality

4. No water quality monitoring was carried out as no dredging activity was conducted during the reporting month.

### Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. No inert C&D materials and non-inert C&D materials were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials.

### Environmental Site Inspection

6. A monthly joint environmental site inspection was carried out by the representatives of the Contractor, the IEC and the ET. Details of the audit findings and implementation status are presented in Section 6.

### Ecology/Landscape and Visual

7. Details of the audit findings and implementation status on Ecology/Landscape and Visual are presented in Section 6.

### Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

8. Summary of the events and action taken and key information in the reporting month is tabulated in **Table I** and **Table II** respectively.

**Table I Summary Table for Events Recorded in the Reporting Month**

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
Water Quality Monitoring	N/A	N/A	N/A

**Table II Summary Table for Key Information in the Reporting Month**

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Notifications of any summons & prosecutions	0	---	N/A	N/A	---

**Future Key Issues**

9. Major site activities for the coming reporting month will include:

- Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
- Temporary stockpiling of received spoil in the Barging Point Facilities.
- Marine transportation of received spoil to receptor sites for beneficial reuse.

## 1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Concentric – Hong Kong River JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link Works Contract 1108A – Kai Tak Barging Point Facilities (hereafter referred to the Project).

### **Purpose of the report**

- 1.2 This is the 35<sup>th</sup> EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 July to 31 July 2015.

### **Structure of the report**

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Protection Requirements** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**



## 2 PROJECT INFORMATION

### Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. In addition to the temporary work site in the vicinity of the tunnel and station structures, there are some off-site temporary works sites/areas to facilitate the construction process. This Works Contract 1108A is one of the off-site temporary works sites covers the construction and operation of barging facilities.

### General Site Description

- 2.3 The site layout plan is presented in **Figure 1**.

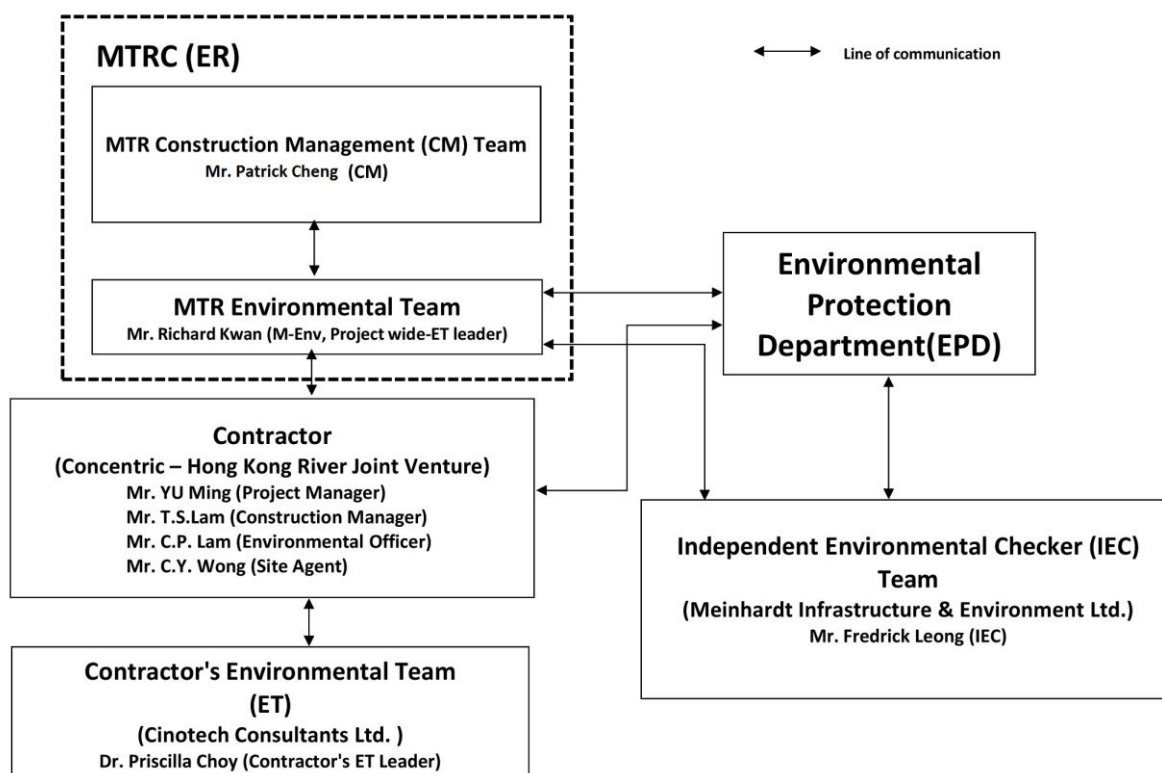
### Construction Programme and Activities

- 2.4 A summary of the major site activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix H**.
- Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
  - Temporary stockpiling of received spoil in the Barging Point Facilities.
  - Marine transportation of received spoil to receptor sites for beneficial reuse.

### Project Organisation

- 2.5 Different parties with different levels of involvement in the project organization include:
- Engineer or Engineer's Representative (ER) – MTR Corporation (MTRC)
  - Contractor's Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)
  - Independent Environmental Checker (IEC) – Meinhardt Infrastructure & Environment Ltd. (Meinhardt)
  - Contractor – Concentric – Hong Kong River Joint Venture (CCL-HKR JV)
- 2.6 The responsibilities of respective parties are detailed in Section 3 of the SCL (TAW-HUH) EM&A Manual.

2.7 The project organisation chart is shown as follows:



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

**Table 2.1 Key Contacts of the Project**

Party	Role	Name	Position	Phone No.	Fax No.
MTRC	ER	Mr. Patrick CHENG	Construction Manager	3507 6889	2334 0323
	Environmental Team	Mr. Richard KWAN	SCL Project Environmental Team Leader	2688 1283	2993 7577
Cinotech	Contractor's Environmental Team	Dr. Priscilla CHOY	Contractor's ET Leader	2151 2089	3107 1388
		Ms. Ivy TAM	Project Coordinator and Audit Team Leader	2151 2090	
Meinhardt	Independent Environmental Checker	Mr. Fredrick LEONG	Independent Environmental Checker	2858 0738	2540 1580
CCL-HKR JV	Contractor	Mr. T.S. LAM	Construction Manager	9655 5486	2398 8301
		Mr. C.P. LAM	Environmental Officer	9212 9417	
		Mr. C.Y. WONG	Site Agent	9199 3188	

**Status of Environmental Licences, Notification and Permits**

- 2.9 The Environmental Permit (EP-438/2012) of SCL (Tai Wai to Hung Hom Section) was first issued on 22 March 2012 and it was updated throughout the Project. The latest Environmental Permit (EP No. EP-438/2012/H) was granted on 10<sup>th</sup> September 2014.
- 2.10 The Construction Noise Permit (CNP) has been renewed and the new permit will be valid up to 31<sup>st</sup> October 2015.
- 2.11 The summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.2**.

**Table 2.2 Status of Environmental Licences, Notification and Permits**

Permit / License No.	Valid Period		Status
	From	To	
<b>Environmental Permit (EP)</b>			
EP-438/2012	22/3/2012	11/07/2012	Superseded by EP-438/2012/A
EP-438/2012/A	12/07/2012	25/10/2012	Superseded by EP-438/2012/B
EP-438/2012/B	26/10/2012	29/04/2013	Superseded by EP-438/2012/C
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	03/04/2014	Superseded by EP-438/2012/E
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F
EP-438/2012/F	15/07/2014	13/08/2014	Superseded by EP-438/2012/G
EP-438/2012/G	14/08/2014	09/09/2014	Superseded by EP-438/2012/H
EP-438/2012/H	10/09/2014	N/A	Valid
<b>Construction Noise Permit (CNP)</b>			
GW-RE0754-12	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	Expired
GW-RE0969-13	24/09/2013	23/03/2014	Expired
GW-RE0321-14	29/03/2014	28/09/2014	Expired
GW-RE1017-14	29/09/2014	28/03/2015	Expired
GW-RE0246-15	29/03/2015	28/04/2015	Expired
GW-RE0407-15	01/05/2015	31/07/2015	Valid
GW-RE0718-15	01/08/2015	31/10/2015	Valid from 01/08/2015
<b>Marine Dumping Permits</b>			
EP/MD/13-074	26/10/2012	25/11/2012	Expired
EP/MD/13-075	10/10/2012	09/11/2012	Expired
EP/MD/14-077	27/11/2013	26/05/2014	Expired
EP/MD/14-083	16/12/2013	15/01/2014	Expired
EP/MD/14-117	24/02/2014	23/03/2014	Expired

Permit / License No.	Valid Period		Status
	From	To	
EP/MD/14-158	25/03/2014	24/04/2014	Expired
EP/MD/14-168	10/04/2014	30/04/2014	Expired
EP/MD/15-003	25/04/2014	24/05/2014	Expired
EP/MD/15-021	27/05/2014	26/11/2014	Expired
EP/MD/15-073	14/08/2014	13/09/2014	Expired
EP/MD/15-118	13/10/2014	12/11/2014	Expired
EP/MD/15-144	19/11/2014	18/12/2014	Expired
EP/MD/15-249	30/03/2015	30/06/2015	Expired
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>			
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD
<b>Billing Account for Construction Waste Disposal</b>			
A/C# 7015860	29/08/2012	N/A	Valid
<b>Registration of Chemical Waste Producer</b>			
WPN5213-286-C3752-01	17/09/2012	N/A	Valid
<b>Effluent Discharge License under Water Pollution Control Ordinance</b>			
WT00014328-2012	07/11/2012	30/11/2017	Valid

### Summary of EM&A Requirements

- 2.12 The EM&A programme under 1108A require construction phase water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the project EIA study final report; and
  - Environmental requirements in contract documents.
- 2.13 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.14 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality as well as audit works for the Project in the reporting month.

### 3 ENVIRONMENTAL MONITORING REQUIREMENTS

#### Water Quality Monitoring

##### Monitoring Location

- 3.1 In accordance with the EM&A Manual, marine water quality monitoring should be carried out while dredging activities are conducting. The water quality monitoring stations and control stations of Project are shown in **Figure 2**. The co-ordinates of the proposed monitoring stations (construction phase – dredging activities) are listed in **Table 3.1**. As shown in **Figure 2**, the proposed locations are classified as Impact Station and Control Station according to their functions.

**Table 3.1 Water Quality Monitoring Stations**

Station	Description	East	North	Parameters to be measured
IS-1 <sup>(1)</sup>	Impact Station for Dredging Activities	838499	819333	DO, Turbidity, SS
CS-1	Control Station for IS-1	838170	818903	DO, Turbidity, SS
CS-2	Control Station for IS-1	838912	818997	DO, Turbidity, SS

Note: (1) As per Baseline Monitoring Report under consultancy agreement No. NEX/2213, there was a slight adjustment for the monitoring station IS-1 due to the site constraint as the original monitoring location (Easting: 838450, Northing: 819399) has been occupied by barges/dredgers of other projects.

##### Monitoring Parameters, Frequency and Programme

- 3.2 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL (TAW-HUH) EM&A Manual. **Table 3.2** summarized the monitoring frequency and water quality parameters for the impact monitoring.

**Table 3.2 Water Quality Impact Monitoring Programme**

	Impact Monitoring
Monitoring Period	During dredging period
Monitoring Frequency	3 Days in a Week, at mid-flood and mid-ebb tides
Monitoring Locations	IS-1, CS-1, CS-2
Monitoring Parameters	DO, temperature, turbidity, pH, salinity and SS
Intervals between 2 Sets of Monitoring	Not less than 36 hours
Tide Range	Individual flood and ebb tides not less than 0.5m

##### Monitoring Equipment and Methodology

##### *Dissolved Oxygen and Temperature Measuring Equipment*

- 3.3 The instrument should be portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring:
- DO level in the range of 0 - 20 mg/ L and 0 - 200% saturation; and
  - Temperature of 0 - 45 degree Celsius.
- 3.4 The equipment should have a membrane electrode with automatic temperature compensation complete with a cable.

- 3.5 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO equipment prior to each DO measurement.

***Turbidity Measurement Instrument***

- 3.6 The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument).

***Water Sampler***

- 3.7 A water sampler is required for SS monitoring. It should comprise a PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

***Water Depth Detector***

- 3.8 A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

***Salinity Measuring Equipment***

- 3.9 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

***pH Measuring Equipment***

- 3.10 A portable pH meter capable of measuring a range between 0.0 and 14.0 shall be provided to measure pH under the specified conditions (e.g., Orion Model 250A or an approved similar instrument).

***Sample Containers and Storage***

- 3.11 Water samples for SS determinations should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and shipment to the testing laboratory. The samples shall be delivered to the laboratory within 24 hours of collection and be analysed as soon as possible after collection.

***Position Equipment***

- 3.12 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message ‘screen pop-up’ facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

***Calibration of In-Situ Instruments***

- 3.13 The pH meter, DO meter and turbidimeter shall be checked and calibrated before use. DO meter and turbidimeter shall be certified by a laboratory accredited under HOKLAS

or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

#### ***Back-up Equipment and Vessels***

- 3.14 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, malfunction, etc.
- 3.15 The water quality monitoring will involve three monitoring stations and measurements should be conducted within the prescribed tidal conditions in order to ensure the measurement/samples are representative. A multi-probe monitoring equipment set integrated with water sampler(s) is highly recommended to improve the monitoring efficiency. Depending on the actually operation, more than one field survey vessels might be required simultaneously to ensure the monitoring are conducted within the acceptable monitoring period. The ET shall also consider the use of unattended automatic sampling/monitoring devices at fixed stations where monitoring are required throughout the construction period. The use of such unattended automatic devices, however, shall be subject to the approval of the ER, IEC and EPD.

#### ***Laboratory Measurement / Analysis***

- 3.16 At least 3 replicate samples from each independent sampling event are required for the suspended solids measurement which shall be carried in a HOKLAS or international accredited laboratory. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory measurement and analysis. The laboratory determination work shall start within 24 hours after collection of the water samples. The analysis for SS is summarized in **Table 3.3**.

**Table 3.3 Laboratory analysis for SS**

Parameters	Analytical Method	Reporting Limit
Suspended Solid (SS)	APHA 2540-D	0.1 mg/L

#### **Action and Limit Levels**

- 3.17 The action and limit levels for water quality monitoring are presented in **Appendix A**.

#### **Event and Action Plan**

- 3.18 Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in **Appendix D** shall be carried out.

#### **Cultural Heritage**

- 3.19 According to the location of the Project and EIA report, there are no terrestrial archaeological resources and built heritage resources in vicinity of the Project. Archaeological monitoring works and the implementation of mitigation measures during the construction and operation phases of the Project is, therefore, not required.
- 3.20 However, the Contractor shall allow a 25m separation distance between the proposed dredging area and the Kowloon Rock as specified in the approved SCL (TAW-HUH) EIA Report.

### **Landscape and Visual**

- 3.21 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is summarised in **Table 6.1** of Section 6.

### **Ecology**

- 3.22 In accordance with the EM&A Manual, weekly site audits should be conducted by the ET during construction phase of the Project to check the recommended mitigation measures should be properly implemented.



#### 4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix E**. Status of required submissions under the Environmental Permit (EP) during the reporting period is presented in **Table 4.1**.

**Table 4.1 Status of Required Submissions under EP**

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (June 2015)	Submitted to EPD on 14 <sup>th</sup> July 2015 (EP Condition 3.4)	N/A	---

## 5 MONITORING RESULTS

### Water Quality

- 5.1 No water quality monitoring was carried out at the monitoring stations during this reporting period as the dredging activity was completed on 11 November 2012.
- 5.2 Action and Limit Levels for water quality monitoring were established in the baseline water quality monitoring conducted by MTR between 16 June 2012 and 14 July 2012 under consultancy agreement no. NEX/2213. Action and Limit Levels for water quality is summarised in **Appendix A**.

### Waste Management

- 5.3 Waste potentially generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and dredging materials. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.1**. No paper/cardboard packaging, plastics and steel material were generated during the reporting period.
- 5.4 Detail of waste management data is presented in **Appendix F**.

**Table 5.1 Quantities of Waste Generated from the Project**

Reporting Month	Quantity						
	C&D Materials (inert) <sup>(a)</sup>	C&D Materials (non-inert) <sup>(b)</sup>	Dredging Quantity (in bulk volume)	Chemical Waste	Recycled materials		
					Paper/cardboard	Plastics	Metals
July 2015	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	0 kg	0 kg	0 kg	0 kg

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.

(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

### Landscape and Visual

- 5.5 No observations and recommendations were made during the audit sessions.

### Ecology

- 5.6 No observations and recommendations were made during the audit sessions.

## 6 ENVIRONMENTAL SITE INSPECTION

### Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix C**.
- 6.2 Site audits were conducted on 2, 7, 14, 21 and 28 July 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 2 July 2015. The details of observations during site audit can refer to **Table 6.1**.

### Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix E**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	23 June 2015	<u>Reminder:</u> Clear the accumulated mud on the walkway of floating jetty no.3.	This item was the remarked item of item ref. No.150616-R05, which was classified as an air quality impact.  This item was observed improved/rectified by Contractor during the site inspection on 2 July 2015.
	14 July 2015	<u>Observation:</u> Sand bags should be provided to the public channel near the site entrance to control the site runoff.	This item was observed improved/rectified by Contractor during the site inspection on 21 July 2015.
	28 July 2015	<u>Observation:</u> Bunding should be provided to the public channel near the site entrance to control site runoff.	Follow up action will be reported in the next reporting month.
<i>Noise</i>	N/A	N/A	N/A
<i>Ecology/ Landscape and Visual</i>	N/A	N/A	N/A
<i>Air Quality</i>	16 June 2015	<u>Reminder:</u> Clear the accumulated sand on the walkway of floating jetty no.3	This item was found outstanding and remarked as item ref. No. 150623-R02 during the site inspection on 23 June 2015.  It was observed that the

Parameters	Date	Observations and Recommendations	Follow-up
			<p>accumulated sand on the walkway of floating jetty no.3 was turned into mud due to rain during the site inspection on 23 June 2015, this would cause water quality impact from muddy runoff generation. The remarked item (ref. No. 150623-R02) was classified as a water quality impact and included in the water quality section.</p> <p>This item was observed improved/rectified by Contractor during the site inspection on 2 July 2015.</p>
	11, 16 and 23 June 2015	<p><u>Reminder:</u> The dust curtain of tipping hall of floating jetty no.3 was loosen. Contractor was reminded to repair it.</p>	<p>This item was observed improved/rectified by Contractor during the site inspection on 7 July 2015.</p>
	2 July 2015	<p><u>Observation:</u> The dust curtain of tipping hall floating jetty no.3 was loosen. Contractor was reminded to repair it.</p>	
	14 July 2015	<p><u>Reminder:</u> To provide water spray on the haul road of floating jetty no.3.</p>	<p>This item was observed improved/rectified by Contractor during the site inspection on 21 July 2015.</p>
	21 and 28 July 2015	<p><u>Observation:</u> The dust curtain of tipping hall floating jetty no.3 was loosen. Contractor was reminded to repair it.</p>	<p>Follow up action will be reported in the next reporting month.</p>
	21 and 28 July 2015	<p><u>Reminder:</u> The sheeting for covering the dusty material near conveyor belt no.1 was broken. Contractor was reminded to repair it.</p>	<p>Follow up action will be reported in the next reporting month.</p>
	28 July 2015	<p><u>Reminder:</u> To provide sufficient water spray on haul road.</p>	<p>Follow up action will be reported in the next reporting month.</p>
<b>Waste / Chemical Management</b>	16 June 2015	<p><u>Reminder:</u> Clear the stagnant water in the drip tray near the conveyor belt no.1.</p>	<p>Accumulation of stagnant water in the drip tray due to rain was observed during the site inspection on 23 June 2015.</p> <p>This item was observed improved/rectified by Contractor during the site inspection on 2 July 2015.</p>
	23 June 2015	<p><u>Reminder:</u> Clear the oil stain on the walkway of floating jetty no.3 as chemical waste.</p>	<p>This item was observed improved/rectified by Contractor during the site</p>

<b>Parameters</b>	<b>Date</b>	<b>Observations and Recommendations</b>	<b>Follow-up</b>
			inspection on 2 July 2015.
	21 July 2015	<u>Reminder:</u> Clear the oil stain on the walkway of floating jetty no.3 as chemical waste.	This item was observed improved/rectified by Contractor during the site inspection on 28 July 2015.
<i>Permits / Licenses</i>	N/A	N/A	N/A

## **7 ENVIRONMENTAL NON-CONFORMANCE**

### **Summary of Exceedances**

- 7.1 No impact monitoring was conducted in the reporting month. The summary of exceedance is provided in **Appendix B**.

### **Summary of Environmental Non-Compliance**

- 7.2 No environmental non-compliance was recorded in the reporting month.

### **Summary of Environmental Complaint**

- 7.3 There was no environmental complaint received in the reporting month. The Complaint Log is presented in **Appendix G**.

### **Summary of Environmental Summon and Successful Prosecution**

- 7.4 No environmental prosecution or notification of summons received since the Project commencement.

## 8 FUTURE KEY ISSUES

### Key Issues in the Coming Month

8.1 Key issues to be considered in the coming month include:

- Potential dust and noise impacts arising from unloading and temporary stockpiling of C&D material during daily operation of the Barging Point Facilities.
- Potential water pollution problem due to the discharge of site runoff during rainfall events.
- Potential environmental impacts arising from unloading and handling of C&D material to the barge, including splashing of spoils into surrounding seawater at the discharge points.
- Potential dust emission and deposition of materials on haul road during delivery of C&D material by Designated and Interfacing Contracts to the Barging Point Facilities.

### Site Activities for the Next Month

8.2 A tentative construction programme is provided in **Appendix H**. The major site activities in the coming month will include:

- Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
- Temporary stockpiling of received spoil in the Barging Point Facilities.
- Marine transportation of received spoil to receptor sites for beneficial reuse.

## **9 CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 July 2015 to 31 July 2015 in accordance with EM&A Manual and the requirement under EP-438/2012/H.
- 9.2 No impact monitoring was conducted in the reporting month.
- 9.3 There was no environmental complaint received in the reporting month.
- 9.4 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### **Recommendations**

- 9.5 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### ***Water Quality***

- Sand bags or bundings should be maintained and used whenever necessary to prevent muddy surface runoff flowing to the public channel.

#### ***Air Quality***

- The dust curtains of tipping hall of floating jetty should be properly maintained.
- Stockpile of dusty materials should be properly covered by the impervious sheeting for dust suppression.
- Water spray should be provide to the haul road regularly for dust suppression.

#### ***Waste/Chemical Management***

- Oil should be removed as chemical waste, and plants and equipment should be properly maintained to prevent oil leakage.



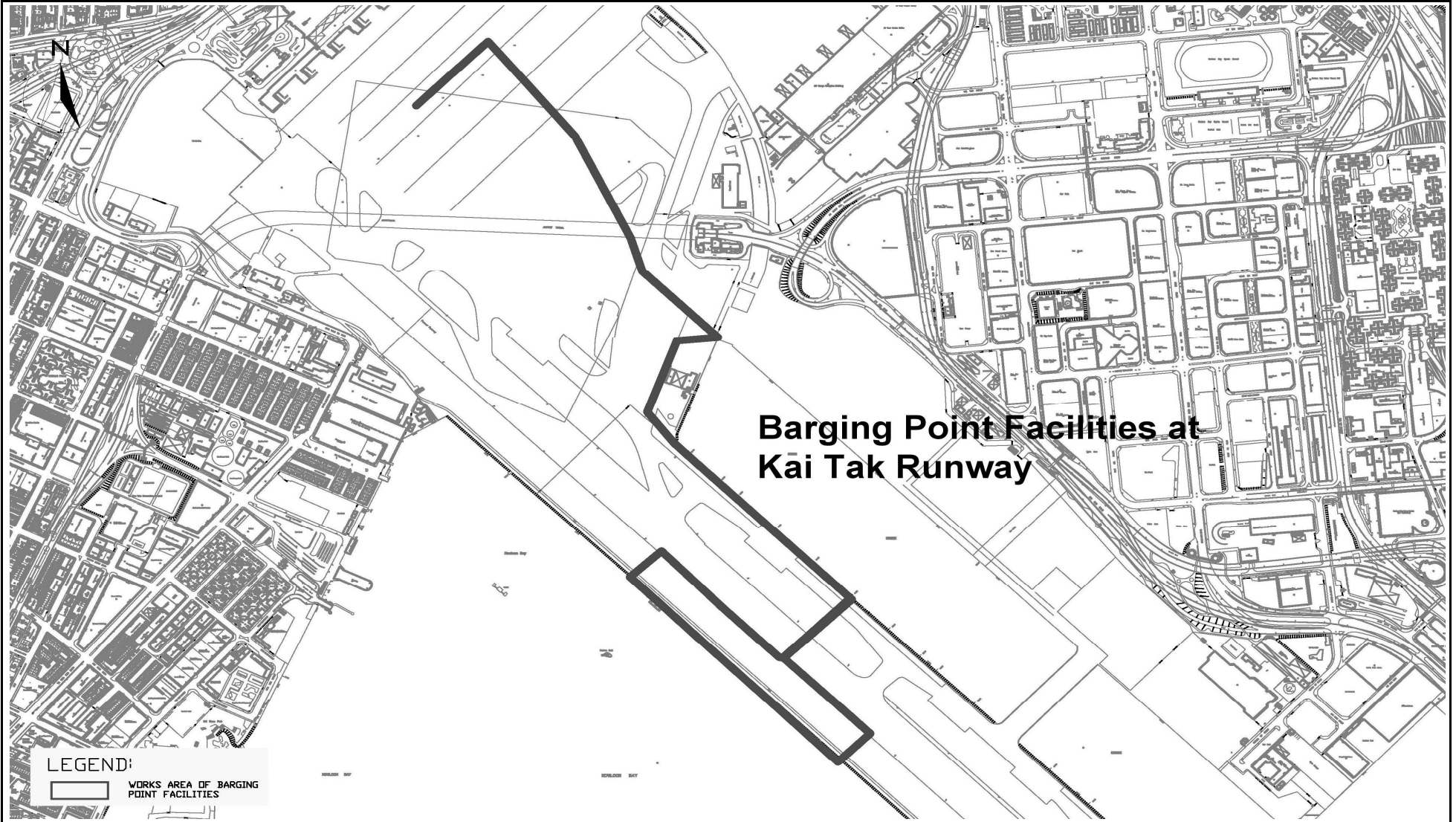
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## FIGURES

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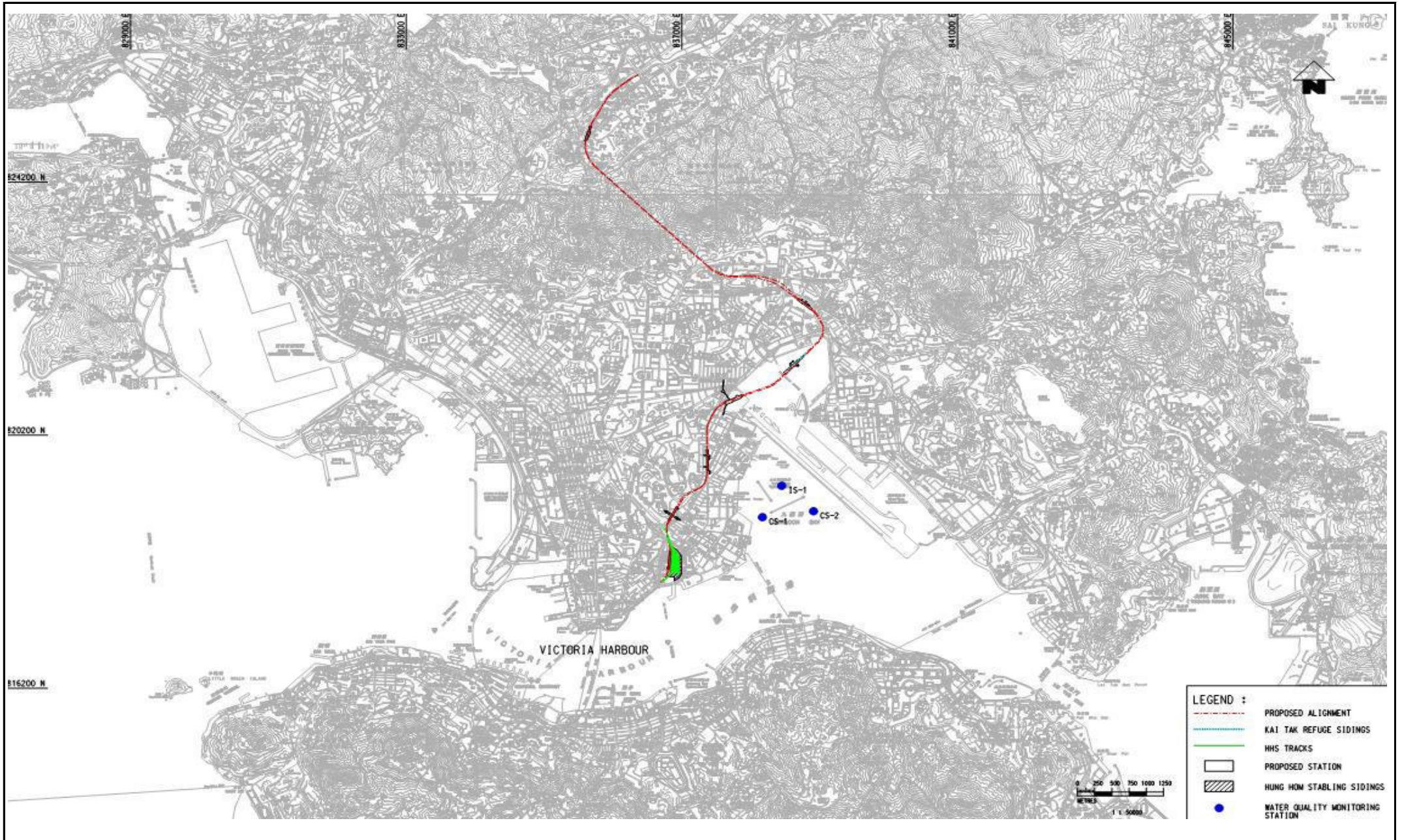
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**LEGEND:**

WORKS AREA OF BARGING POINT FACILITIES

Title <p style="text-align: center;">SCL Contract 1108A          The Shatin to Central Link -          Kai Tak Barging Point Facilities          Site Layout Plan</p>	Scale <p style="text-align: center;">N.T.S</p>	Project No. <p style="text-align: center;">MA12028</p>	
	Date <p style="text-align: center;">Apr-14</p>	Figure <p style="text-align: center;">1</p>	



Title

SCL Contract 1108A  
The Shatin to Central Link -  
Kai Tak Barging Point Facilities

Location of Water Monitoring Station and Control Stations

Scale

N.T.S

Date

Oct-12

Propose

No. MA12028

Figure

2



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**APPENDIX A  
ACTION AND LIMIT LEVELS**

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**APPENDIX A – Action and Limit Levels**

**Action and Limit Levels for Water Quality**

<b>Parameter</b>	<b>Action</b>	<b>Limit</b>
<b>DO in mg/L</b>	<p><u>Surface &amp; Middle:</u>                      4.6                      (5 percentile of baseline data)</p> <p><u>Bottom:</u>                      3.9                      (5 percentile of baseline data)</p>	<p><u>Surface &amp; Middle:</u>                      4</p> <p><u>Bottom:</u>                      2</p>
<b>SS in mg/L</b>	<p>6.1                      (95 percentile of baseline data)</p> <p>or</p> <p>120% of upstream control station's SS                      at the same tide of the same day</p>	<p>6.3                      (99 percentile of baseline data)</p> <p>or</p> <p>130% of upstream control station's SS                      at the same tide of the same day</p>
<b>Turbidity in NTU</b>	<p>4.8                      (95 percentile of baseline data)</p> <p>or</p> <p>120% of upstream control station's                      Turbidity at the same tide of the same                      day</p>	<p>5.0                      (99 percentile of baseline data)</p> <p>or</p> <p>130% of upstream control station's                      Turbidity at the same tide of the same                      day</p>

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**APPENDIX B**  
**SUMMARY OF EXCEEDANCE**

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**APPENDIX B – SUMMARY OF EXCEEDANCE**

**Reporting Month:** July 2015

*a) Exceedance Report for Water Quality Monitoring (NIL)*

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**APPENDIX C  
SITE AUDIT SUMMARY**

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*Shatin to Central Link -*

*Contract 1108A Kai Tak Barging Point Facilities*

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150702
Date	2 July 2015 (Thursday)
Time	14:45 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150702-O01	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"><li>• No environmental deficiency was identified during the site inspection.</li></ul> <p><b>Part C - Ecology/Others</b></p> <ul style="list-style-type: none"><li>• No environmental deficiency was identified during the site inspection.</li></ul> <p><b>Part D – Air Quality</b></p> <ul style="list-style-type: none"><li>• The dust curtain of tipping hall of floating jetty no.3 was loosen. Contractor was reminded to repair it.</li></ul> <p><b>Part E – Construction Noise Impact</b></p> <ul style="list-style-type: none"><li>• No environmental deficiency was identified during the site inspection.</li></ul> <p><b>Part F – Waste/Chemical Management</b></p> <ul style="list-style-type: none"><li>• No environmental deficiency was identified during the site inspection.</li></ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"><li>• No environmental deficiency was identified during the site inspection.</li></ul> <p><b>Others</b></p> <ul style="list-style-type: none"><li>• Follow-up on previous audit section (Ref. No.:150623), follow-up actions is required for item 150623-R01 which was remarked as 150702-O01.</li></ul>	D 18

	Name	Signature	Date
Recorded by	KC Chung		2 July 2015
Checked by	Dr. Priscilla Choy		2 July 2015

*Shatin to Central Link -*

*Contract 1108A Kai Tak Barging Point Facilities*



**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150707
Date	7 July 2015 (Tuesday)
Time	15:30 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C - Ecology/Others</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.:150702), all environmental deficiency was improved/ rectified by the Contractor.</li> </ul>	

	Name	Signature	Date
Recorded by	KC Chung		7 July 2015
Checked by	Dr. Priscilla Choy		7 July 2015

*Shatin to Central Link -*

*Contract 1108A Kai Tak Barging Point Facilities*

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150714
Date	14 July 2015 (Tuesday)
Time	15:30 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150714-O01	<b>Part B - Water Quality</b> <ul style="list-style-type: none"><li>Sand bags should be provided to the public channel near the site entrance to control the site runoff.</li></ul>	B 11
150714-R02	<b>Part C - Ecology/Others</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part D – Air Quality</b> <ul style="list-style-type: none"><li>To provide water spray on the haul road of floating jetty no.3</li></ul> <b>Part E – Construction Noise Impact</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part F – Waste/Chemical Management</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Part G - Permit / Licenses</b> <ul style="list-style-type: none"><li>No environmental deficiency was identified during the site inspection.</li></ul> <b>Others</b> <ul style="list-style-type: none"><li>Follow-up on previous audit section (Ref. No.:150707), no major environmental deficiency was identified.</li></ul>	D 6

	Name	Signature	Date
Recorded by	KC Chung		14 July 2015
Checked by	Dr. Priscilla Choy		14 July 2015

**Shatin to Central Link -**

**Contract 1108A Kai Tak Barging Point Facilities**

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150721
Date	21 July 2015 (Tuesday)
Time	15:45 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150721-O01	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	D 18
150721-R02	<p><b>Part C - Ecology/Others</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Air Quality</b></p> <ul style="list-style-type: none"> <li>The dust curtain of tipping hall of floating jetty no.3 was loosen. Contractor was reminded to repair it.</li> </ul>	D 7
150721-R03	<p><b>Part E – Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>Clear the oil stain on the walkway of floating jetty no.3 as chemical waste.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.:150714), no major environmental deficiency was identified.</li> </ul>	F 8



	Name	Signature	Date
Recorded by	KC Chung		21 July 2015
Checked by	Dr. Priscilla Choy		21 July 2015

**Shatin to Central Link -****Contract 1108A Kai Tak Barging Point Facilities****Record Summary of Environmental Site Inspection****Inspection Information**

Checklist Reference Number	150728
Date	28 July 2015 (Tuesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150728-O02	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>Bunding should be provided to the public channel near the site entrance to control site runoff.</li> </ul>	B 11
	<p><b>Part C - Ecology/Others</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
150728-O01	<p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>The dust curtain of tipping hall of floating jetty no.3 was loosen. Contractor was reminded to repair it.</li> </ul>	D 18
150728-R03	<ul style="list-style-type: none"> <li>The sheeting for covering the dusty material near conveyor belt no.1 was broken. Contractor was reminded to repair it.</li> </ul>	D 7
150728-R04	<ul style="list-style-type: none"> <li>To provide sufficient water spray on haul road.</li> </ul>	D 6
	<p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	
	<p><b>Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.:150721), follow-up actions is required for item 150721-O01 and 150721-R02 which were remarked as 150728-O01 and 150728-R03.</li> </ul>	

	Name	Signature	Date
Recorded by	KC Chung		28 July 2015
Checked by	Dr. Priscilla Choy		28 July 2015

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**APPENDIX D**  
**EVENT AND ACTION PLANS**

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**Event and Action Plan for Water Quality**

Event	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Inform IEC, contractor and ER;</li> <li>2. Check monitoring data, all plant, equipment and Contractor's working methods; and</li> <li>3. Discuss remedial measures with IEC and Contractor and ER</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, ER and Contractor on the implemented mitigation measures;</li> <li>2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; and</li> <li>2. Make agreement on the remedial measures to be implemented.</li> <li>3. Supervise the implementation of agreed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>3. Rectify unacceptable practice;</li> <li>4. Check all plant and equipment;</li> <li>5. Consider changes of working methods;</li> <li>6. Discuss with ER, ET and IEC and propose remedial measures to IEC and ER; and</li> <li>7. Implement the agreed mitigation measures.</li> </ol>
Action level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on next day of exceedance to confirm findings;</li> <li>2. Inform IEC, contractor and ER;</li> <li>3. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>4. Discuss remedial measures with IEC, contractor and ER</li> <li>5. Ensure remedial measures are implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET Contractor and ER on the implemented mitigation measures;</li> <li>2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, IEC and Contractor on the proposed mitigation measures;</li> <li>2. Make agreement on the remedial measures to be implemented; and</li> <li>3. Discuss with ET IEC and Contractor on the effectiveness of the implemented remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>3. Rectify unacceptable practice;</li> <li>4. Check all plant and equipment and consider changes of working methods;</li> <li>5. Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Limit level being	<ol style="list-style-type: none"> <li>1. Repeat measurement on next day</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET , Contractor and</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> </ol>

Event	ET	IEC	ER	Contractor
<p>exceeded by one sampling day</p>	<p>of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Consider changes of working methods 6. Discuss mitigation measures with IEC, ER and Contractor; and 7. Ensure the agreed remedial measures are implemented;</p>	<p>ER on possible remedial actions; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</p>	<p>Contractor on the implemented remedial measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.</p>	<p>2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER within 3 working days of notification; and 6. Implement the agreed remedial measures.</p>
<p>Limit level being exceeded by more than one consecutive sampling days</p>	<p>1. Inform IEC, contractor, ER and EPD 2. Check monitoring data, all plant, equipment and Contractor's working methods; 3. Discuss mitigation measures with IEC, ER and Contractor; and 4. Ensure mitigation measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.</p>	<p>1. Discuss with ET, ER and Contractor on possible remedial actions; 2. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</p>	<p>1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with ET and IEC on the effectiveness of the implemented mitigation measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.</p>	<p>1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; 6. Implement the agreed mitigation measures. 7. As directed by the ER, to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.</p>



**Event and Action Plan for Landscape and Visual during Construction Stage**

Event	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity implement remedial measures</li> <li>2. Amend working methods agreed with the ER as appropriate</li> <li>3. Rectify damage and undertake any necessary replacement.</li> <li>4. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer’s Representative

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**APPENDIX E  
UPDATED ENVIRONMENTAL  
MITIGATION IMPLEMENTATION  
SCHEDULE**

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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b>Ecology (Pre-Construction Phase)</b>								
S5.7	E3	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
<b>Ecology (Construction Phase)</b>								
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream;</li> </ul>	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream;</li> <li>Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value.</li> <li>No on-site burning of waste;</li> <li>Waste and refuse in appropriate receptacles.</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S5.7	E6	<p><u>Sediment Removal</u></p> <ul style="list-style-type: none"> <li>Use closed grab in dredging works.</li> <li>Install silt curtain during the dredging.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna</li> <li>Minimize marine water quality impacts</li> </ul>	Contractor	Dredging Area	During Dredging	•TM-Water	<p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p>
<b>Landscape &amp; Visual (Construction Phase)</b>								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>For soil conservation, existing topsoil shall be re-used where</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A <sup>(2)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> </ul>						<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.</li> </ul>						^
S6.12	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> <li>Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context.</li> </ul> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> <li>EIAO – TM</li> <li>ETWB TCW 2/2004</li> <li>ETWB TCW 3/2006</li> </ul>	^  N/A <sup>(1)</sup>
<b>Air Quality (Construction Phase)</b>								
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD).</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>APCO</li> <li>To control the air quality to meet HKAQO and TM-EIA criteria</li> </ul>	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the air quality to meet HKAQO and TM-EIA criteria</li> </ul>	^
<b>Construction Dust Impact</b>								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	*
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D3	<ul style="list-style-type: none"> <li>• Proper watering of exposed spoil should be undertaken throughout the construction phase;</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	^  *    ^    ^    ^



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <ul style="list-style-type: none"> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>						<p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D4	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: <ul style="list-style-type: none"> <li>• All road surface within the barging facilities will be paved;</li> <li>• Dust enclosures will be provided for the loading ramp;</li> <li>• Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>• Continuous water spray at the loading points</li> </ul>	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	• Air Pollution Control (Construction Dust) Regulation	^ ^ ^ ^
S7.6.5	D5	<ul style="list-style-type: none"> <li>• For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top tipping hall and operating water spraying and flexible dust curtains at the discharge point for dust suppression.</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	Barging Points	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria • EP Condition 2.18 (c)	*
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	N/A <sup>(1)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b>Construction Noise (Airborne)</b>								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^  ^  ^  N/A <sup>(2)</sup>  ^  N/A <sup>(2)</sup>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A <sup>(1)</sup>
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A <sup>(1)</sup>
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	N/A <sup>(1)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b>Water Quality (Construction Phase)</b>								
S10.7.1	W1	<p>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> <li>At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> <li>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	<p style="text-align: center;">*</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>in the permanent drainage channels to enhance deposition rates.</p> <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage</li> </ul>						<p>^</p> <p>^</p> <p>N/A<sup>(1)</sup></p> <p>*</p>



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>system and storm runoff being directed into foul sewers</p> <ul style="list-style-type: none"> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors</li> </ul>						<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>• All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>• Adopt best management practices.</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A<sup>(2)</sup></p> <p style="text-align: center;">*</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> <li>• Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-water</li> </ul>	^

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S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> <li>No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground.</li> <li>If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment</li> </ul>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-water</li> <li>TM-EIAO</li> </ul>	<p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers</p> <ul style="list-style-type: none"> <li>If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</li> </ul>						N/A <sup>(1)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W5	<p><u>Dredging Works</u></p> <p>The following good practice shall apply for the dredging works:</p> <ul style="list-style-type: none"> <li>• Install efficient silt curtains at the point of seawall dredging to control the dispersion of SS;</li> <li>• Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures required;</li> <li>• The decent speed of grabs should be controlled to minimize the seabed impact and to reduce the volume of over-dredging; and</li> <li>• All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.</li> </ul>	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-EIAO</li> </ul>	<p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p>
S10.7.1	W6	<p><u>Operation of Barging Facilities</u></p> <p>The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> <li>• All barges should be fitted with tight bottom seals to prevent leakage of materials during transport;</li> <li>• Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or</li> </ul>	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-EIA</li> </ul>	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>transportation;</p> <ul style="list-style-type: none"> <li>All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water; and</li> <li>Mitigation measures as outlined in W1 should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.</li> </ul>						<p>^</p> <p>^</p> <p>^</p>
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water quality prior to and during dredging period	Contractor	At identified monitoring location	Prior to and during dredging period	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-water</li> <li>• EIA-TM</li> </ul>	^
<b>Waste Management (Construction Waste)</b>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>• Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• DEVB TC(W) No. 6/2010</li> </ul>	N/A <sup>(2)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005</li> </ul>	<p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>N/A<sup>(2)</sup></p> <p>^</p> <p>^</p>



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation</li> </ul>						^
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>	<p>Good site practice to minimize the waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No.19/2005</li> </ul>	<p>^</p> <p>N/A<sup>(2)</sup></p>

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S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^  ^  ^
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> <li>All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited</li> </ul>	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	• ETWB TCW No. 34/2002	N/A <sup>(1)</sup>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>in the locations other than designated location;</p> <ul style="list-style-type: none"> <li>• All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>• Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations;</li> <li>• Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.</li> <li>• The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers;</li> <li>• The Contractors shall comply with the conditions in the dumping licence.</li> <li>• All bottom dumping vessels (Hopper barges) shall be fitted with</li> </ul>						<p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p>

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		<p>tight fittings seals to their bottom openings to prevent leakage of material;</p> <ul style="list-style-type: none"> <li>• The material shall be placed into the disposal pit by bottom dumping;</li> <li>• Contaminated marine mud shall be transported by spit barge of not less than 750m<sup>3</sup> capacity and capable of rapid opening and discharge at the disposal site;</li> <li>• Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.</li> <li>• For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.</li> </ul>						<p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p> <p>N/A<sup>(1)</sup></p>

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S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<p>*</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>						^

Remarks: ^ Compliance of mitigation measure      X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- \* Recommendation was made during site audit but improved/rectified by the contractor.

N/A<sup>(1)</sup> Not Applicable      N/A<sup>(2)</sup> Not Applicable at this stage

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**APPENDIX F  
WASTE GENERATION IN THE  
REPORTING MONTH**

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**APPENDIX G  
COMPLAINT LOG**

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**Appendix G - Complaint Log**

Contractor Log Ref.	Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date or Period of Complaint	Date of Complaint received	Details of Complaint	Investigation/ Mitigation Action	Status
6	Barging Point/ Construction Noise	15-05127	--/Night time after 11:00pm	12 March 2015	As per information from EPD, the complainant complained about the construction noise generated from the barge point at night after 11:00pm.	<p>According to the information provided by the Contractor, no construction activity in the site area, including barge operation has been carried out after 11:00 pm since the commencement of the project. All construction works carried out within the validity period of CNP were in compliance with the conditions stated in the valid CNP (Permit No.: GW-RE1017-14).</p> <p>It was observed that the Contractor has implemented appropriate noise mitigation measures to reduce noise nuisance generated from the work site. In addition, according to the EIA report and the EM&amp;A Manual, it is anticipated that construction activities of this project would not cause any significant noise impact to the vicinity of the work site as there are no Noise Sensitive Receivers (NSRs) located within 300m from the barge point.</p> <p>The environmental conditions of the site and effectiveness of the implementation</p>	Closed

						of mitigation measures will be continuously reviewed and monitored by the Resident Site Staff and the Environmental Team.	
7	Barging Point / Dust and Disposal of Construction Waste	15-07297	-- / --	2 April 2015	As per the information from EPD, the complainant complained the dust generated from the discharge point at tipping halls and no water spraying was provided for the stockpile on vessel and land. In addition, the complainant complained that construction waste was disposed everywhere in Kai Tak Area.	<p>According to the information provided by the Contractor, all the construction waste generated from this Contract was disposed to the designated landfill (NENT) and no construction waste was disposed in Kai Tak Area. The construction waste disposal activities in Kai Tak Area outside the site boundary of this Contract were not related to this Contract.</p> <p>It was observed that the Contractor has implemented appropriate dust mitigation measures to reduce dust issue generated from the work site. In addition, according to the EIA Report and the EM&amp;A Manual of the Project, it is anticipated that construction activities of this Contract would not cause any significant dust impact to the vicinity of the work site as there are no Air Sensitive Receivers (ASRs) located within 500m from the barging point.</p> <p>The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be</p>	Closed

						continuously reviewed and monitored by the Resident Staff and the Environmental Team.	
8	Barging Point / Dust emission	15-10412	-- / --	4 May 2015	The complainant complained the dust generated from the transportation of sand and mud at the barge point and water spray was insufficient. In addition, no impervious sheeting for covering stockpiles was found.	<p>It was observed that the Contractor has implemented appropriate dust mitigation measures to reduce dust issue generated from the work site. In addition, according to the EIA Report and the EM&amp;A Manual of the Project, it is anticipated that construction activities of this Contract would not cause any significant dust impact to the vicinity of the work site as there are no Air Sensitive Receivers (ASRs) located within 500m from the barging point.</p> <p>The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored by the Resident Site Staff and the Environmental Team.</p>	Closed

---

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**APPENDIX H  
TENTATIVE CONSTRUCTION  
PROGRAMME**

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Act ID	Description	Orig Dur	Early Start	Early Finish	%	2015																																		
						JUN					JUL					AUG					SEP					OCT					NOV					DEC				
						01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	06	13	20	27	03	10	17	24
<b>COMMENCEMENT &amp; COMPLETION</b>																																								
<b>Time for Completion</b>																																								
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	73	[Progress bar from 13AUG12 to 28AUG16]																																		
<b>MILESTONES SCHEDULE</b>																																								
<b>Milestones for Cost Centre A</b>																																								
1108AMSA81	Satisfactory Impl'n of Quality req'ts.	0		27SEP15	0	[Milestone point at 27SEP15]																																		
1108AMSA82	Satisfactory Impl'n of Prog. Mgt. System	0		27SEP15	0	[Milestone point at 27SEP15]																																		
<b>Milestones for Cost Centre B</b>																																								
1108AMSB70	Mgt., Maint., & Operation of BPF	0		28JUN15 A	100	[Milestone point at 28JUN15]																																		
<b>Cost Centre A</b>																																								
<b>Preliminaries</b>																																								
1108AA8010	Satisfactory Impl'n of Quality req'ts.	1145	13AUG12 A	27SEP15	95	[Progress bar from 13AUG12 to 27SEP15]																																		
1108AA8020	Satisfactory Impl'n of Prog. Mgt. System	1145	13AUG12 A	27SEP15	95	[Progress bar from 13AUG12 to 27SEP15]																																		
1108AA9010	Satisfactory Impl'n of Safety & Env req'ts.	1328	13AUG12 A	03APR16	81	[Progress bar from 13AUG12 to 03APR16]																																		
<b>Cost Centre B</b>																																								
<b>Kai Tak BPF - Mgt., Maintenance &amp; Operation</b>																																								
1108AB7010	Manage, Maintain & Operate the BPF	182	30DEC14 A	28JUN15 A	100	[Progress bar from 30DEC14 to 28JUN15]																																		

Start date	10AUG12
Finish date	28AUG16
Data date	31JUL15
Run date	02AUG15
Page number	1A
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**MTR SCL 1108A**  
**KAI TAK BARGING POINT FACILITIES**

- █ Early bar
- █ Progress bar
- █ Critical bar
- █ Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point

---

**Appendix B**

**35<sup>th</sup> EM&A Report for Works Contract 1109 –  
Stations and Tunnels of Kowloon City Section**

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MTR Corporation Limited

**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 35

[Period from 1 to 31 July 2015]

Works Contract 1109 - Stations and Tunnels of  
Kowloon City Section

(13 August 2015)

Certified by:   
\_\_\_\_\_ Winnie Ko \_\_\_\_\_

Position: Environmental Team Leader

Date: 13 August 2015



Samsung-Hsin Chong JV

Shatin to Central Link (SCL) - Tai  
Wai to Hung Hom Section:  
Works Contract 1109 – Stations and  
Tunnels of Kowloon City Section  
*Monthly EM&A Report No.35*

July 2015

**Environmental Resources Management**

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Samsung-Hsin Chong JV

Shatin to Central Link (SCL) - Tai  
Wai to Hung Hom Section:  
Works Contract 1109 – Stations and  
Tunnels of Kowloon City Section  
*Monthly EM&A Report No.35*

July 2015

Reference 0171181

For and on behalf of  
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 13 August 2015

## CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	<i>PURPOSE OF THE REPORT</i>	1
1.2	<i>STRUCTURE OF THE REPORT</i>	1
<b>2</b>	<b>PROJECT INFORMATION</b>	<b>3</b>
2.1	<i>BACKGROUND</i>	3
2.2	<i>GENERAL SITE DESCRIPTION</i>	3
2.3	<i>CONSTRUCTION PROGRAMME AND ACTIVITIES</i>	3
2.4	<i>PROJECT ORGANISATION</i>	4
2.5	<i>STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS</i>	4
<b>3</b>	<b>ENVIRONMENTAL MONITORING REQUIREMENTS</b>	<b>6</b>
3.1	<i>REGULAR CONSTRUCTION NOISE MONITORING</i>	6
3.1.1	<i>Monitoring Location</i>	6
3.1.2	<i>Monitoring Parameter and Frequency</i>	6
3.1.3	<i>Monitoring Equipment and Methodology</i>	7
3.1.4	<i>Action and Limit Levels</i>	7
3.2	<i>CONTINUOUS NOISE MONITORING</i>	8
3.2.1	<i>Monitoring Location</i>	8
3.2.2	<i>Monitoring Parameter and Frequency</i>	9
3.2.3	<i>Monitoring Equipment and Methodology</i>	9
3.2.4	<i>Action and Limit Levels</i>	9
3.3	<i>CONSTRUCTION DUST MONITORING</i>	10
3.3.1	<i>Monitoring Location</i>	10
3.3.2	<i>Monitoring Parameter and Frequency</i>	11
3.3.3	<i>Monitoring Equipment</i>	11
3.3.4	<i>Monitoring Methodology</i>	12
3.3.5	<i>Action and Limit Levels</i>	14
3.4	<i>CULTURAL HERITAGE</i>	14
3.5	<i>LANDSCAPE AND VISUAL MITIGATION MEASURES</i>	15
<b>4</b>	<b>IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS</b>	<b>16</b>
<b>5</b>	<b>MONITORING RESULTS</b>	<b>17</b>
5.1	<i>REGULAR CONSTRUCTION NOISE MONITORING</i>	17
5.2	<i>CONTINUOUS NOISE MONITORING</i>	17
5.3	<i>CONSTRUCTION DUST MONITORING</i>	17
5.4	<i>CULTURAL HERITAGE</i>	18
5.5	<i>WASTE MANAGEMENT</i>	18
5.6	<i>LANDSCAPE AND VISUAL MITIGATION MEASURES</i>	19
<b>6</b>	<b>ENVIRONMENTAL SITE INSPECTION</b>	<b>20</b>

7	<b>ENVIRONMENTAL NON-CONFORMANCE</b>	21
7.1	<b>SUMMARY OF MONITORING EXCEEDANCE</b>	21
7.2	<b>SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE</b>	21
7.3	<b>SUMMARY OF ENVIRONMENTAL COMPLAINT</b>	21
7.4	<b>SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION</b>	21
8	<b>FUTURE KEY ISSUES</b>	22
8.1	<b>KEY ISSUES FOR THE COMING MONTH</b>	22
8.2	<b>MONITORING SCHEDULE FOR THE NEXT MONTH</b>	22
8.3	<b>CONSTRUCTION PROGRAMME FOR THE NEXT MONTH</b>	22
9	<b>CONCLUSIONS</b>	23

#### **LIST OF ANNEXES**

<i>Annex A</i>	<i>The Alignment and Works Area for Works Contract</i>
<i>Annex B</i>	<i>Construction Programme for the Reporting Month and Coming Month</i>
<i>Annex C</i>	<i>Project Organisation Chart and Contact Detail</i>
<i>Annex D</i>	<i>Locations of Monitoring Stations for Noise and Dust Monitoring</i>
<i>Annex E</i>	<i>Monitoring Schedule of the Reporting Period and the Next Month</i>
<i>Annex F</i>	<i>Calibration Reports</i>
<i>Annex G</i>	<i>Summary of Event /Action Plans</i>
<i>Annex H</i>	<i>Summary of Implementation Status of Environmental Mitigation</i>
<i>Annex I-1</i>	<i>Regular Noise Monitoring Results</i>
<i>Annex I-2</i>	<i>Continuous Noise Monitoring Results</i>
<i>Annex J</i>	<i>Construction Dust Monitoring Results</i>
<i>Annex K</i>	<i>Waste Flow Table</i>
<i>Annex L</i>	<i>Investigation Reports</i>
<i>Annex M</i>	<i>Environmental Complaint, Environmental Summon and Prosecution Log</i>

## EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the thirty-fifth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 July 2015 to 31 July 2015 in accordance with the EM&A Manual.

### Summary of the Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

---

#### **Construction Activities undertaken**

---

##### Works in Ma Tau Wai (MTW)

- TKW/MTW Road Garden – Operation of bentonite plant and EEP construction; and
- Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, trial pits for location of utilities and station excavation.

---

##### Works in To Kwa Wan (TKW)

- Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;
  - TKW Station – Pump installation, open cut excavation, and tunnelling works;
  - Tam Kung Road – Shaft construction; and
  - Nam Kok Road – Installation of pipe pile.
- 

### Regular Construction Noise and Construction Dust Monitoring

A summary of the monitoring activities in this reporting period is listed below:

- Regular construction noise monitoring during normal working hours
  - NMS-CA-6 *4 times*
  - NMS-CA-7 *4 times*
  - NMS-CA-8 *4 times*
  - NMS-CA-9 *4 times*
  - NMS-CA-10 *4 times*
- Construction dust (24-hour TSP) monitoring
  - DMS-6 *5 times*
  - DMS-7 *0 times*
  - DMS-8 *5 times*
  - DMS-9 *5 times*
  - DMS-10 *5 times*

### Continuous Noise Monitoring

Continuous noise monitoring is required at MTW-16-1 during this reporting month, according to the schedule presented in the latest approved CNMP.

### Cultural Heritage

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced

on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

Vibration monitoring was conducted at Hong Kong Aviation Club and S.K.H. Holy Trinity Church during the reporting period, no non-compliance was recorded.

### Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 34,471 m<sup>3</sup> of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 4,972 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 218 m<sup>3</sup> of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No metal waste was generated during this reporting month. 90 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period. 720 kg of chemical waste was generated during this reporting month.

### Landscape and Visual

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13 and 27 July 2015. No audit findings were observed during the reporting month. The implementation status is presented in *Section 5*.

### Environmental Site Inspection

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 6, 13, 20, and 27 July 2015. The representative of the IEC joined the site inspection on 13 July 2015. Details of the audit findings and implementation status are presented in *Section 6*.

### Environmental Exceedance/Non-conformance/Compliant/Summons and Prosecution

No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 2-4 and 6-8 July 2015.

Investigation of exceedances on 22-27, 29, 30 June and 2-8 July 2015 had been completed and the investigation reports are presented in *Annex L*.

No complaint was received in this reporting period.

No summon or prosecution was received in this reporting period.

### Future Key Issues

The major construction works to be undertaken in the next reporting month include:

---

#### **Construction Activities to be undertaken**

---

##### Work in Ma Tau Wai (MTW)

- TKW/MTW Road Garden – Operation of bentonite plant and EEP construction; and
  - Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, trial pits for location of utilities and station excavation.
- 

##### Work in To Kwa Wan (TKW)

- Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;
  - Tam Kung Road – Shaft construction;
  - TKW Station – Pump installation, open cut excavation, and tunnelling works; and
  - Nam Kok Road – Installation of pipe pile.
-

# 1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by Samsung-Hsin Chong JV (SSHCJV) as the Environmental Team (Contractor's ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during the construction phase of the **MTR Shatin to Central Link (SCL) Works Contract 1109 – Stations and Tunnels of Kowloon City Section** (the Project).

## 1.1 PURPOSE OF THE REPORT

This is the thirty-fifth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 July to 31 July 2015.

## 1.2 STRUCTURE OF THE REPORT

### Section 1 : **Introduction**

It details the purpose and structure of the report.

### Section 2 : **Project Information**

It summarises the background and scope of the project, site description, project organisation and contact details, construction programme, construction works undertaken and status of the Environmental Permits/Licenses during the reporting period.

### Section 3 : **Environmental Monitoring Requirement**

It summarises the monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event / Action Plans.

### Section 4 : **Implementation Status of the Environmental Protection Requirements**

It summarises the implementation of environmental protection measures during the reporting period.

### Section 5 : **Monitoring Results**

It summarises the monitoring results obtained in the reporting period.

### Section 6 : **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

### Section 7 : **Environmental Non-conformance**

It summarises any monitoring exceedance, environmental complaints and summons within the reporting period.



**Section 8 : Future Key Issues**

It summarises the forecast of environmental impact and monitoring schedule for the next three months.

**Section 9 : Conclusions**

## 2 PROJECT INFORMATION

### 2.1 BACKGROUND

The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the *Environmental Impact Assessment Ordinance* (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1109 covers the construction of stations in To Kwa Wan (TKW) and Ma Tau Wai (MTW), and the tunnels between the TKW station and Ho Man Tin station (HOM).

### 2.2 GENERAL SITE DESCRIPTION

For the Works Contract 1109, the alignment runs from TKW station below Ma Tau Chung Road/Ma Tau Wai Road towards the west, reaching the MTW station. After leaving MTW station, the alignment passes Ko Shan Road and joins the HOM station at the intersection of Fat Kwong Street and Shun Yung Street. The underground sections of the alignment between TKW and HOM stations will be constructed by bored tunneling. Both the TKW and MTW stations will be constructed by cut-and-cover method.

The alignment and works area for the Works Contract 1109 are shown in *Annex A*.

### 2.3 CONSTRUCTION PROGRAMME AND ACTIVITIES

A summary of the major construction activities undertaken in this reporting period is shown in *Table 2.1*. The construction programme is presented in *Annex B*.

**Table 2.1** *Summary of the Construction Activities Undertaken during the Reporting Month*

<b>Construction Activities undertaken</b>
<i>Works in Ma Tau Wai (MTW)</i>
<ul style="list-style-type: none"><li>• TKW/MTW Road Garden – Operation of bentonite plant and EEP construction; and</li><li>• Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, trial pits for location of utilities and station excavation.</li></ul>
<i>Works in To Kwa Wan (TKW)</i>
<ul style="list-style-type: none"><li>• Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;</li><li>• TKW Station – Pump installation, open cut excavation, and tunnelling works;</li><li>• Tam Kung Road – Shaft construction; and</li><li>• Nam Kok Road – Installation of pipe pile.</li></ul>

## 2.4 PROJECT ORGANISATION

The project organisational chart and contact details are shown in *Annex C*.

## 2.5 STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

**Table 2.2 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations**

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-438/2012/H	Throughout the Contract	Permit granted on 10 September 2014
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 August 2012 – 30 April 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 October 2012 – 30 April 2017	-
<b>Wastewater Discharge Licence</b>			
Site at TKW	WT00019555-2014	30-September-2017	-
Site at MTW	WT00019556-2014	30-September-2017	-
<b>Chemical Waste Producer Registration</b>			
Site at TKW	5213-286-S3682-01	Throughout the Contract	-
Site at MTW	5213-242-S3682-02	Throughout the Contract	-
<b>Construction Noise Permit</b>			
- PME in Pier 15 Works Area and EEP	GW-RE0296-15	1 April 2015 – 24 September 2015	-
- PME on Kowloon City Road	GW-RE0377-15	20 April 2015 – 5 October 2015	-
- PME at SUW works Area 1	GW-RE0227-15	16 March 2015 - 8 September 2015	-
- PME at TKW Garden	GW-RE0124-15	10 February 2015 - 1 August 2015	-
- PME at Kai Tak New Land 2	GW-RE0127-15	10 February 2015 - 23 July 2015	Superseded by GW-RE0751-15
- PME at Kai Tak New Land 2	GW-RE0751-15	29 July 2015 – 28 January 2016	-
- PME at Tam Kung Road	GW-RE0142-15	14 February 2015 - 8 August 2015	-
- PME at MTW Road North Bound & E3-E6	GW-RE0151-15	16 February 2015 - 12 August 2015	-
- PME at SUW works Area 2	GW-RE0643-15	30 June 2015 – 29 July 2015	Superseded by GW-RE0739-15
- PME at SUW works Area 2	GW-RE0739-15	29 July 2015 – 28 August 2015	-

<b>Permit/ Licences/ Notification</b>	<b>Reference</b>	<b>Validity Period</b>	<b>Remarks</b>
- <i>PME at Olympic Avenue</i>	GW-RE0532-15	2 Jun 2015 to 20 Nov 2015	
- <i>PME at Nam Kok Road</i>	GW-RE0529-15	1 Jun 2015 to 26 Nov 2015	
- <i>PME at Kai Tak New Land 1</i>	GW-RE0646-15	30 Jun 2015 to 18 Dec 2015	
- <i>PME at Olympic Garden</i>	GW-RE0302-15	2 Apr 2015 to 1 Oct 2015	
SP-Licence for TBM operation	L-3-249(1)	19 May 2015 – 18 May 2018	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

### 3.1 REGULAR CONSTRUCTION NOISE MONITORING

#### 3.1.1 Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was either rejected or unavailable; alternative locations were proposed and agreed by the ER (Engineer's Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in *Table 3.1* and shown in *Annex D*. The noise sensitive receivers (NSRs) related to this Works Contract are also shown in *Annex D*.

*Table 3.1 Regular Construction Noise Monitoring Location*

Proposed Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-6 (a)	No.16-23 Nam Kok Road	Façade
NMS-CA-7	Skytower Tower 2	Façade
NMS-CA-8	SKH Good Shepherd Primary School	Façade
NMS-CA-9 (b)	Kong Yiu Mansion	Façade
NMS-CA-10	Chat Ma Mansion	Façade

**Notes:**

(a) Access to the monitoring location at Prosperity House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. Furthermore, the alternative location, No. 420 Prince Edward Road West, used in the baseline monitoring was also not available as access permission was rejected by the owner of the building. An alternative location (No.16-23 Nam Kok Road) was proposed and approved by the ER and agreed by the IEC and EPD.

(b) As the Incorporated Owners Association of the monitoring location at Lucky Building (originally proposed in the approved EM&A Manual) did not reply to our request for access to their premise, an alternative location, Kong Yiu Mansion, was proposed and approved by the ER and agreed by the IEC and EPD.

#### 3.1.2 Monitoring Parameter and Frequency

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period is shown in *Annex E*.

The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{Aeq}$ ) in decibels dB(A).  $L_{Aeq(30min)}$  was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays. The measured noise levels were logged every 5 minutes throughout the monitoring period.

### 3.1.3 *Monitoring Equipment and Methodology*

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO)* (Cap 400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 3.2*, compile with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex F*.

**Table 3.2** *Noise Monitoring Equipment*

<b>Monitoring Stations</b>	<b>Monitoring Equipment (Sound Level Meter and Calibrator)</b>
NMS-CA-6	Calibrator: NC 73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)
NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator: NC 73 (Serial No. 10997142) Sound Level Meter: NL 18 (Serial No. 00360030)
NMS-CA-8	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted when the calibration level from before and after the noise measurement agreed to be within 1.0 dB(A).

### 3.1.4 *Action and Limit Levels*

The Action and Limit Levels are presented in *Table 3.3* and the Event / Action Plan (EAP) for noise monitoring is presented in *Annex G*.

**Table 3.3 Action and Limit Levels for Noise Monitoring**

Time Period	Regular Noise Monitoring Location	Action Level	Limit Level
0700 - 1900 hours on normal weekdays	NMS- CA-6	When one documented valid complaint is received	75 dB(A)
	NMS- CA-7	When one documented valid complaint is received	75 dB(A)
	NMS- CA-8	When one documented valid complaint is received	70 dB(A) 65 dB(A) during examination periods 79 dB(A) <sup>(b)</sup> during the period of conducting the continuous noise monitoring
	NMS- CA-9	When one documented valid complaint is received	75 dB(A)
	NMS- CA-10	When one documented valid complaint is received	75 dB(A)

**Notes:**

(a) If works are to be carried out during restricted hours (ie, outside 0700 – 1900 from Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

(b) The Limit Level of 79 dB(A) was updated on 22 August 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP), which were approved by EPD.

**3.2 CONTINUOUS NOISE MONITORING**

**3.2.1 Monitoring Locations**

With reference to the Continuous Noise Monitoring Plan (CNMP) and EP Condition 2.10, continuous noise monitoring should be conducted during the construction of the SCL (TAW-HUH) under Works Contract 1109 at eight noise sensitive receivers (NSRs), where the predicted residual air-borne construction noise impacts exceed the relevant noise criteria. The proposed continuous noise monitoring locations are presented in *Table 3.4* and shown in *Annex D*.

**Table 3.4 Proposed Continuous Noise Monitoring Locations**

Continuous Noise Monitoring Location <sup>(a)</sup>	Description
TKW-3-2(B)	Hing Fu Building
MTW-12-3(A)	SKH Good Shepherd Primary School
MTW-12-4(A)	Kong Yiu Mansion
MTW-12-4-1(A)	59 Maidstone Road
MTW-12-10	Lucky Building (South Façade)
MTW-12-10-1	Lucky Building (East Façade)
MTW-12-11(A)	SKH Good Shepherd Primary School
MTW-16-1	SKH Good Shepherd Primary School

**Note:**

(a) Subject to the latest Continuous Noise Monitoring Plan approved in October 2014 and

Continuous Noise Monitoring Location <sup>(a)</sup>	Description
review in March 2015.	

### 3.2.2 *Monitoring Parameter and Frequency*

Continuous monitoring of  $L_{Aeq(30min)}$  noise levels are required to be carried out at the eight proposed continuous noise monitoring locations identified in **Table 3.4** during the normal construction working hours (0700 – 1900 Monday to Saturday) in the period that presented in the CNMP. The recommended measurement period for the continuous noise monitoring programme in the CNMP are presented in **Table 3.6**. If works are to be carried out during restricted hours (ie, outside 0700 – 1900 from Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

### 3.2.3 *Monitoring Equipment and Methodology*

In accordance to the Technical Memorandum (TM) issued under the *Noise Control Ordinance* (NCO), sound level meters in compliance with the *International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1)* specifications will be used for carrying out the noise monitoring. The sound level meter and calibrator used for continuous noise measurement are listed in **Table 3.5**.

**Table 3.5** *Continuous Noise Monitoring Equipment*

Monitoring Station	Monitoring Equipment (Sound Level Meter and Calibrator)
MTW-16-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)

Immediately prior to the noise measurement, the accuracy of the sound level meter will be checked using an acoustic calibrator, which generated a known sound pressure level at a known frequency. The accuracy of the sound level meter will also be checked on an annual-basis. Measurements will be accepted as valid only if the calibration level before and after the noise measurement agrees to be within 1.0 dB(A). Noise measurements will be made in accordance with standard acoustical principles and practices in relation to weather conditions.

### 3.2.4 *Action and Limit Levels*

The Action/Limit Levels for the continuous noise monitoring programme recommended in the latest CNMP are presented in **Table 3.6**.



**Table 3.6 Action/Limit Levels for Continuous Noise Monitoring <sup>(a)</sup>**

<b>Proposed Continuous Noise Monitoring Stations</b>	<b>Description</b>	<b>Action / Limit Level <sup>(a)</sup></b>	<b>Measurement Period <sup>(a)</sup></b>
TKW-3-2(B)	Hing Fu Building	80	September 2014 – December 2014 <sup>(b)</sup>
MTW-12-3(A)	SKH Good Shepherd Primary School	80	August 2014 – January 2015 <sup>(b)</sup> , March 2015 – June 2015
MTW-12-4(A)	Kong Yiu Mansion	80	August 2014 – June 2015 <sup>(b)</sup>
MTW-12-4-1(A)	59 Maidstone Road	82	October 2014, December 2014 – June 2015
MTW-12-10	Lucky Building (South Façade)	84	March 2015 – April 2015, September 2015 – January 2016
MTW-12-10-1	Lucky Building (East Façade)	80	December 2014 – May 2015, September 2015 – January 2016
MTW-12-11(A)	SKH Good Shepherd Primary School	81	September 2014 – June 2015 <sup>(b)</sup>
MTW-16-1	SKH Good Shepherd Primary School	78	December 2012 – January 2013; April 2013 – 21 August 2013, 22 August 2013 – December 2013, August 2014 – March 2016

**Notes:**

- (a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP).
- (b) The latest CNMP was approved by EPD in October 2014. Continuous noise monitoring at TKW-3-2 (B), MTW-12-3(A), MTW-12-4(A) and MTW-12-11(A) commenced in October 2014.
- (c) The A/L Level of 79 dB(A) was updated on 22 August 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

The Event/Action Plan (EAP) of the latest CNMP for continuous noise monitoring is presented in *Annex G*.

### 3.3 CONSTRUCTION DUST MONITORING

#### 3.3.1 Monitoring Location

The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in *Table 3.7* and shown in *Annex D*. The proposed locations have been agreed with the ER, EPD and IEC.

**Table 3.7 Construction Dust Monitoring Location**

Proposed Construction Dust Monitoring Location	Description
DMS-6 <sup>(a)</sup>	Katherine Building
DMS-7	Parc 22
DMS-8	SKH Good Shepherd Primary School
DMS-9 <sup>(b)</sup>	No. 12 Pau Chung Street
DMS-10	Chat Ma Mansion

**Notes:**

- (a) Access to the monitoring location at Prosperity House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. Furthermore, the alternative location at No. 420 Prince Edward Road West, which was used in the baseline monitoring, was also not available as access permission was not granted by the owner of the building. An alternative location, Katherine Building, was proposed and had been approved by the ER and agreed by the IEC and EPD.
- (b) As the Incorporated Owners Association of the originally proposed monitoring location at Lucky Building did not reply to our request for access to their premise, an alternative location, No. 26 Kowloon City Road, was proposed and had been approved by the ER and agreed by the IEC and EPD. However, 24-hour averaged dust monitoring had been suspended at DMS-9 No. 26 Kowloon City Road since March 2014 due to denied access by the occupant of the premise. No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

**3.3.2 Monitoring Parameter and Frequency**

The construction dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in *Table 3.8*. The TSP monitoring was conducted as per the schedule presented in *Annex E*.

**Table 3.8 Construction Dust Monitoring Parameters and Frequency**

Monitoring Period	Duration	Parameter	Frequency
Dust Monitoring	Throughout the construction period of the Project	24-hour TSP	Once per 6 days

**3.3.3 Monitoring Equipment**

24-hour averaged TSP monitoring was performed at designated monitoring stations using High Volume Samplers (HVS) with the appropriate sampling inlets installed. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 3.9* summarises the equipment that was deployed for the 24-hour averaged monitoring.

**Table 3.9 Construction Dust Monitoring Equipment**

<b>Monitoring Location</b>	<b>Monitoring Equipment (HVS and Calibrator)</b>
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Orifice ID 2454)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2454)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2454)
DMS-9 (a)	TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2454)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Orifice ID 2454)

**Note:**  
 (a) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road had been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

### 3.3.4 Monitoring Methodology

All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind needed to be provided at the monitoring stations;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission could be obtained to set up the samplers and gain access to the monitoring stations.

#### *Preparation of Filter Papers*

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not varied by more than  $\pm 3^\circ\text{C}$ ; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes on the filters.

#### *Field Monitoring*

- the power supply was checked to ensure that the HVSs were working properly;

- the filter holder and area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVS was warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate record sheet was inserted into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m<sup>3</sup>min<sup>-1</sup>, which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 m<sup>3</sup>min<sup>-1</sup>);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- the filters were sent to SGS Hong Kong Ltd for analysis.

#### *Maintenance and Calibration*

- the HVSs and their accessories were maintained in a good working condition. For example, motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated every six-month. The calibration records for the HVSs are given in *Annex F*.

### Wind Data Monitoring

- Average wind data (wind speed and direction) at the Kai Tak meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in *Annex J*.

### 3.3.5 Action and Limit Levels

The Action and Limit levels have been established and are presented in *Table 3.10*.

**Table 3.10** *Action and Limit Levels for Dust Monitoring*

Parameters	Dust Monitoring Station	Action Level ( $\mu\text{g m}^{-3}$ ) <sup>(a)</sup>	Limit Level ( $\mu\text{g m}^{-3}$ ) <sup>(a)</sup>
24-hour TSP	DMS-6	156.8	260
	DMS-7	166.7	260
	DMS-8	152.2	260
	DMS-9 <sup>(c)</sup>	160.9	260
	DMS-10	170.4	260
1-hour TSP <sup>(b)</sup>	DMS-6	288.8	500
	DMS-7	289.7	500
	DMS-8	300.0	500
	DMS-9 <sup>(c)</sup>	303.0	500
	DMS-10	294.7	500

**Notes:**

- (a) Reference to the Baseline Monitoring Report submitted in July 2012.
- (b) Action and Limit Levels for 1-hour TSP will only be used when 1-hour TSP is required to be monitored when a valid complaint is received.
- (c) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road had been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

The Event/Action Plan (EAP) for dust monitoring is presented in *Annex G*.

## 3.4 CULTURAL HERITAGE

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from the Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage will be agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration levels will be controlled to appropriate levels. Vibration monitoring will be carried out by the Contractor. The structures requiring vibration monitoring during the relevant tunneling work for this Works Contract include S.K.H. Holy Trinity Church and Old Fast East Flying Training School.

### 3.5

#### *LANDSCAPE AND VISUAL MITIGATION MEASURES*

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in *Annex H*.

## **IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS**

The Contractor has implemented all the environmental mitigation measures and requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarised in *Annex H*. The status of the required submissions under the EP for this Works Contract during this reporting month is presented in *Table 4.1*.

**Table 4.1** *Status of Required Submission under Works Contract 1109*

<b>EP Condition</b>	<b>Submission</b>	<b>Submission Date</b>
Condition 3.4	Thirty-fourth Monthly EM&A Report	14 July 2015

## 5 MONITORING RESULTS

### 5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 20 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. The noise level recorded at all five monitoring locations during the whole reporting period are below baseline level or below limit level after baseline-level correction.

The monitoring results together with their graphical presentations are presented in *Annex I-1*.

### 5.2 CONTINUOUS NOISE MONITORING

Continuous noise monitoring is required at MTW-16-1 during the reporting month, according to the schedule presented in latest approved CNMP.

Continuous noise data at monitoring location MTW-16-1 was temporarily suspended between 12:15 on 9 July 2015 to 12:06 on 10 July 2015 due to Typhoon Signal No. 3 and above. Monitoring was resumed on 10 July 2014 after the signal was lowered.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 2-4 and 6-8 July 2015.

Investigation of exceedances on 22-27, 29, 30 June and 2-4 and 6-8 July 2015 had been completed and the investigation reports are presented in *Annex L*.

The monitoring results are presented in *Annex I-2*.

### 5.3 CONSTRUCTION DUST MONITORING

A total of 24 sets of 24-hr TSP monitorings were carried out at the designated monitoring stations during normal weekdays of the reporting period. The monitoring results together with their graphical presentations are presented in *Annex J* and a summary of the dust monitoring results in this reporting month is given in *Table 5.1*.

**Table 5.1** *Summary of the Dust Monitoring Results in this Reporting Month*

Monitoring Station	24-hour TSP Monitoring Results measured, $\mu\text{gm}^{-3}$ (a)		Action Level, $\mu\text{gm}^{-3}$	Limit Level, $\mu\text{gm}^{-3}$
	Average	Range		
DMS-6	62	58 – 67	156.8	260
DMS-7 (b)	-	-	166.7	260
DMS-8	61	56 – 73	152.2	260
DMS-9 (a)	64	62 - 69	160.9	260
DMS-10	64	57 - 70	170.4	260



Monitoring Station	24-hour TSP Monitoring Results		Action Level, $\mu\text{gm}^{-3}$	Limit Level, $\mu\text{gm}^{-3}$
	measured, $\mu\text{gm}^{-3}$ (a)			
	Average	Range		
<b>Note:</b>				
(a) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road has been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was approved by EPD. 24-hour averaged dust monitoring commenced on 12 June 2014.				
(b) 24-hour averaged dust monitoring at DMS-7 Parc-22 was temporary suspended since July 2015 due to request from the Management Office.				

No exceedance of the Action and Limit Levels of the 24-hr TSP was recorded during the reporting period.

#### 5.4

#### *CULTURAL HERITAGE*

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

Vibration monitoring was conducted at Hong Kong Aviation Club and S.K.H. Holy Trinity Church during the reporting period, no non-compliance was recorded.

#### 5.5

#### *WASTE MANAGEMENT*

The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.2*. Details of waste management data are presented in *Annex K*.

**Table 5.2 Quantities of Waste Generated from the Project**

Reporting Month	Quantity					
	Inert C&D Materials (a) (b)	Chemical Waste (c)	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Recycled materials		
				Paper/card board	Plastics	Metals
July 2015	34,471 m <sup>3</sup>	720 kg	218 m <sup>3</sup>	90 kg	4,972 kg	0 kg

**Notes:**

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.
- (b) About 34,471 m<sup>3</sup> of inert C&D materials were generated from the Project, and sent to 1108A Kai Tai Barging Facilities during the reporting month.
- (c) Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.

**5.6**

**LANDSCAPE AND VISUAL MITIGATION MEASURES**

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13 and 27 July 2015. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

13 July 2015

- No observation was reported during the site inspection.

27 July 2015

- No observation was reported during the site inspection.

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 6, 13, 20, and 27 July 2015. The representative of the IEC joined the site inspection on 13 July 2015. No non-compliance was recorded during the site inspections.

Findings and recommendations for the site inspection in this reporting month are summarised as follows:

6 July 2015

- The Contractor was reminded to provide sufficient drip trays for the chemical containers in the launching shaft.

13 July 2015

- The Contractor was reminded to further improve the cover of cement storage area at E6 works area.

20 July 2015

- There was no major observation during the site inspection.

27 July 2015

- The bunding at the entrance of MTW E1 works area was found insufficient. The Contractor was reminded to enhance the performance of the bunding to better control all the site runoff.
- Diversion of site runoff to wastewater treatment facility was found insufficient at MTW E1 works area. The Contractor was reminded to maintain good temporary drainage system to ensure all wastewater generated from site operation would be properly treated before any discharge.

All follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor. The abovementioned environmental issues had been addressed and mitigated during the reporting period.

## 7 ENVIRONMENTAL NON-CONFORMANCE

### 7.1 SUMMARY OF MONITORING EXCEEDANCE

No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded during the reporting month.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 2-4 and 6-8 July 2015.

Investigation of exceedances on 22-27, 29, 30 June and 2-4 and 6-8 July 2015 had been completed and the investigation reports are presented in *Annex L*.

### 7.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance event was recorded during the reporting month.

### 7.3 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month. The cumulative environmental complaint log is shown in *Annex M*.

### 7.4 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summon was received during the reporting month. The cumulative summon/prosecution log is shown in *Annex M*.

**8.1 KEY ISSUES FOR THE COMING MONTH**

Works to be undertaken in the next reporting month are summarised in *Table 8.1*.

**Table 8.1 Construction Works to be undertaken in the Next Reporting Month**

<b>Construction Activities to be undertaken</b>
<u>Work in Ma Tau Wai (MTW)</u>
<ul style="list-style-type: none"> <li>● TKW/MTW Road Garden – Operation of bentonite plant and EEP construction; and</li> <li>● Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, trial pits for location of utilities and station excavation.</li> </ul>
<u>Work in To Kwa Wan (TKW)</u>
<ul style="list-style-type: none"> <li>● Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;</li> <li>● Tam Kung Road – Shaft construction;</li> <li>● TKW Station – Pump installation, open cut excavation, and tunnelling works; and</li> <li>● Nam Kok Road – Installation of pipe pile.</li> </ul>

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise and waste management.

**8.2 MONITORING SCHEDULE FOR THE NEXT MONTH**

The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring in the next reporting period is presented in *Annex E*. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

**8.3 CONSTRUCTION PROGRAMME FOR THE NEXT MONTH**

The construction programme for the Project for the next reporting month is presented in *Annex B*.

This 35<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 July 2015 to 31 July 2015 in accordance with the EM&A Manual and the requirement under EP-438/2012/H.

No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting period.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 2-4 and 6-8 July 2015.

Investigation of exceedances on 22-27, 29, 30 June and 2-4 and 6-8 July 2015 had been completed and the investigation reports are presented in *Annex L*.

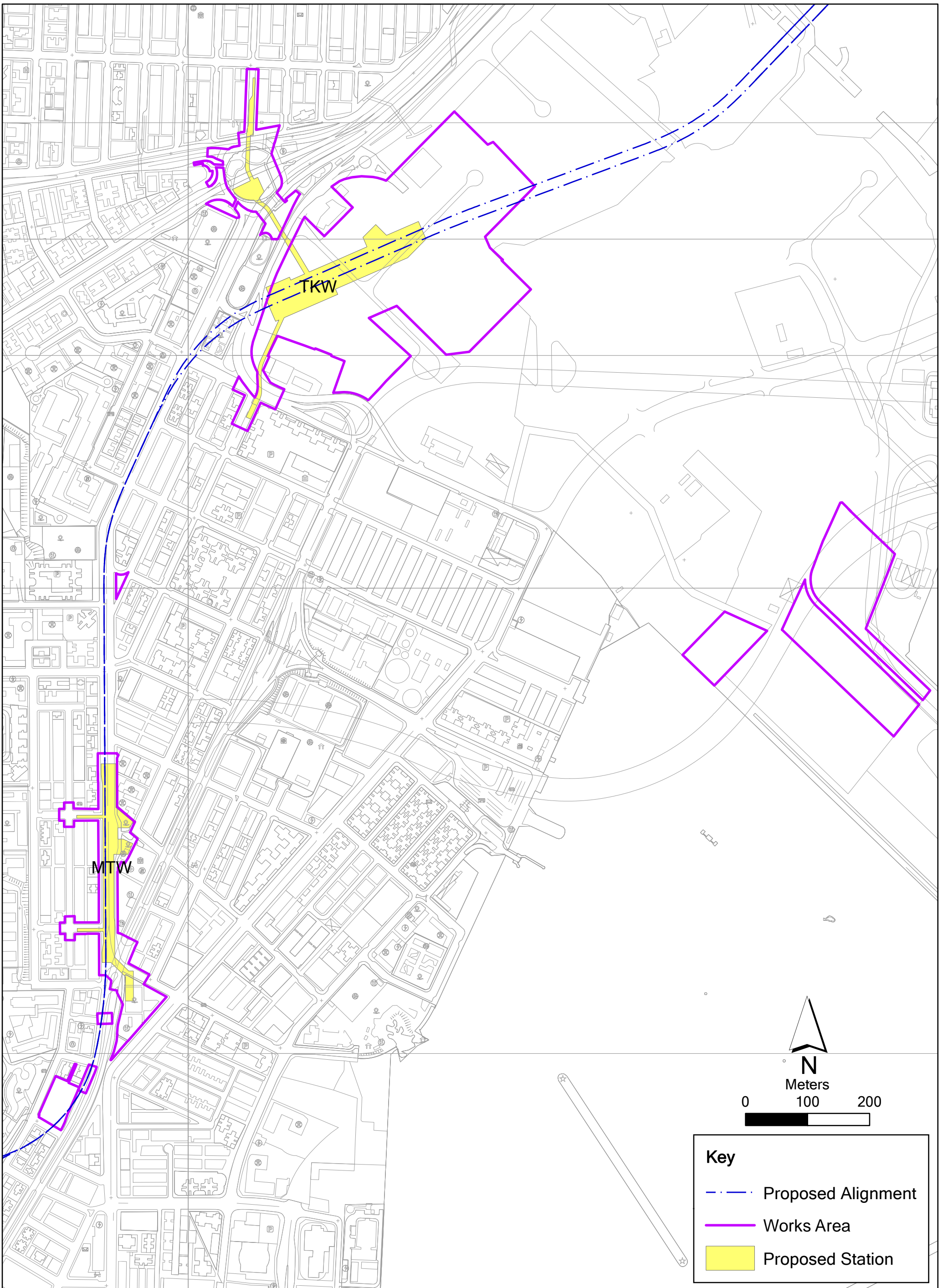
No complaint was received during the reporting period

No summon or prosecution was received during the reporting period.

The Contractor has implemented possible and feasible mitigation measures to mitigate the potential environmental impacts during construction. The Contractor's ET will continue to keep track of the EM&A programme to ensure compliance of environmental requirements and the effectiveness and efficiency of the mitigation measures implemented. If necessary, the Contractor will provide more mitigation measures to further alleviate the impacts.

Annex A

## The Alignment and Works Area for Works Contract



Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

Name: 0171181\_Works\_Area\_Annex.mxd  
Date: 12/08/2014

Environmental  
Resources  
Management





Annex B

## Construction Programme for the Reporting Month and the Coming Month <sup>(1)</sup>

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(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

THREE MONTH ROLLING PROGRAMME - JULY 2015

Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
<b>1109 - SUW &amp; TKW Stations and Tunnels July 2015 (UWP R5)</b>								
<b>PROJECT DATES</b>								
<b>Specified Milestone Dates</b>								
<b>CC-A Milestones</b>								
01109.MSA12	A12 - Engr's confirmation of satisfac implementation of safety & environ.reqmts as per approved spec. (Wk33/15;16Aug15)	0%		16-Aug-15*		◆		
<b>CC-C Milestones</b>								
01109.MSC13ii	C13(ii)-All permanent diaphragm wall complete & pumping test for Top Down Excav to CCL results accepted by the Engineer	0%		16-Oct-15				◆
<b>CC-D Milestones</b>								
01109.MSD09i	D9(i)-Manufacturing of pre-cast tunnel lining segments 65% by number complete.	100%		17-Jul-15 A	◆			
01109.MSD08b	D8(b)-Assembly, testing & commissioning of the second TBM complete & ready for tunnel driving.	0%		24-Sep-15			◆	
<b>CC-B - SUW STATION, ENTRANCES AND ADITS</b>								
<b>SUW Station Construction Works</b>								
<b>Station - Excavation and Foundation</b>								
<b>Earthworks</b>								
<b>Tie Back Anchor</b>								
<b>Row X</b>								
01109.PDBA1100A	Drilling of tie back anchor Row X, 9nos. (1 rig)	100%	19-Jun-15 A	27-Jun-15 A	■			
01109.PDBA1110A	Insert rebar	100%	24-Jun-15 A	29-Jun-15 A	■			
01109.PDBA1120A	Grouting	100%	24-Jun-15 A	29-Jun-15 A	■			
01109.PDBA1130A	Install waling & anchor head	100%	27-Jun-15 A	10-Jul-15 A	■			
01109.PDBA1140A	TDR test & welding test	100%	10-Jul-15 A	10-Jul-15 A	■			
01109.PDBA1150A	Shotcrete	100%	11-Jul-15 A	11-Jul-15 A	■			
<b>Row A</b>								
01109.PDBA1180A	Drilling of test anchor TP2 near G/L 10	100%	26-Jun-15 A	26-Jun-15 A	■			
01109.PDBA1190A	Install rebar & grouting	100%	29-Jun-15 A	29-Jun-15 A	■			
01109.PDBA1210A	Curing & gain strength of grout	100%	30-Jun-15 A	06-Jul-15 A	■			
01109.PDBA1240A	Pull out test	100%	07-Jul-15 A	07-Jul-15 A	■			
01109.PDBA1160A	Excavation to -1.5mPD (900m3 including rock / corestone) (18 Jul15)	100%	08-Jul-15 A	14-Jul-15 A	■			
01109.PDBA1200A	Drilling of tie back anchor A23-A31, 9nos. (1 rig)	100%	15-Jul-15 A	20-Jul-15 A	■			
01109.PDBA1170A	Setting up platform for drilling rig	100%	15-Jul-15 A	15-Jul-15 A	■			
01109.PDBA1220A	Drilling of tie back anchor A13-A23, 10nos. (1 rig)	100%	16-Jul-15 A	21-Jul-15 A	■			



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 1 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
- ▶ Last Month Update (June 2015)
- ◆ Milestone
- MP Rev.1 Milestone
- ▼ June 2015 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
01109.PDBA1230A	Insert rebar	100%	18-Jul-15 A	25-Jul-15 A				
01109.PDBA1250A	Grouting	0%	20-Jul-15 A	27-Jul-15				
01109.PDBA1260A	Install waling & anchor head	0%	23-Jul-15 A	30-Jul-15				
01109.PDBA1270A	TDR test & welding test	0%	31-Jul-15	01-Aug-15				
01109.PDBA1280A	Shotcrete	0%	04-Aug-15	05-Aug-15				
<b>Row B-1</b>								
01109.PDBA1290A	Excavation to -3mPD at G/L 7.5-10.5 (900m3 including rock/corestone)	0%	31-Jul-15	11-Aug-15				
01109.PDBA1300A	Setting up platform for drilling rig	0%	12-Aug-15	12-Aug-15				
01109.PDBA1310A	Drilling of tie back anchor, 16nos. (2 rigs)	0%	13-Aug-15	21-Aug-15				
01109.PDBA1320A	Insert rebar	0%	18-Aug-15	21-Aug-15				
01109.PDBA1330A	Grouting	0%	19-Aug-15	22-Aug-15				
01109.PDBA1340A	Install waling & anchor head	0%	21-Aug-15	25-Aug-15				
01109.PDBA1350A	TDR test & welding test	0%	26-Aug-15	28-Aug-15				
01109.PDBA1360A	Shotcrete	0%	29-Aug-15	29-Aug-15				
<b>Row B-2</b>								
01109.PDBA1370A	Excavation to -3mPD at G/L 10.5-14 (550m3 soil)	0%	31-Jul-15	01-Aug-15				
01109.PDBA1380A	Setting up platform for drilling rig	0%	04-Aug-15	04-Aug-15				
01109.PDBA1390A	Drilling of tie back anchor, 8nos. (1 rig)	0%	05-Aug-15	08-Aug-15				
01109.PDBA1400A	Insert rebar	0%	07-Aug-15	11-Aug-15				
01109.PDBA1410A	Grouting	0%	08-Aug-15	12-Aug-15				
01109.PDBA1420A	Install waling & anchor head	0%	11-Aug-15	14-Aug-15				
01109.PDBA1430A	TDR test & welding test	0%	15-Aug-15	19-Aug-15				
01109.PDBA1440A	Shotcrete	0%	01-Sep-15	01-Sep-15				
<b>Row C and Below</b>								
01109.PDBA1450A	Excavation and Tie Back Anchor for 4th Layer	0%	30-Aug-15	18-Sep-15				
01109.PDBA1460A	Excavation and Tie Back Anchor for 5th Layer	0%	19-Sep-15	08-Oct-15				
01109.PDBA1470A	Excavation and Tie Back Anchor for 6th Layer	0%	09-Oct-15	28-Oct-15				
<b>Stage 1 Excavation EGL to +1.0mPD &amp; form 1.5m berm</b>								
<b>Stage 1 Excavation, Zone 2</b>								
01109.PDB4060	Stg 1 - Excavation; Part 2- GL 7 to 8	100%	19-Jun-15 A	15-Jul-15 A				
<b>Stage 2 Excavation +1.0 to -6.0mPD &amp; form 1.5m berm</b>								
<b>Stage 2 Excavation, Zone 1</b>								
01109.PDB4730	Stg 2 - Excavation; Part 3- GL 17 to 18	0%	15-Jul-15 A	05-Aug-15				
01109.PDB4720	Stg 2 - Excavation; Part 3- GL 16 to 17	0%	06-Aug-15	14-Aug-15				



**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

1109-UWP-5ZA, Page 2 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
 Printed:05-Aug-15

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- June 2015 Milestone

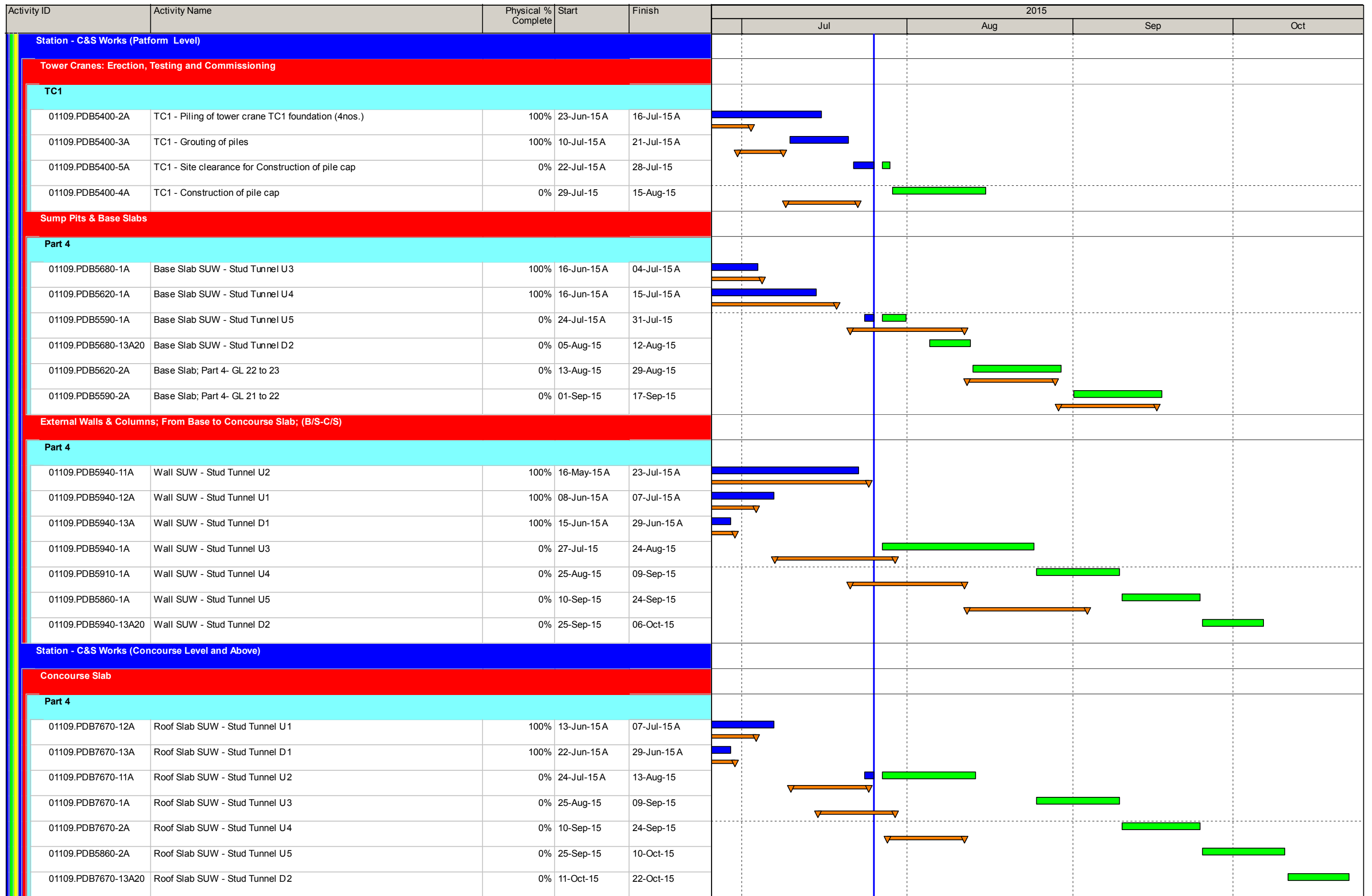
Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
01109.PDB4700	Stg 2 - Excavation; Part 3- GL 15 to 16	0%	15-Aug-15	25-Aug-15				
<b>Stage 2 Excavation, Zone 2</b>								
01109.PDB4560	Stg 2 - Excavation; Part 3- GL 11 to 12	0%	05-Aug-15	13-Aug-15				
01109.PDB4500	Stg 2 - Excavation; Part 3- GL 10 to 11	0%	14-Aug-15	24-Aug-15				
01109.PDB4690	Stg 2 - Excavation; Part 2- GL 9 to 10	0%	29-Aug-15	09-Sep-15				
01109.PDB4660	Stg 2 - Excavation; Part 2- GL 8 to 9	0%	10-Sep-15	18-Sep-15				
01109.PDB4630	Stg 2 - Excavation; Part 2- GL 7 to 8	0%	19-Sep-15	30-Sep-15				
01109.PDB4590	Stg 2 - Excavation; Part 2- GL 6 to 7	0%	02-Oct-15	10-Oct-15				
01109.PDB4550	Stg 2 - Excavation; Part 2- GL 5 to 6	0%	12-Oct-15	20-Oct-15				
<b>Stage 3 Excavation +6.0 to -13.5mPD</b>								
<b>Stage 3 Excavation, Zone 1</b>								
01109.PDB5280	Stg 3 - Excavation; Part 3- GL 15 to 16	0%	26-Aug-15	03-Sep-15				
01109.PDB5260	Stg 3 - Excavation; Part 3- GL 14 to 15	0%	04-Sep-15	12-Sep-15				
01109.PDB5230	Stg 3 - Excavation; Part 3- GL 13 to 14	0%	14-Sep-15	22-Sep-15				
01109.PDB5190	Stg 3 - Excavation; Part 3- GL 12 to 13	0%	23-Sep-15	02-Oct-15				
<b>Install dewatering wells &amp; monitoring sns / take readings 2</b>								
01109.PDB4900	Wells, instruments, readings 2; Part 2- GL 6 to 7	0%	14-Oct-15	19-Oct-15				
01109.PDB4830	Wells, instruments, readings 2; Part 3- GL 11 to 12	0%	14-Oct-15	19-Oct-15				
01109.PDB4940	Wells, instruments, readings 2; Part 2- GL 7 to 8	0%	20-Oct-15	26-Oct-15				
<b>Pile Load Tests</b>								
<b>Part 3</b>								
<b>(W61HP01)</b>								
01109.PDB2500-21A	W61HP01 Mobilization of Crane	100%	17-Jul-15 A	17-Jul-15 A				
01109.PDB2500-22A	W61HP01 Placing concrete block for girder beam	100%	17-Jul-15 A	17-Jul-15 A				
01109.PDB2500-23A	W61HP01 Installation of girder beam, secondary beam, concrete block placing	100%	18-Jul-15 A	23-Jul-15 A				
01109.PDB2500-24A	W61HP01 loading test	100%	27-Jul-15 A	30-Jul-15				
01109.PDB2500-25A	W61HP01 Dismantle work	100%	01-Aug-15 A	04-Aug-15				
<b>Earthing Mat and Waterproofing works</b>								
01109.PDB5360-08A	Earthing Mat installation (C.L 21 To G.L 24, C to F), Hual raod for mobilization	100%	22-Jun-15 A	12-Jul-15 A				
01109.PDB5360-05A	Earthing Mat installation (C.L 21 To G.L 24, C to F), Installation of 3.6m ground rod	100%	13-Jul-15 A	16-Jul-15 A				
01109.PDB5360-09A	Assess for pile loading test	0%	17-Jul-15 A	27-Jul-15				
01109.PDB5360-10A	Excavate to formation level	0%	26-Jul-15	27-Jul-15				
01109.PDB5360-06A	Earthing Mat installation (C.L 21 To G.L 24, C to F), Laying Copper tape	0%	28-Jul-15*	29-Jul-15				
01109.PDB5360-07A	Earthing Mat installation (C.L 21 To G.L 24, C to F), Casting the Blinding Layer	0%	30-Jul-15	31-Jul-15				



**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

1109-UWP-5ZA, Page 3 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP  
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 Printed:05-Aug-15

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**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

1109-UWP-5ZA, Page 4 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP  
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					Jul	Aug	Sep	Oct
<b>Entrance B and Associated Adits</b>								
<b>Entrance B - Olympic Avenue and SUW playground Works (GL B5 to B11)</b>								
01109.PDB-X0240A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Excavation for UU support (132KV & dia. 1650FD)	100%	20-May-15 A	29-Jun-15 A				
01109.PDB-X0300A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Installation of traffic decking	100%	12-Jun-15 A	13-Jul-15 A				
01109.PDB-X0210A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Grout hole drilling (32nos.)	100%	02-Jul-15 A	09-Jul-15 A				
01109.PDB-X0320A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Grouting (32nos.)	100%	02-Jul-15 A	20-Jul-15 A				
01109.PDB-X0350A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Road furniture & temp. road reinstatement	100%	06-Jul-15 A	28-Jul-15				
01109.PDB-X0330A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Abutment casting	100%	15-Jul-15 A	21-Jul-15 A				
01109.PDB-X0340A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Traffic decking (Final)	0%	26-Jul-15	29-Jul-15				
01109.PDB-X0360A	Olympic Avenue (Adit B1, GL B4.5-B6.5) -Traffic diversion	0%		29-Jul-15				
01109.PDB-X0370A	Olympic Avenue (Adit B1, GL B6.5 - 8.5) -Trial pit excavation & UUs identification	0%	30-Jul-15	15-Aug-15				
01109.PDB-X0380A	Olympic Avenue (Adit B1, GL B6.5 - 8.5) -UUs protection	0%	16-Aug-15	02-Sep-15				
<b>Entrance B - Kowloon City Interchange (GL B11 to B22)</b>								
01109.PDB-X11630A	Olympic Garden -Backfilling for piling platform to G/L (10 Layer) at Pier 46	100%	13-May-15 A	02-Jul-15 A				
01109.PDB-X11550A	Olympic Garden -BC & chemical grouting (GL 15.5 - 16.5) at Zone 4B (48 nos)	100%	20-May-15 A	02-Jul-15 A				
01109.PDB-X11560A	Olympic Garden -BC & chemical grouting (GL 13.5) at Zone 2 (38 nos)	100%	09-Jun-15 A	26-Jun-15 A				
01109.PDB-X11110A	Olympic Garden - Pumping test for Zone 1	100%	16-Jun-15 A	08-Jul-15 A				
01109.PDB-X12010A	Olympic Garden -Temporary support for existing watermain on Area 1	100%	02-Jul-15 A	17-Jul-15 A				
01109.PDB-X11610A	Olympic Garden -Pumping test for Zone 2	0%	15-Jul-15 A	08-Aug-15				
01109.PDB-X11610-1A	Olympic Garden -Pumping test for Zone 2 - Area 2 pumping test awaiting MTRC confirm	0%	01-Aug-15*	08-Aug-15				
<b>Excavation and ELS for Area 1 &amp; 2</b>								
01109.PDB-X11580A	Olympic Garden -Bulk excavation G/L to +5.5mPD on Area 1 (550m3)	100%	29-Jun-15 A	14-Jul-15 A				
01109.PDB-X12020A	Olympic Garden -Bulk excavation +5.5 to -0.5mPD on Area 1 (1248m3)	100%	24-Jul-15 A	29-Jul-15				
01109.PDB-X12021A	Rock excavation and Breaking on Area 1	0%	30-Jul-15	05-Aug-15				
01109.PDB-X12030A	Bulk excavation G/L to +5.5mPD on Area 2 (2288m3)	0%	10-Aug-15	22-Aug-15				
01109.PDB-X12031A	Install 1st wailing & strut on Area 2	0%	23-Aug-15	02-Sep-15				
01109.PDB-X12032A	Bulk excavation +5.5mPD to S2 on Area 2	0%	03-Sep-15	16-Sep-15				
01109.PDB-X12033A	Install 2nd wailing & strut on Area 2	0%	17-Sep-15	29-Sep-15				
01109.PDB-X12034A	Bulk excavation S2 to S3 on Area 2	0%	30-Sep-15	15-Oct-15				
01109.PDB-X12035A	Install 3rd wailing & strut on Area 2	0%	16-Oct-15	28-Oct-15				
<b>Entrance B - Underpinning of KNEC Piers</b>								
<b>Pier P74</b>								
01109.PDB12930	Dismantle temporary steel frame	0%	27-Jul-15*	15-Aug-15				
<b>Pier P75</b>								



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 5 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
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					Jul	Aug	Sep	Oct
01109.PDB13090	Dismantle temporary steel frame	0%	27-Jul-15*	15-Aug-15				
<b>Pier P76</b>								
01109.PDB13250	Dismantle temporary steel frame	0%	27-Jul-15*	15-Aug-15				
<b>Pier P46</b>								
01109.PDB-X11219A	Olympic Garden - Construction pilecap at Pier 46 (Suspend by MTRC on 13 May 2015)	80%	15-May-15 A	16-Aug-15				
01109.PDB-X11220A	Olympic Garden - Construction pilecap at Pier 46	0%	18-Aug-15	11-Sep-15				
01109.PDB-X11230A	Olympic Garden - Pier 46 - Installation of Temporary Supporting Frame	0%	11-Sep-15	06-Oct-15				
01109.PDB-X11240A	Olympic Garden - Pier 46 - Jack system installation	0%	06-Oct-15	12-Oct-15				
01109.PDB-X11250A	Olympic Garden - Pier 46 - Load Transfer Pier 46	0%	12-Oct-15	14-Oct-15				
01109.PDB-X11260A	Olympic Garden - Pier 46 - Demolition of Existing Pier 46 Pile Cap	0%	14-Oct-15	27-Oct-15				
<b>Entrance B - Nam Kok Road Works - (GL B22 to B30)</b>								
01109.PDB-X11701A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 1 of Jul	100%	26-Jun-15 A	04-Jul-15 A				
01109.PDB-X11702A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 2 of Jul	100%	04-Jul-15 A	11-Jul-15 A				
01109.PDB-X11703A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 3 of Jul	100%	11-Jul-15 A	18-Jul-15 A				
01109.PDB-X11704A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 4 of Jul	100%	18-Jul-15 A	25-Jul-15 A				
01109.PDB-X11705A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 1 of Aug	0%	25-Jul-15 A	31-Jul-15				
01109.PDB-X11706A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 2 of Aug	0%	01-Aug-15	07-Aug-15				
01109.PDB-X11707A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 3 of Aug	0%	08-Aug-15	14-Aug-15				
01109.PDB-X11708A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 4 of Aug	0%	15-Aug-15	21-Aug-15				
01109.PDB-X11709A	Pipe pile construction (GL 23-27) - 79 nos, Soldier pile construction (GL 23-27) - 16 nos, 4 nos per week, Week 5 of Aug	0%	22-Aug-15	28-Aug-15				
<b>Entrance B - Nam Kok Road Works - (GL B19 to B23)</b>								
01109.PDB-X11670A	Nam Kok Road (GL B19-B23) - TTMS, stage 2, phase 3 implementation	100%	26-Jun-15 A	27-Jun-15 A				
01109.PDB-X11680A	Nam Kok Road (GL B19-B23) - Excavation for low-rise drilling rib	100%	27-Jun-15 A	09-Jul-15 A				
01109.PDB-X11690A	Nam Kok Road (GL B19-B23) - Mobilization of piling machine	100%	10-Jul-15 A	13-Jul-15 A				
01109.PDB-X11700A	Nam Kok Road (GL B19-B23) - Pipe piling commencement	100%	16-Jul-15 A	16-Jul-15 A				
01109.PDB-X11810A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig)	100%	16-Jul-15 A	24-Jul-15 A				
01109.PDB-X11811A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig), Week 1 of Aug	0%	24-Jul-15 A	31-Jul-15				
01109.PDB-X11812A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig), Week 2 of Aug	0%	01-Aug-15	07-Aug-15				
01109.PDB-X11813A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig), Week 3 of Aug	0%	08-Aug-15	14-Aug-15				
01109.PDB-X11814A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig), Week 4 of Aug	0%	15-Aug-15	19-Aug-15				
<b>CC-C - TKW STATION, ENTRANCES AND ADITS</b>								
<b>TKW Station</b>								
<b>Top Slab, Utility, &amp; Backfill EAST side</b>								
<b>Area E1-1 - GL 1 to 5.5</b>								



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 6 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15

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- June 2015 Milestone

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					Jul	Aug	Sep	Oct
01109.PDC29255A	E1-1 - Toe Grouting (remaining)	70%	23-Apr-15 A	30-Jul-15				
01109.PDC19210A	E1-1 - Structure; Remove strut & walers; Install Retaining Wall	100%	12-Jun-15 A	02-Jul-15 A				
01109.PDC19230	E1-1 - Earthwork; Backfill for road reinstatement	100%	16-Jun-15 A	08-Jul-15 A				
01109.PDC29255-1A	P133 remedial grouting	59%	23-Jun-15 A	14-Aug-15				
01109.PDC19240	E1-1 - Pavement for next TTM	100%	08-Jul-15 A	08-Jul-15 A				
<b>Area E2-1 - GL 5.5 to 10</b>								
01109.PDC8310-1A	E2-1 - Earthwork; Excavation for roof slab concrete (1.5m)	100%	16-Jun-15 A	26-Jun-15 A				
01109.PDC8310-2A	E2-1 - Earthwork; Excavation for roof slab concrete (main excav)	100%	22-Jun-15 A	29-Jun-15 A				
01109.PDC8330	E2-1 - Structure; Roof slab r-c works	100%	26-Jun-15 A	09-Jul-15 A				
01109.PDC8320	E2-1 - Steelwork; Installation of struts and walers (ELS works)	100%	30-Jun-15 A	04-Jul-15 A				
01109.PDC8340	E2-1 - Structure; Waterproofing of roof Slab	100%	10-Jul-15 A	13-Jul-15 A				
01109.PDC1927A	E2-1 - Structure; Remove strut & walers; Install Retaining Wall	100%	13-Jul-15 A	21-Jul-15 A				
01109.PDC8360	E2-1 - Earthwork; Backfill	100%	14-Jul-15 A	25-Jul-15 A				
01109.PDC8370	E2-1 - Pavement for next TTM	100%	15-Jul-15 A	25-Jul-15 A				
01109.PDC29237A	E2-1 - Toe Grouting (remaining)	0%	26-Jul-15	06-Aug-15				
<b>Area E2-2 - GL 10 to 12.5</b>								
01109.PDC5170	E2-2 - Earthwork; Backfill for road reinstatement	100%	25-Jun-15 A	27-Jun-15 A				
01109.PDC5180	E2-2 - Pavement for next TTM	100%	26-Jun-15 A	29-Jun-15 A				
<b>Area E2-3 - GL 12.5 to 15</b>								
01109.PDC8870-1A	E2-3 - Earthwork; Excavation for roof slab concrete (1.5m)	100%	19-Jun-15 A	26-Jun-15 A				
01109.PDC8870-2A	E2-3 - Earthwork; Excavation for roof slab concrete (main excav)	100%	27-Jun-15 A	04-Jul-15 A				
01109.PDC8890	E2-3 - Structure; Roof slab r-c works	100%	06-Jul-15 A	13-Jul-15 A				
01109.PDC8880	E2-3 - Steelwork; Installation of struts and walers (ELS works)	100%	07-Jul-15 A	08-Jul-15 A				
01109.PDC8900	E2-3 - Structure Waterproofing of roof slab	100%	14-Jul-15 A	14-Jul-15 A				
01109.PDC1925A	E2-3 - Structure; Remove strut & walers; Install Retaining Wall	100%	15-Jul-15 A	22-Jul-15 A				
01109.PDC8920	E2-3 - Earthwork; Backfill for road reinstatement	100%	17-Jul-15 A	22-Jul-15 A				
01109.PDC8930	E2-3 - Pavement for next TTM	100%	23-Jul-15 A	25-Jul-15 A				
01109.PDC29374-3A	EI No. 121 - (BMW FG) Drilling and grouting - 3 holes	0%	27-Jul-15	29-Jul-15				
<b>Area E3-1 - GL 15 to 17</b>								
01109.PDC5960	E3-1 - Structure; Roof slab r-c works	100%	19-Jun-15 A	08-Jul-15 A				
01109.PDC6680A	E3-1 - Steelwork; Installation of struts and walers (ELS works)	100%	27-Jun-15 A	27-Jun-15 A				
01109.PDC5970	E3-1 - Structure Waterproofing of roof slab	100%	09-Jul-15 A	13-Jul-15 A				
01109.PDC1924A	E3-1 - Structure; Remove strut & walers; Install Retaining Wall	100%	14-Jul-15 A	17-Jul-15 A				
01109.PDC5990	E3-1 - Earthwork; Backfill for road reinstatement	100%	20-Jul-15 A	25-Jul-15 A				



**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

1109-UWP-5ZA, Page 7 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP  
 Dates, MTRC 1109 - 3MRP.  
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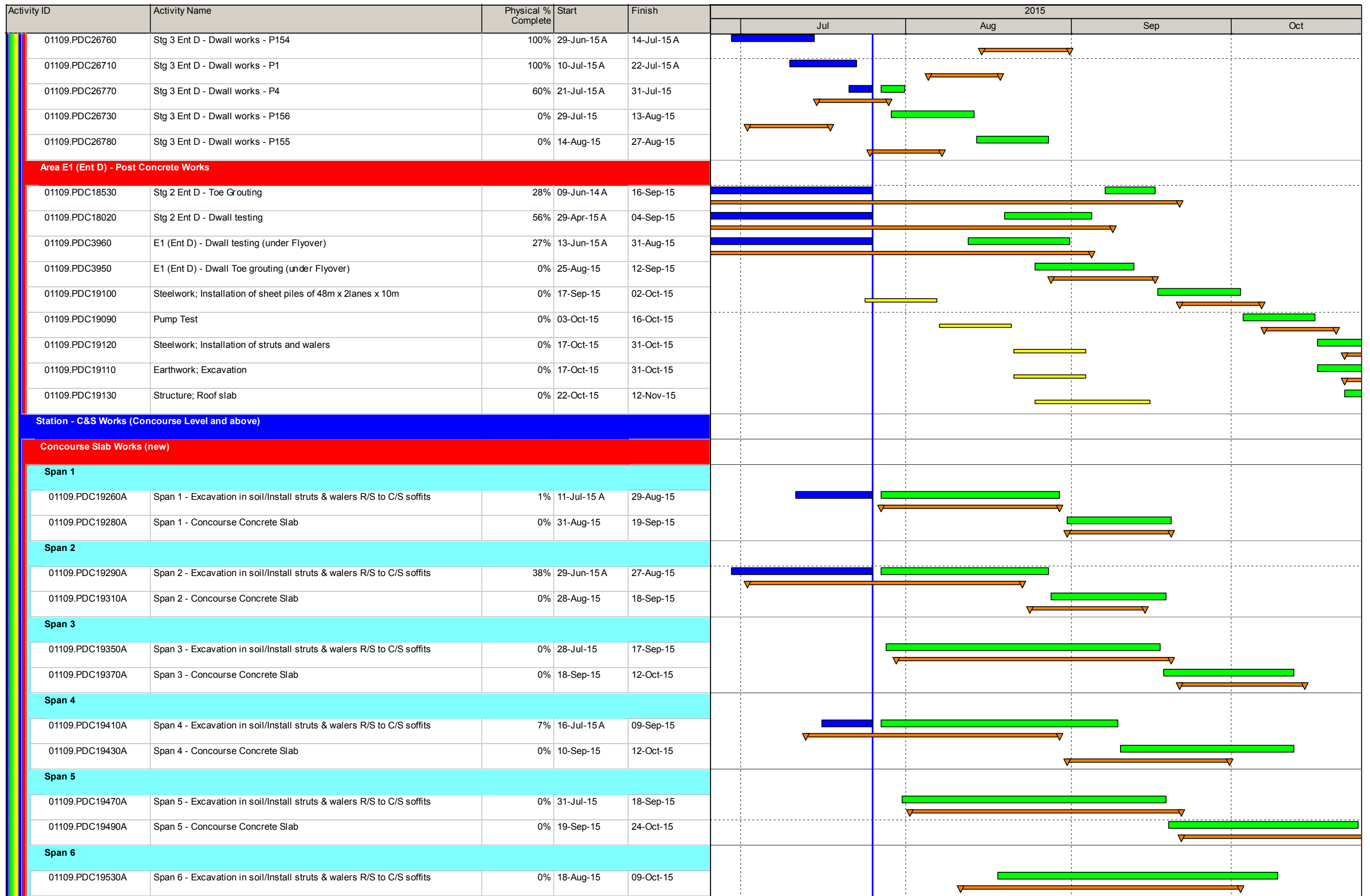
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01109.PDC6000	E3-1 - Pavement for next TTM	0%	27-Jul-15	31-Jul-15				
<b>Area E3-2 - GL 17 to 19.5</b>								
01109.PDC6700	E3-2 - Structure; Roof slab r-c works	100%	19-Jun-15 A	08-Jul-15 A				
01109.PDC6710	E3-2 - Structure; Waterproofing of roof slab	100%	09-Jul-15 A	13-Jul-15 A				
01109.PDC1923A	E3-2 - Structure; Remove strut & walers; Install Retaining Wall	100%	14-Jul-15 A	17-Jul-15 A				
01109.PDC6730	E3-2 - Earthwork; Backfill for road reinstatement	44%	15-Jul-15 A	31-Jul-15				
01109.PDC6740	E3-2 - Pavement for next TTM	0%	01-Aug-15	10-Aug-15				
<b>Area E3-3 - GL 19.5 to 21.5</b>								
01109.PDC8110-2A	E3-3 - Earthwork; Excavation for roof slab concrete (main excav)	100%	18-Jun-15 A	06-Jul-15 A				
01109.PDC8140	E3-3 - Structure; Roof slab r-c works	100%	22-Jun-15 A	25-Jul-15 A				
01109.PDC8150	E3-3 - Structure; Waterproofing of roof slab	0%	27-Jul-15	29-Jul-15				
01109.PDC1922A	E3-3 - Structure; Remove strut & walers	0%	30-Jul-15	30-Jul-15				
01109.PDC8170	E3-3 - Earthwork; Backfill for road reinstatement	0%	31-Jul-15	13-Aug-15				
01109.PDC29241-1A	E3-3 - Remedial Works P94 (remaining)	0%	31-Jul-15	11-Aug-15				
01109.PDC29195A	E3-3 - Shear Pin	0%	14-Aug-15	31-Aug-15				
01109.PDC8180	E3-3 - Pavement for next TTM	0%	27-Aug-15	04-Sep-15				
<b>Area E6-1 - GL 21.5 to 25</b>								
01109.PDC19212A	E6-1 - Structure; Remove strut & walers; Install Retaining Wall	100%	04-Jun-15 A	27-Jun-15 A				
01109.PDC29425A	E6-1 - Earthwork; Backfill for road reinstatement	100%	10-Jun-15 A	07-Jul-15 A				
01109.PDC8180A	E6-1 - Pavement for next TTM	100%	02-Jul-15 A	11-Jul-15 A				
01109.PDC29196A	E6-1 - Shear Pin	41%	10-Jul-15 A	30-Jul-15				
<b>Area E6-2 - GL 25 to 28</b>								
01109.PDC29195	E6-2 - Shear Pin	100%	02-Jun-15 A	07-Jul-15 A				
01109.PDC16231A	Bus Stop Shifting from E3 to E6	0%	31-Jul-15	08-Aug-15				
<b>Entrance D Diaphragm Wall during EAST side Top Slab</b>								
<b>BC Cutter 1</b>								
01109.PDC23900	E1 (Ent D) - Dwall works P10 (under TKW Flyover)	100%	09-Jun-15 A	27-Jun-15 A				
01109.PDC23920	E1 (Ent D) - Dwall works P136 (under TKW Flyover)	100%	19-Jun-15 A	11-Jul-15 A				
01109.PDC23410	E1 (Ent D) - Dwall works P134 (under TKW Flyover)	100%	03-Jul-15 A	18-Jul-15 A				
01109.PDC23930-1A	E1 (Ent D) - Dwall works P9 (under TKW Flyover) - excav, rebar and backfill	80%	14-Jul-15 A	27-Jul-15				
01109.PDC23890	E1 (Ent D) - Dwall works P135 (under TKW Flyover)	50%	20-Jul-15 A	06-Aug-15				
01109.PDC23930-2A	E1 (Ent D) - Dwall works P9 (under TKW Flyover) - curtain grouting, re-excav, rebar and conc	0%	28-Jul-15	22-Aug-15				
<b>BC Cutter 4</b>								
01109.PDC29375-2A	Stg 3 Ent D - Dwall works - P149 (Part 2 - excav, rebar, conc)	100%	17-Jun-15 A	30-Jun-15 A				



**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

1109-UWP-5ZA, Page 8 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP  
 Dates, MTRC 1109 - 3MRP.  
 Printed:05-Aug-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (June 2015)
- Milestone
- MP Rev.1 Milestone
- June 2015 Milestone



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 9 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15

- Actual Work
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2015				
					Jul	Aug	Sep	Oct	
01109.PDC19550A	Span 6 - Concourse Concrete Slab	0%	10-Oct-15	07-Nov-15					
<b>Span 7</b>									
01109.PDC19590A	Span 7 - Excavation in soil/Install struts & walers R/S to C/S soffits	4%	24-Jul-15 A	14-Sep-15					
01109.PDC19610A	Span 7 - Concourse Concrete Slab	0%	15-Sep-15	13-Oct-15					
<b>Span 8</b>									
01109.PDC19620A	Span 8 - Excavation in soil/Install struts & walers R/S to C/S soffits	49%	27-Jun-15 A	17-Aug-15					
01109.PDC19640A	Span 8 - Concourse Concrete Slab	0%	18-Aug-15	07-Sep-15					
<b>Concourse Mezzanine</b>									
<b>Span 12, 13 &amp; 14</b>									
01109.PDC19690	Span 12,13 - Concourse Mezzanine Slab	0%	14-Oct-15	25-Nov-15					
<b>Entrance A &amp; Vent Shaft A</b>									
<b>Vent Shaft A</b>									
<b>Foundation</b>									
01109.PDC27330A	VSA Part B - Trial trench (P1 to P30)	0%	27-Jul-15	29-Jul-15					
01109.PDC27331A	VSA Part A - Trial trench (P70 to P84)	0%	30-Jul-15	01-Aug-15					
01109.PDC27332A	VSA Part B - Pipe Pile (P1 to P30)	0%	30-Jul-15	15-Oct-15					
01109.PDC27333A	VSA Part A - Pipe Pile (P70 to P84)	0%	10-Aug-15	16-Sep-15					
01109.PDC27340A	VSA Part A - Pipe Pile (P53 to P60)	0%	17-Sep-15	08-Oct-15					
01109.PDC27330	Vent Shaft A - Curtain Grouting to outside of pipepiles	0%	05-Oct-15	16-Jan-16					
01109.PDC27327A	VSA Part C - Trial trench (P30 to P52)	0%	16-Oct-15	23-Oct-15					
01109.PDC27337A	VSA Part C - Pipe Pile (P30 to P52) 6 nos	0%	24-Oct-15	06-Nov-15					
<b>Entrance B</b>									
01109.PDC22710	Ent B - Installation sheetpile (including Pumping Test) - Part 1	54%	28-May-15 A	31-Oct-15					
<b>Entrance C</b>									
<b>Entrance C</b>									
01109.PDC22790-1A	Ent C - Installation_sheetpile (part 1)	100%	13-Jun-15 A	04-Jul-15 A					
01109.PDC22790-2A	Ent C - Watermain diversion works	45%	08-Jul-15 A	18-Aug-15					
01109.PDC22790-3A	Ent C - Installation_sheetpile (part 2)	0%	19-Aug-15	30-Sep-15					
01109.PDC22790-4A	Ent C - Pump test	0%	02-Oct-15	28-Oct-15					
<b>CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION</b>									
<b>Specialised Construction Machinery Site Assembly and Related Establishment</b>									
<b>Specialised Construction Machinery Site Assembly and Related Establishment</b>									
01109.PDD1120-01A	Tunnel Eeye Removal	100%	26-Jun-15 A	04-Jul-15 A					
01109.PDD1120-02A	Tunnel Eye Concreting	100%	06-Jul-15 A	15-Jul-15 A					



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 10 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
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- MP Rev.1 Milestone
- June 2015 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
01109.PDD1120-04A	Lower and install entrance ring pieces (4 no.) - only	0%	03-Aug-15	20-Aug-15				
01109.PDD1120-06A	Connection and Commissioning	0%	10-Sep-15	24-Sep-15				
01109.PDD1120-07A	Advance to Face and Commence excavation	0%	25-Sep-15	25-Sep-15				
01109.PDD1120-08A	Initial Drive Stage 1 T4-T10	0%	26-Sep-15	10-Oct-15				
<b>Bored Tunnel Down Track (D99+583 to D101+514)</b>								
<b>Tunnel from SUW to TKW (D99+583 to D100+432)</b>								
<b>TBM</b>								
01109.PDD1170	Ch D99+683 to +761 - Learning Curve 78m @4.8m/shift	100%	16-Jun-15 A	29-Jun-15 A				
01109.PDD1180	Ch D99+761 to 100+040 - Tunnel excavation & segmental lining 279m @ 6.4 m/shift	0%	29-Jun-15 A	06-Aug-15				
01109.PDD1190	Ch D100+040 - Cutter maintenance 1	0%	07-Aug-15	07-Aug-15				
01109.PDD1200	Ch D100+040 to +083 - Tunnel excavation & segmental lining (Mixed Ground) 43m @1.7 m/shift	0%	08-Aug-15	21-Aug-15				
01109.PDD1210	Ch D100+083 - Cutter maintenance 2	0%	22-Aug-15	22-Aug-15				
01109.PDD1220	Ch D100+083 to 100+224 - Tunnel excavation & segmental lining (Rock) 141m @3.3 m/shift	0%	24-Aug-15	15-Sep-15				
01109.PDD1230	Ch D100+224 - Cutter maintenance 3	0%	16-Sep-15	16-Sep-15				
01109.PDD1240	Ch D100+224 to 100+287 - Tunnel excavation & segmental lining (Mixed Ground) 63m @1.7 m/shift	0%	17-Sep-15	10-Oct-15				
01109.PDD1250	Ch D100+287 to 100+300 - Tunnel excavation & segmental lining (Rock) 13m @6.4 m/shift	0%	12-Oct-15	13-Oct-15				
01109.PDD1260	Ch D100+300 - Cutter maintenance 4	0%	14-Oct-15	14-Oct-15				
01109.PDD1270	Ch D100+300 to 100+432 - Tunnel excavation & segmental lining (Mixed Ground) 132m @1.7 m/shift	0%	15-Oct-15	30-Nov-15				
<b>Bored Tunnel Up Track (U99+565 to U101+490)</b>								
<b>Tunnel from SUW to TKW (U99+565 to U100+421)</b>								
<b>TBM</b>								
01109.PDD1750-1A	Initial Drive Stage 2 R1-12	0%	12-Oct-15	15-Oct-15				
01109.PDD1750-2A	Reset Slurry pipes	0%	16-Oct-15	16-Oct-15				
01109.PDD1750-3A	Initial Drive Stage 3 R13-R60	0%	17-Oct-15	24-Oct-15				
<b>Chatham Road North</b>								
<b>EEP (EI No.52)</b>								
<b>EI 52 - Preparation Works</b>								
01109.PDDEI52004	EI 52 - Grout Curtain to shaft	0%	01-Sep-15	31-Oct-15				
<b>Pipe Pile (remaining - Rig No.1)</b>								
01109.PDDEI52171A	EI 52 - H Pile Installation	40%	05-Jun-15 A	14-Sep-15				
01109.PDDEI52050A	EI 52 - Pipe Piling Works P21 (drilling)	100%	23-Jun-15 A	25-Jun-15 A				
01109.PDDEI52121A	EI 52 - Pipe Piling Works P31 (drilling)	100%	26-Jun-15 A	29-Jun-15 A				
01109.PDDEI52110A	EI 52 - Pipe Piling Works P32 (drilling)	100%	30-Jun-15 A	03-Jul-15 A				
01109.PDDEI52111A	EI 52 - Pipe Piling Works P33 (drilling)	100%	03-Jul-15 A	06-Jul-15 A				



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 11 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
01109.PDDEI52100A	EI 52 - Pipe Piling Works P34 (drilling)	100%	06-Jul-15 A	08-Jul-15 A				
01109.PDDEI52102A	EI 52 - Pipe Piling Works P35 (drilling)	100%	09-Jul-15 A	13-Jul-15 A				
01109.PDDEI52090A	EI 52 - Pipe Piling Works P36 (drilling)	100%	14-Jul-15 A	20-Jul-15 A				
01109.PDDEI52370A	EI 52 - Pipe Piling Works P45 (drilling)	100%	21-Jul-15 A	23-Jul-15 A				
01109.PDDEI52040A	EI 52 - Pipe Piling Works P44 (drilling)	67%	24-Jul-15 A	27-Jul-15				
01109.PDDEI52340A	EI 52 - Pipe Piling Works P43 (drilling)	0%	28-Jul-15	30-Jul-15				
01109.PDDEI52060A	EI 52 - Pipe Piling Works P42 (drilling)	0%	31-Jul-15	03-Aug-15				
01109.PDDEI52071A	EI 52 - Pipe Piling Works P41 (drilling)	0%	04-Aug-15	06-Aug-15				
01109.PDDEI52070A	EI 52 - Pipe Piling Works P40 (drilling)	0%	07-Aug-15	10-Aug-15				
01109.PDDEI52320A	EI 52 - Pipe Piling Works P39 (drilling)	0%	11-Aug-15	13-Aug-15				
01109.PDDEI52080A	EI 52 - Pipe Piling Works P38 (drilling)	0%	14-Aug-15	17-Aug-15				
01109.PDDEI52093A	EI 52 - Pipe Piling Works P37 (drilling)	0%	18-Aug-15	20-Aug-15				
01109.PDDEI52210A	EI 52 - Pipe Piling Works P17 (drilling)	0%	21-Aug-15*	24-Aug-15				
01109.PDDEI52190A	EI 52 - Pipe Piling Works P16 (drilling)	0%	25-Aug-15	27-Aug-15				
01109.PDDEI52170A	EI 52 - Pipe Piling Works P15 (drilling)	0%	28-Aug-15	31-Aug-15				
<b>To Kwa Wan Ancillary Building</b>								
<b>Excavation and Foundation</b>								
<b>Stage 4</b>								
01109.PDD3170-2A	Rock / Corestone Excavation at -7.25 mPD from 2 Jun 2015	100%	02-Jun-15 A	06-Jul-15 A				
01109.PDD3180A	Install 5th layer Ring Beam at -9.5mPD (modified)	100%	06-Jul-15 A	07-Jul-15 A				
<b>Stage 5</b>								
01109.PDD3191A	Excavate shaft rock to -11.5mPD	100%	06-Jul-15 A	17-Jul-15 A				
01109.PDD3192A	Excavate shaft rock to -12.8mPD	0%	17-Jul-15 A	10-Aug-15				
01109.PDD4020	Canopy Tube Installation for Upper Adit 12 out of 22	0%	23-Jul-15 A	06-Aug-15				
01109.PDD3194A	Excavate shaft rock to -13.25mPD	0%	11-Aug-15	14-Aug-15				
01109.PDD4350	Canopy Tube Installation for Upper Adit remaining 10 out of 22	0%	15-Aug-15	27-Aug-15				
01109.PDD3200A	Excavate shaft rock to -14.5mPD	0%	28-Aug-15	12-Sep-15				
01109.PDD3201A	Excavate shaft rock to -15.46mPD	0%	14-Sep-15	23-Sep-15				
01109.PDD3210	Excavate shaft rock to -18.4mPD	0%	08-Oct-15	07-Nov-15				
<b>Excavate for (Initial Upper adit excavation)</b>								
01109.PDD3290	Upper adit excavation & initial ground support 0 to 5m	0%	24-Sep-15	07-Oct-15				
<b>CC-E - REPROVISIONING, REMEDIAL AND IMPROVEMENT WORKS (RRIW)</b>								
<b>General C &amp; S Works</b>								
<b>KS33</b>								



MTR Corporation Limited  
Shatin to Central Link Contract 1109

1109-UWP-5ZA, Page 12 of 13  
THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.  
Printed:05-Aug-15








- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (June 2015)
- Milestone
- MP Rev.1 Milestone
- June 2015 Milestone

Activity ID	Activity Name	Physical % Complete	Start	Finish	2015			
					Jul	Aug	Sep	Oct
01109.PDE1050-32A	BC grouting for KS33	100%	29-Jun-15 A	03-Jul-15 A				
01109.PDE1050-33-A	Chemical grouting for KS33	100%	04-Jul-15 A	08-Jul-15 A				
01109.PDE1050-9A	KS33 - Excavation & ELS (1st layer)	100%	15-Jul-15 A	25-Jul-15 A				
01109.PDE1050-10A	KS33 - Excavation & ELS (2nd layer)	0%	26-Jul-15	04-Aug-15				
01109.PDE1050-11A	KS33 - Excavation to formation level	0%	05-Aug-15	10-Aug-15				
01109.PDE1050-12A	KS33 - Blinding construction (up to +2.1mPD) (Back Blinding incl formwork)	0%	11-Aug-15	25-Aug-15				
01109.PDE1050-13A	KS33 - Waterproofing (Sump pit & base slab)	0%	26-Aug-15	27-Aug-15				
01109.PDE1050-14A	KS33 - Rebar fixing (Sump pit & base slab)	0%	28-Aug-15	31-Aug-15				
01109.PDE1050-15A	KS33 - Formwork (Sump pit & base slab)	0%	01-Sep-15	03-Sep-15				
01109.PDE1050-16A	KS33 - Concrete casting (Sump pit & base slab)	0%	04-Sep-15	04-Sep-15				
01109.PDE1050-6A	Reconstruction of existing subway structure	0%	09-Oct-15	17-Dec-15				
<b>KS34</b>								
01109.PDE1051-2A	Pipe piling for KS34	40%	29-May-15 A	14-Aug-15				
01109.PDE1051-3A	Grout curtain for KS34	0%	15-Aug-15	13-Oct-15				
01109.PDE1051-4A	Pumping test for KS34	0%	14-Oct-15	12-Nov-15				



**MTR Corporation Limited**  
**Shatin to Central Link Contract 1109**

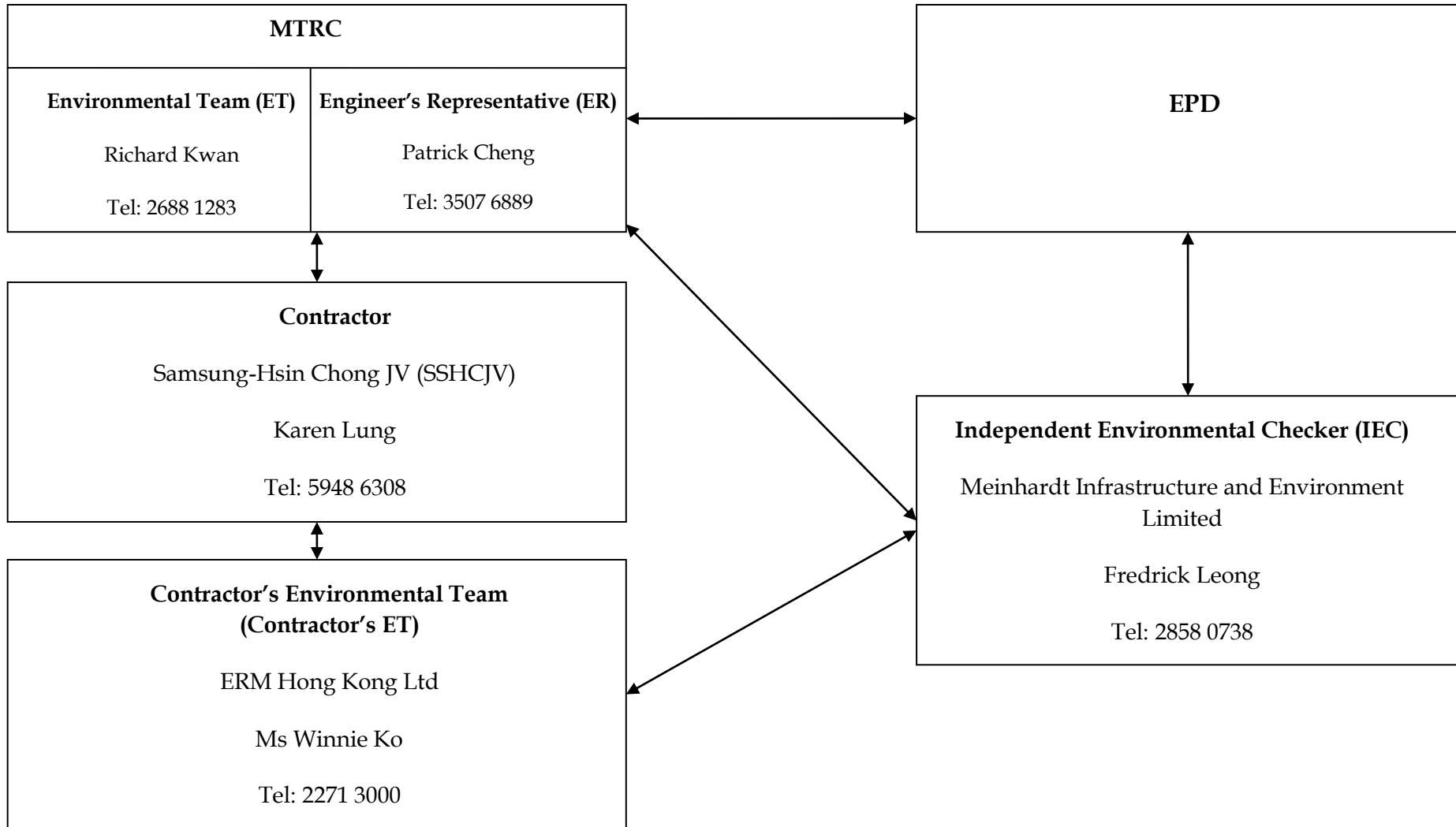
1109-UWP-5ZA, Page 13 of 13  
 THREE MONTH ROLLING PROGRAMME - July 15 TASK filters: 3MRP  
 Dates, MTRC 1109 - 3MRP.  
 Printed:05-Aug-15

-  Actual Work
-  Remaining Work
-  Master Programme Rev.1
-  Last Month Update (June 2015)
-  Milestone
-  MP Rev.1 Milestone
-  June 2015 Milestone

Annex C

## Project Organization Chart and Contact Detail

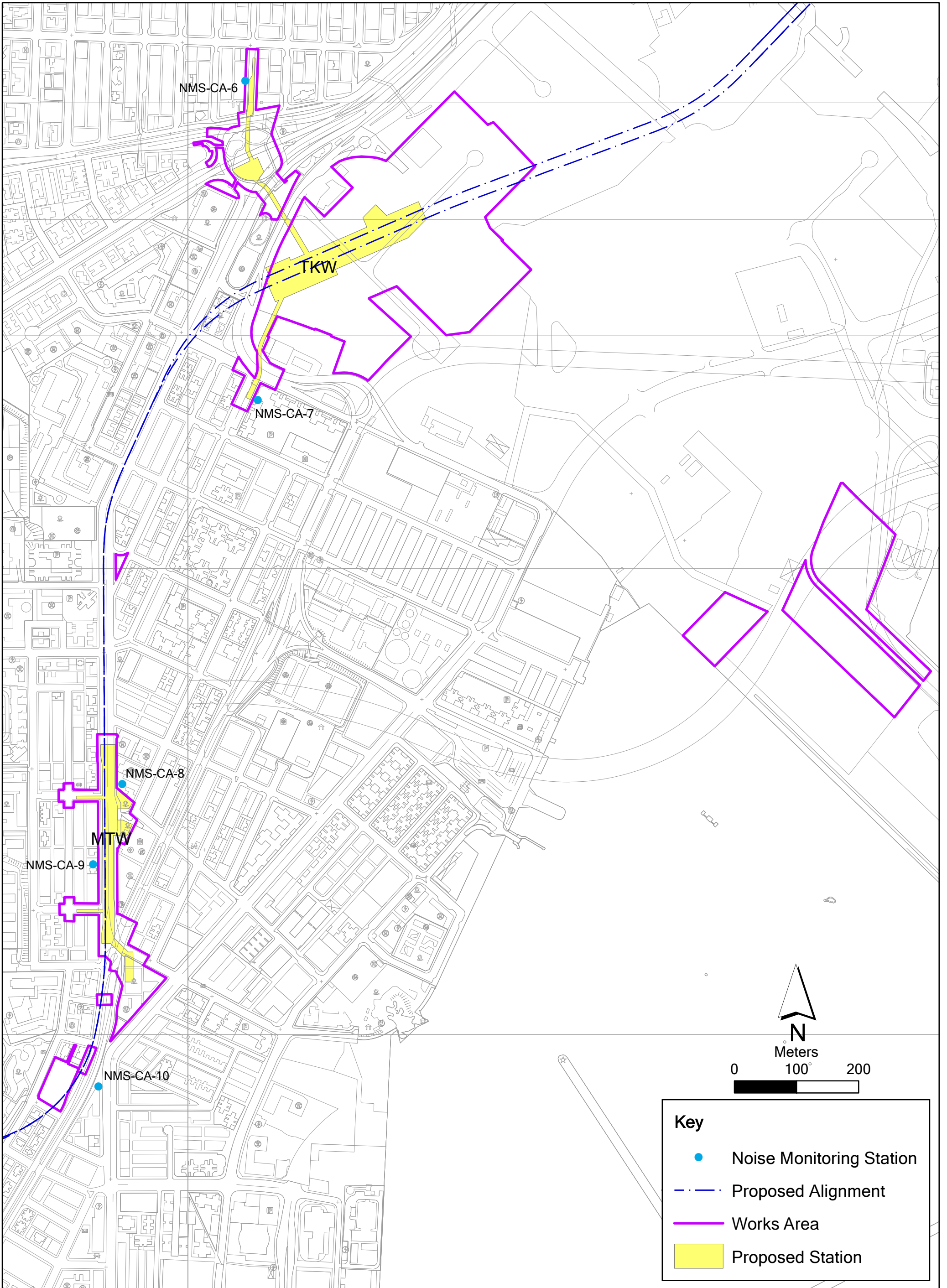
Annex C Project Organization of SCL Works Contract 1109





Annex D

## Locations of Noise and Dust Monitoring Stations



Annex D1

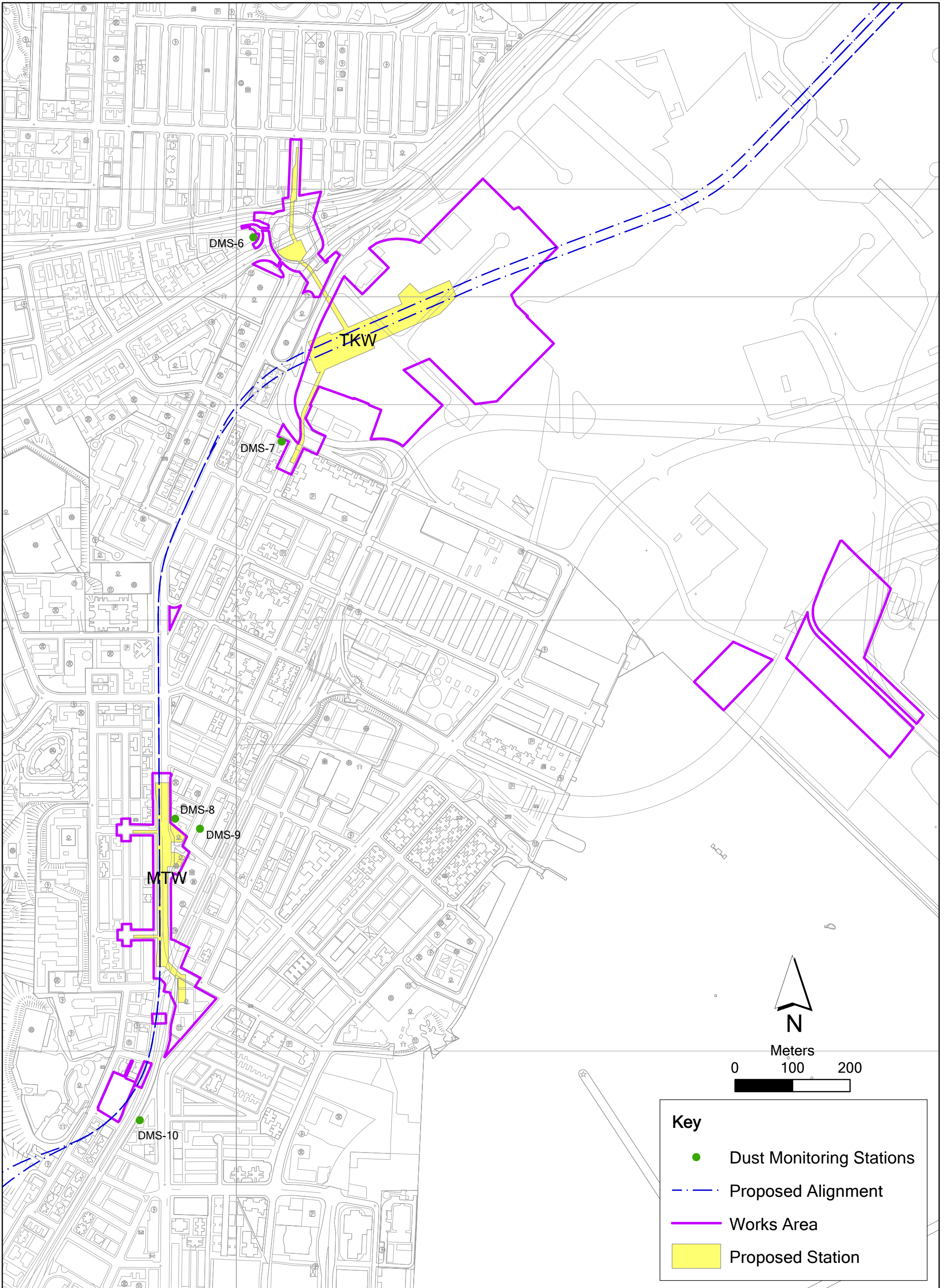
### Location of Regular Construction Noise Monitoring Stations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181\_Airborne\_Noise\_Monitoring\_Stations\_Annex.mxd  
Date: 12/08/2014

**Environmental  
Resources  
Management**







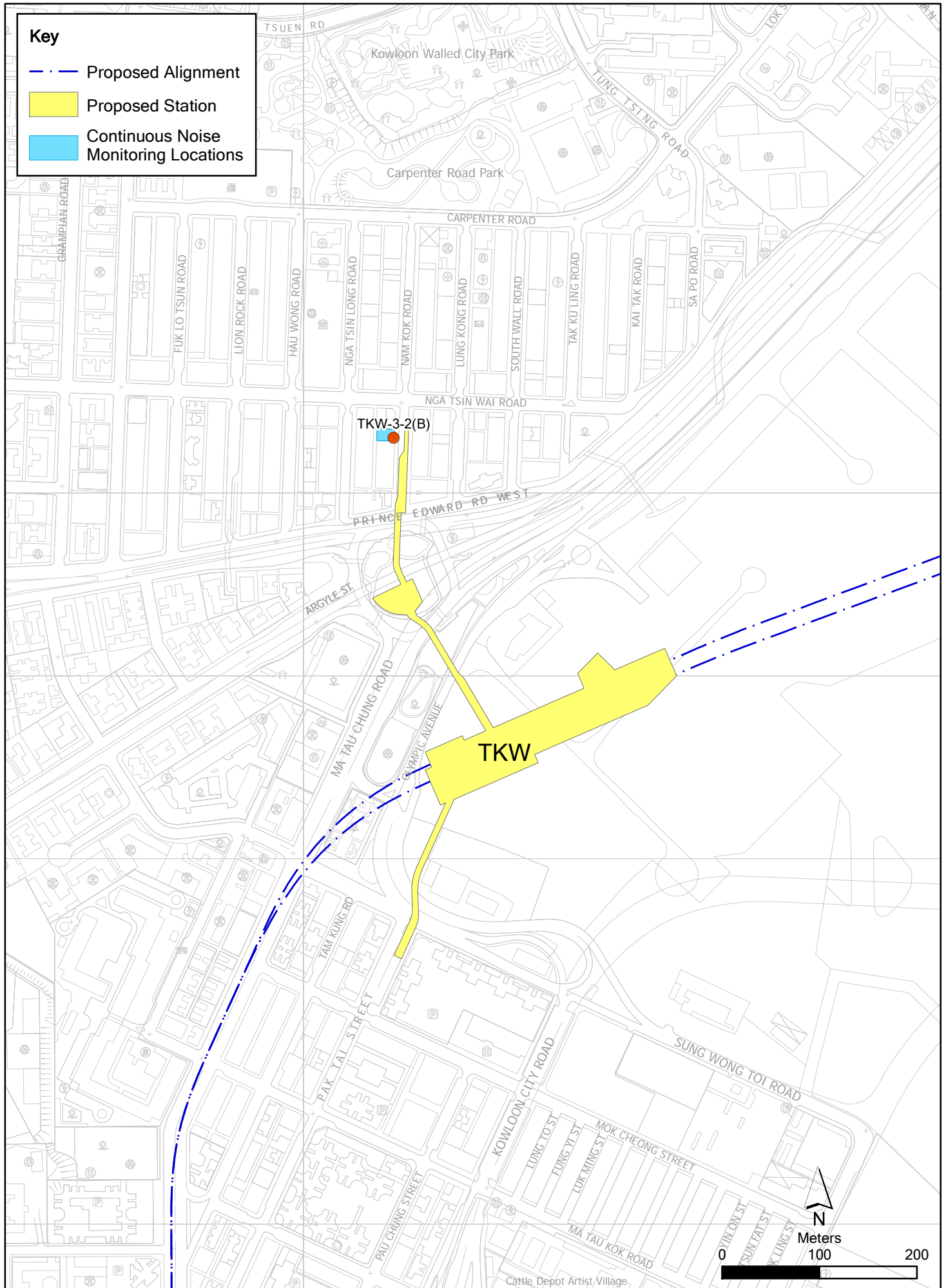


Figure 2.2a

Continuous Noise Monitoring Locations



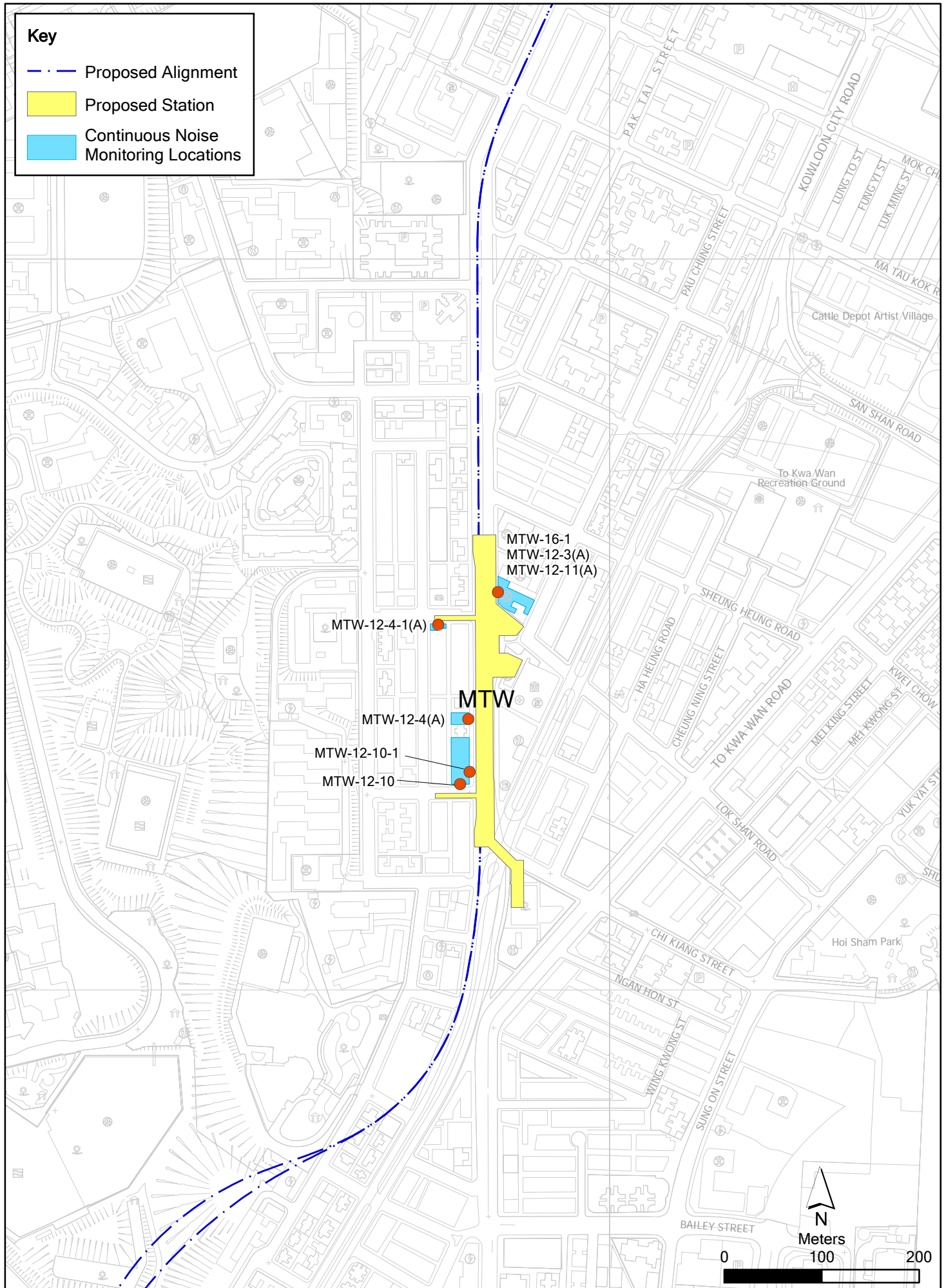


Figure 2.2b

Continuous Noise Monitoring Locations

Environmental  
Resources  
Management



Annex E

## Monitoring Schedule of the Reporting Period and the Next Month

**Shatin to Central Link  
Works Contract 1109  
Stations and Tunnels of Kowloon City Section  
Regular Noise Monitoring Schedule**

**Noise Monitoring Stations:  
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10  
Monitoring Month : July 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jul	02-Jul	03-Jul	04-Jul
			Public Holiday			
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
				Noise Monitoring		
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
			Noise Monitoring			
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
		Noise Monitoring				
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	Noise Monitoring					

**Shatin to Central Link  
Works Contract 1109  
Stations and Tunnels of Kowloon City Section  
Regular Noise Monitoring Schedule**

**Noise Monitoring Stations:  
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10  
Monitoring Month : August 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
				Noise Monitoring		
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			Noise Monitoring			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		Noise Monitoring				
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	Noise Monitoring					
30-Aug	31-Aug					



**Shatin to Central Link  
Works Contract 1109  
Stations and Tunnels of Kowloon City Section  
Regular Dust Monitoring Schedule**

**24-hr TSP Monitoring Stations:  
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10  
Monitoring Month: July 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jul	02-Jul	03-Jul	04-Jul
			Public Holiday		24-hr TSP Monitoring	
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
				24-hr TSP Monitoring		
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
			24-hr TSP Monitoring			
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
		24-hr TSP Monitoring				
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	24-hr TSP Monitoring				24-hr TSP Monitoring	

**Shatin to Central Link  
Works Contract 1109  
Stations and Tunnels of Kowloon City Section  
Regular Dust Monitoring Schedule**

**24-hr TSP Monitoring Stations:  
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10  
Monitoring Month: August 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
				24-hr TSP Monitoring		
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			24-hr TSP Monitoring			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		24-hr TSP Monitoring				
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	24-hr TSP Monitoring				24-hr TSP Monitoring	
30-Aug	31-Aug					

Annex F

## Calibration Reports

*Annex F Calibration Reports*

*Dust Monitoring Equipment*

<b>Monitoring Station ID</b>	<b>Location</b>	<b>Monitoring Equipment</b>	<b>Last Calibration Date</b>	<b>Next Calibration Date</b>
<i>24-hr TSP</i>		<b>HVS</b>	<b>Calibrator</b>	
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2454)	5 March 2015
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2454)	5 March 2015
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2454)	5 March 2015
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	5 March 2015
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2454)	5 March 2015

*Noise Monitoring Equipment*

<b>Monitoring Station ID</b>	<b>Monitoring Equipment</b>	<b>Model &amp; Serial No.</b>	<b>Last Calibration Date</b>	<b>Next Calibration Date</b>
NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-18 (S/N 00360030)	19 July 2014	19 July 2015
	Sound Level Meter	Rion NL-18 (S/N 00360030)	20 July 2015	20 July 2016
NMS-CA-6	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-31 (S/N 00320533)	14 June 2015	14 June 2016
NMS-CA-8, and MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-31 (S/N 00320533)	14 June 2015	14 June 2016

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler  
5-Point Calibration Record

Location : DMS-6(Katherine Building)  
Calibrated by : K.T.Ho  
Date : 05/03/2015

Sampler

Model : TE-5170  
Serial Number : S/N 0107

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 24 Mar 2014  
Slope (m) : 2.07593  
Intercept (b) : -0.00102  
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013  
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014  
Ta(K) : 293

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1   18 holes	12.6	3.582	1.726	54	54.49
2   13 holes	9.6	3.126	1.506	46	46.41
3   10 holes	7.2	2.707	1.305	38	38.35
4   7 holes	4.4	2.116	1.020	28	28.25
5   5 holes	2.6	1.627	0.784	20	20.18

Sampler Calibration Relationship (Linear Regression)

Slope(m): 36.578 Intercept(b): -8.855 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 08/03/2015

High-Volume TSP Sampler  
5-Point Calibration Record

Location : DMS-7(Parc 22)  
 Calibrated by : K.T.Ho  
 Date : 05/03/2015

Sampler

Model : TE-5170  
 Serial Number : S/N 3574

Calibration Office and Standard Calibration Relationship

Serial Number : 2454  
 Service Date : 24 Mar 2014  
 Slope (m) : 2.07593  
 Intercept (b) : -0.00102  
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013  
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014  
 Ta(K) : 293

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1   18 holes	12.6	3.582	1.726	66	66.59
2   13 holes	9.6	3.126	1.506	58	58.52
3   10 holes	7.4	2.745	1.323	52	52.47
4   7 holes	4.8	2.2116	1.065	43	43.39
5   5 holes	3.0	1.748	0.842	36	36.32

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.270 Intercept(b):7.165 Correlation Coefficient(r):0.9997

Checked by: Magnum Fan

Date: 08/03/2015

High-Volume TSP Sampler  
5-Point Calibration Record

Location : DMS-8(SHK Good Shepherd Primary School)  
Calibrated by : K.T.Ho  
Date : 05/03/2015

Sampler

Model : TE-5170  
Serial Number : S/N 3572

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 24 Mar 2014  
Slope (m) : 2.07593  
Intercept (b) : -0.00102  
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013  
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014  
Ta(K) : 293

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1   18 holes	12.6	3.582	1.726	62	62.56
2   13 holes	9.8	3.159	1.522	56	56.50
3   10 holes	7.8	2.818	1.358	50	50.45
4   7 holes	5.0	2.256	1.087	40	40.36
5   5 holes	2.8	1.688	0.814	30	30.27

Sampler Calibration Relationship (Linear Regression)

Slope(m):35.832 Intercept(b):1.397 Correlation Coefficient(r):0.9993

Checked by: Magnum Fan

Date: 08/03/2015

High-Volume TSP Sampler  
5-Point Calibration Record

Location : DMS-9(No. 12 Pau Chung Street)  
Calibrated by : K.T.Ho  
Date : 05/03/2015

Sampler

Model : TE-5170  
Serial Number : S/N 0814

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
Service Date : 24 Mar 2014  
Slope (m) : 2.07593  
Intercept (b) : -0.00102  
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013  
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014  
Ta(K) : 293

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1   18 holes	12.8	3.610	1.739	70	70.63
2   13 holes	10.0	3.191	1.537	60	60.54
3   10 holes	7.8	2.818	1.358	53	53.48
4   7 holes	5.0	2.256	1.087	42	42.38
5   5 holes	2.8	1.688	0.814	30	30.27

Sampler Calibration Relationship (Linear Regression)

Slope(m): 42.925 Intercept(b): -4.652 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan

Date: 08/03/2015



High-Volume TSP Sampler  
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)  
 Calibrated by : K.T.Ho  
 Date : 05/03/2015

Sampler

Model : TE-5170  
 Serial Number : S/N 3573

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454  
 Service Date : 24 Mar 2014  
 Slope (m) : 2.07593  
 Intercept (b) : -0.00102  
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013  
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014  
 Ta(K) : 293

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1   18 holes	12.0	3.495	1.684	62	62.56
2   13 holes	9.8	3.159	1.522	57	57.51
3   10 holes	7.2	2.707	1.305	50	50.45
4   7 holes	4.6	2.164	1.043	43	43.39
5   5 holes	2.2	1.497	0.721	32	32.29

Sampler Calibration Relationship (Linear Regression)

Slope(m):31.092 Intercept(b):10.217 Correlation Coefficient(r):0.9993

Checked by: Magnum Fan

Date: 08/03/2015



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2014 Rootmeter S/N 0438320 Ta (K) - 293  
 Operator Tisch Orifice I.D. - 2454 Pa (mm) - 758.19

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4740	3.2	2.00
2	NA	NA	1.00	1.0340	6.4	4.00
3	NA	NA	1.00	0.9240	7.9	5.00
4	NA	NA	1.00	0.8820	8.8	5.50
5	NA	NA	1.00	0.7270	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0103	0.6854	1.4245	0.9958	0.6755	0.8791
1.0061	0.9730	2.0146	0.9916	0.9590	1.2433
1.0040	1.0866	2.2524	0.9895	1.0709	1.3900
1.0028	1.1370	2.3623	0.9884	1.1206	1.4579
0.9976	1.3722	2.8491	0.9832	1.3524	1.7583
Qstd slope (m) =		2.07593	Qa slope (m) =		1.29991
intercept (b) =		-0.00102	intercept (b) =		-0.00063
coefficient (r) =		0.99996	coefficient (r) =		0.99996
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

# Certificate of Calibration

## 校正證書

Certificate No. : C153241

證書編號

ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC15-1330 )

Date of Receipt / 收件日期 : 10 June 2015

Description / 儀器名稱 : Sound Level Calibrator

Manufacturer / 製造商 : Rion

Model No. / 型號 : NC-73

Serial No. / 編號 : 10997142

Supplied By / 委託者 : Envirotech Services Co.

