Contract No. DC/2007/24
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun

Environmental Certification Sheet –92

Reference ~~Procedure~~/Document~~/Plan~~

Document~~/Plan/Changes/Information to be~~ Certified/ Verified:	Final Environmental Monitoring and Audit Report (EMA/087, Rev B)
Date of Report:	27 August 2015
Date of correspondence to IEC:	28 August 2015
Date received:	28 August 2015

Reference Condition

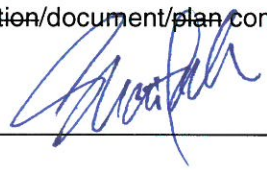
Reporting and EM&A Information of Environmental Monitoring and Audit Requirement

"*EM&A Reports*

For construction phase EM&A, types of reports that the ET Leader shall prepare and submit include Baseline Monitoring Report, Monthly EM&A Report, Quarterly EM&A Summary Report and Final EM&A Review Report as specific in Section 6 of the EM&A Manual."

ET Certification

I hereby certify that the above referenced ~~information~~/document/~~plan~~ complies with the above referenced condition.

Sharifah Or, Environmental Team Leader, (ACL):  Date: 28 August 2015

Our ref SFB/AFK/TK/bw/T261332/22.01/L-0952
T 2828 5757
E Anne.Kerr@mottmac.com.hk
Your ref -

CE/Harbour Area Treatment Scheme
Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F, Western Magistracy
2A Pokfulam Road, Hong Kong

28 August 2015
By Post

Attn: Mr. Danny Tang

Dear Sir,

Agreement No. CE 8/2009(EP)
Harbour Area Treatment Scheme (HATS) Stage 2A
Independent Environmental Checker for Construction Phase – Investigation

Contract No. DC/2007/24
Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun
Submission of Final EM&A Report Covering the Period from 23 December 2009 to 31 July 2015 (Rev. B)

We refer to the Final EM&A Report Covering the Period from 23 December 2009 to 31 July 2015 (Rev. B) received on 27 August 2015 and we confirm we have no comment.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Dr. Anne F Kerr
Independent Environmental Checker

c.c.	AECOM	Mr. K Y Chan	By email
	Leighton – LNS JV	Mr. Jan Torka	By email
	Atkins	Ms. Sharifah Or	By email

Contract No. DC/2007/24
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System
From Aberdeen to Sai Ying Pun

Comments and Responses

Submission Title:Final EM&A Report (EMA/087) Rev.A

Comments	Designer (Atkins)'s Responses
Contractor **E-mail** **Date : 24 August 2015**	
1. Executive Summary 2nd para last sentence: Atkins has undertaken the EM&A programme for HATS Stage 2A Contract no. DC/2007/24 Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun only. Please clarify, otherwise, the public might misunderstand that Atkins is responsible for the EM&A works for the whole HATS Stage 2A.	The 2nd paragraph of the Executive Summary has been revised to "Atkins China Ltd (ACL) was appointed by LLNSJV (the Contractor of this Project) as the Environmental Team (ET) of this Project, to undertake Environmental Monitoring and Audit (EM&A) works for this Project in accordance with "HATS Stage 2A Environmental Impact Assessment Study – Investigation, Final EM&A Manual" (Register No. AEIAR-121/2008) under Environmental Permit (EP) No. EP-322/2008/G Part D, Condition 4.2. ".
2. Executive Summary 3rd para Line 2: "Sections 15.11" should read as "Section 15.11".	Text has been revised accordingly.
3. Executive Summary 3rd para 2nd sentence: Should read as "The construction works under the Contract was commenced on 23 December 2009 and completed in June 2015. Hence, the Environmental Protection Department approved the termination of the EM&A for the construction phase on 27 July 2015."	Text has been revised accordingly.
4. Executive Summary 3rd para last sentence: "the captioned project" should read as "the Contract".	Text has been revised accordingly.

Comments	Designer (Atkins)'s Responses
5. Breaches of Action and Limit Levels: exceedance of/above action/limit level … should read as "Action Level Exceedance / Limit Level Exceedance".	Text has been revised.
6. Complaint, Notification of Summons and Prosecutions 1st para 1st sentence: "environmental impacts" should read as "environmental issues".	Text has been revised accordingly.
7. Complaint, Notification of Summons and Prosecutions: There were a total of sixteen complaints received … … (4 in AQ, 8 in Noise, 5 in WQ, 1 in Light = 18). Please clarify.	There were a total of eighteen complaints received in relation to environmental impacts during the reporting period. Three complaints were related to air quality. Eight complaints were related to noise. Six complaints were related to water quality. One complaint was related to noise, dust and light. Text has been revised.
8. S.1.1 3rd para last sentence: "under Environmental Permit (EP) No. EP-322/2008/G Part D, Condition 4.2" should read as Part C Condition 4.	The Condition 4 (Environmental Monitoring and Audit requirements), Part C of the EP No.: EP-322/2008/G are the requirements should be implemented by the Contractor. Atkins China Ltd. was appointed by the Contractor to conduct the EM&A works as described in Condition 4.2, Part C of the EP No.: EP-322/2008/G. The wording of "Part D" has been revised to "Part C".
9. Page 4: Please put the wordings "Table 2-2" into the previous page.	This has been revised.
10. Table 2-2 Notes: Please review some notes and some notes are considered not necessary in the Final EM&A Report. Eg. i./ The impact air quality data obtained under this Contract is adopted by ET of Contract (typo in the report) DC/2007/23; ii./ The impact monitoring works are currently conducted by ET of Contract DC/2009/24 (If considered necessary,	i./ Text has been revised. ii./ The handover date of the monitoring works has been added.

	Comments	Designer (Atkins)'s Responses
	please specify the handover date of monitoring, instead of currently).	
11.	Table 4-3: Please also check the comment no. 7.	Refer to the response to comment item no. 7 above.
12.	S.5.1 last sentence: Carrying out additional noise monitoring was not carried out by the Contractor. Additional noise monitoring is to check the effectiveness of the mitigation measures.	The last sentence of Section 5.1 has been revised to "For the project related non-compliance, the event action plan was implemented by all relevant parties. The Contractor shall implement mitigation measures including reviewing the working procedure. The ET shall carry out additional noise monitoring if necessary.".
13.	S.5.2 1st sentence: Delete the word "poor".	Text has been revised.
14.	S.6.1 2nd & 3rd sentences: Logical problem. "No modification to the existing monitoring methodology was made during the report period. The monitoring methodology was, therefore, considered effective." should read as "The monitoring methodology was considered effective, therefore there is no modification to the monitoring methodology during the reporting period."	Text has been revised.
15.	S.6.2 last sentence: "environmental acceptable" should read as "environmentally acceptable".	Text has been revised.
16.	Section 7 para 3, 4: Action Level Exceedance / Limit Level Exceedance	Text has been revised.

Comments	Designer (Atkins)'s Responses
Independent Environmental Consultant **E-mail** **Date : 27 August 2015**	
1. Section 3.2 (1st sentence): The summary of actual waste generated during the construction phase could not be found. Please clarify how this is to be presented.	Noted. The reference of the actual waste summary table has been added.
2. Further to Malcolm's comment no. 4, please ensure that all references to the "project" and the "contract" in the captioned report are accurate, as the case may be. For example, are the exceedances / non-compliances / complaints (non-)project-related or (non-) contract-related?	Noted. The wordings of "the Project" has been referred to. All relevant references have been revised.
3. Section 4.1.1 & 4.1.2: Please also review these sections to ensure any necessary follow-up to Malcom's comment no. 5.	Sections 4.1.1 & 4.1.2 have been revised based on this comment and Contractor's comment.
4. Section 4.4: Please also review this section to ensure any necessary follow-up to Malcom's comment no. 7.	Section 4.4 has been revised based on this comment and Contractor's comment.
5. Please check and ensure that "complaint" is spelt correctly where applicable. For example, it is misspelt in Section 7 (7th paragraph, 3rd line, 5th word).	This word has been revised.
6. Appendix E & F graphs: We would recommend that the dates on the x-axis should also state the day (in addition to month and year) to better show the plots. Also, where any monitoring was conducted in 2009, the headings of the relevant graph(s) showing combined results for 2009 and 2010 should state "2009-2010" instead of "2010".	The format of the date on the x-axis has been changed to "day-month-year". There were 1-hr TSP, 24-hr TSP and normal daytime noise monitoring works conducted during December 2009 for the Project. The headings of relevant graphs have been revised.

Document Details			
Client	**Drainage Services Department**		
Project	**Contract No. DC/2007/24** **Harbour Area Treatment Scheme Stage 2A** **Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun**		
Document Title	**Final EM&A Report** **Covering the Period from 23 December 2009 to 31 July 2015**		
Document No.	**EMA/087**		

Distribution			
Copy No.	**Issued To**	**Copy No.**	**Issued To**
01-02	Leighton-LNS JV	10	Metcalf & Eddy-AECOM JV
03	Mott MacDonald Hong Kong Ltd	11	ACL (Project Office)
04-08	EPD	12	ACL (Head Office)
09	DSD		

Submission Ref		Controlled Copy No.
SUBM Ref.		
Atkins Ref.(s)	DC/2007/24/19.10/OC041/OR030/EC/SO	

Revision History

Rev.	Date	Description	Prepared	Checked & Reviewed	Approved
B	27 August 2015	Submission to IEC and ER for Review	Various	Shanifah Or	Eric Chui
A	24 August 2015	Submission to IEC and ER for review	Various	Shanifah Or	Eric Chui

LEIGHTON 怡和 LNS
Leighton - LNS Joint Venture
ATKINS

Rev. B

EXECUTIVE SUMMARY

Contract No. DC/2007/24 Harbour Area Treatment Scheme (HATS) Stage 2A Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun (hereafter referred to as "the Project"), was awarded to Leighton–LNS Joint Venture (LLNSJV) by the Drainage Services Department (DSD).

Atkins China Ltd (ACL) was appointed by LLNSJV (the Contractor of this Project) as the Environmental Team (ET) of this Project, to undertake Environmental Monitoring and Audit (EM&A) works for this Project in accordance with "HATS Stage 2A Environmental Impact Assessment Study – Investigation, Final EM&A Manual" (Register No. AEIAR-121/2008) under Environmental Permit (EP) No. EP-322/2008/G Part C, Condition 4.2.

