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. 7

[Period from 1 to 31 March 2013]

(April 2013)

Verified by: Tom Chapman

Position: Independent Environmental Checker

Date: 12/4/13

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. 7

[Period from 1 to 31 March 2013]

(April 2013)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 12 April 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. 7

[Period from 1 to 31 March 2013]

	Name	Signature
Prepared & Checked:	Joanne Tsoi	
Reviewed & Approved:	Josh Lam	

Version:	A	Date: 12 April 2013

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Table of Contents

List of Tables

List of Appendices

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/B) was issued by Director of Environmental Protection (DEP) on 26 October 2012.

1.2 Project Programme

1.2.1 Six 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)
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	Not yet on board.
1108A	Kai Tak Barging Point Facilities	September 2012	Concentric – Hong Kong River Joint Venture (CCL-HKR JV)	Cinotech Consultants Ltd. (Cinotech)
1109	Stations and Tunnels of Kowloon City Section	September 2012	Samsung-Hsin Chong JV (SHJV)	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	To be constructed	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 sixth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ET during the period from 1 to 31 March 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/B. 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/B
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/B
1106	Diamond Hill Station	EP-438/2012/B
1108A	Kai Tak Barging Point Facilities	EP-438/2012/B
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/B
1111	Hung Hom North Approach Tunnels	EP-437/2012 & EP-438/2012/B

2.1.2 The EM&A Reports for Works Contracts 1108A, 1109, 1101, 1111, 1103 and 1106 prepared by the respective Contractor's ETs are provided in **Appendices A** to **F,** 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
1101	Tai Wai Mei Tin Road	• Erection of steel structure of noise cover.
1102(1)	N/A	N/A
1103	Diamond Hill Area	• Site Formation, Diaphragm Wall Construction and Ground Investigation.
	Hin Keng Area	• Site Formation and Ground Investigation.
	Fung Tak Area	• Site Hoarding and Breaking of Footpath and Road Pavement.
	Ma Chai Hang Area	• Site Clearance and Site Set Up.
1106	Diamond Hill Station Area	• Pre-drilling; • D-wall construction; • Building of Site Office; • Hoarding works; • Tree pruning; and • Asbestos Demolition Works.
1107(1)	N/A	N/A
1108(1)	N/A	N/A

Works Contract	Site	Construction Activities
1108A	Kai Tak Barging Point Facilities	• Full commissioning and operation of the whole Barging Point Facilities with two conveyor belt systems and one floating jetty barge; • Completion of site hoardings, entrance gate, project signboard and surface drainage works in Works Area 1108A.W1; and • Completion of chain link fences for temporary haul roads leading to Concorde Road.
1109	Ma Tau Wai (MTW) Works Area	• TKW / MTW Road Garden – Gas main diversion works, installation of hoarding and desander set up; and • Along Ma Tau Wai Road – Construction of D-wall panel, trial pits for location of utilities, diversion of CLP cables, pre-drilling and installation of guide walls.
	To Kwan Wan (TKW) Works Area	• Olympic Playground Area – Diversion of existing water pipe and cable ducts laying; • Olympic Garden – Trial pits for existing UU diversion and pre-drilling; • Olympic Avenue – Construction of trial pits for UU identification, pre-drilling and erection of hoarding; • Tam Kung Road – Pre-drilling; • Nam Kok Road – Construction of trial trench for UU diversion and cable ducts laying; and • TKW Station – Water main diversion works, Archaeological survey, delivery of sheet pile material and sheet pile connection, construction of Engineer Office, construction of bored pile, and installation of socket steel H-piling.
1111	Mong Kok Freight Terminal	• Base slab demolition, base slab and building construction.
	Hung Hom Area	• • Hoarding erection, tree survey, tree felling; • Excavation work, demolition, man hole, building footing / RC structureand drainage construction; • Cross track duct construction, cable trough installation, existing track removal; • Pipe pile installation; and • Bridge steel frame erection and cover walkway.
1112(1)	N/A	N/A

Note:
(1) Construction works under the contract have not yet commenced
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. No exceedance of the Action/Limit Levels of 24-hr TSP and construction noise due to the Project construction was recorded during the reporting period.

2.1.5 The air quality and construction noise results for this reporting month are summarised in **Tables 2.2** and **2.3**. 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 **F**.

2.1.6 According to the Continuous Noise Monitoring Plans (CNMP), construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria under Works Contracts 1109 and 1111 were not undertaken during this reporting month and hence no continuous noise monitoring was carried out in this reporting period.

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

2.1.8 No environmental notification of summon, prosecution and valid complaint were received in the reporting period.

2.1.9 Regular site inspections were conducted by the respective Contractor's ET 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 [6]					
Works Contract 1102 [1]					
Works Contract 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	46.7 – 85.1	148.7	260	No
DMS-2	Price Memorial Catholic Primary School	20.8 – 66.9	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home[2]	15.4 – 72.9	159.1	260	No
Works Contract 1106					
DMS-4	Block 1, Rhythm Garden	28.0 – 92.0	160.4	260	No
Works Contract 1107 [1]					
Works Contract 1108 [1]					
Works Contract 1108A [6]					
Works Contract 1109					
DMS-6	Katherine Building[3]	81 – 90	156.8	260	No
DMS-7	Parc 22[4]	80 – 101	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	86 – 99	152.2	260	No
DMS-9	No. 26 Kowloon City Road[5]	91 – 102	160.9	260	No
DMS-10	Chat Ma Mansion	80 – 104	170.4	260	No
Works Contract 1111					
AM1[7]	No. 234 – 238 Chatham Road North[8]	21.8 – 111.9	183.9	260	No
Works Contract 1112 [1]					

Note:
(1) Construction works under the contract have not yet commenced
(2) Alternative monitoring location to Shek On House
(3) Alternative monitoring location to Prosperity House

(4) Alternative monitoring location to Skytower Tower 2
(5) Alternative monitoring location to Lucky Building
(6) No TSP monitoring is required under this contract
(7) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
(8) Alternative monitoring location to Wing Fung Building

N/A Not applicable

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[1]						
Works Contract 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	52.1 – 56.4	57	-[8]	70 65 during examination period	No
NMS-CA-2	Price Memorial Catholic Primary School	55.3 – 68.4	66	63.0 – 65.4	70 65 during examination period	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home[2]	65.4 – 69.8	73	-[8]	75	No
Works Contract 1106						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	70.3 – 72.6	71	63.4 – 67.5	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade)[3]	72.5 – 74.9	74	67.6	70 65 during examination period	No
Works Contract 1107[1]						
Works Contract 1108[1]						
Works Contract 1108A[6]						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road [4]	64.0 – 65.2	76.0	-[8]	75	No
NMS-CA-7	Skytower Tower 2	67.9 – 68.3	70.0	-[8]	75	No
NMS-CA-8	SKH Good Shepherd Primary School	74.1 – 75.1	75.0	58.7	70 65 during examination period	No
NMS-CA-9	Kong Yiu Mansion[5]	71.6 – 74.0	69.0	68.1 – 72.3	75	No
NMS-CA-10	Chat Ma Mansion	76.9 – 78.1	77.0	70.1 – 71.6	75	No
Works Contract 1111						
NM1	Carmel Secondary School (South Block)	68.0 – 69.8	68	58.9 – 68.0	70 65 during examination period	No
NM2	No. 234 – 238 Chatham Road North[9]	71.9 – 77.5[10]	79	-[8]	75	No
Works Contract 1112[1]						

Note:

(1) Construction works under the contract have not yet commenced
(2) Alternative monitoring location to Shek On House
(3) Alternative monitoring location to Canossa Primary School (San Po Kong)
(4) Alternative monitoring location to Prosperity House
(5) Alternative monitoring location to Lucky Building
(6) No construction noise monitoring is required under this contract
(7) Measured noise level is corrected against the corresponding baseline Level
(8) No correction was made as the measured noise levels were below the baseline noise levels
(9) Alternative monitoring location to Wing Fung Building
(10) 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.
N/A Not applicable

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/B 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/B

EP Condition (EP-438/2012/B)	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)
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)
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)
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)
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)
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)
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)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1st submission) 19 Mar 2013 (2nd submission)

EP Condition (EP-438/2012/B)	Submission	Submission date
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	12 Oct 2012 14 Nov 2012 13 Dec 2012 14 Jan 2013 14 Feb 2013 14 Mar 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 Construction Companies	19 Dec 2012
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)
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	14 Feb 2013 14 Mar 2013

Appendix A

7th 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. 7

[Period from 1 to 31 March 2013]

Works Contract 1108A – Kai Tak Barging Point Facilities

(April 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th April 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 March 2013

(Version 3.0)

Certified By

(Contractor's Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 7th 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 March 2013.

Summary of Site Activities undertaken during Reporting Month

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

- Full commissioning and operation of the whole Barging Point Facilities with two (2) conveyor belt systems and one (1) floating jetty barge;
- Completion of site hoardings, entrance gate, project signboard and surface drainage works in Works Area 1108A.W1; and
- Completion of chain link fences for temporary haul roads leading to Concorde Road.

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. No inert C&D materials and non-inert C&D materials were generated during the reporting period. No chemical wastes 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:

- Full operation of the Barging Point Facilities with two (2) conveyor belt systems and one (1) floating jetty barge ready for use;
- Completion of site hoardings, project signboard and surface drainage works in Works Area 1108A.W1;
- Completion of chain link fences for temporary haul roads leading to Concorde Road.

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 7th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 March to 31 March 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**.

- Full commissioning and operation of the whole Barging Point Facilities with two (2) conveyor belt systems and one (1) floating jetty barge;
- Completion of site hoardings, entrance gate, project signboard and surface drainage works in Works Area 1108A.W1; and
- Completion of chain link fences for temporary haul roads leading to Concorde Road.

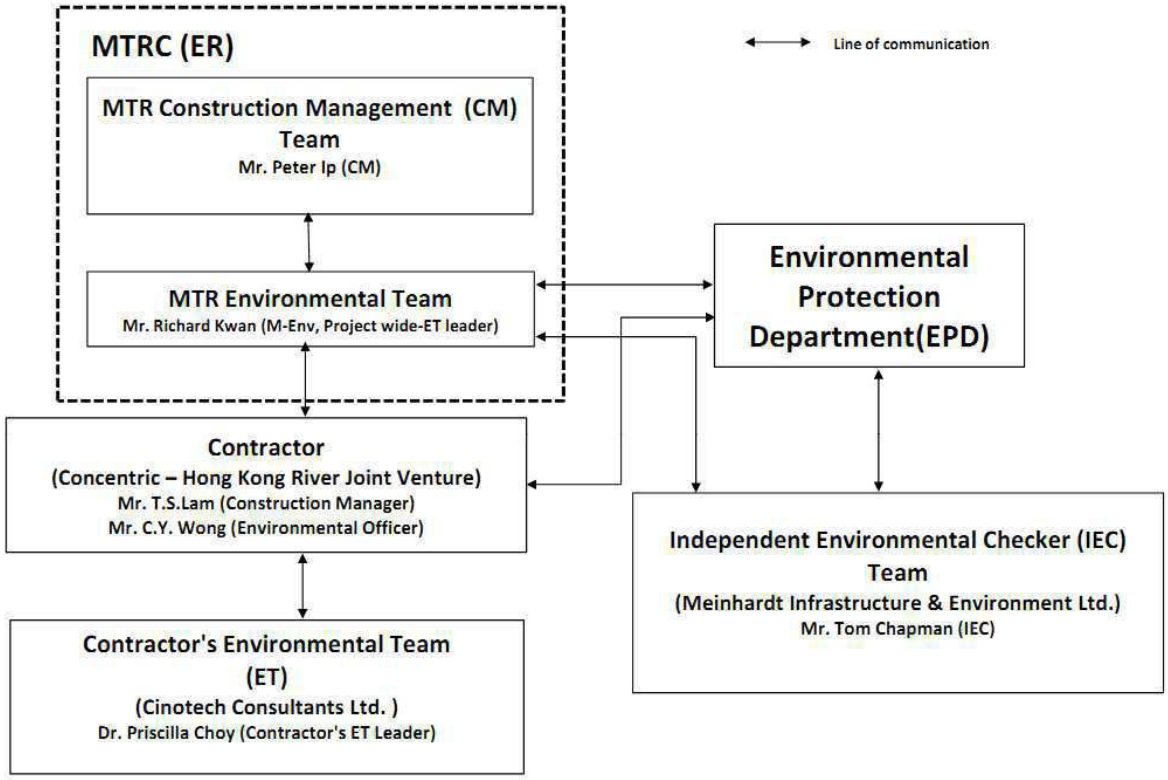
Project Organisation

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. Tom CHAPMAN	Independent Environmental Checker	2858 0738	2540 1580
		Mr. Fredrick LEONG	Deputy Independent Environmental Checker	2859 1739	
CCL-HKR JV	Contractor	Mr. T.S. LAM	Construction Manager	9655 5486	2398 8301
		Mr. C.Y. WONG	Environmental Officer	9199 3188	
		Ms. Jane ZHU	Quality Engineer	6207 3974	

Status of Environmental Licences, Notification and Permits

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

2.10 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.

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	N/A	Valid
Construction Noise Permit (CNP)			
GW-RE0754-012	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	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
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
N/A	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:

- a DO level in the range of 0 - 20 mg/ L and 0 - 200% saturation; and
- a 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 (February 2013)	Submitted to EPD on 14th March 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 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. 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
March 2013	0 m^3	0 m^3	0 m^3	0 L	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

5.4 The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Ecology

5.5 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 C**.

6.2 Site audits were conducted on 4th, 14th, 18th and 25th March 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 14th March 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 Mar 2013	No splashing of spoil between the derrick barge and floating jetty was observed. However, it is reminded to implement sufficient measure to avoid splashing of spoil between the derrick barge and floating jetty as far as practicable and when necessary.	N/A
	25 Mar 2013	Remove the spoil and sand at seashore next to Conveyor belt No.2.	Follow up action will be reported in next reporting period.
Noise	N/A	N/A	N/A
Ecology/Landscape and Visual	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
Waste / Chemical Management	4 Mar 2013	Reminder: It is reminded to provide a drip tray for temporary storage of chemical at Works area W1. Chemical waste is reminded to store properly at the designated storage area after use.	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 Mar 2013.
	14 Mar 2013	Reminder: It is reminded to plug the hole on the drip tray for generator near weighing bridge.	Follow up action will be reported in next reporting period.
	18 Mar 2013	Reminder: It is reminded chemical stocks should not be placed at chemical wastes storage cabin.	Follow up action will be reported in next reporting period.
	25 Mar 2013	Reminder: It is reminded to properly maintain the drip tray for generator next to the weighing bridge.	Follow up action will be reported in next reporting period.
Permits/Licenses	N/A	N/A	N/A

IEC's observation/recommendation:

IEC's representative had the following observations/recommendations during the joint site audit on 14 Mar 2013:

- It is reminded to plug the hole on the drip tray for generator near weighing bridge.
- It is also reminded the Contractor to implement sufficient measure to avoid splashing of spoil between the derrick barge and floating jetty as far as practicable

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 handling of C&D material during operation of barging point facilities;
- Potential splashing of spoils into the surrounding seawater when handling/unloading the spoil at the discharge points; and
- Potential water pollution problem due to the discharge of site runoff with the wet season approaching.

Construction Programme for the Next Month

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

- Full operation of the Barging Point Facilities with two (2) conveyor belt systems and one (1) floating jetty barge ready for use;
- Completion of site hoardings, project signboard and surface drainage works in Works Area 1108A.W1;
- Completion of chain link fences for temporary haul roads leading to Concorde Road.

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 March 2013 to 31 March 2013 in accordance with EM&A Manual and the requirement under EP-438/2012/B.

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.

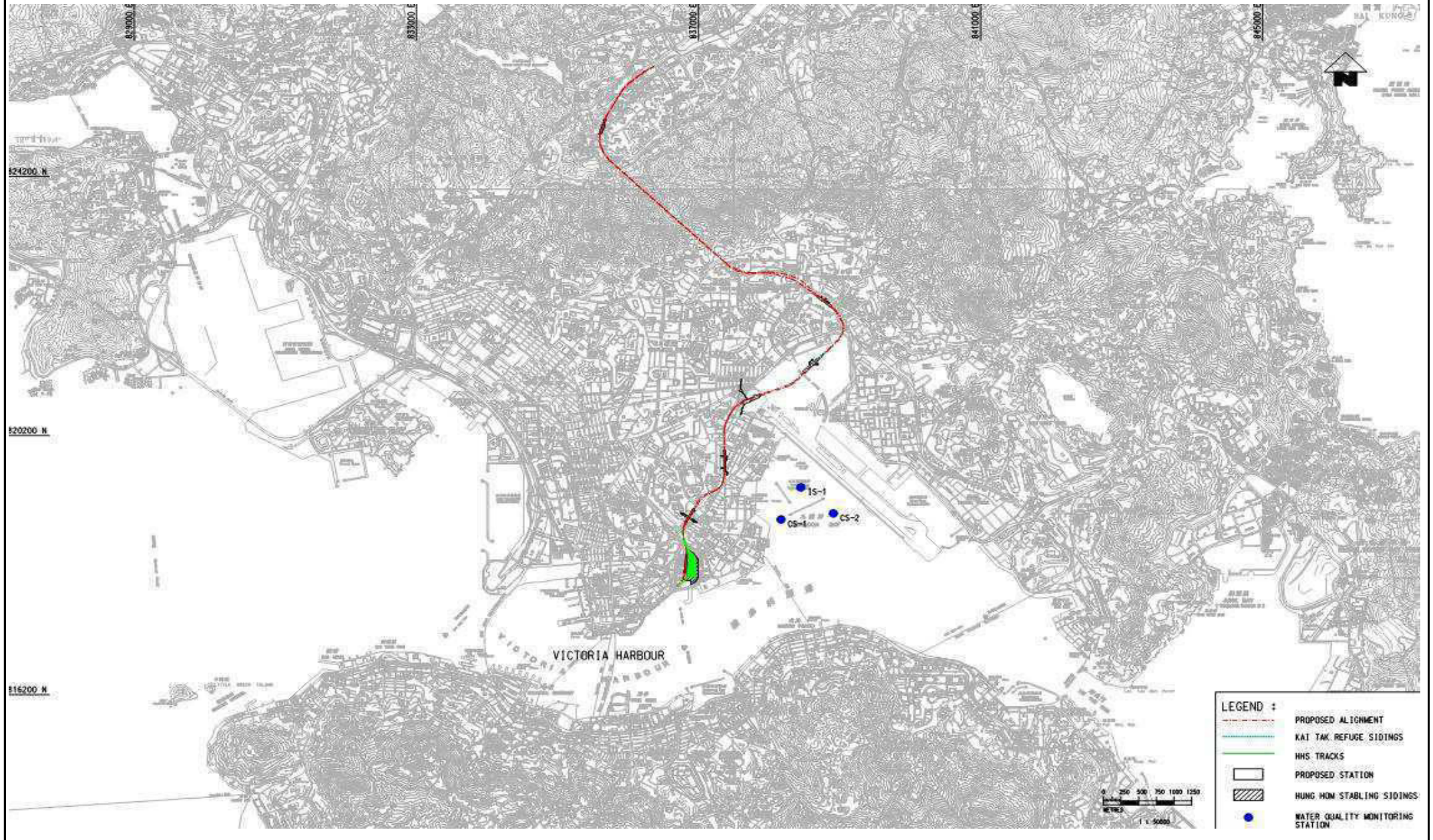
Waste / Chemical Management

- Provide and properly maintain drip trays with adequate capacity for equipment or temporary use of chemicals.
- 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: March 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	130304
Date	4 March 2013 (Monday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
130305-R01	***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*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • It is reminded to provide a drip tray for temporary storage of chemical at Works area W1. Chemical waste is reminded to store properly at the designated storage area after use. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:130225), no major environmental deficiency was identified during the site inspection.	F2i .&F9

	Name	Signature	Date
Recorded by	Ken Cheng		5 March 2013
Checked by	Dr. Priscilla Choy		5 March 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130314
Date	14 March 2013 (Thursday)
Time	14:30-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
130314-R01	***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*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • It is reminded to plug the hole on the drip tray for generator near weighing bridge. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • No splashing of spoil between the derrick barge and floating jetty was observed. However, it is reminded to implement sufficient measure to avoid splashing of spoil between the derrick barge and floating jetty as far as practicable and when necessary. • Follow-up on previous audit section (Ref. No.:130304), all identified environmental deficiency was improved/rectified by the Contractor.	F9

	Name	Signature	Date
Recorded by	Ken Cheng		14 March 2013
Checked by	Dr. Priscilla Choy		14 March 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130318
Date	18 March 2013 (Monday)
Time	14:15-14:55

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

Ref. No.	Remarks/Observations	Related Item No.
130318-R01	***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*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • It is reminded chemical stocks should not be placed at chemical wastes storage cabin. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:130314), outstanding item 130314-R01will be reviewed during next site inspection.	F2i.

	Name	Signature	Date
Recorded by	Ken Cheng	Ken	19 March 2013
Checked by	Dr. Priscilla Choy		11 April 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130325
Date	25 March 2013 (Monday)
Time	14:00-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
130325-O01	***Part B - Water Quality*** • Remove the spoil and sand at seashore next to Conveyor belt No.2. ***Part C - Ecology/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection.	B15ii.
130325-R02	***Part F – Waste/Chemical Management*** • It is reminded to properly maintain the drip tray for generator next to the weighing bridge. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:130318), outstanding item 130318-R01 has to be reviewed in the next site inspection.	F9

	Name	Signature	Date
Recorded by	Ken Cheng		26 March 2013
Checked by	Dr. Priscilla Choy		26 March 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	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

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		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. • 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>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	

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		• 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.						N/A(2) ^ ^

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		• 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)
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	^

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							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	^
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	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^ ^ ^ ^

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		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;						^ ^ ^ ^

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		• 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(2)
		• 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(2)
		• Any skip hoist for material transport should be totally enclosed by impervious sheeting;						N/A(2)
		• 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;						N/A(2)
		• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked						N/A(2)

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		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)
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	Minimize dust impact at the nearby sensitive	Contractor	Barging Points	Construction stage	• APCO • To control the dust	^

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		suppression	receivers				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)
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;	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^

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		• 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.						^ 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	^
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)

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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)
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:	To minimize water quality impact from construction site runoff and general	Contractor	All construction sites where	Construction stage	• Water Pollution Control Ordinance	

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		Construction Runoff and Site Drainage • 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	construction activities		practicable		• ProPECC PN1/94 • TM-EIAO • TM-Water	^ ^

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		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						^ ^ ^

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		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						^ * ^ *

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		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						^ ^ ^

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		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	^
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	To minimize groundwater quality impact from	Contractor	Excavation areas where	Construction stage	• Water Pollution Control	^

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		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	contaminated area		contamination is found.		Ordinance • TM-water • TM-EIAO	^ N/A(2)

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		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.						
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	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during	Dredging period	• Water Pollution Control	N/A(2)

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		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.			dredging works		Ordinance • TM-EIAO	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 transportation; • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions,	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	• Water Pollution Control Ordinance • TM-EIA	^ ^ ^

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		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	^ * *
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water	Contractor	At identified	Prior to	• Water	^

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			quality prior to and during dredging period		monitoring location	and during dredging period	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	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)]

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		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 verified; and • Implement an enhanced Waste Management Plan similar to	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) ^ ^

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		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 recycling of materials and their proper disposal. Where	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
		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	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
		volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.						
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 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	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	• ETWB TCW No. 34/2002	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
		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 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						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
		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.						
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	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
		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.						^

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 (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 '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	**0.055**	**0.000**	**0.000**	**0.000**	**0.055**	**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	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-	-
Sub-total	**0.055**	**0.000**	**0.000**	**0.000**	**0.055**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**
July	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
G.Total	**0.055**	**0.000**	**0.000**	**0.000**	**0.055**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**

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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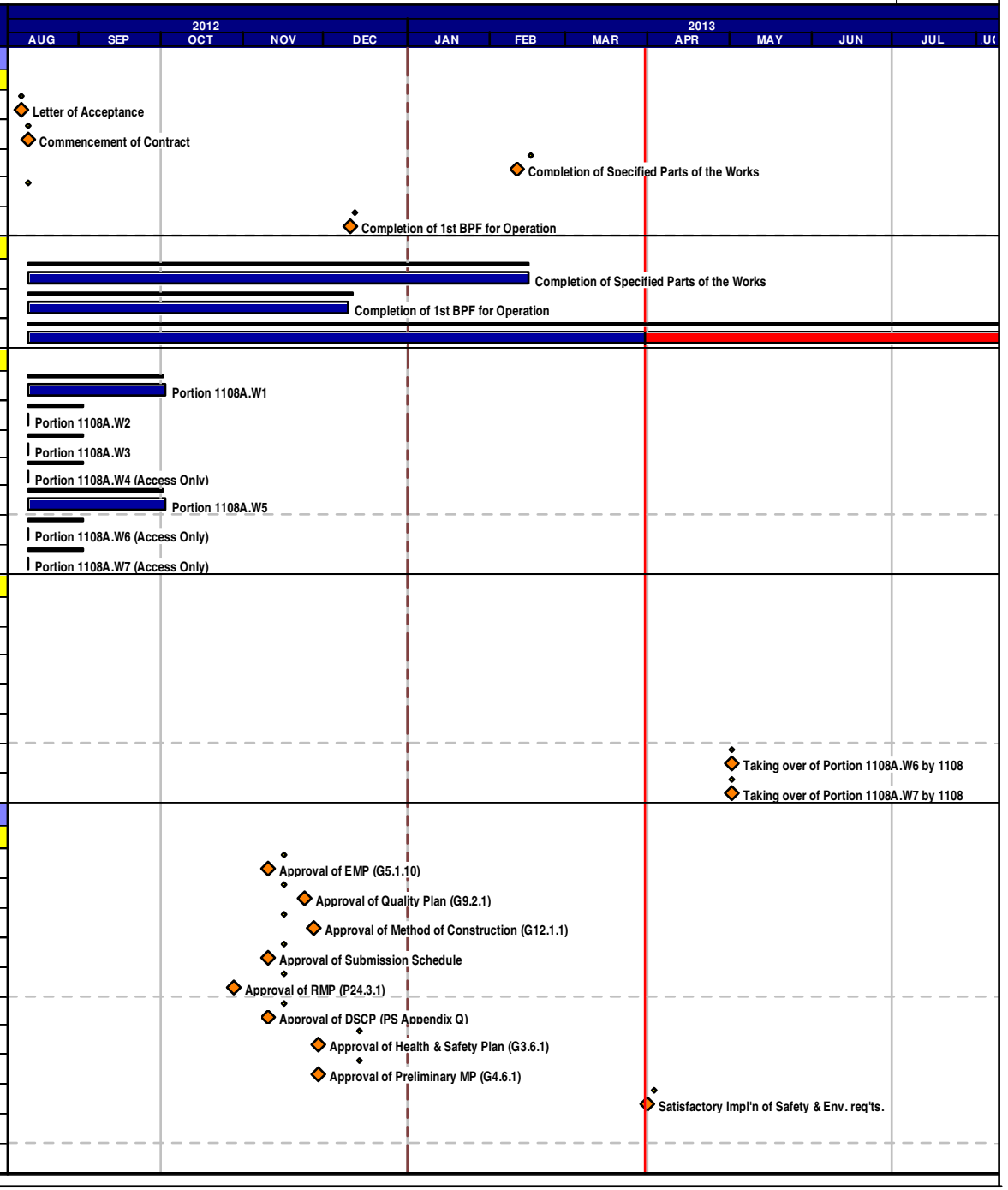
APPENDIX H
TENTATIVE CONSTRUCTION PROGRAMME

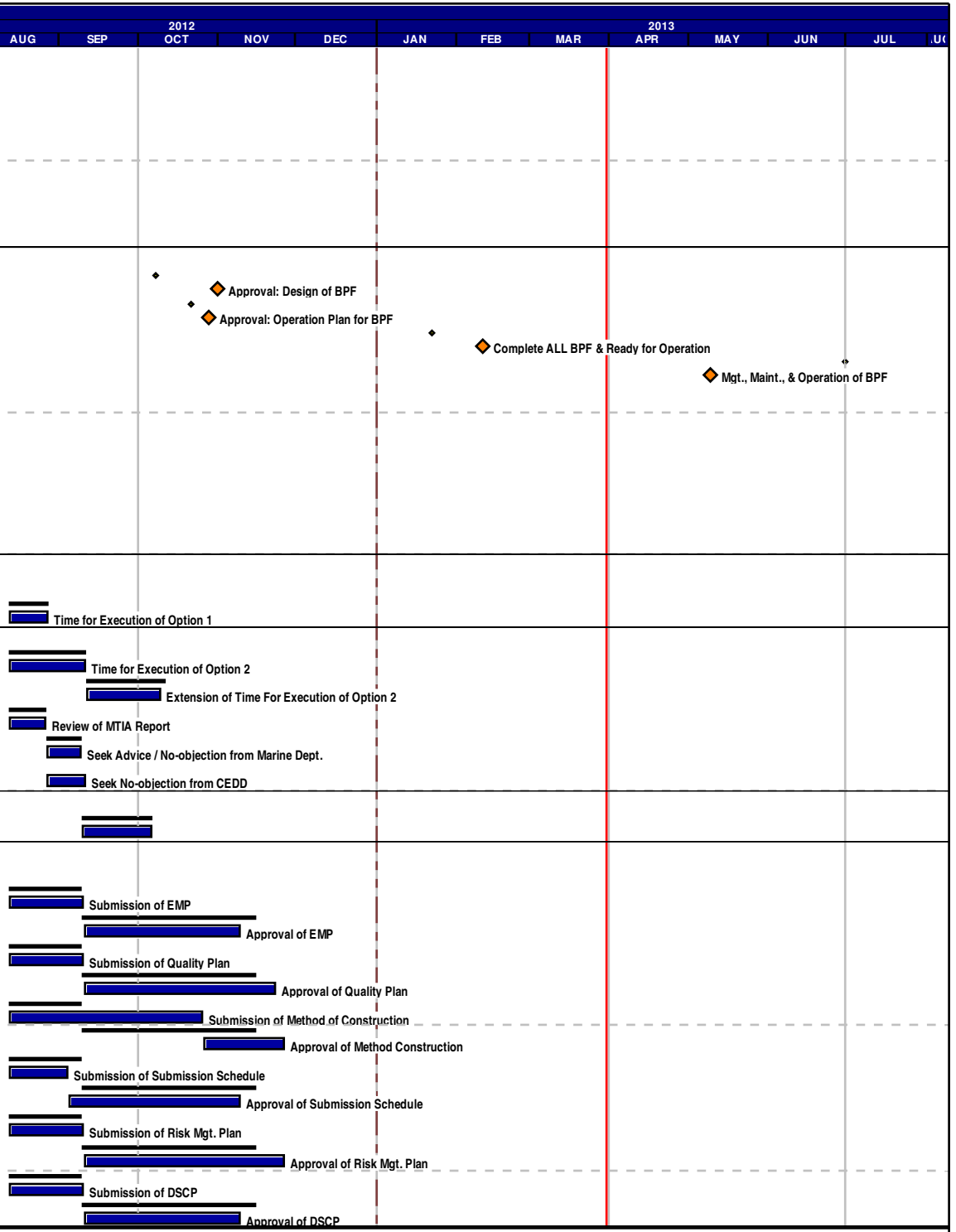
MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES

3 Month Rollng Programme (Rev.02)

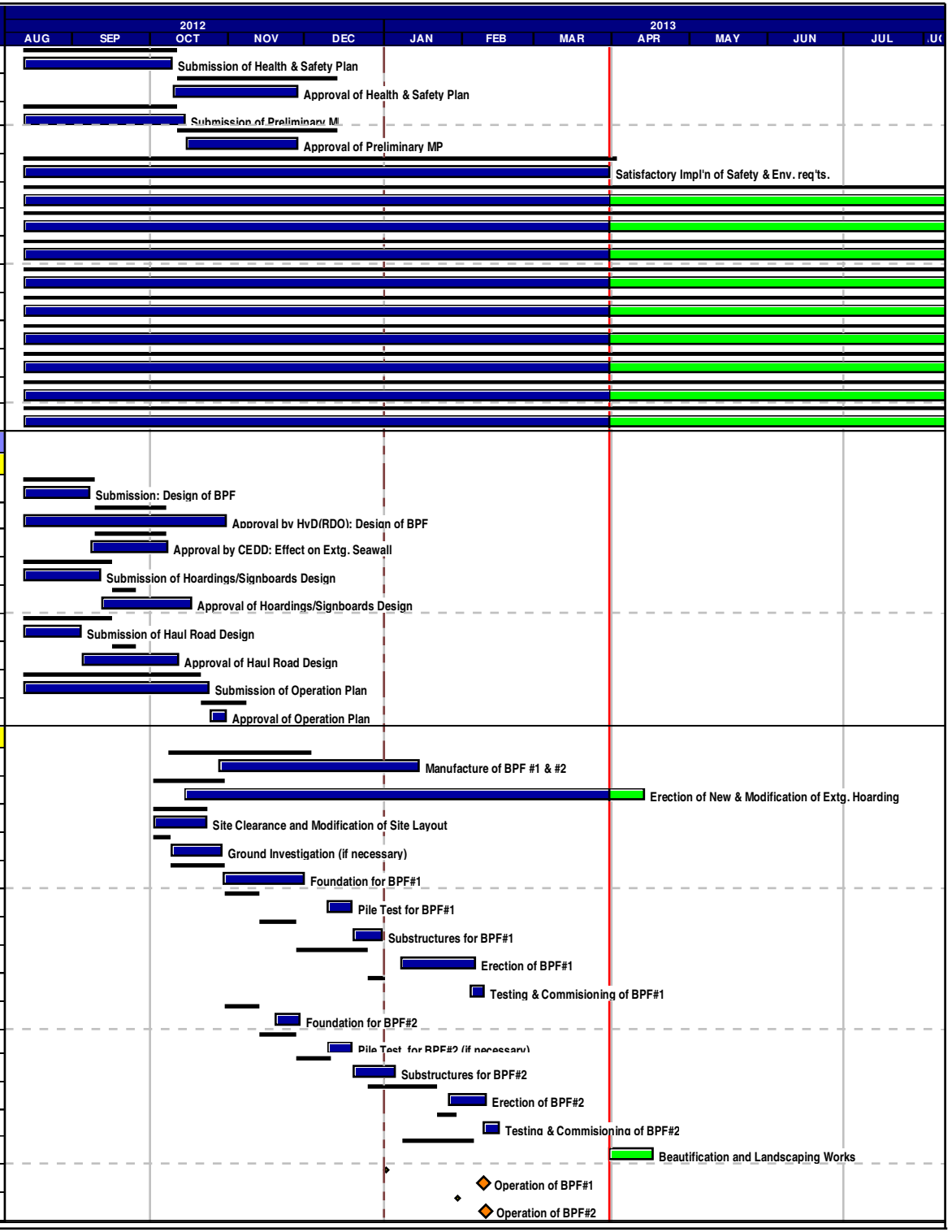
Act ID	Description	Orig Dur	Early Start	Early Finish
COMMENCEMENT & COMPLETION				
Completion of the Works				
1108ACD01	Letter of Acceptance	0	10AUG12 A	
1108ACD02	Commencement of Contract	0	13AUG12 A	
1108ACD03A	Completion of Specified Parts of the Works	0		10FEB13 A
1108ACD03C	Completion of Contract	0		28AUG16
1108ACD04B	Completion of 1st BPF for Operation	0		10DEC12 A
Time for Completion				
1108ACD04A	Completion of Specified Parts of the Works	187	13AUG12 A	15FEB13 A
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12 A	10DEC12 A
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16
Time for Possession of Works Area				
1108AAC11	Portion 1108A.W1	52	13AUG12 A	03OCT12 A
1108AAC12	Portion 1108A.W2	21	13AUG12 A	13AUG12 A
1108AAC13	Portion 1108A.W3	21	13AUG12 A	13AUG12 A
1108AAC14	Portion 1108A.W4 (Access Only)	21	13AUG12 A	13AUG12 A
1108AAC15	Portion 1108A.W5	52	13AUG12 A	03OCT12 A
1108AAC16	Portion 1108A.W6 (Access Only)	21	13AUG12 A	13AUG12 A
1108AAC17	Portion 1108A.W7 (Access Only)	21	13AUG12 A	13AUG12 A
Vacation of Works Area				
1108ACD11V	Vacation of Portion 1108A.W1	0		28AUG16 *
1108ACD12V	Vacation of Portion 1108A.W2	0		28AUG16 *
1108ACD13V	Vacation of Portion 1108A.W3	0		31DEC15 *
1108ACD14V	Vacation of Portion 1108A.W4 (Access Only)	0		28AUG16 *
1108ACD15V	Vacation of Portion 1108A.W5	0		31DEC13 *
1108ACD16V	Taking over of Portion 1108A.W6 by 1108	0		01MAY13 *
1108ACD17V	Taking over of Portion 1108A.W7 by 1108	0		01MAY13 *
MILESTONES SCHEDULE				
Milestones for Cost Centre A				
1108AMSA11	Approval of EMP (G5.1.10)	0		09NOV12 A
1108AMSA12	Approval of Quality Plan (G9.2.1)	0		23NOV12 A
1108AMSA13	Approval of Method of Construction (G12.1.1)	0		26NOV12 A
1108AMSA14	Approval of Submission Schedule	0		09NOV12 A
1108AMSA15	Approval of RMP (P24.3.1)	0		28OCT12 A
1108AMSA16	Approval of DSCP (PS Appendix Q)	0		09NOV12 A
1108AMSA21	Approval of Health & Safety Plan (G3.6.1)	0		28NOV12 A
1108AMSA22	Approval of Preliminary MP (G4.6.1)	0		28NOV12 A
1108AMSA30	Satisfactory Impl'n of Safety & Env. req'ts.	0		31MAR13 A
1108AMSA41	Satisfactory Impl'n of Quality req'ts.	0		29SEP13
1108AMSA42	Satisfactory Impl'n of Prog. Mgt. System	0		29SEP13



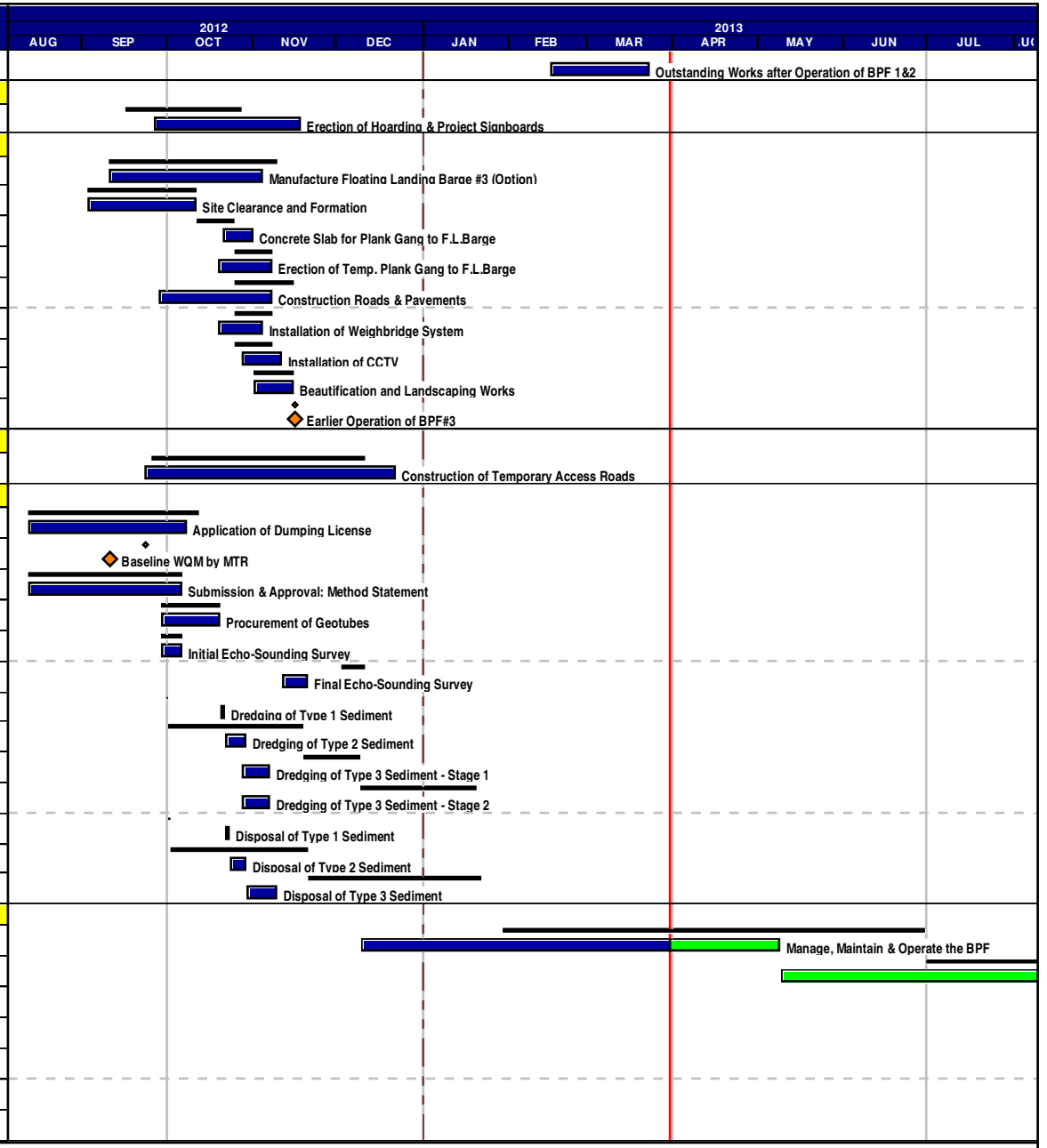
Act ID	Description	Orig Dur	Early Start	Early Finish
1108AMSA50	Satisfactory Impl'n of Safety & Env. req'ts.	0		30MAR14
1108AMSA61	Satisfactory Impl'n of Risk Mgt. req'ts.	0		29SEP14
1108AMSA62	Satisfactory Impl'n of Prog. Mgt. System	0		29SEP14
1108AMSA70	Satisfactory Impl'n of Safety & Env. req'ts.	0		29MAR15
1108AMSA81	Satisfactory Impl'n of Quality req'ts.	0		27SEP15
1108AMSA82	Satisfactory Impl'n of Prog. Mgt. System	0		27SEP15
1108AMSA90	Satisfactory Impl'n of Safety & Env. req'ts.	0		03APR16
Milestones for Cost Centre B				
1108AMSB11	Approval: Design of BPF	0		31OCT12 A
1108AMSB12	Approval: Operation Plan for BPF	0		28OCT12 A
1108AMSB20	Complete ALL BPF & Ready for Operation	0		10FEB13 A
1108AMSB30	Mgt., Maint., & Operation of BPF	0		09MAY13
1108AMSB40	Mgt., Maint., & Operation of BPF	0		07NOV13
1108AMSB50	Mgt., Maint., & Operation of BPF	0		08MAY14
1108AMSB60	Mgt., Maint., & Operation of BPF	0		06NOV14
1108AMSB70	Mgt., Maint., & Operation of BPF	0		07MAY15
1108AMSB80	Mgt., Maint., & Operation of BPF	0		05NOV15
1108AMSB90	Mgt., Maint., & Operation of BPF	0		09MAY16
EXECUTION OF OPTIONS				
Option 01 - Lighting to All Access Roads				
1108AOP101	Time for Execution of Option 1	15	13AUG12 A	27AUG12 A
Option 02 - Use of Floating Landing Barge in WA3				
1108AOP200	Time for Execution of Option 2	30	13AUG12 A	11SEP12 A
1108AOP201	Extension of Time For Execution of Option 2	30	12SEP12 A	10OCT12 A
1108AOP210	Review of MTIA Report	14	13AUG12 A	26AUG12 A
1108APD220	Seek Advice / No-objection from Marine Dept.	14	27AUG12 A	09SEP12 A
1108APD221	Seek No-objection from CEDD	21	27AUG12 A	11SEP12 A
+Value Engineering Proposals				
		27	10SEP12 A	06OCT12 A
Cost Centre A				
Preliminaries				
1108AA1010	Submission of EMP	28	13AUG12 A	10SEP12 A
1108AA1011	Approval of EMP	49	11SEP12 A	09NOV12 A
1108AA1020	Submission of Quality Plan	28	13AUG12 A	10SEP12 A
1108AA1021	Approval of Quality Plan	49	11SEP12 A	23NOV12 A
1108AA1030	Submission of Method of Construction	28	13AUG12 A	26OCT12 A
1108AA1031	Approval of Method Construction	42	27OCT12 A	26NOV12 A
1108AA1040	Submission of Submission Schedule	28	13AUG12 A	04SEP12 A
1108AA1041	Approval of Submission Schedule	49	05SEP12 A	09NOV12 A
1108AA1050	Submission of Risk Mgt. Plan	28	13AUG12 A	10SEP12 A
1108AA1051	Approval of Risk Mgt. Plan	49	11SEP12 A	26NOV12 A
1108AA1060	Submission of DSCP	28	13AUG12 A	10SEP12 A
1108AA1061	Approval of DSCP	49	11SEP12 A	09NOV12 A



Act ID	Description	Orig Dur	Early Start	Early Finish
1108AA2010	Submission of Health & Safety Plan	60	13AUG12 A	10OCT12 A
1108AA2011	Approval of Health & Safety Plan	45	11OCT12 A	28NOV12 A
1108AA2020	Submission of Preliminary MP	60	13AUG12 A	15OCT12 A
1108AA2021	Approval of Preliminary MP	45	16OCT12 A	28NOV12 A
1108AA3010	Satisfactory Impl'n of Safety & Env. req'ts.	233	13AUG12 A	31MAR13 A
1108AA4010	Satisfactory Impl'n of Quality req'ts.	415	13AUG12 A	29SEP13
1108AA4020	Satisfactory Impl'n of Prog. Mgt. System	415	13AUG12 A	29SEP13
1108AA5010	Satisfactory Impl'n of Safety & Env. req'ts.	598	13AUG12 A	30MAR14
1108AA6010	Satisfactory Impl'n of Risk Mgt. req'ts.	780	13AUG12 A	29SEP14
1108AA6020	Satisfactory Impl'n of Prog. Mgt. System	780	13AUG12 A	29SEP14
1108AA7010	Satisfactory Impl'n of Safety & Env. req'ts.	963	13AUG12 A	29MAR15
1108AA8010	Satisfactory Impl'n of Quality req'ts.	1145	13AUG12 A	27SEP15
1108AA8020	Satisfactory Impl'n of Prog. Mgt. System	1145	13AUG12 A	27SEP15
1108AA9010	Satisfactory Impl'n of Safety & Env. req'ts.	1328	13AUG12 A	03APR16
Cost Centre B				
Kai Tak BPF - Design & Approval				
1108AB1110	Submission: Design of BPF	28	13AUG12 A	07SEP12 A
1108AB1121	Approval by HyD(RDO): Design of BPF	28	13AUG12 A	31OCT12 A
1108AB1122	Approval by CEDD: Effect on Extg. Seawall	28	08SEP12 A	08OCT12 A
1108AB1130	Submission of Hoardings/Signboards Design	35	13AUG12 A	12SEP12 A
1108AB1131	Approval of Hoardings/Signboards Design	7	13SEP12 A	17OCT12 A
1108AB1140	Submission of Haul Road Design	35	13AUG12 A	04SEP12 A
1108AB1141	Approval of Haul Road Design	7	05SEP12 A	12OCT12 A
1108AB1200	Submission of Operation Plan	70	13AUG12 A	24OCT12 A
1108AB1201	Approval of Operation Plan	14	25OCT12 A	31OCT12 A
Kai Tak BPF - Works Areas 1108A.W1 & W5				
1108AB2101	Manufacture of BPF #1 & #2	56	29OCT12 A	15JAN13 A
1108AB2111	Erection of New & Modification of Extg. Hoarding	28	15OCT12 A	13APR13
1108AB2112	Site Clearance and Modification of Site Layout	21	03OCT12 A	23OCT12 A
1108AB2121	Ground Investigation (if necessary)	7	10OCT12 A	29OCT12 A
1108AB2122	Foundation for BPF#1	21	30OCT12 A	01DEC12 A
1108AB2123	Pile Test for BPF#1	14	10DEC12 A	19DEC12 A
1108AB2124	Substructures for BPF#1	14	20DEC12 A	31DEC12 A
1108AB2125	Erection of BPF#1	28	08JAN13 A	06FEB13 A
1108AB2126	Testing & Commisioning of BPF#1	7	04FEB13 A	09FEB13 A
1108AB2132	Foundation for BPF#2	21	20NOV12 A	29NOV12 A
1108AB2133	Pile Test for BPF#2 (if necessary)	14	10DEC12 A	19DEC12 A
1108AB2134	Substructures for BPF#2	14	20DEC12 A	05JAN13 A
1108AB2135	Erection of BPF#2	28	27JAN13 A	10FEB13 A
1108AB2136	Testing & Commisioning of BPF#2	7	09FEB13 A	15FEB13 A
1108AB2140	Beautification and Landscaping Works	18	31MAR13	17APR13
1108AB2191	Operation of BPF#1	0	09FEB13 A	
1108AB2192	Operation of BPF#2	0	10FEB13 A	



Act ID	Description	Orig Dur	Early Start	Early Finish
1108AB2222	Outstanding Works after Operation of BPF 1&2	30	16FEB13 A	23MAR13 A
Kai Tak BPF - Works Areas 1108A.W2 & W3				
1108AB2212	Erection of Hoarding & Project Signboards	42	27SEP12 A	18NOV12 A
Kai Tak BPF - Works Areas 1108A.W2 & W3 (Option)				
1108AB2202	Manufacture Floating Landing Barge #3 (Option)	60	11SEP12 A	04NOV12 A
1108AB2213	Site Clearance and Formation	28	03SEP12 A	11OCT12 A
1108AB2231	Concrete Slab for Plank Gang to F.L.Barge	14	22OCT12 A	01NOV12 A
1108AB2232	Erection of Temp. Plank Gang to F.L.Barge	14	20OCT12 A	08NOV12 A
1108AB2233	Construction Roads & Pavements	21	29SEP12 A	08NOV12 A
1108AB2234	Installation of Weighbridge System	14	20OCT12 A	04NOV12 A
1108AB2235	Installation of CCTV	14	29OCT12 A	11NOV12 A
1108AB2236	Beautification and Landscaping Works	14	02NOV12 A	15NOV12 A
1108AB2239	Earlier Operation of BPF#3	0		15NOV12 A
Kai Tak BPF - Works Areas 1108A.W4, W6 & W7				
1108AB3301	Construction of Temporary Access Roads	60	24SEP12 A	22DEC12 A
Kai Tak BPF - Dredging Area				
1108AB2401	Application of Dumping License	62	13AUG12 A	08OCT12 A
1108AB2402	Baseline WQM by MTR	0		10SEP12 A
1108AB2403	Submission & Approval: Method Statement	56	13AUG12 A	06OCT12 A
1108AB2410	Procurement of Geotubes	21	30SEP12 A	20OCT12 A
1108AB2421	Initial Echo-Sounding Survey	7	30SEP12 A	06OCT12 A
1108AB2422	Final Echo-Sounding Survey	7	12NOV12 A	20NOV12 A
1108AB2431	Dredging of Type 1 Sediment	1	21OCT12 A	22OCT12 A
1108AB2432	Dredging of Type 2 Sediment	20	23OCT12 A	29OCT12 A
1108AB2433	Dredging of Type 3 Sediment - Stage 1	20	29OCT12 A	07NOV12 A
1108AB2434	Dredging of Type 3 Sediment - Stage 2	0	29OCT12 A	07NOV12 A
1108AB2441	Disposal of Type 1 Sediment	1	23OCT12 A	23OCT12 A
1108AB2442	Disposal of Type 2 Sediment	20	24OCT12 A	29OCT12 A
1108AB2443	Disposal of Type 3 Sediment	20	30OCT12 A	09NOV12 A
Kai Tak BPF - Mgt., Maintenance & Operation				
1108AB3010	Manage, Maintain & Operate the BPF	152	10DEC12 A	09MAY13
1108AB4010	Manage, Maintain & Operate the BPF	182	10MAY13	07NOV13
1108AB5010	Manage, Maintain & Operate the BPF	182	08NOV13	08MAY14
1108AB6010	Manage, Maintain & Operate the BPF	182	09MAY14	06NOV14
1108AB7010	Manage, Maintain & Operate the BPF	182	07NOV14	07MAY15
1108AB8010	Manage, Maintain & Operate the BPF	182	08MAY15	05NOV15
1108AB9010	Manage, Maintain & Operate the BPF	186	06NOV15	09MAY16



Start date	10AUG12
Finish date	28AUG16
Data date	31MAR13
Run date	05APR13
Page number	4A
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MTR SCL 1108A

KAI TAK BARGING POINT FACILITIES

Concentric - Hong Kong River Joint Venture

Early bar
Target bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Date	Revision	Checked	Approved
13AUG12	1st Submission		
11SEP12	comments(SContE)		
21SEP12	comments(SContE)		

Appendix B

7th 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. 7

[Period from 1 to 31 March 2013]

Works Contract 1109 - Stations and Tunnels of

Kowloon City Section

(April 2013)

Certified by: Winnie Ko

Position: Environmental Team Leader

Date: 11 April 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.7

March 2013

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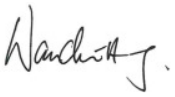
Samsung-Hsin Chong JV

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

Monthly EM&A Report No.7

March 2013

Reference 0171181

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Date:	11 April 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 seventh monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 March to 31 March 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 to be undertaken
Works in Ma Tau Wai (MTW)
• TKW/MTW Road Garden – Gas main diversion works, installation of hoarding and desander set up; and • Along Ma Tau Wai Road - Construction of D-wall panel, trial pits for location of utilities, diversion of CLP cables, pre-drilling and installation of guide walls.
Works in To Kwa Wan (TKW)
• Olympic Playground Area – Diversion of existing water pipe and cable ducts laying;and • Olympic Garden – Trial pits for existing UU diversion and pre-drilling; and • Olympic Avenue – Construction of trial pits for UU identification, pre-drilling and erection of hoarding; and • Tam Kung Road – Pre-drilling; and • Nam Kok Road – Construction of trial trench for UU diversion and cable ducts laying; and • TKW Station – Water main diversion works, Archaeological survey, delivery of sheet pile material and sheet pile connection, construction of Engineer Office, construction of bored pile, and installation of socket steel H-piling.

Regular Construction Noise and Construction Dust Monitoring

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

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

Continuous Noise Monitoring

According to the measurement period stated in the CNMP, no continuous noise monitoring was required to be carried out during the reporting month.

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 in mid-November 2012 and is being conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP).

As tunnelling works have not yet commenced, no vibration monitoring was carried out during the reporting month.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 14,673 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. 463 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 57 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No steel material and chemical waste were generated during this reporting month. 36 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 March 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 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 March 2013. The representative of the IEC joined the site inspection on 11 March 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.

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

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, diversion of CLP cables, predrilling, and installation of guide walls.
Work in To Kwa Wan (TKW)
● Olympic Playground Area – Diversion of existing water pipe and cable ducts laying; and ● Olympic Avenue – Construction of trial pits for UU identification, pre-drilling and erection of hoarding; and ● Olympic Garden - construction of trial pits for existing UU diversion, and pre-drilling; and ● Tam Kung Road – Pre-drilling; and ● Nam Kok Road – Construction of trial trench for UU diversion and cable ducts laying; and ● TKW Station – Construction of water main diversion, Archaeological survey, construction of Engineer Office, construction of bored pile, delivery of sheet pile material, sheet pile connection and socket steel H-piling.

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 seventh EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 March to 31 March 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 to be undertaken
Works in Ma Tau Wai (MTW)
● TKW/MTW Road Garden – Gas main diversion works, installation of hoarding and desander set up; and ● Along Ma Tau Wai Road - Construction of D-wall panel, trial pits for location of utilities, diversion of CLP cables, pre-drilling and installation of guide walls.
Works in To Kwa Wan (TKW)
● Olympic Playground Area – Diversion of existing water pipe and cable ducts laying; and

Construction Activities to be undertaken
● Olympic Garden – Trial pits for existing UU diversion and pre-drilling; and ● Olympic Avenue – Construction of trial pits for UU identification, pre-drilling and erection of hoarding; and ● Tam Kung Road – Pre-drilling; and ● Nam Kok Road – Construction of trial trench for UU diversion and cable ducts laying; and ● TKW Station – Water main diversion works, Archaeological survey, delivery of sheet pile material and sheet pile connection, construction of Engineer Office, construction of bored pile, and installation of socket steel H-piling.

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	Throughout the Contract	Permit granted on 26 October 2012
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 MTW	*WT00013954-2012*	-	Superseded by WT00014390-2012
	WT00014390-2012	*30-Sep-2017*	
Site at TKW	*WT00013952-2012*	-	Superseded by WT00014391-2012
	WT00014391-2012	*30-Sep-2017*	-
Chemical Waste Producer Registration			
Site at MTW	*5213-286-S3682-01*	*Throughout the Contract*	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Site at TKW	*5213-242-S3682-02*	*Throughout the Contract*	-
Construction Noise Permit			
- *Water Pump and Wastewater Treatment Plant*	*GW-RE0951-12*	*30-Apr-2013*	Superseded by GW-RE0116-13
- *Water Pump, Wastewater Treatment Plant, Site Office and Water Main Diversion*	*GW-RE0116-13*	*3-Aug-2013*	
- *Generator at TKW Works Area*	*GW-RE1099-12*	*16-Jun-2013*	-
- *Generator at Shansi Street*	*GW-RE1143-12*	*3-Jul-2013*	-
- *Grout Pump and Generator at TKW/ MTW Garden*	*GW-RE0160-13*	*20-Aug-2013*	
- *Re-shuffle Bus Stop at MTW Road*	*GW-RE0210-13*	*31-Mar-2013*	
Licence to Excavate and Search for Antiquities	342	29-Oct-2013	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3.1 REGULAR CONSTRUCTION NOISE MONITORING

3.1.1 Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at 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-8, NMS–CA-9 and NMS–CA-10	Calibrator: NC 73 (Serial No. 10997142) Sound Level Meter: NL 18 (Serial No. 00360030) NL 31 (Serial No. 00410224)

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

Measurements were accepted when the calibration level from before and after the noise measurement agreed to 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
	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.

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)	Merricourt (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).

According to the measurement period stated in the CNMP, no continuous noise monitoring was carried out in this reporting month.

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.

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 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 3.5.***

Table 3.5 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
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)	Merricourt (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	Dec 2012 – Jan 2013, Apr 2013 – Dec 2013, May 2014, Aug 2014 – Mar 2016

Note:
(a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMMP) and CNMP.

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 3.6*** and shown in ***Annex D***. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.6 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

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 3.7***. The TSP monitoring was conducted as per the schedule presented in ***Annex E***.

Table 3.7 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 3.8*** summarises the equipment that was deployed for the 24-hour averaged monitoring.

Table 3.8 Construction Dust Monitoring Equipment

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
24-hr TSP	
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Serial No. 0438320)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Serial No. 0438320)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Serial No. 0438320)

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
DMS-9	TE-5170 (Serial No. 0814), CM-AIR-43 (Serial No. 0438320)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Serial No. 0438320)

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 flowrate 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 3.9***.

Table 3.9 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
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 in mid-November 2012 and was conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP).

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	Sixth Monthly EM&A Report	14 March 2013

5 MONITORING RESULTS

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 20 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. No exceedance of the limit level was recorded at NMS–CA-6, NMS–CA-7, NMS–CA-8 and NMS–CA-9.

The noise monitoring results recorded at NMS-CA-8 on 21 March 2013, at NMS-CA-9 on 4, 15, 21 and 27 March 2013 and at NMS-CA-10 on 4 and 27 March 2013 are higher than 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 noise level.

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

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

5.2 CONTINUOUS NOISE MONITORING

According to the measurement period stated in the CNMP, no continuous noise monitoring was required to be carried out during the reporting month.

5.3 CONSTRUCTION DUST MONITORING

A total of 25 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	85	81-90	156.8	260
DMS-7	92	80-101	166.7	260
DMS-8	93	86-99	152.2	260
DMS-9	96	91-102	160.9	260
DMS-10	96	80-104	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 in mid-November 2012 and is being conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP).

As tunnelling works have not commenced, no vibration monitoring was conducted during the reporting month.

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
March 2013	14,673 m^3	0 kg	57 m^3	36 kg	463 kg	0 kg

Notes:

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

(b) About 14,673 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.

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 March 2013. Most of the mitigation measures given in ***Annex H*** have been implemented. Required Actions that were found are listed below:

4 March 2013

- Construction materials, a gas cylinder and trolley were placed inside the tree protection zone of retained tree 0074 at TKW/MTW Garden. The Contractor was reminded to remove them and to remind workers to keep

clear within the tree protection zone. Construction materials, gas cylinder and trolley which were placed inside the tree protection zone of retained tree 0074 at TKW/MTW Garden had been removed as observed during the site inspection on 11 March 2013.

18 March 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 March 2013. The representative of the IEC joined the site inspection on 11 March 2013. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarized as follows:

4 March 2013

- Although the cutters was not operating during the site inspection, the Contractor was reminded to implement proper noise mitigation measures (e.g. noise barrier) when operating the cutters at works area along Ma Tau Wai Road. When a cutter was in operation at works area along Ma Tau Wai Road, noise barriers were provided to mitigate potential noise nuisance as observed during the site inspection on 11 March 2013.

- Several chemical containers were stored without drip tray or earth bund next to the chemical enhanced sedimentation tank on the concreted ground at TKW works area. The Contractor was reminded to provide drip trays or earth bunds to prevent chemicals spreading over the ground if any spillage occurs. A drip tray had been provided to the chemical storage at TKW works area as observed during the site inspection on 11 March 2013.

- Stagnant water was observed inside the drip tray at TKW works area. The Contractor was reminded to remove the stagnant water properly and cover the drip tray with an impervious sheet to prevent accumulation of water. Stagnant water had been removed as observed during the site inspection on 18 March 2013.

11 March 2013

- The Contractor was reminded to provide sufficient water spraying in order to suppress the generation of fugitive dust. Sufficient water spraying had been provided as observed during the site inspection on 18 March 2013.

- Several chemical containers stored at MTW/TKW garden were not stored on the drip trays. The Contractor was reminded to store the chemicals properly. The chemical containers had been stored on the drip trays as observed during the site inspection on 18 March 2013.

- Hoardings material was placed inside the tree protection zone of retained tree 0074 and 0081 at TKW/MTW Garden. The Contractor was reminded to remove them and to remind workers to keep clear within the tree protection zone. Hoardings material placed inside the tree

protection zone of retained tree 0074 and 0081 at TKW/MTW Garden had been removed as observed during the site inspection on 18 March 2013.

18 March 2013

- No observation was reported during the site inspection.

25 March 2013

- The Contractor was reminded to provide sufficient water spraying. Sufficient water spraying had been provided as observed during the site inspection on 2 April 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.

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 L***.

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 L.***

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, diversion of CLP cables, pre-drilling, and installation of guide walls.
Work in To Kwa Wan (TKW)
• Olympic Playground Area – Diversion of existing water pipe and cable ducts laying; and • Olympic Avenue – Construction of trial pits for UU identification, pre-drilling and erection of hoarding; and • Olympic Garden - construction of trial pits for existing UU diversion, and pre-drilling; and • Tam Kung Road – Pre-drilling; and • Nam Kok Road – Construction of trial trench for UU diversion and cable ducts laying; and • TKW Station – Construction of water main diversion, Archaeological survey, construction of Engineer Office, construction of bored pile, delivery of sheet pile material, sheet pile connection and socket steel H-piling.

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

8.2 MONITORING SCHEDULE FOR THE NEXT MONTH

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

8.3 CONSTRUCTION PROGRAMME FOR THE NEXT MONTH

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

9 CONCLUSIONS

This 7th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 March 2013 to 31 March 2013 in accordance with the EM&A Manual and the requirement under EP-438/2012/B.

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 the 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting period.

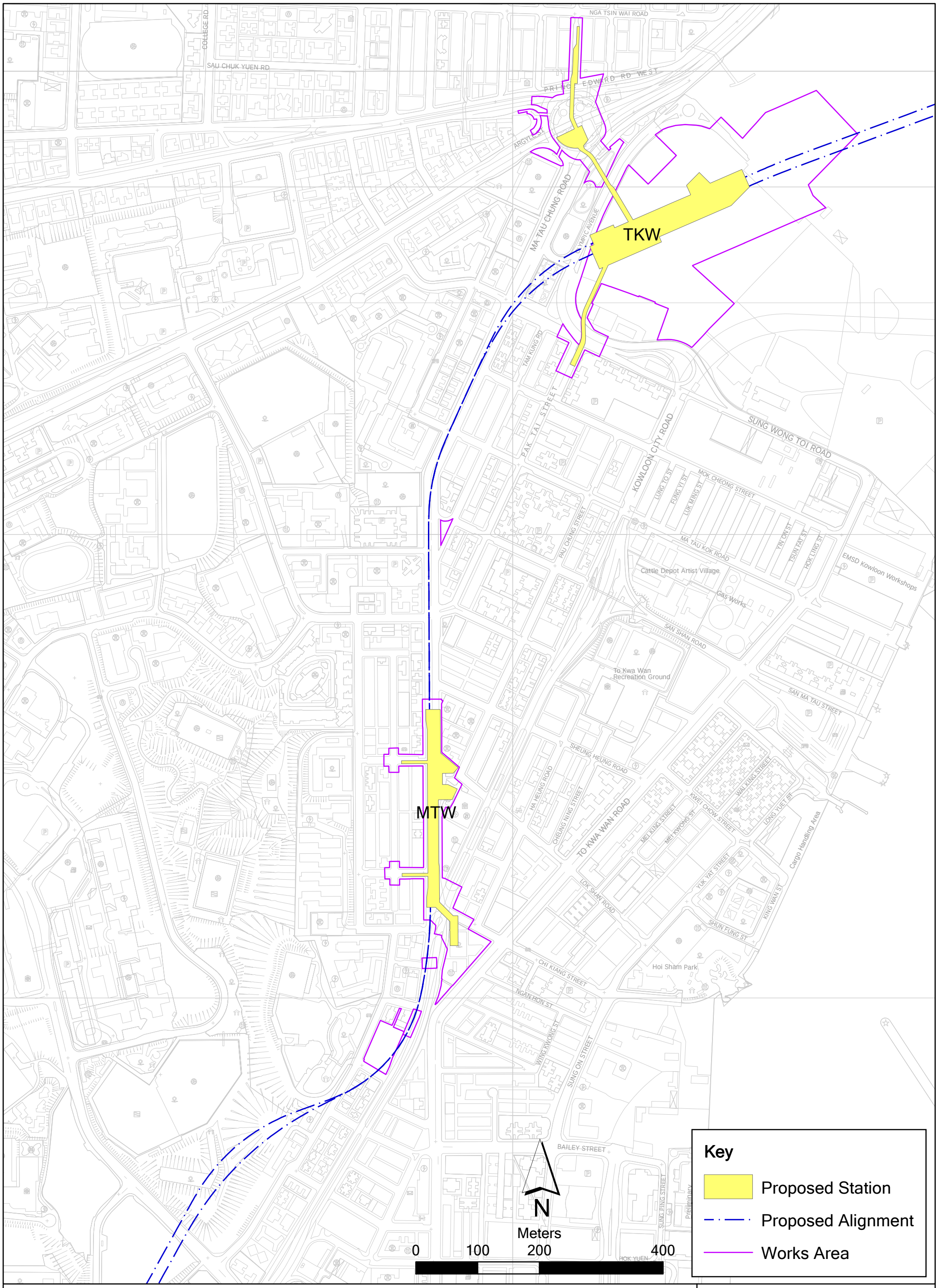
No non-compliance event was recorded during the reporting period.