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

### TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$

Line Voltage / 電壓 : ---

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2015

### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

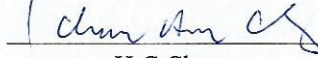
Tested By

測試

  
K C Lee  
Project Engineer

Certified By

核證

  
H C Chan  
Engineer

Date of Issue

簽發日期

16 June 2015

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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輝創工程有限公司 - 校正及檢測實驗室

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Page 1 of 2



# Certificate of Calibration

## 校正證書

Certificate No. : C153241

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.7	± 0.5	± 0.2

### 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.986	1 kHz ± 2 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

### Note :

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





# Certificate of Calibration 校正證書

Certificate No. : C144281  
證書編號

**ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1719)**      Date of Receipt / 收件日期 : 11 July 2014  
Description / 儀器名稱 : Precision Integrating Sound Level Meter  
Manufacturer / 製造商 : Rion  
Model No. / 型號 : NL-18  
Serial No. / 編號 : 00360030  
Supplied By / 委託者 : Envirotech Services Co.  
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,  
Hong Kong

## TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$       Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$   
Line Voltage / 電壓 : ---

## TEST SPECIFICATIONS / 測試規範

Calibration check


**DATE OF TEST / 測試日期** : 19 July 2014

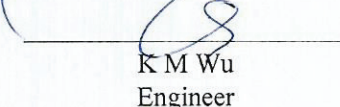
## TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : K C Lee  
Project Engineer

Certified By :   
核證 : K M Wu  
Engineer

Date of Issue : 23 July 2014  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.  
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# Certificate of Calibration

## 校正證書

Certificate No. : C144281  
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	94.1	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
60 - 120	LA	A	Fast	94.00	1	94.2 (Ref.)
				104.00		104.2
				114.00		114.2

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	94.1	Ref.
			Slow			94.1	± 0.1

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C144281  
證書編號

### 6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
50 - 110	LA	A	Fast	106.00	Continuous	106.0	Ref.
	LAmx				200 ms	105.1	-1.0 ± 1.0
	LA	Slow	Continuous		106.0	Ref.	
	LAmx		500 ms		102.5	-4.1 ± 1.0	

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LA	A	Fast	94.00	31.5 Hz	54.4	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

#### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	C	Fast	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	94.0	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C144281

證書編號

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	99.9	± 0.5
						1/10 <sup>2</sup>		90	± 0.5	
			60 sec.			1/10 <sup>3</sup>		80	± 1.0 <sup>a</sup>	
			5 min.			1/10 <sup>4</sup>		70	± 1.0	

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 307435

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
	Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

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

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

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輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

# Certificate of Calibration

## 校正證書

Certificate No. : C153930

證書編號

ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC15-1508 )

Date of Receipt / 收件日期 : 6 July 2015

Description / 儀器名稱 : Precision Integrating Sound Level Meter  
Manufacturer / 製造商 : Rion  
Model No. / 型號 : NL-18  
Serial No. / 編號 : 00360030  
Supplied By / 委託者 : Envirotech Services Co.  
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,  
Hong Kong

### TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C

Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

### TEST SPECIFICATIONS / 測試規範

Calibration check


DATE OF TEST / 測試日期 : 20 July 2015


### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By :   
測試 : H T Wong  
Assistant Technical Officer

Certified By :   
核證 : K C Lee  
Project Engineer

Date of Issue : 22 July 2015  
簽發日期

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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Page 1 of 4



# Certificate of Calibration

## 校正證書

Certificate No. : C153930

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	93.6	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
60 - 120	LA	A	Fast	94.00	1	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	93.6	Ref.
			Slow				± 0.1

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# Certificate of Calibration

## 校正證書

Certificate No. : C153930

證書編號

### 6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
50 -110	LA	A	Fast	106.00	Continuous	106.0	Ref.
	LAmx				200 ms	105.0	-1.0 ± 1.0
	LA	Slow	Continuous		106.0	Ref.	
	LAmx		500 ms		102.4	-4.1 ± 1.0	

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LA	A	Fast	94.00	31.5 Hz	53.9	-39.4 ± 1.5
					63 Hz	67.2	-26.2 ± 1.5
					125 Hz	77.2	-16.1 ± 1.0
					250 Hz	84.8	-8.6 ± 1.0
					500 Hz	90.3	-3.2 ± 1.0
					1 kHz	93.6	Ref.
					2 kHz	94.9	+1.2 ± 1.0
					4 kHz	94.7	+1.0 ± 1.0
					8 kHz	92.5	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.3	-4.3 (+3.0 ; -6.0)

#### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	C	Fast	94.00	31.5 Hz	90.5	-3.0 ± 1.5
					63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.0
					250 Hz	93.6	0.0 ± 1.0
					500 Hz	93.6	0.0 ± 1.0
					1 kHz	93.6	Ref.
					2 kHz	93.5	-0.2 ± 1.0
					4 kHz	92.8	-0.8 ± 1.0
					8 kHz	90.6	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.3	-6.2 (+3.0 ; -6.0)

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# Certificate of Calibration

## 校正證書

Certificate No. : C153930

證書編號

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	100.1	± 0.5
			60 sec.					90	90.1	± 0.5
			60 sec.					80	79.6	± 1.0
			5 min.					70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 307435

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	1 kHz	: ± 0.10 dB (Ref. 94 dB)
	Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

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

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輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

# Certificate of Calibration

## 校正證書

Certificate No. : C153242

證書編號

ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC15-1330 )

Date of Receipt / 收件日期 : 10 June 2015

Description / 儀器名稱 : Sound Level Meter

Manufacturer / 製造商 : Rion

Model No. / 型號 : NL-31

Serial No. / 編號 : 00320533

Supplied By / 委託者 : Envirotech Services Co.

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

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C

Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.


All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

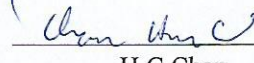
The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By :  
測試

  
K C Lee  
Project Engineer

Certified By :  
核證

  
H C Chan  
Engineer

Date of Issue : 16 June 2015  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Page 1 of 4



# Certificate of Calibration

## 校正證書

Certificate No. : C153242

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	93.4	± 0.7

- 6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C153242

證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.1

#### 6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 -110	L <sub>A</sub>	A	Fast	106.00	Continuous	106.0	Ref.
	L <sub>Amax</sub>				200 ms	105.0	-1.0 ± 1.0
	L <sub>A</sub>		Slow		Continuous	106.0	Ref.
	L <sub>Amax</sub>				500 ms	102.0	-4.1 ± 1.0

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>A</sub>	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5; -3.0)
					12.5 kHz	90.1	-4.3 (+3.0; -6.0)

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# Certificate of Calibration

## 校正證書

Certificate No. : C153242  
證書編號

### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>C</sub>	C	Fast	94.00	31.5 Hz	90.6	-3.0 ± 1.5
					63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.4	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5; -3.0)
					12.5 kHz	88.2	-6.2 (+3.0; -6.0)

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
20 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5	
			60 sec.					1/10 <sup>2</sup>	90	90.0	± 0.5
								1/10 <sup>3</sup>	80	80.0	± 1.0
								1/10 <sup>4</sup>	70	70.0	± 1.0
5 min.											

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 320128

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB  
 250 Hz - 500 Hz : ± 0.30 dB  
 1 kHz : ± 0.20 dB  
 2 kHz - 4 kHz : ± 0.35 dB  
 8 kHz : ± 0.45 dB  
 12.5 kHz : ± 0.70 dB  
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

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

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Annex G

## Summary of Event/ Action Plans

**Annex G1 Event and Action Plan for Regular Construction Noise Monitoring**

EVENT	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
Exceeding Action Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Increase the monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor;</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing ;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures;</li> <li>2. Report the results of investigation to the IEC, ET and ER;</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification;</li> <li>4. Implement noise mitigation proposals.</li> </ol>
Exceeding Limit Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase the monitoring frequency;</li> <li>4. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Inform the IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess the effectiveness of the Contractor's remedial measures and keep the IEC, ER and EPD informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER, and Contractor on the potential remedial measures;</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reason(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem is still not under control;</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

**Annex G2**     *Event and Action Plan for Continuous Noise Monitoring*

Event	Action			
	Works Contract 1109 ET	IEC	ER	Contractor
Exceeding Action/Limit Level	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed</li> <li>3. If exceedance is confirmed, notify IEC, ER and Contractor</li> <li>4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the Works Contract 1109 ET</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ER, Works Contract 1109 ET and Contractor on the potential remedial measures</li> <li>4. Review and advise the Works Contract 1109 ET and ER on the effectiveness of the remedial measures proposed by the Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor and IEC</li> <li>3. In consultation with the Works Contract 1109 ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Ensure the proper implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source with Works Contract 1109 ET</li> <li>2. If exceedance is confirmed, investigate the cause of exceedance and take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification</li> <li>4. Implement the agreed proposals</li> <li>5. Liaise with ER to optimize the effectiveness of the agreed mitigation</li> <li>6. Revise and resubmit proposals if problem still not under control</li> <li>7. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

*Annex G3 Event and Action Plan for Construction Dust Monitoring*

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
<b>Action Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase the monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notifications of exceedance in writing;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reason(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods and agree them with the ER as appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase the monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, the monitoring frequency will resume normal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise the Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reasons and investigate the causes of exceedance;</li> <li>2. Submit proposals of remedial measures to the ER with a copy to the ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend the proposal as appropriate.</li> </ol>

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
<b>Limit Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase the monitoring frequency to daily;</li> <li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reason(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals of remedial measures to ER with a copy to the ET and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Amend proposal if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase the monitoring frequency to daily;</li> <li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Review the effectiveness of the Contractor's remedial measures and keep the IEC, EPD and ER informed of the results;</li> <li>7. If exceedance stops, the monitoring frequency will return to normal.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER, and Contractor on the potential remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reason(s) and investigate the causes of exceedance;</li> <li>2. Take immediate actions to avoid further exceedance;</li> <li>3. Submit proposals of remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem still not under control;</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

*Annex G4 Event and Action Plan for Landscape and Visual Impacts during the Construction Phase*

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	Independent Environmental Checker (IEC)	Engineer Representative (ER)	The Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER.</li> <li>2. Discuss remedial actions with the IEC, ER and Contractor.</li> <li>3. Monitor remedial actions until rectification has been completed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the inspection report.</li> <li>2. Check the Contractor's working method.</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures.</li> <li>4. Advise the ER on the effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notifications of nonconformity in writing.</li> <li>2. Review and agree on the remedial measures proposed by the Contractor.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify reasons and investigate the non-conformity.</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods and agree them with the ER as appropriate.</li> <li>4. Rectify the damage and undertake any necessary replacement.</li> </ol>
Repeated Nonconformity	<ol style="list-style-type: none"> <li>1. Identify Reasons.</li> <li>2. Inform the Contractor, IEC and ER.</li> <li>3. Increase the inspection frequency.</li> <li>4. Discuss remedial actions with the IEC, ER and Contractor.</li> <li>5. Monitor remedial actions until rectification has been completed.</li> <li>6. If non-conformity stops, the inspection frequency return to normal (ie., Once every two weeks)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the inspection report.</li> <li>2. Check the Contractor's working method.</li> <li>3. Discuss with the ET and Contractor on possible remedial measures.</li> <li>4. Advise the ER on the effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor.</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Reasons and investigate the non-conformity.</li> <li>2. Implement remedial measures.</li> <li>3. Amend working methods and agree them with the ER as appropriate.</li> <li>4. Rectify the damage and undertake any necessary replacement.</li> <li>5. Stop relevant works as determined by the ER until the non-conformity is abated.</li> </ol>

Annex H

# Summary of Implementation Status of Environmental Mitigation

**Annex H Environmental Mitigation Implementation Status – SCL Works Contract 1109 (Stations and Tunnels of Kowloon City Section)**

**Note:**

- \* Reference has been made to the approved SCL (TAW-HUH) EM&A Manual.
- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- △ Deficiency of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- N/A Not Applicable in Reporting Period

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
<b>Cultural Heritage Impact</b>							
S4.9	CH3	<u>Submit an Archaeological Action Plan</u> Conduct survey-cum-excavation and additional boreholes/trenches investigation at the Sacred Hill (North) Study Area prior to construction.	Salvage cultural remains at the Sacred Hill (North) Study Area	Contractor	Sacred Hill (North) Area	Prior to the Construction Phase of TKW and associated tunnels	✓
<b>Ecology (Construction Phase)</b>							
S5.7	E5	<u>Good Site Practices</u> Impact on any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.	Minimise ecological impacts	Contractor	All construction sites	Construction Stage	✓



EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>• Erection of temporary geotextile silt or sediment fences/oil traps around earth-moving works to trap sediments and prevent them from entering watercourses;</li> <li>• Avoidance of soil storage against trees or close to water bodies;</li> <li>• Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. tunnel on hill at top of slope stabilisation works;</li> <li>• No on-site burning of waste;</li> <li>• Store waste and refuse in appropriate receptacles.</li> </ul>					
<b>Landscape &amp; Visual (Construction Phase)</b>							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>• For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ground may be set up on-site as necessary.					
		<u>No-intrusion Zone</u>					
		<ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and associated understorey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment.</li> </ul>					
		<u>Protection of Retained Trees</u>					
		<ul style="list-style-type: none"> <li>All retained trees including trees in contractor's works sites should be recorded and photographed at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S6.12	LV2	<p>trees in Contractor's works sites.</p> <p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> <li>Erection of decorative screen in visual and landscape sensitive areas during the construction stage to screen off undesirable views of the construction site. Hoarding should be designed to be compatible with the existing urban context.</li> </ul> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the on-site facilities, control the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent Visual Sensitive Receivers (VSRs).</li> </ul> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> <li>Trees of high to medium survival rates that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including the final locations for the transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
<b>Construction Dust</b>							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul roads in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 l/m <sup>2</sup> to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D3	<ul style="list-style-type: none"> <li>• Proper watering of exposed spoil should be undertaken throughout the construction phase;</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by an impervious sheeting or sprayed with water to maintain an entirely wet surface and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile has been removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by an impervious</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>sheeting to ensure that the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road which leads only to construction site and is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operations take place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface</p> <ul style="list-style-type: none"> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building upward, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by an impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by an impervious sheeting or placed in an area sheltered on the top and 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		and <ul style="list-style-type: none"> <li>Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>					
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	✓
EP Condition 2.18(a)	D7	Watering once every working hour for active works areas, exposed areas and paved haul roads shall be provided in Kowloon area to keep these active works areas, exposed areas and paved haul roads wet.	Minimize construction dust impact	Contractor	All construction sites	Construction stage	✓
EP Condition 2.19	D8	All diesel fuelled construction plant, including marine vessels if possible, used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Minimize aerial emissions of sulphur dioxide from construction plant	Contractor	All construction sites	Construction stage	✓
<b>Construction Noise (Airborne)</b>							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> <li>• plant known to emit noise strongly in one direction, where possible, should be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the period of construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>					
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	✓



EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		where practicable.	the same work site to reduce the construction airborne noise		construction sites where practicable		
S8.3.6	N6	Implement noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	√
<b>Water Quality</b>							
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoffs and Site Drainage</u> <ul style="list-style-type: none"> <li>At the start of the site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction.</li> <li>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to</li> </ul>	To minimise water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p> <ul style="list-style-type: none"> <li>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s, a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction.</li> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, and definitely, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>coarse stone ballast. An additional advantage from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operations at all times and particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading them evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, trenches should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>• Manholes (including newly constructed</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <ul style="list-style-type: none"> <li>• Precautions should be taken at any time of year when rainstorms are likely. Actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoffs during storm events, especially for areas located near steep slopes.</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure that no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>silty water to public roads and drains.</p> <ul style="list-style-type: none"> <li>Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>All fuel tanks and storage areas should be provided with locks and sited in sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching nearby water sensitive receivers.</li> <li>All the earth works should be conducted sequentially to limit the amount of construction runoffs generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Adopt best management practices</li> </ul>					
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> <li>Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge.</li> <li>The wastewater with a high concentration</li> </ul>	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> <li>• Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. The slurry should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities have been completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>					
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <p>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area in case contamination is found:</u></p> <ul style="list-style-type: none"> <li>• No direct discharge of groundwater from</li> </ul>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>contaminated areas is allowed. Prior to the excavation works within potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in the EIA report for compliance and the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water). The existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination if the review results indicate that the groundwater to be generated from the excavation works would be contaminated. The contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground.</p> <ul style="list-style-type: none"> <li>If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. total petroleum hydrocarbon (TPH)) to undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM Water and should be discharged into the foul sewers.</li> </ul>					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells. It is necessary to submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than the pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the Water Pollution Control Ordinance (WPCO) through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</li> </ul>					
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended:	To minimize water quality impact from accidental	Contractor	All construction sites where practicable	Construction stage	<>



EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</p> <ul style="list-style-type: none"> <li>The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	spillage				
<b>Waste Management (Construction Waste)</b>							
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D (Construction and Demolition) material</u></p> <ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored in the designated stockpile areas avoiding delivering them to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from</li> </ul>	Separation of unsuitable rock from ending up at Concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<p><u>Construction and Demolition (C&amp;D) Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> </ul>	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified;</li> <li>Implement an enhanced Waste management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and minimize waste generation during the course of construction.</li> <li>Disposal of the C&amp;D materials to any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get his approval before implementation</li> </ul>					
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site.</li> </ul>	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S11.5.1	WM4	<p>Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</p> <p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>• General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>• A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>• Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>• Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection.</li> </ul> <p>Participation in a local collection scheme</p>	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S11.5.1	WM7	<p>should be considered by the Contractor.</p> <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, that is produced should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. They should have a capacity of less than 450 litres unless the specification has been approved by the EPD. A label in English and Chinese should be displayed in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. It should also have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest. It should have adequate ventilation and be covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>Disposal of chemical waste should be via a licensed waste collector; to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre (which also offers a chemical waste collection service and can supply the necessary storage containers); or to a reuser of the waste, under the approval from the EPD.</li> </ul>					

Annex I - 1

## Regular Noise Monitoring Results

**Annex I-1 Regular Noise Monitoring Results**

Station NMS-CA-6 No. 16-23 Nam Kok Road

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L <sub>Aeq</sub> (30 min)	Baseline (dB(A)), L <sub>Aeq</sub> (30 min)	Corrected LAeq(dBA) <sup>(a)</sup>	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
09-Jul-15	10:52	11:22	Cloudy	63.9	76.1	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
15-Jul-15	10:45	11:15	Sunny	63.8	76.1	-(b)	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10786708
21-Jul-15	11:00	11:30	Sunny	64.0	76.1	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
27-Jul-15	10:45	11:15	Cloudy	63.9	76.1	-(b)	-	Traffic noise	28	0.5	NL-18 00360030	NC-73 10786708

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L <sub>Aeq</sub> (30 min)	Baseline (dB(A)), L <sub>Aeq</sub> (30 min)	Corrected LAeq(dBA) <sup>(a)</sup>	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
09-Jul-15	9:45	10:15	Cloudy	65.6	70.0	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
15-Jul-15	9:45	10:15	Sunny	65.7	70.0	-(b)	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
21-Jul-15	10:05	10:35	Sunny	65.9	70.0	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
27-Jul-15	9:45	10:15	Cloudy	66.1	70.0	-(b)	-	Traffic noise	28	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L <sub>Aeq</sub> (30 min)	Baseline (dB(A)), L <sub>Aeq</sub> (30 min)	Corrected LAeq(dBA) <sup>(a)</sup>	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
09-Jul-15	11:45	12:15	Cloudy	74.6	75.4	-(b)	-	Traffic noise	26	0.5	NL-31 00320533	NC-73 10997142
15-Jul-15	11:37	12:07	Sunny	73.3	75.4	-(b)	-	Traffic noise	31	0.5	NL-31 00320533	NC-73 10997142
21-Jul-15	15:14	15:44	Sunny	74.8	75.4	-(b)	-	Traffic noise	26	0.5	NL-31 00320533	NC-73 10997142
27-Jul-15	11:25	11:55	Cloudy	75.0	75.4	-(b)	-	Traffic noise	28	0.5	NL-31 00320533	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L <sub>Aeq</sub> (30 min)	Baseline (dB(A)), L <sub>Aeq</sub> (30 min)	Corrected LAeq(dBA) <sup>(a)</sup>	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
09-Jul-15	8:00	8:30	Cloudy	73.1	69.2	70.8	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
15-Jul-15	8:00	8:30	Sunny	72.7	69.2	70.1	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
21-Jul-15	8:00	8:30	Sunny	74.1	69.2	72.4	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
27-Jul-15	8:00	8:30	Cloudy	73.9	69.2	72.1	Backhoe	Traffic noise	28	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-10 Chat Ma Mansion

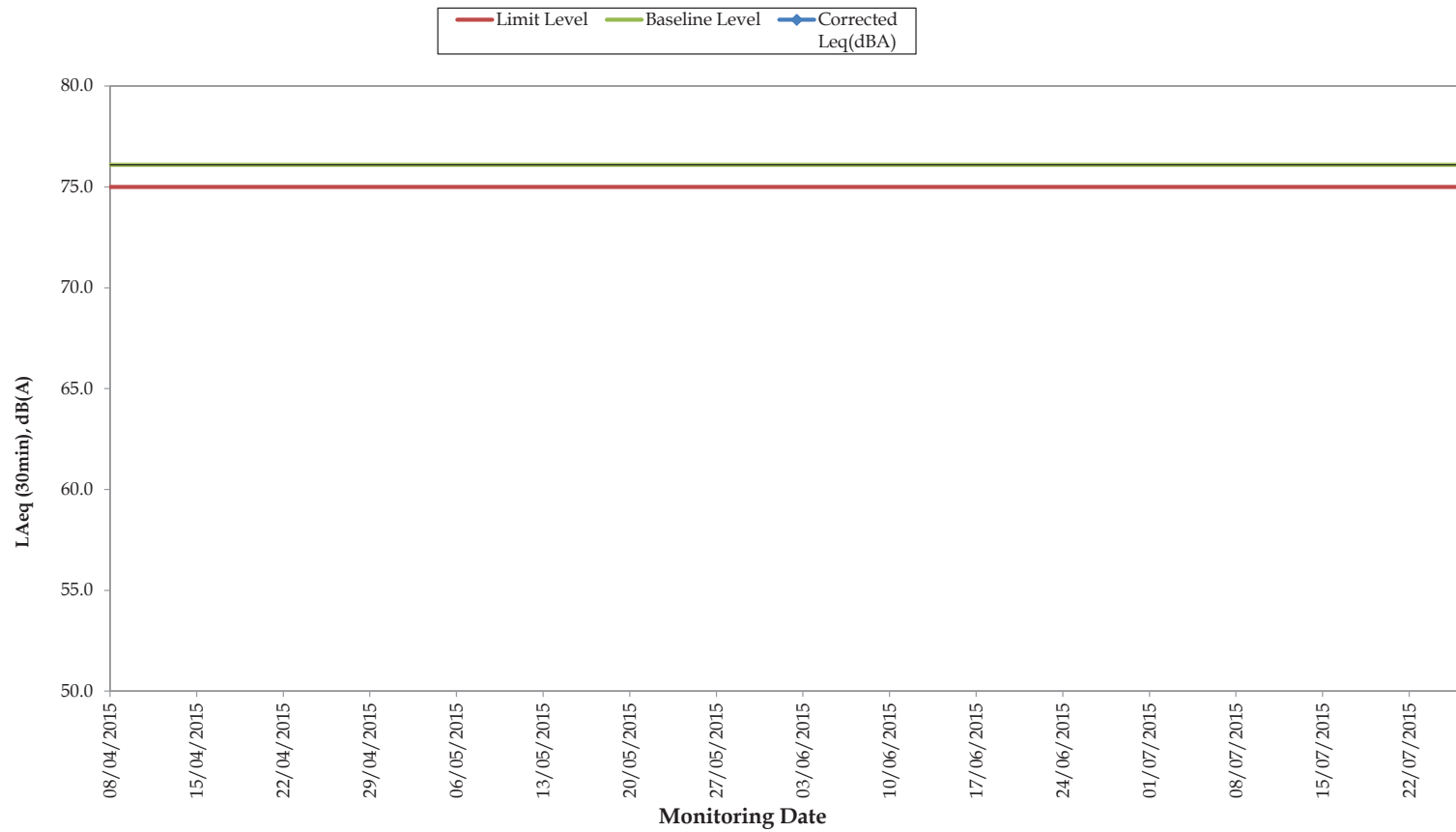
Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L <sub>Aeq</sub> (30 min) <sup>(c)</sup>	Baseline (dB(A)), L <sub>Aeq</sub> (30 min)	Corrected LAeq(dBA) <sup>(a)</sup>	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
09-Jul-15	8:40	9:10	Cloudy	76.2	76.6	-(b)	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
15-Jul-15	8:40	9:10	Sunny	76.2	76.6	-(b)	Backhoe	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
21-Jul-15	9:00	9:30	Sunny	77.0	76.6	66.4	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
27-Jul-15	8:40	9:10	Cloudy	76.6	76.6	-(b)	Backhoe	Traffic noise	28	0.5	NL-18 00360030	NC-73 10997142

Remarks:

- (a) The measured LAeq is corrected against the corresponding Baseline Level.
- (b) No correction was made as the measured noise levels were equal to or below the baseline noise levels.
- (c) The noise monitoring results carried out at NMS-CA-10 on 9, 15, 21 and 27 July 2015 are higher than the daytime construction noise criterion. However, those results are not considered as exceedances as they are below the limit level after deducting the baseline noise level.



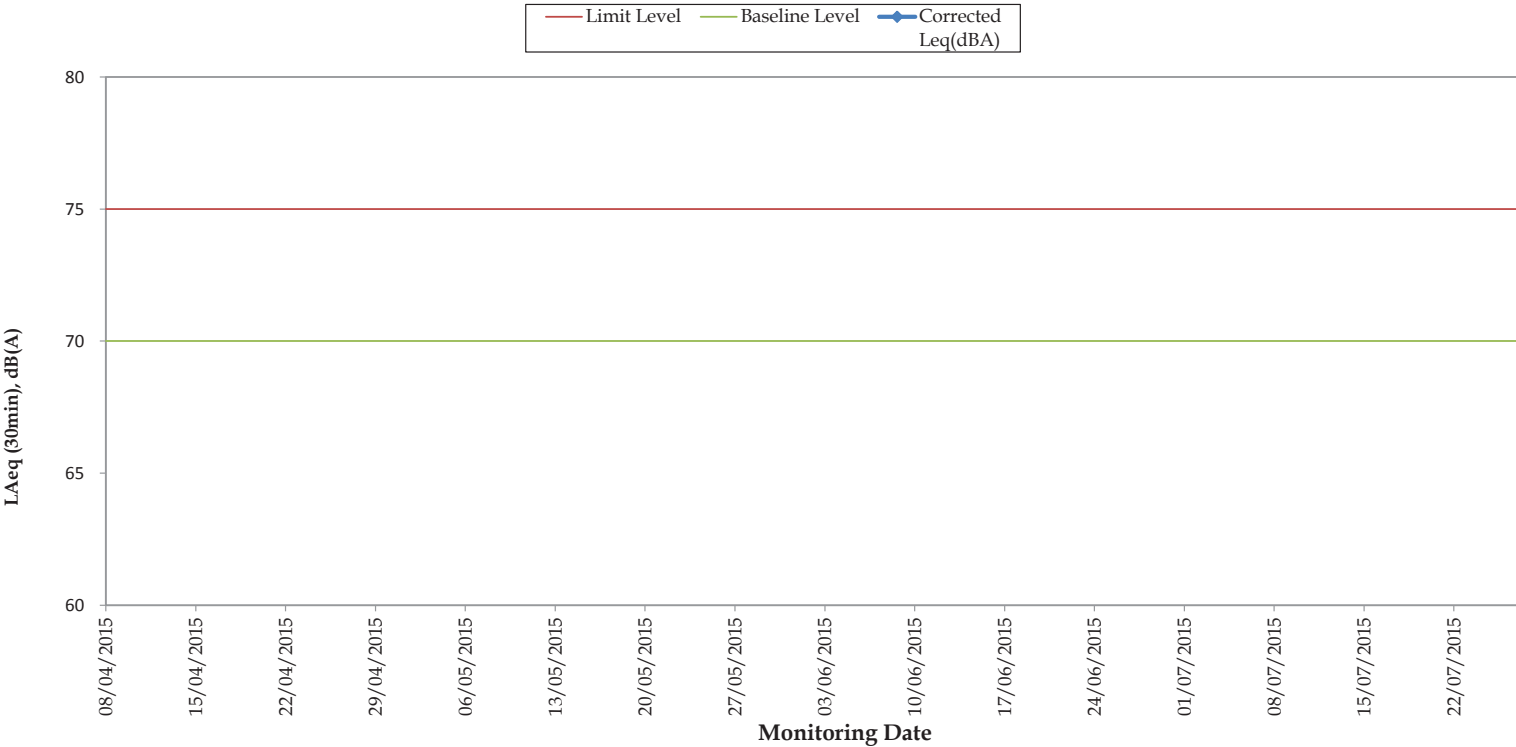
### Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

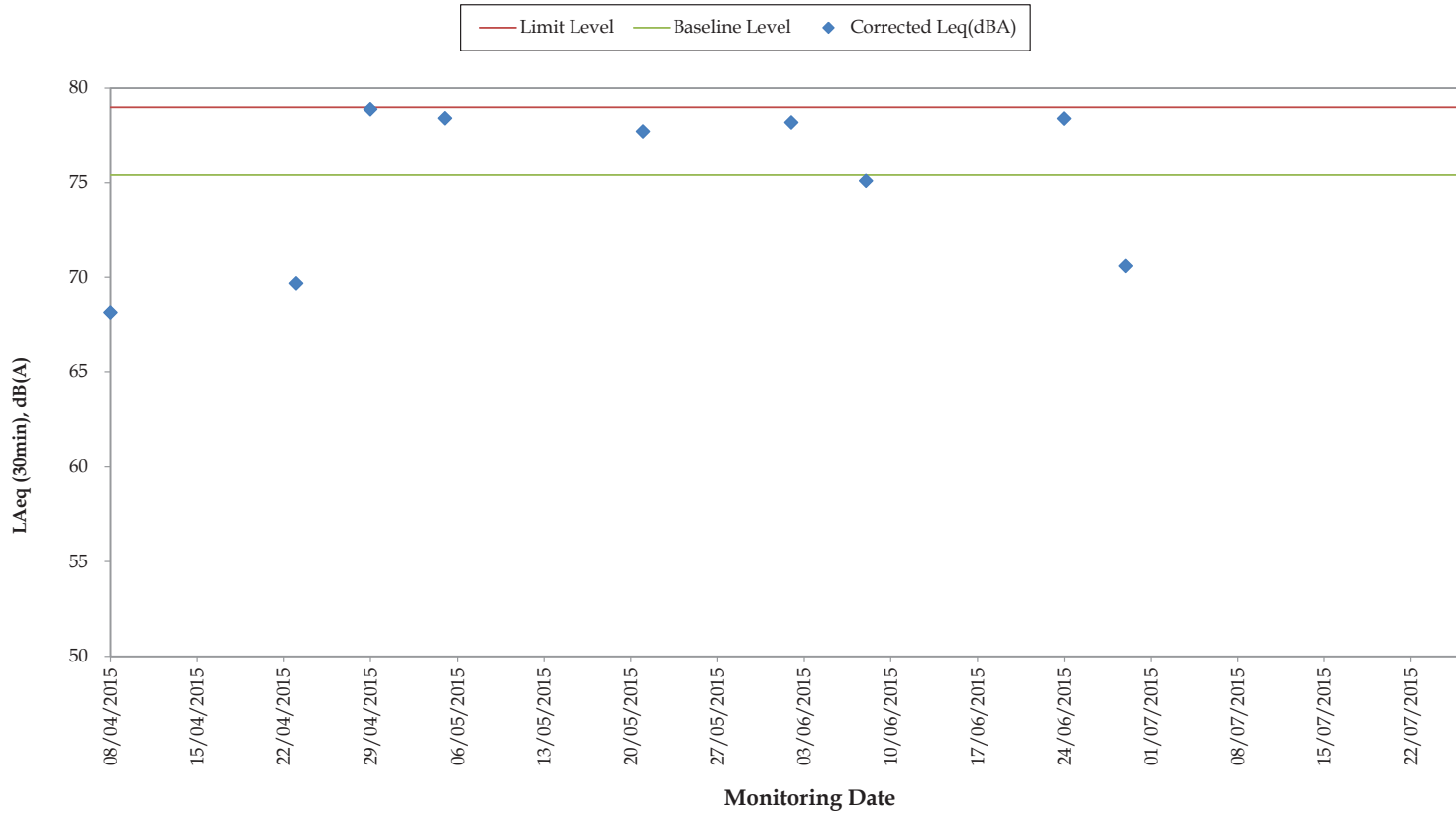
### Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

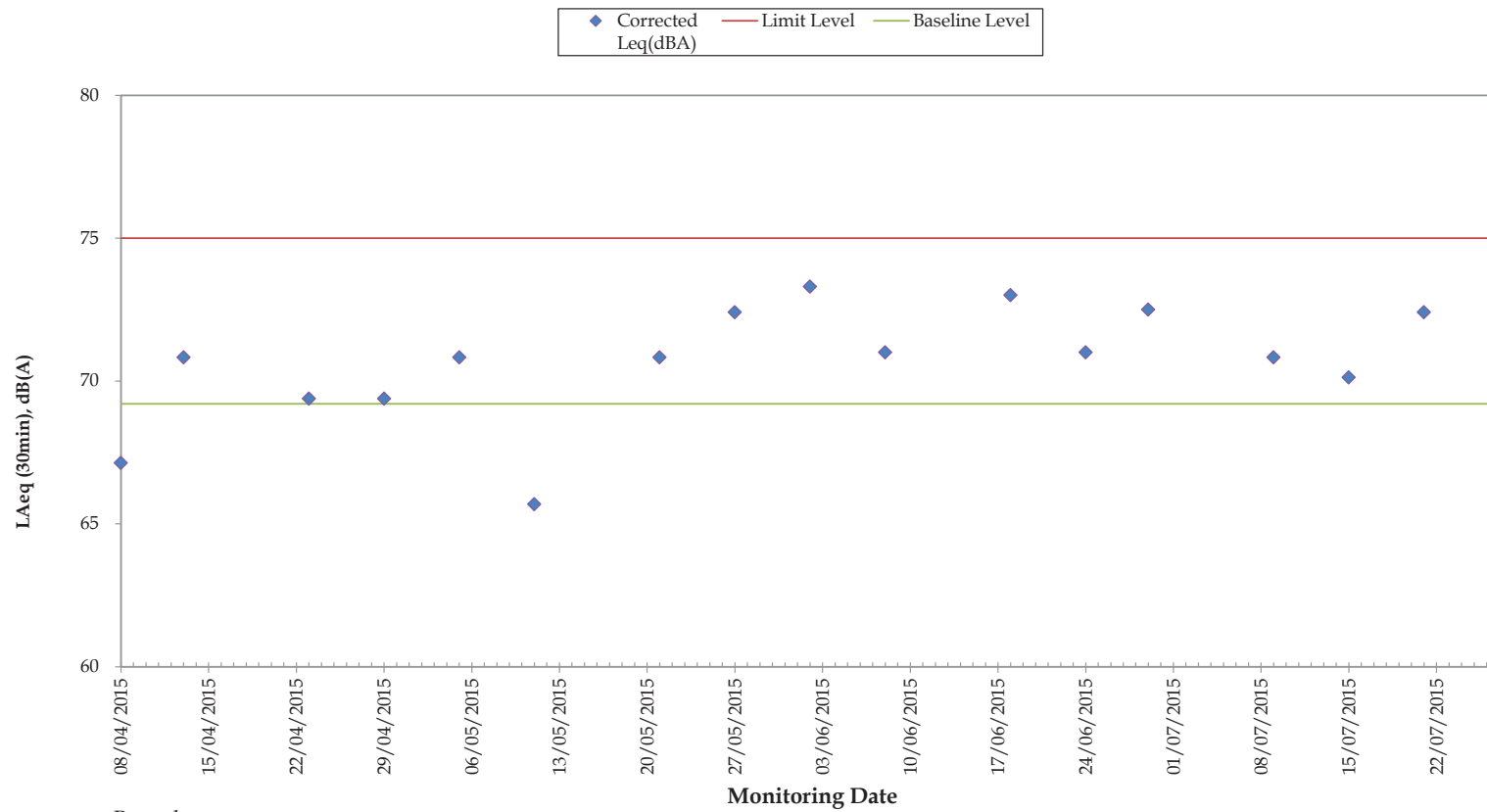
## Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



**Remarks:**

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.
- The limit level was updated from 78dB(A) to 79 dB(A) on 22 Aug 2013 as per the latest CNMP and CNMMP.

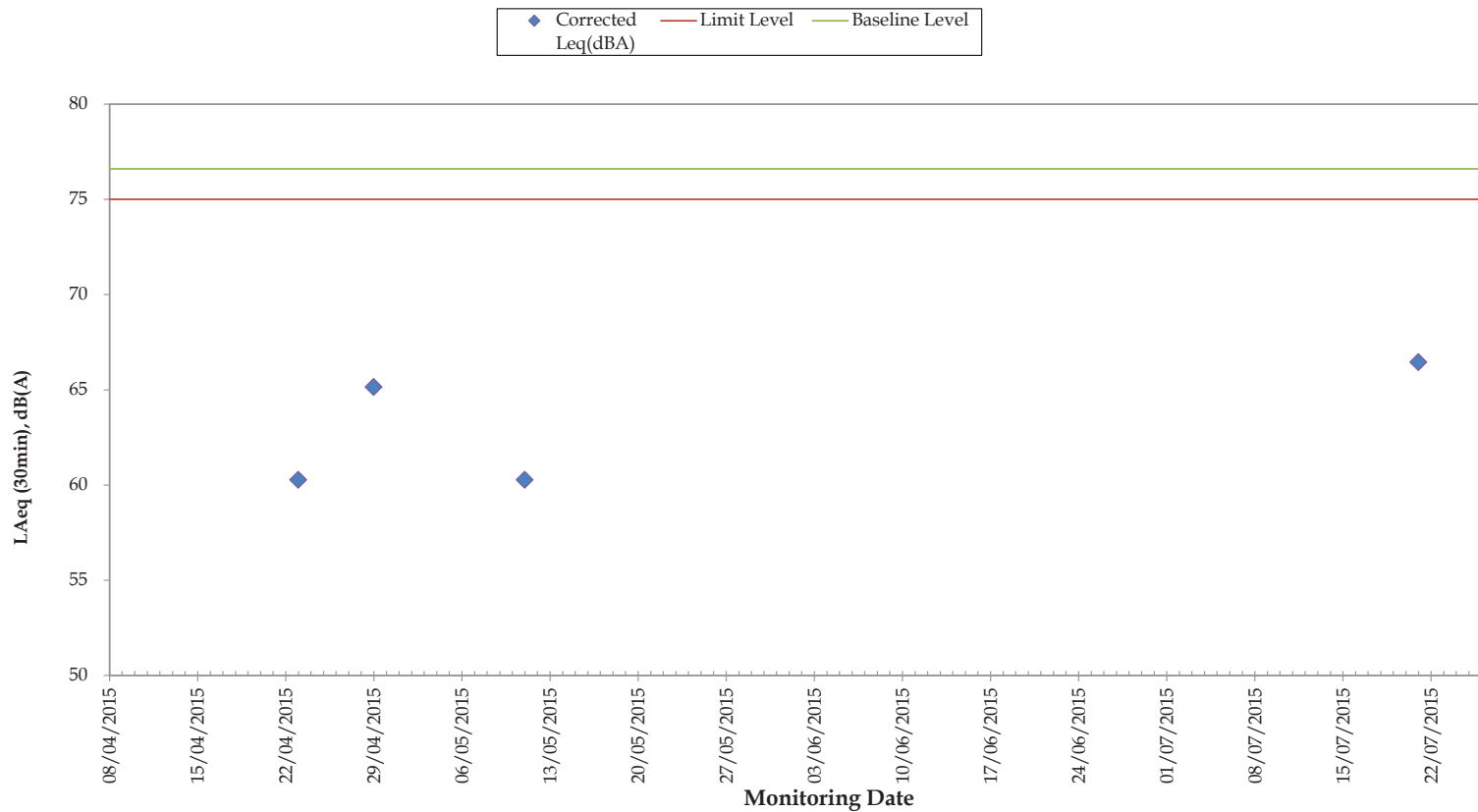
### Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min ) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

### Regular Noise Monitoring Results at NMS-CA-10 (Chat Ma Mansion) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

Annex I - 2

## Continuous Noise Monitoring Results

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 6	56	71.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 7	26	82.0	75.4	80.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 7	56	83.5	75.4	82.8	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 8	26	85.4	75.4	84.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 8	56	84.1	75.4	83.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 9	26	84.0	75.4	83.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 9	56	84.2	75.4	83.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 10	26	84.9	75.4	84.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 10	56	85.0	75.4	84.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 11	26	77.5	75.4	73.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 11	56	74.0	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 12	52	82.5	75.4	81.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 13	22	82.0	75.4	81	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 13	52	82.3	75.4	81.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 14	22	81.5	75.4	80.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 14	52	76.4	75.4	69.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 15	22	76.0	75.4	66.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 15	52	75.9	75.4	66.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 16	22	76.1	75.4	67.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 16	52	76.2	75.4	68.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 17	22	74.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 17	52	73.7	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 18	22	73.1	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 2 18	52	72.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 6	52	73.1	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 7	22	75.6	75.4	62.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 7	52	77.7	75.4	73.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 8	22	76.6	75.4	70.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 8	52	81.9	75.4	80.8	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 9	22	85.2	75.4	84.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 9	52	84.2	75.4	83.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 10	22	84.7	75.4	84.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 10	52	85.0	75.4	84.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 11	22	79.8	75.4	77.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 11	52	74.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 12	22	85.4	75.4	84.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 12	52	85.4	75.4	84.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 13	22	85.7	75.4	85.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 13	52	85.1	75.4	84.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 14	22	84.8	75.4	84.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 14	52	83.1	75.4	82.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 15	22	84.8	75.4	84.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 15	52	85.2	75.4	84.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 16	22	84.9	75.4	84.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 16	52	83.8	75.4	83.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 17	22	83.7	75.4	83	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 17	52	81.6	75.4	80.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 18	22	72.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 3 18	52	72.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 6	52	73.5	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 7	22	74.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 7	52	82.9	75.4	82.1	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 8	22	84.6	75.4	84.1	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 8	52	85.2	75.4	84.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 9	22	85.0	75.4	84.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 9	52	83.7	75.4	83	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 10	22	84.7	75.4	84.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 10	52	86.1	75.4	85.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 11	22	85.1	75.4	84.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 11	52	84.8	75.4	84.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 12	22	84.0	75.4	83.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 12	52	83.4	75.4	82.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 13	22	82.8	75.4	81.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 13	52	81.6	75.4	80.4	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 14	22	82.5	75.4	81.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 14	52	81.8	75.4	80.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 15	22	81.8	75.4	80.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 15	52	83.6	75.4	82.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 16	22	83.1	75.4	82.3	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 16	52	80.5	75.4	78.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 17	22	75.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 17	52	75.0	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 18	22	73.6	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 4 18	52	71.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 6	52	73.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 7	22	85.0	75.4	84.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 7	52	83.0	75.4	82.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 8	22	82.4	75.4	81.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 8	52	84.6	75.4	84	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 9	22	84.4	75.4	83.8	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 9	52	85.1	75.4	84.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 10	22	83.3	75.4	82.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 10	52	87.3	75.4	87	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 11	22	85.1	75.4	84.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 11	52	81.8	75.4	80.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 12	22	84.6	75.4	84.1	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 12	52	81.6	75.4	80.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 13	22	82.2	75.4	81.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 13	52	79.4	75.4	77.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 14	22	81.4	75.4	80.2	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 14	52	83.5	75.4	82.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 15	22	78.8	75.4	76.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 16	15	78.1	75.4	74.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 16	45	77.9	75.4	74.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 17	15	76.7	75.4	70.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 17	45	74.7	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 18	15	74.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 6 18	45	73.5	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 6	45	72.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 7	15	75.7	75.4	63.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 7	45	77.5	75.4	73.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 8	15	79.2	75.4	76.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 8	45	79.4	75.4	77.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 9	15	79.5	75.4	77.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 9	45	78.7	75.4	76	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 10	15	79.1	75.4	76.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 10	45	78.3	75.4	75.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 11	15	78.1	75.4	74.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 11	45	74.1	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 12	15	76.7	75.4	70.7	79	N	

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 12	45	78.9	75.4	76.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 13	15	84.6	75.4	84	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 13	45	81.7	75.4	80.6	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 14	15	83.7	75.4	83	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 14	45	81.7	75.4	80.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 15	15	78.3	75.4	75.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 15	45	78.8	75.4	76.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 16	15	78.2	75.4	74.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 16	45	78.4	75.4	75.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 17	15	77.6	75.4	73.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 17	45	79.1	75.4	76.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 18	15	76.0	75.4	67.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 7 18	45	72.9	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 6	45	72.6	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 7	15	73.7	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 7	45	75.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 8	15	75.7	75.4	63.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 8	45	77.0	75.4	71.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 9	15	79.5	75.4	77.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 9	45	82.6	75.4	81.7	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 10	15	83.7	75.4	82.9	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 10	45	76.5	75.4	69.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 11	15	78.2	75.4	75	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 11	45	76.2	75.4	68.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 12	15	78.3	75.4	75.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 12	45	79.0	75.4	76.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 13	15	83.3	75.4	82.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 13	45	81.9	75.4	80.8	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 14	15	80.7	75.4	79.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 14	45	79.2	75.4	76.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 15	15	78.9	75.4	76.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 15	45	80.6	75.4	79	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 16	15	76.5	75.4	69.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 16	45	76.7	75.4	70.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 17	15	76.1	75.4	68	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 17	45	75.5	75.4	57.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 18	15	74.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 8 18	45	75.0	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 6	45	71.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 7	15	73.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 7	45	75.7	75.4	63.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 8	15	78.5	75.4	75.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 8	45	78.5	75.4	75.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 9	15	79.7	75.4	77.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 9	45	80.3	75.4	78.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 10	15	80.1	75.4	78.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 10	45	79.4	75.4	77.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 11	15	76.3	75.4	69	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 9 11	45	74.6	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 12	7	73.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 12	37	74.6	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 13	7	76.4	75.4	69.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 13	37	76.5	75.4	70	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 14	7	80.9	75.4	79.5	79	Y	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 14	37	79.5	75.4	77.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 15	7	77.6	75.4	73.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 15	37	77.3	75.4	72.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 16	7	77.4	75.4	73	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 16	37	77.3	75.4	72.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 17	7	76.3	75.4	68.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 17	37	77.5	75.4	73.3	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 18	7	73.9	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 10 18	37	71.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 6	37	70.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 7	7	70.7	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 7	37	72.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 8	7	77.3	75.4	72.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 8	37	80.0	75.4	78.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 9	7	78.7	75.4	76	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 9	37	75.4	75.4	53.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 10	7	79.5	75.4	77.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 10	37	76.2	75.4	68.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 11	7	75.9	75.4	66.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 11	37	73.5	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 12	7	72.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 12	37	73.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 13	7	76.4	75.4	69.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 13	37	77.4	75.4	73.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 14	7	76.7	75.4	70.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 14	37	77.1	75.4	72.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 15	7	75.6	75.4	62.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 15	37	76.0	75.4	66.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 16	7	76.1	75.4	67.7	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 16	37	75.2	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 17	7	73.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 17	37	72.9	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 18	7	71.7	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 11 18	37	70.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 6	37	71.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 7	7	71.4	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 7	37	73.3	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 8	7	76.3	75.4	69.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 8	37	75.1	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 9	7	75.7	75.4	63.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 9	37	74.9	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 10	7	77.3	75.4	72.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 10	37	78.6	75.4	75.8	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 11	7	77.4	75.4	73	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 11	37	72.8	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 12	37	73.0	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 13	7	74.5	75.4	<Baseline Level	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 13	37	75.4	75.4	45.9	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 14	7	77.8	75.4	74.1	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 14	37	79.0	75.4	76.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 15	7	78.9	75.4	76.4	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 15	37	78.0	75.4	74.5	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 16	7	79.0	75.4	76.6	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 16	37	77.8	75.4	74.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 17	7	78.3	75.4	75.2	79	N	
MTW-16-1	SKH Good Shepherd Primary School	2015 7 13 17	37	79.0	75.4	76.6	79	N	





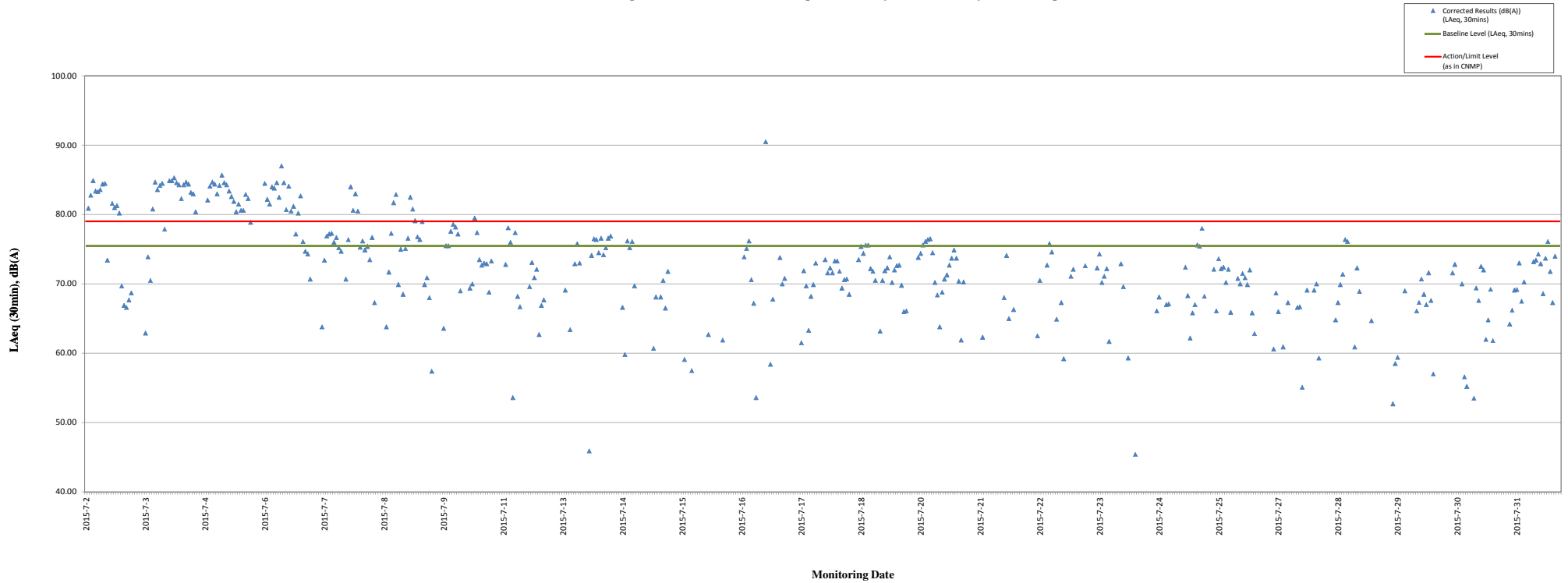




Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	9	17	75.5	75.4	59.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	9	47	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	10	47	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	10	47	76.3	75.4	69	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	11	17	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	11	47	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	12	17	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	12	47	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	13	17	75.9	75.4	66.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	13	47	76.0	75.4	67.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	14	17	76.7	75.4	70.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	14	47	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	15	17	76.0	75.4	67	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	15	47	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	16	17	76.1	75.4	67.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	16	47	75.5	75.4	57	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	17	17	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	17	47	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	18	17	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	29	18	47	70.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	6	47	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	7	17	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	7	47	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	8	17	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	8	47	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	9	17	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	9	47	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	10	17	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	10	47	75.5	75.4	56.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	11	17	75.4	75.4	55.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	11	47	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	12	17	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	12	47	75.4	75.4	53.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	13	17	76.4	75.4	69.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	13	47	76.1	75.4	67.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	14	17	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	14	47	77.0	75.4	72	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	15	17	75.6	75.4	62	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	15	47	75.8	75.4	64.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	16	34	76.3	75.4	69.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	17	4	75.6	75.4	61.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	17	34	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	18	4	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	30	18	34	71.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	6	34	70.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	7	4	73.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	7	34	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	8	4	75.7	75.4	64.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	8	34	75.9	75.4	66.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	9	4	76.3	75.4	69.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	9	34	76.3	75.4	69.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	10	4	77.4	75.4	73	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	10	34	76.0	75.4	67.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	11	4	76.6	75.4	70.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	11	34	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	12	4	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	12	34	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	13	4	77.4	75.4	73.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	13	34	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	14	4	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	14	34	77.3	75.4	72.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	15	4	76.2	75.4	68.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	15	34	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	16	4	78.7	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	16	34	77.0	75.4	71.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	17	4	76.0	75.4	67.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	17	34	77.8	75.4	74	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	18	4	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	7	31	18	34	73.0	75.4	<Baseline Level	79	N

Note: Continuous noise data at monitoring location MTW-16-1 was temporarily suspended between 12:15 on 9 July 2015 to 12:06 on 10 July 2015 due to Typhoon Signal No. 3 and above.

Continuous Noise Monitoring at MTW-16-1(SKH Good Shepherd Primary School) in July 2015- (LAeq, 30min)



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

Annex J

Construction Dust  
Monitoring Results and  
Wind Data Monitoring  
Results

Annex J Construction Dust Monitoring Results

Station DMS-6 Katherine Building

Start Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min)		Average	TSP Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
03-Jul-15	8:42	04-Jul-15	8:42	Sunny	2.8727	2.9835	14456.30	14480.30	24.00	1.32	1.32	1.32	58	156.8	260	-	0107	6559
09-Jul-15	10:27	10-Jul-15	10:27	Cloudy	2.8717	2.9829	14480.30	14504.30	24.00	1.26	1.26	1.26	61	156.8	260	-	0107	6581
15-Jul-15	10:30	16-Jul-15	10:30	Sunny	2.8633	2.9779	14504.30	14528.30	24.00	1.26	1.26	1.26	63	156.8	260	-	0107	6597
21-Jul-15	10:45	22-Jul-15	10:45	Rainy	2.8688	2.9771	14528.30	14552.30	24.00	1.26	1.26	1.26	60	156.8	260	-	0107	6568
27-Jul-15	10:30	28-Jul-15	10:30	Fine	2.8841	2.9967	14552.30	14576.30	24.00	1.26	1.26	1.26	62	156.8	260	-	0107	6588
31-Jul-15	8:23	01-Aug-15	8:23	Sunny	2.8700	2.9911	14576.30	14600.30	24.00	1.26	1.26	1.26	67	156.8	260	-	0107	6600
													Minimum	58				
													Average	62				
													Maximum	67				

Station DMS-7 Parc 22

Start Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min)		Average	TSP Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
03-Jul-15	-	04-Jul-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
09-Jul-15	-	10-Jul-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
15-Jul-15	-	16-Jul-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
21-Jul-15	-	22-Jul-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
27-Jul-15	-	28-Jul-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
31-Jul-15	-	01-Aug-15	-	-	-	-	-	-	-	-	-	-	-	166.7	260	-	3574	-
													Minimum	-				
													Average	-				
													Maximum	-				

Remark: 24-hour averaged dust monitoring at DMS-7 (Parc-22) was temporary suspended due to request from the Management Office

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min)		Average	TSP Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Jul-15	8:18	04-Jul-15	8:18	Sunny	2.8862	2.9909	4589.11	4613.11	24.00	1.25	1.25	1.25	58	152.2	260	-	3572	6557
09-Jul-15	9:28	10-Jul-15	9:28	Cloudy	2.8504	2.9811	4613.11	4637.11	24.00	1.25	1.25	1.24	73	152.2	260	-	3572	6579
15-Jul-15	9:28	16-Jul-15	9:28	Sunny	2.8775	2.9864	4637.11	4661.11	24.00	1.25	1.25	1.25	61	152.2	260	-	3572	6596
21-Jul-15	9:48	22-Jul-15	9:48	Rainy	2.9017	3.0021	4661.11	4685.11	24.00	1.25	1.25	1.25	56	152.2	260	-	3572	6567
27-Jul-15	9:28	28-Jul-15	9:28	Fine	2.8767	2.9902	4685.11	4709.11	24.00	1.25	1.25	1.25	63	152.2	260	-	3572	6587
31-Jul-15	8:18	01-Aug-15	8:18	Sunny	2.8656	2.9700	4709.11	4733.11	24.00	1.25	1.25	1.25	58	152.2	260	-	3572	6599
													Minimum	56				
													Average	61				
													Maximum	73				

Station DMS-9 No. 12 Pau Chung Street

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min)		Average	TSP Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Jul-15	8:10	04-Jul-15	8:10	Sunny	2.8791	2.9903	14889.40	14913.40	24.00	1.24	1.24	1.24	62	160.9	260	-	0814	6556
09-Jul-15	9:20	10-Jul-15	9:20	Cloudy	2.8495	2.9712	14913.40	14937.40	24.00	1.23	1.23	1.23	69	160.9	260	-	0814	6578
15-Jul-15	9:20	16-Jul-15	9:20	Sunny	2.8691	2.9812	14937.40	14961.40	24.00	1.23	1.23	1.23	63	160.9	260	-	0814	6595
21-Jul-15	9:40	22-Jul-15	9:40	Rainy	2.8341	2.9449	14961.40	14985.40	24.00	1.23	1.23	1.23	63	160.9	260	-	0814	6447
27-Jul-15	9:20	28-Jul-15	9:20	Fine	2.8552	2.9659	14985.40	15009.40	24.00	1.23	1.23	1.23	63	160.9	260	-	0814	6586
31-Jul-15	8:10	01-Aug-15	8:10	Sunny	2.8640	2.9755	15009.40	15033.40	24.00	1.23	1.23	1.23	63	160.9	260	-	0814	6598
													Minimum	62				
													Average	64				
													Maximum	69				

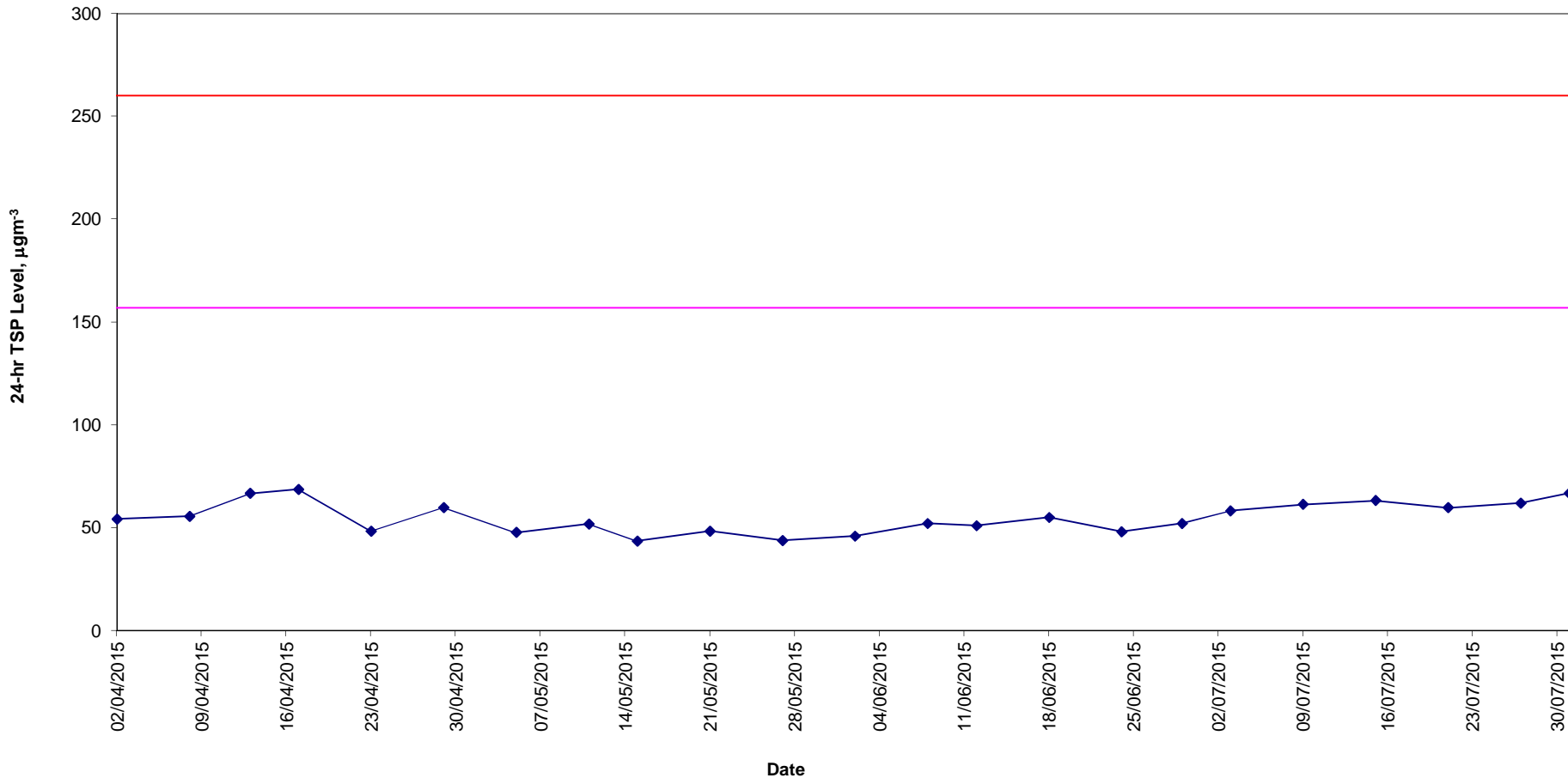
Station DMS-10 Chat Ma Mansion

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m <sup>3</sup> /min)		Average	TSP Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Jul-15	8:00	04-Jul-15	8:00	Sunny	2.8635	2.9784	5221.20	5245.20	24.00	1.25	1.25	1.25	64	170.4	260	-	3573	6555
09-Jul-15	8:43	10-Jul-15	8:43	Cloudy	2.8727	2.9984	5245.20	5269.20	24.00	1.24	1.24	1.24	70	170.4	260	-	3573	6577
15-Jul-15	8:43	16-Jul-15	8:43	Sunny	2.8862	2.9989	5269.20	5293.20	24.00	1.24	1.24	1.24	63	170.4	260	-	3573	6580
21-Jul-15	9:02	22-Jul-15	9:02	Rainy	2.8308	2.9500	5293.20	5317.20	24.00	1.24	1.24	1.24	67	170.4	260	-	3573	6446
27-Jul-15	8:43	28-Jul-15	8:43	Fine	2.8963	2.9980	5317.20	5341.20	24.00	1.24	1.24	1.24	57	170.4	260	-	3573	6585
31-Jul-15	8:00	01-Aug-15	8:00	Sunny	2.8751	2.9906	5341.20	5365.20	24.00	1.24	1.24	1.24	65	170.4	260	-	3573	6592
													Minimum	57				
													Average	64				
													Maximum	70				

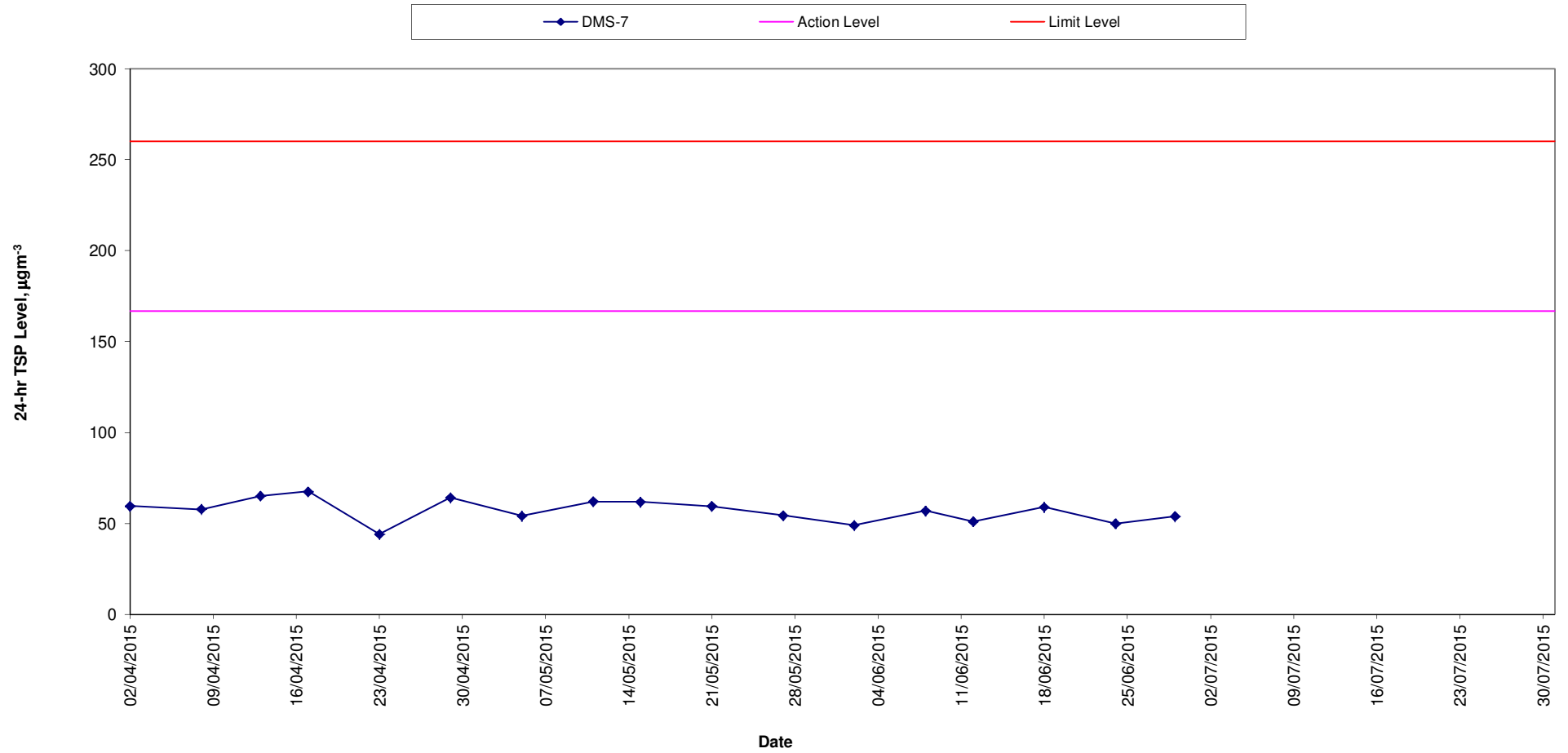


Construction Dust Monitoring Results for the Past 4 Months  
DMS-6 (Katherine Building)

DMS-6 Action Level Limit Level

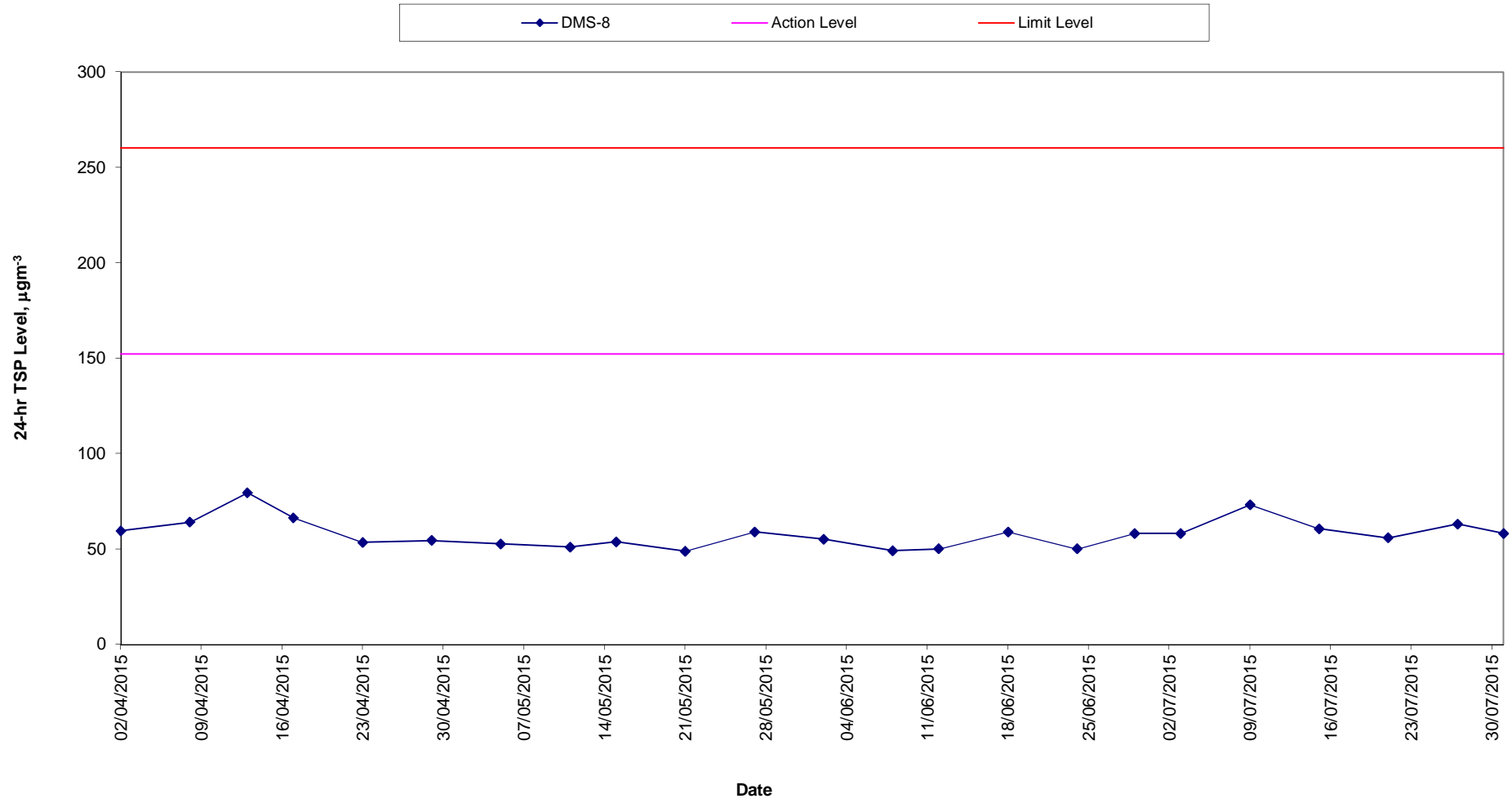


### Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)

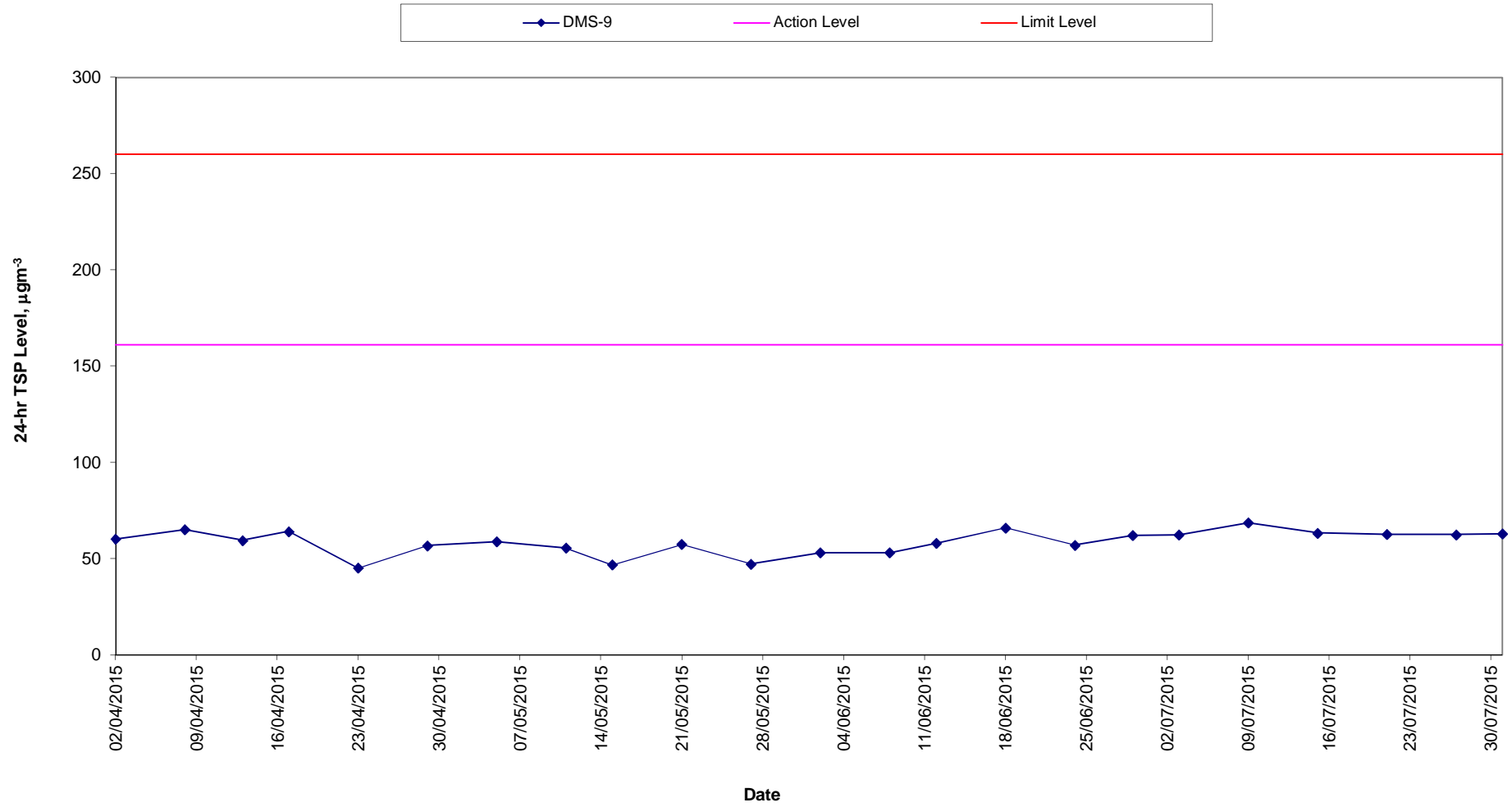


Remark: 24-hour averaged dust monitoring at DMS-7 (Parc-22) was temporary suspended due to request from the Management Office.

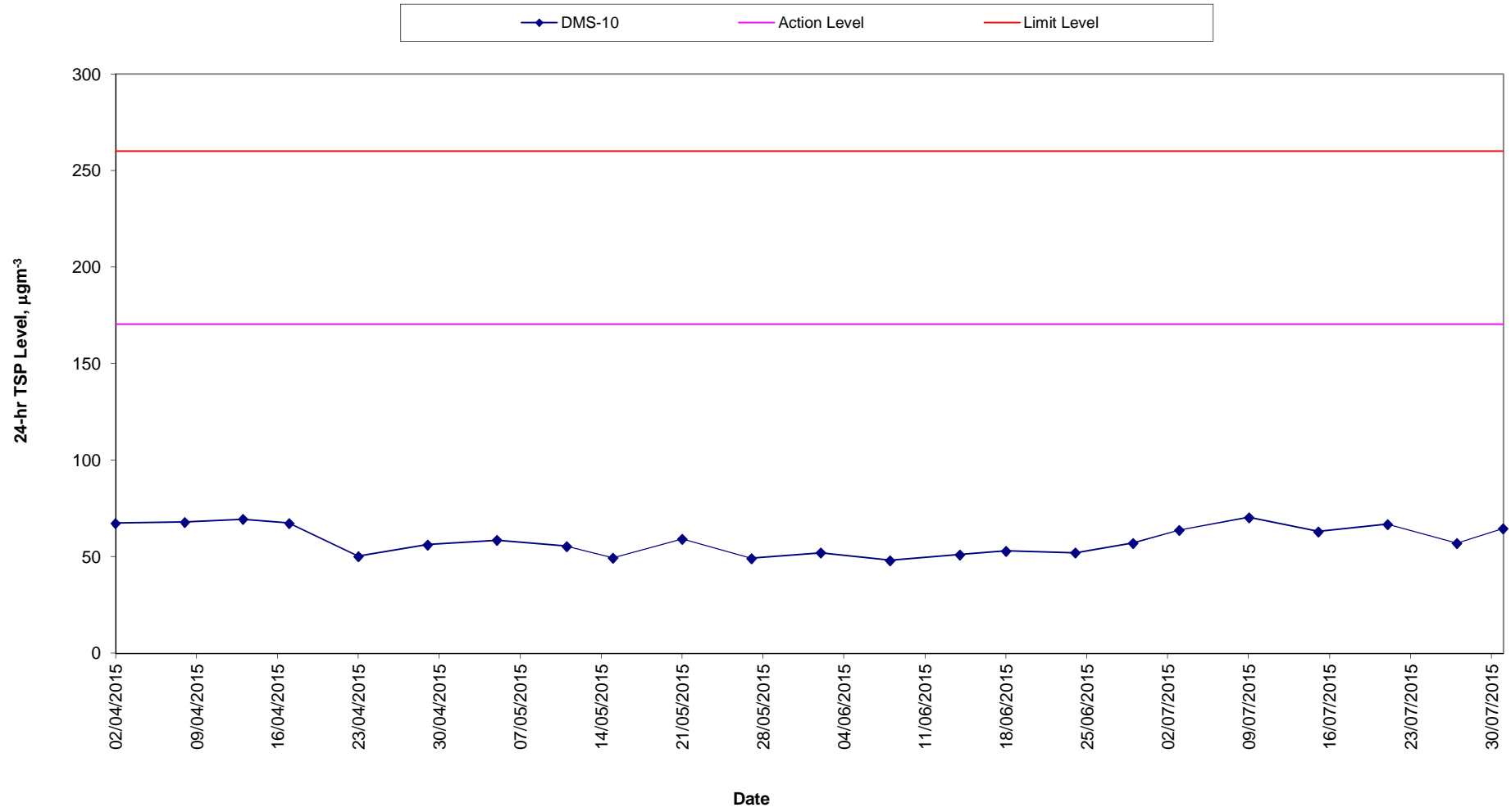
### Construction Dust Monitoring Results for the Past 4 Months DMS-8 (SKH Good Shepherd Primary School)



**Construction Dust Monitoring Results for the Past 4 Months  
DMS-9 (No.12 Pau Chung Street)**



### Construction Dust Monitoring Results for the Past 4 Months DMS-10 (Chat Ma Mansion)

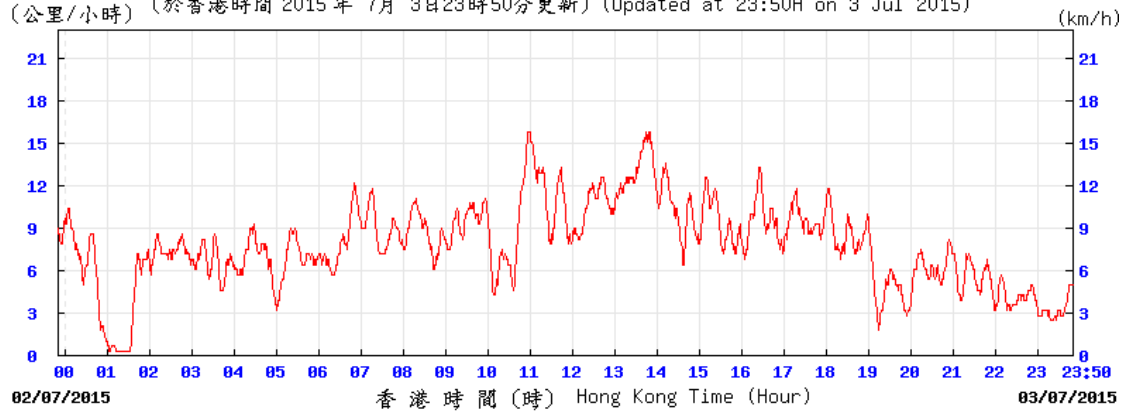


# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

## 3-4 July 2015

Wind Speed:

(公里/小時) (於香港時間 2015 年 7 月 3 日 23 時 50 分更新) (Updated at 23:50H on 3 Jul 2015)

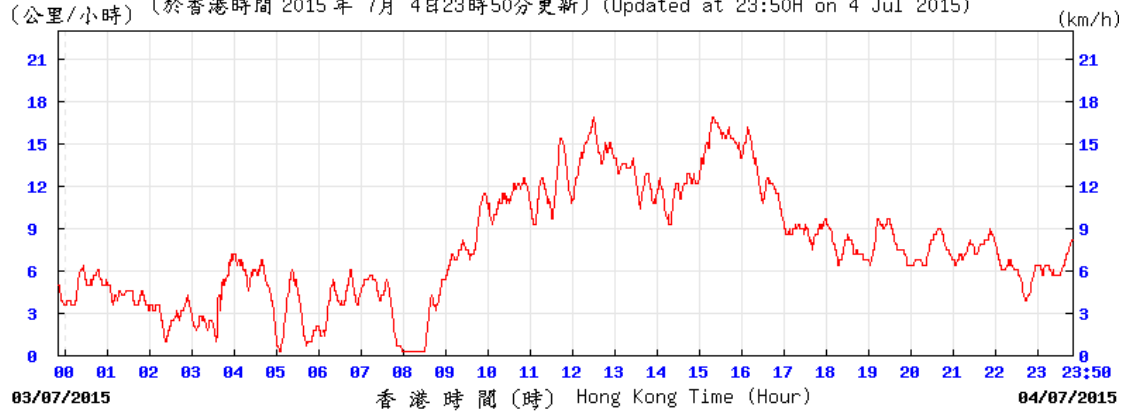


SEC

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Wind Speed:

(公里/小時) (於香港時間 2015 年 7 月 4 日 23 時 50 分更新) (Updated at 23:50H on 4 Jul 2015)



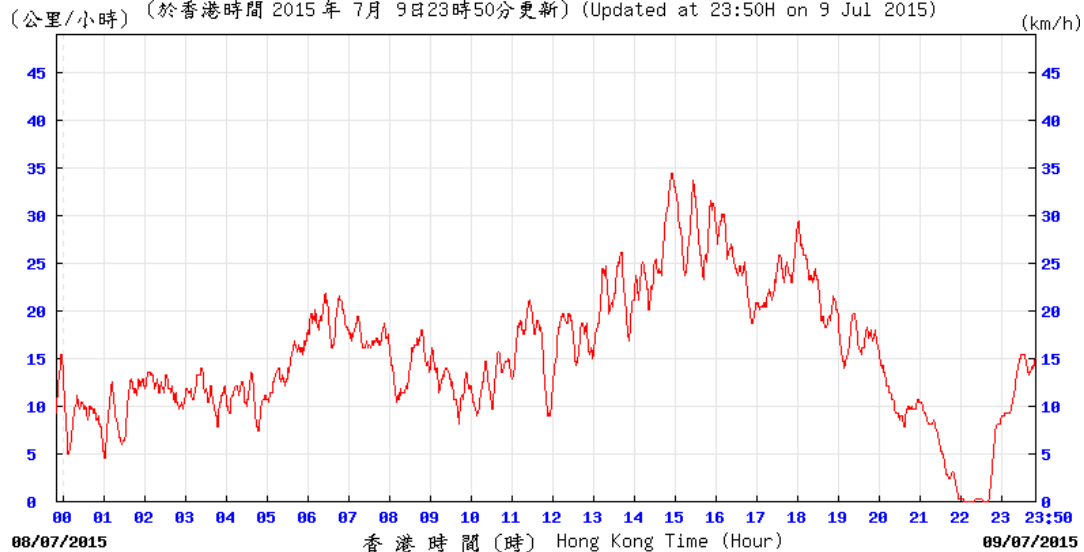
SEC

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## 9-10 July 2015

Wind Speed:

(公里/小時) (於香港時間 2015 年 7 月 9 日 23 時 50 分更新) (Updated at 23:50H on 9 Jul 2015)

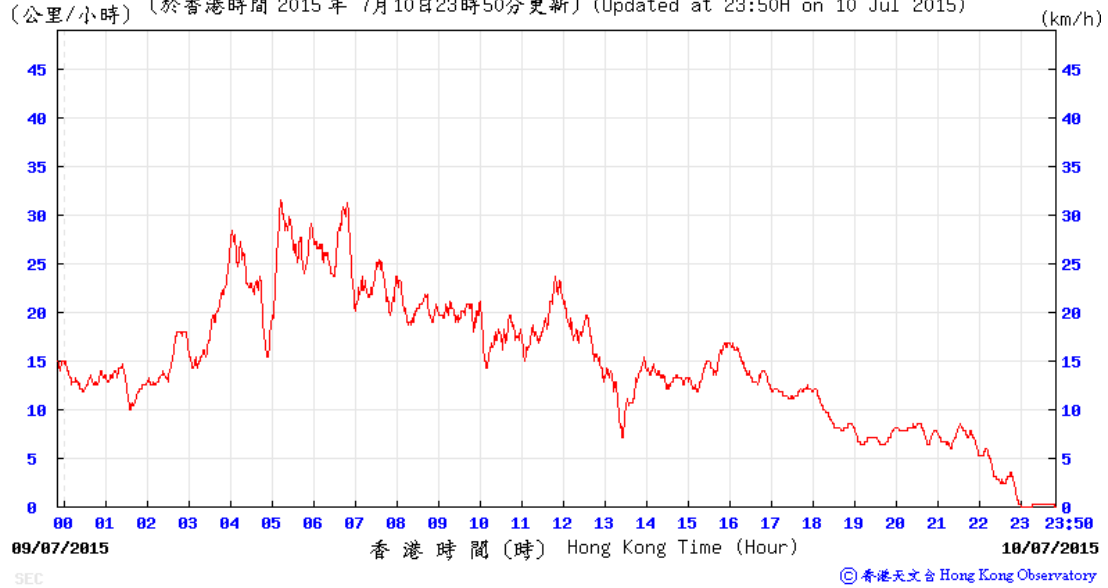


SEC

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Wind Speed:

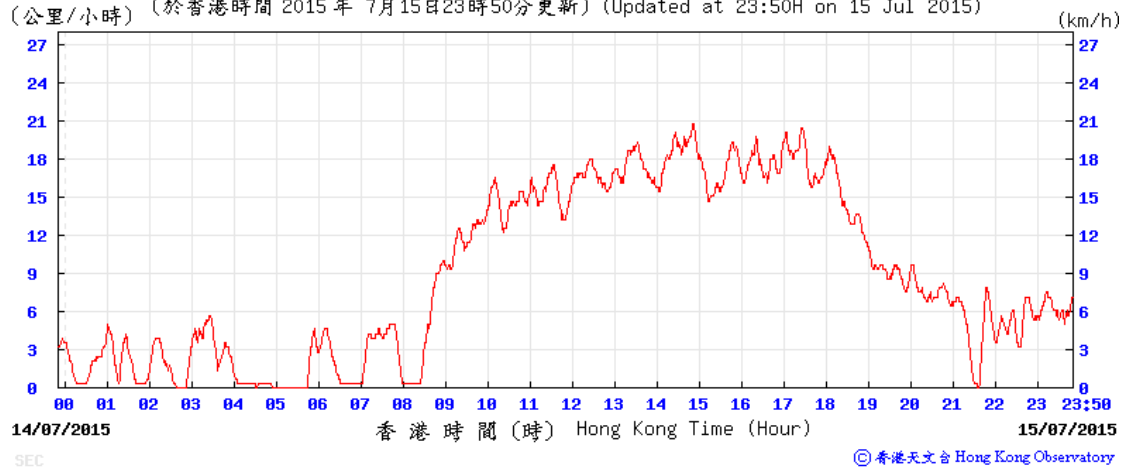
(公里/小時) (於香港時間 2015 年 7月10日23時50分更新) (Updated at 23:50H on 10 Jul 2015)



### 15-16 July 2015

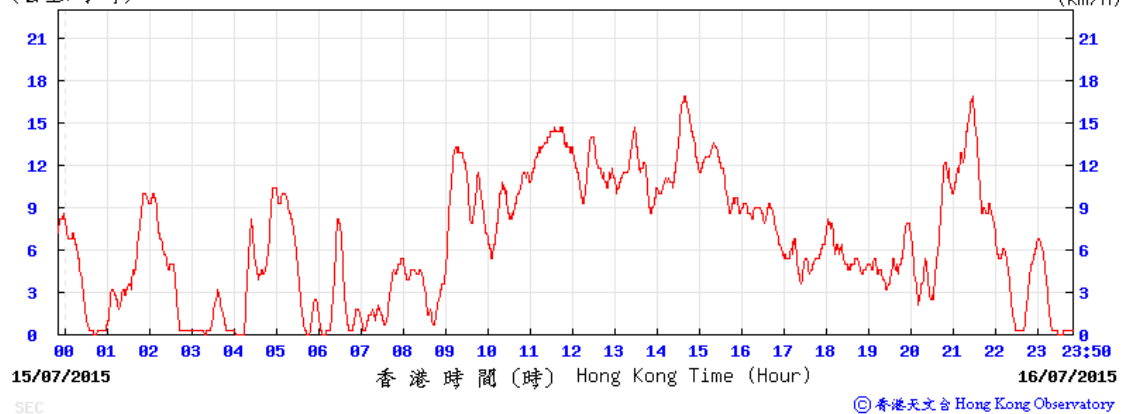
Wind Speed:

(公里/小時) (於香港時間 2015 年 7月15日23時50分更新) (Updated at 23:50H on 15 Jul 2015)



Wind Speed:

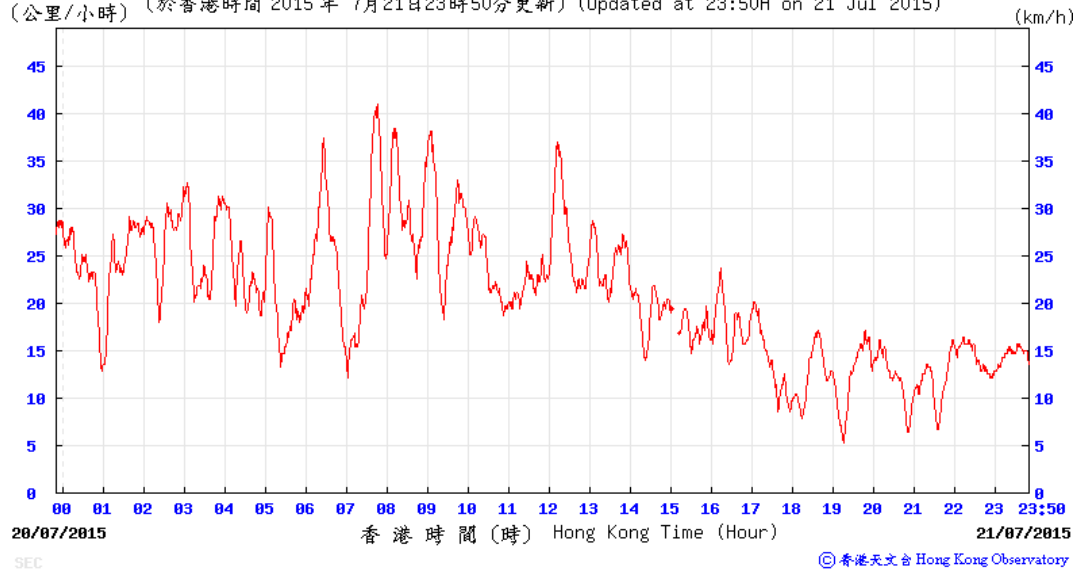
(公里/小時) (於香港時間 2015 年 7月16日23時50分更新) (Updated at 23:50H on 16 Jul 2015)



## 21-22 July 2015

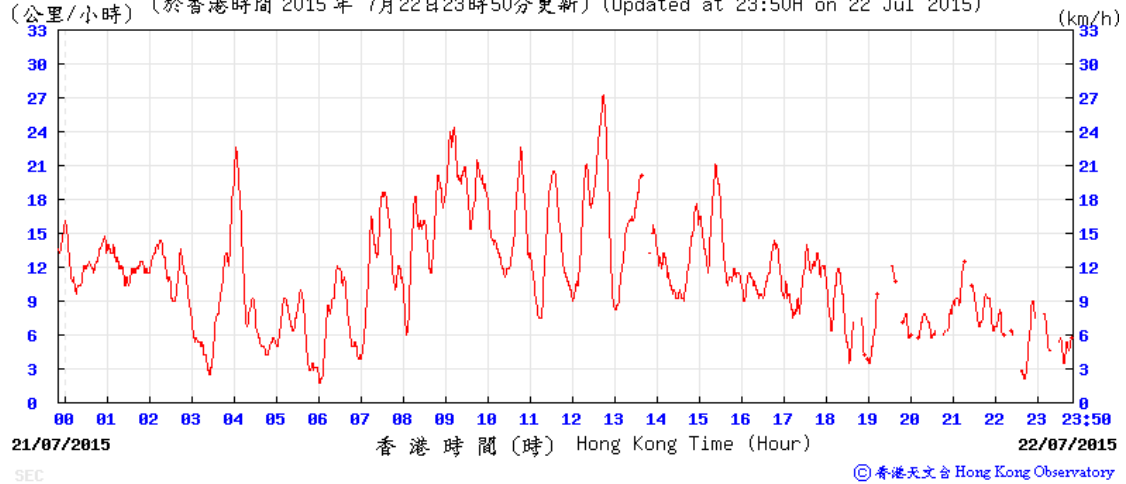
Wind Speed:

(公里/小時) (於香港時間 2015 年 7月21日23時50分更新) (Updated at 23:50H on 21 Jul 2015)



Wind Speed:

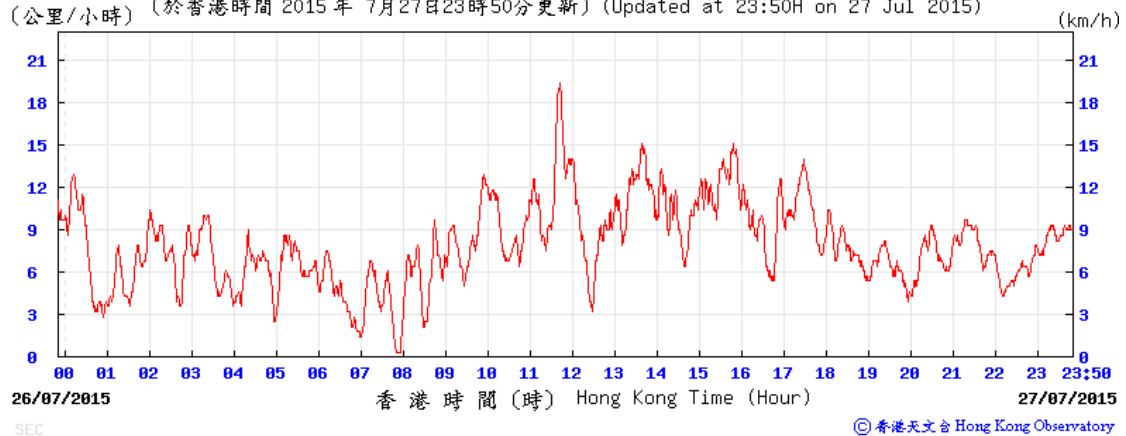
(公里/小時) (於香港時間 2015 年 7月22日23時50分更新) (Updated at 23:50H on 22 Jul 2015)



## 27-28 July 2015

Wind Speed:

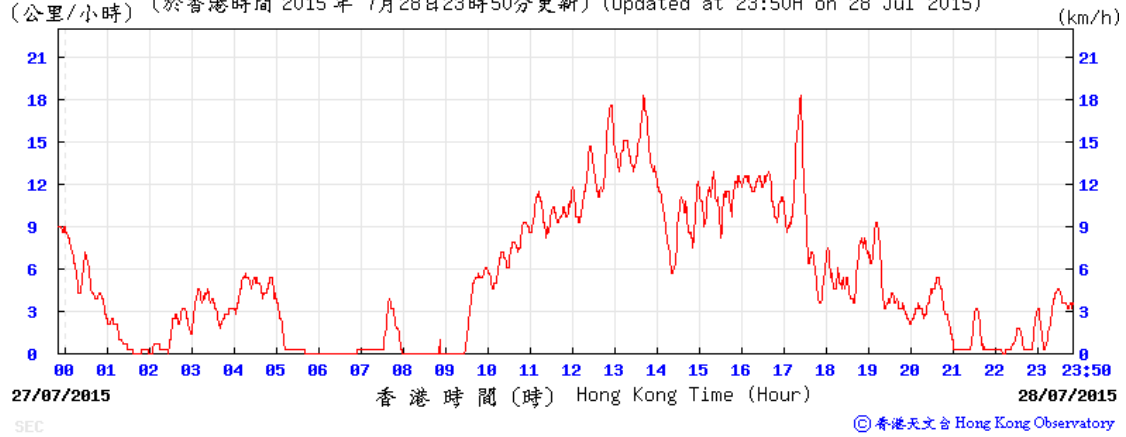
(公里/小時) (於香港時間 2015 年 7月27日23時50分更新) (Updated at 23:50H on 27 Jul 2015)





Wind Speed:

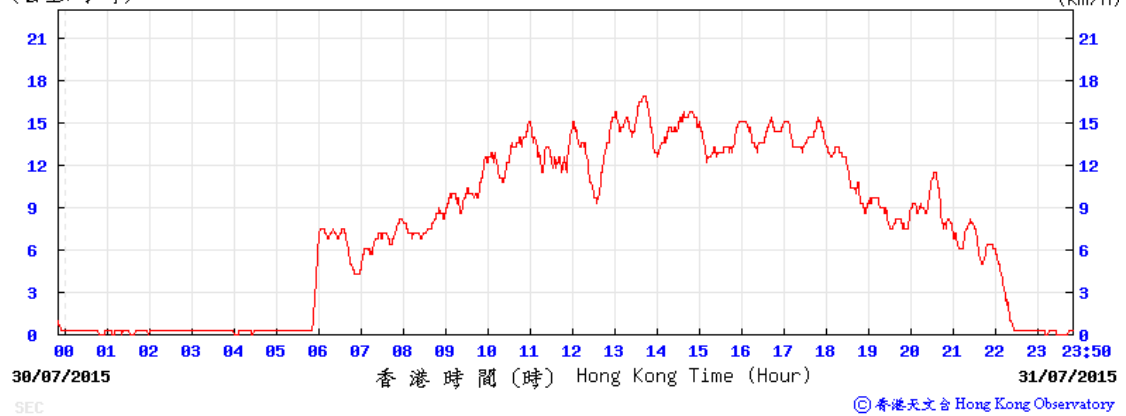
(公里/小時) (於香港時間 2015 年 7 月 28 日 23 時 50 分更新) (Updated at 23:50H on 28 Jul 2015)



### 31 July - 1 August 2015

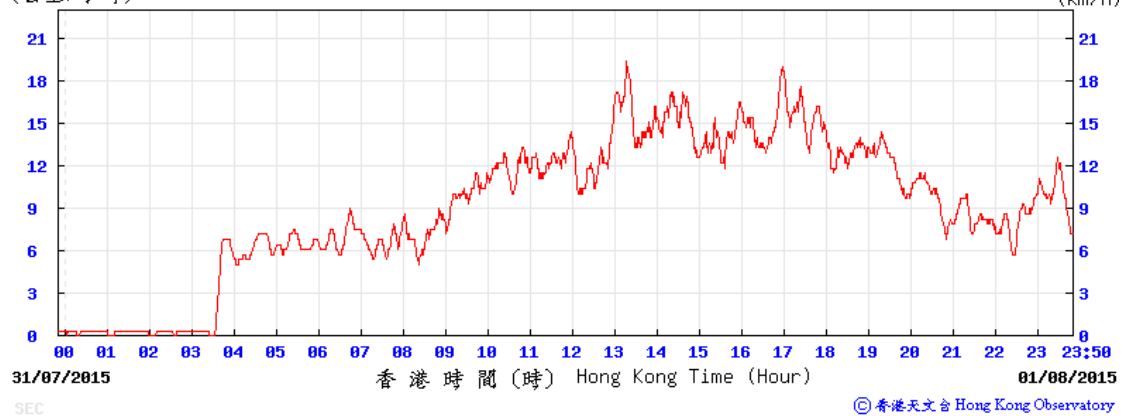
Wind Speed:

(公里/小時) (於香港時間 2015 年 7 月 31 日 23 時 50 分更新) (Updated at 23:50H on 31 Jul 2015)



Wind Speed:

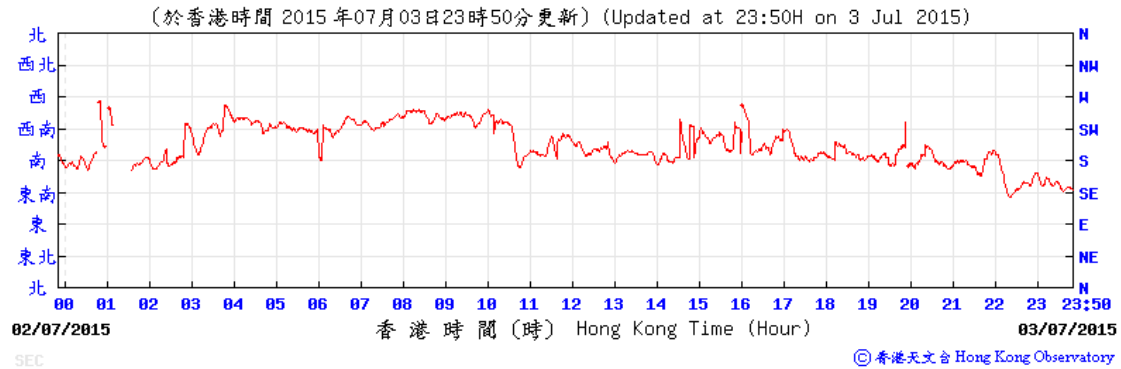
(公里/小時) (於香港時間 2015 年 8 月 1 日 23 時 50 分更新) (Updated at 23:50H on 1 Aug 2015)



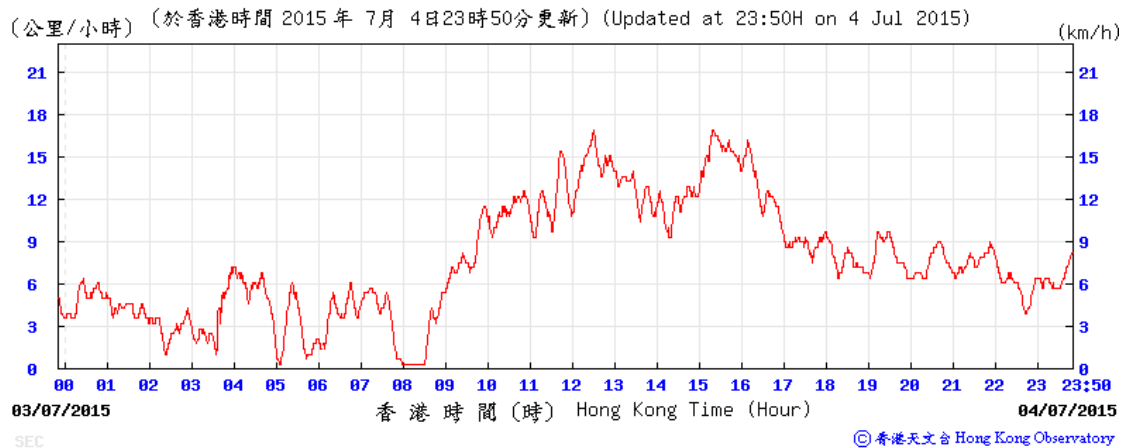
# Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

## 3-4 July 2015

Wind Direction:

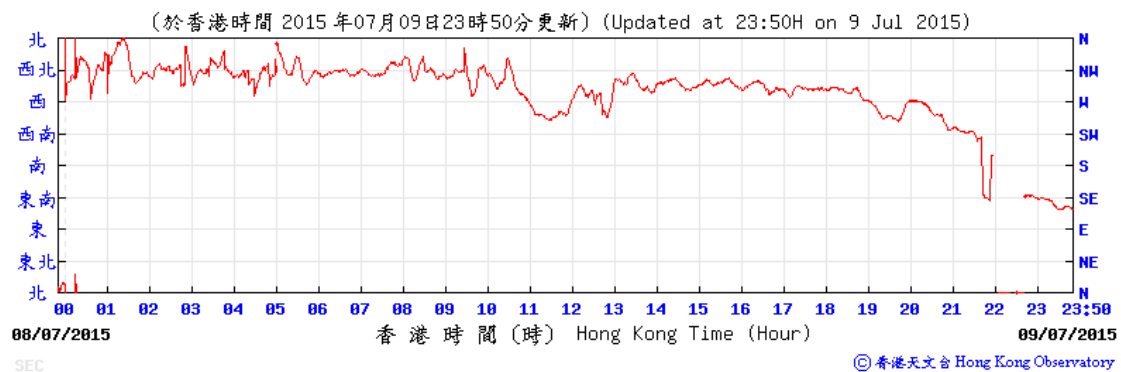


Wind Direction:

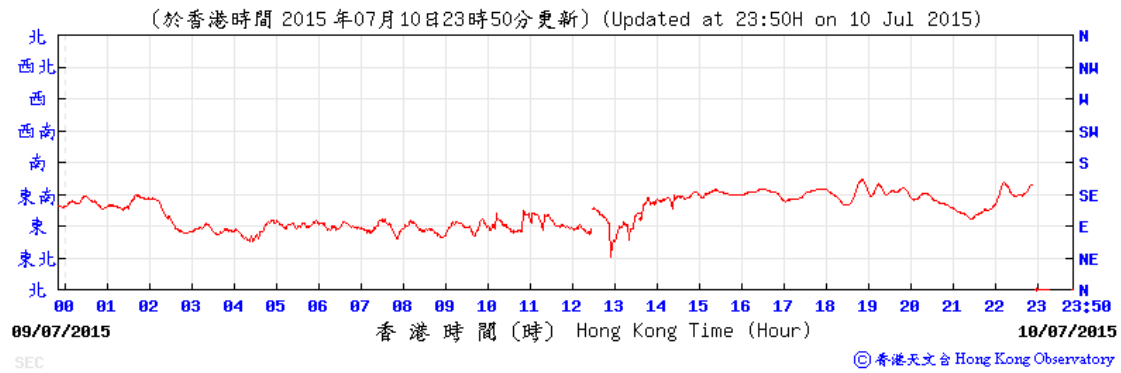


## 9-10 July 2015

Wind Direction:

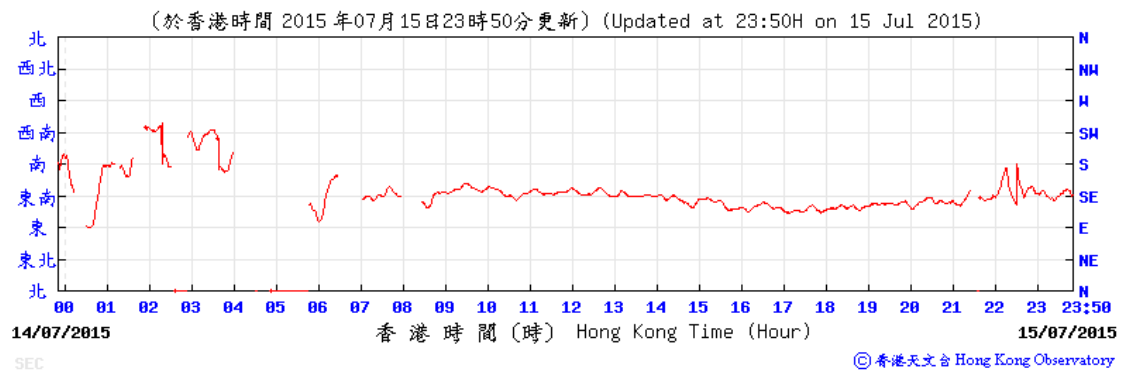


Wind Direction:

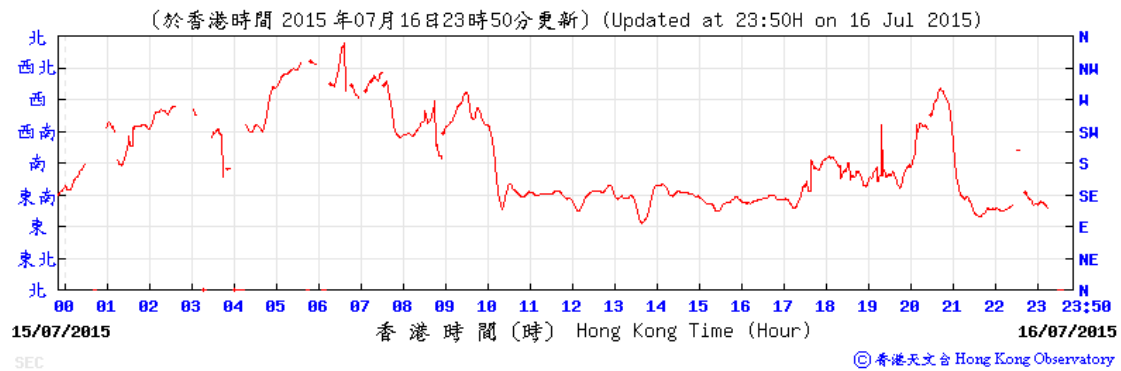


## 15-16 July 2015

Wind Direction:

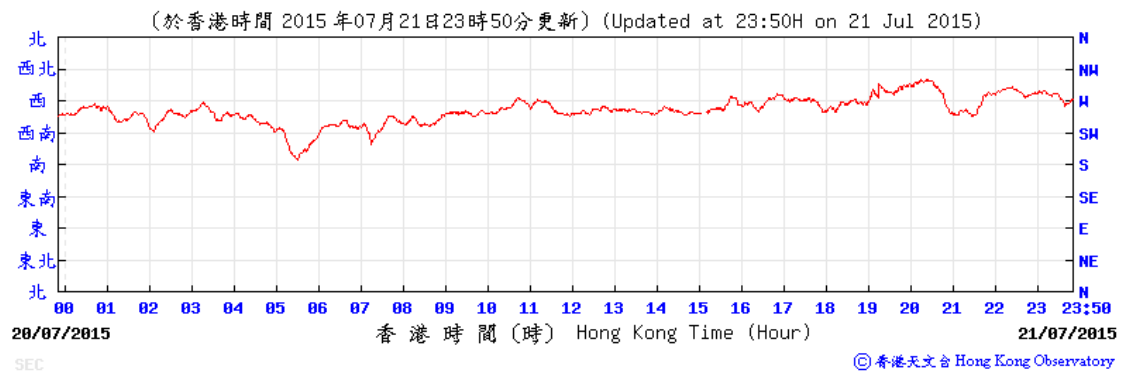


Wind Direction:

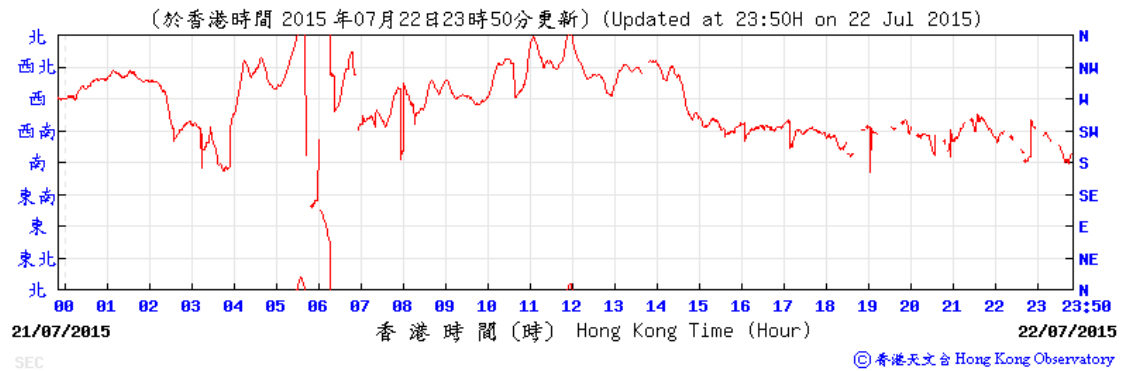


## 21-22 July 2015

Wind Direction:

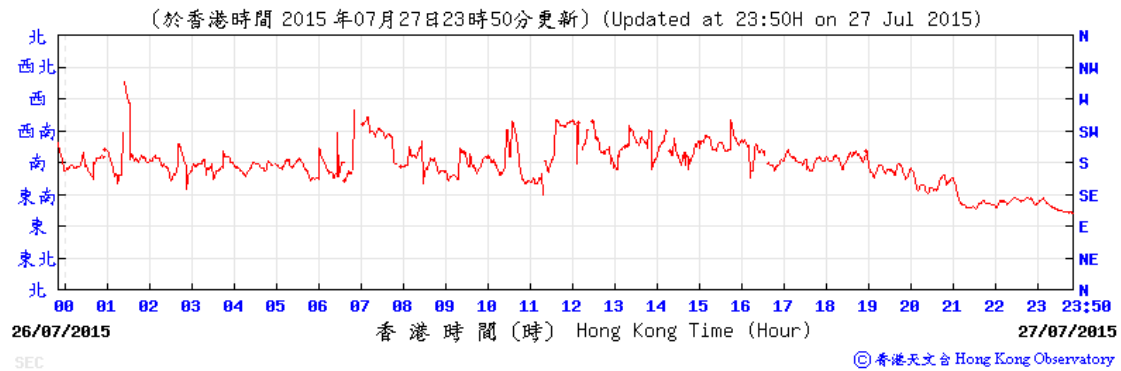


Wind Direction:

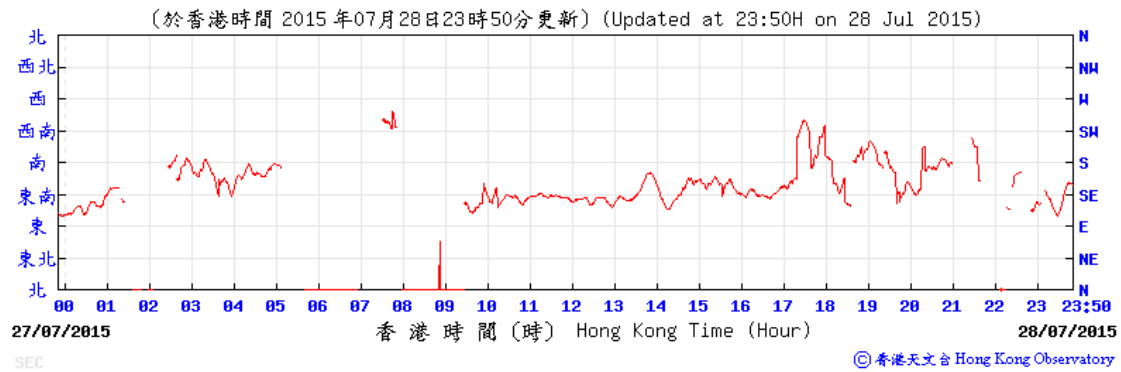


## 27-28 July 2015

Wind Direction:

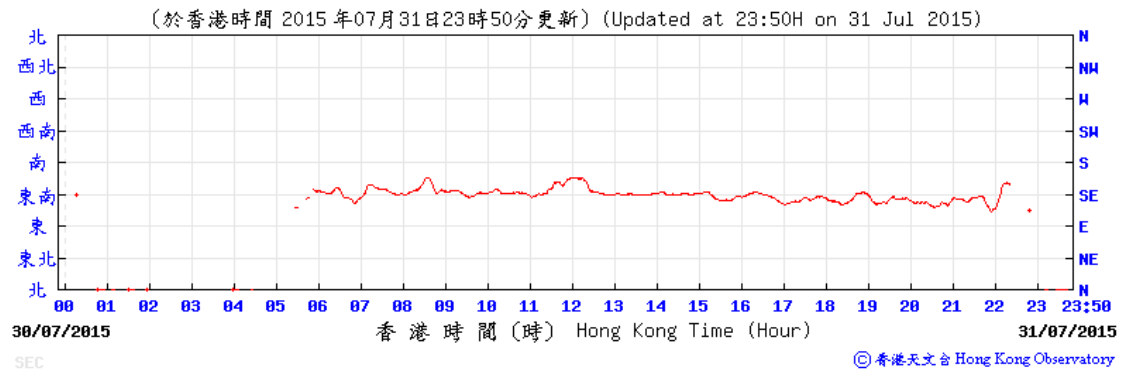


Wind Direction:

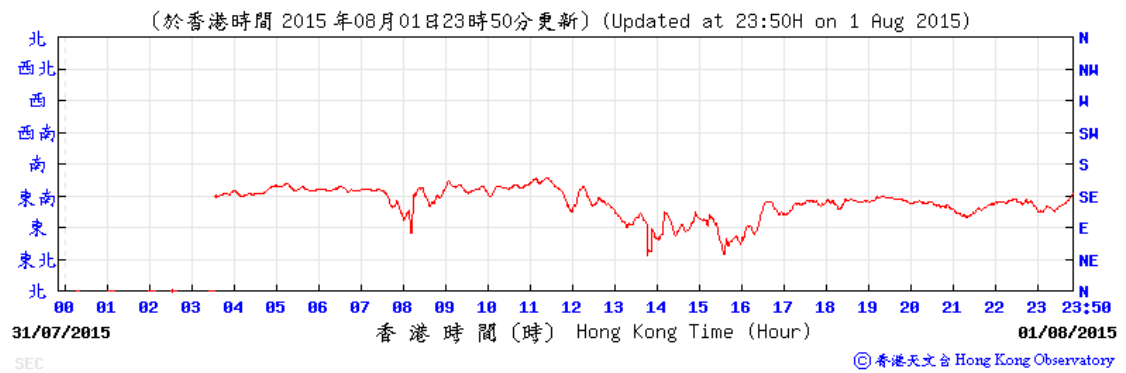


# 31 July - 1 August 2015

Wind Direction:



Wind Direction:



Annex K

## Waste Flow Table

## Annex K – Waste Flow Table

### Monthly Summary Waste Flow Table for the year 2012-2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities ( See Note 6)	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> ) (See Note 3)	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> ) (See Note 5)	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg) (See Note 2)	(in '000kg) (See Note 10)	(in '000m <sup>3</sup> ) ( See Note 5)	
Sep 2012	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct 2012	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov 2012	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec 2012	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Sub-total	17.472	0.000	0.605	0.000	0.028	16.839	12.800	0.396	5.315	0.000	0.887	6.804
Jan 2013	19.828	0.000	0.000	0.000	0.006	19.822	0.000	0.036 (See Note 7)	0.416	0.000	0.081 (See Note 8)	0.000
Feb 2013	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
Mar 2013	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.064 (See Note 9)	0.000
Apr 2013	13.557	0.000	0.000	0.000	0.025	13.533	0.000	0.036	0.148	0.000	0.086	0.000
May 2013	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
Jun 2013	5.538	0.000	0.000	0.000	0.000	5.538	0.000	0.045	0.784	0.32 (See Note 11)	0.065	0.000
Jul 2013	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Aug 2013	11.537	0.000	0.000	0.000	0.000	11.537	0.000	0.068	0.464	0.000	0.071	0.000
Sep 2013	4.641	0.000	0.000	0.000	0.000	4.641	0.000	0.027	0.522	0.000	0.110	0.000
Oct 2013	9.708	0.000	0.000	0.000	0.000	9.708	0.000	0.036	0.348	0.000	0.086	0.000
Nov 2013	7.199	0.000	0.000	0.000	0.000	7.199	0.000	0.068	0.506	0.000	0.678	0.000
Dec 2013	6.973	0.000	0.000	0.000	0.000	6.973	0.000	0.090	0.383	0.000	1.344	0.000
Sub-total	118.111	0.000	0.000	0.000	0.036	118.075	0.000	0.541	5.826	0.720	2.729	0.000
Jan 2014	11.870	0.000	0.000	0.000	0.000	11.870	0.000	0.121	0.270	0.400	0.100	0.000
Feb 2014	15.316	0.000	0.000	0.000	0.000	15.316	0.000	0.067	0.396	0.000	0.095	0.000
Mar 2014	18.734	0.000	0.000	0.000	0.000	18.734	0.000	0.067	0.320	0.200	0.107	0.000
Apr 2014	23.539	0.000	0.000	0.000	0.000	23.539	0.000	0.000	0.344	0.415	0.064	0.000
May 2014	11.327	0.000	0.000	0.000	0.000	11.327	0.000	0.000	0.371	0.000	0.130	0.000
Jun 2014	10.440	0.000	0.000	0.000	0.000	10.440	0.000	0.090	0.332	0.000	0.164	0.000
Jul 2014	2.103	0.000	0.000	0.000	0.000	2.103	0.000	0.099	0.544	0.200	0.131	0.000
Aug 2014	1.446	0.000	0.000	0.000	0.000	1.446	0.000	0.189	0.584	0.000	0.129	0.000
Sep 2014	1.980	0.000	0.000	0.000	0.000	1.980	0.000	0.225	0.284	0.000	0.099	0.000
Oct 2014	16.902	0.000	0.000	0.000	0.000	16.902	0.000	0.050	0.492	1.120	0.109	0.000
Nov 2014	27.687	0.000	0.000	0.000	0.000	27.687	0.000	0.140	0.352	0.000	0.083	0.000
Dec 2014	44.771	0.000	0.000	0.000	0.000	44.771	0.000	0.090	0.284	0.400	0.103	0.000
Sub-total	186.115	0.000	0.000	0.000	0.000	186.115	0.000	1.048	4.573	2.335	1.314	0.000

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities ( See Note 6)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse ( See Note 5)	
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m <sup>3</sup> )	
Jan 2015	64.165	0.000	0.000	0.266	0.000	63.899	0.000	0.077	0.328	0.180	0.150	0.000
Feb 2015	46.884	0.000	0.000	2.599	0.000	44.285	0.000	0.090	3.102	0.000	0.106	0.000
Mar 2015	41.498	0.000	0.000	0.000	0.000	41.498	0.000	0.072	2.321	0.600	0.126	0.000
Apr 2015	13.049	0.000	0.000	0.000	0.000	13.049	0.000	0.081	1.598	0.000	0.119	0.000
May 2015	54.559	0.000	0.000	0.000	0.000	54.559	0.000	0.063	0.548	0.000	0.099	0.000
Jun 2015	48.857	0.000	0.000	0.000	0.000	48.857	0.000	0.041	0.880	0.000	0.144	0.000
Jul 2015	34.471	0.000	0.000	0.000	0.000	34.471	0.000	0.090	4.972	0.720	0.218	0.000
Sub-total	303.483	0.000	0.000	2.865	0.000	300.618	0.000	0.514	13.749	1.500	0.962	0.000
Total	625.182	0.000	0.605	2.865	0.064	621.647	12.800	2.499	29.463	4.555	5.892	6.804

Notes:

- 1 The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
  - All metallic waste to be recovered for collection by recycling contractors;
  - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
  - All chemical wastes to be collected and properly disposed of by specialist contractors; and
  - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- 2 Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 Broken concrete for recycling into aggregates.
- 4 The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 5 Density Assumption: 1.6(kg/l) for Public Fill and 0.9(kg/l) for General Refuse
- 6 Inert C&D Material was delivered to contract 1108A from 10-Dec-2012.
- 7 The quantity of paper/ cardboard packaging generated in January 2013 was updated by the Contractor in March 2013.
- 8 The quantity of general refuse generated in January 2013 was updated by the Contractor in March 2013.
- 9 The quantity of general refuse generated in March 2013 was updated by the Contractor in April 2013.
- 10 Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.
- 11 The quantity of chemical waste generated in June 2013 was updated by the Contractor in August 2013.



Annex L

## Investigation Reports

**Investigation Report of Environmental Quality Limit Exceedance**

Date	22 June 2015
Time	08:41-09:11; 09:11-09:41; 09:41-10:11; 10:11-10:41; 10:41-11:11; 13:11-13:41; 13:41-14:11; 14:41-15:11; 15:11-15:41; and 15:41-16:11.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.3 dB(A) (08:41-09:11); 81.9 dB(A) (09:11-9:41); 81.3 dB(A) (09:41-10:11); 81.1 dB(A) (10:11-10:41); 80.5 dB(A) (10:41-11:11); 83.2 dB(A) (13:11-13:41); 84.8 dB(A) (13:41-14:11); 82.5 dB(A) (14:41-15:11); 82.9 dB(A) (15:11-15:41); and 80.7 dB(A) (15:41-16:11).
Possible reason	<p>Based on the site record on 22 June 2015, the potential noise sources from the Project works included diversion of storm drains works, sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 22 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections</li> </ol>

	<p>twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 26-June-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	22 June 2015
Time	08:41-09:11; 09:11-09:41; 13:11-13:41; 13:41-14:11; 14:41-15:11; and 15:11-15:41.
Monitoring Location	MTW-12-11 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.3 dB(A) (08:41-09:11); 81.9 dB(A) (09:11-9:41); 83.2 dB(A) (13:11-13:41); 84.8 dB(A) (13:41-14:11); 82.5 dB(A) (14:41-15:11); 82.9 dB(A) (15:11-15:41).
Possible reason	<p>Based on the site record on 22 June 2015, the potential noise sources from the Project works included diversion of storm drains works, sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 22 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to</li> </ol>

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 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	<p>check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 26-June-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	22 June 2015
Time	08:41-09:11; 09:11-09:41; 09:41-10:11; 10:11-10:41; 10:41-11:11; 13:11-13:41; 13:41-14:11; 14:11-14:41; 14:41-15:11; 15:11-15:41; and 15:41-16:11.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.3 dB(A) (08:41-09:11); 81.9 dB(A) (09:11-9:41); 81.3 dB(A) (09:41-10:11); 81.1 dB(A) (10:11-10:41); 80.5 dB(A) (10:41-11:11); 83.2 dB(A) (13:11-13:41); 84.8 dB(A) (13:41-14:11); 79.9 dB(A) (14:11-14:41); 82.5 dB(A) (14:41-15:11); 82.9 dB(A) (15:11-15:41); and 80.7 dB(A) (15:41-16:11).
Possible reason	<p>Based on the site record on 22 June 2015, the potential noise sources from the Project works included diversion of storm drains works, sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 22 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> </ol>

	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
 Date 26-June-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	23 June 2015
Time	08:03-08:33; 08:33-09:03; 09:03-09:33; 09:33-10:03; 10:03-10:33; 10:33-11:03; 14:03-14:33; 14:33-15:03; 15:03-15:33; 17:03-17:33; and 17:33-18:03.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.6 dB(A) (08:03-08:33); 83.3 dB(A) (08:33-09:03); 82.9 dB(A) (09:03-09:33); 82.9 dB(A) (09:33-10:03); 81 dB(A) (10:03-10:33); 81.4 dB(A) (10:33-11:03); 81 dB(A) (14:03-14:33); 81 dB(A) (14:33-15:03); 81 dB(A) (15:03-15:33); 82.1 dB(A) (17:03-17:33); 82.1 dB(A) (17:33-18:03).
Possible reason	<p>Based on the site record on 23 June 2015, the potential noise sources from the Project works included sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 23 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> </ol>



	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	23 June 2015
Time	08:12-08:42; 08:42-09:12; and 09:12-9:42.
Monitoring Location	MTW 12-4(A) Kong Yiu Mansion
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.8 dB(A) (08:12-08:42); 81.9 dB(A) (08:42-09:12); 81.1 dB(A) (09:12-9:42).
Possible reason	<p>Based on the site record on 23 June 2015, the potential noise sources from the Project works included D-wall construction, and roof-slab excavation and construction in E1 works area; roof-slab excavation, and formwork erection for roof-slab construction in E2 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 5 backhoes, and 2 BC cutters.</p> <p>The above-mentioned construction works were continuously operating on 23 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>It is important to note that the rainy weather on 23 June 2015 may contribute to higher background noise level. According to the data from Hong Kong Observatory, 17mm and 6mm of rainfall was recorded at 7:45-8:45 and 8:45-9:45, respectively, during the exceedance period on 23 June 2015.</p> <p>Having considered the above, the exceedances recorded are attributed by various sources and no conclusion could be drawn.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections</li> </ol>

	<p>twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 7-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	23 June 2015
Time	08:03-08:33; 08:33-09:03; 09:03-09:33; 09:33-10:03; 17:03-17:33; and 17:33-18:03.
Monitoring Location	MTW-12-11 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.6 dB(A) (08:03-08:33); 83.3 dB(A) (08:33-09:03); 82.9 dB(A) (09:03-09:33); 82.9 dB(A) (09:33-10:03); 82.1 dB(A) (17:03-17:33); 82.1 dB(A) (17:33-18:03).
Possible reason	<p>Based on the site record on 23 June 2015, the potential noise sources from the Project works included sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 23 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in</li> </ol>

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 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	<p>vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
 Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	23 June 2015
Time	08:03-08:33; 08:33-09:03; 09:03-09:33; 09:33-10:03; 10:03-10:33; 10:33-11:03; 11:03-11:33; 12:33-13:03; 13:03-13:33; 14:03-14:33; 14:33-15:03; 15:03-15:33; 17:03-17:33; 17:33-18:03; and 18:03-18:33.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.6 dB(A) (08:03-08:33); 83.3 dB(A) (08:33-09:03); 82.9 dB(A) (09:03-09:33); 82.9 dB(A) (09:33-10:03); 81 dB(A) (10:03-10:33); 81.4 dB(A) (10:33-11:03); 79.7 dB(A) (11:03-11:33); 79.6 dB(A) (12:33-13:03); 82.2 dB(A) (13:03-13:33); 81 dB(A) (14:03-14:33); 81 dB(A) (14:33-15:03); 81 dB(A) (15:03-15:33); 82.1 dB(A) (17:03-17:33); 82.1 dB(A) (17:33-18:03); 79.9 dB(A) (18:03-18:33).
Possible reason	<p>Based on the site record on 23 June 2015, the potential noise sources from the Project works included sheet pile extraction, and roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, toe grouting, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 23 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	1. Noise fabrics as barrier had been erected on the site hoarding.

