MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 3

[Period from 1 to 30 November 2012]

(December 2012)

Verified by: Tom Chapman

Position: Independent Environmental Checker

Date: 13/12/2012

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 3

[Period from 1 to 30 November 2012]

(December 2012)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 13 December 2012

AECOM

MTR Corporation Limited

Consultancy Agreement No. C11033

Shatin to Central Link - Tai Wai to Hung Hom Section [SCL (TAW – HUH)]

Monthly EM&A Report No. 3

[Period from 1 to 30 November 2012]

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

Version:	A	Date: 13 December 2012

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1 INTRODUCTION

1.1 Background

1.1.1 Shatin to Central Link – Tai Wai to Hung Hom Section [SCL (TAW-HUH)], is an approximately 11 km long extension of the Ma On Shan Line (MOL) and connects the existing West Rail Line (WRL) at Hung Hom, forming a strategic east-west rail corridor and Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings for SCL (TAW – HUH) at the former freight yard in Hung Hom (hereafter referred to as "the Project").

1.1.2 The EIA Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012) 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, an Environmental Permit (EP) was granted on 22 March 2012 (EP No: EP-438/2012) for the construction and operation of the SCL (TAW-HUH) and SCL (HHS). Variations of environmental permit (VEP) was subsequently applied 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 Three 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 Contract

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1101	Mei Tin Road Noise Cover	To be constructed	Sun Fook Kong Joint Venture (SFKJV)	EDMS Consulting Ltd. (EDMS)
1103	Hin Keng to Diamond Hill Tunnels	To be constructed	Vinci Construction Grands Projets	Arup
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)

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 third 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 30 November 2012.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1.1 The third EM&A Reports for Works Contracts 1108A and1109 prepared by the respective Contractor's ETs are provided in **Appendices A** and **B**, respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.

2.1.2 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(1)	N/A	N/A
1102(1)	N/A	N/A
1103(1)	N/A	N/A
1106(1)	N/A	N/A
1107(1)	N/A	N/A
1108(1)	N/A	N/A
1108A	Kai Tak Barging Point Facilities (off-site temporary works area)	• Construction of mini-piles and pile caps; • Installation of weighbridge, wheel washing facilities and recorder house; • Commissioning of floating jetty barge; • Erection of site hoarding; • Dredging and disposal of Type 3 contaminated sediments; and • Site formation and construction of concrete pavement.
1109	Ma Tau Wai (MTW) Works Area	• TKW/MTW Road Garden – Preparation works for the diversion of MTW Road & Chi Kiang street and mobilisation of concrete slabs and silos for the bentonite plant; • Ma Tau Wai Road Planter Emergency Access – Relocation of control boxes; and • To Kwa Wan Market - Demolition of the planter walls & paving the walkway.
	To Kwa Wan (TKW) Works Area	• Archaeological Survey; • Pre-bored H-pile Location - Trial pits and pre-drilling; and • General Works - Site clearance, erection of site hoardings and construction of a site office.
1111(1)	N/A	N/A
1112(1)	N/A	N/A

Note:
(1) Construction works under the contract have yet to commence
N/A Not applicable

2.1.3 Impact monitoring for air quality, noise and marine water quality were conducted in accordance with the EM&A Manual in the reporting period. No exceedance of the Action/Limit Levels of 24-hr TSP, construction noise and marine water quality due to the Project construction was recorded during the reporting period. The air quality, construction noise and marine water quality results for this reporting month are summarised in **Tables 2.2** to **2.4**. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the EM&A Reports as provided in **Appendices A** and **B**.

2.1.4 Since the construction works that have been identified by the Construction Noise Mitigation Measures Plan (CNMMP) to be potentially causing exceedance of noise criteria have yet to commence, continuous noise monitoring was not conducted in the reporting period.

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

2.1.6 Regular site inspections were conducted by the respective Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

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

Monitoring Station ID	Location	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1103[1]					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	N/A	N/A	260	N/A
DMS-2	Price Memorial Catholic Primary School	N/A	N/A	260	N/A
Works Contract 1106[1]					
DMS-3	Hong Kong S.K.H Nursing Home[2]	N/A	N/A	260	N/A
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]	82 – 101	156.8	260	No
DMS-7	Parc 22[4]	84 – 90	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	87 – 90	152.2	260	No
DMS-9	No. 26 Kowloon City Road[5]	83 – 97	160.9	260	No
DMS-10	Chat Ma Mansion	86 – 101	170.4	260	No
Works Contract 1111[1]					
DMS-11	Wing Fung Building	N/A	N/A	260	N/A

Note:
(1) Construction works under the contract have yet to commence
(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

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 1103[1]						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	N/A	N/A	N/A	70 65 during examination period	N/A
NMS-CA-2	Price Memorial Catholic Primary School	N/A	N/A	N/A	70 65 during examination period	N/A
Works Contract 1106[1]						
NMS-CA-3	Hong Kong S.K.H Nursing Home[2]	N/A	N/A	N/A	75	N/A
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]	63.0 – 64.5	76.0	-[8]	75	No
NMS-CA-7	Skytower Tower 2	68.2 – 68.9	70.0	-[8]	75	No
NMS-CA-8	SKH Good Shepherd Primary School	74.3 – 75.3	75.0	63.5	70 65 during examination period	No
NMS-CA-9	Kong Yiu Mansion[5]	71.4 – 72.4	69.0	67.7 – 69.7	75	No
NMS-CA-10	Chat Ma Mansion	76.6 – 77.6	77.0	63.7 – 68.7	75	No
Works Contract 1111[1]						
MMS-CA-11	Wing Fung Building	N/A	N/A	N/A	75	N/A

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

Table 2.4 Summary of Marine Water Quality Monitoring Results in the Reporting Period [(1)]

Locations		Parameters			
		Dissolved Oxygen (mg/L)		Depth-averaged Turbidity (NTU)	Depth-averaged Suspended Solids (mg/L)
		Surface & Middle	Bottom		
IS-1	Mean	5.3	5.0	4.0	5.5
	Range	4.8 – 5.8	4.3 – 5.8	3.3 – 4.5	4.4 – 5.9
CS-1	Mean	5.6	5.5	3.9	5.6
	Range	4.9 – 6.1	4.9 – 6.0	2.8 – 4.6	4.7 – 6.0
CS-2	Mean	5.7	5.7	4.0	5.7
	Range	5.0 – 6.5	5.0 – 6.1	3.0 – 4.8	5.4 – 6.0
Action Level		4.6	3.9	4.8	6.1
Limit Level		4	2	5.0	6.3
Exceedance (Yes/No)		No	No	No	No

Notes:

(1) Marine water quality monitoring was conducted in the reporting period under Works Contract 1108A.

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). The status of required submissions under the EP as of the reporting period is summarized in **Table 3.1**.

Table 3.1 Summary of Status of Required Submissions

EP Condition (EP-438/2012/B)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	1 Aug 2012
Condition 2.3	Notification of Information of Community Liaison Groups	13 Jul 2012 (1st submission) 31 Aug 2012 (2nd submission) 30 Nov 2012 (3rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1st submission) 21 Aug 2012 (2nd submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 5 Oct 2012 (3rd submission) 10 Oct 2012 (Approved)
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1st submission) 30 Aug 2012 (2nd submission) 3 Oct 2012 (3rd submission) 14 Nov 2012 (4th submission)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1st submission) 5 Oct 2012 (2nd submission) 26 Nov 2012 (3rd submission)
Condition 2.16	Archaeological Action Plan(s) (AAP(s))	10 Aug 2012 (1st submission) 3 Sep 2012 (2nd submission) 21 Sep 2012 (Approved)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)
Condition 3.3	Baseline Monitoring Report (Works Contract 1109 - Stations and Tunnels of Kowloon City Section)	27 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contract 1108A – Kai Tak Barging Point Facilities)	31 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Report No. 1 Monthly EM&A Report No. 2	12 Oct 2012 14 Nov 2012

Appendix A

3rd EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 3

[Period from 1 to 30 November 2012]

Works Contract 1108A – Kai Tak Barging Point Facilities

(December 2012)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 12th December 2012

Concentric – Hong Kong River Joint Venture

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

Monthly Environmental Monitoring and Audit Report for November 2012

(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 3rd monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Contract no. 1108A "Shatin to Central Link - Kai Tak Barging Point Facilities". This report documents the findings of EM&A Works conducted in November 2012.

Summary of Construction Works undertaken during Reporting Month

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

- Construction of mini-piles and pile caps;
- Installation of weighbridge, wheel washing facilities and recorder house;
- Commissioning of floating jetty barge;
- Erection of site hoarding;
- Dredging and disposal of Type 3 contaminated sediments; and
- Site formation and construction of concrete pavement.

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……5 times
- Environmental Site Inspection…….……...…4 times

Water Quality

4. A total of 5 sets of water quality monitoring were carried out at the designated monitoring stations during the reporting period since the commencement of dredging activity.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. 70 m^3 of inert C&D materials and 5 m^3 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	0	0	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:

- Load testing of mini-piles and construction of pile caps;
- Fabrication and erection of tipping halls, berthing frames and conveyor belt frames;
- Installation of weighbridges, wheel washing facilities and recorder house;
- Erection of site hoarding;
- Construction of concrete pavement for haul roads ; and
- Commissioning of first barging point facility (floating jetty barge).

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 3rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 November to 30 November 2012.

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 K**.

- Construction of mini-piles and pile caps;
- Installation of weighbridge, wheel washing facilities and recorder house;
- Commissioning of floating jetty barge;
- Erection of site hoarding;
- Dredging and disposal of Type 3 contaminated sediments; and
- Site formation and construction of concrete pavement.

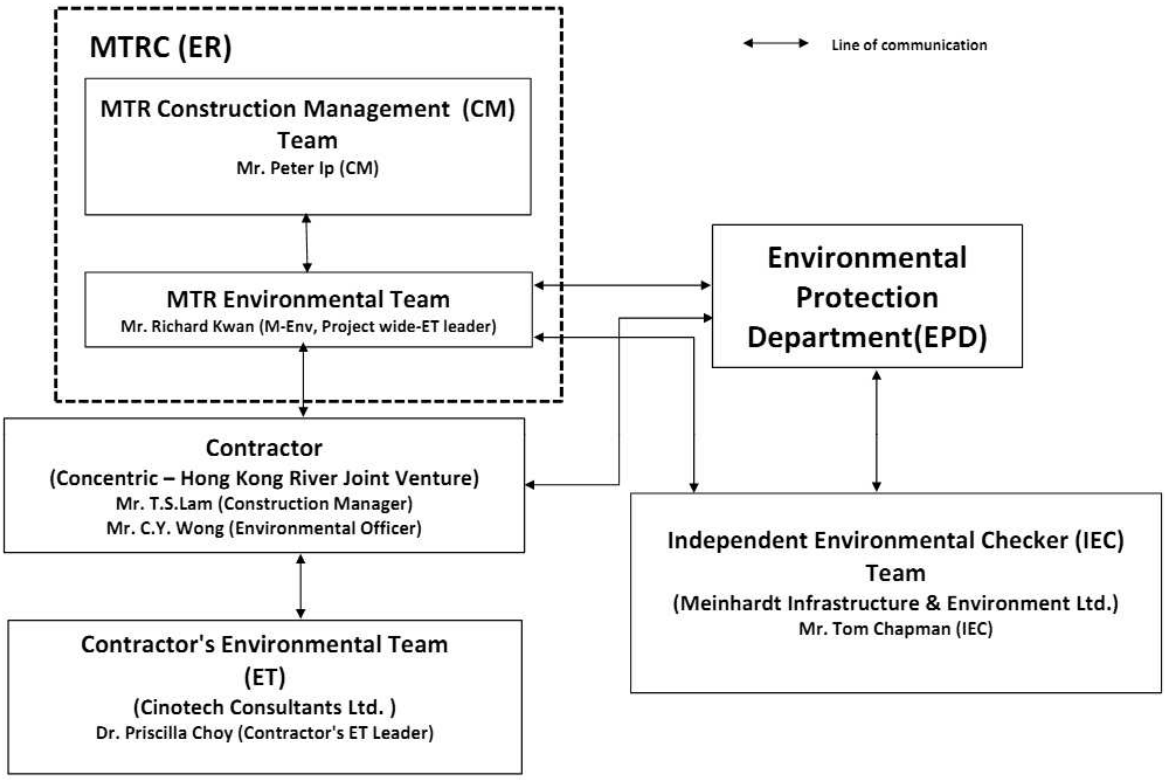
Project Organisation

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
Consruction 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. The monitoring schedule for this reporting period is shown in **Appendix C**.

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.

3.14 The calibration certificates for the in-situ instruments are presented in **Appendix B**.

Back-up Equipment and Vessels

3.15 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.

3.16 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

3.17 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

3.18 Quality Control Reports as attached in **Appendix L** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Action and Limit Levels

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

Event and Action Plan

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

Cultural Heritage

3.21 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.

3.22 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

3.23 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

3.24 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 H**. Status of required submissions under the Environmental Permit (EP) during the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (October 2012)	Submitted to EPD on 14th November 2012 (EP Condition 3.4)	N/A	---

5 MONITORING RESULTS

Water Quality

5.1 A total of 5 sets of water quality monitoring were carried out at the designated monitoring stations during the dredging period in this reporting period. All water quality monitoring was conducted as scheduled in the reporting month (i.e. 2, 5, 8, 10 and 12 November 2012). As the dredging activities were completed on 11 November 2012, the impact water quality monitoring was terminated on 12 November 2012. The water quality impact monitoring schedule for this reporting period is shown in **Appendix C**.

5.2 The monitoring results together with graphical presentations are shown in **Appendix D**.

5.3 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**.

5.4 No exceedance of Action and Limit Levels of water quality was recorded during the reporting period.

Waste Management

5.5 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 I**.

5.6 4,305 m^3 of contaminated materials - Type 3 (Category H_f) sediments were generated from dredging activities during this reporting period. The materials were collected and placed in specially made geo-synthetic containers according to EPD requirement before disposal at Mud Pit Va of East Sha Chau (ESC) Confined Marine Sediment Disposal facility.The dumping operation was carried out from 2nd to 11th November 2012.

Table 5.1 Quantities of Waste Generated from the Project

Reporting Month	Quantity						
	C&D Materials (inert) [(a)]	C&D Materials (non-inert)[(b)]	Dredging Quantity (in bulk volume)	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
November 2012	70 m^3	5 m^3	4,305 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

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

Ecology

5.8 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 F**.

6.2 Site audits were conducted on 5th, 14th, 19th and 26th November 2012 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 14th November 2012. 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 H**.

6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	29 Oct 2012	Reminder: Deposit adequate sandbags or adopt adequate measures to avoid surface runoff from grouting works in the sea when grouting works in operation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 5 Nov 2012.
	5 Nov 2012	Reminder: Deposit adequate sandbags at the two ends of the drainage at site entrance to avoid surface runoff from the construction site	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 Nov 2012.
	14 Nov 2012	Muddy water arises from mini-piling works near seaside was observed leaked out into the sea. The Contractor was reminded to adopt adequate mitigation measures to minimise muddy water leaks into the sea.	The observation was observed to be improved/rectified by the Contractor during the audit session on 19 Nov 2012.
	14 Nov 2012	Reminder: Sedimentation tanks should be properly set up for treating effluent discharge.	The observation was observed to be improved/rectified by the Contractor during the audit session on 19 Nov 2012.
	19 Nov 2012	Reminder: Provide appropriate barriers on the floating jet to avoid surface runoff runs into the sea.	Follow up action is needed in next reporting month.
	26 Nov 2012	Reminder: Generally remove rainwater accumulated on site after rainstorm.	Follow up action is needed in next reporting month.
Noise	N/A	N/A	N/A
Ecology/Landscape and Visual	N/A	N/A	N/A
Air Quality	5 Nov 2012	Reminder: Unpaved area should be watered regularly to suppress dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 Nov 2012.
Waste / Chemical Management	29 Oct 2012	Reminder: Litter near site boundary should be removed.	The observation was observed to be improved/rectified by the Contractor during the audit session on 14 Nov 2012.
	14 Nov 2012	Reminder: Drip tray should be provided in chemical wastes storage area and chemical wastes storage area should be properly labeled.	The observation was observed to be improved/rectified by the Contractor during the audit session on 19 Nov 2012.
Permits/Licenses	N/A	N/A	N/A

IEC's observation/recommendation:

IEC's representative had the following observations/recommendations during the joint site audit on 14 Nov 2012:

- Muddy water arises from mini-piling works near seaside was observed leaked out into the sea. The Contractor was reminded to adopt adequate mitigation measures to minimise muddy water leaks into the sea.
- Sedimentation tanks should be properly set up for treating effluent discharge.
- Drip tray should be provided in chemical wastes storage area and chemical wastes storage area should be properly labeled.

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

7.1 No exceedance of monitoring results was recorded in the reporting month. The summary of exceedance is provided in **Appendix E**.

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 J**.

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:

- Accumulation of C&D waste and general waste on site;
- Fugitive dust emissions by unloading of spoil from trucks after commissioning of the first barging point facility; and
- Fugitive dust generated from haul road construction.

Construction Programme for the Next Month

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

- Load testing of mini-piles and construction of pile caps;
- Fabrication and erection of tipping halls, berthing frames and conveyor belt frames;
- Installation of weighbridges, wheel washing facilities and recorder house;
- Erection of site hoarding;
- Construction of concrete pavement for haul roads; and
- Commissioning of first barging point facility (floating jetty barge).

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 November 2012 to 30 November 2012 in accordance with EM&A Manual and the requirement under EP-438/2012/B.

9.2 No exceedance of monitoring results was recorded 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

- Manage the site boundary properly to avoid surface runoff into the sea.
- Provide adequate number of sand bags around piling works to prevent surface runoff into the sea.

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.

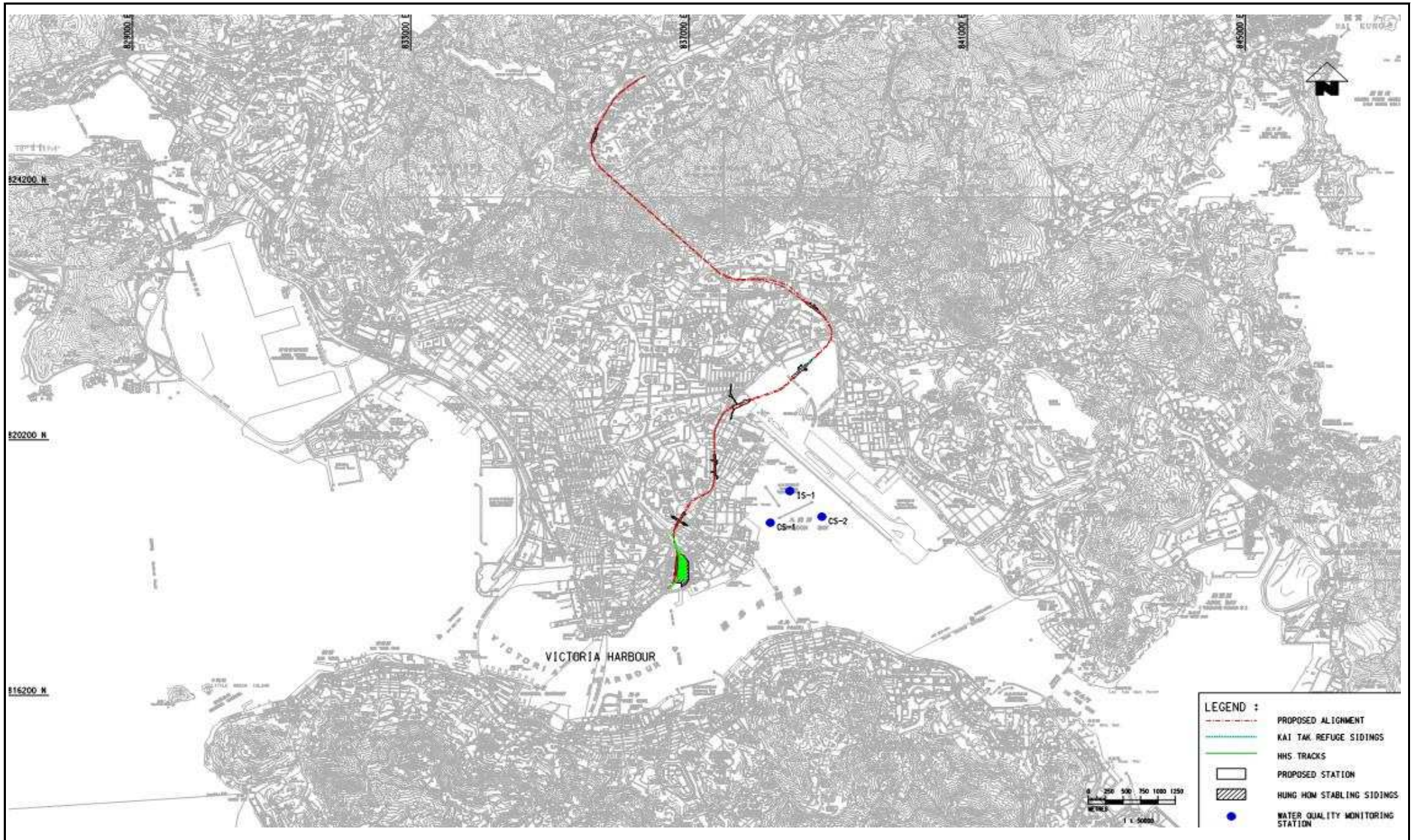
Ecology

- 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 Date: Oct-12	Proposa No. MA12028 Figure: 1

CINOTECH



Title	SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Location of Water Monitoring Station and Control Stations	Scale: N.T.S Date: Oct-12	Proposa No.: MA12028 Figure: 2

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Action and Limit Levels for Water Quality

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

APPENDIX B
COPIES OF CALIBRATION CERTIFICATES

WELLAB 匯力
Testing & Research

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

TEST REPORT

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

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

Test Report No.:	C/W/120915-1
Date of Issue:	2012-09-15
Date Received:	2012-09-15
Date Tested:	2012-09-15
Date Completed:	2012-09-15
Next Due Date:	2012-12-14
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0126AA
Equipment No.	: W.03.01

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 65%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 11J100025
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, L/N: 07E100029
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 11J1000475
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, L/N: 11H
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

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

PATRICK TSE
Laboratory Manager

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Date Tested:	2012-09-15
Date Completed:	2012-09-15
Next Due Date:	2012-12-14
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

WELLAB 匯力 Testing & Research

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

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

Test Report No.:	C/W/120915-3
Date of Issue:	2012-09-15
Date Received:	2012-09-15
Date Tested:	2012-09-15
Date Completed:	2012-09-15
Next Due Date:	2012-12-14
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6920-M
Serial No.	: 03H1764AA
Equipment No.	: W.03.03

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 65%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 03H1461
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution

Dissolved Oxygen Sensor, Model: 6562, L/N: 08C100610
1. Performance check against Winkler titration

Turbidity Sensor, Model: 6136, S/N: 09M100672
1. Calibration check with Formazin standard solution

pH Meter, Model: 6561, L/N: 07E
1. Calibration check with standard pH buffer

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	C/W/120915-3
Date of Issue:	2012-09-15
Date Received:	2012-09-15
Date Tested:	2012-09-15
Date Completed:	2012-09-15
Next Due Date:	2012-12-14
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

APPENDIX C
WATER QUALITY MONITORING SCHEDULE

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

Impact Water Quality Monitoring for Dredging Works in November 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28-Oct	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov
	Water Quality Monitoring Mid-Ebb 11:55 Mid-Flood 17:47		Water Quality Monitoring Mid-Ebb 12:58 Mid-Flood 18:34		Water Quality Monitoring *Mid-Ebb 13:51 Mid-Flood 18:40	
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
	Water Quality Monitoring Mid-Flood 11:18 *Mid-Ebb 15:53			Water Quality Monitoring Mid-Ebb 06:20 Mid-Flood 14:19		Water Quality Monitoring Mid-Ebb 09:02 Mid-Flood 15:27
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
	Water Quality Monitoring Mid-Ebb 10:51 Mid-Flood 16:39					
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

* indicates that the tidal range of individual ebb-tide is less than 0.5m

Remark: 1) Reference was made to the tidal information of Hong Kong Observatory

2) The dredging works was commenced on 21 October 2012 and completed on 11 November 2012

3) The reasons for choosing the monitoring day (i.e. 2 and 5 November 2012)in which the tidal range are less than 0.5m include:

a) The tidal range which less than 0.5m occur for 2 or more consecutive days

b) In compliance to the requirement of (i) three times per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

APPENDIX D
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

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

Appendix D - Water Quality Monitoring Results at IS-1 (Mid-Ebb Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Sunny	Moderate	14:31	Surface	1	25.2 25.2 24.9	25.1	8.1 8.1 8.1	8.1	32.3 32.3 32.3	32.3	91.1 87.2 85.4	87.9	6.2 6.0 5.9	6.0	5.7	2.9 2.9 3.0	2.9	4.5	4 5 3	4.0	4.4
				Middle	4	24.8 24.4 24.2	24.4	8.1 8.1 8.1	8.1	32.4 32.4 32.4	32.4	75.8 76.2 85.0	79.0	5.2 5.2 5.8	5.4		4.3 4.1 3.8	4.1		6 4 5	5.0	
				Bottom	7	25.1 25.5 25.5	25.3	8.2 8.2 8.2	8.2	32.4 32.4 32.5	32.4	76.1 75.7 75.7	75.8	5.2 5.2 5.2	5.2	5.2	6.8 6.5 6.2	6.5		6 4 3	4.3	
5-Nov-12	Sunny	Moderate	16:24	Surface	1	25.6 25.6 25.6	25.6	8.2 8.4 8.3	8.3	32.5 32.5 32.5	32.5	76.8 74.6 74.7	75.4	5.6 5.4 5.5	5.5	5.4	4.0 4.1 3.8	4.0	4.5	4 4 4	4.0	5.3
				Middle	4	25.5 25.5 25.5	25.5	8.4 8.6 8.2	8.4	32.6 32.6 32.6	32.6	72.1 72.1 72.1	72.1	5.2 5.2 5.2	5.2		4.4 4.3 4.9	4.5		6 4 5	5.0	
				Bottom	7	25.4 25.4 25.4	25.4	8.7 8.3 8.5	8.5	32.6 32.6 32.6	32.6	57.6 57.6 58.1	57.8	4.3 4.3 4.3	4.3	4.3	5.2 5.0 4.9	5.0		7 6 8	7.0	
8-Nov-12	Sunny	Rough	7:13	Surface	1	24.9 24.9 24.9	24.9	8.0 8.0 8.0	8.0	32.6 32.5 32.5	32.5	76.9 69.9 70.3	72.4	5.3 4.8 4.8	5.0	4.9	2.8 2.8 2.9	2.8	3.6	6 7 5	6.0	5.9
				Middle	4	24.9 24.9 24.9	24.9	8.1 8.1 8.1	8.1	32.6 32.6 32.6	32.6	71.7 69.9 69.9	70.5	4.9 4.8 4.8	4.9		2.7 2.9 3.0	2.9		6 6 5	5.7	
				Bottom	7	24.8 24.9 24.9	24.8	8.1 8.1 8.1	8.1	32.7 32.7 32.7	32.7	69.6 70.1 70.3	70.0	4.8 4.8 4.8	4.8	4.8	4.8 5.0 5.9	5.2		5 7 6	6.0	
10-Nov-12	Sunny	Moderate	9:43	Surface	1	24.9 24.9 24.9	24.9	8.1 8.1 8.1	8.1	31.1 31.1 31.1	31.1	74.7 74.1 73.6	74.1	5.2 5.1 5.1	5.1	5.1	2.1 2.1 2.4	2.2	3.3	5 6 5	5.3	5.7
				Middle	3.5	24.9 24.9 24.9	24.9	8.1 8.1 8.1	8.1	31.2 31.2 31.2	31.2	72.3 71.9 71.2	71.8	5.0 5.0 4.9	5.0		2.7 2.6 3.1	2.8		6 5 5	5.3	
				Bottom	6	24.9 24.9 24.9	24.9	8.1 8.1 8.1	8.1	31.3 31.3 31.3	31.3	70.2 69.9 69.6	69.9	4.9 4.8 4.8	4.8	4.8	4.6 4.8 4.9	4.8		6 7 6	6.3	
12-Nov-12	Sunny	Moderate	11:43	Surface	1	24.7 24.7 24.7	24.7	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	80.3 79.8 79.8	80.0	5.6 5.5 5.5	5.5	5.5	3.1 3.1 3.2	3.1	4.1	5 4 5	4.7	5.8
				Middle	4	24.7 24.7 24.7	24.7	7.8 7.8 7.8	7.8	31.8 31.8 31.7	31.7	78.4 78.4 78.6	78.5	5.4 5.4 5.5	5.4		3.7 3.6 3.6	3.6		6 5 5	5.3	
				Bottom	7	24.7 24.7 24.7	24.7	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	77.1 77.2 77.3	77.2	5.4 5.4 5.4	5.4	5.4	5.5 5.6 5.6	5.6		8 7 7	7.3	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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

Appendix D - Water Quality Monitoring Results at IS-1 (Mid-Flood Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Cloudy	Moderate	19:02	Surface	1	25.3 25.2 25.0	25.2	8.2 8.2 8.2	8.2	32.3 32.3 32.3	32.3	77.6 77.3 86.2	80.4	5.3 5.3 5.9	5.5	5.4	2.9 3.3 3.2	3.1	3.9	4 5 4	4.3	5.4
				Middle	4	24.9 24.1 24.1	24.4	8.2 8.2 8.2	8.2	32.4 32.3 32.4	32.3	75.6 75.8 75.6	75.7	5.2 5.4 5.2	5.2		4.0 3.6 3.8	3.8		5 6 5	5.3	
				Bottom	7	25.2 25.1 25.4	25.2	8.2 8.2 8.2	8.2	32.4 32.4 32.4	32.4	73.6 74.1 74.1	73.9	5.0 5.1 5.1	5.1	5.1	4.9 4.9 4.5	4.8		6 7 7	6.7	
5-Nov-12	Sunny	Moderate	11:38	Surface	1	25.3 25.3 25.3	25.3	8.3 8.1 8.3	8.2	32.6 32.6 32.6	32.6	84.1 82.0 82.0	82.7	6.1 5.9 5.9	6.0	5.7	2.9 2.6 3.1	2.9	4.4	4 5 4	4.3	5.4
				Middle	4.5	25.2 25.2 25.2	25.2	8.7 8.3 8.5	8.5	32.6 32.6 32.6	32.6	76.0 76.0 75.6	75.9	5.5 5.5 5.5	5.5		4.6 4.9 5.0	4.8		4 5 4	4.3	
				Bottom	8	25.2 25.2 25.2	25.2	8.4 8.4 8.5	8.5	32.6 32.6 32.6	32.6	74.5 74.5 74.2	74.4	5.4 5.4 5.4	5.4	5.4	5.5 5.6 5.7	5.6		8 7 8	7.7	
8-Nov-12	Sunny	Rough	14:49	Surface	1	24.8 24.8 24.8	24.8	8.0 8.0 8.0	8.0	32.7 32.7 32.7	32.7	77.7 78.7 79.3	78.6	4.8 4.8 4.9	4.8	4.8	4.0 3.7 4.1	3.9	3.9	6 6 8	6.7	5.4
				Middle	4	24.7 24.7 24.8	24.7	8.0 8.0 8.0	8.0	32.7 32.7 32.7	32.7	77.0 79.1 78.8	78.3	4.7 4.9 4.8	4.8		3.9 4.2 4.0	4.0		5 5 4	4.7	
				Bottom	7	24.8 24.8 24.8	24.8	8.1 8.1 8.1	8.1	32.7 32.7 32.7	32.7	78.5 79.2 71.1	76.3	4.8 4.9 4.7	4.8	4.8	3.9 3.9 3.7	3.8		5 5 5	5.0	
10-Nov-12	Sunny	Moderate	15:41	Surface	1	25.1 25.1 25.1	25.1	8.1 8.1 8.1	8.1	31.2 31.2 31.2	31.2	76.5 75.3 74.7	75.5	5.3 5.2 5.2	5.2	5.1	2.7 2.5 2.3	2.5	4.1	6 6 8	6.7	5.6
				Middle	3.5	25.1 25.1 25.1	25.1	8.1 8.1 8.1	8.1	31.2 31.2 31.2	31.2	72.2 71.8 71.2	71.7	5.0 5.0 4.9	5.0		3.8 3.9 3.9	3.9		5 5 4	4.7	
				Bottom	6	25.1 25.1 25.1	25.1	8.1 8.1 8.1	8.1	31.2 31.2 31.2	31.2	69.7 69.2 68.8	69.2	4.8 4.8 4.8	4.8	4.8	5.8 6.1 6.0	6.0		5 6 5	5.3	
12-Nov-12	Sunny	Moderate	16:59	Surface	1	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	84.2 84.2 84.2	84.2	5.8 5.8 5.8	5.8	5.8	2.3 2.4 2.3	2.3	3.6	5 4 6	5.0	5.7
				Middle	4.5	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	84.7 84.8 84.4	84.6	5.9 5.9 5.8	5.9		3.9 3.8 3.8	3.8		6 5 6	5.7	
				Bottom	8	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	83.6 83.5 83.8	83.6	5.8 5.8 5.8	5.8	5.8	4.7 4.7 4.7	4.7		6 6 7	6.3	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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