No complaint and summons/prosecution was received during the reporting period.

The Contractor's ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

Annex A

The Alignment and Works Area for Works Contract



Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

Name: 0171181_Works_Area_Annex.mxd
Date: 10-Oct-12

Environmental Resources Management

ERM

Annex B

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

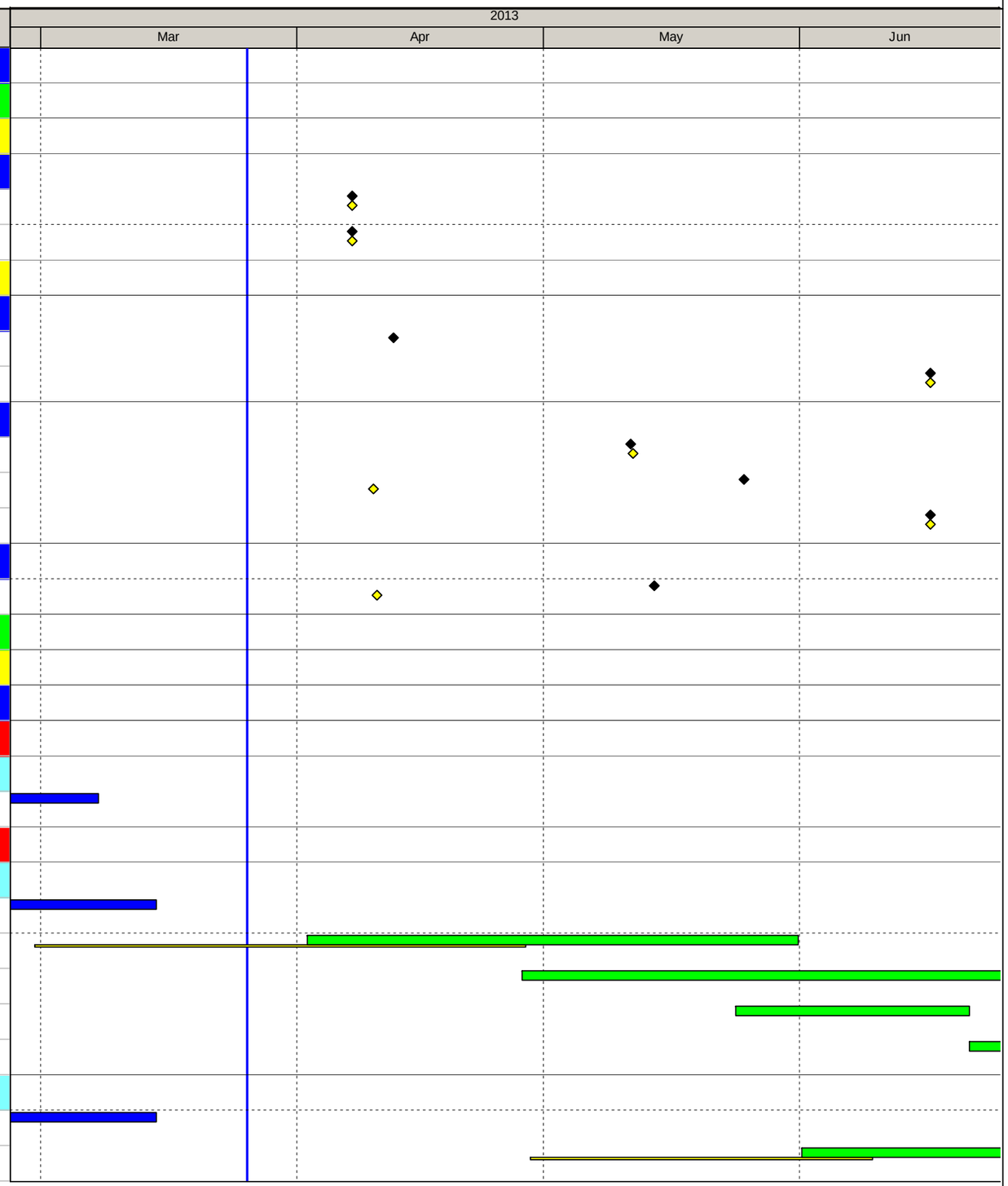
(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
1109 - PRELIMINARY Unofficial Working Programme MAR13				
PROJECT DATES				
Works Areas				
Return Dates				
01109.RDA2e	Vacation date for Works Area 1109.A2e (Wk14/13;7Apr13)	0%		07-Apr-13*
01109.RDW3d	Vacation date for Works Area 1109.W3d (Wk14/137; 7Apl13)	0%		07-Apr-13*
Specified Milestone Dates				
CC-A Milestones				
01109.MSA3	A3 -Engineer's office including provision of office furniture and equipment complete (30Mar13).	0%		12-Apr-13
01109.MSAii	A4(ii)-Engr's confirmation of satisfac. implementation of safety&environ. Reqmts (Wk24/13;16Jun13)	0%		16-Jun-13*
CC-B Milestones				
01109.MSB03i	B3(i) - Archaeological survey-cum-excavation complete.(Wk24/13;16Jun13)	0%		11-May-13
01109.MSB02ii	B2(ii) - 10% by plan length of temporary bored pile wall at TBM launch shaft complete(Wk07/13;17Feb13)	0%		25-May-13
01109.MSB03ii	B3(ii)Contru dwg schs for blkwork, glazed walls, metal wall panels,louvers,ceilings /stoneworkapproved(Wk24/13;16Jun13)	0%		16-Jun-13*
CC-D Milestones				
01109.MSD02	D2(i)-Submission of des.&manufact.data comp; obtain Engr notice of no objection" for mould (Wk15/13;14Apr13)	0%		14-May-13
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS				
Design and Approvals				
Temporary Traffic Arrangements				
TKW Station, Entrances and Adits				
TTMS Design & Approval				
01109.PDA1150	TKW - Stage 1 Phase 2 - TTM Design & Approval by SLG	100%	26-Jan-13 A	08-Mar-13 A
SUW Station, Entrances and Adits				
TTMS Design & Approval				
01109.PDA1310	SUW - Nam Kok Rd - TTM Stage 1 - Design & Approval by SLG	100%	07-Jan-13 A	15-Mar-13 A
01109.PDA1370	SUW - Olympic Avenue - TTM Stage 2 - Design & Approval by SLG	0%	02-Apr-13	31-May-13
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	0%	28-Apr-13	26-Jun-13
01109.PDA1350	SUW - Nam Kok Rd - TTM Stage 2 - Design & Approval by SLG	0%	24-May-13	21-Jun-13
01109.PDA1360	SUW - Nam Kok Rd - TTM Stage 3 - Design & Approval by SLG	0%	21-Jun-13	21-Jul-13
TTMS Gazette Notice				
01109.PDA1430	SUW - Nam Kok Rd - TTM Stage 1 - Gazette Notice	100%	07-Jan-13 A	15-Mar-13 A
01109.PDA1490	SUW - Olympic Avenue - TTM Stage 2 - Gazette Notice	0%	01-Jun-13	12-Jul-13

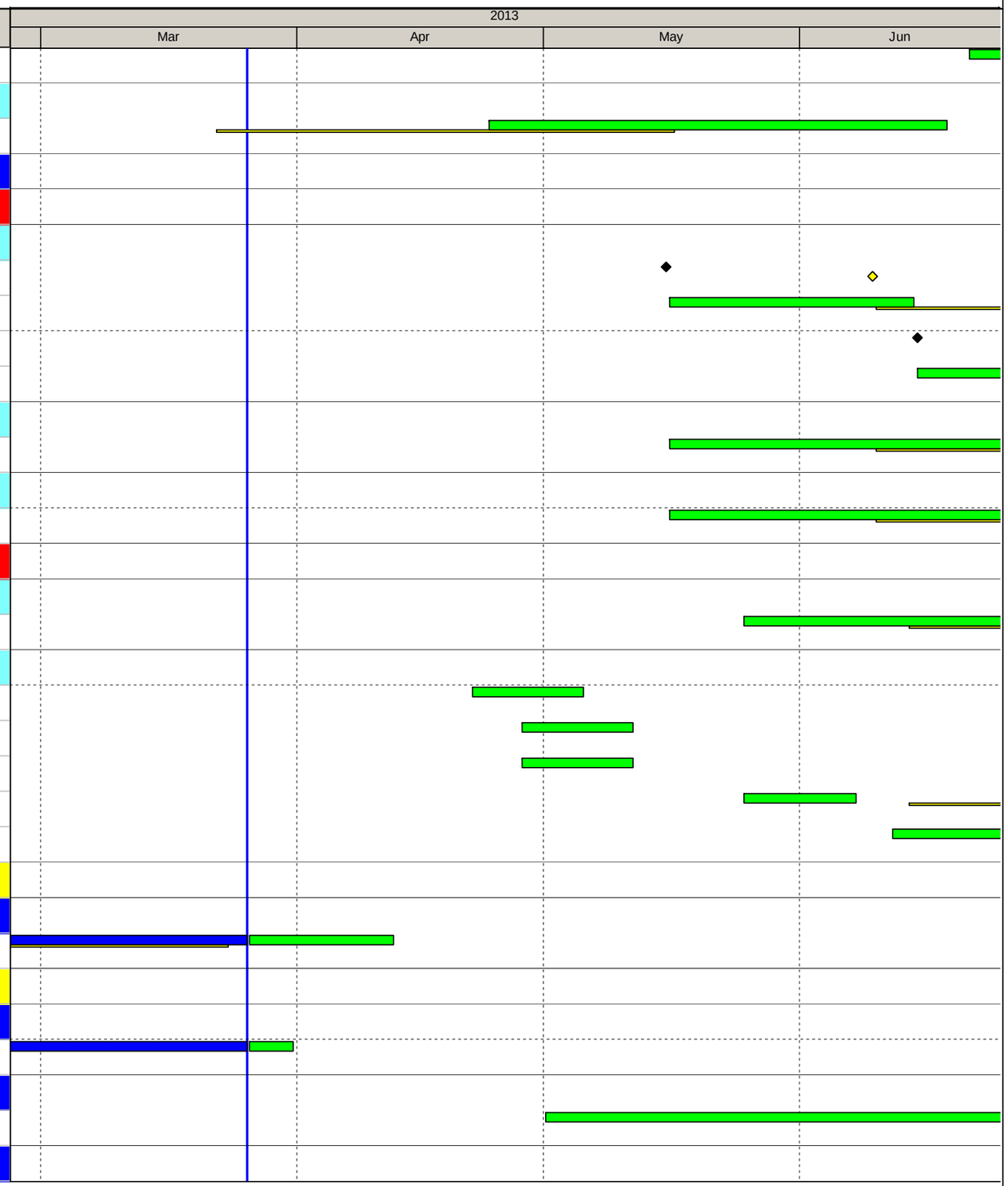


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDA1440	SUW - Nam Kok Rd - TTM Stage 2 - Gazette Notice	0%	21-Jun-13	21-Jul-13
TTMS Signal Modification by EMSD				
01109.PDA1530	SUW - Olympic Avenue - TTM Stage 2 - EMSD Signal Preparation	0%	24-Apr-13	18-Jun-13
Design				
Permanent Works Design & Approval				
Tunnel Lining within stub tunnels near HOM				
01109.PDA1870	Draft Detailled Design submission for Engineer's Approval.	0%		15-May-13
01109.PDA1880	Engineer Approves Draft Detailled Design	0%	16-May-13	14-Jun-13
01109.PDA1890	Draft Detailled design to Government Dept/ICC	0%	15-Jun-13	
01109.PDA1900	Government/ICC Approve Design	0%	15-Jun-13	14-Jul-13
ABWF Works (complete design)				
01109.PDA1920	Complete remaining design of ABWF Works & ICE approval	0%	16-May-13	14-Jul-13
TKA Adit				
01109.PDA1980	Complete remaining design of TKA & ICE Approval	0%	16-May-13	14-Jul-13
Temporary Works Design				
TBM Tunnel - Design & Submit				
01109.PDA2540	Temporary drainage design to Tunnels (P30.7)	0%	25-May-13	23-Jul-13
TBM Tunnel - Review & Approve				
01109.PDA2620	Nr Pier 15 - Ground treatment to Chatham Mansion & On Hang building	0%	22-Apr-13	05-May-13
01109.PDA2610	Pier 15 - Pier 15 at EKW underpinning	0%	28-Apr-13	11-May-13
01109.PDA2640	Sump Pit between TKW and HOM - Temp Ground Support design	0%	28-Apr-13	11-May-13
01109.PDA2600	Pier 15 - Underpining & ELS Design	0%	25-May-13	07-Jun-13
01109.PDA2590	Pier 15 - Ground Treatment design	0%	12-Jun-13	25-Jun-13
General & Site Wide				
Site Establishment Activities				
01109.PDA2890	Engineer's office complete & ready to move in	83%	15-Feb-13 A	12-Apr-13*
Management Systems				
Construction (incl Geotech) - Approval				
01109.PDA3050	Review & Approve existing geotechnical features	70%	31-Dec-12 A	31-Mar-13
Existing Buildings and Structures (EBS) - Submission				
01109.PDA3120	EBS Condition Survey - Investigation to confirm no exist piles/obstructions to proposed TBM tunnels	0%	01-May-13*	25-Jul-13
Existing Buildings and Structures (EBS) - Approval				

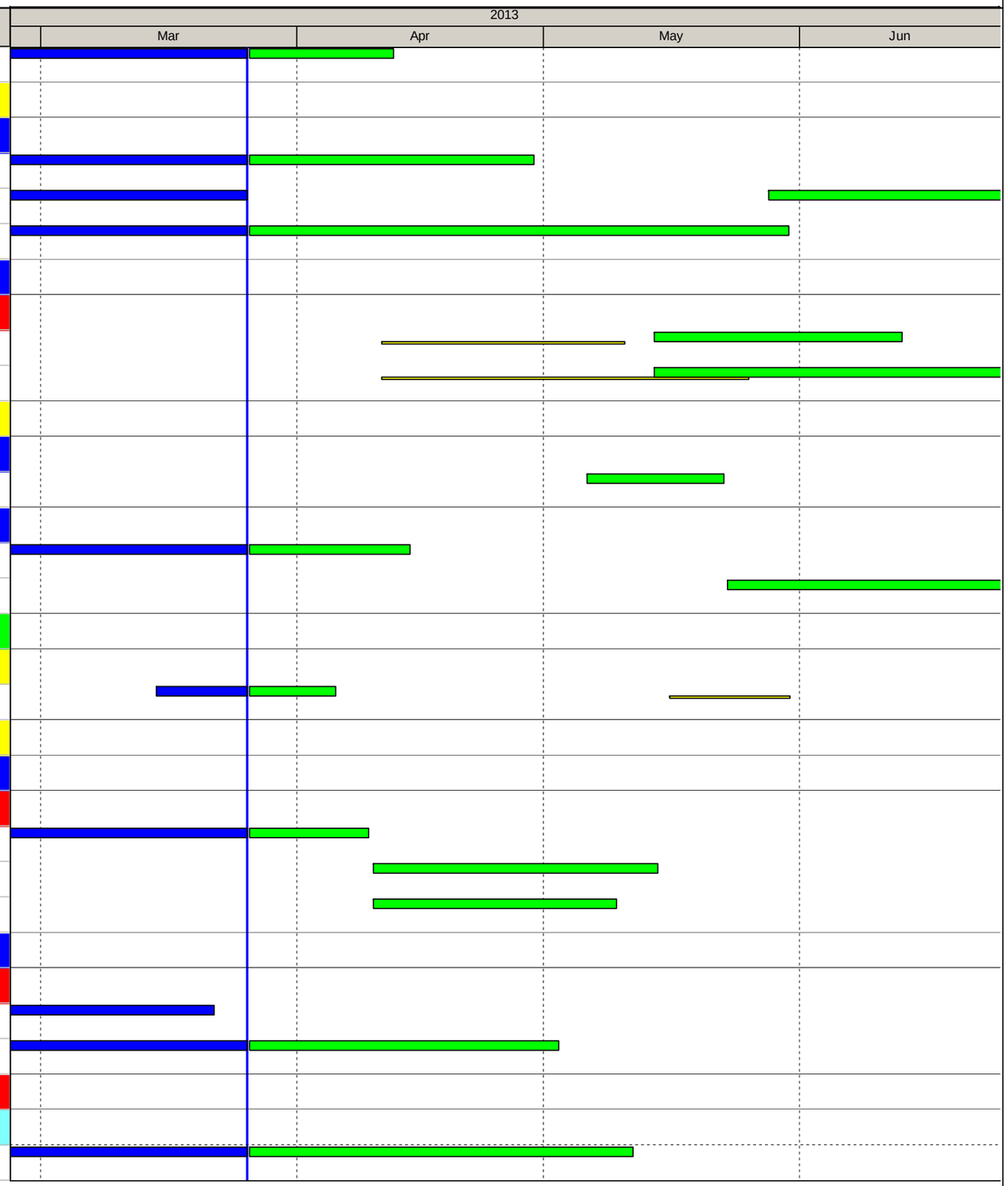


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDA4270	EBS Contingency Plan - Approve the Contingency plan for works in vicinity of EBS (P11.5.4)	70%	31-Dec-12 A	12-Apr-13
Procurement				
Initial Subcontracts				
01109.PDA3790	SUW - Procure and mobilize Grout Curtain plant & equipment	90%	17-Oct-12 A	29-Apr-13
01109.PDA35100	Procure and mobilize observation wells plant & equipment	90%	17-Oct-12 A	25-Jun-13
01109.PDA3870	Bid and award - waterproofing works	75%	20-Nov-12 A	30-May-13
Concrete Construction Materials				
Precast supplies				
01109.PDA3960	Bid and award - Precast concrete segment supply	0%	14-May-13	13-Jun-13
01109.PDA3970	Precast concrete segment shop drawing preparation & approval	0%	14-May-13	28-Jun-13
Method Statements				
SUW - Method statements Submission				
01109.PDA34900	SUW - Prepare and submit Observation Wells & Pumping Test method statement	0%	06-May-13	22-May-13
SUW - Method Statements Approval				
01109.PDA4060	SUW - Review & Approval of Grout Curtain method statement	75%	16-Jan-13 A	14-Apr-13
01109.PDA35000	Review & Approval of Observation Wells & Pumping Test method statement	0%	23-May-13	25-Jun-13
CC-B - SUW STATION, ENTRANCES AND ADITS				
Implementation of TTA at SUW				
01109.PDB1551	SUW - Nam Kok Rd - Implement TTM Stage 1 (Phase 1)	0%	15-Mar-13 A	05-Apr-13
SUW Station Construction Works				
General Activities				
Initial Survey Works				
01109.PDB1060	Excavation of Trial Pits for utility Services in SUW areas (excl Archaeological Svy area)	45%	14-Jan-13 A	09-Apr-13
01109.PDB1050	CCTV Record Survey of Public drains (excl Arch Svy area)	0%	10-Apr-13	14-May-13
01109.PDB1070	Excavation of Trial Pits for undergroud structures in SUW areas (excl Arch Svy area)	0%	10-Apr-13	09-May-13
Site Preparation				
Site Hoarding & Facilities Establishment Works				
01109.PDB1090	Construction of Site wheel wash facilities	100%	19-Dec-12 A	22-Mar-13 A
01109.PDB1110	Erection of site fencing	50%	18-Jan-13 A	02-May-13
Demolition and Site Clearance				
Tree Felling				
01109.PDB1250	SUW - Tree transplanting works (all areas)	40%	19-Jan-13 A	11-May-13

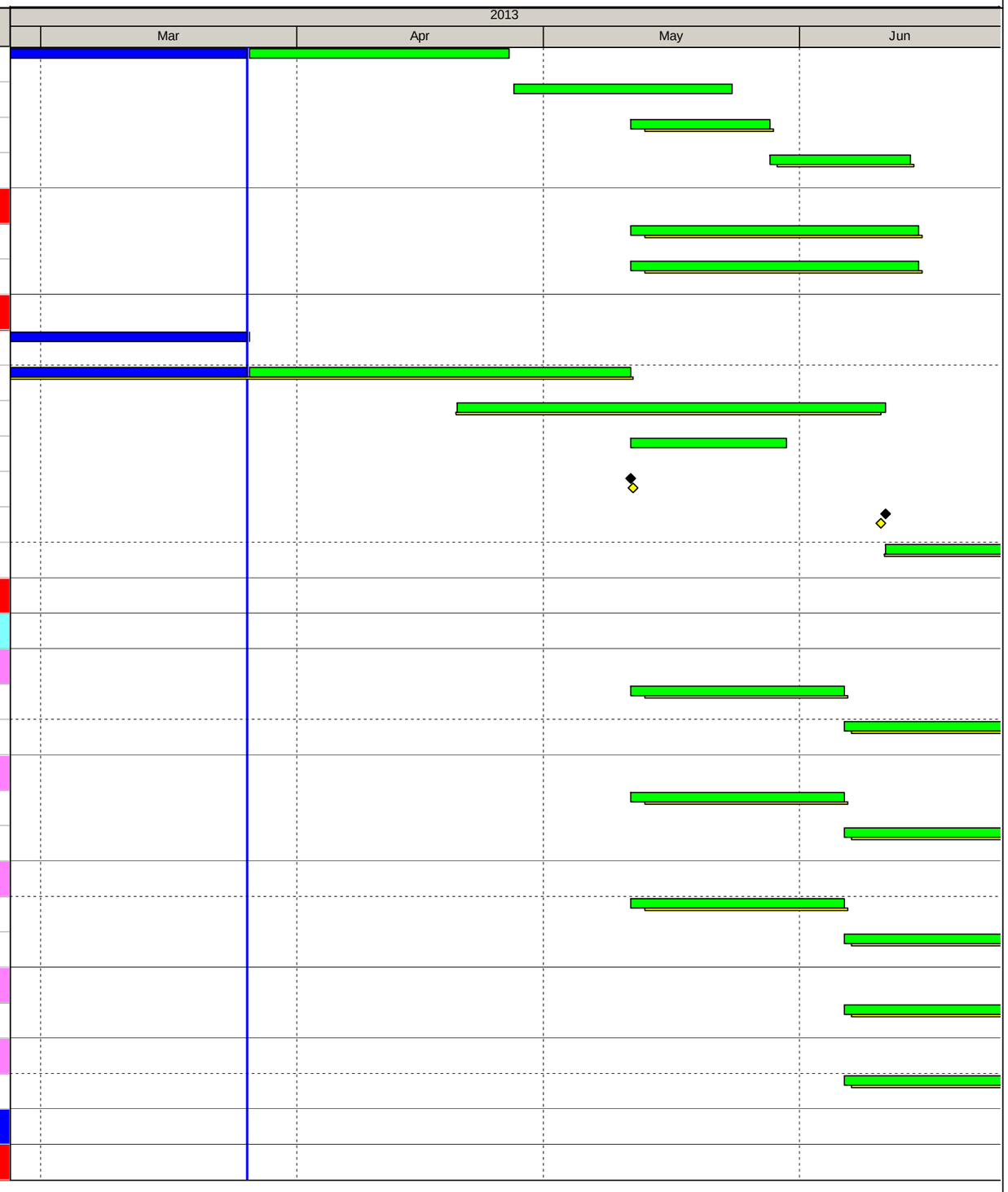


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB1240	SUW - Prepare trees for transplanting Stage 3	20%	21-Jan-13 A	26-Apr-13
01109.PDB1320	SUW - Tree felling works other areas	0%	27-Apr-13	23-May-13
01109.PDB1290	SUW - Tree felling works (Part 3- GL 12 to 19)	0%	11-May-13	28-May-13
01109.PDB1310	SUW - Tree felling works (Part 4- GL 19 to 24)	0%	28-May-13	14-Jun-13
Install Monitoring Instruments/Take Initial Readings				
01109.PDB14710	SUW - Install monitoring instruments/take initial readings; Part 3- GL 12 to 19	0%	11-May-13	15-Jun-13
01109.PDB14720	SUW - Install monitoring instruments/take initial readings; Part 4- GL 19 to 24	0%	11-May-13	15-Jun-13
Archaeological Survey				
01109.PDB14200	Archaeological Survey (Stage 1 Excavation)	100%	12-Nov-12 A	26-Mar-13
01109.PDB14220	Archaeological Survey-cum-Excavation (Stages 2 and 3 Excavation)	75%	13-Nov-12 A	11-May-13
01109.PDB1590	Prepare ASE Report	0%	20-Apr-13	11-Jun-13
01109.PDB14210	Additional Investigation (in "Green Areas")	0%	11-May-13*	30-May-13
01109.PDB14230	Archaeological Physical Survey Complete - Site Handover	0%		11-May-13
01109.PDB1600	Submit Draft ASE report to MTRC	0%		11-Jun-13
01109.PDB14240	MTRC Comment on Draft ASE report	0%	11-Jun-13	26-Jun-13
Utilities and Services Diversion				
Utility Diversion Works				
DSD Box Culvert Stormwater drain diversion				
01109.PDB1640	Stormwater drain diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	11-May-13	06-Jun-13
01109.PDB1650	Stormwater drain diversions (Part 2- GL 04 to 12)	0%	06-Jun-13	03-Jul-13
Fresh water main diversion				
01109.PDB1700	Fresh water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	11-May-13	06-Jun-13
01109.PDB1710	Fresh water mains diversions (Part 2- GL 04 to 12)	0%	06-Jun-13	03-Jul-13
Salt water main diversion				
01109.PDB1760	Salt water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	11-May-13	06-Jun-13
01109.PDB1770	Salt water mains diversions (Part 2- GL 04 to 12)	0%	06-Jun-13	03-Jul-13
Electric Cable diversion				
01109.PDB1820	Electric cable diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	06-Jun-13	03-Jul-13
Telecom cable diversions				
01109.PDB1880	Telecom cable diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	06-Jun-13	03-Jul-13
Station - Excavation and Foundation				
Pre-drilling Works				

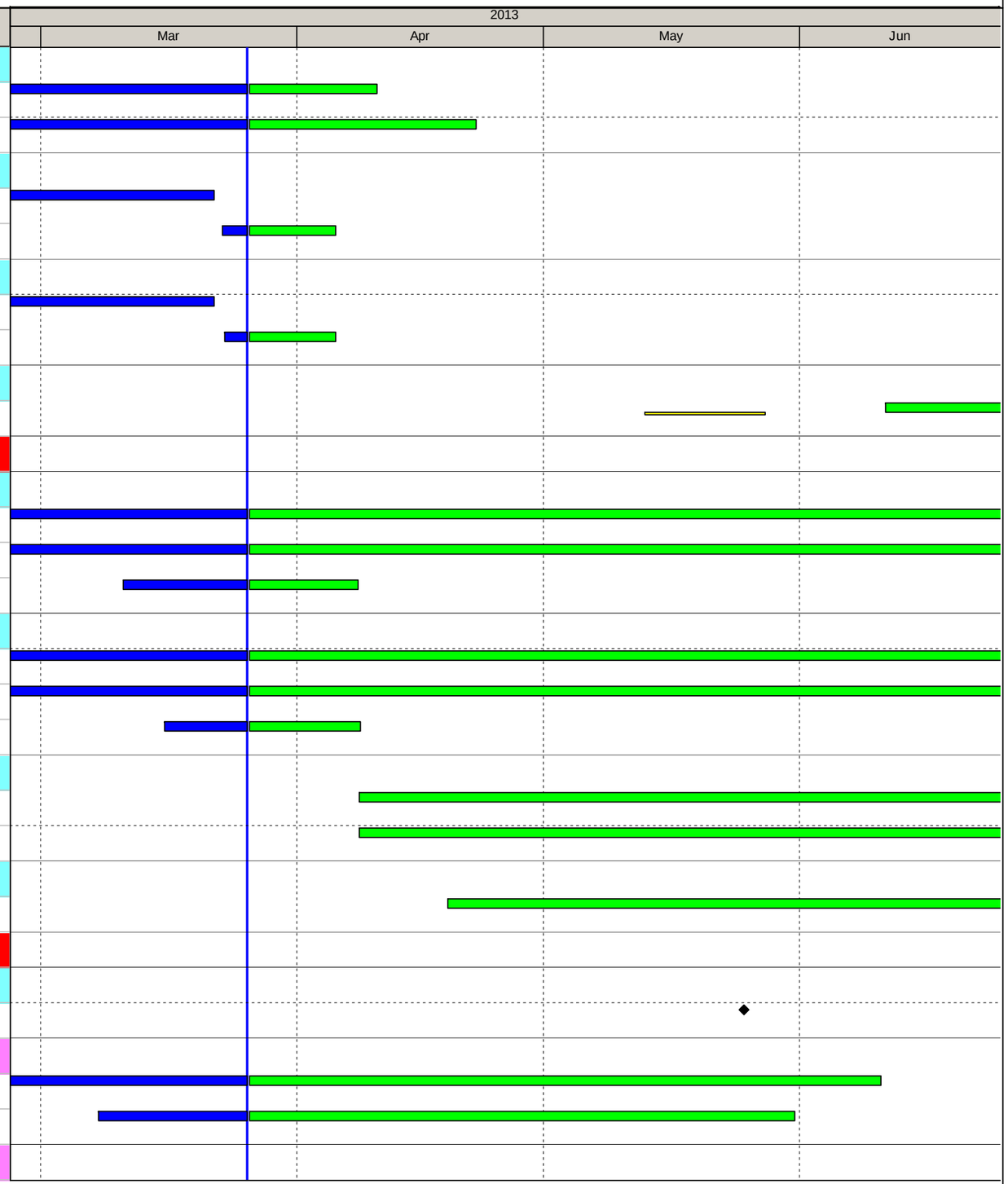


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
Part 1				
01109.PDB1960	Pre-drilling for station foundation piles (Part 1- GL 1 to 4)	90%	23-Nov-12 A	10-Apr-13
01109.PDB1970	SI Report & Confirmation of Founding Levels (Part 1 - Gl 1 to 4)	50%	02-Jan-13 A	22-Apr-13
Other Areas				
01109.PDB2080	Pre-drilling for station foundation piles beyond GL 24	100%	13-Feb-13 A	22-Mar-13 A
01109.PDB14370	SI Report & Confirmation of Founding Levels (Beyond GL24)	0%	23-Mar-13 A	05-Apr-13
Part 2B				
01109.PDB21550A	Pre-drilling for station foundation piles(Part 2B- GL 7.5 to 12)	100%	17-Dec-12 A	22-Mar-13 A
01109.PDB21560A	SI Report & Confirmation of Founding Levels (Part 2B - GL 7.5 to 12)	0%	23-Mar-13 A	05-Apr-13
Part 3				
01109.PDB2030	Pre-drilling for station foundation piles (Part 3- GL 12 to 19)	0%	11-Jun-13	26-Jun-13
Pre-bored H- Piling for Permanent Works				
Part 1 (GL 1 to 4)				
01109.PDB2190A	Rig 1 - H- Piling - 53 Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	25%	21-Jan-13 A	02-Aug-13
01109.PDB2230A	Rig 2 - H- Piling - 53 Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	25%	22-Jan-13 A	02-Aug-13
01109.PDB2370A20	Rig 5 - H- Piling - 6Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	80%	11-Mar-13 A	08-Apr-13
Part 2A (GL 4 - 7.5)				
01109.PDB2260A	Rig 3 - H-Piling - 60 Nr - 2.5d/pile (BR approved drawings 06 Feb 13)	30%	10-Jan-13 A	02-Aug-13
01109.PDB2100A	Rig 4 - H-Piling - 60 Nr - 2.5d/pile (BR approved drawings 06 Feb 13)	20%	30-Jan-13 A	02-Aug-13
01109.PDB2370A30	Rig 6 - H- Piling - 10Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	0%	16-Mar-13 A	08-Apr-13
Part 2B (GL 7.5 - 12)				
01109.PDB2370A	Rig 5 - H- Piling - 48Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	0%	08-Apr-13	19-Aug-13
01109.PDB2370A10	Rig 6 - H- Piling - 58Nr - 2.5d/pile (BD approved drawings 06 Feb 13)	0%	08-Apr-13	11-Sep-13
Other Areas (GL 23 - 24+)				
01109.PDB2350	Rig 7 - H- Piling - 37Nr - 2.5d/pile	0%	19-Apr-13	09-Aug-13
TBM Launch Shaft Works				
Bored Piling for TBM Shaft				
01109.PDB19000	10% of temporary bored pile wall complete (13nr)	0%		25-May-13*
Bored Pile P1 - P23				
01109.PDB18970	TBM Launch shaft - Bored Piling P1-P23 (13nr) - Rig 6A	0%	22-Feb-13 A	10-Jun-13
01109.PDB18870	TBM Launch shaft - Bored Piling P1-P23 (10nr) - Rig 7A	0%	08-Mar-13 A	31-May-13
Bored Pile P24 - P49				

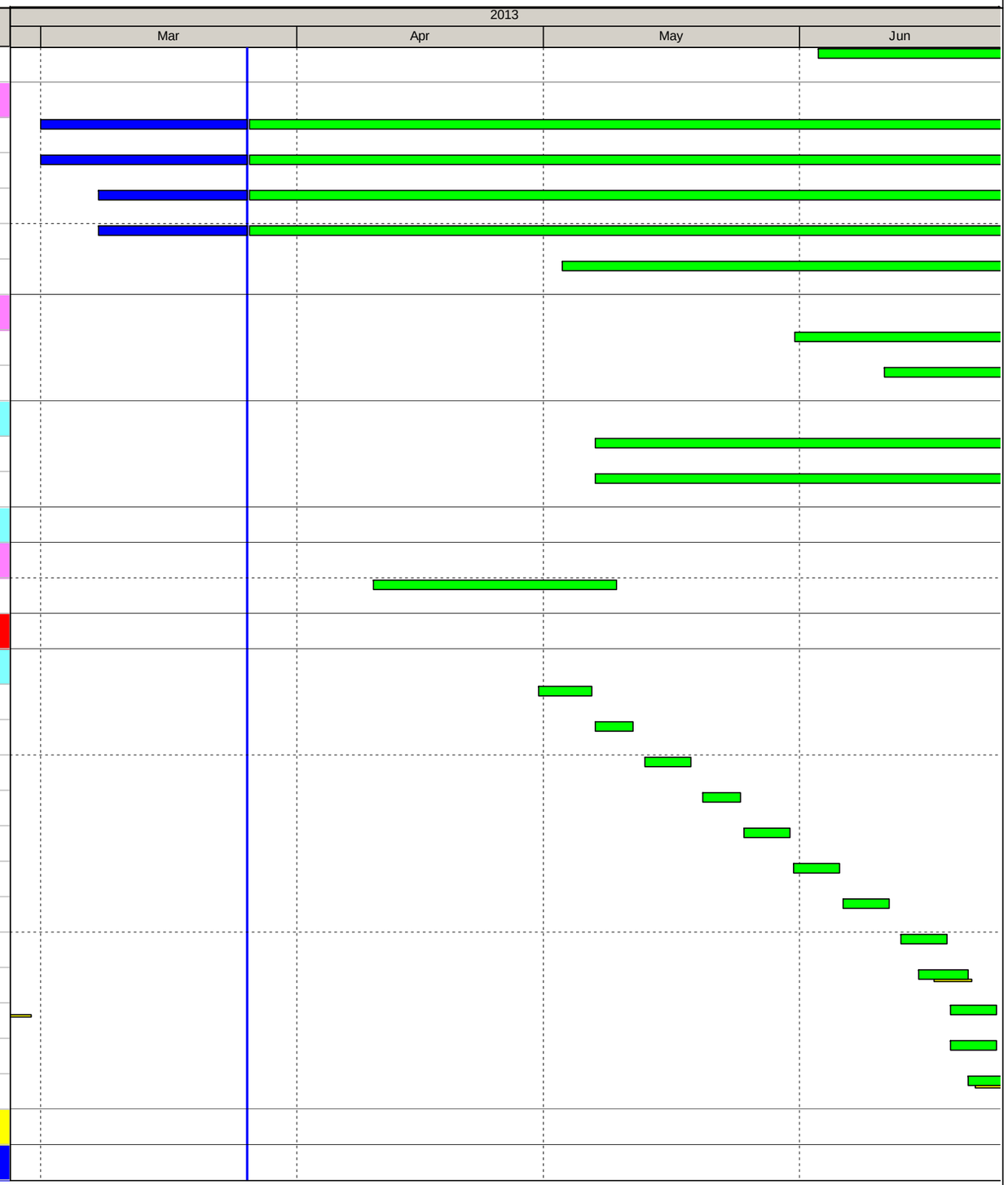


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB18980	TBM Launch shaft - Bored Piling P24-49 (26nr) - Rig 8A	0%	03-Jun-13	05-Oct-13
Bored Pile P50 - P100				
01109.PDB18930	TBM Launch shaft - Bored Piling P50-P100 (11nr) - Rig 4A	0%	01-Mar-13 A	07-Oct-13
01109.PDB18940	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 5A	0%	01-Mar-13 A	02-Oct-13
01109.PDB18890	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 1A	0%	08-Mar-13 A	07-Oct-13
01109.PDB18910	TBM Launch shaft - Bored PilingP50-P100 (10nr) - Rig 2A	0%	08-Mar-13 A	07-Oct-13
01109.PDB18920	TBM Launch shaft - Bored Piling P50-P100 (10nr) - Rig 3A	0%	03-May-13	05-Oct-13
Bored Pile P101 - 125				
01109.PDB18950	TBM Launch shaft - Bored Piling P101-P125 (13nr) - Rig 7A	0%	31-May-13	03-Oct-13
01109.PDB18880	TBM Launch shaft - Bored Piling P101-P125 (12nr) - Rig 6A	0%	11-Jun-13	07-Oct-13
Pipe piling for TBM Shaft Area				
01109.PDB19020	TBM Launch shaft - Gang A - Pipe Piles Zone B1 - P1 to 24 (24nr) 2d/pile	0%	07-May-13*	04-Jul-13
01109.PDB19050	TBM Launch shaft - Gang B - Pipe Piles Zone C - P71 to 93 (23nr) 2d/pile	0%	07-May-13*	04-Jul-13
Excavation TBM Shaft Area				
Utility Support /Diversions				
01109.PDB3000	TBM Launch shaft - Excavate & support rising mains in NW corner	0%	10-Apr-13	09-May-13
Earthworks				
Curtain Grout Works				
01109.PDB3210	Grout Curtain; Part 2- GL 4 to 5	0%	30-Apr-13	06-May-13
01109.PDB3250	Grout Curtain; Part 1- GL 1 to GL 2	0%	07-May-13	11-May-13
01109.PDB3290	Grout Curtain; Part 2- GL 5 to 6	0%	13-May-13	18-May-13
01109.PDB3310	Grout Curtain; Part 1- GL 2 to GL 3	0%	20-May-13	24-May-13
01109.PDB3330	Grout Curtain; Part 2- GL 6 to 7	0%	25-May-13	30-May-13
01109.PDB3350	Grout Curtain; Part 1- GL 3 to GL 4	0%	31-May-13	05-Jun-13
01109.PDB3370	Grout Curtain; Part 2- GL 7 to 8	0%	06-Jun-13	11-Jun-13
01109.PDB3400	Grout Curtain; Part 2- GL 8 to 9	0%	13-Jun-13	18-Jun-13
01109.PDB3280	Grout Curtain; Part 4- GL 19 to 20	0%	15-Jun-13	21-Jun-13
01109.PDB3430	Grout Curtain; Part 2- GL 9 to 10	0%	19-Jun-13	24-Jun-13
01109.PDB3240	Grout Curtain; Part 3- GL 10 to 11	0%	19-Jun-13	24-Jun-13
01109.PDB3320	Grout Curtain; Part 4- GL 20 to 21	0%	21-Jun-13	27-Jun-13
Entrance C and Associated Adits				
Entrance C - Site Preparation				

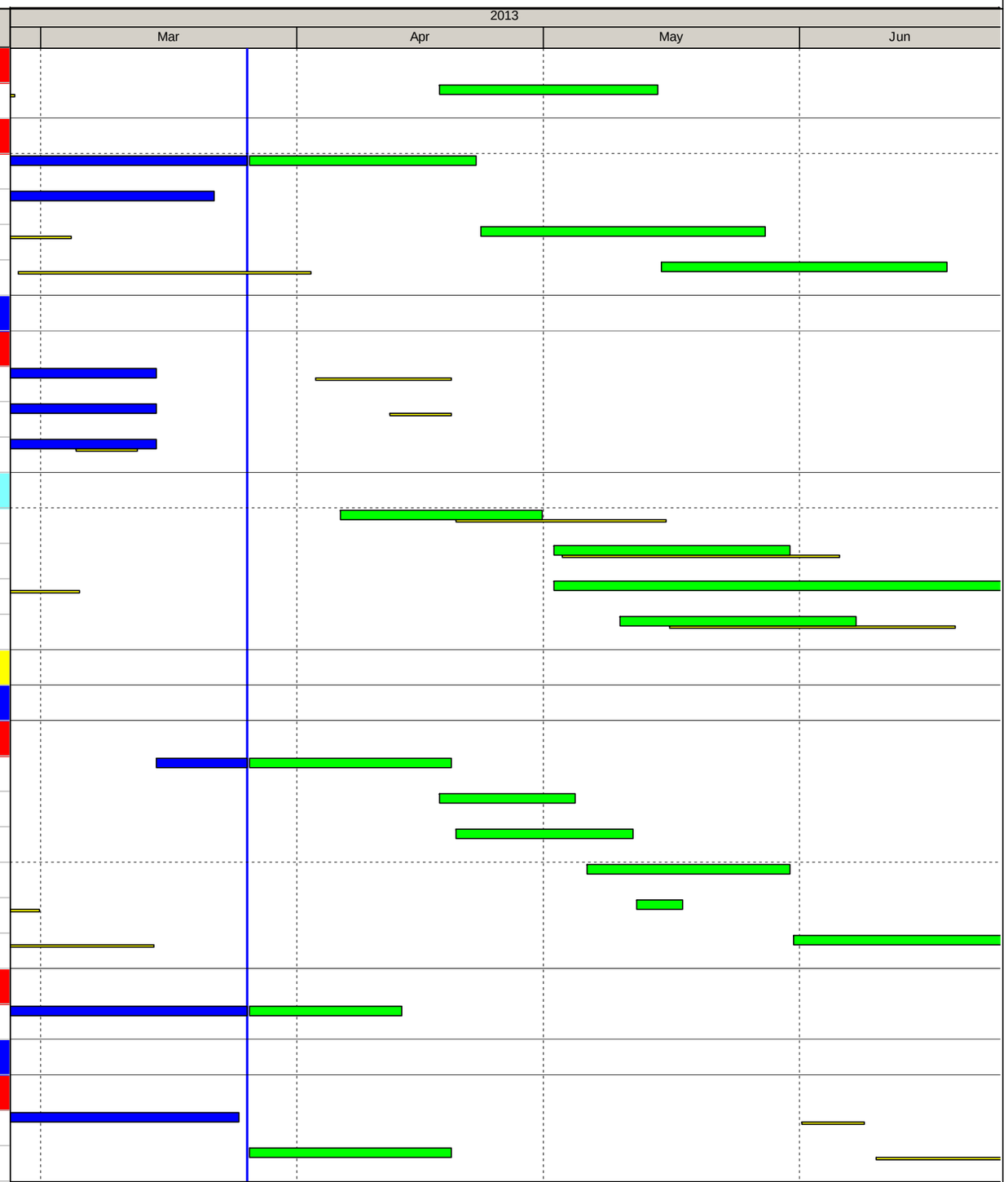


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
Entrance C - Record Survey and Site set-up Works				
01109.PDB10270	CCTV Record Survey of Public drains	0%	18-Apr-13*	14-May-13
Entrance C - Utilities and Services Diversion				
01109.PDB10290	Excavation of Trial Pits for utility Services and underground structures in Ent C & Adits areas	20%	11-Feb-13 A	22-Apr-13
01109.PDB10320	Initial survey of Structures to be retained in Ent C & Adits areas	100%	11-Feb-13 A	22-Mar-13 A
01109.PDB10330	Initial survey of dump concentrations in Ent C & Adits related areas	0%	23-Apr-13	27-May-13
01109.PDB10310	Visual joint survey of Highways structures in Ent C & Adits areas	0%	15-May-13	18-Jun-13
Entrance C - Part 1- GL 7 to GL 14				
Entrance C- Part 1- ELS Works				
01109.PDB10350	Utility relocation / diversion in Ent C; GL 7 to 14	100%	12-Feb-13 A	15-Mar-13 A
01109.PDB10360	Tree Felling in Ent C & Adits Area; GL 7 to 14	100%	12-Feb-13 A	15-Mar-13 A
01109.PDB10340	Site Clearance Ent C; GL 7 to 14	100%	19-Feb-13 A	15-Mar-13 A
Entrance C - Part 1- Piling & Toe Grouting Works				
01109.PDB10380	Sheet Piling Works; GL C7 to C14	0%	06-Apr-13	30-Apr-13
01109.PDB10390	Sheet Piling & Toe grouting Works; GL C7 to C14; East Side	0%	02-May-13	30-May-13
01109.PDB14400	Pre Bored H Pile works (24nr) 1PR	0%	02-May-13	28-Jun-13
01109.PDB10400	Sheet Piling & Toe grouting Works; GL C14 to C7; West Side	0%	10-May-13	07-Jun-13
Entrance B and Associated Adits				
Entrance B - Site Preparation				
Entrance B - Record Survey and Site set-up Works				
01109.PDB2040	Pre-drilling for Adit B works (GL11 to 20)	0%	15-Mar-13 A	19-Apr-13
01109.PDB11650	CCTV Record Survey of Public drains	0%	18-Apr-13*	04-May-13
01109.PDB2050	Pre-drilling for Adit B works (GL20 to 31)	0%	20-Apr-13	11-May-13
01109.PDB11660	Excavation of Trial Pits for utility Services in Adit B areas	0%	06-May-13	30-May-13
01109.PDB2070	SI Report & Confirmation of Founding Levels	0%	12-May-13	17-May-13
01109.PDB11670	Excavation of Trial Pits for undergroud structures in Adit B areas	0%	31-May-13	25-Jun-13
Entrance B - Utilities and Services Diversion				
01109.PDB11710	Traffic Diversion for site clearance, utility relocation/diversion in Adit B Area	75%	21-Jan-13 A	13-Apr-13
Entrance B - Olympic Avenue and SUW playground Works				
Stage 1				
01109.PDB11760	Implement the TTMS to occupy two Southbound lanes of Olympic Avenue	100%	18-Feb-13 A	25-Mar-13 A
01109.PDB11770	Divert / protect Temporary utilities	0%	26-Mar-13 A	19-Apr-13



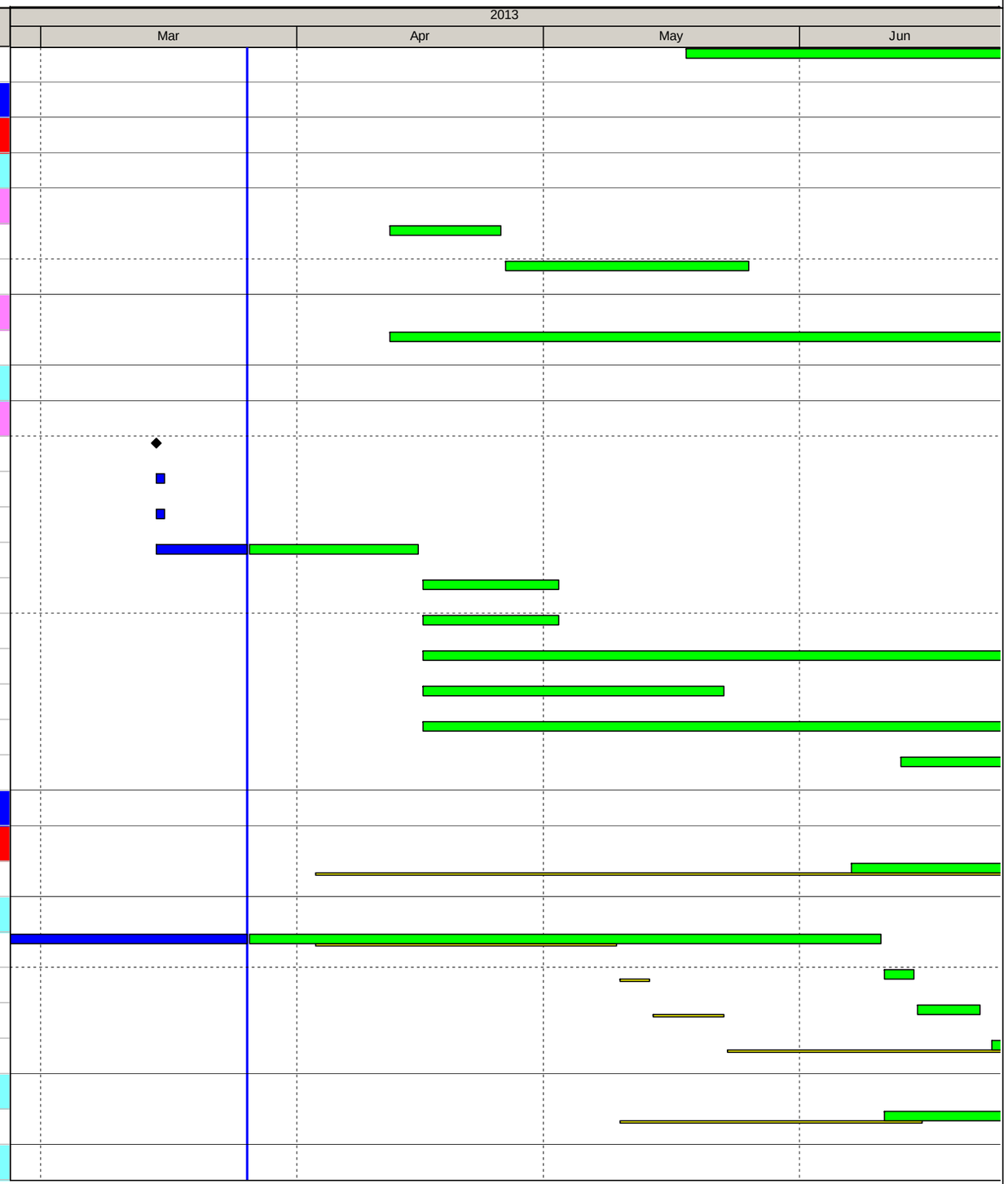
MP Baseline
Actual Work
Remaining Work
MP Milestone
Milestone

Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB11780	Pre-Bored H-Piles foundation works (22nr 1PR) (4d/pile)	0%	18-May-13	07-Sep-13
Enrtance B - Nam Kok Road Works - (Detailed Programme)				
Entrance B - Nam Kok Road Works (Portion 3)				
Nam Kok Road - Site Preparation				
Existing Building Survey (EBS)				
01109.PDC28690A	EBS Condition Survey - Install protection measures	0%	12-Apr-13	25-Apr-13
01109.PDC28700A	EBS Condition Survey - Establish baseline readings	0%	26-Apr-13	25-May-13
Instrumentation & Monitoring				
01109.PDB19130A	Installation and Monitoring of Instrumentation	0%	12-Apr-13	15-Jan-15
Nam Kok Road - TTMS - Stage 1 and 2				
TTMS - Stage 1 (Phase 1)				
01109.PDB12350A	Implement the Stage 1 (Phase 1) TTM Scheme on drawing SCLSCG/1109/SHJV/NKR/173-02B	100%	15-Mar-13 A	
01109.PDB12570A	Relocate car parking spaces (29 numbers in total)	100%	15-Mar-13 A	16-Mar-13 A
01109.PDB14640A	Occupy section of the eastern part of the Nam Kok Road	100%	15-Mar-13 A	16-Mar-13 A
01109.PDB14670A	Site Investigation and Trial Pits to confirm utility location	0%	15-Mar-13 A	15-Apr-13
01109.PDB18960A	Utility diversion & protection measures (Telecom)	0%	16-Apr-13	02-May-13
01109.PDB18970A	Utility diversion & protection measures (Drainage)	0%	16-Apr-13	02-May-13
01109.PDB18980A	Utility diversion & protection measures (Watermain)	0%	16-Apr-13	27-Jun-13
01109.PDB14680A	Utility diversion & protection measures (Towngas)	0%	16-Apr-13	22-May-13
01109.PDB18840A	Utility diversion & protection measures (CLP 132kV cables)	0%	16-Apr-13	07-Aug-13
01109.PDB14650A	Install 410mm dia pipe pile wall. 90nr (assume 3 piles/2 days). 1PR	0%	13-Jun-13	22-Aug-13
Entrance B - Kowloon City Interchange				
Entrance B - Underpinning of KNEC Piers				
01109.PDB12620	Underpining of Piers	0%	07-Jun-13	08-Oct-13
Pier P46				
01109.PDB12630	Specific geotechnical monitoring equipment to be installed & baseline readings	15%	22-Feb-13 A	10-Jun-13
01109.PDB12640	General Clearance	0%	11-Jun-13	14-Jun-13
01109.PDB12650	Site investigation Trial Trench & predrilling	0%	15-Jun-13	22-Jun-13
01109.PDB12660	Pre-bored socket H- Piles 609 Dia;8Nos 40m depth;1 PR of low headroom	0%	24-Jun-13	01-Aug-13
Pier P74				
01109.PDB12790	Specific geotechnical monitoring equipment to be installed & baseline readings	0%	11-Jun-13	19-Jul-13
Pier P75				

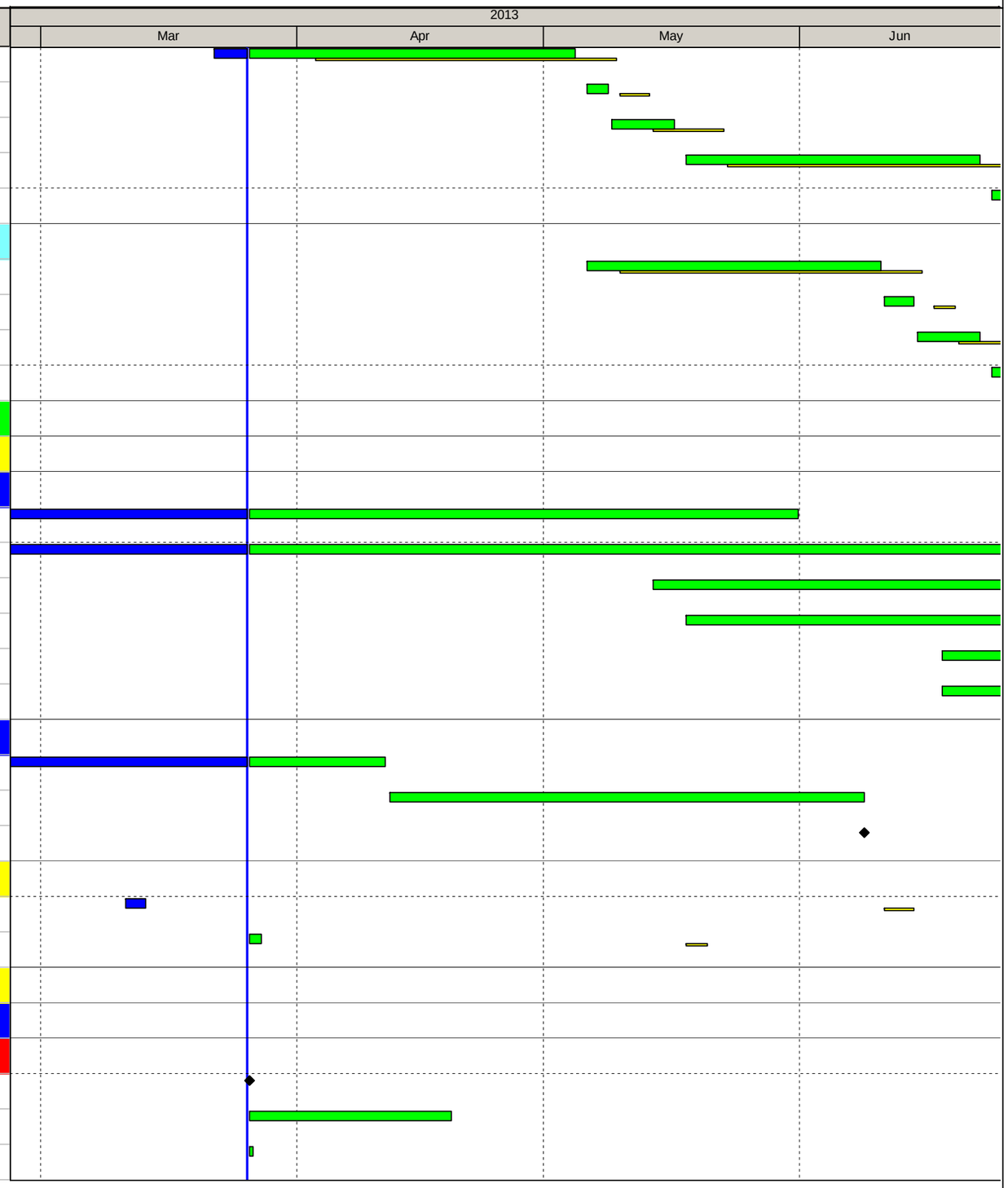


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB12950	Specific geotechnical monitoring equipment to be installed & baseline readings	0%	22-Mar-13 A	04-May-13
01109.PDB12960	General Clearance	0%	06-May-13	08-May-13
01109.PDB12970	Site investigation Trial Trench & predrilling	0%	09-May-13	16-May-13
01109.PDB12980	Pre-bored socket H- Piles 609 Dia;8Nos 40m depth;1 PR of low headroom	0%	18-May-13	22-Jun-13
01109.PDB12990	Install sheet pile cofferdam wall	0%	24-Jun-13	28-Jun-13
Pier P76				
01109.PDB13110	Specific geotechnical monitoring equipment to be installed & baseline readings	0%	06-May-13	10-Jun-13
01109.PDB13120	General Clearance	0%	11-Jun-13	14-Jun-13
01109.PDB13130	Site investigation Trial Trench & predrilling	0%	15-Jun-13	22-Jun-13
01109.PDB13140	Pre-bored socket H- Piles 609 Dia;8Nos 40m depth;1 PR of low headroom	0%	24-Jun-13	01-Aug-13
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	35%	29-Jan-13 A	31-May-13
01109.PDC21630A	Install Watermain at Zone 4	8%	29-Jan-13 A	28-Aug-13
01109.PDC21640A	Carry out Swabbing	0%	14-May-13	05-Sep-13
01109.PDC21650A	Carry out Pressure Test	0%	18-May-13	13-Sep-13
01109.PDC21610A	Install Watermain at Zone 2	0%	18-Jun-13	03-Sep-13
01109.PDC21620A	Install Watermain at Zone 3	0%	18-Jun-13	28-Aug-13
EI 14 - Sheung Heung Road Amenity Facility				
01109.PDC21520A	Construct planter, shell chairs, signs and drainage network	80%	26-Jan-13 A	11-Apr-13
01109.PDC21530A	Install lighting and irrigation system	0%	12-Apr-13	08-Jun-13
01109.PDC21540A	Handover to LCSD	0%		08-Jun-13
Implementation of TTA at TKW				
01109.PDC1701	TKW - Implement TTM Stage 1 - Phase 2 (new design)	100%	11-Mar-13 A	13-Mar-13 A
01109.PDC1690	TKW - Implement TTM Stage 1 - E2/E4 1st Shuffle	0%	26-Mar-13	27-Mar-13
TKW Station				
Existing Utility Diversion Works				
Drainage and Sewerage				
01109.PDC1530	TKW-SD510 - 975dia SD - P91 - Support & Monitor during Construction	0%	26-Mar-13	
01109.PDC1490	TKW-FD401/401P - P6 to P7 - Divert 600dia sewer	0%	26-Mar-13	19-Apr-13
01109.PDC1560	TKW-FD501/501P - P9 - Divert 150 & 225dia sewer	0%	26-Mar-13	26-Mar-13

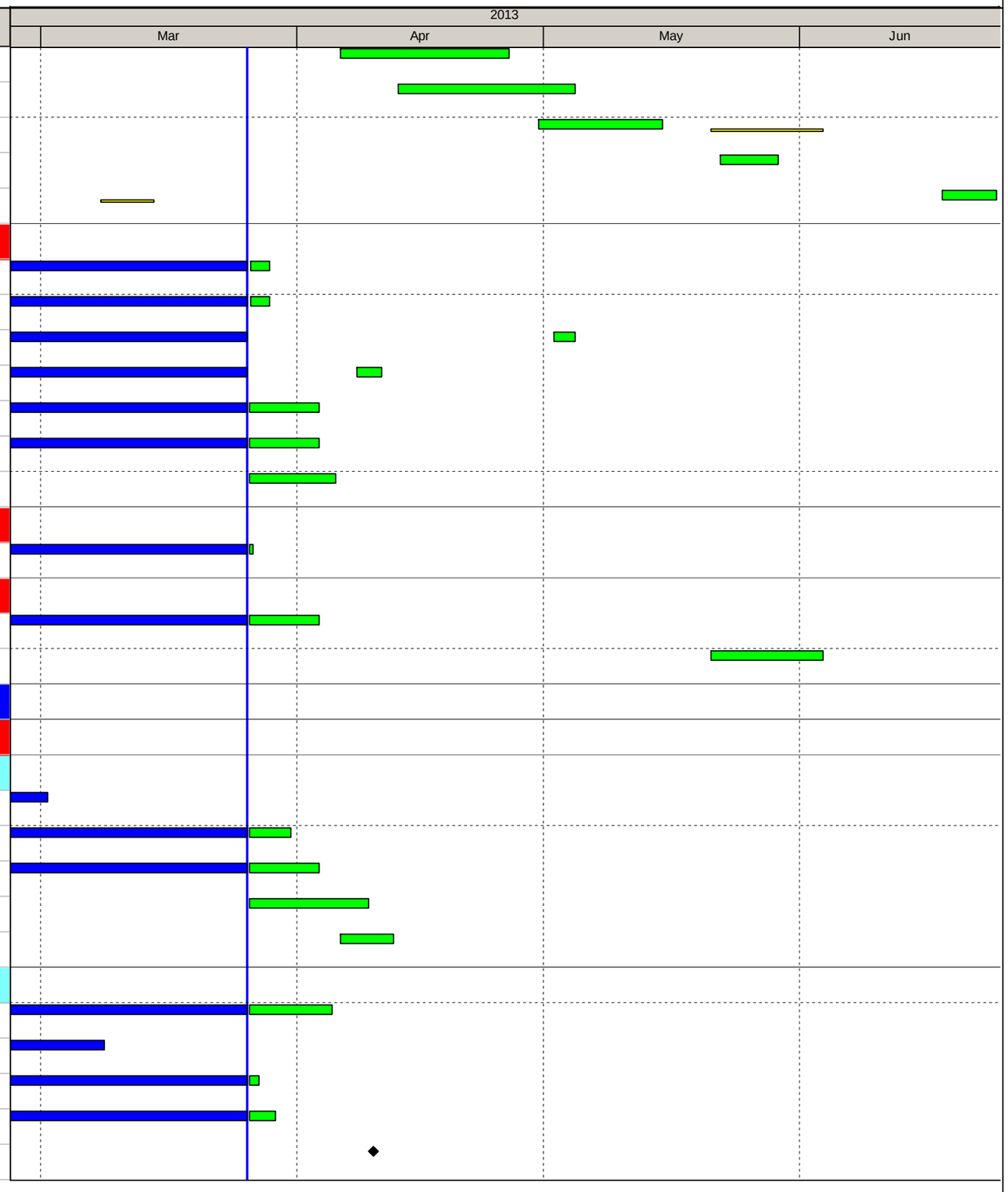


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC1510	TKW-FD402/402P - P140 - Divert 600dia sewer	0%	06-Apr-13	26-Apr-13
01109.PDC1540	TKW-FD403/403P - P140 - Divert 150dia sewer	0%	13-Apr-13	04-May-13
01109.PDC1550	TKW-SD504 - P123 - Storm Drain 225dia Support in situ	0%	30-Apr-13	15-May-13
01109.PDC1500	TKW-SD502 - P132 - Storm Drain Support Insitu	0%	22-May-13	29-May-13
01109.PDC1520	TKW-SD506 - P117 - Support In-situ/abandon	0%	18-Jun-13	24-Jun-13
Power Supply				
01109.PDC1870	TKW-CLP401 - P7 & P142 - (11kV) Locally Slew	60%	18-Sep-12 A	28-Mar-13
01109.PDC1880	TKW-CLP404 - P7 & P142 - (415 V) - Support in-situ & close monitoring	12%	18-Sep-12 A	28-Mar-13
01109.PDC1810	TKW-CLP407 - P9 & P135 - (Existing Abandoned 33 kV) - Remove	50%	17-Dec-12 A	04-May-13
01109.PDC1830	TKW-CLP114 - P104 - (Existing Abandoned 33 kV) - Remove	50%	17-Dec-12 A	11-Apr-13
01109.PDC1850	TKW-CLP505 - P76 to P93 - 11kV Supply - Slew & support	50%	17-Dec-12 A	03-Apr-13
01109.PDC1860	TKW-CLP506 - P76 to P93 - 415V - Slew & support	50%	17-Dec-12 A	03-Apr-13
01109.PDC1790	TKW-CLP405 - P13 & P132 - (Existing Abandoned 66 kV) - Remove	0%	26-Mar-13	05-Apr-13
Gas Supply				
01109.PDC1900	TKW-GAS503 - P42 & P108 - Temporarily Abandon	83%	21-Feb-13 A	26-Mar-13
Telecommunication System				
01109.PDC1960	TKW-HKT503/503P - P76 to 87incl. - Telecom Cable - Slew	60%	07-Feb-13 A	03-Apr-13
01109.PDC1950	TKW-HGC401 - P142 & P4,5,6 - Telecom Cable - Slew & Support	0%	21-May-13	03-Jun-13
Diaphragm Wall during TTMS Stage 1				
Area E1 (MTW Road)				
Area E1 (MTW Rd) - Advance Works				
01109.PDC2000	E1 (MTW Rd) - Batch 1 - Trial Pits	100%	14-Dec-12 A	01-Mar-13 A
01109.PDC2010	E1 (MTW Rd) - Batch 2 - Trial Pits	57%	14-Dec-12 A	31-Mar-13
01109.PDC2020	E1 (MTW Rd) - Batch 1 - Excavation & Construction of Guide walls	67%	21-Jan-13 A	03-Apr-13
01109.PDC2030	E1 (MTW Rd) - Batch 2 - Excavation & Construction of Guide walls	0%	26-Mar-13	09-Apr-13
01109.1000	E1 (MTW Rd) - Trial Pits & Predrill to P13	0%	06-Apr-13	12-Apr-13
Area E1 (MTW Rd) - Founding Level Predrill				
01109.PDC2120	E1 (MTW Rd) - Batch 2 - Founding Level Predrill P: 11,12,13,12,134,159 (7nr) (1.5PR)	57%	17-Dec-12 A	05-Apr-13
01109.PDC2040	E1 (MTW Rd) - Batch 1 - Founding Level Predrill P: 125,129,130,131,132,133,126,127 (13nr) (1.5PR)	100%	29-Dec-12 A	08-Mar-13 A
01109.PDC2110	E1 (MTW Rd) - Batch 1 - P:125,129,130,131,132,133 - SI Report & Confirmation of Founding Levels	78%	24-Jan-13 A	27-Mar-13
01109.PDC2180	E1 (MTW Rd) - Batch 2 - P:11,12,13,128,134,159 - SI Report & Confirmation of Founding Levels	20%	19-Feb-13 A	29-Mar-13
01109.PDC2240	E1 (MTW Rd) - Batch 2 - Dwall work commences	0%	10-Apr-13	