	<ol style="list-style-type: none"> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	24 June 2015
Time	09:33-10:03; 10:03-10:33; 10:33-11:03; 11:03-11:33; 15:03-15:33; 15:33-16:03; 17:03-17:33; and 17:33-18:03.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.5 dB(A) (09:33-10:03); 84.4 dB(A) (10:03-10:33); 83.4 dB(A) (10:33-11:03); 82.2 dB(A) (11:03-11:33); 82.1 dB(A) (15:03-15:33); 82.4 dB(A) (15:33-16:03); 81.7 dB(A) (17:03-17:33); 81.4 dB(A) (17:33-18:03).
Possible reason	<p>Based on the site record on 24 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 24 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections twice a day since the issue of this NOE, to</li> </ol>



	<p>collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	24 June 2015
Time	09:33-10:03; 10:03-10:33; 10:33-11:03; 11:03-11:33; 15:03-15:33; and 15:33-16:03.
Monitoring Location	MTW-12-11 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.5 dB(A) (09:33-10:03); 84.4 dB(A) (10:03-10:33); 83.4 dB(A) (10:33-11:03); 82.2 dB(A) (11:03-11:33); 82.1 dB(A) (15:03-15:33); 82.4 dB(A) (15:33-16:03).
Possible reason	<p>Based on the site record on 24 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 24 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to</li> </ol>

	<p>check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	24 June 2015
Time	08:33-09:03; 09:03-09:33; 09:33-10:03; 10:03-10:33; 10:33-11:03; 11:03-11:33; 15:03-15:33; 15:33-16:03; 16:03-16:33; 17:03-17:33; and 17:33-18:03.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82 dB(A) (08:33-09:03); 79.7 dB(A) (09:03-09:33); 83.5 dB(A) (09:33-10:03); 84.4 dB(A) (10:03-10:33); 83.4 dB(A) (10:33-11:03); 82.2 dB(A) (11:03-11:33); 82.1 dB(A) (15:03-15:33); 82.4 dB(A) (15:33-16:03); 79.8 dB(A) (16:03-16:33); 81.7 dB(A) (17:03-17:33); 81.4 dB(A) (17:33-18:03).
Possible reason	<p>Based on the site record on 24 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 6 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 24 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections</li> </ol>

	<p>twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	25 June 2015
Time	13:03-13:33; 13:33-14:03; and 14:03-14:33.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.9 dB(A) (13:03-13:33); 84.5 dB(A) (13:33-14:03); 81 dB(A) (14:03-14:33).
Possible reason	<p>Based on the site record on 25 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, concrete casting works, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 25 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide</li> </ol>

	<p>sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	25 June 2015
Time	09:33-10:03; 10:03-10:33; 10:33-11:03; 11:03-11:33; 12:33-13:03; 13:03-13:33; 13:33-14:03; 14:03-14:33; 15:30-16:00; 16:00-16:30; 16:30-17:00; 17:00-17:30; and 17:30-18:00.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}(30mins)$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.4 dB(A) (09:33-10:03); 80.4 dB(A) (10:03-10:33); 79.7 dB(A) (10:33-11:03); 79.9 dB(A) (11:03-11:33); 80.1 dB(A) (12:33-13:03); 80.9 dB(A) (13:03-13:33); 84.5 dB(A) (13:33-14:03); 81 dB(A) (14:03-14:33); 80.9 dB(A) (15:30-16:00); 79.6 dB(A) (16:00-16:30); 80.7 dB(A) (16:30-17:00); 80.1 dB(A) (17:00-17:30); 80.9 dB(A) (17:30-18:00).
Possible reason	<p>Based on the site record on 25 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, concrete casting works, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 25 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> </ol>



	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	26 June 2015
Time	13:00-13:30; and 13:30-14:00.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.5 dB(A) (13:00-13:30); 81.2 dB(A) (13:30-14:00).
Possible reason	<p>Based on the site record on 26 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 8 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 26 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide</li> </ol>

	<p>sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	26 June 2015
Time	08:30-09:00; 09:00-09:30; 13:00-13:30; 13:30-14:00; 14:30-15:00; 15:00-15:30; 17:00-17:30; and 17:30-18:00.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.4 dB(A) (08:30-09:00); 80 dB(A) (09:00-09:30); 80.5 dB(A) (13:00-13:30); 81.2 dB(A) (13:30-14:00); 80.3 dB(A) (14:30-15:00); 80.4 dB(A) (15:00-15:30); 80.3 dB(A) (17:00-17:30); 82.8 dB(A) (17:30-18:00).
Possible reason	<p>Based on the site record on 26 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 8 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 26 June 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>The Contractor has conducted site inspections twice a day since the issue of this NOE, to</li> </ol>

	<p>collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	27 June 2015
Time	08:00-08:30; 08:30-09:00; 09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 12:30-13:00; 13:00-13:30; 13:30-14:00; 14:00-14:30; 14:30-15:00; 15:00-15:30; and 15:30-16:00.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}(30mins)$
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.7 dB(A) (08:00-08:30); 80.7 dB(A) (08:30-09:00); 81.7 dB(A) (09:00-09:30); 81.8 dB(A) (09:30-10:00); 82.5 dB(A) (10:00-10:30); 81.9 dB(A) (10:30-11:00); 84 dB(A) (12:30-13:00); 83.6 dB(A) (13:00-13:30); 84.9 dB(A) (13:30-14:00); 85.2 dB(A) (14:00-14:30); 81.7 dB(A) (14:30-15:00); 82.9 dB(A) (15:00-15:30); 82.7 dB(A) (15:30-16:00).
Possible reason	<p>Based on the site record on 27 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and concrete casting for blinding layer in E3 works area; roof-slab excavation and construction, concrete casting works, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 9 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 27 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be</li> </ol>

	<p>erected on site when carrying out noisy work.</p> <p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	27 June 2015
Time	09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 12:30-13:00; 13:00-13:30; 13:30-14:00; 14:00-14:30; 14:30-15:00; 15:00-15:30; and 15:30-16:00.
Monitoring Location	MTW-12-11 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	81.7 dB(A) (09:00-09:30); 81.8 dB(A) (09:30-10:00); 82.5 dB(A) (10:00-10:30); 81.9 dB(A) (10:30-11:00); 84 dB(A) (12:30-13:00); 83.6 dB(A) (13:00-13:30); 84.9 dB(A) (13:30-14:00); 85.2 dB(A) (14:00-14:30); 81.7 dB(A) (14:30-15:00); 82.9 dB(A) (15:00-15:30); 82.7 dB(A) (15:30-16:00).
Possible reason	<p>Based on the site record on 27 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and concrete casting for blinding layer in E3 works area; roof-slab excavation and construction, concrete casting works, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 9 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 27 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> </ol>



	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	27 June 2015
Time	08:00-08:30; 08:30-09:00; 09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 11:00-11:30; 12:30-13:00; 13:00-13:30; 13:30-14:00; 14:00-14:30; 14:30-15:00; 15:00-15:30; 15:30-16:00; 16:00-16:30; 16:30-17:00; 17:30-18:00; and 18:00-18:30.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.7 dB(A) (08:00-08:30); 80.7 dB(A) (08:30-09:00); 81.7 dB(A) (09:00-09:30); 81.8 dB(A) (09:30-10:00); 82.5 dB(A) (10:00-10:30); 81.9 dB(A) (10:30-11:00); 79.7 dB(A) (11:00-11:30); 84 dB(A) (12:30-13:00); 83.6 dB(A) (13:00-13:30); 84.9 dB(A) (13:30-14:00); 85.2 dB(A) (14:00-14:30); 81.7 dB(A) (14:30-15:00); 82.9 dB(A) (15:00-15:30); 82.7 dB(A) (15:30-16:00); 80.4 dB(A) (16:00-16:30); 79.7 dB(A) (16:30-17:00); 85.4 dB(A) (17:30-18:00); 80.4 dB(A) (18:00-18:30).
Possible reason	<p>Based on the site record on 27 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and concrete casting for blinding layer in E3 works area; roof-slab excavation and construction, concrete casting works, drilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 9 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 27 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
 Date 6-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	29 June 2015
Time	07:30-08:00; 08:00-08:30; 08:30-09:00; 09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 11:00-11:30; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 13:56-14:26; 14:26-14:56; 14:56-15:26; 15:26-15:56; 15:56-16:26; 16:26-16:56; 16:56-17:26; 17:26-17:56; and 17:56-18:26.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.9 dB(A) (07:30-08:00); 83.4 dB(A) (08:00-08:30); 82.5 dB(A) (08:30-09:00); 85.1 dB(A) (09:00-09:30); 85.7 dB(A) (09:30-10:00); 84.9 dB(A) (10:00-10:30); 85 dB(A) (10:30-11:00); 86.3 dB(A) (11:00-11:30); 82 dB(A) (11:56-12:26); 85.7 dB(A) (12:26-12:56); 85.1 dB(A) (12:56-13:26); 88 dB(A) (13:26-13:56); 83.4 dB(A) (13:56-14:26); 85.2 dB(A) (14:26-14:56); 86.2 dB(A) (14:56-15:26); 86.3 dB(A) (15:26-15:56); 87.7 dB(A) (15:56-16:26); 86.1 dB(A) (16:26-16:56); 86.1 dB(A) (16:56-17:26); 85.2 dB(A) (17:26-17:56); 85.4 dB(A) (17:56-18:26).
Possible reason	<p>Based on the site record on 29 June 2015, the potential noise sources from the Project works included casting portion of blinding layer, sheet pile extraction, roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works, and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 29 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	of 1109 may have contributed to the exceedances recorded.
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	29 June 2015
Time	07:30-08:00; 08:00-08:30; 08:30-09:00; 09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 11:00-11:30; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 13:56-14:26; 14:26-14:56; 14:56-15:26; 15:26-15:56; 15:56-16:26; 16:26-16:56; 16:56-17:26; 17:26-17:56; and 17:56-18:26.
Monitoring Location	MTW-12-11 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.9 dB(A) (07:30-08:00); 83.4 dB(A) (08:00-08:30); 82.5 dB(A) (08:30-09:00); 85.1 dB(A) (09:00-09:30); 85.7 dB(A) (09:30-10:00); 84.9 dB(A) (10:00-10:30); 85 dB(A) (10:30-11:00); 86.3 dB(A) (11:00-11:30); 82 dB(A) (11:56-12:26); 85.7 dB(A) (12:26-12:56); 85.1 dB(A) (12:56-13:26); 88 dB(A) (13:26-13:56); 83.4 dB(A) (13:56-14:26); 85.2 dB(A) (14:26-14:56); 86.2 dB(A) (14:56-15:26); 86.3 dB(A) (15:26-15:56); 87.7 dB(A) (15:56-16:26); 86.1 dB(A) (16:26-16:56); 86.1 dB(A) (16:56-17:26); 85.2 dB(A) (17:26-17:56); 85.4 dB(A) (17:56-18:26).
Possible reason	<p>Based on the site record on 29 June 2015, the potential noise sources from the Project works included casting portion of blinding layer, sheet pile extraction, roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 29 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	of 1109 may have contributed to the exceedances recorded.
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	29 June 2015
Time	07:30-08:00; 08:00-08:30; 08:30-09:00; 09:00-09:30; 09:30-10:00; 10:00-10:30; 10:30-11:00; 11:00-11:30; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 13:56-14:26; 14:26-14:56; 14:56-15:26; 15:26-15:56; 15:56-16:26; 16:26-16:56; 16:56-17:26; 17:26-17:56; and 17:56-18:26.
Monitoring Location	MTW-16-1 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.9 dB(A) (07:30-08:00); 83.4 dB(A) (08:00-08:30); 82.5 dB(A) (08:30-09:00); 85.1 dB(A) (09:00-09:30); 85.7 dB(A) (09:30-10:00); 84.9 dB(A) (10:00-10:30); 85 dB(A) (10:30-11:00); 86.3 dB(A) (11:00-11:30); 82 dB(A) (11:56-12:26); 85.7 dB(A) (12:26-12:56); 85.1 dB(A) (12:56-13:26); 88 dB(A) (13:26-13:56); 83.4 dB(A) (13:56-14:26); 85.2 dB(A) (14:26-14:56); 86.2 dB(A) (14:56-15:26); 86.3 dB(A) (15:26-15:56); 87.7 dB(A) (15:56-16:26); 86.1 dB(A) (16:26-16:56); 86.1 dB(A) (16:56-17:26); 85.2 dB(A) (17:26-17:56); 85.4 dB(A) (17:56-18:26).
Possible reason	<p>Based on the site record on 29 June 2015, the potential noise sources from the Project works included casting portion of blinding layer, sheet pile extraction, roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 29 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works</p>



Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	of 1109 may have contributed to the exceedances recorded.
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	30 June 2015
Time	07:26-07:56; 07:56-08:26; 08:26-08:56; 08:56-09:26; 09:26-09:56; 09:56-10:26; 10:26-10:56; 10:56-11:26; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 14:56-15:26; 15:26-15:56; 15:56-16:26; 16:26-16:56; and 16:56-17:26.
Monitoring Location	MTW-12-3 (A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 80 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	86.4 dB(A) (07:26-07:56); 83.8 dB(A) (07:56-08:26); 82 dB(A) (08:26-08:56); 83.9 dB(A) (08:56-09:26); 83.3 dB(A) (09:26-09:56); 83 dB(A) (09:56-10:26); 85.9 dB(A) (10:26-10:56); 85.5 dB(A) (10:56-11:26); 84.5 dB(A) (11:56-12:26); 85.8 dB(A) (12:26-12:56); 87.2 dB(A) (12:56-13:26); 85.7 dB(A) (13:26-13:56); 83.1 dB(A) (14:56-15:26); 80.6 dB(A) (15:26-15:56); 84 dB(A) (15:56-16:26); 84.2 dB(A) (16:26-16:56); 80.9 dB(A) (16:56-17:26).
Possible reason	<p>Based on the site record on 30 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works, casting for screeding concrete and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 30 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	30 June 2015
Time	07:26-07:56; 07:56-08:26; 08:26-08:56; 08:56-09:26; 09:26-09:56; 09:56-10:26; 10:26-10:56; 10:56-11:26; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 15:56-16:26; and 16:26-16:56.
Monitoring Location	MTW-12-11(A) SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 81 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	86.4 dB(A) (07:26-07:56); 83.8 dB(A) (07:56-08:26); 82 dB(A) (08:26-08:56); 83.9 dB(A) (08:56-09:26); 83.3 dB(A) (09:26-09:56); 83 dB(A) (09:56-10:26); 85.9 dB(A) (10:26-10:56); 85.5 dB(A) (10:56-11:26); 84.5 dB(A) (11:56-12:26); 85.8 dB(A) (12:26-12:56); 87.2 dB(A) (12:56-13:26); 85.7 dB(A) (13:26-13:56); 84 dB(A) (15:56-16:26); 84.2 dB(A) (16:26-16:56).
Possible reason	<p>Based on the site record on 30 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works, casting for screeding concrete and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 30 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be</li> </ol>

	<p>erected on site when carrying out noisy work.</p> <p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	30 June 2015
Time	07:26-07:56; 07:56-08:26; 08:26-08:56; 08:56-09:26; 09:26-09:56; 09:56-10:26; 10:26-10:56; 10:56-11:26; 11:56-12:26; 12:26-12:56; 12:56-13:26; 13:26-13:56; 13:56-14:26; 14:56-15:26; 15:26-15:56; 15:56-16:26; 16:26-16:56; and 16:56-17:26.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	86.4 dB(A) (07:26-07:56); 83.8 dB(A) (07:56-08:26); 82 dB(A) (08:26-08:56); 83.9 dB(A) (08:56-09:26); 83.3 dB(A) (09:26-09:56); 83 dB(A) (09:56-10:26); 85.9 dB(A) (10:26-10:56); 85.5 dB(A) (10:56-11:26); 84.5 dB(A) (11:56-12:26); 85.8 dB(A) (12:26-12:56); 87.2 dB(A) (12:56-13:26); 85.7 dB(A) (13:26-13:56); 80.3 dB(A) (13:56-14:26); 83.1 dB(A) (14:56-15:26); 80.6 dB(A) (15:26-15:56); 84 dB(A) (15:56-16:26); 84.2 dB(A) (16:26-16:56); 80.9 dB(A) (16:56-17:26).
Possible reason	<p>Based on the site record on 30 June 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, rock backfilling works, casting for screeding concrete and shear pin works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 3 mobile crane, 10 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 30 June 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 10-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	2 July 2015
Time	07:26-07:56; 07:56-08:26; 08:26-08:56; 08:56-09:26; 09:26-09:56; 09:56-10:26; 10:26-10:56; 10:56-11:26; 12:52-13:22; 13:22-13:52; 13:52-14:22; and 14:22-14:52.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.9 dB(A) (07:26-07:56); 82.8 dB(A) (07:56-08:26); 84.9 dB(A) (08:26-08:56); 83.4 dB(A) (08:56-09:26); 83.3 dB(A) (09:26-09:56); 83.6 dB(A) (09:56-10:26); 84.4 dB(A) (10:26-10:56); 84.5 dB(A) (10:56-11:26); 81.6 dB(A) (12:52-13:22); 81 dB(A) (13:22-13:52); 81.3 dB(A) (13:52-14:22); 80.2 dB(A) (14:22-14:52).
Possible reason	<p>Based on the site record on 2 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and casting portion of blinding layer in E3 works area; roof-slab excavation and construction, shear pin works, rock backfilling works, plant setting up, and site preparation works in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 9 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 2 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>Noise fabrics as barrier had been erected on the site hoarding.</li> <li>Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> </ol>



	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 23-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	3 July 2015
Time	08:52-09:22; 09:22-09:52; 09:52-10:22; 10:22-10:52; 10:52-11:22; 12:22-12:52; 12:52-13:22; 13:22-13:52; 13:52-14:22; 14:22-14:52; 14:52-15:22; 15:22-15:52; 15:52-16:22; 16:22-16:52; 16:52-17:22; 17:22-17:52; and 17:52-18:22.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.8 dB(A) (08:52-09:22); 84.7 dB(A) (09:22-09:52); 83.6 dB(A) (09:52-10:22); 84.2 dB(A) (10:22-10:52); 84.5 dB(A) (10:52-11:22); 84.9 dB(A) (12:22-12:52); 84.9 dB(A) (12:52-13:22); 85.3 dB(A) (13:22-13:52); 84.6 dB(A) (13:52-14:22); 84.3 dB(A) (14:22-14:52); 82.3 dB(A) (14:52-15:22); 84.3 dB(A) (15:22-15:52); 84.7 dB(A) (15:52-16:22); 84.4 dB(A) (16:22-16:52); 83.2 dB(A) (16:52-17:22); 83 dB(A) (17:22-17:52); 80.4 dB(A) (17:52-18:22).
Possible reason	<p>Based on the site record on 3 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, shear pin works, rock backfilling works, concrete casting, and excavation for station in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 8 backhoes, and 3 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 3 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 23-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	4 July 2015
Time	07:52-08:22; 08:22-08:52; 08:52-09:22; 09:22-09:52; 09:52-10:22; 10:22-10:52; 10:52-11:22; 11:22-11:52; 11:52-12:22; 12:22-12:52; 12:52-13:22; 13:22-13:52; 13:52-14:22; 14:22-14:52; 14:52-15:22; 15:22-15:52; 15:52-16:22; and 16:22-16:52.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	82.1 dB(A) (07:52-08:22); 84.1 dB(A) (08:22-08:52); 84.7 dB(A) (08:52-09:22); 84.4 dB(A) (09:22-09:52); 83 dB(A) (09:52-10:22); 84.2 dB(A) (10:22-10:52); 85.7 dB(A) (10:52-11:22); 84.6 dB(A) (11:22-11:52); 84.3 dB(A) (11:52-12:22); 83.4 dB(A) (12:22-12:52); 82.6 dB(A) (12:52-13:22); 81.9 dB(A) (13:22-13:52); 80.4 dB(A) (13:52-14:22); 81.5 dB(A) (14:22-14:52); 80.6 dB(A) (14:52-15:22); 80.6 dB(A) (15:22-15:52); 82.9 dB(A) (15:52-16:22); 82.3 dB(A) (16:22-16:52).
Possible reason	<p>Based on the site record on 4 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction in E3 works area; roof-slab excavation and construction, shear pin works, rock backfilling works, concrete casting, and excavation for station in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 8 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 4 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

Samsung - Hsin Chong Joint Venture  
 SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
 Date 23-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	6 July 2015
Time	07:22-07:52; 07:52-08:22; 08:22-08:52; 08:52-09:22; 09:22-09:52; 09:52-10:22; 10:22-10:52; 10:52-11:22; 11:22-11:52; 11:52-12:22; 12:22-12:52; 12:52-13:22; 13:22-13:52; 14:22-14:52; and 14:52-15:22.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	84.5 dB(A) (07:22-07:52); 82.2 dB(A) (07:52-08:22); 81.5 dB(A) (08:22-08:52); 84 dB(A) (08:52-09:22); 83.8 dB(A) (09:22-09:52); 84.6 dB(A) (09:52-10:22); 82.5 dB(A) (10:22-10:52); 87 dB(A) (10:52-11:22); 84.6 dB(A) (11:22-11:52); 80.7 dB(A) (11:52-12:22); 84.1 dB(A) (12:22-12:52); 80.5 dB(A) (12:52-13:22); 81.2 dB(A) (13:22-13:52); 80.2 dB(A) (14:22-14:52); 82.7 dB(A) (14:52-15:22).
Possible reason	<p>Based on the site record on 6 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and casting portion of blinding layer in E3 works area; roof-slab excavation and construction, shear pin works, rock backfilling works, CLP cable protection, concrete casting, and excavation for station in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 7 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 6 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	1. Noise fabrics as barrier had been erected on the site hoarding.

	<ol style="list-style-type: none"> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> <li>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</li> <li>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</li> </ol> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
 Date 23-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	7 July 2015
Time	13:15-13:45; 13:45-14:15; 14:15-14:45; and 14:45-15:15.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	84 dB(A) (13:15-13:45); 80.6 dB(A) (13:45-14:15); 83 dB(A) (14:15-14:45); 80.5 dB(A) (14:45-15:15).
Possible reason	<p>Based on the site record on 7 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and casting portion of blinding layer in E3 works area; roof-slab excavation and construction, shear pin works, rock backfilling works, concrete casting, and excavation for station in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 5 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 7 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> </ol>



	<p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader

Date 23-July-2015

**Investigation Report of Environmental Quality Limit Exceedance**

Date	8 July 2015
Time	09:45-10:15; 10:15-10:45; 13:15-13:45; and 13:45-14:15.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}$ (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	81.7 dB(A) (09:45-10:15); 82.9 dB(A) (10:15-10:45); 82.5 dB(A) (13:15-13:45); 80.8 dB(A) (13:45-14:15).
Possible reason	<p>Based on the site record on 8 July 2015, the potential noise sources from the Project works included roof-slab excavation and construction, and casting portion of blinding layer in E3 works area; roof-slab excavation and construction, shear pin works, concrete casting, and excavation for station in E6 works area.</p> <p>The construction equipment used during the exceedance period included 2 mobile crane, 5 backhoes, and 2 drilling rigs.</p> <p>The above-mentioned construction works were continuously operating on 8 July 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> <li>1. Noise fabrics as barrier had been erected on the site hoarding.</li> <li>2. Tailor-made movable noise barriers would be erected on site when carrying out noisy work.</li> <li>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</li> </ol>

Samsung - Hsin Chong Joint Venture  
SCL 1109 - Shatin to Central Link - Stations and Tunnels of Kowloon City Section

	<p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader  
Date 23-July-2015

Annex M

Environmental Complaint,  
Environmental Summon  
and Prosecution

*Annex M Environmental Complaint, Environmental Summon and Prosecution Log*

<b>Reporting Month</b>	<b>Number of Complaints in Reporting Month</b>	<b>Number of Summons/Prosecutions in Reporting Month</b>
September 2012	0	0
October 2012	0	0
November 2012	0	0
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0
June 2014	0	0
July 2014	0	0
August 2014	0	0
September 2014	1	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	3	0
February 2015	0	0
March 2015	0	0
April 2015	3	0
May 2015	2	0
June 2015	7	0
July 2015	0	0
Overall Total	16	0

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**Appendix C**

**32<sup>nd</sup> EM&A Report for Works Contract 1101 –  
Ma On Shan Line Modification Works**

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MTR Corporation Limited

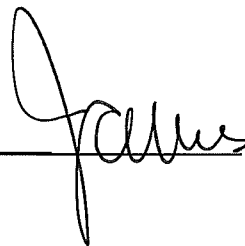
**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report  
[Period from 1 to 31 July 2015]

Works Contract 1101  
Ma On Shan Modification Works

(August 2015)

Certified by: James Choi



Position: Environmental Team Leader

Date: 13 August 2015





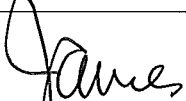
**SCL Contract No. 1101**

**Ma On Shan Line Modification Works**

**Monthly EM&A Report (SCL) (July 2015)**

for

**Sun Fook Kong Joint Venture**

Prepared By	Checked By	Approved for Issue
F So 	A Lee 	J Choi 
Version	0	Date
		3 August 2015

The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of the brief. This report has been prepared for the sole and specific use of our client and ANewR Consulting Limited accepts no responsibility for its use by others.

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## Table of Contents

EXECUTIVE SUMMARY .....	1
1. INTRODUCTION.....	2
1.1 Background .....	2
1.2 Description of the Construction Works.....	2
1.3 Purpose of this Report .....	2
2. PROJECT INFORMATION .....	3
2.1 Project Organization and Management Structure.....	3
2.2 Construction Activities.....	3
2.3 Status of License, Permit and Submissions under Environmental Protection Requirements..	3
3. WASTE MANAGEMENT .....	4
4. SITE INSPECTION .....	5
5. ENVIRONMENTAL COMPLAINT .....	6
6. SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS.....	7
7. FUTURE KEY ISSUES .....	8
8. CONCLUSION .....	9

### List of Tables

Table 3.1	Waste Generated in the Reporting Month
Table 4.1	Summary of Major Environmental Deficiencies in the Reporting Month
Table 5.1	Cumulative Statistic of Environmental Complaint

### List of Appendices

Appendix A	Location Plan of Works Area and Storage Yard
Appendix B	Updated Construction Programme
Appendix C	Organisation Chart of Environmental Management
Appendix D	Status of License, Permit and Submissions under Environmental Protection Requirements
Appendix E	Waste Flow Table
Appendix F	Mitigation Measures Implementation Schedule for Construction Stage
Appendix G	Environmental Complaint Log

## **EXECUTIVE SUMMARY**

Sun Fook Kong Joint Venture (SFKJV) was awarded the Shatin to Central Link (SCL) Contract No. 1101 Ma On Shan Line (MOL) Modification Works (this Project). ANewR Consulting Limited (ANewR) was commissioned by SFKJV as the Environmental Team (ET) for undertaking the Environmental Monitoring and Audit (EM&A) works during the construction period. The works areas under this Project covered by Environmental Permit (EP-438/2012/H) for the SCL Tai Wai to Hung Hom Section (TAW-HUH) included works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

### **Construction Activities**

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

### **Air Quality and Noise Monitoring**

According to the EM&A Manual of SCL (TAW-HUH), there is no designated monitoring stations for work sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard.

### **Environmental Auditing**

Weekly site inspections were carried out by ET to ensure proper implementation of environmental mitigation measures and compliance with environmental legislation. During the reporting month, a total of 5 site inspections were conducted and the joint site inspection with IEC was conducted on 21 July 2015. All observations, which were recorded in inspection checklist and together with the ET's recommendations, were passed to the Contractor and ER for necessary corrective action.

### **Waste Disposal**

13.00 m<sup>3</sup> of general refuse was disposed of to NENT Landfill in the reporting month. No inert C&D materials were disposed in the reporting month. No chemical waste was disposed in the reporting month.

### **Complaint Log**

No environmental complaint was received during the reporting month.

### **Notification of Summon and Successful Prosecution**

No Notification of Summons or successful prosecution was received during the reporting month.

### **Future Key Issues**

No construction activity is scheduled in the upcoming months.

### **Reporting Changes**

No reporting change was observed during the reporting month.

## 1. INTRODUCTION

### 1.1 Background

The Shatin to Central Link - Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line (MOL) and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1101 covers the works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

ANewR Consulting Limited (ANewR) was commissioned by Sun Fook Kong Joint Venture (SFKJV), the main contractor as the Environmental Team (ET) during the construction phase of SCL(TAW-HUH) for Contract No. 1101.

### 1.2 Description of the Construction Works

The major works of Contract No. 1101 includes construction of noise cover over the viaduct at Tai Wai Mei Tin Road. The works was completed in September 2013.

The works areas including works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard are shown in *Appendix A* and the updated construction programme of the construction works is shown in *Appendix B*.

### 1.3 Purpose of this Report

This is the 33<sup>rd</sup> monthly EM&A report summarising audit findings of the EM&A program carried out according to EM&A Manual for SCL (TAW-HUH) by ET during the reporting month in July 2015.

As there is no designated air quality, noise and water quality monitoring stations for works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard, this report mainly summarises the waste management details, site inspections findings, environmental complaint records and investigations, and any notification of summons, prosecutions and corrective actions in the reporting month. This monthly EM&A Report is organised as follows:

- Section 1 Introduction
- Section 2 Project Information
- Section 3 Waste Management
- Section 4 Site Inspection
- Section 5 Environmental Complaint
- Section 6 Summary of Notification of Summons, Successful Prosecutions and Corrective Actions
- Section 7 Future Key Issues

## **2. PROJECT INFORMATION**

### **2.1 Project Organization and Management Structure**

The organization chart, contact detail and lines of communication with respect to the environmental management are shown in *Appendix C*.

### **2.2 Construction Activities**

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

Offsite works areas at To Shek Storage Yard and Shek Mun Storage Yard were only used for storage of construction materials and no construction activities were carried out.

### **2.3 Status of License, Permit and Submissions under Environmental Protection Requirements**

A summary of relevant permits and licences related to environmental protection for the Construction Works and submission under EP-438/2012/H for contract no. 1101 is given in *Table 1* and *Table 2* in *Appendix D*.

### 3. WASTE MANAGEMENT

The status of waste management in the reporting month is summarized in the following table. Details of the quantities of waste materials generated during the reporting month are shown in the waste flow table given in *Appendix E*.

**Table 3.1 Waste Generated in the Reporting Month**

<b>Waste Type</b>	<b>Quantity this month</b>	<b>Cumulative-to-Date</b>
Inert C&D materials disposed	0	416.00 m <sup>3</sup>
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	68.00 m <sup>3</sup>
General waste disposed of to NENT Landfill	13.00 m <sup>3</sup>	403.25 m <sup>3</sup>
Chemical waste disposed of to CWTC or collected by licenced collector	0	1552.10 kg

#### 4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 2, 8, 15, 21 and 29 July 2015. The joint site inspection with IEC was carried out on 21 July 2015. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the site inspection checklists that were passed to the Contractor. Major environmental deficiencies observed during the site inspection and recommendations made by the ET are given in *Table 4.1*.

**Table 4.1 Summary of Major Environmental Deficiencies in the Reporting Month**

Category	Date	ET's Observations and Recommendations	Follow-up Action
Waste Management	29 July 2015	At To Shek Storage Yard – The contractor was reminded to clean general wastes on the ground of waste storage area.  (Reminder was raised on 29.07.2015)	The follow-up action will be reviewed in the next environmental site walk.

During site inspections in the reporting month, no non-conformance of implementation of environmental mitigation measures was identified. All relevant environmental mitigation measures for construction stages as stated in the EM&A Manual of SCL (TAW-HUH) was carried out properly in the reporting month. The mitigation measures implementation schedule is shown in *Appendix F*.

**5. ENVIRONMENTAL COMPLAINT**

No complaint was received during the reporting month.

A log of environmental complaints is shown in *Appendix G*. Cumulative statistic of environmental complaints is shown in *Table 5.1*.

**Table 5.1 Cumulative Statistic of Environmental Complaint**

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



**6. SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS**

Neither Notification of Summons nor successful prosecution was received by the Contractor during the reporting month.

**7. FUTURE KEY ISSUES**

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

## **8. CONCLUSION**

Construction works were completed at Tai Wai Mei Tin Road in September 2013.

According to the EM&A Manual of SCL (TAW-HUH), there is no designated monitoring stations for work sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard.

No environmental complaint was recorded in the reporting month.

No notification of summons and successful prosecution was received in the reporting month.

5 numbers of environmental site inspections were carried out in July 2015.

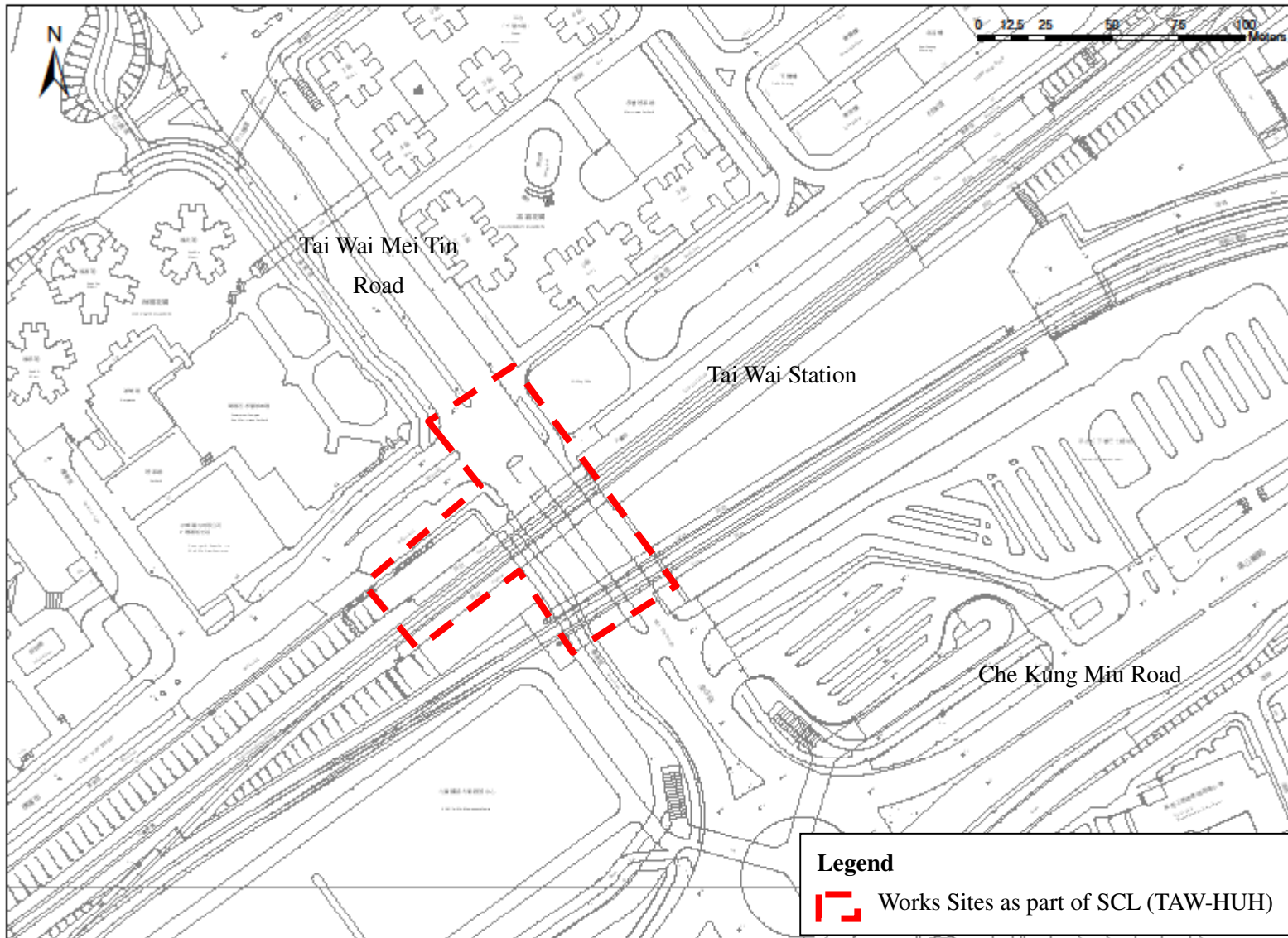
Recommendations for follow-up actions were given to the Contractor for the deficiencies identified during the site audit as following:

### Waste Management


- Implement effective measures to enhance waste management.

## **APPENDIX A**

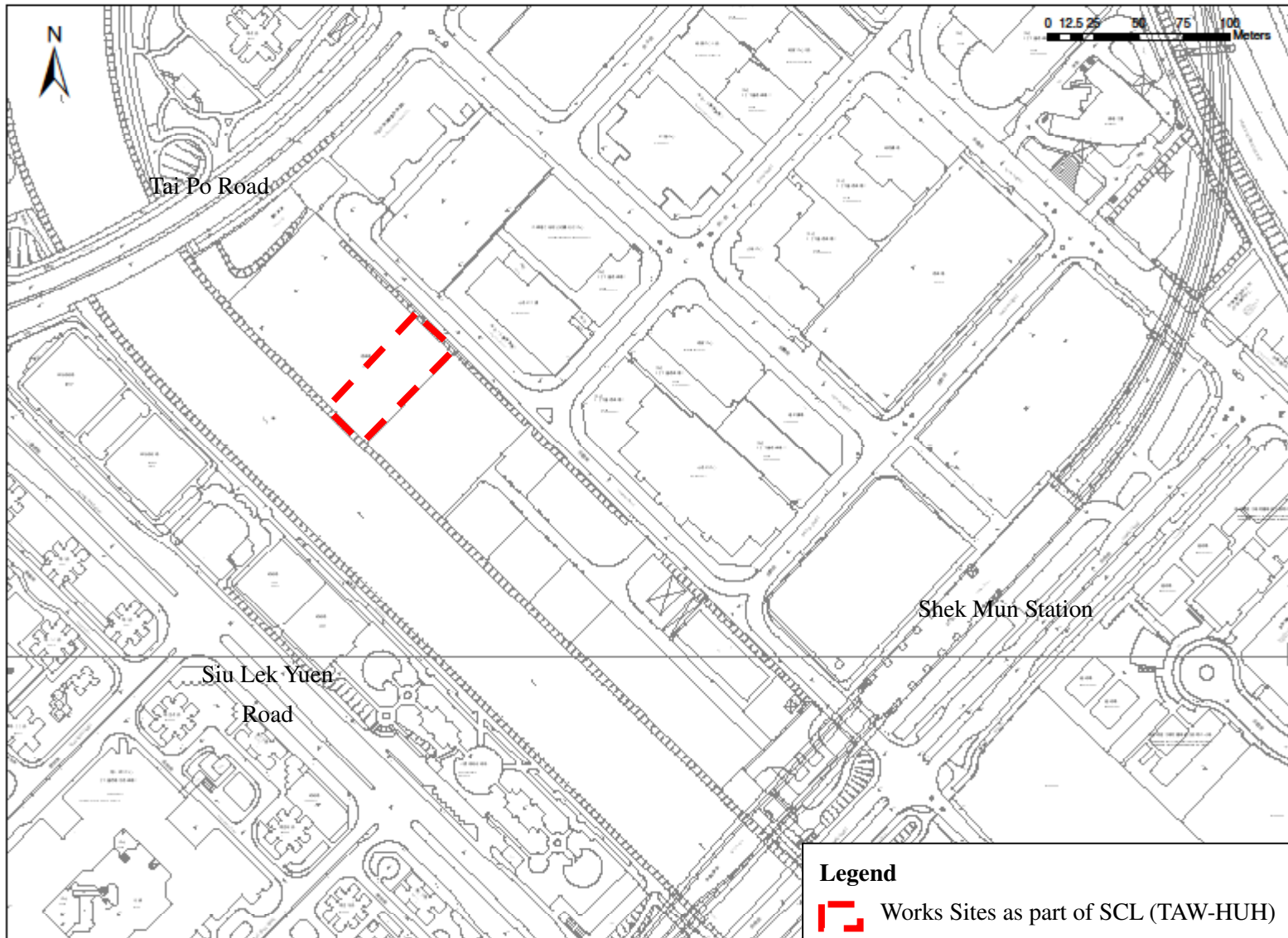
### **LOCATION PLAN OF WORKS AREA AND STORAGE YARD**




**Legend**

 Works Sites as part of SCL (TAW-HUH)

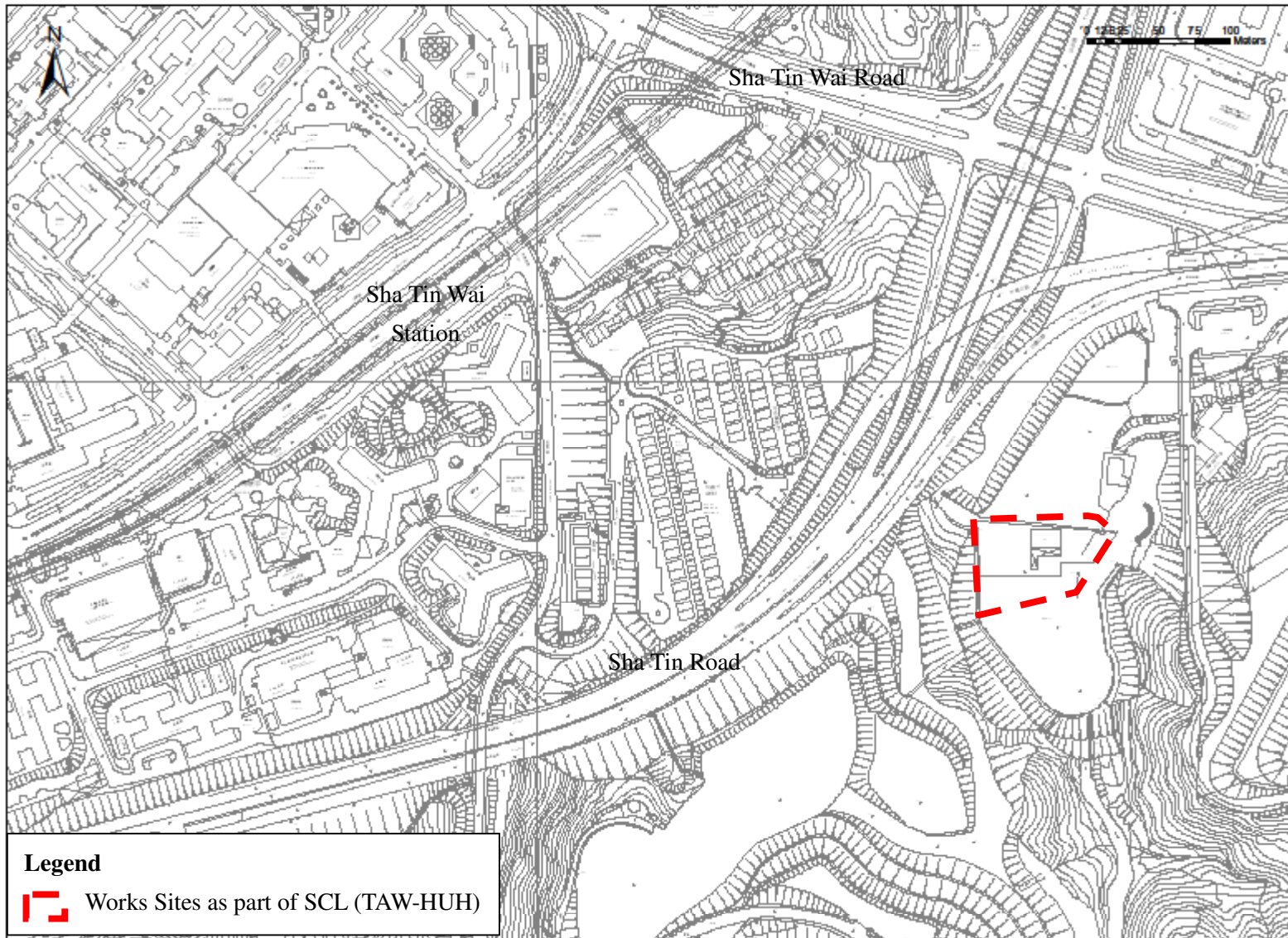
SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 1 of 3)		1



**Legend**

 Works Sites as part of SCL (TAW-HUH)

SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 2 of 3)		1



SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 3 of 3)		1

## **APPENDIX B**

### **UPDATED CONSTRUCTION PROGRAMME**



**Construction Programme (SCL)**

Work site	Activities	2012				2013												2014												2015												2016						
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul												
Tai Wai Mei Tin Road	Noise Barrier Installation Work			I	I	I	I	I	I	I	I	I	I																																			

Note:

1. Abbreviation:

I Engineering Possession (2:00 to 4:00)

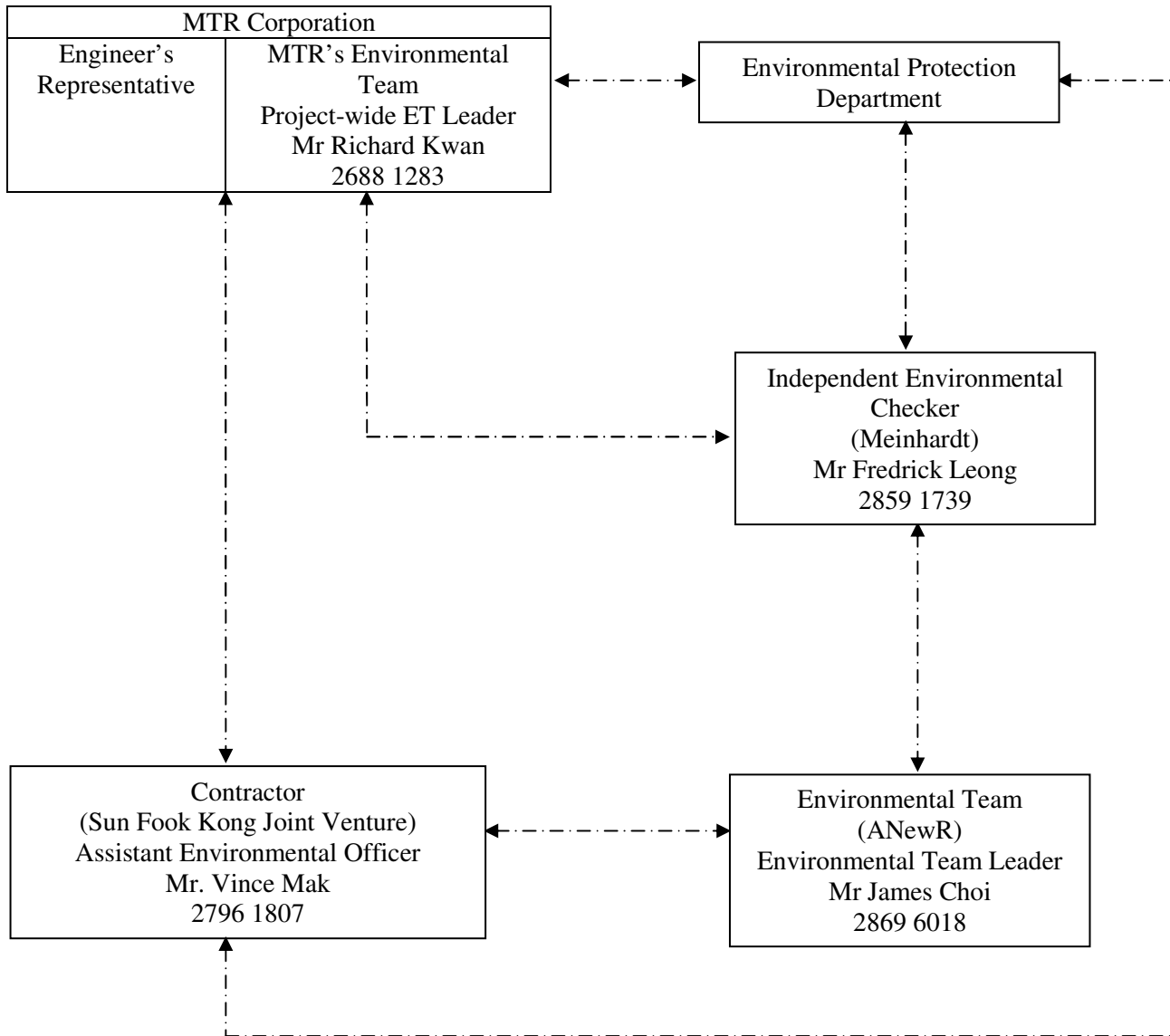
2 No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

## **APPENDIX C**

### **ORGANISATION CHART OF ENVIRONMENTAL MANAGEMENT**

Appendix C Organisation Chart of Environmental Management

Project Organization Chart



----- Line of communication

## **APPENDIX D**

### **STATUS OF LICENSE, PERMIT AND SUBMISSIONS UNDER ENVIRONMENTAL PROTECTION REQUIREMENTS**

**Appendix D Status of License, Permits and Submission under Environmental Protection Requirements**

**Table 1 Environmental Management Related Licenses and Permits**

Subject	Reference No.	Application Date	Issued Date	Effective Date	Expired Date
Environmental Permit					
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section	EP-438/2012/H	26 August 2014	10 September 2014	10 September 2014	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0186-15	13 March 2015	02 April 2015	20 April 2015	19 October 2015
To Shek Storage Yard	GW-RN0007-15	30 December 2014	16 January 2015	27 February 2015	26 August 2015
Chemical Waste Producer					
Tai Wai Station (At Tai Wai Mei Tin Road)	5213-757-S3683-02	6 September 2012	8 October 2012	8 October 2012	N/A
To Shek Storage Yard	5213-759-S3683-08	10 January 2013	14 February 2013	14 February 2013	N/A
Wastewater Discharge Licence					
Tai Wai Station (At Tai Wai Mei Tin Road)	WT00014550-2012	5 November 2012	19 November 2012	19 November 2012	30 November 2017
To Shek Storage Yard	WT00014628-2012	12 November 2012	12 December 2012	12 December 2012	31 December 2017

Note: Only include those valid or under application; “N/A” for non-applicable item(s).

**Table 2 Summary of Submission Status under EP-438/2012/H**

<b>EP Condition</b>	<b>Submission</b>	<b>Date of Submission</b>
Condition 3.4	Monthly EM&A Report (June 2015)	14 July 2015

**APPENDIX E**  
**WASTE FLOW TABLE**

**Waste Flow Table for 2012 (year) (in cu. meter) for SCL**

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January								
February								
March								
April								
May								
June								
July								
August								
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub-total for 2012	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00
Cumulative Total	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00

Remark: - Waste Generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard.  
 - 1 full loaded dumping truck is assumed equivalent to 6.5 m<sup>3</sup> by volume from Archsd D/OL03/09.002  
 - Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.



**Waste Flow Table for 2013 (year) (in cu. meter) for SCL**

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
April	0.00	0.00	0.00	0.00	0.00	3.00	16.25	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00	35.75	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00	22.75	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	58.50	0.00
November	19.50	0.00	0.00	0.00	19.50	0.00	48.75	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub-total for 2013	19.50	0.00	0.00	0.00	19.50	3.00	198.50	0.00
<b>Cumulative Total</b>	<b>32.50</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>32.50</b>	<b>3.00</b>	<b>224.50</b>	<b>0.00</b>

- Remark: - Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard from January 2013 – April 2013.
- Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards
- Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013
- 1 full loaded dumping truck is assumed equivalent to 6.5 m<sup>3</sup> by volume from Archsd D/OL03/09.002
- Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

**Waste Flow Table for 2014 (year) (in cu. meter) for SCL**

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	0.00	120.00
April	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	0.00	120.00
May	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	<b>0.00</b>	0.00	0.00	0.00	0.00	0.00	6.50	270.00
July	<b>19.50</b>	0.00	0.00	0.00	19.50	0.00	19.50	0.00
August	<b>71.50</b>	0.00	0.00	0.00	71.50	26.00	6.50	500.00
September	<b>6.50</b>	0.00	0.00	0.00	6.50	19.50	0.00	345.00
October	<b>6.50</b>	0.00	0.00	0.00	6.50	0.00	29.25	45.00
November	<b>13.00</b>	0.00	0.00	0.00	13.00	6.50	0.00	0.00
December	<b>0.00</b>	0.00	0.00	0.00	0.00	13.00	0.00	0.00
Sub-total for 2014	<b>117.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>117.00</b>	<b>65.00</b>	<b>61.75</b>	<b>1400.00</b>
<b>Cumulative Total</b>	<b>149.50</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>149.50</b>	<b>68.00</b>	<b>286.25</b>	<b>1400.00</b>

- Remark: - Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard from January 2013 – April 2013.
- Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards
  - Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013
  - 1 full loaded dumping truck is assumed equivalent to 6.5 m<sup>3</sup> by volume from Archsd D/OL03/09.002
  - Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

**Waste Flow Table for 2015 (year) (in cu. meter) for SCL**

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
April	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.00
May	224.25	0.00	0.00	0.00	224.25	0.00	35.75	152.10
June	42.25	0.00	0.00	0.00	42.25	0.00	42.25	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00
August								
September								
October								
November								
December								
Sub-total for 2015	266.50	0.00	0.00	0.00	266.50	0.00	117.00	152.10
Cumulative Total	416.00	0.00	0.00	0.00	416.00	68.00	403.25	1552.10

- Remark: - Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Yard and Tai Shui Hang Storage Yard from January 2013 – April 2013.  
 - Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards  
 - Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013  
 - 1 full loaded dumping truck is assumed equivalent to 6.5 m<sup>3</sup> by volume from Archsd D/OL03/09.002  
 - Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

## **APPENDIX F**

# **MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE**

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)								
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream;</li> <li>Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream;</li> <li>Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilization works;</li> </ul>	Minimise ecological impacts	Contractor	All construction sites	During construction	• ProPECC PN 1/94	^  ^  ^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>No on-site burning of waste;</li> <li>Waste and refuse in appropriate receptacles.</li> </ul>						<p>^</p> <p>^</p>
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	<p>The following good site practices and measures for minimization and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</li> </ul> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p>	Minimize visual & landscape impact	Contractor	Within Project Site	Contraction stage	TM-EIAO	<p>N/A</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.</li> </ul>						^
S6.12	LV2	<ul style="list-style-type: none"> <li><u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context.</li> <li><u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</li> <li><u>Tree Transplanting</u> Trees of high to medium survival rate would be affected</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^  ^  N/A

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	^
S7.6.5	D2	<ul style="list-style-type: none"> <li>• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m<sup>2</sup> to achieve the dust removal efficiency</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor



EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D3	<ul style="list-style-type: none"> <li>Proper watering of exposed spoil should be undertaken throughout the construction phase;</li> <li>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>Where practices, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>APCO</li> <li>To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:  
^ Implement mitigation measure in the reporting month                      x Non-compliance of mitigation measure  
N/A Not Applicable in the reporting month                                      \* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>Surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>Any skip hoist for material transport should be totally</li> </ul>						^
								^
								N/A
								N/A
								N/A
								N/A

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>enclosed by impervious sheeting;</p> <ul style="list-style-type: none"> <li>• Every stock of more than 20 bags of cement or by pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>						<p>^</p> <p>^</p> <p>N/A</p> <p>^</p>
Construction Noise (Airborne)								

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>Plant down to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoarding shall be properly maintained throughout the construction period.	Reduce the construction noise level at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
<b>Water Quality (Construction Phase)</b>								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> <li>At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilities the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediments/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</li> <li>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5m<sup>3</sup>/s the basin would be 150m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction.</li> </ul>						<p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surface should be covered by tarpaulin or other means.</li> <li>The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> <li>All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via</li> </ul>						^
								^
								^
								^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>silt removal facilities.</p> <ul style="list-style-type: none"> <li>Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> <li>Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 or ProPECC PN 1/94. Particular attention should be paid to the control of silt surface runoff during storm events, especially for areas located near steep slopes.</li> <li>All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

\* Not satisfactory but rectified by the contractor



EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> <li>Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		(April to September) as far as practicable. <ul style="list-style-type: none"> <li>Adopt best management practices.</li> </ul>						^
S10.7.1	W3	<u>Sewage Effluent</u> <ul style="list-style-type: none"> <li>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-water</li> </ul>	^
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> <li>All the tanks, containers, storage area should be bunded and the location should be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>The Contractor should register as a chemical waste produce if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>Disposal of chemical waste should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	^  ^  ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&amp;D material</u>	Separation of	Contractor	All	Construction	<ul style="list-style-type: none"> <li>DEVB TC(W)</li> </ul>	

Remarks:  
^ Implement mitigation measure in the reporting month      x Non-compliance of mitigation measure  
N/A Not Applicable in the reporting month                      \* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke roke should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Apilte Dyke rock, etc should also be explored.</li> </ul>	unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use		construction sites	stage	No.6/2010	^
S11.5.1	WM2	<u>Construction and Demolition Material</u> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> </ul>	Good site practice to minimize the waste generation and recycle	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions)</li> </ul>	N/A

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>Adopt “Selective Demolition” technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documents and verified; and</li> <li>Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction;</li> <li>In addition, disposal of the C&amp;D materials onto ant sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation.</li> </ul>	the C&D materials as far as practicable so as to reduce the amount for final disposal				Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	N/A N/A  N/A  ^  ^  ^
S11.5.1	WM3	<u>C&amp;D Waste</u> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance	N/A

Remarks:  
^ Implement mitigation measure in the reporting month                      x Non-compliance of mitigation measure  
N/A Not Applicable in the reporting month                                      \* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</p> <ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>	far as practicable so as to reduce the amount for final disposal				<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No.19/2005</li> </ul>	N/A
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	<p>*</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>law.</p> <ul style="list-style-type: none"> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labeled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> </ul>						<p>N/A</p> <p>^</p>
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<p>^</p> <p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

\* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated;</p> <ul style="list-style-type: none"> <li>Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>						^
EM&A Project								
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction Stage	<ul style="list-style-type: none"> <li>EIAO Guidance Note No.4/2010</li> <li>TM-EIAO</li> </ul>	^
S14.2-14.4	EM2	<ol style="list-style-type: none"> <li>An Environmental Team needs to be employed as per the EM&amp;A Manual.</li> <li>Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all</li> </ol>	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>EIAO Guidance Note No. 4/2010</li> <li>TM-EIAO</li> </ul>	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

\* Not satisfactory but rectified by the contractor

<b>EIA Ref.</b>	<b>EM&amp;A Log Ref.</b>	<b>Recommended Mitigation Measures</b>	<b>Objectives of the Recommended Measures &amp; Main Concerns to address</b>	<b>Who to implement the measures?</b>	<b>Location of the measures</b>	<b>When to implement the measures?</b>	<b>What requirements or standards for the measures to achieve?</b>	<b>Status</b>
		the requirements given in the EM&A Manual are fully complied with.						

Remarks:

^ Implement mitigation measure in the reporting month  
 N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure  
 \* Not satisfactory but rectified by the contractor



## **APPENDIX G**

### **ENVIRONMENTAL COMPLAINT LOG**

Appendix G Environmental Complaint Log

Complaint Log No.	Name of Complainant	Date Complaint Received	Complaint Date	Complaint Location	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Validity To Project
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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**Appendix D**

**31<sup>st</sup> EM&A Report for Works Contract 1111 –  
Hung Hom North Approach Tunnel**

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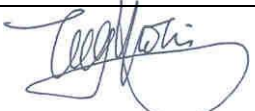
**Gammon- Kaden SCL 1111 Joint Venture**

**Shatin to Central Link -  
Tai Wai to Hung Hom Section and  
Mong Kok East  
to Hung Hom Section**

**Works Contract 1111 -  
Hung Hom North Approach Tunnels**

**Monthly EM&A Report for  
July 2015**

[August 2015]

	Name	Signature
Prepared & Checked:	Lemon Lam	
Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0

Date: 12 August 2015

**Disclaimer**

This report is prepared for Gammon-Kaden SCL1111 JV and is given for its sole benefit in relation to and pursuant to SCL1111 and may not be disclosed to, quoted to or relied upon by any person other than Gammon-Kaden SCL1111 JV without our prior written consent. No person (other than Gammon-Kaden SCL1111 JV) into whose possession a copy of this report comes may rely on this report without our express written consent and Gammon-Kaden SCL1111 JV may not rely on it for any purpose other than as described above.

**Table of Contents**

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 Purpose of the Report .....	3
1.2 Report Structure.....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
2.1 Background .....	4
2.2 Site Description .....	4
2.3 Construction Programme and Activities .....	4
2.4 Project Organisation.....	5
2.5 Status of Environmental Licences, Notification and Permits .....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS.....</b>	<b>9</b>
3.1 Construction Dust Monitoring.....	9
3.2 Regular Construction Noise Monitoring .....	11
3.3 Continuous noise monitoring .....	13
3.4 Landscape and Visual.....	14
<b>4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....</b>	<b>15</b>
<b>5 MONITORING RESULTS .....</b>	<b>15</b>
5.1 Construction Dust Monitoring.....	15
5.2 Regular Construction Noise Monitoring .....	15
5.3 Continuous Noise Monitoring.....	15
5.4 Waste Management.....	16
5.5 Landscape and Visual.....	16
<b>6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....</b>	<b>17</b>
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>18</b>
7.1 Summary of Monitoring Exceedances .....	18
7.2 Summary of Environmental Non-Compliance.....	18
7.3 Summary of Environmental Complaints.....	18
7.4 Summary of Environmental Summon and Successful Prosecutions.....	18
<b>8 FUTURE KEY ISSUES .....</b>	<b>19</b>
8.1 Construction Programme for the Next Month .....	19
8.2 Key Issues for the Coming Month.....	19
8.3 Monitoring Schedule for the Next Month.....	19
<b>9 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>20</b>
9.1 Conclusions.....	20
9.2 Recommendations .....	20

### List of Tables

Table 1.1	Contact Information of Key Personnel
Table 2.1	Status of Environmental Licenses, Notifications and Permits
Table 3.1	Air Quality Monitoring Equipment
Table 3.2	Locations of Air Quality Monitoring Stations
Table 3.3	Air Quality Monitoring Parameters, Frequency and Duration
Table 3.4	Noise Monitoring Parameters, Frequency and Duration
Table 3.5	Noise Monitoring Equipment for Regular Noise Monitoring
Table 3.6	Locations of Impact Noise Monitoring Stations
Table 3.7	Summary of Proposed Continuous Noise Monitoring Location
Table 3.8	Noise Monitoring Equipment for Continuous Noise Monitoring
Table 3.9	Summary of Proposed Continuous Noise Monitoring Plan
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Summary of 24-hour TSP Monitoring Results in the Reporting Period
Table 5.2	Summary of Impact Noise Monitoring Results in the Reporting Period
Table 6.1	Observations and Recommendations of Site Audit

### List of Figures

Figure 1.1	General Layout Plan
Figure 2.1	Location of Air Quality Monitoring Station
Figure 3.1	Locations of Impact Noise Monitoring Stations

### List of Appendices

Appendix A	Construction Programme
Appendix B	Project Organisation Structure
Appendix C	Implementation Schedule of Environmental Mitigation Measures
Appendix D	Summary of Action and Limit Levels
Appendix E	Calibration Certificates of Equipment
Appendix F	EM&A Monitoring Schedules
Appendix G	Air Quality Monitoring Results and their Graphical Presentations
Appendix H	Noise Monitoring Results and their Graphical Presentations
Appendix I	Event and Action Plan
Appendix J	Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions
Appendix K	Monthly Summary Waste Flow Table
Appendix L	Noise Exceedance Investigation Report

## EXECUTIVE SUMMARY

Shatin to Central Link Contract 1111 – Hung Hom North Approach Tunnels (hereafter called “the Project”) covers part of the construction of the Shatin to Central Link (SCL) which aimed to convey a total of 17km extension of the existing Ma On Shan Line (MOL) through east Kowloon to West Rail Line and also East Rail Line (EAL) through Hung Hom across the harbour to Admiralty Station (ADM). The Project covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom Area for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS).

The EM&A programme commenced in January 2013. The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 July 2015. As informed by the Contractor, major activities in the reporting period were:

### Hung Hom Area

- Excavation work, site clearance, slope work, cable detection, excavation lateral support, form work erection, reinforcement fixing,
- Construction of drainage and man hole, foul water diversion
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, pre-spilt, backfilling, abutment works,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary link walkway, temporary working platform, abandoned utilities, utilities protection,
- Tie back installation, lifting works, construction of noise enclosure footing, decking installation, installation of temporary support for OB2, modification work for OB2,
- Dismantling of scaffolding, pumping test,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

### **Breaches of Action and Limit Levels for Air Quality**

No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

### **Breaches of Action and Limit Levels for Noise**

#### Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint during 0700 to 1900 hours on normal weekdays was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

#### Continuous Noise Monitoring

As the construction works identified by the Construction Noise Mitigation Measures Plan (CNMMP) to be potentially causing exceedance of noise criteria have been completed, no continuous noise monitoring was carried out during this reporting month.

### **Complaint, Notification of Summons and Successful Prosecution**

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

### **Future Key Issues**

Key issues to be considered in the coming month included:

#### Hung Hom Area

- Excavation work, site clearance, slope work, cable detection, excavation lateral support, form work erection, reinforcement fixing,
- Construction of drainage and man hole, foul water diversion
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, abutment works, pre-split,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary link walkway, abandoned utilities, utilities protection, subway underpinnings
- Tie back installation, lifting works, construction of noise enclosure footing, decking installation, installation of temporary support for OB2, modification work for OB2,
- Dismantling of scaffolding, pumping test,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise and waste management.



## **1 INTRODUCTION**

Gammon-Kaden SCL1111 Joint Venture (GKSCLJV) was commissioned by MTR as the Civil Contractor for Works Contract 1111. AECOM Asia Company Limited (AECOM) was appointed by GKSCLJV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

### **1.1 Purpose of the Report**

1.1.1 This is the fifteenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 July 2015.

### **1.2 Report Structure**

1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendation

## 2 PROJECT INFORMATION

### 2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] (Register No.: AEIAR-167/2012), SCL – Mong Kok East to Hung Hom Section [SCL (MKK-HUH)] (Register No.: AEIAR-165/2012) and SCL - Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/H) was issued by Director of Environmental Protection (DEP) on 10 September 2014.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1111 – Hung Hom North Approach Tunnels (hereafter referred to as “the Project”) covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom under the two EPs.

### 2.2 Site Description

- 2.2.1 The major construction activities under Works Contract 1111 include:
- SCL (MKK-HUH) – (i) Construction of an realigned and modified railway from Portal 1A near Oi Man Estate to Hung Hom Station; (ii) Construction of Noise Enclosure at Portal 1A; (iii) modification works on the existing Homantin Siding; and (iv) new EVA near Hung Hom Station.
  - SCL (TAW-HUH) – Part of the railway tunnel from Ho Man Tin Station to Hung Hom.
  - SCL (HHS) – Construction of tracks and noise barrier of Hung Hom Stabling Sidings.
- 2.2.2 **Figure 1.1** shows the works areas for the Works Contract 1111.

### 2.3 Construction Programme and Activities

- 2.3.1 The major construction activities undertaken in the reporting month are summarised below:-

#### Hung Hom Area

- Excavation work, site clearance, slope work, cable detection, excavation lateral support, form work erection, reinforcement fixing,
- Construction of drainage and man hole, foul water diversion
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, pre-spilt, backfilling, abutment works,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary link walkway, temporary working platform, abandoned utilities, utilities protection,
- Tie back installation, lifting works, construction of noise enclosure footing, decking installation, installation of temporary support for OB2, modification work for OB2,
- Dismantling of scaffolding, pumping test,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

- 2.3.2 The construction programme is presented in **Appendix A**.

## 2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 1.1**.

**Table 1.1 Contact Information of Key Personnel**

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. Michael Fu	3127 6201	3124 6422
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
GKSCKJV	Contractor	Project Manager	Mr. Alan Yan	9855 0361	3904 9630
		Environmental Manager	Ms. Michelle Tang	3904 9663	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

## 2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.1**.

**Table 2.1 Status of Environmental Licenses, Notifications and Permits**

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
<b>Environmental Permit</b>				
EP-437/2012	22 Mar 2012	-	Valid	-
EP-438/2012/H	10 Sep 2014	-	Valid	-
<b>Construction Noise Permit</b>				
GW-RE1489-14	30 Jan 2015	29 Jul 2015	Valid	For General and Re-provisioning Works at Hung Hom Station
GW-RE0132-15	7 Feb 2015	6 Aug 2015	Valid	For General works for steel decking at EWL8
GW-RE0156-15	24 Feb 2015	23 Aug 2015	Valid	For Pumping Test at NSL6
GW-RE0194-15	9 Mar 2015	8 Sep 2015	Valid	For General Work at NSL 3-5
GW-RE0190-15	10 Mar 2015	9 Sep 2015	Valid	For Grouting Station and Desandar at EWL8
GW-RE0237-15	14 Mar 2015	13 Aug 2015	Valid	For General Work at Oi Sen Path and Ho Man Tin Siding
GW-RE0346-15	13 Apr 2015	12 Oct 2015	Valid until cancellation on 20 Jul 15	For dewatering and welding at NSL6
GW-RE0374-15	21 Apr 2015	12 Jul 2015	Valid	For Scaffolding and 2.4m Hoarding Erection at Ho Man Tin and Oi Sen Path
GW-RE0410-15	30 Apr 2015	29 Oct 2015	Valid	For General Work at NSL 3-5
GW-RE0456-15	12 May 15	5 Aug 15	Valid until cancellation on 11 Jul 15	For TB1 & TB2 Maintenance Work at Chatham Rd North
GW-RE0451-15	12 May 15	11 Jul 15	Valid	For Bar Fencing Erection near Railway Tracks Area at Ho Man Tin Sidings
GW-RE0457-15	15 May 15	14 Jul 15	Valid	For 6m Hoarding Erection in NSL 6
GW-RE0502-15	23 May 15	22 Nov 15	Valid	For General works for steel decking at EWL8
GW-RE0508-15	25 May 15	30 Aug 15	Valid until cancellation on 19 Jul 15	For 6m Hoarding in NSL 9 and Demolition of Scaffolding Platform at Oi Sen Path
GW-RE0540-15	2 Jun 15	31 Jul 15	Valid	For Concrete Removal Works Adjacent to East Rail near Workfront 7
GW-RE0626-15	30 Jun 15	30 Sep 15	Valid until cancellation on 30 Jul 15	For Noise Enclosure and Steel Platform Erection Work at Oi Sen Path
GW-RE0637-15	25 Jun 15	23 Dec 15	Valid	For Pumping Test / System and General Work at NSL 9
GW-RE0634-15	26 Jun 15	23 Dec 15	Valid	For Pumping Test / System and General Work at NSL 7- 8
GW-RE0632-15	1 Jul 15	31 Oct 15	Valid	For Hoarding Erection at NSL 3-5
GW-RE0674-15	11 Jul 15	31 Oct 15	Valid	For TB1 & TB2 Maintenance Work at Chatham Rd North

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RE0691-15	15 Jul 15	7 Jan 16	Valid	For Pumping Test / System and General Work at EWL 9
GW-RE0713-15	15 Jul 15	14 Jan 16	Valid	For Pumping Test / System at EWL 7
GW-RE0711-15	18 Jul 15	11 Oct 15	Valid	For Scaffolding and 2.4m Hoarding Erection at Ho Man Tin and Oi Sen Path
GW-RE0700-15	19 Jul 15	18 Oct 15	Valid	For 6m Hoarding and Demolition of Scaffolding Platform at NSL 9 & Oi Sen Path
GW-RE0710-15	19 Jul 15	18 Sep 15	Valid	For 6m Hoarding Erection in NSL 6
GW-RE0719-15	20 Jul 15	19 Jan 16	Valid	For dewatering and welding at NSL6
GW-RE0687-15	30 Jul 15	29 Jan 16	Valid	For General and Re provisioning Works at Hung Hom Station
GW-RE0737-15	30 Jul 15	31 Oct 15	Valid	For Noise Enclosure and Steel Platform Erection Work at Oi Sen Path
<b>Wastewater Discharge License</b>				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
WT00015644-2013	16 Apr 2013	30 Apr 2018	Valid	For Homantin Sidings Works
WT00016090-2013	14 Jun 2013	30 Jun 2018	Valid	For Hung Hom Station Works
WT00016108-2013	14 Jun 2013	30 Jun 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Hong Chong Road)
WT00015859-2013	14 May 2013	31 May 2018	Valid	For Works in EWL8 and Oi Sen Path Garden
WT00016447-2013	24 Jul 2013	31 Jul 2018	Valid	For Winslow Street Slope Works Between Chatham Road North and Wai Fung Street
WT00016435-2013	23 Jul 2013	31 Jul 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Oi Sen Path)
WT00018688-2014	14 Apr 2014	30 Apr 2019	Valid	For Hung Hom Freight Terminal Works
WT00019068-2014	25 Jun 2014	30 Jun 2019	Valid	For Oi Sen Path Works
<b>Chemical Waste Producer Registration</b>				
5213-213-G2618-01	22 Mar 2013	-	Valid	For Winslow Street Works
5213-213-G2618-03	08 Apr 2013	-	Valid	For Hung Hom Station Re provisioning Works
5213-213-G2618-06	16 Apr 2013	-	Valid	For Homantin Sidings Works
5213-236-G2618-10	14 Jun 2013	-	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link
5213-236-G2618-11	27 May 2013	-	Valid	For Works near Chatham Road North
5213-213-G2618-12	14 Apr 2014	-	Valid	For Hung Hom Freight Terminal Works

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
5213-236-G2618-14	08 May 2014	-	Valid	For Oi Sen Path Works
<b>Billing Account for Construction Waste Disposal</b>				
7016658	24 Jan 2013	-	Account Active	-
<b>Notification Under Air Pollution Control (Construction Dust) Regulation</b>				
353991	02 Jan 2013	18 Apr 2018	Notified	-
<b>Clinical Waste Producer Premises Code</b>				
PC01/RE/00362644	30 Jan 2014	-	Valid	For Hung Hom Freight Yard Works

### 3 ENVIRONMENTAL MONITORING REQUIREMENTS

#### 3.1 Construction Dust Monitoring

##### **Monitoring Requirements**

- 3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

##### **Monitoring Equipment**

- 3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at each designated monitoring station. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

**Table 3.1 Air Quality Monitoring Equipment**

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:8259) )
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0843))

##### **Monitoring Locations**

- 3.1.3 One monitoring station was set up at the proposed location in accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS) as well as the works areas of the Project. The location of the construction dust monitoring station is summarised in **Table 3.2** and shown in **Figure 2.1**.

**Table 3.2 Locations of Construction Dust Monitoring Stations**

ID	Location	Monitoring Station
AM1	No. 234 – 238 Chatham Road North	Roof top of the premises facing Chatham Road North

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location has been approved by IEC and EPD.

##### **Monitoring Methodology**

- 3.1.4 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
  - (ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
  - (iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
  - (iv) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
  - (v) No furnace or incinerator flues nearby.
  - (vi) Airflow around the sampler was unrestricted.
  - (vii) Permission was obtained to set up the samplers and access to the monitoring stations.
  - (viii) A secured supply of electricity was obtained to operate the samplers.

- (ix) The sampler was located more than 20 meters from any dripline.
  - (x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
  - (xi) Flow control accuracy was kept within  $\pm 2.5\%$  deviation over 24-hour sampling period.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
  - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
  - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
  - (ii) The filter holder and the area surrounding the filter were cleaned.
  - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
  - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
  - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
  - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
  - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
  - (viii) A new flow rate record sheet was set into the flow recorder.
  - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m<sup>3</sup>/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/min).
  - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
  - (xi) The initial elapsed time was recorded.
  - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
  - (xiii) The final elapsed time was recorded.
  - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
  - (xv) It was then placed in a clean envelope and sealed.
  - (xvi) All monitoring information was recorded on a standard data sheet.
  - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
  - (ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
  - (iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

***Monitoring Schedule for the Reporting Month***

3.1.5 The schedule for environmental monitoring in July 2015 is provided in **Appendix F**.



### 3.2 Regular Construction Noise Monitoring

#### *Monitoring Requirements*

- 3.2.1 In accordance with the EM&A Manuals, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.4** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

**Table 3.4 Noise Monitoring Parameters, Frequency and Duration**

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L10 and L90 would be recorded.	At least once per week

#### *Monitoring Equipment*

- 3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.5**.

**Table 3.5 Noise Monitoring Equipment for Regular Noise Monitoring**

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238 (S/N: 2285692), (S/N: 2800927), (S/N: 2800930)) Rion (Model No. NL-31 (S/N: 00320528))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

#### *Monitoring Locations*

- 3.2.3 Two monitoring stations were set up at the proposed locations in accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS) as well as the works areas of the Project. Locations of the noise monitoring stations are summarised in **Table 3.6** and shown in **Figure 3.1**.

**Table 3.6 Locations of Regular Construction Noise Monitoring Stations**

ID	Location	Monitoring Station	Type of Measurement
NM1	Carmel Secondary School (South Block)	1m from the exterior of the roof top façade of the premises facing Oi Sen Path	Façade
NM2	No. 234 – 238 Chatham Road North <sup>(1)</sup>	Free-field on the rooftop of the premise	Free Field

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location has been approved by IEC and EPD.

### **Monitoring Methodology**

#### 3.2.4 Monitoring Procedure

- (a) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at NM2. A correction of +3 dB(A) shall be made to the free field measurements.
- (b) Façade measurements were made at NM1.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - (i) frequency weighting: A
  - (ii) time weighting: Fast
  - (iii) time measurement:  $L_{eq(30\text{-minutes})}$  during non-restricted hours i.e. 0700 – 1900 on normal weekdays.
- (e) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (f) During the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (g) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (h) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

#### 3.2.5 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

### **Monitoring Schedule for the Reporting Month**

- 3.2.6 The schedule for environmental monitoring in July 2015 is provided in **Appendix F**.

### 3.3 Continuous noise monitoring

#### **Monitoring Requirements**

- 3.3.1 According to EP conditions under EP-437/2012 (Condition 2.8) and EP-438/2012/H (Condition 2.10), continuous noise monitoring should be conducted at the NSRs as identified by the Construction Noise Mitigation Measures Plan (CNMMP) to have residual air-borne noise impacts. A CNMMP and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD on 20 January 2014.

#### **Monitoring Locations**

- 3.3.2 With reference to the CNMP, continuous noise monitoring should be conducted during period at which the predicted airborne construction noise levels exceed the relevant noise criteria at the respective NSRs. The proposed continuous noise monitoring locations are presented in **Table 3.7** and shown in **Figure 2.1**.

**Table 3.7 Summary of Proposed Continuous Noise Monitoring Location**

NSR ID	NSR Description	Uses	Proposed Continuous Noise Monitoring Location	Alternative Noise Monitoring Location
OM4a	Carmel Secondary School (South Block)	Educational	NM1	-
HH2	Wing Fung Building	Residential	NM2	No. 234-238 Chatham Road North <sup>(1)</sup>

Note:

(1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.

#### **Monitoring Equipment**

- 3.3.3 Continuous noise monitoring will be performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator will be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.8**.

**Table 3.8 Noise Monitoring Equipment for Continuous Noise Monitoring**

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238)
Acoustic Calibrator	Rion (Model No. NC-73)

#### **Monitoring Parameters, Frequency and Duration**

- 3.3.4 Continuous noise level will be measured in terms of the A-weighted equivalent continuous sound pressure level for 30 minutes ( $L_{eq, 30 \text{ min}}$ ) for time period between 0700 and 1900 hours on normal working hours (i.e. Mondays to Saturdays) during the construction period that the predicted noise levels exceed the relevant noise criteria at the identified NSRs. The recommended measurement period for the continuous noise monitoring programme in the CNMP is summarised in **Table 3.9**.

**Monitoring Methodology**

- 3.3.5 Immediately prior to the noise measurement, the accuracy of the sound level meter will be checked using an acoustic calibrator, which generated a known sound pressure level at a known frequency. The accuracy of the sound level meter will also be checked on an annual-basis. Measurement will be accepted as valid only if the calibration level before and after the noise measurement agrees to within 1.0dB. Noise measurement will be made in accordance with standard acoustical principles and practices in relation to weather conditions.

**Event and Action Plan**

- 3.3.6 Summary of the proposed continuous noise monitoring programme are presented in **Table 3.9**. The Event and Action Plan for the continuous noise monitoring programme recommended in the CNMP is presented in **Appendix I**.

**Table 3.9 Summary of Proposed Continuous Noise Monitoring Programme**

Monitoring Location	NSR Description	Action/Limit Level, dB(A)	Measurement Period
NM1	Carmel Secondary School (South Block)	68 <sup>(1)</sup>	Feb and Jun 2014, Jan and Feb 2015 <sup>(3)</sup> Mar 2015 <sup>(4)</sup>
NM2	No. 234-238 Chatham Road North <sup>(2)</sup>	77	Sep to Dec of 2014 Jan / Mar to May 2015

Note:

- (1) Action/Limit level will only be applicable during the examination period.  
 (2) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.  
 (3) Based on 2014-2015 Calendar of Carmel Secondary School, the examination periods are scheduled in January and February 2015. The continuous noise monitoring was conducted in January and February 2015.  
 (4) Additional continuous noise monitoring was conducted in March 2015 according to the latest 2014-2015 Calendar of Carmel Secondary School.

**3.4 Landscape and Visual**

- 3.4.1 As per the EM&A Manuals, the landscape and visual mitigation measures should be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6**.

**4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES**

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EPs and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EPs during the reporting period is summarised in **Table 4.1**.

**Table 4.1 Status of Required Submission under Environmental Permit**

<b>EP Condition</b>	<b>Submission</b>	<b>Submission Date</b>
Condition 3.4 (EP-437/2012) & Condition 3.4 (EP-438/2012/H)	Monthly EM&A Report for June 2015	14 July 2015

## 5 MONITORING RESULTS

### 5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

**Table 5.1 Summary of 24-hour TSP Monitoring Results in the Reporting Period**

ID	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AM1	43.7	27.7 – 64.6	183.9	260

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 The event and action plan is annexed in **Appendix I**.

5.1.4 Major dust sources during the monitoring included construction dust from the Project site and other nearby construction sites and also nearby traffic emission.

### 5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

**Table 5.2 Summary of Impact Noise Monitoring Results in the Reporting Period**

ID	Range, dB(A), $L_{\text{eq}}$ (30 mins)	Limit Level, dB(A), $L_{\text{eq}}$ (30 mins)
NM 1 <sup>(2)</sup>	<Baseline – 51.7	70 (65) <sup>(1)</sup>
NM 2 <sup>(2)</sup>	<Baseline	75

Note:

(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period.

(2) Baseline correction will be made to the measured  $L_{\text{eq}}$  when the measured noise level exceeded the corresponding baseline noise level and presented in the table. No correction was made to NM2 as all measured noise levels were below the baseline noise level.

5.2.2 No noise complaint was received in the reporting month during 0700 to 1900 hours on normal weekdays; hence, no Action Level exceedance was recorded.

5.2.3 No Limit Level exceedance of noise was recorded at all monitoring stations in the reporting month.

5.2.4 The event and action plan is annexed in **Appendix I**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site and other nearby construction sites, nearby traffic noise and noise from school activities and the community.

### 5.3 Continuous Noise Monitoring

5.3.1 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

#### 5.4 Waste Management

- 5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.4.2 As advised by the Contractor, 9,771m<sup>3</sup> of inert C&D material was generated. 3,193m<sup>3</sup> and 260m<sup>3</sup> were disposed as public fills at TKO137 and TM38 respectively. 6,206m<sup>3</sup> of public fills was delivered to Hung Hom Barging Point and handled by other project. While 41,170kg of general refuse was disposed at NENT landfill in the reporting month. No paper/cardboard packaging material, no metals and plastic was collected by recycling contractor in the reporting month. 5,292m<sup>3</sup> of Type 1 marine dumping was delivered to Hung Hom Barging Point. 595m<sup>3</sup> of chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix K**.
- 5.4.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 5.4.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

#### 5.5 Landscape and Visual

- 5.5.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 9 and 23 July 2015. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.
- 5.5.2 The event and action plan is annexed in **Appendix I**.

## 6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the site inspection is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 2, 9, 16, 23 and 30 July 2015. The one held on 16 July 2015 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	N/A	N/A	N/A
Air Quality	2 Jul 15	<ul style="list-style-type: none"> <li>Site area at NSL7, EWL9 and NSL9 were observed dry. The Contractor should water the exposed area timely for dust suppression.</li> </ul>	The item was rectified by the Contractor on 8 Jul 15.
	9 Jul 15	<ul style="list-style-type: none"> <li>Site area at NSL5 and EWL8 were observed dry. The Contractor should water the exposed area timely for dust suppression.</li> </ul>	The item was rectified by the Contractor on 15 Jul 15.
	16 Jul 15	<ul style="list-style-type: none"> <li>No provision of wheel washing for the site vehicle before leaving site was observed at EWL7. The Contractor should wash the vehicle's wheel before leaving site to avoid carrying out site material to public area.</li> </ul>	The item was rectified by the Contractor on 22 Jul 15.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	2 Jul 15	<ul style="list-style-type: none"> <li>Oil stains were observed at EWL8 and NSL9. The Contractor should remove the oil and dispose of as chemical waste properly.</li> </ul>	The item was rectified by the Contractor on 8 Jul 15.
		<ul style="list-style-type: none"> <li>No label was provided for the chemical waste containers at NSL6. The Contractor should label all chemical waste containers properly.</li> </ul>	
	9 Jul 15	<ul style="list-style-type: none"> <li>Chemical containers placed on ground without provision of drip tray was observed at NSL9; and valve of drip tray was observed unplugged. The contractor should provide drip tray and cover the valve of drip tray to retain leakage, if any.</li> </ul>	The item was rectified by the Contractor on 15 Jul 15.
	23 Jul 15	<ul style="list-style-type: none"> <li>Chemical containers placed on ground without drip tray were observed at Oi Sen Path and EWL8. The Contractor was reminded to store the chemical container with drip tray to prevent any leakage.</li> </ul>	The item was rectified by the Contractor on 29 Jul 15.
	30 Jul 15	<ul style="list-style-type: none"> <li>Chemical containers placed on ground without drip tray were observed at EWL7. The Contractor was reminded to store the chemical container with drip tray to prevent any leakage.</li> </ul>	The item was rectified by the Contractor on 5 Aug 15.
		<ul style="list-style-type: none"> <li></li> </ul>	
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.



## **7 ENVIRONMENTAL NON-CONFORMANCE**

### **7.1 Summary of Monitoring Exceedances**

- 7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No noise complaint during 0700 to 1900 hours on normal weekdays was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 7.1.4 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

### **7.2 Summary of Environmental Non-Compliance**

- 7.2.1 No environmental non-compliance was recorded in the reporting month.

### **7.3 Summary of Environmental Complaints**

- 7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix J**.

### **7.4 Summary of Environmental Summon and Successful Prosecutions**

- 7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

## **8 FUTURE KEY ISSUES**

### **8.1 Construction Programme for the Project**

#### ***Construction Programme for the Next Two Month***

8.1.1 The major construction works in August 2015 and September 2015 will be:

##### *Hung Hom Area*

- Excavation work, site clearance, slope work, cable detection, excavation lateral support, form work erection, reinforcement fixing,
- Construction of drainage and man hole, foul water diversion
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, abutment works, pre-split,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary link walkway, abandoned utilities, utilities protection, subway underpinnings
- Tie back installation, lifting works, construction of noise enclosure footing, decking installation, installation of temporary support for OB2, modification work for OB2,
- Dismantling of scaffolding, pumping test,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

### **8.2 Key Issues for the Coming Month**

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality impact and waste management.

### **8.3 Monitoring Schedule for the Next Month**

8.3.1 The tentative schedule for environmental monitoring in August 2015 and September 2015 is provided in **Appendix F**.

## **9 CONCLUSIONS AND RECOMMENDATIONS**

### **9.1 Conclusions**

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise complaint during 0700 to 1900 hours on normal weekdays was received in the reporting month; hence, no Action Level exceedance was recorded.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.
- 9.1.6 5 nos. of environmental site inspections were carried out in July 2015. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.7 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

### **9.2 Recommendations**

- 9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

#### Air Quality Impact

- Implement effective measures to avoid dust impact.

#### Construction Noise Impact

- No specific observation was identified in the reporting month.

#### Water Quality Impact

- No specific observation was identified in the reporting month.

#### Chemical/ Waste Management

- Provide proper chemical and general waste management.

#### Landscape and Visual Impact

- No specific observation was identified in the reporting month.

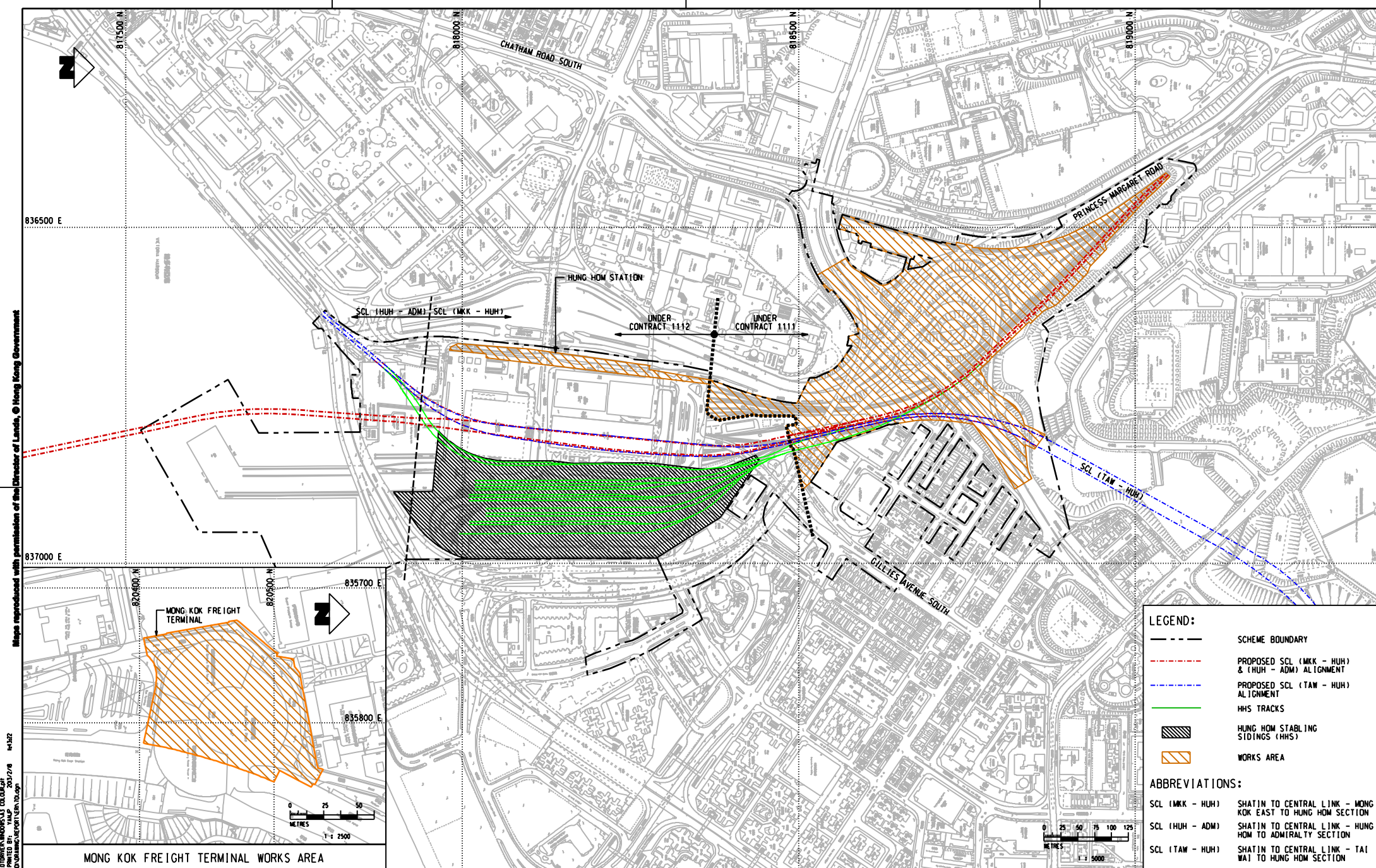
#### Permits/Licenses

- No specific observation was identified in the reporting month.

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## FIGURES

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1/4/2013  
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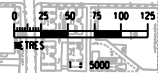
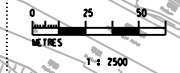
**LEGEND:**

- SCHEME BOUNDARY
- - - - PROPOSED SCL (MKK - HUH) & (HUH - ADM) ALIGNMENT
- - - - PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- ▨ HUNG HOM STABLES SIDINGS (HHS)
- ▨ WORKS AREA

**ABBREVIATIONS:**

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION

MONG KOK FREIGHT TERMINAL WORKS AREA



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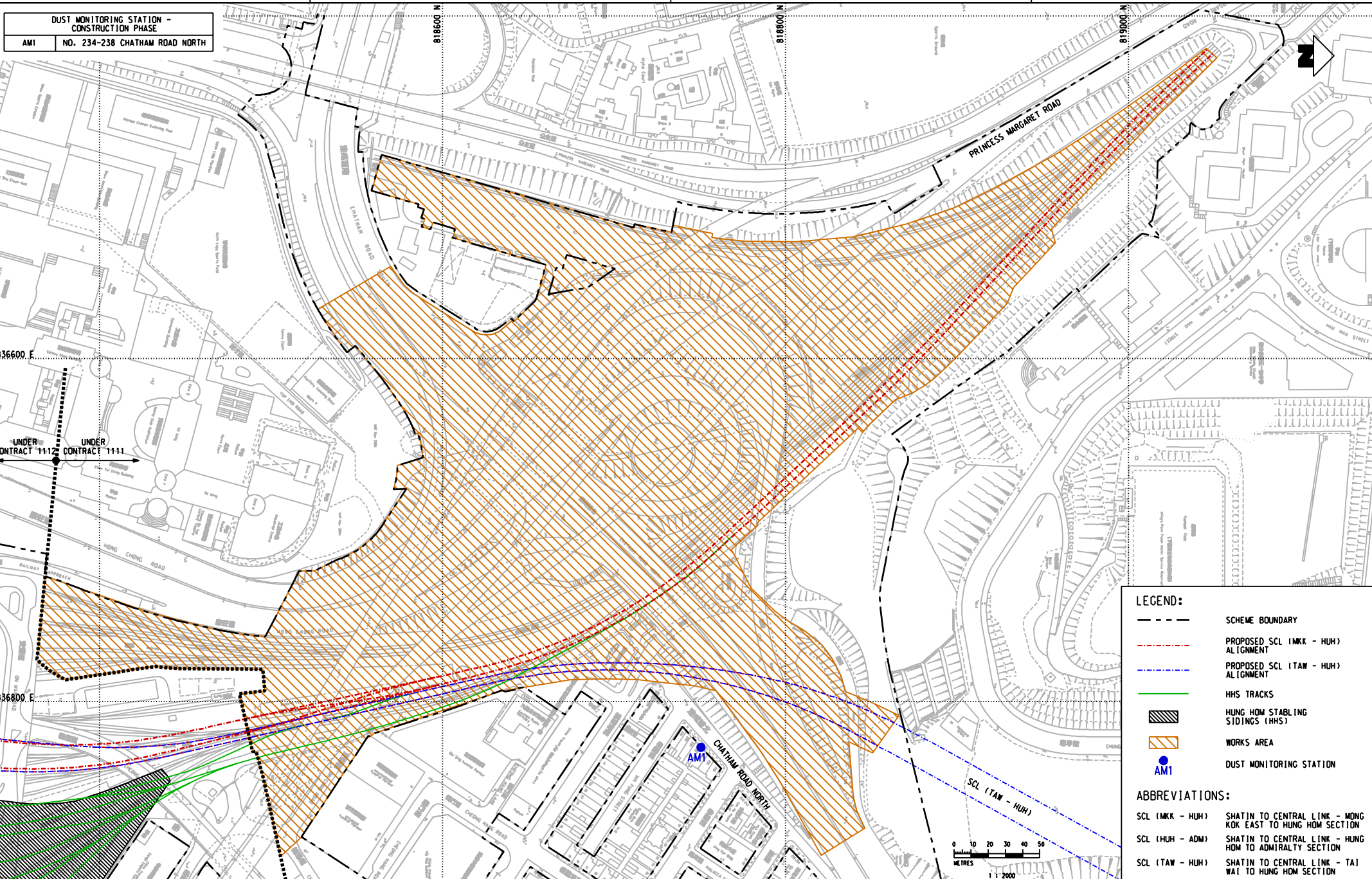
TITLE: <b>CONTRACT 1111</b> <b>HUNG HOM NORTH APPROACH TUNNELS</b> WORKS AREAS OF THE PROJECT	SCALE: A3 AS SHOWN FIGURE NO: <b>FIGURE 1.1</b>	REV: -
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DUST MONITORING STATION -  
CONSTRUCTION PHASE  
AM1 NO. 234-238 CHATHAM ROAD NORTH

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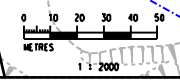


**LEGEND:**

- SCHEME BOUNDARY
- - - - PROPOSED SCL (MKK - HUH) ALIGNMENT
- - - - PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- ▨ HUNG HOM STABLING SIDINGS (HHS)
- ▨ WORKS AREA
- AM1 DUST MONITORING STATION

**ABBREVIATIONS:**

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION



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TITLE: **CONTRACT 1111**  
HUNG HOM NORTH APPROACH TUNNELS  
LOCATION OF AIR QUALITY MONITORING STATION

SCALE: 1 : 2000 (A3)     FIGURE NO. **FIGURE 2.1**     REV. -

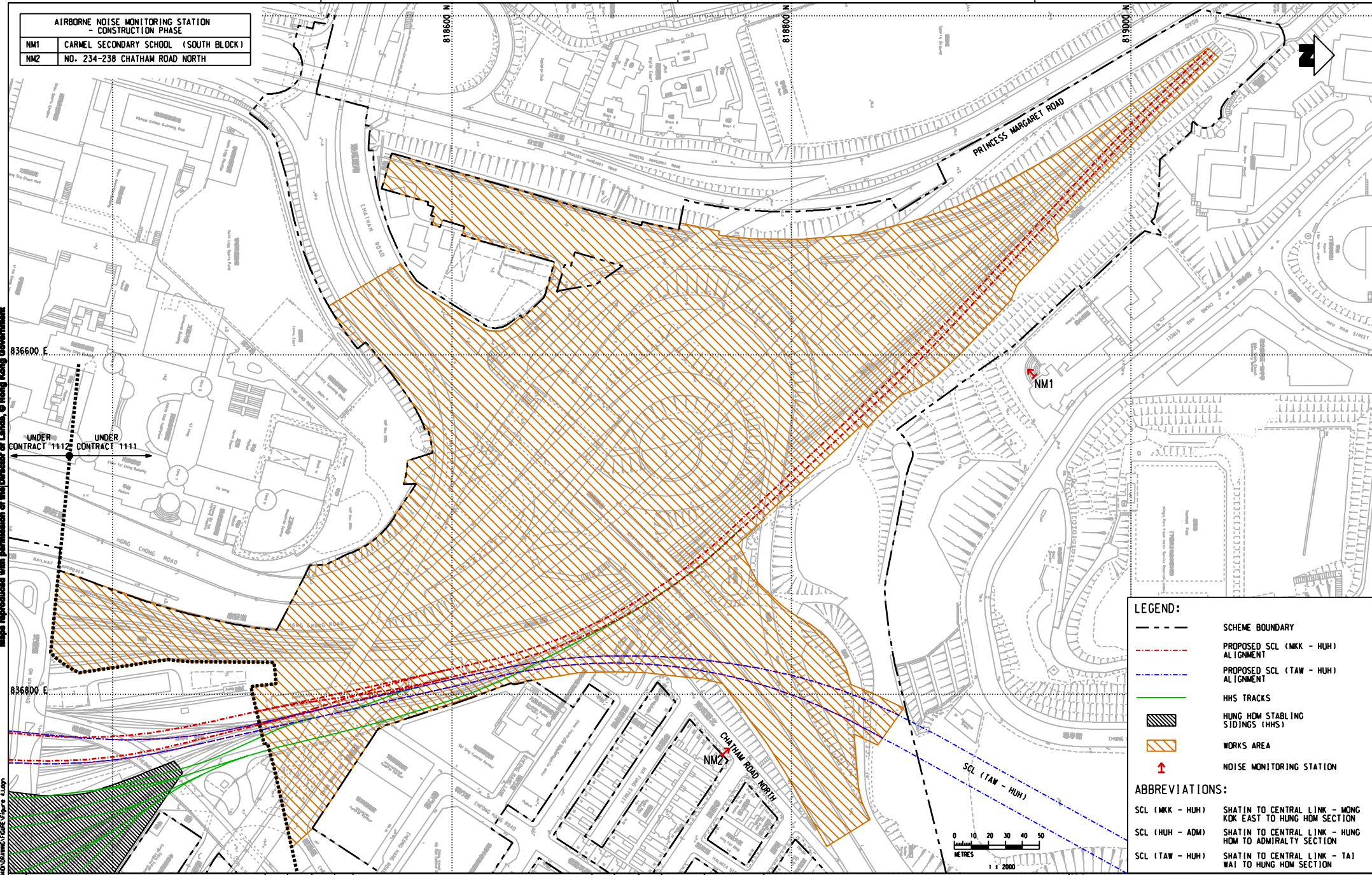
CADD REF. Figure 2.1.dgn



AIRBORNE NOISE MONITORING STATION - CONSTRUCTION PHASE	
NM1	CARMEL SECONDARY SCHOOL (SOUTH BLOCK)
NM2	NO. 234-238 CHATHAM ROAD NORTH

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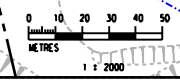


**LEGEND:**

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM SIDINGS (HHS)
- WORKS AREA
- ↑ NOISE MONITORING STATION

**ABBREVIATIONS:**

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION



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APPROVED	(MNV)															
DATE	08/JAN/2013															
CONTRACTOR	Gammon Kaden															
ORIGINATOR	AECOM															
<b>SHATIN TO CENTRAL LINK</b> HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)																
Figure 3.1.dgn																

TITLE	CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)
SCALE	1 : 2000 (A3)
FIGURE NO.	FIGURE 3.1
REV.	-

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**APPENDIX A**

**Construction Programme**

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Activity Description	Start	Finish	2013												2014												2015												2016												2017																
			D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D
<b>REPROVISIONING WORKS</b>																																																																			
Commencement of Works	17/12/12																																																																		
Existing HUH Station Platform Level Works	14/01/13	26/01/14																																																																	
Mong Kok Freight Terminal Podium Level	14/01/13	25/08/13																																																																	
Poly U Railway Reserve & New Maintenance Sidings	01/04/13	26/01/14																																																																	
Inter City Crew Accomodation on HUH EWL Platform	14/01/13	24/08/14																																																																	
<b>NSL/EWL TUNNEL</b>																																																																			
NSL/EWL Area 3 Tunnel (early handover)	03/06/14*	04/09/15																																																																	
NSL/EWL Area 4 Tunnel	03/06/14*	22/02/16																																																																	
NSL/EWL Area 5 Tunnel	03/03/14*	20/01/16																																																																	
NSL/EWL Area 6 Tunnel	03/03/14*	07/03/16																																																																	
<b>NSL TUNNEL</b>																																																																			
NSL Area 7 Tunnel (inc CRN1 & Traffic Diversion)	30/05/14*	26/05/17																																																																	
NSL Area 8A Tunnel	04/06/13*	07/01/17																																																																	
TB1	13/05/13*	17/10/14																																																																	
TB2	04/06/13*	05/03/14																																																																	
NSL Area 8B Tunnel	13/06/14*	05/03/16																																																																	
NSL Area 9 Tunnel	01/12/14*	06/04/16																																																																	
Oi Sen Path Slope Works and Tunnel	14/02/13*	13/10/16																																																																	
Oi Sen Path Noise Enclosure	14/12/13*	09/03/16																																																																	
<b>EWL TUNNEL</b>																																																																			
EWL Area 6A Tunnel	15/02/13*	22/07/14																																																																	
EWL Areas 7&8 Tunnel	22/02/13*	27/02/16																																																																	
EWL Area 9 Tunnel (late possession)	15/06/15*	02/04/16																																																																	

Early Bar  
 Progress Bar  
 Critical Activity

**SCL 1111  
SUMMARY PROGRAMME**

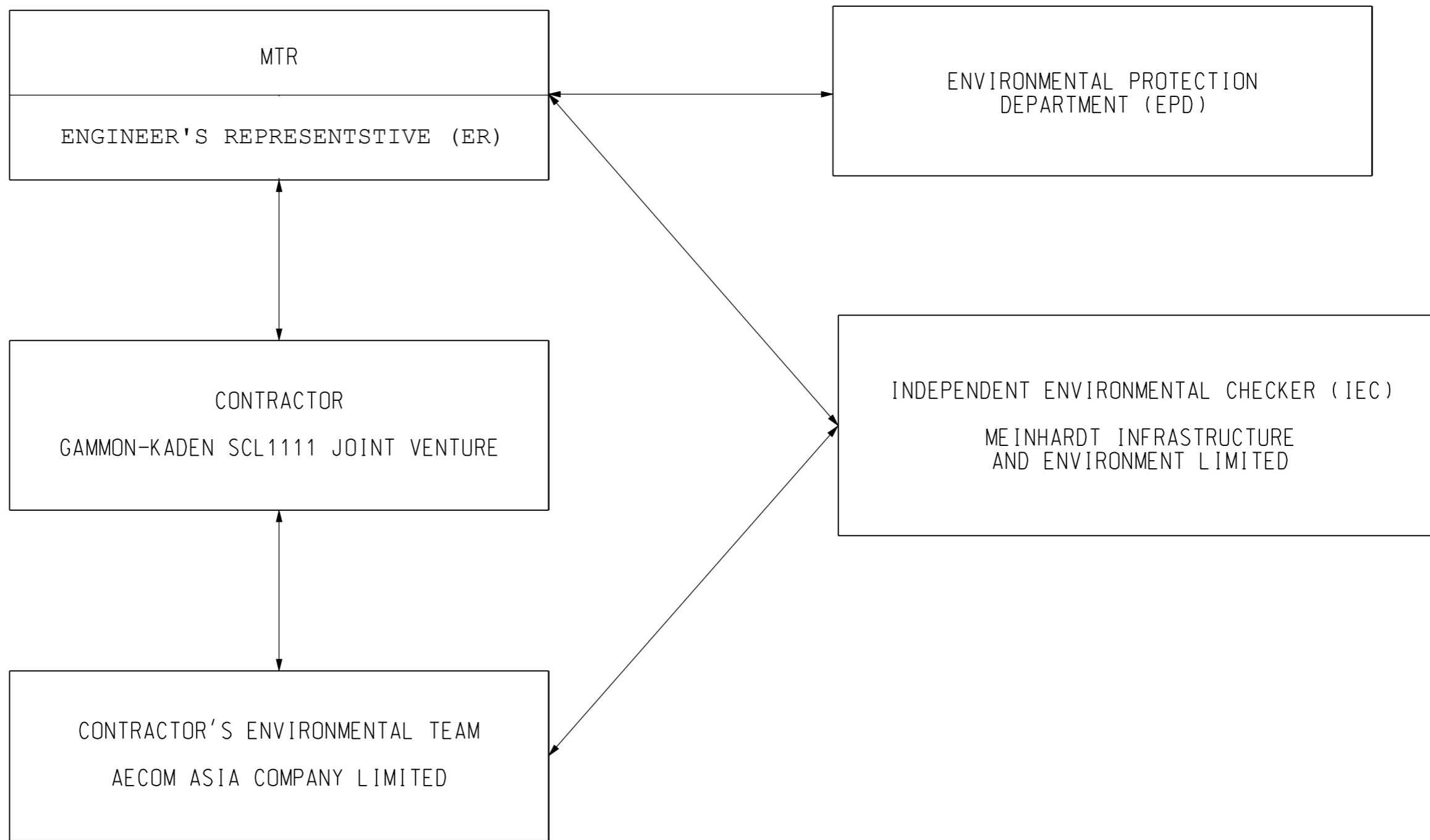
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19/09/12			

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**APPENDIX B**

**Project Organization Structure**

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**APPENDIX C**

**Implementation Schedule of Environmental Mitigation  
Measures**

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**Appendix C - Implementation Schedule of Environmental Mitigation Measures**

EIA Ref.	Environmental Mitigation Measures	Location	Implementation Status	
<b>Landscape and Visual Impact</b>				
S6.9.3 (TAW-HUH) , S6.12 (HHS), S6.12 (TAW-HUH), Table 6.9 (HHS) & Table 4.9 (MKK-HUH)	Minimize visual & landscape impact	Existing topsoil shall be re-used where possible for new planting areas within the Project.	All construction sites	N/A
		Ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone.	All construction sites	N/A
		All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period.	All construction sites	V
		Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas.	All construction sites	V
		Giving control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	All construction sites	V
		Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable.	All construction sites	N/A
		Compensatory tree & shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	All construction sites	N/A
		Control of night-time lighting glare.	All construction sites	N/A
		All hard and soft landscape areas disturbed temporarily during construction shall be reinstated to equal or better quality, to the satisfaction of the relevant Government Departments.	All construction sites	N/A

<b>Construction Noise Impact</b>				
8.3.6 (TAW-HUH) , S8.5.6 (HHS) & S6 (MKK-HUH)	To control construction airborne noise	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.	All construction sites	V
		Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All construction sites	V
		Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs.	All construction sites	V
		Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works.	All construction sites	V
		Mobile plant should be sited as far away from NSRs as possible and practicable.	All construction sites	V
		Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	All construction sites	V
		The following quiet PME should be used: <ul style="list-style-type: none"> <li>• Asphalt Paver (SWL=101dB(A))</li> <li>• Backhoe (SWL=106dB(A))</li> <li>• Backhoe with Hydraulic Breaker (SWL=110dB(A))</li> <li>• Concrete lorry mixer (SWL=96dB(A))</li> <li>• Concrete mixer truck (SWL=96dB(A))</li> <li>• Concrete Pump (SWL=106dB(A))</li> <li>• Concrete Pump Truck (SWL=106dB(A))</li> <li>• Crane, mobile (SWL=94dB(A))</li> <li>• Crawler Crane (SWL=102dB(A))</li> <li>• Drill, hand-held (SWL=98dB(A))</li> </ul>	Works areas where required	N/A

<b>Construction Noise Impact</b>				
		<ul style="list-style-type: none"> <li>• Dump truck (SWL=104dB(A))</li> <li>• Excavator (SWL=106dB(A))</li> <li>• Flat Bed Lorry (SWL=102dB(A))</li> <li>• Generator (SWL=95dB(A))</li> <li>• Giken Piler and Power-pack (SWL=94dB(A))</li> <li>• Hydraulic breaker (SWL=110dB(A))</li> <li>• Hydraulic excavator (SWL=106dB(A))</li> <li>• Lorry (SWL=102dB(A))</li> <li>• Lorry with crane/ grab (SWL=94dB(A))</li> <li>• Mini Piling Rig (SWL=112dB(A))</li> <li>• Piling Rig (SWL=112dB(A))</li> <li>• Poker, vibrator, hand-held (SWL=98dB(A))</li> <li>• Road Roller (SWL=101dB(A))</li> <li>• Rock Drill (SWL = 108dB(A))</li> <li>• Roller (SWL = 101dB(A))</li> <li>• Truck (SWL=103dB(A))</li> <li>• Vibratory Hammer (SWL=118dB(A))</li> </ul>		
		Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs.	All construction sites	V
		Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants	All construction sites	V
		Sequencing operation of construction plants where practicable.	All construction sites	V
		Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable.	Works areas near the Carmel Secondary School	V

<b>Construction Air Quality Impact</b>				
S7.6.5 (TAW-HUH) , S7.6.6 (HHS), S5.50, 5.51 &5.57 (MKK-HUH)	Minimize dust impact at nearby sensitive receivers	Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%.	All construction sites	@
		Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.	All construction sites	V
		Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	V
		A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones.	All construction sites	V
		The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle	All construction sites	N/A
		Vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point.	All construction sites	@
		The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	All construction sites	V
		When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided.	All construction sites	V
		The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials.	All construction sites	V
		Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously.	All construction sites	V



<b>Construction Air Quality Impact</b>				
		Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet.	All construction sites	N/A
		Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building.	All construction sites	V
		Any skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	N/A
		Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	All construction sites	N/A
/	/	Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	All construction sites	V
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	All construction sites	N/A
		Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	All construction sites	V
		Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site.	All construction sites	N/A
		Imposition of speed controls for vehicles on site haul roads.	All construction sites	N/A
		Open burning shall be prohibited.	All construction sites	V

<b>Construction Air Quality Impact</b>				
/	Emission from Vehicles and Plants	All vehicles shall be shut down in intermittent use.	All construction sites	V
		Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	All construction sites	V
		All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD).	All construction sites	V

<b>Construction Water Quality Impact</b>				
S10.7.1 (TAW-HUH) , S10.7.1 (HHS) & S8 (MKK-HUH)	To minimize construction water quality impactt	Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment.	Site drainage system	V
		Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.	Site drainage system	V
		Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities.	All works area	V
		Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site.	All works area	V
		Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly.	All construction sites	V
		Construction works should be programmed to minimize soil excavation works in rainy seasons.	All construction sites	N/A
		Temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds.	All construction sites	V
		Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms.	All construction sites	N/A

<b>Construction Water Quality Impact</b>				
		Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	All construction sites	V
		Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All construction sites	V
		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All construction sites	V
		Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area.	All construction sites	V
		All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads.	All construction sites	V
		Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area.	All construction sites	V
		A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas.	Excavation works areas	N/A

<b>Construction Water Quality Impact</b>				
		Wastewater generated should not be discharged into the stormwater drainage system.	All construction sites	V
		Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers.	All construction sites	N/A
		Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site.	All construction sites	V
		The Contractor should apply for a discharge license under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	All construction sites where practicable	N/A
		Appropriate measures will be deployed to minimize the intrusion of groundwater into excavation works areas.	All construction sites	N/A
		Measures should be put in place in order to mitigate any drawdown effects to the groundwater table during the operation of the temporary dewatering works.	All construction sites	N/A

<b>Waste Management</b>				
S11.5.1(TAW-HUH), S11.5.1(HHS) & S9 (MKK-HUH)	Good site practice to minimize the generation and impact of the waste.	Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement.	All construction sites	N/A
		Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions.	All construction sites	V
		Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	All construction sites	V
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	All construction sites	@
		Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	All construction sites	N/A
		Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution.	All construction sites	V
		Maintain and clean storage areas routinely.	All construction sites	V
		Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away.	All construction sites	V
		Waste should be removed in timely manner.	All construction sites	V
		Waste collectors should only collect wastes prescribed by their permits.	All construction sites	V
		Waste should be disposed of at licensed waste disposal facilities.	All construction sites	V
		Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.	All construction sites	V

<b>Waste Management</b>				
		Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All construction sites	V
		The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides.	All construction sites	@
		The Contractor should register as a chemical waste producer if chemical wastes would be generated.	All construction sites	V
		Disposal of chemical waste should be via a licensed waste collector.	All construction sites	V
		Stockpiling of contaminated sediments should be avoided as far as possible.	All construction sites	N/A
		All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances.  The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste should follow the trip-ticket system.  Licensed asbestos waste collectors should be appointed to collect the asbestos waste and deliver to the designated landfill for disposal.	All construction sites	N/A

<b>Contaminated Land</b>				
S10.24– 10.34 (MKK-HUH)	To act as a general precautionary measure to screen soils for the presence of contamination during construction.	Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil.	Within Project Boundary where signs of contamination is identified	N/A
		If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination.		N/A
	To remediate contaminated soil	If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP.		N/A

Legend: V = implemented;  
 x = not implemented;  
 @ = partially implemented;  
 N/A = not applicable



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**APPENDIX D**

**Summary of Action and Limit Levels**

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## Appendix D – Summary of Action and Limit Levels

**Table 1 Action and Limit Levels for 24-hour TSP**

ID	Location	Action Level	Limit Level
AM1	No. 234 – 238 Chatham Road North	183.9 $\mu\text{g}/\text{m}^3$	260.0 $\mu\text{g}/\text{m}^3$

**Table 2 Action and Limit Levels for Regular Construction Noise (0700 – 1900 hrs of normal weekdays)**

ID	Location	Action Level	Limit Level
NM1	Carmel Secondary School (South Block)	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers.	65 / 70 dB(A) <sup>(1)</sup>
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

Note:

(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period.

**Table 3 Action and Limit Levels for Continuous Noise**

ID	Location	Action/Limit Level
NM1	Carmel Secondary School (South Block)	68 dB(A) <sup>(1)</sup>
NM2	No. 234-238 Chatham Road North	77 dB(A)

Note:

(1) Action/Limit level will only be applicable during the examination period.

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**APPENDIX E**

**Calibration Certificates of Equipments**

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**AECOM Asia Company Limited**  
**TSP High Volume Sampler**  
**Field Calibration Report**

Station 234 - 238 Chatham Road North; SCL - DMS - 11 Operator: Shum Kam Yuen  
 Cal. Date: 26-Jun-15 Next Due Date: 26-Aug-15  
 Equipment No.: --- Serial No. 8259

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	753.3

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99924	Intercept, bc	-0.01238
Last Calibration Date:	9-Dec-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Dec-15				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.7	2.74	1.38	41.0	40.48
13	6.0	2.42	1.22	35.0	34.56
10	5.3	2.27	1.14	31.0	30.61
7	4.1	2.00	1.01	25.0	24.68
5	3.1	1.74	0.88	20.0	19.75

**By Linear Regression of Y on X**

Slope, mw = 42.1898 Intercept, bw = -17.3851  
 Correlation Coefficient\* = 0.9974

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 37.94

Remarks: \_\_\_\_\_

QC Reviewer: WS CHAN

Signature: 

Date: 26/6/15



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 09, 2014 Rootmeter S/N 0438320 Ta (K) - 293  
 Operator Tisch Orifice I.D. - 0843 Pa (mm) - 755.65

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORIFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4010	3.2	2.00
2	NA	NA	1.00	0.9950	6.4	4.00
3	NA	NA	1.00	0.8830	7.9	5.00
4	NA	NA	1.00	0.8420	8.8	5.50
5	NA	NA	1.00	0.6960	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0069	0.7187	1.4221	0.9957	0.7107	0.8806
1.0027	1.0077	2.0112	0.9915	0.9965	1.2454
1.0006	1.1332	2.2486	0.9894	1.1206	1.3924
0.9994	1.1870	2.3584	0.9883	1.1738	1.4603
0.9942	1.4285	2.8443	0.9831	1.4126	1.7612
Qstd slope (m) = 1.99924			Qa slope (m) = 1.25189		
intercept (b) = -0.01238			intercept (b) = -0.00766		
coefficient (r) = 0.99990			coefficient (r) = 0.99990		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0317 03 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692	,	2791211
Adaptors used:	-	,	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 17-Mar-2015

Date of test: 18-Mar-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	20-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

### Ambient conditions

Temperature: 21 ± 1 °C  
Relative humidity: 60 ± 10 %  
Air pressure: 1010 ± 5 hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

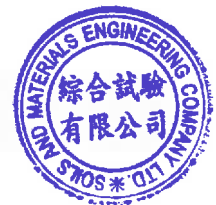
Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 19-Mar-2015

Company Chop:



**Comments:** The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0317 03 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Frequency weightings	Lin	Pass	0.3	
	Time weightings	Single Burst Fast	Pass	0.3
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Crest factor of 3	Pass	0.3
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

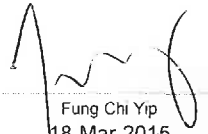
The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

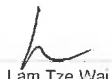
### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:   
Date: 18-Mar-2015

- End -

Checked by:   
Date: 19-Mar-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.





## CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2238	4188
Serial/Equipment No.:	2800927 / N.009.06	2791211
Adaptors used:	-	-

### Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	02-Jul-2014

Date of test: 03-Jul-2014

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	20-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

### Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Jul-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA0702 01-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:		Checked by:	
Date:	03-Jul-2014	Date:	04-Jul-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0703 02-02 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2800927	,	2791214
Adaptors used:	-	,	-

### Item submitted by

N-009 06  
Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 03-Jul-2015

Date of test: 04-Jul-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

### Ambient conditions

Temperature: 21 ± 1 °C  
Relative humidity: 60 ± 10 %  
Air pressure: 1000 ± 5 hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

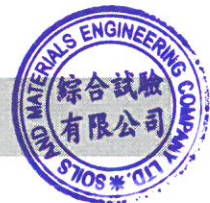
Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date: 06-Jul-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0703 02-02 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	1.0	
	Lin	Pass	2.0	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Crest factor of 3	Pass	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date: 04-Jul-2015

Fung Chi Yip

Checked by:

Date: 06-Jul-2015

Lam Tze Wai

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.





## CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-02 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2238	4188
Serial/Equipment No.:	2800930 / N.009.07	2250455
Adaptors used:	-	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 02-Jul-2014

Date of test: 03-Jul-2014

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	20-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

### Ambient conditions

Temperature:  $21 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 10$  hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Jul-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA0702 01-02 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	1.0	
	Lin	Pass	2.0	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	Crest factor of 3	Pass	0.3	
R.M.S. accuracy	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
	SPL	Pass	0.3	
Overload indication	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip  
03-Jul-2014

- End -

Checked by:

Date:

Lam Tze Wai  
04-Jul-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0703 02-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2800930	,	2250455
Adaptors used:	-	,	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD. *N:009.07*  
Address of Customer: -  
Request No.: -  
Date of receipt: 03-Jul-2015

Date of test: 04-Jul-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

### Ambient conditions

Temperature:  $21 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 5$  hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.


### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 06-Jul-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0703 02-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
Time weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Peak response	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
R.M.S. accuracy	Single 100µs rectangular pulse	Pass	0.3	
Time weighting I	Crest factor of 3	Pass	0.3	
	Single burst 5 ms at 2000 Hz	Pass	0.3	
Time averaging	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Pulse range	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Fung Chi Yip  
Date: 04-Jul-2015

Checked by:

Lam Tze Wai  
Date: 06-Jul-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Rion Co., Ltd.	,	Rion Co., Ltd.
Type/Model No.:	NL-31	,	UC-53A
Serial/Equipment No.:	00320528 / N.007.03A	,	90565
Adaptors used:	-	,	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 06-Nov-2014

Date of test: 07-Nov-2014

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	15-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $65 \pm 10$  %  
Air pressure:  $1010 \pm 10$  hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure response of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 08-Nov-2014

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
Time weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Peak response	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
R.M.S. accuracy	Single 100µs rectangular pulse	Pass	0.3	
Time weighting I	Crest factor of 3	Pass	0.3	
	Single burst 5 ms at 2000 Hz	N/A	N/A	
Time averaging	Repeated at frequency of 100 Hz	N/A	N/A	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Pulse range	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date: 07-Nov-2014

Fung Chi Yip

Checked by:

Date: 08-Nov-2014

Lam Tze Wai

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-02

Page: 1 of 2

### Item tested

Description: Acoustical Calibrator (Class 1)  
Manufacturer: Rion Co., Ltd.  
Type/Model No.: NC-73  
Serial/Equipment No.: 10307223 / N.004.08  
Adaptors used: -

### Item submitted by

Customer: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 06-Nov-2014

Date of test: 07-Nov-2014

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	13-May-2015	SCL
Preamplifier	B&K 2673	2239857	10-Apr-2015	CEPREI
Measuring amplifier	B&K 2610	2346941	08-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI
Digital multi-meter	34401A	US36087050	17-Dec-2014	CEPREI
Audio analyzer	8903B	GB41300350	07-Apr-2015	CEPREI
Universal counter	53132A	MY40003662	11-Apr-2015	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $65 \pm 10$  %  
Air pressure:  $1010 \pm 10$  hPa

### Test specifications

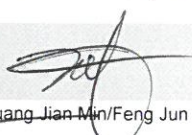
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

  
Huang Jian-Min/Feng Jun Qi

Date: 08-Nov-2014

Company Chop:



**Comments:** The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-02 Page: 2 of 2

### 1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.02	0.10

(Output level in dB re 20 µPa)

### 2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

**At 1000 Hz** **STF = 0.002 dB**  
Estimated expanded uncertainty 0.005 dB

### 3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

**At 1000 Hz** **Actual Frequency = 988.9 Hz**  
Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

### 4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

**At 1000 Hz** **TND = 1.3 %**  
Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

<p><b>Calibrated by:</b>  Date: 07-Nov-2014</p>	<p><b>Checked by:</b>  Date: 08-Nov-2014</p>
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The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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**APPENDIX F**

**EM&A Monitoring Schedules**

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**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels  
Impact Monitoring Schedule for July 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
				24-hour TSP (AM1)	Noise (NM1, NM2)	
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
			24-hour TSP (AM1)	Noise (NM1, NM2)		
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		24-hour TSP (AM1)	Noise (NM1, NM2)			
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		Noise (NM1, NM2)			24-hour TSP (AM1)	

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels  
Tentative Impact Monitoring Schedule for August 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
				24-hour TSP (AM1)	Noise (NM1, NM2)	
9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			24-hour TSP (AM1)	Noise (NM1, NM2)		
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		24-hour TSP (AM1)	Noise (NM1, NM2)			
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	24-hour TSP (AM1)	Noise (NM1, NM2)				Air Quality (AM1)
30-Aug	31-Aug					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels  
Tentative Impact Monitoring Schedule for September 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Sep	2-Sep	3-Sep	4-Sep	5-Sep
		Noise (NM1, NM2)			24-hour TSP (AM1)	
6-Sep	7-Sep	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep
				24-hour TSP (AM1)	Noise (NM1, NM2)	
13-Sep	14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep
			24-hour TSP (AM1)	Noise (NM1, NM2)		
20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep
		24-hour TSP (AM1)	Noise (NM1, NM2)			24-hour TSP (AM1)
27-Sep	28-Sep	29-Sep	30-Sep			
		Noise (NM1, NM2)				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

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**APPENDIX G**

**Air Quality Monitoring Results and  
their Graphical Presentations**

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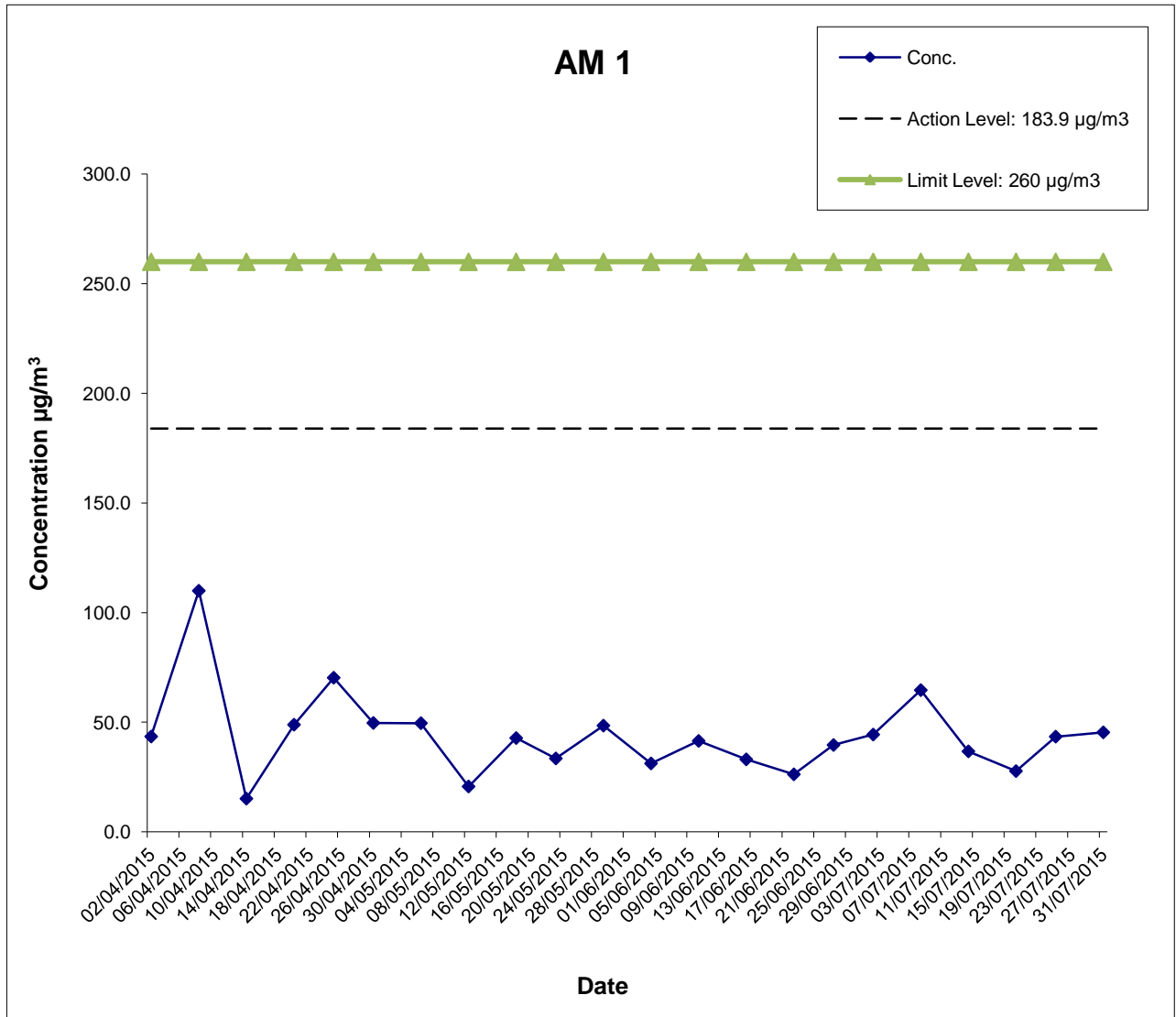


**Appendix G  
Air Quality Monitoring Results**

**24-hour TSP Monitoring Results at Station AM1 (No. 234 – 238 Chatham Road North)**

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
2-Jul-15	0:00	3-Jul-15	0:00	Fine	30.6	1003.2	1.31	1.31	1.31	1890.7	2.7377	2.8216	0.0839	10556.04	10580.04	24.00	44.4
8-Jul-15	0:00	9-Jul-15	0:00	Sunny	28.8	1000.3	1.31	1.31	1.31	1890.7	2.7837	2.9059	0.1222	10580.04	10604.04	24.00	64.6
14-Jul-15	0:00	15-Jul-15	0:00	Sunny	30.5	1002.1	1.31	1.31	1.31	1890.7	2.7980	2.8674	0.0694	10604.04	10628.04	24.00	36.7
20-Jul-15	0:00	21-Jul-15	0:00	Rainy	27.4	1001.4	1.31	1.31	1.31	1890.7	2.7958	2.8482	0.0524	10628.04	10652.04	24.00	27.7
25-Jul-15	0:00	26-Jul-15	0:00	CLoudy	28.5	1006.6	1.31	1.31	1.31	1890.7	2.7712	2.8533	0.0821	10652.04	10676.04	24.00	43.4
31-Jul-15	0:00	1-Aug-15	0:00	Sunny	28.5	1011.0	1.31	1.31	1.31	1890.7	2.8051	2.8909	0.0858	10676.04	10700.04	24.00	45.4
<b>Average</b>																<b>43.7</b>	
<b>Minimum</b>																<b>27.7</b>	
<b>Maximum</b>																<b>64.6</b>	

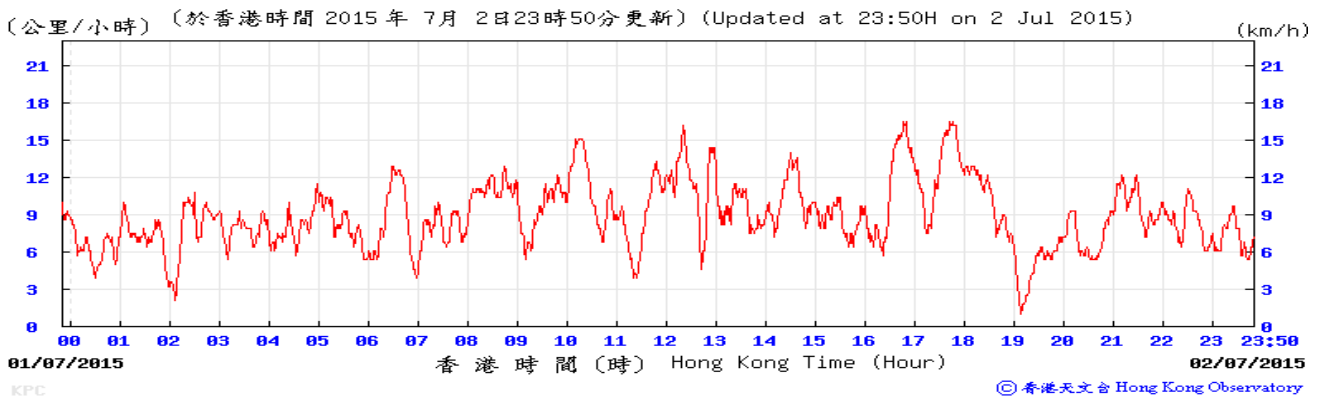
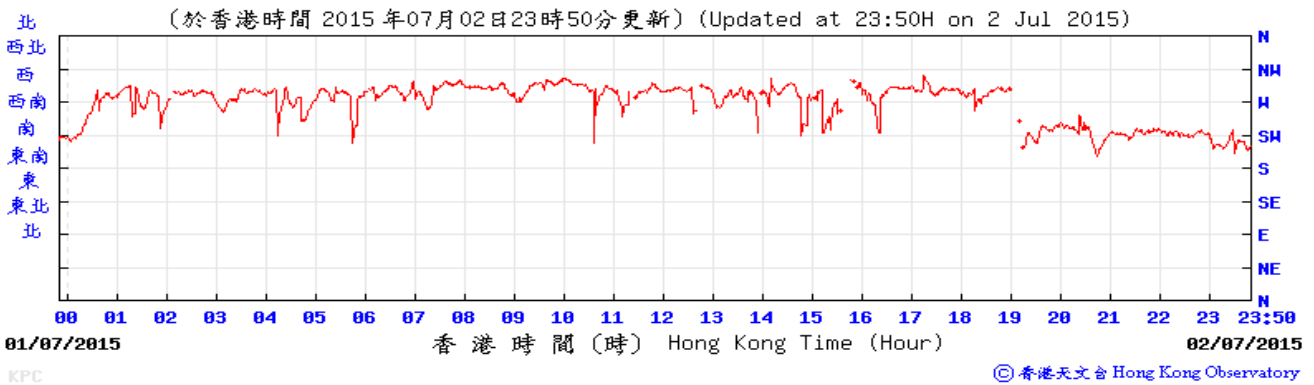
# Appendix G Air Quality Monitoring Results



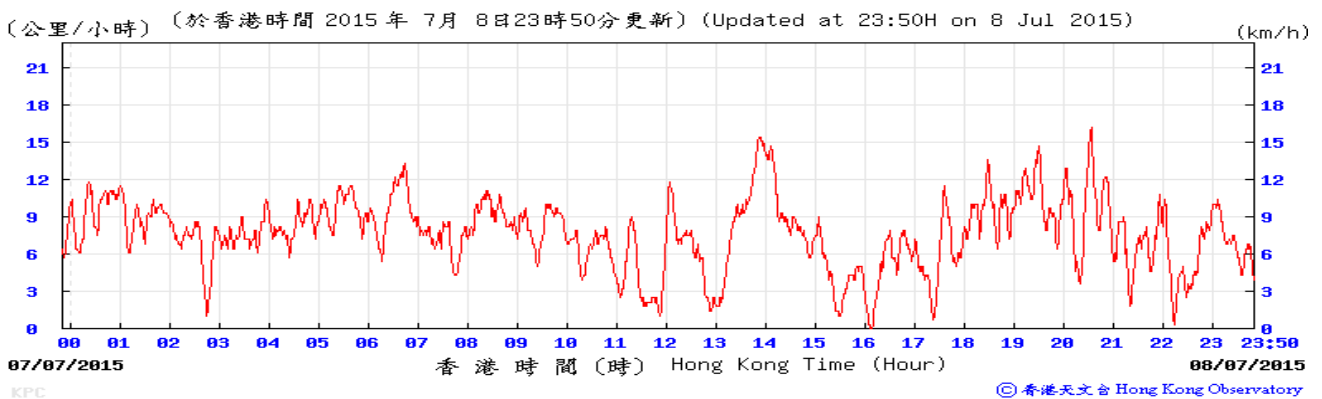
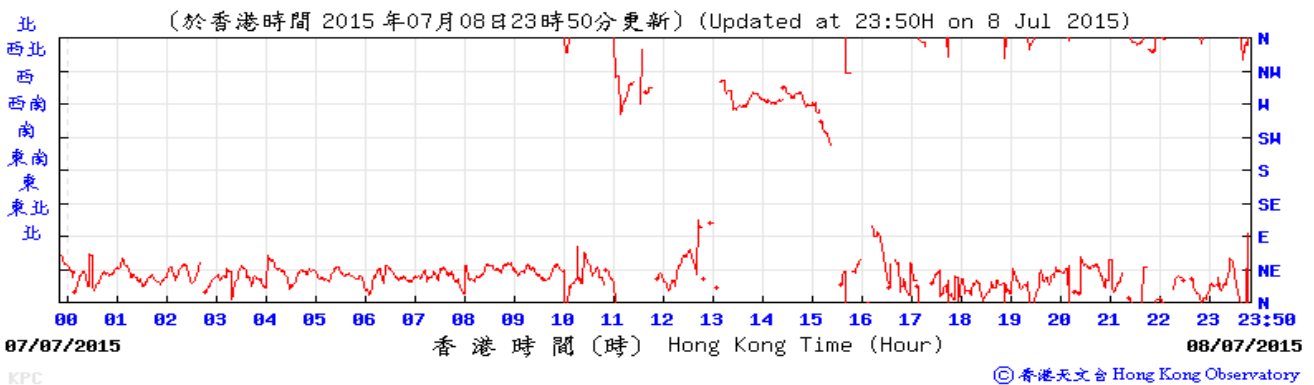
	<b><u>Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels</u></b>	SCALE	N.T.S.	DATE	Aug-15
	<b>Graphical Presentations of Impact 24-hour TSP Monitoring Results</b>	CHECK	TYUT	DRAWN	LLMC
		JOB NO.	60284101	APPENDIX No.	G

# Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, June 2015

2-Jul-15

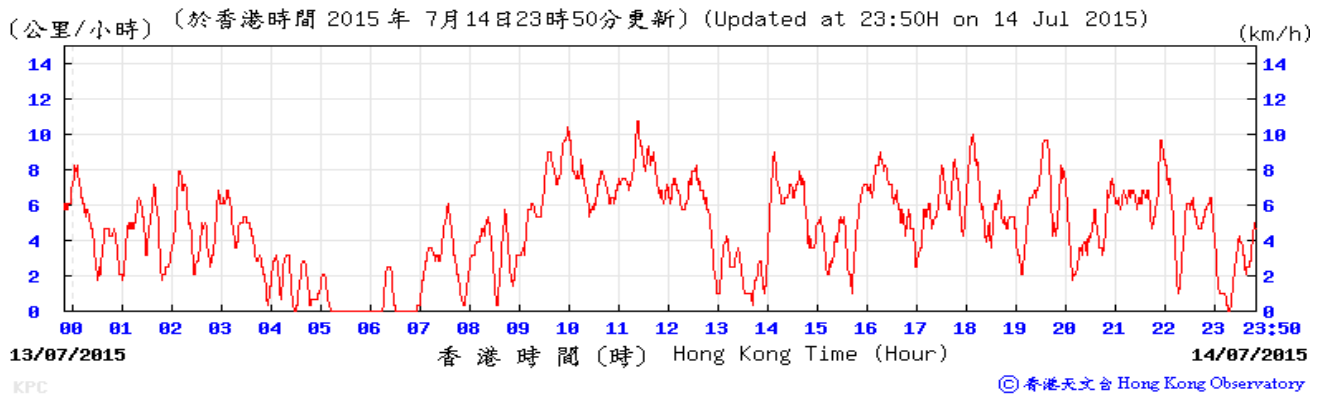
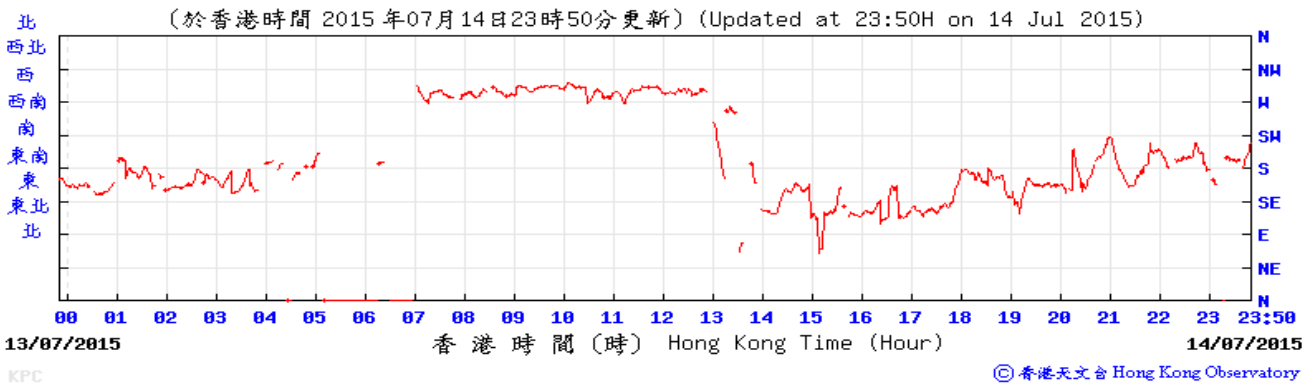


8-Jul-15

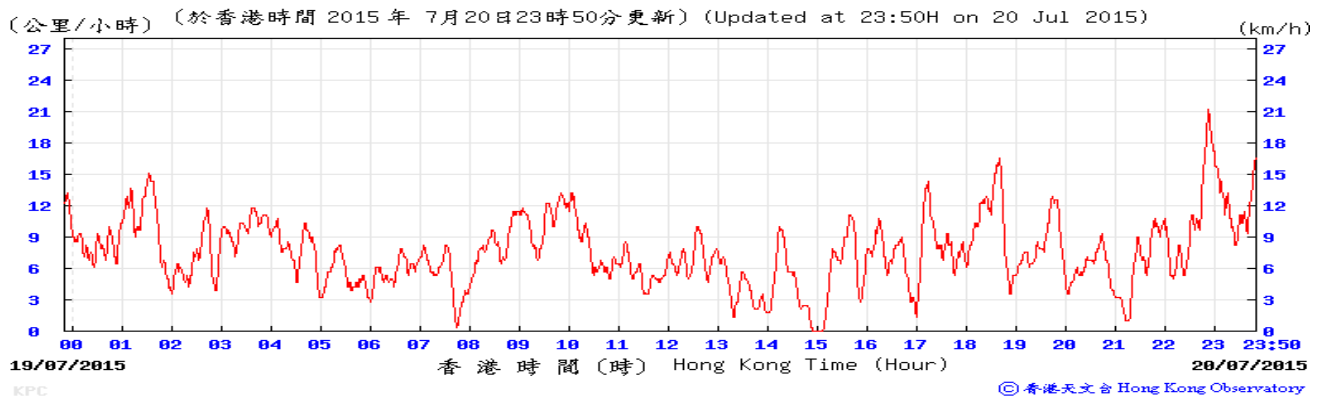
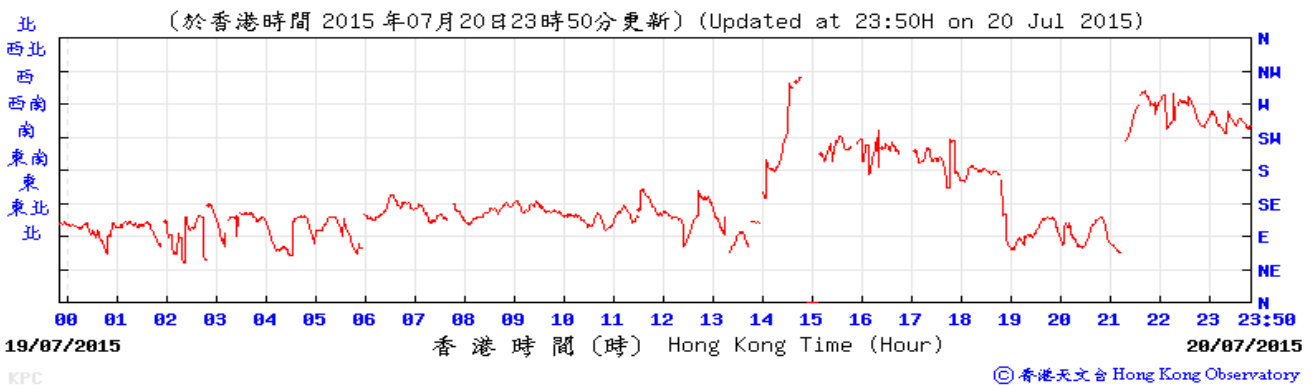


# Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, June 2015

14-Jul-15

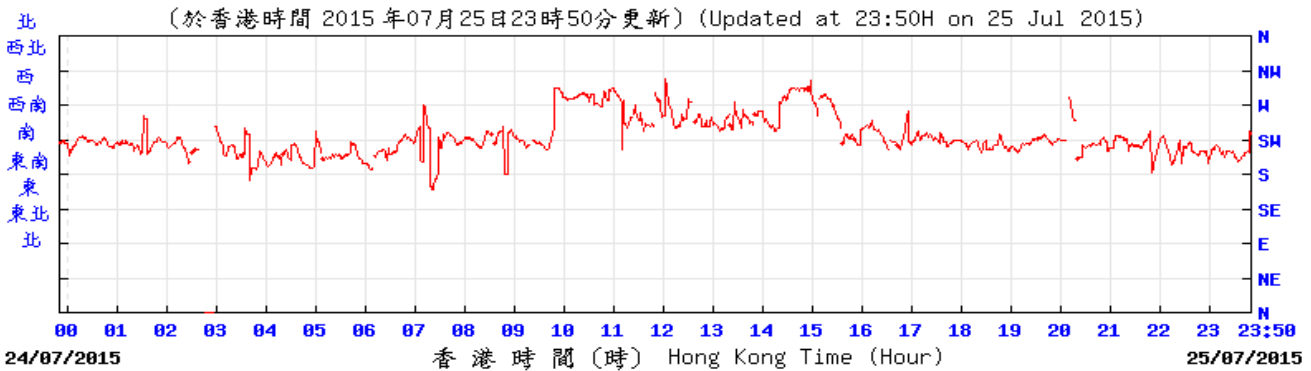


20-Jul-15

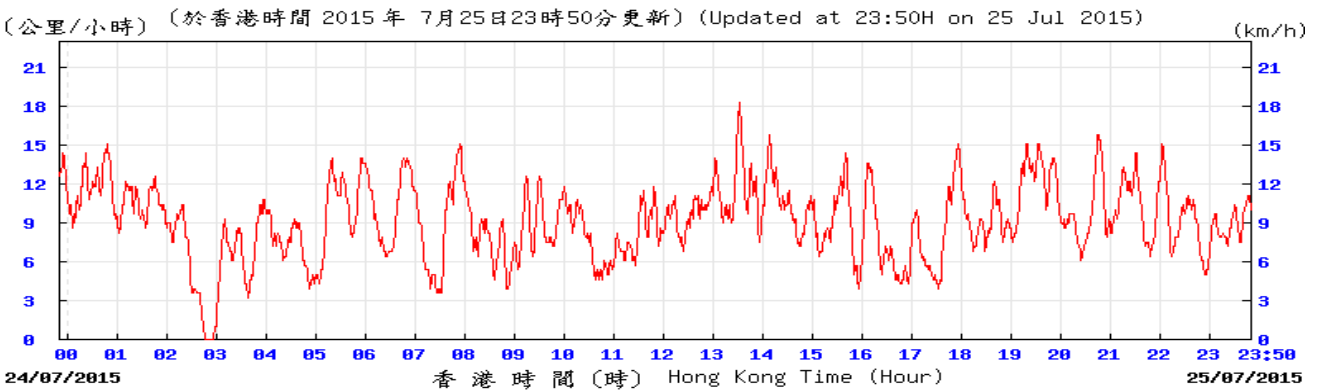


# Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, June 2015

25-Jul-15

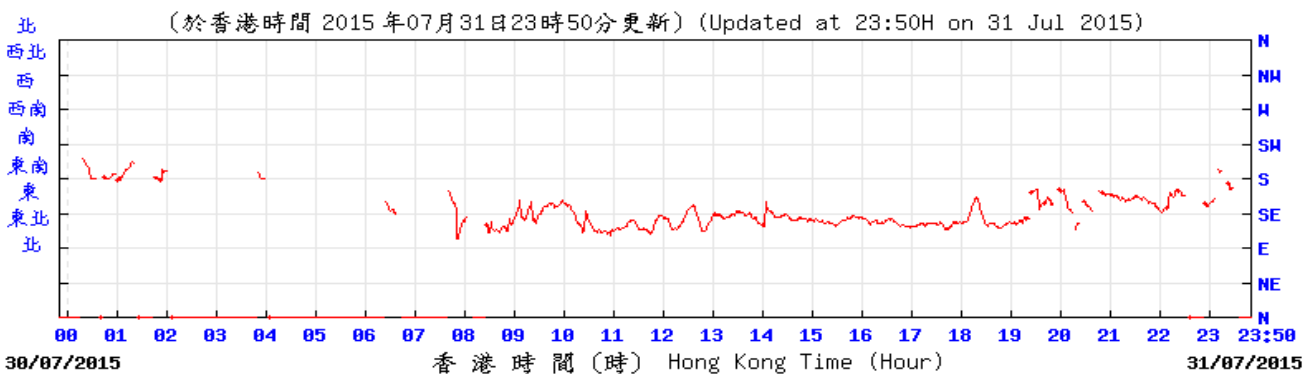


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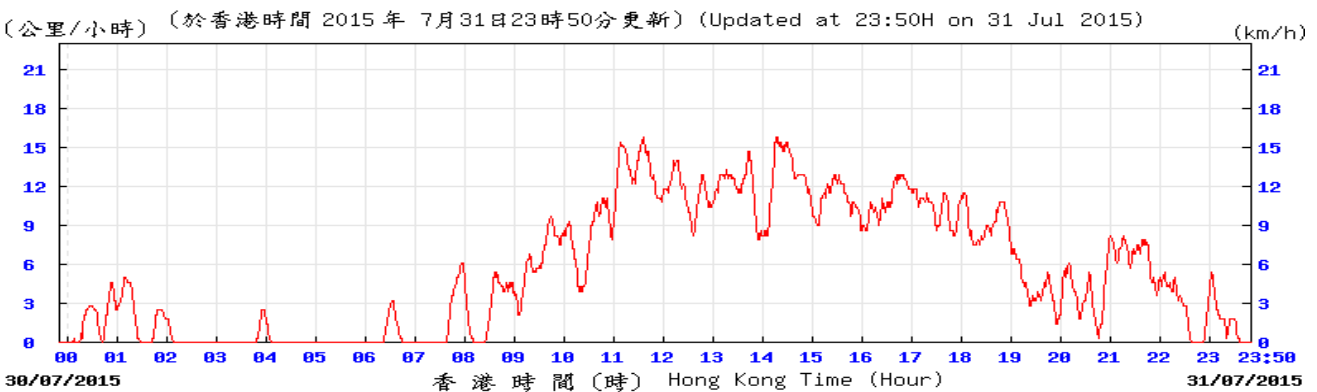


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31-Jul-15



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**APPENDIX H**

**Noise Monitoring Results and  
their Graphical Presentations**

---

## Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station NM 1 (Carmel Secondary School (South Block))

Date	Weather Condition	Noise Level for 30-min, dB(A) <sup>+</sup>				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level*, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
3-Jul-15	Sunny	10:02	64.2	68.3	67.0	<Baseline	68.0	70	N
9-Jul-15	Sunny	9:50	65.5	70.0	68.1	51.7	68.0	70	N
15-Jul-15	Sunny	10:10	65.0	68.5	67.2	<Baseline	68.0	70	N
21-Jul-15	Cloudy	10:00	60.2	66.4	63.4	<Baseline	68.0	70	N
28-Jul-15	Sunny	13:00	61.2	66.9	64.0	<Baseline	68.0	70	N

Daytime Noise Monitoring Results at Station NM 2 (No. 234 – 238 Chatham Road North)

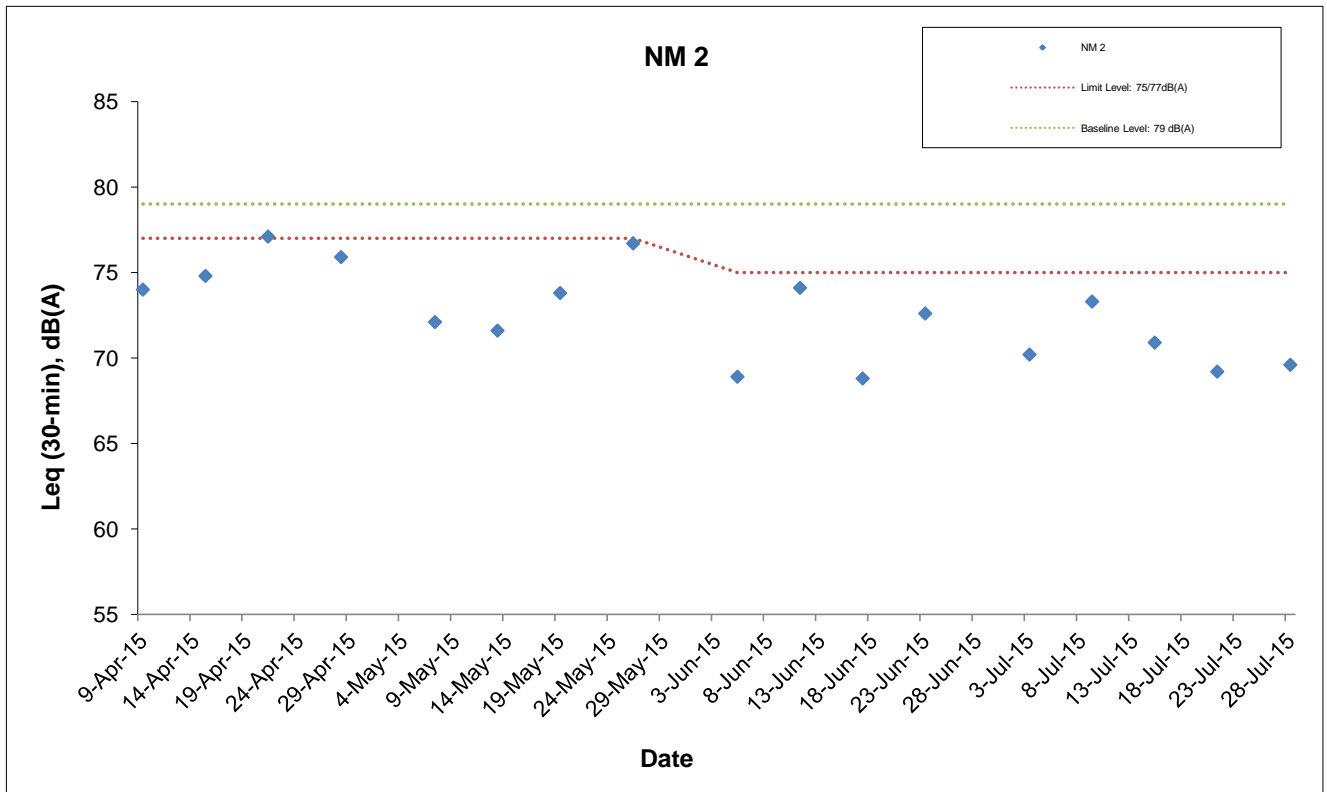
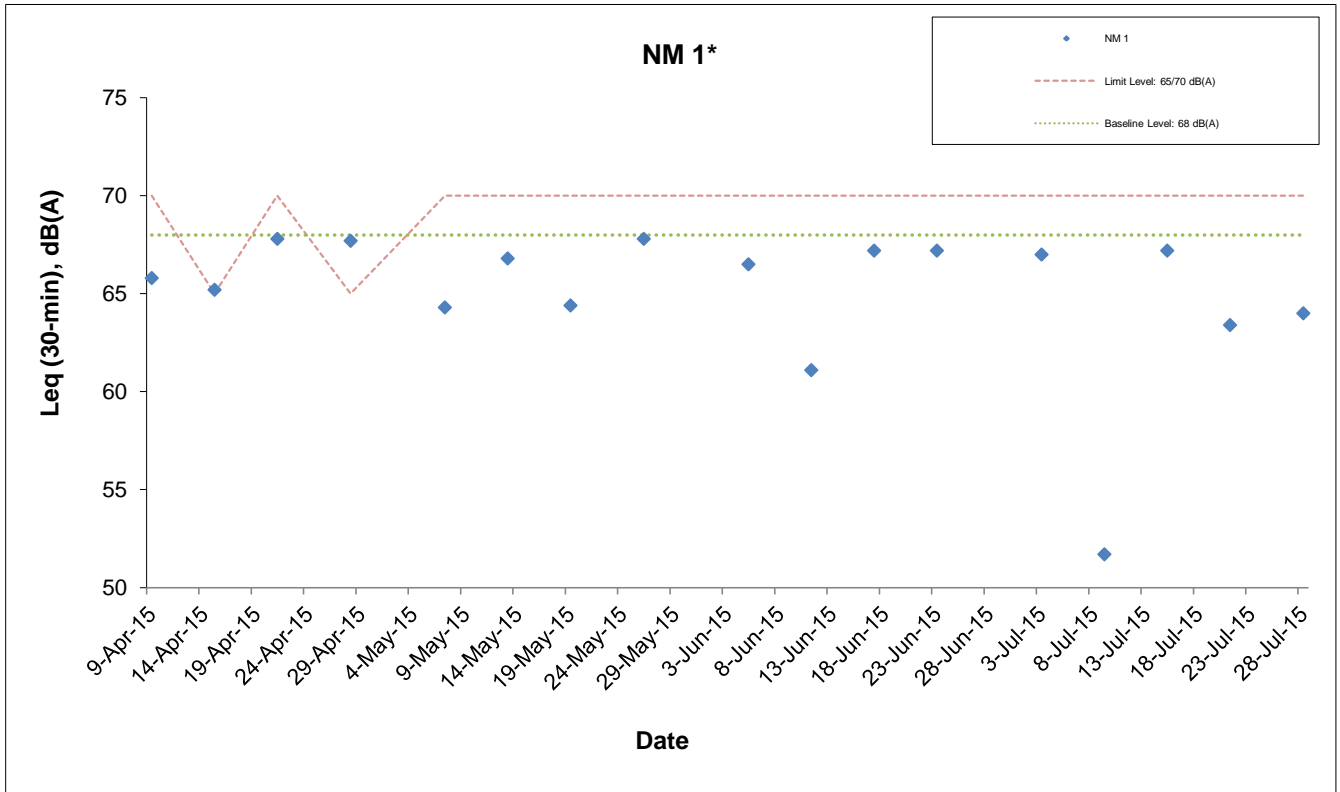
Date	Weather Condition	Noise Level for 30-min, dB(A) <sup>++</sup>				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
3-Jul-15	Sunny	10:50	68.1	72.4	70.2	<Baseline	79.0	75	N
9-Jul-15	Sunny	10:30	70.5	74.5	73.3	<Baseline	79.0	75	N
15-Jul-15	Sunny	10:58	68.0	71.5	70.9	<Baseline	79.0	75	N
21-Jul-15	Cloudy	11:00	66.9	71.8	69.2	<Baseline	79.0	75	N
28-Jul-15	Sunny	13:10	66.5	71.4	69.6	<Baseline	79.0	75	N

<sup>+</sup> - Façade measurement

<sup>++</sup> - Free field measurement

\* - Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

# Appendix H Regular Construction Noise Monitoring Results



\* - The noise monitoring results of the measurements are higher than the daytime construction noise criterion. However, the results are not considered as exceedance if they are either below the baseline level or below the limit level after deducting the baseline noise level.