This is the Final EM&A Report for the construction phase of the Project prepared in accordance with Section 15.11 of the approved EM&A Manual. The construction works under the Project was commenced on 23 December 2009 and completed in June 2015. The Environmental Protection Department approved the termination of the EM&A for construction phase on 27 July 2015. The noise and air monitoring works were terminated since 27 July 2015. This report summarises the findings and results of the EM&A undertaken for the Project during the reporting period from 23 December 2009 to 31 July 2015.

Breaches of Action and Limit Levels

For noise monitoring, there were one Action Level exceedance and one Limit Level exceedance occurred during the reporting period, which were considered project related. There were three Action Level exceedances and two hundred and eighty-one Limit Level exceedances during the reporting period. These exceedances were considered non-project related.

For air quality monitoring, there were six 1-hour TSP Action Level exceedances, four 1-hour TSP Limit Level exceedances, and one 24-hours TSP Action Level exceedance. All these exceedances are not project related.

The measured vibration levels were all below the vibration limit.

Complaint, Notification of Summons and Prosecutions

There were a total of eighteen complaints received in relation to environmental issues during the reporting period. Three complaints were related to air quality. Eight complaints were related to noise. Six complaints were related to water quality. One complaint was related to noise, dust and light. Complaint investigations were carried out for each of the complaints and all the compliant cases were closed.

No notification of summons and successful prosecution were recorded since the commencement of the Project.

CONTENTS

Page

1 INTRODUCTION 1

1.1 Basic Project Information 1
1.2 Project Organisation and Contact Details 1
1.3 Project Programme 1
1.4 Construction Activities 2

2 EM&A REQUIREMENTS 3

2.1 Summary of Impact EM&A Requirements 3
2.2 Environmental Monitoring Locations 3
2.3 Environmental Quality Performance Limits 4
2.4 Event and Action Plan 5
2.5 Environmental Measures and Implementation Status 5

3 MONITORING RESULTS 6

3.1 Impact Monitoring Results 6
3.2 Waste Management 6

4 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE 7

4.1 Environmental Exceedance 7
4.2 Hazard to Life 8
4.3 Cultural Heritage 8
4.4 Environmental Complaint and Prosecution 8

5 COMPARISON BETWEEN EIA PREDICTION AND EM&A DATA 10

5.1 Noise Monitoring 10
5.2 Air Quality Monitoring 10

6 REVIEW OF EM&A PROGRAMME 11

6.1 Review of Environmental Monitoring Methodology 11
6.2 Environmental Acceptability of the Project 11
6.3 Review of Practicality and Effectiveness of the EM&A Programme 11

7 CONCLUSION 12

LIST OF TABLES

Table 2-1 Summary of Impact EM&A Requirements 3
Table 2-2 Noise and Air Quality Monitoring Stations Descriptions 4
Table 2-3 Action and Limit Levels for Impact Noise Monitoring 5
Table 2-4 Action and Limit Levels for Air Quality Monitoring 5
Table 3-1 Actual Waste Generation during Construction Period 6
Table 4-1 Summary of Noise Exceedances (Dec 2009 to July 2015) 7
Table 4-2 Summary of Air Quality Exceedances (Dec 2009 to July 2015) 8
Table 4-3 Summary of Environmental Complaints 9

LIST OF FIGURES

Figure 1.1 Overall Layout Plan
Figure 2.1 Construction Noise Monitoring Station at Fung Mat Road Site
Figure 2.2 Construction Noise Monitoring Station at Sandy Bay PTW
Figure 2.3 Construction Noise Monitoring Station at Cyberport PTW
Figure 2.4 Construction Noise Monitoring Station at Wah Fu PTW and Aberdeen PTW
Figure 2.5 Construction Dust Monitoring Station at Fung Mat Road Site
Figure 2.6 Construction Dust Monitoring Station at Cyberport PTW
Figure 2.7 Construction Dust Monitoring Station at Wah Fu PTW and Aberdeen PTW
Figure 2.8 The Monitoring Location(s) and the Heritage Resource(s)

APPENDICES

Appendix A Project Organisation and Contact Details
Appendix B The Contractor's Construction Programme
Appendix C Event and Action Plans
Appendix D Mitigation Measures Checklist
Appendix E Graphical Presentation of Noise Monitoring Data
Appendix F Graphical Presentation of Air Quality Monitoring Data
Appendix G Summary Records of Complaints

1 INTRODUCTION

1.1 Basic Project Information

The Harbour Area Treatment Scheme (HATS) Stage 2A Sewage Conveyance System is proposed to collect and convey the pre-treated sewage from eight existing Preliminary Treatment Works (PTW), located along the northern and south-western shoreline of Hong Kong Island, to the Stonecutters Island Sewage Treatment Works (SCISTW) for treatment before final disposal into the western harbour via an existing submarine outfall.

The sewerage tunnels to be constructed under Contract No. DC/2007/24 HATS Stage 2A Construction of Sewage Conveyance System from Aberdeen to Sai Yin Pun (hereinafter referred as the Project) run from Aberdeen PTW Production/Drop Shaft towards Sai Ying Pun Junction Shaft. The tunnel has a total length of approximately 7.5km and it has various internal sizes. The transitions are located at the junctions with audits connecting to the drop shafts at Aberdeen, Wah Fu, Cyberport, Sandy Bay and Sai Ying Pun. An overall layout plan of the Project is provided in **Figure 1.1**.

Atkins China Ltd (ACL) was appointed by Leighton-LNS Joint Venture (the Contractor of this Project, hereinafter referred as the Contractor) as the Environmental Team (ET) of this Project, to undertake Environmental Monitoring and Audit (EM&A) works for this Project in accordance with "HATS Stage 2A Environmental Impact Assessment Study – Investigation, Final EM&A Manual" (Register No. AEIAR-121/2008) under Environmental Permit (EP) No. EP-322/2008/G Part C, Condition 4.2.

The Project have been completed all construction works by end of June 2015 and there are no construction activities that could cause significant environmental impacts. The ET Leader sent the Independent Environmental Checker (IEC) and Engineer's Representative (ER) proposals for termination of EM&A works for the Project in accordance with Condition 4.1 of Environmental Permit No. EP-322/2008/G, and Sections 15.11 and 15.12 of the approved EM&A Manual. After IEC and ER endorsed the termination proposal and the Environmental Protection Department (EPD) approved the termination of the construction phase EM&A for the Project on 27 July 2015. The noise and air monitoring works were terminated since 27 July 2015.

This is the Final EM&A Report to summarise the findings and results of the EM&A during reporting period from 23 December 2009 to 31 July 2015.

1.2 Project Organisation and Contact Details

The key parties included:

- Project Proponent – Drainage Services Department
- Contractor – Leighton-LNS Joint Venture
- Environmental Authority – EPD
- Engineer's Representative (ER) – Metcalf & Eddy-AECOM Joint Venture
- Independent Environmental Checker (IEC) - Mott MacDonald Hong Kong Ltd.
- Contractor's ET – Atkins China Ltd.

Project organisation and contact details are shown in **Appendix A**.

1.3 Project Programme

The Contractor's construction programme from 23 December 2009 to 27 July 2015

is provided in **Appendix B.**

1.4 Construction Activities

The major construction activity undertaken during the construction period from 23 December 2009 to 27 July 2015 is the construction of a sewage conveyance system to transfer sewage generated from Aberdeen to Sai Ying Pun.

2 EM&A REQUIREMENTS

2.1 Summary of Impact EM&A Requirements

The EM&A for the Project requires quantitative monitoring on noise and air quality (Total Suspended Particulates (TSP)) on regular and ad-hoc basis, in addition to site inspections. A summary of key impact EM&A requirements for this Project is presented in **Table 2-1**.

Table 2-1 Summary of Impact EM&A Requirements

Parameter	Description	Frequency
Noise	$L_{eq(30min)}$ between 07:00 – 19:00 hours on normal weekdays, $L_{eq(15min)}$ for other time periods and L_{10} and L_{90} (On-site measurement using sound level meter)	Once a week. One set of measurements between 0700 and 1900 hours on normal weekdays. If construction works are extended to include works during the hours of 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring shall be carried out during respective restricted periods.
Air Quality	24-hour TSP (On-site measurement using High Volume Sampler) 1-hour TSP (Measured by direct reading methods which are capable of producing comparable results as that by the high volume sampling method) (1) (2)	For 24-hour TSP monitoring, the sampling frequency is at least once in every six-days. For 1-hour TSP monitoring, the sampling frequency is at least three times in every six-days.
Waste	Routine supervision of construction works	As per site inspection schedule.
Landscape and Visual	Survey of full effectuation of mitigation measures	Once per month
Hazard to Life	Ground vibration monitoring along boundary of HKCG Depot	On-going
Cultural Heritage	Vibration level at identified historical buildings	On-going

Notes:
(1) Except at CM_FM1, where HVS is used for the impact monitoring of 1 hour TSP.
(2) Laser Particle Photometer (hand held) was used. Relevant specification was submitted to IEC for information on 19 October 2009 under Baseline Environmental Monitoring Plan (GEN/023).

2.2 Environmental Monitoring Locations

There are seven noise monitoring stations and four air quality monitoring stations designated for the Project and their locations are shown on **Figures 2.1** to **2.7.** Descriptions of these monitoring stations are provided in **Table 2-2**.