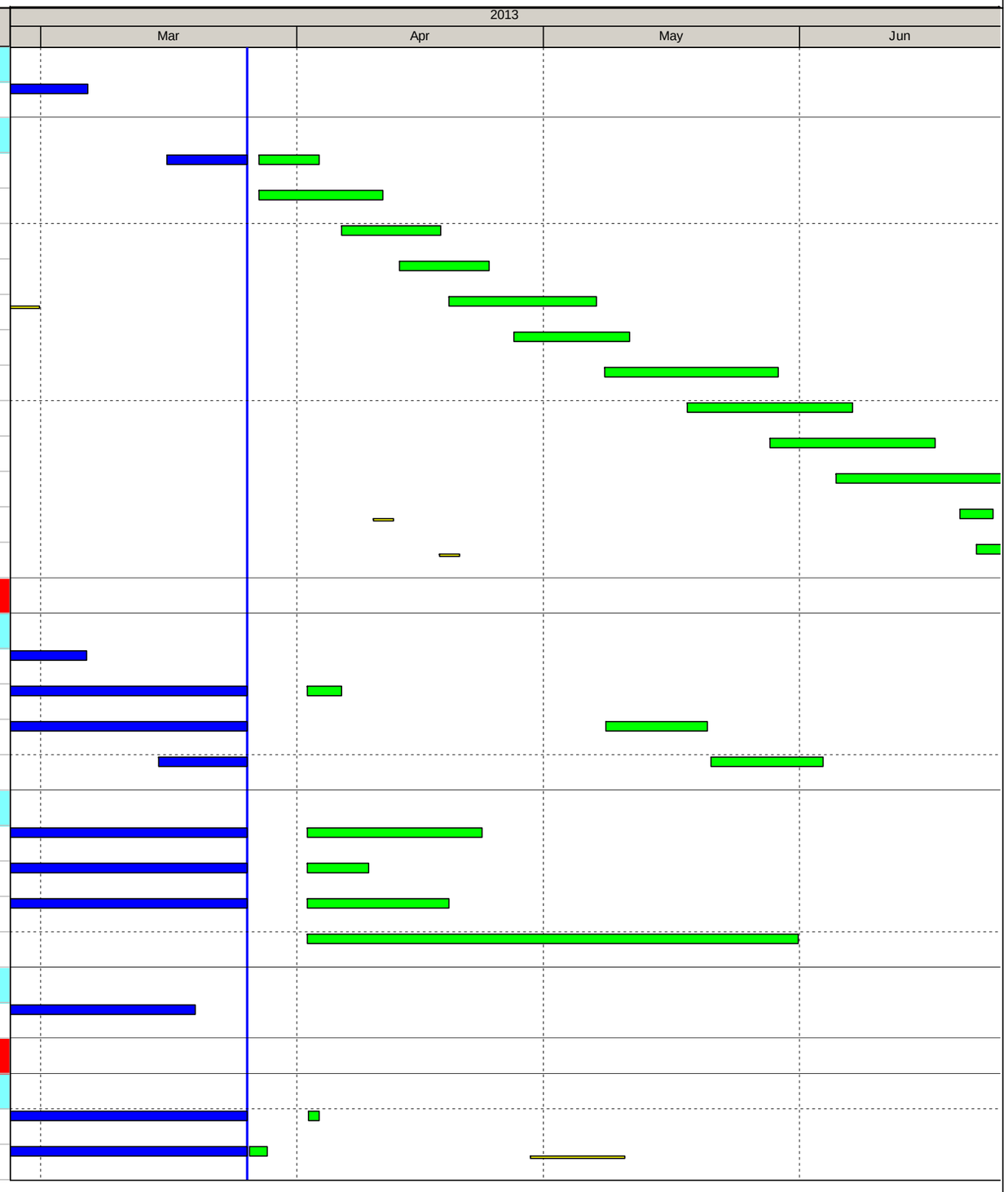


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
Area E1 (MTW Rd) - BC Cutter Nr 1				
01109.PDC23340	E1 (MTW Rd) - Dwall works P128 (Complete)	100%	23-Feb-13 A	06-Mar-13 A
Area E1 (MTW Rd) - BC Cutter Nr 2 (Low Headroom cutter)				
01109.PDC23400	E1 (MTW Rd) - Dwall works P130	60%	16-Mar-13 A	03-Apr-13
01109.PDC23670	E1 (MTW Rd) - Dwall works P126	0%	27-Mar-13	11-Apr-13
01109.PDC23360	E1 (MTW Rd) - Dwall works P129	0%	06-Apr-13	18-Apr-13
01109.PDC23320	E1 (MTW Rd) - Dwall works P125	0%	13-Apr-13	24-Apr-13
01109.PDC23420	E1 (MTW Rd) - Dwall works P131	0%	19-Apr-13	07-May-13
01109.PDC23390	E1 (MTW Rd) - Dwall works P13	0%	27-Apr-13	11-May-13
01109.PDC23380	E1 (MTW Rd) - Dwall works P132 (under TKW Flyover)	0%	08-May-13	29-May-13
01109.PDC23350	E1 (MTW Rd) - Dwall works P159 (under TKW Flyover)	0%	18-May-13	07-Jun-13
01109.PDC23330	E1 (MTW Rd) - Dwall works P133 (under TKW Flyover)	0%	28-May-13	17-Jun-13
01109.PDC23370	E1 (MTW Rd) - Dwall works P12 (under TKW Flyover)	0%	05-Jun-13	26-Jun-13
01109.PDC23560	E1 (MTW Rd) - Crosswall C1-4	0%	20-Jun-13	24-Jun-13
01109.PDC23590	E1 (MTW Rd) - Crosswall D1-3	0%	22-Jun-13	26-Jun-13
Area E1 (Ent D)				
Area E1 (Ent D) - Advance Works				
01109.PDC3220	E1 (Ent D) - Batch 1 - Trial Pits	100%	14-Dec-12 A	06-Mar-13 A
01109.PDC3240	E1 (Ent D) - Batch 2 - Trial Pits	71%	14-Dec-12 A	06-Apr-13
01109.PDC3230	E1 (Ent D) - Batch 1 - Excavation & Construction of Guide Walls	36%	17-Dec-12 A	20-May-13
01109.PDC3250	E1 (Ent D) - Batch 2 - Excavation & Construction of Guide Walls	20%	15-Mar-13 A	03-Jun-13
Area E1 (Ent D) - Founding Level Pedrill				
01109.PDC3270	E1 (Ent D) - Batch 2 - Founding Level Predrill P6,10,9,7,8 (6nr) 2PR	71%	24-Dec-12 A	23-Apr-13
01109.PDC3260	E1 (Ent D) - Batch 1 - Founding Level Predrill P142,141,135,140,136,137,138 (11nr) 2PR	90%	29-Dec-12 A	09-Apr-13
01109.PDC3400	E1 (Ent D) - Batch 1 - P:142,141,135,140,136,137,138 - GI Report & Confirmation of Founding Levels	71%	15-Jan-13 A	19-Apr-13
01109.PDC3380	E1 (Ent D) - Batch 2 - P:6,10,9,7,8 - GI Report & Confirmation of Founding Levels	0%	02-Apr-13	31-May-13
Area E1 (Ent D) - BC Cutter Nr 2 (Low Headroom cutter)				
01109.PDC26640	E1 (Ent D) - Dwall works P143 (complete)	100%	18-Jan-13 A	19-Mar-13 A
Area E2/E4/E5				
Area E2/E4/E5 - Advance Works				
01109.PDC4070	E2 - Batch 1 - Trial Pits	86%	17-Dec-12 A	03-Apr-13
01109.PDC8380	E5 - Excavation and construction of Guide Walls	75%	14-Jan-13 A	28-Mar-13

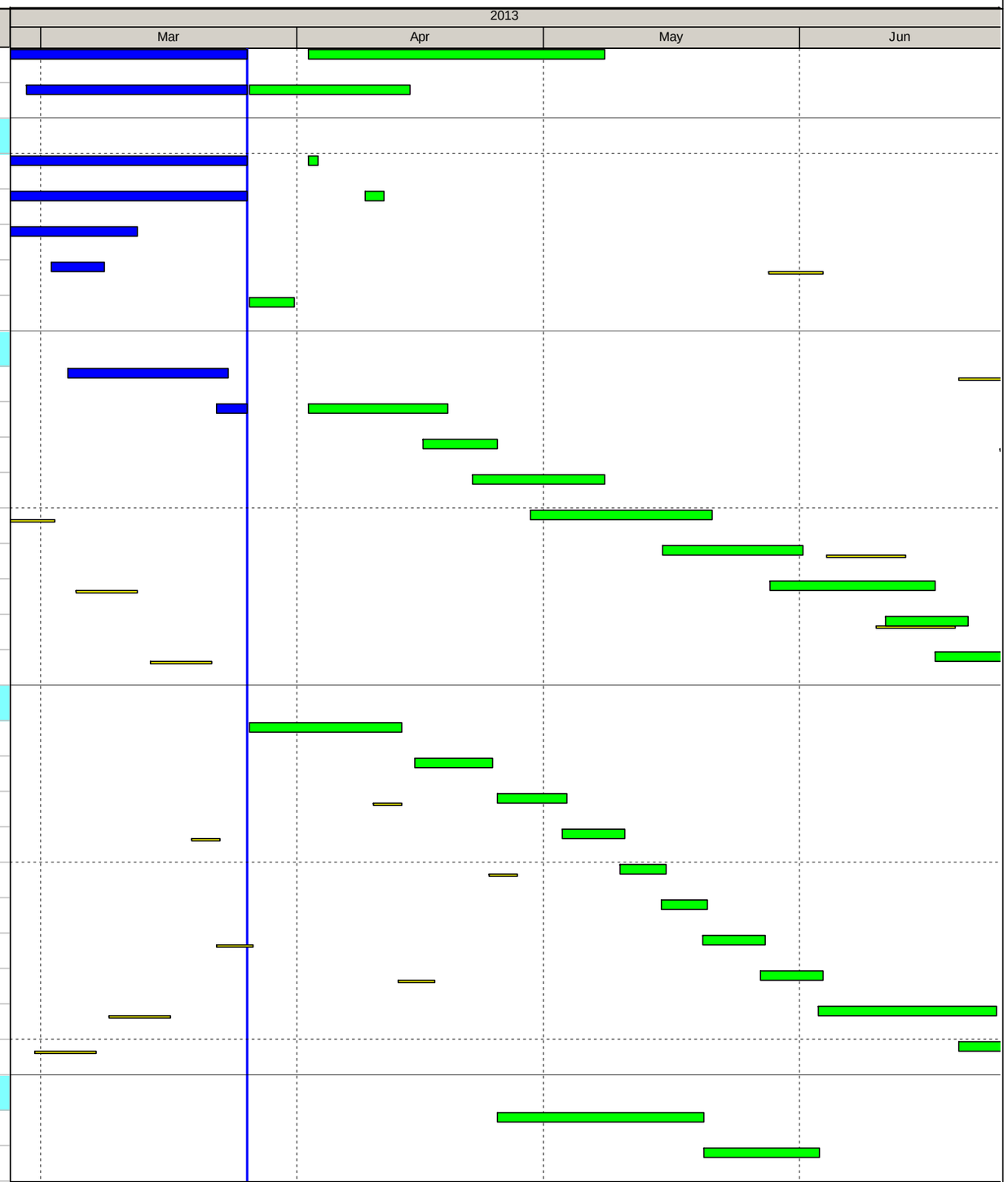


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC4050	E2 - Batch 1 - Excavation & Construction of Guide Walls	40%	14-Feb-13 A	08-May-13
01109.PDC4060	E2 - Batch 2 - Excavation & Construction of Guide Walls	67%	27-Feb-13 A	14-Apr-13
Area E2/E4/E5 - Founding Level Predrill				
01109.PDC4090	E2 - Batch 1 - Founding level Predrill P115,116,117,118,119,120 (7nr) 1.5PR	86%	21-Dec-12 A	03-Apr-13
01109.PDC4190	E2 - Batch 1 - P: 115,116,117,118,119 - SI Report & Confirmation of Founding Levels 1.5PR	57%	08-Feb-13 A	11-Apr-13
01109.PDC4180	E2 - Batch 2 - P: 120, 121,122,126,127 - SI Report & Confirmation of Founding Levels	100%	09-Feb-13 A	12-Mar-13 A
01109.PDC8400	E4 - P: 123, 124 - SI Report & Confirmation of Founding Levels	100%	02-Mar-13 A	08-Mar-13 A
01109.PDC29005A	E5 - P: 111,114 - SI Report & Confirmation of Founding Levels	0%	26-Mar-13	31-Mar-13
Area E2/E4/E5 - BC Cutter Nr 1				
01109.PDC24750	E5 - Dwall works P112 (Commenced)	100%	04-Mar-13 A	23-Mar-13 A
01109.PDC23610	E2 - Dwall works P121	7%	22-Mar-13 A	19-Apr-13
01109.PDC24720	E5 - Dwall works P114	0%	16-Apr-13	25-Apr-13
01109.PDC23630A	E2 - Dwall works P122	0%	22-Apr-13	08-May-13
01109.PDC23660	E2 - Dwall works P118	0%	29-Apr-13	21-May-13
01109.PDC24700	E4 - Dwall works P123	0%	15-May-13	01-Jun-13
01109.PDC23680	E2 - Dwall works P119	0%	28-May-13	17-Jun-13
01109.PDC24710	E4 - Dwall works P124	0%	11-Jun-13	21-Jun-13
01109.PDC23700	E2 - Dwall works P120	0%	17-Jun-13	09-Jul-13
Area E2/E4/E5 - BC Cutter Nr 5				
01109.PDC24990A	Mobilise BC Cutter Nr 5 to Site & Set Up	0%	26-Mar-13*	13-Apr-13
01109.PDC24730	E5 - Dwall works P111	0%	15-Apr-13	24-Apr-13
01109.PDC23760	E2 - Crosswall F3-4	0%	25-Apr-13	03-May-13
01109.PDC23710	E2 - Crosswall F8-4	0%	03-May-13	10-May-13
01109.PDC23800	E2 - Crosswall F1-3	0%	10-May-13	15-May-13
01109.PDC24770	E5 - Crosswall F12-4	0%	15-May-13	20-May-13
01109.PDC23720	E2 - Crosswall F1-4	0%	20-May-13	27-May-13
01109.PDC23770	E2 - Crosswall F5-4	0%	27-May-13	03-Jun-13
01109.PDC23650	E2 - Dwall works P117	0%	03-Jun-13	24-Jun-13
01109.PDC23640	E2 - Dwall works P116	0%	20-Jun-13	05-Jul-13
Area E2/E4/E5 - Post Concrete Works				
01109.PDC8860	E5 - Dwall testing	0%	25-Apr-13	20-May-13
01109.PDC23110	E5 - Dwall Shear pin installation	0%	20-May-13	03-Jun-13

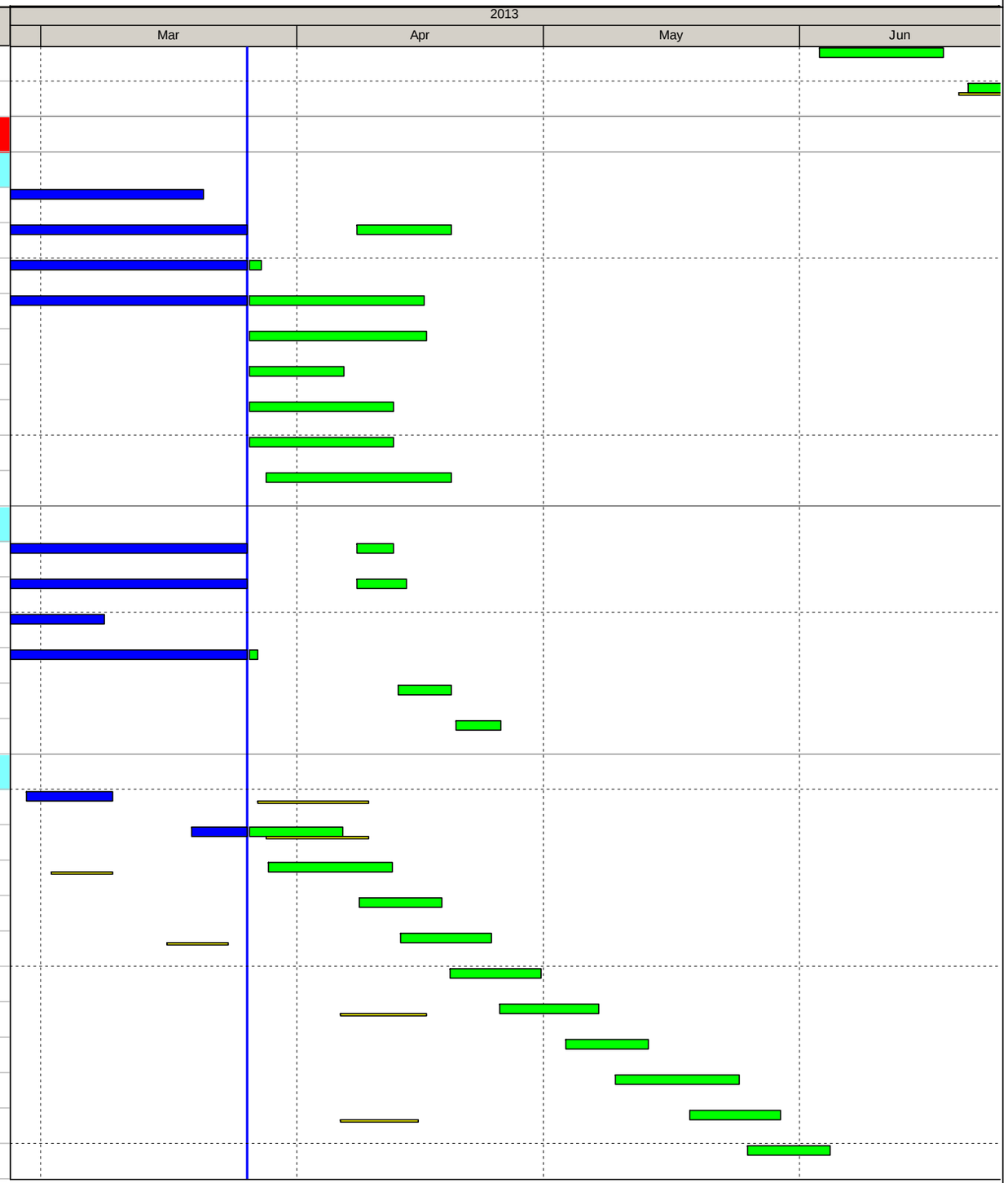


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC23120	E5 - Dwall Toe grouting	0%	03-Jun-13	18-Jun-13
01109.PDC23080	E4 - Dwall Shear pin installation	0%	21-Jun-13	28-Jun-13
Area E3				
Area E3 - Advance Works				
01109.PDC5200	E3-1 - Trial Pits	100%	28-Dec-12 A	20-Mar-13 A
01109.PDC5190	E3-1 - Excavation & Construction of Guide Walls	29%	18-Jan-13 A	19-Apr-13
01109.PDC6750	E3-3 - Excavation and Construction of Guide Walls (P94,95,96,97,98)	80%	25-Jan-13 A	27-Mar-13
01109.PDC6010	E3-2 - Excavation and Construction of Guide Walls	40%	28-Jan-13 A	16-Apr-13
01109.PDC28985	E3-2 - Excavation and Construction of Guide Walls (Cross Walls)	0%	26-Mar-13	16-Apr-13
01109.PDC6760A	E3-3 - Trial Pits (Batch 2)	0%	26-Mar-13	06-Apr-13
01109.PDC6810A	E3-3 - Additional Utility diversions	0%	26-Mar-13*	12-Apr-13
01109.PDC2903A	E3-1 3-2 - Additional Utility diversions	0%	26-Mar-13*	12-Apr-13
01109.PDC6750A	E3-3 - Excavation and Construction of Guide Walls (P88a,88b,89,90,91,92,93)	0%	28-Mar-13	19-Apr-13
Area E3 - Founding Level Predrill				
01109.PDC5210	E3-1 - Founding Level Predrill P104,105,106,107,108,109,110 (10nr) 3PR	60%	02-Jan-13 A	12-Apr-13
01109.PDC5280	E3-1 - P: 104,105,106,107,108,109,110 - SI Report & Confirmation of Founding Levels	40%	24-Jan-13 A	14-Apr-13
01109.PDC28995	E3-2 - P:100,101,102,103 - SI Report & Confirmation of Founding Levels	100%	09-Feb-13 A	08-Mar-13 A
01109.PDC6860	E3-3 - Batch 1 - P: 97,96,95,98,94 - GI Report & Confirmation of Founding Levels	80%	18-Feb-13 A	27-Mar-13
01109.PDC6770	E3-3 - Batch 2 - Founding Level Predrill P88a,88b(89),92,90,93,91(8nr) 2.5PR	0%	13-Apr-13	19-Apr-13
01109.PDC6830	E3-3 - Batch 2 - P: 88a,88b(89),92,90,93,91 - GI Report & Confirmation of Founding Levels	0%	20-Apr-13	25-Apr-13
Area E3 - BC Cutter Nr 3				
01109.PDC24380	E3 - Dwall works P96 (Complete)	100%	27-Feb-13 A	09-Mar-13 A
01109.PDC24530	E3 - Dwall works P98	26%	19-Mar-13 A	06-Apr-13
01109.PDC24200	E3 - Dwall works P101	0%	28-Mar-13	12-Apr-13
01109.PDC24030	E3 - Dwall works P107	0%	08-Apr-13	18-Apr-13
01109.PDC24190	E3 - Dwall works P102	0%	13-Apr-13	24-Apr-13
01109.PDC24040	E3 - Dwall works P106	0%	19-Apr-13	30-Apr-13
01109.PDC24540	E3 - Dwall works P94	0%	25-Apr-13	07-May-13
01109.PDC24050	E3 - Dwall works P105	0%	03-May-13	13-May-13
01109.PDC24850	E3 - Dwall works P87 (Was E6, now E3)	0%	09-May-13	24-May-13
01109.PDC24390	E3 - Dwall works P92	0%	18-May-13	29-May-13
01109.PDC24020	E3 - Dwall works P104	0%	25-May-13	04-Jun-13

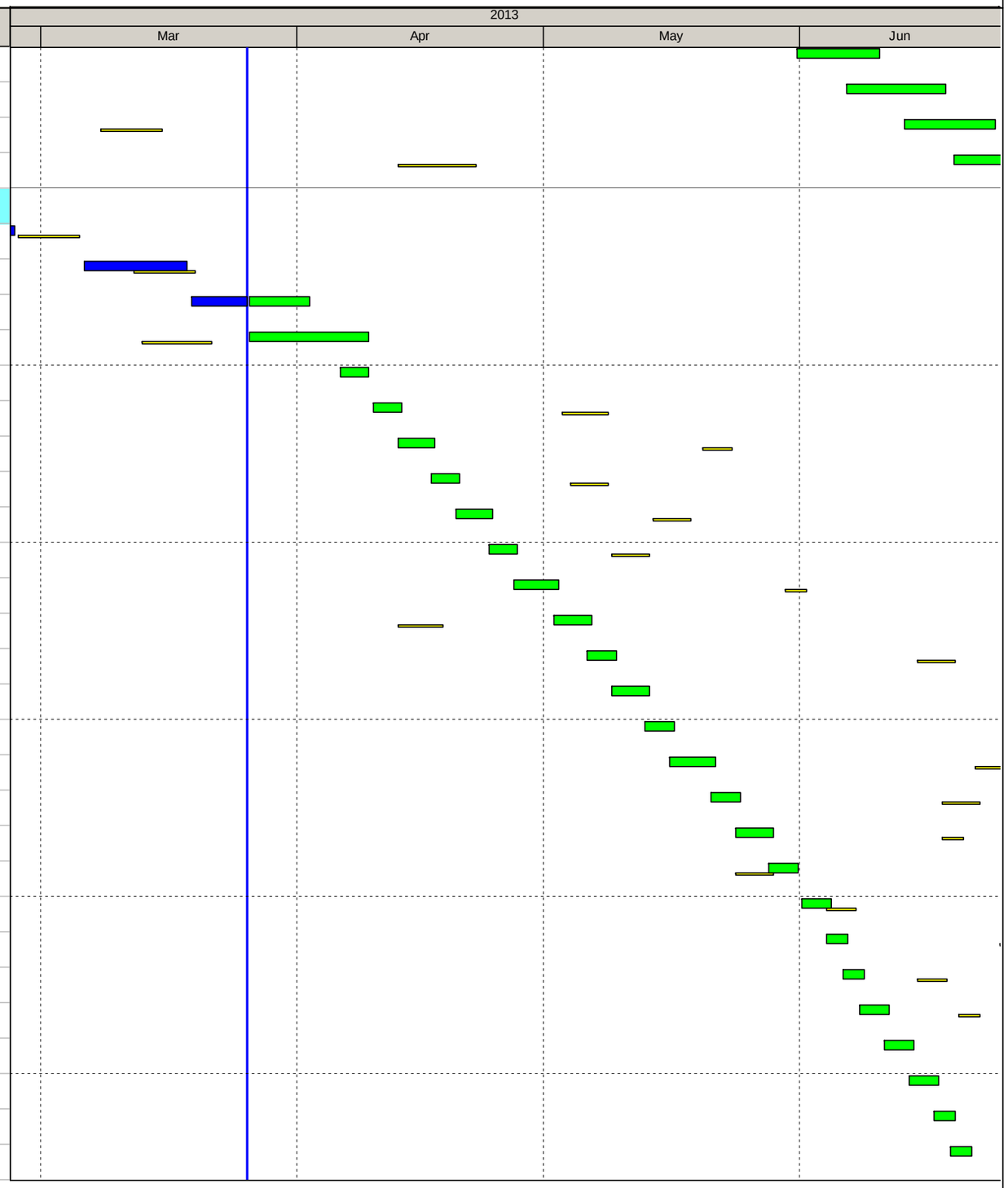


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC24000	E3 - Dwall works P109	0%	31-May-13	10-Jun-13
01109.PDC28930	E3 - Dwall works P88B	0%	06-Jun-13	18-Jun-13
01109.PDC24350	E3 - Dwall works P88A	0%	13-Jun-13	24-Jun-13
01109.PDC24550	E3 - Dwall works P90	0%	19-Jun-13	29-Jun-13
Area E3 - BC Cutter Nr 4				
01109.PDC24220	E3 - Dwall works P99 (Complete)	100%	14-Feb-13 A	25-Feb-13 A
01109.PDC24210	E3 - Dwall works P100 (Complete)	100%	06-Mar-13 A	18-Mar-13 A
01109.PDC24010	E3 - Dwall works P108	60%	19-Mar-13 A	02-Apr-13
01109.PDC24360	E3 - Dwall works P97	0%	26-Mar-13	09-Apr-13
01109.PDC24980	E3 - Modify cutter 1.2m to 0.8m	0%	06-Apr-13	09-Apr-13
01109.PDC24590	E3 - Crosswall G7-5	0%	10-Apr-13	13-Apr-13
01109.PDC24660	E3 - Crosswall G4-5	0%	13-Apr-13	17-Apr-13
01109.PDC24610	E3 - Crosswall G6-5	0%	17-Apr-13	20-Apr-13
01109.PDC24650	E3 - Crosswall G8-5	0%	20-Apr-13	24-Apr-13
01109.PDC24630	E3 - Crosswall G5-5	0%	24-Apr-13	27-Apr-13
01109.PDC24310	E3 - Crosswall G2-5	0%	27-Apr-13	02-May-13
01109.PDC24460	E3 - Crosswall G9-5	0%	02-May-13	06-May-13
01109.PDC24400	E3 - Crosswall G6-4	0%	06-May-13	09-May-13
01109.PDC24330	E3 - Crosswall G3-4	0%	09-May-13	13-May-13
01109.PDC24440	E3 - Crosswall G8-4	0%	13-May-13	16-May-13
01109.PDC24300	E3 - Crosswall G2-4	0%	16-May-13	21-May-13
01109.PDC24420	E3 - Crosswall G5-4	0%	21-May-13	24-May-13
01109.PDC24270	E3 - Crosswall G1-4	0%	24-May-13	28-May-13
01109.PDC24250	E3 - Crosswall F19-5	0%	28-May-13	31-May-13
01109.PDC24230	E3 - Crosswall F19-3	0%	01-Jun-13	04-Jun-13
01109.PDC24320	E3 - Crosswall G3-3	0%	04-Jun-13	06-Jun-13
01109.PDC24260	E3 - Crosswall G1-3	0%	06-Jun-13	08-Jun-13
01109.PDC24290	E3 - Crosswall G2-3	0%	08-Jun-13	11-Jun-13
01109.PDC24470	E3 - Crosswall G4-3	0%	11-Jun-13	14-Jun-13
01109.PDC24490	E3 - Crosswall G5-3	0%	14-Jun-13	17-Jun-13
01109.PDC24510	E3 - Crosswall G6-3	0%	17-Jun-13	19-Jun-13
01109.PDC24680	E3 - Crosswall G7-3	0%	19-Jun-13	21-Jun-13

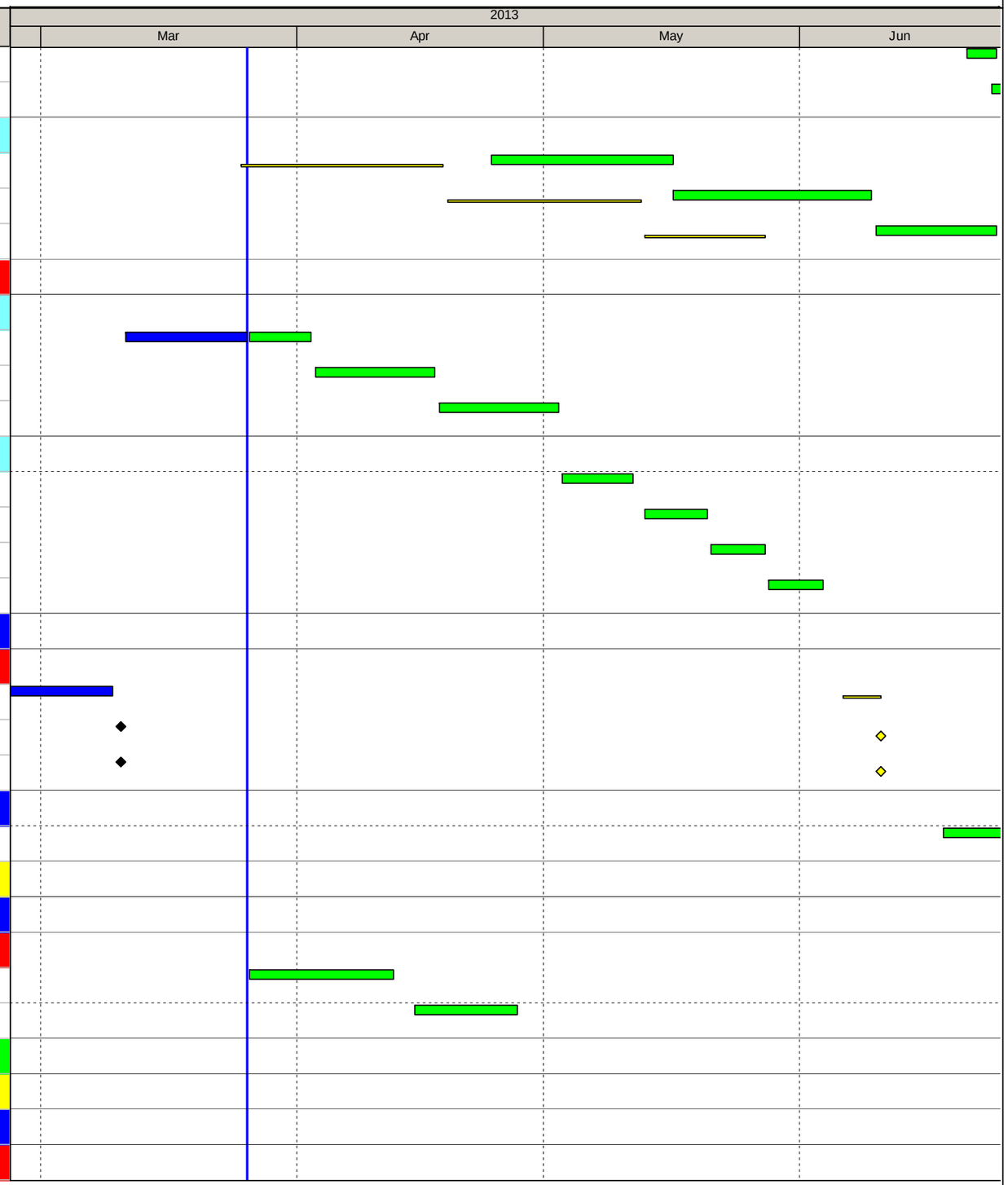


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC24410	E3 - Crosswall G8-3	0%	21-Jun-13	24-Jun-13
01109.PDC24580	E3 - Crosswall G11-3	0%	24-Jun-13	26-Jun-13
Area E3 - Post Concrete Works				
01109.PDC6650	E3-2 - Dwall Toe grouting	0%	24-Apr-13	16-May-13
01109.PDC6670	E3-2 - Dwall testing	0%	16-May-13	09-Jun-13
01109.PDC6850	E3-2 - Dwall Shear pin installation	0%	10-Jun-13	24-Jun-13
Area E6				
Area E6 - Advance Works				
01109.PDC9020A	E6 - Additional Utility Diversions (New activity)	50%	11-Mar-13 A	02-Apr-13
01109.PDC8980	E6 - Batch 1 - Excavation and construction of Guide walls	0%	03-Apr-13	17-Apr-13
01109.PDC8960	E6 - Batch 2 - Excavation and construction of Guide walls	0%	18-Apr-13	02-May-13
Area E6 - Founding Level Predrill				
01109.PDC9130	E6 - Batch 1 - Founding Level Predrill - P74a,75,76,77,78,79 (8nr) 2PR	0%	03-May-13	11-May-13
01109.PDC9060	E6 - Batch 2 - Founding Level Predrill - P80,81,82,83,84,85,86,87 (12r) 4PR	0%	13-May-13	20-May-13
01109.PDC9140	E6 - Batch 1 - P: 75,79,76,78,77,74a - GI Report & Confirmation of Founding Levels	0%	21-May-13	27-May-13
01109.PDC9070	E6 - Batch 2 - E6 - P: 83,87,84,82,86,81,85,80 - GI Report & Confirmation of Founding Levels	0%	28-May-13	03-Jun-13
Top Slab, Utility, & Backfill during TTMS Stage 1				
Area E6 - Span 11,12,13 - GL 22 to GL 28				
01109.PDC10110	E6 - Bus Bay and Shelter Preparation in Area E6 (Complete)	100%	20-Feb-13 A	09-Mar-13 A
01109.PDC10120	E6 - Bus Stop relocated - Ready for TTMS Stage 1 Phase 2	100%		10-Mar-13 A
01109.PDC10230	E6 - Relocate Bus Stop from E3-2 & E3-3 to E6	100%		10-Mar-13 A
Transition Works from D Wall Stg 1 Hybrid to Stg 2				
01109.PDC11050	E5 - Remove concrete canopy at BMW Garage	0%	18-Jun-13	07-Jul-13
Entrance A & Vent Shaft A				
Vent Shaft A				
Foundation				
01109.PDC27310	Vent Shaft A - Trial Pits	0%	26-Mar-13	12-Apr-13
01109.PDC27290	Vent Shaft A - Founding Level predrill & verify founding levels	0%	15-Apr-13	27-Apr-13
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION				
Procurement of Specialised Construction Machinery				
Procurement of Specialised Construction Machinery				
Off-site				

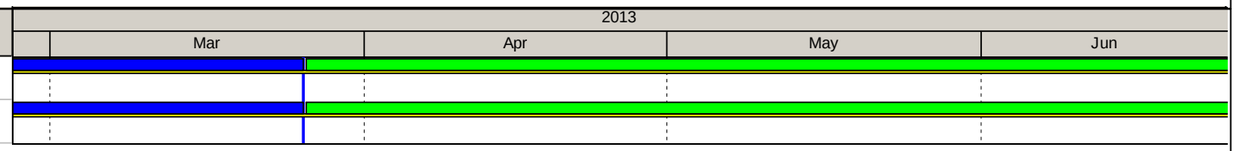


Data Date: 25-Mar-13

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - MARCH 2013

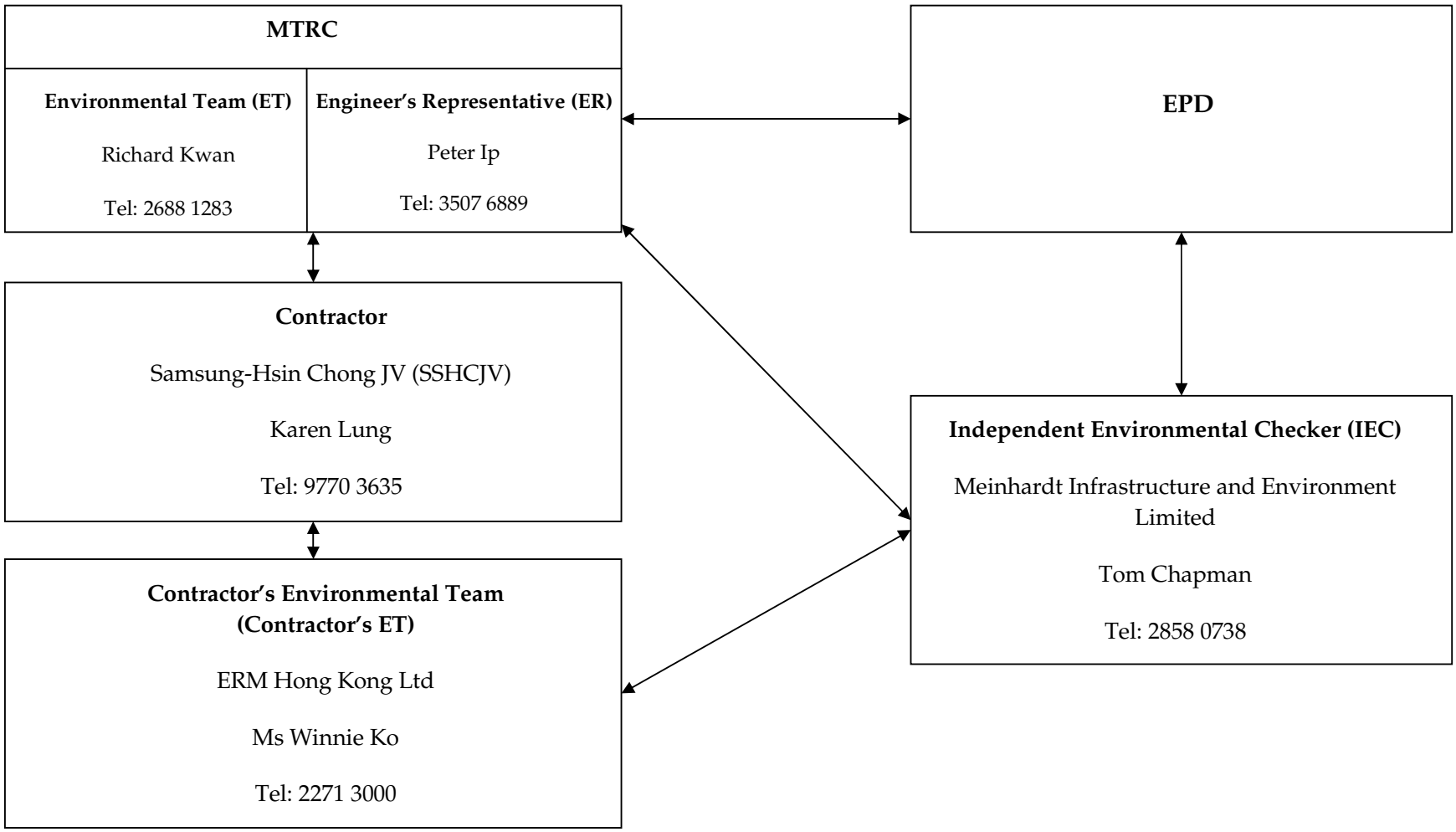
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD1040	TBM Down track SUW to HOM - TBM Manufacture	25%	09-Jan-13 A	04-Nov-13
01109.PDD1030	STP (Manufacture)	23%	09-Jan-13 A	12-Nov-13



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

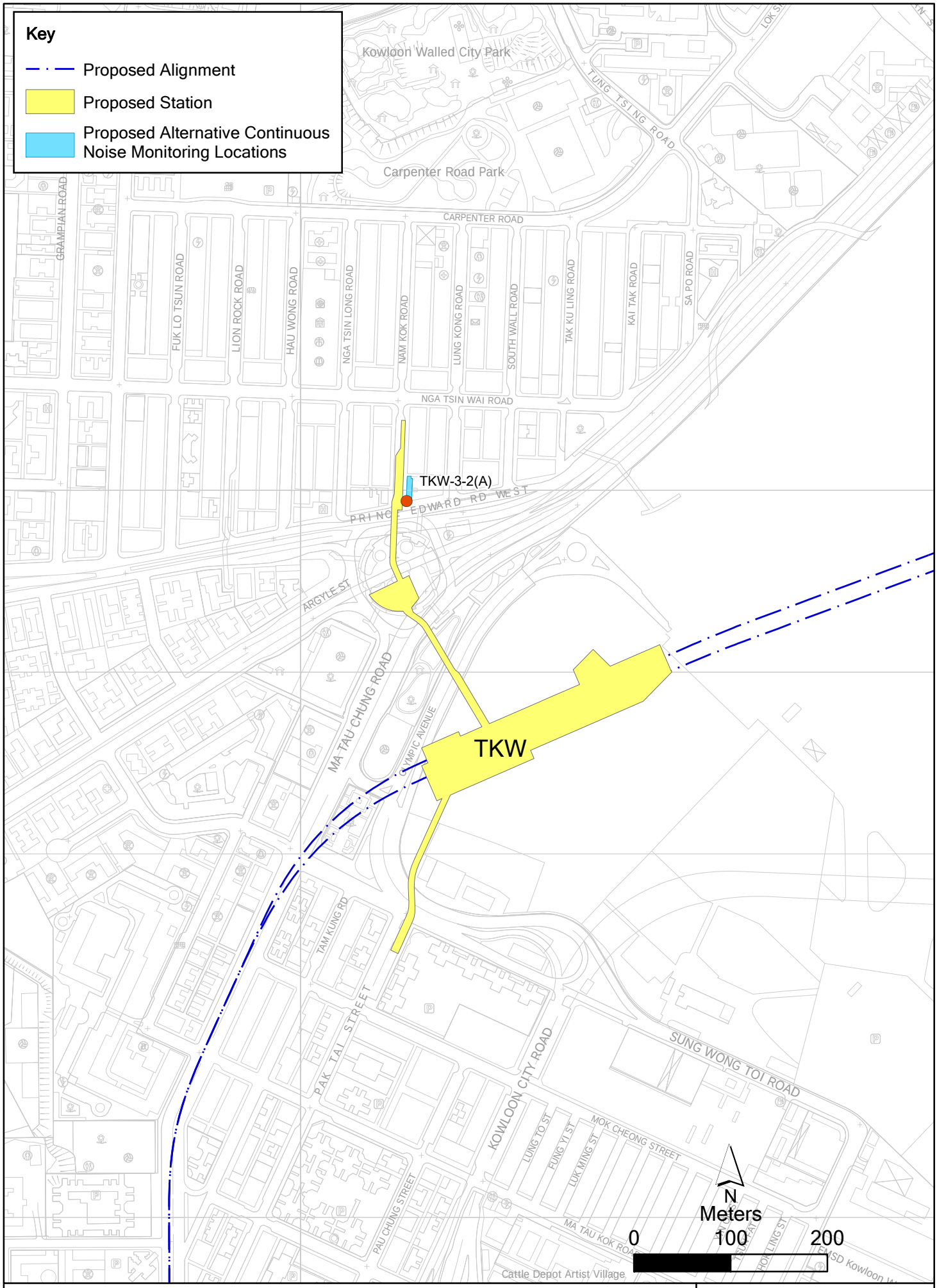
Location of Regular Construction Noise Monitoring Stations

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
File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Dust_Monitoring_Station_Annex.mxd
Date: 07-Nov-2012
Environmental Resources Management
ERM



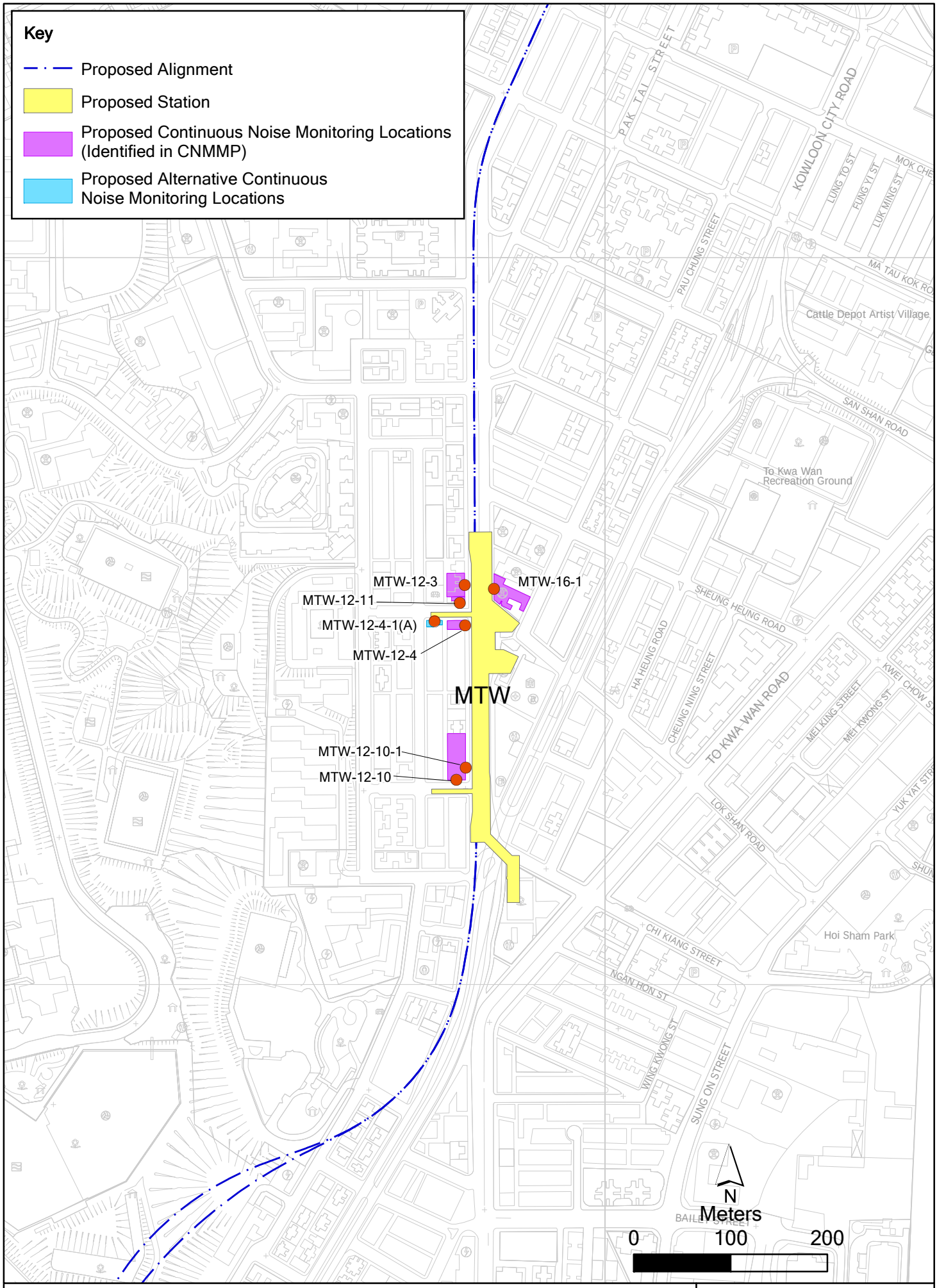
Annex D3

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 : Mar 2013

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

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 : Mar 2013

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

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 : Mar 2013

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

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 : Mar 2013

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

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 : Mar 2013

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

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 : Apr 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
	Public Holiday	24-hr TSP Monitoring Noise Monitoring		Public Holiday		
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
					24-hr TSP Monitoring Noise Monitoring	
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
				24-hr TSP Monitoring Noise Monitoring		
28-Apr	29-Apr	30-Apr				
		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 : Apr 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
	Public Holiday	24-hr TSP Monitoring Noise Monitoring		Public Holiday		
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
					24-hr TSP Monitoring Noise Monitoring	
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
				24-hr TSP Monitoring Noise Monitoring		
28-Apr	29-Apr	30-Apr				
		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 : Apr 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
	Public Holiday	24-hr TSP Monitoring Noise Monitoring		Public Holiday		
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
					24-hr TSP Monitoring Noise Monitoring	
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
				24-hr TSP Monitoring Noise Monitoring		
28-Apr	29-Apr	30-Apr				
		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 : Apr 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
	Public Holiday	24-hr TSP Monitoring Noise Monitoring		Public Holiday		
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
					24-hr TSP Monitoring Noise Monitoring	
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
				24-hr TSP Monitoring Noise Monitoring		
28-Apr	29-Apr	30-Apr				
		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 : Apr 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
	Public Holiday	24-hr TSP Monitoring Noise Monitoring		Public Holiday		
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	24-hr TSP Monitoring Noise Monitoring					24-hr TSP Monitoring
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
					24-hr TSP Monitoring Noise Monitoring	
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
				24-hr TSP Monitoring Noise Monitoring		
28-Apr	29-Apr	30-Apr				
		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. - 1378)	12 October 2012	12 April 2013
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. - 1378)	8 March 2013	8 September 2013
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. - 1378)	21 September 2012	21 March 2013
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. - 1378)	8 March 2013	8 September 2013
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. - 1378)	7 September 2012	7 March 2013
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. - 1378)	8 March 2013	8 September 2013
DMS-9	No. 26 Kowloon City Road	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. - 1378)	21 September 2012	21 March 2013
DMS-9	No. 26 Kowloon City Road	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. - 1378)	8 March 2013	8 September 2013
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. - 1378)	7 September 2012	7 March 2013
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. - 1378)	8 March 2013	8 September 2013

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-8, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	9 July 2012	9 July 2013
	Sound Level Meter	Rion NL-18 (S/N 00360030)	13 June 2012	13 June 2013
		Rion NL-31 (S/N 00410224)	15 June 2012	15 June 2013

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-6(Katherine Building)
Calibrated by	:	K.T.Ho
Date	:	08/03/2013

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)	:	1012
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.7	3.599	1.735	54	54.5
2	13 holes	9.7	3.146	1.518	47	47.5
3	10 holes	7.5	2.766	1.336	40	40.4
4	7 holes	4.6	2.166	1.050	30	30.3
5	5 holes	2.9	1.720	0.836	22	22.2

Sampler Calibration Relationship

Slope(m):36.090 Intercept(b): -7.760 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-7(Parc 22)
Calibrated by	:	P.F.Yeung
Date	:	08/03/2013

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)	:	1023
Ta(K)	:	295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.5	3.571	1.721	62	62.6
2	13 holes	9.7	3.146	1.518	55	55.6
3	10 holes	7.7	2.803	1.354	48	48.5
4	7 holes	4.8	2.213	1.072	38	38.4
5	5 holes	3.0	1.749	0.850	28	28.3

Sampler Calibration Relationship

Slope(m):39.220 Intercept(b): -4.449 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-8(SHK Good Shepherd Primary School)
Calibrated by	:	P.F.Yeung
Date	:	08/03/2013

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)	:	1023
Ta(K)	:	295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.4	3.557	1.714	62	62.6
2	13 holes	9.7	3.146	1.518	55	55.6
3	10 holes	7.6	2.784	1.345	48	48.5
4	7 holes	5.0	2.258	1.094	38	38.4
5	5 holes	3.0	1.749	0.850	28	28.3

Sampler Calibration Relationship

Slope(m):39.920 Intercept(b): -5.411 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-9(No. 26 Kowloon City Road)
Calibrated by	:	P.F.Yeung
Date	:	08/03/2013

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)	:	1023
Ta(K)	:	295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.7	3.599	1.735	66	66.7
2	13 holes	9.9	3.178	1.533	59	59.6
3	10 holes	7.7	2.803	1.354	52	52.5
4	7 holes	4.8	2.213	1.072	40	40.4
5	5 holes	2.7	1.660	0.807	30	30.3

Sampler Calibration Relationship

Slope(m):39.740 Intercept(b): -1.784 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 11/03/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-10(Chat Ma Mansion)
Calibrated by	:	P.F.Yeung
Date	:	08/03/2013

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)	:	1023
Ta(K)	:	295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.470	1.673	61	61.6
2	13 holes	9.6	3.129	1.510	54	54.5
3	10 holes	7.5	2.766	1.336	48	48.5
4	7 holes	4.9	2.236	1.083	37	37.4
5	5 holes	2.1	1.464	0.714	21	21.2

Sampler Calibration Relationship

Slope(m):41.960 Intercept(b): 8.359 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 10/03/2013

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-6(Katherine Building)
Calibrated by	:	K.T.Ho
Date	:	12/10/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99999

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	11.4	3.371	1.703	58	57.9
2	13 holes	9.0	2.996	1.514	50	49.9
3	10 holes	6.9	2.622	1.327	42	41.9
4	7 holes	4.0	1.997	1.013	30	29.9
5	5 holes	2.7	1.640	0.835	23	22.9

Sampler Calibration Relationship

Slope(m):40.105 Intercept(b): -10.742 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 14/10/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-7(Parc 22)
Calibrated by	:	P.F.Yeung
Date	:	21/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99984

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1010
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.415	1.714	64	63.6
2	13 holes	9.2	3.015	1.514	57	56.7
3	10 holes	7.0	2.630	1.321	49	48.7
4	7 holes	4.4	2.085	1.048	40	39.8
5	5 holes	2.7	1.633	0.821	32	31.8

Sampler Calibration Relationship

Slope(m):35.677 Intercept(b): 2.316 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 23/09/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-8(SHK Good Shepherd Primary School)
Calibrated by	:	P.F.Yeung
Date	:	07/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99984

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	1.722	60	59.9
2	13 holes	9.2	3.028	1.521	54	53.9
3	10 holes	6.8	2.603	1.308	48	47.9
4	7 holes	4.4	2.094	1.052	41	40.9
5	5 holes	2.2	1.481	0.745	32	31.9

Sampler Calibration Relationship

Slope(m):28.429 Intercept(b): 10.836 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 10/09/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-9(No. 26 Kowloon City Road)
Calibrated by	:	P.F.Yeung
Date	:	21/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99984

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1010
Ta(K)	:	300

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.4	3.500	1.757	65	64.6
2	13 holes	9.2	3.015	1.514	56	55.7
3	10 holes	7.2	2.667	1.340	50	49.7
4	7 holes	4.5	2.109	1.059	40	39.8
5	5 holes	2.7	1.633	0.821	30	29.8

Sampler Calibration Relationship

Slope(m):36.768 Intercept(b): 0.175 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 23/09/2012

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	DMS-10(Chat Ma Mansion)
Calibrated by	:	P.F.Yeung
Date	:	07/09/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99984

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	11.4	3.371	1.692	59	58.9
2	13 holes	9.1	3.012	1.512	53	52.9
3	10 holes	6.9	2.622	1.317	47	46.9
4	7 holes	4.5	2.118	1.064	39	38.9
5	5 holes	2.7	1.640	0.825	32	31.9

Sampler Calibration Relationship

Slope(m):31.054 Intercept(b): 6.109 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 10/09/2012

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
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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. : C123522
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1472)

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

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 June 2012

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 Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012

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. : C123522
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
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 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	93.8	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
60 - 120	LA	A	Fast	94.00	1	93.9 (Ref.)
				104.00		103.9
				114.00		113.8

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

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	93.8	Ref.
			Slow			93.8	± 0.1

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. : C123522
證書編號

6.2.2 Tone Burst Signal (2 kHz)

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

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LA	A	Fast	94.00	31.5 Hz	54.1	-39.4 ± 1.5
					63 Hz	67.4	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.0
					250 Hz	85.1	-8.6 ± 1.0
					500 Hz	90.5	-3.2 ± 1.0
					1 kHz	93.8	Ref.
					2 kHz	95.1	+1.2 ± 1.0
					4 kHz	94.8	+1.0 ± 1.0
					8 kHz	92.7	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.4	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.0
					250 Hz	93.8	0.0 ± 1.0
					500 Hz	93.9	0.0 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.8	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

Certificate of Calibration
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Certificate No. : C123522
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6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	100.1	± 0.5
						$1/10^2$		90	89.9	± 0.5
			60 sec.			$1/10^3$		80	79.6	± 1.0
			5 min.			$1/10^4$		70	69.8	± 1.0

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

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

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

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

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1674)

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 : 9 July 2012

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. Ly
L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 10 July 2012

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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Certificate of Calibration
校正證書

Certificate No. : C124011
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	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
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	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	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.

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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. : C123580
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1472)

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-31
Serial No. / 編號	:	00410224
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 : 15 June 2012

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 Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
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	93.7	± 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	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

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	93.7	Ref.
			Slow			93.6	± 0.3

Certificate of Calibration
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Certificate No. : C123580
證書編號

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	67.3	-26.2 ± 1.5
					125 Hz	77.4	-16.1 ± 1.5
					250 Hz	85.0	-8.6 ± 1.4
					500 Hz	90.4	-3.2 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	95.0	+1.2 ± 1.6
					4 kHz	94.8	+1.0 ± 1.6
					8 kHz	92.7	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.8	-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	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.5
					250 Hz	93.7	0.0 ± 1.4
					500 Hz	93.8	0.0 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	93.6	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.8	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

Remarks : - 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 Even 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 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. No-intrusion Zone • 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. Protection of Retained Trees • 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					

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		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					

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		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					

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		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

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		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.					

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		• 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	√

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		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	√

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		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	√

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		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	<>

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		• 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

Regular Noise Monitoring Results

Annex I 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
04-Mar-13	11:20	11:50	Sunny	64.3	76.0	-(b)	-	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
15-Mar-13	11:28	11:58	Cloudy	64.0	76.0	-(b)	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142
21-Mar-13	11:25	11:55	Cloudy	65.2	76.0	-(b)	-	Traffic noise	21.0	0.5	NL-31 00410224	NC-73 10997142
27-Mar-13	11:20	11:50	Cloudy	64.9	76.0	-(b)	-	Traffic noise	20.0	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
04-Mar-13	10:25	10:55	Sunny	67.9	70.0	-(b)	-	Traffic noise	18.0	1.2	NL-18 00360030	NC-73 10997142
15-Mar-13	10:29	10:59	Cloudy	68.3	70.0	-(b)	-	Traffic noise	20.0	1.2	NL-18 00360030	NC-73 10997142
21-Mar-13	10:30	11:00	Cloudy	68.3	70.0	-(b)	-	Traffic noise	21.0	0.5	NL-31 00410224	NC-73 10997142
27-Mar-13	10:25	10:55	Cloudy	68.0	70.0	-(b)	-	Traffic noise	20.0	0.7	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)[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
04-Mar-13	8:40	9:10	Sunny	74.1	75.0	-(b)	Crane Operation and backhole	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
15-Mar-13	8:40	9:10	Cloudy	74.2	75.0	-(b)	-	Traffic noise	20.0	0.9	NL-18 00360030	NC-73 10997142
21-Mar-13	8:42	9:12	Cloudy	75.1	75.0	58.7	Crane Operation	Traffic noise	21.0	0.5	NL-31 00410224	NC-73 10997142
27-Mar-13	8:40	9:10	Cloudy	74.6	75.0	-(b)	Backhole	Traffic noise	20.0	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
04-Mar-13	8:00	8:30	Sunny	71.6	69.0	68.1	Crane Operation	Traffic noise	18.0	0.8	NL-18 00360030	NC-73 10997142
15-Mar-13	8:00	8:30	Cloudy	72.1	69.0	69.2	-	Traffic noise	20.0	0.8	NL-18 00360030	NC-73 10997142
21-Mar-13	8:00	8:30	Cloudy	74.0	69.0	72.3	-	Traffic noise	21.0	0.5	NL-31 00410224	NC-73 10997142
27-Mar-13	8:00	8:30	Cloudy	73.4	69.0	71.4	Crane Operation	Traffic noise	20.0	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
04-Mar-13	9:32	10:02	Sunny	77.8	77.0	70.1	Crane operation and backhole	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
15-Mar-13	9:34	10:04	Cloudy	77.0	77.0	-(b)	Crane operation and backhole	Traffic noise	20.0	0.8	NL-18 00360030	NC-73 10997142
21-Mar-13	9:36	10:06	Cloudy	76.9	77.0	-(b)	Crane operation and backhole	Traffic noise	21.0	0.5	NL-31 00410224	NC-73 10997142
27-Mar-13	9:32	10:02	Cloudy	78.1	77.0	71.6	Crane operation and backhole	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142

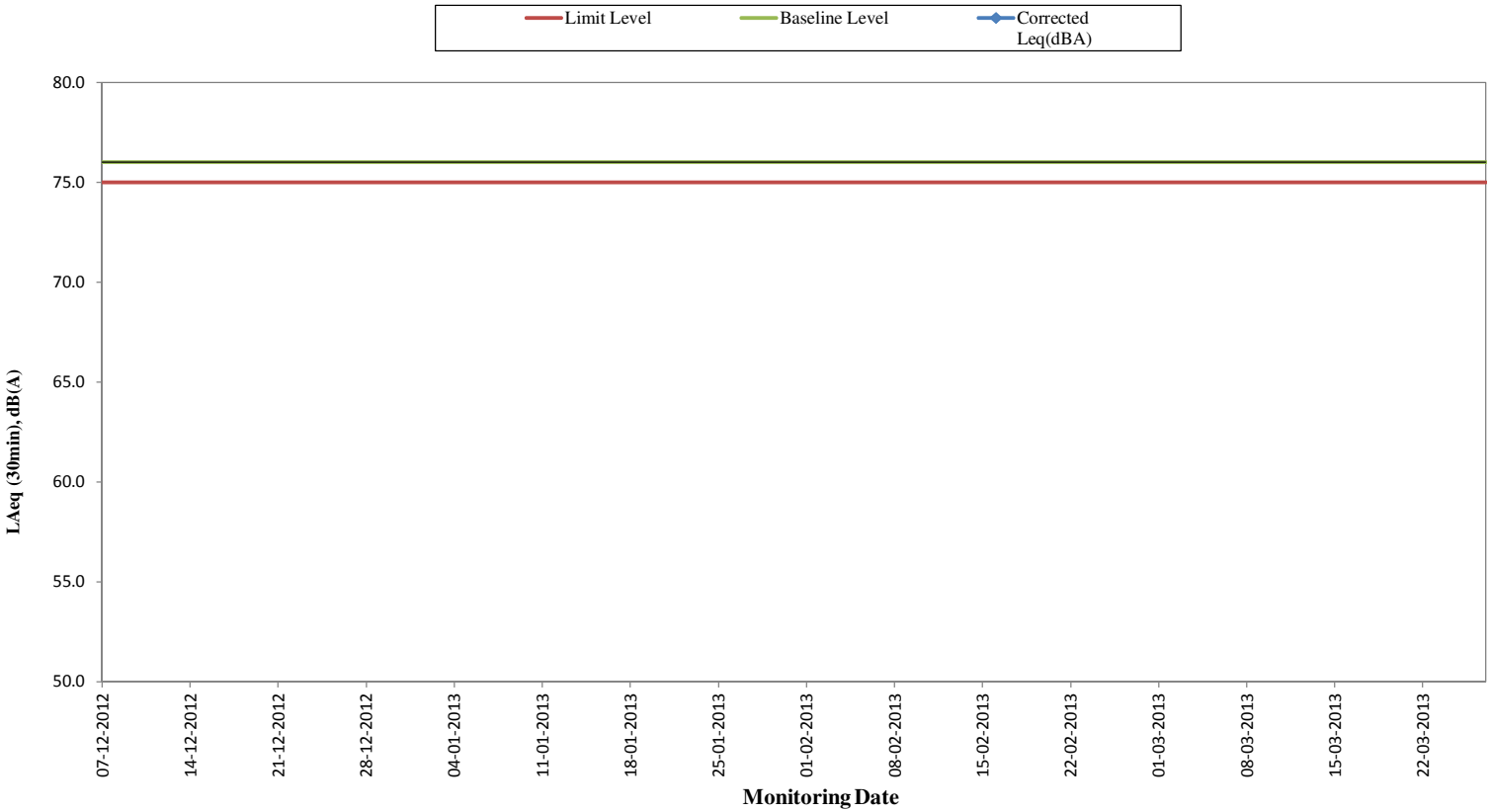
Remarks:

(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 on 21 March at NMS-CA-8, on 04, 15, 21 and 27 March at NMS-CA-9 and on 04, 27 March 2013 at NMS-CA-10 are higher than 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 noise level.

