

MTR Corporation Limited

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

Monthly EM&A Report No. 6

[Period from 1 to 28 February 2013]

(March 2013)

Verified by: _____ Tom Chapman 

Position: Independent Environmental Checker

Date: 14/3/2013

MTR Corporation Limited

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

Monthly EM&A Report No. 6

[Period from 1 to 28 February 2013]

(March 2013)

Certified by: Richard Kwan



Position: Environmental Team Leader


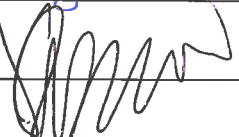
Date: 14 March 2013

MTR Corporation Limited

Consultancy Agreement No. C11033

**Shatin to Central Link - Tai Wai to Hung
Hom Section and Mong Kok East
to Hung Hom Section****Monthly EM&A Report No. 6**

[Period from 1 to 28 February 2013]

	Name	Signature
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Version: A Date: 14 March 2013

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1 INTRODUCTION

1.1 Background

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

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 28 February 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
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 and 1103 prepared by the respective Contractor's ETs are provided in **Appendices A to E**, 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	<ul style="list-style-type: none"> Erection of steel structure of noise cover;
1102 ⁽¹⁾	N/A	N/A
1103	All areas	<ul style="list-style-type: none"> Diamond Hill Area – Construction of diaphragm wall and ground investigation Hin Keng Area – Site formation and excavation and ground investigation Fung Tak Area - Site set up and mobilization
1106 ⁽¹⁾	N/A	N/A
1107 ⁽¹⁾	N/A	N/A
1108 ⁽¹⁾	N/A	N/A
1108A	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> Assembly and erection of steel structures, including berthing frames, conveyor tower/frames and tipping halls; Installation, testing and commissioning of conveyor belt system; Installation of weighbridges, wheel washing facilities and recorder houses; Erection of site hoarding; Completion of miscellaneous provisions, e.g. road marking, signage, lighting, electrical system, for the

Works Contract	Site	Construction Activities
		barging point facilities; and <ul style="list-style-type: none"> Erection of chain link fences for temporary haul roads.
1109	Ma Tau Wai (MTW) Works Area	<ul style="list-style-type: none"> TKW/MTW Road Garden – Gas main diversion works and desander set up; and Along Ma Tau Wai Road – Construction of D-wall panel, concreting of D-wall, trial pits for location of utilities, diversion of CLP cables, predrilling for D-wall, Installation of guide walls and bentonite pipes.
	To Kwan Wan (TKW) Works Area	<ul style="list-style-type: none"> Olympic Playground Area – Site investigation for proposed sheet piles for alignment; Olympic Garden – Tree felling and transplanting, site clearance, construction of trial pits for underpinning works, and pre-drilling for underpinning works; and TKW Station – Water main diversion works, erection of hoarding, removal of stockpile, archaeological survey, pre-drilling, installation of instruments, construction of Engineer Office, construction of project sign board and bored pile, and socket steel H-piling.
1111	Mong Kok Freight Terminal	<ul style="list-style-type: none"> Hoarding and dust screen erection, initial survey, site clearance, base slab demolition.
	Hung Hom Area	<ul style="list-style-type: none"> Hoarding and fencing erection, initial survey and tree survey; Site clearance, planter removal, CCTV installation, tree felling, trial pit / trench, installation of monitoring checkpoints; Excavation and casting cable; Cross track duct construction, ADMS installation; and Bridge footing construction.
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 E**.
- 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 ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101⁽⁶⁾					
Works Contract 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	37 – 78	148.7	260	No
DMS-2	Price Memorial Catholic Primary School	N/A ⁽⁹⁾	167.4	260	No
Works Contracts 1103 and 1106⁽⁷⁾					
DMS-3	Hong Kong S.K.H Nursing Home ⁽²⁾	31 – 50	159.1	260	No
Works Contract 1106⁽⁷⁾					
DMS-4	Block 1, Rhythm Garden	N/A	N/A	260	N/A
Works Contract 1108A⁽⁶⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽³⁾	77 – 101	156.8	260	No
DMS-7	Parc 22 ⁽⁴⁾	74 – 106	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	74 – 108	152.2	260	No
DMS-9	No. 26 Kowloon City Road ⁽⁵⁾	81 – 106	160.9	260	No
DMS-10	Chat Ma Mansion	75 – 102	170.4	260	No
Works Contract 1111					
AM1 ⁽⁷⁾	No. 234 – 238 Chatham Road North ⁽⁸⁾	44.7 – 74.9	183.9	260	No

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
- (9) No construction works was undertaken at Ma Chai Hang in the reporting month and hence air quality monitoring was not required at DMS-2

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 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	55 – 58	57	52	70 65 during examination period	No
NMS-CA-2	Price Memorial Catholic Primary School	N/A ⁽¹⁰⁾	N/A ⁽¹⁰⁾	N/A ⁽¹⁰⁾	70 65 during examination period	No
Works Contracts 1103 and 1106⁽⁷⁾						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽²⁾	65 – 67	73	-(8)	75	No
Works Contract 1106⁽⁷⁾						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	N/A	N/A	N/A	75	N/A
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽³⁾	N/A	N/A	N/A	70 65 during examination period	N/A
Works Contract 1108A⁽⁶⁾						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽⁴⁾	63.3 – 64.6	76.0	-(8)	75	No
NMS-CA-7	Skytower Tower 2	67.2 – 68.1	70.0	-(8)	75	No
NMS-CA-8	SKH Good Shepherd Primary School	73.4 – 76.3	75.0	70.4	70 65 during examination period	No
NMS-CA-9	Kong Yiu Mansion ⁽⁵⁾	69.7 – 72.2	69.0	61.4 – 69.4	75	No
NMS-CA-10	Chat Ma Mansion	76.4 – 77.1	77.0	60.7	75	No
Works Contract 1111						
NM1	Carmel Secondary School (South Block)	59.7 – 67.6	68	-(8)	70 65 during examination period	No
NM2	No. 234 – 238 Chatham Road North ⁽⁹⁾	71.7 – 74.7	79	-(8)	75	No

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

MTR Corporation Limited

- (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) No construction works was undertaken at Ma Chai Hang in the reporting month and hence noise monitoring was not required at NMS-CA-2
- 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 (1 st submission) 31 Aug 2012 (2 nd submission) 30 Nov 2012 (3 rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1 st submission) 21 Aug 2012 (2 nd submission) 19 Dec 2012 (3 rd submission) 22 Jan 2013 (4 th submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 10 Oct 2012 (Approved)
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1 st submission) 30 Aug 2012 (2 nd submission) 3 Oct 2012 (3 rd submission) 13 Nov 2013 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4 th submission) 8 Feb 2013 (5 th submission)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1 st submission) 5 Oct 2012 (2 nd submission) 26 Nov 2012 (3 rd submission)
Condition 2.15	Conservation Plan	31 Jan 2013 (1 st submission)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1 st submission) 3 Sep 2012 (2 nd submission) 21 Sep 2012 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1 st submission)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)

EP Condition (EP-438/2012/B)	Submission	Submission date
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	12 Oct 2012 14 Nov 2012 13 Dec 2012 14 Jan 2013 14 Feb 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 (1 st submission) 8 Feb 2013 (Approved for Contract 1111)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1 st submission) 11 Jan 2013 (2 nd submission) 8 Feb 2013 (Approved for Contract 1111)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1 st submission) 8 Feb 2013 (2 nd 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	14 Feb 2013

Appendix A

**6th EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities**

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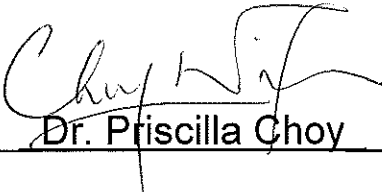
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 6

[Period from 1 to 28 February 2013]

Works Contract 1108A – Kai Tak Barging Point
Facilities

(March 2013)

Certified by: 
Dr. Priscilla Choy

Position: Environmental Team Leader


Date: 11th March 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 February 2013**

(Version 2.0)

Certified By 
(Contractor's Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 6th 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 February 2013.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month included:
 - Assembly and erection of steel structures, including berthing frames, conveyor tower/frames and tipping halls;
 - Installation, testing and commissioning of conveyor belt system;
 - Installation of weighbridges, wheel washing facilities and recorder houses;
 - Erection of site hoarding;
 - Completion of miscellaneous provisions, e.g. road marking, signage, lighting, electrical system, for the barging point facilities;
 - Erection of chain link fences for temporary haul roads.

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.....3 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 were generated. 5 m³ of 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 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;
 - 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 6th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 February to 28 February 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. 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**.

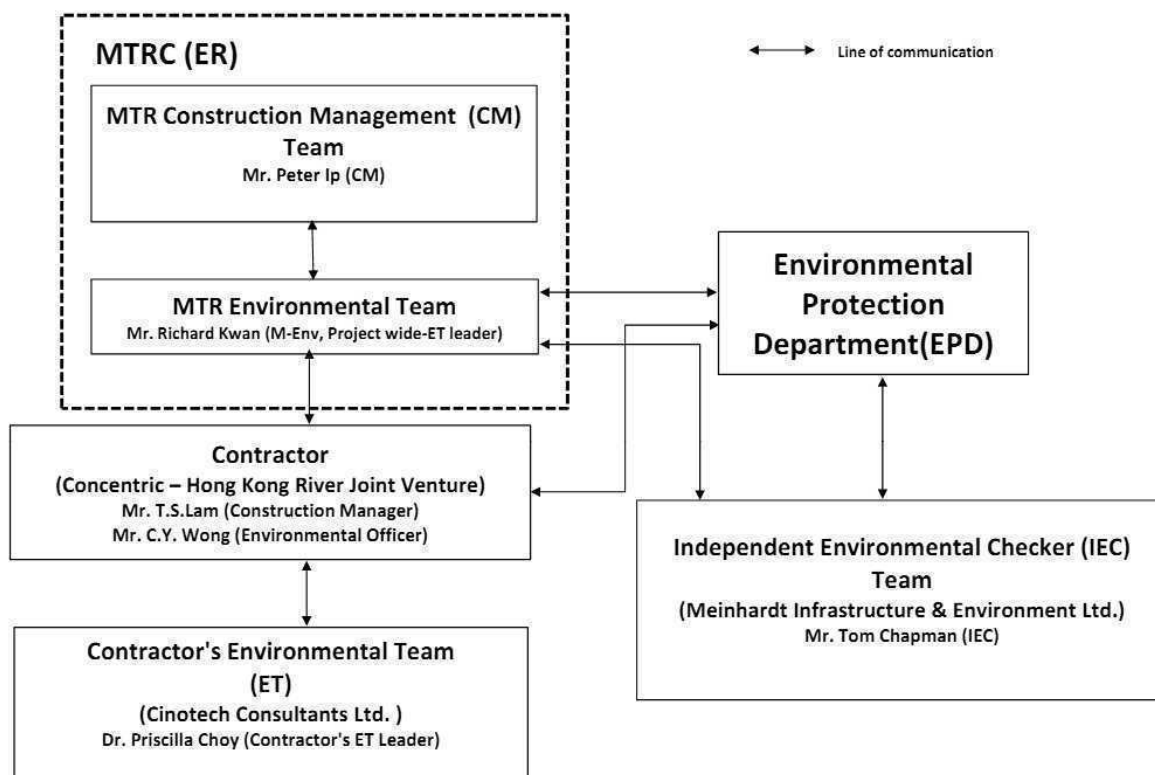
Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix H**.
- Assembly and erection of steel structures, including berthing frames, conveyor tower/frames and tipping halls;
 - Installation, testing and commissioning of conveyor belt system;
 - Installation of weighbridges, wheel washing facilities and recorder houses;
 - Erection of site hoarding;
 - Completion of miscellaneous provisions, e.g. road marking, signage, lighting, electrical system, for the barging point facilities;
 - Erection of chain link fences for temporary haul roads.

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	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 (January 2013)	Submitted to EPD on 14 th February 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
February 2013	0 m ³	5 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 7th, 18th and 25th February 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 7th February 2013. In particular, no major environmental deficiency was identified during the site inspection on 25th February 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
<i>Water Quality</i>	N/A	N/A	N/A
<i>Noise</i>	N/A	N/A	N/A
<i>Ecology/Landscape and Visual</i>	N/A	N/A	N/A
<i>Air Quality</i>	28 Jan 2013	<u>Reminder:</u> It is advised to cover stockpile at temporary storage area by tarpaulin.	The observation was observed to be improved/rectified by the Contractor during the audit session on 7 Feb 2013.
	18 Feb 2013	<u>Reminder:</u> It is advised to install curtains at the tipping hall on the floating jetty for mitigating dust generation during unloading of spoil.	The observation was observed to be improved/rectified by the Contractor during the audit session on 25 Feb 2013.
<i>Waste / Chemical Management</i>	28 Jan 2013	<u>Reminder:</u> It is advised to remove oil stain on ground and dispose it properly.	The observation was observed to be improved/rectified by the Contractor during the audit session on 7 Feb 2013.
	7 Feb 2013	<u>Reminder:</u> Fuel oil at W1 should be provided with drip tray.	The observation was observed to be improved/rectified by the Contractor during the audit session on 18 Feb 2013.
	7 Feb 2013	<u>Reminder:</u> Drip tray for a generator near site entrance should be plugged.	The observation was observed to be improved/rectified by the Contractor during the audit session on 18 Feb 2013.
<i>Permits/Licenses</i>	N/A	N/A	N/A
<i>IEC's observation/recommendation:</i>			
IEC's representative had the following observations/recommendations during the joint site audit on 7 Feb 2013:			
<ul style="list-style-type: none"> • Fuel oil at W1 should be provided with drip tray; and • Drip tray for a generator near site entrance should be plugged. 			

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.

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 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;
- 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 February 2013 to 28 February 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 Impact

- Provide adequate measures to avoid any splashing of spoils into the surrounding seawater when handling/unloading the spoil at the discharge points.

Dust Impact

- Regularly spray water on the dusty materials so as to maintain entire surface wet.
- Regularly spray with water on the surface of unpaved area to suppress dust generation.

Waste / Chemical Management

- Avoid and check for any accumulation of waste materials or rubbish on site.
- Avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment.
- Provide drip tray with adequate capacity and maintain well for equipment and chemical waste.

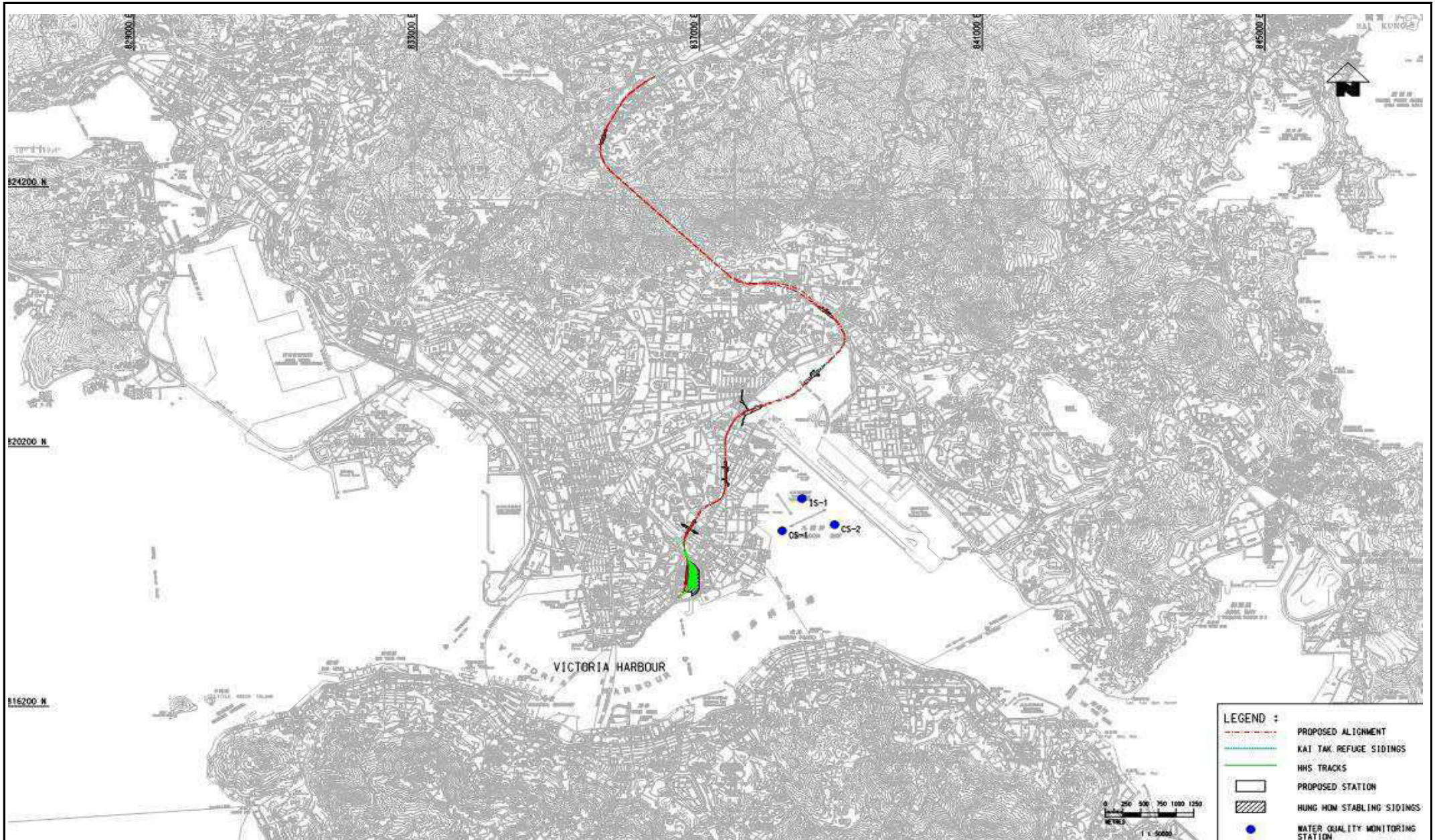
Ecology

- Prevent encroachment onto adjacent habitats by delineation of work sites.

FIGURES



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



Title

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

Location of Water Monitoring Station and Control Stations

Scale

N.T.S

Date

Oct-12

Propose

No. MA12028

Figure

2



**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	<u>Surface & Middle:</u> 4.6 (5 percentile of baseline data) <u>Bottom:</u> 3.9 (5 percentile of baseline data)	<u>Surface & Middle:</u> 4 <u>Bottom:</u> 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

APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Month: February 2013

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX C
SITE AUDIT SUMMARY

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130207
Date	7 February 2013 (Thursday)
Time	14:30-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
130207-R01 130207-R02	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part C - Ecology/Others</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none"> Fuel oil at W1 should be provided with drip tray. Drip tray for a generator near site entrance should be plugged. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Others</i></p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130128), all environmental deficiencies were observed improved/rectified by the Contractor. 	F9 F9

	Name	Signature	Date
Recorded by	Ken Cheng		7 February 2013
Checked by	Dr. Priscilla Choy		7 February 2013

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

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130218
Date	18 February 2013 (Monday)
Time	14:15-15:15

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

Ref. No.	Remarks/Observations	Related Item No.
130218-R01	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> It is advised to install curtains at the tipping hall on the floating jetty for mitigating dust generation during unloading of spoil. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130207), all environmental deficiencies were observed improved/rectified by the Contractor. 	D18.

	Name	Signature	Date
Recorded by	Ken Cheng		18 February 2013
Checked by	Dr. Priscilla Choy		18 February 2013

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130225
Date	25 February 2013 (Monday)
Time	14:00-14:45

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

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part C - Ecology/Others</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Others</i></p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:130218), all environmental deficiencies were observed improved/rectified by the Contractor. 	

	Name	Signature	Date
Recorded by	Ken Cheng		25 February 2013
Checked by	Dr. Priscilla Choy		25 February 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Repeat measurement on next day 	<ol style="list-style-type: none"> 1. Discuss with ET , Contractor and 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and 	<ol style="list-style-type: none"> 1. Identify source(s) of impact;

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

Event and Action Plan for Landscape and Visual during Construction Stage

Event	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 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	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
Ecology (Construction Phase)								
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> 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	^

EIA Ref.	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
		stream; <ul style="list-style-type: none"> 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> <ul style="list-style-type: none"> Use closed grab in dredging works. Install silt curtain during the dredging. 	<ul style="list-style-type: none"> 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	Constructi on 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
		<ul style="list-style-type: none"> 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. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> 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. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> 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. 						<p>N/A⁽²⁾</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> 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	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> 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. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p>^</p> <p>N/A⁽¹⁾</p>
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and 	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
							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 on stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D3	<ul style="list-style-type: none"> • 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 on stage	<ul style="list-style-type: none"> • 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
		<p>pedestrian barriers, fencing or traffic cones;</p> <ul style="list-style-type: none"> • 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; 						<p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">N/A⁽²⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		with the material filling line and no overfilling is allowed; <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	*

EIA Ref.	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
		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: <ul style="list-style-type: none"> 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	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> 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. 						<p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>N/A⁽²⁾</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Constructi on 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	Constructi on stage	• Annex 5, TM-EIA	N/A ⁽¹⁾

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
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	N/A ⁽²⁾
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	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> 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 	<p>construction activities</p>		<p>practicable</p>		<ul style="list-style-type: none"> ProPECC PN1/94 TM-EIAO TM-Water 	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • 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 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>and disposed of by spreading evenly over stable, vegetated areas.</p> <ul style="list-style-type: none"> • 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 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular 						<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes</p> <ul style="list-style-type: none"> • 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 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>collected, handled and disposed of properly to avoid water quality impacts.</p> <ul style="list-style-type: none"> 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. 						<p>^</p> <p>N/A⁽²⁾</p> <p>^</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Water Pollution Control 	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> • 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.		<p>Ordinance</p> <ul style="list-style-type: none"> • TM-water • TM-EIAO 	<p style="text-align: center;">^</p> <p style="text-align: right;">N/A⁽²⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be 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.</p>						
S10.7.1	W5	<p><u>Dredging Works</u> The following good practice shall apply for the dredging works:</p> <ul style="list-style-type: none"> 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⁾

EIA Ref.	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 the dispersion of SS; <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-EIA 	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</p> <ul style="list-style-type: none"> • 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. 						<p>^</p> <p>^</p>
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	<p>^</p> <p>^</p> <p>N/A⁽²⁾</p>
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water	Contractor	At identified	Prior to	• 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
			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	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> 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	Constructi on stage	• DEVB TC(W) No. 6/2010	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> 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	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> 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 	<p>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</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills.</p> <p>Different areas of the sites should be considered for such segregation and storage.</p>						
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • 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 	<p>Minimize production of the general refuse and avoid odour, pest and litter impacts</p>	Contractor	All construction sites	Construction on stage	<ul style="list-style-type: none"> • Waste Disposal Ordinance 	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</p>						
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> 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 	<p>To control pollution due to marine sediment</p>	<p>Contractor</p>	<p>Within Project Site Area</p>	<p>Construction Stage</p>	<p>• ETWB TCW No. 34/2002</p>	<p>N/A⁽¹⁾ N/A⁽¹⁾ N/A⁽¹⁾ N/A⁽¹⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers;</p> <ul style="list-style-type: none"> • 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 750m³ 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 						<p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p> <p>N/A⁽¹⁾</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p>						
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> 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 	<p>Control the chemical waste and ensure proper storage, handling and disposal.</p>	Contractor	All Construction Sites	Construction on Stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	<p>^</p> <p>*</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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. <ul style="list-style-type: none"> • 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**

**APPENDIX G
COMPLAINT LOG**

Appendix G - Complaint Log

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



MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES



3 Month Rolling Programme (Rev.02)

Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float	%	2012					2013						
							AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
COMMENCEMENT & COMPLETION																		
Completion of the Works																		
1108ACD01	Letter of Acceptance	0	10AUG12 A			100	◆ Letter of Acceptance											
1108ACD02	Commencement of Contract	0	13AUG12 A			100	◆ Commencement of Contract											
1108ACD03A	Completion of Specified Parts of the Works	0		10FEB13 A		100	◆ Completion of Specified Parts of the Works											
1108ACD03C	Completion of Contract	0		28AUG16	0	0												
1108ACD04B	Completion of 1st BPF for Operation	0		10DEC12 A		100	◆ Completion of 1st BPF for Operation											
Time for Completion																		
1108ACD04A	Completion of Specified Parts of the Works	187	13AUG12 A	15FEB13 A		100	Completion of Specified Parts of the Works											
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12 A	10DEC12 A		100	Completion of 1st BPF for Operation											
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	0	13												
Time for Possession of Works Area																		
1108AAC11	Portion 1108A.W1	52	13AUG12 A	03OCT12 A		100	Portion 1108A.W1											
1108AAC12	Portion 1108A.W2	21	13AUG12 A	13AUG12 A		100	Portion 1108A.W2											
1108AAC13	Portion 1108A.W3	21	13AUG12 A	13AUG12 A		100	Portion 1108A.W3											
1108AAC14	Portion 1108A.W4 (Access Only)	21	13AUG12 A	13AUG12 A		100	Portion 1108A.W4 (Access Only)											
1108AAC15	Portion 1108A.W5	52	13AUG12 A	03OCT12 A		100	Portion 1108A.W5											
1108AAC16	Portion 1108A.W6 (Access Only)	21	13AUG12 A	13AUG12 A		100	Portion 1108A.W6 (Access Only)											
1108AAC17	Portion 1108A.W7 (Access Only)	21	13AUG12 A	13AUG12 A		100	Portion 1108A.W7 (Access Only)											
Vacation of Works Area																		
1108ACD11V	Vacation of Portion 1108A.W1	0		28AUG16 *	0	0												
1108ACD12V	Vacation of Portion 1108A.W2	0		28AUG16 *	0	0												
1108ACD13V	Vacation of Portion 1108A.W3	0		31DEC15 *	241d	0												
1108ACD14V	Vacation of Portion 1108A.W4 (Access Only)	0		28AUG16 *	0	0												
1108ACD15V	Vacation of Portion 1108A.W5	0		31DEC13 *	971d	0												
1108ACD16V	Taking over of Portion 1108A.W6 by 1108	0		01MAY13 *	0	0	◆ Taking over of Portion											
1108ACD17V	Taking over of Portion 1108A.W7 by 1108	0		01MAY13 *	0	0	◆ Taking over of Portion											
MILESTONES SCHEDULE																		
Milestones for Cost Centre A																		
1108AMSA11	Approval of EMP (G5.1.10)	0		09NOV12 A		100	◆ Approval of EMP (G5.1.10)											
1108AMSA12	Approval of Quality Plan (G9.2.1)	0		23NOV12 A		100	◆ Approval of Quality Plan (G9.2.1)											
1108AMSA13	Approval of Method of Construction (G12.1.1)	0		26NOV12 A		100	◆ Approval of Method of Construction (G12.1.1)											
1108AMSA14	Approval of Submission Schedule	0		09NOV12 A		100	◆ Approval of Submission Schedule											
1108AMSA15	Approval of RMP (P24.3.1)	0		28OCT12 A		100	◆ Approval of RMP (P24.3.1)											
1108AMSA16	Approval of DSCP (PS Appendix Q)	0		09NOV12 A		100	◆ Approval of DSCP (PS Appendix Q)											
1108AMSA21	Approval of Health & Safety Plan (G3.6.1)	0		28NOV12 A		100	◆ Approval of Health & Safety Plan (G3.6.1)											
1108AMSA22	Approval of Preliminary MP (G4.6.1)	0		28NOV12 A		100	◆ Approval of Preliminary MP (G4.6.1)											
1108AMSA30	Satisfactory Imp'n of Safety & Env. req'ts.	0		01APR13	1245d	0	◆ Satisfactory Imp'n of Safety & Env											
Milestones for Cost Centre B																		
1108AMSB11	Approval: Design of BPF	0		31OCT12 A		100	◆ Approval: Design of BPF											

Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float	%	2012					2013						
							AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
1108AB2124	Substructures for BPF#1	14	20DEC12 A	31DEC12 A		100												
1108AB2125	Erection of BPF#1	28	08JAN13 A	06FEB13 A		100												
1108AB2126	Testing & Commissioning of BPF#1	7	04FEB13 A	09FEB13 A		100												
1108AB2132	Foundation for BPF#2	21	20NOV12 A	29NOV12 A		100												
1108AB2133	Pile Test for BPF#2 (if necessary)	14	10DEC12 A	19DEC12 A		100												
1108AB2134	Substructures for BPF#2	14	20DEC12 A	05JAN13 A		100												
1108AB2135	Erection of BPF#2	28	27JAN13 A	10FEB13 A		100												
1108AB2136	Testing & Commissioning of BPF#2	7	09FEB13 A	15FEB13 A		100												
1108AB2140	Beautification and Landscaping Works	18	28FEB13	17MAR13	1260d	0												
1108AB2222	Outstanding Works after Operation of BPF 1&2	30	16FEB13 A	14MAR13	1263d	50												
Kai Tak BPF - Works Areas 1108A.W2 & W3																		
1108AB2212	Erection of Hoarding & Project Signboards	42	27SEP12 A	18NOV12 A		100												
Kai Tak BPF - Works Areas 1108A.W2 & W3 (Option)																		
1108AB2202	Manufacture Floating Landing Barge #3 (Option)	60	11SEP12 A	04NOV12 A		100												
1108AB2213	Site Clearance and Formation	28	03SEP12 A	11OCT12 A		100												
1108AB2231	Concrete Slab for Plank Gang to F.L.Barge	14	22OCT12 A	01NOV12 A		100												
1108AB2232	Erection of Temp. Plank Gang to F.L.Barge	14	20OCT12 A	08NOV12 A		100												
1108AB2233	Construction Roads & Pavements	21	29SEP12 A	08NOV12 A		100												
1108AB2234	Installation of Weighbridge System	14	20OCT12 A	04NOV12 A		100												
1108AB2235	Installation of CCTV	14	29OCT12 A	11NOV12 A		100												
1108AB2236	Beautification and Landscaping Works	14	02NOV12 A	15NOV12 A		100												
1108AB2239	Earlier Operation of BPF#3	0		15NOV12 A		100												
Kai Tak BPF - Works Areas 1108A.W4, W6 & W7																		
1108AB3301	Construction of Temporary Access Roads	60	24SEP12 A	22DEC12 A		100												
+Kai Tak BPF - Dredging Area																		
Kai Tak BPF - Mgt., Maintenance & Operation																		
1108AB3010	Manage, Maintain & Operate the BPF	152	10DEC12 A	29JUL13	30d	0												
1108AB4010	Manage, Maintain & Operate the BPF	182	30JUL13	27JAN14	30d	0												
1108AB5010	Manage, Maintain & Operate the BPF	182	28JAN14	28JUL14	30d	0												
1108AB6010	Manage, Maintain & Operate the BPF	182	29JUL14	26JAN15	30d	0												
1108AB7010	Manage, Maintain & Operate the BPF	182	27JAN15	27JUL15	30d	0												
1108AB8010	Manage, Maintain & Operate the BPF	182	28JUL15	25JAN16	30d	0												
1108AB9010	Manage, Maintain & Operate the BPF	186	26JAN16	29JUL16	30d	0												

Start date 10AUG12
 Finish date 28AUG16
 Data date 28FEB13
 Run date 04MAR13
 Page number 3A
 Primavera Systems, Inc.



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

**6th 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. 6

[Period from 1 to 28 February 2013]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(March 2013)

Certified by: 
_____ Winnie Ko _____

Position: Environmental Team Leader

Date: 13 March 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.6

February 2013

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Works Contract 1109 – Stations and
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Monthly EM&A Report No.6

February 2013

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 13 March 2013

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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 sixth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 February to 28 February 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 and desander set up; and
- Along Ma Tau Wai Road - Construction of D-wall panel, concreting of D-wall, trial pits for location of utilities, diversion of CLP cables, predrilling for D-wall, Installation of guide walls and bentonite pipes.

Works in To Kwa Wan (TKW)

- Olympic Playground Area - Site investigation for proposed sheet piles for alignment;
 - Olympic Garden - Tree felling and transplanting, site clearance, construction of trial pits for underpinning works, and pre-drilling for underpinning works; and
 - TKW Station – Water main diversion works, erection of hoarding, removal of stockpile, archaeological survey, pre-drilling, installation of instruments, construction of Engineer Office, construction of project sign board and bored pile, and 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 8,372 m³ of inert C&D materials were generated from the Project, in which 5 m³ of inert C&D materials were disposed of at public fill and 8,366 m³ of inert C&D material were sent to 1108A Kai Tai Barging Facilities during the reporting month. 443 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 21 m³ 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 February 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, 18 and 25 February 2013. The representative of the IEC joined the site inspection on 4 February 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.

Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 29 and 30 January 2013 during the last reporting month. Investigation of exceedance had been conducted and any necessary remedial action has also been taken according to the Event and Action Plan in CNMP.

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)

- TKW/MTW Road Garden – Gas main diversion works and desander set up; and
 - Along Ma Tau Wai Road - Construction of D-wall panel, concreting of D-wall, trial pits for location of utilities, diversion of CLP cables, predrilling for D-wall, installation of bentonite pipes and guide walls, and bus bay & shelter preparation.
 - Nam Kok Road- Trial pits for pre-drilling.
-

Work in To Kwa Wan (TKW)

- Olympic Playground Area – Site investigation for proposed sheet piles alignment;
 - Olympic Garden - Tree felling and transplanting, site clearance, construction of trial pits for underpinning works, and pre-drilling for underpinning works; and
 - TKW Station - Archaeological survey, pre-drilling, installation of instruments, construction of Engineer Office, construction of project sign board and bored pile, and socket steel H-piling.
-

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 sixth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 February to 28 February 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, desander set up; and
•	Along Ma Tau Wai Road - Construction of D-wall panel, concreting of D-wall , trial pits for location of utilities, diversion of CLP cables, predrilling for D-wall, installation of guide walls and bentonite pipes.
Works in To Kwa Wan (TKW)	
•	Olympic Playground Area - Site investigation for proposed sheet piles for alignment;
•	Olympic Garden - Tree felling and transplanting, site clearance, construction of trial pits for underpinning works and pre-drilling for underpinning works; and

Construction Activities to be undertaken

- TKW Station – Water main diversion works, erection of hoarding, removal of stockpile, archaeological survey, pre-drilling, installation of instruments, construction of Engineer Office, construction of project sign board and bored pile, and 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	-
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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
- <i>Water Pump, Wastewater Treatment Plant, Site Office and Water Main Diversion</i>	GW-RE0116-13	3-Aug-2013	
- <i>Generator at TKW Works Area</i>	GW-RE1099-12	16-Jun-2013	-
- <i>Generator at Shansi Street</i>	GW-RE1143-12	3-Jul-2013	-
- <i>Grout Pump and Generator at TKW/ MTW Garden</i>	GW-RE0160-13	20-Aug-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*, comply 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)

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)
<i>24-hr TSP</i>	
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 $\pm 3^\circ\text{C}$; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes on the filters.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;

- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVS was warmed-up for about 5 minutes to establish run-temperature conditions;
- a new 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 m³min⁻¹, which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 m³min⁻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 ($\mu\text{g m}^{-3}$) ^(a)	Limit Level ($\mu\text{g m}^{-3}$) ^(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*.

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 2.9	Construction Noise Mitigation Measure Plan (CNMMP) ^(a)	08 February 2013
Condition 2.10	Construction Noise Monitoring Plan (CNMP) ^(a)	08 February 2013
Condition 3.4	Fifth Monthly EM&A Report	14 February 2013

Notes:

(a) It should be note that no change has been made on the details of 1109 under this submission of CNMMP and CNMP.

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 both NMS-CA-8 and NMS-CA-10 on 8, 14, 20 and 25 February 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

5.3 ACCORDING TO THE MEASUREMENT PERIOD STATED IN THE CNMP, NO CONTINUOUS NOISE MONITORING WAS REQUIRED TO BE CARRIED OUT DURING THE REPORTING MONTH. 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	89	77-101	156.8	260
DMS-7	91	74-106	166.7	260
DMS-8	92	74-108	152.2	260
DMS-9	92	81-106	160.9	260
DMS-10	88	75-102	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
February 2013	8,372 m ³	0 kg	21 m ³	36 kg	443 kg	0 kg

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
- (b) About 8,372 m³ of inert C&D materials were generated from the Project, in which 5 m³ of inert C&D materials were disposed of at public fill and 8,366 m³ of inert C&D material 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 February 2013. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

4 February 2013

- No observation was reported during the site inspection.

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

Major findings and recommendations are summarized as follows:

4 February 2013

- Unloading of stockpiles from the truck at To Kwa Wan works areas was observed without sufficient water spraying. The Contractor was reminded to provide sufficient water spraying to avoid generation of fugitive dust during the unloading of stockpiles. No loading of stockpiles as observed during the site inspection on 18 February 2013.
- Stagnant water was observed under the machine in the power plant at TKW/ MTW Garden. The Contractor was reminded to remove the stagnant water to prevent mosquito breeding. Stagnant water under the machine in the power plant at TKW/MTW Garden has been pumped out as observed during the site inspection on 18 February 2013.

18 February 2013

- A large exposed area at TKW works area was observed without sufficient water spraying. The Contractor was reminded to provide sufficient water spraying to avoid generation of fugitive dust. The exposed area had been provided with sufficient water spraying as observed during the site inspection on 25 February 2013.
- Chemical storage containers at TKW/MTW Garden were observed without drip trays. The Contractor was reminded to provide drip trays with the capacity of the largest container or 20% of the storage capacity whichever is the greater. This will be checked during the site inspection on 4 March 2013.

25 February 2013

- The haul road next to the site office at TKW works area was observed without sufficient water spraying. The Contractor was reminded to provide sufficient water spraying to avoid generation of fugitive dust. This will be checked during the next site inspection.
- Several used chemical drums at TKW/MTW Garden were observed stored outside the designated chemical waste store and without drip trays. The Contractor was reminded to store the empty chemical drums in a designated chemical waste store and provide drip trays with the capacity of the largest container or 20% of the storage capacity whichever is the greater. This will be checked during the next site inspection.

- Chemical drums at E1 were observed without drip trays. The Contractor was reminded to provide drip trays within the capacity of the largest container or 20% of the storage capacity whichever is the greater. This will be checked during the next site inspection.

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.

7.1 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.

As mentioned in the 5th Monthly EM&A Report, exceedance of Action and Limit Level of continuous noise were recorded at MTW-16-1 on 29 and 30 January 2013. An investigation had been conducted to review the potential causes of the exceedances and any necessary remedial action has also been taken according to the Event and Action Plan in CNMP.

On 29 January 2013, the construction works carried out near MTW-16-1 included backfilling works and pipe laying by backhoe both at To Kwa Wan (TKW) Market and the Gas Station, as well as additional ground investigations by drill rigs outside SKH Good Shepherd Primary School. Movable noise fabric as noise barrier had been erected along the site hoarding. Since worksites of TKW Market and Gas Station do not have direct line of sight towards the monitoring station, the contribution of noise level from these two work sites should therefore be minimal. Besides, the drill rigs were continuously operating on 29 January 2013 and the construction works carried out during the exceedance period were same as that before and after the exceedance period. However the $L_{Aeq(30mins)}$ were all below the Action/Limit Levels before and after the exceedance period. Apart from construction works, vehicle movement on Ma Tau Wai Road and other potential noises sources were also contributing to the abnormal noise exceedance. Based on the above and the best available information, no conclusion could be drawn on the noise sources which have contributed to the noise exceedance. However, the Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan (CNMMP) and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of the Action/Limit Level or causing noise nuisance.

On 30 January 2013, the construction works carried out near MTW-16-1 include construction of D-wall at worksites at To Kwa Wan (TKW) Market and construction of fresh water pipe utility works at worksite at Gas Station. No major construction works were conducted outside SKH Good Shepherd Primary School. Since worksites at TKW Market and Gas Station do not have direct line of sight towards the monitoring station, the contribution of noise level from these two work sites should therefore be minimal. In addition, no major construction works were carried out at the work sites outside SKH Good Shepherd Primary School and the $L_{Aeq(30mins)}$ were all below the Action/Limit Levels before and after the exceedance period. Apart from construction works, vehicle movement on Ma Tau Wai Road the other potential noise sources were also contributing to the abnormal noise exceedance. Based on the above, it was considered that the exceedance was

not due to the SCL Contract 1109 construction works. However, the Contractor will adhere strictly to the CNMMP and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of the Action/Limit Level or causing noise nuisance.

