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. 15

[Period from 1 to 30 November 2013]

(December 2013)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 11 December 2013

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. 15

[Period from 1 to 30 November 2013]

(December 2013)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 12 December 2013

AECOM

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. 15

[Period from 1 to 30 November 2013]

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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/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.

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 2018. **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(1)	December 2012	Sun Fook Kong Joint Venture (SFKJV)	EDMS Consulting Ltd. (EDMS)
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 (SSHCJV)	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 fifteenth 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 30 November 2013.

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/D. 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/D
1102	Hin Keng Station and Approach Structures	EP-438/2012/D
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/D
1106	Diamond Hill Station	EP-438/2012/D
1107	Diamond Hill to Kai Tak Tunnels	EP-438/2012/D
1108	Kai Tak Station and Associated Tunnels	EP-438/2012/D
1108A	Kai Tak Barging Point Facilities	EP-438/2012/D
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/D
1111	Hung Hom North Approach Tunnels	EP-437/2012 & EP-438/2012/D
1112	Hung Hom Station and Stabling Sidings	EP-437/2012 & EP-438/2012/D

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

Works Contract	Site	Construction Activities

Works Contract	Site	Construction Activities
1101[(1)]	Tai Wai Mei Tin Road	• N/A
1102	Hin Keng Station and Approach Structures	• Underground utilities detection works at Che Kung Miu Road; • Site Clearance at Hin Tin Playground; • Pre-drilling works; • Trial pits excavation along footpath of roundabout area; • Hoarding erection works; and • Tree transplantation.
1103	Diamond Hill Area	• Site Excavation and Strutting.
	Hin Keng Area	• Pipe Piling; and • Mucking Out.
	Fung Tak Area	• Drainage Diversion Works; and • Platform Erection.
	Ma Chai Hang Area	• Drainage Diversion Works; and • Diaphragm Wall.
1106	Diamond Hill Station Area	• D-wall construction; • Underpinning works and relocation of Old Pillbox; and • Preparation work for tree transplantation.
1107	Tunnel section next to Kai Tak Station	• Site investigation works; • Investigation and removal of old foundation works; • Hoarding erection; • Sheet piling works; • Shaft excavation • Site preparation works
1108	Kai Tak Station	• Installation of sheet pile cutoff wall; • Installation of dewatering well; • Installation of ground monitoring instrumentation; • Bulk excavation to -2.1mPD; • Breaking of concrete pavement and material stockpile on site; • Area 3 Stage 2 pumping test; • CPT for ground investigation works completed; • Complete safety platform for coring of middle wall and start coring; and • Shotcreting.
1108A	Kai Tak Barging Point Facilities	• Daily operation and maintenance of the Barging Point Facilities; • Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and • Minor civil construction works related to the establishment of an additional floating jetty.
1109	Ma Tau Wai (MTW) Works Area	• TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works; and • Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.

Works Contract	Site	Construction Activities
	To Kwa Wan (TKW) Works Area	• Olympic Garden – Pre-bored H pilling; • Olympic Playground– Pre-bored H pilling; • TKW Station – Archaeological survey, construction of grout curtain, water main diversion, sheet pile, box culvert erection and pre-bored H pile; and • Nam Kok Road – Installation of pipe pile and construction of grout curtain.
1111	Mong Kok Freight Terminal	• Noise panel installation; and • Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
	Hung Hom Area	• Excavation work, site formation, slope work; • Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules; • Installation of geological instrumentation; • Trial pit, pile pilling, pipe pilling, pre-drilling, pre-grouting; • Erection of hoarding and overhead line portals; • Tree felling; and • ABWF and E&M works.
1112	Hong Hom (HUH and HHS) Works Area	• Diaphragm wall construction at HUH; • Initial excavation at HUH; • Set up of small scale mobile batching machinery and equipment (MBME) under the HUH podium; and • Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building

Note:
(1) Construction works were completed
N/A Not applicable

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 also 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 The monitoring results indicated that no exceedance of the Action/Limit Levels of 24-hr TSP, and construction noise. Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 during the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 is still undertaking. It will be reported in next reporting month.

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

2.1.7 No environmental complaints, notification of summons and successful prosecutions were received in the reporting period. Cumulative log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

2.1.8 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 ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101[5]					
Works Contract 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	12.8 – 102.2	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	25.4 – 68.8	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home[1]	12.1 – 70.8	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	48.2 – 124.6	160.4	260	No
Works Contract 1108[5]					
Works Contract 1108A[5]					
Works Contract 1109					
DMS-6	Katherine Building[2]	78 – 93	156.8	260	No
DMS-7	Parc 22[3]	81 – 102	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	86 – 98	152.2	260	No
DMS-9	No. 26 Kowloon City Road[4]	77 – 104	160.9	260	No
DMS-10	Chat Ma Mansion	84 – 109	170.4	260	No
Works Contract 1111					
AM1[6]	No. 234 – 238 Chatham Road North[7]	53.8 – 90.0	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier adjacent to Harbourfront Horizon[8]	53.6 – 131.1	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

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

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected[7]		
Works Contract 1101[6]						
Works Contract 1102 and 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	57.8 – 60.7	57.0	50.1 – 58.3	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	67.3 – 70.7	66.0	61.4 – 68.9	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home[1]	68.1 – 69.6	73.0	< baseline	75	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	72.8 – 74.5	71.0	68.1 – 71.9	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade)[2]	72.6 – 74.1	74.0	< baseline – 57.7	70 (65 during examination period)	No
Works Contract 1108[6]						
Works Contract 1108A[6]						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road [3]	64.3 – 64.9	76.1	< baseline	75	No
NMS-CA-7	Skytower Tower 2	67.0 – 68.3	70.0	< baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	75.2 – 79.1	75.4	< baseline – 76.7	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring)[8]	No
NMS-CA-9	Kong Yiu Mansion[4]	72.1 – 74.6	69.2	69.0 – 73.1	75	No
NMS-CA-10	Chat Ma Mansion	76.8 – 77.2	76.6	63.3 – 68.3	75	No
Works Contract 1111						
NM1	Carmel Secondary School (South Block)	62.4 – 70.8	68.0	< baseline – 67.6	70 (65 during examination period)	No

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected(7)		
NM2	No. 234 – 238 Chatham Road North(5)	64.1 – 75.7	79.0	< baseline	75	No
Works Contract 1112(6)						

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.

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

NSR ID	NSR Description Continuous Noise Monitoring Location		Noise Level ($L_{Aeq,30mins}$, dB(A))			Action/Limit Level[3] dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected[2]		
Works Contract 1101[1]							
Works Contract 1102[1]							
Works Contract 1103							
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[7]	(4)
Works Contract 1103 & 1106							
DIH-9-1[1]	Shek On Building	N/A	N/A	N/A	N/A	N/A	N/A
DIH-13-1[1]	Canossa Primary School	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1106 & 1107							
DIH-14-1[1]	Rhythm Garden Block 2	N/A	N/A	N/A	N/A	N/A	N/A
DIH-14-5[1]	Rhythm Garden Block 1	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1103, 1106 & 1107							
DIH-14-4[1]	Canossa Primary School (San Po Kong)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1108[1]							
Works Contract 1108A[1]							
Works Contract 1109							
TKW-1-1[1]	Parc 22	N/A	N/A	N/A	N/A	N/A	N/A
TKW-2-2[1]	Skytower Tower 2	N/A	N/A	N/A	N/A	N/A	N/A
TKW-3-2	Prosperity House	TKW-3-2(A) (No. 420 Prince Edward Road West)	(4)	(4)	(4)	80	(4)
MTW-12-3	Lucky Mansion	MTW-12-3 (Lucky Mansion)	(4)	(4)	(4)	80	(4)
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	MTW-12-4 (352-354 Ma Tau Wai Rd (East Façade))	(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	(4)	(4)	(4)	84	(4)

NSR ID	NSR Description Continuous Noise Monitoring Location		Noise Level ($L_{Aeq,30mins}$, dB(A))			Action/Limit Level[3] dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected[2]		
	(South Facade)	Lucky Building (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 Jing Ming Building	(4)	(4)	(4)	81	(4)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 SKH Good Shepherd Primary School	71.0 – 90.0	75.4	59.1 – 89.8	78 (79) [9]	Yes
MTW-18-2[8]	No. 2 Kowloon City Road	MTW-18-2(A) No. 20 Kowloon City Road	N/A	N/A	N/A	N/A	N/A
HOM-2-1--A[1]	Faerie Court (East Façade)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1111							
OM4a	Carmel Secondary School (South Block)	NM1 Carmel Secondary School (South Block)	(4)	(4)	(4)	69[7]	(4)
HH2[6]	Wing Fung Building	NM2 No. 234-238 Chatham Road North[5]	(4)	(4)	(4)	77	(4)
Works Contract 1112[1]							

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) 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.

N/A Not applicable

Table 2.5 Cumulative Log for Environmental Complaints, Notification of Summons and Successful Prosecutions

Works Contract	Environmental Complaints		Notification of Summons		Successful Prosecutions	
	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number
1101	0	0	0	0	0	0
1102	0	0	0	0	0	0
1103	0	0	0	0	0	0
1106	0	0	0	0	0	0
1107	0	0	0	0	0	0
1108	0	0	0	0	0	0
1108A	0	0	0	0	0	0
1109	0	0	0	0	0	0
1111	0	0	0	0	0	0
1112	0	0	0	0	0	0

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/D and EP-437/2012). The status of required submissions under the EPs as of the reporting period are summarised in **Table 3.1** and **3.2**.

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

EP Condition (EP-438/2012/D)	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 (1st submission) 31 Aug 2012 (2nd submission) 30 Nov 2012 (3rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1st submission) 21 Aug 2012 (2nd submission) 19 Dec 2012 (3rd submission) 22 Jan 2013 (4th submission) 30 Apr 2013 (5th submission) 21 May 2013 (6th 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 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission) 11 Jan 2013 (4th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5th submission) 26 Apr 2013 (6th submission) 11 Jun 2013 (7th submission) 12 July 2013 (Approved) 26 July 2013 (8th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9th submission) 13 Sept 2013 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission) 11 Jan 2013 (4th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5th submission) 26 Apr 2013 (6th submission) 11 Jun 2013 (7th submission) 12 July 2013 (Approved) 26 July 2013 (8th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9th submission) 13 Sept 2013 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 5 Oct 2012 (3rd submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4th submission) 9 May 2013 (5th submission) 24 July 2013 (6th submission) 26 July 2013 (Approved)

EP Condition (EP-438/2012/D)	Submission	Submission date
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1st submission) 30 Aug 2012 (2nd submission) 3 Oct 2012 (3rd submission) 13 Nov 2013 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4th submission) 8 Feb 2013 (5th submission) 18 Mar 2013 (6th submission) 18 June 2013 (7th submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1st submission) 5 Oct 2012 (2nd submission) 26 Nov 2012 (3rd submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1st submission) 18 Mar 2013 (2nd submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1st submission) 3 Sep 2012 (2nd submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3rd submission) 1 Nov 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1st submission) 19 Mar 2013 (2nd 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 Report No. 1 Monthly EM&A Report No. 2 Monthly EM&A Report No. 3 Monthly EM&A Report No. 4 Monthly EM&A Report No. 5 Monthly EM&A Report No. 6 Monthly EM&A Report No. 7 Monthly EM&A Report No. 8 Monthly EM&A Report No. 9 Monthly EM&A Report No. 10 Monthly EM&A Report No. 11 Monthly EM&A Report No. 12 Monthly EM&A Report No. 13 Monthly EM&A Report No. 14	12 Oct 2012 14 Nov 2012 13 Dec 2012 14 Jan 2013 14 Feb 2013 14 Mar 2013 12 Apr 2013 14 May 2013 14 Jun 2013 12 Jul 2013 15 Aug 2013 13 Sept 2013 15 Oct 2013 14 Nov 2013

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

EP Condition (EP-437/2012)	Submission	Submission date
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	19 Dec 2012 (1st submission)

EP Condition (EP-437/2012)	Submission	Submission date
	Construction Companies	30 Apr 2013 (2nd 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 (1st submission) 8 Feb 2013 (Approved for Contract 1111) 26 Apr 2013 (2nd submission) 11 Jun 2013 (3rd submission) 27 Aug 2013 (Approved)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1st submission) 11 Jan 2013 (2nd submission) 8 Feb 2013 (Approved for Contract 1111)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 5 Oct 2012 (3rd submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1st submission) 8 Feb 2013 (2nd 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 Report No. 5 Monthly EM&A Report No. 6 Monthly EM&A Report No. 7 Monthly EM&A Report No. 8 Monthly EM&A Report No. 9 Monthly EM&A Report No. 10 Monthly EM&A Report No. 11 Monthly EM&A Report No. 12 Monthly EM&A Report No. 13 Monthly EM&A Report No. 14	14 Feb 2013 14 Mar 2013 12 Apr 2013 14 May 2013 14 Jun 2013 12 Jul 2013 15 Aug 2013 13 Sept 2013 15 Oct 2013 14 Nov 2013

Appendix A

15th EM&A Report for Works Contract 1108A – Kai Tak Barging Point Facilities

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No.15

[Period from 1 to 30 November 2013]

Works Contract 1108A – Kai Tak Barging Point Facilities

(December 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th December 2013

Concentric – Hong Kong River Joint Venture

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

Monthly Environmental Monitoring and Audit Report for November 2013

(Version 2.0)

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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EXECUTIVE SUMMARY

Introduction

1. This is the 15th 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 November 2013.

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;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

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…….……...…4 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. 120 m^3 of inert C&D materials and 10 m^3 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;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

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 15th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 November to 30 November 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) 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;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

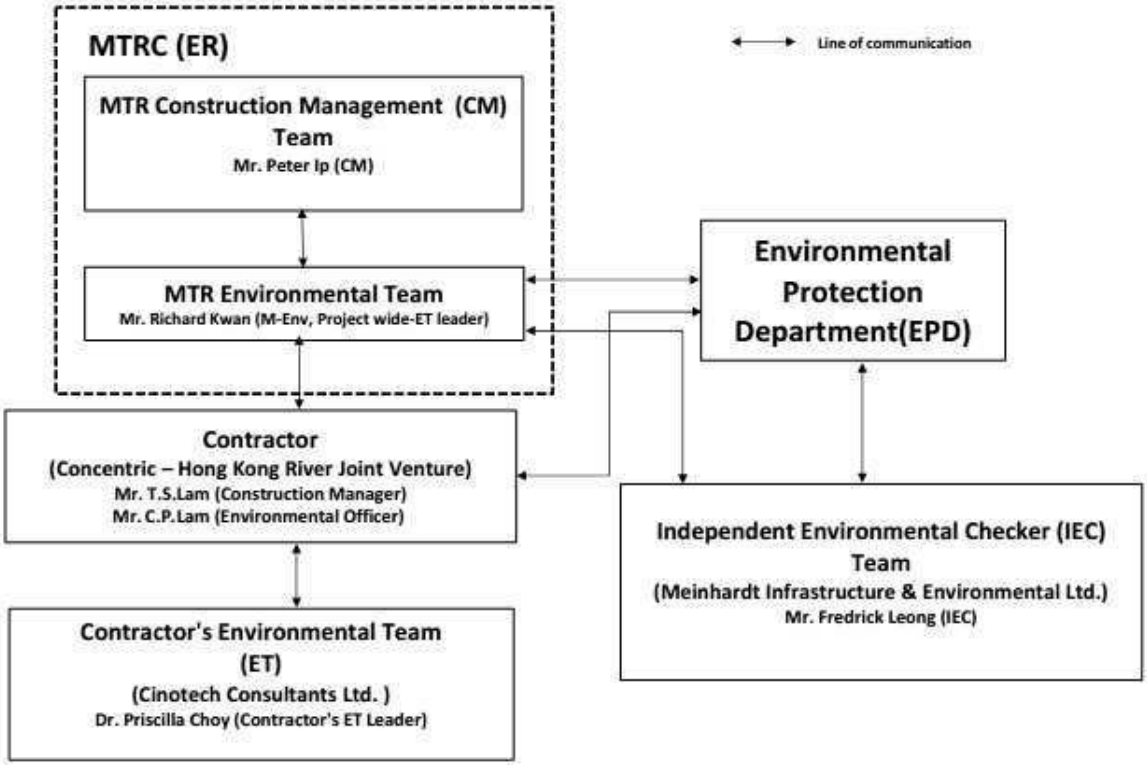
Project Organisation

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. Peter IP	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	
		Ms. Jane ZHU	Quality Engineer	6207 3974	

Status of Environmental Licences, Notification and Permits

2.9 Application for Variation of Environmental Permit (Application No. VEP-382/2012) was submitted by the Permit Holder on 17 October 2012 for amending Conditions 2.21 and 2.22 in Part C of Environmental Permit No. EP-438/2012/A. Environmental Permit No. EP-438/2012/B was issued by EPD on 26 October 2012 based on this application. The EP was superseded by EP-438/2012/C from 30th April 2013.

2.10 An updated Environmental Permit (EP) (EP No. EP-438/2012/D) was granted on 13th September 2013. 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 Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
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	N/A	Valid
Construction Noise Permit (CNP)			
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	Valid
Marine Dumping Permits			
EP/MD/13-075	10/10/2012	09/11/2012	Expired
EP/MD/13-074	26/10/2012	25/11/2012	Expired
EP/MD/14-077	27/11/2013	26/5/2014	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD
Billing Account for Construction Waste Disposal			
A/C# 7015860	29/08/2012	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-286-C3752-01	17/09/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014328-2012	07/11/2012	30/11/2017	Valid

Summary of EM&A Requirements

2.11 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.

2.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.13 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(1)	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 (October 2013)	Submitted to EPD on 14th November 2013 (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) [(a)]	C&D Materials (non-inert)[(b)]	Dredging Quantity (in bulk volume)	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
November 2013	120 m^3	10 m^3	0 m^3	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 5, 14, 21 and 27 November 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 14 November 2013. No site inspection was conducted by EPD during 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 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
Water Quality	14 November 2013	Reminder: Remove the silt and mud at the car washing bay near the site entrance.	The observation was observed to be improved/rectified by the Contractor during the audit session on 27 November 2013.
	14 November 2013	Reminder: Clear the stand water near the site boundary and prevent it from entering the sea.	The observation was observed to be improved/rectified by the Contractor during the audit session on 21 November 2013.
	21 November 2013	Reminder: Clear the silt and mud at the car washing bay and walkways.	The observation was observed to be improved/rectified by the Contractor during the audit session on 27 November 2013.
Noise	N/A	N/A	N/A
Ecology/ Landscape and Visual	N/A	N/A	N/A
Air Quality	16 October 2013	Reminder: Repair the dust curtain on the tipping hall of the floating jetty before next operation.	The dust curtain was observed to be repaired on 5 November 2013 and was damaged during the operation of the floating jetty. The item was remarked and follow up action would be reported accordingly.
	22 October 2013	Observation: Repair the dust curtain at the tipping hall of the floating jetty.	The dust curtain was observed to be repaired on 5 November 2013 and was damaged during the operation of the floating jetty. The item was remarked and follow up action would be reported accordingly.

Parameters	Date	Observations and Recommendations	Follow-up
	22 October 2013	Reminder: Properly cover the construction materials with tarpaulin sheet near tipping hall no. 1.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 November 2013.
	22 October 2013	Observation: Provide water spray at the tipping hall of the floating jetty.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 November 2013.
	30 October 2013	Observation: Repair the dust curtain in the tipping hall of the floating jetty.	The dust curtain was observed to be repaired on 5 November 2013 and was damaged during the operation of the floating jetty. The item was remarked and follow up action would be reported accordingly.
	30 October 2013	Observation: Repair the water spray in the floating jetty.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 November 2013.
	30 October 2013	Reminder: The tarpaulin sheet provided on the construction material in tipping hall no. 1 should be modified to properly cover all the construction materials.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 November 2013.
	5 November 2013	Reminder: Cover the stockpile near the tipping hall no. 2 with tarpaulin sheet.	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 November 2013.
	5 November 2013	Reminder: Repair the dust curtain in the floating jetty.	Follow up action will be reported in next reporting period.
	14 November 2013	Observation: Provide a dust curtain for the tipping hall of the floating jetty.	Follow up action will be reported in next reporting period.
	21 November 2013	Observation: Repair the dust curtain at the tipping hall of the floating jetty.	Follow up action will be reported in next reporting period.
	21 November 2013	Reminder: Properly cover the construction materials with tarpaulin sheet near tipping hall no. 1.	The observation was observed to be improved/rectified by the Contractor during the audit session on 27 November 2013.
	27 November 2013	Reminder: Provide a dust curtain for the tipping at the floating jetty before operation.	Follow up action will be reported in next reporting period.
Waste / Chemical Management	30 October 2013	Reminder: Provide a chemical label for the chemical waste container next to conveyor belt no. 1 and cover it with tarpaulin sheet.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 November 2013.
	5 November 2013	Reminder: Place the chemical waste container near the conveyor belt no. 1 to the chemical waste storage area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 November 2013.

Parameters	Date	Observations and Recommendations	Follow-up
	27 November 2013	Reminder: Clear the construction material near the chemical waste storage area.	Follow up action will be reported in next reporting period.
Permits / Licenses	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 No environmental related complaint, prosecution or notification of summons was received in the reporting month. The Complaint Log is presented in **Appendix G**.

Summary of Environmental Summon and Successful Prosecution

7.4 There was no environmental complaint, 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 full 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.
- Potential splashing of spoils into the surrounding seawater arising from handling/unloading of the spoil at the discharge points.
- Potential dust and noise impacts arising from civil construction works for an additional floating jetty.

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;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping grounds; and
- Minor civil construction works related to the establishment of an additional floating jetty.

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 November 2013 to 30 November 2013 in accordance with EM&A Manual and the requirement under EP-438/2012/D.

9.2 No impact monitoring was conducted in the reporting month.

9.3 There was no environmental complaint, prosecution or notification of summons received.

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

- Provide adequate measures to avoid any splashing of spoils into the surrounding seawater when handling/unloading the spoil at the discharge points.
- Provide adequate measures to remove the silt and mud at the car washing bay and on access roads.

Air Quality

- Flexible dust curtains should be properly installed at the discharge point for dust suppression when in operation.
- Provide water spray on the floating jetty regularly to avoid the generation of dust from vehicles.
- Stockpiles or dusty materials in the site area should be covered properly with imperious sheeting.

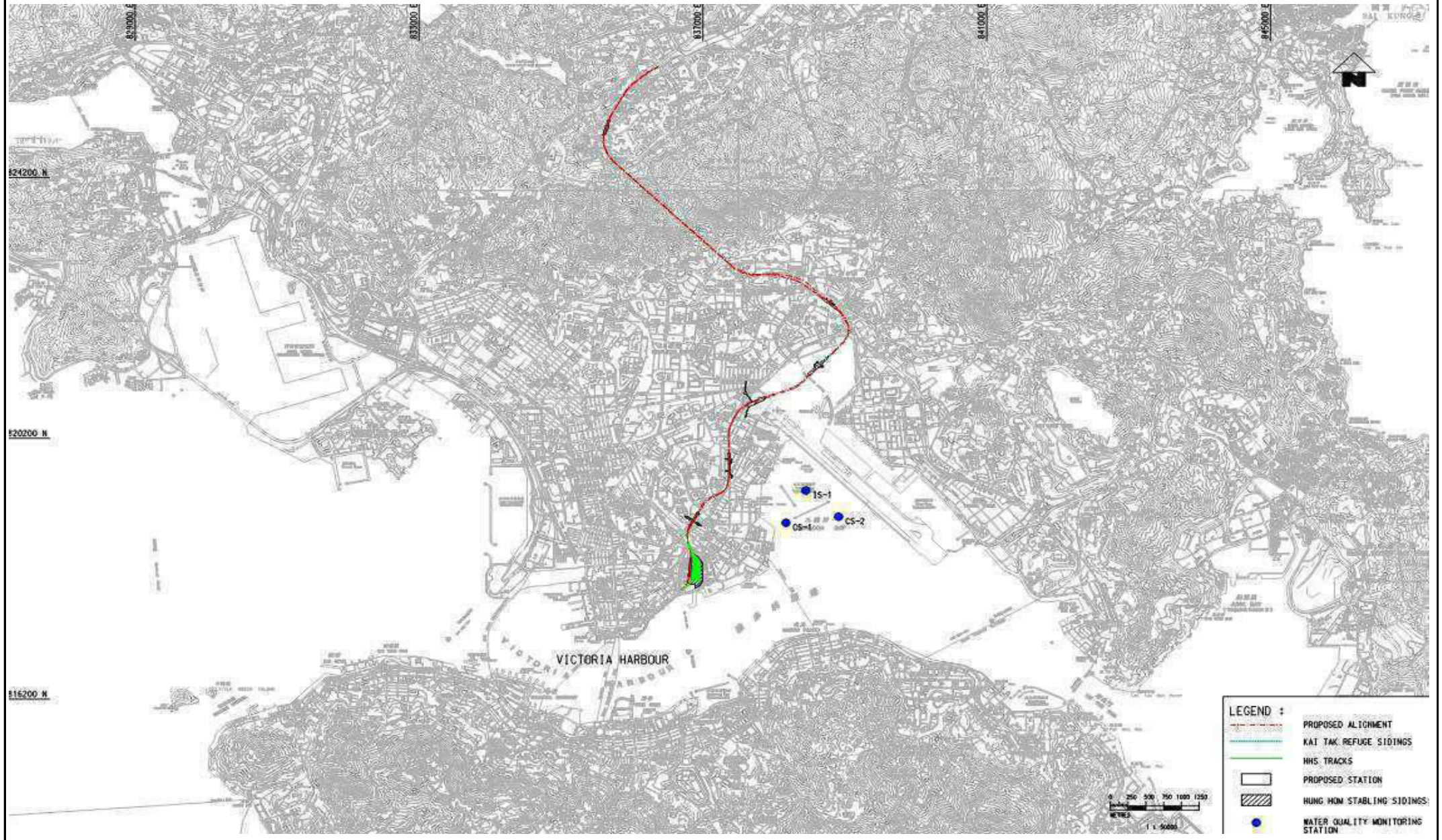
Waste / Chemical Management

- Chemical wastes should be placed and labeled properly at designated area.

FIGURES

Title	SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Site Layout Plan	Scale: N.T.S Date: Oct-12	Proposa No.: MA12028 Figure: 1

CINOTECH



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	Proposa No. MA12028 Figure: 2

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Action and Limit Levels for Water Quality

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

APPENDIX B
SUMMARY OF EXCEEDANCE

APPENIDX B – SUMMARY OF EXCEEDANCE

Reporting Month: November 2013

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX C
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131105
Date	5 November 2013 (Tuesday)
Time	14:00-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
131105-R02	• Cover the stockpile near the tipping hall no. 2 with tarpaulin sheet.	D 7
131105-R03	• Repair the dust curtain in the floating jetty.	D 12
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
131105-R01	• Place the chemical waste container near the conveyor belt no. 1 to the chemical waste storage area.	F 2i
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:131030), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kevin Lam		5 November 2013
Checked by	Dr. Priscilla Choy		5 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131114
Date	14 November 2013 (Thursday)
Time	15:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
131114-R02	• Remove the silt and mud at the car washing bay near the site entrance.	B 14iii
131114-R03	• Clear the stand water near the site boundary and prevent it from entering the sea.	B 12
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
131114-O01	• Provide a dust curtain for the tipping hall of the floating jetty.	D 12
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:131105), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kevin Lam		14 November 2013
Checked by	Dr. Priscilla Choy		14 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131121
Date	21 November 2013 (Thursday)
Time	14:00-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
131121-R02	• Clear the silt and mud at the car washing bay and walkways.	B 14ii
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
131121-O01	• Repair the dust curtain at the tipping hall of the floating jetty.	D 12
131121-R03	• Properly cover the construction materials with tarpaulin sheet near tipping hall no. 1.	D 7
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:131114), items 131114-O01 and 131114-R02 were remarked and should be reviewed during next site inspection.	

	Name	Signature	Date
Recorded by	Kevin Lam		21 November 2013
Checked by	Dr. Priscilla Choy		21 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131127
Date	27 November 2013 (Wednesday)
Time	16:00-17:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality • No environmental deficiency was identified during the site inspection. ***Part C - Ecology/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality***	
131127-R01	• Provide a dust curtain for the tipping at the floating jetty before operation.	D 12
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management***	
131127-R02	• Clear the construction material near the chemical waste storage area.	F 4ii
	Part G - Permit / Licenses • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:131121), items 131121-O01 was remarked as 131127-R01 and should be reviewed during next site inspection.	

	Name	Signature	Date
Recorded by	Kevin Lam		27 November 2013
Checked by	Dr. Priscilla Choy		27 November 2013

APPENDIX D
EVENT AND ACTION PLANS

Event and Action Plan for Water Quality

Event	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	1. Inform IEC, contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; and 3. Discuss remedial measures with IEC and Contractor and ER	1. Discuss with ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on 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.	1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; and 2. Make agreement on the remedial measures to be implemented. 3. Supervise the implementation of agreed remedial measures	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; 5. Consider changes of working methods; 6. Discuss with ER, ET and IEC and propose remedial measures to IEC and ER; and 7. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss remedial measures with IEC, contractor and ER 5. Ensure remedial measures are implemented	1. Discuss with ET Contractor and ER on the implemented mitigation measures; 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.	1. Discuss with ET, IEC and Contractor on the proposed mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with ET IEC and Contractor on the effectiveness of the implemented remedial measures.	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 remedial measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed mitigation measures.
Limit level being	1. Repeat measurement on next day	1. Discuss with ET , Contractor and	1. Discuss with IEC, ET and	1. Identify source(s) of impact;

Event	ET	IEC	ER	Contractor
exceeded by one sampling day	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;	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.	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.	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.
Limit level being exceeded by more than one consecutive sampling days	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.	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.	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.	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.

Event and Action Plan for Landscape and Visual during Construction Stage

Event	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposedremedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedialmeasures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity implement remedial measures 2. Amend working methods agreed with the ER as appropriate 3. Rectify damage and undertake any necessary replacement. 4. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer's Representative

APPENDIX E
UPDATED 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
Ecology (Pre-Construction Phase)								
S5.7	E3	<u>Tree felling and vegetation removal</u> 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.	Minimize ecological impacts to breeding bird species of conservation interest	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
Ecology (Construction Phase)								
S5.7	E5	<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, 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. The following good site practices should also be implemented: • 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;	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
		• Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						^ ^ ^ ^
S5.7	E6	<u>Sediment Removal</u> • Use closed grab in dredging works. • Install silt curtain during the dredging.	• Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna • Minimize marine water quality impacts	Contractor	Dredging Area	During Dredging	•TM-Water	N/A(2) N/A(2)
Landscape & Visual (Construction Phase)								
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> • For soil conservation, existing topsoil shall be re-used where	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A(2)

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
		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. <u>No-intrusion Zone</u> • 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. <u>Protection of Retained Trees</u> • 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.						^ ^

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
		• 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.						^
S6.12	LV2	<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. <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.	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(1)
Air Quality (Construction Phase)								
/	A1	<u>Emission from Vehicles and Plants</u> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD).	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO • To control the air quality to meet HKAQO and TM-EIA criteria	^

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	• APCO • To control the air quality to meet HKAQO and TM-EIA criteria	^
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	• 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 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^2 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	^

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	• Proper watering of exposed spoil should be undertaken throughout the construction phase; • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • 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; • 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;	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	^ * ^ ^ ^ ^

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
		• 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; • 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; • 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; • 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; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting						^ ^ ^ N/A(2) N/A(2)

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
		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; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • 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; • 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 • 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.						N/A(2) N/A(2) N/A(2) N/A(2) N/A(2)

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: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	• Air Pollution Control (Construction Dust) Regulation	^ ^ ^ ^
S7.6.5	D5	• 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	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(1)

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
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ N/A(2) ^ N/A(2)
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(1)
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(1)
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(1)

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
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> • 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. • 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	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	^ ^

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
		in the permanent drainage channels to enhance deposition rates. 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^3/s a sedimentation basin of $30m^3$ would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. • 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. • 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						^ ^

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
		weather and the reduction of surface sheet flows. • 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. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 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. 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						^ ^ N/A(1) ^

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
		system and storm runoff being directed into foul sewers • 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 • 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. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors						^ * ^

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
		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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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 • 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. • Adopt best management practices.						^ ^ N/A(2) *
S10.7.1	W3	<u>Sewage Effluent</u> • 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^

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	W4	<u>Groundwater from Contaminated Area:</u> • 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. • 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	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	• Water Pollution Control Ordinance • TM-water • TM-EIAO	N/A(1) N/A(1)

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
		plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers • 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.						N/A(1)

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	<u>Dredging Works</u> The following good practice shall apply for the dredging works: • Install efficient silt curtains at the point of seawall dredging to control the dispersion of SS; • Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures required; • The decent speed of grabs should be controlled to minimize the seabed impact and to reduce the volume of over-dredging; and • 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.	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	• Water Pollution Control Ordinance • TM-EIAO	N/A(2) N/A(2) N/A(2) N/A(2)
S10.7.1	W6	<u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations: • All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; • Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	• Water Pollution Control Ordinance • 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
		transportation; • 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; • Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water; and • 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.						^ ^ ^
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: • 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. • 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. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^ ^ ^

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	• Water Pollution Control Ordinance • TM-water • EIA-TM	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • 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	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) No. 6/2010	N/A(2)

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	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • 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&D materials and to minimize their generation during the course of construction.	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	N/A(2) N/A(2) N/A(2) N/A(2) ^ ^

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
		• In addition, disposal of the C&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						^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&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.	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^ N/A(2)

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
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • 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.	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	<u>Land-based and Marine-based Sediment</u> • 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	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	• ETWB TCW No. 34/2002	N/A(1)

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
		in the locations other than designated location; • 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; • 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; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • 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; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with						N/A(1) N/A(1) N/A(1) N/A(1) N/A(1) N/A(1)

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
		tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m^3 capacity and capable of rapid opening and discharge at the disposal site; • 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. • 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.						N/A(1) N/A(1) N/A(1) N/A(1)

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
S11.5.1	WM7	<u>Chemical Waste</u> • 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. • 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. • 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.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	* ^ ^

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
		• 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.						^

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

APPENDIX F
WASTE GENERATION IN THE REPORTING MONTH

Concentric – Hong Kong River Joint Venture

MTR SCL Contract 1108A
Kai Tak Barging Point Facilities

Monthly Summary Waste Flow Table for 2013 (year)

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^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	**0.005**	**0.000**	**0.000**	**0.000**	**0.005**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
Feb	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
Mar	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Apr	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
May	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
June	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**
Sub-total	**0.005**	**0.000**	**0.000**	**0.000**	**0.005**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.020**
July	**0.010**	**0.000**	**0.000**	**0.000**	**0.010**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**	**0.005**
Aug	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.015**
Sept	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Oct	**0.055**	**0.000**	**0.000**	**0.000**	**0.055**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
Nov	**0.120**	**0.000**	**0.000**	**0.000**	**0.120**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**
Dec	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
G.Total	**0.190**	**0.000**	**0.000**	**0.000**	**0.190**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**	**0.055**

APPENDIX G
COMPLAINT LOG

Appendix G - Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
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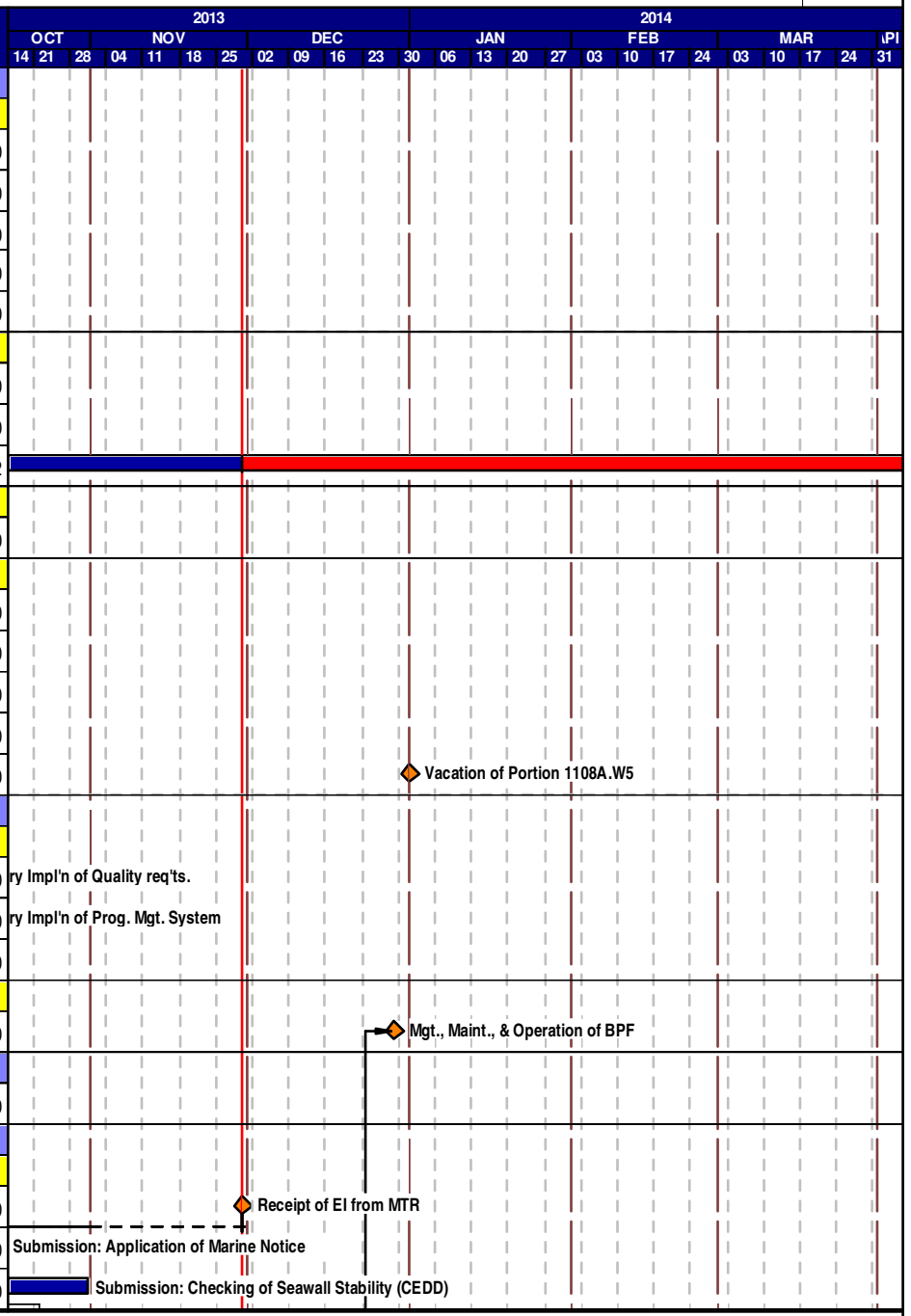
APPENDIX H
TENTATIVE CONSTRUCTION PROGRAMME

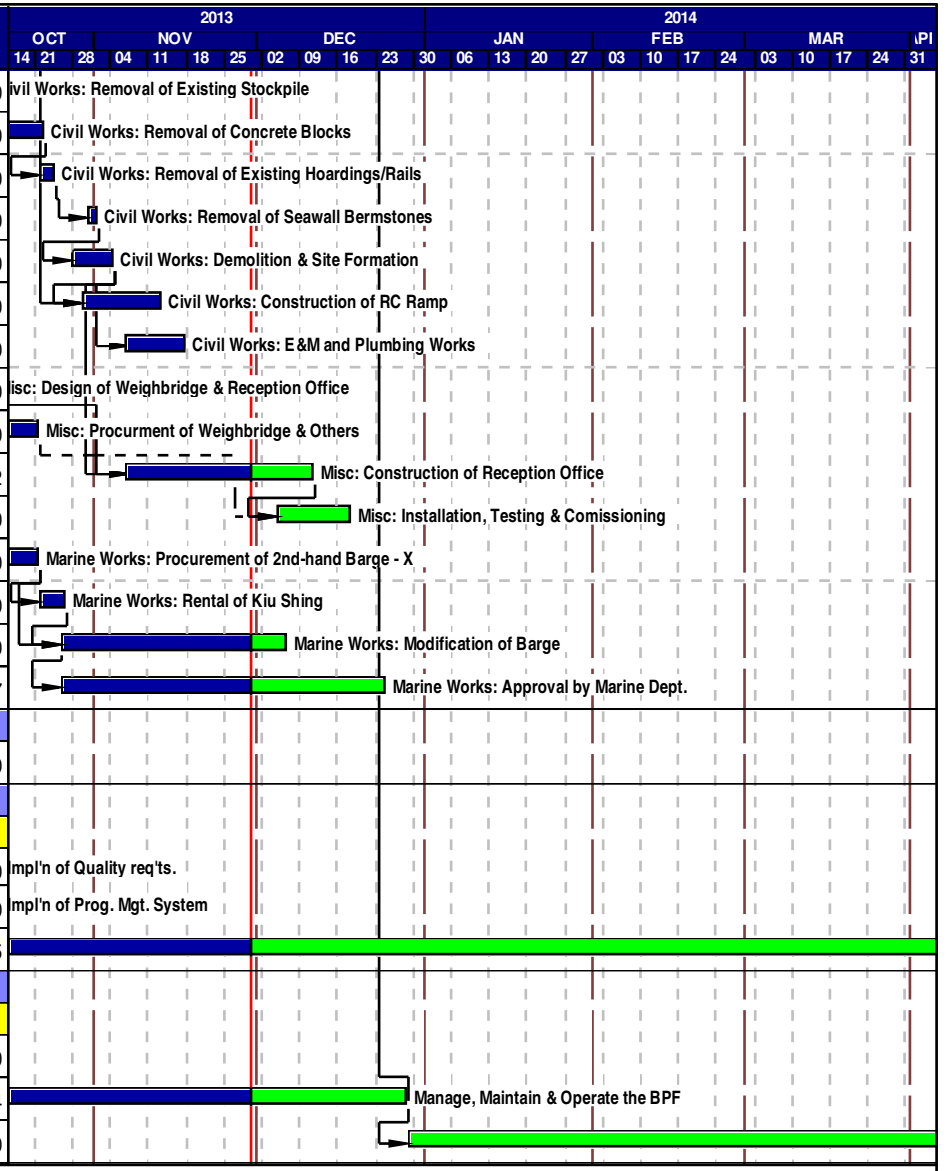
MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES

3 Month Rolling Programme
(incl. Addition of Floating Jetty)

Act ID	Description	Orig Dur	Early Start	Early Finish	%
COMMENCEMENT & COMPLETION					
Completion of the Works					
1108ACD01	Letter of Acceptance	0	10AUG12 A		100
1108ACD02	Commencement of Contract	0	13AUG12 A		100
1108ACD03A	Completion of Specified Parts of the Works	0		10FEB13 A	100
1108ACD03C	Completion of Contract	0		28AUG16	0
1108ACD04B	Completion of 1st BPF for Operation	0		10DEC12 A	100
Time for Completion					
1108ACD04A	Completion of Specified Parts of the Works	187	13AUG12 A	15FEB13 A	100
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12 A	10DEC12 A	100
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	32
+Time for Possession of Works Area					
		52	13AUG12 A	03OCT12 A	100
Vacation of Works Area					
1108ACD11V	Vacation of Portion 1108A.W1	0		28AUG16 *	0
1108ACD12V	Vacation of Portion 1108A.W2	0		28AUG16 *	0
1108ACD13V	Vacation of Portion 1108A.W3	0		31DEC15 *	0
1108ACD14V	Vacation of Portion 1108A.W4 (Access Only)	0		28AUG16 *	0
1108ACD15V	Vacation of Portion 1108A.W5	0		31DEC13 *	0
MILESTONES SCHEDULE					
Milestones for Cost Centre A					
1108AMSA41	Satisfactory Impl'n of Quality req'ts.	0		29SEP13 A	100
1108AMSA42	Satisfactory Impl'n of Prog. Mgt. System	0		29SEP13 A	100
1108AMSA50	Satisfactory Impl'n of Safety & Env. req'ts.	0		29JUN14	0
Milestones for Cost Centre B					
1108AMSB40	Mgt., Maint., & Operation of BPF	0		28DEC13	0
+EXECUTION OF OPTIONS					
		59	13AUG12 A	10OCT12 A	100
Engineer's Instruction					
Addition of Floating Landing Barge in WA3					
1108AVE301	Receipt of EI from MTR	0	30NOV13 *		0
1108AVE311	Submission: Application of Marine Notice	28	15OCT13 A	15OCT13 A	100
1108AVE312	Submission: Checking of Seawall Stability (CEDD)	28	15OCT13 A	31OCT13 A	100



Act ID	Description	Orig Dur	Early Start	Early Finish	%
1108AVE321	Civil Works: Removal of Existing Stockpile	10	05OCT13 A	12OCT13 A	100
1108AVE322	Civil Works: Removal of Concrete Blocks	3	12OCT13 A	22OCT13 A	100
1108AVE323	Civil Works: Removal of Existing Hoardings/Rails	2	22OCT13 A	24OCT13 A	100
1108AVE324	Civil Works: Removal of Seawall Bermstones	2	31OCT13 A	01NOV13 A	100
1108AVE325	Civil Works: Demolition & Site Formation	7	28OCT13 A	04NOV13 A	100
1108AVE326	Civil Works: Construction of RC Ramp	14	30OCT13 A	13NOV13 A	100
1108AVE327	Civil Works: E&M and Plumbing Works	14	07NOV13 A	17NOV13 A	100
1108AVE331	Misc: Design of Weighbridge & Reception Office	7	05OCT13 A	12OCT13 A	100
1108AVE332	Misc: Procurment of Weighbridge & Others	49	12OCT13 A	21OCT13 A	100
1108AVE333	Misc: Construction of Reception Office	14	07NOV13 A	11DEC13	12
1108AVE334	Misc: Installation, Testing & Comissioning	14	05DEC13	18DEC13	0
1108AVE341	Marine Works: Procurement of 2nd-hand Barge - X	14	04OCT13 A	21OCT13 A	100
1108AVE342	Marine Works: Rental of Kiu Shing	14	22OCT13 A	26OCT13 A	100
1108AVE343	Marine Works: Modification of Barge	35	26OCT13 A	06DEC13	80
1108AVE344	Marine Works: Approval by Marine Dept.	75	26OCT13 A	24DEC13	67
+Value Engineering Proposals					
		27	10SEP12 A	06OCT12 A	100
Cost Centre A					
Preliminaries					
1108AA4010	Satisfactory Impl'n of Quality req'ts.	415	13AUG12 A	27SEP13 A	100
1108AA4020	Satisfactory Impl'n of Prog. Mgt. System	415	13AUG12 A	27SEP13 A	100
1108AA5010	Satisfactory Impl'n of Safety & Env. req'ts.	598	13AUG12 A	29JUN14	65
Cost Centre B					
Kai Tak BPF - Mgt., Maintenance & Operation					
1108AB3010	Manage, Maintain & Operate the BPF	152	10DEC12 A	30JUN13 A	100
1108AB4010	Manage, Maintain & Operate the BPF	182	30JUN13 A	28DEC13	84
1108AB5010	Manage, Maintain & Operate the BPF	182	29DEC13	28JUN14	0



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Finish date	28AUG16
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Run date	03DEC13
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MTR

MTR SCL 1108A

KAI TAK BARGING POINT FACILITIES

Concentric - Hong Kong River Joint Venture

Early bar
Progress bar
Critical bar
Summary bar
Start milestone poin
Finish milestone poi

Appendix B

15th EM&A Report for Works Contract 1109 –
Stations and Tunnels of Kowloon City Section

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 15

[Period from 1 to 30 November 2013]

Works Contract 1109 - Stations and Tunnels of Kowloon City Section

(December 2013)

Certified by: Winnie Ko

Position: Environmental Team Leader

Date: 12 December 2013

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.15

December 2013

Environmental Resources Management
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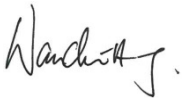
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section: Works Contract 1109 – Stations and Tunnels of Kowloon City Section

Monthly EM&A Report No.15

December 2013

Reference 0171181

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Date:	12 December 2013

CONTENTS

LIST OF ANNEXES

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 fifteenth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 November to 30 November 2013 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 pier 15 pre-drilling works; • Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.
Works in To Kwa Wan (TKW)
• Olympic Garden – Pre-bored H pilling; • Olympic Playground– Pre-bored H pilling; • TKW Station – Archaeological survey, construction of grout curtain, water main diversion, sheet pile, box culvert erection and pre-bored H pile; • Nam Kok Road – Installation of pipe pile and construction of grout curtain.

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* *5 times*
  - *NMS-CA-7* *5 times*
  - *NMS-CA-8* *5 times*
  - *NMS-CA-9* *5 times*
  - *NMS-CA-10* *5 times*
- Construction dust (24-hour TSP) monitoring
  - *DMS-6* *6 times*
  - *DMS-7* *6 times*
  - *DMS-8* *6 times*
  - *DMS-9* *6 times*
  - *DMS-10* *6 times*

Continuous Noise Monitoring

During the reporting period, continuous noise monitoring is only required at MTW-16-1 according to the schedule presented in CNMP.

Cultural Heritage

A Licence 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 at the Sacred Hill (North) commenced on 1 November 2012 and is being 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 Oct 2013 and it was approved on 1 Nov 2013.

Vibration monitoring was conducted at Hong Kong Aviation Club 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 7,199 m^3 of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 506 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 678 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No chemical waste or metal was generated during this reporting month. 68 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period.

Landscape and Visual

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 18 November 2013. 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 4, 11, 18 and 25 November 2013. The representative of the IEC joined the site inspection on 11 November 2013. 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.

Investigation of the exceedance recorded on 9 Oct had been conducted during last reporting month. Based on the investigation, the exceedances recorded were potentially project related.

Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 during

the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 is still undertaking. It will be reported in next reporting month.

No environmental complaint and summons/prosecutions 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)
● Along Ma Tau Wai Road - Construction of D-wall panel, pre-drilling for D Wall and trial pits for location of utilities; ● TKW/MTW Road Garden – Operation of bentonite plant, pier 15 water main diversion works, pier 15 underpining preparation works and pier 15 pre-drilling works.
Work in To Kwa Wan (TKW)
● Olympic Playground – Pre-bored H piling; ● Olympic Garden- Pre-bored H piling; ● Nam Kok Road –Installation of pipe pile and grout curtain; ● TKW Station – Archaeological survey, erection of box culvert, construction of ground curtain, water main diversion, sheet piling and pre-bored H pilling.

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 fifteenth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 November to 30 November 2013.

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 organization 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 Environmental Mitigation Measures**
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

Construction Activities undertaken
Works in Ma Tau Wai (MTW)
● TKW/MTW Road Garden – Operation of bentonite plant and pier 15 pre-drilling works; ● Along Ma Tau Wai Road - Construction of D-wall panel, predrilling for D-wall and trial pits for location of utilities.
Works in To Kwa Wan (TKW)
● Olympic Garden – Pre-bored H pilling; ● Olympic Playground– Pre-bored H pilling; ● TKW Station – Archaeological survey, construction of grout curtain, water main diversion, sheet pile, box culvert erection and pre-bored H pile; ● Nam Kok Road – Installation of pipe pile and construction of grout curtain.

2.4 PROJECT ORGANISATION

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

2.5 STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in September 2012 is presented in ***Table 2.2***.

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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-438/2012	-	Superseded by EP-438/2012/A on 12 July 2012
	EP-438/2012/A	-	Superseded by EP-438/2012/B on 26 October 2012
	EP-438/2012/B	-	Superseded by EP-438/2012/C on 30 April 2013
	EP-438/2012/C	-	Superseded by EP-438/2012/D on 13 September 2013
	EP-438/2012/D	Throughout the Contract	Permit granted on 13 September 2013
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 Aug 2012 – 30 Apr 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 Oct 2012 – 30 Apr 2017	-
Wastewater Discharge Licence			
Site at TKW	*WT00014390-2012*	*30-Sep-2017*	-
Site at MTW	*WT00016348-2013*	*30-Sep-2017*	-
Chemical Waste Producer Registration			
Site at TKW	*5213-286-S3682-01*	*Throughout the Contract*	-
Site at MTW	*5213-242-S3682-02*	*Throughout the Contract*	-
Construction Noise Permit			
- *Grout Pump and Generator at TKW/ MTW Garden*	*GW-RE0855-13*	*21 Aug 2013 - 20 Feb 2014*	-
- *Powered Mechanical Equipment at TKW*	*GW-RE0614-13*	*19 Jun 2013 - 12 Dec 2013*	-
- *Powered Mechanical Equipment at MTW*	*GW-RE1057-13*	*20 Oct 2013 - 3 Nov 2013*	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
- *Powered Mechanical Equipment at MTW*	*GW-RE1125-13*	*11 Nov 2013 – 11 Dec 2013*	-
- *Powered Mechanical Equipment at TKW*	*GW-RE1126-13*	*18 Oct 2013 – 16 Nov 2013*	-
- *Powered Mechanical Equipment at MTW*	*GW-RE1136-13*	*23 Oct 2013 – 21 Apr 2014*	-
- *Powered Mechanical Equipment at MTW*	*GW-RE1167-13*	*4 Nov 2013 – 3 Dec 2013*	-
- *Powered Mechanical Equipment at MTW*	*GW-RE1170-13*	*30 Oct 2013 – 23 Apr 2014*	-
- *Powered Mechanical Equipment at TKW*	*GW-RE1215-13*	*16 Nov 2013 – 14 Dec 2013*	-
- *Powered Mechanical Equipment at TKW*	*GW-RE1172-13*	*4 Nov 2013 – 30 Apr 2014*	-
- *Powered Mechanical Equipment at TKW*	*GW-RE1240-13*	*22 Nov 2013 – 21 Feb 2014*	-
Licence to Excavate and Search for Antiquities	363	Till 21 Oct 2014	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS

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 the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected or not available; 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

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
NMS–CA-6, 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. 00983400)

Immedi1ately 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) [(b)] 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)

Note:

(a) If works are to be carried out during restricted hours (ie, outside 0700 – 1900 on 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 Aug 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 Location

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[(a)]	Description
TKW-3-2(A)	No. 420 Prince Edward Road West
MTW-12-3	Lucky Mansion
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)
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	Jing Ming Building
MTW-16-1	SKH Good Shepherd Primary School

Note:

(a) The final monitoring locations will be subject to the latest Continuous Noise Monitoring

Plan (CNMP).

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 on 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.

Table 3.5 Noise Monitoring Equipment

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
MTW-16-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00983400)

Note:
(a) During the reporting period, continuous noise monitoring is only required at MTW-16-1 according to the schedule presented in CNMP.

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 [(a)]

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level [(a)]	Measurement Period [(a)]
TKW-3-2(A)	No. 420 Prince Edward Road West	80	Sept 2014 – Dec 2014

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level [(a)]	Measurement Period [(a)]
MTW-12-3	Lucky Mansion	80	Aug 2014 – Jan 2015, Mar 2015 – Jun 2015
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	80	Aug 2014 – Jun 2015
MTW-12-4-1(A)	59 Maidstone Road	82	Oct 2014, Dec 2014 – Jun 2015
MTW-12-10	Lucky Building (South Façade)	84	Mar 2015 – Apr 2015, Sept 2015 – Jan 2016
MTW-12-10-1	Lucky Building (East Façade)	80	Dec 2014 – May 2015, Sept 2015 – Jan 2016
MTW-12-11	Jing Ming Building	81	Sept 2014 – Jun 2015
MTW-16-1	SKH Good Shepherd Primary School	78 79 [(b)]	Apr 2013 – 21 Aug2013, 22 Aug 2013 – Dec 2013 May 2014, Aug 2014 – Mar 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 A/L 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.

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 [(a)]	Katherine Building
DMS-7	Parc 22
DMS-8	SKH Good Shepherd Primary School
DMS-9 [(b)]	No. 26 Kowloon City Road
DMS-10	Chat Ma Mansion

Proposed Construction Dust Monitoring Location	Description

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.

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 the 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

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Orifice ID 2323)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2323)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2323)
DMS-9	TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2323)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Orifice ID 2323)

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 ± 3°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^3min^{-1} , which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 m^3min^{-1});
- 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 (μg m^{-3}) [(a)]	Limit Level (μg m^{-3}) [(a)]
24-hour TSP	DMS-6	156.8	260
	DMS-7	166.7	260
	DMS-8	152.2	260
	DMS-9	160.9	260
	DMS-10	170.4	260

Parameters	Dust Monitoring Station	Action Level (μg m^{-3}) [a]	Limit Level (μg m^{-3}) [a]
1-hour TSP [b]	DMS-6	288.8	500
	DMS-7	289.7	500
	DMS-8	300.0	500
	DMS-9	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.

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

3.4 CULTURAL HERITAGE

The Licence 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 has been 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 Oct 2013 and it was approved on 1 Nov 2013.

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***.

4 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 summarized 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

EP Condition	Submission	Submission Date
Condition 3.4	Fourtheenth Monthly EM&A Report	14 November 2013

5 MONITORING RESULTS

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 25 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. No exceedance of the limit level was recorded on 1, 7, 13 and 25 November at NMS-CA-8 and during the whole reporting period at NMS–CA-6, NMS–CA-7 and NMS–CA-9.

The noise monitoring results of the measurements carried out at NMS-CA-8 on 19 November, at NMS-CA-10 on 1, 7, 13, 19 and 25 November are higher than the daytime construction noise criterion. However, the results are not considered as exceedance because they are below the limit level after deducting the baseline noise level.

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

5.2 CONTINUOUS NOISE MONITORING

According to the prediction in the CNMP, continuous noise monitoring was only conducted at MTW-16-1 during the reporting month. Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013. The monitoring results are presented in ***Annex I-2***.

5.3 CONSTRUCTION DUST MONITORING

A total of 30 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, μgm^{-3} (a)		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	84	78 - 93	156.8	260
DMS-7	89	81 - 102	166.7	260
DMS-8	90	86 - 98	152.2	260
DMS-9	90	77 - 104	160.9	260
DMS-10	95	84 - 109	170.4	260

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

5.4 CULTURAL HERITAGE

A Licence 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 at the Sacred Hill (North) commenced on 1 November 2012 and is being 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 Oct 2013 and it was approved on 1 Nov 2013.

Vibration monitoring was conducted at Hong Kong Aviation Club 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	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
November 2013	7,199 m^3	0 kg	678 m^3	68 kg	506 kg	0 kg

Notes:

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

(b) About 7,199 m^3 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 4 and 18 November 2013. Most of the

mitigation measures given in ***Annex H*** have been implemented. Required Actions that were found are listed below:

4 November 2013

- No observation was reported during the site inspection.

18 November 2013

- 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 4, 11, 18 and 25 November 2013. The representative of the IEC joined the site inspection on 11 November 2013. No non-compliance was recorded during the site inspections.

Follow up actions for the observations on 28 October 2013 had been taken. Continuous effort had been paid by the Contractor to remove oil stains in Area E1 of MTW works area as observed during the site audit on 4 November 2013. The Contractor has been water spraying on the works area on a regular basis. The dust level was well under control and did not flare up as observed during the site audit on 4 November 2013.

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

4 November 2013

- No observation was reported during the site inspection.

11 November 2013

- The Contractor was reminded to improve cover at the top of the cement mixing area in TKW works area. The Contractor had improved cover at the top of the cement mixing area in TKW works area during the site inspection on 18 November 2013.

18 November 2013

- The Contractor was reminded to improve mitigation measures to control site runoff in Area E1 of MTW works area. The Contractor had immediately deployed site workers to rectify the situation during the site inspection on 18 November 2013.

25 November 2013

- The Contractor was reminded to improve mitigation measures to properly control the site runoff. Immediate actions had been taken by the Contractor to alleviate the situation during the site inspection on 25 November 2013.

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 in the following weekly site inspection conducted 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.

Investigation of the exceedance recorded on 9 Oct had been conducted during last reporting month. Based on the investigation, the exceedances recorded were potentially project related. Investigation reports are attached in *Annex L*.

Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 during the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 is still undertaking. It will be reported in next reporting month.

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 reported 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 summons/prosecution log is shown in ***Annex M.***

8 FUTURE KEY ISSUES

8.1 KEY ISSUES FOR THE COMING MONTH

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

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

Construction Activities to be undertaken
Work in Ma Tau Wai (MTW)
● Along Ma Tau Wai Road - Construction of D-wall panel, pre-drilling for D Wall and trial pits for location of utilities; ● TKW/MTW Road Garden – Operation of bentonite plant, pier 15 water main diversion works, pier 15 underpining preparation works and pier 15 pre-drilling works.
Work in To Kwa Wan (TKW)
● Olympic Playground – Pre-bored H piling; ● Olympic Garden- Pre-bored H piling; ● Nam Kok Road –Installation of pipe pile and grout curtain; ● TKW Station – Archaeological survey, erection of box culvert, construction of ground curtain, water main diversion, sheet piling and pre-bored H pilling.

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. According to the schedule presented in the CNMP, continuous noise monitoring will be conducted 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***.

9 CONCLUSIONS

This 15th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 November 2013 to 30 November 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/D.

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.

Investigation of the exceedance recorded on 9 Oct had been conducted during last reporting month. Based on the investigation, the exceedances recorded were potentially project related.

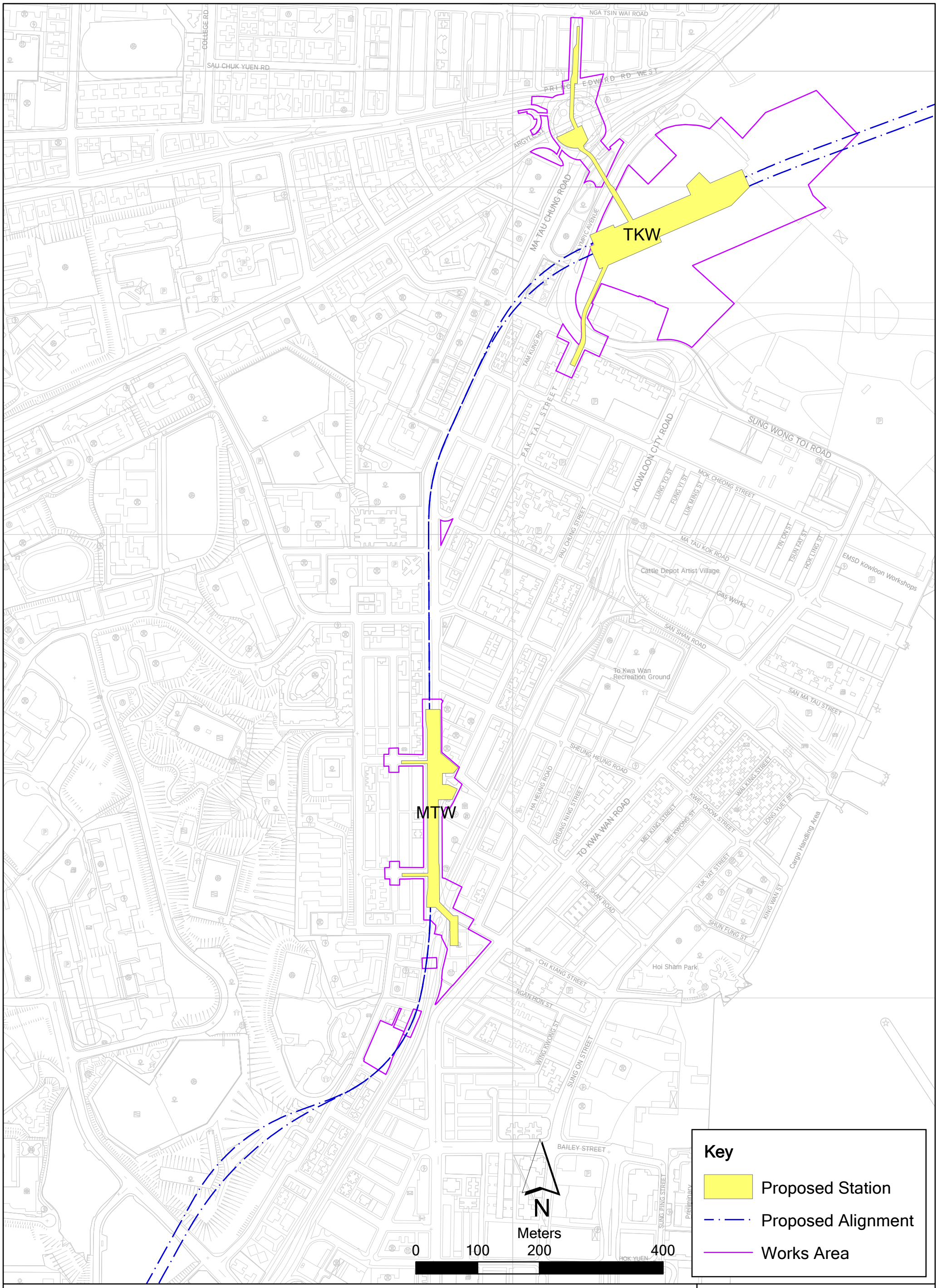
Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 during the reporting month. Investigation of the exceedances recorded at MTW-16-1 on 21, 22, 23, 25, 26 and 27 November 2013 is still undertaking. It will be reported in next reporting month.

No complaint and summons/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

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Date: 10-Oct-12

Environmental Resources Management

ERM

Annex B

Construction Programme for the Reporting Month and the Coming Month (1)

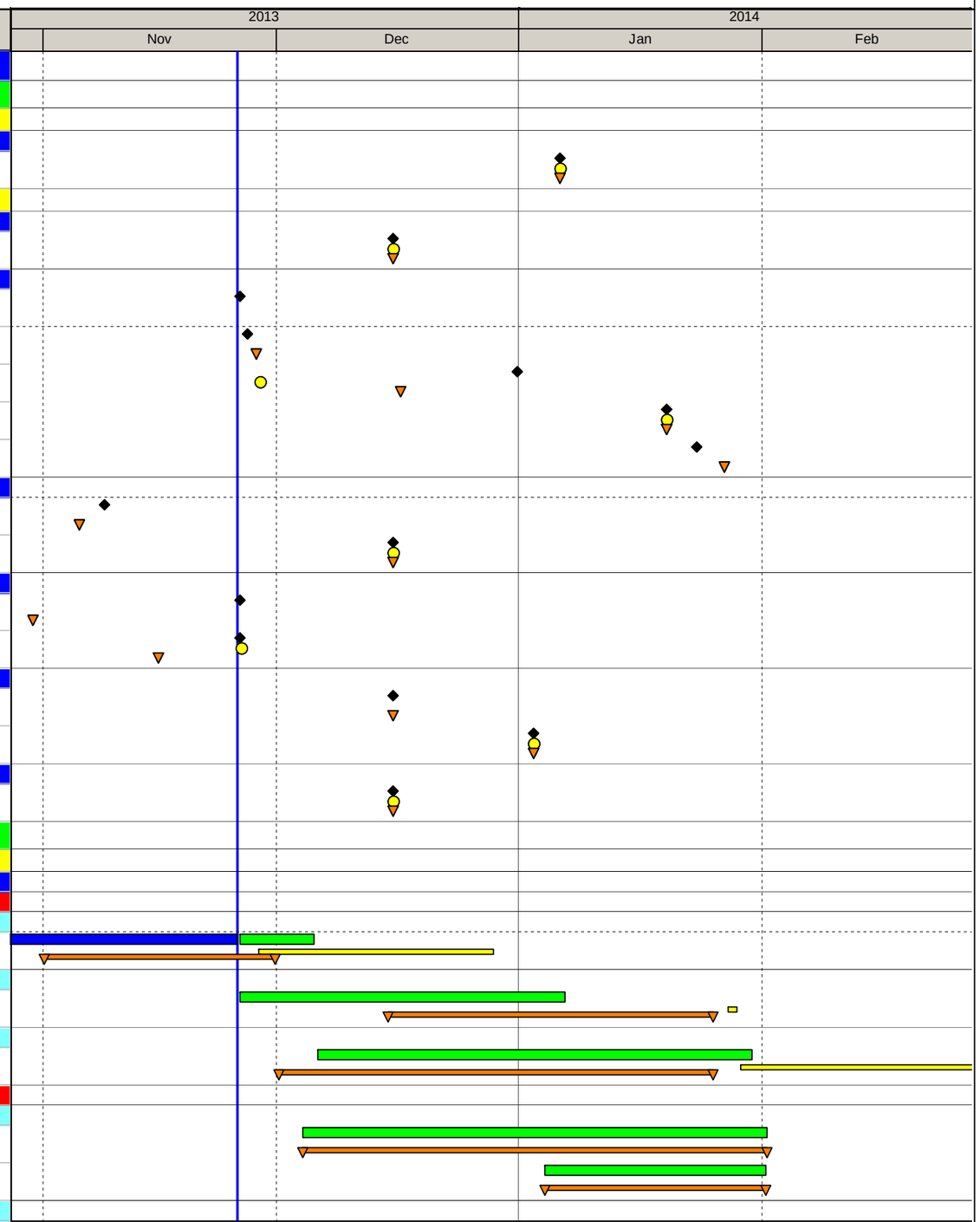
(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

Data Date: 25-Nov-13

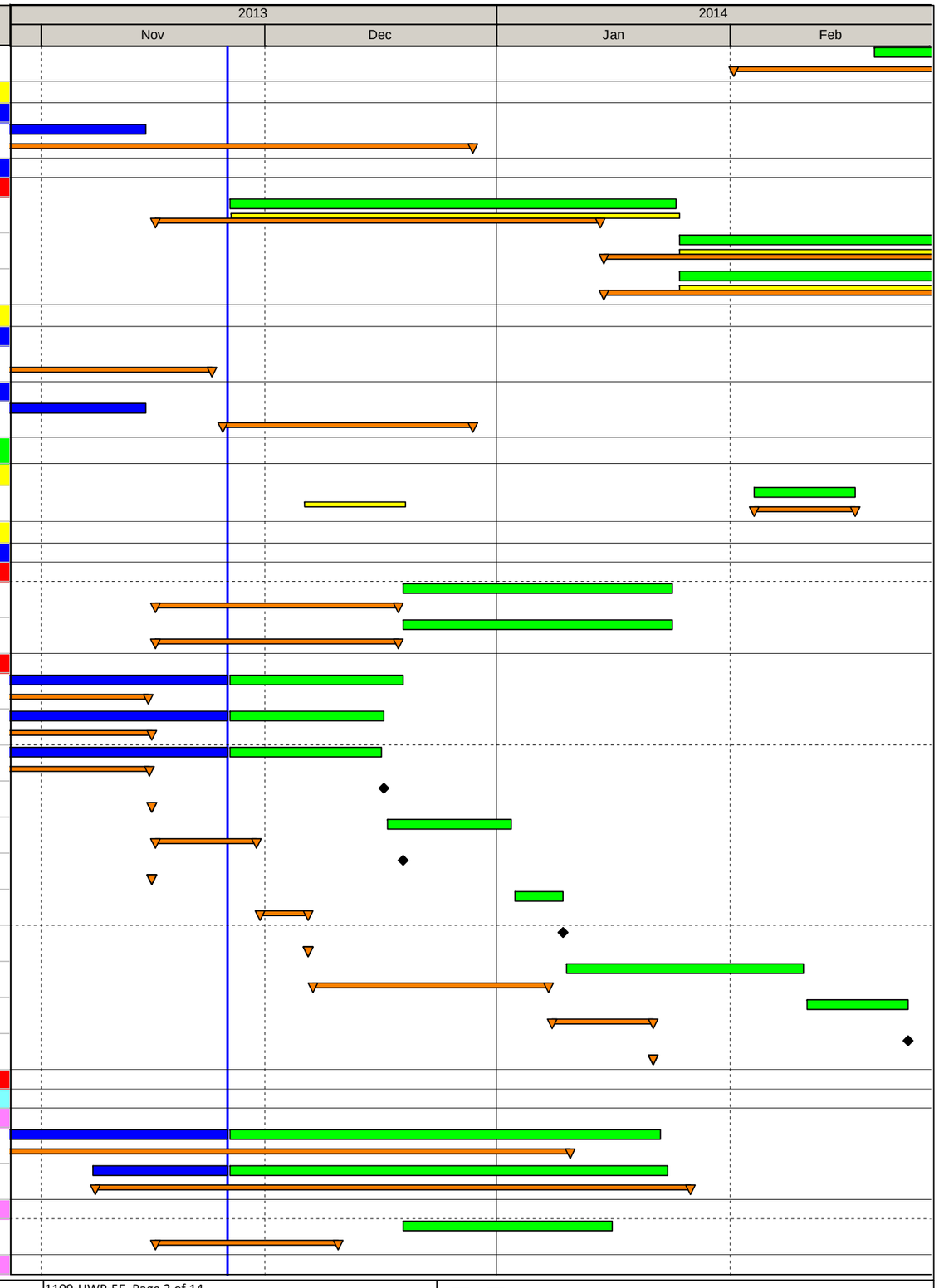
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2013

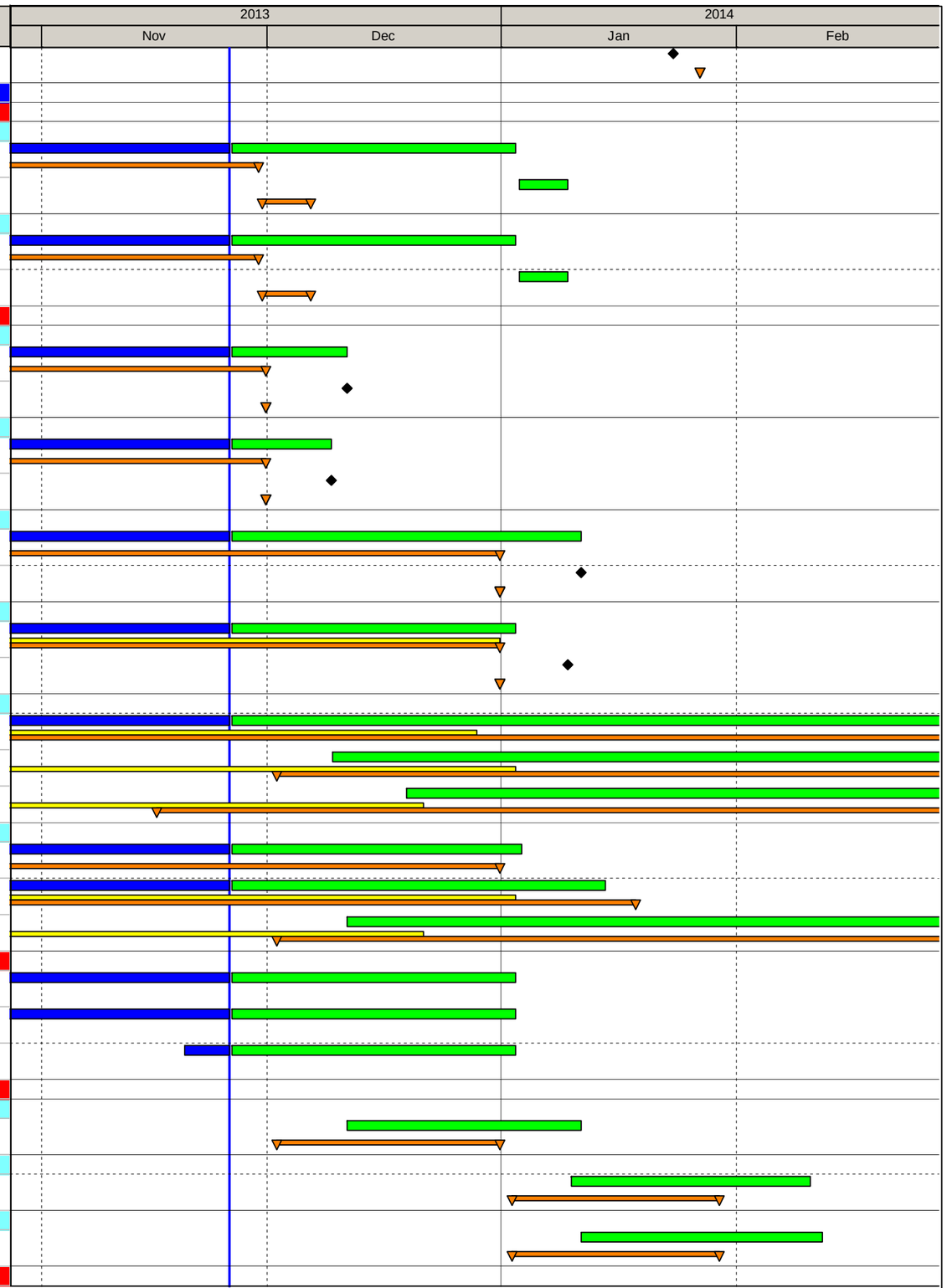
Activity ID	Activity Name	Physical % Complete	Start	Finish
1109 - SUW & TKW Stations and Tunnels NOV13 (UWP R5)				
PROJECT DATES				
Works Areas				
Access Dates				
01109.ACW9b	Access date to Works Area 1109.W9b (Wk1/14; 6Jan 14)	0%	06-Jan-14*	
Specified Milestone Dates				
CC-A Milestones				
01109.MSA3ii	A6(ii) Engr's confirmation of satisfac implementation of quality reqmtsas per approved spec. Plans (1).(Wk50/13;15Dec13)	0%		15-Dec-13*
CC-B Milestones				
01109.MSB04iv	B4(iv)-All Perm Works Material Control Schedules (as per GS Cl G4.16.1) approved by the Eng.(Wk41/13;13Oct13)	0%		26-Nov-13*
01109.MSB04ii	B4(ii) - 60% of total numbers of pre-bored H piles complete.(Wk41/13;13Oct13)	0%		27-Nov-13*
01109.MSB04iii	B4(iii)-Temp bored pile wall,grout curtain,pump test complete& ready for excavation@TBM launch shaft.(Wk41/13;13Oct13)	0%		31-Dec-13
01109.MSB05ii	B5(ii)-Des. data approved for manufact of all support framing for louvers,glazed walls&susp. ceilings .(Wk03/14;19Jan14)	0%		19-Jan-14*
01109.MSB04i	B4(i)-Existing DSD twin cell box culvert temporarily diverted to north of SUW.(Wk41/13;13Oct13)	0%		23-Jan-14
CC-C Milestones				
01109.MSC02	C2-30% by plan length of permanent diaphragm wall complete.(25 Jun 13)	100%		09-Nov-13 A
01109.MSC05ii	C5(ii)-All Permanent Works Material Control Schs (as per GS Clause G4.16.1)approved by the Engineer.(Wk50/13;15Dec13)	0%		15-Dec-13*
CC-D Milestones				
01109.MSD02ii	D2(ii)- Investig.to confirm no exist. piles/obstructions to proposed TBM tunnels comp.&accepted by Eng.(Wk15/13;14Apr13)	0%		26-Nov-13
01109.MSD03	D3-Submission of des.&manufact.data comp; obtain Engr Notice of no objection" for segments (Wk41/13;13Oct13)	0%		26-Nov-13
CC-E Milestones				
01109.MSE01i	E1(i) - Contractor's drawing sub, schedules App for hard & soft landscaping wkr, ext drain, svc & E&M (50/13;15Dec13)	0%		15-Dec-13*
01109.MSE01ii	E1(ii) - All Perm Wks Mtrl Ctrl Schedules (GS Cl G4.16.1) (50/13;15Dec13)	0%		02-Jan-14
CC-F Milestones				
01109.MSF01	F1 - Contr憑 dwg submission sch. & perm works mat. Control Sch (as per GS G4.16.1)approved by Eng.(Wk50/13;15Dec13)	0%		15-Dec-13*
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS				
Design and Approvals				
Temporary Traffic Arrangements				
TKW Station, Entrances and Adits				
TTMS Design & Approval				
01109.PDA1170	TKW - Stage 2A - TTM Design & Approval by SLG	20%	21-Oct-13 A	05-Dec-13
TTMS Gazette Notice				
01109.PDA1240	TKW - Stage 2A - Gazette Notice	0%	26-Nov-13	06-Jan-14
TTMS Signal Modification by EMSD				
01109.PDA1300	TKW - Stage 2A - EMSD Signal Preparation	0%	06-Dec-13	30-Jan-14
SUW Station, Entrances and Adits				
TTMS Design & Approval				
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	0%	04-Dec-13	01-Feb-14
01109.PDA1350	SUW - Nam Kok Rd - TTM Stage 1 Phase 2 - Design & Approval by SLG	0%	04-Jan-14	01-Feb-14*
TTMS Gazette Notice				



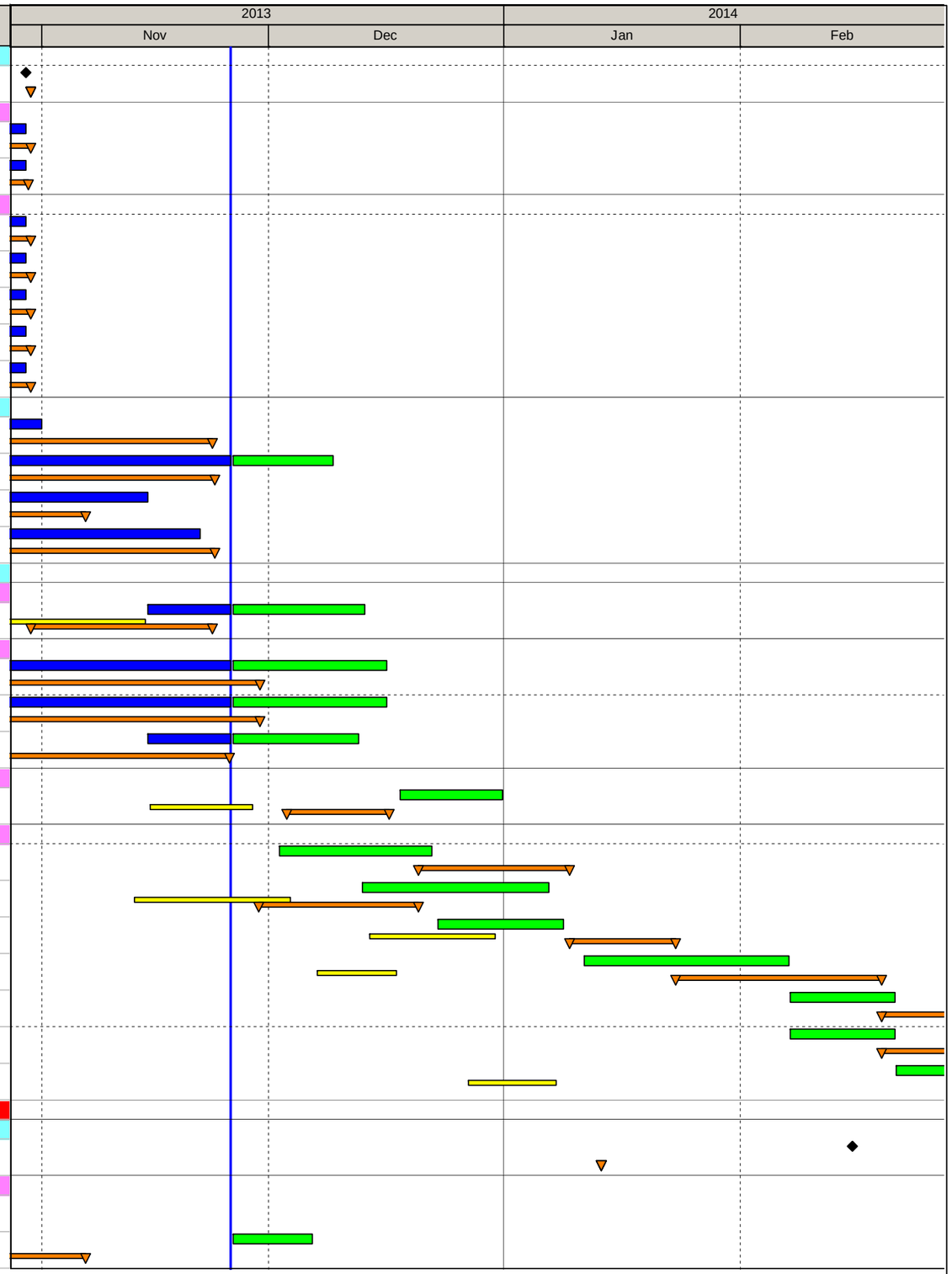
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDA1440	SUW - Nam Kok Rd - TTM Stage 1 Phase 2 - Gazette Notice	0%	20-Feb-14	21-Mar-14
Procurement				
Initial Subcontracts				
01109.PDA35100	Procure and mobilize observation wells plant & equipment	100%	17-Oct-12 A	15-Nov-13 A
Concrete Construction Materials				
Precast supplies				
01109.PDA4000	Precast concrete segment manufacture (1st batch) 5%	0%	26-Nov-13	24-Jan-14
01109.PDA4010	Precact concrete segement delivery & arrival on site (1st batch)	0%	25-Jan-14	25-Mar-14
01109.PDA4020	Precast concrete segment manufacture (2nd and subsequent batches)	0%	25-Jan-14	12-Nov-15
Method Statements				
SUW - Method statements Submission				
01109.PDA34900	SUW - Prepare and submit Observation Wells & Pumping Test method statement	100%	25-Sep-13 A	25-Oct-13 A
SUW - Method Statements Approval				
01109.PDA35000	Review & Approval of Observation Wells & Pumping Test method statement	100%	26-Oct-13 A	15-Nov-13 A
CC-B - SUW STATION, ENTRANCES AND ADITS				
Implementation of TTA at SUW				
01109.PDB1601	SUW - Sung Wong Toi & Pak Tai St - Implement TTM Stage 1	0%	04-Feb-14*	17-Feb-14
SUW Station Construction Works				
Site Preparation				
Install Monitoring Instruments/Take Initial Readings				
01109.PDB14710	SUW - Install monitoring instruments/take initial readings; Part 3- GL 12 to 19	0%	19-Dec-13	24-Jan-14
01109.PDB14720	SUW - Install monitoring instruments/take initial readings; Part 4- GL 19 to 24	0%	19-Dec-13	24-Jan-14
Archaeological Survey				
01109.PDB14220	Archaeological Survey-cum-Excavation (Stages 2 and 3 Excavation)	99%	13-Nov-12 A	19-Dec-13
01109.PDB1590	Prepare ASE Report	99%	01-Mar-13 A	16-Dec-13
01109.PDB14210	Additional Investigation (in "Green Areas")	65%	26-Aug-13 A	16-Dec-13
01109.PDB1600	Submit Draft ASE report to MTRC	0%		16-Dec-13
01109.PDB14240	MTRC Comment on Draft ASE report	0%	17-Dec-13	02-Jan-14
01109.PDB14230	Archaeological Physical Survey Complete - Site Handover	0%		19-Dec-13
01109.PDB14250	Revise the Draft ASE Report (following MTR comments)	0%	03-Jan-14	09-Jan-14
01109.PDB14260	Submit Draft ASE Report to AMO	0%		09-Jan-14
01109.PDB14270	Review Draft ASE Report by AMO	0%	10-Jan-14	10-Feb-14
01109.PDB14280	Revise Draft ASE Report (following AMO comments)	0%	11-Feb-14	24-Feb-14
01109.PDB14290	Submission of Revised ASE Report	0%		24-Feb-14
Utilities and Services Diversion				
Utility Diversion Works				
DSD Box Culvert Stormwater drain diversion				
01109.PDB1720A	Casting of Base Slab for Box Culvert Diversion	40%	19-Oct-13 A	22-Jan-14
01109.PDB1730A	Casting of Wall and Roof Slab for Box Culvert Diversion	30%	08-Nov-13 A	23-Jan-14
Fresh water main diversion				
01109.PDB1730	Fresh water mains diversions (Part 3- GL 12 to 19)	0%	19-Dec-13	16-Jan-14
Telecom cable diversions				



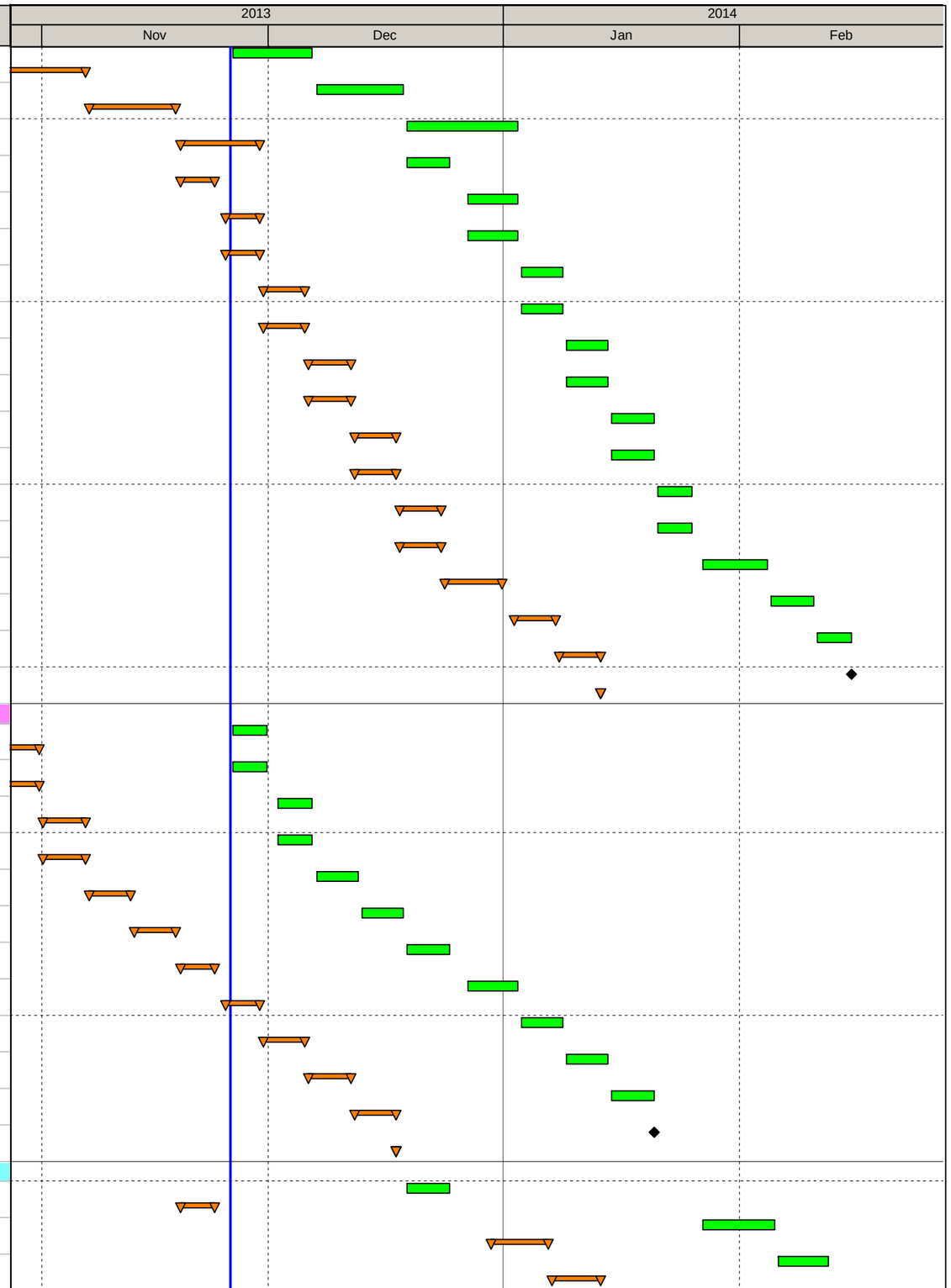
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB1940	All utility diversion in Main Station Area complete	0%		23-Jan-14
Station - Excavation and Foundation				
Pre-drilling Works				
Part 3				
01109.PDB2030	Pre-drilling for station foundation piles (Part 3- GL 12 to 19)	75%	07-Jun-13 A	02-Jan-14
01109.PDB14350	SI Report & Confirmation of Founding Levels (Part 3 - GI 12 to 19)	0%	03-Jan-14	09-Jan-14
Part 4				
01109.PDB2060	Pre-drilling for station foundation piles (Part 4- GL 19 to 24)	75%	07-Jun-13 A	02-Jan-14
01109.PDB14360	SI Report & Confirmation of Founding Levels (Part 4 - GI 19 to 24)	0%	03-Jan-14	09-Jan-14
Pre-bored H- Piling for Permanent Works				
Part 1 (GL 1 to 4)				
01109.PDB2230A	Rig 2 - H- Piling - 75 Nr - (BD approved drawings 07 Mar 13)	95%	22-Jan-13 A	11-Dec-13
01109.PDB2390	H- Piling; (GL 1 to 4) - Complete	0%		11-Dec-13
Part 2A (GL 4 - 7.5)				
01109.PDB2260A	Rig 3 - H-Piling - 55 Nr - (BD approved drawings 07 Mar 13)	95%	10-Jan-13 A	09-Dec-13
01109.PDB2101A	H-Piling; (GL 4 - 7.5) - Complete	0%		09-Dec-13
Part 2B (GL 7.5 - 12)				
01109.PDB2350	Rig 7 - H- Piling - 71Nr - (BD approved drawings 07 Mar 13)	85%	19-Apr-13 A	11-Jan-14
01109.PDB2130A	H- Piling; (GL 7.5 - 12) - Complete	0%		11-Jan-14
Other Areas (GL 23 - 24+)				
01109.PDB2250	Rig 5 - H- Piling - 37Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	85%	13-May-13 A	02-Jan-14
01109.PDB2101A10	H-Piling (GL23 - 24+) - Complete	0%		09-Jan-14
Part 3 (GL 12 - 18)				
01109.PDB2180	Rig 6 - H- Piling - 100Nr - (BD approved drawings 07 Mar 13)	50%	14-Oct-13 A	25-Apr-14
01109.PDB2270	Rig 3 - H-Piling - 45 Nr - (BD approved drawings 07 Mar 13)	0%	09-Dec-13	02-May-14
01109.PDB2210	Rig 1 - H- Piling - 40Nr - (BD approved drawings 07 Mar 13)	0%	19-Dec-13	26-Apr-14
Part 4 (GL 18 - 23)				
01109.PDB2370A	Rig 5 - H- Piling - 35Nr - (BD approved drawings 07 Mar 13)	65%	27-Sep-13 A	03-Jan-14
01109.PDB2330	Rig 4 - H-Piling - 32 Nr - (BD approved drawings 07 Mar 13)	50%	22-Oct-13 A	14-Jan-14
01109.PDB2360	Rig 2 - H- Piling - 32Nr - (BD approved drawings 07 Mar 13)	0%	11-Dec-13	21-Mar-14
Prebored H- Piling for Temporary Works				
01109.PDB19350D	20Nr for Kingpost	60%	13-Sep-13 A	02-Jan-14
01109.PDB19360D	20Nr for Gantry Crane	40%	18-Oct-13 A	02-Jan-14
01109.PDB19370D	20Nr for Thurst Frame	10%	20-Nov-13 A	02-Jan-14
Pile Load Tests				
Part 1				
01109.PDB2400	Pile Load tests; Part 1 - GL 1 to GL 4	0%	11-Dec-13	11-Jan-14
Other Areas				
01109.PDB14390	Pile Load tests; Beyond GL 23	0%	10-Jan-14	10-Feb-14
Part 2				
01109.PDB2440	Pile Load Tests; Part 2 - GL 4 to 12	0%	11-Jan-14	12-Feb-14
TBM Launch Shaft Works				



Activity ID	Activity Name	Physical % Complete	Start	Finish
Bored Piling for TBM Shaft				
01109.PDB19010	Bored Piling Works Complete	100%		30-Oct-13 A
Bored Pile P1 - P23				
01109.PDB18970B	TBM Launch shaft - Bored Piling P1-P23 (13nr) - Rig 6A	100%	22-Feb-13 A	30-Oct-13 A
01109.PDB18870B	TBM Launch shaft - Bored Piling P1-P23 (10nr) - Rig 7A	100%	08-Mar-13 A	30-Oct-13 A
Bored Pile P50 - P100				
01109.PDB18930B	TBM Launch shaft - Bored Piling P50-P100 (11nr) - Rig 4A	100%	01-Mar-13 A	30-Oct-13 A
01109.PDB18940B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 5A	100%	01-Mar-13 A	30-Oct-13 A
01109.PDB18890B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 1A	100%	08-Mar-13 A	30-Oct-13 A
01109.PDB18910B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 2A	100%	08-Mar-13 A	30-Oct-13 A
01109.PDB18920B	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 3A	100%	01-Apr-13 A	30-Oct-13 A
Pipe piling for TBM Shaft Area				
01109.PDB19070	TBM Launch shaft - Gang B - Pipe Piles Zone D - P118 to 140 (23nr) 2d/pile	100%	16-Sep-13 A	01-Nov-13 A
01109.PDB19020	TBM Launch shaft - Gang A - Pipe Piles Zone B1 - P1 to 24 (24nr) 2d/pile	85%	12-Oct-13 A	09-Dec-13
01109.PDB19050	TBM Launch shaft - Gang B - Pipe Piles Zone C - P71 to 93 (23nr) 2d/pile	100%	12-Oct-13 A	15-Nov-13 A
01109.PDB19060	TBM Launch shaft - Gang B - Pipe Piles Zone C - P94 to 117 (24nr) 2d/pile	100%	26-Oct-13 A	22-Nov-13 A
Excavation TBM Shaft Area				
Install observation Wells- TBM Shaft				
01109.PDB3010	TBM Launch shaft - Install observation wells	55%	15-Nov-13 A	13-Dec-13
Curtain Grouting- TBM Shaft				
01109.PDB3050	SUW GL 1-7 - Station shaft zone A & B - Grout curtain	65%	30-Sep-13 A	16-Dec-13
01109.PDB3030	SUW GL 1-7 - Station shaft zone B1& D - Grout curtain	65%	07-Oct-13 A	16-Dec-13
01109.PDB3020	SUW GL 1-7 - Station shaft zone C - Grout curtain	50%	15-Nov-13 A	12-Dec-13
Pumping Tests - TBM Shaft				
01109.PDB3060	TBM Launch shaft - Pumping test	0%	18-Dec-13	31-Dec-13
Excavation and lateral Support - TBM Shaft				
01109.PDB3210B	TBM Launch shaft - Excavate EGL to +5mPD	0%	02-Dec-13	22-Dec-13
01109.PDB3080	TBM Launch shaft - Install capping beam	0%	13-Dec-13	06-Jan-14
01109.PDB3100	TBM Launch shaft - Install Temporary Shoring - EGL to +5.0mPD	0%	23-Dec-13	08-Jan-14
01109.PDB3090	TBM Launch shaft - Excavate +5mPD to 0.0mPD	0%	11-Jan-14	07-Feb-14
01109.PDB19260	TBM Launch shaft - Install Temporary Shoring - +5mPD to 0.0mPD	0%	07-Feb-14	21-Feb-14
01109.PDB19270	TBM Launch shaft - Install Temporary Shoring - +5.0mPD to 0mPD	0%	07-Feb-14	21-Feb-14
01109.PDB3110	TBM Launch shaft - Excavate 0mPD to -5mPD	0%	21-Feb-14	17-Mar-14
Earthworks				
Curtain Grout Works				
01109.PDB3480	Grout Curtain complete	0%		15-Feb-14
North of SUW				
01109.PDB3390A	Grout Curtain; Part 4- GL 22 to 23	100%	27-Sep-13 A	25-Oct-13 A
01109.PDB3210A	Grout Curtain; Part 2- GL 4 to 5	0%	26-Nov-13	06-Dec-13



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB3240A	Grout Curtain; Part 3- GL 10 to 11	0%	26-Nov-13	06-Dec-13
01109.PDB3450A	Grout Curtain; Part 5- areas beyond GL 24	0%	07-Dec-13	18-Dec-13
01109.PDB3250A	Grout Curtain; Part 1- GL 1 to GL 2	0%	19-Dec-13	02-Jan-14
01109.PDB3300A	Grout Curtain; Part 3- GL 11 to 12	0%	19-Dec-13	24-Dec-13
01109.PDB3340A	Grout Curtain; Part 3- GL 12 to 13	0%	27-Dec-13	02-Jan-14
01109.PDB3380A	Grout Curtain; Part 3- GL 13 to 14	0%	27-Dec-13	02-Jan-14
01109.PDB3290A	Grout Curtain; Part 2- GL 5 to 6	0%	03-Jan-14	08-Jan-14
01109.PDB3410A	Grout Curtain; Part 3- GL 14 to 15	0%	03-Jan-14	08-Jan-14
01109.PDB3310A	Grout Curtain; Part 1- GL 2 to GL 3	0%	09-Jan-14	14-Jan-14
01109.PDB3440A	Grout Curtain; Part 3- GL 15 to 16	0%	09-Jan-14	14-Jan-14
01109.PDB3330A	Grout Curtain; Part 2- GL 6 to 7	0%	15-Jan-14	20-Jan-14
01109.PDB3460A	Grout Curtain; Part 3- GL 16 to 17	0%	15-Jan-14	20-Jan-14
01109.PDB3350A	Grout Curtain; Part 1- GL 3 to GL 4	0%	21-Jan-14	25-Jan-14
01109.PDB3470A	Grout Curtain; Part 3- GL 17 to 18	0%	21-Jan-14	25-Jan-14
01109.PDB3370A	Grout Curtain; Part 2- GL 7 to 8	0%	27-Jan-14	04-Feb-14
01109.PDB3400A	Grout Curtain; Part 2- GL 8 to 9	0%	05-Feb-14	10-Feb-14
01109.PDB3430A	Grout Curtain; Part 2- GL 9 to 10	0%	11-Feb-14	15-Feb-14
01109.PDB19360B	Grout Curtain completed on North of Station	0%		15-Feb-14
South of SUW				
01109.PDB19200B	Grout Curtain; Part 2- GL 4 to 5	0%	26-Nov-13	30-Nov-13
01109.PDB19210B	Grout Curtain; Part 3- GL 10 to 11	0%	26-Nov-13	30-Nov-13
01109.PDB19280B	Grout Curtain; Part 3- GL 11 to 12	0%	02-Dec-13	06-Dec-13
01109.PDB19240B	Grout Curtain; Part 1- GL 1 to GL 2	0%	02-Dec-13	06-Dec-13
01109.PDB19260B	Grout Curtain; Part 2- GL 5 to 6	0%	07-Dec-13	12-Dec-13
01109.PDB19270B	Grout Curtain; Part 1- GL 2 to GL 3	0%	13-Dec-13	18-Dec-13
01109.PDB19290B	Grout Curtain; Part 2- GL 6 to 7	0%	19-Dec-13	24-Dec-13
01109.PDB19300B	Grout Curtain; Part 1- GL 3 to GL 4	0%	27-Dec-13	02-Jan-14
01109.PDB19310B	Grout Curtain; Part 2- GL 7 to 8	0%	03-Jan-14	08-Jan-14
01109.PDB19320B	Grout Curtain; Part 2- GL 8 to 9	0%	09-Jan-14	14-Jan-14
01109.PDB19330B	Grout Curtain; Part 2- GL 9 to 10	0%	15-Jan-14	20-Jan-14
01109.PDB19350B	Grout Curtain completed on South of Station	0%		20-Jan-14
Install Observation Wells				
01109.PDB3750	Observation Wells; Part 4- areas beyond GL 24	0%	19-Dec-13	24-Dec-13
01109.PDB3520	Observation Wells; Part 1- GL 1 to 2	0%	27-Jan-14	05-Feb-14
01109.PDB3540	Observation Wells; Part 1- GL 2 to 3	0%	06-Feb-14	12-Feb-14



Samsung - Hsin Chong Joint Venture

MTR Corporation Limited

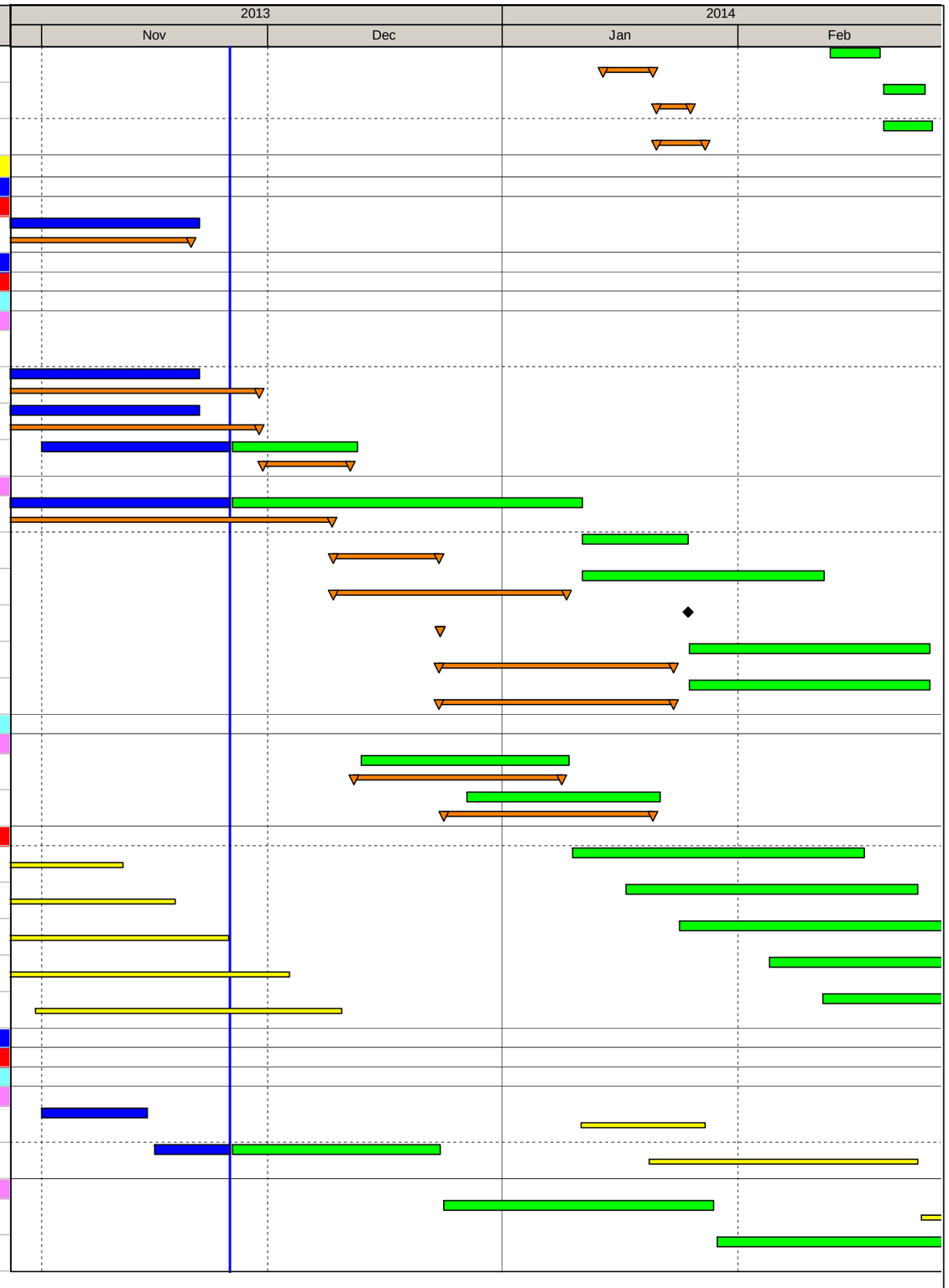
Shatin to Central Link Contract 1109

THREE MONTH ROLLING PROGRAMME - NOV 13 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

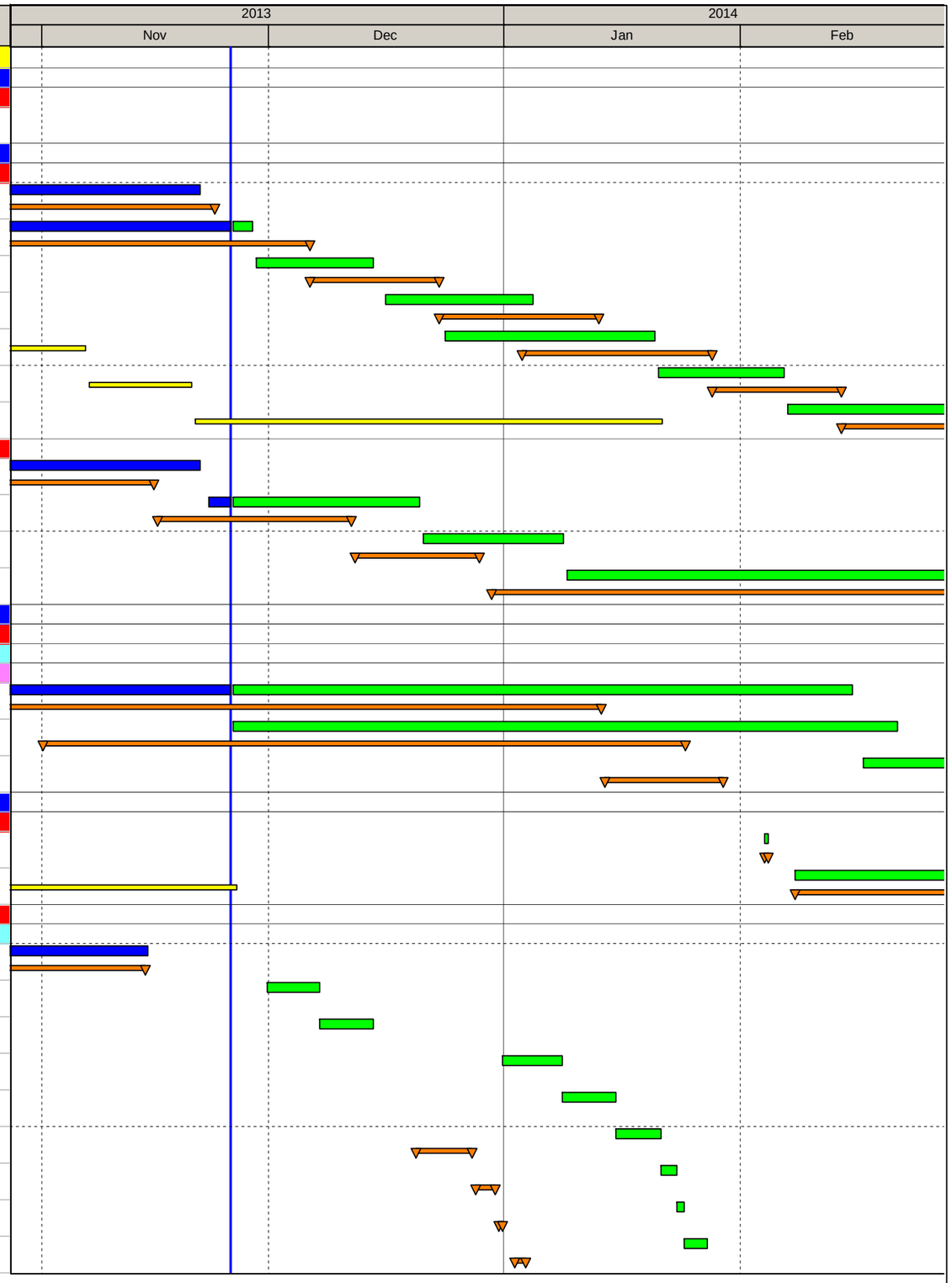
Printed:04-Dec-13

Actual Work
Remaining Work
Master Programme Rev.1
Last Month Update (Oct 2013)
Milestone
MP Rev.1 Milestone
Oct 2013 Milestone

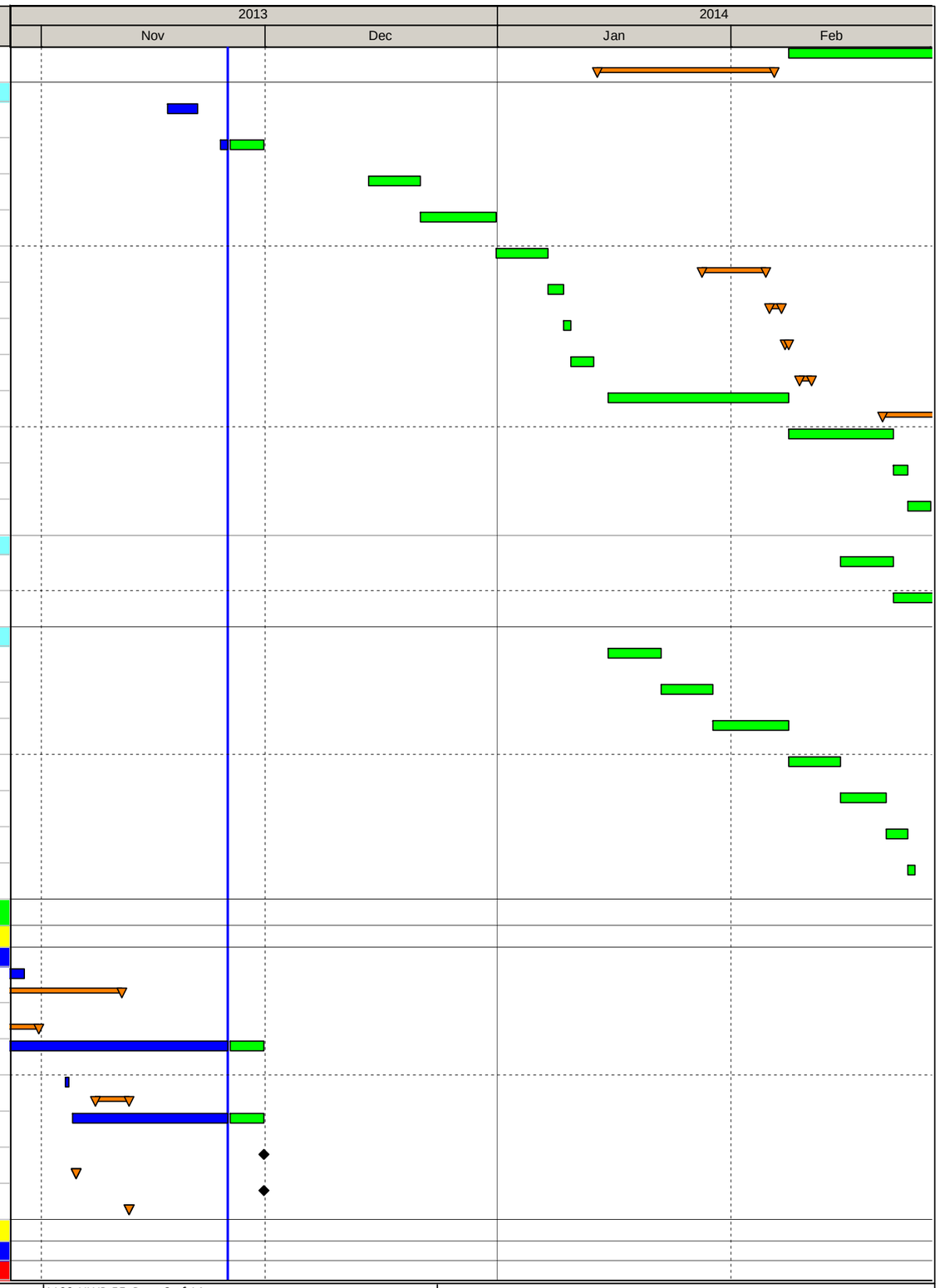
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB3550	Observation Wells; Part 1- GL 3 to 4	0%	13-Feb-14	19-Feb-14
01109.PDB3610	Observation Wells; Part 4- GL 19 to 20	0%	20-Feb-14	25-Feb-14
01109.PDB3560	Observation Wells; Part 2- GL 4 to 5	0%	20-Feb-14	26-Feb-14
Entrance C and Associated Adits				
Entrance C - Site Preparation				
Entrance C - Record Survey and Site set-up Works				
01109.PDB10270	CCTV Record Survey of Public drains	100%	26-Oct-13 A	22-Nov-13 A
Entrance C - Part 1- GL 7 to GL 14				
Entrance C- Part 1- ELS Works				
Entrance C - Part 1- Piling & Toe Grouting Works				
GL 7 to GL 12				
01109.PDB10380A	Sheet Piling Works; GL C7 to C12	100%	05-Apr-13 A	25-Oct-13 A
01109.PDB10390A	Toe grouting Works; GL C7 to C12; East Side	100%	02-Sep-13 A	22-Nov-13 A
01109.PDB10400A	Toe grouting Works; GL C12 to C7; West Side	100%	09-Sep-13 A	22-Nov-13 A
01109.PDB19310A	Pump Test (Incl. Set Up)	50%	01-Nov-13 A	12-Dec-13
GL12 to GL 14				
01109.PDB14400A	Pre Bored H Pile works (24nr) 1PR	70%	05-Jul-13 A	11-Jan-14
01109.PDB14410A	Pre Bored H pile testing	0%	11-Jan-14	25-Jan-14
01109.PDB19280A	Sheet Piling Works; GL C12 to C14	0%	11-Jan-14	12-Feb-14
01109.PDB10410A	All Piling Works for Ent C & Adits complete	0%		25-Jan-14
01109.PDB19290C	Toe grouting Works; GL C12 to C14; East Side	0%	25-Jan-14	26-Feb-14
01109.PDB19300C	Toe grouting Works; GL C14 to C12; West Side	0%	25-Jan-14	26-Feb-14
Entrance C - Part 1-Excavation Works				
GL 7 to GL 12				
01109.PDB10440	Excavation & Lateral Support Works; GL C12 to C9	0%	13-Dec-13	09-Jan-14
01109.PDB10450	Excavation & Lateral Support Works; GL C9 to C7	0%	27-Dec-13	21-Jan-14
Entrance C - Part 1- Concrete Structure Works				
01109.PDB10510	Concrete Structure GL C12 to C11	0%	10-Jan-14	17-Feb-14
01109.PDB10520	Concrete Structure GL C11 to C10	0%	17-Jan-14	24-Feb-14
01109.PDB10530	Concrete Structure GL C10 to C9	0%	24-Jan-14	03-Mar-14
01109.PDB10540	Concrete Structure GL C9 to C8	0%	05-Feb-14	11-Mar-14
01109.PDB10550	Concrete Structure GL C8 to C7	0%	12-Feb-14	18-Mar-14
Entrance C - Part 2- GL 3 to GL 7				
Entrance C - Part 2- GL 3 to GL 7; Segment 1				
Entrance C- Part 2- Seg 1; ELS Works				
Entrance C - Part 2- Seg 1; Traffic & Utility Diversion				
01109.PDB10690	Prepare Traffic Diversion for Entrance C Part 2; Segment 1	100%	01-Nov-13 A	15-Nov-13 A
01109.PDB10700	Utility relocation / diversion in Ent C Part 2; Segment 1	40%	16-Nov-13 A	23-Dec-13
Entrance C - Part 2- Seg 1; Sheet Piling & Toe Grouting Works				
01109.PDB10730	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; East Side	0%	24-Dec-13	28-Jan-14
01109.PDB10740	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; West Side	0%	29-Jan-14	05-Mar-14