Table 2-2 Noise and Air Quality Monitoring Stations Descriptions

Monitoring ID	Description	Uses/ Location of Measurement	Easting	Northing
Noise Monitoring Stations				
M3 (1)	Rooftop (24/F) of Block A, Kwan Yick Building Phase III (Fung Mat Road Site)	Medium-rise domestic premises – private housing estate	832480	816602
M5	Rooftop (4/F) of Chuk Lam Ming Tong (Sandy Bay PTW)	Hospital and clinics - home for the aged	830779	814609
M5a	Near entrance of Chuk Lam Ming Tong (Sandy Bay PTW)	Hospital and clinics - home for the aged	830779	814609
M6a (2), (3)	2m above ground, outside of Aegean Terrace (Cyberport PTW)	Low-rise domestic premises – private housing	831304	813890
M7a (2), (5)	Rooftop (19/F) of Wah Ming House (Wah Fu PTW)	Medium-rise domestic premises – public housing estate	---	---
M8(5)	Roof (39/F) of Wah Lai House (Aberdeen PTW)	High-rise domestic premises – public housing estate	---	---
M8a	Near security room of Wah Lai House	High-rise domestic premises – public housing estate	832555	812299
Air Quality Monitoring Stations				
CM_FM1 (4)	Western Wholesale Food Market (Fung Mat Road Site)	Podium	832341	816776
CM_CB1a (2), (5)	The Arcade, Cyberport (Cyberport PTW)	Ground level at children playground, adjacent to Project site office	---	---
CM_WF1a (2), (5)	Wah Ming House (Wah Fu PTW)	Roof	---	---
CM_AB1b (5),(6)	Work Site Boundary of Aberdeen PTW	---	---	---

Notes: (1) Both baseline and impact noise monitoring are conducted by ET of Contract DC/2007/23. The baseline noise monitoring data was used as a reference and impact noise monitoring results are adopted in this Report.

(2) Revision to the original monitoring location in Project EM&A Manual was made and was verified by IEC on 19 November 2009 and subsequently approved by EPD on 27 November 2009.

(3) A correction factor of +3dB(A) is added as free field to façade measurement conversion.

(4) Baseline air quality monitoring was conducted by ET of Contract DC/2007/23, whereas impact air quality monitoring was conducted by ET of this Project. The baseline air quality monitoring data was used as a reference. The impact air quality data obtained under this Project is adopted by ET of Contract DC/2007/23.

(5) The impact monitoring works of July 2014 to July 2015 are conducted by ET of Contract DC/2009/24.

(6) The monitoring location was relocated and was verified by IEC on 15 July 2014 and approved by ER on 22 July 2014.

2.3 Environmental Quality Performance Limits

Environmental Quality Performance Limits (Action and Limit levels) for noise and air quality have been developed for the Project Baseline Monitoring Report and are summarised in **Table 2-3** and **Table 2-4**, respectively.

Table 2-3 Action and Limit Levels for Impact Noise Monitoring

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75dB(A)(1)
0700-2300 hrs on holidays and 1900-2300 hrs on all other days		60/65/70dB(A)(2)
2300-0700 of next day		45/50/55dB(A)(2)

Note: (1) Between 0700-1900, construction noise limit for school during normal term time is 70dB(A) and 65dB(A) during examination period.
(2) To be selected based on Area Sensitivity Rating

Table 2-4 Action and Limit Levels for Air Quality Monitoring

Monitoring ID	1-hour TSP Level, µg/m³		24-hour TSP Level, µg/m³	
	Action	Limit	Action	Limit
CM_FM1	332 (1)	500	188 (2)	260
CM_CB1a	280 (1)	500	178 (2)	260
CM_WF1a	285 (1)	500	185 (2)	260
CM_AB1b	283 (1)	500	174 (2)	260

Notes: (1) For Baseline Level ≤ 384 µg/m³, Action Level = (Baseline Level*1.3 + Limit Level)/2;
For Baseline Level > 384 µg/m³, Action Level = Limit Level
(2) For Baseline Level ≤ 200 µg/m³, Action Level = (Baseline Level*1.3 + Limit Level)/2;
For Baseline Level > 200 µg/m³, Action Level = Limit Level

2.4 Event and Action Plan

Event and Action Plans for noise, air quality as well as visual and landscape aspects have been developed as part of the Baseline Monitoring Report for the Project and the details are provided in **Appendix C**.

2.5 Environmental Measures and Implementation Status

The mitigation measures listed in the approved Environmental Impact Assessment (EIA) Report, EM&A Manual and Environmental Permit as well as relevant implementation status are provided in **Appendix D**. Based on the site inspection findings, it appears that the Contractor has implemented the required mitigation measures during construction period.

3 MONITORING RESULTS

3.1 Impact Monitoring Results

3.1.1 Noise Monitoring Results

Graphical presentation of the noise monitoring data is shown in **Appendix E**.

3.1.2 Air Quality Results

Graphical presentation of the air quality monitoring data is provided in **Appendix F**.

3.2 Waste Management

The actual waste generated during the construction phase is summarized in **Table 3-1**. Inert construction and demolition (C&D) wastes (i.e. public fill) were disposed of at Chai Wan Public Fill Barging Point/fill bank at Tseung Kwan O Area 137. Other C&D wastes such as paper/ cardboard were collected by a local waste recycling contractor whilst general refuse were disposed of at South East New Territories Landfill.

Table 3-1 Actual Waste Generation during Construction Period

Actual Quantities of Inert C&D Materials Generated					
Total Quantity Generated	Broken Concrete (2)	Reused in the Project	Reused in other Projects	Disposed as Public Fill	Imported Fill
(in '000 m^3 (4))					
740.316	0	0.787	473.693	254.682	11.154

Actual Quantities of C&D Wastes Generated						
Metals	Paper/ cardboard packaging	Plastics (3)	Solid Chemical Waste	Liquid Chemical Waste	Batteries	Others, e.g. general refuse
(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in L)	(in number)	(in '000 m^3 (4))
1104.901	19.834	0.044	54.9995	12,056.7	70	3.6331

Notes:

(1) The waste flow table will also include C&D materials that are specified in the Project to be imported for use at the Site.
(2) Broken concrete for recycling into aggregates.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(4) Assumption: 1m³ of Inert C&D Materials weigh 1.9 tonnes and 1m³ of C&D Wastes weigh 1.6 tonnes.

4 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Environmental Exceedance

4.1.1 Noise

There were one Action Level exceedance and one Limit Level exceedance occurred during the reporting period, which were considered as project related.

There were three Action Level exceedances and two hundred and eighty-one Limit Level exceedances during the reporting period. These exceedances were considered as non-project related.

A summary of noise exceedances during the construction phase is shown in **Table 4-1**.

Table 4-1 Summary of Noise Exceedances (Dec 2009 to July 2015)

Monitoring Stations	Number of Exceedances			
	Project Related		Non-project related	
	Action Level	Limit Level	Action Level	Limit Level
M3	1	0	2	61
M5	0	0	0	1
M5a	0	0	0	142
M6a	0	0	0	59
M7a	0	1	1	0
M8	0	0	0	1
M8a	0	0	0	17
Total	**1**	**1**	**3**	**281**

4.1.2 Air Quality

There were six 1-hour TSP Action Level exceedances, four 1-hour TSP Limit Level exceedances, and one 24-hours TSP Action Level exceedances. All these exceedances are as non- project related.

A summary of air quality exceedances during the construction phase is presented in **Table 4-2**.

Table 4-2 Summary of Air Quality Exceedances (Dec 2009 to July 2015)

Monitoring Parameter	Monitoring Stations	Number of Exceedances			
		Project Related		Non-project related	
		Action Level	Limit Level	Action Level	Limit Level
1-hr TSP	CM_FM1	0	0	1	0
	CM_CB1a	0	0	2	1
	CM_WF1	0	0	2	1
	CM_AB1	0	0	1	2
24-hr TSP	CM_FM1	0	0	1	0

4.1.3 Waste Management

No non-compliances with regard to waste management were recorded during the reporting period.

4.1.4 Landscape & Visual Impact

No non-compliances with regard to landscape and visual impacts were recorded during the reporting period.

4.2 Hazard to Life

The ground settlement markers, structural settlement markers and piezometers were installed for monitoring. No structural settlement was found during the reporting period.

4.3 Cultural Heritage

Vibration monitoring of historical buildings and structures was carried out as the construction works were within the Influence Zone. Tunneling/blasting works (Tunnel M) was carried out from March to May 2012 and July to December 2012. The location(s) of monitoring and the heritage resource(s) are shown in **Figure 2.8**. The measured vibration levels were all below the vibration limit.

4.4 Environmental Complaint and Prosecution

There were a total of eighteen complaints received in relation to environmental issues during the reporting period. Three complaints were related to air quality. Eight complaints were related to noise. Six complaints were related to water quality. One complaint was related to noise, dust and light. Complaint investigations were carried out for each of the complaints and all the compliant cases were closed. A summary record of all complaints received from each media, details of the complaints, actions and follow-up action procedures taken are shown in **Appendix G**. No notification of summons and successful prosecution were recorded since the commencement of the Project.

The summary of environmental complaints, notifications of summons or successful prosecutions is shown in **Table 4-3**.

Table 4-3 Summary of Environmental Complaints

Reporting Period	No. of Complaints Received	No. of Notifications of Summons	No. of Successful Prosecutions
23 Dec 2009 – 31 Dec 2010	4	0	0
2011	2	0	0
2012	3	0	0
2013	8	0	0
2014	0	0	0
Jan 2015 – 31 July 2015	1	0	0
Total	**18**	**0**	**0**

5 COMPARISON BETWEEN EIA PREDICTION AND EM&A DATA

The environmental monitoring data collected during the construction period were generally in line with the prediction of the approved EIA Report.

5.1 Noise Monitoring

There are both project and non-project related noise non-compliances during the reporting period. The non-project related non-compliance was mainly related to construction noise generated from road traffic noise, marine traffic noise, pass-by aircrafts and other nearby sites. For the Project related non-compliance, the event action plan was implemented by all relevant parties. The Contractor implemented mitigation measures including reviewing the working procedure. The ET carried out additional noise monitoring to check the effectiveness of the relevant implemented mitigation measures.

5.2 Air Quality Monitoring

The non-project related non-compliances were mainly caused by ambient air condition. The environmental monitoring data collected during the reporting period were generally in line with the prediction of the EIA Report.

6 REVIEW OF EM&A PROGRAMME

6.1 Review of Environmental Monitoring Methodology

The environmental monitoring methodologies and procedures were regularly reviewed by the ET. The existing environmental monitoring methodologies were considered effective, therefore there is no modification to the existing monitoring methodologies during the reporting period. The EM&A programme and the effectiveness and efficiency of the mitigation measures recommended in the EIA Report were considered acceptable.