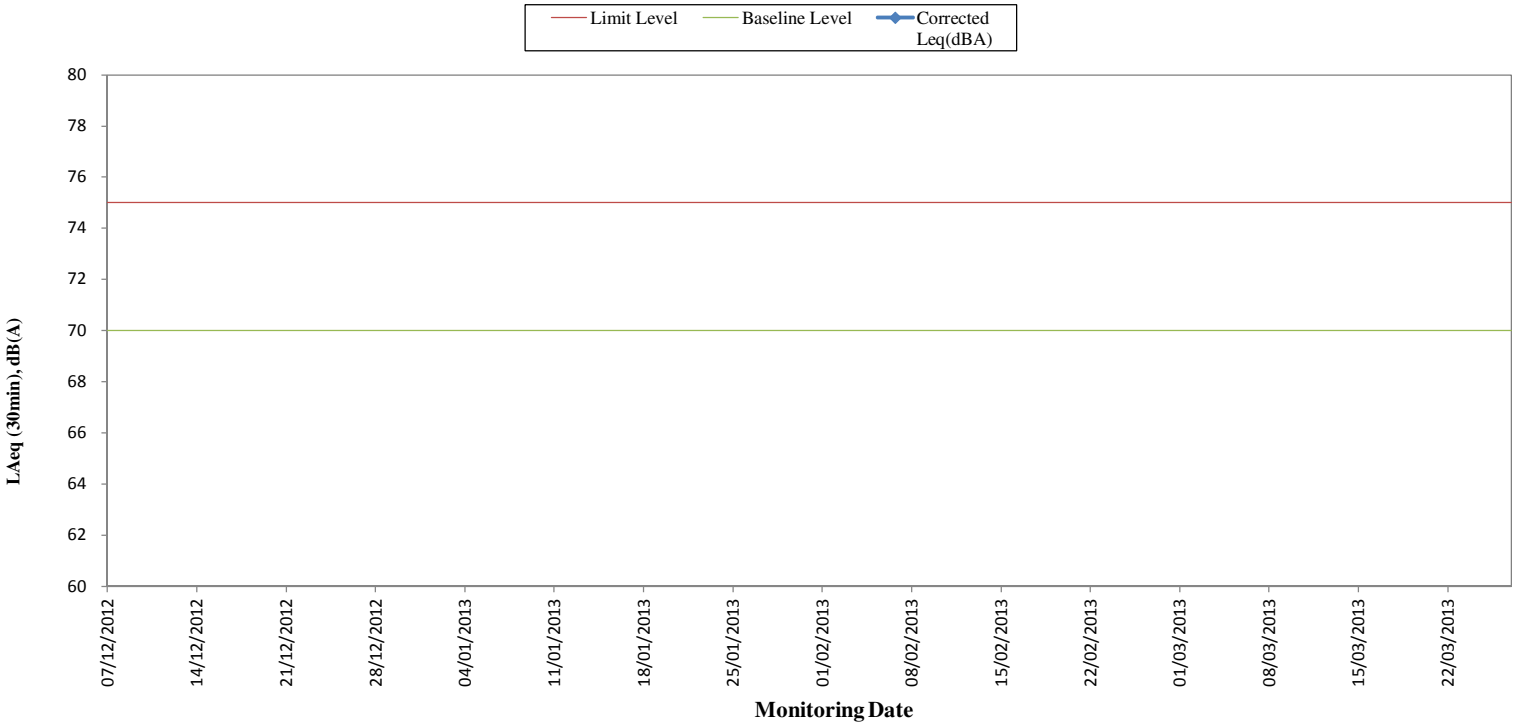
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

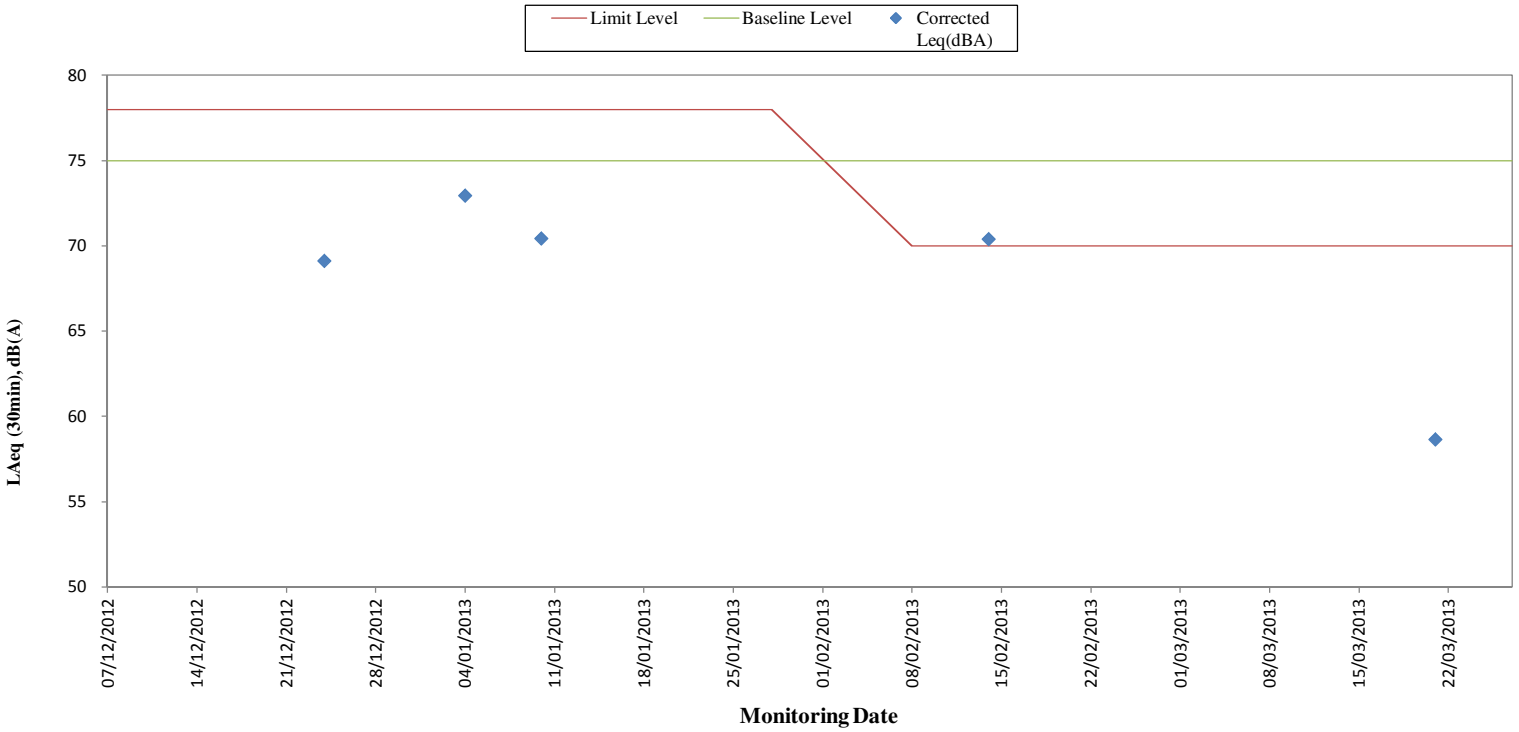
- For the corrected noise level without showing the in this graph, the measured noise level is below baseline level.

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



Remarks:
- for the corrected noise level without showing the in this graph, the measured noise level is below baseline level.

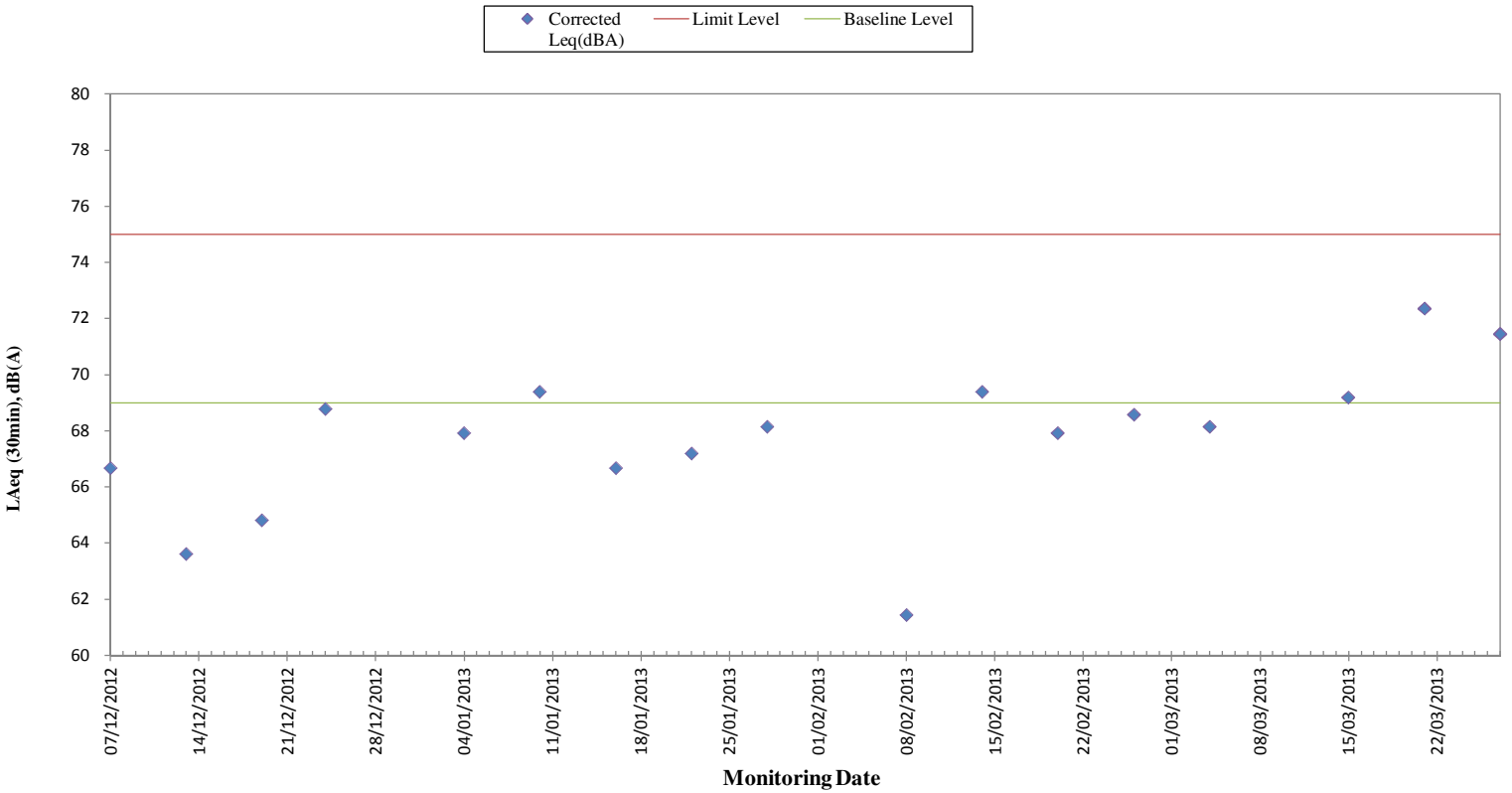
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

- for the corrected noise level without showing the in this graph, the measured noise level is below baseline level.
- The limit level was 78dB(A) in December 2012 and January 2013 as continuous noise monitoring was conducted in these 2 months.

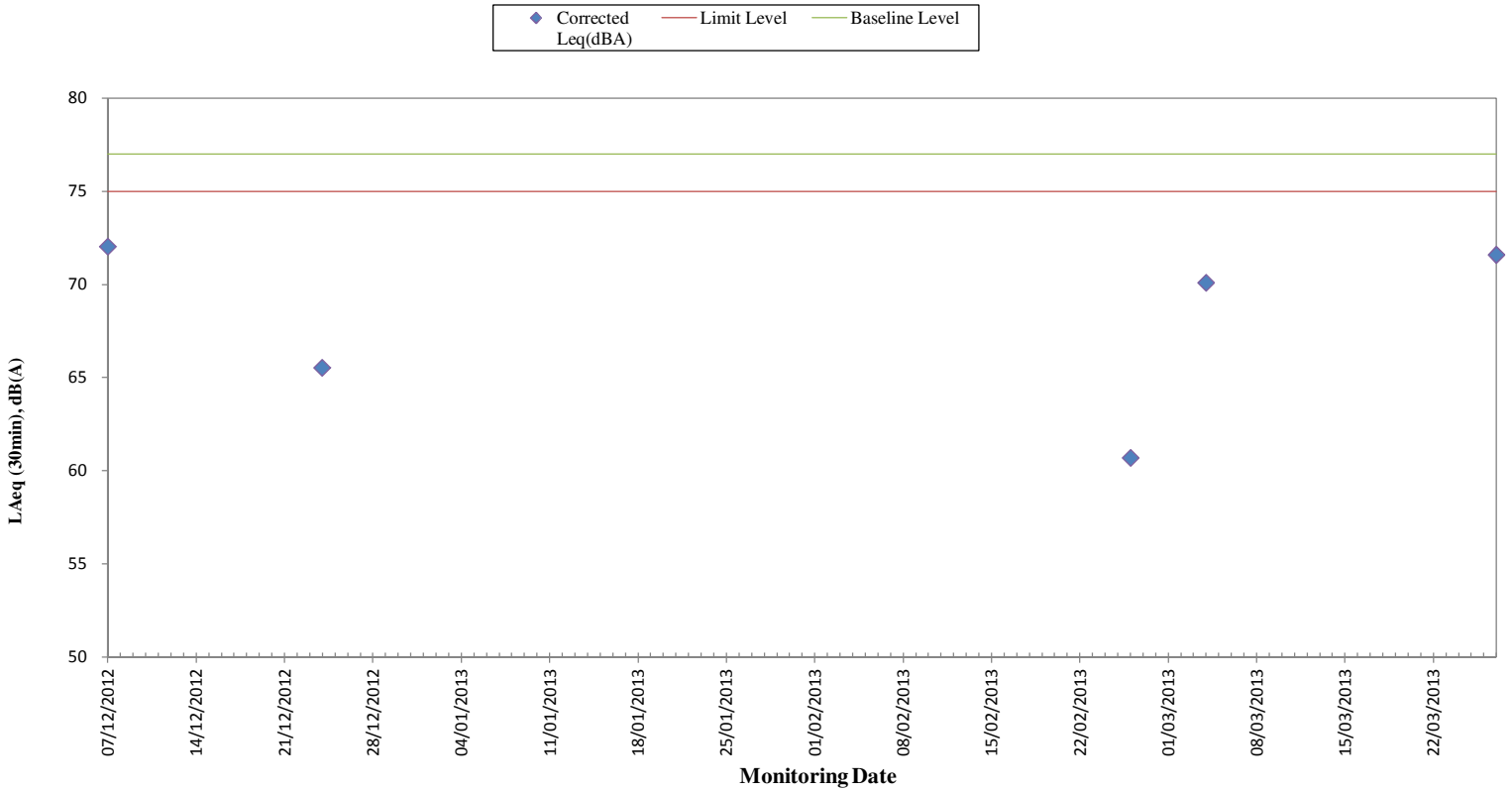
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months



Remarks:

- for the corrected noise level without showing the in this graph, the measured noise level is below baseline level.

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



Remarks:

- for the corrected noise level without showing the in this graph, the measured noise level is below baseline level.

Annex J

Construction Dust 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	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
04-Mar-13	11:08	05-Mar-13	11:08	Sunny	2.8155	2.9779	10856.30	10880.30	24.00	1.26	1.26	1.26	90	156.8	260	Construction work in progress	0107	6480
09-Mar-13	9:20	09-Mar-13	9:20	Sunny	2.7911	2.9633	10880.30	10904.30	24.00	1.38	1.38	1.38	87	156.8	260	Construction work in progress	0107	6630
15-Mar-13	11:15	15-Mar-13	11:15	Cloudy	2.7887	2.9559	10904.30	10928.30	24.00	1.38	1.38	1.38	84	156.8	260	Construction work in progress	0107	6652
21-Mar-13	11:12	21-Mar-13	11:12	Cloudy	2.7866	2.9484	10928.30	10952.30	24.00	1.38	1.38	1.38	81	156.8	260	Construction work in progress	0107	6676
27-Mar-13	11:08	27-Mar-13	11:08	Cloudy	2.6942	2.8595	10952.30	10976.30	24.00	1.38	1.38	1.38	83	156.8	260	Construction work in progress	0107	6826
												Minimum	81					
												Average	85					
												Maximum	90					

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	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
04-Mar-13	10:17	05-Mar-13	10:17	Sunny	2.8240	2.9983	01009.17	01033.17	24.00	1.20	1.20	1.20	101	166.7	260	Construction work in progress	3574	6479
09-Mar-13	9:05	10-Mar-13	9:05	Sunny	2.7849	2.9501	01033.17	01057.17	24.00	1.24	1.24	1.24	93	166.7	260	Construction work in progress	3574	6629
15-Mar-13	10:19	16-Mar-13	10:19	Cloudy	2.7819	2.9494	01057.17	01081.17	24.00	1.24	1.24	1.24	94	166.7	260	Construction work in progress	3574	6651
21-Mar-13	10:22	22-Mar-13	10:22	Cloudy	2.7841	2.9507	01081.17	01105.17	24.00	1.24	1.24	1.24	93	166.7	260	Construction work in progress	3574	6675
27-Mar-13	10:17	28-Mar-13	10:17	Cloudy	2.6886	2.8311	01105.17	01129.17	24.00	1.24	1.24	1.24	80	166.7	260	Construction work in progress	3574	6825
												Minimum	80					
												Average	92					
												Maximum	101					

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
04-Mar-13	8:43	05-Mar-13	8:43	Sunny	2.8118	2.9815	01003.11	01027.11	24.00	1.24	1.24	1.24	95	152.2	260	Construction work in progress	3572	6478
09-Mar-13	8:50	10-Mar-13	8:50	Sunny	2.7825	2.9429	01027.11	01051.11	24.00	1.25	1.25	1.25	89	152.2	260	Construction work in progress	3572	6628
15-Mar-13	8:43	16-Mar-13	8:43	Sunny	2.7915	2.9700	01051.11	01075.11	24.00	1.25	1.25	1.25	99	152.2	260	Construction work in progress	3572	6650
21-Mar-13	8:45	22-Mar-13	8:45	Cloudy	2.7887	2.9600	01075.11	01099.11	24.00	1.25	1.25	1.25	95	152.2	260	Construction work in progress	3572	6674
27-Mar-13	8:43	28-Mar-13	8:43	Cloudy	2.7845	2.9388	01099.11	01123.11	24.00	1.25	1.25	1.25	86	152.2	260	Construction work in progress	3572	6697
												Minimum	86					
												Average	93					
												Maximum	99					

Station DMS-9 No. 26 Kowloon City Road

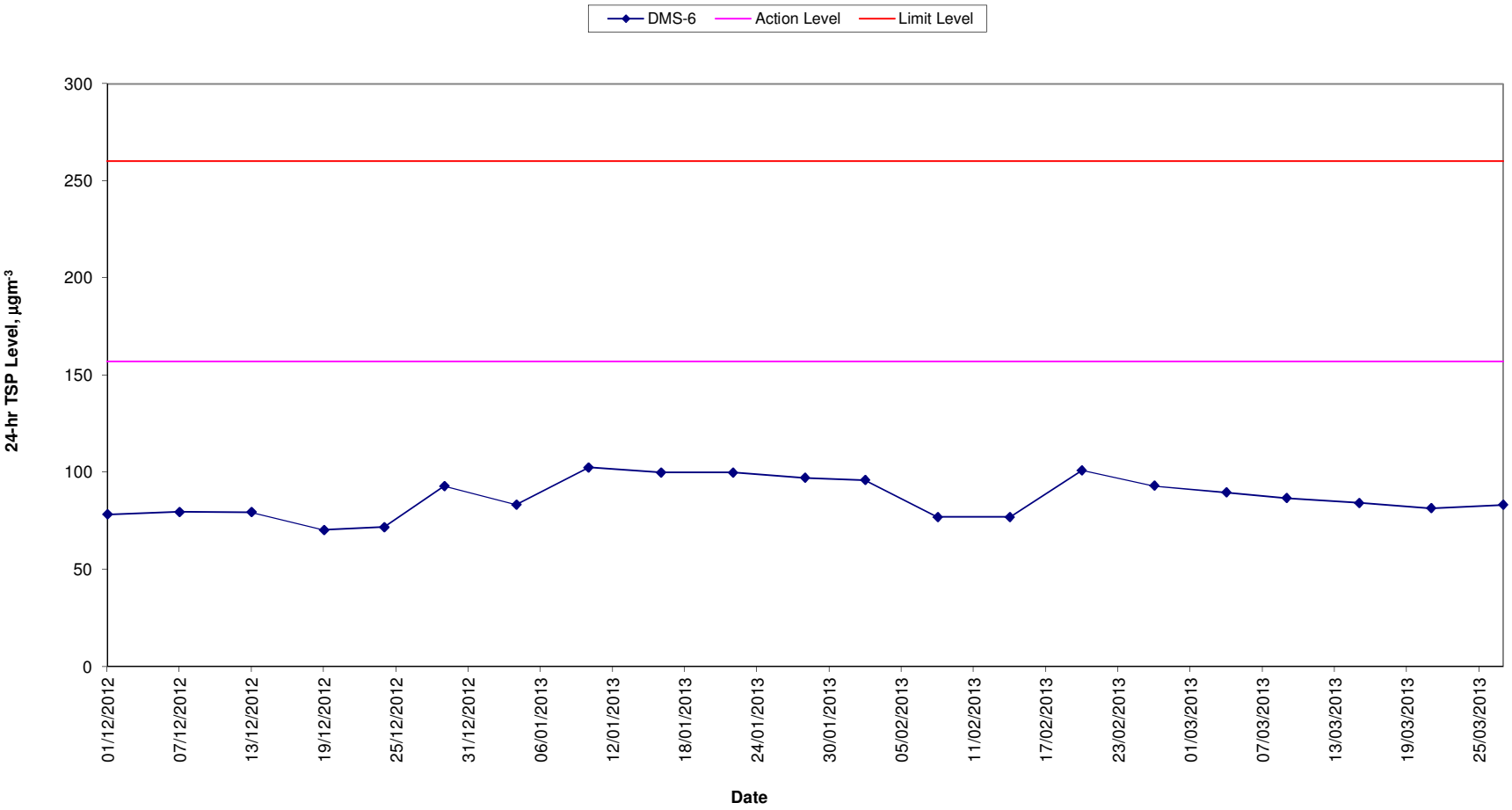
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(μg/m^3)	(μg/m^3)	(μg/m^3)		ID	ID
04-Mar-13	9:20	05-Mar-13	9:20	Sunny	2.8095	2.9903	11721.40	11745.40	24.00	1.23	1.23	1.23	102	160.9	260	Construction work in progress	0814	6477
09-Mar-13	8:42	10-Mar-13	8:42	Sunny	2.7795	2.9449	11745.40	11769.40	24.00	1.20	1.20	1.20	96	160.9	260	Construction work in progress	0814	6627
15-Mar-13	9:22	16-Mar-13	9:22	Cloudy	2.7844	2.9571	11769.40	11793.40	24.00	1.20	1.20	1.20	100	160.9	260	Construction work in progress	0814	6649
21-Mar-13	9:24	22-Mar-13	9:24	Cloudy	2.7692	2.9266	11793.40	11817.40	24.00	1.20	1.20	1.20	91	160.9	260	Construction work in progress	0814	6673
27-Mar-13	9:20	28-Mar-13	9:20	Cloudy	2.7819	2.9411	11817.40	11841.40	24.00	1.20	1.20	1.20	92	160.9	260	Construction work in progress	0814	6696
												Minimum	91					
												Average	96					
												Maximum	102					

Station DMS-10 Chat Ma Mansion

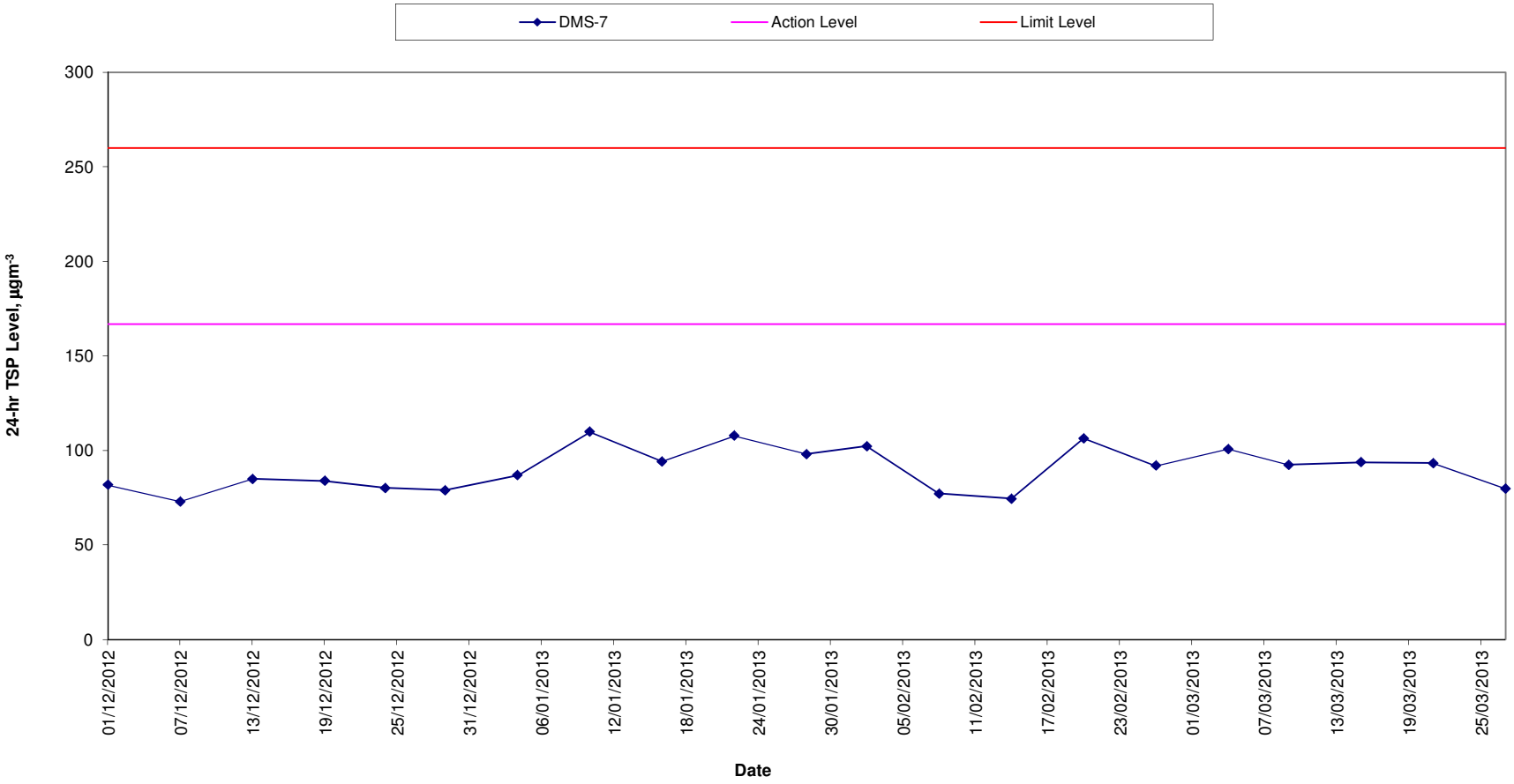
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m^3)	(µg/m^3)	(µg/m^3)		ID	ID
04-Mar-13	9:35	05-Mar-13	9:35	Sunny	2.7977	2.9698	00997.20	01021.20	24.00	1.22	1.22	1.22	98	170.4	260	Construction work in progress	3573	6476
09-Mar-13	8:30	10-Mar-13	8:30	Sunny	2.7804	2.9606	01021.20	01045.20	24.00	1.20	1.20	1.20	104	170.4	260	Construction work in progress	3573	6626
15-Mar-13	9:37	16-Mar-13	9:37	Cloudy	2.7765	2.9440	01045.20	01069.20	24.00	1.20	1.20	1.20	97	170.4	260	Construction work in progress	3573	6648
21-Mar-13	9:40	22-Mar-13	9:40	Cloudy	2.7759	2.9497	01069.20	01093.20	24.00	1.20	1.20	1.20	101	170.4	260	Construction work in progress	3573	6672
27-Mar-13	9:35	28-Mar-13	8:03	Cloudy	2.7767	2.9155	01093.20	01117.20	24.00	1.20	1.20	1.20	80	170.4	260	Construction work in progress	3573	6695

Minimum	80
Average	96
Maximum	104

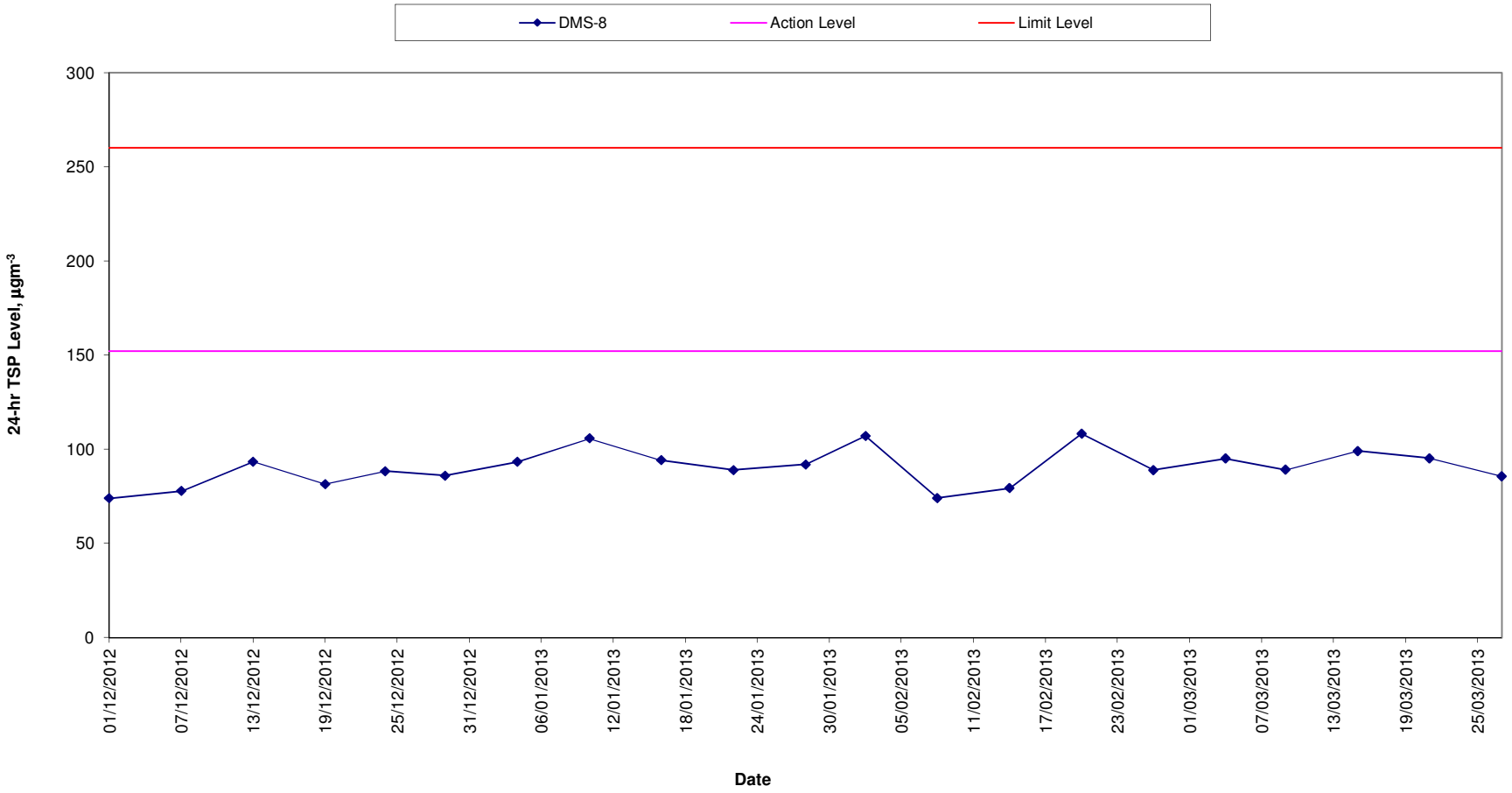
Construction Dust Monitoring Results for the Past 4 Months
DMS-6 (Katherine Building)



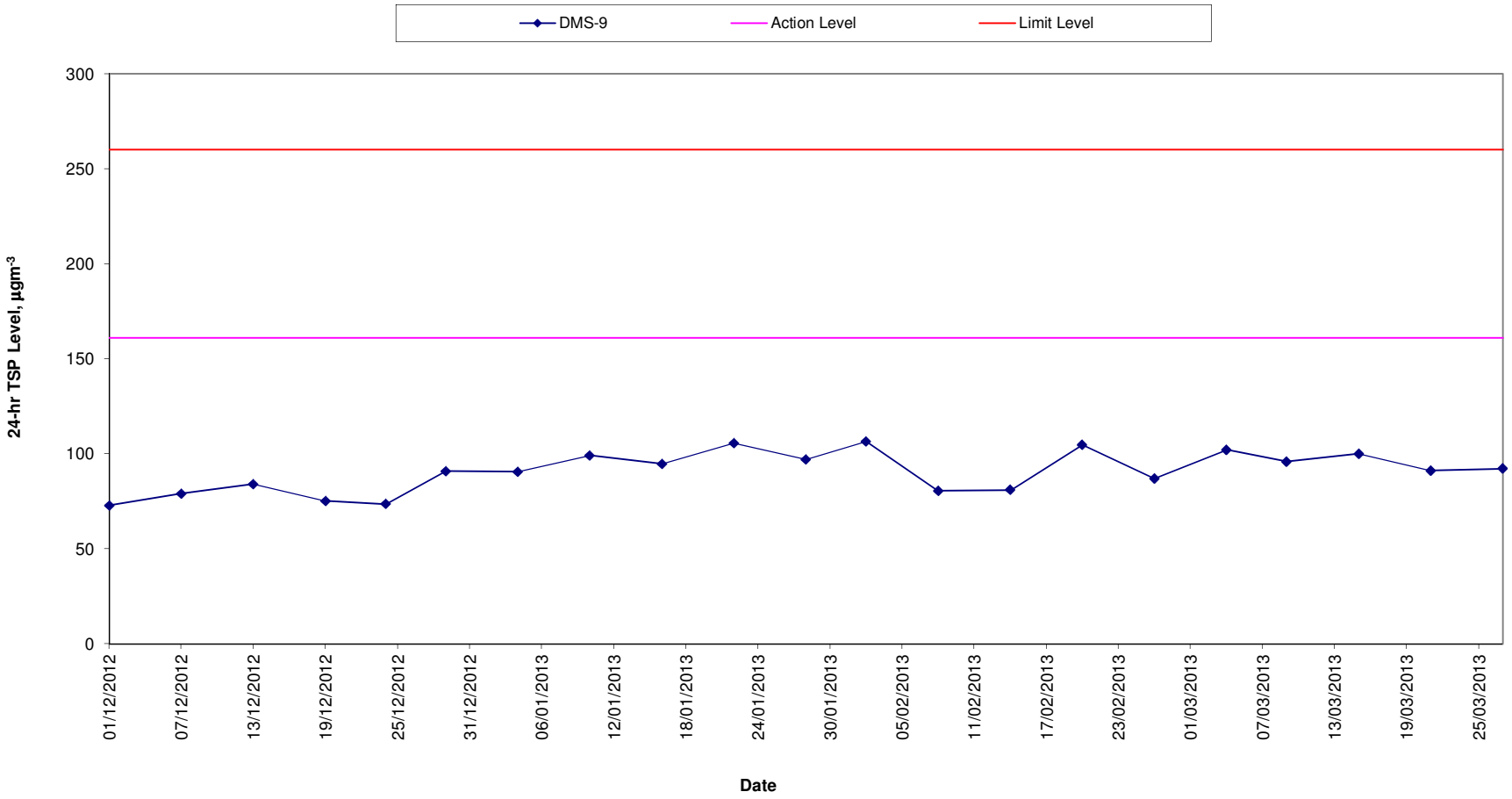
Construction Dust Monitoring Results for the Past 4 Months
DMS- 7 (Parc 22)



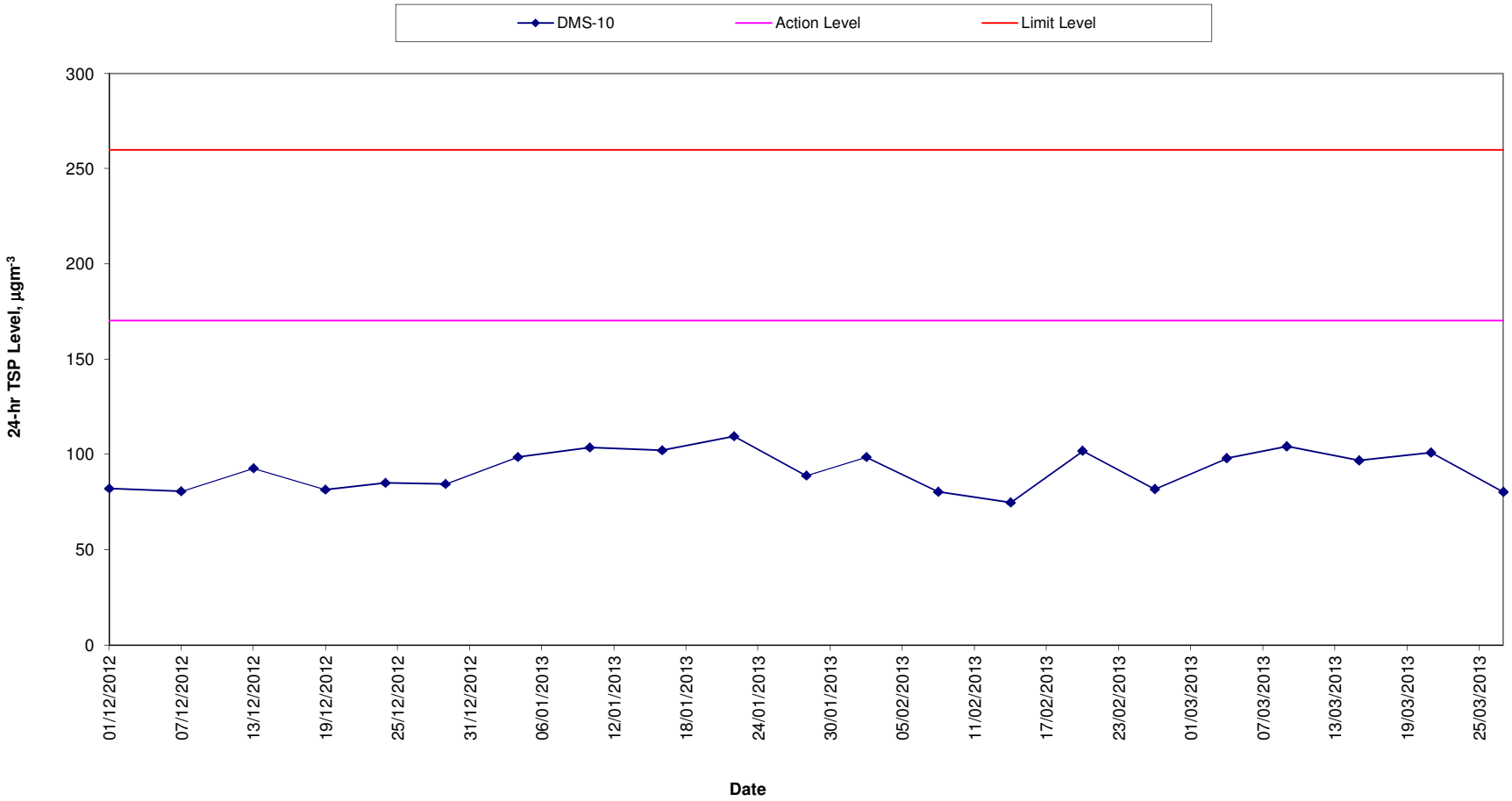
Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)



Construction Dust Monitoring Results for the Past 4 Months
DMS-9 (No. 26 Kowloon City Road)

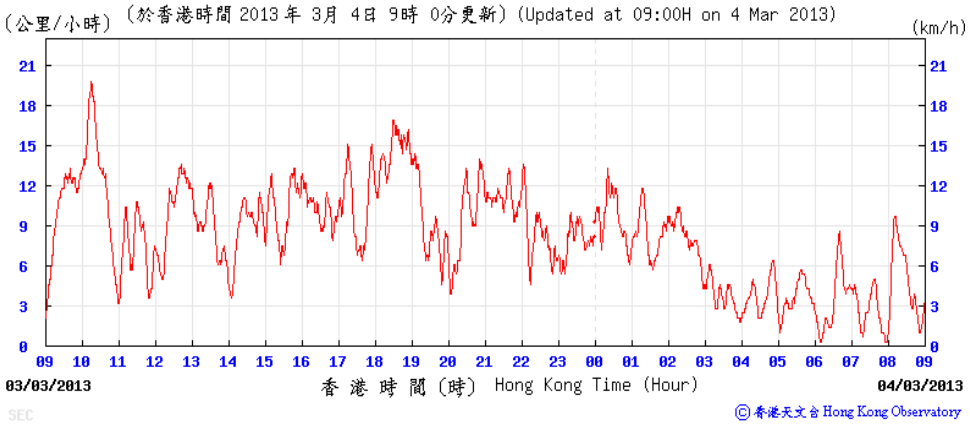


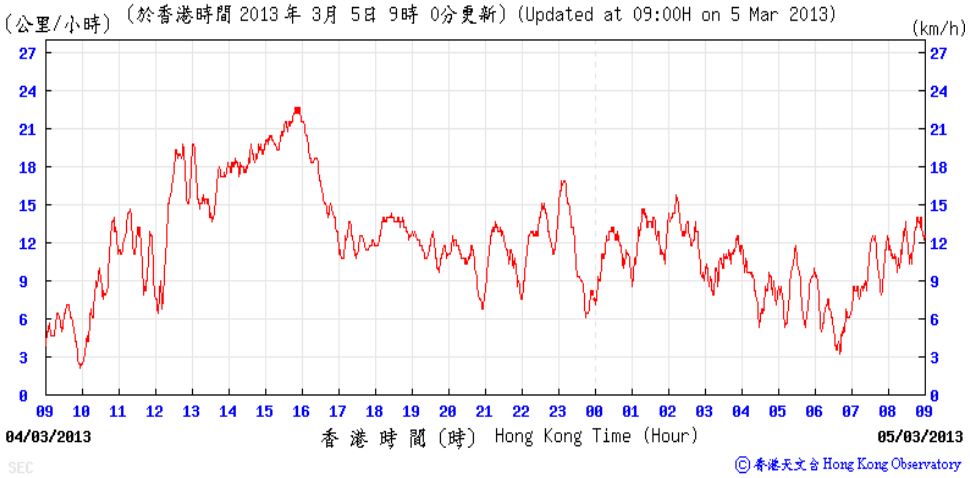
Construction Dust Monitoring Results for the Past 4 Months
DMS-10 (Chat Ma Mansion)

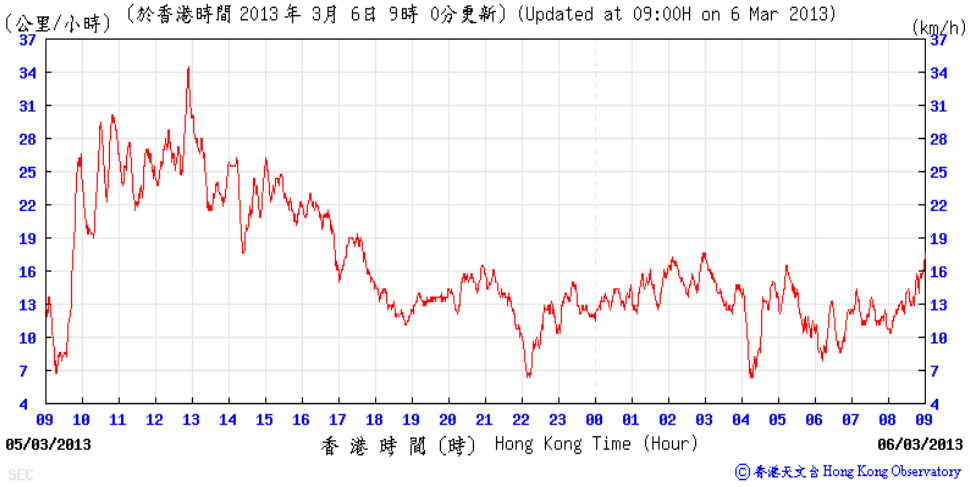


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

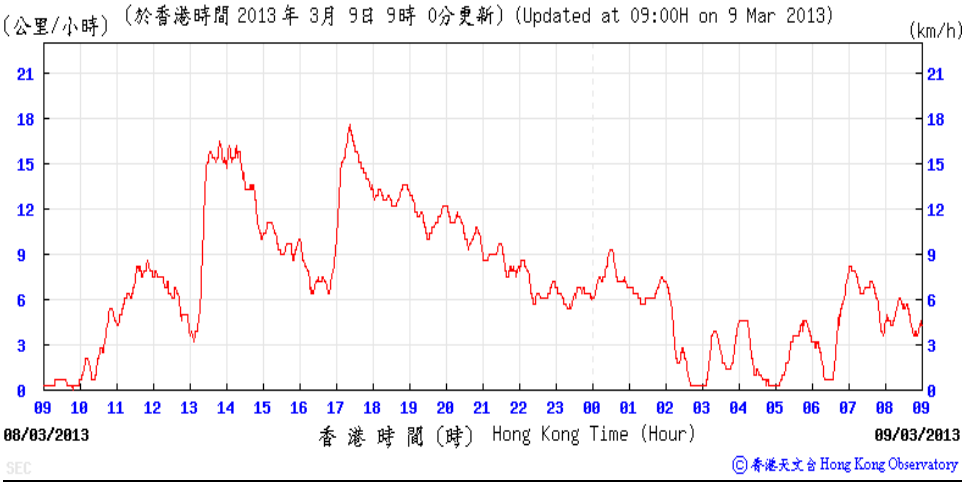
4 – 5 March 2013

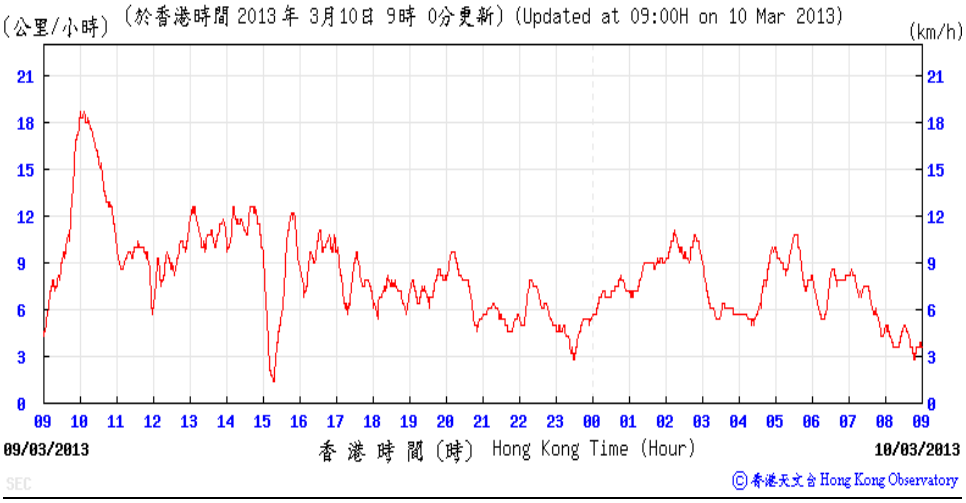


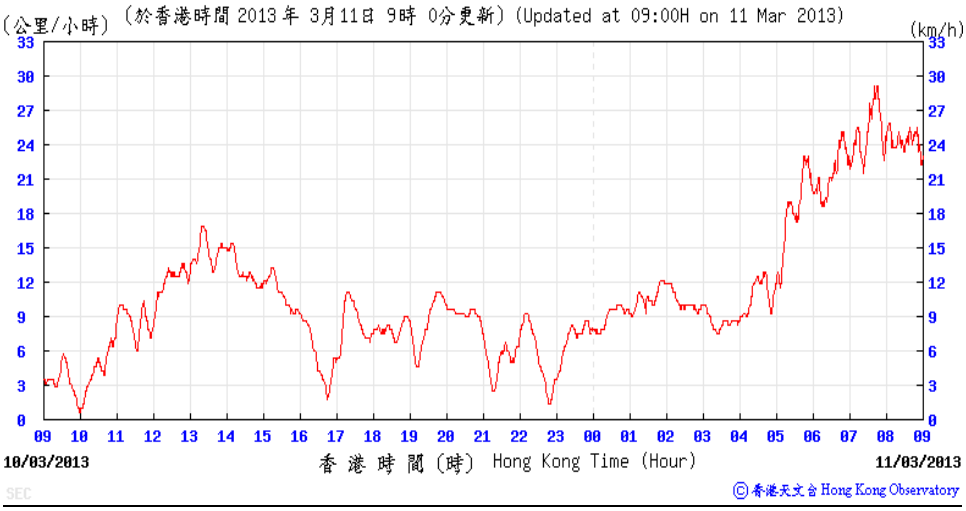




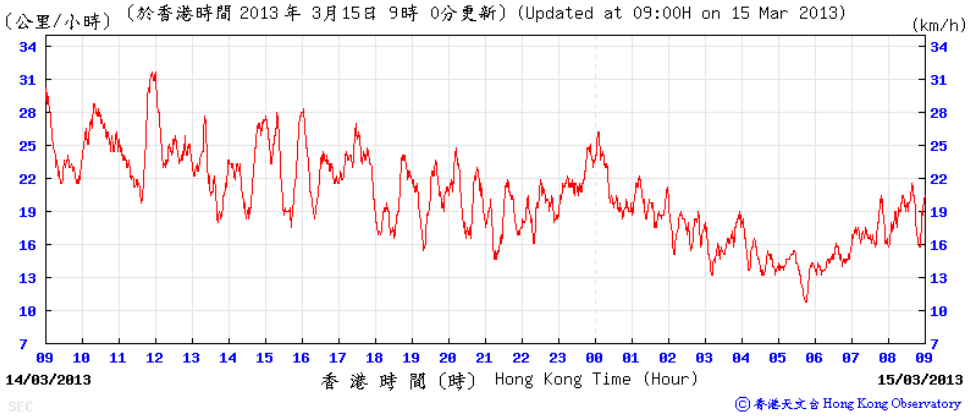
9 – 10 March 2013

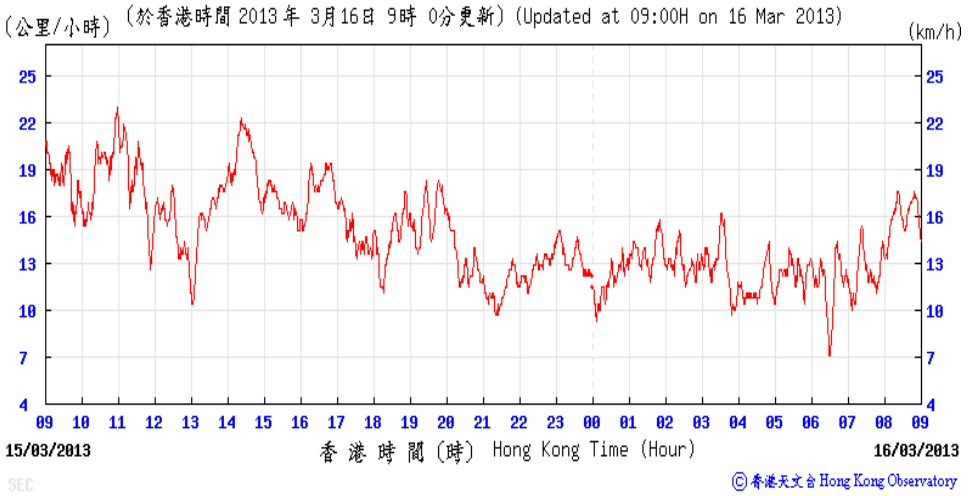


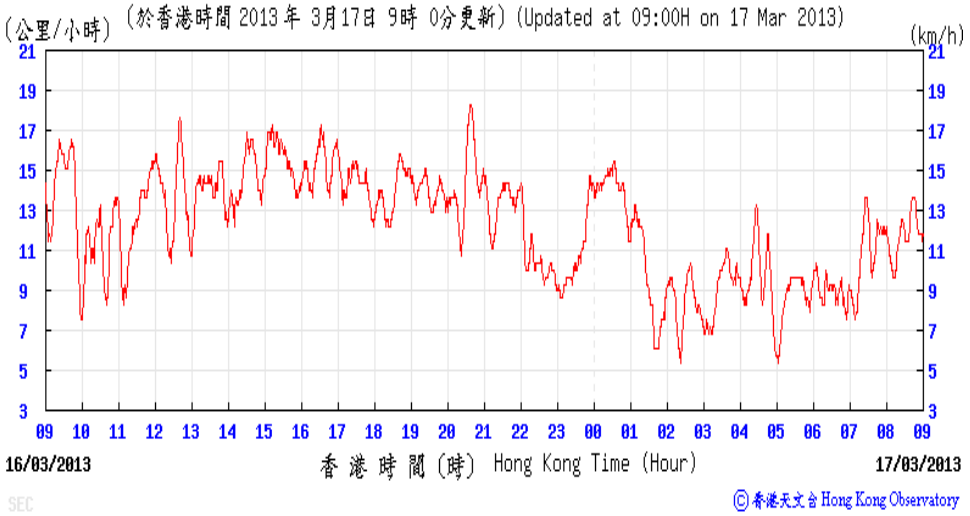




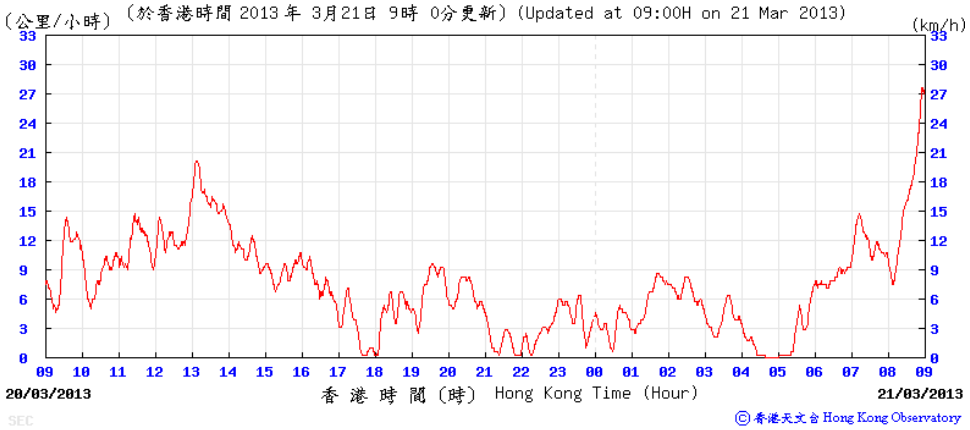
15 – 16 March 2013

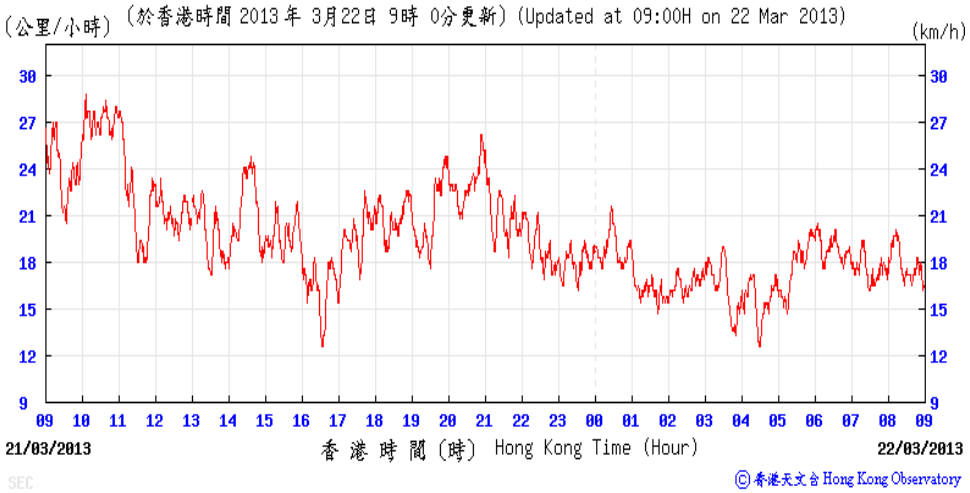


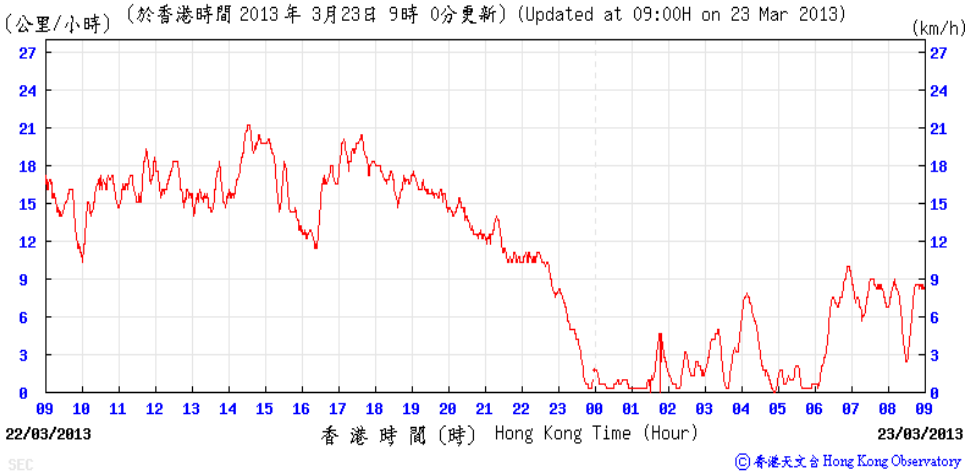




21 - 22 March 2013





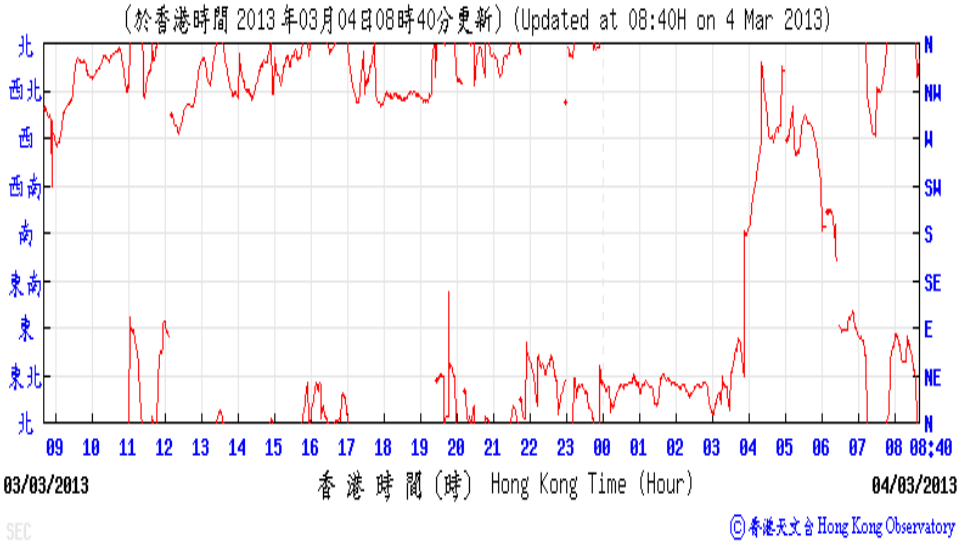


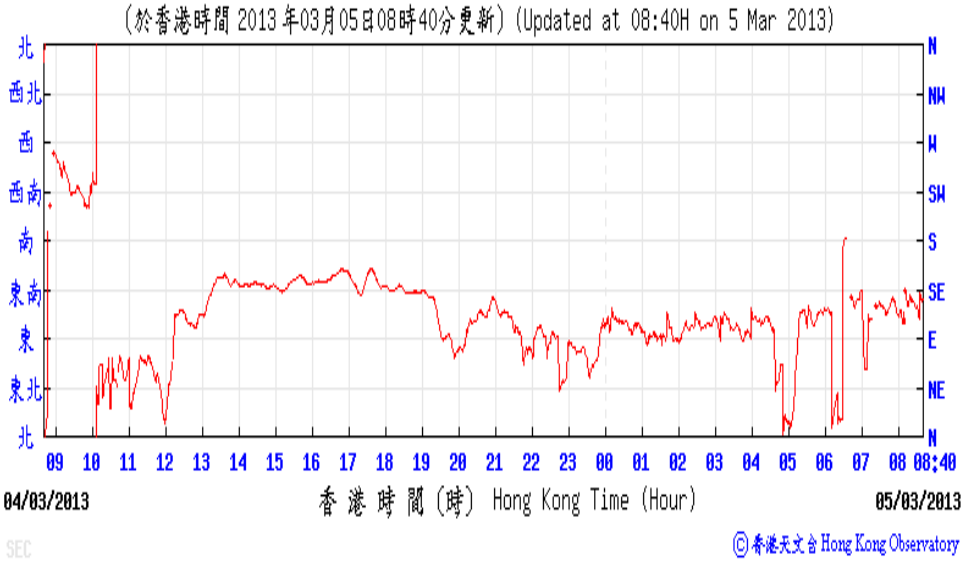
27 - 28 March 2013

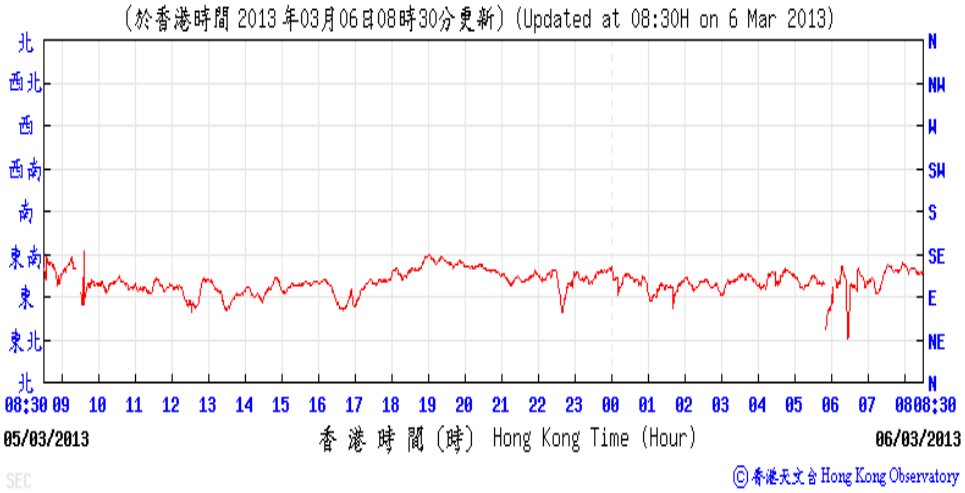
Information is not available.