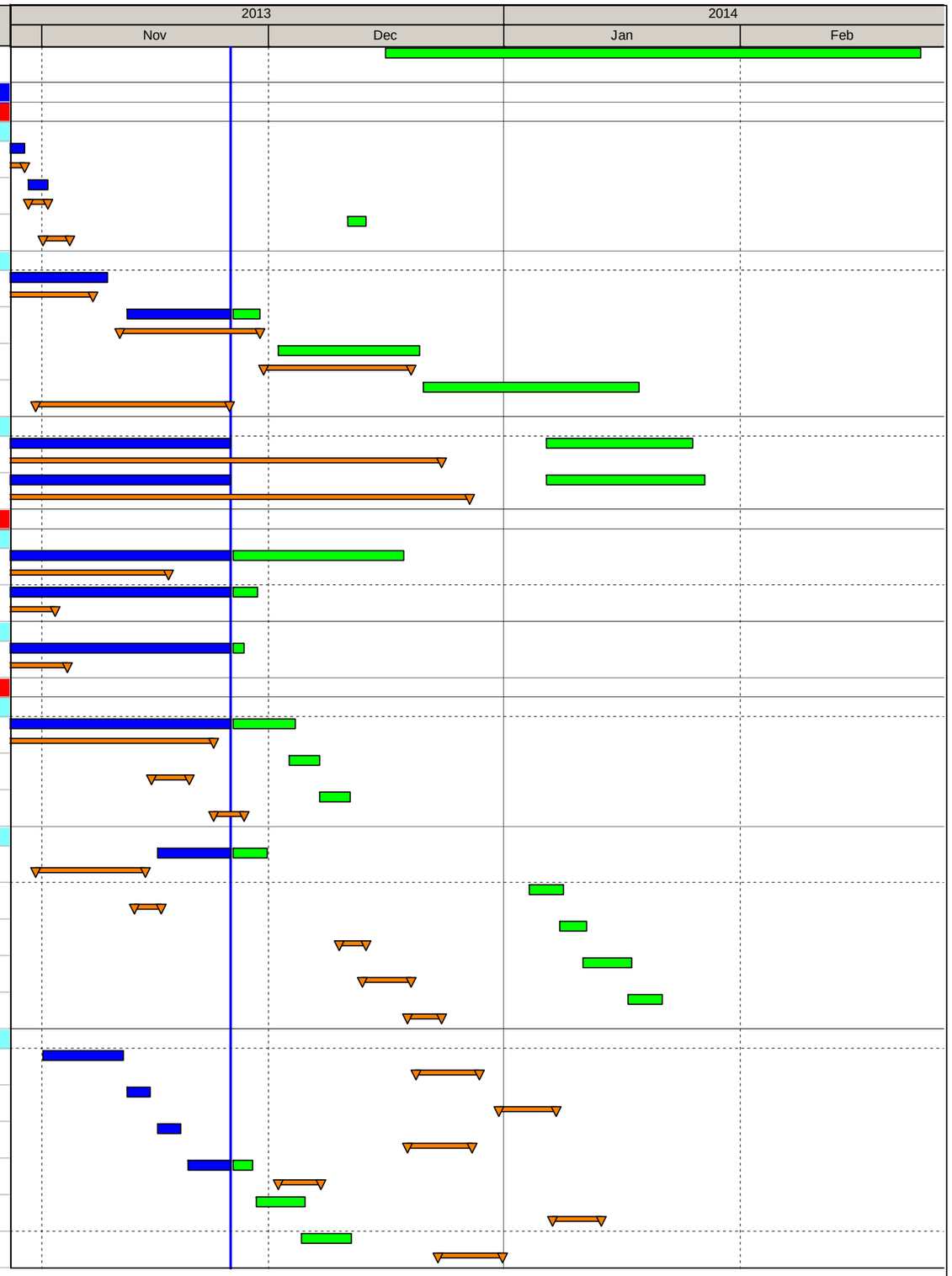
Activity ID	Activity Name	Physical % Complete	Start	Finish
Entrance B and Associated Adits				
Entrance B - Site Preparation				
Entrance B - Record Survey and Site set-up Works				
01109.PDB2070	SI Report & Confirmation of Founding Levels	100%	22-Oct-13 A	25-Oct-13 A
Entrance B - Olympic Avenue and SUW playground Works				
Stage 1				
01109.PDB11770	Divert / protect Temporary utilities	100%	26-Mar-13 A	22-Nov-13 A
01109.PDB11780	Pre-Bored H-Piles foundation works (16nr 1PR) (4d/pile)	95%	11-Sep-13 A	28-Nov-13
01109.PDB11790	Load test according to drawing number 1109/T/302/OAP/C19/201	0%	29-Nov-13	14-Dec-13
01109.PDB11800	Sheet piling & Toe grouting Works;GL B1 to B5 (2x24m sheetpiles)	0%	16-Dec-13	04-Jan-14
01109.PDB11810	Sheet piling & Toe grouting Works;GL B5 to B7 (South bound lane areas)(2x18m sheetpiles)	0%	24-Dec-13	20-Jan-14
01109.PDB11820	Pumping test	0%	21-Jan-14	06-Feb-14
01109.PDB11830	Excavate and Install struts & waling	0%	07-Feb-14	07-Apr-14
Stage 2				
01109.PDB11950	Sheet piling & Toe grouting Works; GL B9 to B11(2x36m sheetpiles)	100%	12-Jul-13 A	22-Nov-13 A
01109.PDB11960	Sheet piling & Toe grouting Works; GL B7 to B9 (North bound lane areas)(2x18m sheetpiles)	5%	23-Nov-13 A	20-Dec-13
01109.PDB11970	Pumping test	0%	21-Dec-13	08-Jan-14
01109.PDB11980	Excavate and Install struts & waling	0%	09-Jan-14	12-Mar-14
Enrtance B - Nam Kok Road Works - (Detailed Programme)				
Entrance B - Nam Kok Road Works (Portion 3)				
Nam Kok Road - TTMS - Stage 1 and 2				
TTMS - Stage 1 (Phase 1)				
01109.PDB14650A	Install 410mm dia pipe pile wall. 90nr (assume 3 piles/2 days). 1PR	48%	02-Aug-13 A	15-Feb-14
01109.PDB19200A	Install grout curtain	0%	26-Nov-13	21-Feb-14
01109.PDB14690A	Install 6 nr King Posts - (Dwg no. 1109//T/SUW/SHJ/C06/805)	0%	17-Feb-14	04-Mar-14
Entrance B - Kowloon City Interchange				
Entrance B - Preparation Works				
01109.PDB12550	Implement the TTM Scheme at Kowloon City Interchange on drawing number 1109/T/SUW/SHJ/C21/018	0%	04-Feb-14*	04-Feb-14
01109.PDB12560	Construct temporary footbridges	0%	08-Feb-14	23-Apr-14
Entrance B - Underpinning of KNEC Piers				
Pier P75				
01109.PDB14390A	WSD to procure and connect existing watermain	100%	16-Oct-13 A	15-Nov-13 A
01109.PDB19360C	P75 - Pre-bored socket H- Piles 609 Dia P3	0%	30-Nov-13*	07-Dec-13
01109.PDB19350C	P75 - Pre-bored socket H- Piles 609 Dia P2	0%	07-Dec-13*	14-Dec-13
01109.PDB19370C	P75 - Pre-bored socket H- Piles 609 Dia P4	0%	31-Dec-13*	08-Jan-14
01109.PDB12980C	P75 - Pre-bored socket H- Piles 609 Dia P1	0%	08-Jan-14*	15-Jan-14
01109.PDB12990	Install sheet pile cofferdam wall	0%	15-Jan-14	21-Jan-14
01109.PDB13000	Excavation to waling beam level	0%	21-Jan-14	23-Jan-14
01109.PDB13010	Install waling beam	0%	23-Jan-14	24-Jan-14
01109.PDB13020	Excavation to final formation level	0%	24-Jan-14	27-Jan-14



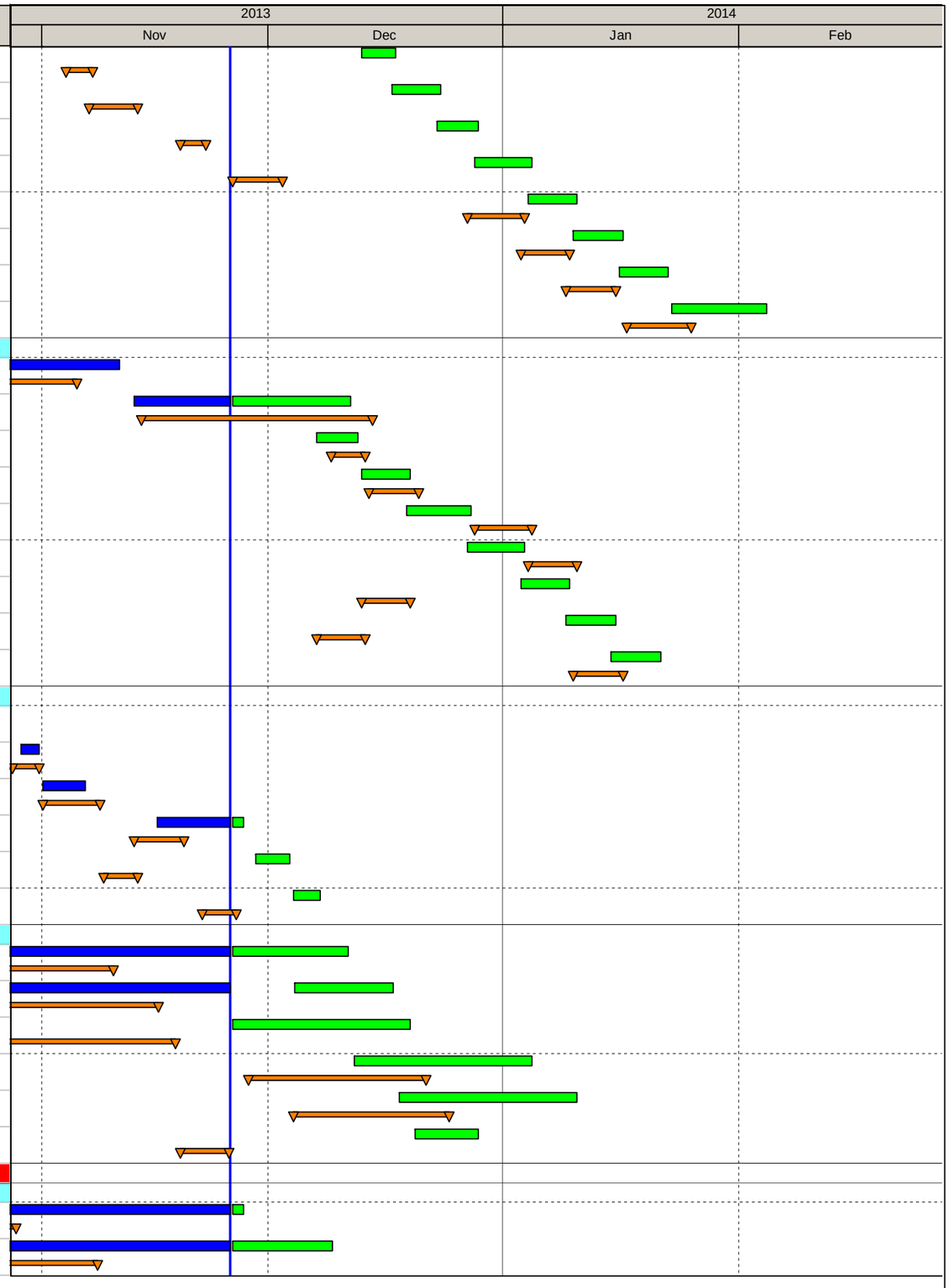
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB13030	Construct pile cap	0%	08-Feb-14	01-Mar-14
Pier P76				
01109.PDB19390C	P76 - Pre-bored socket H- Piles 609 Dia P3	100%	18-Nov-13 A	22-Nov-13 A
01109.PDB19380C	P76 - Pre-bored socket H- Piles 609 Dia P2	20%	25-Nov-13 A	30-Nov-13
01109.PDB13140C	P76 - Pre-bored socket H- Piles 609 Dia P1	0%	14-Dec-13	21-Dec-13
01109.PDB19400C	P76 - Pre-bored socket H- Piles 609 Dia P4	0%	21-Dec-13	31-Dec-13
01109.PDB13150	Install sheet pile cofferdam wall	0%	31-Dec-13	07-Jan-14
01109.PDB13160	Excavation to waling beam level	0%	07-Jan-14	09-Jan-14
01109.PDB13170	Install waling beam	0%	09-Jan-14	10-Jan-14
01109.PDB13180	Excavation to final formation level	0%	10-Jan-14	13-Jan-14
01109.PDB13190	Construct pile cap	0%	15-Jan-14	08-Feb-14
01109.PDB13200	Install temporary steel support frame and jacks	0%	08-Feb-14	22-Feb-14
01109.PDB13210	Jack up viaduct	0%	22-Feb-14	24-Feb-14
01109.PDB13220	Breakout concrete from existing pile cap	0%	24-Feb-14	27-Feb-14
Pier P46				
01109.PDB19410C	P46 - Pre-bored socket H- Piles 609 Dia P2	0%	15-Feb-14	22-Feb-14
01109.PDB19430C	P46 - Pre-bored socket H- Piles 609 Dia P4	0%	22-Feb-14	01-Mar-14
Pier P74				
01109.PDB19440C	P74 - Pre-bored socket H- Piles 609 Dia P1	0%	15-Jan-14	22-Jan-14
01109.PDB12820C	P74 - Pre-bored socket H- Piles 609 Dia P4	0%	22-Jan-14	29-Jan-14
01109.PDB19460C	P74 - Pre-bored socket H- Piles 609 Dia P3	0%	29-Jan-14	08-Feb-14
01109.PDB19450C	P74 - Pre-bored socket H- Piles 609 Dia P2	0%	08-Feb-14	15-Feb-14
01109.PDB12830	Install sheet pile cofferdam wall	0%	15-Feb-14	21-Feb-14
01109.PDB12840	Excavation to waling beam level	0%	21-Feb-14	24-Feb-14
01109.PDB12850	Install waling beam	0%	24-Feb-14	25-Feb-14
CC-C - TKW STATION, ENTRANCES AND ADITS				
Engineers Instructions (EI)				
EI 29 - Provision of Watermain along Kowloon City Road and Sheung Heung Road				
01109.PDC21600A	Install Watermain at Zone 1	100%	29-Jan-13 A	29-Oct-13 A
01109.PDC21630A	Install Watermain at Zone 4	100%	29-Jan-13 A	25-Oct-13 A
01109.PDC21641A	Pressure test (zone 3 and 4)	90%	10-Oct-13 A	30-Nov-13
01109.PDC21640B	Carry out Swabbing (zone 1 and 2)	100%	04-Nov-13 A	04-Nov-13 A
01109.PDC21641B	Pressure test (zone 1 and 2)	90%	05-Nov-13 A	30-Nov-13
01109.PDC21660A	Connection with existing watermain B	0%		30-Nov-13
01109.PDC21660B	Connection with existing watermain A	0%		30-Nov-13
TKW Station				
Existing Utility Diversion Works				
Drainage and Sewerage				



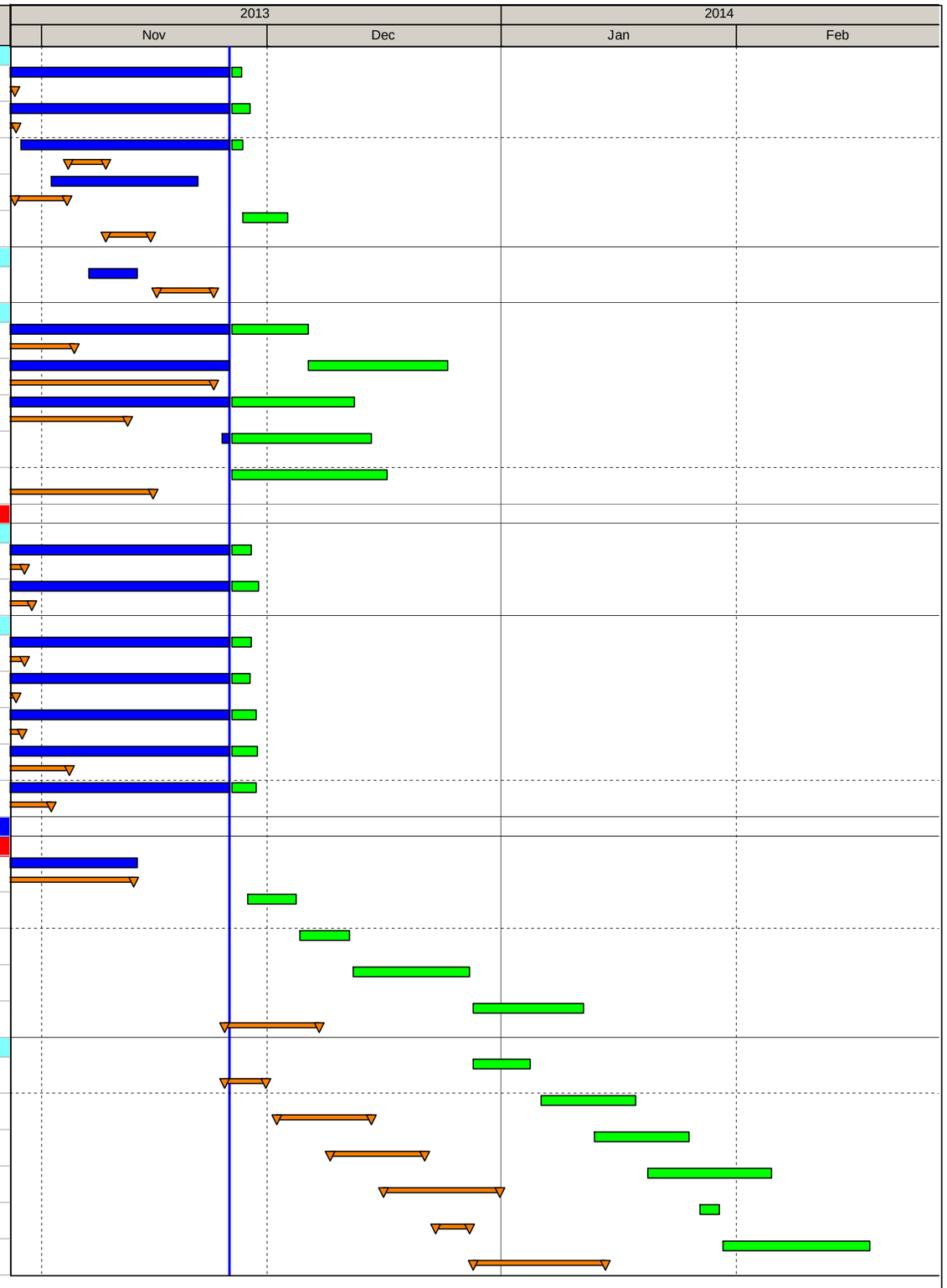
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC1580	TKW-SD301/301P - Ent C, P26 - Divert 525dia to 675dia storm drain	0%	16-Dec-13*	24-Feb-14
Diaphragm Wall EAST side STAGE 1 PHASE 2 TTMS				
Area E1 (MTW Road)				
Area E1 (MTW Rd) - BC Cutter Nr 1				
01109.PDC24995a10	Modify Cutter 1.2 to 0.8	100%	22-Oct-13 A	29-Oct-13 A
01109.PDC23530	E1 (MTW Rd) - Crosswall D3-2	100%	30-Oct-13 A	01-Nov-13 A
01109.PDC23520	E1 (MTW Rd) - Crosswall D4-2	0%	11-Dec-13	13-Dec-13
Area E1 (MTW Rd) - BC Cutter Nr 2 (Low Headroom cutter)				
01109.PDC23380	E1 (MTW Rd) - Dwall works P132 (under TKW Flyover)	100%	27-Sep-13 A	09-Nov-13 A
01109.PDC23350a	E1 (MTW Rd) - Dwall works P159a (under TKW Flyover)	76%	12-Nov-13 A	29-Nov-13
01109.PDC23330	E1 (MTW Rd) - Dwall works P133 (under TKW Flyover)	0%	02-Dec-13	20-Dec-13
01109.PDC23370	E1 (MTW Rd) - Dwall works P12 (under TKW Flyover)	0%	21-Dec-13	18-Jan-14
Area E1 (MTW Rd) - Post Concrete Works				
01109.PDC3210	E1 (MTW Rd) - Dwall testing	19%	03-Jun-13 A	25-Jan-14
01109.PDC3180	E1 (MTW Rd) - Dwall Toe grouting	5%	23-Sep-13 A	27-Jan-14
Area E1 (Ent D)				
Area E1 (Ent D) - Founding Level Pedrill				
01109.PDC3380	E1 (Ent D) - Batch 2 - P:5,6,10,9,7,8 - GI Report & Confirmation of Founding Levels	60%	10-Apr-13 A	18-Dec-13
01109.PDC3270A	E1 (Ent D) - Batch 2 - P9 Trial pit and Founding Level Predrill	80%	17-Oct-13 A	29-Nov-13
Area E1 (Ent D) - BC Cutter Nr 2 (Low Headroom cutter)				
01109.PDC23860A	E1 (Ent D) - Dwall works P142 (cutter excav, rebar, conc)	75%	17-Oct-13 A	27-Nov-13
Area E2/E4/E5				
Area E2/E4/E5 - Founding Level Predrill				
01109.PDC4100	E2 - Founding level Predrill for Mini Piling (6nr)	33%	05-Sep-13 A	04-Dec-13
01109.PDC8420	E5 - Founding level Predrill for Mini Piling (3nr)	0%	03-Dec-13	07-Dec-13
01109.PDC23060	E4 - Founding level Predrill for Mini Piling (1nr)	0%	07-Dec-13	11-Dec-13
Area E2/E4/E5 - BC Cutter Nr 2				
01109.PDC28910A	E4 - Crosswall E2-1	62%	16-Nov-13 A	30-Nov-13
01109.PDC23810	E2 - Crosswall F7-2	0%	04-Jan-14	08-Jan-14
01109.PDC23600	E2 - Crosswall F6-2	0%	08-Jan-14	11-Jan-14
01109.PDC23840	E2 - Crosswall F5-2	0%	11-Jan-14	17-Jan-14
01109.PDC23600a	E2 - Crosswall F6-3	0%	17-Jan-14	21-Jan-14
Area E2/E4/E5 - BC Cutter Nr 1				
01109.PDC23720	E2 - Crosswall F1-1	100%	01-Nov-13 A	11-Nov-13 A
01109.PDC23740	E2 - Crosswall F2-1	100%	12-Nov-13 A	15-Nov-13 A
01109.PDC23820	E2 - Crosswall F2-2	100%	16-Nov-13 A	19-Nov-13 A
01109.PDC23760	E2 - Crosswall F3-1	50%	20-Nov-13 A	28-Nov-13
01109.PDC23830	E2 - Crosswall F3-2	0%	29-Nov-13	05-Dec-13
01109.PDC23800	E2 - Crosswall F1-2	0%	05-Dec-13	11-Dec-13



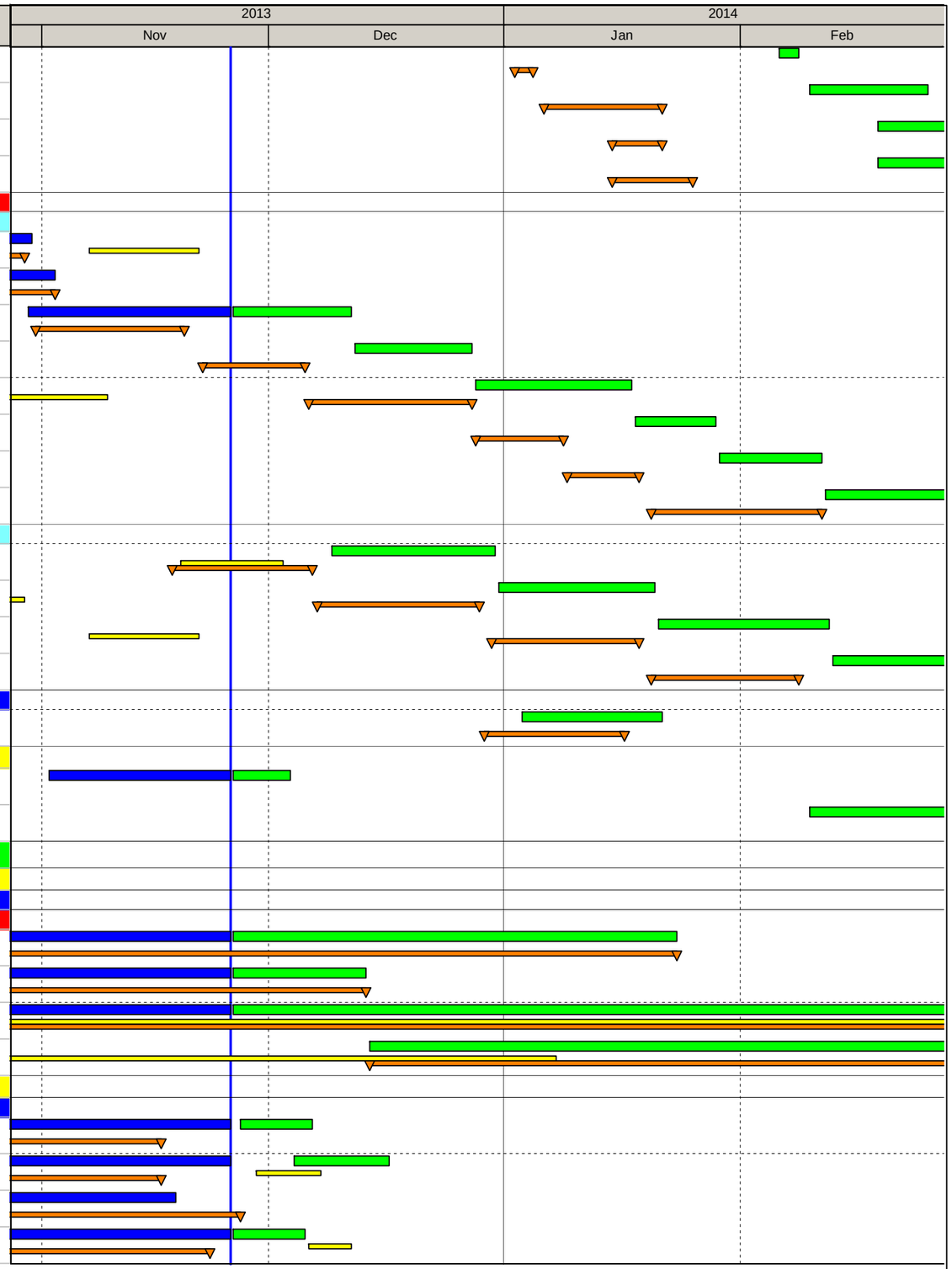
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC23730	E2 - Crosswall F7-1	0%	13-Dec-13	17-Dec-13
01109.PDC23750	E2 - Crosswall F6-1	0%	17-Dec-13	23-Dec-13
01109.PDC23810a	E2 - Crosswall F7-3	0%	23-Dec-13	28-Dec-13
01109.PDC23850a	E2 - Crosswall F4-3	0%	28-Dec-13	04-Jan-14
01109.PDC28890A	E4 - Crosswall E2-2	0%	04-Jan-14	10-Jan-14
01109.PDC28880A	E4 - Crosswall E1-2	0%	10-Jan-14	16-Jan-14
01109.PDC23830a	E2 - Crosswall F3-3	0%	16-Jan-14	22-Jan-14
01109.PDC27020A	E4/E2/E5 - Const Temp deck for Shell, Caltex & Gainful	0%	23-Jan-14	04-Feb-14
Area E2/E4/E5 - BC Cutter Nr 3				
01109.PDC23640	E2 - Dwall works P116	100%	09-Oct-13 A	11-Nov-13 A
01109.PDC23660	E2 - Dwall works P118	48%	13-Nov-13 A	11-Dec-13
01109.PDC24995a	Modify Cutter 1.2 to 0.8	0%	07-Dec-13	12-Dec-13
01109.PDC23770	E2 - Crosswall F5-1	0%	13-Dec-13	19-Dec-13
01109.PDC23790	E2 - Crosswall F4-1	0%	19-Dec-13	27-Dec-13
01109.PDC23800a	E2 - Crosswall F1-3	0%	27-Dec-13	03-Jan-14
01109.PDC23850	E2 - Crosswall F4-2	0%	03-Jan-14	09-Jan-14
01109.PDC23820a	E2 - Crosswall F2-3	0%	09-Jan-14	15-Jan-14
01109.PDC23840a	E2 - Crosswall F5-3	0%	15-Jan-14	21-Jan-14
Area E2/E4/E5 - BC Cutter Nr 4				
01109.PDC24830	E5 - Crosswall F11-2	100%	23-Oct-13 A	26-Oct-13 A
01109.PDC24060	E3 - Crosswall F13-2	100%	29-Oct-13 A	31-Oct-13 A
01109.PDC29185	Maintenance of BC Cutter 4	100%	01-Nov-13 A	06-Nov-13 A
01109.PDC23710	E2 - Crosswall F8-1	67%	16-Nov-13 A	27-Nov-13
01109.PDC24800	E5 - Crosswall F9-2	0%	29-Nov-13	03-Dec-13
01109.PDC23780	E2 - Crosswall F8-2	0%	04-Dec-13	07-Dec-13
Area E2/E4/E5 - Post Concrete Works				
01109.PDC8860	E5 - Dwall testing	38%	07-Aug-13 A	11-Dec-13
01109.PDC23120	E5 - Dwall Toe grouting	8%	20-Aug-13 A	17-Dec-13
01109.PDC23090	E4 - Dwall testing	0%	26-Nov-13	19-Dec-13
01109.PDC5110	E2 - Dwall testing	0%	12-Dec-13	04-Jan-14
01109.PDC5080	E2 - Dwall Toe grouting	0%	18-Dec-13	10-Jan-14
01109.PDC23100	E4 - Dwall Toe grouting	0%	20-Dec-13	28-Dec-13
Area E3				
Area E3 - Advance Works				
01109.PDC6760A	E3-3 - Trial Pits (Batch 2)	75%	23-Mar-13 A	27-Nov-13
01109.PDC6750A	E3-3 - Excavation and Construction of Guide Walls (P88a,88b,89,90,91,92,93)	29%	27-Mar-13 A	09-Dec-13



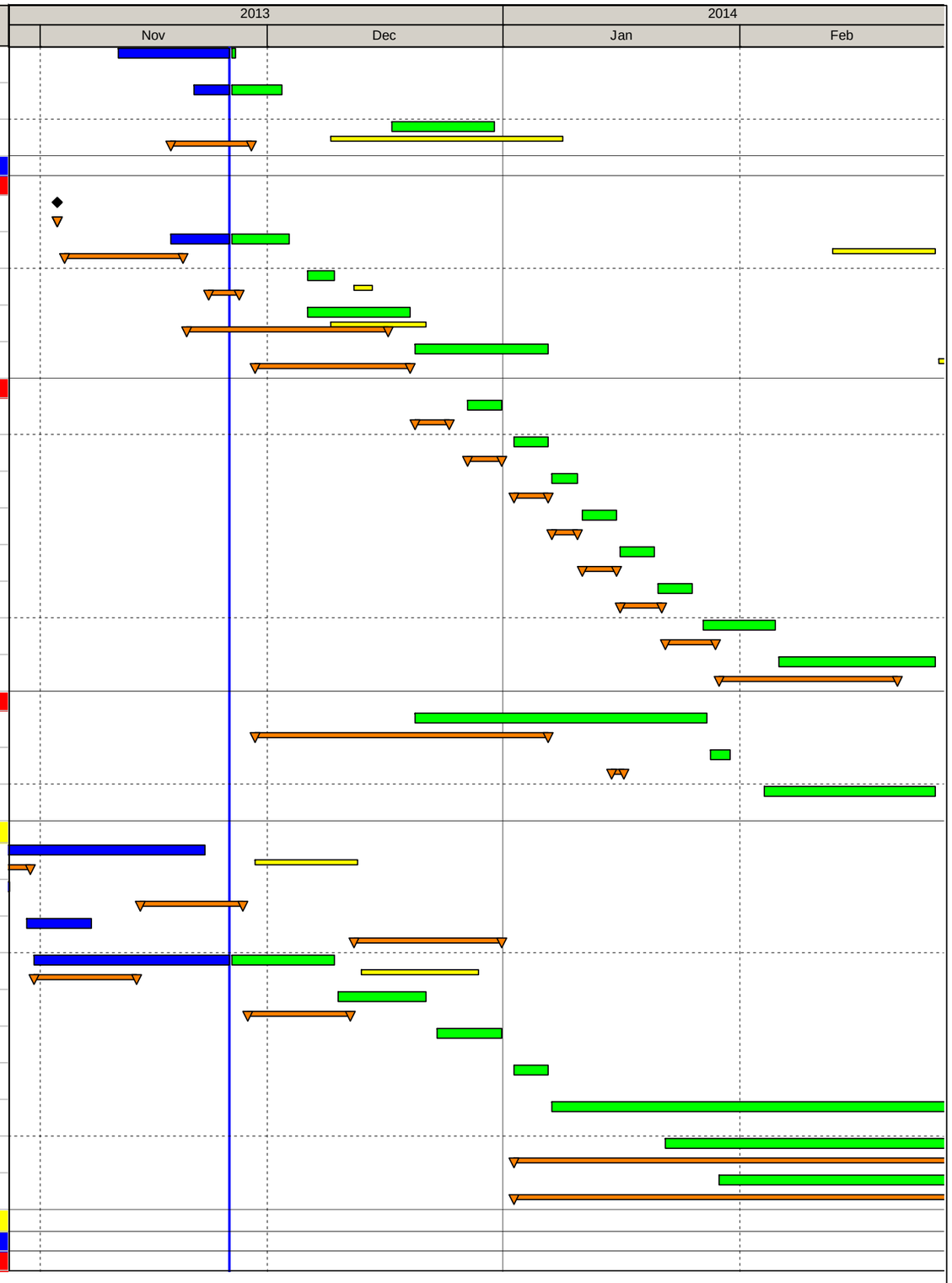
Activity ID	Activity Name	Physical % Complete	Start	Finish
Area E3 - Founding Level Predrill				
01109.PDC6770	E3-3 - Batch 2 - Founding Level Predrill P88a,88b(89),92,90,93,91(8nr) 2.5PR	75%	05-Apr-13 A	27-Nov-13
01109.PDC6830	E3-3 - Batch 2 - P: 88a,88b(89),92,90,93,91 - GI Report & Confirmation of Founding Levels	57%	26-Apr-13 A	28-Nov-13
01109.PDC6060	E3-2 - Founding Level for Mini Piling (3nr) 2PR	67%	29-Oct-13 A	27-Nov-13
01109.PDC6800A	E3-3 - Founding Level for Mini Piling (4nr) 3PR	100%	02-Nov-13 A	21-Nov-13 A
01109.PDC6040	E3-1 - Founding Level for Mini Piling (4nr) 2PR	0%	27-Nov-13	03-Dec-13
Area E3 - BC Cutter Nr 5				
01109.PDC24500	E3 - Crosswall G11-1	100%	07-Nov-13 A	13-Nov-13 A
Area E3 - Post Concrete Works				
01109.PDC5940	E3-1 - Dwall testing	58%	23-Jul-13 A	06-Dec-13
01109.PDC8990	E3-3 - Dwall Toe grouting	13%	24-Jul-13 A	24-Dec-13
01109.PDC6650	E3-2 - Dwall Toe grouting	20%	06-Aug-13 A	12-Dec-13
01109.PDC8130A	E3 - Remedial Works (P94, 98, P99, P102)	5%	25-Nov-13 A	14-Dec-13
01109.PDC6820	E3-1 - Dwall Toe grouting	0%	26-Nov-13	16-Dec-13
Area E6				
Area E6 - Advance Works				
01109.PDC8960	E6 - Batch 2 - Excavation and construction of Guide walls	75%	20-Apr-13 A	28-Nov-13
01109.PDC8980	E6 - Batch 1 - Excavation and construction of Guide walls	67%	01-Jun-13 A	29-Nov-13
Area E6 - Founding Level Predrill				
01109.PDC9130	E6 - Batch 1 - Founding Level Predrill - P74a,75,76,77,78,79 (8nr) 2PR	63%	19-Jun-13 A	28-Nov-13
01109.PDC9070	E6 - Batch 2 - E6 - P: 83,87,84,82,86,81,85,80 - GI Report & Confirmation of Founding Levels	63%	09-Jul-13 A	28-Nov-13
01109.PDC9140	E6 - Batch 1 - P: 75,79,76,78,77,74a - GI Report & Confirmation of Founding Levels	50%	30-Jul-13 A	29-Nov-13
01109.PDC9080	E6 - Batch 1 - Founding Level Predrill for Mini Piling (6nr)	67%	27-Aug-13 A	29-Nov-13
01109.PDC9090	E6 - Batch 2 - Founding Level Predrill for Mini Piling (3nr)	33%	22-Oct-13 A	29-Nov-13
Diaphragm Wall EAST side STAGE 1 PHASE 3 - E3 Bus Stop Move				
Area E3				
01109.PDC29165A	Trench excavation and installation of sheet piles (101 lm)	100%	14-Sep-13 A	13-Nov-13 A
01109.PDC29166A	Sheetpile corner grouting	0%	28-Nov-13*	04-Dec-13
01109.PDC29167A	Sheetpile crosswall grouting	0%	05-Dec-13	11-Dec-13
01109.PDC29168A	Install pumping system (if necessary)	0%	12-Dec-13	27-Dec-13
01109.PDC29205A	Pumping Test & Result Approval	0%	28-Dec-13	11-Jan-14
Area E3 - Roof Slab Structure				
01109.PDC29225A	Excavation to 250mm below strut S1	0%	28-Dec-13	04-Jan-14
01109.PDC29235A	Install strut and waler	0%	06-Jan-14	18-Jan-14
01109.PDC29245A	Bay A - Excavation	0%	13-Jan-14	25-Jan-14
01109.PDC29215A	Bay B - Excavation	0%	20-Jan-14	05-Feb-14
01109.PDC29275A	Bay A - Lean concrete, coupler hacking, formwork against to sheetpile	0%	27-Jan-14	29-Jan-14
01109.PDC29295A	Bay A - Rebar cage, formwork and roof slab concrete	0%	30-Jan-14	18-Feb-14



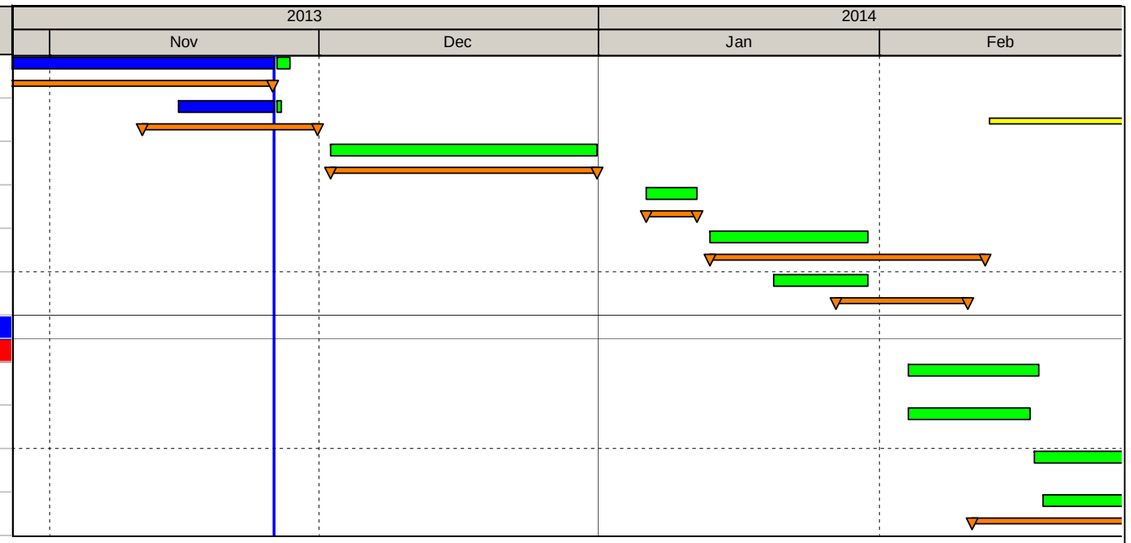
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC29305A	Bay B - Lean concrete, coupler hacking, formwork against to sheetpile	0%	06-Feb-14	08-Feb-14
01109.PDC29315A	Bay B - Rebar cage, formwork and roof slab concrete	0%	10-Feb-14	25-Feb-14
01109.PDC29285A	Bay A - Waterproofing, retaining wall construction, backfilling and reinstate pavement	0%	19-Feb-14	04-Mar-14
01109.PDC29325A10	Bus stop preparation for Stage 2A	0%	19-Feb-14	14-Mar-14
Area E6				
Area E6 - BC Cutter Nr 5				
01109.PDC24880	E6 - Dwall works P86	100%	15-Oct-13 A	30-Oct-13 A
01109.PDC24550	E3 - Dwall works P90	100%	23-Oct-13 A	02-Nov-13 A
01109.PDC24860	E6 - Dwall works P84	20%	30-Oct-13 A	11-Dec-13
01109.PDC24850	E6 - Dwall works P87	0%	12-Dec-13	27-Dec-13
01109.PDC24900	E6 - Dwall works P85	0%	28-Dec-13	17-Jan-14
01109.PDC24350	E6 - Dwall works P88A	0%	18-Jan-14	28-Jan-14
01109.PDC28930	E6 - Dwall works P88B	0%	29-Jan-14	11-Feb-14
01109.PDC24840	E6 - Dwall works P83	0%	12-Feb-14	03-Mar-14
Area E6 - BC Cutter Nr 4				
01109.PDC24950	E6 - Dwall works P78	0%	09-Dec-13	30-Dec-13
01109.PDC24960	E6 - Dwall works P77	0%	31-Dec-13	20-Jan-14
01109.PDC24930	E6 - Dwall works P79	0%	21-Jan-14	12-Feb-14
01109.PDC24940	E6 - Dwall works P76	0%	13-Feb-14	01-Mar-14
Transition Works from D Wall Stg 1 Phase 2/3 to Stage 2A				
01109.PDC11050	E5 - Remove concrete canopy at BMW Garage	0%	03-Jan-14	21-Jan-14
Entrance B				
01109.PDC22710A	Ent B - Trial pit excavation and predrilling for sheet piles	50%	02-Nov-13 A	03-Dec-13
01109.PDC22710	Ent B - Installation sheetpile (including Pumping Test)	0%	10-Feb-14*	16-Apr-14
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION				
Procurement of Specialised Construction Machinery				
Procurement of Specialised Construction Machinery				
Off-site				
01109.PDD1040	TBM Down track SUW to HOM - TBM Manufacture	86%	09-Jan-13 A	23-Jan-14
01109.PDD1030	STP (Manufacture)	83%	17-Jan-13 A	13-Dec-13
01109.PDD1050	TBM Up track SUW to HOM - TBM Manufacture	20%	30-Aug-13 A	21-Aug-14
01109.PDD1060	STP (Deliver)	0%	14-Dec-13	13-Mar-14
Underpining of EKW Pier 15 and Foundation Removal				
Site Preparation (in exist central reservation)				
01109.PDD2268A	Pre-Bored H-Pile Work (5nr - P3,P4,P7,P8,AP1)	90%	13-Aug-13 A	06-Dec-13
01109.PDD2300	Pre-Bored H-Pile Work (4nr - P1,P2,P5,P6)	86%	18-Sep-13 A	16-Dec-13
01109.PDD3950	Storm Drain Diversion including Manholes	100%	19-Sep-13 A	18-Nov-13 A
01109.PDD2310	Salt Water DIversion	90%	14-Oct-13 A	05-Dec-13



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD2269A	Pre-Bored H-Pile P4 TAM Grouting	90%	11-Nov-13 A	26-Nov-13
01109.PDD2301A	Pre-Bored H-Pile P1 TAM Grouting	40%	21-Nov-13 A	02-Dec-13
01109.PDD2330	Pile testing (incl. point load test)	0%	17-Dec-13	30-Dec-13
TTA Stage 1: Phase 3				
Preparation Works				
01109.PDD2300A	Stage 1 - Phase 3 - Pier 15	100%	03-Nov-13 A	
01109.PDD2400	Trench Excavation for sheet pile works	50%	18-Nov-13 A	03-Dec-13
01109.PDD2390	Abandon existing 15" Salt Water Main TKW-SW504	0%	06-Dec-13	09-Dec-13
01109.PDD2340	Install eastern part of sheet pile cofferdam wall (stage 2)	0%	06-Dec-13	19-Dec-13
01109.PDD2410	Toe grouting to cofferdam wall	0%	20-Dec-13	06-Jan-14
Underpinning Works				
01109.PDD2430	Excavate to 1st ringbeam level	0%	27-Dec-13	31-Dec-13
01109.PDD2440	Install 1st ringbeam	0%	02-Jan-14	06-Jan-14
01109.PDD2450	Excavate to 2nd ringbeam level	0%	07-Jan-14	10-Jan-14
01109.PDD2460	Install 2nd ringbeam	0%	11-Jan-14	15-Jan-14
01109.PDD2470	Excavate to final formation level	0%	16-Jan-14	20-Jan-14
01109.PDD2480	Apply mass concrete fill to underside of the pile cap	0%	21-Jan-14	25-Jan-14
01109.PDD2490A	Install temporary strut between pier and sheet pile	0%	27-Jan-14	05-Feb-14
01109.PDD2490	Construct underpinning beams below existing pile cap	0%	06-Feb-14	26-Feb-14
Bored Pile Removal				
01109.PDD2580A	Grouting for Pile Removal	0%	20-Dec-13*	27-Jan-14
01109.PDD2581A	Mobilization and Set up	0%	28-Jan-14	30-Jan-14
01109.PDD2640	Existing Bored Pile B01 - 1.0m dia - Remove bored pile in way of tunnel	0%	04-Feb-14	26-Feb-14
Ground Treatment between TKW and Shansi Street				
01109.PDD2810	Investigate & confirm clearance of existing piles and other obstructions	100%	08-Jul-13 A	22-Nov-13 A
01109.PDD2830	Trial trench and utility detection with current TTMs for ground treatment works	100%	24-Oct-13 A	28-Oct-13 A
01109.PDD3960A	Site investigation works detection with current TTMs for ground treatment works	100%	30-Oct-13 A	07-Nov-13 A
01109.PDD2820	Engineer's Approval of pile investigation result	50%	31-Oct-13 A	09-Dec-13
01109.PDD2840	Trial trench and utility detection	0%	10-Dec-13	21-Dec-13
01109.PDD3960B	Site investigation works	0%	23-Dec-13	31-Dec-13
01109.PDD2850A	Mobilization of equipments	0%	02-Jan-14	06-Jan-14
01109.PDD2851A	Drilling for ground treatment works	0%	07-Jan-14	15-Mar-14
01109.PDD2850	Jet grouting columns RIG 1	0%	22-Jan-14	18-Mar-14
01109.PDD2860	Jet grouting columns RIG 2	0%	29-Jan-14	28-Mar-14
To Kwa Wan Ancillary Building				
Site Preparation				
Demolition & Site Clearance				



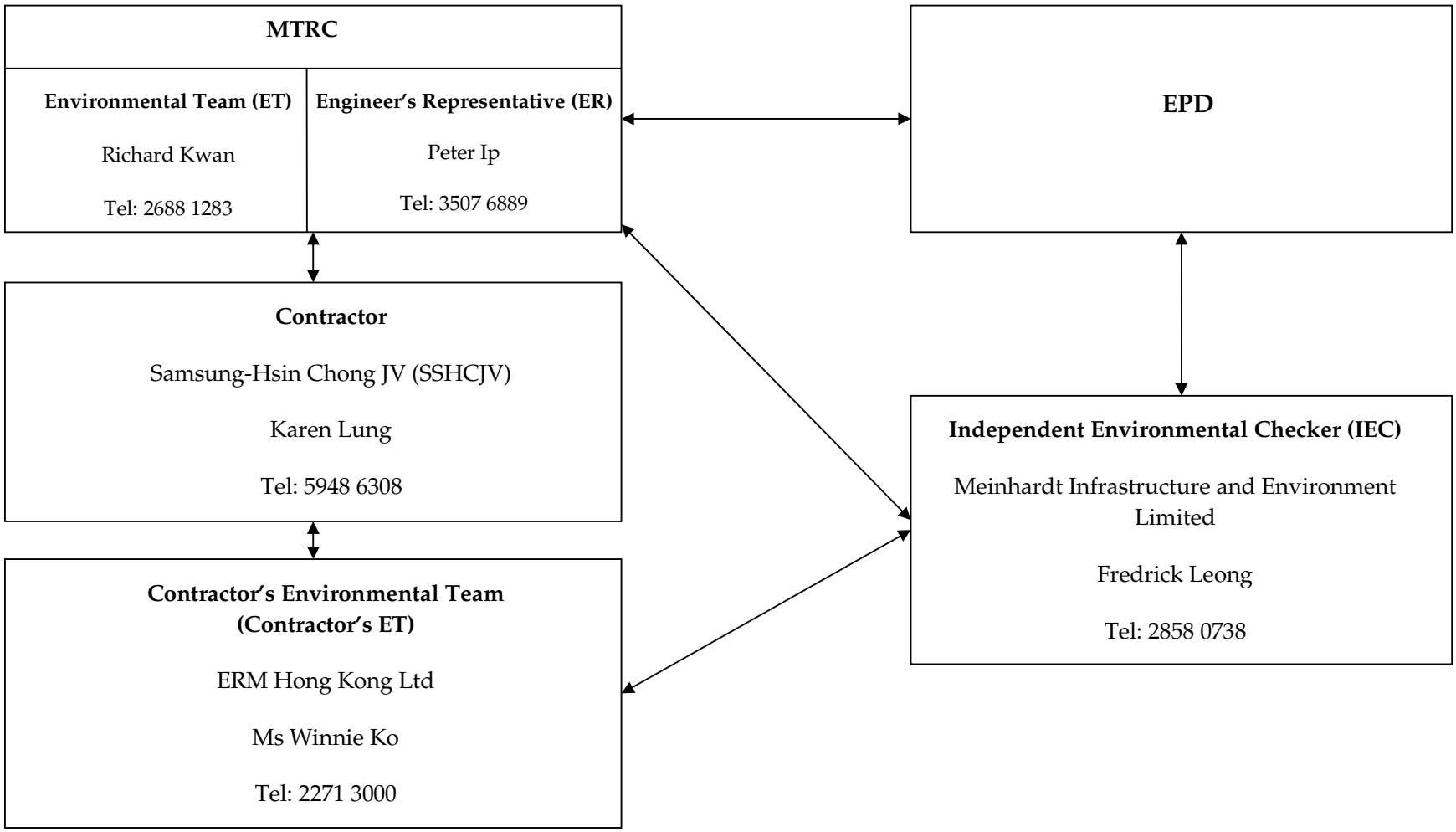
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD2910	TKA - Install new Fresh Water main - TKA-FW101P	90%	22-Oct-13 A	27-Nov-13
01109.PDD2890	TKA - Install new Salt Water main - TKA-SW101P	95%	15-Nov-13 A	26-Nov-13
01109.PDD2900	TKA - CLP Power supply line Permanent diversion (TKA-CLP101,102,103)	0%	02-Dec-13*	31-Dec-13
01109.PDD2870A	TKA - Hoarding & site survey (1109.W9b)	0%	06-Jan-14	11-Jan-14*
01109.PDD2880B	TKA - Demolition and site clearance (1109.W9b)	0%	13-Jan-14	30-Jan-14
01109.PDD2880C	TKA - Site Investigation and Site Preparation	0%	20-Jan-14	30-Jan-14
Excavation and Foundation				
Stage 1				
01109.PDD2970	Pipe piling #1 to 5 up to 23m deep 4d/pile 1PR	0%	04-Feb-14*	18-Feb-14
01109.PDD3961A	Pipe piling #24 to 28 up to 23m deep 4d/pile 1PR	0%	04-Feb-14*	17-Feb-14
01109.PDD3970A	Pipe piling #29 to 33 up to 23m deep 4d/pile 1PR	0%	18-Feb-14	04-Mar-14
01109.PDD3030	Pipe piling #6 to 10 up to 23m deep 4d/pile 1PR	0%	19-Feb-14	04-Mar-14



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

NMS-CA-6
NMS-CA-7
NMS-CA-8
NMS-CA-9
NMS-CA-10
TKW
MTW
NGA TSIN WAI ROAD
SAU CHUK YUEN RD
COLLEGE RD
PRINCE EDWARD RD WEST
ARGYLE ST
MA TAU CHUNG ROAD
OLYMPIC AVENUE
TAM KUNG RD
PAK TAI STREET
KOWLOON CITY ROAD
SUNG WONG TOI ROAD
LUNG TO ST
FUNG YI ST
LUK MING ST
MOK CHEONG STREET
PAU CHUNG STREET
MA TAU KOK ROAD
YIN ON ST
TSUN FAT ST
HOK LING ST
Cattle Depot Artist Village
Gas Works
EMSD Kowloon Workshops
SAN SHAN ROAD
To Kwa Wan Recreation Ground
SAN MA TAU STREET
SHEUNG HEUNG ROAD
HA HEUNG ROAD
CHEUNG NING STREET
TO KWA WAN ROAD
MEI KING STREET
MEI KWONG ST
KWEI CHOW STREET
WAI KING STREET
LONG YUET ST
Cargo Handling Area
YUK YAT STREET
LOK SHAN ROAD
KING WAN ST
SHUN FUNG ST
Hoi Sham Park
CHI KIANG STREET
NGAN HON ST
WING KWONG ST
SUNG ON STREET
BAILEY STREET
HOK YUEN STREET EAST

Key
- Noise Monitoring Station
- Proposed Station
- Proposed Alignment
- Works Area

N

Meters
0 100 200 400

Annex D1

Location of Regular Construction Noise Monitoring Stations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Airborne_Noise_Monitoring_Stations_Annex.mxd
Date: 07-Nov-2012

Environmental Resources Management

ERM

DMS-6
DMS-7
DMS-8
DMS-9
DMS-10
TKW
MTW
Key
Dust Monitoring Stations
Proposed Station
Proposed Alignment
Works Area
N
Meters
0
100
200
400
Annex D2
Location of Dust Monitoring Stations
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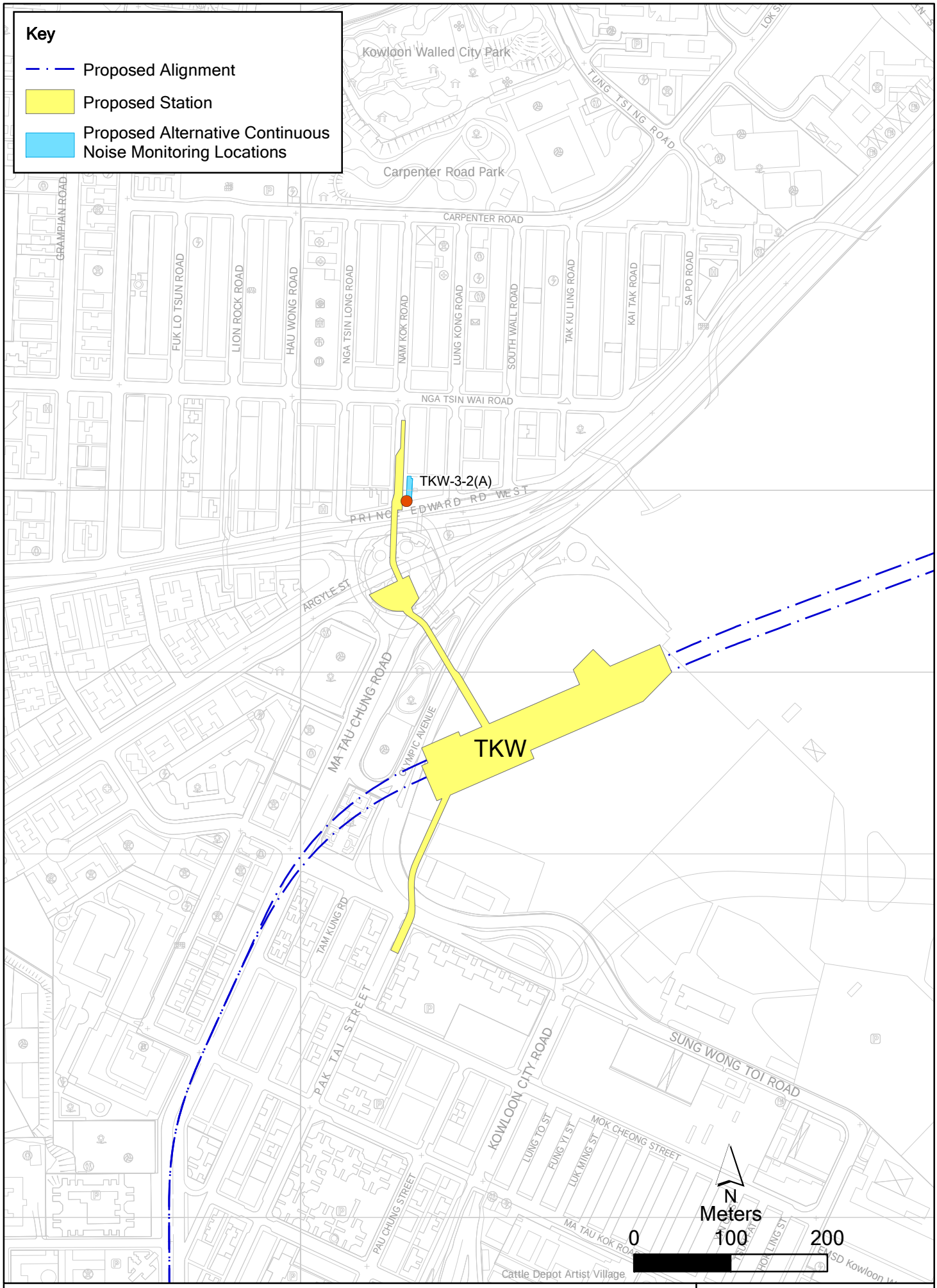
Date: 07-Nov-2012
Environmental Resources Management
ERM



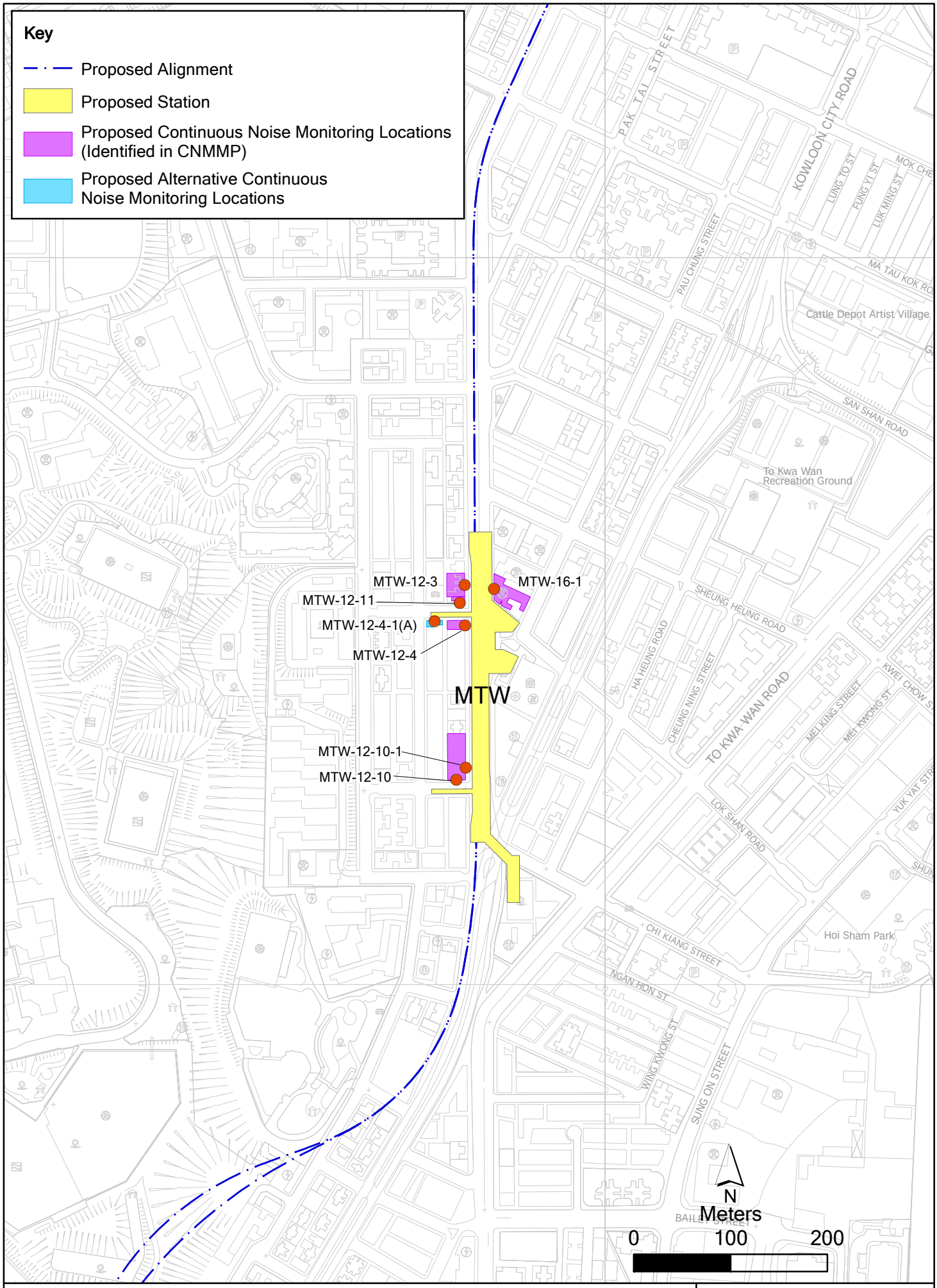
Annex D3

Proposed Continuous Noise Monitoring Locations

Name: 171181_Annex_Continuous_Noise_Monitoring_Locations_TKW.mxd
Date: 10-Oct-12

Environmental Resources Management

ERM



Annex D4

Proposed Continuous Noise Monitoring Locations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Continuous_Noise_Monitoring_Locations_MTW_v2.mxd
Date: 31/1/2013

Environmental Resources Management

ERM

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
Construction Air Quality and Regular Noise Monitoring Schedule

DMS-6 & NMS-CA-6
Monitoring Month : November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24-hr TSP Monitoring Noise Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		.		24-hr TSP Monitoring Noise Monitoring		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24-hr TSP Monitoring Noise Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24-hr TSP Monitoring Noise Monitoring				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring

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

DMS-7 & NMS-CA-7
Monitoring Month : November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24-hr TSP Monitoring Noise Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		.		24-hr TSP Monitoring Noise Monitoring		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24-hr TSP Monitoring Noise Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24-hr TSP Monitoring Noise Monitoring				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring

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

DMS-8 & NMS-CA-8
Monitoring Month : November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24-hr TSP Monitoring Noise Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		.		24-hr TSP Monitoring Noise Monitoring		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24-hr TSP Monitoring Noise Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24-hr TSP Monitoring Noise Monitoring				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring

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

DMS-9 & NMS-CA-9
Monitoring Month : November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24-hr TSP Monitoring Noise Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		.		24-hr TSP Monitoring Noise Monitoring		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24-hr TSP Monitoring Noise Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24-hr TSP Monitoring Noise Monitoring				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring

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

DMS-10 & NMS-CA-10
Monitoring Month : November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24-hr TSP Monitoring Noise Monitoring	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
		.		24-hr TSP Monitoring Noise Monitoring		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24-hr TSP Monitoring Noise Monitoring			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24-hr TSP Monitoring Noise Monitoring				
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring

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

DMS-6 & NMS-CA-6
Monitoring Month : December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
					24-hr TSP Monitoring Noise Monitoring	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		.		24-hr TSP Monitoring Noise Monitoring		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24-hr TSP Monitoring Noise Monitoring			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		24-hr TSP Monitoring Noise Monitoring	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	24-hr TSP Monitoring Noise Monitoring					

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

DMS-7 & NMS-CA-7
Monitoring Month : December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
					24-hr TSP Monitoring Noise Monitoring	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		.		24-hr TSP Monitoring Noise Monitoring		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24-hr TSP Monitoring Noise Monitoring			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		24-hr TSP Monitoring Noise Monitoring	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	24-hr TSP Monitoring Noise Monitoring					

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

DMS-8 & NMS-CA-8
Monitoring Month : December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
					24-hr TSP Monitoring Noise Monitoring	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		.		24-hr TSP Monitoring Noise Monitoring		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24-hr TSP Monitoring Noise Monitoring			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		24-hr TSP Monitoring Noise Monitoring	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	24-hr TSP Monitoring Noise Monitoring					

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

DMS-9 & NMS-CA-9
Monitoring Month : December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
					24-hr TSP Monitoring Noise Monitoring	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		.		24-hr TSP Monitoring Noise Monitoring		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24-hr TSP Monitoring Noise Monitoring			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		24-hr TSP Monitoring Noise Monitoring	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	24-hr TSP Monitoring Noise Monitoring					

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

DMS-10 & NMS-CA-10
Monitoring Month : December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
					24-hr TSP Monitoring Noise Monitoring	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
		.		24-hr TSP Monitoring Noise Monitoring		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24-hr TSP Monitoring Noise Monitoring			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		24-hr TSP Monitoring Noise Monitoring	Public Holiday	Public Holiday		
29-Dec	30-Dec	31-Dec				
	24-hr TSP Monitoring Noise Monitoring					

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr TSP		**HVS**	**Calibrator**		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-9	No. 26 Kowloon City Road	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2323)	6 September 2013	6 March 2014

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-18 (S/N 00360030)	12 July 2013	12 July 2014
NMS-CA-8, MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-31 (S/N 00983400)	30 January 2013	30 January 2014

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-6(Katherine Building)
Calibrated by	:	K.T.Ho
Date	:	06/09/2013

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	299

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.6	3.554	1.713	53	53.1
2	13 holes	9.6	3.102	1.497	46	46.1
3	10 holes	7.3	2.705	1.307	39	39.0
4	7 holes	4.5	2.124	1.029	30	30.0
5	5 holes	3.0	1.734	0.843	24	24.0

Sampler Calibration Relationship

Slope(m):33.432 Intercept(b): -4.393 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-7(Parc 22)
Calibrated by	:	P.F.Yeung
Date	:	06/09/2013

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	299

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.0	3.458	1.667	62	61.9
2	13 holes	9.2	3.028	1.462	54	53.9
3	10 holes	6.9	2.622	1.268	48	47.9
4	7 holes	4.2	2.046	0.992	39	38.9
5	5 holes	2.1	1.447	0.705	30	29.9

Sampler Calibration Relationship

Slope(m):32.873 Intercept(b): 6.455 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-8(SHK Good Shepherd Primary School)
Calibrated by	:	P.F.Yeung
Date	:	06/09/2013

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	299

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.429	1.654	60	59.9
2	13 holes	9.4	3.061	1.477	53	52.9
3	10 holes	7.1	2.660	1.2887	46	45.9
4	7 holes	4.5	2.118	1.026	37	36.9
5	5 holes	2.8	1.671	0.812	28	27.9

Sampler Calibration Relationship

Slope(m): 37.412 Intercept(b): -2.079 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-9(No. 26 Kowloon City Road)
Calibrated by	:	P.F.Yeung
Date	:	06/09/2013

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	299

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.3	3.501	1.688	66	65.9
2	13 holes	9.5	3.077	1.485	56	55.9
3	10 holes	7.0	2.641	1.277	47	46.9
4	7 holes	4.2	2.046	0.992	36	35.9
5	5 holes	2.7	1.640	0.798	27	26.9

Sampler Calibration Relationship

Slope(m):42.945 Intercept(b): -7.271 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 09/09/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-10(Chat Ma Mansion)
Calibrated by	:	P.F.Yeung
Date	:	06/09/2013

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2323
Service Date	:	26 Dec 2012
Slope (m)	:	2.09107
Intercept (b)	:	-0.02838
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	299

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.341	1.611	58	57.9
2	13 holes	9.0	2.995	1.446	52	51.9
3	10 holes	7.0	2.641	1.277	46	45.9
4	7 holes	4.5	2.118	1.026	37	36.9
5	5 holes	2.8	1.671	0.812	28	27.9

Sampler Calibration Relationship

Slope(m):37.167 Intercept(b): -1.759 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan Date: 09/09/2013

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

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	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
0.9967	0.6902	1.4149
0.9925	0.9693	2.0010
0.9903	1.0858	2.2372
0.9893	1.1345	2.3464
0.9840	1.3666	2.8299

Qstd slope (m) = 2.09107
intercept (b) = -0.02838
coefficient (r) = 0.99996

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.6896	0.8851
0.9915	0.9683	1.2517
0.9893	1.0847	1.3995
0.9883	1.1334	1.4678
0.9830	1.3652	1.7702

Qa slope (m) = 1.30939
intercept (b) = -0.01775
coefficient (r) = 0.99996

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. : C134307
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1709)

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 ± 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 : 12 July 2013

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

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 15 July 2013

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 – 校正及檢測實驗所
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. : C134307
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. 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	0.988	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.

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 – 校正及檢測實驗所
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

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. : C134309
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1709)

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

DATE OF TEST / 測試日期 : 12 July 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
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

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 15 July 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司 – 校正及檢測實驗所
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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. : C134309
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 from 6.1.2 to 6.4.

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	C130019
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)		
50 - 110	LA	A	Fast	94.00	1	* 93.1	± 0.7

* Out of Mfr's Spec.

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)		
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.

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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

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	102.4	-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	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)

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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	91.0	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.9	-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)

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)		
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	100.0	± 0.5
						$1/10^2$		90	90.0	± 0.5
			60 sec.			$1/10^3$		80	79.5	± 1.0
			5 min.			$1/10^4$		70	69.7	± 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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Certificate of Calibration
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Certificate No. : C130686
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0285)

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-31
Serial No. / 編號	:	00983400
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 : 30 January 2013

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

Certified By 核證 : C C Cheung

Date of Issue 簽發日期 : 30 January 2013

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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	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

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 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	± 1.1

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_A	A	Fast	94.00	1	93.8 (Ref.)
				104.00		103.8
				114.00		113.9

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.8	Ref.
			Slow			93.7	± 0.3

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6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.5	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.5
					250 Hz	85.1	-8.6 ± 1.4
					500 Hz	90.5	-3.2 ± 1.4
					1 kHz	93.8	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.5
					250 Hz	93.8	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 315241

- Mfr's Spec. : IEC 61672 Class 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)

- 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	1. Notify the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Increase the monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing ; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement noise mitigation proposals.
Exceeding Limit Level	1. Notify the IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency; 4. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform the IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess the effectiveness of the Contractor's remedial measures and keep the IEC, ER and EPD informed of the results	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER, and Contractor on the potential remedial measures; 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 exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	1. Identify reason(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 is still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Annex G2 Event and Action Plan for Continuous Noise Monitoring

Event	Action			
	Works Contract 1109 ET	**IEC**	**ER**	**Contractor**
Exceeding 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 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 1109 ET 2. Check the Contractor's working method 3. Discuss with the ER, Works Contract 1109 ET and Contractor on the potential remedial measures 4. Review and advise the Works Contract 1109 ET and ER on the effectiveness of the remedial measures proposed by the Contractor	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor and IEC 3. In consultation with the Works Contract 1109 ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure the proper implementation of remedial measures 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	1. Identify source with Works Contract 1109 ET 2. If exceedance is confirmed, investigate 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 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated

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**
Action Level				
Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase the monitoring frequency	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notifications of exceedance in writing;	1. Identify reason(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods and agree them with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, the monitoring frequency will resume normal.	1. Check the monitoring data submitted by the ET; 2. Check the 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the Implementation of remedial measures.	1. Identify reasons and investigate the causes of exceedance; 2. Submit proposals of remedial measures to the ER with a copy to the ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend the proposal as appropriate.

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Limit Level				
Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check the 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the implementation of remedial measures.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals of remedial measures to ER with a copy to the ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify the IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase the 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, Contractor and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep the IEC, EPD and ER informed of the results; 7. If exceedance stops, the monitoring frequency will return to normal.	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the 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. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate actions to avoid further exceedance; 3. Submit proposals of 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.

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	1. Inform the Contractor, the IEC and the ER. 2. Discuss remedial actions with the IEC, ER and Contractor. 3. Monitor remedial actions until rectification has been completed.	1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET, ER and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures.	1. Confirm receipt of notifications of nonconformity in writing. 2. Review and agree on the remedial measures proposed by the Contractor. 3. Supervise the implementation of remedial measures.	1. Identify reasons and investigate the non-conformity. 2. Implement remedial measures 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement.
Repeated Nonconformity	1. Identify Reasons. 2. Inform the Contractor, IEC and ER. 3. Increase the inspection frequency. 4. Discuss remedial actions with the IEC, ER and Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If non-conformity stops, the inspection frequency return to normal (ie,. Once every two weeks)	1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures.	1. Notify the Contractor. 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.	1. Identify Reasons and investigate the non-conformity. 2. Implement remedial measures. 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement. 5. Stop relevant works as determined by the ER until the non-conformity is abated.

Annex H

Summary of Implementation Status

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
Δ 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
Cultural Heritage Impact							
S4.9	CH3	Submit an Archaeological Action Plan 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	√
Ecology (Construction Phase)							
S5.7	E5	Good Site Practices 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
		The following good site practices should also be implemented: • Erection of temporary geotextile silt or sediment fences/oil traps around earth-moving works to trap sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • 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; • No on-site burning of waste; • Store waste and refuse in appropriate receptacles.					
Landscape & Visual (Construction Phase)							
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> • 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	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> • To maximize protection to existing trees, ground vegetation and associated under storey 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. <u>Protection of Retained Trees</u> • 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. • 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					

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
		trees in Contractor's works sites.					
S6.12	LV2	<u>Decorative Hoarding</u> • 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. <u>Management of facilities on work sites</u> • 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). <u>Tree Transplanting</u> • 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.	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
Construction Dust							
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^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase; • 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; • Any dusty materials remaining after a stockpile has been removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by an impervious	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
		sheeting to ensure that the dusty materials do not leak from the vehicle; • 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; • 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; • 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; • 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; • Any area that involves demolition activities should be sprayed with water or					

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
		a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface • 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; • Any skip hoist for material transport should be totally enclosed by an impervious sheeting; • 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; • 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;				

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		and • 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.					
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	√
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work	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
		periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, should be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the period of construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other 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	√
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	√
Water Quality							
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> • 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. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to	To minimize 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
		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. • 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^3/s, a sedimentation basin of $30m^3$ would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction. • 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. • 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					

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		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. • 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. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 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. • Manholes (including newly constructed					

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
		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. • 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. • 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					

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
		silty water to public roads and drains. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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. • 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. • Adopt best management practices					
S10.7.1	W2	<u>Tunnelling Works</u> • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge. • The wastewater with a high concentration	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
		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. • 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.					
S10.7.1	W3	<u>Sewage Effluent</u> 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	√
S10.7.1	W4	<u>Groundwater from Contaminated Area in case contamination is found:</u> • No direct discharge of groundwater from	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
		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. • 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.					

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
		• 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.					
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	√

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		• 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. • 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. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	spillage				
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<u>On-site sorting of C&D (Construction and Demolition) material</u> • 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	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	<u>Construction and Demolition (C&D) Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;	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
		• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • 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&D materials and minimize waste generation during the course of construction. • Disposal of the C&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					
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site.	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
		Public fill and C&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.					
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme	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
		should be considered by the Contractor.					
S11.5.1	WM7	<u>Chemical Waste</u> • 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. • 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. • 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.	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
		• 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.					

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_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
01-Nov-13	10:55	11:25	Sunny	64.9	76.1	-(b)	-	Traffic noise	25.0	0.5	NL-18 00360030	NC-73 10997142
07-Nov-13	10:50	11:20	Fine	64.7	76.1	-(b)	-	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142
13-Nov-13	10:50	11:20	Cloudy	64.7	76.1	-(b)	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
19-Nov-13	10:50	11:20	Fine	64.3	76.1	-(b)	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
25-Nov-13	10:55	11:25	Sunny	64.7	76.1	-(b)	-	Traffic noise	19.0	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
01-Nov-13	9:57	10:27	Sunny	67.6	70.0	-(b)	-	Traffic noise	25.0	0.5	NL-18 00360030	NC-73 10997142
07-Nov-13	9:55	10:25	Fine	67.3	70.0	-(b)	-	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142
13-Nov-13	9:55	10:25	Cloudy	67.0	70.0	-(b)	-	Traffic noise	20.0	1.8	NL-18 00360030	NC-73 10997142
19-Nov-13	9:55	10:25	Fine	68.3	70.0	-(b)	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
25-Nov-13	10:00	10:30	Sunny	67.7	70.0	-(b)	-	Traffic noise	19.0	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_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
01-Nov-13	14:38	15:08	Sunny	77.9	75.4	74.3	Crane operation,	Traffic noise	25.0	0.5	NL-31 00983400	NC-73 10997142
07-Nov-13	13:12	13:42	Fine	78.9	75.4	76.3	Crane operation,	Traffic noise	24.0	0.5	NL-31 00983400	NC-73 10997142
13-Nov-13	14:03	14:33	Cloudy	76.5	75.4	70.0	Backhole, crane operation, hand held	Traffic noise	20.0	0.5	NL-31 00983400	NC-73 10997142
19-Nov-13	13:38	14:08	Fine	79.1	75.4	76.7	Backhole, crane operation, hand held	Traffic noise	20.0	0.5	NL-31 00983400	NC-73 10997142
25-Nov-13	9:27	9:57	Sunny	75.2	75.4	-(b)	Backhole	Traffic noise	19.0	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
01-Nov-13	8:00	8:30	Sunny	73.3	69.2	71.2	Crane operation	Traffic noise	25.0	0.5	NL-18 00360030	NC-73 10997142
07-Nov-13	8:00	8:30	Cloudy	73.3	69.2	71.2	Crane operation and backhole	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142
13-Nov-13	8:00	8:30	Cloudy	74.6	69.2	73.1	Backhole	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
19-Nov-13	8:00	8:30	Fine	72.1	69.2	69.0	Crane operation and backhole	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
25-Nov-13	8:10	8:40	Sunny	73.4	69.2	71.3	Backhole	Traffic noise	19.0	0.5	NL-18 00360030	NC-73 10997142

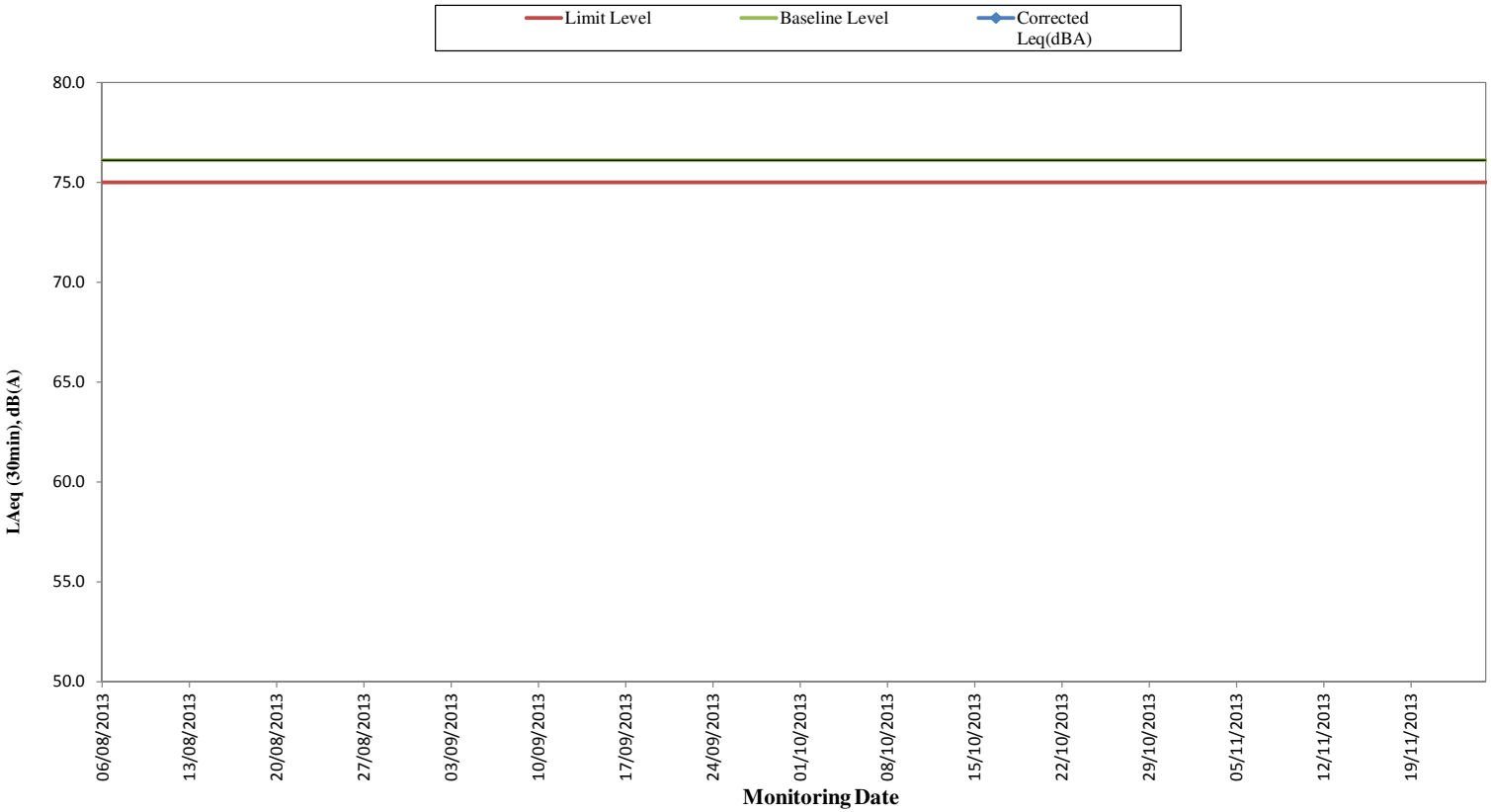
Station NMS-CA-10 Chat Ma Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)[(c)]	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
01-Nov-13	8:40	9:10	Sunny	77.0	76.6	66.4	Backhole	Traffic noise	25.0	0.5	NL-18 00360030	NC-73 10997142
07-Nov-13	8:40	9:10	Fine	77.2	76.6	68.3	Backhole	Traffic noise	24.0	0.5	NL-18 00360030	NC-73 10997142
13-Nov-13	8:40	9:10	Cloudy	76.8	76.6	63.3	Backhole	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
19-Nov-13	8:40	9:10	Fine	76.8	76.6	63.3	Crane operation and backhole	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
25-Nov-13	8:50	9:20	Sunny	76.8	76.6	63.3	Backhole	Traffic noise	19.0	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 of the measurements carried out at NMS-CA-8 on 19 November, at NMS-CA-10 on 1, 7, 13, 19 and 25 November are higher than the daytime construction noise criterion. However, the results are not considered as exceedance as they are below the limit level after deducting the baseline noise level.

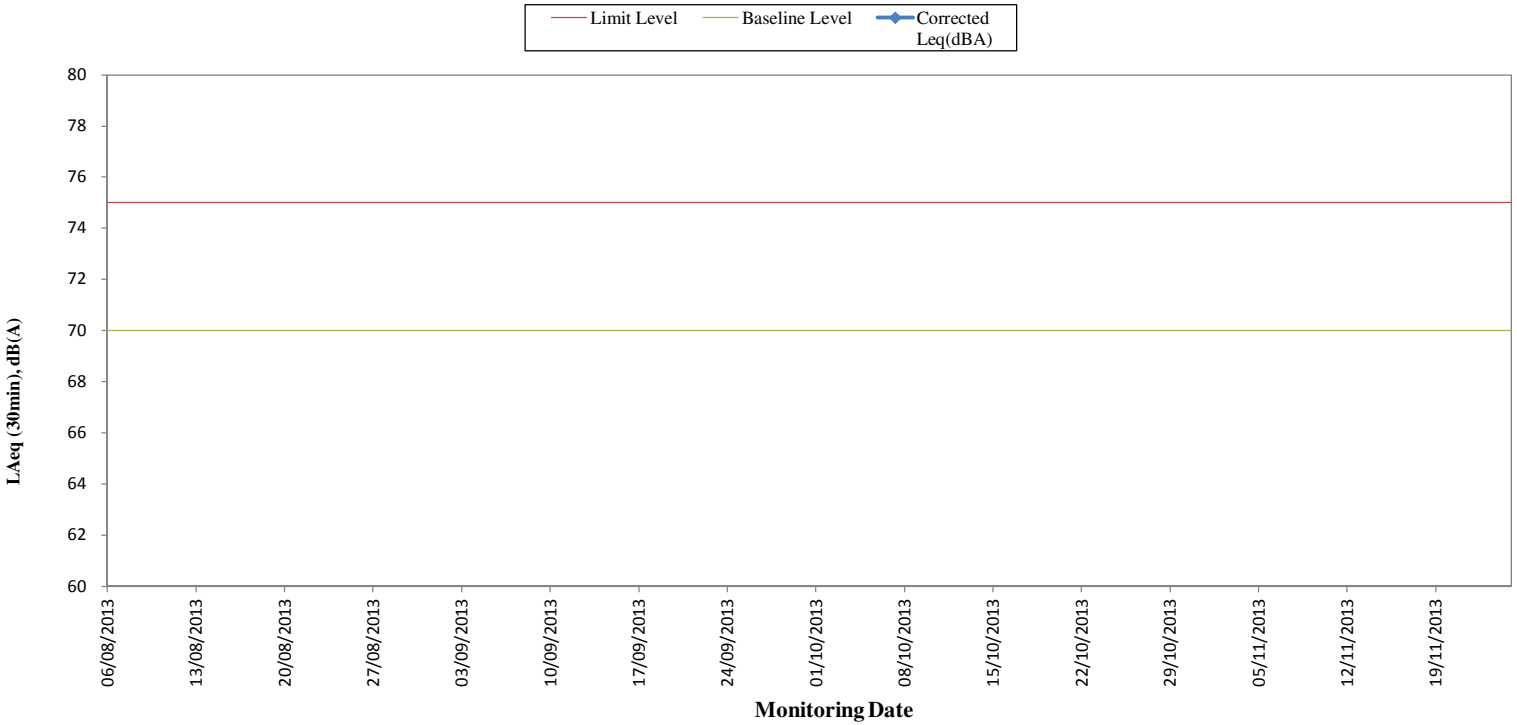
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

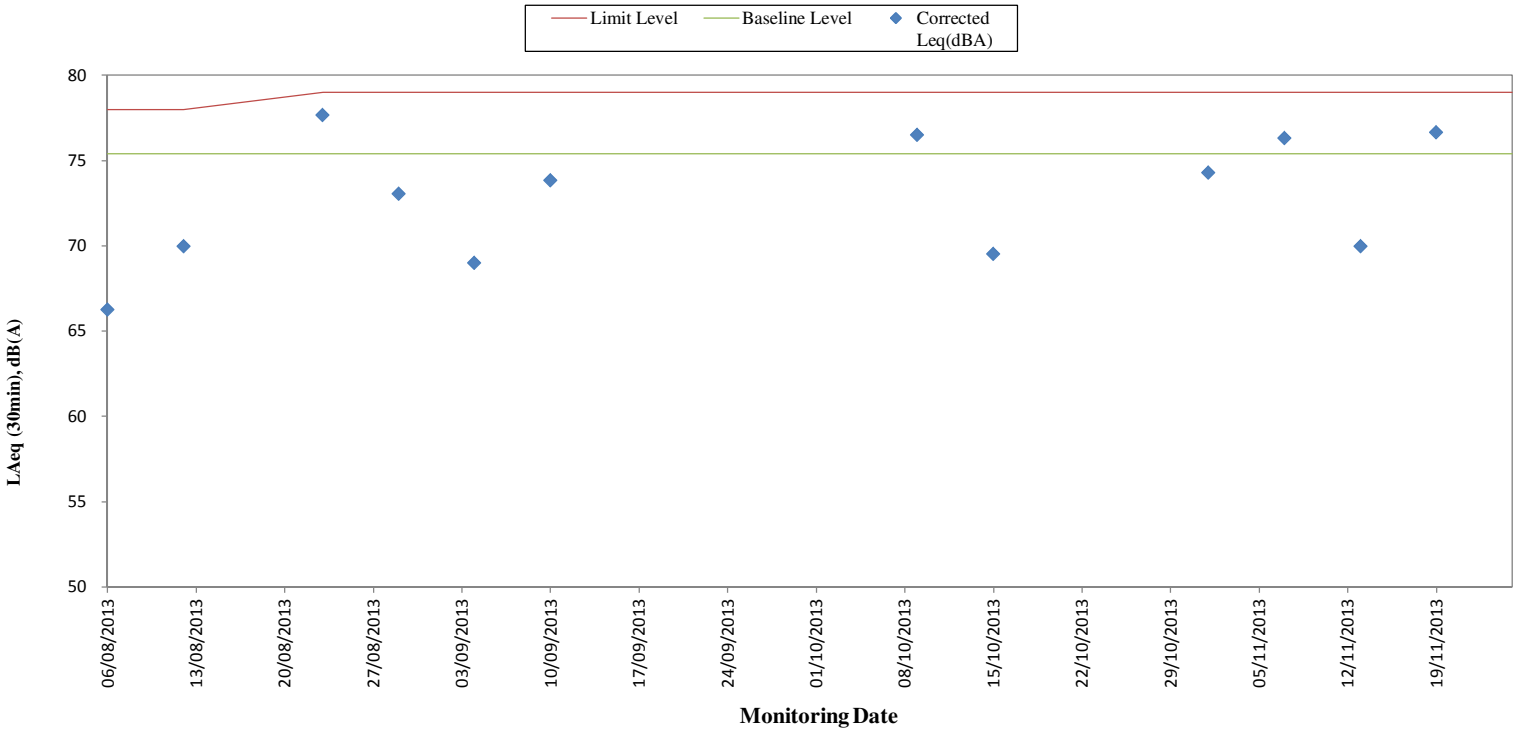
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

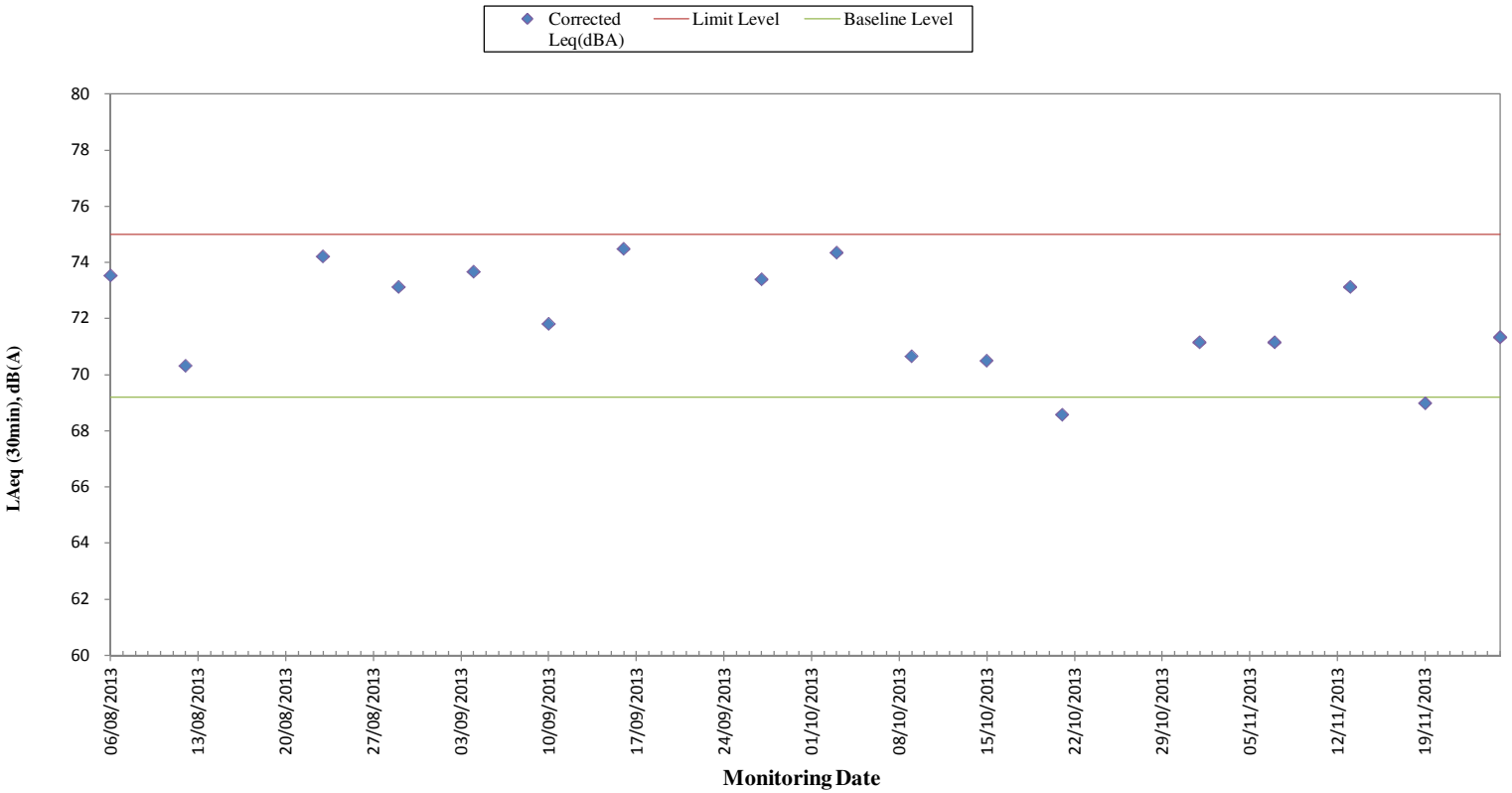
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

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

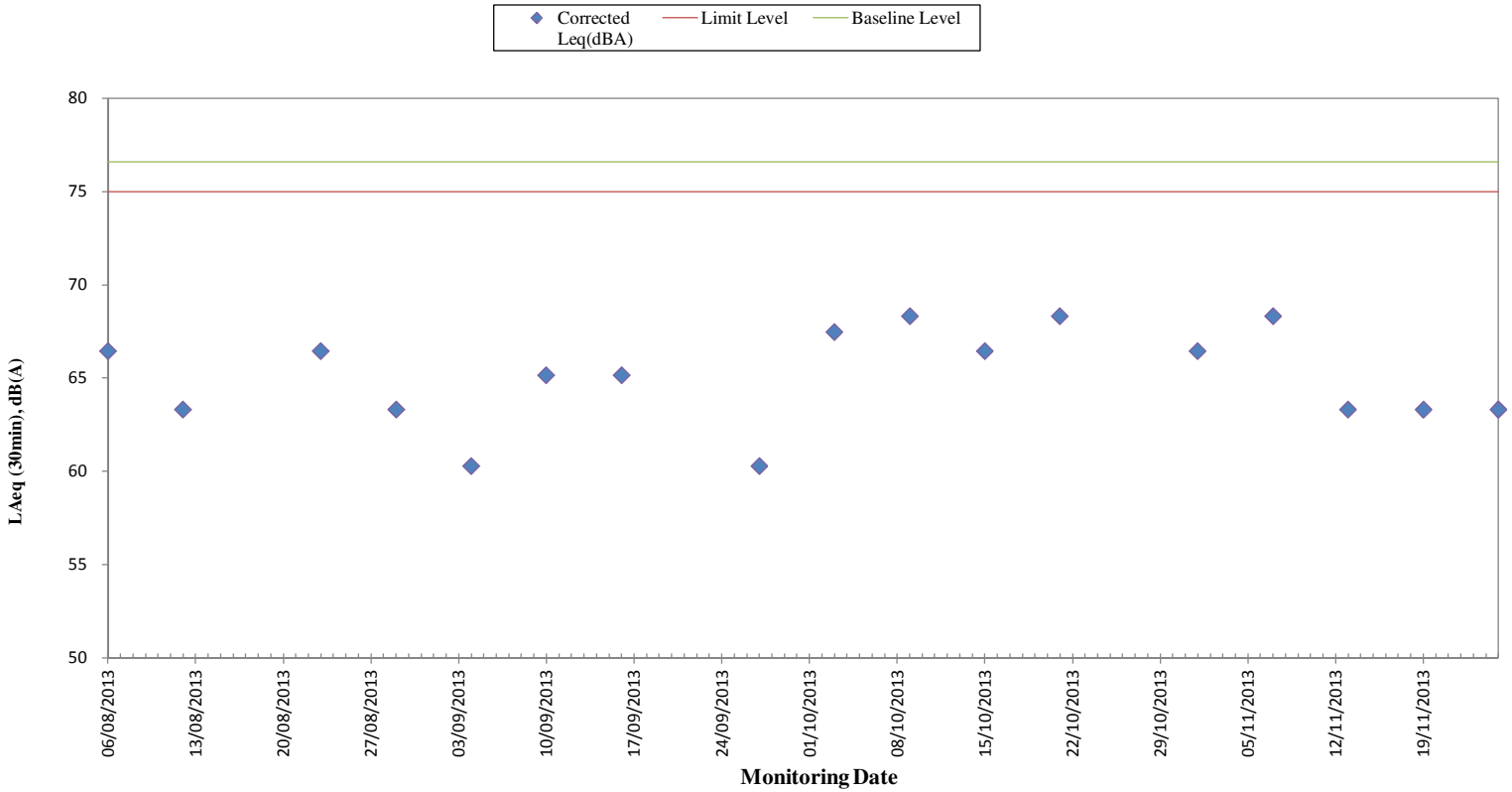
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months



Remarks:

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

Annex I - 2

Continuous Noise Monitoring Results

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	6	38	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	7	8	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	7	38	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	8	8	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	8	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	9	8	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	9	38	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	10	8	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	10	38	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	11	8	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	11	38	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	12	8	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	12	38	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	13	8	81.3	75.4	80	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	13	38	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	14	8	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	14	38	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	15	8	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	15	38	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	16	8	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	16	38	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	17	8	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	17	38	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	18	8	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	1	18	38	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	6	38	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	7	8	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	7	38	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	8	8	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	8	38	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	9	8	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	9	38	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	10	8	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	10	38	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	11	8	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	11	38	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	12	8	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	12	38	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	13	8	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	13	38	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	14	8	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	14	38	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	15	8	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	15	38	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	16	8	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	16	38	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	17	8	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	17	38	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	18	8	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	2	18	38	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	6	38	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	7	8	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	7	38	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	8	8	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	8	38	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	9	8	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	9	38	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	10	8	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	10	38	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	11	8	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	11	38	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	12	8	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	12	42	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	13	12	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	13	42	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	14	12	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	14	42	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	15	12	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	15	42	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	16	12	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	16	42	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	17	12	72	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	17	42	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	18	12	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	4	18	42	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	6	42	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	7	12	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	7	42	73.1	75.4	<Baseline Level	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	8	12	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	8	42	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	9	12	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	9	42	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	10	12	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	10	42	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	11	12	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	11	42	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	12	12	71	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	12	42	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	13	12	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	13	42	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	14	12	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	14	42	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	15	12	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	15	42	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	16	12	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	16	42	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	17	12	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	17	42	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	18	12	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	5	18	42	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	6	42	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	7	12	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	7	42	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	8	12	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	8	42	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	9	12	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	9	42	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	10	12	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	10	42	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	11	12	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	11	42	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	12	12	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	12	42	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	13	12	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	13	42	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	14	12	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	14	42	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	15	12	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	15	42	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	16	12	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	16	42	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	17	12	76.3	75.4	69	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	17	42	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	18	12	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	6	18	42	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	6	42	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	7	12	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	7	42	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	8	12	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	8	42	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	9	12	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	9	42	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	10	12	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	10	42	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	11	12	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	12	12	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	12	42	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	13	12	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	13	42	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	14	12	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	14	42	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	15	12	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	15	42	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	16	12	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	16	42	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	17	12	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	17	42	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	18	12	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	7	18	42	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	6	42	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	7	12	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	7	42	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	8	12	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	8	42	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	9	12	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	9	42	73.6	75.4	<Baseline Level	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	10	12	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	10	42	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	11	12	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	11	42	71.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	12	12	71.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	12	42	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	13	12	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	13	42	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	14	12	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	14	42	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	15	12	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	15	42	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	16	12	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	16	42	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	17	12	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	17	42	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	18	12	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	8	18	42	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	6	42	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	7	12	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	7	42	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	8	12	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	8	42	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	9	12	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	9	42	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	10	12	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	10	42	80.6	75.4	79	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	11	12	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	11	42	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	12	12	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	12	42	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	13	12	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	13	42	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	14	12	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	14	42	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	15	12	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	15	42	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	16	12	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	16	42	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	17	12	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	17	42	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	18	12	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	9	18	42	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	6	42	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	7	12	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	7	42	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	8	12	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	8	42	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	9	12	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	9	42	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	10	12	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	10	42	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	11	12	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	11	42	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	12	12	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	12	42	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	13	12	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	13	42	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	14	33	77.1	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	15	3	76.9	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	15	33	77.3	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	16	3	77	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	16	33	77.2	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	17	3	76.6	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	17	33	76.1	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	18	3	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	11	18	33	68.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	6	33	68.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	7	3	68.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	7	33	69.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	8	3	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	8	33	70	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	9	3	70	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	9	33	69.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	10	3	71.6	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	10	33	74.2	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	11	3	69	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	11	33	65.2	75.4	<Baseline Level	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	12	3	67.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	12	33	68.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	13	3	69.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	13	33	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	14	3	70.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	14	33	70.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	15	3	75.7	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	15	33	76.2	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	16	3	76.3	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	16	33	76.2	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	17	3	76.1	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	17	33	76.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	18	3	75.4	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	12	18	33	69.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	6	33	64.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	7	3	68.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	7	33	75.3	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	8	3	76.4	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	8	33	76.9	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	9	3	76.9	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	9	33	76.8	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	10	3	77	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	10	33	77	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	11	3	77	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	11	33	76.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	12	3	76.5	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	12	33	76.5	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	13	3	76.9	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	13	33	76.9	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	14	3	74.9	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	14	33	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	15	3	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	15	33	69.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	16	3	73.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	16	33	76	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	17	3	76	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	17	33	76	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	18	3	75	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	13	18	33	68.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	6	33	65.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	7	3	68.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	7	33	75.3	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	8	3	75.9	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	8	33	76.5	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	9	3	73.7	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	9	33	71.2	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	10	3	70.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	10	33	69.8	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	11	3	69.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	11	33	66.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	12	3	65.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	12	33	67.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	13	3	72.4	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	13	33	70	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	14	3	68.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	15	1	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	15	31	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	16	1	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	16	31	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	17	1	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	17	31	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	18	1	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	14	18	31	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	6	31	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	7	1	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	7	31	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	8	1	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	8	31	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	9	1	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	9	31	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	10	1	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	10	31	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	11	1	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	11	31	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	12	1	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	12	31	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	13	1	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	13	31	73.9	75.4	<Baseline Level	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	14	1	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	14	31	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	15	1	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	15	31	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	16	1	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	16	31	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	17	1	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	17	31	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	18	1	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	15	18	31	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	6	31	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	7	1	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	7	31	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	8	1	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	8	31	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	9	1	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	9	31	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	10	1	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	10	31	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	11	1	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	11	31	72	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	12	1	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	12	31	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	13	1	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	13	31	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	14	1	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	14	31	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	15	1	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	15	31	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	16	1	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	16	31	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	17	1	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	17	31	71.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	18	1	71.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	16	18	31	71.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	6	31	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	7	1	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	7	31	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	8	1	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	8	31	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	9	1	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	9	31	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	10	1	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	10	31	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	11	1	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	11	31	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	12	1	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	12	38	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	13	8	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	13	38	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	14	8	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	14	38	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	15	8	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	15	38	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	16	8	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	16	38	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	17	8	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	17	38	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	18	8	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	18	18	38	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	6	38	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	7	8	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	7	38	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	8	8	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	8	38	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	9	8	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	9	38	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	10	8	85.5	75.4	85.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	10	38	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	11	8	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	11	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	12	8	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	12	38	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	13	8	81.9	75.4	80.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	13	38	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	14	8	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	14	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	15	8	74.8	75.4	<Baseline Level	79	N

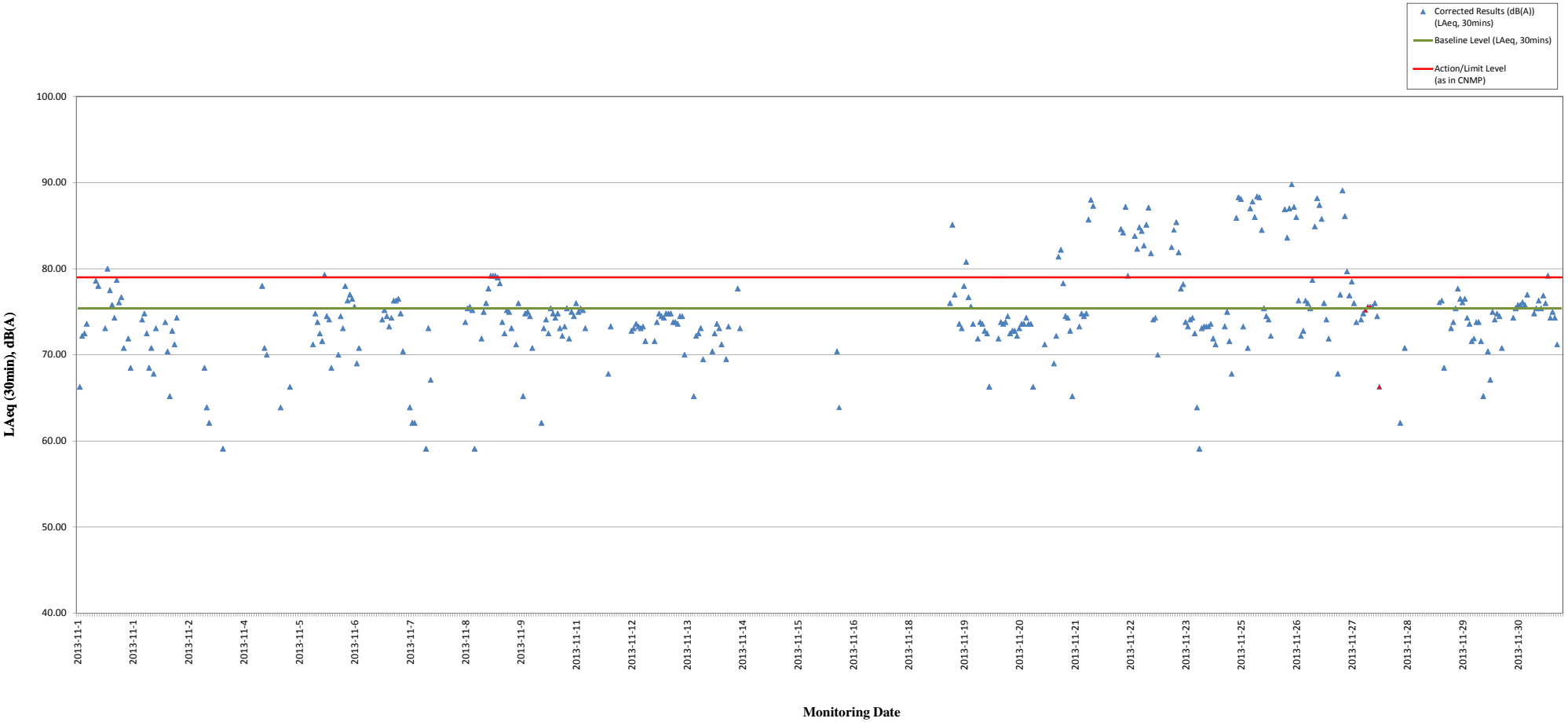
Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	15	38	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	16	8	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	16	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	17	8	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	17	38	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	18	8	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	19	18	38	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	6	38	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	7	8	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	7	38	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	8	8	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	8	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	9	8	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	9	38	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	10	8	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	10	38	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	11	8	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	11	38	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	12	8	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	12	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	13	8	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	13	38	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	14	8	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	14	38	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	15	8	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	15	38	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	16	8	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	16	38	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	17	8	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	17	38	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	18	8	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	20	18	38	71.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	6	38	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	7	8	76.3	75.4	69	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	7	38	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	8	8	82.4	75.4	81.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	8	38	83	75.4	82.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	9	8	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	9	38	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	10	8	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	10	38	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	11	8	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	11	38	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	12	8	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	12	38	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	13	8	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	13	38	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	14	8	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	15	27	86.1	75.4	85.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	15	57	88.2	75.4	88	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	16	27	87.6	75.4	87.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	16	57	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	17	27	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	17	57	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	18	27	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	21	18	57	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	6	57	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	7	27	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	7	57	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	8	27	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	8	57	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	9	27	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	9	57	85.1	75.4	84.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	10	27	84.7	75.4	84.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	10	57	87.5	75.4	87.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	11	27	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	11	57	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	12	27	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	12	57	84.4	75.4	83.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	13	27	83.1	75.4	82.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	13	57	85.3	75.4	84.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	14	27	84.9	75.4	84.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	14	57	83.4	75.4	82.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	15	27	85.5	75.4	85.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	15	57	87.4	75.4	87.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	16	27	82.7	75.4	81.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	16	57	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	17	27	77.9	75.4	74.3	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	17	57	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	18	27	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	22	18	57	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	6	57	73.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	7	27	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	7	57	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	8	27	83.3	75.4	82.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	8	57	85	75.4	84.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	9	27	85.8	75.4	85.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	9	57	82.8	75.4	81.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	10	27	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	10	57	80	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	11	27	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	11	57	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	12	27	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	12	57	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	13	27	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	13	57	75.7	75.4	63.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	14	27	75.5	75.4	59.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	14	57	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	15	27	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	15	57	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	16	27	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	16	57	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	17	27	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	17	57	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	18	27	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	23	18	57	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	6	57	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	7	27	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	7	57	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	8	27	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	8	57	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	9	27	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	9	57	86.3	75.4	85.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	10	27	88.5	75.4	88.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	10	57	88.3	75.4	88.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	11	27	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	11	57	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	12	27	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	12	57	87.3	75.4	87	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	13	27	88	75.4	87.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	13	57	86.4	75.4	86	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	14	56	88.6	75.4	88.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	15	26	88.5	75.4	88.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	15	56	85	75.4	84.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	16	26	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	16	56	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	17	26	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	17	56	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	18	26	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	25	18	56	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	6	56	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	7	26	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	7	56	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	8	26	87.2	75.4	86.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	8	56	84.2	75.4	83.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	9	26	87.3	75.4	87	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	9	56	90	75.4	89.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	10	26	87.5	75.4	87.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	10	56	86.4	75.4	86	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	11	26	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	11	56	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	12	26	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	12	56	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	13	26	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	13	56	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	14	26	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	14	56	85.4	75.4	84.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	15	26	88.4	75.4	88.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	15	56	87.7	75.4	87.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	16	26	86.2	75.4	85.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	16	56	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	17	26	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	17	56	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	18	26	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	26	18	56	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	6	56	73.3	75.4	<Baseline Level	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	7	26	76.1	75.4	67.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	7	56	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	8	26	89.3	75.4	89.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	8	56	86.5	75.4	86.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	9	26	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	9	56	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	10	26	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	10	56	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	11	26	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	11	56	71.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	12	26	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	12	56	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	13	26	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	13	56	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	14	26	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	14	56	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	15	26	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	15	56	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	16	26	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	16	56	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	17	26	73	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	17	56	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	18	26	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	27	18	56	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	6	56	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	7	26	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	7	56	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	8	26	75.6	75.4	62.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	8	56	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	9	26	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	9	56	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	10	26	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	10	56	75	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	11	26	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	11	56	72	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	12	26	71.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	13	17	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	13	47	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	14	17	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	14	47	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	15	17	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	15	47	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	16	17	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	16	47	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	17	17	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	17	47	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	18	17	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	28	18	47	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	6	47	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	7	17	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	7	47	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	8	17	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	8	47	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	9	17	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	9	47	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	10	17	79	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	10	47	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	11	17	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	11	47	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	12	17	77	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	12	47	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	13	17	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	13	47	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	14	17	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	14	47	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	15	17	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	15	47	76	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	16	17	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	16	47	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	17	17	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	17	47	78	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	18	17	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	29	18	47	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	6	47	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	7	17	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	7	47	74	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	8	17	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	8	47	78.4	75.4	75.4	79	N

Location ID	Name	Date			Hour	Minutes	Measured	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	9	17	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	9	47	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	10	17	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	10	47	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	11	17	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	11	47	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	12	17	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	12	47	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	13	17	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	13	47	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	14	17	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	14	47	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	15	17	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	15	47	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	16	17	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	16	47	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	17	17	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	17	47	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	18	17	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2013	11	30	18	47	72.4	75.4	<Baseline Level	79	N

Continuous Noise Monitoring at MTW-16-1 (SKH Good Shepherd Primary School) in November 2013- (LAeq, 30min)



Remarks:
- For those corrected noise levels that are not shown the 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		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m^3)	(µg/m^3)	(µg/m^3)		ID	ID
1-Nov-13	10:40	2-Nov-13	10:40	Sunny	2.7886	2.9311	11840.30	11864.30	24.00	1.26	1.26	1.26	79	156.8	260	Construction work in progress	0107	8519
7-Nov-13	10:38	8-Nov-13	10:38	Fine	2.7797	2.9211	11864.30	11888.30	24.00	1.26	1.26	1.26	78	156.8	260	Construction work in progress	0107	8542
13-Nov-13	10:35	14-Nov-13	10:35	Cloudy	2.7760	2.9272	11888.30	11912.30	24.00	1.26	1.26	1.26	83	156.8	260	Construction work in progress	0107	8565
19-Nov-13	10:35	20-Nov-13	10:35	Fine	2.7624	2.9330	11912.30	11936.30	24.00	1.27	1.27	1.27	93	156.8	260	Construction work in progress	0107	8596
25-Nov-13	10:42	26-Nov-13	10:42	Sunny	2.7791	2.9344	11936.30	11960.30	24.00	1.27	1.27	1.27	85	156.8	260	Construction work in progress	0107	8737
30-Nov-13	8:50	1-Dec-13	8:50	Sunny	2.7871	2.9446	11960.30	11984.30	24.00	1.27	1.27	1.27	86	156.8	260	Construction work in progress	0107	8762
												Minimum	78					
												Average	84					
												Maximum	93					

Station DMS-7 Parc 22

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m^3)	(µg/m^3)	(µg/m^3)		ID	ID
1-Nov-13	9:45	2-Nov-13	9:45	Sunny	2.7991	2.9391	02017.17	02041.17	24.00	1.20	1.20	1.20	81	166.7	260	Construction work in progress	3574	8518
7-Nov-13	9:45	8-Nov-13	9:45	Fine	2.7821	2.9299	02041.17	02065.17	24.00	1.20	1.20	1.20	86	166.7	260	Construction work in progress	3574	8541
13-Nov-13	9:45	14-Nov-13	9:45	Cloudy	2.7811	2.9494	02065.17	02089.17	24.00	1.21	1.21	1.21	97	166.7	260	Construction work in progress	3574	8564
19-Nov-13	9:45	20-Nov-13	9:45	Fine	2.7731	2.9500	02089.17	020113.17	24.00	1.21	1.21	1.21	102	166.7	260	Construction work in progress	3574	8595
25-Nov-13	9:50	26-Nov-13	9:50	Sunny	2.7963	2.9501	2113.17	2137.17	24.00	1.21	1.21	1.21	88	166.7	260	Construction work in progress	3574	8736
30-Nov-13	8:35	1-Dec-13	8:35	Sunny	2.7932	2.9393	2737.17	2161.17	24.00	1.21	1.21	1.21	84	166.7	260	Construction work in progress	0107	8761
												Minimum	81					
												Average	89					
												Maximum	102					

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
1-Nov-13	9:30	2-Nov-13	9:30	Sunny	2.7944	2.9519	01987.11	02011.11	24.00	1.23	1.23	1.23	89	152.2	260	Construction work in progress	3572	8517
7-Nov-13	9:30	8-Nov-13	9:30	Fine	2.7877	2.9410	02011.11	02035.11	24.00	1.23	1.23	1.23	87	152.2	260	Construction work in progress	3572	8540
13-Nov-13	9:30	14-Nov-13	9:30	Cloudy	2.7806	2.9500	02035.11	02059.11	24.00	1.20	1.20	1.20	98	152.2	260	Construction work in progress	3572	8563
19-Nov-13	9:30	20-Nov-13	9:30	Fine	2.7794	2.9337	02059.11	02083.11	24.00	1.20	1.20	1.20	89	152.2	260	Construction work in progress	3572	8594
25-Nov-13	9:36	26-Nov-13	9:36	Sunny	2.7948	2.9551	2083.11	2107.11	24.00	1.20	1.20	1.20	93	152.2	260	Construction work in progress	3572	8735
30-Nov-13	8:20	1-Dec-13	8:20	Sunny	2.7903	2.9390	2107.11	2131.11	24.00	1.20	1.20	1.20	86	152.2	260	Construction work in progress	0107	8760
												Minimum	86					
												Average	90					
												Maximum	98					

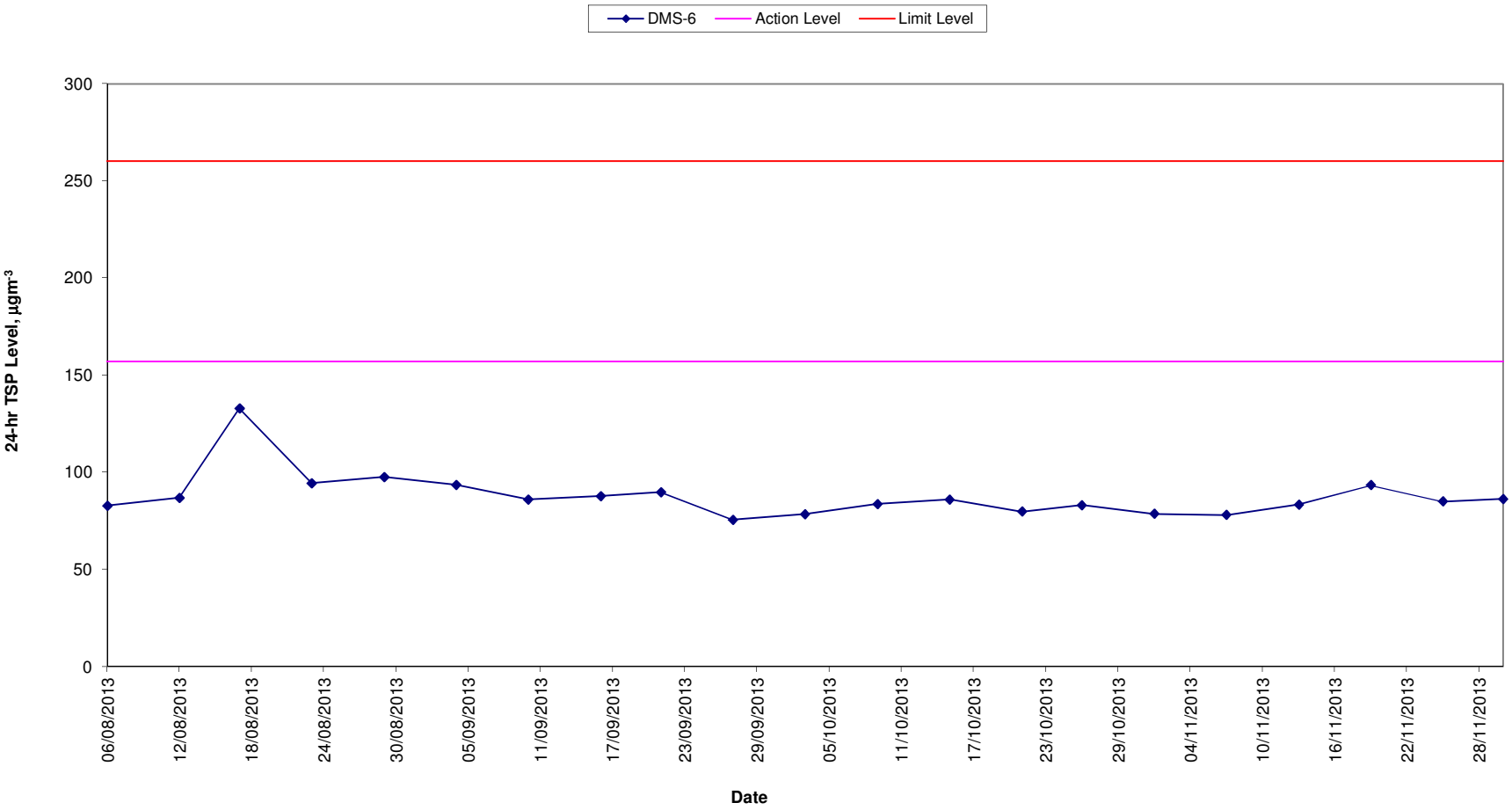
Station DMS-9 No. 26 Kowloon City Road

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
1-Nov-13	9:20	2-Nov-13	9:20	Sunny	2.7929	2.9440	12705.40	12729.40	24.00	1.24	1.24	1.24	85	160.9	260	Construction work in progress	0814	8516
7-Nov-13	9:20	8-Nov-13	9:20	Fine	2.7778	2.9155	12729.40	12753.40	24.00	1.24	1.24	1.24	77	160.9	260	Construction work in progress	0814	8539
13-Nov-13	9:20	14-Nov-13	9:20	Cloudy	2.7769	2.9411	12753.40	12777.40	24.00	1.21	1.21	1.21	94	160.9	260	Construction work in progress	0814	8562
19-Nov-13	9:20	20-Nov-13	9:20	Fine	2.7821	2.9629	12777.40	12801.40	24.00	1.21	1.21	1.21	104	160.9	260	Construction work in progress	0814	8593
25-Nov-13	9:28	26-Nov-13	9:28	Sunny	2.7921	2.9441	12801.40	12825.40	24.00	1.21	1.21	1.21	87	160.9	260	Construction work in progress	0814	8734
30-Nov-13	8:12	1-Dec-13	8:12	Sunny	2.7822	2.9400	12825.40	12849.40	24.00	1.21	1.21	1.21	91	160.9	260	Construction work in progress	0107	8759
												Minimum	77					
												Average	90					
												Maximum	104					