6.2 Environmental Acceptability of the Project

Throughout the construction phase of the Project, both project and non-project related non-compliances of noise and non-project related non-compliance of air quality were recorded. The event action plan was implemented by all relevant parties and the Contractor implemented mitigation measures to address those project related non-compliances. The construction activities in general complied with the relevant environmental requirements and were environmentally acceptable.

6.3 Review of Practicality and Effectiveness of the EM&A Programme

The Contractor generally implemented all the mitigation measures recommended in the EIA Report and EM&A Manual to suppress the environmental impacts. As discussed above, the Project did not cause adverse environmental impacts on the receivers. Therefore, the mitigation measures implemented were effective and efficient in controlling environmental impacts. Therefore, no recommendations on improvement in the EM&A programme was provided.

7 CONCLUSION

This is the Final EM&A Report prepared by ACL for Contract No. DC/2007/24 Construction of Sewage Conveyance System from Aberdeen to Sai Ying Pun. This Report summarises the results and findings of the EM&A works during the reporting period from 23 December 2009 to 31 July 2015.

The impact air quality and noise monitoring were carried out in accordance with the EM&A Manual. Site audits were carried out to monitor the Contractor's performance on air quality, noise, water quality and waste management issues. The audit programme confirmed that the mitigation measures were properly implemented by the Contractor.

For noise monitoring, there were one Action Limit exceedance and one Limit Level exceedance during the reporting period, which were considered as project related. There were three Action Level exceedances and two hundred and eighty-one Limit Level exceedances during the reporting period. These noise exceedances were considered as non-project related.

For air quality monitoring, there were six 1-hour TSP Action Level exceedances, four 1-hour TSP Limit Level exceedances and one 24-hours TSP Action Level exceedance. All these exceedances are not project related.

There are no vibration exceedances during the reporting period.

The EIA process, EM&A programme and the mitigation measures were efficient and practical to minimize potential adverse environmental impacts arising from the Project.

There were a total of eighteen environmental complaints received during the construction of the Project. Complaint investigations were carried out for each of the complaints and all the complaint cases were closed. No notification of summons and successful prosecutions were recorded since the commencement of the Project.

Upon completion of the Project, environmental qualities return to the ambient levels. The environmental monitoring results indicated that the construction activities in general complied with the relevant environmental requirements. No significant impact to the adjacent environment was noted, which concurs with the EIA findings. The overall environmental performance of the Project is satisfactory.

The implemented EM&A programme readily detected any environmental impacts to the receivers and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. Weekly site inspections checked that the EIA's recommended mitigation measures were effectively implemented. There had no particular recommendation advised for improvement in the EM&A programme during the reporting period.

FIGURES

Rev	Description	Date	Dgn	Chk	Auth
A	FIRST ISSUE	03/02	SC	SB	EC

渠務署
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION

Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN

Supervising Officer
AECOM
Metcalf & Eddy – AECOM Joint Venture

Main Contractor
LEIGHTON
LNS
Leighton - LNS
Joint Venture

Designer
ATKINS

Drawing title
OVERALL LAYOUT PLAN

Designed SC	Scale at A3 N.T.S.
Drawn AC	Status Final EM&A Report
Checked SB	
Authorised EC	Figure No. 1.1
CAD ref. 4417-EM-FIG-1-1.dgn	Rev. A

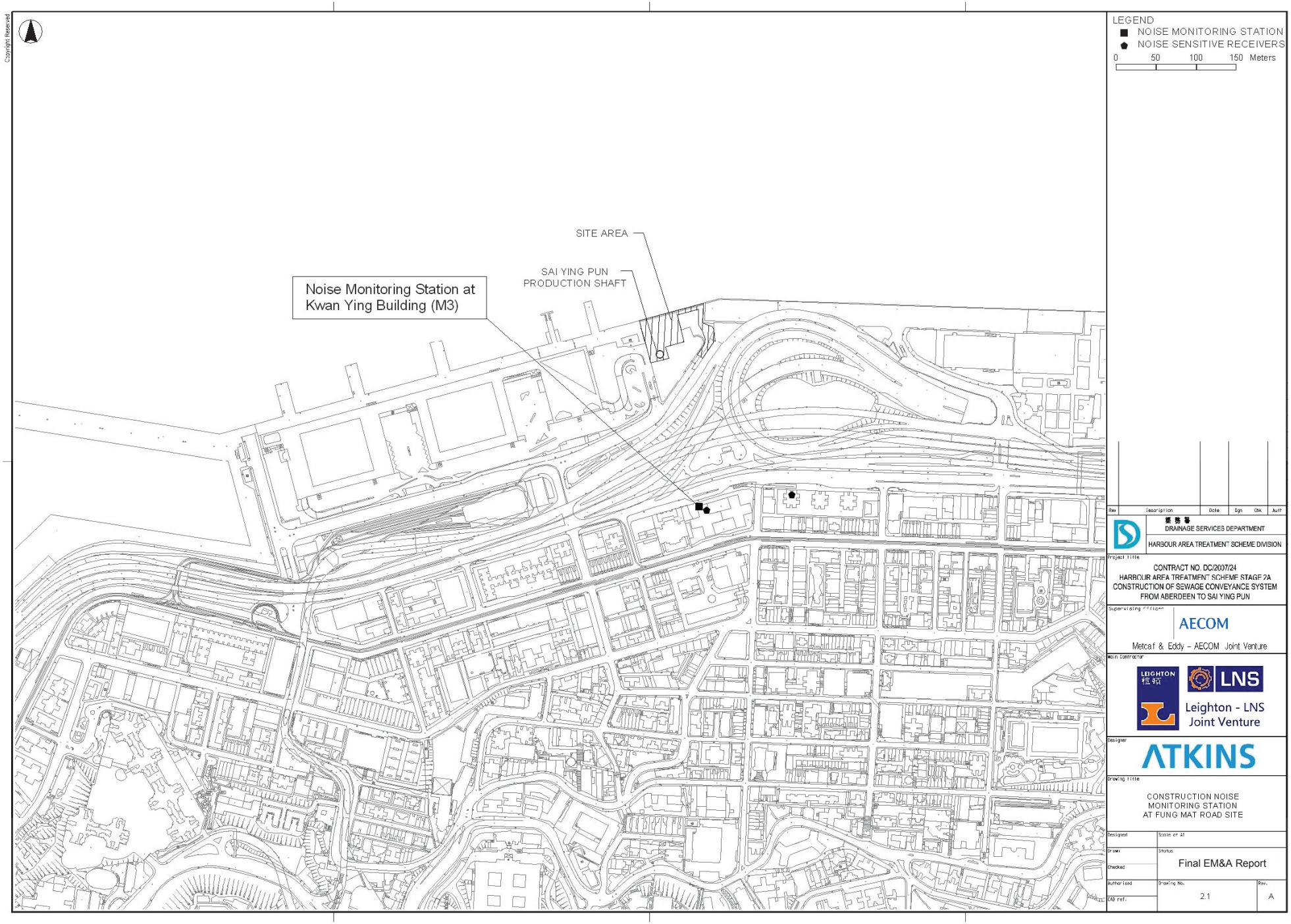
A1 841mm x 594mm

100mm

Copyright Reserved

Print : chew8306 Time : 14:43:58 03/02/2010
Path : P:\ONHKA\CADD\PROJECTS\4417\FIGURE\EM&A RPT\4417-EM-FIG-1-1.dgn