The investigation reports are attached in *Annex L*.

7.2 *SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE*

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

7.3 *SUMMARY OF ENVIRONMENTAL COMPLAINT*

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

7.4 *SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION*

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

8.1 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)	
•	TKW/MTW Road Garden – Gas main diversion works, and desander set up; and
•	Along Ma Tau Wai Road - Construction of D-wall panel, concreting of D-wall, trial pits for location of utilities, diversion of CLP cables, predrilling for D-wall, installation of bentonite pipes and guide walls, and bus bay & shelter preparation.
•	Nam Kok Road- Trial pits for pre-drilling.
Work in To Kwa Wan (TKW)	
•	Olympic Playground Area – Site investigation for proposed sheet piles alignment;
•	Olympic Garden - Tree felling and transplanting, site clearance, construction of trial pits for underpinning works, and pre-drilling for underpinning works; and
•	TKW Station - Archaeological survey, pre-drilling, installation of instruments, construction of Engineer Office, construction of project sign board and bored pile, 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*.

This 6th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 February 2013 to 28 February 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.

Exceedance of the Action and Limit Levels of the continuous noise monitoring was recorded at MTW-16-1 on 29 and 30 January 2013 during last reporting period. Investigation of exceedance had been conducted and any necessary remedial action has also been taken according to the Event and Action Plan in CNMP.

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.

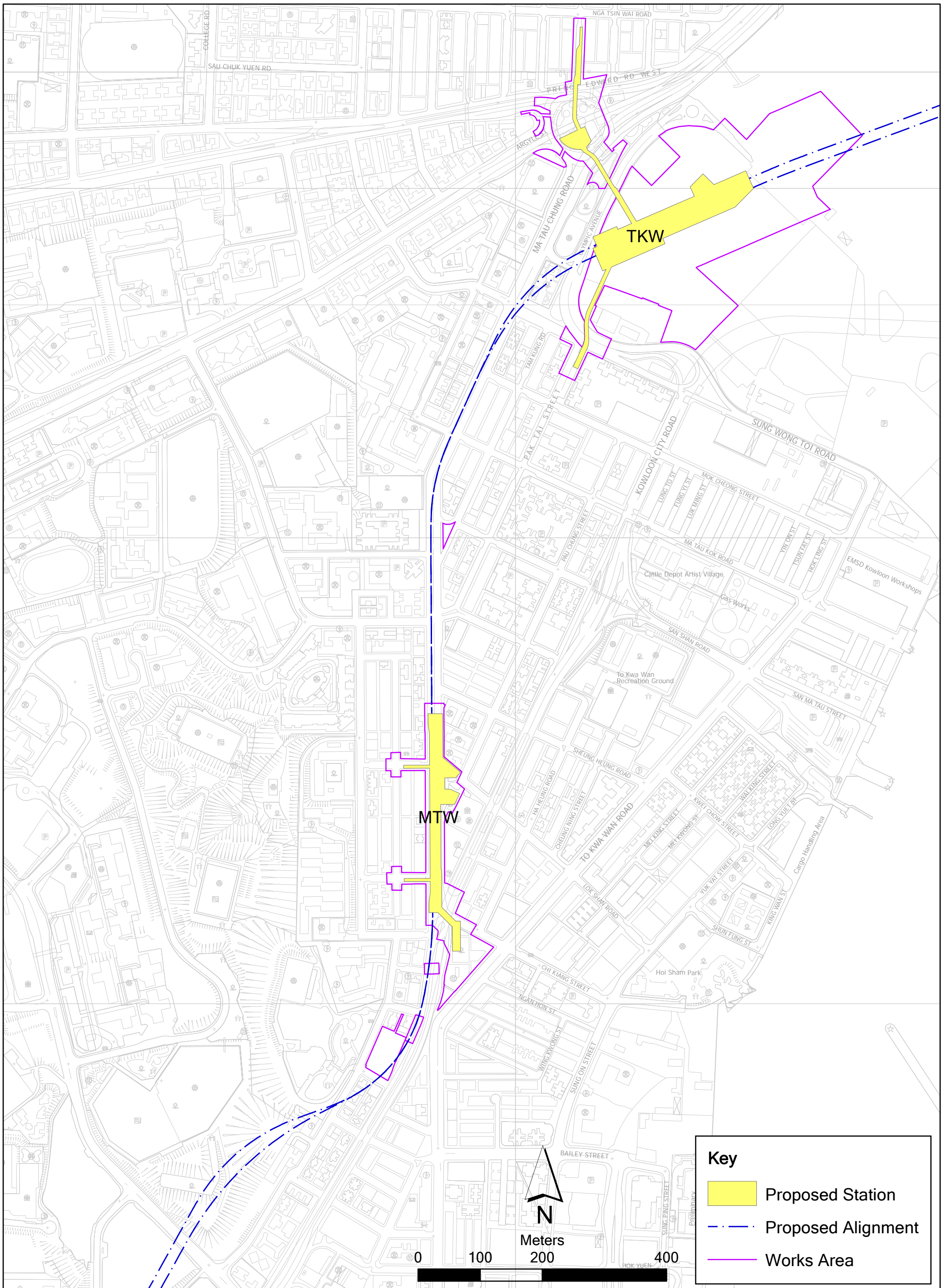
No non-compliance event was recorded during the reporting period.

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

Key

- Proposed Station
- Proposed Alignment
- Works Area

**Environmental
Resources
Management**



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.

THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
1109 - SUW & TKW Stations and Tunnels FEB 13								
PROJECT DATES								
Works Areas								
Return Dates								
01109.RDA2e	Vacation date for Works Area 1109.A2e (Wk 14/13;7Apr13)	0%		07-Apr-13*			◆	
01109.RDW3d	Vacation date for Works Area 1109.W3d (Wk 14/137; 7Apr13)	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%		28-Mar-13		◆		
CC-B Milestones								
01109.MSB02i	B2(i) -50% by plan area of archaeological survey-cum-excavation complete(Wk07/13;17Feb13)	100%		15-Feb-13 A	◆			
01109.MSB02ii	B2(ii) - 10% by plan length of temporary bored pile wall at TBM launch shaft complete(Wk07/13;17Feb13)	0%		20-Jun-13			◆	
CC-C Milestones								
01109.MSC02	C2-30% by plan length of permanent diaphragm wall complete.(Wk07/13;17Feb13)	0%		29-May-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%		10-Apr-13			◆	
01109.MSD02ii	D2(ii)- Investig.to confirm no exist. piles/obstructions to proposed TBM tunnels comp.&accepted by	0%		14-Apr-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	80%	26-Jan-13 A	09-Mar-13				
SUW Station, Entrances and Adits								
TTMS Design & Approval								
01109.PDA1330	SUW - Olympic Avenue - TTM Stage 1 - Design & Approval by SLG	100%	03-Dec-12 A	01-Feb-13 A				
01109.PDA1310	SUW - Nam Kok Rd - TTM Stage 1 - Design & Approval by SLG	60%	07-Jan-13 A	15-Mar-13				
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	0%	27-Feb-13	27-Apr-13				
01109.PDA1350	SUW - Nam Kok Rd - TTM Stage 2 - Design & Approval by SLG	0%	16-Mar-13	14-Apr-13				
01109.PDA1370	SUW - Olympic Avenue - TTM Stage 2 - Design & Approval by SLG	0%	02-Apr-13	31-May-13				
01109.PDA1360	SUW - Nam Kok Rd - TTM Stage 3 - Design & Approval by SLG	0%	15-Apr-13	14-May-13				
01109.PDA1390	SUW - Nam Kok Rd - TTM Stage 4 - Design & Approval by SLG	0%	15-May-13	13-Jun-13				



SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
TTMS Gazette Notice								
01109.PDA1460	SUW - Olympic Avenue - TTM Stage 1 - Gazette Notice	100%	31-Dec-12 A	01-Feb-13 A				
01109.PDA1430	SUW - Nam Kok Rd - TTM Stage 1 - Gazette Notice	60%	07-Jan-13 A	15-Mar-13				
01109.PDA1440	SUW - Nam Kok Rd - TTM Stage 2 - Gazette Notice	0%	15-Apr-13	14-May-13				
01109.PDA1470	SUW - Nam Kok Rd - TTM Stage 3 - Gazette Notice	0%	15-May-13	13-Jun-13				
TTMS Signal Modification by EMSD								
01109.PDA1520	SUW - Olympic Avenue - TTM Stage 1 - EMSD Signal Preparation	0%	04-Mar-13	28-Apr-13				
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 Detailed Design submission for Engineer's Approval.	0%		17-Apr-13				
01109.PDA1880	Engineer Approves Draft Detailed Design	0%	18-Apr-13	17-May-13				
01109.PDA1890	Draft Detailed design to Government Dept/ICC	0%	18-May-13					
01109.PDA1900	Government/ICC Approve Design	0%	18-May-13	16-Jun-13				
ABWF Works (complete design)								
01109.PDA1920	Complete remaining design of ABWF Works & ICE approval	0%	18-Apr-13	16-Jun-13				
TKA Adit								
01109.PDA1980	Complete remaining design of TKA & ICE Approval	0%	18-Apr-13	16-Jun-13				
Temporary Works Design								
TBM Tunnel - Design & Submit								
01109.PDA2540	Temporary drainage design to Tunnels (P30.7)	0%	27-Apr-13	25-Jun-13				
TBM Tunnel - Review & Approve								
01109.PDA2620	Nr Pier 15 - Ground treatment to Chatham Mansion & On Hang building	0%	25-Mar-13	07-Apr-13				
01109.PDA2640	Sump Pit between TKW and HOM - Temp Ground Support design	0%	31-Mar-13	13-Apr-13				
01109.PDA2610	Pier 15 - Pier 15 at EKW underpinning	0%	31-Mar-13	13-Apr-13				
01109.PDA2600	Pier 15 - Underpinning & ELS Design	0%	27-Apr-13	10-May-13				
01109.PDA2590	Pier 15 - Ground Treatment design	0%	03-May-13	16-May-13				
General & Site Wide								
Site Establishment Activities								
01109.PDA2870	Establish Engineer's office (Structural components)	100%	17-Dec-12 A	15-Feb-13 A				
01109.PDA2890	Engineer's office complete & ready to move in	30%	15-Feb-13 A	28-Mar-13*				



THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Management Systems								
Construction (incl Geotech) - Approval								
01109.PDA3050	Review & Approve existing geotechnical features	60%	31-Dec-12 A	04-Mar-13				
Existing Buildings and Structures (EBS) - Submission								
01109.PDA4290	EBS Condition Survey - SSHCJV Review Condition Survey and discuss with MTR	70%	31-Dec-12 A	06-Mar-13				
01109.PDA3120	EBS Condition Survey - Investigation to confirm no exist piles/obstructions to proposed TBM tunnels	0%	26-Feb-13	14-Apr-13				
Existing Buildings and Structures (EBS) - Approval								
01109.PDA4270	EBS Contingency Plan - Approve the Contingency plan for works in vicinity of EBS (P11.5.4)	70%	31-Dec-12 A	15-Mar-13				
Procurement								
Initial Subcontracts								
01109.PDA3790	SUW - Procure and mobilize Grout Curtain plant & equipment	90%	17-Oct-12 A	01-Apr-13				
01109.PDA35100	Procure and mobilize observation wells plant & equipment	90%	17-Oct-12 A	09-May-13				
01109.PDA3870	Bid and award - waterproofing works	60%	20-Nov-12 A	30-May-13				
Concrete Construction Materials								
Precast supplies								
01109.PDA3960	Bid and award - Precast concrete segment supply	0%	11-Apr-13	10-May-13				
01109.PDA3970	Precast concrete segment shop drawing preparation & approval	0%	11-Apr-13	25-May-13				
Method Statements								
SUW - Method statements Submission								
01109.PDA34900	SUW - Prepare and submit Observation Wells & Pumping Test method statement	0%	16-Mar-13	05-Apr-13				
SUW - Method Statements Approval								
01109.PDA4060	SUW - Review & Approval of Grout Curtain method statement	50%	16-Jan-13 A	18-Mar-13				
01109.PDA35000	Review & Approval of Observation Wells & Pumping Test method statement	0%	06-Apr-13	09-May-13				
CC-B - SUW STATION, ENTRANCES AND ADITS								
Implementation of TTA at SUW								
01109.PDB1541	SUW - Olympic Avenue - Implement TTM Stage 1	0%	29-Apr-13	29-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 underground structures in SUW areas (excl Arch Svy area)	0%	10-Apr-13	09-May-13				



THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Site Preparation								
Site Hoarding & Facilities Establishment Works								
01109.PDB1090	Construction of Site wheel wash facilities	80%	19-Dec-12 A	11-Mar-13				
01109.PDB1110	Erection of site fencing	50%	18-Jan-13 A	02-Apr-13				
Demolition and Site Clearance								
Tree Felling								
01109.PDB1250	SUW - Tree transplanting works (all areas)	40%	19-Jan-13 A	12-Apr-13				
01109.PDB1240	SUW - Prepare trees for transplanting Stage 3	20%	21-Jan-13 A	25-Mar-13				
01109.PDB1320	SUW - Tree felling works other areas	0%	26-Feb-13	21-Mar-13				
01109.PDB1290	SUW - Tree felling works (Part 3- GL 12 to 19)	0%	12-Apr-13	27-Apr-13				
01109.PDB1310	SUW - Tree felling works (Part 4- GL 19 to 24)	0%	27-Apr-13	15-May-13				
Install Monitoring Instruments/Take Initial Readings								
01109.PDB14700	SUW - Install monitoring instruments/take initial readings; Part 2- GL 04 to 12	100%	15-Dec-12 A	29-Jan-13 A				
01109.PDB14710	SUW - Install monitoring instruments/take initial readings; Part 3- GL 12 to 19	0%	12-Apr-13	16-May-13				
01109.PDB14720	SUW - Install monitoring instruments/take initial readings; Part 4- GL 19 to 24	0%	12-Apr-13	16-May-13				
Archaeological Survey								
01109.PDB14200	Archaeological Survey (Stage 1 Excavation)	100%	12-Nov-12 A	26-Feb-13				
01109.PDB14220	Archaeological Survey-cum-Excavation (Stages 2 and 3 Excavation)	75%	13-Nov-12 A	12-Apr-13				
01109.PDB1590	Prepare ASE Report	0%	18-Mar-13	11-May-13				
01109.PDB14230	Archaeological Physical Survey Complete - Site Handover	0%		12-Apr-13				
01109.PDB14210	Additional Investigation (in "Green Areas")	0%	12-Apr-13*	30-Apr-13				
01109.PDB1600	Submit Draft ASE report to MTRC	0%		11-May-13				
01109.PDB14240	MTRC Comment on Draft ASE report	0%	11-May-13	27-May-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%	29-Apr-13	24-May-13				
Fresh water main diversion								
01109.PDB1700	Fresh water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	29-Apr-13	24-May-13				
Salt water main diversion								
01109.PDB1760	Salt water mains diversions (Part 1- GL 01 to 04/ cofferdam areas)	0%	29-Apr-13	24-May-13				
Station - Excavation and Foundation								



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Pre-drilling Works								
Part 1								
01109.PDB1960	Pre-drilling for station foundation piles (Part 1- GL 1 to 4)	90%	23-Nov-12 A	09-Mar-13				
01109.PDB1970	SI Report & Confirmation of Founding Levels (Part 1 - Gl 1 to 4)	50%	02-Jan-13 A	20-Mar-13				
Other Areas								
01109.PDB2080	Pre-drilling for station foundation piles beyond GL 24	80%	13-Feb-13 A	08-Mar-13				
01109.PDB14370	SI Report & Confirmation of Founding Levels (Beyond GL24)	0%	09-Mar-13	15-Mar-13				
Part 2A								
01109.PDB14340A	SI Report & Confirmation of Founding Levels (Part 2A - GL 4 to 8)	100%	14-Jan-13 A	01-Feb-13 A				
Part 2B								
01109.PDB21550A	Pre-drilling for station foundation piles(Part 2B- GL 8 to 12)	90%	17-Dec-12 A	01-Mar-13				
01109.PDB21560A	SI Report & Confirmation of Founding Levels (Part 2B - GL 8 to 12)	0%	01-Mar-13	08-Mar-13				
Part 3								
01109.PDB2030	Pre-drilling for station foundation piles (Part 3- GL 12 to 19)	0%	12-Apr-13	26-Apr-13				
01109.PDB14350	SI Report & Confirmation of Founding Levels (Part 3 - Gl 12 to 19)	0%	26-Apr-13	04-May-13				
Part 4								
01109.PDB2060	Pre-drilling for station foundation piles (Part 4- GL 19 to 24)	0%	26-Apr-13	11-May-13				
01109.PDB14360	SI Report & Confirmation of Founding Levels (Part 4 - Gl 19 to 24)	0%	11-May-13	20-May-13				
Pre-bored H- Piling for Permanent Works								
Part 1 (GL 1 to 4)								
01109.PDB2190A	H- Piling; Part 1- GL 2 - 32 Nr 1PR (BD approved drawings 06 Feb 13)	5%	21-Jan-13 A	02-Aug-13				
01109.PDB2140A	H- Piling; Part 1- GL 1b - 33 Nr 1PR (BD approved drawings 06 Feb 13)	10%	28-Jan-13 A	02-Aug-13				
01109.PDB2230A	H- Piling; Part 1- GL 3 - 47 Nr 1PR (BD approved drawings 06 Feb 13)	7.5%	31-Jan-13 A	02-Aug-13				
Part 2A								
01109.PDB2260A	H- Piling; Part 2A- GL 4 - 38 Nr 1PR (BD approved drawings 06 Feb 13)	5%	10-Jan-13 A	02-Aug-13				
01109.PDB2100A	H- Piling; Part 2A- GL 5 - 34Nos 1PR (BD approved drawings 06 Feb 13)	10%	30-Jan-13 A	02-Aug-13				
01109.PDB2280A	H- Piling; Part 2A- GL 7- 7.5 - 14Nos 2PR (BD approved drawings 06 Feb 13)	15%	01-Feb-13 A	02-Aug-13				
01109.PDB2220A	H- Piling; Part 2A- GL 6 - 44Nos 2PR (BD approved drawings 06 Feb 13)	10%	06-Feb-13 A	02-Aug-13				
TBM Launch Shaft Works								
Bored Piling for TBM Shaft								
01109.PDB2820	TBM Launch shaft - Bored Piling P17 to 22 (5nr) 1PR	5%	22-Feb-13 A	10-Apr-13				
01109.PDB3500	Commence Bored Piling	100%	22-Feb-13 A					



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
01109.PDB2630	TBM Launch shaft - Bored Piling P121 to 125 (5nr) 1PR	0%	10-Apr-13	16-May-13				
01109.PDB2740	TBM Launch shaft - Bored Piling P44 to 48 (5nr) 1PR	0%	10-Apr-13	16-May-13				
01109.PDB2610	TBM Launch shaft - Bored Piling P24 to 28 (5nr) 1PR	0%	17-Apr-13	24-May-13				
01109.PDB2730	TBM Launch shaft - Bored Piling P2 to 6 (5nr) 1PR	0%	24-Apr-13	06-Jun-13				
01109.PDB2640	TBM Launch shaft - Bored Piling P126 to 127 (2nr) 1PR	0%	16-May-13	31-May-13				
01109.PDB2760	TBM Launch shaft - Bored Piling P7 to 11 (5nr) 1PR	0%	16-May-13	28-Jun-13				
01109.PDB3510	10% of temporary bored pile wall complete (13nr)	0%	16-May-13					
01109.PDB2770	TBM Launch shaft - Bored Piling P49 to 53 (5nr) 1PR	0%	24-May-13	29-Jun-13				
Excavation TBM Shaft Area								
Utility Support /Diversions								
01109.PDB3000	TBM Launch shaft - Excavate & support rising mains in NW corner	0%	08-May-13	20-Jun-13				
Earthworks								
Curtain Grout Works								
01109.PDB3210	Grout Curtain; Part 2- GL 4 to 5	0%	02-Apr-13	08-Apr-13				
01109.PDB3250	Grout Curtain; Part 1- GL 1 to GL 2	0%	09-Apr-13	13-Apr-13				
01109.PDB3290	Grout Curtain; Part 2- GL 5 to 6	0%	15-Apr-13	19-Apr-13				
01109.PDB3310	Grout Curtain; Part 1- GL 2 to GL 3	0%	20-Apr-13	25-Apr-13				
01109.PDB3330	Grout Curtain; Part 2- GL 6 to 7	0%	26-Apr-13	02-May-13				
01109.PDB3350	Grout Curtain; Part 1- GL 3 to GL 4	0%	03-May-13	08-May-13				
01109.PDB3370	Grout Curtain; Part 2- GL 7 to 8	0%	09-May-13	14-May-13				
01109.PDB3400	Grout Curtain; Part 2- GL 8 to 9	0%	15-May-13	21-May-13				
01109.PDB3280	Grout Curtain; Part 4- GL 19 to 20	0%	16-May-13	23-May-13				
01109.PDB3430	Grout Curtain; Part 2- GL 9 to 10	0%	22-May-13	27-May-13				
01109.PDB3240	Grout Curtain; Part 3- GL 10 to 11	0%	22-May-13	27-May-13				
01109.PDB3320	Grout Curtain; Part 4- GL 20 to 21	0%	23-May-13	29-May-13				
Install Observation Wells								
01109.PDB3520	Observation Wells; Part 1- GL 1 to 2	0%	10-May-13	16-May-13				
01109.PDB3540	Observation Wells; Part 1- GL 2 to 3	0%	18-May-13	24-May-13				
Entrance C and Associated Adits								
Entrance C - Site Preparation								
Entrance C - Record Survey and Site set-up Works								
01109.PDB10270	CCTV Record Survey of Public drains	0%	18-Apr-13*	14-May-13				



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Entrance C - Utilities and Services Diversion								
01109.PDB10290	Excavation of Trial Pits for utility Services and underground structures in Ent C & Adits areas	0%	11-Feb-13 A	02-Apr-13				
01109.PDB10320	Initial survey of Structures to be retained in Ent C & Adits areas	0%	11-Feb-13 A	02-Apr-13				
01109.PDB10330	Initial survey of dump concentrations in Ent C & Adits related areas	0%	03-Apr-13	07-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.PDB10340	Site Clearance Ent C; GL 7 to 14	0%	08-Mar-13	15-Mar-13				
01109.PDB10350	Utility relocation / diversion in Ent C; GL 7 to 14	0%	08-Mar-13	23-Mar-13				
01109.PDB10360	Tree Felling in Ent C & Adits Area; GL 7 to 14	0%	16-Mar-13	23-Mar-13				
Entrance C - Part 1- Piling & Toe Grouting Works								
01109.PDB10380	Pipe Piling Works; GL C7 to C14	0%	16-Mar-13	13-Apr-13				
01109.PDB10390	Sheet Piling & Toe grouting Works; GL C7 to C14; East Side	0%	16-Mar-13	22-Apr-13				
01109.PDB10400	Sheet Piling & Toe grouting Works; GL C14 to C7; West Side	0%	15-Apr-13	18-May-13				
01109.PDB14400	Bre Bored H Pile works (24nr) 2PR	0%	15-Apr-13	26-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 (GL 11 to 20)	0%	11-Mar-13*	03-Apr-13				
01109.PDB2050	Pre-drilling for Adit B works (GL 20 to 31)	0%	05-Apr-13	25-Apr-13				
01109.PDB11650	CCTV Record Survey of Public drains	0%	18-Apr-13*	04-May-13				
01109.PDB2070	SI Report & Confirmation of Founding Levels	0%	26-Apr-13	01-May-13				
01109.PDB11660	Excavation of Trial Pits for utility Services in Adit B areas	0%	06-May-13	30-May-13				
01109.PDB11680	Visual joint survey of Highway structures in Adit B areas	0%	06-May-13	12-Jul-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	12-Mar-13				
Entrance B - Olympic Avenue and SUW playground Works								
Stage 1								
01109.PDB11750	Take Possession of Site (Works area 1109.W2)	0%	27-Apr-13					
01109.PDB11760	Implement the TTMS to occupy two Southbound lanes of Olympic Avenue	0%	27-Apr-13	04-May-13				
01109.PDB11770	Divert / protect Temporary utilities	0%	06-May-13	27-May-13				
Entrance B - Nam Kok Road Works - (Detailed Programme)								



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
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%	15-Mar-13	28-Mar-13		█		
01109.PDC28700A	EBS Condition Survey - Establish baseline readings	0%	29-Mar-13	27-Apr-13			█	
Instrumentation & Monitoring								
01109.PDB19130A	Installation and Monitoring of Instrumentation	0%	15-Mar-13	15-Jan-15		█	█	█
Nam Kok Road - TTMS - Stage 1 and 2								
TTMS - Stage 1 (Phase 1)								
01109.PDB12570A	Relocate car parking spaces (29 numbers in total)	0%	13-Mar-13	15-Mar-13		█		
01109.PDB12350A	Implement the Stage 1 (Phase 1) TTM Scheme on drawing SCLSCG/1109/SHJV/NKR/173-02B	0%	15-Mar-13*			◆		
01109.PDB14640A	Occupy section of the eastern part of the Nam Kok Road	0%	15-Mar-13	16-Mar-13		█		
01109.PDB14670A	Site Investigation and Trial Pits to confirm utility location	0%	15-Mar-13	03-Apr-13		█		
01109.PDB18960A	Utility diversion & protection measures (Telecom)	0%	05-Apr-13	20-Apr-13			█	
01109.PDB18970A	Utility diversion & protection measures (Drainage)	0%	05-Apr-13	20-Apr-13			█	
01109.PDB18980A	Utility diversion & protection measures (Watermain)	0%	05-Apr-13	17-Jun-13			█	█
01109.PDB14680A	Utility diversion & protection measures (Towngas)	0%	05-Apr-13	10-May-13			█	
01109.PDB18840A	Utility diversion & protection measures (CLP 132kV cables)	0%	05-Apr-13	26-Jul-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	02-May-13	█	█	█	
01109.PDC21630A	Install Watermain at Zone 4	8%	29-Jan-13 A	27-Jul-13	█	█	█	
01109.PDC21640A	Carry out Swabbing	0%	15-Apr-13	03-Aug-13			█	
01109.PDC21650A	Carry out Pressure Test	0%	18-Apr-13	14-Aug-13			█	
01109.PDC21610A	Install Watermain at Zone 2	0%	20-May-13	01-Aug-13				█
01109.PDC21620A	Install Watermain at Zone 3	0%	20-May-13	27-Jul-13				█
EI 14 - Sheung Heung Road Amenity Facility								
01109.PDC21510A	Construct foundation for planter	100%	23-Jan-13 A	25-Jan-13 A	█			
01109.PDC21520A	Construct planter, shell chairs, signs and drainage network	80%	26-Jan-13 A	09-Mar-13	█	█		
01109.PDC21530A	Install lighting and irrigation system	0%	11-Mar-13	10-May-13		█	█	
01109.PDC21540A	Handover to LCSD	0%		10-May-13				◆



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Implementation of TTA at TKW								
01109.PDC1680	TKW - Implement TTM Stage 1 - E5 2nd shuffle	100%	13-Feb-13 A	15-Feb-13 A	■		■	
01109.PDC1690	TKW - Implement TTM Stage 1 - E2/E4 1st Shuffle	0%	05-Mar-13	06-Mar-13		■		■
01109.PDC1701	TKW - Implement TTM Stage 1 - Phase 2 (new design)	0%	11-Mar-13	13-Mar-13		■		
TKW Station								
Existing Utility Diversion Works								
Drainage and Sewerage								
01109.PDC1490	TKW-FD401/401P - P6 to P7 - Divert 600dia sewer	0%	26-Feb-13	18-Mar-13		■		
01109.PDC1510	TKW-FD402/402P - P140 - Divert 600dia sewer	0%	05-Mar-13	25-Mar-13		■		
01109.PDC1540	TKW-FD403/403P - P140 - Divert 150dia sewer	0%	12-Mar-13	05-Apr-13		■		
01109.PDC1550	TKW-SD504 - P123 - Storm Drain 225dia Support in situ	0%	28-Mar-13	15-Apr-13			■	
01109.PDC1500	TKW-SD502 - P132 - Storm Drain Support Insitu	0%	10-May-13	16-May-13				■
Water Supply								
01109.PDC1700	TKW-FW101 - P10, P135 - Exist 450dia Fresh Water Main - Temp support during construction	0%	16-May-13	30-May-13				■
Power Supply								
01109.PDC1870	TKW-CLP401 - P7 & P142 - (11kV) Locally Slew	12%	18-Sep-12 A	28-Feb-13	■			
01109.PDC1880	TKW-CLP404 - P7 & P142 - (415 V) - Support in-situ & close monitoring	12%	18-Sep-12 A	28-Feb-13	■			
01109.PDC1810	TKW-CLP407 - P9 & P135 - (Existing Abandoned 33 kV) - Remove	50%	17-Dec-12 A	05-Apr-13	■		■	
01109.PDC1830	TKW-CLP114 - P104 - (Existing Abandoned 33 kV) - Remove	50%	17-Dec-12 A	01-Mar-13	■			
01109.PDC1850	TKW-CLP505 - P76 to P93 - 11kV Supply - Slew & support	50%	17-Dec-12 A	02-Mar-13	■			
01109.PDC1860	TKW-CLP506 - P76 to P93 - 415V - Slew & support	50%	17-Dec-12 A	02-Mar-13	■			
01109.PDC1800	TKW-CLP406 - P9 & P135 - (Existing Abandoned 33 kV) - Remove	100%	19-Feb-13 A	22-Feb-13 A	■			
01109.PDC1790	TKW-CLP405 - P13 & P132 - (Existing Abandoned 66 kV) - Remove	0%	26-Feb-13	04-Mar-13		■		
Gas Supply								
01109.PDC1900	TKW-GAS503 - P42 & P108 - Temporarily Abandon	83%	21-Feb-13 A	26-Feb-13	■			
Telecommunication System								
01109.PDC1960	TKW-HKT503/503P - P76 to 87incl. - Telecom Cable - Slew	60%	07-Feb-13 A	02-Mar-13	■			
01109.PDC1950	TKW-HGC401 - P142 & P4,5,6 - Telecom Cable - Slew & Support	0%	22-Mar-13	09-Apr-13		■		
Diaphragm Wall during TTMS Stage 1								
Area E1 (MTW Road)								
Area E1 - Advance Works								
01109.PDC2000	E1 - Batch 1 - Trial Pits	92%	14-Dec-12 A	26-Feb-13	■			



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
01109.PDC2010	E1 - Batch 2 - Trial Pits	29%	14-Dec-12 A	06-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2020	E1 - Batch 1 - Excavation & Construction of Guide walls	44%	21-Jan-13 A	07-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2030	E1 - Batch 2 - Excavation & Construction of Guide walls	0%	26-Feb-13	12-Mar-13	[Gantt bar: Mar]			
01109.1000	E1 - Trial Pits & Pre-drill to P13	0%	05-Mar-13	11-Mar-13	[Gantt bar: Mar]			
Area E1 - Founding Level Pre-drill								
01109.PDC2120	E1 - Batch 2 - Founding Level Pre-drill P: 11,12,13,12,134,159 (7nr) (1.5PR)	29%	17-Dec-12 A	09-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2040	E1 - Batch 1 - Founding Level Pre-drill P: 125,129,130,131,132,133,126,127 (13nr) (1.5PR)	67%	29-Dec-12 A	02-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2110	E1 - Batch 1 - P:125,129,130,131,132,133 - SI Report & Confirmation of Founding Levels	69%	24-Jan-13 A	09-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2210	E1 - Batch 1 (MTW) - Dwall work commences	100%	28-Jan-13 A		[Milestone diamond]			
01109.PDC2180	E1 - Batch 2 - P:11,12,13,128,134,159 - SI Report & Confirmation of Founding Levels	20%	19-Feb-13 A	03-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC2240	E1 - Batch 2 (MTW) - Dwall work commences	0%	13-Mar-13		[Milestone diamond]			
Area E1 - BC Cutter Nr 2 (Low Headroom cutter)								
01109.PDC23690	Dwall works P127	100%	28-Jan-13 A	08-Feb-13 A	[Gantt bar: Jan to Feb]			
01109.PDC23670	Dwall works P126	0%	21-Mar-13	03-Apr-13	[Gantt bar: Mar to Apr]			
01109.PDC23420	Dwall works P131	0%	08-Apr-13	18-Apr-13	[Gantt bar: Apr]			
01109.PDC23370	Dwall works P12	0%	17-Apr-13	03-May-13	[Gantt bar: Apr to May]			
01109.PDC23380	Dwall works P132	0%	10-May-13	16-May-13	[Gantt bar: May]			
01109.PDC23350	Dwall works P159	0%	16-May-13	28-May-13	[Gantt bar: May]			
Area E1 - BC Cutter Nr 1								
01109.PDC23340	Dwall works P128	18%	23-Feb-13 A	05-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC23360	Dwall works P129	0%	11-Mar-13	22-Mar-13	[Gantt bar: Mar]			
Area E1 (Ent D)								
Area E1 - Advance Works								
01109.PDC3220	E1 (Ent D) - Batch 1 - Trial Pits	80%	14-Dec-12 A	06-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC3240	E1 (Ent D) - Batch 2 - Trial Pits	43%	14-Dec-12 A	13-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC3230	E1 (Ent D) - Batch 1 - Excavation & Construction of Guide Walls	36%	17-Dec-12 A	19-Apr-13	[Gantt bar: Feb to Apr]			
01109.PDC3250	E1 (Ent D) - Batch 2 - Excavation & Construction of Guide Walls	0%	19-Mar-13	09-Apr-13	[Gantt bar: Mar to Apr]			
Area E1 - Founding Level Pedrill								
01109.PDC3270	E1 (Ent D) - Batch 2 - Founding Level Pre-drill P6,10,9,7,8 (6nr) 2PR	29%	24-Dec-12 A	19-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC3260	E1 (Ent D) - Batch 1 - Founding Level Pre-drill P142,141,135,140,136,137,138 (11nr) 2PR	80%	29-Dec-12 A	07-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC3400	E1 (Ent D) - Batch 1 - P: 142,141,135,140,136,137,138 - GI Report & Confirmation of Founding Levels	63%	15-Jan-13 A	14-Mar-13	[Gantt bar: Feb to Mar]			
01109.PDC3380	E1 (Ent D) - Batch 2 - P: 6,10,9,7,8 - GI Report & Confirmation of Founding Levels	0%	19-Mar-13	25-Mar-13	[Gantt bar: Mar]			



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Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Area E1 - BC Cutter Nr 2 (Low Headroom cutter)								
01109.PDC26640	Dwall works - P143	21%	18-Jan-13 A	13-Mar-13				
01109.PDC26720	Dwall works P5	0%	14-Mar-13	23-Mar-13				
01109.PDC23870	Dwall works P6	0%	28-Mar-13	10-Apr-13				
01109.PDC26660	Dwall works - P144	0%	12-Apr-13	19-Apr-13				
01109.PDC23860	Dwall works P142	0%	30-Apr-13	08-May-13				
01109.PDC23960	Dwall works P7	0%	06-May-13	13-May-13				
01109.PDC23880	Dwall works P141	0%	11-May-13	20-May-13				
01109.PDC23910	Dwall works P140	0%	22-May-13	29-May-13				
Area E2								
Area E2 - Advance Works								
01109.PDC4040	E2 - Batch 2 - Trial Pits	100%	15-Dec-12 A	30-Jan-13 A				
01109.PDC4070	E2 - Batch 1 - Trial Pits	71%	17-Dec-12 A	02-Mar-13				
01109.PDC4060	E2 - Batch 2 - Excavation & Construction of Guide Walls	0%	26-Feb-13	12-Mar-13				
01109.PDC4050	E2 - Batch 1 - Excavation & Construction of Guide Walls	0%	10-Apr-13	24-Apr-13				
Area E2 - Founding Level Predrill								
01109.PDC4080	E2 - Batch 2 - Founding level Predrill P120,121,122, (5nr) 1.5PR	100%	21-Dec-12 A	09-Feb-13 A				
01109.PDC4090	E2 - Batch 1 - Founding level Predrill P115,116,117,118,119,120 (7nr) 1.5PR	71%	21-Dec-12 A	02-Mar-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	09-Mar-13				
01109.PDC4180	E2 - Batch 2 - P: 120, 121,122,126,127 - SI Report & Confirmation of Founding Levels	20%	09-Feb-13 A	02-Mar-13				
Area E2/E4/E5 - BC Cutter Nr 1								
01109.PDC24740	E5 - Dwall works P113	85%	16-Feb-13 A	26-Feb-13				
01109.PDC24750	E5 - Dwall works P112	0%	05-Mar-13	14-Mar-13				
01109.PDC24720	E5 - Dwall works P114	0%	20-Mar-13	28-Mar-13				
01109.PDC23660	E2 - Dwall works P118	0%	26-Mar-13	18-Apr-13				
01109.PDC24700	E4 - Dwall works P123	0%	16-Apr-13	24-Apr-13				
01109.PDC23680	E2 - Dwall works P119	0%	22-Apr-13	18-May-13				
01109.PDC24710	E4 - Dwall works P124	0%	15-May-13	24-May-13				
01109.PDC23700	E2 - Dwall works P120	0%	22-May-13	29-May-13				
Area E4								
Area E4 - Advance Works								
01109.PDC8190	E4 - Excavation & Construction of Guide Walls	100%	16-Feb-13 A	18-Feb-13 A				



THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Area E4 - Founding Level Predrill								
01109.PDC8210	E4 - Founding level Predrill P124 (2nr) 1PR	100%	21-Jan-13 A	30-Jan-13 A				
01109.PDC8400	E4 - P: 123, 124 - SI Report & Confirmation of Founding Levels	0%	26-Feb-13	04-Mar-13				
Area E5								
Area E5 - Advance Works								
01109.PDC8380	E5 - Excavation and construction of Guide Walls	75%	14-Jan-13 A	28-Feb-13				
Area E5 - Founding Level Predrill								
01109.PDC8440	E5 - P: 112,113 - SI Report & Confirmation of Founding Levels	100%	24-Jan-13 A	15-Feb-13 A				
01109.PDC29005A	E5 - P: 111,114 - SI Report & Confirmation of Founding Levels	0%	26-Feb-13	03-Mar-13				
Area E3-1								
Area E3-1 - Advance Works								
01109.PDC5200	E3-1 - Trial Pits	70%	28-Dec-12 A	28-Feb-13				
01109.PDC5190	E3-1 - Excavation & Construction of Guide Walls	14%	18-Jan-13 A	13-Mar-13				
Area E3-1 - Founding Level Predrill								
01109.PDC5210	E3-1 - Founding Level Predrill P104,105,106,107,108,109,110 (10nr) 3PR	60%	02-Jan-13 A	04-Mar-13				
01109.PDC5280	E3-1 - P: 104,105,106,107,108,109,110 - SI Report & Confirmation of Founding Levels	40%	24-Jan-13 A	04-Mar-13				
Area E3-2								
Area E3-2 - Advance Works								
01109.PDC6010	E3-2 - Excavation and Construction of Guide Walls	20%	28-Jan-13 A	20-Mar-13				
01109.PDC28985	E3-2 - Excavation and Construction of Guide Walls (Cross Walls)	0%	14-Mar-13	03-Apr-13				
Area E3-2 - Founding Level Predrill								
01109.PDC6030	E3-2 - Founding Level Predrill P99,100,101,102,103 (7nr) 2PR	100%	14-Jan-13 A	22-Feb-13 A				
01109.PDC6080A	E3-2 - P: 99 - SI Report & Confirmation of Founding Levels	100%	04-Feb-13 A	04-Feb-13 A				
01109.PDC28995	E3-2 - P:100,101,102,103 - SI Report & Confirmation of Founding Levels	25%	09-Feb-13 A	28-Feb-13				
Area E3-3								
Area E3-3 - Advance Works								
01109.PDC6750	E3-3 - Excavation and Construction of Guide Walls (P94,95,96,97,98)	60%	25-Jan-13 A	01-Mar-13				
01109.PDC6760A	E3-3 - Trial Pits (Batch 2)	0%	26-Feb-13	05-Mar-13				
01109.PDC6750A	E3-3 - Excavation and Construction of Guide Walls (P88a,88b,89,90,91,92,93)	0%	02-Mar-13	20-Mar-13				
Area E3-3 - Founding Level Predrill								
01109.PDC6860	E3-3 - Batch 1 - P: 97,96,95,98,94 - GI Report & Confirmation of Founding Levels	60%	18-Feb-13 A	28-Feb-13				
01109.PDC6770	E3-3 - Batch 2 - Founding Level Predrill P88a,88b(89),92,90,93,91(8nr) 2.5PR	0%	06-Mar-13	12-Mar-13				



SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
01109.PDC6830	E3-3 - Batch 2 - P: 88a,88b(89),92,90,93,91 - GI Report & Confirmation of Founding Levels	0%	13-Mar-13	18-Mar-13				
Area E3 - BC Cutter Nr 3								
01109.PDC24520	Dwall works P95	100%	30-Jan-13 A	09-Feb-13 A				
01109.PDC24380	Dwall works P96	0%	27-Feb-13	08-Mar-13				
01109.PDC24010	Dwall works P108	0%	14-Mar-13	22-Mar-13				
01109.PDC24540	Dwall works P94	0%	22-Mar-13	05-Apr-13				
01109.PDC24020	Dwall works P104	0%	02-Apr-13	10-Apr-13				
01109.PDC24560	Dwall works P93	0%	08-Apr-13	16-Apr-13				
01109.PDC28930	Dwall works P88B	0%	13-Apr-13	20-Apr-13				
01109.PDC24390	Dwall works P92	0%	18-Apr-13	26-Apr-13				
01109.PDC24030	Dwall works P107	0%	24-Apr-13	02-May-13				
01109.PDC24000	Dwall works P109	0%	29-Apr-13	07-May-13				
01109.PDC24400	Crosswall G6-4	0%	04-May-13	09-May-13				
01109.PDC24240	Crosswall F19-4	0%	09-May-13	14-May-13				
01109.PDC24450	Crosswall G4-4	0%	14-May-13	20-May-13				
01109.PDC24430	Crosswall G7-4	0%	20-May-13	24-May-13				
01109.PDC24670	Crosswall G10-4	0%	24-May-13	30-May-13				
Area E3 - BC Cutter Nr 4								
01109.PDC24220	Dwall works P99	100%	14-Feb-13 A	25-Feb-13 A				
01109.PDC24530	Dwall works P98	0%	01-Mar-13	11-Mar-13				
01109.PDC24210	Dwall works P100	0%	07-Mar-13	20-Mar-13				
01109.PDC24360	Dwall works P97	0%	18-Mar-13	27-Mar-13				
01109.PDC24200	Dwall works P101	0%	25-Mar-13	06-Apr-13				
01109.PDC24180	Dwall works P103	0%	03-Apr-13	17-Apr-13				
01109.PDC24550	Dwall works P90	0%	15-Apr-13	22-Apr-13				
01109.PDC24370	Dwall works P89	0%	19-Apr-13	29-Apr-13				
01109.PDC24050	Dwall works P105	0%	26-Apr-13	04-May-13				
01109.PDC24040	Dwall works P106	0%	02-May-13	10-May-13				
01109.PDC24350	Dwall works P88a	0%	08-May-13	15-May-13				
01109.PDC24570	Dwall works P91	0%	13-May-13	22-May-13				
01109.PDC24190	Dwall works P102	0%	20-May-13	27-May-13				
01109.PDC24850	E6 - Dwall works P87	0%	24-May-13	03-Jun-13				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-PMP-5A-1, Page 13 of 14

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

- MP Baseline
- Actual Work
- Remaining Work
- MP Milestone
- Milestone

THREE MONTH ROLLING PROGRAMME - FEBRUARY 2013

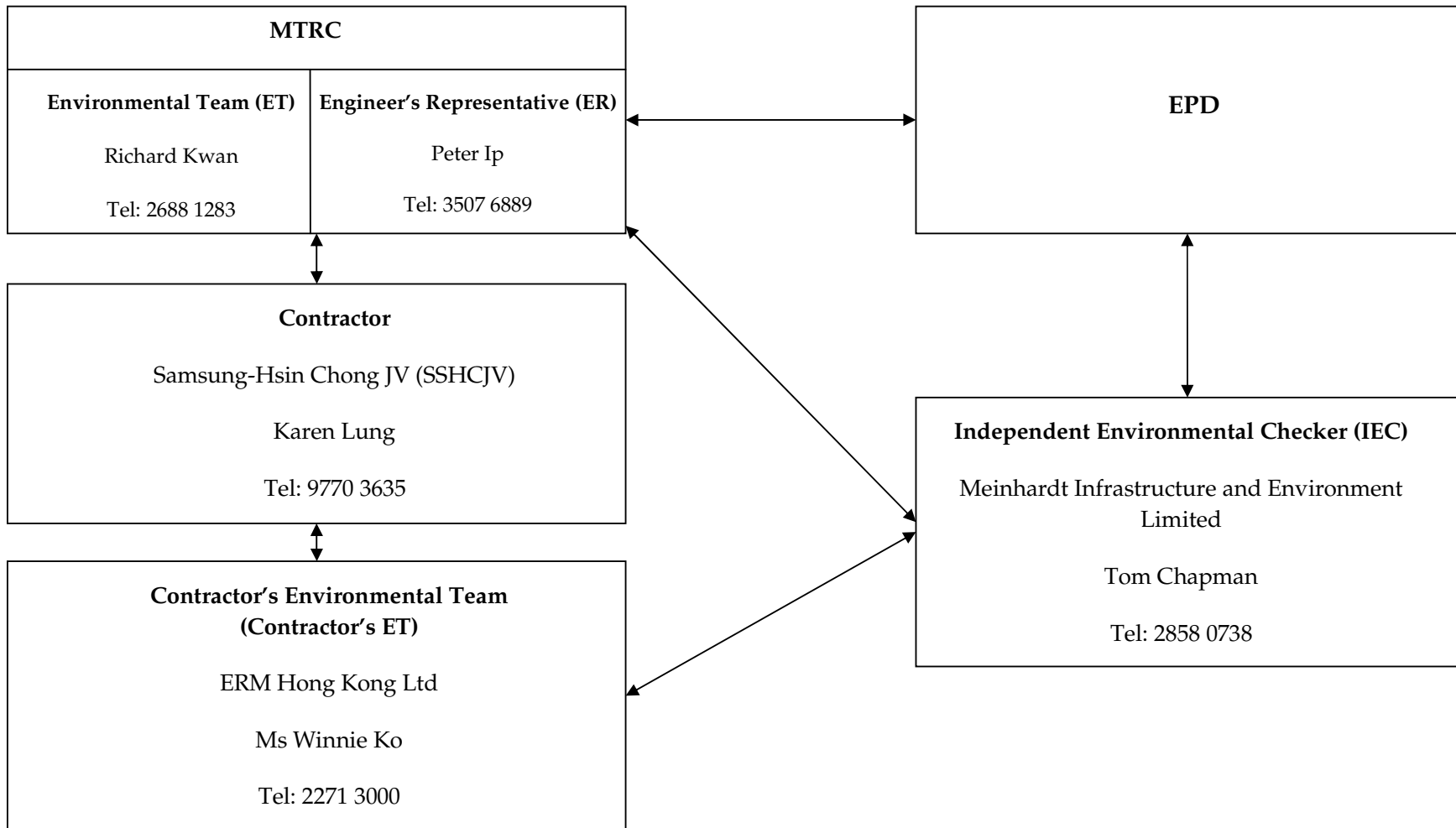
Activity ID	Activity Name	Physical % Complete	Start	Finish	2013			
					Feb	Mar	Apr	May
Area E3-3 - Post Concrete Works								
01109.PDC8090	E3-3 - Dwall Shear pin installation	0%	23-May-13	05-Jun-13				
Area E6								
Area E6 - Advance Works								
01109.PDC9020A	E6 - Additional Utility Diversions (New activity)	0%	11-Mar-13	27-Apr-13				
Area E6 - Founding Level Pre-drill								
01109.PDC9060	E6 - Batch 2 - Founding Level Pre-drill - P80,81,82,83,84,85,86,87 (12r) 4PR	0%	02-May-13*	08-May-13				
01109.PDC9130	E6 - Batch 1 - Founding Level Pre-drill - P74a,75,76,77,78,79 (8nr) 2PR	0%	02-May-13*	10-May-13				
01109.PDC9070	E6 - Batch 2 - E6 - P: 83,87,84,82,86,81,85,80 - GI Report & Confirmation of Founding Levels	0%	09-May-13	15-May-13				
01109.PDC9140	E6 - Batch 1 - P: 75,79,76,78,77,74a - GI Report & Confirmation of Founding Levels	0%	11-May-13	17-May-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	50%	20-Feb-13 A	02-Mar-13				
01109.PDC10120	E6 - Bus Stop relocated - Ready for TTMS Stage 1 Phase 2	0%		10-Mar-13				
01109.PDC10230	E6 - Relocate Bus Stop from E3-2 & E3-3 to E6	0%		10-Mar-13*				
Entrance A & Vent Shaft A								
Vent Shaft A								
Foundation								
01109.PDC27310	Vent Shaft A- Trial Pits	0%	26-Feb-13	11-Mar-13				
01109.PDC27290	Vent Shaft A - Founding Level pre-drill & verify founding levels	0%	13-Mar-13	26-Mar-13				
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION								
Procurement of Specialised Construction Machinery								
Procurement of Specialised Construction Machinery								
Off-site								
01109.PDD1040	TBM Down track SUW to HOM - TBM Manufacture	16%	09-Jan-13 A	04-Nov-13				
01109.PDD1030	STP (Manufacture)	16%	09-Jan-13 A	04-Nov-13				



Annex C

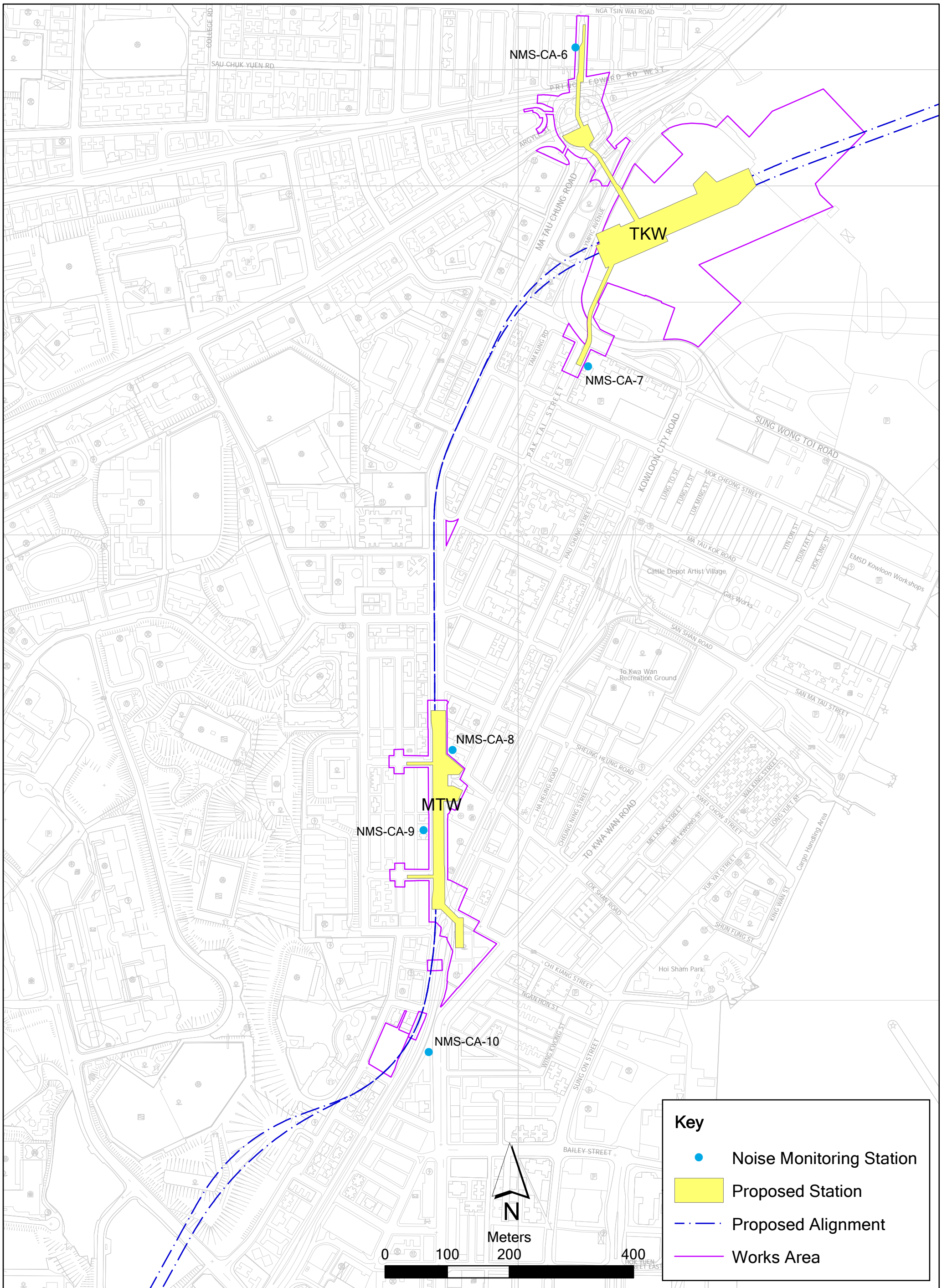
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



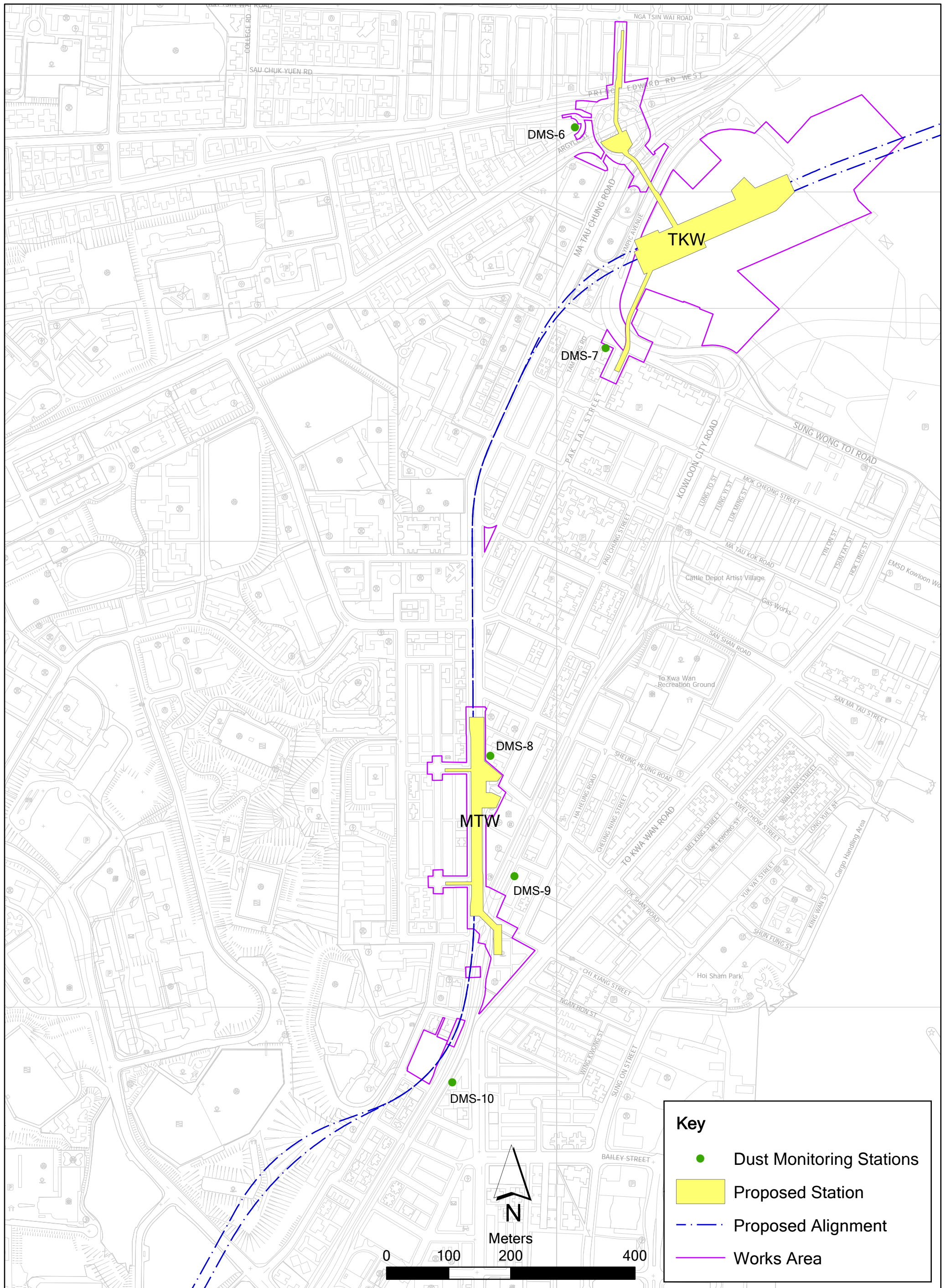
Annex D

Locations of Noise and Dust Monitoring Stations



Annex D1

Location of Regular Construction Noise Monitoring Stations



Key

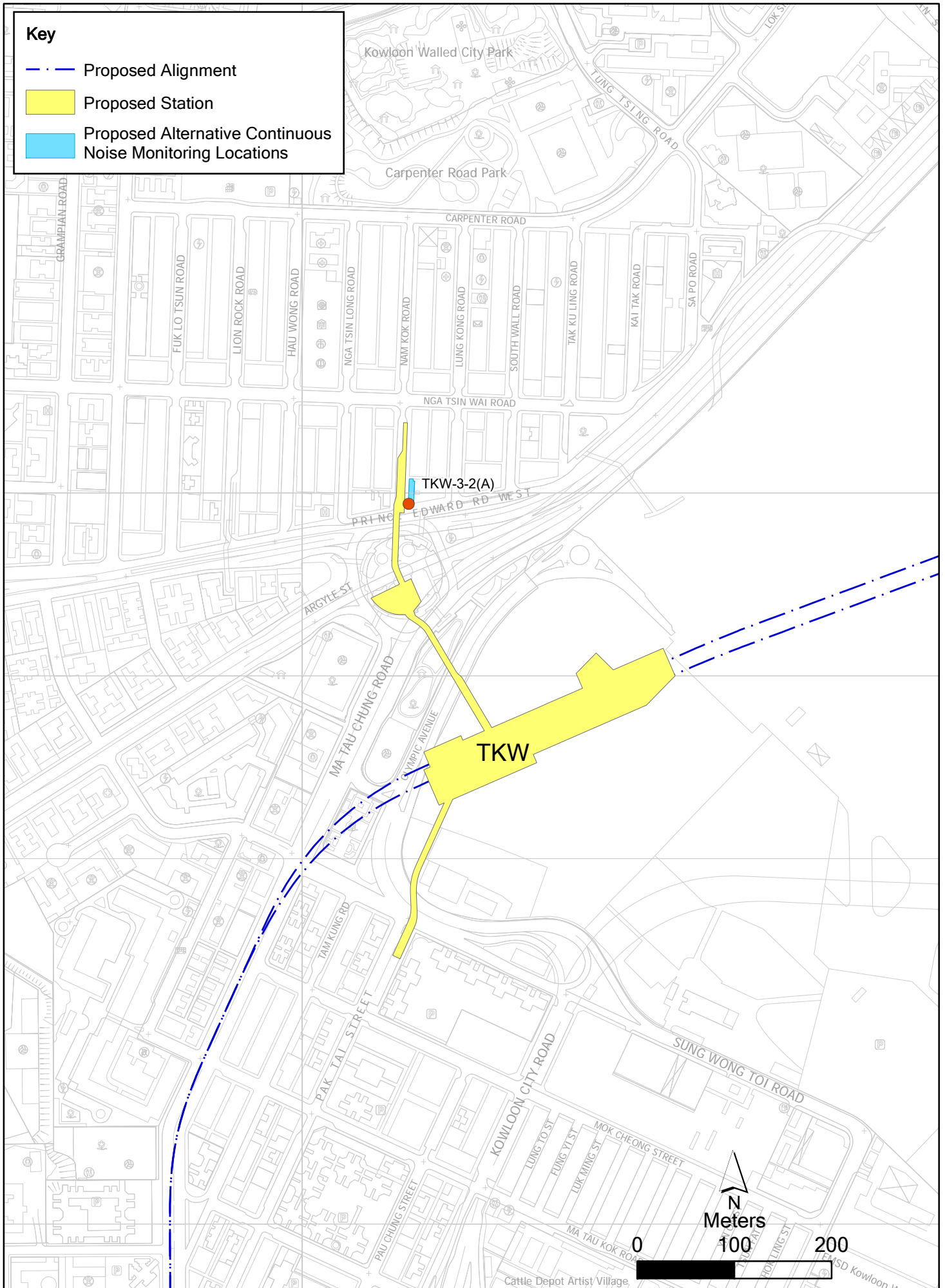
- Dust Monitoring Stations
- Proposed Station
- .-.- Proposed Alignment
- Works Area

Key

— · — Proposed Alignment

■ Proposed Station

■ Proposed Alternative Continuous Noise Monitoring Locations



Annex D3

Proposed Continuous Noise Monitoring Locations

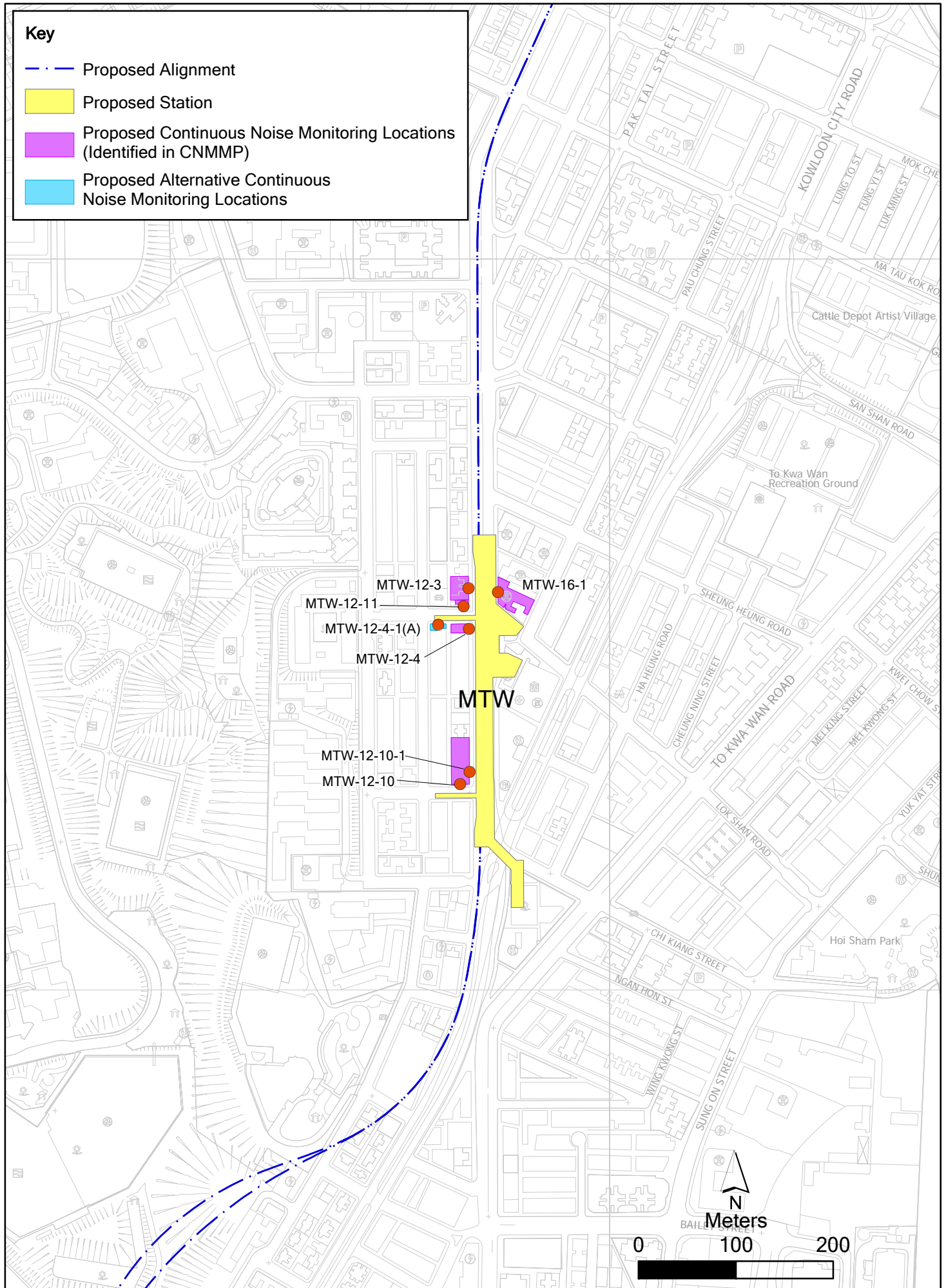
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Noise_Monitoring_Locations_TKW.mxd
Date: 10-Oct-12

**Environmental
Resources
Management**



Key

- Proposed Alignment
- Proposed Station
- Proposed Continuous Noise Monitoring Locations (Identified in CNMMP)
- Proposed Alternative Continuous Noise Monitoring Locations



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 : Feb 2013**

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

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

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

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

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr TSP</i>		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-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. - 1378)	21 September 2012	21 March 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-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-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. - 1378)	7 September 2012	7 March 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 Sound Level Meter	Rion NC-73 (S/N 10997142) Rion NL-18 (S/N 00360030)	9 July 2012 13 June 2012	9 July 2013 13 June 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 Office 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 Office 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 Office 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 Office 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 Office 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 ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, 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 - Feb 22, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1378 Pa (mm) - 740.41

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	1.3940	3.2	2.00
2	NA	NA	1.00	0.9740	6.4	4.00
3	NA	NA	1.00	0.8720	8.0	5.00
4	NA	NA	1.00	0.8340	8.8	5.50
5	NA	NA	1.00	0.6870	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9799	0.7029	1.4029	0.9957	0.7142	0.8927
0.9756	1.0017	1.9841	0.9914	1.0178	1.2624
0.9734	1.1163	2.2183	0.9891	1.1343	1.4114
0.9724	1.1660	2.3265	0.9881	1.1848	1.4803
0.9671	1.4077	2.8059	0.9827	1.4304	1.7853
Qstd slope (m) = 1.99405			Qa slope (m) = 1.24864		
intercept (b) = -0.00397			intercept (b) = -0.00252		
coefficient (r) = 0.99984			coefficient (r) = 0.99984		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Certificate of Calibration

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 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 : 15 June 2012
簽發日期

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

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Certificate of Calibration

校正證書

Certificate No. : C123522
證書編號

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

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	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

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

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Certificate of Calibration

校正證書

Certificate No. : 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)

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

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Certificate of Calibration

校正證書

Certificate No. : C123522
證書編號

6.4 Time Averaging

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

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

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Certificate of Calibration

校正證書

Certificate No. : 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 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 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 : L K Yeung

Certified By : 
核證 : K C Lee

Date of Issue : 10 July 2012
簽發日期

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

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Certificate of Calibration

校正證書

Certificate No. : C124011
證書編號

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

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 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.

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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notifications of exceedance in writing; 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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) 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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
- △ 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	<u>Submit an Archaeological Action Plan</u> Conduct survey-cum-excavation and additional boreholes/trenches investigation at the Sacred Hill (North) Study Area prior to construction.	Salvage cultural remains at the Sacred Hill (North) Study Area	Contractor	Sacred Hill (North) Area	Prior to the Construction Phase of TKW and associated tunnels	✓
Ecology (Construction Phase)							
S5.7	E5	<u>Good Site Practices</u> Impact on any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.	Minimise ecological impacts	Contractor	All construction sites	Construction Stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • 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	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • 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.					
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> 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. 					
		<p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees including trees in contractor’s works sites should be recorded and photographed at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S6.12	LV2	<p>trees in Contractor's works sites.</p> <p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> 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. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> 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). <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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
		<p>sheeting to ensure that the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> • 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
		<p>a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface</p> <ul style="list-style-type: none"> • 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; 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		and <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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
		<p>periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> • 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	N/A
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> <ul style="list-style-type: none"> 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
		<p>facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p> <ul style="list-style-type: none"> • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s, a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction. • 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 					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>coarse stone ballast. An additional advantage from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • 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 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed 					

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>silty water to public roads and drains.</p> <ul style="list-style-type: none"> 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	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> 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
		<p>of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> • 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	<p><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.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area in case contamination is found:</u></p> <ul style="list-style-type: none"> • No direct discharge of groundwater from 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> 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	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> 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> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored in the designated stockpile areas avoiding delivering them to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from 	Separation of unsuitable rock from ending up at Concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<p><u>Construction and Demolition (C&D) Material</u></p> <ul style="list-style-type: none"> • 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
		<ul style="list-style-type: none"> 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	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. 	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

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

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
08-Feb-13	11:20	11:50	Cloudy	64.2	76.0	-(b)	-	Traffic noise	16.0	0.8	NL-18 00360030	NC-73 10997142
14-Feb-13	11:18	11:48	Cloudy	63.3	76.0	-(b)	-	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
20-Feb-13	11:20	11:50	Cloudy	64.0	76.0	-(b)	-	Traffic noise	17.0	0.5	NL-18 00360030	NC-73 10997142
26-Feb-13	11:20	11:50	Cloudy	64.6	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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
08-Feb-13	10:25	10:55	Cloudy	68.0	70.0	-(b)	-	Traffic noise	16.0	1.5	NL-18 00360030	NC-73 10997142
14-Feb-13	10:25	10:55	Cloudy	68.1	70.0	-(b)	-	Traffic noise	18.0	0.9	NL-18 00360030	NC-73 10997142
20-Feb-13	10:28	10:58	Cloudy	67.2	70.0	-(b)	-	Traffic noise	17.0	0.5	NL-18 00360030	NC-73 10997142
26-Feb-13	10:25	10:55	Cloudy	68.1	70.0	-(b)	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min) ^(c)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
08-Feb-13	9:32	10:02	Cloudy	73.4	75.0	-(b)	Crane Operation	Traffic noise	16.0	0.8	NL-31 00603867	NC-73 10786708
14-Feb-13	9:33	10:03	Sunny	76.3	75.0	70.4	-	Traffic noise	18.0	0.5	NL-31 00603867	NC-73 10786708
20-Feb-13	9:31	10:01	Cloudy	74.1	75.0	-(b)	Backhole, Hand Held Breaker	Traffic noise	17.0	0.5	NL-31 00603867	NC-73 10786708
26-Feb-13	8:40	9:10	Cloudy	74.5	75.0	-(b)	Crane Operation	Traffic noise	20.0	0.5	NL-31 00603867	NC-73 10786708

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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
08-Feb-13	8:00	8:30	Cloudy	69.7	69.0	61.4	Crane Operation	Traffic noise	16.0	1.5	NL-18 00360030	NC-73 10997142
14-Feb-13	8:00	8:30	Cloudy	72.2	69.0	69.4	Breaker and Crane Operation	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
20-Feb-13	8:01	8:31	Cloudy	71.5	69.0	67.9	Breaker and Crane Operation	Traffic noise	17.0	0.8	NL-18 00360030	NC-73 10997142
26-Feb-13	8:02	8:32	Cloudy	71.8	69.0	68.6	-	Traffic noise	20.0	0.5	NL-18 00360030	NC-73 10997142

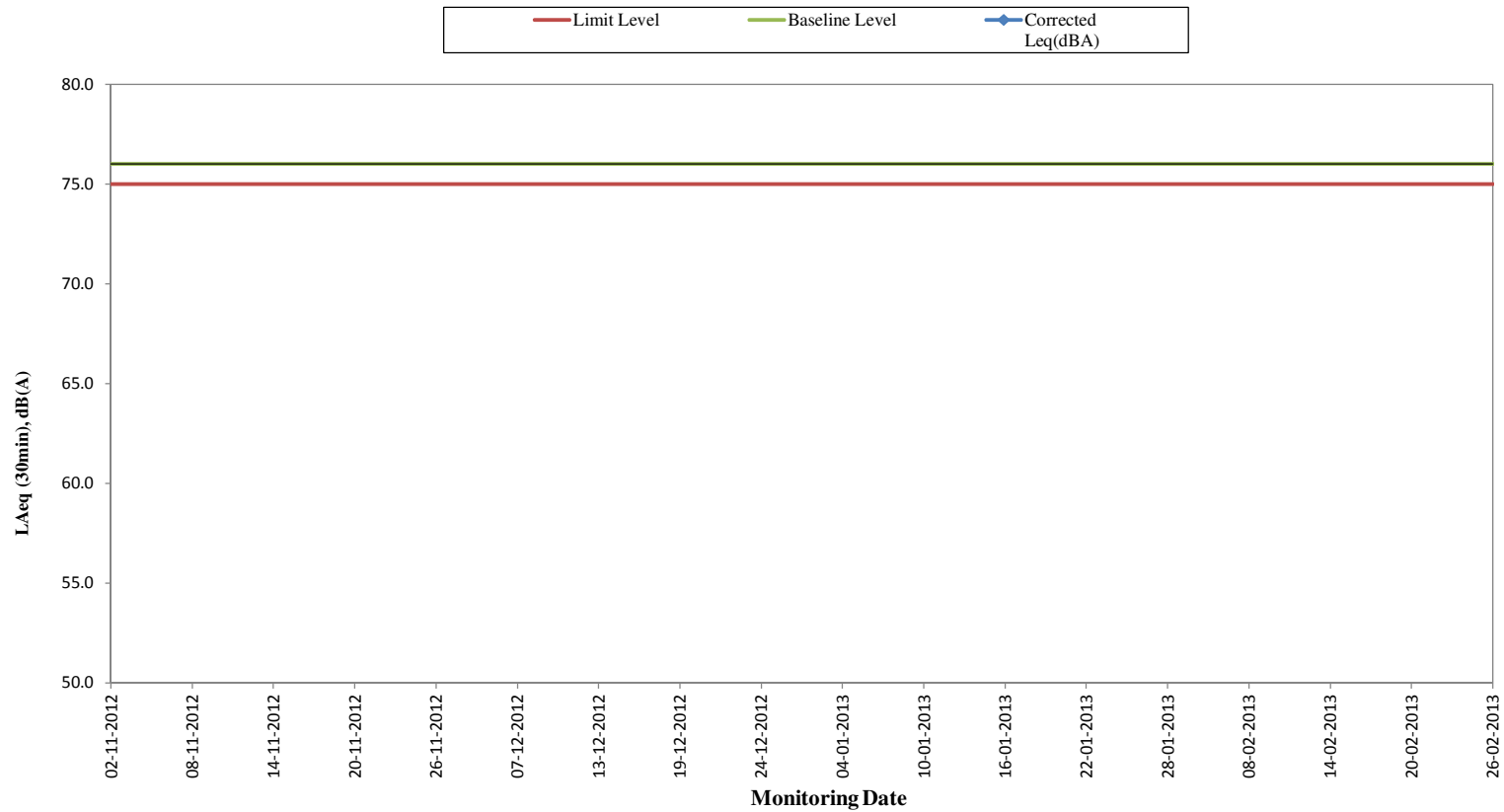
Station NMS-CA-10 Chat Ma Mansion

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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
08-Feb-13	8:42	9:12	Cloudy	76.4	77.0	-(b)	Crane operation	Traffic noise	18.0	1.2	NL-18 00360030	NC-73 10997142
14-Feb-13	8:37	9:07	Cloudy	76.7	77.0	-(b)	Crane operation and backhole	Traffic noise	18.0	0.5	NL-18 00360030	NC-73 10997142
20-Feb-13	9:34	10:04	Cloudy	77.0	77.0	-(b)	Crane operation and backhole	Traffic noise	17.0	0.5	NL-18 00360030	NC-73 10997142
26-Feb-13	9:32	10:02	Cloudy	77.1	77.0	60.7	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 08, 14, 20 and 25 February 2013 at both NMS-CA-8 and 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.