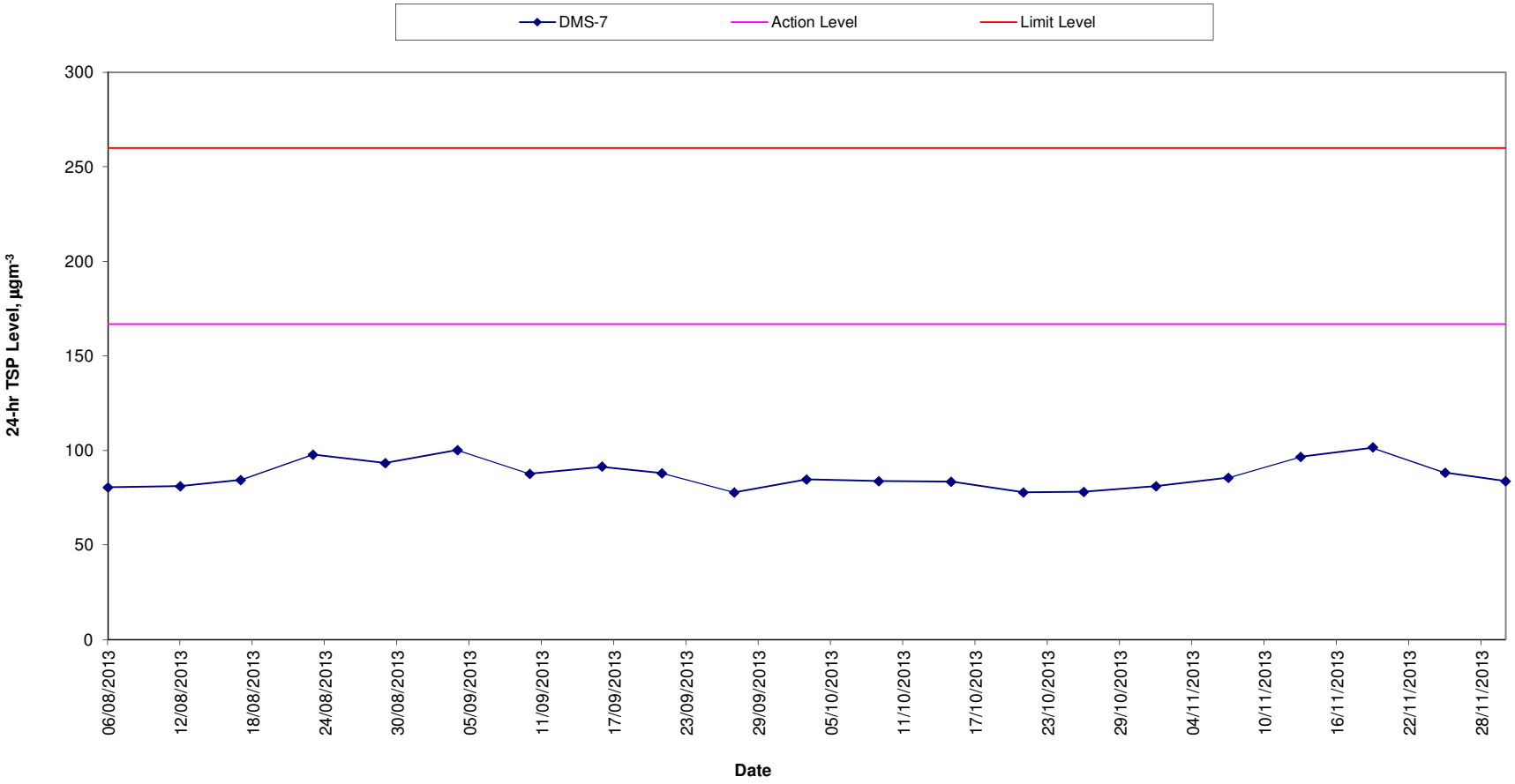
Station DMS-10 Chat Ma Mansion

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
1-Nov-13	8:43	2-Nov-13	8:43	Sunny	2.7811	2.9300	02005.20	02029.20	24.00	1.23	1.23	1.23	84	170.4	260	Construction work in progress	3573	8515
7-Nov-13	8:43	8-Nov-13	8:43	Fine	2.7767	2.9285	02029.20	02053.20	24.00	1.23	1.23	1.23	86	170.4	260	Construction work in progress	3573	8538
13-Nov-13	8:43	14-Nov-13	8:43	Cloudy	2.7752	2.9600	02053.20	02077.20	24.00	1.23	1.23	1.23	104	170.4	260	Construction work in progress	3573	8561
19-Nov-13	8:43	20-Nov-13	8:43	Fine	2.7511	2.9119	02077.20	02101.20	24.00	1.23	1.23	1.23	91	170.4	260	Construction work in progress	3573	8592
25-Nov-13	8:53	26-Nov-13	8:53	Sunny	2.8009	2.9711	2101.20	2125.20	24.00	1.23	1.23	1.23	96	170.4	260	Construction work in progress	3573	8733
30-Nov-13	8:00	1-Dec-13	8:00	Sunny	2.7891	2.9822	2125.20	2149.20	24.00	1.23	1.23	1.23	109	170.4	260	Construction work in progress	0107	8492
												Minimum	84					
												Average	95					
												Maximum	109					

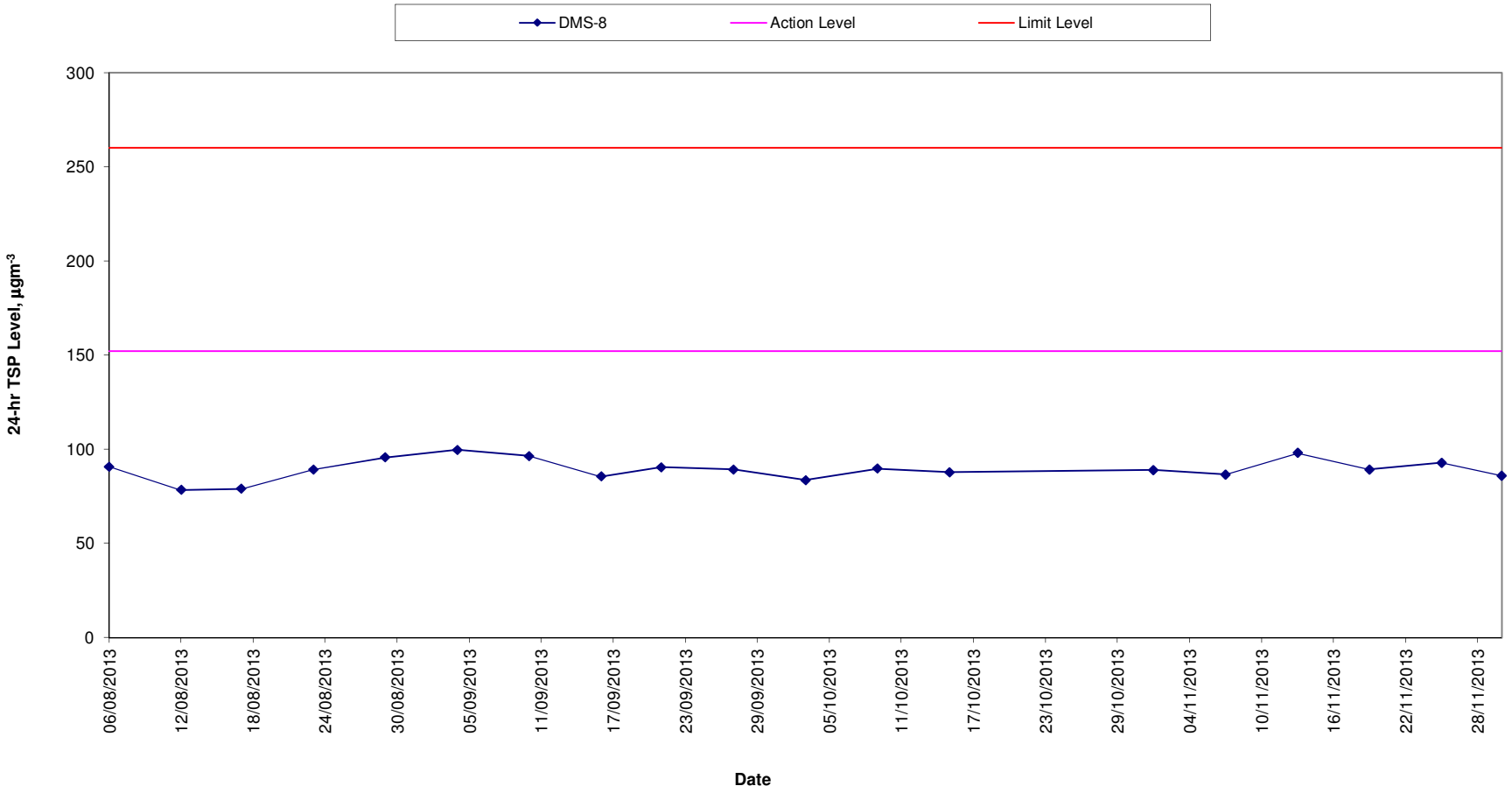
Construction Dust Monitoring Results for the Past 4 Months
DMS-6 (Katherine Building)



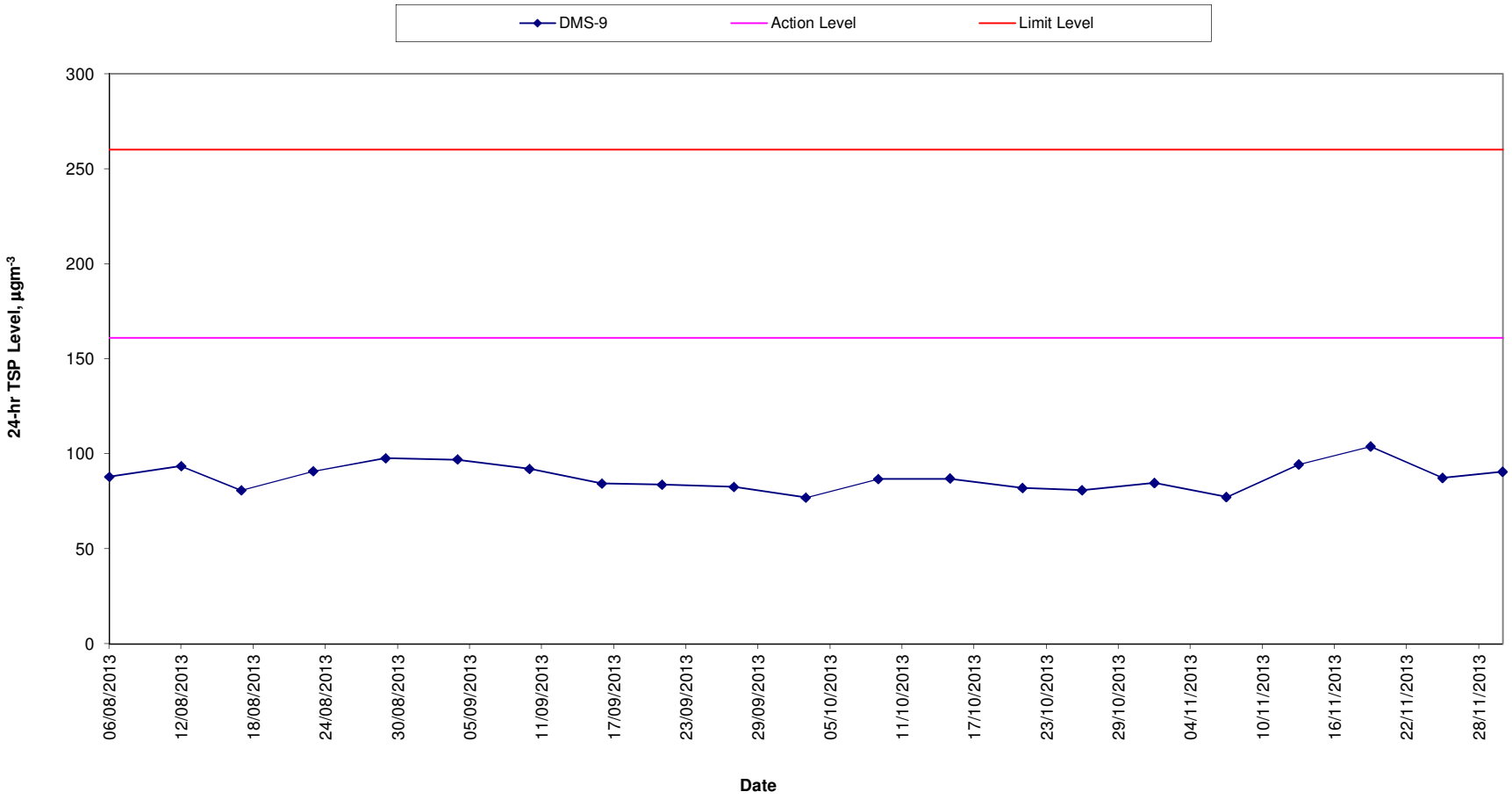
Construction Dust Monitoring Results for the Past 4 Months
DMS- 7 (Parc 22)



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. 26 Kowloon City Road)



Construction Dust Monitoring Results for the Past 4 Months
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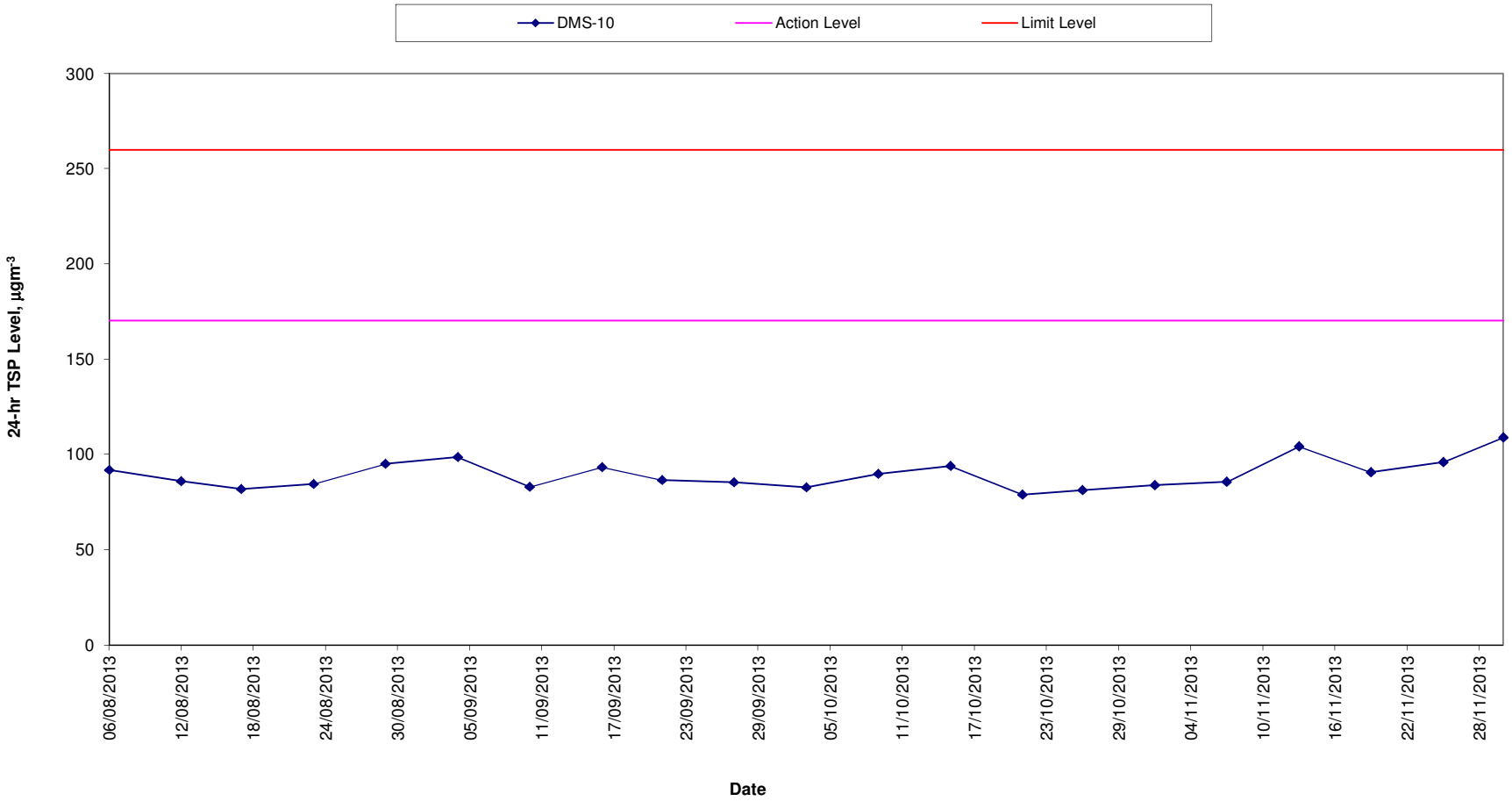

Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

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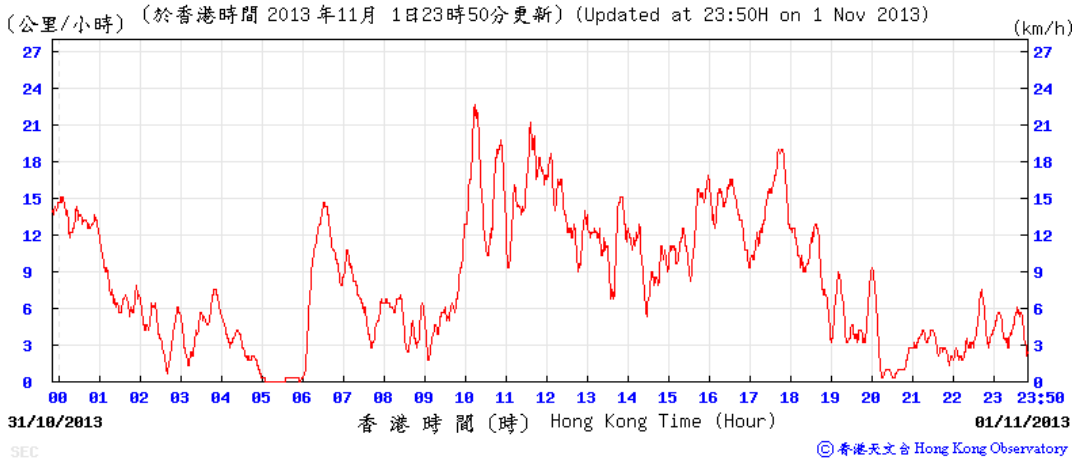

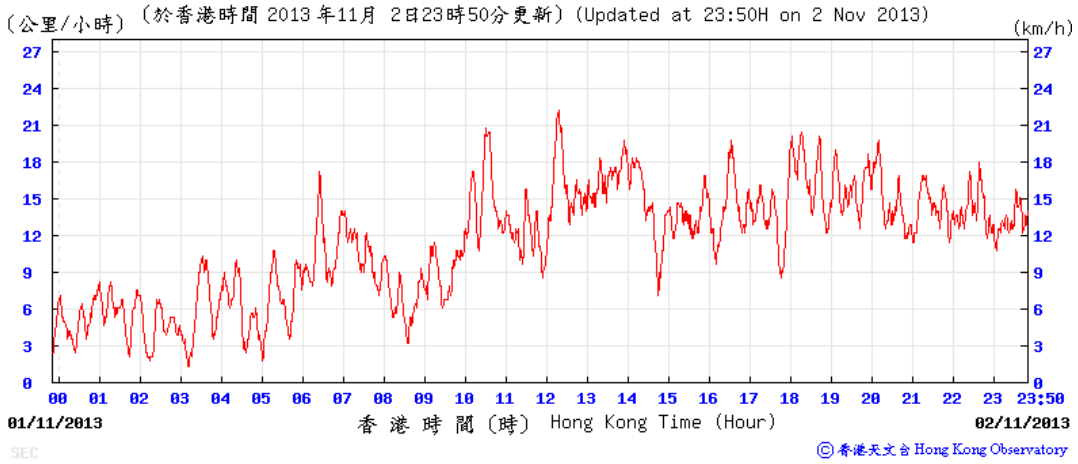

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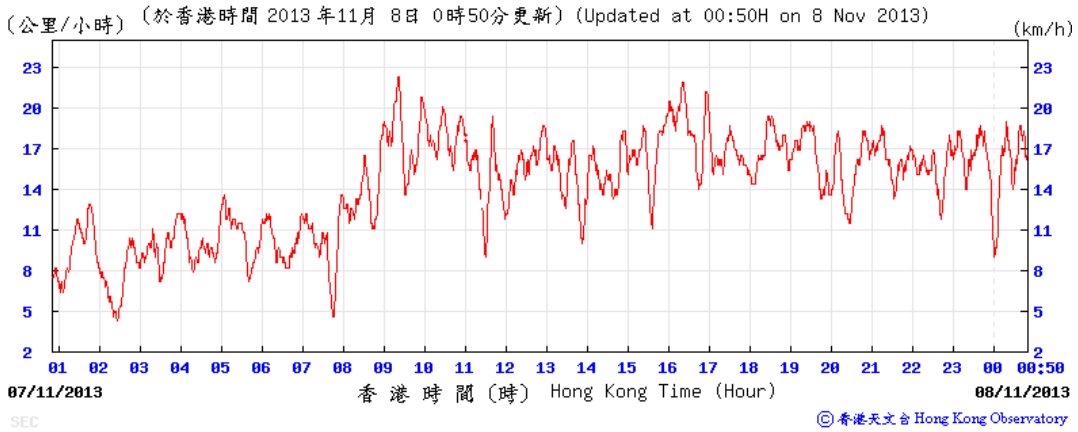

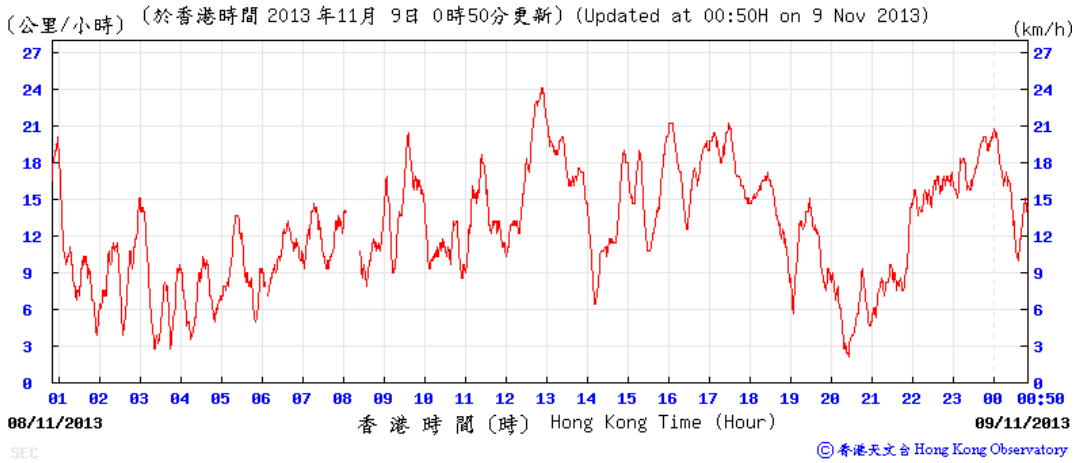

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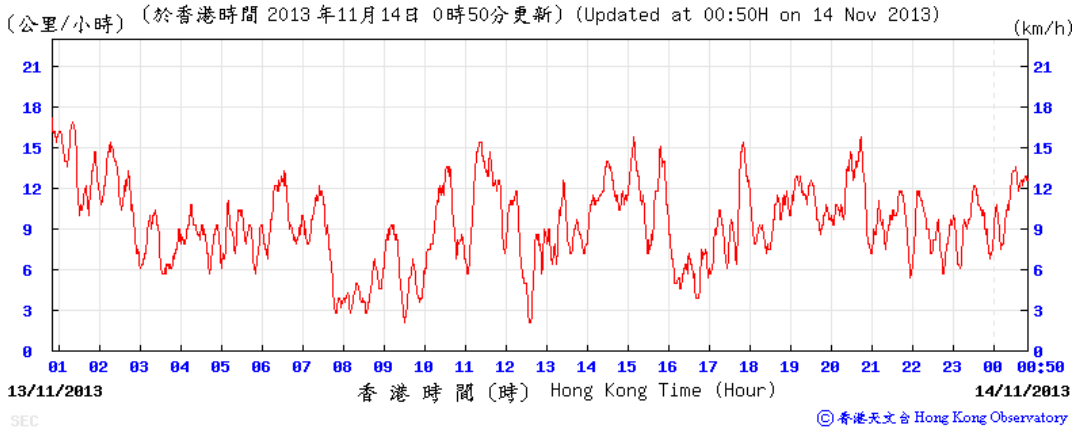

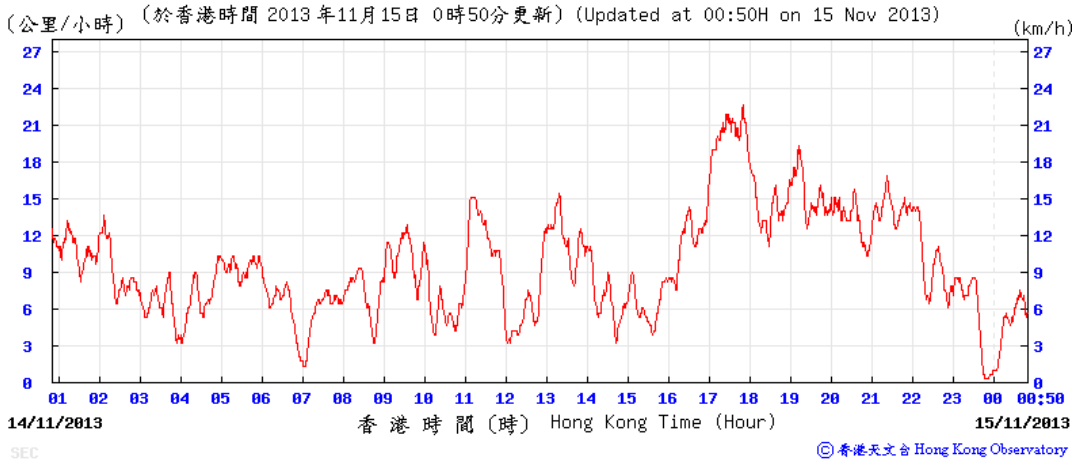

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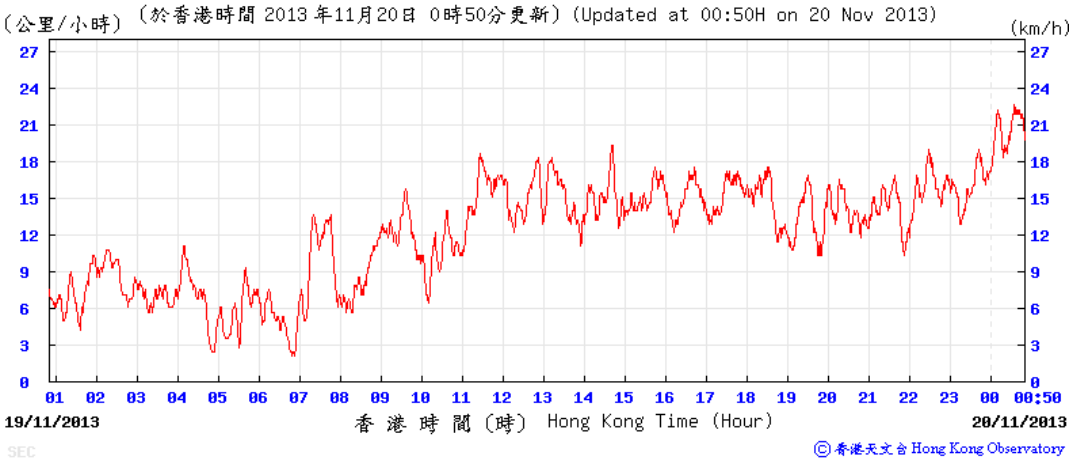

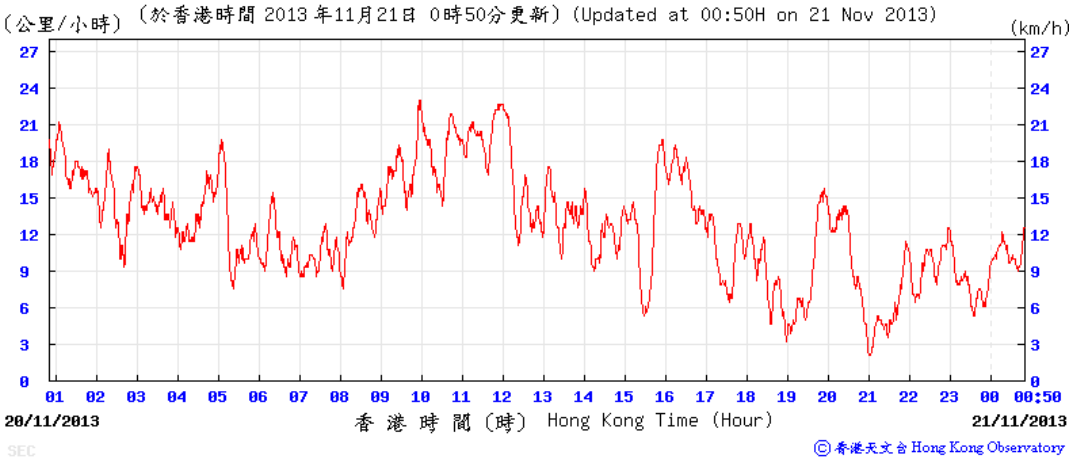

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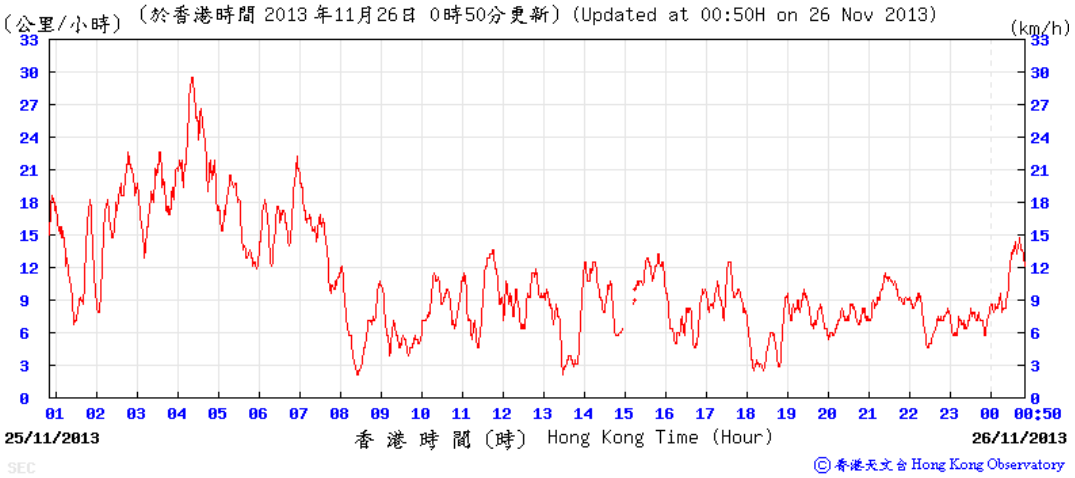

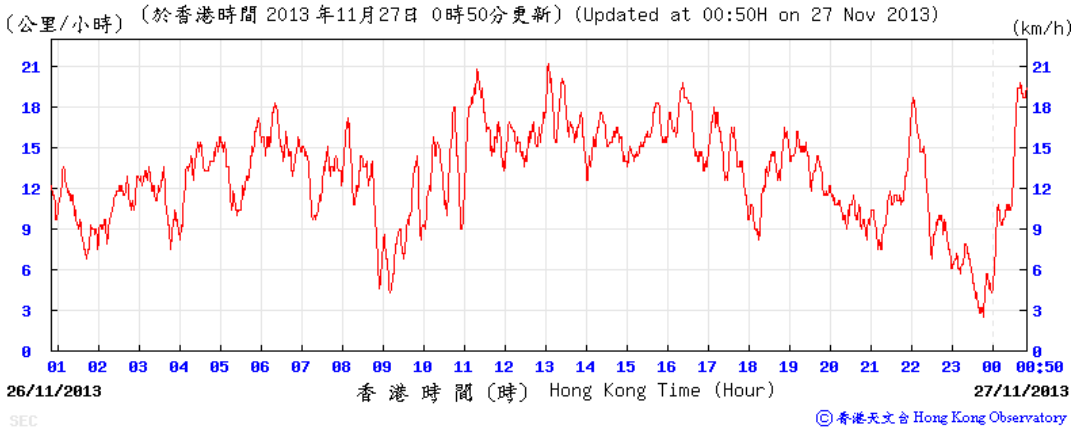

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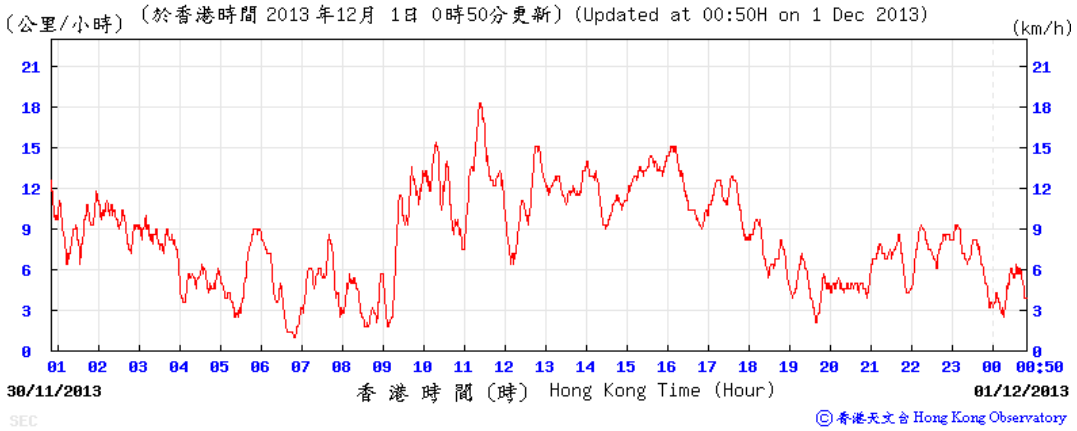

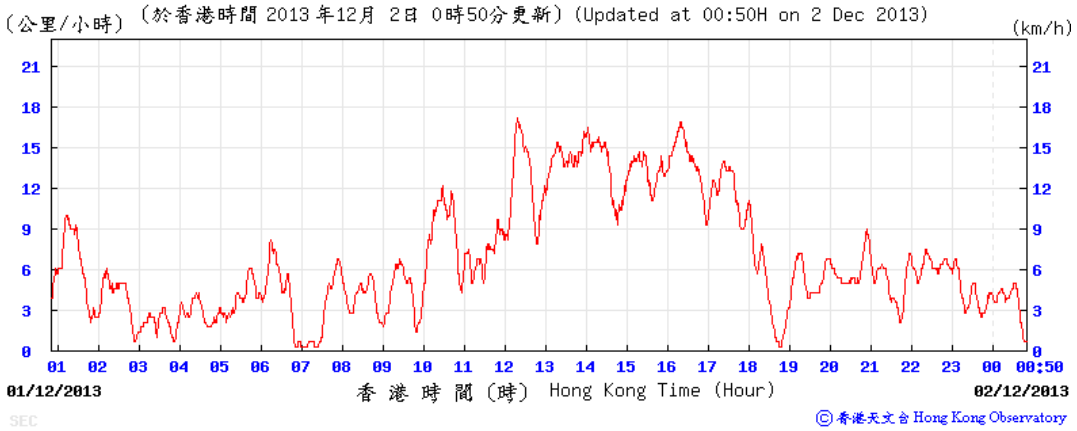

Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

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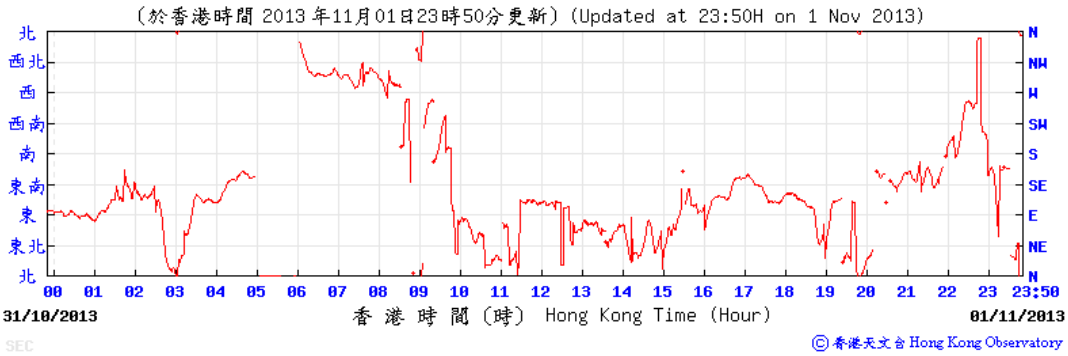

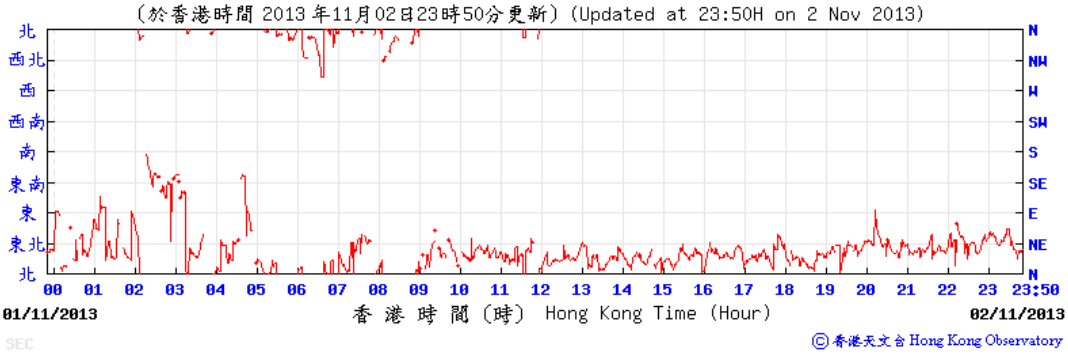

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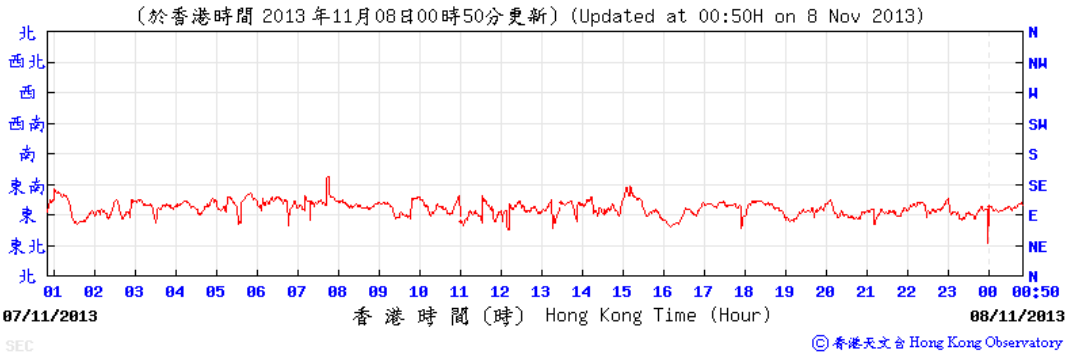
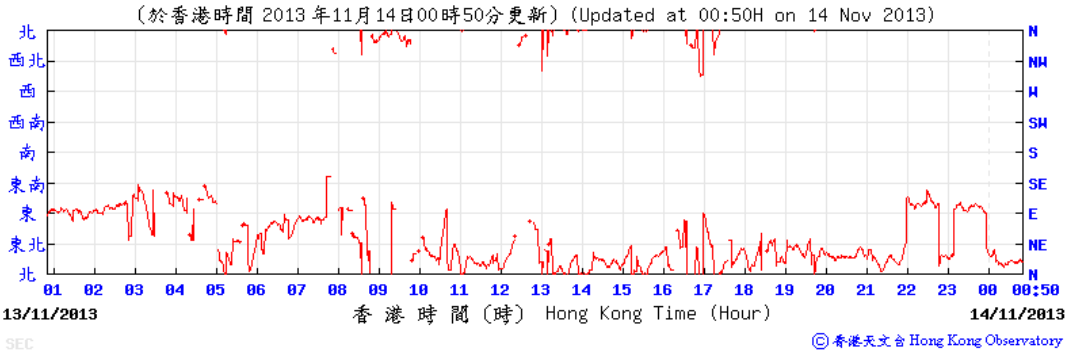
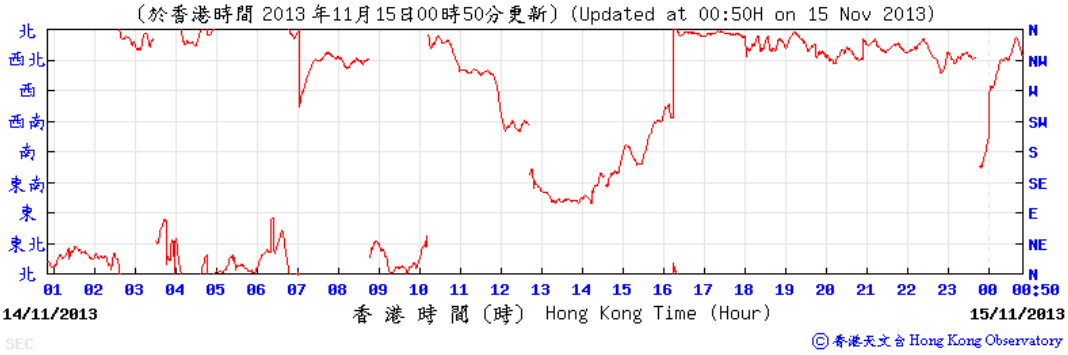


13 – 14 November 2013





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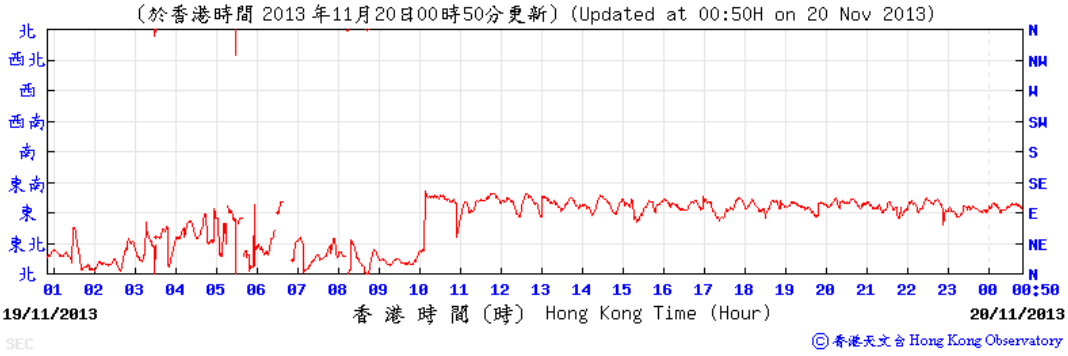

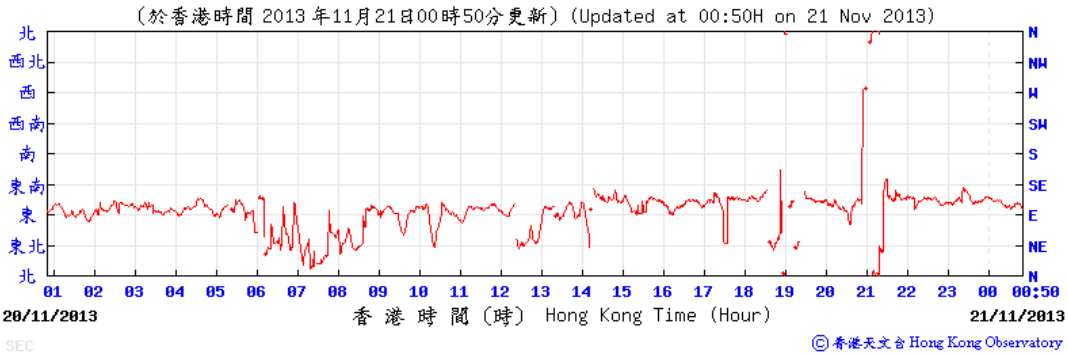

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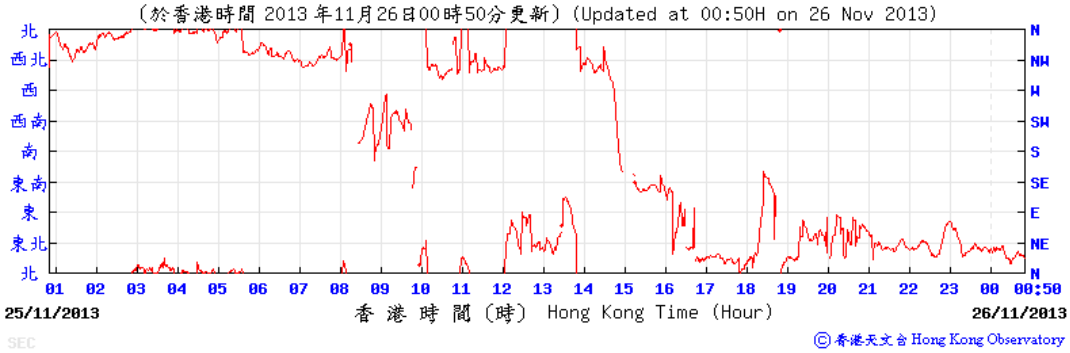

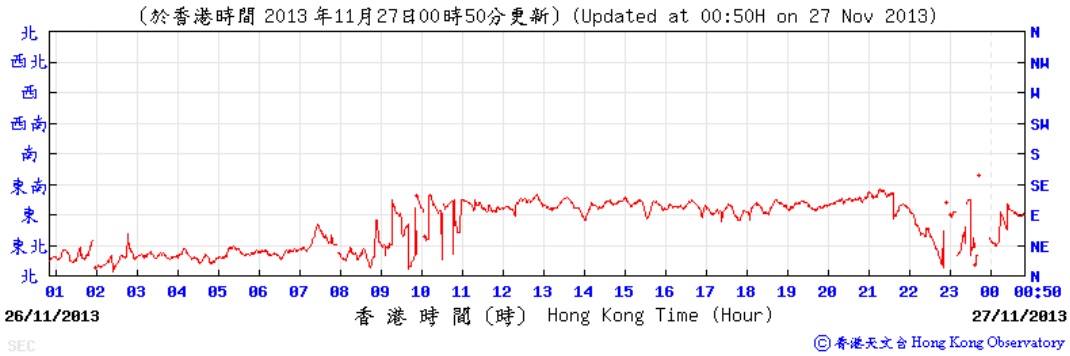

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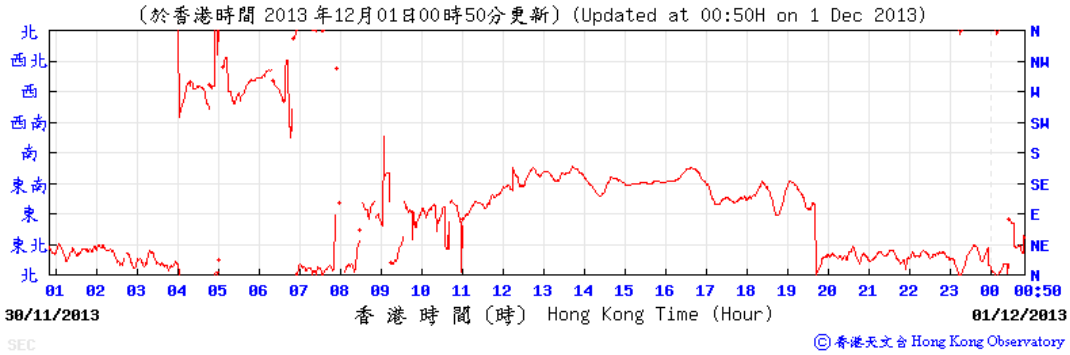

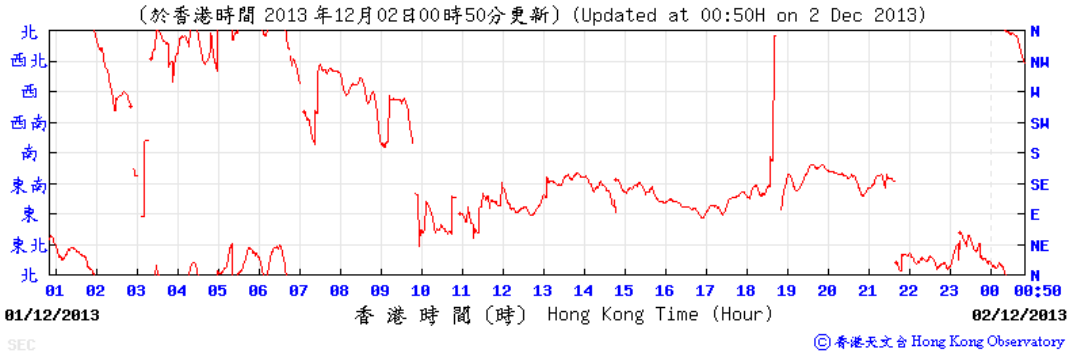

Annex K

Waste Flow Table

Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2013

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 '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m^3)	(in '000m³)
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
Total	128.611	0.000	0.605	0.000	0.064	127.941	12.800	0.811	10.758	0.400	2.127	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	9 October 2013
Time	08:00 – 08:30; 08:30 – 09:00; 09:00 – 09:30; 09:30 – 10:00; 10:30 – 11:00; 11:00 – 11:30; 13:30 – 14:00; 14:00 – 14:30; 14:30 – 15:00; 15:00 – 15:30
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)	79.7 dB(A) (08:00 – 08:30); 86.7 dB(A) (08:30 – 09:00); 85.4 dB(A) (09:00 – 09:30); 86.3 dB(A) (09:30 – 10:00); 87.1 dB(A) (10:30 – 11:00); 87.2 dB(A) (11:00 – 11:30); 83.6 dB(A) (13:30 – 14:00); 82.2 dB(A) (14:00 – 14:30); 79.5 dB(A) (14:30 – 15:00); 86.7 dB(A) (15:00 – 15:30).
Possible reason	Based on site record on 9 October 2013, the potential noise sources from the Project works were identified, including trench excavation by cutter at E3, construction of guide wall and concrete breaking at ex-pedestrian footpath at E6. Two breakers and two cutters were used during the construction works. Having considered the above and other uncertainties that may arise from other external factors, the exceedances recorded during the following time periods are potentially project-related: 08:30 – 09:00; 09:00 – 09:30; 09:30 – 10:00; 10:30 – 11:00; 11:00 – 11:30; 13:30 – 14:00; 14:00 – 14:30; 15:00 – 15:30.
Action Taken / Action to be Taken	The following actions/noise mitigation measures had been undertaken: 1. According to SCL EIA Section 8.4.6, the Contractor had considered and implemented a good site practice of scheduling the construction works to minimize the potential noise impact to the normal school class periods. 2. Noise fabrics as barrier had been erected on the site hoarding at worksites E3 and E6; 3. Noise fabrics and movable noise barrier had been provided for trench cutters and breaker, respectively. Also, acoustic cover has been provided for breaker tip. 4. The Contractor has conducted site inspections twice a day, to remind workers to implement

	necessary noise mitigation measures, such as erection of movable noise barrier at the excavation area, to collect details regarding the site activities in vicinity to the concerned works area, to check if any further mitigation measures is needed; 5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures. The Contractor will continue to review and provide sufficient and necessary mitigation measures to mitigation the noise to avoid any exceedance of the Action/Limit Level. The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimize the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.
Remarks	-

Prepared by: Winnie Ko, 1109 ET Leader
Date 16-Oct-13

Annex M

Environmental Complaint, Environmental Summon and Prosecution

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
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
Overall Total	0	0

Appendix C

12th EM&A Report for Works Contract 1101 –
Ma On Shan Line Modification Works

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report

[Period from 1 to 30 November 2013]

Works Contract 1101

Ma On Shan Modification Works

(December 2013)

Certified by: James Choi

Position: Environmental Team Leader

Date: 13 December 2013

EDMS Consulting Limited

SCL Contract No. 1101

Ma On Shan Line Modification Works

Monthly EM&A Report (SCL) (November 2013)

for

Sun Fook Kong Joint Venture

Prepared By		Checked By	Approved for Issue
A Chan		A Lee	J Choi
Version	0	**Date**	3 December 2013

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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). EDMS Consulting Limited (EDMS) 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/D) 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 4 site inspections were conducted and the joint site inspection with IEC was conducted on 19 November 2013. 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

No chemical wastes were disposed of in the reporting month. 48.75 m^3 general refuse and 19.5 m^3 of inert C&D materials were disposed of to NENT Landfill and Tseung Kwan O Area 137 public fill bank respectively 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.

EDMS Consulting Limited (EDMS) 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 12th 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 November 2013.

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 and EP-438/2012/D 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

Waste Type	**Quantity this month m^3**	**Cumulative-to-Date m^3**
Inert C&D materials disposed	19.50	32.50
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	3.00
General waste disposed of to NENT Landfill	48.75	224. 50
Chemical waste disposed of to Chemical Waste Treatment Centre at Tsing Yi	0	0

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 7, 11, 19, 25 November 2013. The joint site inspection with IEC was carried out on 19 November 2013. 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

Date	Item	ET's Observations and Recommendations	Follow-up Action
7 Nov 2013	2	At Shek Mun Storage Yard – Construction waste without on-site sorting was observed. The contractor was advised to perform on-site sorting before disposed of to landfill. (Remark was raised on 7.11.2013)	At Shek Mun Storage Yard – Construction waste with on-site sorting was observed on 11.11.2013. Last observation raised on 7.11.2013 closed.
11 Nov 2013	--	No site observation	NA
19 Nov 2013	--	No site observation	NA
25 Nov 2013	--	No site observation	NA

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

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

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

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

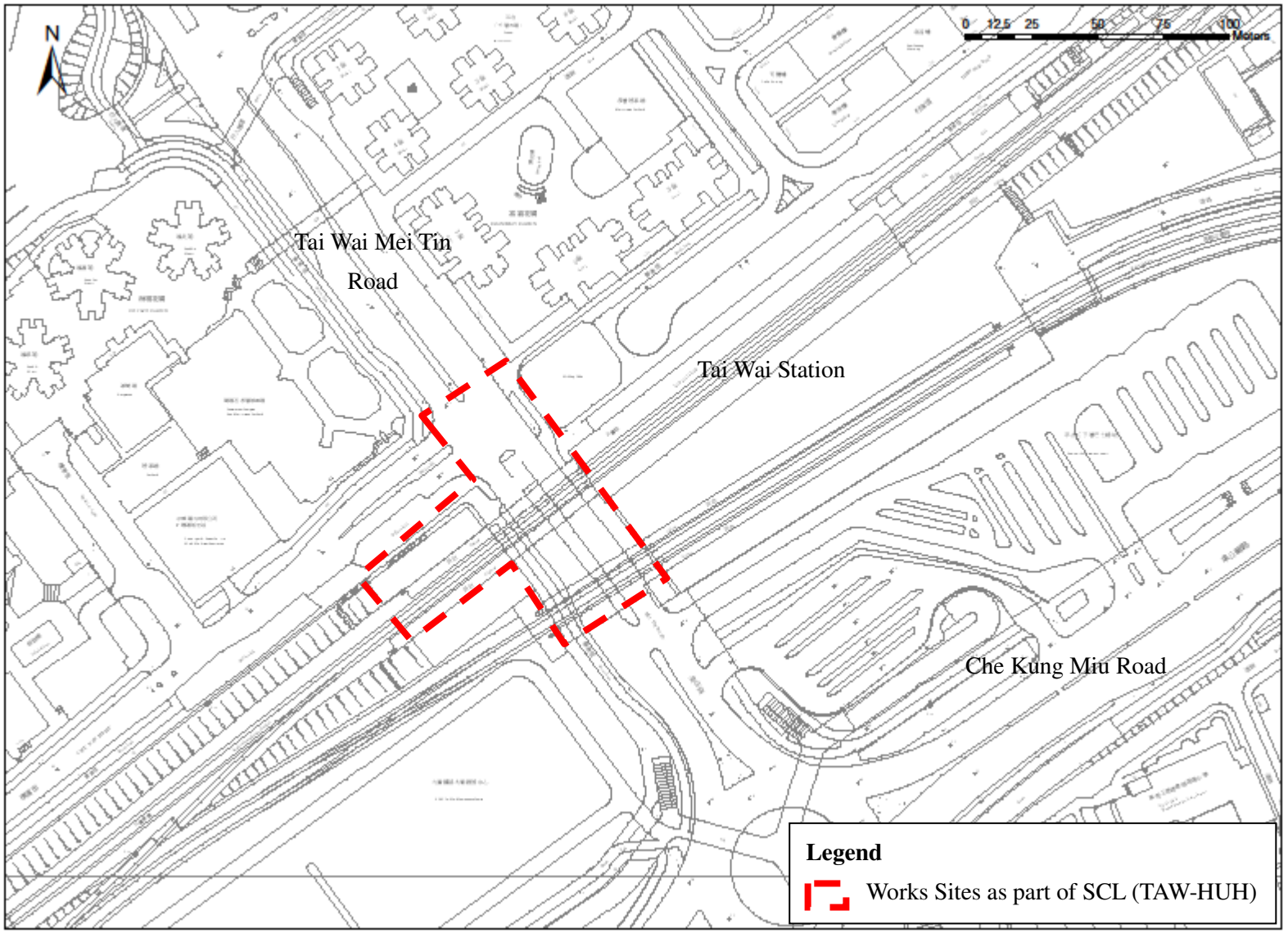
Neither Notification of Summon nor successful prosecution was received by the Contractor during the reporting month.

7. FUTURE KEY ISSUES

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

APPENDIX A

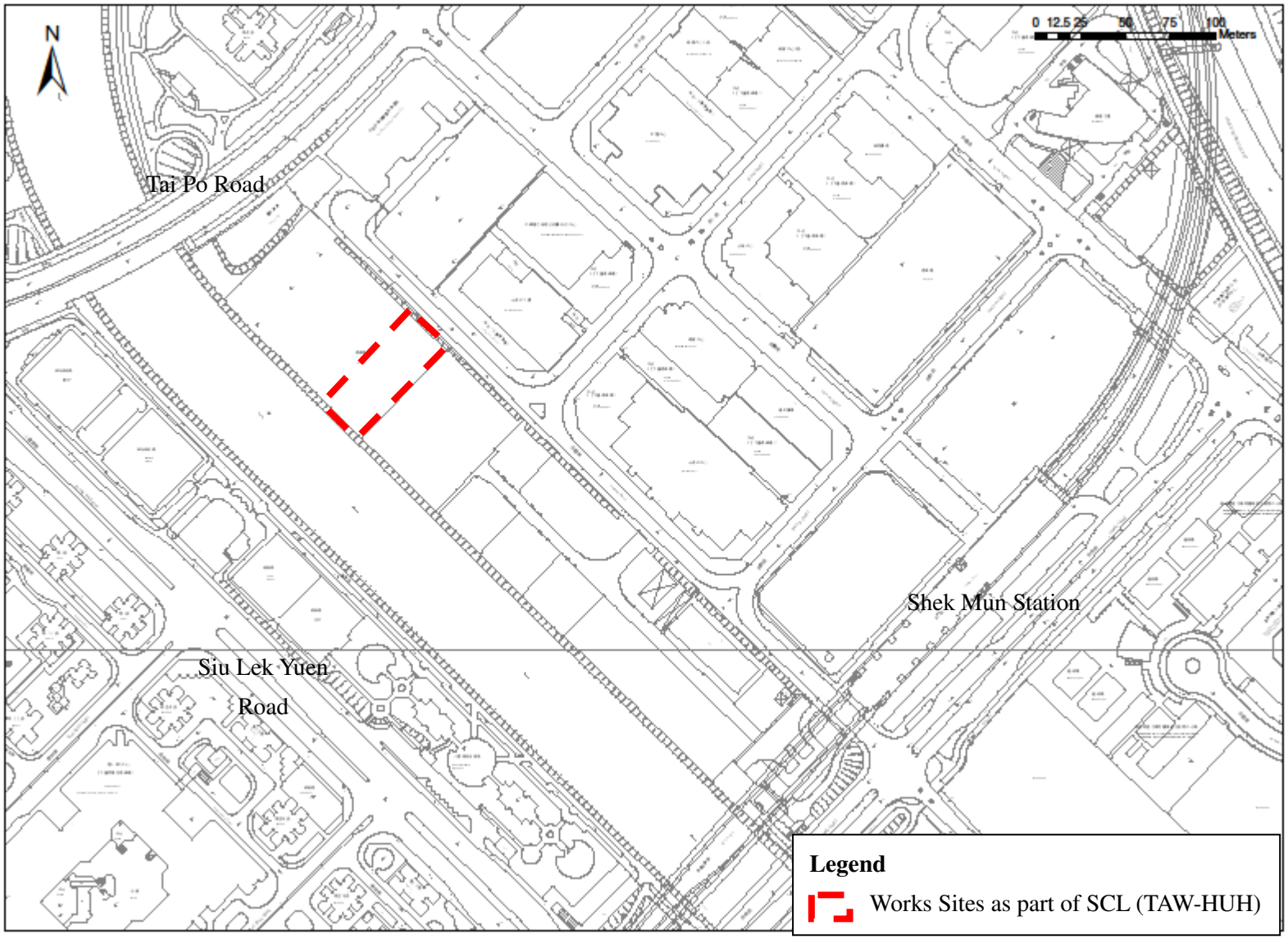
LOCATION PLAN OF WORKS AREA AND STORAGE YARD



edms

Location Plan of Works Area and Storage Yard
Tai Wai Mei Tin Road

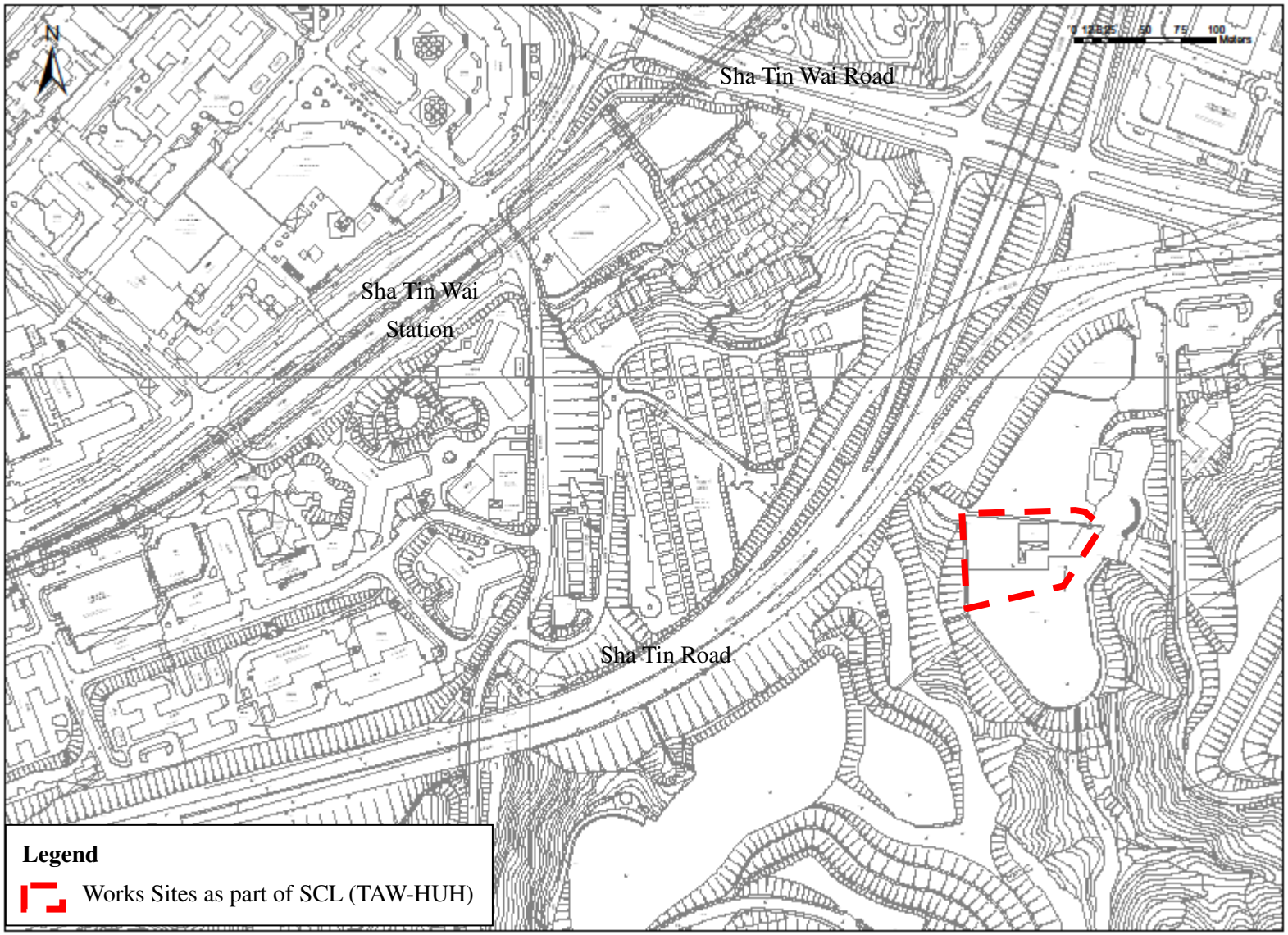
SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App A (Sheet 1 of 3)	REV 1



edms

Location Plan of Works Area and Storage Yard
Shek Mun Storage Yard

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



edms

Location Plan of Works Area and Storage Yard
To Shek Storage Yard

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

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/D	30 August 2013	13 September 2013	13 September 2013	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0433-13	19 July 2013	6 August 2013	18 August 2013	17 February 2014
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/D

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (October 2013)	14 November 2013

APPENDIX E

WASTE FLOW TABLE

Waste Flow Table for _2012_ (year) (in cu. meter) for SCL

Month		Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste
January								
February								
March								
April								
May								
June								
Sub-total								
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
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^3 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		Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste
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
Sub-total	**13.00**	**0.00**	**0.00**	**0.00**	**13.00**	**3.00**	**107.50**	**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								
Cumulative Total	**32.50**	**0.00**	**0.00**	**0.00**	**32.50**	**3.00**	**224.50**	**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 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^3 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	Good Site Practices 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. The following good site practices should also be implemented: • 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; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • 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;	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
		• No on-site burning of waste; • Waste and refuse in appropriate receptacles.						
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimization and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • 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. <u>No-intrusion Zone</u> • 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. <u>Protection of Retained Trees</u>	Minimize visual & landscape impact	Contractor	Within Project Site	Contraction stage	TM-EIAO	^

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
		• 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. • 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.						
S6.12	LV2	• <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. • <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. • <u>Tree Transplanting</u>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^

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
		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.						
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	• 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 1.5 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/m2 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	^

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	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • 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; • 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;	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	^

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
		• 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; • 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; • 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; • 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; • 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; • Any skip hoist for material transport should be totally enclosed by impervious sheeting;						

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
		• 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; • 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 • 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.						
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;	Control construction airborne noise	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
		• 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; • Plant down to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, 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 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	^
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	^

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	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	^
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> • 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	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	^

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
		the contractor prior to the commencement of construction. • 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. • 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 $0.1m^3/s$ a sedimentation basin of $30m^3$ would be required and for a flow rate of $0.5m^3/s$ the basin would be $150m^3$. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction. • 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.						

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
		• 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. • 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. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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						

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
		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. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm in 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. • 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						

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
		and drains. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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. • 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. • Adopt best management practices.						
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^

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
		should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.						
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: • 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. • 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. • Disposal of chemical waste should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identity 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	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) No.6/2010	^

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
		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.						
S11.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt "Selective Demolition" technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	*

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
		purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documents and verified; and • 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&D materials and to minimize their generation during the course of construction; • In addition, disposal of the C&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.						
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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.	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^

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
		• The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&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.						
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^

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
		• 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.						
S11.5.1	WM7	<u>Chemical Waste</u> • 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. • 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. • 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	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	• Waste Disposal (Chemical Waste General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^

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
		incompatible materials are adequately separated; • 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.						
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	• EIAO Guidance Note No.4/2010 • TM-EIAO	^
S14.2-14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	• EIAO Guidance Note No. 4/2010 • TM-EIAO	^

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

Appendix D

11th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel

AECOM

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
November 2013

December 2013

	Name	Signature
Prepared & Checked:	Isabella Yeung	
Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0	Date: 13 December 2013

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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 30 November 2013. As informed by the Contractor, major activities in the reporting period were:-

Hung Hom Area
- Excavation work, site formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Installation of geological instrumentation,
- Trial pit, pile pilling, pipe pilling, pre-drilling, pre-grouting,
- Erection of hoarding and overhead line portals,
- Tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal
- Noise panel installation, ABWF and 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 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 not commenced during this reporting month, no continuous noise monitoring was carried out.

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, demolition work, site formation, slope work, abutment work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Track rail installation,
- Geological investigation, road diversion,
- Trial pit, sheet pilling, pile pilling, pipe pilling, pre-drilling, pre-grouting, draw pit, soil backfiling,
- Erection of hoarding and overhead line portals,
- Tree felling and transplant,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal
- ABWF and 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 eleventh monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 30 November 2013.

1.2 Report Structure

1.2.1 This monthly EM&A Report is orgainised 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/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.

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 formation, slope work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Installation of geological instrumentation,
- Trial pit, pile pilling, pipe pilling, pre-drilling, pre-grouting,
- Erection of hoarding and overhead line portals,
- Tree felling,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal
- Noise panel installation, ABWF and 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	Mr. Brian Kam	9456 9541	
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		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	-
EP-438/2012/D	13 Sep 2013	-	Valid	-
Construction Noise Permit				
GW-RE0670-13	03 Jul 2013	28 Dec 2013	Valid until cancellation on 14 Nov 2013	For Cross Track Duct Installation at Oi Sen Path near Workfronts No. 5 & 6
GW-RE0732-13	14 Jul 2013	15 Nov 2013	Valid	For Cross-track Duct Installation and Hoarding Erection at Workfronts No. 1, 2 & 3
GW-RE0741-13	18 Jul 2013	31 Dec 2013	Valid	For ADMS Installation Works near Hung Hom Station
GW-RE0782-13	01 Aug 2013	31 Jan 2014	Valid	E&M Works at Mong Kok East Station Concourse
GW-RE0794-13	31 Jul 2013	26 Jan 2014	Valid	For General Works at Mong Kok Freight Terminal
GW-RE0838-13	08 Aug 2013	29 Jan 2014	Valid	For General and Reprovisioning Works at Hung Hom Station
GW-RE1021-13	03 Oct 2013	02 Nov 2013	Valid	For Hoarding Works at Oi Sen Path Rest Area
GW-RW1025-13	03 Oct 2013	30 Nov 2013	Valid	For Noise Panel Installation at Mong Kok East Station
GW-RE1030-13	25 Sep 2013	28 Nov 2013	Valid	For Tree Felling and Transplant at Slip Road adjoining Hong Chong Road and Chatham Road North
GW-RE1128-13	23 Oct 2013	31 Dec 2013	Valid	For OLE Shelter Demolition Work near Homantin Siding
GW-RE1156-13	29 Oct 2013	31 Dec 2013	Valid	For Tree Felling Works and Mobilization Works at Oi Sen Path near Workfronts No.5 &6
GW-RE1157-13	31 Oct 2013	15 Dec 2013	Valid	For Scaffolding Erection during Night Time adjacent to Workfront No. 7
GW-RE1175-13	05 Nov 2013	04 Dec 2013	Valid	For PEM Erection Works adjacent to Railway Trackside near Homantin Siding
GW-RE1202-13	15 Nov 2013	31 Dec 2013	Valid	For 6m Hoarding Works at Oi Sen Path Rest Area
GW-RE1229-13	14 Nov 2013	10 May 2014	Valid	For Cross Track Duct Installation at Oi Sen Path near Workfronts No.5 &6
GW-RE1243-13	17 Nov 2013	16 May 2014	Valid	For E&M Works at PolyU Phase 8
GW-RE1248-13	20 Nov 2013	31 Dec 2013	Valid	For Road Diversion at Slip Road from Hong Chong Road to Chatham Road North Slow Lane

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Wastewater Discharge License				
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
WT00015606-2013	25 Apr 2013	30 Apr 2018	Valid	For Mong Kok Freight Terminal 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)
Chemical Waste Producer Registration				
5213-213-G2618-01	22 Mar 2013	-	Valid	For Winslow Street Works
5213-213-G2618-03	08 Apr 2013	-	Valid	For Hung Hom Station Reprovisioning Works
5213-222-G2618-05	25 Apr 2013	-	Valid	For Mong Kok Freight Terminal 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
Billing Account for Construction Waste Disposal				
7016658	24 Jan 2013	-	Account Active	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
353991	02 Jan 2013	18 Apr 2018	Notified	-

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:894-0835))
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 ±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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/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.

(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 November 2013 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), Model No. 2250L (S/N: 2681366)
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10186482))

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(1)	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 November 2013 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/D (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 Continuous Noise Monitoring Plan (CNMP) was prepared and submitted to EPD before the commencement of the construction of the Project.

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(1)

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	Rion (Model No. NL-31)
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 ($L_{eq, 30\ min}$) 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 Plan

Monitoring Location	NSR Description	Action/Limit Level, dB(A)	Measurement Period
NM1	Carmel Secondary School (South Block)	69(1)	Dec of 2014 Mar of 2015 Mar of 2017
NM2	No. 234-238 Chatham Road North(2)	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.

3.4 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

EP Condition	Submission	Submission Date
Condition 3.4 (EP-437/2012) & Condition 3.4 (EP-438/2012/D)	Monthly EM&A Report for October 2013	14 November 2013

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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1	67.4	53.8 – 90.0	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 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), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM 1(2)	<Baseline – 67.6	70 (65)(1)
NM 2(2)	<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_{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; 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 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, 1,864m^3 of inert C&D material was generated and disposed as public fills at TKO137, TM38 and/ or CWPFBP while 144,800kg of general refuse was disposed at NENT landfill in the reporting month. 261kg of paper/cardboard packaging, 1kg of plastics and 12kg of metals were collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No 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 14 & 26 November 2013. 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, 4 site inspections were carried out on 7, 14, 21 and 26 November 2013. The one held on 26 November 2013 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	07 Nov 2013	• The existing drainage at exit of PolyU Phase 8 in Homantin Siding was observed to be exposed to effluent arising from the wheel washing facility. The Contractor should avoid runoff from wheel washing from entering public drainage system.	The item was observed to be rectified on 14 Nov 2013.
	14 Nov 2013	• Accumulation of slurry was observed in the internal drainage and along the haul road at Homantin Siding. The Contractor should clear the accumulated slurry regularly.	The item was observed to be rectified on 21 Nov 2013.
	21 Nov 2013	• Deposited slit was observed in the trench at NSL8 and public drainage outside EWL8. The Contractor should clear the deposited slit and review the source of depositing slit. • Public drainage at EWL8 was observed to be exposed to arising effluent. Sand bag or equivalent measures should be provided to prevent any effluent from entering the public drainage.	The item was rectified by the Contractor on 25 Nov 2013.
Air Quality	07 Nov 2013	• Arising of fugitive dust was observed at the soil nailing area in Homantin Siding. The Contractor should provide regular spraying of water to the concerned areas as dust suppression measure.	The item was rectified by the Contractor on 13 Nov 2013.
Noise	14 Nov 2013	• Although noise abating cloth was provided as abatement measure for the air compressor placed near the pedestrian access road at EWL8, the noise abatement measure was still considered as insufficient. The Contractor should review the existing measure and provide sufficient mitigation measures to reduce noise nuisance.	The item was observed to be rectified on 21 Nov 2013.

Parameters	Date	Observations and Recommendations	Follow-up
Waste/ Chemical Management	21 Nov 2013	• Leakage of oil was observed from the drip tray at Winslow Street and the machinery at Homantin Siding. The Contractor should clear the leaked oil and dispose of as chemical waste. Moreover, maintenance should be provided to the captioned drip tray and machinery.	The item was rectified by the Contractor on 25 Nov 2013.
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.

6.1.4 The items of which their inspection for follow-up actions were outstanding as recorded in the last reporting month have already been rectified by the Contractor as confirmed by the ET 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 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.

7.2 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 Next Month

8.1.1 The major construction works in December 2013 and January 2014 will be:-

Hung Hom Area

- Excavation work, demolition work, site formation, slope work, abutment work,
- Construction of man hole, drainage, reinforced concrete and lateral support structure, cross track duct, timber platform, emergency vehicular access, temporary pedestrian walkway and portable equipment modules,
- Track rail installation,
- Geological investigation, road diversion,
- Trial pit, sheet pilling, pile pilling, pipe pilling, pre-drilling, pre-grouting, draw pit, soil backfiling,
- Erection of hoarding and overhead line portals,
- Tree felling and transplant,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- ABWF and 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 and waste management.

8.3 Monitoring Schedule for the Next Month

8.3.1 The tentative schedule for environmental monitoring in December 2013 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 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 4 nos. of environmental site inspections were carried out in November 2013. 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

- Provide proper noise abatement measure to lessen noise impact to NSRs.

Water Quality Impact

- Implement effective measures to avoid surface runoff into the drainage system.

Chemical and Waste Management

- Provide proper chemical waste management.

FIGURES

817500 N
818000 N
818500 N
819000 N
836500 E
837000 E
835700 E
835800 E
820400 N
820500 N

CHATHAM ROAD SOUTH
PRINCESS MARGARET ROAD
HUNG HOM STATION
SCL (HUH - ADM)
SCL (MKK - HUH)
UNDER CONTRACT 1112
UNDER CONTRACT 1111
SCL (TAW - HUH)
GILLIES AVENUE SOUTH
MONG KOK FREIGHT TERMINAL

0 25 50 METRES
1 : 2500

MONG KOK FREIGHT TERMINAL WORKS AREA

0 25 50 75 100 125 METRES
1 : 5000

LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) & (HUH - ADM) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING 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

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ORIGINATOR: AECOM

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TITLE
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
WORKS AREAS OF THE PROJECT

SCALE	FIGURE NO.	REV.
A3 AS SHOWN	FIGURE 1.1	–

DUST MONITORING STATION - CONSTRUCTION PHASE	
AM1	NO. 234-238 CHATHAM ROAD NORTH

818600 N

818800 N

819000 N

836600 E

836800 E

PRINCESS MARGARET ROAD

CHATHAM ROAD NORTH

HONG CHONG ROAD

CHEONG HANG ROAD

YUK CHOI ROAD

HAU MAN STREET

UNDER CONTRACT 1112

UNDER CONTRACT 1111

AM1

SCL (TAW - HUH)

0 10 20 30 40 50
METRES
1 : 2000

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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APPROVED	IMW
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CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

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CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
LOCATION OF AIR QUALITY MONITORING STATION

SCALE	FIGURE NO.	REV.
1 : 2000 (A3)	FIGURE 2.1	-

AIRBORNE NOISE MONITORING STATION - CONSTRUCTION PHASE	
NM1	CARMEL SECONDARY SCHOOL (SOUTH BLOCK)
NM2	NO. 234-238 CHATHAM ROAD NORTH

818600 N

818800 N

819000 N

836600 E

836800 E

PRINCESS MARGARET ROAD

CHATHAM ROAD SOUTH

CHATHAM ROAD NORTH

HONG CHONG ROAD

CHEONG HANG ROAD

YUK CHOI ROAD

HAU MAN STREET

NM1

NM2

UNDER CONTRACT 1112

UNDER CONTRACT 1111

SCL (TAW - HUH)

0 10 20 30 40 50
METRES
1 : 2000

LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING 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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CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. Figure 3.1.dgn

TITLE

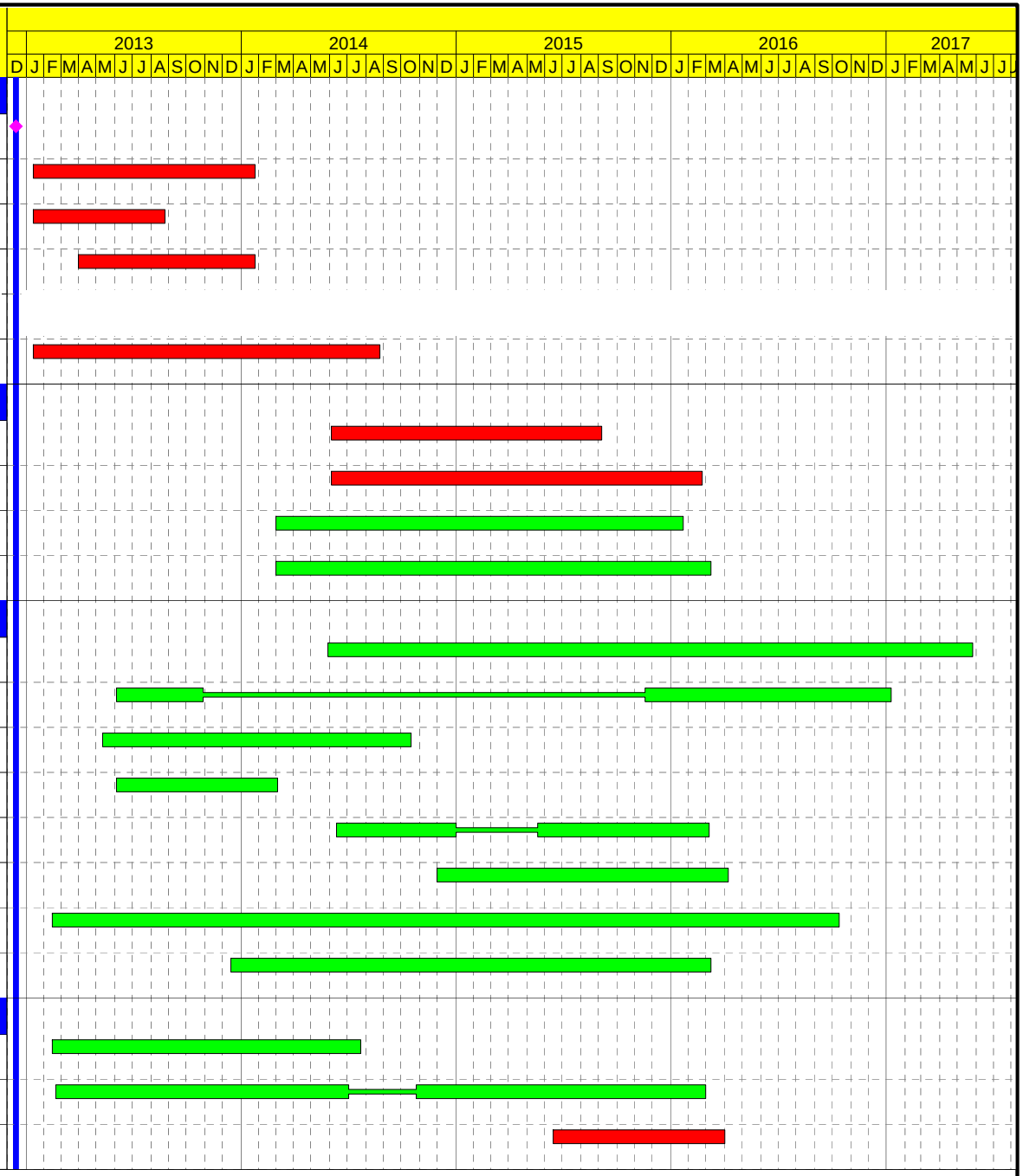
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)

SCALE	FIGURE NO.	REV.
1 : 2000 (A3)	FIGURE 3.1	-

APPENDIX A

Construction Programme

Activity Description	Start	Finish
REPROVISIONING WORKS		
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
NSL/EWL TUNNEL		
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
NSL TUNNEL		
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
EWL TUNNEL		
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



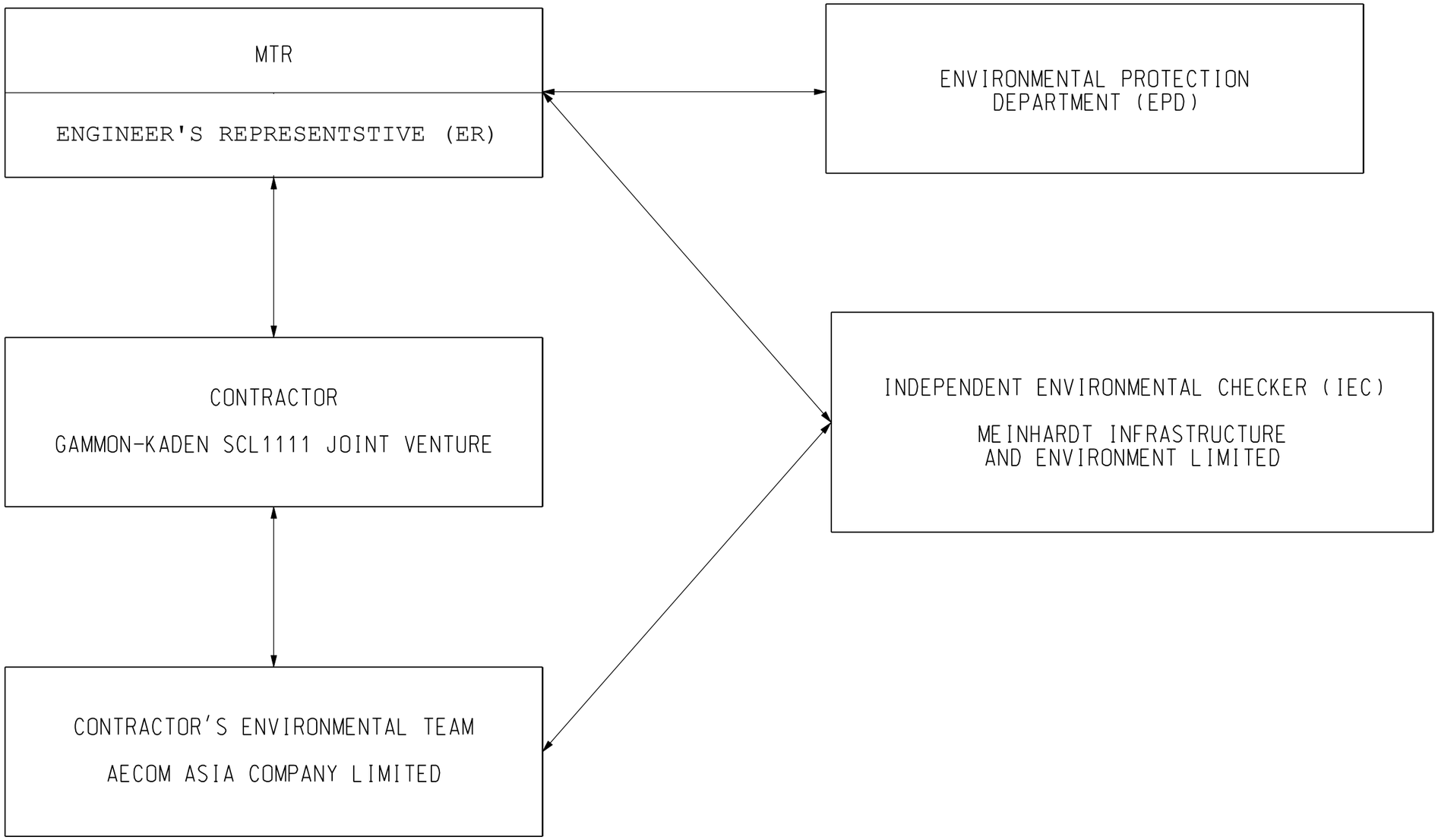
Early Bar
Progress Bar
Critical Activity

SCL 1111
SUMMARY PROGRAMME

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



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SHATIN TO CENTRAL LINK

CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. Appendix B

TITLE
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
PROJECT ORGANISATION

SCALE N.T.S.

FIGURE NO. Appendix B

REV. –

APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C - Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Environmental Mitigation Measures		Location	Implementation Status
Landscape and Visual Impact				
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

Construction Noise Impact				
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	@
		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	@
		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: • Asphalt Paver (SWL=101dB(A)) • Backhoe (SWL=106dB(A)) • Backhoe with Hydraulic Breaker (SWL=110dB(A)) • Concrete lorry mixer (SWL=96dB(A)) • Concrete mixer truck (SWL=96dB(A)) • Concrete Pump (SWL=106dB(A))	Works areas where required	N/A

		• Concrete Pump Truck (SWL=106dB(A)) • Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A)) • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A) • Roller (SWL = 101dB(A) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A))		
		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	@
		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
Construction Air Quality Impact				
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	V
		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	V

		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	N/A
		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	@
		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	N/A
		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	N/A
		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

Construction Water Quality Impact				
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	@
		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	@
		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	@
		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	All construction sites	N/A

		out immediately after the final surfaces are formed to prevent erosion caused by rainstorms.		
		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	All construction sites	V

		either be dewatered or mixed with inert fill material for disposal to a public filling area.		
		A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas.	Excavation works areas	N/A
		Wastewater generated should not be discharged into the stormwater drainage system.	All construction sites	@
		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

Waste Management				
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
		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	V
		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.	All construction sites	N/A

Contaminated Land				
S10.24– 10.34 (MKK-HUH)	To act as a general precautionary measure to screen soils for the presence 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

APPENDIX D

Summary of Action and Limit Levels

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 $\mu g/m^3$	260.0 $\mu g/m^3$

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)(1)
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

Note:
(1) Daytime noise Limit Level of 70 dB(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)	69 dB(A)(1)
NM2	No. 234-238 Chatham Road North	77 dB(A)

Note:
(1) Action/Limit level will only be applicable during the examination period.

APPENDIX E

Calibration Certificates of Equipments

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:	11-Sep-13	Next Due Date:	11-Nov-13
Equipment No.:	---	Serial No.	894-0835

Ambient Condition			
Temperature, Ta (K)	302	Pressure, Pa (mmHg)	757.1

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	6-Dec-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	6-Dec-13	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	9.0	2.97	1.49	48.0	47.59
13	7.0	2.62	1.32	41.0	40.65
10	5.9	2.41	1.21	36.0	35.69
7	4.4	2.08	1.05	29.0	28.75
5	3.1	1.75	0.88	20.0	19.83

By Linear Regression of Y on X

Slope , mw = **44.7916** **Intercept, bw =** **-18.7723**

Correlation Coefficient* = **0.9966**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/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; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **39.80**

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 12/09/13

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	234 - 238 Chatham Road North; SCL - DMS - 11	Operator:	Leung Yiu Ting
Cal. Date:	11-Nov-13	Next Due Date:	11-Jan-14
Equipment No.:		Serial No.	894-0835

Ambient Condition			
Temperature, Ta (K)	301	Pressure, Pa (mmHg)	756.9

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	6-Dec-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	6-Dec-13	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	9.1	3.00	1.51	48.0	47.66
13	7.2	2.66	1.34	42.0	41.70
10	5.7	2.37	1.19	36.0	35.75
7	4.5	2.11	1.06	30.0	29.79
5	3.2	1.78	0.89	22.0	21.85

By Linear Regression of Y on X

Slope , mw = **42.2306** **Intercept, bw =** **-15.2273**

Correlation Coefficient* = **0.9962**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/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; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = **39.95**

Remarks:

QC Reviewer: KT Leung Signature: Date: 11-11-13

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TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 06, 2012 Rootsmeter S/N 0438320 Ta (K) - 293
Operator Tisch Orifice I.D. - 0843 Pa (mm) - 751.84

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	1.4040	3.2	2.00
2	NA	NA	1.00	0.9860	6.4	4.00
3	NA	NA	1.00	0.8850	8.0	5.00
4	NA	NA	1.00	0.8420	8.8	5.50
5	NA	NA	1.00	0.6930	12.9	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0018	0.7136	1.4186		0.9957	0.7092	0.8828
0.9976	1.0118	2.0061		0.9915	1.0056	1.2485
0.9953	1.1247	2.2429		0.9893	1.1178	1.3959
0.9943	1.1809	2.3524		0.9883	1.1737	1.4640
0.9888	1.4269	2.8371		0.9828	1.4182	1.7657
Qstd slope (m) =		1.99238		Qa slope (m) =		1.24760
intercept (b) =		-0.00351		intercept (b) =		-0.00219
coefficient (r) =		0.99992		coefficient (r) =		0.99992
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}

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
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Tel : (852) 2873 6860
Fax : (852) 2555 7533

HKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 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.:	2285692 N009.04	,	2250420
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	25-Mar-2013

Date of test: 26-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	22-Jun-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

Temperature:	22 ± 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 responsess 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:** 26-Mar-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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Fax : (852) 2555 7533

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0305 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2250-L	,	4950
Serial/Equipment No.:	2681366 (N.011.01)	,	2665582
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	05-Mar-2013

Date of test: 05-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-May-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	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 responsess 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:** 05-Mar-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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香港黃竹坑道37號利達中心地下、9樓、12樓、13樓及20樓 Fax : (852) 2555 7533
E-mail: smec@cigismec.com Website: www.cigismec.com

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 01-03 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10186482 / N.004.09
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	25-Mar-2013

Date of test: 26-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-May-2013	SCL
Preamplifier	B&K 2673	2239857	17-Dec-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	17-Dec-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	29-May-2013	CEPREI
Universal counter	53132A	MY40003662	29-May-2013	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, 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.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, 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:** 26-Mar-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Impact Monitoring Schedule for November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Nov	02-Nov
03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov
			24-hour TSP (AM1)	Noise (NM1, NM2)		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
		24-hour TSP (AM1)	Noise (NM1, NM2)			
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
		Noise (NM1, NM2)			24-hour TSP (AM1)	

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 December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Dec	02-Dec	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec
				24-hour TSP (AM1)	Noise (NM1, NM2)	
08-Dec	09-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
			24-hour TSP (AM1)	Noise (NM1, NM2)		
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
		24-hour TSP (AM1)	Noise (NM1, NM2)			
22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
29-Dec	30-Dec	31-Dec				
		Noise (NM1, NM2)				

APPENDIX G

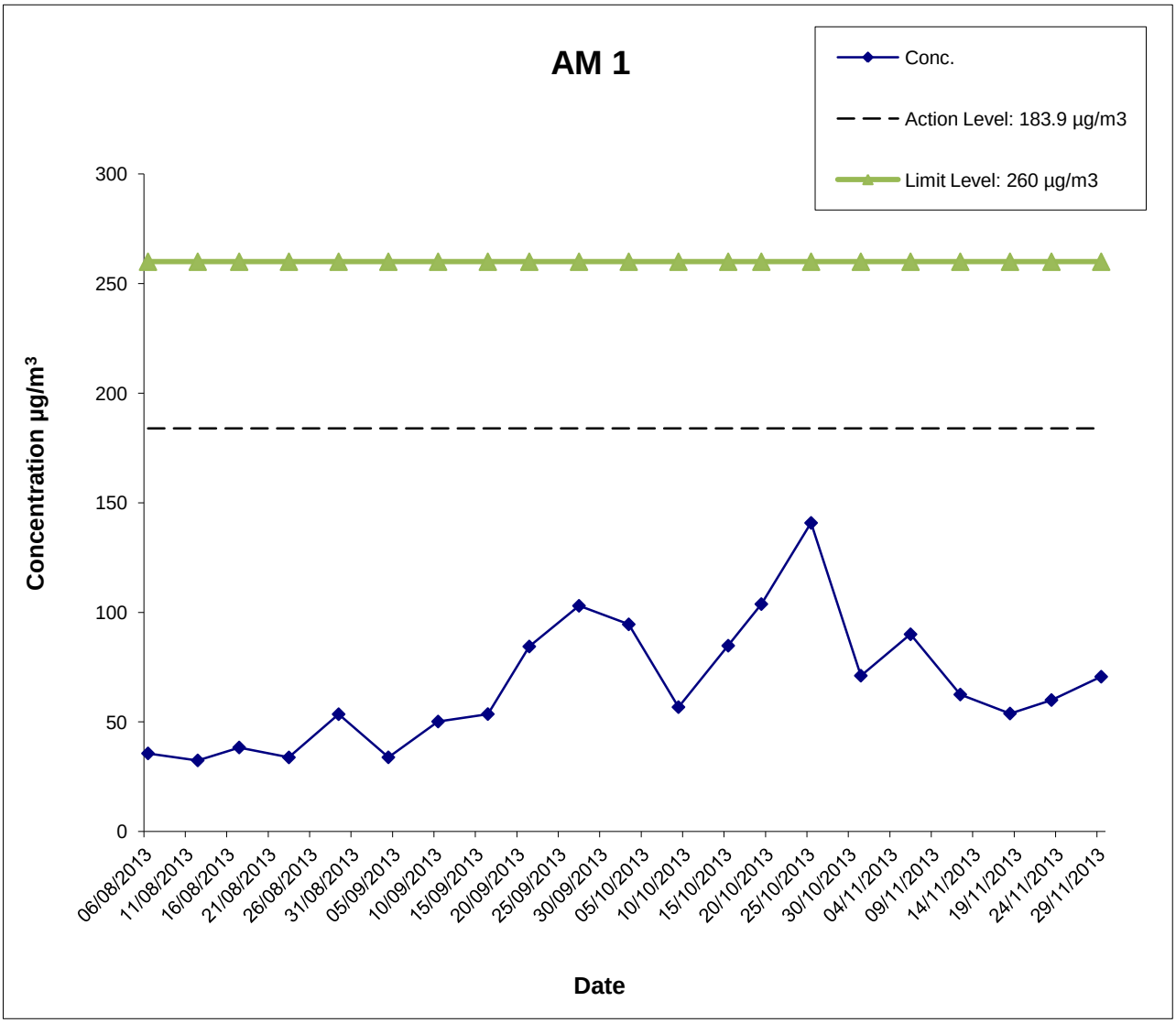
Air Quality Monitoring Results and their Graphical Presentations

Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM1 (No. 234 – 238 Chatham Road North)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
06-Nov-13	0:00	07-Nov-13	0:00	Sunny	24.2	1018.3	1.33	1.33	1.33	1916.6	2.7706	2.9431	0.1725	13321.87	13345.87	24.00	90.0
12-Nov-13	0:00	13-Nov-13	0:00	Sunny	21.9	1013.2	1.33	1.33	1.33	1916.6	2.7133	2.8331	0.1198	13345.87	13369.87	24.00	62.5
18-Nov-13	0:00	19-Nov-13	0:00	Sunny	20.7	1020.6	1.33	1.33	1.33	1916.6	2.7635	2.8667	0.1032	13369.87	13393.87	24.00	53.8
23-Nov-13	0:00	24-Nov-13	0:00	Sunny	24.8	1015.2	1.33	1.33	1.33	1916.6	2.7504	2.8654	0.1150	13393.87	13417.87	24.00	60.0
29-Nov-13	0:00	30-Nov-13	0:00	Sunny	15.0	1024.2	1.33	1.33	1.33	1916.6	2.7600	2.8954	0.1354	13417.87	13441.87	24.00	70.6
																Average	**67.4**
																Minimum	**53.8**
																Maximum	**90.0**

Appendix G Air Quality Monitoring Results



AECOM	Shatin to Central Link Works Contract 1111-Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Dec-13
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60284101	APPENDIX No. G	Rev. -

Appendix G Extract of Meteorological Observations for King's Park* Automatic Weather Station, November 2013

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Nov-01	0.0	120	6.1
Nov-02	0.0	40	11.7
Nov-03	0.0	40	13.8
Nov-04	12.5	40	9.3
Nov-05	2.5	060#	5.2#
Nov-06	0.0	130	4.1
Nov-07	0.0	120	10.6
Nov-08	0.0	130	9.8
Nov-09	0.0	110	13.2
Nov-10	5.5	110	15.4
Nov-11	0.0	120	19.1
Nov-12	34.5	130#	16.2#
Nov-13	1.5	40	6.2
Nov-14	0.0	40	6.5
Nov-15	0.0	50	4.5
Nov-16	0.0	040#	5.2#
Nov-17	0.0#	120#	6.3#
Nov-18	0.0	120	8.5
Nov-19	0.0	60	7.0
Nov-20	0.0	120	8.4
Nov-21	0.5	120	7.3
Nov-22	1.0	110	11.0
Nov-23	0.0	120	13.6
Nov-24	15.0	120	7.2
Nov-25	0.0	40	7.4
Nov-26	0.0	120	8.7
Nov-27	0.0	120	10.2
Nov-28	4.0	40	11.7
Nov-29	0.0	50	9.3
Nov-30	0.0	50	4.8
Mean	-----	120#	9.4#
Total	77.0#	---	-----
Maximum	34.5#	---	19.1#
Minimum	0.0#	---	4.1#

*Meterological data of the nearest Automatic Weather Station is presented.

missing (less than 24 hourly observations a day)

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

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)+				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level***, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
07-Nov-13	Sunny	10:05	68.4	72.0	70.8	67.6	68.0	70	N
13-Nov-13	Sunny	10:07	65.6	70.2	68.5	58.9	68.0	70	N
19-Nov-13	Sunny	9:58	60.0	63.5	62.4	66.4	68.0	70	N
26-Nov-13	Sunny	9:40	66.0	68.8	67.2	66.1	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)++				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level***, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
07-Nov-13	Sunny	11:00	72.7	75.9	74.1	74.1	79.0	75	N
13-Nov-13	Sunny	11:02	73.1	77.5	75.7	75.7#	79.0	75	N
19-Nov-13	Sunny	10:41	61.5	66.5	64.1	64.1	79.0	75	N
26-Nov-13	Sunny	9:55	70.5	72.5	71.4	71.4	79.0	75	N

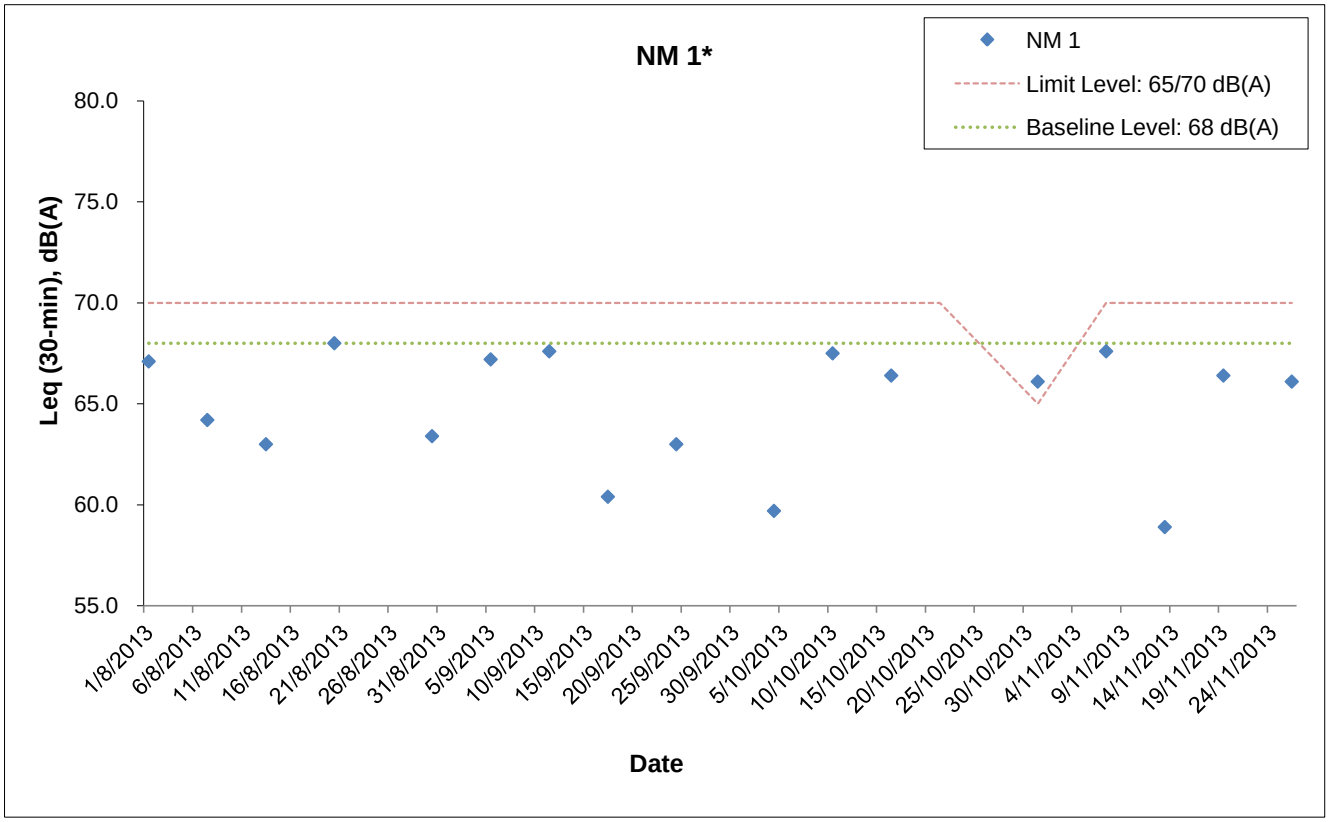
+ - Façade measurement

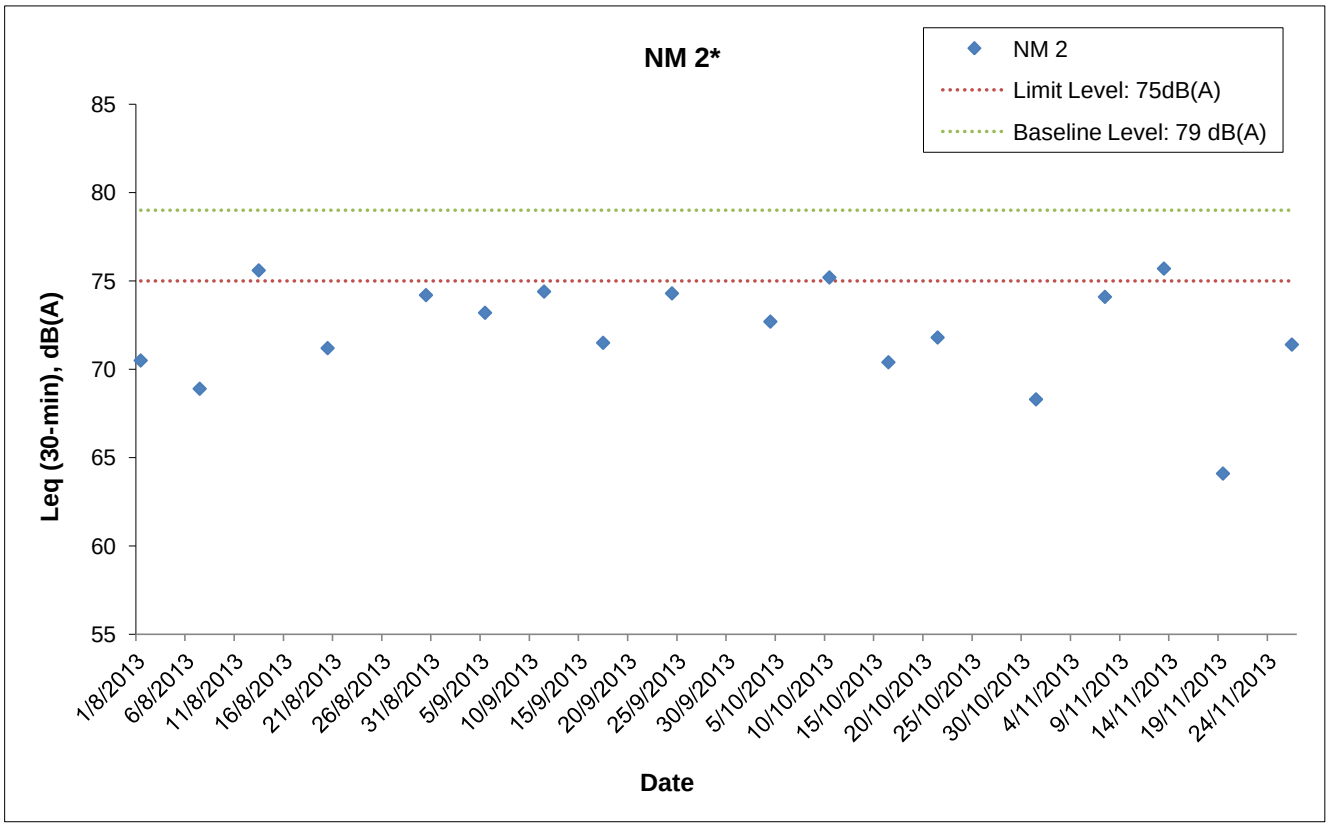
++ - Free field measurement

*** - Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

- 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.

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.

AECOM	Shatin to Central Link Works Contract 1111-Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Dec-13
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Noise Monitoring Results	JOB NO.	60284101	APPENDIX	H
				Rev	-

APPENDIX I

Event Action Plan

Appendix I – Event and Action Plan

Event / Action Plan for Construction Dust

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
ACTION LEVEL				
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**
LIMIT LEVEL				
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	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.

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 ckeck 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
ACTION LEVEL				
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2.Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4.Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3.Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2.Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4.Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX J

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix J
Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX K

Waste Flow Table

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				
	Generated				Disposed (Note 4)							Recycled			Disposed	
	Fill Material	Artificial Material		Total Quatity Generated	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HHFPBP	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Disposed as Public Fills at CWPFBP	Total Quatity Disposal	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
	Soil and Rock	Broken Concrete	Asphalt													
Unit	('000m^3)	('000m^3)	('000$m^{3)}$	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000m^3)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	0.043	0.000	0.021	0.065	0.000	0.000	0.000	0.065	0.000	0.000	0.065	0.000	0.000	0.000	0.000	17.110
Feb	0.172	0.004	0.019	0.195	0.026	0.000	0.000	0.165	0.004	0.000	0.195	0.000	0.000	0.000	0.000	29.440
Mar	0.280	0.010	0.094	0.384	0.000	0.000	0.001	0.347	0.036	0.000	0.384	7.490	0.000	0.000	0.000	112.240
Apr	0.726	0.041	0.073	0.840	0.000	0.000	0.000	0.777	0.062	0.000	0.840	0.000	0.000	0.000	0.000	213.390
May	2.032	0.087	0.064	2.183	0.000	0.000	0.000	1.695	0.488	0.000	2.183	0.000	0.077	0.000	0.000	112.700
Jun	3.920	0.035	0.065	4.020	0.000	0.000	0.000	1.088	2.932	0.000	4.020	0.000	0.189	0.000	0.000	213.570
SUB-TOTAL	7.173	0.177	0.337	7.687	0.026	0.000	0.001	4.137	3.522	0.000	7.687	7.490	0.266	0.000	0.000	698.450
Jul	4.204	0.032	0.055	4.291	0.000	0.000	0.000	0.045	4.246	0.000	4.291	0.000	0.287	0.000	0.000	127.540
Aug	2.124	0.023	0.034	2.180	0.000	0.000	0.000	0.006	2.174	0.000	2.180	0.000	0.336	0.000	0.000	121.170
Sep	1.344	0.012	0.004	1.359	0.000	0.000	0.000	0.000	1.359	0.000	1.359	0.012	0.282	0.002	0.000	113.560
Oct	0.936	0.069	0.039	1.044	0.000	0.000	0.000	0.000	1.044	0.000	1.044	0.067	0.329	0.001	0.000	216.370
Nov	1.854	0.010	0.000	1.864	0.000	0.000	0.000	0.000	1.858	0.006	1.864	0.012	0.261	0.001	0.000	144.800
Dec																
TOTAL	17.633	0.322	0.469	18.425	0.026	0.000	0.001	4.188	14.203	0.006	18.425	7.581	1.761	0.004	0.000	1421.890

Note:

1. Assume the density of fill is 2 ton/m^3.
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 Hung Hom Finger Pier Barging Point (HHFPBP), Tseung Kwan O Area 137 Fill Bank (TKO137), Tuen Mun Area 38 Fill Bank (TM38) and Chai Wan Public Fill Barging Point (CWPFBP).

Appendix E

10th EM&A Report for Works Contract 1103 – Hin Keng to Diamond Hill

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 10

[Period from 1 to 30 November 2013]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(December 2013)

Certified by: Coleman Ng

Position: Environmental Team Leader

Date: 11/12/2013

MTR Corporation Limited

SCL1103 Hin Keng to Diamond Hill Tunnels Construction Stage - Environmental Services

Monthly Environmental Monitoring and Audit Report – November 2013

228105-27

November 2013

Job number 228105-27

Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
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Hong Kong
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ARUP

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Figures

Appendices

Executive Summary

This is the tenth 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 November 2013 (1 to 30 November 2013).

In the reporting month, the following activities took place for the Project:

- Site Excavation and Strutting at Diamond Hill;
- Pipe Piling and Mucking Out at Hin Keng;
- Drainage Diversion Works and Platform Erection at Fung Tak; and
- Drainage Diversion Works and Diaphragm Wall at Ma Chai Hang.

Air Quality and noise monitoring were performed and the results were checked and reviewed. Site audits were conducted on 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

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance 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 17734m^3 were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 82m^3 of general refuse was generated and disposed of at NENT landfill. 800kg of chemical waste was generated during the reporting month.

Environmental Auditing

A total of 4 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 6 November 2013 and the final, an IEC joint site audit, was undertaken on 27 November 2013. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaint in relation to the environmental issues was made against the Project in the reporting period.

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

The 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. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

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	Site Excavation and Strutting.
Hin Keng	Pipe Piling and Mucking Out.
Fung Tak	Drainage Diversion Works and Platform Erection.
Ma Chai Hang	Drainage Diversion Works and Diaphragm Wall.

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
Project Proponent: MTRC		
Engineer's Representative	Thomas Barrett	2163 6181
SCL Project-wide Environmental Team Leader	Richard Kwan	2688 1283
Independent Environmental Checker: Meinhardt Infrastructure & Environment Ltd.		
Independent Environmental Checker	Fredrick Leong	2859 1739
Contractor: VINCI Constructions Grand Projects		
Project Director	Francois Dudouit	3765 5610
IMS Manager	L K Mak	3765 5635
Contractor's Environmental Team: Ove Arup & Partners Hong Kong Ltd.		
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
Air Quality	
DMS-1	C.U.H.K.A.A. Thomas Cheung School
DMS-2	Price Memorial Catholic Primary School
DMS-3(Note 2) / DMS-4(Note 3)	Hong Kong Sheng Kung Hui Nursing Home (Note 1)
Noise	
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3(Note 2) / NMS-CA-4(Note 3)	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	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	GW-RE0118-13	Diamond Hill	14 Feb 2013	Expired
	GW-RE0130-13	Diamond Hill	14 Feb 2013	Expired
	GW-RE0145-13	Diamond Hill	20 Feb 2013	Expired
	GW-RE0411-13	Diamond Hill	3 May 2013	Expired
	GW-RE0295-13	Ma Chai Hang	28 Mar 2013	Expired
	GW-RE0366-13	Hin Keng	17 July 2013	16 Jan 2014
	GW-RE0441-13	Hin Keng	2 Aug 2013	19 Feb 2014
	GW-RN0635-13	Hin Keng	11 Nov 2013	10 May 2014
	GW-RE0816-13	Diamond Hill	14 Aug 2013	12 Feb 2014
	GW-RE0879-13	Diamond Hill	1 Sep 2013	Expired

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
	GW-RE0988-13	Diamond Hill	15 Sep 2013	Expired
	GW-RE1063-13	Diamond Hill	2-Oct-13	1 Apr 2014
	GW-RE1132-13	Diamond Hill	30-Oct-13	29 Apr 2014
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 tenth 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 30 November 2013.

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 (October 2013)	14th November 2013

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(Note 2) / DMS-4(Note 3)	Hong Kong Sheng Kung Hui Nursing Home (Note 1)

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, μg/m^3	148.7	167.4	159.1
Limit Level, μg/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, μg/m^3	283.9	276.2	278.4
Limit Level, μg/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	GMW-2535		2421

3.2.2 Maintenance and Calibration

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

Specifications of the HVS are as follows:

- 0.6 – 1.7 m^3/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^2 (63in^2);
- 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

No adverse weather conditions were recorded during the monitoring dates.

3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 2, 6, 12, 18, 23 and 29 November 2013. 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 (μg/m$^{3)}$		Action Level	Limit Level
	Average	Range		
DMS-1	57.2	89.4	148.7	260
DMS-2	47.0	43.4	167.4	260
DMS-3 / DMS-4	42.7	58.7	159.1	260

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 site formation, ground investigation, diaphragm wall construction, hoarding erection, pipe piling, and utilities detection and diversion. No abnormal condition was recorded during the monitoring period.

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	$L_{eq(30\ min)}$	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 (Note 2) / NMS-CA-4 (Note 3)	Hong Kong Sheng Kung Hui Nursing Home (Note 1)

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 (Note 1)	Time Period (note 3)	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 (Note 2)
NMS-CA-3 / NMS-CA-4			75

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.

4.2 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. Leq, 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	2562763	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 an 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

The weather condition was mainly overcast with periods of rain during the noise monitoring period in the reporting month.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 7, 13, 19 and 25 November 2013. 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)
7 Nov13	11:10-11:40	60.7	57.0	58.3	70/65
13 Nov13	11:30-12:00	58.4		52.8	
19 Nov13	11:40-12:10	57.8		50.1	
25 Nov13	10:25-10:55	58.5		53.2	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
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.

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)
7 Nov13	12:30-13:00	68.4	66.0	64.7	70/65
13 Nov13	12:55-13:25	67.3		61.4	
19 Nov13	13:25-13:55	70.7		68.9	
25 Nov13	12:50-13:20	68.8		65.6	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
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.

Table 4.7 Summary of Impact Noise Monitoring at Location NMS-CA-3/NMS-CA-4

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
7 Nov13	09:00-09:30	69.6	73.0	< Baseline Level	75
13 Nov13	14:20-14:50	68.5		< Baseline Level	
19 Nov13	10:15-10:45	68.1		< Baseline Level	
25 Nov13	14:00-14:30	69.1		< Baseline Level	

Note:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.