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

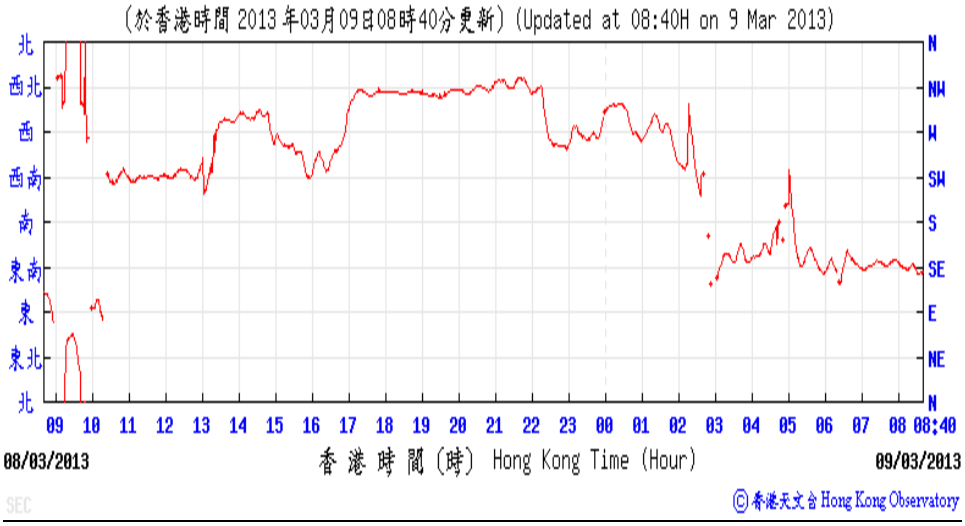
4 – 5 March 2013

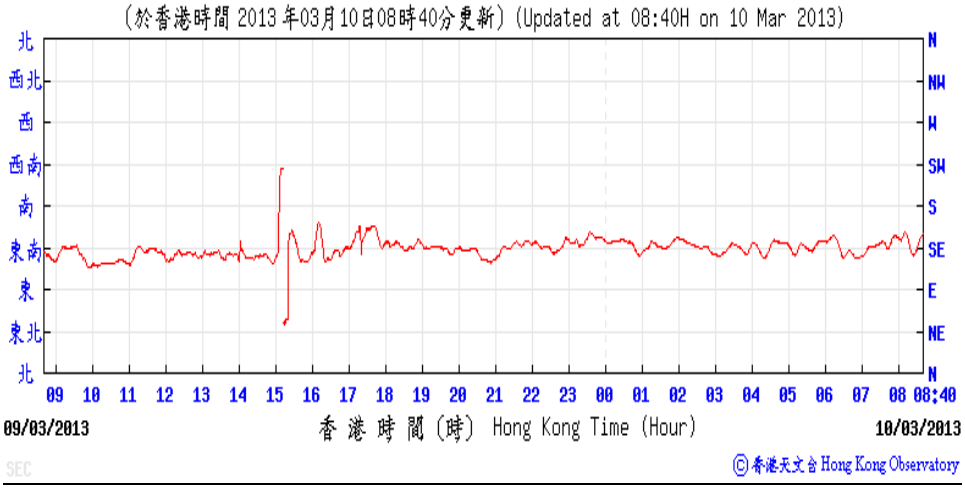


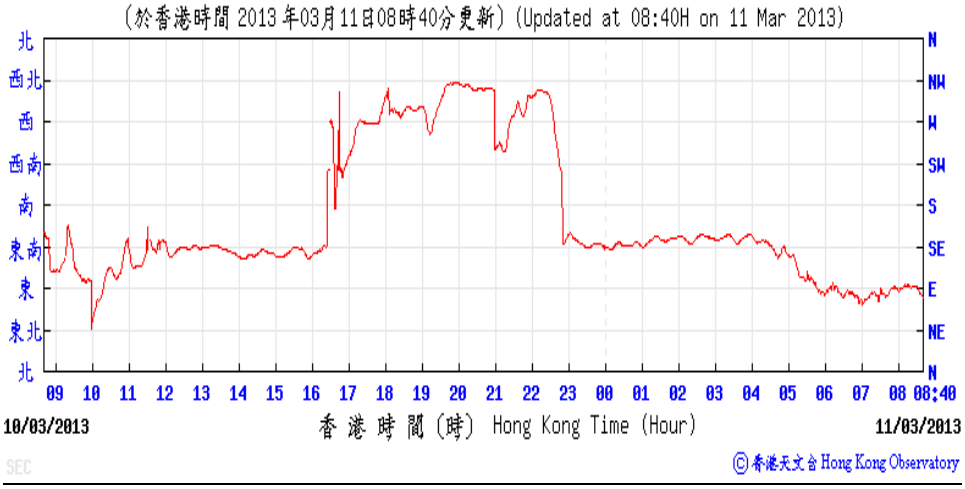




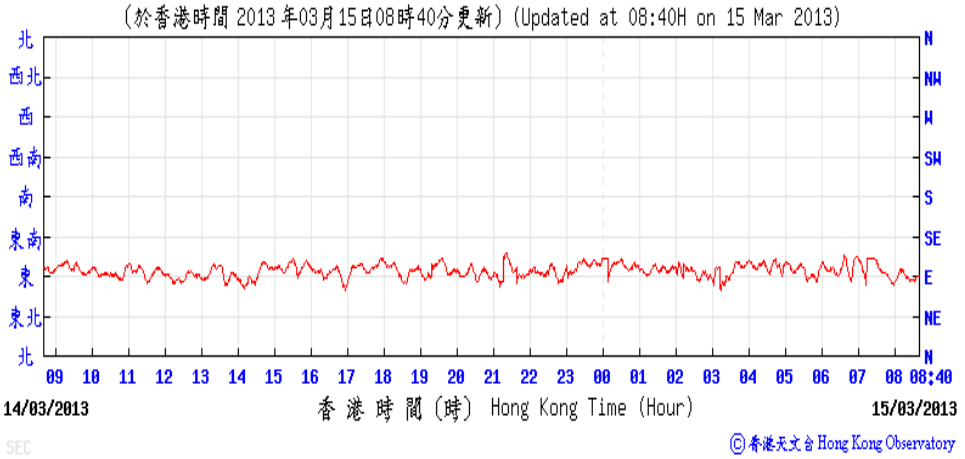
9 – 10 March 2013

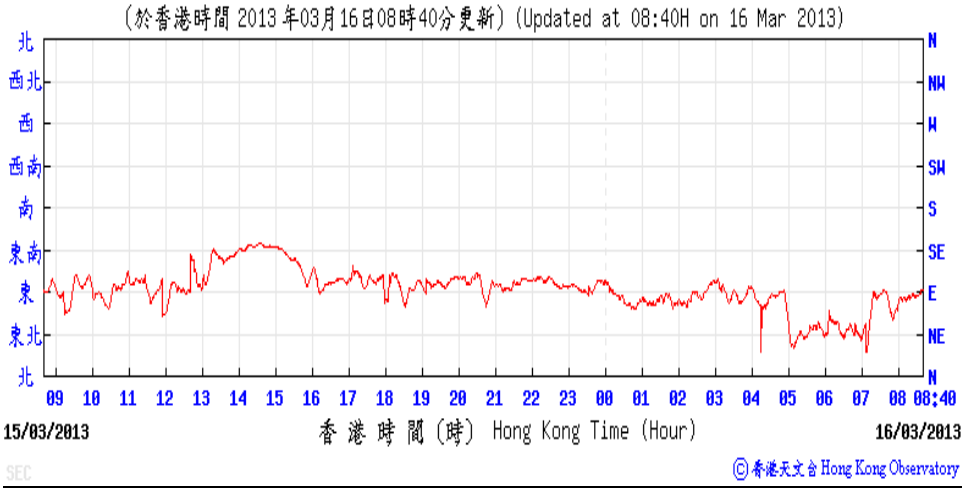


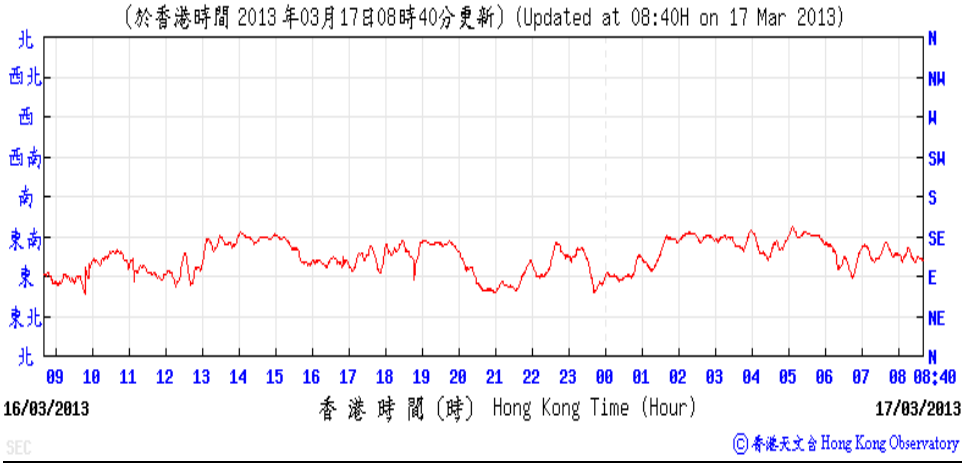




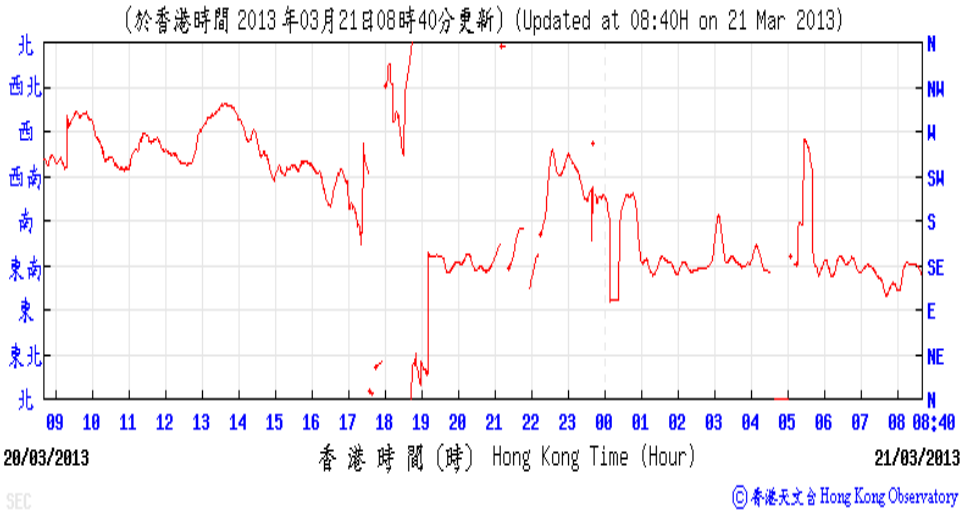
15 – 16 March 2013

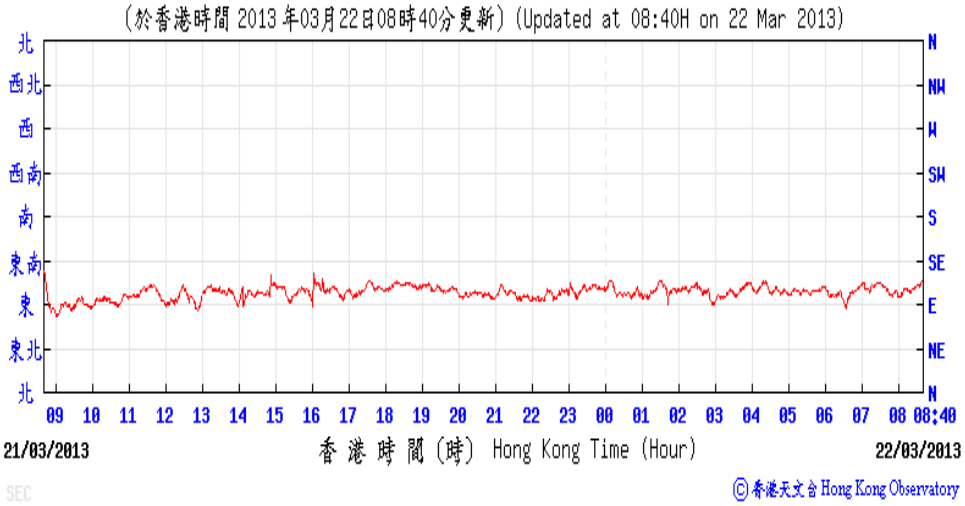


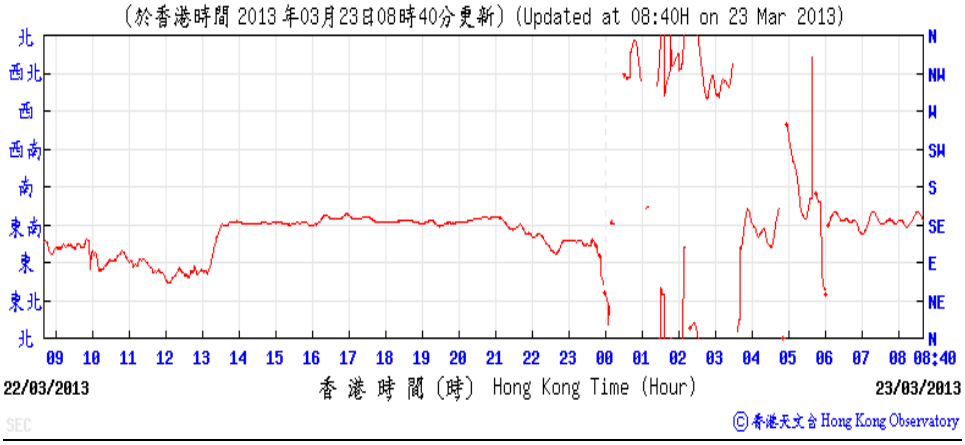




21 - 22 March 2013







27 - 28 March 2013

Information is not available.

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	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)
Jan	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Feb	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Mar	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Apr	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
May	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
June	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
July	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Aug	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Sub-total												
Sept	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Jan	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	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
March	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.057	0.000
Total	60.345	0.000	0.605	0.000	0.039	59.700	12.800	0.468	6.637	0.000	0.965	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.

Annex L

Environmental Complaint, Environmental Summon and Prosecution

Annex L 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
Overall Total	0	0

Appendix C

4th 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 31 March 2013]

Works Contract 1101 – Ma On Shan Modification Works

(April 2013)

Certified by: James Choi

Position: Environmental Team Leader

Date: 9/4/2013

EDMS Consulting Limited

edms

SCL Contract No. 1101

Ma On Shan Line Modification Works

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

for

Sun Fook Kong Joint Venture

Prepared By	Checked By	Approved for Issue
E Yue	A Lee	R.J. Choi
Version: 0	Date: 3 April 2013	

Table of Contents

List of Tables

List of Appendices

EXECUTIVE SUMMARY

Sun Fook Kong Join 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/B) for the SCL Tai Wai to Hung Hom Section (TAW-HUH) included works sites at Tai Wai Mei Tin Road, To Shek and Shek Mun Storage Yards and Tai Shui Hang of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

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, and To Shek and Shek Mun Storage Yards and Tai Shui Hang.

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. 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.

During the reporting month, major construction activities undertaken by the Contractor includes erection of steel structure of noise cover at Tai Wai Mei Tin Road.

According to the information provided by the Contractor, no C&D materials and chemical wastes were disposed off in the reporting month. 3.25 m^3 of general refuse were disposed of to NENT Landfill in the reporting month.

No environmental complaint was received during the reporting month.

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

The major construction activities in the upcoming months will include construction of steel noise cover at Tai Wai Mei Tin Road during restricted hours. It is anticipated that construction noise will be the key issue. The Contractor has been reminded to properly implement construction noise control measures in order to minimize the potential environmental impacts due to the construction works of the Project.

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 and Shek Mun Storage Yards and Tai Shui Hang 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 activities of the Construction Works include:

- Construction of noise cover over the viaduct near at Tai Wai Station (TAW); and
- Tree felling and compensation, tree transplanting and landscape works.

The works areas including works sites at Tai Wai Mei Tin Road, To Shek and Shek Mun Storage Yards and Tai Shui Hang are shown in ***Appendix H***.

1.3 Purpose of this Report

This is the 4th 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 March 2013.

As there is no designated air quality, noise and water quality monitoring stations for works sites at Tai Wai Mei Tin Road, and To Shek and Shek Mun Storage Yards and Tai Shui Hang, 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 A***.

2.2 Construction Activities

In the reporting month, major site construction activities undertaken by the Contractor include:

Tai Wai Mei Tin Road:

- Erection of steel structure of noise cover

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

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

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 C***.

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	0	13.00
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	0
General waste disposed of to NENT Landfill	3.25	32.75
Chemical waste disposed off to Chemical Waste Treatment Centre at Tsing Yi	0	0

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 6, 13, 20, and 28 March 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 ***Appendix D***.

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 E***.

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

A log of environmental complaints is shown in ***Appendix F.*** 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

Appendix G shows the updated construction programme of the construction works.

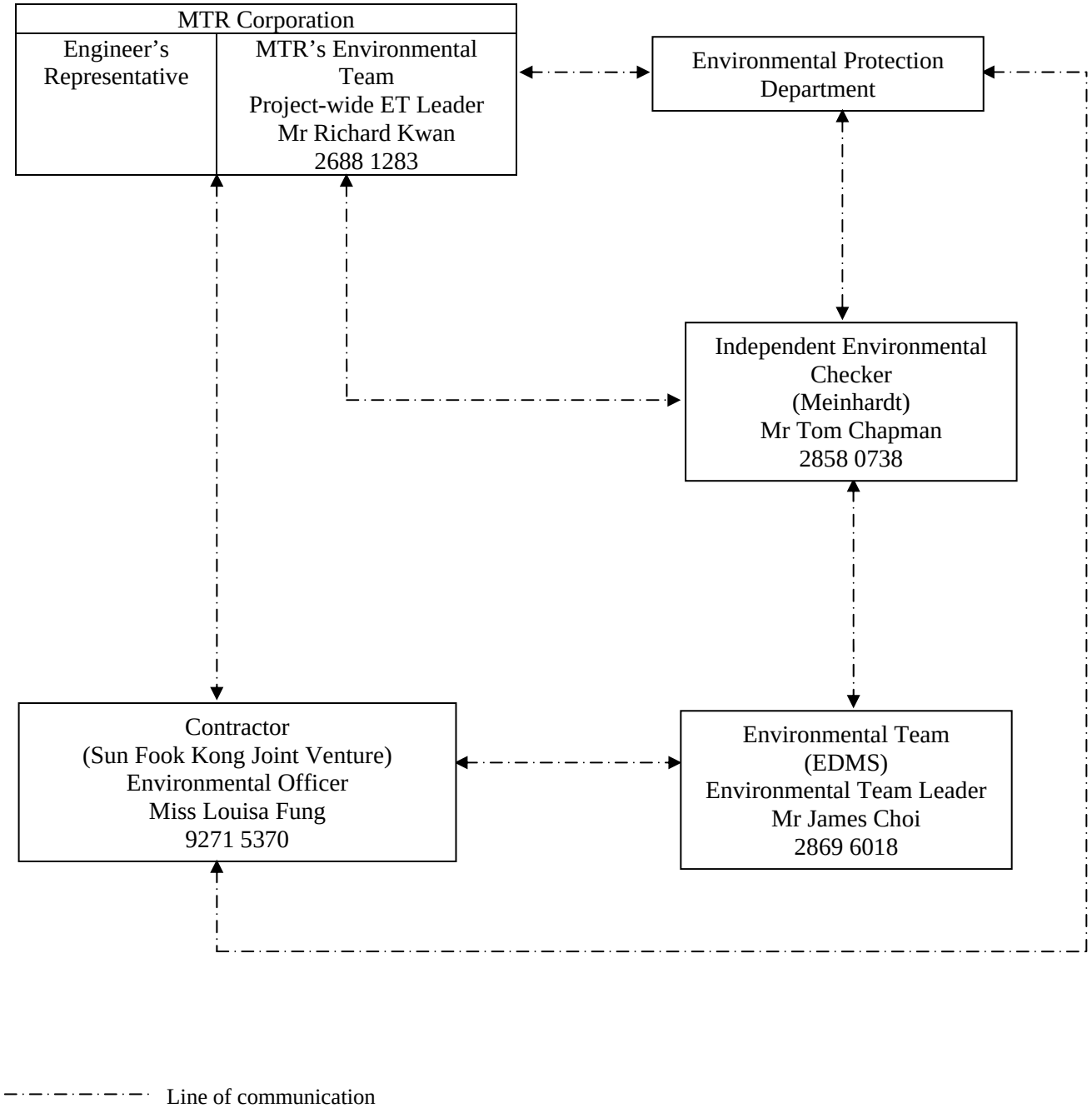
The major construction activities in the upcoming months will include construction of steel noise cover at Tai Wai Mei Tin Road during restricted hours. It is anticipated that construction noise will be the key issue. The Contractor has been reminded to properly implement construction noise control measures in order to minimize the potential environmental impacts due to the construction works of the Project.

APPENDIX A

ORGANISATION CHART OF ENVIRONMENTAL MANAGEMENT

Appendix A Organisation Chart of Environmental Management

Project Organization Chart



APPENDIX B

STATUS OF LICENSE, PERMIT AND SUBMISSIONS UNDER ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 1 Environmental Management Related Licenses and Permits

Subject	Reference No.	Application Date	Granted Date	Expired Date
Environmental Permit				
Environmental Permit for Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section (Register No. AEIAR-167/2012)	EP-438/2012/B	17 October 2012	26 October 2012	N/A
Construction Noise Permit				
Construction Noise Permit for Tai Wai Station	GW-RN0086-13	28 January 2013	15 February 2013	17 August 2013
Chemical Waste Producer				
Chemical Waste Producer at Tai Wai Station	5213-757-S3683-02	6 September 2012	8 October 2012	N/A
Chemical Waste Producer at To Shek Storage Yard	5213-759-S3683-08	10 January 2013	14 February 2013	N/A
Wastewater Discharge Licence				
Wastewater Discharge Licence for Tai Wai Station	WT00014550-2012	5 November 2012	19 November 2012	30 November 2017
Wastewater Discharge Licence for the To Shek Storage Yard	WT00014628-2012	N/A	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/B

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (February 2013)	14 March 2013

APPENDIX C

WASTE FLOW TABLE

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

Month	Actual Quantities of Inert C&D Wastes Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	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
October	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00
November	**13.00**	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
Cumulative Total	**13.00**	**0.00**	**0.00**	**13.00**	**0.00**	**26.00**	**0.00**

Remark: Waste Generated from site at Tai Wai Mei Tin Road, To Shek Storage Area and Tai Shui Hang Storage area.
1 full loaded dumping truck is assumed equivalent to 6.5 m^3 by volume from Archsd D/OL03/09.002

Waste Flow Table for _2013_ (year) (in cu. meter) for SCL

Month	Actual Quantities of Inert C&D Wastes Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	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
February	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	3.25	0.00
April							
May							
June							
Sub-total	**13.00**	**0.00**	**0.00**	**13.00**	**0.00**	**32.75**	**0.00**
July							
August							
September							
October							
November							
December							
Cumulative Total	**13.00**	**0.00**	**0.00**	**13.00**	**0.00**	**32.75**	**0.00**

Remark: Waste Generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard, To Shek Storage Area and Tai Shui Hang Storage area
1 full loaded dumping truck is assumed equivalent to 6.5 m^3 by volume from Archsd D/OL03/09.002

APPENDIX D

SUMMARY OF SITE INSPECTIONS AND RECOMMENDATIONS

Environmental Site Walk on 6.3.2013

ET's Observations and Recommendations	***Follow-up Action***
No site observation at Tai Wai Mei Tin Road, and To Shek and Shek Mun Storage Yards and Tai Shui Hang	NA

Environmental Site Walk on 13.3.2013

ET's Observations and Recommendations	***Follow-up Action***
No site observation at Tai Wai Mei Tin Road, and To Shek and Shek Mun Storage Yards and Tai Shui Hang	NA

Environmental Site Walk on 20.3.2013

ET's Observations and Recommendations	***Follow-up Action***
No site observation at Tai Wai Mei Tin Road, and To Shek and Shek Mun Storage Yards and Tai Shui Hang	NA

Environmental Site Walk on 28.3.2013

ET's Observations and Recommendations	***Follow-up Action***
No site observation at Tai Wai Mei Tin Road, and To Shek and Shek Mun Storage Yards and Tai Shui Hang	NA

Remark:
Only minor construction works such as storage of construction materials at To Shek and Shek Mun Storage Yards were undertaken in this reporting month, and no environmental deficiencies were observed.

APPENDIX E

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	<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 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.	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
		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, including trees in contractor's works sites.						
S6.12	LV2	• Decorative Hoarding 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. • Management of facilities on work sites 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	^

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
		• Tree Transplanting 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	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	^

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
		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					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 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	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
		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; • 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						

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
		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 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.						

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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
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 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.	Control construction airborne noise	Contractor	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 hoarding shall be properly maintained	Reduce the construction noise level at low-level	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^

Remarks:
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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
		throughout the construction period.	zone of NSRs through partial screening					
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
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:	To minimize water quality impact from construction site runoff and general	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance	^

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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
		<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 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	construction activities				• ProPECC PN1/94 • TM-EIAO • TM-Water	

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* 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
		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. • 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						

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		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 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.						

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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		• 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 impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity						

Remarks:
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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
		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 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 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	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	^

Remarks:
^ Implement mitigation measure in the reporting month
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x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		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.						
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 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	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	^

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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
		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	Construction and Demolition Material • 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 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	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
		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. • 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	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
		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. • 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	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	Control the chemical waste and ensure proper storage, handling	Contractor	All construction sites	Construction stage	• Waste Disposal (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
		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.	and disposal.				General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	

Remarks:
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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
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 F

ENVIRONMENTAL COMPLAINT LOG

Appendix F Environmental Complaint Log

Complaint Log No.	Date of Receipt	Complainant	Nature of Complaint	Date Investigated	Outcome	Date of Reply
Nil	Nil	Nil	Nil	Nil	Nil	Nil

Note: Fill in "NIL" for no complaint

APPENDIX G

UPDATED CONSTRUCTION PROGRAMME

Construction Programme (SCL)

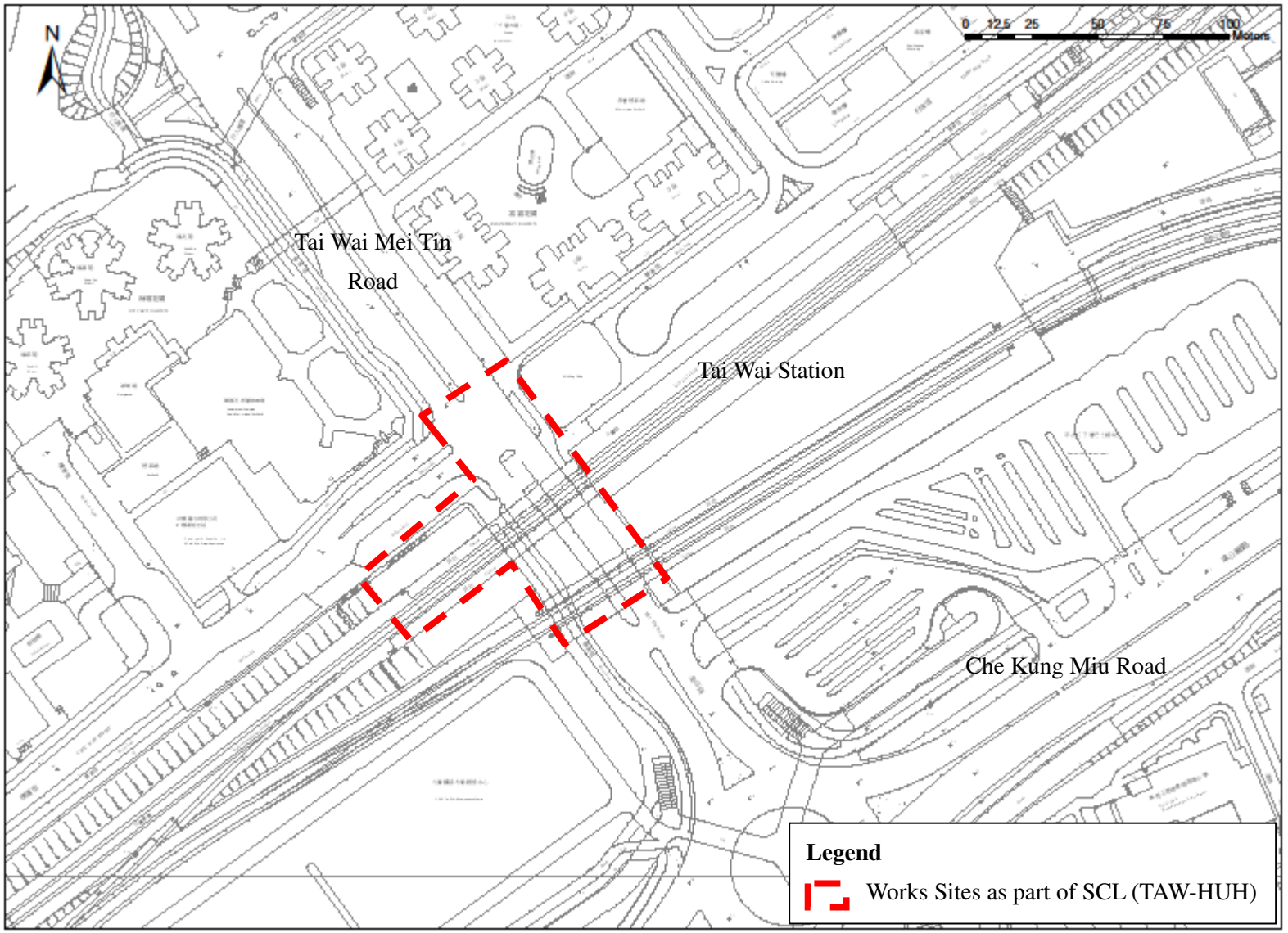
		2012				2013												2014												2015												2016						
	Activities	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
TAW Mei Tin Road	Noise Barrier Installation Work			I	I	I	I	I	I	I	I																																				
To Shek Storage Yard	Storage of Construction Material	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Shek Mun Storage Yard	Storage of Construction Material	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Tai Shui Hang Storage Yard	No construction work has been carried out nor planned at Tai Shui Hang Storage Yard.																																															

Abbreviation

T	Traffic Hour (8:00 to 18:00)
N	Non - Traffic Hour (1:30 to 4:30)
I	Engineering Possession (2:00 to 4:00)

APPENDIX H

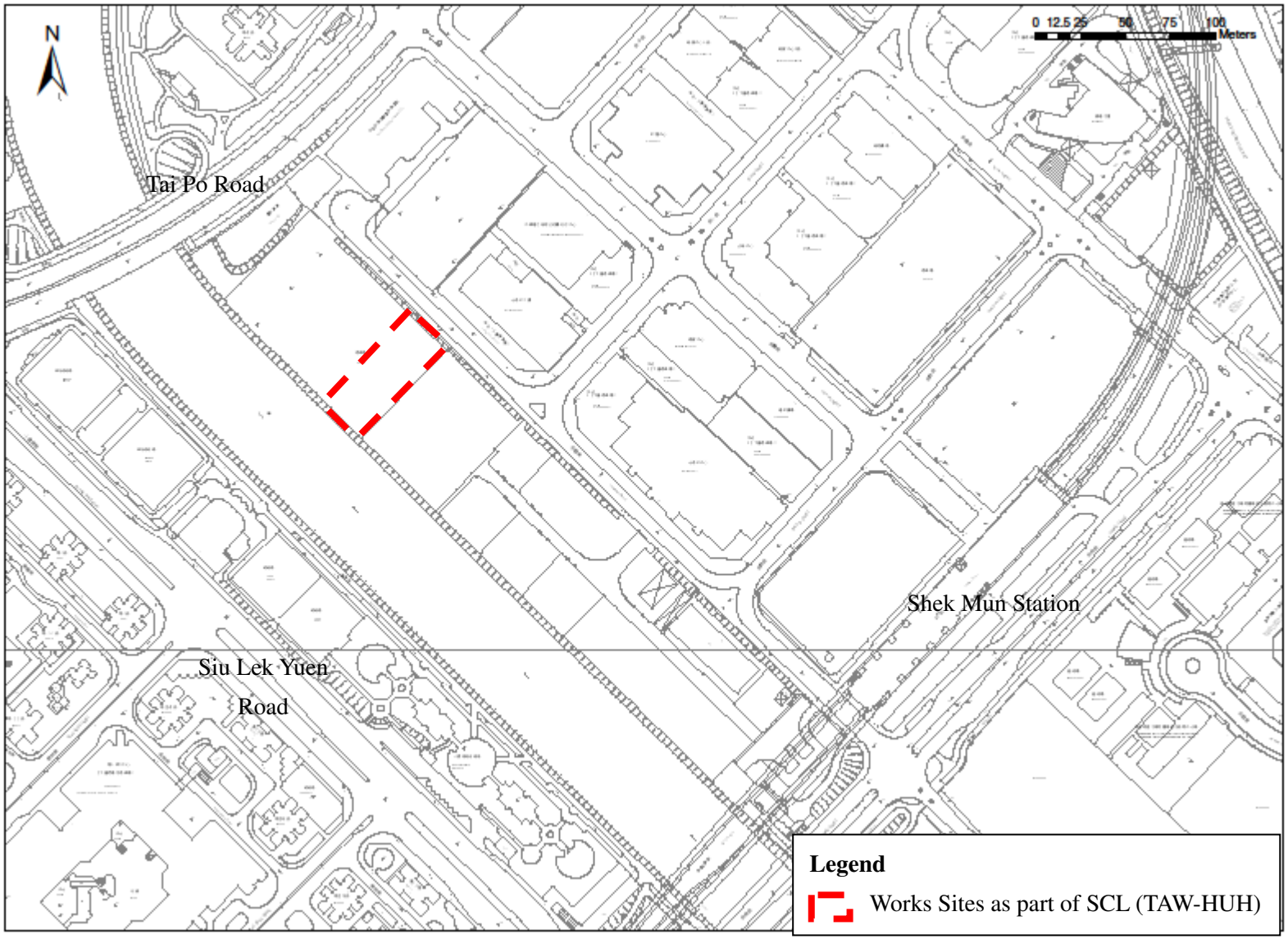
WORKS SITES AS PART OF SCL (TAW-HUH)



edms

Works Areas under the Remaining Works from parts of the SCL(TAW-HUH)
Tai Wai Mei Tin Road

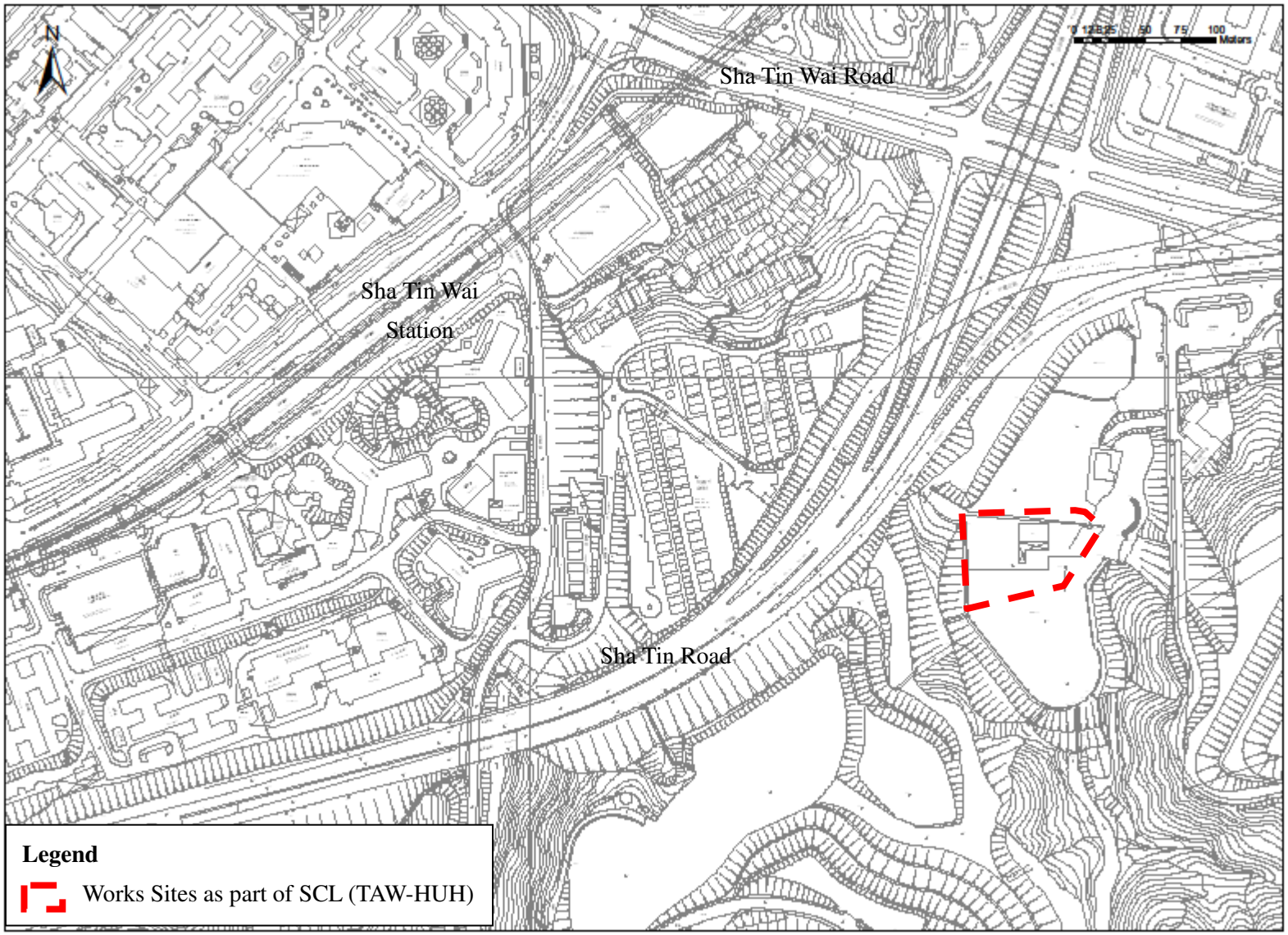
SCALE	N.T.S.	DATE	5 February 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App H (Sheet 1 of 4)	REV 1



edms

Works Areas under the Remaining Works from parts of the SCL(TAW-HUH)
Shek Mun Storage Yard

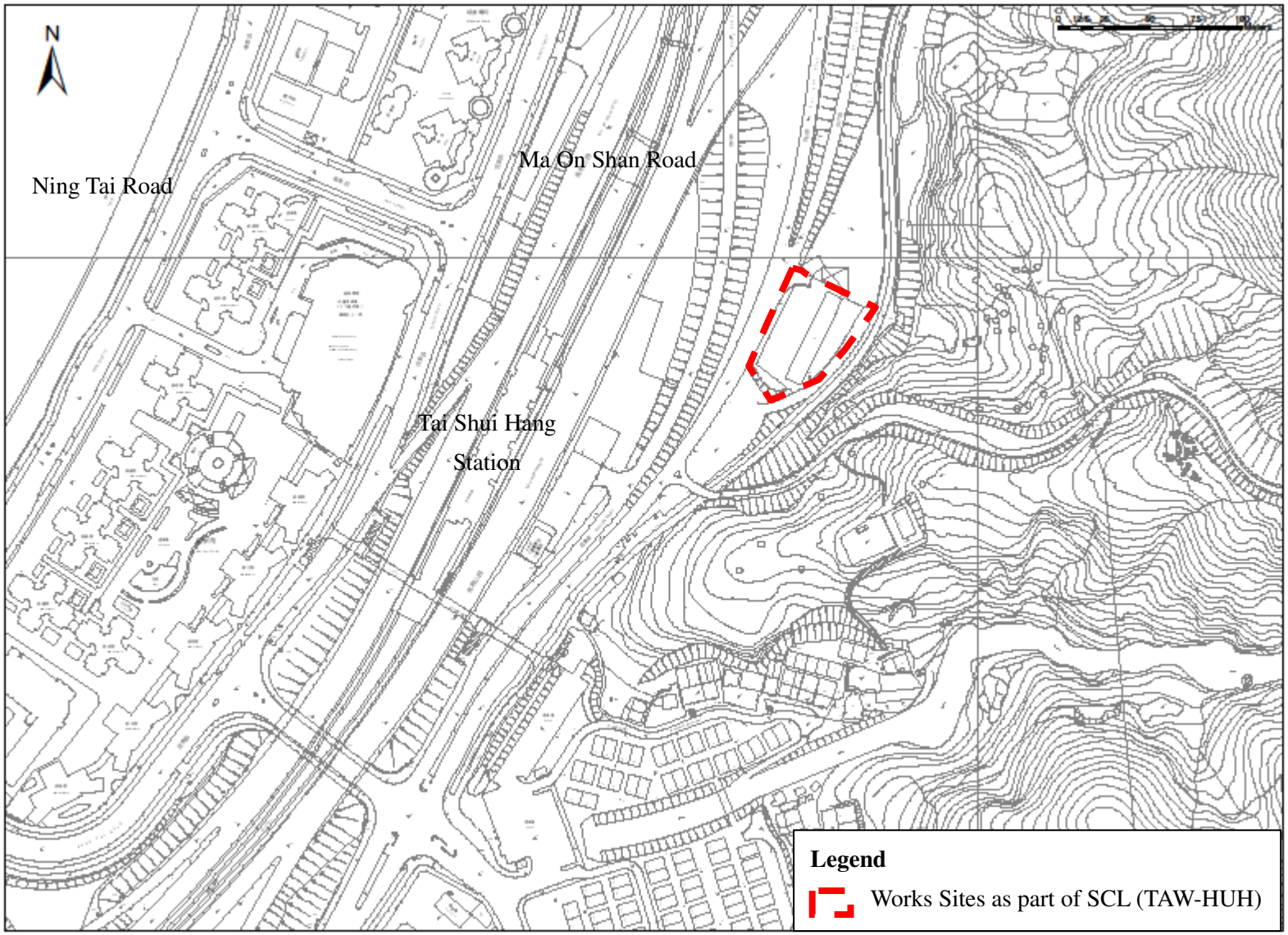
SCALE	N.T.S.	DATE	5 February 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App H (Sheet 2 of 4)	REV 1



edms

Works Areas under the Remaining Works from parts of the SCL(TAW-HUH)
To Shek Storage Area

SCALE	N.T.S.	DATE	5 February 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App H (Sheet 3 of 4)	REV 1



edms

Works Areas under the Remaining Works from parts of the SCL(TAW-HUH)
Tai Shui Hang

SCALE	N.T.S.	DATE	5 February 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App H (Sheet 4 of 4)	REV 1

Appendix D

3rd 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
February 2013

March 2013

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

Version: 0	Date: 14 March 2013

AECOM Asia Co. Ltd.
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Table of Contents

List of Tables

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Shatin to Central Link Contract 1111 – Hung Hom North Approach Tunnels (hereafter called "the Project") covers part of the construction of the Shatin to Central Link (SCL) which aimed to convey a total of 17km extension of the existing Ma On Shan Line (MOL) through east Kowloon to West Rail Line and also East Rail Line (EAL) through Hung Hom across the harbour to Admiralty Station (ADM). The Project covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom Area for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS).

The EM&A programme commenced in January 2013.The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 March 2013. As informed by the Contractor, major activities in the reporting period were:-

Hung Hom Area
- Hoarding erection, tree survey, tree felling
- Excavation work, demolition, man hole, building footing / RC structureand drainage construction.
- Cross track duct construction, cable trough installation, existing track removal.
- Pipe pile installation.
- Bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal
- Base slab demolition, base slab and building construction.

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

- Hoarding erection, site preparation, tree felling, site clearance, hoarding/ fencing erection, demolition of retaining wall.
- Excavation work, demolition, man hole, building footing/RC structure and drainage construction.
- Cross track duct construction, ADMS installation and existing track removal.
- Trial pit, pipe pile installation, TAM grout.
- Concreting, rebar fixing, formwork erection, bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal

- Base slab demolition, base slab and building construction.

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 third monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 March 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/B) was issued by Director of Environmental Protection (DEP) on 26 October 2012.

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
- Hoarding erection, tree survey, tree felling
- Excavation work, demolition, man hole, building footing / RC structureand drainage construction.
- Cross track duct construction, cable trough installation, existing track removal.
- Pipe pile installation.
- Bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal
- Base slab demolition, base slab and building construction.

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	3507 6889	2334 0323
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Tom Chapman	2858 0738	2540 1580
		Deputy Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	
GKSCKJV	Contractor	Project Manager	Alan Yan	9855 0361	3904 9630
		Environmental Manager	Brian Kam	9456 9541	
AECOM	Contractor's Environmental Team (ET)	ET Leader	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/B	26 Oct 2012	-	Valid	-
Construction Noise Permit				
GW-RE0243-13	19 Mar 2013	30 Apr 2013	Valid	For Cross-track Duct (Workfronts No. 7)
GW-RE0125-13	08 Feb 2013	07 Apr 2013	Valid	For Cross-track Duct (Workfronts No.1 & 2)
GW-RE0198-13	06 Mar 2013	24 May 2013	Valid	For Hung Hom Station Reprovisioning Works
GW-RE0139-13	15 Feb 2013	07 May 2013	Valid	For Link Bridge truss lifting
Wastewater Discharge License				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
355758	-	-	Application was made on 8 Feb 2013 and is pending for EPD's approval	For Homantin Sidings Works
356911	-	-	Application was made on 11 Mar 2013 and is pending for EPD's approval	For Mong Kok Freight Terminal Works
Chemical Waste Producer Registration				
356256	-	-	Application was made on 28 Feb 2013 and is pending for EPD's approval	For Hung Hom Station Reprovisioning Works
356266	-	-	Application was made on 28 Feb 2013 and is pending for EPD's approval	For Winslow Street Works
356274	-	-	Application was made on 28 Feb 2013 and is pending for EPD's approval	For Mong Kok Freight Terminal Works
356262	-	-	Application was made on 28 Feb 2013 and is pending for EPD's approval	For Homantin Sidings Works
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))

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 March 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	Rion (Model No. NL-31) & B&K (Model No. 2238)
Acoustic Calibrator	Rion (Model No. NC-73)

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 March 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/B (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/B)	Monthly EM&A Report for February 2013	14 March 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 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	78.4	21.8 – 111.9	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	Average, dB(A), $L_{eq\ (30\ mins)}$	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM 1	62.9	58.9 – 68.0	65 / 70[(1)]
NM 2	76.0[(2)]	71.9 – 77.5[(2)]	75

Note:
(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period. The reporting month is not the school examination period and the criteria of 70dB(A) was applied.
(2) 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.

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, 311m^3 of inert C&D material was generated and disposed as public fills at TKO 137 while 112,240kg of general refuse was disposed at NENT landfill in the reporting month. No paper/cardboard packaging, plastics and 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 Inspection of the implementation of landscape and visual mitigation measures were conducted bi-weekly. 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**.

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 6, 13, 21 and 28 March 2013. The one held on 21 March 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	13 Mar 2013	• Inadequate mechanism to prevent effluent from entering the public drainage was observed in Portion W1A. The Contractor should ensure the perimeter of gullies in Portion W1A is enclosed by permanent cement block entirely. • The Contractor was reminded to clear the foul water rising from the drainage opening at works area at Hung Hom Station.	The item was observed to be rectified by the Contractor on 18 Mar 2013.
	21 Mar 2013	• The Contractor should review the drainage system at works area in Portion W1A to collect and treat the generated slurry. No over-flowing of effluent shall be allowed to enter the public drainage and leave the work boundary.	The item was observed to be rectified by the Contractor on 28 Mar 2013.
	28 Mar 2013	• Discharging tube of the sink tank at works area in Portion W1A was missing. The Contractor should make sure no effluent will be discharging into the public drainage directly.	The item was observed to be rectified by the Contractor on 3 Apr 2013.
Air Quality	6 Mar 2013	• The Contractor was reminded to cover the construction materials in works area at Hung Hom Station entirely with tarpaulin sheet.	The item was observed to be rectified by the Contractor on 13 Apr 2013.
	13 Mar 2013	• The Contractor should provide regular water spraying to works area in Portion 1A, cover the temporary slope entirely with imperious sheeting and retain effluent within the works area to prevent any from entering the public drainage before the granting of effluent licence. • The Contractor was reminded to clear the dusty material at works area in Link Bridge	The item was observed to be rectified by the Contractor on 18 Mar 2013.
Noise	N/A	N/A	N/A

Parameters	Date	Observations and Recommendations	Follow-up
Waste/ Chemical Management	6 Mar 2013	• The Contractor should clear utensils placed on the dip tray for the air compressor at works area in Cross Track Duct No.2, and provide tarpaulin sheet to retain leakage of oil from the air compressor, if any.	The item was rectified by the Contractor on 8 Mar 2013..
	21 Mar 2013	• The Contractor should clear the stagnant water in drip tray regularly at works area in Portion W1A and plug them back properly afterwards. • The Contractor should clear the waste skip regularly at works area in Mong Kok Freight Terminal. • Accumulation of general waste was observed on ground at works area in Portion W1A. The Contractor should provide waste skip for waste storage and clear the observed general waste in timely manner. • The Contractor should provide proper chemical storage area in Mong Kok Freight Terminal. • The Contractor was reminded to clear the excavated material at works area in Mong Kok Freight Terminal	All items were observed to be rectified by the Contractor on 3 Apr 2013.
	21 Mar 2013	• Oil stain was observed on bare ground near the drip tray at works area in Mong Kok Freight Terminal. The Contractor should clear the oil stain and dispose of as chemical waste.	Follow-up action is needed in next reporting month.
	21 & 28 Mar 2013	• A chemical container was found placing on bare ground without the provision of drip tray. The Contractor should provide drip tray to retain leakage at works area in Portion W1A, if any.	The item was observed to be rectified by the Contractor on 3 Apr 2013.
	28 Mar 2013	• General waste was found in recycle bins at works area in Portion W1A. The Contractor should implement onsite sorting properly.	The item was observed to be rectified by the Contractor on 3 Apr 2013.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	6 Mar 2013	• The Contractor was reminded to post relevant and updated EPs at works area of Link Bridge.	The item was observed to be rectified by the Contractor on 13 Mar 2013..
	13 Mar 2013	• The Contractor was reminded to post relevant and updated EPs at the entrance of Portion 1A.	The item was observed to be rectified by the Contractor on 18 Mar 2013.

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.

7.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.1.4 Cumulative statistics on exceedances is provided in **Appendix J**.

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 April and May 2013 will be:-

Hung Hom Area

- Hoarding erection, site preparation, tree felling, site clearance, hoarding/ fencing erection, demolition of retaining wall.
- Excavation work, demolition, man hole, building footing/RC structure and drainage construction.
- Cross track duct construction, ADMS installation and existing track removal.
- Trial pit, pipe pile installation, TAM grout.
- Concreting, rebar fixing, formwork erection, bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal

- Base slab demolition, base slab and building construction.

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 April 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 March 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

- Cover the dusty materials with impervious sheeting entirely so as to minimize the dust impact.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Properly collect and treat wastewater before discharge into the drainage system.

Chemical and Waste Management

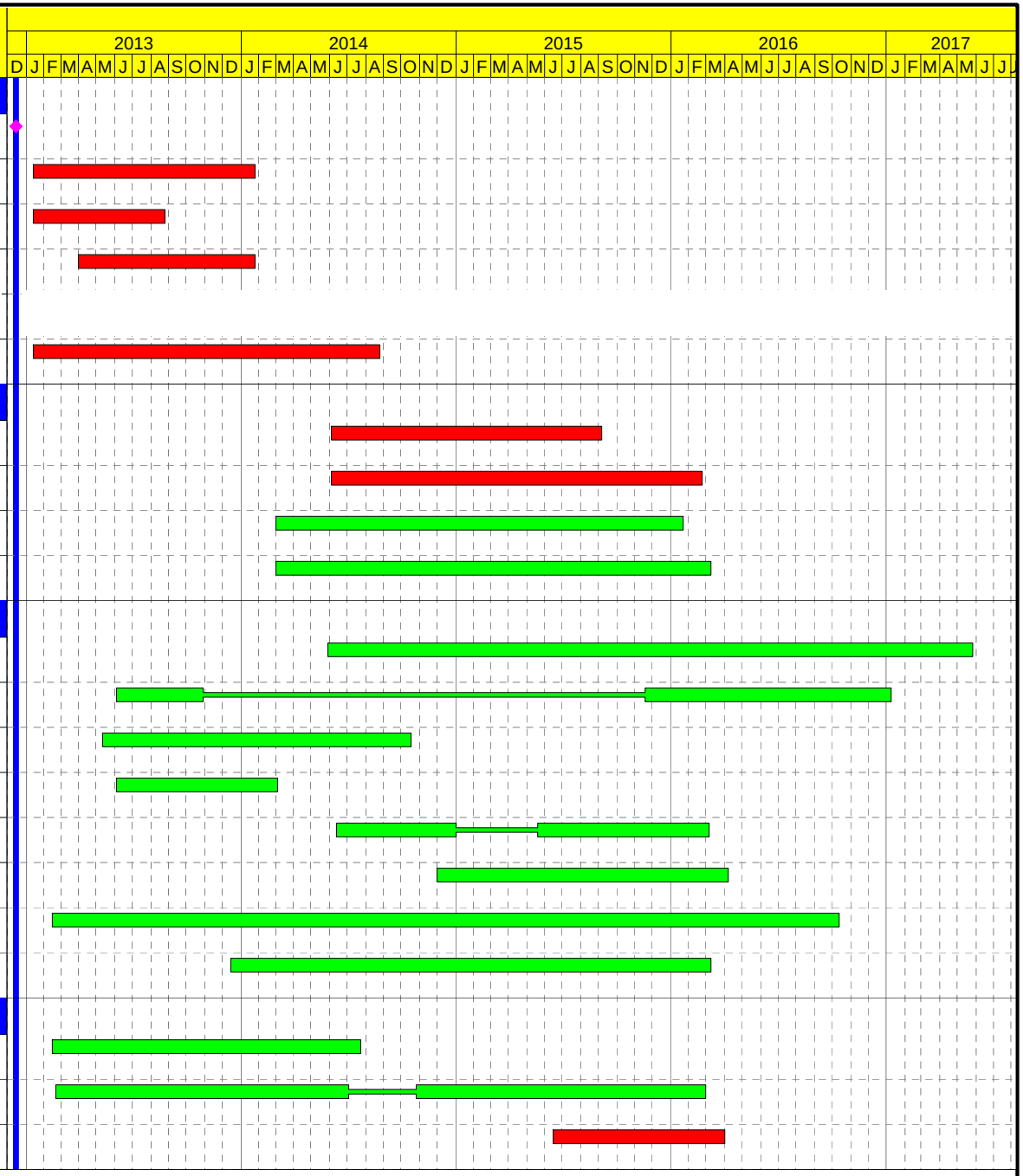
- Avoid accumulation of waste materials on site.
- Provide proper chemical waste storage.
- Implement onsite sorting properly.

FIGURES

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



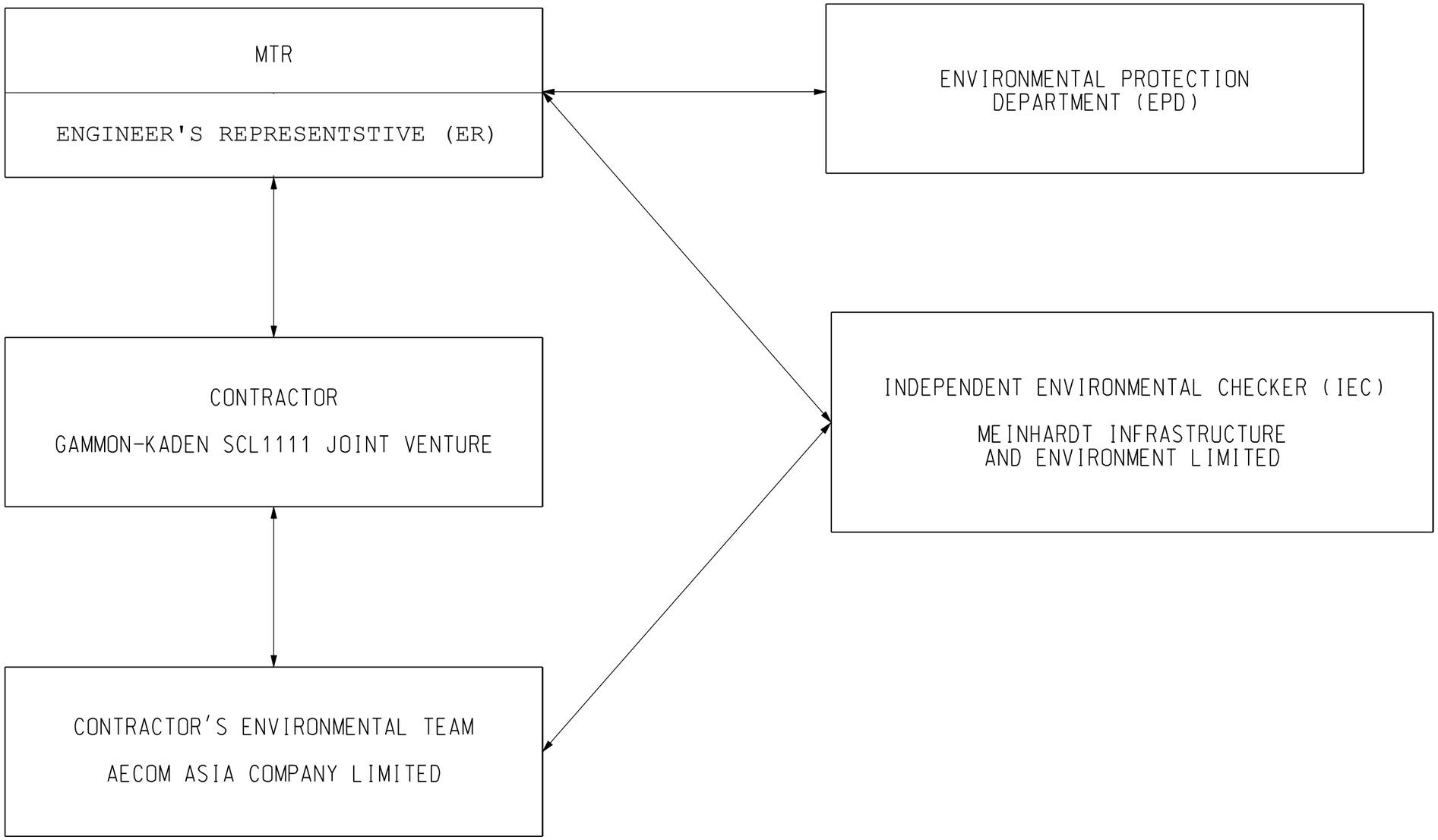
Early Bar
Progress Bar
Critical Activity

SCL 1111
SUMMARY PROGRAMME

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



PLOT DRV: V:\ustnse1\MTR\PLOTDRIVER\WINDOWS\A3 COLOUR.plt
MODEL NAME: Default PRINTED BY: XANG 2013/1/10 17:02:34
FILENAME: P:\projects\602840\DRAWING\FIGURE\Figure 1.2.dgn

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	HD
DESIGNED	LCLL
CHECKED	LCLL
APPROVED	IMW
DATE	08/JAN/2013

MTR

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	V
		Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum	All construction sites	V
		Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs	All construction sites	V
		Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works	All construction sites	V
		Mobile plant should be sited as far away from NSRs as possible and practicable;	All construction sites	V
		Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities	All construction sites	V
		The following quiet PME should be used: • 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	V
		Sequencing operation of construction plants where practicable.	All construction sites	V
		Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable.	Works areas near the Carmel Secondary School	N/A
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	N/A
		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	@
		Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	N/A
		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	N/A

		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	N/A
		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	V
		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	N/A
		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	@
		Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly.	All construction sites	N/A
		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	@
		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	N/A
		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	N/A
		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	N/A
		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	N/A
		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	N/A
		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	N/A
		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	N/A
		Waste should be removed in timely manner	All construction sites	@
		Waste collectors should only collect wastes prescribed by their	All construction	V

		permits.	sites	
		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	N/A
		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	N/A
		The Contractor should register as a chemical waste producer if chemical wastes would be generated.	All construction sites	@
		Disposal of chemical waste should be via a licensed waste collector.	All construction sites	@
		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:	15-Mar-13	Next Due Date:	15-May-13
Equipment No.:	---	Serial No.	8259

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	764.7

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.	Orifice			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	8.8	2.99	1.50	48.0	48.39
13	7.2	2.71	1.36	44.0	44.36
10	6.0	2.47	1.24	38.0	38.31
7	4.3	2.09	1.05	30.0	30.25
5	3.2	1.80	0.91	24.0	24.20

By Linear Regression of Y on X

Slope , mw = 41.6955 **Intercept, bw =** -13.4477

Correlation Coefficient* = 0.9950

*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; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **40.43**

Remarks: _____

QC Reviewer: Yu Fay Signature: _____ Date: 18-Mar-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 - May 15, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 0988 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	1.3860	3.2	2.00
2	NA	NA	1.00	0.9700	6.4	4.00
3	NA	NA	1.00	0.8690	7.9	5.00
4	NA	NA	1.00	0.8290	8.8	5.50
5	NA	NA	1.00	0.6840	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9951	0.7179	1.4137		0.9957	0.7184	0.8859
0.9908	1.0215	1.9993		0.9915	1.0222	1.2528
0.9887	1.1378	2.2353		0.9894	1.1385	1.4007
0.9876	1.1913	2.3444		0.9883	1.1921	1.4690
0.9824	1.4363	2.8275		0.9831	1.4372	1.7717
Qstd slope (m) =		1.97048		Qa slope (m) =		1.23388
intercept (b) =		-0.00546		intercept (b) =		-0.00342
coefficient (r) =		0.99991		coefficient (r) =		0.99991
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
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 12CA0321 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 / N.009.04	,	2250420
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	21-Mar-2012

Date of test: 21-Mar-2012

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	09-May-2012	CIGISMEC
Signal generator	DS 360	33873	30-May-2012	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI

Ambient conditions

Temperature:	(22 ± 1) °C
Relative humidity:	(60 ± 10) %
Air pressure:	(1005 ± 5) hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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:** 23-Mar-2012 **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
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Fax : (852) 2555 7533

HKAS HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 12CA1115 01-02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2255688 / N.009.05	,	2141430
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	15-Nov-2012

Date of test: 16-Nov-2012

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 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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:** 17-Nov-2012 **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
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HKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 12CA1008 02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Rion Co., Ltd.	,	Rion Co., Ltd.	Rion Co., Ltd.
Type/Model No.:	NL-31	,	UC-53A	NH-19
Serial/Equipment No.:	00320528 /N.00T.03A	,	90565	75883
Adaptors used:	-	,	-	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	08-Oct-2012

Date of test: 08-Oct-2012

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 ± 5) hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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:** 08-Oct-2012 **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.: 12CA0817 01 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10307223 / N.004.08
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	17-Aug-2012

Date of test: 17-Aug-2012

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	05-Jan-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	29-Dec-2012	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	16-Dec-2012	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:	995 ± 5 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

Details of the performed measurements are presented on **page 2** of this certificate.

SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 17-Aug-2012 **Company Chop:**

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.

綜合試驗有限公司
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HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 12CA0321 01-04 **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:	21-Mar-2012

Date of test: 21-Mar-2012

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	18-May-2012	SCL
Preamplifier	B&K 2673	2239857	05-Jan-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	29-Dec-2012	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI
Digital multi-meter	34401A	US36087050	16-Dec-2012	CEPREI
Audio analyzer	8903B	GB41300350	27-May-2012	CEPREI
Universal counter	53132A	MY40003662	30-May-2012	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1005 ± 5 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

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 23-Mar-2012 **Company Chop:**

SOILS & 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 March 2013

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

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

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

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

APPENDIX G

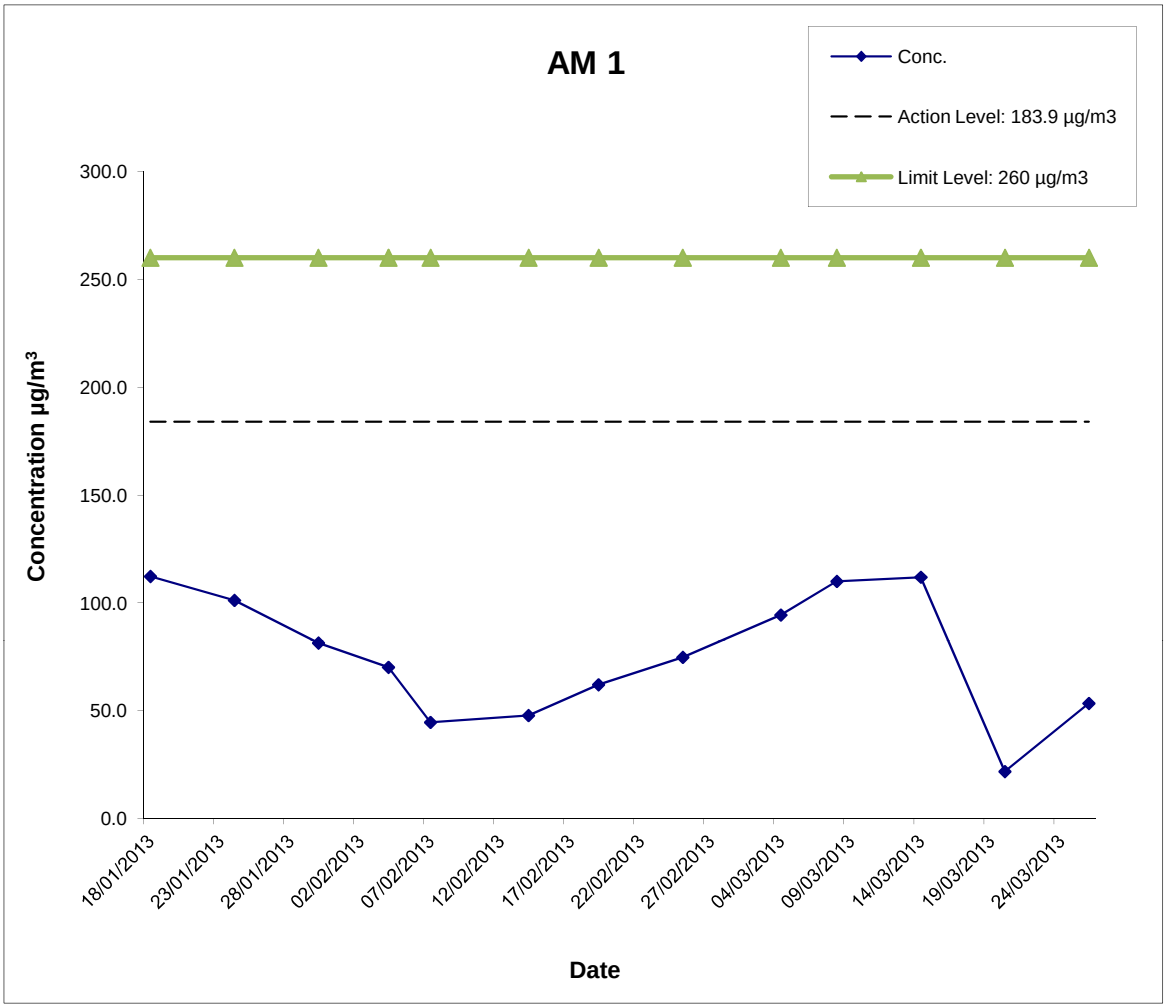
Air Quality Monitoring Results and their Graphical Presentations

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.)	($\mu g/m^3$)
4-Mar-13	9:00	5-Mar-13	9:00	Sunny	16.7	1023.4	1.30	1.30	1.30	1877.8	2.6735	2.8509	0.1774	12289.87	12313.87	24.00	94.5
8-Mar-13	16:00	9-Mar-13	16:00	Sunny	21.5	1016.8	1.30	1.30	1.30	1877.8	2.7533	2.9599	0.2066	12313.87	12337.87	24.00	110.0
14-Mar-13	16:00	15-Mar-13	16:00	Sunny	19.9	1019.2	1.30	1.30	1.30	1877.8	2.7151	2.9253	0.2102	12337.87	12361.87	24.00	111.9
20-Mar-13	16:00	21-Mar-13	16:00	Rainy	25.1	1012.1	1.30	1.30	1.30	1877.8	2.8150	2.8560	0.0410	12361.87	12385.87	24.00	21.8
26-Mar-13	16:00	27-Mar-13	16:00	Rainy	19.0	1011.4	1.30	1.30	1.30	1877.8	2.7554	2.8559	0.1005	12385.87	12409.87	24.00	53.5
																Average	**78.4**
																Minimum	**21.8**
																Maximum	**111.9**

Appendix G Air Quality Monitoring Results



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

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				
04-Mar-13	Sunny	10:03	66.5	70.0	68.6	59.7	68.0	70	N
15-Mar-13	Fine	10:08	68.1	***71.3***	69.8	65.1	68.0	70	N
21-Mar-13	Cloudy	9:56	66.9	***70.3***	68.5	58.9	68.0	70	N
27-Mar-13	Fine	10:00	66.1	69.6	68.0	68.0	68.0	70	N
		Min	**66.1**	**69.6**		**58.9**			
		Max	**68.1**	**71.3**		**68.0**			
		Average	**-**	**-**		**62.9**			

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				
04-Mar-13	Sunny	10:16	***75.2***	***79.1***	***77.5***	77.5	79.0	75	N
15-Mar-13	Fine	10:52	71.8	***77.2***	***75.3***	75.3	79.0	75	N
21-Mar-13	Cloudy	10:47	***76.0***	***79.9***	***77.3***	77.3	79.0	75	N
27-Mar-13	Fine	10:40	70.0	73.3	71.9	71.9	79.0	75	N
		Min	**70.0**	**73.3**		**71.9**			
		Max	**76.0**	**79.9**		**77.5**			
		Average	**-**	**-**		**76.0**			

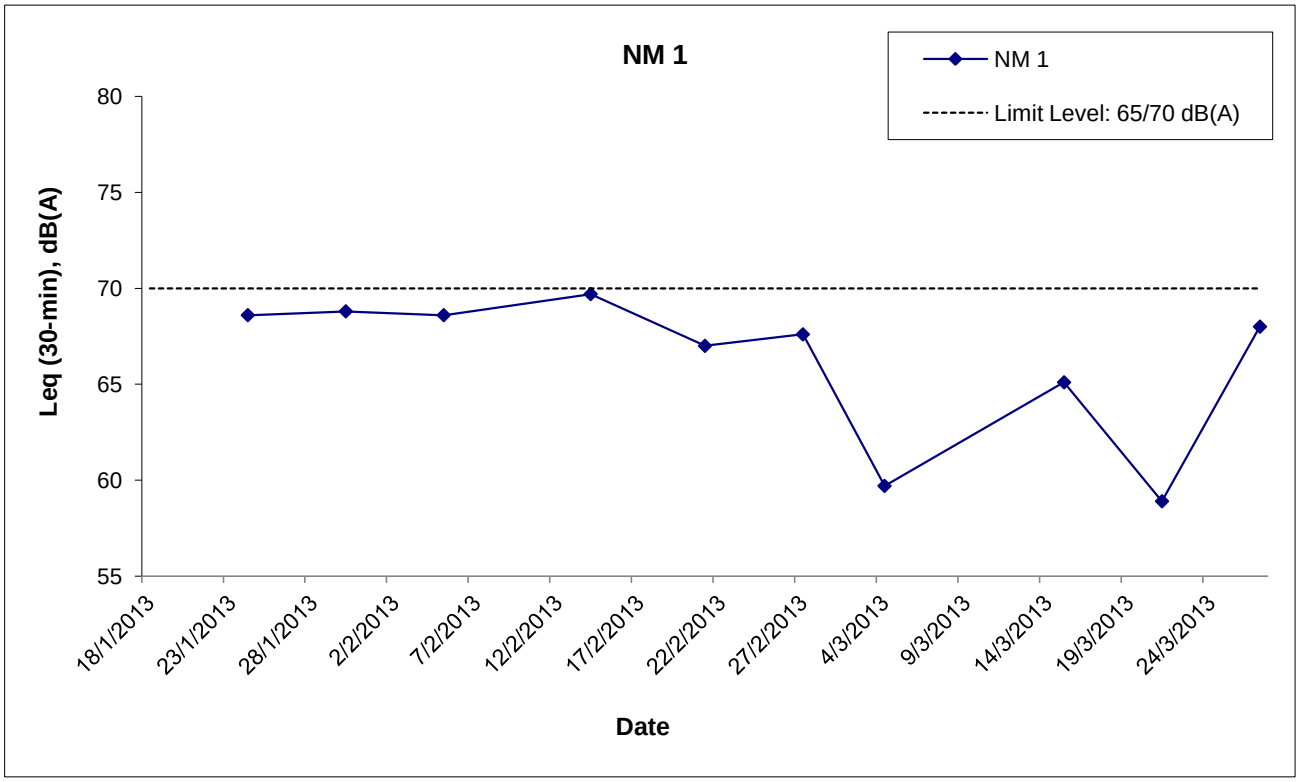
+ - Façade measurement

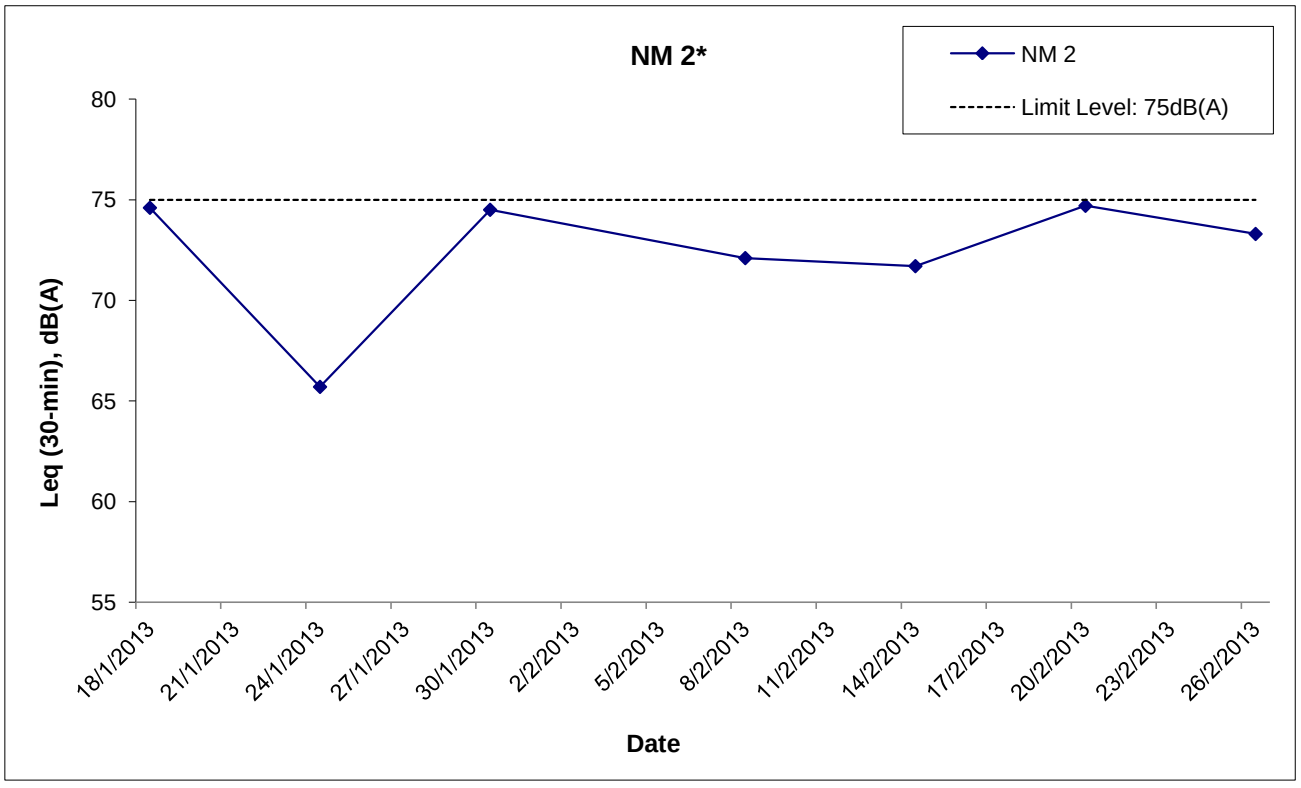
++ - Free field measurement

*** - Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period. The construction noise monitoring were not conducted 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





AECOM	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Apr-13
		CHECK	TYUT	DRAWN	SNKN
	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.