Appendix D - Water Quality Monitoring Results at CS-1 (Mid-Ebb Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Sunny	Moderate	14:00	Surface	1	25.4 24.7 24.7	24.9	8.2 8.2 8.2	8.2	32.3 32.3 32.3	32.3	92.4 87.3 85.4	88.4	6.3 6.0 5.9	6.0	5.9	3.2 3.2 3.3	3.2	4.6	5 7 5	5.7	5.8
				Middle	5.5	24.8 24.7 24.0	24.5	8.2 8.2 8.2	8.2	32.5 32.5 32.5	32.5	85.4 85.0 82.2	84.2	5.9 5.8 5.6	5.8		5.1 4.6 4.9	4.9		5 6 7	6.0	
				Bottom	10	24.5 24.5 24.3	24.4	8.2 8.2 8.2	8.2	32.5 32.5 32.7	32.6	83.2 83.4 92.4	86.3	5.7 5.7 6.3	5.9	5.9	6.2 5.4 5.7	5.8		6 6 5	5.7	
5-Nov-12	Sunny	Moderate	15:49	Surface	1	25.4 25.4 25.4	25.4	8.6 8.1 8.7	8.5	32.6 32.6 32.6	32.6	78.3 78.3 76.3	77.6	5.7 5.7 5.5	5.6	5.5	3.2 3.1 3.3	3.2	4.0	6 5 5	5.3	6.0
				Middle	5.5	25.4 25.4 25.4	25.4	8.5 8.3 8.4	8.4	32.6 32.6 32.6	32.6	73.9 73.9 73.8	73.9	5.4 5.4 5.4	5.4		4.1 4.2 4.3	4.2		5 6 5	5.3	
				Bottom	10	25.2 25.2 25.2	25.2	8.5 8.3 8.4	8.4	32.6 32.6 32.7	32.6	73.7 73.7 66.3	71.2	5.4 5.4 4.9	5.2	5.2	4.8 4.4 4.5	4.6		8 7 7	7.3	
8-Nov-12	Sunny	Rough	6:37	Surface	1	24.9 24.9 24.9	24.9	8.0 8.0 8.0	8.0	32.8 32.8 32.8	32.8	76.0 74.9 75.1	75.3	5.2 5.2 5.2	5.2	5.2	3.2 3.1 3.2	3.2	4.2	6 5 5	5.3	5.8
				Middle	5.5	24.9 24.9 24.9	24.9	8.0 8.0 8.0	8.0	32.8 32.8 32.8	32.8	74.9 75.0 75.2	75.0	5.2 5.2 5.2	5.2		3.2 3.4 3.4	3.3		5 6 6	5.7	
				Bottom	10	24.9 24.9 24.9	24.9	8.1 8.1 8.1	8.1	32.8 32.8 32.8	32.8	74.9 74.9 75.0	74.9	5.2 5.2 5.2	5.2	5.2	6.4 5.9 5.6	6.0		6 7 6	6.3	
10-Nov-12	Sunny	Moderate	9:14	Surface	1	25.0 25.0 25.0	25.0	8.2 8.2 8.2	8.2	31.2 31.2 31.1	31.1	92.0 90.9 90.3	91.1	6.4 6.3 6.3	6.3	6.1	2.4 2.3 2.3	2.3	2.8	4 5 5	4.7	4.9
				Middle	5.5	24.9 24.9 24.9	24.9	8.2 8.2 8.2	8.2	31.2 31.3 31.3	31.2	86.4 86.0 85.5	86.0	6.0 6.0 5.9	6.0		2.9 2.7 3.0	2.9		5 6 6	5.7	
				Bottom	10	24.9 24.9 24.9	24.9	8.2 8.2 8.2	8.2	31.3 31.3 31.3	31.3	82.8 81.9 81.5	82.1	5.7 5.7 5.7	5.7	5.7	3.3 3.3 3.3	3.3		4 5 4	4.3	
12-Nov-12	Sunny	Moderate	11:04	Surface	1	24.8 24.8 24.8	24.8	7.9 7.9 7.9	7.9	31.9 31.9 31.9	31.9	88.2 86.0 85.9	86.7	6.1 6.0 6.0	6.0	6.0	3.5 3.5 3.6	3.5	3.9	4 5 6	5.0	5.6
				Middle	5.5	24.8 24.8 24.8	24.8	7.9 7.9 7.9	7.9	31.8 31.8 31.8	31.8	85.8 85.8 85.6	85.7	5.9 5.9 5.9	5.9		3.4 3.4 3.3	3.4		5 6 6	5.7	
				Bottom	10	24.7 24.7 24.7	24.7	7.9 7.9 7.9	7.9	31.9 31.9 32.0	31.9	87.2 87.3 87.2	87.2	6.0 6.1 6.0	6.0	6.0	4.8 4.8 4.9	4.8		5 7 6	6.0	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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

Appendix D - Water Quality Monitoring Results at CS-1 (Mid-Flood Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Cloudy	Moderate	18:31	Surface	1	25.4 24.5 24.8	24.9	8.2 8.2 8.2	8.2	32.3 32.3 32.3	32.3	90.7 86.2 85.4	87.4	6.2 5.9 5.9	6.0	5.8	3.6 3.7 3.6	3.6	4.1	4 5 5	4.7	4.7
				Middle	5.5	24.6 24.6 24.2	24.5	8.2 8.2 8.2	8.2	32.4 32.4 32.3	32.4	81.0 80.8 82.2	81.3	5.5 5.5 5.6	5.6		3.8 3.7 3.9	3.8		4 4 5	4.3	
				Bottom	10	24.3 24.0 24.1	24.1	8.2 8.2 8.2	8.2	32.4 32.4 32.4	32.4	81.9 81.5 75.8	79.7	5.6 5.6 5.4	5.5	5.5	4.8 5.2 4.6	4.9		5 4 6	5.0	
5-Nov-12	Sunny	Moderate	11:05	Surface	1	25.3 25.3 25.3	25.3	8.5 8.4 8.4	8.4	32.5 32.5 32.5	32.5	77.7 75.4 75.4	76.2	5.6 5.5 5.5	5.5	5.4	3.0 2.8 3.0	2.9	3.6	7 5 6	6.0	5.8
				Middle	6	25.3 25.3 25.3	25.3	8.3 8.3 8.2	8.3	32.5 32.5 32.5	32.5	71.8 71.8 71.7	71.8	5.2 5.2 5.2	5.2		3.3 3.2 3.3	3.3		5 6 4	5.0	
				Bottom	11	25.3 25.3 25.3	25.3	8.4 8.7 8.5	8.6	32.5 32.5 32.5	32.5	71.0 71.0 71.0	71.0	5.2 5.2 5.2	5.2	5.2	4.7 4.6 4.7	4.7		6 6 7	6.3	
8-Nov-12	Sunny	Rough	14:13	Surface	1	24.8 24.8 24.8	24.8	8.0 8.0 8.0	8.0	32.8 32.8 32.8	32.8	72.0 71.8 71.5	71.8	5.0 4.9 4.9	4.9	4.9	3.9 3.8 3.9	3.9	4.1	5 5 4	4.7	6.0
				Middle	6	24.8 24.8 24.8	24.8	8.1 8.1 8.1	8.1	32.8 32.8 32.8	32.8	71.8 71.7 71.3	71.6	5.0 4.9 4.9	4.9		3.8 4.0 3.8	3.9		6 5 6	5.7	
				Bottom	11	24.8 24.8 24.8	24.8	8.1 8.1 8.1	8.1	32.9 32.9 32.9	32.9	69.9 71.8 71.9	71.2	4.8 4.9 5.0	4.9	4.9	4.6 4.4 5.1	4.7		8 8 7	7.7	
10-Nov-12	Sunny	Moderate	15:16	Surface	1	25.2 25.2 25.3	25.2	8.2 8.2 8.2	8.2	31.1 31.1 31.0	31.1	80.3 80.0 79.6	80.0	5.5 5.5 5.5	5.5	5.4	3.2 3.1 3.2	3.2	4.2	5 5 4	4.7	5.8
				Middle	5.5	25.1 25.1 25.1	25.1	8.1 8.1 8.1	8.1	31.1 31.2 31.2	31.2	78.3 78.0 76.8	77.7	5.4 5.4 5.3	5.4		3.8 3.6 4.0	3.8		6 4 6	5.3	
				Bottom	10	25.0 25.0 25.0	25.0	8.1 8.1 8.1	8.1	31.2 31.2 31.2	31.2	75.1 74.4 74.1	74.5	5.2 5.2 5.1	5.2	5.2	5.8 5.8 5.7	5.8		8 8 6	7.3	
12-Nov-12	Sunny	Moderate	16:27	Surface	1	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	84.8 84.5 84.3	84.5	5.9 5.9 5.8	5.9	5.8	3.1 3.1 3.0	3.1	3.6	5 5 4	4.7	5.8
				Middle	6	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	83.3 82.3 82.3	82.6	5.8 5.7 5.7	5.7		3.6 3.8 3.7	3.7		9 8 7	8.0	
				Bottom	11	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.8 31.8 31.8	31.8	81.8 81.8 82.0	81.9	5.7 5.7 5.7	5.7	5.7	3.8 3.8 4.2	3.9		6 4 4	4.7	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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

Appendix D - Water Quality Monitoring Results at CS-2 (Mid-Ebb Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Sunny	Moderate	13:17	Surface	1	25.3 25.4 25.4	25.4	8.1 8.2 8.2	8.1	32.3 32.3 32.3	32.3	85.8 83.8 85.4	85.0	5.9 5.7 5.9	5.8	5.7	2.8 3.0 3.1	3.0	4.5	5 4 6	5.0	5.6
				Middle	4.5	24.7 25.0 24.8	24.8	8.1 8.1 8.1	8.1	32.4 32.4 32.4	32.4	82.2 80.0 82.6	81.6	5.6 5.5 5.7	5.6		4.2 3.7 4.7	4.2		7 6 6	6.3	
				Bottom	8	24.0 24.5 24.3	24.2	8.1 8.1 8.1	8.1	32.5 32.5 32.3	32.4	82.8 82.8 81.8	82.5	5.7 5.7 5.6	5.7	5.7	6.0 6.6 6.0	6.2		5 5 6	5.3	
5-Nov-12	Sunny	Moderate	15:17	Surface	1	25.4 25.4 25.4	25.4	8.6 8.4 8.6	8.5	32.6 32.6 32.6	32.6	89.3 89.3 86.2	88.3	6.4 6.4 6.2	6.3	6.1	3.1 3.3 3.3	3.2	4.6	6 6 6	6.0	5.8
				Middle	4.5	25.3 25.3 25.3	25.3	8.5 8.6 8.6	8.6	32.7 32.7 32.7	32.7	80.7 80.7 80.4	80.6	5.8 5.8 5.8	5.8		4.3 4.1 4.3	4.2		5 5 4	4.7	
				Bottom	8	25.2 25.2 25.2	25.2	8.2 8.5 8.0	8.3	32.8 32.8 32.8	32.8	80.0 80.0 80.0	80.0	5.8 5.8 5.8	5.8	5.8	6.1 6.5 6.8	6.5		6 7 7	6.7	
8-Nov-12	Sunny	Rough	6:09	Surface	1	24.9 24.9 24.9	24.9	7.9 7.9 7.9	7.9	32.9 32.9 32.9	32.9	77.5 75.5 75.3	76.1	5.3 5.2 5.2	5.2	5.2	2.8 2.7 2.8	2.8	4.1	4 5 5	4.7	6.0
				Middle	4	24.8 24.8 24.8	24.8	8.0 8.0 8.0	8.0	32.9 32.9 32.9	32.9	76.2 75.2 75.5	75.6	5.2 5.2 5.2	5.2		2.7 2.7 3.2	2.9		6 6 7	6.3	
				Bottom	7	24.8 24.8 24.8	24.8	8.0 8.0 7.9	8.0	32.9 32.9 32.9	32.9	75.4 75.0 74.7	75.0	5.2 5.2 5.1	5.2	5.2	6.0 6.4 7.3	6.6		7 6 8	7.0	
10-Nov-12	Sunny	Moderate	8:35	Surface	1	25.0 25.0 25.0	25.0	8.1 8.1 8.1	8.1	31.1 31.1 31.1	31.1	96.2 95.7 95.2	95.7	6.7 6.6 6.6	6.6	6.5	2.7 2.8 2.7	2.7	3.0	5 4 4	4.3	5.4
				Middle	4	25.0 25.0 25.0	25.0	8.1 8.1 8.1	8.1	31.1 31.1 31.1	31.1	93.0 92.6 92.0	92.5	6.5 6.4 6.4	6.4		2.4 2.3 2.4	2.4		6 7 8	7.0	
				Bottom	7	24.9 24.9 24.9	24.9	8.2 8.2 8.2	8.2	31.3 31.3 31.3	31.3	87.8 87.2 87.6	87.5	6.1 6.0 6.1	6.1	6.1	3.9 3.7 3.9	3.8		4 6 5	5.0	
12-Nov-12	Sunny	Moderate	10:31	Surface	1	24.8 24.8 24.8	24.8	7.9 7.8 7.8	7.8	31.9 31.9 31.9	31.9	85.1 84.5 84.9	84.8	5.9 5.9 5.9	5.9	5.9	3.1 3.2 3.2	3.2	4.5	4 6 6	5.3	5.9
				Middle	4.5	24.8 24.8 24.8	24.8	7.8 7.8 7.8	7.8	31.9 31.9 31.9	31.9	84.9 84.3 84.1	84.4	5.9 5.8 5.8	5.8		2.9 2.8 2.9	2.9		5 5 4	4.7	
				Bottom	8	24.7 24.7 24.7	24.7	7.9 7.9 7.9	7.9	32.0 32.0 32.0	32.0	88.7 88.7 88.8	88.7	6.1 6.1 6.2	6.1	6.1	7.6 7.5 6.9	7.3		9 7 7	7.7	

Remarks: * DA: Depth-Averaged

** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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

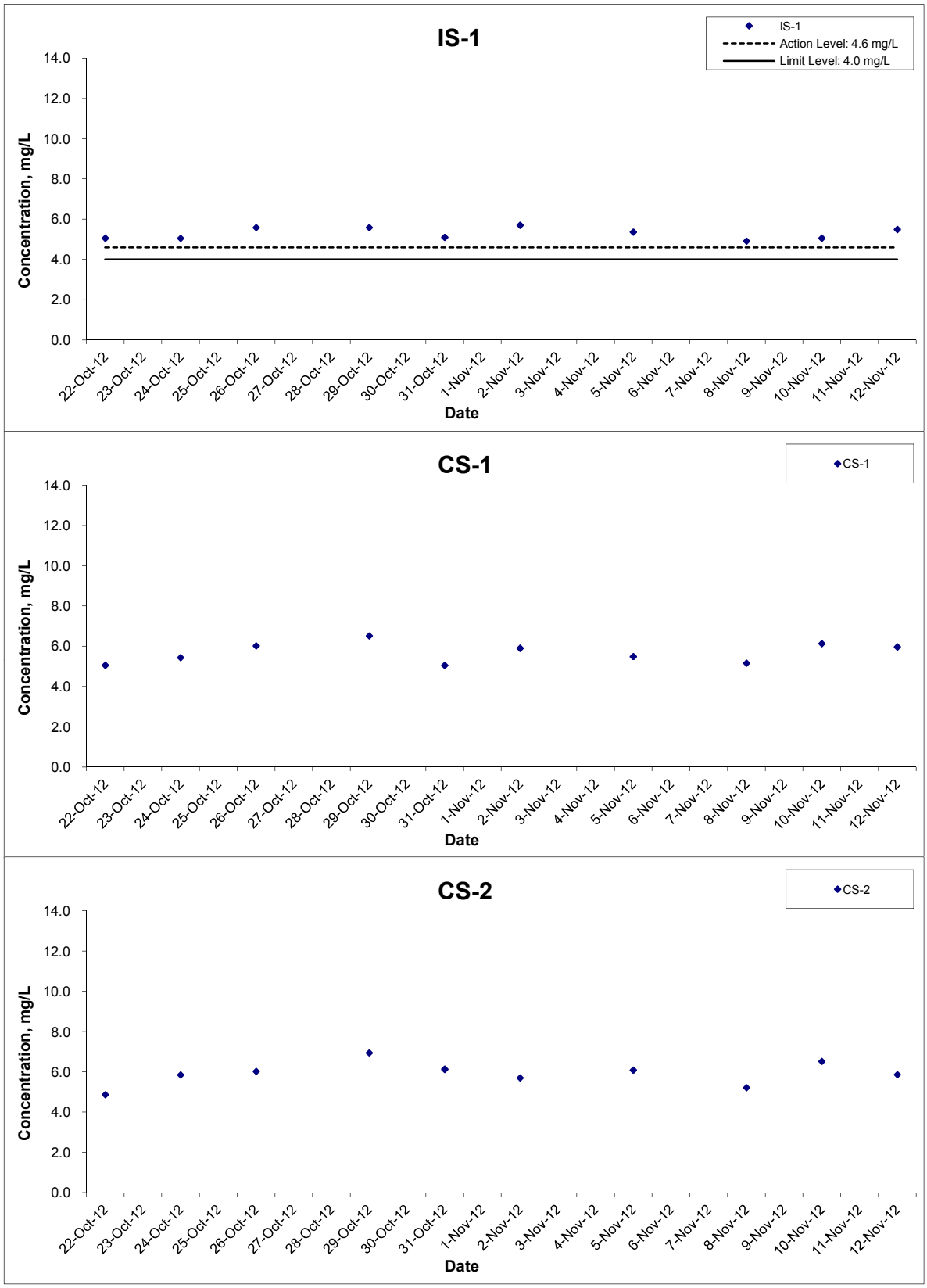
Appendix D - Water Quality Monitoring Results at CS-2 (Mid-Flood Tide)

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Water Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Nov-12	Cloudy	Moderate	17:54	Surface	1	25.1	25.1	8.1	8.2	32.3	32.3	82.0	83.1	5.6	5.7	5.7	3.7	3.6	3.8	4	5.0	5.7
						25.2		8.2		32.3		81.8		5.6			3.5			6		
						25.2		8.2		32.3		85.4		5.9			3.6			5		
				Middle	4.5	24.7	24.8	8.2	8.2	32.4	32.4	82.6	83.3	5.7	5.7		4.1	3.9		5	4.3	
						25.0		8.2		32.4		82.4		5.6			3.9			5		
						24.8		8.2		32.4		85.0		5.8			3.8			3		
				Bottom	8	24.1	24.2	8.1	8.2	32.4	32.4	82.2	82.5	5.6	5.6	5.6	3.8	3.8		6	7.7	
						24.3		8.2		32.4		81.8		5.6			3.8			8		
						24.1		8.2		32.4		83.4		5.7			3.9			9		
5-Nov-12	Sunny	Moderate	10:32	Surface	1	25.3	25.3	8.2	8.2	32.6	32.6	74.7	74.7	5.4	5.4	5.4	3.7	3.5	4.8	6	5.7	5.9
						25.3		8.2		32.6		74.7		5.4			3.4			5		
						25.3		8.2		32.6		74.7		5.4			3.3			6		
				Middle	4.5	25.3	25.3	8.4	8.4	32.6	32.6	73.9	73.9	5.4	5.4		3.6	3.7		8	7.7	
						25.3		8.6		32.6		73.8		5.4			3.7			7		
						25.3		8.4		32.6		73.9		5.4			3.8			8		
				Bottom	8	25.3	25.3	8.6	8.5	32.6	32.6	72.7	72.7	5.3	5.3	5.3	7.5	7.1		4	4.3	
						25.3		8.7		32.6		72.7		5.3			7.1			5		
						25.3		8.3		32.6		72.6		5.3			6.8			4		
8-Nov-12	Sunny	Rough	13:43	Surface	1	24.8	24.8	7.9	7.9	32.8	32.8	73.6	72.3	5.1	5.0	5.0	3.1	3.1	4.1	5	4.7	5.4
						24.7		7.9		32.8		70.2		4.8			3.1			5		
						24.8		7.9		32.8		73.0		5.0			3.1			4		
				Middle	4.5	24.8	24.8	7.9	7.9	32.9	32.8	73.5	73.2	5.1	5.0		3.6	3.7		5	5.3	
						24.8		7.9		32.8		73.3		5.0			3.3			6		
						24.8		7.9		32.8		72.9		5.0			4.1			5		
				Bottom	8	24.8	24.8	7.9	7.9	32.9	32.8	74.5	73.3	5.1	5.0	5.0	5.8	5.6		7	6.3	
						24.8		7.9		32.8		73.1		5.0			5.6			6		
						24.8		7.9		32.8		72.3		5.0			5.5			6		
10-Nov-12	Sunny	Moderate	14:44	Surface	1	25.1	25.1	8.1	8.1	31.0	31.0	94.0	93.0	6.5	6.4	6.2	3.1	3.0	3.7	5	4.7	5.4
						25.1		8.1		31.0		93.4		6.5			2.9			5		
						25.2		8.1		31.0		91.7		6.3			3.0			4		
				Middle	4	25.1	25.1	8.1	8.1	31.1	31.1	87.8	87.0	6.1	6.0		3.6	3.6		4	4.3	
						25.1		8.1		31.1		86.8		6.0			3.6			5		
						25.1		8.1		31.1		86.3		6.0			3.7			4		
				Bottom	7	25.1	25.1	8.1	8.1	31.2	31.2	85.2	84.7	5.9	5.9	5.9	4.4	4.5		8	7.3	
						25.1		8.1		31.2		84.6		5.9			4.6			6		
						25.1		8.1		31.2		84.3		5.8			4.6			8		
12-Nov-12	Sunny	Moderate	15:57	Surface	1	24.9	24.9	7.8	7.8	31.8	31.8	82.8	82.7	5.7	5.7	5.7	2.5	2.5	3.1	6	5.7	6.0
						24.9		7.8		31.8		82.7		5.7			2.5			5		
						24.9		7.8		31.8		82.6		5.7			2.5			6		
				Middle	4.5	24.8	24.8	7.8	7.8	31.8	31.8	81.7	82.0	5.7	5.7		3.0	2.9		5	5.7	
						24.8		7.8		31.8		82.1		5.7			2.9			6		
						24.8		7.8		31.8		82.3		5.7			2.9			6		
				Bottom	8	24.8	24.8	7.8	7.8	31.9	31.9	83.8	83.7	5.8	5.8	5.8	4.1	4.0		6	6.7	
						24.8		7.8		31.9		83.8		5.8			4.0			8		
						24.8		7.8		31.9		83.6		5.8			3.9			6		

Remarks: * DA: Depth-Averaged

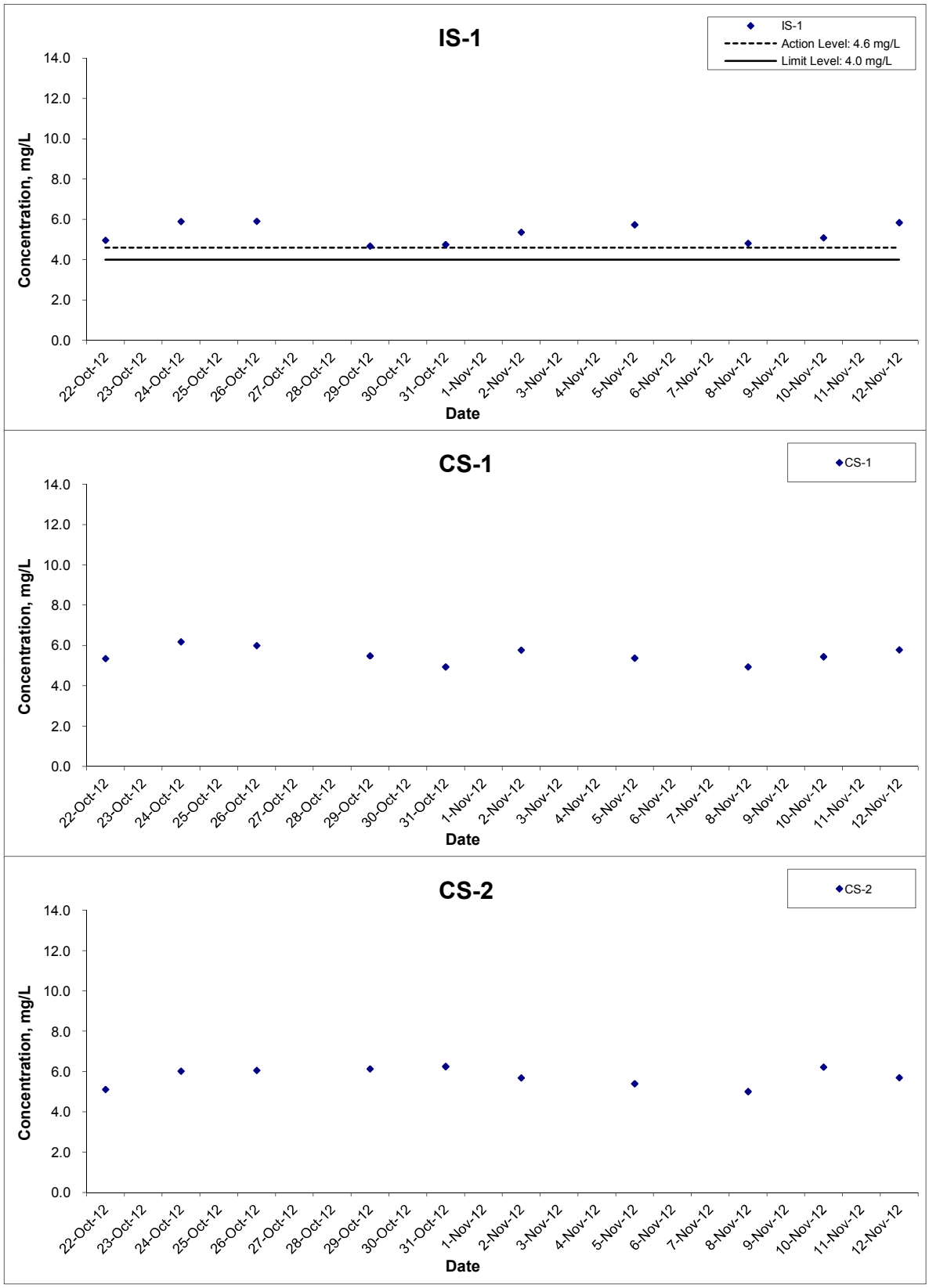
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



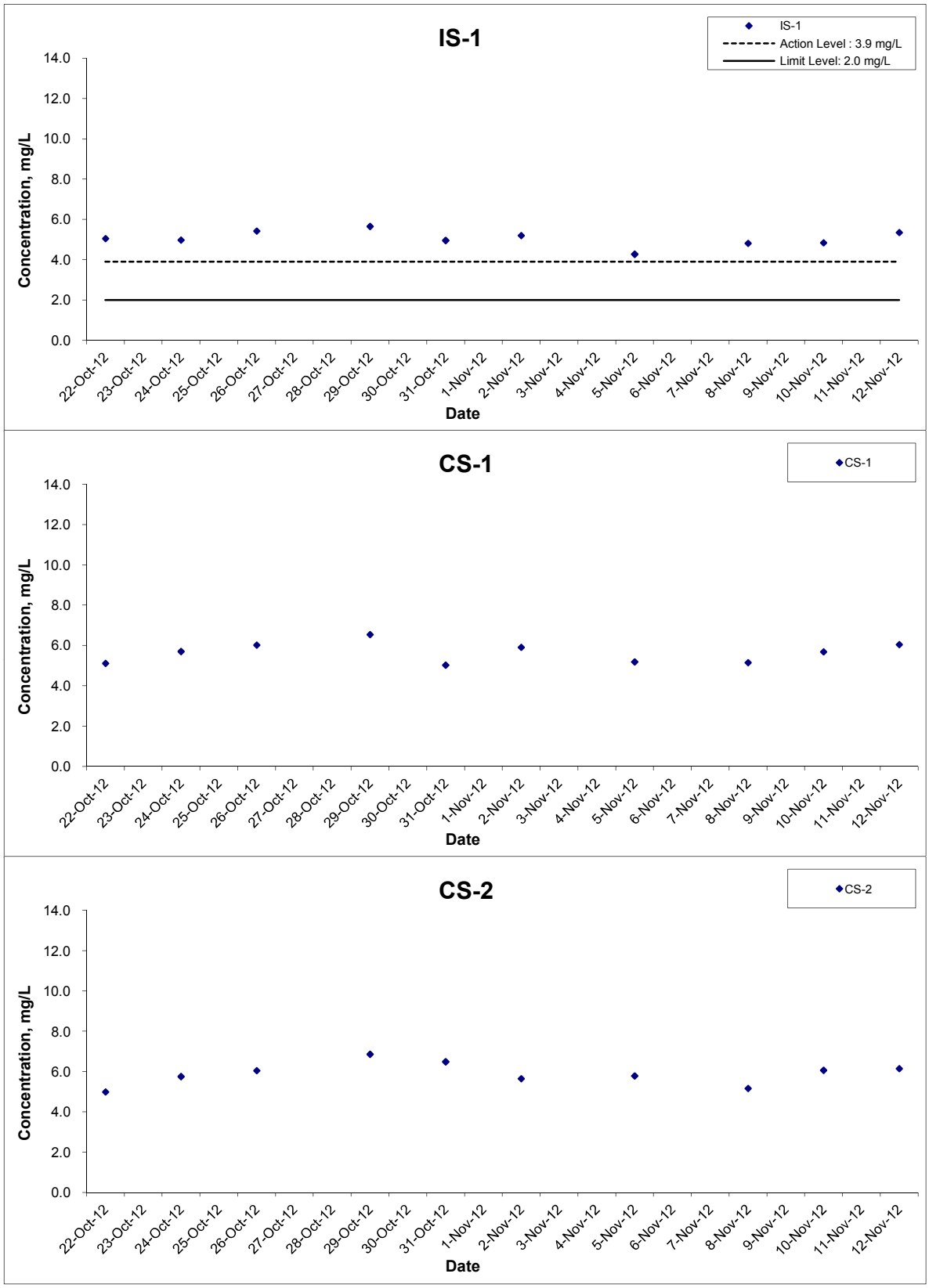
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



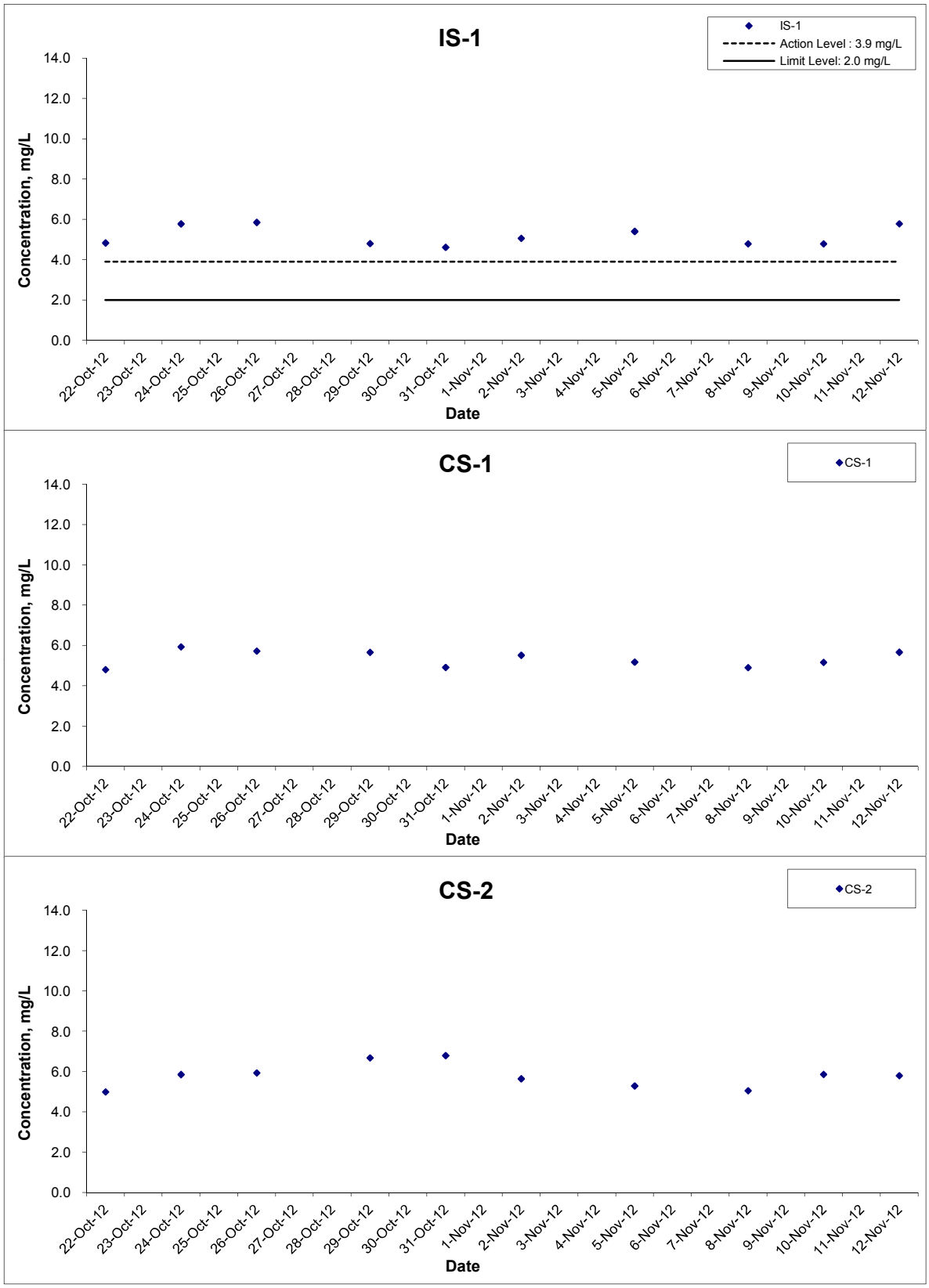
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



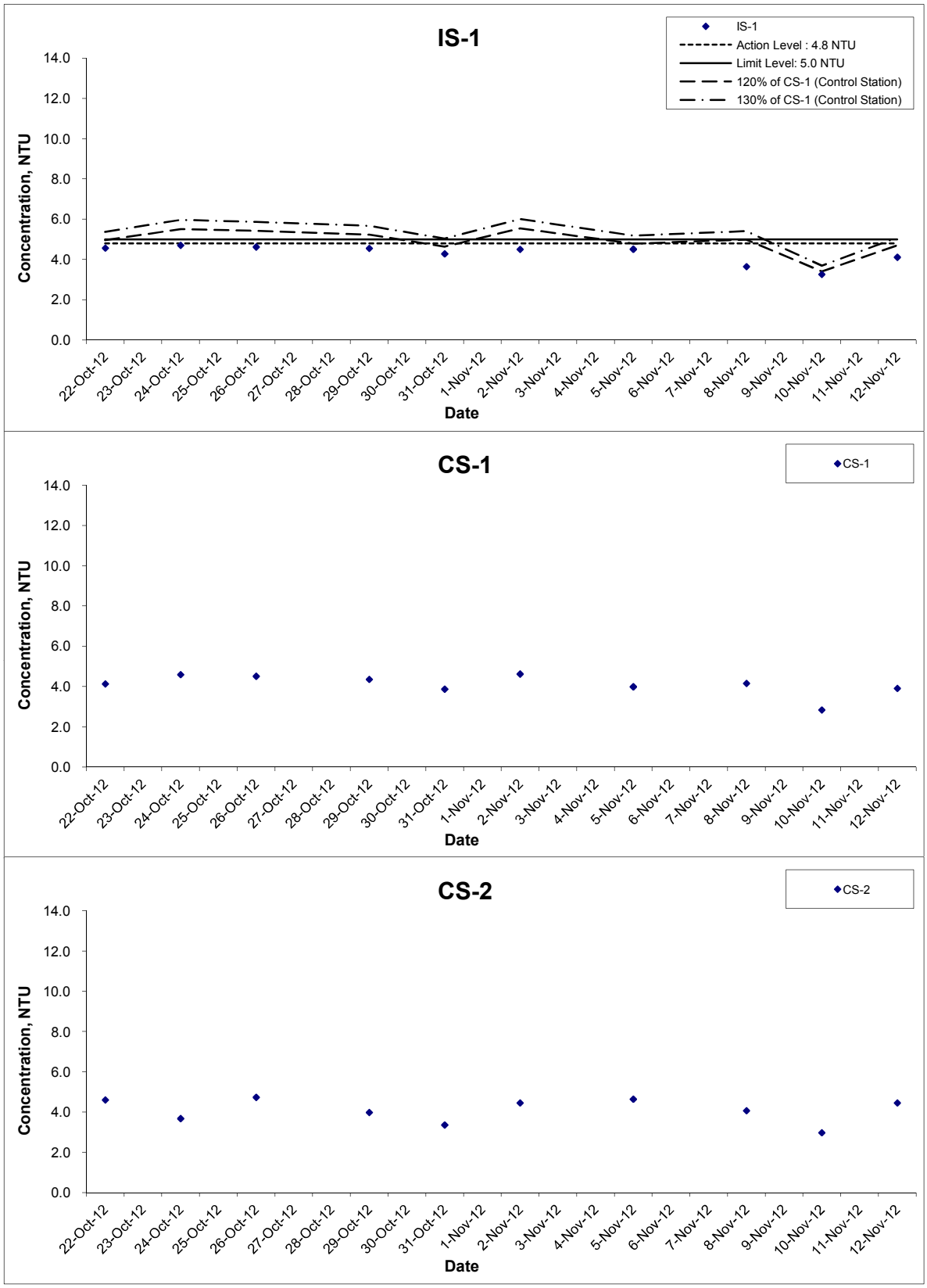
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