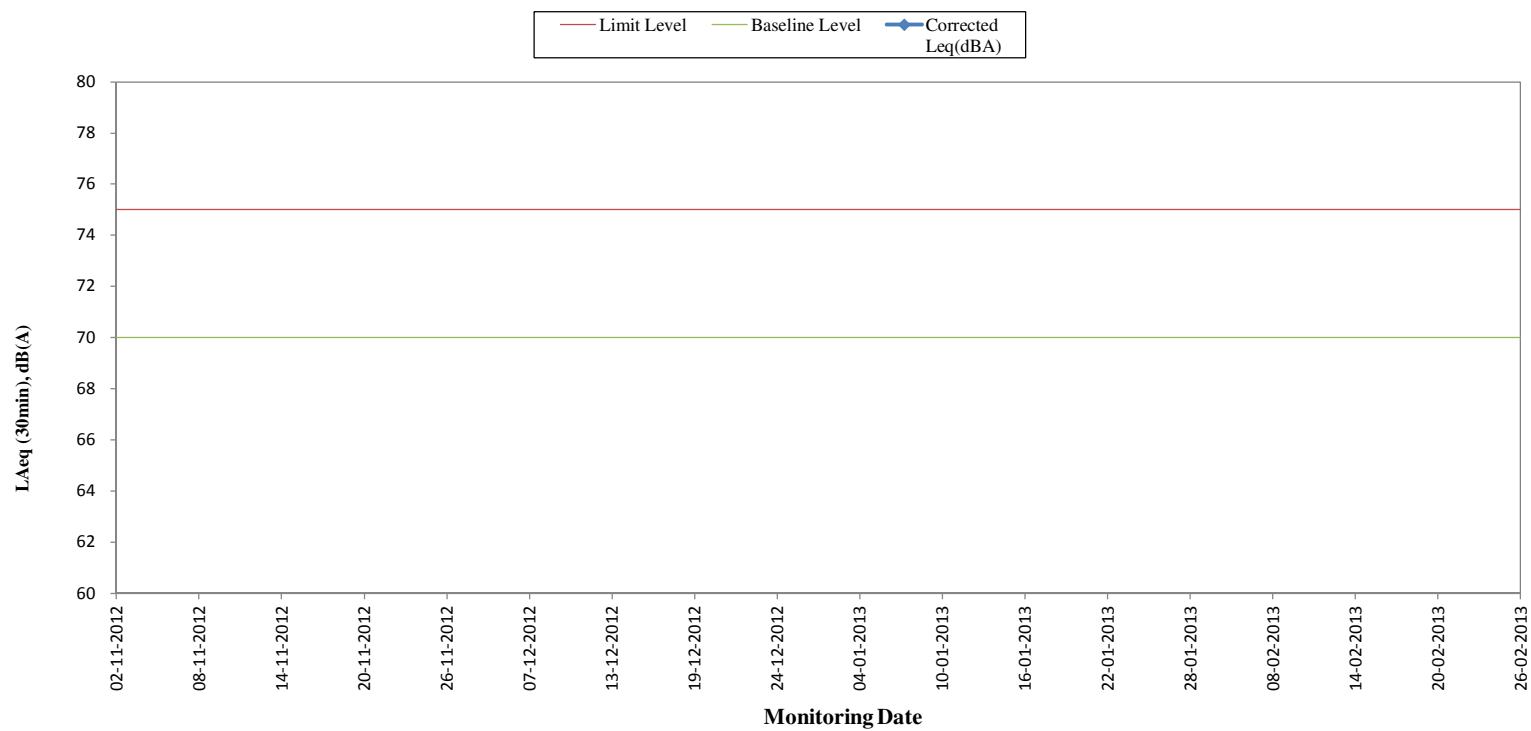
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

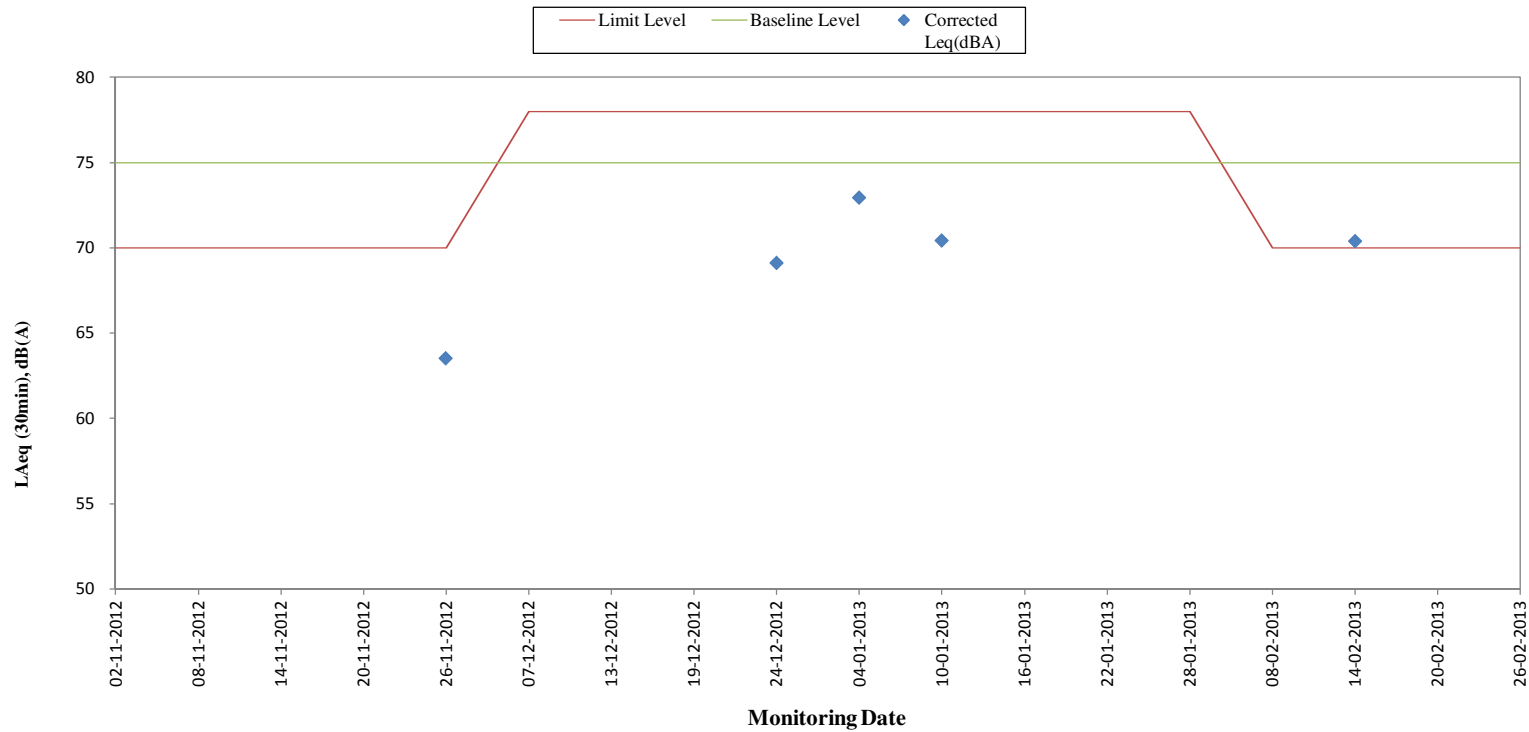
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

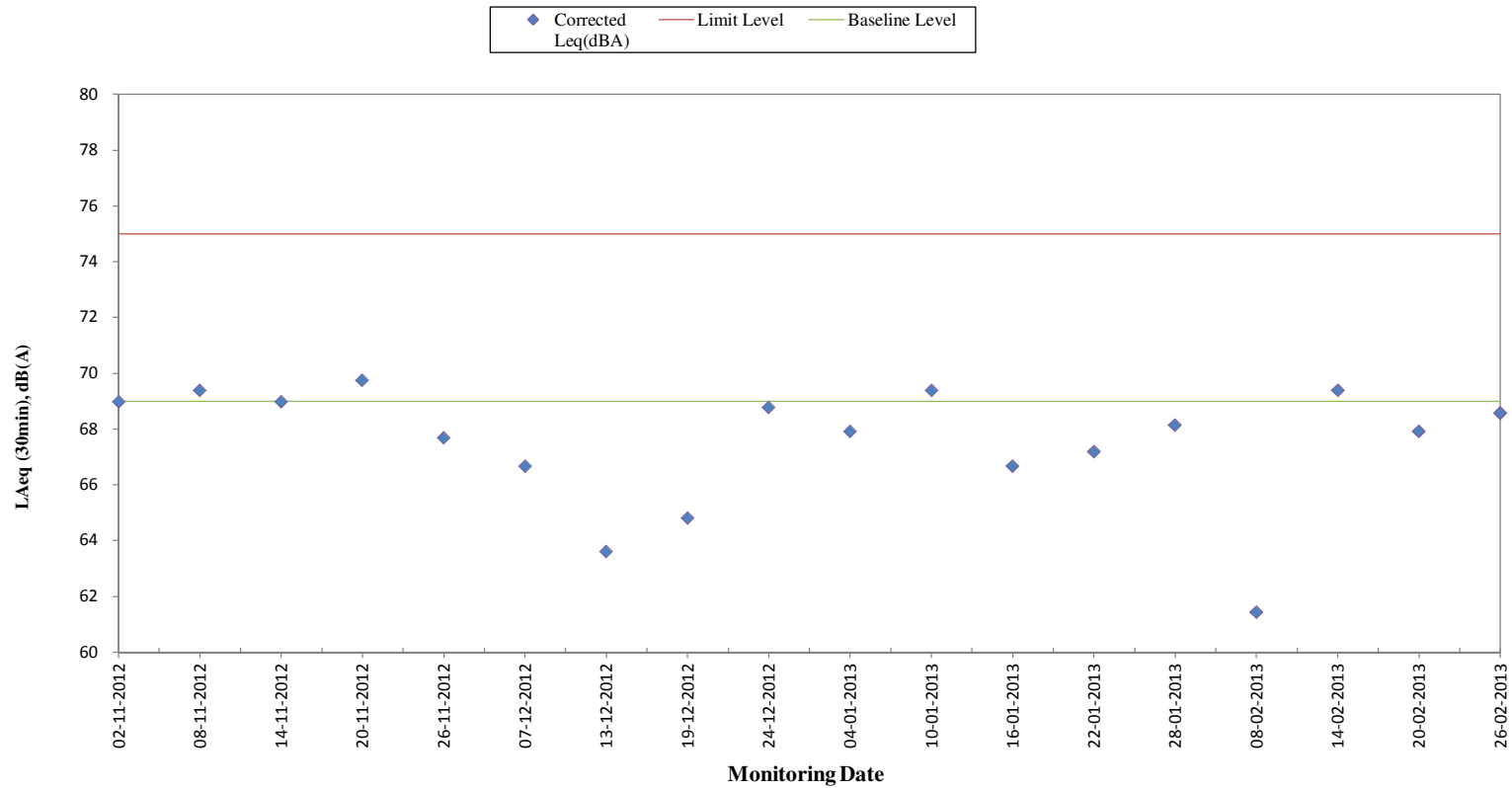
**Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School)
(LAeq, 30min) for the Past 4 Months**



Remarks:

- The limit level is 65dB(A) during examination period (22th October 2012).
- 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.

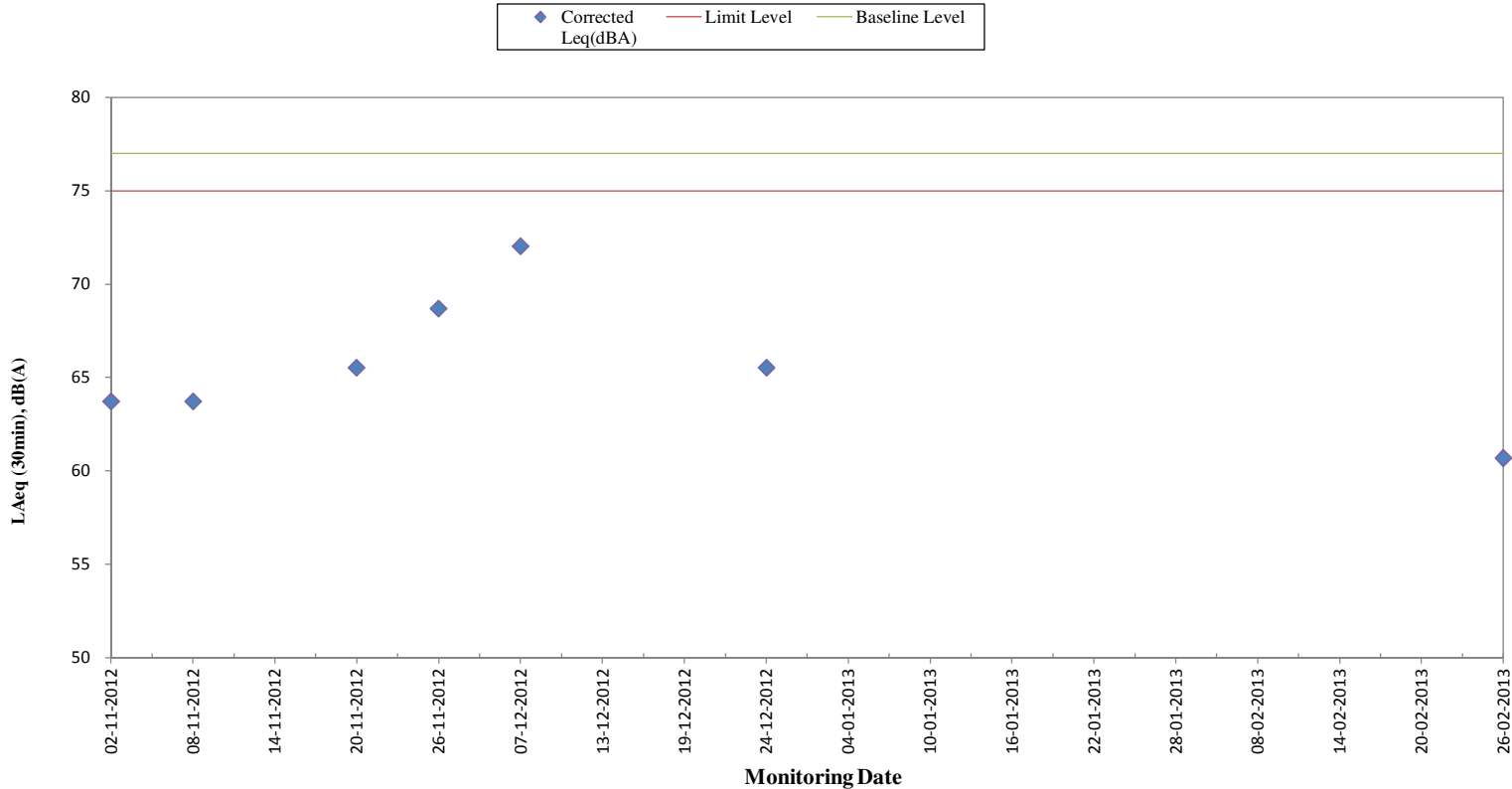
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (L_{Aeq}, 30min) for the Past 4 Months



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 Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
02-Feb-13	9:15	03-Feb-13	9:15	Sunny	2.8001	2.9741	10736.38	10760.38	24.00	1.26	1.26	1.26	96	156.8	260	Construction work in progress	0107	6343
08-Feb-13	11:08	09-Feb-13	11:08	Cloudy	2.8275	2.9669	10760.38	10784.38	24.00	1.26	1.26	1.26	77	156.8	260	Construction work in progress	0107	6721
14-Feb-13	11:08	15-Feb-13	11:08	Cloudy	2.8156	2.9550	10784.38	10808.38	24.00	1.26	1.26	1.26	77	156.8	260	Construction work in progress	0107	6726
20-Feb-13	11:10	21-Feb-13	11:10	Cloudy	2.8223	3.0055	10808.38	10832.38	24.00	1.26	1.26	1.26	101	166.7	260	Construction work in progress	3574	6765
26-Feb-13	11:07	27-Feb-13	11:07	Cloudy	2.8115	2.9800	10832.30	10856.30	24.00	1.26	1.26	1.26	93	166.7	260	Construction work in progress	3574	6458
													Minimum	77				
													Average	89				
													Maximum	101				

Station DMS-7 Parc 22

Start Date	Time	Finish Date	Time	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
					Initial	Final	Initial	Final		Initial	Final							
02-Feb-13	9:05	03-Feb-13	9:05	Sunny	2.8191	2.9959	00889.17	00913.17	24.00	1.20	1.20	1.20	102	166.7	260	Construction work in progress	3574	6342
08-Feb-13	10:17	09-Feb-13	10:17	Cloudy	2.8109	2.9444	00913.17	00937.17	24.00	1.20	1.20	1.20	77	166.7	260	Construction work in progress	3574	6720
14-Feb-13	10:17	15-Feb-13	10:17	Cloudy	2.8229	2.9516	00937.17	00961.17	24.00	1.20	1.20	1.20	74	166.7	260	Construction work in progress	3574	6725
20-Feb-13	10:20	21-Feb-13	10:20	Cloudy	2.8066	2.9906	00961.17	00985.17	24.00	1.20	1.20	1.20	106	166.7	260	Construction work in progress	3574	6764
26-Feb-13	10:17	27-Feb-13	10:17	Cloudy	2.8098	2.9694	00985.17	01009.17	24.00	1.20	1.20	1.20	92	166.7	260	Construction work in progress	3574	6457
													Minimum	74				
													Average	91				
													Maximum	106				

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
02-Feb-13	8:52	03-Feb-13	8:52	Sunny	2.8159	3.0071	00883.11	00907.11	24.00	1.24	1.24	1.24	107	152.2	260	Construction work in progress	3572	6341
08-Feb-13	8:02	09-Feb-13	8:02	Cloudy	2.8243	2.9566	00907.11	00931.11	24.00	1.24	1.24	1.24	74	152.2	260	Construction work in progress	3572	6719
14-Feb-13	9:35	15-Feb-13	9:35	Cloudy	2.8179	2.9595	00931.11	00955.11	24.00	1.24	1.24	1.24	79	152.2	260	Construction work in progress	3572	6724
20-Feb-13	8:42	21-Feb-13	8:42	Cloudy	2.7977	2.9911	00955.11	00979.11	24.00	1.24	1.24	1.24	108	152.2	260	Construction work in progress	3572	6763
26-Feb-13	8:43	27-Feb-13	8:43	Cloudy	2.8175	2.9761	00979.11	01003.11	24.00	1.24	1.24	1.24	89	152.2	260	Construction work in progress	3572	6456
													Minimum	74				
													Average	92				
													Maximum	108				

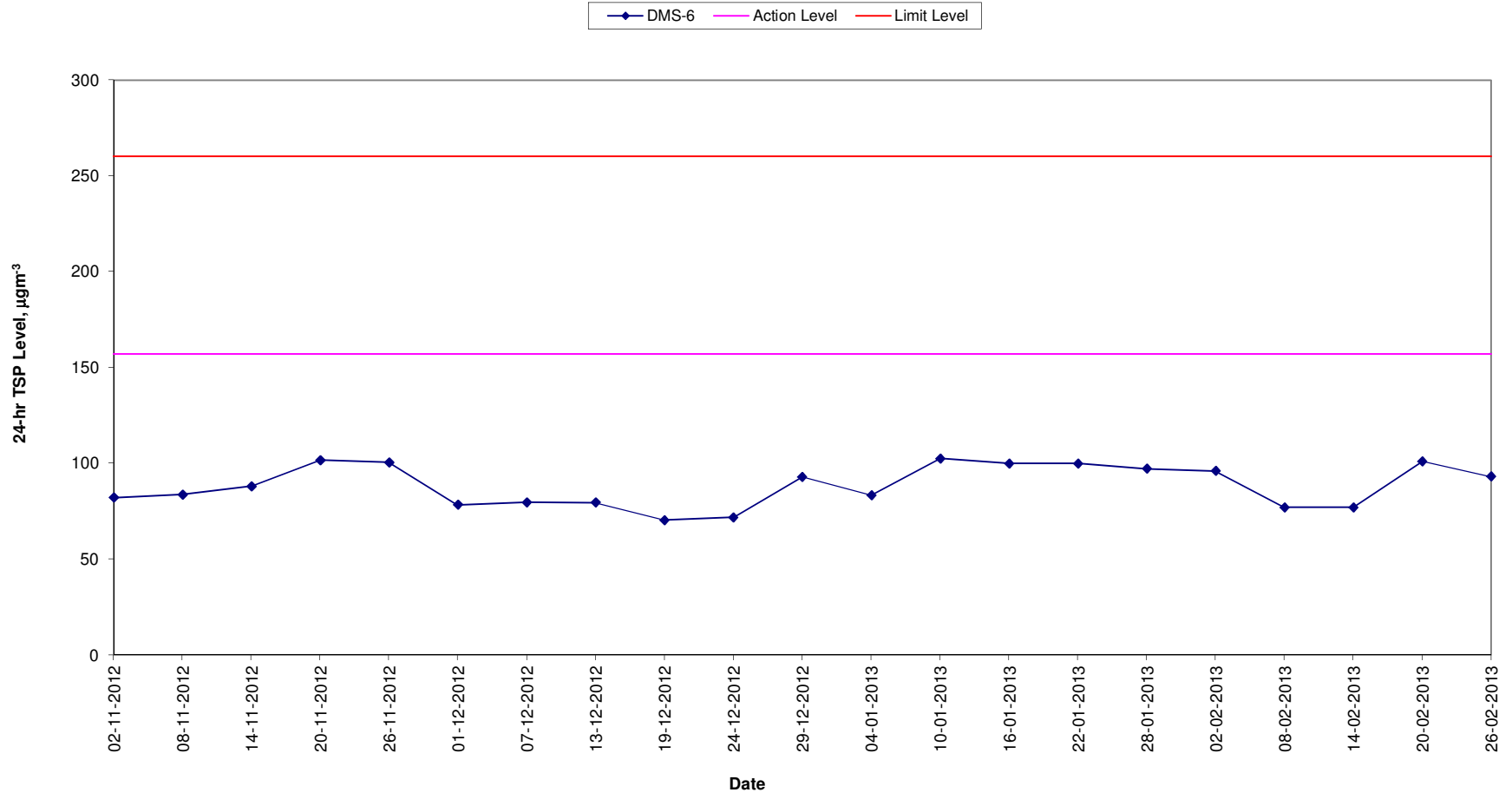
Station DMS-9 No. 26 Kowloon City Road

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
02-Feb-13	8:14	03-Feb-13	8:14	Sunny	2.8071	2.9956	11601.40	11625.40	24.00	1.23	1.23	1.23	106	160.9	260	Construction work in progress	0814	6340
08-Feb-13	10:02	09-Feb-13	10:02	Cloudy	2.8175	2.9601	11625.40	11649.40	24.00	1.23	1.23	1.23	81	160.9	260	Construction work in progress	0814	6718
14-Feb-13	9:24	15-Feb-13	9:24	Cloudy	2.8067	2.9500	11649.40	11673.40	24.00	1.23	1.23	1.23	81	160.9	260	Construction work in progress	0814	6723
20-Feb-13	9:22	21-Feb-13	9:22	Cloudy	2.7924	2.9779	11673.40	11697.40	24.00	1.23	1.23	1.23	105	160.9	260	Construction work in progress	0814	6762
26-Feb-13	9:20	27-Feb-13	9:20	Cloudy	2.8235	2.9771	11697.40	11721.40	24.00	1.23	1.23	1.23	87	160.9	260	Construction work in progress	0814	6455
													Minimum	81				
													Average	92				
													Maximum	106				

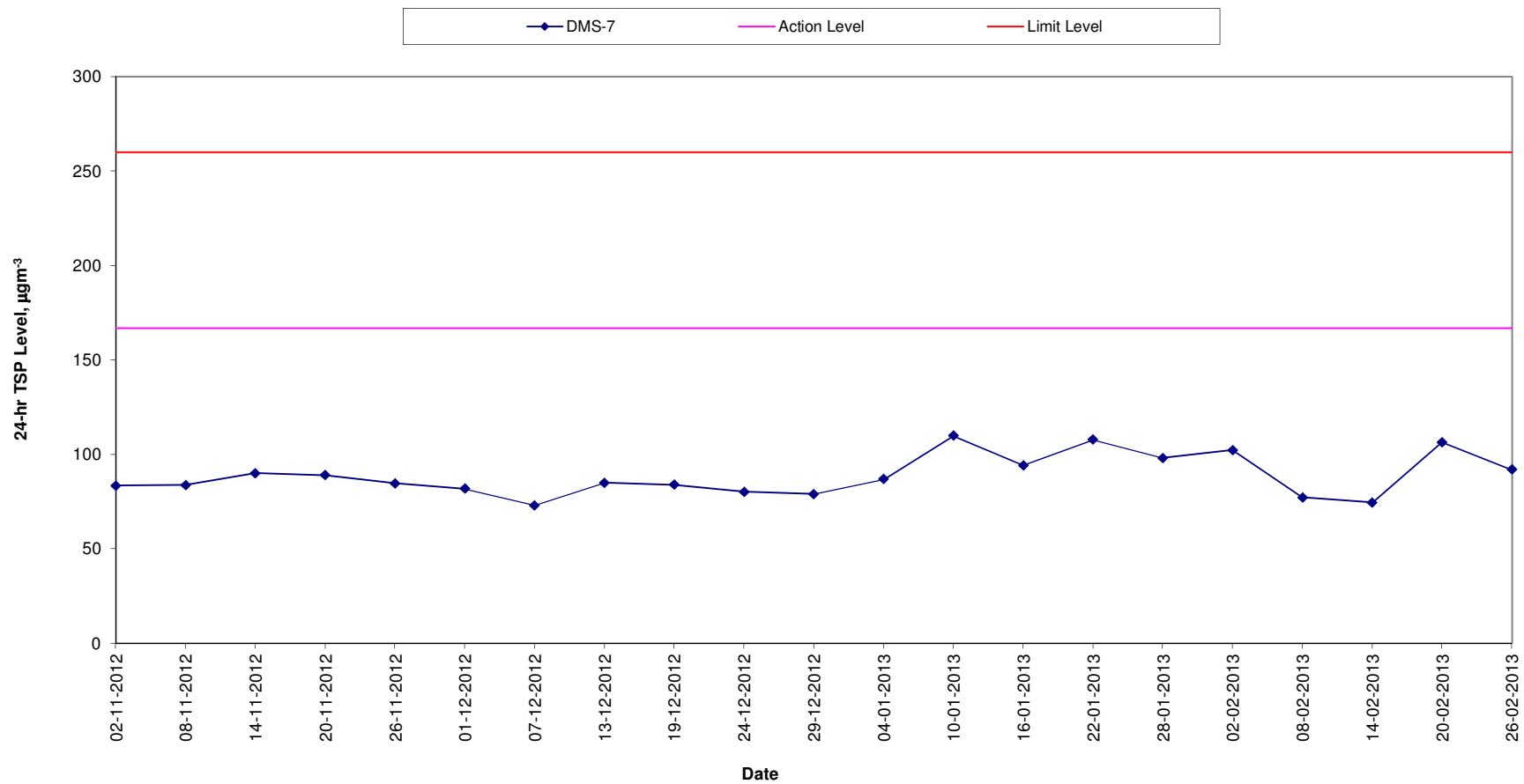
Station DMS-10 Chat Ma Mansion

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
02-Feb-13	8:30	03-Feb-13	8:30	Sunny	2.8088	2.9821	00877.20	00901.20	24.00	1.22	1.22	1.22	99	170.4	260	Construction work in progress	3573	6339
08-Feb-13	9:24	09-Feb-13	9:24	Cloudy	2.8043	2.9456	00901.20	00925.20	24.00	1.22	1.22	1.22	80	170.4	260	Construction work in progress	3573	6717
14-Feb-13	9:15	15-Feb-13	9:15	Cloudy	2.8049	2.9364	00925.20	00949.20	24.00	1.22	1.22	1.22	75	170.4	260	Construction work in progress	3573	6722
20-Feb-13	9:37	21-Feb-13	9:37	Cloudy	2.8097	2.9892	00949.20	00973.20	24.00	1.22	1.22	1.22	102	166.7	260	Construction work in progress	3574	6761
26-Feb-13	9:35	27-Feb-13	8:03	Cloudy	2.8175	2.9614	00973.20	00997.20	24.00	1.22	1.22	1.22	82	170.4	260	Construction work in progress	3573	6454
													Minimum	75				
													Average	88				
													Maximum	102				

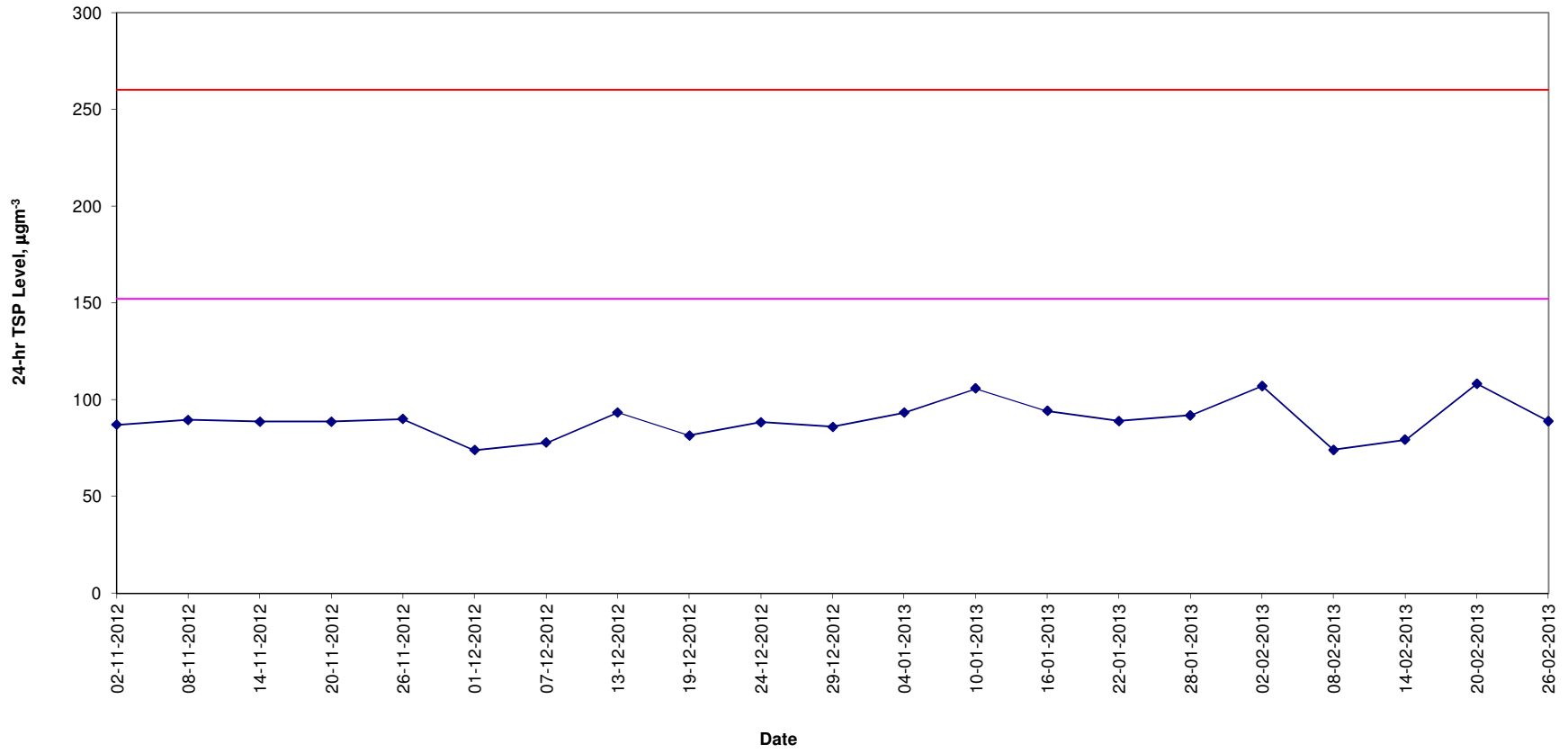
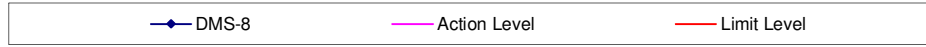
**Construction Dust Monitoring Results for the Past 4 Months
DMS-6 (Katherine Building)**



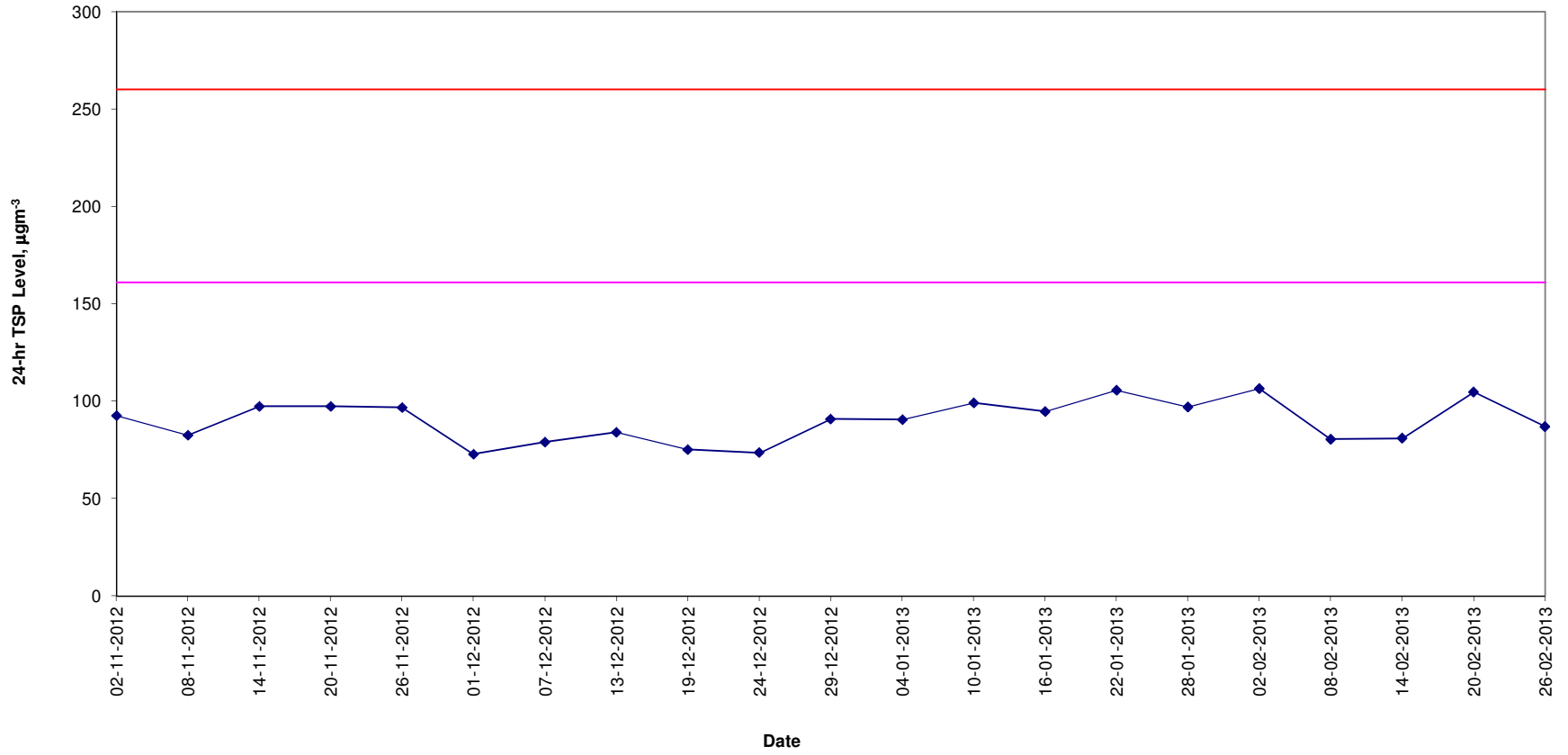
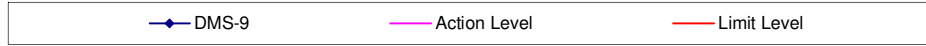
Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)



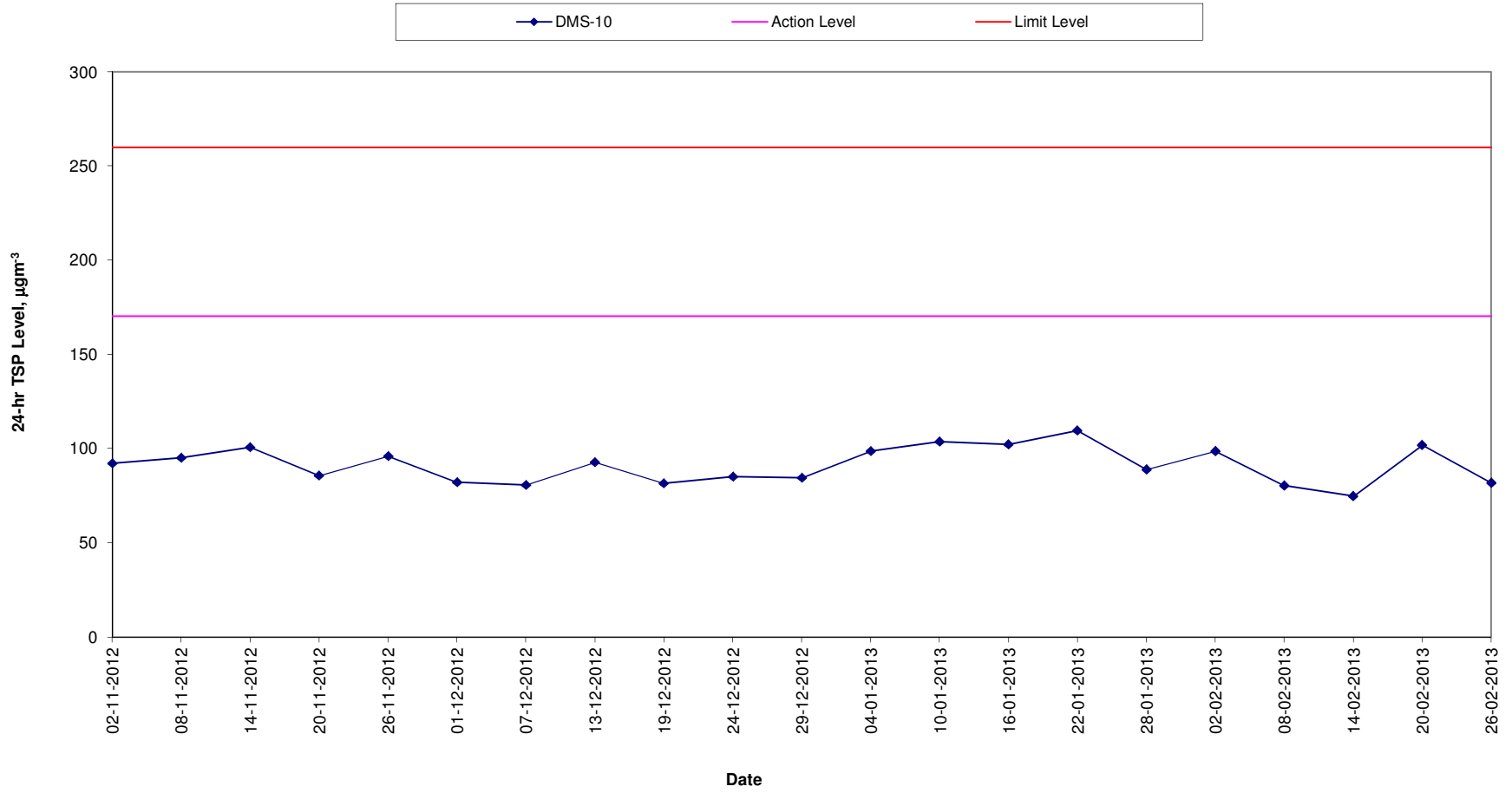
**Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)**



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

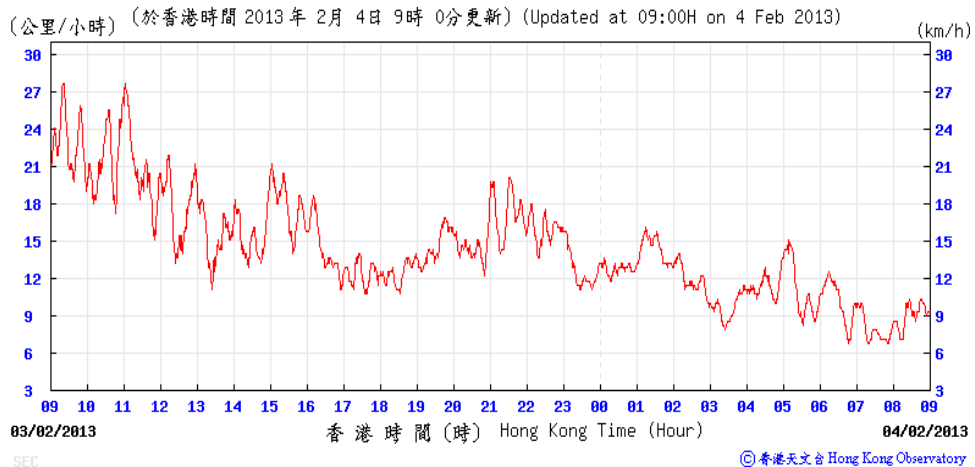
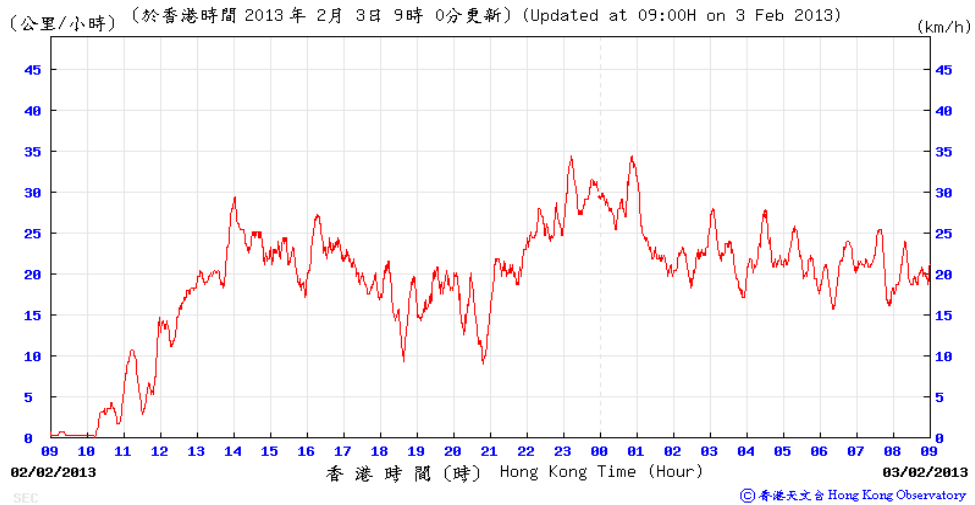
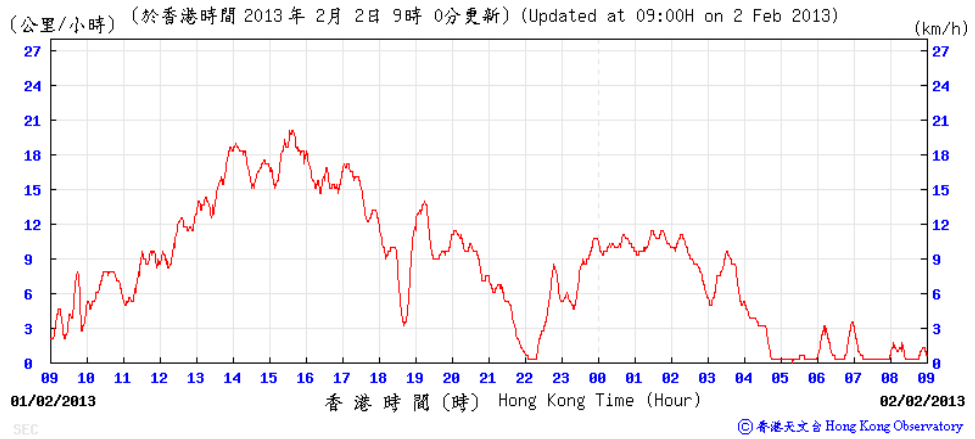