APPENDIX J

Cumulative Statistics of Exceedances, Complaints, Notification of Summons and Successful Prosecutions

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

Cumulative statistics on Exceedances

		Total no. recorded in this month	Total no. recorded since project commencement
24-Hour TSP	Action	-	-
	Limit	-	-
Noise	Action	-	-
	Limit	-	-

Cumulative statistics on Exceedances, 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							Actual Quantities of non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly				
	Generated		Disposed					Recycled			Disposed	
	Total Quatity Generated	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	Plastics	Chemical Waste	General Refuse (Note 2)
Unit	**('000m^3)**	**('000m^3)**	**('000m^3)**	**('000m^3)**	**('000m^3)**	**('000m^3)**	**('000m^3)**	**('000Kg)**	**('000Kg)**	**('000Kg)**	**('000Kg)**	**('000Kg)**
Jan	0.065	0.000	0.000	0.000	0.000	0.065	0.000	0.000	0.000	0.000	0.000	17.110
Feb	0.191	0.004	0.026	0.000	0.000	0.165	0.004	0.000	0.000	0.000	0.000	29.440
Mar	0.341	0.007	0.000	0.000	0.001	0.311	0.036	0.000	0.000	0.000	0.000	112.240
Apr												
May												
Jun												
SUB-TOTAL	**0.597**	**0.01072**	**0.026**	**0**	**0.00125**	**0.541**	**0.039**	**0**	**0**	**0**	**0**	**158.79**
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
TOTAL	**0.597**	**0.01072**	**0.026**	**0**	**0.00125**	**0.541**	**0.039**	**0**	**0**	**0**	**0**	**158.79**

Note:

1. Assume the density of fill is 2 ton/m^3.
2. Refuses disposed of at NENT landfill.

Appendix E

2nd EM&A Report for Works Contract 1103 –
Hin Keng to Diamond Hill

MTR Corporation Limited

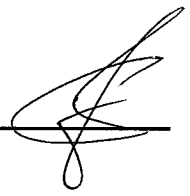
Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 2

[Period from 1 to 31 March 2013]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(April 2013)

Certified by: Coleman Ng 

Position: Environmental Team Leader

Date: 12 April 2013

MTR Corporation Limited

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

Monthly Environmental Monitoring and Audit Report – March 2013

228105-27

April 2013

Job number 228105-27

Ove Arup & Partners Hong Kong Ltd
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ARUP

Contents

Figures

Appendices

Executive Summary

This is the second 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 March 2013 (1 to 31 March 2013).

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

- Site Formation, Diaphragm Wall Construction and Ground Investigation Diamond Hill;
- Site Formation and Ground Investigation at Hin Keng;
- Site Hoarding and Breaking of Footpath and Road Pavement at Fung Tak; and
- Site Clearance and Site Set Up 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

All measured noise levels in the reporting month were below the Action and Limit Levels. No non-compliance was recorded.

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 2998m^3 were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 25m^3 of general refuse were generated and disposed of at NENT landfill in 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 7 March 2013 and the final, an IEC joint site audit, was undertaken on 28 March 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

There were no reporting changes in the reporting month.

Future Key Issues

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.

Construction dust is another key environmental issue. The implemented construction dust mitigation measures should also be improved and maintained as necessary. Furthermore, water quality impact is also a key environmental issue. As the rainy season approaches, special attention should be paid to avoid any muddy surface runoff from exposed soil surfaces during rainy days.

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 Formation, Diaphragm Wall Construction and Ground Investigation .
Hin Keng	Site Formation and Ground Investigation.
Fung Tak	Site Hoarding and Breaking of Footpath and Road Pavement.
Ma Chai Hang	Site Clearance and Site Set Up.

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	Tom Chapman	2858 0738
Deputy 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

Organisation	Name	Telephone
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	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	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.

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	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
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	24 Oct 2012	15 April 2018
Construction Noise Permit	GW-RE0118-13	Diamond Hill	14 Feb 2013	13 Aug 2013
	GW-RE0130-13	Diamond Hill	14 Feb 2013	28 Mar 2013
	GW-RE0145-13	Diamond Hill	20 Feb 2013	10 Aug 2013
	GW-RE0295-13	Ma Chai Hang	28 Mar 2013	30 April 2013
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
Billing Account for Disposal of Construction Waste	7016250	All	6 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 second monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 March 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**.

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	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.

Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Kai Tak Meteorological Station 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
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
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, 8, 14, 20 and 26 March 2013 at DMS-1 and DMS-3, while on 8, 14, 20 and 26 March 2013 at DMS-2. In accordance with the Construction Programme presented in **Appendix A**, no works was undertaken at the Ma Chai Hang works area and therefore no monitoring was undertaken in the first week of the reporting month at DMS-2. 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 station during the reporting period is 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	68.2	38.4	148.7	260
DMS-2	43.2	46.1	167.4	260
DMS-3	48.0	57.5	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.

3.3.3 General Observations

Major construction works including site formation, ground investigation, site setup and site clearance were conducted during the reporting month. 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 (Note 1)
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3	Hong Kong Sheng Kung Hui Nursing Home (Note 2)

Notes:

Note 1: Continuous Noise Monitoring Location.

Note 2: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On house.

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			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.

4.1.2 Continuous Noise Monitoring

Continuous noise monitoring will be conducted in accordance with the approved Continuous Noise Monitoring Plan (CNMP). During the reporting month, no continuous noise monitoring was undertaken.

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

Monitoring of the construction noise level was conducted on 4, 15, 21 and 27 March 2013 at monitoring locations NMS-CA-1 and NMS-CA-3, on 15, 21 and 27 March 2013 at NMS-CA-2. In accordance with the Construction Programme presented in **Appendix A**, no works was undertaken at the Ma Chai Hang works area and therefore no monitoring was undertaken in the first week of the reporting month at Price Memorial Catholic Primary School (NMS-CA-2). 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)
4 Mar 13	10:20–10:50	56.4	57.0	Measured ≦ Baseline	70/65
15 Mar 13	09:12-09:42	52.2		Measured ≦ Baseline	
21 Mar 13	09:20-09:50	52.1		Measured ≦ Baseline	
27 Mar 13	08:35-09:05	53.4		Measured ≦ Baseline	

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 4.5 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)
15 Mar 13	11:25-11:55	55.3	66.0	Measured ≦ Baseline	70/65
21 Mar 13	13:05-13:35	67.7		63.0	
27 Mar 13	11:40-12:10	68.4		65.4	

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-3

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)
4 Mar 13	14:15-14:45	67.3	73.0	Measured ≦ Baseline	75
15 Mar 13	13:27-13:57	65.4		Measured ≦ Baseline	
21 Mar 13	11:15-11:45	69.8		Measured ≦ Baseline	
27 Mar 13	14:05-14:35	68.4		Measured ≦ Baseline	

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 and Limit Level exceedance of construction noise was recorded during the reporting month.

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.

5.2 Mitigation Measures

Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting month on 14 and 28 March 2013. During the site inspections the following actions were found to be required:

14 March 2013

- The tree protection zone near the waste water treatment plant should be properly maintained.

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	2998m^3	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	0	-
Paper / cardboard packaging	0	-
Plastic	0	
Metal	0	
General Refuse	25m^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 28 March 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
Air Quality				
28 Feb 13	Hin Keng	Water spraying shall be provided on a regular basis.	Agreed with ET's Advice	Water spraying has been provided. Closed on 7 March 2013.
7 Mar 13	Diamond Hill	The contractor is reminded to increase the frequency of water spraying in hot and dry conditions.	Agreed with ET's Advice	The reminder has been rectified. Closed on 14 March 2013.
7 Mar 13	Fung Tak	Water Spraying shall be provided to avoid dust emissions.	Agreed with ET's Advice	Water spraying has been provided. Closed on 14 March 2013.
7 Mar 13	Hin Keng	The contractor is reminded to provide water spraying facilities to avoid dust emissions.	Agreed with ET's Advice	Water spraying has been provided. Closed on 14 March 2013.
14 Mar 13	Ma Chai Hang	The contractor is reminded to set up washing facility at the site access to avoid workers carrying the mud from site to the public area.	Agreed with ET's Advice	Washing facilities have been installed. Closed on 21 March 2013.
21 Mar 13	Diamond Hill	A gap with width about 200mm width along hoarding in the vicinity of Diamond Hill Station A2. The contractor is reminded to seal the gap properly.	Agreed with ET's Advice	The contractor has rectified the reminder. Closed on 28 March 2013.
21 Mar 13	Fung Tak	The contractor is reminded to erect proper hoarding.		The contractor has rectified the

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				reminder. Closed on 28 March 2013.
21 Mar 13	Ma Chai Hang	The contractor is reminded to erect proper hoarding.	Agreed with ET's Advice	The contractor has rectified the reminder. Closed on 28 March 2013.
28 Mar 13	Diamond Hill	Cement bags (quantity <20) shall be covered with tarpaulin properly.	Agreed with ET's Advice	The observation has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
Water Quality				
21 Feb 13	Diamond Hill	The contractor should improve the vehicle washing bay and ensure that all wastewater generated from the vehicle washing should be collected and treated to comply with WPCO requirements prior to discharge.	Agreed with ET's Advice	The vehicle washing bay has been improved. Closed on 14 March 2013.
21 Feb 13	Hin Keng	Improvement works of the vehicle washing bay was being carried out. The contractor was reminded to ensure all wastewater should be collected and treated prior to discharge.	Agreed with ET's Advice	The vehicle washing bay has been improved. Closed 28 March 2013.
28 Feb 13 and 7 Mar 13	Diamond Hill	The contractor should set up the waste water treatment plant as soon as possible.	Agreed with ET's Advice	The waste water treatment plant is in operation. Closed 14 March 2013.
7 Mar 13	Diamond Hill	The contractor is reminded to provide wheel washing facilities on site.	Agreed with ET's Advice	Wheel washing facilities have been provided. Closed on 14 March 2013.
14 Mar 13	Fung Tak	The footing of site hoarding shall be sealed to avoid surface runoff to public area.	Agreed with ET's Advice	The footing of the site hoarding has

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				been sealed. Closed on 21 March 2013.
21 Mar 13	Ma Chai Hang	The contractor is reminded to obtain a WPCO licence asap.	Agreed with ET's Advice	An application for a WPCO licence has been submitted to EPD for their approval.
21 Mar 13	Ma Chai Hang	The contractor is reminded to ensure that no waste water is discharged from the works area.	Agreed with ET's Advice	The reminder has been noted. Closed on 28 March 2013.
21 Mar 13	Ma Chai Hang	The contractor is reminded to ensure that exposed slopes are properly covered with tarpaulin.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
21 Mar 13	Hin Keng	The contractor is reminded to ensure that the accumulation of standing water is avoided.	Agreed with ET's Advice	The reminder has been noted. Closed on 28 March 2013.
21 Mar 13	Hin Keng	The contractor is advised that waste water from wheel washing facilities shall be transferred to the existing WWTP for treatment prior to discharge.	Agreed with ET's Advice	The wheel washing facilities were improved to include a WWTP. Closed on 28 March 2013.
28 Mar 13	Fung Tak	The contractor is reminded to place sand bags in the vicinity of drill rigs prevent waste water discharge to storm drains.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Noise				
28 Feb 13	Hin Keng	The contractor should affix a valid noise label to hand-held electric breakers.	Agreed with ET's Advice	Noise labels have been affixed to hand-held electric breakers. Closed on 7 March 2013.
28 Mar 13	Fung Tak	The contractor is reminded to provide suitable noise mitigation measures for drill rigs.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
28 Mar 13	Ma Chai Hang	The contractor is reminded to provide suitable noise mitigation measures for breakers.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
28 Mar 13	Hin Keng	The contractor is reminded to ensure that suitable noise mitigation measures are put in place for the construction of new site office.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
Landscape and Visual				
28 Feb 13	Diamond Hill	The broken tree trunks shall be removed from the vicinity.	Agreed with ET's Advice	The contractor removed the broken tree trunks from the vicinity. Closed 7 March 2013.
14 Mar 13	Diamond	Tree protection zone shall be maintained properly near the	Agreed with	The contractor has

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
	Hill	WWTP.	ET's Advice	ensured that the tree protection zone is properly implemented. Closed on 14 March 2013.
Waste				
14 Mar 13	Diamond Hill	The contractor is reminded to cover the accumulated waste with tarpaulin sheet temporarily prior to disposal.	Agreed with ET's Advice	Accumulated waste has been covered by the contractor. Closed on 21 March 2013.
14 Mar 13	Diamond Hill	Chemical stain is observed on the ground. The contractor shall treat it as chemical waste, which requires proper handling, treatment and disposal.	Agreed with ET's Advice	The contractor has dealt with the chemical stain. Closed on 21 March 2013.
21 Mar 13	Shui Chuen O	The contractor is reminded to ensure that waste from rubbish bins is cleared on a regular basis.	Agreed with ET's Advice	The contractor has rectified the issue. Closed on 28 March 2013.
21 Mar 2013	Diamond Hill	Accumulation of liquid in drip trays was observed. The contractor shall remove it as chemical waste in accordance with WDO.	Agreed with ET's Advice	The contractor has rectified the issue. Closed on 28 March 2013
21 Mar 2013	Diamond Hill	Oil stains in from of chemical waste storage was observed. The contractor shall remove the contaminated soil as chemical waste in accordance with WDO.	Agreed with ET's Advice	The contractor has rectified the issue and dealt with the contaminated soil. Closed on 28 March 2013
28 Mar 13	Diamond Hill	The contractor is reminded to ensure that all oil cans have the provision of a drip tray.	Agreed with ET's Advice	The reminder has been noted the contractor will and follow up. The status will be reported by

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				the ET in the next reporting month.
28 Mar 13	Diamond Hill	Oil stains in from of chemical waste storage was observed. The contractor shall remove the contaminated soil as chemical waste in accordance with WDO.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
28 Mar 13	Ma Chai Hang	The contractor is reminded to ensure that all construction waste such as broken concrete is regularly removed from site.	Agreed with ET's Advice	The reminder has been noted and the contractor will follow up. The status will be reported by the ET in the next reporting month.
28 Mar 13	Hin Keng	Different waste types shall be properly disposed of separately in designated bins.	Agreed with ET's Advice	The reminder has been noted and 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			
01/03/13–28/03/13	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.

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	Diaphragm Wall Construction, Grouting, Site Office Erection, Tree Transplanting and Removal.
Hin Keng	Pipe Piling Work, Ground Investigation, Tree Transplanting and Removal.
Fung Tak	Site clearance, ground investigation, site hoarding erection, tree transplanting and removal.
Ma Chai Hang	Site Clearance, Ground Investigation, Tree Transplanting and Removal.
Shui Chuen O	Site Storage.

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 Programme 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 dust is a key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

Construction noise is also one of the key environmental issues. The implemented construction noise mitigation measures should also be maintained and improved as necessary.

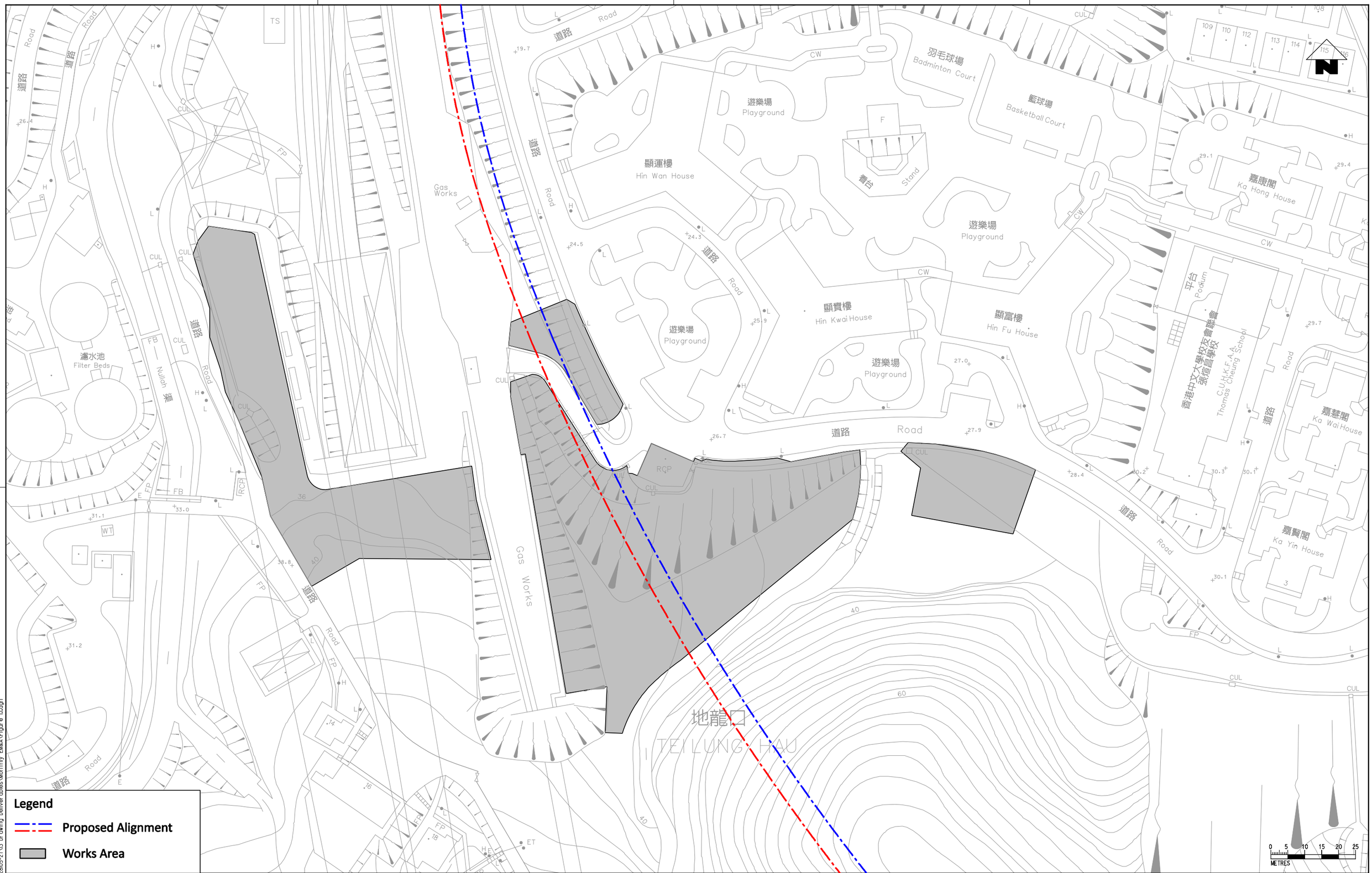
Water Quality impact is also a key environmental issue. The drainage shystem should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge. The solid and liquid waste management should be strictly followed in accordance with the requirements stipulated in the EIA report.

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.

Figures



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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.
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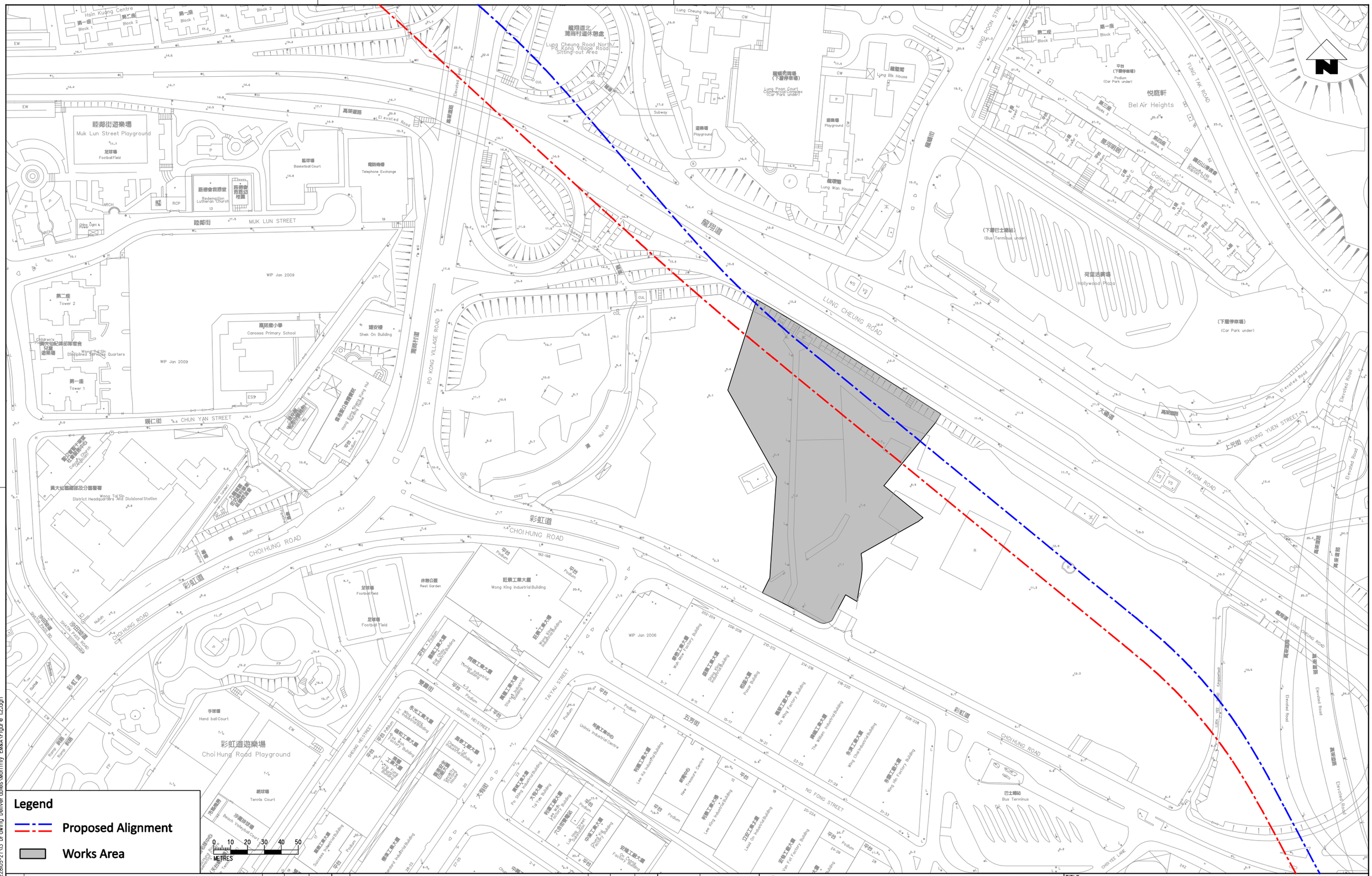

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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- General Site Layout of Diamond Hill Works Area
(Sheet 2 of 6)

SCALE	DRAWING NO.	REV.
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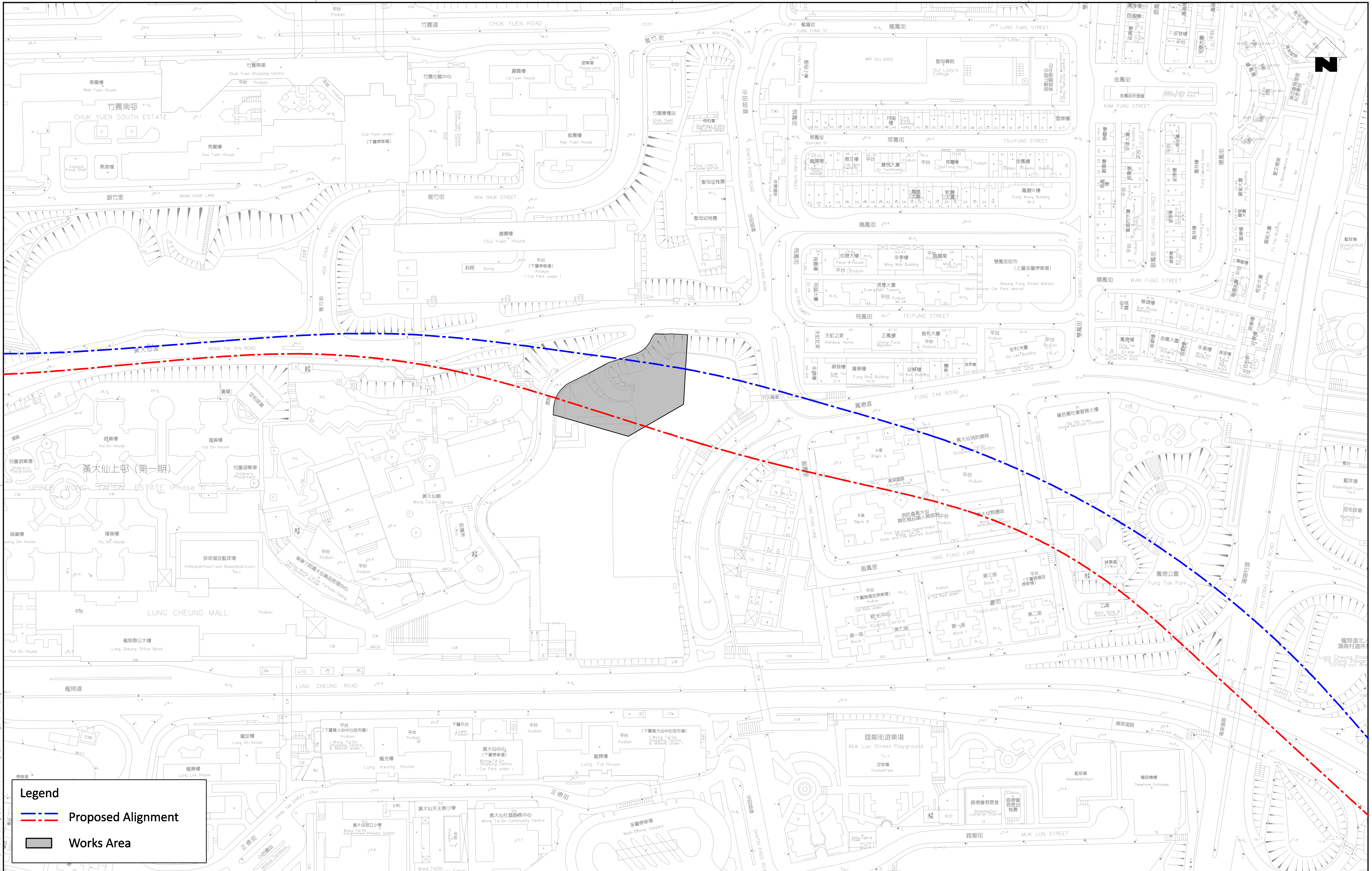

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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas - Site Layout Plan of Fung Tak EAP/EEP Building
(Sheet 3 of 6)

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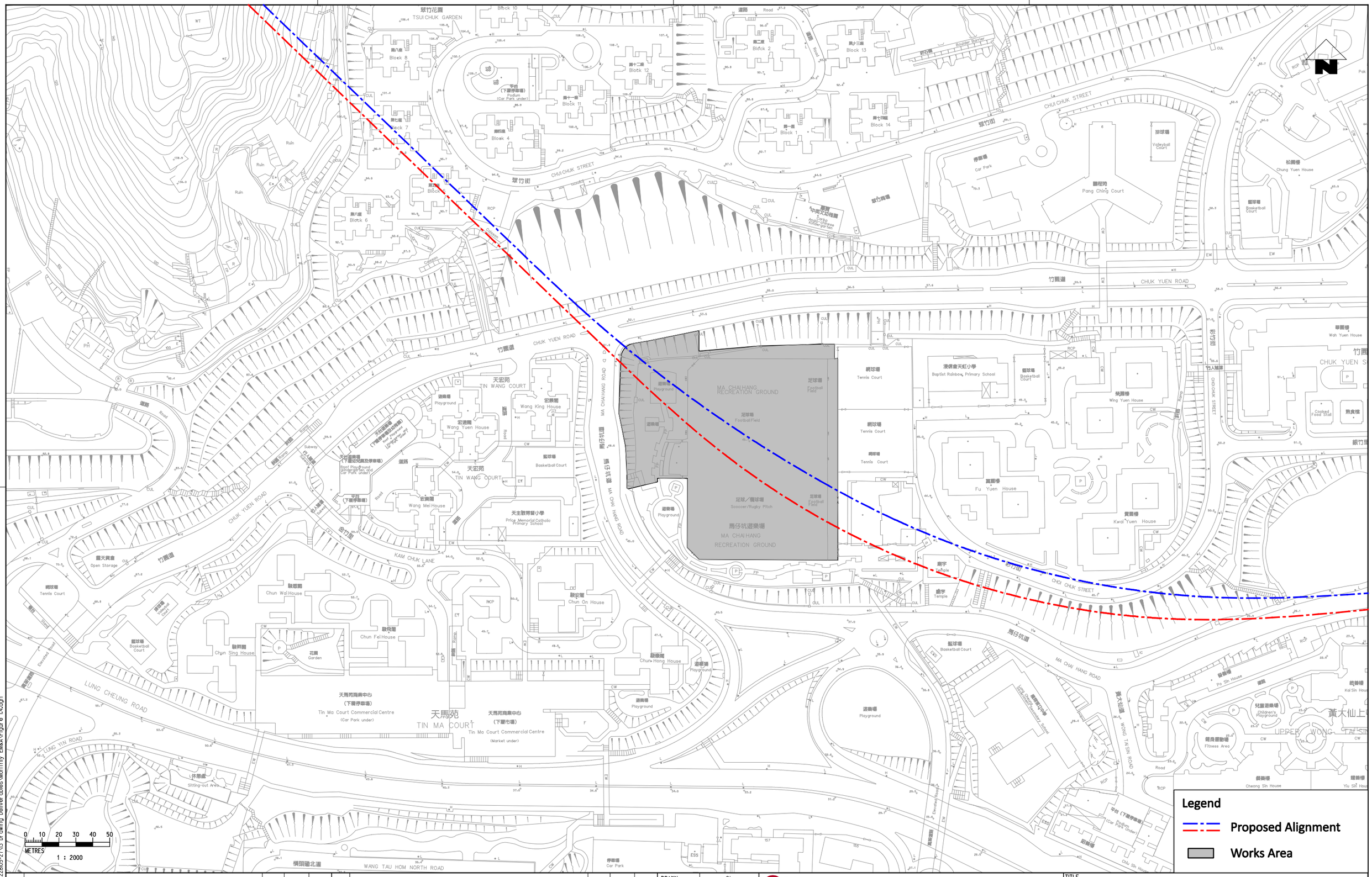

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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- Site Layout Plan of Ma Chai Hang Shaft
(Sheet 4 of 6)

SCALE	DRAWING NO.	REV.
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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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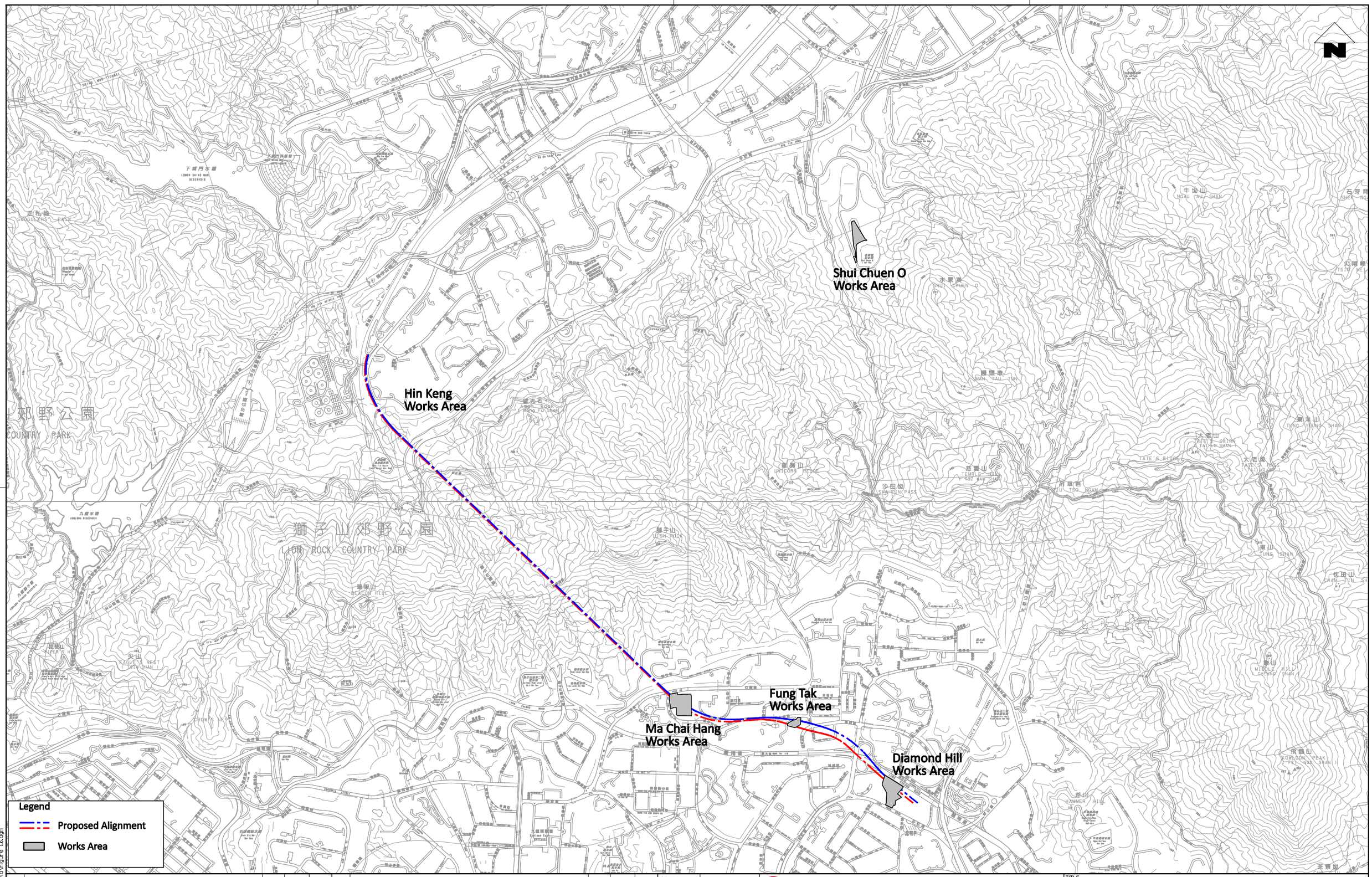

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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- General Alignment of Contract 1103
(Sheet 6 of 6)

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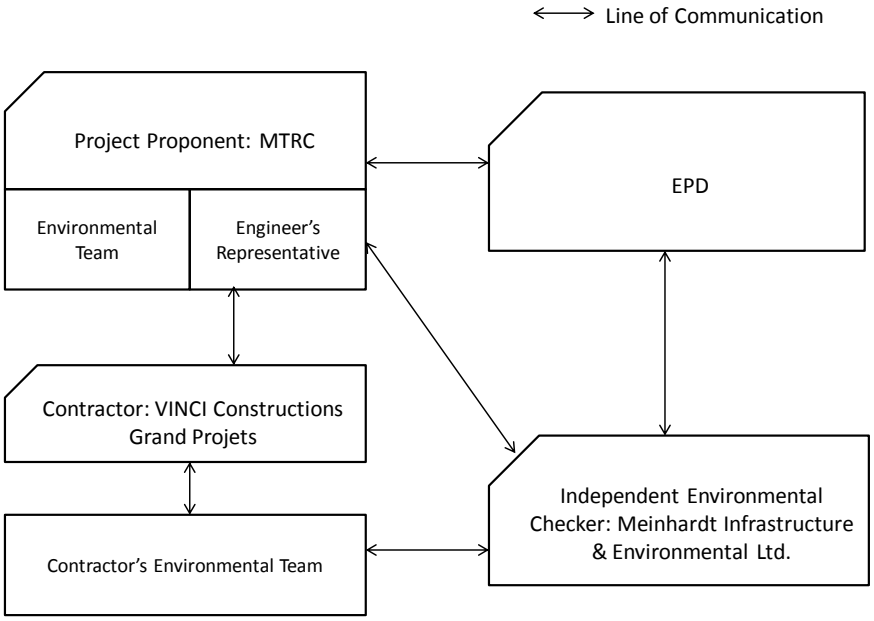
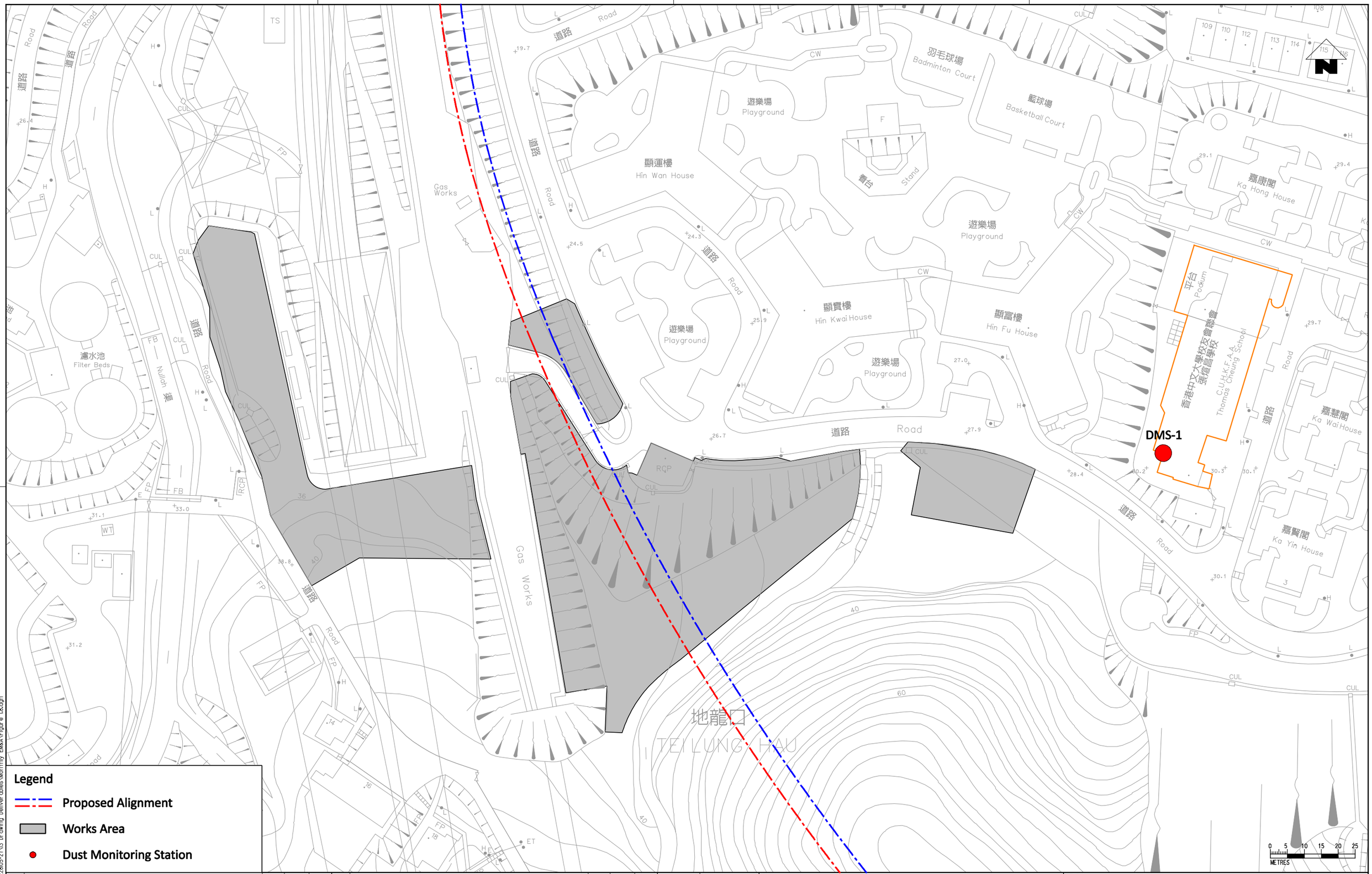
Figure 1.7 - Project Organisation for Environmental Works





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 1 of 3)

SCALE	DRAWING NO.	REV.
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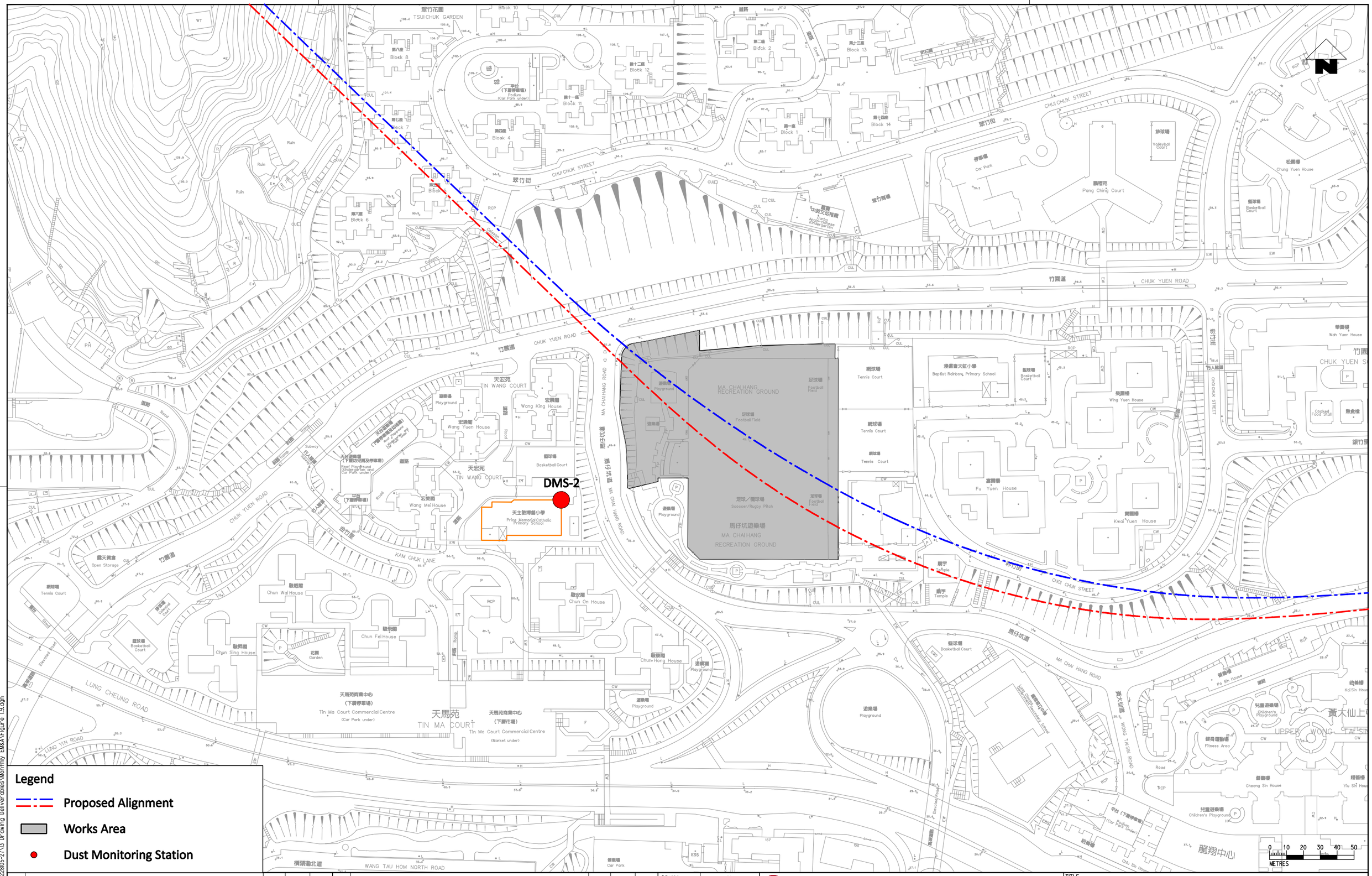

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Locations of Proposed Dust Monitoring Stations
(Sheet 2 of 3)

SCALE	DRAWING NO.	REV.
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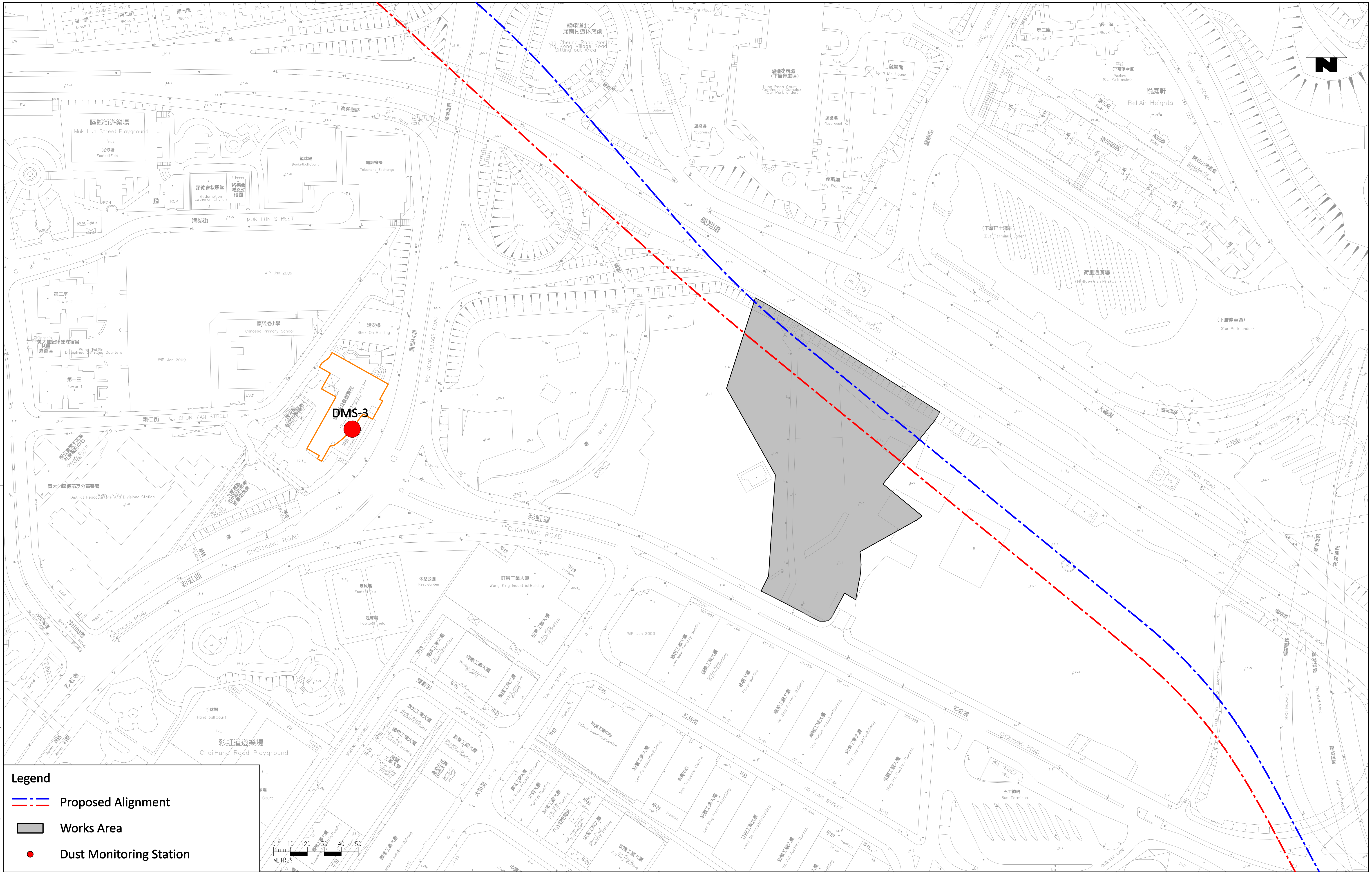

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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Proposed Dust Monitoring Stations
(Sheet 3 of 3)

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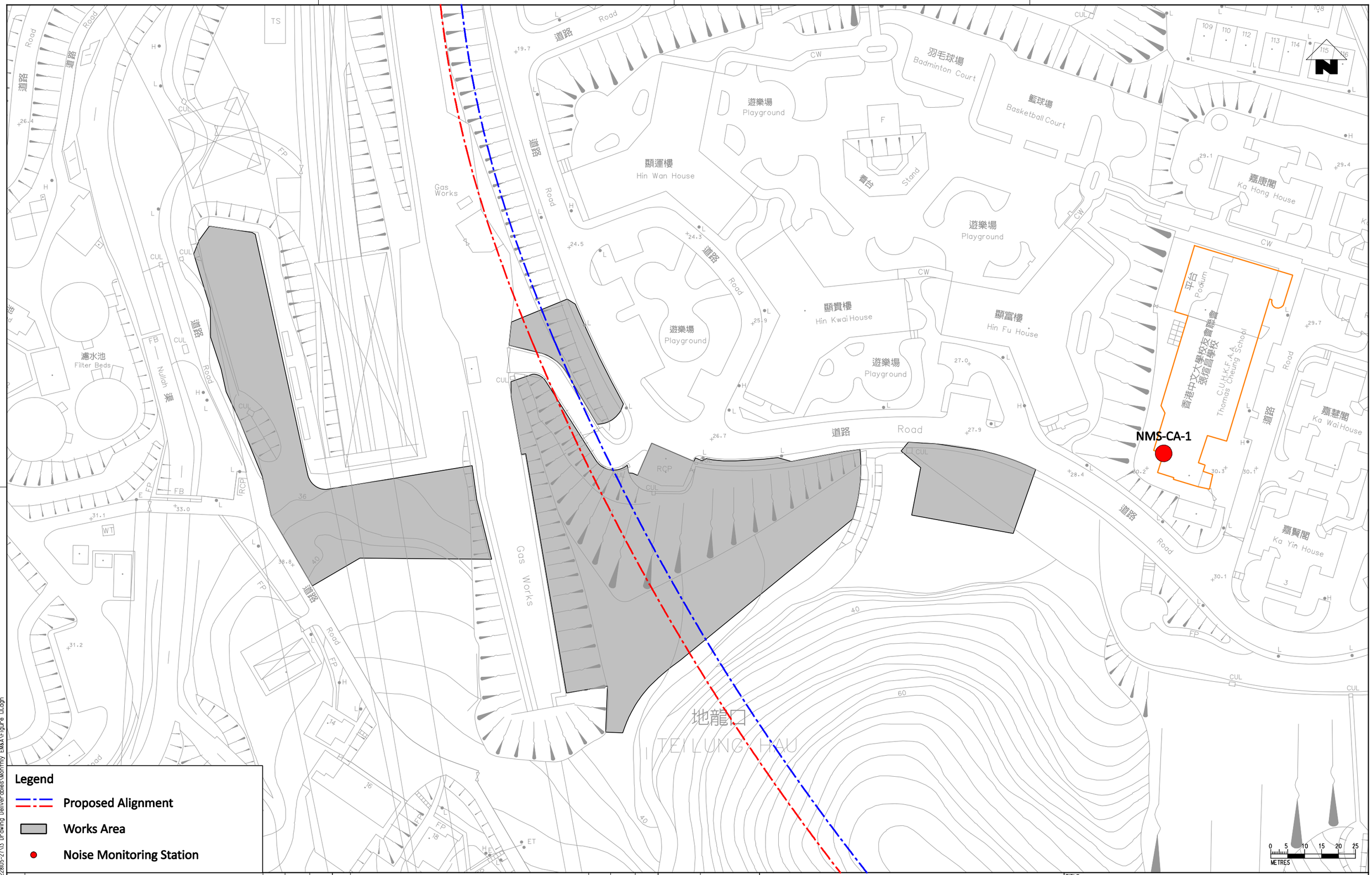

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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
(Sheet 1 of 3)

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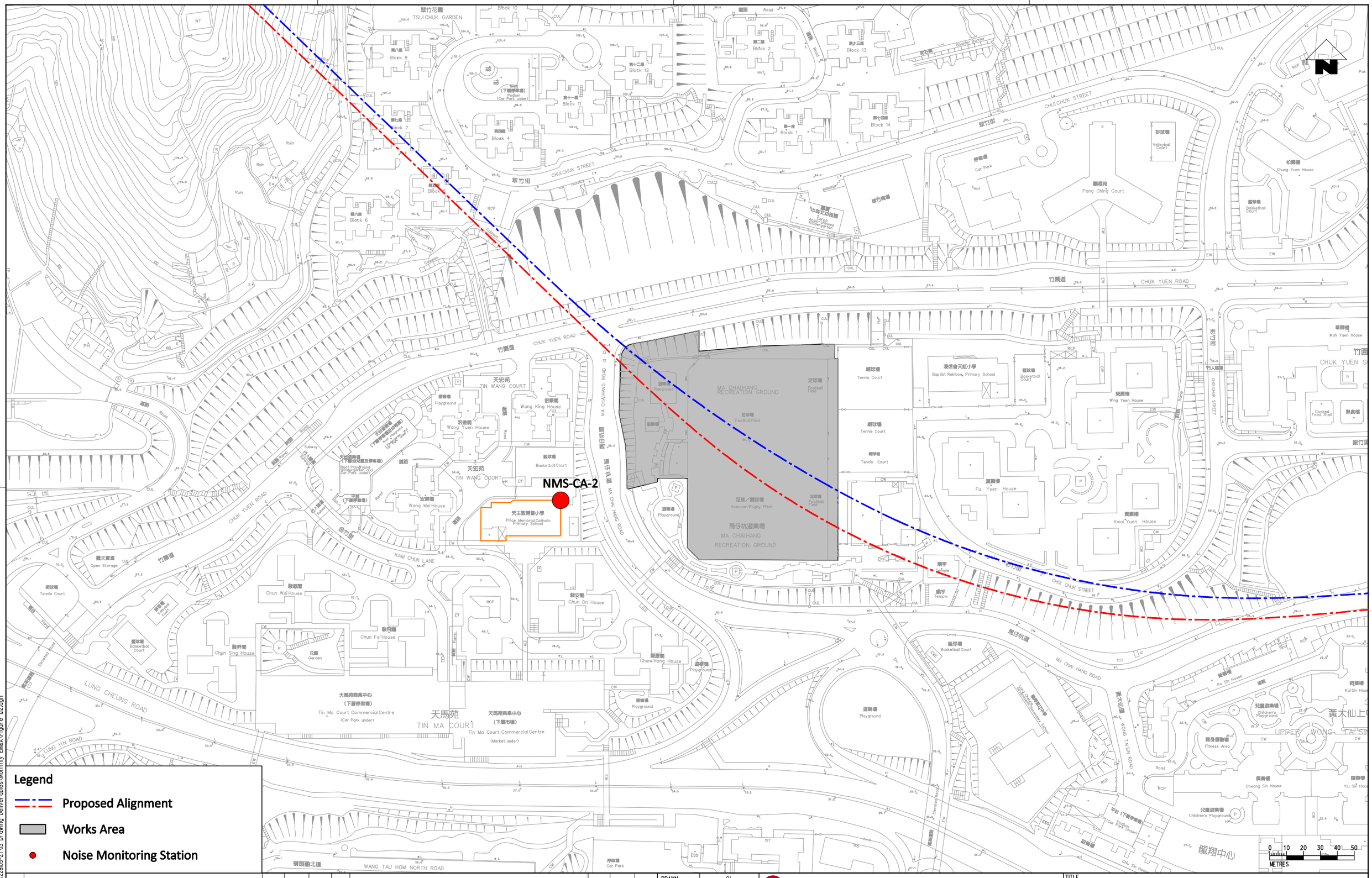

Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

REV	DESCRIPTION	BY	DATE	APPROVED
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HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
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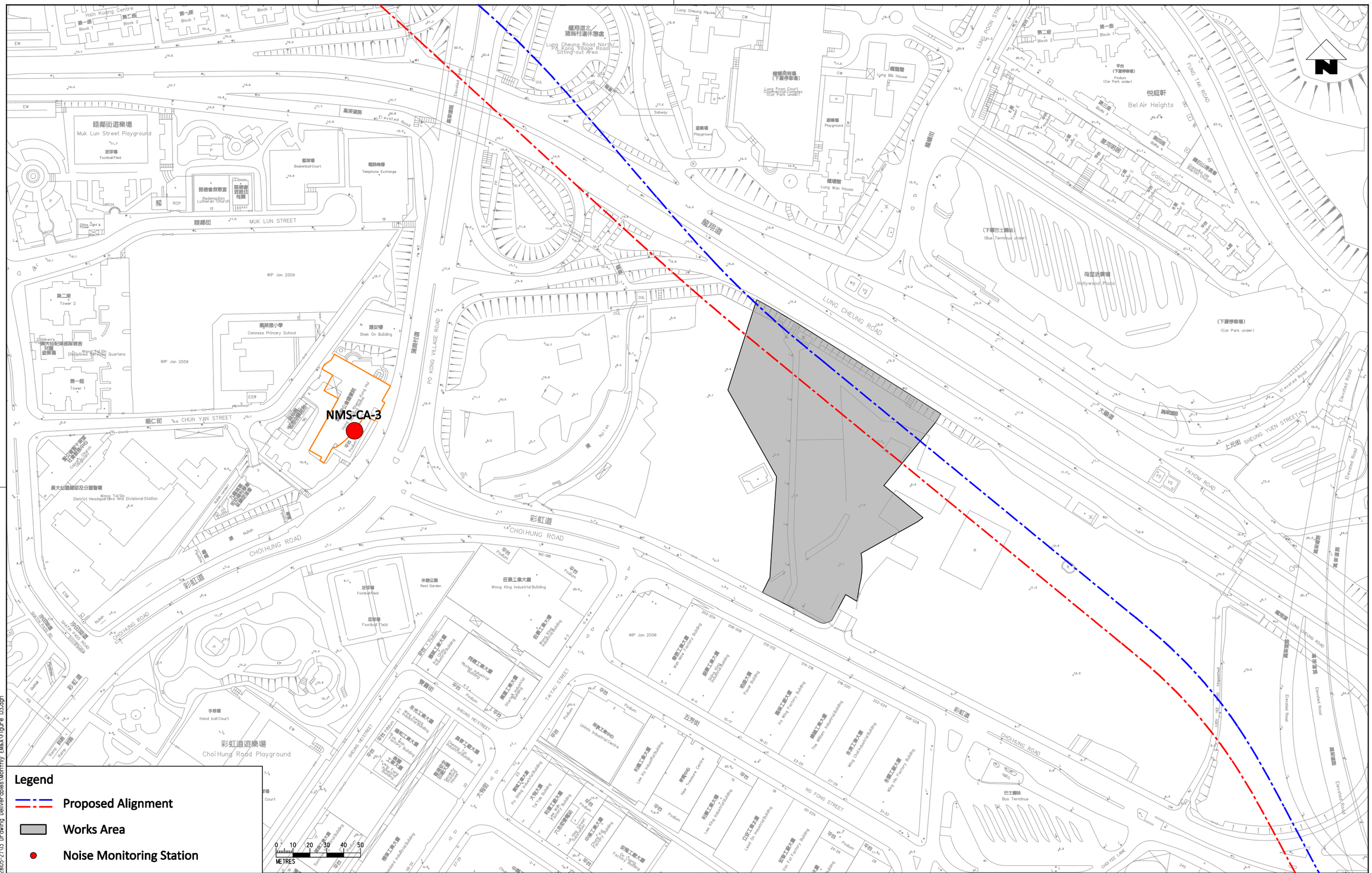

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A	FIRST ISSUE	GL	12/12	ST

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SHATIN TO CENTRAL LINK

ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

CADD REF.

TITLE

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

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.13	A

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Appendix A

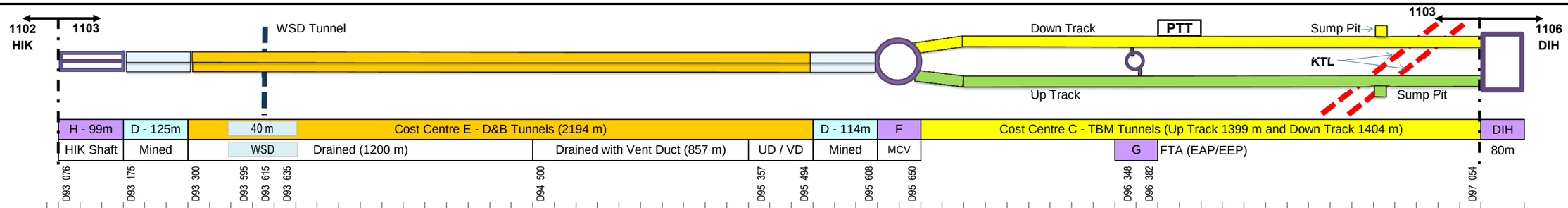
Construction Programme

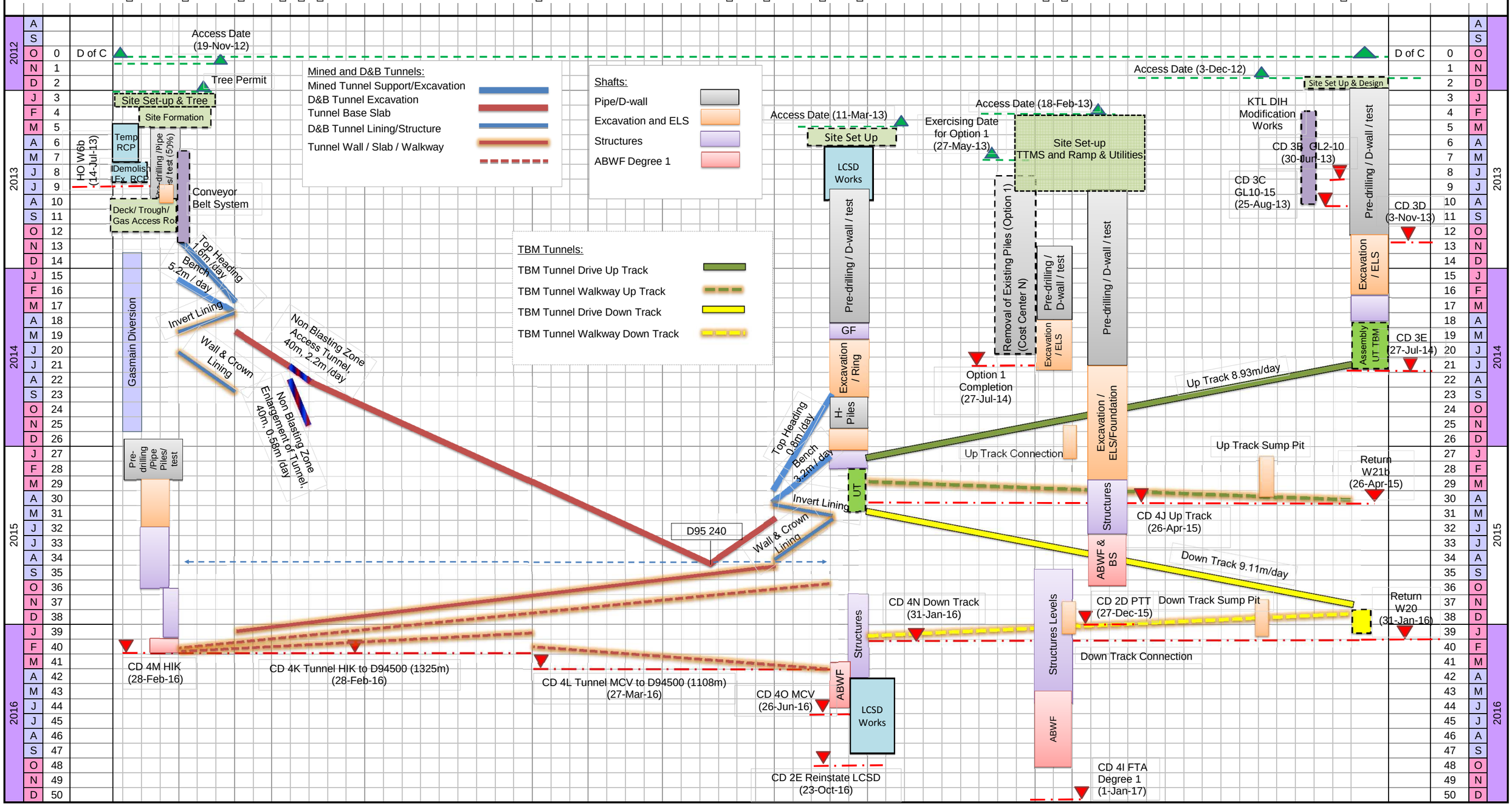
SCL Contract 1103 - Hin Keng to Diamond Hill Tunnels
Programme ID: 1103-TCP.1

Time Chainage Programme
(Preliminary Master Programme ID: 1103-MP.1)

Date:29-Jan-13

VINCI CONSTRUCTION GRANDS PROJETS





Appendix B

Environmental Monitoring Programme in Reporting Month

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

Date		Air Quality	Noise	Site Inspection
		24-hours TSP	L_{Aeq}, 30 min	
1-Mar-13	Fri			
2-Mar-13	Sat			
3-Mar-13	Sun			
4-Mar-13	Mon			
5-Mar-13	Tue			
6-Mar-13	Wed			
7-Mar-13	Thu			
8-Mar-13	Fri			
9-Mar-13	Sat			
10-Mar-13	Sun			
11-Mar-13	Mon			
12-Mar-13	Tue			
13-Mar-13	Wed			
14-Mar-13	Thu			
15-Mar-13	Fri			
16-Mar-13	Sat			
17-Mar-13	Sun			
18-Mar-13	Mon			
19-Mar-13	Tue			
20-Mar-13	Wed			
21-Mar-13	Thu			
22-Mar-13	Fri			
23-Mar-13	Sat			
24-Mar-13	Sun			
25-Mar-13	Mon			
26-Mar-13	Tue			
27-Mar-13	Wed			
28-Mar-13	Thu			
29-Mar-13	Fri			
30-Mar-13	Sat			
31-Mar-13	Sun			

	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 - 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 - Hong Kong Sheng Kung Hui Nursing Home	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

Note - Monitoring at Price Memorial Catholic Primary School does not start until 8-March-13.