Copyright Reserved



LEGEND
- NOISE MONITORING STATION
- NOISE SENSITIVE RECEIVERS

0 50 100 150 Meters

Rev	Description	Date	Dgn	Chk	Auth

DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION

Project Title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN

Supervising Officer
AECOM
Metcaf & Eddy - AECOM Joint Venture

Main Contractor
Leighton - LNS Joint Venture

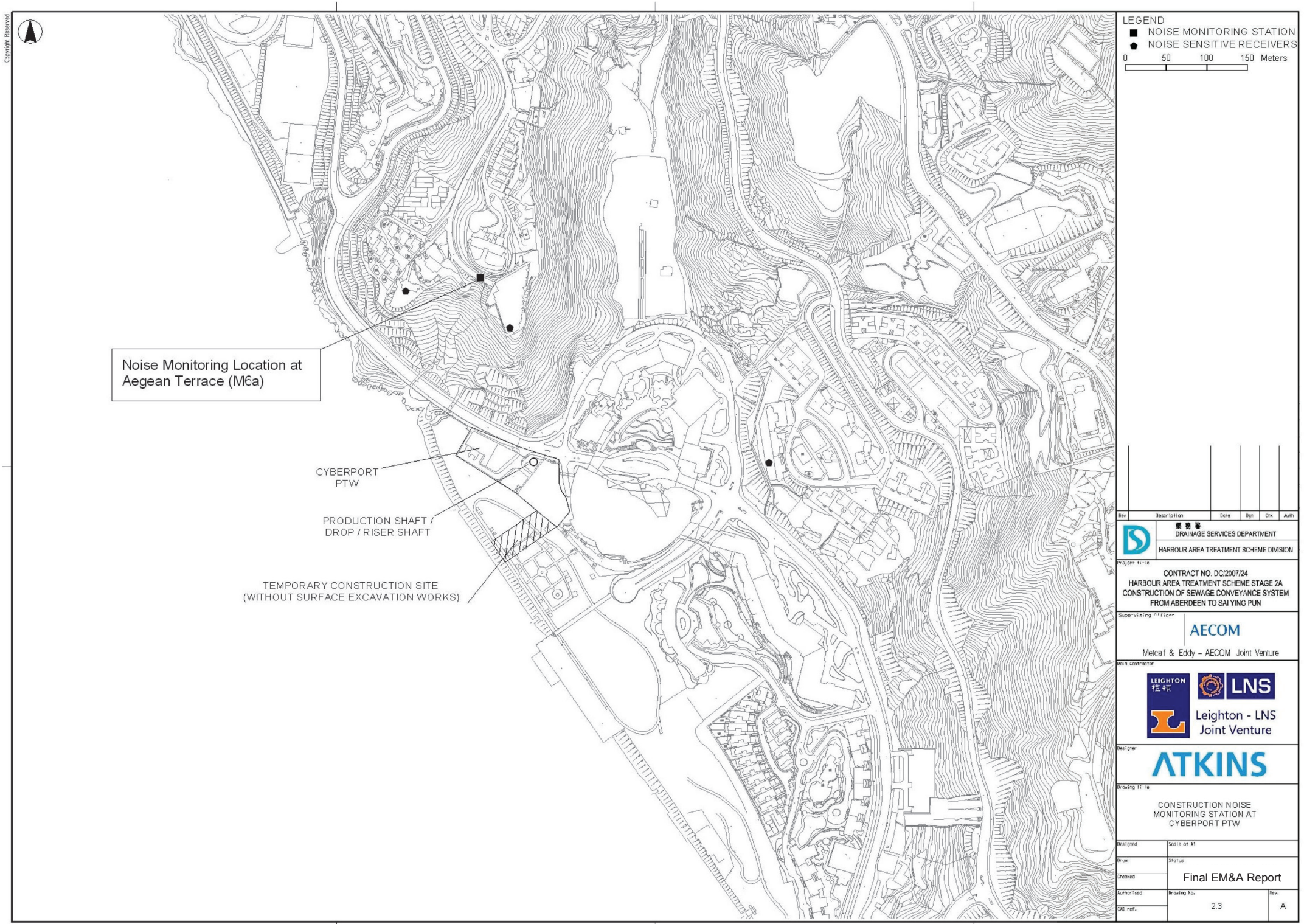
Designer
ATKINS

Drawing Title
CONSTRUCTION NOISE MONITORING STATION AT FUNG MAT ROAD SITE

Designed	Scale on A1
Drawn	Status: Final EM&A Report
Checked	
Authorised	Drawing No.: 2.1
CAD ref.	Rev.: A

Copyright Reserved
LEGEND
NOISE MONITORING STATION
NOISE SENSITIVE RECEIVERS
0 50 100 150 Meters
PRODUCTION SHAFT / DROP / RISER SHAFT
TEMPORARY CONSTRUCTION SITE (WITH SURFACE EXCAVATION WORKS)
SANDY BAY PTW
M5
Noise Monitoring Location at Chuk Lam Ming Tong (M5)
Rev
Description
Date
Dgn
Chk
Auth
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION
Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN
Supervising Officer
AECOM
Metcalf & Eddy - AECOM Joint Venture
Main Contractor
LEIGHTON
LNS
Leighton - LNS Joint Venture
Designer
ATKINS
Drawing title
CONSTRUCTION NOISE MONITORING STATION AT SANDY BAY PTW
Designed
Scale at A1
Drawn
Status
Checked
Final EM&A Report
Authorised
Drawing No.
Rev.
CAD ref.
2.2
A

Copyright Reserved



LEGEND

- NOISE MONITORING STATION
- NOISE SENSITIVE RECEIVERS

0 50 100 150 Meters

Rev	Description	Done	Dgn	Chk	Auth

DRAINAGE SERVICES DEPARTMENT

HARBOUR AREA TREATMENT SCHEME DIVISION

Project Title

CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN

Supervising Officer

AECOM

Metcaf & Eddy – AECOM Joint Venture

Main Contractor

LEIGHTON 禮頓 LNS

Leighton - LNS Joint Venture

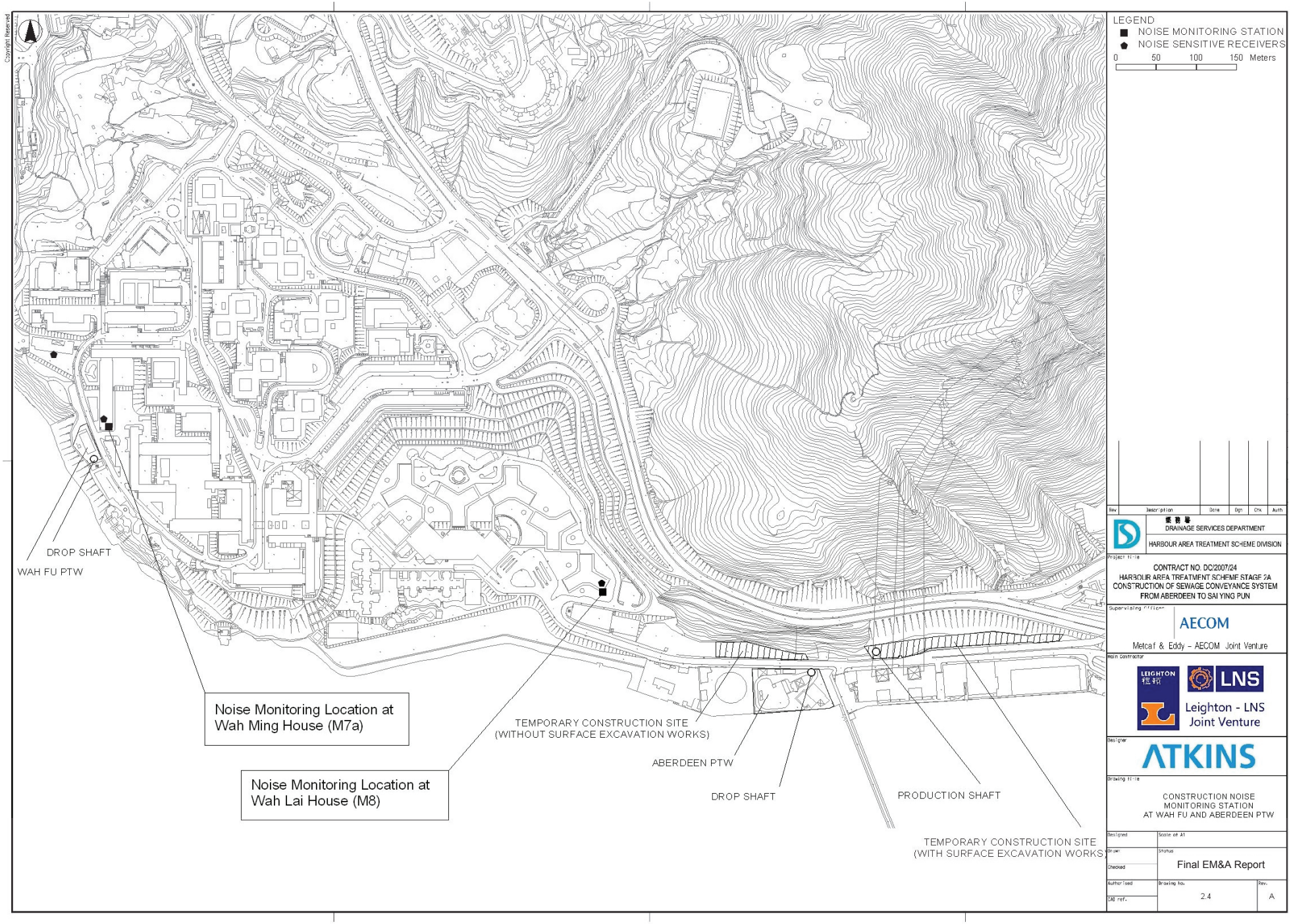
Designer

ATKINS

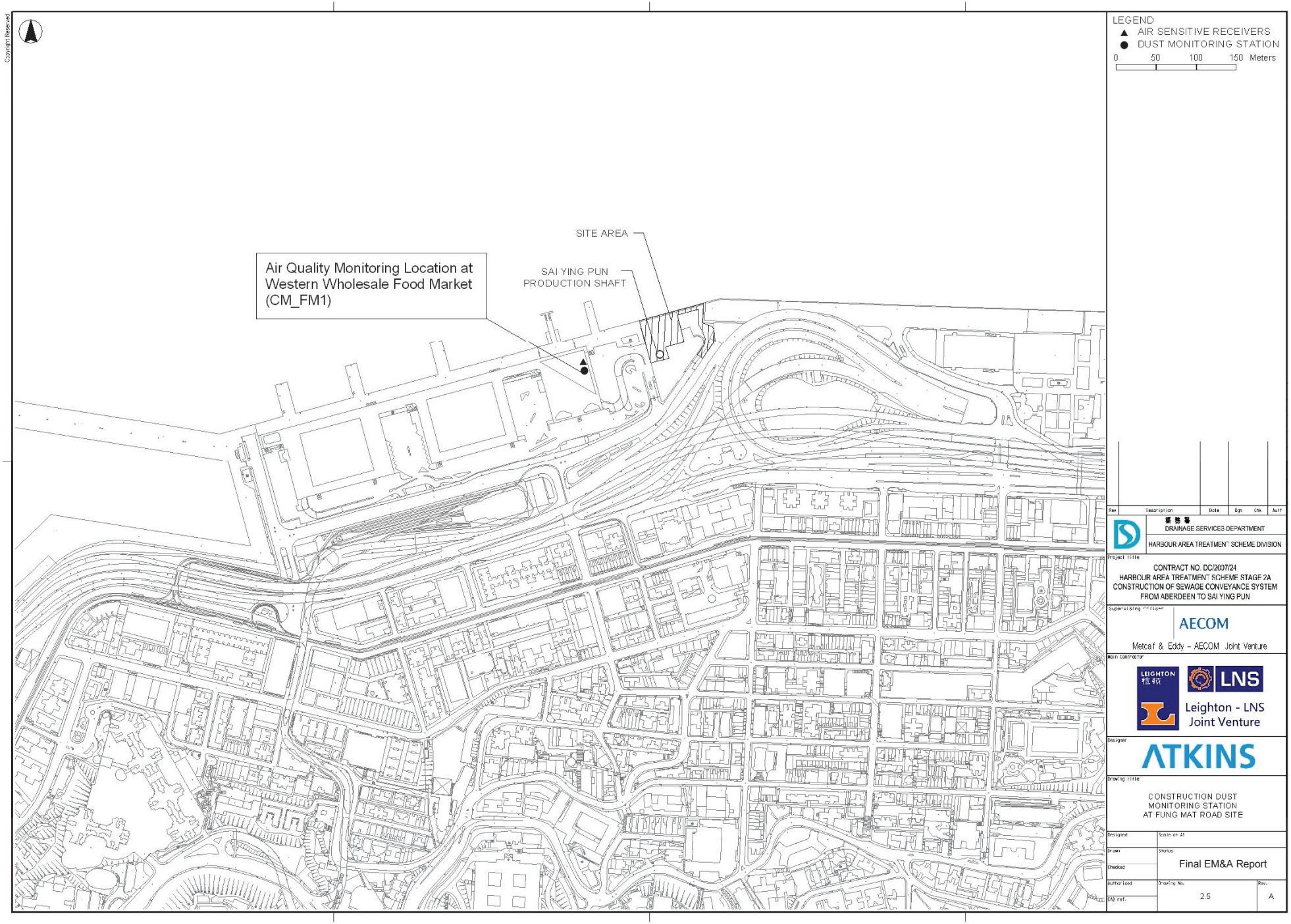
Drawing Title

CONSTRUCTION NOISE MONITORING STATION AT CYBERPORT PTW

Designed	Scale at A1
Drawn	Status
Checked	Final EM&A Report
Authorised	Drawing No. 2.3 / Rev. A
CAD ref.	