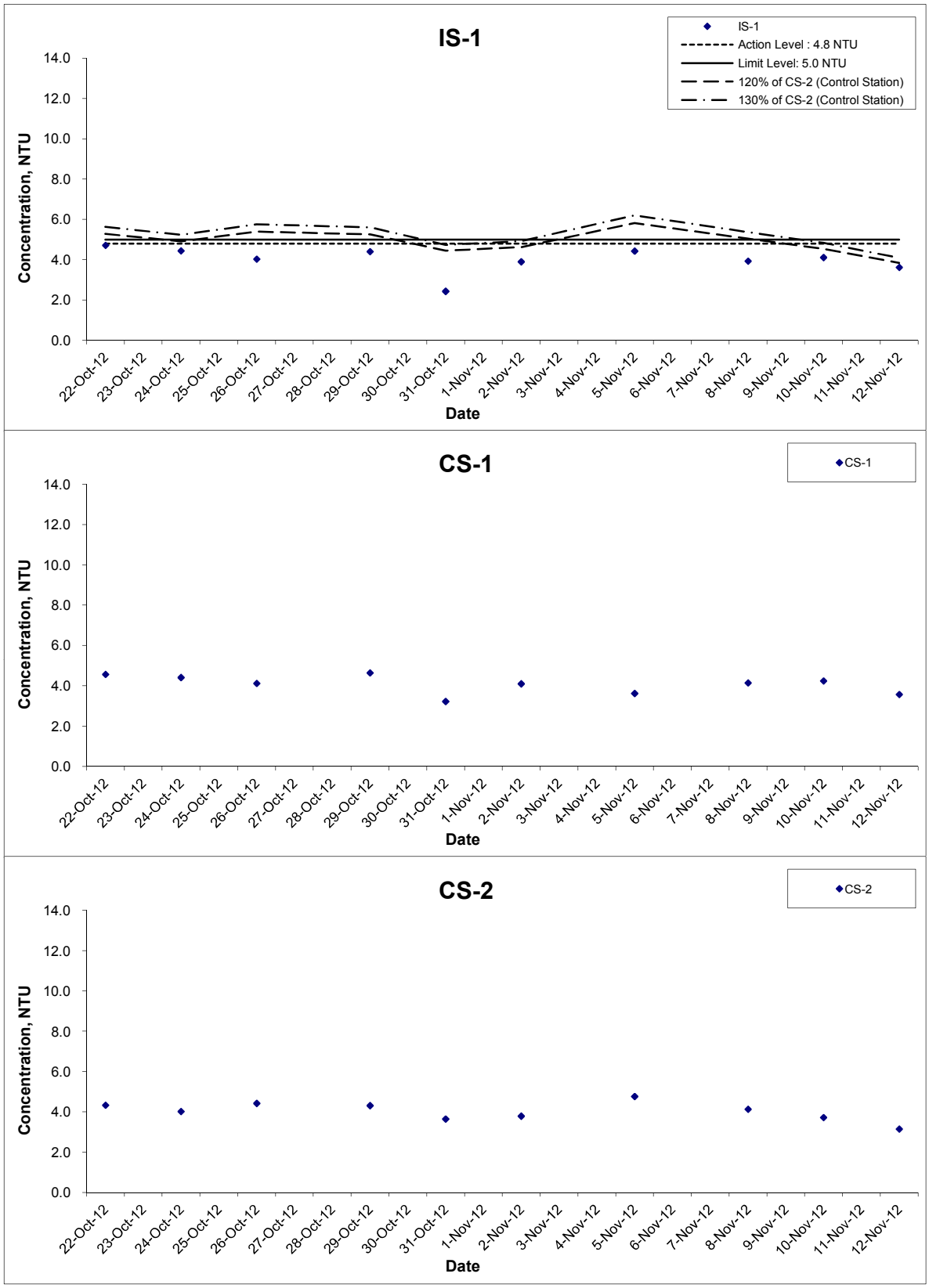
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Turbidity (Depth-averaged) at Mid-Ebb Tide



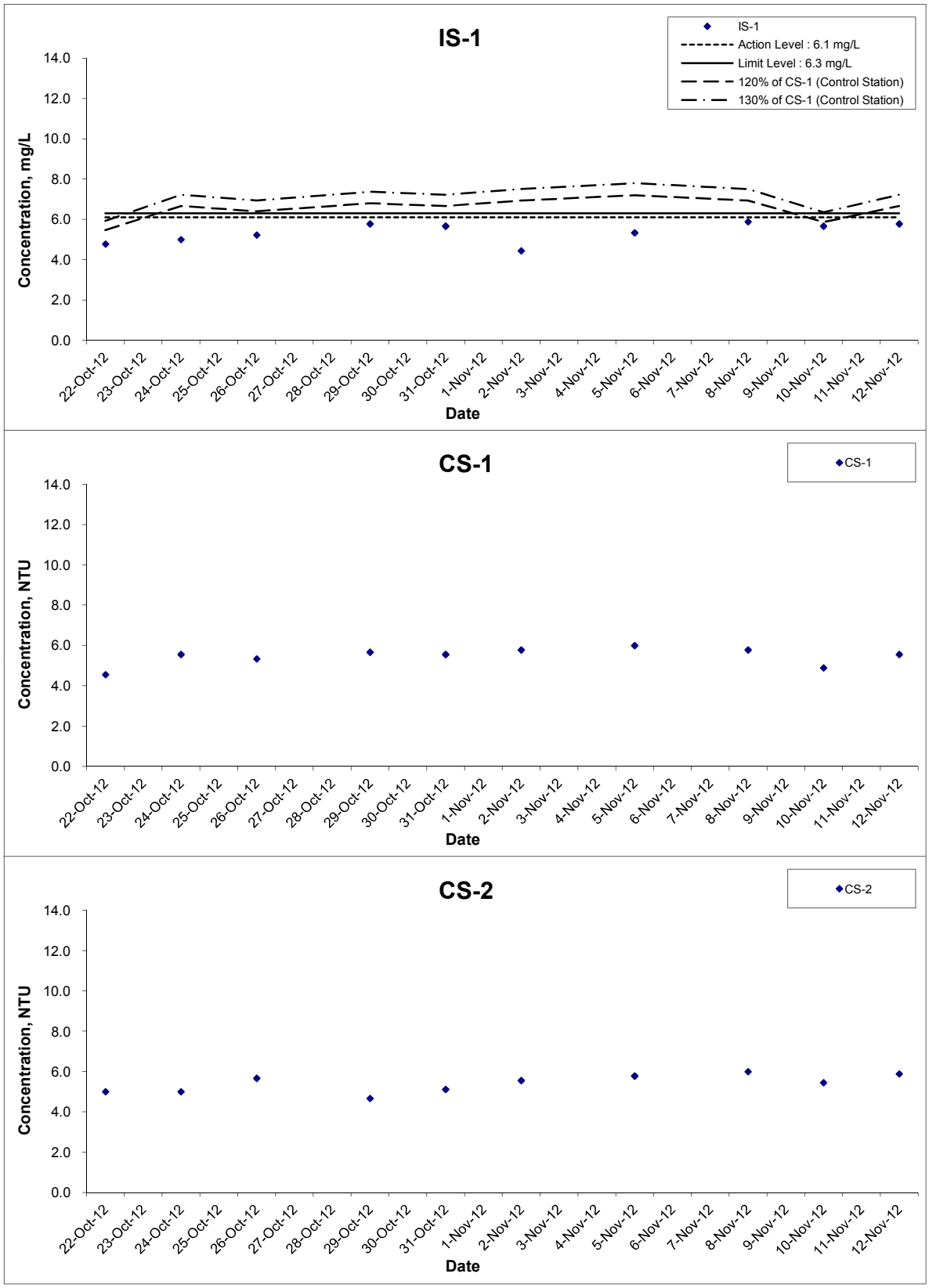
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Turbidity (Depth-averaged) at Mid-Flood Tide



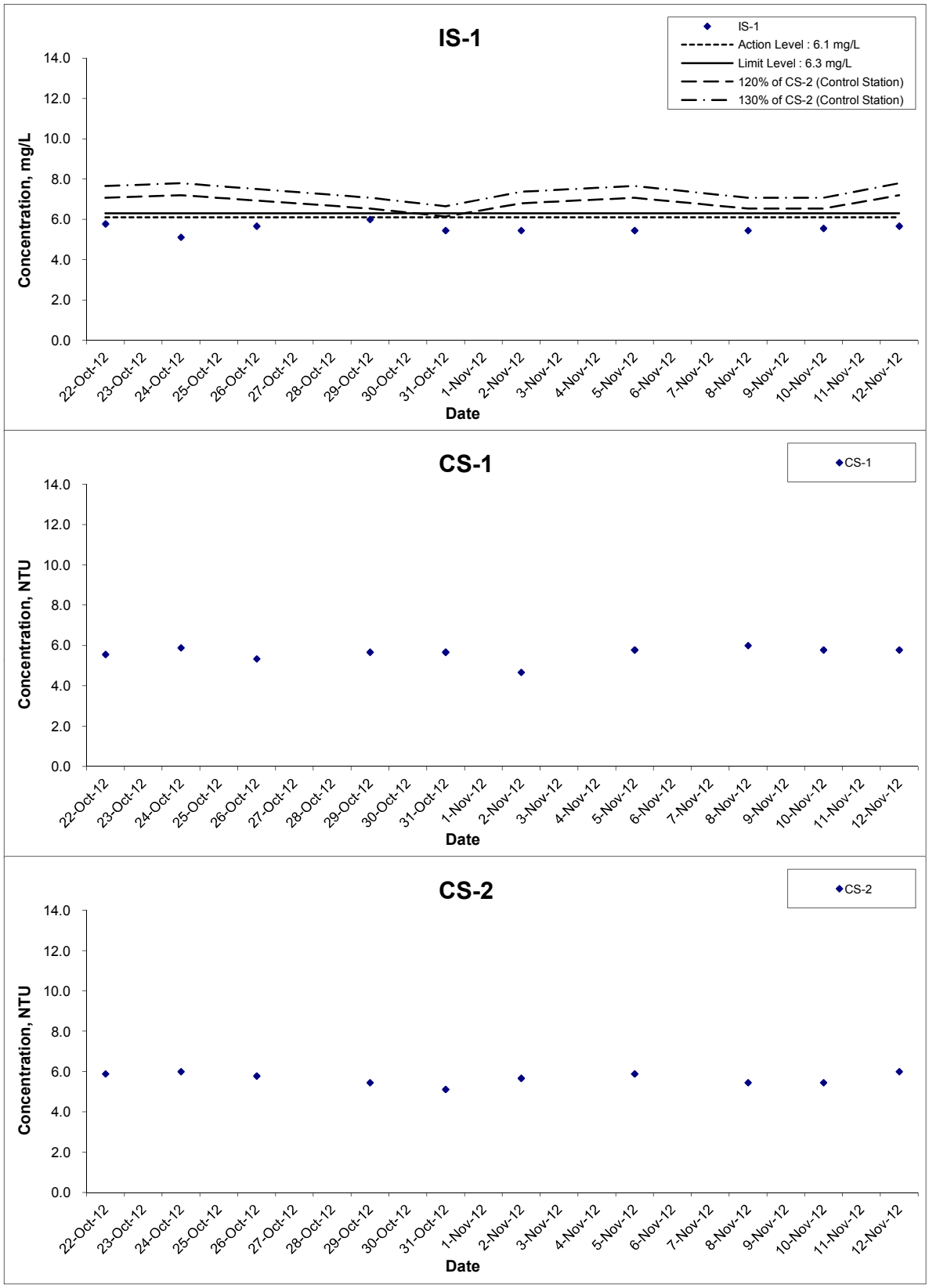
Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title: Shatin to Central Link – Contract 1108A Kai Tak Barging Point Facilities Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Nov 12	Appendix: D	

APPENDIX E
SUMMARY OF EXCEEDANCE

APPENIDX E – SUMMARY OF EXCEEDANCE

Reporting Month: November 2012

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX F
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	121105
Date	5 November 2012 (Monday)
Time	13:45-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
121105-R02	***Part B - Water Quality*** • Deposit adequate sandbags at the two ends of the drainage at site entrance to avoid surface runoff from the construction site (e.g. water used for wheel washing at the site entrance, etc.) leaves the site without any de-silting treatment, until effluent discharge license is granted from EPD.	B7
	Part C - Ecology/Others • No environmental deficiency was identified during the site inspection.	
121105-R01	***Part D – Air Quality*** • Unpaved area should be watered regularly to suppress dust generation.	D6
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection.	
121029-R01	***Part F – Waste/Chemical Management*** • Litter near site boundary should be removed.	F1iii.
	Part G - Permit / Licenses • No environmental deficiency was identified during the site inspection.	
	Others • Follow-up on previous audit section (Ref. No.:121029), the outstanding item 121029-R01 has not been rectified by the Contractor and is needed to be reviewed in the coming site inspection.	

	Name	Signature	Date
Recorded by	Ken Cheng		5 November2012
Checked by	Dr. Priscilla Choy		5 November2012

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	121114
Date	14 November 2012 (Wednesday)
Time	13:30-14:45

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
121114-O01	• Muddy water arises from mini-piling works near seaside was observed leaked out into the sea. The Contractor was reminded to adopt adequate mitigation measures to minimise muddy water leaks into the sea.	B7
121114-R02	• Sedimentation tanks should be properly set up for treating effluent discharge.	B6
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
121114-R03	• Drip tray should be provided in chemical wastes storage area and chemical wastes storage area should be properly labeled.	F9
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:121105), all environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ken Cheng	Ken	14 November 2012
Checked by	Dr. Priscilla Choy	NC	14 November 2012

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	121119
Date	19 November 2012 (Monday)
Time	14:00-15:30

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

Ref. No.	Remarks/Observations	Related Item No.
121121-R01	***Part B - Water Quality*** • Provide appropriate barriers on the floating jet to avoid surface runoff runs into the sea. ***Part C - Ecology/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:121114), all identified environmental deficiencies were observed improved/rectified by the Contractor.	B15i.

	Name	Signature	Date
Recorded by	Ken Cheng		19 November 2012
Checked by	Dr. Priscilla Choy		19 November 2012

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	121126
Date	26 November 2012 (Monday)
Time	13:45-15:00

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

Ref. No.	Remarks/Observations	Related Item No.
121126-R01	***Part B - Water Quality*** • Generally remove rainwater accumulated on site after rainstorm. ***Part C - Ecology/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:121119), outstanding item 121121-R01 shall be reviewed during the next site inspection.	B12

	Name	Signature	Date
Recorded by	Ken Cheng		26 November 2012
Checked by	Dr. Priscilla Choy		26 November 2012

APPENDIX G
EVENT AND ACTION PLANS

Event and Action Plan for Water Quality

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

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

Event and Action Plan for Landscape and Visual during Construction Stage

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer's Representative

APPENDIX H
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Pre-Construction Phase)								
S5.7	E3	<u>Tree felling and vegetation removal</u> Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.	Minimize ecological impacts to breeding bird species of conservation interest	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
Ecology (Construction Phase)								
S5.7	E5	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. The following good site practices should also be implemented: • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	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; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						^ ^ ^ ^
S5.7	E6	<u>Sediment Removal</u> • Use closed grab in dredging works. • Install silt curtain during the dredging.	• Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna • Minimize marine water quality impacts	Contractor	Dredging Area	During Dredging	•TM-Water	^ ^
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u>	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	

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		• For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <u>No-intrusion Zone</u> • To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <u>Protection of Retained Trees</u> • All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.						N/A(2) ^ ^

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		• The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.						^
S6.12	LV2	<u>Decorative Hoarding</u> • Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <u>Management of facilities on work sites</u> • To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	^ N/A(1)
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and	^

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							TM-EIA criteria	
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	*
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;						^ N/A(2) ^ ^

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		• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • 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						^ N/A(2) N/A(2) N/A(2) N/A(2) N/A(2)

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		with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						N/A(2) N/A(2)
S7.6.5	D4	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	• Air Pollution Control (Construction Dust) Regulation	N/A(2) N/A(2) N/A(2) N/A(2)
S7.6.5	D5	For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top cover and the provision of water sprays at the discharge point would be provided for an assumed 50% dust	Minimize dust impact at the nearby sensitive	Contractor	Barging Points	Construction stage	• APCO • To control the dust	N/A(2)

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		suppression.	receivers				impact to meet HKAQO and TM-EIA criteria	
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	N/A(1)
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^ N/A(1)

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		• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.						N/A(2) N/A(1) N/A(2)
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A(1)
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A(1)
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All Construction Sites where	Construction stage	• Annex 5, TM-EIA	^

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					practicable			
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	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: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO	^

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		should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s a sedimentation basin of $30m^3$ would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt					• TM-Water	^

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		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 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						^ ^ N/A(2) N/A(2)

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		necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular 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						N/A(2) * ^ ^

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		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						N/A(2) * ^

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		sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices.						N/A(2) ^
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> • No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these 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	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	• Water Pollution Control Ordinance • TM-water • TM-EIAO	^

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		for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be						^ N/A(2)

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		affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.						
S10.7.1	W5	<u>Dredging Works</u> The following good practice shall apply for the dredging works: • Install efficient silt curtains at the point of seawall dredging to control the dispersion of SS; • Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	• Water Pollution Control Ordinance • TM-EIAO	^ ^

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		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.						^ ^
S10.7.1	W6	<u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations: • All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; • Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Loading of barges and hoppers should be controlled to prevent	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	• Water Pollution Control Ordinance • TM-EIA	N/A(2) N/A(2) N/A(2) N/A(2)

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		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.						N/A(2)
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^ ^ N/A(2)
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water quality prior to and during dredging	Contractor	At identified monitoring location	Prior to and during dredging	• Water Pollution Control Ordinance	^

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			period			period	• TM-water • EIA-TM	
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

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		tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^ ^ ^ ^ ^

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		• In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation						^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		segregation and storage.						
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^ ^
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u>	To control pollution due	Contractor	Within Project	Constructi	• ETWB	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers;	to marine sediment		Site Area	on Stage	TCW No. 34/2002	^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m^3 capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic 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						^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.						
S11.5.1	WM7	<u>Chemical Waste</u> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at 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,	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						^

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

• Non-compliance but rectified by the contractor

* Recommendation was made during site audit but improved/rectified by the contractor.

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

APPENDIX I
WASTE GENERATION IN THE REPORTING MONTH

Concentric – Hong Kong River Joint Venture

MTR SCL Contract 1108A
Kai Tak Barging Point Facilities

Monthly Summary Waste Flow Table for 2012 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Feb	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mar	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Apr	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
May	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
June	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sub-total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
July	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Aug	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sept	**0.185**	**0**	**0**	**0**	**0.185**	**0**	**0**	**0**	**0**	**0**	**0.145**
Oct	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Nov	**0.07**	**0**	**0**	**0**	**0.07**	**0**	**0**	**0**	**0**	**0**	**0.005**
Dec											
G.Total	**0.255**	**0**	**0**	**0**	**0.255**	**0**	**0**	**0**	**0**	**0**	**0.150**

APPENDIX J
COMPLAINT LOG

Appendix J - Complaint Log

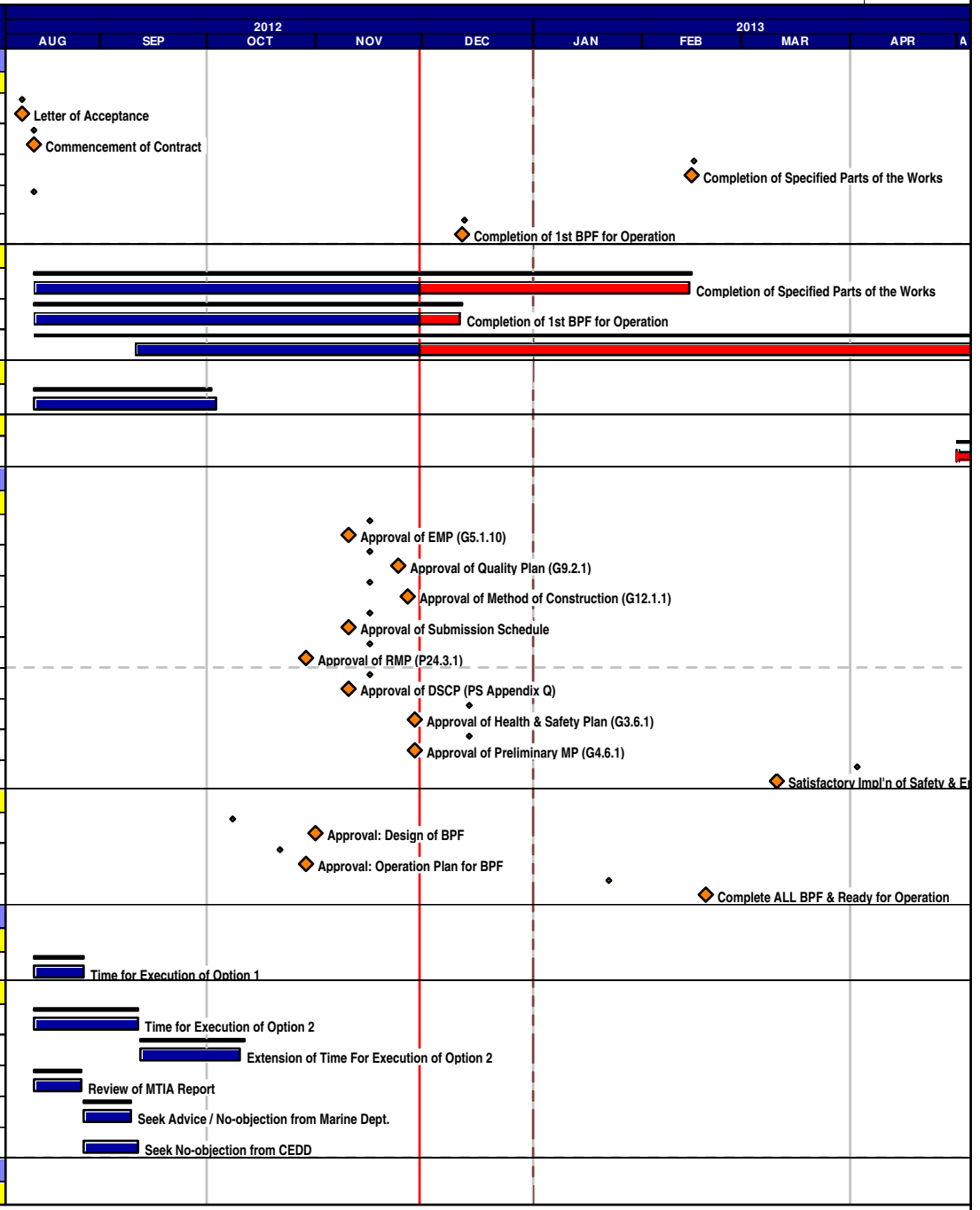
Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

APPENDIX K
TENTATIVE CONSTRUCTION PROGRAMME

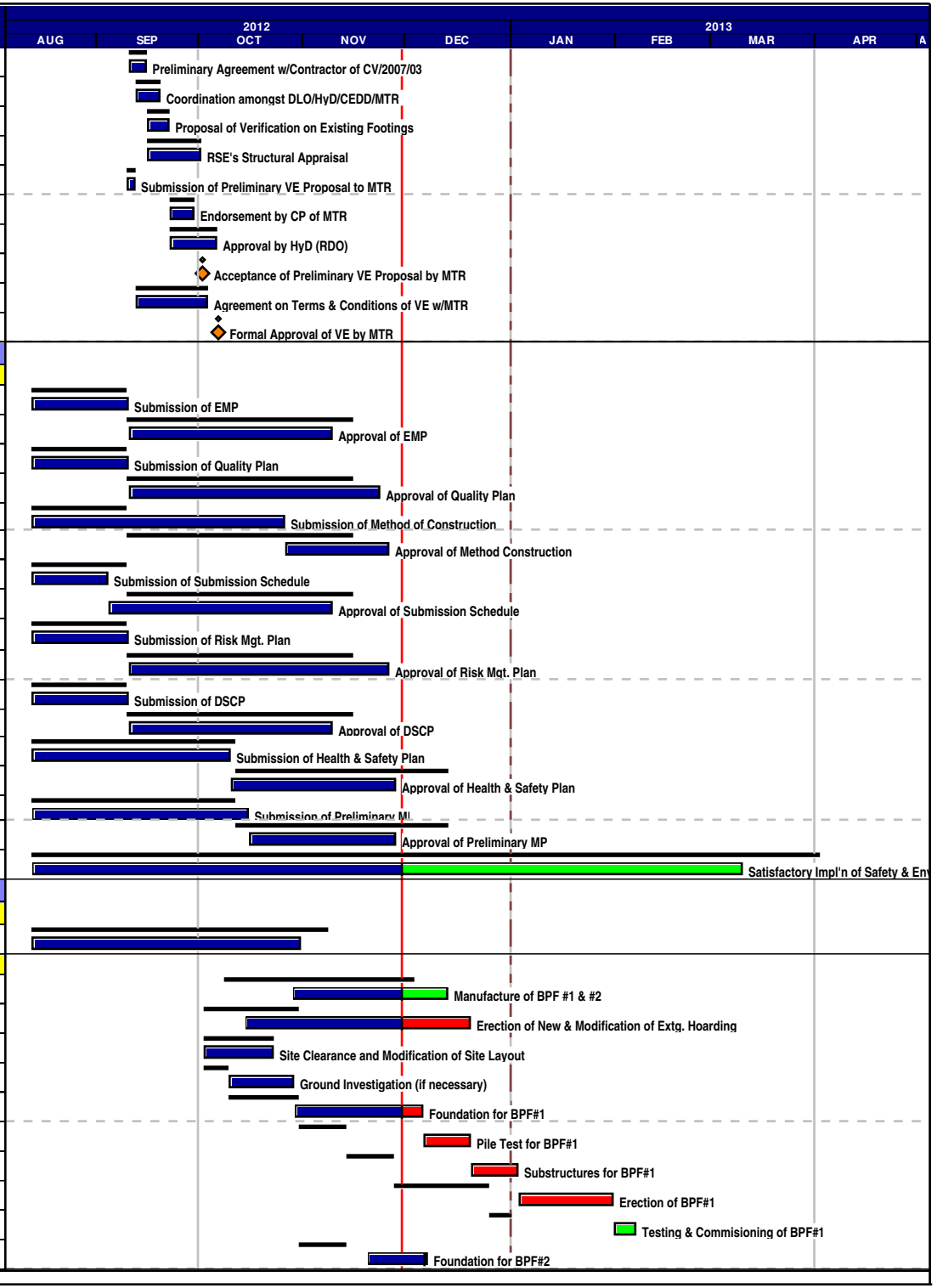
MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES

3 Month Rollng Programme (Rev.02)

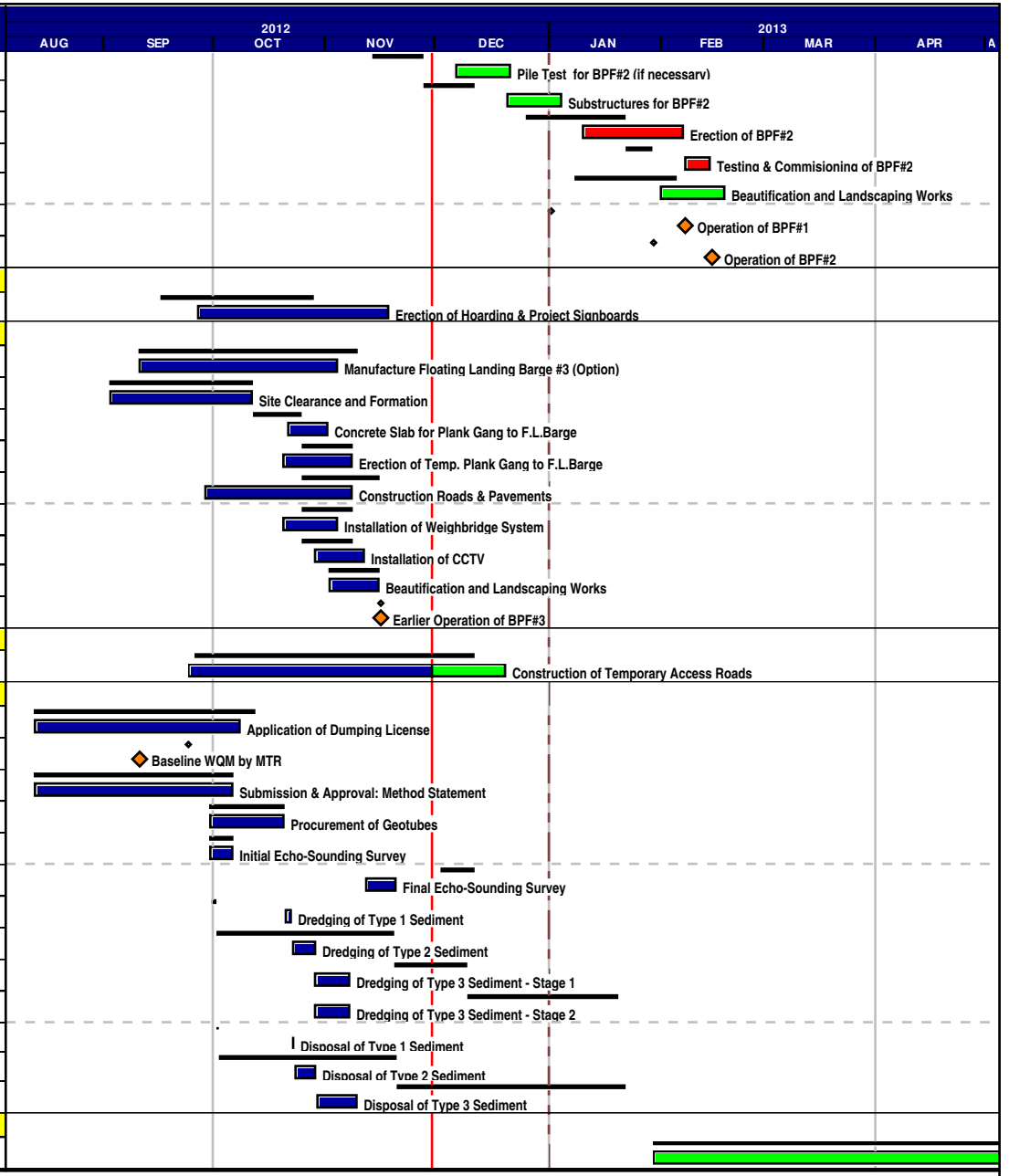
Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float
COMMENCEMENT & COMPLETION					
Completion of the Works					
1108ACD01	Letter of Acceptance	0	10AUG12 A		
1108ACD02	Commencement of Contract	0	13AUG12 A		
1108ACD03A	Completion of Specified Parts of the Works	0		14FEB13	1d
1108ACD03C	Completion of Contract	0		28AUG16	0
1108ACD04B	Completion of 1st BPF for Operation	0		11DEC12	1d
Time for Completion					
1108ACD04A	Completion of Specified Parts of the Works	187	13AUG12 A	14FEB13	1d
1108ADC04B	Completion of 1st BPF for Operation	122	13AUG12 A	11DEC12	1d
1108ADC04C	Completion of The Whole of the Works	1477	11SEP12 A	28AUG16	0
+Time for Possession of Works Area					
		52	13AUG12 A	03OCT12 A	
+Vacation of Works Area					
		1215	01MAY13	28AUG16	0
MILESTONES SCHEDULE					
Milestones for Cost Centre A					
1108AMSA11	Approval of EMP (G5.1.10)	0		09NOV12 A	
1108AMSA12	Approval of Quality Plan (G9.2.1)	0		23NOV12 A	
1108AMSA13	Approval of Method of Construction (G12.1.1)	0		26NOV12 A	
1108AMSA14	Approval of Submission Schedule	0		09NOV12 A	
1108AMSA15	Approval of RMP (P24.3.1)	0		28OCT12 A	
1108AMSA16	Approval of DSCP (PS Appendix Q)	0		09NOV12 A	
1108AMSA21	Approval of Health & Safety Plan (G3.6.1)	0		28NOV12 A	
1108AMSA22	Approval of Preliminary MP (G4.6.1)	0		28NOV12 A	
1108AMSA30	Satisfactory Impl'n of Safety & Env. req'ts.	0		10MAR13	1267d
Milestones for Cost Centre B					
1108AMSB11	Approval: Design of BPF	0		31OCT12 A	
1108AMSB12	Approval: Operation Plan for BPF	0		28OCT12 A	
1108AMSB20	Complete ALL BPF & Ready for Operation	0		18FEB13	1287d
EXECUTION OF OPTIONS					
Option 01 - Lighting to All Access Roads					
1108AOP101	Time for Execution of Option 1	15	13AUG12 A	27AUG12 A	
Option 02 - Use of Floating Landing Barge in WA3					
1108AOP200	Time for Execution of Option 2	30	13AUG12 A	11SEP12 A	
1108AOP201	Extension of Time For Execution of Option 2	30	12SEP12 A	10OCT12 A	
1108AOP210	Review of MTIA Report	14	13AUG12 A	26AUG12 A	
1108APD220	Seek Advice / No-objection from Marine Dept.	14	27AUG12 A	09SEP12 A	
1108APD221	Seek No-objection from CEDD	21	27AUG12 A	11SEP12 A	
Value Engineering Proposals					
Reuse of Existing Footings					



Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float
1108AVE210	Preliminary Agreement w/Contractor of CV/2007/03	5	11SEP12 A	15SEP12 A	
1108AVE220	Coordination amongst DLO/HyD/CEDD/MTR	7	13SEP12 A	19SEP12 A	
1108AVE231	Proposal of Verification on Existing Footings	7	16SEP12 A	22SEP12 A	
1108AVE232	RSE's Structural Appraisal	16	16SEP12 A	01OCT12 A	
1108AVE240	Submission of Preliminary VE Proposal to MTR	3	10SEP12 A	12SEP12 A	
1108AVE251	Endorsement by CP of MTR	7	23SEP12 A	29SEP12 A	
1108AVE252	Approval by HyD (RDO)	14	23SEP12 A	06OCT12 A	
1108AVE260	Acceptance of Preliminary VE Proposal by MTR	0		01OCT12 A	
1108AVE271	Agreement on Terms & Conditions of VE w/MTR	21	13SEP12 A	03OCT12 A	
1108AVE273	Formal Approval of VE by MTR	0		06OCT12 A	
Cost Centre A					
Preliminaries					
1108AA1010	Submission of EMP	28	13AUG12 A	10SEP12 A	
1108AA1011	Approval of EMP	49	11SEP12 A	09NOV12 A	
1108AA1020	Submission of Quality Plan	28	13AUG12 A	10SEP12 A	
1108AA1021	Approval of Quality Plan	49	11SEP12 A	23NOV12 A	
1108AA1030	Submission of Method of Construction	28	13AUG12 A	26OCT12 A	
1108AA1031	Approval of Method Construction	42	27OCT12 A	26NOV12 A	
1108AA1040	Submission of Submission Schedule	28	13AUG12 A	04SEP12 A	
1108AA1041	Approval of Submission Schedule	49	05SEP12 A	09NOV12 A	
1108AA1050	Submission of Risk Mgt. Plan	28	13AUG12 A	10SEP12 A	
1108AA1051	Approval of Risk Mgt. Plan	49	11SEP12 A	26NOV12 A	
1108AA1060	Submission of DSCP	28	13AUG12 A	10SEP12 A	
1108AA1061	Approval of DSCP	49	11SEP12 A	09NOV12 A	
1108AA2010	Submission of Health & Safety Plan	60	13AUG12 A	10OCT12 A	
1108AA2011	Approval of Health & Safety Plan	45	11OCT12 A	28NOV12 A	
1108AA2020	Submission of Preliminary MP	60	13AUG12 A	15OCT12 A	
1108AA2021	Approval of Preliminary MP	45	16OCT12 A	28NOV12 A	
1108AA3010	Satisfactory Impl'n of Safety & Env. req'ts.	233	13AUG12 A	10MAR13	1267d
Cost Centre B					
+Kai Tak BPF - Design & Approval					
		58	13AUG12 A	31OCT12 A	
Kai Tak BPF - Works Areas 1108A.W1 & W5					
1108AB2101	Manufacture of BPF #1 & #2	56	29OCT12 A	13DEC12	36d
1108AB2111	Erection of New & Modification of Extg. Hoarding	28	15OCT12 A	20DEC12	1d
1108AB2112	Site Clearance and Modification of Site Layout	21	03OCT12 A	23OCT12 A	
1108AB2121	Ground Investigation (if necessary)	7	10OCT12 A	29OCT12 A	
1108AB2122	Foundation for BPF#1	21	30OCT12 A	06DEC12	1d
1108AB2123	Pile Test for BPF#1	14	07DEC12	20DEC12	1d
1108AB2124	Substructures for BPF#1	14	21DEC12	03JAN13	1d
1108AB2125	Erection of BPF#1	28	04JAN13	31JAN13	1d
1108AB2126	Testing & Commisioning of BPF#1	7	01FEB13	07FEB13	8d
1108AB2132	Foundation for BPF#2	21	20NOV12 A	07DEC12	8d



Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float
1108AB2133	Pile Test for BPF#2 (if necessary)	14	07DEC12	21DEC12	8d
1108AB2134	Substructures for BPF#2	14	21DEC12	04JAN13	8d
1108AB2135	Erection of BPF#2	28	11JAN13	07FEB13	1d
1108AB2136	Testing & Commisioning of BPF#2	7	08FEB13	14FEB13	1d
1108AB2140	Beautification and Landscaping Works	18	01FEB13	18FEB13	1287d
1108AB2191	Operation of BPF#1	0	08FEB13		8d
1108AB2192	Operation of BPF#2	0	15FEB13		1d
Kai Tak BPF - Works Areas 1108A.W2 & W3					
1108AB2212	Erection of Hoarding & Project Signboards	42	27SEP12 A	18NOV12 A	
Kai Tak BPF - Works Areas 1108A.W2 & W3 (Option)					
1108AB2202	Manufacture Floating Landing Barge #3 (Option)	60	11SEP12 A	04NOV12 A	
1108AB2213	Site Clearance and Formation	28	03SEP12 A	11OCT12 A	
1108AB2231	Concrete Slab for Plank Gang to F.L.Barge	14	22OCT12 A	01NOV12 A	
1108AB2232	Erection of Temp. Plank Gang to F.L.Barge	14	20OCT12 A	08NOV12 A	
1108AB2233	Construction Roads & Pavements	21	29SEP12 A	08NOV12 A	
1108AB2234	Installation of Weighbridge System	14	20OCT12 A	04NOV12 A	
1108AB2235	Installation of CCTV	14	29OCT12 A	11NOV12 A	
1108AB2236	Beautification and Landscaping Works	14	02NOV12 A	15NOV12 A	
1108AB2239	Earlier Operation of BPF#3	0		15NOV12 A	
Kai Tak BPF - Works Areas 1108A.W4, W6 & W7					
1108AB3301	Construction of Temporary Access Roads	60	24SEP12 A	20DEC12	132d
Kai Tak BPF - Dredging Area					
1108AB2401	Application of Dumping License	62	13AUG12 A	08OCT12 A	
1108AB2402	Baseline WQM by MTR	0		10SEP12 A	
1108AB2403	Submission & Approval: Method Statement	56	13AUG12 A	06OCT12 A	
1108AB2410	Procurement of Geotubes	21	30SEP12 A	20OCT12 A	
1108AB2421	Initial Echo-Sounding Survey	7	30SEP12 A	06OCT12 A	
1108AB2422	Final Echo-Sounding Survey	7	12NOV12 A	20NOV12 A	
1108AB2431	Dredging of Type 1 Sediment	1	21OCT12 A	22OCT12 A	
1108AB2432	Dredging of Type 2 Sediment	20	23OCT12 A	29OCT12 A	
1108AB2433	Dredging of Type 3 Sediment - Stage 1	20	29OCT12 A	07NOV12 A	
1108AB2434	Dredging of Type 3 Sediment - Stage 2	0	29OCT12 A	07NOV12 A	
1108AB2441	Disposal of Type 1 Sediment	1	23OCT12 A	23OCT12 A	
1108AB2442	Disposal of Type 2 Sediment	20	24OCT12 A	29OCT12 A	
1108AB2443	Disposal of Type 3 Sediment	20	30OCT12 A	09NOV12 A	
+Kai Tak BPF - Mgt., Maintenance & Operation					
		1248	30JAN13	30JUN16	59d



Start date	10AUG12
Finish date	28AUG16
Data date	30NOV12
Run date	04DEC12
Page number	3A
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MTR

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		
30NOV12	Updated: Nov 12		

APPENDIX L
QUALITY CONTROL REPORTS FOR SS LABORATORY ANALYSIS

WELLAB 匯力 Testing & Research

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

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	17137
Date of Issue:	2012/11/05
Date Received:	2012/11/02
Date Tested:	2012/11/02
Date Completed:	2012/11/05
Page:	1 of 1

ATTN: Ms. MeiLing Tang

Project Name: Shatin to Central Link -
Contract 1108A Kai Tak Barging Point Facilities
Project No.: MA12028
Sampling Date: 2012/11/02
Number of Sample: 54
Custody No.: MA12028/121102

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
CS-1-b se	7	6	11	104

**********END OF REPORT**********

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	17154
Date of Issue:	2012/11/06
Date Received:	2012/11/05
Date Tested:	2012/11/05
Date Completed:	2012/11/06
Page:	1 of 1

ATTN: Ms. MeiLing Tang

Project Name: Shatin to Central Link - Contract 1108A Kai Tak Barging Point Facilities
Project No.: MA12028
Sampling Date: 2012/11/05
Number of Sample: 54
Custody No.: MA12028/121105

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
IS-1-c be	8	7	9	99

**********END OF REPORT**********

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	17185
Date of Issue:	2012/11/09
Date Received:	2012/11/08
Date Tested:	2012/11/08
Date Completed:	2012/11/09
Page:	1 of 1

ATTN: Ms. MeiLing Tang

Project Name: Shatin to Central Link -
Contract 1108A Kai Tak Barging Point Facilities
Project No.: MA12028
Sampling Date: 2012/11/08
Number of Sample: 54
Custody No.: MA12028/121108

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
IS-1-b se	7	7	1	103

**********END OF REPORT**********

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	17219
Date of Issue:	2012/11/12
Date Received:	2012/11/10
Date Tested:	2012/11/10
Date Completed:	2012/11/12
Page:	1 of 1

ATTN: Ms. MeiLing Tang

Project Name: Shatin to Central Link - Contract 1108A Kai Tak Barging Point Facilities
Project No.: MA12028
Sampling Date: 2012/11/10
Number of Sample: 54
Custody No.: MA12028/121110

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
IS-1-b be	7	7	1	103

**********END OF REPORT**********

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
Rm1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Laboratory No.:	17220
Date of Issue:	2012/11/13
Date Received:	2012/11/12
Date Tested:	2012/11/12
Date Completed:	2012/11/13
Page:	1 of 1

ATTN: Ms. MeiLing Tang

Project Name: Shatin to Central Link - Contract 1108A Kai Tak Barging Point Facilities
Project No.: MA12028
Sampling Date: 2012/11/12
Number of Sample: 54
Custody No.: MA12028/121112

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
IS-1-b me	5	5	16	103

**********END OF REPORT**********

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

Patrick Tse

PATRICK TSE
Laboratory Manager

Appendix B

3rd 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. 3

[Period from 1 to 30 November 2012]

Works Contract 1109 - Stations and Tunnels of Kowloon City Section

(December 2012)

Certified by: Winnie Ko

Position: Environmental Team Leader

Date: 13 December 2012

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.3

November 2012

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

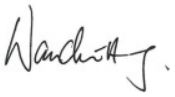
Monthly EM&A Report No.3

November 2012

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 13 December 2012

CONTENTS

LIST OF ANNEXES

EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the third monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 November to 30 November 2012 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
Work in Ma Tau Wai (MTW)
• TKW/MTW Road Garden – Preparation works for diversion of MTW Road & Chi Kiang street and mobilization of concrete slabs and silos for the bentonite plant;
• Ma Tau Wai Road Planter Emergency Access – Relocation of control boxes; and
• To Kwa Wan Market - Demolition of the planter walls & paving the walkway.
Work in To Kwa Wan (TKW)
• Archaeological Survey;
• Pre-bored H-pile Location - Trial pits and pre-drilling; and
• General Works - Site clearance, erection of site hoardings and construction of a site office.

Regular Construction Noise and Construction Dust Monitoring

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

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

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

Continuous Noise Monitoring

As construction works that have been identified by the Construction Noise Mitigation Measures Plan (CNMMP) to be potentially causing exceedance of noise criteria did not commence during this reporting month. Hence, no continuous noise monitoring was carried out during the reporting month.

Cultural Heritage

A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been issued by the Antiquities Authority 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 624 m^3 of inert C&D materials generated from the Project were disposed of at TKO137 Fill Bank. 168 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No steel material and chemical waste were generated during this reporting month. 154 kg of paper/cardboard packaging and 2 kg of plastics were generated and sent to recyclers for recycling during the reporting period.

Landscape and Visual

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 5, 12, 19 and 26 November 2012. The representative of the IEC joined the site inspection on 12 November 2012. Details of the audit findings and implementation status are presented in *Section 6*.

Non-conformance/Compliant/Summons and Prosecution

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
Ma Tau Wai (MTW) Works Area

Construction Activities to be undertaken
• TKW/MTW Road Garden – Installation of concrete slabs and silos for the bentonite plant; erection of hoardings and road marking; • To Kwa Wan Market - Demolition of the planter walls and paving the walkway; and • General Works - Preparation works for underground utilities, removal of the central divider, and road marking work.
<u>To Kwa Wan (TKW) Works Area</u>
• Archaeological Survey; • Pre-bored H-pile Location - Trial pits and pre-drilling; and • General Works - Site clearance, erection of site hoardings, construction of a site office, ground preparation and utility scanning.

1 INTRODUCTION

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

1.1 PURPOSE OF THE REPORT

This is the third EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 November to 30 November 2012.

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 environmental 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 tunnelling. 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
Work in Ma Tau Wai (MTW)
● TKW/MTW Road Garden – Preparation works for diversion of MTW Road & Chi Kiang street and mobilization of concrete slabs and silos for bentonite plant;
● Ma Tau Wai Road Planter Emergency Access – Relocation of control boxes; and
● To Kwa Wan Market - Demolition of the planter walls & paving the walkway.
Work in To Kwa Wan (TKW)
● Archaeological Survey;
● Pre-bored H-pile Location – Trial pits and pre-drilling; and
● General Works - Site clearance, erection of site hoarding and construction of site office.

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	348516	7 Aug 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			
- *For tree transplant*	*GW-RE0864-12*	*Till 22 Dec 2012*	
- *VMS installation*	*GW-RE0906-12*	*Till 01 Dec 2012*	-
- *Water Pump and Wastewater Treatment Plant*	*GW-RE0951-12*	*30-Apr-2013*	-
- *Trial run in Chi Kiang St & MTW Rd*	*GW-RE1043-12*	*23-Dec-2012*	-
Licence to Search and Excavate for Antiquities	342	29-Oct-2013	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 REGULAR CONSTRUCTION NOISE MONITORING

3.1.1 Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected or not available; alternative locations were proposed and agreed by the ER (Engineer's Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in ***Table 3.1*** and shown in ***Annex D***. The noise sensitive receivers (NSRs) related to this Works Contract are also shown in ***Annex D***.

Table 3.1 Regular Construction Noise Monitoring Location

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

Notes:

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

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

3.1.2 Monitoring Parameter and Frequency

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

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

3.1.3 Monitoring Equipment and Methodology

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

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

Table 3.2 Noise Monitoring Equipment

Monitoring Stations[(a)]	Monitoring Equipment (Sound Level Meter and Calibrator)
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 nine 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
HOM-2-1-A	Faerie Court (East Façade)

Note:
(a) The final monitoring locations will be subject to the latest Continuous Noise Monitoring Plan (CNMP).

3.2.2 Monitoring Parameter and Frequency

Continuous monitoring of $L_{eq(30min)}$ noise levels will be carried out at the nine NSRs identified in ***Table 3.4*** during the normal construction working hours (0700 – 1900 Monday to Saturday). The recommended measurement period for the continuous noise monitoring programme in the CNMP are presented in ***Table 3.5***. 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. 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 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, Apr 2013 – Dec 2013, May 2014, Aug 2014 – Mar 2016
HOM-2-1-A	Faerie Court (East Façade)	78	Mar 2013 – Feb 2014

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) 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, Environmental Protection Department (EPD) and Independent Environmental Checker (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 mot granted by the owner of the building. An alternative location, Katherine Building, was proposed and had been approved by the ER and agreed by the IEC and EPD.

(b) As the Incorporated Owners Association of the originally proposed monitoring location at Lucky Building did not reply to our request for access to their premise, an alternative location, No. 26 Kowloon City Road, was proposed and had been approved by the ER and agreed by the IEC and EPD.

3.3.2 Monitoring Parameter and Frequency

The construction dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in ***Table 3.7***. The TSP monitoring was conducted as per the schedule presented in ***Annex E***.

Table 3.7 Construction Dust Monitoring Parameters and Frequency

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

3.3.3 Monitoring Equipment

24-hour averaged TSP monitoring was performed at the designated monitoring stations using High Volume Samplers (HVS) with the appropriate sampling inlets installed. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. ***Table 3.8*** summarises the equipment that was deployed for the 24-hour averaged monitoring.

Table 3.8 Construction Dust Monitoring Equipment

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
24-hr TSP	
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Serial No. 0438320)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Serial No. 0438320)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Serial No. 0438320)
DMS-9	TE-5170 (Serial No. 0814), CM-AIR-43 (Serial No. 0438320)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Serial No. 0438320)

3.3.4 Monitoring Methodology

All HVSs were free-standing with no obstruction.

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

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

Preparation of Filter Papers

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

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and area surrounding the filter were cleaned;

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

Maintenance and Calibration

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

Wind Data Monitoring

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

3.3.5 Action and Limit Levels

The Action and Limit levels have been established and are presented in ***Table 3.9***.

Table 3.9 Action and Limit Levels for Dust Monitoring

Parameters	Dust Monitoring Station	Action Level (μg m^{-3}) (a)	Limit Level (μg m^{-3}) (a)
24-hour TSP	DMS-6	156.8	260
	DMS-7	166.7	260
	DMS-8	152.2	260
	DMS-9	160.9	260
	DMS-10	170.4	260
1-hour TSP (b)	DMS-6	288.8	500
	DMS-7	289.7	500
	DMS-8	300.0	500
	DMS-9	303.0	500
	DMS-10	294.7	500

Notes:
(a) Reference to the Baseline Monitoring Report submitted in July 2012.
(b) Action and Limit Levels for 1-hour TSP will only be used when 1-hour TSP is required to be monitored when a valid complaint is received.

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

3.4 CULTURAL HERITAGE

The Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been issued by the Antiquities Authority 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

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

4 IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submission under Works Contract 1109

EP Condition	Submission	Submission Date
Condition 3.4	Second Monthly EM&A Report	14 November 2012
Condition 2.9	Construction Noise Mitigation Measure Plan (CNMMP)	30 November 2012
Condition 2.10	Continuous Noise Monitoring Plan	30 November 2012

5 MONITORING RESULTS

5.1 REGULAR CONSTRUCTION NOISE MONITORING

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

The noise monitoring results of the measurements carried out on 2, 8, 14, 20 and 26 November at 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.

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

As the construction works that have been 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 during the reporting month.

5.3 CONSTRUCTION DUST MONITORING

A total of 25 sets of 24-hr TSP monitorings were carried out at the designated monitoring stations during normal weekdays of the reporting period. The monitoring results together with their graphical presentations are presented in ***Annex J*** and a summary of the dust monitoring results in this reporting month is given in ***Table 5.1***.

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

Monitoring Station	24-hour TSP Monitoring Results measured, μgm^{-3} [(a)]		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	91	82-101	156.8	260
DMS-7	86	84-90	166.7	260
DMS-8	89	87-90	152.2	260
DMS-9	93	83-97	160.9	260
DMS-10	94	86-101	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 has been issued by the Antiquities Authority 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***. About 624 m^3 of inert C&D materials generated from the Project were disposed of at TKO137 Fill Bank. 168 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No steel material and chemical waste was generated during this reporting month. 154 kg of paper/cardboard packaging and 2 kg of plastics were generated and sent to recyclers for recycling during the reporting period. 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]	Chemical Waste	Non-inert C&D Materials [b]			
			General Refuse	Recycled materials		
				Paper/cardboard	Plastics	Metals
November 2012	624 m^3	0 L	168 m^3	154 kg	2 kg	0 kg

Notes:

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

(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes.

5.6 LANDSCAPE AND VISUAL

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 12 and 19 November 2012. Most of the mitigation measures given in ***Annex H*** have been implemented. Required Actions that were found are listed below:

12 November 2012

- A haul road was sited close to the transplanted trees MT 0119 and MT 0120 at TKW/MTW Garden. Construction waste was stored within the tree protection zone. The Contractor was reminded to provide sufficient buffer from the trees as far as possible and remove the construction waste from the tree protection zone. The tree MT 0119 and MT 0120 at TKW/MTW Garden has been transplanted, as confirmed by the Contractor's ET during the site inspection on 19 November.

- Construction waste was observed within the tree protection zone of the retained tree MT0083 at TKW/MTW Garden. The Contractor was reminded to remove the construction waste from the tree protection zone. Construction waste inside the tree protection zone of retained tree MT0083 at TKW/MTW Garden has been removed, as confirmed by the Contractor's ET during the site inspection on 19 November.

19 November 2012

- The tree protection zones for the retained trees MT0134 at TKW/MTW Garden were removed. The Contractor was reminded to provide a proper tree protection zone for the retained trees. The tree protection zone for retained tree MT0134 at TKW/MTW Garden was to be installed, as confirmed by the Contractor's ET during the site inspection on 26 November.

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 5, 12, 19 and 26 November 2012. The representative of the IEC joined the site inspection on 12 November 2012. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarized as follows:

5 November 2012

- A haul road was still sited too close to the transplanted trees MT 0119 and MT 0120. The Contractor was reminded to provide sufficient buffer from the trees to avoid destroying the roots of the trees. The tree MT 0119 and MT 0120 at TKW/MTW Garden has been transplanted, as confirmed by the Contractor's ET during the site inspection on 19 November.

- A chemical drum without a drip tray was still stored in the works area next to the East Kowloon Corridor at TKW/MTW Garden. The Contractor was reminded to provide a drip tray and cover the drum properly. As informed by the Contractor, an order for drip trays had already been made. The chemical drum without drip tray stored on the works area next to the East Kowloon Corridor at TKW/MTW Garden has been removed, as confirmed by the Contractor's ET during the site inspection on 12 November.

- The dust suppression measures on the haul road were not sufficient at the TKW/MTW Garden. The Contractor was reminded to provide sufficient watering during dry seasons in order to suppress the generation of fugitive dust. Sufficient watering has been applied at TKW/MTW Garden to suppress the generation of fugitive dust, as confirmed by the Contractor's ET during the site inspection on 12 November.

12 November 2012

- Hoardings near Chi Kiang Street and Chat Ma Mansion were not sufficient. The Contractor was reminded to install proper hoardings. The hoardings near Chat Ma Mansion and Chi Kiang Street have been installed, as confirmed by the Contractor's ET during the site inspection on 19November and 26 November respectively.

19 November 2012

- Dust suppression measures at the haul road and soil stockpiles near the area for the archaeology survey were not sufficient. The Contractor was reminded to provide sufficient watering during dry seasons in order to suppress the generation of fugitive dust. It is raining during the site

inspection on 26 November and the haul road and soil stockpile near area for archaeology survey were wetted.

26 November 2012

- Two chemical drums were stored in the equipment storage area near the site boundary of the TKW/MTW Garden. The Contractor was recommended that they be stored in the designated chemical storage area or be covered by impervious sheets. Two chemical drums have been removed from the equipment storage area at TKW/MTW Garden and stored in the chemical storage rack, as confirmed by the Contractor's ET during the site inspection on 3 December.

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

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 SUMMARY OF MONITORING EXCEEDANCE

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

7.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

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

7.3 SUMMARY OF ENVIRONMENTAL COMPLAINT

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

7.4 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

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

8 FUTURE KEY ISSUES

8.1 KEY ISSUES FOR THE COMING MONTH

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

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

Construction Activities to be undertaken
Ma Tau Wai (MTW) Works Area
• TKW/MTW Road Garden – Installation of concrete slabs and silos for the bentonite plant; erection of hoardings; and road marking; • To Kwa Wan Market - Demolition of the planter walls and paving the walkway; and • General Works - Preparation works for underground utilities, removal of central dividers, and road marking work.
To Kwa Wan (TKW) Works Area
• Archaeological Survey; • Pre-bored H-pile Location - Trial pits and pre-drilling; and • General Works - Site clearance, erection of site hoardings, construction of a site office, ground preparation, and utility scanning.

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.

Continuous noise monitoring will be carried out in December 2012 according to the monitoring programme stated in the CNMP.

8.3 CONSTRUCTION PROGRAMME FOR THE NEXT MONTH

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

9 CONCLUSIONS

This 3rd monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 November 2012 to 30 November 2012 in accordance with the EM&A Manual and the requirement under EP-438/2012/B.

No non-compliance 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.

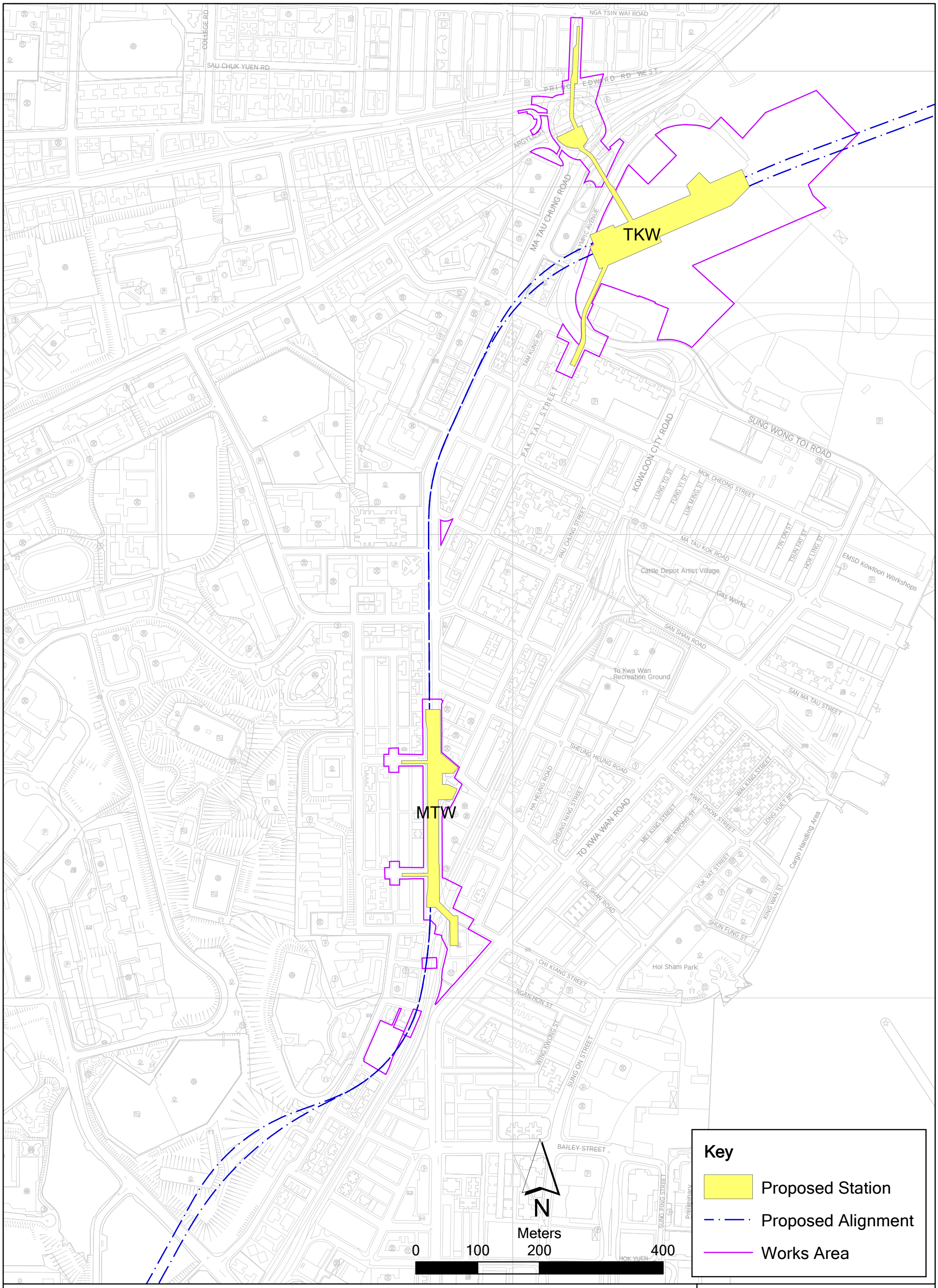
No non-compliance event was recorded during the reporting period.

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

The Contractor's ET will keep track 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

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Date: 10-Oct-12

Environmental Resources Management

ERM

Annex B

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

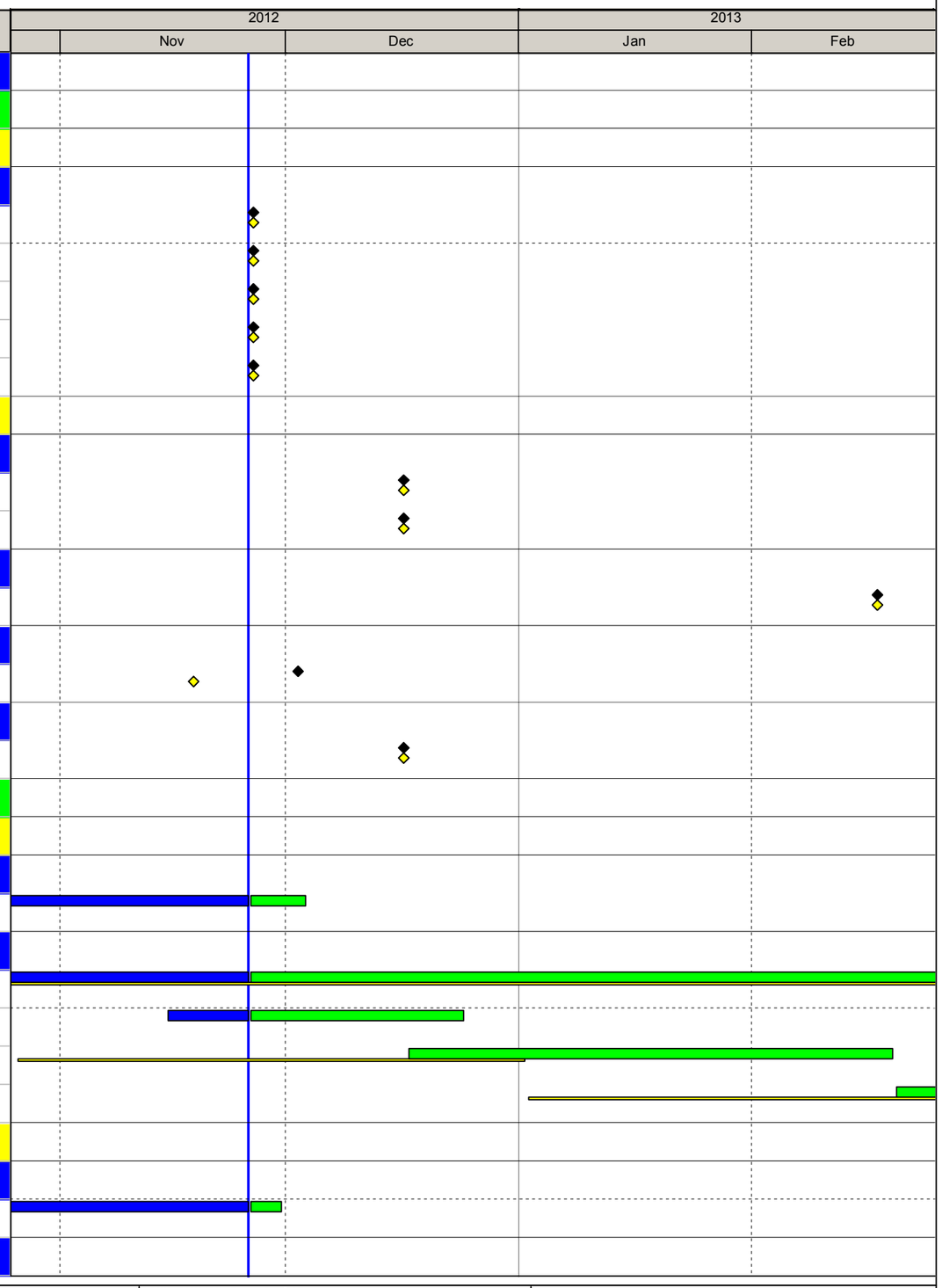
(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
1109 - SUW & TKW Stations and Tunnels NOV 12					
PROJECT DATES					
Works Areas					
Access Dates					
01109.ACW1	Access date to Works Area 1109.W1 (Wk48/12;3Dec12)	0%	0	26-Nov-12*	
01109.ACW1a	Access date to Works Area 1109.W1a (Wk48/12;3Dec12)	0%	0	26-Nov-12*	
01109.ACW1b	Access date to Works Area 1109.W1b (Wk48/12;3Dec12)	0%	0	26-Nov-12*	
01109.ACW1c	Access date to Works Area 1109.W1c (Wk48/12;3Dec12)	0%	0	26-Nov-12*	
01109.ACW1d	Access date to Works Area 1109.W1d (Wk48/12;3Dec12)	0%	0	26-Nov-12*	
Specified Milestone Dates					
CC-A Milestones					
01109.MA02a	A2(a)-Approval of Preliminary Master Programme A2(G4.6.1)(Wk50/12;16Dec12)	0%	0		16-Dec-12*
01109.MA02b	A2(b)-Approval of Time Chainage Programme A2(G4.11.1)(Wk50/12;16Dec12)	0%	0		16-Dec-12*
CC-B Milestones					
1109MB02i	B2(i) -50% by plan area of archaeological survey-cum-excavation complete(Wk07/13;17Feb13)	0%	0		17-Feb-13*
CC-C Milestones					
01109.MC01	C1-TTMS implemented to close 3 traffic lanes at Ma Tau Wai Road.(Wk46/12;18Nov12)	0%	0		02-Dec-12*
CC-D Milestones					
01109.MD01	D1-Order for tunnel boring machines (TBM) placed.(Wk50/12;16Dec12)	0%	0		16-Dec-12*
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS					
General & Site Wide					
Survey & Instrumentation					
01109.PD1400	Conduct initial site surveys, inc utility detection	40%	7	15-Aug-12 A	03-Dec-12
Site Establishment Activities					
01109.PD1240	Project establishment and deployment	46%	97	01-Aug-12 A	25-Mar-13
01109.PD1365	Establish Engineer's office (Setting Out and Foundation Works)	3%	29	15-Nov-12 A	24-Dec-12
01109.PD1660	Establish Engineer's office (Structural components)	0%	65	17-Dec-12	19-Feb-13
01109.PD7650	Engineer's office Finishes complete and ready to move in	0%	34	20-Feb-13	25-Mar-13
Management Systems					
Construction (incl Geotech) - Submission					
01109.PD2250	Survey of existing geotechnical features (P4.3.1)	70%	4	14-Aug-12 A	30-Nov-12
Construction (incl Geotech) - Approval					