4.3.3 Exceedance of Limit and Action Levels for Construction Noise

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

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

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 6 and 20 November 2013. During the site inspections no issues regarding landscape and visual were identified.

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	17734m^3	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	800kg	Disposed of by a licensed collector
Paper / cardboard packaging	0	-
Plastic	0	
Metal	0	
General Refuse	82m^3	NENT Landfill

7 Environmental Performance

7.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 27 November 2013, 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 7.1**.

Table 7.1 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
Water Quality				
30 Oct 2013	Hin Keng	A single truck was observed leaving a paved haul road after loading without undergoing wheel washing. Whilst no mud was observed on the haul road or public road, the contractor shall ensure all vehicles are subject to wheel washing prior to leaving the site.	Agreed with ET's Advice.	The contractor rectified the issue and improved the wheel washing facilities. Closed 6 Nov 2013.
6 Nov 2013	Hin Keng	The contractor is reminded to prevent water leakage from wheel washing.	Agreed with ET's Advice.	The contractor rectified the issue and provided sandbags. Closed 13 Nov 2013.
13 Nov 2013	Hin Keng	The contractor is reminded to prevent water seepage from site.	Agreed with ET's Advice.	The contractor rectified the issue and provided sandbags. Closed 20 Nov 2013.
27 Nov 2013	Fung Tak	The contractor was reminded to improve the bundings around the water discharge point.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.
Noise				
13 Nov 2013	Ma Chai Hang	The contractor was reminded to continue their current progress	Agreed with ET's Advice.	The contractor

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
		in erecting noise barriers on site.		continued their progress. Closed 20 Nov 2013.
20 Nov 2013	Ma Chai Hang	The contractor was reminded to ensure that acoustic screening on site hoarding is properly sealed.	Agreed with ET's Advice.	The contractor rectified the issue and ensured the screening was sealed. Closed 27 Nov 2013.
Air				
6 and 13 Nov 2013	Fung Tak	The contractor was reminder to cover all cement/bentonite bags with tarpaulin sheets after unloading.	Agreed with ET's Advice.	The contractor rectified the issue and provided tarpaulin sheets. Closed 20 Nov 2013.
20 Nov 2013	Hin Keng	As work progresses closer to the private area, the contractor was reminded to place tarpaulin sheets over the site hoarding as dust mitigation.	Agreed with ET's Advice.	The contractor rectified the issue and provided tarpaulin sheets. Closed 27 Nov 2013.
Waste				
30 Oct 2013	Fung Tak	An Oil Stain was observed. The contractor shall remove the contaminated soil and treat it as chemical waste in accordance with WDO.	Agreed with ET's Advice.	The contractor rectified the issue. Closed 6 November 2013.
30 Oct 2013	Fung Tak	The contractor was reminded to properly label chemical waste storage areas.	Agreed with ET's Advice.	The contractor rectified the issue. Closed 6 November 2013.
6 Nov 2013	Hin Keng	The contractor was reminded to remove discarded metal strips from the site as soon as possible.	Agreed with ET's Advice.	The contractor rectified the issue and removed the metal strips.

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				Closed 13 November 2013.
13 Nov 2013	Diamond Hill	The contractor was reminded to provide drip trays for paint cans being used and stored on site.	Agreed with ET's Advice.	The contractor rectified the issue and drip trays were provided. Closed 20 November 2013.
20 Nov 2013	Diamond Hill	The contractor is reminded to provide drip trays for chemical containers.	Agreed with ET's Advice.	The contractor rectified the issue and drip trays were provided. Closed 27 November 2013.
Landscape and Visual				
27 Nov 2013	Ma Chai Hang	The contractor was reminded to maintain the tree protection zone properly.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.

7.2 Summary of Environmental Complaint

No environmental complaints regarding environmental issue were recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 7.2**. The updated complaint logs, if any, of the Project in the reporting month is shown in **Appendix L**.

Table 7.2 Summary of Complaints

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
01/11/13–30/11/13	0	0	N/A	N/A	N/A

7.3 Summary of Environmental Non-Compliance

There was no non-compliance identified during the reporting month so review of the non-compliance was not required.

7.4 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.

8 Future Key Issues

8.1 Key Issues for the Coming Month

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

Table 8.1 Tentative Programme of Construction Works for the Coming Month

Locations	Major Works Undertaken
Diamond Hill	Site Excavation and Strutting.
Hin Keng	Pipe Piling and Mucking Out.
Fung Tak	Drainage Diversion Works and Platform Erection.
Ma Chai Hang	Drainage Diversion Works and Diaphragm Wall.

8.2 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**.

8.3 Construction Program for the Coming Month

The construction programme for the coming month is shown in **Appendix A.**

9 Conclusions and Recommendations

9.1 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.

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

No exceedance 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.

No complaint and 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.

9.2 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.

Construction noise is one of the key environmental issues. 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.

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. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

Landscape and Visual is another key environmental issue. The implemented landscape and visual mitigation measures such as the provision of tree protection zones should be maintained and improved as necessary.

10 Reference

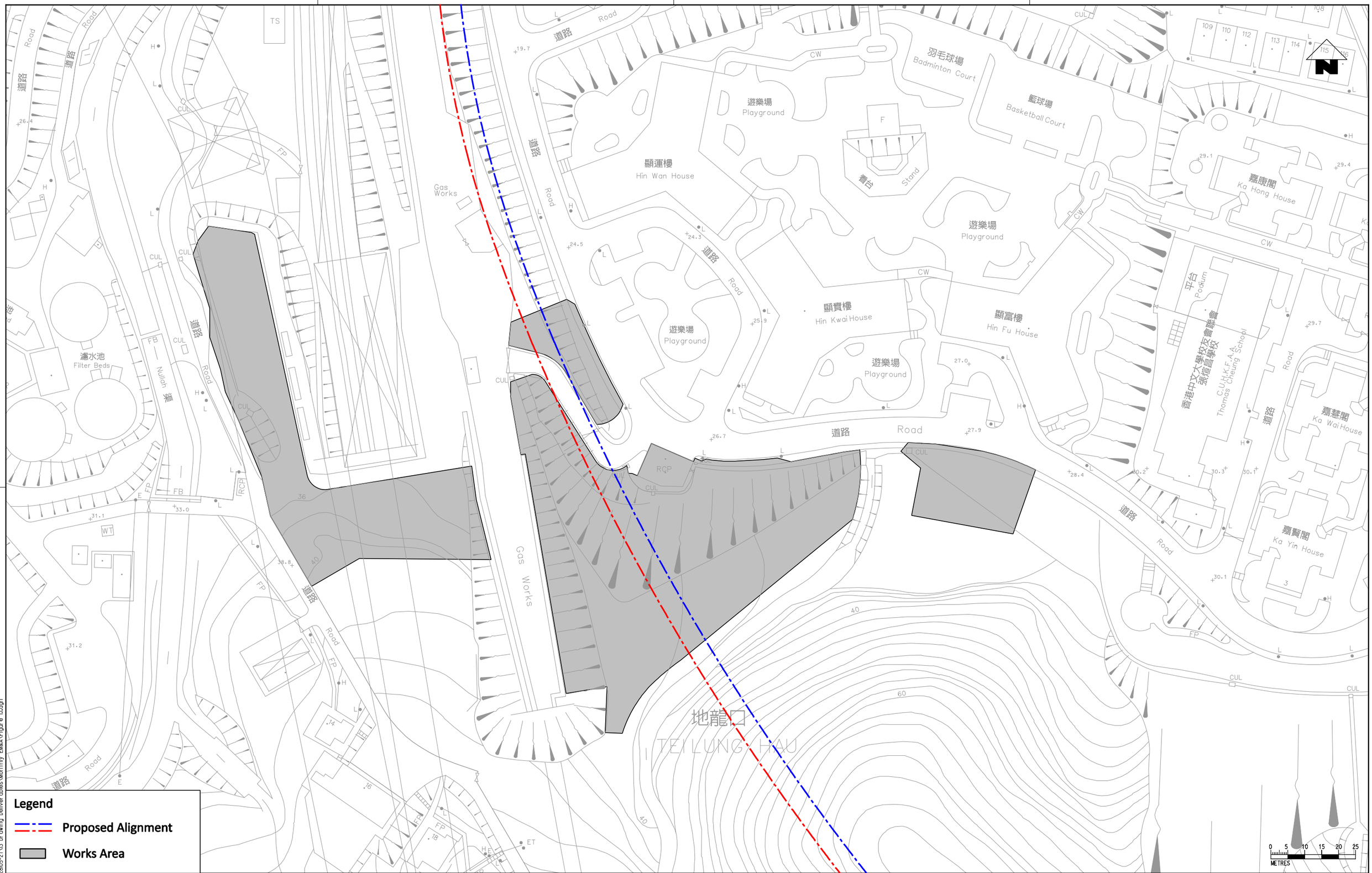
(1) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.

(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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A	FIRST ISSUE	GL	12/12	ST

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ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

CADD REF.

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)

SCALE	DRAWING NO.	REV.
1:1000 (A3)	Figure 1.1	A

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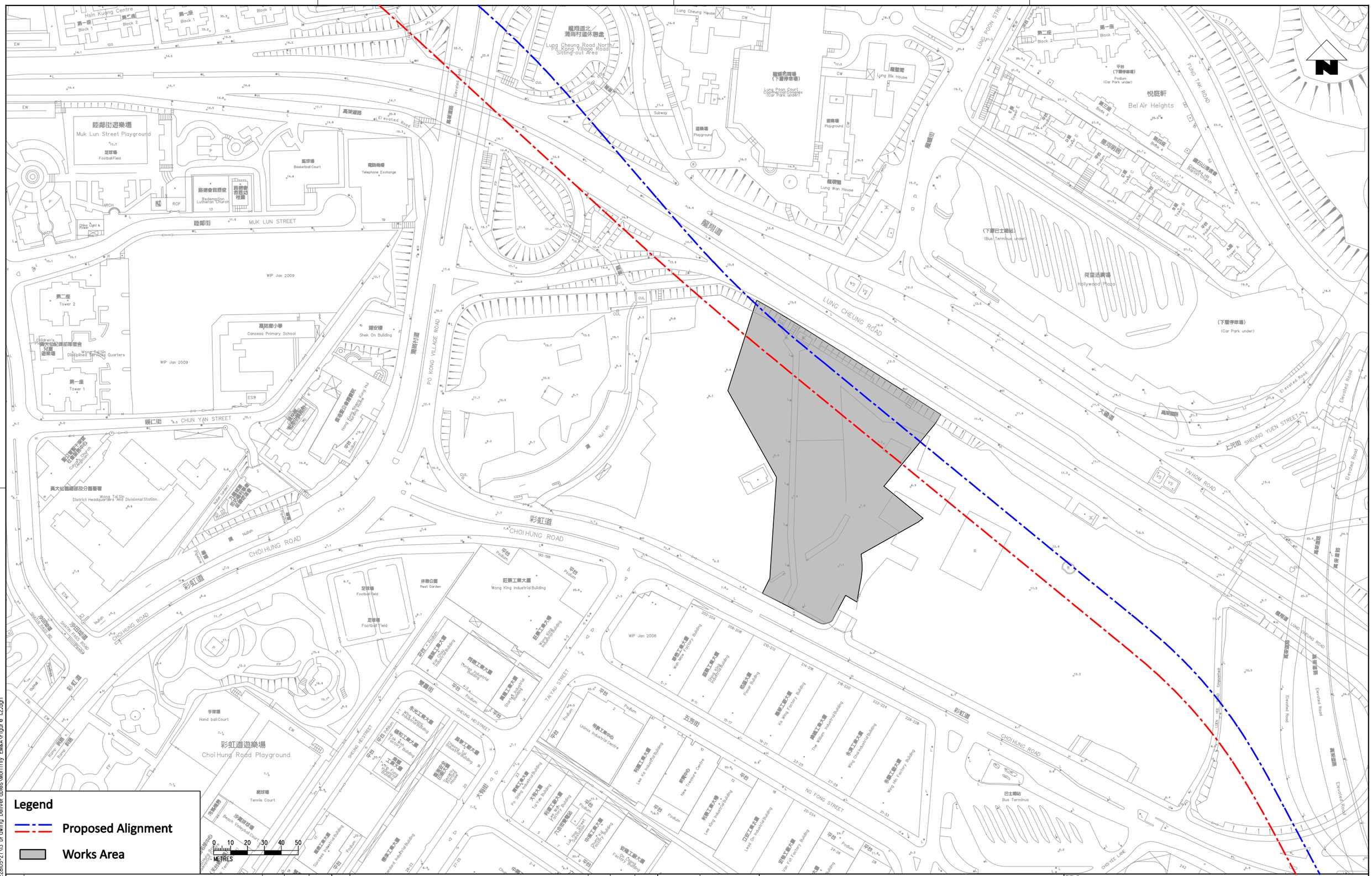

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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- General Site Layout of Diamond Hill Works Area
(Sheet 2 of 6)

SCALE	DRAWING NO.	REV.
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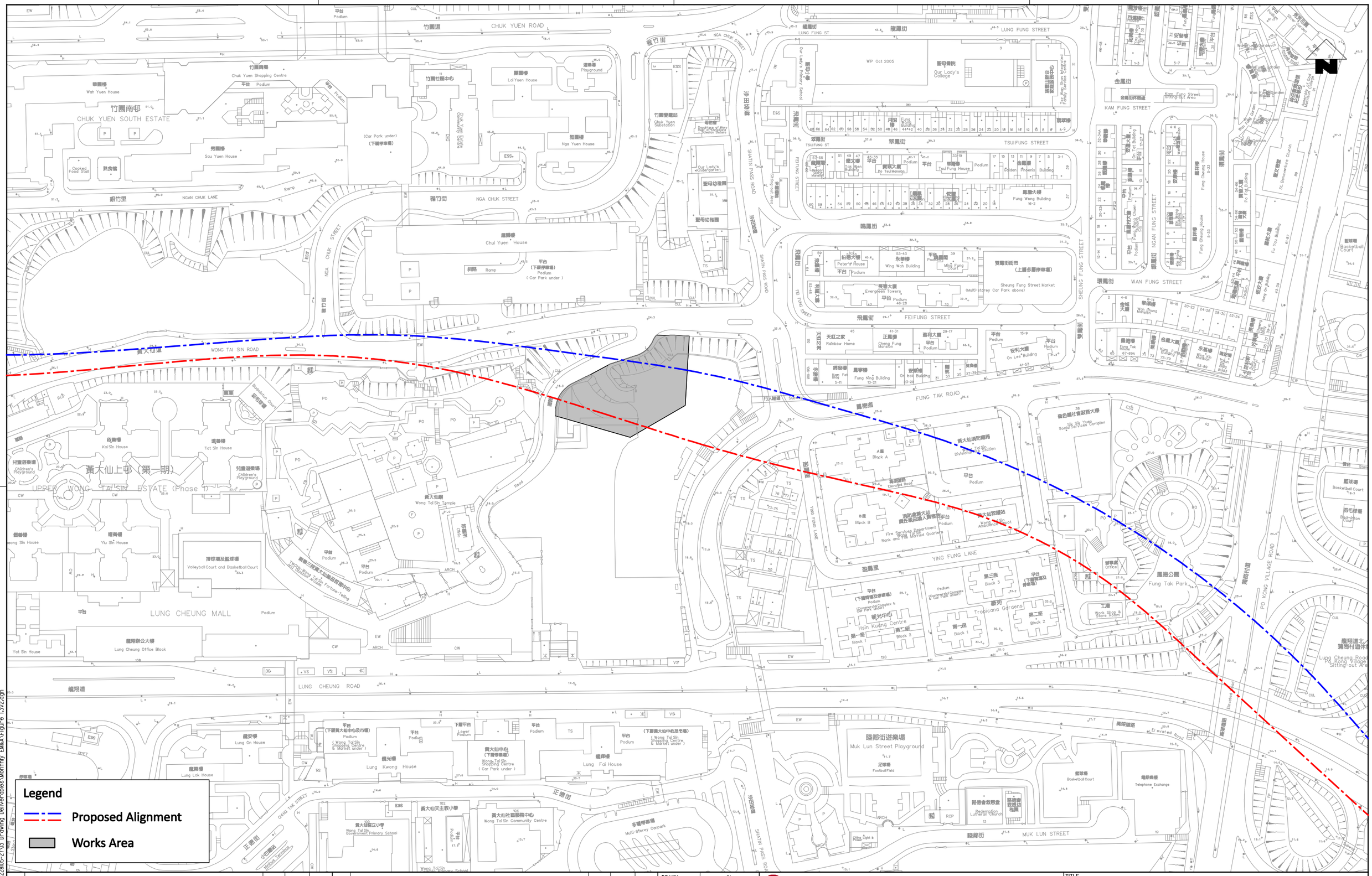

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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas - Site Layout Plan of Fung Tak EAP/EEP Building (Sheet 3 of 6)

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.3	A

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TITLE

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)

SCALE 1:2000 (A3) | DRAWING NO. Figure 1.4 | REV. A

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CONTRACT 1103
HIK KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Area
General Site Layout of Shui Chuen O Works Area
(Sheet 5 of 6)

SCALE	DRAWING NO.	REV.
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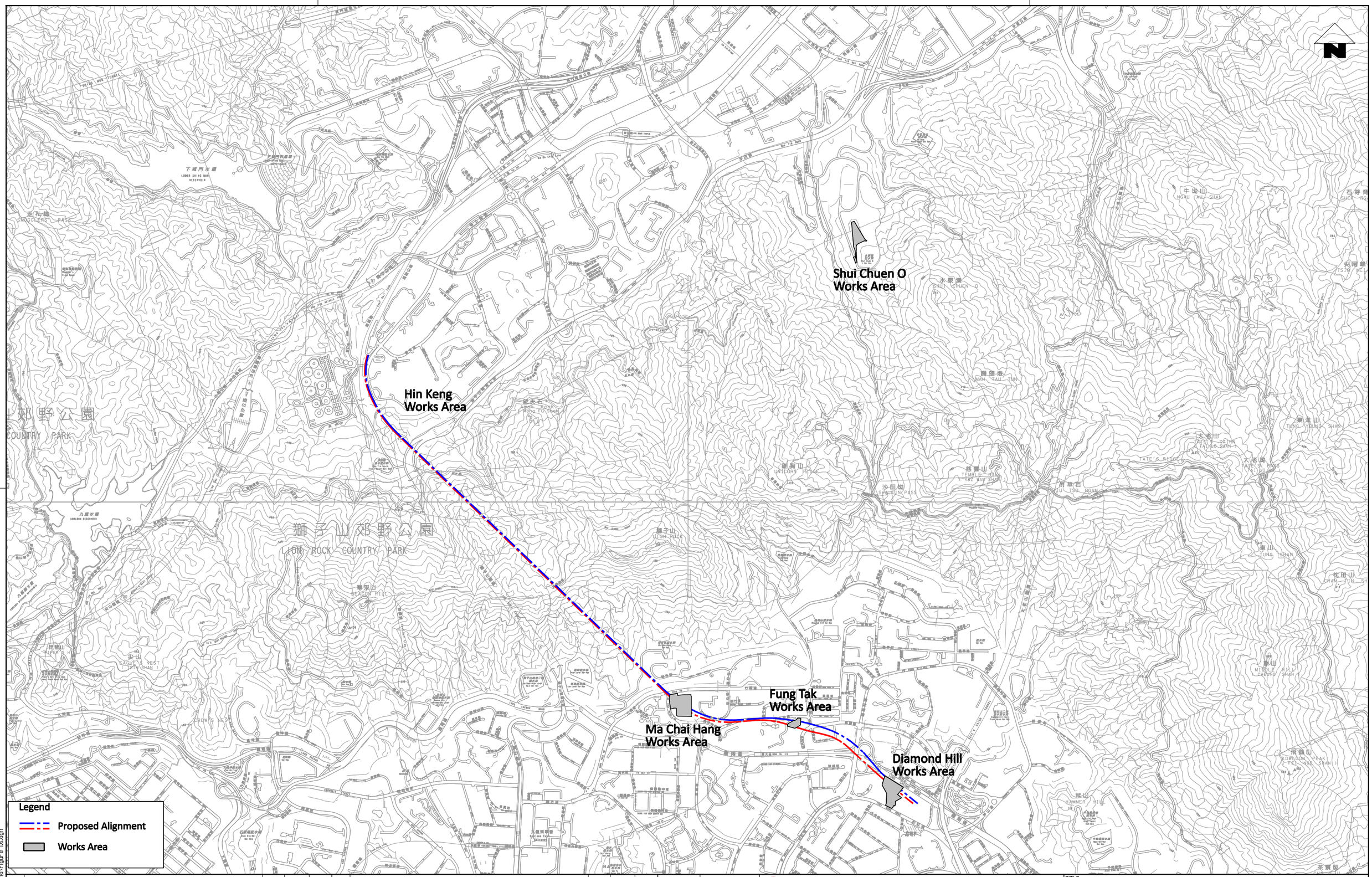

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TITLE

CONTRACT 1103

HIN KENG TO DIAMOND HILL TUNNELS

Locations of Project Works Areas
- General Alignment of Contract 1103
(Sheet 6 of 6)

SCALE	DRAWING NO.	REV.
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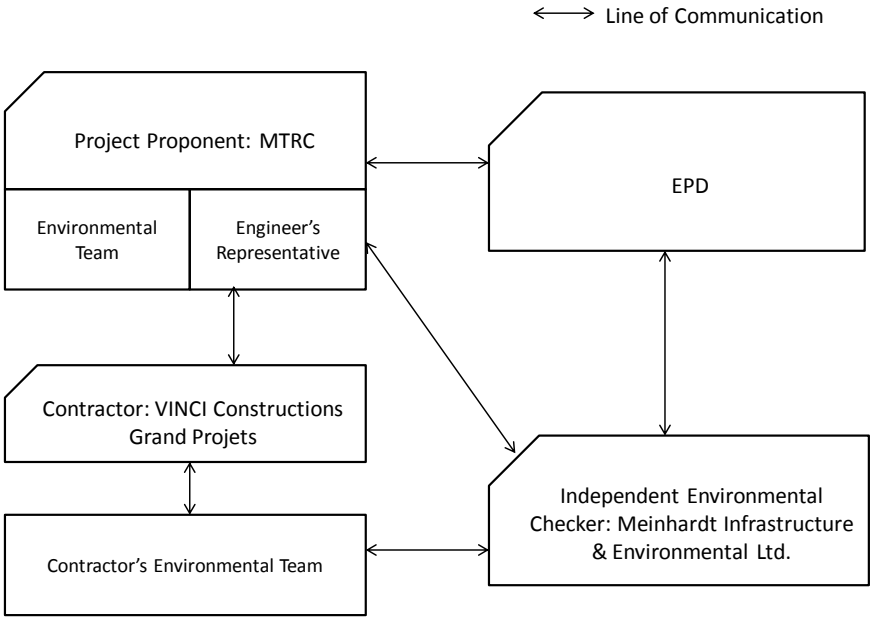
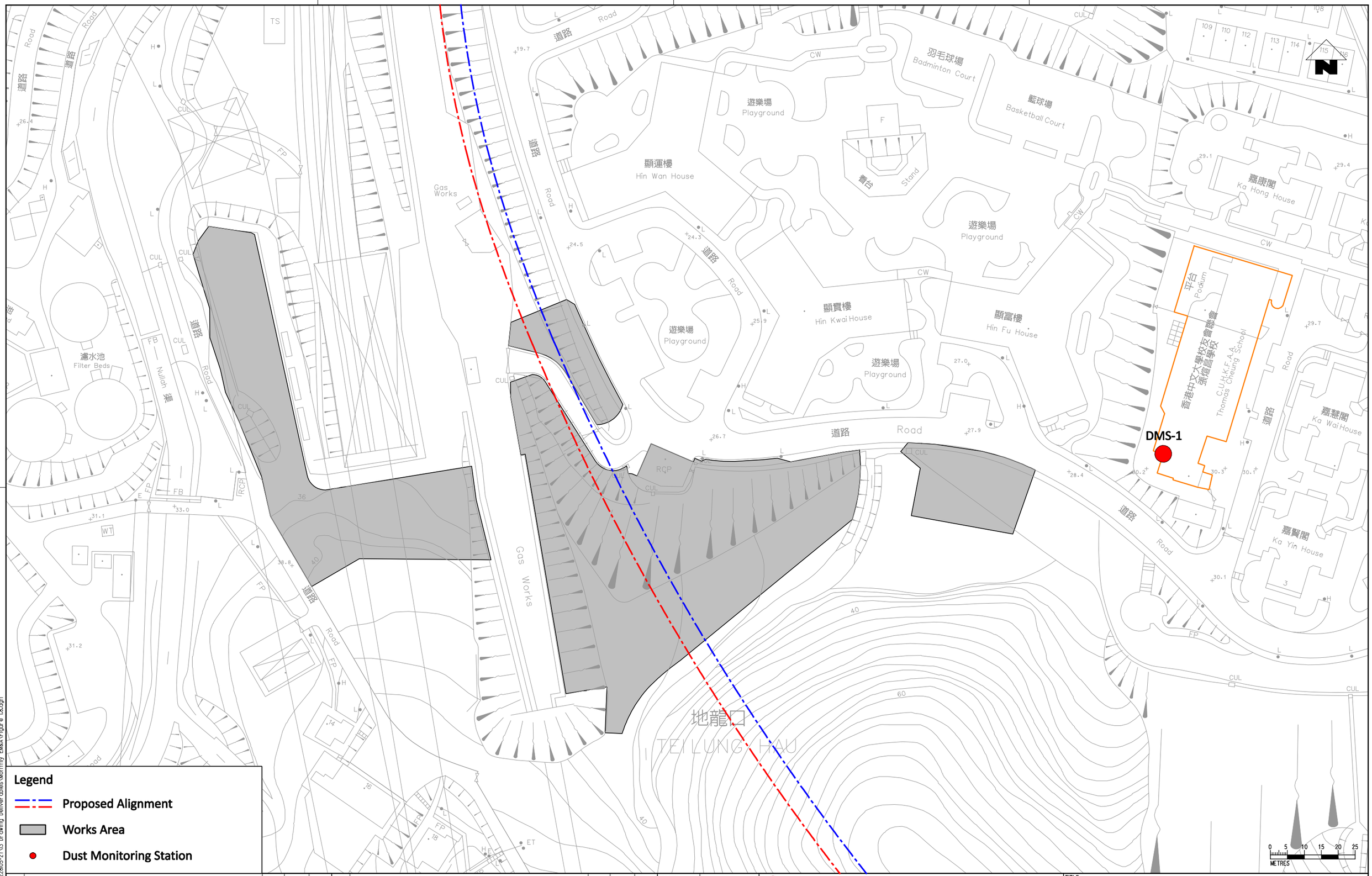
Figure 1.7 - Project Organisation for Environmental Works





Legend

- Proposed Alignment
- Works Area
- Dust Monitoring Station

REV	DESCRIPTION	BY	DATE	APPROVED
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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Proposed Dust Monitoring Stations
(Sheet 1 of 3)

SCALE	DRAWING NO.	REV.
1:1000 (A3)	Figure 1.8	A

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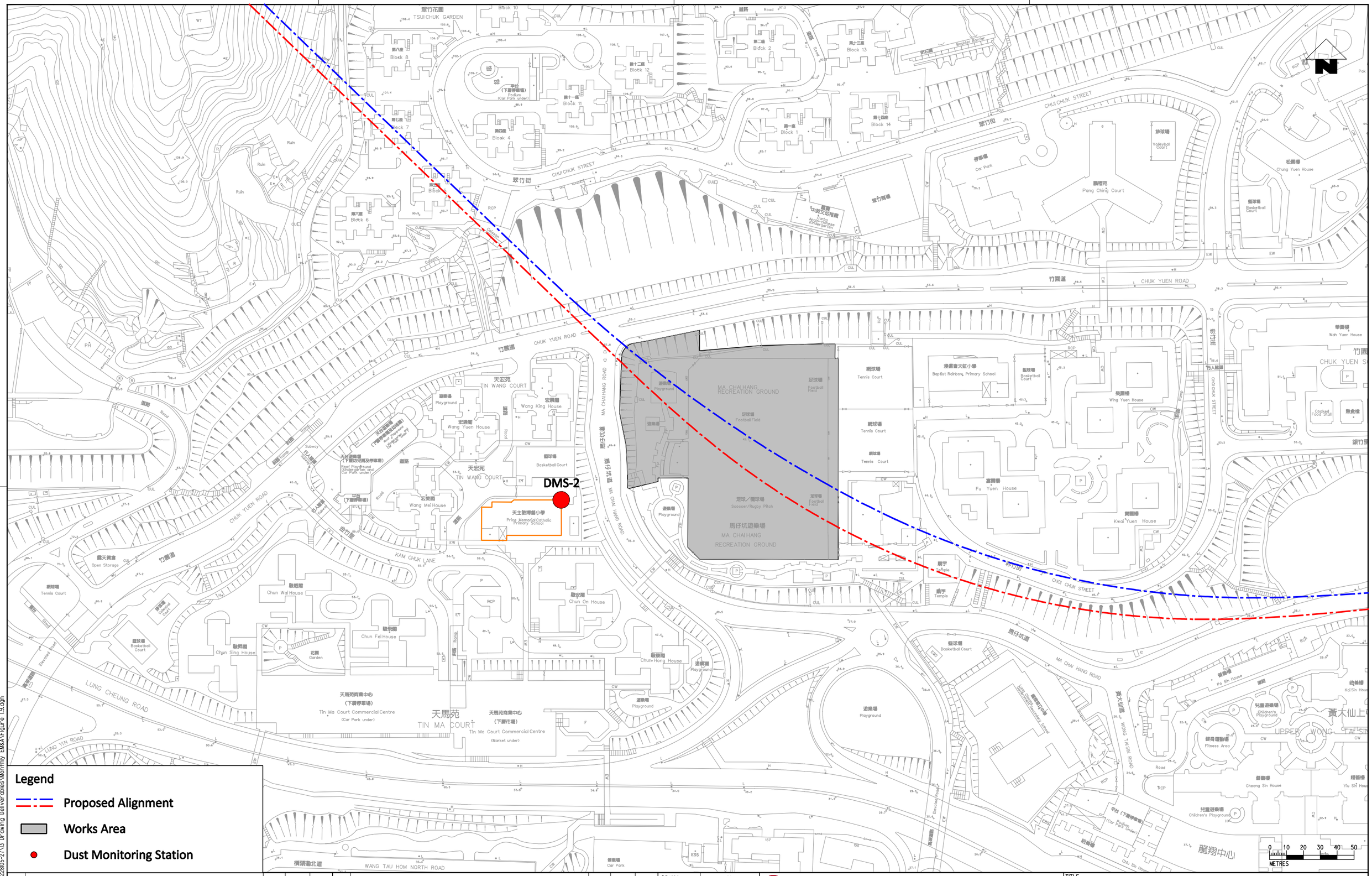

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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Proposed Dust Monitoring Stations
(Sheet 2 of 3)

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.9	A

DMS-3/DMS-4

Legend

- Proposed Alignment
- Works Area
- Dust Monitoring Station

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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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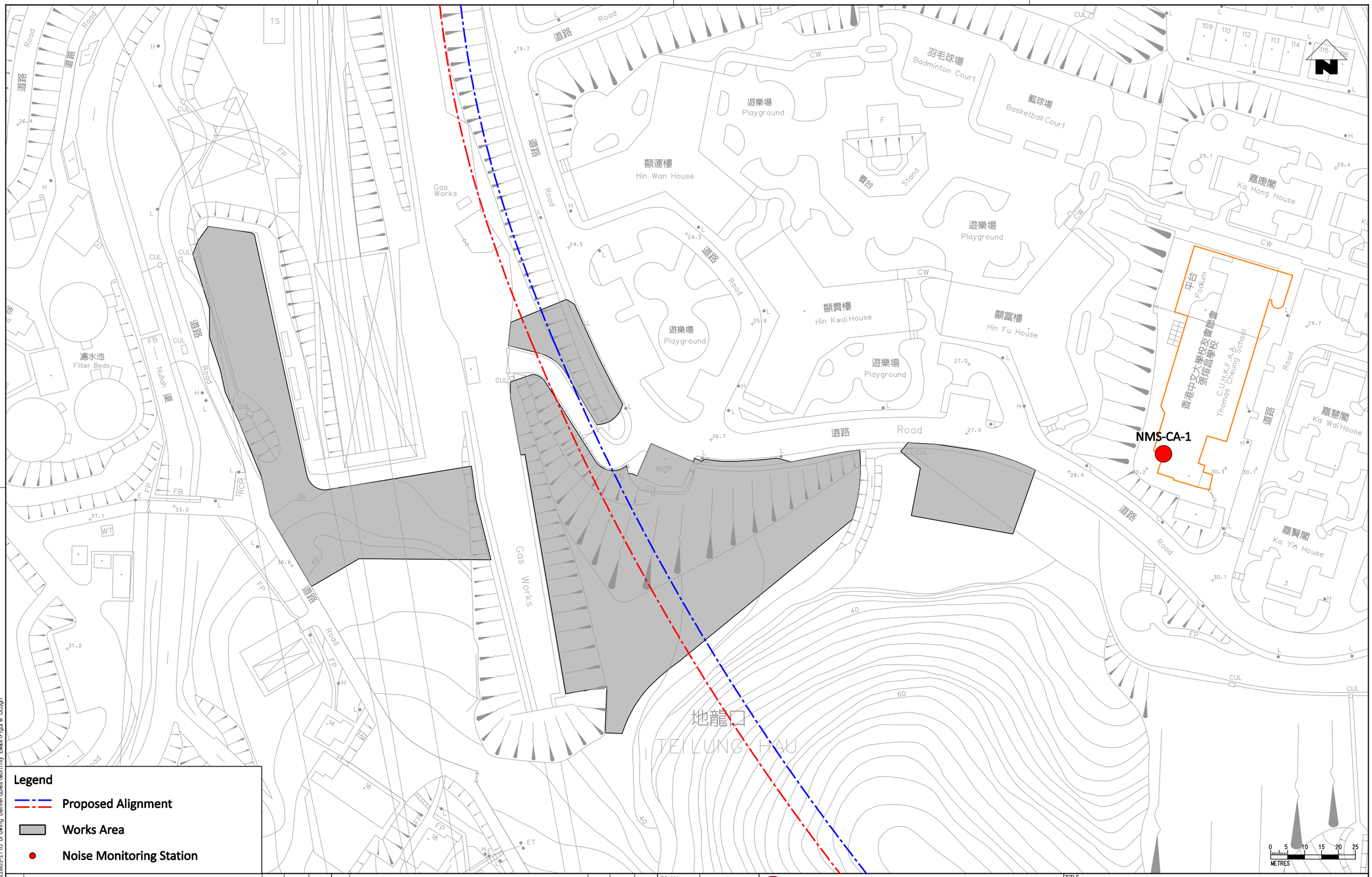

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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
(Sheet 1 of 3)

SCALE	DRAWING NO.	REV.
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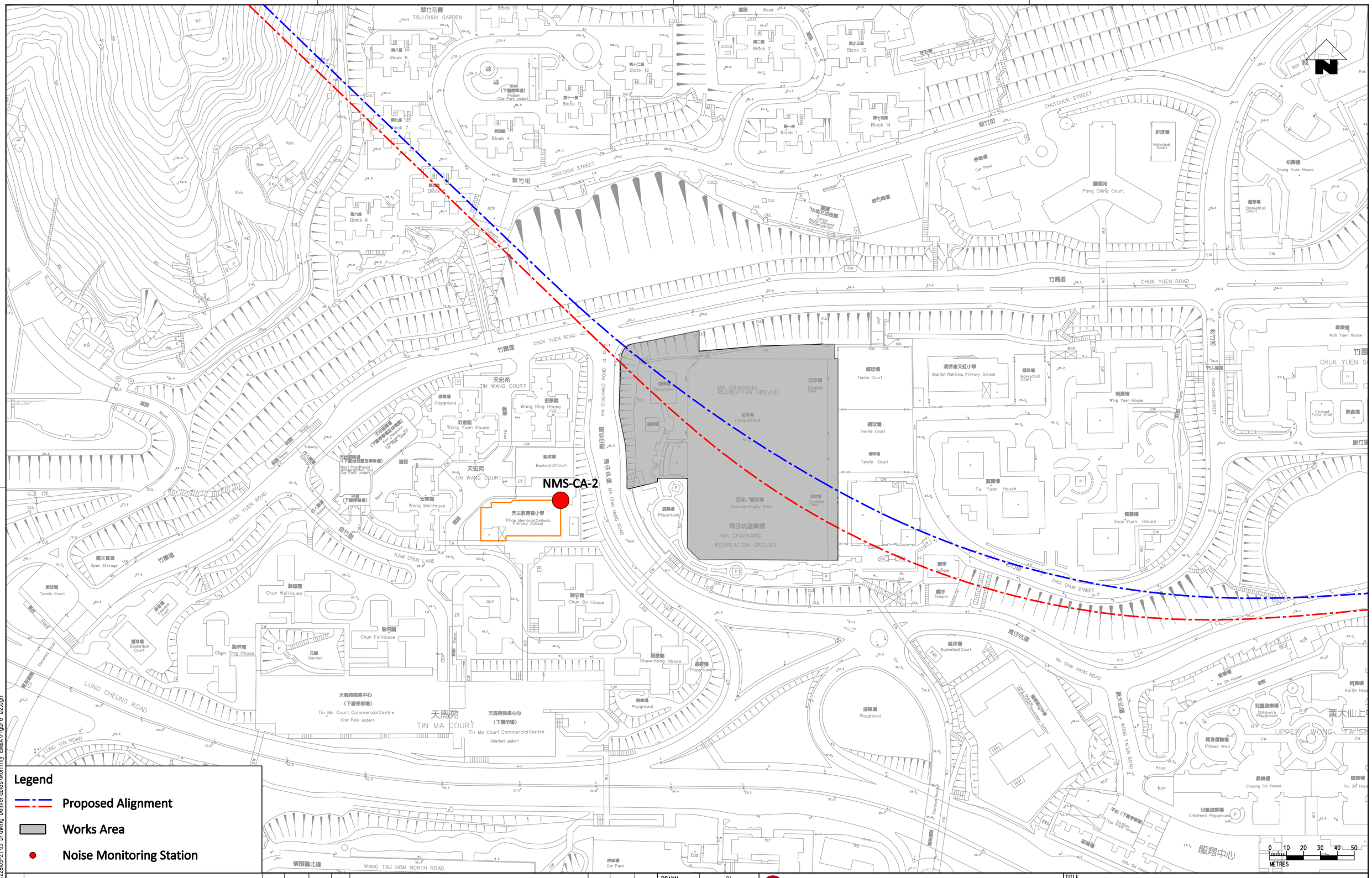

Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
(Sheet 2 of 3)

SCALE	DRAWING NO.	REV.
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NMS-CA-3/NMS-CA-4

Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
(Sheet 3 of 3)

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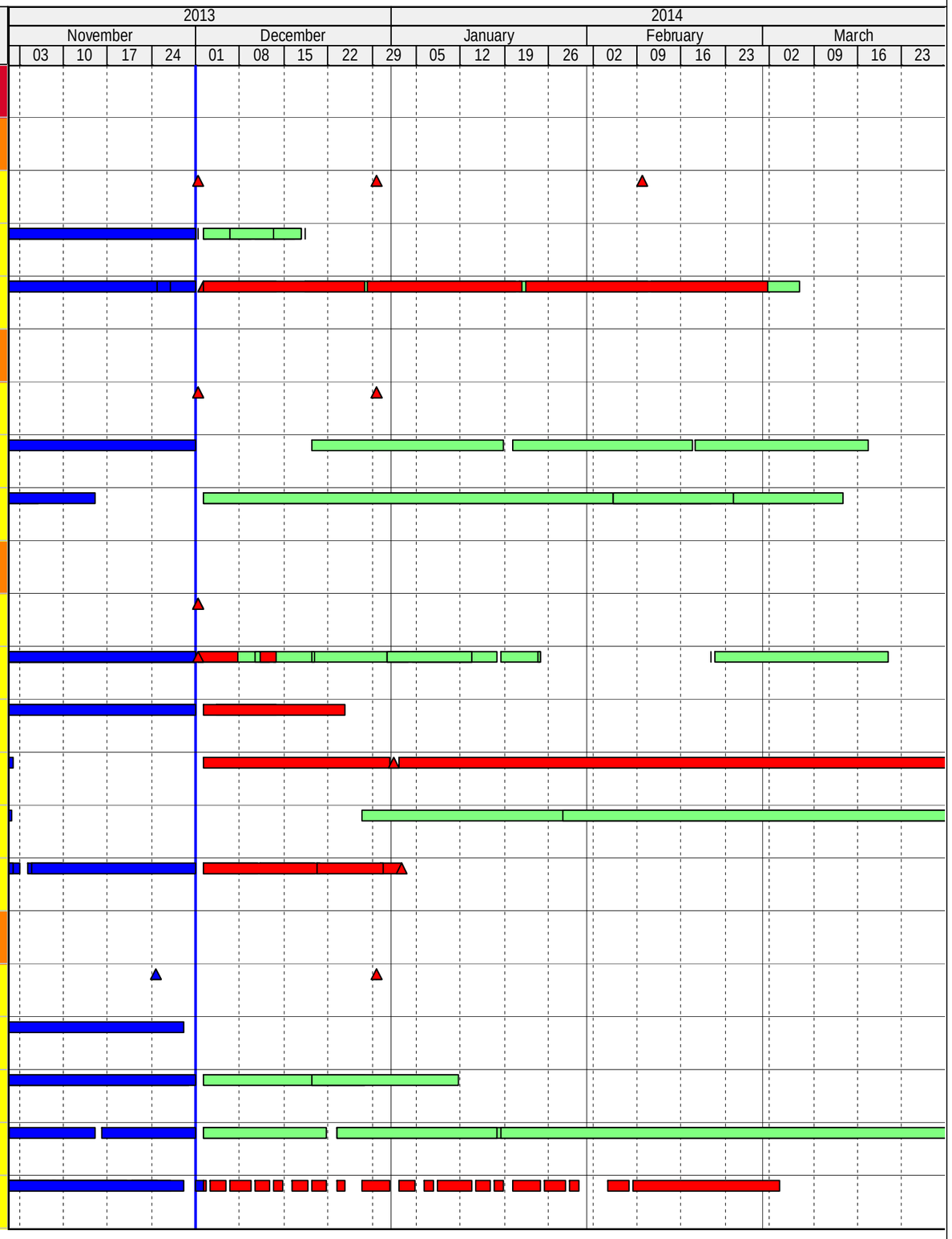
REV. A

Appendix A

Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
	CONTRACT 1103:- HIN KENG TO DIAMOND HILL TUNNELS				
	COST CENTER F - MA CHAI HANG VENTILATION BUILDING (MCV)				
	COST CENTER F - Milestone Schedule - MCV				
	MCV - Site Preparation				
	MCV - Diaphragm Wall				
	COST CENTER G - FUNG TAK EAP/EEP BUILDING (FTA)				
	COST CENTER G - Milestone Schedule - FTA				
	FTA - Utilities				
	FTA - Diaphragm Wall				
	COST CENTER H - HIN KENG WORKING SHAFT				
	COST CENTER H - Milestone Schedule - HIK Shaft				
	HIK - Site Preparation				
	HIK - Site Formation				
	HIK - Gas Access Road and Gas Bridge				
	HIK - Pipe Pile and Grouting				
	HIK - Excavation and ELS				
	COST CENTER S - DIAMOND HILL				
	COST CENTER S - DIAMOND HILL				
	DIH - Site Clearance and Set Up				
	DIH - D-Wall for Launching Shaft (80m)				
	DIH - KTL DIH Modification				
	DIH - Excavation and ELS for Launching Shaft (40m)				



Date	Revision	Ch...	Approved
09...	3MRP	RD	RD

Appendix B

Environmental Monitoring Programme in Reporting Month

SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - November 2013

Date		Air Quality	Noise	Site Inspection
		24-hours TSP	L_{Aeq}, 30 min	
01-Nov-13	Fri			
02-Nov-13	Sat			
03-Nov-13	Sun			
04-Nov-13	Mon			
05-Nov-13	Tue			
06-Nov-13	Wed			
07-Nov-13	Thu			
08-Nov-13	Fri			
09-Nov-13	Sat			
10-Nov-13	Sun			
11-Nov-13	Mon			
12-Nov-13	Tue			
13-Nov-13	Wed			
14-Nov-13	Thu			
15-Nov-13	Fri			
16-Nov-13	Sat			
17-Nov-13	Sun			
18-Nov-13	Mon			
19-Nov-13	Tue			
20-Nov-13	Wed			
21-Nov-13	Thu			
22-Nov-13	Fri			
23-Nov-13	Sat			
24-Nov-13	Sun			
25-Nov-13	Mon			
26-Nov-13	Tue			
27-Nov-13	Wed			
28-Nov-13	Thu			
29-Nov-13	Fri			
30-Nov-13	Sat			

	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	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

Appendix C

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
Ecology (Pre-Construction Phase)							
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	• AFCD's requirements • EIAO • Country Parks Ordinance	✓
	E2	<u>Habitat Loss</u> A detailed vegetation survey should be conducted in the Hin Keng Portal area to locate and enumerate individuals of *Aquilaria sinensis* which will potentially be affected by construction and operation of the Portal. 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.	Minimize ecological impacts on important species	Hin Keng Portal areas	Prior to site clearance	• AFCD's requirements	✓
S5.7	E3	<u>Tree felling and vegetation removal</u> 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.	Minimize ecological impacts to breeding bird species of conservation interest	Works sites for DIH	Prior to site clearance	• AFCD's requirements	N/A

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
Ecology (Construction Phase)							
S5.7	E5	<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, 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. The following good site practices should also be implemented: • 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; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • 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; • No on-site burning of waste; • Waste and refuse in appropriate receptacles.	Minimize ecological impacts	All construction sites	Construction stage		✓ ✓ ✓ ✓ ✓

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	<u>Water Quality and Hydrology</u> • 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. • 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.	• Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	✓ N/A

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
Landscape and Visual (Construction Phase)							
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> • 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. <u>No-intrusion Zone</u> • 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. <u>Protection of Retained Trees</u> • 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. • The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	✓ Rdr ✓

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	• <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. • <u>Management of facilities on worksites</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. • <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.	Minimize visual & landscape impact	Within Project Site	Detailed design and construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	✓ ✓ ✓

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
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	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 1.5 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/m2 to achieve the dust removal efficiency	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	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the	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	✓ ✓ ✓ ✓

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
		pedestrian barriers, fencing or traffic cones.					
		• 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;					✓
		• 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;					✓
		• 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;					Rdr
		• 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;					✓
		• 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;					✓
		• 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;					N/A
		• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting					✓

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
		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; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • 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;					✓ Rdr
		• 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 • 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.					✓ ✓ N/A
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	✓

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
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	✓ ✓ ✓ ✓ ✓ ✓
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	Rdr
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	Rdr

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
		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 worksite 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	✓

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
Water Quality (Construction Phase)							
S10.7.1	W1	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: <u>*Construction Runoff and Site Drainage*</u> • 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. • 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. • 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^3/s a sedimentation basin of 30m^3 would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the	To minimize water quality impact from construction site runoff and general construction activities	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	✓ Rdr ✓

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
		commencement of construction. • 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. • 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. • 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. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 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. • Manholes (including newly constructed ones) should always be					✓ ✓ ✓ ✓ ✓

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
		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.					✓
		• 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.					✓
		• 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.					Rdr
		• 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.					✓
		• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.					✓
		• All fuel tanks and storage areas should be provided with locks					

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
		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. • 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. • Adopt best management practices					✓ ✓ ✓
S10.7.1	W2	<u>*Tunnelling Works*</u> • Cut-&-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. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge • 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. • 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.	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-water • TM-EIAO	N/A N/A N/A N/A
S10.7.1	W3	<u>*Sewage Effluent*</u>	To minimize water quality	All construction sites	Construction	• Water Pollution	

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
		• 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.	from sewage effluent	where practicable	stage	Control Ordinance • TM-water	✓
S10.7.1	W4	<u>*Groundwater from Contaminated Area:*</u> • 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. • 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. • 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	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	• Water Pollution Control Ordinance • TM-water • TM-EIAO	N/A N/A N/A

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
		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.					
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: • 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. • 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. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	Rdr ✓ ✓

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
Waste Management (Construction Phase)							
S11.4.1.1	WM1	<u>*On-site sorting of C&D material*</u> • 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.	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	✓
S11.5.1	WM2	<u>*Construction and Demolition Material*</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance	✓ ✓

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
		promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&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				• ETWB TCW No. 19/2005	✓ ✓ ✓ ✓ ✓
S11.5.1	WM3	*C&D Waste* • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&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	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	Rdr N/A

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
		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	<u>*General Refuse*</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • 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.	Minimize production of the general refuse and avoid odour, pest and litter impacts	All construction sites	Construction stage	• Waste Disposal Ordinance	✓ ✓ ✓ ✓
S11.5.1	WM5	<u>Excavated Contaminated Soils</u> Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.	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.	

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
S11.5.1	WM7	<u>*Chemical Waste*</u> • 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. • 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. • 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. • 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.	Control the chemical waste and ensure proper storage, handling and disposal.	All construction sites	Construction stage	• Waste Disposal (Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	Rdr ✓ ✓ ✓

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
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	• EIAO Guidance Note No.4/2010 • TM-EIAO	✓
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	✓ ✓ ✓

Appendix D

Calibration Certficates for Air Monitoring Equipment

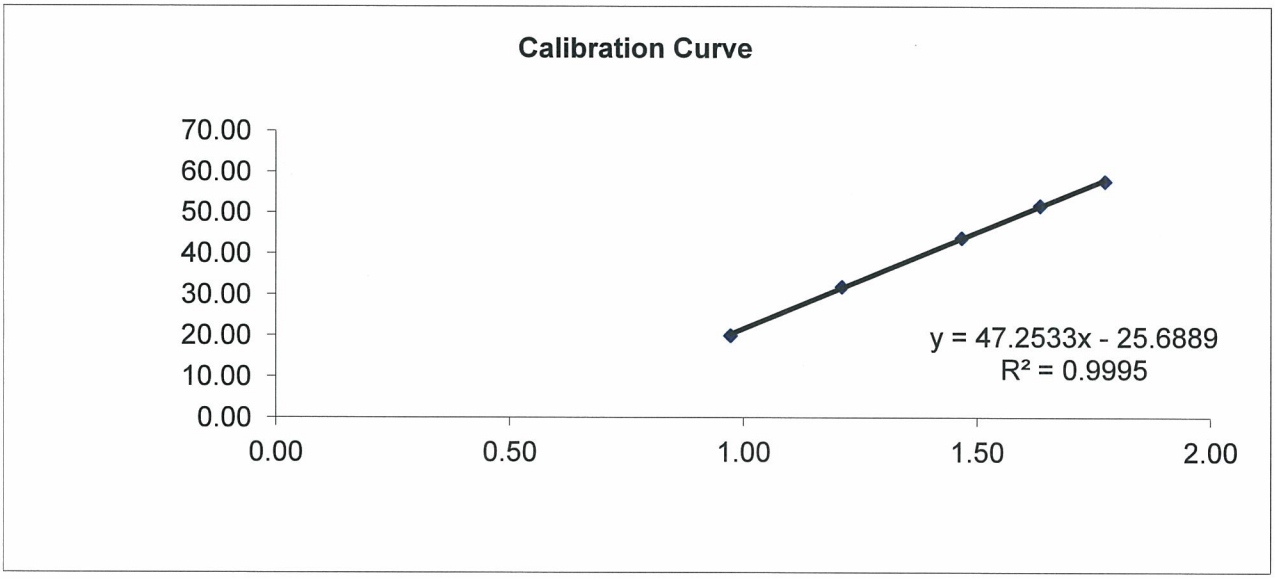
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	24-Sep-13	**Barometric pressure**	758 mm Hg
Next Calibration date	23-Nov-13	**Tempature (°C)**	27 °C
Sampler location	DMS1 - Thomas Cheung School	**Tempature (K)**	300 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3763	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.0458
Intercept of the standard curve, b_s	0.0019

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	20.00	0.97	19.91
7	6.20	32.00	1.21	31.85
10	9.10	44.00	1.47	43.80
13	11.30	52.00	1.63	51.76
18	13.30	58.00	1.77	57.73



Linear Regression

Sampler slope (m) :	**47.2533**
Sampler intercept (b) :	**-25.6889**
Correlation coefficient (R^2) :	**0.9995**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 24.9.13

Checked by: _____ Date: 25-9-13

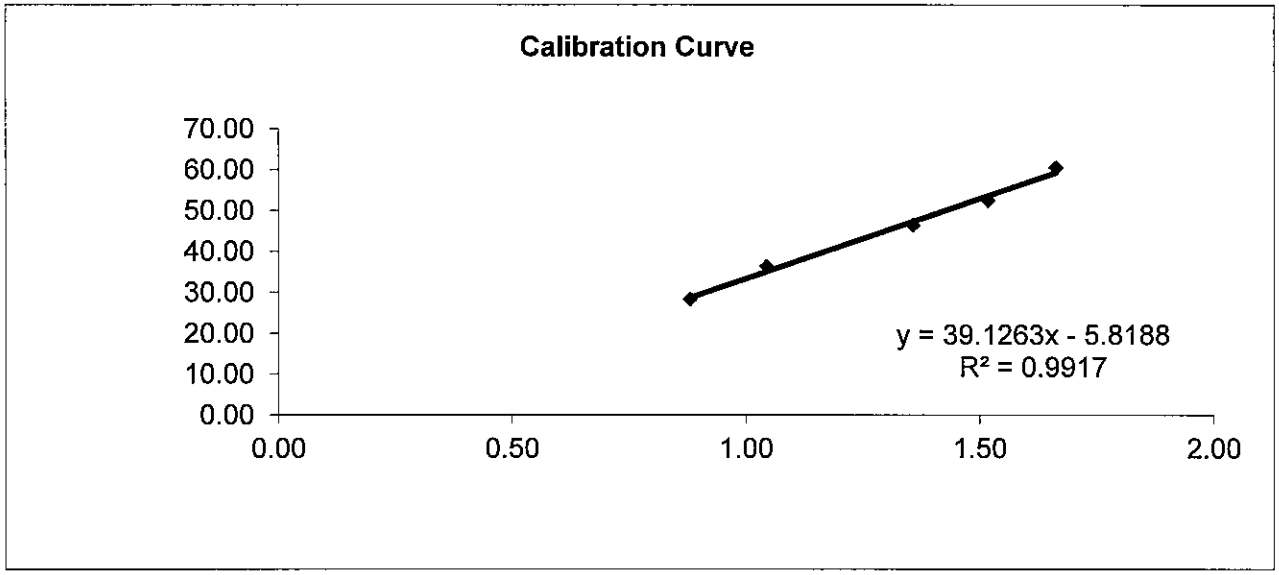
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	19-Nov-13	**Barometric pressure**	760 mm Hg
Next Calibration date	18-Jan-14	**Tempature (°C)**	20 °C
Sampler location	DMS1 - Thomas Cheung School	**Tempature (K)**	293 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3763	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.0458
Intercept of the standard curve, b_s	0.0019

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.20	28.00	0.88	28.24
7	4.50	36.00	1.04	36.31
10	7.60	46.00	1.36	46.39
13	9.50	52.00	1.52	52.44
18	11.40	60.00	1.66	60.51



Linear Regression

Sampler slope (m) :	**39.1263**
Sampler intercept (b) :	**-5.8188**
Correlation coefficient (R^2) :	**0.9917**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 19/11/13

Checked by: _____ Date: 19-11-13

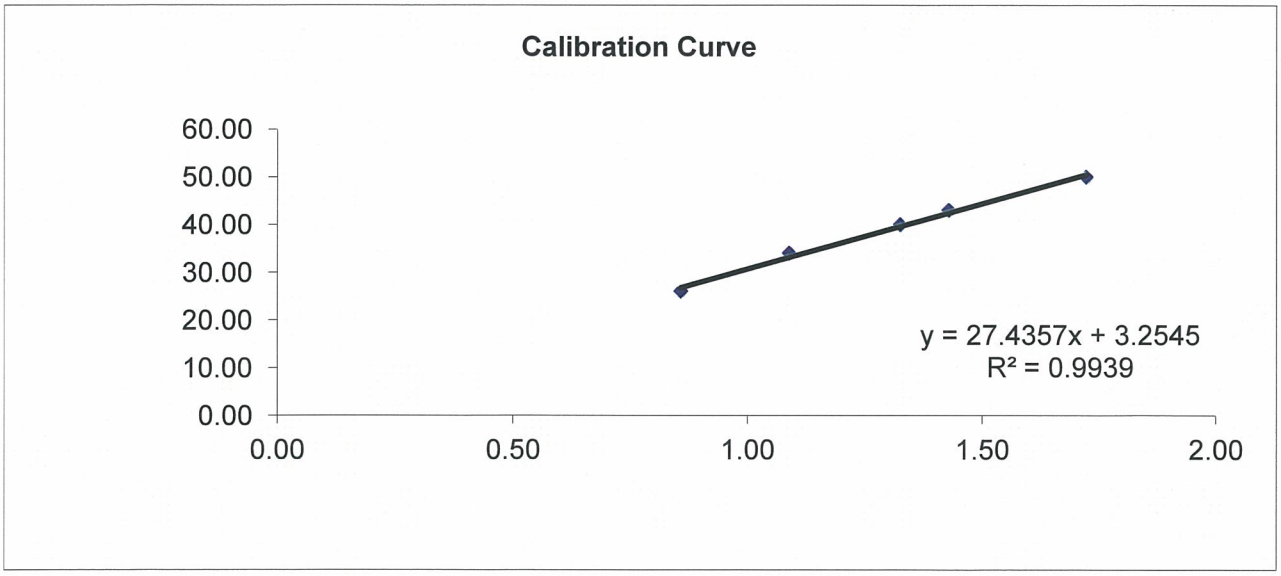
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	23-Oct-13	**Barometric pressure**	757 mm Hg
Next Calibration date	22-Dec-13	**Tempature (°C)**	25 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	**Tempature (K)**	298 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3761	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.0458
Intercept of the standard curve, b_s	0.0019

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.10	26.00	0.86	25.95
7	5.00	34.00	1.09	33.93
10	7.40	40.00	1.33	39.92
13	8.60	43.00	1.43	42.92
18	12.50	50.00	1.72	49.90



Linear Regression

Sampler slope (m) :	**27.4357**
Sampler intercept (b) :	**3.2545**
Correlation coefficient (R^2) :	**0.9939**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 23-10-13

Checked by: D Fellowes Date: 24-10-13

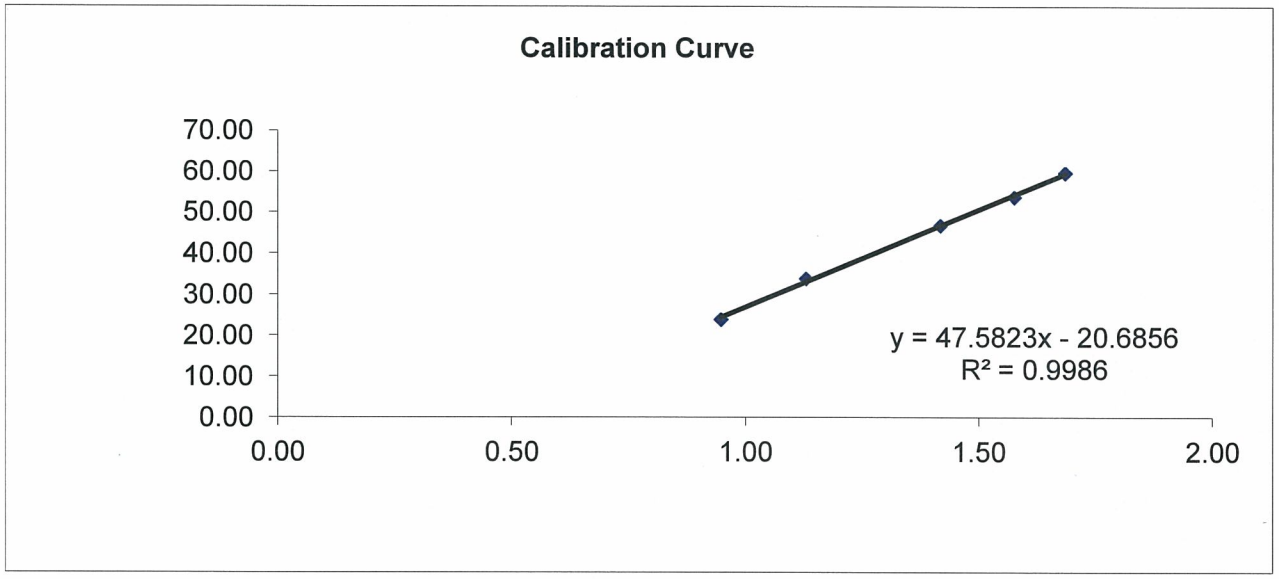
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	24-Sep-13	**Barometric pressure**	758 mm Hg
Next Calibration date	23-Nov-13	**Tempature (°C)**	27 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	**Tempature (K)**	300 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3762	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.0458
Intercept of the standard curve, b_s	0.0019

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.80	24.00	0.95	23.89
7	5.40	34.00	1.13	33.84
10	8.50	47.00	1.42	46.78
13	10.50	54.00	1.58	53.75
18	12.00	60.00	1.68	59.72



Linear Regression

Sampler slope (m) :	**47.5823**
Sampler intercept (b) :	**-20.6856**
Correlation coefficient (R^2) :	**0.9986**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 24.9.13

Checked by: D Rollinson Date: 25-9-13

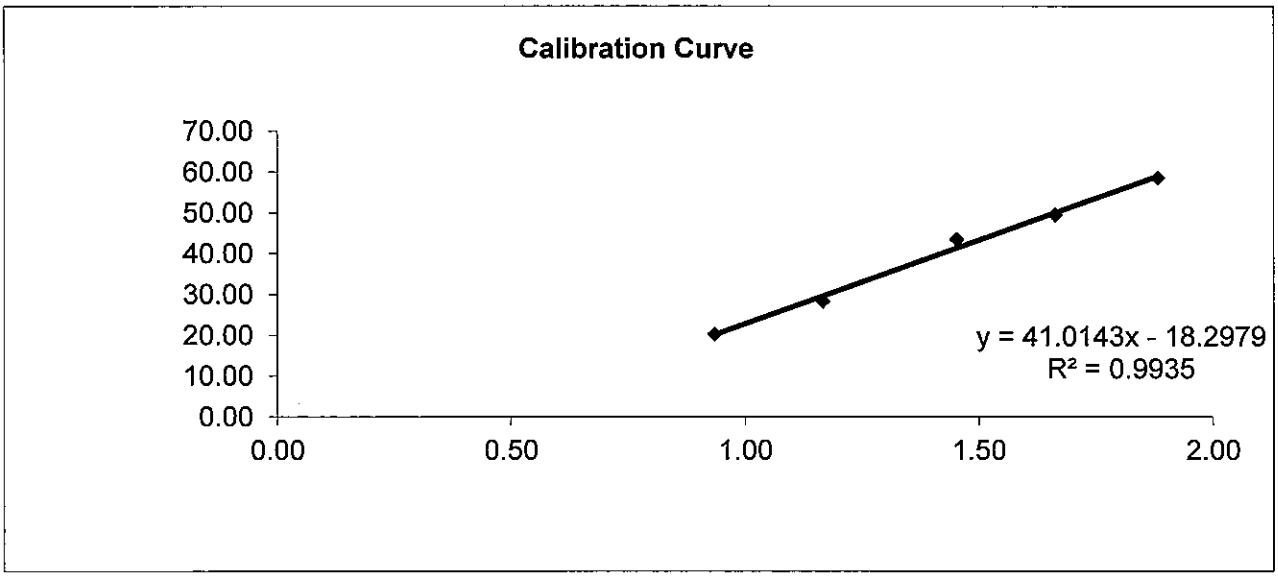
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	19-Nov-13	**Barometric pressure**	760 mm Hg
Next Calibration date	18-Jan-14	**Tempature (°C)**	20 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	**Tempature (K)**	293 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3762	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.0458
Intercept of the standard curve, b_s	0.0019

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	20.00	0.93	20.17
7	5.60	28.00	1.17	28.24
10	8.70	43.00	1.45	43.37
13	11.40	49.00	1.66	49.42
18	14.60	58.00	1.88	58.49



Linear Regression

Sampler slope (m) :	**41.0143**
Sampler intercept (b) :	**-18.2979**
Correlation coefficient (R^2) :	**0.9935**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 19-11-13

Checked by: _____ Date: 19-11-13

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 21, 2013 Rootsmeter S/N 0438320 Ta (K) - 293
Operator Tisch Orifice I.D. - 2421 Pa (mm) - 759.46

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	1.4550	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9140	7.9	5.00
4	NA	NA	1.00	0.8680	8.8	5.50
5	NA	NA	1.00	0.7180	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0120	0.6955	1.4257		0.9958	0.6844	0.8784
1.0078	0.9842	2.0163		0.9916	0.9683	1.2423
1.0057	1.1003	2.2543		0.9895	1.0826	1.3889
1.0045	1.1573	2.3643		0.9884	1.1387	1.4567
0.9992	1.3916	2.8514		0.9831	1.3692	1.7568
Qstd slope (m) =		2.04580		Qa slope (m) =		1.28105
intercept (b) =		0.00190		intercept (b) =		0.00117
coefficient (r) =		0.99997		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}

Appendix E

Dust Results

Location: DMS-1 - C.U.H.K.A.A. Thomas Cheung School

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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
033690	Nov-13	2-Nov-13	00:00	00:00	DMS1	Cloudy	Normal Operation	755.0	755.0	26.0	26.0	44.0	42.0	3.6639	3.7731	0.1092	1.4702	1.4281	1.4492	1176.29	1200.29	1440.00	2086.78	52.3	148.7	260.0
033694	Nov-13	6-Nov-13	00:00	00:00	DMS1	Fine	Normal Operation	757.0	758.0	26.0	27.0	42.0	42.0	3.6935	3.7813	0.0878	1.4293	1.4283	1.4288	1200.29	1224.29	1440.00	2057.47	42.7	148.7	260.0
033695	Nov-13	12-Nov-13	00:00	00:00	DMS1	Rainy	Normal Operation	758.0	758.0	22.0	21.0	40.0	43.0	3.7044	3.8071	0.1027	1.3933	1.4586	1.4260	1224.29	1248.29	1440.00	2053.37	50.0	148.7	260.0
033623	Nov-13	18-Nov-13	00:00	00:00	DMS1	Fine	Normal Operation	758.0	760.0	21.0	21.0	43.0	42.0	3.6593	3.6861	0.0268	1.4586	1.4385	1.4486	1248.29	1272.29	1440.00	2085.91	12.8	148.7	260.0
033626	Nov-13	23-Nov-13	00:00	00:00	DMS1	Fine	Normal Operation	757.0	759.0	21.0	22.0	42.0	46.0	3.6395	3.7929	0.1534	1.2273	1.3296	1.2785	1272.29	1296.29	1440.00	1840.97	83.3	148.7	260.0
033628	Nov-13	29-Nov-13	00:00	00:00	DMS1	Fine	Normal Operation	760.0	760.0	19.0	19.0	45.0	45.0	3.6402	3.8331	0.1929	1.3106	1.3106	1.3106	1296.29	1320.29	1440.00	1887.26	102.2	148.7	260.0

Average (µg/m3)	57.2
Max (µg/m3)	102.2
Min (µg/m3)	12.8

Location: DMS-2 Price Memorial Catholic Primary School

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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
033691	Nov-13	2-Nov-13	00:00	00:00	DMS2	Cloudy	Normal Operation	755.0	755.0	26.0	26.0	41.0	41.0	3.6821	3.8176	0.1355	1.3684	1.3684	1.3684	1032.39	1056.39	1440.00	1970.50	68.8	167.4	260.0
033692	Nov-13	6-Nov-13	00:00	00:00	DMS2	Fine	Normal Operation	757.0	758.0	26.0	27.0	42.0	41.0	3.6864	3.7923	0.1059	1.4067	1.3688	1.3878	1056.39	1080.39	1440.00	1998.36	53.0	167.4	260.0
033696	Nov-13	12-Nov-13	00:00	00:00	DMS2	Rainy	Normal Operation	758.0	758.0	22.0	21.0	41.0	41.0	3.7073	3.7578	0.0505	1.3814	1.3840	1.3827	1080.39	1104.39	1440.00	1991.09	25.4	167.4	260.0
033624	Nov-13	18-Nov-13	00:00	00:00	DMS2	Fine	Normal Operation	758.0	760.0	21.0	21.0	41.0	41.0	3.6617	3.7936	0.1319	1.3840	1.3859	1.3850	1104.39	1128.39	1440.00	1994.33	66.1	167.4	260.0
033627	Nov-13	23-Nov-13	00:00	00:00	DMS2	Fine	Normal Operation	757.0	759.0	21.0	22.0	41.0	41.0	3.6371	3.7060	0.0689	1.3830	1.3824	1.3827	1128.39	1152.39	1440.00	1991.09	34.6	167.4	260.0
033630	Nov-13	29-Nov-13	00:00	00:00	DMS2	Fine	Normal Operation	760.0	760.0	19.0	19.0	40.0	40.0	3.6466	3.7134	0.0668	1.3542	1.3542	1.3542	1152.39	1176.39	1440.00	1950.05	34.3	167.4	260.0

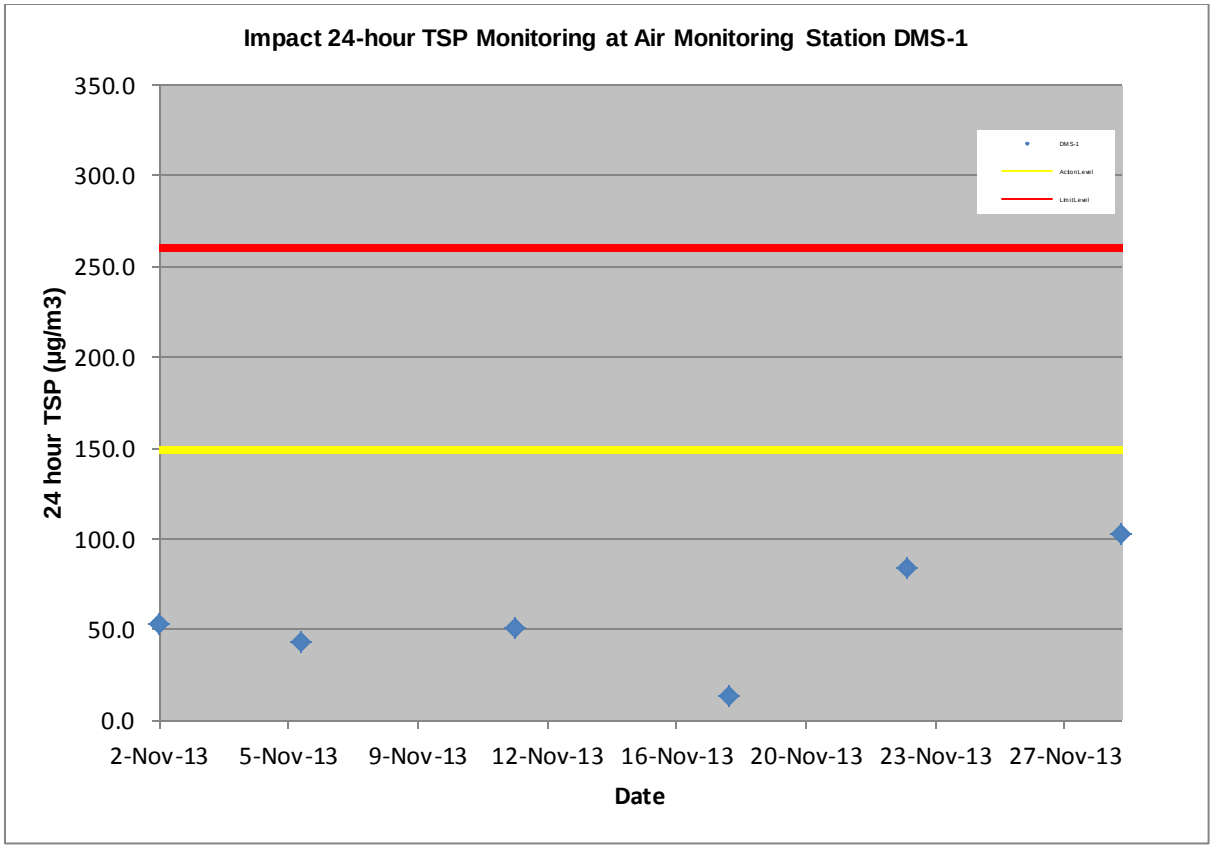
Average (µg/m3)	47.0
Max (µg/m3)	68.8
Min (µg/m3)	25.4

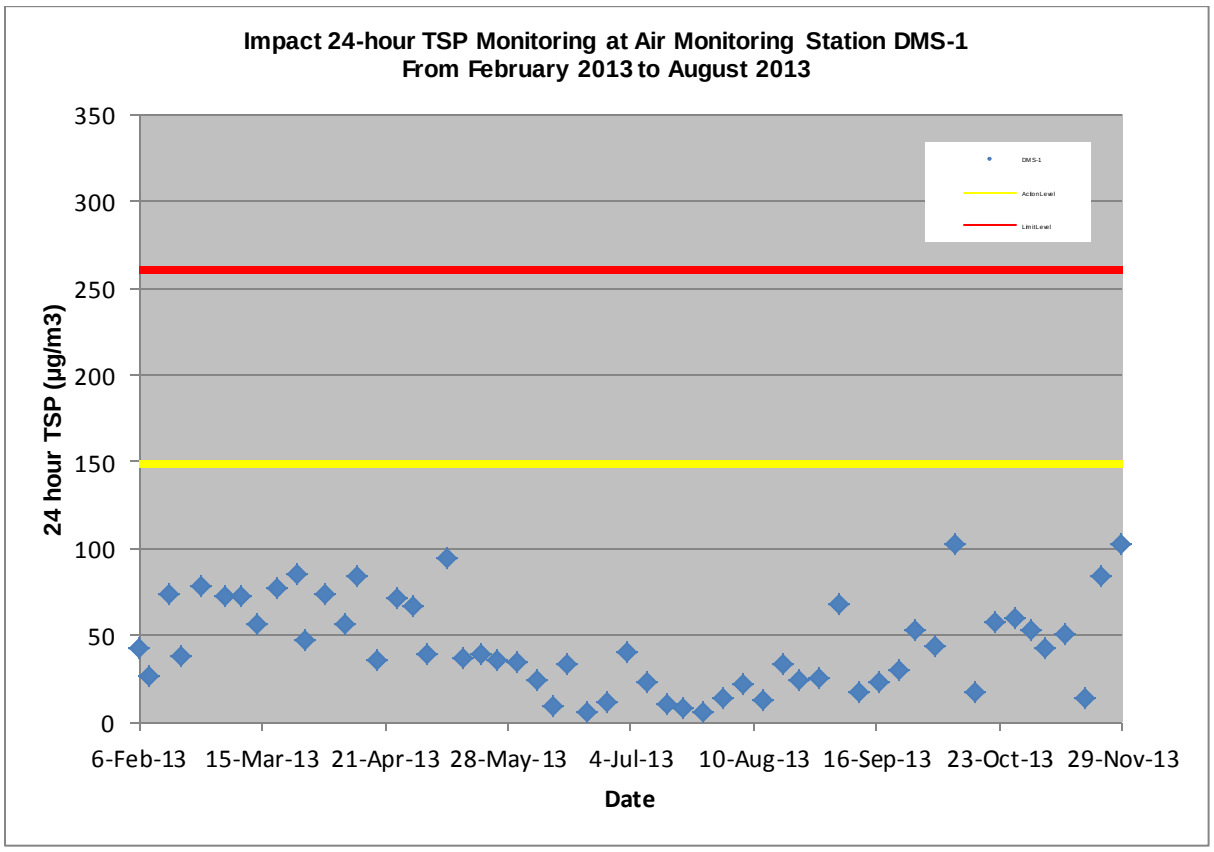
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

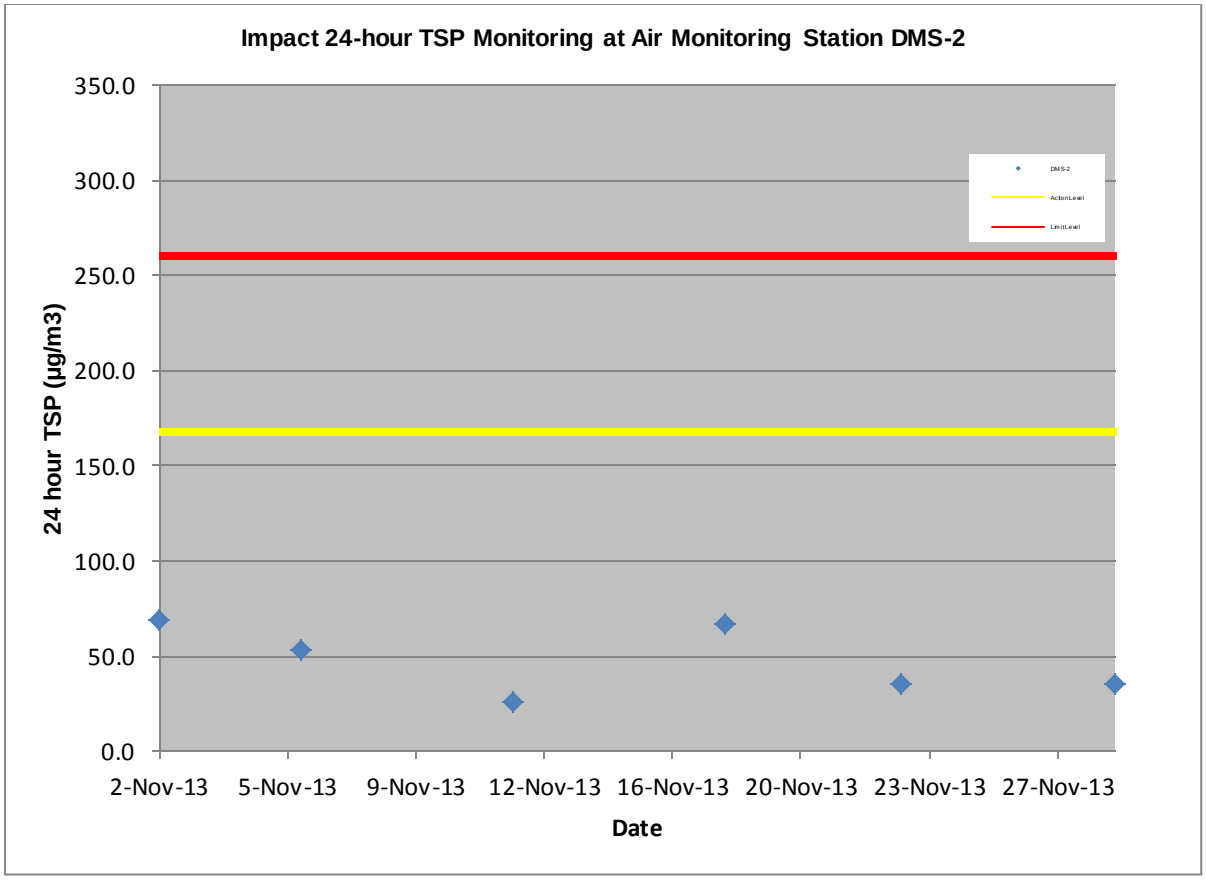
Details of 24-Hour TSP Monitoring

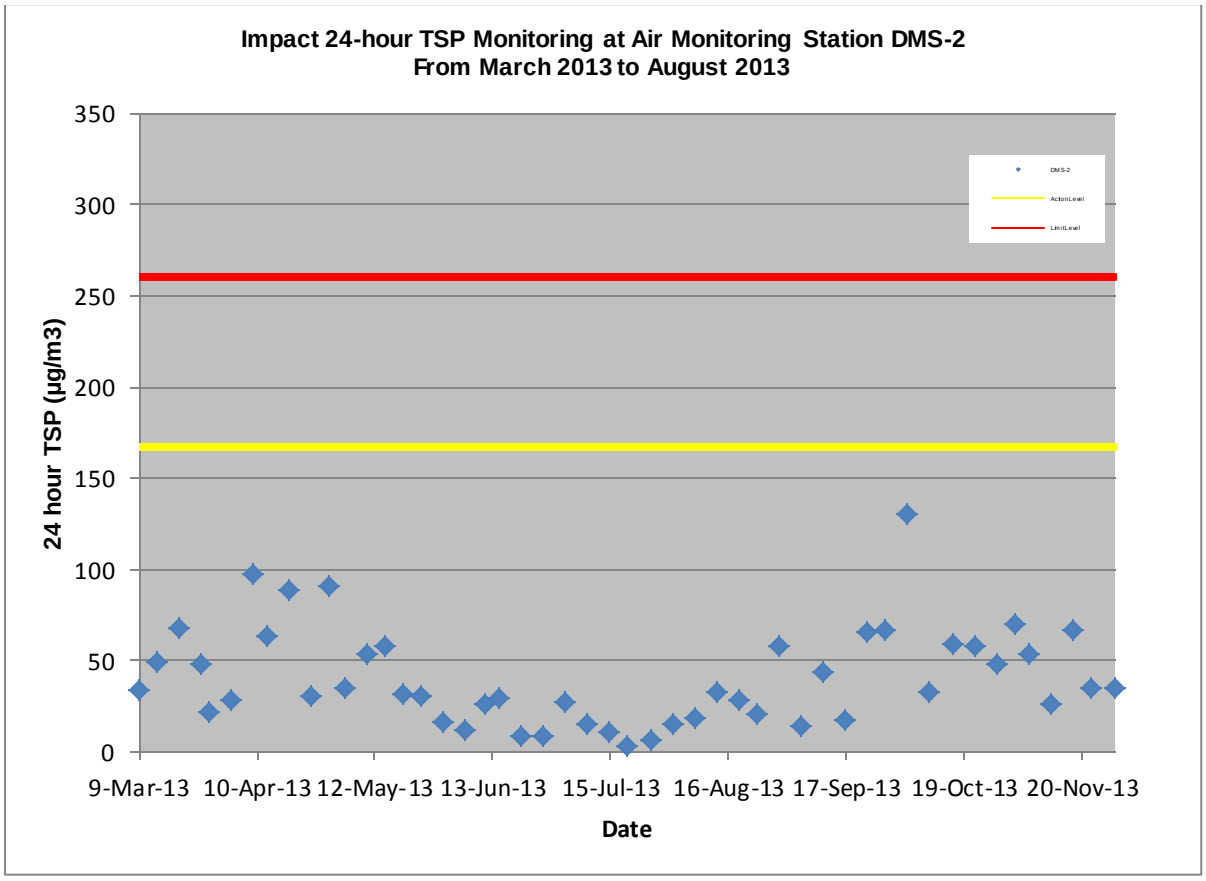
Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
033693	Nov-13	2-Nov-13	00:00	00:00	DMS3	Cloudy	Normal Operation	755.0	755.0	26.0	26.0	42.0	41.0	3.6911	3.7911	0.1000	1.3130	1.2921	1.3026	1176.40	1200.40	1440.00	1875.67	53.3	159.1	260.0
033621	Nov-13	6-Nov-13	00:00	00:00	DMS3	Fine	Normal Operation	757.0	758.0	26.0	27.0	41.0	41.0	3.6574	3.7645	0.1071	1.2933	1.2924	1.2929	1200.40	1224.40	1440.00	1861.70	57.5	159.1	260.0
033622	Nov-13	12-Nov-13	00:00	00:00	DMS3	Rainy	Normal Operation	758.0	758.0	22.0	21.0	41.0	41.0	3.6611	3.6838	0.0227	1.2997	1.3011	1.3004	1224.40	1248.40	1440.00	1872.58	12.1	159.1	260.0
033625	Nov-13	18-Nov-13	00:00	00:00	DMS3	Fine	Normal Operation	758.0	760.0	21.0	21.0	42.0	41.0	3.6668	3.8006	0.1338	1.3222	1.3022	1.3122	1248.40	1272.40	1440.00	1889.57	70.8	159.1	260.0
033629	Nov-13	23-Nov-13	00:00	00:00	DMS3	Fine	Normal Operation	757.0	759.0	21.0	22.0	40.0	40.0	3.6450	3.6822	0.0372	1.4261	1.4257	1.4259	1272.40	1296.40	1440.00	2053.30	18.1	159.1	260.0
033631	Nov-13	29-Nov-13	00:00	00:00	DMS3	Fine	Normal Operation	760.0	760.0	19.0	19.0	40.0	40.0	3.6428	3.7338	0.0910	1.4314	1.4314	1.4314	1296.40	1320.40	1440.00	2061.22	44.1	159.1	260.0

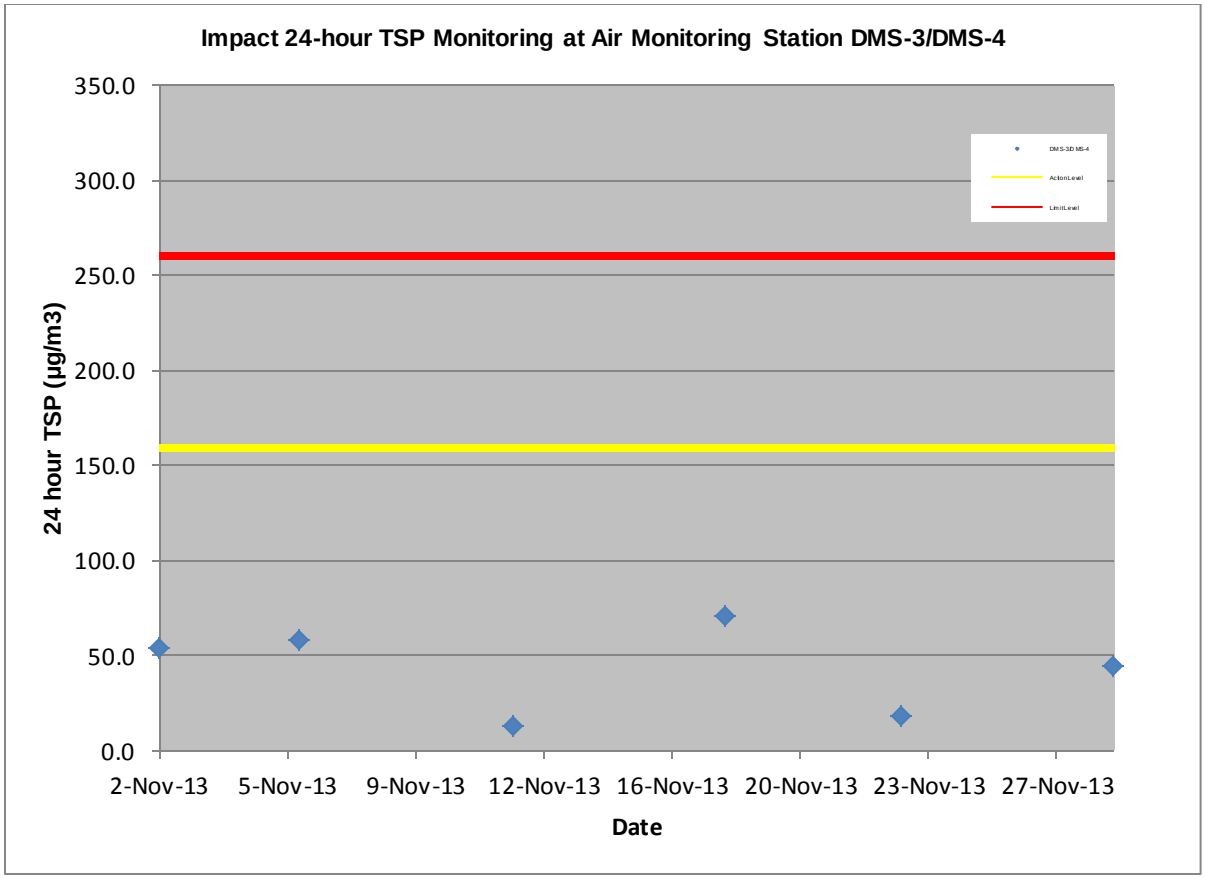
Average (µg/m3)	42.7
Max (µg/m3)	70.8
Min (µg/m3)	12.1

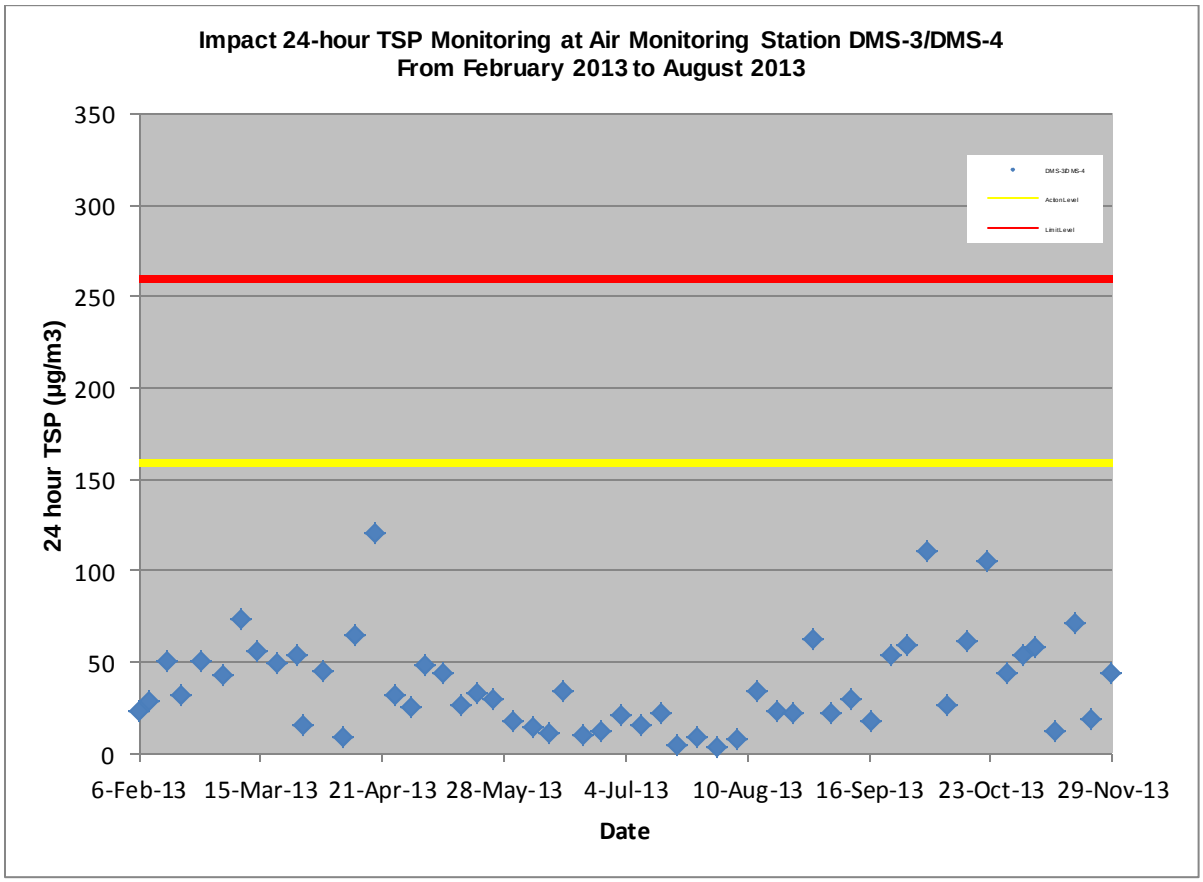

Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
24 hour TSP (µg/m3)
2-Nov-13
5-Nov-13
9-Nov-13
12-Nov-13
16-Nov-13
20-Nov-13
23-Nov-13
27-Nov-13
Date
DMS-1
ActionLevel
LimitLevel


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From February 2013 to August 2013
350
300
250
200
150
100
50
0
24 hour TSP (µg/m3)
6-Feb-13
15-Mar-13
21-Apr-13
28-May-13
4-Jul-13
10-Aug-13
16-Sep-13
23-Oct-13
29-Nov-13
Date
DMS-1
ActionLevel
LimitLevel


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
24 hour TSP (µg/m3)
2-Nov-13
5-Nov-13
9-Nov-13
12-Nov-13
16-Nov-13
20-Nov-13
23-Nov-13
27-Nov-13
Date
DMS-2
ActionLevel
LimitLevel


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
From March 2013 to August 2013
350
300
250
200
150
100
50
0
24 hour TSP (µg/m3)
9-Mar-13
10-Apr-13
12-May-13
13-Jun-13
15-Jul-13
16-Aug-13
17-Sep-13
19-Oct-13
20-Nov-13
Date
DMS-2
ActionLevel
LimitLevel


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
24 hour TSP (µg/m3)
2-Nov-13
5-Nov-13
9-Nov-13
12-Nov-13
16-Nov-13
20-Nov-13
23-Nov-13
27-Nov-13
Date
DMS-3/DMS-4
Action Level
Limit Level

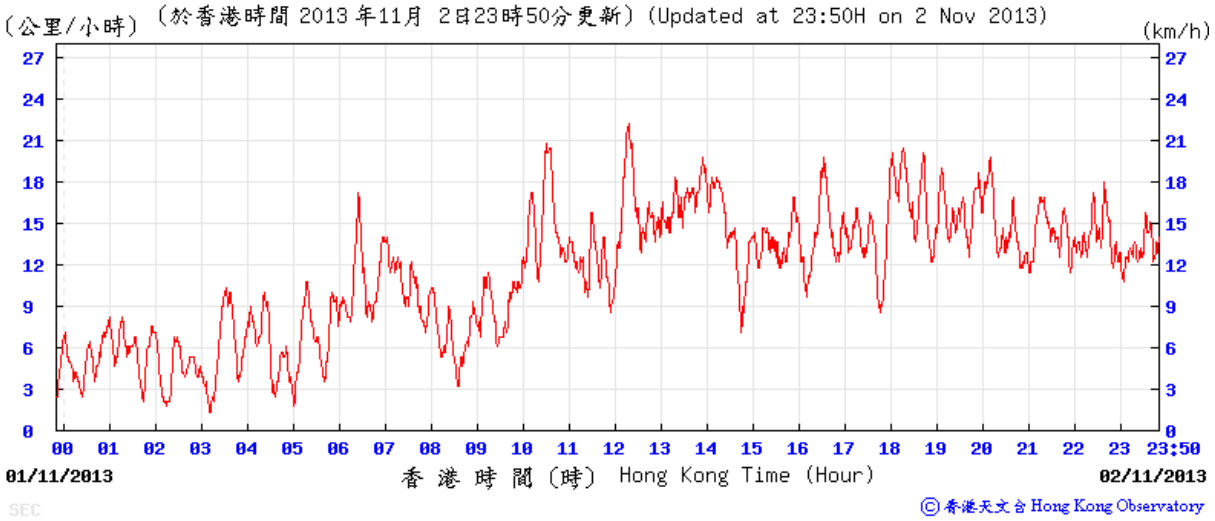

Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4
From February 2013 to August 2013
350
300
250
200
150
100
50
0
24 hour TSP (µg/m3)
6-Feb-13
15-Mar-13
21-Apr-13
28-May-13
4-Jul-13
10-Aug-13
16-Sep-13
23-Oct-13
29-Nov-13
Date
DMS-3/DMS-4
Action Level
Limit Level

Appendix F

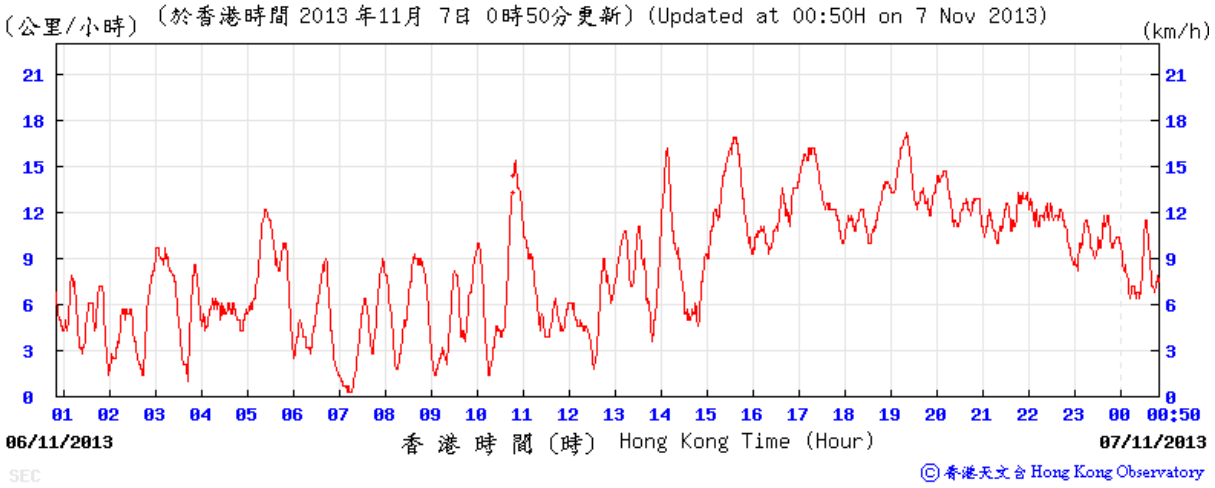
Wind data

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

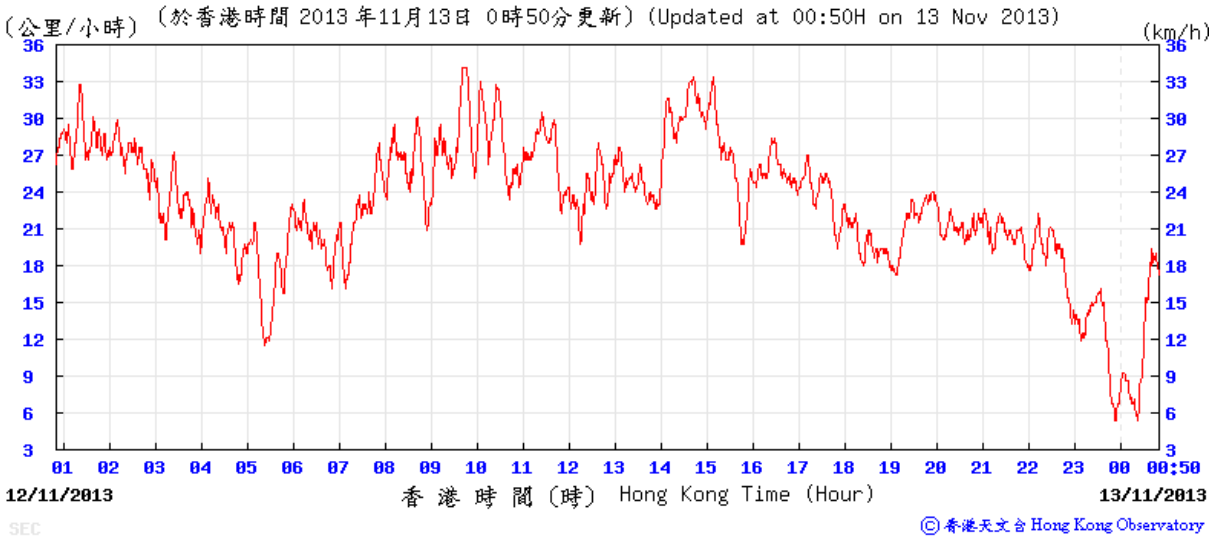
2 November 2013



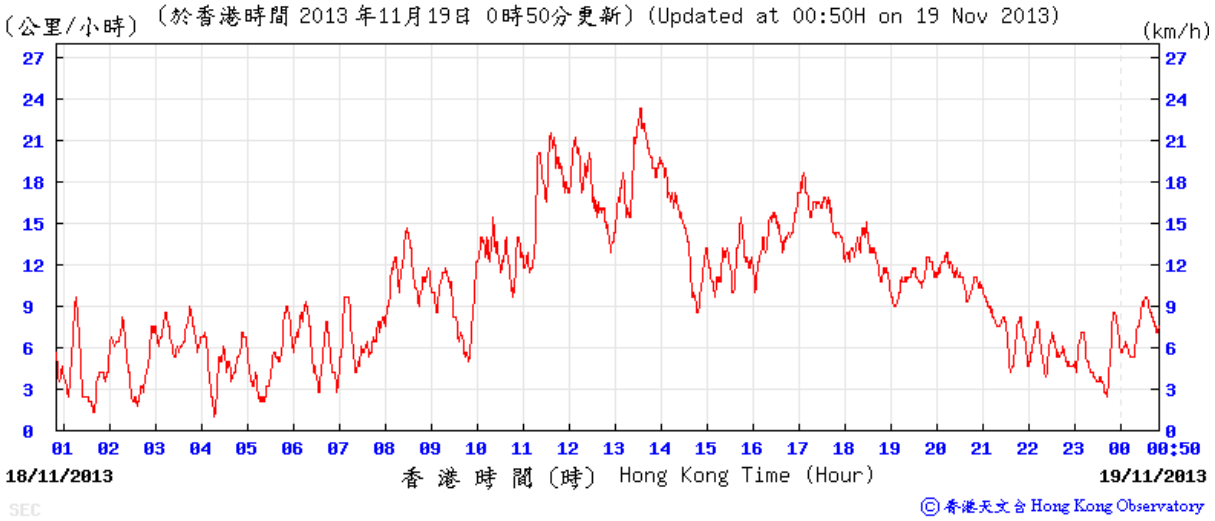
6 November 2013



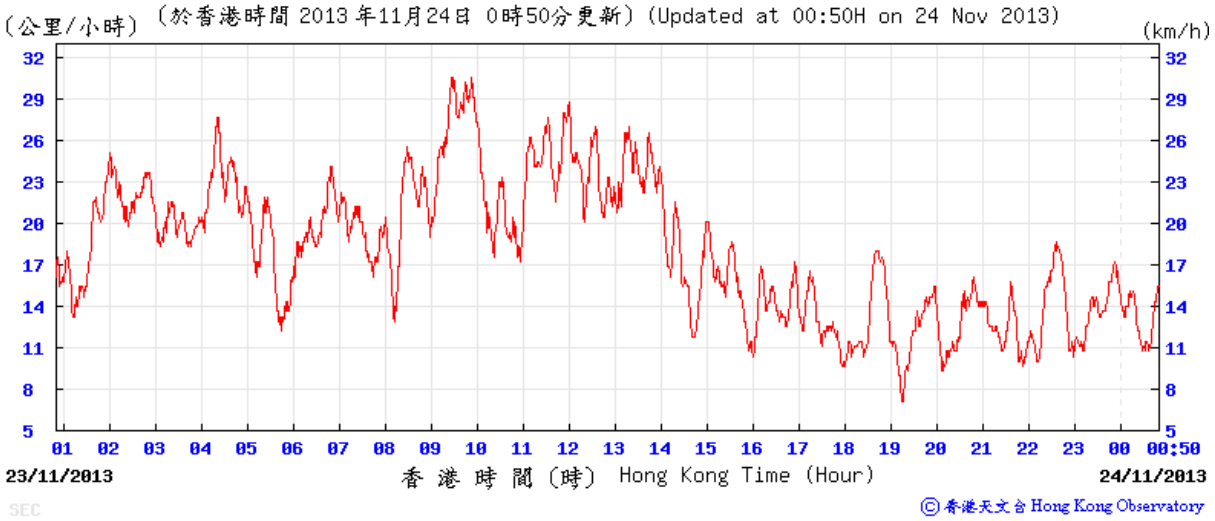
12 November 2013



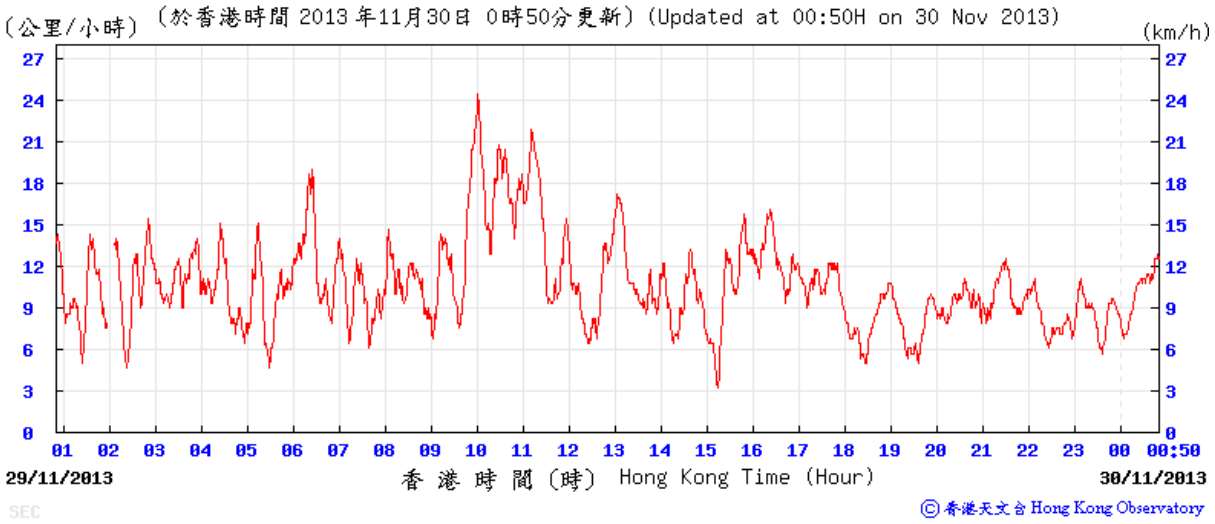
18 November 2013



23 November 2013

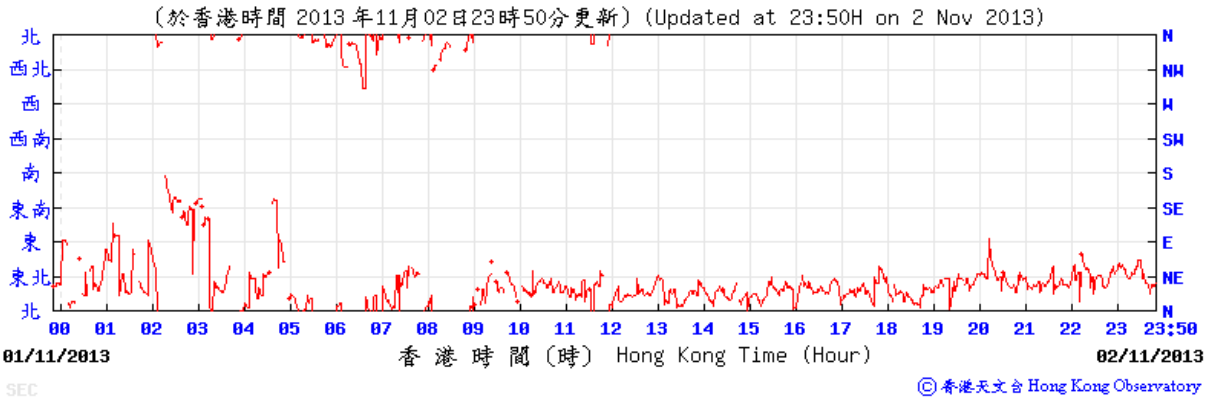


29 November 2013

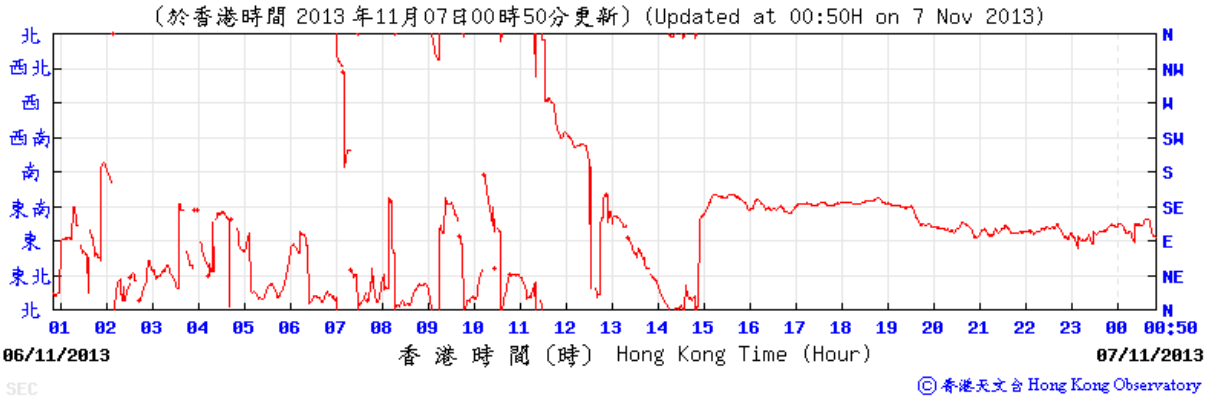


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

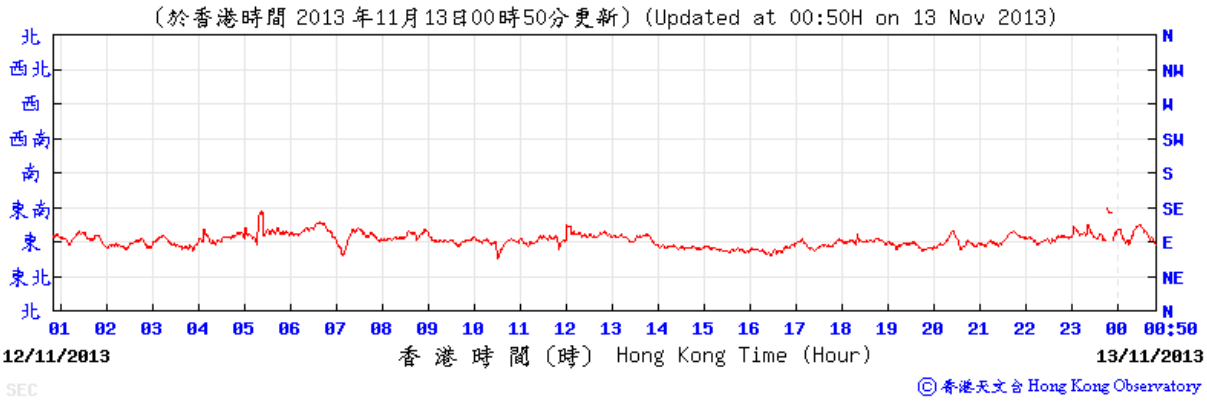
2 November 2013



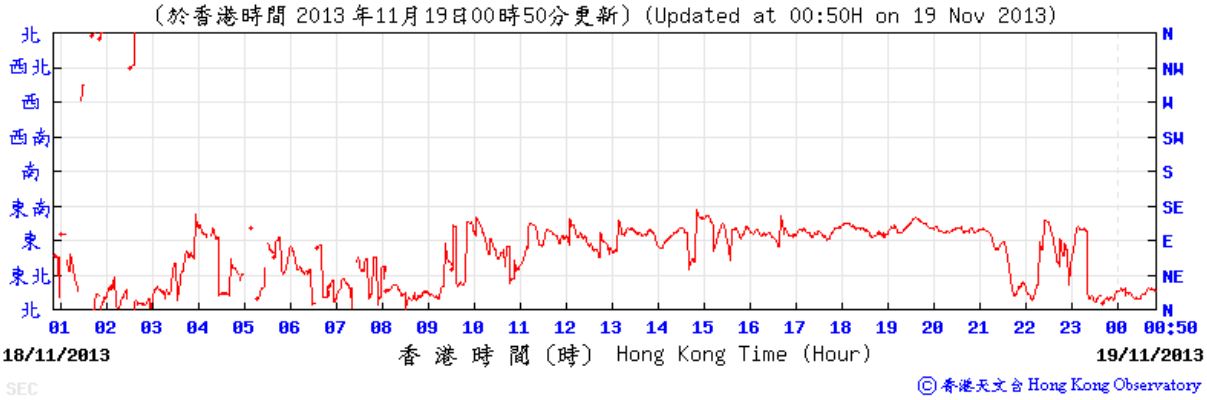
6 November 2013



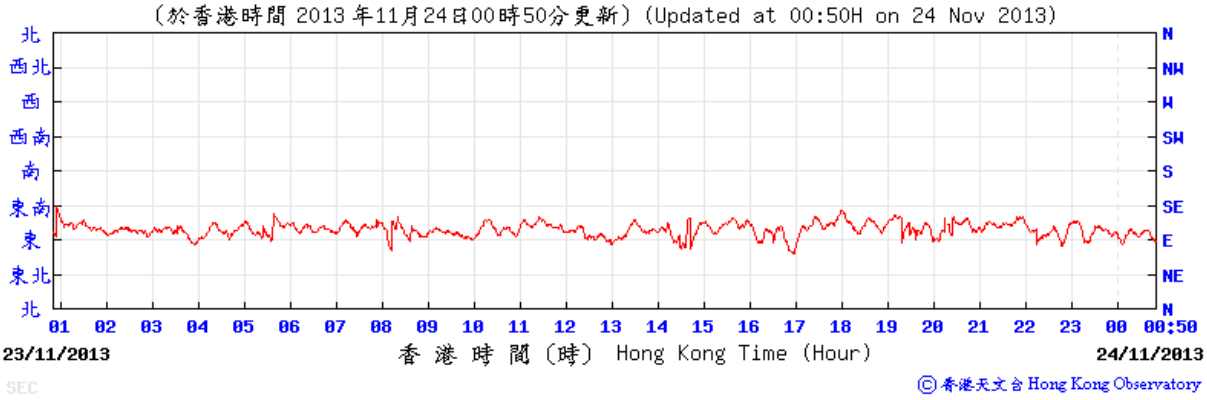
12 November 2013



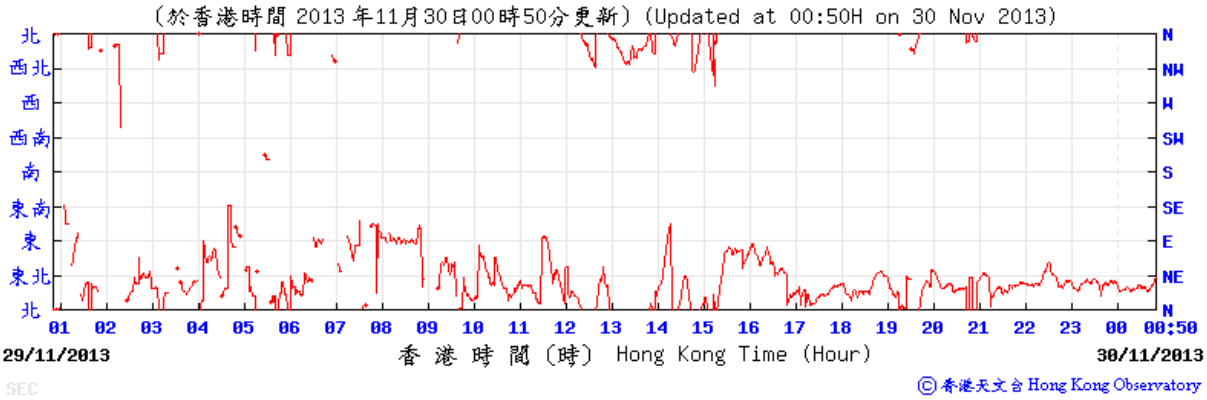
18 November 2013



23 November 2013

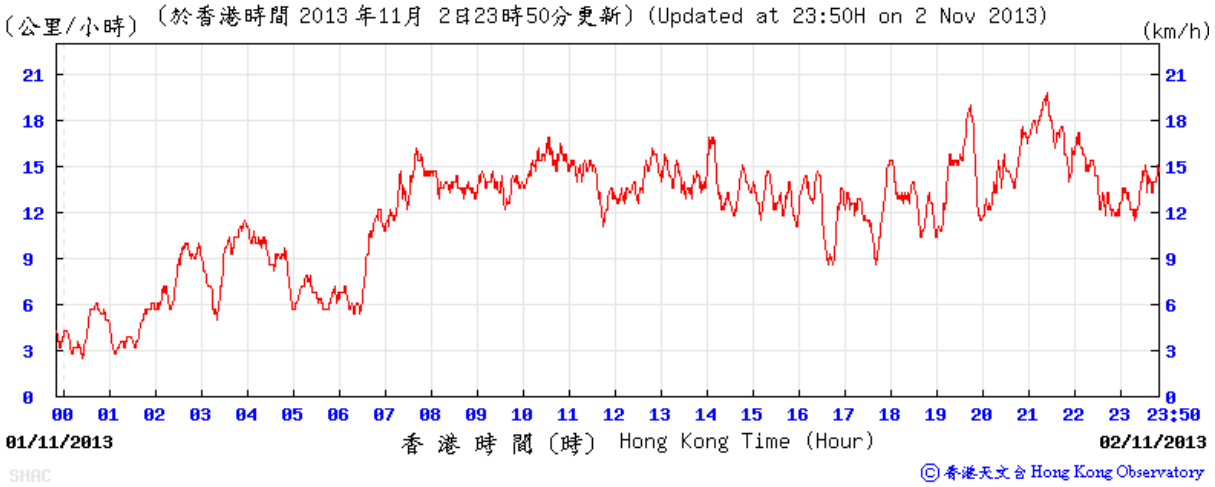


29 November 2013

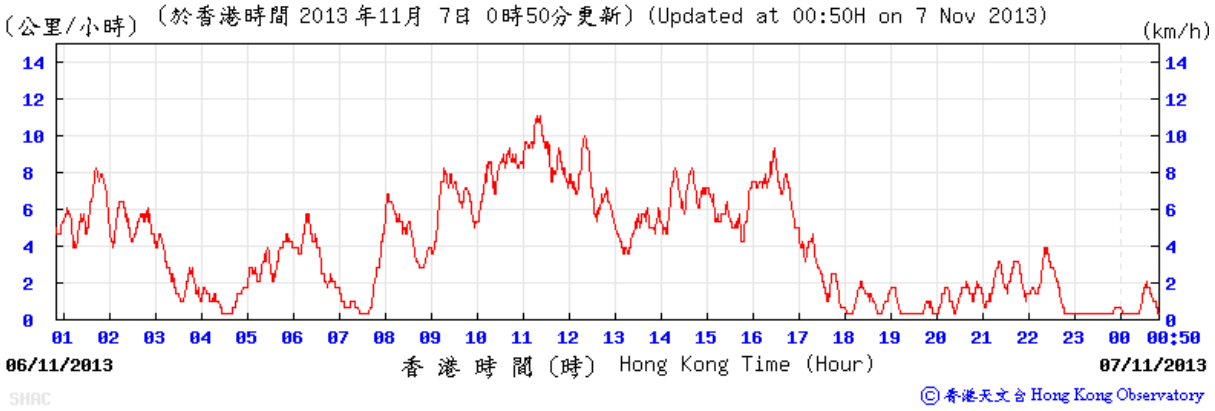


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

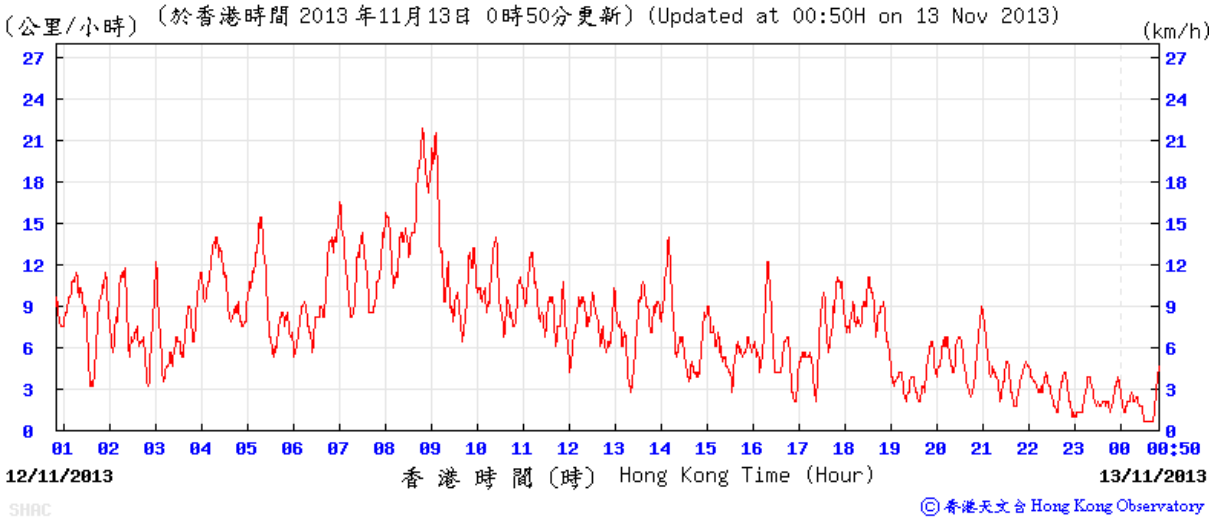
2 November 2013



6 November 2013



12 November 2013



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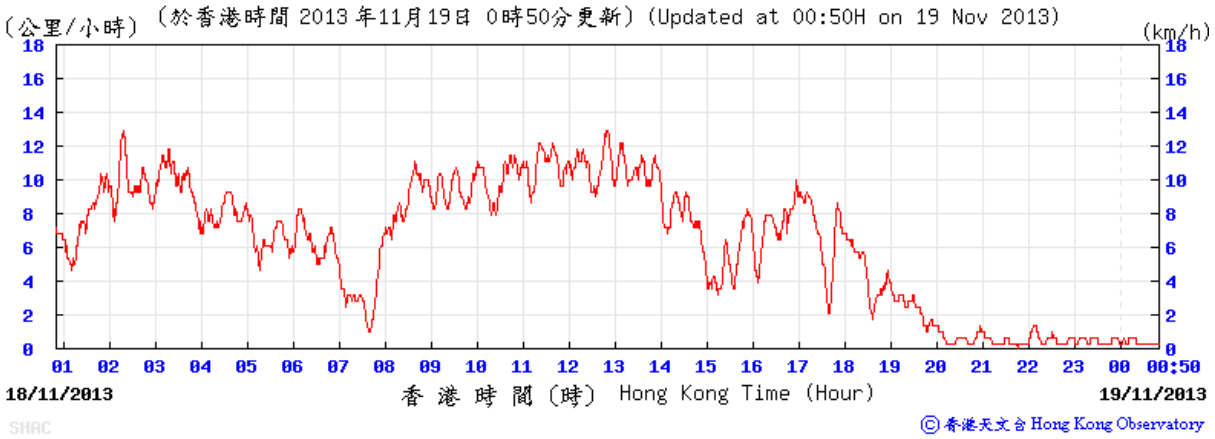
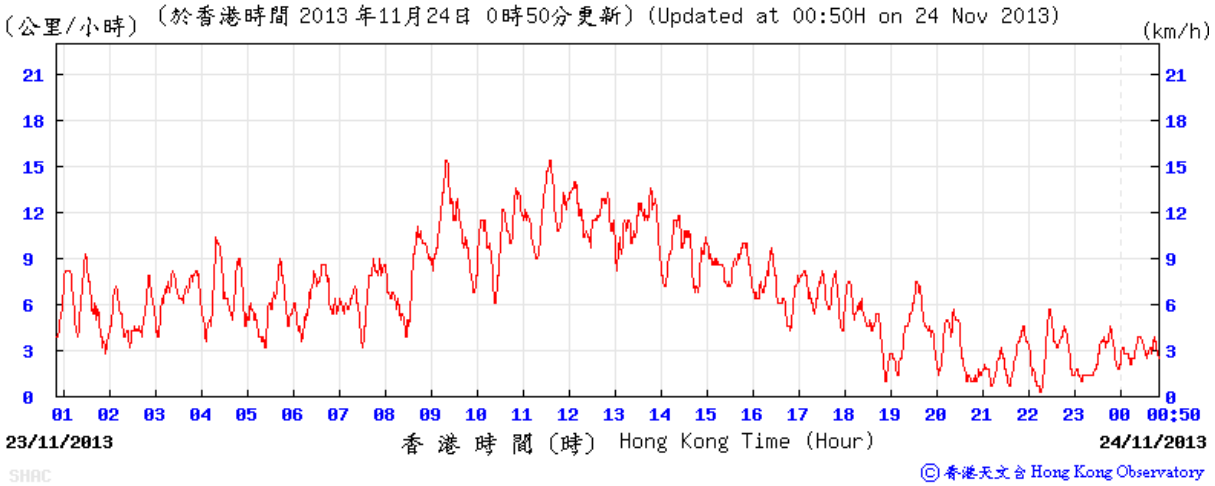
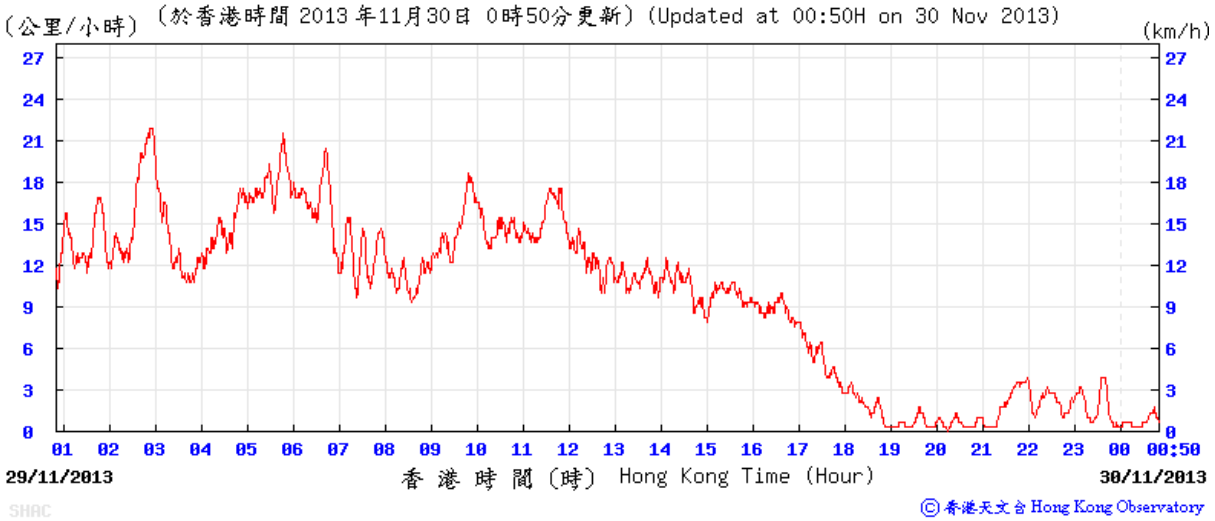


23 November 2013

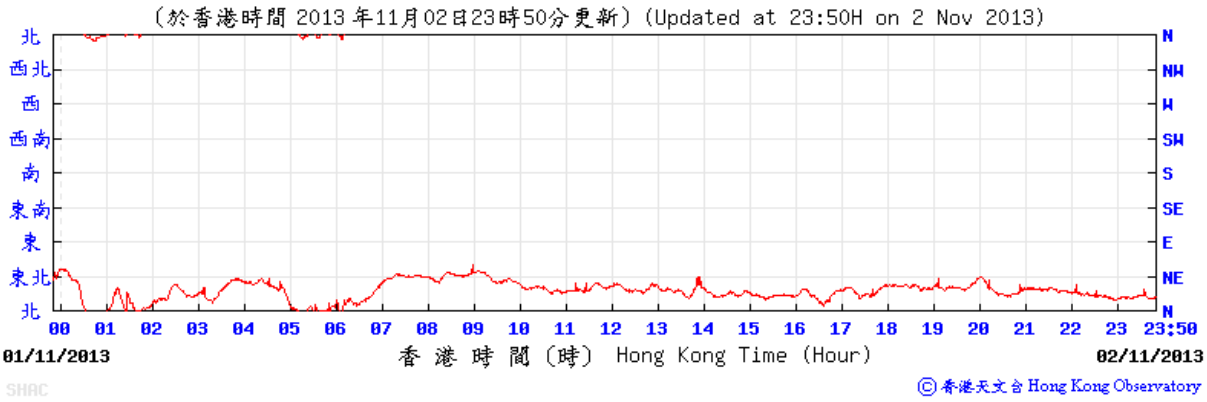


29 November 2013

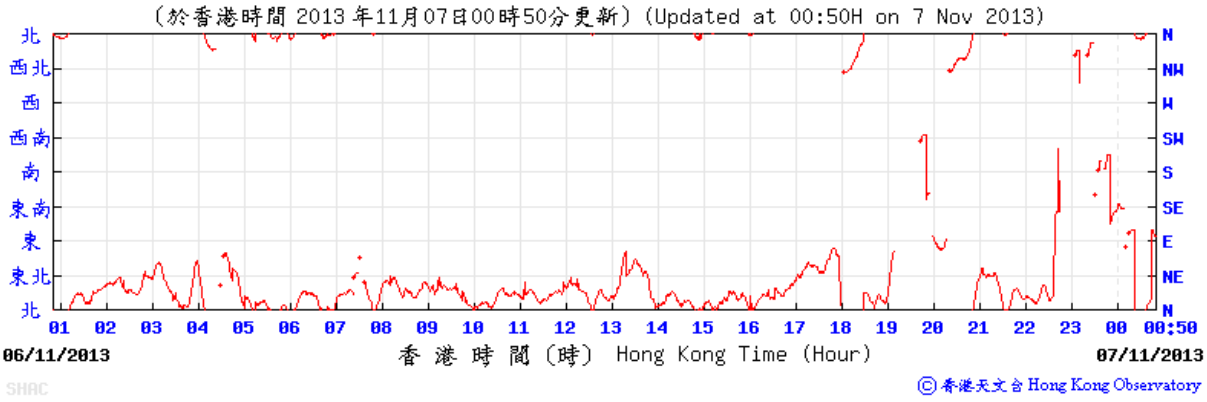


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

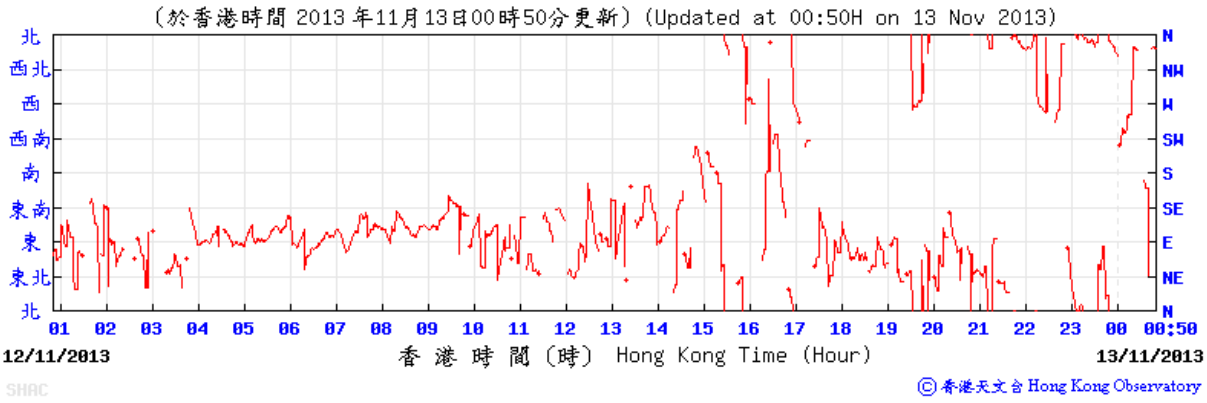
2 November 2013



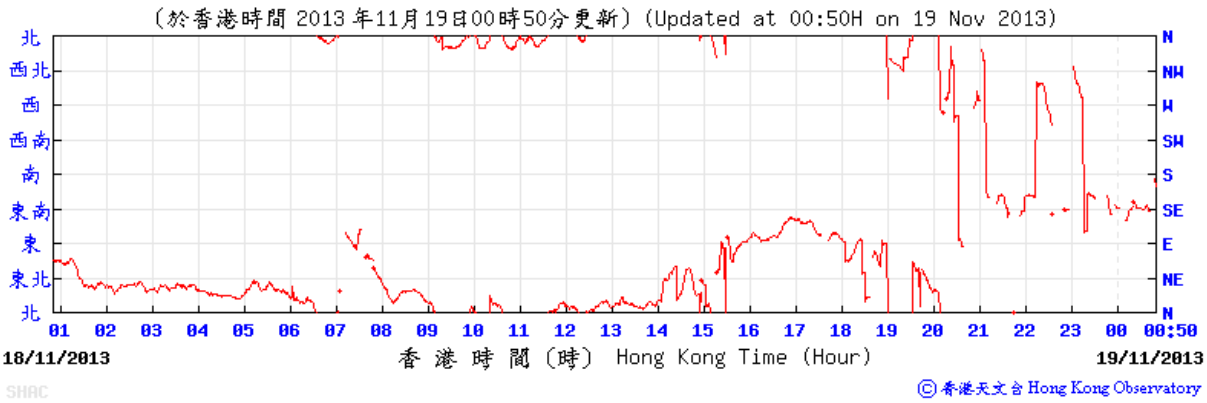
6 November 2013



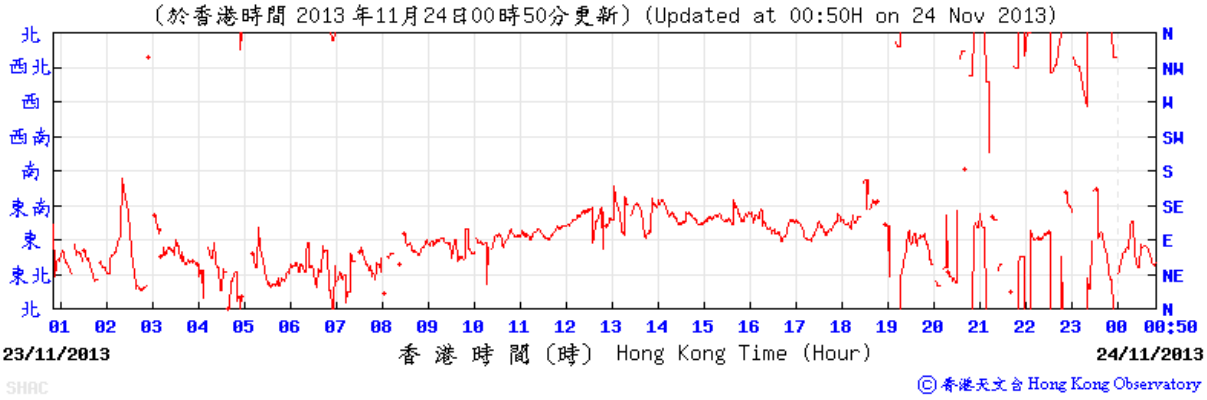
12 November 2013



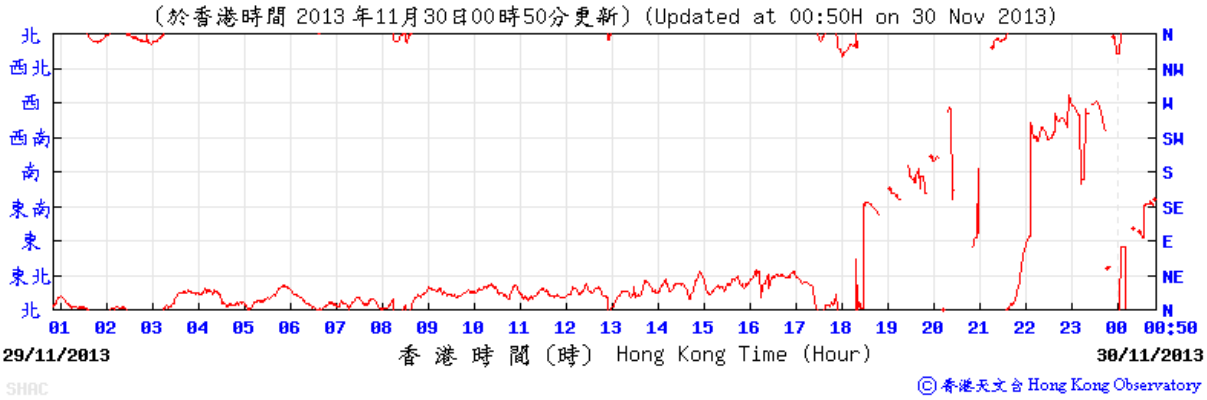
18 November 2013



23 November 2013



29 November 2013



Appendix G

Calibration Certificates of Noise Monitoring Equipment

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. : C134619
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

Description / 儀器名稱	:	Integrating Sound Level Meter
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	2238
Serial No. / 編號	:	2562763
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 ± 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 : 23 July 2013

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

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 24 July 2013

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 – 校正及檢測實驗所
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. : C134619
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 laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

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	C130019
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_{AFP}	A	F	94.00	1	94.4

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_{AFP}	A	F	94.00	1	94.1	± 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_{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

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

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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

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Certificate No. : C134619
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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_{AFP}	A	F	94.00	1	94.1	Ref.
	L_{ASP}		S			94.1	± 0.1
	L_{AIP}		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_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				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_{AFP}	A	F	94.00	31.5 Hz	54.9	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

Certificate of Calibration
校正證書

Certificate No. : C134619
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_{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-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_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	90.1	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2658559

- 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.