<b>AECOM</b>	<b>Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels</b>	SCALE	N.T.S.	DATE	Aug-15
	<b>Graphical Presentations of Noise Monitoring Results</b>	CHECK	TYUT	DRAWN	LLMC
		JOB NO.	60284101	APPENDIX	H



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**APPENDIX I**

**Event Action Plan**

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**Appendix I – Event and Action Plan**

Event / Action Plan for Construction Dust

EVENT	ACTION			
	ET	IEC	ER	Contractor
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.

EVENT	ACTION			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

EVENT	ACTION			
	ET	IEC	ER	Contractor
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.

EVENT	ACTION			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Regular Construction Noise

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	<ol style="list-style-type: none"> <li>1. Notify the Contractor, IEC and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required; and</li> <li>3. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor; and</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing;</li> <li>2. Review and agree on the remedial measures proposed by the Contractor; and</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures;</li> <li>2. Report the results of investigation to the IEC, ET and ER;</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and</li> <li>4. Implement noise mitigation proposals.</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of failure in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Continuous Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1111 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1111 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1111 ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1111 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source with the Works Contract 1111 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Event / Action Plan for Landscape and Visual during Construction Stage

EVENT	ET	IEC	ER	Contractor
<b>ACTION LEVEL</b>				
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

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**APPENDIX J**

**Cumulative Statistics of Complaints, Notification of Summons  
and Successful Prosecutions**

---

**Appendix J****Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

	<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. received in this month</b>	<b>Total no. received since project commencement</b>
<b>Environmental complaints</b>	-	-	-	0	1
<b>Notification of summons</b>	-	-	-	0	0
<b>Successful Prosecutions</b>	-	-	-	0	0

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**APPENDIX K**

**Waste Flow Table**

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## Appendix K Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)													Actual Quantities of Non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly					Actual Quantities of Marine Dumping Monthly		
	Generated				Disposed				Reused					Recycled			Disposed		Disposed		
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Disposed as Public Fills at CWPFBP	Total Quantity Disposal	Reused in the Contract	Reused in other Projects		Delivered to HH Barging Point (Note 5)	Total Quantity Reused	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)	Disposed as MD at HH Barging Point	
		Soil and Rock	Broken Concrete	Asphalt							Building Debris	Tolo								WIL 705	Type 1
Unit	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000m <sup>3</sup> )	('000m <sup>3</sup> )	
Jan	6.832	0.008	0.004	0.000	6.843	3.102	0.002	0.000	3.104	0.010	0.010	0.000	3.719	3.739	0.000	0.084	0.000	0.000	50.820	0.000	2.216
Feb	4.779	0.096	0.000	0.005	4.880	1.848	0.000	0.000	1.848	0.000	0.000	0.000	3.032	3.032	0.000	0.112	0.000	0.000	37.630	1.292	0.000
Mar	8.652	0.035	0.000	0.004	8.691	3.009	0.004	0.000	3.013	0.000	0.000	0.000	5.678	5.678	0.000	0.112	0.000	0.400	49.940	3.168	0.000
Apr	6.370	0.031	0.009	0.015	6.426	1.715	0.000	0.000	1.715	0.000	0.000	0.000	4.711	4.711	2.750	0.063	0.000	0.000	33.930	3.970	0.000
May	6.218	0.080	0.020	0.000	6.319	1.658	0.039	0.000	1.697	0.000	0.000	0.000	4.622	4.622	0.000	0.063	0.000	0.000	46.740	8.255	0.000
Jun	6.534	0.076	0.022	0.008	6.640	1.502	0.095	0.000	1.598	0.000	0.000	0.000	5.043	5.043	0.000	0.056	0.000	1.387	63.680	9.711	0.000
<b>SUB-TOTAL</b>	<b>39.386</b>	<b>0.326</b>	<b>0.055</b>	<b>0.032</b>	<b>39.800</b>	<b>12.834</b>	<b>0.140</b>	<b>0.000</b>	<b>12.975</b>	<b>0.010</b>	<b>0.010</b>	<b>0.000</b>	<b>26.805</b>	<b>26.825</b>	<b>2.750</b>	<b>0.490</b>	<b>0.000</b>	<b>1.787</b>	<b>282.740</b>	<b>26.397</b>	<b>2.216</b>
Jul	9.616	0.097	0.055	0.004	9.771	3.193	0.260	0.000	3.453	0.113	0.000	0.000	6.206	6.318	0.000	0.000	0.000	0.595	41.170	5.292	0.000
Aug																					
Sep																					
Oct																					
Nov																					
Dec																					
<b>2015 TOTAL</b>	<b>49.002</b>	<b>0.423</b>	<b>0.110</b>	<b>0.036</b>	<b>49.571</b>	<b>16.028</b>	<b>0.400</b>	<b>0.000</b>	<b>16.428</b>	<b>0.123</b>	<b>0.010</b>	<b>0.000</b>	<b>33.011</b>	<b>33.143</b>	<b>2.750</b>	<b>0.490</b>	<b>0.000</b>	<b>2.382</b>	<b>323.910</b>	<b>31.689</b>	<b>2.216</b>

Note:

1. Assume the density of fill is 2 ton/m<sup>3</sup>.

2. Refuses disposed of at North East New Territories (NENT) Landfill.

3. Assume the weight of recycled papers is 7 kg/bag.

4. Public fills disposed of at Tseung Kwan O Area 137 Fill Bank (TKO137), Tuen Mun Area 38 Fill Bank (TM38) and Chai Wan Public Fill Barging Point (CWPFBP).

5. Public fills was delivered to Hung Hom Barging Point and handled by the Contractor of SCL1112.

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**Appendix E**

**30<sup>th</sup> EM&A Report for Works Contract 1103 –  
Hin Keng to Diamond Hill**

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MTR Corporation Limited

**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 30

[Period from 1 to 31 July 2015]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(August 2015)

Certified by:  Coleman Ng \_\_\_\_\_

Position: Environmental Team Leader

Date: 12 August 2015

MTR Corporation Limited

**SCL1103 Hin Keng to Diamond  
Hill Tunnels Construction Stage -  
Environmental Services**

**Monthly Environmental Monitoring  
and Audit Report – July 2015**

228105-27

August 2015

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 228105-27

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**ARUP**



# Contents

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	Page
<b>1 Environmental Status</b>	<b>6</b>
1.1 Project Background	6
1.2 Construction Programme	6
1.3 Work Undertaken During the Reporting Month	6
1.4 Project Organization	7
1.5 Project Area and Environmental Monitoring locations	7
1.6 Impact Monitoring Schedule	7
1.7 Status of Environmental Licensing and Permitting	8
1.8 Purpose of the Report	9
<b>2 Implementation Status</b>	<b>10</b>
2.1 Implementation Status of Mitigation Measures	10
2.2 Updated Implementation Schedule	10
<b>3 Air Quality Monitoring</b>	<b>11</b>
3.1 Air Quality Monitoring Requirements	11
3.2 Air Quality Monitoring Methodology	12
3.3 Monitoring Results and Observations	14
<b>4 Noise Monitoring</b>	<b>15</b>
4.1 Noise Monitoring Requirements	15
4.2 Noise Monitoring Methodology	16
4.3 Monitoring Results and Observations	17
<b>5 Landscape and Visual Monitoring</b>	<b>20</b>
5.1 Introduction	20
5.2 Mitigation Measures	20
<b>6 Waste Disposal</b>	<b>21</b>
<b>7 Cultural Heritage</b>	<b>22</b>
<b>8 Environmental Performance</b>	<b>23</b>
8.1 Environmental Site Inspection	23
8.2 Summary of Environmental Complaint	24
8.3 Summary of Environmental Non-Compliance	24
8.4 Summary of Environmental Summon and Successful Prosecution	25
<b>9 Future Key Issues</b>	<b>26</b>
9.1 Key Issues for the Coming Month	26

9.2	Environmental Monitoring Program for the Coming Month	26
9.3	Construction Program for the Coming Month	26
<b>10</b>	<b>Conclusions and Recommendations</b>	<b>27</b>
10.1	Conclusions	27
10.2	Recommendations	27
<b>11</b>	<b>Reference</b>	<b>29</b>

## Figures

- Figure 1.1: Locations of Project Works Areas – General Site Layout of Hing Keng Works Area (Sheet 1 of 6)
- Figure 1.2: Locations of Project Works Areas – General Site Layout of Diamond Hill Works Area (Sheet 2 of 6)
- Figure 1.3: Locations of Project Works Areas – Site layout Plan of Fung Tak EAP/EEP (Sheet 3 of 6)
- Figure 1.4: Locations of Project Works Areas – Site Layout Plan of Ma Chai Hang Shaft (Sheet 4 of 6)
- Figure 1.5: Locations of Project Works Areas – General Site Layout of Shui Chuen O Works Area (Sheet 5 of 6)
- Figure 1.6: Locations of Project Works Areas – General Alignment of Contract 1103 (Sheet 6 of 6)
- Figure 1.7: Project Organisation – Environmental Management
- Figure 1.8: Location of Dust Monitoring Stations (Sheet 1 of 3)
- Figure 1.9: Location of Dust Monitoring Stations (Sheet 2 of 3)
- Figure 1.10: Location of Dust Monitoring Stations (Sheet 3 of 3)
- Figure 1.11: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 1 of 3)
- Figure 1.12: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 2 of 3)
- Figure 1.13: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 3 of 3)

## Appendices

- Appendix A: Construction programme
- Appendix B: Environmental Monitoring Programme in the Reporting Month
- Appendix C: Environmental Mitigation Implementation Schedule (EMIS)
- Appendix D: Calibration Certificates for Air Monitoring Equipment
- Appendix E: Dust Results
- Appendix F: Wind Data
- Appendix G: Calibration Certificates of Noise Monitoring Equipment
- Appendix H: Noise Results
- Appendix I: Event/Action Plan for Air Quality, Airborne Noise and Landscape and Visual
- Appendix J: Monthly Waste Flow Table
- Appendix K: Environmental Monitoring Programme for Coming Month
- Appendix L: Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

## Executive Summary

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This is the thirtieth monthly Environmental Monitoring and Audit (EM&A) report prepared by Ove Arup & Partners Hong Kong Limited (Arup), the designated Environmental Team (ET), for the Project “SCL1103 Hin Keng to Diamond Hill Tunnels”. Construction works of this works contract commenced on 14 February 2013 and this report presents the results of EM&A works conducted in the month of July 2015 (1 to 31 July 2015).

In the reporting month, the following activities took place for the Project:

- Tunnel Boring Machine (TBM) tunneling and machinery site assembly at Diamond Hill;
- Pipe Piling, grouting and tunnel blasting at Hin Keng;
- Shaft Excavation and ELS and sheet piling for retaining wall at Fung Tak; and
- Shaft Excavation and ELS at Ma Chai Hang.

Air Quality and noise monitoring were performed and the results were checked and reviewed. Site audits were conducted on a weekly basis. The implementation of the environmental mitigation measures, Event and Action Plans and environmental complaint handling procedures were checked.

Impact monitoring was carried out at 3 air quality and 3 noise monitoring stations during the reporting month.

### **Environmental Monitoring Works – Breaches of Action and Limit Levels**

#### ***Air Quality***

All measured 24-hour TSP concentrations in the reporting month were below the Action and Limit Levels.

#### ***Noise***

There was one Action Level exceedence recorded due to the receipt of a complaint in July 2015.

No exceedence of Limit Level of regular construction noise was recorded during the reporting month.

#### ***Landscape and Visual Audit***

Landscape and visual site audits in accordance with the requirements stipulated in the EM&A manual were conducted in the reporting month. Based on the site inspections, no substantial change of Landscape Resources, Landscape Character Areas and Visual Sensitive Receivers was noted.

#### ***Waste Disposal***

Inert C&D Materials with an actual amount of 29,374m<sup>3</sup> were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 124m<sup>3</sup> of general refuse was generated and disposed of at NENT landfill. 214kg of paper/ cardboard and 5,200kg of chemical waste was generated.

## **Environmental Auditing**

A total of 5 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 2 July 2015 and the final was undertaken on 29 July 2015. An IEC joint site audit was undertaken on 15 July 2015. No non-conformance to the environmental requirements was identified during the reporting period.

## **Complaint Log**

One complaint in relation to noise issues was received during the reporting month.

## **Notifications of Summons and Successful Prosecutions**

No summons or prosecution related to the environmental issues were made against the Project in the reporting period.

## **Reporting Changes**

There were no reporting changes during the reporting month.

## **Future Key Issues**

Waste management is a key environmental issue. The waste management plan should be strictly followed in accordance with the requirements described in the EIA report.

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

Construction noise is also a key environmental issue. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried out during restricted hours.

Construction dust is also key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

# 1 Environmental Status

## 1.1 Project Background

The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an extension of the Ma On Shan Line and is approximately 11 km long. It links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1103 covers the construction of the tunnels between Diamond Hill (DIH) and Hin Keng (HIK).

## 1.2 Construction Programme

An up-to-date rolling construction programme is attached in **Appendix A**.

## 1.3 Work Undertaken During the Reporting Month

The major construction activities carried out by the Contractor in the reporting month are summarized in **Table 1.1**. Location of the works area is indicated in **Figures 1.1** to **1.6**. The structure of the project organisation in relation to the environmental management is shown in **Figure 1.7**. Contacts of key environmental staff of the Project are shown in **Table 1.2**.

**Table 1.1** Construction Activities in the Reporting Month

Locations	Major Works Undertaken
Diamond Hill	Tunnel Boring Machine (TBM) tunneling and machinery site assembly.
Hin Keng	Pipe Piling, grouting and tunnel blasting.
Fung Tak	Shaft Excavation and ELS and sheet piling for retaining wall.
Ma Chai Hang	Shaft Excavation and ELS.

## 1.4 Project Organization

Contacts of key environmental staff of the Project and are shown in **Table 1.2**.

**Table 1.2** Contacts of Key Environmental Staff

Organisation	Name	Telephone
<b>Project Proponent: MTRC</b>		
Engineer's Representative	Thomas Barrett	2163 6181
SCL Project-wide Environmental Team Leader	Richard Kwan	2688 1283
<b>Independent Environmental Checker: Meinhardt Infrastructure &amp; Environment Ltd.</b>		
Independent Environmental Checker	Fredrick Leong	2859 1739
<b>Contractor: VINCI Constructions Grand Projects</b>		
Project Director	Francois Dudouit	3765 5610
IMS Manager	L K Mak	3765 5635
<b>Contractor's Environmental Team: Ove Arup &amp; Partners Hong Kong Ltd.</b>		
Designated Environmental Team Leader for Works Contract 1103	Coleman Ng	2268 3097

## 1.5 Project Area and Environmental Monitoring locations

The Project area is shown in **Figures 1.1 to 1.6**, while **Table 1.3** and **Figures 1.8 to 1.13** show the names and locations of the monitoring stations.

**Table 1.3** Summary of Air Quality and Noise Monitoring Stations

ID	Premise
<b>Air Quality</b>	
DMS-1	C.U.H.K.A.A. Thomas Cheung School
DMS-2	Price Memorial Catholic Primary School
DMS-3 <sup>(Note 2)</sup> / DMS-4 <sup>(Note 3)</sup>	Hong Kong Sheng Kung Hui Nursing Home <sup>(Note 1)</sup>
<b>Noise</b>	
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3 <sup>(Note 2)</sup> / NMS-CA-4 <sup>(Note 3)</sup>	Hong Kong Sheng Kung Hui Nursing Home

Note:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On House.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

## 1.6 Impact Monitoring Schedule

Environmental monitoring and audit was carried out in accordance with the requirements stipulated in the EM&A Manual. Air quality and noise monitoring as well as weekly site audit schedule for the reporting month with respect to the construction programme is shown in **Appendix B**.

## 1.7 Status of Environmental Licensing and Permitting

All permits/licences for the reporting month are summarised in **Table 1.4**. They are all properly kept by the contactor at their site office.

**Table 1.4** Summary of Environmental Licensing Status

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Environmental Permit	EP-438/2012	All	22 Mar 2012	Superseded
	EP-438/2012A	All	12 July 2012	Superseded
	EP-438/2012/B	All	26 Oct 2012	Superseded
	EP-438/2012/C	All	30 Apr 2013	Superseded
	EP-438/2012/D	All	13 Sept 2013	Superseded
	EP-438/2012/E	All	4 April 2014	Superseded
	EP-438/2012/F	All	15 July 2014	Superseded
	EP-438/2012/G	All	14 Aug 2014	Superseded
	EP-438/2012/H	All	10 Sept 2014	Throughout the Contract
Discharge License under WPCO	WT00014697-2012	Diamond Hill	30 Nov 2012	30 Nov 2017
	WT00014650-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00014648-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00015145-2013	Shui Chuen O	21 Feb 2013	28 Feb 2018
	WT00015513-2013	Ma Chai Hang	2 Apr 2013	30 Apr 2018
	WT00015430-2013	Fung Tak	18 Mar 2013	31 Mar 2018
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	22 Oct 2012	15 Apr 2018
Construction Noise Permit (CNP)	GW-RE1346-14	Ma Chai Hang	2 Dec 2014	31 May 2015
	GW-RE0415-15	Ma Chai Hang	5 May 2015	4 Nov 2015
	GW-RE0197-15	Fung Tak	4 Mar 2015	3 Sept 2015
	GW-RN0139-15	Hin Keng	17 Mar 2015	16 Sept 2015
	GW-RN0006-15	Hin Keng	1 Feb 2015	31 July 2015
	GW-RN0008-15	Hin Keng	1 Feb 2015	31 July 2015



Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
	GW-RN0395-15	Hin Keng	8 July 2015	7 Jan 2016
	GW-RN0396-15	Hin Keng	8 July 2015	7 Jan 2016
	GW-RE0117-15	Diamond Hill	8 Feb 2015	2 Aug 2015
	GW-RE0259-15	Diamond Hill	8 April 2015	8 Sept 2015
	GW-RE0509-15	Diamond Hill	10 June 2015	10 Sept 2015
	GW-RE0510-15	Diamond Hill	1 June 2015	29 Aug 2015
Chemical Waste Producer Registration	5213-759-V2179-01	Hin Keng	13 Dec 2012	Throughout the Contract
	5213-281-V2180-01	Diamond Hill	12 Dec 2012	Throughout the Contract
	5213-281-V2179-03	Fung Tak	5 Mar 2013	Throughout the Contract
	5213-282-V2180-02	Ma Chai Hang	18 Mar 2013	Throughout the Contract
Billing Account for Disposal of Construction Waste	7016250	All	2 Nov 2012	Throughout the Contract

## 1.8 Purpose of the Report

The purpose of this monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions during the construction of this works contract for the EM&A conducted during the construction period. This is the thirtieth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 July 2015.

## 2 Implementation Status

### 2.1 Implementation Status of Mitigation Measures

During weekly site inspections, the environmental protection, and pollution control/mitigation measures in accordance with the requirements stipulated in the EIA were observed. The key observations and ET's corresponding recommendations while the Contractor's response and follow-up status are described in **Section 7.1**.

### 2.2 Updated Implementation Schedule

According to the Environmental Permit, the mitigation measures detailed in the permits are required to be implemented. The Implementation Schedule of Mitigation Measures was inspected during the weekly site inspections in reporting month. The details of the findings/observations are described in **Section 7.1**. An updated summary of the Implementation Schedule of Mitigation Measures is presented in **Appendix C**. The status of the required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 2.1**.

**Table 2.1** Status of Required Submissions under the EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (June 2015)	14 July 2015

## 3 Air Quality Monitoring

### 3.1 Air Quality Monitoring Requirements

#### Monitoring Parameters

Regular 24-hour TSP levels shall be monitored during the construction stage while 1-hour TSP levels shall be required to monitor in case of complaints received.

#### Monitoring Frequency

The monitoring frequency is summarised in **Table 3.1**.

**Table 3.1** Air quality monitoring parameters and frequency

Parameters	Monitoring Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days (as required in case of complaints)

#### Monitoring Locations

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three air quality monitoring locations during construction stage are required. The locations of the three air quality monitoring stations are shown below in **Table 3.2**:

**Table 3.2** Air Quality Monitoring Locations

ID	Premise
DMS -1	C.U.H.K.A.A. Thomas Cheung School
DMS -2	Price Memorial Catholic Primary School
DMS-3 <sup>(Note 2)</sup> / DMS-4 <sup>(Note 3)</sup>	Hong Kong Sheng Kung Hui Nursing Home <sup>(Note 1)</sup>

Note:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On House.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

#### Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Kai Tak and Sha Tin Meteorological Stations and shown in **Appendix F**.

#### Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 3.3** and **3.4**.

**Table 3.3** Action and Limit Level for Air Quality Monitoring of 24-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	148.7	167.4	159.1
Limit Level, $\mu\text{g}/\text{m}^3$	260		

**Table 3.4** Action and Limit Level for Air Quality Monitoring of 1-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	283.9	276.2	278.4
Limit Level, $\mu\text{g}/\text{m}^3$	500		

Note:

Note 1: 1-hr TSP monitoring would be required in case of receiving complaints.

## 3.2 Air Quality Monitoring Methodology

### 3.2.1 Monitoring Equipment

High Volume Sampler (HVS) was used to monitor the 24-hour TSP. **Table 3.5** shows the equipment used for the air quality monitoring.

**Table 3.5** Air Quality Equipment List for Impact Air Quality Monitoring

Equipment	Manufacturer & Model No	Measurement Parameter	Serial No.
High Volume Sampler	TE-5170	24-hour TSP	3761, 3762, 3763
Fibreglass Filter	G810		-
HVS Calibration Kit	TE-5025A		2421

### 3.2.2 Maintenance and Calibration

#### High Volume Sampler

The HVSs and their accessories were frequently checked and maintained in accordance with the manufacturer's operation and maintenance manual. The maintenance included checking of supporting screen and gasket, as well as routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVSs were calibrated at 2-month intervals using GMW-2535 calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration spreadsheets of the HVSs and calibration certificate of the calibration kit are provided in **Appendix D**.

### 3.2.3 Monitoring Procedures

#### High Volume Sampler

Specifications of the HVS are as follows:

- 0.6 – 1.7 m<sup>3</sup>/min (20 – 60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hour operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hour operation;
- Capable of providing a minimum exposed area of 406 cm<sup>2</sup> (63in<sup>2</sup>);
- Flow control accuracy: +/-2.5% deviation over 24-hour sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for 24-hour period.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were recorded.

A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd (HOKLAS no.: 066)), in accordance with their standard QA/QC procedures, with constant temperature and humidity control as well as equipped with necessary measuring and conditioning instruments to handle the 24-hour TSP samples was employed for sample analysis, and equipment calibration and maintenance. Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hour and be pre-weighed before use for the sampling.

The 24-hour TSP levels were measured by following the standard High Volume Method for Total Suspended Particulates as set out in the Title 40 of the United States Code of Federal Regulations, Chapter 1 (Part 50), Appendix B. TSP was sampled by drawing air through a conditioned, pre-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hour sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples shall be kept in a good condition for 6 months before disposal.

### 3.3 Monitoring Results and Observations

#### 3.3.1 Weather Condition

July 2015 was characterised at times by sunny and cloudy conditions associated with low a trough of low pressure. A Typhoon 8 signal was hoisted briefly on the afternoon of 9 July 2015.

Hot and humid conditions associated with a southerly airstream were also present throughout the month of July.

#### 3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 3, 9, 15, 21 and 27 July 2015. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 3.6**. The graphical presentations of the monitoring results are provided in **Appendix E**. Wind data obtained from the Hong Kong Observatory – Kai Tak and Sha Tin stations during the reporting period are presented in **Appendix F**.

**Table 3.6** Summary of Impact Air Quality Monitoring Results

Monitoring Station	24- hour TSP Monitoring Results ( $\mu\text{g}/\text{m}^3$ )		Action Level	Limit Level
	Average	Range		
DMS-1	37.2	18.1	148.7	260
DMS-2	14.4	19.9	167.4	260
DMS-3 / DMS-4	13.8	13.0	159.1	260

Note:

1. Range = Maximum TSP Value – Minimum TSP Value.

All 24-hour TSP measurements during the reporting month were below the Action/Limit Level. No exceedance of action and limit level was found.

The event and action plan is provided in **Appendix I**.

#### 3.3.3 General Observations

Major construction works including Tunnel Boring Machine (TBM) tunneling and machinery site assembly at Diamond Hill; Pipe Piling, grouting and tunnel blasting at Hin Keng; Shaft Excavation and ELS and Sheet piling for retaining wall at Fung Tak and Shaft Excavation and ELS at Ma Chai Hang.

## 4 Noise Monitoring

### 4.1 Noise Monitoring Requirements

#### 4.1.1 Impact Monitoring

##### Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{10}$  and  $L_{90}$  shall also be recorded as supplementary reference information for data auditing.

##### Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 4.1**.

**Table 4.1** Construction Noise Monitoring Parameters and Frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency
Between 0700-1900 hours on normal weekdays	$L_{eq}(30 \text{ min})$	Once per week

##### Monitoring Location

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three noise monitoring locations during the construction stage are required, namely:

**Table 4.2** Noise Monitoring Locations

ID	Premise
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3 <sup>(Note 2)</sup> / NMS-CA-4 <sup>(Note 3)</sup>	Hong Kong Sheng Kung Hui Nursing Home <sup>(Note 1)</sup>

Notes:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On house.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

##### Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 4.3**.

**Table 4.3** Action and Limit Levels of construction noise

Location <sup>(Note 1)</sup>	Time Period <sup>(note 3)</sup>	Action Level	Limit Level dB(A)
NMS-CA-1 & NMS-CA-2	0700 - 1900 hours on normal weekdays	When one documented complaint is received	70/65 <sup>(Note 2)</sup>
NMS-CA-3 / NMS-CA-4			70

Notes:

1. The detail of monitoring locations was presented in Table 1.3.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.
3. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

### 4.1.2 Continuous Noise Monitoring

With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, continuous noise monitoring was conducted in April 2013 at C.U.H.K.A.A. Thomas Cheung School only due to the prediction of residual airborne construction noise impacts exceeding the relevant noise criteria. No continuous noise monitoring is required during the reporting month as per the CNMP.

## 4.2 Noise Monitoring Methodology

### 4.2.1 Monitoring Equipment

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level.  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded as supplementary information for data auditing. **Table 4.4** shows the equipment list of the noise monitoring.

**Table 4.4** Noise Equipment List for Impact Noise Monitoring

Equipment	Manufacturer & Model No.	Serial No.	Precision Grade
Integrated SLM	Brüel & Kjær 2238	2320694	IEC 651 Type 1 IEC 804 Type 1
Sound level calibrator	Brüel & Kjær 4231	2713427	IEC 942 Type 1

### 4.2.2 Maintenance and Calibration

The SLM and calibrator in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications according to the EM&A manual.

SLM complying with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 ( $L_{eq}$  functions) and acoustical calibrator complying with IEC 942 were adopted for the noise measurement. All equipments are calibrated



externally. The calibration certificates for the noise equipment are given in **Appendix G**.

### 4.2.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;
- Measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes;
- Wind speed was checked during noise monitoring to ensure the steady wind speed does not exceed 5m/s, or wind with gusts does not exceed 10m/s;
- Any abnormal conditions that generated intrusive noise during the measurement was recorded on the field record sheet;
- After each measurement, the equivalent continuous sound pressure level ( $L_{eq}$ ),  $L_{10}$  and  $L_{90}$  were recorded on the field record sheet;
- After conducting the measurement, the SLM was calibrated by a sound level calibrator; and
- The SLM was re-calibrated by the sound level calibrator to confirm that there is no significant drift of reading. Measurements shall be accepted as valid only if the calibration levels before and after the noise measurement agrees to within 1.0 dB.

## 4.3 Monitoring Results and Observations

### 4.3.1 Weather Condition

July 2015 was characterised at times by sunny and cloudy conditions associated with low a trough of low pressure. A Typhoon 8 signal was hoisted briefly on the afternoon of 9 July 2015.

Hot and humid conditions associated with a southerly airstream were also present throughout the month of July.

### 4.3.2 Noise Monitoring Results

#### Impact Monitoring

Monitoring of the construction noise level was conducted 10, 16, 22 and 28 July 2015. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Tables 4.5 - 4.7**. The graphical presentations of the monitoring results are provided in **Appendix H**.

**Table 4.5** Summary of Impact Noise Monitoring at Location NMS-CA-1

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
10 July 15	15:40-16:10	58.9	57.0	54.4	75/70
16 July 15	10:10-10:40	57.4		= Baseline Level	
22 July 15	11:50-12:20	57.8		50.1	
28 July 15	14:00-14:30	59.0		54.7	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 75 dB(A) and 70 dB(A) for normal teaching periods and examination periods respectively.

**Table 4.6** Summary of Impact Noise Monitoring at Location NMS-CA-2

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
10 July 15	8:30-9:00	65.7	66.0	< Baseline Level	75/70
16 July 15	8:30-9:00	66.2		= Baseline Level	
22 July 15	8:30-9:00	66.6		57.7	
28 July 15	8:30-9:00	66.9		59.6	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 75 dB(A) and 70 dB(A) for normal teaching periods and examination periods respectively.

**Table 4.7** Summary of Impact Noise Monitoring at Location NMS-CA-3

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
10 July 15	14:00-14:30	70.4	73.0	< Baseline Level	75/70
16 July 15	11:40-12:10	71.0		< Baseline Level	
22 July 15	10:15-10:45	70.6		< Baseline Level	
28 July 15	10:20-10:50	71.4		< Baseline Level	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 75 dB(A) and 70 dB(A) for normal teaching periods and examination periods respectively.

### 4.3.3 Exceedance of Limit and Action Levels for Construction Noise

There was one Action Level exceedance recorded due to the receipt of a complaint in July 2015.

No exceedance of Limit Level of regular construction noise was recorded during the reporting month.

The event and action plan is provided in **Appendix I**.

### 4.3.4 General Observations

The construction site has been under normal operation during the noise monitoring period and no unusual operation was observed.

## 5 Landscape and Visual Monitoring

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### 5.1 Introduction

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The event and action plan is provided in **Appendix I**.

### 5.2 Mitigation Measures

Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting month on 2, 15 and 29 July 2015. No adverse impacts were identified with regards to landscape and visual.

## 6 Waste Disposal

The actual amounts of different types of waste generated by the activities of the Project during the reporting month are shown in **Table 6.1**. The monthly waste summary flow table is provided in **Appendix J**.

**Table 6.1** Amount of Waste Generated

Waste Type	Amount	Disposal Locations
Inert C&D Materials	29,374m <sup>3</sup>	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	5,200kg	Disposed of by a licensed collector
Paper / cardboard packaging	214kg	-
Plastic	0kg	
Metal	0kg	
General Refuse	124m <sup>3</sup>	NENT Landfill

## 7 Cultural Heritage

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In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage has been agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration monitoring was not conducted at Wong Tai Sin Temple since no TBM was in operation during the reporting month.

## 8 Environmental Performance

### 8.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 15 July 2015, to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. A summary of the site inspections in the reporting month is presented in **Table 8.1**.

**Table 8.1** Key Findings of Weekly Environmental Site Audit

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
<b>Air</b>				
8 July 2015	Hin Keng	The contractor is reminded to enhance the water spray for excavation activity.	Agreed with ET's Advice.	The contractor rectified the issue and enhance the water spray for excavation activity. Closed 15 July 2015.
<b>Waste</b>				
24 June 2015	Diamond Hill	The contractor is reminded to ensure that chemical containers are placed in their designated storage area after use.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that chemical containers are placed in their designated storage area after use. Closed 2 July 2015.
29 July 2015	Hin Keng	The contractor is reminded to ensure that oil drums have the provision of a drip tray directly after unloading.	Agreed with ET's Advice.	The contractor noted the issue and will report the status in the next reporting month.
<b>Noise</b>				
22 July 2015	Fung Tak	The contractor is reminded to ensure that acoustic blankets on breaker heads are in good condition.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that acoustic blankets on breaker heads are in good condition.

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				Closed 29 July 2015.
<b>Water</b>				
2 July 2015	Fung Tak	The contractor is reminded to ensure that the pH of the WWTP is within the acceptable range prior to any discharge.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that the pH of the WWTP is within the acceptable range prior to any discharge. Closed 8 July 2015.
22 July 2015	Diamond Hill	The contractor is reminded to provide more sand bags during rain events in order to avoid water seepage.	Agreed with ET's Advice.	The contractor rectified the issue and provide more sand bags during rain events in order to avoid water seepage. Closed 29 July 2015.

## 8.2 Summary of Environmental Complaint

There was an environmental complaints regarding noise issues recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 8.2**. The updated complaint logs for the Project in the reporting month is shown in **Appendix L**.

**Table 8.2** Summary of Complaints

Reporting Period	Complaint Statistics		Area of Concern	Status
	Number	Cumulative		
01/07/15– 31/07/15	1	10	Diamond Hill	Closed

## 8.3 Summary of Environmental Non-Compliance

There was no non-compliance identified during the reporting month so review of the non-compliance was not required.



## 8.4 Summary of Environmental Summon and Successful Prosecution

No summons of prosecutions related to environmental issues were received or made against the project in the reporting month. Please refer to **Appendix L** for a Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions.

## 9 Future Key Issues

### 9.1 Key Issues for the Coming Month

Works to be undertaken in the coming reporting month are summarised in **Table 9.1** below.

**Table 9.1** Tentative Programme of Construction Works for the Coming Month

Locations	Major Works Undertaken
Diamond Hill	Tunnel Boring Machine (TBM) tunneling and machinery site assembly.
Hin Keng	Pipe Piling, grouting and tunnel blasting.
Fung Tak	Shaft Excavation and ELS and Sheet piling for retaining wall.
Ma Chai Hang	Shaft Excavation and ELS.

### 9.2 Environmental Monitoring Program for the Coming Month

Environmental monitoring and audit will be carried out in accordance with the requirements stipulated in the EM&A manual. Tentative air and noise monitoring as well as weekly site audit schedule for the coming month with respect to the construction programme is shown in **Appendix K**.

### 9.3 Construction Program for the Coming Month

The construction programme for the coming month is shown in **Appendix A**.

## 10 Conclusions and Recommendations

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### 10.1 Conclusions

The construction phase of the project commenced on 14 February 2013. The EM&A programme has since been implemented, including air quality, noise and environmental site audits. Four environmental site audits were conducted in the reporting month.

There was one Action Level exceedence recorded due to the receipt of a complaint in July 2015.

No exceedence of Limit Level of regular construction noise was recorded during the reporting month.

No exceedence of the Action and Limit Levels of 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting period.

No non-compliance event was recorded during the reporting period.

One complaint and no summons/prosecution was received during the reporting period.

The Contractor's ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### 10.2 Recommendations

Impact monitoring will continue to be carried out in the following month and will follow the requirements stipulated in the EM&A manual. Attention will be paid to the environmental issues identified in the EIA report and weekly site audit. Mitigation measures recommended in EIA report and Implementation Schedule of Mitigation Measure will be fully implemented.

Waste management is a key environmental issue. The waste management plan should be strictly followed in accordance with the requirements described in the EIA report.

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

Construction noise is also a key environmental issue. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried out during restricted hours.

Construction dust is also key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

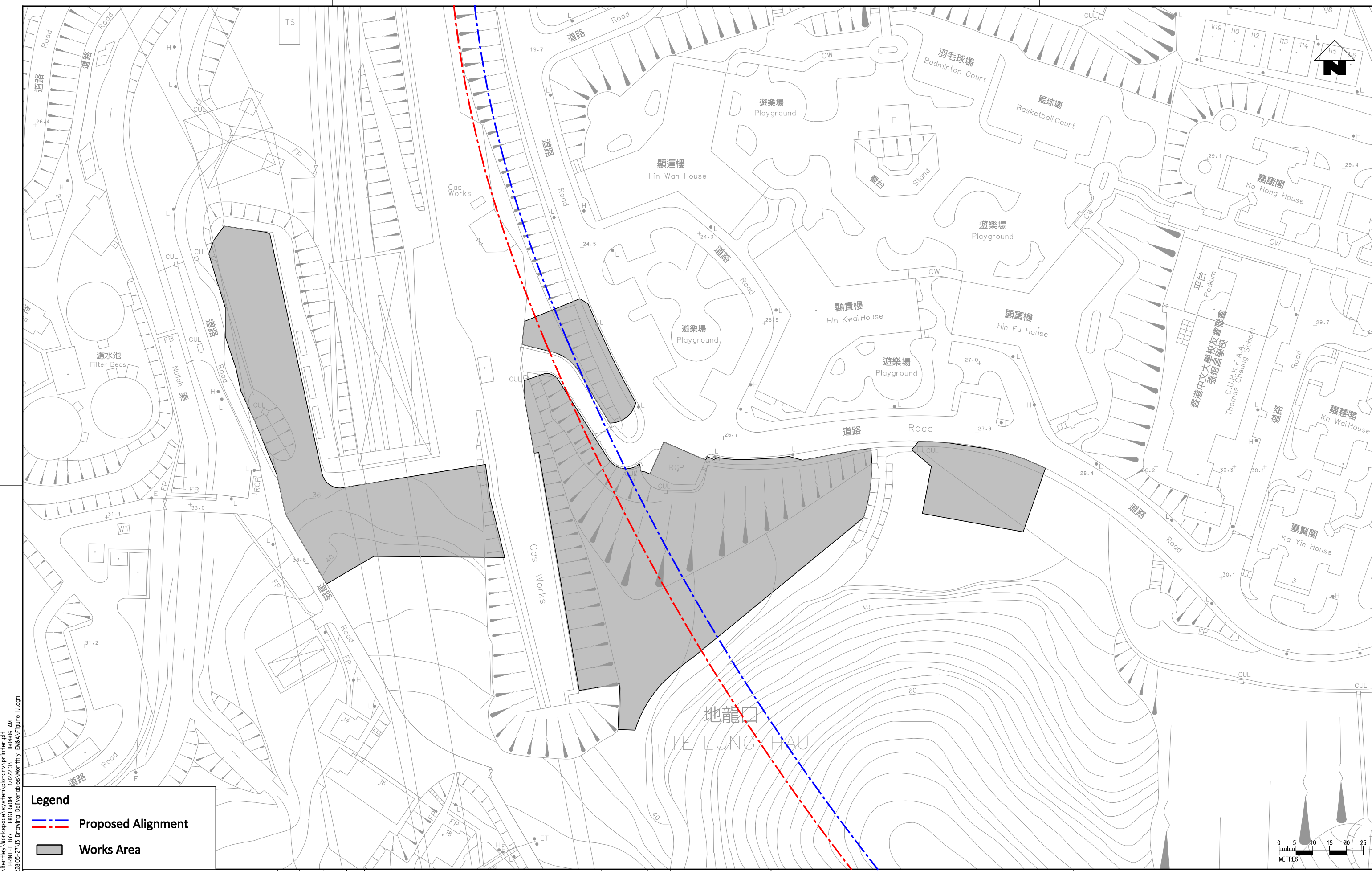
## 11 Reference

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- (1) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.
- (2) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Environmental Monitoring and Audit Manual. October 2011.
- (3) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Final Environmental Impact Assessment Report. October 2011.
- (4) MTR Corporation Limited. SCL - NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Environmental Monitoring and Audit Manual. October 2011.

## Figures

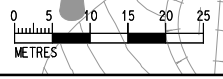
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- Works Area



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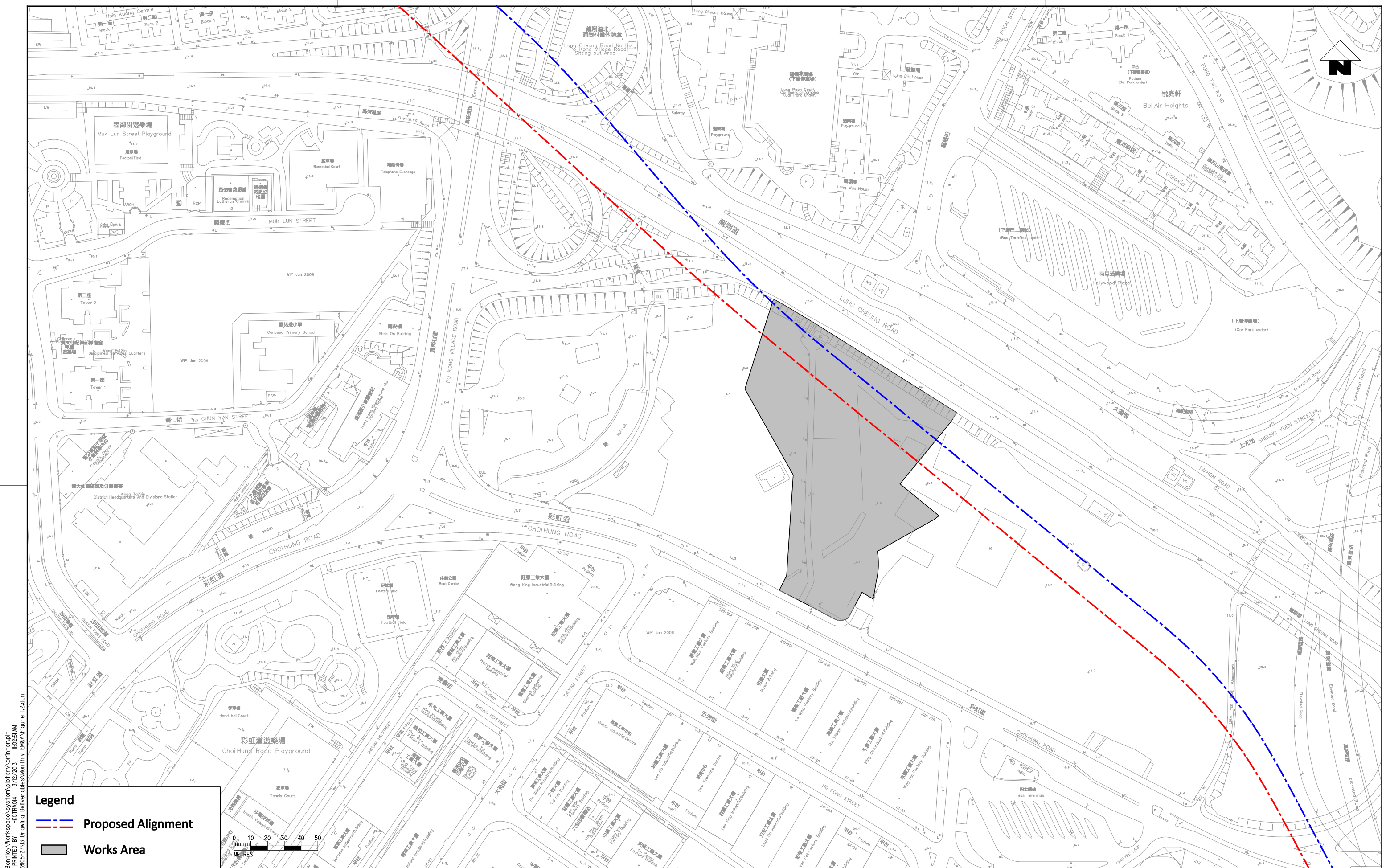
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**TITLE**

CONTRACT 1103  
 HIN KENG TO DIAMOND HILL TUNNELS  
 Locations of Project Works Areas  
 - General Site Layout of Hin Keng Works Area  
 (Sheet 1 of 6)

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- - - - - - Proposed Alignment
- Works Area



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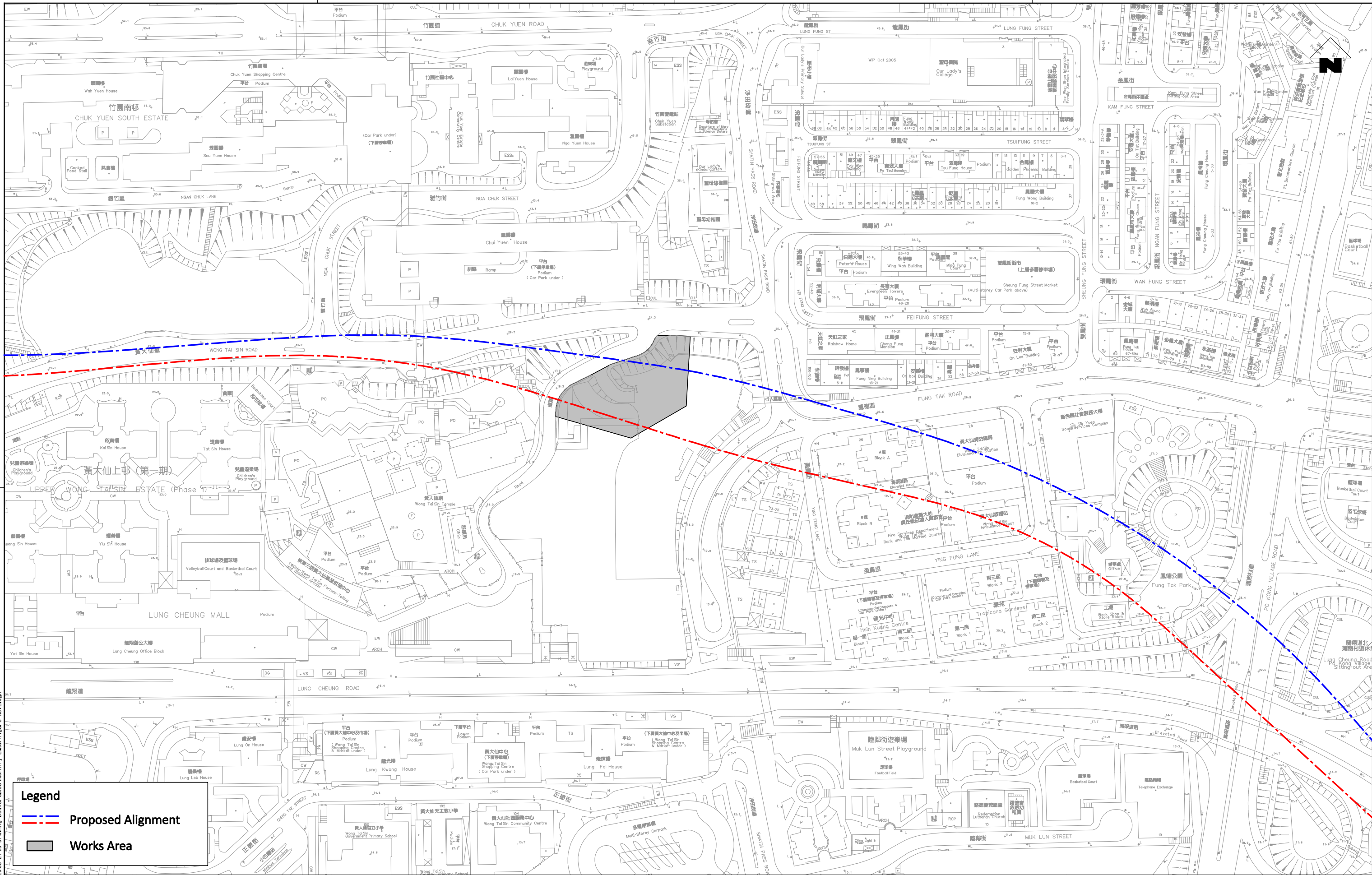
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<b>TITLE</b>		CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Project Works Areas - General Site Layout of Diamond Hill Works Area (Sheet 2 of 6)	
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- - - Proposed Alignment
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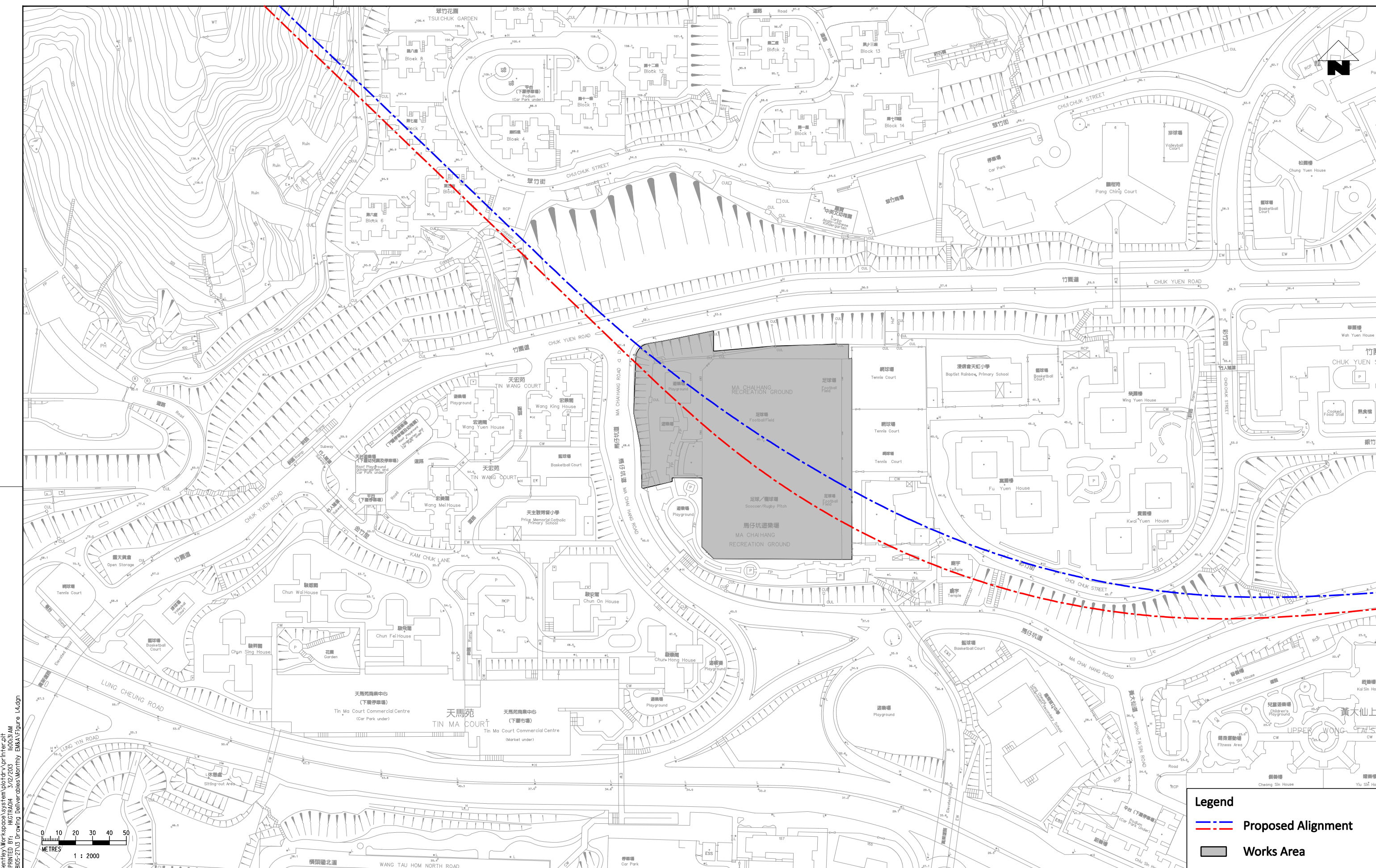
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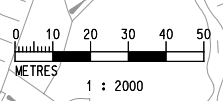
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- --- Proposed Alignment
- Works Area

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 CONTRACT 1103  
 HIN KENG TO DIAMOND HILL TUNNELS  
 Locations of Project Works Areas  
 - Site Layout Plan of Ma Chai Hang Shaft  
 (Sheet 4 of 6)

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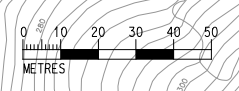




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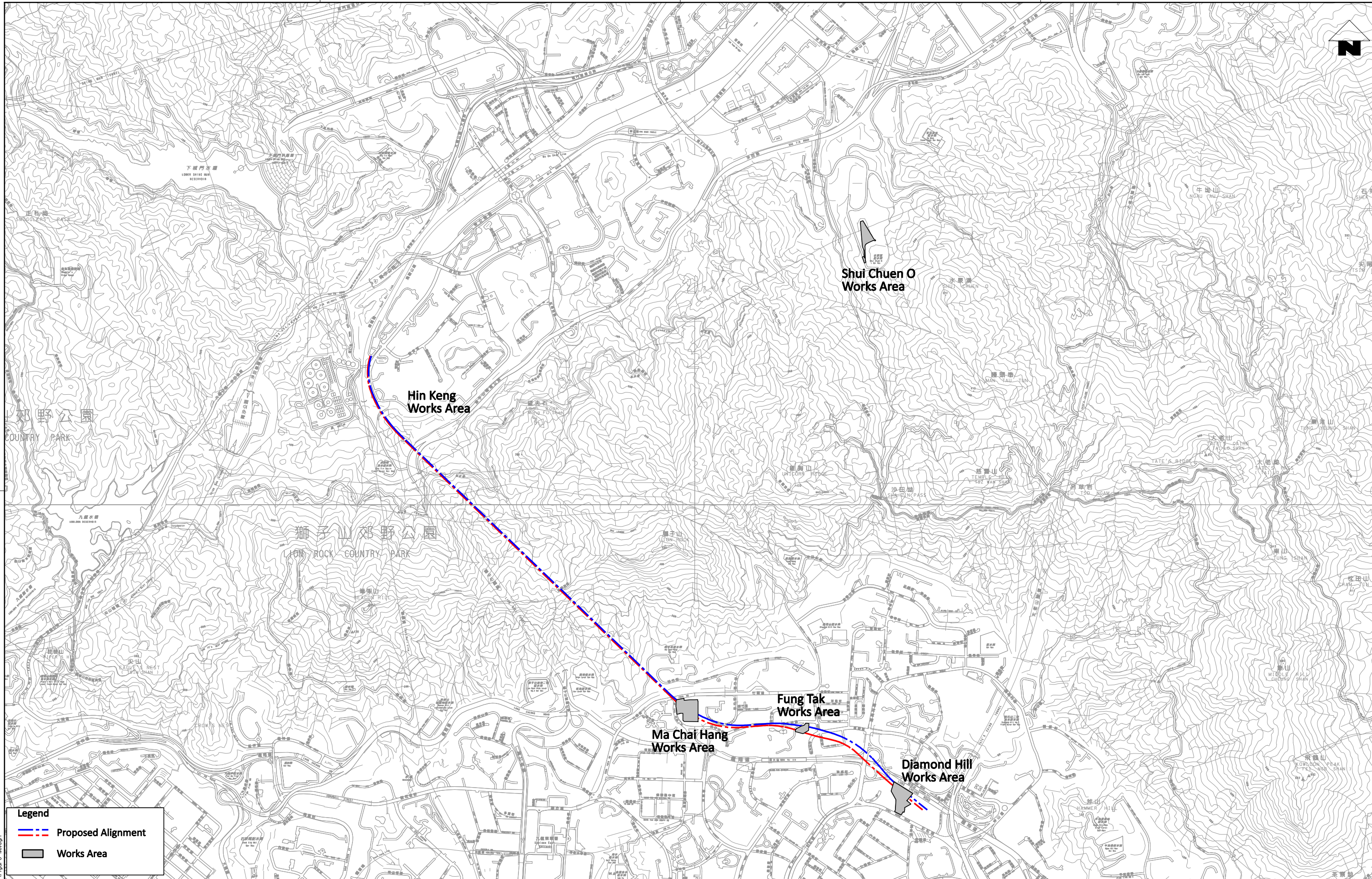
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- --- Proposed Alignment
- Works Area

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**HIN KENG TO DIAMOND HILL TUNNELS**  
 Locations of Project Works Areas  
 - General Alignment of Contract 1103  
 (Sheet 6 of 6)

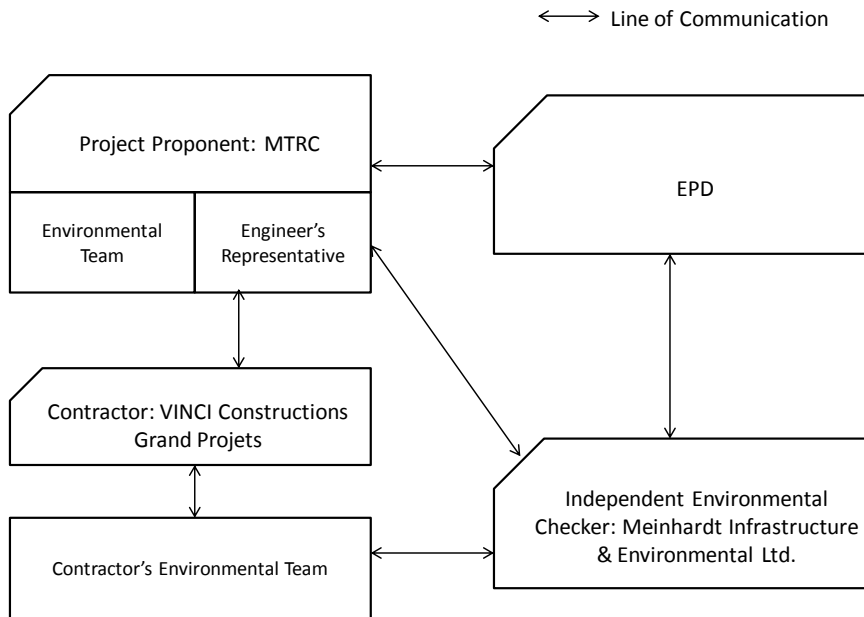
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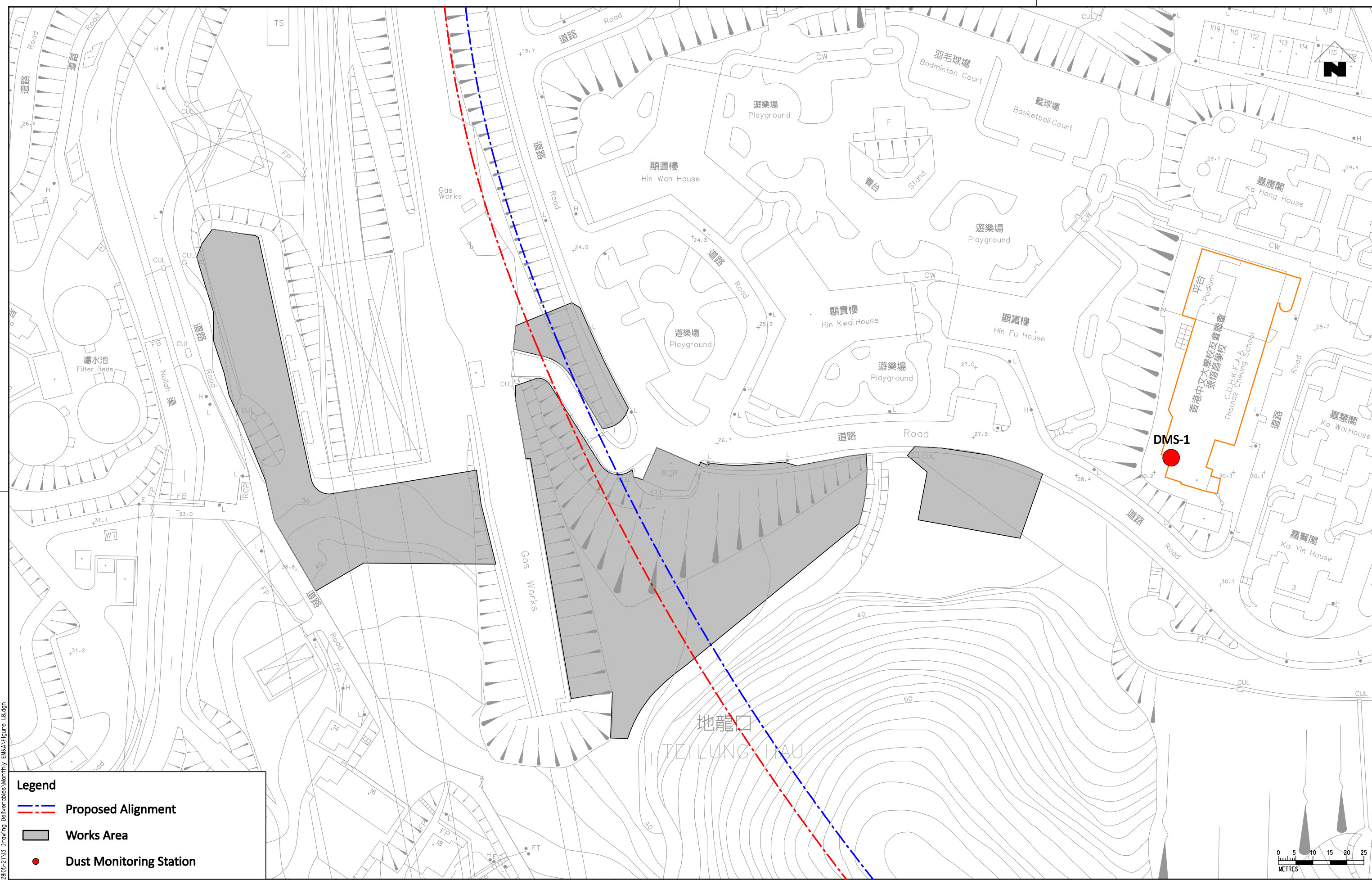
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**Figure 1.7 - Project Organisation for Environmental Works**



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- Legend**
- Proposed Alignment
  - Works Area
  - Dust Monitoring Station

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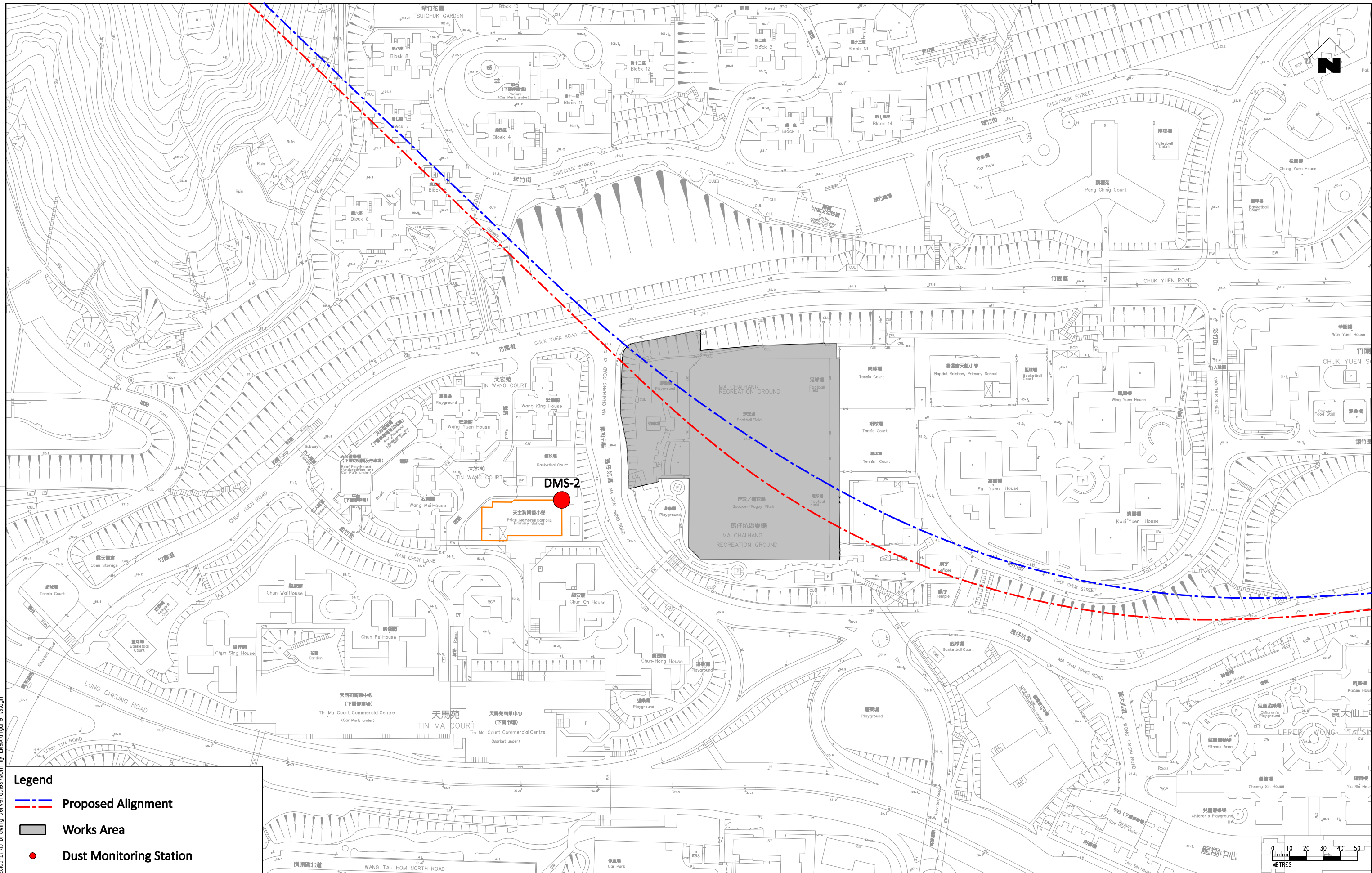
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TITLE		CONTRACT 1103	
		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Proposed Dust Monitoring Stations	
		(Sheet 1 of 3)	
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- Legend**
- --- Proposed Alignment
  - Works Area
  - Dust Monitoring Station

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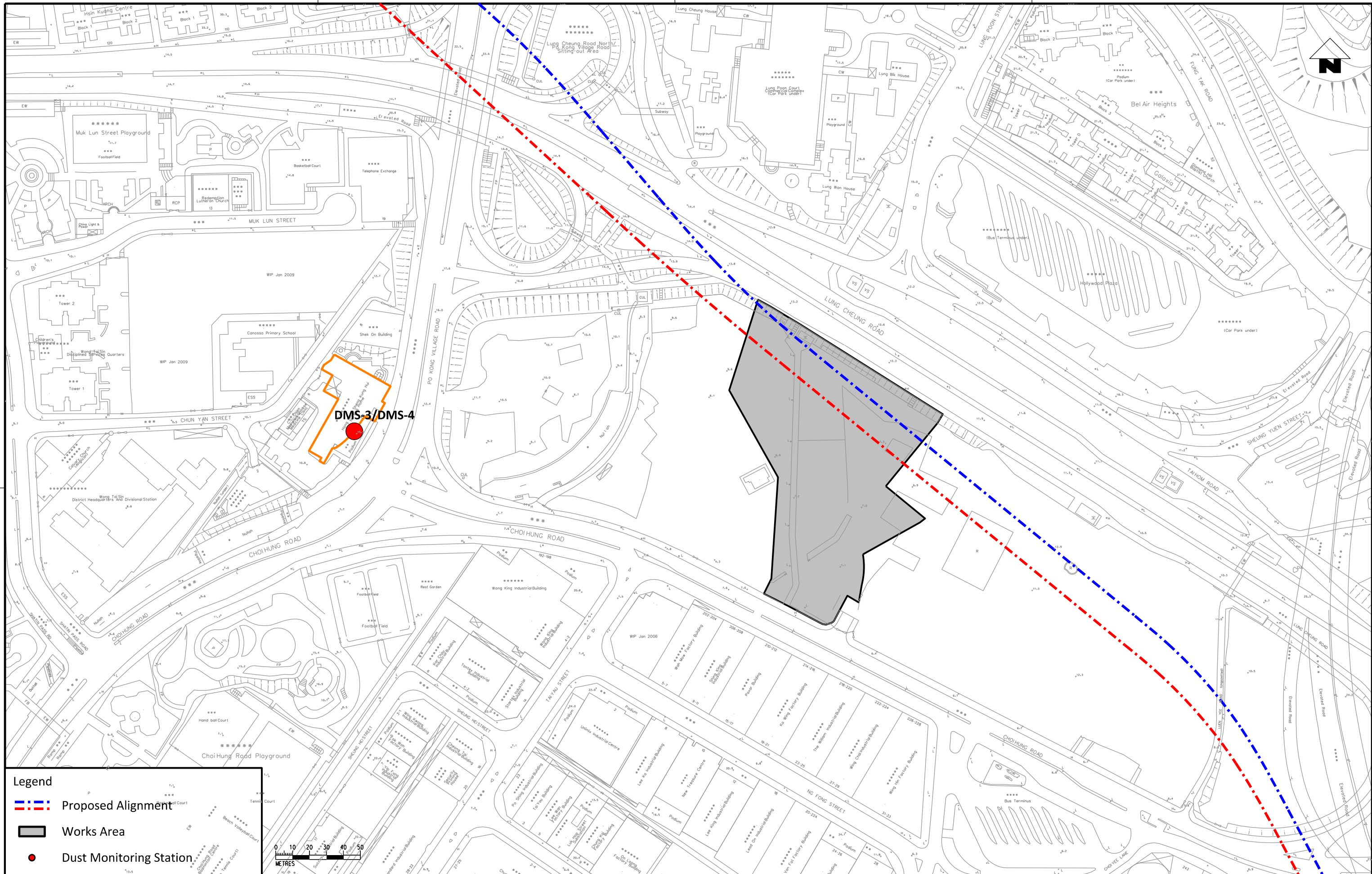
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**Legend**

- - - Proposed Alignment
- Works Area
- Dust Monitoring Station



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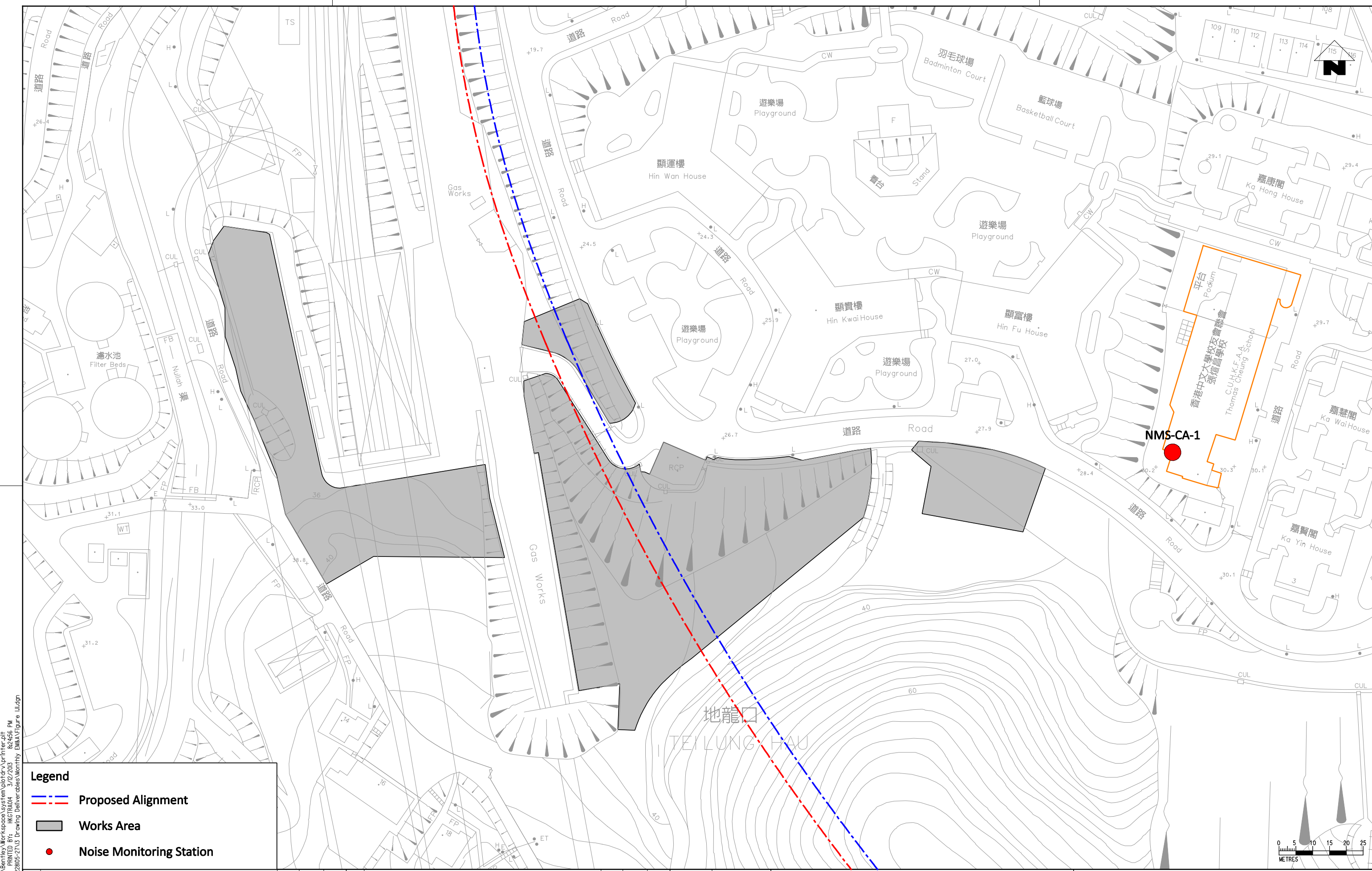
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**CONTRACT 1103**  
**HIN KENG TO DIAMOND HILL TUNNELS**  
 Locations of Proposed Dust Monitoring Stations  
 (Sheet 3 of 3)

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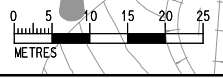




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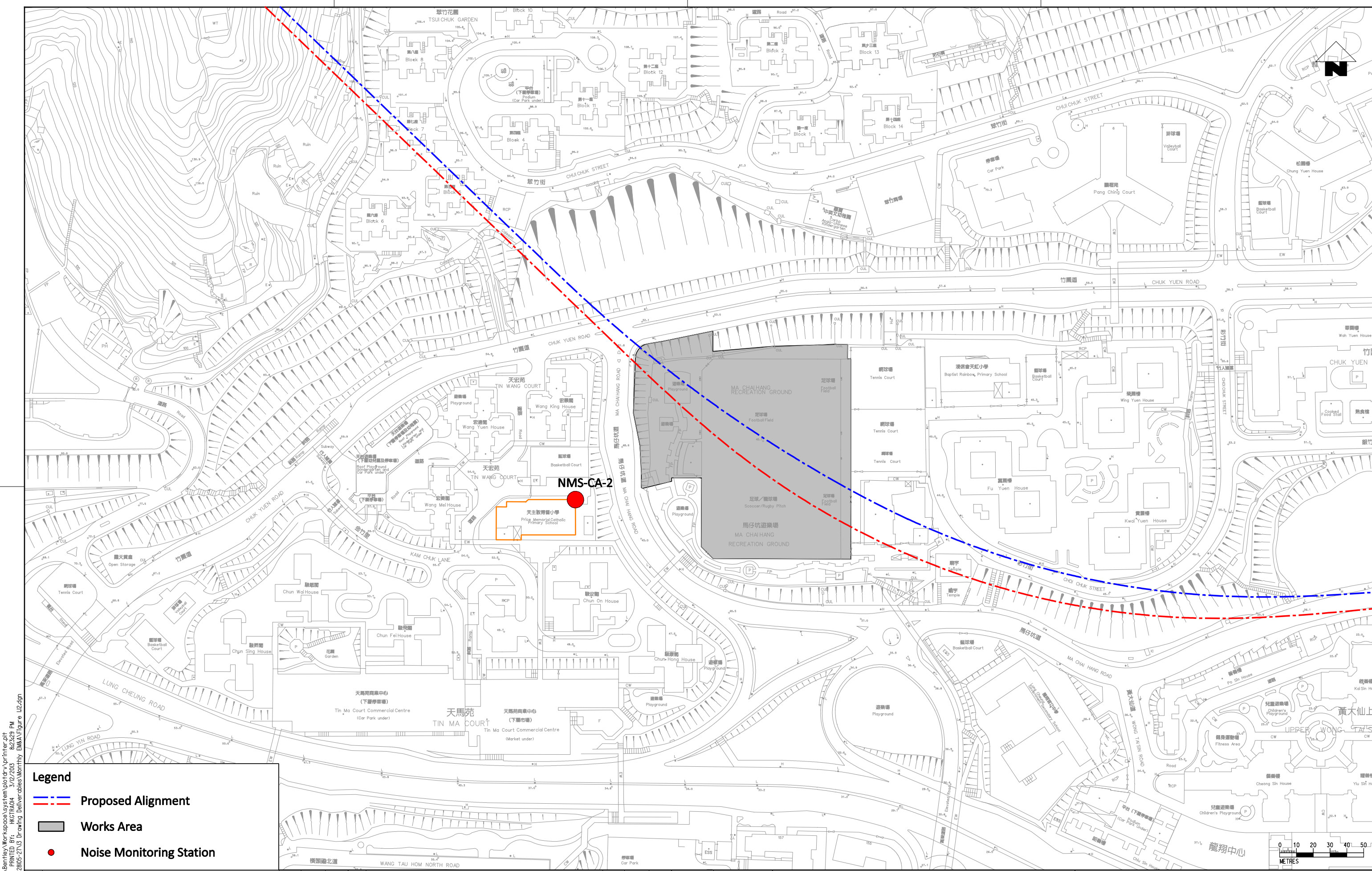
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- Works Area
- Noise Monitoring Station

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- Legend**
- Proposed Alignment
  - Works Area
  - Noise Monitoring Station

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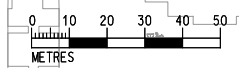
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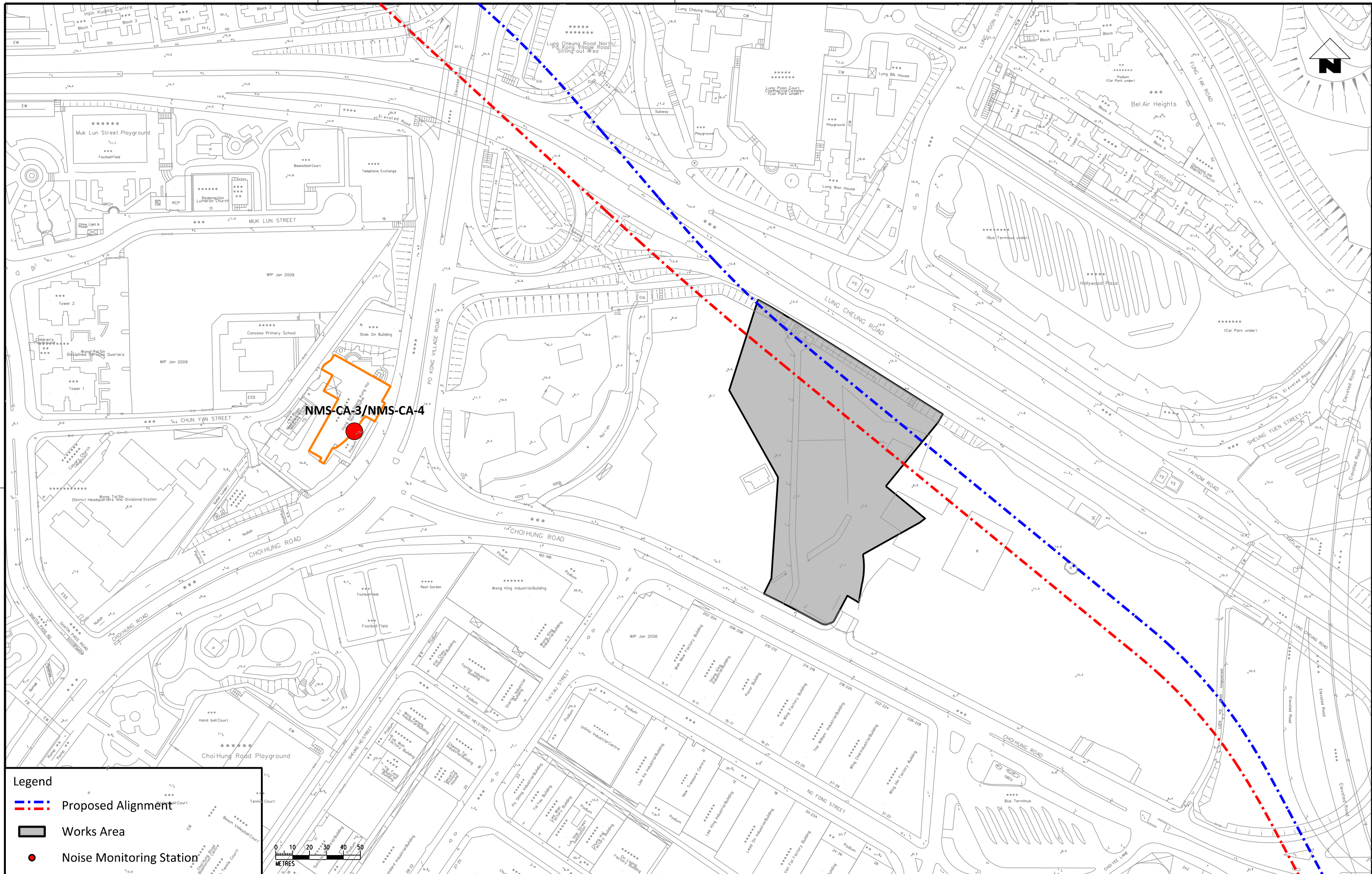
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 HIN KENG TO DIAMOND HILL TUNNELS  
 Locations of Noise Monitoring Stations  
 (Construction Airborne Noise)  
 (Sheet 2 of 3)

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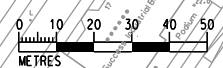






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- --- Proposed Alignment
- Works Area
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DATE	12/12

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CADD REF.

TITLE

CONTRACT 1103  
HIN KENG TO DIAMOND HILL TUNNELS  
Locations of Noise Monitoring Stations  
(Construction Airborne Noise)  
(Sheet 3 of 3)

SCALE 1:2000 (A3)

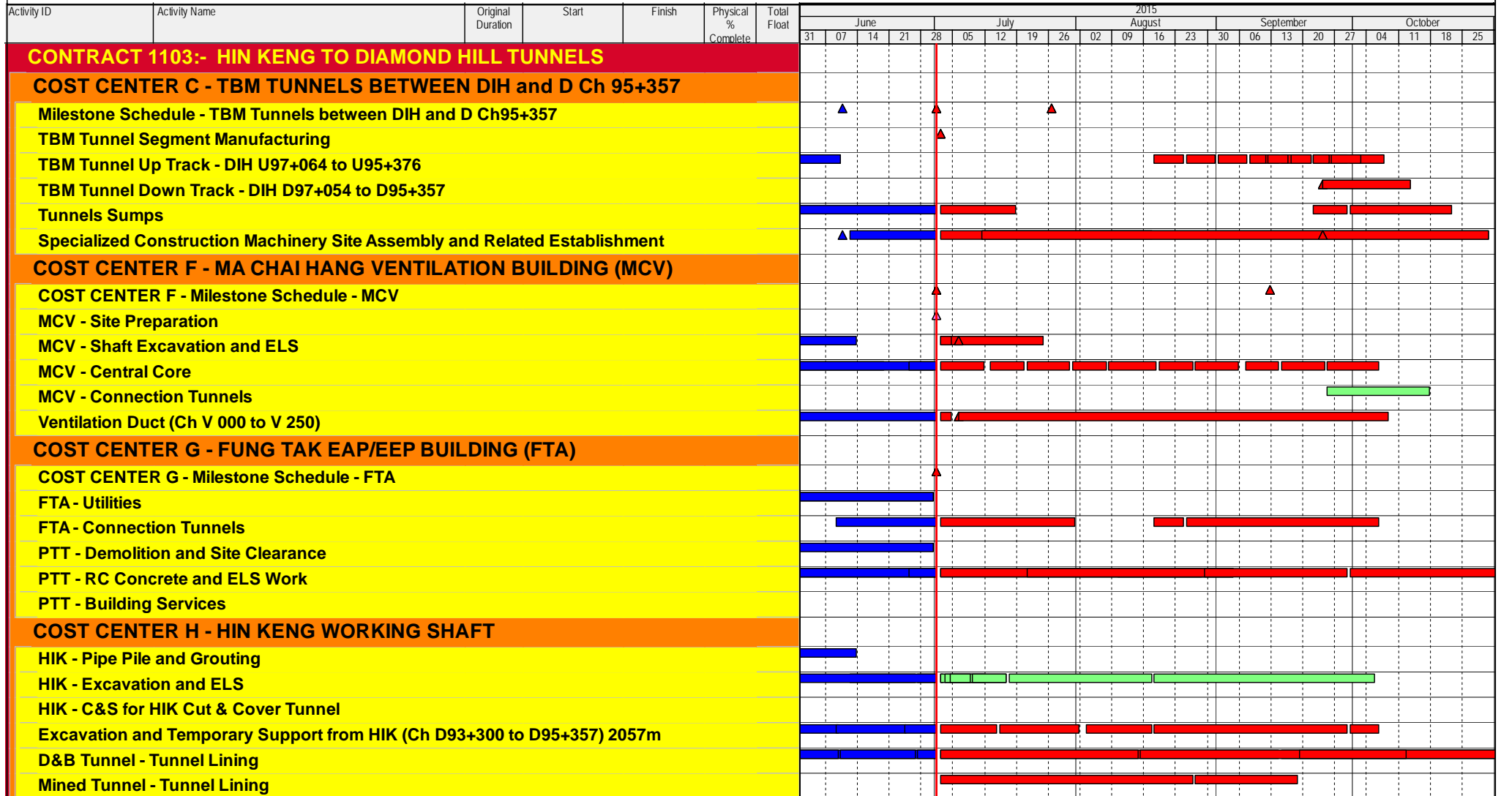
DRAWING NO. Figure 1.13

REV. A

## Appendix A

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### Construction Programme



GRANDS PROJETS

**Three Month Rolling Programme  
As of 1-Jul-2015**

Date	Revision	Checked	Approved
2-Jul-15	Submission for MTR Information	QT	EC

## Appendix B

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Environmental  
Monitoring  
Programme in  
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels  
Impact Monitoring Schedule - July 2015**

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L <sub>Aeq</sub> , 30 min	
1-Jul-15	Wed		
2-Jul-15	Thu		
3-Jul-15	Fri		
4-Jul-15	Sat		
5-Jul-15	Sun		
6-Jul-15	Mon		
7-Jul-15	Tue		
8-Jul-15	Wed		
9-Jul-15	Thu		
10-Jul-15	Fri		
11-Jul-15	Sat		
12-Jul-15	Sun		
13-Jul-15	Mon		
14-Jul-15	Tue		
15-Jul-15	Wed		
16-Jul-15	Thu		
17-Jul-15	Fri		
18-Jul-15	Sat		
19-Jul-15	Sun		
20-Jul-15	Mon		
21-Jul-15	Tue		
22-Jul-15	Wed		
23-Jul-15	Thu		
24-Jul-15	Fri		
25-Jul-15	Sat		
26-Jul-15	Sun		
27-Jul-15	Mon		
28-Jul-15	Tue		
29-Jul-15	Wed		
30-Jul-15	Thu		
31-Jul-15	Fri		

	Public Holiday
	Monitoring Day

**Monitoring Details**

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	L <sub>Aeq</sub> (30 min), L <sub>10</sub> , L <sub>90</sub>

## Appendix C

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Environmental  
Mitigation  
Implementation  
Schedule (EMIS)



## Environmental Mitigation Implementation Schedule – Works Contract 1103

Note: Chapters 1 to 3 of the EIA report present the background information of the Project, identified concurrent projects, objectives and scope for various environmental aspects, and description on alternative options and construction description. Chapters 4 to 14 of the EIA report present the EIA findings and mitigation measures are described below with cross-reference to the EIA report for the reporting month. Chapters 15 & 16 describe the environmental monitoring requirements and conclusion.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Ecology (Pre-Construction Phase)</b>							
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimize ecological impacts	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> <li>•AFCD's requirements</li> <li>•EIAO</li> <li>•Country Parks Ordinance</li> </ul>	✓
	E2	<p><u>Habitat Loss</u></p> <p>A detailed vegetation survey should be conducted in the Hin Keng Portal area to locate and enumerate individuals of <i>Aquilaria sinensis</i> which will potentially be affected by construction and operation of the Portal.</p> <p>A suitable site for transplanting all affected individuals within the footprint area should be identified and assessed for its suitability. A transplantation plan should then be drawn up and details of the transplantation methodologies and programme along with post-transplantation monitoring should be included.</p>	Minimize ecological impacts on important species	Hin Keng Portal areas	Prior to site clearance	<ul style="list-style-type: none"> <li>•AFCD's requirements</li> </ul>	✓
S5.7	E3	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Works sites for DIH	Prior to site clearance	<ul style="list-style-type: none"> <li>•AFCD's requirements</li> </ul>	N/A

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Ecology (Construction Phase)</b>							
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>• Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream;</li> <li>• Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream;</li> <li>• Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works;</li> <li>• No on-site burning of waste;</li> <li>• Waste and refuse in appropriate receptacles.</li> </ul>	Minimize ecological impacts	All construction sites	Construction stage		<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> <li>Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices.</li> <li>Canopy tubes should be installed from the shaft structure and extend the full width of the stream. These canopy tubes with sieves along its length should be grouted and form a stable and low permeable 'umbrella' for further mining works to be carried out in stages. The canopy tubes beneath the stream area are within Completely Decomposed Granite (CDG) stratum.</li> </ul>	<ul style="list-style-type: none"> <li>Avoid indirect water impact to any wetland habitats or wetland fauna</li> <li>Minimize the drawdown of water table</li> </ul>	Works area in Hin Keng	Construction stage	<ul style="list-style-type: none"> <li>TCW No. 5/2005</li> </ul>	<p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Landscape and Visual (Construction Phase)</b>							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</li> </ul> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees</li> </ul>	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.					✓
S6.12	LV2	<ul style="list-style-type: none"> <li data-bbox="353 464 1048 639">• <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context.</li> <li data-bbox="353 655 1048 831">• <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</li> <li data-bbox="353 847 1048 1086">• <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</li> </ul>	Minimize visual & landscape impact	Within Project Site	Detailed design and construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Air Quality (Construction Phase)</b>							
-	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use.</li> <li>• Only well-maintained plant should be operated on-site and</li> <li>• plant should be serviced regularly to avoid emission of</li> <li>• black smoke.</li> <li>• All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	All construction sites	Construction stage	• APCO	✓
		Open burning shall be prohibited	Reduce air pollution emission from work site	All construction sites	Construction stage	• APCO	✓
<b>Construction Dust Impact</b>							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	✓
S7.6.5	D2	<ul style="list-style-type: none"> <li>• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to</li> </ul>	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	Rdr

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency					
S7.6.5	D3	<ul style="list-style-type: none"> <li>• Proper watering of exposed spoil should be undertaken throughout the construction phase:</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction</li> </ul>	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<p>period;</p> <ul style="list-style-type: none"> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> </ul>					<p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>



**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<ul style="list-style-type: none"> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turving, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>					<p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p>
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Selected representative dust monitoring station	Construction stage	• TM-EIA	<p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<b>Construction Noise (Airborne)</b>							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	All construction sites	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p>
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and	Screen the noisy plant items to be used at all construction sites	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	<p align="center">Rdr</p>

Notes (\*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

<b>EIA Ref.</b>	<b>EM&amp;A Log Ref</b>	<b>Recommended Mitigation Measures</b>	<b>Objectives of the Recommended Measures &amp; Main Concerns to address</b>	<b>Location of the measures</b>	<b>When to implement the measures?</b>	<b>What requirements or standards for the measures to achieve?</b>	<b>Implementation Status</b>
		saw.					
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring station	Construction stage	• TM-EIA	✓

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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<b>Water Quality (Construction Phase)</b>							
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> <li>At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> <li>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</li> <li>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	<p align="center">✓</p> <p align="center">Rdr</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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		<p>commencement of construction.</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>• Manholes (including newly constructed ones) should always be</li> </ul>					<p align="center">✓</p> <p align="center">✓</p> <p align="center">Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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		<p>adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <ul style="list-style-type: none"> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks</li> </ul>					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<p>and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</p> <ul style="list-style-type: none"> <li>All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Adopt best management practices</li> </ul>					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> <li>Cut-&amp;-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge</li> <li>The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</li> <li>Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN 1/94</li> <li>TM-water</li> <li>TM-EIAO</li> </ul>	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W3	<u>Sewage Effluent</u>	To minimize water quality	All construction sites	Construction	<ul style="list-style-type: none"> <li>Water Pollution</li> </ul>	

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**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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		<ul style="list-style-type: none"> <li>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	from sewage effluent	where practicable	stage	Control Ordinance <ul style="list-style-type: none"> <li>TM-water</li> </ul>	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> <li>No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground.</li> <li>If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers.</li> <li>If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality</li> </ul>	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-water</li> <li>TM-EIAO</li> </ul>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p>

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		<p>will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</p>					
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>• All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>• The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>• Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• TM-EIAO</li> <li>• TM-Water</li> </ul>	<p align="center">Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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<b>Waste Management (Construction Phase)</b>							
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>DEVB TC(W) No. 6/2010</li> </ul>	✓
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> </ul>	✓  ✓

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		<p>promote the use of recycled aggregates where appropriate;</p> <ul style="list-style-type: none"> <li>• Adopt ‘Selective Demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation</li> </ul>				<ul style="list-style-type: none"> <li>• ETWB TCW No. 19/2005</li> </ul>	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>• The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005</li> </ul>	<p align="center">✓</p> <p align="center">✓</p>

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		crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>• General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>• A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>• Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>• Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	All construction sites	Construction stage	• Waste Disposal Ordinance	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM5	<p><u>Excavated Contaminated Soils</u></p> <p>Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.</p>	To remediate contaminated soil	Site L4 (Former Tai Hom Village)	Site remediation	• Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boat yards and Car Repair/Dismantling Workshop.	

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> <li>Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<p align="center">✓</p> <p align="center">Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• EIAO Guidance Note No.4/2010</li> <li>• TM-EIAO</li> </ul>	✓
S14.2 – 14.4	EM2	<p>1) An Environmental Team needs to be employed as per the EM&amp;A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</p>	Perform environmental monitoring & auditing	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• EIAO Guidance Note No.4/2010</li> <li>• TM-EIAO</li> </ul>	<p>✓</p> <p>✓</p> <p>✓</p>

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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Chapter 13.13	A13A.1 0.2.1 and A13A.1 0.2.4	The truck design should comply with the Requirements for Approval of an Explosives Delivery Vehicle (CEDD 2) and limit the amount of combustibles in the cabin. This should be combined with monthly vehicle inspection	To meet the ALARP requirement.	Explosive Magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Blasting activities including storage, transport and use of explosives should be supervised and audited by competent site staff to ensure strict compliance with the blasting permit conditions.	To ensure that the risks from the proposed explosives storage, transport and use would not be unacceptable	Works areas at which explosives would be stored and/or used.	Construction phase	•Dangerous Goods Ordinance	✓
Chapter 13.13	A13A.1 0.2.1 and A13A.1 0.2.5	Only the required quantity of explosives for a particular blast should be transported to avoid the return of unused explosives to the temporary magazines. The number of return trips to the magazine should be minimized.  If disposal is required for small quantities, disposal should be made in a controlled and safe manner by a Registered Shotfirer.	To reduce the risk during explosives transport.	Works areas at which explosives would be stored and/ or used.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	A minimum headway between two consecutive truck conveys of at least 10 min is recommended.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase.		✓
Chapter 13.13	A13A.1 0.2.1	The explosive truck accident frequency should be minimized by implementing a dedicated training programme for both the driver and his attendants, including regular briefing sessions, implementation of a defensive driving attitude. In addition, drivers should be selected based on good safety record, and medical checks.	To meet the ALARP requirement.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The explosive truck fire involvement frequency should be minimized by implementing a better emergency response and training to make	To meet the ALARP requirement.	-	Construction phase		

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**Environmental Mitigation Implementation Schedule – Works Contract 1103**

<b>EIA Ref.</b>	<b>EM&amp;A Log Ref</b>	<b>Recommended Mitigation Measures</b>	<b>Objectives of the Recommended Measures &amp; Main Concerns to address</b>	<b>Location of the measures</b>	<b>When to implement the measures?</b>	<b>What requirements or standards for the measures to achieve?</b>	<b>Implementation Status</b>
		sure the adequate fire extinguishers are used and attempt is made to evacuate the area of the incident or securing the explosive load if possible. All explosive vehicles should also be equipped with the required amount and type of fire extinguishers and shall be agreed with Mines Division.					✓
Chapter 13.13	A13A.1 0.2.1	The contractor should as far as practicable combine the explosive deliveries for a given work area.	To meet the ALARP requirement.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The Contractor should as far as practicable use the preferred transport route.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The Contractor should coordinate explosives deliveries with the delivery of chlorine to Shatin Water Treatment Works in order to avoid overlapping.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Use only experienced driver(s) with good safety record for explosive vehicle(s). Training should be provided to ensure it covers all major safety subjects.	To ensure safe transport of explosives	At suitable location	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Develop procedure to ensure that parking space on the site is available for the explosive truck. Confirmation of parking space should be communicated to truck drivers before delivery.	To ensure that the risks from the proposed explosives storage and transport would not be unacceptable	Explosive magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	Delivery vehicles shall not be permitted to remain unattended within the magazine site (or appropriately wheel-locked).	To reduce the risk of fire within the magazine	Explosive Magazine	Construction phase		✓



**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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Chapter 13.13	A13A.1 0.2.3	Good house-keeping within and outside of the magazine to ensure that combustible materials (including vegetation) are removed and not allowed to accumulate.	To reduce the risk of fire within the magazine	Explosive Magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Detonators shall not be transported in the same vehicle with other Class 1 explosives	To reduce the risk of explosion during the transport of cartridged emulsion	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Emergency plan (ie magazine operational manual) shall be developed to address uncontrolled fire in magazine area. The case of fire near an explosive carrying truck in jammed traffic should also be covered. Drill of the emergency plan should be carried out at regular intervals.	To reduce the risk of fire	Explosive Magazine and along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	The magazine storage quantities need to be reported on a monthly basis to ensure that the two day storage capacity is not exceeded.	To reduce the risk within the magazine	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Adverse weather working guideline should be developed to clearly define procedure for transport explosives during thunderstorm.	To ensure safe transport of explosives	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	During transport of the explosives within the tunnel, hot work should not be permitted	To ensure safe transport of explosives	Along explosives transport route.	Construction phase		✓

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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Chapter 13.13	A13A.1 0.2.4	Ensure that packaging of detonators remains intact until handed over at blasting site.	To reduce the risk of explosion during the transport of detonator	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Steel vehicle tray welded to a steel vertical fire screen should be mounted at least 150 mm behind the drivers cab and 100 mm from the steel cargo compartment, the vertical screen shall protrude 150 mm in excess of all three (3) sides of the steel cargo compartment	To reduce the risk during explosives transport.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.5	Ensure cartridge emulsion with high water content should be preferred. Also, the emulsion with perchlorate formulation should be avoided.	To ensure safe explosives to be used	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	Traffic Management should be implemented within the temporary magazine site, to ensure that no more than 1 vehicle will be loaded at any time, in order to avoid accidents involving multiple vehicles within the site boundary. Based on the construction programme, considering that 6 trucks could be loaded over a peak 2 hour period, this is considered feasible.	To ensure that the risks from the proposed explosives storage and transport would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	The design of the fill slope close to the temporary magazine site should consider potential washout failures and incorporate engineering measures to prevent a washout causing damage to the temporary magazine stores	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	The security plan should address different alert security level to reduce opportunity for arson / deliberate initiation of explosives. The corresponding security procedure should be implemented with respect to prevailing security alert status announced by the	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓

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**Environmental Mitigation Implementation Schedule – Works Contract 1103**

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		Government.					
Chapter 13.13	A13A.1 0.2.3	A suitable work control system should be introduced, such as an operational manual including Permit-to-Work system.	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	The magazine building shall be regularly checked for water seepage through the roof, walls or floor.	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13B.7 .2	Blast charge weight (MIC) should be within the maximum MIC as specified for the given section.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Temporary mitigation measures such as blast doors or heavy duty blast curtains should be installed at the access adits, shafts/ portals and at suitable locations underground to prevent flyrock and control the air overpressure.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Blasting from multiple faces as well as different locations will be carried out for this project. Good communication and control will need to be adopted in ensuring that the works are carried out safely.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	It is intended that complete evacuation of the underground tunnels need not be carried out and secure refuge areas should be identified to workers in the area.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A Chief Shotfirer and a Blasting Coordinator shall be employed in addition to the normal blasting personnel to ensure that the works are safe and coordinated between blasting areas and between	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓

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		adjacent contracts.					
Chapter 13.13	A13B.7 .2	Shotfirer to be provided with a lightning detector, and appropriate control measures should be in place.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A speed limit for the diesel vehicle truck and bulk emulsion truck in the tunnel should be enforced. The truck may be escorted while underground to ensure route is clear from hazards and obstructions.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Hot work should be suspended during passage of the diesel vehicle truck and bulk emulsion truck in the tunnel.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	For any construction works related to use of explosives near gas facilities and gas pipes, the requirements of the Code of Practice on Avoiding Danger from Gas Pipes must be respected, in particular, to ensure liaison/coordination with HKCG with sufficient notice of planned works and to follow prescribed emergency procedures in case of leaks.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A detailed liaison between the contractor and HKCG should be established. HKCG should be notified about the blasting schedule in written format within a reasonable period of time prior to blasting in order to ensure the gas safety during the construction period. Also, liaison should be made with HKCG to develop an emergency plan.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		N/A

**Environmental Mitigation Implementation Schedule – Works Contract 1103**

<b>EIA Ref.</b>	<b>EM&amp;A Log Ref</b>	<b>Recommended Mitigation Measures</b>	<b>Objectives of the Recommended Measures &amp; Main Concerns to address</b>	<b>Location of the measures</b>	<b>When to implement the measures?</b>	<b>What requirements or standards for the measures to achieve?</b>	<b>Implementation Status</b>
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (co-operation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		✓
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		✓

## Appendix D

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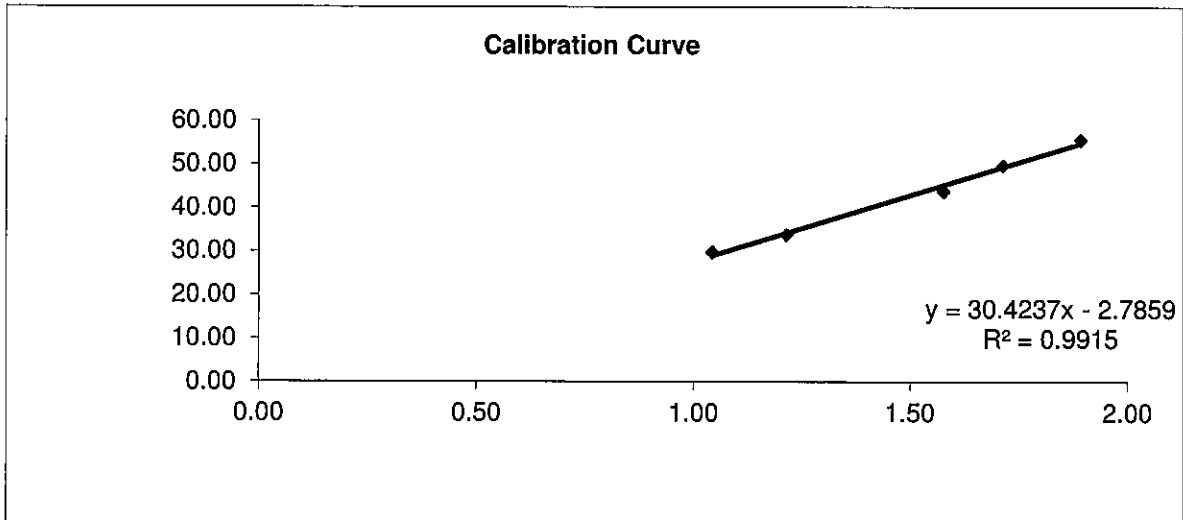
Calibration  
Certificates for Air  
Monitoring  
Equipment

**Ove Arup Partners (Hong Kong) Limited**  
High Volume Air Sampler Calibration Worksheet

Calibration date	12-Jun-15	Barometric pressure	756 mm Hg
Next Calibration date	11-Aug-15	Temperature (°C)	28 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	301 K
Sampler model	TE-5170	P <sub>std</sub>	760 mm Hg
Sampler serial number	3763	T <sub>std</sub>	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m <sub>s</sub>	2.06238
Intercept of the standard curve, b <sub>s</sub>	-0.2415


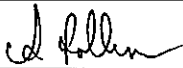
Resistance Plate No.	Manometer Reading (inch H <sub>2</sub> O)	Flow Recorder Reading (CFM)	Calculated Q <sub>std</sub> (m <sup>3</sup> /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.70	30.00	1.04	29.77
7	5.20	34.00	1.21	33.74
10	9.20	44.00	1.58	43.66
13	11.00	50.00	1.71	49.62
18	13.60	56.00	1.89	55.57



**Linear Regression**

Sampler slope (m) : **30.4237**  
 Sampler intercept (b) : **-2.7859**  
 Correlation coefficient (R<sup>2</sup>) : **0.9915**

**Correlation coefficient is greater than 0.9900 and the calibration result is accepted.**

Performed by:   
 Checked by: 

Date: 12/6/2015  
 Date: 12/6/2015

# Ove Arup Partners (Hong Kong) Limited

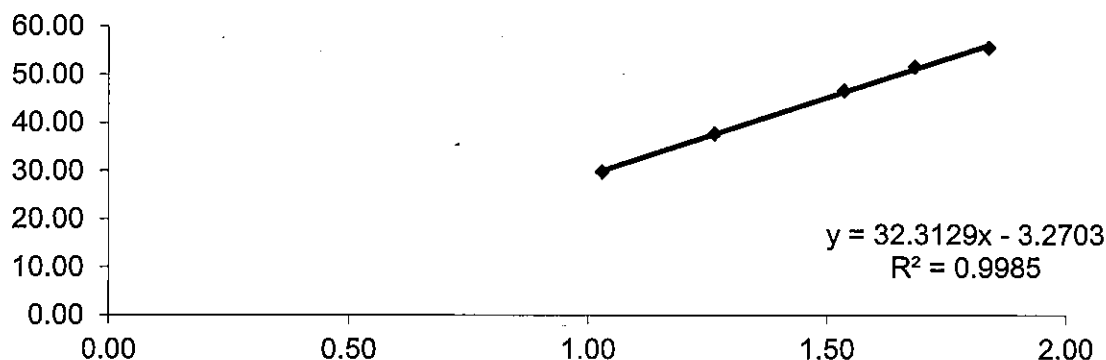
## High Volume Air Sampler Calibration Worksheet

Calibration date	12-Jun-15	Barometric pressure	756 mm Hg
Next Calibration date	11-Aug-15	Temperature (°C)	28 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	301 K
Sampler model	TE-5170	P <sub>std</sub>	760 mm Hg
Sampler serial number	3761	T <sub>std</sub>	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m <sub>s</sub>	2.06238
Intercept of the standard curve, b <sub>s</sub>	-0.2415

Resistance Plate No.	Manometer Reading (inch H <sub>2</sub> O)	Flow Recorder Reading (CFM)	Calculated Q <sub>std</sub> (m <sup>3</sup> /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	30.00	1.03	29.77
7	5.70	38.00	1.27	37.71
10	8.70	47.00	1.54	46.64
13	10.60	52.00	1.68	51.60
18	12.80	56.00	1.84	55.57

**Calibration Curve**



**Linear Regression**

Sampler slope (m) : **32.3129**  
 Sampler intercept (b) : **-3.2703**  
 Correlation coefficient (R<sup>2</sup>) : **0.9985**

**Correlation coefficient is greater than 0.9900 and the calibration result is accepted.**

Performed by: \_\_\_\_\_

Date: 12/6/2015

Checked by: [Signature]

Date: 12/6/2015



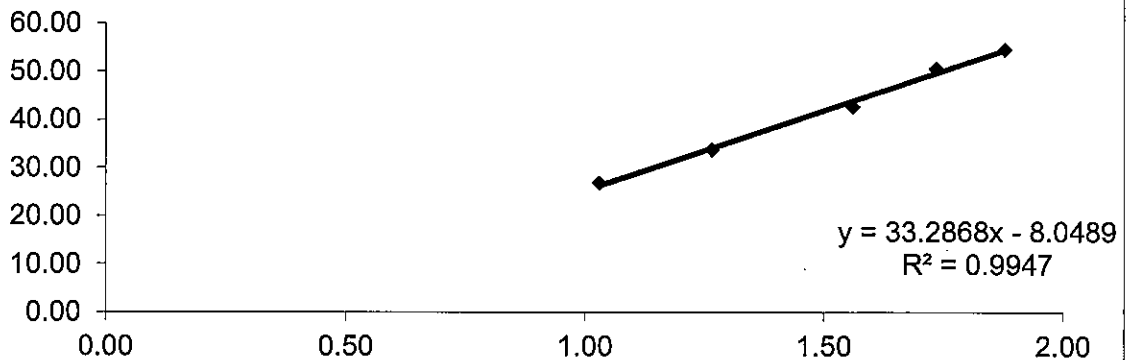
# Ove Arup Partners (Hong Kong) Limited

## High Volume Air Sampler Calibration Worksheet

Calibration date	12-Jun-15	Barometric pressure	756 mm Hg
Next Calibration date	11-Aug-15	Tempature (°C)	28 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	Tempature (K)	301 K
Sampler model	TE-5170	P <sub>std</sub>	760 mm Hg
Sampler serial number	3762	T <sub>std</sub>	298 K
Calibrator model	GMW-2535		
Calibrator serial number	2421		
Slope of the standard curve, m <sub>s</sub>	2.06238		
Intercept of the standard curve, b <sub>s</sub>	-0.2415		

Resistance Plate No.	Manometer Reading (inch H <sub>2</sub> O)	Flow Recorder Reading (CFM)	Calculated Q <sub>std</sub> (m <sup>3</sup> /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	27.00	1.03	26.79
7	5.70	34.00	1.27	33.74
10	9.00	43.00	1.56	42.67
13	11.30	51.00	1.73	50.61
18	13.40	55.00	1.88	54.58

**Calibration Curve**



**Linear Regression**

Sampler slope (m) : **33.2868**  
 Sampler intercept (b) : **-8.0489**  
 Correlation coefficient (R<sup>2</sup>) : **0.9947**

**Correlation coefficient is greater than 0.9900 and the calibration result is accepted.**

Performed by: \_\_\_\_\_

Date: 12/6/2015

Checked by: [Signature]

Date: 12/6/2015



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 20, 2015 Rootmeter S/N 0438320 Ta (K) - 293  
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 749.3

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4130	3.2	2.00
2	NA	NA	1.00	1.0060	6.3	4.00
3	NA	NA	1.00	0.9020	7.8	5.00
4	NA	NA	1.00	0.8590	8.7	5.50
5	NA	NA	1.00	0.7090	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9984	0.7066	1.4162	0.9957	0.7047	0.8843
0.9943	0.9884	2.0027	0.9916	0.9857	1.2507
0.9922	1.1000	2.2391	0.9895	1.0970	1.3983
0.9911	1.1538	2.3484	0.9884	1.1506	1.4665
0.9858	1.3905	2.8323	0.9831	1.3867	1.7687

Qstd slope (m) = 2.07308 Qa slope (m) = 1.29813  
 intercept (b) = -0.04607 intercept (b) = -0.02877  
 coefficient (r) = 0.99995 coefficient (r) = 0.99995

y axis =  $\text{SQRT}[\text{H2O}(\text{Pa}/760) (298/\text{Ta})]$

y axis =  $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

## **Appendix E**

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### **Dust Results**

Location: DMS-1 - C.U.H.K.A.A. Thomas Cheung School

Details of 24-Hour TSP Monitoring

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m <sup>3</sup> )	24-hour TSP Level (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
131337	Jul-15	3-Jul-15	0:00	0:00	DMS1	Fine	Normal Operation	755.3	754.5	28.8	28.7	42.0	42.0	2.7650	2.8161	0.0511	1.3380	1.3375	1.3378	3493.33	3517.33	1440.00	1926.36	26.5	148.7	260.0
131339	Jul-15	9-Jul-15	0:00	0:00	DMS1	Fine	Normal Operation	754.5	754.5	28.9	29.0	40.0	40.0	2.7879	2.8664	0.0785	1.2803	1.2801	1.2802	3517.34	3541.34	1440.00	1843.49	42.6	148.7	260.0
131338	Jul-15	15-Jul-15	0:00	0:00	DMS1	Fine	Normal Operation	754.5	754.5	28.9	28.9	40.0	40.0	2.7768	2.8591	0.0823	1.2803	1.2803	1.2803	3541.35	3565.35	1440.00	1843.63	44.6	148.7	260.0
131344	Jul-15	21-Jul-15	0:00	0:00	DMS1	Fine	Normal Operation	754.5	754.5	28.8	28.8	40.0	40.0	2.7562	2.8090	0.0528	1.2804	1.2804	1.2804	3565.36	3589.36	1440.00	1843.78	28.6	148.7	260.0
131348	Jul-15	27-Jul-15	0:00	0:00	DMS1	Fine	Normal Operation	753.8	753.8	28.7	28.6	43.0	43.0	2.7617	2.8473	0.0856	1.3654	1.3656	1.3655	3589.37	3613.37	1440.00	1966.32	43.5	148.7	260.0

Average (µg/m3)	37.2
Max (µg/m3)	44.6
Min (µg/m3)	26.5

Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m <sup>3</sup> )	24-hour TSP Level (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
131338	Jul-15	3-Jul-15	0:00	0:00	DMS2	Fine	Normal Operation	755.3	754.5	28.8	28.7	42.0	42.0	2.7468	2.7617	0.0149	1.3838	1.3834	1.3836	2880.4	2904.4	1440.00	1992.4	7.5	167.4	260.0
131342	Jul-15	9-Jul-15	0:00	0:00	DMS2	Fine	Normal Operation	754.5	754.5	28.9	29.0	38.0	38.0	2.7722	2.7874	0.0152	1.2638	1.2636	1.2637	2904.4	2928.4	1440.00	1819.7	8.4	167.4	260.0
131312	Jul-15	15-Jul-15	0:00	0:00	DMS2	Fine	Normal Operation	754.5	754.5	28.9	28.9	39.0	39.0	2.8817	2.8996	0.0179	1.2936	1.2936	1.2936	2928.38	2952.38	1440.00	1862.78	9.6	167.4	260.0
131347	Jul-15	21-Jul-15	0:00	0:00	DMS2	Fine	Normal Operation	754.5	754.5	28.8	28.8	38.0	38.0	2.7735	2.8087	0.0352	1.2639	1.2639	1.2639	2952.39	2976.39	1440.00	1820.02	19.3	167.4	260.0
131349	Jul-15	27-Jul-15	0:00	0:00	DMS2	Fine	Normal Operation	753.8	753.8	28.7	28.6	40.0	40.0	2.7588	2.8111	0.0523	1.3232	1.3234	1.3233	2976.40	3000.40	1440.00	1905.55	27.4	167.4	260.0

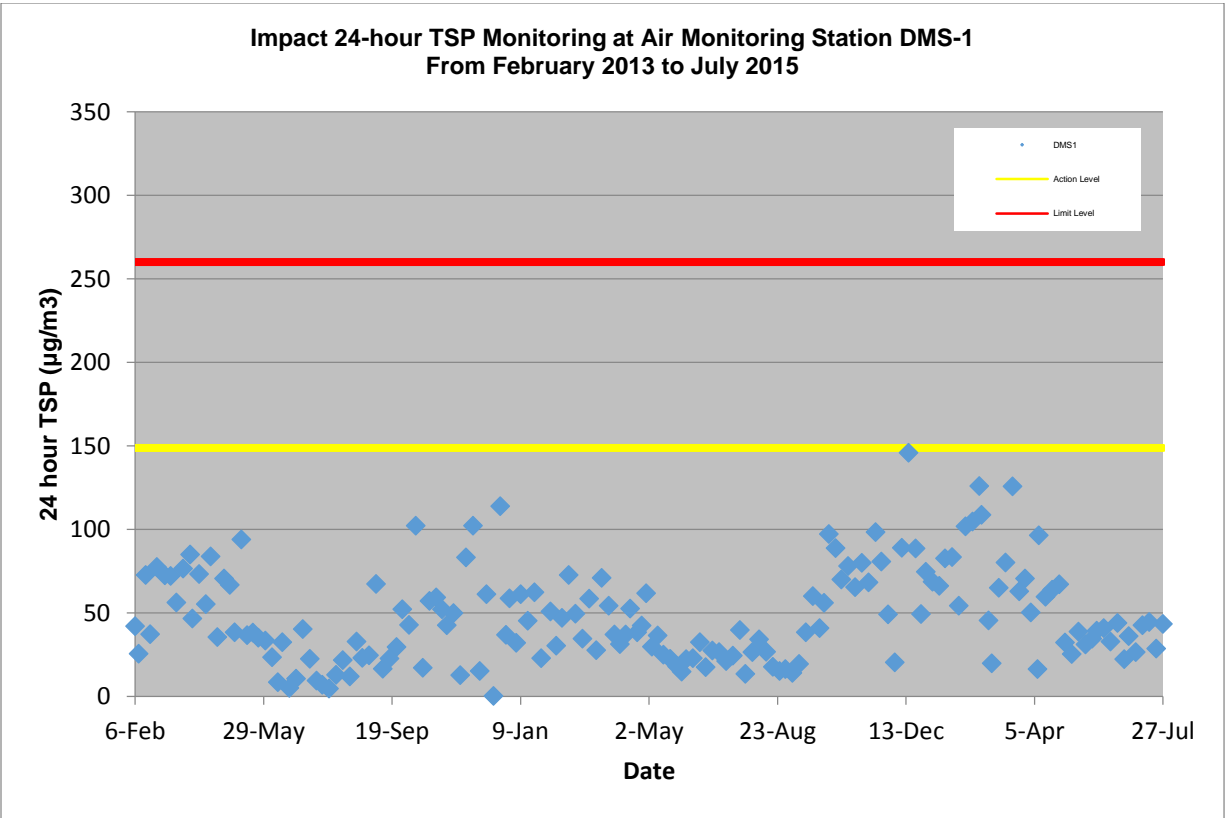
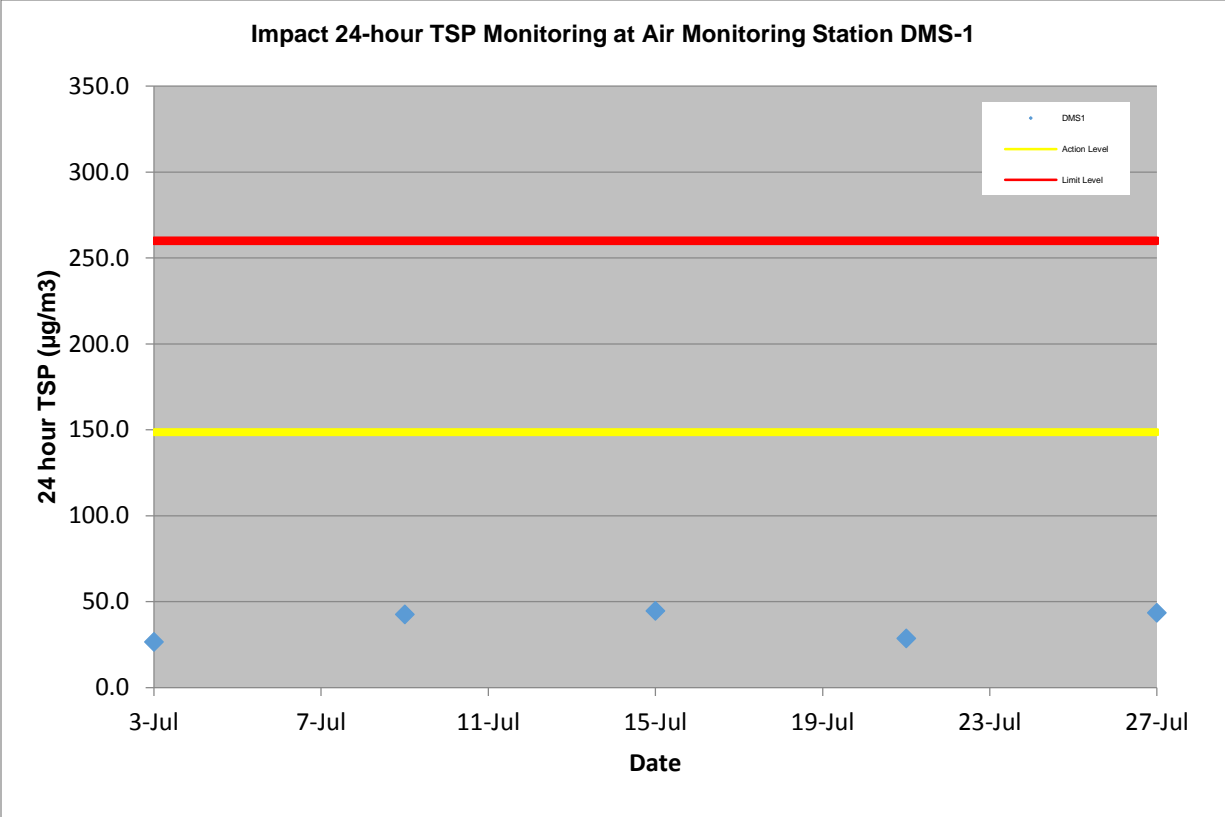
Average (µg/m3)	14.4
Max (µg/m3)	27.4
Min (µg/m3)	7.5

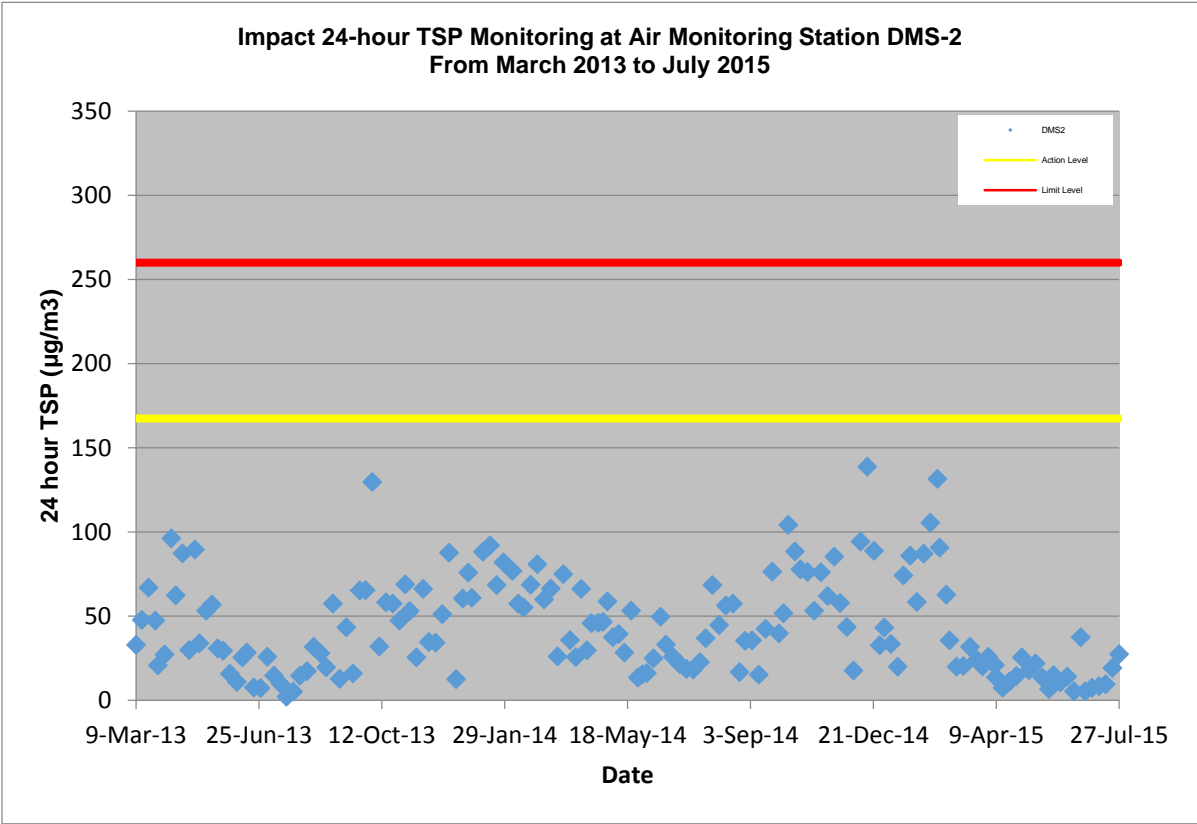
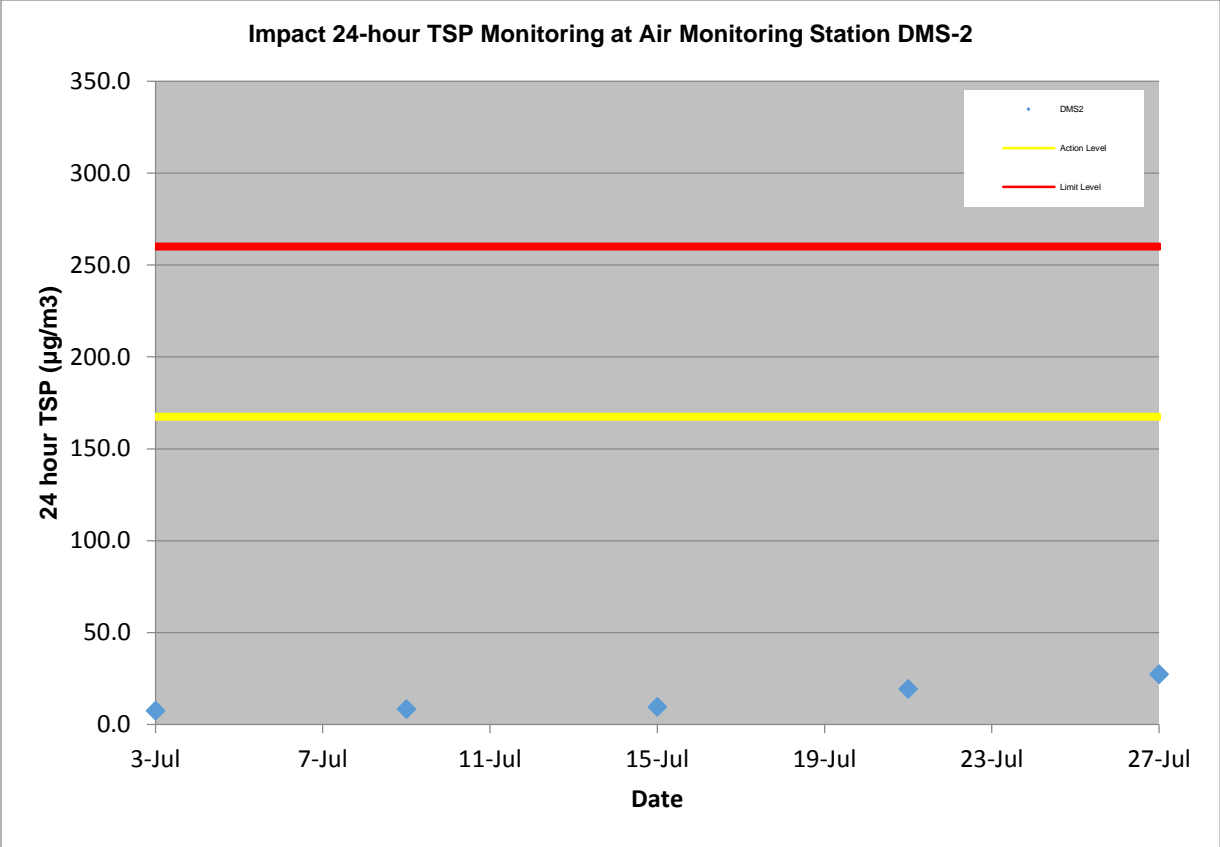
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