**Construction Dust Monitoring Results for the Past 4 Months
DMS-10 (Chat Ma Mansion)**

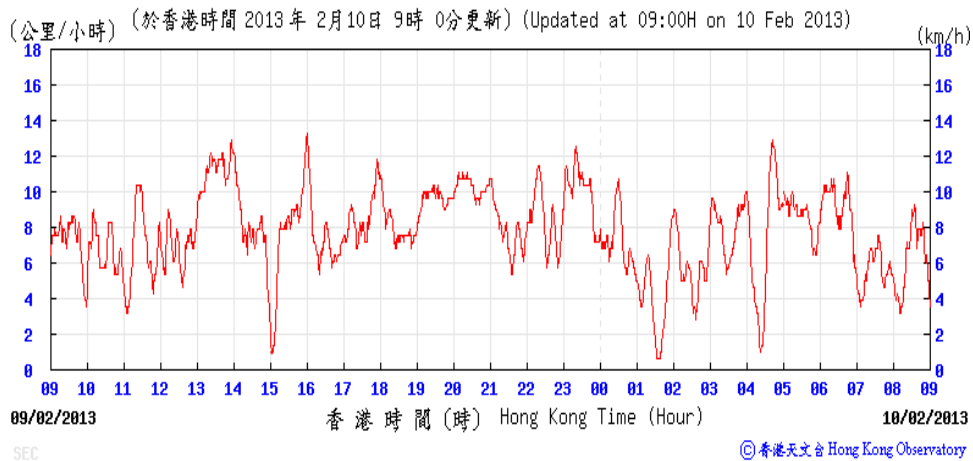
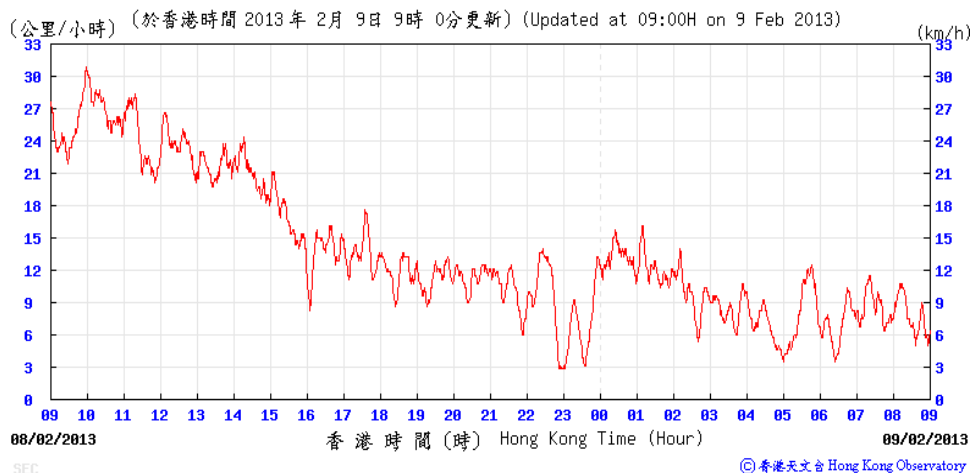
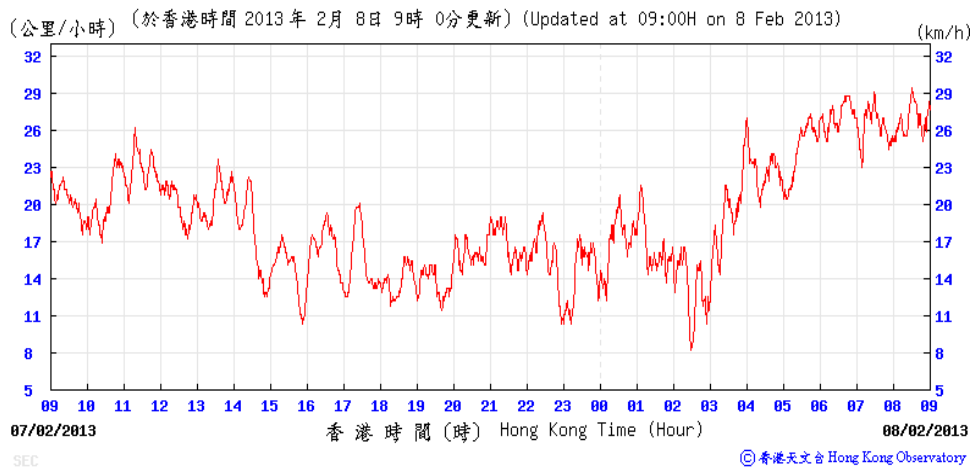


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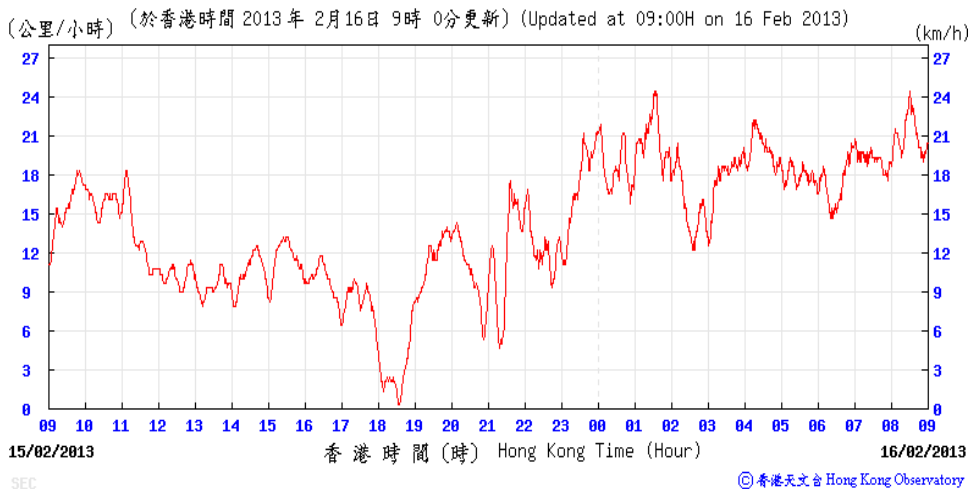
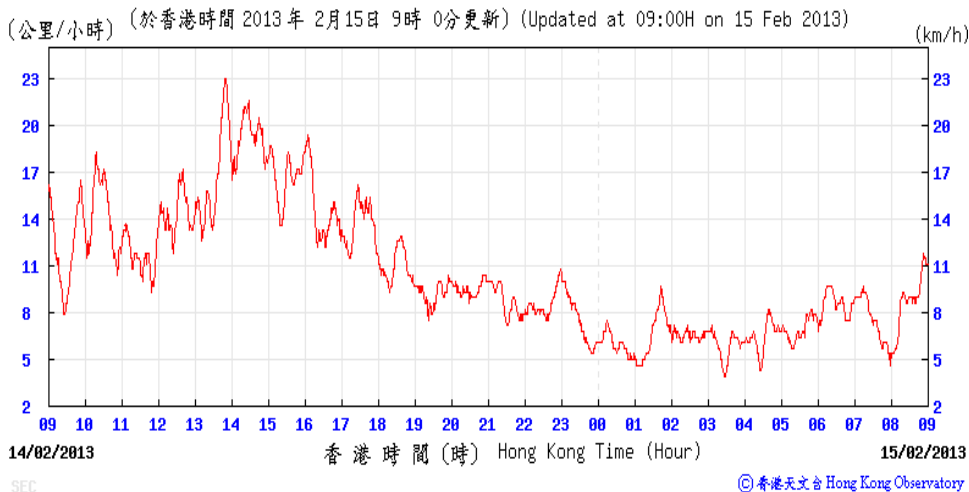
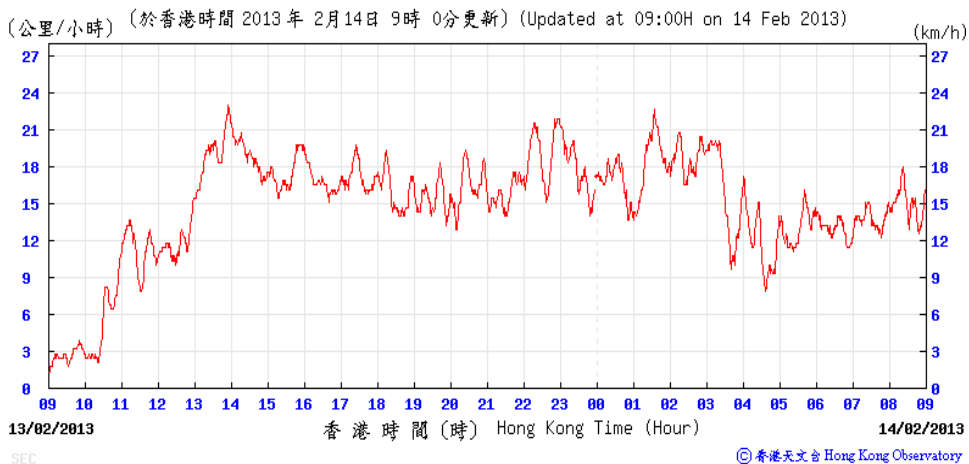
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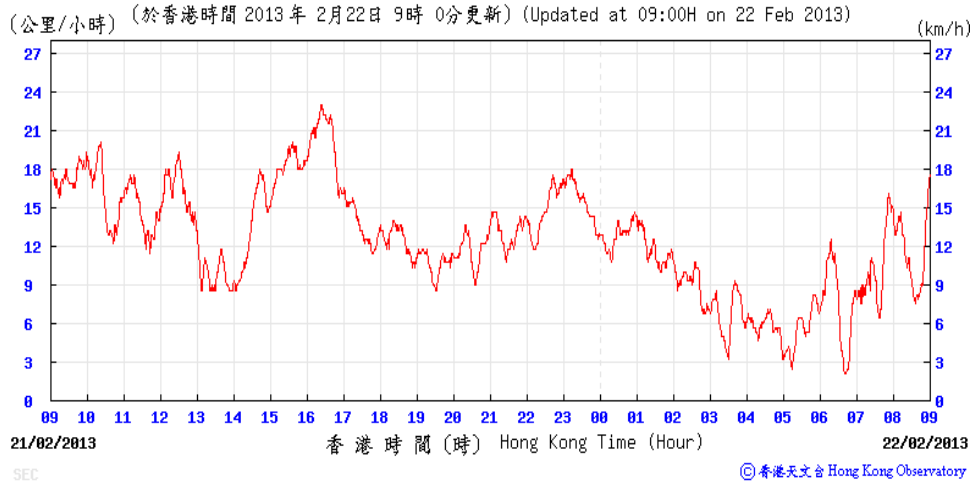
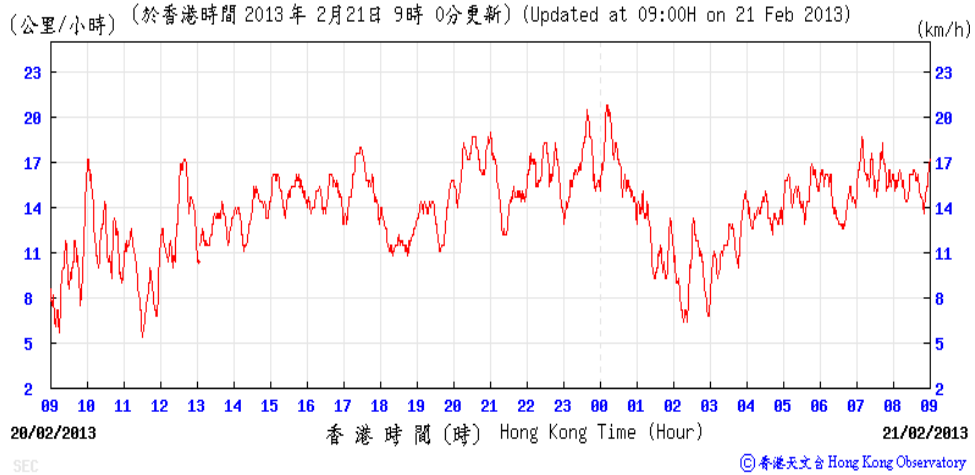
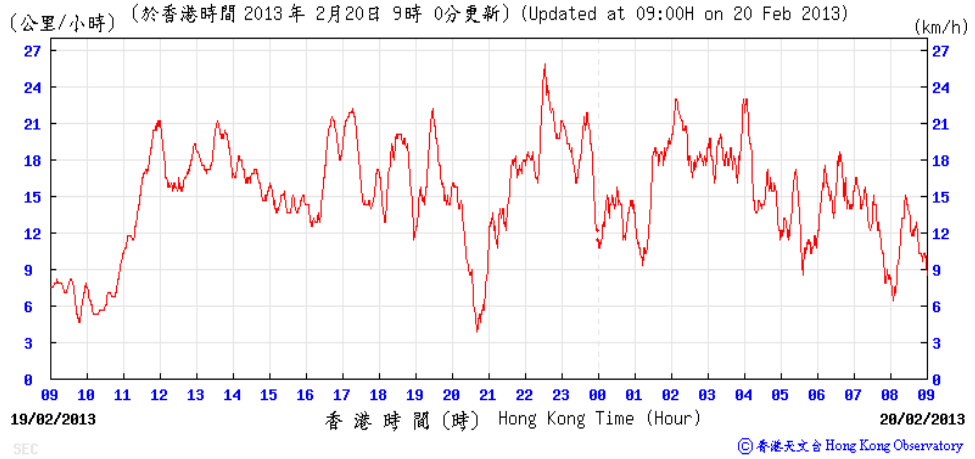
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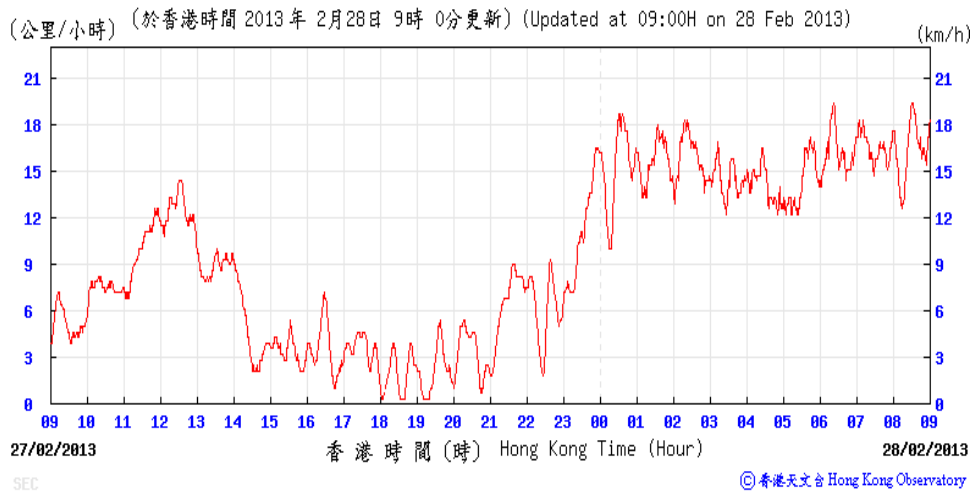
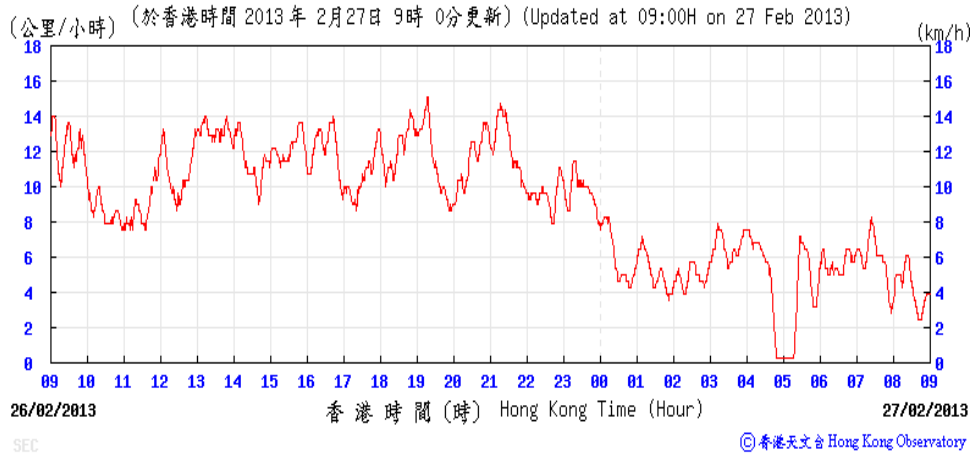
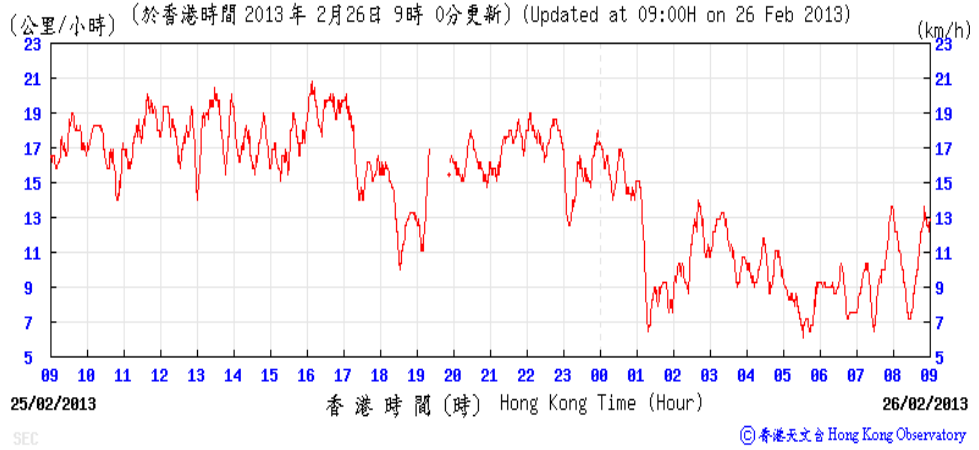
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20 - 21 February 2013

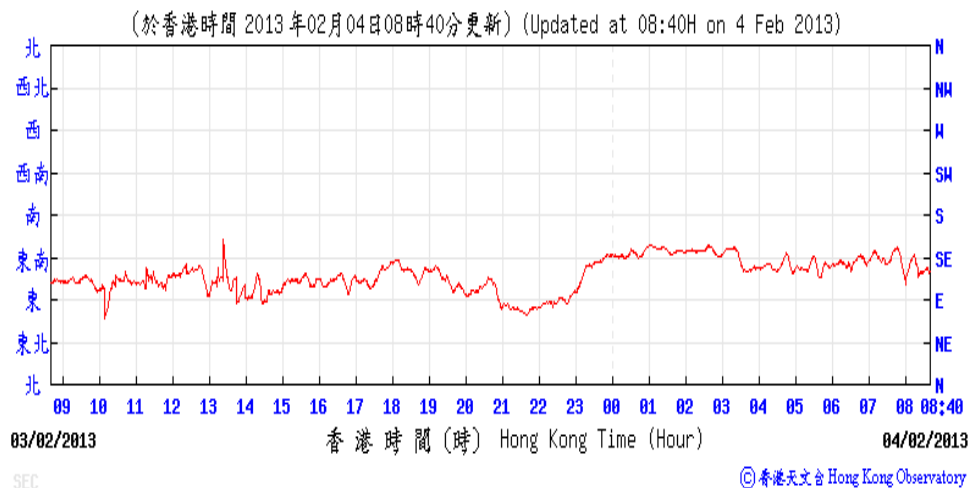
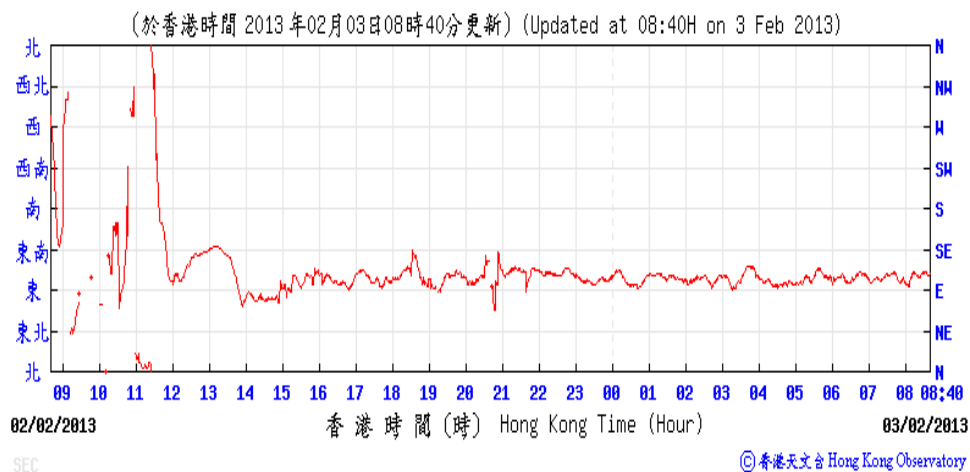
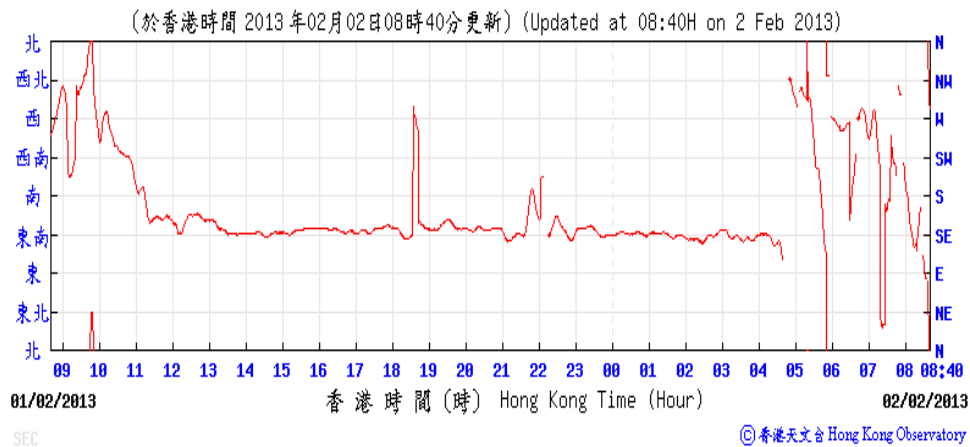


26 - 27 February 2013

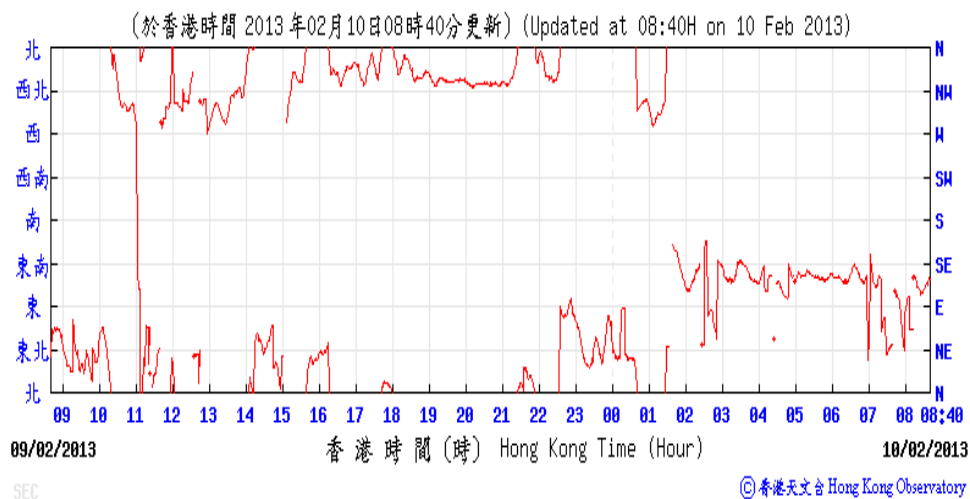
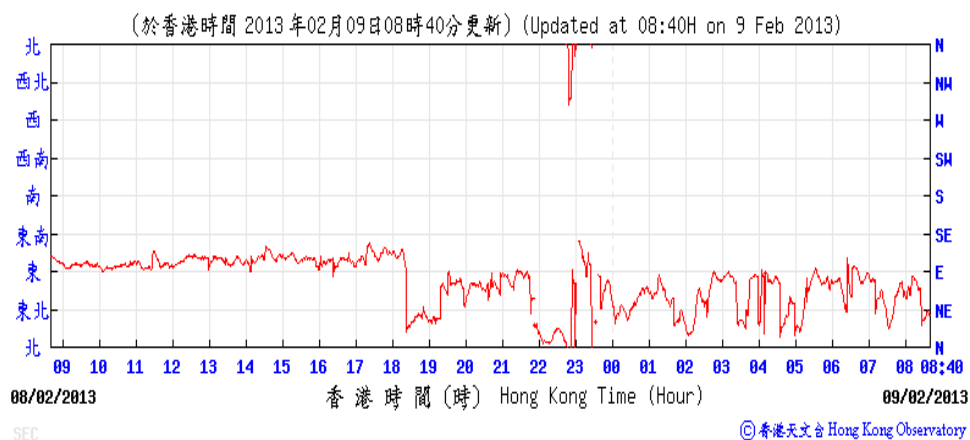
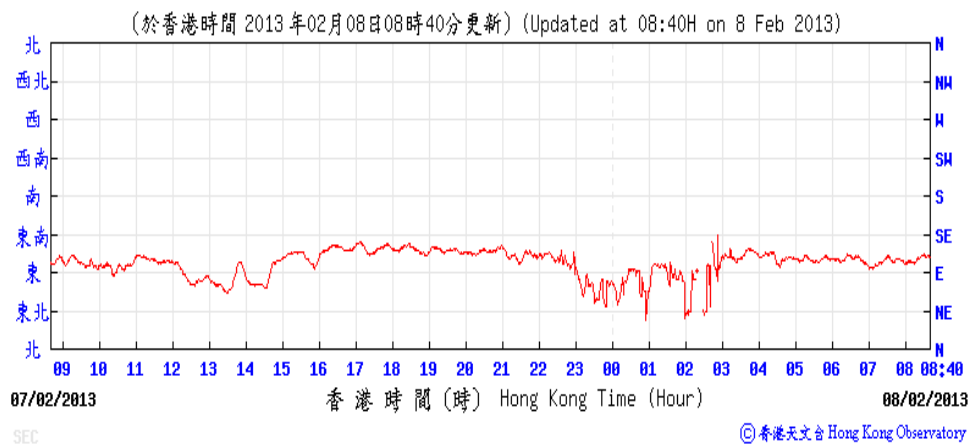


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

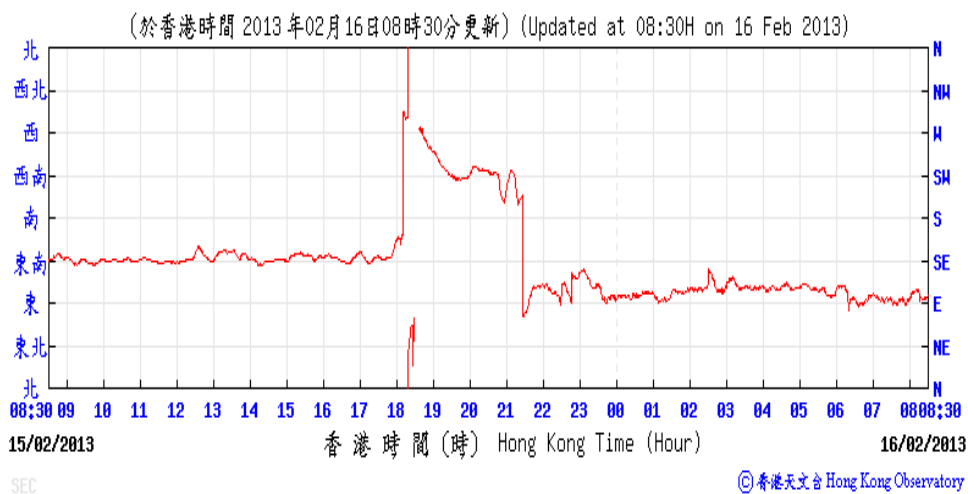
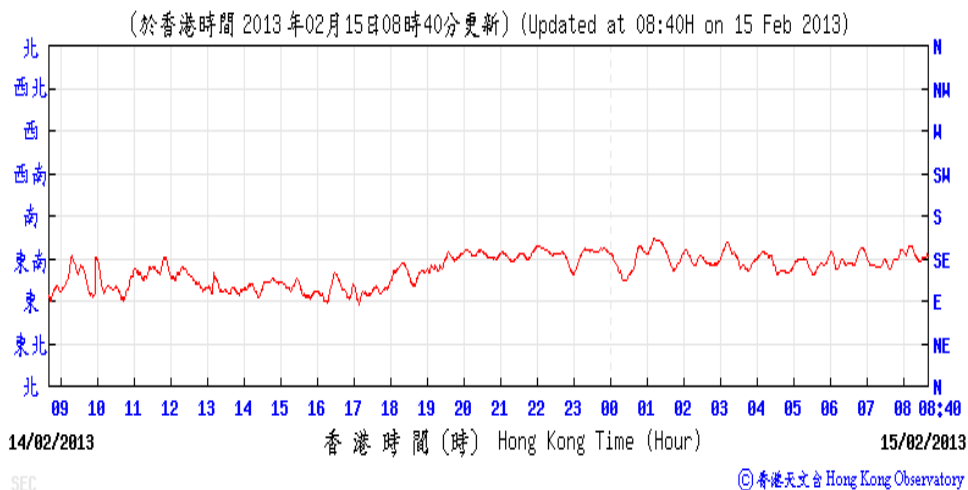
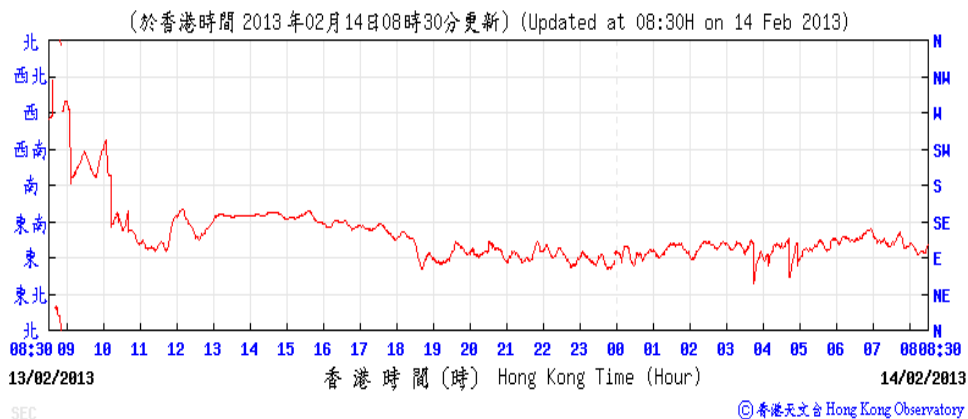
2 – 3 February 2013



8 – 9 February 2013

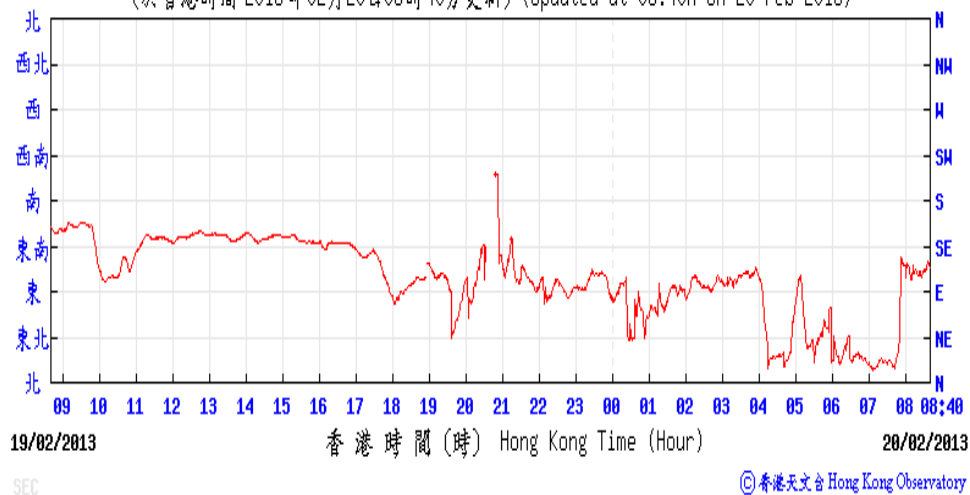


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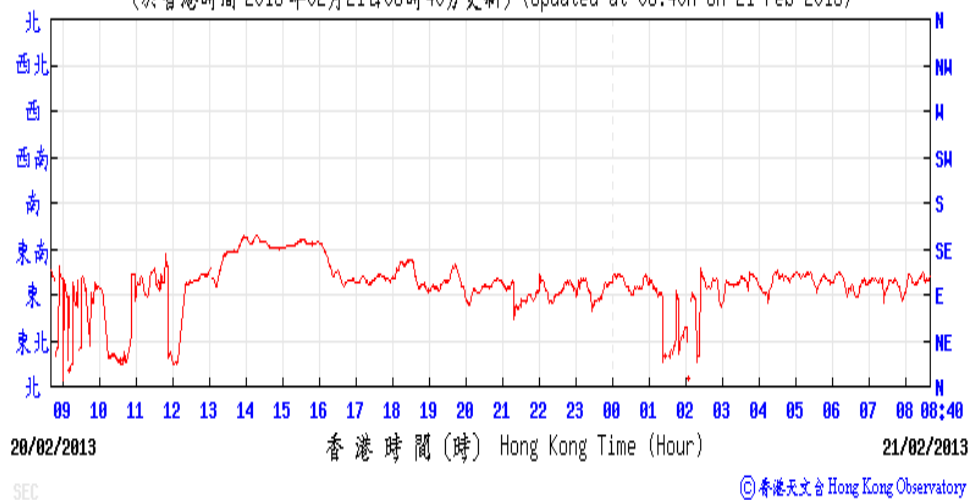


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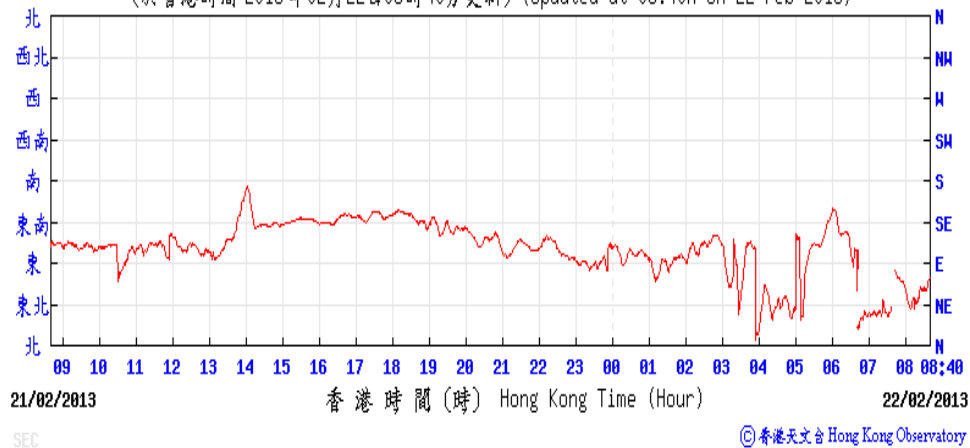
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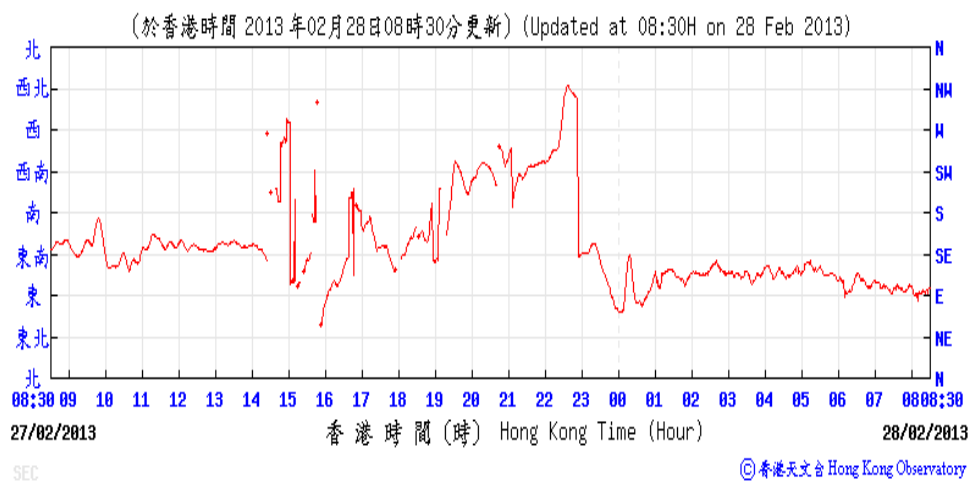
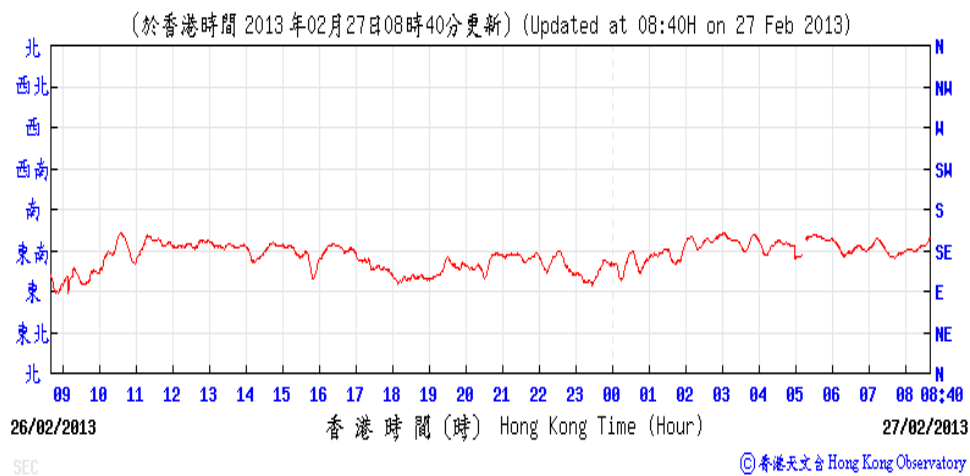
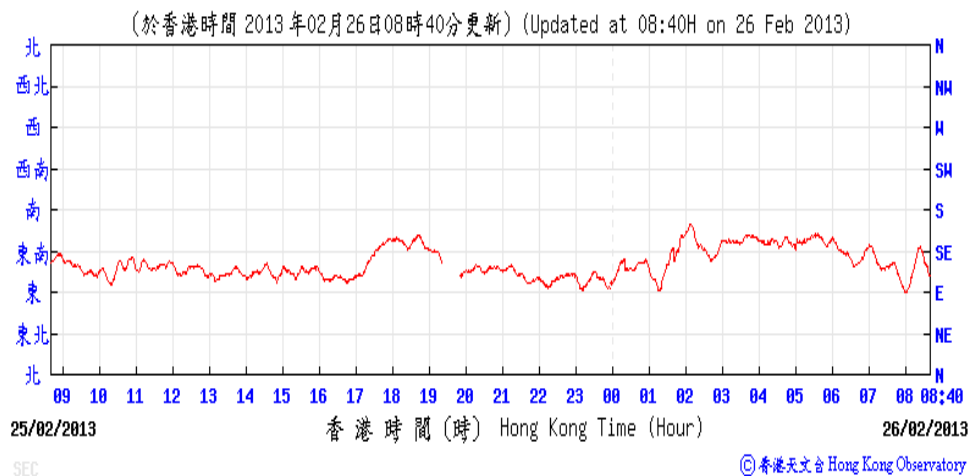
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(於香港時間 2013 年02月22日08時40分更新) (Updated at 08:40H on 22 Feb 2013)



26 - 27 February 2013



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 (in '000m³)
	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 '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
Total	45.672	0.000	0.605	0.000	0.039	45.027	12.800	0.432	6.174	0.000	0.908	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

Investigation reports

Investigation Report of Environmental Quality Limit Exceedance

Date	29 Jan 2013
Time	10:01 – 10:31; 10:31 – 11:01; 11:01 – 11:31; 13:01 – 13:31; 13:31 – 14:01; 14:01 – 14:31
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	78 dB(A) (according to the latest Continuous Noise Monitoring Plan, CNMP)
Measured Level (With baseline level adjustment)	80.7dB(A) (10:01 – 10:31) 83.2dB(A) (10:31 – 11:01) 79.9dB(A) (11:01 – 11:31) 81.2dB(A) (13:01 – 13:31) 83.3dB(A) (13:31 – 14:01) 80.1dB(A) (14:01 – 14:31)
Possible reason	<p>Based on site record on 29 Jan 2013 (0800-1200 & 1300-1900), the following works were carried out:</p> <ol style="list-style-type: none"> 1. TKW Market: backfilling works and pipe laying by backhoe. 2. SKH Good Shepherd Primary School: Additional GI carried out by drill rigs. 3. Gas Station: Pipe laying and backfilling by backhoe. <p>Vehicle movement on Ma Tau Wai Road and other potential noise sources were also contributing to the abnormal noise exceedance.</p> <p>As TKW Market work site and Gas Station do not have direct line of sight towards the monitoring station, the contribution of noise level from these two work sites should be minimal.</p> <p>The drill rigs were continuously operating on 29 January. The construction works carried out during exceedance period were same as that before and after the exceedance period. However the $L_{Aeq(30mins)}$ were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Based on the above and the best available information, no conclusion could be drawn on the noise sources which have contributed to the noise exceedance .</p>

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

Action Taken / Action to be Taken	<p>Movable noise fabrics as barrier had been erected on the site hoarding.</p> <p>As the exceedance is identified not due to the construction works, no additional action is considered necessary. However, the Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of the Action/Limit Level or causing noise nuisance.</p>
Remarks	N/A

Prepared by: Winnie Ko, 1109 ET Leader
 Date 6 February 2013

Investigation Report of Environmental Quality Limit Exceedance

Date	30 Jan 2013
Time	09:31 – 10:01 10:01 – 10:31
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	78 dB(A) (according to the latest Continuous Noise Monitoring Plan, CNMP)
Measured Level (With baseline level adjustment)	79.6dB(A) (09:31 – 10:01) 78.8dB(A) (10:01 – 10:31)
Possible reason	<p>Based on site record on 30 Jan 2013 (0800-1200), the following works were carried out:</p> <ol style="list-style-type: none"> 1. TKW Market: D-wall construction. 2. SKH Good Shepherd Primary School: No major construction works. 3. Gas Station: Fresh water pipe UU works. <p>Vehicle movement on Ma Tau Wai Road and other potential noise sources were also contributing to the abnormal noise exceedance.</p> <p>As TKW Market work site and Gas Station do not have direct line of sight towards the monitoring station, the contribution of noise level from these two work sites should be minimal.</p> <p>Since no major construction works were carried out at the worksites outside SKH Good Shepherd Primary School and the $L_{Aeq(30mins)}$ were all below the Action/Limit Levels before and after the exceedance period, it is considered that the exceedance was not due to the SCL Contract 1109 construction works.</p>
Action Taken / Action to be Taken	<p>Movable noise fabrics as barrier had also been erected on the site hoarding.</p> <p>As the exceedance is identified not due to the construction works, no additional action is considered necessary. However, the Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of the Action/Limit Level or causing noise nuisance.</p>
Remarks	N/A

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

Prepared by: Winnie Ko, 1109 ET Leader

Date 6 February 2013

Annex M

Environmental Complaint,
Environmental Summon
and Prosecution

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
September 2012	0	0
October 2012	0	0
November 2012	0	0
December 2012	0	0
January 2013	0	0
February 2013	0	0
Overall Total	0	0

Appendix C

**3rd 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**

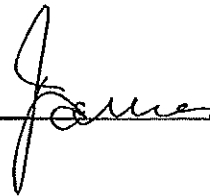
Monthly EM&A Report

[Period from 1 to 28 February 2013]

Works Contract 1101 – Ma On Shan Modification
Works

(February 2013)

Certified by: James Choi



Position: Environmental Team Leader

Date: _____

11/3/2013

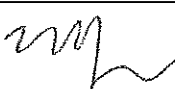


SCL Contract No. 1101

Ma On Shan Line Modification Works

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

for

Sun Fook Kong Joint Venture

Prepared By	Checked By	Approved for Issue	
E Yue 	A Lee 	J Choi 	
Version	0	Date	4 March 2013

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

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Appendix G	Updated Construction Programme
Appendix H	Works Sites as Part of SCL (TAW-HUH)

EXECUTIVE SUMMARY

Sun Fook Kong Joint Venture (SFKJV) was awarded the Shatin to Central Link (SCL) Contract No. 1101 Ma On Shan Line (MOL) Modification Works (this Project). EDMS Consulting Limited (EDMS) was commissioned by SFKJV as the Environmental Team (ET) for undertaking the Environmental Monitoring and Audit (EM&A) works during the construction period. The works areas under this Project covered by Environmental Permit (EP-438/2012/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 3 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, and storage of construction materials at To Shek Storage Yard and Shek Mun Storage Yard.