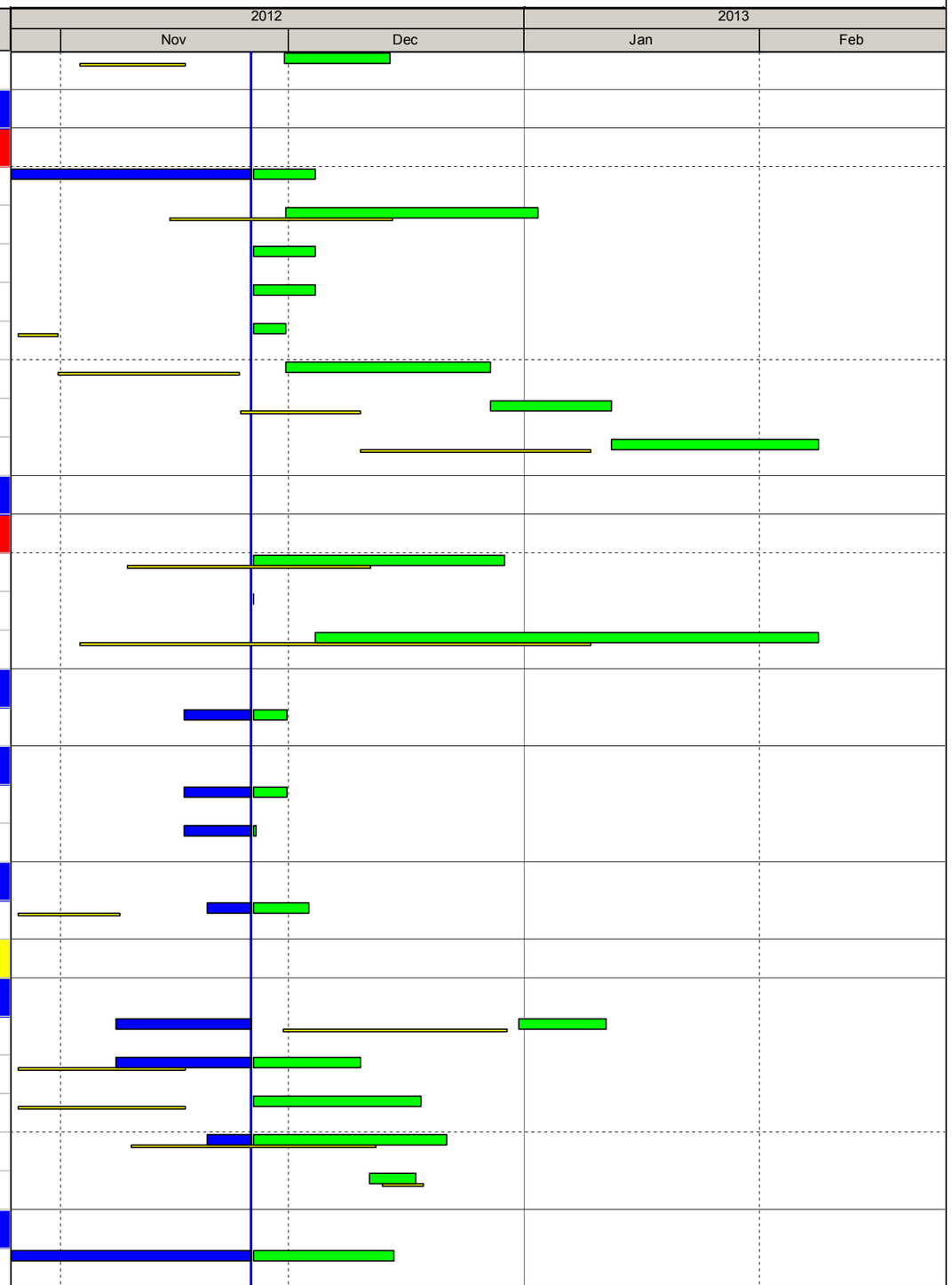


Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD2410	Review & Approve existing geotechnical features	0%	14	30-Nov-12	14-Dec-12
Building Condition Survey - Submission					
Existing Buildings and Structures (EBS) - Submission					
01109.PDA3110	EBS Contingency Plan - Prepare & Submit for works in vicinity of EBS (P11.5.4)	73%	7	31-Aug-12 A	04-Dec-12
01109.PDA3120	EBS Condition Survey - Investigation to confirm no exist piles/obstructions to proposed TBM tunnels	0%	25	30-Nov-12	02-Jan-13
01109.PDA4290	EBS Condition Survey - SSHCJV Review Condition Survey and discuss with MTR	0%	7	26-Nov-12	04-Dec-12
01109.PDA4300	EBS Condition Survey - SSHCJV agree protection measures with MTR	0%	7	26-Nov-12	04-Dec-12
01109.PDA4310	EBS Condition Survey - SSHCJV prepare details of Prot Measures (in acc w ETWB)	0%	5	26-Nov-12	30-Nov-12
01109.PDA4320	EBS Condition Survey - Govmt review, comment & app of Protection measures	0%	21	30-Nov-12	27-Dec-12
01109.PDA4330	EBS Condition Survey - Install protection measures	0%	13	27-Dec-12	12-Jan-13
01109.PDA4340	EBS Condition Survey - Establish baseline readings	0%	24	12-Jan-13	08-Feb-13
Building Condition Survey - Approval					
Existing Buildings and Structures (EBS) - Approval					
01109.PDA3140	EBS Condition Survey - Review and comment on Employer's Condition Survey (P4.28, P30 + App AM)	0%	27	26-Nov-12	29-Dec-12
01109.PDA3150	EBS Structural Survey - Review Employer's Structural Survey report	0%	0	26-Nov-12	26-Nov-12
01109.PDA4270	EBS Contingency Plan - Approve the Contingency plan for works in vicinity of EBS (P11.5.4)	0%	55	04-Dec-12	08-Feb-13
Environmental - Approval					
01109.PD2750a	Review & Approve spoil disposal plan (P17.5.1)	64%	5	17-Nov-12 A	30-Nov-12
Programme - Approval					
01109.PD2940b	Review & Approve Time-chainage Programme (G4.11.1)	64%	5	17-Nov-12 A	30-Nov-12
01109.PD2950b	Review & Approve Preliminary Master Programme (G4.6.1)	92%	1	17-Nov-12 A	26-Nov-12
Sub-Contractors - Approval					
01109.PD2790	Review & Approve Subcontractor Management Plan (PS App S)	42%	8	20-Nov-12 A	03-Dec-12
Procurement					
Initial Subcontracts					
01109.PD2930	SUW - Procure and mobilize Grout Curtain plant & equipment	60%	12	08-Nov-12 A	11-Jan-13
01109.PD3120	Bid and award - Ground treatment Drainage and dewatering	80%	12	08-Nov-12 A	10-Dec-12
01109.PD3130	Bid and award - utility diversions	0%	19	26-Nov-12	18-Dec-12
01109.PD3440	Bid and award - waterproofing works	20%	23	20-Nov-12 A	21-Dec-12
C1109_HP009	Mobilise H- Piling plant & equipment	0%	6	11-Dec-12	17-Dec-12
Concrete Construction Materials					
01109.PD2100	Bid and award - Temporary works structural steel and sheet piles	80%	17	06-Aug-12 A	14-Dec-12

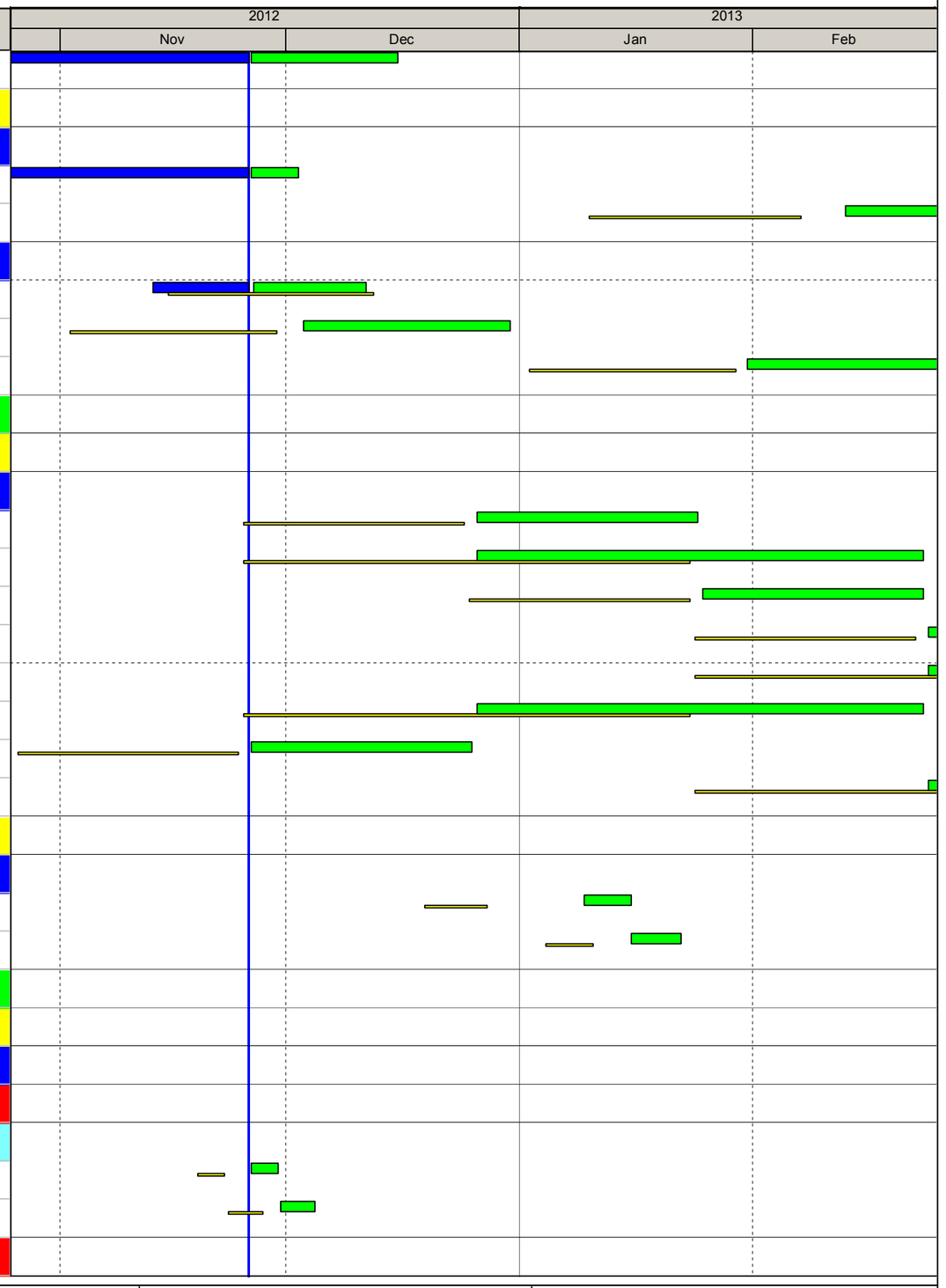


Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD2110	Bid and award - Major construction plant and equipment	70%	18	13-Aug-12 A	15-Dec-12
Method Statements					
SUW - Method statements Submission					
01109.PD2130	SUW - Prepare and submit Grout Curtain method statement	30%	7	13-Aug-12 A	02-Dec-12
C1109_CD005	SUW - Prepare and submit Culvert Diversion method statement	0%	28	13-Feb-13	12-Mar-13
SUW - Method Statements Approval					
01109.PD0007	SUW - Review & Approval of H- Piling method statement	46%	15	13-Nov-12 A	11-Dec-12
01109.PD2350	SUW - Review & Approval of Grout Curtain method statement	0%	28	03-Dec-12	30-Dec-12
C1109_SA112	SUW - Review & approval of Traffic Diversion Scheme;SUW Stn-Olym. Rd Area	0%	28	31-Jan-13	27-Feb-13
Temporary Traffic Arrangements					
SUW Station, Entrances and Adits					
TTMS Design & Approval					
01109.PD1250	SUW - Nam Kok Rd - TTM Stage 1 - Design & Approval by SLG	0%	30	26-Dec-12	24-Jan-13
01109.PD1270	SUW - Olympic Avenue - TTM Stage 1 - Design & Approval by SLG	0%	60	26-Dec-12	23-Feb-13
01109.PD1480	SUW - Nam Kok Rd - TTM Stage 2 - Design & Approval by SLG	0%	30	25-Jan-13	23-Feb-13
01109.PD1560	SUW - Nam Kok Rd - TTM Stage 3 - Design & Approval by SLG	0%	30	24-Feb-13	25-Mar-13
01109.PD1570	SUW - Olympic Avenue - TTM Stage 2 - Design & Approval by SLG	0%	60	24-Feb-13	24-Apr-13
01109.PD1580	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 2 - Design & Approval by SLG	0%	60	26-Dec-12	23-Feb-13
01109.PD3470	SUW - TTM for Initial Trial Pits	0%	30	26-Nov-12	25-Dec-12
110912790	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 3 - Design & Approval by SLG	0%	60	24-Feb-13	24-Apr-13
Implementation of Temporary Traffic Schemes					
TKW Station, Entrances and Adits					
01109.PD1015	TKW - Implement TTM Stage 1 - Phase 1A - Kau Pui Lung Rd/ MTW Rd section	0%	5	09-Jan-13	15-Jan-13
01109.PM0820	TKW - Implement TTM Stage 1 - Phase 1B - Farm Road/ Tin Kwong Rd section	0%	5	15-Jan-13	22-Jan-13
CC-B - SUW STATION, ENTRANCES AND ADITS					
SUW Station Construction Works					
Hoarding at Sung Wong Toi (SUW) Site					
Northside (remaining)					
Erect hoarding					
01109.PD7030	Apply coating	0%	4	26-Nov-12	29-Nov-12
01109.PD7040	Install corrugated sheeting	0%	4	30-Nov-12	04-Dec-12
Eastside					

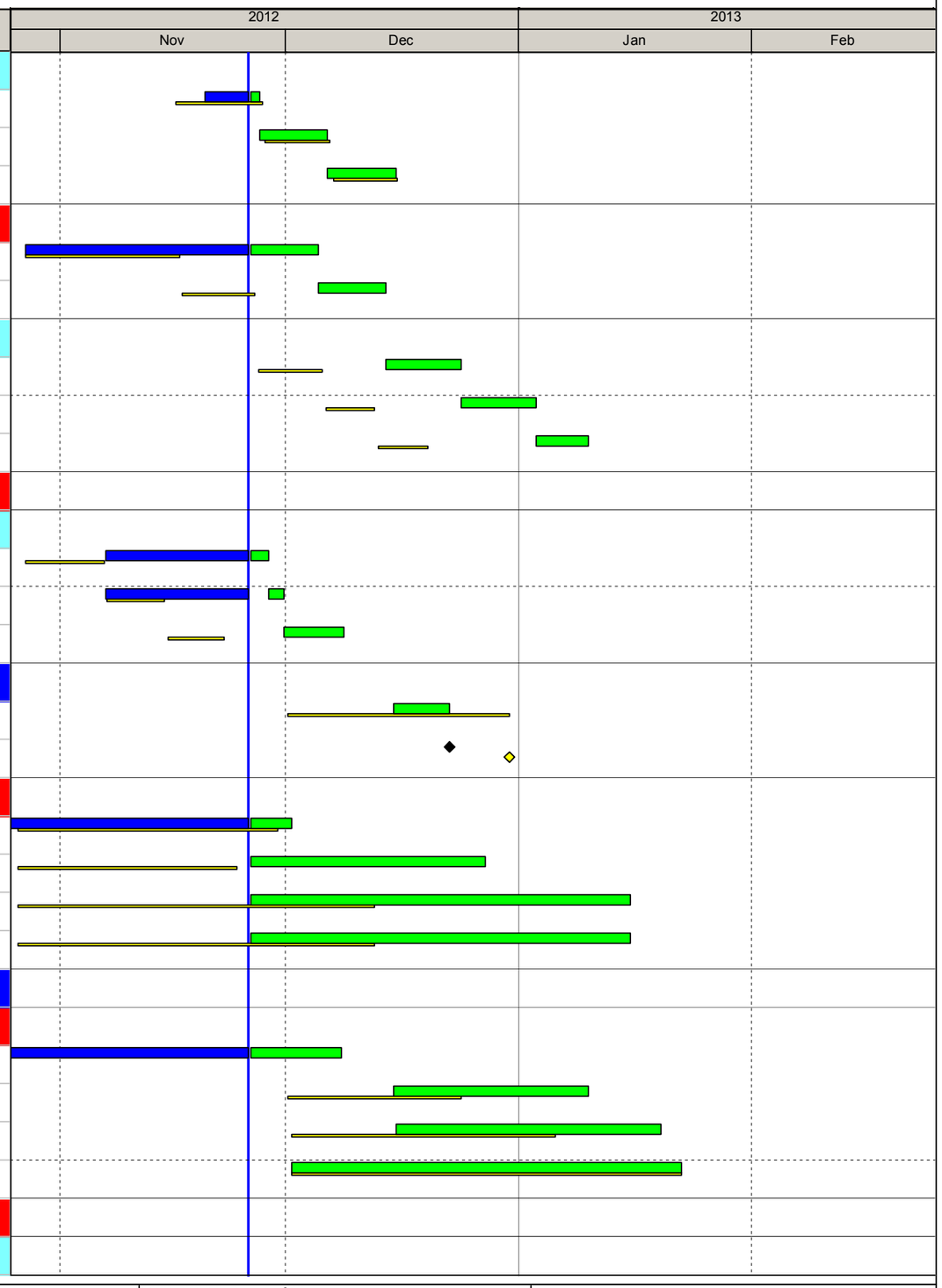


Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
Erect hoarding					
01109.PD7080	Install concrete cube and frame	85%	2	20-Nov-12 A	27-Nov-12
01109.PD7090	Apply coating	0%	8	27-Nov-12	06-Dec-12
01109.PD7100	Install corrugated sheeting	0%	8	06-Dec-12	15-Dec-12
Westsde (Along Olympic Avenue including HKAC carpark))					
01109.PD7120	Remove existing fence, site Clearance/Ground preparation	80%	8	27-Oct-12 A	05-Dec-12
01109.PD7130	Blinding	0%	8	05-Dec-12	14-Dec-12
Erect hoarding					
01109.PD7140	Install concrete cube and frame	0%	8	14-Dec-12*	24-Dec-12
01109.PD7150	Apply coating	0%	6	24-Dec-12	03-Jan-13
01109.PD7160	Install corrugated sheeting	0%	6	03-Jan-13	10-Jan-13
Kai Tak Tree Reception Site					
Erect hoarding					
01109.PD7180	Install concrete cube and frame	70%	3	07-Nov-12 A	28-Nov-12
01109.PD7190	Apply coating	70%	2	07-Nov-12 A	30-Nov-12
01109.PD7200	Install corrugated sheeting	0%	7	30-Nov-12	08-Dec-12
General Activities					
01109.PD2740	Set up steel fixing Yard for TKW D/Wall cages	0%	8	15-Dec-12*	22-Dec-12
01109.PD4061	Start Fabricating panel cages (in SUW)	0%	0		22-Dec-12
Initial Survey Works					
01109.PD2610	Visual joint survey of highways structures in SUW areas	80%	6	26-Sep-12 A	01-Dec-12
01109.PD2800	CCTV Record Survey of Public drains	0%	25	26-Nov-12	27-Dec-12
01109.PD2810	Excavation of Trial Pits for utility Services in SUW areas	0%	41	26-Nov-12	15-Jan-13
01109.PD2820	Excavation of Trial Pits for undergroud structures in SUW areas	0%	41	26-Nov-12	15-Jan-13
Site Preparation					
Site Hoarding & Facilities Establishment Works					
01109.PD2890	Fabrication & erection of site hoarding to handed over areas	59%	11	08-Sep-12 A	08-Dec-12
01109.PD3090	Construction of Site wheel wash facilities	0%	19	15-Dec-12*	10-Jan-13
01109.PD3330	Fabrication & erection of Site Gates to handed over areas	0%	27	15-Dec-12*	19-Jan-13
01109.PD3340	Erection of site fencing to handed over areas	0%	41	01-Dec-12*	22-Jan-13
Demolition and Site Clearance					
Tree Felling					

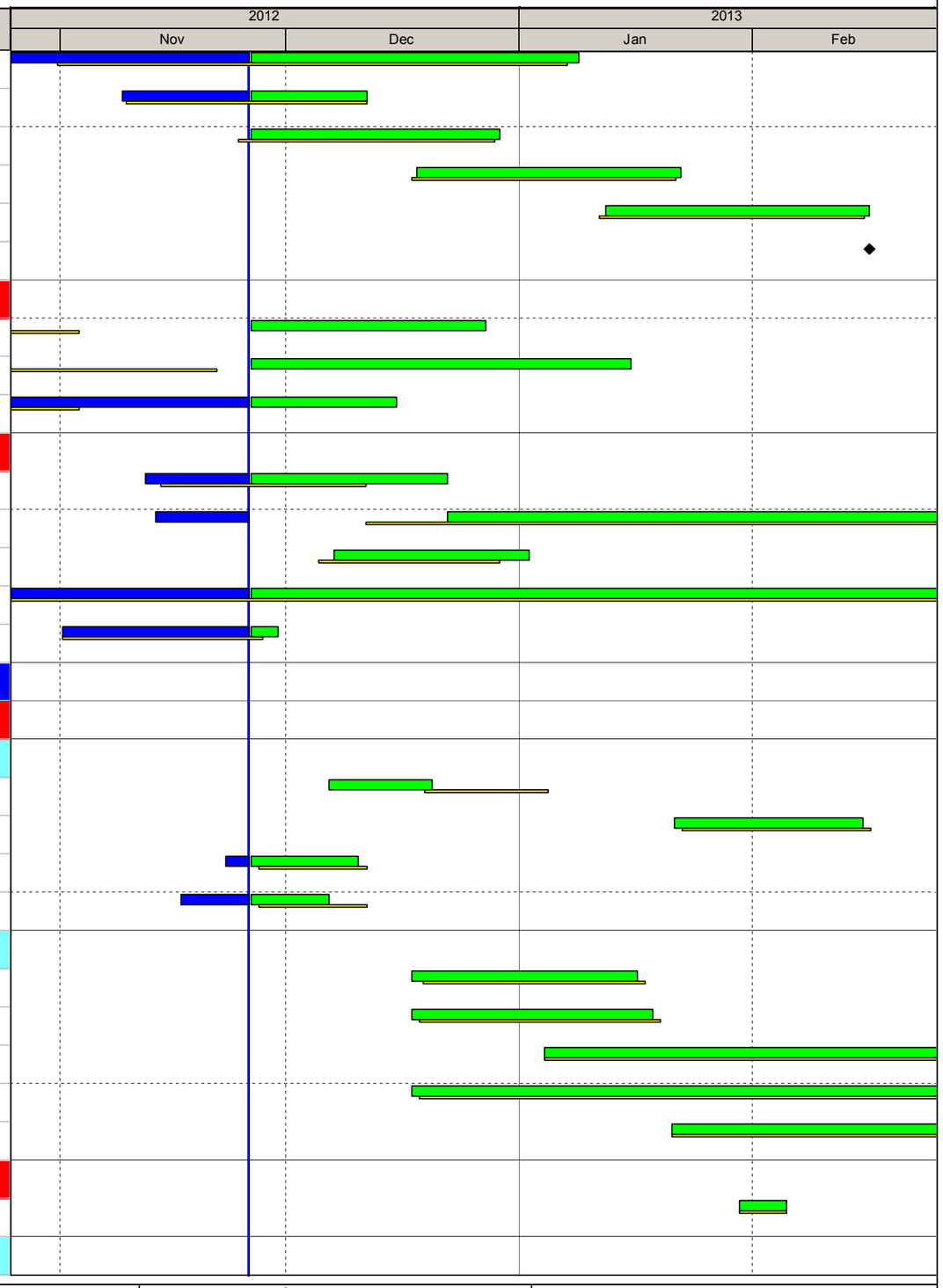


Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD02440	SUW - Fell Trees	35%	35	09-Oct-12 A	08-Jan-13
01109.PD03070	Prepare trees for transplanting Stage 1	49%	14	09-Nov-12 A	11-Dec-12
01109.PD03290	Prepare trees for transplanting Stage 2	0%	27	26-Nov-12	29-Dec-12
01109.PD045	Prepare trees for transplanting Stage 3	0%	27	18-Dec-12	22-Jan-13
01109.PDA24	Trees transplanting works (all areas)	0%	27	12-Jan-13	16-Feb-13
C1109_UDA34	All Tree felling and transplanting works complete	0%	0		16-Feb-13*
Install Monitoring Instruments/Take Initial Readings					
01109.PD3140	Install monitoring instruments/take initial readings ; Part 2- GL 04 to 12	0%	25	26-Nov-12	27-Dec-12
01109.PD3150	Install monitoring instruments/take initial readings ; Part 3- GL 12 to 19	0%	41	26-Nov-12	15-Jan-13
01109.PD3170	Install monitoring instruments/take initial readings ; Part 1- GL 01 to 04 / cofferdam areas)	33%	18	04-Oct-12 A	15-Dec-12
Archaeological Survey					
01109.PD030	Archaeological Survey (Stage 1 Excavation)	2%	23	12-Nov-12 A	22-Dec-12
01109.PD040	Archaeological Survey-cum-Excavation (Stages 2 and 3 Excavation)	1%	116	13-Nov-12 A	20-May-13
01109.PD060	Additional Investigation (in "Green Areas")	0%	19	07-Dec-12	02-Jan-13
01109.PD1750	Archeological Survey Works (Summary Bar)	37%	158	11-Jul-12 A	13-Jun-13
01109.PD3370	Removal of concrete slab and fill soil by mechanical excavator	82%	4	01-Nov-12 A	29-Nov-12
Station - Excavation and Foundation					
Piling					
Pre-drilling Works					
01109.PD206	Pre-drilling for Adit B works (GL 01 to 11)	0%	12	06-Dec-12	20-Dec-12
01109.PD212	Pre-drilling for all other areas	0%	19	21-Jan-13	15-Feb-13
01109.PD3220	Pre-drilling for station foundaton piles (Part 1- GL 01 to 04)	1%	13	23-Nov-12 A	10-Dec-12
01109.PD3240	Pre-drilling for Adit C works (Part 1 GL07 to 14)	25%	10	17-Nov-12 A	06-Dec-12
Pre-bored H- Piling for Permanent Works					
01109.PDB14380	H-Piling; Part 1 - GL 1b - 6Nr 1PR	0%	30	17-Dec-12	16-Jan-13
01109.PDB2140	H- Piling; Part 1- GL 1a - 5 Nr 1PR	0%	25	17-Dec-12	18-Jan-13
01109.PDB2230	H- Piling; Part 1- GL 3 - 32Nr 2PR	0%	80	04-Jan-13*	24-Mar-13
01109.PDB2260	H- Piling; Part 1- GL 4 - 37Nr 2PR	0%	93	17-Dec-12	17-Apr-13
01109.PDB2280	H Plling; Part 1-GL 2 24 Nr 2PR	0%	60	21-Jan-13*	21-Mar-13
TBM Launch Shaft Works					
01109.PD2830	TBM Launch shaft - Site survey, hoarding, clearance and monitoring stations	0%	5	30-Jan-13*	05-Feb-13
Bored Piling for TBM Shaft					

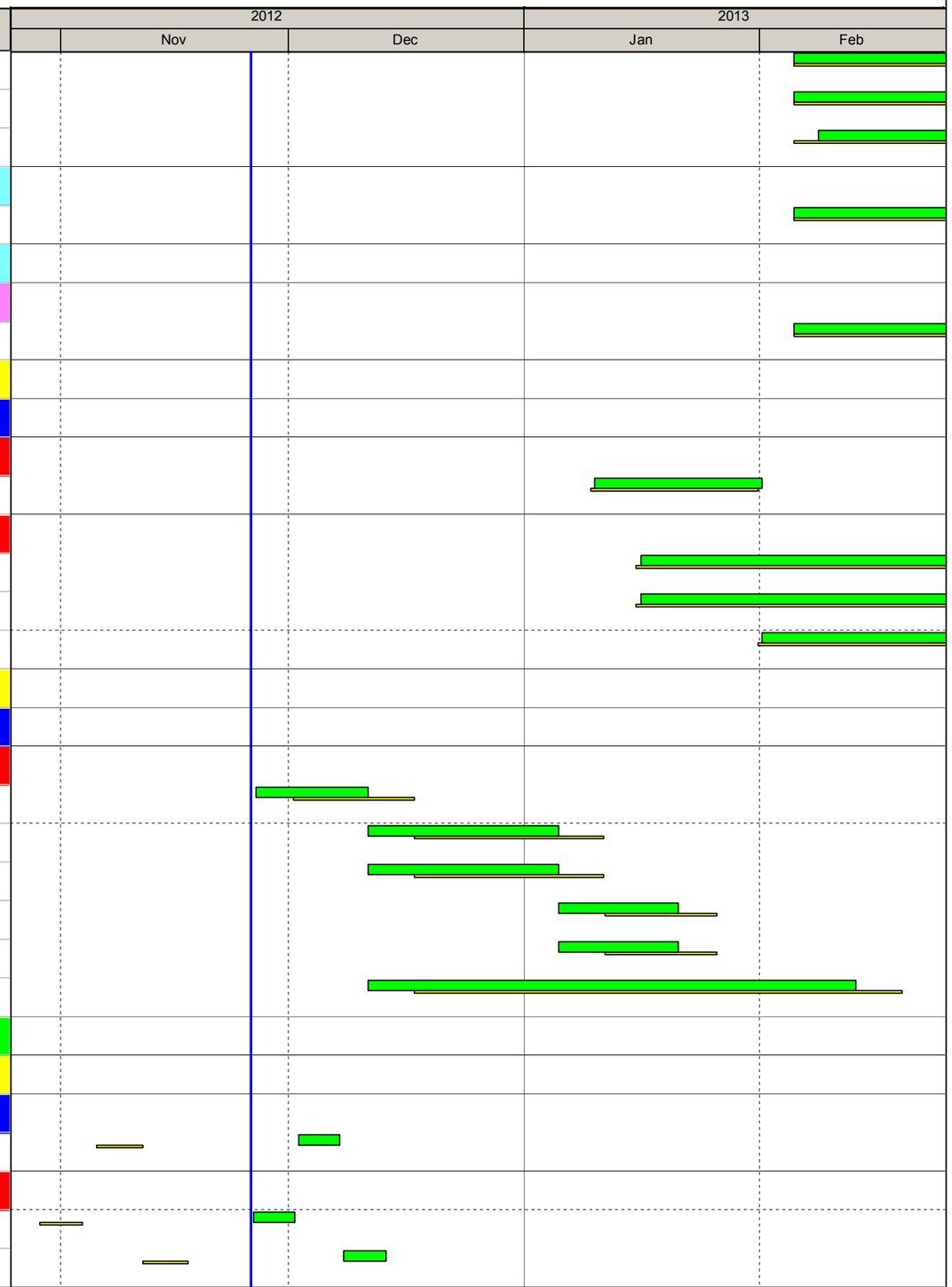


Data Date: 25-Nov-12

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD3260	TBM Launch shaft - Gang 3 - Bored Piling P24 to 28 (5nr) 5d/pile	0%	23	05-Feb-13	07-Mar-13
01109.PD3270	TBM Launch shaft - Gang 2 - Bored Piling P79 to 84 (5nr) 5d/pile	0%	23	05-Feb-13	07-Mar-13
11091779	TBM Launch shaft - Gang 1 - Bored Piling P121 to 125 (5nr) 5d/pile	0%	22	08-Feb-13	09-Mar-13
Pipe piling for TBM Shaft Area					
01109.PD3010	TBM Launch shaft - Gang 1 - Pipe Piles Zone E - P1 to 16 (16nr) 1.5d/pile	0%	22	05-Feb-13	06-Mar-13
Excavation TBM Shaft Area					
Utility Support /Diversions					
11093200	TBM Launch shaft - Excavate & support rising mains in NW corner	0%	16	05-Feb-13	27-Feb-13
Entrance C and Associated Adits					
Entrance C - Site Preparation					
Entrance C - Record Survey and Site set-up Works					
01109.PD104	CCTV Record Survey of Public drains	0%	19	10-Jan-13*	01-Feb-13
Entrance C - Utilities and Services Diversion					
01109.PD106	Excavation of Trial Pits for utility Services in Ent C & Adits areas	0%	41	16-Jan-13	07-Mar-13
01109.PD107	Excavation of Trial Pits for undergroud structures in Ent C & Adits areas	0%	41	16-Jan-13	07-Mar-13
C1109_AC110	Visual joint survey of Highways structures in Ent C & Adits areas	0%	25	01-Feb-13	06-Mar-13
Entrance B and Associated Adits					
Entrance B - Site Preparation					
Entrance B - Record Survey and Site set-up Works					
01109.PD108	CCTV Record Survey of Public drains	0%	13	26-Nov-12	11-Dec-12
01109.PD112	Excavation of Trial Pits for utility Services in Adit B areas	0%	19	11-Dec-12	05-Jan-13
01109.PD114	Excavation of Trial Pits for undergroud structures in Adit B areas	0%	19	11-Dec-12	05-Jan-13
01109.PD116	Initial survey of dump concentrations in Adit B related areas	0%	13	05-Jan-13	21-Jan-13
01109.PD118	Initial survey of Structures to be retained in Adit B areas	0%	13	05-Jan-13	21-Jan-13
01109.PD120	Visual joint survey of Highways structures in Adit B areas	0%	49	11-Dec-12	13-Feb-13
CC-C - TKW STATION, ENTRANCES AND ADITS					
TKW HOARDING					
Hoarding Installation					
01109.PD8030	Lok Shan Road Market	0%	6	02-Dec-12*	07-Dec-12
To Kwa Wan Garden:					
01109.PD8000	Ma Tau Wai Road	0%	6	26-Nov-12*	01-Dec-12
01109.PD8010	To Kwa Wan Road	0%	6	08-Dec-12	13-Dec-12