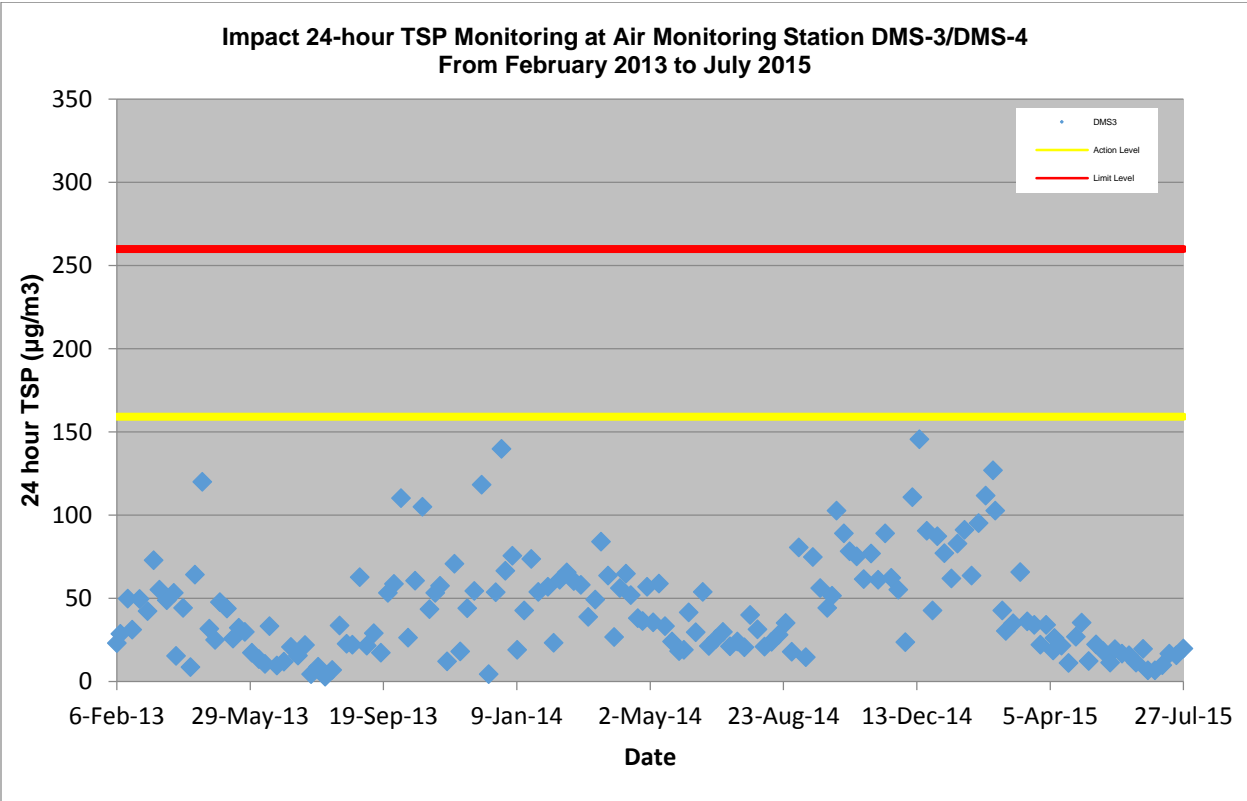
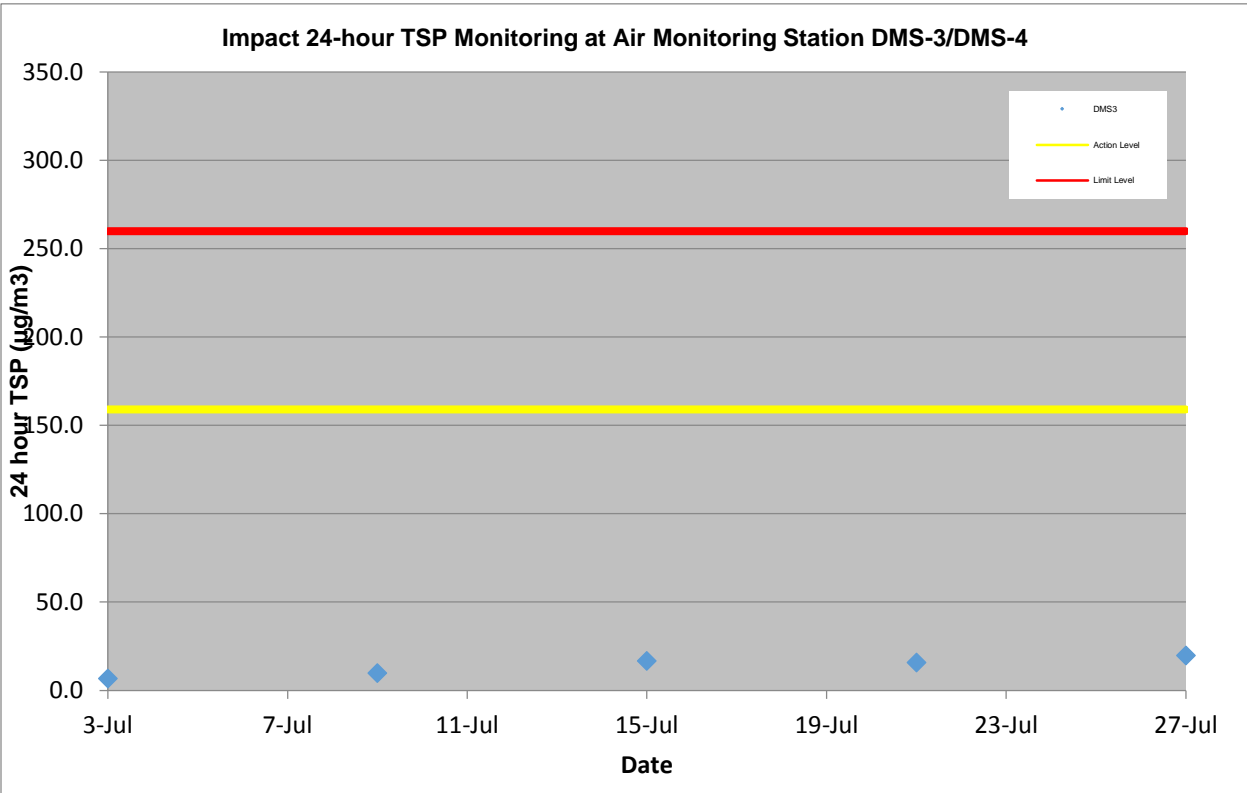
Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)	TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m <sup>3</sup> )	24-hour TSP Level (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	
			Start	Finish				Initial	Final	Initial	Final	Initial	Final			Initial	Final		Start	Finish						
131341	Jul-15	3-Jul-15	0:00	0:00	DMS3	Fine	Normal Operation	755.3	754.5	28.8	28.7	43.0	43.0	2.7561	2.7699	0.0138	1.4108	1.4102	1.4105	3008.83	3032.83	1440.00	2031.12	6.8	159.1	260.0
131343	Jul-15	9-Jul-15	0:00	0:00	DMS3	Fine	Normal Operation	754.5	754.5	28.9	29.0	38.0	38.0	2.7559	2.7728	0.0169	1.1940	1.1938	1.1939	3032.84	3056.84	1440.00	1719.22	9.8	159.1	260.0
131340	Jul-15	15-Jul-15	0:00	0:00	DMS3	Fine	Normal Operation	754.5	754.5	28.9	28.9	40.0	40.0	2.7676	2.7983	0.0307	1.2803	1.2803	1.2803	3056.85	3080.85	1440.00	1843.63	16.7	159.1	260.0
131346	Jul-15	21-Jul-15	0:00	0:00	DMS3	Fine	Normal Operation	754.5	754.5	28.8	28.8	40.0	40.0	2.7607	2.7900	0.0293	1.2805	1.2805	1.2805	3080.86	3104.86	1440.00	1843.92	15.9	159.1	260.0
131350	Jul-15	27-Jul-15	0:00	0:00	DMS3	Fine	Normal Operation	753.8	753.8	28.7	28.6	38.0	38.0	2.7593	2.7934	0.0341	1.1937	1.1940	1.1939	3104.87	3128.87	1440.00	1719.14	19.8	159.1	260.0

Average (µg/m3)	13.8
Max (µg/m3)	19.8
Min (µg/m3)	6.8







## Appendix F

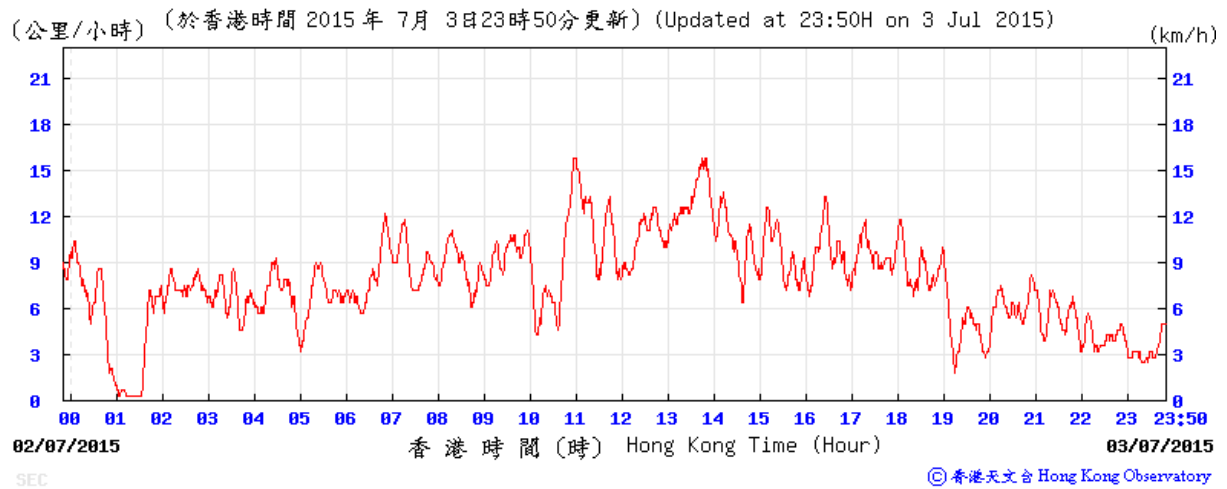
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Wind data

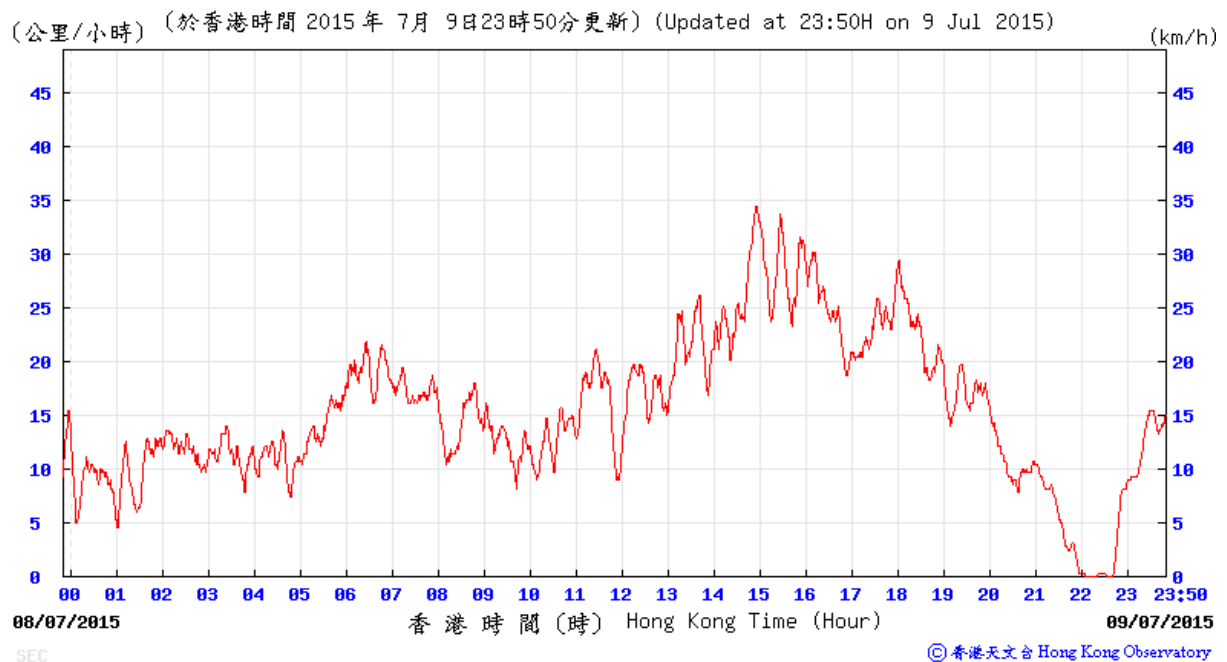


# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3 July 2015

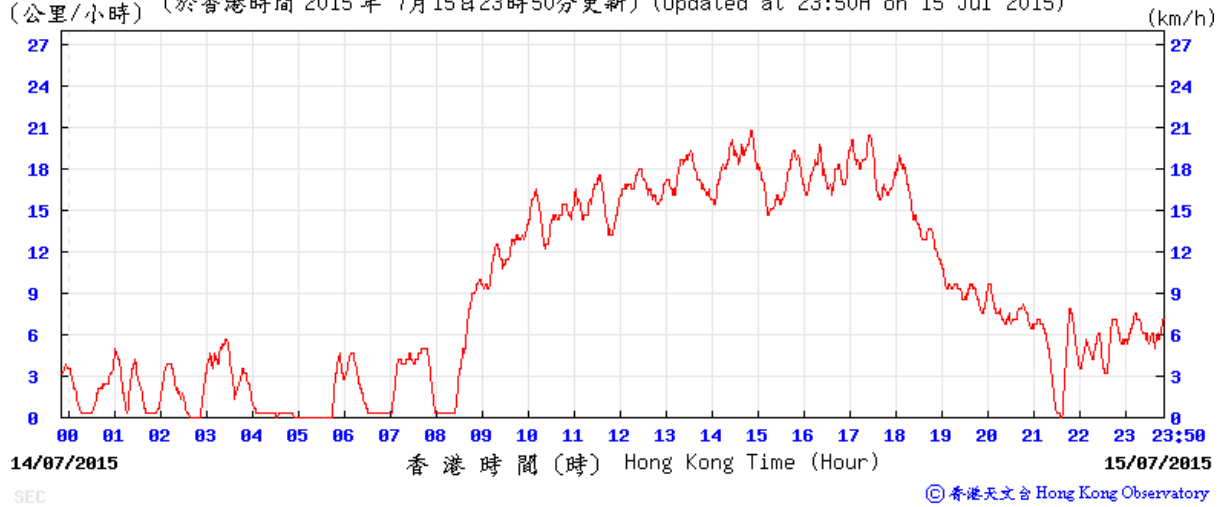


9 July 2015



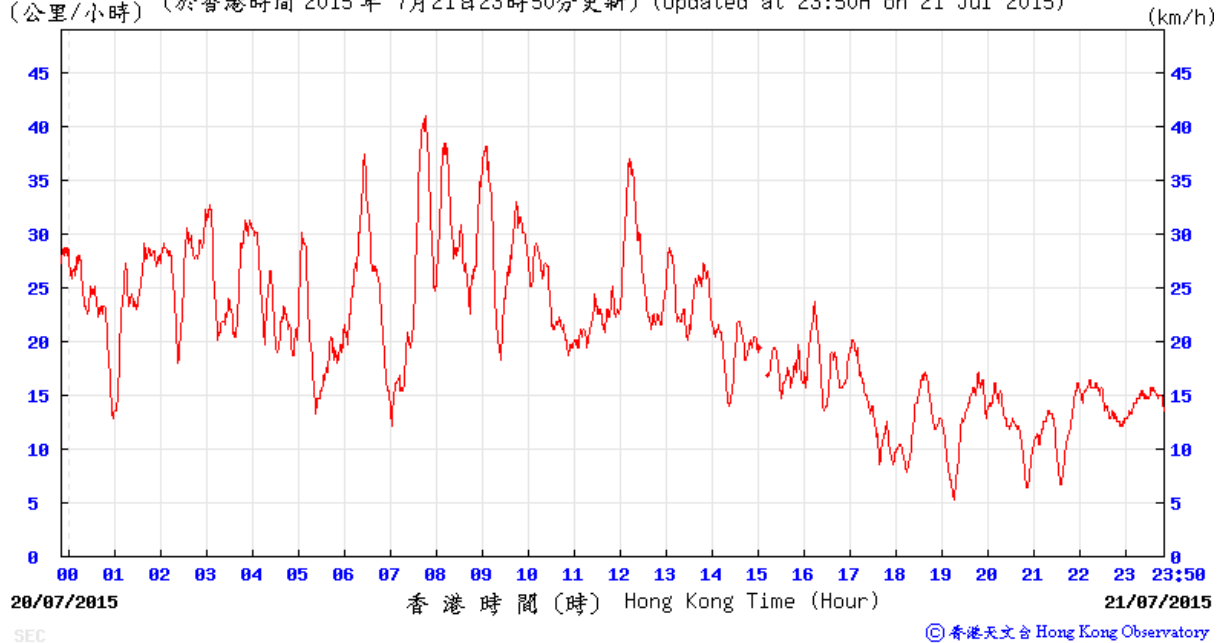
## 15 July 2015

(公里/小時) (於香港時間 2015 年 7 月 15 日 23 時 50 分更新) (Updated at 23:50H on 15 Jul 2015)



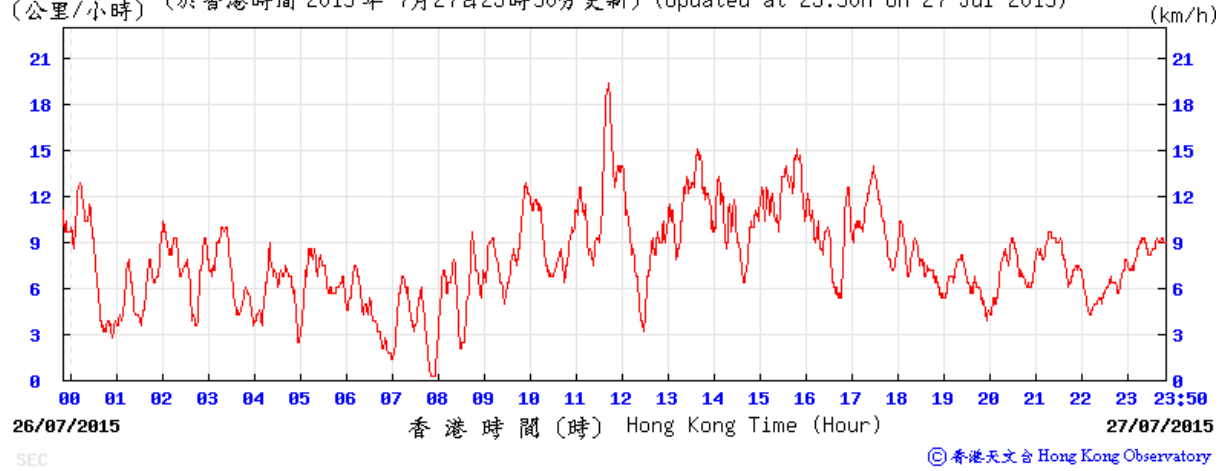
## 21 July 2015

(公里/小時) (於香港時間 2015 年 7 月 21 日 23 時 50 分更新) (Updated at 23:50H on 21 Jul 2015)



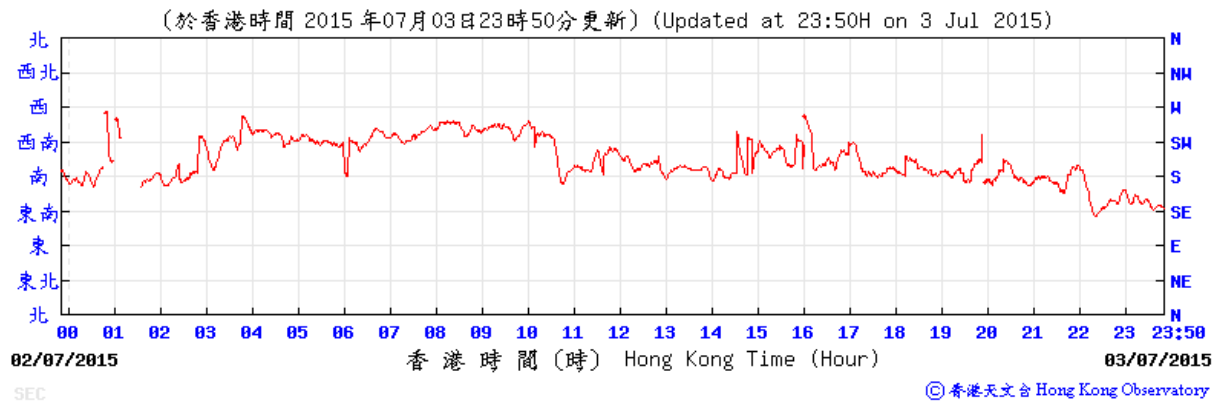
# 27 July 2015

(公里/小時) (於香港時間 2015 年 7月27日23時50分更新) (Updated at 23:50H on 27 Jul 2015)

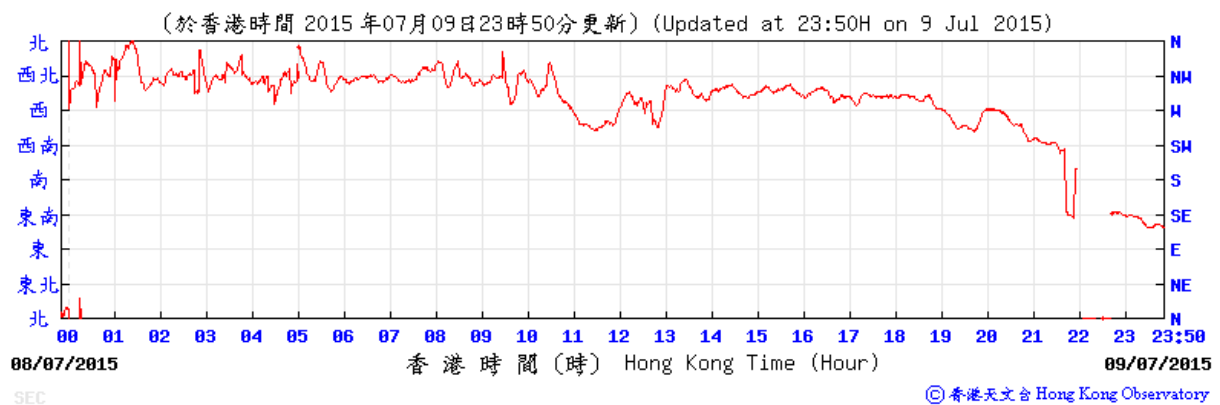


# Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

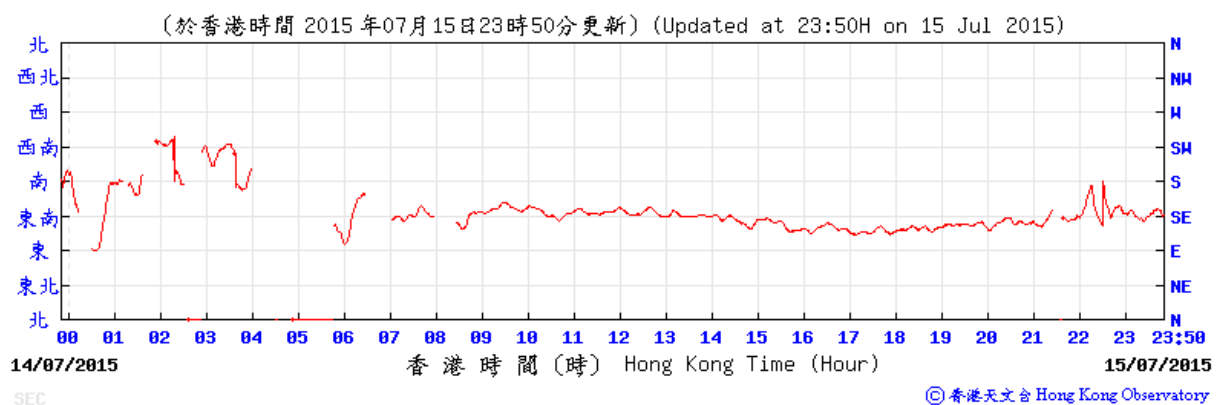
3 July 2015



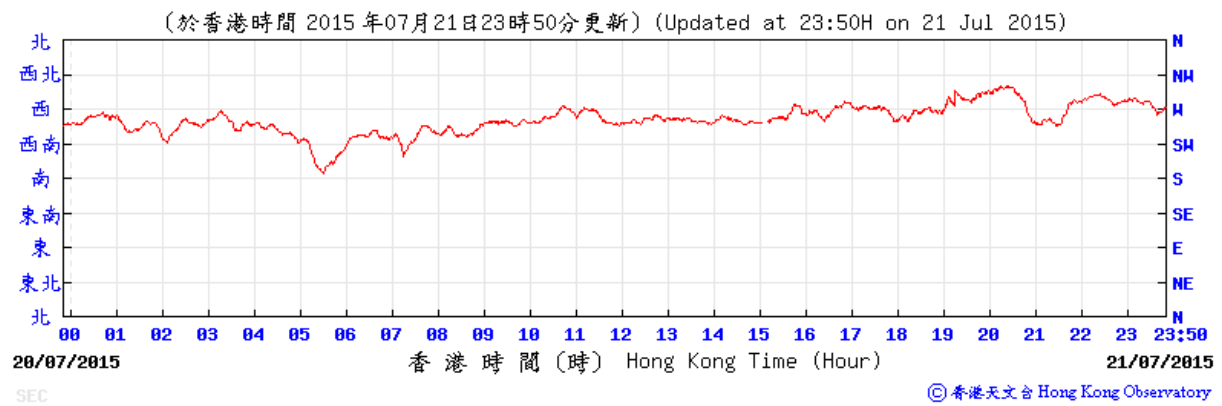
9 July 2015



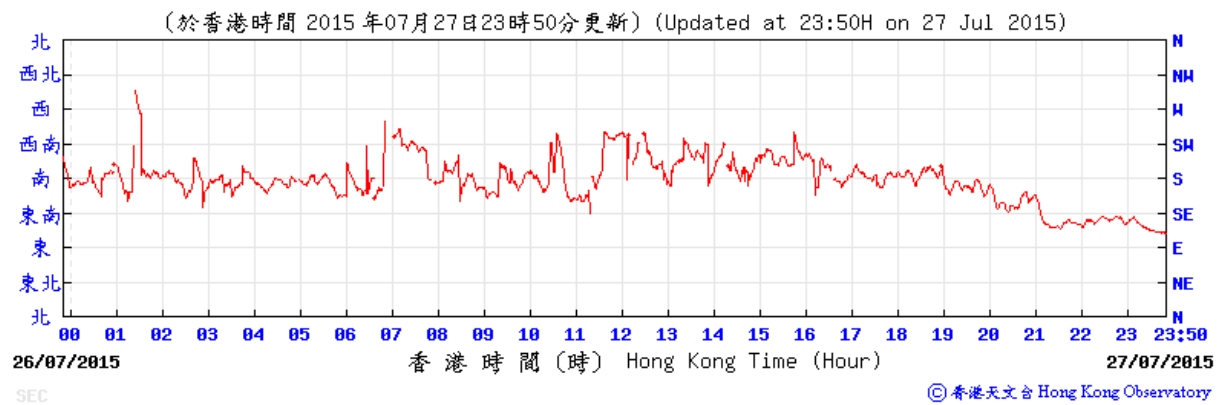
15 July 2015



## 21 July 2015

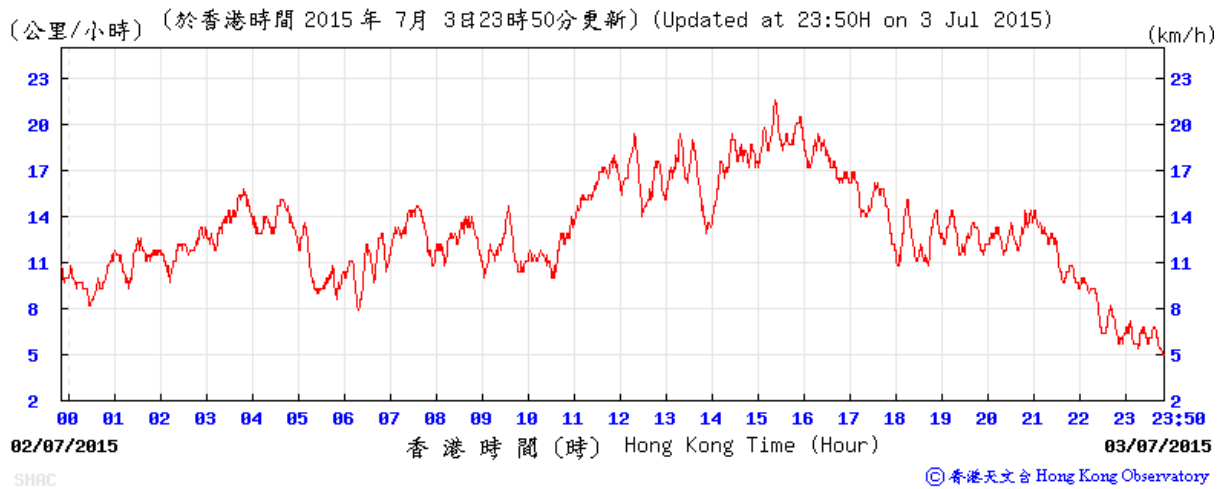


## 27 July 2015

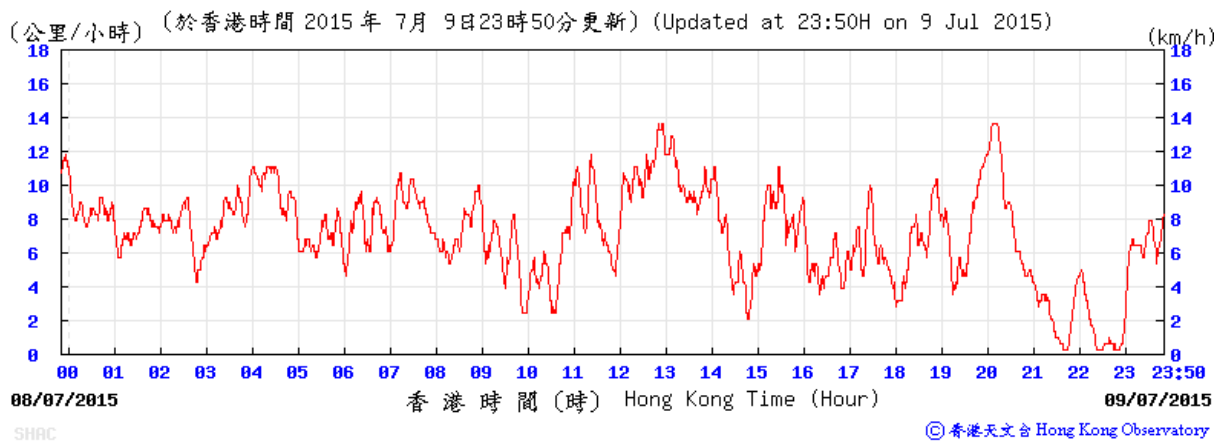


# Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

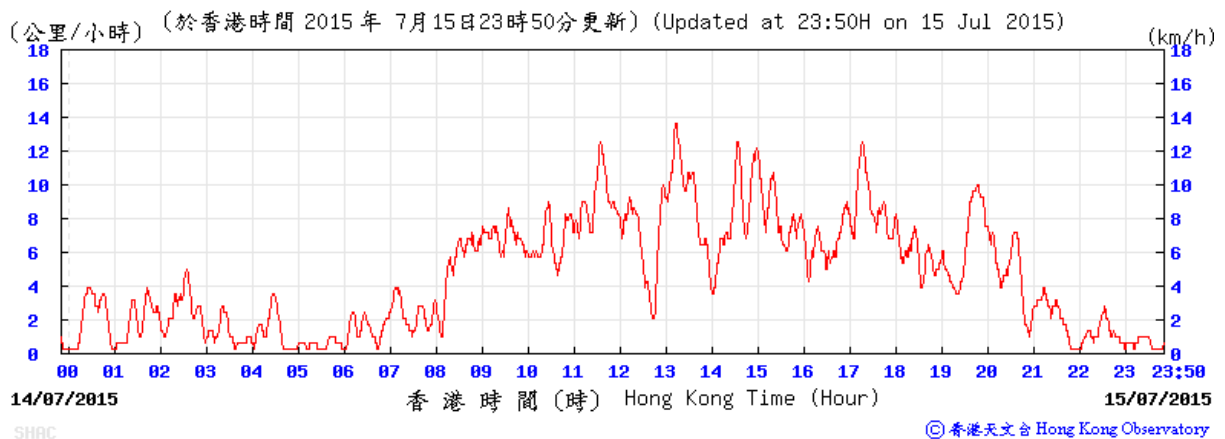
3 July 2015



9 July 2015

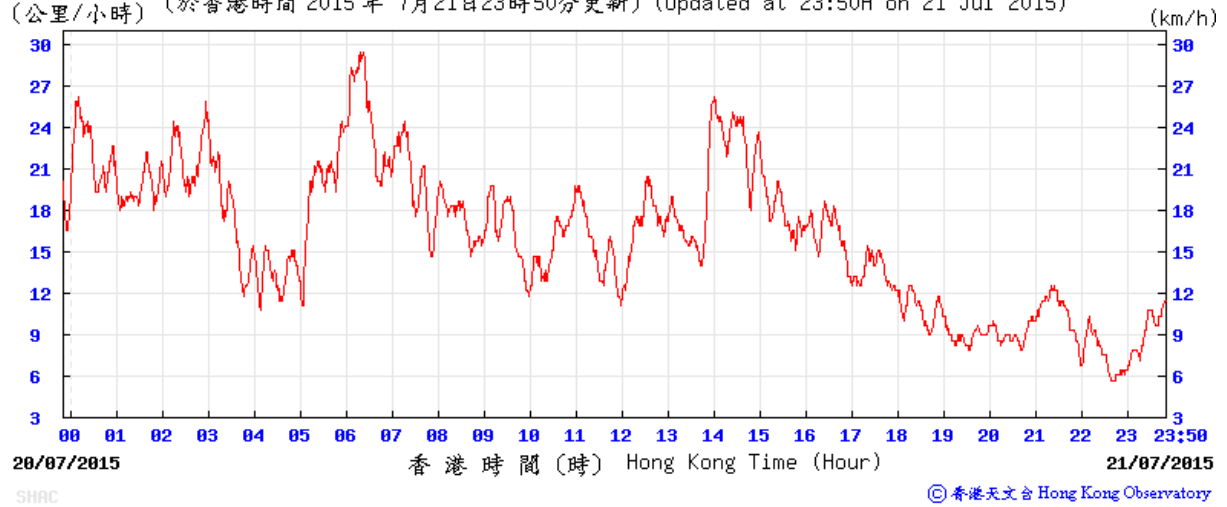


15 July 2015



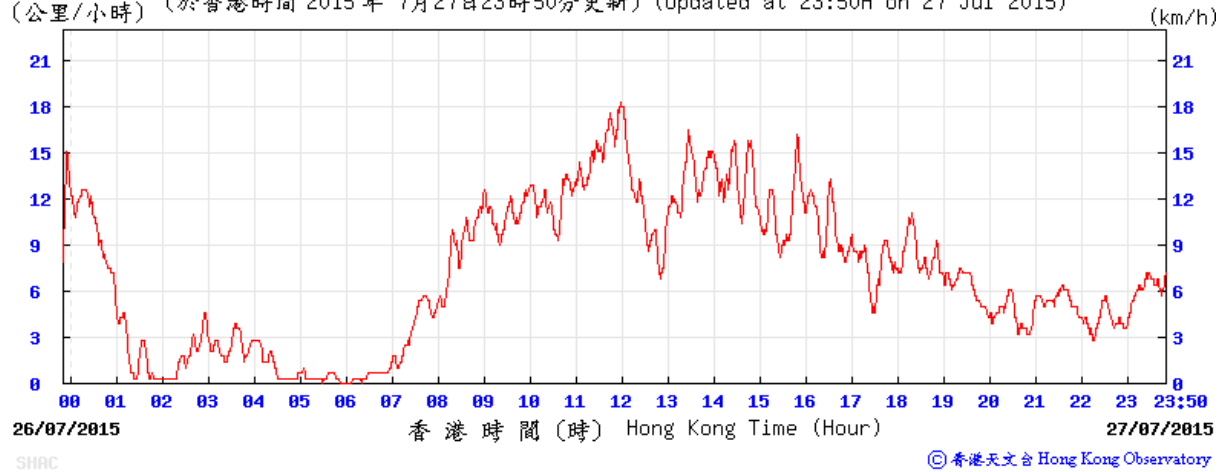
## 21 July 2015

(公里/小時) (於香港時間 2015 年 7月21日23時50分更新) (Updated at 23:50H on 21 Jul 2015)



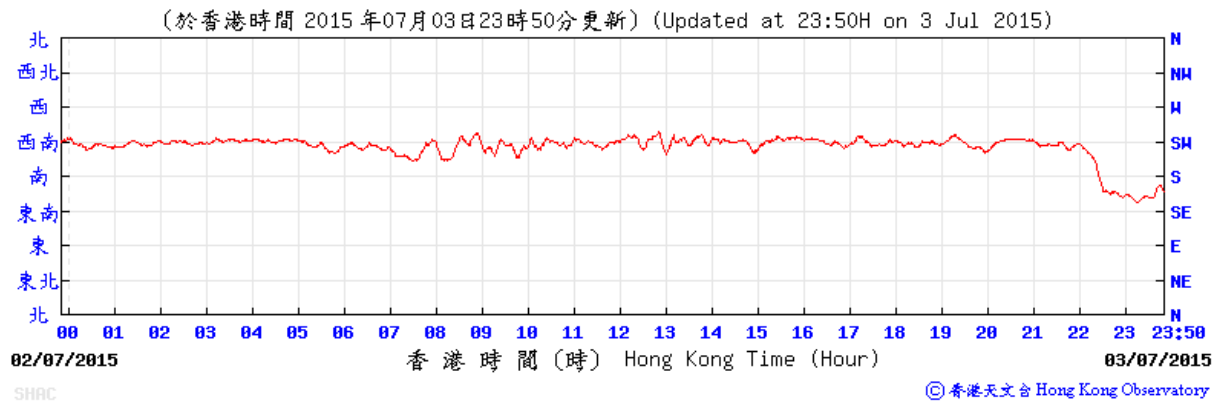
## 27 July 2015

(公里/小時) (於香港時間 2015 年 7月27日23時50分更新) (Updated at 23:50H on 27 Jul 2015)

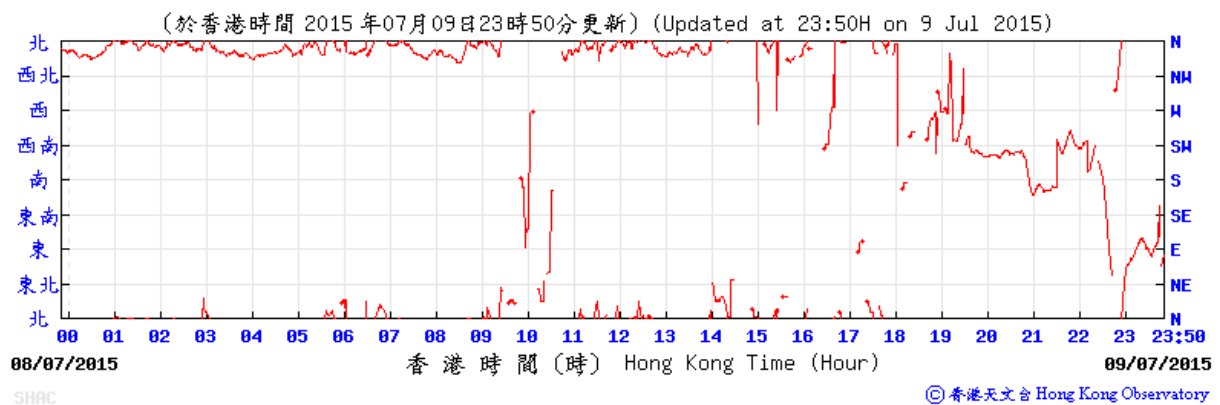


# Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

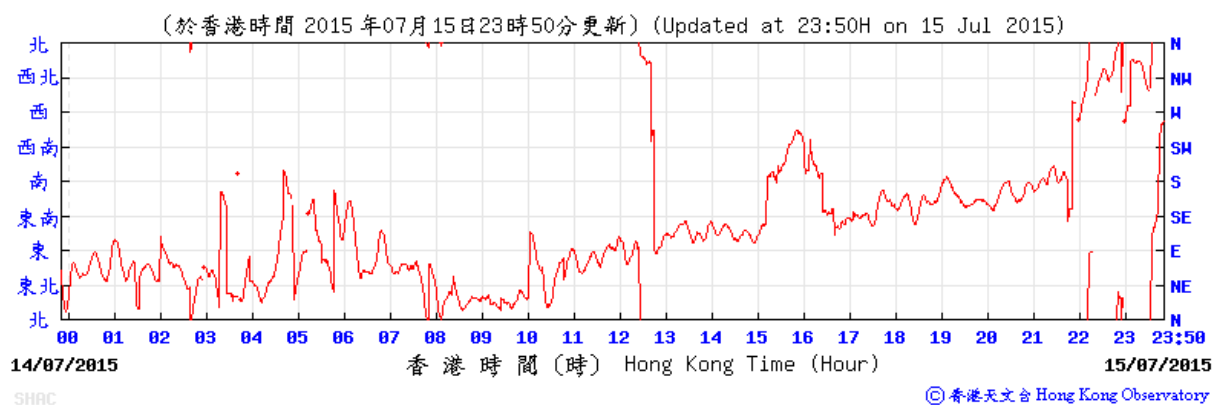
3 July 2015



9 July 2015

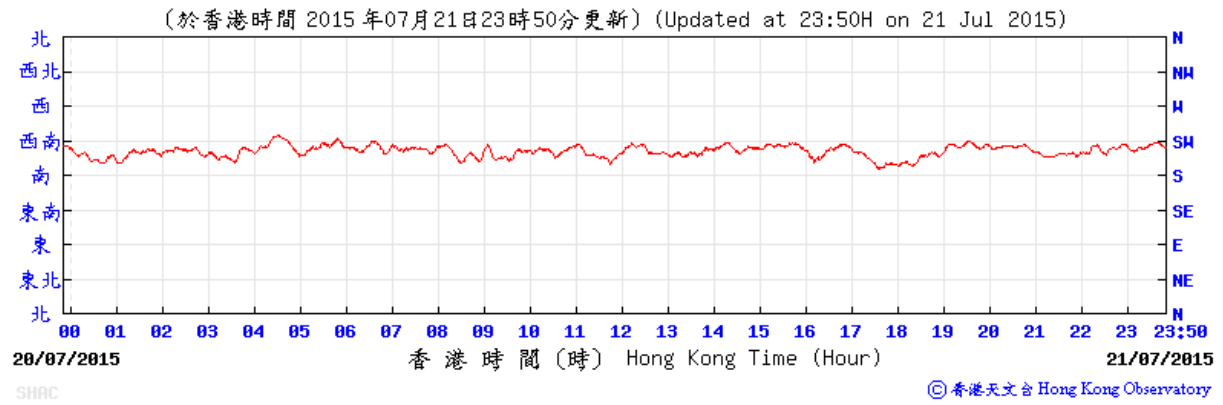


15 July 2015

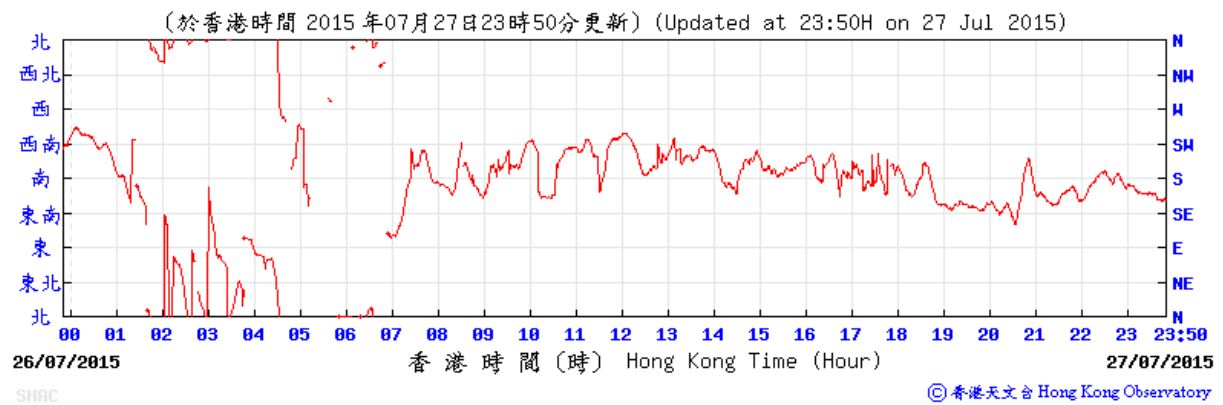




## 21 July 2015



## 27 July 2015



## Appendix G

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Calibration  
Certificates of Noise  
Monitoring  
Equipment



# Certificate of Calibration

## 校正證書

Certificate No. : C145333  
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-2191)      Date of Receipt / 收件日期 : 25 August 2014

Description / 儀器名稱 : Integrating Sound Level Meter  
Manufacturer / 製造商 : Brüel & Kjær  
Model No. / 型號 : 2238  
Serial No. / 編號 : 2320694  
Supplied By / 委託者 : Ove Arup & Partners Hong Kong Co., Ltd.  
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong,  
Kowloon

### TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$       Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$   
Line Voltage / 電壓 : ---

### TEST SPECIFICATIONS / 測試規範

Calibration check


DATE OF TEST / 測試日期 : 30 August 2014

### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : K C Lee  
Project Engineer

Certified By :   
核證 : K M Wu  
Engineer

Date of Issue : 1 September 2014  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

# Certificate of Calibration

## 校正證書

Certificate No. : C145333  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	93.9

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		113.9

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

# Certificate of Calibration

## 校正證書

Certificate No. : C145333  
證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.0	Ref.
	L <sub>ASP</sub>		S			94.0	± 0.1
	L <sub>AIP</sub>		I			94.1	± 0.1

#### 6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L <sub>AFP</sub>	A	F	106.0	Continuous	106.0	Ref.
	L <sub>AFMax</sub>				200 ms	105.0	-1.0 ± 1.0
	L <sub>ASP</sub>	S	Continuous		106.0	Ref.	
	L <sub>ASMax</sub>		500 ms		102.0	-4.1 ± 1.0	

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>AFP</sub>	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C145333  
證書編號

### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>CFP</sub>	C	F	94.00	31.5 Hz	91.0	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
			60 sec.					90	89.9	± 0.5
			5 min.					80	79.2	± 1.0
								70	69.2	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2791364

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
	104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
	114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
	Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



# Certificate of Calibration 校正證書

Certificate No. : C145331  
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC14-2191 )      Date of Receipt / 收件日期 : 25 August 2014

Description / 儀器名稱 : Acoustical Calibrator  
Manufacturer / 製造商 : Brüel & Kjær  
Model No. / 型號 : 4231  
Serial No. / 編號 : 2713427  
Supplied By / 委託者 : Ove Arup & Partners Hong Kong Co., Ltd.  
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong,  
Kowloon

## TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$       Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$   
Line Voltage / 電壓 : ---

## TEST SPECIFICATIONS / 測試規範

Calibration check

**DATE OF TEST / 測試日期** : 30 August 2014

## TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : K C Lee  
Project Engineer

Certified By :   
核證 : K M Wu  
Engineer

Date of Issue : 1 September 2014  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

# Certificate of Calibration

## 校正證書

Certificate No. : C145331  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

### 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

### Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



## Appendix H

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### Noise Results

**Location: NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School**

**Daytime Noise Monitoring Results**

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L <sub>Aeq,30min</sub>	Limit	L <sub>10,30min</sub>	L <sub>90,30min</sub>	L <sub>Aeq,30min</sub>	L <sub>Aeq,30min</sub>
10-Jul-15	15:40-16:10	58.9	70.0	61.5	56.0	57.0	54.4
16-Jul-15	10:10-10:40	57.4	70.0	60.5	55.0	57.0	= Baseline Level
22-Jul-15	11:50-12:20	57.8	70.0	61.0	55.0	57.0	50.1
28-Jul-15	14:00-14:30	59.0	70.0	62.0	55.5	57.0	54.7

Notes: (\*): Façade correction is included

Average L <sub>Aeq,30min</sub>	58.3
Max L <sub>Aeq,30min</sub>	59.0
Min L <sub>Aeq,30min</sub>	57.4

**Location: NMS-CA-2 - Price Memorial Catholic Primary School**

**Daytime Noise Monitoring Results**

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L <sub>Aeq,30min</sub>	Limit	L <sub>10,30min</sub>	L <sub>90,30min</sub>	L <sub>Aeq,30min</sub>	L <sub>Aeq,30min</sub>
10-Jul-15	8:30-9:00	65.7	70.0	66.5	62.0	66.0	< Baseline Level
16-Jul-15	8:30-9:00	66.2	70.0	67.5	62.5	66.0	= Baseline Level
22-Jul-15	8:30-9:00	66.6	70.0	67.5	62.5	66.0	57.7
28-Jul-15	8:30-9:00	66.9	70.0	69.0	63.5	66.0	59.6

Notes: (\*): Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L <sub>Aeq,30min</sub>	66.4
Max L <sub>Aeq,30min</sub>	66.9
Min L <sub>Aeq,30min</sub>	65.7

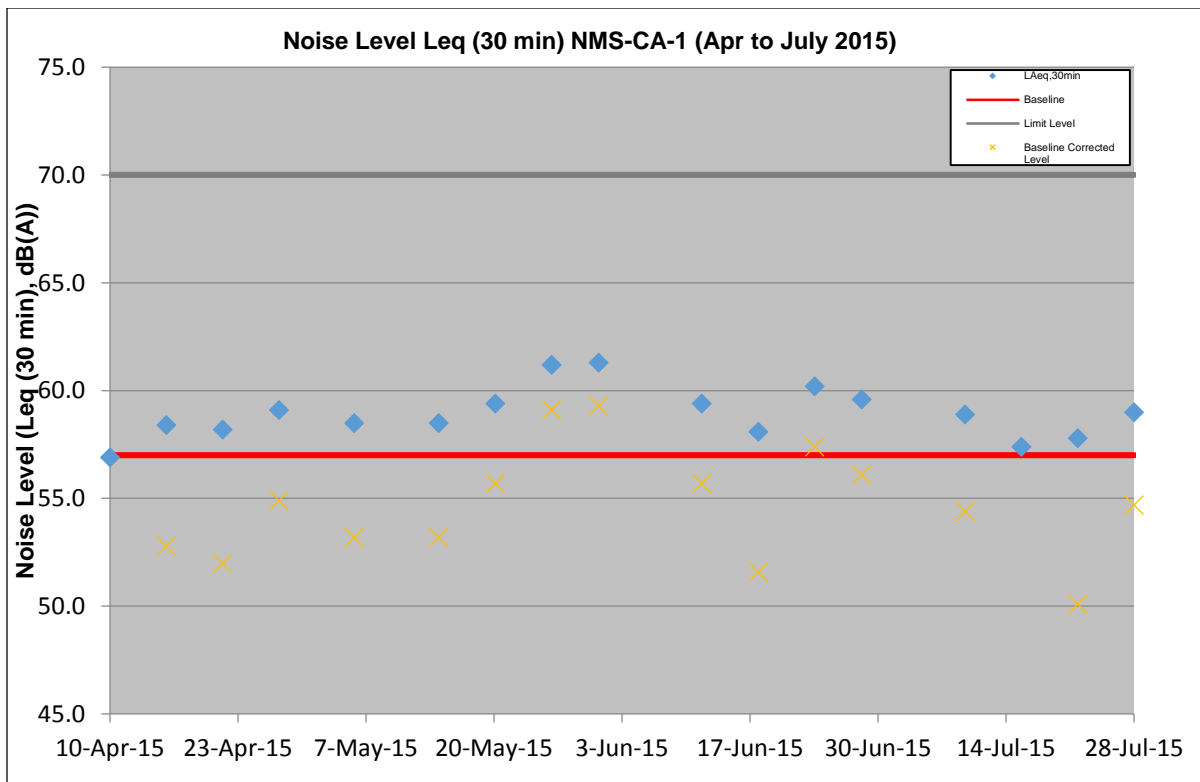
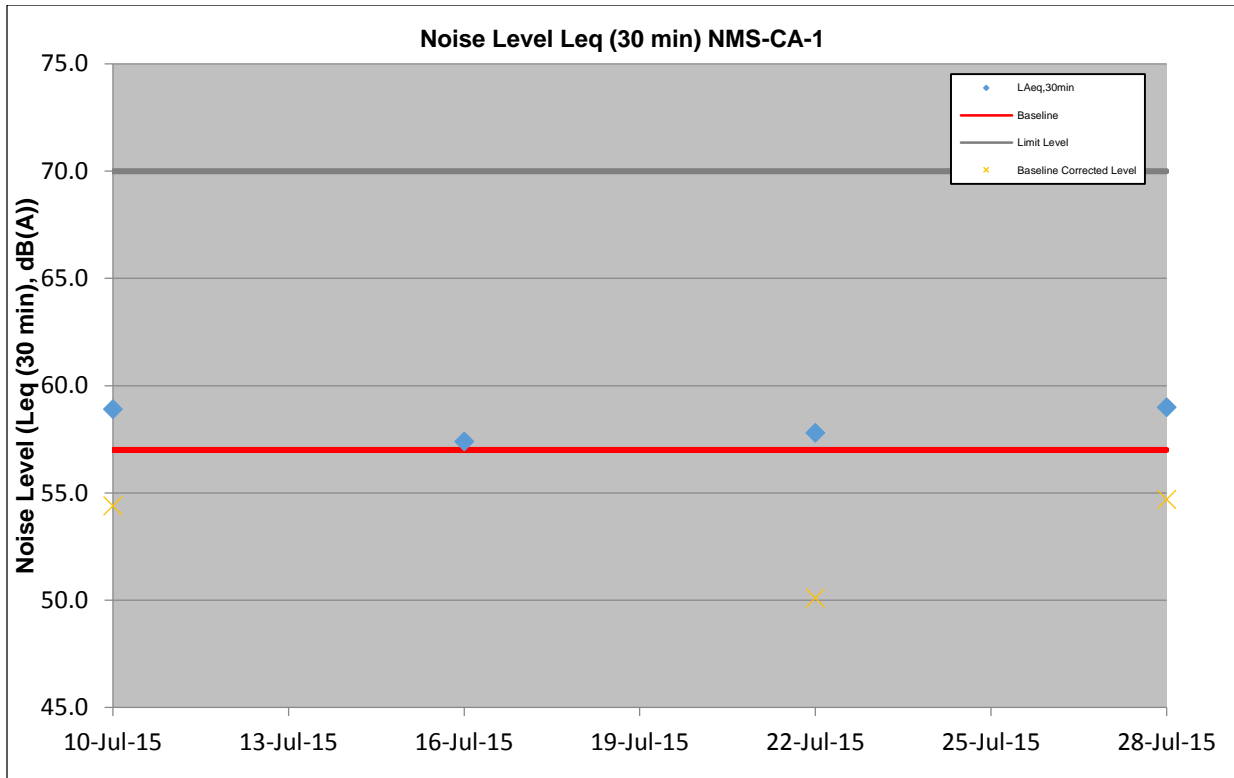
**Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home**

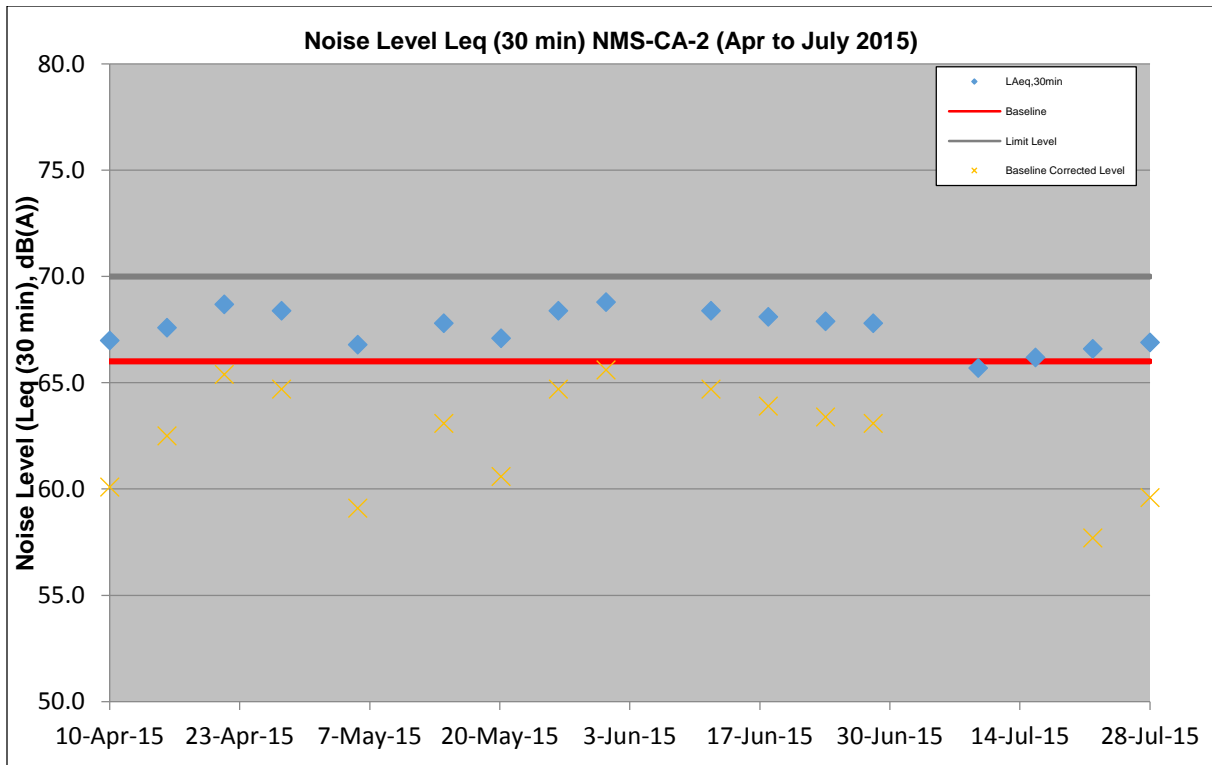
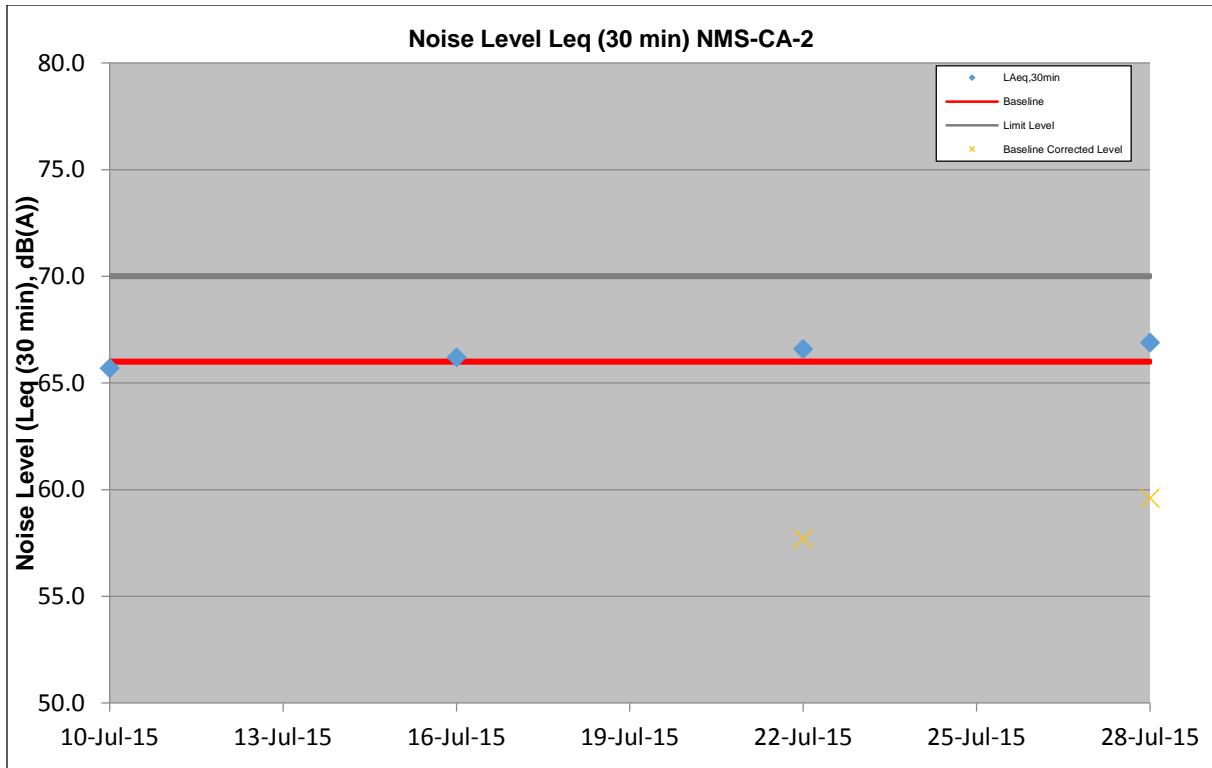
**Daytime Noise Monitoring Results**

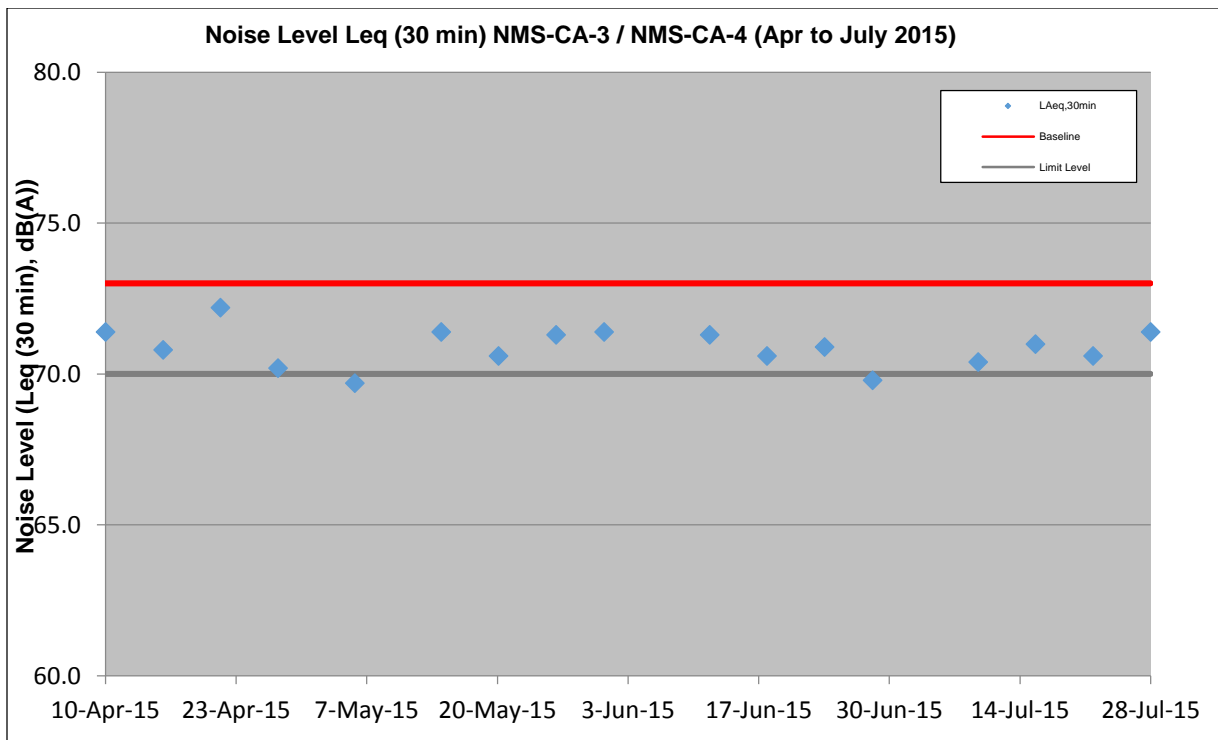
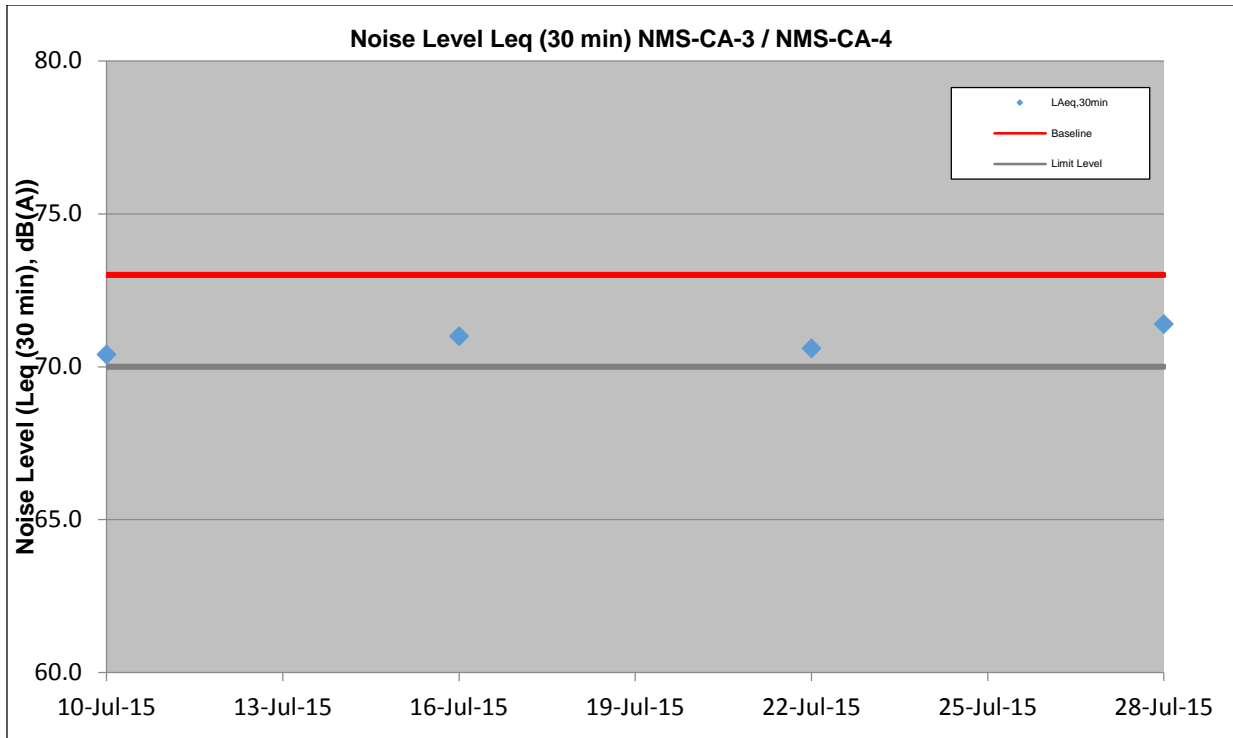
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L <sub>Aeq,30min</sub>	Limit	L <sub>10,30min</sub>	L <sub>90,30min</sub>	L <sub>Aeq,30min</sub>	L <sub>Aeq,30min</sub>
10-Jul-15	14:00-14:30	70.4	70.0	72.0	66.0	73.0	< Baseline Level
16-Jul-15	11:40-12:10	71.0	70.0	72.5	66.0	73.0	< Baseline Level
22-Jul-15	10:15-10:45	70.6	70.0	71.5	65.5	73.0	< Baseline Level
28-Jul-15	10:20-10:50	71.4	70.0	73.0	66.0	73.0	< Baseline Level

Notes: (\*): Façade correction is included

Average L <sub>Aeq,30min</sub>	70.9
Max L <sub>Aeq,30min</sub>	71.4
Min L <sub>Aeq,30min</sub>	70.4







## Appendix I

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Event/Action Plan for  
Air Quality, Airborne  
Noise and Landscape  
and Visual

## Event and Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
<b>Action Level</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal as appropriate.</li> </ol>

Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with ET, ER, and Contractor on the potential remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem still not under control;</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



## Event and Action Plan for Airborne Noise

Event	Action			
	ET	IEC	ER	Contractor
<b>Action Level</b>	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and ER</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required</li> <li>3. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor;</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures</li> <li>2. Report the results of investigation to the IEC, ET and ER</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement noise mitigation proposals</li> </ol>
<b>Limit Level</b>	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ER, ET and Contractor on the potential remedial measures</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Supervise the implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement the agreed proposals</li> <li>5. Revise and resubmit proposals if problem still not under control</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

**Event / Action Plan for Landscape and Visual**

<b>Action Level</b>	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>Contractor</b>
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer’s Representative

## **Appendix J**

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### **Waste Flow Table**

Monthly Summary Waste Flow Table for 2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	36.897	0.000	0.000	31.770	5.127	0.000	0.000	0.086	0.000	1.400	0.194
Feb	34.994	0.000	0.000	28.434	6.559	0.000	0.000	0.138	0.000	0.800	0.153
Mar	51.076	0.000	0.788	41.125	9.164	0.000	0.000	0.000	0.000	1.260	0.151
Apr	47.056	0.000	3.593	38.123	5.340	0.000	0.000	0.000	0.000	0.000	0.114
May	45.841	0.000	0.023	44.351	1.468	0.000	0.000	0.000	0.000	1.500	0.166
Jun	41.083	0.000	0.000	37.969	3.114	0.000	0.000	0.000	0.000	9.190	0.170
Sub-total	256.947	0.000	4.403	221.772	30.772	0.000	0.000	0.224	0.000	14.150	0.948
July	29.374	0.000	0.000	25.820	3.554	0.000	0.000	0.214	0.000	5.200	0.124
August											
September											
October											
November											
December											
Total	286.321	0.000	4.403	247.592	34.326	0.000	0.000	0.438	0.000	19.350	1.071

## Comments:

- 1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m<sup>3</sup>; the density of general refuse is 1.0 ton/m<sup>3</sup>; the density of waste oil is 1.0 ton/m<sup>3</sup>.
- 2) The cut-off date of waste amount in Jun is 30/7/2015 for TKO137FB/TM38FB, NENT landfill, Kai Tak 1108A, Nam Cheong 820 and KWP Quarry.
- 3) The amounts of waste in Jul are 123.54 tons for NENT Landfill, 7107.8 tons for TKO137FB/TM38FB, 0 tons for Kai Tak Contract 1108A, 0 tons for Contract 820 and 51640.3 tons for KWP Quarry.
- 4) The amount of C&D waste reused in the Contract in Jul is 0 trucks, approximately 0 tons, for cut-off date as 30/7/2015.
- 5) The amount of chemical waste in Jul is 5200kg for cut-off date as 30/7/2015.

## Appendix K

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Environmental  
Monitoring  
Programme for  
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels  
Tentative Impact Monitoring Schedule - August 2015**

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L <sub>Aeq</sub> , 30 min	
1-Aug-15 Sat			
2-Aug-15 Sun			
3-Aug-15 Mon			
4-Aug-15 Tue			
5-Aug-15 Wed			
6-Aug-15 Thu			
7-Aug-15 Fri			
8-Aug-15 Sat			
9-Aug-15 Sun			
10-Aug-15 Mon			
11-Aug-15 Tue			
12-Aug-15 Wed			
13-Aug-15 Thu			
14-Aug-15 Fri			
15-Aug-15 Sat			
16-Aug-15 Sun			
17-Aug-15 Mon			
18-Aug-15 Tue			
19-Aug-15 Wed			
20-Aug-15 Thu			
21-Aug-15 Fri			
22-Aug-15 Sat			
23-Aug-15 Sun			
24-Aug-15 Mon			
25-Aug-15 Tue			
26-Aug-15 Wed			
27-Aug-15 Thu			
28-Aug-15 Fri			
29-Aug-15 Sat			
30-Aug-15 Sun			
31-Aug-15 Mon			

	Public Holiday
	Monitoring Day

**Monitoring Details**

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	L <sub>Aeq</sub> (30 min), L <sub>10</sub> , L <sub>90</sub>

## Appendix L

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Cumulative Log for  
Complaints,  
Notifications of  
Summons and  
Successful  
Prosecutions

**SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage Environmental Complaint Log (July 2015)**

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received from EPD	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Status
EP3/K11/RE/00017119-2015	-	-	21 July 2015	16 July 2015	Construction Sites in Diamond Hill	Diamond Hill Site (Contact 1103)	Noise Complaint received from EPD about construction noise from SCL sites during restricted hours including Sundays.	21 July 2015	21 July 2015	<ul style="list-style-type: none"> <li>• Since mid of Jun, only maintenance work and dismantling work of TBM was carried out under noise enclosure during restricted hour.</li> <li>• No major works were conducted at surface in restricted hour; only tower crane and wastewater treatment plant were used during restricted hour including Sunday.</li> <li>• Spot checks were carried out during restricted hour(7pm - 11pm) on 16 Jul and 20 Jul 2015, the followings were found:                             <ul style="list-style-type: none"> <li>- No construction works were in operation on the ground surface outside the noise enclosure;</li> <li>- All the site conditions were fully complied with the existing CNP, GW-RE0509-15, GW-RE0510-15, GW-RE0117-15 and GW-RE0259-15.</li> </ul> </li> </ul>	Closed



Ove Arup and Partners HK Ltd.

**Environmental Complaint Log (Cumulative)**

<b>Reporting Month</b>	<b>Number of Complaints in Reporting Month</b>	<b>Number of Summons in Reporting Month</b>	<b>Number of Prosecutions in Reporting Month</b>
February 2013	0	0	0
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	2	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	3	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
<b>Total</b>	<b>10</b>	<b>0</b>	<b>0</b>

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**Appendix F**

**29<sup>th</sup> EM&A Report for Works Contract 1106 –  
Diamond Hill Station**

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MTR Corporation Limited


**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 29

[Period from 1 to 31 July 2015]

Works Contract 1106 – Diamond Hill Station

(August 2015)

Certified by:   
\_\_\_\_\_ Dr. Priscilla Choy

Position: Environmental Team Leader


Date: 11<sup>th</sup> August 2015

**Sembawang – Leader Joint Venture**

**Shatin to Central Link –  
Contract 1106  
Diamond Hill Station**

**Monthly Environmental  
Monitoring and Audit Report  
For July 2015**

(Version 2.1)

Certified By   
\_\_\_\_\_  
Dr. Priscilla Choy  
(Environmental Team Leader)

REMARKS:

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

CINOTECH accepts no responsibility for changes made to this report by third parties.

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## TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Introduction .....	1
Summary of Construction Works undertaken during the Reporting Month .....	1
Environmental Monitoring and Audit Progress .....	1
Regular Construction Noise and Construction Dust Monitoring .....	1
Cultural Heritage .....	1
Waste Management .....	2
Landscape and Visual.....	2
Environmental Site Inspection .....	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution .....	2
Future Key Issues .....	3
<b>1 INTRODUCTION .....</b>	<b>3</b>
Purpose of the Report .....	4
Structure of the Report .....	4
<b>2 PROJECT INFORMATION.....</b>	<b>5</b>
Background .....	5
General Site Description .....	5
Construction Programme and Activities .....	5
Project Organisation .....	5
Status of Environmental Licences, Notification and Permits.....	5
Summary of EM&A Requirements .....	6
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS.....</b>	<b>7</b>
Regular Construction Noise Monitoring .....	7
Monitoring Parameter and Frequency .....	7
Monitoring Equipment and Methodology .....	8
Field Monitoring.....	8
Monitoring Equipment .....	8
Maintenance and Calibration.....	9
Action & Limit Level for Construction Noise Monitoring .....	9
Continuous Noise Monitoring .....	9
Regular Construction Dust Monitoring .....	9
Monitoring Parameter and Frequency .....	10
Monitoring Equipment .....	10
Instrumentation.....	10
HVS Installation .....	10
Filters Preparation .....	11
Operating/Analytical Procedures .....	11
Maintenance/Calibration .....	12
Action and Limit Levels for Dust Monitoring .....	12
Cultural Heritage .....	12
Landscape and Visual.....	12
<b>4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>13</b>
<b>5 MONITORING RESULTS .....</b>	<b>14</b>

Regular Construction Noise Monitoring .....	14
Regular Dust Monitoring.....	14
Cultural Heritage .....	15
Waste Management .....	15
Landscape and Visual.....	16
<b>6 ENVIRONMENTAL SITE INSPECTION.....</b>	<b>17</b>
Site Audits .....	17
Implementation Status of Environmental Mitigation Measures.....	17
<b>7 ENVIRONMENTAL NON-CONFORMANCE.....</b>	<b>19</b>
Summary of Exceedances .....	19
Summary of Environmental Non-Compliance.....	19
Summary of Environmental Complaint .....	19
Summary of Environmental Summon and Successful Prosecution .....	19
<b>8 FUTURE KEY ISSUES .....</b>	<b>20</b>
Construction Programme for the Next Month.....	20
Key Issues in the Next Month .....	20
Monitoring Schedule in the Next Month.....	20
<b>9 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>21</b>
Conclusions .....	21
Recommendations .....	21

## LIST OF TABLES

Table 2.1	Status of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Location
Table 3.2	Noise Monitoring Equipment
Table 3.3	Dust Monitoring Location
Table 3.4	Dust Monitoring Parameters and Frequency
Table 3.5	Dust Monitoring Equipment
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Dust Monitoring Results during the reporting month
Table 5.2	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

## LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1106
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Locations of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

## **LIST OF APPENDICES**

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations
Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

## EXECUTIVE SUMMARY

### Introduction

1. This is the 29<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station**. This report documents the findings of EM&A Works conducted from 1 to 31 July 2015.

### Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
  - Construction of slabs/beams, columns and walls at SCL-DIH station area, Interchange Adit, West Unpaid Link Adit and Entrance A1;
  - Concreting works; and
  - Preparation of piling works and pre-drilling works.

### Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:

#### Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

#### Noise Monitoring Station ID

- |  |         |
|--|---------|
| • NMS-CA-3 <sup>(1)(3)</sup> /NMS-CA-4 <sup>(2)(3)</sup> (H.K. Sheng Kung Hui Nursing Home)        | 4 times |
| • NMS-CA-4 <sup>(1)</sup> /NMS-CA-3 <sup>(2)</sup> (Block 1, Rhythm Garden (north-eastern façade)) | 5 times |
| • NMS-CA-5 <sup>(1)</sup> /NMS-CA-2 <sup>(2)</sup> (Block 1, Rhythm Garden (northern façade))      | 5 times |

- Construction Dust (24-hour TSP) Monitoring

#### Dust Monitoring Station ID

- |   |         |
|---|---------|
| • DMS-3 <sup>(1)(4)</sup> /DMS-4 <sup>(2)(4)</sup> (H.K. Sheng Kung Hui Nursing Home) | 5 times |
| • DMS-4 <sup>(1)</sup> /DMS-3 <sup>(2)</sup> (Block 1, Rhythm Garden)                 | 6 times |

#### Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Noise monitoring on NMS-CA-3<sup>(1)</sup>/NMS-CA-4<sup>(2)</sup> (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
- (4) Dust monitoring on DMS-3<sup>(1)</sup>/DMS-4<sup>(2)</sup> (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.

### Cultural Heritage

4. An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village commenced on 25 April 2013 and the fieldwork had been completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014.



Comments from AMO were received in September 2014. A revised draft report was submitted to AMO in April 2015 for their further review.

5. The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan.

#### Waste Management

6. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 239 m<sup>3</sup> of inert C&D materials were generated from the Project and were sent to Tseung Kwan O 137 and Tuen Mun Area 38 Fill Bank during the reporting month. 114 m<sup>3</sup> of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No chemical waste was collected by licensed collector during the reporting month. No plastics and metal, but 240 kg of paper/ cardboard packaging were generated in this reporting month.

#### Landscape and Visual

7. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2, 16 and 30 July 2015. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

#### Environmental Site Inspection

8. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 2, 9, 16, 23 and 30 July 2015. The representative of the IEC joined the site inspection on 30 July 2015. Details of the audit findings and implementation status are presented in Section 6.

#### **Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution**

9. No exceedance of the Action and Limit Levels of regular 24-hour TSP monitoring was recorded during the reporting period.
10. 1 Action Level exceedance of construction noise monitoring was recorded as 1 complaint related to construction noise was received in July 2015. No Limit Level exceedance was recorded.
11. No non-compliance event was recorded during the reporting period.
12. 1 environmental public complaint related to construction noise during restricted hours was received. No notification of summons/ successful prosecutions were received in this reporting period

### **Future Key Issues**

13. Major site activities for the coming reporting month will include:
- Construction of slabs/beams, columns and walls at SCL-DIH station area, Interchange Adit, West Unpaid Link Adit and Entrance A1;
  - Concreting works;
  - Backfilling works; and
  - Preparation of piling works and pre-drilling works.

## 1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Sembawang – Leader Joint Venture (SLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station (hereafter referred to as the Project).

### **Purpose of the Report**

- 1.2 This is the 29<sup>th</sup> EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 July 2015.

### **Structure of the Report**

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

## 2 PROJECT INFORMATION

### Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1106 covers the construction of Shatin-to-Central Link (SCL) station in Diamond Hill (DIH).

### General Site Description

- 2.3 For Works Contract 1106, the works area for the DIH station is located to the northeast of Choi Hung Road next to the existing Kwun Tong Line DIH Station. The DIH station will be constructed by cut-and-cover method. The alignment and works area for the Works Contract 1106 are shown in **Figure 1**.

### Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
  - Construction of slabs/beams, columns and walls at SCL-DIH station area, Interchange Adit, West Unpaid Link Adit and Entrance A1;
  - Concreting works; and
  - Preparation of piling works and pre-drilling works.

### Project Organisation

- 2.5 The project organizational chart and contact details are shown in **Figure 4**.

### Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in March 2013 is presented in Table 2.1.

**Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits**

Permit / License No.	Valid Period		Status
	From	To	
<b>Environmental Permit (EP)</b>			
EP-438/2012/H	10/09/2014	N/A	Valid
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>			
No.: 378656	28/08/2014	N/A	Valid
<b>Billing Account for Construction Waste Disposal</b>			
Account No.: 7016601	27/12/2012	N/A	Valid
<b>Registration of Chemical Waste Producer</b>			
5213-281-S3711-02	28/01/2015	N/A	Valid
<b>Effluent Discharge License under Water Pollution Control Ordinance</b>			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
<b>Construction Noise Permit (CNP)</b>			
GW-RE0449-15	26/05/2015	25/11/2015	Valid

### Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1106 requires regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the Project EIA study final report; and
  - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

### 3 ENVIRONMENTAL MONITORING REQUIREMENTS

#### Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

**Table 3.1 Regular Construction Noise Monitoring Location**

<b>Regular Construction Noise Monitoring Location</b>	<b>Description</b>	<b>Type of Measurement</b>
NMS-CA-3 <sup>(1)(3)(4)</sup> / NMS-CA-4 <sup>(2)(3)(4)</sup>	Hong Kong Sheng Kung Hui Nursing Home	Façade
NMS-CA-4 <sup>(1)</sup> / NMS-CA-3 <sup>(2)</sup>	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 <sup>(1)(5)</sup> / NMS-CA-2 <sup>(2)(5)</sup>	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3<sup>(1)</sup>/NMS-CA-4<sup>(2)</sup> (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.

#### **Monitoring Parameter and Frequency**

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{Aeq}$ ) in decibels dB(A).  $L_{Aeq}$  (30min) (as six consecutive  $L_{eq, 5-min}$  readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

## Monitoring Equipment and Methodology

### Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building’s external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 5 minutes (obtaining six consecutive  $L_{eq,5min}$  readings for a  $L_{eq,30 min}$  .reading )
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

### Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, compile with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in **Appendix C**.

**Table 3.2 Noise Monitoring Equipment**

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 14303) SVAN 957 (Serial no.: 21460)
Calibrator	SV30A (Serial no.: 24791) B&K4231 (Serial no.: 2326353)

## Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

### **Action & Limit Level for Construction Noise Monitoring**

3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I**.

### **Continuous Noise Monitoring**

3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and CNMMP prepared and submitted under EP Condition 2.9 and 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1106.

### **Regular Construction Dust Monitoring**

3.9 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

**Table 3.3 Dust Monitoring Location**

<b>Regular Dust Monitoring Location</b>	<b>Description</b>
DMS-3 <sup>(1)(3)(4)</sup> / DMS-4 <sup>(2)(3)(4)</sup>	Hong Kong Sheng Kung Hui Nursing Home
DMS-4 <sup>(1)</sup> / DMS-3 <sup>(2)</sup>	Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Dust monitoring on DMS-3<sup>(1)</sup>/DMS-4<sup>(2)</sup> (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.



### Monitoring Parameter and Frequency

- 3.10 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at Rhythm Garden was conducted as per the schedule presented in **Appendix D**.

**Table 3.4 Dust Monitoring Parameters and Frequency**

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring <sup>(1)</sup>	Throughout the construction period	24-hour TSP	Once per 6 days

Note:

- (1) 1- hour TSP shall be conducted when one documented valid complaint is received.

### Monitoring Equipment

- 3.11 **Table 3.5** summarizes the equipment used for the dust monitoring.

**Table 3.5 Dust Monitoring Equipment**

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 2896	1

### Instrumentation

- 3.12 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

### HVS Installation

- 3.13 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the samplers against gusty wind.
  - No two samplers were placed less than 2 meters apart.
  - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
  - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
  - No furnaces or incineration flues were nearby.
  - Airflow around the sampler was unrestricted.
  - The samplers were more than 20 meters from the drip line.
  - Any wire fence and gate, to protect the sampler, should not cause any obstruction

during monitoring.

### **Filters Preparation**

- 3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3  $\mu\text{m}$  diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5$ %. A convenient working RH was 40%.
- 3.16 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

### **Operating/Analytical Procedures**

- 3.17 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
  - Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4  $\text{m}^3/\text{min}$ .) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
  - The power supply was checked to ensure the sampler worked properly.
  - The filter holding frame and the area surrounding the filter were cleaned.
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
  - The shelter lid was closed and secured with the aluminum strip.
  - A new flow rate record chart was set into the flow recorder.
  - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
  - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
  - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
  - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
  - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than  $\pm 3$ °C; the relative humidity (RH) should be < 50% and not vary by more than  $\pm 5$ %. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations.

### **Maintenance/Calibration**

- 3.18 The following maintenance/calibration was required for the HVS:
- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
  - Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix C**.
  - The HVS calibration orifice will be calibrated annually.

### **Action and Limit Levels for Dust Monitoring**

- 3.19 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix I**.

### **Cultural Heritage**

- 3.20 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village shall be conducted in accordance with the Licence granted and the approved AAP.
- 3.21 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar and relocation work of the Old Pillbox shall be carried out in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings shall be carried out in accordance with the approved Conservation Plan.

### **Landscape and Visual**

- 3.22 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix I**.

#### 4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

**Table 4.1 Status of Required Submissions under EP**

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (June 2015)	14 <sup>h</sup> July 2015

## 5 MONITORING RESULTS

### Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5<sup>(1)</sup>/NMS-CA-2<sup>(2)</sup> (Block 1, Rhythm Garden (northern façade)) in July exceeded the daytime construction noise criterion, except result on 16 July 2015. However, the results are not considered as exceedance since the results were below the baseline noise level. The noise monitoring results recorded at NMS-CA-4<sup>(1)</sup>/NMS-CA-3<sup>(2)</sup> (Block 1, Rhythm Garden (north-eastern façade)) in July did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby and breaking works in other construction site at 210-212 Choi Hung Road (observed till 16 July 2015) are considered as potential noise source other than construction works of the Project that affects the monitoring results in the reporting month.
- 5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**<sup>(3)</sup>.
- 5.5 1 exceedance of Action Level of construction noise was recorded due to 1 complaint related to construction noise was received. The detail of the complaint received and investigation is presented in **Appendix L**. No Limit Level exceedance of construction noise due to the Project was recorded during the reporting period. The summary of exceedance in this reporting month is provided in **Appendix G**

### Regular Dust Monitoring

- 5.6 A total of 6 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E**<sup>(3)</sup> and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

**Table 5.1 Summary Table of Dust Monitoring Results during the reporting month**

Parameter	Minimum µg/m <sup>3</sup>	Maximum µg/m <sup>3</sup>	Average µg/m <sup>3</sup>	Action Level, µg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
24-hr TSP (DMS-3 <sup>(1)(4)</sup> / DMS-4 <sup>(2)(4)</sup> )	6.8	19.8	13.8	159.1	260
24-hr TSP (DMS-4 <sup>(1)</sup> / DMS-3 <sup>(2)</sup> )	12.8	62.1	32.0	160.4	260

**Remarks:**

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).  
 (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).  
 (3) The monitoring results and graphical presentation for H.K. Sheng Kung Hui Nursing Home are presented in Monthly EM&A Report for Contract 1103.  
 (4) Dust monitoring on DMS-3<sup>(1)</sup>/DMS-4<sup>(2)</sup> (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby and breaking works in other construction site at 210-212 Choi Hung Road (observed till 16 July 2015) are considered as potential dust source other than construction works of the Project that affects the monitoring results in the reporting month.
- 5.8 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.9 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period. The summary of exceedance in this reporting month is provided in **Appendix G**.

### **Cultural Heritage**

- 5.10 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village commenced on 25 April 2013 and completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014. Comments from AMO were received in September 2014. A revised draft report was submitted to AMO in April 2015 for their further review.
- 5.11 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan.

### **Waste Management**

- 5.12 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. 239 m<sup>3</sup> of C&D materials and 114 m<sup>3</sup> of general refuse were generated. No chemical waste was collected by licensed collector during the reporting month. No plastics and metal but 240 kg of paper/ cardboard packaging were generated in this reporting month. Detail of waste management data is presented in **Appendix K**.

**Table 5.2 Quantities of Waste Generated from the Project**

Reporting Month	Quantity					
	C&D Materials (inert) <sup>(a)</sup>	C&D Materials (non-inert) <sup>(b)</sup>				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
July 2015	239m <sup>3</sup>	114m <sup>3</sup>	0kg	240kg	0kg	0kg

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to Tseung Kwan O 137 and Tuen Mun Area 38 Fill Bank during the reporting month.
- (b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.

### Landscape and Visual

5.13 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2, 16 and 30 July 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.



## 6 ENVIRONMENTAL SITE INSPECTION

### Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 6.2 Site audits were conducted on 2, 9, 16, 23 and 30 July 2015. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 30 July 2015. EPD conducted site inspection for discharge point and drainage system, and mobile batching machinery equipment on 14 and 17 July 2015. No adverse comment was received. The details of observations during site audits carried out by ET can refer to **Table 6.1**.

### Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	25 Jun 2015	<u>Reminder:</u> The Contractor was reminded to provide sand bags surrounding covered stockpile at A1 to prevent silty runoff leakage out of the site area during rain.	As observed on 2 Jul, no runoff leakage was observed. Sand bags were prepared to surround stockpile during rain.
	2 Jul 2015	<u>Observation:</u> Sediment in sedimentation tank in A1 should be regularly removed and the quality of effluent should be improved.	As observed on 9 Jul, this item was found outstanding. Please refer to the item on 9 Jul 2015.
	9 Jul 2015	<u>Observation:</u> Sediment in sedimentation tank in A1 should be regularly removed and the quality of effluent should be improved. Sand bag bund should be provided to covered stockpile to retain runoff.	As observed on 16 Jul, the quality of effluent was improved. Sand bags were provided to prevent runoff leakage.
	23 Jul 2015	<u>Observation:</u> Silty water observed overflowing and discharging to the public drain at KTL-DIH Exit A1 works area. The Contractor was recommended to enhance the wastewater treatment and drainage system.	As observed on 30 Jul, no silty water was observed entering public drain.
	23 Jul 2015	<u>Reminder:</u> The dusty stockpile near tree DT1911 was not fully covered up. The Contractor was reminded to cover the stockpile entirely by impervious material.	As observed on 30 Jul, the stockpile near tree DT1911 was covered.
	30 Jul 2015	<u>Reminder:</u>	The follow up action will be reported



Parameters	Date	Observations and Recommendations	Follow-up
		Bund for gully in A1 work area should be properly enhanced to prevent untreated runoff entering the gully.	in the next reporting month.
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	16 Jul 2015	<u>Observation:</u> Construction materials inside tree protection zone in A1 work area should be removed. Retained trees should be properly protected and fenced off.	As observed on 23 Jul, the retained trees were fenced off but construction materials were still observed on the planter. Please refer to the item on 23 Jul 2015.
	23 Jul 2015	<u>Observation:</u> Construction materials inside tree protection zone in A1 work area should be removed.	As observed on 30 Jul, this item was found outstanding. Please refer to the item on 30 Jul 2015.
	30 Jul 2015	<u>Observation:</u> Construction materials inside tree protection zone in A1 work area should be removed.	The follow up action will be reported in the next reporting month.
<i>Cultural Heritage</i>	---	---	---
<i>Air Quality</i>	9 Jul 2015	<u>Reminder:</u> Tarpaulin coverage for stockpile near Tree 1911 should be improved.	As observed on 16 Jul, the stockpile near Tree 1911 was covered by tarpaulin.
<i>Waste/ Chemical Management</i>	---	---	---
<i>Permits/ Licenses</i>	---	---	---

## 7 ENVIRONMENTAL NON-CONFORMANCE

### Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of the regular 24-hour TSP monitoring was recorded during the reporting month.
- 7.2 1 Action Level exceedance of construction noise was recorded due to 1 complaint related to construction noise was received in July 2015. No Limit Level exceedance of construction noise was recorded during the reporting month.
- 7.3 The summary of exceedance is provided in **Appendix G**.

### Summary of Environmental Non-Compliance

- 7.4 No environmental non-compliance was recorded in the reporting month.

### Summary of Environmental Complaint

- 7.5 1 environmental public complaint related to construction noise during restricted hours was received in the reporting month. The detail of the complaint received and investigation is present in **Appendix L**. The Cumulative Complaint Log since the commencement of the Project is also presented in **Appendix L**.

### Summary of Environmental Summon and Successful Prosecution

- 7.6 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

## 8 FUTURE KEY ISSUES

### Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Construction of slabs/beams, columns and walls at SCL-DIH station area, Interchange Adit, West Unpaid Link Adit and Entrance A1;
- Concreting works;
- Backfilling works; and
- Preparation of piling works and pre-drilling works.

### Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and excavated materials;
- Control of silty surface runoff;
- Preservation of Former Royal Air Force Hangar and Old Pillbox after dismantling and relocation;
- Preservation and protection of retained and transplanted trees; and
- Implementation of mitigation measures for noise nuisance from construction works.

### Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at Rhythm Garden in the next reporting period is presented in **Appendix D**. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

## 9 CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2015 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 1 Action Level exceedance of construction noise was recorded due to 1 complaint related to construction noise was received in July 2015. No Limit Level exceedance of construction noise was recorded during the reporting month.
- 9.4 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 3 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.5 There was 1 environmental public complaint but no successful prosecution or notification of summons received during the reporting month.
- 9.6 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### Recommendations

- 9.7 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### Water Quality

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times.
- Tarpaulin coverage and sand bag bund should be provided to stockpile of dusty material to reduce silty runoff and prevent potential runoff leakage during rain.
- Bund should be provided to gully and public drain to prevent untreated runoff and wastewater entering the public drainage.

#### Landscape and Visual

- "No-intrusion zone" should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff and construction plants from entering the erected "no-intrusion zone" for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection. No construction works should be carried out in the "no-intrusion zone" for existing trees.

#### Air Quality

- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.

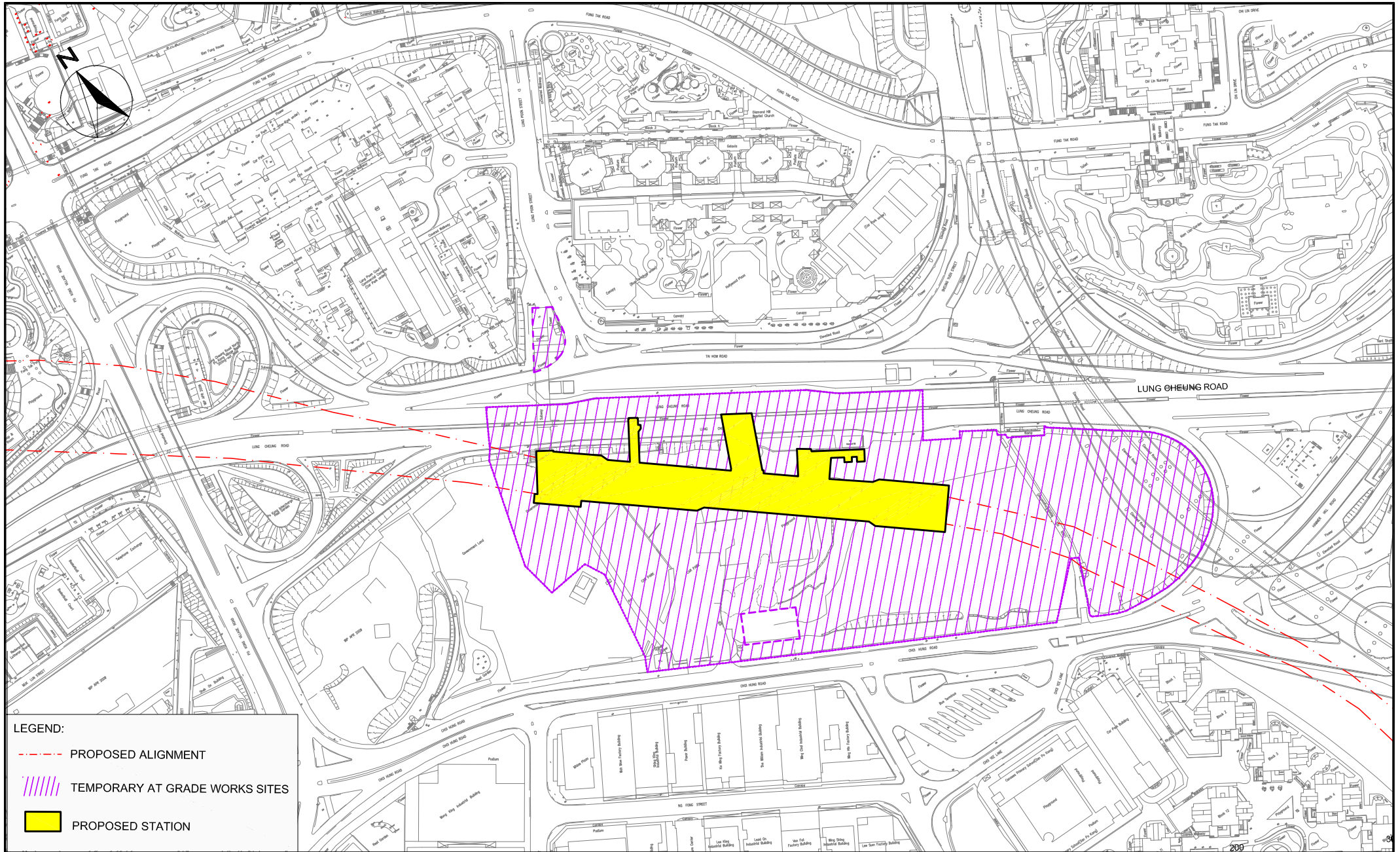
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## FIGURES

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- LEGEND:**
- - - PROPOSED ALIGNMENT
  - ||||| TEMPORARY AT GRADE WORKS SITES
  - PROPOSED STATION

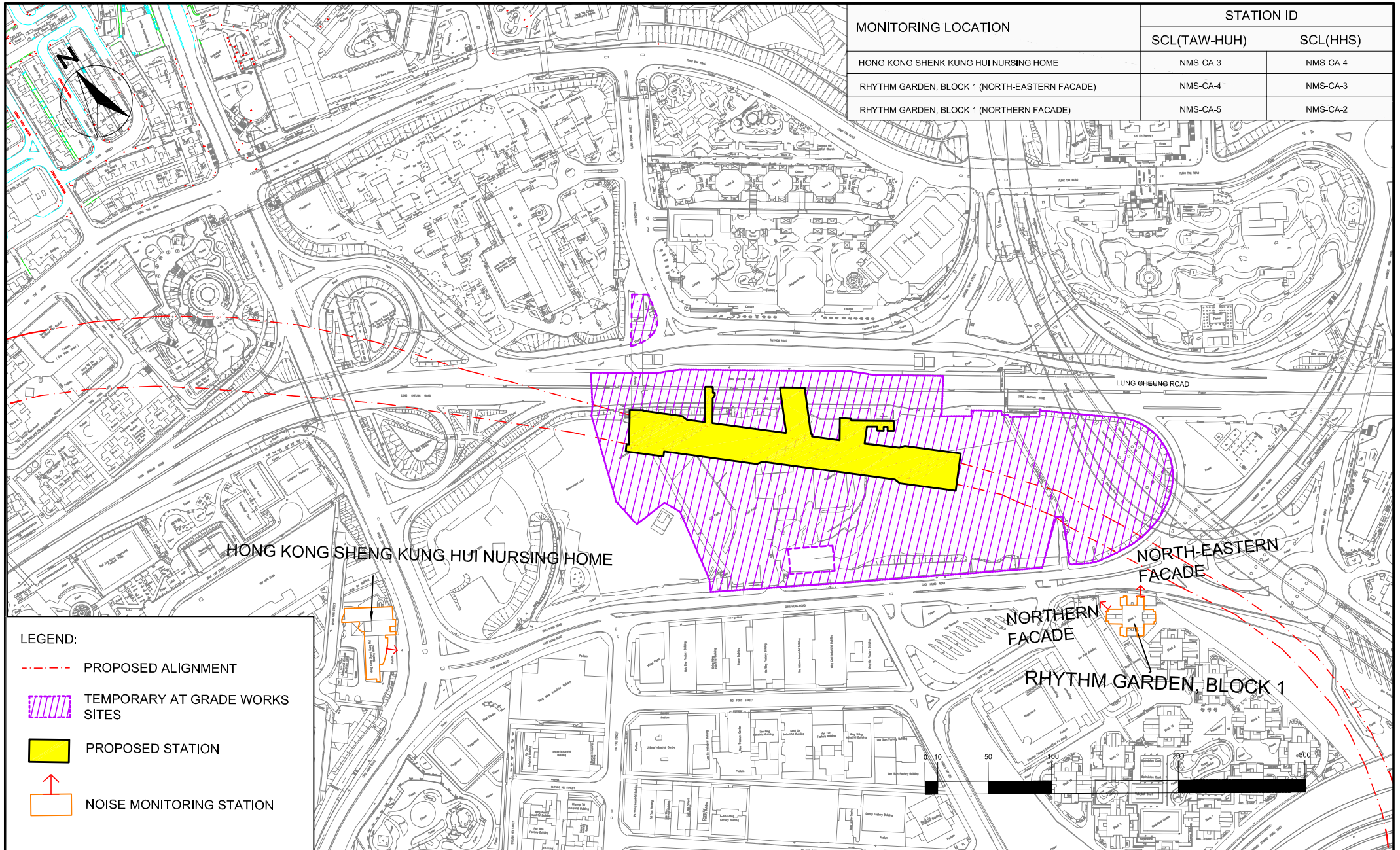
SHATIN TO CENTRAL LINK CONTRACT 1106  
DIAMOND HILL STATION

**SITE LAYOUT PLAN**



SCALE	1:80	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	1	REV
				-





MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENK KUNG HUI NURSING HOME	NMS-CA-3	NMS-CA-4
RHYTHM GARDEN, BLOCK 1 (NORTH-EASTERN FACADE)	NMS-CA-4	NMS-CA-3
RHYTHM GARDEN, BLOCK 1 (NORTHERN FACADE)	NMS-CA-5	NMS-CA-2

**LEGEND:**

- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- ↑ NOISE MONITORING STATION

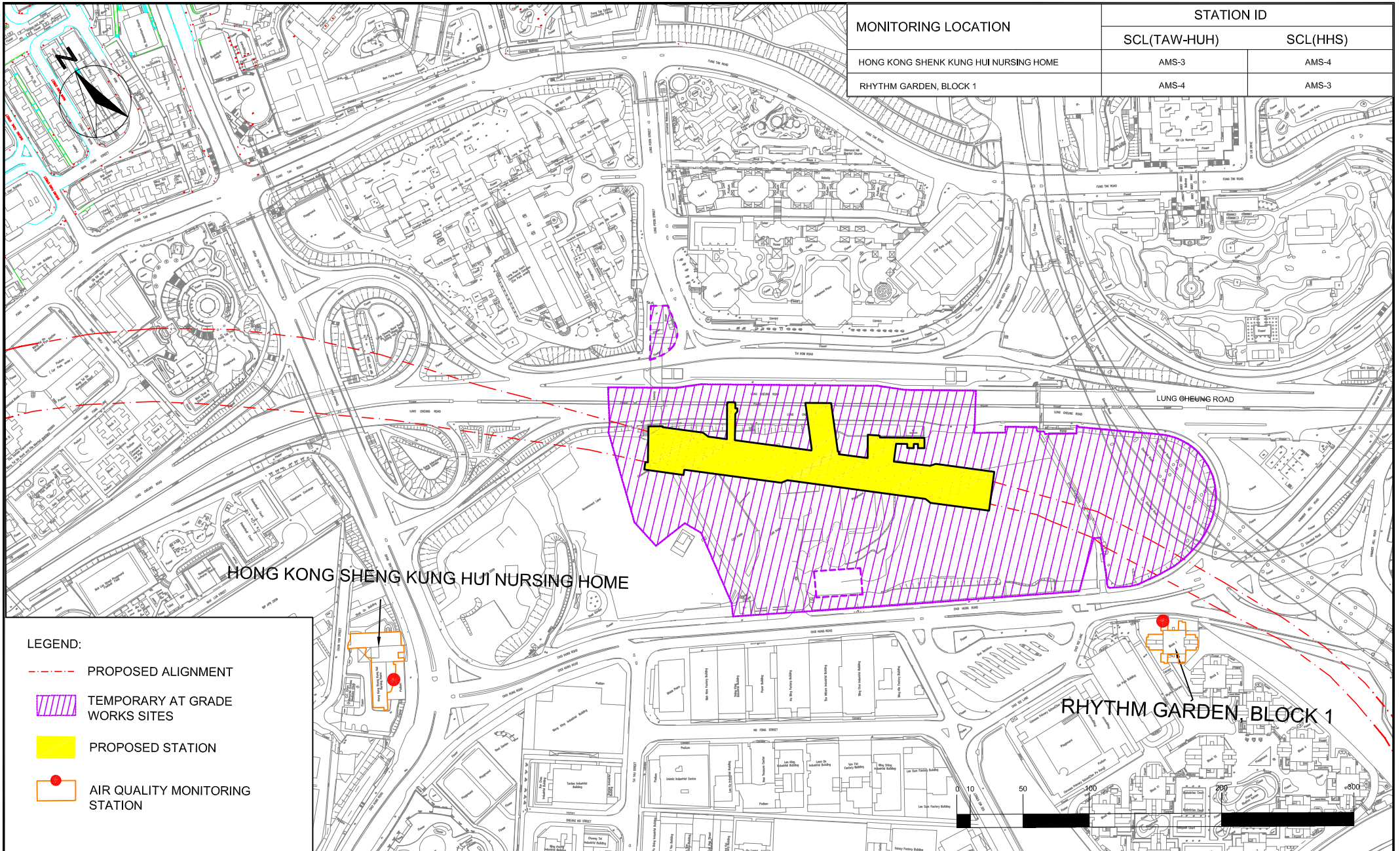
SHATIN TO CENTRAL LINK CONTRACT 1106  
DIAMOND HILL STATION

LOCATION OF NOISE MONITORING STATIONS(CONSTRUCTION AIRBORNE NOISE)



SCALE	1:100	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	2	REV -





MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENG KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

**LEGEND:**

- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

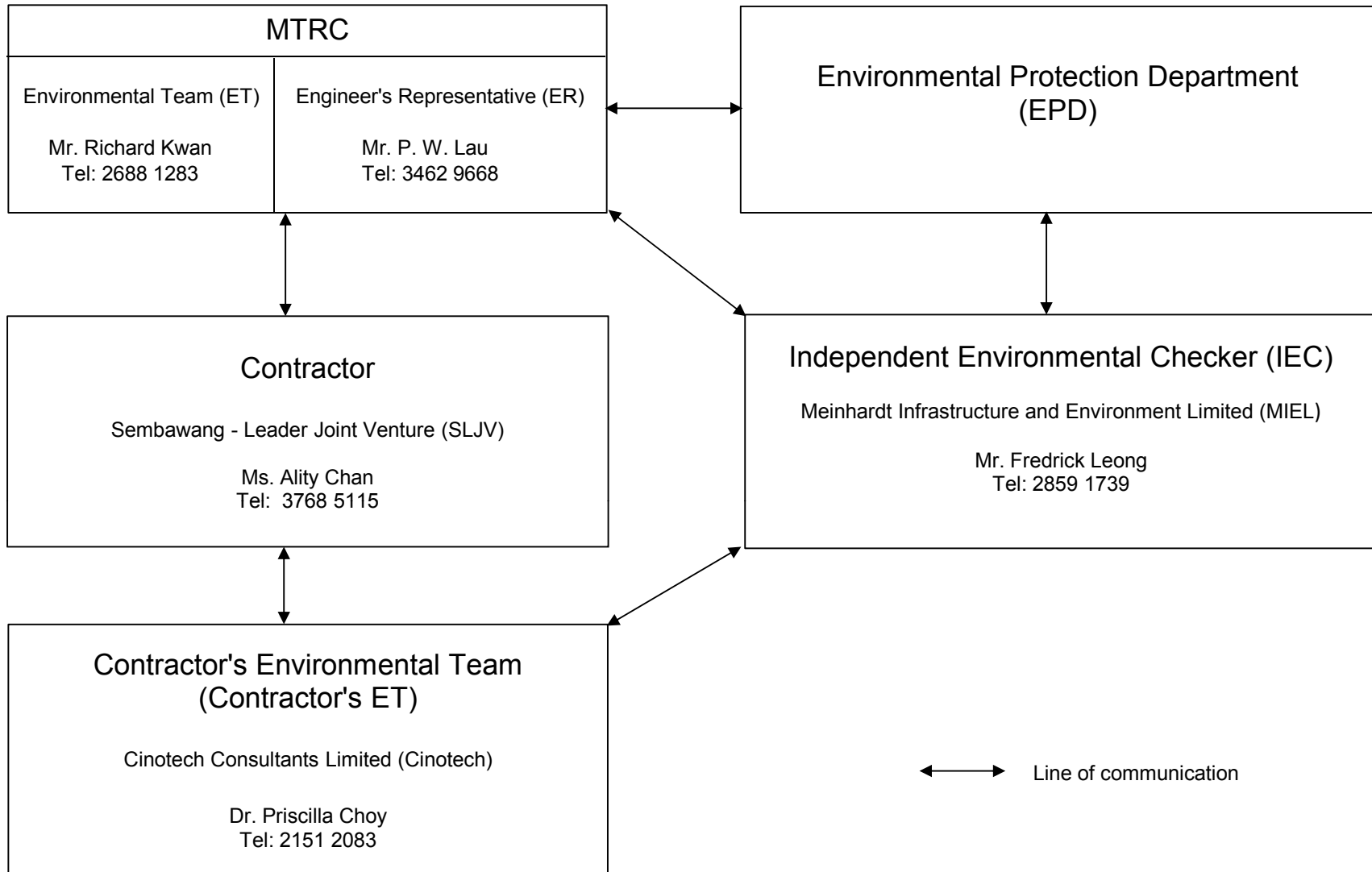
SHATIN TO CENTRAL LINK CONTRACT 1106  
DIAMOND HILL STATION

**LOCATION OF AIR QUALITY MONITORING STATIONS**



SCALE	1:100	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO.	3
		REV	-





Title

MTR SCL Works Contract 1106  
Diamond Hill Station

Organisation Chart and Key Contact of the Project

Scale

N.T.S

Date

Sep-14

Proposal

No.

MA12051

Figure

4

**CINOTECH**

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**APPENDIX A  
TENTATIVE CONSTRUCTION  
PROGRAMME**

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# Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	July					August				September				October			
						29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19

## Contract Dates

### Milestone Dates

#### Cost Centre A Milestones

Preliminaries																								
C1106.MSA11	A11: Engineer's Confirmation of Satisfactory Implementation of Safety & Environmental Requirements	0		22-Jul-15 A	100%	◆ A11: Engineer's Confirmation of Satisfactory Implementation of Safety & Environmental Requirements																		
C1106.MSA12	A12: Engineer's Confirmation of Satisfactory Implementation of PMS	0		20-Oct-15	0%	◆ A12: Engineer's Confirmation of Satisfactory Implementation of PMS																		

## Cost Centre A - Preliminaries

### General Requirements

#### Submissions

##### General

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	Gantt Chart																		
C1106.GS0282	Review & Approve Preliminary ABWF Programme	28	23-Jun-15 A	22-Jul-15 A	100%	Review & Approve Preliminary ABWF Programme																		
C1106.GS0285	Prepare & Submit CSD/SEM Drwg GL 31-53	28	20-Aug-15*	17-Sep-15	0%	Prepare & Submit CSD/SEM Drwg GL 31-53																		
C1106.GS0290	Review & Approve CSD/SEM Drwg GL 31-53	28	17-Sep-15	15-Oct-15	0%	Review & Approve CSD/SEM Drwg GL 31-53																		
C1106.GS0305	Prepare & Submit ABWF Shop Drawings	25	15-Oct-15	09-Nov-15	0%	Prepare & Submit ABWF Shop Drawings																		
C1106.GS0337	3rd Safety Management & Environmental Monitoring Audit - A11	90	25-Apr-15 A	22-Jul-15 A	100%	3rd Safety Management & Environmental Monitoring Audit - A11																		
C1106.GS0340	3rd Progress Monitoring & Programming Management System Audit - A12	90	23-Jul-15 A	20-Oct-15	10%	3rd Progress Monitoring & Programming Management System Audit - A12																		
C1106.GS0345	3rd Quality Management Audit - A13	92	21-Oct-15	20-Jan-16	0%	3rd Quality Management Audit - A13																		

## Cost Centre B: SCL- DIH Station, Entrances and Adits

### TTMS Implementation

#### Submissions

##### TTM Submission

C1106.TMS0335	Submit Draft PR Notice to MTR Review & PR Notification to Public (Stage 1)	24	17-Aug-15*	09-Sep-15	0%	Submit Draft PR Notice to MTR Review & PR Notification to Public (Stage 1)																		
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#### Lung Cheung Road

##### Implement TTA for Diversion of CLP Cables

C1106.BLC0494	TTM Implementation TTA for CLP CLP Cable Diversion	1	31-Aug-15*	31-Aug-15	0%	TTM Implementation TTA for CLP CLP Cable Diversion																		
C1106.BLC0496	Trench Excavation & Laying Temp. Cable & Connect Existing CLP (by CLP)	45	01-Sep-15	26-Oct-15	0%	Trench Excavation & Laying Temp. Cable & Connect Existing CLP (by CLP)																		
C1106.BLC0498	Construct Temporary Diversion Footpath & Erect Site Hoarding/ Traffic Sign	30	06-Oct-15	10-Nov-15	0%	Construct Temporary Diversion Footpath & Erect Site Hoarding/ Traffic Sign																		
C1106.BLC0500	Modification of PCCW Manholes & Lift-up Existing PCCW duct bank (28 wavs)	44	06-Oct-15	26-Nov-15	0%	Modification of PCCW Manholes & Lift-up Existing PCCW duct bank (28 wavs)																		

### Structural Works

#### Track Slab/ Bottom Level

##### Base Slab

C1106.BBS1291	GL 42.5-44 Concrete Curing & remove Temp. Strut S6 & S8	9	24-Jun-15 A	25-Jul-15 A	100%	GL 42.5-44 Concrete Curing & remove Temp. Strut S6 & S8																		
C1106.BBS1313	GL 48-50 Earthmat/ Waterproofing	12	28-May-15 A	04-Aug-15	90%	GL 48-50 Earthmat/ Waterproofing, GL 48-50 Earthmat/ Waterproofing																		
C1106.BBS1315	GL 48-50 FRP Track Base Slab	12	01-Aug-15	14-Aug-15	0%	GL 48-50 FRP Track Base Slab																		
C1106.BBS1319	GL 50-51 FRT Track Slab and Sump Pit	18	30-Jun-15 A	04-Aug-15	90%	GL 50-51 FRT Track Slab and Sump Pit, GL 50-51 FRT Track Slab and Sump Pit																		
C1106.BBS1321	GL 50-51 Concrete Curing and Removal of Struts	12	05-Aug-15	18-Aug-15	0%	GL 50-51 Concrete Curing and Removal of Struts																		

#### Platform Level (Level L5)

##### Wall & Column

C1106.BPL2120	GL 38.3-40.3 Scaffolding Erection (Track Level to OTE Slab)	6	10-Jun-15 A	18-Jul-15 A	100%	GL 38.3-40.3 Scaffolding Erection (Track Level to OTE Slab)																		
C1106.BPL2122	GL 38.3-40.3 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	12	18-Jun-15 A	04-Aug-15	80%	GL 38.3-40.3 Falsework for L4 Middle Parts & Trolley Works (L5-L4), GL 38.3-40.3 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																		
C1106.BPL2142	GL 40-41 Construct Platform Column (Track Level to Mezzanine)	15	22-Jun-15 A	04-Jul-15 A	100%	GL 40-41 Construct Platform Column (Track Level to Mezzanine)																		
C1106.BPL2145	GL 40.3-41.7 Scaffolding Erection (Track Level to OTE Slab)	6	20-Jul-15 A	28-Jul-15 A	100%	GL 40.3-41.7 Scaffolding Erection (Track Level to OTE Slab)																		
C1106.BPL2147	GL 40.3-43.3 Falsework for L4 Middle Parts & trolley Works (L5-L4)	10	22-Aug-15*	02-Sep-15	0%	GL 40.3-43.3 Falsework for L4 Middle Parts & trolley Works (L5-L4)																		
C1106.BPL2155	GL 41-42.5 Construct Platform Column (Track Level to Mezzanine)	10	09-Jul-15 A	21-Jul-15 A	100%	GL 41-42.5 Construct Platform Column (Track Level to Mezzanine)																		
C1106.BPL2156	GL 41-42.5 Construct Platform Wall (Track Level to Mezzanine) - Remaining	6	29-Aug-15	04-Sep-15	0%	GL 41-42.5 Construct Platform Wall (Track Level to Mezzanine) - Remaining																		
C1106.BPL2157	GL 41.7-43.3 Scaffolding Erection (Track Level to OTE Slab)	6	29-Jul-15 A	04-Aug-15	65%	GL 41.7-43.3 Scaffolding Erection (Track Level to OTE Slab), GL 41.7-43.3 Scaffolding Erection (Track Level to OTE Slab)																		
C1106.BPL2161	GL 42.5-44 Construct Platform Column (Track Level to Mezzanine)	8	27-Jul-15 A	08-Aug-15	50%	GL 42.5-44 Construct Platform Column (Track Level to Mezzanine), GL 42.5-44 Construct Platform Column (Track Level to Mezzanine)																		
C1106.BPL2162	GL 42.5-44 Construct Platform Wall (Track Level to Mezzanine)	8	09-Sep-15*	17-Sep-15	0%	GL 42.5-44 Construct Platform Wall (Track Level to Mezzanine)																		
C1106.BPL2163	GL 43.3-44.7 Scaffolding Erection (Track Level to OTE Slab)	6	10-Aug-15	15-Aug-15	0%	GL 43.3-44.7 Scaffolding Erection (Track Level to OTE Slab)																		
C1106.BPL2165	GL 43.3-44.7 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	12	12-Sep-15	25-Sep-15	0%	GL 43.3-44.7 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																		
C1106.BPL2172	GL 44.7-45.8 Scaffolding Erection (Track Level to OTE Slab)	6	25-Jun-15 A	02-Jul-15 A	100%	GL 44.7-45.8 Scaffolding Erection (Track Level to OTE Slab)																		
C1106.BPL2174	GL 44.7-45.8 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	12	12-Jul-15 A	14-Jul-15 A	100%	GL 44.7-45.8 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																		

- Remaining Work
- Critical Remaining Work
- Baseline (PMP)
- Actual Work
- ◆ Baseline Milestone
- ◆ Milestone

1 of 4

## MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 July 2015

3 Month Rolling Programme

Date	Revision	Checked	Approved
01-Aug-15	C-1106-3MRP/ 31		



# Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	July					August					September					October				
						29 133	06 134	13 135	20 136	27 137	03 138	10 139	17 140	24 141	31 142	07 143	14 144	21 145	28 146	05 147	12 148	19 149	26 150		
C1106.BPL2177	GL 45.8-47.3 Scaffolding Erection (Track Level to OTE Slab)	6	03-Jul-15 A	24-Jul-15 A	100%	GL 45.8-47.3 Scaffolding Erection (Track Level to OTE Slab)																			
C1106.BPL2179	GL 45.8-47.1 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	12	15-Jul-15 A	27-Jul-15 A	100%	GL 45.8-47.1 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																			
C1106.BPL2182	GL 46.5-47.5 Construct Platform Column (Track Level to Mezzanine)	7	07-Jul-15 A	15-Jul-15 A	100%	GL 46.5-47.5 Construct Platform Column (Track Level to Mezzanine)																			
C1106.BPL2184	GL 45-46.5 Construct Platform Wall (Track Level to Mezzanine)	6	20-Jul-15 A	30-Jul-15 A	100%	GL 45-46.5 Construct Platform Wall (Track Level to Mezzanine)																			
C1106.BPL2186	GL 46.5-47.5 Construct Platform Wall (Track Level to Mezzanine)	7	15-Aug-15	22-Aug-15	0%	GL 46.5-47.5 Construct Platform Wall (Track Level to Mezzanine)																			
C1106.BPL2190	GL 47.5-49 Construct Platform Column (Track Level to Mezzanine)	10	27-Aug-15*	07-Sep-15	0%	GL 47.5-49 Construct Platform Column (Track Level to Mezzanine)																			
C1106.BPL2192	GL 47.3-48.6 Scaffolding Erection (Track Level to OTE Slab)	6	24-Aug-15	29-Aug-15	0%	GL 47.3-48.6 Scaffolding Erection (Track Level to OTE Slab)																			
C1106.BPL2194	GL 47.3-48.6 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	6	29-Sep-15*	06-Oct-15	0%	GL 47.3-48.6 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																			
C1106.BPS2105	GL 49-50 Construct Platform Column (Track Level to Mezzanine)	7	01-Sep-15	08-Sep-15	0%	GL 49-50 Construct Platform Column (Track Level to Mezzanine)																			
C1106.BPS2107	GL 48.6-50.3 Scaffolding Erection (Track Level to OTE Slab)	6	09-Sep-15	15-Sep-15	0%	GL 48.6-50.3 Scaffolding Erection (Track Level to OTE Slab)																			
C1106.BPS2125	GL 50-51 Construct Platform Column (Track Level to Mezzanine)	6	19-Aug-15*	25-Aug-15	0%	GL 50-51 Construct Platform Column (Track Level to Mezzanine)																			
C1106.BPS2127	GL 50.3-51.3 Scaffolding Erection (Track Level to OTE Slab)	6	26-Aug-15	01-Sep-15	0%	GL 50.3-51.3 Scaffolding Erection (Track Level to OTE Slab)																			
C1106.BPS2129	GL 50.3-51.3 Falsework for L4 Middle Parts & Trolley Works (L5-L4)	12	02-Sep-15	15-Sep-15	0%	GL 50.3-51.3 Falsework for L4 Middle Parts & Trolley Works (L5-L4)																			
C1106.BPS2130	GL 51.7-53 Construct Platform Column (Track Level to Mezzanine)	15	22-Jun-15 A	04-Jul-15 A	100%	GL 51.7-53 Construct Platform Column (Track Level to Mezzanine)																			
C1106.BPS2132	GL 51.7-53 Scaffolding Erection (Track Level to Mezzanine)	6	06-Jul-15 A	28-Jul-15 A	100%	GL 51.7-53 Scaffolding Erection (Track Level to Mezzanine)																			
<b>Slab</b>																									
C1106.BPS2210	GL 36-38.2 Construct Platform Suspended Slab & Bearing Wall	17	24-Aug-15*	11-Sep-15	0%	GL 36-38.2 Construct Platform Suspended Slab & Bearing Wall																			
C1106.BPS2215	GL 38.2-40 Construct Platform Suspended Slab & Bearing Wall	17	24-Sep-15	15-Oct-15	0%	GL 38.2-40 Construct Platform Suspended Slab & Bearing Wall																			
C1106.BPS2218	GL 40-41.3 Construct Platform Suspended Slab & Bearing Wall	17	13-Oct-15	02-Nov-15	0%	GL 40-41.3 Construct Platform Suspended Slab & Bearing Wall																			
C1106.BPS2252	GL 44.7-45.8 Construct Platform Suspended Slab	17	28-Aug-15	16-Sep-15	0%	GL 44.7-45.8 Construct Platform Suspended Slab																			
C1106.BPS2255	GL 45.8-47.1 Construct Platform Suspended Slab & Bearing Wall	17	26-Sep-15	17-Oct-15	0%	GL 45.8-47.1 Construct Platform Suspended Slab & Bearing Wall																			
C1106.BPS2257	GL 49.8-51.3 Construct Platform Suspended Slab & Bearing Wall	17	23-Oct-15	11-Nov-15	0%	GL 49.8-51.3 Construct Platform Suspended Slab & Bearing Wall																			
C1106.BPS2266	GL 51.3-53 Construct Platform Suspended Slab (Up Track)	13	28-Aug-15	11-Sep-15	0%	GL 51.3-53 Construct Platform Suspended Slab (Up Track)																			
<b>OTE Slab</b>																									
<b>OTE Duct</b>																									
C1106.BOS4310	GL 39-40 Construct OTE Slab/Wall	7	18-Jun-15 A	04-Aug-15	90%	GL 39-40 Construct OTE Slab/Wall, GL 39-40 Construct OTE Slab/Wall																			
C1106.BOS4312	GL 40-42.8 Construct OTE Slab/Wall	17	05-Aug-15	24-Aug-15	0%	GL 40-42.8 Construct OTE Slab/Wall																			
C1106.BOS4316	GL 42.8-44 Construct OTE Slab/Wall	7	25-Aug-15	01-Sep-15	0%	GL 42.8-44 Construct OTE Slab/Wall																			
C1106.BOS4340	GL 44-45 Construct OTE Slab/Wall	7	02-Sep-15	09-Sep-15	0%	GL 44-45 Construct OTE Slab/Wall																			
C1106.BOS4345	GL 45-46.5 Construct OTE Slab/Wall	7	11-Jul-15 A	18-Jul-15 A	100%	GL 45-46.5 Construct OTE Slab/Wall																			
C1106.BOS4347	GL 46.5-47.3 Construct OTE Slab/Wall	7	25-Jul-15 A	13-Aug-15	30%	GL 46.5-47.3 Construct OTE Slab/Wall, GL 46.5-47.3 Construct OTE Slab/Wall																			
C1106.BOS4349	GL 46.5-47.5 Construct OTE Slab/Wall	7	25-Aug-15	01-Sep-15	0%	GL 46.5-47.5 Construct OTE Slab/Wall																			
C1106.BOS4350	GL 47.5-49 Construct OTE Slab/Wall	7	02-Sep-15	09-Sep-15	0%	GL 47.5-49 Construct OTE Slab/Wall																			
C1106.BOS4351	GL 49-50 Construct OTE Slab/Wall	7	12-Sep-15	19-Sep-15	0%	GL 49-50 Construct OTE Slab/Wall																			
C1106.BOS4352	GL 50-51 Construct OTE Slab/Wall	7	04-Sep-15	11-Sep-15	0%	GL 50-51 Construct OTE Slab/Wall																			
<b>Mezzanine Level (Level L3 &amp; L4)</b>																									
<b>Beam &amp; Slab</b>																									
C1106.BMZ4354	GL 36.7-38.2 Construct Mezzanine Beam/Slab	12	04-Jul-15 A	20-Jul-15 A	100%	GL 36.7-38.2 Construct Mezzanine Beam/Slab																			
C1106.BMZ4355	GL 36.7-38.2 Concrete Curing & Remove Temp Strut S3 & S5	18	21-Jul-15 A	31-Jul-15 A	100%	GL 36.7-38.2 Concrete Curing & Remove Temp Strut S3 & S5																			
C1106.BMZ4356	GL 38.2-40.0 Construct Mezzanine Beam/Slab	14	07-Aug-15	22-Aug-15	0%	GL 38.2-40.0 Construct Mezzanine Beam/Slab																			
C1106.BMZ4358	GL 38.2-40.0 Concrete Curing & remove Temp Strut S3 & S5	18	24-Aug-15	12-Sep-15	0%	GL 38.2-40.0 Concrete Curing & remove Temp Strut S3 & S5																			
C1106.BMZ4362	GL 40-42.7 Construct Mezzanine Beam/Slab	14	03-Sep-15	18-Sep-15	0%	GL 40-42.7 Construct Mezzanine Beam/Slab																			
C1106.BMZ4364	GL 40-42.7 Concrete Curing & Remove Temp Struts S3 & S5	16	19-Sep-15	04-Oct-15	0%	GL 40-42.7 Concrete Curing & Remove Temp Struts S3 & S5																			
C1106.BMZ4365	GL 42.7-45 Construct Mezzanine Beam/Slab	16	29-Sep-15	17-Oct-15	0%	GL 42.7-45 Construct Mezzanine Beam/Slab																			
C1106.BMZ4370	GL 42.7-45 Concrete Curing for Concourse Beam & Slab	13	19-Oct-15	03-Nov-15	0%	GL 42.7-45 Concrete Curing for Concourse Beam & Slab																			
C1106.BMZ4375	GL 45-46.4 Construct Mezzanine Beam/Slab	14	31-Jul-15 A	15-Aug-15	15%	GL 45-46.4 Construct Mezzanine Beam/Slab, GL 45-46.4 Construct Mezzanine Beam/Slab																			
C1106.BMZ4378	GL 46.4-48 Construct Mezzanine Beam/Slab	14	31-Aug-15	15-Sep-15	0%	GL 46.4-48 Construct Mezzanine Beam/Slab																			
C1106.BMZ4380	GL 48-49.5 Construct Mezzanine Beam/Slab	16	06-Oct-15	24-Oct-15	0%	GL 48-49.5 Construct Mezzanine Beam/Slab																			
C1106.BMZ4381	GL 49.8-51.7 Construct Mezzanine Beam/Slab	16	21-Sep-15	10-Oct-15	0%	GL 49.8-51.7 Construct Mezzanine Beam/Slab																			
C1106.BMZ4382	GL 45-46.4 Concrete Curing & Remove Temp Struts S3 & S5	12	16-Aug-15	27-Aug-15	0%	GL 45-46.4 Concrete Curing & Remove Temp Struts S3 & S5																			
C1106.BMZ4383	GL 51.7-53 Construct Mezzanine Beam/Slab (with hole)	14	01-Aug-15	17-Aug-15	0%	GL 51.7-53 Construct Mezzanine Beam/Slab (with hole)																			

- Remaining Work
- Critical Remaining Work
- Baseline (PMP)
- Actual Work
- ◆ Baseline Milestone
- ◆ Milestone

2 of 4

## MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 July 2015

3 Month Rolling Programme

Date	Revision	Checked	Approved
01-Aug-15	C-1106-3MRP/ 31		



# Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	July					August				September				October						
						29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26		
C1106.BMZ4390	GL 51.7-53 Concrete Curing for Mezzanine Beam/Slab (with hole)	10	18-Aug-15	27-Aug-15	0%																				
C1106.BMZ4392	GL 49.8-51.7 Concrete Curing & Remove Temp Struts S3 & S5	12	11-Oct-15	22-Oct-15	0%																				
C1106.BMZ4394	GL 46.4-48 Concrete Curing & Remove Temp Struts S3 & S5	10	16-Sep-15	25-Sep-15	0%																				
C1106.BMZ5053	GL 48-49.5 Concrete Curing for Concourse Beam & Slab	14	25-Oct-15	07-Nov-15	0%																				
<b>Wall &amp; Column</b>																									
C1106.BMZ4705	GL 36.7-38.2 Construct Wall & Column Mezzanine to L2 Concourse Level	18	03-Aug-15*	22-Aug-15	0%																				
C1106.BMZ4710	GL 36.7-38.2 Scaffold Erection to L2 Concourse Level	7	24-Aug-15	31-Aug-15	0%																				
C1106.BMZ4720	GL 38.2-40 Construct Wall & Column Mezzanine to L2 Concourse Level	21	01-Sep-15	24-Sep-15	0%																				
C1106.BMZ4725	GL 38.3-40 Scaffold Erection to L2 Concourse Level	7	25-Sep-15	05-Oct-15	0%																				
C1106.BMZ4730	GL 40-42.7 Construct Wall & Column Mezzanine to L2 Concourse Level	25	05-Oct-15	03-Nov-15	0%																				
C1106.BMZ4740	GL 44.8-46.4 Construct Wall & Column Mezzanine to L2 Concourse Level	20	24-Aug-15	15-Sep-15	0%																				
C1106.BMZ4742	GL 44.8-46.4 Scaffold Erection to L2 Concourse Level	7	16-Sep-15	23-Sep-15	0%																				
C1106.BMZ4745	GL 46.4-48 Construct Wall & Column Mezzanine to L2 Concourse Level	22	26-Sep-15	24-Oct-15	0%																				
C1106.BMZ4746	GL 46.4-48 Scaffold Erection to L2 Concourse Level	10	26-Oct-15	05-Nov-15	0%																				
C1106.BMZ4747	GL 49.5-51.7 Construct Wall & Column Mezzanine to L2 Concourse Level	18	22-Oct-15*	11-Nov-15	0%																				
C1106.BMZ4755	GL 51.7-53 Construct Wall & Column Mezzanine to L2 Concourse Level	18	28-Aug-15	17-Sep-15	0%																				
C1106.BMZ4760	GL 51.7-53 Scaffold Erection to L2 Concourse Level	7	18-Sep-15	25-Sep-15	0%																				
<b>Concourse Level (Level L2)</b>																									
<b>Beam &amp; Slab</b>																									
C1106.BCS4302	GL 36.7-38.2 Construct Concourse Beam & Slab	12	01-Sep-15	14-Sep-15	0%																				
C1106.BCS4308	GL 38.2-40 Construct Concourse Beam & Slab	12	06-Oct-15	19-Oct-15	0%																				
C1106.BCS4312	GL 44.9-46.4 Construct Concourse Beam & Slab	14	24-Sep-15	12-Oct-15	0%																				
C1106.BCS4317	GL 36.7-38.2 Concrete Curing & Remove Temp Strut S1 & S2	12	15-Sep-15	26-Sep-15	0%																				
C1106.BCS4320	GL 38.2-40 Concrete Curing & Remove Temp Strut S1 & S2	12	20-Oct-15	31-Oct-15	0%																				
C1106.BCS4375	GL 51.7-53 Construct Concourse Beam & Slab (with hole)	12	26-Sep-15	12-Oct-15	0%																				
C1106.BCS4392	GL 45-46.4 Concrete Curing, Formwork Removal & Remove Temp Strut S1 & S2	14	13-Oct-15	29-Oct-15	0%																				
C1106.BCS4396	GL 51.7-53 Concrete Curing, Formwork Removal & Remove Temp Strut S1 & S2	14	13-Oct-15	26-Oct-15	0%																				
<b>Wall &amp; Column</b>																									
C1106.BCW4407	GL 36.7-38.2 Construct Wall & Column to Public Access Level	16	25-Sep-15	15-Oct-15	0%																				
C1106.BCW4409	GL 36.7-38.2 Scaffold Erection to L1 Public Access	7	16-Oct-15	24-Oct-15	0%																				
C1106.BCW4415	GL 38.2-40 Construct Wall & Column to Public Access Level	18	31-Oct-15	20-Nov-15	0%																				
C1106.BCW4440	GL 45-46.4 Construct Wall & Column to Public Access Level	14	27-Oct-15	11-Nov-15	0%																				
C1106.BCW4455	GL 51.7-53 Construct Wall & Column to Public Access Level	7	22-Oct-15	29-Oct-15	0%																				
C1106.BCW4457	GL 51.7-53 Scaffold Erection to L1 Public Access Level	7	30-Oct-15	06-Nov-15	0%																				
<b>Public Access Level (Level L1)</b>																									
<b>Beam &amp; Slab</b>																									
C1106.PLS5026	GL 36.7-38.2 Construct Public Access Level Beam/Slab	12	26-Oct-15	07-Nov-15	0%																				
<b>Construction of Interchange Adit</b>																									
<b>Construction of Interchange Adit</b>																									
<b>Gridline U-V</b>																									
C1106.BIA7050	Interchange Adit - Construct Base Slab	18	01-Jun-15 A	25-Jul-15 A	100%																				
C1106.BIA7055	Interchange Adit - Construct Column & Walls and Bulk Head Wall	20	27-Jul-15 A	24-Aug-15	18%																				
C1106.BIA7060	Interchange Adit - Construct Top Slab	20	25-Aug-15	16-Sep-15	0%																				
C1106.BIA7070	Interchange Adit - Re-proping and Backfill Formation Level at LCR - Stage 1	14	17-Sep-15	05-Oct-15	0%																				
<b>Construction of West Unpaid Link Adit</b>																									
<b>West Adit Link - South Section</b>																									
<b>Civil &amp; Structural Works</b>																									
C1106.BWA8330	West Unpaid Link Adit - Construct Column & Walls and Bulk Head	20	20-Jun-15 A	27-Jul-15 A	100%																				
C1106.BWA8340	West Unpaid Link Adit - Construct Top Slab and Concrete Upstand	25	28-Jul-15 A	27-Aug-15	15%																				
C1106.BWA8345	WU Link Adit - Install Preprops and Backfill to Formation Level of LCR Road	14	28-Aug-15	12-Sep-15	0%																				
<b>Construction of East MOE (Entrance B)</b>																									
<b>Submissions</b>																									
<b>General</b>																									

- Remaining Work
- Critical Remaining Work
- Baseline (PMP)
- Actual Work
- ◆ Baseline Milestone
- ◆ Milestone

3 of 4

## MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 July 2015

3 Month Rolling Programme			
Date	Revision	Checked	Approved
01-Aug-15	C-1106-3MRP/ 31		



# Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	July					August					September					October				
						29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26		
C1106.BEB8700	Prepare Cofferdam Design, ICE Check & Submit	25	15-Apr-15 A	17-Aug-15	80%																				
C1106.BEB8710	Review & Approve Cofferdam Design	30	18-Aug-15	16-Sep-15	0%																				
<b>East MOE</b>																									
<b>Piling Works</b>																									
C1106.BEB8730	Mobilize & Set-up and Pre-drilling Works	24	02-May-15 A	08-Aug-15	90%																				
C1106.BEB8735	East MOE - Construct Pre-bored socket H-Piles 610mm (10 nos.)	25	06-Oct-15	04-Nov-15	0%																				
<b>Cost Centre C: KTL - DIH Entrance A1 Works</b>																									
<b>Entrance A1 (24 hr Walkway and New Lift)</b>																									
<b>Structural Works</b>																									
<b>Excavation &amp; Structural Works</b>																									
C1106.CEA3320	Construct Stub Column / Wall +11.47mPD, +10.92mPD	8	19-Jun-15 A	31-Jul-15 A	100%																				
C1106.CEA3330	Construct RC Shaft Wal +11.98mPD	10	01-Aug-15	12-Aug-15	0%																				
C1106.CEA3333	Construct Stub Column /Wall + 12.00mPD	18	13-Aug-15	02-Sep-15	0%																				
C1106.CEA3338	Backfill and Extract Sheet Pile	12	03-Sep-15	16-Sep-15	0%																				
C1106.CEA3344	Erect Structure Metalwork Frames from +14.36mPD to +19.415mPD	12	03-Sep-15	16-Sep-15	0%																				
C1106.CEA3348	Installation of Aluminum Cladding and Glazing Wall and Roofing System	25	17-Sep-15	17-Oct-15	0%																				
C1106.CEA3355	Break Opening of Existing Wal	25	17-Sep-15	17-Oct-15	0%																				
<b>ABWF Works</b>																									
C1106.CEA4210	Lift Area: Install ABWF Works - Degree 1	35	19-Oct-15	28-Nov-15	0%																				

- Remaining Work
- Critical Remaining Work
- Baseline (PMP)
- Actual Work
- Baseline Milestone
- Milestone

4 of 4

## MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 July 2015

3 Month Rolling Programme			
Date	Revision	Checked	Approved
01-Aug-15	C-1106-3MRP/ 31		

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**APPENDIX B  
ACTION AND LIMIT LEVELS**

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## APPENDIX B – Action and Limit Levels

### 24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-3 <sup>(1)(3)(4)</sup> / DMS-4 <sup>(2)(3)(4)</sup>	Hong Kong Sheng Kung Hui Nursing Home	159.1	260
DMS-4 <sup>(1)</sup> / DMS-3 <sup>(2)</sup>	Block 1, Rhythm Garden	160.4	

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Dust monitoring on DMS-3<sup>(1)</sup>/DMS-4<sup>(2)</sup> is carried out by Environmental Team of SCL Works Contract 1103.

### Construction Noise

Regular Construction Noise Monitoring Location <sup>(1)</sup>	Description	Time Period	Action Level	Limit Level (Leq (30-min))
NMS-CA-3 <sup>(1)(3)(4)</sup> / NMS-CA-4 <sup>(2)(3)(4)</sup>	Hong Kong Sheng Kung Hui Nursing Home	0700-1900 hrs on normal weekdays	When one documented complaint is received	70 dB(A)
NMS-CA-4 <sup>(1)</sup> / NMS-CA-3 <sup>(2)</sup>	Block 1, Rhythm Garden (north-eastern façade)			75 dB(A)
NMS-CA-5 <sup>(1)(5)</sup> / NMS-CA-2 <sup>(2)(5)</sup>	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) <sup>(6)</sup>

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3<sup>(1)</sup>/ NMS-CA-4<sup>(2)</sup> is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (6) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.



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**APPENDIX C  
CALIBRATION CERTIFICATES FOR  
MONITORING EQUIPEMENT**

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## High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

 File No. MA12051/57/0014

 Station DMS-4 - Rhythm Garden, Block 1 Operator: WK  
 Date: 11-Jun-15 Next Due Date: 10-Aug-15  
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	302.7	Pressure, Pa (mmHg)	759.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	3-Feb-16				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.9	3.42	58.10	8.0	2.80
2	9.6	3.07	52.22	6.4	2.51
3	7.5	2.72	46.20	5.1	2.24
4	5.2	2.26	38.53	3.3	1.80
5	3.4	1.83	31.23	2.1	1.44

### By Linear Regression of Y on X

 Slope, mw = 0.0511 Intercept, bw = -0.1561

 Correlation coefficient\* = 0.9994

\*If Correlation Coefficient &lt; 0.990, check and recalibrate.

### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

 Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.24

Remarks: \_\_\_\_\_

 Conducted by: Wk Tang Signature: Kwan  
 Checked by: [Signature] Signature: [Signature]

 Date: 11/6/15  
 Date: 11 June 2015



Equipment No A-04-06

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Rootsmeter S/N 0438320 Ta (K) - 293  
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233	0.9958	0.6825	0.8799
1.0044	0.9723	2.0129	0.9916	0.9599	1.2443
1.0023	1.0835	2.2505	0.9895	1.0697	1.3912
1.0011	1.1377	2.3603	0.9884	1.1231	1.4591
0.9959	1.3718	2.8467	0.9832	1.3542	1.7598

Qstd slope (m) = 2.09317  
 intercept (b) = -0.02195  
 coefficient (r) = 0.99997

Qa slope (m) = 1.31071  
 intercept (b) = -0.01357  
 coefficient (r) = 0.99997

y axis = SQRT[H2O(Pa/760) (298/Ta)]      y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/150103
Date of Issue:	2015-01-05
Date Received:	2015-01-03
Date Tested:	2015-01-03
Date Completed:	2015-01-05
Next Due Date:	2016-01-04

**ATTN:** Mr. W. K. Tang

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

**Test conditions:**

Room Temperature	: 20 degree Celsius
Relative Humidity	: 54%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

Remark: 1) This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
Laboratory Manager

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/140822/1
Date of Issue:	2014-08-25
Date Received:	2014-08-22
Date Tested:	2014-08-22
Date Completed:	2014-08-25
Next Due Date:	2015-08-24

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

**Test conditions:**

Room Temperature	: 22 degree Celsius
Relative Humidity	: 55%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
Laboratory Manager

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/141003/2
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

### Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 56%

### Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
*Laboratory Manager*

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/141107/1
Date of Issue:	2014-11-08
Date Received:	2014-11-07
Date Tested:	2014-11-07
Date Completed:	2014-11-08
Next Due Date:	2015-11-07

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

### Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 53 %

### Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
Laboratory Manager

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**APPENDIX D**  
**IMPACT MONITORING SCHEDULE**

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**Shatin to Central Link – Contract 1106 Diamond Hill Station  
Impact Air Quality and Noise Monitoring Schedule for July 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			<b>1-Jul</b>	2-Jul	3-Jul	4-Jul
				24 hr TSP	Noise	
<b>5-Jul</b>	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
			24 hr TSP	Noise		
<b>12-Jul</b>	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		24 hr TSP		Noise		
<b>19-Jul</b>	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	24 hr TSP	Noise				24 hr TSP
<b>26-Jul</b>	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	Noise			24 hr TSP		

**Air Quality Monitoring Station**

DMS-4: - Rhythm Garden, Block 1

**Noise Monitoring Station**

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

**Shatin to Central Link – Contract 1106 Diamond Hill Station  
Tentative Impact Air Quality and Noise Monitoring Schedule for August 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
<b>2-Aug</b>	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
			24 hr TSP	Noise		
<b>9-Aug</b>	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
		24 hr TSP	Noise			
<b>16-Aug</b>	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
	24 hr TSP			Noise	24 hr TSP	
<b>23-Aug</b>	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	Noise			24 hr TSP		
<b>30-Aug</b>	31-Aug					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

**Air Quality Monitoring Station**

DMS-4: - Rhythm Garden, Block 1

**Noise Monitoring Station**

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

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**APPENDIX E  
24-HOUR TSP MONITORING RESULTS  
AND GRAPHICAL PRESENTATIONIS**

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## Appendix E - 24-hour TSP Monitoring Results

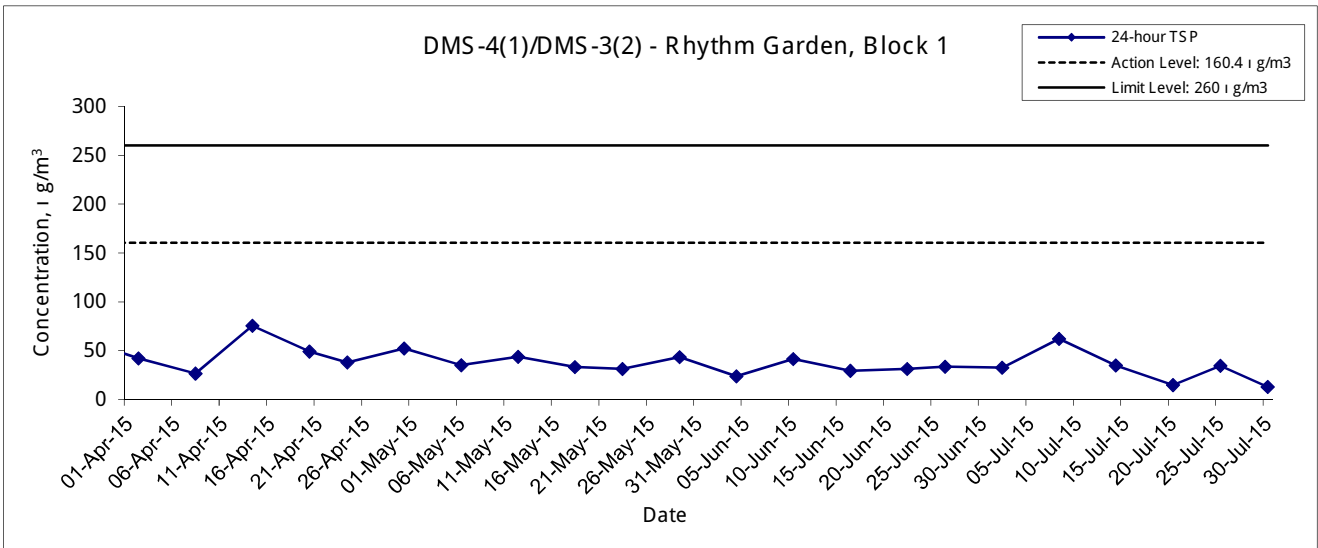
### Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
					Initial	Final		Initial	Final		Initial	Final			
2-Jul-15	9:00	Sunny	304.9	754.7	3.2436	3.3001	0.0565	4388.7	4412.7	24.0	1.20	1.20	1.20	1734.6	32.6
8-Jul-15	9:00	Cloudy	300.2	753.6	3.2328	3.3412	0.1084	4412.7	4436.7	24.0	1.21	1.21	1.21	1745.9	62.1
14-Jul-15	9:00	Cloudy	303.7	754.5	3.2678	3.3284	0.0606	4436.7	4460.7	24.0	1.21	1.21	1.21	1737.6	34.9
20-Jul-15	9:00	Cloudy	301.1	753.1	3.2634	3.2892	0.0258	4460.7	4484.7	24.0	1.21	1.21	1.21	1743.0	14.8
25-Jul-15	9:00	Cloudy	300.6	757.3	3.2609	3.3215	0.0606	4484.7	4508.7	24.0	1.21	1.21	1.21	1748.9	34.7
30-Jul-15	9:00	Sunny	301.3	761.1	3.3183	3.3408	0.0225	4508.7	4532.7	24.0	1.22	1.22	1.22	1751.0	12.8
														Min	12.8
														Max	62.1
														Average	32.0

**Remarks:**

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

24-hour TSP Concentration Levels



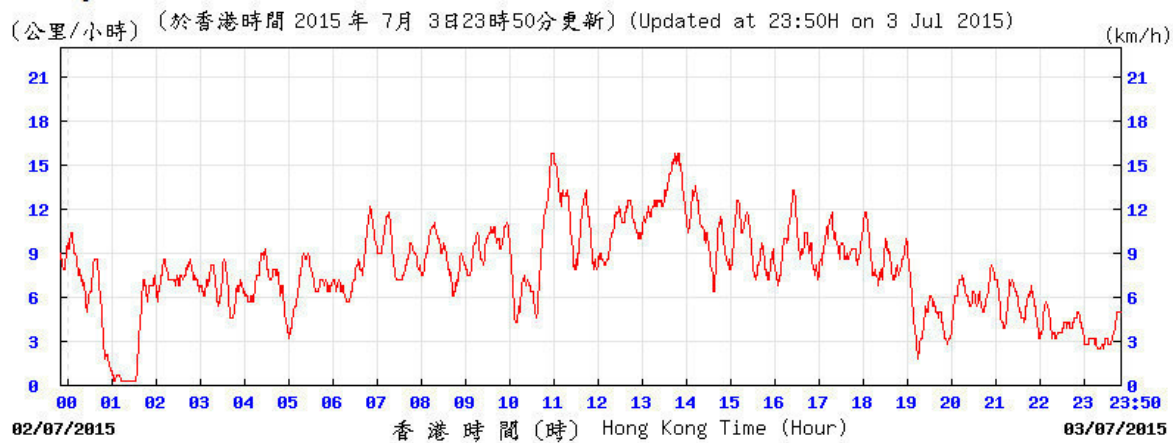
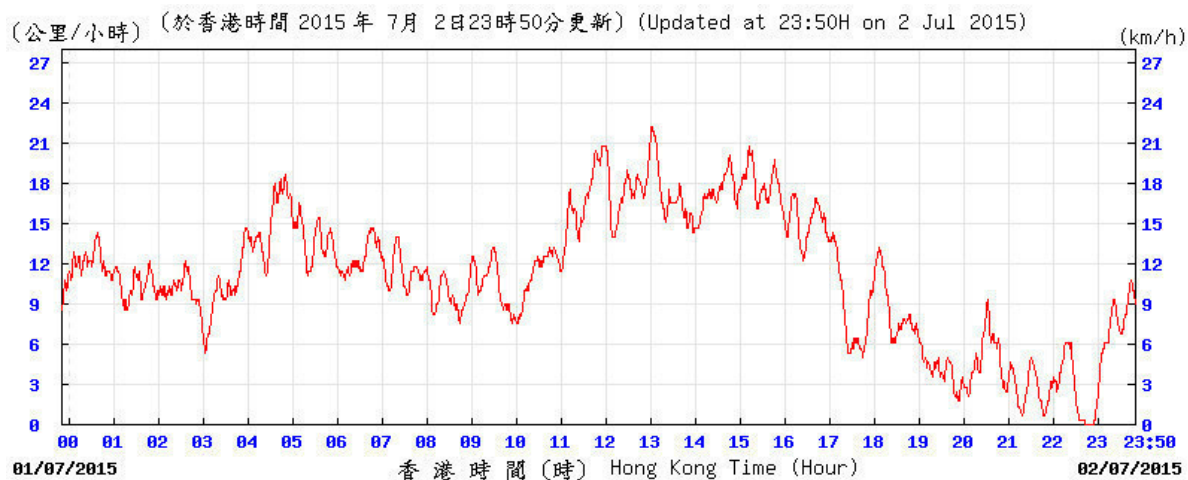
Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL (TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

Title S hatin to Central Link - Contract 1106 Diamond Hill Station  Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA12051	
	Date Jul 15	Appendix E	

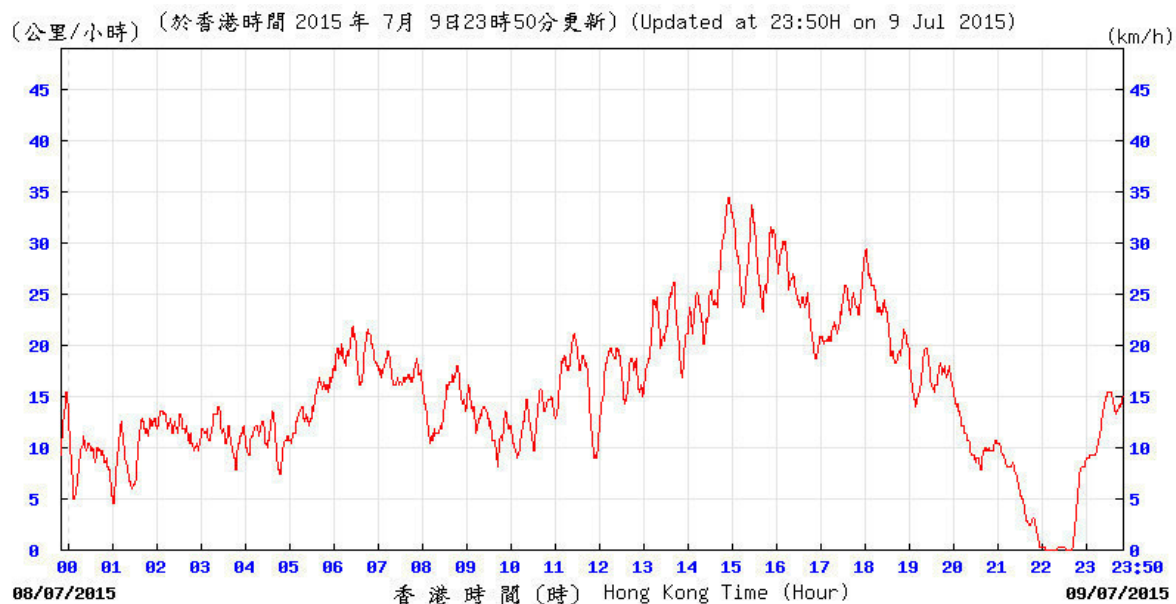
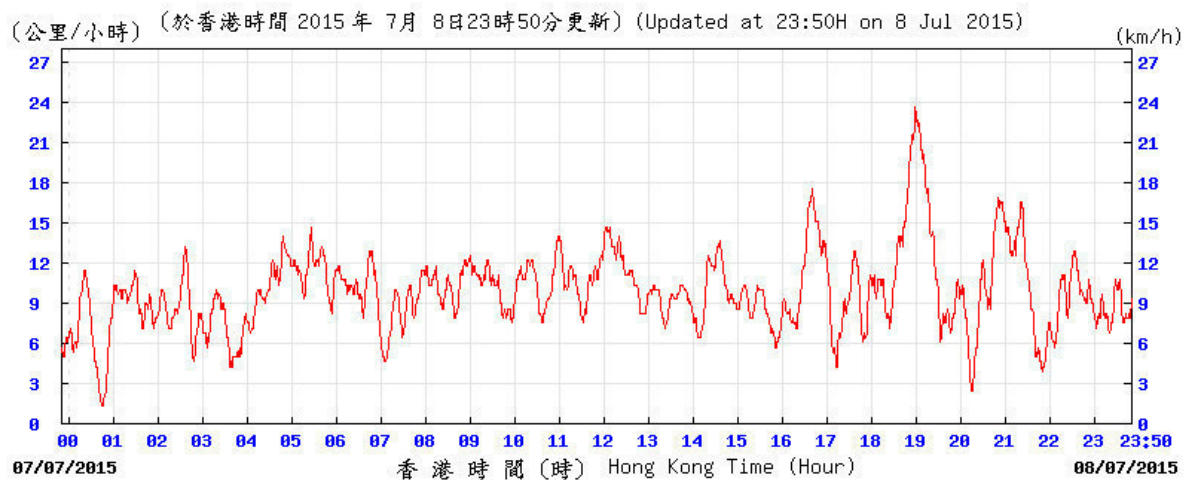
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2015



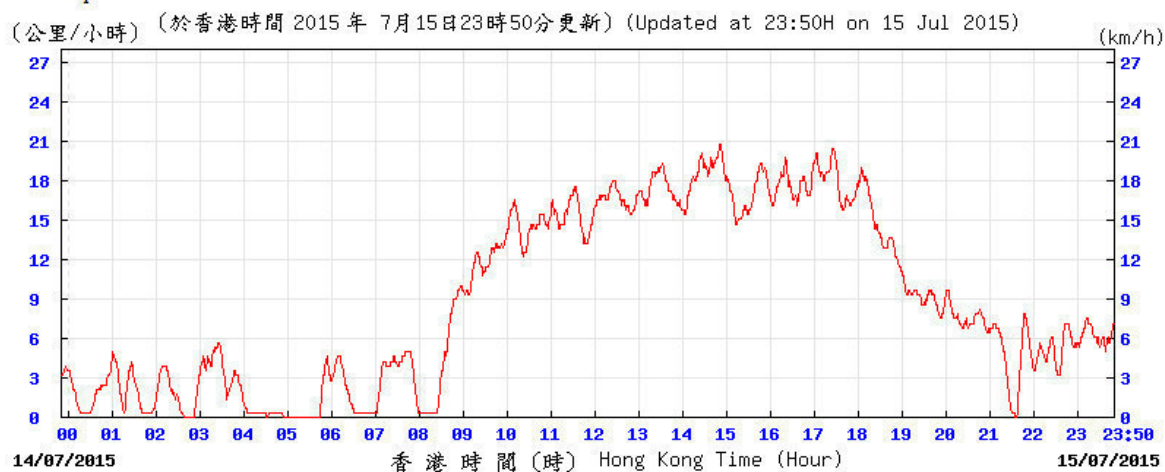
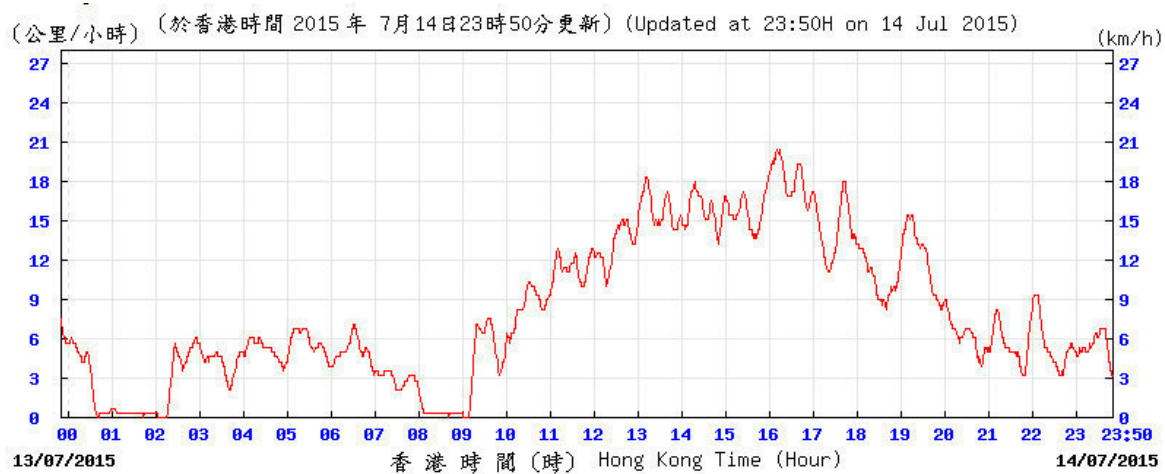
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2015



# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

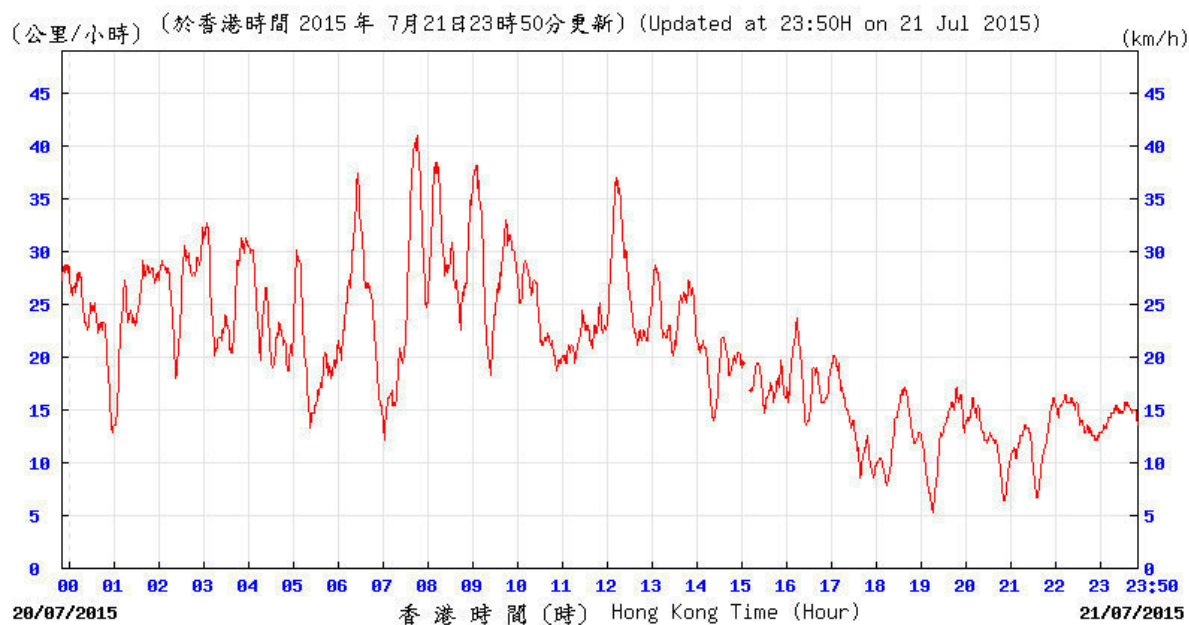
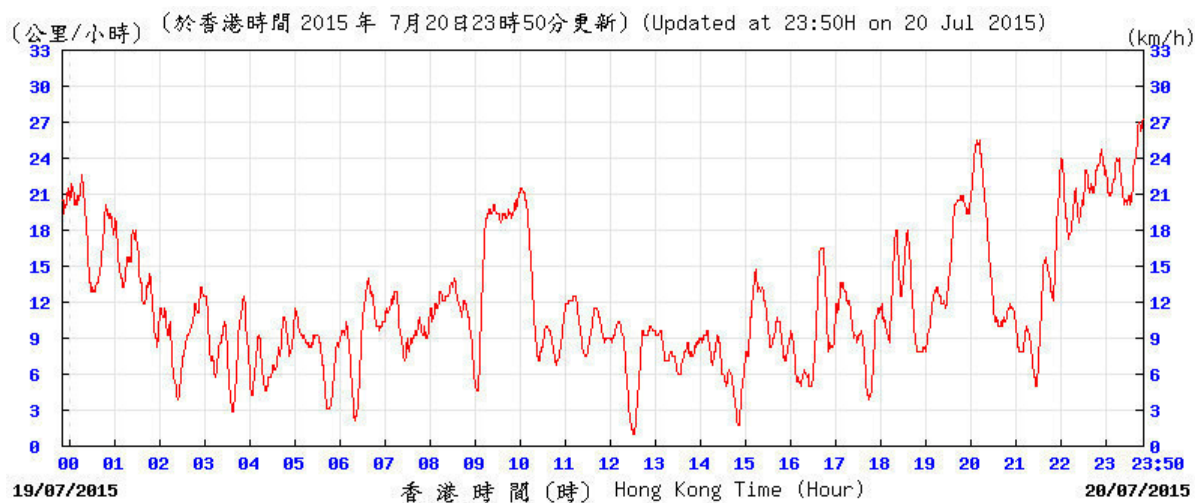
14-15 July 2015





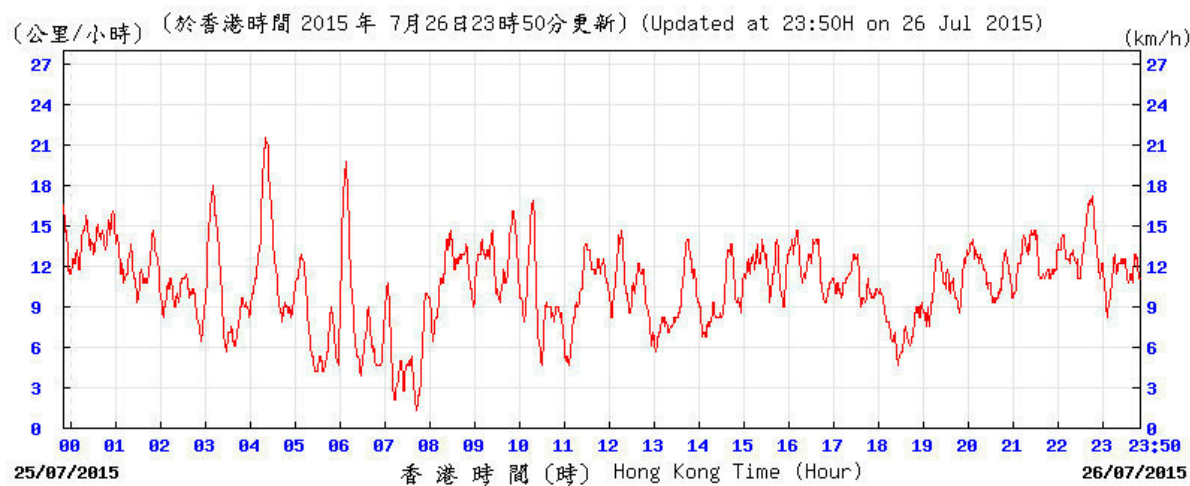
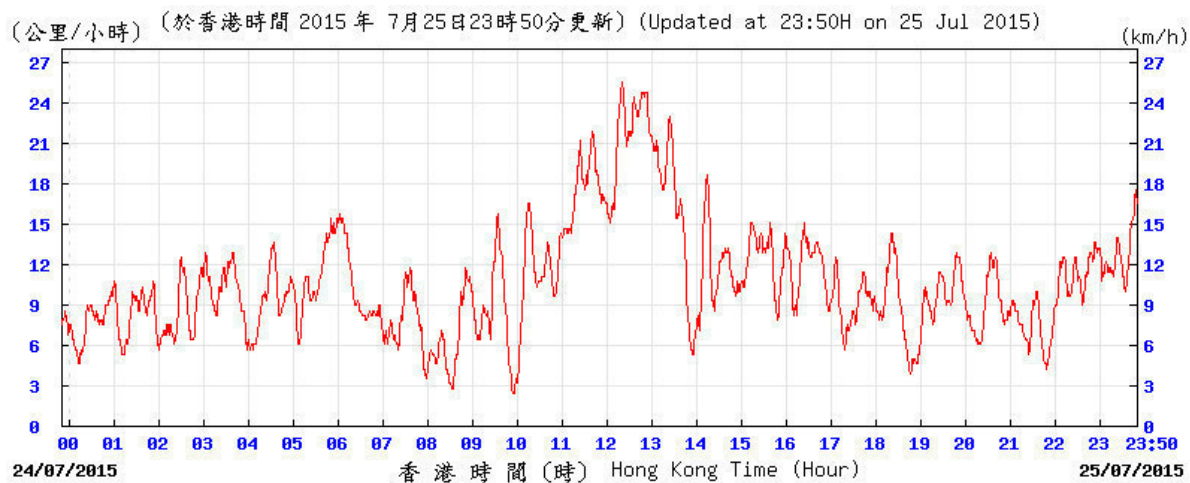
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

20-21 July 2015



# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2015



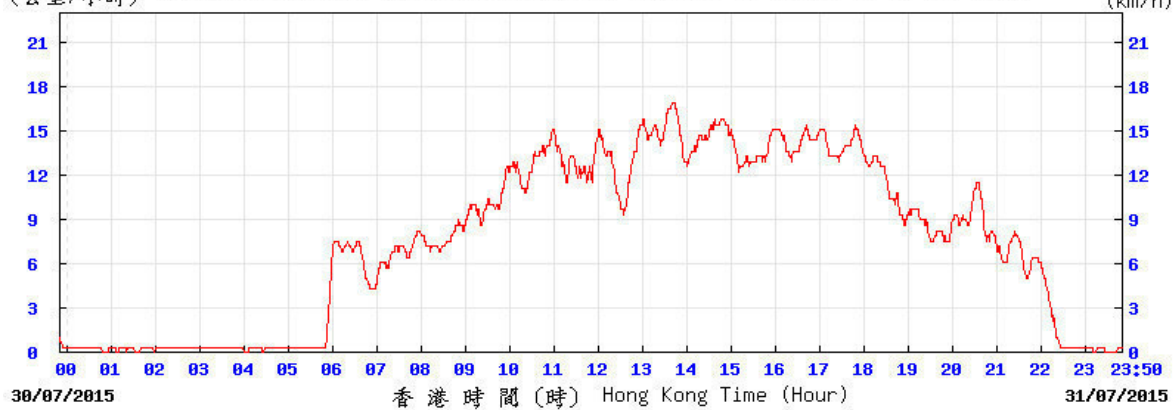
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 July 2015

(公里/小時) (於香港時間 2015 年 7 月 30 日 23 時 50 分更新) (Updated at 23:50H on 30 Jul 2015) (km/h)

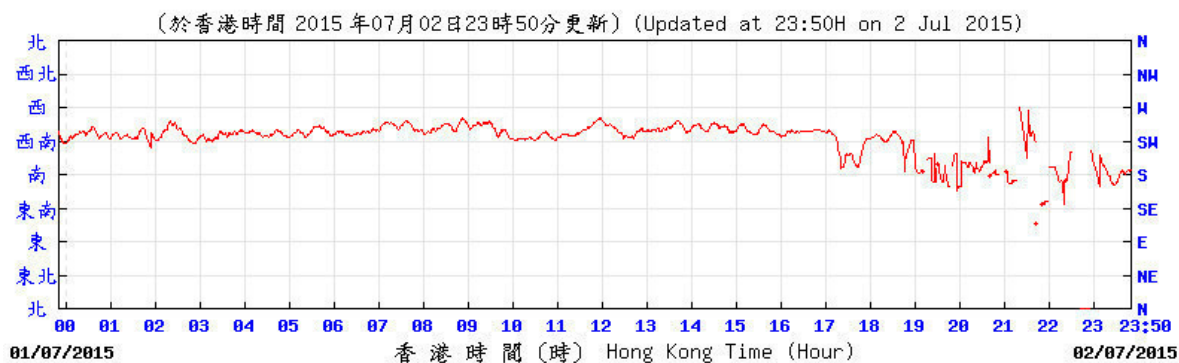


(公里/小時) (於香港時間 2015 年 7 月 31 日 23 時 50 分更新) (Updated at 23:50H on 31 Jul 2015) (km/h)



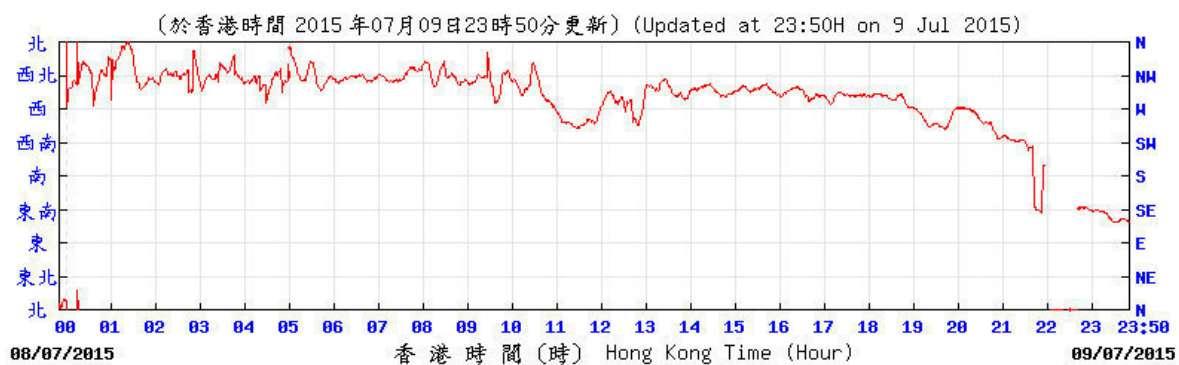
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2015



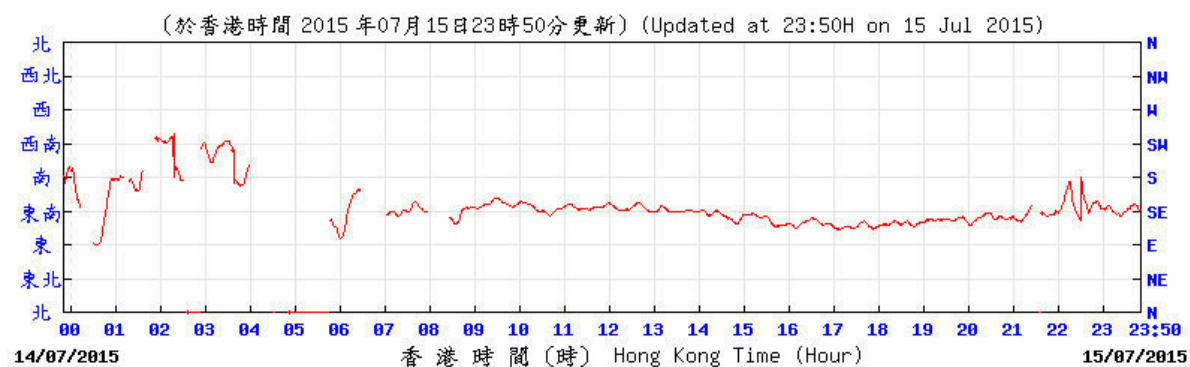
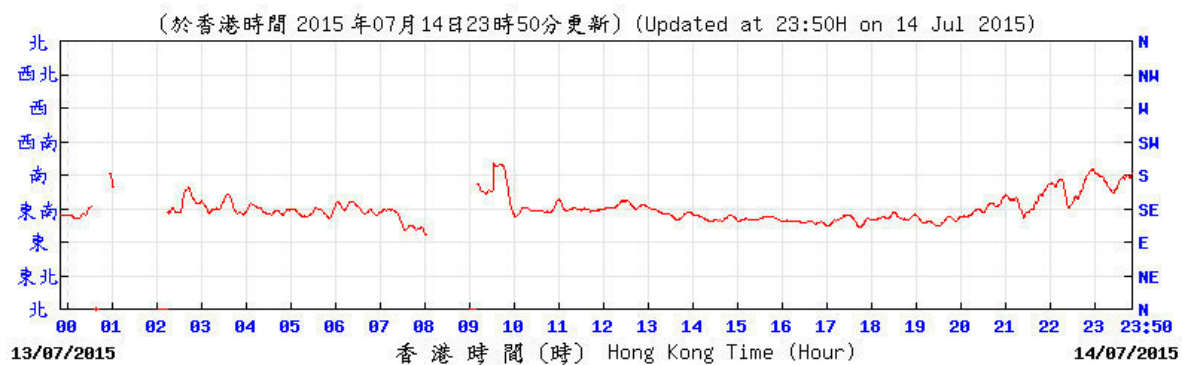
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2015



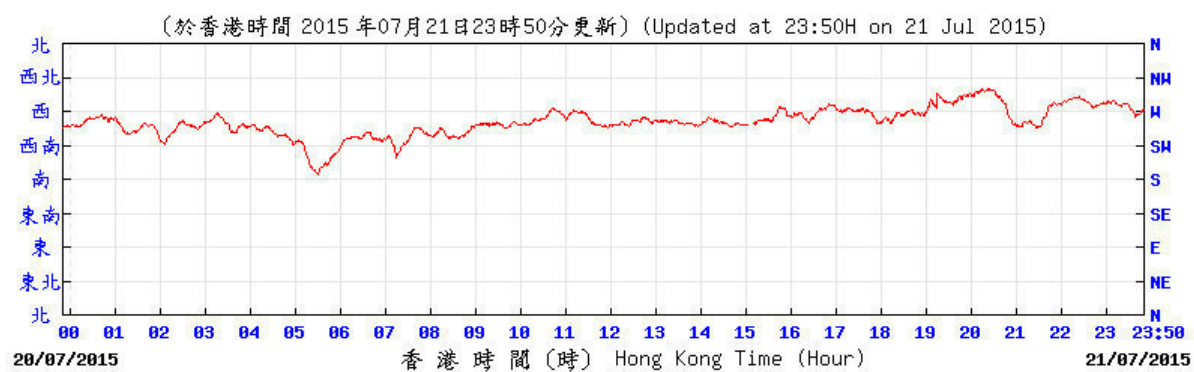
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

14-15 July 2015



# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

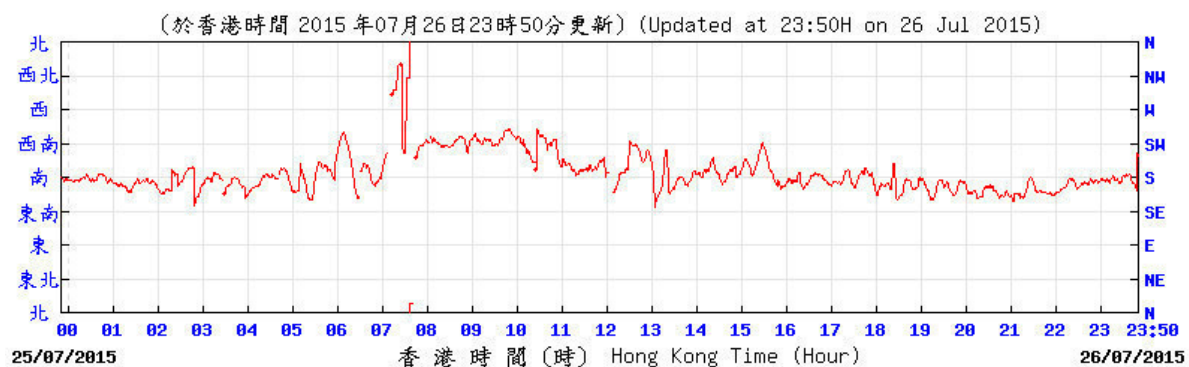
20-21 July 2015





# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

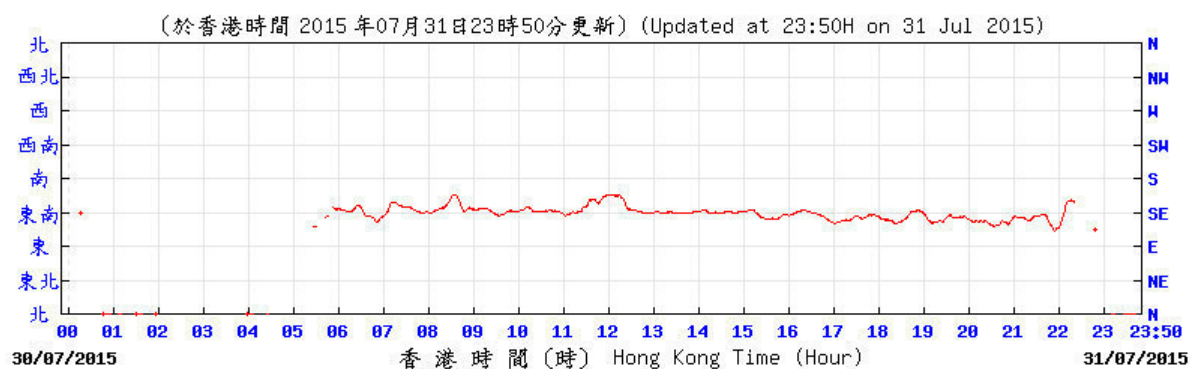
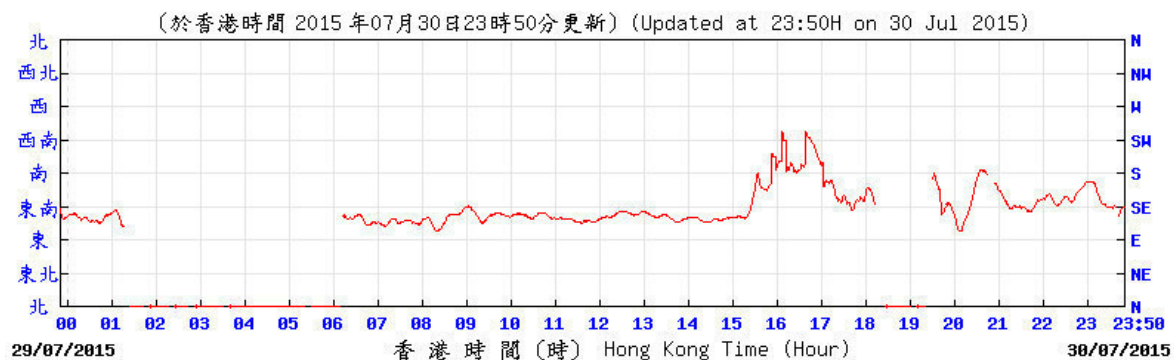
25-26 July 2015





# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 July 2015



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**APPENDIX F  
NOISE MONITORING RESULTS AND  
GRAPHICAL PRESENTATIONS**

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## Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>	L <sub>eq</sub>
3-Jul-15	Sunny	10:45	69.9	71.3	68.7	70.3	71	70.3 Measured ≤ Baseline Level
		10:50	70.0	71.2	68.8			
		10:55	70.3	71.5	68.9			
		11:00	70.2	71.3	69.0			
		11:05	71.0	72.2	69.7			
		11:10	70.6	71.7	69.3			
9-Jul-15	Cloudy	10:35	71.9	73.2	70.4	72.4	71	66.8
		10:40	72.2	73.0	70.7			
		10:45	72.1	73.3	70.8			
		10:50	72.6	73.9	71.1			
		10:55	72.8	73.9	71.4			
		11:00	72.5	73.6	71.1			
16-Jul-15	Cloudy	10:35	69.1	70.2	67.7	69.4	71	69.4 Measured ≤ Baseline Level
		10:40	69.4	70.8	68.8			
		10:45	69.7	70.9	67.9			
		10:50	68.8	71.6	68.2			
		10:55	69.7	71.4	67.5			
		11:00	69.9	72.0	68.9			
21-Jul-15	Cloudy	13:35	72.1	74.8	71.3	72.6	71	67.5
		13:40	73.5	74.3	71.3			
		13:45	72.1	74.0	70.3			
		13:50	72.0	73.8	70.3			
		13:55	72.1	73.8	71.0			
		14:00	73.5	73.9	71.2			
27-Jul-15	Cloudy	11:30	71.5	73.0	69.7	71.7	71	63.4
		11:35	71.8	73.2	70.2			
		11:40	71.9	73.2	70.2			
		11:45	71.6	73.0	70.1			
		11:50	72.0	73.5	70.2			
		11:55	71.5	73.1	69.9			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

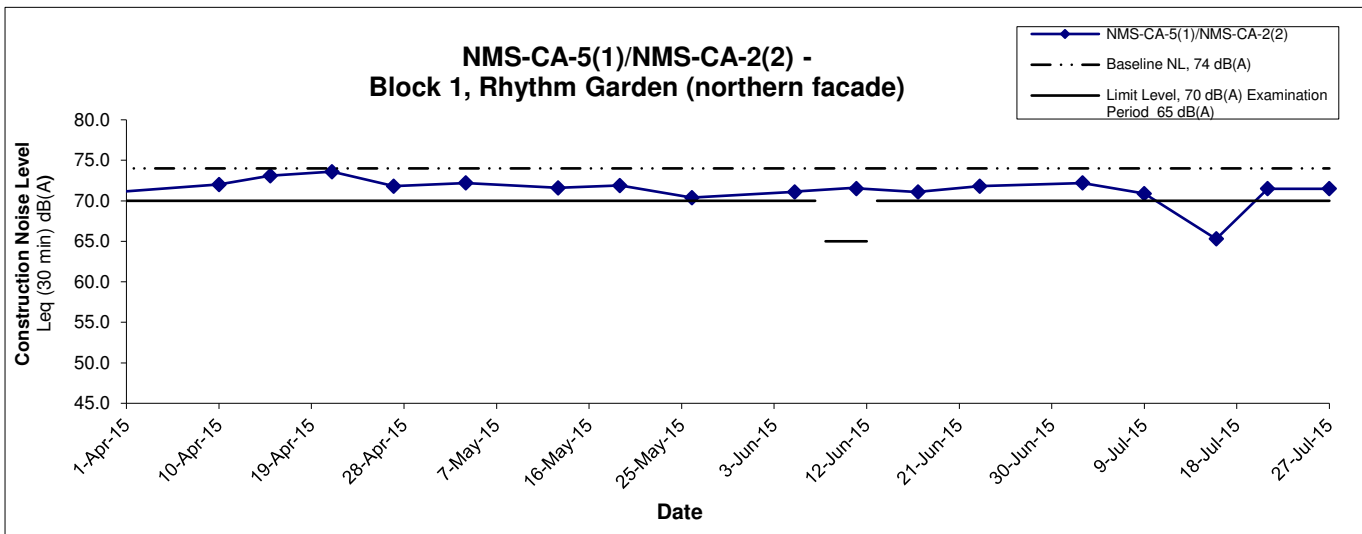
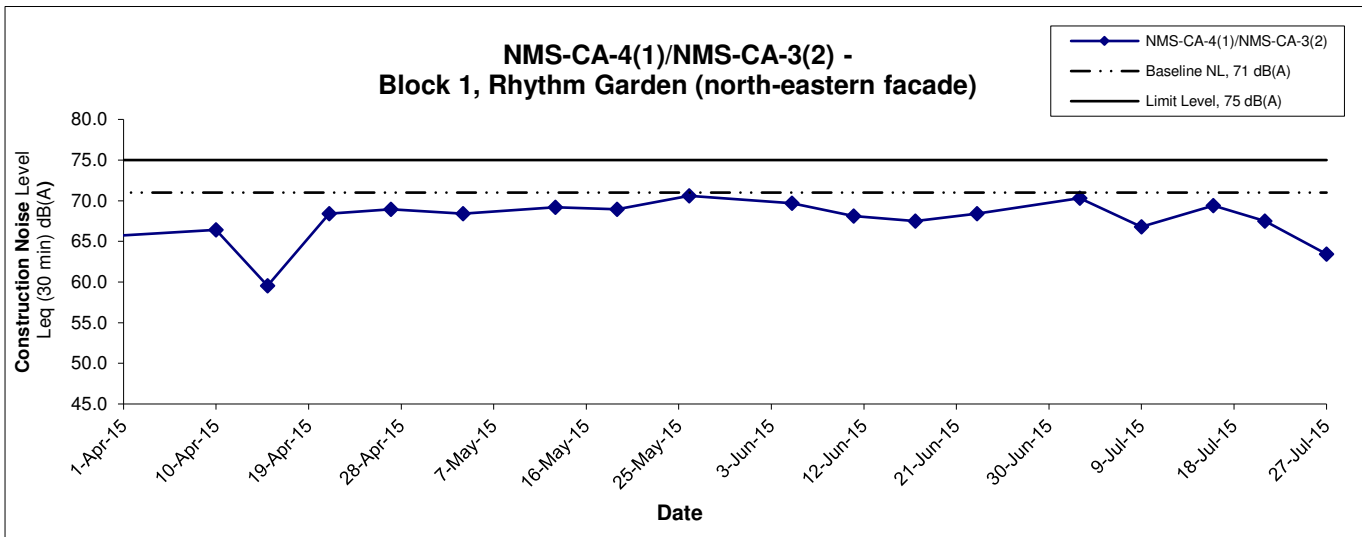
## Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>	L <sub>eq</sub>
3-Jul-15	Sunny	11:20	72.0	73.3	70.7	72.2	74	72.2 Measured ≤ Baseline Level
		11:25	71.8	73.0	70.3			
		11:30	72.0	73.1	70.7			
		11:35	73.5	73.4	70.7			
		11:40	71.8	73.0	70.3			
		11:45	71.6	73.0	70.1			
9-Jul-15	Cloudy	10:00	71.3	72.5	69.2	70.9	74	70.9 Measured ≤ Baseline Level
		10:05	70.7	71.9	69.5			
		10:10	71.0	72.2	69.7			
		10:15	70.6	71.9	69.3			
		10:20	70.8	71.9	69.2			
		10:25	71.2	71.4	69.6			
16-Jul-15	Cloudy	10:00	65.2	67.6	63.4	65.3	74	65.3 Measured ≤ Baseline Level
		10:05	64.3	66.8	61.2			
		10:10	66.2	67.3	64.3			
		10:15	65.7	67.2	63.6			
		10:20	64.6	66.8	64.1			
		10:25	65.7	67.5	62.3			
21-Jul-15	Cloudy	13:00	71.5	72.8	69.9	71.5	74	71.5 Measured ≤ Baseline Level
		13:05	71.2	72.6	69.1			
		13:10	71.3	72.9	69.3			
		13:15	71.8	73.5	69.8			
		13:20	71.7	73.3	69.9			
		13:25	71.5	72.8	69.9			
27-Jul-15	Cloudy	10:50	71.4	72.6	70.1	71.5	74	71.5 Measured ≤ Baseline Level
		10:55	72.0	73.7	70.1			
		11:00	72.7	74.1	69.9			
		11:05	71.0	72.2	69.9			
		11:10	70.5	71.7	69.1			
		11:15	70.7	71.9	69.2			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

## Noise Levels



**Remarks:**

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level  $\leq$  Baseline Level, only Measured Level is presented on the graphical presentation.

Title Shatin to Central Link - Contract 1106 - Diamond Hill Station  Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA12051	CINOTECH
	Date Jul 15	Appendix F	

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**APPENDIX G**  
**SUMMARY OF EXCEEDANCE**

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## **APPENDIX G – SUMMARY OF EXCEEDANCE**

**Reporting Month:** July 2015

**a) Exceedance Report for Dust Monitoring (NIL)**

**b) Exceedance Report for Noise Monitoring**

**(1 Action Level exceedance was recorded as 1 complaint related to construction noise was received in July 2015. No Limit Level exceedance was recorded.)**

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**APPENDIX H  
SITE AUDIT SUMMARY**

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**Shatin to Central Link -  
Contract 1106 Diamond Hill Station**



**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150702
Date	2 July 2015 (Thursday)
Time	13:30 – 14:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150702-001	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>Sediment in sedimentation tank in A1 should be regularly removed and the quality of effluent should be improved.</li> </ul> <p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Cultural Heritage</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part J - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150625), all items were observed to be improved/rectified by the Contractor.</li> </ul>	B 6iii

	Name	Signature	Date
Recorded by	Jason Lai		2 July 2015
Checked by	Dr. Priscilla Choy		2 July 2015

***Shatin to Central Link -  
Contract 1106 Diamond Hill Station***

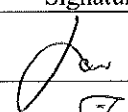

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150709
Date	9 July 2015 (Thursday)
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150709-O01	<p><b><i>Part B – Water Quality</i></b></p> <ul style="list-style-type: none"> <li>Sediment in sedimentation tank in A1 should be regularly removed and the quality of effluent should be improved. Sand bag bund should be provided to covered stockpile to retain runoff.</li> </ul>	B 6iii & B 20
150709-R02	<p><b><i>Part C – Ecology</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part D – Landscape &amp; Visual</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part E – Air Quality</i></b></p> <ul style="list-style-type: none"> <li>Tarpaulin coverage for stockpile near Tree 1911 should be improved.</li> </ul> <p><b><i>Part F – Cultural Heritage</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part G - Construction Noise Impact</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part H – Waste/Chemical Management</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part I – Permits/Licenses</i></b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b><i>Part J - Others</i></b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150702), item 150702-O01 was remarked as 150709-O01 and follow up action is needed to be reviewed.</li> </ul>	E 6

	Name	Signature	Date
Recorded by	Jason Lai		9 July 2015
Checked by	Dr. Priscilla Choy		9 July 2015

*Shatin to Central Link -*

*Contract 1106 Diamond Hill Station*


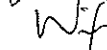
**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150716
Date	16 July 2015 (Thursday)
Time	13:30 – 14:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150716-001	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>Construction materials inside tree protection zone in A1 work area should be removed. Retained trees should be properly protected and fenced off.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Cultural Heritage</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part J - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150709), all items were observed to be improved/rectified by the Contractor.</li> </ul>	D 2 & D 3

	Name	Signature	Date
Recorded by	Jason Lai		16 July 2015
Checked by	Dr. Priscilla Choy		16 July 2015

**Shatin to Central Link -  
Contract 1106 Diamond Hill Station**

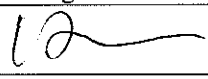

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150723
Date	23 July 2015 (Thursday)
Time	13:30 – 14:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150723-O01	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>Silty water observed overflowing and discharging to the public drain at KTL-DIH Exit A1 works area. The Contractor was recommended to enhance the wastewater treatment and drainage system.</li> </ul>	B 6ii
150723-R03	<ul style="list-style-type: none"> <li>The dusty stockpile near tree DT1911 was not fully covered up. The Contractor is reminded to cover the stockpile entirely by impervious material.</li> </ul>	B10
150723-O02	<p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>Construction materials inside tree protection zone in A1 work area should be removed.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Cultural Heritage</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part J - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150716), item 150716-O01 was remarked as 150723-O02 and follow up action is needed to be reviewed.</li> </ul>	D 3

	Name	Signature	Date
Recorded by	Johnny Fung		23 July 2015
Checked by	Dr. Priscilla Choy		23 July 2015

**Shatin to Central Link -  
Contract 1106 Diamond Hill Station**

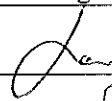
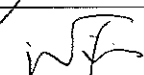
**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150730
Date	30 July 2015 (Thursday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150730-R02	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>Bund for gully in A1 work area should be properly enhanced to prevent untreated runoff entering the gully.</li> </ul>	B 11
150730-O01	<p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>Construction materials inside tree protection zone in A1 work area should be removed.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F – Cultural Heritage</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G – Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part J – Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150723), item 150723-O01 was remarked as 150730-O01 and follow up action is needed to be reviewed.</li> </ul>	D 3

	Name	Signature	Date
Recorded by	Jason Lai		30 July 2015
Checked by	Dr. Priscilla Choy		30 July 2015

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**APPENDIX I  
EVENT AND ACTION PLANS**

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**Event and Action Plan for Air Quality Monitoring during Construction Phase**

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal as appropriate.</li> </ol>

**LIMIT LEVEL**

1.Exceedance for one sample	<ol style="list-style-type: none"><li>1. Inform the IEC, Contractor and ER;</li><li>2. Repeat measurement to confirm findings;</li><li>3. Increase monitoring frequency to daily;</li><li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by the ET;</li><li>2. Check the Contractor's working method;</li><li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li><li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Confirm receipt of notification of exceedance in writing;</li><li>2. Notify the Contractor, IEC and ET;</li><li>3. Review and agree on the remedial measures proposed by the Contractor;</li><li>4. Supervise implementation of remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Identify source(s) and investigate the causes of exceedance;</li><li>2. Take immediate action to avoid further exceedance;</li><li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li><li>4. Implement the agreed proposals;</li><li>5. Amend proposal if appropriate.</li></ol>
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"><li>1. Notify IEC, Contractor and EPD;</li><li>2. Repeat measurement to confirm findings;</li><li>3. Increase monitoring frequency to daily;</li><li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li><li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li><li>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results;</li><li>7. If exceedance stops, cease additional monitoring.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by the ET;</li><li>2. Check the Contractor's working method;</li><li>3. Discuss with ET, ER, and Contractor on the potential remedial measures;</li><li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Confirm receipt of notification of exceedance in writing;</li><li>2. Notify the Contractor, IEC and ET;</li><li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li><li>4. Supervise the implementation of remedial measures;</li><li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li></ol>	<ol style="list-style-type: none"><li>1. Identify source(s) and investigate the causes of exceedance;</li><li>2. Take immediate action to avoid further exceedance;</li><li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li><li>4. Implement the agreed proposals;</li><li>5. Revise and resubmit proposals if problem still not under control;</li><li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li></ol>



**Event and Action Plan for Noise Monitoring during Construction Phase**

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and ER</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required</li> <li>3. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor;</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures</li> <li>2. Report the results of investigation to the IEC, ET and ER</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement noise mitigation proposals</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ER, ET and Contractor on the potential remedial measures</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Supervise the implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement the agreed proposals</li> <li>5. Revise and resubmit proposals if problem still not under control</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

**Event and Action Plan for Landscape and Visual during Construction Phase**

<b>Action Level</b>	<b>Works Contract 1106 ET</b>	<b>IEC</b>	<b>ER</b>	<b>Contractor</b>
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

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**APPENDIX J  
UPDATED ENVIRONMENTAL  
MITIGATION IMPLEMENTATION  
SCHEDULE**

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## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b><i>Cultural Heritage Impact (Construction Phase)</i></b>								
S4.8.1	CH1	Submit an Archaeological Action Plan. Survey-cum-excavation shall be conducted prior to the construction works at the former Tai Hom Village site.	Salvage cultural remains at the Former Tai Hom Village Site	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> <li>• AMO's requirements</li> </ul>	^ ^
S4.8.2	CH2	Submit a Conservation Plan for the Former Royal Air Force Hangar and the Old Pillbox to AMO for agreement.	Proposal for conservation of 2 historical buildings	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> <li>• AMO's requirements</li> <li>• Principles for the Conservation of Heritage Sites in China</li> <li>• Burra Charter, the Australia's ICOMOS Charter for Places of Cultural Significance</li> </ul>	^
<b><i>Ecology (Construction Phase)</i></b>								
S5.7	E1	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for	Minimise ecological impacts	Contractor	All construction sites	During Construction	<ul style="list-style-type: none"> <li>• ProPECC PN 1/94</li> </ul>	*

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>• No on-site burning of waste;</li> <li>• Waste and refuse in appropriate receptacles.</li> </ul>						<p style="text-align: right;">^</p> <p style="text-align: right;">^</p>
<b>Landscape &amp; Visual (Construction Phase)</b>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>• For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</li> </ul> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>• To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	<p style="text-align: right;">^</p>          <p style="text-align: right;">*</p>

### SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</p> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites.</li> </ul>						<p>*</p> <p>^</p>
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> <li>Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context.</li> </ul> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the facilities on the sites, give</li> </ul>	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> <li>EIAO – TM</li> <li>ETWB TCW 2/2004</li> <li>ETWB TCW 3/2006</li> </ul>	<p>^</p> <p>^</p>

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</p> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> <li>Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable.</li> </ul> <p>Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</p>						^
<b><i>Air Quality (Construction Phase)</i></b>								
/	A1	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	<p>Reduce air pollution emission from construction vehicles and plants</p>	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	<p>Reduce air pollution emission from work site</p>	Contractor	All construction sites	Construction stage	APCO	^
<b><i>Construction Dust Impact</i></b>								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust</li> </ul>	*

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
							impact to meet HKAQO and TM-EIA criteria	
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	^
S7.6.6	D3	<ul style="list-style-type: none"> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	*  ^  ^  ^



### SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

### SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>						N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
<b><i>Construction Airborne Noise</i></b>								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>mobile plant should be sited as far away from NSRs as possible</li> </ul>	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^  ^  ^  ^  ^

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>and practicable;</p> <ul style="list-style-type: none"> <li>material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>						^
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			noise					
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
<b>Water Quality (Construction Phase)</b>								
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> <li>• At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct site runoff and stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> <li>• The dikes or embankments for flood protection should be</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• TM-EIAO</li> <li>• TM-Water</li> </ul>	^

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p> <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be</li> </ul>						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">*</p>

### SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers</p> <ul style="list-style-type: none"> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>• Oil interceptors should be provided in the drainage system</li> </ul>						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>



### SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby</li> <li>• All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>• Adopt best management practices.</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> <li>• Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-water</li> </ul>	^

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		appropriate disposal and maintenance.						
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>• Proper storage and handling facilities should be provided;</li> <li>• All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains;</li> <li>• The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and</li> <li>• Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• TM-EIAO</li> <li>• TM-Water</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
<b><i>Waste Management (Construction Waste)</i></b>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>• Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc.). Volcanic rock and Aplite dyke rock</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• DEVB TC(W) No. 6/2010</li> </ul>	N/A

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc. should also be explored.</p>						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> </ul>	<p>Good site practice to minimize the waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions)</li> <li>• Waste Disposal Ordinance</li> </ul>	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation</li> </ul>	disposal				<ul style="list-style-type: none"> <li>• ETWB TCW No. 19/2005</li> </ul>	N/A  ^  ^  ^
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW</li> </ul>	^

## SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>materials will be carefully planned in order to avoid over ordering and wastage.</p> <ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>					No.19/2005	^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^  ^  ^



**SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		prevent rainfall entering; and be arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						^

Remarks:    ^    Compliance of mitigation measure                                  X    Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- \*    Recommendation was made during site audit but improved/rectified by the contractor.

N/A    Not Applicable

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**APPENDIX K  
WASTE GENERATION IN THE  
REPORTING MONTH**

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**Contract No:** MTR SCL 1106 - Diamond Hill Station  
**Date of Report:** July,2015

**Monthly Summary Waste Flow Table for 2015**

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects (See Note 2)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste (See Note 3)	Others, e.g. general refuse	
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )	
Jan	26.502	0.000	0.000	25.020	1.482	0.000	0.000	0.389	0.000	0.000	0.062	
Feb	17.022	0.000	0.000	14.903	2.119	0.000	0.000	0.000	0.000	0.000	0.085	
Mar	17.378	0.000	0.000	14.941	2.437	0.000	0.000	0.300	0.000	0.000	0.133	
Apr	4.879	0.000	0.000	4.129	0.750	0.000	0.000	0.400	0.000	0.000	0.041	
May	2.802	0.000	0.000	1.613	1.189	0.000	0.000	0.200	0.000	0.000	0.067	
Jun	0.336	0.000	0.000	0.000	0.336	0.000	0.000	0.420	0.000	0.000	0.069	
Sub-total	68.919	0.000	0.000	60.606	8.313	0.000	0.000	1.709	0.000	0.000	0.457	
Jul	0.239	0.000	0.000	0.000	0.239	0.000	0.000	0.240	0.000	0.000	0.114	
Aug												
Sept												
Oct												
Nov												
Dec												
Total	69.158	0.000	0.000	60.606	8.552	0.000	0.000	1.949	0.000	0.000	0.571	

Notes:

- 1) Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m<sup>3</sup>. Assumption the densities of general refuse is 1.0 tonnes/m<sup>3</sup>
- 2) Inert C&D material was delivered to Kai Tak Barging Point Facility (Contract 1108A) & Contract 1108.
- 3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.
- 4) figures are rounded up to 3 decimal places
- 5) Quantities of C&D and non-inert C&D materials in May and June have been updated due to delay of data transfer.

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**APPENDIX L  
CUMULATIVE LOG FOR COMPLAINT  
LOGS, NOTIFICATION OF SUMMONS  
AND SUCCESSFUL PROSECUTIONS**

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**Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecution**

<b>Reporting Month</b>	<b>Number of Complaints in Reporting Month</b>	<b>Number of Summons in Reporting Month</b>	<b>Number of Prosecutions in Reporting Month</b>
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	0	0	0
December 2014	0	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
<b>Total</b>	<b>4</b>	<b>0</b>	<b>0</b>

**Environmental Complaint Log (July 2015)**

Contractor Log Ref.	Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date or Period of Complaint Received	Date of Complaint received from EPD	Details of Complaint	Investigation/ Mitigation Action	Status
CP 23	SCL sites at Diamond Hill / Construction noise	EP3/K11/RE/00017 119-2015	Unknown	21 <sup>st</sup> July 2015	The complainant complained about the construction noise from SCL sites during restricted hours including Sundays.	<p>According to the information provided by the Contractor, no construction activity was being carried out during restricted hours (1900 – 2300 hrs) on normal working day in July 2015. General site works and general cleaning of L4 slab with no operation of PMEs were conducted during 0700 – 1900 hrs and no construction work was carried out during 1900 – 2300 hrs on general holiday including Sunday in July 2015. All construction works carried out in July 2015 were in compliance with the conditions stated in the valid CNP (Permit No.: GW-RE0449-15). The ad-hoc inspections conducted by the Contractor also revealed that no construction activity was carried out during restricted hours on 13<sup>th</sup>, 21<sup>st</sup> and 22<sup>nd</sup> July 2015.</p> <p>It is observed that the Contractor has implemented appropriate noise mitigation measures, like installation of noise barrier and acoustic mat and usage of QPMEs, to reduce noise nuisance to adjacent NSRs. The site workers are briefed/trained and ad-hoc inspection are regularly conducted to ensure that the conditions stated in permits are strictly followed.</p> <p>The Contractor also provided additional trainings and toolbox talks for frontline staff and</p>	Closed

						<p>conducted ad-hoc inspections after the complaint was received to ensure compliance with CNP conditions.</p> <p>The environmental conditioned of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored.</p>	
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**Log for Notifications of Summons (July 2015)**

Log Ref.	Location/Nature	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
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**Log for Successful Prosecutions (July 2015)**

Log Ref.	Location/Nature	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
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**Appendix G**

**27<sup>th</sup> EM&A Report for Works Contract 1107 –  
Diamond Hill to Kai Tak Tunnels**

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MTR Corporation Limited

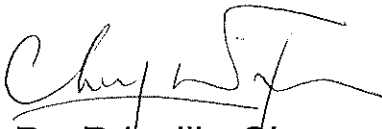
**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.26

[Period from 1 to 31 July 2015]

Works Contract 1107 – Diamond Hill to Kai Tak  
Tunnels

(August 2015)

Certified by:   
Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11<sup>th</sup> August 2015

**Chun Wo – SELI Joint Venture**

**Shatin to Central Link –  
Contract 1107  
Diamond Hill to Kai Tak Tunnels**

**Monthly Environmental  
Monitoring and Audit Report  
For July 2015**

(Version 2.0)

Certified By



Dr. Priscilla Chey  
(Environmental Team Leader)

REMARKS:

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

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## TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
Introduction.....	1
Summary of Construction Works undertaken during Reporting Month .....	1
Variation in Construction Method.....	1
Environmental Monitoring and Audit Progress: .....	1
Regular Construction Noise and Construction Dust Monitoring .....	1
Waste Management .....	2
Landscape and Visual .....	2
Environmental Site Inspection .....	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution.....	2
Future Key Issues .....	2
<b>1 INTRODUCTION</b> .....	<b>3</b>
Purpose of the Report .....	3
Structure of the Report.....	3
<b>2 PROJECT INFORMATION</b> .....	<b>4</b>
Background .....	4
General Site Description .....	4
Construction Programme and Activities .....	4
Project Organisation .....	4
Status of Environmental Licences, Notification and Permits .....	4
Summary of EM&A Requirements .....	5
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS</b> .....	<b>6</b>
<i>Regular Construction Noise Monitoring</i> .....	6
Monitoring Parameter and Frequency .....	6
Monitoring Equipment and Methodology .....	7
Field Monitoring.....	7
Monitoring Equipment.....	7
Maintenance and Calibration .....	8
Action & Limit Level for Construction Noise Monitoring.....	8
<i>Continuous Noise Monitoring</i> .....	8
<i>Regular Construction Dust Monitoring</i> .....	8
Monitoring Parameter and Frequency .....	8
Monitoring Equipment.....	9
Instrumentation.....	9
HVS Installation .....	9
Filters Preparation .....	9
Operating/Analytical Procedures .....	10
Maintenance/Calibration.....	11
Action and Limit Levels for Dust Monitoring .....	11
<i>Landscape and Visual</i> .....	11
<b>4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS</b> .....	<b>12</b>
<b>5 MONITORING RESULTS</b> .....	<b>13</b>
Regular Construction Noise Monitoring.....	13

Regular Dust Monitoring .....	13
Waste Management .....	14
Landscape and Visual .....	14
<b>6 ENVIRONMENTAL SITE INSPECTION.....</b>	<b>15</b>
Site Audit .....	15
Implementation Status of Environmental Mitigation Measures .....	15
<b>7 ENVIRONMENTAL NON-CONFORMANCE .....</b>	<b>17</b>
Summary of Exceedances .....	17
Summary of Environmental Non-Compliance.....	17
Summary of Environmental Complaint .....	17
Summary of Environmental Summon and Successful Prosecution .....	17
<b>8 FUTURE KEY ISSUES.....</b>	<b>18</b>
Construction Programme for the Next Month .....	18
Key Issues in the Next Month.....	18
Monitoring Schedule in the Next Month .....	18
<b>9 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>19</b>
Conclusions .....	19
Recommendations .....	19

## LIST OF TABLES

Table 2.1	Status of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Location
Table 3.2	Noise Monitoring Equipment
Table 3.3	Dust Monitoring Location
Table 3.4	Dust Monitoring Parameters and Frequency
Table 3.5	Dust Monitoring Equipment
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Dust Monitoring Results during the reporting month
Table 5.2	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

## LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1107
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Location of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

## **LIST OF APPENDICES**

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations
Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

## EXECUTIVE SUMMARY

### Introduction

1. This is the 27<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels**. This report documents the findings of EM&A Works conducted from 1<sup>st</sup> to 31<sup>st</sup> July 2015.

### Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
  - Tunnel construction at cut and cover tunnels;
  - Backfilling works at cut and cover tunnels;
  - TBM excavation; and
  - Re-provision of Box culvert.

### Variation in Construction Method

3. Environmental Monitoring and Audit Progress:

As of the reporting month, an alignment section of approximately 90m long between DIH and KAT under this Works Contract 1107 will be constructed by the cut-and-cover method, instead of bored tunnelling method as assessed in the approved Environmental Impact Assessment (EIA) Report of Shatin to Central Link - Stabling Sidings at Hung Hom Freight Yard (hereafter referred to as SCL (HHS)) [Register No.: AEIAR-164/2012] due to increased construction risk caused by potential left-in piles. Also, pile removal works would be conducted if reinforced bored piles are identified along the bored tunnelling section. Application for variation of Environmental Permit (VEP) was approved by the EPD for the varied construction method. The updated EP (EP No.: EP-438/2012/F) was issued by EPD on 15 July 2014. Application for variation of Environmental Permit (VEP) was approved by the EPD for including the installation and operation of a Mobile Batching Machinery Equipment at Diamond Hill during the construction of SCL (TAW-HUH). The updated EP (EP No.: EP-438/2012/G) was issued by EPD on 14 August 2014. Application for variation of Environmental Permit (VEP) was approved by the EPD for varying Figure 11 of the previous Environment Permit. The updated EP (EP No.: EP-438/2012/H) was issued by EPD on 10 September 2014.

4. A summary of the monitoring activities in this reporting period is listed below:

#### Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours  
*Noise Monitoring Station ID*
- NMS-CA-4<sup>(1)(3)</sup>/NMS-CA-3<sup>(2)(3)</sup> (Block 1, Rhythm Garden (north-eastern façade)) 5 times
- NMS-CA-5<sup>(1)(4)</sup>/NMS-CA-2<sup>(2)(4)</sup> (Block 1, Rhythm Garden (northern façade)) 5 times
- Construction Dust (24-hour TSP) Monitoring  
*Dust Monitoring Station ID*
- DMS-4<sup>(1)(5)</sup>/DMS-3<sup>(2)(5)</sup> (Block 1, Rhythm Garden) 6 times

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Noise monitoring on NMS-CA-4<sup>(1)</sup>/NMS-CA-3<sup>(2)</sup> (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (4) Noise monitoring on NMS-CA-5<sup>(1)</sup>/NMS-CA-2<sup>(2)</sup> (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Dust monitoring on DMS-4<sup>(1)</sup>/DMS-3<sup>(2)</sup> (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

#### Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

#### Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2<sup>nd</sup>, 16<sup>th</sup> and 30<sup>th</sup> July 2015. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

#### Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 2<sup>nd</sup>, 9<sup>th</sup>, 16<sup>th</sup>, 22<sup>nd</sup> and 30<sup>th</sup> July 2015. The representative of the IEC joined the site inspection on 9<sup>th</sup> July 2015. Details of the audit findings and implementation status are presented in Section 6.

#### **Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution**

8. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.
9. No non-compliance event was recorded during the reporting period.
10. No Project related environmental complaint and notification of summons/successful prosecution was received in this reporting period. Follow up on the complaint case received in June 2015, investigation was conducted and mitigation measures were implemented. The detail of the complaint is presented in **Appendix L**.

#### **Future Key Issues**

11. Major site activities for the coming reporting month will include:
  - Tunnel construction at cut and cover tunnels;
  - Backfilling works at cut and cover tunnels;
  - TBM excavation; and
  - Re-provision of Box culvert.

## 1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Chun Wo – SELI Joint Venture (CSJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels (hereafter referred to as the Project).

### Purpose of the Report

- 1.2 This is the 27<sup>th</sup> EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1<sup>st</sup> to 31<sup>st</sup> July 2015. The major construction works for Contract 1107 commenced on 27<sup>th</sup> May 2013.

### Structure of the Report

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

## 2 PROJECT INFORMATION

### Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1107 covers the construction of running tunnel from Kai Tak (KAT) North to SCL Diamond Hill (DIH) Station which is under the approved SCL (HHS) EIA Report. This construction contract was awarded to Chun Wo - SELI Joint Venture (CSJV) in March 2013.

### General Site Description

- 2.3 The construction of tunnel from KAT to DIH will employ either cut-and-cover method or bored tunneling. The alignment and works area for the Works Contract 1107 are shown in **Figure 1**.

### Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
  - Tunnel construction at cut and cover tunnels;
  - Backfilling works at cut and cover tunnels;
  - TBM excavation; and
  - Re-provision of Box culvert.

### Project Organisation

- 2.5 The project organizational chart and contact details are shown in **Figure 4**.

### Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**. Two Construction Noise Permits (CNP): GW- RE0085-15 and GW-RE0366-15 expired and 1 new CNP (GW-RE0750-15) was granted in the reporting month.

**Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits**

Permit / License No.	Valid Period		Status
	From	To	
<b>Environmental Permit (EP)</b>			
EP-438/2012/H	10/09/2014	N/A	Valid
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>			
Ref no.: 357051	18/03/2013	N/A	Valid
<b>Billing Account for Construction Waste Disposal</b>			
Account No. 7017163	26/03/2013	N/A	Valid
<b>Registration of Chemical Waste Producer</b>			
5213-286-C3798-01	29/04/2013	N/A	Valid
<b>Effluent Discharge License under Water Pollution Control Ordinance</b>			
WT00015861-2013	13/05/2013	31/05/2018	Valid
WT00016009-2013	23/05/2013	31/05/2018	Valid
<b>Construction Noise Permit (CNP)</b>			
GW-RE0085-15	31/01/2015	30/07/2015	Expired
GW-RE0364-15	16/04/2015	13/09/2015	Valid
GW-RE0366-15	20/04/2015	30/06/2015	Expired
GW-RE0645-15	01/07/2015	30/09/2015	Valid
GW-RE0750-15	31/07/2015	30/01/2016	Valid

### Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1107 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the Project EIA study final report; and
  - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.



### 3 ENVIRONMENTAL MONITORING REQUIREMENTS

#### Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

**Table 3.1 Regular Construction Noise Monitoring Location**

<b>Regular Construction Noise Monitoring Location<sup>(4)(5)</sup></b>	<b>Description</b>	<b>Type of Measurement</b>
NMS-CA-4 <sup>(1)</sup> / NMS-CA-3 <sup>(2)</sup>	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 <sup>(1)(3)</sup> / NMS-CA-2 <sup>(2)(3)</sup>	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-4<sup>(1)</sup>/ NMS-CA-3<sup>(2)</sup> (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Noise monitoring on NMS-CA-5<sup>(1)</sup>/ NMS-CA-2<sup>(2)</sup> (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.

#### **Monitoring Parameter and Frequency**

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{Aeq}$ ) in decibels dB(A).  $L_{Aeq}$  (30min) (as six consecutive  $L_{eq, 5-min}$  readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

## Monitoring Equipment and Methodology

### Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 5 minutes (obtaining six consecutive  $L_{eq,5min}$  readings for a  $L_{eq,30 min}$  reading )
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

### Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, compile with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in **Appendix C**.

**Table 3.2 Noise Monitoring Equipment**

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 14303) SVAN 957 (Serial no.: 21460)
Calibrator	SV30A (Serial no.: 24791) B&K4231 (Serial no.: 2326353)

**Maintenance and Calibration**

- 3.6 Maintenance and Calibration procedures were as follows:
- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
  - The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

**Action & Limit Level for Construction Noise Monitoring**

- 3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I**.

**Continuous Noise Monitoring**

- 3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared submitted under EP Condition 2.9 and Condition 2.10 respectively, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1107.

**Regular Construction Dust Monitoring**

- 3.9 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

**Table 3.3 Dust Monitoring Location**

<b>Regular Dust Monitoring Location</b>	<b>Description</b>
DMS-4 <sup>(1)(3)</sup> / DMS-3 <sup>(2)(3)</sup>	Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).  
 (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).  
 (3) Dust monitoring on DMS-4<sup>(1)</sup>/DMS-3<sup>(2)</sup> (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

**Monitoring Parameter and Frequency**

- 3.10 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at Rhythm Garden was conducted as per the schedule presented in **Appendix D**.

**Table 3.4 Dust Monitoring Parameters and Frequency**

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring <sup>(1)</sup>	Throughout the construction period	24-hour TSP	Once per 6 days

Note:

(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

### Monitoring Equipment

3.11 **Table 3.5** summarizes the equipment used for the dust monitoring.

**Table 3.5 Dust Monitoring Equipment**

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 2896	1

### Instrumentation

3.12 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

### HVS Installation

3.13 The following guidelines were adopted during the installation of HVS:

- Sufficient support was provided to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

### Filters Preparation

3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 µm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.

- 3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5$ %. A convenient working RH was 40%.
- 3.16 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

### **Operating/Analytical Procedures**

- 3.17 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
  - The power supply was checked to ensure the sampler worked properly.
  - The filter holding frame and the area surrounding the filter were cleaned.
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
  - The shelter lid was closed and secured with the aluminum strip.
  - A new flow rate record chart was set into the flow recorder.
  - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
  - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
  - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
  - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
  - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than  $\pm 3$ °C; the relative humidity (RH) should be < 50% and not vary by more than  $\pm 5$ %. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

**Maintenance/Calibration**

3.18 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix C**.
- The HVS calibration orifice will be calibrated annually.

**Action and Limit Levels for Dust Monitoring**

3.19 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix I**.

**Landscape and Visual**

3.20 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The Event / Action Plan (EAP) for landscape and visual is presented in **Appendix I**. The implementation status is given in **Appendix J**.

#### 4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

**Table 4.1 Status of Required Submissions under EP**

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (June 2015)	14 <sup>th</sup> July 2015

## 5 MONITORING RESULTS

### Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5<sup>(1)</sup>/NMS-CA-2<sup>(2)</sup> (Block 1, Rhythm Garden (northern façade)) on 3<sup>rd</sup>, 9<sup>th</sup>, 21<sup>st</sup> and 27<sup>th</sup> July 2015 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance since the results were below the baseline noise level. The noise monitoring results recorded at NMS-CA-4<sup>(1)</sup>/NMS-CA-3<sup>(2)</sup> (Block 1, Rhythm Garden (north-eastern façade)) in July did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby and breaking works in other construction site at 210-212 Choi Hung Road (observed till 16<sup>th</sup> July 2015) are considered as potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.
- 5.5 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

### Regular Dust Monitoring

- 5.6 A total of 6 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

**Table 5.1 Summary Table of Dust Monitoring Results during the reporting month**

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP (DMS-4 <sup>(1)(3)</sup> / DMS-3 <sup>(2)(3)</sup> )	12.8	62.1	32.0	160.4	260

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).  
 (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).  
 (3) Dust monitoring on DMS-4<sup>(1)</sup>/DMS-3<sup>(2)</sup> (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.8 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.9 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.



## Waste Management

5.10 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. 1,995m<sup>3</sup> of C&D materials, 55m<sup>3</sup> of general refuse, and no chemical waste were generated and disposed; No plastics and metals but 281kg of paper/cardboard packaging were generated and recycled during this reporting month. Details of waste management data is presented in **Appendix K**.

**Table 5.2 Quantities of Waste Generated from the Project**

Reporting Month	Quantity					
	C&D Materials (inert) <sup>(a)</sup>	C&D Materials (non-inert) <sup>(b)</sup>				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
July 2015	1,995 m <sup>3</sup>	55 m <sup>3</sup>	0 kg	281 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

## Landscape and Visual

5.11 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2<sup>nd</sup>, 16<sup>th</sup> and 30<sup>th</sup> July 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

## 6 ENVIRONMENTAL SITE INSPECTION

### Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 2<sup>nd</sup>, 9<sup>th</sup>, 16<sup>th</sup>, 22<sup>nd</sup> and 30<sup>th</sup> July 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 9<sup>th</sup> July 2015. No site inspection was conducted by EPD in the reporting month. The details of observations during site audit can refer to **Table 6.1**.

### Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	---	---	---
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	---	---	---
<i>Air Quality</i>	11 <sup>th</sup> June 2015	<u>Reminder:</u> Stockpile of material was observed not covered completely. The Contractor was reminded to cover the stockpile or provide water spray to the uncovered part.	As observed on 9 <sup>th</sup> July 2015, the stockpile of material was covered using dust screen and uncovered part was kept wet by water spray.
	18 <sup>th</sup> June 2015	<u>Observation:</u> Stockpile of material was observed not covered. The Contractor was reminded to cover the stockpile with impervious sheet.	As observed on 9 <sup>th</sup> July 2015, the stockpile of material was covered using dust screen and uncovered part was kept wet by water spray.
	25 <sup>th</sup> June 2015	<u>Observation:</u> Stockpile of dusty material was observed not covered. The Contractor was reminded to cover the stockpile with dust protective screen.	As observed on 9 <sup>th</sup> July 2015, the stockpile of material was covered using dust screen and uncovered part was kept wet by water spray.
	2 <sup>nd</sup> July 2015	<u>Observation:</u> Stockpile of materials was observed not covered completely. The Contractor was reminded to cover the stockpile properly and keep the uncovered part wet.	As observed on 9 <sup>th</sup> July 2015, the stockpile of material was covered using dust screen and uncovered part was kept wet by water spray.

<b>Parameters</b>	<b>Date</b>	<b>Observations and Recommendations</b>	<b>Follow-up</b>
<b>Waste / Chemical Management</b>	25 <sup>th</sup> June 2015	<u>Reminder:</u> Stand water was observed in drip trays near shaft B. The Contractor was reminded to properly clear the stand water.	As observed on 2 <sup>nd</sup> July 2015, stand water in drip trays near shaft B was cleared.
	9 <sup>th</sup> July 2015	<u>Reminder:</u> Oil leakage was observed near TBM workshop. The contractor was reminded to clear the oil leakage properly as chemical waste.	As observed on 16 <sup>th</sup> July 2015, oil leakage was cleared.
<b>Permits/Licenses</b>	---	---	---

## 7 ENVIRONMENTAL NON-CONFORMANCE

### Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

### Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting month.

### Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. Follow up on the complaint case received in June 2015, investigation was conducted and mitigation measures were implemented. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

### Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

## 8 FUTURE KEY ISSUES

### Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Tunnel construction at cut and cover tunnels;
- Backfilling works at cut and cover tunnels;
- TBM excavation; and
- Re-provision of Box culvert.

### Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Dust impact from excavating works;
- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and bentonite;
- Treatment of wastewater from shaft excavation works;
- To ensure the performance of sorting of C&D materials at source (during generation); and
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.

### Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at Rhythm Garden in the next reporting period is presented in **Appendix D**. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

## 9 CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1<sup>st</sup> to 31<sup>st</sup> July 2015 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 3 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month. Follow up on the complaint case received in June 2015, investigation was conducted and mitigation measures were implemented.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### Recommendations

- 9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### Water Quality

- N/A

#### Landscape and Visual

- N/A

#### Noise

- N/A

#### Air Quality

- Any excavated or stockpile of dusty material should be covered entirely by dust protective screen or sprayed with water to maintain the entire surface wet.

#### Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals and oil containers shall be sustained. Drip trays should also be properly maintained.
- Stand water inside drip trays should be cleared properly as chemical waste.

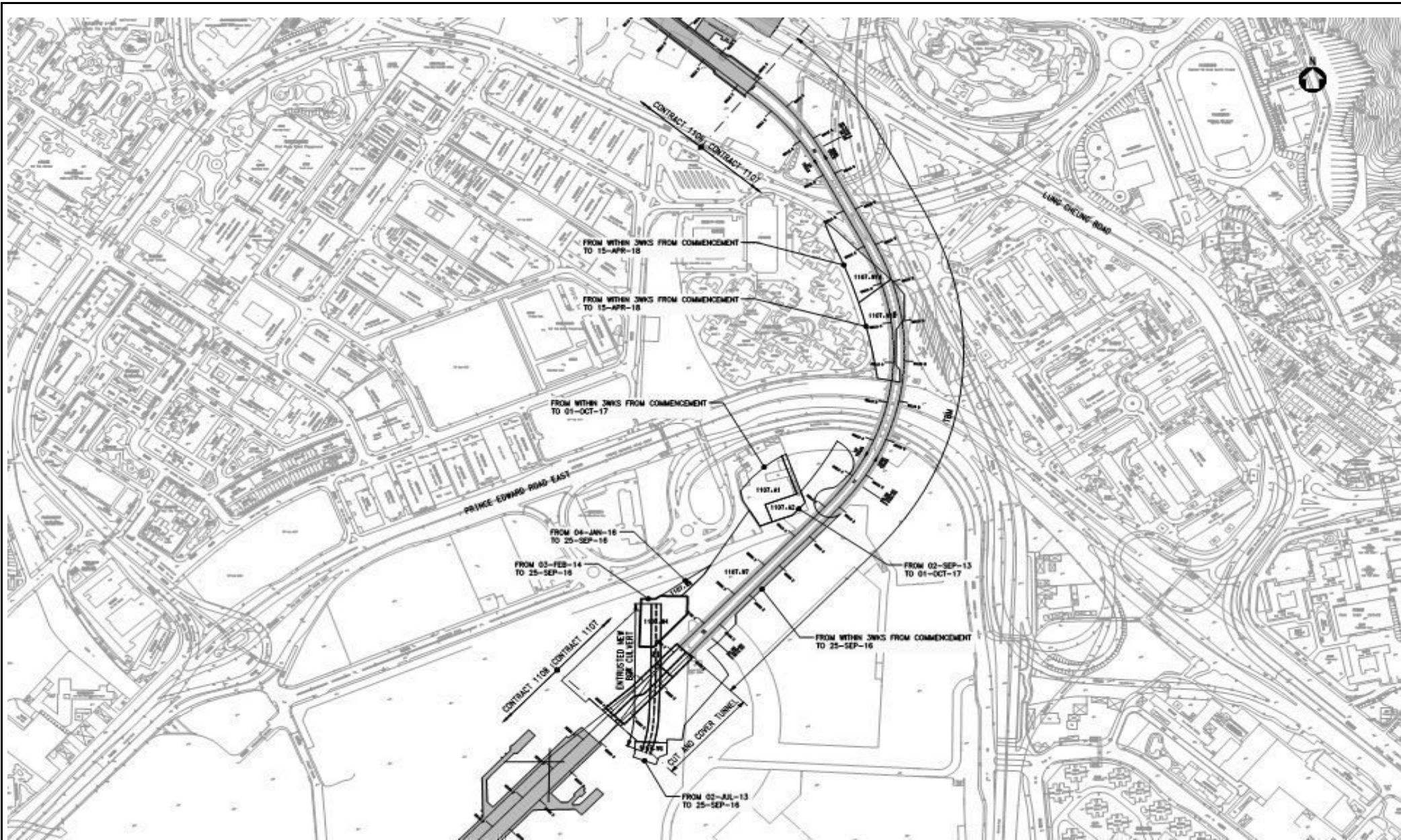
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## FIGURES

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Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels		Scale	N.T.S	Project No.	MA13018
	Site Layout Plan		Date	May-13	Figure	1



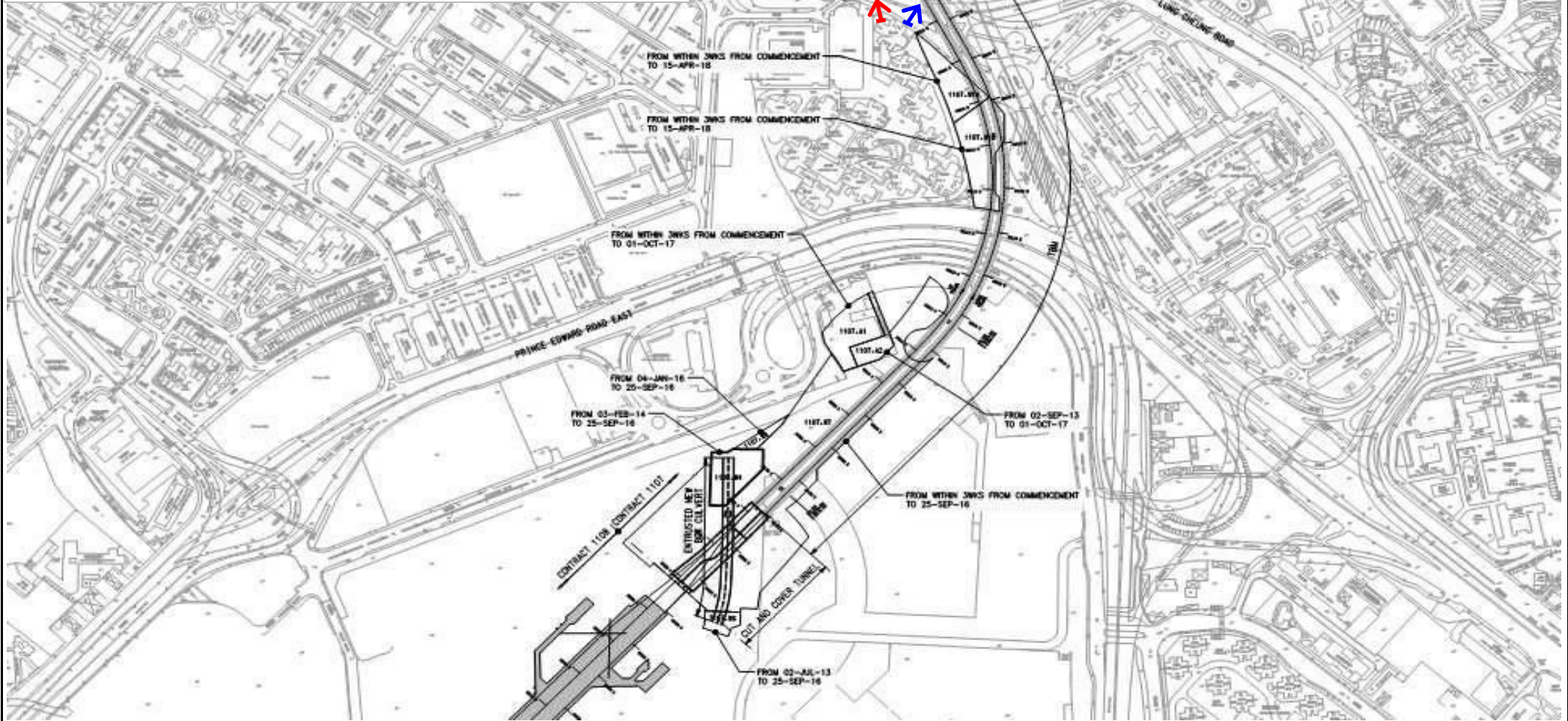


**Legend:**

- ➔ NMS-CA-4<sup>(1)</sup>/NMS-CA-3<sup>(2)</sup> Block 1, Rhythm Garden (north-eastern façade)
- ➔ NMS-CA-5<sup>(1)</sup>/NMS-CA-2<sup>(2)</sup> Block 1, Rhythm Garden (northern façade)

**Note:**

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



Title MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Constrction Noise Monitoring	Scale N.T.S	Project No. MA13018	
	Date May-13	Figure 2	

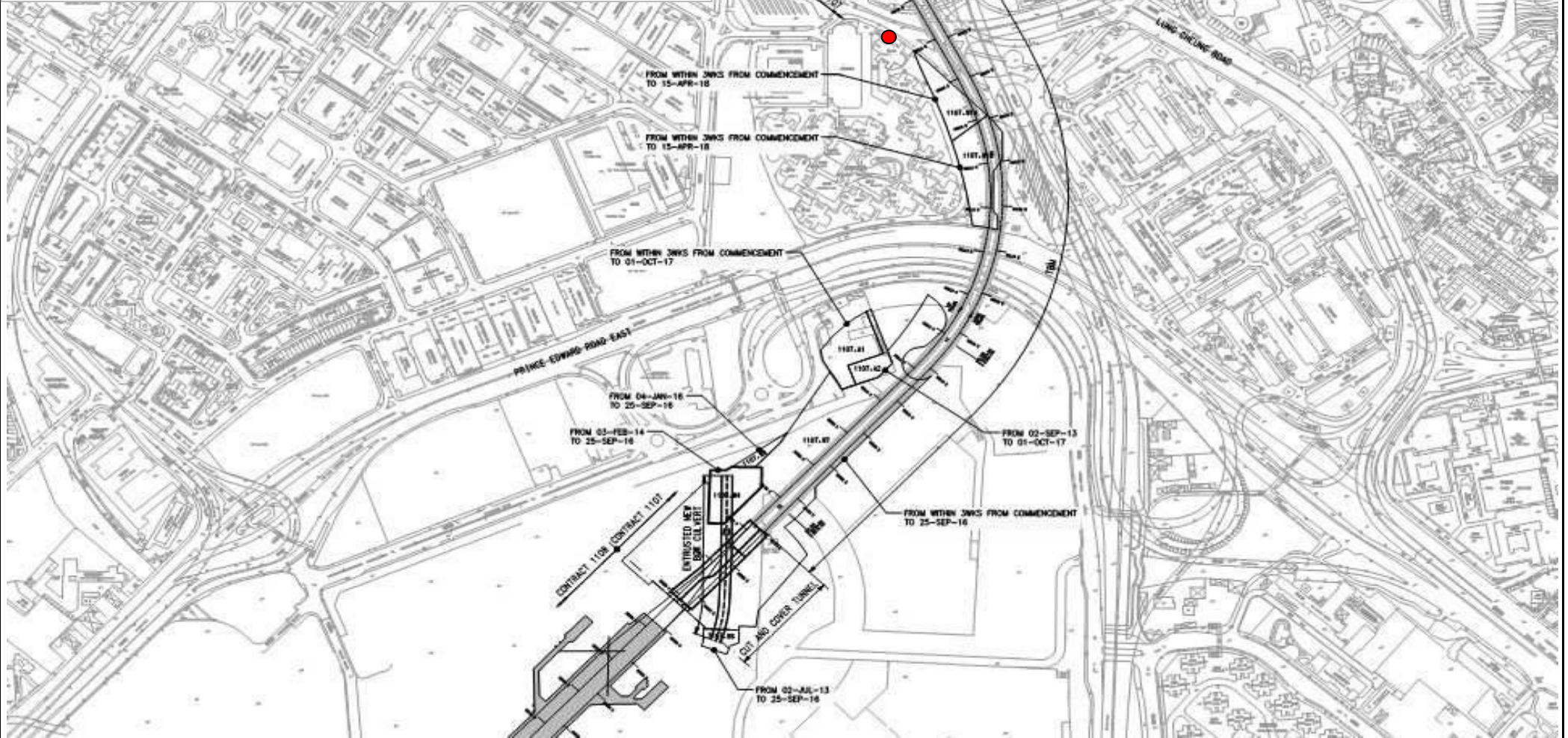


**Legend:**

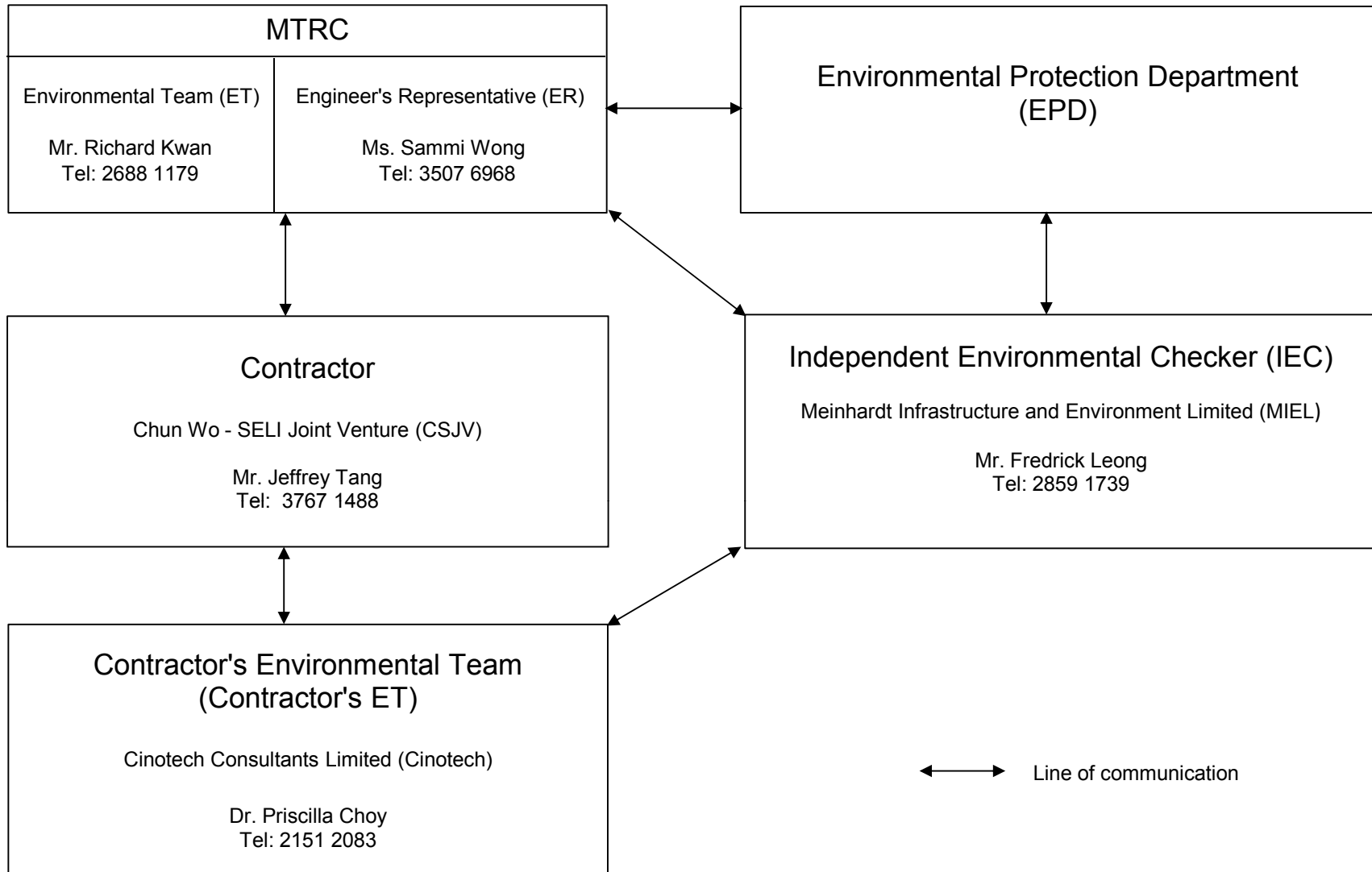
- DMS-4<sup>(1)</sup>/DMS-3<sup>(2)</sup> Block 1, Rhythm Garden

**Note:**

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Location of Dust Monitoring	Scale	N.T.S	Project No.	MA13018	CINOTECH
		Date	May-13	Figure	3	



Title

MTR SCL Works Contract 1107  
Diamond Hill to Kai Tak Tunnels

Organisation Chart and Key Contact of the Project

Scale

N.T.S

Date

Jul 2014

Proposal

No. MA13018

Figure

4

**CINOTECH**

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**APPENDIX A  
TENTATIVE CONSTRUCTION  
PROGRAMME**

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Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015				
									Jun	Jul	Aug	Sep	Oct
<b>MTRC SCL 1107 DIH to KAT Tunnels 3 M</b>		152	22-Mar-14	31-Dec-15	06-May-15	31-Dec-15	28-Apr-15 A	05-Nov-15					
<b>Schedule of Completion Obligation &amp; Otl</b>		116	22-Mar-14	27-Sep-15	03-Jun-15	05-Oct-15	03-Jun-15 A	27-Sep-15	27-Sep-				
<b>Table 4 Specified Degrees of Completion</b>		99	21-Mar-15	21-Mar-15	12-Jun-15	27-Aug-15	12-Jun-15 A	19-Sep-15	19-Sep-15, Table				
1107.CD10090	4A Deg 1 Tunnel (UP track) from KAT to DIH and Box 2A with Pway access opening 22MAR15	0		21-Mar-15		27-Aug-15		19-Sep-15*	◆ 4A Deg 1 Tunnel				
1107.CD10110	4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B 22MAR15	0		21-Mar-15		12-Jun-15		12-Jun-15 A	◆ 4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B 22MAR15				
<b>Schedule of Milestone Dates - Cost Centre A</b>		91	28-Jun-15	27-Sep-15	28-Jun-15	27-Sep-15	28-Jun-15 A	27-Sep-15	27-Sep-				
1107.MS10240	A9 Engr confirm satisfactory implementation of safety & environmental req's in accordance with Specified Plans	0		28-Jun-15		28-Jun-15		28-Jun-15 A	◆ A9 Engr confirm satisfactory implementation of safety & environmental req's in accordance with Specif				
1107.MS10250	A10 Engr confirm satisfactory implementation of Sys Assur & Risk Managt Req's in accordance with Appr Spec'd Plans	0		27-Sep-15		27-Sep-15		27-Sep-15*	◆ A10 Eng				
<b>Schedule of Milestone Dates - Cost Centre B</b>		0	27-Jan-15	27-Jan-15	11-Jul-15	11-Jul-15	03-Jul-15	03-Jul-15	▼ 03-Jul-15, Schedule of Milestone Dates - Cost Centre B				
1107.MS10370	B4 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (DN track) 30AUG15	0		27-Jan-15		11-Jul-15		03-Jul-15*	◆ B4 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (DN tra				
<b>Schedule of Milestone Dates - Cost Centre C</b>		113	22-Mar-14	21-Apr-15	03-Jun-15	05-Oct-15	03-Jun-15 A	24-Sep-15	24-Sep-15,				
1107.MS10400	C3 Ground treatment and grouting work for TBM retrievals complete 30MAR14	0		22-Mar-14		04-Sep-15		08-Sep-15*	◆ C3 Ground treatment and gr				
1107.MS10440	C6a Manufacturing of pre-cast tunnel lining segment 70% by number complete and delivery to site 28DEC14	0		19-Dec-14		28-Jul-15		30-Jul-15*	◆ C6a Manufacturing of pre-cast tunnel lining segment 70% by number c				
1107.MS10460	C6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete 28DEC14	0		08-Nov-14		03-Jun-15		03-Jun-15 A	◆ C6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete 28DEC14				
1107.MS10470	C7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete 22MAR15	0		09-Dec-14		30-Jun-15		18-Jul-15*	◆ C7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete 2				
1107.MS10480	C7b Manufacturing of pre-cast tunnel lining segment 90% by number complete and delivery to site 22MAR15	0		11-Mar-15		11-Sep-15		05-Sep-15*	◆ C7b Manufacturing of pre-cast				
1107.MS10490	C8a DN track TBM tunnel drive from Kai Tak to DIH 25% by plan length complete 31MAY15	0		14-Feb-15		27-Aug-15		20-Aug-15*	◆ C8a DN track TBM tunnel drive from Kai Tak to				
1107.MS10500	C8b Manufacturing of all pre-cast tunnel lining segment complete and delivery to site 31MAY15	0		21-Apr-15		05-Oct-15		24-Sep-15*	◆ C8b Manufa				
<b>Schedule of Milestone Dates - Cost Centre I (f</b>		113	22-Mar-14	21-Apr-15	03-Jun-15	05-Oct-15	03-Jun-15 A	24-Sep-15	24-Sep-15,				
1107.MS10770	I3 Ground treatment and grouting work for TBM retrievals complete 30MAR14	0		22-Mar-14		04-Sep-15		08-Sep-15*	◆ I3 Ground treatment and gro				
1107.MS10810	I6a Manufacturing of pre-cast tunnel lining segment 70% by number complete and delivery to site 28DEC14	0		19-Dec-14		28-Jul-15		30-Jul-15*	◆ I6a Manufacturing of pre-cast tunnel lining segment 70% by number c				
1107.MS10830	I6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete 28DEC14	0		08-Nov-14		03-Jun-15		03-Jun-15 A	◆ I6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete 28DEC14				
1107.MS10840	I7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete 22MAR15	0		09-Dec-14		30-Jun-15		18-Jul-15*	◆ I7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete 22				
1107.MS10850	I7b Manufacturing of pre-cast tunnel lining segment 90% by number complete and delivery to site 22MAR15	0		11-Mar-15		11-Sep-15		05-Sep-15*	◆ I7b Manufacturing of pre-cast t				
1107.MS10860	I8a DN track TBM tunnel drive from Kai Tak to DIH 25% by plan length complete 31MAY15	0		14-Feb-15		27-Aug-15		20-Aug-15*	◆ I8a DN track TBM tunnel drive from Kai Tak to I				
1107.MS10870	I8b Manufacturing of all pre-cast tunnel lining segment complete and delivery to site 31MAY15	0		21-Apr-15		05-Oct-15		24-Sep-15*	◆ I8b Manufa				
<b>Schedule of Access Dates for Designated Cor</b>		0	30-Mar-15	30-Mar-15	28-Aug-15	28-Aug-15	20-Sep-15	20-Sep-15	▼ 20-Sep-15, Sch				
<b>1120 Trackwork &amp; Overhead Line</b>		0	30-Mar-15	30-Mar-15	28-Aug-15	28-Aug-15	20-Sep-15	20-Sep-15	▼ 20-Sep-15, 1120				
1107.AD11180	UP track tunnel from KAT shaft to DIH(E)	0	30-Mar-15		28-Aug-15		20-Sep-15*		◆ UP track tunnel				
<b>Cost Centre A - Preliminaries</b>		123	26-May-15	31-Dec-15	23-May-15	31-Dec-15	23-May-15 A	19-Oct-15					
<b>Project Audit</b>		99	26-May-15	19-Sep-15	26-May-15	19-Sep-15	08-Jun-15 A	19-Sep-15	19-Sep-15, Proje				
1107.12510	2nd Audit of System Assurance & Risk Management & Design for Safety & Constructability plans	12	24-Aug-15	19-Sep-15	24-Aug-15	19-Sep-15	07-Sep-15*	19-Sep-15	2nd Audit of Sys				
1107.12520	3rd Audit of safety & environmental plans	24	26-May-15	23-Jun-15	26-May-15	23-Jun-15	08-Jun-15 A	23-Jun-15 A	3rd Audit of safety & environmental plans				



Data Date 01-Jul-15  
Page 1 of 6  
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**MTRC SCL 1107 DIH to KAT Tunnels 3**  
**Month Rolling Programme 028 with Phase 1**  
**DRM**  
Data Date 01-Jul-15

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- Master Prog Baseline Bar ◆ Milestone
- Last Month Forecast Bar ▼ Summary
- Actual Work
- Remaining Work
- Critical Remaining Work



Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015				
									Jun	Jul	Aug	Sep	Oct
<b>Site Enabling Works</b>		123	02-Jul-15	31-Dec-15	23-May-15	31-Dec-15	23-May-15 A	19-Oct-15					
<b>Site Setup</b>		123	02-Jul-15	31-Dec-15	23-May-15	31-Dec-15	23-May-15 A	19-Oct-15					
<b>Misc Items</b>		123	02-Jul-15	31-Dec-15	23-May-15	31-Dec-15	23-May-15 A	19-Oct-15					
1107.19032	Provision of Site General Staff (Drivers, Amahs, etc) - 23-May-15 to 10-Jun-15	15			23-May-15	10-Jun-15	23-May-15 A	10-Jun-15 A	Provision of Site General Staff (Drivers, Amahs, etc) - 23-May-15 to 10-Jun-15				
1107.19033	Provision of Site General Staff (Drivers, Amahs, etc) - 11-Jun-15 to 30-Jun-15	16			11-Jun-15	30-Jun-15	11-Jun-15 A	30-Jun-15 A	Provision of Site General Staff (Drivers, Amahs, etc) - 11-Jun-15 to 30-Jun-15				
1107.19040	Provision of Site General Staff (Drivers, Amahs, etc) - 2-Jul to 20-Jul-15	16	02-Jul-15	30-Sep-15	02-Jul-15	20-Jul-15	02-Jul-15	20-Jul-15	Provision of Site General Staff (Drivers, Amahs, etc) - 2-Jul-15 to 20-Jul-15				
1107.19041	Provision of Site General Staff (Drivers, Amahs, etc) - 21-Jul-15 to 6-Aug-15-15	15			21-Jul-15	06-Aug-15	21-Jul-15	06-Aug-15	Provision of Site General Staff (Drivers, Amahs, etc) - 21-Jul-15 to 6-Aug-15-15				
1107.19042	Provision of Site General Staff (Drivers, Amahs, etc) - 7-Aug-15-15 to 24-Aug-15	15			07-Aug-15	24-Aug-15	07-Aug-15	24-Aug-15	Provision of Site General Staff (Drivers, Amahs, etc) - 7-Aug-15-15 to 24-Aug-15				
1107.19043	Provision of Site General Staff (Drivers, Amahs, etc) - 26-Aug-15 to 11-Sep-15	16			25-Aug-15	11-Sep-15	25-Aug-15	11-Sep-15	Provision of Site General Staff (Drivers, Amahs, etc) - 26-Aug-15 to 11-Sep-15				
1107.19044	Provision of Site General Staff (Drivers, Amahs, etc) - 12-Sep-15 to 30-Sep-15	15			12-Sep-15	30-Sep-15	12-Sep-15	30-Sep-15	Provision of Site General Staff (Drivers, Amahs, etc) - 12-Sep-15 to 30-Sep-15				
1107.19050	Provision of Site General Staff (Drivers, Amahs, etc) - 2-Oct-15 to 19-Oct-15	15	02-Oct-15	31-Dec-15	02-Oct-15	31-Dec-15	02-Oct-15	19-Oct-15	Provision of Site General Staff (Drivers, Amahs, etc) - 2-Oct-15 to 19-Oct-15				
1107.19222	Provision of Site General Staff (Drivers, Amahs, etc) - 23-May-15 to 10-Jun-15	15			23-May-15	10-Jun-15	23-May-15 A	10-Jun-15 A	Provision of Site General Staff (Drivers, Amahs, etc) - 23-May-15 to 10-Jun-15				
1107.19223	Provision of Site General Staff (Drivers, Amahs, etc) - 11-Jun-15 to 30-Jun-15	16			11-Jun-15	30-Jun-15	11-Jun-15 A	30-Jun-15 A	Provision of Site General Staff (Drivers, Amahs, etc) - 11-Jun-15 to 30-Jun-15				
1107.19230	Provision of Site General Labour for Temporary Works - 2-Jul-15 to 20-Jul-15	16	02-Jul-15	30-Sep-15	02-Jul-15	20-Jul-15	02-Jul-15	20-Jul-15	Provision of Site General Labour for Temporary Works - 2-Jul-15 to 20-Jul-15				
1107.19231	Provision of Site General Labour for Temporary Works - 21-Jul to 6-Aug-15	15			21-Jul-15	06-Aug-15	21-Jul-15	06-Aug-15	Provision of Site General Labour for Temporary Works - 21-Jul-15 to 6-Aug-15				
1107.19232	Provision of Site General Labour for Temporary Works - 7-Aug-15 to 25-Aug-15	16			07-Aug-15	25-Aug-15	07-Aug-15	25-Aug-15	Provision of Site General Labour for Temporary Works - 7-Aug-15 to 25-Aug-15				
1107.19233	Provision of Site General Labour for Temporary Works - 26-Aug-15 to 11-Sep-15	15			26-Aug-15	11-Sep-15	26-Aug-15	11-Sep-15	Provision of Site General Labour for Temporary Works - 26-Aug-15 to 11-Sep-15				
1107.19234	Provision of Site General Labour for Temporary Works - 12-Sep-15 to 30-Sep-15	15			12-Sep-15	30-Sep-15	12-Sep-15	30-Sep-15	Provision of Site General Labour for Temporary Works - 12-Sep-15 to 30-Sep-15				
1107.19240	Provision of Site General Labour for Temporary Works - Fourth Quarter of 2015	15	02-Oct-15	31-Dec-15	02-Oct-15	31-Dec-15	02-Oct-15	19-Oct-15	Provision of Site General Labour for Temporary Works - Fourth Quarter of 2015				
<b>Cost Centre C - Tunnel Construction by</b>		146	23-Mar-14	30-Aug-15	13-May-15	11-Nov-15	20-May-15 A	05-Nov-15					
<b>Site Enabling Works for TBM</b>		101	23-Mar-14	22-Apr-14	01-Jun-15	25-Sep-15	01-Jun-15 A	29-Sep-15					
<b>OPTION 3 - Obstruction Removal</b>		0	22-Apr-14	22-Apr-14	22-Jul-15	22-Jul-15	14-Jul-15	14-Jul-15	▼ 14-Jul-15, OPTION 3 - Obstruction Removal				
<b>Removal of Abandoned Airport Admin Bldg Foundations I</b>		0	22-Apr-14	22-Apr-14	22-Jul-15	22-Jul-15	14-Jul-15	14-Jul-15	▼ 14-Jul-15, Removal of Abandoned Airport Admin Bldg Foundations DN Track				
1107.13580	Approx date of TBM Pass Through (DN Track)	0	22-Apr-14		22-Jul-15		14-Jul-15*		◆ Approx date of TBM Pass Through (DN Track)				
<b>Ground Treatment</b>		101	23-Mar-14	12-Apr-14	01-Jun-15	25-Sep-15	01-Jun-15 A	29-Sep-15					
<b>Jet Grouting Treatment for KAT TBM Launch Shaft</b>		0			22-Jul-15	22-Jul-15	14-Jul-15	14-Jul-15	▼ 14-Jul-15, Jet Grouting Treatment for KAT TBM Launch Shaft				
1107.20670	Approx date of TBM Break Through (Dn Track)	0			22-Jul-15		14-Jul-15*		◆ Approx date of TBM Break Through (Dn Track)				
<b>Pressure Grouting Treatment for DIH TBM Retrieval Shaft</b>		101	23-Mar-14	12-Apr-14	01-Jun-15	25-Sep-15	01-Jun-15 A	29-Sep-15					
1107.13430e	GI Boreholes	12			01-Jun-15	13-Jun-15	01-Jun-15 A	13-Jun-15 A	GI Boreholes				
1107.13430f	Design of Grouting / Mobilisation	12			15-Jun-15	29-Jun-15	15-Jun-15 A	03-Jul-15	Design of Grouting / Mobilisation				
1107.13431a	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines	14			30-Jun-15	16-Jul-15	04-Jul-15	20-Jul-15	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines				
1107.13431a10	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines	14			17-Jul-15	01-Aug-15	21-Jul-15	05-Aug-15	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines				
1107.13431a20	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines	14			03-Aug-15	18-Aug-15	06-Aug-15	21-Aug-15	Pressure Grouting DN Track (56 nos) Average 4 Points/day with 2 machines				
1107.13431a30	Pressure Grouting DN Track (57 nos) Average 4 Points/day with 2 machines	15			19-Aug-15	04-Sep-15	22-Aug-15	08-Sep-15	Pressure Grouting DN Track (57 nos) Average 4 Points/day with 2 machines				



Data Date 01-Jul-15  
Page 2 of 6  
SCL1107 M-3MR-028  
Printed 07-Jul-15 14:18

**MTRC SCL 1107 DIH to KAT Tunnels 3**  
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See 2nd Col	0	KCL	KCL

- Master Prog Baseline Bar ◆ Milestone
- Last Month Forecast Bar ▼ Summary
- Actual Work
- Remaining Work
- Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015					
									Jun	Jul	Aug	Sep	Oct	
1107.13450	Demobilise	6	24-Mar-14	29-Mar-14	05-Sep-15	11-Sep-15	09-Sep-15	15-Sep-15					Demobilise	
1107.13460	Curing of Grout (DN Track)	21	23-Mar-14	12-Apr-14	05-Sep-15	25-Sep-15	09-Sep-15	29-Sep-15					Curing	
1107.13480	C3 Ground treatment and grouting work for TBM retrievals complete	0		30-Mar-14		04-Sep-15		08-Sep-15*					C3 Ground treatment and gr	
<b>Tunnel Boring Construction - UP Track</b>		109	10-Nov-14	22-Mar-15	13-May-15	27-Aug-15	23-May-15 A	19-Sep-15						19-Sep-15, Tunn
1107.14082	UP Track Tunnel Invert & Walkway- Rings 315 to 420 (50% complete)	8			13-May-15	21-May-15	23-May-15 A	03-Jun-15 A	UP Track Tunnel Invert & Walkway- Rings 315 to 420 (50% complete)					
1107.14090	C6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete	0		28-Dec-14		03-Jun-15		03-Jun-15 A	C6c Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH 50% by plan length complete					
1107.14100	UP Track Tunnel Invert & Walkway- Rings 211 to 314	8	10-Nov-14	09-Dec-14	04-Jun-15	12-Jun-15	04-Jun-15 A	16-Jun-15 A	UP Track Tunnel Invert & Walkway- Rings 211 to 314					
1107.14101	UP Track Tunnel Invert & Walkway- Rings 106 to 210	7			13-Jun-15	22-Jun-15	17-Jun-15 A	06-Jul-15	UP Track Tunnel Invert & Walkway- Rings 106 to 210					
1107.14102	UP Track Tunnel Invert & Walkway- 1107 Launch shaft to Ring 105 (100% Complete)	11			23-Jun-15	30-Jun-15	07-Jul-15	18-Jul-15	UP Track Tunnel Invert & Walkway- 1107 Launch shaft to Ring 105 (100% Complete)					
1107.14110	C7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete	0		22-Mar-15		30-Jun-15		18-Jul-15*	C7a Tunnel invert and walkway of UP Track tunnel from Kai Tak to DIH complete					
1107.14120	4A Deg 1 Tunnel (UP track) from KAT to DIH and Box 2A with Pway access opening	0		22-Mar-15		27-Aug-15		19-Sep-15*	4A Deg 1 Tunnel					
<b>Tunnel Boring Construction - DN Track</b>		131	07-Oct-14	30-Aug-15	01-Jun-15	11-Nov-15	01-Jun-15 A	05-Nov-15						
1107.14140	Re-assembly of TBM in Shaft- Front shield, cutterhead, & screw conveyor Pt 1	12	07-Oct-14	10-Nov-14	01-Jun-15	13-Jun-15	01-Jun-15 A	13-Jun-15 A	Re-assembly of TBM in Shaft- Front shield, cutterhead, & screw conveyor Pt 1					
1107.14141	Re-assembly of TBM in Shaft- Intermediate shield, Erector & screw conveyor Pt 2	8			06-Jun-15	15-Jun-15	06-Jun-15 A	15-Jun-15 A	Re-assembly of TBM in Shaft- Intermediate shield, Erector & screw conveyor Pt 2					
1107.14142	Re-assembly of TBM in Shaft- Tail Shield, Gantries & Services Connections	14			16-Jun-15	03-Jul-15	16-Jun-15 A	27-Jun-15 A	Re-assembly of TBM in Shaft- Tail Shield, Gantries & Services Connections					
1107.14143	Re-assembly of TBM Shield in Shaft- Thrust frame, PLC setup & Tests	7			04-Jul-15	11-Jul-15	27-Jun-15 A	03-Jul-15	Re-assembly of TBM Shield in Shaft- Thrust frame, PLC setup & Tests					
1107.14150	B4 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (DN track)	0		30-Aug-15		30-Aug-15		30-Aug-15*	B4 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (DN track)					
1107.14160	TBM Initial 90m Driving - Install Ring -9 to Ring +6	8	11-Nov-14	20-Jan-15	13-Jul-15	21-Jul-15	04-Jul-15	13-Jul-15	TBM Initial 90m Driving - Install Ring -9 to Ring +6					
1107.14161	TBM Initial 90m Driving - Install Rings 7 to 21	7			22-Jul-15	29-Jul-15	14-Jul-15	21-Jul-15	TBM Initial 90m Driving - Install Rings 7 to 21					
1107.14162	TBM Initial 90m Driving - Install Rings 22 to 41	6			30-Jul-15	05-Aug-15	22-Jul-15	28-Jul-15	TBM Initial 90m Driving - Install Rings 22 to 41					
1107.14163	TBM Initial 90m Driving - Install Rings 42 to 65 -TBM Fully Embedded	6			06-Aug-15	11-Aug-15	29-Jul-15	04-Aug-15	TBM Initial 90m Driving - Install Rings 42 to 65 -TBM Fully Embedded					
1107.14170	Shaft Final Set-up, Ready for Tunnel Drive	1	21-Jan-15	27-Jan-15	12-Aug-15	12-Aug-15	05-Aug-15	05-Aug-15	Shaft Final Set-up, Ready for Tunnel Drive					
1107.14180	TBM Boring Next 114m (25% complete)	13	28-Jan-15	14-Feb-15	13-Aug-15	27-Aug-15	06-Aug-15	20-Aug-15	TBM Boring Next 114m (25% complete)					
1107.14190	C8a DN track TBM tunnel drive from Kai Tak to DIH 25% by plan length complete	0		31-May-15		27-Aug-15		20-Aug-15*	C8a DN track TBM tunnel drive from Kai Tak to DIH 25% by plan length complete					
1107.14200	TBM Boring Next 21m	2	16-Feb-15	17-Feb-15	28-Aug-15	29-Aug-15	21-Aug-15	22-Aug-15	TBM Boring Next 21m					
1107.14210	Special Cutterhead Maintenance Intervention (approx Ch 97864)	2	18-Feb-15	23-Feb-15	31-Aug-15	01-Sep-15	24-Aug-15	25-Aug-15	Special Cutterhead Maintenance Intervention					
1107.14220	TBM Boring Next 225m	23	24-Feb-15	23-Mar-15	02-Sep-15	29-Sep-15	26-Aug-15	21-Sep-15	TBM Boring Next 225m					
1107.14230	Special Cutterhead Maintenance Intervention (approx Ch 97639)	2	24-Mar-15	25-Mar-15	30-Sep-15	02-Oct-15	22-Sep-15	23-Sep-15	Special Cutterhead Maintenance Intervention					
1107.14240	TBM Boring Next 26m (60% complete)	3	26-Mar-15	30-Mar-15	03-Oct-15	06-Oct-15	24-Sep-15	26-Sep-15	TBM Boring Next 26m (60% complete)					
1107.14250	TBM Boring Remaining 308m (100% complete) - TBM Break Through	30	31-Mar-15	08-May-15	07-Oct-15	11-Nov-15	30-Sep-15	05-Nov-15	TBM Boring Remaining 308m (100% complete) - TBM Break Through					
<b>Cross Passages</b>		54	11-Oct-14	22-Mar-15	13-Jun-15	27-Aug-15	20-Jul-15	19-Sep-15						19-Sep-15, Cross
<b>Phase 1 - From UP Track</b>		54	11-Oct-14	22-Mar-15	13-Jun-15	27-Aug-15	20-Jul-15	19-Sep-15						19-Sep-15, Phas
<b>DIH 001</b>		6	11-Oct-14	14-Oct-14	13-Jun-15	19-Jun-15	20-Jul-15	25-Jul-15						25-Jul-15, DIH 001
1107.14360	Frame Installation	6	11-Oct-14	14-Oct-14	13-Jun-15	19-Jun-15	20-Jul-15	25-Jul-15	Frame Installation					



Data Date 01-Jul-15  
Page 3 of 6  
SCL1107 M-3MR-028  
Printed 07-Jul-15 14:18

**MTRC SCL 1107 DIH to KAT Tunnels 3**  
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- Master Prog Baseline Bar
- Last Month Forecast Bar
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015					
									Jun	Jul	Aug	Sep	Oct	
<b>DIH 002</b>		6	11-Oct-14	14-Oct-14	22-Jun-15	27-Jun-15	27-Jul-15	01-Aug-15			01-Aug-15, DIH 002			
1107.14410	Frame Installation	6	11-Oct-14	14-Oct-14	22-Jun-15	27-Jun-15	27-Jul-15	01-Aug-15			Frame Installation			
<b>DIH 003</b>		42	03-Nov-14	22-Mar-15	02-Jul-15	27-Aug-15	03-Aug-15	19-Sep-15					19-Sep-15, DIH 003	
1107.14460	Frame Installation	6	03-Nov-14	05-Nov-14	02-Jul-15	08-Jul-15	03-Aug-15	08-Aug-15			Frame Installation			
1107.14500	UP Track Tunnel Clean up	12	25-Nov-14	08-Dec-14	09-Jul-15	22-Jul-15	10-Aug-15	22-Aug-15			UP Track Tunnel Clean up			
1107.14510	4A Deg 1 Tunnel (UP track) from KAT to DIH and Box 2A with Pway access opening	0		22-Mar-15			27-Aug-15	19-Sep-15*					4A Deg 1 Tunnel	
<b>Production of Pre - Cast Tunnel Lining</b>		107	28-Dec-14	31-May-15	20-May-15	05-Oct-15	20-May-15 A	24-Sep-15					24-Sep-15,	
<b>Production of Segments</b>		107	28-Dec-14	31-May-15	20-May-15	05-Oct-15	20-May-15 A	24-Sep-15					24-Sep-15,	
1107.14750	48 Rings of Segment Production (Culmalative 1170) (RC)	12	12-Mar-15	21-Apr-15	20-May-15	03-Jun-15	20-May-15 A	03-Jun-15 A			48 Rings of Segment Production (Culmalative 1170) (RC)			
1107.14750a	48 Rings of Segment Production (Culmalative 1218) (RC)	12			04-Jun-15	17-Jun-15	04-Jun-15 A	17-Jun-15 A			48 Rings of Segment Production (Culmalative 1218) (RC)			
1107.14750b	48 Rings of Segment Production (Culmalative 1266) (RC) (90%)	12			18-Jun-15	03-Jul-15	18-Jun-15 A	03-Jul-15			48 Rings of Segment Production (Culmalative 1266) (RC) (90%)			
1107.14750c	27 Rings of Segment Production (Culmalative 1293) (RC) (100%)	7			04-Jul-15	11-Jul-15	04-Jul-15	11-Jul-15			27 Rings of Segment Production (Culmalative 1293) (RC) (100%)			
1107.14800	C6a Manufacturing of pre-cast tunnel lining segment 70% by number complete and delivery to site	0		28-Dec-14		28-Jul-15		30-Jul-15*					C6a Manufacturing of pre-cast tunnel lining segment 70% by number c	
1107.14810	C7b Manufacturing of pre-cast tunnel lining segment 90% by number complete and delivery to site	0		22-Mar-15		11-Sep-15		05-Sep-15*					C7b Manufacturing of pre-cast	
1107.14820	C8b Manufacturing of all pre-cast tunnel lining segment complete and delivery to site	0		31-May-15		05-Oct-15		24-Sep-15*					C8b Manufa	
1107.20930	Delivery of Rings 721 - 750 (25th)	2			16-Jun-15	17-Jun-15	12-Jun-15 A	13-Jun-15 A			Delivery of Rings 721 - 750 (25th)			
1107.20940	Delivery of Rings 751 - 780 (26th)	2			22-Jun-15	23-Jun-15	26-Jun-15 A	27-Jun-15 A			Delivery of Rings 751 - 780 (26th)			
1107.20950	Delivery of Rings 781 - 810 (27th)	2			29-Jun-15	30-Jun-15	10-Jul-15*	11-Jul-15			Delivery of Rings 781 - 810 (27th)			
1107.20960	Delivery of Rings 811 - 840 (28th)	2			06-Jul-15	07-Jul-15	15-Jul-15	16-Jul-15			Delivery of Rings 811 - 840 (28th)			
1107.20970	Delivery of Rings 841 - 870 (29th)	2			13-Jul-15	14-Jul-15	20-Jul-15	21-Jul-15			Delivery of Rings 841 - 870 (29th)			
1107.20980	Delivery of Rings 871 - 900 (30th)	2			20-Jul-15	21-Jul-15	24-Jul-15	25-Jul-15			Delivery of Rings 871 - 900 (30th)			
1107.20990	Delivery of Rings 901 - 930 (31st) (70%)	2			27-Jul-15	28-Jul-15	29-Jul-15	30-Jul-15			Delivery of Rings 901 - 930 (31st) (70%)			
1107.21000	Delivery of Rings 931 - 960 (32nd)	2			03-Aug-15	04-Aug-15	03-Aug-15	04-Aug-15			Delivery of Rings 931 - 960 (32nd)			
1107.21010	Delivery of Rings 961 - 990 (33rd)	2			07-Aug-15	10-Aug-15	07-Aug-15	08-Aug-15			Delivery of Rings 961 - 990 (33rd)			
1107.21020	Delivery of Rings 991 - 1020 (34th)	2			13-Aug-15	14-Aug-15	12-Aug-15	13-Aug-15			Delivery of Rings 991 - 1020 (34th)			
1107.21030	Delivery of Rings 1021 - 1050 (35th)	2			19-Aug-15	20-Aug-15	17-Aug-15	18-Aug-15			Delivery of Rings 1021 - 1050 (35th)			
1107.21040	Delivery of Rings 1051 - 1080 (36th)	2			25-Aug-15	26-Aug-15	21-Aug-15	22-Aug-15			Delivery of Rings 1051 - 1080 (36th)			
1107.21050	Delivery of Rings 1081 - 1110 (37th)	2			31-Aug-15	01-Sep-15	26-Aug-15	27-Aug-15			Delivery of Rings 1081 - 1110 (37th)			
1107.21060	Delivery of Rings 1111 - 1140 (37th)	2			04-Sep-15	07-Sep-15	31-Aug-15	01-Sep-15			Delivery of Rings 1111 - 1140			
1107.21070	Delivery of Rings 1141 - 1170 (38th) (90%)	2			10-Sep-15	11-Sep-15	04-Sep-15	05-Sep-15			Delivery of Rings 1141 -			
1107.21080	Delivery of Rings 1171 - 1200 (39th)	2			16-Sep-15	17-Sep-15	09-Sep-15	10-Sep-15			Delivery of Rings 1			
1107.21090	Delivery of Rings 1201 - 1230 (40th)	2			22-Sep-15	23-Sep-15	14-Sep-15	15-Sep-15			Delivery of R			
1107.21100	Delivery of Rings 1231 - 1260 (41st)	2			28-Sep-15	29-Sep-15	18-Sep-15	19-Sep-15			Delive			
1107.21110	Delivery of Rings 1261 - 1293 (42nd) (100%)	2			02-Oct-15	05-Oct-15	23-Sep-15	24-Sep-15						
<b>Cost Centre D - KAT Cut &amp; Cover Tunne</b>		122	19-Dec-14	22-Mar-15	14-May-15	12-Oct-15	14-May-15 A	08-Oct-15						
<b>Excavation &amp; C&amp;C Tunnel Structure</b>		122	19-Dec-14	22-Mar-15	14-May-15	12-Oct-15	14-May-15 A	08-Oct-15						



Data Date 01-Jul-15  
Page 4 of 6  
SCL1107 M-3MR-028  
Printed 07-Jul-15 14:18

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- █ Master Prog Baseline Bar
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- █ Critical Remaining Work
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- ▬ Summary



Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015				
									Jun	Jul	Aug	Sep	Oct
<b>Launch Shaft (UP Track) - Post TBM Works</b>													
1107.16170	U10 Demolish Cradle & Construction Base Slab	18	19-Dec-14	22-Mar-15	01-Jun-15	27-Aug-15	01-Jun-15 A	03-Jul-15					
1107.16180	Demolish Remainder of Cradle	14	10-Jan-15	23-Jan-15	13-Jun-15	30-Jun-15	29-Jun-15 A	08-Jul-15					
1107.16181	U12 Base Slab	10			02-Jul-15	22-Jul-15	09-Jul-15	20-Jul-15					
1107.16182	U13 Base Slab	10			23-Jul-15	04-Aug-15	09-Jul-15	20-Jul-15					
1107.16190	U11 Base Slab	10	24-Jan-15	13-Feb-15	13-Jun-15	10-Jul-15	21-Jul-15	31-Jul-15					
1107.16191	U10 Walls & Roof	19					09-Jul-15	30-Jul-15					
1107.16200	U11 Walls & Roof	16	14-Feb-15	24-Feb-15	22-Jun-15	08-Jul-15	01-Aug-15	19-Aug-15					
1107.16220	U12 Walls & Roof	16	04-Mar-15	14-Mar-15	23-Jul-15	03-Aug-15	17-Aug-15	03-Sep-15					
1107.16224	U13 Walls & Roof (Stitch Joint)	10			05-Aug-15	18-Aug-15	21-Jul-15	31-Jul-15					
1107.16226	Walkways & Track Slab	14			19-Aug-15	27-Aug-15	04-Sep-15	19-Sep-15					
1107.16240	4A Deg 1 Tunnel (UP track) from KAT to DIH	0		22-Mar-15		27-Aug-15		19-Sep-15*					
<b>C&amp;C Tunnel Structure (Previously Boxes 2B &amp; 1B)</b>													
<b>Tunnel Structure</b>													
1107.16230	4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B (With P-Way Opening)	0	24-Dec-14	22-Mar-15	14-May-15	12-Oct-15	14-May-15 A	08-Oct-15					
1107.17210	Waterproofing, Backfill & Remove Strut S2 Section 2	12	24-Dec-14	03-Jan-15	05-Jun-15	18-Jun-15	02-Jul-15	15-Jul-15					
1107.17220	Waterproofing, Backfill & Remove Strut S2 Section 3	12	06-Jan-15	13-Jan-15	10-Jun-15	24-Jun-15	07-Jul-15	20-Jul-15					
1107.17230	Waterproofing, Backfill & Remove Strut S2 Section 4	12	15-Jan-15	22-Jan-15	29-Aug-15	11-Sep-15	26-Aug-15	08-Sep-15					
1107.17240	Waterproofing, Backfill & Remove Strut S2 Section 5	12	24-Jan-15	31-Jan-15	03-Sep-15	16-Sep-15	31-Aug-15	12-Sep-15					
1107.17250	Waterproofing, Backfill & Remove Strut S2 Section 6	12	03-Feb-15	10-Feb-15	08-Sep-15	21-Sep-15	04-Sep-15	17-Sep-15					
1107.17260	Waterproofing, Backfill & Remove Strut S2 Section 7	12	12-Feb-15	23-Feb-15	12-Sep-15	25-Sep-15	09-Sep-15	22-Sep-15					
1107.17340	Strip Formwork & Undertrack/Walkway Slab - UP Track	14	03-Feb-15	18-Feb-15	14-May-15	30-May-15	14-May-15 A	30-May-15 A					
1107.17350	Strip Formwork & Undertrack/Walkway Slab - DN Track	14	23-Feb-15	10-Mar-15	01-Jun-15	16-Jun-15	01-Jun-15 A	16-Jun-15 A					
1107.17360	Degree 1 Works - UP Track	11	23-Feb-15	03-Mar-15	01-Jun-15	12-Jun-15	01-Jun-15 A	12-Jun-15 A					
1107.17370	Degree 1 Works - DN Track	10	11-Mar-15	21-Mar-15	17-Jun-15	29-Jun-15	17-Jun-15 A	29-Jun-15 A					
1107.17380	P-Way Opening Retaining Walls to S1 Level	9	05-Jan-15	17-Jan-15	01-Jun-15	10-Jun-15	02-Jul-15	11-Jul-15					
1107.17390	Waterproofing & Backfill to S1 Level & Remove Strut S1 Section 1 - 3	8	23-Jan-15	05-Feb-15	25-Jun-15	30-Jun-15	21-Jul-15	29-Jul-15					
1107.17391	Backfill to S1 Level & Remove Strut S1 Section 5 - 7	12	24-Feb-15	09-Mar-15	26-Sep-15	12-Oct-15	23-Sep-15	08-Oct-15					
1107.17400	P-Way Opening Retaining Walls to OGL	10	06-Feb-15	23-Feb-15	11-Jun-15	19-Jun-15	30-Jul-15	10-Aug-15					
1107.17408	Backfill to Original Ground Level Section 1 - 3	14	24-Feb-15	04-Mar-15	02-Jul-15	08-Jul-15	11-Aug-15	26-Aug-15					
1107.17420	4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B	0		22-Mar-15		12-Jun-15		16-Jun-15 A					
1107.21150	Construct Walls & Roof of Bay D5 after TBM DN track Initial Drive	14			13-Aug-15	28-Aug-15	10-Aug-15	25-Aug-15					
<b>Cost Centre G CEDD Entrusted Works</b>													
<b>New Reprovisioned Culvert</b>													
<b>Mid Section of Culvert (Over C&amp;C Tunnel)</b>													
1107.18129	Excavation for Mid Section of New Culvert	8	19-Mar-15	27-Mar-15	13-Aug-15	21-Aug-15	27-Aug-15	04-Sep-15					



Data Date 01-Jul-15  
Page 5 of 6  
SCL1107 M-3MR-028  
Printed 07-Jul-15 14:18

**MTRC SCL 1107 DIH to KAT Tunnels 3**  
**Month Rolling Programme 028 with Phase 1**  
**DRM**  
Data Date 01-Jul-15

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- █ Master Prog Baseline Bar
- █ Last Month Forecast Bar
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▼ Summary

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015						
									Jun	Jul	Aug	Sep	Oct		
1107.18160	Bay 6 Sub base, Blinding & Base Slab	4	14-May-15	26-May-15	22-Aug-15	26-Aug-15	05-Sep-15	09-Sep-15							
1107.18170	Bay 6 Walls	4	27-May-15	09-Jun-15	27-Aug-15	31-Aug-15	10-Sep-15	14-Sep-15							
1107.18180	Bay 6 Roof Slab	6	10-Jun-15	26-Jun-15	01-Sep-15	07-Sep-15	15-Sep-15	21-Sep-15							
1107.18190	Bay 7 Sub base, Blinding & Base Slab	4	27-Jun-15	09-Jul-15	08-Sep-15	11-Sep-15	22-Sep-15	25-Sep-15							
1107.18200	Bay 7 Walls	4	10-Jul-15	23-Jul-15	12-Sep-15	16-Sep-15	26-Sep-15	02-Oct-15							
1107.18210	Bay 7 Roof Slab	6	24-Jul-15	08-Aug-15	17-Sep-15	23-Sep-15	03-Oct-15	09-Oct-15							
<b>North Section of Culvert</b>		<b>56</b>	<b>26-May-14</b>	<b>19-Aug-14</b>	<b>06-May-15</b>	<b>13-Jul-15</b>	<b>28-Apr-15 A</b>	<b>08-Jul-15</b>	08-Jul-15, North Section of Culvert						
1107.18295	Bay 4 Excavation & Demolition of Ex Nullah Bay	14			22-May-15	08-Jun-15	22-May-15 A	30-May-15 A	Bay 4 Excavation & Demolition of Ex Nullah Bay						
1107.18300	Bay 4 Sub base, Blinding & Base Slab	5	26-May-14	06-Jun-14	12-Jun-15	17-Jun-15	12-Jun-15 A	17-Jun-15 A	Bay 4 Sub base, Blinding & Base Slab						
1107.18310	Bay 4 Walls	8	07-Jun-14	20-Jun-14	18-Jun-15	27-Jun-15	25-Jun-15 A	08-Jul-15	Bay 4 Walls						
1107.18320	Bay 4 Roof Slab	12	21-Jun-14	08-Jul-14	29-Jun-15	13-Jul-15	25-Jun-15 A	08-Jul-15	Bay 4 Roof Slab						
1107.18335	Bay 3 Excavation & Demolition of Ex Nullah Bay	8			01-Jun-15	09-Jun-15	28-Apr-15 A	05-May-15 A	Bay 3 Excavation & Demolition of Ex Nullah Bay						
1107.18340	Bay 3 Sub base, Blinding & Base Slab	4	09-Jul-14	19-Jul-14	06-May-15	09-May-15	06-May-15 A	09-May-15 A	Bay 3 Sub base, Blinding & Base Slab						
1107.18350	Bay 3 Walls	9	21-Jul-14	02-Aug-14	02-Jun-15	11-Jun-15	02-Jun-15 A	11-Jun-15 A	Bay 3 Walls						
1107.18360	Bay 3 Roof Slab	10	04-Aug-14	19-Aug-14	12-Jun-15	24-Jun-15	12-Jun-15 A	24-Jun-15 A	Bay 3 Roof Slab						
<b>South Section of Culvert</b>		<b>50</b>	<b>23-Aug-14</b>	<b>04-Nov-15</b>	<b>13-Aug-15</b>	<b>12-Oct-15</b>	<b>06-Aug-15</b>	<b>05-Oct-15</b>	05-Oct-15, South Section of Culvert						
1107.18250	Bay 9 Sub base, Blinding & Base Slab	4	21-Sep-15	03-Oct-15	22-Aug-15	26-Aug-15	15-Aug-15	19-Aug-15	Bay 9 Sub base, Blinding & Base Slab						
1107.18260	Bay 9 Walls	4	05-Oct-15	17-Oct-15	27-Aug-15	31-Aug-15	20-Aug-15	24-Aug-15	Bay 9 Walls						
1107.18270	Bay 9 Roof Slab	6	19-Oct-15	04-Nov-15	01-Sep-15	07-Sep-15	25-Aug-15	31-Aug-15	Bay 9 Roof Slab						
1107.18440	Excavation for South Section of New Culvert	8	23-Aug-14	01-Sep-14	13-Aug-15	21-Aug-15	06-Aug-15	14-Aug-15	Excavation for South Section of New Culvert						
1107.18450	Bay 10 Sub base, Blinding & Base Slab	4	02-Sep-14	13-Sep-14	08-Sep-15	11-Sep-15	01-Sep-15	04-Sep-15	Bay 10 Sub base, Blinding & Base Slab						
1107.18460	Bay 10 Walls	4	15-Sep-14	27-Sep-14	12-Sep-15	16-Sep-15	05-Sep-15	09-Sep-15	Bay 10 Walls						
1107.18470	Bay 10 Roof Slab	6	29-Sep-14	16-Oct-14	17-Sep-15	23-Sep-15	10-Sep-15	16-Sep-15	Bay 10 Roof Slab						
1107.18480	Erect Silt/Flood Barrier (facing Bay 9)	3	17-Oct-14	20-Oct-14	24-Sep-15	26-Sep-15	17-Sep-15	19-Sep-15	Erect Silt/Flood Barrier						
1107.18490	Bay 11 Sub base, Blinding & Base Slab	4	17-Oct-14	28-Oct-14	24-Sep-15	29-Sep-15	17-Sep-15	21-Sep-15	Bay 11 Sub base, Blinding & Base Slab						
1107.18500	Bay 11 Walls	4	29-Oct-14	11-Nov-14	30-Sep-15	05-Oct-15	22-Sep-15	25-Sep-15	Bay 11 Walls						
1107.18510	Bay 11 Roof Slab	6	12-Nov-14	27-Nov-14	06-Oct-15	12-Oct-15	26-Sep-15	05-Oct-15	Bay 11 Roof Slab						



Data Date 01-Jul-15  
Page 6 of 6  
SCL1107 M-3MR-028  
Printed 07-Jul-15 14:18

**MTRC SCL 1107 DIH to KAT Tunnels 3**  
**Month Rolling Programme 028 with Phase 1**  
**DRM**  
**Data Date 01-Jul-15**

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- █ Master Prog Baseline Bar
- █ Last Month Forecast Bar
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▶ Summary

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**APPENDIX B  
ACTION AND LIMIT LEVELS**

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**APPENDIX B – Action and Limit Levels****24-Hour TSP**

<b>Regular Dust Monitoring Location</b>	<b>Description</b>	<b>Action Level, <math>\mu\text{g}/\text{m}^3</math></b>	<b>Limit Level, <math>\mu\text{g}/\text{m}^3</math></b>
DMS-4 <sup>(1)(3)</sup> / DMS-3 <sup>(2)(3)</sup>	Block 1, Rhythm Garden	160.4	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Dust monitoring on DMS-3<sup>(1)</sup>/DMS-4<sup>(2)</sup> is carried out by Environmental Team of SCL Works Contract 1106.

**Construction Noise**

<b>Regular Construction Noise Monitoring Location<sup>(1)</sup></b>	<b>Description</b>	<b>Time Period</b>	<b>Action Level</b>	<b>Limit Level</b>
NMS-CA-4 <sup>(1)(5)</sup> / NMS-CA-3 <sup>(2)(5)</sup>	Block 1, Rhythm Garden (north-eastern façade)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
NMS-CA-5 <sup>(1)(3)(5)</sup> / NMS-CA-2 <sup>(2)(3)(5)</sup>	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) <sup>(4)</sup>

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.
- (5) Noise monitoring on Block 1, Rhythm Garden are carried out by Environmental Team of SCL Works Contract 1106.