According to the information provided by the Contractor, no C&D materials and chemical wastes were disposed of in the reporting month. 3.5 m³ 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 demolition works during non-restricted hours, and 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 3rd 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 February 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	3.50	29.50
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, 19 and 26 February 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.

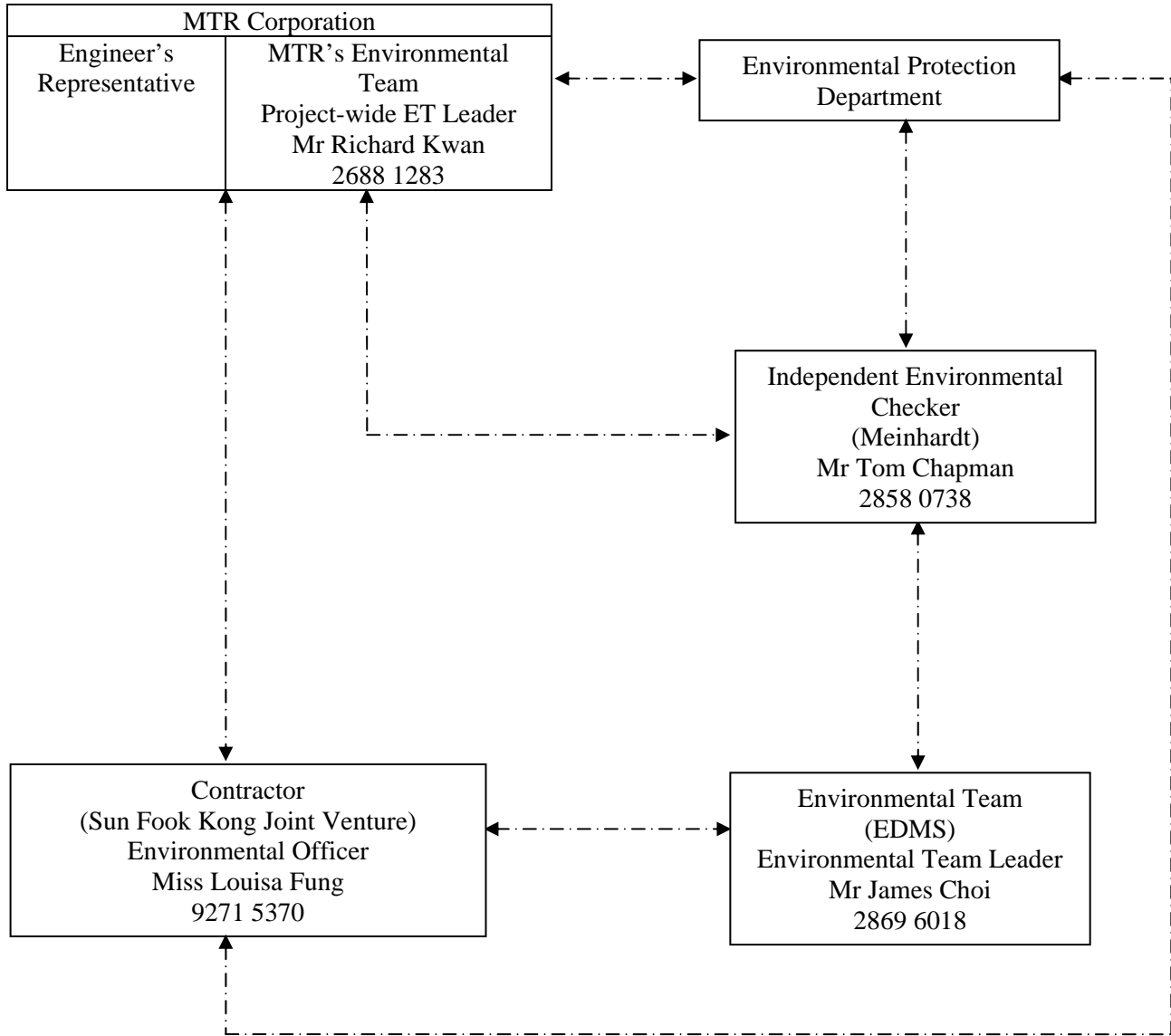
The major construction activities in the upcoming months will include demolition works during non-restricted hours, and construction of steel noise cover at Tai Wai Mei Tin Road during restricted hours. It is anticipated that construction noise will be the key issue. The Contractor has been reminded 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



----- Line of communication

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 (January 2013)	8 February 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
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 m³ 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							
April							
May							
June							
Sub-total	13.00	0.00	0.00	13.00	0.00	29.50	0.00
July							
August							
September							
October							
November							
December							
Cumulative Total	13.00	0.00	0.00	13.00	0.00	29.50	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 m³ by volume from Archsd D/OL03/09.002

APPENDIX D

SUMMARY OF SITE INSPECTIONS AND RECOMMENDATIONS

Environmental Site Walk on 6.2.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
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 19.2.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
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 26.2.2013

<i>ET's Observations and Recommendations</i>	<i>Follow-up Action</i>
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 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	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> ProPECC PN 1/94 	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> No on-site burning of waste; Waste and refuse in appropriate receptacles. 						
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	<p>The following good site practices and measures for minimization and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> 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. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> 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

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> <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	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 						
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		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					criteria	
S7.6.5	D3	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> APCO To control the dust impact to meet HKAQO and TM-EIA criteria 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</p> <ul style="list-style-type: none"> • 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

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <ul style="list-style-type: none"> • 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. 						

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
Construction Noise (Airborne)								
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> 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:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> 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 0.1m³/s a sedimentation basin 	construction activities				<ul style="list-style-type: none"> ProPECC PN1/94 TM-EIAO TM-Water 	

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • 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 						

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are 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. 						

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> 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:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</p> <ul style="list-style-type: none"> 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	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be banded 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	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		should be stored with suitable labels and warnings. <ul style="list-style-type: none"> 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> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke roke should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No.6/2010 	^

Remarks:

- ^ Implement mitigation measure in the reporting month x Non-compliance of mitigation measure
 N/A Not Applicable in the reporting month * Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt “Selective Demolition” technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>generation during the course of construction;</p> <ul style="list-style-type: none"> 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	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		segregation and storage.						
S11.5.1	WM4	<u>General Refuse</u> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Waste Disposal Ordinance 	^
S11.5.1	WM7	<u>Chemical Waste</u> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <ul style="list-style-type: none"> 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.				<p>General) Regulation</p> <ul style="list-style-type: none"> Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
EM&A Project								
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction Stage	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

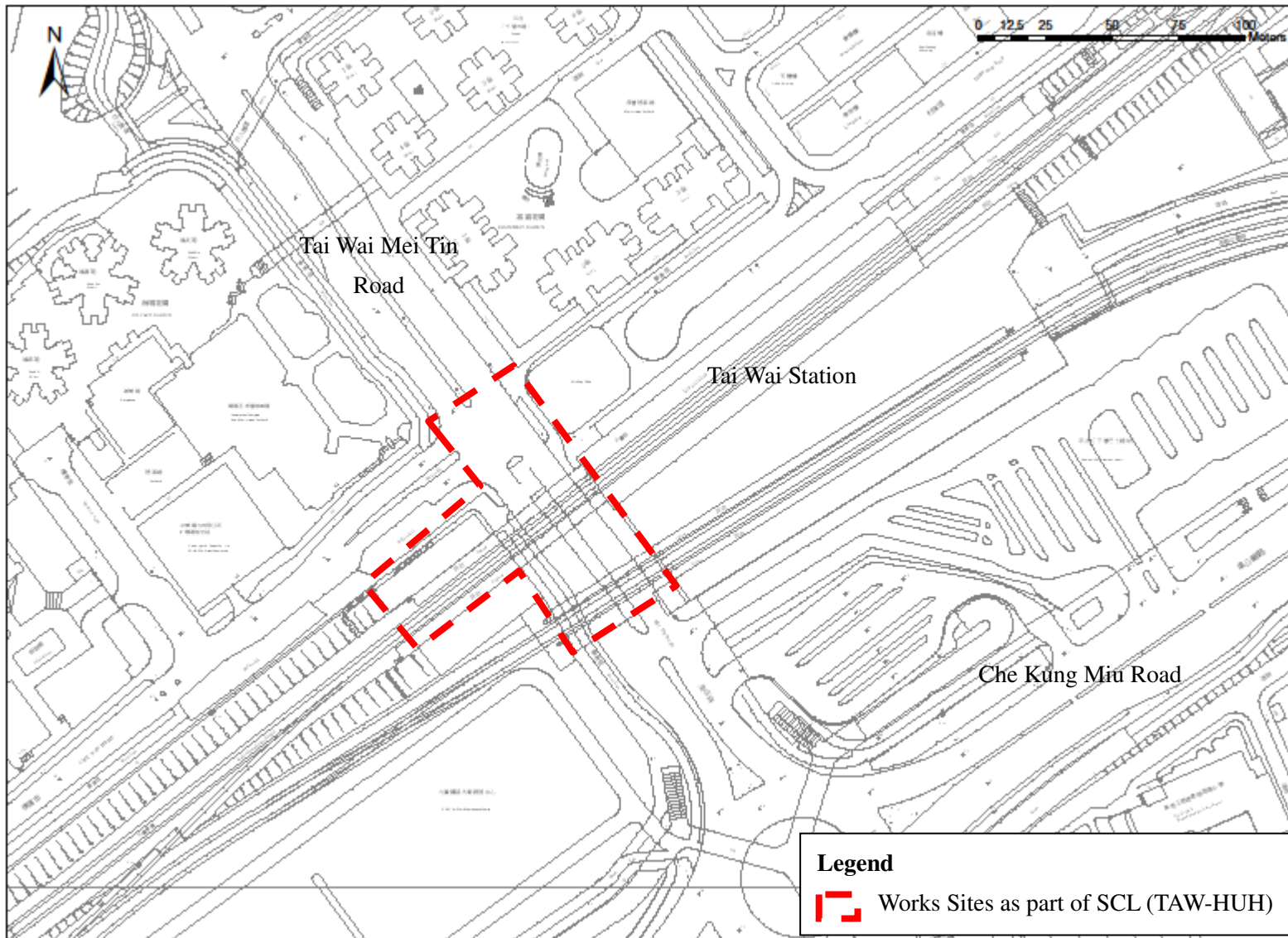
Construction Programme (SCL)

Worksites	Activities	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	
TAW Mei Tin Road	Noise Barrier Installation Work	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
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
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

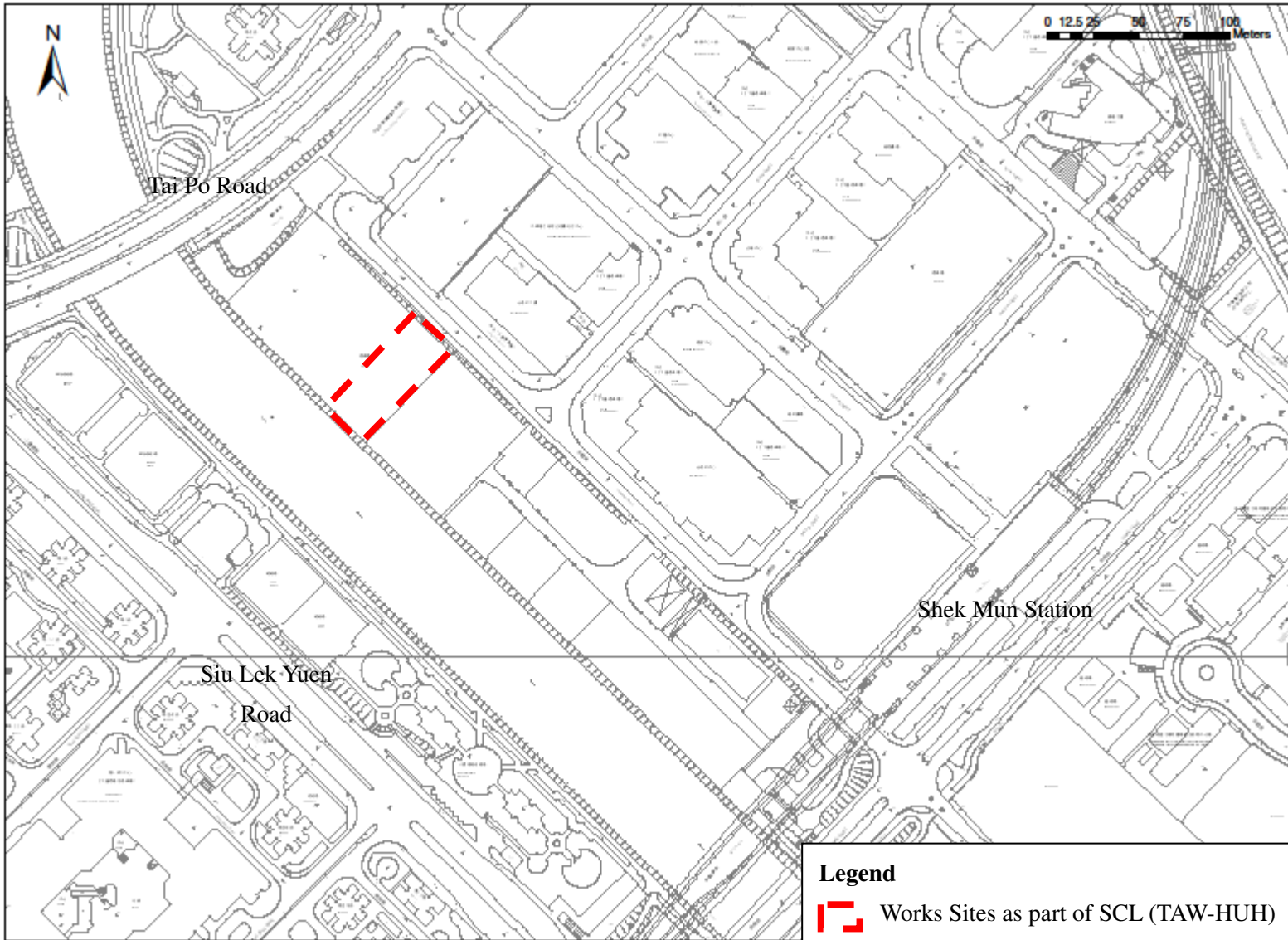
WORKS SITES AS PART OF SCL (TAW-HUH)



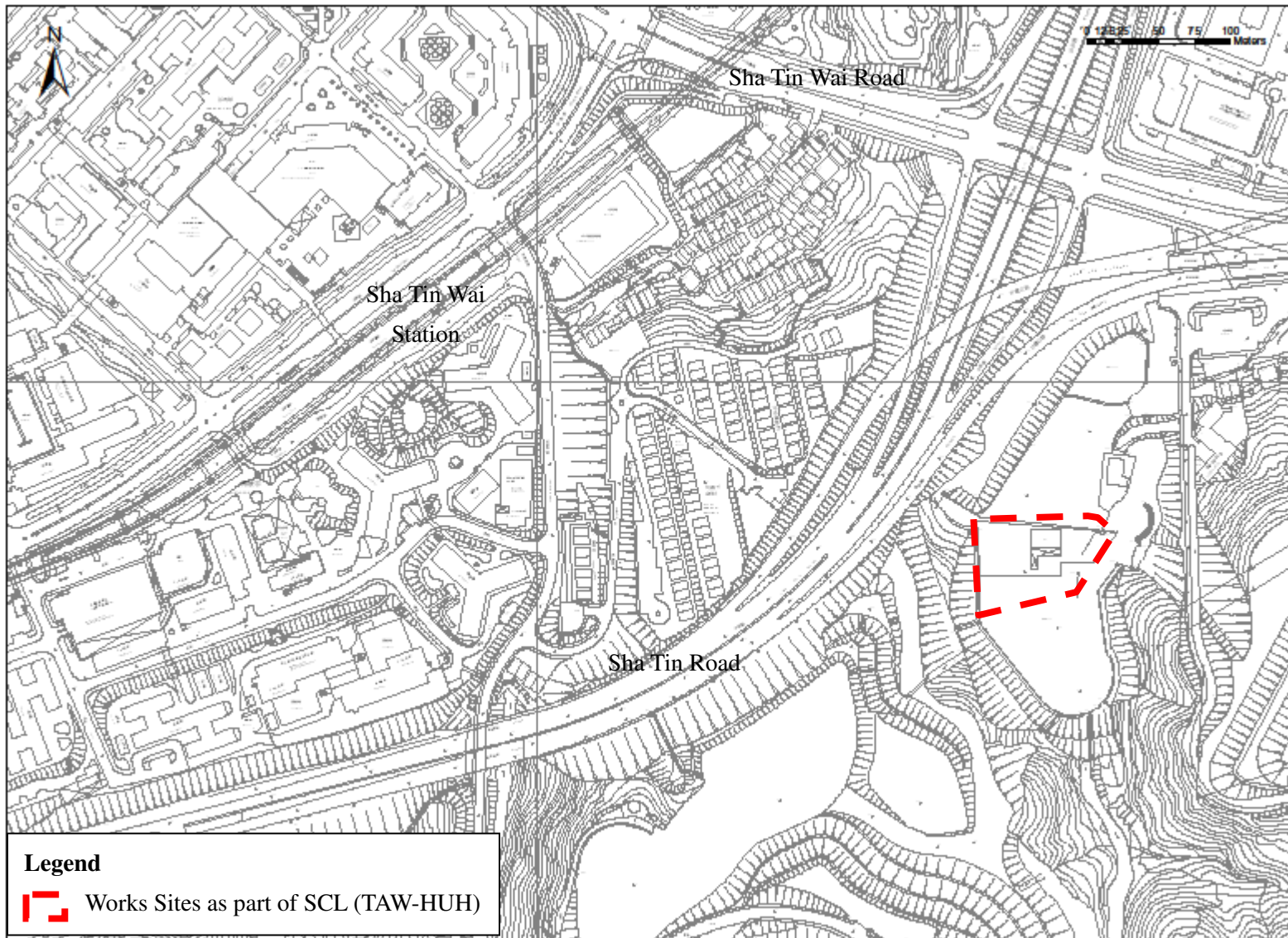
Legend

 Works Sites as part of SCL (TAW-HUH)

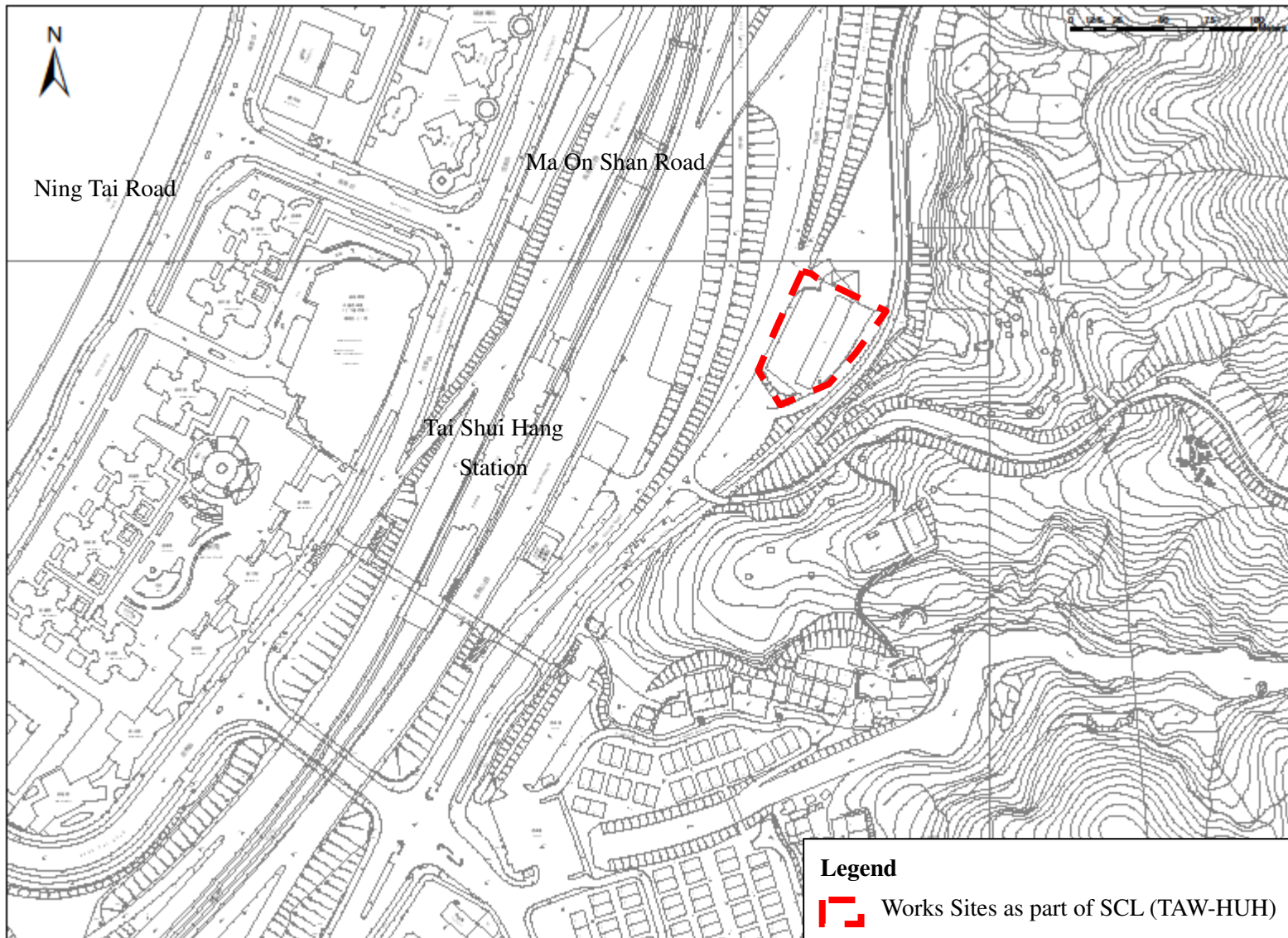
SCALE	N.T.S.	DATE	5 February 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App H (Sheet 1 of 4)		1




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



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



Legend
 Works Sites as part of SCL (TAW-HUH)



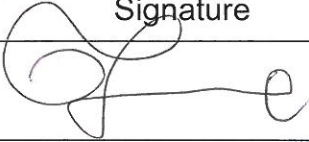

Works Areas under the Remaining Works from parts of the SCL(TAW-HUH)
Tai Shui Hang

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

Appendix D

**2nd EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel**

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

Disclaimer

This report is prepared for Gammon-Kaden SCL1111 JV and is given for its sole benefit in relation to and pursuant to SCL1111 and may not be disclosed to, quoted to or relied upon by any person other than Gammon-Kaden SCL1111 JV without our prior written consent. No person (other than Gammon-Kaden SCL1111 JV) into whose possession a copy of this report comes may rely on this report without our express written consent and Gammon-Kaden SCL1111 JV may not rely on it for any purpose other than as described above.

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EXECUTIVE SUMMARY

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

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

This report documents the findings of EM&A works conducted in the period between 1 and 28 February 2013. As informed by the Contractor, major activities in the reporting period were:-

Hung Hom Area

- Hoarding and fencing erection, initial survey and tree survey.
- Site clearance, planter removal, CCTV installation, tree felling, trial pit / trench, installation of monitoring checkpoints.
- Excavation and casting cable.
- Cross track duct construction, ADMS installation.
- Bridge footing construction.

Mong Kok Freight Terminal

- Hoarding and dust screen erection, initial survey, site clearance, base slab demolition.

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

- Drain and sewage pipe construction, building footing and RC structure construction.
- Hoarding and fencing erection, site clearance, tree felling and sidings tracks removal.
- Cross track duct construction, ADMS installation.
- Trial pit, utility construction, pipe pile installation.
- Demolition of parapet, bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal

- Base slab demolition, base slab construction and building modification.
-

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 second monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 28 February 2013.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendation

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] (Register No.: AEIAR-167/2012), SCL – Mong Kok East to Hung Hom Section [SCL (MKK-HUH)] (Register No.: AEIAR-165/2012) and SCL - Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/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 and fencing erection, initial survey and tree survey.
- Site clearance, planter removal, CCTV installation, tree felling, trial pit / trench, installation of monitoring checkpoints.
- Excavation and casting cable.
- Cross track duct construction, ADMS installation.
- Bridge footing construction.

Mong Kok Freight Terminal

- Hoarding and dust screen erection, initial survey, site clearance, base slab demolition.

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 summarized 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-RE0068-13	23 Jan 2013	07 Feb 2013	Valid	For Cross-track Duct (Workfronts No.1 & 2)
GW-RE0125-13	08 Feb 2013	07 Apr 2013	Valid	For Cross-track Duct (Workfronts No.1 & 2)
GW-RE0081-13	29 Jan 2013	24 Feb 2013	Valid	For Hung Hom Station Re provisioning Works
GW-RE0139-13	15 Feb 2013	07 May 2013	Valid	For Link Bridge truss lifting
GW-RE0155-13	19 Feb 2013	17 Apr 2013	Valid	For Cross-track Duct (Workfronts No. 3, 5 & 6)
GW-RE0169-13	26 Feb 2013	27 Mar 2013	Valid	For Mong Kok Station Re provisioning Works
355754	--	--	Application was made on 15 Feb 2013 and is pending for EPD's approval	For Hung Hom Station Re provisioning Works
Wastewater Discharge License				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
355758	--	--	Application was made on 08 Feb 2013 and is pending for EPD's approval	For Homantin Sidings Works
Chemical Waste Producer Registration				
To be applied	--	--	--	--
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 $\pm 2.5\%$ deviation over 24-hour sampling period.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/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 February 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** summarizes 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. L_{eq} , L_{10} and L_{90} 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	Facade
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. 07:00 – 1900 on normal weekdays.
- (e) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1dB(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 February 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 ($L_{eq, 30 \text{ min}}$) for time period between 0700 and 1900 hours on normal working hours (i.e. Mondays to Saturdays) during the construction period that the predicted noise levels exceed the relevant noise criteria at the identified NSRs. The recommended measurement period for the continuous noise monitoring programme in the CNMP is summarised in **Table 3.9**.

Monitoring Methodology

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

Event and Action Plan

- 3.3.6 Summary of the proposed continuous noise monitoring programme are presented in **Table 3.9**. The Event and Action Plan for the continuous noise monitoring programme recommended in the CNMP is presented in **Appendix I**.

Table 3.9 Summary of Proposed Continuous Noise Monitoring 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

Footnote:

- (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 summarized 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 January 2013	14 February 2013

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarized 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

	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	59.9	44.7 – 74.9	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

	Average, dB(A), L_{eq} (30 mins)	Range, dB(A), L_{eq} (30 mins)	Limit Level, dB(A), L_{eq} (30 mins)
NM 1	64.8	59.7 – 67.6	*65/70
NM 2**	73.1	71.7 – 74.7	75

Note: *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.

**Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table. No correction was made to NM2 as all measured noise levels were below the baseline noise level.

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

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

5.2.4 The event action plan is annexed in **Appendix I**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site and other nearby construction sites, nearby traffic noise and noise from school activities and the community.

5.3 Continuous Noise Monitoring

5.3.1 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

5.4 Waste Management

- 5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.4.2 As advised by the Contractor, 169m³ of inert C&D material was generated and disposed as public fills at TKO 137 while 13,000kg 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, 3 site inspections were carried out on 6, 20 and 27 February 2013. The one held on 20 February 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	6 Feb 2013	The Contractor should provide sand bunds at the entrance of works area in Portion W1A to prevent over-flowing of water to public haul road.	The item was observed to be rectified by the Contractor on 25 Feb 2013.
Air Quality	20 Feb 2013	Stockpile of construction material located at works area in Hung Hom MTR Station was covered incompletely by tarpaulin sheet. The Contractor should cover the stockpile entirely with impervious sheeting.	The item was observed to be rectified by the Contractor on 25 Feb 2013.
	6 Feb 2013	Minor excavation works was observed at works area in Hung Hom MTR Station. The Contractor should provide regular water spraying to minimize dust impact.	The item was observed to be rectified by the Contractor on 20 Feb 2013.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	6 Feb 2013	C&D waste was observed at works area in Link Bridge. The Contractor was reminded to clear the waste regularly.	The item was observed to be rectified by the Contractor on 14 Feb 2013.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

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

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 March and April 2013 will be:-

Hung Hom Area

- Drain and sewage pipe construction, building footing and RC structure construction.
- Hoarding and fencing erection, site clearance, tree felling and sidings tracks removal.
- Cross track duct construction, ADMS installation.
- Trial pit, utility construction, pipe pile installation.
- Demolition of parapet, bridge steel frame erection and cover walkway.

Mong Kok Freight Terminal

- Base slab demolition, base slab construction and building modification.

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 March 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 3 nos. of environmental site inspections were carried out in February 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 avoid surface runoff into the drainage system.

Chemical and Waste Management

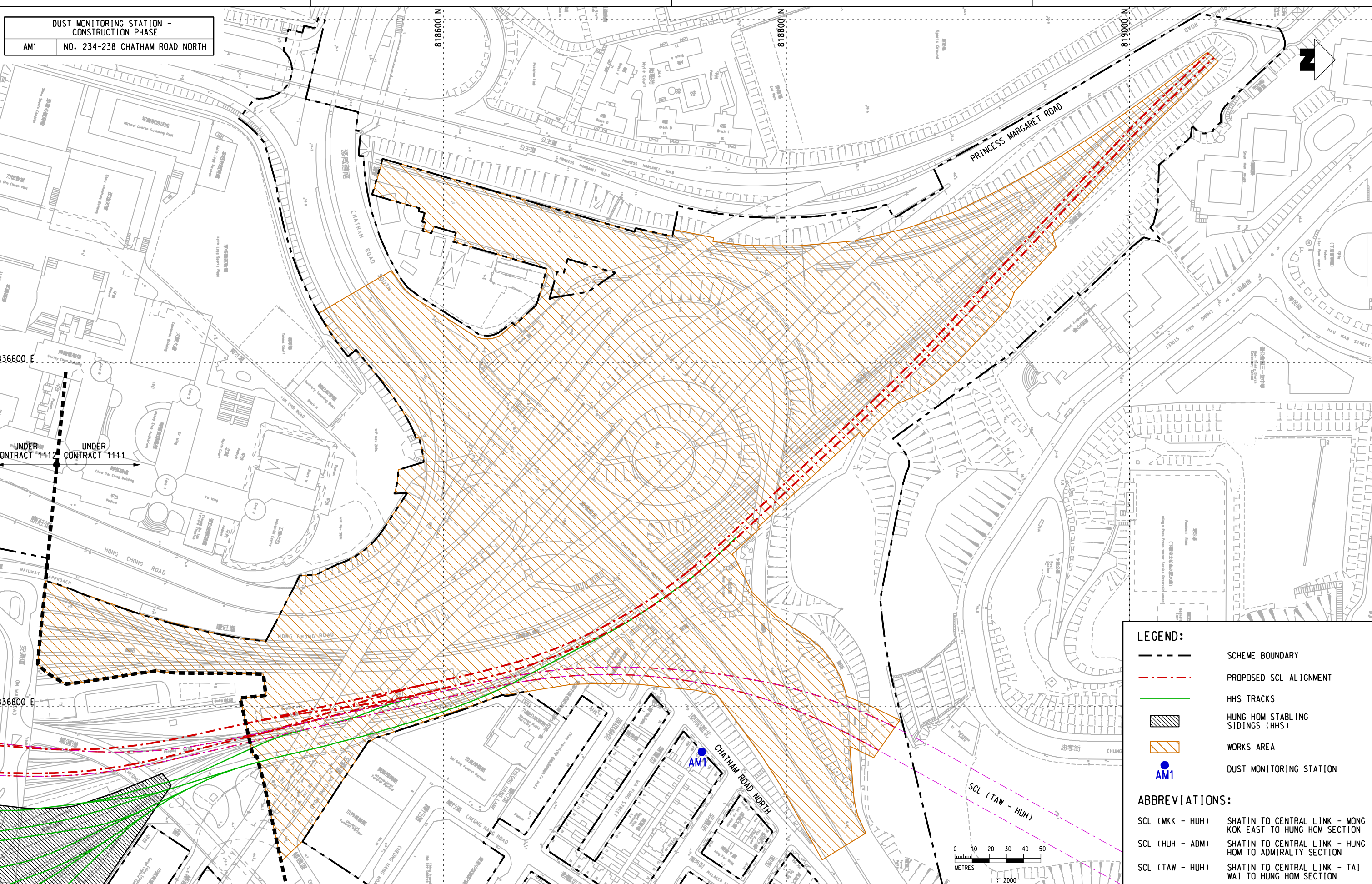
- Avoid accumulation of waste materials on site.