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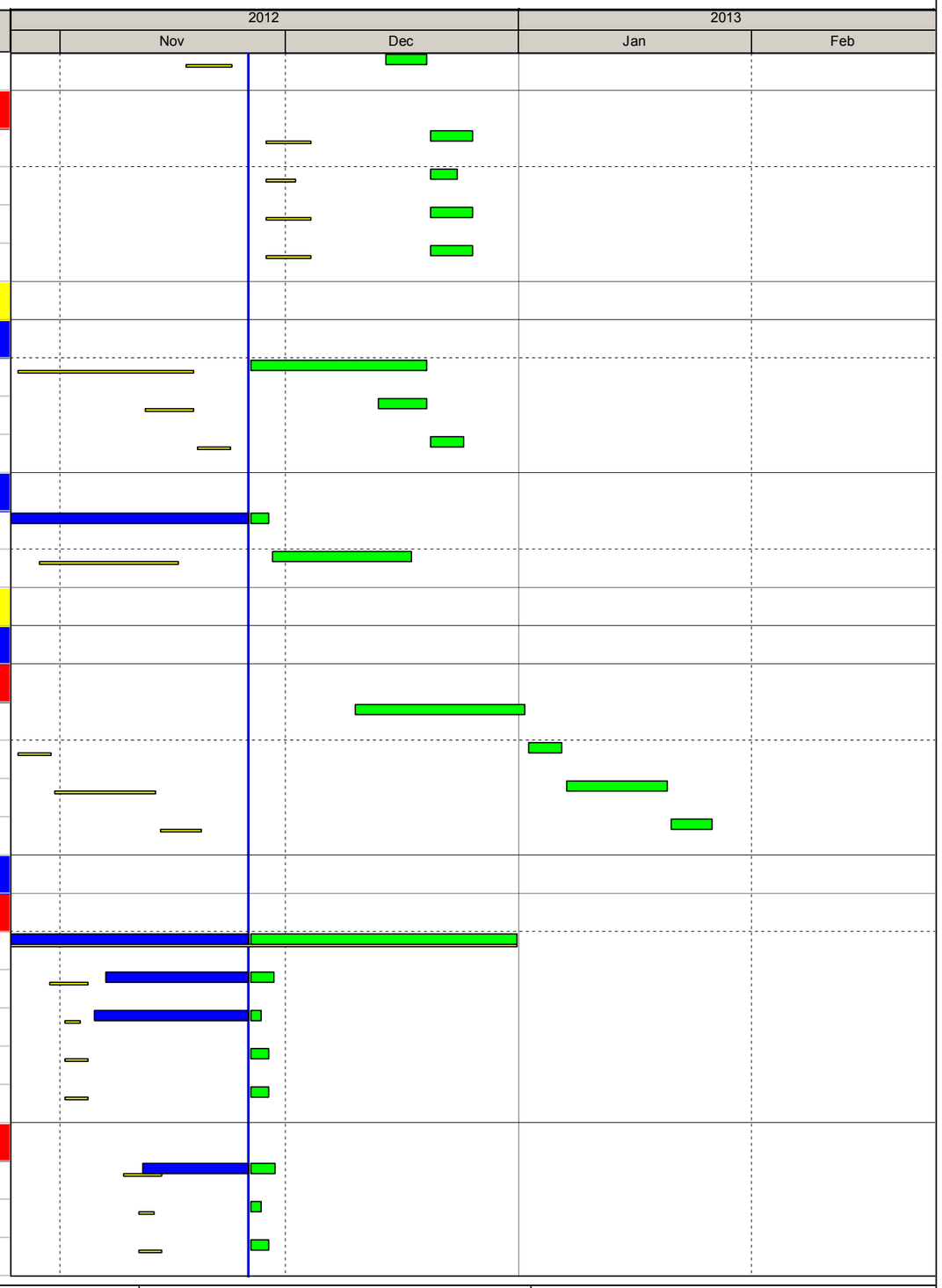
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD8020	Chi Kiang Street	0%	6	14-Dec-12	19-Dec-12
Ma Tau Wai Road Stage 1 Hoarding					
01109.PD8040	E1	0%	6	20-Dec-12*	25-Dec-12
01109.PD8050	E2	0%	4	20-Dec-12*	23-Dec-12
01109.PD8060	E3	0%	6	20-Dec-12*	25-Dec-12
01109.PD8070	E6	0%	6	20-Dec-12*	25-Dec-12
TTMS					
Application od Suspension / Relocation / Reprovision of Parking Spaces					
01109.PD5120	Application of Suspension / Relocation / Reprovision of Parking Spaces	0%	24	26-Nov-12	19-Dec-12
01109.PD5160	RMA Application of Suspension of Affected Parking Spaces	0%	7	13-Dec-12	19-Dec-12
01109.PD5170	Implementation of TTMS Drawings, SCLSLG/1109/SHJV/TKW/033-01 to 02 with Road Marking	0%	5	20-Dec-12	24-Dec-12
Liaison With Public Transport Parties					
01109.PD5140	Approval of TTMS drawings by SLG, SCLSLG/1109/SHJV/TKW/037-01 to 02	70%	3	22-Sep-12 A	28-Nov-12
01109.PD5150	Liaise with Transportation Parties for the proposed routing, stops and contingency plan	0%	19	29-Nov-12	17-Dec-12
TKW Station					
ENGINEERING DESIGN, OPERATION PLAN & REQUIRED FACILITIES SUBMISSION					
Vehicle Recognition System (VRS)					
01109.PD5650	Production of Camera (Off Site)	0%	23	10-Dec-12*	01-Jan-13
01109.PD5920	Delivery of Camera	0%	5	02-Jan-13	06-Jan-13
01109.PD6010	Installation of Cameras on site	0%	14	07-Jan-13	20-Jan-13
01109.PD6220	Testing and Commissioning	0%	6	21-Jan-13	26-Jan-13
SITE CONSTRUCTION WORKS					
Road Construction @ Ma Tau Wai Road / Chi Kiang Street (Underneath Kowloon East Corridor)					
01109.PD5310	Implementation of TTMS, SCLSLG/1109/SHJV/005-01 to 02	73%	36	17-Aug-12 A	31-Dec-12
01109.PD6440	Installation of Signal Lights witnin Works Area	36%	3	07-Nov-12 A	29-Nov-12
01109.PD6460	Road Marking within Works Area	6%	2	05-Nov-12 A	27-Nov-12
01109.PD6470	Temporary Traffic Signs Installation (within Works Area, and at Nearby Location with covered)	0%	3	26-Nov-12	28-Nov-12
01109.PD6480	Place Traffic Barriers / Traffic Cones within Works Area	0%	3	26-Nov-12	28-Nov-12
Road Construction @ Ma Tau Wai Road / Chi Liang Street (Within to Kwa Wan Road Garden)					
01109.PD6450	Cabling, Installation of Signal Lights witnin Works Area (by EMSD)	25%	4	12-Nov-12 A	29-Nov-12
01109.PD6490	Road Marking within Works Area	0%	2	26-Nov-12	27-Nov-12
01109.PD6500	Temporary Traffic Signs Installation (within Works Area, and at Nearby Location with covered)	0%	3	26-Nov-12	28-Nov-12



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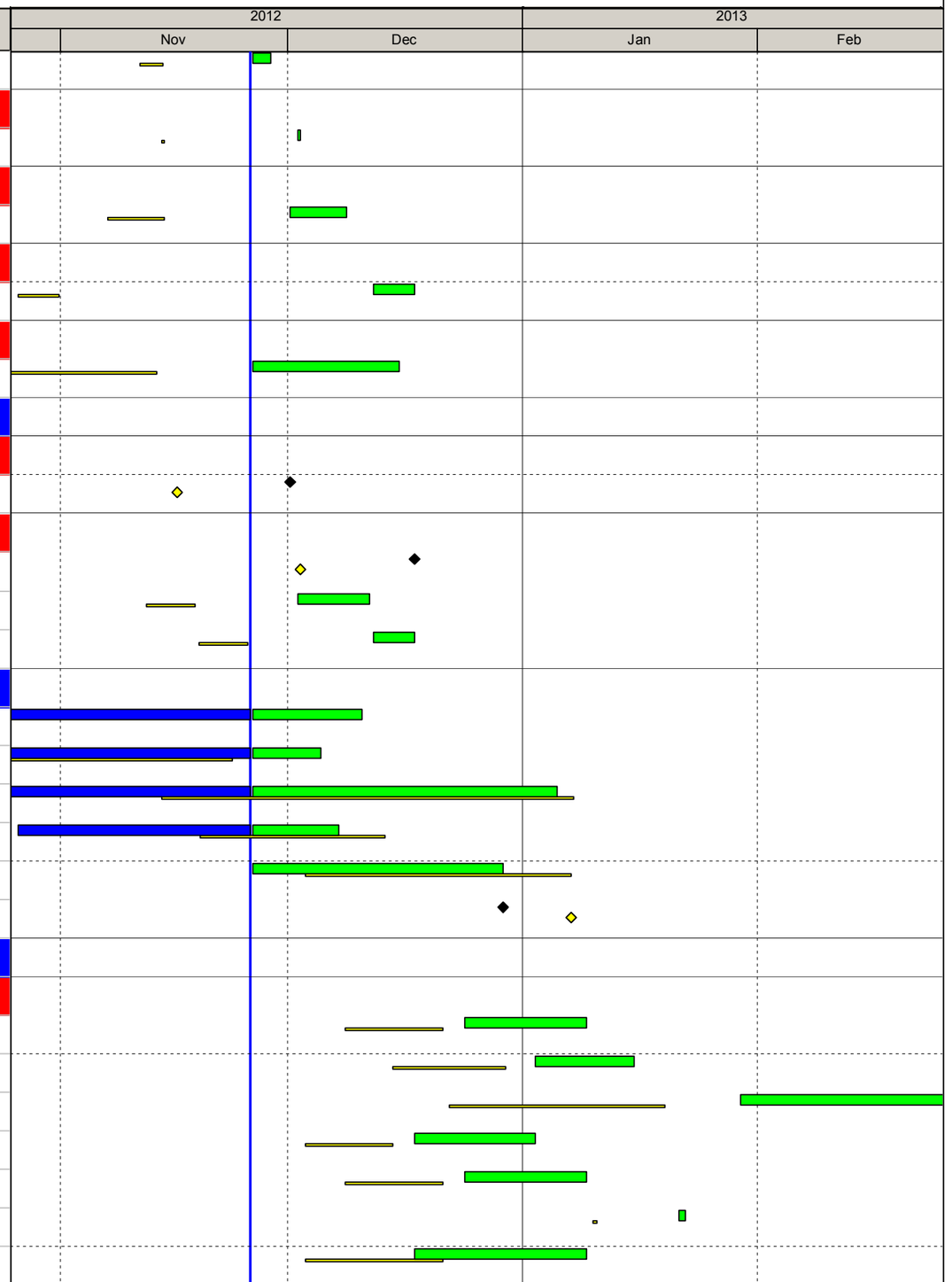
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD6510	Place Traffic Barriers / Traffic Cones within Works Area	0%	3	26-Nov-12	28-Nov-12
Modified Junction of Ma Tau Wai Road / Farm Road					
01109.PD6410	Implementation of TTMS of Modified Junction, SCLSLG/1109/MTR/MTW/023-01	0%	1	02-Dec-12*	02-Dec-12
Implementation Of Kiang Su Street					
01109.PD6290	Implementation of TTMS at Kiang Su Street, SCLSLG/1109/MTR/KSS/0??-01 with Road Marking Modification	0%	8	01-Dec-12*	08-Dec-12
Modified Junction of MA Tau Wai Road / Lok Shan Road					
01109.PD6060	Implementation of TTMS at Ma Tau Wau Road, SCLSLG/1109/MTR/MTW/041-02 for Ductings Work	0%	6	12-Dec-12*	17-Dec-12
Ductings Works for Modification Junction near Ma Tau Wai Road / Chi Kiang Street					
01109.PD5730	Implementation of TTMS across Ma Tau Wai Road, SCLSLG/1109/MTR/MTW/042-04 to 06 for Ductings Work (10:00	0%	20	26-Nov-12	15-Dec-12
KEY DATE:					
Implementing of Kiang Su Street					
01109.PD6380	Implementation of Kiang Su Street	0%	0		01-Dec-12*
Implementation of MTWR Stage 1 Phase 1					
01109.PD6520	MTWR Stage 1 Phase 1 - Trial Review complete	0%	0		17-Dec-12
01109.PD6540	TTMS Stage 1a - Trial Implementation	0%	10	02-Dec-12*	11-Dec-12
01109.PD6550	TTMS Stage 1b - Trial Implementation	0%	6	12-Dec-12	17-Dec-12
MTW/TKW Road Garden (site portion W13 + W14)					
01109.PD1840	TKW - Install & connect water supply to MTW/TKW Road garden site	68%	15	03-Aug-12 A	10-Dec-12
01109.PD1850	TKW - Obtain discharge licence	90%	9	06-Aug-12 A	05-Dec-12
01109.PD3420	TKW - Mobilization of initial bentonite tanks & D-Wall Equipment	26%	32	08-Oct-12 A	05-Jan-13
01109.PD6735	Stg 2 (TTM Stg 1) - Construct bentonite pipe trench under Chi Kiang St (stg 2)	50%	11	26-Oct-12 A	07-Dec-12
C1109_UDA109	TKW - Trees transplanting works (all areas)	0%	27	26-Nov-12	29-Dec-12
C1109_UDA119	TKW - All Tree felling and transplanting works complete	0%	0		29-Dec-12
Existing Utility Diversion Works					
Drainage and Sewerage					
01109.PD3511	TKW-FD402/402P - Divert 600dia sewer	0%	11	24-Dec-12	09-Jan-13
01109.PD3521	TKW-FD403/403P - Ent D - Divert 150dia sewer	0%	11	02-Jan-13	15-Jan-13
01109.PD3541	TKW-FD101/101P - Ent A - New 225dia sewer in vicinity of TKW Ent A	0%	22	29-Jan-13	27-Feb-13
01109.PD3581	TKW-SD502 - P132 - Storm Drain Support Insitu	0%	11	17-Dec-12	02-Jan-13
01109.PD3631	TKW-SD506 - P117 - Support In-suitu/abandon	0%	11	24-Dec-12	09-Jan-13
01109.PD3651	TKW-SD510 - 975dia SD - P91 - Support & Monitor during Construction	0%	1	21-Jan-13	22-Jan-13
01109.PD6850	Divert storm drains and sewers	0%	16	17-Dec-12	09-Jan-13



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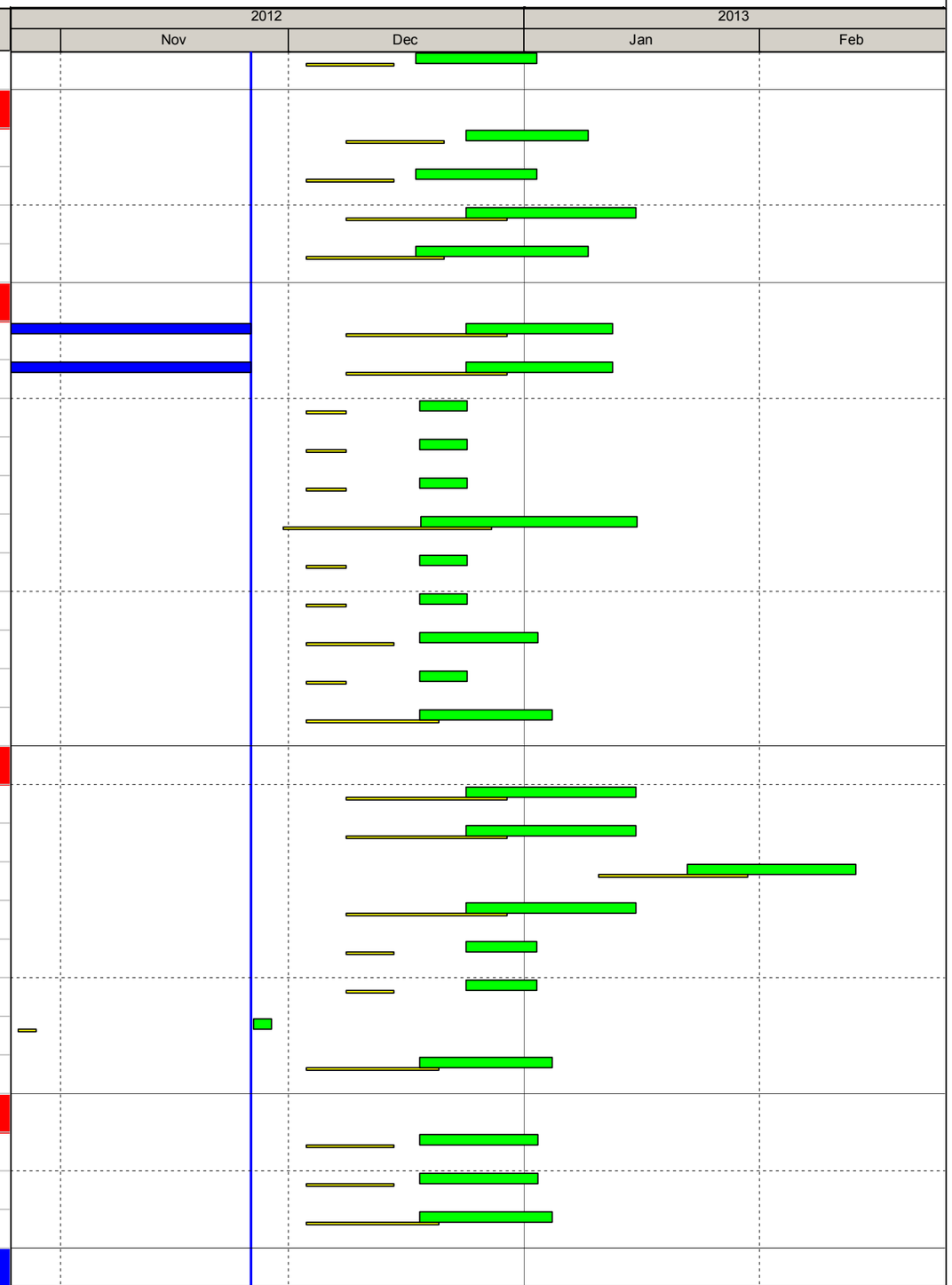
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD840	TKW-FD401/401P - Divert 600dia sewer	0%	11	17-Dec-12	02-Jan-13
Water Supply					
01109.PD3681	TKW-FW501 - P10 + P135 - 6" Fresh Water Main - Suport & monitor during construction	0%	11	24-Dec-12	09-Jan-13
01109.PD3721	TKW-FW101 - P10, P135 - Exist 450dia Fresh Water Main - Temp support during construction	0%	11	17-Dec-12	02-Jan-13
01109.PD3771	TKW-SW101/101P - P89 - Relocate exist 200dia Salt Watermain	0%	16	24-Dec-12	15-Jan-13
01109.PD6860	Support & monitor existing water mains	0%	16	17-Dec-12	09-Jan-13
Power Supply					
01109.PD3781	TKW-CLP401 - P7 & P142 - (11kV) Locally Slew	12%	14	18-Sep-12 A	12-Jan-13
01109.PD3791	TKW-CLP404 - P7 & P142 - (415 V) - Support in-situ & close monitoring	12%	14	18-Sep-12 A	12-Jan-13
01109.PD3801	TKW-CLP405 - P13 & P132 - (Existing Abandoned 66 kV) - Remove	0%	5	18-Dec-12	24-Dec-12
01109.PD3811	TKW-CLP406 - P9 & P135 - (Existing Abandoned 33 kV) - Remove	0%	5	18-Dec-12	24-Dec-12
01109.PD3821	TKW-CLP407 - P9 & P135 - (Existing Abandoned 33 kV) - Remove	0%	5	18-Dec-12	24-Dec-12
01109.PD3831	TKW-CLP602 - P123 - New 132 kV supply - Install	0%	22	18-Dec-12	15-Jan-13
01109.PD3841	TKW-CLP114 - P104 - (Existing Abandoned 33 kV) - Remove	0%	5	18-Dec-12	24-Dec-12
01109.PD3851	TKW-CLP503 - P61 & P87 - 11 kV Supply - Support insitu	0%	5	18-Dec-12	24-Dec-12
01109.PD3861	TKW-CLP505 - P76 to P93 - 11 kV Supply - Slew & support	0%	11	18-Dec-12	02-Jan-13
01109.PD3871	TKW-CLP506 - P76 to P93 - 415V - Slew & support	0%	5	18-Dec-12	24-Dec-12
01109.PD6870	Remove existing abandoned power cables	0%	18	18-Dec-12	04-Jan-13
Gas Supply					
01109.PD3881	TKW-GAS401 - P155, P156, P138 - Exist MP400 Gas Main - Abandon	0%	16	24-Dec-12	15-Jan-13
01109.PD3891	TKW-GAS503 - P42 & P108 - Temporarily Abandon	0%	16	24-Dec-12	15-Jan-13
01109.PD3901	TKW-GAS504 - P79 & P69 - Exist LPA300 Gas Main - Divert	0%	16	22-Jan-13	13-Feb-13
01109.PD3911	TKW-GAS505 - Proposed LPA300 Gas Main	0%	16	24-Dec-12	15-Jan-13
01109.PD3921	TKW-GAS506 - P78, P77, P76 - Exist LPA300 Gas Main - Abandon	0%	5	24-Dec-12	02-Jan-13
01109.PD3931	TKW-GAS602 - Proposed MP315PE Gas Main - Subject to discussion	0%	5	24-Dec-12	02-Jan-13
01109.PD6890	TKW Garden - Check existing gas main abandoned (TKW-GAS401)	0%	3	26-Nov-12	28-Nov-12
01109.PD6900	Divert & Abandon existing gas mains	0%	18	18-Dec-12	04-Jan-13
Telecommunication System					
01109.PD3941	TKW-HGC401 - P142 & P4,5,6 - Telecom Cable - Slew & Support	0%	11	18-Dec-12	02-Jan-13
01109.PD3951	TKW-HKT503/503P - P76 to 87incl. - Telecom Cable - Slew	0%	11	18-Dec-12	02-Jan-13
01109.PD6880	Slew & Support Telecom cables	0%	18	18-Dec-12	04-Jan-13
Station - Excavation and Foundation					



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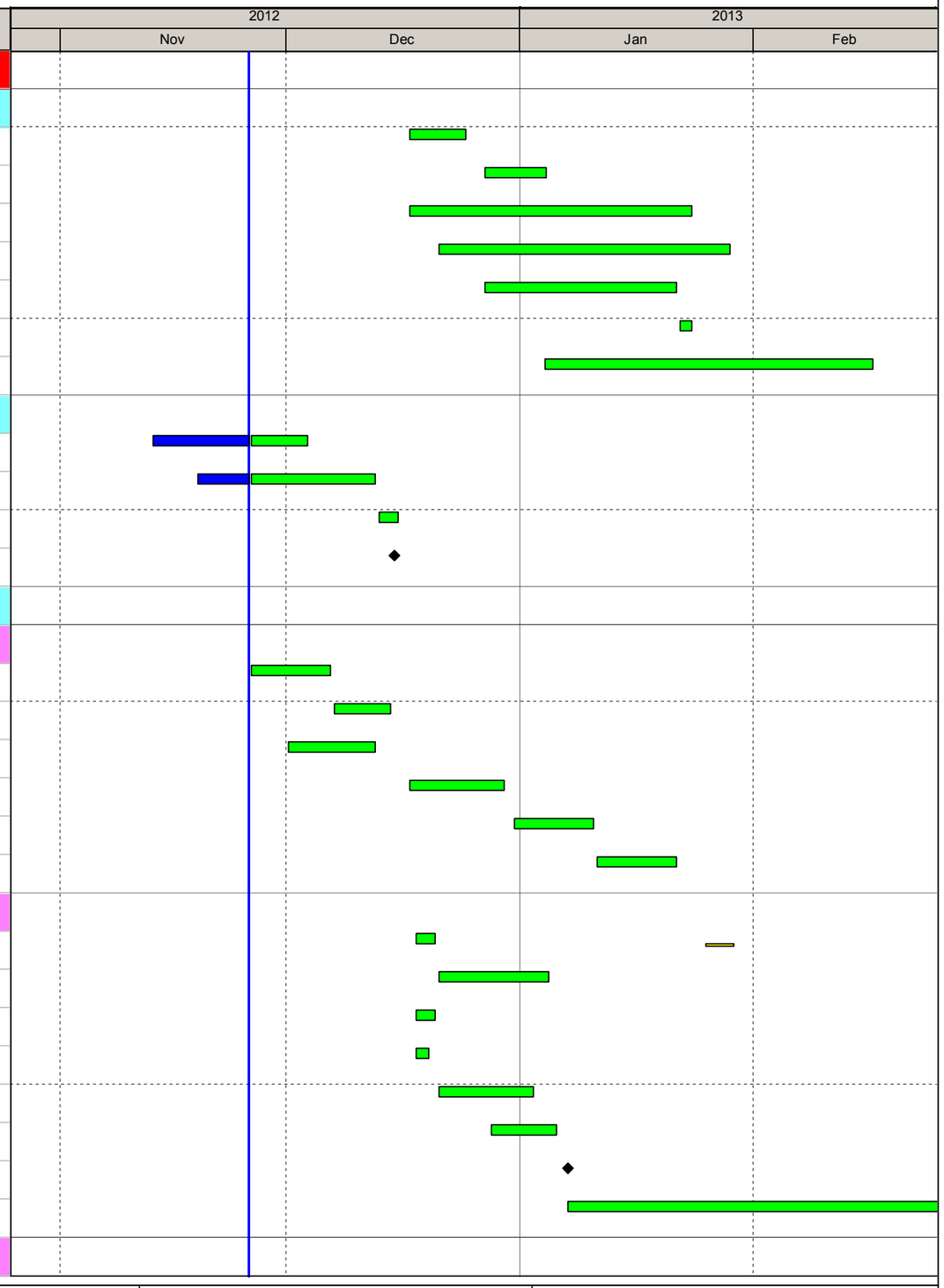
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
Diaphragm Wall					
General Preparation Work for DWall					
C1109_DWP103337	Hoarding construction	0%	7	17-Dec-12*	24-Dec-12
C1109_DWP103347	Scanning utilities	0%	6	27-Dec-12	04-Jan-13
C1109_DWP103357	Trial trench excavation	0%	30	17-Dec-12	23-Jan-13
C1109_DWP103367	Pre-drilling to Dwall	0%	30	21-Dec-12	28-Jan-13
C1109_DWP103377	Bentonite Pipe Laying	0%	21	27-Dec-12	21-Jan-13
C1109_DWP103387	Trial run and test of bentonite	0%	2	22-Jan-13	23-Jan-13
C1109_DWP103397	Guide wall contrsuction	0%	35	04-Jan-13	16-Feb-13
TKW/MTW Garden					
C1109_DWP103407	Silo Construction	61%	7	13-Nov-12 A	03-Dec-12
C1109_DWP103417	Desander set up	29%	15	19-Nov-12 A	12-Dec-12
C1109_DWP103427	Filter press set up	0%	3	13-Dec-12	15-Dec-12
C1109_DWP103437	Testing and commissioning	0%	0	15-Dec-12*	
Construction Area					
Garden Area					
C1109_DWP103817	Pre drill work (P150-153)	0%	10	26-Nov-12*	06-Dec-12
C1109_DWP103827	Guide wall construction	0%	7	07-Dec-12	14-Dec-12
C1109_DWP103837	1st cutter delivery	0%	10	01-Dec-12*	12-Dec-12
C1109_DWP103847	P150	0%	10	17-Dec-12*	29-Dec-12
C1109_DWP103857	P151	0%	9	31-Dec-12*	10-Jan-13
C1109_DWP103867	P152	0%	9	11-Jan-13*	21-Jan-13
E1					
C1109_DWP103447	Crane Delivery	0%	3	18-Dec-12*	20-Dec-12
C1109_DWP103457	2nd cutter delivery (low headroom)	0%	10	21-Dec-12	04-Jan-13
C1109_DWP103467	Trial trench excavation	0%	3	18-Dec-12	20-Dec-12
C1109_DWP103477	Scanning of utilities	0%	2	18-Dec-12	19-Dec-12
C1109_DWP103487	Pre-drilling to Dwall (6 rigs)	0%	8	21-Dec-12	02-Jan-13
C1109_DWP103497	Guide wall construction	0%	7	28-Dec-12	05-Jan-13
C1109_DWP103517	Dwall commencement	0%	0	07-Jan-13	
C1109_DWP103527	Dwall construction	0%	100	07-Jan-13	11-May-13
E2, E4, & E5					



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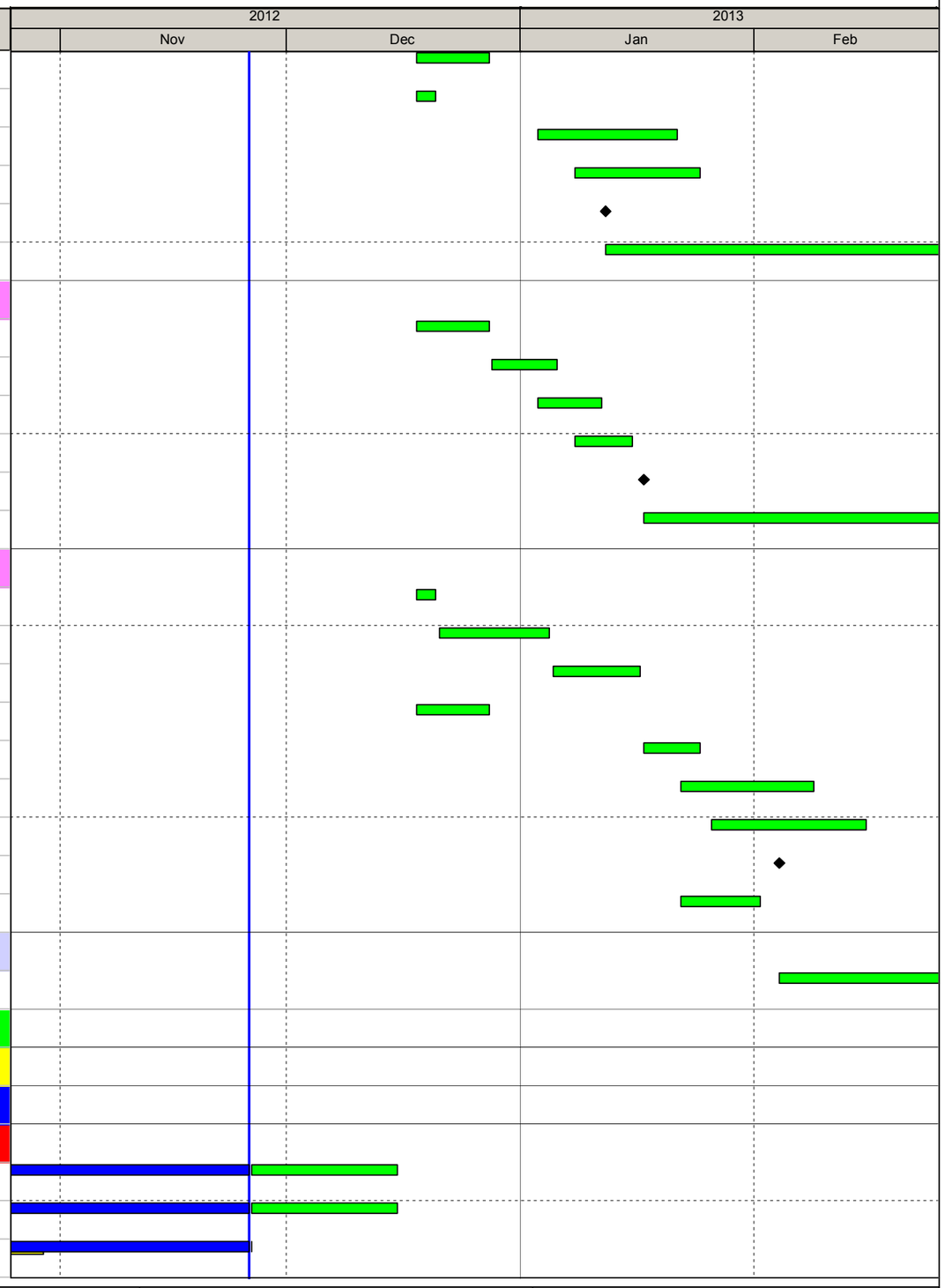
Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
C1109_DWP103537	Trial trench excavation	0%	7	18-Dec-12*	27-Dec-12
C1109_DWP103547	Scanning of utilities	0%	3	18-Dec-12	20-Dec-12
C1109_DWP103557	Pre-drilling to Dwall (6 rigs)	0%	16	03-Jan-13	21-Jan-13
C1109_DWP103567	Guide wall construction	0%	15	08-Jan-13	24-Jan-13
C1109_DWP103577	Dwall commencement	0%	0	12-Jan-13	
C1109_DWP103587	Dwall construction Stage 1-1	0%	66	12-Jan-13	06-Apr-13
E6					
C1109_DWP103637	Scanning of utilities	0%	7	18-Dec-12*	27-Dec-12
C1109_DWP103647	Trial trench excavation	0%	7	28-Dec-12*	05-Jan-13
C1109_DWP103657	Pre-drilling to Dwall (6 rigs)	0%	8	03-Jan-13	11-Jan-13
C1109_DWP103667	Guide wall construction	0%	7	08-Jan-13	15-Jan-13
C1109_DWP103677	Dwall commencement	0%	0	17-Jan-13	
C1109_DWP103687	Dwall construction	0%	77	17-Jan-13	24-Apr-13
E3					
C1109_DWP103697	Crane delivery	0%	3	18-Dec-12*	20-Dec-12
C1109_DWP103707	3rd cutter delivery	0%	10	21-Dec-12	04-Jan-13
C1109_DWP103717	4th cutter delivery	0%	10	05-Jan-13	16-Jan-13
C1109_DWP103727	Scanning of utilities	0%	7	18-Dec-12*	27-Dec-12
C1109_DWP103737	Trial trench excavation	0%	7	17-Jan-13*	24-Jan-13
C1109_DWP103747	Pre-drilling to Dwall (6 rigs)	0%	16	22-Jan-13	08-Feb-13
C1109_DWP103757	Guide wall construction	0%	15	26-Jan-13	15-Feb-13
C1109_DWP103767	Dwall commencement	0%	0	04-Feb-13*	
C1109_DWP103777	Cutter from Garden assembling	0%	10	22-Jan-13	01-Feb-13
Dwall Construction					
C1109_DWP103787	E3 machine	0%	55	04-Feb-13	16-Apr-13
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION					
Procurement of Specialised Construction Machinery					
Procurement of Specialised Construction Machinery					
Off-site					
01109.PD3480	Study Slurry Treatment System	66%	20	07-Aug-12 A	15-Dec-12
01109.PD3490	Study TBM Procurement Option	66%	20	14-Aug-12 A	15-Dec-12
01109.PD3510	Provide Full details of the TBM for Approval	98%	0	01-Aug-12 A	26-Nov-12



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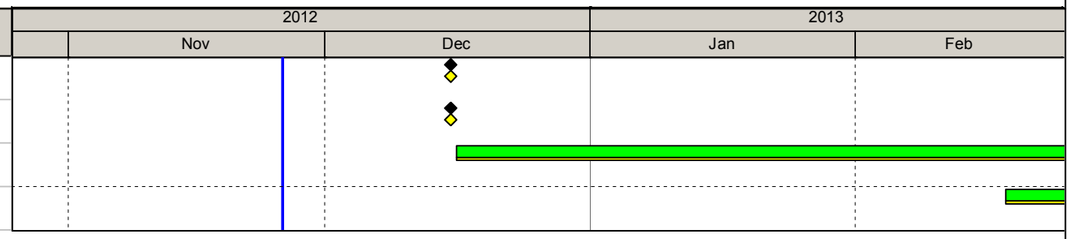
SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2012