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
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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

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. : C134617
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

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 ± 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 : 23 July 2013

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

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 24 July 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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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. : C134617
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. 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.

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Appendix H

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_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
07-Nov-13	11:10-11:40	60.7	70.0	62.0	57.5	57.0	58.3
13-Nov-13	11:30-12:00	58.4	70.0	60.0	52.5	57.0	52.8
19-Nov-13	11:40-12:10	57.8	70.0	59.5	53.5	57.0	50.1
25-Nov-13	10:25-10:55	58.5	70.0	60.0	55.0	57.0	53.2

Notes: (*): Façade correction is included
(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average	L_{Aeq},30min	58.9
Max	L_{Aeq},30min	60.7
Min	L_{Aeq},30min	57.8

Location: NMS-CA-2 - Price Memorial Catholic Primary School

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
07-Nov-13	12:30-13:00	68.4	70.0	69.5	65.5	66.0	64.7
13-Nov-13	12:55-13:25	67.3	70.0	69.5	61.5	66.0	61.4
19-Nov-13	13:25-13:55	70.7	70.0	72.0	68.5	66.0	68.9
25-Nov-13	12:50-13:20	68.8	70.0	70.0	67.0	66.0	65.6

Notes: (*): Façade correction is included
(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

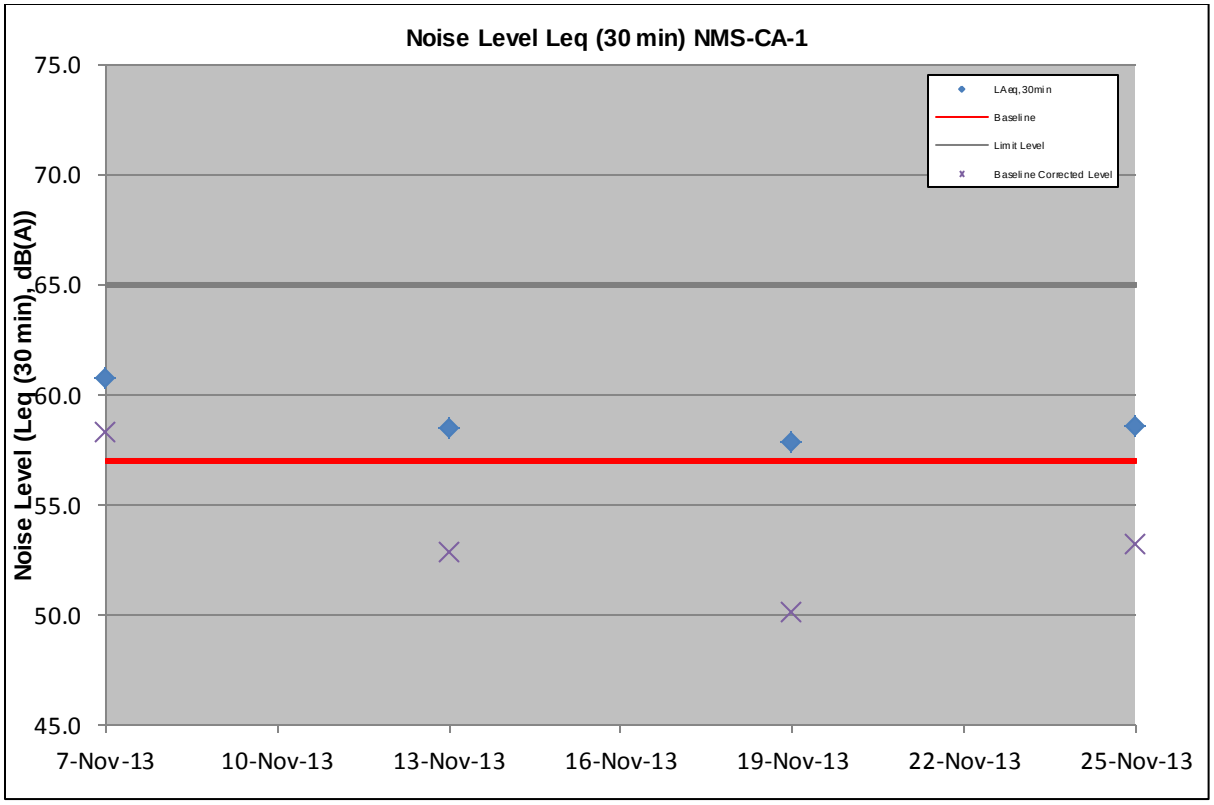
Average	L_{Aeq},30min	68.8
Max	L_{Aeq},30min	70.7
Min	L_{Aeq},30min	67.3

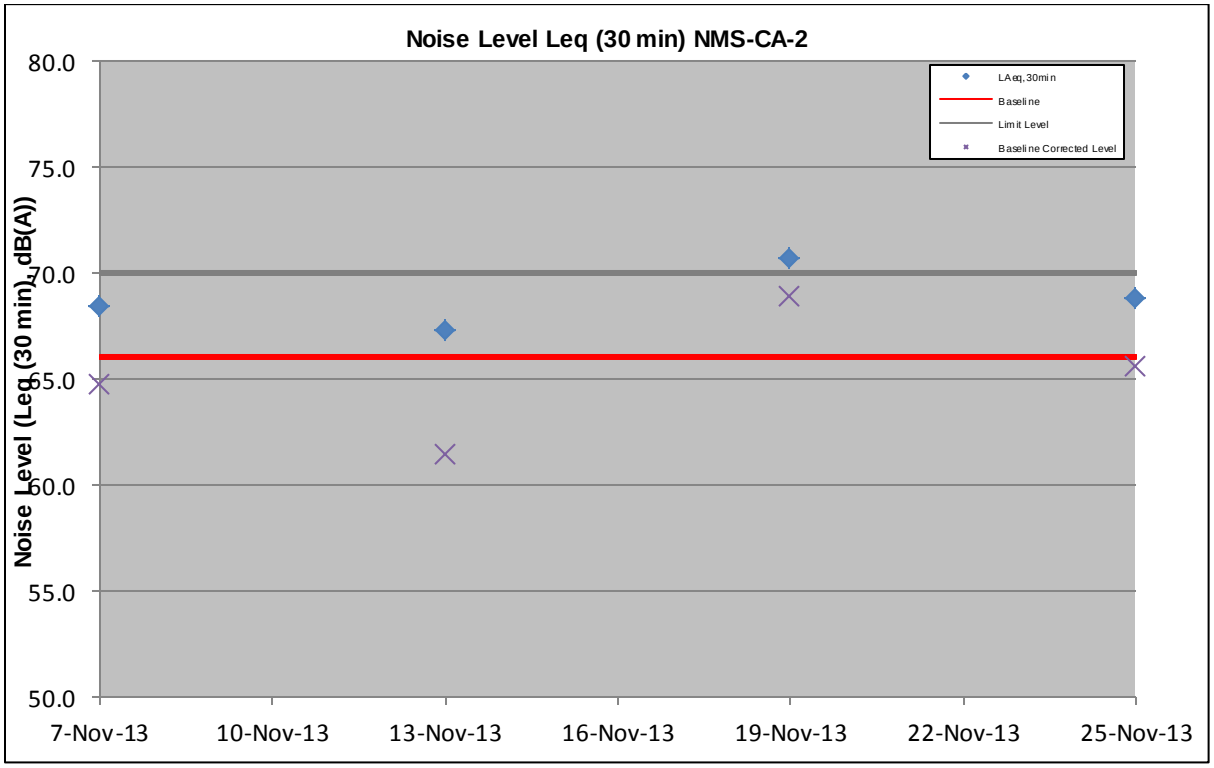
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

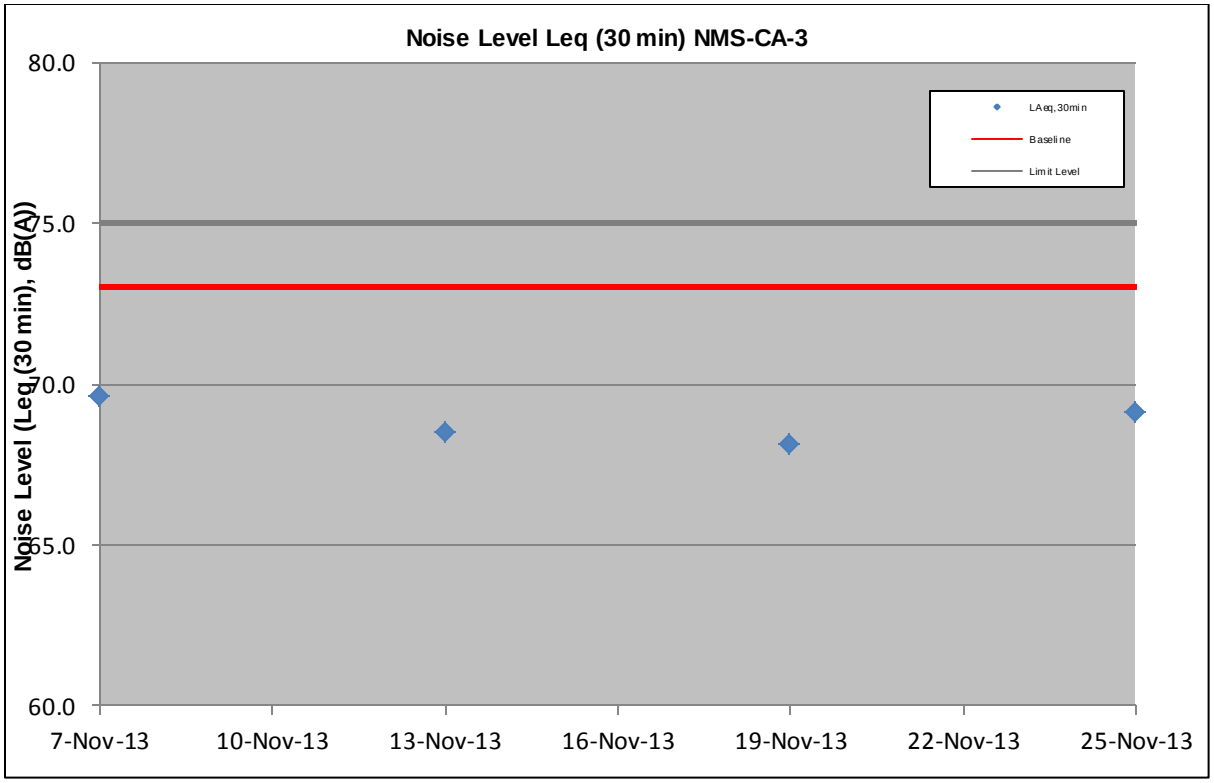
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
07-Nov-13	09:00-09:30	69.6	75.0	71.5	65.5	73.0	< Baseline Level
13-Nov-13	14:20-14:50	68.5	75.0	70.5	63.0	73.0	< Baseline Level
19-Nov-13	10:15-10:45	68.1	75.0	70.5	64.0	73.0	< Baseline Level
25-Nov-13	14:00-14:30	69.1	75.0	70.5	66.5	73.0	< Baseline Level

Notes: (*): Façade correction is included
(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average	L_{Aeq},30min	68.8
Max	L_{Aeq},30min	69.6
Min	L_{Aeq},30min	68.1


Noise Level Leq (30 min) NMS-CA-1
Noise Level (Leq (30 min), dB(A))
75.0
70.0
65.0
60.0
55.0
50.0
45.0
7-Nov-13
10-Nov-13
13-Nov-13
16-Nov-13
19-Nov-13
22-Nov-13
25-Nov-13
LAeq, 30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-2
Noise Level (Leq (30 min), dB(A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
7-Nov-13
10-Nov-13
13-Nov-13
16-Nov-13
19-Nov-13
22-Nov-13
25-Nov-13
LAeq, 30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-3
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75.0
70.0
65.0
60.0
Noise Level (Leq (30 min), dB(A))
7-Nov-13
10-Nov-13
13-Nov-13
16-Nov-13
19-Nov-13
22-Nov-13
25-Nov-13
LAeq, 30min
Baseline
Limit Level

Appendix I

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
Action Level				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER 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.
2. Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.

Limit Level				
1. Exceedance for one sample	1. Inform the IEC, Contractor 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.
2. Exceedance for two or more consecutive samples	1. Notify IEC, Contractor and EPD; 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, Contractor 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. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	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 and Action Plan for Airborne Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 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, Contractor 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	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 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 exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 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	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 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event / Action Plan for Landscape and Visual

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Note:
ET – Environmental Team
IEC – Independent Environmental Checker
ER – Engineer's Representative

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: ENV

Contract No.:MTR-SCL1103

Monthly Summary Waste Flow Table for 2013

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 (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	1.694	0.000	0.000	0.000	1.694	0.000	0.000	0.000	0.000	0.000	0.087
Feb	1.962	0.000	0.000	0.526	1.436	1.339	0.000	0.000	0.000	0.000	0.014
Mar	3.171	0.000	0.440	1.537	1.194	2.199	0.000	0.000	0.000	0.000	0.025
Apr	3.319	0.000	0.000	2.621	0.698	0.000	0.000	0.000	0.000	0.000	0.045
May	4.776	0.000	0.000	3.848	0.928	0.000	0.000	0.000	0.000	0.600	0.044
Jun	4.128	0.000	0.000	3.130	0.998	0.000	0.000	0.000	0.000	1.200	0.037
Sub-total	19.050	0.000	0.440	11.662	6.948	3.538	0.000	0.000	0.000	1.800	0.253
Jul	4.422	0.000	0.110	2.881	1.431	0.000	0.000	0.000	0.000	0.000	0.045
Aug	3.885	0.000	0.000	2.428	1.456	0.000	0.000	0.000	0.000	1.000	0.362
Sep	2.914	0.000	0.000	1.366	1.184	0.363	0.000	0.000	0.000	0.000	0.489
Oct	13.099	0.000	0.765	3.105	9.157	0.071	0.000	0.525	0.000	0.000	0.102
Nov	17.734	0.000	0.000	2.357	14.643	0.735	0.000	0.000	0.000	0.800	0.082
Dec											
Total	61.104	0.000	1.315	23.800	34.819	4.708	0.000	0.525	0.000	3.600	1.332

Comments:
1) Assumption: The densities of Rock, Soil, Mix Rock and Soil, and Regular Spoil are 2.0 ton/m3; the density of general refuse is 1.0 ton/m3; the density of waste oil is 1.0 ton/m3.
2) The cut-off date of waste amount in Nov is 28/11/2013 for TKO137FB/TM38FB, NENT landfill, and 26/11/2013 for Kai Tak 1108A.
3) The amounts of waste in Nov are 81.65 tons for NENT Landfill, 29285.5 tons for TKO137FB/TM38 FB, 4714.24 tons for Kai Tak (Contract 1108A).
4) The amount of imported fill in Nov is 1469.13 tons, for cut-off date as 28/11/2013.
5) The amount of chemcial waste in Nov is 800L for cut-off date as 28/11/2013.

Appendix K

Environmental Monitoring Programme for Coming Month

SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - December 2013

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L_{Aeq}, 30 min	
01-Dec-13 Sun			
02-Dec-13 Mon			
03-Dec-13 Tue			
04-Dec-13 Wed			
05-Dec-13 Thu			
06-Dec-13 Fri			
07-Dec-13 Sat			
08-Dec-13 Sun			
09-Dec-13 Mon			
10-Dec-13 Tue			
11-Dec-13 Wed			
12-Dec-13 Thu			
13-Dec-13 Fri			
14-Dec-13 Sat			
15-Dec-13 Sun			
16-Dec-13 Mon			
17-Dec-13 Tue			
18-Dec-13 Wed			
19-Dec-13 Thu			
20-Dec-13 Fri			
21-Dec-13 Sat			
22-Dec-13 Sun			
23-Dec-13 Mon			
24-Dec-13 Tue			
25-Dec-13 Wed			
26-Dec-13 Thu			
27-Dec-13 Fri			
28-Dec-13 Sat			
29-Dec-13 Sun			
30-Dec-13 Mon			
31-Dec-13 Tue			

	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	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

Appendix L

Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage
Environmental Complaint Log (November 2013)

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Validity to Project	Status
-	-	-	-	-	-	-	-	-	-	-	-	-

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage
Environmental Complaint Log (Cumulative)

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
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
Total	0	0	0

Appendix F

9th EM&A Report for Works Contract 1106 – Diamond Hill Station

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 9

[Period from 1 to 30 November 2013]

Works Contract 1106 – Diamond Hill Station

(December 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th December 2013

Sembawang – Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report for November 2013

(Version 1.0)

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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EXECUTIVE SUMMARY

Introduction

1. This is the 9th 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 30 November 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

- D-wall construction;
- Underpinning works and relocation of Old Pillbox; and
- Preparation work for tree transplantation.

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(1)(3)/NMS-CA-4(2)(3) (H.K. Sheng Kung Hui Nursing Home) 4 times
- NMS-CA-4(1)/NMS-CA-3(2) (Block 1, Rhythm Garden (north-eastern façade)) 4 times
- NMS-CA-5(1)/NMS-CA-2(2) (Block 1, Rhythm Garden (northern façade)) 4 times

- Construction Dust (24-hour TSP) Monitoring

Dust Monitoring Station ID

- DMS-3(1) (4) /DMS-4(2) (4) (H.K. Sheng Kung Hui Nursing Home) 6 times
- DMS-4(1)/ DMS-3(2) (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(1)/ NMS-CA-4(2) (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
(4) Dust monitoring on DMS-3(1)/ DMS-4(2) (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.

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.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 1,907 m^3 of inert C&D materials were generated from the Project and were sent to SCL1108A and Tuen Mun Area 38 Fill Bank during the reporting month. About 65 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. 1,760 kg chemical waste was collected by licensed collector during the reporting month. No plastics, but 11,020 kg steel material and 20 kg paper/cardboard packaging were collected by the recycler during this reporting month.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5 and 19 November 2013. 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 5, 12, 19 and 26 November 2013. The representative of the IEC joined the site inspection on 19 November 2013. 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 prosecutions were received in this reporting period.

Future Key Issues

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

- D-wall construction;
- Preparation work for tree transplantation;
- Vertical piling work;
- Gas Main Diversion Works at Lung Cheung Road; and
- CCTV inspection at Lung Cheung Road.

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 9th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 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) 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**.

- D-wall construction;
- Underpinning works and relocation of Old Pillbox; and
- Preparation work for tree transplantation.

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	
Environmental Permit (EP)			
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 353668	19/12/2012	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.: 7016601	27/12/2012	N/A	Valid
Registration of Chemical Waste Producer			
5213-281-S3711-01	11/01/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE1071-13	07/10/2013	06/11/2013	Expired in Nov 2013
GW-RE1076-13	07/10/2013	06/04/2014	Valid
GW-RE1077-13	11/10/2013	10/04/2014	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

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-3(1)(3)(4)/ NMS-CA-4 (2)(3)(4)	Hong Kong Sheng Kung Hui Nursing Home	Façade
NMS-CA-4(1)/ NMS-CA-3(2)	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 (1) (5)/ NMS-CA-2(2)(5)	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(1)/ NMS-CA-4(2) (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 $L_{eq,\ 5\text{-}min}$ 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	SVANTEK – SVAN 955 and 957 (Serial no.: 14303 and 21459)
Calibrator	B&K 4231 and SVANTEK – SV30A (Serial no.: 2412367, 10929 and 24803)

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 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 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

Regular Dust Monitoring Location	Description
DMS-3$^{(1)(3)(4)}$/ DMS-4$^{(2)(3)(4)}$/	Hong Kong Sheng Kung Hui Nursing Home
DMS-4$^{(1)}$ / DMS-3$^{(2)}$	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$^{(1)}$/DMS-4$^{(2)}$ (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(1)	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: 2323	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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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^3/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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±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.

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 (October 2013)	14th November 2013

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 8 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 According to school calendar of Canossa Primary School (San Po Kong), school examination was held on 25 to 29 November 2013 during the reporting period. As such, limit level of daytime construction noise at monitoring station NMS-CA-5[(1)]/NMS-CA-2[(2)] (Block 1, Rhythm Garden (northern façade)) was reduced from 70 dB(A) to 65 dB(A) during the examination period in accordance to the EM&A Manual.

5.3 The noise monitoring results recorded at NMS-CA-5[(1)]/NMS-CA-2[(2)] (Block 1, Rhythm Garden (northern façade)) on 4, 15, 20 & 26 November 2013 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as they are either below the baseline level or below the limit level after deducting the baseline level.

5.4 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.

5.5 The noise monitoring results together with their graphical presentations are presented in **Appendix F**[(3)].

5.6 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

5.7 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**[(3)] 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^3	Maximum µg/m^3	Average µg/m^3	Action Level, µg/m^3	Limit Level, µg/m^3
24-hr TSP (DMS-3[(1)(4)]/ DMS-4[(2)(4)])	12.1	70.8	42.7	159.1	260
24-hr TSP (DMS-4[(1)]/ DMS-3[(2)])	48.2	124.6	80.2	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[(1)]/DMS-4[(2)] (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

5.8 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.

5.9 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.

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

Cultural Heritage

5.11 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.

5.12 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.

Waste Management

5.13 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**. No Plastic, but 11,020 kg steel material and 20 kg paper/cardboard packaging was collected by the recycler during 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) [a]	C&D Materials (non-inert) [b]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
November 2013	1,907 m^3	65 m^3	*1,760 kg*	20 *kg*	0 *kg*	11,020 *kg*

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to SCL 1108A 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

5.14 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5 and 19 November 2013. 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 5, 12, 19, and 26 November 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 19 November 2013. 2 site visits were conducted by EPD on 6 and 20 November 2013 for effluent quality checking. 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 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
Water Quality	N/A	N/A	N/A
Noise	29 Oct 2013	Door should be kept close during the operation of the cutter. (near pillbox)	The door was closed during operation of the cutter on 5 Nov 2013.
	26 Nov 2013	Reminder: Excavator near Tree DT1885 should be switched off when not in use.	Follow up actions will be reported in next month.
Landscape and Visual	5 Nov 2013	To remove the general refuse and construction material from the tree protection area at tree DT1885.	All construction material and refuse were removed away from the tree protection area of tree DT1885 on 12 Nov 2013.
	12 Nov 2013	Reminder: Properly store the wooden planks away from the tree near the sedimentation tank.	The wooden planks were removed on 19 Nov 2013.
	19 Nov 2013	Reminder: To remove the construction materials within tree protection area. (near archaeological site)	Construction materials within the tree protection area were removed on 26 Nov 2013.
	26 Nov 2013	The Contractor was reminded to properly erect the fencing of tree protection zone near the archaeological zone.	Follow up actions will be reported in next month.
Cultural Heritage	N/A	N/A	N/A
Air Quality	29 Oct 2013	Reminder: Fully cover the cement bags properly by tarpaulin sheets at archaeological site	Cement bags was covered by tarpaulin sheets on 5 Nov 2013.

Parameters	Date	Observations and Recommendations	Follow-up
		(near descender).	
	19 Nov 2013	Reminder: The gap between the enclosures of cement/bentonite mixing facilities should be sealed to prevent dust dispersion. (near the silo tank)	The gap between the enclosures was sealed with tarpaulin sheets on 26 Nov 2013.
Waste / Chemical Management	12 Nov 2013	Reminder: Properly clear the oil stain on unpaved ground near archaeological site.	The oil stain in identified site was cleared on 19 Nov 2013.
	19 Nov 2013	To provide drip tray to contain the chemical to prevent leakage. (near Tree DT1885)	The chemical containers were removed on 26 Nov 2013.
Permits/ Licenses	N/A	N/A	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 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. 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:

- D-wall construction;
- Preparation work for tree transplantation;
- Vertical piling work;
- Gas Main Diversion Works at Lung Cheung Road; and
- CCTV inspection at Lung Cheung Road.

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 bentonite 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 30 November 2013 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 and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times.
- It is recommended particular attention should be paid to the control of silty surface runoff. Stockpiles of materials that are likely to generate silty surface runoff should be covered by impervious sheets whenever practicable.
- Concrete washing should be properly confined and treated by wastewater treatment facility before discharge.
- Slurry on the haul road should be cleared regularly to reduce the runoff generation.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.
- Idling equipment and plants should be switched off when not in use to reduce noise generation.
- Door of operating engine and other noise generation parts should be closed at all time.

Landscape and Visual

- "No-intrusion zone" should be established and maintained for existing trees as far as practicible. 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.

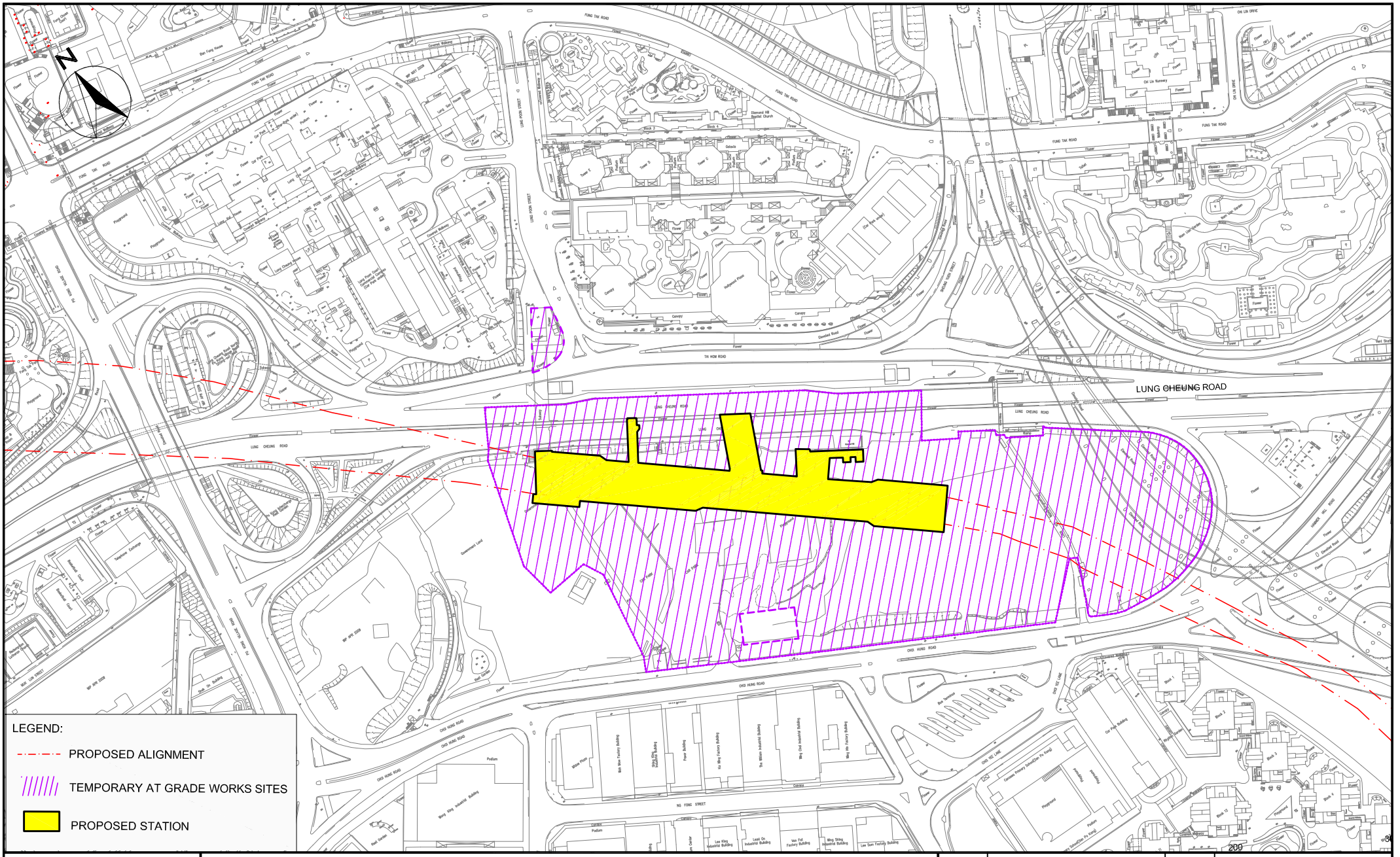
Air Quality

- Regular water spraying on site is reminded to be implemented as per EP requirement.
- 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.
- Regular maintenance should be provided to dust enclosures to ensure their proper functioning.
- Every stock of more than 20 bags of cement should be entirely covered or sheltered by impervious sheets.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained.
- On-site sorting of materials are advised to be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal whenever practicable.
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works.

FIGURES



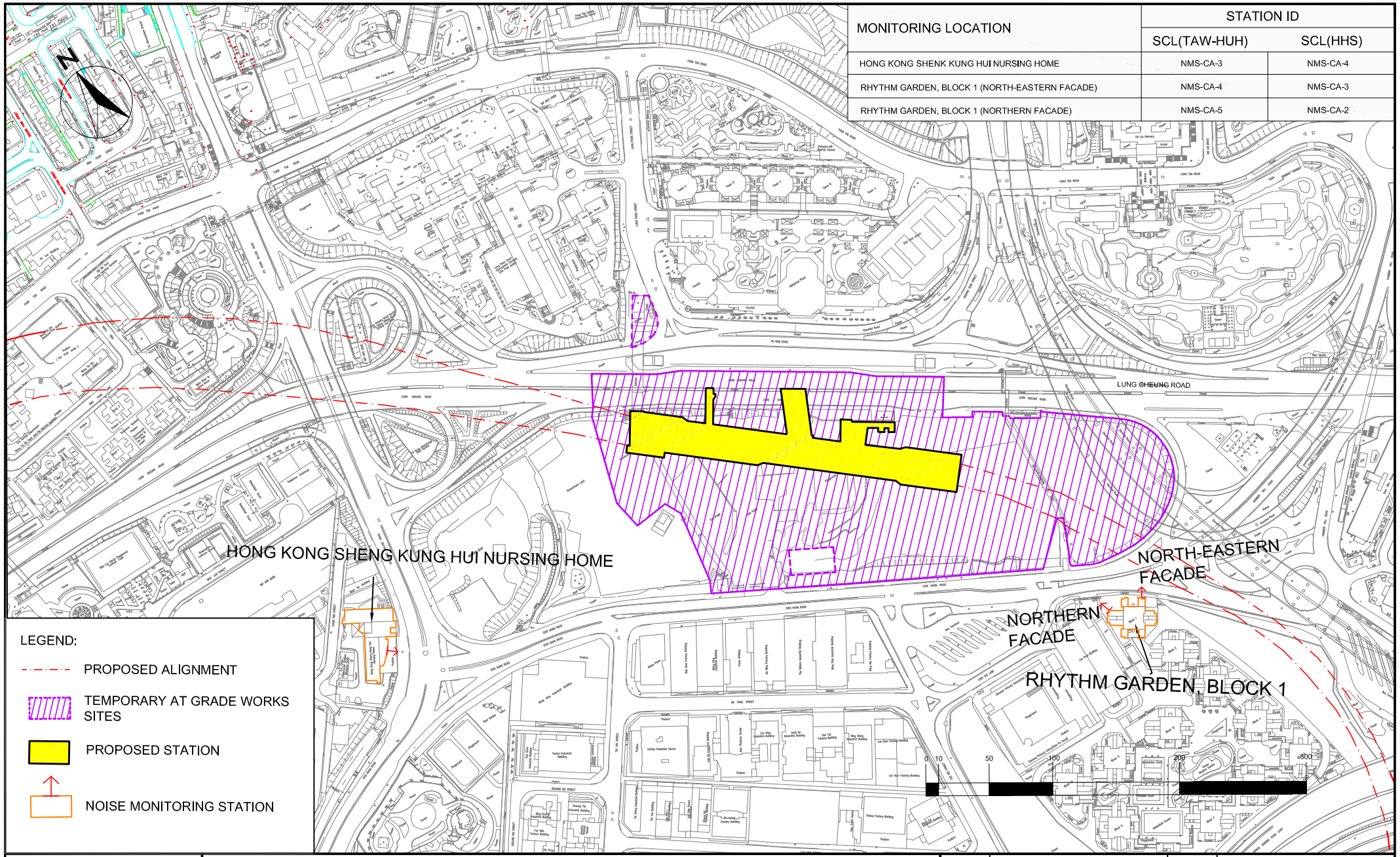
CINOTECH
Cinotech Consultants Limited

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

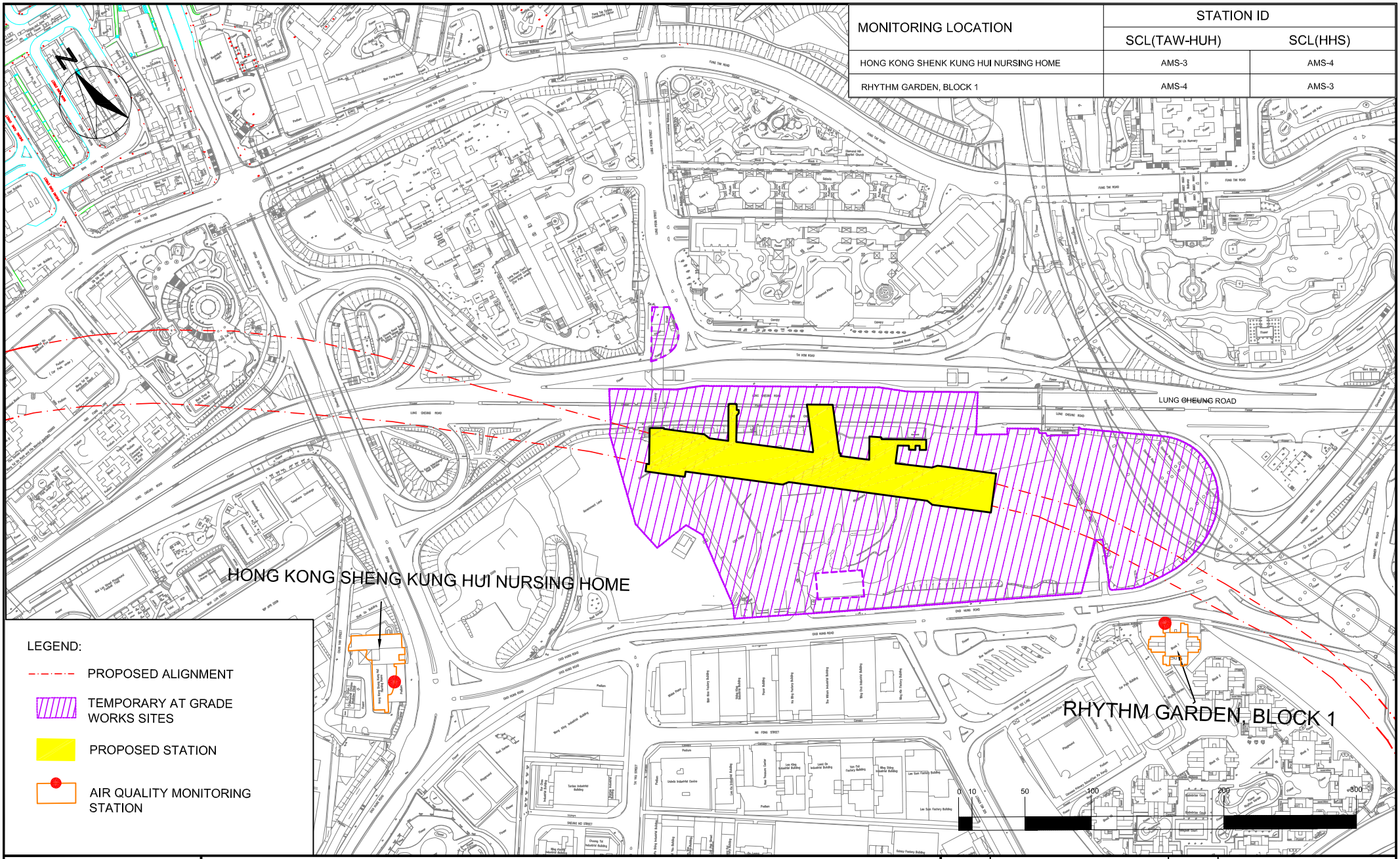


CINOTECH
Cinotech Consultants Limited

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 SHENK KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

LEGEND:

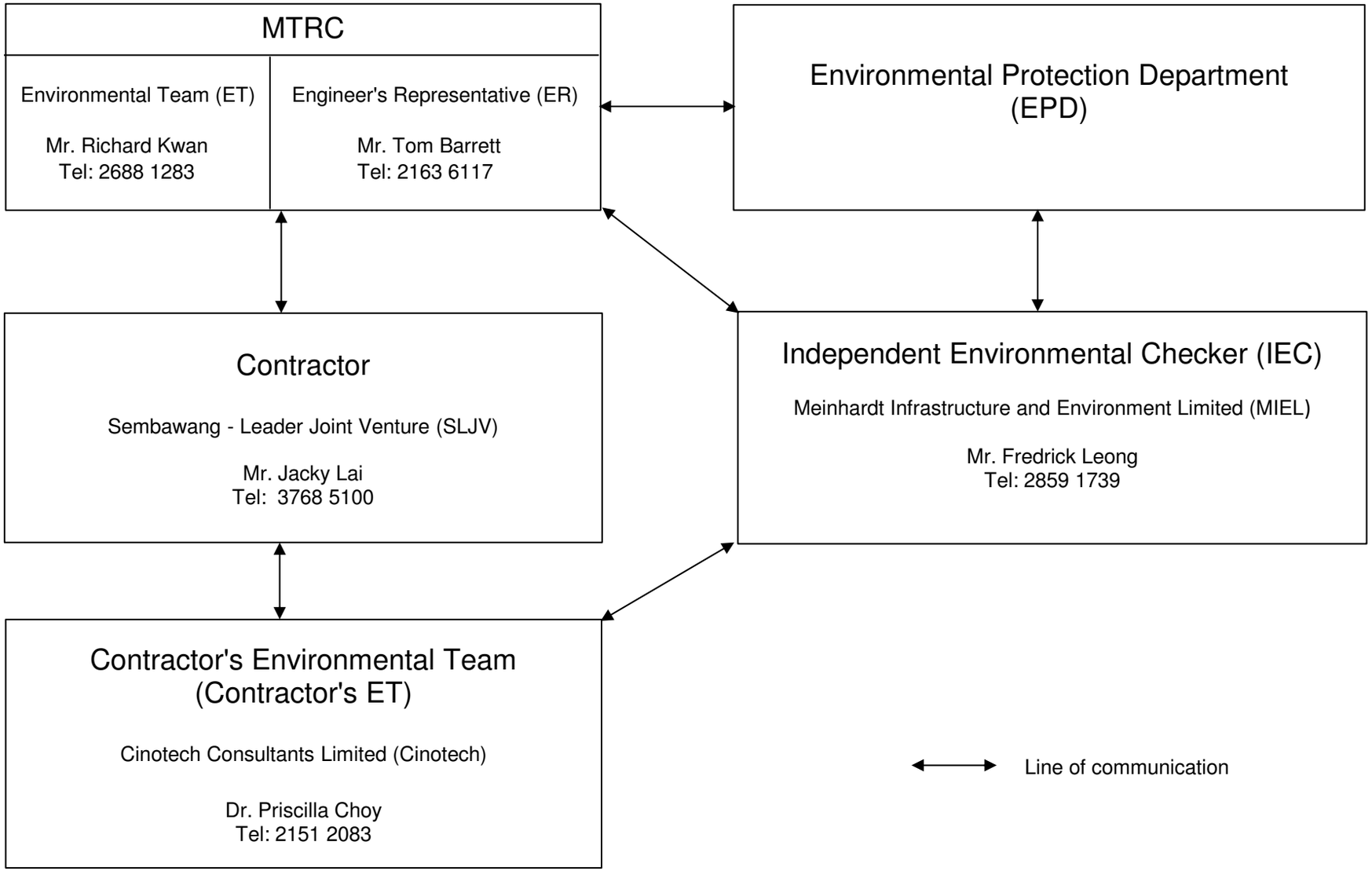
- PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

CINOTECH
Cinotech Consultants Limited

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	Scale	Proposal
MTR SCL Works Contract 1106 Diamond Hill Station Organisation Chart and Key Contact of the Project	N.T.S	No. MA12051
	Date Jun-13	Figure 4

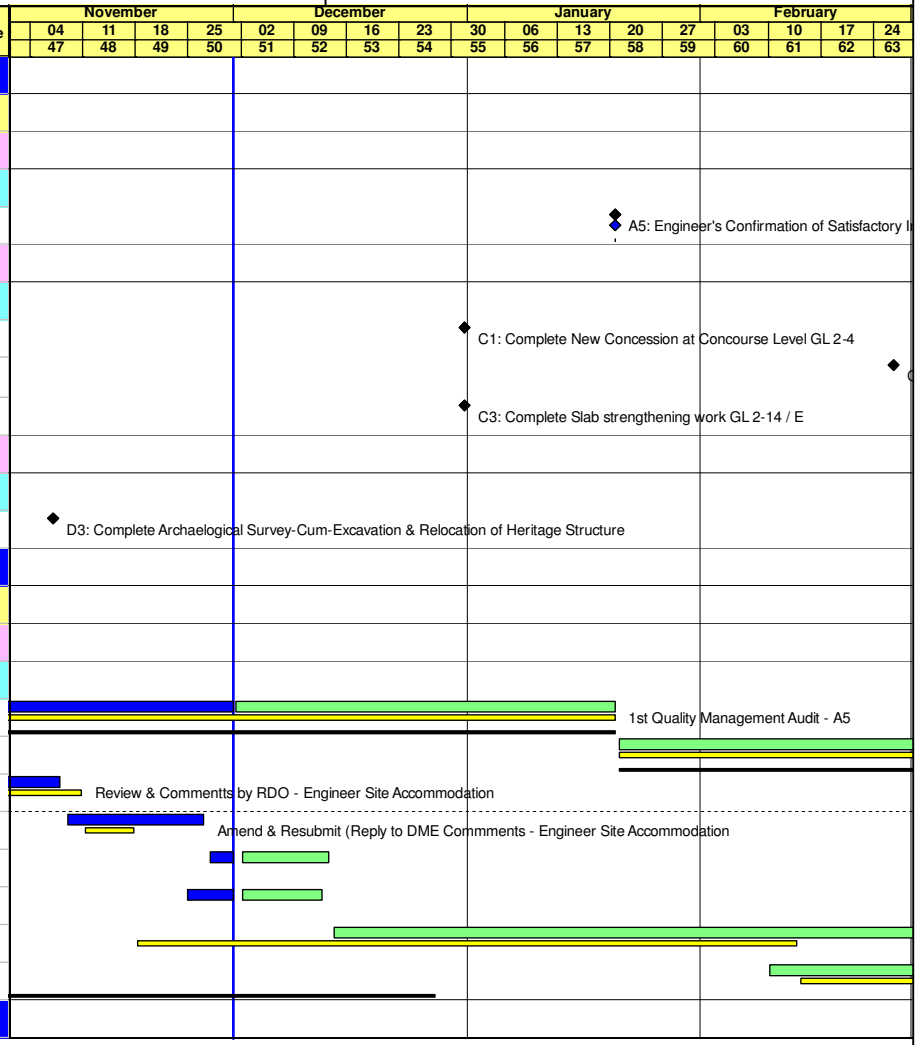
CINOTECH

APPENDIX A
TENTATIVE CONSTRCUTION PROGRAMME

Contract 1106 - Diamond Hill Station

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
Contract Dates					
Milestone Dates					
Cost Centre A Milestones					
Preliminaries					
C1106.MSA05	A5: Engineer's Confirmation of Satisfactory Implementation of Quality Requirements	0		20-Jan-14	0%
Cost Centre C (Option 5 (KTL) Station Modification)					
Completion Dates					
C1106.CMSC01	C1: Complete New Concession at Concourse Level GL 2-4	0		31-Dec-13	0%
C1106.CMSC02	C2: Complete Demolished Existing Concession at CC Level GL3-4 and GL13-14,Sheet Pile for lift LT-02 at Lung Poon	0		26-Feb-14	0%
C1106.CMSC03	C3: Complete Slab strengthening work GL 2-14 / E	0		31-Dec-13	0%
Cost Centre D - Reprovisioning, Remedial and Improvement Works (RRIW)					
Completion Dates					
C1106.DMS003	D3: Complete Archaeological Survey-Cum-Excavation & Relocation of Heritage Structure	0		07-Nov-13 A	100%
Cost Centre A - Preliminaries					
General Requirements					
Submissions					
General					
C1106.GS0322	1st Quality Management Audit - A5	90	28-Oct-13 A	20-Jan-14	45%
C1106.GS0325	1st System Assurance & Risk Management and Design for Safety Audit - A6	92	21-Jan-14	22-Apr-14	0%
C1106.GS0485	Review & Commentts by RDO - Engineer Site Accommodation	28	23-May-13 A	08-Nov-13 A	100%
C1106.GS0495	Amend & Resubmit (Reply to DME Commments - Engineer Site Accommodation	7	09-Nov-13 A	27-Nov-13 A	100%
C1106.GS0500	BD Review and Approval BB BA10 Form	14	28-Nov-13 A	13-Dec-13	10%
C1106.GS0505	Construct Base Slab and Foundation for MTR Site Office	18	25-Nov-13 A	12-Dec-13	20%
C1106.GS0575	Erect and Equip Engineer's Site Office	70	14-Dec-13	12-Mar-14	0%
C1106.SW0480	Develop Interface Management Plant with Designated Contractors in GS and PS	175	10-Feb-14*	03-Aug-14	0%
Cost Centre B: SCL- DIH Station, Entrances and Adits					



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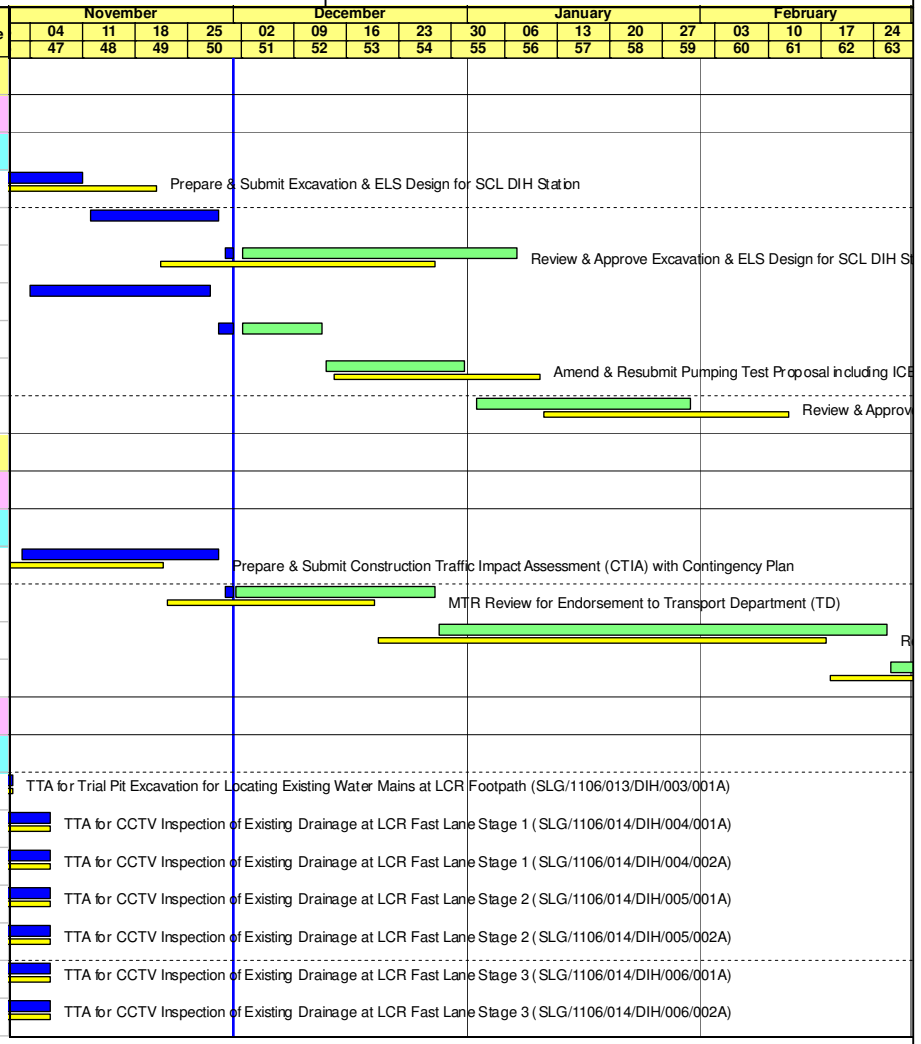
Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
Design & Approval					
General					
General					
C1106.DS0585	Prepare & Submit Excavation & ELS Design for SCL DIH Station	21	08-Aug-13 A	11-Nov-13 A	100%
C1106.DS0588	Amend & Resubmit Excavation & ELS Design for SCL DIH Station	14	12-Nov-13 A	29-Nov-13 A	100%
C1106.DS0590	Review & Approve Excavation & ELS Design for SCL DIH Station	30	30-Nov-13 A	07-Jan-14	5%
C1106.DS0592	Pumping Test Proposal for SCL-DIH Main Station	25	04-Nov-13 A	28-Nov-13 A	100%
C1106.DS0593	Engineer Review for Pumping Test proposal for SCL-DIH Main Station	14	29-Nov-13 A	12-Dec-13	5%
C1106.DS0595	Amend & Resubmit Pumping Test Proposal including ICE Check Certificate or SCL-DIH Main Station	14	13-Dec-13	31-Dec-13	0%
C1106.DS0600	Review & Approve Pumping Test for SCL-DIH Main Station	25	02-Jan-14	30-Jan-14	0%
TTMS Implementation					
Submissions					
TTM Submission					
C1106.TMS0310	Prepare & Submit Construction Traffic Impact Assessment (CTIA) with Contingency Plan	21	03-Nov-13 A	29-Nov-13 A	100%
C1106.TMS0320	MTR Review for Endorsement to Transport Department (TD)	28	30-Nov-13 A	27-Dec-13	0%
C1106.TMS0325	Review & Approval of TTMS at Lung Cheung Road by Transport Department	60	28-Dec-13	25-Feb-14	0%
C1106.TMS0335	To Obtain Road Works Advice from Road Management Office & ready for TTMS Implementation	18	26-Feb-14	15-Mar-14	0%
Lung Cheung Road					
TTA Implementation					
C1106.TMS0390	TTA for Trial Pit Excavation for Locating Existing Water Mains at LCR Footpath (SLG/1106/013/DIH/003/001A)	12	21-Oct-13 A	01-Nov-13 A	100%
C1106.TMS0395	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0400	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 1 (SLG/1106/014/DIH/004/002A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0405	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0410	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 2 (SLG/1106/014/DIH/005/002A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0415	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0420	TTA for CCTV Inspection of Existing Drainage at LCR Fast Lane Stage 3 (SLG/1106/014/DIH/006/002A)	31	07-Oct-13 A	06-Nov-13 A	100%



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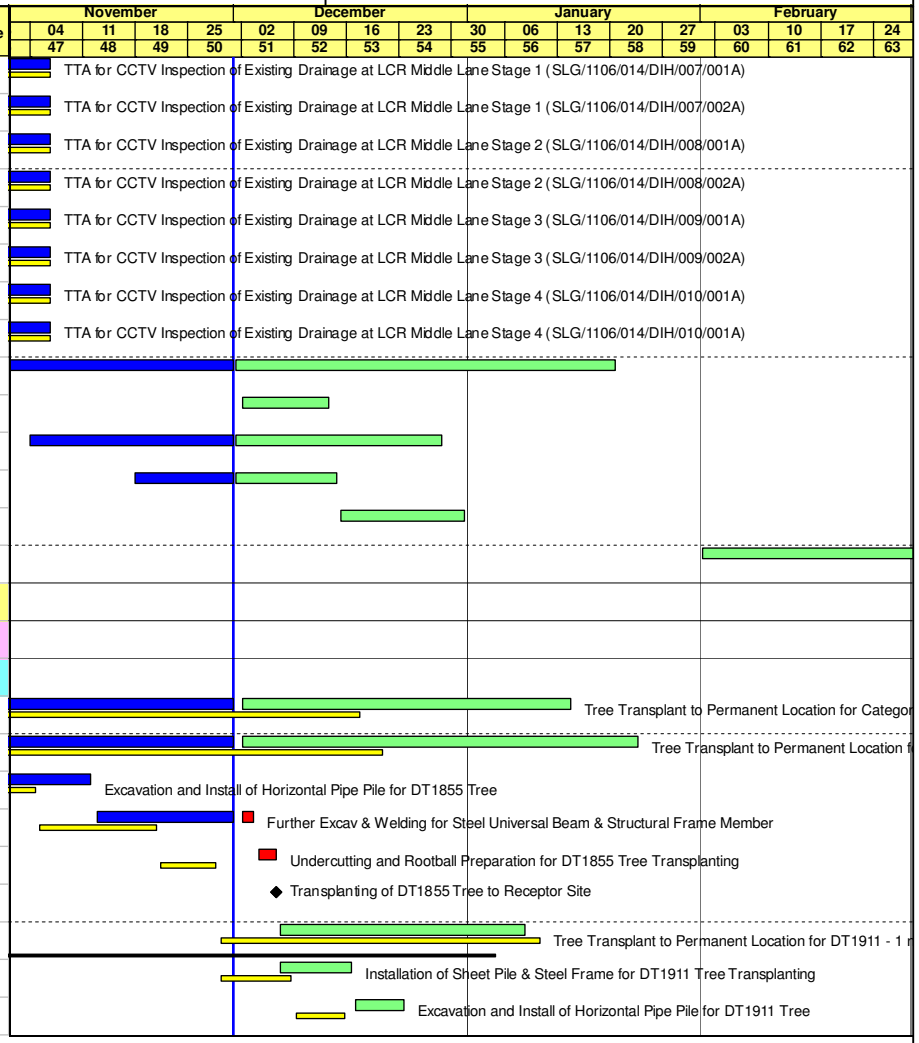
C1106.TMS0425	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0430	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 1 (SLG/1106/014/DIH/007/002A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0435	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0440	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 2 (SLG/1106/014/DIH/008/002A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0445	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0450	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 3 (SLG/1106/014/DIH/009/002A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0455	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0460	TTA for CCTV Inspection of Existing Drainage at LCR Middle Lane Stage 4 (SLG/1106/014/DIH/010/001A)	31	07-Oct-13 A	06-Nov-13 A	100%
C1106.TMS0465	TTA for Temporary GAs Main Diversion at LCR Slow Lane near MTR Entrance A2 (SLG/1106/011/DIH/005/001A&002A)	71	01-Nov-13 A	20-Jan-14	0%
C1106.TMS0470	TTA for CCT Survey Inspectio of Existing Drainage at LCR Slow Lane & Bus Layby (SLG/1106/014/DIH/011/002(A)	12	02-Dec-13*	13-Dec-13	0%
C1106.TMS0475	TTA for Temporary Gas Main Diversion at LCR Slow near MTR Entrance A2 (SLG/1106/011/DIH/009/001A&002A)	55	04-Nov-13 A	28-Dec-13	50%
C1106.TMS0480	TTA for Temporary Gas Main Diversion at LCR Slow Footpath near MTR Entrance A2 (Stage 1) (SLG/1106/011/DIH/008/002A)	27	18-Nov-13 A	14-Dec-13	40%
C1106.TMS0485	TTA for Temporary Gas Main Diversion at LCR Slow Footpath near MTR Entrance A2 (Stage 2) (SLG/1106/011/DIH/008/002A)	17	15-Dec-13	31-Dec-13	0%
C1106.TMS0490	TTA for Diversion of the Pedestrian to Temporary Footpath (Stage 1)	59	01-Feb-14*	31-Mar-14	0%
Tree Feeling / Transplanting					
General					
Tree Transplanting					
C1106.BTP1435	Tree Transplant to Permanent Location for Category A&B (DT1907 & DT2002)	40	21-Jul-13 A	14-Jan-14	75%
C1106.BTP1482	Tree Transplant to Permanent Location for Category C Trees - (DT1904, DT1906, DT1913)	43	27-Sep-13 A	23-Jan-14	60%
C1106.BTP1525	Excavation and Install of Horizontal Pipe Pile for DT1855 Tree	70	10-Oct-13 A	12-Nov-13 A	100%
C1106.BTP1526	Further Excav & Welding for Steel Universal Beam & Structural Frame Member	14	13-Nov-13 A	03-Dec-13	95%
C1106.BTP1528	Undercutting and Rootball Preparation for DT1855 Tree Transplanting	3	04-Dec-13	06-Dec-13	0%
C1106.BTP1529	Transplanting of DT1855 Tree to Receptor Site	0		06-Dec-13	0%
C1106.BTP1530	Tree Transplant to Permanent Location for DT1911 - 1 no.	25	07-Dec-13	08-Jan-14	0%
C1106.BTP1535	Installation of Sheet Pile & Steel Frame for DT1911 Tree Transplanting	10	07-Dec-13*	16-Dec-13	0%
C1106.BTP1540	Excavation and Install of Horizontal Pipe Pile for DT1911 Tree	7	17-Dec-13	23-Dec-13	0%



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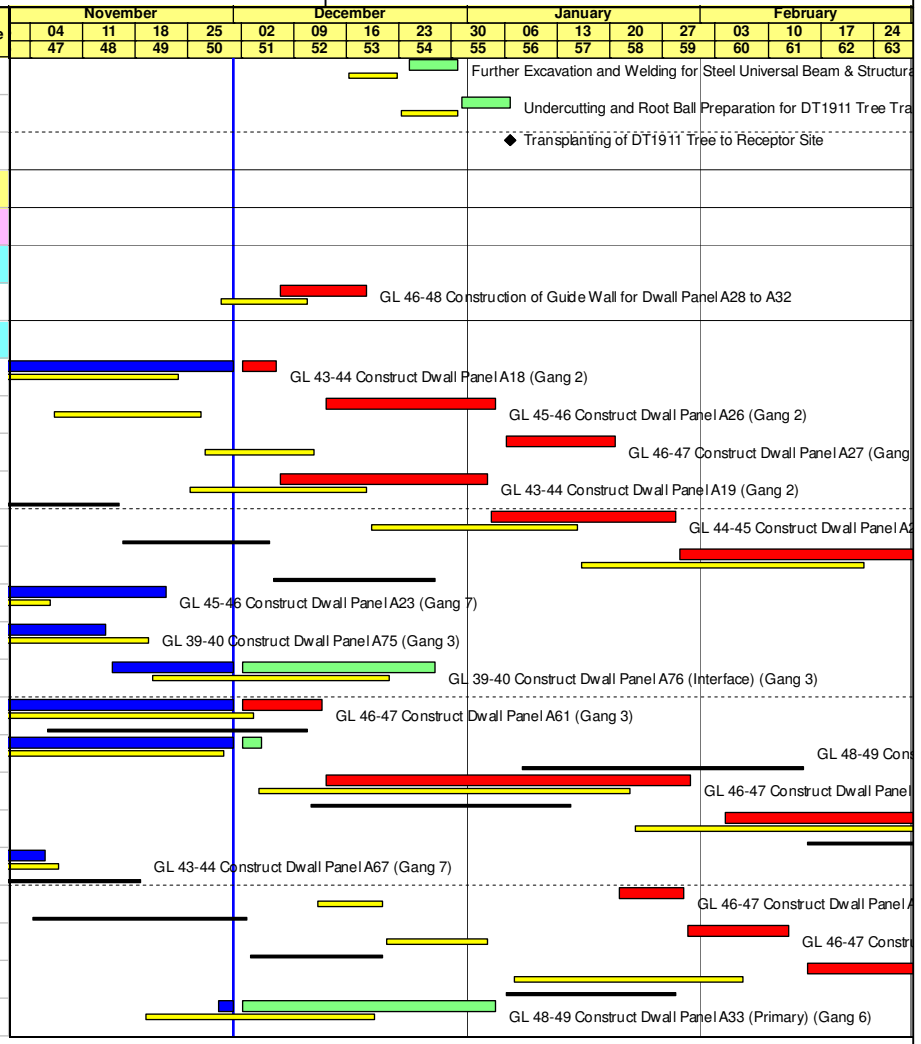
C1106.BTP1545	Further Excavation and Welding for Steel Universal Beam & Structural Frame Member	7	24-Dec-13	30-Dec-13	0%
C1106.BTP1555	Undercutting and Root Ball Preparation for DT1911 Tree Transplanting	5	31-Dec-13	06-Jan-14	0%
C1106.BTP1560	Transplanting of DT1911 Tree to Receptor Site	0		06-Jan-14	0%
Diaphragm Wall & Foundation Works					
DIH (SCL) Gridline 39 - 49					
Guidewall					
C1106.BDW4712	GL 46-48 Construction of Guide Wall for Dwall Panel A28 to A32	10	07-Dec-13	18-Dec-13	0%
Dwall Construction					
C1106.BDW4070	GL 43-44 Construct Dwall Panel A18 (Gang 2)	20	30-Oct-13 A	06-Dec-13	70%
C1106.BDW4075	GL 45-46 Construct Dwall Panel A26 (Gang 2)	17	13-Dec-13	04-Jan-14	0%
C1106.BDW4082	GL 46-47 Construct Dwall Panel A27 (Gang 2)	13	06-Jan-14	20-Jan-14	0%
C1106.BDW4095	GL 43-44 Construct Dwall Panel A19 (Gang 2)	21	07-Dec-13	03-Jan-14	0%
C1106.BDW4097	GL 44-45 Construct Dwall Panel A20 (Gang 2)	21	04-Jan-14	28-Jan-14	0%
C1106.BDW4100	GL 44-45 Construct Dwall Panel A21 (Gang 2)	30	29-Jan-14	07-Mar-14	0%
C1106.BDW4113	GL 45-46 Construct Dwall Panel A23 (Gang 7)	16	16-Oct-13 A	22-Nov-13 A	100%
C1106.BDW4470	GL 39-40 Construct Dwall Panel A75 (Gang 3)	26	07-Oct-13 A	14-Nov-13 A	100%
C1106.BDW4480	GL 39-40 Construct Dwall Panel A76 (Interface) (Gang 3)	28	15-Nov-13 A	27-Dec-13	40%
C1106.BDW4640	GL 46-47 Construct Dwall Panel A61 (Gang 3)	35	12-Oct-13 A	12-Dec-13	80%
C1106.BDW4655	GL 48-49 Construct Dwall Panel A58 (Gang 4)	35	24-Oct-13 A	04-Dec-13	90%
C1106.BDW4665	GL 46-47 Construct Dwall Panel A62 (Gang 3)	39	13-Dec-13	30-Jan-14	0%
C1106.BDW4670	GL 46-47 Construct Dwall Panel A63 (Closing) (Gang 3)	35	04-Feb-14	15-Mar-14	0%
C1106.BDW4705	GL 43-44 Construct Dwall Panel A67 (Gang 7)	24	16-Sep-13 A	06-Nov-13 A	100%
C1106.BDW4725	GL 46-47 Construct Dwall Panel A29 (Primary) (Gang 5)	8	21-Jan-14	29-Jan-14	0%
C1106.BDW4734	GL 46-47 Construct Dwall Panel A30 (Gang 5)	9	30-Jan-14	12-Feb-14	0%
C1106.BDW4735	GL 47-48 Construct Dwall Panel A31 (Gang 5)	24	15-Feb-14	14-Mar-14	0%
C1106.BDW4793	GL 48-49 Construct Dwall Panel A33 (Primary) (Gang 6)	27	29-Nov-13 A	04-Jan-14	5%



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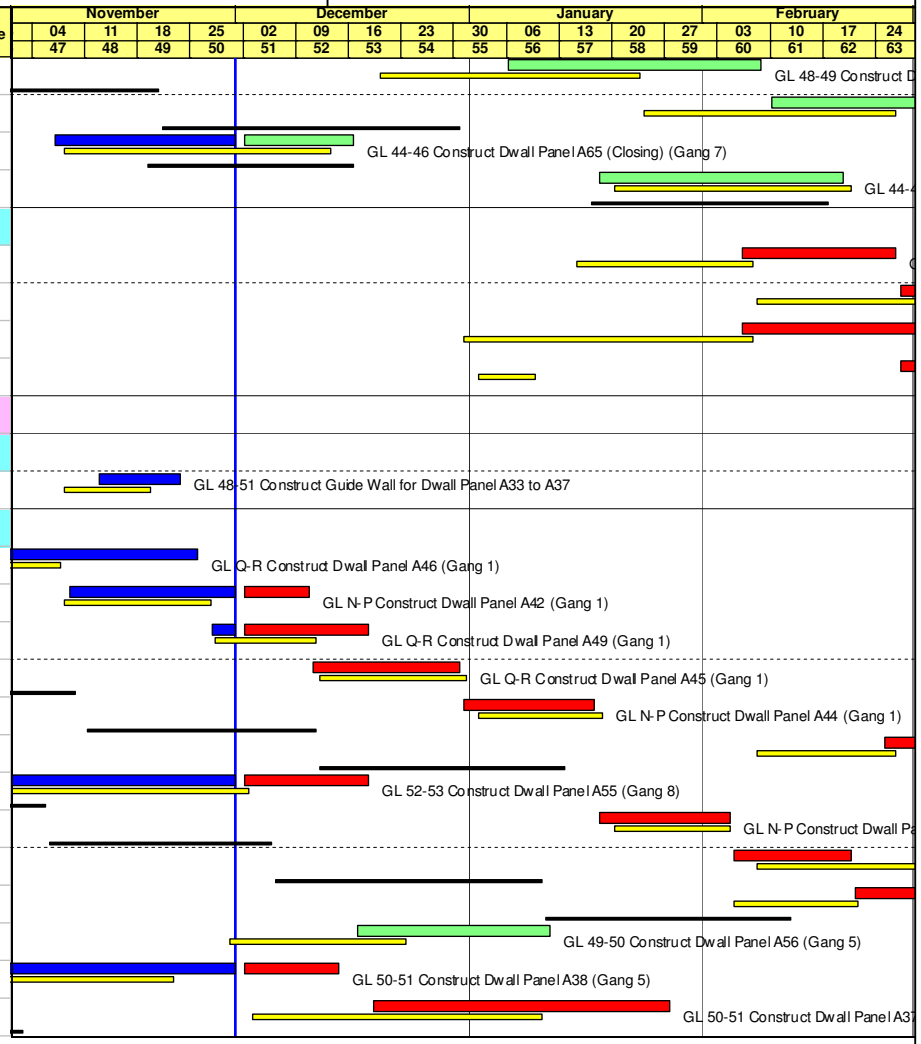
C1106.BDW4796	GL 48-49 Construct Dwall Panel A34 (Gang 6)	27	06-Jan-14	08-Feb-14	0%
C1106.BDW4798	GL 49-50 Construct Dwall Panel A35 (Gang 6)	26	10-Feb-14	11-Mar-14	0%
C1106.BDW4808	GL 44-46 Construct Dwall Panel A65 (Closing) (Gang 7)	31	07-Nov-13 A	16-Dec-13	50%
C1106.BDW4815	GL 44-45 Construct Dwall Panel A66 (Closing) (Gang 7)	25	18-Jan-14	19-Feb-14	0%
Capping Beam & Sheet Pile					
C1106.BDW4120	GL 39-41 Construct Capping Beam (A01-A08, 27m) at +8.27mPD	18	06-Feb-14*	26-Feb-14	0%
C1106.BDW4125	GL 41-44 Construct Capping Beam (A08-A16, 29m) at +8.27mPD & Dwall Grouting	20	27-Feb-14	21-Mar-14	0%
C1106.BDW4435	GL 39-43 Construct Capping Beam (A70-A76, 43m) at +7.70mPD & Dwall Grouting	30	06-Feb-14*	12-Mar-14	0%
C1106.BDW4810	GL 43-46 Install Sheet Piles Wall behind Diaphragm Wall A17-28 (49m)	7	27-Feb-14*	06-Mar-14	0%
DIH (SCL) Gridline 49 - 53					
Guidewall					
C1106.BDW5317	GL 48-51 Construct Guide Wall for Dwall Panel A33 to A37	10	13-Nov-13 A	23-Nov-13 A	100%
Dwall Construction					
C1106.BDW4042	GL Q-R Construct Dwall Panel A46 (Gang 1)	12	21-Oct-13 A	26-Nov-13 A	100%
C1106.BDW4047	GL N-P Construct Dwall Panel A42 (Gang 1)	17	09-Nov-13 A	10-Dec-13	70%
C1106.BDW4052	GL Q-R Construct Dwall Panel A49 (Gang 1)	18	28-Nov-13 A	18-Dec-13	0%
C1106.BDW4057	GL Q-R Construct Dwall Panel A45 (Gang 1)	15	11-Dec-13	30-Dec-13	0%
C1106.BDW4062	GL N-P Construct Dwall Panel A44 (Gang 1)	15	31-Dec-13	17-Jan-14	0%
C1106.BDW4069	GL N-P Construct Dwall Panel A40 (Gang 1)	16	25-Feb-14	14-Mar-14	0%
C1106.BDW4485	GL 52-53 Construct Dwall Panel A55 (Gang 8)	27	01-Nov-13 A	18-Dec-13	0%
C1106.BDW4490	GL N-P Construct Dwall Panel A43 (Gang 8)	12	18-Jan-14	04-Feb-14	0%
C1106.BDW4495	GL Q-R Construct Dwall Panel A47 (Gang 8)	14	05-Feb-14	20-Feb-14	0%
C1106.BDW4500	GL Q-R Construct Dwall Panel A48 (Gang 8)	15	21-Feb-14	10-Mar-14	0%
C1106.BDW4700	GL 49-50 Construct Dwall Panel A56 (Gang 5)	20	17-Dec-13	11-Jan-14	0%
C1106.BDW4710	GL 50-51 Construct Dwall Panel A38 (Gang 5)	25	16-Sep-13 A	14-Dec-13	70%
C1106.BDW4715	GL 50-51 Construct Dwall Panel A37 (Gang 5)	31	19-Dec-13	27-Jan-14	0%



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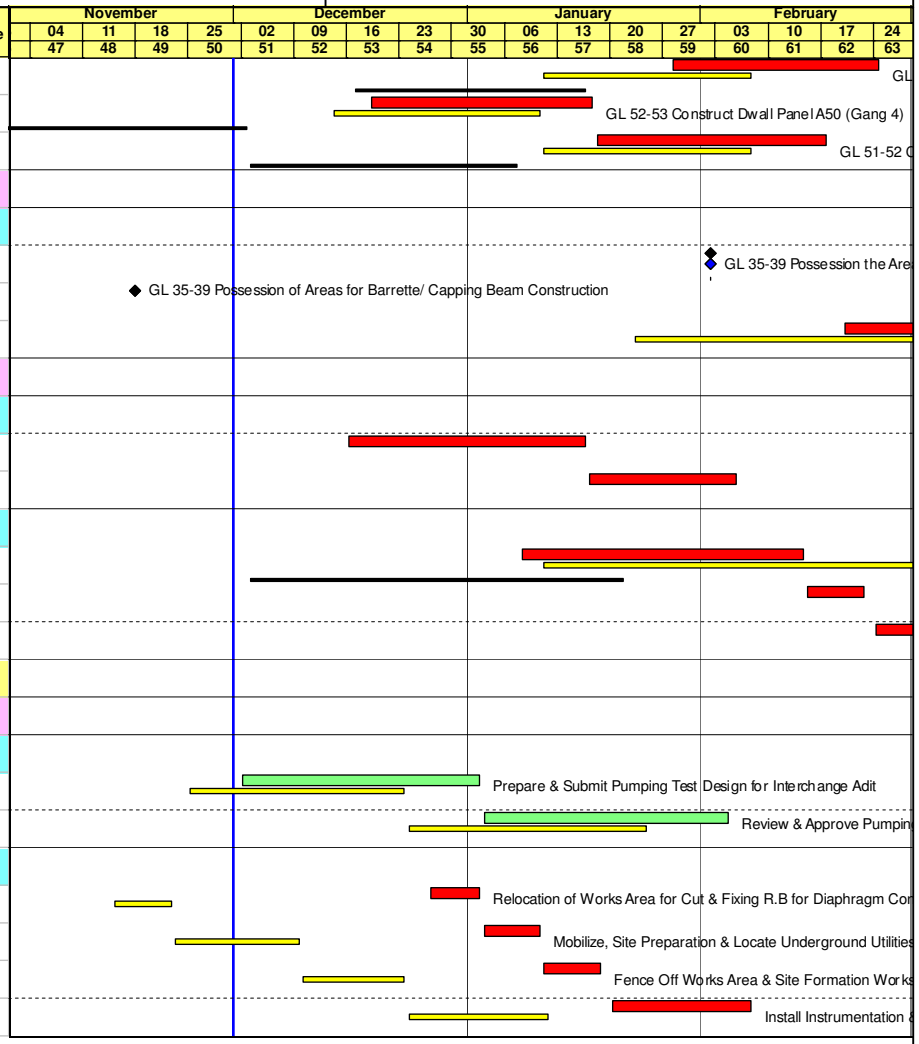
C1106.BDW4812	GL 51-52 Construct Dwall Panel A39 (Gang 5)	21	28-Jan-14	24-Feb-14	0%
C1106.BDW5325	GL 52-53 Construct Dwall Panel A50 (Gang 4)	23	19-Dec-13	17-Jan-14	0%
C1106.BDW5340	GL 51-52 Construct Dwall Panel A51 (Gang 4)	23	18-Jan-14	17-Feb-14	0%
DIH (SCL) Gridline 35-39					
Station Cofferdam					
C1106.BDW3505	GL 35-39 Possession the Areas 1106.W1E	0	02-Feb-14*		0%
C1106.BDW3510	GL 35-39 Possession of Areas for Barrette/ Capping Beam Construction	0	18-Nov-13 A		100%
C1106.BDW3515	GL 35-39 Construct Capping Beam	30	20-Feb-14	26-Mar-14*	0%
DIH (SCL) Gridline 35-53					
Grouting					
C1106.BDW4813	Toe Grouting, Rock Fissure Grouting and Shear Pins at GL35 - GL44	25	16-Dec-13*	16-Jan-14	0%
C1106.BDW4823	BA14 for Dwall Stage 1 (Panel A01-A16, A68-A76) at GL39-44	14	17-Jan-14	05-Feb-14	0%
Pump Test					
C1106.BDW4850	GL 35-53 Install Instrumentation & Wells	30	08-Jan-14*	14-Feb-14	0%
C1106.BDW4851	Installation of Observation & Pump Wells at GL35 to GL44	7	15-Feb-14	22-Feb-14	0%
C1106.BDW4856	GL 39-44 Carry Out Pump Test (1st Stage)	12	24-Feb-14	08-Mar-14	0%
Construction of Interchange Adit					
Submissions					
General					
C1106.BIA6022	Prepare & Submit Pumping Test Design for Interchange Adit	25	02-Dec-13*	02-Jan-14	0%
C1106.BIA6027	Review & Approve Pumping Test Design for Interchange Adit	25	03-Jan-14	04-Feb-14	0%
Site Preparation					
C1106.BIA6020	Relocation of Works Area for Cut & Fixing R.B for Diaphragm Construction	5	27-Dec-13*	02-Jan-14	0%
C1106.BIA6023	Mobilize, Site Preparation & Locate Underground Utilities	7	03-Jan-14	10-Jan-14	0%
C1106.BIA6026	Fence Off Works Area & Site Formation Works	7	11-Jan-14	18-Jan-14	0%
C1106.BIA6034	Install Instrumentation & Markers	14	20-Jan-14	07-Feb-14	0%



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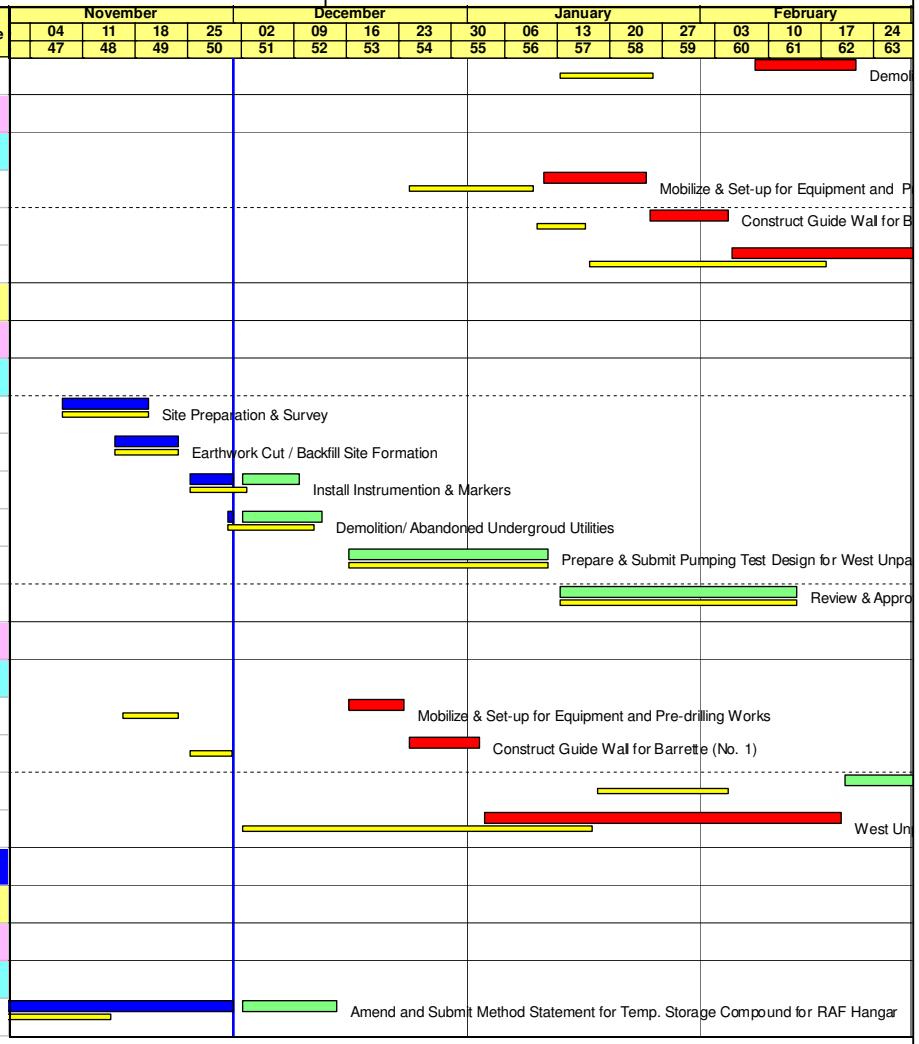
C1106.BIA6068	Demolition of Existing Concrete Boundary Walls, Stairs & others	12	08-Feb-14	21-Feb-14	0%
Construction of Interchange Adit					
Gridline U-V					
C1106.BIA7000	Mobilize & Set-up for Equipment and Pre-Drilling Works	12	11-Jan-14	24-Jan-14	0%
C1106.BIA7002	Construct Guide Wall for Barrette	6	25-Jan-14	04-Feb-14	0%
C1106.BIA7005	Interchange Adit - Construct Barrette (No. 1/3 Panel)	24	05-Feb-14	04-Mar-14	0%
Construction of West Unpaid Link Adit					
Submissions					
General					
C1106.BWA7540	Site Preparation & Survey	10	08-Nov-13 A	19-Nov-13 A	100%
C1106.BWA7550	Earthwork Cut / Backfill Site Formation	8	15-Nov-13 A	23-Nov-13 A	100%
C1106.BWA7560	Install Instrumention & Markers	7	25-Nov-13 A	09-Dec-13	0%
C1106.BWA7565	Demolition/ Abandoned Undergroud Utilities	10	30-Nov-13 A	12-Dec-13	0%
C1106.BWA7570	Prepare & Submit Pumping Test Design for West Unpaid Link	21	16-Dec-13*	11-Jan-14	0%
C1106.BWA7575	Review & Approve Pumping Test Design for West Unpaid Link	25	13-Jan-14	13-Feb-14	0%
West Adit Link - South Section					
Adit Cofferdam					
C1106.BWA8260	Mobilize & Set-up for Equipment and Pre-drilling Works	7	16-Dec-13*	23-Dec-13	0%
C1106.BWA8265	Construct Guide Wall for Barrette (No. 1)	6	24-Dec-13	02-Jan-14	0%
C1106.BWA8270	West Unpaid Link Adit - Install Prebored Socketed H-Pile 610mm (2 nos.)	12	20-Feb-14	05-Mar-14	0%
C1106.BWA8280	West Unpaid Link Adit - Construct Barrette (2 nos.)	38	03-Jan-14	19-Feb-14	0%
Cost Centre D - Reprovisioning, Remedial and Improvement Works (RRIW)					
Preservation of Old Pillbox & RAF Hanger and Archaeological Survey-Cum-Excavation					
Submissions					
General					
C1106.DRIW449	Amend and Submit Method Statement for Temp. Storage Compound for RAF Hangar	21	15-Oct-13 A	14-Dec-13	80%



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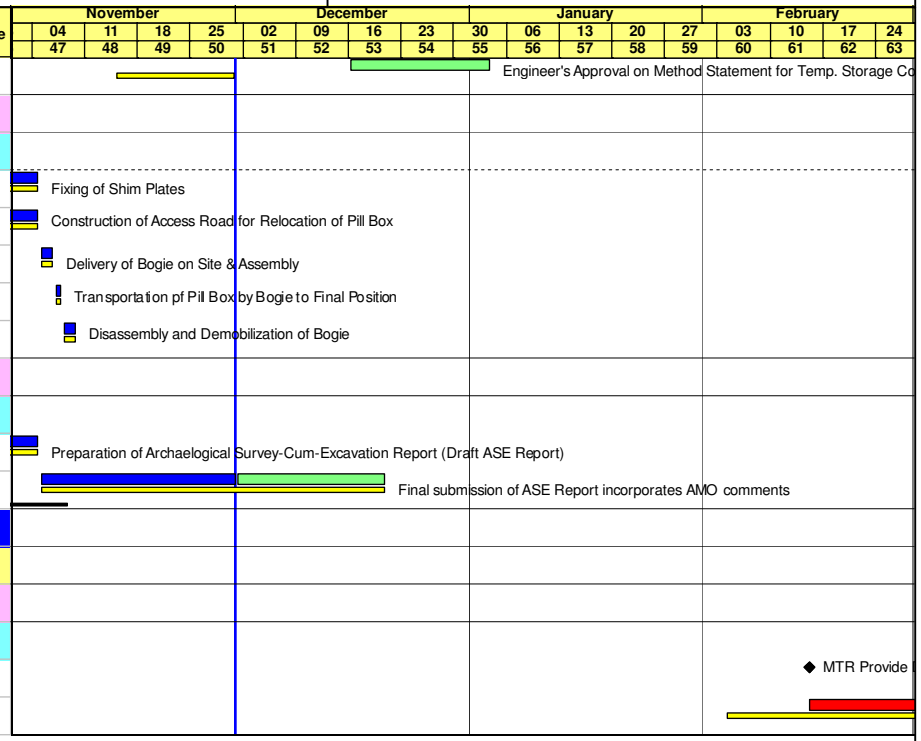
Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
C1106.DRIW479	Engineer's Approval on Method Statement for Temp. Storage Compound for RAF Hangar	14	16-Dec-13	03-Jan-14	0%
Preservation of Old Pillbox					
General					
C1106.DRIW428	Fixing of Shim Plates	5	28-Oct-13 A	04-Nov-13 A	100%
C1106.DRIW478	Construction of Access Road for Relocation of Pill Box	10	23-Oct-13 A	04-Nov-13 A	100%
C1106.DRIW480	Delivery of Bogie on Site & Assembly	2	05-Nov-13 A	06-Nov-13 A	100%
C1106.DRIW495	Transportation pf Pill Box by Bogie to Final Position	1	07-Nov-13 A	07-Nov-13 A	100%
C1106.DRIW500	Disassembly and Demobilization of Bogie	2	08-Nov-13 A	09-Nov-13 A	100%
Archaelogical Survey					
General					
C1106.DRIW485	Preparation of Archaelogical Survey-Cum-Excavation Report (Draft ASE Report)	20	04-Oct-13 A	04-Nov-13 A	100%
C1106.DRIW490	Final submission of ASE Report incorporates AMO comments	46	05-Nov-13 A	20-Dec-13	60%
Cost Centre H - Option No. 4 Piling Works for CDA at SCL DIH East					
Design & Approval					
Submissions					
Exercise Date of Option					
C1106.CDA0152	MTR Provide Details Drawings for the CDA Piling	0		15-Feb-14*	0%
C1106.CDA0155	Submit / Approve Method Statement for Bored Pile	60	15-Feb-14	16-Apr-14	0%



Remaining Work
Critical Remaining Work
Previous Month (Oct)
Baseline (PMP)
Actual Work
Baseline Milestone
Milestone

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 30 November 2013

3 Month Rolling Programme

Date	Revision	Checked	Appr...
02-Dec-13	C-1106-3MRP/ 11	RR	RB

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, µg/m^3	Limit Level, µg/m^3
DMS-3[(1)(3)(4)]/ DMS-4[(2)(3)(4)]/	Hong Kong Sheng Kung Hui Nursing Home	159.1	260
DMS-4[(1)]/ DMS-3[(2)]	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[(1)]/DMS-4[(2)] is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Location[(1)]	Description	Time Period	Action Level	Limit Level
NMS-CA-3[(1)(3)(4)]/ NMS-CA-4[(2)(3)(4)]	Hong Kong Sheng Kung Hui Nursing Home	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
NMS-CA-4[(1)]/ NMS-CA-3[(2)]	Block 1, Rhythm Garden (north-eastern façade)			75 dB(A)
NMS-CA-5 [(1) (5)]/ NMS-CA-2[(2)(5)]	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) [(6)]

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[(1)]/ NMS-CA-4[(2)] 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.