FIGURES

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

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LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING SIDINGS (HHS)
- WORKS AREA
- DUST MONITORING STATION
AM1

ABBREVIATIONS:

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION

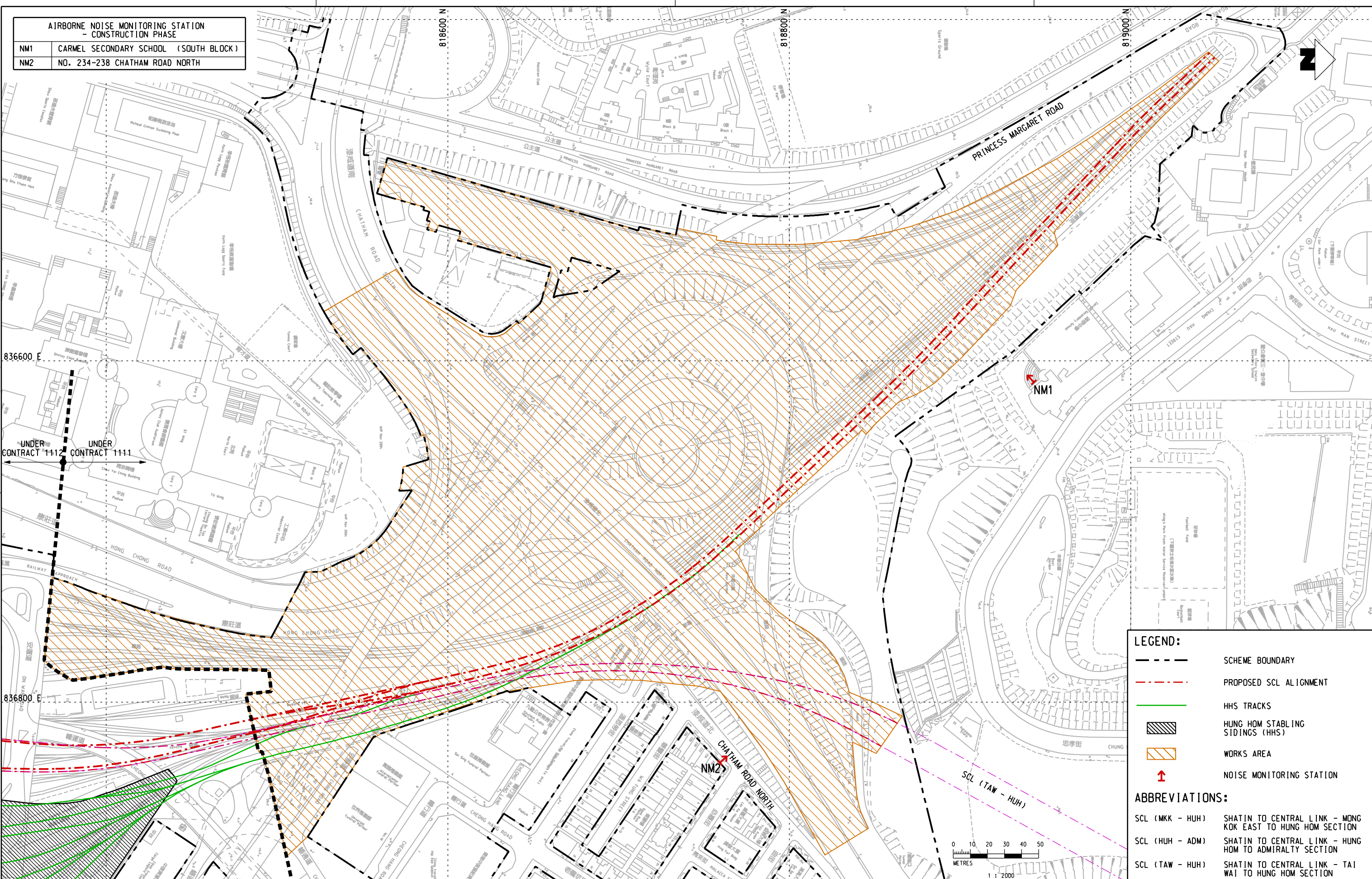
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Figure 2.1.dgn

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

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LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING SIDINGS (HHS)
- WORKS AREA
- ↑ NOISE MONITORING STATION

ABBREVIATIONS:

- SCL (MKK - HUH) SHATIN TO CENTRAL LINK - MONG KOK EAST TO HUNG HOM SECTION
- SCL (HUH - ADM) SHATIN TO CENTRAL LINK - HUNG HOM TO ADMIRALTY SECTION
- SCL (TAW - HUH) SHATIN TO CENTRAL LINK - TAI WAI TO HUNG HOM SECTION

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MTR

SHATIN TO CENTRAL LINK

CONTRACTOR: **Gammon** **Kaden**
Gammon - Kaden SCL 1111 Joint Venture

ORIGINATOR: **AECOM**

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TITLE

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

SCALE: 1 : 2000 (A3) FIGURE NO. **FIGURE 3.1**

APPENDIX A

Construction Programme

Activity Description	Start	Finish	2013												2014												2015												2016												2017																
			D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D
REPROVISIONING WORKS																																																																			
Commencement of Works	17/12/12																																																																		
Existing HUH Station Platform Level Works	14/01/13	26/01/14																																																																	
Mong Kok Freight Terminal Podium Level	14/01/13	25/08/13																																																																	
Poly U Railway Reserve & New Maintenance Sidings	01/04/13	26/01/14																																																																	
Inter City Crew Accomodation on HUH EWL Platform	14/01/13	24/08/14																																																																	
NSL/EWL TUNNEL																																																																			
NSL/EWL Area 3 Tunnel (early handover)	03/06/14*	04/09/15																																																																	
NSL/EWL Area 4 Tunnel	03/06/14*	22/02/16																																																																	
NSL/EWL Area 5 Tunnel	03/03/14*	20/01/16																																																																	
NSL/EWL Area 6 Tunnel	03/03/14*	07/03/16																																																																	
NSL TUNNEL																																																																			
NSL Area 7 Tunnel (inc CRN1 & Traffic Diversion)	30/05/14*	26/05/17																																																																	
NSL Area 8A Tunnel	04/06/13*	07/01/17																																																																	
TB1	13/05/13*	17/10/14																																																																	
TB2	04/06/13*	05/03/14																																																																	
NSL Area 8B Tunnel	13/06/14*	05/03/16																																																																	
NSL Area 9 Tunnel	01/12/14*	06/04/16																																																																	
Oi Sen Path Slope Works and Tunnel	14/02/13*	13/10/16																																																																	
Oi Sen Path Noise Enclosure	14/12/13*	09/03/16																																																																	
EWL TUNNEL																																																																			
EWL Area 6A Tunnel	15/02/13*	22/07/14																																																																	
EWL Areas 7&8 Tunnel	22/02/13*	27/02/16																																																																	
EWL Area 9 Tunnel (late possession)	15/06/15*	02/04/16																																																																	

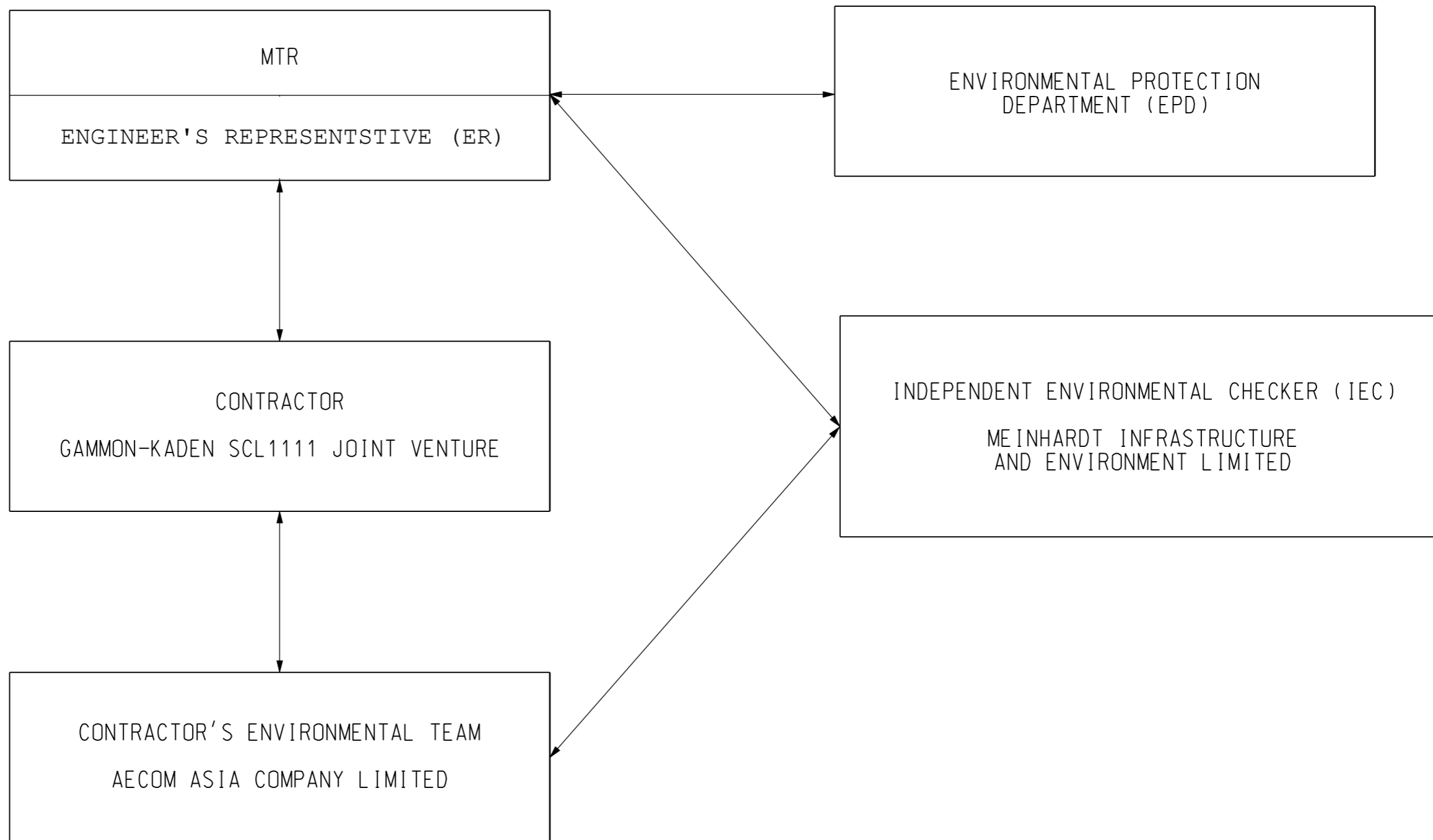
Early Bar
 Progress Bar
 Critical Activity

**SCL 1111
SUMMARY PROGRAMME**

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



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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: <ul style="list-style-type: none"> • 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)) 	Works areas where required	N/A

		<ul style="list-style-type: none"> • Concrete Pump (SWL=106dB(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)) 		
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		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
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	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 impact	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	V
		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	N/A

	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms.	All construction sites	N/A
	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

		<p>Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area.</p>	<p>All construction sites</p>	<p>V</p>
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	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-H UH), 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 permits.	All construction sites	V
	Waste should be disposed of at licensed waste disposal facilities.	All construction sites	V
	Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.	All construction sites	V
	Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All construction sites	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 of contamination during construction.	Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil.	Within Project Boundary where signs of contamination is identified	N/A
		If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination.		N/A
	To remediate contaminated soil	If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP.		N/A

Legend: V = implemented;
 x = not implemented;
 @ = partially implemented;
 N/A = not applicable

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 $\mu\text{g}/\text{m}^3$	260.0 $\mu\text{g}/\text{m}^3$

Table 2 – Action and Limit Levels for Regular Construction Noise (0700-1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1	Carmel Secondary School (South Block)	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is	*65 / 70 dB(A)
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

*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)
NM2	No. 234-238 Chatham Road North	77 dB(A)

**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: 18-Jan-13 Next Due Date: 18-Mar-13
 Equipment No.: --- Serial No.: 894-0835

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	768.8

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97048	Intercept, bc	-0.00546
Last Calibration Date:	15-May-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	15-May-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 x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (m ³ /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	8.7	3.01	1.53	49.0	50.04
13	7.4	2.78	1.41	45.0	45.96
10	6.1	2.52	1.28	39.0	39.83
7	4.4	2.14	1.09	32.0	32.68
5	3.1	1.80	0.92	26.0	26.55

By Linear Regression of Y on X

Slope, mw = 38.6526 Intercept, bw = -9.1663

Correlation Coefficient* = 0.9978

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 40.22

Remarks: _____

QC Reviewer: K. H. SHUK Signature: Mike Date: 21 Jan 13



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
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 877.263.7610 TOLL FREE
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 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 15, 2012 Roots-meter 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}



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 responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min / Feng Jun Qi

Date: 23-Mar-2012

Company Chop:



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



CERTIFICATE OF CALIBRATION

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 responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 17-Nov-2012

Company Chop:



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



CERTIFICATE OF CALIBRATION

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 007.03A	,	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 responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 08-Oct-2012

Company Chop:



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



CERTIFICATE OF CALIBRATION

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

Customer: 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

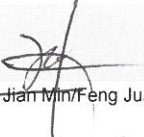
Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 17-Aug-2012

Company Chop:



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



CERTIFICATE OF CALIBRATION

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

Customer: 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

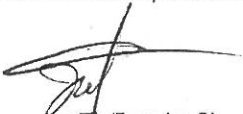

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1005 ± 5 hPa

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:  Date: 23-Mar-2012 Company Chop: 

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

APPENDIX F

EM&A Monitoring Schedules

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

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative 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						

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

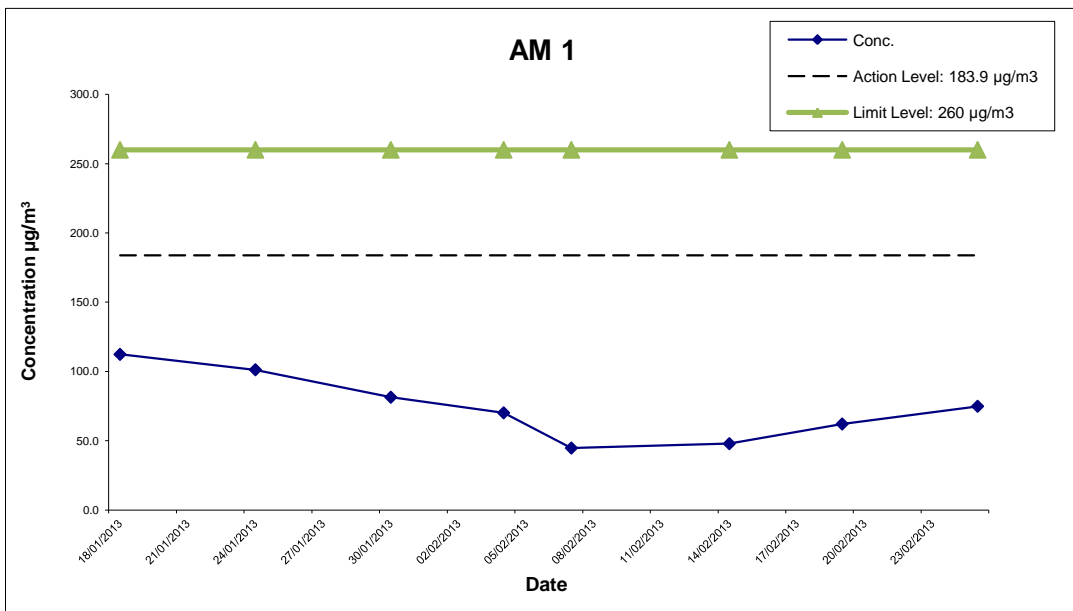
APPENDIX G

**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 Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
04-Feb-13	15:00	05-Feb-13	15:00	Fine	21.2	1018.5	1.30	1.30	1.30	1877.8	2.8141	2.9458	0.1317	12169.87	12193.87	24.00	70.1
07-Feb-13	15:00	08-Feb-13	15:00	Fine	19.1	1014.3	1.30	1.30	1.30	1877.8	2.8141	2.8981	0.0840	12193.87	12217.87	24.00	44.7
14-Feb-13	9:00	15-Feb-13	9:00	Sunny	18.5	1017.3	1.30	1.30	1.30	1877.8	2.8303	2.9202	0.0899	12217.87	12241.87	24.00	47.9
19-Feb-13	16:00	20-Feb-13	16:00	Sunny	20.9	1014.5	1.30	1.30	1.30	1877.8	2.8164	2.9330	0.1166	12241.87	12265.87	24.00	62.1
25-Feb-13	16:00	26-Feb-13	16:00	Fine	19.6	1018.9	1.30	1.30	1.30	1877.8	2.8081	2.9487	0.1406	12265.87	12289.87	24.00	74.9
																Average	59.9
																Min	44.7
																Max	74.9



**Shatin to Central Link Works Contract 1111-
Hung Hom North Approach Tunnels**

**Graphical Presentations of Impact 24-hour TSP
Monitoring Results**

SCALE	N.T.S.	DATE	Mar-13
CHECK	TYUT	DRAWN	IYYS
JOB NO.	60284101	APPENDIX No.	Rev.
		G	-

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				
05-Feb-13	Sunny	9:35	67.2	70.4	68.6	59.7	68.0	70	N
14-Feb-13	Fine	9:55	68.0	71.3	69.7	64.8	68.0	70	N
21-Feb-13	Sunny	10:00	63.5	69.0	67.0	67.0	68.0	70	N
27-Feb-13	Sunny	9:56	66.0	68.5	67.6	67.6	68.0	70	N
		Min	63.5	68.5		59.7			
		Max	68.0	71.3		67.6			
		Average	--	--		64.8			

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				
08-Feb-13	Sunny	10:08	70.2	74.0	72.1	72.1	79.0	75	N
14-Feb-13	Fine	10:45	68.3	73.5	71.7	71.7	79.0	75	N
20-Feb-13	Sunny	9:50	72.0	76.5	74.7	74.7	79.0	75	N
26-Feb-13	Sunny	10:05	70.7	75.1	73.3	73.3	79.0	75	N
		Min	68.3	73.5		71.7			
		Max	72.0	76.5		74.7			
		Average	--	--		73.1			

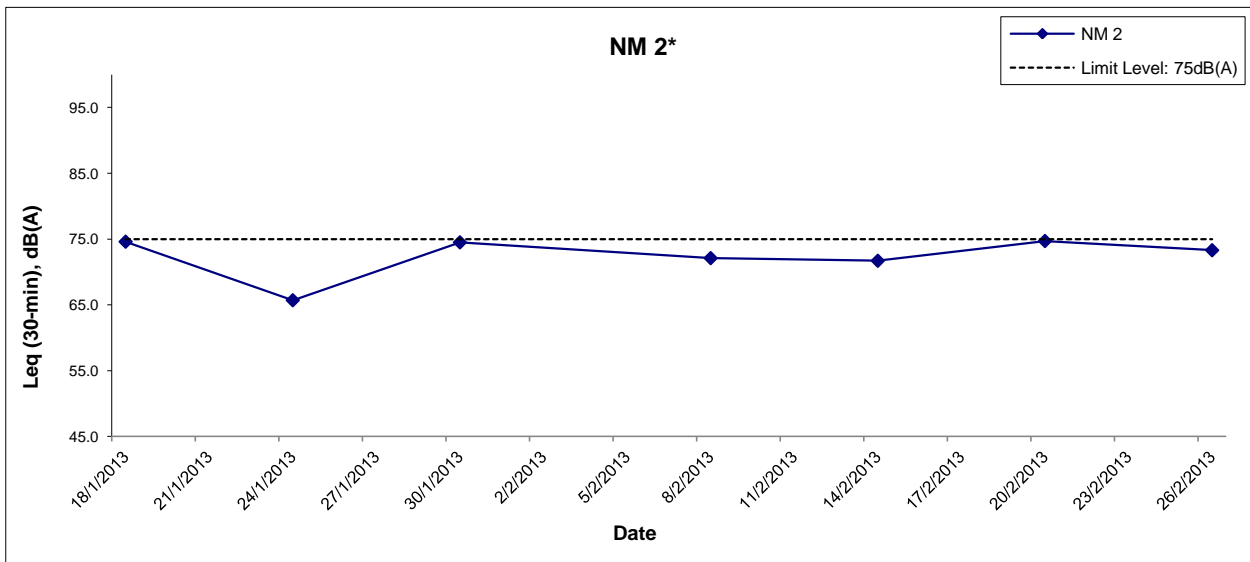
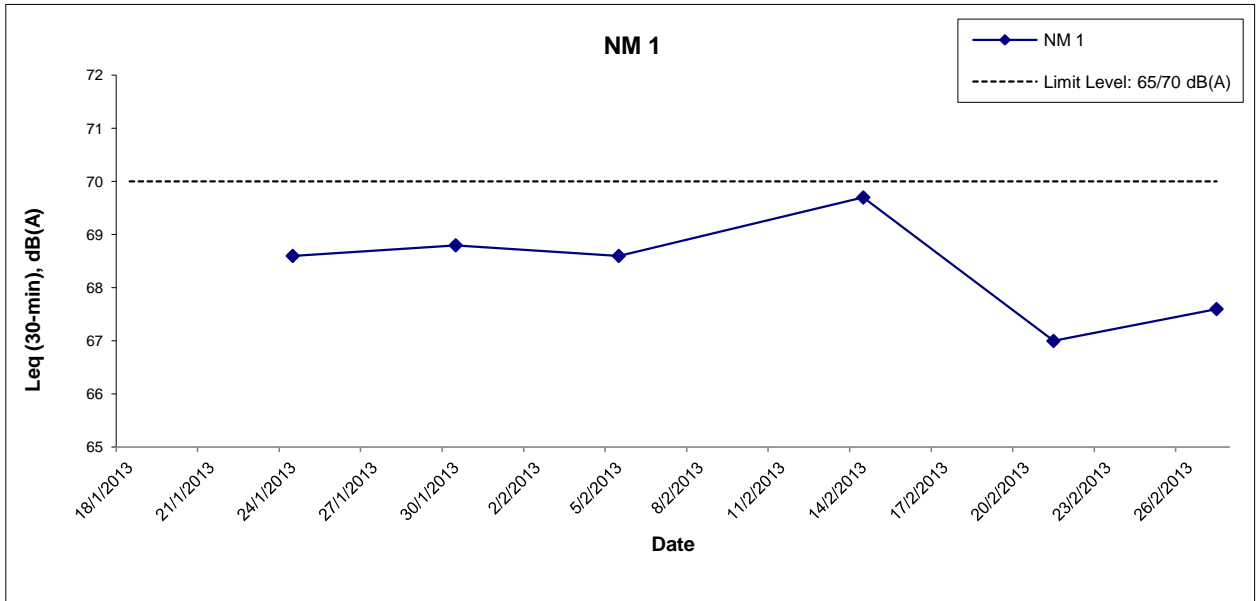
⁺ - Façade measurement


^{**} - 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 measured Leq is corrected when it exceed the corresponding baseline noise level. No correction will be made when the measured noise levels were equal to or below the corresponding baseline noise level.

Appendix H Regular Construction Noise Monitoring Results



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

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
<p>Action/Limit Level</p>	<p>1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.</p>	<p>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.</p>	<p>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.</p>	<p>1. Identify source with the Works Contract 1111 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; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

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 Quantity 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	0.169	0.000	0.000	0.000	0.000	0.165	0.004	0.000	0.000	0.000	0.000	13.000
Mar												
Apr												
May												
Jun												
SUB-TOTAL	0.234	0	0	0	0	0.230	0.004	0	0	0	0	30.11
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
TOTAL	0.234	0	0	0	0	0.230	0.004	0	0	0	0	30.11

- Note:
1. Assume the density of fill is 2 ton/m³.
 2. Refuses disposed of at NENT landfill.

Appendix E

**1st EM&A Report for Works Contract 1103 –
Hin Keng to Diamond Hill**

MTR Corporation Limited

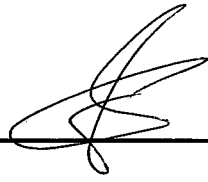
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 1

[Period from 1 to 28 February 2013]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(March 2013)

Certified by: Coleman Ng 

Position: Environmental Team Leader

Date: 14 March 2013

MTR Corporation Limited

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

**Monthly Environmental Monitoring
and Audit Report – February 2013**

228105-27

Version 2 | March 2013

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 228105-27

Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

ARUP

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Appendix A: Construction programme

Appendix B: Environmental Monitoring Programme in the Reporting Month

Appendix C: Environmental Mitigation Implementation Schedule (EMIS)

Appendix D: Calibration Certificates for Air Monitoring Equipment

Appendix E: Dust Results

Appendix F: Wind Data

Appendix G: Calibration Certificates of Noise Monitoring Equipment

Appendix H: Noise Results

Appendix I: Event/Action Plan for Air Quality and Airborne Noise

Appendix J: Monthly Waste Flow Table

Appendix K: Environmental Monitoring Programme for Coming Month

Appendix L: Complaint Log

Executive Summary

This is the first 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 February 2013 (14 to 28 February 2013).

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

- Site Formation works at Hin Keng and Diamond Hill;
- Construction of D-wall at Diamond Hill;
- Ground Investigation works at Hin Keng and Diamond Hill;
- Site Setup at Fung Tak; and
- Mobilisation works at Fung Tak.

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 2 air quality and 2 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

In the reporting month, landscape and visual site audit in accordance with the requirements stipulated in the EM&A manual was conducted on 28 February 2013. Based on the site inspection, 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 1823m³ were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 14m³ of general refuse were generated and disposed of at NENT landfill in the reporting month.

Environmental Auditing

A total of 2 environmental site audits were conducted on a weekly basis in February 2013. The first site inspection was on 21 February 2013 and the second, an IEC joint site audit, was undertaken on 28 February 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 dust is a key environmental issue on dry and windy days. The implemented construction dust mitigation measures should also be maintained and improved as necessary at Diamond Hill and Hin Keng Works Areas.

Furthermore, based on the CNMP submitted to EPD on 11 Jan 2013, continuous noise monitoring during examination periods at NMS-CA-1 – C.U.H.K.A.A Thomas Cheung School will be required.

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 and 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 set up and mobilisation.

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
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

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 contractor 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
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
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 first 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 14 to 28 February 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 TSP 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 TSP 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 1-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3
Action Level, $\mu\text{g}/\text{m}^3$	283.9	276.2	278.4
Limit Level, $\mu\text{g}/\text{m}^3$	500		

Notes:

1-hr TSP monitoring would be required in case of receiving complaints.

Table 3.4 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, $\mu\text{g}/\text{m}^3$	148.7	167.4	159.1
Limit Level, $\mu\text{g}/\text{m}^3$	260		

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	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 HVS 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 m³/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 cm² (63in²);
- 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 15, 19 and 25 February 2013 at DMS-1 and DMS-3. In accordance with the Construction Programme presented in **Appendix A**, no works was undertaken at the Ma Chai Hang and therefore no monitoring was undertaken in 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 for reporting month

Monitoring Station	24- hour TSP Monitoring Results ($\mu\text{g}/\text{m}^3$)		Action Level	Limit Level
	Average	Range		
DMS-1	63	(37 – 78)	148.7	260
DMS-2	-	-	167.4	260
DMS-3	44	(31 – 50)	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 mobilisation were conducted during the reporting month. No abnormal condition was recorded during the monitoring period.

4 Noise Monitoring

4.1 Noise Monitoring Requirements

Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 4.1**.

Table 4.1 Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency
Between 0700-1900 hours on normal weekdays	$L_{eq(30\text{ min})}$	Once per week

Continuous Noise Monitoring

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 1103 at one noise sensitive receivers (NSRs) in May 2013, where the predicted residual air-borne construction noise impacts exceed the relevant noise criteria. The proposed continuous noise monitoring location is shown in **Table 4.2**.

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	Action Level	Limit Level dB(A) ^(Note 2)
NMS-CA-1 & NMS-CA-2	0700 - 1900 hours on normal weekdays	When one documented complaint is received	70/65
NMS-CA-3	0700 - 1900 hours on normal weekdays	When one documented complaint is received	75

Notes:

1. The detail of monitoring locations was presented in Table 1.3.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.
3. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

4.2 Noise Monitoring Methodology

4.2.1 Monitoring Equipment

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level. L_{eq} , L_{10} and L_{90} were recorded as supplementary information for data auditing. **Table 4.4** shows the equipment list of the noise monitoring.

Table 4.4 Noise equipment list for impact noise monitoring

Equipment	Manufacturer & Model No.	Serial No.	Precision Grade
Integrated SLM	Brüel & Kjær 2238	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 a sound level calibrator; and
- The SLM was re-calibrated by the sound level calibrator to confirm that there is no significant drift of reading. Measurements shall be accepted as valid only if the calibration levels before and after the noise measurement agrees to within 1.0 dB.

4.3 Monitoring Results and Observations

4.3.1 Weather Condition

The weather condition was mainly sunny during the noise monitoring period in the reporting month.

4.3.2 Noise Monitoring Results

Monitoring of the construction noise level was conducted on 14, 20 and 26 February 2013 at monitoring locations NMS-CA-1, and NMS-CA-3. 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 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** and **4.6**. 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 in the reporting month

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)
14 Feb 13	14:10-14:40	55.2	57.0	Measured \leq Baseline	70/65
20 Feb 13	14:35-15:05	57.3		Measured \leq Baseline	
26 Feb 13	09:15-09:45	58.2		52	

Note:

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 in the reporting month

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)
14 Feb 13	16:00-16:30	66.8	73.0	Measured \leq Baseline	75
20 Feb 13	16:15-16:45	66.4		Measured \leq Baseline	
26 Feb 13	11:20-11:50	64.7		Measured \leq 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 on 28 February 2013. During the site inspection the following actions were found to be required:

28 February 2013

- Broken tree trunks were found within Diamond Hill Works Area. The contractor shall remove the broken tree trunks from the vicinity.

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 in reporting month

Waste Type	Amount	Disposal Locations
Inert C&D Materials	1823m ³	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	0	-
Paper / cardboard packaging	0	-
Plastic	0	
Metal	0	
General Refuse	14m 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 February 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 in the reporting month

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Air Quality				
21 Feb 13	Diamond Hill	Dark smoke emission from the drilling rig and generator was observed. The contractor should rectify and enhance the machine maintenance.	Agreed with ET's Advice	The observation has been noted. Closed on 28 February 2013.
21 Feb 13	Diamond Hill	3 sides and top enclosure covering was provided for the cement mixing. However, the water tank which is part of the facility shall also be covered.	Agreed with ET's Advice	The observation has been noted. Closed on 28 February 2013.
28 Feb 13	Hin Keng	Water spraying shall be provided on a regular basis.	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 observation has been noted and a vehicle washing bay is to be installed. The ET will follow up in the coming reporting

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
				month.
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 reminder has been noted and improvement works on the vehicle washing bay are ongoing. The ET will follow up in the coming reporting month.
28 Feb 13	Diamond Hill	The contractor should set up the waste water treatment plant as soon as possible.	Agreed with ET's Advice	The observation has been noted. The waste water treatment plant is to be set up asap and the ET will follow up in the coming reporting month.
Noise				
28 Feb 13	Hin Keng	The contractor should affix a valid noise label to hand-held electric breakers.	Agreed with ET's Advice	The observation has been noted 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 observation has been noted 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 for the contract

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
14/02/13– 28/02/13	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	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

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. Two 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.

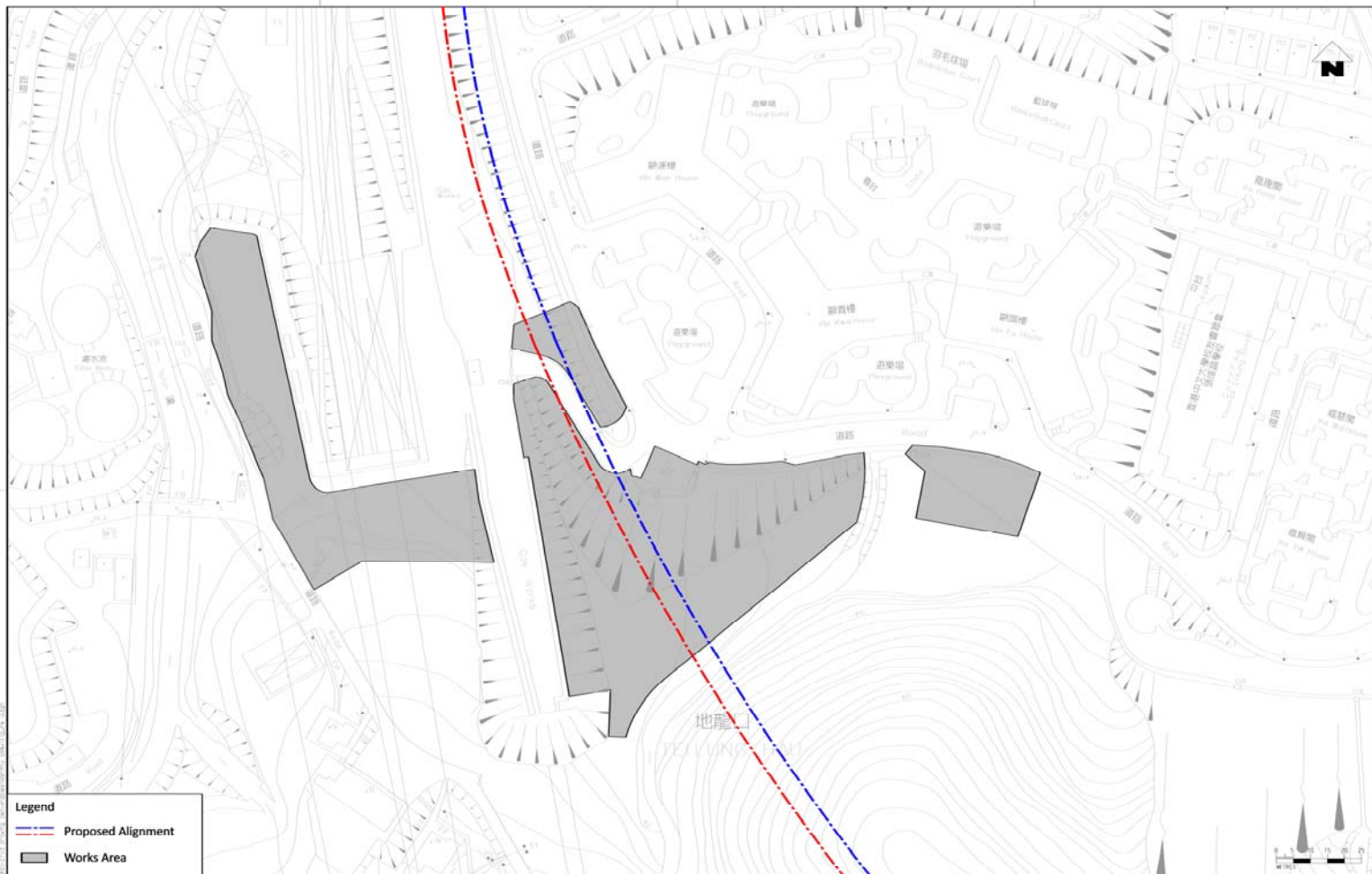
Construction dust is a key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust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

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



Legend
 --- Proposed Alignment
 Works Area

A-22 (2/0) - 01/07/2019 - Final layout for works areas for Hin Keng to Diamond Hill Tunnels
 01/07/2019 - 01/07/2019 - Final layout for works areas for Hin Keng to Diamond Hill Tunnels
 01/07/2019 - 01/07/2019 - Final layout for works areas for Hin Keng to Diamond Hill Tunnels

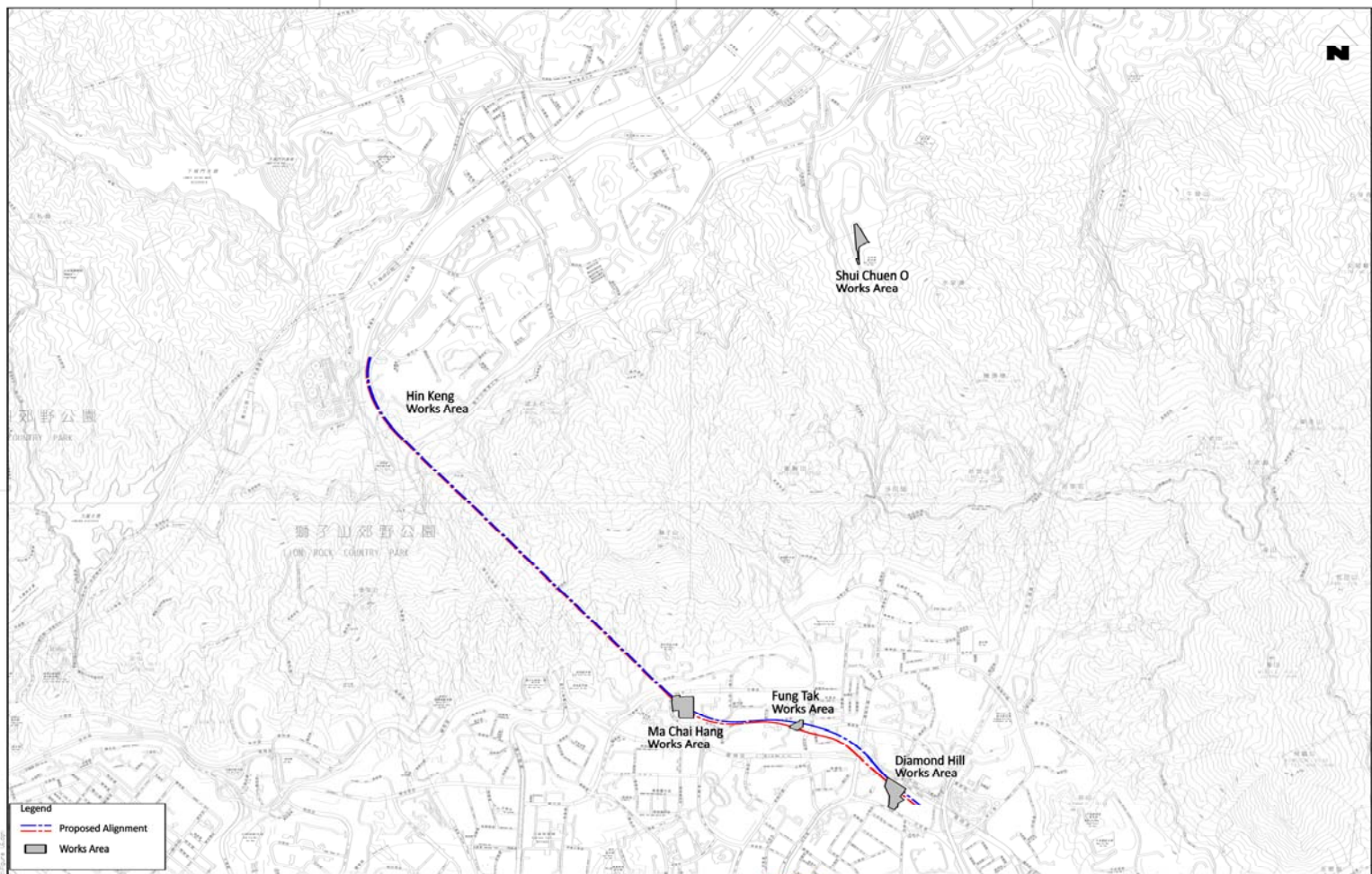
<table border="1"> <tr><td>DESIGN</td><td>CS</td></tr> <tr><td>DESIGNED BY</td><td>CS</td></tr> <tr><td>CHECKED</td><td>CN</td></tr> <tr><td>APPROVED</td><td>SI</td></tr> <tr><td>DATE</td><td>12/12/12</td></tr> </table>		DESIGN	CS	DESIGNED BY	CS	CHECKED	CN	APPROVED	SI	DATE	12/12/12	<p>SHATIN TO CENTRAL LINK</p> <p>Ove Arup & Partners Hong Kong Limited</p>	<table border="1"> <tr><td colspan="2">TITLE</td></tr> <tr><td colspan="2">CONTRACT 1103</td></tr> <tr><td colspan="2">HIN KENG TO DIAMOND HILL TUNNELS</td></tr> <tr><td colspan="2">Locations of Project Works Areas</td></tr> <tr><td colspan="2">- General Site Layout of Hin Keng Works Area</td></tr> <tr><td colspan="2">(Sheet 1 of 6)</td></tr> </table>		TITLE		CONTRACT 1103		HIN KENG TO DIAMOND HILL TUNNELS		Locations of Project Works Areas		- General Site Layout of Hin Keng Works Area		(Sheet 1 of 6)		
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- General Site Layout of Hin Keng Works Area																											
(Sheet 1 of 6)																											
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Legend
 - - - Proposed Alignment
 Works Area

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DRAWN: [] CHECKED: [] APPROVED: [] DATE: 12/12		SHATIN TO CENTRAL LINK ARUP Ove Arup & Partners Hong Kong Limited	TITLE: CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Project Works Areas - Site Layout Plan of Ma Choi Hong Shaft (Sheet 4 of 6)	
NO. [] DESCRIPTION [] BY [] DATE [] APPROVED BY []	NO. [] DESCRIPTION [] BY [] DATE [] APPROVED BY []		SCALE: 1:2000 (A3) DRAWING NO.: Figure 1.4	REV. [] A