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. 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	✓

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.	Minimise ecological impacts	All construction sites	Construction stage		✓ ✓ ✓ ✓ ✓
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	• 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	✓ ✓

		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.					

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 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	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	Rdr
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	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
		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;					Rdr
		• 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;					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; • 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.					✓ Obs ✓ ✓ 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	✓ ✓ ✓ Obs ✓ ✓
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	✓
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	✓

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 work site to reduce the construction airborne noise	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring station	Construction stage	• TM-EIA	✓

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	Obs ✓ ✓

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					Obs ✓ ✓ ✓ ✓ ✓

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. • 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					✓ Obs ✓ ✓ ✓

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	✓ ✓ ✓

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	✓ ✓ Obs

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	*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 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	*Construction and Demolition Material* • 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	<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	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	✓ ✓

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	*General Refuse* • 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	Rdr Rdr ✓ ✓
S11.5.1	WM5	Excavated Contaminated Soils 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	Obs ✓ ✓ ✓

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

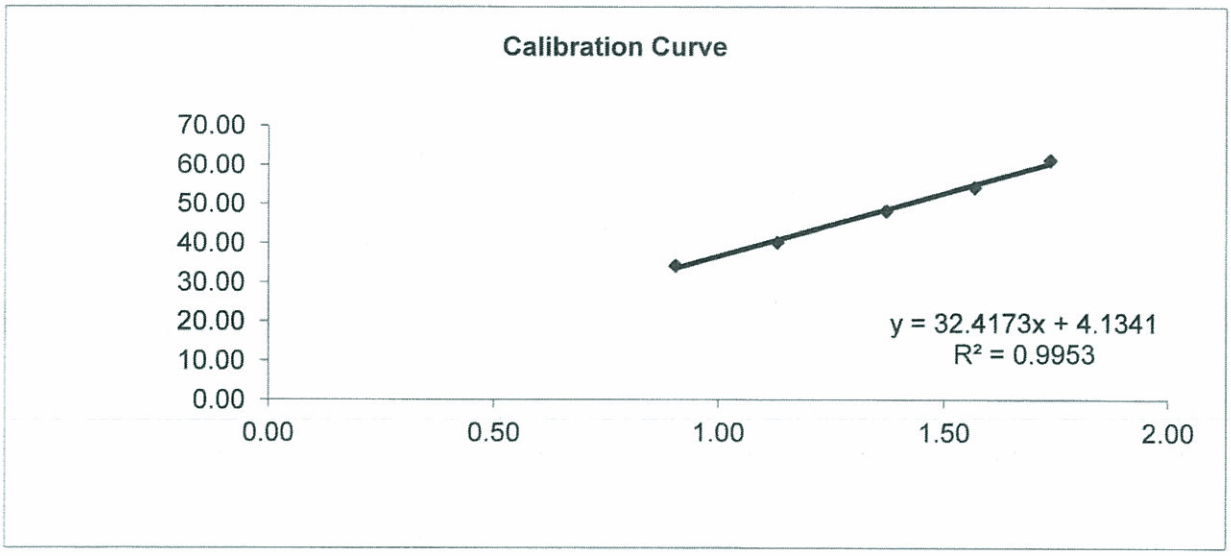
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	4-Feb-13	**Barometric pressure**	760 mm Hg
Next Calibration date	5-Apr-13	**Tempature (°C)**	22 °C
Sampler location	DMS1 - Thomas Cheung School	**Tempature (K)**	295 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	3.40	34.00	0.90	34.17
7	5.30	40.00	1.13	40.20
10	7.80	48.00	1.37	48.24
13	10.20	54.00	1.57	54.27
18	12.50	61.00	1.74	61.31



Linear Regression

Sampler slope (m) :	**32.4173**
Sampler intercept (b) :	**4.1341**
Correlation coefficient (R^2) :	**0.9953**

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

Performed by: _____ Date: 4.2.13

Checked by: _____ Date: 4-2-13

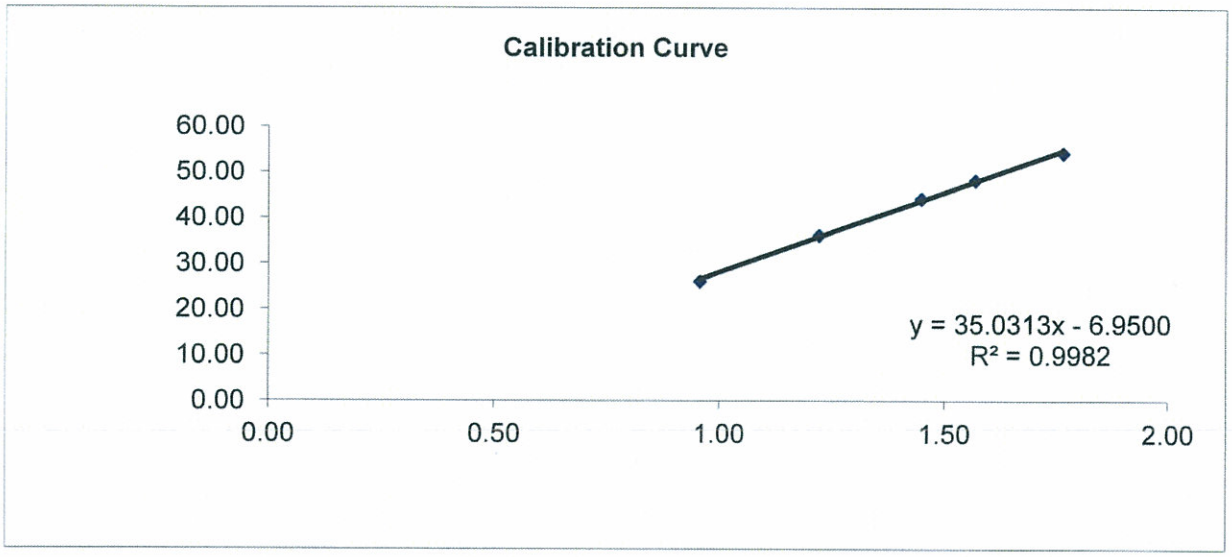
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	5-Feb-13	**Barometric pressure**	761 mm Hg
Next Calibration date	6-Apr-13	**Tempature (°C)**	22 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	**Tempature (K)**	295 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	26.00	0.96	26.15
7	6.20	36.00	1.22	36.21
10	8.70	44.00	1.45	44.25
13	10.20	48.00	1.57	48.28
18	12.90	54.00	1.76	54.31



Linear Regression

Sampler slope (m) :	**35.0313**
Sampler intercept (b) :	**-6.9500**
Correlation coefficient (R^2) :	**0.9982**

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

Performed by: _____ Date: 4.2.13

Checked by: _____ Date: 4-2-13

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					
102309	Mar-13	4-Mar-13	0:00	0:00	DMS1	Fine	Normal Operation	760.0	760.0	21.0	19.0	41.0	42.0	2.7638	2.8853	0.1215	1.1458	1.1813	1.1636	120.29	144.29	1440.00	1675.51	72.5	148.7	260.0
102311	Mar-13	8-Mar-13	0:00	0:00	DMS1	Fine	Normal Operation	762.0	762.0	22.0	20.0	40.0	40.0	2.7789	2.8949	0.1160	1.1143	1.1185	1.1164	144.29	168.29	1440.00	1607.62	72.2	148.7	260.0
102651	Mar-13	14-Mar-13	0:00	0:00	DMS1	Cloudy	Normal Operation	760.0	762.0	19.0	21.0	42.0	42.0	2.8087	2.9043	0.0956	1.1813	1.1786	1.1800	168.29	192.29	1440.00	1699.13	56.3	148.7	260.0
102655	Mar-13	20-Mar-13	0:00	0:00	DMS1	Cloudy	Normal Operation	761.0	759.0	24.0	24.0	42.0	42.0	2.7477	2.8768	0.1291	1.1711	1.1694	1.1703	192.29	216.29	1440.00	1685.16	76.6	148.7	260.0
102659	Mar-13	26-Mar-13	0:00	0:00	DMS1	Rainy	Normal Operation	763.0	761.0	21.0	21.0	41.0	40.0	2.7394	2.8781	0.1387	1.1483	1.1156	1.1320	216.29	240.29	1440.00	1630.01	85.1	148.7	260.0
102662	Mar-13	28-Mar-13	0:00	0:00	DMS1	Rainy	Normal Operation	761.0	759.0	23.0	24.0	42.0	40.0	2.7859	2.8626	0.0767	1.1733	1.1077	1.1405	240.29	264.29	1440.00	1642.32	46.7	148.7	260.0

Average (µg/m3)	68.2
Max (µg/m3)	85.1
Min (µg/m3)	46.7

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					
102313	Mar-13	8-Mar-13	0:00	0:00	DMS2	Fine	Normal Operation	762.0	762.0	22.0	20.0	41.0	41.0	2.7718	2.8370	0.0652	1.3685	1.3727	1.3706	0.39	24.39	1440.00	1973.66	33.0	167.4	260.0
102652	Mar-13	14-Mar-13	0:00	0:00	DMS2	Cloudy	Normal Operation	760.0	762.0	19.0	21.0	40.0	41.0	2.8080	2.9013	0.0933	1.3429	1.3706	1.3568	24.39	48.39	1440.00	1953.72	47.8	167.4	260.0
102656	Mar-13	20-Mar-13	0:00	0:00	DMS2	Cloudy	Normal Operation	761.0	759.0	24.0	24.0	41.0	41.0	2.7296	2.8608	0.1312	1.3635	1.3619	1.3627	48.39	72.39	1440.00	1962.29	66.9	167.4	260.0
102658	Mar-13	26-Mar-13	0:00	0:00	DMS2	Rainy	Normal Operation	763.0	761.0	21.0	21.0	41.0	41.0	2.7918	2.8851	0.0933	1.3714	1.3698	1.3706	72.39	96.39	1440.00	1973.66	47.3	167.4	260.0
102665	Mar-13	28-Mar-13	0:00	0:00	DMS2	Rainy	Normal Operation	761.0	759.0	23.0	24.0	42.0	41.0	2.7701	2.8114	0.0413	1.3957	1.3619	1.3788	96.39	120.39	1440.00	1985.47	20.8	167.4	260.0

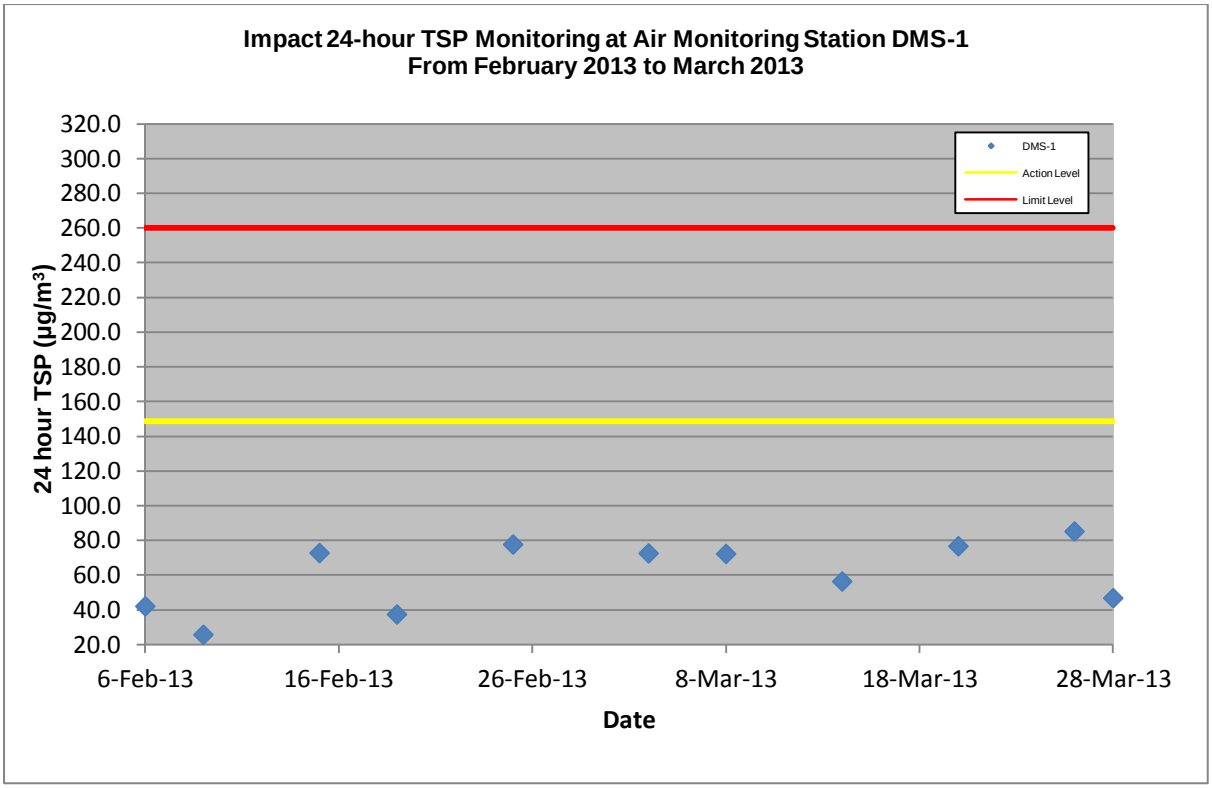
Average (µg/m3)	43.2
Max (µg/m3)	66.9
Min (µg/m3)	20.8

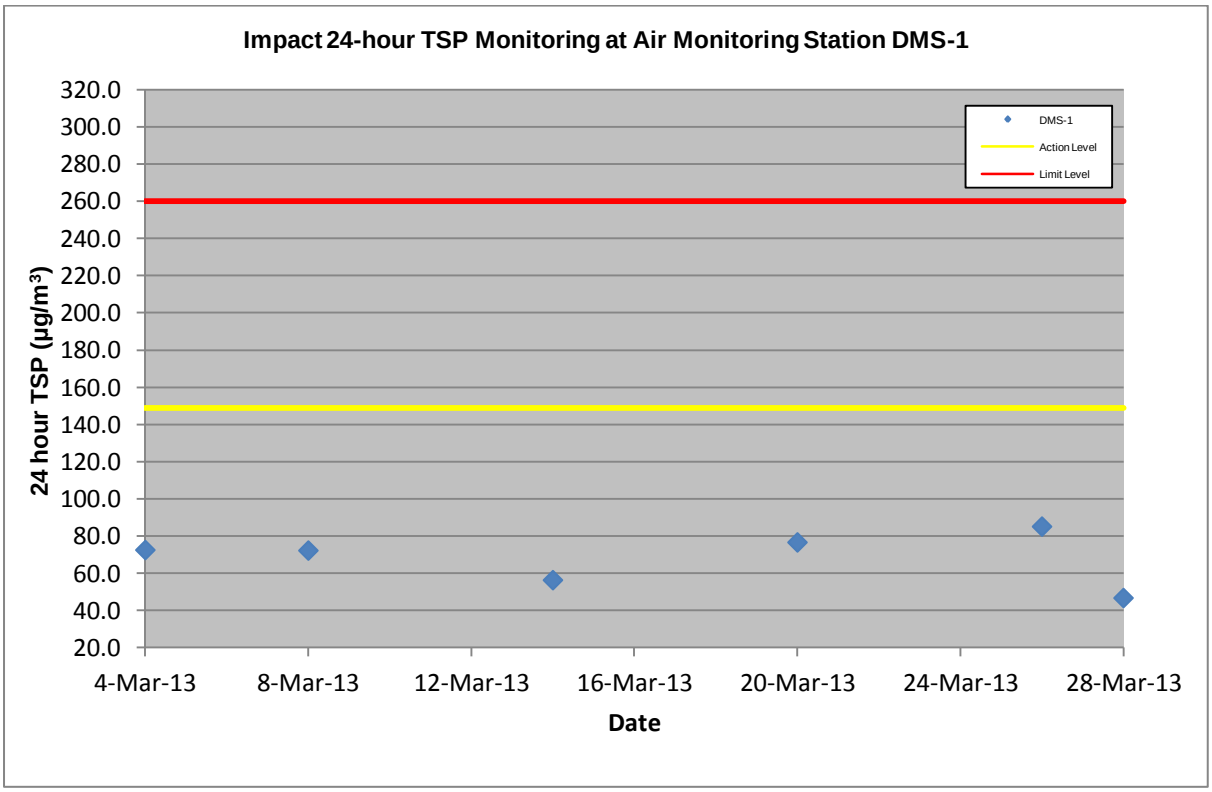
Location: DMS-3 - Hong Kong Sheng Kung Hui Nursing Home

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					
102310	Mar-13	4-Mar-13	0:00	0:00	DMS3	Fine	Normal Operation	760.0	760.0	21.0	19.0	42.0	42.0	2.7806	2.8664	0.0858	1.4054	1.4095	1.4075	120.40	144.40	1440.00	2026.73	42.3	159.1	260.0
102312	Mar-13	8-Mar-13	0:00	0:00	DMS3	Fine	Normal Operation	762.0	762.0	22.0	20.0	41.0	41.0	2.7793	2.9240	0.1447	1.3763	1.3803	1.3783	144.40	168.40	1440.00	1984.75	72.9	159.1	260.0
102653	Mar-13	14-Mar-13	0:00	0:00	DMS3	Cloudy	Normal Operation	760.0	762.0	19.0	21.0	41.0	41.0	2.7692	2.8791	0.1099	1.3807	1.3782	1.3795	168.40	192.40	1440.00	1986.41	55.3	159.1	260.0
102654	Mar-13	20-Mar-13	0:00	0:00	DMS3	Cloudy	Normal Operation	761.0	759.0	24.0	24.0	42.0	42.0	2.7984	2.8967	0.0983	1.4001	1.3986	1.3994	192.40	216.40	1440.00	2015.06	48.8	159.1	260.0
102657	Mar-13	26-Mar-13	0:00	0:00	DMS3	Rainy	Normal Operation	763.0	761.0	21.0	21.0	40.0	40.0	2.7889	2.8925	0.1036	1.3502	1.3487	1.3495	216.40	240.40	1440.00	1943.21	53.3	159.1	260.0
102661	Mar-13	28-Mar-13	0:00	0:00	DMS3	Rainy	Normal Operation	761.0	759.0	23.0	24.0	41.0	40.0	2.7915	2.8216	0.0301	1.3735	1.3414	1.3575	240.40	264.40	1440.00	1954.73	15.4	159.1	260.0

Average (µg/m3)	48.0
Max (µg/m3)	72.9
Min (µg/m3)	15.4


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From February 2013 to March 2013
320.0
300.0
280.0
260.0
240.0
220.0
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
24 hour TSP (µg/m³)
DMS-1
Action Level
Limit Level
6-Feb-13
16-Feb-13
26-Feb-13
8-Mar-13
18-Mar-13
28-Mar-13
Date


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
320.0
300.0
280.0
260.0
240.0
220.0
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
24 hour TSP (µg/m³)
DMS-1
Action Level
Limit Level
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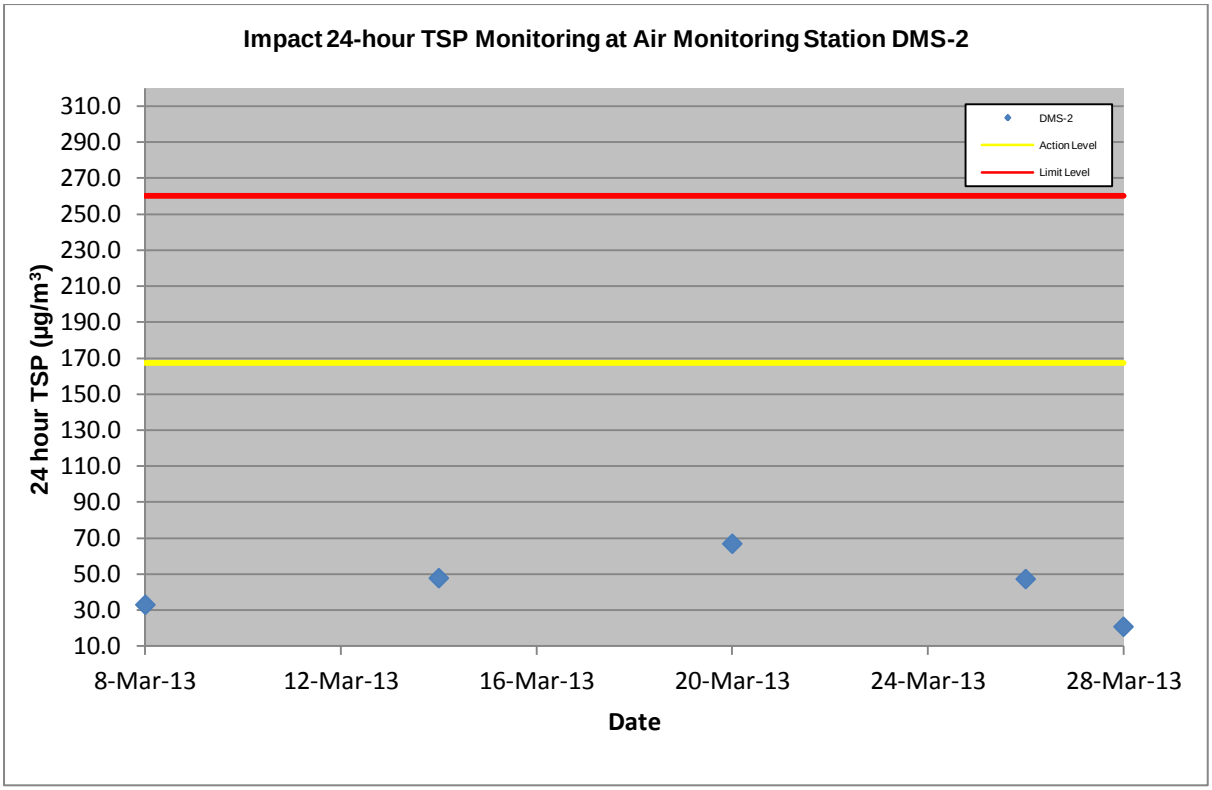
16-Mar-13
20-Mar-13
24-Mar-13
28-Mar-13
Date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310.0
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270.0
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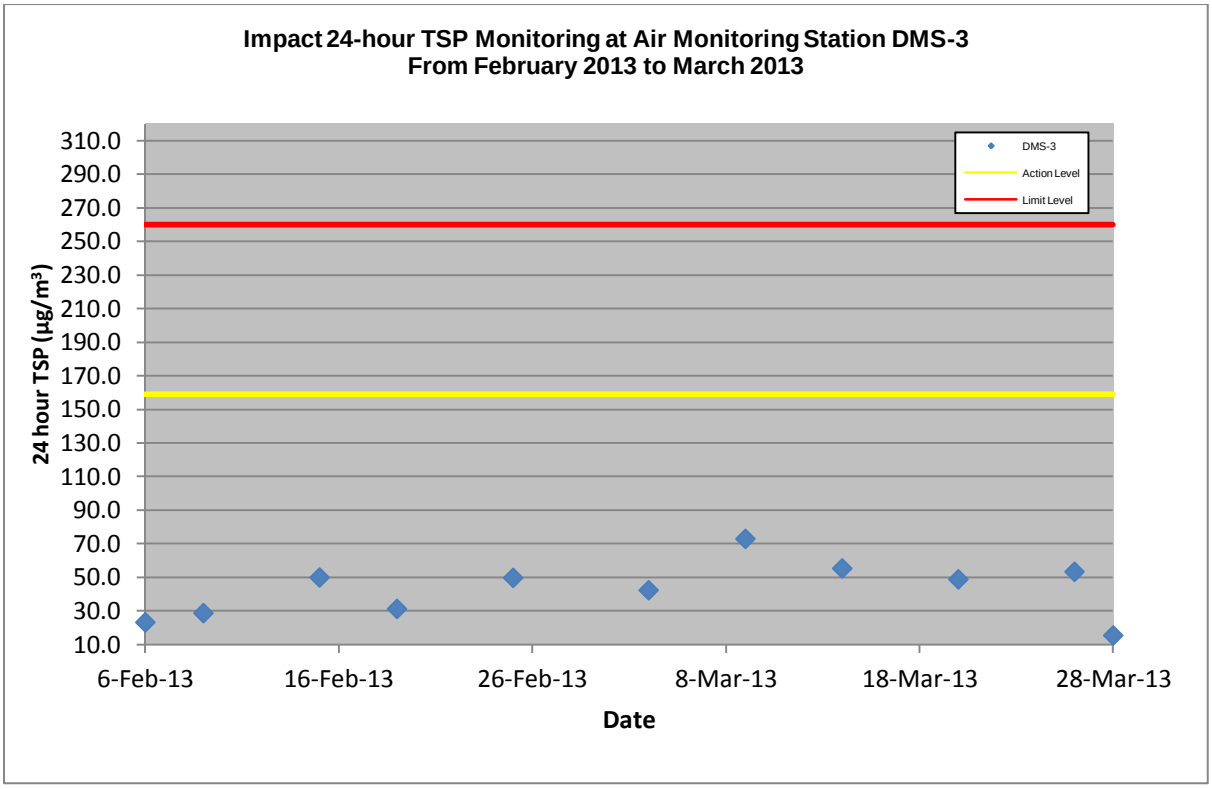
230.0
210.0
190.0
170.0
150.0
130.0
110.0
90.0
70.0
50.0
30.0
10.0
24 hour TSP (µg/m³)
8-Mar-13
12-Mar-13
16-Mar-13
20-Mar-13
24-Mar-13
28-Mar-13
Date
DMS-2
Action Level
Limit Level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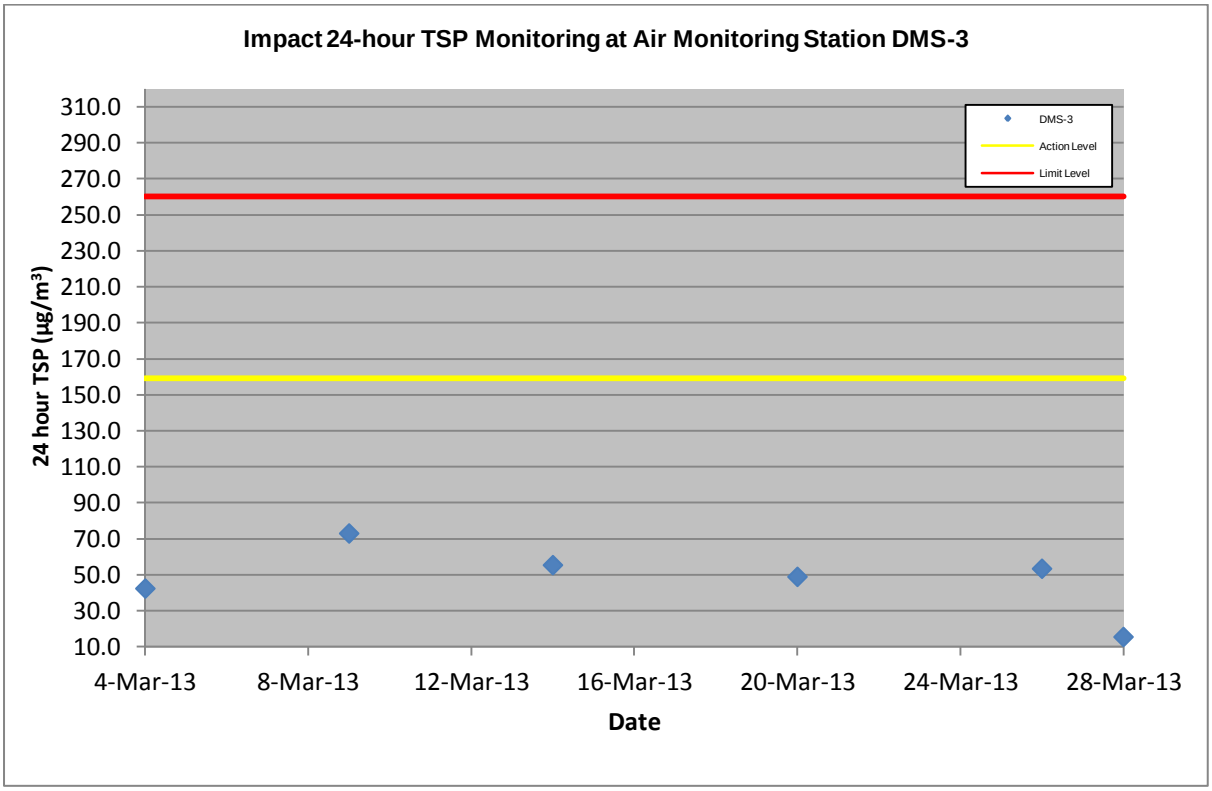
From February 2013 to March 2013
24 hour TSP (µg/m³)
310.0
290.0
270.0
250.0
230.0
210.0
190.0
170.0
150.0
130.0
110.0
90.0
70.0
50.0
30.0
10.0
6-Feb-13
16-Feb-13
26-Feb-13
8-Mar-13
18-Mar-13
28-Mar-13
Date
DMS-3
Action Level
Limit Level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24 hour TSP (µg/m³)
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290.0
270.0
250.0
230.0
210.0
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170.0
150.0
130.0
110.0
90.0
70.0
50.0
30.0
10.0
4-Mar-13
8-Mar-13
12-Mar-13
16-Mar-13
20-Mar-13
24-Mar-13
28-Mar-13
Date
DMS-3
Action Level
Limit Level

Appendix F

Wind data

Wind Monitoring Data - March 2013
Kai Tak Meteorological Station

Date	Wind Direction (degree)	Wind Speed (km/h)
2-Mar-13	030	30.2
8-Mar-13	250	9.7
14-Mar-13	090	33.8
20-Mar-13	200	11.2
26-Mar-13	060	31.7
28-Mar-13	060	23.6

Source extracted from Hong Kong Observatory (HKO)

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. : C124325
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1839)

Description / 儀器名稱	:	Integrating Sound Level Meter
Manufacturer / 製造商	:	Bruel & Kjaer
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 : 25 July 2012

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 Precision Measurement Ltd., UK
- 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 : 26 July 2012

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
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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. : C124325
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 6.3.2.

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	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

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	94.2

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	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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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	94.0	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	105.1	-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	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	94.9	+1.0 ± 1.0
					8 kHz	92.9	-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)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	89.7	± 0.5
			60 sec.			$1/10^3$		80	79.7	± 1.0
			5 min.			$1/10^4$		70	69.8	± 1.0

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

- Uncertainties of Applied Value :

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

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

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

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124803
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1839)

Description / 儀器名稱	:	Acoustical Calibrator
Manufacturer / 製造商	:	Bruel & Kjaer
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 : 16 August 2012

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 : 17 August 2012

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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Certificate of Calibration
校正證書

Certificate No. : C124803
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	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
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	114.0		

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
4-Mar-13	10:20 - 10:50	56.4	70.0	59.5	52.1	57.0	Measured ≦ Baseline
15-Mar-13	09:12 - 09:42	52.2	70.0	57.4	51.0	57.0	Measured ≦ Baseline
21-Mar-13	09:20 - 09:50	52.1	70.0	55.0	50.5	57.0	Measured ≦ Baseline
27-Mar-13	08:35 - 09:05	53.4	70.0	55.5	51.0	57.0	Measured ≦ Baseline

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

Average	L_{Aeq},30min	53.5
Max	L_{Aeq},30min	56.4
Min	L_{Aeq},30min	52.1

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
15-Mar-13	11:25 - 11:55	55.3	75.0	58.0	52.5	66.0	Measured ≦ Baseline
21-Mar-13	13:05 - 13:35	67.7	75.0	69.0	68.5	66.0	63.0
27-Mar-13	11:40 - 12:10	68.4	75.0	70.5	66.0	66.0	65.4

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

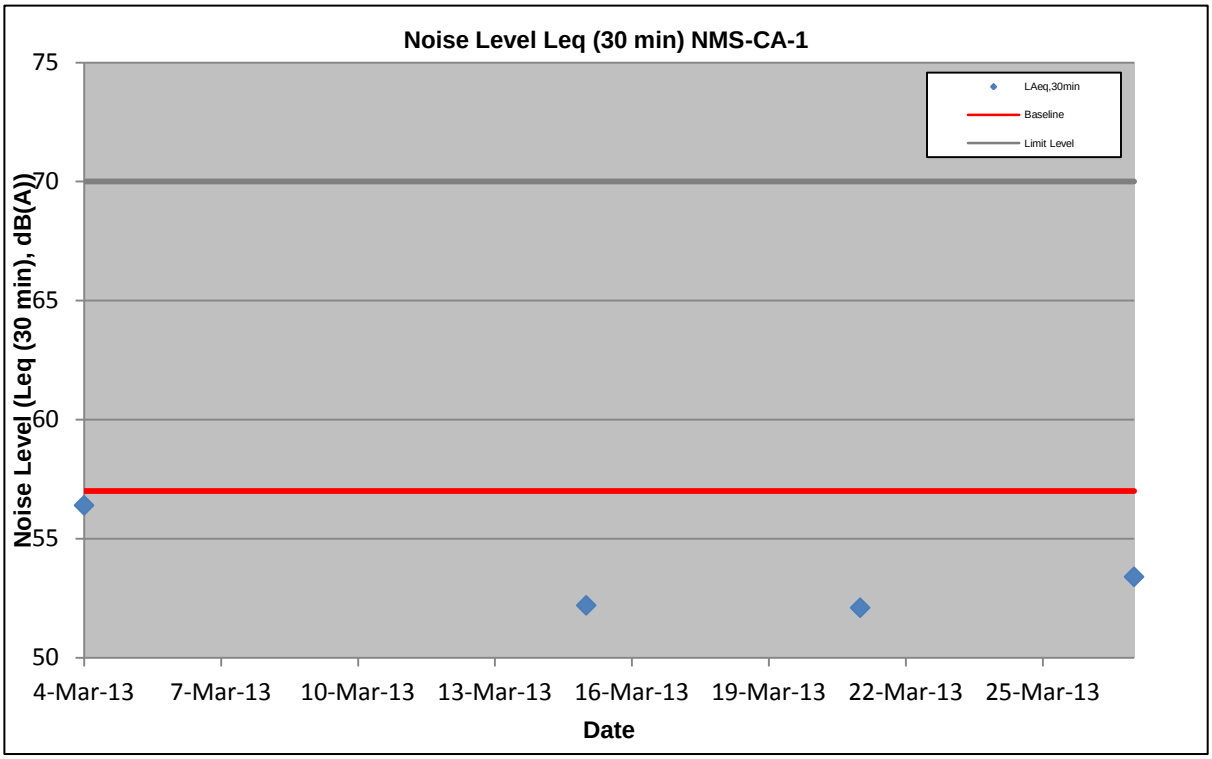
Average	L_{Aeq},30min	63.8
Max	L_{Aeq},30min	68.4
Min	L_{Aeq},30min	55.3

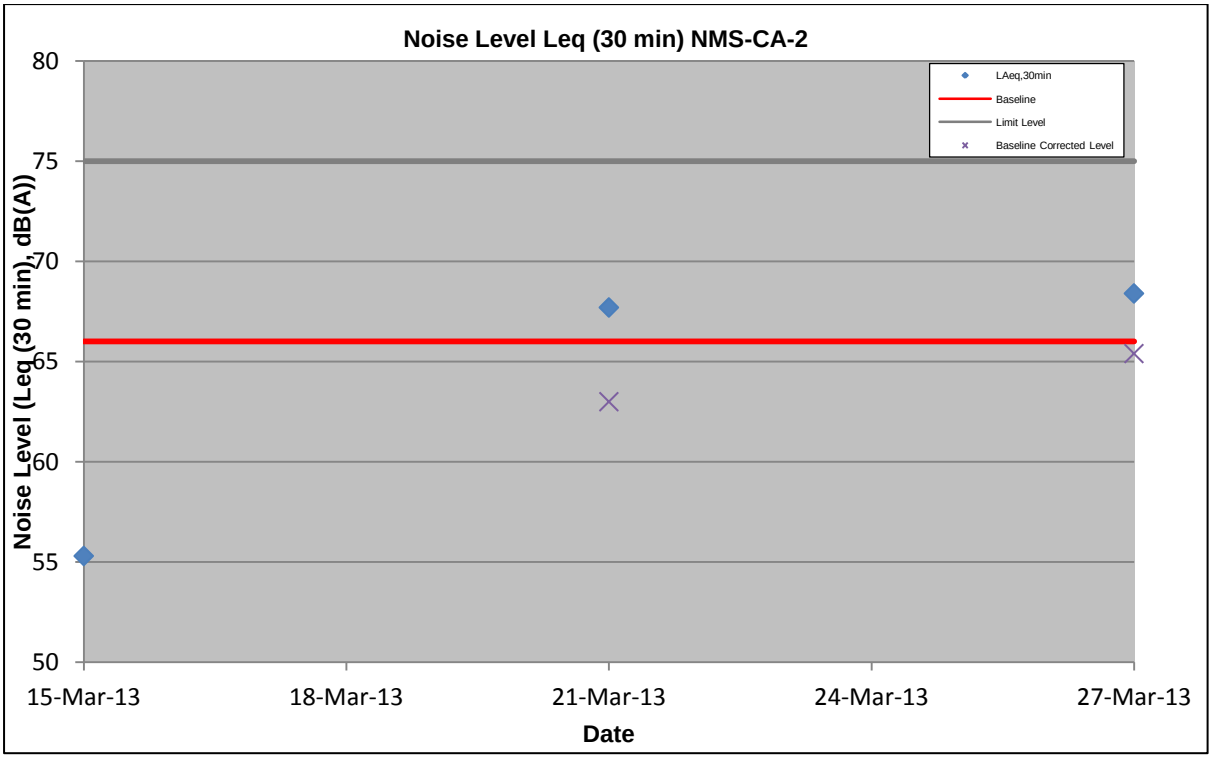
Location: NMS-CA-3 - Hong Kong Sheng Kung Hui Nursing Home

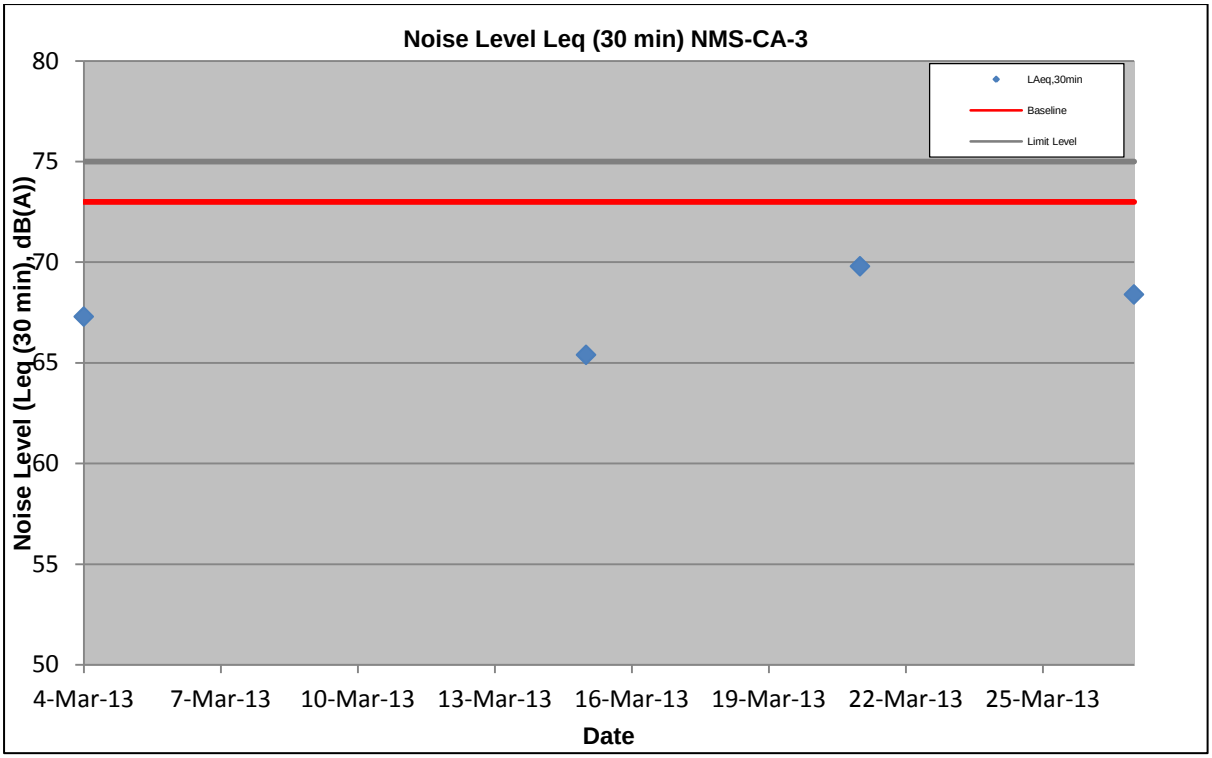
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
4-Mar-13	14:15 - 14:45	67.3	75.0	68.9	61.2	73.0	Measured ≦ Baseline
15-Mar-13	13:27 - 13:57	65.4	75.0	68.4	62.7	73.0	Measured ≦ Baseline
21-Mar-13	11:15 - 11:45	69.8	75.0	72.0	67.0	73.0	Measured ≦ Baseline
27-Mar-13	14:05 - 14:35	68.4	75.0	70.0	67.0	73.0	Measured ≦ Baseline

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

Average	L_{Aeq},30min	67.7
Max	L_{Aeq},30min	69.8
Min	L_{Aeq},30min	65.4


Noise Level Leq (30 min) NMS-CA-1
LAeq,30min
Baseline
Limit Level
Noise Level (Leq (30 min), dB(A))
75
70
65
60
55
50
4-Mar-13
7-Mar-13
10-Mar-13
13-Mar-13
16-Mar-13
19-Mar-13
22-Mar-13
25-Mar-13
Date


Noise Level Leq (30 min) NMS-CA-2
LAeq,30min
Baseline
Limit Level
Baseline Corrected Level
Noise Level (Leq (30 min), dB(A))
80
75
70
65
60
55
50
15-Mar-13
18-Mar-13
21-Mar-13
24-Mar-13
27-Mar-13
Date


Noise Level Leq (30 min) NMS-CA-3
80
75
70
65
60
55
50
Noise Level (Leq (30 min), dB(A))
4-Mar-13
7-Mar-13
10-Mar-13
13-Mar-13
16-Mar-13
19-Mar-13
22-Mar-13
25-Mar-13
Date
LAeq,30min
Baseline
Limit Level

Appendix I

Event/Action Plan for Air Quality and Airborne Noise

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

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

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	2.998	0.000	0.395	1.414	1.189	1.960	0.000	0.000	0.000	0.000	0.025
Apr											
May											
Jun											
Sub-total	6.653	0.000	0.395	1.940	4.318	3.299	0.000	0.000	0.000	0.000	0.126
July											
August											
September											
October											
November											
December											
Total	6.653	0.000	0.395	1.940	4.318	3.299	0.000	0.000	0.000	0.000	0.126

Comment:

1)Assumption the densities of Rock, Soil, Mix Rock and Soil, and Regular Spoil to be 2.0 tonnes/m3. Assumption the densities of general refuse is 1.0tonnes/m3.

2)The amounts of waste in Mar and cut-off date of data for TKO137FB, NENT Landfill, Kai Tak (Contact 1108A), Reused in the Contract and Imported Fill are 2377.88ton as at 27/3/13, 24.79ton, as at 27/3/13, 2827.57ton as at 25/3/13, 790ton as at 22/3/13, and 3920ton as at 18/3/13.

3) Chemical Waste will collected by registered chemical collector.

Appendix K

Environmental Monitoring Programme for Coming Month

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

Date		Air Quality	Noise	Site Inspection
		24-hours TSP	L_{Aeq}, 30 min	
1-Apr-13	Mon			
2-Apr-13	Tue			
3-Apr-13	Wed			
4-Apr-13	Thu			
5-Apr-13	Fri			
6-Apr-13	Sat			
7-Apr-13	Sun			
8-Apr-13	Mon			
9-Apr-13	Tue			
10-Apr-13	Wed			
11-Apr-13	Thu			
12-Apr-13	Fri			
13-Apr-13	Sat			
14-Apr-13	Sun			
15-Apr-13	Mon			
16-Apr-13	Tue			
17-Apr-13	Wed			
18-Apr-13	Thu			
19-Apr-13	Fri			
20-Apr-13	Sat			
21-Apr-13	Sun			
22-Apr-13	Mon			
23-Apr-13	Tue			
24-Apr-13	Wed			
25-Apr-13	Thu			
26-Apr-13	Fri			
27-Apr-13	Sat			
28-Apr-13	Sun			
29-Apr-13	Mon			
30-Apr-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 - 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 - Hong Kong Sheng Kung Hui	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

Note - Continuous Noise Monitoring will be undertaken regularly during April at NMS-CA-3

Appendix L

Complaint Log

Ove Arup and Partners HK Ltd.

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

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
-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix F

1st 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. 1

[Period from 12 to 31 March 2013]

Works Contract 1106 – Diamond Hill Station

(April 2013)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th April 2013

Sembawang – Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report for March 2013

(Version 3.0)

Certified By _____

(Contractor's Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 1st 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 12 March to 31 March 2013 since major construction works for Contract 1106 commenced on 12 March 2013.

Summary of Construction Works undertaken during Reporting Month

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

- Pre-drilling;
- D-wall construction;
- Building of Site Office;
- Hoarding works;
- Tree pruning; and
- Asbestos Demolition Works.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

Noise Monitoring Station ID

- NMS-CA-3(1)(3)/NMS-CA-4(2)(3) (H.K. Sheng Kung Hui Nursing Home) 3 times
- NMS-CA-4(1)/NMS-CA-3(2) (Block 1, Rhythm Garden (north-eastern façade)) 3 times
- NMS-CA-5(1)/NMS-CA-2(2) (Block 1, Rhythm Garden (northern façade)) 3 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) 4 times
- DMS-4(1)/ DMS-3(2) (Block 1, Rhythm Garden) 3 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 and 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, have been submitted to the EPD 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. About 1,416 m^3 of inert C&D materials were generated from the Project and were sent to 1108A Kai Tai Barging Facilities, Fill Bank at Tseung Kwan O Area 137 and SCL Works Contract 1103 for backfilling during the reporting month. About 172 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at designated Landfill. About 1,500 kg of asbestos wastes were delivered to SENT Landfill by licensed contractor. No steel material, paper/cardboard packaging and plastics were generated during this reporting month.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 12 and 26 March 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 12, 19 and 26 March 2013. The representative of the IEC joined the site inspection on 19 March 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:

- D-wall construction;
- Construction of Site Office;
- Hoarding works; and
- Tree pruning.

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 1st EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 12 March to 31 March 2013 since major construction works for Contract 1106 commenced on 12 March 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 Recommendation**

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**.

- Pre-drilling;
- D-wall construction;
- Building of Site Office;
- Hoarding works;
- Tree pruning; and
- Asbestos Demolition Works.

Project Organisation

2.5 The project organizational chart and contact details are shown in **Figure 4.**

Status of Environmental Licences, Notification and Permits

2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in March 2013 is presented in **Table 2.2**.

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/B	26/10/2012	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

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 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

3.4 Construction noise measurements were conducted in accordance with requirement in approved EM&A Manual. Noise measurements were made in accordance with standard acoustical principles and practices in relation to weather conditions.

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 957 (Serial no.: 21459 & 21460)
Calibrator	SVANTEK – SV30A (Serial no.: 10929 & 24791)

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

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

Action & Limit Level for Construction Noise Monitoring

3.8 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

3.9 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

3.10 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

3.11 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 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

3.12 **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

3.13 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

3.14 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

3.15 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.

3.16 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%.

3.17 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

3.18 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

3.19 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

3.20 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

3.21 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site and 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, have been submitted to the EPD during the reporting month.

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**.

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 as at the reporting period is summarized in **Appendix J**. 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 2.9	Construction Noise Mitigation Measures Plan(CNMMP)	8 Feb 2013
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	8 Feb 2013
Condition 2.15	Conservation Plan	18 Mar 2013
Condition 2.16	Archaeological Action Plan	19 Mar 2013
Condition 3.3	Baseline Monitoring Report for Works Contract 1103, 1106 & 1111	19 Oct 2012

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 6 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 at designated monitoring stations

5.2 The noise monitoring results recorded at NMS-CA-5[(1)]/NMS-CA-2[(2)] (Block 1, Rhythm Garden (northern façade)) on 14, 22 & 28 March 2013 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as they are wither below the baseline level or below the limit level after deducting the baseline noise level.

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

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 7 sets of 24-hour TSP monitoring 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 **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)])	15.4	55.3	43.2	159.1	260
24-hr TSP (DMS-4[(1)]/ DMS-3[(2)])	28.0	92.0	62.0	160.4	260

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

5.7 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) 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

Cultural Heritage

5.8 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site and 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, have been submitted to the EPD during the reporting month.

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 steel material, paper/cardboard packaging and plastics were generated 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 [c]	Recycled materials		
				Paper/ cardboard	Plastics	Metals
March 2013	1,416 m^3	172 m^3	1,500 kg	0 kg	0 kg	0 kg

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to 1108A Kai Tak Barging Point Facility, Fill Bank at Tseung Kwan O Area 137 and SCL Works Contract 1103 for backfilling 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.
(c) Chemical waste generated from the Project include only asbestos waste, which was delivered to SENT Landfill on 04/03/13 and 12/03/13 by licensed contractor.

Landscape and Visual

5.10 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 12, 19 and 26 March 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 19 March 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	12 Mar 2013	Debris at the U-channel near site entrance should be removed.	The observation was observed to be improved/rectified by the Contractor during the audit session on 19 Mar 2013.
	26 Mar 2013	Wheel washing bay should be properly maintained (e.g. sand and silt should be settled out at least on a weekly basis) for ensuring it is properly functioning.	Follow up actions will be reported in next month.
Noise	N/A	N/A	N/A
Landscape and Visual	19 Mar 2013	Reminder: Tree protection zone is reminded to be properly set up near area W8 and debris should be removed within the zone.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Mar 2013.
	26 Mar 2013	It is advised to set up tree protection zone at bar bending area yard as far as practicable.	Follow up actions will be reported in next month.
Cultural Heritage	N/A	N/A	N/A
Air Quality	12 Mar 2013	Reminder:Regular water spray on the unpaved haul road is reminded to be enhanced.	The observation was observed to be improved/rectified by the Contractor during the audit session on 19 Mar 2013.
	19 Mar 2013	Water should be sprayed near archeological area to suppress dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Mar 2013.
	19 Mar 2013	Reminder:3-sided enclosure at bentonite mixing plant is reminded to be improved for the side near Lung Cheung Road.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Mar 2013.

Parameters	Date	Observations and Recommendations	Follow-up
	26 Mar 2013	Reminder:It is reminded spoil trucks leaving the site should be properly covered. Special attention should be paid to wet spoil to prevent any leakage of muddy water during transportation to disposal sites.	Follow up actions will be reported in next month.
Waste / Chemical Management	19 Mar 2013	Fuel leakage was observed from excavator near area W8. Drip tray is reminded to be provided at the identified location and oil stains on ground near the genset at steel cage fabrication yard in W1 should be cleared.	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Mar 2013.
	19 Mar 2013	Oily mixture inside the drip tray placed near the silos area in W1 should be cleared	The observation was observed to be improved/rectified by the Contractor during the audit session on 26 Mar 2013.
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 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;
- Construction of Site Office;
- Hoarding works; and
- Tree pruning.

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;
- Treatment of wastewater from D-wall construction;
- Preservation and protection of retained 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 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 12 March to 31 March 2013 since major construction works for Contract 1106 commenced on 12 March 2013 in accordance with EM&A Manual and the requirement under EP-438/2012/B.

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 3 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 and particularly following wet seasons.
- Wheel washing facilities is reminded to be properly maintained for ensuring it can properly functioning.

Landscape and Visual

- "No-intrusion zone" should be established for existing trees as far as practicible. The contractor is reminded to closely monitor and restrict the site working staff from entering the erected "no-intrusion zone" for existing trees for maximizing the protection.

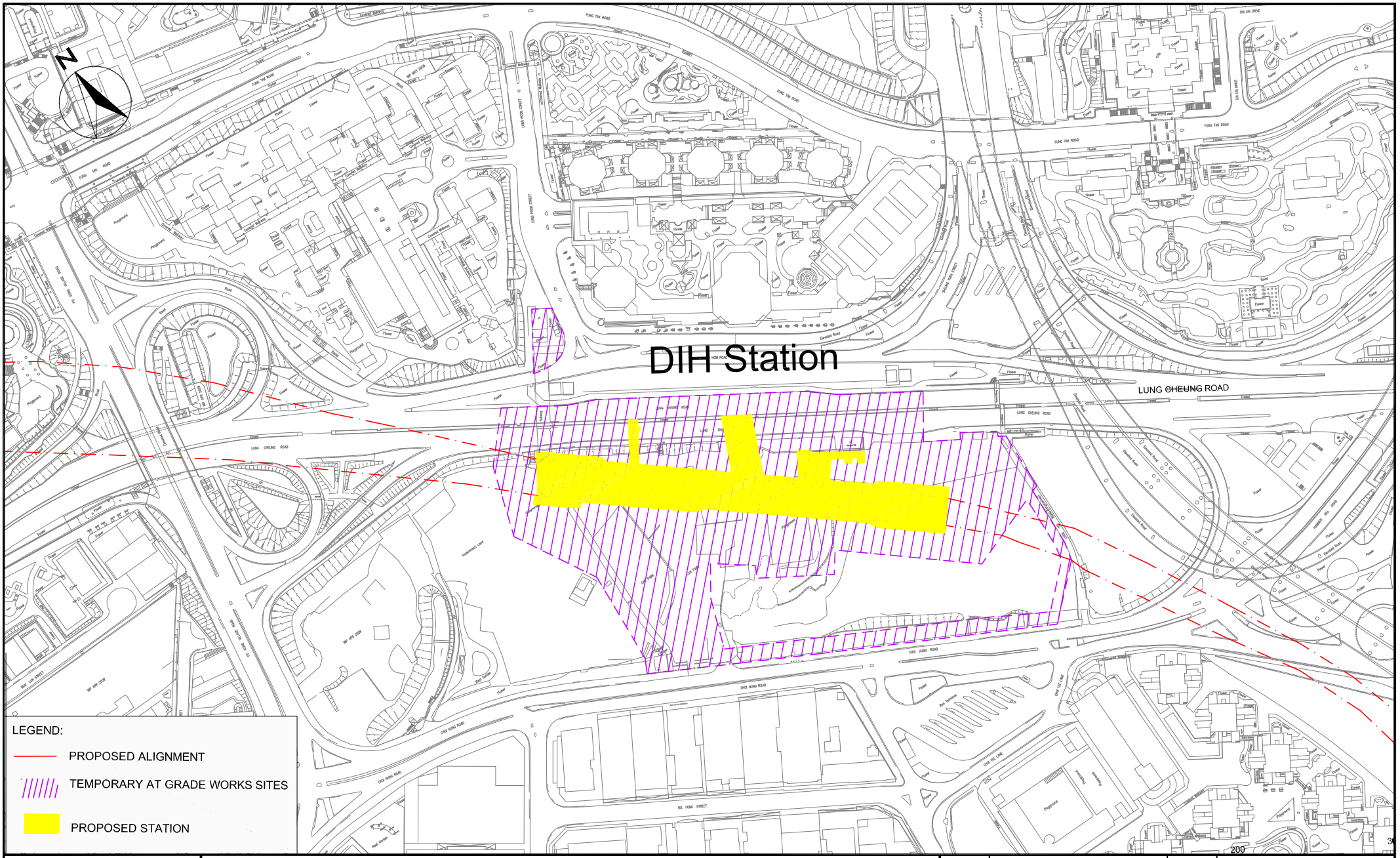
Air Quality

- 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.

FIGURES



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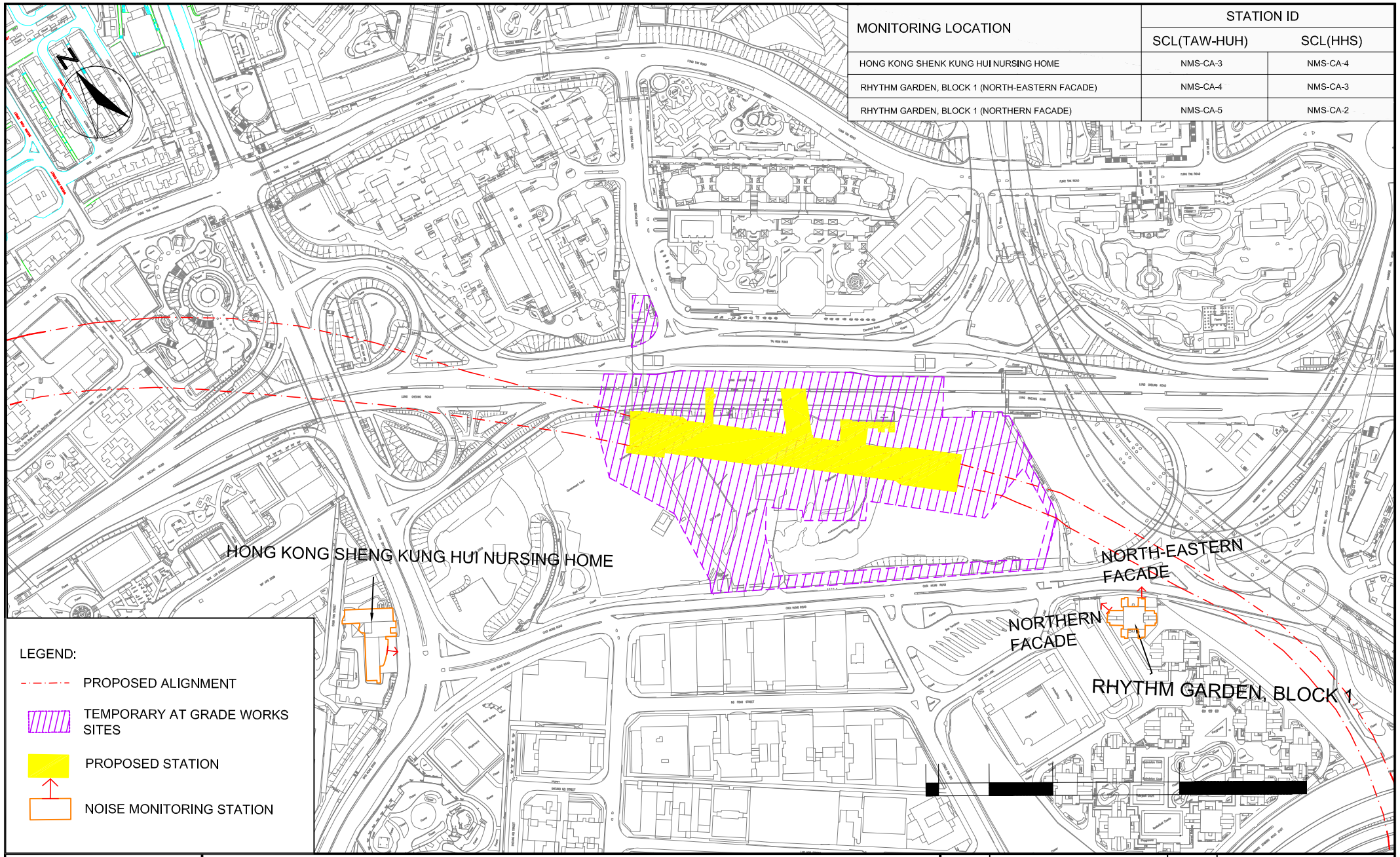
SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

SITE LAYOUT PLAN

SCALE	1:80	DATE	FEB 2013
CHECK	IT	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



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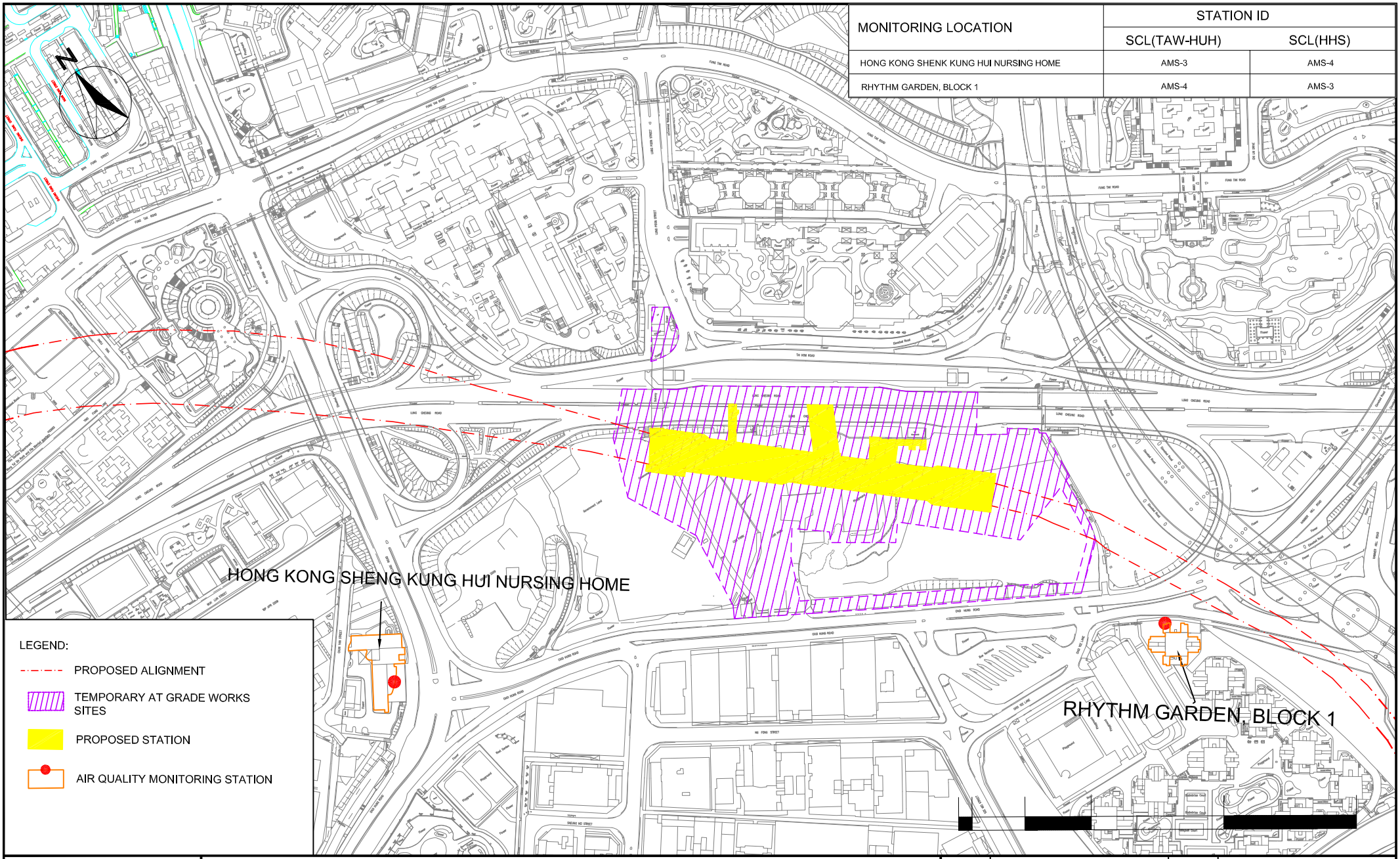
Cinotech Consultants Limited

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF NOISE MONITORING STATIONS(CONSTRUCTION AIRBORNE NOISE)

SCALE	1:100	DATE	FEB 2013
CHECK	IT	DRAWN	JW
JOB No.	MA12051	FIGURE NO. 2	REV -



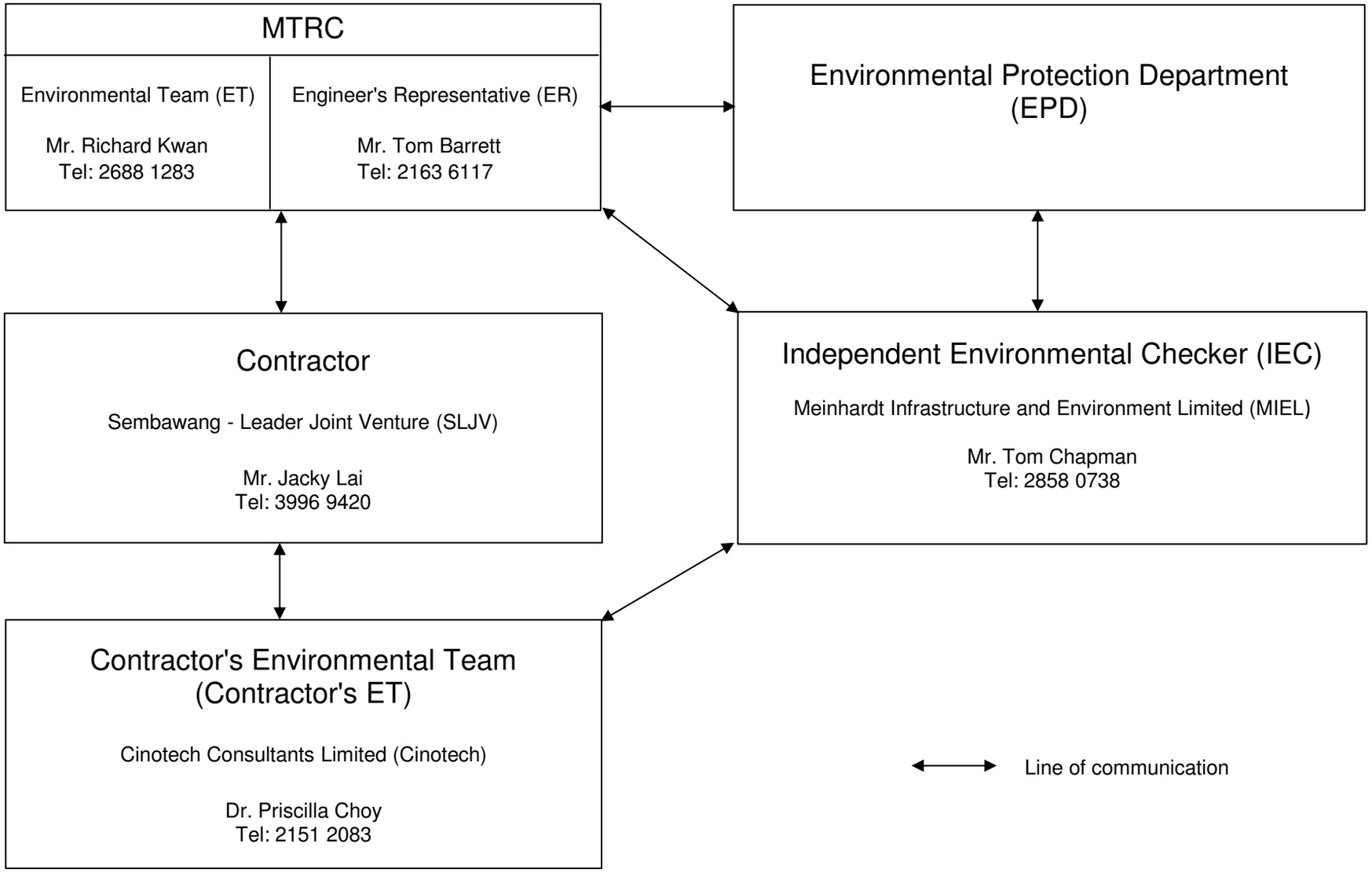
MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENK KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