APPENDIX C
CALIBRATION CERTIFICATES FOR MONITORING EQUIPEMENT

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0004

Station: DMS-4 - Rhythm Garden, Block 1 Operator: WK

Date: 5-Sep-13 Next Due Date: 4-Nov-13

Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.5	Pressure, Pa (mmHg)	759.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.44	58.52	7.4	2.72
2	8.7	2.95	50.31	5.3	2.30
3	7.4	2.72	46.44	4.6	2.15
4	4.5	2.12	36.32	2.8	1.67
5	2.9	1.70	29.25	1.7	1.30

By Linear Regression of Y on X

Slope , mw = 0.0478 **Intercept, bw =** -0.0820

Correlation coefficient* = 0.9996

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.89**

Remarks:

Conducted by: WK Tang Signature: Kwan Date: 5/9/13

Checked by: [illegible] Signature: Date: 5 September 2013

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0005

Station: DMS-4 - Rhythm Garden, Block 1 — Operator: WK

Date: 7-Nov-13 — Next Due Date: 6-Jan-14

Equipment No.: A-01-57 — Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	296.5	Pressure, Pa (mmHg)	766.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.46	58.91	7.5	2.76
2	8.6	2.95	50.36	5.4	2.34
3	7.5	2.76	47.07	4.8	2.21
4	4.3	2.09	35.75	2.7	1.65
5	3.0	1.74	29.94	1.8	1.35

By Linear Regression of Y on X

Slope , mw = 0.0483 — **Intercept, bw =** -0.0829

Correlation coefficient* = 0.9997

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.92**

Remarks:

Conducted by: Wk. Tang — Signature: Kwai — Date: 7/11/13

Checked by: Wk — Signature: — Date: 7 November 2013

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
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513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

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	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149		0.9957	0.6896	0.8851
0.9925	0.9693	2.0010		0.9915	0.9683	1.2517
0.9903	1.0858	2.2372		0.9893	1.0847	1.3995
0.9893	1.1345	2.3464		0.9883	1.1334	1.4678
0.9840	1.3666	2.8299		0.9830	1.3652	1.7702
Qstd slope (m) =		2.09107		Qa slope (m) =		1.30939
intercept (b) =		-0.02838		intercept (b) =		-0.01775
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}

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/N/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04
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 Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

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

WELLAB 匯力 Testing & Research

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/130830/4
Date of Issue:	2012-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/130919/3
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

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

APPENDIX D
IMPACT MONITORING SCHEDULE

Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24 hr TSP	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
	Noise			24 hr TSP		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24 hr TSP		Noise	
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24 hr TSP	Noise			
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24 hr TSP	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 December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
	Noise				24 hr TSP	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
				24 hr TSP	Noise	
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24 hr TSP		Noise	
22-Dec	23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec
		24 hr TSP			Noise	
29-Dec	30-Dec	31-Dec				
	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)

APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONIS

Appendix E - 24-hour TSP Monitoring Results

Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

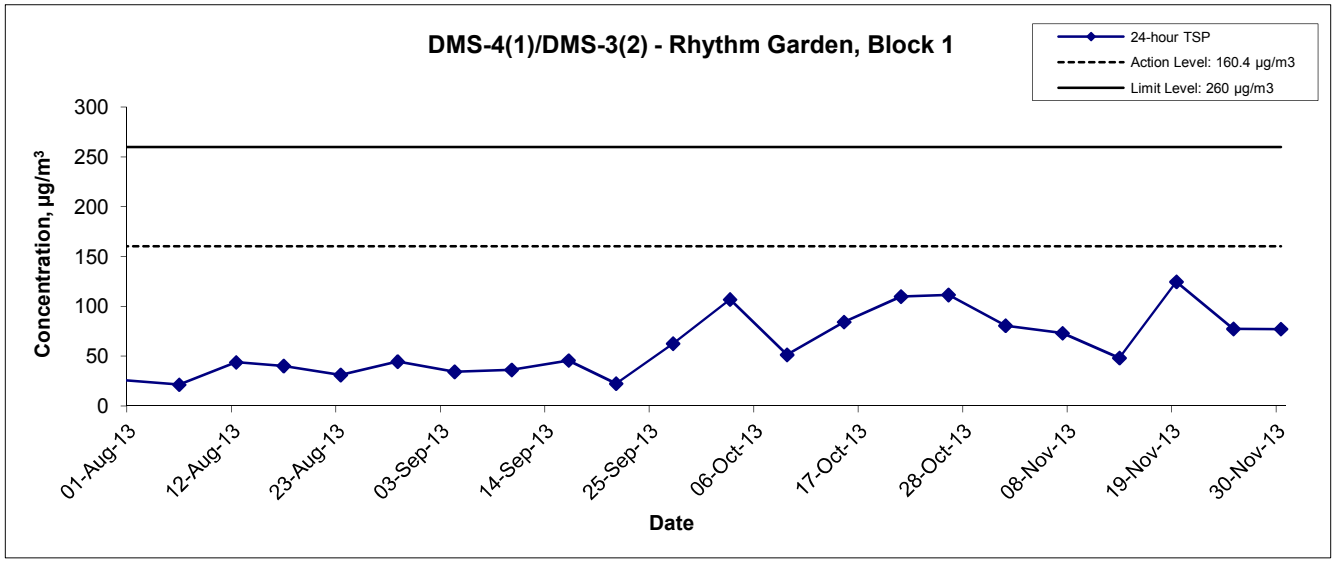
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
1-Nov-13	09:00	Cloudy	298.4	764.5	3.6044	3.7461	0.1417	1793.9	1817.9	24.0	1.22	1.22	1.22	1757.4	80.6
7-Nov-13	09:00	Sunny	296.8	766.7	3.7577	3.8854	0.1277	1817.9	1841.9	24.0	1.21	1.21	1.21	1746.8	73.1
13-Nov-13	09:00	Sunny	291.4	764.0	3.7636	3.8484	0.0848	1841.9	1865.9	24.0	1.22	1.22	1.22	1759.4	48.2
19-Nov-13	09:00	Sunny	292.3	769.4	3.7406	3.9603	0.2197	1865.9	1889.9	24.0	1.22	1.22	1.22	1762.7	124.6
25-Nov-13	09:00	Sunny	290.5	764.8	3.7627	3.8991	0.1364	1889.9	1913.9	24.0	1.22	1.22	1.22	1762.9	77.4
30-Nov-13	09:00	Sunny	286.3	770.3	3.7544	3.8920	0.1376	1913.9	1937.9	24.0	1.24	1.24	1.24	1781.4	77.2
														Min	48.2
														Max	124.6
														Average	80.2

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:

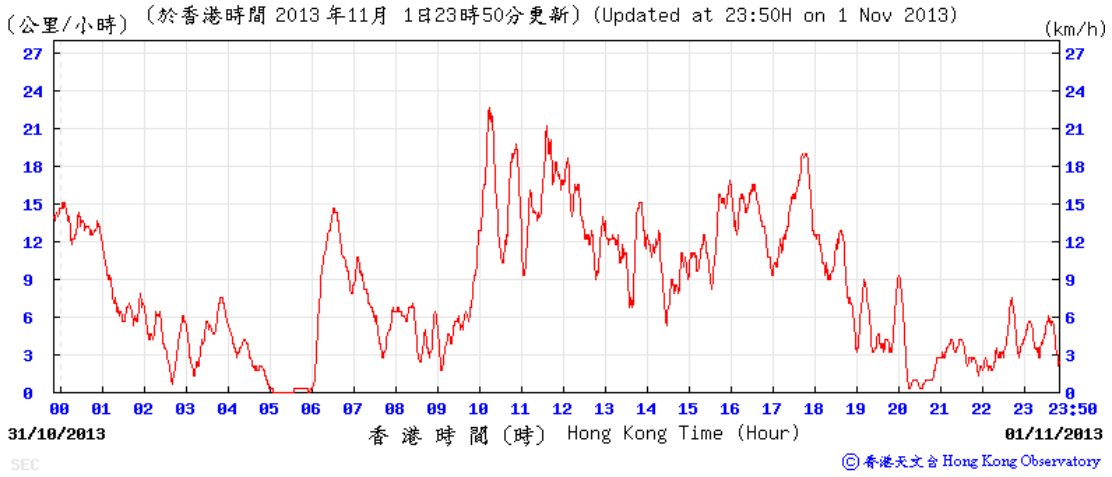
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

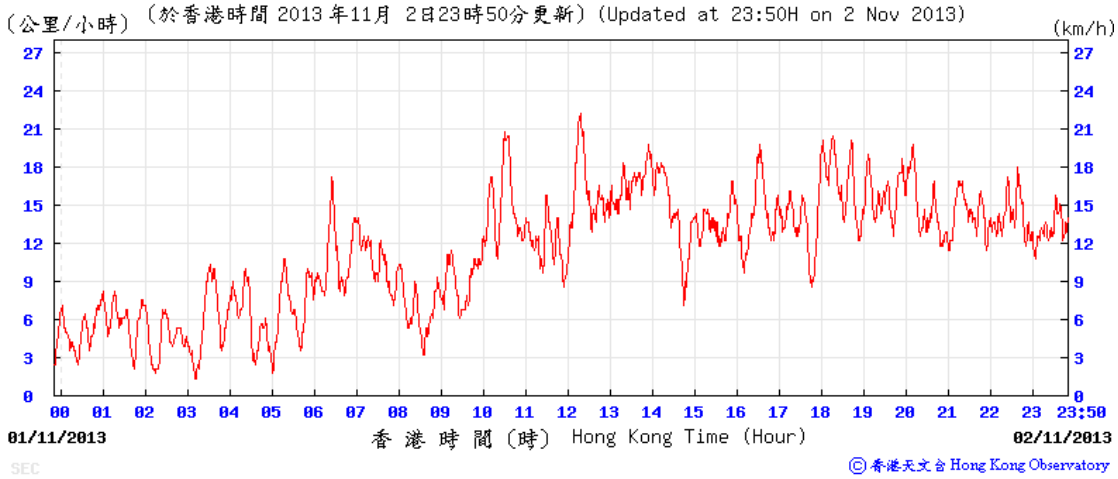
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title		Scale	Project No.	
	Shatin to Central Link – Contract 1106 Diamond Hill Station	N.T.S	MA12051	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results	Date: Nov 13	Appendix: E	

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

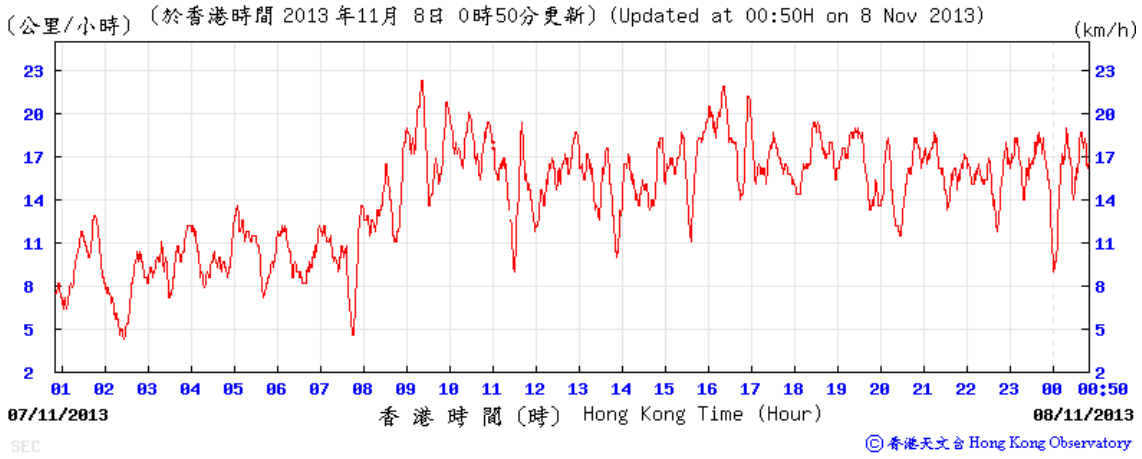
1-2 November 2013

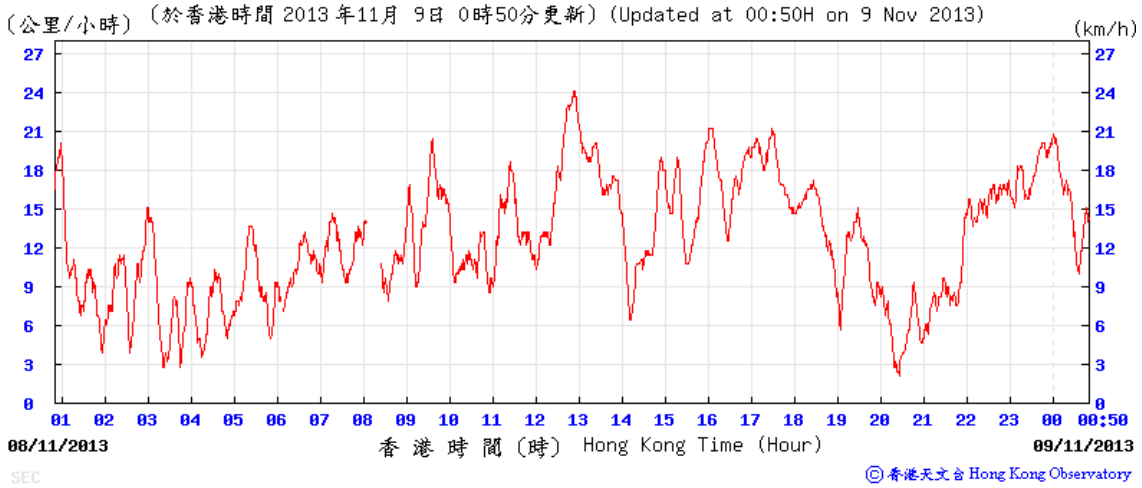




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

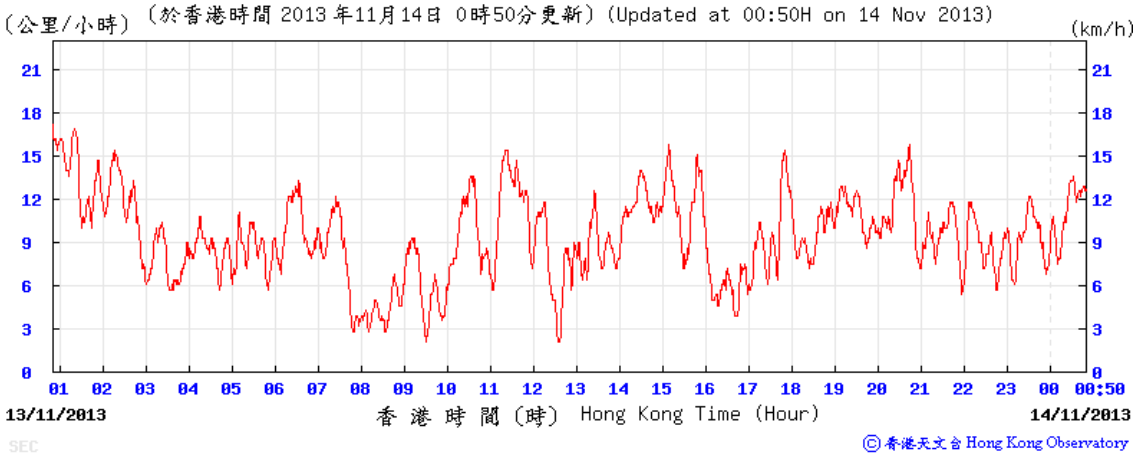
7-8 November 2013

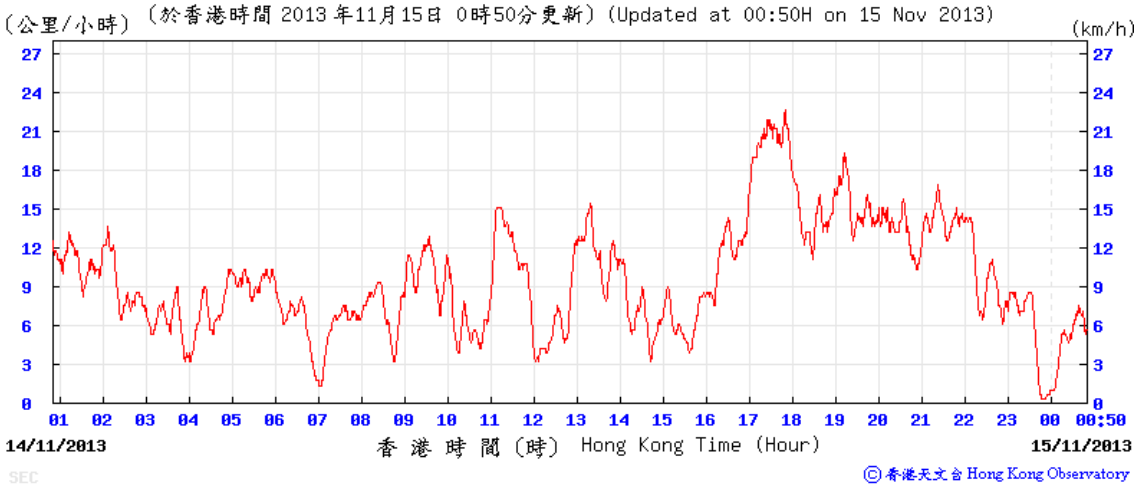




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

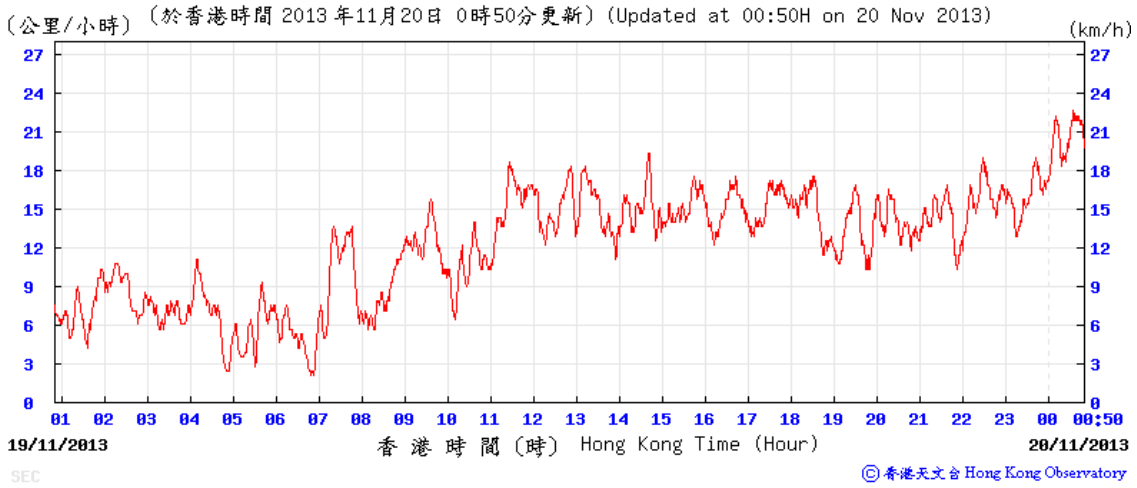
13-14 November 2013

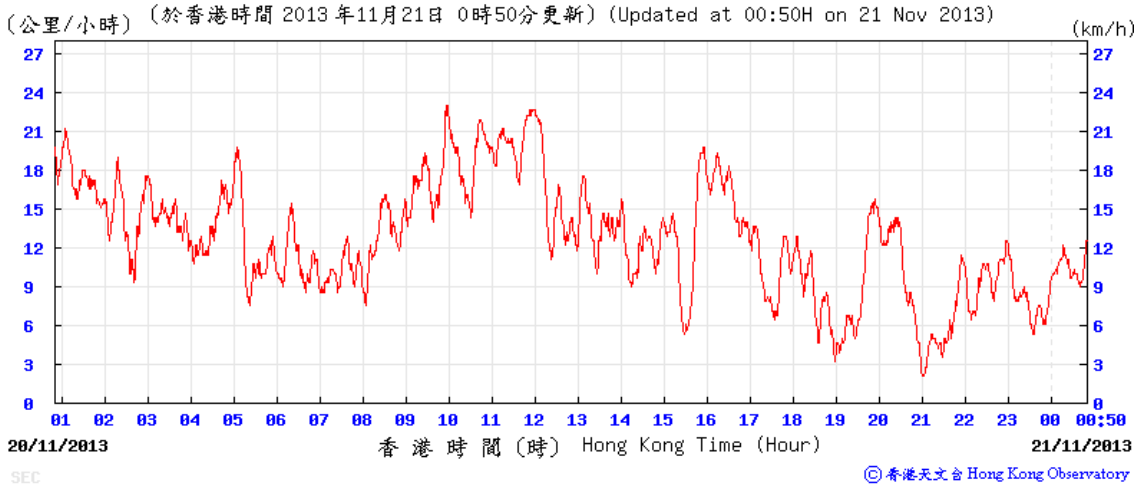




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

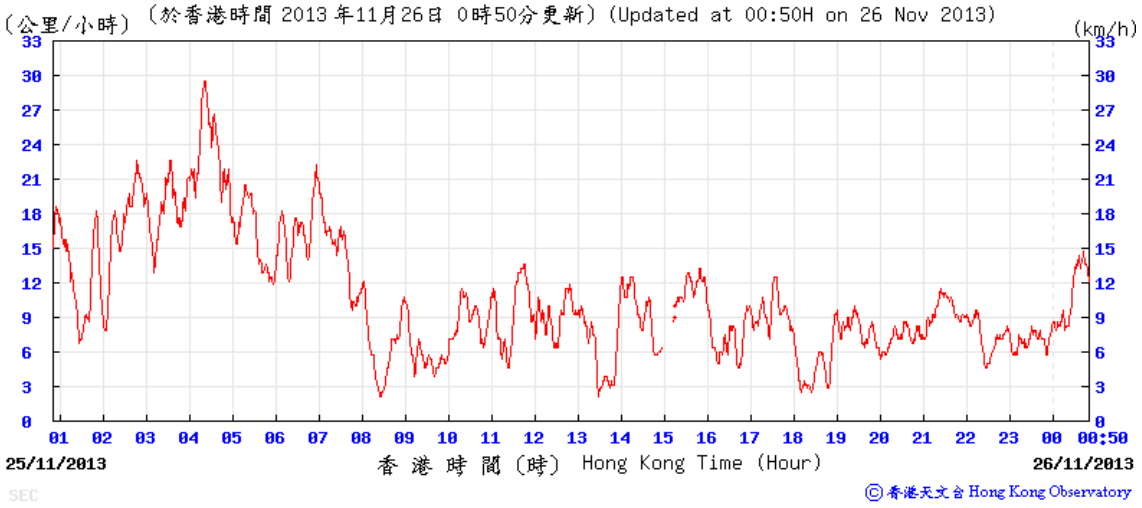
19-20 November 2013

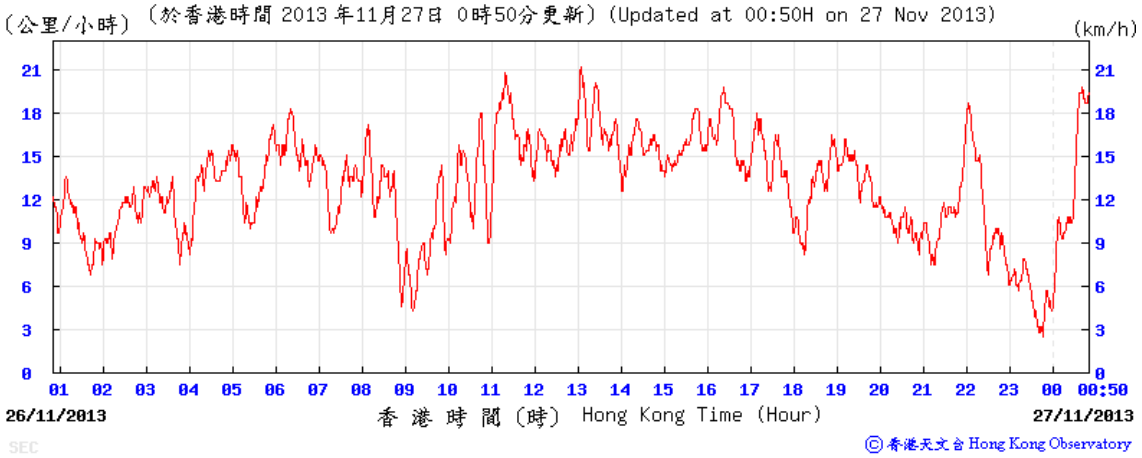




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

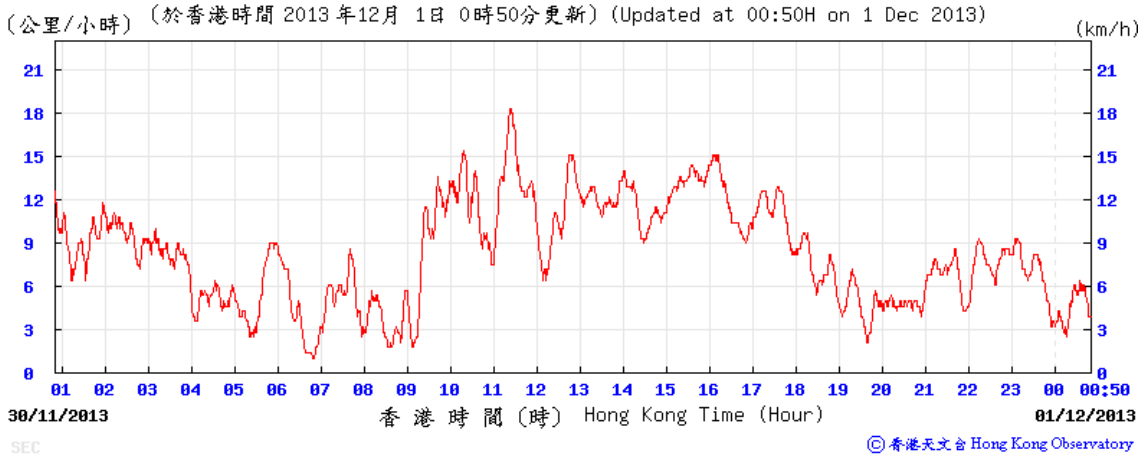
25-26 November 2013

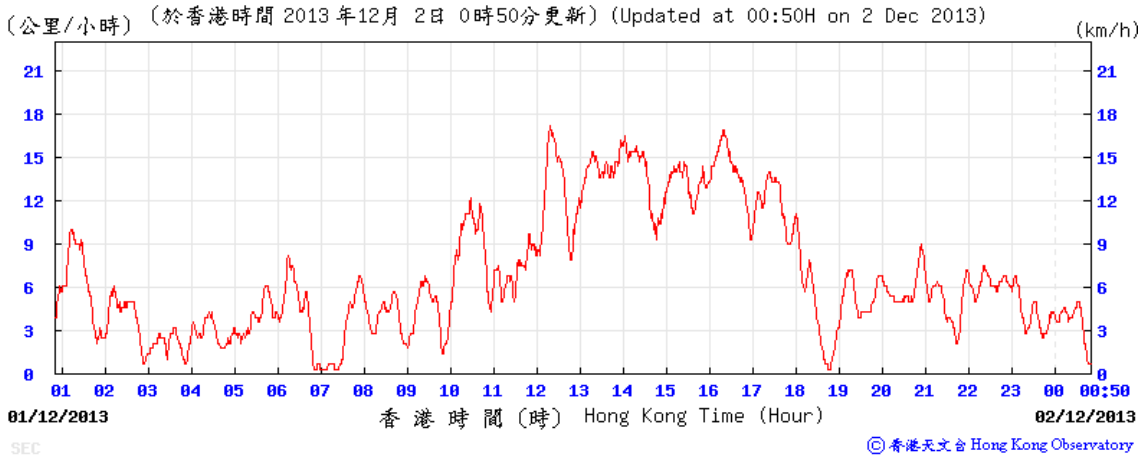




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

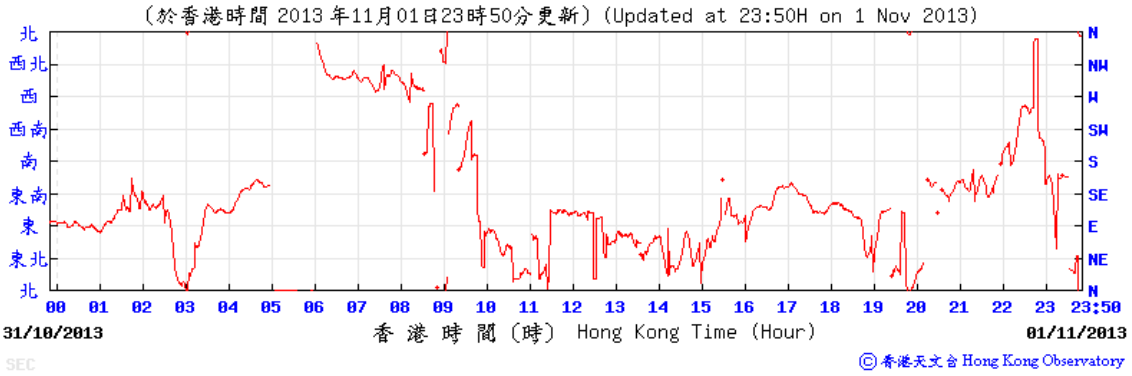
30 November – 1 December 2013

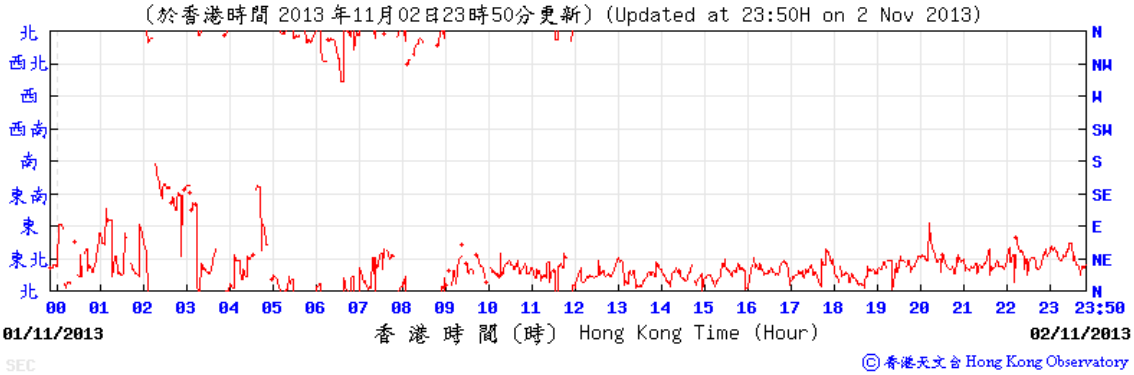




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

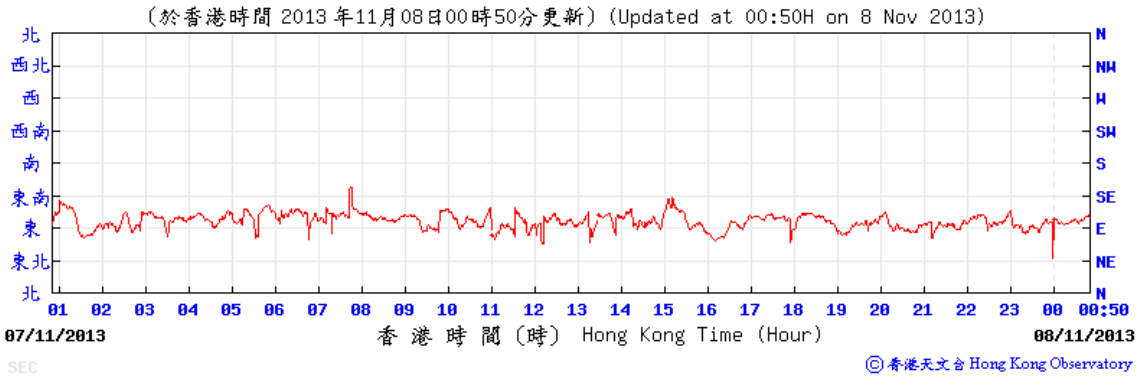
1-2 November 2013

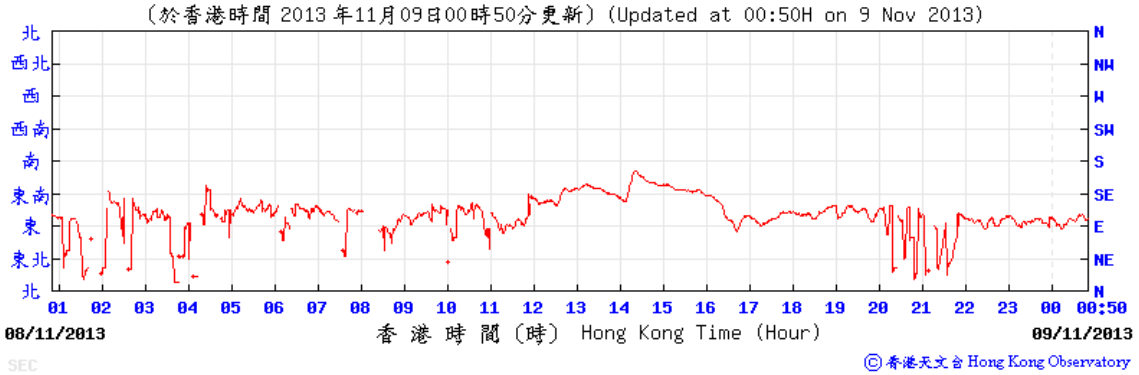




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

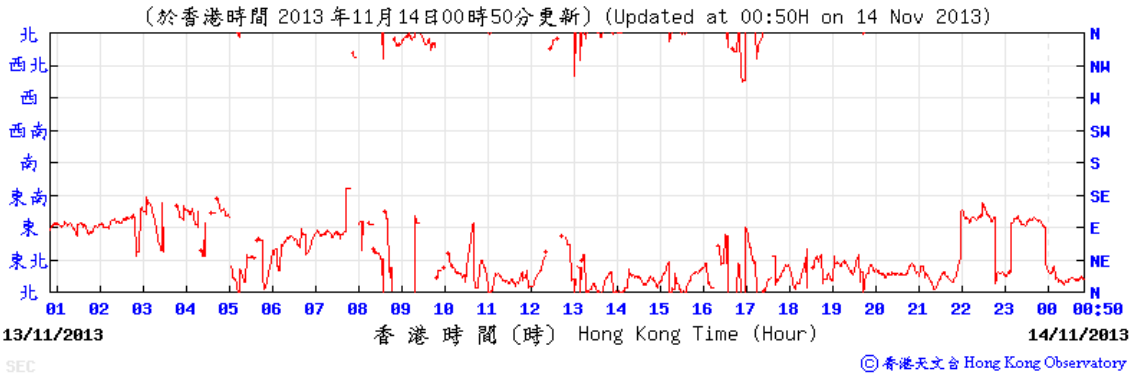
7-8 November 2013

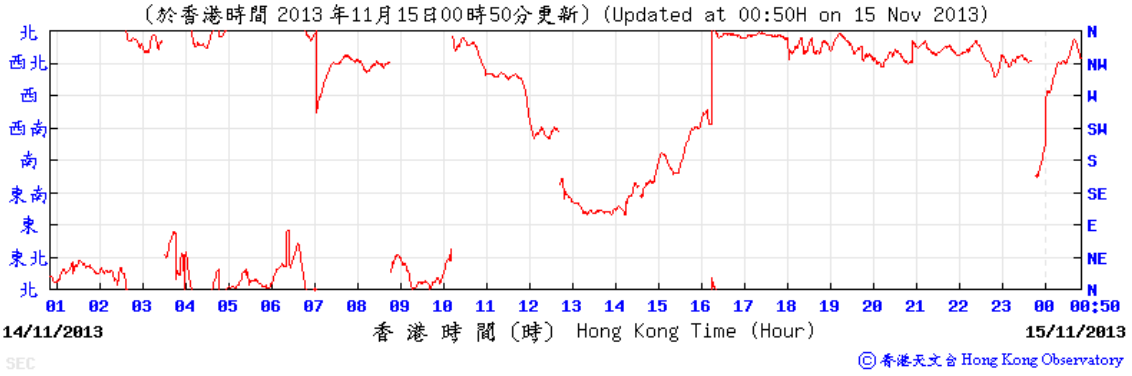




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

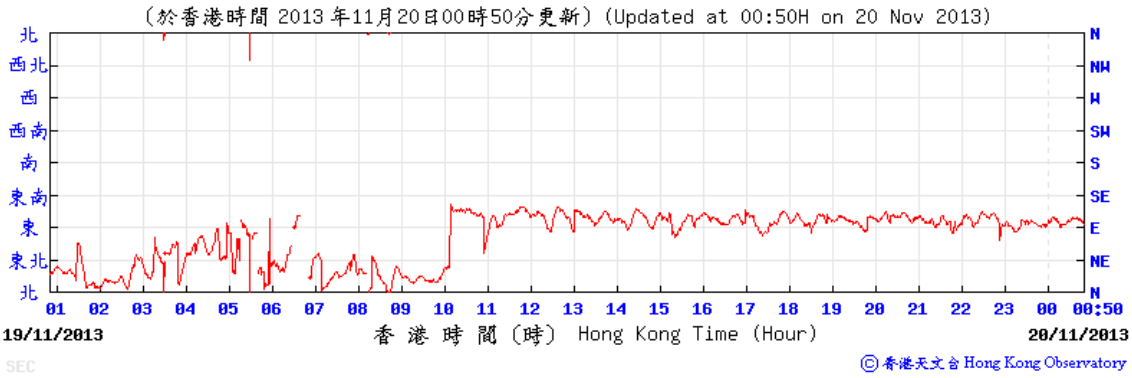
13-14 November 2013

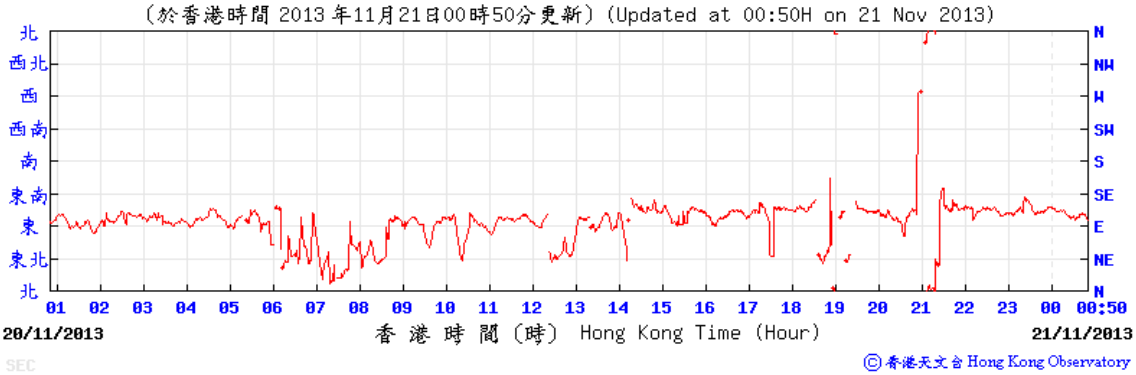




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

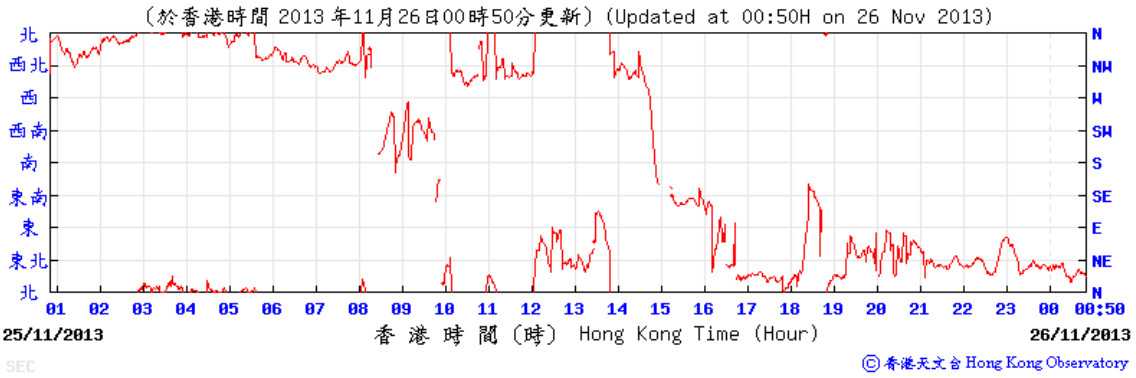
19-20 November 2013

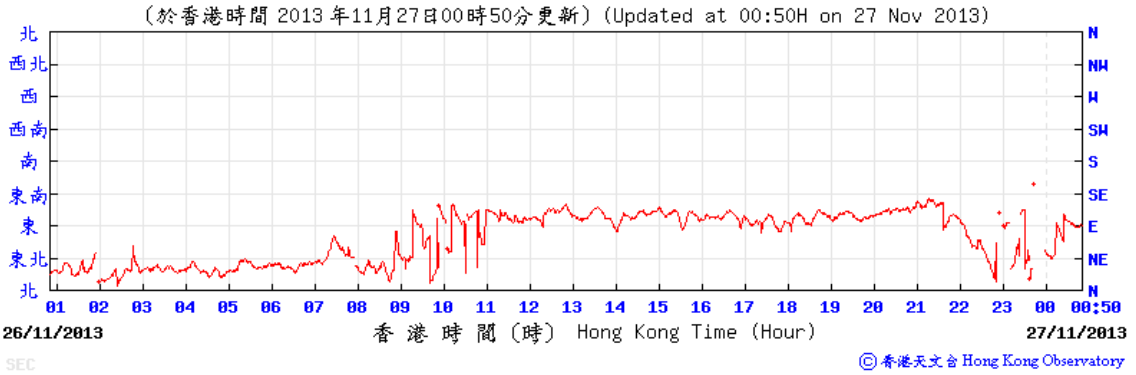




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

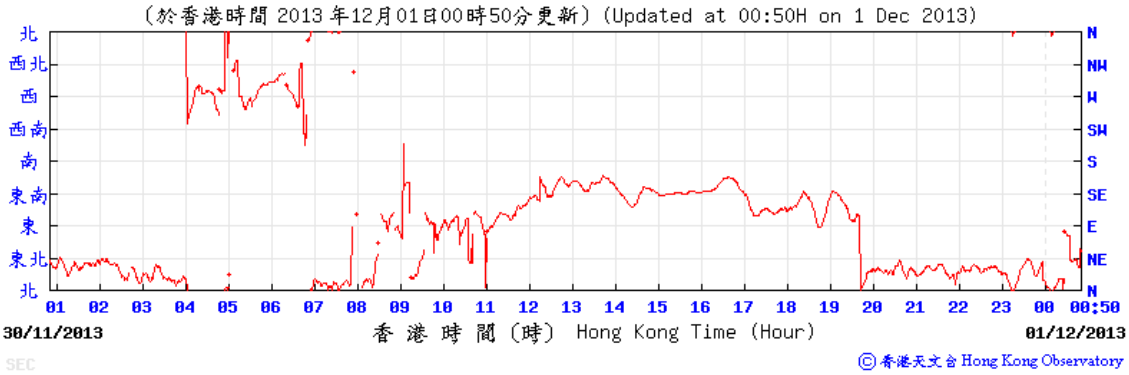
25-26 November 2013

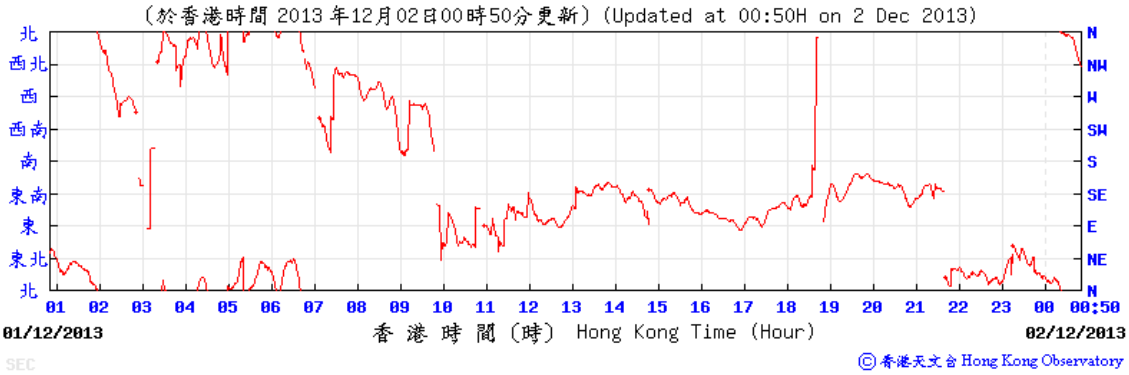




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30 November – 1 December 2013





APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

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_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
4-Nov-13	Cloudy	09:30	74.2	75.5	72.9	74.4	71	71.7
		09:35	74.3	75.5	73.1			
		09:40	74.3	75.5	73.0			
		09:45	74.6	75.9	73.0			
		09:50	74.2	75.4	72.8			
		09:55	74.6	75.8	73.2			
15-Nov-13	Sunny	11:30	74.4	75.7	72.9	74.0		71.0
		11:35	74.0	75.1	72.7			
		11:40	74.2	75.5	72.9			
		11:45	74.0	75.3	72.5			
		11:50	73.8	75.3	72.2			
		11:55	73.4	74.7	71.9			
20-Nov-13	Cloudy	10:32	73.6	75.1	72.0	72.8		68.1
		10:37	72.3	73.3	70.9			
		10:42	72.4	73.5	71.1			
		10:47	72.8	74.0	71.3			
		10:52	72.8	73.7	71.8			
		10:57	72.6	73.8	71.2			
26-Nov-13	Sunny	09:45	74.7	75.8	73.4	74.5		71.9
		09:50	74.8	75.8	73.6			
		09:55	74.6	75.7	73.2			
		10:00	74.2	75.4	73.0			
		10:05	74.5	75.8	72.9			
		10:10	74.2	75.5	73.0			

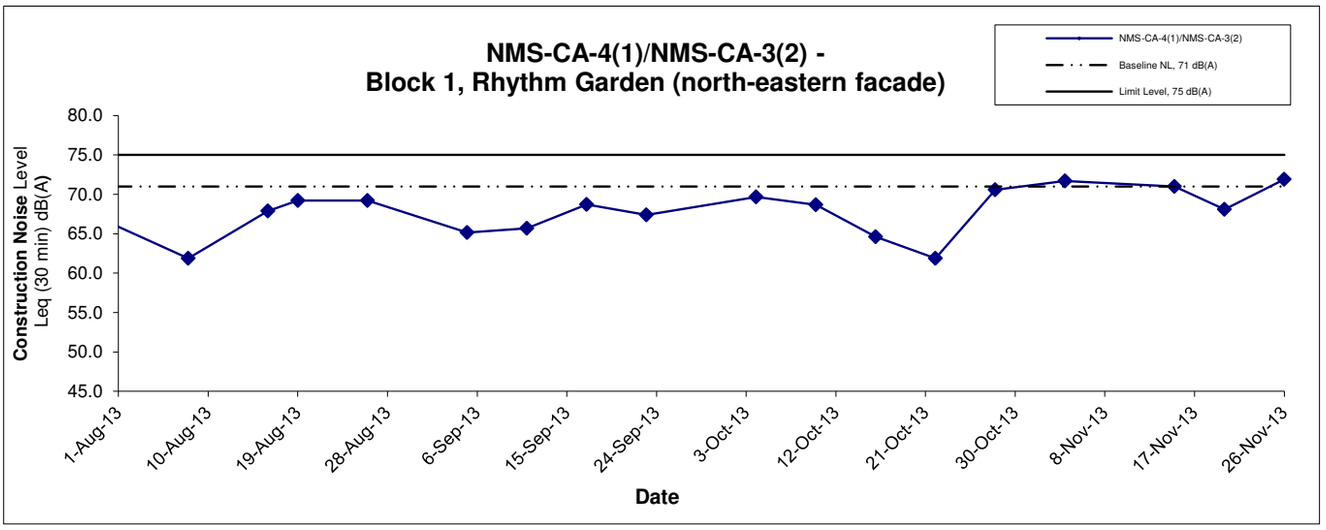
Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

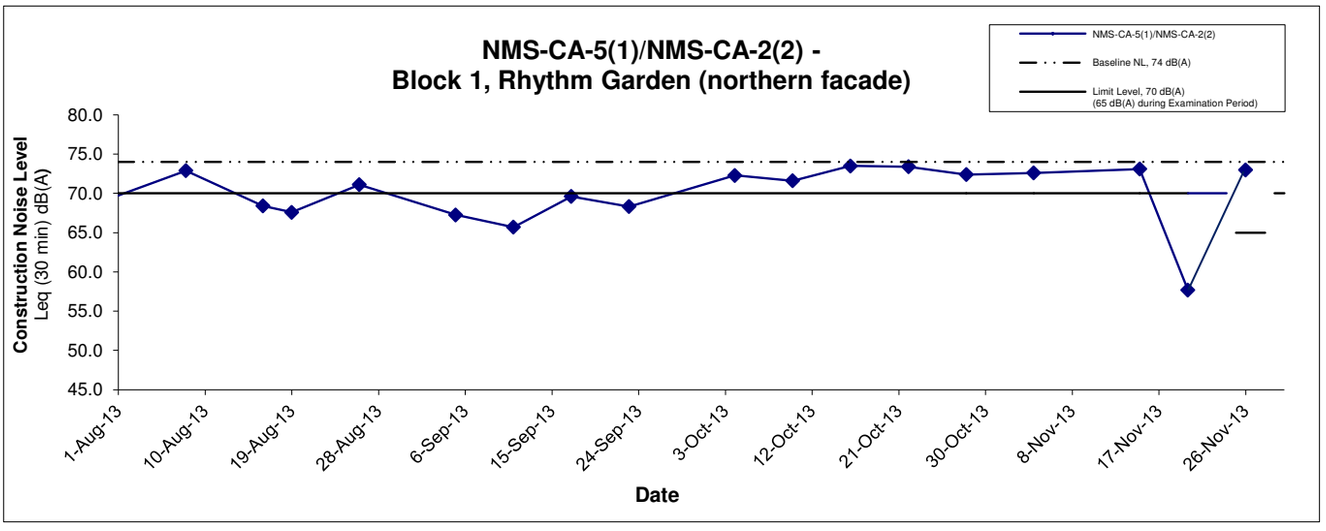
Appendix F - Noise Monitoring Results

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_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
4-Nov-13	Cloudy	08:55	73.0	74.4	71.2	72.6	74	72.6 Measured ≦ Baseline Level
		09:00	72.5	73.7	71.1			
		09:05	72.4	73.6	71.0			
		09:10	72.4	73.6	71.0			
		09:15	72.5	73.7	71.2			
		09:20	72.6	73.7	71.3			
15-Nov-13	Sunny	10:50	72.5	73.7	71.7	73.1		73.1 Measured ≦ Baseline Level
		10:55	73.0	74.2	71.8			
		11:00	73.2	74.3	72.0			
		11:05	73.4	74.6	72.1			
		11:10	73.3	74.5	72.0			
		11:15	73.2	74.5	72.0			
20-Nov-13	Cloudy	11:10	73.7	74.7	72.4	74.1		57.7
		11:15	74.2	75.4	72.9			
		11:20	74.5	75.7	73.0			
		11:25	74.3	75.5	72.9			
		11:30	73.7	74.7	72.2			
		11:35	74.3	75.6	72.8			
26-Nov-13	Sunny	09:45	73.3	74.4	72.1	73.0		73.0 Measured ≦ Baseline Level
		09:50	73.1	74.2	71.9			
		09:55	72.9	73.8	71.9			
		10:00	72.8	74.0	71.3			
		10:05	72.7	73.8	71.3			
		10:10	72.9	74.0	71.5			

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 ≦ 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 Date: Nov 13	Project No.: MA12051 Appendix: F	CINOTECH

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: November 2013

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131105
Date	5 November 2013 (Tuesday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
131105-R01	*Part B – Water Quality* • No environmental deficiency was identified during the site inspection. *Part C – Ecology* • No environmental deficiency was identified during the site inspection. *Part D – Landscape & Visual* • To remove the general refuse and construction material from the tree protection area at tree DT1885. *Part E – Air Quality* • No environmental deficiency was identified during the site inspection. *Part F – Cultural Heritage* • No environmental deficiency was identified during the site inspection. *Part G - Construction Noise Impact* • No environmental deficiency was identified during the site inspection. *Part H – Waste/Chemical Management* • No environmental deficiency was identified during the site inspection. *Part I – Permits/Licenses* • No environmental deficiency was identified during the site inspection. *Part J - Others* • Follow-up on previous audit section (Ref. No.:131029), all identified environmental deficiency was observed improved/rectified by the Contractor.	D3

	Name	Signature	Date
Recorded by	Johnny Fung		5 November 2013
Checked by	Dr. Priscilla Choy		5 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131112
Date	12 November 2013 (Tuesday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Ecology*** • No environmental deficiency was identified during the site inspection.	
131112-R02	***Part D – Landscape & Visual*** • Properly store the wooden planks away from the tree near the sedimentation tank.	D3
	Part E – Air Quality • No environmental deficiency was identified during the site inspection. ***Part F – Cultural Heritage*** • No environmental deficiency was identified during the site inspection. ***Part G - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection.	
131112-R01	***Part H – Waste/Chemical Management*** • Properly clear the oil stain on unpaved ground near archaeological site.	F9
	Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection. ***Part J - Others*** • Follow-up on previous audit section (Ref. No.:131105), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		12 November 2013
Checked by	Dr. Priscilla Choy		12 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131119
Date	19 November 2013 (Tuesday)
Time	9:15 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Ecology*** • No environmental deficiency was identified during the site inspection.	
131119-R02	***Part D – Landscape & Visual*** • To remove the construction materials within tree protection area. (near archaeological site)	D3
131119-R03	***Part E – Air Quality*** • The gap between the enclosure of cement/bentonite mixing facilities should be sealed to prevent dust dispersion. (near the silo tank)	E11
	Part F – Cultural Heritage • No environmental deficiency was identified during the site inspection. ***Part G - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection.	
131119-O01	***Part H – Waste/Chemical Management*** • To provide drip tray to contain the chemical to prevent leakage. (near Tree DT1885)	H9
	Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection. ***Part J - Others*** • Follow-up on previous audit section (Ref. No.:131112), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Gary Lau		19 November 2013
Checked by	Dr. Priscilla Choy		19 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131126
Date	26 November 2013 (Tuesday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
131126-O01	*Part B – Water Quality* • No environmental deficiency was identified during the site inspection. *Part C – Ecology* • No environmental deficiency was identified during the site inspection. *Part D – Landscape & Visual* • The Contractor is reminded to properly erect the fencing of tree protection zone near the archaeological zone. *Part E – Air Quality* • No environmental deficiency was identified during the site inspection. *Part F – Cultural Heritage* • No environmental deficiency was identified during the site inspection.	D2, 3
131126-R02	*Part G - Construction Noise Impact* • Excavator near Tree DT1885 should be switched off when not in use. *Part H – Waste/Chemical Management* • No environmental deficiency was identified during the site inspection. *Part I – Permits/Licenses* • No environmental deficiency was identified during the site inspection. *Part J - Others* • Follow-up on previous audit section (Ref. No.:131119), all identified environmental deficiency was observed improved/rectified by the Contractor.	G 4

	Name	Signature	Date
Recorded by	Johnny Fung		26 November 2013
Checked by	Dr. Priscilla Choy		26 November 2013

APPENDIX I
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER 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.
2.Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor 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 addtional 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.

LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the IEC, Contractor 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.
2.Exceedance for two or more consecutive samples	1. Notify IEC, Contractor and EPD; 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, Contractor 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. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	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 and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 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, Contractor 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	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 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 exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 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	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 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1106 ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

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
Cultural Heritage Impact (Construction Phase)								
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	• AMO's requirements	^ ^
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	• AMO's requirements • Principles for the Conservation of Heritage Sites in China • Burra Charter, the Australia's ICOMOS Charter for Places of Cultural Significance	^
Ecology (Construction Phase)								
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	• ProPECC PN 1/94	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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		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: • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						^ ^
Landscape & Visual (Construction Phase)								
S6.12	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • 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. <u>No-intrusion Zone</u> • 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	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	^ *

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
		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. <u>Protection of Retained Trees</u> • 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. • 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.						* ^
Table 6.9	LV2	<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. <u>Management of facilities on work sites</u> • To provide proper management of the facilities on the sites, give	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	^ ^

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
		control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <u>Tree Transplanting</u> • 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.						N/A
Construction Dust Impact								
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	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	^

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
		an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency						
S7.6.6	D3	• 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • 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; • 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; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and	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	^ ^ ^ ^ ^ ^

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
		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;						
		• 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;						^
		• 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;						^
		• 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;						^
		• 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;						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
		• Any skip hoist for material transport should be totally enclosed by impervious sheeting; • 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; • 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 • 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.						^ * ^ * 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	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	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	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
			screening.					
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 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	^
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	To minimize water quality impact from construction	Contractor	All construction sites	Construction stage	• Water Pollution Control Ordinance	

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
		(ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> • 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. • 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. 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	site runoff and general construction activities		where practicable		• ProPECC PN1/94 • TM-EIAO • TM-Water	^ ^

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
		under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s a sedimentation basin of 30m^3 would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. • 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. • 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. • 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						^ ^ ^

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
		and disposed of by spreading evenly over stable, vegetated areas. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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. 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 • 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						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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes • 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. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality						^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		impacts. • 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 • 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. • Adopt best management practices.						^ N/A ^
S10.7.1	W3	<u>Sewage Effluent</u> • 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^
S10.7.1	W5	<u>Accidental Spillage</u> In order to prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and the	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	* *

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
		locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • 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 • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.						^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • 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	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) No. 6/2010	N/A

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		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	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		verified; and • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&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						^ ^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^ ^

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		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.						
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^ ^

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
		local collection scheme should be considered by the Contractor.						
S11.5.1	WM6	<u>Chemical Waste</u> • 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. • 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. • The storage area for chemical wastes should 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.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^ ^ ^

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		• 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

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

Contract No: **MTR SCL 1106 - Diamond Hill Station**
Date of Report: **November, 2013**

Monthly Summary Waste Flow Table for 2013

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^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	
Jan	0.610	0.000	0.000	0.000	0.610	0.000	0.000	0.000	0.000	0.000	0.267	
Feb	2.171	0.000	0.000	0.272	1.899	0.000	0.000	0.000	0.000	0.000	0.203	
Mar	1.416	0.000	0.000	0.392	1.024	0.000	0.000	0.000	0.000	1.500	0.172	
Apr	1.977	0.000	0.000	0.463	1.514	0.000	0.000	0.000	0.000	0.000	1.545	
May	2.638	0.000	0.000	0.400	2.238	0.000	0.000	0.050	0.000	0.000	1.396	
Jun	2.467	0.000	0.000	0.000	2.467	0.000	0.002	0.000	0.000	0.480	0.612	
Sub-total	11.280	0.000	0.000	1.527	9.752	0.000	0.002	0.050	0.000	1.980	4.194	
Jul	2.730	0.000	0.000	2.143	0.588	0.000	0.000	0.000	0.000	0.640	0.321	
Aug	2.210	0.000	0.000	1.504	0.706	0.000	0.000	0.260	0.000	0.960	0.278	
Sept	2.505	0.000	0.000	1.594	0.912	0.000	0.000	0.000	0.000	0.000	0.011	
Oct	1.932	0.000	0.000	1.575	0.357	0.000	0.000	0.030	0.000	2.560	0.008	
Nov	1.907	0.000	0.000	1.535	0.372	0.000	11.020	0.020	0.000	1.760	0.065	
Dec												
Total	22.565	0.000	0.000	9.878	12.686	0.000	11.022	0.360	0.000	7.900	4.877	

Notes:

1) Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m^3. Assumption the densities of general refuse is 1.0 tonnes/m^3
2) Inert C&D material was delivered to Kai Tak Barging Point Facility (Contract 1108A)
3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.

APPENDIX L
CUMULATIVE LOG FOR COMPLAINT LOGS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

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
--	--	--	--	--	--

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
--	--	--	--	--	--

Appendix G

7th EM&A Report for Works Contract 1107 – Diamond Hill to Kai Tak Tunnels

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No.7

[Period from 1 to 30 Nov 2013]

Works Contract 1107 – Diamond Hill to Kai Tak Tunnels

(November 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 10 December 2013

Chun Wo – SELI Joint Venture

Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels

Monthly Environmental Monitoring and Audit Report For November 2013

(Version 2.0)

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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EXECUTIVE SUMMARY

Introduction

1. This is the 7th 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 November to 30 November 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

- Site investigation works;
- Investigation and removal of old foundation works;
- Hoarding erection;
- Sheet piling works;
- Shaft excavation; and
- Site preparation works.

Variation in Construction Method

3. 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 and the updated EP (EP No.: EP-438/2012/D) was issued by EPD on 13 September 2013 for the varied construction method.

Environmental Monitoring and Audit Progress

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(1)(3)/NMS-CA-3(2)(3) (Block 1, Rhythm Garden (north-eastern façade)) 4 times
- NMS-CA-5(1)(4)/NMS-CA-2(2)(4) (Block 1, Rhythm Garden (northern façade)) 4 times

- Construction Dust (24-hour TSP) Monitoring

Dust Monitoring Station ID

- DMS-4(1)(5)/ DMS-3(2)(5) (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(1)/ NMS-CA-3(2) (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(1)/ NMS-CA-2(2) (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.
(5) Dust monitoring on DMS-4(1)/ DMS-3(2) (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 1, 15 and 29 November 2013. 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 1, 8, 15, 22 and 29 November 2013. The representative of the IEC joined the site inspection on 15 November 2013. 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 prosecutions was received in this reporting period.

Future Key Issues

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

- Site investigation works;
- Investigation and removal of old foundation works;
- Hoarding erection;
- Sheet piling works;
- Shaft excavation;
- Nullah diversion; and
- Site preparation works.

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 7th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 November to 30 November 2013. The major construction works for Contract 1107 commenced on 27 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**.

- Site investigation works;
- Investigation and removal of old foundation works;
- Hoarding erection;
- Sheet piling works;
- Shaft excavation; and
- Site preparation 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 is presented in **Table 2.1**. No new Construction Noise Permit (CNP) was granted by EPD in this reporting month.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/C	30/04/2013	12/09/2013	Supersed by EP-438/2012/D since 13 September 2013
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref no.: 357051	18/03/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No. 7017163	26/03/2013	N/A	Valid
Registration of Chemical Waste Producer			
5213-286-C3798-01	29/04/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00015861-2013	13/05/2013	31/05/2018	Valid
WT00016009-2013	23/05/2013	31/05/2018	Valid
Construction Noise Permit (CNP)			
PP-RE0028-13	15/07/2013	14/01/2014	Valid
GW-RE0852-13	19/08/2013	31/12/2013	Valid
GW-RE1064-13	08/10/2013	31/03/2014	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

Regular Construction Noise Monitoring Location[4][5]	Description	Type of Measurement
NMS-CA-4[1]/ NMS-CA-3[2]	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5[1][3]/ NMS-CA-2[2][3]	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[1]/ NMS-CA-3[2] (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[1]/ NMS-CA-2[2] (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 $L_{eq,\ 5\text{-}min}$ 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 & 957 (Serial no.: 14303, 21459)
Calibrator	SVANTEK – SV30A (Serial no.: 10929, 24803) B&K 4231 (Serial no.: 2412367)

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

Regular Dust Monitoring Location	Description
DMS-4[(1)(3)]/ DMS-3[(2)(3)]	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[(1)]/DMS-3[(2)] (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(1)	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: 2323	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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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^3/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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±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 (October 2013)	14th November 2013

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 8 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 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 noise monitoring results together with their graphical presentations are presented in **Appendix F**.

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 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 $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hr TSP (DMS-4[(1)(3)]/ DMS-3[(2)(3)])	48.2	124.6	80.2	160.4	260

5.6 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.

5.7 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.

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

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[(1)]/DMS-3[(2)] (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

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. 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**. No plastics and 15,720 kg of metals were generated 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) [(a)]	C&D Materials (non-inert) [(b)]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
November 2013	*2,435 m^3*	*70 m^3*	*0 kg*	*103 kg*	*0 kg*	*15,720 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

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 1, 15 and 29 November 2013. 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 1, 8, 15, 22 and 29 November 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 15 November 2013. No site inspection was conducted by EPD during 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
Water Quality	25 Oct 2013	Reminder: Clear the sediments accumulated in the U-channel to avoid discharge out of site.	The observation was observed to be improved/rectified by the Contractor during the audit session on 1 Nov 2013.
	25 Oct 2013	Muddy water observed deposited in the drainage. The Contractor is reminded to remove the muddy water as soon as possible to prevent discharge out of site.	The observation was observed to be improved/rectified by the Contractor during the audit session on 1 Nov 2013.
Noise	1 Nov 2013	Reminder: Properly erect the noise barrier near Kai Ching Estate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	8 Nov 2013	Reminder: Properly erect the noise barrier at Kai Ching Estate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	15 Nov 2013	Reminder: Properly erect the noise barrier at hoardings near Kai Ching Estate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	22 Nov 2013	The Contractor is reminded to properly erect the noise blankets at hoarding near Kai Ching Estate.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	29 Nov 2013	Reminder: Properly erect the noise barrier for power-pack.	Follow up action will be reported in next reporting month.
Landscape and Visual	--	--	--

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	1 Nov 2013	Reminder: Provide water spray facilities to stockpile of excavated material to avoid dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 15 Nov 2013.
	8 Nov 2013	Provide water spray facilities to stockpile of excavated material or cover with tarpaulin sheets properly.	The observation was observed to be improved/rectified by the Contractor during the audit session on 15 Nov 2013.
	15 Nov 2013	Reminder: Properly maintain and check powered mechanical equipments to avoid dark smoke emission.	The observation was observed to be improved/rectified by the Contractor during the audit session on 22 Nov 2013.
	22 Nov 2013	Reminder: To properly maintain generator to avoid smoke emission.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	29 Nov 2013	Black smoke emission observed from excavator. The Contractor is reminded to properly maintain the excavator and avoid dark smoke emission.	Follow up action will be reported in next reporting month.
Waste / Chemical Management	25 Oct 2013	Reminder: Clear the stagnant water in the drip tray near the silo tanks.	The observation was observed to be improved/rectified by the Contractor during the audit session on 1 Nov 2013.
	8 Nov 2013	Reminder: Provide drip tray to chemical containers on unpaved area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 22 Nov 2013.
	15 Nov 2013	Chemical containers observed deposited on unpaved ground. The Contractor is reminded to provide drip tray to chemical containers to avoid chemical spillage.	The observation was observed to be improved/rectified by the Contractor during the audit session on 22 Nov 2013.
	22 Nov 2013	Empty chemical containers should be placed at chemical storage tank properly.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 Nov 2013.
	29 Nov 2013	Reminder: Provide a plug for drip tray of air compressor-set.	Follow up action will be reported in next reporting month.
Permits/ Licenses	29 Nov 2013	Reminder: Properly provide copy of Environmental Permit at site entrance.	Follow up action will be reported in next reporting month.

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. 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:

- Site investigation works;
- Investigation and removal of old foundation works;
- Hoarding erection;
- Sheet piling works;
- Shaft excavation;
- Nullah diversion; and
- Site preparation works.

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 D-wall construction;
- 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 to 30 November 2013 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.

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

- The Contractor is reminded to properly erect the noise blankets at hoarding near Kai Ching Estate.
- It is reminded to properly erect the noise barrier for power-pack.

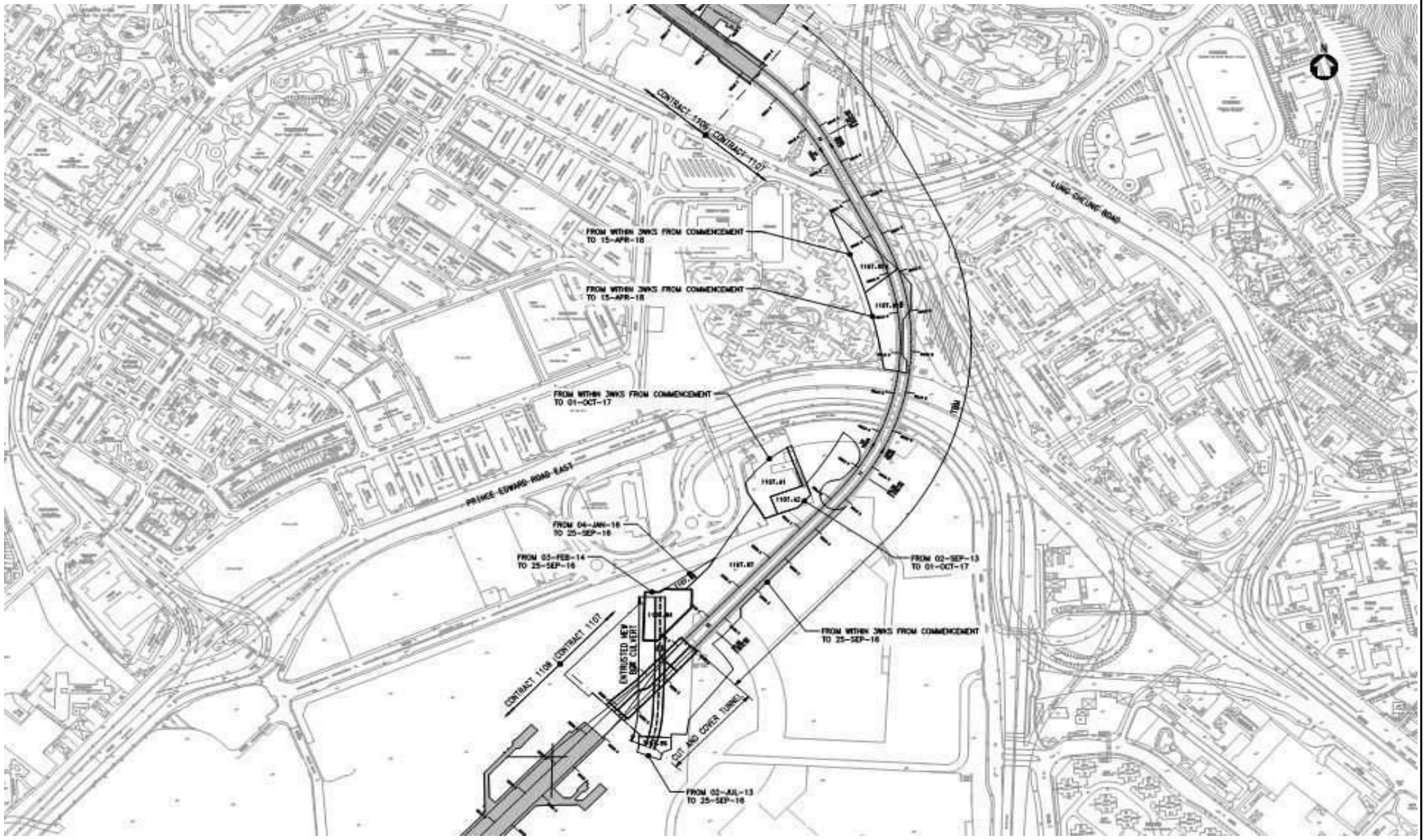
Air Quality

- The Contractor is reminded to properly maintain the excavator and avoid dark smoke emission.
- It is reminded to provide water spray facilities to stockpile of excavated material or cover with tarpaulin sheets properly.

Waste/Chemical Management

- The Contractor is reminded to provide drip tray to chemical containers to avoid chemical spillage.

FIGURES

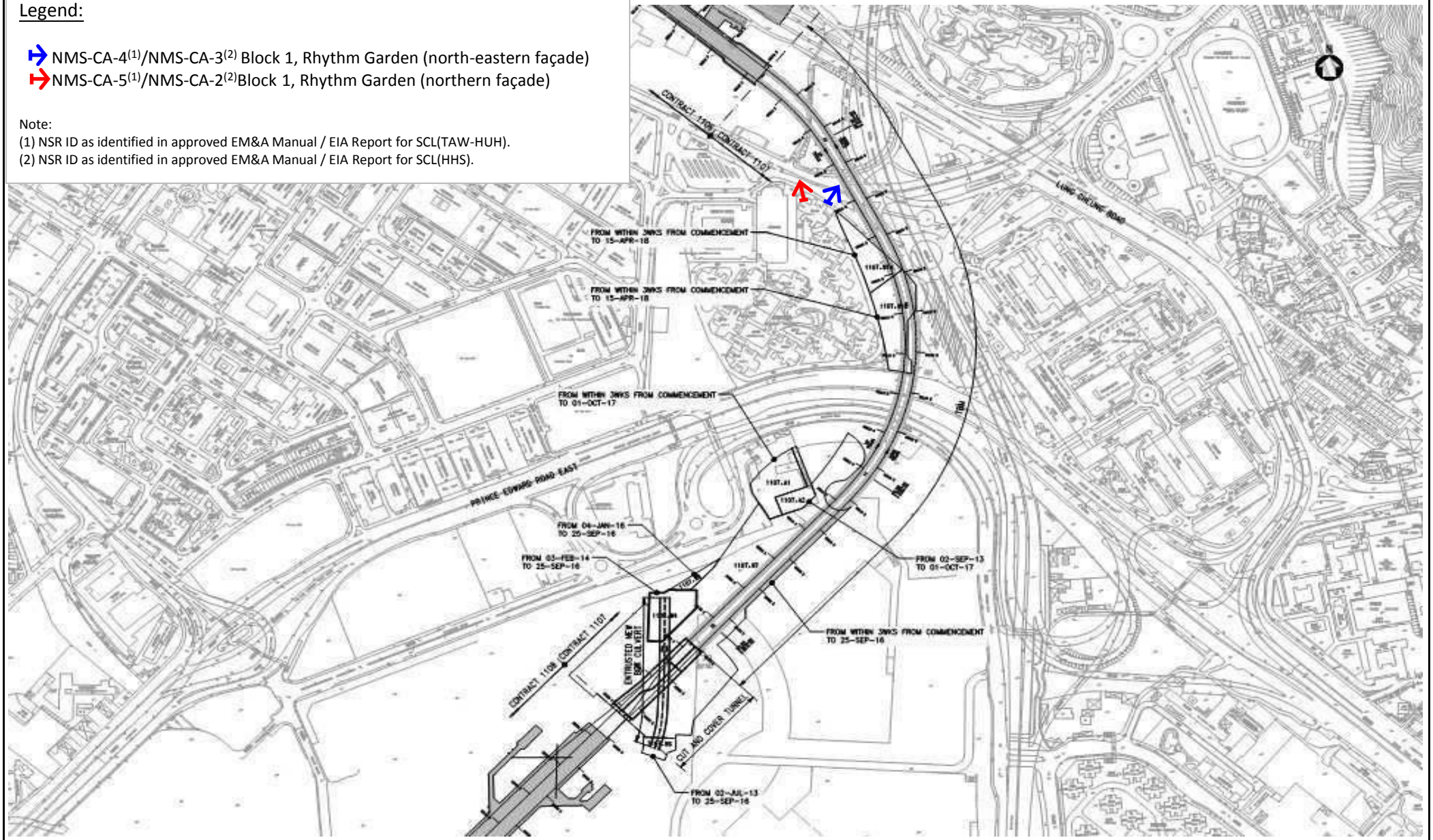


Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Site Layout Plan	Scale N.T.S	Project No. MA13018	CINOTECH
		Date May-13	Figure 1	

Legend:

NMS-CA-4[1]/NMS-CA-3[2] Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5[1]/NMS-CA-2[2]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).

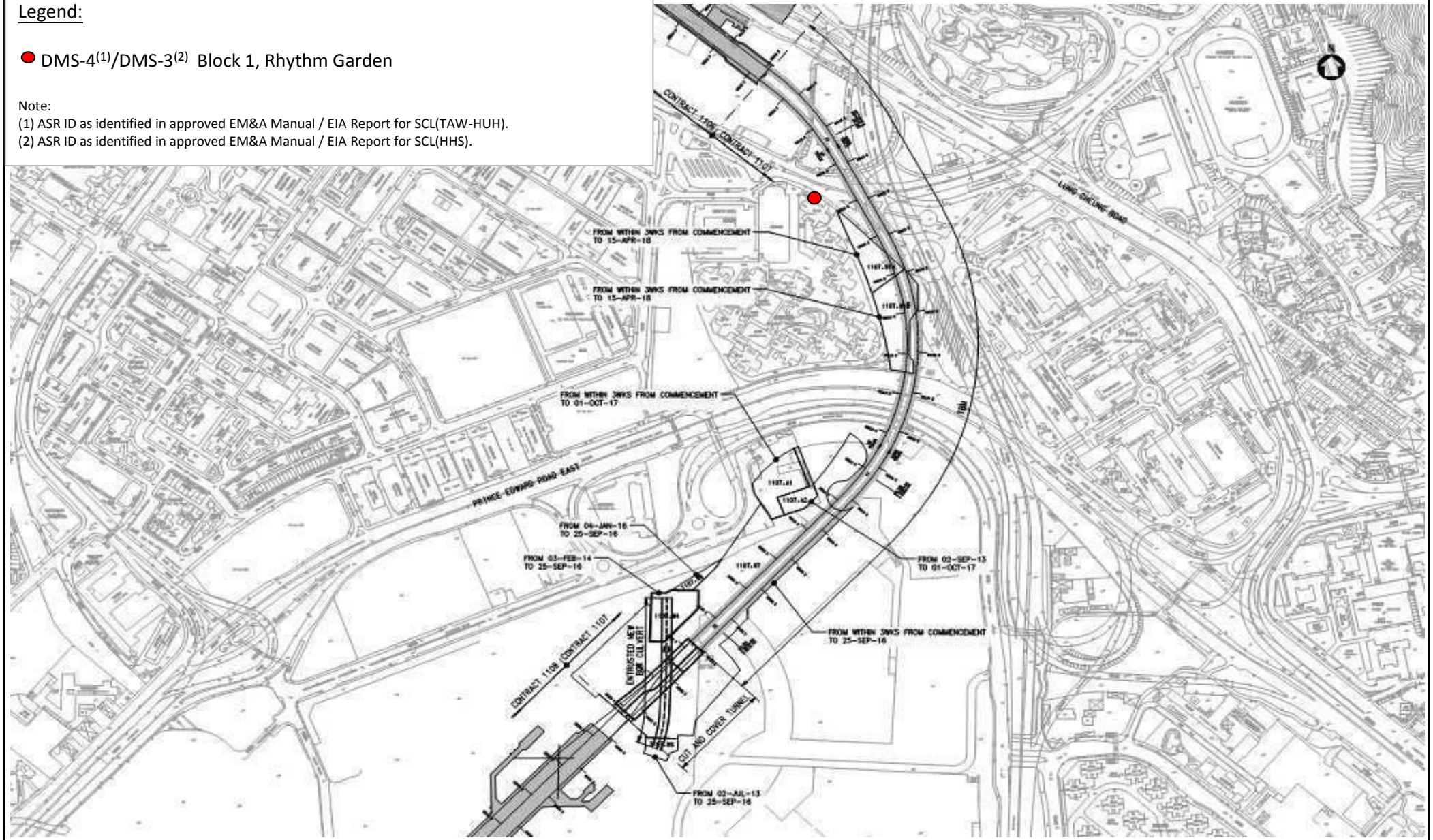


Title: MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Constrcution Noise Monitoring	Scale: N.T.S	Project No.: MA13018	CINOTECH
	Date: May-13	Figure: 2	

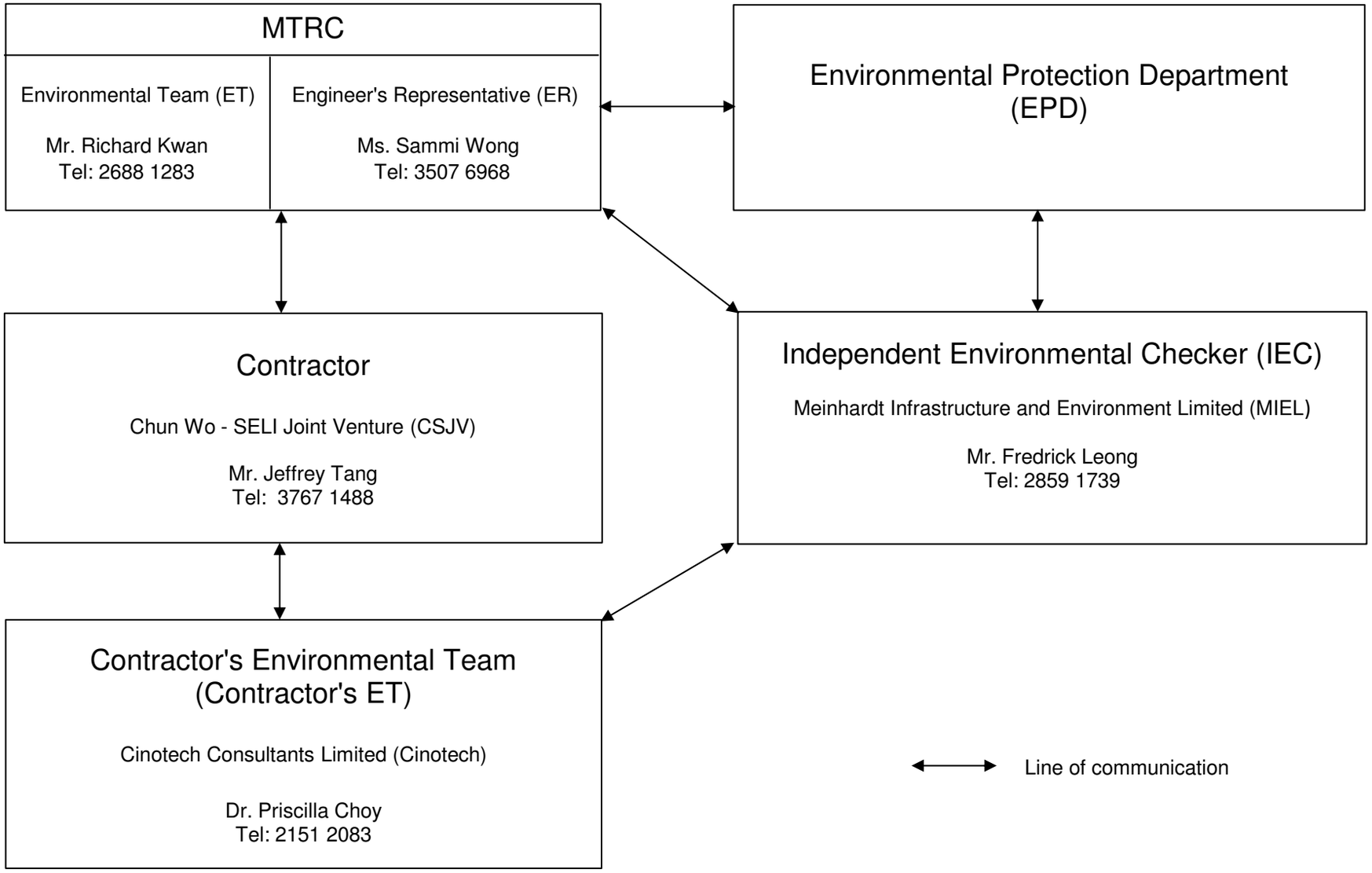
Legend:

● DMS-4(1)/DMS-3(2) 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	

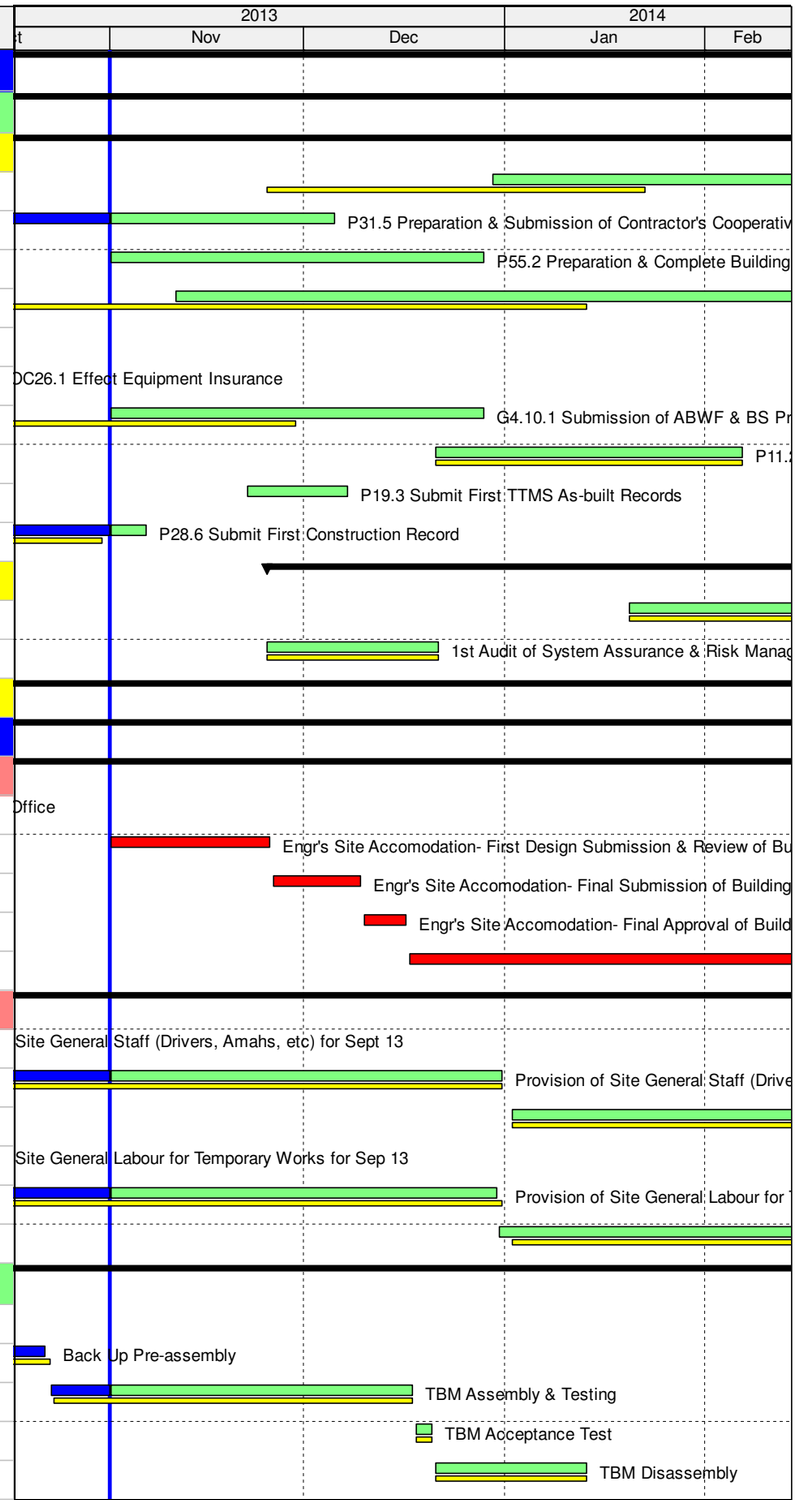


Title	Scale	Proposal No.
MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Organisation Chart and Key Contact of the Project	N.T.S	MA13018
	Date: Jun-13	Figure: 4

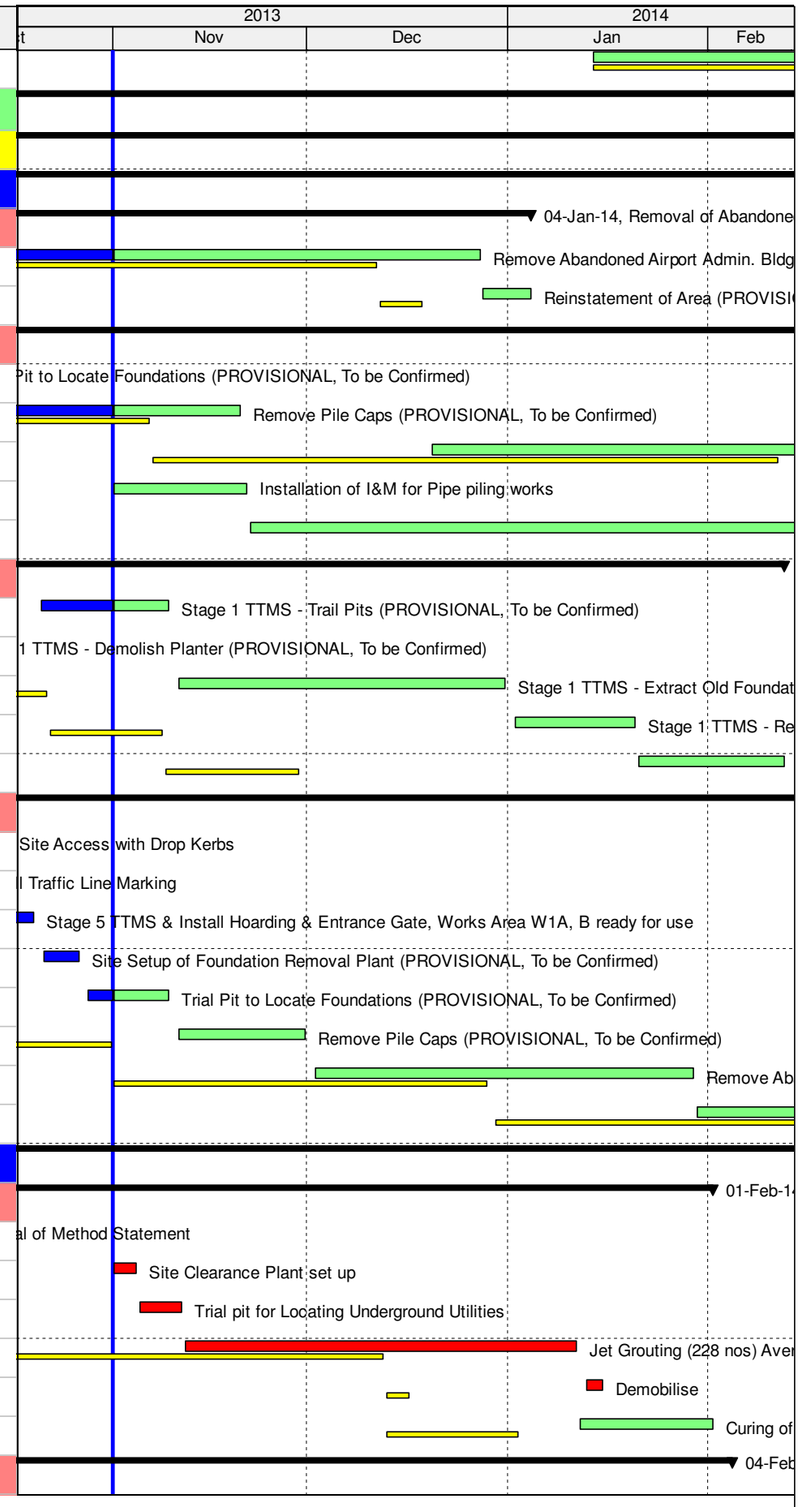
CINOTECH

APPENDIX A
TENTATIVE CONSTRUCTION PROGRAMME

Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month		318	11-Mar-13	31-Mar-14	28-Jun-13 A	03-Apr-14	
Cost Centre A - Preliminaries		315	11-Mar-13	31-Mar-14	18-Jul-13 A	31-Mar-14	
Contractor Submission Schedule		287	11-Mar-13	06-Feb-14	18-Jul-13 A	26-Feb-14	
1107.11580	P35.2 Preparation & Submission of Civil/E&M/BS Coordination Programme	48	25-Nov-13	22-Jan-14	30-Dec-13	26-Feb-14	
1107.11660	P31.5 Preparation & Submission of Contractor's Cooperative Training Scheme (CCTS)	72	11-Mar-13	08-Jun-13	29-Aug-13 A	05-Dec-13	
1107.11690	P55.2 Preparation & Complete Building Information Model based on Engr's Dwgs	48	11-Mar-13	08-Jun-13	01-Nov-13	28-Dec-13	
1107.11710	P12.10.1 Method statement to confirm no remains of left-in foundation or obstrucions in conflict with tunnel alignment	78	10-Oct-13	13-Jan-14	11-Nov-13	14-Feb-14	
1107.11730	G5.1.13, 5.1.14 Submit First Environmental Objectives & Targets	1	11-Mar-13	11-Mar-13	18-Jul-13 A	18-Jul-13 A	000154
1107.11890	COC26.1 Effect Equipment Insurance	2	04-Oct-13	05-Oct-13	11-Oct-13 A	12-Oct-13 A	
1107.11990	G4.10.1 Submission of ABWF & BS Programme	48	04-Oct-13	29-Nov-13	01-Nov-13	28-Dec-13	
1107.12180	P11.2.5 Preparation & Submission of TBM Contingency/Surveillance Plan	36	21-Dec-13	06-Feb-14	21-Dec-13	06-Feb-14	000135
1107.12260	P19.3 Submit First TTMS As-built Records	14	09-Sep-13	25-Sep-13	22-Nov-13	07-Dec-13	
1107.12300	P28.6 Submit First Construction Record	22	04-Oct-13	30-Oct-13	11-Oct-13 A	06-Nov-13	
Project Audit		93	25-Nov-13	18-Mar-14	25-Nov-13	18-Mar-14	
1107.12450	1st Audit of programming management system	48	20-Jan-14	18-Mar-14	20-Jan-14*	18-Mar-14	
1107.12470	1st Audit of System Assurance & Risk Management & Design for Safety & Constructability plans	24	25-Nov-13	21-Dec-13	25-Nov-13*	21-Dec-13	
Site Enabling Works		199	05-Apr-13	31-Mar-14	02-Aug-13 A	31-Mar-14	
Site Setup		199	05-Apr-13	31-Mar-14	02-Aug-13 A	31-Mar-14	
Engineer's Site Accomodation		186	05-Apr-13	10-Sep-13	02-Aug-13 A	15-Mar-14	
1107.12610	Engr's Site Accomodation- Design of Site Office	21	05-Apr-13	29-Apr-13	02-Aug-13 A	26-Aug-13 A	
1107.12620	Engr's Site Accomodation- First Design Submission & Review of Building Plans	21	30-Apr-13	25-May-13	01-Nov-13	25-Nov-13	
1107.12630	Engr's Site Accomodation- Final Submission of Building Plans	12	27-May-13	08-Jun-13	26-Nov-13	09-Dec-13	
1107.12640	Engr's Site Accomodation- Final Approval of Building Plans	6	10-Jun-13	17-Jun-13	10-Dec-13	16-Dec-13	
1107.12650	Engr's Site Accomodation- Construction Works	72	18-Jun-13	10-Sep-13	17-Dec-13	15-Mar-14	
Misc Items		163	14-Sep-13	31-Mar-14	13-Sep-13 A	31-Mar-14	
1107.18969	Provision of Site General Staff (Drivers, Amahs, etc) for Sept 13	13	14-Sep-13	30-Sep-13	14-Sep-13 A	30-Sep-13 A	
1107.18970	Provision of Site General Staff (Drivers, Amahs, etc) - Last Quarter of 2013	75	02-Oct-13	31-Dec-13	02-Oct-13 A	31-Dec-13	
1107.18980	Provision of Site General Staff (Drivers, Amahs, etc) - First Quarter of 2014	74	02-Jan-14	31-Mar-14	02-Jan-14	31-Mar-14	
1107.19150	Provision of Site General Labour for Temporary Works for Sep 13	13	14-Sep-13	30-Sep-13	13-Sep-13 A	28-Sep-13 A	
1107.19160	Provision of Site General Labour for Temporary Works - Last Quarter of 2013	75	02-Oct-13	31-Dec-13	30-Sep-13 A	30-Dec-13	
1107.19170	Provision of Site General Labour for Temporary Works - First Quarter of 2014	74	02-Jan-14	31-Mar-14	31-Dec-13	29-Mar-14	
Cost Centre B - Procurement of TBM		205	28-Jun-13	04-Mar-14	28-Jun-13 A	04-Mar-14	
1107.12851	TBM Manufacture & Refurbishment	54	28-Jun-13	30-Aug-13	28-Jun-13 A	30-Aug-13 A	
1107.12852	Back Up Pre-assembly	42	31-Aug-13	22-Oct-13	31-Aug-13 A	22-Oct-13 A	
1107.12860	TBM Assembly & Testing	48	23-Oct-13	17-Dec-13	23-Oct-13 A	17-Dec-13	
1107.12870	TBM Acceptance Test	3	18-Dec-13	20-Dec-13	18-Dec-13	20-Dec-13	
1107.12880	TBM Disassembly	17	21-Dec-13	13-Jan-14	21-Dec-13	13-Jan-14	



Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
1107.12890	Preparation Works for TBM Delivery	41	14-Jan-14	04-Mar-14	14-Jan-14	04-Mar-14	
Cost Centre C - Tunnel Construction by TBM		225	11-May-13	22-Mar-14	29-Jun-13 A	28-Mar-14	
Site Enabling Works for TBM		213	11-May-13	22-Mar-14	15-Jul-13 A	28-Mar-14	
OPTION 3 - Obstruction Removal		169	24-Jul-13	26-Feb-14	04-Sep-13 A	28-Mar-14	
Removal of Abandoned Airport Admin Bldg Foundations UP Track		84	09-Sep-13	18-Dec-13	24-Sep-13 A	04-Jan-14	
1107.13510	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)	78	09-Sep-13	11-Dec-13	24-Sep-13 A	27-Dec-13	
1107.13520	Reinstatement of Area (PROVISIONAL, To be Confirmed)	6	12-Dec-13	18-Dec-13	28-Dec-13	04-Jan-14	
Removal of Abandoned Airport Admin Bldg Foundations DN Track		151	09-Sep-13	11-Feb-14	24-Sep-13 A	26-Mar-14	
1107.13540	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	12	09-Sep-13	23-Sep-13	24-Sep-13 A	08-Oct-13 A	
1107.13550	Remove Pile Caps (PROVISIONAL, To be Confirmed)	36	24-Sep-13	06-Nov-13	09-Oct-13 A	20-Nov-13	
1107.13560	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)	78	07-Nov-13	11-Feb-14	20-Dec-13	26-Mar-14	
1107.14670	Installation of I&M for Pipe piling works	18			01-Nov-13	21-Nov-13	
1107.17280	Pipe Pile Wall Installation	78			22-Nov-13	26-Feb-14	
Removal of Abandoned Pre-existing Structure Foundations		120	24-Jul-13	29-Nov-13	17-Sep-13 A	12-Feb-14	
1107.13630	Stage 1 TTMS - Trail Pits (PROVISIONAL, To be Confirmed)	16	24-Jul-13	10-Aug-13	21-Oct-13 A	09-Nov-13	
1107.13640	Stage 1 TTMS - Demolish Planter (PROVISIONAL, To be Confirmed)	16	12-Aug-13	29-Aug-13	17-Sep-13 A	07-Oct-13 A	
1107.13650	Stage 1 TTMS - Extract Old Foundations (PROVISIONAL, To be Confirmed)	42	30-Aug-13	21-Oct-13	11-Nov-13	31-Dec-13	
1107.13660	Stage 1 TTMS - Reinstate Area (PROVISIONAL, To be Confirmed)	16	22-Oct-13	08-Nov-13	02-Jan-14	20-Jan-14	
1107.13670	Stage 2 TTMS - Trail Pits (PROVISIONAL, To be Confirmed)	18	09-Nov-13	29-Nov-13	21-Jan-14	12-Feb-14	
Removal of Abandoned Blackdown Barracks Foundations		169	29-Jul-13	26-Feb-14	04-Sep-13 A	28-Mar-14	
1107.13750	Stage 3 TTMS & Modify Site Access with Drop Kerbs	11	29-Jul-13	17-Aug-13	04-Sep-13 A	16-Sep-13 A	
1107.13760	Stage 4 TTMS & Install Traffic Line Marking	2	18-Aug-13	19-Aug-13	17-Sep-13 A	18-Sep-13 A	
1107.13770	Stage 5 TTMS & Install Hoarding & Entrance Gate, Works Area W1A, B ready for use	24	20-Aug-13	16-Sep-13	19-Sep-13 A	19-Oct-13 A	
1107.13780	Site Setup of Foundation Removal Plant (PROVISIONAL, To be Confirmed)	6	17-Sep-13	24-Sep-13	21-Oct-13 A	26-Oct-13 A	
1107.13790	Trial Pit to Locate Foundations (PROVISIONAL, To be Confirmed)	12	25-Sep-13	09-Oct-13	28-Oct-13 A	09-Nov-13	
1107.13800	Remove Pile Caps (PROVISIONAL, To be Confirmed)	18	10-Oct-13	31-Oct-13	11-Nov-13	30-Nov-13	
1107.13810	Remove Abandoned Raft Footing Stage 1 (Southern Half) (PROVISIONAL, To be Confirmed)	48	01-Nov-13	28-Dec-13	02-Dec-13	29-Jan-14	
1107.13820	Remove Abandoned Raft Footing Stage 2 (Northern Half) (PROVISIONAL, To be Confirmed)	48	30-Dec-13	26-Feb-14	30-Jan-14	28-Mar-14	
Ground Treatment		208	11-May-13	22-Mar-14	15-Jul-13 A	22-Mar-14	
Jet Grouting Treatment for KAT TBM Launch Shaft		151	11-May-13	02-Jan-14	02-Aug-13 A	01-Feb-14	
1107.12950	Submission & Approval of Method Statement	42	11-May-13	02-Jul-13	02-Aug-13 A	19-Sep-13 A	
1107.12970	Site Clearance Plant set up	3	04-Oct-13	07-Oct-13	01-Nov-13	04-Nov-13	
1107.12980	Trial pit for Locating Underground Utilities	6	08-Oct-13	15-Oct-13	05-Nov-13	11-Nov-13	
1107.12990	Jet Grouting (228 nos) Average 5 Columns per day with 2 machines	50	16-Oct-13	12-Dec-13	12-Nov-13	11-Jan-14	
1107.13000	Demobilise	3	13-Dec-13	16-Dec-13	13-Jan-14	15-Jan-14	
1107.13010	Curing of Grout	21	13-Dec-13	02-Jan-14	12-Jan-14	01-Feb-14	
Jet Grouting Treatment for Cross Passage 3		129	14-Aug-13	06-Jan-14	29-Aug-13 A	04-Feb-14	

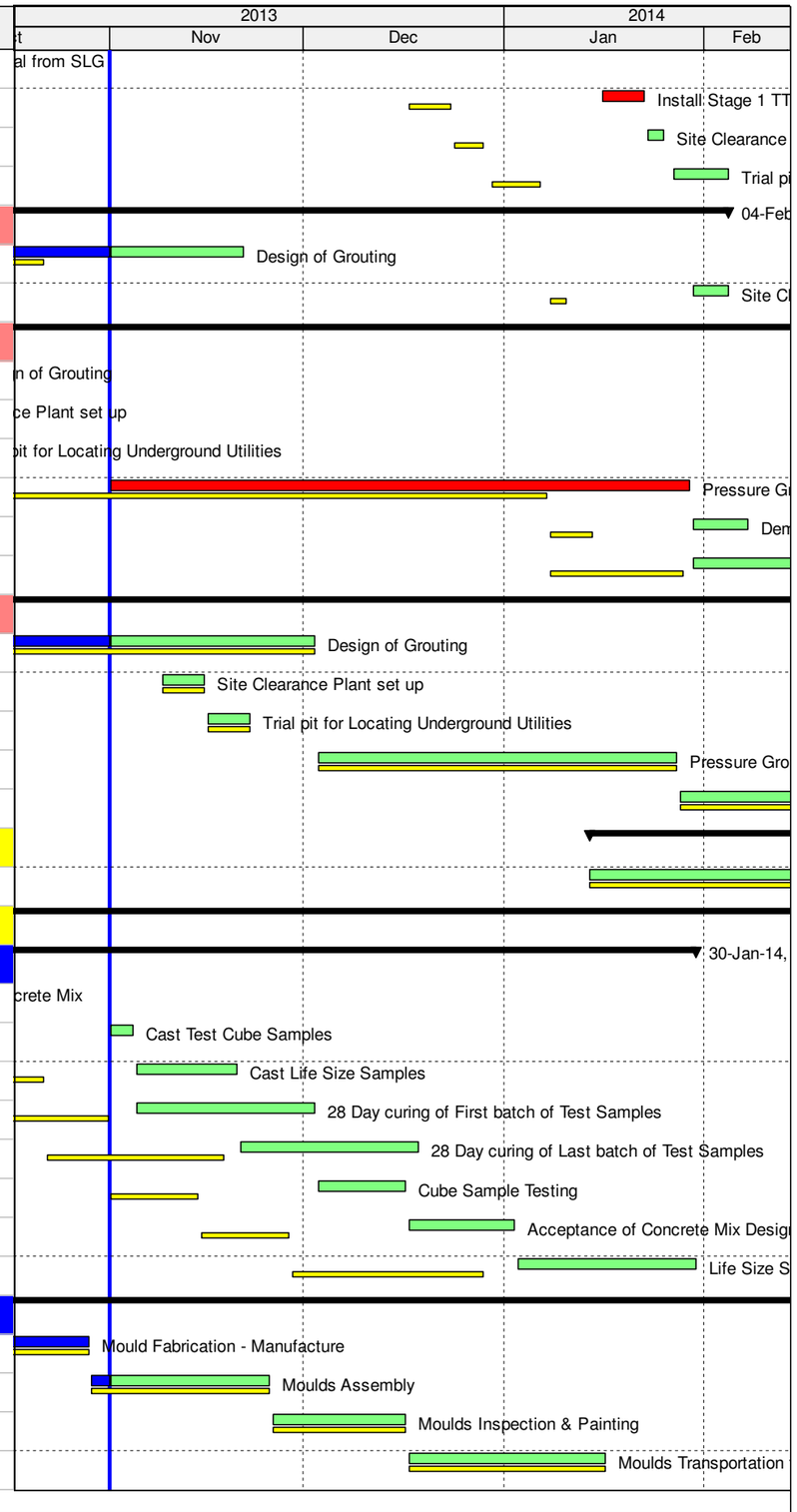


MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

No 008 DD 01-Nov-13

Date	Revision	Checked	Approved
05-No...	0	KCL	KCL

Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
1107.13040	Obtain Approval from SLG	26	14-Aug-13	12-Sep-13	29-Aug-13 A	28-Sep-13 A	
1107.13050	Install Stage 1 TTMS	6	17-Dec-13	23-Dec-13	16-Jan-14	22-Jan-14	
1107.13060	Site Clearance Plant set up	3	24-Dec-13	28-Dec-13	23-Jan-14	25-Jan-14	
1107.13070	Trial pit for Locating Underground Utilities	6	30-Dec-13	06-Jan-14	27-Jan-14	04-Feb-14	
Jet Grouting Treatment for Cross Passage 1		158	26-Jul-13	10-Jan-14	26-Jul-13 A	04-Feb-14	
1107.13239	Design of Grouting	72	26-Jul-13	21-Oct-13	26-Jul-13 A	21-Nov-13	
1107.13240	Site Clearance Plant set up	3	08-Jan-14	10-Jan-14	30-Jan-14	04-Feb-14	
Pressure Grouting Treatment to Pier Z5 Foundation		181	15-Jul-13	28-Jan-14	15-Jul-13 A	19-Feb-14	
1107.13299	Design of Grouting	72	15-Jul-13	08-Oct-13	15-Jul-13 A	08-Oct-13 A	
1107.13310	Site Clearance Plant set up	12	16-Sep-13	30-Sep-13	16-Sep-13 A	30-Sep-13 A	
1107.13320	Trial pit for Locating Underground Utilities	6	02-Oct-13	08-Oct-13	02-Oct-13 A	08-Oct-13 A	
1107.13330	Pressure Grouting (148 nos) Average 2 Points per day	74	09-Oct-13	07-Jan-14	01-Nov-13	29-Jan-14	
1107.13340	Demobilise	6	08-Jan-14	14-Jan-14	30-Jan-14	07-Feb-14	
1107.13350	Curing of Grout	21	08-Jan-14	28-Jan-14	30-Jan-14	19-Feb-14	
Pressure Grouting Treatment for DIH TBM Retrieval Shaft		156	13-Sep-13	22-Mar-14	13-Sep-13 A	22-Mar-14	
1107.13389	Design of Grouting	66	13-Sep-13	02-Dec-13	13-Sep-13 A	02-Dec-13	
1107.13410	Site Clearance Plant set up	6	09-Nov-13	15-Nov-13	09-Nov-13	15-Nov-13	
1107.13420	Trial pit for Locating Underground Utilities	6	16-Nov-13	22-Nov-13	16-Nov-13	22-Nov-13	
1107.13430	Pressure Grouting UP Track (181 nos) Average 4 Points/day with 2 machines	45	03-Dec-13	27-Jan-14	03-Dec-13	27-Jan-14	
1107.13431	Pressure Grouting DN Track (181 nos) Average 4 Points/day with 2 machines	45	28-Jan-14	22-Mar-14	28-Jan-14	22-Mar-14	
Mobilisation of TBM		30	14-Jan-14	19-Feb-14	14-Jan-14	19-Feb-14	
1107.13850	Tunnel Facilities Installation at External Yard	30	14-Jan-14	19-Feb-14	14-Jan-14	19-Feb-14	
Production of Pre - Cast Tunnel Lining		196	29-Jun-13	22-Feb-14	29-Jun-13 A	22-Feb-14	
Procurement of SFRC Fibres		178	29-Jun-13	28-Dec-13	29-Jun-13 A	30-Jan-14	
1107.18800	Design of Concrete Mix	77	29-Jun-13	28-Sep-13	29-Jun-13 A	28-Sep-13 A	
1107.18810	Cast Test Cube Samples	3	30-Sep-13	03-Oct-13	01-Nov-13	04-Nov-13	
1107.18820	Cast Life Size Samples	14	04-Oct-13	21-Oct-13	05-Nov-13	20-Nov-13	
1107.18830	28 Day curing of First batch of Test Samples	28	04-Oct-13	31-Oct-13	05-Nov-13	02-Dec-13	
1107.18840	28 Day curing of Last batch of Test Samples	28	22-Oct-13	18-Nov-13	21-Nov-13	18-Dec-13	
1107.18850	Cube Sample Testing	12	01-Nov-13	14-Nov-13	03-Dec-13	16-Dec-13	
1107.18855	Acceptance of Concrete Mix Design by MTR	12	15-Nov-13	28-Nov-13	17-Dec-13	02-Jan-14	
1107.18860	Life Size Sample Testing	24	29-Nov-13	28-Dec-13	03-Jan-14	30-Jan-14	
Production of Segments		156	16-Aug-13	22-Feb-14	16-Aug-13 A	22-Feb-14	
1107.14682	Mould Fabrication - Manufacture	60	16-Aug-13	28-Oct-13	16-Aug-13 A	28-Oct-13 A	
1107.14683	Moulds Assembly	24	29-Oct-13	25-Nov-13	29-Oct-13 A	25-Nov-13	
1107.14684	Moulds Inspection & Painting	18	26-Nov-13	16-Dec-13	26-Nov-13	16-Dec-13	
1107.14690	Moulds Transportation to Site	24	17-Dec-13	16-Jan-14	17-Dec-13	16-Jan-14	

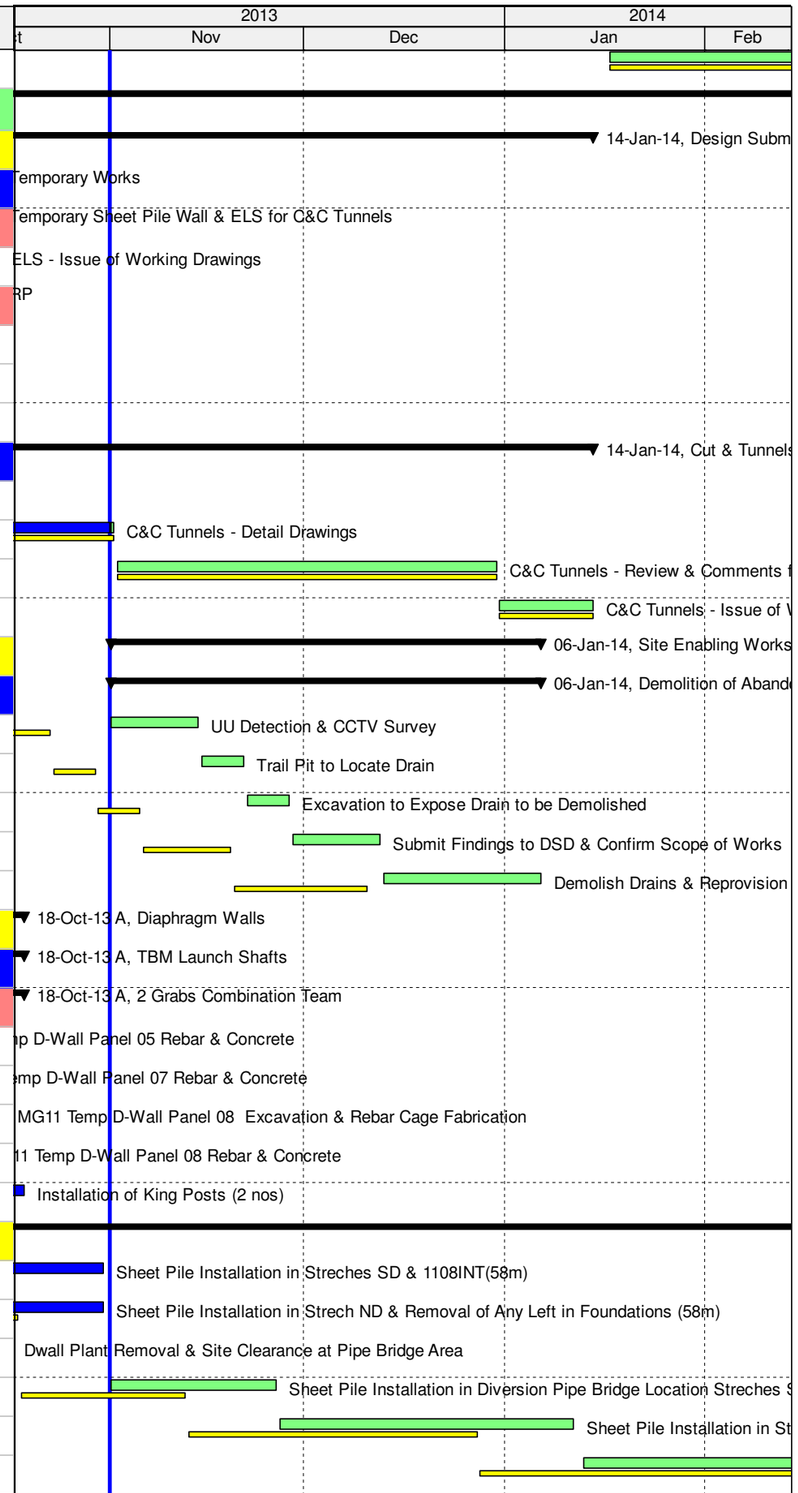


MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

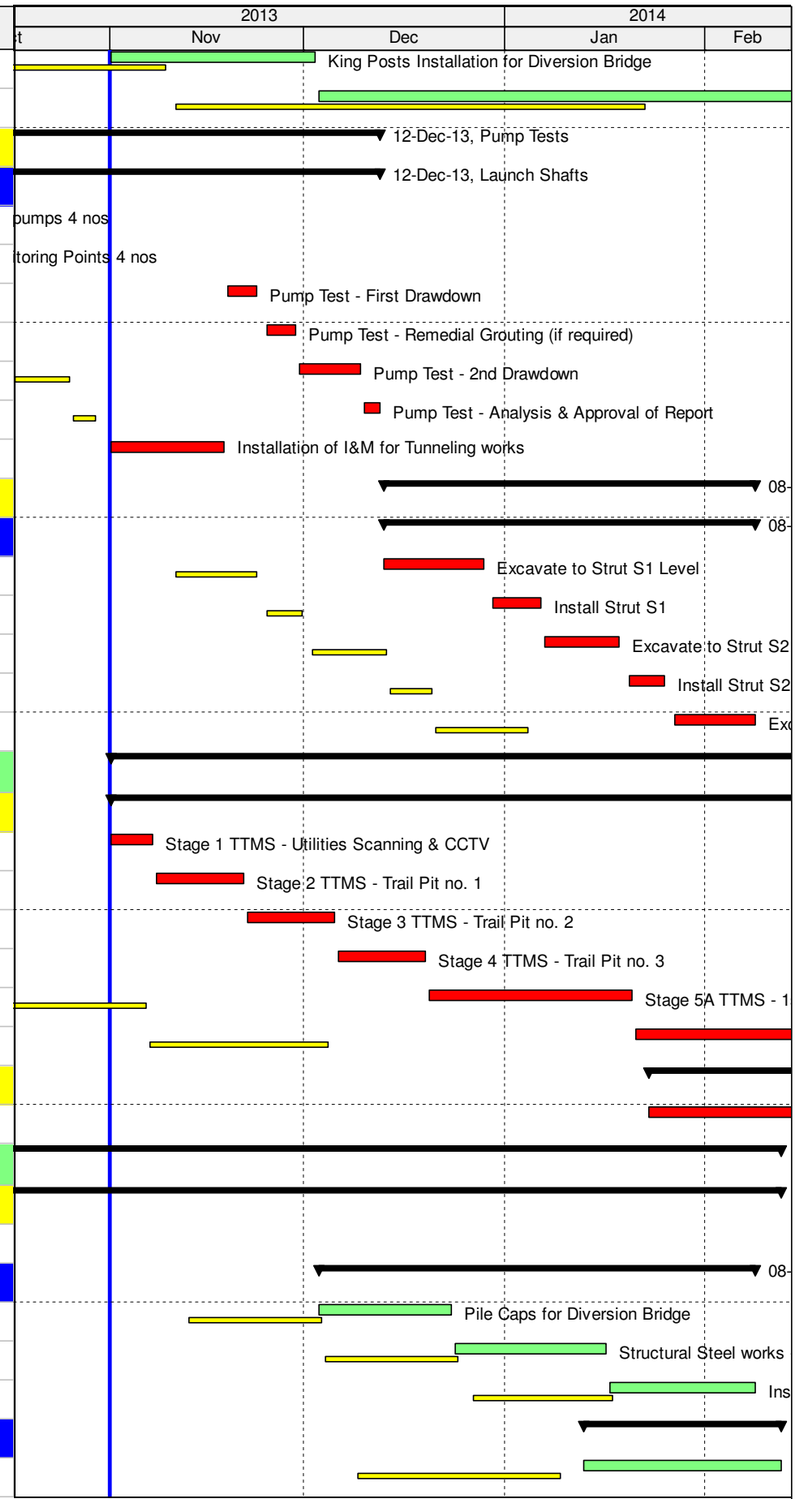
No 008 DD 01-Nov-13

Date	Revision	Checked	Approved
05-No...	0	KCL	KCL

Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
1107.14700	Moulds Installation at Precast Yard	30	17-Jan-14	22-Feb-14	17-Jan-14	22-Feb-14	
Cost Centre D - KAT Cut & Cover Tunnels		226	05-Jul-13	20-Mar-14	05-Jul-13 A	03-Apr-14	
Design Submissions		160	05-Jul-13	14-Jan-14	05-Jul-13 A	14-Jan-14	
Temporary Works		73	05-Jul-13	28-Sep-13	05-Jul-13 A	28-Sep-13 A	
Temporary Sheet Pile Wall & ELS for C&C Tunnels		12	14-Sep-13	28-Sep-13	14-Sep-13 A	28-Sep-13 A	
1107.14950	C&C Tunnels ELS - Issue of Working Drawings	12	14-Sep-13	28-Sep-13	14-Sep-13 A	28-Sep-13 A	
Submission & Testing of GFRP		45	05-Jul-13	26-Aug-13	05-Jul-13 A	26-Aug-13 A	
1107.18900	Submission of GFRP Literature & Samples to MTR	6	05-Jul-13	11-Jul-13	05-Jul-13 A	11-Jul-13 A	
1107.18910	Testing of GFRP Material	12	12-Jul-13	25-Jul-13	12-Jul-13 A	25-Jul-13 A	
1107.18920	Order & Delivery of GFRP Material to Site	45	05-Jul-13	26-Aug-13	05-Jul-13 A	26-Aug-13 A	
Cut & Tunnels Permanent Works		150	17-Jul-13	14-Jan-14	17-Jul-13 A	14-Jan-14	
1107.15090	C&C Tunnels - MTR & ICE Review	12	17-Jul-13	30-Jul-13	17-Jul-13 A	30-Jul-13 A	
1107.15110	C&C Tunnels - Detail Drawings	78	31-Jul-13	01-Nov-13	31-Jul-13 A	01-Nov-13	
1107.15120	C&C Tunnels - Review & Comments from BD	48	02-Nov-13	30-Dec-13	02-Nov-13	30-Dec-13	
1107.15130	C&C Tunnels - Issue of Working Drawings	12	31-Dec-13	14-Jan-14	31-Dec-13	14-Jan-14	
Site Enabling Works for C&C Tunnels		54	08-Oct-13	10-Dec-13	01-Nov-13	06-Jan-14	
Demolition of Abandoned Drainage		54	08-Oct-13	10-Dec-13	01-Nov-13	06-Jan-14	
1107.15140	UU Detection & CCTV Survey	12	08-Oct-13	22-Oct-13	01-Nov-13	14-Nov-13	
1107.15150	Trail Pit to Locate Drain	6	23-Oct-13	29-Oct-13	15-Nov-13	21-Nov-13	
1107.15160	Excavation to Expose Drain to be Demolished	6	30-Oct-13	05-Nov-13	22-Nov-13	28-Nov-13	
1107.15170	Submit Findings to DSD & Confirm Scope of Works	12	06-Nov-13	19-Nov-13	29-Nov-13	12-Dec-13	
1107.15180	Demolish Drains & Reprovision of Inlet	18	20-Nov-13	10-Dec-13	13-Dec-13	06-Jan-14	
Diaphragm Walls		14	17-Sep-13	10-Oct-13	02-Oct-13 A	18-Oct-13 A	
TBM Launch Shafts		14	17-Sep-13	10-Oct-13	02-Oct-13 A	18-Oct-13 A	
2 Grabs Combination Team		14	17-Sep-13	10-Oct-13	02-Oct-13 A	18-Oct-13 A	
1107.15770	HG15 Temp D-Wall Panel 05 Rebar & Concrete	2	17-Sep-13	18-Sep-13	02-Oct-13 A	03-Oct-13 A	
1107.15780	HG16 Temp D-Wall Panel 07 Rebar & Concrete	2	19-Sep-13	21-Sep-13	04-Oct-13 A	05-Oct-13 A	
1107.15790	MG11 Temp D-Wall Panel 08 Excavation & Rebar Cage Fabrication	6	24-Sep-13	30-Sep-13	08-Oct-13 A	15-Oct-13 A	
1107.15800	MG11 Temp D-Wall Panel 08 Rebar & Concrete	2	02-Oct-13	03-Oct-13	09-Oct-13 A	10-Oct-13 A	
1107.15810	Installation of King Posts (2 nos)	6	04-Oct-13	10-Oct-13	11-Oct-13 A	18-Oct-13 A	
Sheet Piling		179	30-Jul-13	20-Mar-14	29-Aug-13 A	03-Apr-14	
1107.15850	Sheet Pile Installation in Streches SD & 1108INT(58m)	56	30-Jul-13	07-Oct-13	29-Aug-13 A	31-Oct-13 A	
1107.15860	Sheet Pile Installation in Strech ND & Removal of Any Left in Foundations (58m)	56	08-Aug-13	17-Oct-13	29-Aug-13 A	31-Oct-13 A	
1107.15869	Dwall Plant Removal & Site Clearance at Pipe Bridge Area	4	04-Oct-13	08-Oct-13	11-Oct-13 A	16-Oct-13 A	
1107.15870	Sheet Pile Installation in Diversion Pipe Bridge Location Streches SA & NA (44m) 2 gangs	22	18-Oct-13	12-Nov-13	01-Nov-13	26-Nov-13	
1107.15878	Sheet Pile Installation in Strech NB (37m)	37	13-Nov-13	27-Dec-13	27-Nov-13	11-Jan-14	
1107.15879	Sheet Pile Installation in Strech SB (68m)	68	28-Dec-13	20-Mar-14	13-Jan-14	03-Apr-14	



Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
1107.15890	King Posts Installation for Diversion Bridge	27	09-Oct-13	09-Nov-13	01-Nov-13	02-Dec-13	
1107.15900	King Posts Installation for ELS	60	11-Nov-13	22-Jan-14	03-Dec-13	15-Feb-14	
Pump Tests		88	24-Aug-13	29-Oct-13	29-Aug-13 A	12-Dec-13	
Launch Shafts		88	24-Aug-13	29-Oct-13	29-Aug-13 A	12-Dec-13	
1107.15910	Install Groundwater pumps 4 nos	20	24-Aug-13	16-Sep-13	29-Aug-13 A	21-Sep-13 A	
1107.15920	Install Groundwater Monitoring Points 4 nos	16	24-Aug-13	11-Sep-13	29-Aug-13 A	16-Sep-13 A	
1107.15930	Pump Test - First Drawdown	5	04-Oct-13	09-Oct-13	19-Nov-13	23-Nov-13	
1107.15940	Pump Test - Remedial Grouting (if required)	5	10-Oct-13	16-Oct-13	25-Nov-13	29-Nov-13	
1107.15950	Pump Test - 2nd Drawdown	8	17-Oct-13	25-Oct-13	30-Nov-13	09-Dec-13	
1107.15960	Pump Test - Analysis & Approval of Report	3	26-Oct-13	29-Oct-13	10-Dec-13	12-Dec-13	
1107.17270	Installation of I&M for Tunneling works	15			01-Nov-13	18-Nov-13	
Excavation & C&C Tunnel Structure		45	11-Nov-13	04-Jan-14	13-Dec-13	08-Feb-14	
Launch Shafts - Pre- TBM Works		45	11-Nov-13	04-Jan-14	13-Dec-13	08-Feb-14	
1107.16030	Excavate to Strut S1 Level	12	11-Nov-13	23-Nov-13	13-Dec-13	28-Dec-13	
1107.16040	Install Strut S1	6	25-Nov-13	30-Nov-13	30-Dec-13	06-Jan-14	
1107.16050	Excavate to Strut S2 Level	11	02-Dec-13	13-Dec-13	07-Jan-14	18-Jan-14	
1107.16060	Install Strut S2	6	14-Dec-13	20-Dec-13	20-Jan-14	25-Jan-14	
1107.16070	Excavate to Strut S3 Level	10	21-Dec-13	04-Jan-14	27-Jan-14	08-Feb-14	
Cost Centre F3 - Utilities Protection / Diversion		100	25-Jun-13	04-Dec-13	01-Nov-13	03-Mar-14	
Diversion/ Replacement of WaterMains at Choi Hung Road		90	19-Aug-13	04-Dec-13	01-Nov-13	19-Feb-14	
1107.17540	Stage 1 TTMS - Utilities Scanning & CCTV	6	19-Aug-13	24-Aug-13	01-Nov-13*	07-Nov-13	
1107.17550	Stage 2 TTMS - Trail Pit no. 1	12	26-Aug-13	07-Sep-13	08-Nov-13	21-Nov-13	
1107.17560	Stage 3 TTMS - Trail Pit no. 2	12	09-Sep-13	23-Sep-13	22-Nov-13	05-Dec-13	
1107.17570	Stage 4 TTMS - Trail Pit no. 3	12	24-Sep-13	08-Oct-13	06-Dec-13	19-Dec-13	
1107.17580	Stage 5A TTMS - 1st 20m of Pipe Laying	24	09-Oct-13	06-Nov-13	20-Dec-13	20-Jan-14	
1107.17590	Stage 5B TTMS - 2nd 20m of Pipe Laying	24	07-Nov-13	04-Dec-13	21-Jan-14	19-Feb-14	
Installation of Utlities Monitoring Devices at Prince Edward Road East		32	25-Jun-13	01-Aug-13	23-Jan-14	03-Mar-14	
1107.17710	Stage 1 TTMS	32	25-Jun-13	01-Aug-13	23-Jan-14	03-Mar-14	
Cost Centre G CEDD Entrusted Works		160	01-Aug-13	05-Feb-14	01-Aug-13 A	12-Feb-14	
Demolition & Diversion of Nullah 2		160	01-Aug-13	05-Feb-14	01-Aug-13 A	12-Feb-14	
1107.19350	Approval of Design	24	01-Aug-13	28-Aug-13	01-Aug-13 A	28-Aug-13 A	
Pipe Bridge Over Cofferdam		54	13-Nov-13	17-Jan-14	03-Dec-13	08-Feb-14	
1107.17830	Pile Caps for Diversion Bridge	18	13-Nov-13	03-Dec-13	03-Dec-13	23-Dec-13	
1107.17840	Structural Steel works - Bridge	18	04-Dec-13	24-Dec-13	24-Dec-13	16-Jan-14	
1107.17850	Installation of Pipes	18	27-Dec-13	17-Jan-14	17-Jan-14	08-Feb-14	
Upstream Section Pipes		25	09-Dec-13	09-Jan-14	13-Jan-14	12-Feb-14	
1107.17920	Excavation to Base level next to Pipe Bridge	25	09-Dec-13	09-Jan-14	13-Jan-14	12-Feb-14	

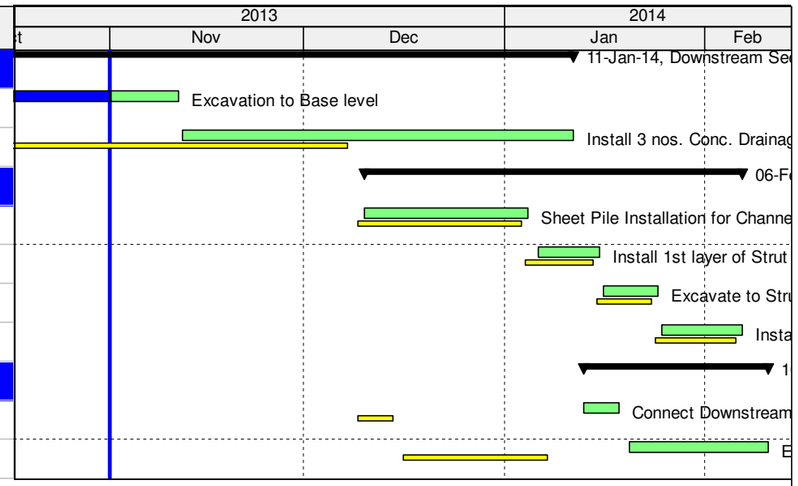


MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

No 008 DD 01-Nov-13

Date	Revision	Checked	Approved
05-No...	0	KCL	KCL

Activity ID	Activity Name	O Dur	BL Project Early Start	BL Project Early Finish	Start	Finish	CSF Reference
Downstream Section Pipes		84	29-Aug-13	07-Dec-13	02-Oct-13 A	11-Jan-14	
1107.17970	Excavation to Base level	34	29-Aug-13	09-Oct-13	02-Oct-13 A	11-Nov-13	
1107.17980	Install 3 nos. Conc. Drainage Pipes	50	10-Oct-13	07-Dec-13	12-Nov-13	11-Jan-14	
Mid Section Chamber At Bend		46	09-Dec-13	05-Feb-14	10-Dec-13	06-Feb-14	
1107.19360	Sheet Pile Installation for Channels (80m) 2 gangs	20	09-Dec-13	03-Jan-14	10-Dec-13	04-Jan-14	
1107.19370	Install 1st layer of Strut	9	04-Jan-14	14-Jan-14	06-Jan-14	15-Jan-14	
1107.19380	Excavate to Strut layer 2 level	8	15-Jan-14	23-Jan-14	16-Jan-14	24-Jan-14	
1107.19390	Install 2nd layer of Strut	9	24-Jan-14	05-Feb-14	25-Jan-14	06-Feb-14	
Diversion & Demolition of Existing Nullah 2		23	09-Dec-13	07-Jan-14	13-Jan-14	10-Feb-14	
1107.17990	Connect Downstream Section to CEDD South Transition Chamber	6	09-Dec-13	14-Dec-13	13-Jan-14	18-Jan-14	
1107.18020	Excavation to Expose Nullah to be Demolished inside DWall Footprint	17	16-Dec-13	07-Jan-14	20-Jan-14	10-Feb-14	



MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

No 008 DD 01-Nov-13

Date	Revision	Checked	Approved
05-No...	0	KCL	KCL

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, µg/m^3	Limit Level, µg/m^3
DMS-4[(1)(3)]/ DMS-3[(2)(3)]	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[(1)]/DMS-4[(2)] is carried out by Environmental Team of SCL Works Contract 1106.

Construction Noise

Regular Construction Noise Monitoring Location[(1)]	Description	Time Period	Action Level	Limit Level
NMS-CA-4[(1)(5)]/ NMS-CA-3[(2)(5)]	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[(1)(3)(5)]/ NMS-CA-2[(2)(3)(5)]	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A)[(4)]

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.