Legend

- Proposed Alignment
- Works Area

NO.	DESCRIPTION	BY	DATE	APPROVED BY
1	ISSUE			
2	REVISION			

NO.	DESCRIPTION	BY	DATE	APPROVED BY
1	ISSUE			
2	REVISION			

DESIGNED	CS
CHECKED	CN
APPROVED	SI
DATE	05/13

MTR

SHATIN TO CENTRAL LINK

ARUP Ove Arup & Partners
Hong Kong Limited

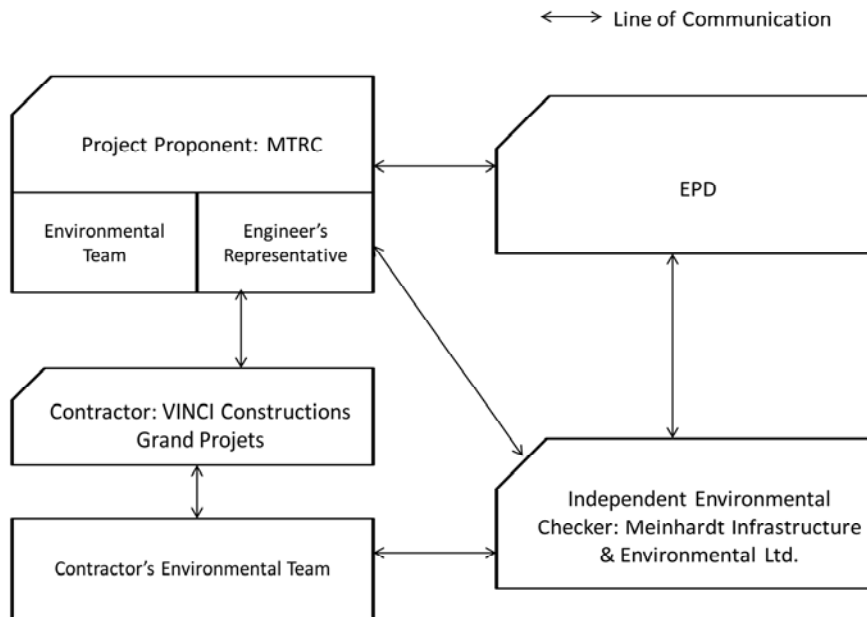
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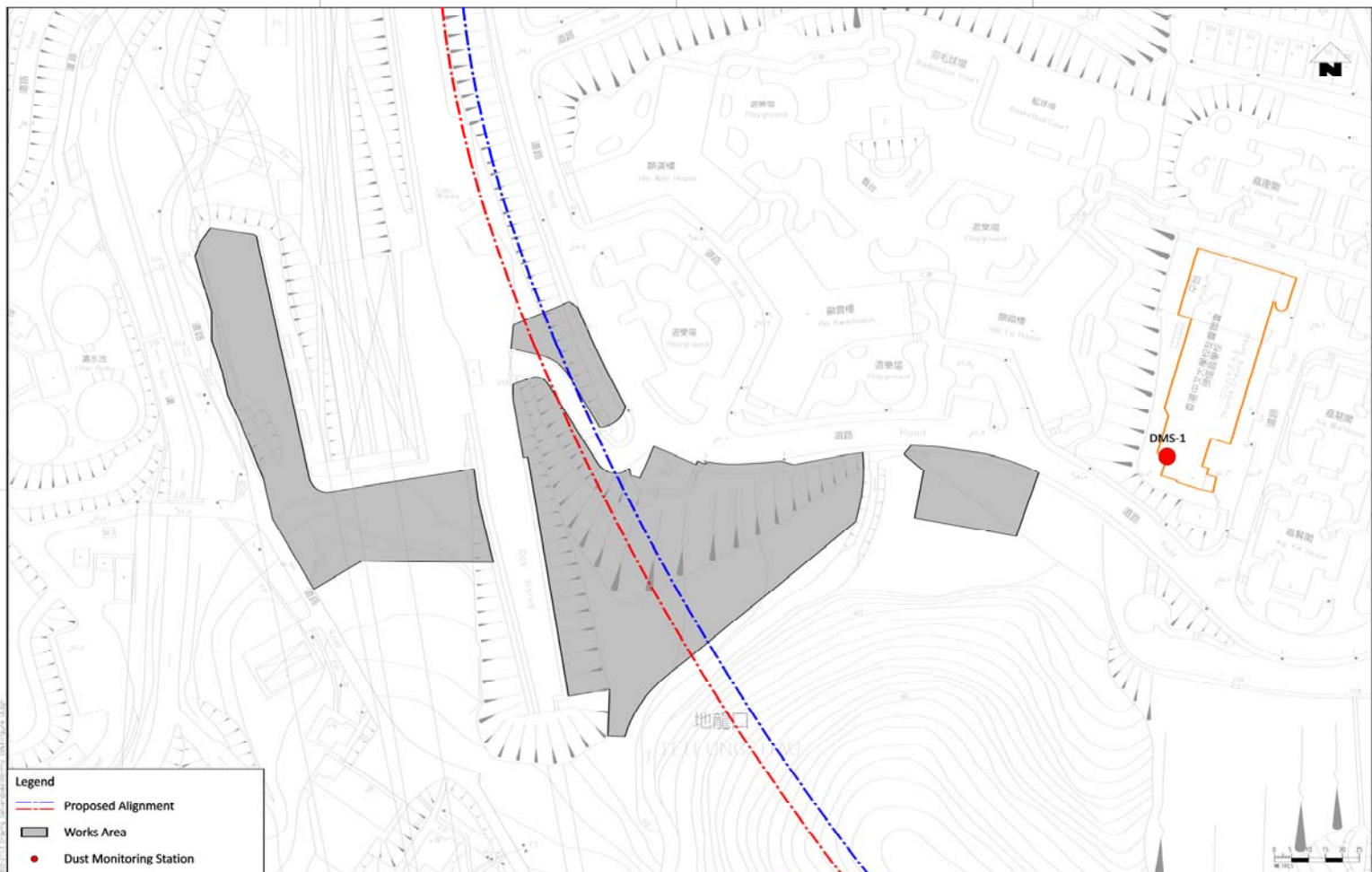
CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- General Alignment of Contract 1103
(Sheet 6 of 6)

SCALE 1:20000 (A3) **DRAWING NO.** 1103/01.6

PLOT 010, Shatin Station, Shatin to Central Link, Contract 1103, Sheet 6 of 6, 05/13, ARUP

Figure 1.7 - Project Organisation for Environmental Works

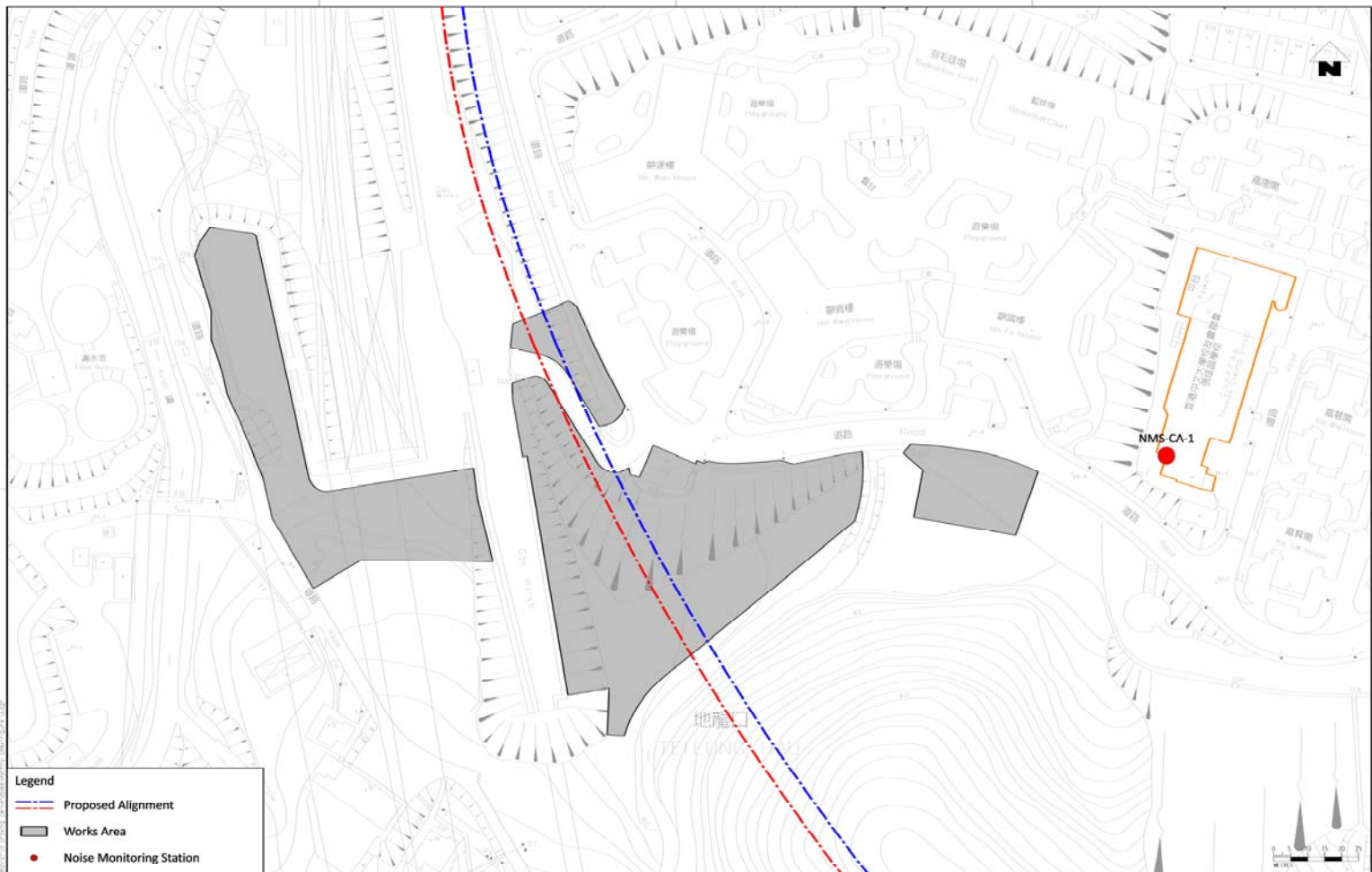




Legend	
	Proposed Alignment
	Works Area
	Dust Monitoring Station

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REV	DESCRIPTION	BY	DATE	APPROVED	REV	SCALE	1:1000 (A3)	FIGURE NO.	Figure 1.8	REV.	A
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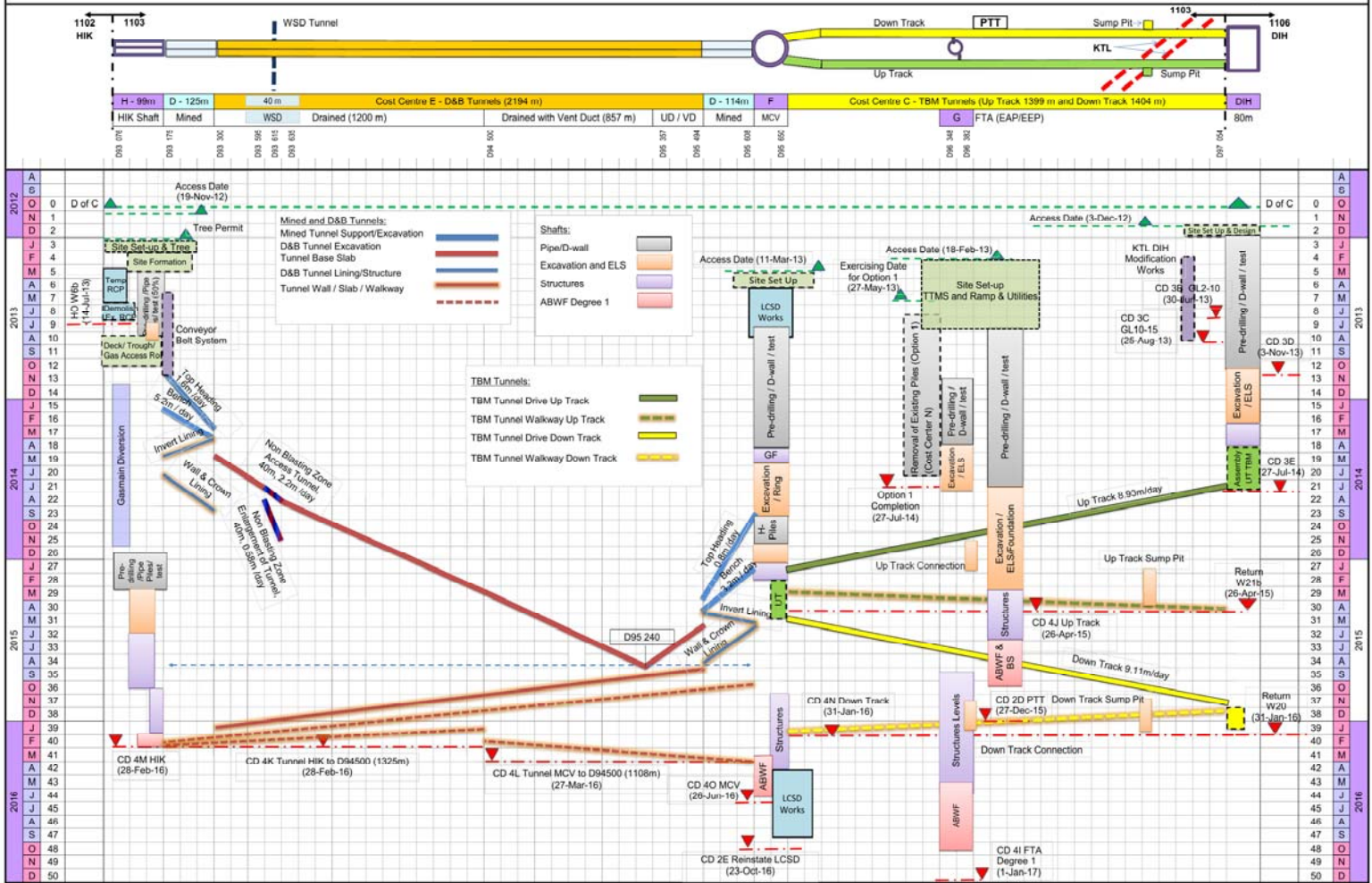
Legend	
	Proposed Alignment
	Works Area
	Noise Monitoring Station

<table border="1"> <tr><td>DATE</td><td>05</td></tr> <tr><td>DESIGNED BY</td><td>CS</td></tr> <tr><td>CHECKED BY</td><td>CN</td></tr> <tr><td>APPROVED BY</td><td>ST</td></tr> <tr><td>DATE</td><td>12/2/12</td></tr> </table>		DATE	05	DESIGNED BY	CS	CHECKED BY	CN	APPROVED BY	ST	DATE	12/2/12		SHATIN TO CENTRAL LINK	<table border="1"> <tr><td>CONTRACT</td><td>1103</td></tr> <tr><td>PROJECT</td><td>HIN KENG TO DIAMOND HILL TUNNELS</td></tr> <tr><td>DESCRIPTION</td><td>Locations of Noise Monitoring Stations (Construction Airborne Noise) (Sheet 1 of 3)</td></tr> </table>	CONTRACT	1103	PROJECT	HIN KENG TO DIAMOND HILL TUNNELS	DESCRIPTION	Locations of Noise Monitoring Stations (Construction Airborne Noise) (Sheet 1 of 3)
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CONTRACT	1103																			
PROJECT	HIN KENG TO DIAMOND HILL TUNNELS																			
DESCRIPTION	Locations of Noise Monitoring Stations (Construction Airborne Noise) (Sheet 1 of 3)																			
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Appendix A

Construction Programme



Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - February 2013 Revision 1**

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

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Quantity	Locations	Parameters
Air Quality	2	DMS-1 - C.U.H.K.A.A Thomas Cheung School and DMS-3 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	2	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School and NMS-CA-3 - Hong Kong Sheng Kung Hui Nursing Home	L _{Aeq(30 min)} , L ₁₀ , L ₉₀

Appendix C

Environmental
Mitigation
Implementation
Schedule (EMIS)

Summary of Implementation Schedule of Mitigation Measures

EIA Ref #	EM&A Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
Noise Control				
8.4.6	8.2	<ul style="list-style-type: none"> Group static PMEs at work site away from NSRs; Good site practices to limit noise emissions at the source; Use of quiet plant and working methods; Use of site hoarding as noise barrier to screen noise at ground level of NSRs; Use of shrouds / temporary noise barriers to screen noise from relatively static PMEs; Use of large full enclosure to screen all the plant; Scheduling of construction works outside school examination periods in critical area; and Alternative use of plant items within one worksite, wherever practicable. 	Works Sites / During Construction Phase	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ N/O N/O ✓ ✓

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
Air Quality Control				
7.6.6	7.2	<p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation.</p> <ul style="list-style-type: none"> 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 	Works Sites / During Construction Phase	<ul style="list-style-type: none"> ✓ ✓ ✓

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		<p>traffic cones;</p> <ul style="list-style-type: none"> • 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 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; • 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 		<p style="text-align: center;">✓</p> <p style="text-align: center;">Obs</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		<p>level alarm which is interlocked with the material filling line and no overfilling is allowed;</p> <ul style="list-style-type: none"> • 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; • 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; 		<p>Obs ✓</p> <p>N/A</p>

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Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		Water Quality Control		
10.7.1.1	10.2	<p>Construction run-off and Drainage</p> <ul style="list-style-type: none"> At the start of 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 facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates; The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction; 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 	Works Sites / During Construction Phase	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>Obs</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		<p>evenly over stable, vegetated areas;</p> <ul style="list-style-type: none"> • 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 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system; • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers; • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes; • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction 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 		<p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>Obs</p> <p>✓</p> <p>✓</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		<p>properly to avoid water quality impacts. Requirements for solid waste management are detailed in Section 11 of this EIA Report;</p> <ul style="list-style-type: none"> • 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; • By adopting the above mitigation measures with Best Management Practices (BMPs) it is anticipated that the impacts of construction site runoff from the construction site will be reduced to an acceptable level before discharges; and • 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. 		<p>✓</p> <p>✓</p> <p>✓</p>
10.7.1.3		<p>Sewage from Construction Workforce</p> <ul style="list-style-type: none"> • Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities. 	Works Sites / During Construction Phase	✓

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EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
Waste Management				
11.5.1.1	11.2	<p><i>Good Site Practices</i></p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in proper waste management and chemical waste handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites). 	Works Sites / During Construction Phase	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
11.5.1.5	11.2	<p><i>Chemical Wastes</i></p> <ul style="list-style-type: none"> • After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes; • Spent chemicals should be collected by a licensed collector for disposal at the CWTC or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	Works Sites / During Construction Phase	<p>✓</p> <p>✓</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
11.5.1.3	11.2	<p><i>General Refuse</i></p> <ul style="list-style-type: none"> • General refuse should be stored in enclosed bins or compaction units separate from C&D material; • A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material; and • An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. 	Works Sites / During Construction Phase	<p>✓</p> <p>✓</p> <p>✓</p>
11.5.1.2	11.2	<p><i>C&D Materials</i></p> <ul style="list-style-type: none"> • 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, which become a part of the Environmental Management Plan in accordance with "ETWBTC (Works) No. 19/2005 – Waste Management on Construction Site", to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. 		<p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>✓</p>

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
		Ecology		
5.7.1.1	5.2.1	Construction activities should be confined to developed areas of low ecological value, and there should be no direct impact on other habitats within the Study Area.	Works Sites / During Construction Phase	✓
5.7.1.2	5.2.4	In order to demonstrate ecological awareness and to minimize the risk of indirect impacts from water pollution, a series of mitigation measures should be implemented by site staff throughout the construction and future maintenance of the SCL Alignment and associated facilities. These are as follows: <ul style="list-style-type: none"> • 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; and • Waste and refuse in appropriate receptacles. 	Works Sites / During Construction Phase	 ✓ ✓ ✓ ✓ ✓

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Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *
Landscape and Visual				
Table 6.1	Table 6.1	CM1 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.	Works Sites / During Construction Phase	N/A
Table 6.1	Table 6.1	CM2 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.		✓
Table 6.1	Table 6.1	CM3 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.		✓

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

Appendix D

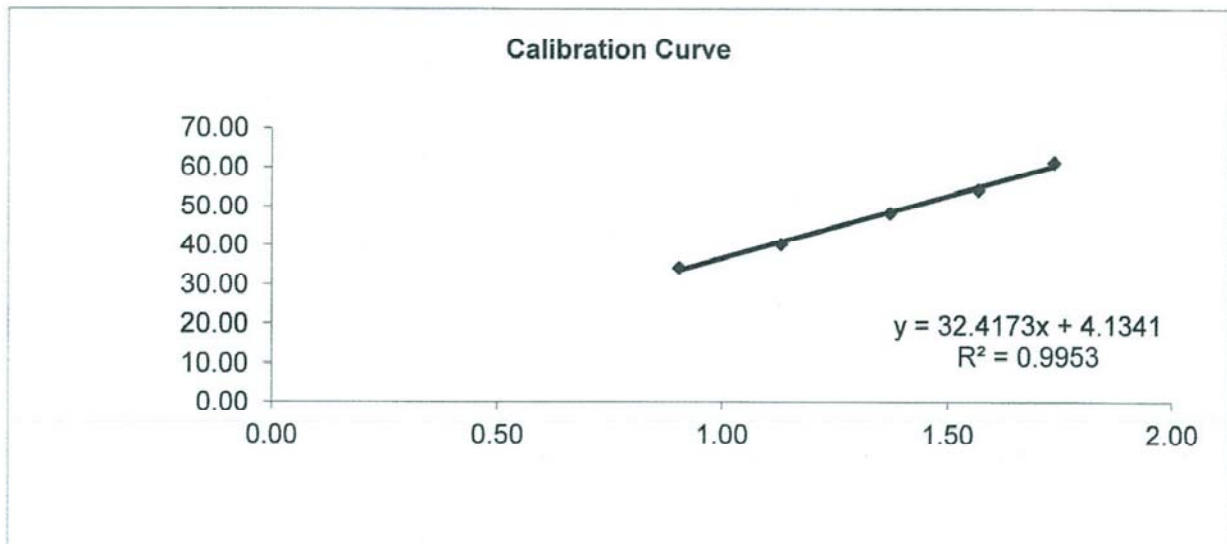
Calibration
Certificates for Air
Monitoring
Equipment

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	Temperature (°C)	22 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (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		


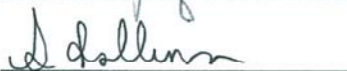
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7	5.30	40.00	1.13	40.20
10	7.80	48.00	1.37	48.24
13	10.20	54.00	1.57	54.27
18	12.50	61.00	1.74	61.31



Linear Regression

Sampler slope (m) : **32.4173**
 Sampler intercept (b) : **4.1341**
 Correlation coefficient (R²) : **0.9953**

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

Performed by: 
 Checked by: 

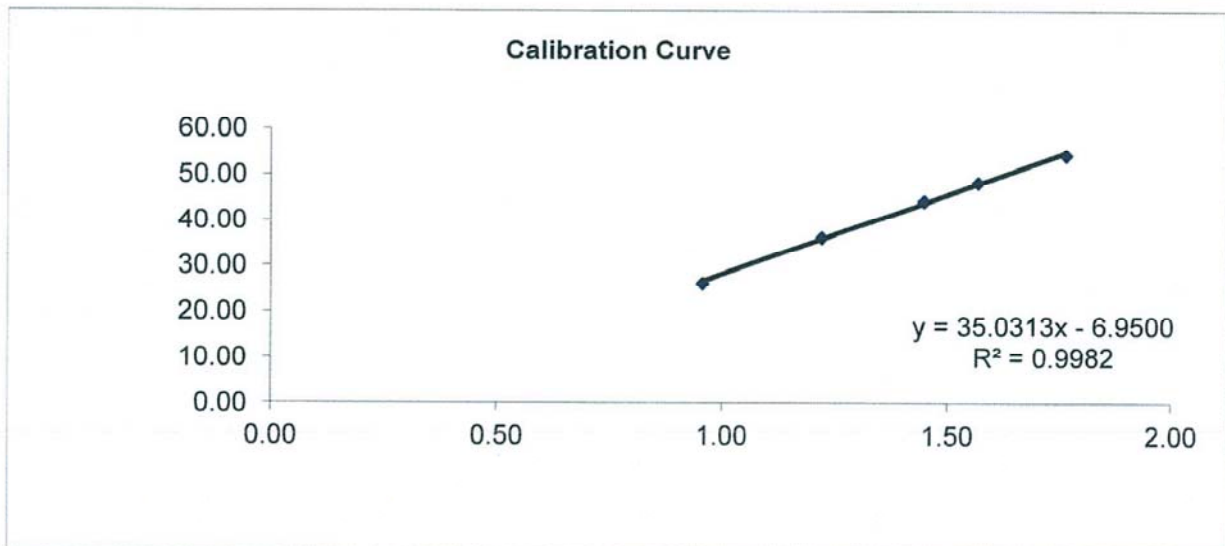
Date: 4-2-13
 Date: 4-2-13

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	Temperature (°C)	22 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing Home	Temperature (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		


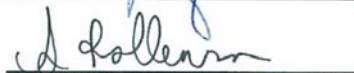
Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.80	26.00	0.96	26.15
7	6.20	36.00	1.22	36.21
10	8.70	44.00	1.45	44.25
13	10.20	48.00	1.57	48.28
18	12.90	54.00	1.76	54.31



Linear Regression

Sampler slope (m) : **35.0313**
 Sampler intercept (b) : **-6.9500**
 Correlation coefficient (R²) : **0.9982**

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

Performed by: 
 Checked by: 

Date: 4-2-13
 Date: 4-2-13

Appendix E

Dust Results

Location: DMS-1 - C.U.H.K.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 (°C)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapsed Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Start	Finish								
102291	Feb-13	15-Feb-13	0:00	0:00	DMS-1	Cloudy	Normal Operation	759.0	761.0	21.0	17.0	41.0	42.0	2.7456	2.8676	0.1220	1.1450	1.1867	1.1659	48.29	72.29	1440.00	1678.82	72.7	148.7	260.0
102306	Feb-13	19-Feb-13	0:00	0:00	DMS-1	Fine	Normal Operation	759.0	761.0	21.0	20.0	42.0	42.0	2.7789	2.8409	0.0632	1.1760	1.1800	1.1780	72.29	96.29	1440.00	1696.32	37.3	148.7	260.0
102308	Feb-13	25-Feb-13	0:00	0:00	DMS-1	Fine	Normal Operation	761.0	761.0	18.0	19.0	41.0	41.0	2.7805	2.9092	0.1287	1.1532	1.1510	1.1521	96.29	120.29	1440.00	1659.02	77.6	148.7	260.0

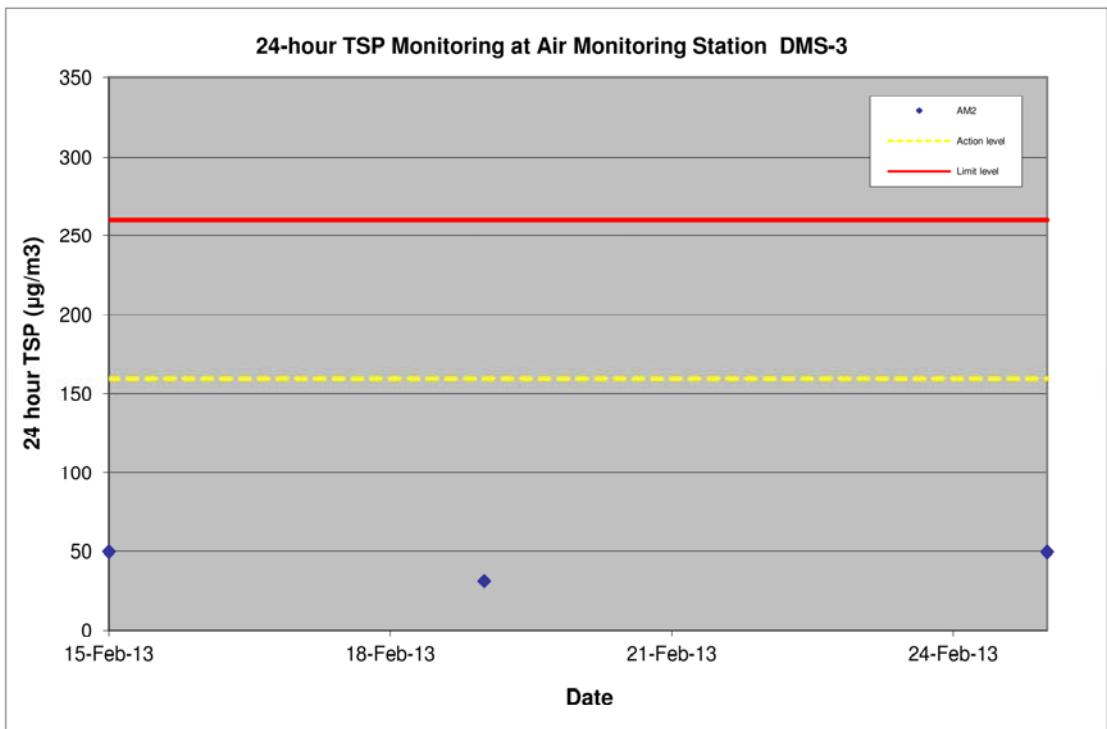
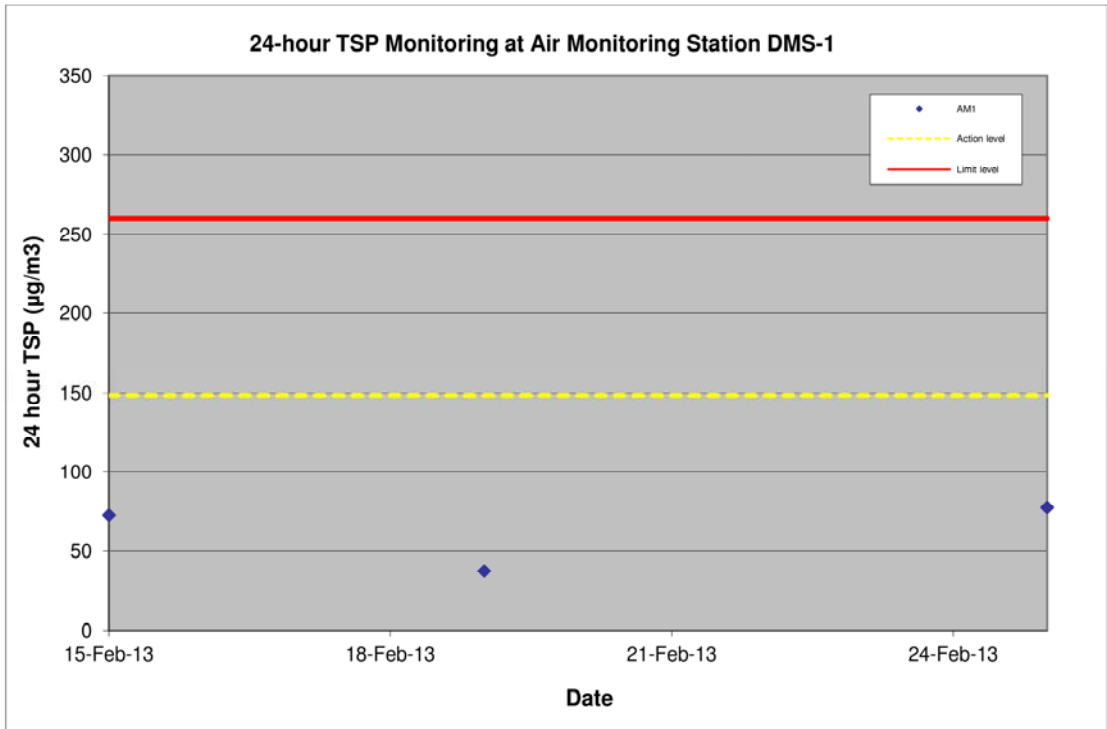
Average (µg/m ³)	62.5
Max (µg/m ³)	77.6
Min (µg/m ³)	37.3

Location: DMS3 - 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 (°C)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapsed Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Start	Finish								
102292	Feb-13	15-Feb-13	0:00	0:00	DMS-3	Cloudy	Normal Operation	759.0	761.0	21.0	17.0	41.0	42.0	2.7394	2.8396	0.1002	1.3759	1.4145	1.3952	68.40	72.40	1440.00	2009.09	49.9	159.1	260.0
102305	Feb-13	19-Feb-13	0:00	0:00	DMS-3	Fine	Normal Operation	759.0	761.0	21.0	20.0	42.0	42.0	2.7784	2.8416	0.0632	1.4047	1.4083	1.4065	72.40	96.40	1440.00	2025.36	31.2	159.1	260.0
102307	Feb-13	25-Feb-13	0:00	0:00	DMS-3	Fine	Normal Operation	761.0	761.0	18.0	19.0	42.0	42.0	2.7879	2.8889	0.1010	1.4125	1.4103	1.4114	96.40	120.40	1440.00	2032.42	49.7	159.1	260.0

Average (µg/m ³)	43.6
Max (µg/m ³)	49.9
Min (µg/m ³)	31.2



Appendix F

Wind data

Wind Monitoring Data - February 2013**Kai Tak Meteorological Station**

Date	Wind Direction (degree)	Wind Speed (km/h)
15-Feb-13	70	14.2
19-Feb-13	40	14.5
25-Feb-13	50	24.6

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 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 : 26 July 2012
簽發日期

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

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗室
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : 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 _{AFF}	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 _{AFF}	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 _{AFF}	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.

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

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C124325

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFF}	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 _{AFF}	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 _{AFF}	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)

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

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C124325
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.1	-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
			60 sec.					90	89.7	± 0.5
								80	79.7	± 1.0
								70	69.8	± 1.0
5 min.	1/10 ³									
						1/10 ⁴				

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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
 本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : 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 : $(23 \pm 2)^{\circ}\text{C}$

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 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

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

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C124803

證書編號

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

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

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.

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		
14-Feb-13	14:10 - 14:40	55.2	70.0	57.1	52.3	57.0	Measured ≤ Baseline
20-Feb-13	14:35 - 15:05	57.3	70.0	57.1	52.3	57.0	Measured ≤ Baseline
26-Feb-13	9:15 - 9:45	58.2	70.0	60.4	53.7	57.0	52.0

Notes: (*) : Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq} 30min	56.9
Max L _{Aeq} 30min	58.2
Min L _{Aeq} 30min	55.2

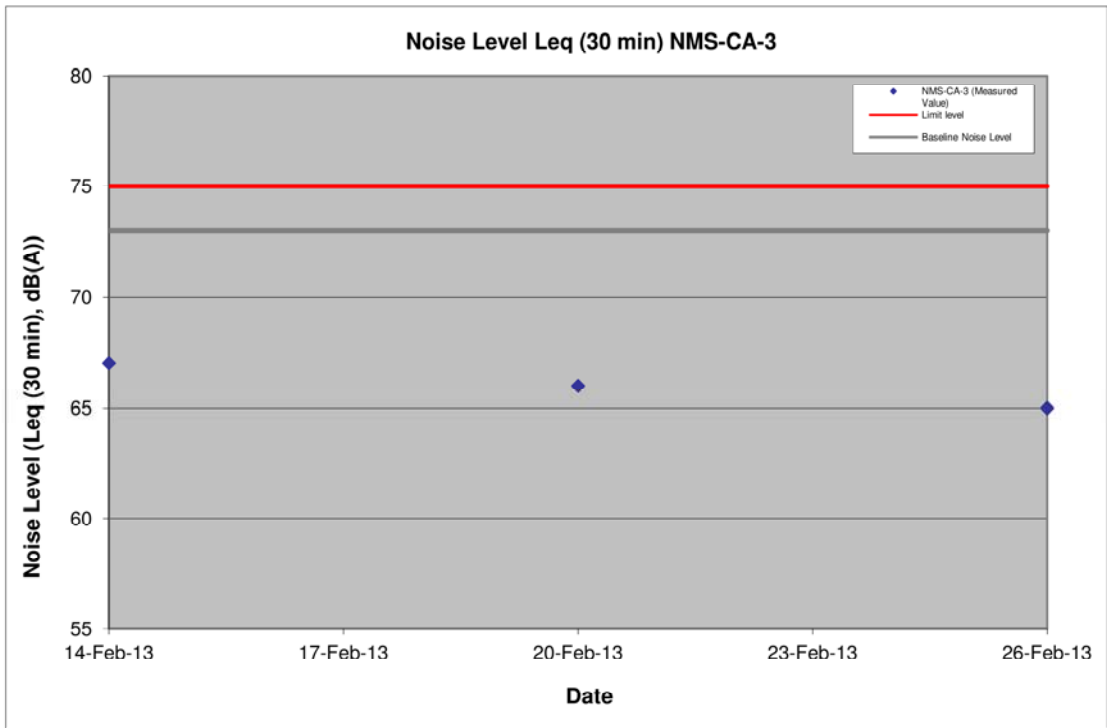
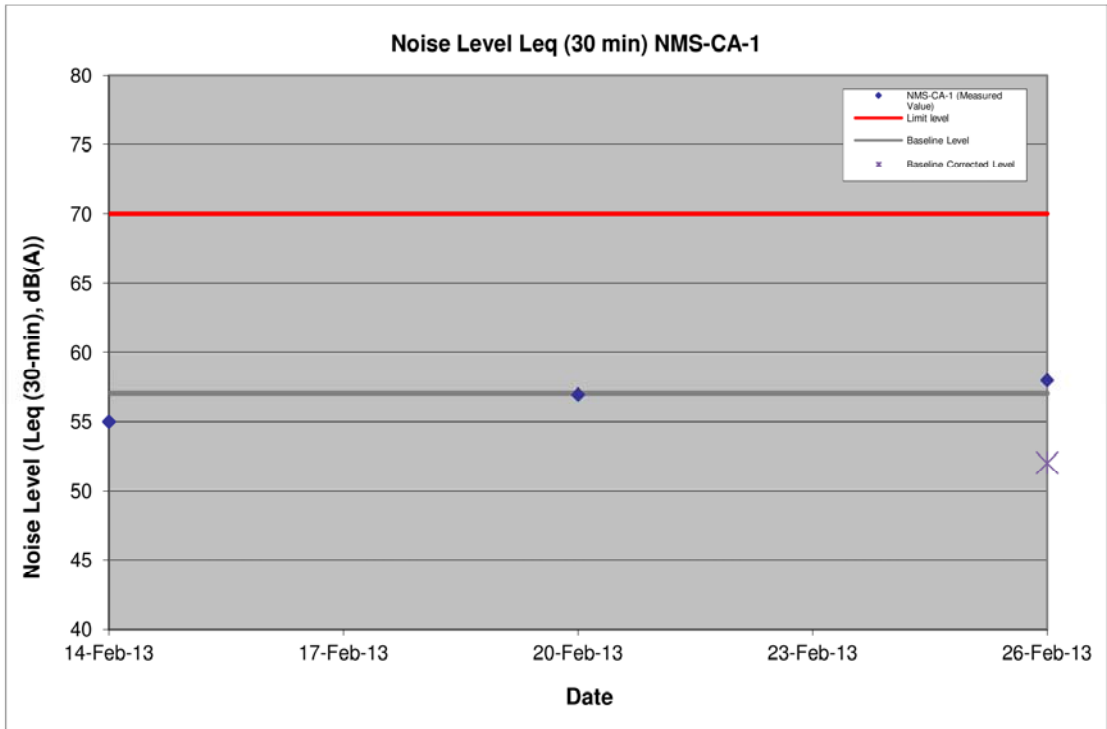
Location: NMS-CA-3 - Hong Kong Sheng Kung Hui Nursing Home

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		
14-Feb-13	16:00 - 16:30	66.8	75.0	68.5	64.0	73.0	Measured ≤ Baseline
20-Feb-13	16:15 - 16:45	66.4	75.0	68.5	64.0	73.0	Measured ≤ Baseline
26-Feb-13	11:20 - 11:50	64.7	75.0	66.0	61.2	73.0	Measured ≤ Baseline

Notes: (*) : Façade correction is included

(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq} 30min	65.9
Max L _{Aeq} 30min	66.8
Min L _{Aeq} 30min	64.7



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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	1.823	0.000	0.000	0.387	1.436	1.190	0.000	0.000	0.000	0.000	0.014
Mar											
Apr											
May											
Jun											
Sub-total	3.517	0.000	0.000	0.387	3.129	1.190	0.000	0.000	0.000	0.000	0.101
July											
August											
September											
October											
November											
December											
Total	3.517	0.000	0.000	0.387	3.129	1.190	0.000	0.000	0.000	0.000	0.101

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 1.0 tonnes/m³.
- 2) The amounts of waste in Feb and cut-off date of data for TKO137FB, NENT Landfill, Kai Tak Barging Point Facility (Contract 1108A) and Imported Fill are 2871.27ton as at 28/2/13, 13.92ton, as at 28/2/13, 774ton as at 21/2/13, 2380ton as at 27/2/13.
- 3) Chemical Waste will be 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 - March 2013 Revision 1**

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	Quantity	Locations	Parameters
Air Quality	3	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	3	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 L

Complaint Log