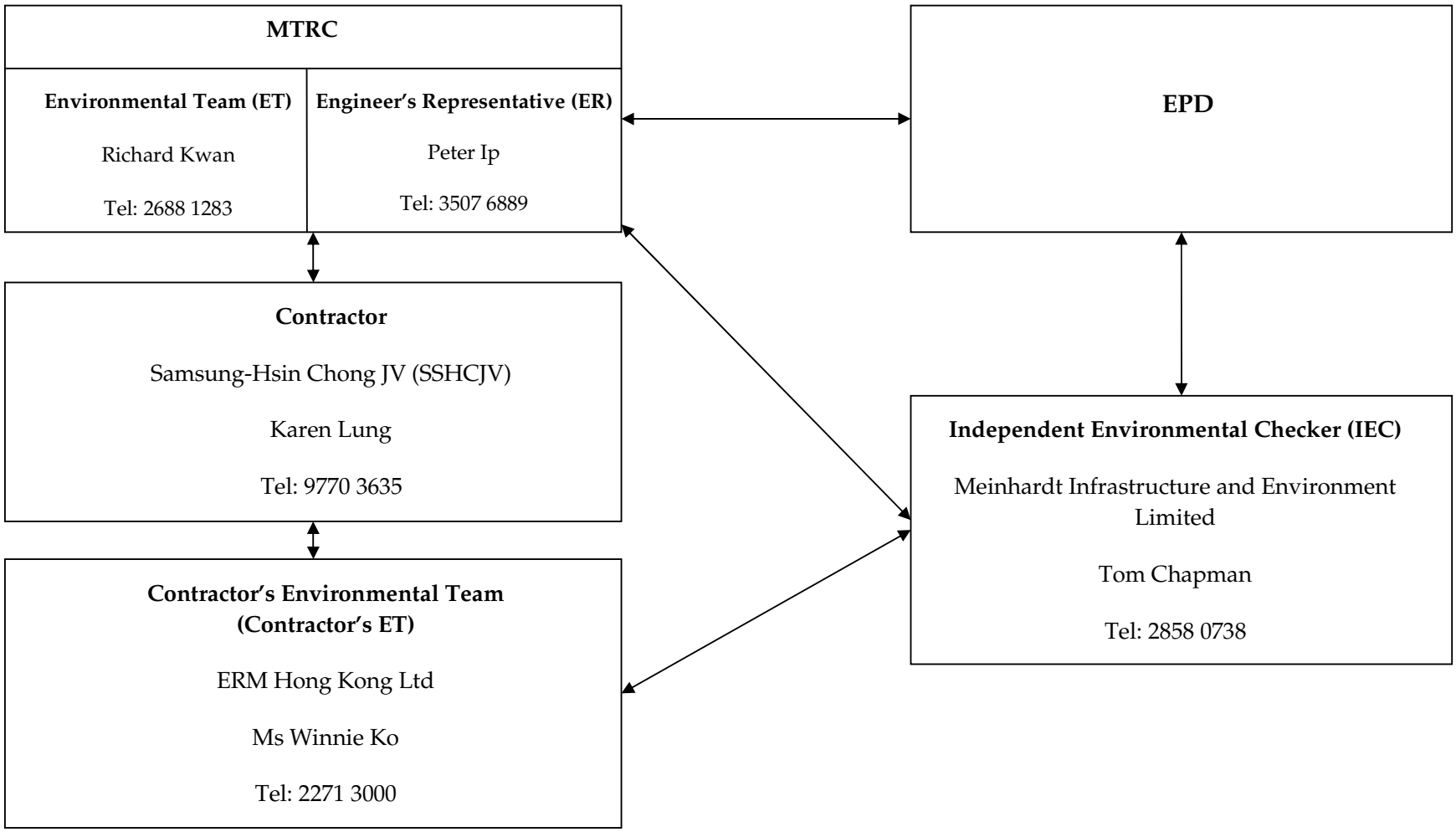
Activity ID	Activity Name	Physical % Complete	Remaining Duration	Start	Finish
01109.PD6700	TBM Down + Up track SUW to HOM - Place order for TBM	0%	0		15-Dec-12*
01109.PD6710	STP (Slurry Treatment Plant) - Place Order	0%	0		15-Dec-12*
01109.PD6720	STP (Manufacture)	0%	273	16-Dec-12	14-Sep-13
11091230	TBM Down track SUW to HOM - TBM Manufacture	0%	273	18-Feb-13	18-Nov-13



Annex C

Project Organization Chart and Contact Detail

Annex C *Project Organization of SCL Works Contract 1109*



Annex D

Locations of Monitoring Stations for Noise and Dust Monitoring

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

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

N

Meters
0 100 200 400

Annex D1

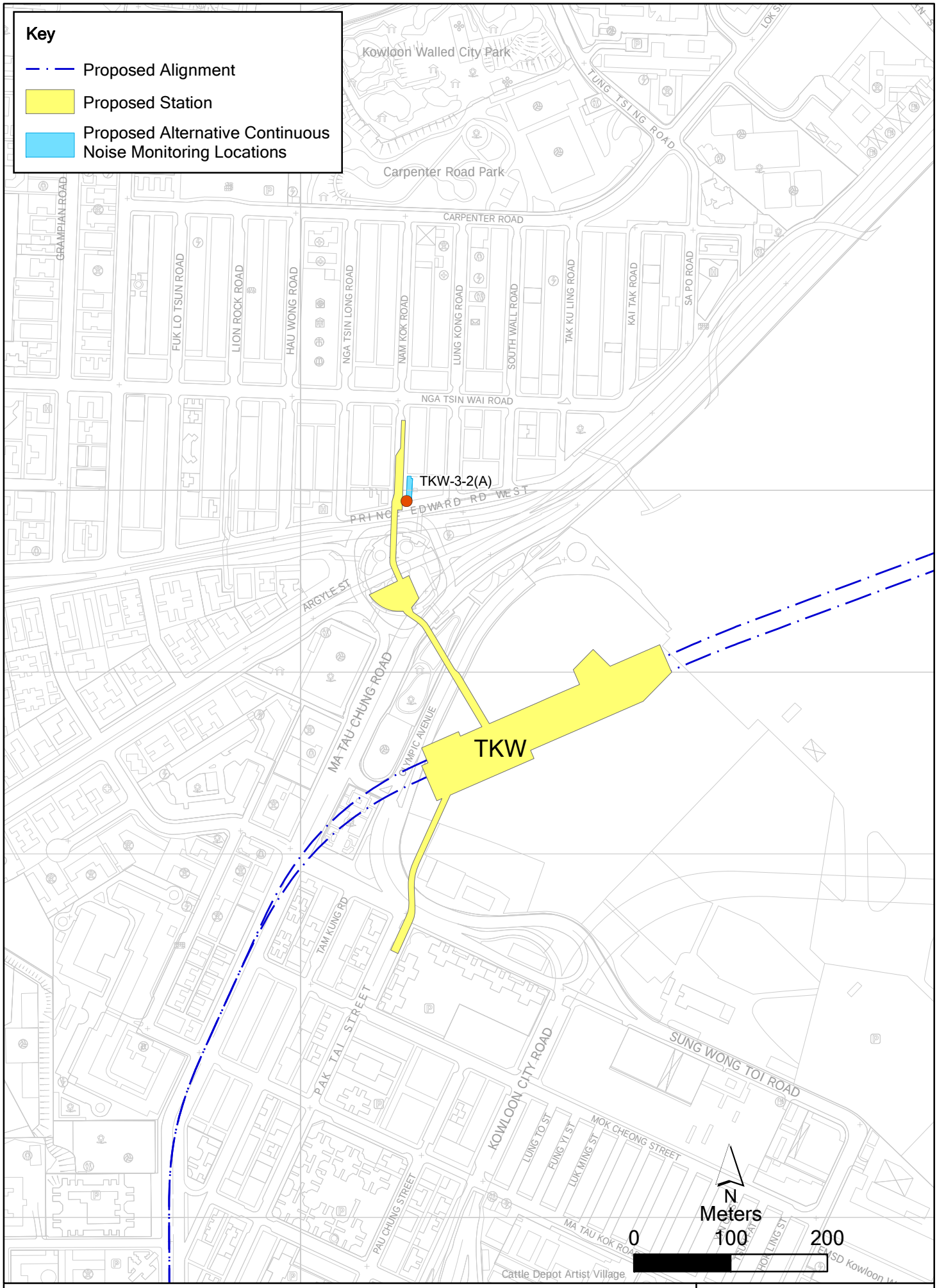
Location of Regular Construction Noise Monitoring Stations

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

Environmental Resources Management

ERM

DMS-6
DMS-7
DMS-8
DMS-9
DMS-10
TKW
MTW
Key
Dust Monitoring Stations
Proposed Station
Proposed Alignment
Works Area
N
Meters
0
100
200
400
Annex D2
Location of Dust Monitoring Stations
File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Dust_Monitoring_Station_Annex.mxd
Date: 07-Nov-2012
Environmental Resources Management
ERM



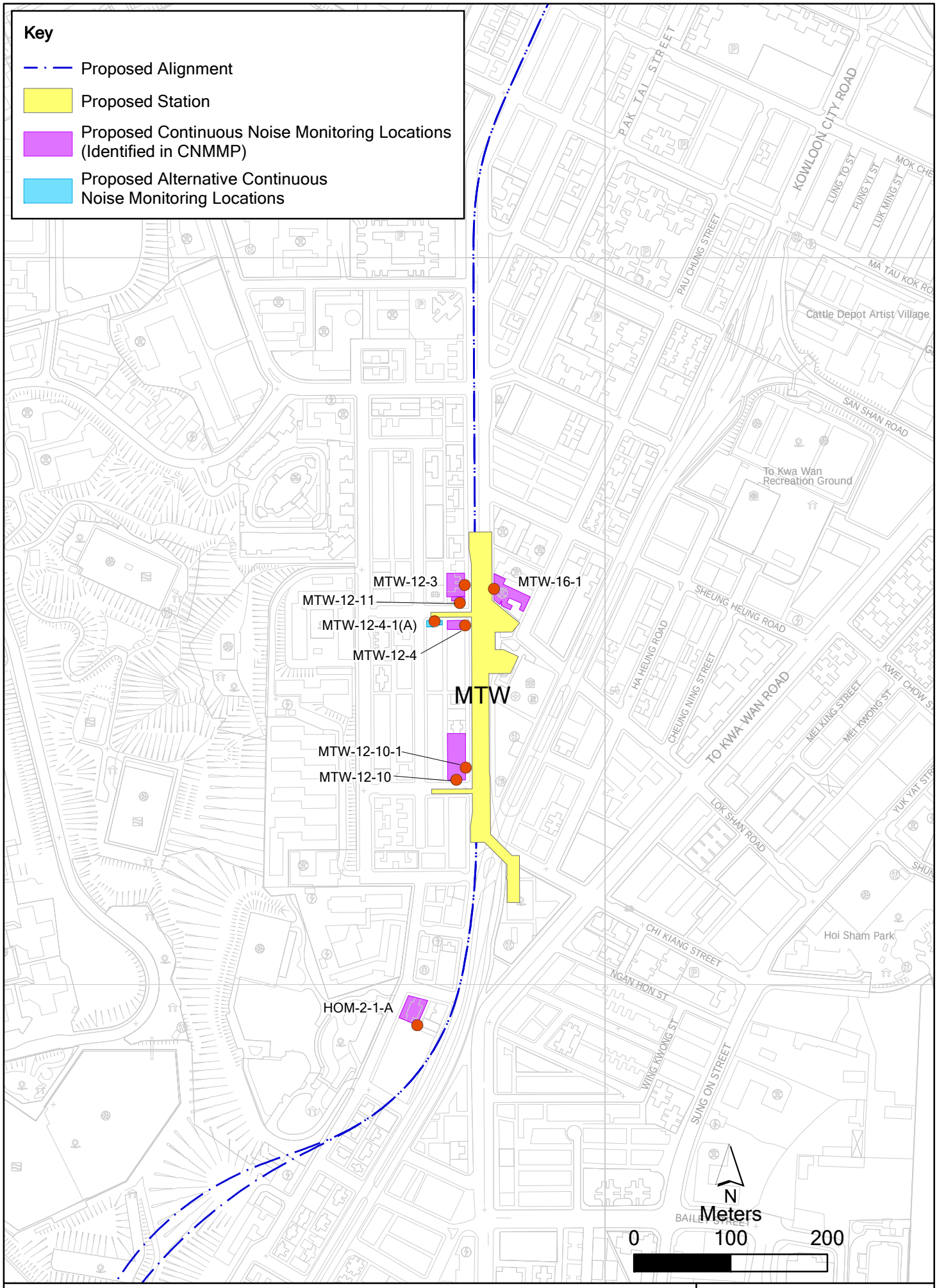
Annex D3

Proposed Continuous Noise Monitoring Locations

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

Environmental Resources Management

ERM



Annex D4

Proposed Continuous Noise Monitoring Locations

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

Environmental Resources Management

ERM

Annex E

Monitoring Schedule of the Reporting Period and the Next Month

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

DMS-6 & NMS-CA-6
Monitoring Month : Nov 2012

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

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

DMS-7 & NMS-CA-7
Monitoring Month : Nov 2012

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

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

DMS-8 & NMS-CA-8
Monitoring Month : Nov 2012

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

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

DMS-9 & NMS-CA-9
Monitoring Month : Nov 2012

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

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

DMS-10 & NMS-CA-10
Monitoring Month : Nov 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Nov	2-Nov	3-Nov
					24-hr TSP Monitoring Noise Monitoring	
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
				24-hr TSP Monitoring Noise Monitoring		
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
			24-hr TSP Monitoring Noise Monitoring			
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
		24-hr TSP Monitoring Noise Monitoring				
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
	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 : Dec 2012

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

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 : Dec 2012

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

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 : Dec 2012

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

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 : Dec 2012

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

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 : Dec 2012

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr TSP		**HVS**	**Calibrator**		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. - 1378)	12 October 2012	12 April 2013
DMS-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-10	Calibrator	Rion NC-73 (S/N 10997142)	9 July 2012	9 July 2013
	Sound Level Meter	Rion NL-18 (S/N 00360030)	13 June 2012	13 June 2013

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.371	1.703	58	57.9
2	13 holes	9.0	2.996	1.514	50	49.9
3	10 holes	6.9	2.622	1.327	42	41.9
4	7 holes	4.0	1.997	1.013	30	29.9
5	5 holes	2.7	1.640	0.835	23	22.9

Sampler Calibration Relationship

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

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

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship

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

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

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.429	1.722	60	59.9
2	13 holes	9.2	3.028	1.521	54	53.9
3	10 holes	6.8	2.603	1.308	48	47.9
4	7 holes	4.4	2.094	1.052	41	40.9
5	5 holes	2.2	1.481	0.745	32	31.9

Sampler Calibration Relationship

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

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

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship

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

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

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.371	1.692	59	58.9
2	13 holes	9.1	3.012	1.512	53	52.9
3	10 holes	6.9	2.622	1.317	47	46.9
4	7 holes	4.5	2.118	1.064	39	38.9
5	5 holes	2.7	1.640	0.825	32	31.9

Sampler Calibration Relationship

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

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

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
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}

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

Certificate of Calibration
校正證書

Certificate No. : C123522
證書編號

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

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 June 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012

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

Certificate of Calibration
校正證書

Certificate No. : C123522
證書編號

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

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 110	LA	A	Fast	94.00	1	93.8	± 0.7

6.1.2 Linearity

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

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

6.2 Time Weighting

6.2.1 Continuous Signal

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

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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)

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6.4 Time Averaging

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

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

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

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

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

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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

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

Description / 儀器名稱	:	Sound Level Calibrator
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NC-73
Serial No. / 編號	:	10997142
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 9 July 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K. Ly
L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 10 July 2012

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

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

3. Test equipment :

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

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	1 kHz ± 2 %	± 1

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

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

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Annex G

Summary of Event/ Action Plans

Annex G1 Even and Action Plan for Regular Construction Noise Monitoring

EVENT	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Exceeding Action Level	1. Notify the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Increase the monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing ; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement noise mitigation proposals.
Exceeding Limit Level	1. Notify the IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency; 4. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform the IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess the effectiveness of the Contractor's remedial measures and keep the IEC, ER and EPD informed of the results	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem 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			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Exceeding Action/Limit Level	1. Notify the IEC, Contractor and ER 2. Identify source and investigate the causes of exceedance 3. Inform the IEC, ER and Contractor the causes and actions taken for the exceedances 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 if necessary; 6. Assess the effectiveness of the Contractor's remedial measures and keep the IEC and ER informed of the results 7. Repeat measurement to confirm findings if exceedance is caused by the 1109 works and if necessary	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, and IEC 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure the proper implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify reason 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 of notification 4. Implement the agreed proposals 5. Liaise with ER to optimize the effectiveness of the agreed mitigation 6. Revise and resubmit proposals if problem still not under control 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Annex G3 Event and Action Plan for Construction Dust Monitoring

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

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Limit Level				
Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the implementation of remedial measures.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals of remedial measures to ER with a copy to the ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify the IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep the IEC, EPD and ER informed of the results; 7. If exceedance stops, the monitoring frequency will resume normal.	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate action 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 during the Construction Phase

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

Annex H

Summary of Implementation Status

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

Note:

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

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		The following good site practices should also be implemented: • Erection of temporary geotextile silt or sediment fences/oil traps around earth-moving works to trap sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Store waste and refuse in appropriate receptacles.					
Landscape & Visual (Construction Phase)							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ground may be set up on-site as necessary. <u>No-intrusion Zone</u> • To maximize protection to existing trees, ground vegetation and associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing . The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <u>Protection of Retained Trees</u> • All retained trees including trees in contractor's works sites should be recorded and photographed at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system. • The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		trees in Contractor's works sites.					
S6.12	LV2	<u>Decorative Hoarding</u> • Erection of decorative screen in visual and landscape sensitive areas during the construction stage to screen off undesirable views of the construction site . Hoarding should be designed to be compatible with the existing urban context. <u>Management of facilities on work sites</u> • To provide proper management of the on-site facilities, control the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent Visual Sensitive Receivers (VSRs). <u>Tree Transplanting</u> • Trees of high to medium survival rates that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including the final locations for the transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
Construction Dust							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul roads in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 l/m^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by an impervious sheeting or sprayed with water to maintain an entirely wet surface and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile has been removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by an impervious	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road which leads only to construction site and is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operations take place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building upward, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by an impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by an impervious sheeting or placed in an area sheltered on the top and 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;					

EIA Ref.	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 • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	√
EP Condition 2.18(a)	D7	Watering once every working hour for active works areas, exposed areas and paved haul roads shall be provided in Kowloon area to keep these active works areas, exposed areas and paved haul roads wet.	Minimize construction dust impact	Contractor	All construction sites	Construction stage	√
EP Condition 2.19	D8	All diesel fuelled construction plant, including marine vessels if possible, used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Minimize aerial emissions of sulphur dioxide from construction plant	Contractor	All construction sites	Construction stage	√
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work	Control construction airborne noise	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, should be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the period of construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.				
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	√
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	<>
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	√
S8.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		where practicable.	the same work site to reduce the construction airborne noise		construction sites where practicable		
S8.3.6	N6	Implement noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	√
Water Quality							
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoffs and Site Drainage</u> • At the start of the site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to	To minimize water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s, a sedimentation basin of 30m^3 would be required and for a flow rate of 0.5 m^3/s the basin would be 150 m^3. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, and definitely, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by					

EIA Ref.	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
		coarse stone ballast. An additional advantage from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operations at all times and particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading them evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, trenches should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions should be taken at any time of year when rainstorms are likely. Actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoffs during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure that no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited in sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching nearby water sensitive receivers. • All the earth works should be conducted sequentially to limit the amount of construction runoffs generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices					
S10.7.1	W2	<u>Tunnelling Works</u> • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge. • The wastewater with a high concentration	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. The slurry should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities have been completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.					
S10.7.1	W3	<u>Sewage Effluent</u> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	√
S10.7.1	W4	<u>Groundwater from Contaminated Area in case contamination is found:</u> • No direct discharge of groundwater from	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		contaminated areas is allowed. Prior to the excavation works within potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in the EIA report for compliance and the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water). The existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination if the review results indicate that the groundwater to be generated from the excavation works would be contaminated. The contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. total petroleum hydrocarbon (TPH)) to undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM Water and should be discharged into the foul sewers.					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		• If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells. It is necessary to submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than the pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the Water Pollution Control Ordinance (WPCO) through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.					
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended:	To minimize water quality impact from accidental	Contractor	All construction sites where practicable	Construction stage	√

EIA Ref.	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
		• All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	spillage				
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<u>On-site sorting of C&D (Construction and Demolition) material</u> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored in the designated stockpile areas avoiding delivering them to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from	Separation of unsuitable rock from ending up at Concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<u>Construction and Demolition (C&D) Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • Implement an enhanced Waste management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and minimize waste generation during the course of construction. • Disposal of the C&D materials to any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get his approval before implementation					
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site.	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		should be considered by the Contractor.					
S11.5.1	WM7	<u>Chemical Waste</u> • Chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, that is produced should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. They should have a capacity of less than 450 litres unless the specification has been approved by the EPD. A label in English and Chinese should be displayed in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. It should also have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest. It should have adequate ventilation and be covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<>

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		• Disposal of chemical waste should be via a licensed waste collector; to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre (which also offers a chemical waste collection service and can supply the necessary storage containers); or to a reuser of the waste, under the approval from the EPD.					

Annex I

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)), Leq(30 min)	Baseline (dB(A)), Leq(30 min)	Corrected Leq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
02-Nov-12	11:15	11:45	Sunny	63.0	**76.0**	**-(b)**	-	Traffic noise	22.5	0.5	NL-18 00360030	NC-73 10997142
08-Nov-12	11:18	11:48	Cloudy	63.4	**76.0**	**-(b)**	-	Traffic noise	23.5	0.8	NL-18 00360030	NC-73 10997142
14-Nov-12	11:25	11:55	Cloudy	64.1	**76.0**	**-(b)**	-	Traffic noise	23.9	0.5	NL-18 00360030	NC-73 10997142
20-Nov-12	11:10	11:40	Cloudy	64.5	**76.0**	**-(b)**	-	Traffic noise	22.1	1.5	NL-18 00360031	NC-73 10997143
26-Nov-12	11:15	11:45	Cloudy	63.6	**76.0**	**-(b)**	-	Traffic noise	19.7	0.5	NL-18 00360031	NC-73 10997143

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), Leq(30 min)	Baseline (dB(A)), Leq(30 min)	Corrected Leq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
02-Nov-12	10:23	10:53	Sunny	68.5	70.0	**-(b)**	-	Traffic noise	22.5	0.9	NL-18 00360030	NC-73 10997142
08-Nov-12	10:22	10:52	Cloudy	68.8	70.0	**-(b)**	-	Traffic noise	23.5	2.7	NL-18 00360030	NC-73 10997142
14-Nov-12	10:25	10:55	Cloudy	68.2	70.0	**-(b)**	-	Traffic noise	23.9	1.2	NL-18 00360030	NC-73 10997142
20-Nov-12	10:18	10:48	Cloudy	68.6	70.0	**-(b)**	-	Traffic noise	22.1	2.0	NL-18 00360031	NC-73 10997143
26-Nov-12	10:23	10:53	Cloudy	68.9	70.0	**-(b)**	-	Traffic noise	19.7	1.2	NL-18 00360031	NC-73 10997143

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), Leq(30 min)[(c)]	Baseline (dB(A)), Leq(30 min)	Corrected Leq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
02-Nov-12	8:55	9:25	Sunny	74.3	75.0	**-(b)**	-	-	22.5	0.5	NL-18 00360030	NC-73 10997142
08-Nov-12	8:50	9:20	Cloudy	74.7	75.0	**-(b)**	-	Traffic noise	23.5	0.5	NL-18 00360030	NC-73 10997142
14-Nov-12	8:55	9:25	Cloudy	74.8	75.0	**-(b)**	-	Traffic noise	23.9	0.5	NL-18 00360030	NC-73 10997142
20-Nov-12	8:45	9:15	Cloudy	75.0	75.0	**-(b)**	Breaker	Traffic noise	22.1	0.5	NL-18 00360030	NC-73 10997142
26-Nov-12	8:47	9:17	Cloudy	**75.3**	75.0	63.5	-	Traffic noise	19.7	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), Leq(30 min)	Baseline (dB(A)), Leq(30 min)	Corrected Leq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
02-Nov-12	9:32	10:02	Sunny	72.0	69.0	69.0	Backhole and breaker	Traffic noise	22.5	0.8	NL-18 00360030	NC-73 10997142
08-Nov-12	9:28	9:58	Cloudy	72.2	69.0	69.4	-	Traffic noise	23.5	0.9	NL-18 00360030	NC-73 10997142
14-Nov-12	9:35	10:05	Fine	72.0	69.0	69.0	Breaker	Traffic noise	23.9	0.5	NL-18 00360030	NC-73 10997142
20-Nov-12	9:25	9:55	Cloudy	72.4	69.0	69.7	Breaker & crane operation	Traffic noise	22.1	0.8	NL-18 00360030	NC-73 10997142
26-Nov-12	9:27	9:57	Cloudy	71.4	69.0	67.7	Crane operation	Traffic noise	19.7	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)), Leq(30 min)[(c)]	Baseline (dB(A)), Leq(30 min)	Corrected Leq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
02-Nov-12	8:03	8:33	Sunny	**77.2**	**77.0**	63.7	Backhole and breaker	Traffic noise	22.5	0.5	NL-18 00360030	NC-73 10997142
08-Nov-12	8:00	8:30	Cloudy	**77.2**	**77.0**	63.7	Breaker	Traffic noise	23.5	0.8	NL-18 00360030	NC-73 10997142
14-Nov-12	8:05	8:35	Cloudy	**76.6**	**77.0**	**-(b)**	-	Traffic noise	23.9	0.5	NL-18 00360030	NC-73 10997142
20-Nov-12	8:05	8:35	Cloudy	**77.3**	**77.0**	65.5	Crane operation	Traffic noise	22.1	0.5	NL-18 00360030	NC-73 10997142
26-Nov-12	8:05	8:35	Cloudy	**77.6**	**77.0**	68.7	Crane operation	Traffic noise	19.7	0.5	NL-18 00360030	NC-73 10997142

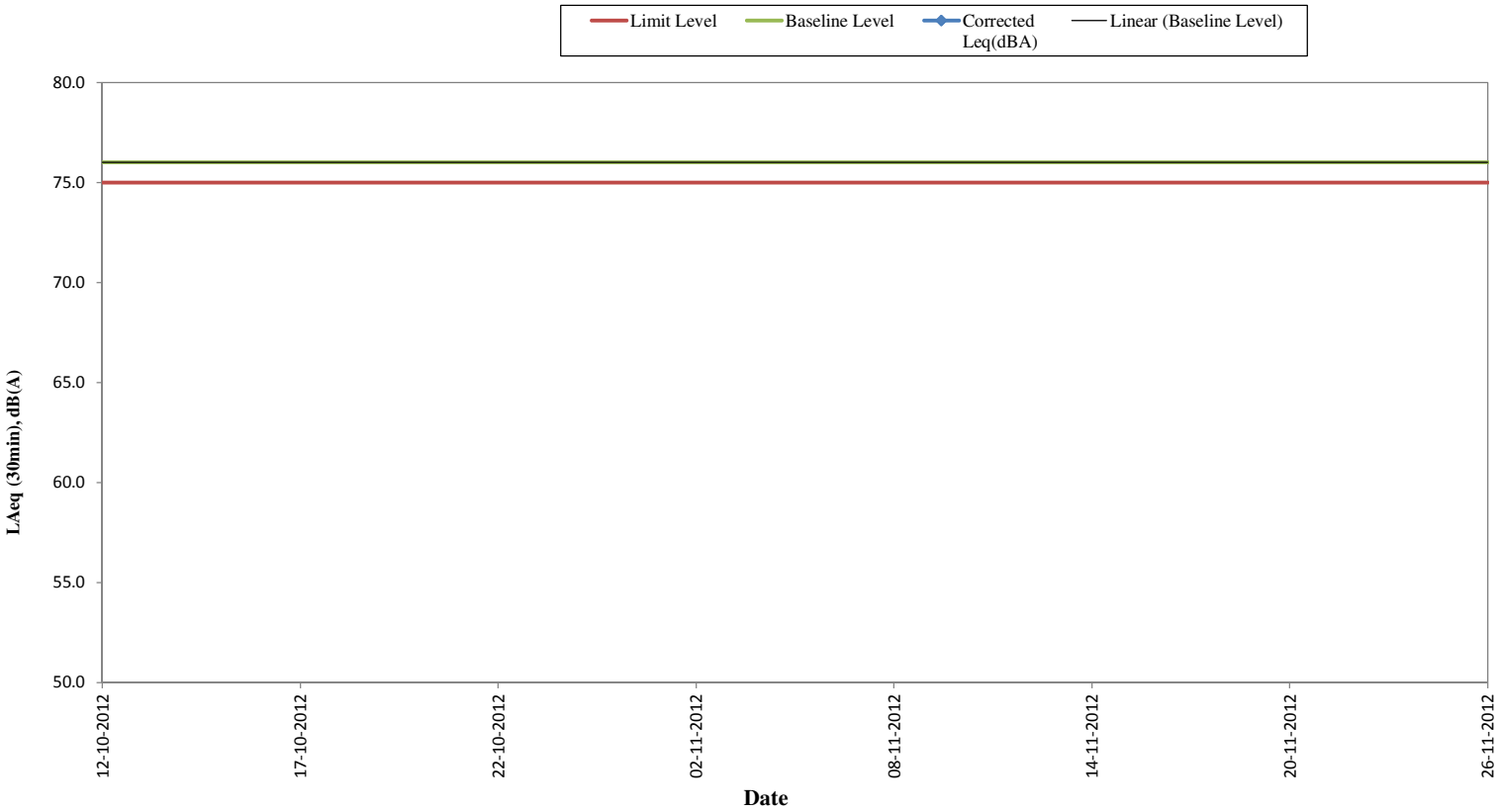
Remarks:

(a) The Measured Leq 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 2, 8, 14, 20 and 26 November at NMS-CA-8 and NMS-CA-10 are higher than the daytime construction noise criterion. However, the results are not considered as exceedance if they are either below the baseline level or below the limit level after deducting the baseline noise level.

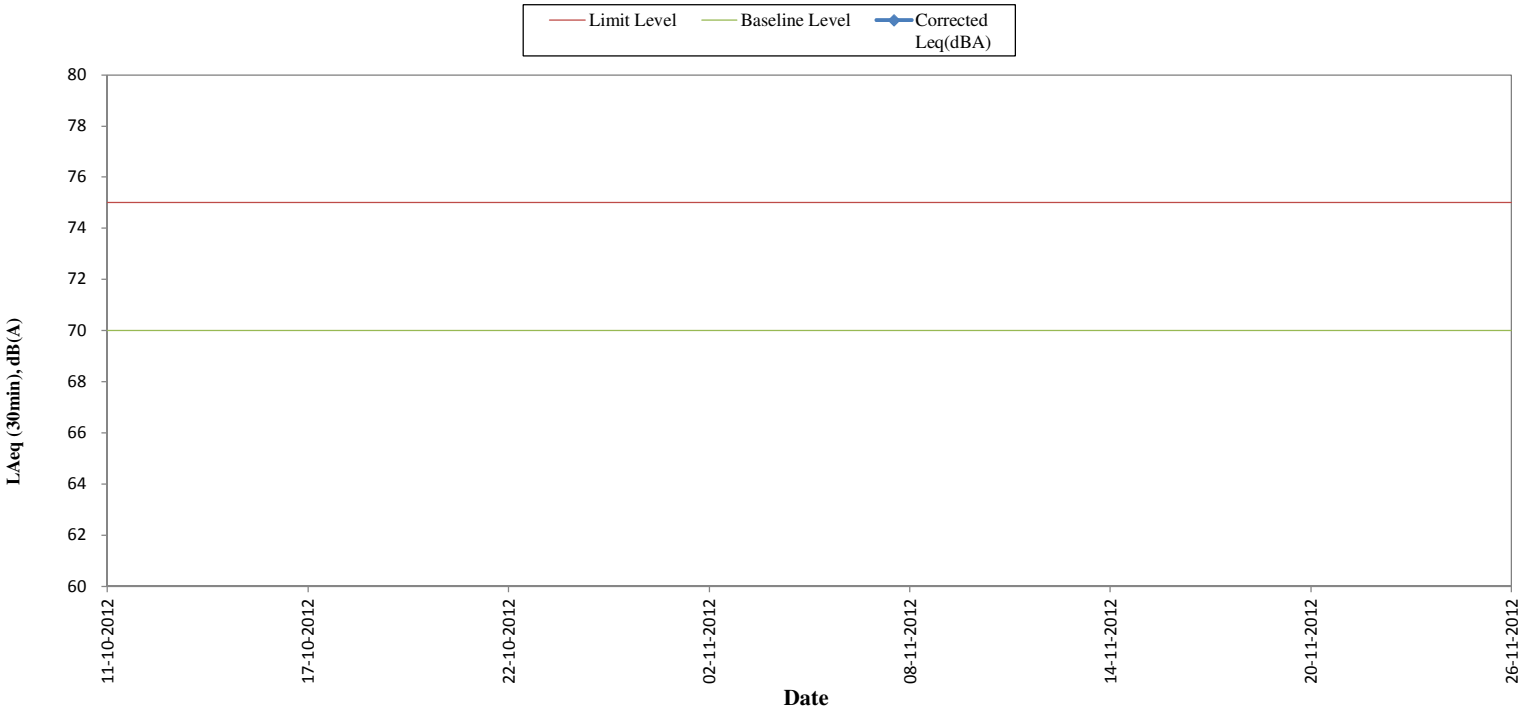
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (Leq, 30min) for the Past 2 Months



Remarks:

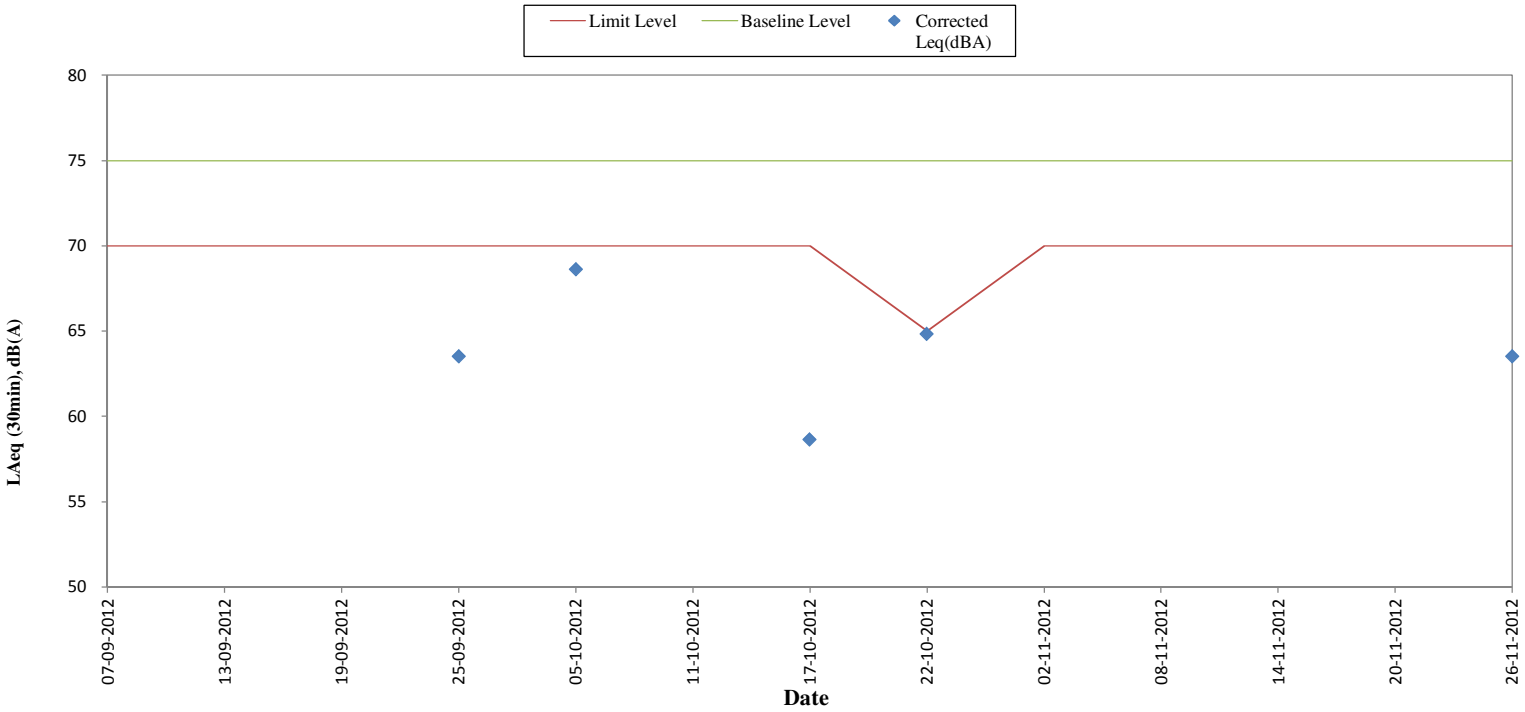
- For the date without showing the monitoring result, the measured noise level is below baseline level, no correction is required to make.