APPENDIX C
CALIBRATION CERTIFICATES FOR MONITORING EQUIPEMENT

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0004

Station: DMS-4 - Rhythm Garden, Block 1 Operator: WK

Date: 5-Sep-13 Next Due Date: 4-Nov-13

Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.5	Pressure, Pa (mmHg)	759.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.44	58.52	7.4	2.72
2	8.7	2.95	50.31	5.3	2.30
3	7.4	2.72	46.44	4.6	2.15
4	4.5	2.12	36.32	2.8	1.67
5	2.9	1.70	29.25	1.7	1.30

By Linear Regression of Y on X

Slope, mw = 0.0478 **Intercept, bw =** -0.0820

Correlation coefficient* = 0.9996

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.89**

Remarks:

Conducted by: WK Tang Signature: Kwan Date: 5/9/13

Checked by: [illegible] Signature: [illegible] Date: 5 September 2013

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0005

Station: DMS-4 - Rhythm Garden, Block 1 — Operator: WK

Date: 7-Nov-13 — Next Due Date: 6-Jan-14

Equipment No.: A-01-57 — Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	296.5	Pressure, Pa (mmHg)	766.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.46	58.91	7.5	2.76
2	8.6	2.95	50.36	5.4	2.34
3	7.5	2.76	47.07	4.8	2.21
4	4.3	2.09	35.75	2.7	1.65
5	3.0	1.74	29.94	1.8	1.35

By Linear Regression of Y on X

Slope , mw = 0.0483 — **Intercept, bw =** -0.0829

Correlation coefficient* = 0.9997

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.92**

Remarks:

Conducted by: Wk. Tang — Signature: Kwai — Date: 7/11/13

Checked by: Wk — Signature: — Date: 7 November 2013

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

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	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149		0.9957	0.6896	0.8851
0.9925	0.9693	2.0010		0.9915	0.9683	1.2517
0.9903	1.0858	2.2372		0.9893	1.0847	1.3995
0.9893	1.1345	2.3464		0.9883	1.1334	1.4678
0.9840	1.3666	2.8299		0.9830	1.3652	1.7702
Qstd slope (m) =		2.09107		Qa slope (m) =		1.30939
intercept (b) =		-0.02838		intercept (b) =		-0.01775
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}

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/N/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04
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 Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/130830/4
Date of Issue:	2012-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/130919/3
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

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

APPENDIX D
IMPACT MONITORING SCHEDULE

Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Nov	2-Nov
					24 hr TSP	
3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov
	Noise			24 hr TSP		
10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
			24 hr TSP		Noise	
17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov
		24 hr TSP	Noise			
24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov
	24 hr TSP	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 1107 Diamond Hill to Kai Tak Tunnels
Tentative Impact Air Quality and Noise Monitoring Schedule for December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Dec	2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec
	Noise				24 hr TSP	
8-Dec	9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec
				24 hr TSP	Noise	
15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec
			24 hr TSP		Noise	
22-Dec	23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec
		24 hr TSP			Noise	
29-Dec	30-Dec	31-Dec				
	24 hr TSP					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station

DMS-4(1)/DMS-3(2): - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4(1)/NMS-CA-3(2): - Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5(1)/NMS-CA-2(2): - Block 1, Rhythm Garden (northern façade)

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 E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONIS

Appendix E - 24-hour TSP Monitoring Results

Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

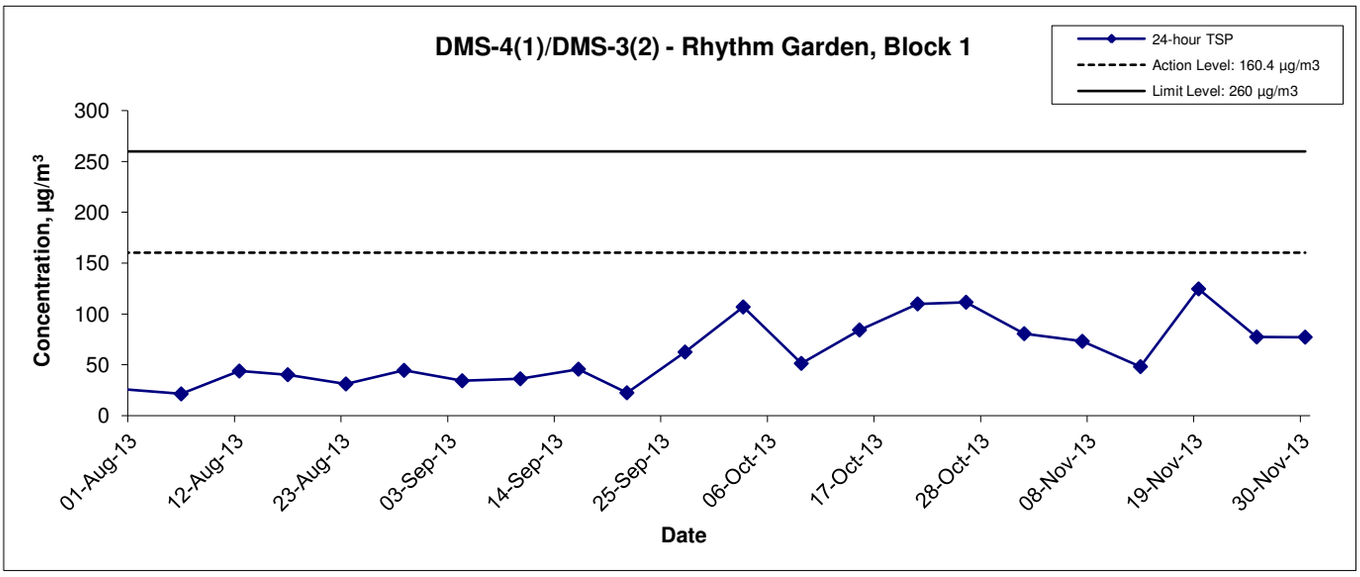
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
					Initial	Final		Initial	Final		Initial	Final			
1-Nov-13	09:00	Cloudy	298.4	764.5	3.6044	3.7461	0.1417	1793.9	1817.9	24.0	1.22	1.22	1.22	1757.4	80.6
7-Nov-13	09:00	Sunny	296.8	766.7	3.7577	3.8854	0.1277	1817.9	1841.9	24.0	1.21	1.21	1.21	1746.8	73.1
13-Nov-13	09:00	Sunny	291.4	764.0	3.7636	3.8484	0.0848	1841.9	1865.9	24.0	1.22	1.22	1.22	1759.4	48.2
19-Nov-13	09:00	Sunny	292.3	769.4	3.7406	3.9603	0.2197	1865.9	1889.9	24.0	1.22	1.22	1.22	1762.7	124.6
25-Nov-13	09:00	Sunny	290.5	764.8	3.7627	3.8991	0.1364	1889.9	1913.9	24.0	1.22	1.22	1.22	1762.9	77.4
30-Nov-13	09:00	Sunny	286.3	770.3	3.7544	3.8920	0.1376	1913.9	1937.9	24.0	1.24	1.24	1.24	1781.4	77.2
														Min	48.2
														Max	124.6
														Average	80.2

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:

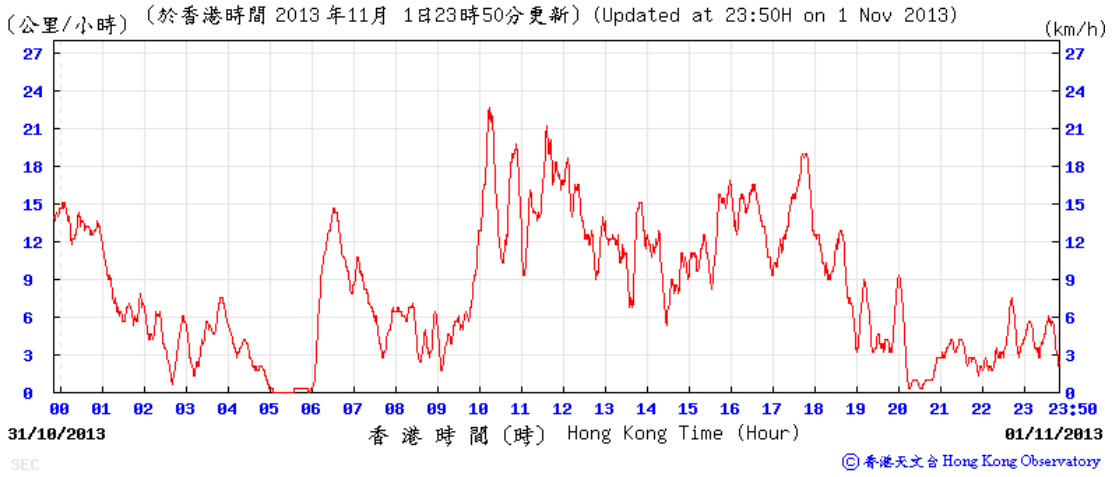
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

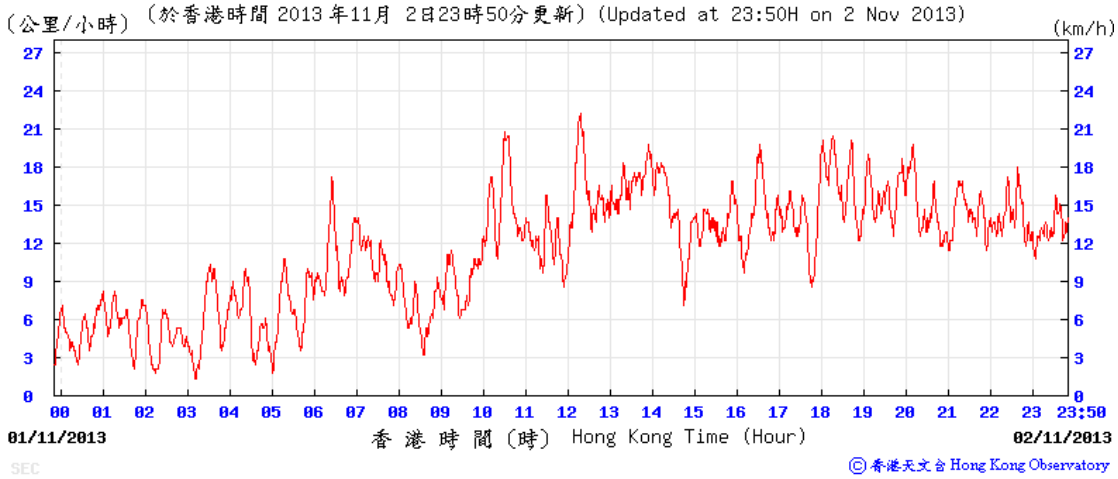
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title	Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels	Scale N.T.S	Project No. MA13018	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results	Date Nov 13	Appendix E	

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

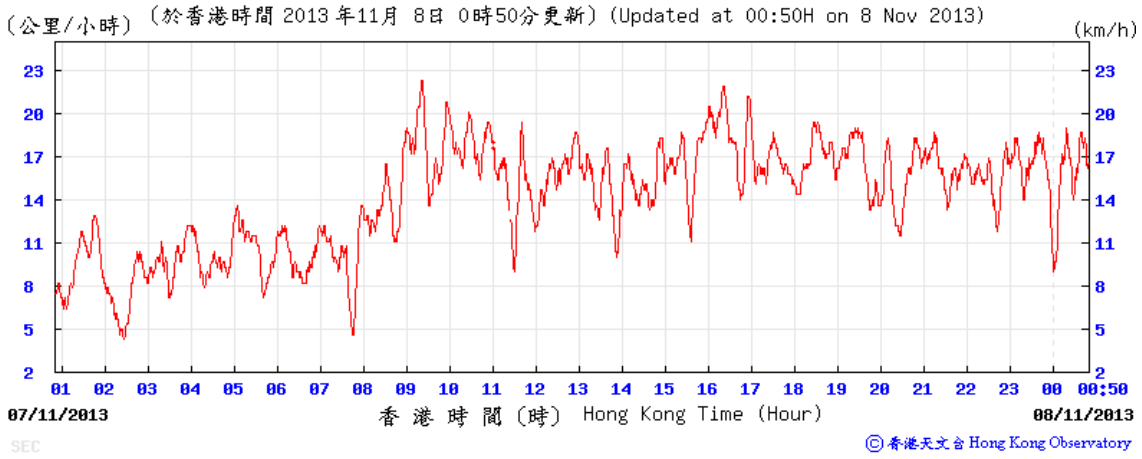
1-2 November 2013

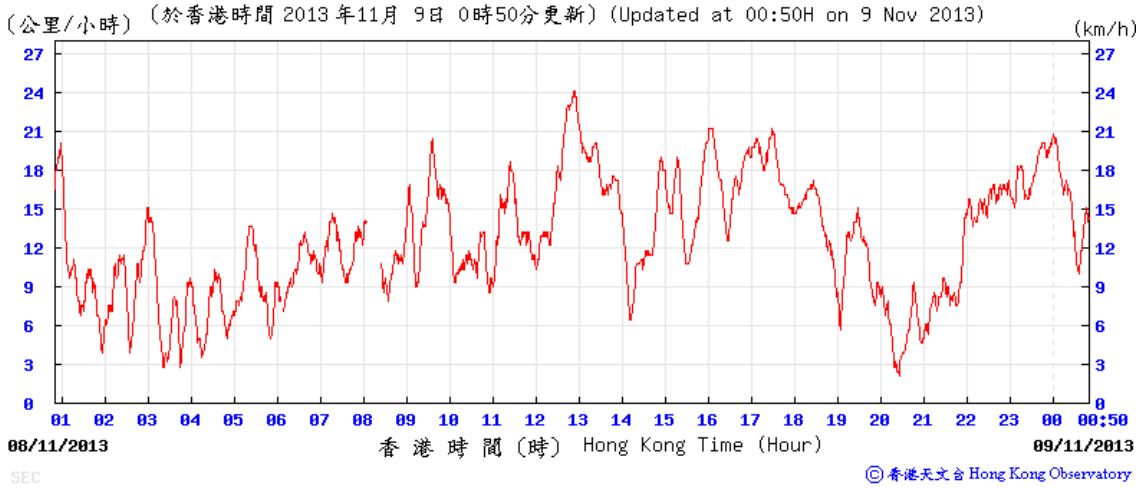




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

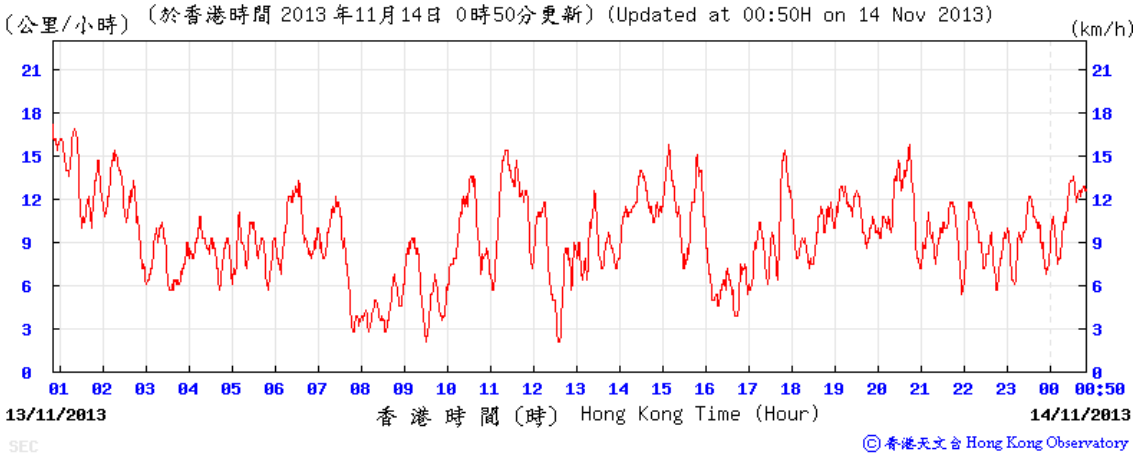
7-8 November 2013

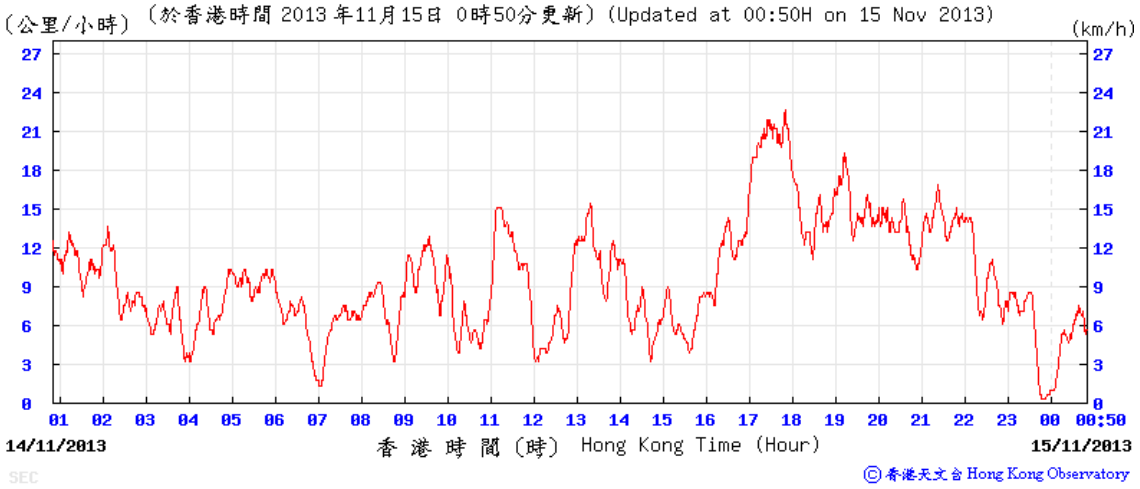




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

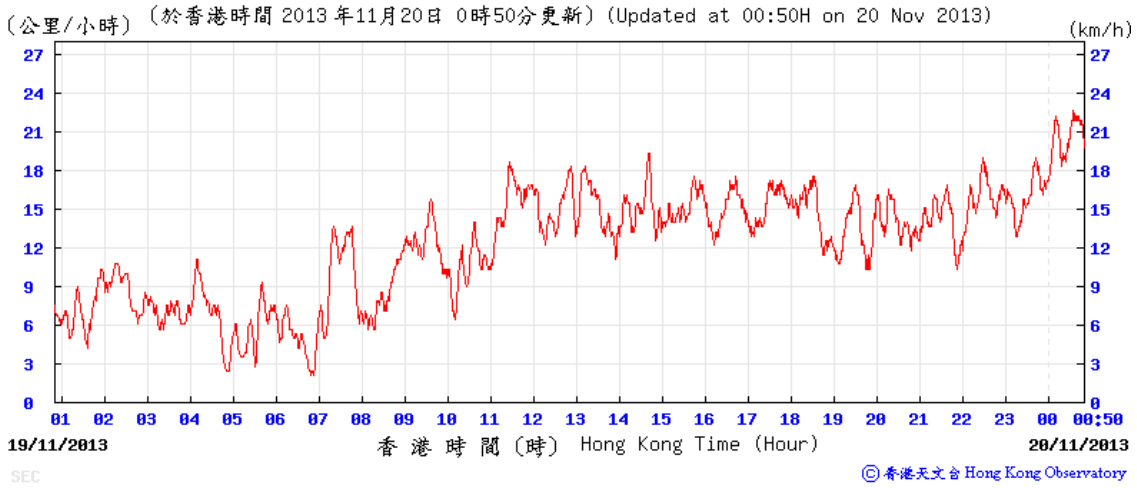
13-14 November 2013

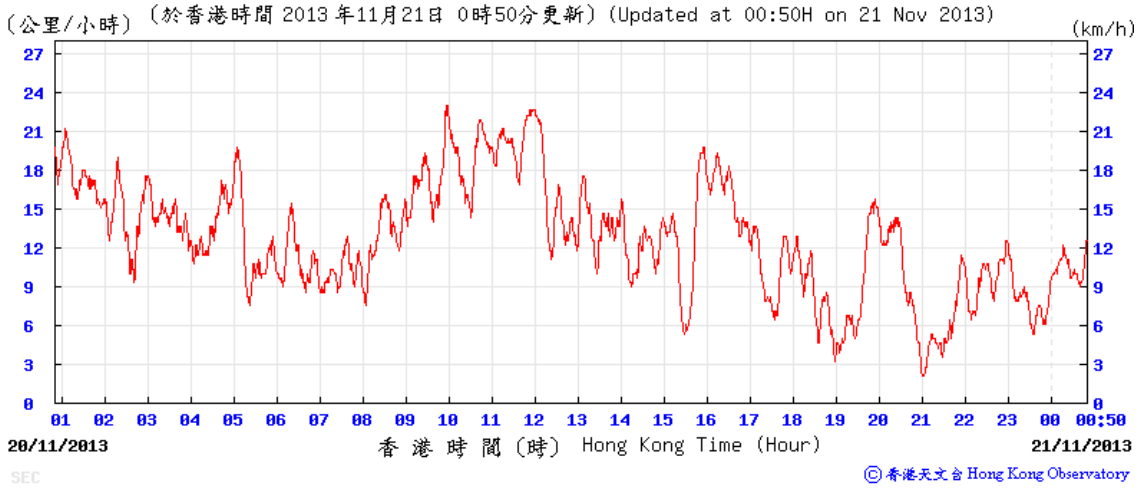




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

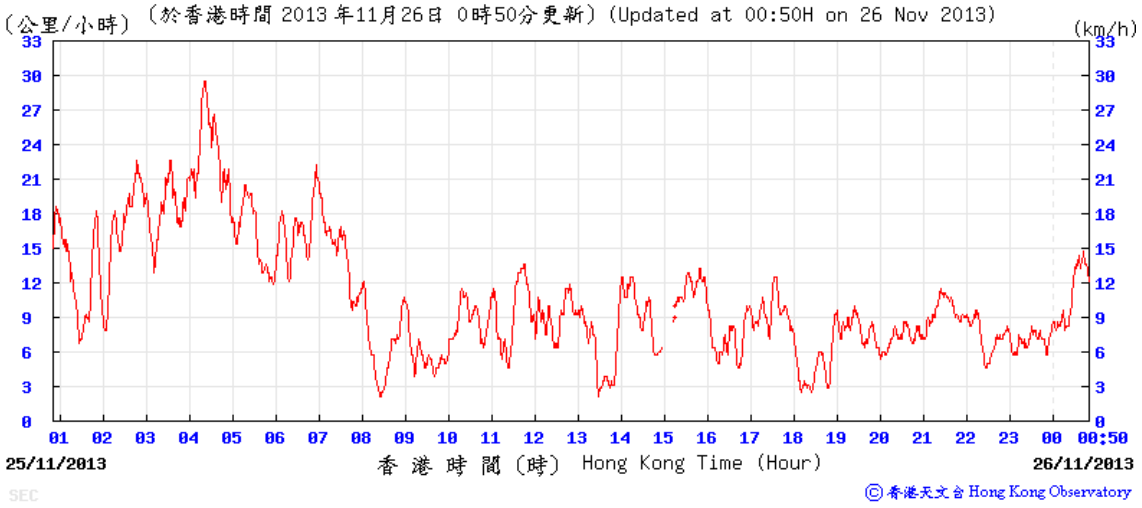
19-20 November 2013

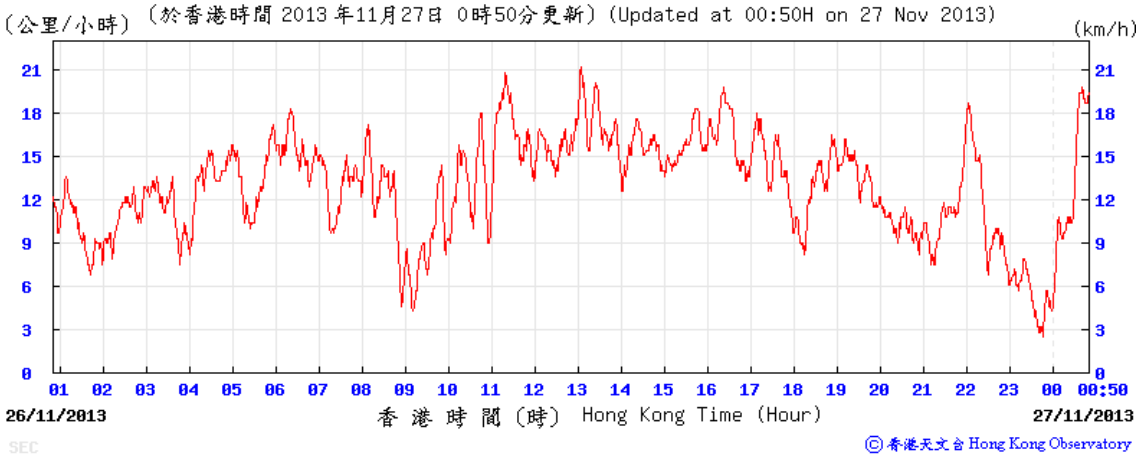




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

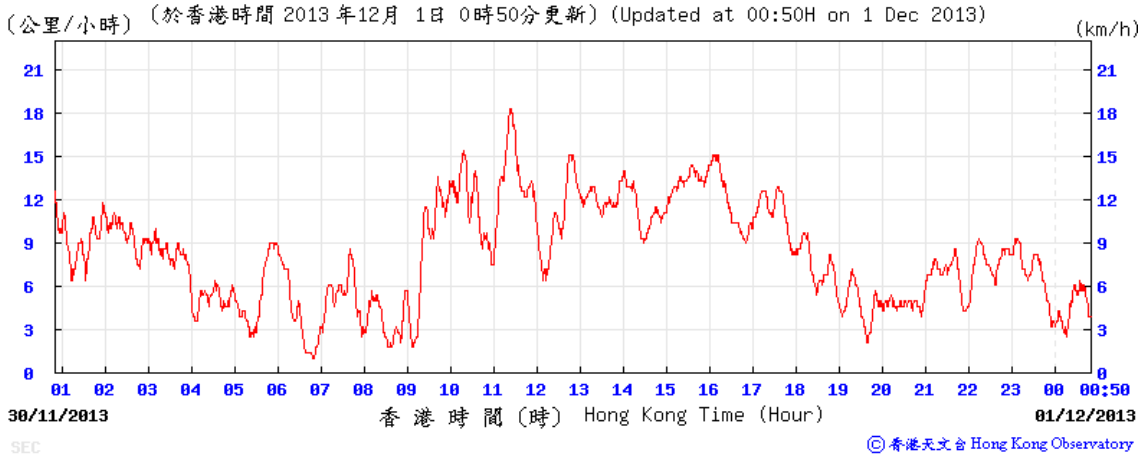
25-26 November 2013

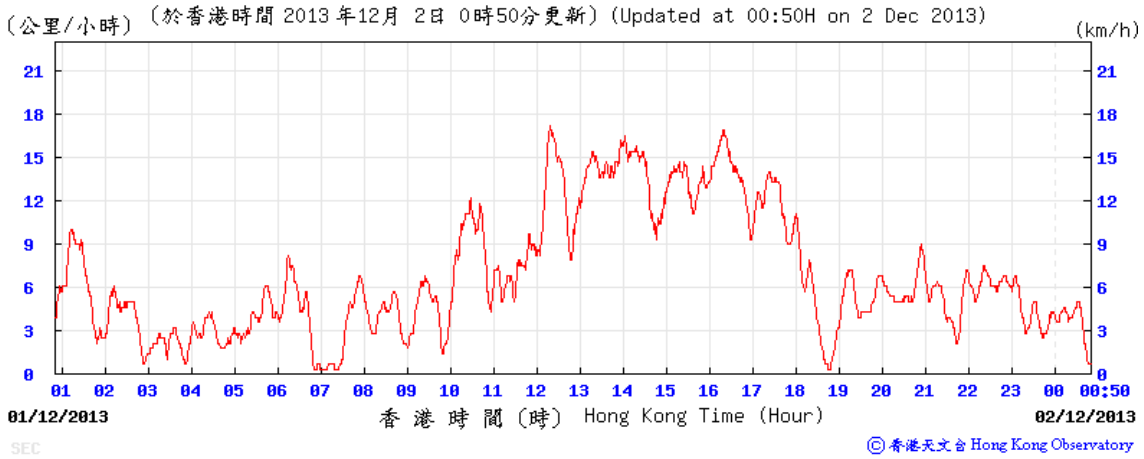




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

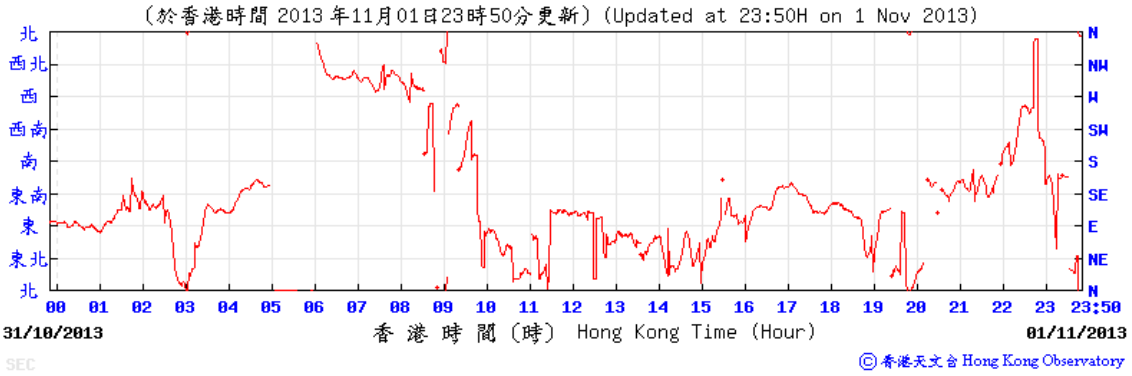
30 November – 1 December 2013

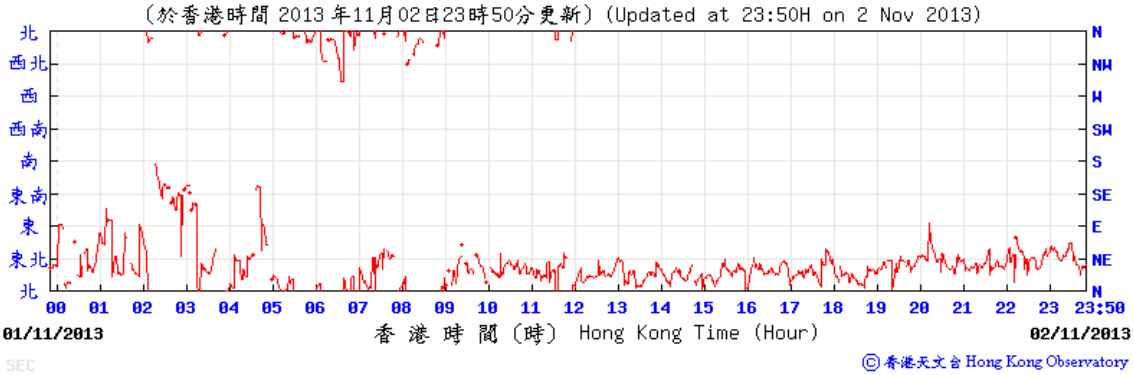




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

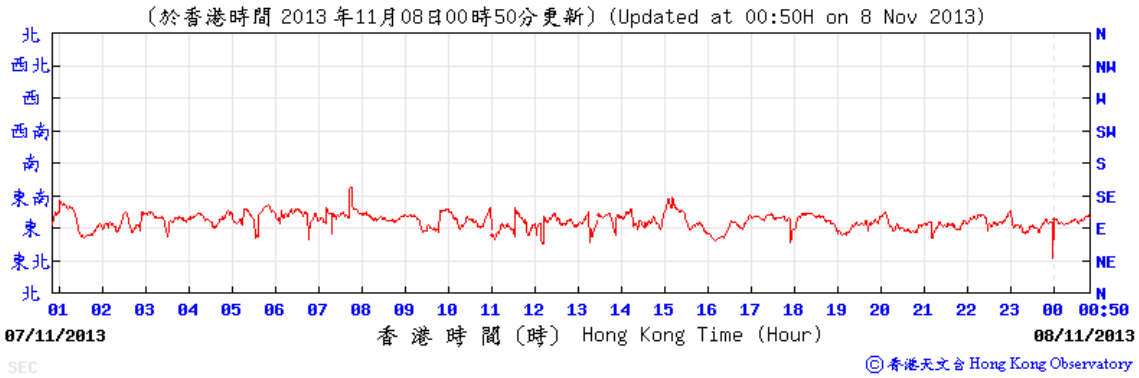
1-2 November 2013

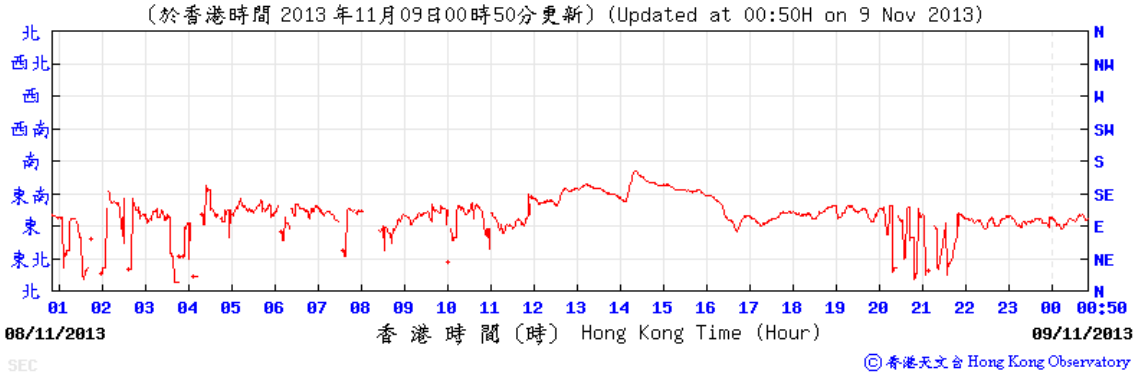




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

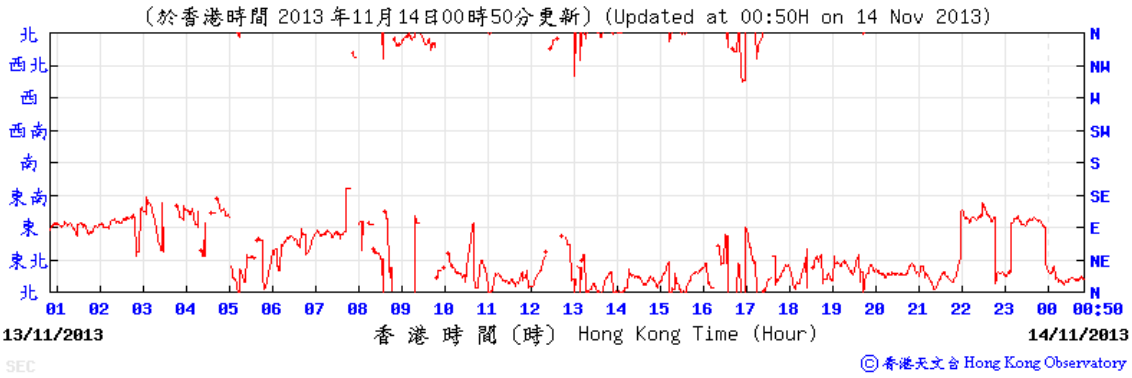
7-8 November 2013

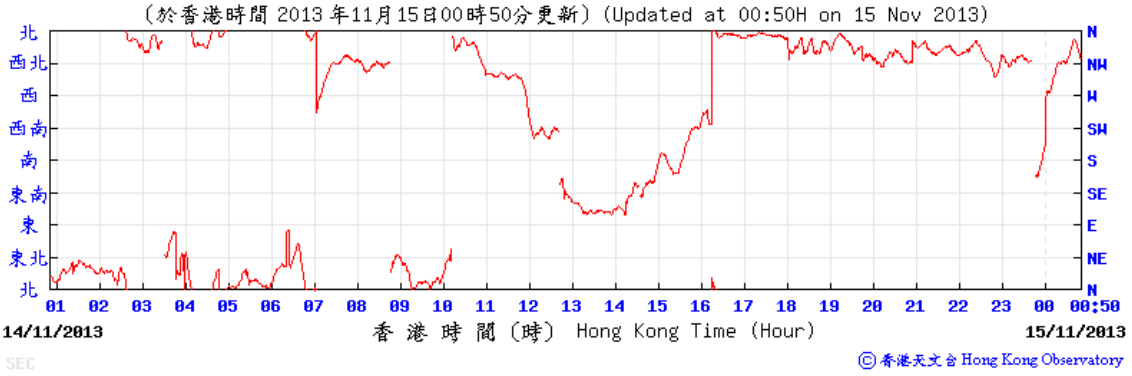




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

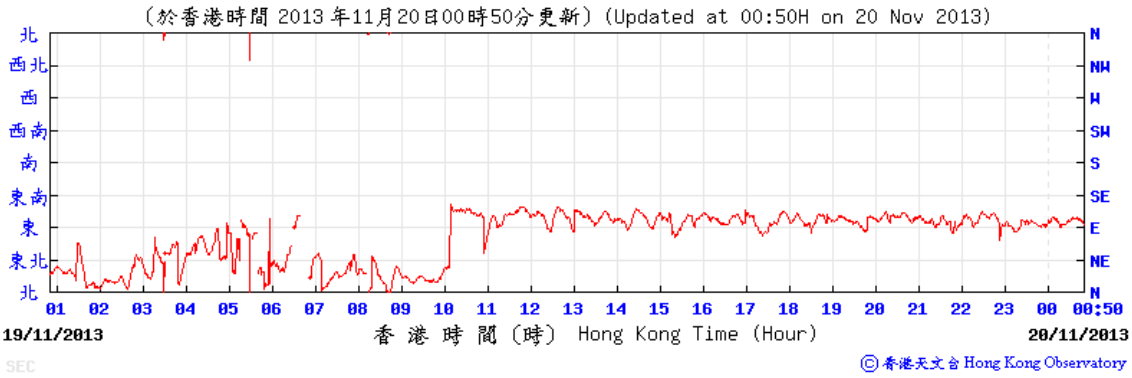
13-14 November 2013

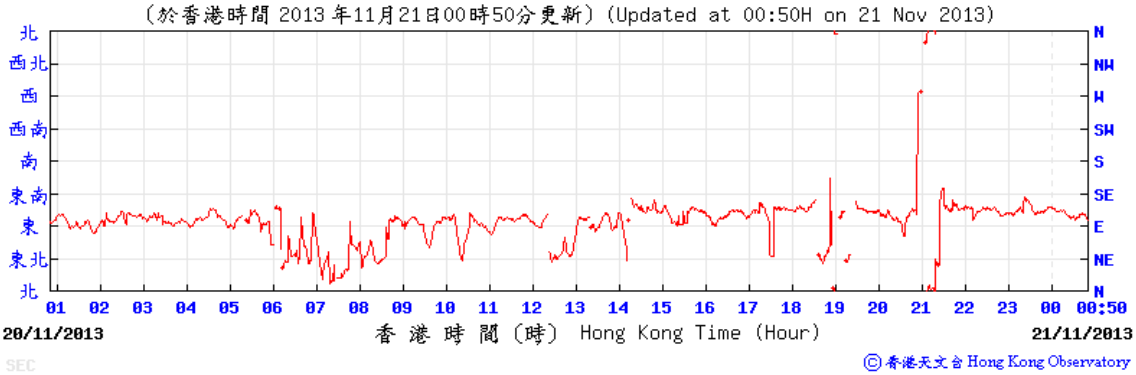




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

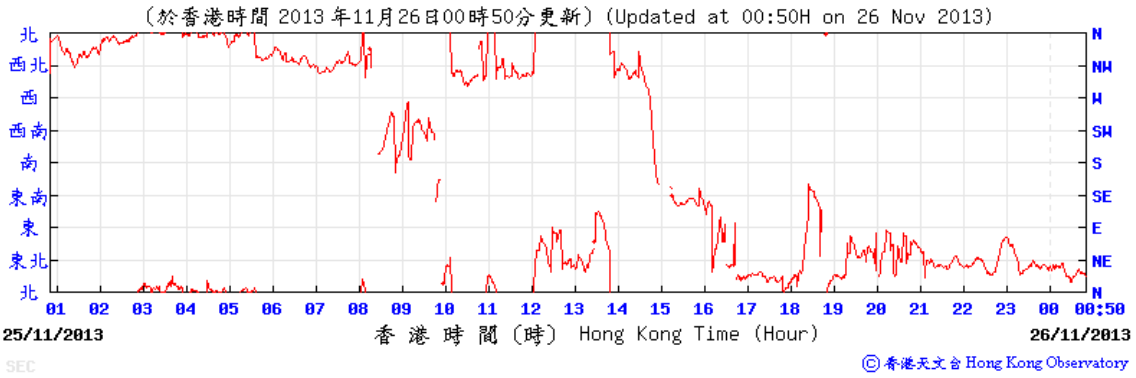
19-20 November 2013

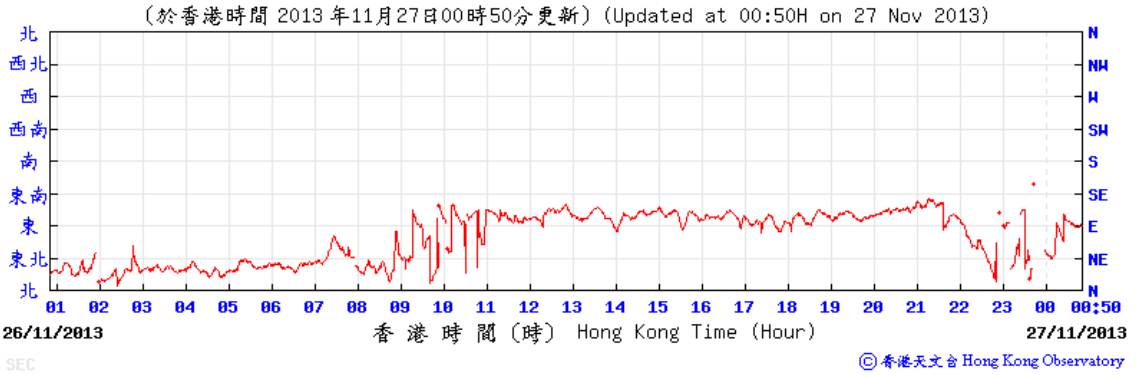




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

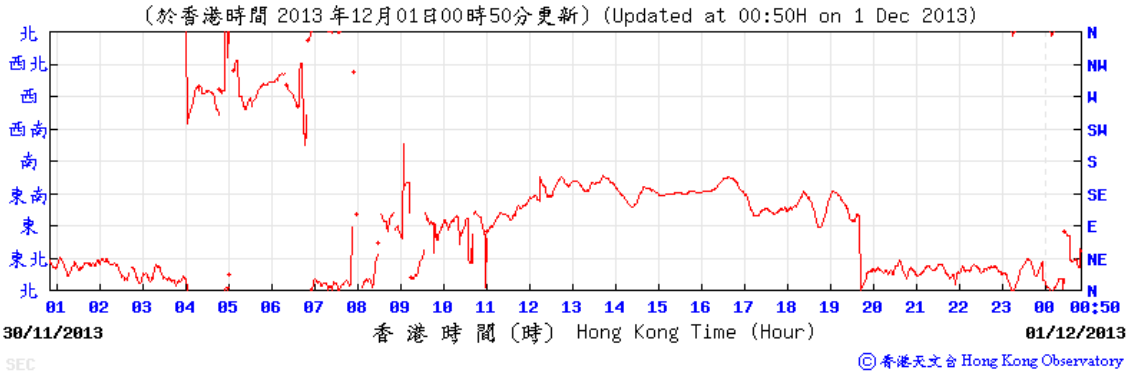
25-26 November 2013

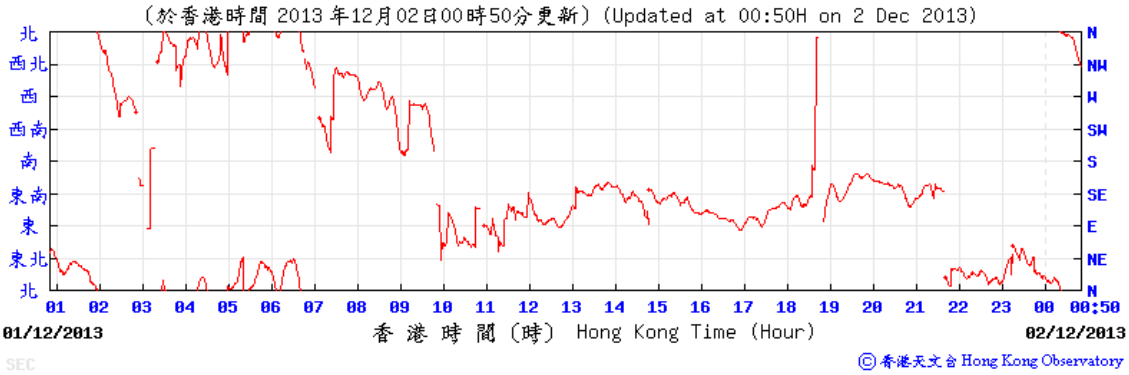




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30 November – 1 December 2013





APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

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_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
4-Nov-13	Cloudy	09:30	74.2	75.5	72.9	74.4	71	71.7
		09:35	74.3	75.5	73.1			
		09:40	74.3	75.5	73.0			
		09:45	74.6	75.9	73.0			
		09:50	74.2	75.4	72.8			
		09:55	74.6	75.8	73.2			
15-Nov-13	Sunny	11:30	74.4	75.7	72.9	74.0		71.0
		11:35	74.0	75.1	72.7			
		11:40	74.2	75.5	72.9			
		11:45	74.0	75.3	72.5			
		11:50	73.8	75.3	72.2			
		11:55	73.4	74.7	71.9			
20-Nov-13	Cloudy	10:32	73.6	75.1	72.0	72.8		68.1
		10:37	72.3	73.3	70.9			
		10:42	72.4	73.5	71.1			
		10:47	72.8	74.0	71.3			
		10:52	72.8	73.7	71.8			
		10:57	72.6	73.8	71.2			
26-Nov-13	Sunny	09:45	74.7	75.8	73.4	74.5		71.9
		09:50	74.8	75.8	73.6			
		09:55	74.6	75.7	73.2			
		10:00	74.2	75.4	73.0			
		10:05	74.5	75.8	72.9			
		10:10	74.2	75.5	73.0			

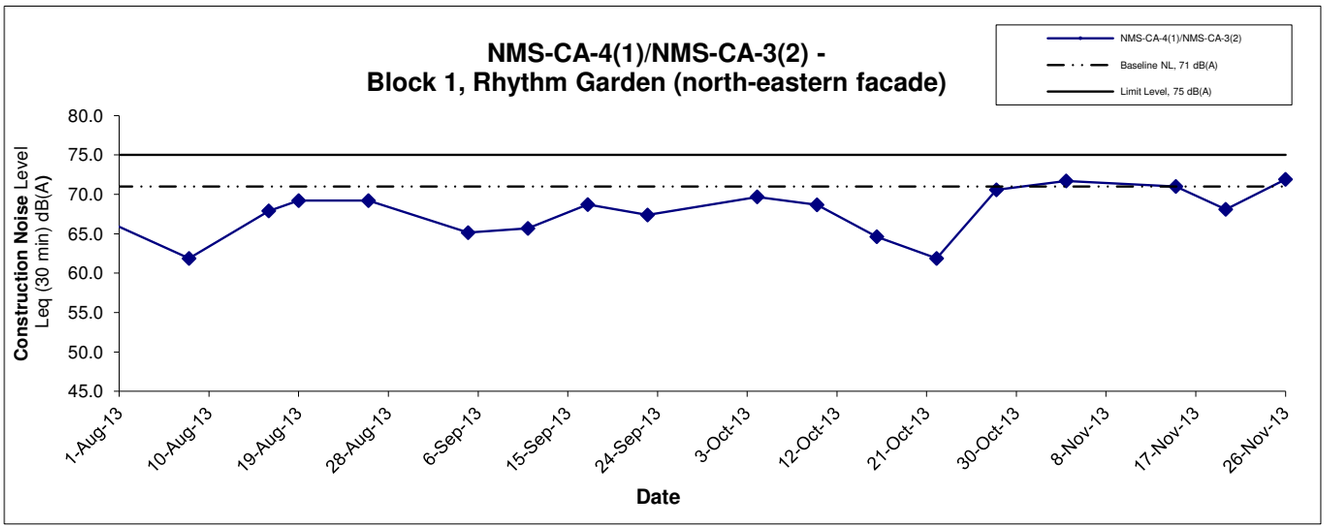
Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

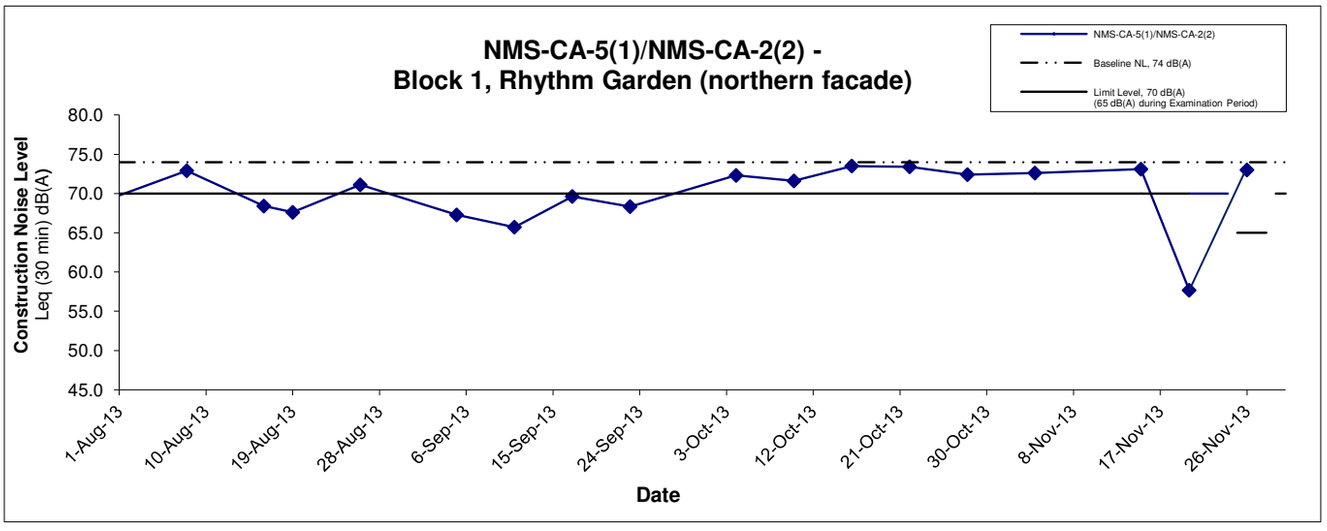
Appendix F - Noise Monitoring Results

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_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
4-Nov-13	Cloudy	08:55	73.0	74.4	71.2	72.6	74	72.6 Measured ≦ Baseline Level
		09:00	72.5	73.7	71.1			
		09:05	72.4	73.6	71.0			
		09:10	72.4	73.6	71.0			
		09:15	72.5	73.7	71.2			
		09:20	72.6	73.7	71.3			
15-Nov-13	Sunny	10:50	72.5	73.7	71.7	73.1		73.1 Measured ≦ Baseline Level
		10:55	73.0	74.2	71.8			
		11:00	73.2	74.3	72.0			
		11:05	73.4	74.6	72.1			
		11:10	73.3	74.5	72.0			
		11:15	73.2	74.5	72.0			
20-Nov-13	Cloudy	11:10	73.7	74.7	72.4	74.1		57.7
		11:15	74.2	75.4	72.9			
		11:20	74.5	75.7	73.0			
		11:25	74.3	75.5	72.9			
		11:30	73.7	74.7	72.2			
		11:35	74.3	75.6	72.8			
26-Nov-13	Sunny	09:45	73.3	74.4	72.1	73.0		73.0 Measured ≦ Baseline Level
		09:50	73.1	74.2	71.9			
		09:55	72.9	73.8	71.9			
		10:00	72.8	74.0	71.3			
		10:05	72.7	73.8	71.3			
		10:10	72.9	74.0	71.5			

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 ≦ 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 Date: Nov 13	Project No.: MA13018 Appendix: F	CINOTECH

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: November 2013

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131101
Date	1 November 2013(Friday)
Time	9:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection.	
131101-R02	***Part D – Air Quality*** • Provide water spray facilities to stockpile of excavated material to avoid dust generation.	D5, 6
131101-R01	***Part E - Construction Noise Impact*** • Properly erect the noise barrier near Kai Ching Estate.	E7
	Part F – Waste/Chemical Management • No environmental deficiency was identified during the site inspection. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:131025), all environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		1 November 2013
Checked by	Dr. Priscilla Choy		1 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131108
Date	8 November 2013(Friday)
Time	9:00 – 11:15

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection.	
131108-O01	***Part D – Air Quality*** • Provide water spray facilities to stockpile of excavated material or cover with tarpaulin sheets properly.	D6
131108-R02	***Part E - Construction Noise Impact*** • Properly erect the noise barrier at Kai Ching Estate.	E7
131108-R03	***Part F – Waste/Chemical Management*** • Provide drip tray to chemical containers on unpaved area.	F10
	Part G – Permits/Licenses • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:131101), follow up actions are needed to be reviewed for items 131101-R01 and 131101-R02.	

	Name	Signature	Date
Recorded by	Johnny Fung		8 November 2013
Checked by	Dr. Priscilla Choy		8 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131115
Date	15 November 2013(Friday)
Time	9:00 – 10:15

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection.	
131115-R03	***Part D – Air Quality*** • Properly maintain and check powered mechanical equipments to avoid dark smoke emission.	D15
131115-R02	***Part E - Construction Noise Impact*** • Properly erect the noise barrier at hoardings near Kai Ching Estate.	E7
131115-O01	***Part F – Waste/Chemical Management*** • Chemical containers observed deposited on unpaved ground. The Contractor is reminded to provide drip tray to chemical containers to avoid chemical spillage. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:131108), follow up actions are needed to be reviewed for items 131108-R02 and 131108-R03.	F10

	Name	Signature	Date
Recorded by	Johnny Fung		15 November 2013
Checked by	Dr. Priscilla Choy		15 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131122
Date	22 November 2013(Friday)
Time	9:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection.	
	Part C – Landscape & Visual • No environmental deficiency was identified during the site inspection.	
131122-R03	***Part D – Air Quality*** • To properly maintain generator to avoid smoke emission.	D15
131122-O01	***Part E - Construction Noise Impact*** • The Contractor is reminded to properly erect the noise blankets at hoarding near Kai Ching Estate.	E7
131122-O02	***Part F – Waste/Chemical Management*** • Empty chemical containers should be placed at chemical storage tank properly.	F2iii
	Part G – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
	Part H - Others • Follow-up on previous audit section (Ref. No.:131115), follow up actions are needed to be reviewed for items 131115-R02.	

	Name	Signature	Date
Recorded by	Johnny Fung		22 November 2013
Checked by	Dr. Priscilla Choy		22 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131129
Date	29 November 2013(Friday)
Time	9:00 – 10:45

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection.	
	Part C – Landscape & Visual • No environmental deficiency was identified during the site inspection.	
131129-O01	***Part D – Air Quality*** • Black smoke emission observed from excavator. The Contractor is reminded to properly maintain the excavator and avoid dark smoke emission.	D15
131129-R02	***Part E - Construction Noise Impact*** • Properly erect the noise barrier for power-pack.	E7
131129-R03	***Part F – Waste/Chemical Management*** • Provide a plug for drip tray of air compressor-set.	F10
131129-R04	***Part G – Permits/Licenses*** • Properly provide copy of Environmental Permit at site entrance.	G5
	Part H - Others • Follow-up on previous audit section (Ref. No.:131122), all environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		29 November 2013
Checked by	Dr. Priscilla Choy		29 November 2013

APPENDIX I
EVENT AND ACTION PLANS

Appendix I - Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	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 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 exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 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	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 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER 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.
2.Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor 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 addtional 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the IEC, Contractor 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.
2.Exceedance for two or more consecutive samples	1. Notify IEC, Contractor and EPD; 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, Contractor 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. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	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.

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	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

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
Landscape & Visual (Construction Phase)								
S6.12	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • 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. <u>No-intrusion Zone</u> • 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. <u>Protection of Retained Trees</u> • 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	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. • 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.						^
Table 6.9	LV2	<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. <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. <u>Tree Transplanting</u> • 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	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	N/A N/A 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		TCW No 3/2006.						
Air Quality (Construction Phase)								
/	A1	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	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	^
Construction Dust Impact								
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	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	^

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
		an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency						
S7.6.6	D3	• 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • 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; • 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; • 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	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	* ^ ^ N/A N/A 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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; • 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; • 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; • 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; • 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; • Any skip hoist for material transport should be totally enclosed by impervious sheeting;						^ ^ ^ N/A 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• 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; • 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 • 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.					^ ^ ^ 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	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant	Control construction airborne	Contractor	All Construction Sites where	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
		should be serviced regularly during the construction programme; • 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; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	noise		practicable			^ ^ N/A ^ 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	N/A
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	Screen the noisy plant items to be used at all	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
		plants including air compressor, generators and saw.	construction sites					
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	^
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> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site	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	^

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
		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. • 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. 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^3/s a sedimentation basin of $30m^3$ would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.						^

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
		• 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. • 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. • 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. • 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						^ N/A ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 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. 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 • 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 • 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						^ ^ ^ ^

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
		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. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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 • 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.						N/A ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Adopt best management practices.						*
S10.7.1	W2	<u>Tunneling Works</u> • Cut-&-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. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge • 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. • 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.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-water • TM-EIAO	^ N/A N/A N/A
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are	To minimize water quality from sewage effluent	Contractor	All construction sites where	Construction stage	• Water Pollution Control Ordinance	^

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
		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.			practicable		• TM-water	
S10.7.1	W5	<u>Accidental Spillage</u> In order to prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and thelocations should be locked as far as possible from the sensitive watercourse and stormwater drains; • 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 • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	 * * ^ N/A
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are	Separation of unsuitable rock from ending up at concrete batching plants	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

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
		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.	and be turned into concrete for structural use					
S11.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting;	Good site practice to minimize the waste generation and recycle the C&D materials as far as	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance	^ ^

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
		• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&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	practicable so as to reduce the amount for final disposal				• Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ N/A ^ ^ ^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal	^

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
		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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&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.	the amount for final disposal				Ordinance • ETWB TCW No.19/2005	^
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • Aluminium cans are often recovered from the waste stream by	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • 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.						^
S11.5.1	WM6	<u>Chemical Waste</u> • 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. • 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. • The storage area for chemical wastes should 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	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	* ^ ^

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
		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. • 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.						N/A

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 K
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: MTRC

Contract No.:1107

Monthly Summary Waste Flow Table for 2013

Year	Estimated Quantities of Inert C&D Materials (in '000m^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 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m^3)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January																				
February																				
March	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
April	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.000
June	1.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.800	0.000	0.000	1.780	0.100	0.000	0.000	0.000	0.000	0.000	0.080	0.030
July	1.800	0.880	0.000	0.000	0.000	0.000	0.000	0.255	1.800	0.625	0.000	0.100	0.100	0.000	0.100	0.000	0.000	0.000	0.080	0.035
August	1.800	2.465	0.000	0.000	0.000	0.000	0.000	2.455	1.800	0.010	0.000	0.000	0.100	0.137	0.000	0.000	0.000	0.000	0.100	0.025
September	1.800	1.790	0.000	0.000	0.000	0.000	0.000	1.760	1.800	0.030	1.000	12.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.040
October	1.000	1.850	0.000	0.000	0.000	0.000	0.000	1.440	1.000	0.410	1.000	0.000	0.100	0.061	0.000	0.000	0.000	0.000	0.100	0.060
November	5.500	2.435	0.000	0.000	0.000	0.000	0.000	0.030	5.500	2.405	0.000	15.720	0.100	0.103	0.000	0.000	0.100	0.000	0.100	0.070
December	5.500		0.000		0.000		0.000		5.500		0.000		0.100		0.100		0.000		0.100	
Total	**19.300**	**9.420**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**5.940**	**19.300**	**3.480**	**2.000**	**29.600**	**0.700**	**0.301**	**0.200**	**0.000**	**0.100**	**0.000**	**0.740**	**0.260**

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^3, was calculated by multiplying the no. of truck with the volume of truck, which is 5m^3.

APPENDIX L
CUMULATIVE LOG FOR COMPLAINT LOGS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

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
--	--	--	--	--	--

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
--	--	--	--	--	--

Appendix H

6th Monthly EM&A Report for Works Contract 1112 – Hung Hom Station and Stabling Sidings

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.6

[Period from 1 to 30 November 2013]

Contract 1112 - Hung Hom Station and Stabling Sidings

(December 2013)

Certified by: Vivian Chan

Position: Environmental Team Leader

Date: 13 December 2013

6th Monthly EM&A Report for November 2013

Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings

December 2013

Project/Deliverable No.	7076187 | D08/01
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	6th Monthly EM&A Report for November 2013
Report Date	December 2013
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	December 2013	Winnie MA	Vivian CHAN	Alexi BHANJA

ISSUE REGISTER

Distribution List	Date Issued	Number of Copies
Leighton Contractors (Asia) Limited	December 2013	1 soft copy
MTR Corporation Limited	December 2013	1 soft copy
SMEC Project File:		1 electronic

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CONTENTS

APPENDICES

TABLES

EXECUTIVE SUMMARY

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 6th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 30 November 2013 in accordance with the EM&A manual.

During the reporting month, the following activity took place for the Project:

- Diaphragm wall construction at HUH
- Initial excavation at HUH
- Set up of small scale mobile batching machinery and equipment (MBME) under the HUH podium
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 21 November 2013. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 2, 8, 14, 20 and 26 November 2013. 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

As advised by the Contractor, 28,690 kg of general refuse was generated from the Project and disposed of at NENT landfill. 83,003 kg of metals, 451 kg of paper/cardboard packaging and 160,350 kg of asphalt were recycled from the Project. A total of 6,087m^3 inert construction demolition (C&D) materials were generated from the Project, where 3,820m^3 was disposed of at TM38 Public Fill, 180m^3 was disposed of at TKO137 and 2,088m^3 was disposed of at Kwun Tong Line Extension Works Contract 1001 Barging Point. No chemical waste was generated during the reporting month.

Environmental Auditing

A total of 4 weekly environmental site audits were conducted on 7, 14, 21 and 28 November 2013. The IEC joint site audit was undertaken on 21 November 2013.

Compliant, Notification of Summons and Successful Prosecution

No complaint in relation to the environmental issues was recorded during the reporting period.

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:

- Underpinning at HHS and HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building
- Bored piling for diversion of Cheong Wan Road Viaduct and South Transformer Room & Accommodation
- Diaphragm wall construction at HUH
- Initial excavation 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 February 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/D) was issued by Director of Environmental Protection (DEP) on 13 September 2013.

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 6th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 30 November 2013.

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:

- Diaphragm wall construction at HUH
- Initial excavation at HUH
- Set up of small scale mobile batching machinery and equipment (MBME) under the HUH podium
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building

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 Patrick CHENG	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		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	EP for SCL (MKK-HUH)
EP-438/2012/D	13 Sep 2013	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0564-13	5 Jun 2013	30 Nov 2013	Valid until cancellation on 30 Nov 2013	For erection or dismantling of scaffolding, and handling of scaffolding material
GW-RE0846-13	11 Aug 2013	03 Nov 2013	Valid until cancellation on 03 Nov 2013	Cable inspection with CLP
GW-RE0948-13	26 Sep 2013	09 Nov 2013	Valid until cancellation on 09 Nov 2013	Delivery of heavy vehicles
GW-RE1007-13	21 Sep 2013	21 Oct 2014	Valid until cancellation on 21 Oct 2013[Note 1]	Bentonite recirculation for D-wall & Building Services System Modification Work
GW-RE1026-13	01 Oct 2013	30 Dec 2013	Valid	Relocation of overhead line mast A0370
GW-RE1060-13	30 Sep 2013	26 Nov 2014	Valid until cancellation on 26 Nov 2013	Traverser area hoarding erection

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
GW-RE1085-13	10 Oct 2013	30 Nov 2013	Valid	Piping Installation at mid-level walkway
GW-RE1102-13	16 Oct 2013	15 Nov 2013	Valid until cancellation on 15 Nov 2013	Water Main Modification at Mid-Level Walkway
GW-RE1108-13	21 Oct 2013	21 Dec 2013	Valid	Steel cage installation and fixing
GW-RE1185-13	06 Nov 2013	31 Dec 2013	Valid	Concrete coring in Tai Bao Mei Area
GW-RE1217-13	12 Nov 2013	11 Jan 2014	Valid	Delivery of Heavy vehicles
GW-RE1227-13	20 Nov 2013	15 Jan 2014	Valid	Building Services System Modification Work for Podium Modification & Underpinning Work
GW-RE1266-13	30 Nov 2013	15 Jan 2014	Valid	ADMS installation under podium and in concourse level
GW-RE1280-13	26 Nov 2013	25 Apr 2014	Valid	Fire Services System Modification for Traverser Modification
Wastewater Discharge License				
WT00015983-2013	28 Jun 2013	30 Jun 2018	Valid	-
Chemical Waste Producer Registration				
5213-213-L2603-03	28 Jun 2013	-	Valid	-
Billing Account for Construction Waste Disposal				
7017179	27 Mar 2013	-	Active Account	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
357078	18 Mar 2013	-	Notified	-

Note:

1. CNP cancellation was notified by the Contractor on 3 December 2013

3 ENVIORNMENTAL MONITORTING 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 [1]	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 stations is summarised in ***Table 3-2 and*** shown in ***Appendix D***.

Table 3-2 Air Quality Monitoring Location

ID	Location
AM2 [1]	Harbourfront Horizon [2]

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

3.2.3 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

3.2.4 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

3.2.5 Specifications of HVS are as follow:

i. 0.6 - 1.7m^3 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 406cm2
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.

3.2.6 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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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.

3.2.7 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^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/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

3.2.8 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

3.2.9 The schedule for environmental monitoring in November 2013 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 November 2013	Submitted
	EP-438/2012/D	14 November 2013	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 4 and 21 November 2013. 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 (µg/m^3)	Range (µg/m^3)	Action Level (µg/m^3)	Limit Level (µg/m^3)
AM2	81.9	53.6-131.1	182	260

5.2.2 No Action and Limit Level exceedanced 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, 28,690 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 6,087m^3 inert construction demolition (C&D) materials was generated from the Project, where 3,820m^3 was disposed of at TM38 Public Fill, 180m^3 was disposed of at TKO137 and 2,088m^3 was disposed of at KTE1001 Barging Point. 83,003 kg metals, 451 kg paper/cardboard packaging and 160,350 kg asphalt were collected by recycling contractor in the reporting month. No chemical waste was generated and collected by licenced contractor in the reporting period. The waste flow table is presented in ***Appendix K***.

5.4.2 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. 4 site audits were carried out on 7, 14, 21 and 28 November 2013 during the reporting month. Representative of the IEC joined the site inspection on 21 November 2013. A summary of the implementation schedule of environmental mitigation measures is provided in ***Appendix H***.

6.1.2 One site inspection was conducted by EPD during the reporting month on 14 November 2013. No adverse comment was provided by EPD during the inspections in this 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
Landscape and Visual	N/A	N/A	N/A	N/A
Air Quality	Vehicle was observed exiting the site at Gate 3 without thorough wheel washing. The Contractor should provide training to the workers to enhance their awareness of the need to wash the wheels thoroughly before leaving the site to prevent wind erosion of dust in the public area.	Gate 3	31 October 2013	The item was rectified by the Contractor on 07 November 2013.
	Stockpile was observed not covered properly at NAT. The Contractor should properly cover the stockpile with tarpaulin to prevent dust generation.	NAT	14 November 2013	The item was rectified by the Contractor on 21 November 2013.
Noise	N/A	N/A	N/A	N/A
Water Quality	Surface runoff from wheel washing facilities at Gate 3 was observed flowing out of the site without proper collection and treatment. The Contractor should provide sufficient facilities to collect surface runoff for treatment prior to discharge.	Gate 3	31 October 2013	The item was rectified by the Contractor on 07 November 2013.
	Improper handling of groundwater was observed in NAT. The Contractor should ensure that all site discharges comply with the WPCO	NAT	14 November 2013	The item was rectified by the Contractor on 21 November 2013.

Parameters	Description	Works Area	Observation Date	Status
	requirements.			
Waste/ Chemicals Management	Oil stain and oil spillage was observed beside machineries. The Contractor should clear the oil stain. Mitigation measures and training should be provided to prevent recurrence.	HHS	21 November 2013	The item was rectified by the Contractor on 28 November 2013.
	Secondary containment was not provided for chemical containers. The Contractor should provide secondary containment for chemical containers.	HHS	07 November 2013	The item was rectified by the Contractor on 14 November 2013.
		HHS	21 November 2013	The item was rectified by the Contractor on 28 November 2013.
		HUH	21 November 2013	The item was rectified by the Contractor on 28 November 2013.
Permits/ License	N/A	N/A	N/A	N/A

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 the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period. Inspection for follow-up actions that are outstanding in the reporting month will be carried out in following inspections, until the corresponding action has been undertaken by the Contractor.

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.

7.2 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 environmental related complaint was reported during the reporting month.

7.3.2 Cumulative statistics on environmental complaints is provided in ***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***.

8 FUTURE KEY ISSUES

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:

- Underpinning at HHS and HUH
- Demolition of Wagon Examination Office / Freight Document Store Room / Building Service Store Room / Amenity Building
- Bored piling for diversion of Cheong Wan Road Viaduct and South Transformer Room & Accommodation
- Diaphragm wall construction at HUH
- Initial excavation 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 December 2013 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 6th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 30 November 2013.

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 four 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 There was no environmental complaint, prosecution or notification of summons received.

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:

Air Quality Impact

- Properly cover dusty stockpiles with impervious sheeting to avoid dust generation.
- Provide thorough wheel washing to all vehicles exiting the site to prevent construction dust generation at nearby road surfaces.

Water Quality Impact

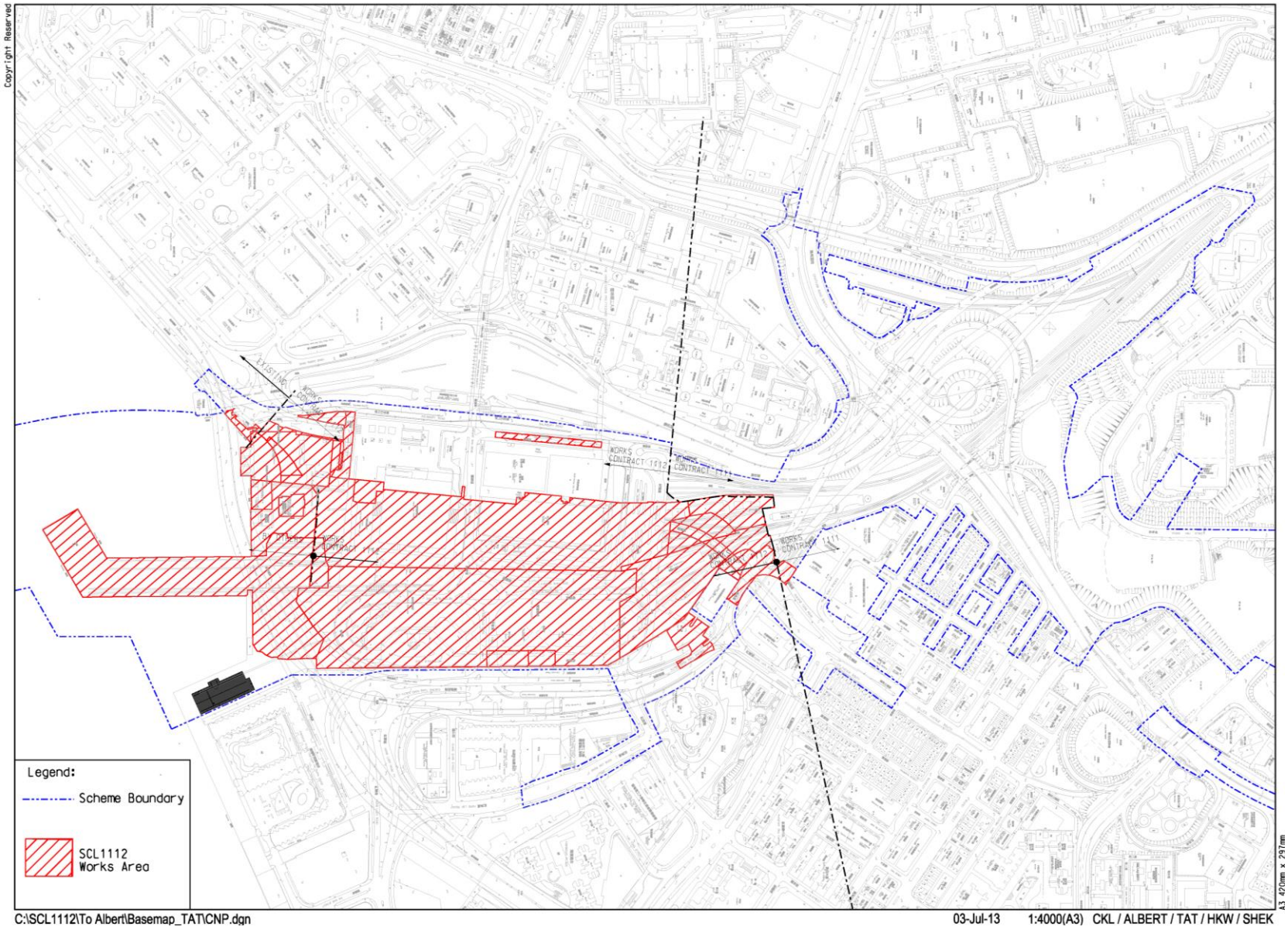
- Provide appropriate groundwater handling system to avoid water pollution.
- Provide appropriate and sufficient water collection and treatment facilities at the wheel washing facilities to prevent polluted surface runoff generated from wheel washing practise to enter the public drains.

Chemical and Waste Management

- Provide secondary containments to chemical containers and plants to avoid potential land contamination.
- Properly maintain plant/equipment and enhance training to prevent oil spillage during oil refilling process.

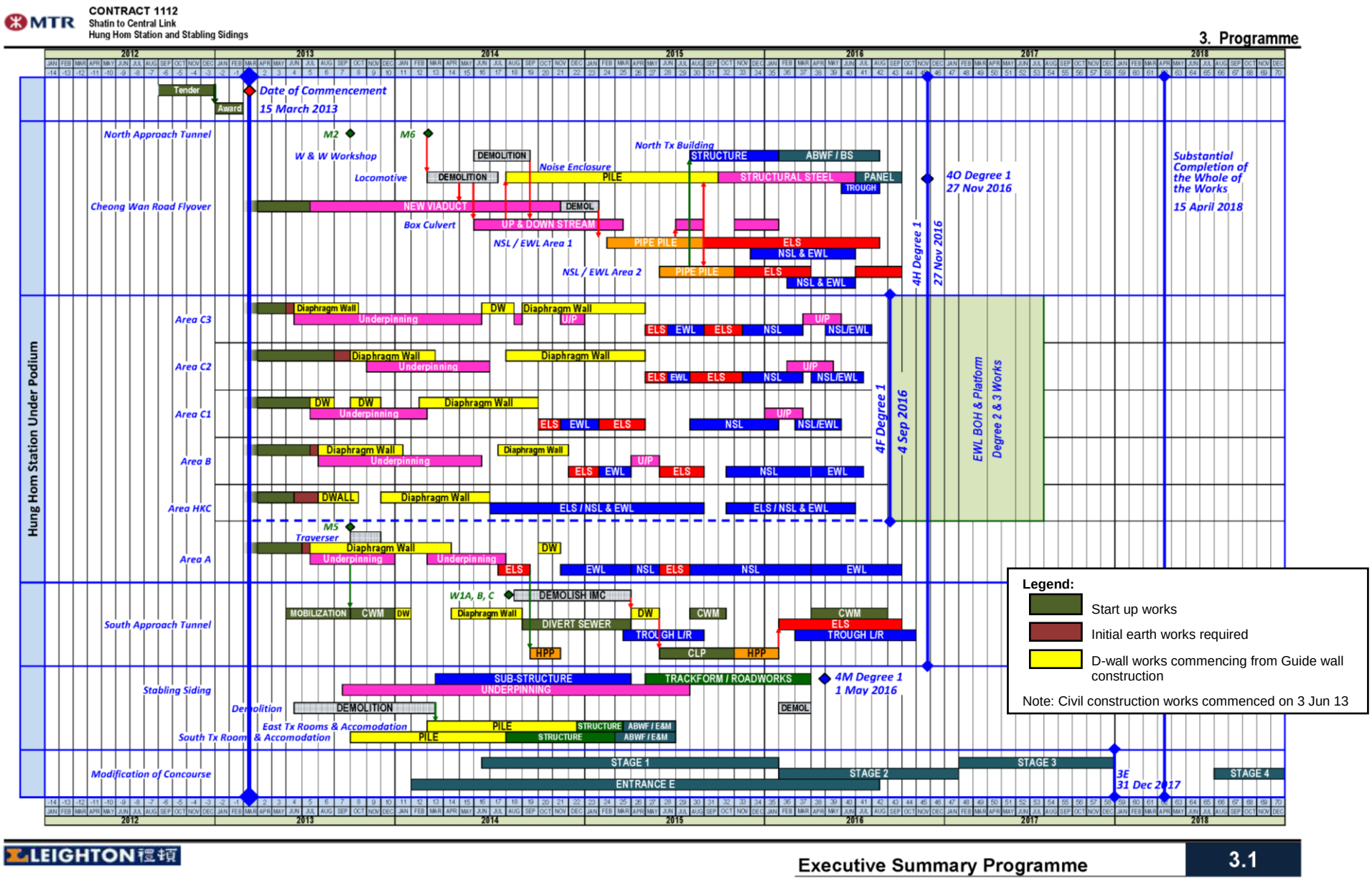
APPENDIX A

Project Works Boundary


Copyright Reserved
EXISTING WORKS CONTRACT 1112
WORKS CONTRACT 1112
WORKS CONTRACT 1112
WORKS CONTRACT 1112
Legend:
Scheme Boundary
SCL1112 Works Area
C:\SCL1112\To Albert\Basemap_TAT\CNP.dgn
03-Jul-13
1:4000(A3) CKL / ALBERT / TAT / HKW / SHEK
A3 420mm x 297mm

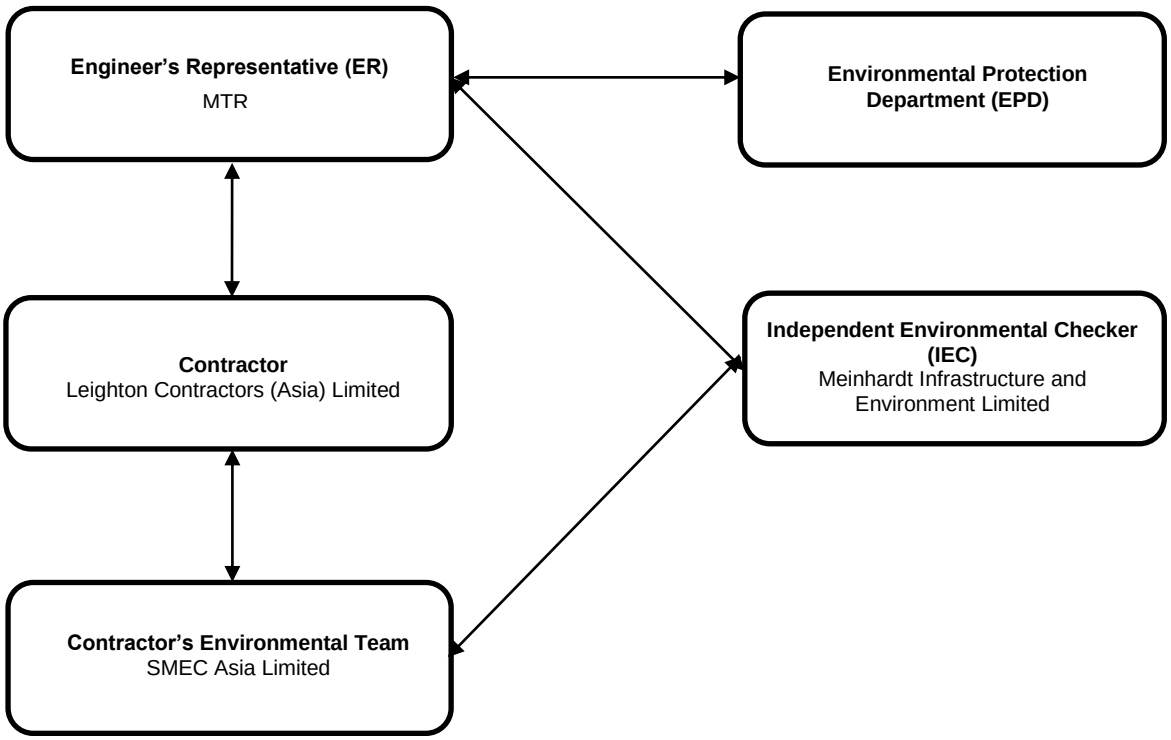
APPENDIX B

Construction Programme


MTR
CONTRACT 1112
Shatin to Central Link
Hung Hom Station and Stabling Sidings
3. Programme
2012
2013
2014
2015
2016
2017
2018
Tender
Award
Date of Commencement
15 March 2013
Hung Hom Station Under Podium
North Approach Tunnel
M2
M6
W & W Workshop
Locomotive
DEMOLITION
Noise Enclosure
North Tx Building
STRUCTURE
ABWF / BS
PILE
STRUCTURAL STEEL
PANEL
TROUGH
4O Degree 1
27 Nov 2016
Substantial Completion of the Whole of the Works
15 April 2018
Cheong Wan Road Flyover
NEW VIADUCT
DEMOL
Box Culvert
UP & DOWN STREAM
NSL / EWL Area 1
PIPE PILE
ELS
NSL & EWL
NSL / EWL Area 2
4H Degree 1
27 Nov 2016
Area C3
Diaphragm Wall
Underpinning
DW
U/P
ELS
EWL
NSL
NSL/EWL
Area C2
Area C1
Area B
Area HKC
DWALL
ELS / NSL & EWL
4F Degree 1
4 Sep 2016
EWL BOH & Platform
Degree 2 & 3 Works
M5
Traverser
Area A
W1A, B, C
DEMOLISH IMC
MOBILIZATION
CWM
South Approach Tunnel
DIVERT SEWER
TROUGH L/R
HPP
CLP
Stabling Siding
SUB-STRUCTURE
TRACKFORM / ROADWORKS
UNDERPINNING
4M Degree 1
1 May 2016
Demolition
East Tx Rooms & Accomodation
South Tx Room & Accomodation
ABWF / E&M
Modification of Concourse
STAGE 1
STAGE 2
STAGE 3
STAGE 4
ENTRANCE E
3E
31 Dec 2017
Legend:
Start up works
Initial earth works required
D-wall works commencing from Guide wall construction
Note: Civil construction works commenced on 3 Jun 13
LEIGHTON 禮頓
Executive Summary Programme
3.1

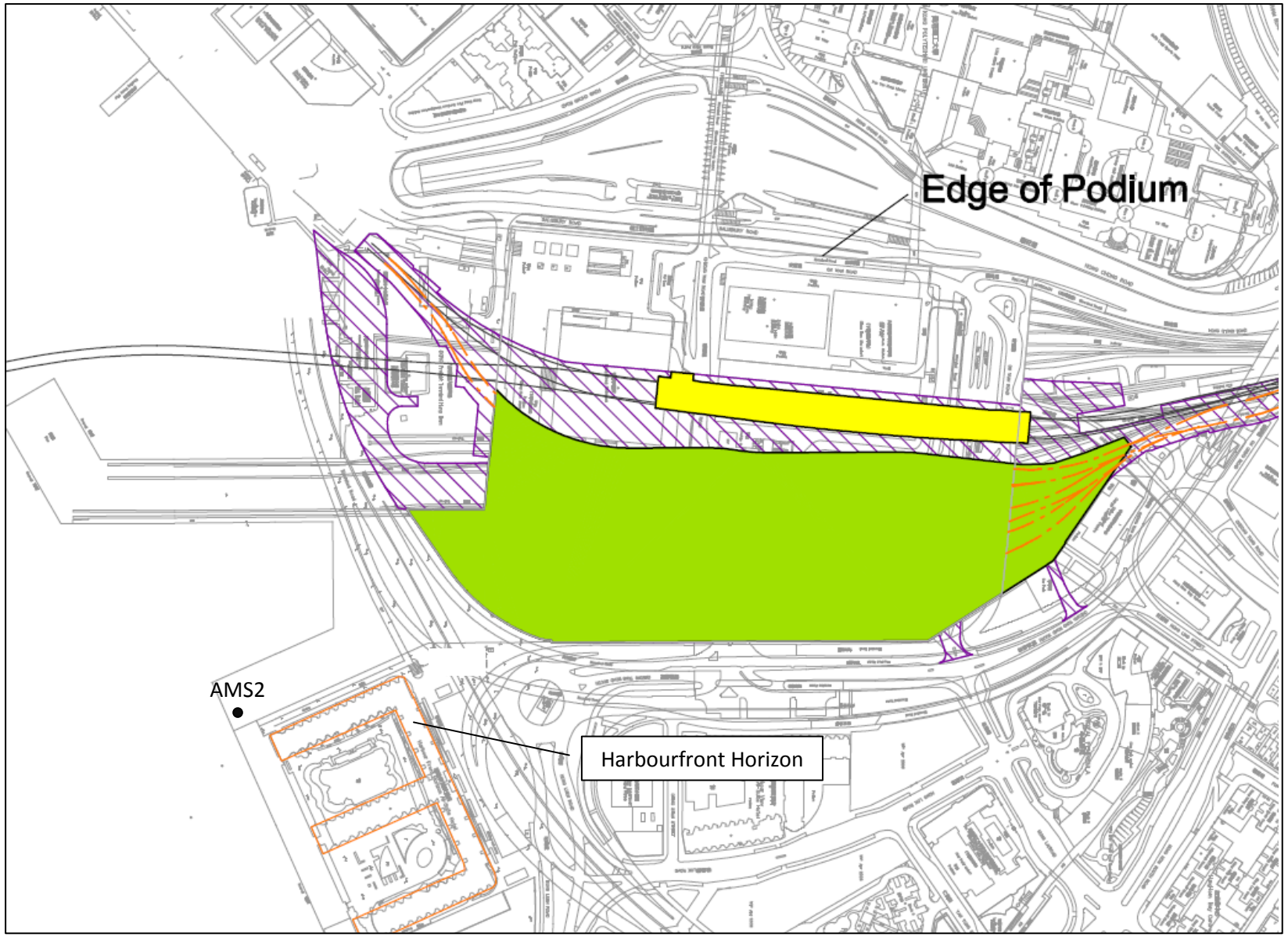
APPENDIX C

Project Organisation for Environmental Works


Engineer's Representative (ER)
MTR
Environmental Protection Department (EPD)
Contractor
Leighton Contractors (Asia) Limited
Independent Environmental Checker (IEC)
Meinhardt Infrastructure and Environment Limited
Contractor's Environmental Team
SMEC Asia Limited

APPENDIX D

Location of Air Quality Monitoring Station


Edge of Podium
AMS2
Harbourfront Horizon

APPENDIX E

Calibration Certificates for Monitoring Equipment

TSP Sampler Calibration

SITE

Location:	Hung Hom	Calibration Date:	October 5, 2013
Sampler:	Hunghom MTR TSP	Next Calibration Date:	December 5, 2013
Serial No	694-0665	Tech:	Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.80	Corrected Pressure (mm Hg):	1011
Temperature (deg F):	77	Temperature (deg K):	298
Average Press. (in Hg):	39.80	Corrected Average (mm Hg):	1011
Average Temp. (deg F):	77	Average Temp. (deg K):	298

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11662
Model:	TE-5025A	Qstd Intercept:	-0.01714
Serial#:	1941	Date Certified:	April 9, 2013

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	11.80	1.880	58.0	66.89	Slope =	35.8107
2	10.40	1.765	54.0	62.28	Intercept =	-0.9306
3	7.80	1.530	46.0	53.05	Corr. coeff.=	0.9993
4	5.20	1.251	38.0	43.83		
5	3.20	0.983	30.0	34.60	# of Observations:	5

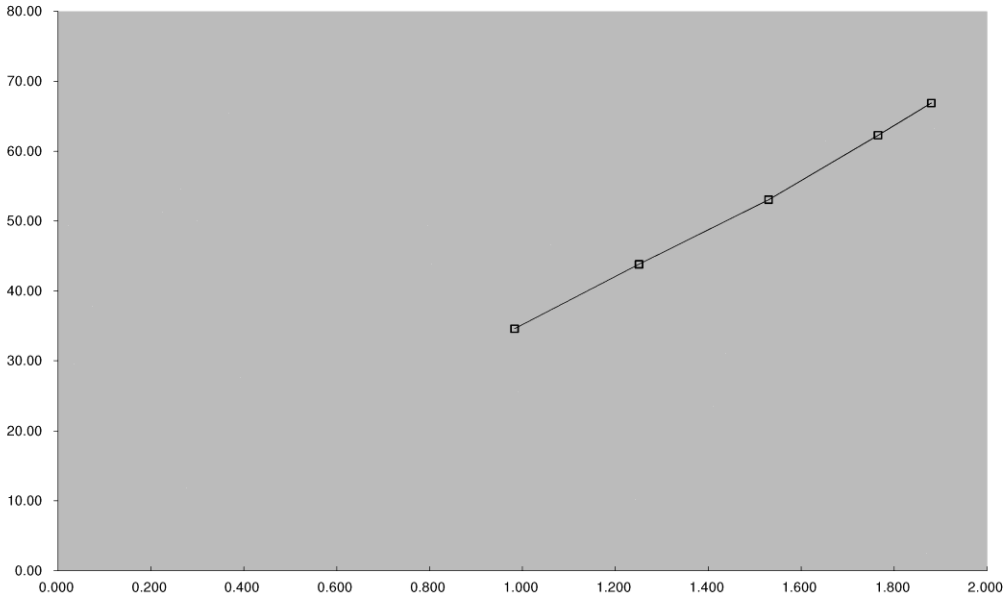
Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[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)[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: October 5, 2013


80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.200
0.400
0.600
0.800
1.000
1.200
1.400
1.600
1.800
2.000

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Rootsmeter S/N 0438320 Ta (K) - 296
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

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	1.4710	3.3	2.00
2	NA	NA	1.00	1.0370	6.4	4.00
3	NA	NA	1.00	0.9270	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9916	0.6741	1.4113		0.9956	0.6768	0.8874
0.9874	0.9521	1.9959		0.9914	0.9560	1.2549
0.9854	1.0630	2.2315		0.9894	1.0673	1.4030
0.9843	1.1134	2.3405		0.9883	1.1180	1.4715
0.9790	1.3410	2.8227		0.9829	1.3465	1.7747
Qstd slope (m) =		2.11662		Qa slope (m) =		1.32539
intercept (b) =		-0.01714		intercept (b) =		-0.01078
coefficient (r) =		0.99999		coefficient (r) =		0.99999
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

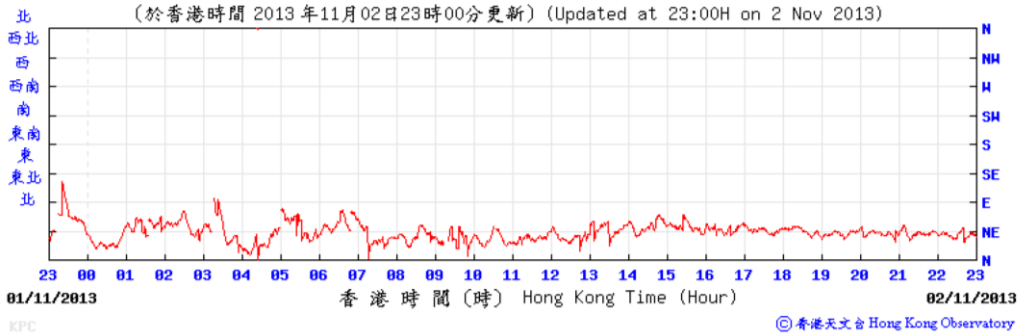
For subsequent flow rate calculations:

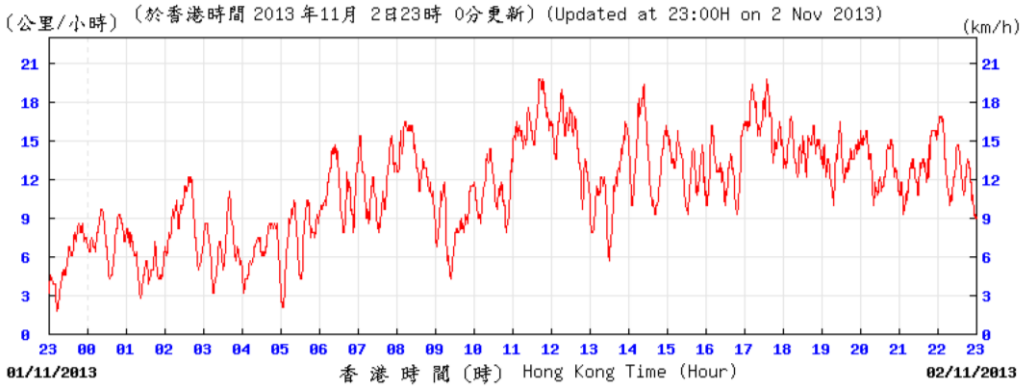
Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

Appendix F

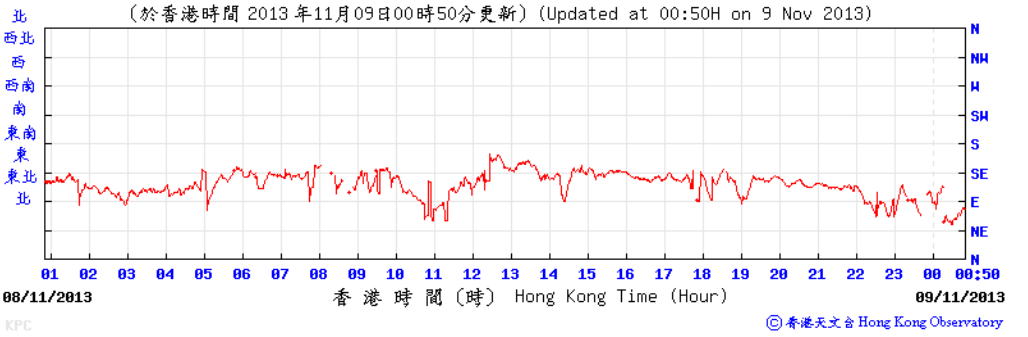
Wind Data

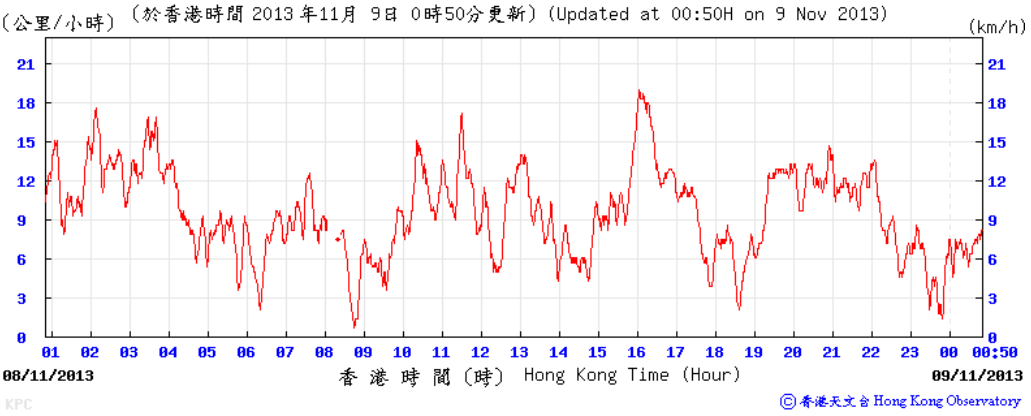
2 November 2013



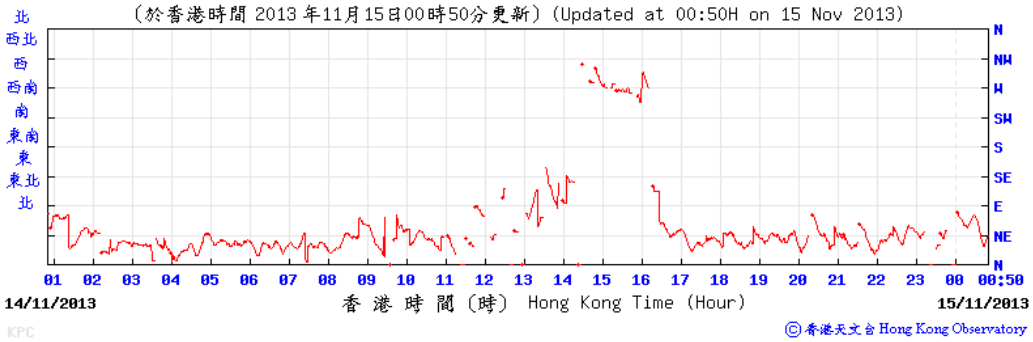


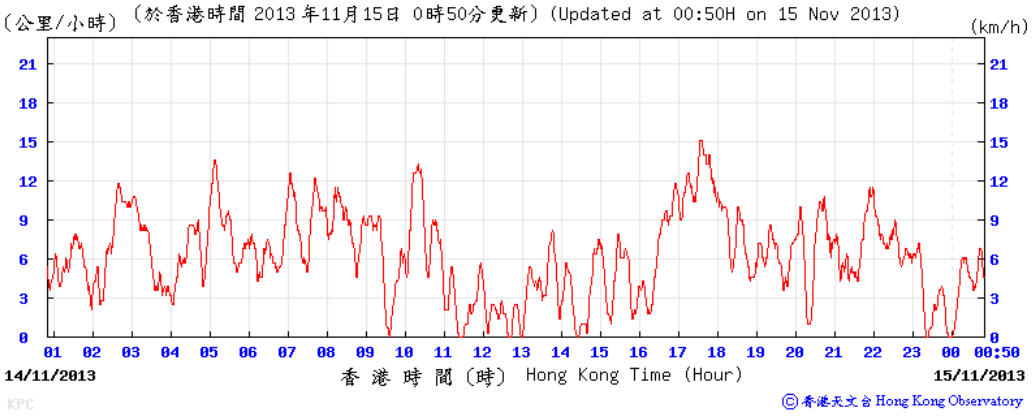
8 November 2013



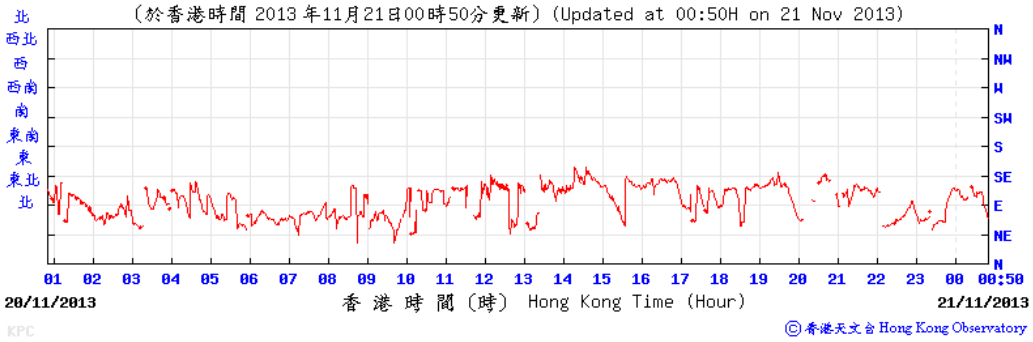


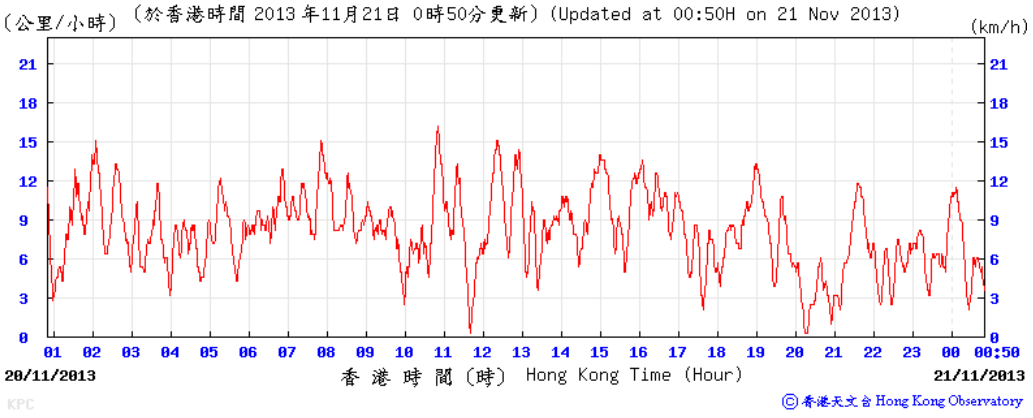
14 November 2013



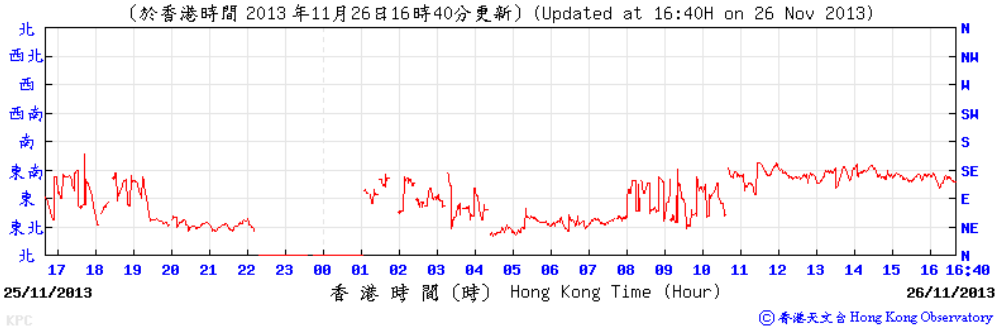


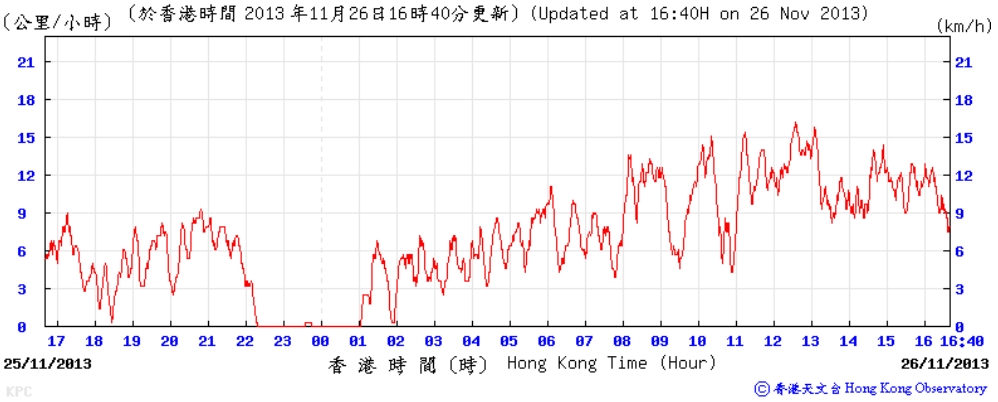
20 November 2013





26 November 2013





Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 24 hr TSP
3	4	5	6	7	8 24 hr TSP	9
10	11	12	13	14 24 hr TSP	15	16
17	18	19	20 24 hr TSP	21	22	23
24	25	26 24 hr TSP	27	28	29	30

Environmental Monitoring Schedule for SCL1112 in December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 24 hr TSP	3	4	5	6	7 24 hr TSP
8	9	10	11	12	13 24 hr TSP	14
15	16	17	18	19 24 hr TSP	20	21
22	23	24 24 hr TSP	25	26	27	28
29	30 24 hr TSP	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
Landscape & Visual (Construction Phase)							
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of existing soil</u> • 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. <u>No-intrusion zone</u> • 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. <u>Protection of retained trees</u> • All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period. • 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.	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	^ ^ ^ ^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	<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 will be designed to be compatible with the existing urban context. <u>Management of facilities on work sites</u> • 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. <u>Tree transplanting</u> • Trees of medium to high survival rate that would be affected by the works will be transplanted where possible and	Minimise the visual and landscape impact of the Project during construction phase	Contractor	Within project site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

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.						
Construction Dust Impact							
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	Air Pollution Control Ordinance (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: • 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. • 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/m2 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^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. • Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit.	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	APCO	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
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^2 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	• 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. • Any dusty materials remaining after a stockpile is removed will be wetted and cleared from the surface of roads. • A stockpile of dusty material will not be extend beyond the pedestrian barriers, fencing or traffic cones. • 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. • 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. • 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. • 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. • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously.	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
	• 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. • 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. • Any skip hoist for material transport will be totally enclosed by impervious sheeting. • 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. • 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. • 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. • 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.						^ N/A ^ ^ ^ ^ ^
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
Construction Airborne Noise							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: • Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme. • 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. • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. • Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works. • Mobile plant will be sited as far away from NSRs as possible and practicable. • Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities.	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, gene rators 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: • Asphalt Paver (SWL=101dB(A)) • Backhoe (SWL=106dB(A)) • Backhoe with Hydraulic Breaker (SWL=110dB(A)) • Concrete lorry mixer (SWL=96dB(A)) • Concrete mixer truck (SWL=96dB(A)) • Concrete Pump (SWL=106dB(A)) • Concrete Pump Truck (SWL=106dB(A))	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
	• Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A)) • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A) • Roller (SWL = 101dB(A) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A))						
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
Water Quality (Construction Phase)							
S10.7.1 of Ref. 1;S8.41 – 8.39 and S8.50 of Ref. 2; S10.7.1 of Ref. 3	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, EPD, 1994 (ProPECC PN1/94), construction phase mitigation measures will include the following: <u>Construction runoff and site drainage</u> • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site will 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 will be provided onsite to direct stormwater to silt removal facilities. The design of the temporary onsite drainage system will be undertaken by the contractor prior to commencement of construction. • The dikes or embankments for flood protection will be implemented around the boundaries of earthwork areas. Temporary ditches will be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps will be incorporated in the permanent drainage channels to enhance deposition rates. • The design of silt removal facilities will be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps will be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m^3/s a sedimentation basin of 30m^3 would be required and for a flow rate of 0.5m^3/s the basin would be 150m^3. Detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of works. • All exposed earth areas will 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 will be covered by tarpaulin or other means. • All drainage facilities and erosion and sediment control structures will be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit will be removed regularly and disposed of by spreading evenly	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 (WPCO) ProPECC PN1/94 EIAO-TM TM-Water Technical Memorandum on Effluent Discharge Standard (TM-DSS)	^ ^ ^ ^ ^

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
	over stable, vegetated areas. • 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. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 will be covered with tarpaulin or similar fabric during rainstorms. • Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • 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. • 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. • 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. • 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						^ ^ ^ ^ * ^

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
	system after accidental spillage. A bypass will be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. • 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. • 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. • Adopt Best Management Practices.						^ ^ ^ ^
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<u>Tunnelling works</u> • 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. • Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge. • 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. • 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.	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	^ ^ ^ ^

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	Operation of Barging Facilities The following good practice shall apply for the barging facilities operations: • All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; • Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; • 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 • Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. • Mitigation measures as outlined for control of *construction runoff and site drainage* provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	N/A N/A N/A N/A N/A
S8.51 – 8.52 of Ref. 2	Bentonite Slurries: • 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. • 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.	To minimize water quality impact from bentonite slurries	Contractor	All works area	Construction stage	WPCO TM-EIA	^ ^
S8.53 – 8.54 of Ref. 2	Wastewater from Building Construction: • 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 • 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	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
	settleable solids in a silt removal facility, and pH adjustment as washing and general cleaning etc., can minimise water 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	Excavation Activities: • 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.	To minimize water quality impact from excavation activities	Contractor	All excavation works areas	Construction stage	WPCO EIAO-TM	^
S8.63 of Ref. 2	Diaphragm Wall • 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.	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	Sewage effluent 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	WPCO TM-Water	^

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
S8.64 of Ref. 2; S10.7.1 of Ref. 3	<u>Groundwater seepage</u> 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 removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	*
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<u>Accidental spillage</u> To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • 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. • 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. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	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
Waste Management (Construction Phase)							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	Onsite sorting of C&D material 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.	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	Construction and demolition material • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. • Carry out onsite sorting. • Make provisions in the Contract documents to allow and promote • The use of recycled aggregates where appropriate. • Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible. • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. will be avoided. The	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	^ ^ ^ ^ ^ ^ ^

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
	contractor will propose the final disposal sites to the Project 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	<u>C&D waste</u> • Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&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. • The contractor will recycle as much of the C&D materials as possible onsite. Public fill and C&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.	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	<u>General refuse</u> • General refuse generated onsite will be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • 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.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	^ ^ ^ ^

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
S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	Land-based sediment • The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. • 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. • 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. • 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. • Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. • 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	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 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
	collected and discharged according to the Water Pollution Control Ordinance (WPCO). • 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. • 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. • 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.						^ N/A N/A
S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3	<u>Chemical waste</u> • 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. • 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. • 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;	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^ ^ ^

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
	and be arranged so that incompatible materials are adequately separated. • 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.						^
S9.98 – 9.99 of Ref 2	<u>Asbestos wastes</u> • 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. • 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	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 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
Land Contamination							
S10.24 – 10.34 of Ref 2	<u>Precautionary measures</u> • 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. • 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.	To act as a general precautionary measure to screen soils for the presence 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	• Potential remediation of 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. 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. • 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: • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation;	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 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
	• If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment • 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; • 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; • 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.						N/A ^ ^ ^
S10.36 of Ref 2	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: Set up a list of safety measures for site workers. Provide written information and training on safety for site workers. Keep a log-book and plan showing the contaminated zones and clean zones. Maintain a hygienic working environment. Avoid dust generation. Provide face and respiratory protection gear to site workers. Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers. Provide first aid training and materials to site workers.	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	"Guidance Note for Contaminated Land Assessment and Remediation" "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management "Occupation Safety and Health Ordinance (Chapter 509)"	^

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 Project							
S14.2 – 14.4 of Ref. 1; S13.2 – 13.4 of Ref. 3 1.	• An Environmental Team needs to be employed as per this EM&A Manual. • Prepare a systematic EMP to ensure effective implementation of the mitigation measures. • An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in this EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

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

APPENDIX I

Event and Action Plan

Event and Action Plan for Landscape and Visual Impact Monitoring

Event	ET	IEC	ER	Contractor
Action level				
Non-conformity on one occasion	1. Inform the contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the contractor's working method 3. Discuss with the ET, ER and the contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the contractor 2. In consultation with the ET and IEC, agree with the contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Event and Action Plan for Air Quality

Event	ET	IEC	ER	Contractor
Action level				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER 2. Discuss with the Contractor, IEC and ER 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
2. Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor 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	2. Check monitoring data submitted by the ET 3. Check Contractor's working method 4. 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	ET	IEC	ER	Contractor
Limit Level				
1. Exceedance for one sample	1. Inform the IEC, EPD, Contractor 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. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor 4. 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 agreed proposals 5. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, Contractor & EPD 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, Contractor 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. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 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.	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.

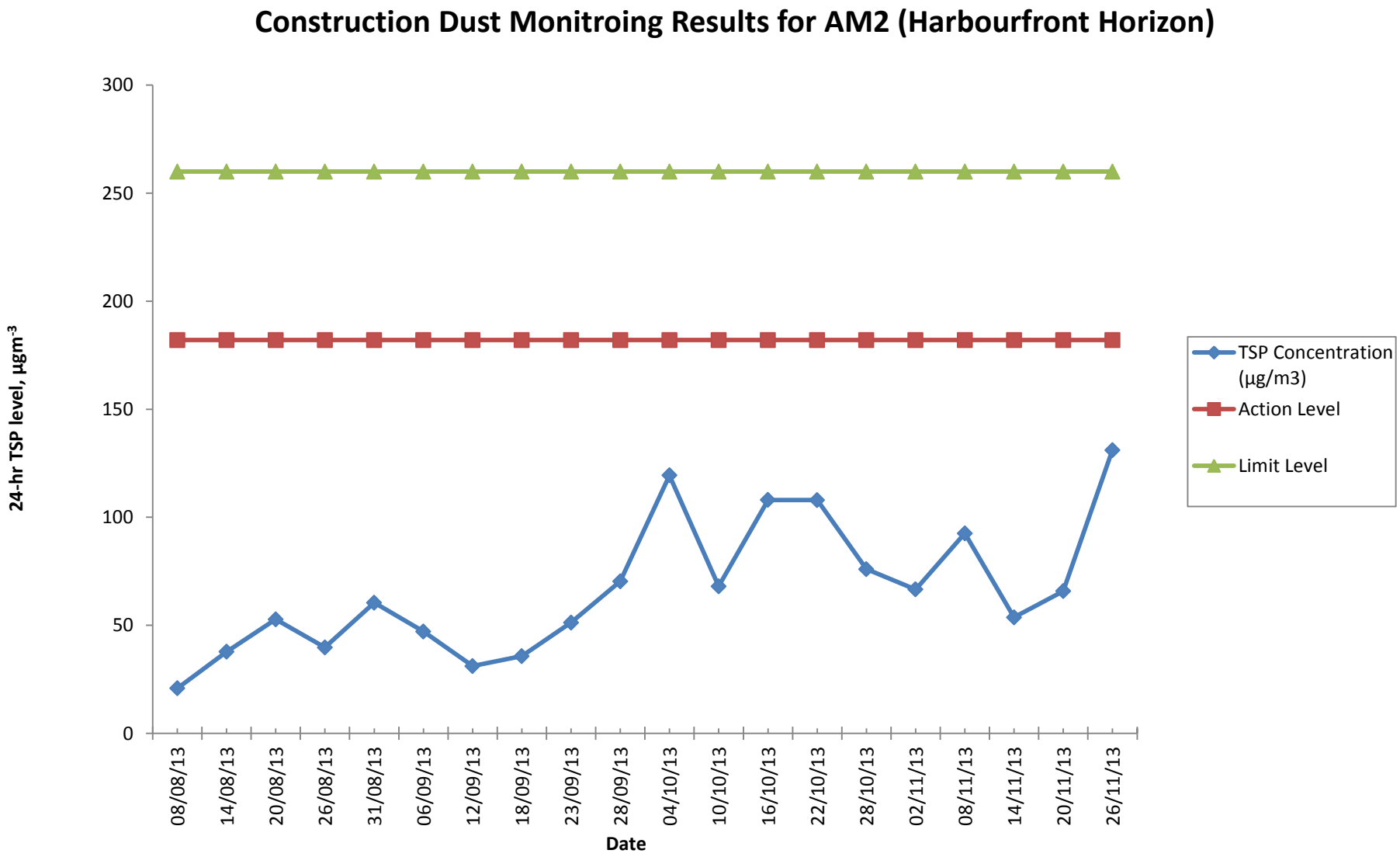
Note:
ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

APPENDIX J

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^3)	TSP Concentration (µg/m3)	Weather	Reference
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
02/11/13	026028	2.7135	2.8221	0.1086	10269.06	10293.06	24.00	40	40	40	1631.05	66.5829	Cloudy	-
08/11/13	026029	2.7412	2.8921	0.1509	10293.06	10317.06	24.00	40	40	40	1631.05	92.5171	Partial Rainy	-
14/11/13	026030	2.7415	2.8290	0.0875	10317.06	10341.06	24.00	40	40	40	1631.05	53.6464	Sunny	-
20/11/13	026031	2.7306	2.8379	0.1073	10341.06	10365.06	24.00	40	40	40	1631.05	65.7858	Fine	-
26/11/13	026032	2.7428	2.9566	0.2138	10365.06	10389.06	24.00	40	40	40	1631.05	131.0812	Sunny	-


Construction Dust Monitroing Results for AM2 (Harbourfront Horizon)
24-hr TSP level, µgm-3
300
250
200
150
100
50
0
08/08/13
14/08/13
20/08/13
26/08/13
31/08/13
06/09/13
12/09/13
18/09/13
23/09/13
28/09/13
04/10/13
10/10/13
16/10/13
22/10/13
28/10/13
02/11/13
08/11/13
14/11/13
20/11/13
26/11/13
Date
TSP Concentration (µg/m3)
Action Level
Limit Level

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	
	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 [Note 2]
Unit	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)
Jun-13	0	0	0	0	0	0	0	137.301	0	0	0	0	6.55
Jul-13	0.361	0	0	0	0	0	0.361	365.335	0	0	0	0	16.87
Aug-13	1.6809	0	0	0	0.0479	0	1.633	69.979	0.253	0	0	0	12.67
Sep-13	3.389	0	0	0	0.196	0	3.193	131.175	0.223	0	0.46	0	16.25
Oct-13	4.036	0	0	0	0.777	0	3.259	179.97	0.63	8.28	2.04	0	39.87
Nov-13	6.087	0	0	0	2.088	0.180	3.820	83.0026	0.451	160.35	0	0	28.69
Dec-13													
TOTAL	**15.5540**	**0**	**0**	**0**	**3.1086**	**0.180**	**12.266**	**966.7626**	**1.557**	**168.63**	**2.50**	**0**	**120.90**

Note:

1. Assume the density of fill is 2 ton/m^3.
2. Refuses disposed of at NENT landfill.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. recorded since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecution	-	-	-	0	0

Appendix I

6th Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 6

[Period from 1 to 30 November 2013]

Works Contract 1108 –Kai Tak Station and Associated Tunnels

(November 2013)

Certified by: Goldie Fung

Position: Environmental Team Leader

Date: 11th December 2013

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for November 2013

The Contents of this report have been certified by:

Ms. Goldie Fung
(Environmental Team Leader)

Environmental Pioneers & Solutions Limited
Flat A, 19/F, Chaiwan Industrial Centre,
20 Lee Chung Street, Chai Wan, Hong Kong
Tel: 2556 9172 Fax: 2856 2010

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Executive Summary

This is the sixth 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 17th June 2013. This report documents the finding of EM&A Works conducted from 1st November 2013 to 30th November 2013.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Installation of sheet pile cutoff wall
- Installation of dewatering well
- Installation of ground monitoring instrumentation
- Bulk excavation to -2.1mPD
- Breaking of concrete pavement and material stockpile on site
- Area 3 Stage 2 pumping test
- CPT for ground investigation works completed
- Complete safety platform for coring of middle wall and start coring
- Shotcreting

Variation in Construction Method

No variation in construction method from the proposed construction programme was noted in this reporting month.

Environmental Monitoring and Audit Progress

Culture Heritage

As tunneling works have not commenced, no audit for the Lung Tsun Stone Bridge and Former Kowloon City Pier was conducted during the reporting month.

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, 1,421 m^3 of type 1 marine mud and 22,322 m^3 of inert C&D materials were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. 26 m^3 of non-inert C&D waste were generated and disposed at landfill site. 480 kg of chemical waste was generated and collected by licensed collector. 93,330 kg of steel was generated and sent to recyclers for recycling.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 5th, 12th, 19th and 26th November 2013. The representative of the IEC jointed the site inspection on 12th November 2013. 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:

- Continue installation of sheetpile cutoff wall
- Continue bulk excavation
- Continue installation of dewatering well and ground monitoring instrumentation
- Continue pumping test
- Additional boreholes for ground investigation works
- Shotcreting
- Pre-bore for sheet piling at mined tunnel

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 17th June 2013.

1.1 Purpose of the Report

This is the sixth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st November 2013 to 30th November 2013.

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**.

- Installation of sheet pile cutoff wall
- Installation of dewatering well
- Installation of ground monitoring instrumentation
- Bulk excavation to -2.1mPD
- Breaking of concrete pavement and material stockpile on site
- Area 3 Stage 2 pumping test
- CPT for ground investigation works completed
- Complete safety platform for coring of middle wall and start coring
- Shotcreting

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

The marine sediment generated from this project will be transferred to the receiving facility of Contract 1108A for disposal. Application of Marine Dumping Permit was submitted by C1108A and granted on 27th November 2013 (Permit No : EP/MD/14-077). 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
	From	To	
Environmental Permit (EP)			
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref. Number 359540	16/05/2013	N/A	Valid
Construction Noise Permit for the Carrying Out of Percussive Piling			
PP-RE0026-13	02/07/2013	01/09/2013	Superseded by PP-RE0039-13
PP-RE0039-13	02/09/2013	28/02/2014	Valid
Construction Noise Permit for General Works			
GW-RE0720-13	12/07/2013	08/01/2014	Valid
GW-RE0998-13	23/09/2013	15/03/2014	Valid
Waste Disposal (Charges for Disposal of Construction Waste) Regulation			
Billing Account No. 7017544	07/06/2013	N/A	Valid
Effluent Discharge License			
WT00016451-2013	26/08/2013	28/10/2013	Superseded by WT00017341-2013
WT00017341-2013	29/10/2013	31/08/2018	Valid
Marine Dumping Permit			
EP/MD/14-077	27/11/2013	26/05/2014	Valid
Registration of Chemical Waste Producer			
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 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 within the horizontal buffer zone.

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	Fifth Monthly EM&A Report	14th November 2013

5 Monitoring Results

5.1 Cultural Heritage

As tunneling works have not been commenced, no audit was conducted during the reporting month.

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. 1,421 m^3 of type 1 marine mud was disposed to the Contract 1108A receiving facility in this reporting month. The inert C&D materials were disposed to the Contract 1108A receiving facility. The general refuse was disposed to designated landfill site. Steel was sent to recycler for recycling. No paper/cardboard packaging and plastics were recycled during this reporting month. Chemical waste generated was collected by licensed collector for further disposal. 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) [(a)]	C&D Materials (non-inert) [(b)]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
November 2013	22,322m^3	26m^3	480kg	0 kg	0 kg	93,330kg

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 5th, 12th, 19th and 26th November 2013. The representative of the IEC jointed the site inspection on 12th November 2013. The details of observations during site audit can refer to Table 6.1.

EPD conducted a site inspection on 7th November 2013. EPD has reminded the Contractor to enhance water spraying to reduce dust impact.