Copyright Reserved
LEGEND
NOISE MONITORING STATION
NOISE SENSITIVE RECEIVERS
0 50 100 150 Meters
DROP SHAFT
WAH FU PTW
Noise Monitoring Location at Wah Ming House (M7a)
Noise Monitoring Location at Wah Lai House (M8)
TEMPORARY CONSTRUCTION SITE (WITHOUT SURFACE EXCAVATION WORKS)
ABERDEEN PTW
DROP SHAFT
PRODUCTION SHAFT
TEMPORARY CONSTRUCTION SITE (WITH SURFACE EXCAVATION WORKS)
Rev Description Date Dgn Chk Auth
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION
Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN
Supervising Officer
AECOM
Metcalf & Eddy - AECOM Joint Venture
Main Contractor
LEIGHTON
LNS
Leighton - LNS Joint Venture
Designer
ATKINS
Drawing title
CONSTRUCTION NOISE MONITORING STATION AT WAH FU AND ABERDEEN PTW
Designed
Scale at A1
Drawn
Status
Final EM&A Report
Checked
Authorised
Drawing No.
2.4
Rev.
A
CAD ref.

Copyright Reserved



LEGEND
- ▲ AIR SENSITIVE RECEIVERS
- ● DUST MONITORING STATION

0 50 100 150 Meters

Rev	Description	Date	Dgn	Chk	Auth

DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION

Project Title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN

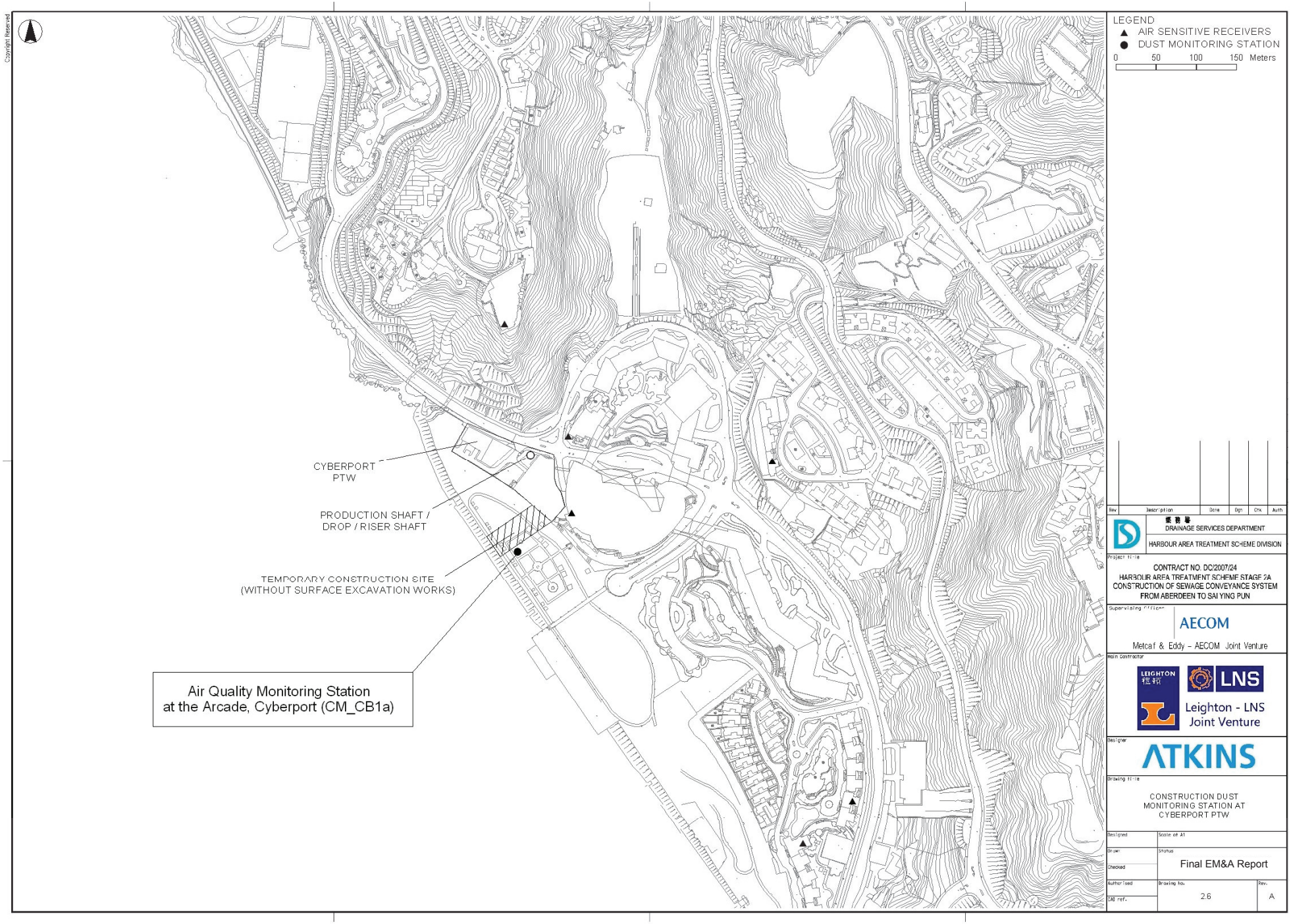
Supervising Officer
AECOM
Metcaf & Eddy - AECOM Joint Venture

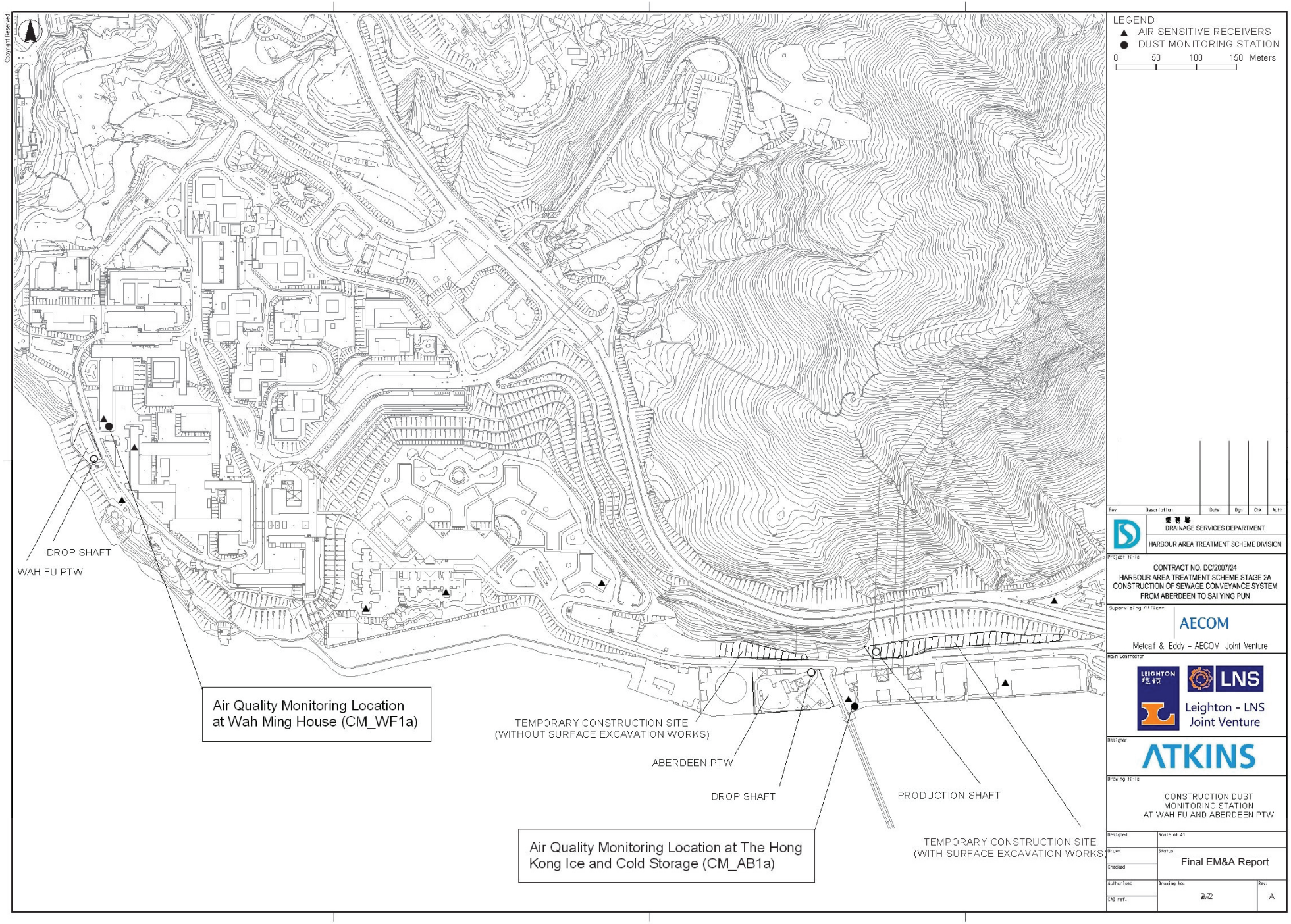
Main Contractor
LEIGHTON LNS
Leighton - LNS Joint Venture