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**APPENDIX C  
CALIBRATION CERTIFICATES FOR  
MONITORING EQUIPEMENT**

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## High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0014

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK  
 Date: 11-Jun-15 Next Due Date: 10-Aug-15  
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	302.7	Pressure, Pa (mmHg)	759.2

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	3-Feb-16				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.9	3.42	58.10	8.0	2.80
2	9.6	3.07	52.22	6.4	2.51
3	7.5	2.72	46.20	5.1	2.24
4	5.2	2.26	38.53	3.3	1.80
5	3.4	1.83	31.23	2.1	1.44

**By Linear Regression of Y on X**

Slope, mw = 0.0511 Intercept, bw = -0.1561

Correlation coefficient\* = 0.9994

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point;  $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  4.24

Remarks: \_\_\_\_\_

Conducted by: Wk Tang Signature: Kwan  
 Checked by: [Signature] Signature: [Signature]

Date: 11/6/15  
 Date: 11 June 2015



Equipment No A-04-06

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Rootsmeter S/N 0438320 Ta (K) - 293  
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233	0.9958	0.6825	0.8799
1.0044	0.9723	2.0129	0.9916	0.9599	1.2443
1.0023	1.0835	2.2505	0.9895	1.0697	1.3912
1.0011	1.1377	2.3603	0.9884	1.1231	1.4591
0.9959	1.3718	2.8467	0.9832	1.3542	1.7598
Qstd slope (m) = 2.09317			Qa slope (m) = 1.31071		
intercept (b) = -0.02195			intercept (b) = -0.01357		
coefficient (r) = 0.99997			coefficient (r) = 0.99997		

y axis =  $\text{SQRT}[\text{H2O}(\text{Pa}/760) (298/\text{Ta})]$

y axis =  $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/150103
Date of Issue:	2015-01-05
Date Received:	2015-01-03
Date Tested:	2015-01-03
Date Completed:	2015-01-05
Next Due Date:	2016-01-04

**ATTN:** Mr. W. K. Tang

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

**Test conditions:**

Room Temperature	: 20 degree Celsius
Relative Humidity	: 54%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

Remark: 1) This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
Laboratory Manager



## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/140822/1
Date of Issue:	2014-08-25
Date Received:	2014-08-22
Date Tested:	2014-08-22
Date Completed:	2014-08-25
Next Due Date:	2015-08-24

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

**Test conditions:**

Room Temperature	: 22 degree Celsius
Relative Humidity	: 55%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
Laboratory Manager

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/141003/2
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

### Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 56%

### Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
*Laboratory Manager*

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
Room 1710, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	C/N/141107/1
Date of Issue:	2014-11-08
Date Received:	2014-11-07
Date Tested:	2014-11-07
Date Completed:	2014-11-08
Next Due Date:	2015-11-07

**ATTN:** Mr. W.K. Tang

Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

### Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 53 %

### Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
Laboratory Manager

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**APPENDIX D**  
**IMPACT MONITORING SCHEDULE**

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**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels  
Impact Air Quality and Noise Monitoring Schedule for July 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			<b>1-Jul</b>	2-Jul	3-Jul	4-Jul
				24 hr TSP	Noise	
<b>5-Jul</b>	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
			24 hr TSP	Noise		
<b>12-Jul</b>	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		24 hr TSP		Noise		
<b>19-Jul</b>	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	24 hr TSP	Noise				24 hr TSP
<b>26-Jul</b>	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	Noise			24 hr TSP		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

**Air Quality Monitoring Station**

DMS-4: - Rhythm Garden, Block 1

**Noise Monitoring Station**

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels  
Tentative Impact Air Quality and Noise Monitoring Schedule for August 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
			24 hr TSP	Noise		
9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
		24 hr TSP	Noise			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
	24 hr TSP			Noise	24 hr TSP	
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	Noise			24 hr TSP		
30-Aug	31-Aug					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

**Air Quality Monitoring Station**

DMS-4: - Rhythm Garden, Block 1

**Noise Monitoring Station**

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

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**APPENDIX E  
24-HOUR TSP MONITORING RESULTS  
AND GRAPHICAL PRESENTATIONIS**

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## Appendix E - 24-hour TSP Monitoring Results

### Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

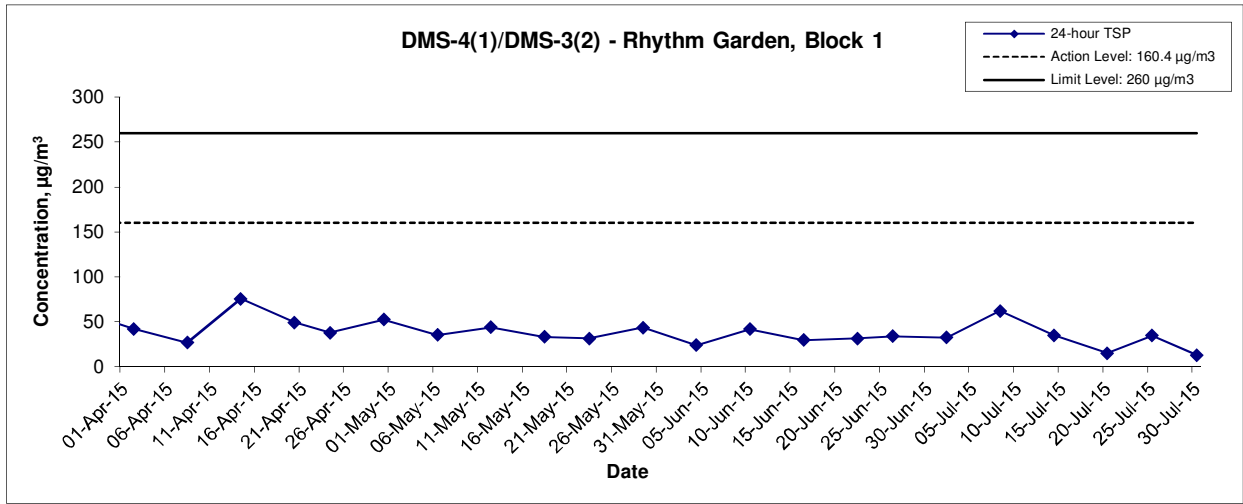
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
					Initial	Final		Initial	Final		Initial	Final			
2-Jul-15	9:00	Sunny	304.9	754.7	3.2436	3.3001	0.0565	4388.7	4412.7	24.0	1.20	1.20	1.20	1734.6	32.6
8-Jul-15	9:00	Cloudy	300.2	753.6	3.2328	3.3412	0.1084	4412.7	4436.7	24.0	1.21	1.21	1.21	1745.9	62.1
14-Jul-15	9:00	Cloudy	303.7	754.5	3.2678	3.3284	0.0606	4436.7	4460.7	24.0	1.21	1.21	1.21	1737.6	34.9
20-Jul-15	9:00	Cloudy	301.1	753.1	3.2634	3.2892	0.0258	4460.7	4484.7	24.0	1.21	1.21	1.21	1743.0	14.8
25-Jul-15	9:00	Cloudy	300.6	757.3	3.2609	3.3215	0.0606	4484.7	4508.7	24.0	1.21	1.21	1.21	1748.9	34.7
30-Jul-15	9:00	Sunny	301.3	761.1	3.3183	3.3408	0.0225	4508.7	4532.7	24.0	1.22	1.22	1.22	1751.0	12.8
														Min	12.8
														Max	62.1
														Average	32.0

**Remarks:**

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



### 24-hour TSP Concentration Levels



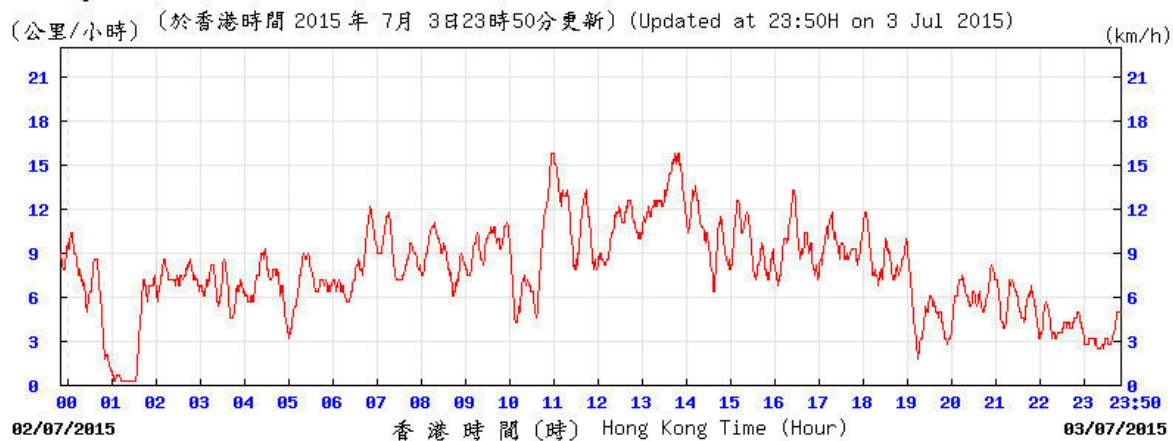
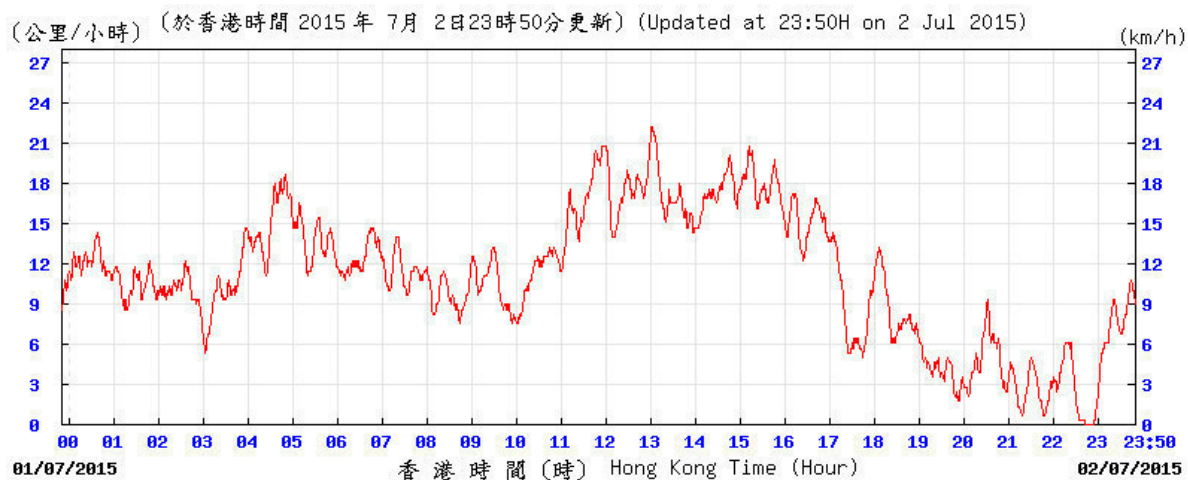
**Remarks:**

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels  Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Jul 15	Appendix E	

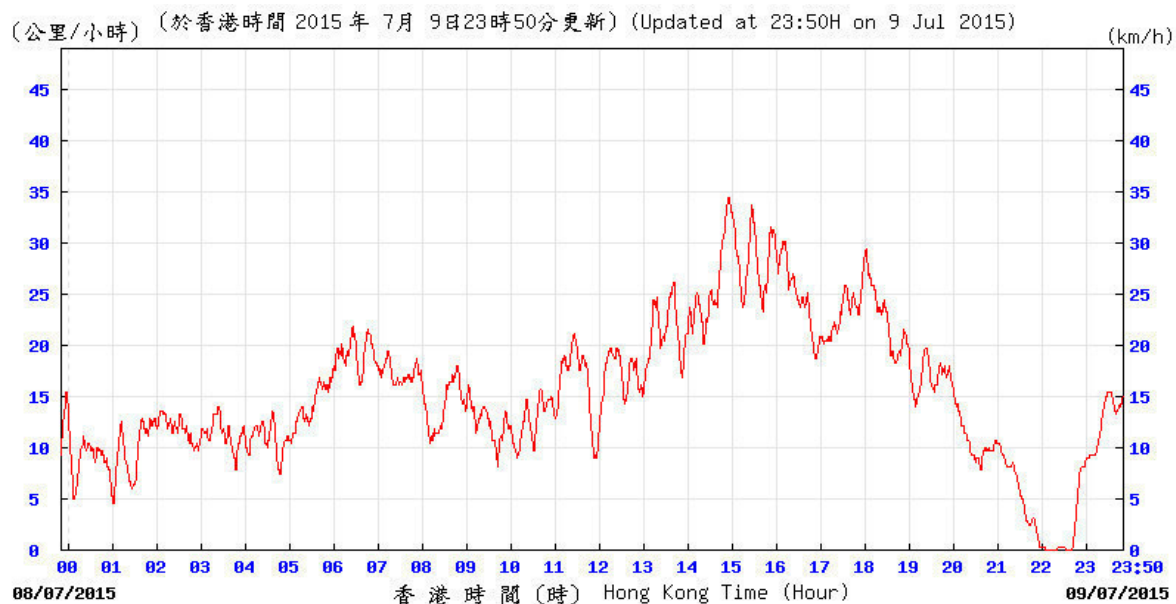
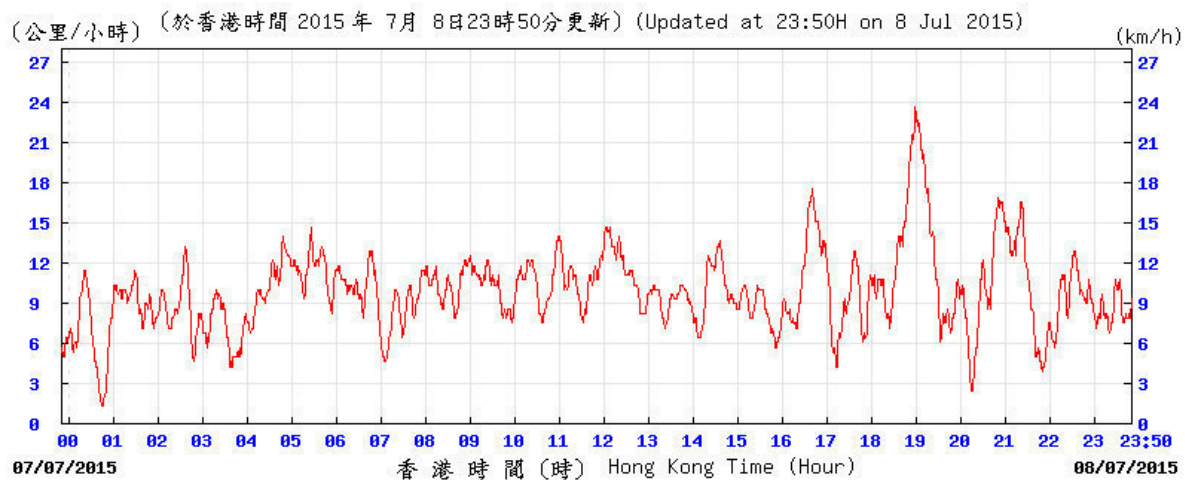
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

2-3 July 2015



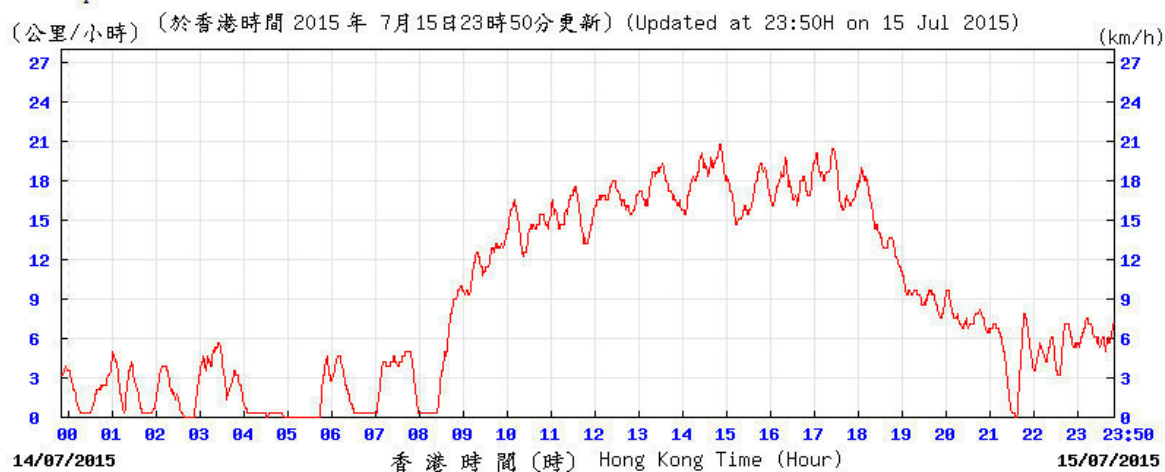
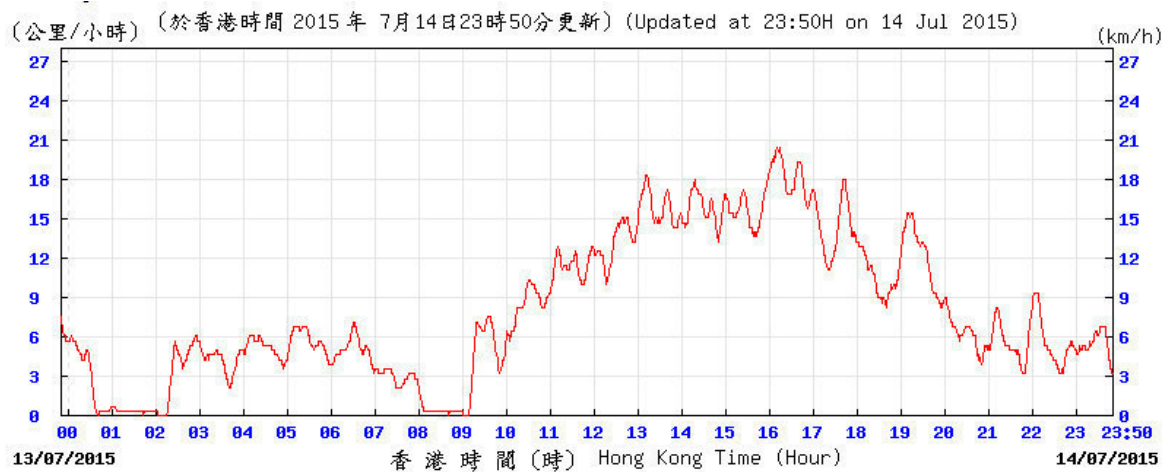
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2015



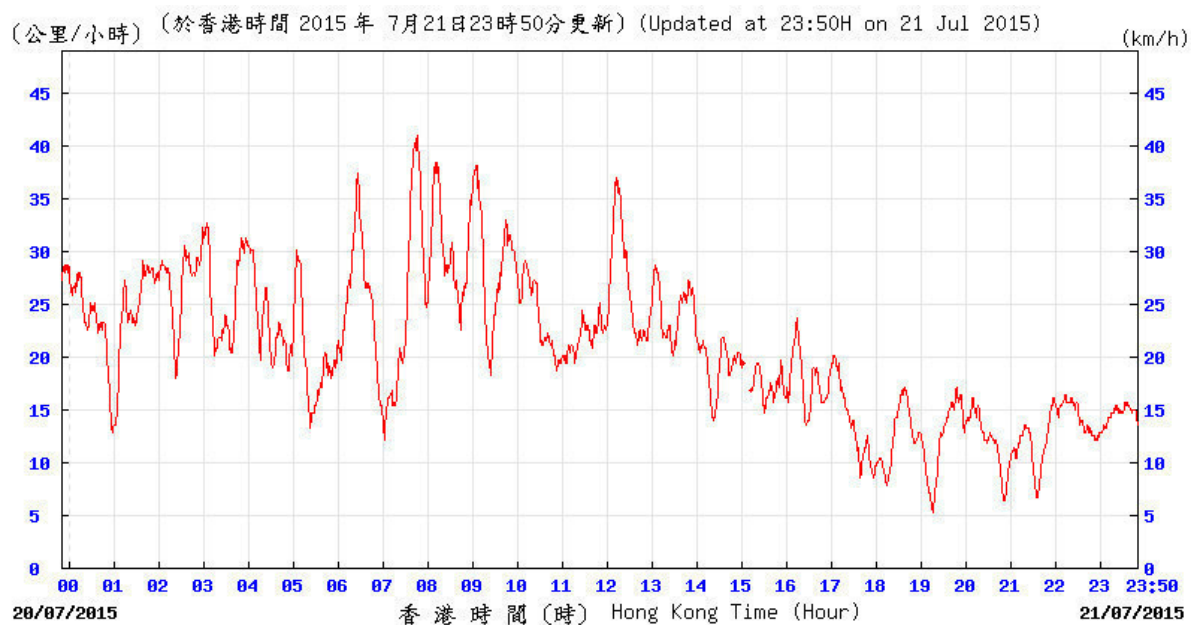
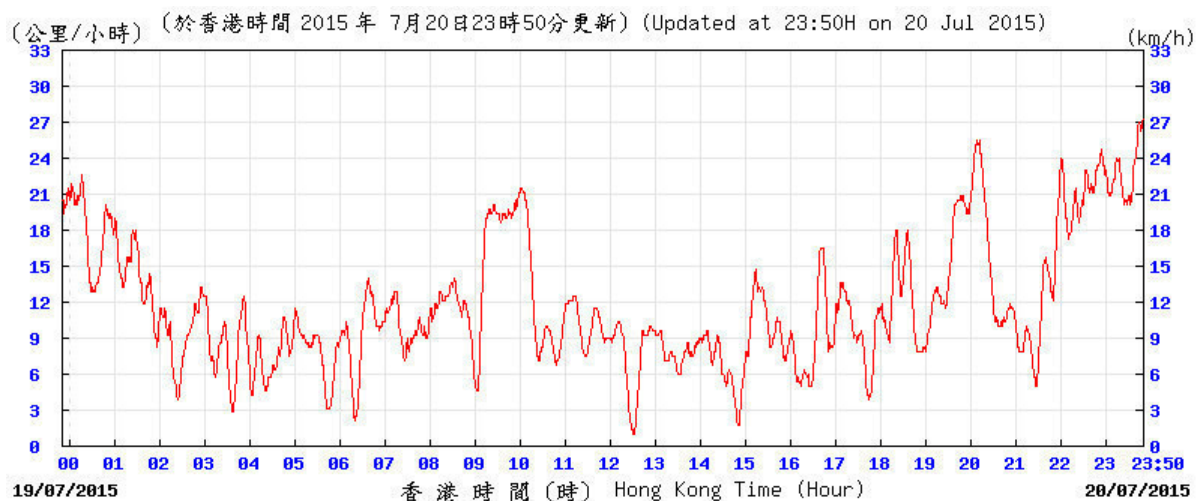
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

14-15 July 2015



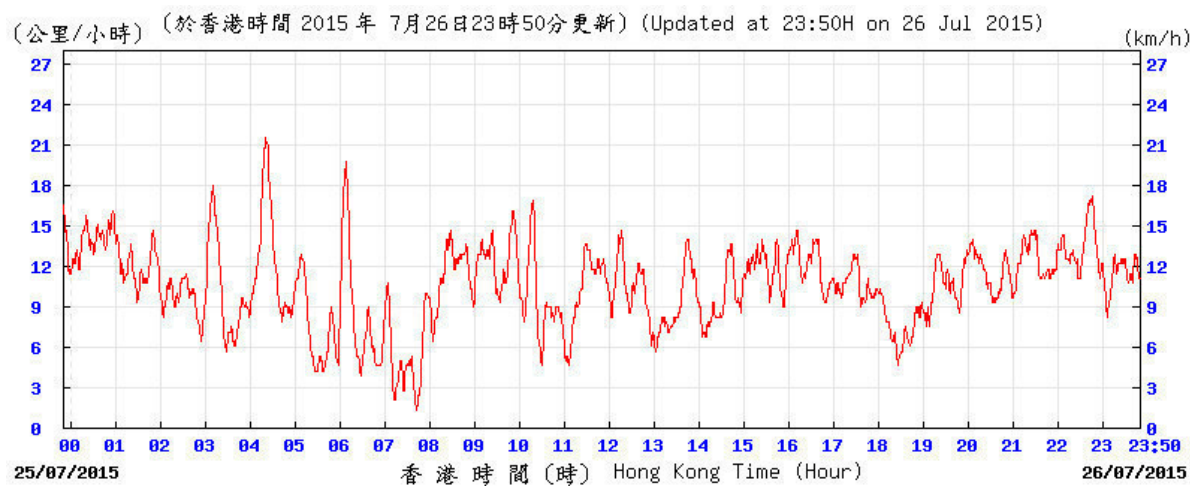
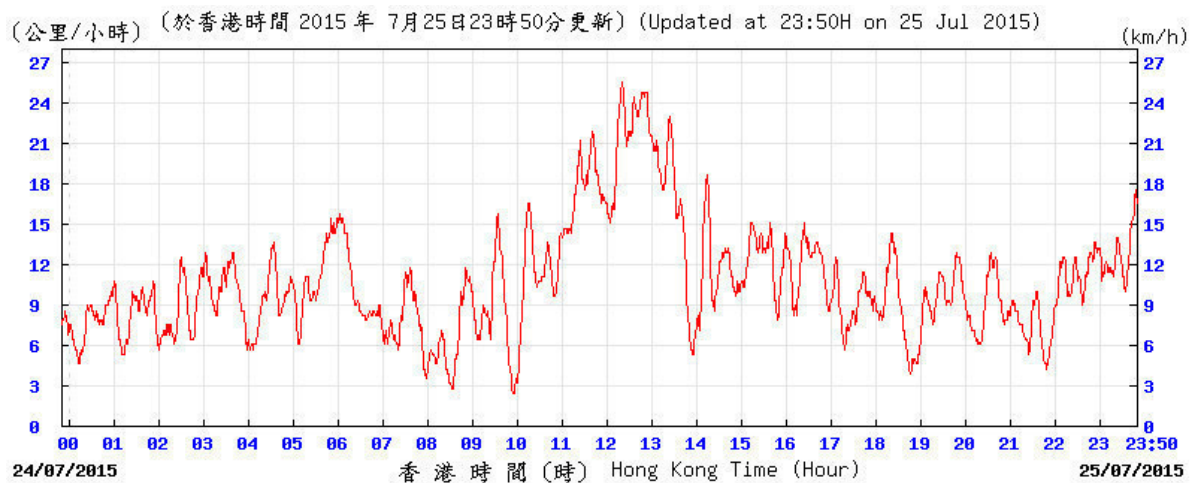
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

20-21 July 2015



# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2015



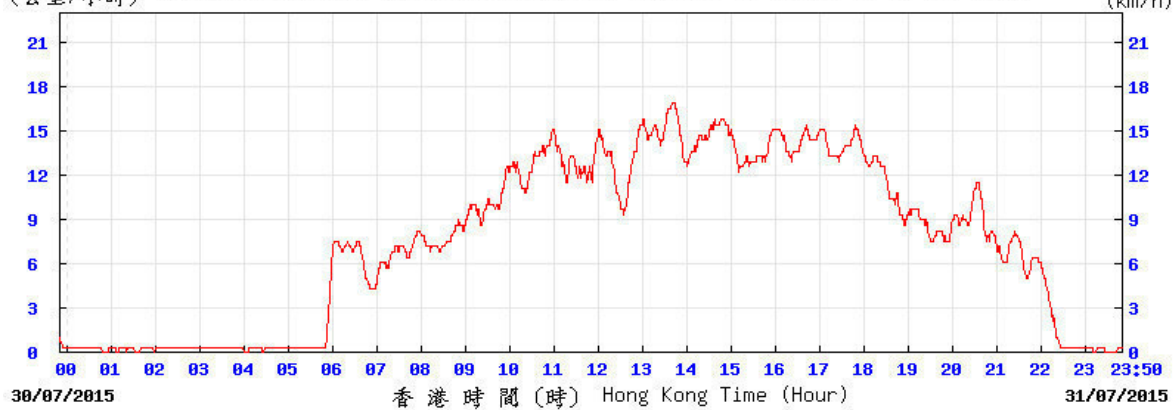
# Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 July 2015

(公里/小時) (於香港時間 2015 年 7月30日23時50分更新) (Updated at 23:50H on 30 Jul 2015) (km/h)



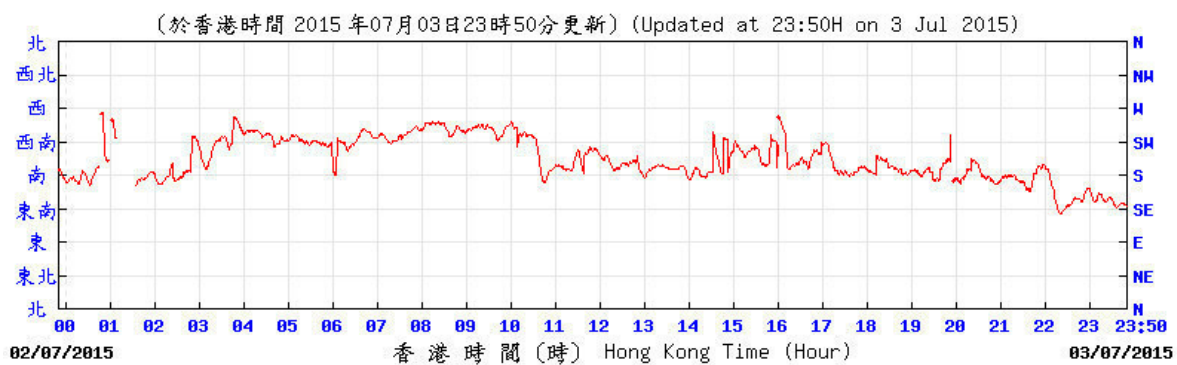
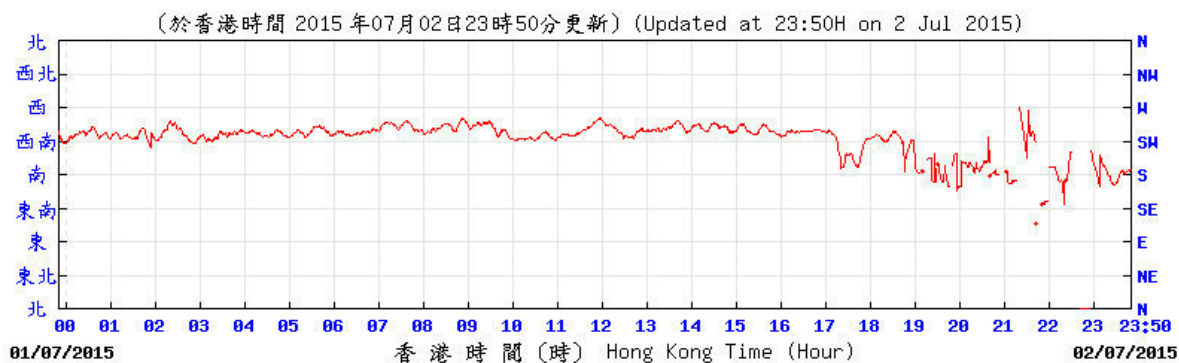
(公里/小時) (於香港時間 2015 年 7月31日23時50分更新) (Updated at 23:50H on 31 Jul 2015) (km/h)





# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

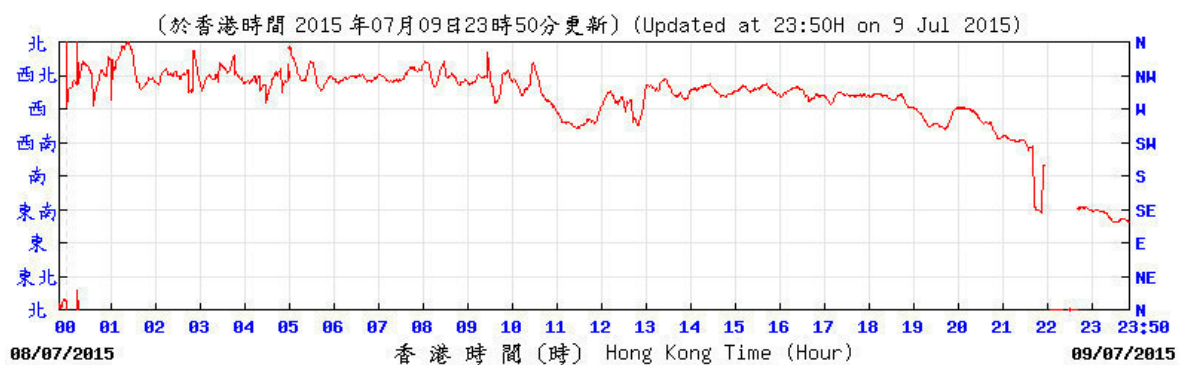
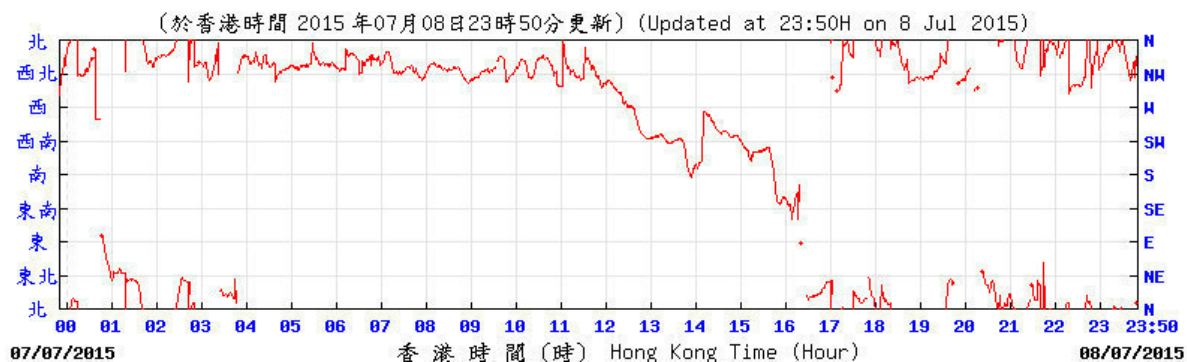
2-3 July 2015





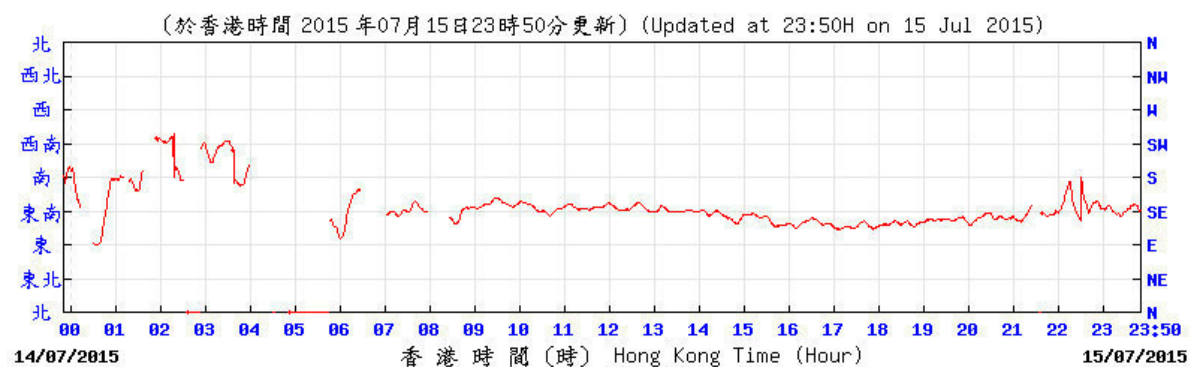
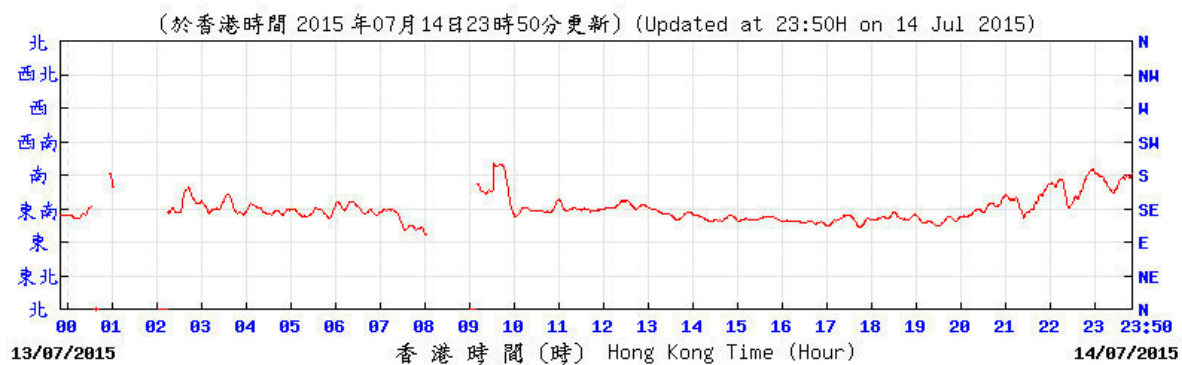
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

8-9 July 2015



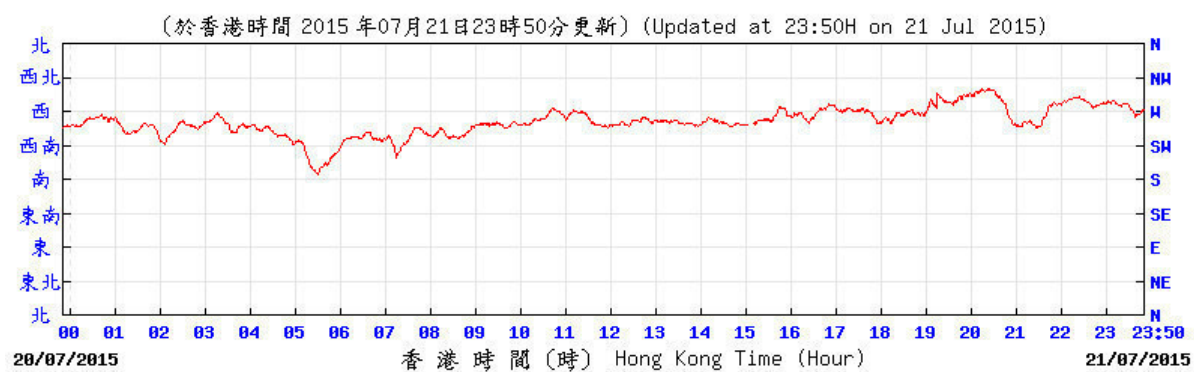
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

14-15 July 2015



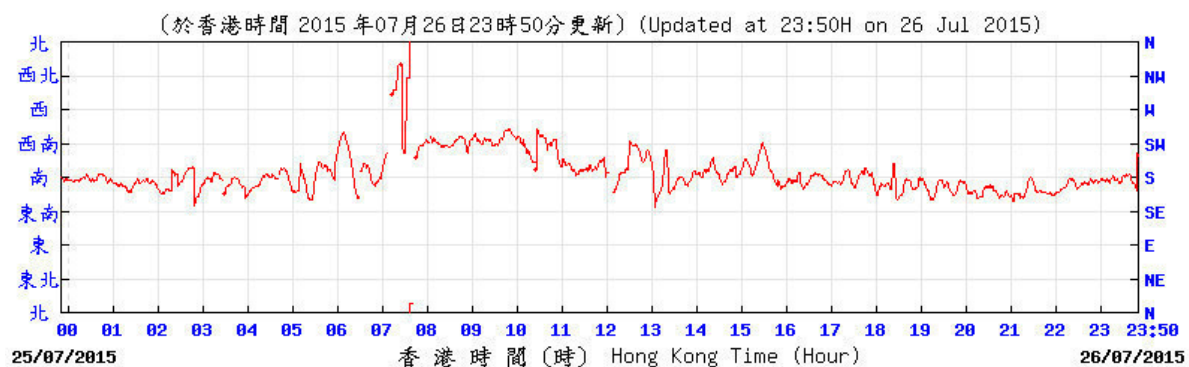
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

20-21 July 2015



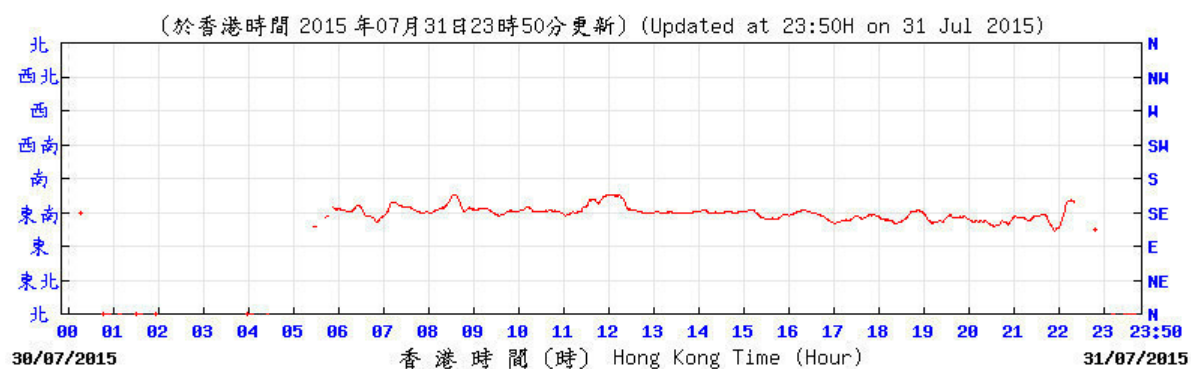
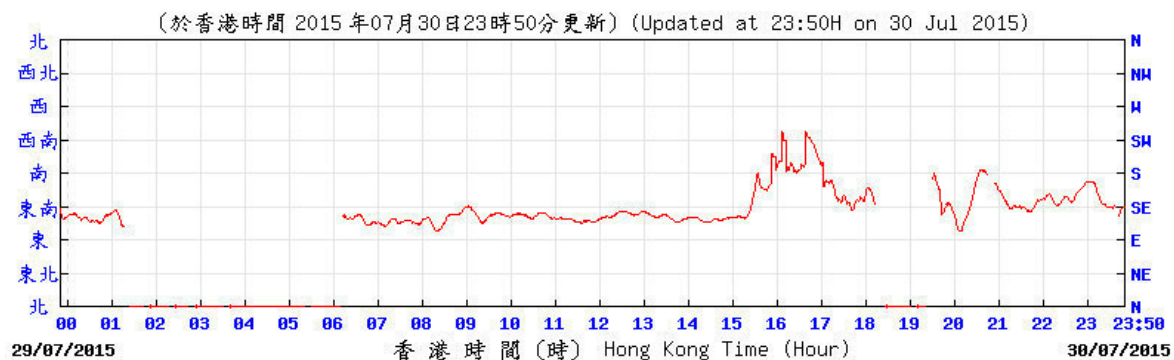
# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 July 2015



# Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 July 2015



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**APPENDIX F  
NOISE MONITORING RESULTS AND  
GRAPHICAL PRESENTATIONS**

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## Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>	L <sub>eq</sub>
3-Jul-15	Sunny	10:45	69.9	71.3	68.7	70.3	71	70.3 Measured ≤ Baseline Level
		10:50	70.0	71.2	68.8			
		10:55	70.3	71.5	68.9			
		11:00	70.2	71.3	69.0			
		11:05	71.0	72.2	69.7			
		11:10	70.6	71.7	69.3			
9-Jul-15	Cloudy	10:35	71.9	73.2	70.4	72.4	71	66.8
		10:40	72.2	73.0	70.7			
		10:45	72.1	73.3	70.8			
		10:50	72.6	73.9	71.1			
		10:55	72.8	73.9	71.4			
		11:00	72.5	73.6	71.1			
16-Jul-15	Cloudy	10:35	69.1	70.2	67.7	69.4	71	69.4 Measured ≤ Baseline Level
		10:40	69.4	70.8	68.8			
		10:45	69.7	70.9	67.9			
		10:50	68.8	71.6	68.2			
		10:55	69.7	71.4	67.5			
		11:00	69.9	72.0	68.9			
21-Jul-15	Cloudy	13:35	72.1	74.8	71.3	72.6	71	67.5
		13:40	73.5	74.3	71.3			
		13:45	72.1	74.0	70.3			
		13:50	72.0	73.8	70.3			
		13:55	72.1	73.8	71.0			
		14:00	73.5	73.9	71.2			
27-Jul-15	Cloudy	11:30	71.5	73.0	69.7	71.7	71	63.4
		11:35	71.8	73.2	70.2			
		11:40	71.9	73.2	70.2			
		11:45	71.6	73.0	70.1			
		11:50	72.0	73.5	70.2			
		11:55	71.5	73.1	69.9			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

## Appendix F - Noise Monitoring Results

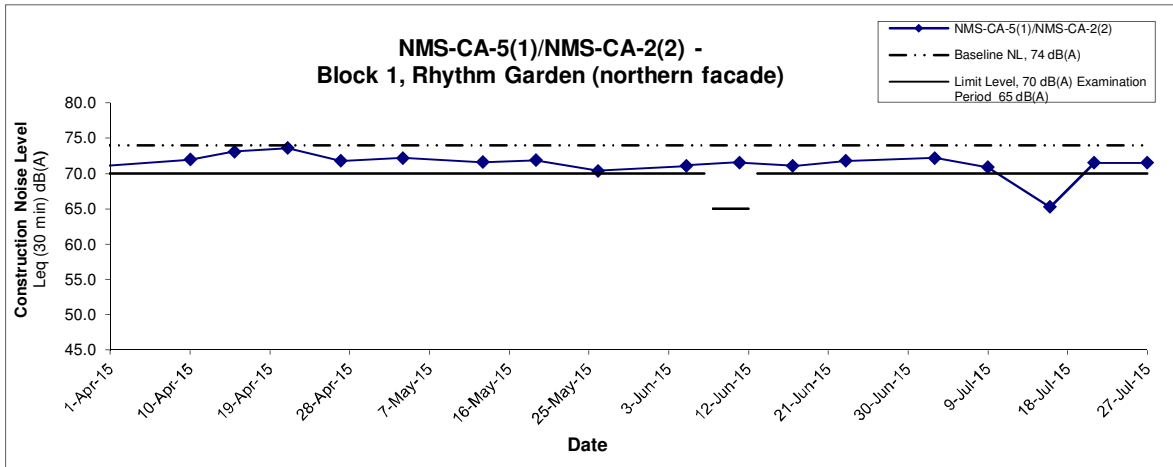
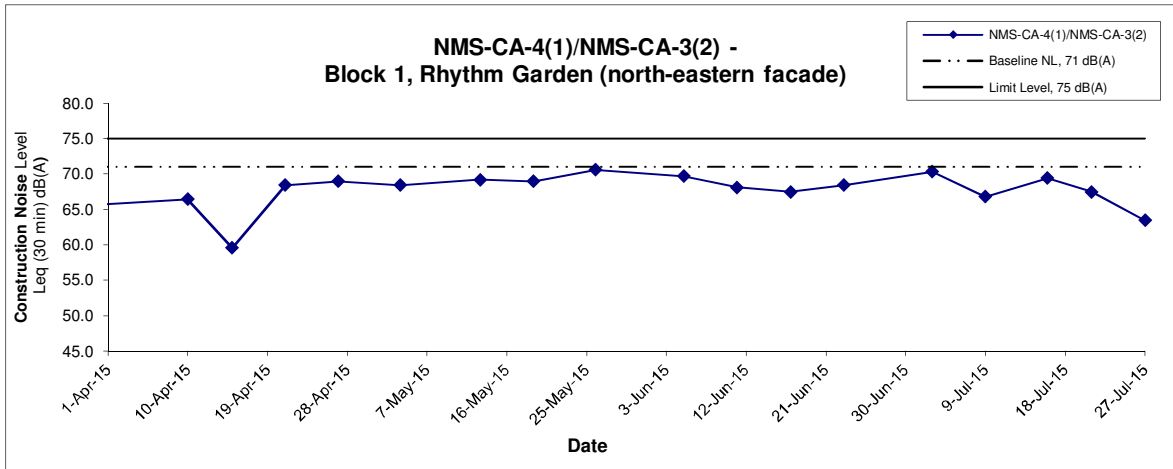
Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>	L <sub>eq</sub>
3-Jul-15	Sunny	11:20	72.0	73.3	70.7	72.2	74	72.2 Measured ≤ Baseline Level
		11:25	71.8	73.0	70.3			
		11:30	72.0	73.1	70.7			
		11:35	73.5	73.4	70.7			
		11:40	71.8	73.0	70.3			
		11:45	71.6	73.0	70.1			
9-Jul-15	Cloudy	10:00	71.3	72.5	69.2	70.9	74	70.9 Measured ≤ Baseline Level
		10:05	70.7	71.9	69.5			
		10:10	71.0	72.2	69.7			
		10:15	70.6	71.9	69.3			
		10:20	70.8	71.9	69.2			
		10:25	71.2	71.4	69.6			
16-Jul-15	Cloudy	10:00	65.2	67.6	63.4	65.3	74	65.3 Measured ≤ Baseline Level
		10:05	64.3	66.8	61.2			
		10:10	66.2	67.3	64.3			
		10:15	65.7	67.2	63.6			
		10:20	64.6	66.8	64.1			
		10:25	65.7	67.5	62.3			
21-Jul-15	Cloudy	13:00	71.5	72.8	69.9	71.5	74	71.5 Measured ≤ Baseline Level
		13:05	71.2	72.6	69.1			
		13:10	71.3	72.9	69.3			
		13:15	71.8	73.5	69.8			
		13:20	71.7	73.3	69.9			
		13:25	71.5	72.8	69.9			
27-Jul-15	Cloudy	10:50	71.4	72.6	70.1	71.5	74	71.5 Measured ≤ Baseline Level
		10:55	72.0	73.7	70.1			
		11:00	72.7	74.1	69.9			
		11:05	71.0	72.2	69.9			
		11:10	70.5	71.7	69.1			
		11:15	70.7	71.9	69.2			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



## Noise Levels



**Remarks:**

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level  $\leq$  Baseline Level, only Measured Level is presented on the graphical presentation.

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels  Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Jul 15	Appendix F	

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**APPENDIX G**  
**SUMMARY OF EXCEEDANCE**

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## **APPENDIX G – SUMMARY OF EXCEEDANCE**

**Reporting Month:** July 2015

**a) Exceedance Report for Dust Monitoring (NIL)**

**b) Exceedance Report for Noise Monitoring (NIL)**

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**APPENDIX H**  
**SITE AUDIT SUMMARY**

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**Shatin to Central Link -**

**Contract 1107 Diamond Hill to Kai Tak Tunnels**

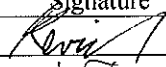

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150702
Date	2 July 2015 (Thursday)
Time	09:00 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150702-001	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C - Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>Stockpile of materials was observed not covered. The Contractor was reminded to cover the stockpile properly and keep the uncovered part wet.</li> </ul> <p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 150625), item 150625-001 was remarked as 150702-001. Follow up action will be needed in the next site inspection.</li> </ul>	D 6

	Name	Signature	Date
Recorded by	Kevin Lam		2 July 2015
Checked by	Dr. Priscilla Choy		2 July 2015

*Shatin to Central Link -  
Contract 1107 Diamond Hill to Kai Tak Tunnels*

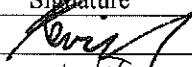

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150709
Date	9 July 2015 (Thursday)
Time	09:00 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150709-R01	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C - Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>Oil leakage was observed near TBM workshop. The contractor was reminded to clear the oil leakage properly as chemical waste.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up action on previous audit section (Ref. No.: 150702), all items were observed rectified by the Contractor.</li> </ul>	R01

	Name	Signature	Date
Recorded by	Kevin Lam		9 July 2015
Checked by	Dr. Priscilla Choy		9 July 2015

**Shatin to Central Link -  
Contract 1107 Diamond Hill to Kai Tak Tunnels**

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150716
Date	16 July 2015 (Thursday)
Time	09:00 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C - Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up action on previous audit section (Ref. No.: 150709), all items were observed rectified by the Contractor.</li> </ul>	

	Name	Signature	Date
Recorded by	Kevin Lam		16 July 2015
Checked by	Dr. Priscilla Choy		16 July 2015

*Shatin to Central Link -  
Contract 1107 Diamond Hill to Kai Tak Tunnels*

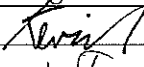

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150722
Date	22 July 2015 (Wednesday)
Time	09:00 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part C - Landscape &amp; Visual</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part E – Construction Noise Impact</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part H - Others</i></p> <ul style="list-style-type: none"> <li>• Follow-up action on previous audit section (Ref. No.: 150716), no major environmental deficiencies were identified during the inspection.</li> </ul>	

	Name	Signature	Date
Recorded by	Kevin Lam		22 July 2015
Checked by	Dr. Priscilla Choy		22 July 2015



**Shatin to Central Link -**

**Contract 1107 Diamond Hill to Kai Tak Tunnels**

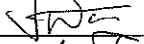

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150730
Date	30 July 2015 (Thursday)
Time	09:00 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>Part B - Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part C - Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D - Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E - Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part F - Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G - Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part H - Others</b></p> <ul style="list-style-type: none"> <li>Follow-up action on previous audit section (Ref. No.: 150722), no major environmental deficiencies were identified during the inspection.</li> </ul>	

	Name	Signature	Date
Recorded by	Janet Wai		30 July 2015
Checked by	Dr. Priscilla Choy		30 July 2015

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**APPENDIX I  
EVENT AND ACTION PLANS**

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**Appendix I - Event and Action Plan for Noise Monitoring during Construction Phase**

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and ER</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required</li> <li>3. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor;</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures</li> <li>2. Report the results of investigation to the IEC, ET and ER</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement noise mitigation proposals</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ER, ET and Contractor on the potential remedial measures</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Supervise the implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement the agreed proposals</li> <li>5. Revise and resubmit proposals if problem still not under control</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

**Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal as appropriate.</li> </ol>

**Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase**

<b>LIMIT LEVEL</b>				
<p>1.Exceedance for one sample</p>	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Amend proposal if appropriate.</li> </ol>
<p>2.Exceedance for two or more consecutive samples</p>	<ol style="list-style-type: none"> <li>1. Notify IEC, Contractor and EPD;</li> <li>2. Repeat measurement to confirm findings;</li> <li>3. Increase monitoring frequency to daily;</li> <li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with ET, ER, and Contractor on the potential remedial measures;</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Revise and resubmit proposals if problem still not under control;</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

**Appendix I - Event and Action Plan for Landscape and Visual during Construction Phase**

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor;</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

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**APPENDIX J  
UPDATED ENVIRONMENTAL  
MITIGATION IMPLEMENTATION  
SCHEDULE**

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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b><i>Landscape &amp; Visual (Construction Phase)</i></b>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</li> </ul> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	<p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>



## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>protection requirement, submission and approval system, and the tree monitoring system.</p> <ul style="list-style-type: none"> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.</li> </ul>						^
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> <li>Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context.</li> </ul> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</li> </ul> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> <li>Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</li> </ul>	<p>Minimize the visual and landscape impact of the Project during construction phase</p>	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> <li>EIAO – TM</li> <li>ETWB TCW 2/2004</li> <li>ETWB TCW 3/2006</li> </ul>	<p>N/A</p> <p>N/A</p> <p>N/A</p>

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

<b>Air Quality (Construction Phase)</b>								
/	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use.</li> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>• All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
<b>Construction Dust Impact</b>								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	*
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

S7.6.6	D3	<ul style="list-style-type: none"> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extending beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

	<p>or a dust suppression chemical continuously;</p> <ul style="list-style-type: none"> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>							<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>
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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
<b>Construction Airborne Noise</b>								
S8.5.6	AN1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^  ^  ^  ^  ^  N/A
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	• TM-EIA	^
<b>Water Quality (Construction Phase)</b>								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> <li>At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>commencement of construction.</p> <ul style="list-style-type: none"> <li>• The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</li> </ul> <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at</li> </ul>						<p>^</p> <p>^</p> <p>N/A</p> <p>^</p>
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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</p> <ul style="list-style-type: none"> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms.</li> <li>• Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers</li> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand</li> </ul>					<p>N/A</p> <p>*</p> <p>^</p> <p>^</p> <p>^</p>
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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> <li>Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby</li> <li>All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Adopt best management practices.</li> </ul>						N/A	
									^
									N/A
									^
									^
S10.7.1	W2	<p><u>Tunneling Works</u></p> <ul style="list-style-type: none"> <li>Cut-&amp;-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge</li> </ul>	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN 1/94</li> <li>TM-water</li> <li>TM-EIAO</li> </ul>	^	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<ul style="list-style-type: none"> <li>• The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</li> <li>• Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
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## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> <li>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-water</li> </ul>	^
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>Proper storage and handling facilities should be provided;</li> <li>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains;</li> <li>The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and</li> <li>Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>TM-EIAO</li> <li>TM-Water</li> </ul>	<p>*</p> <p>*</p> <p>^</p> <p>N/A</p>
<b><i>Waste Management (Construction Waste)</i></b>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc).</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>DEVB TC(W) No. 6/2010</li> </ul>	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>	concrete for structural use					
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC</li> </ul>	<p>Good site practice to minimize the waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p>

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>(Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</p> <ul style="list-style-type: none"> <li>In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation</li> </ul>						^
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>	<p>Good site practice to minimize the waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No.19/2005</li> </ul>	^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to</li> </ul>	<p>Minimize production of the general refuse and avoid odour, pest and litter impacts</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	^

## SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

		<p>remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p> <ul style="list-style-type: none"> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.5.1	WM6	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

**SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule**

		<p>arranged so that incompatible materials are adequately separated.</p> <ul style="list-style-type: none"> <li>• Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>										N/A
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Remarks:    ^    Compliance of mitigation measure                          X    Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- \* Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

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**APPENDIX K  
WASTE GENERATION IN THE  
REPORTING MONTH**

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**CW - SELI Joint Venture**

Name of Department: MTRC

Contract No.:1107

**Monthly Summary Waste Flow Table for 2015**

Year	Estimated Quantities of Inert C&D Materials (in '000m <sup>3</sup> ) (see Note 3)										Estimated Quantities of C&D Wastes									
	Total Quantity Generated		Suitable for Recycled Aggregates		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 3)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000litre)		(in '000m <sup>3</sup> )	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January	10.400	9.730	0.000	0.000	0.000	0.000	6.000	8.515	4.400	1.215	0.000	0.000	0.100	0.168	1.000	1.600	0.000	0.000	0.100	0.060
February	6.400	2.295	0.000	0.000	0.000	0.000	2.000	1.700	4.400	0.595	0.000	7.370	0.100	0.120	0.000	0.000	0.000	0.000	0.100	0.045
March	4.000	2.005	0.000	0.000	0.000	0.000	2.000	1.780	2.000	0.225	0.000	0.000	0.100	0.000	0.000	0.000	0.000	2.415	0.100	0.070
April	4.000	0.645	0.000	0.000	0.000	0.000	2.000	0.625	2.000	0.020	0.000	0.000	0.100	0.283	0.000	0.000	0.100	0.000	0.100	0.070
May	4.000	1.110	0.000	0.000	0.000	0.000	2.000	0.640	2.000	0.470	0.000	0.000	0.100	0.232	0.000	0.000	0.000	0.000	0.100	0.045
June	4.000	3.240	0.000	0.000	0.000	0.000	2.000	1.610	2.000	1.630	0.000	8.590	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.065
July	9.000	1.995	0.000	0.000	0.000	0.000	7.000	0.110	2.000	1.885	0.000	0.000	0.100	0.281	0.100	0.000	0.000	0.000	0.100	0.055
August	9.000		0.000		0.000		7.000		2.000		0.000		0.100		0.000		0.000		0.100	
September	9.000		0.000		0.000		7.000		2.000		1.000		0.100		0.000		0.000		0.100	
October	9.000		0.000		0.000		7.000		2.000		1.000		0.100		0.000		0.000		0.100	
November	9.000		0.000		0.000		7.000		2.000		0.000		0.100		0.000		0.100		0.100	
December	9.000		0.000		0.000		7.000		2.000		0.000		0.100		0.100		0.000		0.100	
<b>Total</b>	<b>86.800</b>	<b>21.020</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>58.000</b>	<b>14.980</b>	<b>28.800</b>	<b>6.040</b>	<b>2.000</b>	<b>15.960</b>	<b>1.200</b>	<b>1.084</b>	<b>1.200</b>	<b>1.600</b>	<b>0.200</b>	<b>2.415</b>	<b>1.200</b>	<b>0.410</b>

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
  - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
  - (3) The quantities of C&D Materials, in m<sup>3</sup>, was calculated by multiply the no. of truck with the volume of truck, which is 5m<sup>3</sup>.

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**APPENDIX L  
CUMULATIVE LOG FOR COMPLAINT  
LOGS, NOTIFICATION OF SUMMONS  
AND SUCCESSFUL PROSECUTIONS**

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**Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions**

**Cumulative Complaint Log**

Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Status
SCL Contract 1107's Construction Site near Shaft A/ Construction Noise	14-29958	A resident living in Kai Ching Estate/ 8 December 2014	A resident of Kai Ching Estate complained about an incident of construction noise disturbance generated from operation of equipment, at the area adjacent to Shaft A in the night.	The Contractor had taken the following mitigation measures: <ul style="list-style-type: none"> <li>• Hoardings and noise absorption blankets were erected along the site boundary to shield residents of Kai Ching Estate from noisy works during the time of the complaint;</li> <li>• The equipment involved in this complaint: the water pump, was removed immediately after the complaint was received to reduce noise nuisance to nearby noise sensitive receivers;</li> <li>• The low area near shaft A enclosure was backfilled to eliminate the flooding issue, thus the need of the water pump;</li> </ul>	Closed

<p>SCL Contract 1107's Construction Site near Site Entrance/ Construction Noise and Dust</p>	<p>14-31154</p>	<p>A resident living in Kai Ching Estate/ 15 December 2014</p>	<p>A resident of Kai Ching Estate complained about the noise disturbance generated from some sort of alarm noise at night from the construction site entrance; and dust nuisance from the construction site in general.</p>	<p>The alarm bell was installed to alert pedestrians of moving vehicles. During the time of complaint, vehicles might had moved in or out of the site, thus triggering the alarm.</p> <p>To avoid the same incident from happening again, the Contractor has agreed to permanently terminate the alarm bell.</p> <p>The Contractor has provided sufficient measures to minimize the smoke and dust emission. These measures include:</p> <ul style="list-style-type: none"> <li>• Covering stockpile of bagged cements and other dusty material with impervious material.</li> <li>• Regularly conducting water spray on work sites and major haul road.</li> <li>• Washing every vehicle leaving the construction site.</li> </ul> <p>The 24-hr TSP level monitoring conducted in December showed that the dust levels at Block 1, Rhythm Garden were under the Action and Limit Levels.</p>	<p>Closed</p>
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<p>SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p>15-04622</p>	<p>N/A / 12 March 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>The Contractor had implemented appropriate and sufficient measures to minimise the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> <li>• Installing noise absorption blankets on the hoarding at the site boundary near Kai Ching Estate;</li> <li>• Erecting acoustic enclosures to seal up the noisy PME and construction works (see Photo 2) in the shaft.</li> </ul> <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> <li>• Covering of stockpile of bagged cement and other dusty materials to reduce dust generation.</li> <li>• Water spraying stockpile of dusty materials as well as major haul roads and work sites to keep the surface wet.</li> <li>• Washing every vehicle leaving the construction site.</li> <li>• Regular cleaning of the access roads connecting public roads to vehicle washing areas.</li> </ul> <p>There was also no non-compliance on construction noise and air quality recorded during the site inspections in March.</p> <p>The construction noise and 24-hr TSP level monitoring conducted in March also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	<p>Closed</p>
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<p>SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p>15-13442</p>	<p>N/A / 9 June 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation conducted by the Contract ET and the results showed that sufficient mitigation measures were provided by the Contractor to minimize the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> <li>• Noise absorption blankets were installed on the hoarding at the site boundary near Kai Ching Estate;</li> <li>• Acoustic enclosures were erected to seal up the noisy PME and construction works in the shaft;</li> <li>• The formwork erection was conducted inside the shaft which shield off the noisy operation.</li> </ul> <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> <li>• The stockpiles of dusty materials were covered by dust protective screens to reduce dust generation. Uncovered parts of the stockpile were provided with water spray to keep the dusty surface wet to reduce dust emission during stockpiling/backfilling work.</li> <li>• Watering on work sites and major haul roads was implemented regularly as stipulated in the Air Pollution Control Regulation and the Environmental Permit. Watering record is kept at the site entrance for easy inspection;</li> <li>• Vehicle movements were confined to designated haul roads. Automatic sprinkler system was installed at major haul roads to provide regular water spraying to reduce dust emission from vehicle movements;</li> </ul>	<p>Closed</p>
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				<ul style="list-style-type: none"> <li>• Hoarding was provided along the entire length of the site boundary and beside roads or areas with public access;</li> <li>• Wheel washing facilities was provided at all vehicle exits and vehicle washing was provided for vehicles leaving the site. Access road leading to and exiting from vehicle washing areas were kept clean to ensure the public roads around site entrances were free from dust;</li> </ul> <p>The construction noise and 24-hr TSP level monitoring conducted in May 2015 also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	
SCL Contract 1107's Construction Site/ Construction Noise and Dust	15-12472	N/A / 30 June 2015	<p>A public complaint about dust nuisance and muddy water discharge in the Kai Tak Development Area. Complainant alleged that uncovered dusty materials were found in Kai Tak development area and muddy water was found discharged into Kai Tak nullah.</p> <p>Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation was conducted by the Contract ET. According to investigation results, the coverage for the stockpile was removed during the backfilling works, while the other parts of the stockpile were covered by dust protective screen. Mitigation measures including providing water spray and installation of waster sprinkler were implemented to keep the uncovered part wet during backfilling. The stockpile was completely covered after work.</p> <p>Wastewater was treated by sedimentation tanks with sufficient retention time before discharge into Kai Tak Nullah. All drainage facilities and erosion and sediment control structures were regularly inspected and maintained to ensure normal operation at</p>	Closed

				all times and during rainstorms. Water sampling was conducted monthly in accordance with the requirement of Effluent Discharge License (License No. WT00015861-2013). The lab test results complied with the conditions set in the Effluent Discharge License during the complaint period.	
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**Cumulative Log for Notifications of Summons**

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
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**Cumulative Log for Successful Prosecutions**

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
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**Appendix H**

**26<sup>th</sup> Monthly EM&A Report for Works Contract 1112 –  
Hung Hom Station and Stabling Sidings**

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MTR Corporation Limited

**Shatin to Central Link –  
Tai Wai to Hung Hom Section and  
Mong Kok East to Hung Hom Section**

Monthly EM&A Report

[Period from 1 to 31 July 2015]

(August 2015)

Certified by: Vivian Chan 

Position: Environmental Team Leader

Date: 13 August 2015



**26<sup>th</sup> Monthly EM&A Report for July 2015**

# **Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings**

**August 2015**

Project/Deliverable No.	7076187   D60/01
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	26 <sup>th</sup> Monthly EM&A Report for July 2015
Report Date	August 2015
Report for	Leighton Contractors (Asia) Limited

#### PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	August 2015	Samantha KONG	Vivian CHAN	Alexi BHANJA
1.1 (Final)	August 2015	Samantha KONG	Vivian CHAN	Alexi BHANJA

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# CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>IV</b>
Introduction .....	iv
Landscape and Visual Monitoring.....	iv
Air Quality Monitoring .....	iv
Noise Quality Monitoring.....	iv
Waste Management.....	iv
Environmental Auditing .....	v
Compliant, Notification of Summons and Successful Prosecution .....	v
Future Key Issues .....	v
<b>1 INTRODUCTION</b> .....	<b>6</b>
1.1 Project Background .....	6
1.2 Purpose of the Report .....	6
1.3 Report Structure.....	6
<b>2 PROJECT INFORMATION</b> .....	<b>7</b>
2.1 General Site Description .....	7
2.2 Construction Programme and Activities .....	8
2.3 Project Organisation .....	8
2.4 Status of Environmental Licences, Notification and Permits.....	9
<b>3 ENVIRONMENTAL MONITORING PARAMETERS</b> .....	<b>11</b>
3.1 Landscape and Visual Impact Monitoring.....	11
3.2 Air Quality Monitoring .....	11
3.3 Construction Noise Monitoring.....	14
<b>4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES</b> .....	<b>15</b>
<b>5 MONITORING RESULTS</b> .....	<b>16</b>
5.1 Landscape and Visual .....	16
5.2 Air Quality Monitoring .....	16
5.3 Regular Construction Noise Monitoring .....	16
5.4 Waste Management.....	16
<b>6 ENVIRONMENTAL SITE INSPECTION AND AUDIT</b> .....	<b>17</b>
<b>7 ENVIRONMENTAL NON-CONFORMANCE</b> .....	<b>20</b>
7.1 Summary of Monitoring Exceedances .....	20
7.2 Summary of Environmental Non-Compliance .....	20
7.3 Summary of Environmental Complaint.....	20

7.4	Summary of Environmental Summons and Successful Prosecution.....	20
<b>8</b>	<b>FUTURE KEY ISSUES.....</b>	<b>21</b>
8.1	Construction Programme for Next Month.....	21
8.2	Key Issues for the Coming Months .....	21
8.3	Monitoring Schedule for Next Month.....	21
<b>9</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>22</b>
9.1	Conclusions .....	22
9.2	Recommendations .....	22

## APPENDICES

Appendix A	Project Works Boundary
Appendix B	Construction Programme
Appendix C	Project Organisation for Environmental Works
Appendix D	Location of Air Quality Monitoring Station
Appendix E	Calibration Certificates of Monitoring Equipment
Appendix F	Wind Data
Appendix G	Environmental Monitoring Programme
Appendix H	Implementation Schedule of Environmental Mitigation Measures
Appendix I	Event and Action Plan
Appendix J	Measures Monitoring Results and their Graphical Presentations
Appendix K	Waste Flow Table
Appendix L	Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

## TABLES

Table 2-1	Contact Information of Key Personnel
Table 2-2	Status of Environmental Licenses, Notification and Permits
Table 3-1	Air Quality Monitoring Parameters and Frequency
Table 3-2	Air Quality Monitoring Location
Table 3-3	Air Quality Monitoring Equipment
Table 4-1	Summary of Status of Required Submission under EP
Table 5-1	Summary of 24-hour TSP Monitoring Results
Table 6-1	Observations and Recommendations of Site Audits



## EXECUTIVE SUMMARY

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### Introduction

The construction works of MTRC Shatin to Central Link Works Contract 1112- Hung Hom Station and Stabling Sidings (the Project) comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW).

Construction works of the Project commenced on 3 June 2013. This is the 26<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 2015 in accordance with the EM&A manual.

During the reporting month, the following activity took place for the Project:

- Piling for HUH, NAT, HHS and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Underpinning works at HUH

### Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 22 July 2015. All necessary mitigation measures have been implemented by the Contractor.

### Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 3, 9, 15, 21 and 27 July 2015. No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

### Noise Quality Monitoring

Construction airborne noise monitoring can be referred to the Monthly EM&A Report for Contract 1111.

### Waste Management

Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 270,730 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 21,640 m<sup>3</sup> inert construction and demolition (C&D) materials were generated from the Project, where 6,206 m<sup>3</sup> was imported from SCL 1111, 93 m<sup>3</sup> was imported from SCL 1121, 16,145 m<sup>3</sup> was reused in other projects, 5,497 m<sup>3</sup> was disposed of at TM38 Public Fill. No chemical waste

was disposed. A total of 5,177 m<sup>3</sup> Type 1 marine sediments marine were disposed, of which 5,292 m<sup>3</sup> was generated from SCL1111. 689 kg of paper/cardboard packaging and 706,380 kg of metals were recycled. No asphalt or plastic was recycled from the Project.

## Environmental Auditing

A total of 5 weekly environmental site audits were conducted on 2, 9, 16, 23 and 30 July 2015. The IEC joint site audit was undertaken on 16 July 2015.

## Compliant, Notification of Summons and Successful Prosecution

No environmental complaints were reported during the reporting month.

No summons or prosecution related to the environmental issues were received in the reporting period.

## Future Key Issues

Major site activities for the coming reporting month will include:

- Piling for HUH, NAT, HHS and SAT
- Initial excavation at HUH and HHS
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Underpinning works at HUH

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise and waste management.

# 1 INTRODUCTION

---

## 1.1 Project Background

1.1.1 The Shatin to Central Link (SCL) is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO). For the purposes of the Environmental Impact Assessment (EIA), five EIA studies have been conducted to cover different sections of the SCL. These are Tai Wai to Hung Hom Section (SCL (TAW-HUH)), Mong Kok East to Hung Hom Section (SCL (MKK-HUH)), Hung Hom to Admiralty Section (SCL (HUH-ADM)), Protection Works at Causeway Bay Typhoon Shelter and Stabling Sidings at Hung Hom Freight Yard (SCL (HHS)).

1.1.2 Three EIA reports are of relevance to Works Contract 1112 (the Project), namely EIA for SCL (TAW-HUH) (Register No. AEIAR-167/2012), EIA for SCL (MKK-HUH) (Register No. AEIAR-165/2012) and EIA for SCL (HHS) (Register No. AEIAR-164/2012). These were submitted and subsequently approved with conditions by the Environmental Protection Department (EPD) on 17 March 2012. Two Environmental Permits (EPs), Environmental Permit No. EP-437/2012 for SCL (MKK-HUH) and Environmental Permit No. EP-438/2012 for SCL (TAW-HUH) were subsequently obtained on 22 March 2012. A recent application for variation of the EP for SCL (TAW-HUH) was approved and a varied EP (EP No. EP-438/2012/H) was issued by Director of Environmental Protection (DEP) on 10 September 2014.

1.1.3 Construction of the SCL has been divided into a number of works contracts. This Works Contract 1112 was awarded to Leighton Contractors (Asia) Limited (the Contractor) in March 2013. Leighton has engaged SMEC Asia Limited as the Environmental Team under the EIAO for Works Contract 1112.

## 1.2 Purpose of the Report

1.2.1 This is the 26<sup>th</sup> EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 July 2015.

## 1.3 Report Structure

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Parameters
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

## 2 PROJECT INFORMATION

### 2.1 General Site Description

2.1.1 The works under Works Contract 1112 comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW). The major permanent works under Works Contract 1112 generally comprise the following:

- New HUH integrated with the existing HUH station, with associated entrances, ventilation facilities, plant rooms, other ancillary facilities, and ABWF works.
- Modification of the existing HUH station to allow interchange between Existing East Rail Line and SCL(TAW-HUH), and between SCL(MKK-HUH) and SCL(TAW-HUH) comprising alteration and addition works at podium level, mid-level, and platform level.
- Running tunnels of the SCL(TAW-HUH) at the south and north ends of the new HUH to the existing stub tunnel of Existing West Rail and interface with Works Contract 1111.
- Running tunnels of the SCL(MKK-HUH) at the south and north ends of the new HUH to the proposed North Ventilation Building and interface with Works Contract 1111.
- Extensive underpinning and modification of the existing podium structure of HUH and the Hong Kong Coliseum, and associated protection works.
- Diversion, modification and dismantling of existing building services associated with underpinning and modification of existing structures.
- Demolition and clearance of the majority of the existing Hung Hom Freight Terminal infrastructure.
- Protection, diversion, and modification of utilities and services.
- Launching and retrieval track connecting the SCL(TAW-HUH) to HHS from the turnout close to WRL at the south and interface with Works Contract 1111 at the north.
- CLP Transformer Building.
- Demolition of the existing International Mail Centre adjacent to Salisbury Road, the MTR Freight Operations Building within the southern end of the Hung Hom Freight Terminal, and other ancillary buildings.
- Reconstruction of Cheong Wan Road Viaduct.
- Civil, BS and ABWF provisions for designated and interfacing contracts.
- Landscape works.
- Modification to various parts of existing disused Freight Yard structure for provision of HHS, comprising alteration and addition works at underground level, ground level, mezzanine level and podium level including new

accommodation and plant areas and stablings and associated track provisions connecting to the interface with Works Contract 1111.

- Extensive underpinning of the podium structures above the existing disused Freight Yard for provision of HHS and its associated works.
- Construct part of the shunting track.
- Construct the emergency track and its associated works which connect the stabling siding to the mainline which run parallel with the northern approach of HUH.
- Construct the semi-enclosed noise enclosure and its associated works over the entire HHS north fan area.

2.1.2 The works area for the Works Contract 1112 is shown in **Appendix A**.

## 2.2 Construction Programme and Activities

2.2.1 The summary of construction programme is presented in **Appendix B**.

2.2.2 The major construction activities carried out by the Contractor in the reporting period are summarized as below:

- Piling for foundation and noise enclosure at HUH, SAT and NAT
- D-wall construction for foundation at HUH
- Initial excavation at HUH and HHS
- Underpinning at HUH
- Barging point operation at SAT
- Jet grouting at SAT
- Utilities diversion at SAT
- Modification works at Concourse level
- Drainage diversion at NAT
- Operation of MBME at HUH
- Reconstruction of 1875 drainage at HHS Piling for HUH, NAT and SAT

## 2.3 Project Organisation

2.3.1 The project organization structure is presented in **Appendix C**. The contact names and numbers for key personnel of the Project are summarized in **Table 2-1**.

**Table 2-1 Contact Information of Key Personnel**

Company	Position	Name	Telephone	Fax
MTR	Construction Manager	Mr Kit CHAN	3127 6203	3127 6422
	SCL Project Environmental Team Leader	Mr Richard KWAN	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Mr Fredrick LEONG	2859 1739	2540 1580
Leighton	Environmental Manager	Mr Kevin HARMAN	3973 0270	2356 9355

Company	Position	Name	Telephone	Fax
SMEC	ET Leader	Ms Vivian CHAN	3995 8140	3995 8101

## 2.4 Status of Environmental Licences, Notification and Permits

2.4.1 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2-2**.

**Table 2-2 Status of Environmental Licenses, Notification and Permits**

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
<b>Environmental Permit</b>				
EP-437/2012	22 Mar 2012	-	Valid	EP for SCL (MKK-HUH)
EP-438/2012/H	10 Sep 2014	-	Valid	EP for SCL (TAW-HUH)
<b>Construction Noise Permit</b>				
PP-RE0001	9 Feb 2015	8 Aug 2015	Valid	Piling works
GW-RE0381-15	14 May 2015	22 Jul 2015	Valid until cancellation on 22 Jul 2015	Modification works at concourse
GW-RE0419-15	06 May 2015	05 Nov 2015	Valid	Works in concourse and mid-level walkway
GW-RE0488-15	19 May 2015	18 Nov 2015	Valid	Modification works at concourse
GW-RE0614-15	20 Jun 2015	18 Dec 2015	Valid	Combined CNP for all area
GW-RE0697-15	23 Jul 2015	30 Sep 2015	Valid	Modification works at concourse
GW-RE0707-15	20 Jul 2015	21 Jul 2015	Valid until cancellation on 21 Jul 2015	Cooling Main Diversion
<b>Wastewater Discharge License</b>				
WT00015983-2013	28 Jun 2013	30 Jun 2018	Valid	-
<b>Chemical Waste Producer Registration</b>				
5213-213-L2603-03	28 Jun 2013	-	Valid	-
<b>Billing Account for Construction Waste Disposal</b>				
7017179	27 Mar 2013	-	Active Account	-
<b>Notification Under Air Pollution Control (Construction Dust) Regulation</b>				
357078	18 Mar 2013	-	Notified	-

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
<b>Marine Dumping Permit</b>				
EP/MD/14-238	2 Apr 2015	1 Oct 2015	Valid	Marine Dumping Permit - Excavated Sediment Requiring Type 1 - Open Sea Disposal
EP/MD/16-036	2 Jul 2015	1 Aug 2015	Valid	Marine Dumping Permit - Excavated Sediment Requiring Type 2 - Confined Marine Disposal
<b>Notification of Asbestos Abatement Works</b>				
AX141187	11 Oct 2014 (earliest commencement date)	-	Notified	Demolition of International Mail Centre, 80 Salisbury Road, Hung Hom
AX141235	27 Oct 2014 (earliest commencement date)	-	Notified	Demolition of Freight Operation Building, MTR Hung Hom Depot
<b>Notification of New Expiration Date of Sediment Quality Report (SQR)</b>				
EP60/G1/12-395/Part XXVI	3 Nov 2014	22 Jan 2017	Notified	Data Reliability Review on Sediment Quality Report

## 3 ENVIRONMENTAL MONITORING PARAMETERS

### 3.1 Landscape and Visual Impact Monitoring

3.1.1 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period.

### 3.2 Air Quality Monitoring

#### Parameter, Frequency and Duration

3.2.1 In accordance with the EM&A Manual, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required throughout the construction period. The monitoring parameters and frequency are provided in **Table 3-1**.

**Table 3-1 Air Quality Monitoring Parameters and Frequency**

Parameter	Frequency
1-hour TSP	3 times in every 6 days when one documented valid complaint is received
24-hour TSP <sup>[1]</sup>	Once per 6 days

**Note:**

1. 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

#### Monitoring Location

3.2.2 One air quality monitoring station was set up at the location in accordance with the approved EM&A Manuals. The location of the construction dust monitoring station is summarised in **Table 3-2** and shown in **Appendix D**.

3.2.3 The monitoring location of AM2 has been located on the roof of the Site Office Building next to Harbourfront Horizon since 19 March 2014.

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

ID	Location
AM2 <sup>[1]</sup>	Harbourfront Horizon <sup>[2]</sup>

**Note:**

1. Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. For ease of future reference, AM2 will be adopted for EM&A reporting for Works Contract 1112 when referring to this monitoring location.
2. Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for “Kwun Tong Line Extension (KTE)”. Access to Harbourfront Horizon was rejected by the owner during preparation for baseline



monitoring for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for KTE. This monitoring location is considered the most appropriate alternative monitoring location for AM2 and have been adopted for dust monitoring for Contract 1112.

### **Monitoring Equipment**

3.2.4 The air quality monitoring was performed using High Volume Sampler (HVS). The HVS meets all the requirements of the EM&A Manual. Detail of the HVS used in air quality monitoring is provided in **Table 3-3**.

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

Equipment	Brand and Model	Serial Number
High Volume Sampler	GS-2310 Accu-vol	694-0665
Calibration Kit	Tisch (TE-5025A)	1941

3.2.5 The HVS were calibrated in every six months interval using calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration certificate of the calibration kit and the calibration spreadsheet of the HVS is provided in **Appendix E**.

### **Monitoring Procedures**

3.2.6 Specifications of HVS are as follow:

- i. 0.6 - 1.7m<sup>3</sup> per minute adjustable flow range
- ii. Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation
- iii. Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation
- iv. Capable of providing a minimum exposed area of 406cm<sup>2</sup>
- v. Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period
- vi. Equipped with a shelter to protect the filter and sampler
- vii. Incorporated with an electronic mass flow rate controller or other equivalent devices
- viii. Equipped with a flow recorder for continuous monitoring
- ix. Provided with a peaked roof inlet
- x. Incorporated with a manometer
- xi. Able to hold and seal the filter paper to the sampler housing at horizontal position
- xii. Easily changeable filter and
- xiii. Capable of operating continuously for a 24-hour period.

3.2.7 Preparation of Filter Papers

- i. Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.

- ii. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5$ %. A convenient working RH was 40%.
- iii. All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

### 3.2.8 Field Monitoring

- i. The power supply was checked to ensure the HVS works properly.
- ii. The filter holder and the area surrounding the filter were cleaned.
- iii. The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- iv. The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- v. The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
- vi. Then the shelter lid was closed and was secured with the aluminium strip.
- vii. The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- viii. A new flow rate record sheet was set into the flow recorder.
- ix. On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m<sup>3</sup>/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/min).
- x. The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
- xi. The initial elapsed time was recorded.
- xii. At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
- xiii. The final elapsed time was recorded.
- xiv. The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- xv. It was then placed in a clean plastic envelope and sealed.
- xvi. All monitoring information was recorded on a standard data sheet.
- xvii. Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

#### **Wind Data Monitoring**

- 3.2.9 Average wind data (wind speed and direction) at the King's Park meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in **Appendix F**.

#### **Monitoring Schedule**

- 3.2.10 The schedule for environmental monitoring in July 2015 is provided in **Appendix G**.

### **3.3 Construction Noise Monitoring**

- 3.3.1 In accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS), construction noise monitoring is required at No. 234-238 Chatham Road North (originally proposed as Wing Fung Building in the approved EM&A Manuals).
- 3.3.2 Construction airborne noise monitoring requirement details at No. 234-238 Chatham Road North (NM2) can be referred to the Monthly EM&A Report for Contract 1111.

## 4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 All environmental mitigation measures and requirements as stated in EIA Reports, Environmental Permits and EM&A Manuals are implemented. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarized in *Appendix H*.
- 4.1.2 Submissions to EPD during construction stage had been made in accordance with the EP requirements. A summary of EP submission requirements and their status is presented in *Table 4-1*.

**Table 4-1 Summary of Status of Required Submission under EP**

Required Submission	Environmental Permit	Date of Submission	Status
EP Condition 3.4 - Monthly Environmental Monitoring & Audit (EM&A) Report	EP-437/2012	14 July 2015	Submitted
	EP-438/2012/H	14 July 2015	Submitted

## 5 MONITORING RESULTS

### 5.1 Landscape and Visual

- 5.1.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 8 and 22 July 2015. All necessary mitigation measures have been implemented by the Contractor.
- 5.1.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in *Appendix I*.

### 5.2 Air Quality Monitoring

- 5.2.1 The monitoring results for 24-hour TSP are summarized in *Table 5-1*. Detailed air quality monitoring results are presented in *Appendix J*.

**Table 5-1 Summary of 24-hour TSP Monitoring Results**

ID	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AM2	36.2	17.7 – 61.0	182	260

- 5.2.2 No Action and Limit Level exceedance was recorded in the reporting month.
- 5.2.3 The Event and Action Plan is provided in *Appendix I*.

### 5.3 Regular Construction Noise Monitoring

- 5.3.1 Construction airborne noise monitoring results in the reporting month can be referred to the Monthly EM&A Report for Contract 1111.

### 5.4 Waste Management

- 5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 270,730 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 21,640 m<sup>3</sup> inert construction and demolition (C&D) materials were generated from the Project, where 6,206 m<sup>3</sup> was imported from SCL 1111, 93 m<sup>3</sup> was imported from SCL 1121, 16,145 m<sup>3</sup> was reused in other projects, 5,497 m<sup>3</sup> was disposed of at TM38 Public Fill. No chemical waste was disposed.
- 5.4.2 A total of 5,177 m<sup>3</sup> Type 1 marine sediments marine were disposed, of which 5,292 m<sup>3</sup> was generated from SCL1111. 689 kg of paper/cardboard packaging and 706,380 kg of metals were recycled. No asphalt or plastic was recycled from the Project. The waste flow table and marine sediment flow table were presented in *Appendix K*.
- 5.4.3 A billing account for construction waste disposal has been approved and a trip ticket system was implemented to record the waste generated from the Project in the reporting month.

## 6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Weekly site audits were conducted by the ET and attended by the ER and the Contractor to monitor the timely implementation of proper environmental management practices and mitigation measures at the site. 5 site audits were carried out on 2, 9, 16, 23 and 30 July 2015 during the reporting month. Representative of the IEC joined the site inspection on 16 July 2015. A summary of the implementation schedule of environmental mitigation measures is provided in [Appendix H](#).
- 6.1.2 No EPD inspection was conducted during the reporting month.
- 6.1.3 During the weekly site inspections, no non-conformance was identified. Details of observations recorded during site inspection are summarized in [Table 6-1](#).

**Table 6-1 Observations and Recommendations of Site Audits**

Parameters	Description	Works Area	Observation Date	Status
Noise	Noise emission label was found missing at the hand-held breaker. The Contractor should ensure all hand-held breakers are provided with noise emission labels.	SAT	2 July 2015	The item was rectified by the Contractor on 9 July 2015.
Air Quality	Haul road was observed dry. The Contractor should provide sufficient water spraying to the haul road.	SAT	2 July 2015	The item was rectified by the Contractor on 9 July 2015.
		SAT	16 July 2015	The item was rectified by the Contractor on 23 July 2015.
		NAT	16 July 2015	The item was rectified by the Contractor on 23 July 2015.
	More than 20 bags of cement were observed without impervious sheeting. The Contractor should cover the cement bags entirely with impervious sheeting.	HHS (M28)	2 July 2015	The item was rectified by the Contractor on 9 July 2015.
		HHS (Block 1/2)	16 July 2015	The item was rectified by the Contractor on 23 July 2015.
	Machinery was observed emitting white smoke. The Contractor should ensure that all machineries are under regular maintenance.	NAT	16 July 2015	The item was rectified by the Contractor on 23 July 2015.
	The tipping hall was observed without 3-sided screen with top. The Contractor should undertake unloading	Barging Point (Facing East Direction)	16 July 2015	The item was rectified by the Contractor on 30 July 2015.

	process of spoil to barge within a 3-sided screen with top tipping hall.	Barging Point (Facing South Direction)	23 July 2015	The item was rectified by the Contractor on 30 July 2015.
Water Quality	Gullies were observed with inadequate protection. The Contractor should provide adequate protection for gullies to prevent muddy water entering the drainage system.	Gate 3	18 June 2015	The item was rectified by the Contractor on 9 July 2015.
	Muddy discharge coming out from the outfall was observed. The Contractor should investigate and rectify the deficiencies immediately.	SAT	23 July 2015	The item was rectified by the Contractor on 30 July 2015.
Waste/ Chemicals Management	Chemical containers and machineries were observed without secondary containment. The Contractor should provide secondary containment to all chemical containers to prevent land contamination.	Site Office	18 June 2015	The item was rectified by the Contractor on 2 July 2015.
		NAT	25 June 2015	The item was rectified by the Contractor on 2 July 2015.
		HUH (Area A)	2 July 2015	The item was rectified by the Contractor on 9 July 2015.
		HUH (32)	9 July 2015	The item was rectified by the Contractor on 16 July 2015.
		HUH (N17)	16 July 2015	The item was rectified by the Contractor on 23 July 2015.
		HUH (Area A)	23 July 2015	The item was rectified by the Contractor on 30 July 2015.
		HUH (M35)	23 July 2015	The item was rectified by the Contractor on 30 July 2015.
		HHS (D22)	23 July 2015	The item was rectified by the Contractor on 30 July 2015.
		HUH (M/N-10/11)	30 July 2015	The item will be followed-up in the next reporting month.

	Oil stain was observed on the ground due to maintenance of the excavator. The Contractor should clear the oil stain and dispose of as chemical waste.	SAT	2 July 2015	The item was rectified by the Contractor on 9 July 2015.
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**Note:**

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. N/A: Not Applicable

6.1.4 Follow-up actions requested by Contractor’s ET and IEC during site inspections were undertaken by the Contractor and the work were confirmed in the following weekly site inspection. Follow-up actions that are still outstanding in the reporting month will be inspected in site inspections in following month, until the corresponding action has been satisfactorily completed by the Contractor.



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## 7 ENVIRONMENTAL NON-CONFORMANCE

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### 7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.

### 7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance event was recorded during the reporting month.

### 7.3 Summary of Environmental Complaint

7.3.1 No public complaint was received during reporting month. Details and cumulative statistics on environmental complaints can be referred to [Appendix L](#).

### 7.4 Summary of Environmental Summons and Successful Prosecution

7.4.1 No summon was received during the reporting month.

7.4.2 The cumulative statistics on notification of summons and successful prosecutions is provided in [Appendix L](#).

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## 8 FUTURE KEY ISSUES

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### 8.1 Construction Programme for Next Month

8.1.1 The construction programme for the upcoming month is provided in *Appendix B* and the key issues to be considered in the upcoming months include:

- Piling for HUH, NAT, HHS and SAT
- Initial excavation at HUH and HHS
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Underpinning works at HUH

### 8.2 Key Issues for the Coming Months

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise and waste management.

### 8.3 Monitoring Schedule for Next Month

8.3.1 The tentative schedule for environmental monitoring in August 2015 is provided in *Appendix G*.

## 9 CONCLUSIONS AND RECOMMENDATIONS

### 9.1 Conclusions

- 9.1.1 The construction phase of the Project was commenced on 3 June 2013. The EM&A programme has been implemented to include air quality monitoring and environmental site audits. This is the 25<sup>th</sup> Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 2015.
- 9.1.2 5 nos. of 24-hour TSP monitoring were carried out in the reporting month.
- 9.1.3 No exceedance of the Action and Limit Levels of air quality monitoring was recorded at the designated monitoring stations during reporting period.
- 9.1.4 Two landscape and visual monitoring and five environmental site audits were conducted in the reporting month. Recommendations on remedial actions were provided to the Contractor for deficiencies identified during the site audits.
- 9.1.5 No environmental complaint was reported during the reporting month.
- 9.1.6 The ET will keep track on the EM&A programme to ensure the compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### 9.2 Recommendations

- 9.2.1 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### Noise Impact

- Ensure all hand-held breakers are provided with noise emission labels.

#### Air Quality Impact

- Provide sufficient water spraying to the haul road.
- Cover the cement bags entirely with impervious sheeting.
- Ensure all machineries are under regular maintenance.
- Undertake unloading process of spoil to barge within a 3-sided screen with top tipping hall.

#### Water Quality Impact

- Provide adequate protection for gullies to prevent muddy water entering the drainage system.
- Investigate and rectify the deficiencies of muddy discharge from the outfall.

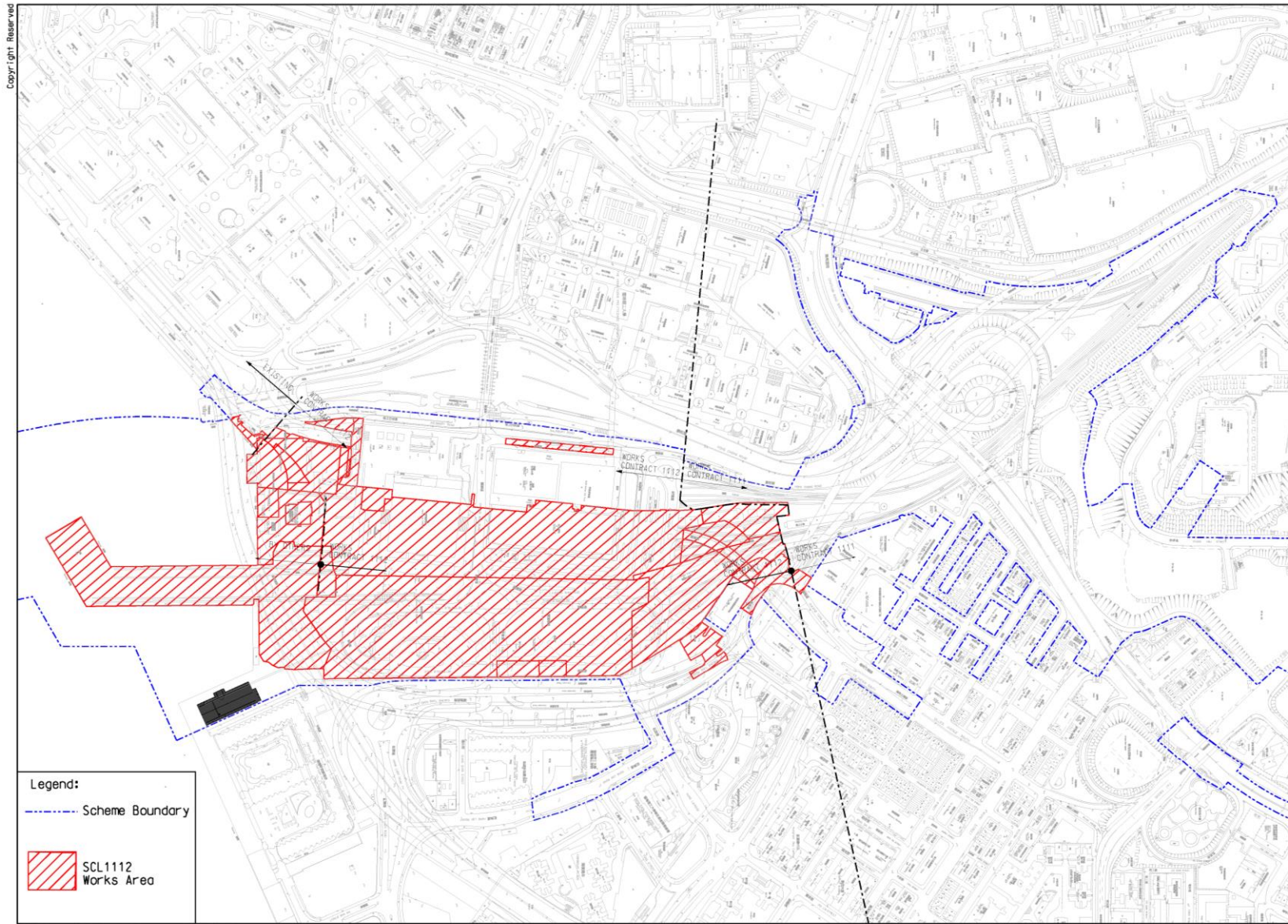
#### Chemical and Waste Management

- Provide secondary containment with proper maintenance and usage to prevent land contamination.
- Clear the oil stain and dispose of as chemical waste.

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## APPENDIX A

### Project Works Boundary



C:\SCL1112\To Albert\Basemap\_TATICNP.dgn

03-Jul-13 1:4000(A3) CKL / ALBERT / TAT / HKW / SHEK

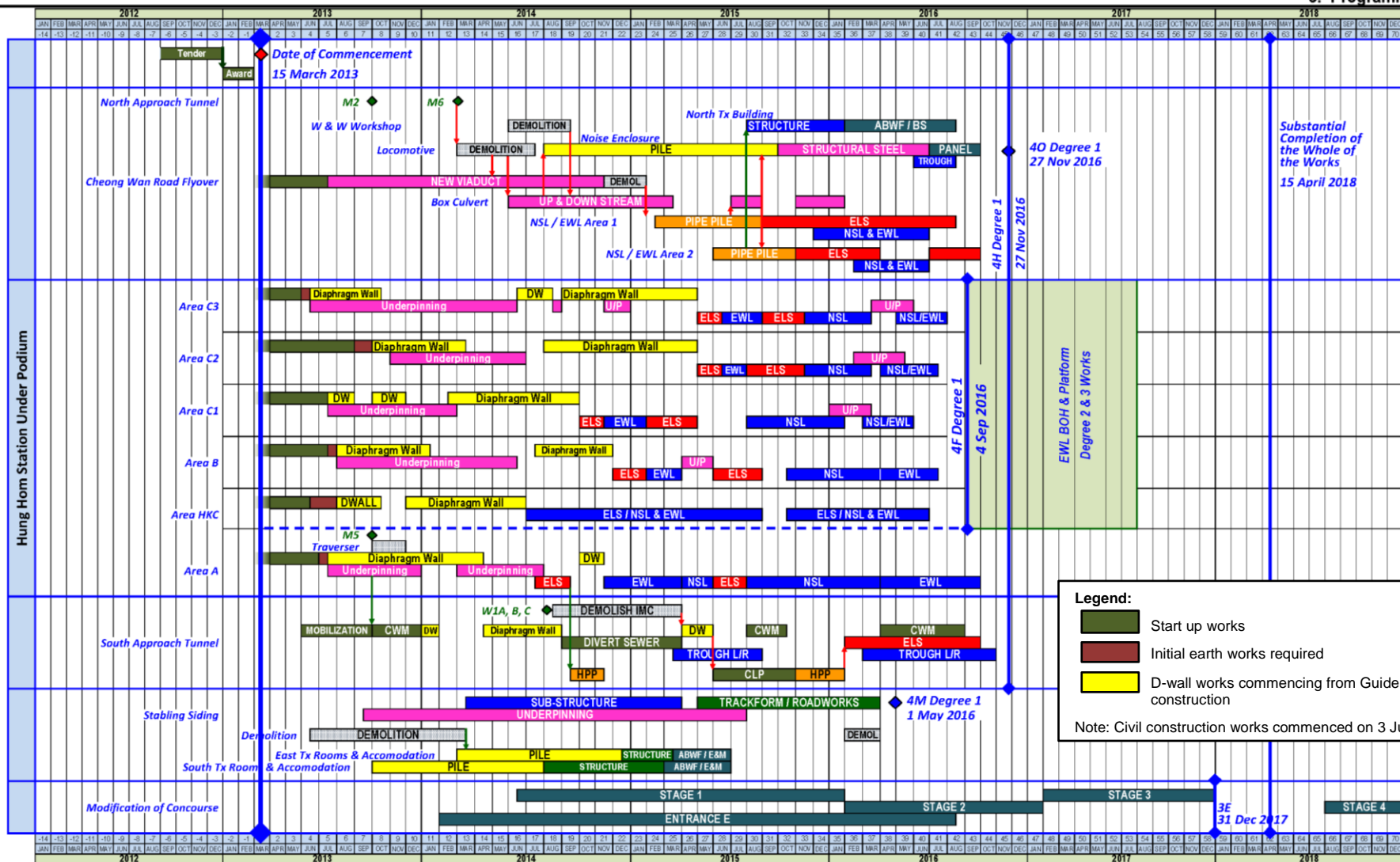
## APPENDIX B

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### Construction Programme



**3. Programme**



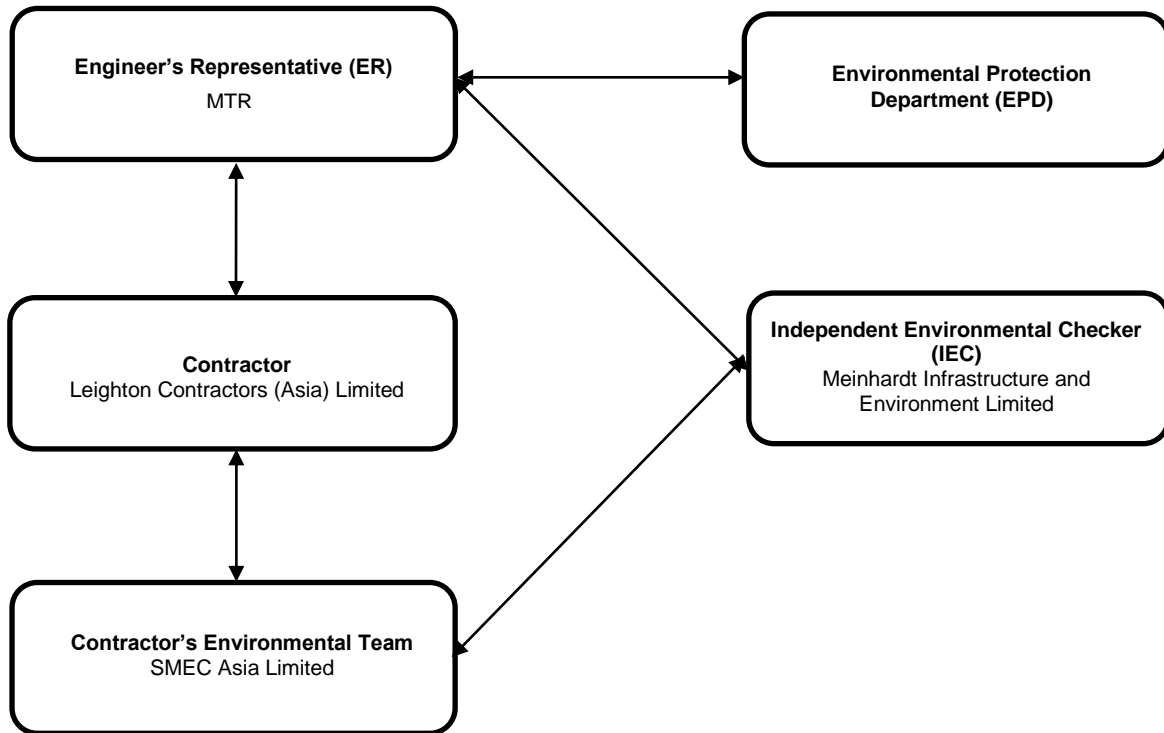
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## APPENDIX C

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### Project Organisation for Environmental Works

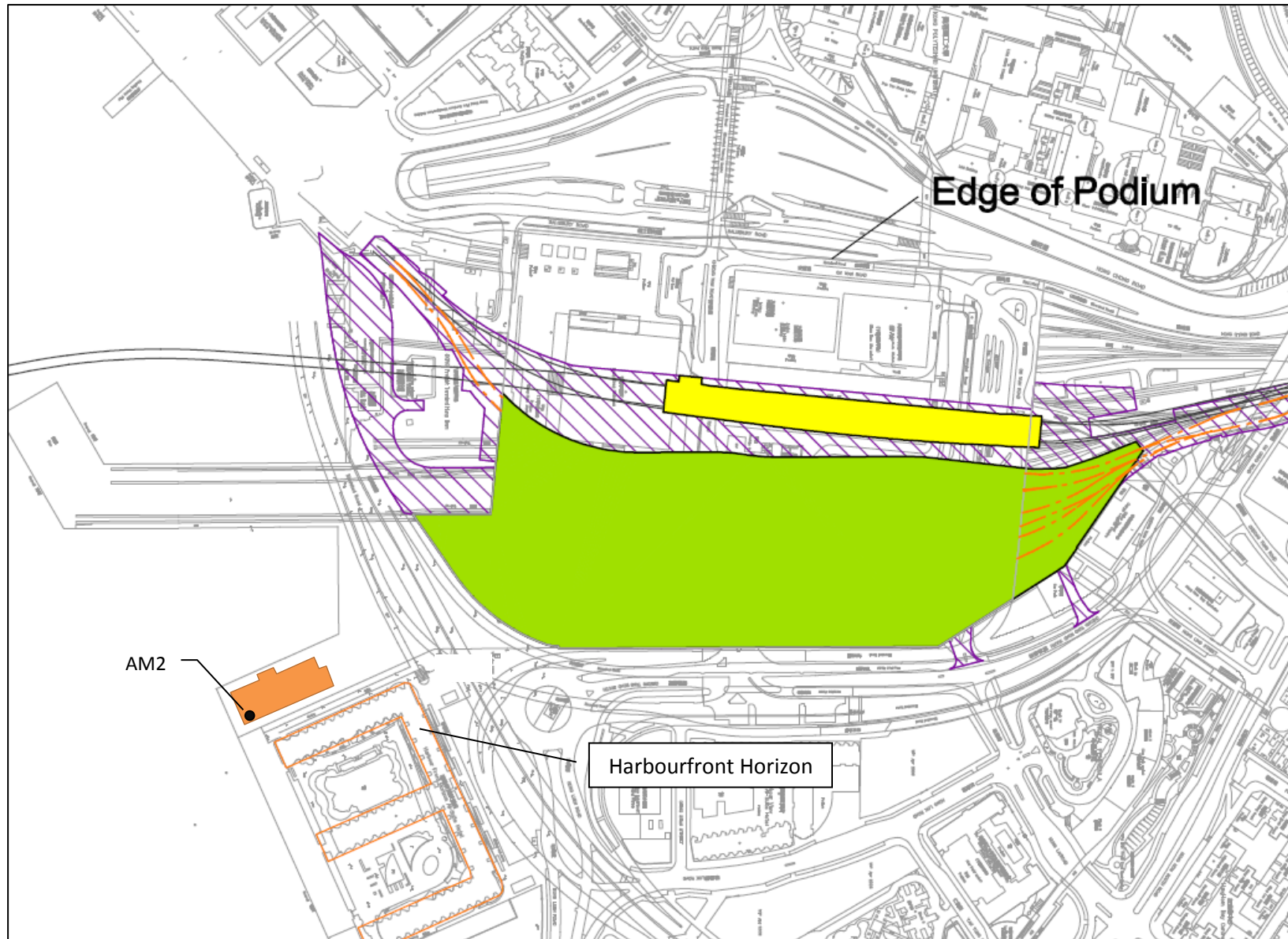




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## APPENDIX D

### Location of Air Quality Monitoring Station



## APPENDIX E

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### Calibration Certificates for Monitoring Equipment

**TSP Sampler Calibration**

**SITE**

Location: Hung Hom  
 Sampler: Hunghom MTR TSP  
 Serial No 694-0665  
 Calibration Date: June 10, 2015  
 Next Calibration Date: August 10, 2015  
 Tech: Sam Wong

**CONDITIONS**

Barometric Pressure (in Hg):	39.73	Corrected Pressure (mm Hg):	1009
Temperature (deg F):	93	Temperature (deg K):	307
Average Press. (in Hg):	39.73	Corrected Average (mm Hg):	1009
Average Temp. (deg F):	93	Average Temp. (deg K):	307

**CALIBRATION ORIFICE**

Make: Tisch  
 Model: TE-5025A  
 Serial#: 1941  
 Qstd Slope: 2.10265  
 Qstd Intercept: -0.00335  
 Date Certified: March 24, 2015

**CALIBRATIONS**

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	11.80	1.857	60.0	68.13	Slope = 36.7239 Intercept = -0.8104 Corr. coeff.= 0.9991 # of Observations: 5
2	10.00	1.709	54.0	61.32	
3	7.80	1.510	48.0	54.50	
4	5.00	1.209	38.0	43.15	
5	3.00	0.937	30.0	34.06	

Calculations

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

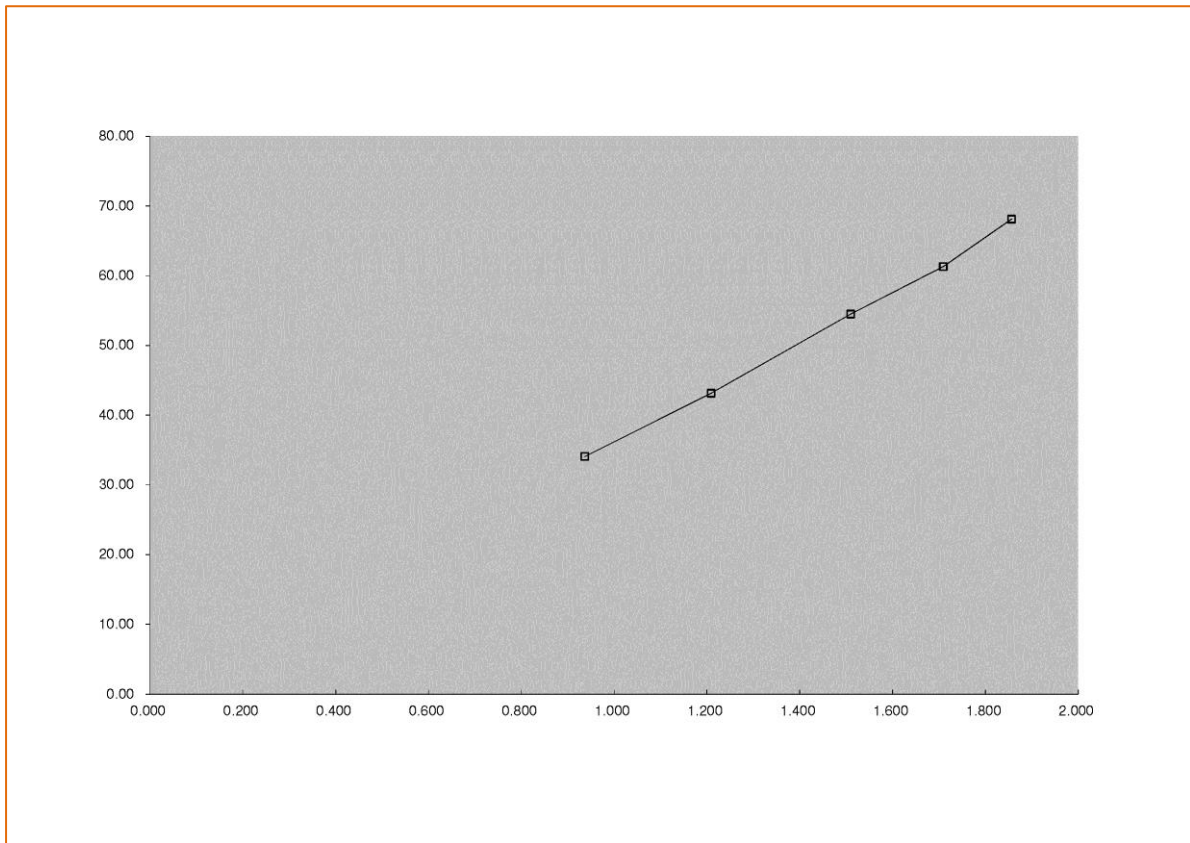
Qstd = standard flow rate  
 IC = corrected chart response  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration (deg K)  
 Pa = actual pressure during calibration (mm Hg)  
 Tstd = 298 deg K  
 Pstd = 760 mm Hg  
 For subsequent calculation of sampler flow:  
 $1/m\{ (I) [\text{Sqrt}(298/Tav) (Pav/760)] -b\}$

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure

Reviewer: Sam Wong

Signature: 

Date: June 10, 2015





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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootmeter S/N 0438320 Ta (K) - 292  
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4880	3.2	2.00
2	NA	NA	1.00	1.0510	6.4	4.00
3	NA	NA	1.00	0.9360	7.9	5.00
4	NA	NA	1.00	0.8920	8.8	5.50
5	NA	NA	1.00	0.7360	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0121	0.6802	1.4258	0.9958	0.6692	0.8784
1.0078	0.9589	2.0163	0.9916	0.9434	1.2422
1.0057	1.0745	2.2543	0.9895	1.0571	1.3888
1.0046	1.1262	2.3644	0.9884	1.1080	1.4566
0.9993	1.3578	2.8515	0.9832	1.3358	1.7568

Qstd slope (m) = 2.10265  
 intercept (b) = -0.00335  
 coefficient (r) = 0.99999

Qa slope (m) = 1.31664  
 intercept (b) = -0.00206  
 coefficient (r) = 0.99999

y axis = SQRT [H2O (Pa/760) (298/Ta)]      y axis = SQRT [H2O (Ta/Pa)]

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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

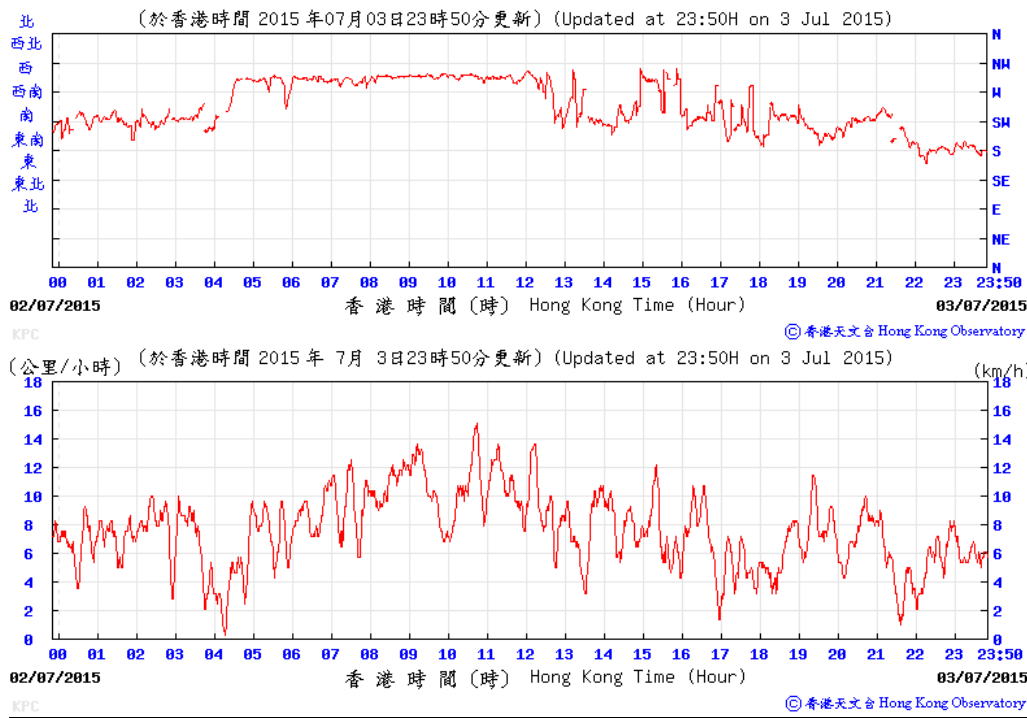
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## Appendix F

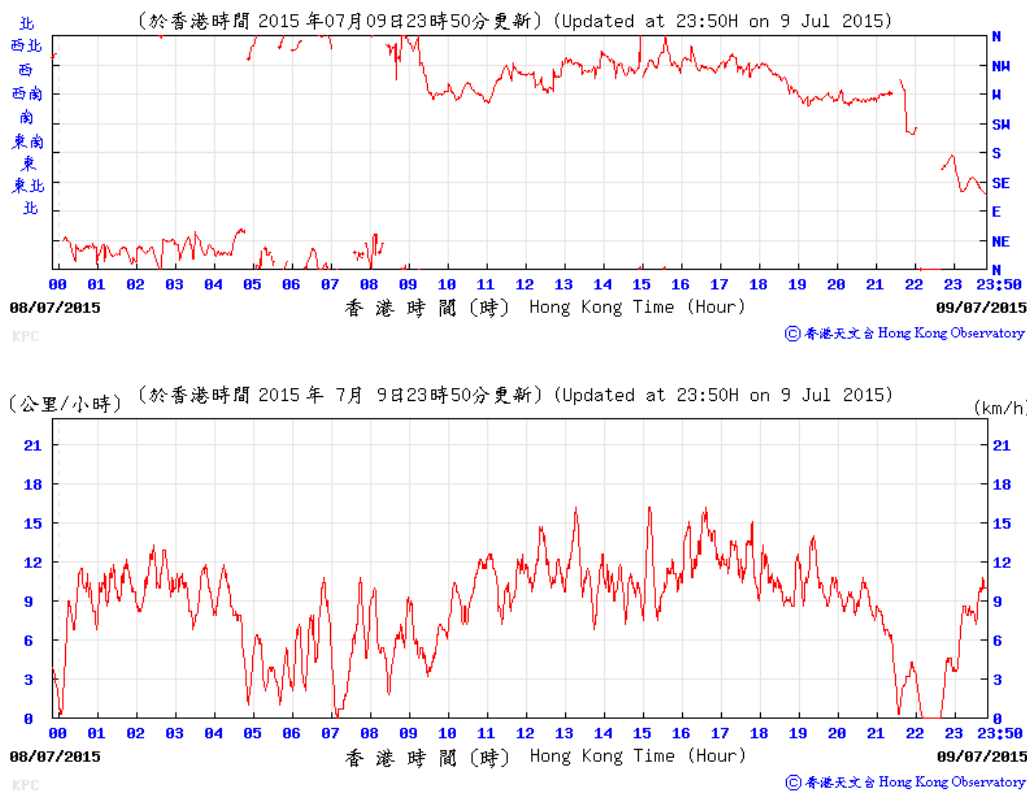
### Wind Data



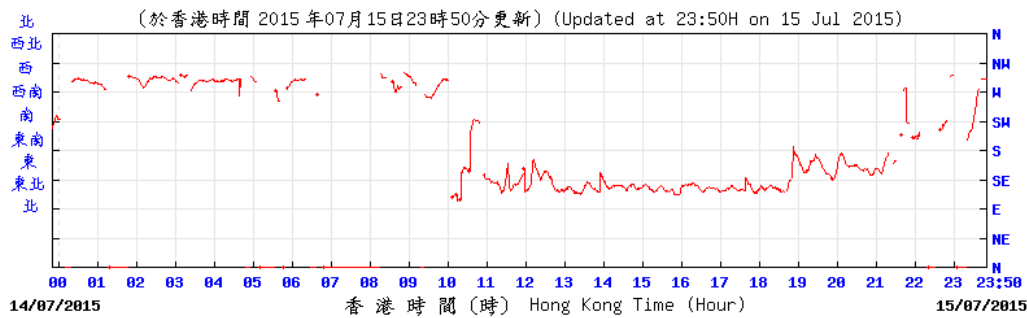
**3 July 2015**



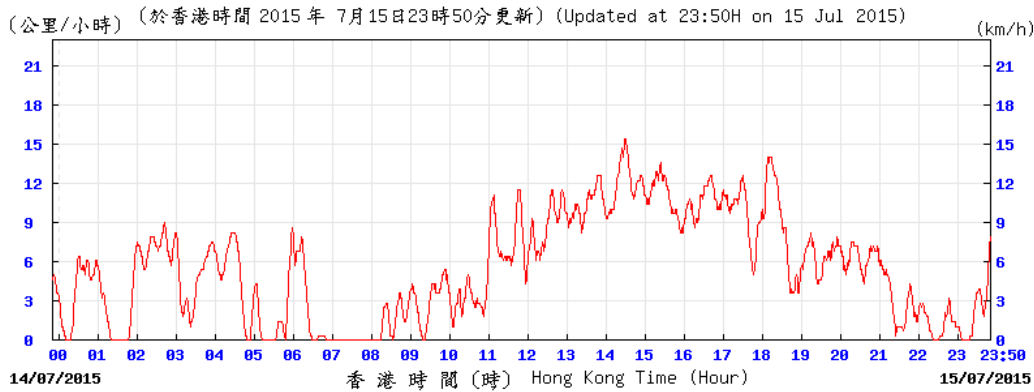
**9 July 2015**



**15 July 2015**

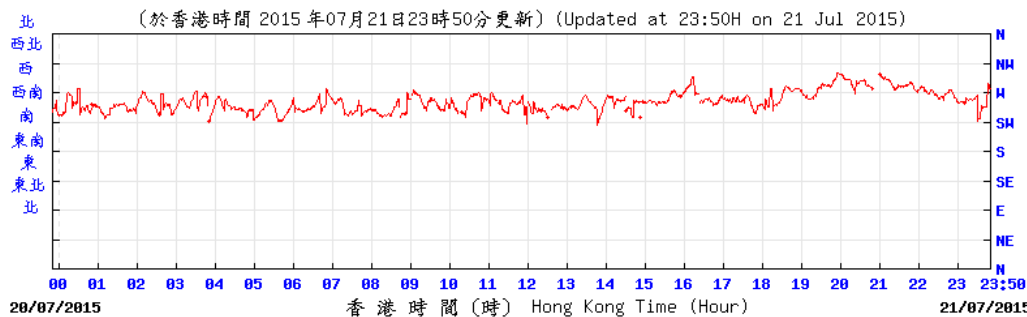


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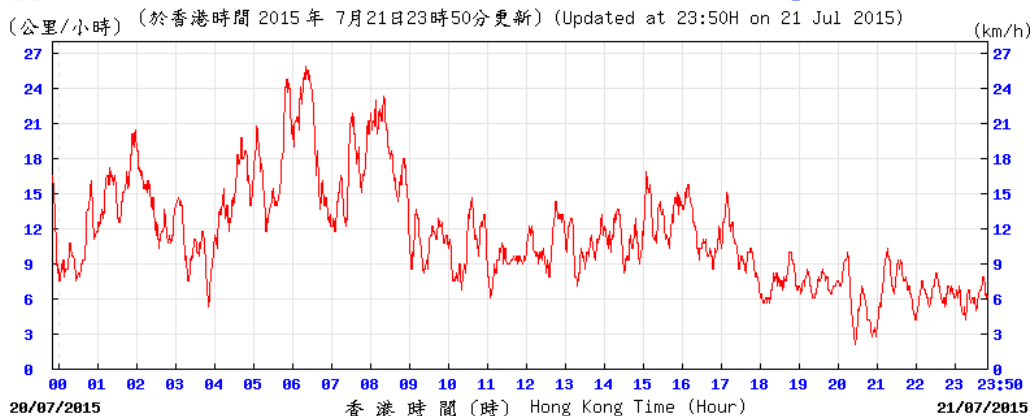


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**21 July 2015**

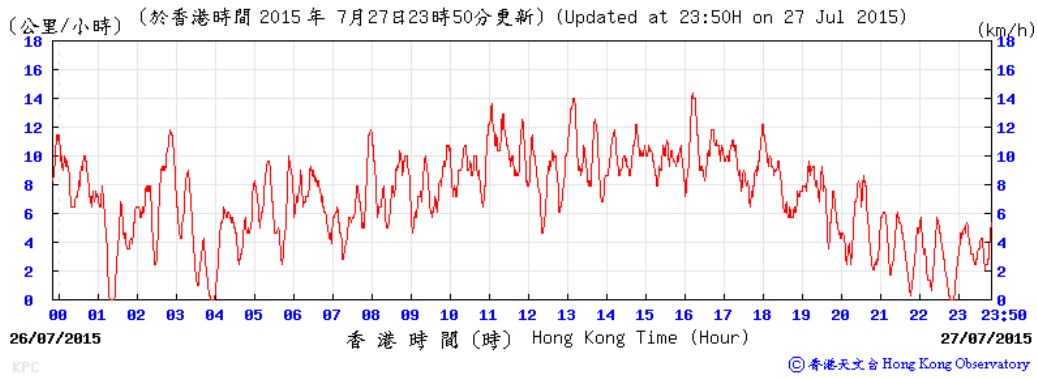
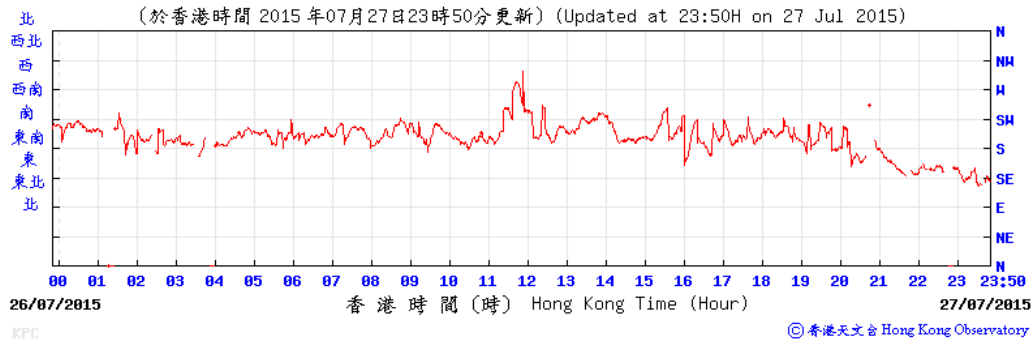


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**27 July 2015**



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## Appendix G

### Environmental Monitoring Programme

### Environmental Monitoring Schedule for SCL1112 in July 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
					24 hr TSP	
5	6	7	8	9	10	11
				24 hr TSP		
12	13	14	15	16	17	18
			24 hr TSP			
19	20	21	22	23	24	25
		24 hr TSP				
26	27	28	29	30	31	
	24 hr TSP					

### Environmental Monitoring Schedule for SCL1112 in August 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
						24 hr TSP
2	3	4	5	6	7	8
					24 hr TSP	
9	10	11	12	13	14	15
				24 hr TSP		
16	17	18	19	20	21	22
			24 hr TSP			
23	24	25	26	27	28	29
		24 hr TSP				24 hr TSP
30	31					

## APPENDIX H

---

### Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
<b>Landscape &amp; Visual (Construction Phase)</b>							
<p>S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3</p>	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of existing soil</u></p> <ul style="list-style-type: none"> <li>For soil conservation, existing topsoil will be re-used where possible for new planting areas within the project. The construction programme will consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up onsite as necessary.</li> </ul> <p><u>No-intrusion zone</u></p> <ul style="list-style-type: none"> <li>To maximise protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor will closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of retained trees</u></p> <ul style="list-style-type: none"> <li>All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period.</li> <li>The contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites.</li> </ul>	<p>Minimise visual and landscape impact</p>	<p>Contractor</p>	<p>Within project site</p>	<p>Construction Stage</p>	<p>EIAO-TM</p>	<p>^</p> <p>^</p> <p>^</p>
<p>S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3</p>	<p><u>Decorative hoarding</u></p> <ul style="list-style-type: none"> <li>Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding will be designed to be compatible with the existing urban context.</li> </ul> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the facilities on the site, give control on the height and disposition/ arrangement of all facilities on the works site to minimise visual impact to adjacent VSRs.</li> </ul> <p><u>Tree transplanting</u></p> <ul style="list-style-type: none"> <li>Trees of medium to high survival rate that would be affected by the works will be transplanted where possible and</li> </ul>	<p>Minimise the visual and landscape impact of the Project during construction phase</p>	<p>Contractor</p>	<p>Within project site</p>	<p>Detailed design and construction stage</p>	<p>EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006</p>	<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
<b>Air Quality (Construction Phase)</b>							
N.A.	Emission from Vehicles and Plants: <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD).</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All constructions sites	Construction stage	Air Pollution Control Ordinance (APCO)	^ * ^
<b>Construction Dust Impact</b>							
S7.6.5 of Ref. 1; S7.6.6 of Ref. 3	The contractor will follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	^
S5.20, S5.21, S5.50 and Table 5.4 of Ref. 2	Barging Facility: <ul style="list-style-type: none"> <li>Unloading of spoils to barge – the unloading process should be undertaken within a 3-sided screen with top tipping hall. Water spraying and flexible dust curtains should be provided at the discharge point for dust suppression.</li> <li>Transportation of the spoil from the construction sites to the Barging Point – watering once along all paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m<sup>2</sup> once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7L/m<sup>2</sup> to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&amp;A programme as specified in the</li> </ul>	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	APCO	* ^



EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	EM&A Manual. <ul style="list-style-type: none"> <li>Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit.</li> </ul>						^
S7.6.5 of Ref. 1; S5.50 of Ref. 2; S7.6.6 of Ref. 3	Mitigation measures in form of regular watering under a good site practice will be adopted. Watering once per hour on exposed worksites and haul road will be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but will be sufficient to maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency.	Minimise dust impact at the nearby sensitive receivers	Contractor	Active works areas, exposed areas and paved haul roads	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	*
S7.6.5 of Ref. 1; S5.51 of Ref. 2; S7.6.6 of Ref. 3	<ul style="list-style-type: none"> <li>Any excavated or stockpile of dusty material will be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading.</li> <li>Any dusty materials remaining after a stockpile is removed will be wetted and cleared from the surface of roads.</li> <li>A stockpile of dusty material will not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>The load of dusty materials on a vehicle leaving a construction site will be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle.</li> <li>Where practicable, vehicle washing facilities with high pressure water jet will be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore.</li> <li>When there are open excavation and reinstatement works, hoarding of not less than 2.4m high will be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice will also be adopted by the contractor to ensure the conditions of the hoardings are properly maintained in construction period.</li> <li>The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit will be kept clear of dusty materials.</li> <li>Surfaces where any pneumatic or power-driven drilling,</li> </ul>	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO Air Pollution Control (Construction Dust) Regulation To control the dust impact to meet HKAQO and EIAO-TM criteria	^  ^  ^  ^  ^  ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously.</p> <ul style="list-style-type: none"> <li>Any area that involves demolition activities will be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet.</li> <li>Where scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground floor level of the building, or a canopy will be provided from the first floor level up to the highest level of the scaffolding.</li> <li>Any skip hoist for material transport will be totally enclosed by impervious sheeting.</li> <li>Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) will be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.</li> <li>Cement or dry PFA delivered in bulk will be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.</li> <li>Loading, unloading, transfer, handling or storage of bulk cement or dry PFA will be carried out in a totally enclosed system or facility, and any vent or exhaust will be fitted with an effective fabric filter or equivalent air pollution control system.</li> <li>Exposed earth will be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>						<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>*</p> <p>*</p> <p>^</p>
S7.6.5 of Ref. 1; S5.57 of Ref. 2; S7.6.6 of Ref. 3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Harbourfront Horizon	Construction stage	EIAO-TM APCO	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
<b>Construction Airborne Noise</b>							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: <ul style="list-style-type: none"> <li>Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme.</li> <li>Machines and plant (such as trucks, cranes) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum.</li> <li>Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs.</li> <li>Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works.</li> <li>Mobile plant will be sited as far away from NSRs as possible and practicable.</li> <li>Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities.</li> </ul>	Control construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	* ^ ^ ^ ^ ^
S8.3.6 of Ref. 1; S6.68 of Ref. 2; S8.5.6 of Ref. 3	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings will be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.64 – 6.67 and Table 6.20 of Ref. 2; S8.5.6 of Ref. 3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.62 – 6.63 and Table 6.19 of Ref. 2; S8.5.6 of Ref. 3	The following quiet PME should be used: <ul style="list-style-type: none"> <li>Asphalt Paver (SWL=101dB(A))</li> <li>Backhoe (SWL=106dB(A))</li> <li>Backhoe with Hydraulic Breaker (SWL=110dB(A))</li> <li>Concrete lorry mixer (SWL=96dB(A))</li> <li>Concrete mixer truck (SWL=96dB(A))</li> <li>Concrete Pump (SWL=106dB(A))</li> <li>Concrete Pump Truck (SWL=106dB(A))</li> <li>Crane, mobile (SWL=94dB(A))</li> <li>Crawler Crane (SWL=102dB(A))</li> </ul>	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> <li>• Drill, hand-held (SWL=98dB(A))</li> <li>• Dump truck (SWL=104dB(A))</li> <li>• Excavator (SWL=106dB(A))</li> <li>• Flat Bed Lorry (SWL=102dB(A))</li> <li>• Generator (SWL=95dB(A))</li> <li>• Giken Piler and Power-pack (SWL=94dB(A))</li> <li>• Hydraulic breaker (SWL=110dB(A))</li> <li>• Hydraulic excavator (SWL=106dB(A))</li> <li>• Lorry (SWL=102dB(A))</li> <li>• Lorry with crane/ grab (SWL=94dB(A))</li> <li>• Mini Piling Rig (SWL=112dB(A))</li> <li>• Piling Rig (SWL=112dB(A))</li> <li>• Poker, vibrator, hand-held (SWL=98dB(A))</li> <li>• Road Roller (SWL=101dB(A))</li> <li>• Rock Drill (SWL = 108dB(A))</li> <li>• Roller (SWL = 101dB(A))</li> <li>• Truck (SWL=103dB(A))</li> <li>• Vibratory Hammer (SWL=118dB(A))</li> </ul>						
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^



EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>vegetated areas.</p> <ul style="list-style-type: none"> <li>Measures will be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they will be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations will be discharged into storm drains via silt removal facilities.</li> <li>Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> will be covered with tarpaulin or similar fabric during rainstorms.</li> <li>Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>Manholes (including newly constructed ones) will always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> <li>Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention will be paid to the control of silty surface runoff during storms, especially areas near steep slopes.</li> <li>All vehicles and plant will be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities will be provided at every construction site exit where practicable. Wash-water will have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road will be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>Oil interceptors will be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors will be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass will be provided for</li> </ul>						<p>^</p> <p>^</p> <p>*</p> <p>*</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> <li>Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>All the earth works involving will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Adopt Best Management Practices.</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<p><u>Tunnelling works</u></p> <ul style="list-style-type: none"> <li>Cut-and-cover/ open-cut tunnelling work will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge.</li> <li>The wastewater with a high concentration of SS will be treated (eg, by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</li> <li>Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It will be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) will be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 will be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
S8.68 of Ref. 2; S10.7.1 of Ref. 1	<p><u>Operation of Barging Facilities</u>                      The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> <li>All barges should be fitted with tight bottom seals to prevent leakage of materials during transport;</li> <li>Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation;</li> <li>All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and</li> <li>Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water.</li> <li>Mitigation measures as outlined for control of <i>construction runoff and site drainage</i> provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.</li> </ul>	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	^  ^  ^  ^  ^
S8.51 – 8.52 of Ref. 2	<p><u>Bentonite Slurries:</u></p> <ul style="list-style-type: none"> <li>Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area.</li> <li>If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS.</li> </ul>	To minimize water quality impact from bentonite slurries	Contractor	All works area	Construction stage	WPCO TM-EIA	^  ^
S8.53 – 8.54 of Ref. 2	<p><u>Wastewater from Building Construction:</u></p> <ul style="list-style-type: none"> <li>Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains</li> <li>Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as washing and general cleaning etc., can minimise water</li> </ul>	To minimize water quality impact from building construction	Contractor	All construction sites where practicable	Construction stage	WPCO EIAO-TM	^  N/A



EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office of EPD.						
S8.62 of Ref. 2	<p><u>Excavation Activities:</u></p> <ul style="list-style-type: none"> <li>The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise the potential for dust emission, increased siltation and contamination of runoff. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from water environment so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work.</li> </ul>	To minimize water quality impact from excavation activities	Contractor	All excavation works areas	Construction stage	WPCO EIAO-TM	^
S8.63 of Ref. 2	<p><u>Diaphragm Wall</u></p> <ul style="list-style-type: none"> <li>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment. Proper handling of bentonite slurries used in diaphragm wall construction should be adopted.</li> </ul>	To minimize water quality impact from diaphragm walling	Contractor	All diaphragm walling works areas	Construction stage	WPCO EIAO-TM	^
S8.60 – 8.61 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Sewage effluent</u></p> <p>Portable chemical toilets are recommended for handling the construction sewage generated by the workforce. A licensed contractor will be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	WPCO TM-Water	^
S8.64 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Groundwater seepage</u></p> <p>As some proposed works areas at Hung Hom are near Victoria Harbour, high ground water level regime due to both tidal effects and rainwater infiltration is anticipated. Appropriate measures will be deployed to minimise the intrusion of groundwater into excavation works areas. In case seepage of groundwater occurs, groundwater will be pumped out from the works areas and discharged into the storm system via silt</p>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	^

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	removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.						
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Accidental spillage</u>                      To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>• Proper storage and handling facilities will be provided.</li> <li>• All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>• The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings.</li> <li>• Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	# ^ ^ *
S8.72 of Ref.2	Regular site inspections should be undertaken to inspect the construction activities and works areas	To ensure the recommended water quality mitigation measures are properly implemented	Contractor	All construction sites	Construction stage	EIAO-TM WPCO ProPECC PN 1/94 TM-DSS WDO	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
<b>Waste Management (Construction Phase)</b>							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	<p><u>Onsite sorting of C&amp;D material</u></p> <p>Geological assessment will be carried out by competent persons onsite during excavation to identify materials which are not suitable to use as aggregate in structural concrete (eg, volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock will be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator will also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities will be submitted by the Contractors for the Engineer to review and agree. In addition, site records will also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) ref: 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc will also be explored.</p>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	DEVB TC(W) ref. 6/2010	^
S11.5.1 of Ref.1; S9.72 – 9.74 of Ref. 2; S11.5.1 of Ref.3	<p><u>Construction and demolition material</u></p> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement.</li> <li>Carry out onsite sorting.</li> <li>Make provisions in the Contract documents to allow and promote</li> <li>The use of recycled aggregates where appropriate.</li> <li>Adopt ‘selective demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible.</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified.</li> <li>Implement an enhanced Waste Management Plan similar to ETWBTC (Works) ref 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. will be avoided. The contractor will propose the final disposal sites to the Project</li> </ul>	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^ ^ ^ ^ ^ ^

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	Proponent and EPD and get their approval before implementation.						
S11.5.1 of Ref.1; S9.73 of Ref. 2; S11.5.1 of Ref.3	<p><u>C&amp;D waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works will be considered. Use of wooden hoardings will not be used, as in other projects. Metal hoarding will be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>The contractor will recycle as much of the C&amp;D materials as possible onsite. Public fill and C&amp;D waste will be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites will be considered for such segregation and storage.</li> </ul>	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^  ^
S11.5.1 of Ref.1; S9.100-9.102 of Ref.2; S11.5.1 of Ref. 3	<p><u>General refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated onsite will be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector will be employed by the contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans will be often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit will be provided if feasible.</li> <li>Office wastes will be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme will be considered by the contractor.</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	^  ^  ^

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S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	<p><u>Land-based sediment</u></p> <ul style="list-style-type: none"> <li>The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed.</li> <li>The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal.</li> <li>Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.</li> <li>The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002.</li> <li>Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments.</li> <li>Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged</li> </ul>	To ensure the sediment is handled and disposed of in a least impacted way and in accordance to the statutory	Contractor	All construction sites	Construction stage	ETWB TC(W) NO. 34/2002 Dumping at Sea Ordinance (DASO) APCO WPCO	N/A N/A  N/A  N/A  N/A

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	<p>according to the Water Pollution Control Ordinance (WPCO).</p> <ul style="list-style-type: none"> <li>In order to minimize the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments should be wetted during excavation / material handling and should be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</li> <li>The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation.</li> <li>In order to minimize the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.</li> </ul>						<p>N/A</p> <p>N/A</p> <p>N/A</p>
<p>S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3</p>	<p><u>Chemical waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, will be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes will be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes will be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated.</li> </ul>	<p>Control the chemical waste and ensure proper storage, handling and disposal.</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<p>Waste Disposal (Chemical Waste) (General) Regulation</p> <p>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</p>	<p>^</p> <p>^</p> <p>^</p>

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	<ul style="list-style-type: none"> <li>Disposal of chemical waste will be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>						^
S9.98 – 9.99 of Ref 2	<p><u>Asbestos wastes</u></p> <ul style="list-style-type: none"> <li>All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste will follow the trip-ticket system.</li> <li>Licensed asbestos waste collectors will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. The Project Proponent should notify to EPD in advance for disposal of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal. The waste producer must strictly follow these directions</li> </ul>	To ensure the asbestos wastes are handled and disposed of in accordance with the statutory requirements	Contractor	All construction sites	Construction stage	Code of practice on the Handling, Transportation and Disposal of Asbestos Waste	^  N/A

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<b>Land Contamination</b>							
S10.24 – 10.34 of Ref 2	<u>Precautionary measures</u> <ul style="list-style-type: none"> <li>Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process should involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination.</li> <li>If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination.</li> </ul>	To act as a general precautionary measure to screen soils for the presence of contamination during construction	Contractor	All construction sites	Construction stage	“Guidance Note for Contaminated Land Assessment and Remediation” “Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management”	^  ^
S10.35 of Ref 2	<ul style="list-style-type: none"> <li>Potential remediation of contaminated soil</li> <li>If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/disposal records (including trip tickets), confirmatory sampling results and photographs should be included in the RR. No construction work should be carried out prior to endorsement of the RR by EPD.</li> <li>In order to minimise environmental impacts arising from the handling of potentially contaminated materials, the following environmental precautionary measures are recommended to be utilised during the course of any required site remediation:</li> <li>Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils;</li> <li>Supply of suitable clean backfill material is needed after excavation;</li> <li>If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from</li> </ul>	To remediate contaminated soil	Contractor	All construction sites	Construction stage	“Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair /Dismantling Workshop”	N/A N/A  N/A  N/A  N/A



EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment</p> <ul style="list-style-type: none"> <li>• Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet conditions;</li> <li>• Speed control for the trucks carrying coVehicle wheel and body washing facilities at the site's exit points should be established and used; and contaminated materials should be enforced;</li> <li>• Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control should be implemented and complied with relevant regulations and guidelines.</li> </ul>						N/A
							N/A
							N/A
							N/A
S10.36 of Ref 2	<p>The Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations should be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible:</p> <p>Set up a list of safety measures for site workers.</p> <p>Provide written information and training on safety for site workers.</p> <p>Keep a log-book and plan showing the contaminated zones and clean zones.</p> <p>Maintain a hygienic working environment.</p> <p>Avoid dust generation.</p> <p>Provide face and respiratory protection gear to site workers.</p> <p>Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers.</p> <p>Provide first aid training and materials to site workers.</p>	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	All construction sites	Site remediation and prior to construction phase	<p>"Guidance Note for Contaminated Land Assessment and Remediation"</p> <p>"Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management"</p> <p>"Occupation Safety and Health Ordinance (Chapter 509)"</p>	N/A
<b>EM&amp;A Project</b>							
S14.2 – 14.4 of Ref. 1; S13.2 – 13.4 of Ref. 3 1.	<ul style="list-style-type: none"> <li>• An Environmental Team needs to be employed as per this EM&amp;A Manual.</li> <li>• Prepare a systematic EMP to ensure effective implementation of the mitigation measures.</li> <li>• An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in this</li> </ul>	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

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	EM&A Manual are fully complied with.						

**Remark for Status:**

^ Compliance of mitigation measure  
 + Non-compliance but rectified by the contractor  
 N/A Not Applicable

X Non-compliance of mitigation measure  
 \* Recommendation was made during site audit but improved/rectified by the contractor  
 # Recommendation was made during site audit and improvement/rectification not yet completed by the contractor

**Notes:**

Ref. 1 – EIA Report for SCL (TAW-HUH)  
 Ref. 2 – EIA Report for SCL (MKK-HUH)  
 Ref. 3 – EIA Report for SCL (HHS)

This EMIS contains only those requirements that are relevant to Works Contract 1112 in terms of:

- EM&A required under Works Contract 1112
- Who to implement the measures – the Contractor (Leighton)
- The location of the measures – within and in the vicinity of the Works Contract 1112 Site Boundary
- When to implement the measures – during the design and construction

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## APPENDIX I

### Event and Action Plan

**Event and Action Plan for Landscape and Visual Impact Monitoring**

Event	ET	IEC	ER	Contractor
<b>Action level</b>				
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the contractor’s working method</li> <li>3. Discuss with the ET, ER and the contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Inform the contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the contractor’s working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the contractor</li> <li>2. In consultation with the ET and IEC, agree with the contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

**Event and Action Plan for Air Quality**

Event	ET	IEC	ER	Contractor
<b>Action level</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required</li> <li>3. Repeat measurement to confirm findings</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check Contractor's working method</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required</li> <li>3. Repeat measurements to confirm findings</li> <li>4. Increase monitoring frequency to daily</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor</li> <li>6. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>2. Check monitoring data submitted by the ET</li> <li>3. Check Contractor's working method</li> <li>4. Review and advise the ET and ER on the effectiveness of the proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise Implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Amend proposal as appropriate</li> </ol>

Event	ET	IEC	ER	Contractor
<b>Limit Level</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, EPD, Contractor and ER</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency to daily</li> <li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check the Contractor’s working method</li> <li>3. Discuss with the ET, ER and Contractor on possible remedial measures</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor’s remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. Review and agree on the remedial measures proposed by the Contractor</li> <li>4. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification</li> <li>4. Implement agreed proposals</li> <li>5. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, Contractor &amp; EPD</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency to daily</li> <li>4. Carry out analysis of the Contractor’s working procedures with the ER to determine possible mitigation to be implemented</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken</li> <li>6. Review the effectiveness of the Contractor’s remedial measures and keep IEC, EPD and ER informed of the results</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET</li> <li>2. Check the Contractor’s working method</li> <li>3. Discuss with ET, ER, and Contractor on the potential remedial measures</li> <li>4. Review and advise the ER and ET on the effectiveness of Contractor’s remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Supervise the implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification</li> <li>4. Implement the agreed proposals</li> <li>5. Revise and resubmit proposals if problem still not under control</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

**Note:**

ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer’s Representative

## APPENDIX J

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### Monitoring Results and their Graphical Presentations

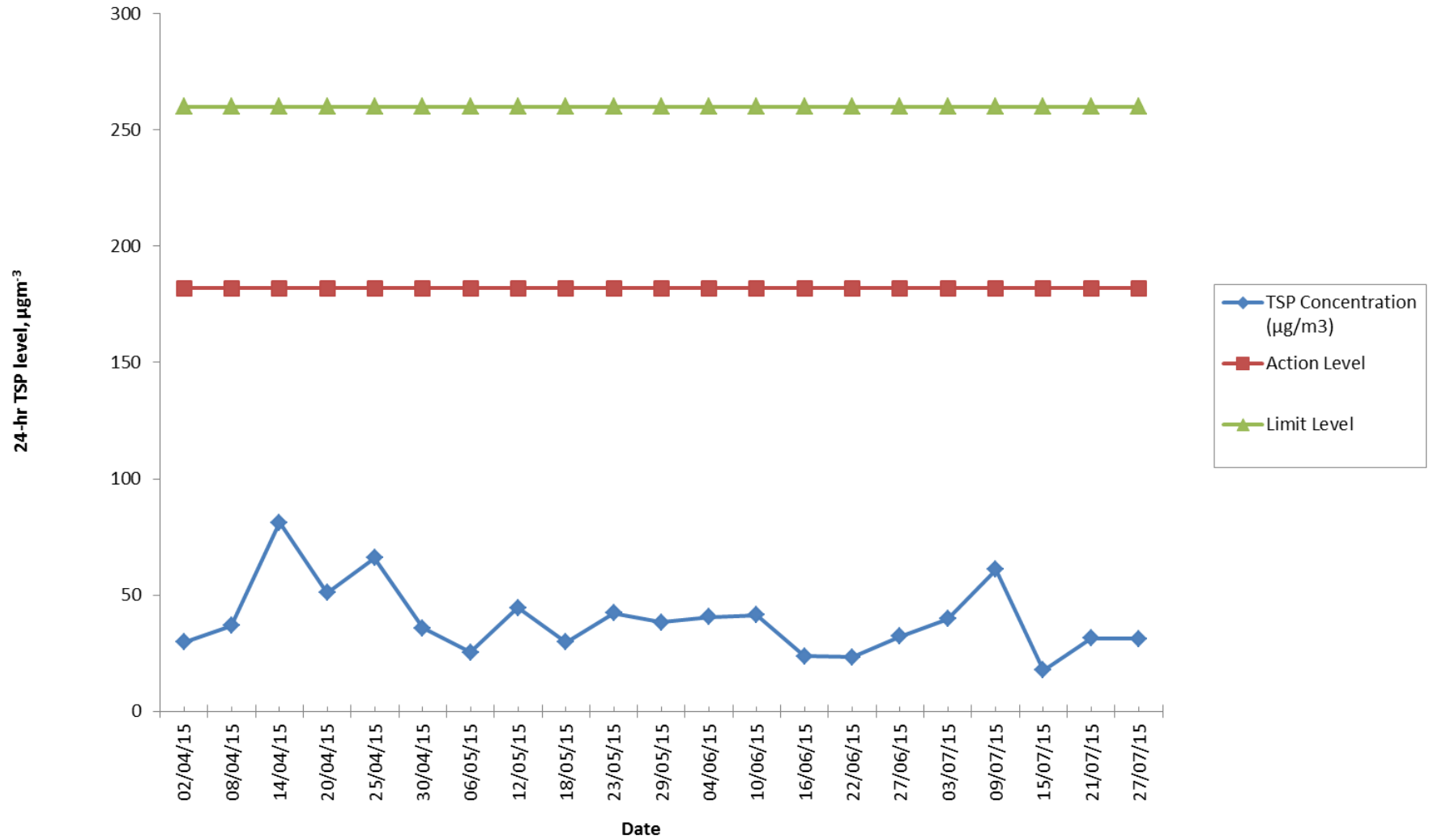
**Air Quality Monitoring Results for AM2**

Sampling Date	Wt. of paper (g)				Elapse Time			Flow Rate (CFM)			Total Volume (m <sup>3</sup> )	TSP Concentration (µg/m <sup>3</sup> )	Weather	Remark
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
03/07/15	C1	2.8121	2.8769	0.0648	12855.30	12879.30	24.00	40	40	40.0	1631.05	39.7290	Sunny	-
09/07/15	C2	2.8000	2.8995	0.0995	12897.30	12921.30	24.00	40	40	40.0	1631.05	61.0036	Sunny	-
15/07/15	C3	2.8082	2.8370	0.0288	12921.30	12945.30	24.00	40	40	40.0	1631.05	17.6573	Heavy Rainfall	-
21/07/15	C4	2.8030	2.8543	0.0513	12945.30	12969.30	24.00	40	40	40.0	1631.05	31.4521	Sunny	-
27/07/15	C4	2.8112	2.8622	0.0510	12969.30	12993.30	24.00	40	40	40.0	1631.05	31.2682	Sunny	-





### Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)



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## APPENDIX K

### Waste Flow Table

Waste Flow Table																
Month	Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of non-inert C&D Wastes Generated Monthly						
	Generated				Disposed					Recycled				Disposed		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m <sup>3</sup> )									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Jun-13	0		0	0	0	0	0	0	0	137.3	0	0	0	0	-	6.55
Jul-13	0		0.36	0	0	0	0	0	0.36	365.34	0	0	0	0	-	16.87
Aug-13	0		1.68	0	0	0	0.05	0	1.63	69.98	0.25	0	0	0	-	12.67
Sep-13	0		3.39	0	0	0	0.20	0	3.19	131.18	0.22	0	0.46	0	-	16.25
Oct-13	0		4.04	0	0	0	0.78	0	3.26	179.97	0.63	8.28	2.04	0	-	39.87
Nov-13	0		6.09	0	0	0	2.09	0.18	3.82	125.70	0.45	160.35	0	0	-	28.69
Dec-13	0		5.69	0	0	0	1.74	0.01	3.94	72.15	0.39	4.13	0	0	-	18.04
Jan-14	0		4.58	0	0	0	0	0.27	4.31	117.57	0.26	147.67	0.26	0	-	30.09
Feb-14	0		3.80	0	0	0.14 <sup>[Note1]</sup>	0	0.19	3.46	28.32	0.29	414.67	0	0	-	15.73
Mar-14	0		10.10	0	0	6.18 <sup>[Note2]</sup>	0	0.29	3.63	96.26	0.25	0	0	0	-	47.76
Apr-14	0		6.67	0	0	4.82 <sup>[Note3]</sup>	0	0.0053	1.85	75.43	0.23	1,322.39	0	0.2	-	78.63
May-14	0.52		5.77	0	0.43	2.00 <sup>[Note4]</sup>	0	0.12	3.65	48.86	0.28	501.45	0	0	-	66.03
Jun-14	0.47		4.56	0	0	1.73 <sup>[Note5]</sup>	0	0.29	2.54	42.95	0.25	0	0	0.4	-	45.97
Jul-14	0.34		8.61	0	0	2.89 <sup>[Note6]</sup>	0	0.87	4.84	70.99	0	0	0	0	-	40.50
Aug-14	0.20		8.57	0	0	3.56 <sup>[Note7]</sup>	0	0.44	4.57	227.86	0	0	0	0	-	76.93
Sep-14	0.23		11.11	0	0	5.82 <sup>[Note8]</sup>	0	0.23	5.06	220.85	0.29	0	0	0	-	43.01
Oct-14	0.54		12.79	0	0	6.04 <sup>[Note9]</sup>	0	0.06	6.69	174.82	0.71	329.16	0	0	-	97.92
Nov-14	0.93		10.63	0	0	3.78 <sup>[Note10]</sup>	0	0.15	6.70	163.72	0.56	376.40	0	0	-	81.91
Dec-14	3.72		8.59	0	0	2.97 <sup>[Note11]</sup>	0	0	5.62	385.80	0.53	166.98	0	5.4	-	130.83

Waste Flow Table																
Month	Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of non-inert C&D Wastes Generated Monthly						
	Generated				Disposed					Recycled				Disposed		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m <sup>3</sup> )									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Jan-15	3.72		19.29	0	0	10.03 <sup>[Note12]</sup>	0	0	9.26	543.40	0.80	179.01	0	0	1.60	318.66
Feb-15	3.03		13.96	0	0	8.41 <sup>[Note13]</sup>	0	0	5.54	263.10	0.46	168.82	0	0	0	180.27
Mar-15	5.68		22.28	0	0	12.45 <sup>[Note14]</sup>	0	0	9.82	346.70	0.61	11.45	0	0	0	429.13
Apr-15	4.71		18.51	0	0	11.25 <sup>[Note15]</sup>	0	0.23	7.26	275.99	0.32	0	0	0	0	376.98
May-15	4.62		20.64	0	0	11.53 <sup>[Note16]</sup>	0	0	9.10	353.88	0.67	0	0	0	0	266.43
Jun-15	5.04		13.49	0	0	6.29 <sup>[Note17]</sup>	0	0	7.20	317.14	0.43	0	0	0.20	1.00	258.01
Jul-15	6.21	0.09	21.64	0	0	16.15	0	0	5.50	706.38	0.69	0	0	0	0	270.73
<b>TOTAL</b>	<b>39.95</b>	<b>0.09</b>	<b>247.83</b>	<b>0</b>	<b>0.43</b>	<b>116.03</b>	<b>4.85</b>	<b>3.53</b>	<b>123.83</b>	<b>5215.43</b>	<b>10.73</b>	<b>3790.76</b>	<b>2.76</b>	<b>6.20</b>	<b>2.60</b>	<b>3005.10</b>

**Note:**

- 137 m<sup>3</sup> of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.
- 267 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904;  
3,998 m<sup>3</sup> of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 1,912 m<sup>3</sup> of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
- 1,728 m<sup>3</sup> of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 3,088 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
- 184 m<sup>3</sup> of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904; and 1814 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
- 1,021 m<sup>3</sup> of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 707 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
- 2,894 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
- 575.5m<sup>3</sup> of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and

- 2907.6 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08; and 76.0 m<sup>3</sup> of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2009/08.
8. 4,905.4 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and 912.3 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904.
  9. 5,522.9 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL and 515.9 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904.
  10. 3,774.6 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL.
  11. 2,968.9 m<sup>3</sup> of the Inert C&D materials were reused in TM-CLKL (HY/2012/08).
  12. 9,988.1 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA) and 46.34 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904.
  13. 8,212.8 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA) and 200.9 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904.
  14. 11,757 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA), 23.41 m<sup>3</sup> of the Inert C&D materials were reused in SIL Project Contract 904 AND 672.78 m<sup>3</sup> of the Inert C&D materials were reused in XRL822.
  15. 10,633 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA), 0.61176 m<sup>3</sup> of the Inert C&D materials were reused in XRL822.
  16. 11,533 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA).
  17. 6,290 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA).
  18. 16,145 m<sup>3</sup> of the Inert C&D materials were reused in WENT (SITA).