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



Remarks:
- For the date without showing the monitoring result, the measured noise level is below baseline level, no correction is required to make.

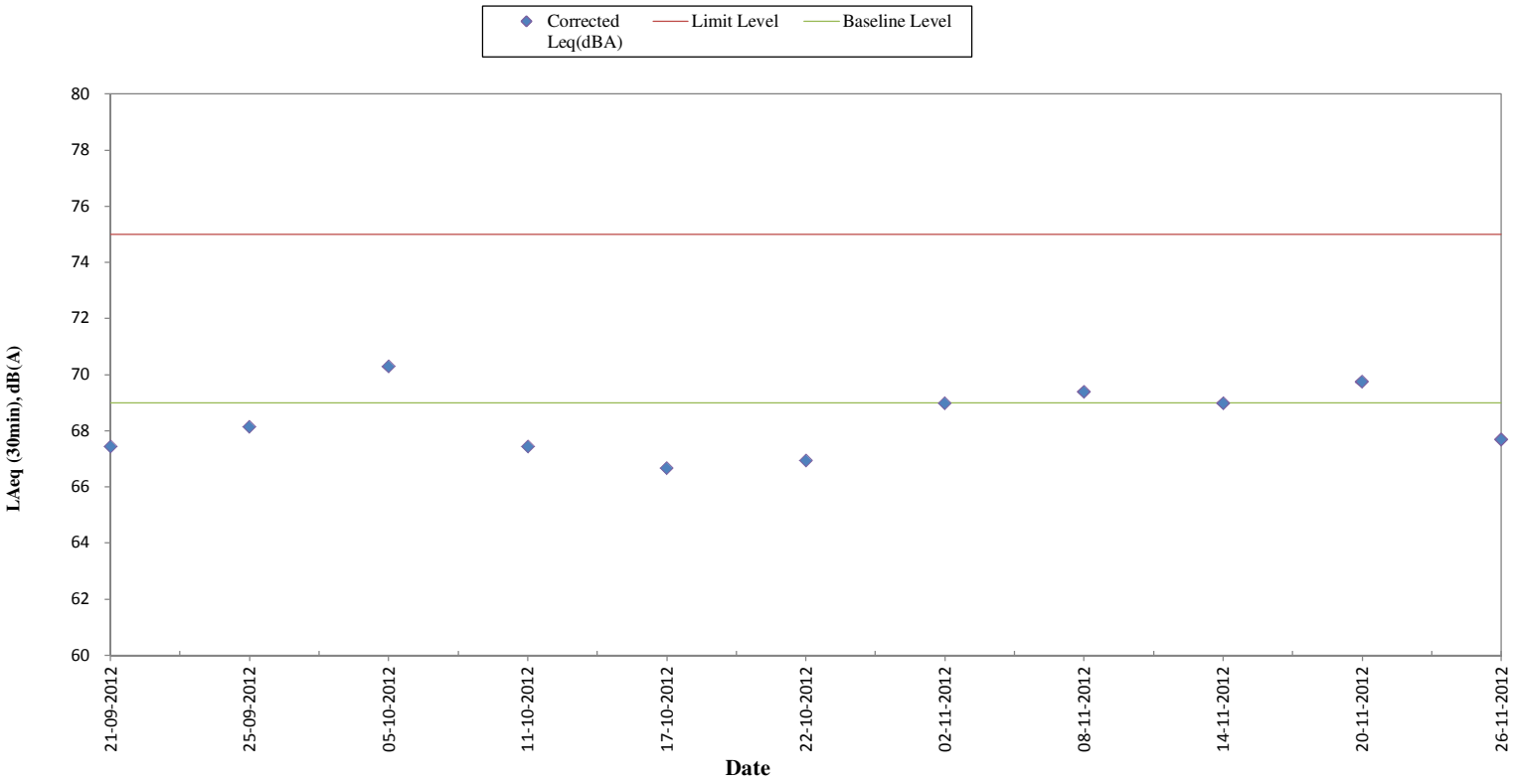
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (Leq, 30min) for the Past 3 Months



Remarks:

- The limit level is 65dB(A) during examination period (22th October 2012).
- For the date without showing the monitoring result, the measured noise level is below baseline level, no correction is required to make.

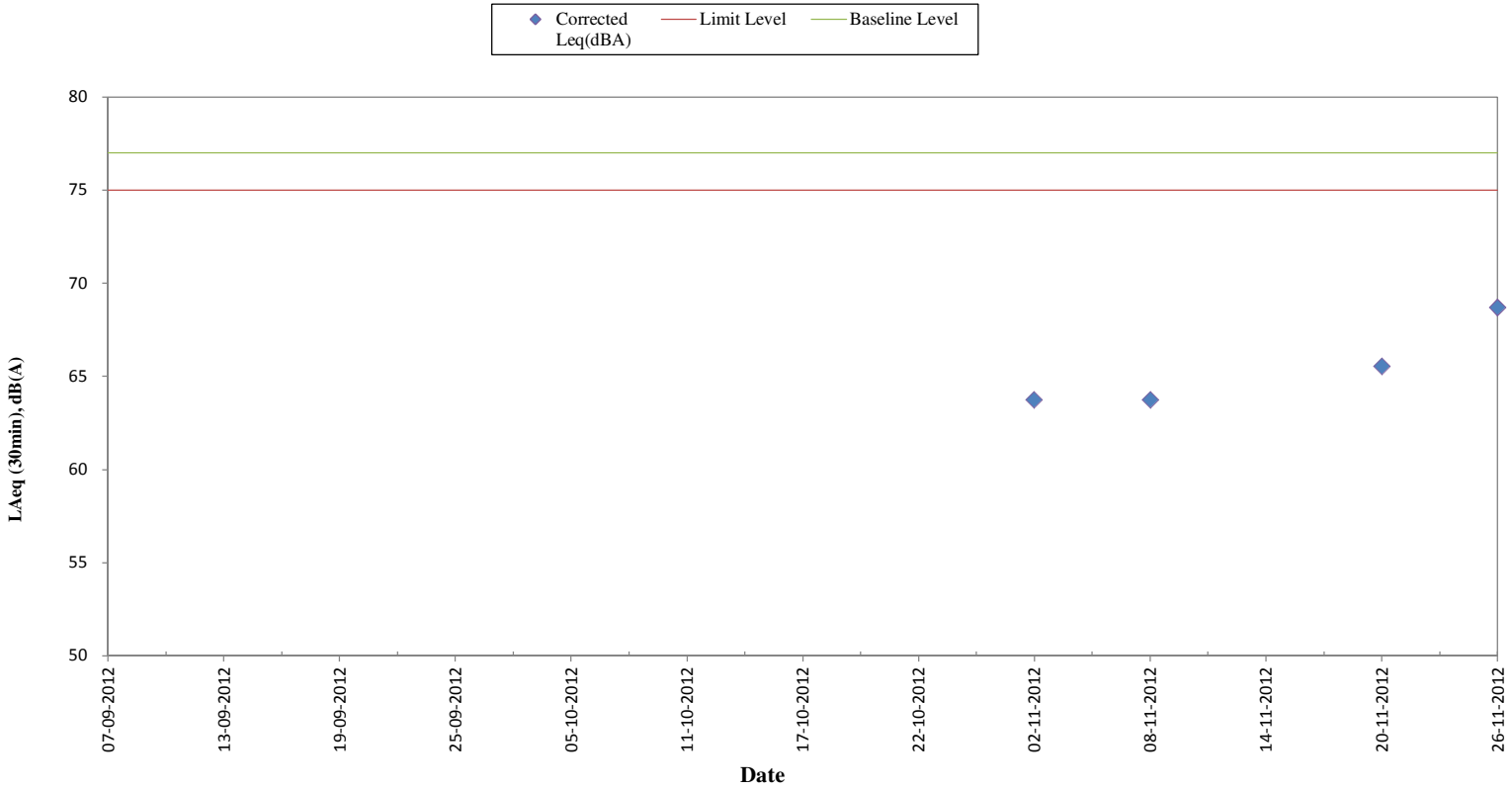
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (Leq, 30min)) for the Past 3 Months



Remarks:

- For the date without showing the monitoring result, the measured noise level is below baseline level, no correction is required to make.

Regular Noise Monitoring Results at NMS-CA-10 (Chat Ma Mansion) (Leq, 30min) for the Past 3 Months



Remarks:

- For the date without showing the monitoring result, the measured noise level is below baseline level, no correction is required to make.

Annex J

Construction Dust Monitoring Results

Annex J Construction Dust Monitoring Results

Station DMS-6 Katherine Building

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Time	Flow Rate (m^3/min)			TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
2-Nov-12	11:05	3-Nov-12	11:05	Sunny	2.7942	2.9499	10352.38	10376.38	24.00	1.32	1.32	1.32	82	156.8	260	Construction work in progress	0107	5635
8-Nov-12	11:05	9-Nov-12	11:05	Cloudy	2.8089	2.9677	10376.38	10400.38	24.00	1.32	1.32	1.32	84	156.8	260	Construction work in progress	0107	5657
14-Nov-12	11:15	15-Nov-12	11:15	Cloudy	2.7838	2.9446	10400.38	10424.38	24.00	1.27	1.27	1.27	88	156.8	260	Construction work in progress	0107	5679
20-Nov-12	11:00	21-Nov-12	11:00	Cloudy	2.8034	2.9890	10424.38	10448.38	24.00	1.27	1.27	1.27	101	156.8	260	Construction work in progress	0107	5818
26-Nov-12	11:05	27-Nov-12	11:05	Cloudy	2.8175	3.0010	10448.38	10472.38	24.00	1.27	1.27	1.27	100	156.8	260	Construction work in progress	0107	5842
												Minimum	82					
												Average	91					
												Maximum	101					

Station DMS-7 Parc 22

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Time	Flow Rate (m^3/min)			TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
2-Nov-12	10:17	3-Nov-12	10:17	Sunny	2.7870	2.9338	00505.17	00529.17	24.00	1.22	1.22	1.22	84	166.7	260	Construction work in progress	3574	5634
8-Nov-12	10:13	9-Nov-12	10:13	Cloudy	2.8127	2.9599	00529.17	00553.17	24.00	1.22	1.22	1.22	84	166.7	260	Construction work in progress	3574	5656
14-Nov-12	10:18	15-Nov-12	10:18	Cloudy	2.7750	2.9358	00553.17	00577.17	24.00	1.24	1.24	1.24	90	166.7	260	Construction work in progress	3574	5678
20-Nov-12	8:55	21-Nov-12	8:55	Cloudy	2.8406	2.9995	00577.17	00601.17	24.00	1.24	1.24	1.24	89	166.7	260	Construction work in progress	3574	5817
26-Nov-12	10:15	27-Nov-12	10:15	Cloudy	2.8200	2.9711	00601.17	00625.17	24.00	1.24	1.24	1.24	85	166.7	260	Construction work in progress	3574	5841
												Minimum	84					
												Average	86					
												Maximum	90					

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Time	Flow Rate (m^3/min)			TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
2-Nov-12	9:00	3-Nov-12	9:00	Sunny	2.7908	2.9449	00499.11	00523.11	24.00	1.23	1.23	1.23	87	152.2	260	Construction work in progress	3572	5633
8-Nov-12	8:55	9-Nov-12	8:55	Cloudy	2.8294	2.9879	00523.11	00547.11	24.00	1.23	1.23	1.23	89	152.2	260	Construction work in progress	3572	5655
14-Nov-12	9:00	15-Nov-12	9:00	Sunny	2.7718	2.9277	00547.11	00571.11	24.00	1.22	1.22	1.22	89	152.2	260	Construction work in progress	3572	5677
20-Nov-12	8"48	21-Nov-12	8"48	Sunny	2.8235	2.9791	00571.11	00595.11	24.00	1.22	1.22	1.22	89	152.2	260	Construction work in progress	3572	5816
26-Nov-12	8:50	27-Nov-12	8:50	Cloudy	2.8189	2.9770	00595.11	00619.11	24.00	1.22	1.22	1.22	90	152.2	260	Construction work in progress	3572	5840
												Minimum	87					
												Average	89					
												Maximum	90					

Station DMS-9 No. 26 Kowloon city road

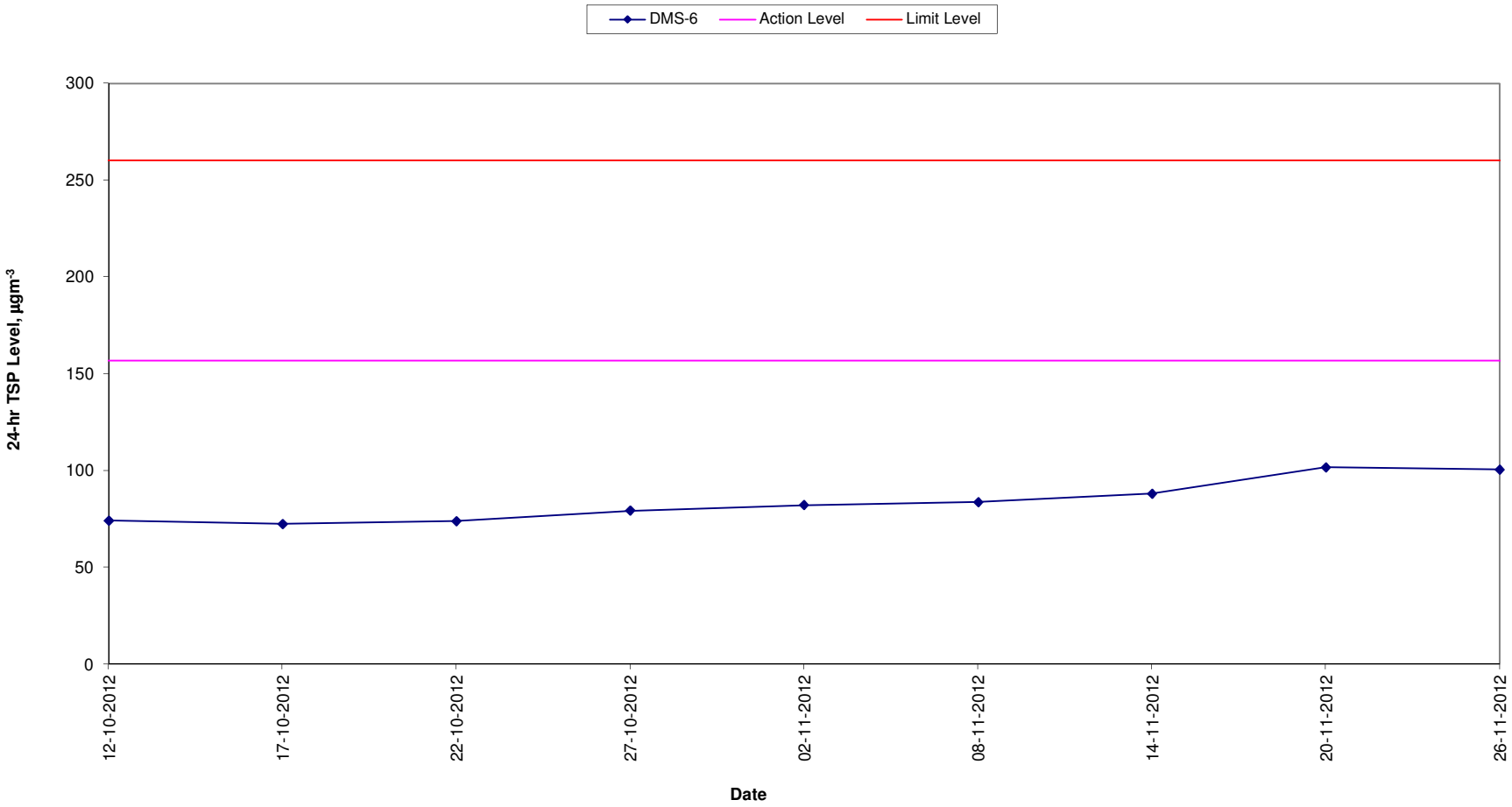
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Time	Flow Rate (m^3/min)			TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
2-Nov-12	8:45	3-Nov-12	8:45	Sunny	2.8002	2.9668	1127.40	11241.40	24.00	1.25	1.25	1.25	93	160.9	260	Construction work in progress	0814	5632
8-Nov-12	8:42	9-Nov-12	8:42	Cloudy	2.8322	2.9809	11241.40	11265.40	24.00	1.25	1.25	1.25	83	160.9	260	Construction work in progress	0814	5654
14-Nov-12	8:47	15-Nov-12	8:47	Cloudy	2.7658	2.9353	11265.40	11289.40	24.00	1.21	1.21	1.21	97	160.9	260	Construction work in progress	0814	5676
20-Nov-12	9:00	21-Nov-12	9:00	Cloudy	2.8181	2.9876	11289.40	11313.40	24.00	1.21	1.21	1.21	97	160.9	260	Construction work in progress	0814	5815
26-Nov-12	9:02	27-Nov-12	9:02	Cloudy	2.8259	2.9945	11313.40	11337.40	24.00	1.21	1.21	1.21	97	160.9	260	Construction work in progress	0814	5839
												Minimum	83					
												Average	93					
												Maximum	97					

Station DMS-10 Chat Ma Mansion

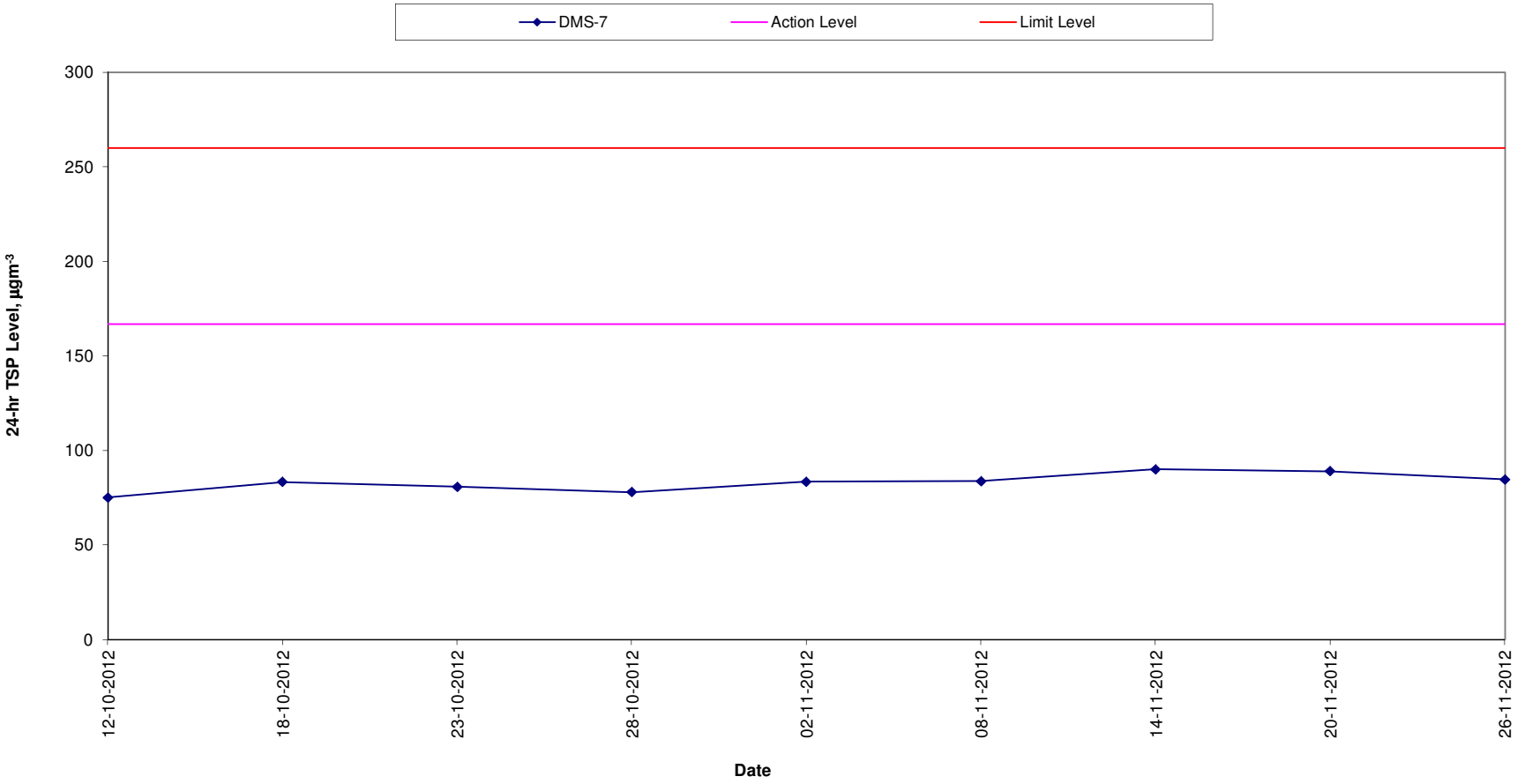
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Time	Flow Rate (m^3/min)			TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m^3)	(µg/m^3)	(µg/m^3)		ID	ID
2-Nov-12	8:06	3-Nov-12	8:06	Sunny	2.7931	2.9551	00493.20	00517.20	24.00	1.22	1.22	1.22	92	170.4	260	Construction work in progress	3573	5631
8-Nov-12	8:06	9-Nov-12	8:06	Cloudy	2.8247	2.9917	00517.20	00541.20	24.00	1.22	1.22	1.22	95	170.4	260	Construction work in progress	3573	5653
14-Nov-12	8:10	15-Nov-12	8:10	Cloudy	2.7893	2.9676	00541.20	00565.20	24.00	1.23	1.23	1.23	101	170.4	260	Construction work in progress	3573	5675
20-Nov-12	8:08	21-Nov-12	8:08	Cloudy	2.8294	2.9811	00565.20	00589.20	24.00	1.23	1.23	1.23	86	170.4	260	Construction work in progress	3573	5814
26-Nov-12	8:08	27-Nov-12	8:08	Cloudy	2.8221	2.9919	00589.20	00613.20	24.00	1.23	1.23	1.23	96	170.4	260	Construction work in progress	3573	5838

Minimum	86
Average	94
Maximum	101

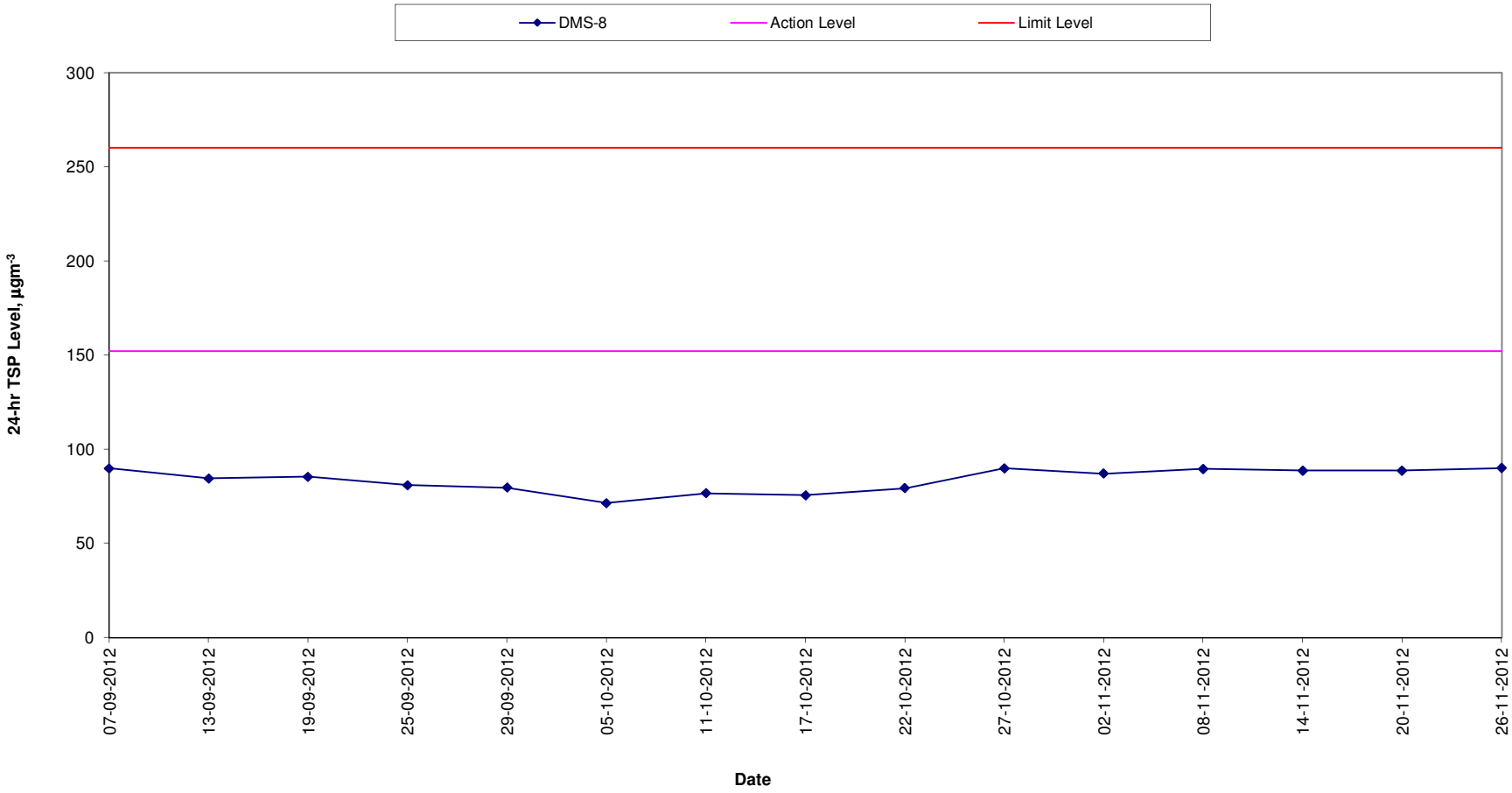
Construction Dust Monitoring Results for the Past 2 Months
DMS-6 (Katherine Building)



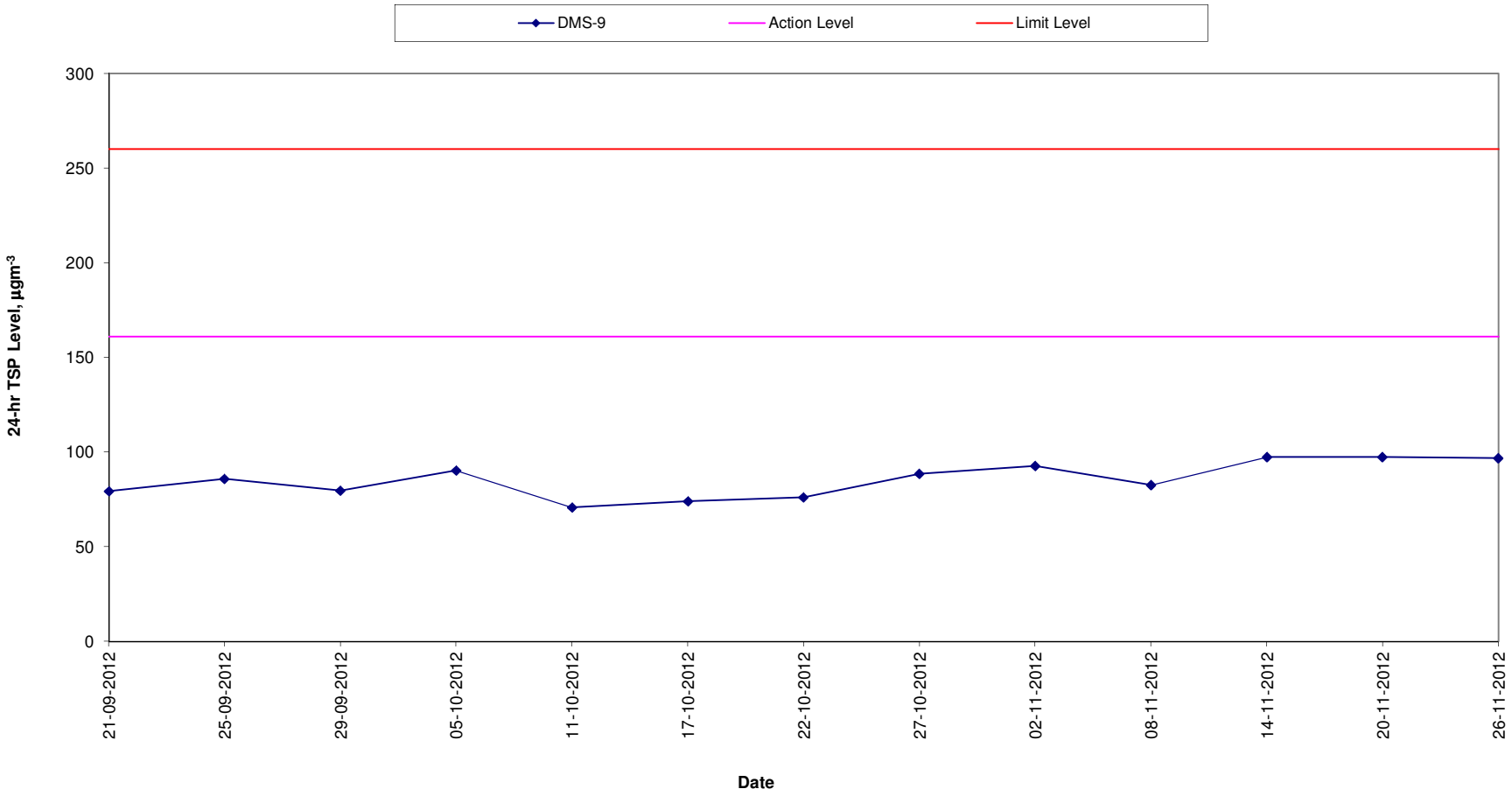
Construction Dust Monitoring Results for the Past 2 Months
DMS- 7 (Parc 22)



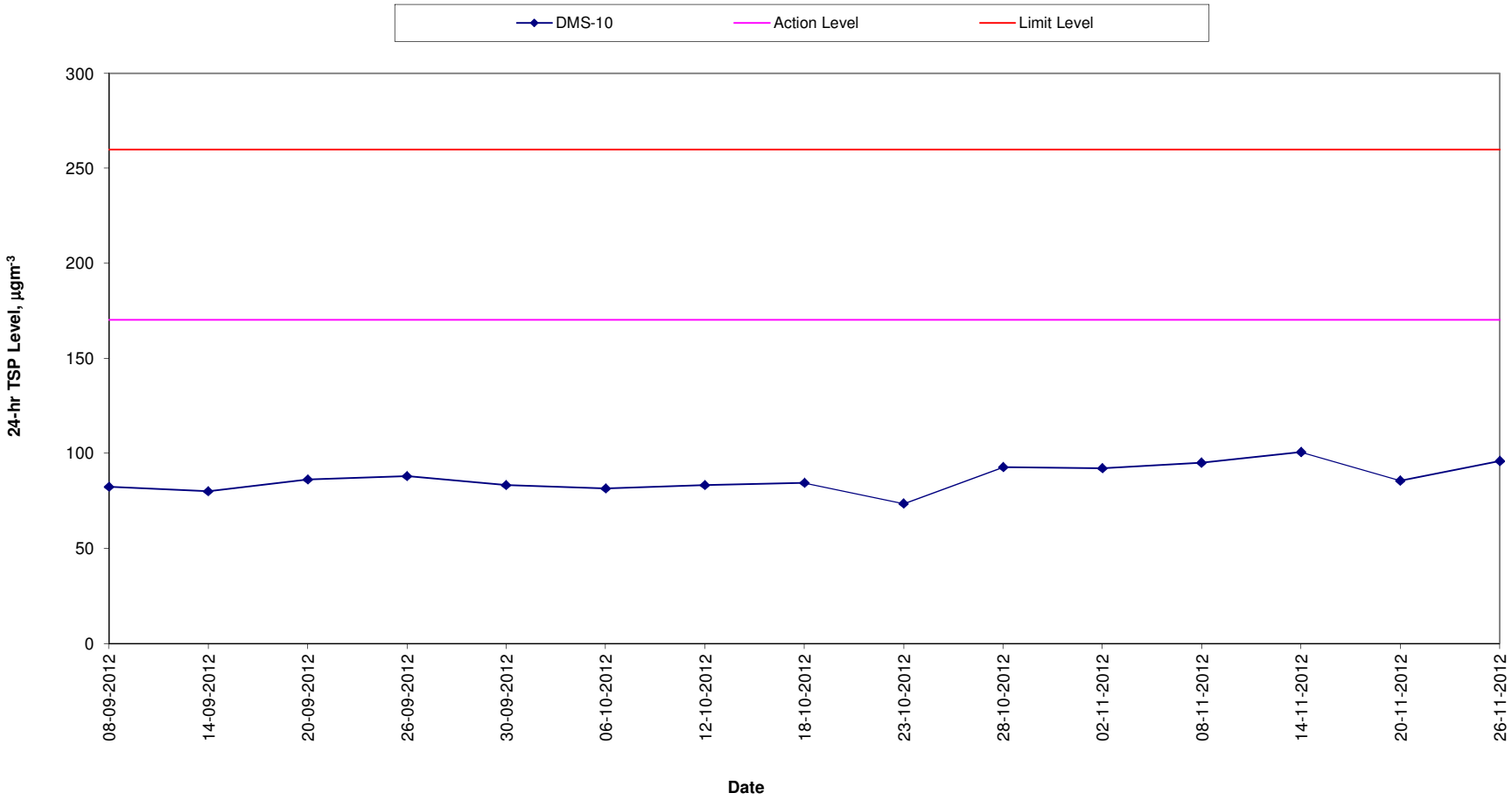
Construction Dust Monitoring Results for the Past 2 Months
DMS-8 (SKH Good Shepherd Primary School)



Construction Dust Monitoring Results for the Past 2 Months
DMS-9 (No. 26 Kowloon city road)



Construction Dust Monitoring Results for the Past 2 Months
DMS-10 (Chat Ma Mansion)



Annex K

Waste Flow Table

Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	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 '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m^3)	(in '000m³)
Jan	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Feb	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Mar	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Apr	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
May	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
June	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
July	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Aug	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Sub-total											
Sept	0.004	0.000	0.000	0.000	0.004	0.000	0.000	5.300	0.000	0.144	0.000
Oct	0.000	0.000	0.000	0.000	0.000	12.800	0.242	0.013	0.000	0.514	0.000
Nov	0.624	0.000	0.605	0.000	0.019	0.000	0.154	0.002	0.000	0.168	6.804
Dec											
Total	0.628	0.000	0.605	0.000	0.023	12.800	0.396	5.315	0.000	0.826	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 Quantities of paper/cardboard packaging, plastics and other non-inert C&D wastes generated in October 2012 were updated by the Contractor in November 2012.

Annex L

Environmental Complaint, Environmental Summon and Prosecution

Annex L Environmental Complaint, Environmental Summon and Prosecution Log

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