CINOTECH
Cinotech Consultants Limited

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:100	DATE	FEB 2013
CHECK	IT	DRAWN	JW
JOB No.	MA12051	FIGURE NO. 3	REV -



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

CINOTECH

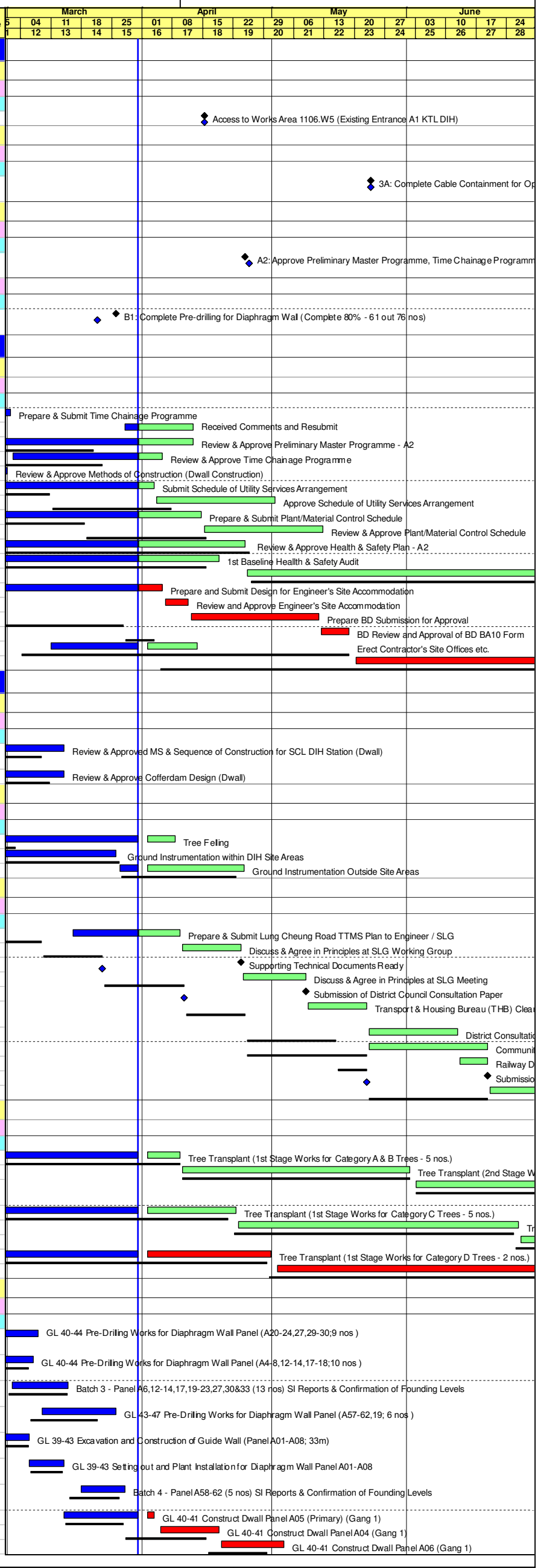
APPENDIX A
TENTATIVE CONSTRCUTION PROGRAMME

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Planned Early Start	Planned Early Finish	% Complete
Contract Dates					
Possession & Vacation Dates					
Possession of Works Areas					
Possession Dates					
C1106.ADW005	Access to Works Area 1106.W5 (Existing Entrance A1 KTL DIH)	0	15-Apr-13*		0%
Completion Obligation Dates					
Completion of Specified Parts of the Works					
Completion Dates					
C1106.CDW03A	3A: Complete Cable Containment for Ops Contracts at DIH (KTL) Concourse & Platform Level	0		23-May-13*	0%
Milestone Dates					
Cost Centre A Milestones					
Preliminaries					
C1106.MSA02	A2: Approve Preliminary Master Programme, Time Chainage Programme and Health and Safety Plan	0		24-Apr-13	0%
Cost Centre B (Option 5 Tender (SCL), Entrances & Adits)					
Completion Dates					
C1106.MSB01	B1: Complete Pre-drilling for Diaphragm Wall (Complete 80% - 61 out 76 nos)	0		26-Mar-13 A	100%
Cost Centre A - Preliminaries					
General Requirements					
Submissions					
General					
C1106.GS0145	Prepare & Submit Time Chainage Programme	17	02-Feb-13 A	01-Mar-13 A	100%
C1106.GS0147	Received Comments and Resubmit	14	28-Mar-13 A	12-Apr-13	10%
C1106.GS0150	Review & Approve Preliminary Master Programme - A2	30	26-Feb-13 A	12-Apr-13	80%
C1106.GS0155	Review & Approve Time Chainage Programme	30	02-Mar-13 A	05-Apr-13	90%
C1106.GS0190	Review & Approve Methods of Construction (Dwall Construction)	28	31-Jan-13 A	01-Mar-13 A	100%
C1106.GS0195	Submit Schedule of Utility Services Arrangement	60	10-Jan-13 A	03-Apr-13	90%
C1106.GS0200	Approve Schedule of Utility Services Arrangement	28	04-Apr-13	01-May-13	0%
C1106.GS0260	Prepare & Submit Plant/Material Control Schedule	28	19-Feb-13 A	14-Apr-13	60%
C1106.GS0265	Review & Approve Plant/Material Control Schedule	28	15-Apr-13	12-May-13	0%
C1106.GS0314	Review & Approve Health & Safety Plan - A2	70	19-Feb-13 A	24-Apr-13	70%
C1106.GS0316	1st Baseline Heallth & Safety Audit	120	17-Dec-12 A	18-Apr-13	80%
C1106.GS0318	1st Safety Management & Environmental Monitoring Audit -A3	90	25-Apr-13	23-Jul-13	0%
C1106.GS0465	Prepare and Submit Design for Engineer's Site Accommodation	25	17-Jan-13 A	05-Apr-13	90%
C1106.GS0475	Review and Approve Engineer's Site Accommodation	6	06-Apr-13	11-Apr-13	0%
C1106.GS0485	Prepare BD Submission for Approval	30	12-Apr-13	11-May-13	0%
C1106.GS0495	BD Review and Approval of BD BA10 Form	7	12-May-13	18-May-13	0%
C1106.GS0565	Erect Contractor's Site Offices etc.	75	11-Mar-13 A	13-Apr-13	75%
C1106.GS0575	Erect and Equip PM's 4 Container Offices	75	20-May-13	16-Aug-13	0%
Cost Centre B: SCL- DIH Station, Entrances and Adits					
Design & Approval					
General					
General					
C1106.DS0340	Review & Approved MS & Sequence of Construction for SCL DIH Station (Dwall)	25	09-Feb-13 A	14-Mar-13 A	100%
C1106.DS0500	Review & Approve Cofferdam Design (Dwall)	28	09-Feb-13 A	14-Mar-13 A	100%
Mobilization / Enabling Works / Utilities Diversions					
Preliminary Site Works					
Site Preparation					
C1106.BSP1140	Tree Felling	30	19-Jan-13 A	08-Apr-13	95%
C1106.BSP1145	Ground Instrumentation within DIH Site Areas	29	21-Feb-13 A	26-Mar-13 A	100%
C1106.BSP1150	Ground Instrumentation Outside Site Areas	19	27-Mar-13 A	24-Apr-13	5%
TTMS Implementation					
Submissions					
TTM Submission					
C1106.TMS0250	Prepare & Submit Lung Cheung Road TTMS Plan to Engineer / SLG	16	16-Mar-13 A	09-Apr-13	40%
C1106.TMS0265	Discuss & Agree in Principles at SLG Working Group	14	10-Apr-13	23-Apr-13	0%
C1106.TMS0270	Supporting Technical Documents Ready	0		23-Apr-13	0%
C1106.TMS0275	Discuss & Agree in Principles at SLG Meeting	12	24-Apr-13	08-May-13	0%
C1106.TMS0280	Submission of District Council Consultation Paper	0		08-May-13	0%
C1106.TMS0290	Transport & Housing Bureau (THB) Clearance prior to Submission of District Council Consultation Paper	14	09-May-13	22-May-13	0%
C1106.TMS0300	District Consultation (Meeting Schedule of YTMDC/ T&TC Meeting)	21	23-May-13	12-Jun-13	0%
C1106.TMS0305	Community Liaison Group (CLG) Consultation	28	23-May-13	19-Jun-13	0%
C1106.TMS0310	Railway Development Office (RDO) Endorsed TTMS Drawing	7	13-Jun-13	19-Jun-13	0%
C1106.TMS0315	Submission of Section 22 Paper	0		19-Jun-13	0%
C1106.TMS0320	Government Internal Review of Section 22 Paper	28	20-Jun-13	17-Jul-13	0%
Tree Feeling / Transplanting					
General					
Tree Transplanting					
C1106.BTP1410	Tree Transplant (1st Stage Works for Category A & B Trees - 5 nos.)	43	14-Feb-13 A	09-Apr-13	85%
C1106.BTP1420	Tree Transplant (2nd Stage Works for Category A & B Trees - 5 nos.	44	10-Apr-13	01-Jun-13	0%
C1106.BTP1425	Tree Transplant to Permanent Location for Category A & B Trees - 5 nos	30	03-Jun-13	09-Jul-13	0%
C1106.BTP1450	Tree Transplant (1st Stage Works for Category C Trees - 5 nos.)	53	14-Feb-13 A	22-Apr-13	70%
C1106.BTP1470	Tree Transplant (2nd Stage Works for Category C Trees - 5 nos.)	53	23-Apr-13	26-Jun-13	0%
C1106.BTP1480	Tree Transplant to Permanent Location for Category C Trees - 5 nos	53	27-Jun-13	28-Aug-13	0%
C1106.BTP1515	Tree Transplant (1st Stage Works for Category D Trees - 2 nos.)	70	23-Feb-13 A	30-Apr-13	50%
C1106.BTP1520	Tree Transplant (2nd Stage Works for Category D Trees - 2 nos.)	70	02-May-13	25-Jul-13	0%
Diaphragm Wall & Foundation Works					
DIH (SCL) Gridline 39 - 49					
Station Cofferdam					
C1106.BDW3927	GL 40-44 Pre-Drilling Works for Diaphragm Wall Panel (A20-24,27,29-30;9 nos)	12	18-Feb-13 A	08-Mar-13 A	100%
C1106.BDW3930	GL 40-44 Pre-Drilling Works for Diaphragm Wall Panel (A4-8,12-14,17-18;10 nos)	12	20-Feb-13 A	07-Mar-13 A	100%
C1106.BDW3932	Batch 3 - Panel A6,12-14,17,19-23,27,30&33 (13 nos) SI Reports & Confirmation of Founding Levels	12	02-Mar-13 A	15-Mar-13 A	100%
C1106.BDW3935	GL 43-47 Pre-Drilling Works for Diaphragm Wall Panel (A57-62,19; 6 nos)	14	09-Mar-13 A	26-Mar-13 A	100%
C1106.BDW3955	GL 39-43 Excavation and Construction of Guide Wall (Panel A01-A08; 33m)	12	20-Feb-13 A	06-Mar-13 A	100%
C1106.BDW3965	GL 39-43 Setting out and Plant Installation for Diaphragm Wall Panel A01-A08	7	06-Mar-13 A	14-Mar-13 A	100%
C1106.BDW3970	Batch 4 - Panel A58-62 (5 nos) SI Reports & Confirmation of Founding Levels	9	18-Mar-13 A	28-Mar-13 A	100%
C1106.BDW3990	GL 40-41 Construct Dwall Panel A05 (Primary) (Gang 1)	12	14-Mar-13 A	03-Apr-13	80%
C1106.BDW3995	GL 40-41 Construct Dwall Panel A04 (Gang 1)	12	05-Apr-13	18-Apr-13	0%
C1106.BDW4000	GL 40-41 Construct Dwall Panel A06 (Gang 1)	12	19-Apr-13	03-May-13	0%



Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone

Project File: C1106P-3MRP Mar 2013
Project Start: 17-Dec-12
Project Finish: 14-Apr-19
Date Date: 31-Mar-13
Print: 02-Apr-13 @15:19

MTR Contract 1106 - Diamond Hill Station
3 Month Rolling Programmme
as of 31 March 2013

3 Month Rolling Programme			
Date	Revision	Checked	Approved
02-Apr-13	C1106-3M...	RR	RB

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Planned Early Start	Planned Early Finish	% Complete
C1106.BDW4005	GL 40-41 Construct Dwall Panel A03 (Gang 1)	12	04-May-13	18-May-13	0%
C1106.BDW4010	GL 40-41 Construct Dwall Panel A02 (Gang 1)	12	20-May-13	01-Jun-13	0%
C1106.BDW4015	GL 40-41 Construct Dwall Panel A01 (Closing) (Gang 1)	12	03-Jun-13	17-Jun-13	0%
C1106.BDW4020	GL 41-43 Construct of Guide Wall (Panel A09-16; 25m)	10	06-Mar-13 A	20-Mar-13 A	100%
C1106.BDW4025	GL 41-43 Setting out and Plant Installation for Diaphragm Wall Panel A09-A16	6	23-Mar-13 A	25-Mar-13 A	100%
C1106.BDW4030	GL 41-42 Construct Dwall Panel A10 (Primary) (Gang 2)	10	20-Mar-13 A	03-Apr-13	70%
C1106.BDW4035	GL 41-42 Construct Dwall Panel A09 (Gang 2)	12	05-Apr-13	18-Apr-13	0%
C1106.BDW4040	GL 41-42 Construct Dwall Panel A11 (Gang 2)	12	19-Apr-13	03-May-13	0%
C1106.BDW4045	GL 41-42 Construct Dwall Panel A08 (Gang 2)	12	04-May-13	18-May-13	0%
C1106.BDW4050	GL 40-41 Construct Dwall Panel A07 (Gang 2)	12	20-May-13	01-Jun-13	0%
C1106.BDW4055	GL 42-43 Construct Dwall Panel A15 (Primary) (Gang 2)	10	03-Jun-13	14-Jun-13	0%
C1106.BDW4060	GL 42-43 Construct Dwall Panel A14 (Gang 2)	12	15-Jun-13	28-Jun-13	0%
C1106.BDW4065	GL 42-43 Construct Dwall Panel A16 (Gang 2)	12	29-Jun-13	13-Jul-13	0%
C1106.BDW4400	GL 43-39 Construction of Guide Wall (Panel A70-A76; 50 m)	12	14-Mar-13 A	22-Mar-13 A	100%
C1106.BDW4410	GL 43-39 Setting out and Plant Installation for Diaphragm Wall Panel A69-A76	6	23-Mar-13 A	28-Mar-13 A	100%
C1106.BDW4440	GL 42-41 Construct Dwall Panel A72 (Primary) (Gang 3)	16	26-Mar-13 A	19-Apr-13	20%
C1106.BDW4445	GL 41-40 Construct Dwall Panel A73 (Gang 3)	16	20-Apr-13	09-May-13	0%
C1106.BDW4450	GL 42-41 Construct Dwall Panel A71 (Gang 3)	18	10-May-13	31-May-13	0%
C1106.BDW4455	GL 41-40 Construct Dwall Panel A74 (Gang 3)	18	01-Jun-13	22-Jun-13	0%
C1106.BDW4460	GL 41-40 Construct Dwall Panel A70 (Gang 3)	16	24-Jun-13	12-Jul-13	0%
DIH (SCL) Gridline 49 - 53					
Station Cofferdam					
C1106.BDW4920	GL 53-49 Pre-Drilling Works for Diaphragm Wall (A34, A52-54; 4 no	16	20-Feb-13 A	09-Mar-13 A	100%
C1106.BDW4922	Batch 3 - Panel A34, 52-54 (4 nos) SI Reports & Confirmation of Founding Levels	5	10-Mar-13 A	15-Mar-13 A	100%
C1106.BDW4925	GL 49-53 Pre-Drilling Works for Diaphragm Wall (A35-36, A55-57;5 nos.)	12	10-Mar-13 A	22-Mar-13 A	100%
C1106.BDW4927	Batch 4 - Panel A35-36 & 55-57 (5 nos) SI Reports & Confirmation of Founding Levels	9	18-Mar-13 A	28-Mar-13 A	100%
C1106.BDW4930	GL 49-52 Construction of Guide Wall Panel & Setting out (A32-A37; (28 m)	10	02-Apr-13	13-Apr-13	0%
C1106.BDW4935	GL 49-52 Construction of Guide Wall Panel & Setting out (A37-A41; (31 m)	10	15-Apr-13	25-Apr-13	0%
C1106.BDW4940	GL 51-48 Construction of Guide Wall Panel & Setting out (A52-A55; (25 m)	10	02-Apr-13	13-Apr-13	0%
C1106.BDW4945	GL 51-48 Construction of Guide Wall Panel & Setting out (A55-A61; (38 m)	14	15-Apr-13	30-Apr-13	0%
C1106.BDW4950	GL 50-51 Construct Dwall Panel A38 (Primary) (Gang 4)	18	26-Apr-13	18-May-13	0%
C1106.BDW4960	GL 51-52 Construct Dwall Panel A39 (Gang 4)	18	20-May-13	08-Jun-13	0%
C1106.BDW4975	GL 50-51 Construct Dwall Panel A37 (Gang 4)	18	10-Jun-13	02-Jul-13	0%
C1106.BDW5390	GL 51-50 Construct Dwall Panel A54 (Primary) (Gang 1)	18	18-Jun-13	09-Jul-13	0%
ABWF & Miscellaneous Works					
Manufacture & Delivery					
Delivery					
C1106.BML5963	Procure, Manufacture & Delivery ABWF Finishes	120	13-May-13	04-Oct-13	0%
Construction of Interchange Adit					
Submissions					
General					
C1106.BIA6010	Prepare Cofferdam Design, ICE Check & Submit	25	11-Mar-13 A	12-Apr-13	50%
C1106.BIA6017	Review & Approve Cofferdam Design	28	13-Apr-13	10-May-13	0%
Site Preparation					
C1106.BIA6023	Mobilize, Site Preparation & Survey	14	11-May-13	28-May-13	0%
C1106.BIA6026	Erect Hoarding & Temporary Site Access/ Access Staircase	18	29-May-13	19-Jun-13	0%
C1106.BIA6034	Install Instrumentation & Markers	20	20-Jun-13	13-Jul-13	0%
Construction of West Unpaid Link Adit					
Submissions					
General					
C1106.BWA7522	Prepare Cofferdam Design, ICE Check & Submit	25	13-Apr-13	13-May-13	0%
C1106.BWA7527	Review & Approve Cofferdam Design	30	14-May-13	12-Jun-13	0%
C1106.BWA7540	Mobilise, Site Preparation & Survey	12	14-May-13	28-May-13	0%
C1106.BWA7550	Erect Hoarding & Temporary Site Acces/ Access Staircase	8	29-May-13	06-Jun-13	0%
C1106.BWA7560	Install Instrumention & Markers	18	07-Jun-13	28-Jun-13	0%
C1106.BWA7565	Demolition of Existing Concrete Boundary Wall, Stairs, Metal Fencing & Others	12	29-Jun-13	13-Jul-13	0%
Cost Centre C - KTL - DIH Modification and Refurbishment Works					
Design & Approval					
Submissions					
General					
C1106.DS3010	Prepare Hoarding/Demolition Plan, ICE & Submit	25	22-Jan-13 A	06-Mar-13 A	100%
C1106.DS3015	Review & Approve Hoarding/Demolition Plan	28	07-Mar-13 A	27-Mar-13 A	100%
C1106.DS3030	Prepare & Submit Method Statement for KTL DIH Modification Work	28	22-Jan-13 A	27-Mar-13 A	100%
C1106.DS3035	Review & Approve Methods for KTL DIH Modification Works	28	28-Mar-13 A	14-Apr-13	5%
C1106.DS3040	Prepare & Submit Method Statement for Demolition of Existing Struc	30	22-Jan-13 A	27-Mar-13 A	100%
C1106.DS3045	Review & Approve Methods for Demolition of Existing Structure	28	28-Mar-13 A	14-Apr-13	5%
C1106.DS3055	Review & Approve Engineering Document (EDOC)	28	21-Feb-13 A	22-Mar-13 A	100%
C1106.DS3057	Prepare & Submit Method of Statement for Jack Arch Wall Strengthening Works	25	23-Mar-13 A	29-Apr-13	10%
C1106.DS3059	Review & Approve Method of Statement for Jack Arch Wall Strengthening Works	28	30-Apr-13	27-May-13	0%
C1106.DS3060	Submit & Approve Building Services Drawings	45	16-Mar-13 A	29-Apr-13	20%
C1106.DS3062	Submit & Approve Material Submission for Building Services	45	16-Mar-13 A	29-Apr-13	20%
C1106.DS3064	Prepare Cofferdam Design, ICE Check & Submit	25	30-Apr-13	24-May-13	0%
C1106.DS3065	Review & Approve Cofferdam Design	28	25-May-13	21-Jun-13	0%
Site Preparation					
C1106.SW3015	Site Mobilization and Site Establishment	8	20-Mar-13 A	05-Apr-13	70%
C1106.SW3020	Coordinate with MTR Raiway Protection Team for the Works at KTL DIH Concourse Level	40	21-Feb-13 A	13-Apr-13	70%
C1106.SW3025	Conduct Condition Survey to the Existing Structure	12	06-Apr-13	19-Apr-13	0%
C1106.SW3030	Detailed Building Survey of the Existing Building Services Installation, Drainage System & Electricity Supply	12	06-Apr-13	19-Apr-13	0%
Modification Works / A&A					
Strengthening Works at Concourse Level					
Gridline 2-14/D-E (Works Area C1)					
C1106.CSS7295	Erect Temporary Hoarding GL 5-13/ E	12	20-Apr-13	04-May-13	0%
C1106.CSS7305	Demolition of Existing Metal Advertising Panel, Wall Panel, Suspended Ceiling & Others	4	06-May-13	09-May-13	0%
C1106.CSS7315	Temporarily Reinstated Existing Advertising Panel to Front of Hoarding Line	4	10-May-13	14-May-13	0%
C1106.CSS7635	Construct New Upstand Curb to Strengthen the Existing GL 5-9/ E	30	15-May-13	20-Jun-13	0%
C1106.CSS7645	Construct New Upstand Curb to Strengthen the Existing, GL 9-13/E	30	21-Jun-13	26-Jul-13	0%
Between KTL-SCL Station and Western Unpaid Link Adit					
Jack Arch Wall Strengthening GL 2-6/E (Trackside - Works P4) - (8 Bays - Night Works)					
C1106.CJA7380	Completion of King Post Strengthening Plate by Others (1103)	0		26-May-13*	0%

Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone

Project File: C1106P-3MRP
Mar 2013
Project Start: 17-Dec-12
Project Finish: 14-Apr-19
Date Date: 31-Mar-13
Print: 02-Apr-13 @15:19

MTR Contract 1106 - Diamond Hill Station
3 Month Rolling Programmme
as of 31 March 2013

3 Month Rolling Programme

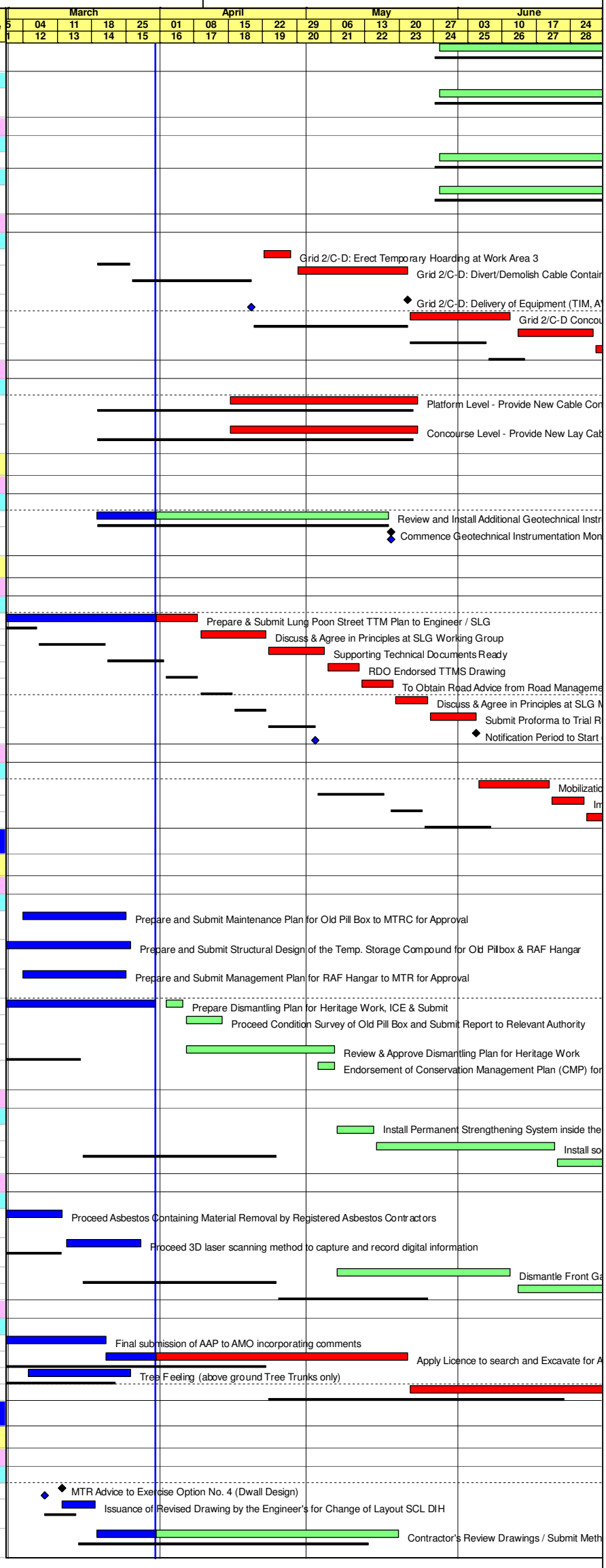
Date	Revision	Checked	Approved
02-Apr-13	C1106-3M...	RR	RB

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Planned Early Start	Planned Early Finish	% Complete
C1106.CJA7385	Remove Ballast Fill and Protection Concrete (First 3 Bays & 3 Advertised Panel Affected)	45	28-May-13	20-Jul-13	0%
Jack Arch Wall Strengthening GL 2-6/E (Concourse Level -WA C4) - (6 Bays)					
C1106.CJA7558	Divert/Demolish all Electrical and System Wide Cables - (3 Bays Inside Hoardings)	30	28-May-13	03-Jul-13	0%
Between KTL-SCL Station and Interchange Adit					
Jack Arch Wall Strengthening GL 9-10/E (Trackside -Works P5) - (3 Bays - Night Works)					
C1106.CJA7455	Remove Ballast Fill and Protection Concrete	45	28-May-13	20-Jul-13	0%
Jack Arch Wall Strengthening GL 9-14/E (Concourse Level -WA C5) - (8 Bays)					
C1106.CJA7763	GL9-10 - Divert/Demolish all Electrical and System Wide Cables - Grid (4 Bays)	30	28-May-13	03-Jul-13	0%
New TIM, AVM & MPR Room at Grid 2/C-D & Grid 15-16/B					
New TIM, AVM & MPR Room at Grid 2-3/C-D					
C1106.CBH3050	Grid 2/C-D: Erect Temporary Hoarding at Work Area 3	6	22-Apr-13	27-Apr-13	0%
C1106.CBH3060	Grid 2/C-D: Divert/Demolish Cable Containment and Other Building Services Installation	18	29-Apr-13	21-May-13	0%
C1106.CBH3065	Grid 2/C-D: Delivery of Equipment (TIM, AVM & MPR)	0		21-May-13	0%
C1106.CBH3068	Grid 2/C-D Concourse: Install TIM, AVM, MPR Room and ABWF Wc	18	22-May-13	11-Jun-13	0%
C1106.CBH3072	Grid 2/C-D Concourse: BS Installation TIM, AVM, MPR Room	14	13-Jun-13	28-Jun-13	0%
C1106.CBH3075	Grid 2/C-D Concourse: TIM, AVM, MPR Room Testing & Commissio	6	29-Jun-13	06-Jul-13	0%
Building Services Modification					
New TIM, AVM & MPR Room at Grid 2-3/C-D					
C1106.CBS3065	Platform Level - Provide New Cable Containment for Ops Contract (Night Work)	32	15-Apr-13	23-May-13	0%
C1106.CBS3070	Concourse Level - Provide New Lay Cable Containment for Ops Contract (Night Work)	32	15-Apr-13	23-May-13	0%
Station Refurbishment Works					
Geotechnical Instrumentation and Monitoring					
General					
C1106.CGI1010	Review and Install Additional Geotechnical Instrumentation	60	19-Mar-13 A	17-May-13	0%
C1106.CGI1020	Commence Geotechnical Instrumentation Monitoring for KTL DIH Station	0	18-May-13		0%
Entrance A1 (24 hr Walkway and New Lift)					
TTM Submissions					
TTM Submission					
C1106.CEA3045	Prepare & Submit Lung Poon Street TTM Plan to Engineer / SLG	14	21-Feb-13 A	08-Apr-13	50%
C1106.CEA3050	Discuss & Agree in Principles at SLG Working Group	14	09-Apr-13	22-Apr-13	0%
C1106.CEA3055	Supporting Technical Documents Ready	12	23-Apr-13	04-May-13	0%
C1106.CEA3070	RDO Endorsed TTMS Drawing	7	05-May-13	11-May-13	0%
C1106.CEA3080	To Obtain Road Advice from Road Management Office RMO	7	12-May-13	18-May-13	0%
C1106.CEA3085	Discuss & Agree in Principles at SLG Meeting	7	19-May-13	25-May-13	0%
C1106.CEA3095	Submit Proforma to Trial Run	10	26-May-13	04-Jun-13	0%
C1106.CEA3097	Notification Period to Start of TTM Works at Lung Poon Street	0		04-Jun-13	0%
Piling and Excavation					
Site Preparation					
C1106.CEA3104	Mobilization, Survey & Setting Out	12	05-Jun-13	19-Jun-13	0%
C1106.CEA3108	Implementation & Operational of Lung Poon Street TTMS	6	20-Jun-13	26-Jun-13	0%
C1106.CEA3113	Erect Hoardings	12	27-Jun-13	11-Jul-13	0%
Cost Centre D - Reprovisioning, Remedial and Improvement Works (RRIW)					
Preservation of Old Pillbox & RAF Hanger and Archaeological Survey-Cum-Excavation					
Submissions					
General					
C1106.DRIW362	Prepare and Submit Maintenance Plan for Old Pill Box to MTRC for Approval	16	04-Mar-13 A	25-Mar-13 A	100%
C1106.DRIW370	Prepare and Submit Structural Design of the Temp. Storage Compound for Old Pillbox & RAF Hangar	16	21-Jan-13 A	26-Mar-13 A	100%
C1106.DRIW380	Prepare and Submit Management Plan for RAF Hangar to MTR for Approval	16	04-Mar-13 A	25-Mar-13 A	100%
C1106.DRIW385	Prepare Dismantling Plan for Heritage Work, ICE & Submit	16	21-Jan-13 A	05-Apr-13	85%
C1106.DRIW393	Proceed Condition Survey of Old Pill Box and Submit Report to Relevant Authority	7	06-Apr-13	13-Apr-13	0%
C1106.DRIW395	Review & Approve Dismantling Plan for Heritage Work	25	06-Apr-13	06-May-13	0%
C1106.DRIW397	Endorsement of Conservation Management Plan (CMP) for Old Pill Box by the Government Department	3	03-May-13	06-May-13	0%
Preservation of Old Pillbox					
General					
C1106.DRIW400	Install Permanent Strengthening System inside the Pill Box Structure	7	07-May-13	14-May-13	0%
C1106.DRIW402	Install socket H-Pile for relocation of Old Pillbox	30	15-May-13	20-Jun-13	0%
C1106.DRIW404	Excavate around the Pillbox down and Construct RC Ring	12	21-Jun-13	05-Jul-13	0%
Preservation of Former Royal Airforce Hangar					
General					
C1106.DRIW438	Proceed Asbestos Containing Material Removal by Registered Asbestos Contractors	7	26-Feb-13 A	12-Mar-13 A	100%
C1106.DRIW442	Proceed 3D laser scanning method to capture and record digital information	10	13-Mar-13 A	28-Mar-13 A	100%
C1106.DRIW444	Dismantle Front Gate of RAF Hanger (Bay 1 to Bay 4)	30	07-May-13*	11-Jun-13	0%
C1106.DRIW446	Dismantle Steel Truss along Grid Line 1-2	25	13-Jun-13	12-Jul-13	0%
Archaeological Survey					
General					
C1106.DRIW445	Final submission of AAP to AMO incorporating comments	30	02-Feb-13 A	21-Mar-13 A	100%
C1106.DRIW460	Apply Licence to search and Excavate for Antiquities	60	21-Mar-13 A	21-May-13	10%
C1106.DRIW462	Tree Feeling (above ground Tree Trunks only)	25	05-Mar-13 A	26-Mar-13 A	100%
C1106.DRIW464	Archaeological Survey-Cum-Excavation at Zone "A"	45	22-May-13	15-Jul-13	0%
Cost Centre H - Option No. 4 Piling Works for CDA at SCL DIH East					
Design & Approval					
Submissions					
Exercise Date of Option					
C1106.CDA0100	MTR Advice to Exercise Option No. 4 (Dwall Design)	0	12-Mar-13 A		100%
C1106.CDA0105	Issuance of Revised Drawing by the Engineer's for Change of Layout SCL DIH	7	12-Mar-13 A	18-Mar-13 A	100%
C1106.CDA0110	Contractor's Review Drawings / Submit Method Station for Construction	60	19-Mar-13 A	19-May-13	0%



Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone

Project File: C1106P-3MRP Mar 2013
Project Start: 17-Dec-12
Project Finish: 14-Apr-19
Date Date: 31-Mar-13
Print: 02-Apr-13 @15:19

MTR Contract 1106 - Diamond Hill Station
3 Month Rolling Programmme
as of 31 March 2013

3 Month Rolling Programme

Date	Revision	Checked	Approved
02-Apr-13	C1106-3M...	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. MA12051/57/0001

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

Date: 14-Mar-13 Next Due Date: 13-May-13

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

Ambient Condition			
Temperature, Ta (K)	290.2	Pressure, Pa (mmHg)	766.8

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	11.6	3.47	59.04	7.2	2.73
2	8.9	3.04	51.77	5.7	2.43
3	7.0	2.69	45.97	4.3	2.11
4	4.5	2.16	36.95	2.7	1.67
5	2.8	1.70	29.25	1.7	1.33

By Linear Regression of Y on X

Slope , mw = 0.0479 **Intercept, bw =** -0.0818

Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.78**

Remarks:

Conducted by: W.K. Tang Signature: Date: 14/3/2013

Checked by: Signature: Date: 14 March 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

Test Report No.:	C/N/120901/2
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 67%

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 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/120901/3
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 67%

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

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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/120921/1
Date of Issue:	2012-09-22
Date Received:	2012-09-21
Date Tested:	2012-09-21
Date Completed:	2012-09-22
Next Due Date:	2013-09-21

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

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperatre	: 24 degree Celsius
Relative Humidity	: 56%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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/121005/2
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06

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

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperatre	: 23 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

APPENDIX D
IMPACT MONITORING SCHEDULE

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

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

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).

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

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

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 Baseline Monitoring Results

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

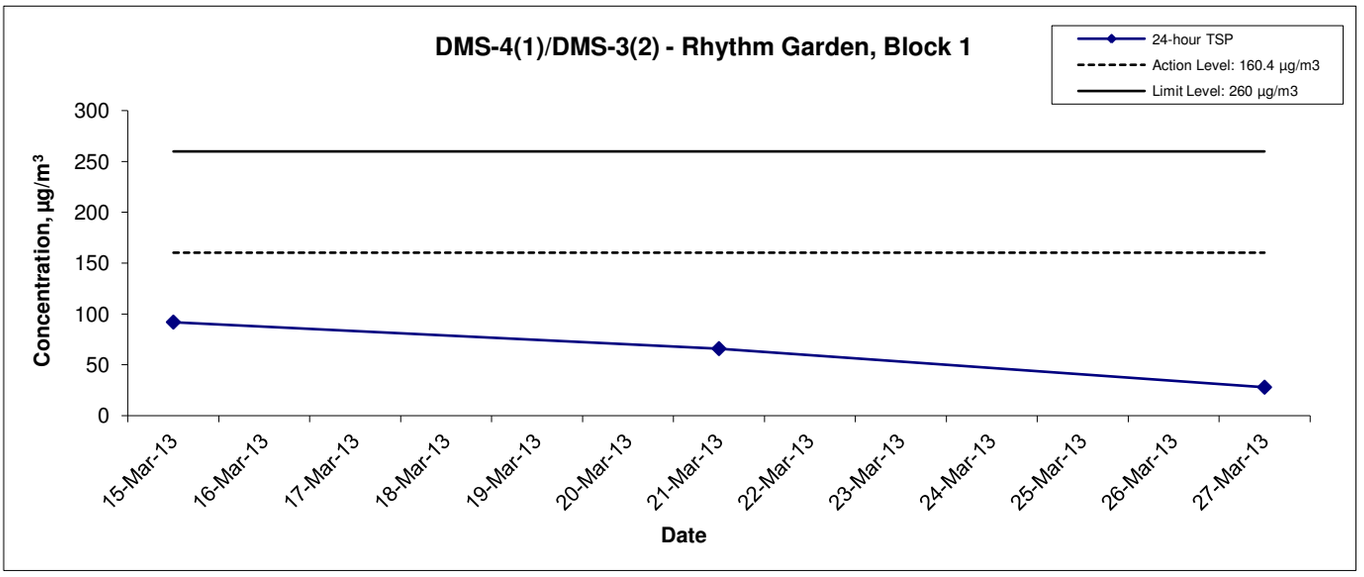
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
					Initial	Final		Initial	Final		Initial	Final			
15-Mar-13	09:00	Cloudy	291.3	769.9	3.1149	3.2746	0.1597	833.9	857.9	24.0	1.21	1.20	1.21	1735.5	92.0
21-Mar-13	09:00	Cloudy	294.2	764.1	3.1588	3.2723	0.1135	857.9	881.9	24.0	1.20	1.19	1.20	1721.0	65.9
27-Mar-13	09:00	Cloudy	293.6	762.5	3.1110	3.1592	0.0482	881.9	905.9	24.0	1.20	1.19	1.20	1721.0	28.0
														Min	28.0
														Max	92.0
														Average	62.0

Remarks:

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

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

24-hour TSP Concentration Levels



Remarks:

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

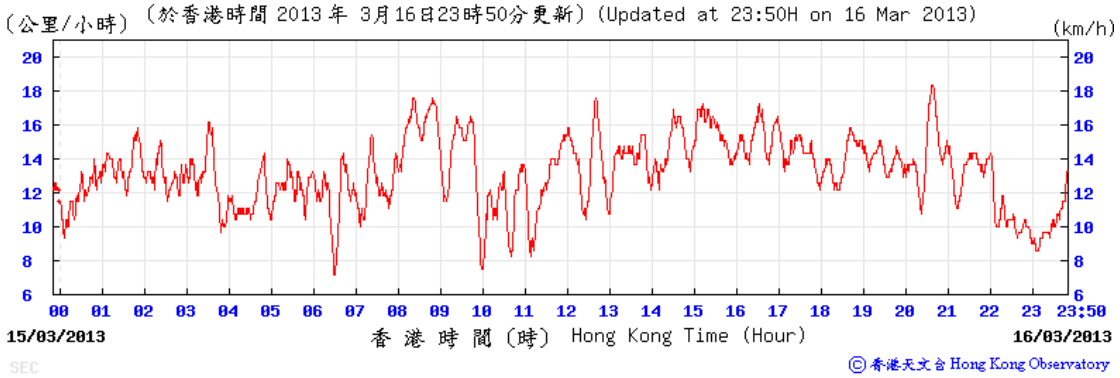
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

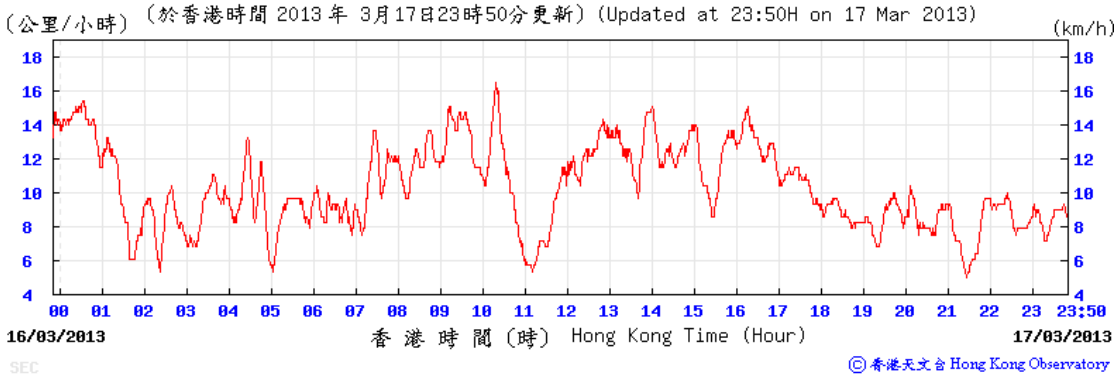
Title	Scale	Project No.
Shatin to Central Link – Contract 1106 Diamond Hill Station Graphical Presentation of 24-hour TSP Monitoring Results	N.T.S	MA12051
	Date: Mar 13	Appendix: E

CINOTECH

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

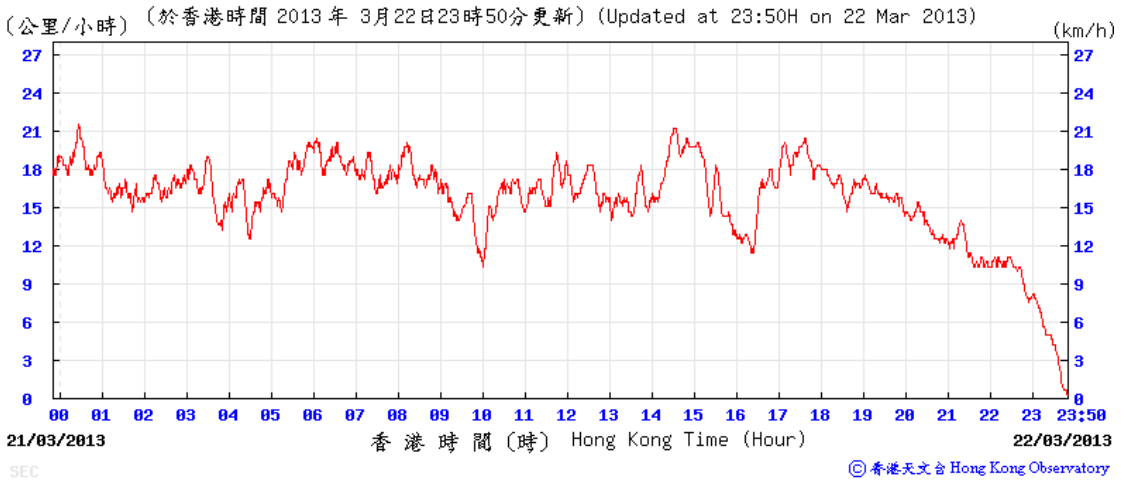
15-16 March 2013

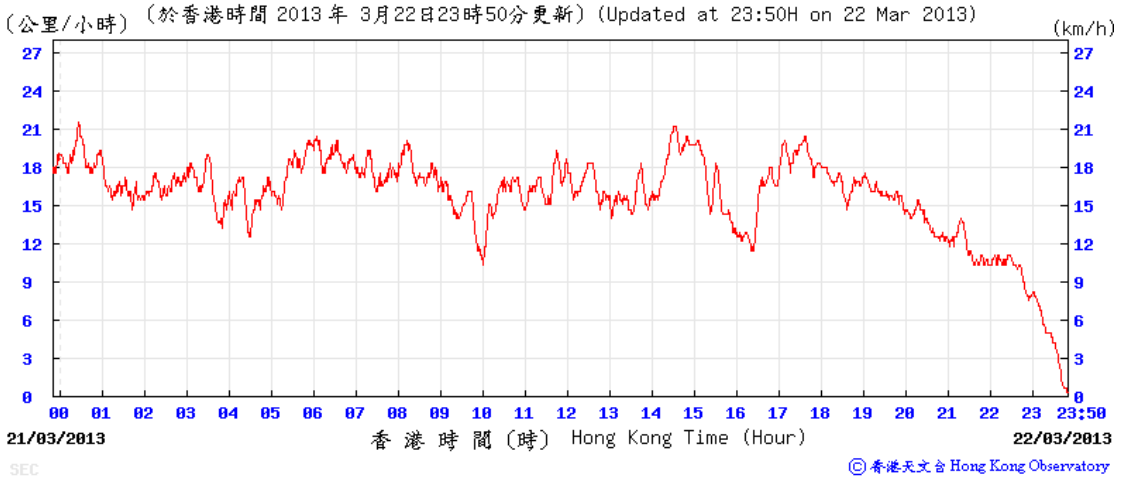




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

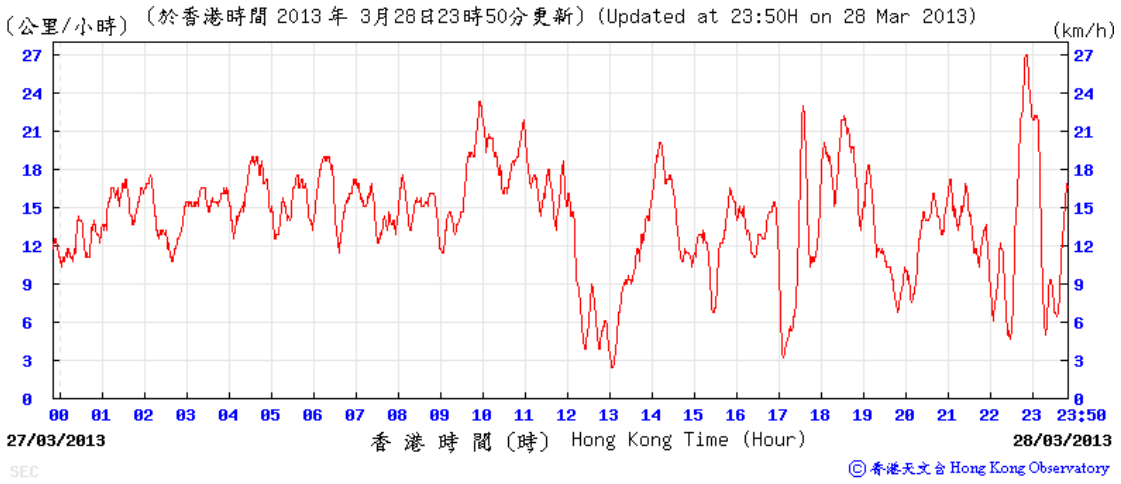
21-22 March 2013

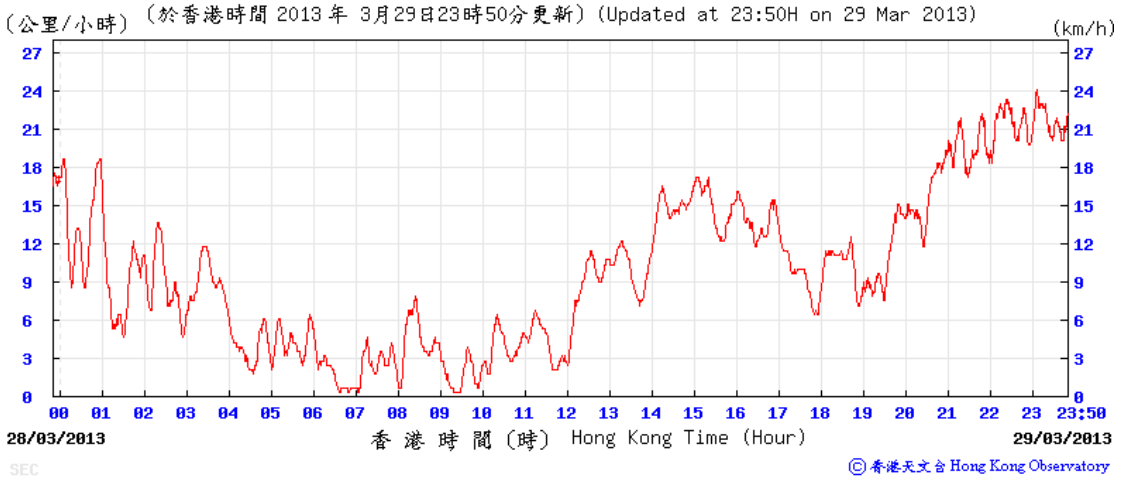




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

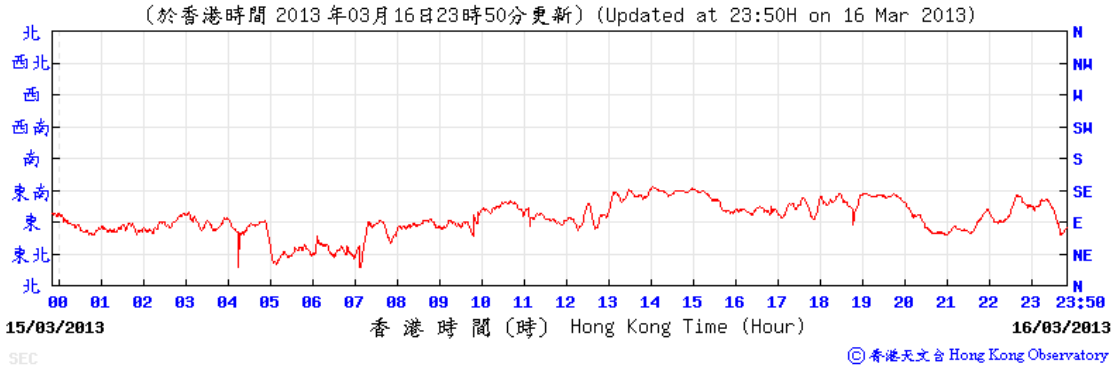
27-28 March 2013

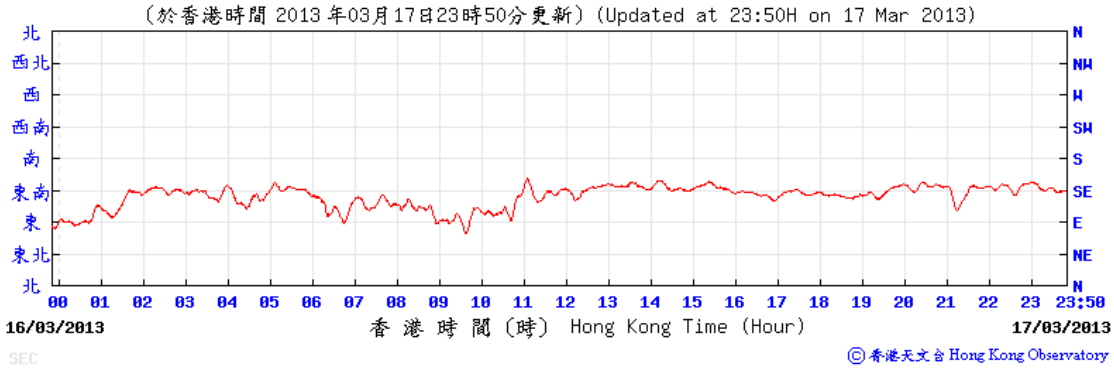




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

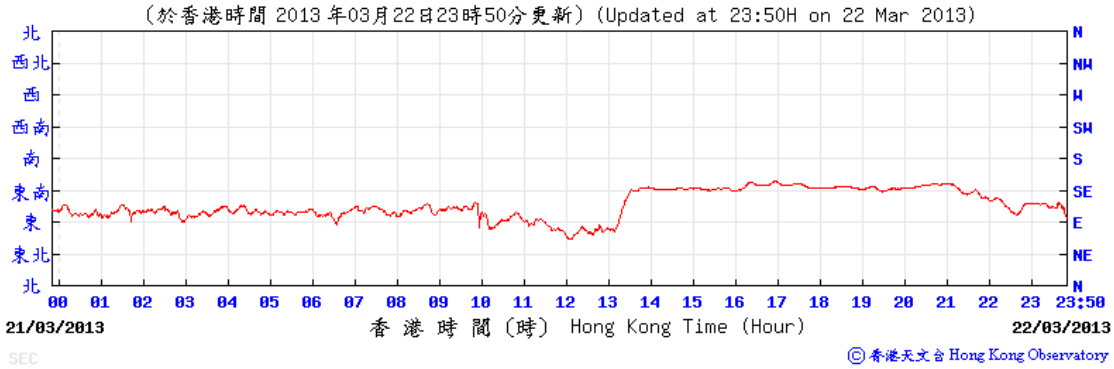
15-16 March 2013

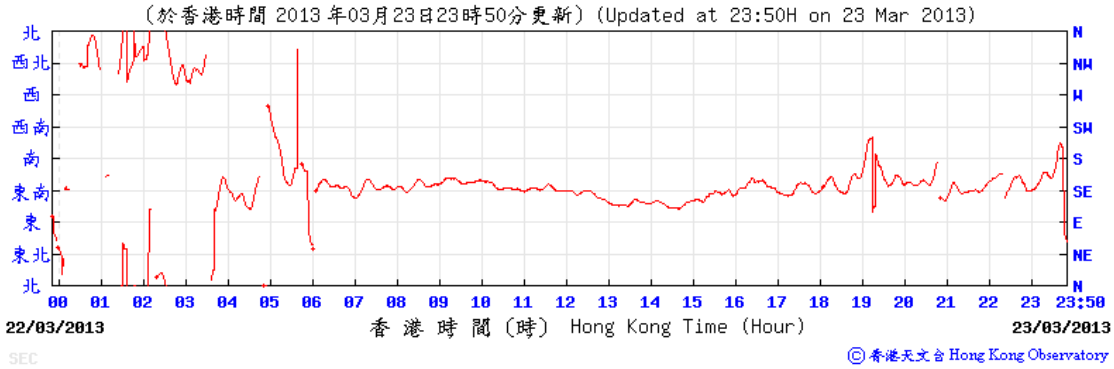




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

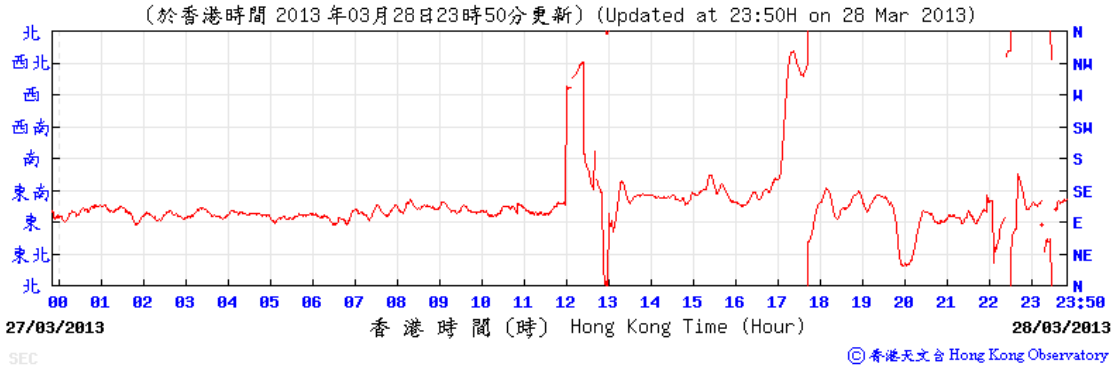
21-22 March 2013

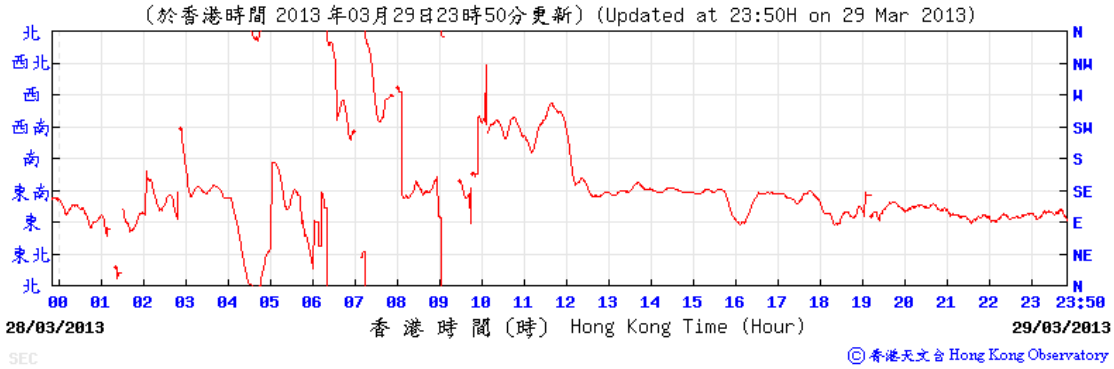




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

27-28 March 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}
14-Mar-13	Cloudy	15:47	72.2	73.8	70.4	72.6	71	67.5
		15:52	71.9	73.2	70.3			
		15:57	72.1	73.2	70.7			
		16:02	72.3	73.6	71.0			
		16:07	72.4	73.8	71.0			
		15:12	74.2	75.6	72.4			
22-Mar-13	Sunny	16:40	71.6	72.8	70.1	71.7		63.4
		16:45	71.5	71.9	70.0			
		16:50	71.9	73.6	69.8			
		16:55	71.8	72.8	70.6			
		17:00	71.4	72.6	70.2			
		17:05	71.8	72.6	70.4			
28-Mar-13	Cloudy	14:36	69.7	70.9	68.0	70.3		70.3 Measured ≦ Baseline Level
		14:41	70.2	71.4	69.0			
		14:46	70.3	71.5	69.1			
		14:51	70.4	71.6	69.2			
		14:56	70.8	71.8	69.7			
		15:01	70.4	71.6	69.5			

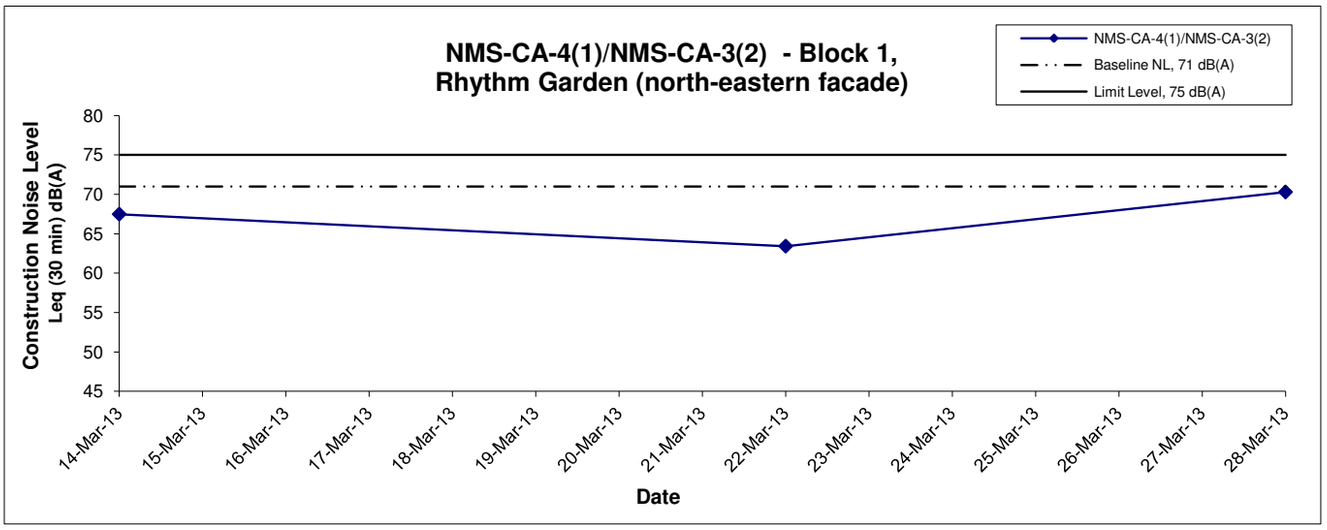
Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

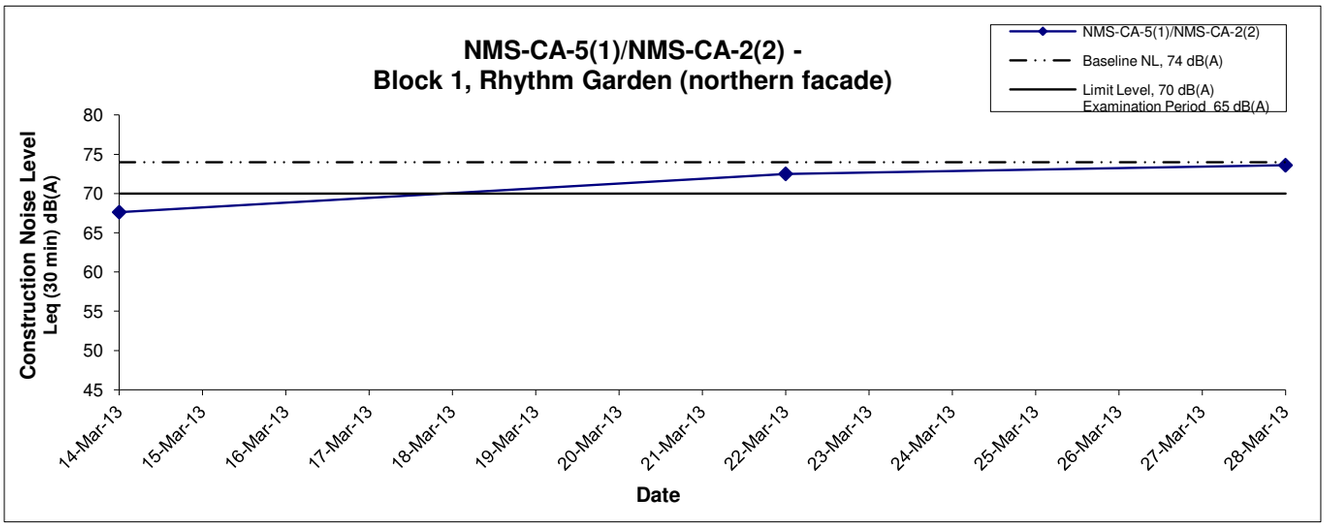
Appendix F - Noise Monitoring Results

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}
14-Mar-13	Cloudy	16:20	75.3	76.7	73.5	74.9	74	67.6
		16:25	74.9	76.3	73.2			
		16:30	74.9	75.9	73.6			
		16:35	74.8	76.3	73.0			
		16:40	74.8	76.4	73.1			
		16:45	74.6	76.4	73.3			
22-Mar-13	Sunny	16:00	72.5	73.6	71.1	72.5		72.5 Measured ≦ Baseline Level
		16:05	72.0	72.9	71.0			
		16:10	72.4	73.5	71.1			
		16:15	72.7	73.9	72.0			
		16:20	72.3	73.1	71.5			
		16:25	73.0	73.9	72.0			
28-Mar-13	Cloudy	15:11	73.9	75.1	69.8	73.6		73.6 Measured≦ Baseline Level
		15:16	73.6	75.2	70.7			
		15:21	73.1	74.7	71.7			
		15:26	73.5	78.0	71.0			
		15:31	73.6	75.3	71.3			
		15:36	73.7	75.0	70.1			

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 $\leqq$ Baseline Level, only Measured Level is presented on the graphical presentation.

Title	Scale	Project No.	
Shatin to Central Link - Contract 1106 - Diamond Hill Station Graphical Presentation of Construction Noise Monitoring Results	N.T.S	MA12051	CINOTECH
	Date: Mar 13	Appendix: F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: March 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	130312
Date	12 March 2013 (Tuesday)
Time	09:15-10:15

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

Ref. No.	Remarks/Observations	Related Item No.
130312-O01	*Part B – Water Quality* • Debris at the U-channel near site entrance should be removed.	B7
	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.	
130312-R02	*Part E – Air Quality* • Regular water spray on the unpaved haul road is reminded to be enhanced.	E5
	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.:130305), all identified environmental deficiency was improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng		13 March 2013
Checked by	Dr. Priscilla Choy		13 March 2013

Record Summary of Environmental Site Inspection
Inspection Information

Checklist Reference Number	130319
Date	19 March 2013 (Tuesday)
Time	09:00-10:15

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 – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
130319-R04	• Tree protection zone is reminded to be properly set up near area W8 and debris should be removed within the zone.	D2
	Part E – Air Quality	
130319-O02	• Water should be sprayed near archeological area to suppress dust generation.	E5
130319-R03	• 3-sided enclosure at bentonite mixing plant is reminded to be improved for the side near Lung Cheung Road.	E16
	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	
130319-O01	• Fuel leakage was observed from excavator near area W8. Drip tray is reminded to provide at the identified location and oil stains on ground near the genset at steel cage fabrication yard in W1 should be cleared.	H9
130319-R05	• Oily mixture inside the drip tray placed near the silos area in W1 should be cleared	H10
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J - Others	
	• Follow-up on previous audit section (Ref. No.:130312), all identified environmental deficiency was improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng		19 March 2013
Checked by	Dr. Priscilla Choy		19 March 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130326
Date	26 March 2013 (Tuesday)
Time	09:00-10:10

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

Ref. No.	Remarks/Observations	Related Item No.
130326-O02	***Part B – Water Quality*** • Wheel washing bay should be properly maintained (e.g. sand and silt should be settled out at least on a weekly basis) for ensuring it is properly functioning.	B14ii.& B14iii.
	Part C – Ecology • No environmental deficiency was identified during the site inspection.	
130326-O01	***Part D – Landscape & Visual*** • It is advised to set up tree protection zone at bar bending area yard as far as practicable.	D2
130326-R03	***Part E – Air Quality*** • It is reminded spoil trucks leaving the site should be properly covered. Special attention should be paid to wet spoil to prevent any leakage of muddy water during transportation to disposal sites.	E8
	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.:130319), all identified environmental deficiencies were improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng		26 March 2013
Checked by	Dr. Priscilla Choy		3 April 2013

APPENDIX I
EVENT AND ACTION PLANS

Appendix I - 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

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 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	^ N/A
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	^

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
		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

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 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	N/A
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	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
		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.						^ ^
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

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
		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						^ 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 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	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
		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	^ ^ 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
		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	* * *

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
		• 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: **March, 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 and 3)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste (See Note 4)	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	0.00	0.00	0.00	0.000	0.267	
Feb	2.171	0.000	0.000	0.272	1.899	0.000	0.00	0.00	0.00	0.000	0.203	
Mar	1.416	0.000	0.000	0.392	1.024	0.000	0.00	0.00	0.00	1.500	0.172	
Apr												
May												
Jun												
Sub-total	4.197	0.000	0.000	0.664	3.533	0.000	0.000	0.000	0.000	1.500	0.642	
Jul												
Aug												
Sept												
Oct												
Nov												
Dec												
Total	4.197	0.000	0.000	0.664	3.533	0.000	0.000	0.000	0.000	1.500	0.642	

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) on 01/03/13 was 0.008 m^3 and Project 1103 from 07/03/13 to 14/03/13 was 0.384m^3 for backfilling.
3) Inert C&D material delived to Project 1103 by using the conversion factor: 1 full load of dumping truck being equivalent to 6.5m^3 by volume from Archsd D/OL03/09.002
4) The asbestos waste was delivered to SENT Landfill on 04/03/13 and 12/03/13 by licensed contractor.

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
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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
--	--	--	--	--	--

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
--	--	--	--	--	--