Marine Sediment Flow Table						
Month	Actual Quantities of Marine Dumping Monthly					
	Type 1			Type 2		
	Generated from SCL1111 <sup>[Note1]</sup>	Generated from SCL1112	Disposed	Generated from SCL1111 <sup>[Note2]</sup>	Generated from SCL1112	Disposed
Unit	(in '000m <sup>3</sup> )			(in '000m <sup>3</sup> )		
Jan-15	0	0	0	2.22	0.06	2.28
Feb-15	1.29	0	0.82	0	0	0
Mar-15	2.43	0	2.48	0	0	0
Apr-15	3.97	0.136	5.27	0	0	0
May-15	8.26	0.090	8.35	0	0	0
Jun-15	9.71	0.118	9.83	0	0	0
Jul-15	5.29	0	5.18	0	0	0
<b>TOTAL</b>	<b>31.69</b>	<b>0.344</b>	<b>31.92</b>	<b>2.22</b>	<b>0.06</b>	<b>2.28</b>

**Note:**

1. Type 1 Marine Sediment generated from SCL1111 will be delivered to the Barging Point at SCL1112 for disposal.
2. Type 2 Marine Sediment generated from SCL1111 will be delivered to the Barging Point at SCL1112 for disposal.

## APPENDIX L

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### Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions



### Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Reference No.	Subject	Location of Concern	Status
<b>Environmental complaints</b>	10 March 2015	Public comment received by EPD, K01/RE/00005632-15	Complaint of malodour from Hung Hom Station (near Exit B1)	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> <li>ET conducted inspection to examine the environmental performance of the site on 12 Mar 2015</li> <li>No odour was noticed by all attending parties. It was observed that excavation, predrilling, welding, box culvert construction and installation of TAM grout pipeworks were carried out at the NAT works area, located to the west and east of the footbridge</li> <li>The source of malodour could not be identified</li> <li>A barrier was erected on the eastern side of footbridge, with the barrier already in place on the western side of the footbridge since November 2014, so now both sides of the footbridge contain barriers to shield off any dust or odour from the site</li> <li>No noticeable malodour was observed and the air quality control was found to be satisfactory according to conversation between EPD and the Contractor</li> <li>Investigation Report submitted to EPD on 26 Mar 2015</li> </ul>
<b>Environmental complaints</b>	7 Feb 2015	Public comment received by EPD, EPD's Ref. No. K01/RE/00003309-15	Complaint of construction dust from the construction site at MTR Hung Hom Building, 8-8 Cheong Wan Road, Tsim Sha Tsui	MTR Hung Hom Station Building, 8-8 Cheong Wan Road	<ul style="list-style-type: none"> <li>ET conducted inspection to examine the environmental performance of the site on 10 Feb 2015</li> <li>No demolition works carried out inside Hung Hom Station and Freight Operation Building during the complaint period</li> <li>Watering and dust screen (site enclosed with bamboo scaffold and tarpaulin sheet) were provided for the demolition work at International Mail Centre</li> <li>Renovation works on-going inside the Hung Hom Station with dust mitigation measures implemented</li> <li>A joint inspection was then conducted by the Contractor and EPD on 13 Feb 2015 and no adverse comment was provided by EPD</li> <li>Investigation Report submitted to EPD on 23 Feb 2015</li> </ul>

	Date Received	Reference No.	Subject	Location of Concern	Status
	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028087-14	Complaint of welding smell and air nuisance other than dark smoke, from construction machine from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	<ul style="list-style-type: none"> <li>Barrier was erected on the side of footbridge facing the construction site</li> <li>ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory</li> <li>Investigation Report submitted to EPD on 3 Dec 2014</li> </ul>
	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028181-14	Complaint of construction dust from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	<ul style="list-style-type: none"> <li>Barrier was erected on the side of footbridge facing the construction site</li> <li>ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory</li> <li>Investigation Report submitted to EPD on 3 Dec 2014</li> </ul>
Notification of summons	-	-	-	-	-
Successful Prosecution	-	-	-	-	-

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**Appendix I**

**26<sup>th</sup> Monthly EM&A Report for Works Contract 1108 –  
Kai Tak Station and Associated Tunnels**

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MTR Corporation Limited

**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 26

[Period from 1 to 31 July 2015]

Works Contract 1108 – Kai Tak Station and  
Associated Tunnels

(August 2015)

Certified by: Goldie Fung 

Position: Environmental Team Leader

Date: 11 August 2015

**Kaden – Chun Wo Joint Venture (KCJV)**

**Shatin to Central Link –**

**Contract 1108**

**Kai Tak Station and Associated Tunnels**

**Monthly Environmental Monitoring & Auditing Report for**

**Jul 2015**

The Contents of this report have been certified by:



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Ms. Goldie Fung  
(Environmental Team Leader)

**Environmental Pioneers & Solutions Limited**

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**TABLE OF CONTENT**

<b>Executive Summary</b> .....	3
<b>1 Introduction</b> .....	5
<b>1.1 Purpose of the Report</b> .....	5
<b>1.2 Structure of the Report</b> .....	5
<b>2 Project Information</b> .....	7
<b>2.1 Background</b> .....	7
<b>2.2 General Site Description</b> .....	7
<b>2.3 Construction Programme and Activities</b> .....	7
<b>2.4 Project Organization</b> .....	8
<b>2.5 Status of Environmental Licences, Notification and Permits</b> .....	8
<b>2.6 Summary of EM&amp;A Requirements</b> .....	9
<b>3 Environmental Monitoring Requirements</b> .....	10
<b>3.1 Culture Heritage</b> .....	10
<b>3.2 Landscape and Visual</b> .....	10
<b>4 Implementation Status on Environmental Protection Requirements</b> .....	11
<b>5 Monitoring Results</b> .....	12
<b>5.1 Cultural Heritage</b> .....	12
<b>5.2 Landscape and Visual</b> .....	12
<b>5.3 Waste Management</b> .....	12
<b>6 Environmental Site Inspection</b> .....	13
<b>6.1 Site Audit</b> .....	13
<b>6.2 Implementation Status of Environmental Mitigation Measures</b> .....	13
<b>7 Environmental Non-Conformance</b> .....	15
<b>7.1 Summary of Environmental Exceedances</b> .....	15
<b>7.2 Summary of Environmental Non-Compliance</b> .....	15
<b>7.3 Summary of Environmental Complaint</b> .....	15
<b>7.4 Summary of Environmental Summon and Successful Prosecution</b> .....	15
<b>8 Future Key Issues</b> .....	16
<b>9 Conclusions and Recommendations</b> .....	17
<b>9.1 Conclusions</b> .....	17
<b>9.2 Recommendations</b> .....	17

## **LIST OF APPENDICES**

Appendix A: Site Location Plan

Appendix B: Construction Programme

Appendix C: Project Organization Chart & Contact Details

Appendix D: Buffer Zone for Lung Tsun Stone Bridge & Former Kowloon City Pier

Appendix E: Event/Action Plan for landscape & Visual During Construction Stage

Appendix F: Waste Flow Table

Appendix G: Updated Environmental Mitigation Implementation Schedule

Appendix H: Cumulative Log for Environmental Exceedance, Complaints, Notification of  
Summons and Successful Prosecutions

## **LIST OF TABLES**

Table 2.1: Summary of the Status of Environmental Licences, Notification and Permits

Table 4.1: Status of Required Submissions under EP

Table 5.1: Quantities of Waste Disposed from the Project

Table 6.1: Summary Results of Site Inspections Findings

## Executive Summary

This is the twenty six monthly Environmental Monitoring and Audit (EM&A) Report for **MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels**. The project commenced on 17<sup>th</sup> June 2013. This report documents the finding of EM&A Works conducted from 1<sup>st</sup> Jul 2015 to 31<sup>st</sup> Jul 2015.

### Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Open Cut Tunnel: sump pit cast concrete, staircase corridor roof cast concrete
- Cut and Cover Tunnel: Defect rectification, temporary drainage system maintenance and monitoring
- Package 4.5: Sheetpile extraction, excavation, base slab cast, wall and roof construction,
- Station structure: North vent shaft, ground slab concreting, wall concreting, lower ground slab concreting, water proofing,
- Launching Shaft: Tunnel mining, excavation, rebar fixing, strut installation
- Receiving Shaft: Base slab cast concrete, base slab formwork erection, concrete props at cast concrete, tunnel mining

### Variation in Construction Method

Based on recent engineering information and having considered the high construction risk for tunnel excavation, the tunnel with mining method is required to be shortened and the associated at-grade construction works within the buffer zone above the Former Kowloon City Pier (FKCP) is therefore proposed to minimize the potential impact on FKCP. The application for variation of an Environmental Permit with Environmental Review Report has been submitted to EPD on 19<sup>th</sup> March 2014 and the amended Environmental Permit (EP-438/2012/E) was issued to MTRC on 4<sup>th</sup> April 2014.

### Environmental Monitoring and Audit Progress

#### *Culture Heritage*

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.



### *Landscape and Visual*

The implementation of landscape and visual mitigation measures was inspected during the weekly environmental site inspection. Most of the necessary mitigation measures have been implemented. Details of the audit findings and implementation status are presented in Section 6.

### *Waste Management*

According to Contractor's waste flow data, a total of 25,488 m<sup>3</sup> of inert C&D materials were generated, which 10,542 m<sup>3</sup> were disposed to the receiving facility of Contract 1108A and 14,946 m<sup>3</sup> were reused in the contract. 125 m<sup>3</sup> of general refuse were generated and disposed at landfill site. 20 kg of paper and 17210 kg of metal were sent to recyclers for recycling.

### *Environmental Site Inspection*

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 7<sup>th</sup>, 14<sup>th</sup>, 23<sup>rd</sup> and 28<sup>th</sup> Jul 2015. The representative of the IEC joined the site inspection on 14<sup>th</sup> Jul 2015. EPD carried out the site inspection on 7<sup>th</sup> and 13<sup>th</sup> July 2015. No any comments were advised by EPD during this reporting period. Details of the audit findings and implementation status are presented in Section 6.

### Environmental Exceedance / Non-conformance / Compliant / Summons and Successful Prosecution

No breaches of Action and Limits levels, non-compliance event, environmental complaint, notification of summons and successful prosecution against the Project were received in this reporting month.

### Future Key Issues

The major construction works to be undertaken in the next reporting month include:

- Open cut tunnel: sump pit cast, roof and wall cast concrete, corridor roof and wall cast concrete, 1109 interface pumping test.
- Cut and cover tunnel: Shoring
- Package 4.5: sheetpile extraction for landside hydraulic cut off wall, wall construction
- Station: Blinding layer, slab and associated wall concreting, lift sump pit concreting,
- Mined tunnel: Launching Shaft: Tunnel mining, strut installation.

Receiving Shaft: Base slabs cast concreting, dismantling, tunnel

mining, backfilling

## **1 Introduction**

The Environmental Team (ET), Environmental Pioneers & Solutions Limited (EPSL), was appointed by Kaden – Chun Wo Joint Venture (KCJV) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels (the Project). The project commenced on 17<sup>th</sup> June 2013.

### **1.1 Purpose of the Report**

This is the twenty sixth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1<sup>st</sup> Jul 2015 to 31<sup>st</sup> Jul 2015.

### **1.2 Structure of the Report**

The structure of the report is as follow:

Section 1: Introduction – details the scope and structure of the report.

Section 2: Project Information – summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: Environmental Monitoring Requirement – summarises the monitoring requirements and environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: Implementation Status on Environmental Mitigation Measures – summarises the implementation of environmental protection measures during the reporting period.

Section 5: Monitoring Results – summarises the monitoring results obtained in the reporting period.

Section 6: Environmental Site Inspection – summarises the audit findings of the

weekly site inspections undertaken within the reporting period.

Section 7: Environmental Non-conformance – summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: Future Key Issues – summarises the impact forecast and monitoring schedule for the next three months.

Section 9: Conclusions and Recommendations

## 2 Project Information

### 2.1 Background

The Shatin to Central Link – Tai Wai to Hung Hom Section (SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic East-West rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1108 covers the construction of Kai Tak Station (KAT) and the section of tunnel between KAT and Sung Wong Toi Station (SUW) plus a short section of tunnel from KAT towards Diamond Hill Station (DIH). This construction contract was awarded to Kaden – Chun Wo Joint Venture (KCJV) in April 2013.

### 2.2 General Site Description

The works area includes work sites in the Kai Tak New Development Area. The construction of tunnel will employ cut & cover method. The alignment and works area for the Project is shown in **Appendix A**.

### 2.3 Construction Programme and Activities

A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix B**.

- Open Cut Tunnel: sump pit cast concrete, staircase corridor roof cast concrete
- Cut and Cover Tunnel: Defect rectification, temporary drainage system maintenance and monitoring
- Package 4.5: Sheetpile extraction, excavation, base slab cast, wall and roof construction,
- Station structure: North vent shaft, ground slab concreting, wall concreting, lower ground slab concreting, water proofing,
- Launching Shaft: Tunnel mining, excavation, rebar fixing, strut installation
- Receiving Shaft: Base slab cast concrete, base slab formwork erection, concrete props at cast concrete, tunnel mining

## 2.4 Project Organization

The project organization chart and contact details are shown in **Appendix C**.

## 2.5 Status of Environmental Licences, Notification and Permits

A summary of the relevant permits, licences, and notifications on environmental protection for this Project is presented in Table 2.1.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status	Remark
	From	To		
<b>Environmental Permit (EP)</b>				
EP-438/2012/H	10/09/2014	N/A	Valid	/
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>				
Ref. Number 359540	16/05/2013	N/A	Valid	/
<b>Construction Noise Permit for the Carrying Out of Percussive Piling</b>				
PP-RE0010-15	02/03/2015	31/07/2015	Valid	/
<b>Construction Noise Permit for General Works</b>				
GW-RE0688-15	14/07/2015	13/01/2016	Valid	(Renew GW-RE0029-15)
GW-RE0029-15	16/01/2015	14/07/2015	Valid	/
GW-RE0136-15	14/02/2015	13/08/2015	Valid	/
GW-RE0146-15	16/02/2015	14/08/2015	Valid	/
GW-RE0225-15	13/03/2015	12/09/2015	Valid	/
GW-RE0226-15	14/03/2015	10/09/2015	Valid	/
GW-RE0352-15	15/04/2015	11/10/2015	Valid	/
GW-RE0307-15	16/04/2015	15/10/2015	Valid	/
GW-RE0376-15	27/04/2015	26/10/2015	Valid	/
GW-RE0385-15	24/04/2015	23/10/2015	Valid	/
<b>Effluent Discharge License</b>				
WT00020520-2014	07/01/2015	31/08/2018	Valid	/
<b>Waste Disposal (Charges for Disposal of Construction Waste) Regulation</b>				
Billing Account No. 7017544	07/06/2013	N/A	Valid	/
<b>Registration of Chemical Waste Producer</b>				
WPN 5213-286-K3069-01	09/07/2013	N/A	Valid	/

## **2.6 Summary of EM&A Requirements**

The EM&A programme under Works Contract 1108 require regular environmental site audits. The EM&A requirements are described in the following sections, including:

- Weekly inspection for Cultural Heritage;
- Weekly inspection for Landscape and Visual;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

### **3 Environmental Monitoring Requirements**

#### **3.1 Culture Heritage**

In accordance with the Environmental Permit and EM&A Manual, a buffer zone shall be maintained between both Lung Tsun Stone Bridge and Former Kowloon City Pier and SCL (TAW-HUH) works sites during the tunneling work. For Lung Tsun Stone Bridge, a horizontal distance of 25m between the bridge and the buffer boundary shall be maintained. For Former Kowloon City Pier, a vertical buffer distance of 1.8 – 2.2m from the top of the tunnel shall be maintained. The layout of the buffer zone was attached in **Appendix D**. No at-grade construction activities shall be allowed within the buffer zone. Audit shall be conducted on a weekly basis throughout the construction period for the mined tunnel section under Former Kowloon City Pier.

#### **3.2 Landscape and Visual**

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted every week throughout the construction period. The implementation status is given in **Appendix G**.

The event/action plan for Landscape and Visual during Construction Stage is attached in **Appendix E**.

#### 4 Implementation Status on Environmental Protection Requirements

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix G**. Status of required submissions under the Environmental Permit (EP) as of the reporting period is presented in Table 4.1.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Twenty fifth Monthly EM&A Report	14 <sup>th</sup> July 2015



## 5 Monitoring Results

### 5.1 Cultural Heritage

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.

### 5.2 Landscape and Visual

Inspections of the implementation of landscape and visual mitigation measures were conducted on weekly basis. The observations and recommendations made during the audit sessions are summarized in Table 6.1.

### 5.3 Waste Management

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 5.1. Inert C&D materials were disposed to the receiving facility of Contract 1108A or reused in the Contract. General refuse was disposed to designated landfill site. Plastics, paper and metal were sent to recycler for recycling. Chemical waste generated was collected by licensed collector. Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity					
	C&D Materials (inert) <sup>(a)</sup>	C&D Materials (non-inert) <sup>(b)</sup>				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
July 2015	25,488 m <sup>3</sup>	125 m <sup>3</sup>	0 kg	20 kg	0 kg	17,210 kg

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
- (b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel metal generated from the Project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

## 6 Environmental Site Inspection

### 6.1 Site Audit

Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 7<sup>th</sup>, 14<sup>th</sup>, 23<sup>rd</sup> and 28<sup>th</sup> Jul 2015. The representative of the IEC joined the site inspection on 14<sup>th</sup> Jul 2015. The details of observations during site audit can refer to Table 6.1.

EPD carried out the site inspection on 7<sup>th</sup> and 13<sup>th</sup> July 2015. No any comments were advised by EPD during this reporting period.

### 6.2 Implementation Status of Environmental Mitigation Measures

According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. Updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix G**.

During site inspections in the reporting month, no non-conformance was identified. The observations, reminders and recommendations made during the audit sessions are summarized in Table 6.1.

Table 6.1 Summary results of site inspections findings

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Noise	14 Jul 15	Sound absorptive material was missing during the rock breaking work at Area 1 & 3.	Contractor was advised to wrap the breaker tip with sound absorptive materials for noise reduction.	Rock breaking work at Area 1 & 3 was stopped by contractor.	23 Jul 15	/
	28 Jul 15	Sound absorptive material was missing during the rock breaking work at Area 3.	Contractor was advised to wrap the breaker tip with sound absorptive materials for noise reduction.	Follow-up action will be inspected in next reporting month.	N/A	/
Air	30 June 15	Dusty stockpile was observed at Area 3.	Contractor was advised to cover stockpile with tarpaulin sheets or spray with water for	Dusty stockpile was covered with tarpaulin sheers at Area 3.	7 July 15	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
			dust suppression.			
	30 Jun & 7,14, 23 & 28 Jul 15	Stockpile at Area 1 was covered in general	Contractor was reminded to cover the inactive stockpile entirely for dust reduction.	Follow-up action will be inspected in next reporting month.	N/A	/
	7 Jul 15	Exposed surface was dry and dusty at Area 3.	Contractor was reminded to implement water spraying for dust suppression.	Frequent water spraying was provided for wetting exposed area At Area 3.	14 Jul 15	/
	14 Jul 15	Water spraying was missing during the rock breaking work at Area 1 & 3.	Contractor was advised to implement water spraying for dust suppression.	Rock breaking work at Area 1 & 3 was stopped by contractor.	23 Jul 15	
	28 Jul 15	Water spraying was missing during the rock breaking work at Area 3.	Contractor was advised to implement water spraying for dust suppression.	Follow-up action will be inspected in next reporting month.	N/A	
Water Quality	30 June 15	Drip tray was missing for chemical container at Area 1.	Contractor was reminded to place the chemical materials inside the drip tray.	Chemical container at Area 1 was removed by contractor.	7 July 15	/
	7 Jul 15	Surface run-off was observed at Area 3 due to overflow of sedimentation tank.	Although the effluent was clear, contractor was advised to provide proper treatment for prevention of surface run-off.	Overflow of sedimentation tank at Area 3 was stopped by contractor.	14 Jul 15	/
	7 Jul 15	Muddy water was observed discharging into nullah at Area 2.	Contractor was advised to review the wastewater treatment system and provide proper treatment of site water to prevent discharging muddy water.	Site water at Area 2 was treated before discharging into nullah.	14 Jul 15	/
	14 & 23 Jul 15	Muddy water was observed discharging into nullah at Area 3.	Contractor was advised to review the wastewater treatment system and provide proper treatment before discharging of site water.	Muddy water at Area 3 was stopped to discharge into nullah.	28 Jul 15	/
	23 Jul 15	Accumulative water was observed after heavy rain at Area 3.	Contractor was reminded to provide sufficient wastewater treatment system before discharging into nullah.	Accumulative water at Area 3 was treated by contractor.	28 Jul 15	/
Waste / Chemical Management	N/A	N/A	N/A	N/A	N/A	/
Cultural Heritage	7, 14, 23 & 28 Jul 15	Concreting material was observed inside the FKCP Area.	Contractor was advised to remove all the materials from the FKCP Area.	Follow-up action will be inspected in next reporting month.	N/A	/
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	N/A	N/A	N/A	N/A	N/A	/

## **7 Environmental Non-Conformance**

### **7.1 Summary of Environmental Exceedances**

No breaches of Action and Limit levels was recorded in the reporting month.

### **7.2 Summary of Environmental Non-Compliance**

No environmental non-compliance was recorded in the reporting month.

### **7.3 Summary of Environmental Complaint**

No environmental project-related complaint was received in the reporting month.

### **7.4 Summary of Environmental Summon and Successful Prosecution**

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The cumulative log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix H**.

## 8 Future Key Issues

The major construction activities in the coming month will include:

- Open cut tunnel: sump pit cast, roof and wall cast concrete, corridor roof and wall cast concrete, 1109 interface pumping test.
- Cut and cover tunnel: Shoring
- Package 4.5: sheetpile extraction for landside hydraulic cut off wall, wall construction
- Station: Blinding layer, slab and associated wall concreting, lift sump pit concreting,
- Mined tunnel: Launching Shaft: Tunnel mining, strut installation.  
Receiving Shaft: Base slabs cast concreting, dismantling, tunnel mining, backfilling

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, water quality and waste management. The Contractor has been reminded to properly implement dust, construction noise and water quality control measures as well as proper waste management in order to minimize the potential environmental impacts due to the construction works of the Project.

## **9 Conclusions and Recommendations**

### **9.1 Conclusions**

This is the twenty sixth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1<sup>st</sup> July 2015 to 31<sup>st</sup> July 2015 in accordance with the EM&A Manual and the requirement under EP-438/2012/H.

4 nos. of environmental site inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

No exceedances, non-compliance event, complaint and summons/prosecution was received during the reporting period.

The ET will keep tracking of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

### **9.2 Recommendations**

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

#### Noise Impact

- Erect temporary noise barrier and wrap the breaker tip with sound absorptive material for rock breaking

#### Air Quality Impact

- Cover dusty stockpile entirely with tarpaulin or spray with water to maintain exposed surface wet
- Provide water spraying during boulder breaking

#### Water Quality Impact

- Maintain the wastewater treatment facilities regularly for proper functioning
- Maintain sandbag barrier for blocking runoff of untreated water

Chemical Management

- N/A

Waste Management

- N/A

Cultural Heritage

- Ensure the FKCP area is free of construction material and equipment

***Appendix A – Site Location Plan***





PLOT DIR: \\Site Layout Plan.dgn  
 MODELNAME: E:\1008\Kai Tak Station and Associated Tunnels Site Layout Plan.dgn  
 DATE: 11/08/2014 11:08:14 AM  
 USER: Calvin C

DRAWN CC DESIGNED KW CHECKED ET APPROVED BW DATE 11/AUG/2014 <small>DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE.          THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF MTR CORPORATION LIMITED. NO REPRODUCTION OF THIS DRAWING OR DOCUMENT OR ANY PART THEREOF IS PERMITTED WITHOUT THE WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.</small>				TITLE <b>CONTRACT 1108</b> <b>KAI TAK STATION AND ASSOCIATED TUNNELS</b> SITE LAYOUT PLAN	
ORIGINATOR  <small>Kaden - Chun Wo Joint Venture</small>		CADD REF. Site Layout Plan.dgn		SCALE 1 : 1500 (A1)	
REV A DESCRIPTION FIRST SUBMISSION		BY KW DATE 11/08/14 APPROVED BW		DRAWING NO. SITE LAYOUT PLAN	
				REV. A	

***Appendix B – Construction Programme***

Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November			
					28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	
<b>Contract 1108 Kai Tak Station and Associated Tunnels</b>																									
<b>Contractual Dates and Project Key Dates</b>																									
<b>Critical Dates</b>																									
<b>Schedule of Options</b>																									
<b>Latest Exercising Date</b>																									
01108.CDO2a-ED	Option 2a - Roads L9 & L16 & Associated Works, except the works in Options 2b & 2c - Latest Exercising Date (31-Mar-15)	0%	31-Jul-15*																						
01108.CDO2c-ED	Option 2c - Establishment works of the landscape softworks in Option 2b - Latest Exercising Date (31-Mar-15)	0%	31-Jul-15*																						
01108.CDO2b-ED	Option 2b - Landscape hardwork, irrigation facilities, softworks & pavers - Latest Exercising Date (31-Mar-15)	0%	31-Jul-15*																						
<b>Section of the Works Completion (General Damages Applicable)</b>																									
01108.CD2A	2A - Complete works at Works Areas 1108.W8, W9 & W10 & ready for handover (Wk.22/15, 31-May-15) [Note for Option 3]	0%		12-Aug-15*																					
<b>Specified Parts Completion of the Works (General Damages Applicable)</b>																									
01108.CD3C	3C - Complete backfill of KAT station (Grid 12-19) & ready for EMSD/DCS contractor for laying DCS pipe (Wk.09/15, 01-Mar-15)	0%		23-Oct-15*																					
01108.CD3D	3D - Complete backfill to ex. ground level of necessary station area for CLP cable lead-in (Wk.33/15, 16-Aug-15)	0%		23-Oct-15*																					
<b>IPS Milestone Dates</b>																									
<b>Cost Centre B - Kai Tak Station, Entrances and Adits</b>																									
01108.MSB07c	B7 - All floor, wall & ceiling finishes to all area on Platform Level completed (Week No. 33/15, 16-Aug-15)	0%		01-Aug-15																					
01108.MSB07a	B7 - Complete all structural works for Concourse Level (Week No. 33/15, 16-Aug-15)	0%		05-Aug-15																					
01108.MSB07b	B7 - Complete backfill to Ground Level (Week No. 33/15, 16-Aug-15)	0%		23-Oct-15																					
<b>Cost Centre C - South Approach Tunnel</b>																									
01108.MSC06	C6 - Complete excavation to tunnel formation levels & Complete Access Shafts structural works (Week No.52/14, 28-Dec-14)	0%		29-Sep-15																					
<b>Cost Centre F - Option 2 - CEDD Works for Roads L9 &amp; L16 and Associated Works</b>																									
01108.MSF01	F1 - Contractor's d wgs submission schedule & All permanent works Material Control Schedule approved (WN.33/15,16-Aug-15)	0%		02-Sep-15																					
01108.MSF02	F2 - Shop drawings & material submission approved (Week No. 50/15, 13-Dec-15)	0%		10-Oct-15																					
<b>Programme Data</b>																									
<b>Interface with Contract 1109</b>																									
01108.PD5-IF1109.1	Contract 1109 Provide access to Contract 1108 at interface area for tunnel construction (Week No. 27/15, 05-Jul-15)	100%	06-Jul-15 A																						
<b>Schedule of Access &amp; Vacate Dates for Works Areas</b>																									
<b>Vacation Dates</b>																									
<b>Works Areas</b>																									
01108.VAW08	Works Area 1108.W8 (31-Jul-15)	0%		12-Aug-15*																					
01108.VAW10	Works Area 1108.W10 (31-Jul-15)	0%		12-Aug-15*																					
<b>Schedule of Access Dates for Designated Contractors</b>																									
<b>District Cooling System</b>																									
01108.IFDCS.1	District Cooling System - Works Areas 1108.W1 & 1108.W2 (Week No. 09/15, 01-Mar-15)	0%		23-Oct-15*																					
<b>A - Preliminaries</b>																									
<b>B - Kai Tak Station, Entrances and Adits</b>																									
<b>B1 KAT Station</b>																									
<b>B1.3 Station - U/G C&amp;S Works (Below Concourse Level Soffit)</b>																									
<b>Metalworks, BWIC with Services and BS Works</b>																									
01108.STN.BM04-12	GL 04~12 Installation of PSD support beam, 11 t	90%	29-Jun-15 A	11-Aug-15																					
01108.STN.BM00-04	GL 00~04 Installation of PSD support beam, 5.5 t	50%	06-Jul-15 A	28-Aug-15																					
01108.STN.BW12-24	GL 12~24 BWIC and BS works	0%	31-Jul-15	25-Oct-15																					
01108.STN.BW04-12	GL 04~12 BWIC and BS works	0%	28-Aug-15	07-Nov-15																					
<b>B1.4 Station U/G C&amp;S Works (Concourse Level and Above)</b>																									
<b>Internal Wall to Lower Ground</b>																									
01108.STN.IG00-02	GL 00~02 Internal wall & column (196m with 6 teams in 10m panel)	80%	08-Jul-15 A	05-Aug-15																					
<b>Lower Ground Slab</b>																									
01108.STN.GS00-02	GL 00~02 Lower ground slab	90%	08-Jun-15 A	22-Aug-15																					
<b>Mezzanine Level</b>																									
<b>Mezzanine Internal Wall</b>																									
01108.MS07aP	B7 - Complete all structural works for Concourse Level (Week No. 33/15, 16-Aug-15) - Programmed	0%		05-Aug-15*																					
<b>Waterproofing</b>																									
<b>Waterproofing to Concourse Level</b>																									
01108.STN.WP16-19.1	GL 16~19 Waterproofing works to external wall up to concourse slab, 2 x 30mL x 7.66mH (460 m2)	100%	25-Aug-14 A	31-Jul-15																					

▲ Milestone  
 ▲ Critical Milestone  
 ■ Critical Remaining Work  
 ■ Remaining Work  
 ■ Remaining Level of Effort

PMP Rev C  
 Last Report  
 Actual Work

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**



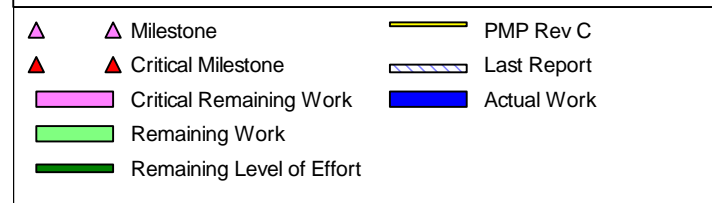
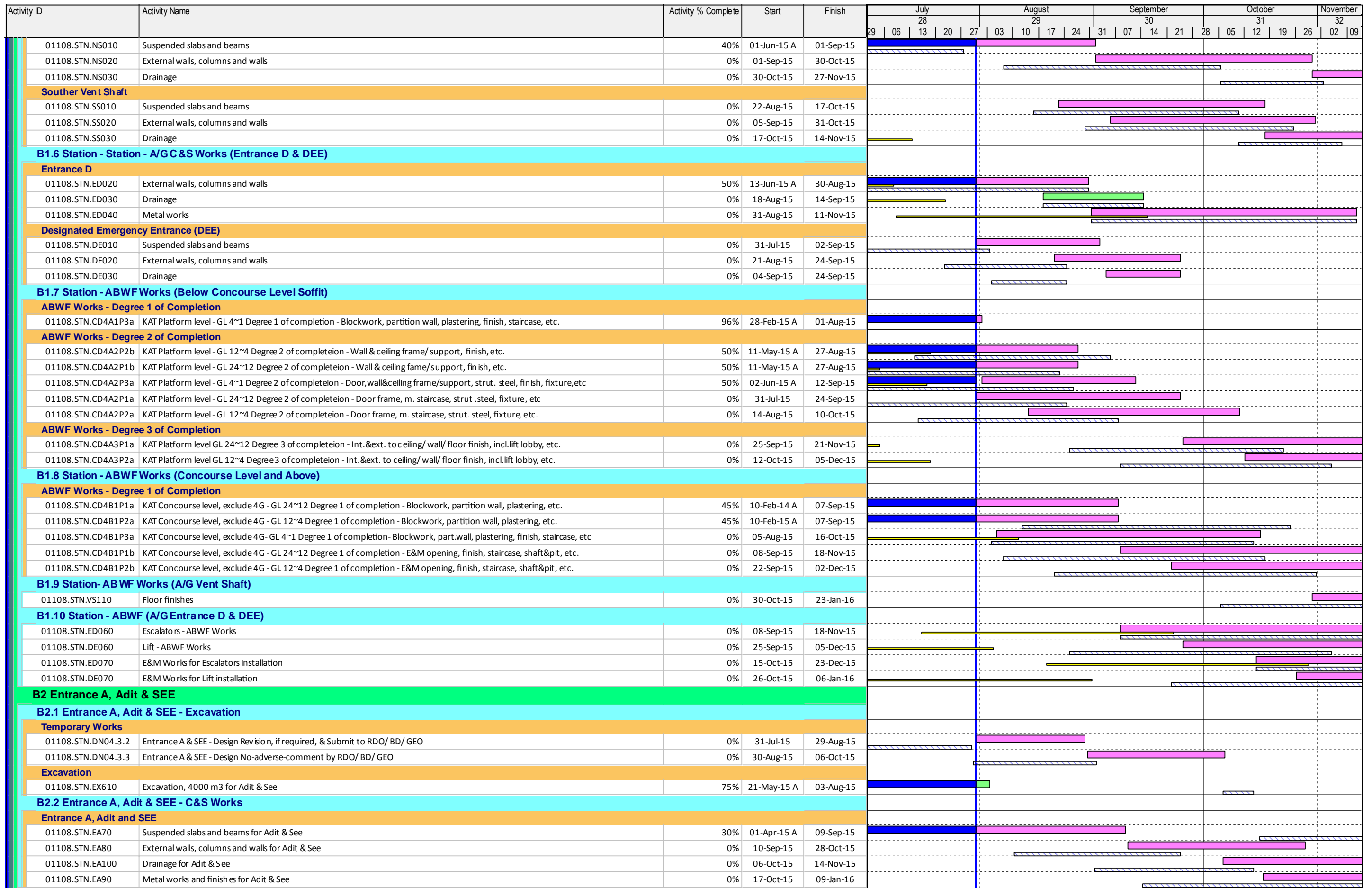


Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November	
					28					29				30				31				32	
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02
01108.STN.WP00-00.1	GL00~00 Waterproofing works to external end wall up to concourse slab, 35.6mL x 7.66mH (273 m2)	50%	30-Jun-15 A	03-Aug-15																			
<b>Waterproofing to Lower Ground Level</b>																							
01108.STN.WP19-21.2	GL 19~21 Waterproofing works to external wall up to LGL, 2 x 30mL x 5.9mH (354 m2)	80%	05-Feb-15 A	03-Aug-15																			
01108.STN.WP21-24.2	GL 21~24 Waterproofing works to external wall up to LGL, 2 x 34mL x 5.9mH (401 m2)	90%	08-Jun-15 A	01-Aug-15																			
01108.STN.WP00-02.2	GL 00~02 Waterproofing works to external wall up to LGL, 2 x 19.6mL x 5.9mH (230 m2)	0%	31-Jul-15	06-Aug-15																			
01108.STN.WP02-04.2	GL 02~04 Waterproofing works to external wall up to LGL, 2 x 24mL x 5.9mH (283 m2)	0%	31-Jul-15	08-Aug-15																			
01108.STN.WP00-00.2	GL 00~00 Waterproofing works to external end wall up to LGL, 35.6mL x 5.9mH (210 m2)	0%	07-Aug-15	15-Aug-15																			
<b>Waterproofing at Lower Ground Level Slab</b>																							
01108.STN.WP12-14.3	GL 12~14 Waterproofing works to roof, 856 m2	75%	01-Jun-15 A	01-Aug-15																			
01108.STN.WP02-04.3	GL 02~04 Waterproofing works to roof, 856 m2	0%	10-Aug-15	17-Aug-15																			
01108.STN.WP00-02.3	GL 00~02 Waterproofing works to roof, 700 m2	0%	18-Aug-15	25-Aug-15																			
<b>Backfilling</b>																							
<b>Backfilling to Concourse Level</b>																							
01108.STN.BF19-21.1	GL 19~21 Backfill and compaction, 7580 m3	85%	09-Feb-15 A	05-Aug-15																			
01108.STN.BF02-04.1	GL 02~04 Backfill and compaction, 6770 m3	65%	04-May-15 A	12-Aug-15																			
01108.STN.BF21-24.1	GL 21~24 Backfill and compaction, 6410 m3	45%	06-May-15 A	13-Aug-15																			
01108.STN.BF00-02.1	GL 00~02 Backfill and compaction, 4420 m3	45%	02-Jul-15 A	20-Aug-15																			
<b>Backfilling to Lower Ground Level</b>																							
01108.STN.BF12-14.2	GL 12~14 Backfill and compaction, 9710 m3	90%	16-Feb-15 A	04-Aug-15																			
01108.STN.BF04-06.2	GL 04~06 Backfill and compaction, 8410 m3	80%	03-Mar-15 A	07-Aug-15																			
01108.STN.BF14-16.2	GL 14~16 Backfill and compaction, 9710 m3	55%	04-May-15 A	19-Aug-15																			
01108.STN.BF16-19.2	GL 16~19 Backfill and compaction, 9710 m3	20%	01-Jun-15 A	02-Sep-15																			
01108.STN.BF19-21.2	GL 19~21 Backfill and compaction, 9400 m3	15%	11-Jun-15 A	07-Sep-15																			
01108.STN.BF21-24.2	GL 21~24 Backfill and compaction, 8710 m3	0%	03-Aug-15	11-Sep-15																			
01108.STN.BF00-02.2	GL 00~02 Backfill and compaction, 5490 m3	0%	07-Aug-15	01-Sep-15																			
01108.STN.BF02-04.2	GL 02~04 Backfill and compaction, 7410 m3	0%	12-Aug-15	07-Sep-15																			
<b>Backfilling to Finish Ground Level</b>																							
01108.STN.BF12-14.3	GL 12~14 Backfill and compaction, 8240 m3	75%	03-Mar-15 A	11-Aug-15																			
01108.STN.BF10-12.3	GL 10~12 Backfill and compaction, 8240 m3	95%	03-Mar-15 A	03-Aug-15																			
01108.STN.BF06-08.3	GL 06~08 Backfill and compaction, 8240 m3	85%	03-Mar-15 A	06-Aug-15																			
01108.STN.BF14-16.3	GL 14~16 Backfill and compaction, 8240 m3	25%	08-Apr-15 A	01-Sep-15																			
01108.STN.BF16-19.3	GL 16~19 Backfill and compaction, 8240 m3	25%	18-Apr-15 A	01-Sep-15																			
01108.STN.BF04-06.3	GL 04~06 Backfill and compaction, 8240 m3	0%	10-Aug-15	18-Sep-15																			
01108.STN.BF02-04.3	GL 02~04 Backfill and compaction, 7240 m3	0%	07-Sep-15	06-Oct-15																			
01108.STN.BF19-21.3	GL 19~21 Backfill and compaction, 7840 m3	0%	07-Sep-15	17-Oct-15																			
01108.STN.BF21-24.3	GL 21~24 Backfill and compaction, 7970 m3	0%	14-Sep-15	23-Oct-15																			
01108.STN.BF00-02.3	GL 00~02 Backfill and compaction, 6040 m3	0%	23-Sep-15	22-Oct-15																			
01108.MSB07bP	Completion of Station backfill and compaction for outside works - Programmed	0%		22-Oct-15																			
01108.CD3DP	Completion of Station backfill to ex. ground level of necessary atation for CLP cable lead-in - Programmed	0%		23-Oct-15																			
01108.IFDCS.1P	District Cooling System - Works Areas 1108.W1 & 1108.W2 (01-Mar-15) - Programmed	0%		23-Oct-15																			
01108.CD3CP	Complete backfill of KAT station (Grid 12-19) for EMSD/DCS contractor for DCS pipe laying - Programmed	0%		23-Oct-15																			
<b>Water Tanks &amp; CLP Transformer Rooms</b>																							
<b>CLP Transformer Rooms</b>																							
01108.STN.CP010	CLP Transformer Rooms 3~6 (GL 17-21/B-D) and Dedicated Access 2 (and LV Switch Room) - Walls, etc.	0%	31-Jul-15	28-Oct-15																			
01108.STN.CP020	CLP Transformer Rooms 1~2 (GL A1-A2/1-4) and Dedicated Access 1 (and LV Switch Room) - Walls, etc.	0%	22-Aug-15	03-Nov-15																			
01108.STN.CP110	CLP Transformer Rooms 3~6 - BS Works	0%	16-Sep-15	08-Dec-15																			
01108.STN.CP210	CLP Transformer Rooms 3~6 - ABWF Works	0%	24-Oct-15	15-Jan-16																			
<b>Metalworks, BWIC with Services and BS Works</b>																							
01108.STN.BW110	KAT Concourse level - Elect hoisting beams, 5.99t	0%	22-Aug-15	20-Oct-15																			
01108.STN.BW120	KAT Concourse level - BWIC with services	0%	05-Sep-15	03-Nov-15																			
01108.STN.BW130	KAT Concourse level - BS works	0%	19-Sep-15	17-Nov-15																			
01108.STN.BW220	KAT Concourse level - BWIC with services	0%	19-Sep-15	03-Nov-15																			
01108.STN.BW230	KAT Concourse level - BS works	0%	06-Oct-15	17-Nov-15																			
<b>B1.5 Station - A/G C&amp;S Works (Vent Shaft)</b>																							
<b>Northern Vent Shaft</b>																							

	Milestone		PMP Rev C
	Critical Milestone		Last Report
	Critical Remaining Work		Actual Work
	Remaining Work		
	Remaining Level of Effort		

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**





**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**



Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November	
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02
<b>B3 Entrance B and Adit</b>																							
<b>B3.1 Entrance B and Adit - C&amp;S Works</b>																							
<b>Entrance B and Adit</b>																							
01108.STN.EB010	Audit at concourse level	90%	02-Feb-15 A	06-Aug-15																			
01108.STN.EB040	External walls, columns and walls	70%	02-Mar-15 A	20-Aug-15																			
01108.STN.EB020	Audit at roof level	60%	01-Jun-15 A	27-Aug-15																			
01108.STN.EB030	Suspended slabs and beams	0%	07-Aug-15	17-Oct-15																			
01108.STN.EB050	Drainage	0%	21-Aug-15	24-Sep-15																			
01108.STN.EB060	Metal works and finishes	0%	25-Sep-15	19-Dec-15																			
<b>B3.2 Entrance B and Adit - ABWF Works</b>																							
<b>Entrance B and Adit</b>																							
01108.STN.EB110	ABWF Works	0%	25-Sep-15	05-Dec-15																			
<b>C - South Approach Tunnel</b>																							
<b>C1 Open Cut Tunnels (U=341m; D=340m)</b>																							
<b>C1.2 Excavation</b>																							
<b>C1.2.2 Temporary Works</b>																							
<b>Temporary Works Design &amp; Approval</b>																							
01108.OCT.DN06.2.2	Open Cut (CH 99222 to 99257, Interface with C1109) - Design Revision, if required, & Submit to RDO/ BD/ GEO	0%	22-Apr-15 A	29-Aug-15																			
01108.OCT.DN06.2.3	Open Cut (CH 99222 to 99257, Interface with C1109) - Design - No-adverse-comment by RDO/ BD/ GEO	0%	30-Aug-15	06-Oct-15																			
<b>Dewatering and Observation Wells</b>																							
01108.OCT.DW9218	Ch 99185~99218 Dewatering wells, 13 nr PW1~PWQ13; Observation wells, 4 nr OW1~OW4; Piezometer, PZ9&PZ10 (2 Rigs)	0%	31-Jul-15	17-Aug-15																			
01108.OCT.DW9218t	Ch 99217~99258 Pumping tests	0%	18-Aug-15	07-Sep-15																			
<b>Sheet Piles</b>																							
<b>Water Cut-off Wall Enclosure at C1109</b>																							
01108.OCT.SP9258	At Ch 99258 Sheet piling, 230 nr x 12.5m (2875m, 190t, total)	80%	27-Apr-15 A	04-Aug-15																			
<b>C1.2.3 Excavation CH 98975 to CH 99217</b>																							
<b>From Existing Ground Level to Formation Level</b>																							
01108.OCT.EX9038	CH 99017~99038 Excavation	85%	28-Sep-13 A	06-Aug-15																			
01108.OCT.EX9217	CH 99206~99217 Excavation 10.5mL	95%	28-Sep-13 A	03-Aug-15																			
01108.OCT.EX9017	CH 98996~99017 Excavation	40%	07-Oct-13 A	25-Aug-15																			
01108.OCT.EX8996	CH 98975~98996 Excavation	20%	18-Oct-13 A	02-Sep-15																			
<b>C1.2.3 Excavation CH 99215 to CH99257 (Interface with C1109)</b>																							
<b>From Existing Ground Level to Formation Level</b>																							
01108.OCT-IF1109.1	Contract 1109 to provide access to Contract 1108 at interface area for tunnel construction	100%	06-Jul-15 A																				
01108.OCT.EX9238	CH 99217~99238 Excavation	0%	07-Oct-15	25-Oct-15																			
01108.OCT.EX9257	CH 99238~99257 Excavation, 19.64mL	0%	26-Oct-15	14-Nov-15																			
<b>C1.3 C&amp;S Works</b>																							
<b>Tunnel Construction CH 98975 to CH99217</b>																							
<b>Base Slabs</b>																							
01108.OCT.TS8996	CH 98975~98996 Base slabs, 2 x 2 x 10.5mL	20%	28-Apr-15 A	14-Aug-15																			
01108.OCT.TS9185	CH 99164~99185 Base slabs, 2 x 2 x 10.5mL	0%	31-Jul-15	18-Aug-15																			
01108.OCT.TS9206	CH 99185~99206 Base slabs, 2 x 2 x 10.5mL	0%	19-Aug-15	05-Sep-15																			
01108.OCT.TS9217	CH 99206~99217 Base slabs, 2 x 10.5mL	0%	07-Sep-15	24-Sep-15																			
<b>Walls &amp; Top Slabs</b>																							
01108.OCT.TR9017	CH 98996~99017 Wall & top slabs, 2 x 2 x 10.5mL	50%	26-Apr-15 A	11-Aug-15																			
01108.OCT.TR8966	CH 98975~98996 Wall & top slabs, 2 x 2 x 10.5mL	0%	14-Aug-15	07-Sep-15																			
01108.OCT.TR9185	CH 99164~99185 Wall & top slabs, 2 x 2 x 10.5mL	0%	19-Aug-15	10-Sep-15																			
01108.OCT.TR9206	CH 99185~99206 Wall & top slabs, 2 x 2 x 10.5mL	0%	11-Sep-15	06-Oct-15																			
01108.OCT.TR9217	CH 99206~99217 Wall & top slabs, 2 x 10.5mL	0%	07-Oct-15	25-Oct-15																			
<b>Internal C&amp;S Works</b>																							
01108.OCT.IC9080	CH 99059~99080 Track level concrete works & finishes	50%	15-Jul-15 A	01-Dec-15																			
01108.OCT.IC9101	CH 99080~99101 Track level concrete works & finishes	50%	15-Jul-15 A	07-Dec-15																			
01108.OCT.IC9122	CH 99101~99122 Track level concrete works & finishes	50%	15-Jul-15 A	12-Dec-15																			
01108.OCT.IC9144	CH 99122~99143 Track level concrete works & finishes	50%	15-Jul-15 A	05-Aug-15																			
01108.OCT.IC9164	CH 99143~99164 Track level concrete works & finishes	35%	15-Jul-15 A	13-Aug-15																			
01108.OCT.IC8966	CH 98975~98996 Track level concrete works & finishes	0%	07-Oct-15	22-Oct-15																			

▲ Milestone	— PMP Rev C
▲ Critical Milestone	▨ Last Report
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**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**







Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November		
					28					29				30				31				32		
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09
01108.MIT.TW280e10	D/T Remove sheet pile sections and strutting for tunnel heading excavation	0%	16-Sep-15	18-Sep-15																				
01108.MIT.TW090e	U/T Measure ground water flow and supplementary grouting	0%	17-Sep-15	19-Sep-15																				
01108.MIT.TW100e	U/T Install tempoaray face support works	0%	17-Sep-15	20-Sep-15																				
01108.MIT.TW290e10	D/T Measure ground water flow and supplementary grouting	0%	17-Sep-15	19-Sep-15																				
01108.MIT.TW10	D/T Install tempoaray face support works	0%	17-Sep-15	20-Sep-15																				
01108.MSC02Pe	C2- Complete preparation works for start of mined tunnelworks (Week No. 49/13, 08-Dec-13) - Programmed	0%		20-Sep-15																				
<b>Temporary Works and ELS from Westside (2 Workfronts, each 20mL)</b>																								
01108.MIT.TW020w	U/T Flame cut holes in sheet piles	0%	05-Aug-15	05-Aug-15																				
01108.MIT.TW030w	U/T Drilling for grouting, 20mL	0%	06-Aug-15	29-Aug-15																				
01108.MIT.TW220w	D/T Flame cut holes in sheet piles	0%	12-Aug-15	13-Aug-15																				
01108.MIT.TW230w	D/T Drilling for grouting, 20mL	0%	13-Aug-15	06-Sep-15																				
01108.MIT.TW040w	U/T 2mT TAM grouting surrounding extrados of proposed steel tube periphery, 20mL	0%	26-Aug-15	18-Sep-15																				
01108.MIT.TW240w	D/T 2mT TAM grouting surrounding extrados of proposed steel tube periphery, 20mL	0%	02-Sep-15	26-Sep-15																				
01108.MIT.TW050w	U/T Install steel tube for full periphery	0%	19-Sep-15	12-Oct-15																				
01108.MIT.TW060w	U/T Pressure grouting to fill steel tube and drilled voids around steel tubes	0%	23-Sep-15	16-Oct-15																				
01108.MIT.TW250w	D/T Install steel tube for full periphery	0%	26-Sep-15	20-Oct-15																				
01108.MIT.TW260w	D/T Pressure grouting to fill steel tube and drilled voids around steel tubes	0%	30-Sep-15	24-Oct-15																				
01108.MIT.TW070w	U/T Weld steel arch rib in front of sheet pile wall & within steel tube canopy	0%	14-Oct-15	18-Oct-15																				
01108.MIT.TW080w	U/T Remove sheet pile sections and strutting for tunnel heading excavation	0%	19-Oct-15	20-Oct-15																				
01108.MIT.TW090w	U/T Measure ground water flow and supplementary grouting	0%	20-Oct-15	21-Oct-15																				
01108.MIT.TW100w	U/T Install tempoaray face support works	0%	20-Oct-15	22-Oct-15																				
01108.MIT.TW270w	D/T Weld steel arch rib in front of sheet pile wall & within steel tube canopy	0%	21-Oct-15	26-Oct-15																				
01108.MIT.TW280w	D/T Remove sheet pile sections and strutting for tunnel heading excavation	0%	26-Oct-15	28-Oct-15																				
01108.MIT.TW290w	D/T Measure ground water flow and supplementary grouting	0%	27-Oct-15	29-Oct-15																				
01108.MIT.TW295w	D/T Install tempoaray face support works	0%	27-Oct-15	30-Oct-15																				
<b>C2.1.3 Earthworks</b>																								
01108.MIT.EX0110	U/T CH 98870 Excavate 2 workfronts x 3 x 1.3m advance hedging, install steel ribs, tie rod and shotcrete side wall	0%	20-Sep-15	28-Sep-15																				
01108.MIT.EX8917	D/T CH 98870 Excavate 2 workfronts x 3 x 1.3m advance hedging, install steel ribs, tie rod and shotcrete side wall	0%	20-Sep-15	28-Sep-15																				
01108.MIT.EX0120	U/T Temporary Type S2 fibre-reinforced shotcrete to tunnel face & invert above bench	0%	28-Sep-15	29-Sep-15																				
01108.MIT.EX8927	D/T Temporary Type S2 fibre-reinforced shotcrete to tunnel face & invert above bench	0%	28-Sep-15	29-Sep-15																				
01108.MIT.EX0130	U/T Remove sheet pile sections and strutting for tunnel bench excavation	0%	29-Sep-15	01-Oct-15																				
01108.MIT.EX8937	D/T Remove sheet pile sections and strutting for tunnel bench excavation	0%	29-Sep-15	01-Oct-15																				
01108.MIT.EX0140	U/T Measure ground water flow and supplementary grouting	0%	01-Oct-15	02-Oct-15																				
01108.MIT.EX8947	D/T Measure ground water flow and supplementary grouting	0%	01-Oct-15	02-Oct-15																				
01108.MIT.EX0150	U/T Install tempoaray face support works	0%	02-Oct-15	05-Oct-15																				
01108.MIT.EX8957	D/T Install tempoaray face support works	0%	02-Oct-15	05-Oct-15																				
01108.MIT.EX0160	U/T CH98870 Excavate 2 workfronts x 3 x 1.3 m bench, install steel ribs, tie rod and shotcrete side wall	0%	05-Oct-15	13-Oct-15																				
01108.MIT.EX8967	D/T CH98870 Excavate 2 workfronts x 3 x 1.3 m bench, install steel ribs, tie rod and shotcrete side wall	0%	05-Oct-15	13-Oct-15																				
01108.MIT.EX0170	U/T Temporary Type S2 fibre-reinforced shotcrete to tunnel bench face	0%	13-Oct-15	15-Oct-15																				
01108.MIT.EX8977	D/T Temporary Type S2 fibre-reinforced shotcrete to tunnel bench face	0%	13-Oct-15	15-Oct-15																				
01108.MIT.EX8987	D/T CH 98874 Excavate 2 workfronts x 3 x 1.3m advance heading, bench & install temporary works	0%	15-Oct-15	03-Nov-15																				
01108.MIT.EX8874	U/T CH 98874 Excavate 2 workfronts x 3 x 1.3m advance heading, bench & install temporary works	0%	15-Oct-15	03-Nov-15																				
01108.MIT.EX8907	U/T CH 98907 Excavate 2 workfronts x 1.6m advance heading, bench & install temporary works	0%	23-Oct-15	10-Nov-15																				
01108.MIT.EX9077	D/T CH 98907 Excavate 2 workfronts x 1.6m advance heading, bench & install temporary works	0%	30-Oct-15	18-Nov-15																				
<b>C3 Cut and Cover Tunnels (U=297m; D=307m)</b>																								
<b>C3.2 Excavation CH 98650 to CH 98866 and CH 98907 to CH 98975</b>																								
<b>C3.2.2 Temporary Works and ELS</b>																								
<b>Temporary Works Design &amp; Approval</b>																								
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic (CH 98650 to 98750) - No-adverse-comment by RDO/BD/GEO	90%	20-Aug-13 A	04-Aug-15																				
01108.CCT.DN05.2.3	CCT ELS (CH 98750 to 98976) - Design No-adverse-comment by RDO/BD/GEO	90%	23-Dec-13 A	01-Aug-15																				
<b>C3.2.3 Earthworks</b>																								
<b>Partial Open Cut</b>																								
<b>Full Height Cofferdam Adjacent Mined Tunnel</b>																								
01108.CCT.EX8985	CH 98840~98866 Excavation & struts, 2 x 10.5+ 5mL (East Shaft)	65%	08-Jul-14 A	13-Aug-15																				
01108.CCT.EX8995	CH 98906~98928 Excavation & struts, 2 x 10.5mL (West Shaft)	80%	28-Aug-14 A	05-Aug-15																				

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█ Remaining Level of Effort	

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**

  	<b>Kaden – Chun Wo Joint Venture</b>
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Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November			
					28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15		
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	
<b>Open Cut from Existing Ground Level to -3.5mPD</b>																									
01108.CCT.EX8825c	CH 98818~98840 Excavation to -3.5mPD, 6688 m3	90%	06-Aug-14 A	04-Aug-15																					
<b>Cofferdam below -3.5mPD</b>																									
01108.CCT.EX8825s	CH 98818~98840 Excavation & struts, 6222m3	70%	06-Aug-14 A	07-Aug-15																					
<b>Full Height Cofferdam</b>																									
<b>Excavation &amp; ELS from Existing Groud Level to Formation Level</b>																									
01108.CCT.EX8975	CH 98967~98975 Excavation & struts, 9.5mL	80%	27-Dec-14 A	05-Aug-15																					
01108.CCT.EX8947	CH 98928~98947 Excavation & struts, 2 x 9.5mL	80%	27-Dec-14 A	07-Aug-15																					
01108.CCT.EX8966	CH 98947~98966 Excavation & struts, 2 x 9.5mL	80%	27-Dec-14 A	07-Aug-15																					
<b>C3.3 C&amp;S Works</b>																									
<b>Tunnel Construction CH 98650 to CH 98840</b>																									
<b>Base Slabs</b>																									
01108.CCT.TB8783	CH98776~987797 Base slabs, 2 x 2 x 10.5mL	0%	31-Jul-15	18-Aug-15																					
01108.CCT.TB8804	CH98797~98818 Base slabs, 2 x 2 x 10.5mL	0%	19-Aug-15	05-Sep-15																					
01108.CCT.TB8825	CH98818~98840 Base slabs, 2 x 2 x 10.5mL	0%	07-Sep-15	24-Sep-15																					
<b>External Walls and Top Slab</b>																									
01108.CCT.TW8783	CH98776~98797 Walls and Top Slab, 2 x 2 x 10.5mL	0%	19-Aug-15	05-Sep-15																					
01108.CCT.TW8804	CH98797~98818 Walls and Top Slab, 2 x 2 x 10.5mL	0%	07-Sep-15	24-Sep-15																					
01108.CCT.TW8825	CH98818~98840 Walls and Top Slab, 2 x 2 x 10.5mL	0%	25-Sep-15	15-Oct-15																					
<b>Internal C&amp;C Works</b>																									
01108.CCT.IC8657	CH98650~98671 Track level concrete works & finishes	50%	17-Apr-15 A	06-Aug-15																					
01108.CCT.IC8678	CH98671~98692 Track level concrete works & finishes	50%	17-Apr-15 A	12-Aug-15																					
01108.CCT.IC8699	CH98692~98713 Track level concrete works & finishes	0%	13-Aug-15	24-Aug-15																					
01108.CCT.IC8720	CH98713~98734 Track level concrete works & finishes	0%	25-Aug-15	04-Sep-15																					
01108.CCT.IC8741	CH98734~98755 Track level concrete works & finishes	0%	05-Sep-15	16-Sep-15																					
01108.CCT.IC8762	CH98755~98776 Track level concrete works & finishes	0%	17-Sep-15	29-Sep-15																					
01108.CCT.IC8783	CH98776~98797 Track level concrete works & finishes	0%	30-Sep-15	12-Oct-15																					
01108.CCT.IC8804	CH98797~98818 Track level concrete works & finishes	0%	13-Oct-15	24-Oct-15																					
01108.CCT.IC8825	CH98818~98840 Track level concrete works & finishes	0%	25-Oct-15	04-Nov-15																					
<b>Waterproofing Works</b>																									
01108.CCT.WP8762	CH98755~98776 2-coat spary, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	31-Jul-15	15-Aug-15																					
01108.CCT.WP8783	CH98776~98797 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	07-Sep-15	22-Sep-15																					
01108.CCT.WP8804	CH98797~98818 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	25-Sep-15	13-Oct-15																					
01108.CCT.WP8825	CH98818~98840 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	16-Oct-15	31-Oct-15																					
<b>Drainage</b>																									
01108.CCT.DR9005	CH98755~98840 U-channel, pipe laying, catch pits, 210mL	0%	17-Aug-15	17-Oct-15																					
<b>Tunnel Construction CH 98928 to CH 98975</b>																									
<b>Base Slabs</b>																									
01108.CCT.TB8947	CH98928~98947 Base slabs, 2 x 2 x 9.5mL	100%	02-Jul-15 A	13-Jul-15 A																					
01108.CCT.TB8966	CH98947~98966 Base slabs, 2 x 2 x 9.5mL	75%	16-Jul-15 A	13-Aug-15																					
01108.CCT.TB8975	CH98966~98975 Base slabs, 2 x 9.5mL	0%	13-Aug-15	29-Aug-15																					
<b>External Walls</b>																									
01108.CCT.TW8947	CH98928~98947 Walls, 2 x 2 x 9.5mL	0%	07-Aug-15	30-Aug-15																					
01108.CCT.TW8966	CH98947~98966 Walls, 2 x 2 x 9.5mL	0%	30-Aug-15	23-Sep-15																					
01108.CCT.TW8975	CH98966~98975 Walls, 2 x 9.5mL	0%	23-Sep-15	12-Oct-15																					
<b>Top Slabs</b>																									
01108.CCT.TR8947	CH98928~98947 Top slabs, 2 x 2 x 9.5mL	0%	30-Aug-15	23-Sep-15																					
01108.CCT.TR8966	CH98947~98966 Top slabs, 2 x 2 x 9.5mL	0%	23-Sep-15	19-Oct-15																					
01108.CCT.TR8975	CH98966~98975 Top slabs, 2 x 9.5mL	0%	19-Oct-15	04-Nov-15																					
<b>Internal C&amp;C Works</b>																									
01108.CCT.IC8947	CH98928~98947 Track level concrete works & finishes	0%	24-Oct-15	03-Nov-15																					
<b>Waterproofing Works</b>																									
01108.CCT.WP8947	CH98928~98947 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 9.5mL	0%	24-Oct-15	12-Nov-15																					
<b>Tunnel Construction CH 98840 to CH 98866 &amp; CH 98907 to CH 98928</b>																									
<b>Base Slabs</b>																									
01108.CCT.TB8866	CH98840~98866 Base slabs, 2 x 10.5+9.5mL	30%	27-Jun-15 A	09-Jul-16																					

▲ Milestone	— PMP Rev C
▲ Critical Milestone	▨ Last Report
▨ Critical Remaining Work	■ Actual Work
▨ Remaining Work	
▨ Remaining Level of Effort	

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**



Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August				September				October				November
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26
<b>Backfill and Compaction</b>																						
<b>Backfill and Compaction CH 98650 to CH 98840</b>																						
01108.CCT.BF8678	CH98671~98692 Backfill, compaction & remove strut, 8470m3	75%	04-Sep-14 A	06-Aug-15	[Bar chart showing progress from 04-Sep-14 to 06-Aug-15]																	
01108.CCT.BF8720	CH98713~98734 Backfill, compaction & remove strut, 8470m3	75%	30-Sep-14 A	06-Aug-15	[Bar chart showing progress from 30-Sep-14 to 06-Aug-15]																	
01108.CCT.BF8657	CH98650~98671 Backfill, compaction & remove strut, 8470m3	45%	30-Sep-14 A	13-Aug-15	[Bar chart showing progress from 30-Sep-14 to 13-Aug-15]																	
01108.CCT.BF8741	CH98734~98755 Backfill, compaction & remove strut, 8470m3	45%	16-Oct-14 A	13-Aug-15	[Bar chart showing progress from 16-Oct-14 to 13-Aug-15]																	
01108.CCT.BF8762	CH98755~98776 Backfill, compaction & remove strut, 8470m3	0%	03-Sep-15	29-Sep-15	[Bar chart showing progress from 03-Sep-15 to 29-Sep-15]																	
01108.CCT.BF8783	CH98776~98797 Backfill, compaction & remove strut, 8470m3	0%	23-Sep-15	16-Oct-15	[Bar chart showing progress from 23-Sep-15 to 16-Oct-15]																	
01108.CCT.BF8804	CH98797~98818 Backfill, compaction & remove strut, 8470m3	0%	17-Oct-15	11-Nov-15	[Bar chart showing progress from 17-Oct-15 to 11-Nov-15]																	
<b>CSMM Backfill CH 98650 to CH 98840</b>																						
01108.CCT.BF8720c	CH98707~98720 CSMM backfill, 13mL x 42m2, total 546 m3	0%	31-Jul-15	07-Aug-15	[Bar chart showing progress from 31-Jul-15 to 07-Aug-15]																	
01108.CCT.BF8741c	CH98720~98741 CSMM backfill, 21mL x 42m2, total 882 m3	0%	10-Aug-15	20-Aug-15	[Bar chart showing progress from 10-Aug-15 to 20-Aug-15]																	
01108.CCT.BF8757c	CH98741~98757 CSMM backfill, 16mL x 42m2, total 672 m3	0%	11-Sep-15	21-Sep-15	[Bar chart showing progress from 11-Sep-15 to 21-Sep-15]																	
01108.CCT.BF8786c	CH98779~98786 CSMM backfill, 7mL x 42m2, total 294 m3	0%	17-Oct-15	22-Oct-15	[Bar chart showing progress from 17-Oct-15 to 22-Oct-15]																	
01108.CCT.BF8804c	CH98786~98804 CSMM backfill, 18mL x 42m2, total 756 m3	0%	26-Oct-15	03-Nov-15	[Bar chart showing progress from 26-Oct-15 to 03-Nov-15]																	
<b>C4 Stub Tunnels (U=32m; D=32m; R=33m)</b>																						
<b>C4.1 Excavation CH 98255 to CH 98290</b>																						
<b>Temporary Works</b>																						
<b>Temporary Works Design, Review &amp; Approval</b>																						
01108.STT.DN04.2.3	Stub Tunnel Interface with C1107 - Design No-adverse-comment by RDO/BD/GEO	100%	27-Jan-14 A	31-Jul-15	[Bar chart showing progress from 27-Jan-14 to 31-Jul-15]																	
<b>C4.2 Stub Tunnels - C&amp;S Works</b>																						
<b>Backfill and Compaction</b>																						
<b>Backfill and Compaction CH98258 to CH98290</b>																						
01108.STT.BF8273	CH98258~98273 Backfill, compaction & remove strut, 8159 m3	15%	16-Jun-15 A	26-Aug-15	[Bar chart showing progress from 16-Jun-15 to 26-Aug-15]																	
01108.STT.BF8290	CH98273~98290 Backfill, compaction & remove strut, 8159 m3	15%	16-Jun-15 A	26-Aug-15	[Bar chart showing progress from 16-Jun-15 to 26-Aug-15]																	
<b>C5 SUA</b>																						
<b>C5.1 SUA - C&amp;S Works</b>																						
<b>SUA Access at GL A1/A2</b>																						
01108.OCT.SU060	At CH99088/GL A1~A2 SUA - Top slab	100%	14-Jul-15 A	27-Jul-15 A	[Bar chart showing progress from 14-Jul-15 to 27-Jul-15]																	
<b>SUA Adit GL A2/C2 and Access at GL C1/C2</b>																						
01108.OCT.SU070	At CH99088/GL A2~C2 SUA - Emergency tunnel, 3 bays, 44mL x 2.55mW x 3.45mH x 0.5mT	50%	10-Jul-15 A	07-Jul-16	[Bar chart showing progress from 10-Jul-15 to 07-Jul-16]																	
<b>C6 Access Shafts</b>																						
<b>C&amp;S Works</b>																						
<b>C6.1.1 External Walls</b>																						
01108.OCT.AS050	CH98746~98768 Access shaft - Temporary Wall 0.4mT 200mm above existing ground	0%	31-Jul-15	02-Sep-15	[Bar chart showing progress from 31-Jul-15 to 02-Sep-15]																	
<b>D - Associated Works</b>																						
<b>D2 Drainage</b>																						
<b>Sewerage and Stormwater</b>																						
01108.AWD.F020	Foul sewer, F1.1~F1.3, 100m, 2 nr. MH	0%	06-Oct-15	20-Oct-15	[Bar chart showing progress from 06-Oct-15 to 20-Oct-15]																	
01108.AWD.S020	Storm sewer, S1.1~S1.2: 35m, 1 nr. MH	0%	20-Oct-15	03-Nov-15	[Bar chart showing progress from 20-Oct-15 to 03-Nov-15]																	
01108.AWD.F010	Foul sewer, F1.3~F1.4~MH10, F1.7~F1.14: 180m, 6 nr. MH	0%	24-Oct-15	17-Dec-15	[Bar chart showing progress from 24-Oct-15 to 17-Dec-15]																	
<b>D3 Instrumentation and Monitoring</b>																						
<b>Instrumentation Installation and Monitoring</b>																						
01108.AWM.0010	Installation of piezometers, inclinometers, ground/ bldg/ utility settlement markers	90%	02-Jul-13 A	06-Aug-15	[Bar chart showing progress from 02-Jul-13 to 06-Aug-15]																	
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	50%	01-Aug-13 A	12-Jul-17	[Bar chart showing progress from 01-Aug-13 to 12-Jul-17]																	
<b>D4 Landscape</b>																						
<b>Hard Landscape</b>																						
<b>Design of Irrigation Systems</b>																						
01108.AWL.0010	Pop up sprinklers, dripline & water points irrigation system to green roof - Design and submission	0%	01-Aug-15	05-Sep-15	[Bar chart showing progress from 01-Aug-15 to 05-Sep-15]																	
01108.AWL.0020	Pop up sprinklers, dripline & water points irrigation system to green - Approval	0%	05-Sep-15	20-Oct-15	[Bar chart showing progress from 05-Sep-15 to 20-Oct-15]																	
<b>D5 Utilities Diversion</b>																						
<b>Diversion of Existing Nullah</b>																						
<b>Temporary Works &amp; Hydraulic Assessment</b>																						
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	90%	08-Aug-13 A	04-Aug-15	[Bar chart showing progress from 08-Aug-13 to 04-Aug-15]																	
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No-adverse-comment by DSD & RDO/BD/GEO	90%	16-Jan-14 A	03-Aug-15	[Bar chart showing progress from 16-Jan-14 to 03-Aug-15]																	

▲	▲ Milestone	—	PMP Rev C
▲	▲ Critical Milestone	▨	Last Report
▨	Critical Remaining Work	■	Actual Work
▨	Remaining Work	▬	Remaining Level of Effort

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**



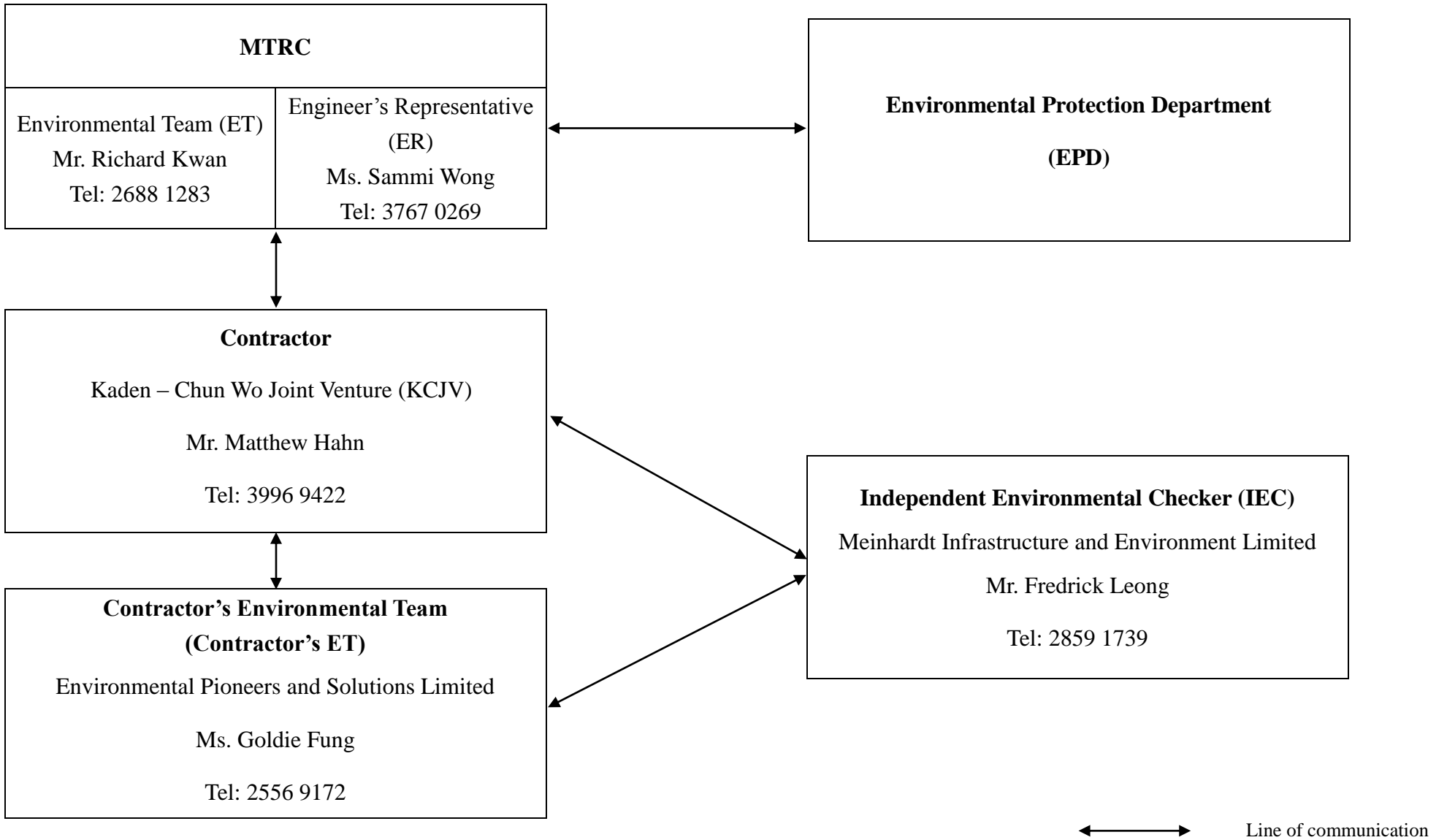
Activity ID	Activity Name	Activity % Complete	Start	Finish	July					August					September					October					November
					29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	
<b>F Option 2 CEDD Entrusted Works for Roads L9 &amp; L16 &amp; Associated Works</b>																									
<b>Option 2a Roads L9 and L16 and Associated Works</b>																									
<b>Preliminaries</b>																									
01108.O2A.PRE.010	Submission of drawings & permanent works material control schedules & Approval	0%	31-Jul-15	02-Sep-15																					
01108.CDO2a.EDP	Option 2a CEDD Entrusted Works - Roads L9 & L16 - Latest Exercising Date (31-Mar-15)	0%	31-Jul-15																						
01108.O2A.PRE.020	Submission of shop drawings & materials & Approval	0%	04-Sep-15	10-Oct-15																					
<b>4. Sewage Works</b>																									
01108.O2A.SEW020	FM50_10~DP23/24 Sewer pipe, 300d to 450d, 307mL; 13 nr MH	0%	31-Jul-15	10-Oct-15																					
01108.O2A.SEW000	Remove disused pipes, 400mL	0%	31-Jul-15	09-Sep-15																					
01108.O2A.SEW025	FM50_10~DP23/24 Sewer pipe CCTV	0%	25-Sep-15	31-Oct-15																					
<b>5. Waterworks</b>																									
01108.O2A.FWM010	CH 342.7~661.7 Fresh watermain pipe, 200d, 250d, 300d, 600d - 320mL; trust blocks, chambers, valve, bend, etc.	0%	12-Oct-15	09-Jan-16																					
<b>11. Preservation &amp; Protection of Trees</b>																									
01108.O2A.PPT010	(Provisional) Preservation & protection measures to preserved trees, survey & reporting (30 months)	0%	31-Jul-15	16-Nov-17																					
<b>Option 2b Landscape Hardworks &amp; Softworks, Irrigation Facilities &amp; Pavers</b>																									
<b>Programmed Completion Date</b>																									
001108.CDO2b.EDP	Option 2b CEDD Entrusted Works - LS Hardworks & Softwork & Irrigation System- LED (31-Mar-15)	0%	31-Jul-15																						
<b>9. Irrigation Facilities</b>																									
01108.O2B.IRR000	Design & Approval of Irrigation Systems	0%	31-Jul-15	10-Oct-15																					
<b>Option 2c Establishment Works</b>																									
<b>10 Establishment Works</b>																									
01108.CDO2c.EDP	Option 2c Establishment works of the landscape softworks in Option 2b -Latest Ex.Date (31-Mar-15) - Programmed	0%	31-Jul-15																						
<b>G Option 3 CEDD Entrusted Works for Reconstruction of Kai Tak Nullah</b>																									
<b>Earthworks</b>																									
<b>Formation Level</b>																									
01108.O3.ERW030	CH 98620~98636 Formation level of proposed nullah	40%	14-May-15 A	20-Aug-15																					
01108.O3.ERW010	Ch 98578~98599 Formation level of proposed nullah	5%	14-May-15 A	01-Sep-15																					
01108.O3.ERW020	Ch 98599~98620 Formation level of proposed nullah	15%	14-May-15 A	29-Aug-15																					
<b>Construction of Nullah</b>																									
<b>Formation of Nullah Foundation with Rock Fill</b>																									
01108.O3.FML010	Type 2 Geotextile, 500thk Grade 200 Rock fill, 3760 m3	10%	25-Jun-15 A	20-Oct-15																					
<b>Nullah - Twin-cell Box Culvert (SOL 01)</b>																									
01108.O3.SL3050	Base slab, 2 bays x 15 mL (within W8)	50%	08-Jul-15 A	10-Aug-15																					
01108.O3.SL3060	Walls & Top slab, 2 bays x 15 mL (within W8)	0%	31-Jul-15	22-Aug-15																					
01108.O3.SL3080	Base slab, 6 bays x 15 mL (within W9)	0%	13-Aug-15	17-Oct-15																					
01108.O3.SL1010	Base slab, 2 bays x 15 mL (within W10)	0%	13-Aug-15	02-Sep-15																					
01108.O3.SL1020	Walls & Top slab, 2 bays x 15 mL (within W10)	0%	30-Aug-15	23-Sep-15																					
01108.O3.SL3090	Walls & Top slab, 3 bays x 15 mL (within W9)	0%	30-Sep-15	03-Dec-15																					
<b>Nullah - Open &amp; Decked Channel (SOL 02)</b>																									
01108.O3.SL2010	Base slab, 4 bays x 10mL typ. (within W8) Open Channel	25%	16-Jul-15 A	02-Sep-15																					
01108.O3.SL3110	Base slab, 5 bays x 10mL typ. (within W9) Decked Channel	0%	31-Jul-15	26-Sep-15																					
01108.O3.SL3130	Base slab, 6 bays x 10mL typ. (within W10) Open Channel	0%	31-Jul-15	10-Oct-15																					
01108.O3.SL2020	Walls, 4 bays x 10mL typ. (within W8) Open Channel	0%	01-Aug-15	17-Sep-15																					
01108.O3.SL3140	Walls, 6 bays x 10mL typ. (within W10) Open Channel	0%	18-Aug-15	28-Oct-15																					
01108.O3.SL3120	Walls & Top slab, 5 bays x 10mL typ. (within W9) Decked Channel	0%	29-Sep-15	26-Nov-15																					
<b>Nullah - Twin-cell Box Culvert (SOL 03)</b>																									
01108.O3.SL3150	Base slab, 2 bays x 15 mL (within W8)	50%	25-Jul-15 A	10-Aug-15																					
01108.O3.SL3160	Walls & Top slab, 2 bays x 15 mL (within W8)	0%	11-Aug-15	02-Sep-15																					
01108.O3.SL3170	Base slab, 6 bays x various 10 to 15 mL (within W9)	0%	13-Aug-15	17-Oct-15																					
01108.O3.SL3010	Base slab, 2 bays x 15 mL (within W10)	0%	13-Aug-15	02-Sep-15																					
01108.O3.SL3020	Walls & Top slab, 2 bays x 15 mL (within W10)	0%	30-Aug-15	23-Sep-15																					
01108.O3.SL3180	Walls & Top slab, 3 bays x 15 mL (within W9)	0%	30-Sep-15	03-Dec-15																					

	Milestone		PMP Rev C
	Critical Milestone		Last Report
	Critical Remaining Work		Actual Work
	Remaining Work		
	Remaining Level of Effort		

**Contract 1108**  
**Kai Tak Station and Associated Tunnels**  
**3-months Rolling Programme (July 2015)**

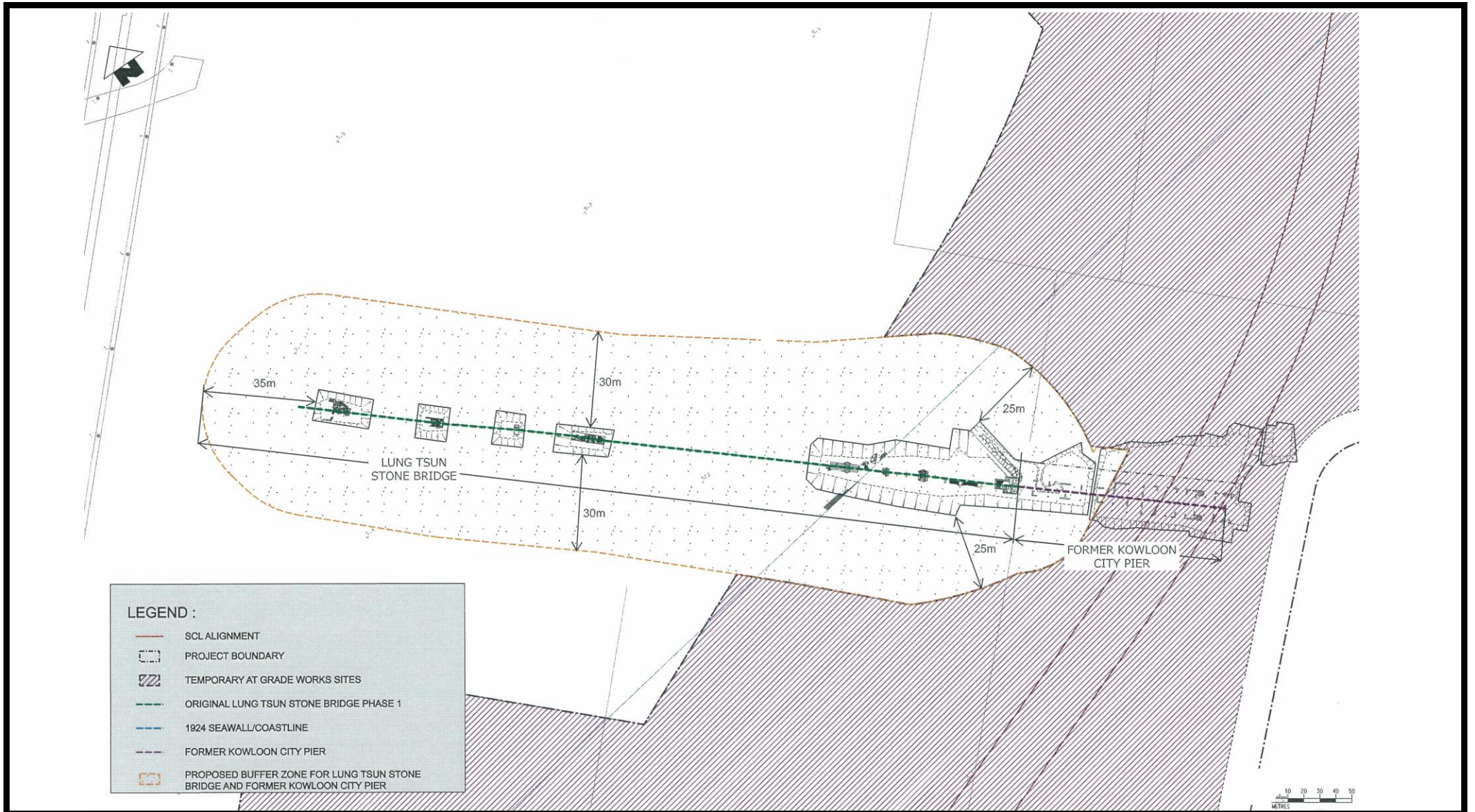


***Appendix C –Project Organization Chart & Contact Details***



***Appendix D – Buffer Zone for Lung Tsun Stone Bridge & Former  
Kowloon City Pier***





Project Title  
工程名稱

Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section(TAW-HUH)  
沙田至中環綫 - 大圍至紅磡段

Environmental Permit No.: EP-438/2012/H  
環境許可證編號：EP-438/2012/H

Figure 6  
圖六

Buffer Zone from the Boundary of Lung Tsun Stone Bridge 龍津石橋界線之緩衝區  
[This figure was prepared based on the attachment of the Application No.: VEP-432/2014]  
[本圖是根據申請編號 VEP-432/2014 的附件編制]



***Appendix E – Event/Action Plan for landscape & Visual During  
Construction Stage***



Event / Action Plan for Landscape and Visual during Construction Stage

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1) Inform the Contractor, the IEC and the ER</li> <li>2) Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3) Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1) Check inspection report</li> <li>2) Check the Contractor's working method</li> <li>3) Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4) Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1) Confirm receipt of notification of non-conformity in writing</li> <li>2) Review and agree on the remedial measures proposed by the Contractor</li> <li>3) Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1) Identify Source and investigate the non-conformity</li> <li>2) Implement remedial measures</li> <li>3) Amend working methods agreed with the ER as appropriate</li> <li>4) Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1) Identify Source</li> <li>2) Inform the Contractor, the IEC and the ER</li> <li>3) Increase inspection frequency</li> <li>4) Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5) Monitor remedial actions until rectification has been completed</li> <li>6) If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1) Check inspection report</li> <li>2) Check the Contractor's working method</li> <li>3) Discuss with the ET and the Contractor on possible remedial measures</li> <li>4) Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1) Notify the Contractor</li> <li>2) In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3) Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1) Identify Source and investigate the non-conformity</li> <li>2) Implement remedial measures</li> <li>3) Amend working methods agreed with the ER as appropriate</li> <li>4) Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>

***Appendix F – Waste Flow Table***

Monthly Summary Waste Flow Table for 2015 (year)

Month	<u>Actual Quantities of Inert C&amp;D Materials Generated Monthly</u>						<u>Actual Quantities of Non-inert C&amp;D Materials Generated Monthly</u>				
	Total Quantity Generated	Hard Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals	Paper / cardboard packaging	Plastics	Chemical waste	Others (general refuse)
					1108A*	CEDD <sup>#</sup>					
(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	21.421	0.000	21.421	0.000	0.000	0.000	18.530	0.075	0.000	0.640	0.203
Feb	32.137	0.000	31.290	0.000	0.847	0.000	15.590	0.060	0.006	0.000	0.136
Mar	31.149	0.000	28.783	0.000	2.366	0.000	36.260	0.072	0.009	0.000	0.186
Apr	40.033	0.000	26.285	0.000	13.748	0.000	27.190	0.056	0.015	0.000	0.232
May	11.639	0.000	9.525	0.000	2.114	0.000	25.250	0.057	0.020	0.000	0.159
Jun	28.414	0.000	20.336	0.000	8.078	0.000	7.270	0.168	0.014	0.000	0.264
Sub-total	164.793	0.000	137.640	0.000	27.153	0.000	130.090	0.488	0.064	0.640	1.180
July	25.488	0.000	14.946	0.000	10.542	0.000	17.210	0.020	0.000	0.000	0.125
August											
September											
October											
November											
December											
Total	190.281	0.000	152.586	0.000	37.695	0.000	147.300	0.508	0.064	0.640	1.305
Year 2014	311.876	0.000	39.476	0.000	272.400		103.280	0.855	0.056	1.540	1.484
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	646.669	0.000	192.062	0.000	454.607		343.910	1.393	0.120	2.660	5.357

Notes: \* MTR SCL Contract 1108A barging point.

# Government (CEDD) Public Fill Reception Facilities

***Appendix G – Updated Environmental Mitigation Implementation  
Schedule***

## Environmental Mitigation Implementation Schedule –SCL Contract 1108 (Kai Tak Station and Associated Tunnels)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
<i>Cultural Heritage Impact (Construction and Operational Phase)</i>							
S4.9	CH1	Maintain a buffer distance as shown in <b>Appendix D</b> . A 1.8-2.2m vertical separation distance shall be maintained between the top of tunnel and the piles of the Former Kowloon City Pier.	Reserve sufficient area for necessary archaeological conservation and display works for Lung Tsun Stone Bridge in the future. Avoid direct impact on the Lung Tsun Stone Bridge and the Former Kowloon City Pier.	MTR Corporation Contractor	Lung Tsun Stone Bridge & Former Kowloon City Pier.	During the Construction of the tunnel section at Kai Tak	*
<i>Landscape &amp; Visual (Construction Phase)</i>							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:  <u>Re-use of Existing Soil</u> <ul style="list-style-type: none"> <li>• For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees,</li> </ul>					<p>✓</p> <p>✓</p> <p>✓</p>
S6.12	LV2	<p><u>Decorative Hoarding</u></p> <p>Erection of decorative screen during construction stage to screen</p>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context</p> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> <li>To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</li> </ul> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> <li>Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</li> </ul>				construction stage	<p>✓</p> <p>N/A</p>
<b>Air Quality (Construction Phase)</b>							
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> <li>All vehicles shall be shut down in intermittent use.</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>All diesel fuelled construction plant within the works areas shall be</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		powered by ultra low sulphur diesel fuel (ULSD).					
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✓
<b>Construction Dust Impact</b>							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m <sup>2</sup> to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D3	<ul style="list-style-type: none"> <li>Proper watering of exposed spoil should be undertaken throughout the construction phase;</li> <li>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>A stockpile of dusty material should not be extended beyond the</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	* * ✓ ✓



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>pedestrian barriers, fencing or traffic cones.</p> <ul style="list-style-type: none"> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> </ul>					<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>*</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing,</li> </ul>					<p style="text-align: center;">✓</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
<i>Construction Noise (Airborne)</i>							
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	*
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	✓

**Water Quality (Construction Phase)**

S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:  <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> <li>At the start of site establishment (including the barging facilities),</li> </ul>	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	✓
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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>• The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates</li> <li>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of</li> </ul>					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>construction.</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via</li> </ul>					<p>✓</p> <p>✓</p> <p>*</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>silt removal facilities.</p> <ul style="list-style-type: none"> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>• Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and</li> </ul>					<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> <li>• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>• All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as</li> </ul>					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">*</p>



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>practicable.</p> <ul style="list-style-type: none"> <li>Adopt best management practices</li> </ul>					*
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> <li>Cut-&amp;-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge</li> <li>The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</li> <li>Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers.</p> <ul style="list-style-type: none"> <li>• If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for</li> </ul>					N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		groundwater recharge operation or discharge of treated groundwater.					
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>
<b>Waste Management (Construction Waste)</b>							
S11.4.1.1	WM1	<p>On-site sorting of C&amp;D material</p> <ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>					
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing</li> </ul>	<p>Good site practice to minimize the waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</p> <ul style="list-style-type: none"> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation</li> </ul>					<p>✓</p> <p>✓</p> <p>✓</p>
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>					✓
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.					✓
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> <li>All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location;</li> <li>All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations;</li> <li>Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.</li> <li>The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with</li> </ul>	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	<p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>designated locations and copies of such records shall be submitted to the engineers;</p> <ul style="list-style-type: none"> <li>• The Contractors shall comply with the conditions in the dumping licence.</li> <li>• All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material;</li> <li>• The material shall be placed into the disposal pit by bottom dumping;</li> <li>• Contaminated marine mud shall be transported by spit barge of not less than 750m<sup>3</sup> capacity and capable of rapid opening and discharge at the disposal site;</li> <li>• Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.</li> <li>• For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be</li> </ul>					<p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfil confined mud disposal.					
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>					✓
<b>EM&amp;A Project</b>							
S14.2 – 14.4	EM2	<ol style="list-style-type: none"> <li>An Environmental Team needs to be employed as per the EM&amp;A Manual.</li> <li>Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ol>	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>

Remarks :

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor
- \* Recommendation was made during site audit but improved/rectified by the contractor.
- N/A Not Applicable

***Appendix H – Cumulative Log for Environmental Exceedance,  
Complaints, Notification of Summons and Successful Prosecutions***

**Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution**

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
January 2015	0	3	0	0
February 2015	0	2	0	0
March 2015	0	1	0	0
April 2015	0	0	0	0
May 2015	0	0	0	0
June 2015	0	2	0	0
July 2015	0	0	0	0
Total	0	8	0	0
Year 2013	0	0	0	0
Year 2014	0	0	0	0
Grand Total	0	8	0	0

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**Appendix J**

**22<sup>nd</sup> Monthly EM&A Report for Works Contract 1102 –  
Hin Keng Station and Approach Structures**

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MTR Corporation Limited

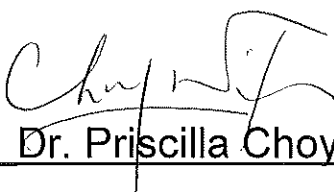
**Shatin to Central Link –  
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 22

[Period from 1 to 31 July 2015]

Works Contract 1102 –  
Hin Keng Station and Approach Structures

(August 2015)

Certified by:   
Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 6<sup>th</sup> August 2015

**Penta-Ocean Construction Co. Ltd.**

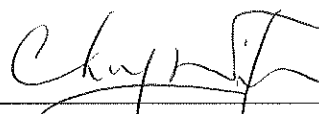
**Shatin to Central Link –  
Contract 1102  
Hin Keng Station and Approach  
Structures**

**Monthly Environmental Monitoring  
and Audit Report**

**(Version 1.0)**

**July 2015**

Approved By

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(Contractor's Environmental Team Leader)

REMARKS:

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

CINOTECH accepts no responsibility for changes made to this report by third parties.

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## TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Introduction .....	1
Summary of Construction Works undertaken during the Reporting Month .....	1
Environmental Monitoring and Audit Progress .....	1
Regular Construction Noise and Construction Dust Monitoring .....	1
Waste Management .....	1
Landscape and Visual.....	1
Environmental Site Inspection .....	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution .....	2
Future Key Issues .....	2
<b>1 INTRODUCTION .....</b>	<b>3</b>
Purpose of the Report .....	3
Structure of the Report .....	3
<b>2 PROJECT INFORMATION.....</b>	<b>4</b>
Background .....	4
General Site Description .....	4
Construction Programme and Activities .....	4
Project Organization.....	4
Status of Environmental Licences, Notification and Permits.....	4
Summary of EM&A Requirements .....	5
<b>3 ENVIRONMENTAL MONITORING REQUIREMENTS .....</b>	<b>6</b>
Regular Construction Noise Monitoring .....	6
Monitoring Parameter and Frequency .....	6
Monitoring Equipment, Maintenance, Calibration and Procedures .....	6
Action & Limit Level for Construction Noise Monitoring .....	7
Continuous Noise Monitoring .....	7
Regular Construction Dust Monitoring .....	7
Monitoring Parameter and Frequency .....	7
Monitoring Equipment, Maintenance, Calibration and Procedures .....	7
Action and Limit Levels for Dust Monitoring .....	8
Landscape and Visual.....	8
<b>4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS .....</b>	<b>9</b>
<b>5 MONITORING RESULTS .....</b>	<b>10</b>
Regular Construction Noise Monitoring .....	10
Regular Dust Monitoring.....	10
Waste Management .....	11
Landscape and Visual.....	11
<b>6 ENVIRONMENTAL SITE INSPECTION.....</b>	<b>12</b>
Site Audits .....	12
Implementation Status of Environmental Mitigation Measures.....	12
<b>7 ENVIRONMENTAL NON-CONFORMANCE .....</b>	<b>14</b>
Summary of Exceedances .....	14

Summary of Environmental Non-Compliance.....	14
Summary of Environmental Complaint .....	14
Summary of Environmental Summon and Successful Prosecution .....	14
<b>8 FUTURE KEY ISSUES .....</b>	<b>15</b>
Construction Programme for the Next Month.....	15
Key Issues in the Next Month .....	15
Monitoring Schedule in the Next Month.....	15
<b>9 CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>16</b>
Conclusions .....	16
Recommendations .....	16

## LIST OF TABLES

Table 2.1	Summaries of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Station
Table 3.2	Construction Noise Monitoring Parameters and Frequency
Table 3.3	Dust Monitoring Station
Table 3.4	Dust Monitoring Parameters and Frequency
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Construction Noise Monitoring Results
Table 5.2	Summary Table of Dust Monitoring Results
Table 5.3	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

## LIST OF FIGURES

Figure 1	Site Layout Plan of Works Contract 1102
Figure 2	Organization Chart and Key Contact of the Project
Figure 3	Location of Noise Monitoring Station
Figure 4	Location of Dust Monitoring Station

## LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Summary of Exceedance
Appendix D	Site Audit Summary
Appendix E	Updated Environmental Mitigation Implementation Schedule
Appendix F	Event and Action Plans
Appendix G	Waste Generation in the Reporting Month
Appendix H	Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions

**EXECUTIVE SUMMARY****Introduction**

1. This is the 22<sup>nd</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Shatin to Central Link (SCL) Works Contract 1102 – Hin Keng Station and Approach Structures. This report documents the findings of EM&A Works conducted from 1 to 31 July 2015.

**Summary of Construction Works undertaken during the Reporting Month**

2. The major site activities undertaken in the reporting month include:
  - Slope Improvement Works;
  - Pumping Test;
  - ELS Structure Installation at At-grade Box;
  - Pier and Pile Cap Construction of Viaduct;
  - Steel Structure and ABWF Works at Hin Keng Station; and
  - Modification of Retaining Wall and Installation of Noise Barrier.

**Environmental Monitoring and Audit Progress**

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours  
Noise Monitoring Station ID
  - NMS-CA-1<sup>(1)</sup> (C.U.H.K.A.A Thomas Cheung School) 4 times
- Construction Dust (24-hour TSP) Monitoring  
Dust Monitoring Station ID
  - DMS-1<sup>(1)</sup> (C.U.H.K.A.A Thomas Cheung School) 5 times

## Remarks:

(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 3,524.7 m<sup>3</sup> of inert C&D materials were generated from the Project and sent to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials and 139.4 m<sup>3</sup> general refuse were disposed of at NENT Landfill. No chemical wastes, steel material, plastics and paper/cardboard packaging was generated and collected by the recycler during this reporting month.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14 and 28 July 2015. Most of the necessary mitigation

measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in **Section 6**.

#### Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 14, 23 and 28 July 2015. The representative of the IEC joined the site inspection on 23 July 2015. Details of the audit findings and implementation status are presented in **Section 6**.

#### **Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution**

7. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.
8. No non-compliance event was recorded during the reporting period.
9. No reporting change was recorded during the reporting period.
10. No Project related environmental complaint and notification of summons/ successful prosecutions were received in this reporting period.

#### **Future Key Issues**

11. Major site activities for the coming reporting month will include:
  - Slope Improvement Works;
  - Pumping Test;
  - ELS Structure Installation at At-grade Box;
  - Pier and Pile Cap Construction of Viaduct;
  - ABWF Works at Hin Keng Station; and
  - Modification of Retaining Wall and Installation of Noise Barrier.

## 1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta-Ocean Construction Co.Ltd. (POC) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1102 – Hin Keng Station and Approach Structures (hereafter referred to as the Project).

### **Purpose of the Report**

- 1.2 This is the 22<sup>nd</sup> EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 July 2015.

### **Structure of the Report**

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

## 2 PROJECT INFORMATION

### Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1102 covers the construction of SCL Hin Keng Station (HIK Station) and its approach structures. This construction contract was awarded to Penta-Ocean Construction Co. Ltd. (POC) in July 2013 and the EM&A programme was commenced on 1<sup>st</sup> October 2013.

### General Site Description

- 2.3 For Works Contract 1102, the works area for the HIK Station is located next to Hin Keng Estate and Che Kung Miu Road. The alignment and works area for the Works Contract 1102 are shown in **Figure 1**.

### Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- Slope Improvement Works;
  - Pumping Test;
  - ELS Structure Installation at At-grade Box;
  - Pier and Pile Cap Construction of Viaduct;
  - Steel Structure and ABWF Works at Hin Keng Station; and
  - Modification of Retaining Wall and Installation of Noise Barrier.

### Project Organization

- 2.5 The project organization chart and contact details are shown in **Figure 2**.

### Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in October 2013 are presented in **Table 2.1**.

**Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits**

Permit / License No.	Valid Period		Status
	From	To	
<b>Environmental Permit (EP)</b>			
EP-438/2012/H	10/9/2014	N/A	Valid
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>			
Reference No: 362534	29/7/2013	N/A	Valid
<b>Billing Account for Construction Waste Disposal</b>			
A/C No.: 7017900	02/8/2013	N/A	Valid
<b>Registration of Chemical Waste Producer</b>			
Registration No. 5218-759-P1057-03	03/9/2013	N/A	Valid
<b>Effluent Discharge License under Water Pollution Control Ordinance</b>			
WT00018589-2014	29/4/2014	30/9/2018	Valid
<b>Construction Noise Permit (CNP)</b>			
GW-RN0214-15	15/4/2015	14/10/2015	Valid
GW-RN0354-15	30/6/2015	29/12/2015	Valid

### Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1102 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
  - Action and Limit levels for all environmental parameters;
  - Event / Action Plans;
  - Environmental mitigation measures, as recommended in the Project EIA study final report; and
  - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 6** of this report.
- 2.9 This report presents the monitoring results, observations, locations of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

### 3 ENVIRONMENTAL MONITORING REQUIREMENTS

#### Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring station. The construction noise monitoring location is listed in **Table 3.1** and shown in **Figure 3**.

**Table 3.1 Regular Construction Noise Monitoring Station**

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-1 <sup>(1)</sup>	C.U.H.K.A.A Thomas Cheung School	Façade

Note (1): NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

#### **Monitoring Parameter and Frequency**

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual by the Contractor Environmental Team of Works Contract SCL 1103. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The construction noise was monitored at the frequency and duration stated in **Table 3.2**.

**Table 3.2 Construction Noise Monitoring Parameters and Frequency**

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring	Throughout the construction period	$L_{eq}$ (30min)	Once per week

- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{Aeq}$ ) in decibels dB(A).  $L_{Aeq}$  (30min) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays while  $L_{10}$  and  $L_{90}$  were also recorded as supplementary reference information for data auditing.

#### **Monitoring Equipment, Maintenance, Calibration and Procedures**

- 3.4 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 4.2 of SCL 1103 monthly EM&A report.



**Action & Limit Level for Construction Noise Monitoring**

3.5 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix F**.

**Continuous Noise Monitoring**

3.6 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1102.

**Regular Construction Dust Monitoring**

3.7 The proposed dust monitoring station for the construction phase of the Project, as recommended in the approved EM&A Manual, is listed in **Table 3.3** and shown in **Figure 4**.

**Table 3.3 Dust Monitoring Station**

<b>Regular Dust Monitoring Location</b>	<b>Description</b>
DMS-1 <sup>(1)</sup>	C.U.H.K.A.A. Thomas Cheung School

Note (1): ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

**Monitoring Parameter and Frequency**

3.8 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring station in accordance with the requirements stipulated in the EM&A Manual. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**.

**Table 3.4 Dust Monitoring Parameters and Frequency**

<b>Monitoring Period</b>	<b>Duration</b>	<b>Parameter</b>	<b>Frequency</b>
Impact Monitoring <sup>(1)</sup>	Throughout the construction period	24-hour TSP <sup>(2)</sup>	Once per 6 days

Note:

(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

(2) 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

**Monitoring Equipment, Maintenance, Calibration and Procedures**

3.9 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 3.2 of SCL 1103 monthly EM&A report.

### **Action and Limit Levels for Dust Monitoring**

- 3.10 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix F**.

### **Landscape and Visual**

- 3.11 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix E**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix F**.

#### 4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

- 4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix E**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

**Table 4.1 Status of Required Submissions under EP**

EP Condition	Submission	Submission Date
3.4	Monthly Environmental Monitoring & Audit Report (June 2015)	14 July 2015

## 5 MONITORING RESULTS

### Regular Construction Noise Monitoring

- 5.1 A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

**Table 5.1 Summary Table of Construction Noise Monitoring Results**

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	< Baseline Level	54.7	When one documented complaint is received	70/65 <sup>(1)</sup>

**Remarks:**

- (1) For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching period and examination periods respectively.
- (2) The noise monitoring data presented in the table is baseline corrected.

- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

### Regular Dust Monitoring

- 5.5 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

**Table 5.2 Summary Table of Dust Monitoring Results**

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP	26.5	44.6	37.2	148.7	260

- 5.6 Wind monitoring data obtained from Kai Tak Meteorological Station of Hong Kong Observatory is shown in Appendix F of SCL 1103 monthly EM&A report.
- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

### Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. No chemical waste, steel material, plastics, paper/cardboard packaging was generated during this reporting month. Details of waste management data is presented in **Appendix G**.

**Table 5.3 Quantities of Waste Generated from the Project**

Reporting Month	Quantity					
	C&D Materials (inert) <sup>(a)(b)</sup>	C&D Materials (non-inert) <sup>(c)</sup>				
		General Refuse	Chemical Waste	Recycled materials		
Paper/cardboard	Plastics			Metals		
July 2015 <sup>(d)</sup>	3,524.7 m <sup>3</sup>	139.4 m <sup>3</sup>	0 kg	0 kg	0 kg	0 kg

Notes:

- (a) Inert C&D materials include excavated soil and rock. 3,518.7 m<sup>3</sup> and 6.0 m<sup>3</sup> of inert C&D materials were delivered to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Fill Bank respectively during the reporting month.
- (b) No excavated soil was delivered to Contract 1108A Kai Tak Barging Point and would be reused in other project in reporting month.
- (c) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.
- (d) The cut-off date of the waste flow table in reporting month was 30 July 2015.

### Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14 and 28 July 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

## 6 ENVIRONMENTAL SITE INSPECTION

### Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix D**.
- 6.2 Site audits were conducted on 7, 14, 23 and 28 July 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 23 July 2015. No EPD site inspection was conducted during the reporting month. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

### Implementation Status of Environmental Mitigation Measures

- 6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix E**.
- 6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

**Table 6.1 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	30 Jun 2015	Accumulated water under water barrier in A2 should be removed and sand bags should be provided to prevent untreated runoff leakage.	Please refer to the item on 7 Jul 2015.
	7 Jul 2015	Sand bags should be provided in A2 to prevent untreated runoff leakage.	Sand bags were provided in A2 on 14 July 2015.
	23 Jul 2015	<u>Reminder:</u> Ponding of rainwater was observed at the Hin Keng Station area. The Contractor was reminded to provide efficient water pumps to direct accumulated water to treatment facilities during rainstorm.	Ponding of rainwater in station area was removed on 28 Jul 2015.
	28 Jul 2015	Bund should be provided to A2 work area to prevent runoff leakage out of site area.	Follow up actions will be reported in the next month.
	28 Jul 2015	Silty water was observed leaking from pipe near hoarding of station area. Pipe directing wastewater should be properly maintained.	Follow up actions will be reported in the next month.
<i>Noise</i>	30 Jun 2015	<u>Reminder:</u> In addition to noise barrier provided at At-Grade Box, noise blanket coverage for breaker head should be provided to reduce noise.	Breaker head was covered by noise blanket on 7 Jul 2015.
	14 Jul 2015	<u>Reminder:</u> Noise barrier at At-Grade Box should be extended to fence off work area.	More noise blanket was provided at At-Grade Box to fence off work area on 23 Jul 2015.
	28 Jul 2015	<u>Reminder:</u> More noise blanket should be erected to fill the gap of barrier at At-Grade Box.	Follow up actions will be reported in the next month.
<i>Landscape and Visual</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	7 Jul 2015	<u>Reminder:</u> Water spraying should be provided during breaking works at At-Grade Box to suppress dust generation.	Breaking works at At-Grade Box was not observed during site inspection on 14 Jul 2015.
	7 Jul 2015	<u>Reminder:</u> Water spraying should be provided more frequently to exposed work area near Festival City.	The exposed work area near Festival City was observed wet on 14 Jul 2015.
	14 Jul 2015	<u>Reminder:</u> Water spraying should be provided more frequently to the haul road next to swimming pool.	Water spraying was provided to the haul road on 23 Jul 2015.
<i>Waste / Chemical Management</i>	7 Jul 2015	Drip tray should be provided to all chemical containers in Station area.	Chemical containers were removed on 14 Jul 2015.
	14 July 2015	Chemical container in Viaduct work area should be provided with drip tray.	The chemical container was removed on 23 Jul 2015.
<i>Permits/ Licenses</i>	N/A	There was no observation in the reporting period.	N/A

## 7 ENVIRONMENTAL NON-CONFORMANCE

### Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded during the reporting month. The summary of exceedance is provided in **Appendix C**.

### Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting month.

### Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Complaint Log in reporting month and cumulative summary table since the commencement of the Project is presented in **Appendix H**.

### Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Log for environmental summon and successful prosecution in reporting month and cumulative summary table since the commencement of the Project is presented in **Appendix H**.



## 8 FUTURE KEY ISSUES

### Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Slope Improvement Works;
- Pumping Test;
- ELS Structure Installation at At-grade Box;
- Pier and Pile Cap Construction of Viaduct;
- ABWF Works at Hin Keng Station; and
- Modification of Retaining Wall and Installation of Noise Barrier.

### Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement, excavated materials and soil erosion in dry days;
- Control of silty surface runoff;
- Implementation of mitigation measures for wastewater spillage from construction works.
- Preservation and protection of retained and transplanted trees;
- Implementation of mitigation measures for noise nuisance from construction works; and
- Regular removal of silt, mud and sand along drainage channels and sedimentation tanks.

### Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at in the next reporting period is presented in Appendix K of SCL 1103 monthly EM&A report. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

## 9 CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2015 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### Recommendations

- 9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### Water Quality

- All drainage facilities, erosion and sediment control structures and discharge point should be regularly inspected and maintained to ensure proper and efficient operation at all times;
- Bund should be provided with maintenance to prevent untreated runoff or overflow out of the site boundary; and
- Pumping facilities should be properly provided to prevent accumulated rainwater and wastewater. Temporary pipe should be maintained for efficiently directing wastewater for treatment.

#### Air Quality

- Regular water spraying on site is reminded to be implemented as per EP requirement; and
- Water spraying should be provided to breaking and dust-generating works to suppress dust generation.

#### Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

#### Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained and ensure enough capacity for the chemical containers.

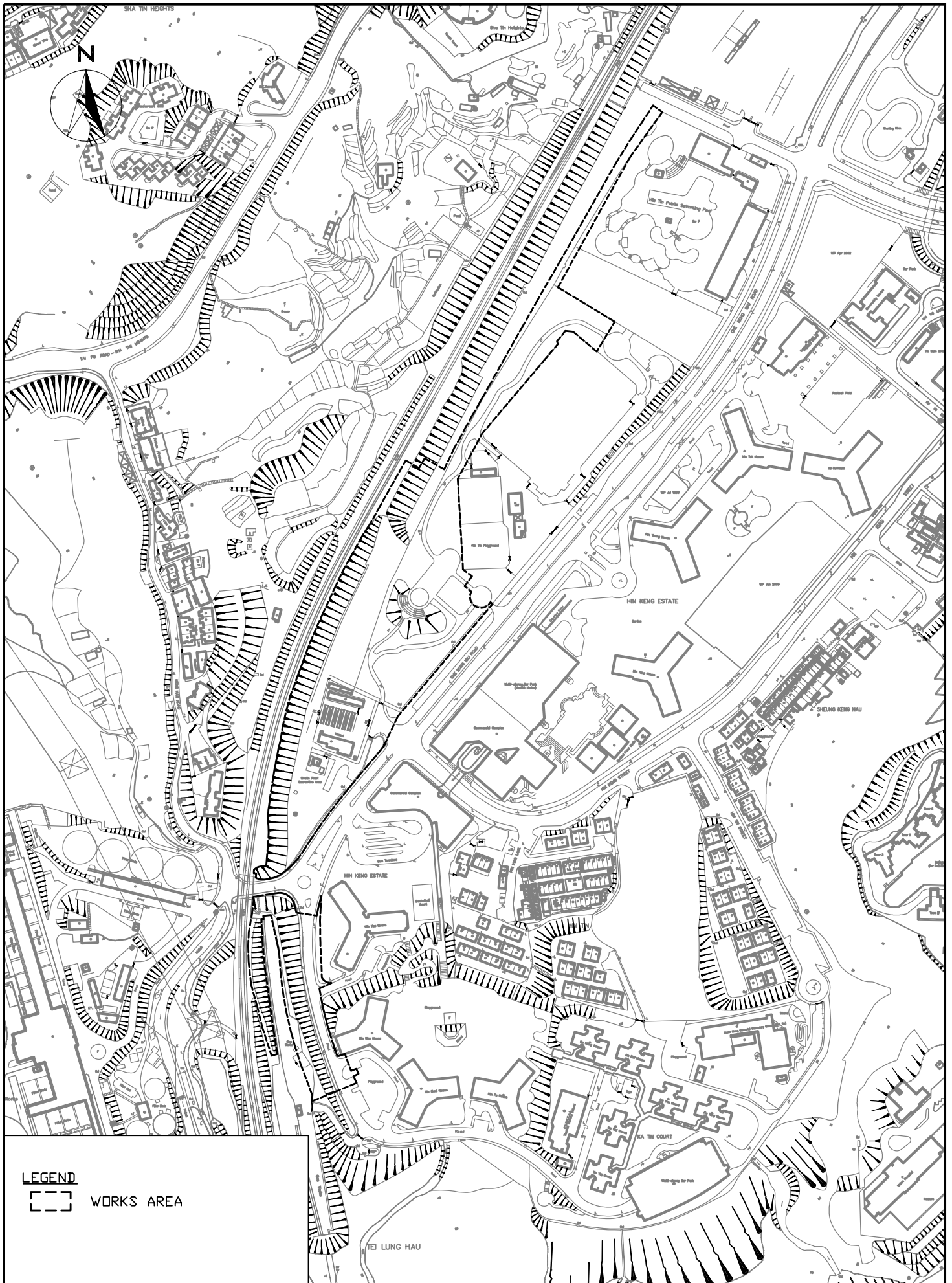
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## FIGURES

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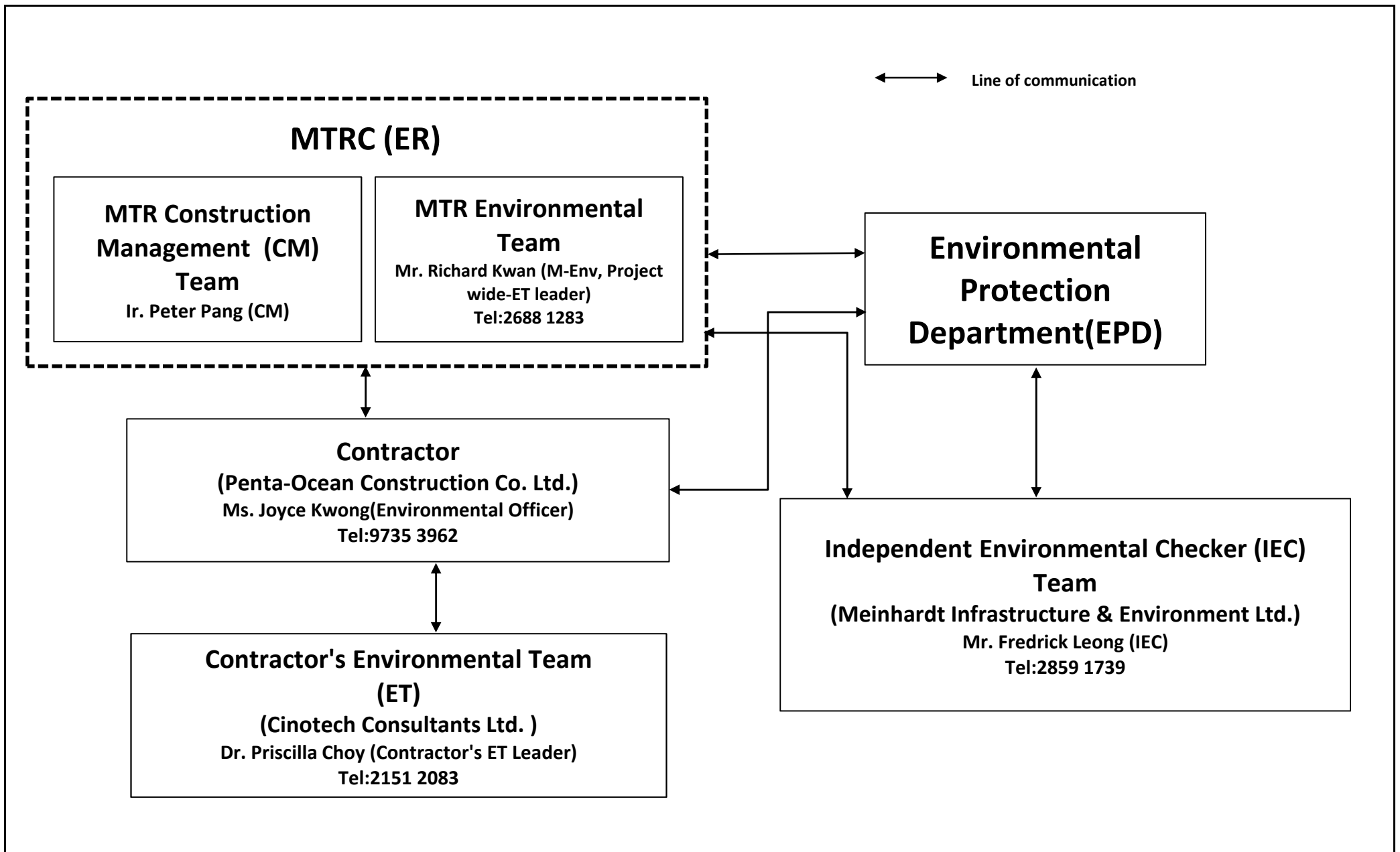
**LEGEND**

 WORKS AREA



SCL CONTRACT 1102  
 THE SHATIN TO CENTRAL LINK -  
 HIN KENG STATION AND APPROACH STRUCTURES  
**SITE LAYOUT PLAN OF  
 WORKS CONTRACT 1102**

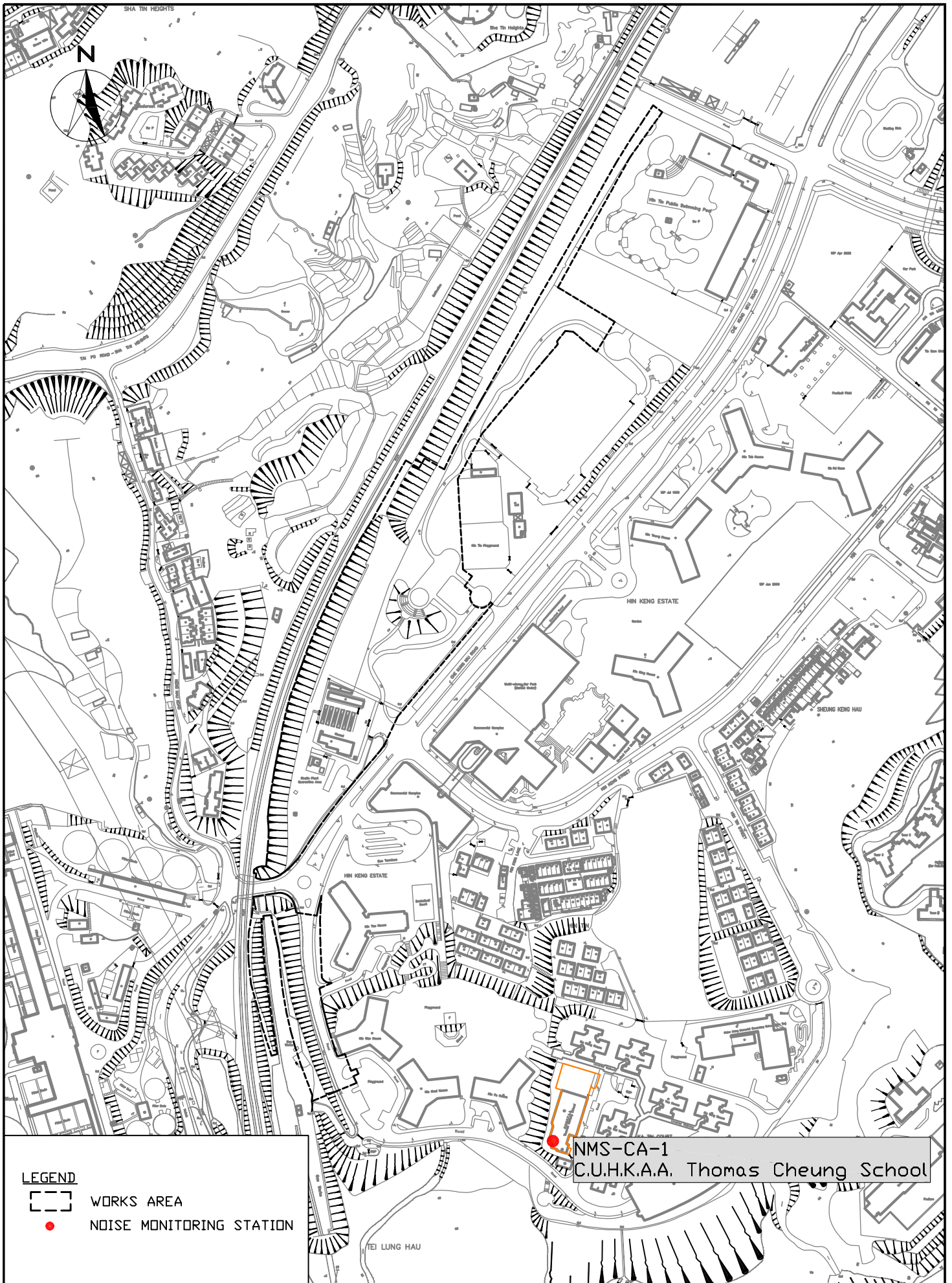
SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	-



Title SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project	Scale	N.T.S	Project No.	MA13040
	Date	Oct-13	Figure	2







**LEGEND**

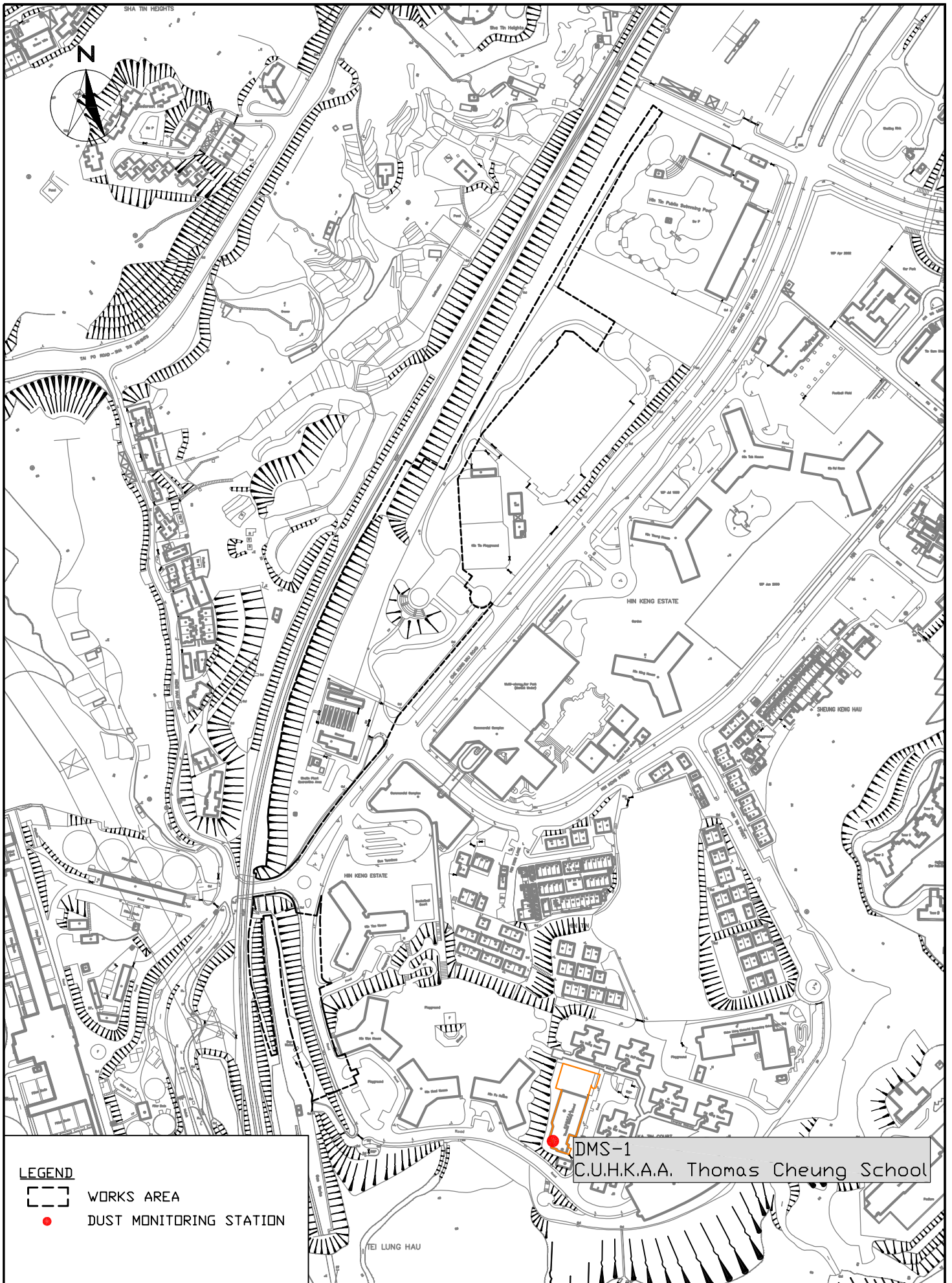
- WORKS AREA
- NOISE MONITORING STATION

NMS-CA-1  
C.U.H.K.A.A. Thomas Cheung School



SCL CONTRACT 1102  
THE SHATIN TO CENTRAL LINK -  
HIN KENG STATION AND APPROACH STRUCTURES  
**LOCATION OF NOISE MONITORING STATION**

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 3
		REV	-



DMS-1  
C.U.H.K.A.A. Thomas Cheung School

**LEGEND**

- WORKS AREA
- DUST MONITORING STATION



SCL CONTRACT 1102  
THE SHATIN TO CENTRAL LINK -  
HIN KENG STATION AND APPROACH STRUCTURES  
**LOCATION OF DUST MONITORING STATION**

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	-



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**APPENDIX A  
TENTATIVE CONSTRUCTION  
PROGRAMME**

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Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	2015				
						Jul	Aug	Sep	Oct	V
<b>3-month Rolling Programme Summary (Aug to Oct 2015)</b>		823.00	249.08	21-Oct-13 A	10-Jun-16					
<b>Hin Keng Station</b>		403.00	192.50	04-Mar-15 A	31-Mar-16					
<b>Sub-structure</b>		403.00	192.50	04-Mar-15 A	31-Mar-16					
Steel Structure		54.00	0.00	27-Apr-15 A	15-Jul-15 A	■				
ABWF		403.00	192.50	04-Mar-15 A	31-Mar-16					
<b>Ma On Shan Line &amp; Tail Track</b>		818.08	249.08	21-Oct-13 A	10-Jun-16					
Noise Barrier behind Hin Tin Swimming Pool		378.00	90.08	21-Oct-13 A	18-Nov-15					
Noise Barrier Work		157.00	80.00	15-Jul-14 A	10-Jun-16					
<b>At-grade Box</b>		142.87	116.87	21-May-15 A	18-Dec-15					
ELS Works		105.00	79.00	21-May-15 A	04-Nov-15					
Superstructure		115.00	115.00	03-Aug-15	18-Dec-15		■			
<b>Hin Keng Viaduct</b>		239.00	161.00	05-May-15 A	19-Feb-16					
Pile Cap		10.00	10.00	01-Aug-15	12-Aug-15		■			
Pier & Abutment		37.00	37.00	13-Aug-15	24-Sep-15		■			
Superstructure		239.00	161.00	05-May-15 A	19-Feb-16					
<b>FR63 Slope</b>		124.00	0.00	24-Dec-14 A	08-Jul-15 A	■				
Pit by Pit Construction		124.00	0.00	24-Dec-14 A	08-Jul-15 A	■				
Row 5		86.00	0.00	24-Dec-14 A	08-Jul-15 A	■				
Row 6		52.00	0.00	11-Apr-15 A	08-Jul-15 A	■				
Row 7		22.00	0.00	04-May-15 A	08-Jul-15 A	■				
<b>F320 Slope</b>		42.00	42.00	01-Aug-15	18-Sep-15		■			
Row 1		24.00	24.00	01-Aug-15	28-Aug-15		■			
Row 2		18.00	18.00	29-Aug-15	18-Sep-15			■		



- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone
- % Complete

MTRC SCL Project Contract 1102  
Hin Keng Station and Approach Structures

3 Months Rolling Programme  
Summary  
(Period - Aug to Oct 2015)

Date	Revisi...	Checked	Approved
01-Aug-15	0		

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**APPENDIX B  
ACTION AND LIMIT LEVELS**

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**APPENDIX B – Action and Limit Levels****24-Hour TSP**

<b>Regular Dust Monitoring Station</b>	<b>Description</b>	<b>Action Level, <math>\mu\text{g}/\text{m}^3</math></b>	<b>Limit Level, <math>\mu\text{g}/\text{m}^3</math></b>
DMS-1 <sup>(1)(2)</sup>	C.U.H.K.A.A. Thomas Cheung School	148.7	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).  
 (2) Dust monitoring is carried out by Environmental Team of SCL Works Contract 1103.

**Construction Noise**

<b>Regular Construction Noise Monitoring Station</b>	<b>Description</b>	<b>Time Period</b>	<b>Action Level</b>	<b>Limit Level</b>
NMS-CA-1 <sup>(1)(2)</sup>	C.U.H.K.A.A Thomas Cheung School	0700-1900 hrs on normal weekdays	When one documented complaint is received	65 / 70 dB(A) <sup>(3)</sup>

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).  
 (2) Construction Noise monitoring is carried out by Environmental Team of SCL Works Contract 1103.  
 (3) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

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**APPENDIX C  
SUMMARY OF EXCEEDANCE**

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## **APPENDIX C – SUMMARY OF EXCEEDANCE**

**Reporting Month:** July 2015

**a) Exceedance Report for Dust Monitoring (NIL)**

**b) Exceedance Report for Noise Monitoring (NIL)**

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**APPENDIX D**  
**SITE AUDIT SUMMARY**

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**Shatin to Central Link -  
Contract 1102 Hin Keng Station and Approach Structures**



**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150707
Date	7 July 2015 (Tuesday)
Time	09:00 – 11:40

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150707-R02	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	E 11
150707-R03	<p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>Water spraying should be provided during breaking works at At-Grade Box to suppress dust generation.</li> <li>Water spraying should be provided more frequently to exposed work area near Festival City.</li> </ul>	E 5
150707-O01	<p><b>Part F – Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part G – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>Drip tray should be provided to all chemical containers in Station area.</li> </ul>	G 10
150707-F04	<p><b>Part H – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Others</b></p> <ul style="list-style-type: none"> <li>Sand bags should be provided in A2 to prevent untreated runoff leakage.</li> </ul>	B 20

	Name	Signature	Date
Recorded by	Jason Lai		7 July 2015
Checked by	Dr. Priscilla Choy		7 July 2015

**Shatin to Central Link -  
Contract 1102 Hin Keng Station and Approach Structures**

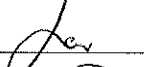
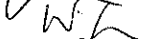
**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150714
Date	14 July 2015 (Tuesday)
Time	09:00 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150714-R03	<p><b>Part B – Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	E 5
150714-R02	<p><b>Part C – Ecology</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part D – Landscape &amp; Visual</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part E – Air Quality</b></p> <ul style="list-style-type: none"> <li>Water spraying should be provided more frequently to the haul road next to swimming pool.</li> </ul>	F 7
150714-O01	<p><b>Part F – Construction Noise Impact</b></p> <ul style="list-style-type: none"> <li>Noise barrier at At-Grade Box should be extended to fence off work area.</li> </ul> <p><b>Part G – Waste/Chemical Management</b></p> <ul style="list-style-type: none"> <li>Chemical container in Viaduct work area should be provided with drip tray.</li> </ul> <p><b>Part H – Permits/Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>Part I – Others</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	G 10

	Name	Signature	Date
Recorded by	Jason Lai		14 July 2015
Checked by	Dr. Priscilla Choy		14 July 2015



*Shatin to Central Link -  
Contract 1102 Hin Keng Station and Approach Structures*

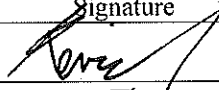

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150723
Date	23 July 2015 (Thursday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150723-R01	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> <li>• Ponding of rainwater was observed at the Hin Keng Station area. The Contractor was reminded to provide efficient water pumps to direct accumulated water to treatment facilities during rainstorm.</li> </ul> <p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part D – Landscape &amp; Visual</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part F – Construction Noise Impact</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part G – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part H – Permits/Licenses</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul> <p><i>Part I – Others</i></p> <ul style="list-style-type: none"> <li>• No environmental deficiency was identified during the site inspection.</li> </ul>	B 12

	Name	Signature	Date
Recorded by	Kevin Lam		23 July 2015
Checked by	Dr. Priscilla Choy		23 July 2015

**Shatin to Central Link -  
Contract 1102 Hin Keng Station and Approach Structures**

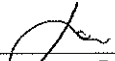

**Record Summary of Environmental Site Inspection**

**Inspection Information**

Checklist Reference Number	150728
Date	28 July 2015 (Tuesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150728-O01	<b>Part B – Water Quality</b> • Bund should be provided to A2 work area to prevent runoff leakage out of site area.	B 20
150728-O02	• Silty water was observed leaking from pipe near hoarding of station area. Pipe directing wastewater should be properly maintained.	B 4
	<b>Part C – Ecology</b> • No environmental deficiency was identified during the site inspection.	
	<b>Part D – Landscape &amp; Visual</b> • No environmental deficiency was identified during the site inspection.	
	<b>Part E – Air Quality</b> • No environmental deficiency was identified during the site inspection.	
150728-R03	<b>Part F – Construction Noise Impact</b> • More noise blanket should be erected to fill the gap of barrier at At-Grade Box.	F 7
	<b>Part G – Waste/Chemical Management</b> • No environmental deficiency was identified during the site inspection.	
	<b>Part H – Permits/Licenses</b> • No environmental deficiency was identified during the site inspection.	
	<b>Part I – Others</b> • No environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Jason Lai		28 July 2015
Checked by	Dr. Priscilla Choy		28 July 2015

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**APPENDIX E  
UPDATED ENVIRONMENTAL  
MITIGATION IMPLEMENTATION  
SCHEDULE**

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## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<b><i>Ecology (Construction Phase)</i></b>								
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimise ecological impacts	Contractor	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> <li>• AFCD's requirements</li> <li>• EIAO</li> <li>• Country Parks Ordinance</li> </ul>	^
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> <li>• Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream;</li> <li>• Avoidance of soil storage against trees or close to</li> </ul>	Minimise ecological impacts	Contractor	All construction sites	During construction	<ul style="list-style-type: none"> <li>• ProPECC PN 1/94</li> </ul>	^
								N/A

## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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		<p>waterbodies in particular the Tei Lung Hau stream;</p> <ul style="list-style-type: none"> <li>• Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works;</li> <li>• No on-site burning of waste;</li> <li>• Waste and refuse in appropriate receptacles.</li> </ul>						N/A  ^ ^
S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> <li>• Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices.</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid indirect water impact to any wetland habitats or wetland fauna</li> <li>• Minimize the drawdown of water table</li> </ul>	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
<b><i>Landscape &amp; Visual (Construction Phase)</i></b>								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> <li>• For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage</li> </ul>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

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		<p>ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li>To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment.</li> </ul> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li>All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</li> <li>The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees,</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>



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<b><i>Air Quality (Construction Phase)</i></b>								
/	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use.</li> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.</li> <li>• All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD)</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^  ^  ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
<b><i>Construction Dust Impact</i></b>								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.5	D2	• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	*



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		<p>may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m2 to achieve the dust removal efficiency</p>						
S7.6.5	D3	<ul style="list-style-type: none"> <li>• Proper watering of exposed spoil should be undertaken throughout the construction phase:</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit</li> </ul>	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact to meet HKAQO and TM-EIA criteria</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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		<p>point should be paved with concrete, bituminous materials or hardcores;</p> <ul style="list-style-type: none"> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<p>under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <p>Any skip hoist for material transport should be totally enclosed by impervious sheeting;</p> <ul style="list-style-type: none"> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;</li> </ul> <p>and</p> <ul style="list-style-type: none"> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		construction site or part of the construction site where the exposed earth lies.						
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
<b>Construction Noise (Airborne)</b>								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^  ^  ^  ^  ^

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		structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.						
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	*
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected	Contractor	Selected representative	Construction stage	• TM-EIA	^



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		<p>in the permanent drainage channels to enhance deposition rates.</p> <ul style="list-style-type: none"> <li>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</li> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means.</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</li> </ul>						<p>^</p> <p>^</p> <p>^</p>

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		<ul style="list-style-type: none"> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>• Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> </ul>						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>



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		<ul style="list-style-type: none"> <li>• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.</li> <li>• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

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		<p>accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>• All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>• Adopt best management practices</li> </ul>						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> <li>• Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• TM-water</li> </ul>	^

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S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>• All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</li> <li>• The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> <li>• Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.</li> </ul>	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• TM-EIAO</li> <li>• TM-Water</li> </ul>	^  ^  ^
<b>Waste Management (Construction Waste)</b>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>• Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• DEVB TC(W) No. 6/2010</li> </ul>	^

## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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		operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promotethe use of recycled aggregates where appropriate;</li> <li>• Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005</li> </ul>	^  ^  ^  ^

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		<ul style="list-style-type: none"> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation</li> </ul>						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.5.1	WM3	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> </ul>	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions) Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005</li> </ul>	<p style="text-align: center;">^</p>

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		<ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>						^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	^  ^  ^  ^

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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.						
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>• Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>• Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>• The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction Stage	<ul style="list-style-type: none"> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<p style="text-align: right;">^</p> <p style="text-align: right;">^</p> <p style="text-align: right;">*</p>

## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <li>• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>						^
<b>Land Contamination</b>								



## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S12.12	LC2	<u>Re-sampling at NTSAMC</u> <ul style="list-style-type: none"> <li>• The soil re-sampling and analysis of cyanide (free) at Site L1 (NT South Animal Centre) should be conducted after the site is resumed and handed over to the Project Proponent.</li> <li>• Following the completion of re-sampling and lab testing works of this site, a second Supplementary CAR and Supplementary RAP (if contamination is confirmed) shall be prepared and submitted to EPD for agreement.</li> <li>• Supplementary Remediation Report (RR) shall also be prepared and submitted to EPD for endorsement prior to the commencement of any construction/ development works at Site L1 (NT South Animal Centre)</li> </ul>	To analyse cyanide (free) at Site L1 (NT South Animal Centre)	Contractor	Site L1 (NT South Animal Centre)	After the site is resumed and handed over to the Project Proponent	<ul style="list-style-type: none"> <li>• Practice Guide (PG) for Investigation and Remediation of Contaminated Land</li> <li>• GN/GM for land contamination</li> <li>• Risk-Based Remediation Goals</li> </ul>	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
<b>Hazard to Life</b>								
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	Guardhouse next to Site Entrance (Opposite to Hin	Construction and operation		^

## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
					Keng Street)	phases		
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (cooperation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
<b>EM&amp;A Project</b>								

## SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S 14.2	EM1	<ul style="list-style-type: none"> <li>An Independent Environmental Checker needs to be employed as per the EM&amp;A Manual.</li> </ul>	Control EM&A Performance	MTR Corporation	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>EIAO Guidance Note No.4/2010</li> <li>TM-EIAO</li> </ul>	^
S 14.2 – 14.4	EM2	<ul style="list-style-type: none"> <li>An Environmental Team needs to be employed as per the EM&amp;A Manual</li> <li>Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ul>	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>EIAO Guidance Note No.4/2010</li> <li>TM-EIAO</li> </ul>	^  ^  ^

Remarks:    ^    Compliance of mitigation measure                    X    Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- \* Recommendation was made during site audit but improved/rectified by the contractor.

N/ANot Applicable

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**APPENDIX F**  
**EVENT AND ACTION PLANS**

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**Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase**

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the Contractor, IEC and ER on the remedial measures required;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>2. Implement remedial measures;</li> <li>3. Amend working methods agreed with the ER as appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Inform the IEC, Contractor and ER;</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. If exceedance continues, arrange meeting with the IEC, ER and Contractor;</li> <li>6. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify the Contractor, IEC and ET;</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance;</li> <li>2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal as appropriate.</li> </ol>

**LIMIT LEVEL**

1.Exceedance for one sample	<ol style="list-style-type: none"><li>1. Inform the IEC, Contractor and ER;</li><li>2. Repeat measurement to confirm findings;</li><li>3. Increase monitoring frequency to daily;</li><li>4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by the ET;</li><li>2. Check the Contractor's working method;</li><li>3. Discuss with the ET, ER and Contractor on possible remedial measures;</li><li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Confirm receipt of notification of exceedance in writing;</li><li>2. Notify the Contractor, IEC and ET;</li><li>3. Review and agree on the remedial measures proposed by the Contractor;</li><li>4. Supervise implementation of remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Identify source(s) and investigate the causes of exceedance;</li><li>2. Take immediate action to avoid further exceedance;</li><li>3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li><li>4. Implement the agreed proposals;</li><li>5. Amend proposal if appropriate.</li></ol>
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"><li>1. Notify IEC, Contractor and EPD;</li><li>2. Repeat measurement to confirm findings;</li><li>3. Increase monitoring frequency to daily;</li><li>4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented;</li><li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li><li>6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results;</li><li>7. If exceedance stops, cease additional monitoring.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by the ET;</li><li>2. Check the Contractor's working method;</li><li>3. Discuss with ET, ER, and Contractor on the potential remedial measures;</li><li>4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.</li></ol>	<ol style="list-style-type: none"><li>1. Confirm receipt of notification of exceedance in writing;</li><li>2. Notify the Contractor, IEC and ET;</li><li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li><li>4. Supervise the implementation of remedial measures;</li><li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li></ol>	<ol style="list-style-type: none"><li>1. Identify source(s) and investigate the causes of exceedance;</li><li>2. Take immediate action to avoid further exceedance;</li><li>3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li><li>4. Implement the agreed proposals;</li><li>5. Revise and resubmit proposals if problem still not under control;</li><li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li></ol>

**Event and Action Plan for Noise Monitoring during Construction Phase**

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and ER</li> <li>2. Discuss with the ER, IEC and Contractor on the remedial measures required</li> <li>3. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the investigation results submitted by the contractor;</li> <li>2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of complaint in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. Review and agree on the remedial measures proposed by the Contractor;</li> <li>4. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate the complaint and propose remedial measures</li> <li>2. Report the results of investigation to the IEC, ET and ER</li> <li>3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement noise mitigation proposals</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify the IEC, Contractor and EPD</li> <li>2. Repeat measurement to confirm findings</li> <li>3. Increase monitoring frequency</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by the ET;</li> <li>2. Check the Contractor's working method;</li> <li>3. Discuss with the ER, ET and Contractor on the potential remedial measures</li> <li>4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing</li> <li>2. Notify the Contractor, IEC and ET</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>4. Supervise the implementation of remedial measures</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the causes of exceedance</li> <li>2. Take immediate action to avoid further exceedance</li> <li>3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification.</li> <li>4. Implement the agreed proposals</li> <li>5. Revise and resubmit proposals if problem still not under control</li> <li>6. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>

**Event and Action Plan for Landscape and Visual during Construction Phase**

<b>Action Level</b>	<b>Works Contract 1102 ET</b>	<b>IEC</b>	<b>ER</b>	<b>Contractor</b>
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, the IEC and the ER</li> <li>2. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET, ER and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the Contractor, the IEC and the ER</li> <li>3. Increase inspection frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures</li> <li>4. Advise the ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify Source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with the ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.</li> </ol>



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**APPENDIX G  
WASTE GENERATION IN THE  
REPORTING MONTH**

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Name of Contractor: Penta-Ocean Construction Co. Ltd.  
Waste Flow Table for Year 2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated (in '000m <sup>3</sup> )	Broken Concrete (in '000m <sup>3</sup> )	Reused in the Contract (in '000m <sup>3</sup> )	Reused in other Projects (See Note 2) (in '000m <sup>3</sup> )	Disposed as Public Fill (See Note 1) (in '000m <sup>3</sup> )	Disposed as Sorting Facility (in '000m <sup>3</sup> )	Metals (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m <sup>3</sup> )
Jan-15	1.5370	0	0	0	1.5277	0.0093	0	0	0	0	0.1224
Feb-15	1.3199	0	0	0	1.3156	0.0045	0	0	0	0	0.0876
Mar-15	2.0981	0	0	0.3023	1.7724	0.0235	0	0	0	0	0.1674
Apr-15	0.5166	0	0	0	0.5058	0.0109	0	0	0	0	0.1784
May-15	0.4987	0	0	0	0.4948	0.0039	0	0	0	0	0.1224
Jun-15*	2.5555	0	0	0	2.5526	0.0029	0	0	0	0	0.1182
Sub-total	8.5258	0	0	0.3023	8.1689	0.0550	0	0	0	0	0.7964
Jul-15 (See Note 3)	3.5247	0	0	0	3.5247	0	0	0	0	0	0.1394
Aug-15											
Sep-15											
Oct-15											
Nov-15											
Dec-15											
<b>Total</b>	<b>12.0505</b>	<b>0</b>	<b>0</b>	<b>0.3023</b>	<b>11.6936</b>	<b>0.055</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9358</b>

Note: (1) Inert C&D materials include excavated soil and rock. 3,518.7m<sup>3</sup> and 6.0m<sup>3</sup> of inert C&D materials were delivered to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Area 137 Fill Bank respectively during the reporting month.

Note: (2) Excavated soil was disposed of at Contract 1108A Kai Tak Barging Point and would be reused in other Project.

Note: (3) The cut-off date of waste flow table in reporting month was 30 July 2015.

Remark: (\*) The quantity of inert and non-inert C&D materials in June 2015 was updated in this waste flow table.

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**APPENDIX H  
LOG AND CUMULATIVE SUMMARY  
TABLE FOR COMPLAINTS,  
NOTIFICATIONS OF SUMMONS AND  
SUCCESSFUL PROSECUTIONS**

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**Appendix H - Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions****Reporting Month:** July 2015**Complaint Log**

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Status
--	--	--	--	--	--

**Log for Notifications of Summons**

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

**Log for Successful Prosecutions**

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

**Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecution**

<b>Reporting Month</b>	<b>Number of Complaints</b>	<b>Number of Notifications of Summons</b>	<b>Number of Successful Prosecution</b>
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	0	0	0

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<b>Reporting Month</b>	<b>Number of Complaints</b>	<b>Number of Notifications of Summons</b>	<b>Number of Successful Prosecution</b>
January 2015	0	0	0
February 2015	0	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	0	0	0
Total	1	0	0