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 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	N/A	N/A	N/A	N/A	N/A	/
Air Quality	29 Oct 13	The cement production area was not properly covered.	Contractor was advised to cover the area with impervious sheeting on top and 3 sides to avoid fugitive dust emission.	The cement production works was completed. Surplus cement bags were entirely covered with tarpaulin.	5 Nov 13	/
	29 Oct 13	Dust was observed during transfer of earthy material.	Contractor was reminded to provide water spaying prior loading and unloading of dusty material for dust prevention.	As reported by Contractor, water spraying was provided prior loading and unloading of dusty material for dust prevention..	19 Nov 13	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	29 Oct 13	The work site of Area 1 & Area 2 was dry.	Contractor was advised to provide water spraying to maintain the site surface wet. Contractor was suggested to regularly review the route plan of the water spraying trucks for more efficient watering.	The work site of Area 1 & Area 2 was wet. Additional water sprinkler was installed at Area 2 for dust suppression.	5 Nov 13	/
	5 Nov 13	Insufficient dust suppression measure was noted for the large earthy stockpiles. The stockpile at Area 1 was exposed, and the tarpaulin used for covering for the stockpiles at Area 2 & 3 was broken.	Contractor was urged to provide adequate dust suppression measures and replace the broken tarpaulin and cover the exposed stockpiles entirely with tarpaulin once the stockpile formation work was completed and provide water spraying as the temporary dust suppression measure. Contractor was also reminded to cover all stockpiles with tarpaulin after work at night if stockpiling of the earthy material overnight is necessary.	Contractor reported on 19 Nov 13 that regular water spraying by workers and automatic water sprayer was provided for the exposed area of the stockpiles to suppress dust. However, there were still some stockpiles were either exposed or covered with improper material. Rectification from Contractor will be followed in next reporting month.	N/A	/
	26 Nov 13	The work sites of all Areas were generally dry. Dust was observed when vehicle passed through the haul road of Area 3.	Contractor was advised to enhance watering for the work sites to maintain the surface wet.	Follow up actions will be reported in next month.	N/A	/
Water Quality	25 Jun 13	Muddy surface runoff entered into an existing channel was observed.	Contractor was reminded to block the remaining sections of channel as soon as possible.	During the inspection on 18 Jul 13, the section of channel near the buffer zone was blocked by sandbags. Rectification for other sections is still in progress. Inspection on the water quality of downstream of Kai Tak Nullah is ongoing. No muddy water was observed being discharged from the site.	N/A	/
	7 Oct 13	Chemical containers were placed on bared ground without secondary containment.	Contractor was advised to relocate the chemical containers to the designated chemical waste storage cabinet and reminded to provide drip tray for chemical material and waste if temporary storage on active working area is necessary.	The used chemical containers observed near the exit of Area 3 were removed	19 Nov 13	/
	22 Oct 13	An oil drum was observed on bared ground at Area 3.	Contractor was advised to provide drip tray for the oil drum to avoid land contamination.	The oil drum was removed.	5 Nov 13	/
	29 Oct 13	Some chemical and oil drums were observed to be placed on bared ground without secondary containments at Area 2 & 3.	Contractor was advised to provide drip tray for the temporary storage of the chemical/oil to avoid land contamination and reminded to relocate the used containers to the designated chemical waste storage cabinet for proper housekeeping.	The chemical and oil drums were removed	5 Nov 13	/
	29 Oct 13	Broken sandbags were observed near the nullah.	Contractor was suggested to remove the sandbags and the sand on ground for proper housekeeping and prevent polluting the nullah.	The broken sandbags and the sand were removed.	26 Nov 13	/
	29 Oct 13	Some grit and broken concrete generated from concrete deck removal was observed near the nullah.	Contractor was reminded to remove the grit to prevent dropping of the grit into the nullah and to maintain free flow of the nullah.	Follow up actions will be reported in next month.	N/A	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
	29 Oct 13	Although wheel washing was provided by worker, the haul road at the site exit leading to 1108A site was observed to be muddy.	Contractor was suggested to enhance vehicle washing to avoid mud deposition to the haul road and maintain the site exit clear of dusty material.	The mud on the haul road was washed off. Wheel washing bay was provided for cleaning the dirt and mud on the vehicles prior leaving the site.	19 Nov 13	/
	12 Nov 13	Oil containers were observed on bared ground at Area 2.	Contractor was advised to provide drip trays for storing chemical/oil on-site.	The oil containers were removed.	19 Nov 13	
	26 Nov 13	Although sedimentation has been provided for treating the groundwater before discharge, the effluent was observed to be silty.	Contractor was advised to provide addition sedimentation for treating the groundwater in order to fulfill the discharge limit and reminded to regularly maintain the tanks to ensure the treatment efficiency.	Follow up actions will be reported in next month.	N/A	/
	26 Nov 13	Some used chemical containers were observed at the bottom of a sedimentation tank near the downstream of the nullah	Contractor was reminded to relocate the used chemical containers to the designated chemical waste storage cabinet for proper storage of chemical waste.	Follow up actions will be reported in next month.	N/A	/
Waste / Chemical Management	12 Nov 13	Used chemical containers were observed inside a general waste storage container at Area 2.	Contractor was advised to relocate the used chemical containers to the designated chemical waste storage cabinet	The used chemical containers were removed.	19 Nov 13	/
	26 Nov 13	A chemical waste storage cabinet at Area 1 was unlocked and without warning labels.	Contractor was reminded to lock the cabinet and attach proper warning labels for proper storage of chemical waste.	Follow up actions will be reported in next month.	N/A	/
Cultural Heritage	N/A	N/A	N/A	N/A	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:

- Continue installation of sheetpile cutoff wall
- Continue bulk excavation
- Continue installation of dewatering well and ground monitoring instrumentation
- Continue pumping test
- Additional boreholes for ground investigation works
- Shotcreting
- Pre-bore for sheet piling at mined tunnel

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise and waste management. The Contractor has been reminded to properly implement dust and construction noise 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 sixth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st November 2013 to 30th November 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/D.

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:

Dust Impact

- Enhance regular water spraying of the site to reduce the dust impact
- Cover dusty stockpiles entirely with impervious material to avoid dust generation
- Enhance vehicle washing and regularly remove the deposited mud on paved haul road

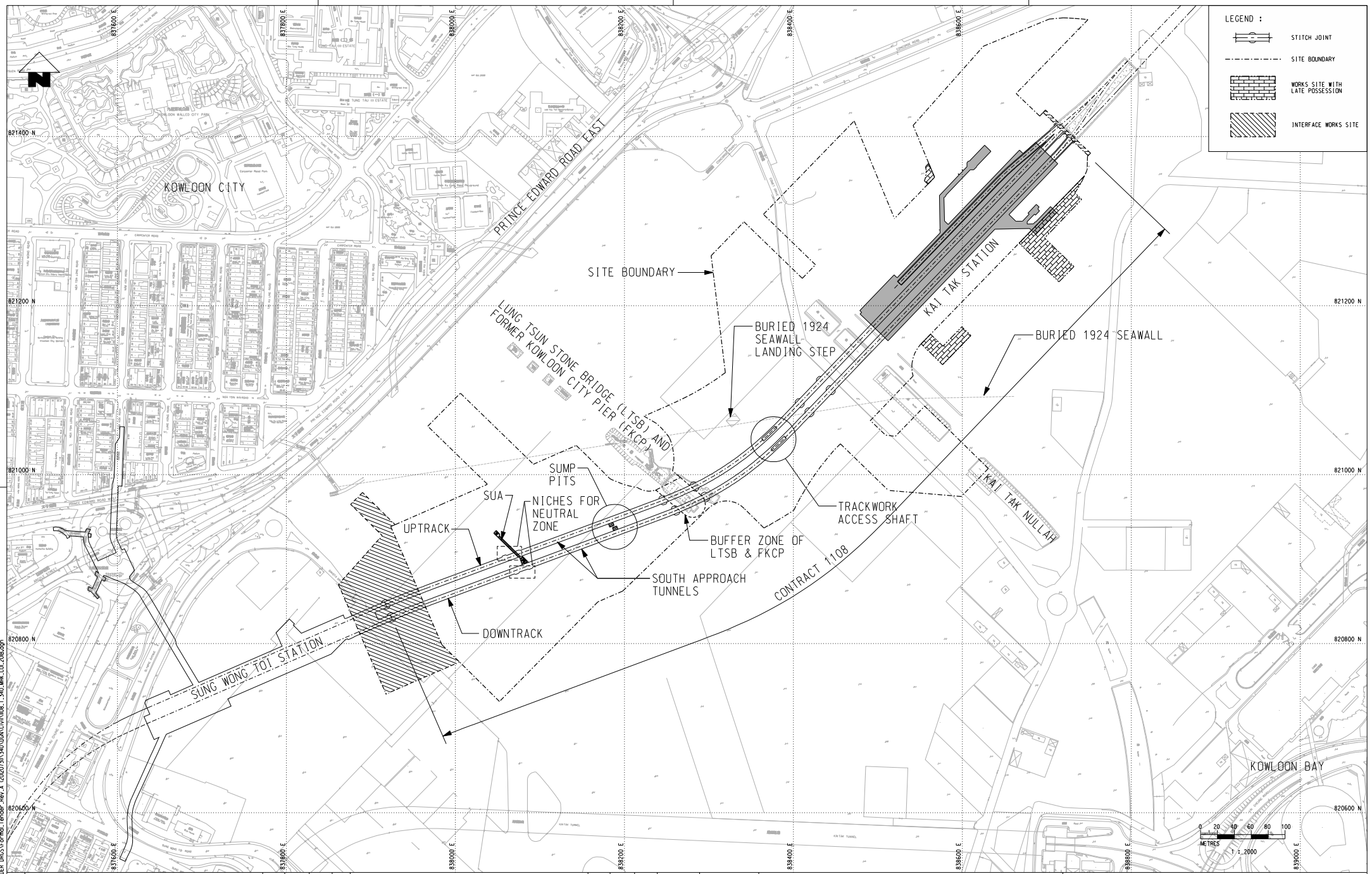
Water Quality Impact

- Provide preventive measure to avoid discharge of surface runoff
- Provide drip trays for fuel-powered equipment and fuel/chemical containers to prevent accidental spillage
- Remove any waste and grits near the nullah to avoid blocking of the nullah
- Provide adequate treatment prior discharge of underground water

Waste / Chemical Management

- Store chemical waste and used chemical container inside designated chemical waste cabinet with proper warning label

Appendix A – Site Location Plan



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REV	DESCRIPTION	BY	DATE	APPROVED
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A	ISSUE FOR TENDER	CC	31JAN12	FK

DRAWN	TWY
DESIGNED	CC
CHECKED	NN
APPROVED	FK
DATE	31JAN12

MTR

SHATIN TO CENTRAL LINK

ORIGINATOR

MEINHARDT
Meinhardt (Hong Kong) Ltd. Consulting Engineers
邁進(香港)工程顧問有限公司

in association with
Aedas, Mott MacDonald, MVA, DLS, Wilkinson Murry, Evans & Peck, AA

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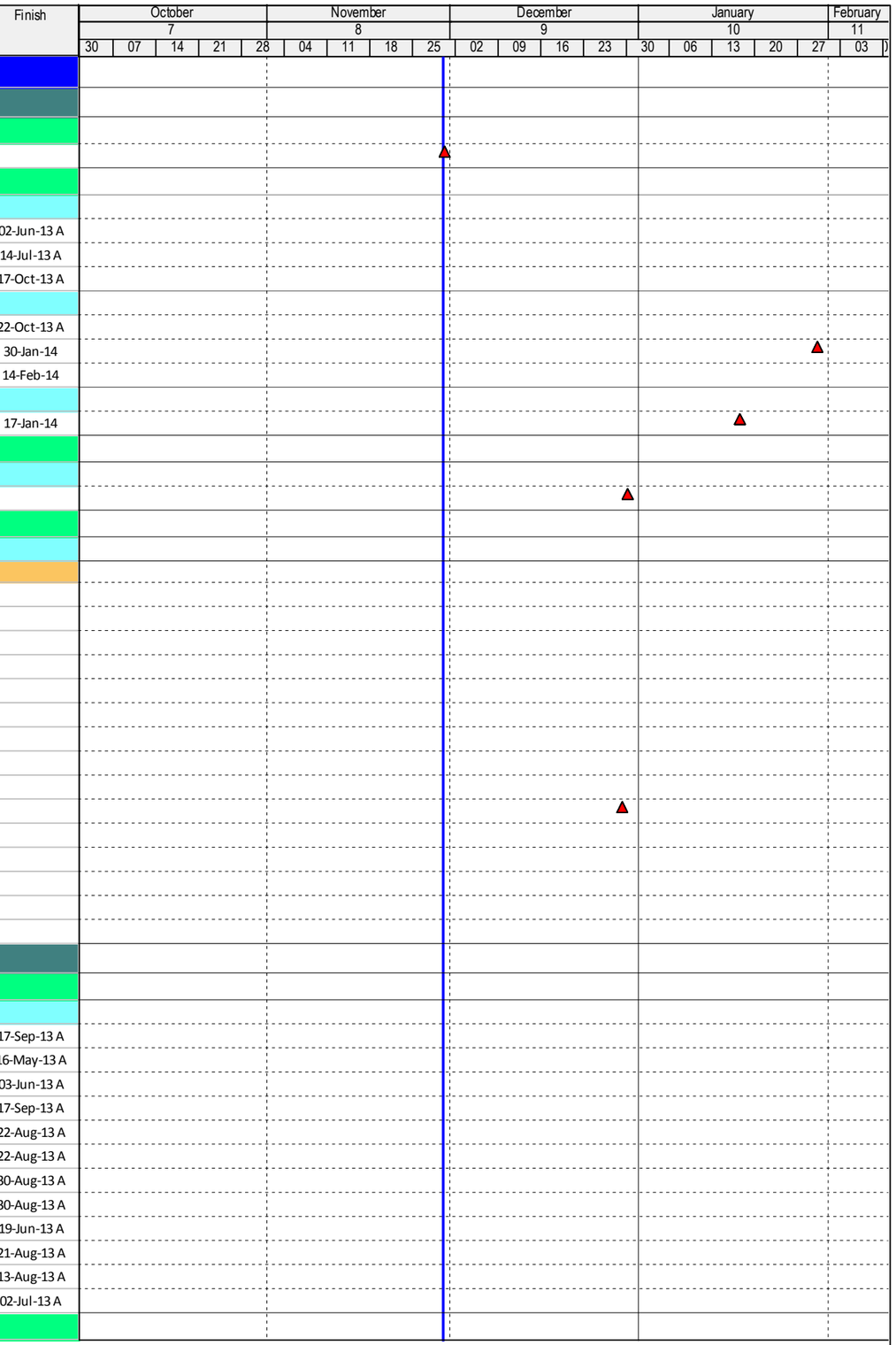
TITLE
CONTRACT 1108
KAI TAK STATION AND ASSOCIATED TUNNELS
GENERAL CIVIL WORKS
LOACTION PLAN

SCALE	DRAWING NO.	REV.
1:2000 @ A1	1108/T/340/MHK/C01/201	B

Appendix B –Construction Programme

Activity ID	Activity Name	Activity % Complete	Start	Finish
Contract 1108 Kai Tak Station and Associated Tunnels				
Contractual Dates and Project Key Dates				
Contractual Dates				
01108.CD1-COMM	Date for Commencement (25-Apr-13)	0%	30-Nov-13	
IPS Milestone Dates				
Cost Centre A - Preliminaries				
01108.MSA01	A1 - Complete haul/access road, Acces for Interface/Designated/CEDD Contractor to KTBarging Facility (WN.22/13,02-Jun	100%		02-Jun-13 A
01108.MSA02	A2-Approval of Submissions:EMP(G5.1.10),QP(G9.2.1), MC(G12.1.1),SS(G12.11.1),SARMP(P25.3.1),DSCP(AppQ) WN28/13,	100%		14-Jul-13 A
01108.MSA03	A3 - Approval of Preliminary Master Progaramme, Time Chainage Programme, Health & Safety Plan, (Wk.No.37/13, 15-Se	100%		17-Oct-13 A
Cost Centre B - Kai Tak Station, Entrances and Adits				
01108.MSB01	B1 - Pump test completed, accepted by Engineer & ready for open cut excavation of KAT station (Week No.36/13, 8-Sep-13	100%		22-Oct-13 A
01108.MSB02	B2 - Complete 30% of open cut excavation of KAT station (Week No. 45/13, 10-Nov-13)	0%		30-Jan-14
01108.MSB03	B3 - Complete 50% of open cut excavation of KAT station (Week No. 11/14, 16-Mar-14)	0%		14-Feb-14
Cost Centre C - South Approach Tunnel				
01108.MSC01	C1 - Pump test completed, accepted by Engineer & ready for open cut excavation (Week No. 38/13, 22-Sep-13)	0%		17-Jan-14
Programme Data				
Interface with Contract 1107				
01108.PD4-IF1107.1	Contract 1107 Provide access to Contract 1108 at interface area for ELS Works (Week No. 52/13, 29-Dec-13)	0%	30-Dec-13*	
Schedule of Access & Vacate Dates for Works Areas				
Possession Dates				
Works Areas				
01108.ACWA1	Works Area 1108.A1 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA2	Works Area 1108.A2 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA3	Works Area 1108.A3 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA4	Works Area 1108.A4 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW01	Works Area 1108.W1(Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW10	Works Area 1108.W10 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW11	Works Area 1108.W11 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW12	Works Area 1108.W12 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW13	Works Area 1108.W13 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW01a	Works Area 1108.W1a (Week No. 52/13)	0%	29-Dec-13*	
01108.ACW02	Works Area 1108.W2(Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW04	Works Area 1108.W4(04-Jan-16)	100%	15-Jul-13 A	
01108.ACW07	Works Area 1108.W7(Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW08	Works Area 1108.W8(Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW09	Works Area 1108.W9(Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
A - Preliminaries				
General Submission				
Contractor Submission and Engineer's Approval				
01108.GEN.3302	Approval period for Sub-contract Management Plan	100%	21-Aug-13 A	17-Sep-13 A
01108.GEN.1212	Contractor's Submission Schedule - Approval period	100%	16-May-13 A	16-May-13 A
01108.GEN.1211	Contractor's Submission Schedule - Prepare and submit for approval [GS12.11.1]	100%	16-May-13 A	03-Jun-13 A
01108.GEN.0205	ER review of submitted supervison plan, risk assessment report, risk mgmt. plan & contingency plan	100%	07-Aug-13 A	17-Sep-13 A
01108.GEN.0721	Methods of Construction - Prepare & submit for approval [P7.3.21-Tunnel & TW Design; P7.3.31 Cofferdams]	100%	26-Jul-13 A	22-Aug-13 A
01108.GEN.0722	Methods of Construction for Tunnel - Engineer's Approval & Contracts 1107 & 1109's Reviews	100%	22-Aug-13 A	22-Aug-13 A
01108.GEN.0204	Prepare & submit supervison plan, risk assess.report, risk mgmt.plan & contingency plan to Engineer for agreement [P2.	100%	02-Jul-13 A	30-Aug-13 A
01108.GEN.0706	Prepare, check by ICE and submit ELS design	100%	02-Jul-13 A	30-Aug-13 A
01108.GEN.0708	Schedule of Design of Permanent Works - Prepare, sumit for Approval [P7.2, ref. Approval process App.Z]	100%	11-Jun-13 A	19-Jun-13 A
01108.GEN.3301	Sub-contract Management Plan [PS33.1, Appendix S, Cl.S1.1]	100%	20-Jul-13 A	21-Aug-13 A
01108.GEN.0705	Submission of proposed ICE [P7.5.1, ref. P7.3.3, App. AP]	100%	31-Jul-13 A	13-Aug-13 A
01108.GEN.0206	Submit agreed supervision plan, risk assessment report, risk mgmt. plan & contingency plan to BD for acceptance [P2.7]	100%	21-Jun-13 A	02-Jul-13 A
Quality Assurance Requirements				

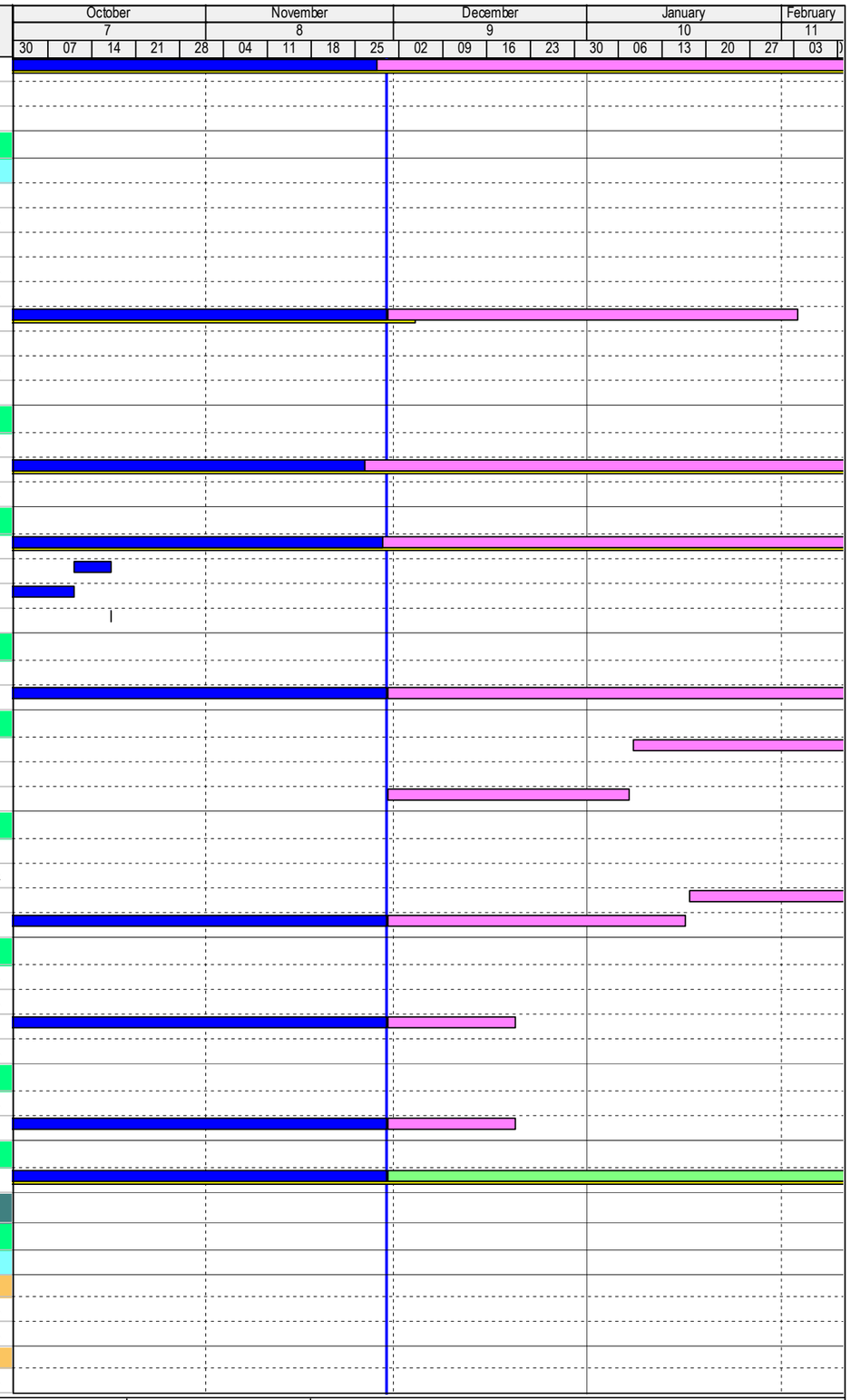


Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels

3-Month Rolling Programme (November 2013)

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.QAR.0130	Implement quality requirements in accordance with ASPs	50%	09-Jul-13 A	07-May-14
01108.QAR.0040	Quality Plan - Approval period	100%	12-Jul-13 A	12-Jul-13 A
01108. QAR.0030	Quality Plan - Prepare and submit for approval [G9.2.1]	100%	10-Jun-13 A	12-Jul-13 A
Safety and Environmental Requirements				
Safety and Environmental Management				
01108.SER.1705	Approval period for EMP; WMP; NMP; AQMP	100%	17-Sep-13 A	17-Sep-13 A
01108.SER.2244	Approval period for Proposal for Water Pollution Control Measures and Proposed Monitoring	100%	30-Aug-13 A	30-Aug-13 A
01108.SER.3605	Approval period for Sub-contractor's Safety and Environmental Improvement Incentive Scheme	100%	29-Jul-13 A	29-Jul-13 A
01108.SER.1511	Environmental Management Plan - Approval period	100%	07-Aug-13 A	07-Aug-13 A
01108.SER.1510	Environmental Management Plan - Prepare and submit for approval [GS5.1.10]	100%	22-May-13 A	07-Aug-13 A
01108.SER.MSA05	Implement Safety and Environmental Management	60%	09-Jul-13 A	03-Feb-14
01108.SER.3604	Sub-contractor's Safety and Environmental Improvement IncentiveScheme [PS36.4]	100%	19-Jul-13 A	29-Jul-13 A
01108.SER.2243	Submit Detailed Proposal for Water Pollution Control Measures and Proposed Monitoring [PS22.43]	100%	31-Jul-13 A	30-Aug-13 A
01108.SER.1704	Submit Environ. Mgmt Plan [G5.1.10]; Waste Mgmt Plan [P17.4.1]; Noise Mgmt Plan [P22.27]; Air Qulaity Mgmt Plan [P22	100%	22-May-13 A	17-Sep-13 A
System Assurance & Risk Management and Design for Safety & Constructability Requirements				
01108.SAR.0026	Approval period for System Assurance & Risk Managemen Plan	100%	14-Aug-13 A	14-Aug-13 A
01108.SAR.0130	Implement SA&RMP and DS&C requirements in accordance with ASPs	30%	24-Jun-13 A	09-Sep-14
01108.SAR.0025	Submit System Assurance & Risk Management Plan [P25.3.1]	100%	24-Jun-13 A	14-Aug-13 A
Programme Management System				
01108.PMS.0130	Implement Programming Management System	0%	10-Sep-13 A	13-May-14
01108.PMS.0020	Master (GS4.6), 3-Month (GS4.7) & TimeChainage (GS4.11) Programmes - Review and Approval Period	100%	11-Oct-13 A	17-Oct-13 A
01108.PMS.0010	Preliminary Master (GS4.6), 3-Month (GS4.7) & Time Chainage (GS4.11) Programmes - Prepare and Submit for Approval	100%	28-Jun-13 A	11-Oct-13 A
01108.PMS.0030	Preliminary Master (GS4.6), 3-Month (GS4.7) & Time Chainge (GS4.11) Programmes - Resubmission and Approval (if requi	100%	17-Oct-13 A	17-Oct-13 A
Detailed Interface Specification				
01108.DIS.0020	Approval of Detailed Interface Plan	0%	15-Feb-14	30-Apr-14
01108.DIS.0010	Prepare and Submit Detailed Interface Specification	0%	09-Aug-13 A	14-Feb-14
ABWF Submission & Procurement				
01108.ABW.0020	Engineer's review/ approval of proposed RPE/ ICE	0%	08-Jan-14	12-Feb-14
01108.ABW.0030	Prepare and issue submission schedule	0%	13-Feb-14	19-Mar-14
01108.ABW.0010	Submission of proposed RPE for Building Services Designer & ICE	0%	30-Nov-13	07-Jan-14
Site Accommodation & Services to the Engineer				
01108.SAS.0000	Mobilization	100%	25-Apr-13 A	30-Jul-13 A
01108.SAS.0030	Provide temporary site offices/ containers	100%	10-May-13 A	24-May-13 A
01108.SAS.0020	Review and approval period of site offices	0%	17-Jan-14	27-Feb-14
01108.SAS.0010	Submit to Engineer full details of site offices for Approval	0%	25-Apr-13 A	16-Jan-14
Hoardings and Temporary Power & Utilities				
01108.HPU.0010	Erection of hoarding, haul road, condition survey, incl. utility survey	100%	02-Jul-13 A	03-Aug-13 A
01108.HPU.0020	Temporary Site Drainage	100%	02-Jul-13 A	30-Aug-13 A
01108.HPU.0030	Temporary Site Power	80%	02-Jul-13 A	20-Dec-13
01108.HPU.0040	Temporary Site Water Supply	100%	02-Jul-13 A	30-Aug-13 A
Initial Site Survey				
01108.ISS.0010	Initial Site Survey for All Works Areas, except otherwise stated	100%	02-Jul-13 A	30-Aug-13 A
01108.ISS.0020	Report for All Works Areas, except otherwise stated	80%	25-Sep-13 A	20-Dec-13
General and Special Attendance for Designated Contractors				
01108.GSA.0010	General and Special Attendance for Designated Contractors	15%	25-Apr-13 A	02-Nov-17
B - Kai Tal Station, Entrances and Adits				
B1 KAT Station				
Preliminaries				
General Items				
01108.STN.HR0100	Demoliation of existing abandoned nullah, No. 1, ~120m L at GL 1/2~4/5 running northwards	100%	01-Aug-13 A	30-Aug-13 A
01108.STN.HR0010	Erection of hoarding and haul road	100%	15-Jun-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.STN.GI13-17	Ground investigation - Boreholes BH13 to BH17, 5 nr.	100%	02-Jul-13 A	30-Aug-13 A



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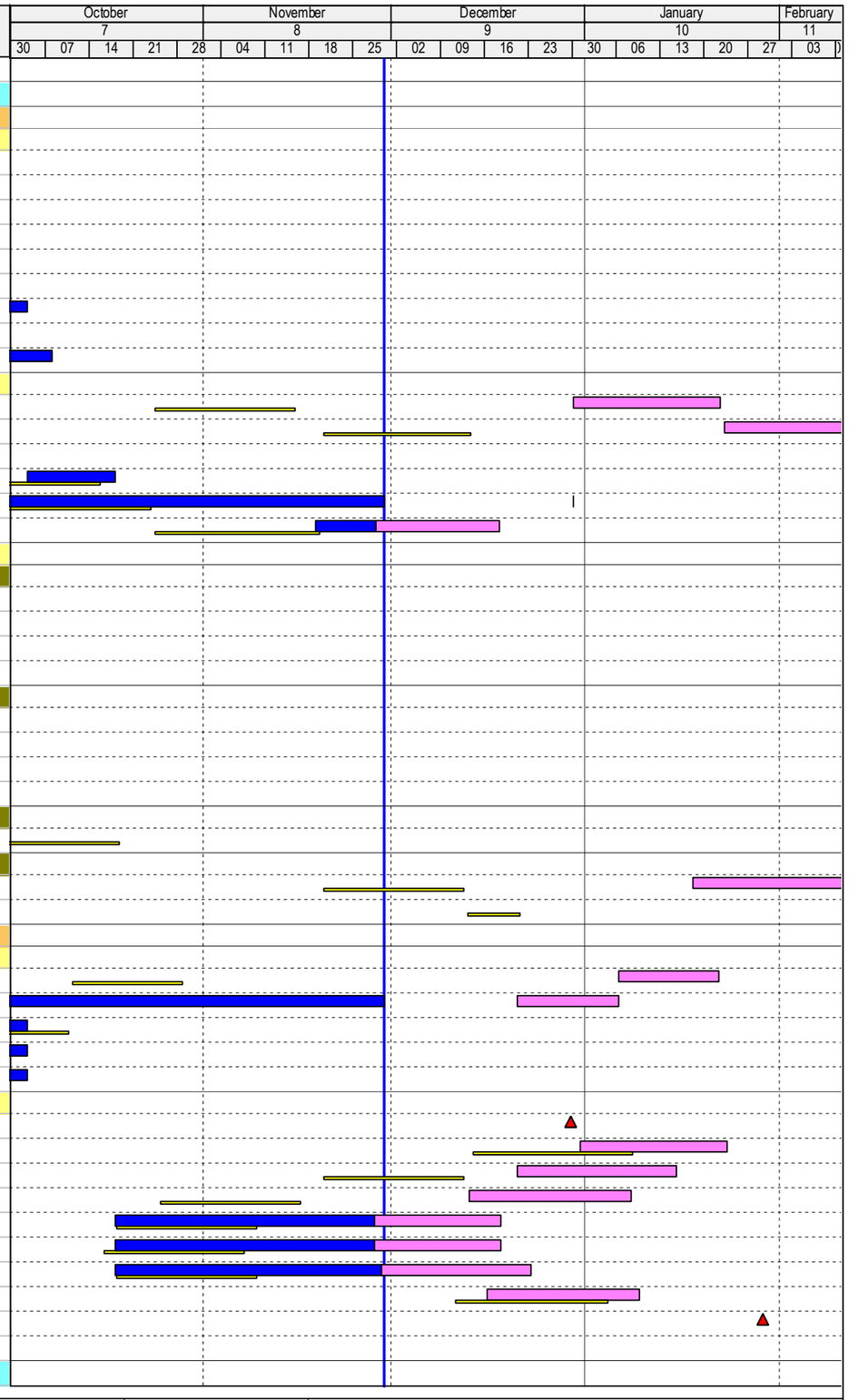
Contract 1108
Kai Tak Station and Associated Tunnels
3-Month Rolling Programme (November 2013)

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.STN.IM0000	Instrumentation - Install & monitor, GS markers 7+6+9nr, 7nr on utilities & 3 nr on structure; VM, 2 nr; PZ, 4 nr; etc.	100%	02-Jul-13 A	30-Aug-13 A
B1.2 Station - Excavation				
B1.2.2 Temporary Works				
Temporary Works Design, Review & Approval				
01108.STN.DN09.2.1	Advance Open Excavation - Design, ICE & Submit to MTRC for review	100%	07-Jun-13 A	16-Sep-13 A
01108.STN.DN09.2.3	Advance Open Excavation - No-adverse-comment by RDO/ BD/ GEO	100%	08-Aug-13 A	26-Sep-13 A
01108.STN.DN09.2.2	Advance Open Excavation - Revision, if required, & Submit to RDO/ BD/ GEO	100%	08-Aug-13 A	21-Aug-13 A
01108.STN.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	100%	19-Jul-13 A	16-Sep-13 A
01108.STN.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	100%	15-Jul-13 A	20-Jul-13 A
01108.STN.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	30-Jul-13 A
01108.STN.DN04.1.3	Open Cut Design - No-adverse-comment by RDO/ BD/ GEO	100%	09-Sep-13 A	04-Oct-13 A
01108.STN.DN04.1.2	Open Cut Design - Revision, if required, & Submit to RDO/ BD/ GEO	100%	22-Aug-13 A	17-Sep-13 A
01108.STN.DN04.1.1	Open Cut Design, ICE & Submit to MTRC for review	100%	22-Aug-13 A	08-Oct-13 A
Dewatering Wells & Observation Wells				
01108.STN.DWAN-10	Adj.Nul~GL10 Dewatering wells, 35 nr PW80~PW114; Observation wells, 6 nr OW25~OW30; Piezometers 2 nr PZ3&PZ17 (2	0%	30-Dec-13	22-Jan-14
01108.STN.DWAN-10t	GL 00~10 Pumping tests	0%	23-Jan-14	19-Feb-14
01108.STN.DW10-19	Stage 1 Dewatering wells, 32 nr PW115~PW146; Observation wells, 7 nr OW31~OW37; Piezometers, 2 nr PZ2&PZ18 (4 Rigs)	100%	24-Jul-13 A	31-Aug-13 A
01108.STN.DW10-19t	Stage 1 Pumping tests	100%	04-Oct-13 A	18-Oct-13 A
01108.STN.DW19-24	Stage 2 Dewatering wells, 15 nr PW147~PW161; Observation wells, 2 nr OW38~OW39; Piezometers, 1 nr PZ19 (2 Rigs)	100%	19-Aug-13 A	30-Dec-13
01108.STN.DW19-24t	Stage 2 Pumping tests	30%	19-Nov-13 A	18-Dec-13
Sheet Piles				
Cut-off Wall at NW Side				
01108.STN.SPAN-10w	GL 01~10 Sheet piling, 223 nr - 50 x 12.5m, 25 x 15.5m, 43 x 18.5m, 70 x 21.5m, 35 x 23.5m (4136m, 274t, total)	100%	15-Jul-13 A	12-Sep-13 A
01108.STN.SP19-22w	GL 07~10 & GL 19~22 Sheet piling, 191 nr - 15 x 12.5m, 25 x 15.5m, 151 x 18.5m (3369m, 223t, total) (2 Rigs)	100%	15-Jul-13 A	12-Sep-13 A
01108.STN.SP10-19w	GL 10~19 Sheet piling, 304 nr x 18.5m (5624m, 372t, total) (2 Rigs)	100%	11-Jul-13 A	12-Sep-13 A
01108.STN.SP22-STw	GL 22~Stub Tunnel Area - Sheet piling, 137 nr - 95 x 18.5m, 42 x 20.5m (2619m, 173t, total)	100%	22-Jul-13 A	10-Sep-13 A
Cut-off Wall at SE Side				
01108.STN.SP00-10e	GL 00~10 Sheet piling, 223 nr - 16 x 23.5m, 25 x 26.5m, 182 x 28.5m (6226m, 412t, total)	100%	22-Jul-13 A	27-Sep-13 A
01108.STN.SP19-22e	GL 07~10 & GL 19~22 Sheet piling, 190nr x 23.5m (4465m, 295t, total) (2 Rigs)	100%	22-Jul-13 A	05-Sep-13 A
01108.STN.SP10-19e	GL 10~19 Sheet piling, 295 nr x 23.5m (6933m, 459t, total) (2 Rigs)	100%	22-Jul-13 A	05-Sep-13 A
01108.STN.SP22-STe	GL 22~Stub Tunnel Area - Sheet piling, 176 nr x 23.5m (4664m, 308t, total)	100%	23-Jul-13 A	17-Sep-13 A
Cut-off Wall - Enclosure at Nullah Area				
01108.STN.SP00-00	Enclosure adj. Nullah Area - Sheet piling, 232 nr - 38 x 26.5m, 194 x 28.5m (6536m, 432t, total)	100%	01-Sep-13 A	28-Sep-13 A
Sum Pit at GL 24				
01108.STN.EX19-21	GL 19~21 Excavation, 36895 m3	0%	18-Jan-14	14-Feb-14
01108.STN.SP24P	Sum Pit at GL 24/B-C - Sheet piling, Type A8: 103 nr x 8.475m (873m, 58t, total)	100%	29-Aug-13 A	30-Sep-13 A
B1.2.3 Earthworks				
General Site Clearance & Trim to +3.5mPD				
01108.STN.EX00-06	Adj to Nullah to GL06 General clearance & trim existing ground to +3.5mPD, 11906 m3	0%	06-Jan-14	22-Jan-14
01108.STN.EX0000	Construct station drainge protection system	20%	31-Jul-13 A	06-Jan-14
01108.STN.EX06-10	GL 06~10 General clearance & trim existing ground to +3.5mPD, 8614 m3	100%	31-Jul-13 A	04-Oct-13 A
01108.STN.EX10-19	GL 10~19 General clearance & trim existing ground to +3.5mPD, 20381 m3	100%	31-Jul-13 A	04-Oct-13 A
01108.STN.EX19-24	GL 19~24 General clearance & trim existing ground to +3.5mPD, 11469 m3	100%	31-Jul-13 A	04-Oct-13 A
Excavation to Formation Level				
01108.MSB01P	Commencement of excavation after pumping test for area from GL 10~19	0%		29-Dec-13
01108.STN.EX06-08	GL 06~08 Excavation, 31442 m3 (3 nr. backhoe)	0%	31-Dec-13	23-Jan-14
01108.STN.EX08-10	GL 08~10 Excavation, 31442 m3	0%	21-Dec-13	15-Jan-14
01108.STN.EX10-12	GL 10~12 Excavation, 31294 m3	0%	13-Dec-13	08-Jan-14
01108.STN.EX12-14	GL 12~14 Excavation, 31199 m3	12%	18-Oct-13 A	18-Dec-13
01108.STN.EX14-16	GL 14~16 Excavation, 38998 m3	12%	18-Oct-13 A	18-Dec-13
01108.STN.EX16-19	GL 16~19 Excavation, 38998 m3	0%	18-Oct-13 A	23-Dec-13
01108.STN.EX21-24	GL 21~24 Excavation, 38731 m3 (5 nr. backhoe)	0%	16-Dec-13	09-Jan-14
01108.MSB02P	KTS Milestone B2 - 30% Excavation - Programmed	0%		29-Jan-14
01108.MSB03P	KTS Milestone B3 - 50% Excavation - Programmed	0%		14-Feb-14
B1.3 Station - U/G C&S Works (Below Concourse Level Soffit)				



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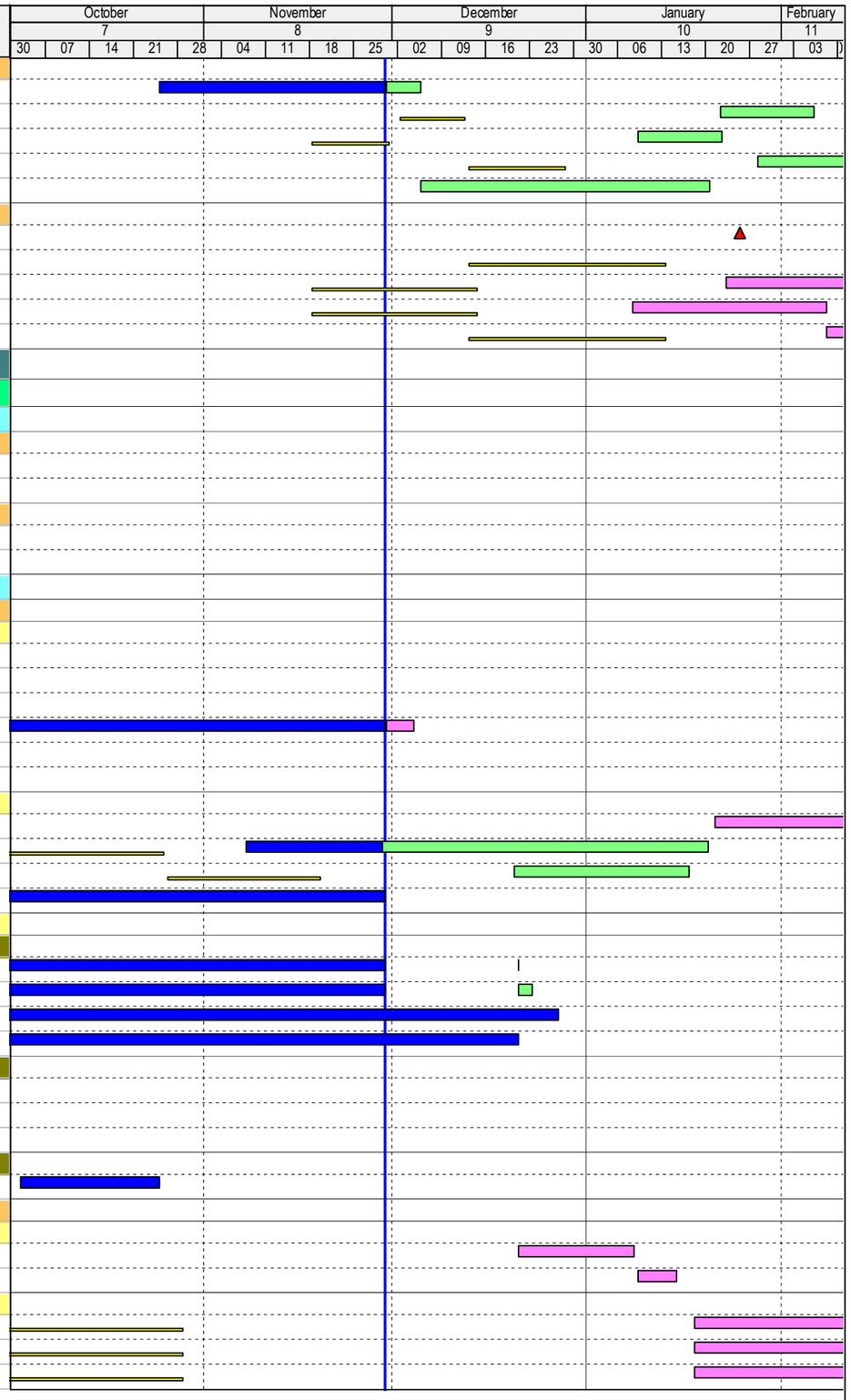
Contract 1108
Kai Tak Station and Associated Tunnels
3-Month Rolling Programme (November 2013)

Activity ID	Activity Name	Activity % Complete	Start	Finish
Temporary Foundation for Lifting Crane Tower				
01108.STN.BL000	Design, ICE & submission of temporary foundation for lifting crane tower, 3 nr at GL 11-12, GL 19-20, GL 4-5	80%	25-Oct-13 A	05-Dec-13
01108.STN.BL11-12i	Installation and testing of lifting crane tower at GL 11~12	0%	22-Jan-14	06-Feb-14
01108.STN.BL11-12	Temporary foundation for lifting crane tower at GL 11~12	0%	09-Jan-14	22-Jan-14
01108.STN.BL19-20	Temporary foundation for lifting crane tower at GL 19~20	0%	28-Jan-14	13-Feb-14
01108.STN.BL001	Temporary foundation for lifting crane tower, 3 nr., Approved	0%	05-Dec-13	20-Jan-14
Base Slab				
01108.STN.BS0	Commencement of Structure after excavation & test completed to GL 10~19	0%		25-Jan-14
01108.STN.BS10-12	GL 10~12 Base slab, 24mL (Team 2)	0%	14-Feb-14	14-Mar-14
01108.STN.BS12-14	GL 12~14 Base slab, 24mL (Team 2)	0%	23-Jan-14	22-Feb-14
01108.STN.BS14-16	GL 14~16 Base slab, 30mL (Team 1)	0%	08-Jan-14	08-Feb-14
01108.STN.BS16-19	GL 16~19 Base slab, 30mL (Team 1)	0%	08-Feb-14	07-Mar-14
C - South Approach Tunnel				
C1 Open Cut Tunnels (U=341m; D=340m)				
Preliminaries				
General Items				
01108.OCT.HR0100	Diversiion of ex. AP2- DN1200/ DN1800 drain, ~170mL crossing at ~CH U99187 (near SUA) SE direction	100%	30-Apr-13 A	30-Aug-13 A
01108.OCT.HR0020	Haul road, condition survery, incl. utility survey	100%	02-Jul-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.OCT.G08-0010	Ground investigation - Boreholes BH1 to BH7, 7 nr.	100%	01-Aug-13 A	30-Aug-13 A
01108.OCT.IM00000	Instrumentation - Install & monitor, GS markers 8+12+8nr & 4 nr on utilities; PZ, 8 nr; etc	100%	01-Aug-13 A	30-Aug-13 A
C1.2 Excavation				
C1.2.2 Temporary Works				
Temporary Works Design & Approval				
01108.OCT.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	100%	22-Aug-13 A	19-Sep-13 A
01108.OCT.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	100%	21-Jun-13 A	22-Aug-13 A
01108.OCT.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	24-Jun-13 A
01108.OCT.DN06.1.3	Open Cut (CH 98976 to 99222) - Design - No-adverse-comment by RDO/ BD/ GEO	80%	16-Sep-13 A	04-Dec-13
01108.OCT.DN06.1.2	Open Cut (CH 98976 to 99222) - Design Revision, if required, & Submit to RDO/ BD/ GEO	100%	16-Sep-13 A	16-Sep-13 A
01108.OCT.DN06.1.1	Open Cut (CH 98976 to 99222) - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	16-Sep-13 A
Dewatering and Observation Wells				
01108.OCT.DW9080t	Ch 98926~99080 Pumping tests	0%	21-Jan-14	18-Feb-14
01108.OCT.DW9185	Ch 99080~99185 Dewatering wells, 21 nr PW19~PW39; Observation wells, 6 nr OW5~OW10	20%	08-Nov-13 A	20-Jan-14
01108.OCT.DW9185t	Ch 99080~99217 Pumping tests	0%	20-Dec-13	17-Jan-14
01108.OCT.DW9080	To Ch 99080 Dewatering, 22 nr PW40~61; Recharge 10 nr RW1~10; Observation, 8 nr OW11~18; Piezometer, 5 nr (3 Rigs)	100%	18-Sep-13 A	30-Nov-13
Sheet Piles				
Water Cut-off Wall at NW Side				
01108.OCT.SP9185w	Ch 99080~99185 Sheet piling, 238 nr - 120 x 18.5m, 25 x 20m, 93 x 21.5m (4720m, 312t, total)	100%	12-Sep-13 A	21-Dec-13
01108.OCT.SP9258w	Ch 99185~99258 Sheet piling, 382nr - 340 x 12.5m, 42 x 15m (4880m, 323t, total)	96%	12-Sep-13 A	23-Dec-13
01108.OCT.SP9080w	Point G to Ch 99080 Sheet piling, 192 nr x 21.5m (4128m, 273t, total)	100%	23-Aug-13 A	27-Dec-13 A
01108.OCT.SP9081w	Point J to Point D Sheet piling, 136 nr x 21.5m (2924m, 193t, total)	100%	12-Sep-13 A	21-Dec-13 A
Water Cut-off Wall at SE Side				
01108.OCT.SP9185e	Ch 99080~99185 Sheet piling, 238 nr x 12.5m (2975m, 197t, total)	100%	11-Sep-13 A	24-Sep-13 A
01108.OCT.SP9258e	Ch 99185~99258 Sheet piling, 188 nr x 12.5m (2350m, 155t, total)	100%	11-Sep-13 A	24-Sep-13 A
01108.OCT.SP9080e	To Ch 99080 Sheet piling, 316 nr - 215 x 12.5, 37 x 15m, 64 x 18.5m (4427m, 293t, total)	100%	16-Aug-13 A	03-Sep-13 A
Water Cut-off Wall Enclosure at C1109				
01108.OCT.SP9258	At Ch 99258 Sheet piling, 230 nr x 12.5m (2875m, 190t, total)	100%	03-Oct-13 A	25-Oct-13 A
C1.2.3 Excavation CH 98975 to CH 99217				
General Site Clearance				
01108.OCT.EX0010	Construct drainge protection system	0%	21-Dec-13	08-Jan-14
01108.OCT.EX0015	General clearance & trim existing ground by +3.5mPD	90%	09-Jan-14 A	15-Jan-14
From Exisitng Ground Level to Formation Level				
01108.OCT.EX8996	CH 98975~98996 Excavation	0%	18-Jan-14	25-Feb-14
01108.OCT.EX9017	CH 98996~99017 Excavation	0%	18-Jan-14	25-Feb-14
01108.OCT.EX9038	CH 99017~99038 Excavation	0%	18-Jan-14	25-Feb-14



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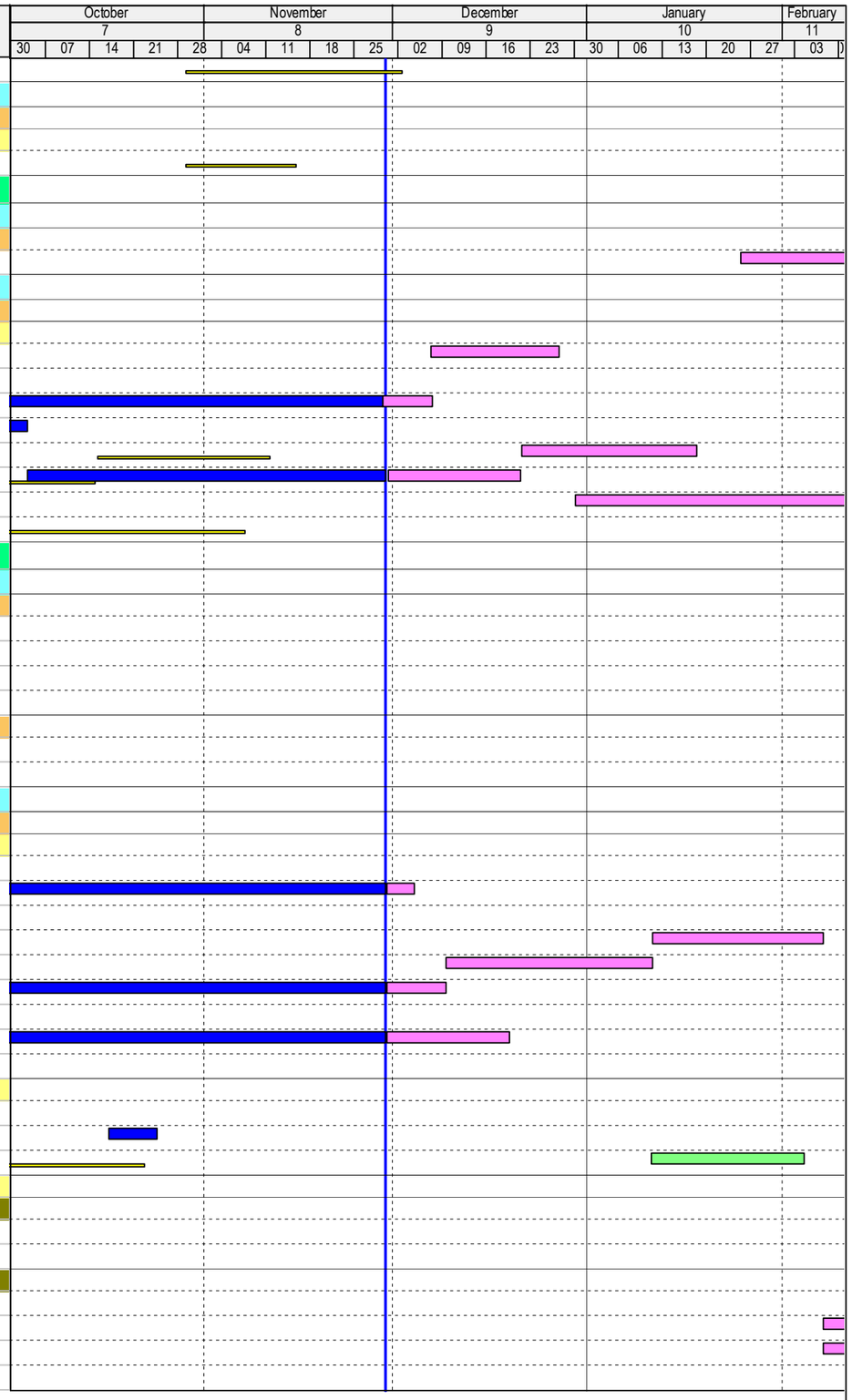
Contract 1108
Kai Tak Station and Associated Tunnels

3-Month Rolling Programme (November 2013)

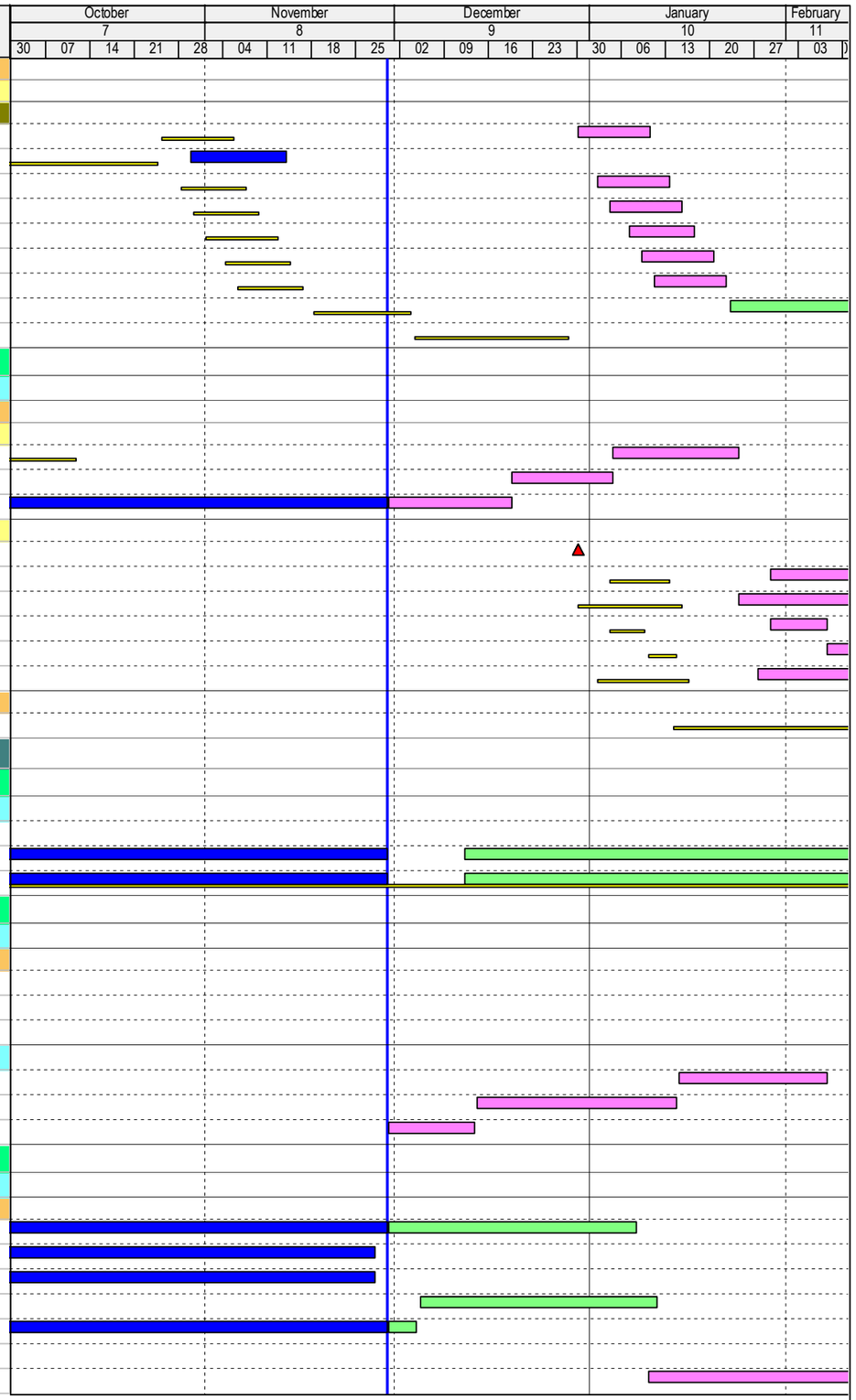
Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.OCT.EX9059	CH 99038~99059 Excavation	0%	26-Feb-14	01-Apr-14
C1.3 C&S Works				
Tunnel Construction CH 98975 to CH99217				
Base Slabs				
01108.OCT.TS8996	CH 98975~98996 Base slabs, 2 x 2 x 10.5mL	0%	26-Feb-14	15-Mar-14
C2 Mined Tunnels (U=41m; D=39m)				
Preliminaries				
Ground Inverstigation, Instrumantation & Monitoring				
01108.MT.IM00000	Instrumentation - Install & monitor, GS markers 5 nr; VM, 2 nr; HIN, 2 nr; etc	0%	25-Jan-14	26-Feb-14
C2.1 Excavation				
C2.1.2 Temporary Works and ELS				
Design, Temporary Works Design, Approval, Fabrication & Installation of Tunnel Formwork				
01108.MIT.DN07.1.3	MIT Shaft ELS - Design - No-adverse-comment by RDO/ BD/ GEO	0%	07-Dec-13	27-Dec-13
01108.MIT.DN07.1.1	MIT Shaft ELS - Design, ICE & Submit to MTRC for review	100%	15-Aug-13 A	17-Sep-13 A
01108.MIT.DN07.1.2	MIT Shaft ELS - Revision, if required, & Submit to RDO/ BD/ GEO	50%	17-Sep-13 A	07-Dec-13
01108.MIT.DN07.2.1	MIT Temporary Support - Design & Method statement, ICE & Submit to MTRC for review	100%	01-Aug-13 A	04-Oct-13 A
01108.MIT.DN07.2.3	MIT Temporary Support - No-adverse-comment by RDO/ BD/ GEO	0%	21-Dec-13	18-Jan-14
01108.MIT.DN07.2.2	MIT Temporary Support - Revision, if required, & Submit to RDO/ BD/ GEO	0%	04-Oct-13 A	21-Dec-13
01108.MIT.DN07.3.1	Tunnel formwork design - Design, ICE and submission	0%	30-Dec-13	13-Feb-14
01108.MIT.DN07.3.3	Tunnel formwork design - No adverse comment	0%	14-Feb-14	27-Mar-14
C3 Cut and Cover Tunnels (U=297m; D=307m)				
Preliminaries				
General Items				
01108.CCT.HR0020	Condition survery, incl. utility survey	100%	01-Jul-13 A	30-Aug-13 A
01108.CCT.HR0010	Erection of hoarding and haul road	100%	01-Jul-13 A	30-Jul-13 A
01108.CCT.HR0030	Relocate existing haul road	100%	01-Aug-13 A	30-Aug-13 A
01108.CCT.HR0040	Trail trench for existing seawall	100%	01-Aug-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.CCT.G08-00	Ground investigation - Boreholes BH8, 9, 10, 10a, 10b, 11 & 12, 7 nr.	100%	01-Aug-13 A	30-Aug-13 A
01108.CCT.IM0000	Instrumentation - Install & monitor, GS markers 8+11nr & 3 nr on structure; VM, 3 nr; PZ, 8 nr	100%	02-Jul-13 A	30-Aug-13 A
C3.2 Excavation CH 98650 to CH 98866 and CH 98907 to CH 98975				
C3.2.2 Temporary Works and ELS				
Temporary Works Design & Approval				
01108.CCT.DN05.1a.1	CCT Cofferdam (CH 98650 to 98750) for KTND - Design, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.1a.3	CCT Cofferdam (CH 98650 to 98750) for KTND - No-adverse-comment by RDO/ BD/ GEO	50%	30-Jul-13 A	04-Dec-13
01108.CCT.DN05.1a.2	CCT Cofferdam (CH 98650 to 98750) for KTND - Revision, if required, & Submit to RDO/ BD/ GEO	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.2.3	CCT ELS (CH 98750 to 98976) - Design No-adverse-comment by RDO/ BD/ GEO	0%	11-Jan-14	07-Feb-14
01108.CCT.DN05.2.2	CCT ELS (CH 98750 to 98976) - Design Revision, if required, & Submit to RDO/ BD/ GEO	0%	09-Dec-13	11-Jan-14
01108.CCT.DN05.2.1	CCT ELS (CH 98750 to 98976) - Design, ICE & Submit to MTRC for review	60%	25-Jul-13 A	09-Dec-13
01108.CCT.DN05.1b.1	CCT ELS/ Hydraulic (CH 98650 to 98750) - Design, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic (CH 98650 to 98750) - No-adverse-comment by RDO/ BD/ GEO	50%	20-Aug-13 A	19-Dec-13
01108.CCT.DN05.1b.2	CCT ELS/ Hydraulic (CH 98650 to 98750) - Revision, if required, & Submit to RDO/ BD/ GEO	100%	30-Jul-13 A	20-Aug-13 A
Dewatering and Observation Wells				
01108.CCT.DW0030	Install dewatering wells, 51 nos. and observation wells, 10nr (4 Rigs) (CH 98636 to 98846)	100%	29-Aug-13 A	16-Sep-13 A
01108.CCT.DW0040	Pumping tests (CH 98650 to 98750)	100%	17-Oct-13 A	24-Oct-13 A
01108.CCT.DW40	Pumping tests (CH 98750 to 98846)	0%	11-Jan-14	04-Feb-14
Sheet Piles				
Partial Open Cut				
01108.CCT.SP0010a	Pre-bored existing seawall for sheet piling, 2 x ~30m horizontal run	100%	02-Jul-13 A	30-Aug-13 A
01108.CCT.SP0020	Sheet piling as cut-off walls, 2 x 525nr x 12m L, 2 x 6300m total (2 rigs)	100%	30-Jul-13 A	28-Sep-13 A
Full Height Cofferdam				
01108.CCT.SP020	N.of FKCP-Sht.piling, M3~G3~F3a, FSP V Type C1- 68nr x 34.2mL (2334m total) & FSP VI Type B- 29nr x 34.2mL (1003m total	0%	21-Feb-14	14-Mar-14
01108.CCT.SP010	N.of FKCP-Sht.piling, M3~Q3~Q3a, FSP V Type C1- 51nr x 34.2mL (1733m total) & FSP VI Type B- 42nr x 34.2mL(1434m total	0%	07-Feb-14	21-Feb-14
01108.CCT.SP110	S.of FKCP-Sht. piling, H4~F4~D4', FSP V Type C2- 36nr x 33.2m (1191m total) & FSP IV Type D1- 68nr x 33.2m (2241m total)	0%	07-Feb-14	21-Feb-14
01108.CCT.SP120	S.of FKCP-Sht. piling, H4~K4~L4', FSP V Type C2: 39nr x 33.2m (1279m total) & FSP IV Type D1- 93nr x 33.2m (3071m total)	0%	21-Feb-14	14-Mar-14



Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-Month Rolling Programme (November 2013)

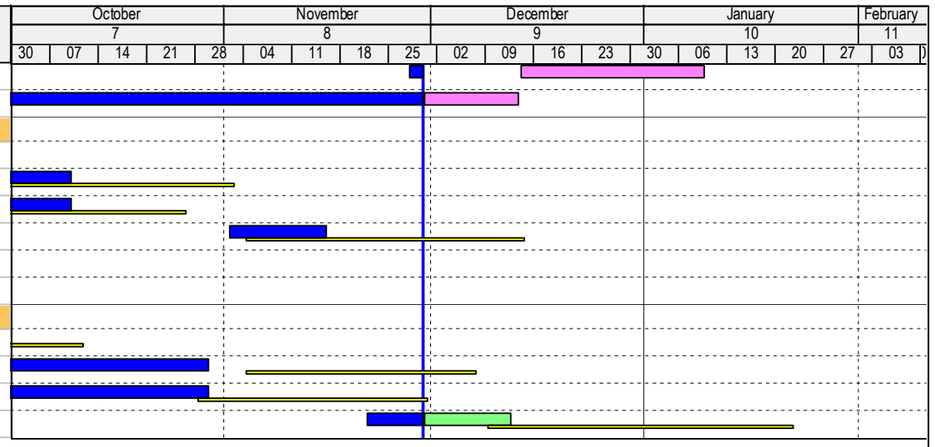
Activity ID	Activity Name	Activity % Complete	Start	Finish
C3.2.3 Earthworks				
Partial Open Cut				
Open Cut from Existing Ground Level to -3.5mPD				
01108.CCT.EX8657c	CH 98650~98671 Excavation to -3.5mPD, 5586 m3	0%	30-Dec-13	10-Jan-14
01108.CCT.EX8636	CH 98650~98866 Clearance & trim ground level to +3.5mPD, 18480 m3	100%	30-Oct-13 A	14-Nov-13 A
01108.CCT.EX8678c	CH 98671~98692 Excavation to -3.5mPD, 5166 m3 + 420 m3 seawall	0%	02-Jan-14	13-Jan-14
01108.CCT.EX8699c	CH 98692~98713 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	0%	04-Jan-14	15-Jan-14
01108.CCT.EX8720c	CH 98713~98734 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	0%	07-Jan-14	17-Jan-14
01108.CCT.EX8741c	CH 98734~98755 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	0%	09-Jan-14	20-Jan-14
01108.CCT.EX8762c	CH 98755~98776 Excavation to -3.5mPD, 3906 m3 + 1680 m3 seawall	0%	11-Jan-14	22-Jan-14
01108.CCT.EX8783c	CH 98776~98797 Excavation to -3.5mPD, 4746 m3 + 840 m3 seawall	0%	23-Jan-14	11-Feb-14
01108.CCT.EX8804c	CH 98797~98818 Excavation to -3.5mPD, 6384 m3	0%	12-Feb-14	07-Mar-14
C4 Stub Tunnels (U=32m; D=32m; R=33m)				
C4.1 Excavation CH 98255 to CH 98290				
Temporary Works				
Temporary Works Design, Review & Approval				
01108.STT.DN04.2.3	Stub Tunnel Interface with C1107 - Design No-adverse-comment by RDO/ BD/ GEO	0%	04-Jan-14	24-Jan-14
01108.STT.DN04.2.2	Stub Tunnel Interface with C1107 - Design Revision, if required, & Submit to RDO/ BD/ GEO	0%	19-Dec-13	04-Jan-14
01108.STT.DN04.2.1	Stub Tunnel Interface with C1107 - Design, ICE & Submit to MTRC for review	60%	12-Sep-13 A	19-Dec-13
Temporay Works - Sheet Pile & ELS				
01108.IF1107.1P	Contract 1107 provide access to Contract 1108 at interface area for ELS works	0%	30-Dec-13	
01108.STT.SP170	Prebored H-piles (King post), 8nr x 37.5m L	0%	29-Jan-14	11-Feb-14
01108.STT.SP010	Sheet piling, C1'~A1, FSP III Type A1, A2: 102nr, 2587m (77nr x 27.2m & 25nr x 19.7m)	0%	24-Jan-14	13-Feb-14
01108.STT.SP050	Sheet piling, C1'~D1, FSP III Type A1: 31nr, 843m (31nr x 27.2m)	0%	29-Jan-14	07-Feb-14
01108.STT.SP060	Sheet piling, E1'~E1, FSP III Type A1: 25nr, 680m (25nr x 27.2m)	0%	07-Feb-14	12-Feb-14
01108.STT.SP020	Sheet piling, E1'~J1, FSP III Type A1, A2: 139nr, 2299m (78nr x 27.2m & 61nr x 19.7m)	0%	27-Jan-14	14-Feb-14
Earthworks				
01108.STT.EX8290	CH98273~98290 Excavation & struts, 10930 m3	0%	11-Feb-14	25-Mar-14
D - Associated Works				
D3 Instrumentation and Monitoring				
Instrumentation Installation and Monitoring				
01108.AWM.0020	Baseline Reading	100%	01-Aug-13 A	30-Aug-13 A
01108.AWM.0010	Installation of piezometers, inclinometers, ground/ bldg/ utility settlement markers	0%	02-Jul-13 A	26-Feb-14
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	10%	01-Aug-13 A	16-Jun-17
D4 Landscape				
Soft Landscape				
Tree Felling Permit & Tree Felling				
01108.AWL.2000	Tree felling permit, ref. P10.21 & P46.1, no longer than 60 days	100%	01-Aug-13 A	30-Aug-13 A
01108.AWL.2035	Tree felling, 4 nr. at Proposed Station open cut slope, tree survey nr. T0028, T0029, T0031 & T0032.	100%	01-Aug-13 A	30-Aug-13 A
01108.AWL.2039	Tree felling, Girth, rest 32 nr. (with majority at Works Area 1108.A2)	100%	01-Aug-13 A	30-Aug-13 A
Site Formation Works for Engineers's Accommodation				
01108.AWS.0030	Filling to formation l evel for Engineer's accommodation, imported natural material, 3544 m3	0%	15-Jan-14	07-Feb-14
01108.AWS.0020	Site formation for Engineer's accommodation - Approval	0%	14-Dec-13	14-Jan-14
01108.AWS.0010	Site formation for Engineer's accommodation - Design, ICE and submission	0%	30-Nov-13	13-Dec-13
D5 Utilities Diversion				
Diversion of Existing Nullah				
Temporary Works & Hydraulic Assessment				
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	20%	08-Aug-13 A	08-Jan-14
01108.AWD.DNA1.2	KTND Hydraulic Assessment - Revision, if required, & Submit to DSD	100%	24-Jul-13 A	28-Nov-13 A
01108.AWD.DNA1.1	KTND Hydraulic Assessment, incl. pre-construction CCTV, as-built survey - Design, ICE & TW & Submit to MTRC for review	100%	11-Jul-13 A	28-Nov-13 A
01108.AWD.DN09.6.3	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design - No-adverse-comment by DSD & RDO/ BD/ GEO	0%	05-Dec-13	11-Jan-14
01108.AWD.DN09.6.2	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design Revision, if required, & Submit to DSD & RDO/BD/ GEO	80%	04-Sep-13 A	04-Dec-13
01108.AWD.DN09.6.1	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design, ICE & TW & Submit to MTRC for review	100%	15-Aug-13 A	04-Sep-13 A
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No-adverse-comment by DSD & RDO/ BD/ GEO	0%	10-Jan-14	17-Feb-14



Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-Month Rolling Programme (November 2013)

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.AWD.DN09.5.2	KTND Temporary Channel - Design Revision, if required, & Submit to DSD & RDO/ BD/ GEO	0%	28-Nov-13 A	09-Jan-14
01108.AWD.DN09.5.1	KTND Temporary Channel - Design, ICE & TW & Submit to MTRC for review	50%	15-Aug-13 A	13-Dec-13
North Section				
01108.AWD.0120	Connection section: North/ upstream - Remove concrete surface	100%	01-Aug-13 A	30-Aug-13 A
01108.AWD.0124	Connection section: North/ upstream - Remove saw-cut precast slab and beam, 140 pieces	100%	29-Aug-13 A	10-Oct-13 A
01108.AWD.0122	Connection section: North/ upstream - Saw-cut precast slab and beam, 140 pieces	100%	29-Aug-13 A	10-Oct-13 A
01108.AWD.0130	Connection section: North/ upstream - Demolish and remove partition wall	100%	02-Nov-13 A	16-Nov-13 A
01108.AWD.0110	North section across haul road : Concrete lining with concrete pipes & shotcrete surfaces, 24mL x 36.4mW x 0.4mT	0%	18-Feb-14	17-Mar-14
01108.AWD.0100	North section: Open cut excavation, 205mL x 36.4mW x ~4mD, 25750 m3	0%	18-Feb-14	11-Apr-14
South Section				
01108.AWD.0220	Connection section: South/ downstream - Remove concrete surface	100%	01-Aug-13 A	30-Aug-13 A
01108.AWD.0224	Connection section: South/ downstream - Remove saw-cut precast slab and beam, 84 pieces	100%	14-Sep-13 A	30-Oct-13 A
01108.AWD.0222	Connection section: South/ downstream - Saw-cut precast slab and beam, 84 pieces	100%	14-Sep-13 A	30-Oct-13 A
01108.AWD.0230	Connection section: South/ downstream - Demolish and remove partition wall	70%	22-Nov-13 A	12-Dec-13



Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
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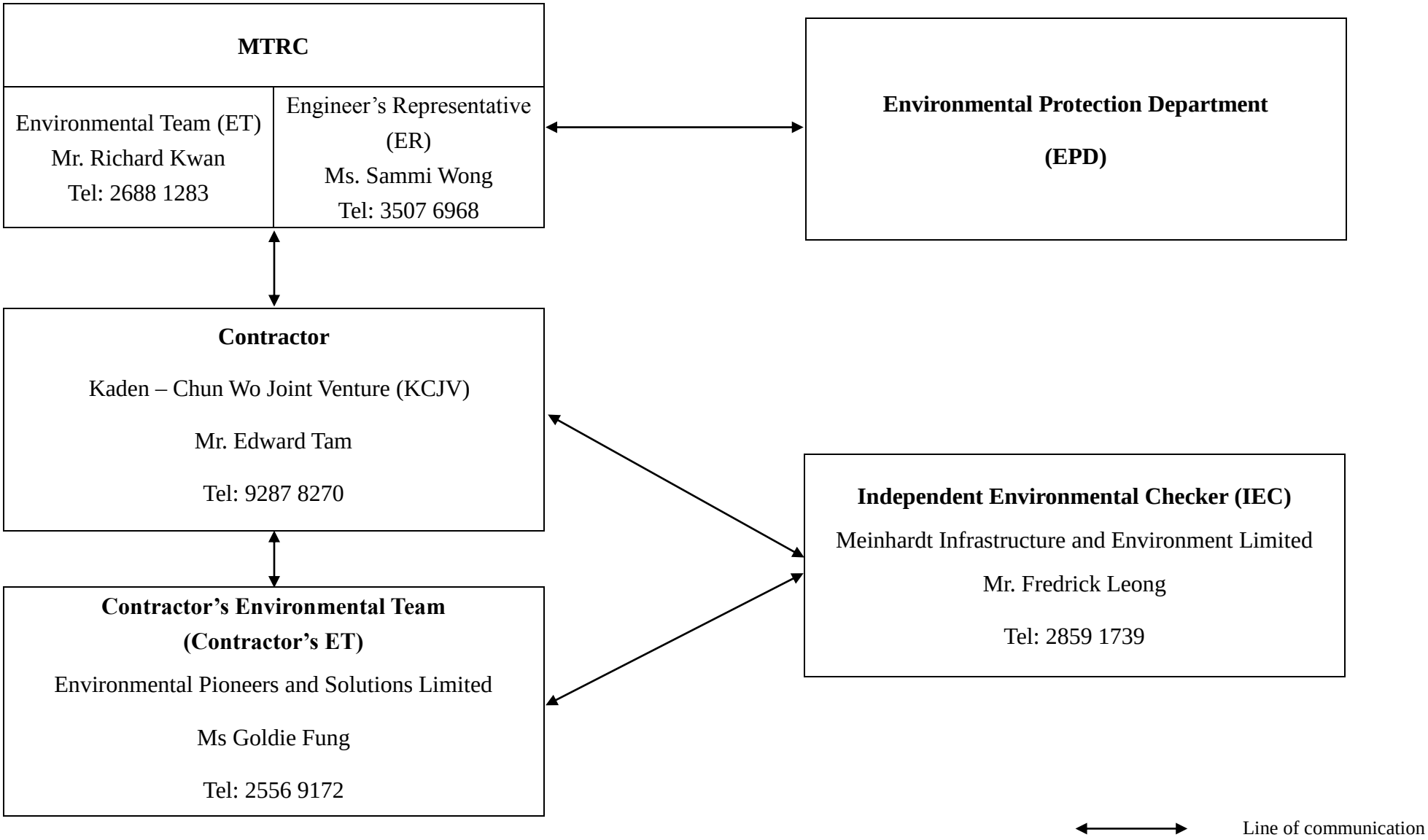
Actual Work

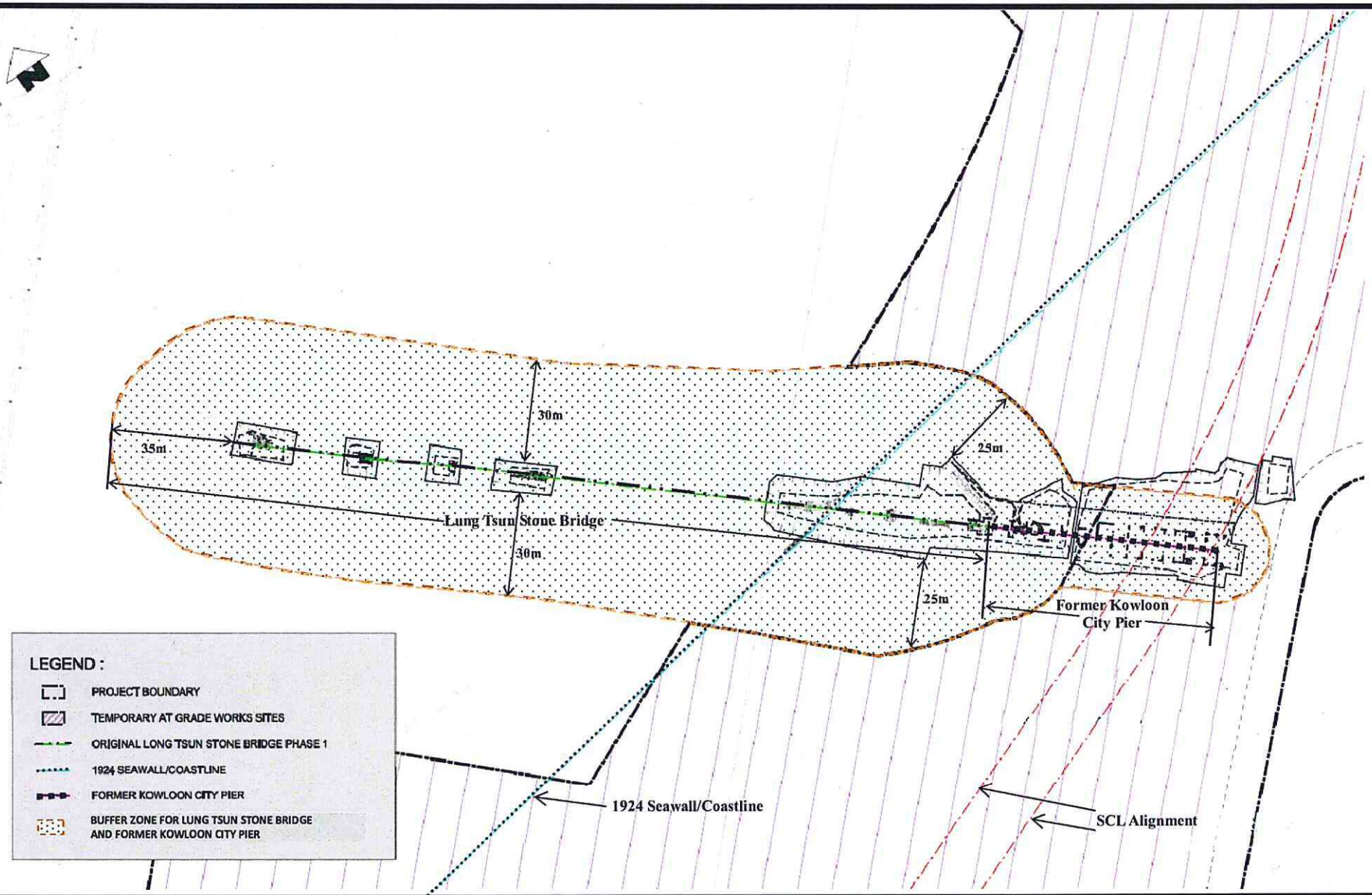
Contract 1108
Kai Tak Station and Associated Tunnels

3-Month Rolling Programme (November 2013)

Appendix C –Project Organization Chart & Contact Details


MTRC
Environmental Team (ET)
Mr. Richard Kwan
Tel: 2688 1283
Engineer's Representative (ER)
Ms. Sammi Wong
Tel: 3507 6968
Environmental Protection Department
(EPD)
Contractor
Kaden – Chun Wo Joint Venture (KCJV)
Mr. Edward Tam
Tel: 9287 8270
Independent Environmental Checker (IEC)
Meinhardt Infrastructure and Environment Limited
Mr. Fredrick Leong
Tel: 2859 1739
Contractor's Environmental Team (Contractor's ET)
Environmental Pioneers and Solutions Limited
Ms Goldie Fung
Tel: 2556 9172
Line of communication

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/D 環境許可證編號：EP-438/2012/D
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 Figure 4.3 of the SCL(TAW-HUH) EIA Report (No.: AEIAR-167/2012)] [本圖是根據沙田至中環綫-大圍至紅磡段環境影響評估報告(編號: AEIAR-167/2012)中圖 4.3 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	1) Inform the Contractor, the IEC and the ER 2) Discuss remedial actions with the IEC, the ER and the Contractor 3) Monitor remedial actions until rectification has been completed	1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET, ER and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures.	1) Confirm receipt of notification of non-conformity 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 non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1) Identify Source 2) Inform the Contractor, the IEC and the ER 3) Increase inspection frequency 4) Discuss remedial actions with the IEC, the ER and the Contractor 5) Monitor remedial actions until rectification has been completed 6) If non-conformity stops, cease additional monitoring	1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures	1) Notify the Contractor 2) In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3) Supervise implementation of remedial measures.	1) Identify Source and investigate the non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Appendix F – Waste Flow Table

Monthly Summary Waste Flow Table for _2013__ (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	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#					
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	--	--	--	--	--	--	--	--	--	--	--
Feb	--	--	--	--	--	--	--	--	--	--	--
Mar	--	--	--	--	--	--	--	--	--	--	--
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0.376	0	0	0	0.376	0	0	0	0	0	0
Sub-total	0.376	0	0	0	0.376	0	0	0	0	0	0
July	7.256	0	0	0	7.256	0	0	0	0	0	2.370
Aug	22.400	0	0	0	22.400	0	0	0	0	0	0.018
Sept	19.754	0	0	0	19.754	0	0	0	0	0	0.024
Oct	17.151	0	0	0	17.151	0	0	0	0	0	0.114
Nov	22.322	0	0	0	22.322	0	93.330	0	0	0.480	0.026
Dec											
Total	89.259	0	0	0	89.259		93.330	0	0	0.480	2.552

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
Cultural Heritage Impact (Construction and Operational Phase)							
S4.9	CH4	Maintain a buffer distance as shown in **Appendix D**. 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	✔
Landscape & Visual (Construction Phase)							
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> • 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.	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
		No-intrusion Zone • 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. Protection of Retained Trees • 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. • 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,					
S6.12	LV12	Decorative Hoarding Erection of decorative screen during construction stage to screen	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and	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
		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 <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. <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.				construction stage	
Air Quality (Construction Phase)							
/	A1	<u>Emission from Vehicles and Plants</u> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be	Reduce air pollution emission from construction vehicles and plants	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
		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	✔
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	✔
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^2 to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the	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
		pedestrian barriers, fencing or traffic cones. • 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; • 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; • 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; • 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; • 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;					

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
		• 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; • 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; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • 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; • 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 • Exposed earth should be properly treated by compaction, turfing,					

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.					
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All construction sites	Construction stage	✔
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy	Reduce the construction noise	Contractor	All construction sites	Construction	✔

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
		construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	levels at low-level zone of NSRs through partial screening.			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> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	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
		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. • 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 • 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^3/s a sedimentation basin of 30m^3 would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.					

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
		• 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. • 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. • 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. • 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.					

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
		• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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. • 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. • 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. • 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					

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
		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. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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. • 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.					

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
		• Adopt best management practices					
S10.7.1	W2	<u>Tunnelling Works</u> • Cut-&-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. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge • 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. • 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.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	N/A
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	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
		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.					
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> • 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. • 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	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 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
		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. • 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.					

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
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: • 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. • 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. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	*
Waste Management (Construction Waste)							
S11.4.1.1	WM1	On-site sorting of C&D material • 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	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 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
		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	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure	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
		that the disposal of C&D materials are properly documented and verified; and • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&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					
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or	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
		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.					
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • 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. • 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. • 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.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	✔
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u>	To control pollution due to	Contractor	Within Project Site	Construction	✔

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
		• 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; • 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; • 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; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • 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; • The Contractors shall comply with the conditions in the dumping licence.	marine sediment		Area	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
		• All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m ^{3} capacity and capable of rapid opening and discharge at the disposal site; • 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. • 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 fulfil confined mud disposal.					
S11.5.1	WM7	<u>Chemical Waste</u> • Chemical waste that is produced, as defined by Schedule 1 of the	Control the chemical waste and ensure proper storage,	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
		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. • 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. • 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. • 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	handling and disposal.				

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
		storage containers; or be to a reuser of the waste, under approval from the EPD.					
EM&A Project							
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✔

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
June 2013	0	0	0	0
July 2013	0	0	0	0
August 2013	0	0	0	0
September 2013	0	0	0	0
October 2013	0	0	0	0
November 2013	0	0	0	0
Total	0	0	0	0

Appendix J

2nd Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 2

[Period from 1 to 30 November 2013]

Works Contract 1102 –

Hin Keng Station and Approach Structures

(December 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th December 2013

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)

November 2013

Approved 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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EXECUTIVE SUMMARY

Introduction

1. This is the 2nd 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 30 November 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

- Underground utilities detection works at Che Kung Miu Road;
- Site Clearance at Hin Tin Playground;
- Pre-drilling works;
- Trial pits excavation along footpath of roundabout area;
- Hoarding erection works; and
- Tree transplantation.

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(1) (C.U.H.K.A.A Thomas Cheung School) 4 times

- Construction Dust (24-hour TSP) Monitoring
  Dust Monitoring Station ID
  - DMS-1(1) (C.U.H.K.A.A Thomas Cheung School) 6 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 1459.8 m^3 of inert C&D materials were generated from the Project and were sent to Contract 1108A Kai Tak Barging Point and Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials but 30.9 m^3 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 5 and 22 November 2013. 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 5, 12, 22 and 26 November 2013.The representative of the IEC joined the site inspection on 22 November 2013. 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:

- Hoarding erection works;
- Tree transplantation;
- Underground utilities detection works at Che Kung Miu Road;
- Pre-drilling works;
- EVA construction;
- Condition survey of existing drainage and sewer systems;
- Installation of temporary OHL Masts and Back-tie Brackets;
- Advanced works of relocation of roundabout area.

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 2nd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 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 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 1st 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**.

- Underground utilities detection works at Che Kung Miu Road;
- Site Clearance at Hin Tin Playground;
- Pre-drilling works;
- Trial pits excavation along footpath of roundabout area;
- Hoarding erection works; and
- Tree transplantation.

Project Organisation

2.5 The project organizational 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	
Environmental Permit (EP)			
EP-438/2012/D	13/9/2013	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Reference No: 362534	29/7/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7017900	02/8/2013	N/A	Valid
Registration of Chemical Waste Producer			
Registration No. 5218-759-P1057-03	3/9/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00016803-2013	4/9/2013	30/9/2018	Valid
Construction Noise Permit (CNP)			
GW-RN0502-13	16/9/2013	18/12/2013	Valid
GW-RN0621-13	7/11/2013	6/1/2014	Valid

Summary of EM&A Requirements

2.7 The EM&A programme under Works Contract 1102 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 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(1)	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

Regular Dust Monitoring Location	Description
DMS-1 (1)	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

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring (1)	Throughout the construction period	24-hour TSP (2)	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 (October 2013)	14 November 2013

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	50.1	58.3	When one documented complaint is received	70/65(1)

Remarks:
(1) For normal day-time working hours, the noise criteria is 70dB(A) and 65 dB(A) for normal teaching period and examination periods respectively..

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 6 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 $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hr TSP	12.8	102.2	57.2	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) [a][b]	C&D Materials (non-inert) [c]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
November 2013	1459.8 m^3	30.9 m^3	0 kg	0 kg	0 kg	0 kg

Notes:
(a) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
(b) In 1459.8m^3 inert C&D materials, 251.7m^3 of excavated soil was delivered to Contract 1108A Kai Tak Barging Point and would be reused in HongKong-Zhuhai-Macao Bridge Project.
(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.

Landscape and Visual

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5 and 22 November 2013. 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 5, 12, 22 and 26 November 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 22 November 2013. 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
Water Quality	29 Oct 2013	Reminder: The gully under the pre-drill machine should be surrounded by sand bags and silty water, if any, should be prevented from entering the gully.	Sand bags were provided by the Contractor next to the pre-drilling machine on 5 Nov 2013.
	5 Nov 2013	The mud trail near to the gully should be cleared and sand bags should be provided to prevent the spillage of runoff into the gully.	The mud trail was cleared and the gully was surrounded with sand bags on 12 Nov 2013.
	12 Nov 2013	Sediment and debris were observed in the U-channel. The Contractor was reminded to clear it regularly to prevent blockage of drainage system.	Sediment and debris were cleared on 22 Nov 2013.
	12 Nov 2013	Reminder: Proper surround gully by sand bags to prevent spillage of runoff.	Sand bags were provided to surround the gully on 22 Nov 2013.
	22 Nov 2013	Reminder: To provide cover on the exposed and unpaved slope to reduce generation of runoff.	The exposed and unpaved slope was covered by tarpaulin and the gap between the barriers was sealed by sand bags on 26 Nov 2013.
	26 Nov 2013	Reminder: Earth and sediment within the U-channel should be cleared to prevent blockage.	Follow up actions will be reported in next month.
	26 Nov 2013	Reminder: Additional sand bags should be provided to block the U-channel to confine the wastewater within site area.	Follow up actions will be reported in next month.
Noise	5 Nov 2013	Reminder: To provide noise mitigation measures, such as acoustic mat, to surround the	Item was recorded as item 131126-F05 and follow up actions will be reported in next month.

Parameters	Date	Observations and Recommendations	Follow-up
		drilling machine.	
	26 Nov 2013	Follow up: Noise mitigation measures should be provided for operating equipment.	Follow up actions will be reported in next month.
Landscape and Visual	29 Oct 2013	Reminder: The setting up of hoarding next to new possession area was in progress. The Contractor was reminded to keep up the set up.	Hoarding had been set up at the new possession area on 5 Nov 2013.
	22 Nov 2013	Tree protection fence for remaining tree in site for better tree protection.	Tree protection fence was erected on 26 Nov 2013.
Air Quality	29 Oct 2013	Reminder: Water spraying should be enhanced to reduce dust generation at new possession area.	The surface of unpaved new possession area was wet during the site inspection on 5 Nov 2013.
	22 Nov 2013	Reminder: To further enhance the water spraying at unpaved area in dry days.	Water spraying was provided for unpaved area on 26 Nov 2013.
Waste / Chemical Management	22 Nov 2013	Oil leakage was observed. The Contractor was reminded to provide better maintenance to equipment and to clear oily water in the blocked U-channel.	The oil leakage from identified equipment was rectified on 26 Nov 2013.
	26 Nov 2013	Follow up: The oil leakage from identified equipment was rectified. The Contractor was reminded to seal the drip tray to prevent further leakage.	Follow up actions will be reported in next month.
	26 Nov 2013	Spillage of oily water was observed from drip tray. The Contractor was reminded to seal the drip tray and avoid further spillage into drainage system.	Follow up actions will be reported in next month.
	26 Nov 2013	Drip tray should be provided to contain the oil drums to avoid leakage.	Follow up actions will be reported in next month.
Permits/ Licenses	22 Nov 2013	Reminder: To display EP at the new site entrance.	EP was displayed at the new site entrance on 26 Nov 2013.

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 Cumulative Complaint Log 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 Cumulative Log for environmental summon and successful prosecution 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:

- Hoarding erection works;
- Tree transplantation;
- Underground utilities detection works at Che Kung Miu Road;
- Pre-drilling works;
- EVA construction;
- Condition survey of existing drainage and sewer systems;
- Installation of temporary OHL Masts and Back-tie Brackets;
- Advanced works of relocation of roundabout area.

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;
- 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 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 30 November 2013 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 and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times;
- It is recommended particular attention should be paid to the control of silty surface runoff. Stockpiles of materials and exposed slope that are likely to generate silty surface runoff should be covered by impervious sheets whenever practicable; and
- Slurry on the haul road should be cleared regularly to reduce the runoff generation.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

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 from entering the erected "no-intrusion zone" for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection.

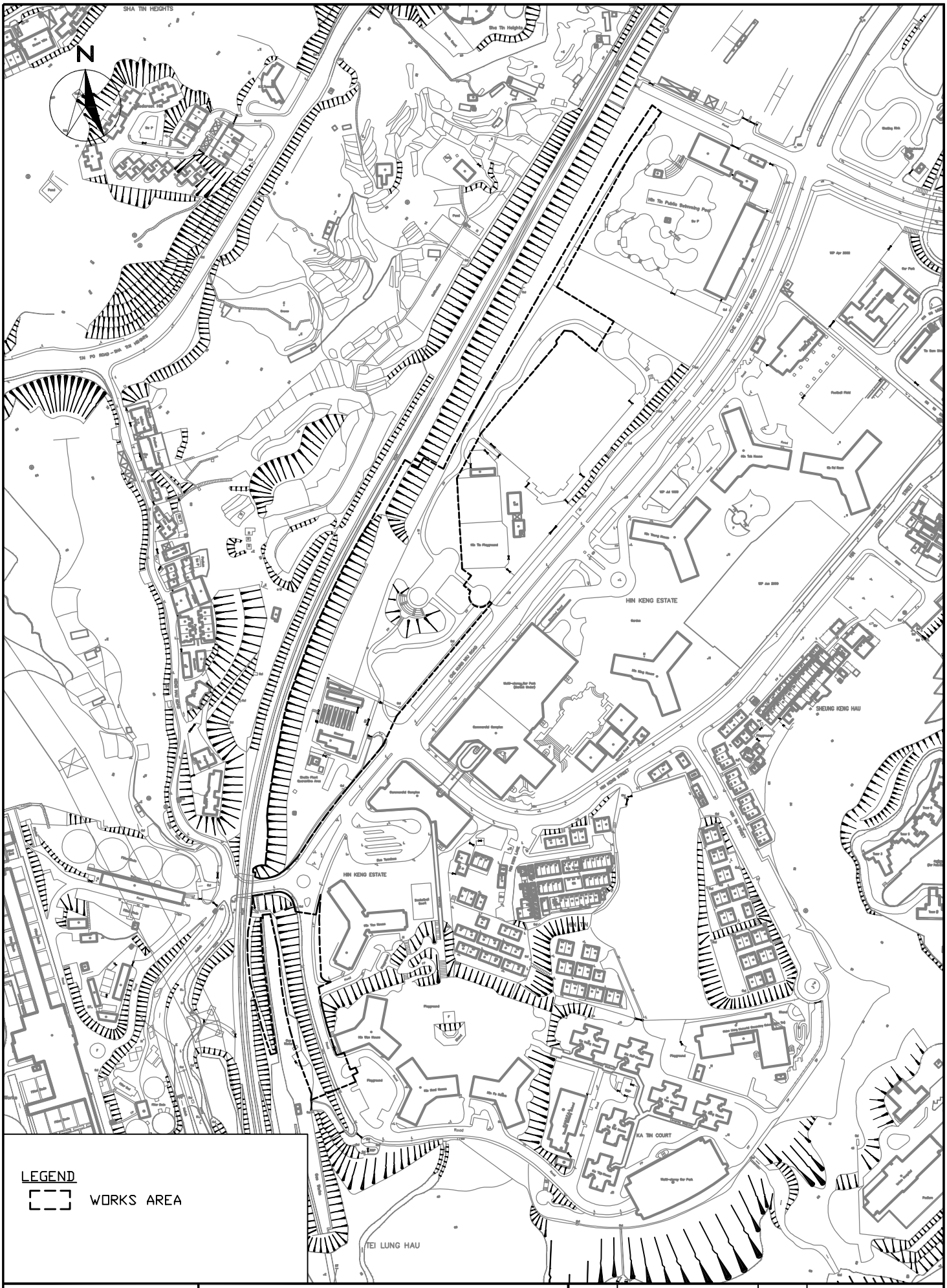
Air Quality

- Regular water spraying on site is reminded to be implemented as per EP requirement.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained;
- Regularly maintenance should be provided to equipment to avoid oil leakage; and
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works.

FIGURES



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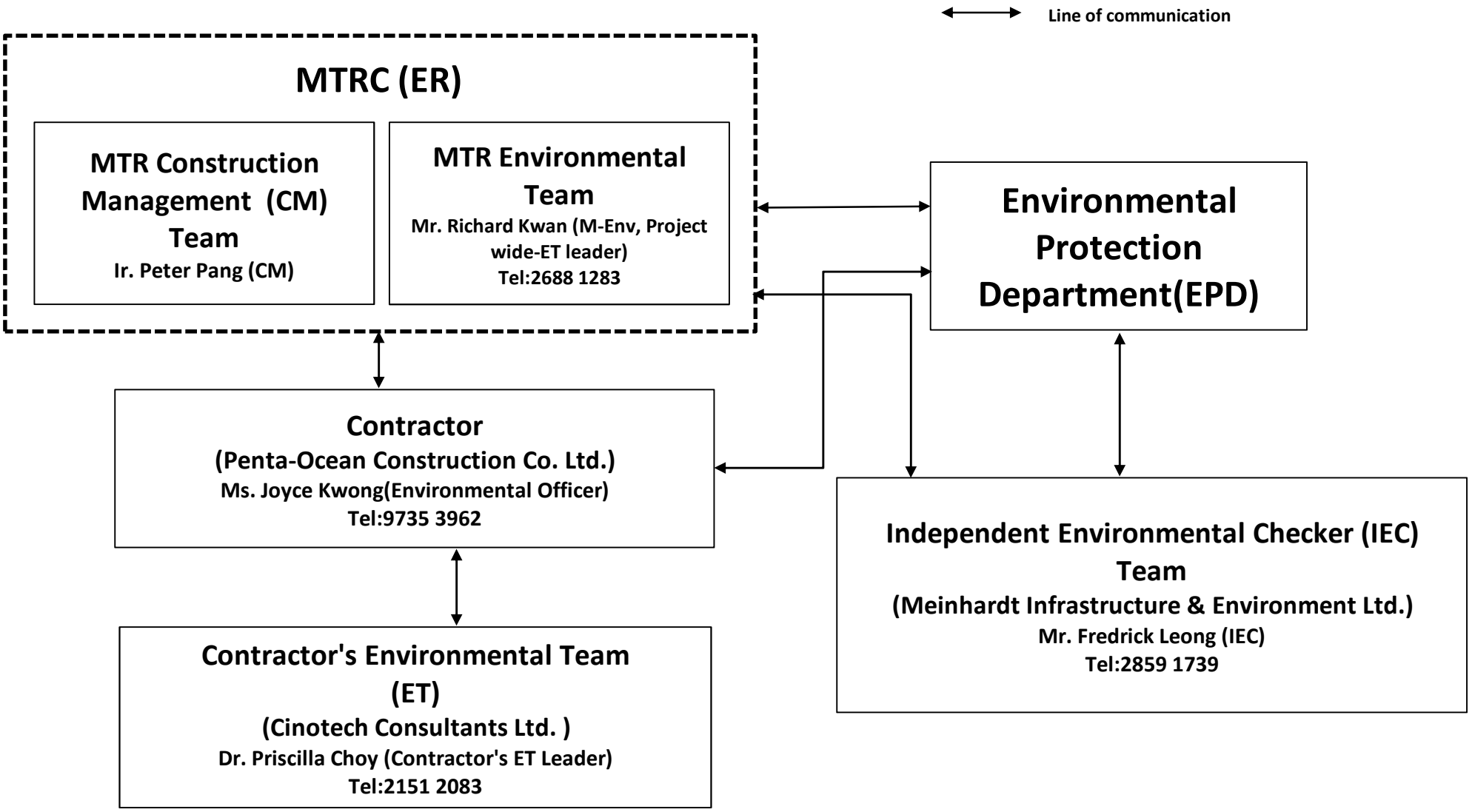
SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK –
HIN KENG STATION AND APPROACH STRUCTURES

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 Date: Oct-13	Project No.: MA13040 Figure: 2

CINOTECH

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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	-

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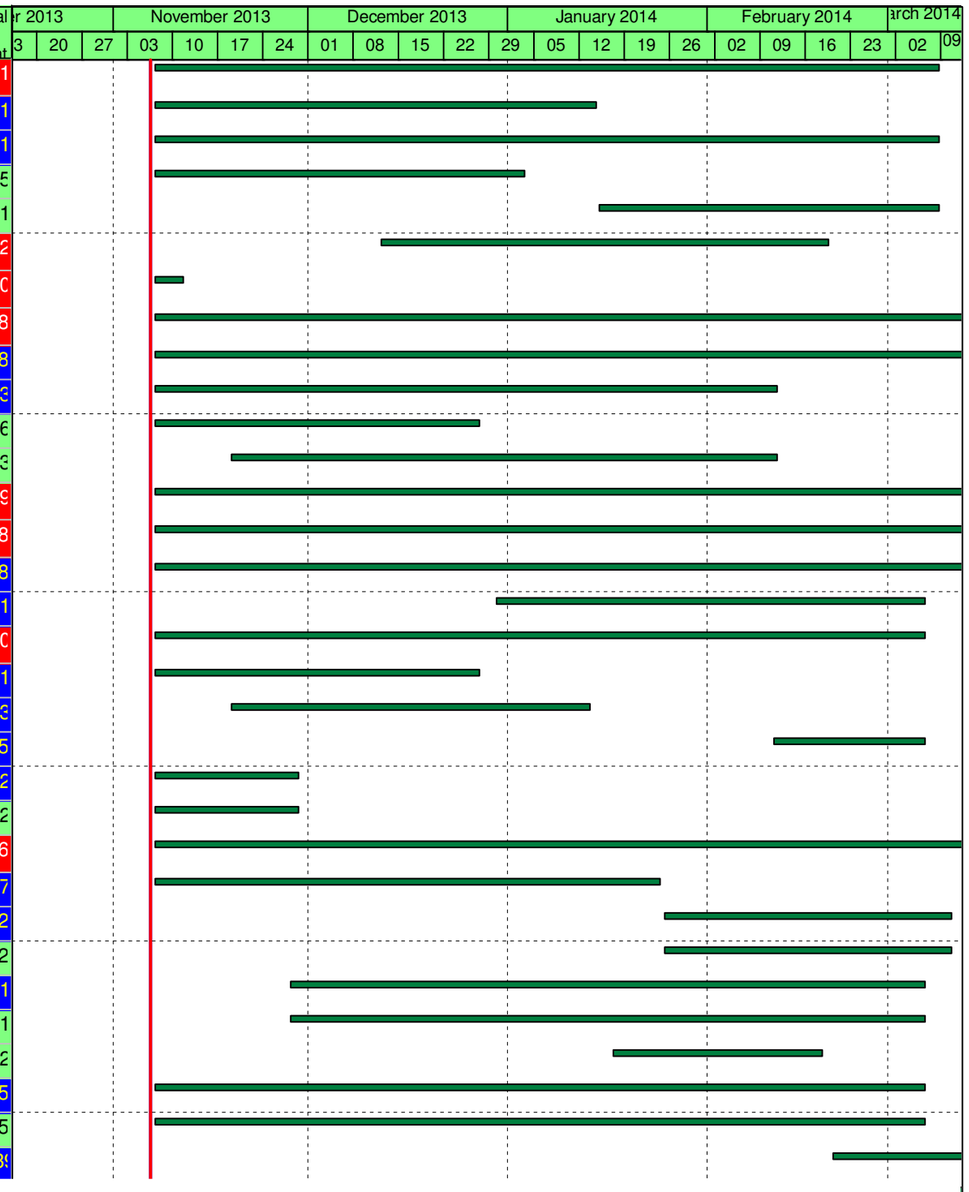
SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK –
HIN KENG STATION AND APPROACH STRUCTURES

LOCATION OF DUST MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	–

APPENDIX A
TENTATIVE CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Calendar	Original Duration	Planned Start	Planned Finish	Actual Start	Actual Finish	Total Float
	AT-GRADE BOX	6d week w/ h	98	02-Nov-13	08-Mar-14	31-Oct-13		21
	Haul Road Construction	6d week w/ h	56	07-Nov-13	14-Jan-14			21
	Temporary Piling Platform	6d week w/ h	98	02-Nov-13	08-Mar-14	31-Oct-13		21
	Pre-drilling	6d week w/ h	51	02-Nov-13	03-Jan-14	31-Oct-13		25
	King Post Construction	6d week w/ h	38	15-Jan-14	08-Mar-14			21
	FR63 SLOPE	6d week w/ h	49	12-Dec-13	19-Feb-14			22
	FR320 SLOPE	6d week w/ h	14	26-Oct-13	11-Nov-13	26-Oct-13		30
	HIN KENG VIADUCT	6d week w/ h	154	26-Sep-13	09-Apr-14	26-Sep-13		18
	Initial Works	6d week w/ h	154	26-Sep-13	09-Apr-14	26-Sep-13		18
	Sub-Structure	6d week w/ h	76	02-Nov-13	11-Feb-14	02-Nov-13		23
	Pre-drilling	6d week w/ h	46	02-Nov-13	27-Dec-13	02-Nov-13		26
	Bored Pile Construction	6d week w/ h	62	19-Nov-13	11-Feb-14			23
	FR65 SLOPE	6d week w/ h	242	28-Sep-13	31-Jul-14	28-Sep-13		09
	NTSAMC & SPQS	6d week w/ h	130	24-Oct-13	07-Apr-14	24-Oct-13		18
	Initial Works	6d week w/ h	130	24-Oct-13	07-Apr-14	24-Oct-13		18
	Demolition	6d week w/ h	49	30-Dec-13	06-Mar-14			21
	HIN KENG STATION	6d week w/ h	146	02-Sep-13	06-Mar-14	02-Sep-13		20
	Initial Works	6d week w/ h	96	02-Sep-13	27-Dec-13	02-Sep-13		21
	Temporary EVA Construction	6d week w/ h	45	19-Nov-13	13-Jan-14			23
	Site Formation	6d week w/ h	21	11-Feb-14	06-Mar-14			15
	Sub-Structure	6d week w/ h	28	29-Oct-13	29-Nov-13	29-Oct-13		22
	Pre-drilling	6d week w/ h	28	29-Oct-13	29-Nov-13	29-Oct-13		22
	MA ON SHAN LINE & TAIL TRACK		152	22-Oct-13	05-May-14	21-Oct-13		16
	Temporary Overhead Line Mast	7d week w/o h	90	26-Oct-13	23-Jan-14	27-Oct-13		37
	R.C. Platform	6d week w/ h	30	25-Jan-14	10-Mar-14			12
	Initial Works	6d week w/ h	30	25-Jan-14	10-Mar-14			12
	Retaining Wall RW7		74	28-Nov-13	06-Mar-14			21
	Initial Works		74	28-Nov-13	06-Mar-14			21
	Structural Works	6d week w/ h	20	17-Jan-14	18-Feb-14			22
	Noise Barrier Minipile	6d week w/ h	106	22-Oct-13	06-Mar-14	21-Oct-13		15
	Initial Works	6d week w/ h	106	22-Oct-13	06-Mar-14	21-Oct-13		15
	Noise Barrier Construction	NTH works w/h	40	20-Feb-14	05-May-14			39



Remaining Level of Effort
Actual Work
Remaining Work
Milestone
Summary

PENTA-OCEAN CONSTRUCTION CO.LTD 五洋建設

SHATIN TO CENTRAL LINK CONTRACT 1102

HIN KENG STATION AND APPROACH STRUCTURES

3-MONTHS ROLLING PROGRAMME (NOV 2013 - FEB 2014)

Date	Revision	Checked	Approved
27-Nov-13	3MR Programme (2013 Dec)	Co	WC

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Station	Description	Action Level, μg/m^3	Limit Level, μg/m^3
DMS-1 (1)(2)	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

Regular Construction Noise Monitoring Station	Description	Time Period	Action Level	Limit Level
NMS-CA-1 (1)(2)	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) (3)

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.

APPENDIX C
SUMMARY OF EXCEEDANCE

APPENIDX C – SUMMARY OF EXCEEDANCE

Reporting Month: November 2013

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX D
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131105
Date	5 November 2013 (Tuesday)
Time	09:10 – 11:15

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

Ref. No.	Remarks/Observations	Related Item No.
131105-O01	***Part B – Water Quality*** • The mud trail near to the gully should be cleared and sand bags should be provided to prevent the spillage of runoff into the gully. ***Part C – Ecology*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection.	B 11
131105-R02	***Part F – Construction Noise Impact*** • To provide noise mitigation measures, such as acoustic mat, to surround the drilling machine. ***Part G – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part H – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:131029), all environmental deficiencies have been rectified/improved by the Contractor.	F 5

	Name	Signature	Date
Recorded by	Gary Lau		6 November 2013
Checked by	Dr. Priscilla Choy		6 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131112
Date	12 November 2013 (Tuesday)
Time	09:00 – 11:10

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

Ref. No.	Remarks/Observations	Related Item No.
131112-O01 131112-R02	***Part B – Water Quality*** • Sediment and debris were observed in the U-channel. The Contractor was reminded to clear it regularly to prevent blockage of drainage system. • Proper surround gully by sand bags to prevent spillage of runoff. ***Part C – Ecology*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part F – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part G – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part H – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:131105), item 131105-R02 was found outstanding and will be followed up during the next site inspection	B 7 B 11

	Name	Signature	Date
Recorded by	Gary Lau		14 November 2013
Checked by	Dr. Priscilla Choy		14 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131122
Date	22 November 2013 (Friday)
Time	14:00 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
131122-R04	***Part B – Water Quality*** • To provide cover on the exposed and unpaved slope to reduce generation of runoff.	B 9
	Part C – Ecology • No environmental deficiency was identified during the site inspection.	
131122-O01	***Part D – Landscape & Visual*** • Tree protection fence for remaining tree in site for better tree protection.	D 3
131122-R03	***Part E – Air Quality*** • To further enhance the water spraying at unpaved area in dry days.	E 5
	Part F – Construction Noise Impact • No environmental deficiency was identified during the site inspection.	
131122-O02	***Part G – Waste/Chemical Management*** • Oil leakage was observed. The contractor was reminded to provide better maintenance to equipment and to clear oily water in the blocked U-channel.	G 7 and G 9
131122-R05	***Part H – Permits/Licenses*** • To display EP at the new site entrance.	H 5
	Part I - Others • Follow-up on previous audit section (Ref. No.: 131105 and 131112), item 131105-R02 was found outstanding and will be followed up during the next site inspection	

	Name	Signature	Date
Recorded by	Gary Lau		25 November 2013
Checked by	Dr. Priscilla Choy		25 November 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	131126
Date	26 November 2013 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	
131126-R03	• Earth and sediment within the U-channel should be cleared to prevent blockage.	B 7
131126-R04	• Additional sand bags should be provided to block the U-channel to confine the wastewater within site area.	B 7
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Waste/Chemical Management	
131126-O01	• Spillage of oily water was observed from drip tray. The Contractor was reminded to seal the drip tray and avoid further spillage into drainage system.	G 9
131126-O02	• Drip tray should be provided to contain the oil drums to avoid leakage.	G 10
	Part H – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part I - Others	
131126-F05	• Noise mitigation measures should be provided for operating equipment.	F 5
131126-F06	• The oil leakage from identified equipment was rectified. The Contractor was reminded to seal the drip tray to prevent further leakage.	G 10

	Name	Signature	Date
Recorded by	Gary Lau		26 November 2013
Checked by	Dr. Priscilla Choy		26 November 2013

APPENDIX E
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

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
Ecology (Construction Phase)								
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	• AFCD's requirements • EIAO • Country Parks Ordinance	^
S5.7	E5	<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, the containment of contaminated soils for removal from the site, appropriate storage of chemicals andchemical waste away from sites of ecological value and the provisionof sanitary facilities for on-site workers. Adoption of such measuresshould permit waste to be suitably contained within the site forsubsequent removal and appropriate disposal. The following good site practices should also be implemented: • 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; • Avoidance of soil storage against trees or close to	Minimise ecological impacts	Contractor	All construction sites	During construction	• ProPECC PN 1/94	^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		waterbodies in particular the Tei Lung Hau stream; • 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; • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						N/A ^ ^
S5.7	E7	<u>Water Quality and Hydrology</u> • Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impactsarisingfrom construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream and good site practices.	• Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimization and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. Theconstruction program shall consider using the soil removed fromone phase for backfilling another. Suitable storage	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

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
		ground,gathering ground and mixing ground may be set up on-site asnecessary. <u>No-intrusion Zone</u> • 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. <u>Protection of Retained Trees</u> • All retained trees should be recorded photographically at thecommencement of the Contract, and carefully protected duringthe construction period. Detailed tree protection specificationshall be allowed and included in the Contract Specification, whichspecifying the tree protection requirement, submission andapproval system, and the tree monitoring system. • 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,						* ^ ^

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
		including trees in contractor's works sites.						
S6.12	LV2	• <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. • <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. • <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.	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and Construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	* ^ ^

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
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given inthe 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 exposedworksites and haul road in the Kowloon area and once per 1.5hour at those in the Tai Wai area should be conducted to achievedust removal efficiencies of 91.7%. While the above wateringfrequencies are to be followed, the extent of watering may varydepending on actual site conditions but should be sufficient tomaintain an equivalent intensity of no less than 1.8 L/m2 toachieve 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	*
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintainthe entire surface wet and then removed or backfilled orreinstated where practicable within 24 hours of the excavation orunloading;	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	^ ^

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
		• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting toensurethat the dusty materials do not leak from the vehicle; • 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; • 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 boundarywith provision for public crossing; Good site practice shall also beadopted by the Contractor to ensure the conditions of thehoardings are properly maintained throughout the constructionperiod;						^ ^ ^ ^ ^

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
		• 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; • 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; • 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; • 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; Any skip hoist for material transport should be totally enclosed byimpervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheetingor placed in an area sheltered on the top and the 3 sides;						^ ^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• 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 effectivefabric filter or equivalent air pollution control system; and • 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 siteor part of the construction site where the exposed earth lies.						^ ^ N/A
S7.6.5	D6	Implement regular dust monitoring under EM&A programme duringthe construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plantshould be serviced regularly during the construction programme;	Control construction airborne noise	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
		• 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; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.						^ ^ ^ ^ ^
S8.3.6	N2	Install temporary hoarding located on the site boundaries betweennoisy construction activities and NSRs. The conditions of thehoardings shall be properly maintained throughout the constructionperiod.	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 thickinternal sound absorptive lining), acoustic mat or full enclosure,screen the noisy plants including air compressor, generators andsaw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	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	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 representative locations	Contractor	Selected representative noise monitoring station	Construction stage	• TM-EIA	^
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 measuresshall include the following: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities),perimeter cut-off drains to direct off-site water around the siteshould be constructed with internal drainage works and	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	*

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
		erosionand sedimentation control facilities implemented. Channels (bothtemporary and permanent drainage pipes and culverts), earthbunds or sand bag barriers should be provided on site to directstormwater to silt removal facilities. The design of the temporaryon-site drainage system will be undertaken by the contractor priorto the commencement of construction. • 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. • 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 m3/s a sedimentation basin of 30m3 would be required and for a flow rate of 0.5 m3/s the basin would be 150 m3. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.						^ ^

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
		• 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. • 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. • All drainage facilities and erosion and sediment control structuresshould be regularly inspected and maintained to ensure properand 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. • 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						* ^ * 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 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. • 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. • 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. • 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						^ * * ^

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
		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. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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. • All the earth works involving should be conducted sequentially tolimit the amount of construction runoff generated from exposed						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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		areas during the wet season (April to September) as far as practicable. ・ Adopt best management practices						^
S10.7.1	W3	<u>Sewage Effluent</u> ・ 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	・ Water Pollution Control Ordinance ・ TM-water	^
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following isrecommended: ・ All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitivewatercourse and stormwater drains. ・ 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. ・ Disposal of chemical wastes should be conducted in compliancewith the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	・ Water Pollution Control Ordinance ・ProPECC PN1/94 ・ TM-EIAO ・ TM-Water	* ^ ^

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
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • 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.	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) No. 6/2010	^

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
S11.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promotethe use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • 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&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&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	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^ ^ ^ ^ ^

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
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&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.	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	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^

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
		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. ・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. ・ 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.						^ ^
S11.5.1	WM7	<u>Chemical Waste</u> ・ 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. ・ 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	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction Stage	・ Waste Disposal (Chemical Waste) General) Regulation ・ Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^ ^

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
		regulation. • 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. • 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.						^ ^

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
Land Contamination								
S12.12	LC2	<u>Re-sampling at NTSAMC</u> ・ 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. ・ Following the completion of re-sampling and lab testing works of this site, a second Supplementary CAR and SupplementaryRAP (if contamination is confirmed) shall be prepared and submitted to EPD for agreement. ・ 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)	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	・ Practice Guide (PG) forInvestigation and Remediation of ContaminatedLand ・ GN/GM for land contamination ・ Risk-Based Remediation Goals	^ ^ ^
Hazard to Life								
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	MTRC/ Contractor	-	Construction and		^(Installation in Progress)

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
			workers and passengers			operation phases		
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (cooperation of various parties/departments required. For theoperational 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, constructionworkers 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, constructionworkers and passengers	MTRC/ Contractor	-	Construction and operation phases		^

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
EM&A Project								
S 14.2	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	• EIAO Guidance Note No.4/2010 • TM-EIAO	^
S 14.2 – 14.4	EM2	• An Environmental Team needs to be employed as per the EM&A Manual • Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. • An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	^ ^ ^

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

• Non-compliance but rectified by the contractor

* There was finding in the site audits during the reporting month.

N/A Not Applicable

APPENDIX F
EVENT AND ACTION PLANS

Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER 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.
2.Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor 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 addtional 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.

LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the IEC, Contractor 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. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. 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.
2.Exceedance for two or more consecutive samples	1. Notify IEC, Contractor and EPD; 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, Contractor 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. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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.	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 and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 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, Contractor 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. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	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 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 exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 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	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 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity 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 non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX G
WASTE GENERATION IN THE REPORTING MONTH

Name of Contractor: Penta-Ocean Construction Co. Ltd.
Waste Flow Table for Year 2013

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects (See Note 2)	Disposed as Public Fill (See Note 1)	Disposed as Sorting Facility	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0
Aug	0.006	0	0	0	0	0.006	0	0	0	0	0
Sept	1.1288	0	0	0	1.0657	0.0631	0	0	0	0	0.0147
Oct	0.2601	0	0	0	0.2601	0	0	0	0	0	0.0199
Nov	1.4598	0.0225	0	0.2517	1.1856	0	0	0	0	0	0.0309
Dec											
Total	**2.8547**	**0.0225**	**0**	**0.2517**	**2.5114**	**0.0691**	**0**	**0**	**0**	**0**	**0.0655**

Note: (1) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
Note: (2) Excavated soil was disposed of at Contract 1108A Kai Tak Barging Point and would be reused in HongKong-Zhuhai-Macao Bridge Project.

APPENDIX H
CUMULATIVE LOG FOR COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
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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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