Designer
ATKINS

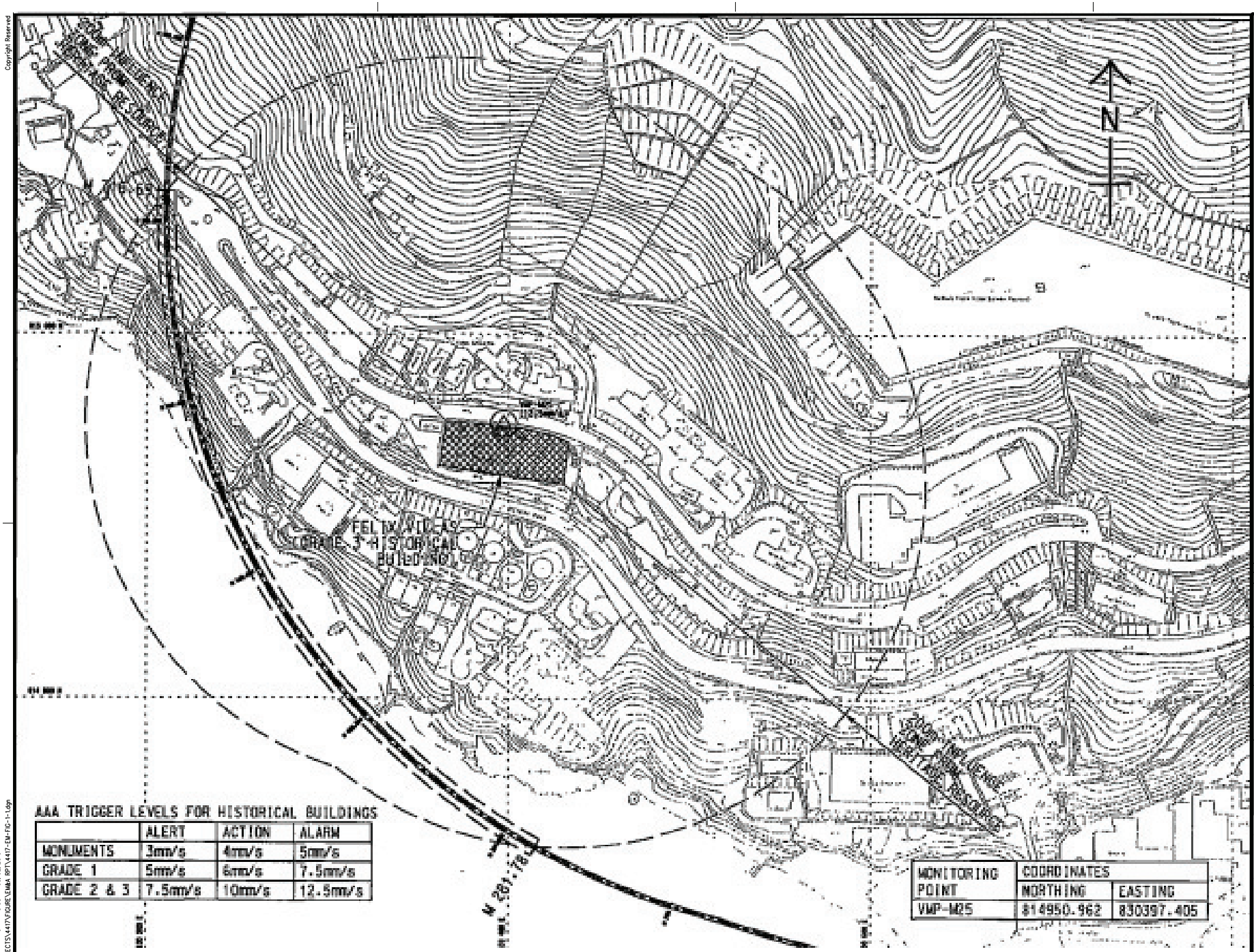
Drawing Title
CONSTRUCTION DUST MONITORING STATION AT FUNG MAT ROAD SITE

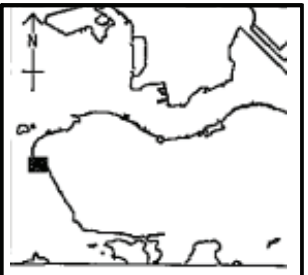
Designed	Scale at A1
Drawn	Status: Final EM&A Report
Checked	
Authorised	Drawing No.: 2.5
CAD ref.	Rev.: A


Copyright Reserved
LEGEND
AIR SENSITIVE RECEIVERS
DUST MONITORING STATION
0 50 100 150 Meters
CYBERPORT PTW
PRODUCTION SHAFT / DROP / RISER SHAFT
TEMPORARY CONSTRUCTION SITE (WITHOUT SURFACE EXCAVATION WORKS)
Air Quality Monitoring Station at the Arcade, Cyberport (CM_CB1a)
Rev
Description
Date
Dgn
Chk
Auth
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION
Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN
Supervising Officer
AECOM
Metcalf & Eddy - AECOM Joint Venture
Main Contractor
LEIGHTON
LNS
Leighton - LNS Joint Venture
Designer
ATKINS
Drawing title
CONSTRUCTION DUST MONITORING STATION AT CYBERPORT PTW
Designed
Scale at A1
Drawn
Status
Final EM&A Report
Checked
Authorised
Drawing No.
2.6
Rev.
A
CAD ref.


Copyright Reserved
LEGEND
AIR SENSITIVE RECEIVERS
DUST MONITORING STATION
0 50 100 150 Meters
DROP SHAFT
WAH FU PTW
Air Quality Monitoring Location at Wah Ming House (CM_WF1a)
TEMPORARY CONSTRUCTION SITE (WITHOUT SURFACE EXCAVATION WORKS)
ABERDEEN PTW
DROP SHAFT
PRODUCTION SHAFT
Air Quality Monitoring Location at The Hong Kong Ice and Cold Storage (CM_AB1a)
TEMPORARY CONSTRUCTION SITE (WITH SURFACE EXCAVATION WORKS)
Rev
Description
Date
Dgn
Chk
Auth
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION
Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM
FROM ABERDEEN TO SAI YING PUN
Supervising Officer
AECOM
Metcalf & Eddy - AECOM Joint Venture
Main Contractor
LEIGHTON
LNS
Leighton - LNS Joint Venture
Designer
ATKINS
Drawing title
CONSTRUCTION DUST MONITORING STATION AT WAH FU AND ABERDEEN PTW
Designed
Drawn
Checked
Authorised
CAD ref.
Scale at A1
Status
Final EM&A Report
Drawing No.
2A-Z2
Rev.
A

Copyright Reserved





LOCATION PLAN

NOTES:

1. VIBRATION MONITORING ON HERITAGE STRUCTURES AS SHOWN FOR EVERY BLAST SHALL BE CARRIED OUT WHEN TUNNEL FACES ARE BETWEEN TUNNEL CHAINAGE xx561.19 – xx618.65.

LEGEND:

- VMP-XX — VIBRATION MONITORING POINT
- (25mm/s) — MAXIMUM ALLOWABLE GROUND VIBRATION TO THE CORRESPONDING VIBRATION MONITORING POINTS
- HERITAGE STRUCTURE
- INFLUENCE ZONE FROM HERITAGE RESOURCE

AAA TRIGGER LEVELS FOR HISTORICAL BUILDINGS

	ALERT	ACTION	ALARM
MONUMENTS	3mm/s	4mm/s	5mm/s
GRADE 1	5mm/s	6mm/s	7.5mm/s
GRADE 2 & 3	7.5mm/s	10mm/s	12.5mm/s

MONITORING POINT	COORDINATES	
	NORTHING	EASTING
VMP-M25	814950.962	830397.405

Rev	Description	Date	Dgn	Chk	Auth
A	FIRST ISSUE	0812	SC	SB	EC

梁務署
DRAINAGE SERVICES DEPARTMENT
HARBOUR AREA TREATMENT SCHEME DIVISION

Project title
CONTRACT NO. DC/2007/24
HARBOUR AREA TREATMENT SCHEME STAGE 2A
CONSTRUCTION OF SEWAGE CONVEYANCE SYSTEM FROM ABERDEEN TO SAI YING PUN

Supervising Officer
AECOM
Metcalf & Eddy – AECOM Joint Venture

Main Contractor
Leighton - LNS Joint Venture

Designer
ATKINS

Drawing title
THE MONITORING LOCATION(S) AND THE HERITAGE RESOURCE(S)

Designed: SC	Scale at A3: N.T.S.
Drawn: AC	Status: FINAL EM&A REPORT
Checked: SB	
Authorised: EC	Figure No.: 2.8
CAD ref.: 4417-EM-FIG-1-1.dgn	Rev.: A

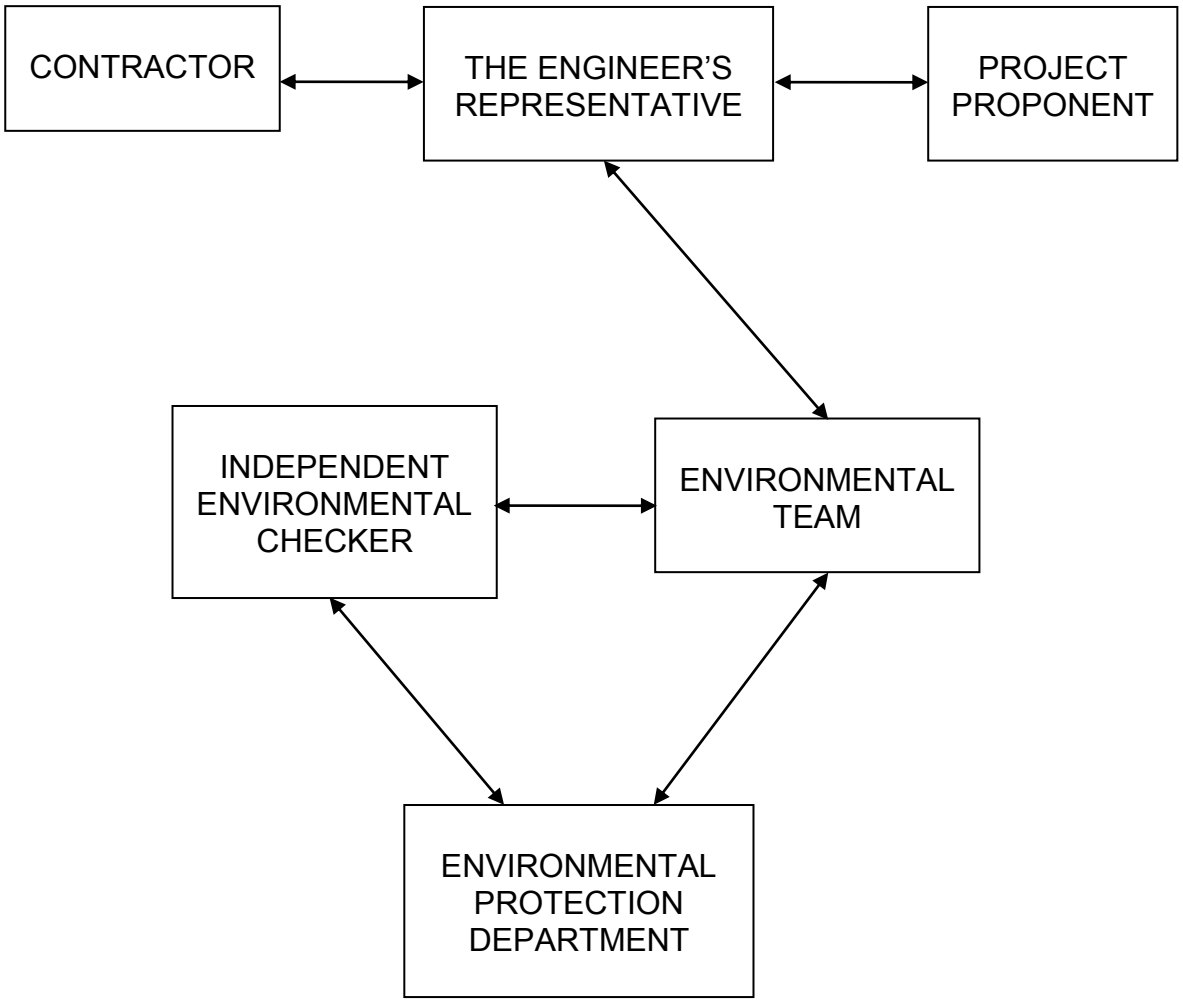
A1 841mm x 594mm

Print : chea8306 Time : 14:43:58 03/02/2010
Path : P:\CNHKA\CAD\PROJECTS\4417\FIGURE\EM&A RPT\4417-EM-FIG-1-1.dgn

APPENDIX A

PROJECT ORGANISATION AND CONTACT DETAILS

Project Organisation



Legend:

↔ Line of communication

Contact Details

Project Proponent, Drainage Services Department

Mr. Vincent Kin Shing LUI
Senior Engineer
Phone: 2159 3402
Fax: 2833 9162
E-mail: kslui@dsd.gov.hk

Engineer Representative (ER), Metcalf & Eddy-AECOM JV

Mr. KY Chan
Chief Resident Engineer
Fax: 2344 7702
E-mail: ky.chan@hats23-aecom.com

Mr. Gary Shing
Resident Engineer
Phone: 3713 3110
Fax: 2344 7702
E-mail: gary.shing@hats23-aecom.com

Contractor, Leighton-LNS JV

Mr. Jan Torka
Project Director
Fax: 2989 6033
E-mail: jan.torka@leightonasia.com

Mr. Malcolm Leung
Environmental Officer
Phone: 6323 9478
Fax: 2989 6033
E-mail: malcolm.leung@leightonasia.com

Independent Environmental Checker (IEC), Mott MacDonald Hong Kong Ltd.

Dr. Anne Kerr
Independent Environmental Checker
Phone: 2828 5793
Fax: 2827 1823
E-mail: anne.kerr@mottmac.com.hk

Environmental Team Leader (ETL), Atkins China Limited

Ms Sharifah Or
Environmental Team Leader
Phone: 2972 1802
Fax: 2890 6343
E-mail: sharifah.or@atkinsglobal.com

Environmental Protection Department (EPD)

Regional Office (South)
Mr. KWOK Ngai Hong
Phone: 2516 1869
Fax: 2960 1761
E-mail: arnoldkwok@epd.gov.hk

Regional Office (South)
Mr. Louis Chan
Phone: 2516 1809
Fax: 2960 1761
E-mail: louischan@epd.gov.hk

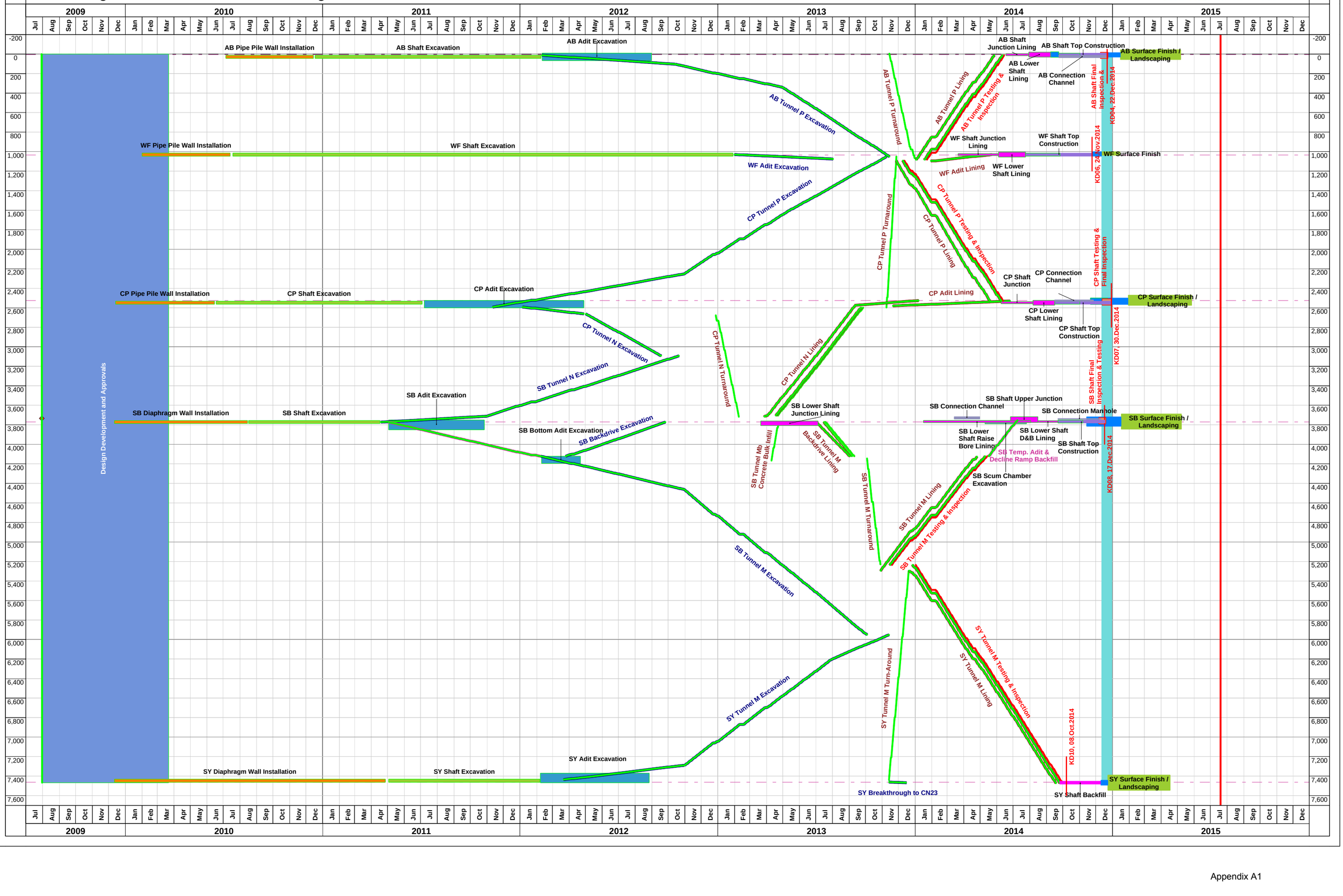
APPENDIX B

THE CONTRACTOR'S CONSTRUCTION PROGRAMME

Harbour Area Treatment Scheme, Stage 2A - Contract DC 2007/24

Works Programme Rev. 10.2A - Time Chainage View

LEIGHTON LNS
Leighton-LNS Joint Venture 禮頓 - 利安聯營



APPENDIX C

EVENT AND ACTION PLAN

Event/ Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Event/ Action Plan for Construction Air Quality

Event	Action			
	ET	IEC	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 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. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Landscape and Visual Impact - Construction Phase

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	1. Identify source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial action until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC and the ER 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

APPENDIX D

MITIGATION MEASURES CHECKLIST

EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
3.64	2.55	Air Quality Control	• Watering twice per day within the worksites at North Point PTW, Wan Chai East PTW, Fung Mat Road Site, Sandy Bay PTW, Wah Fu PTW, Aberdeen PTW and SCS worksite at Aberdeen; • Watering 4 times per day within worksites at the Central PTW; • Barging points, if any, should be continuous watering throughout the whole unloading process; and • Watering 8 times per day within worksites at the SCS works area at Wan Chai East and North Point, SCISTW and the Disinfection Facilities of SCISTW.	During Construction	√	
3.74	2.54	Air Quality Control	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts. • Skip hoist for material transport should be totally enclosed by impervious sheeting; • Vehicle washing facilities should be provided at every vehicle exit point; • The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore; • Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather; • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines; • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs; • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; • Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit; • Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;	During Construction	√	
3.76	2.58	Air Quality Control	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	During Operation	N/A	
	2.57	Air Quality Control	Fully covered design og the odour sources of the upgraded PTWs and SCISTW and the installation of deodorization system at the exhaust of ventilation system would adequately control potential odour impact.	During Operation	N/A	
3.77	2.59	Air Quality Control	To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorization system, the extraction vent(s) of the deodorization system should be located away from the top openings of the drop shafts.	During Design Stage	N/A	
3.80	2.6	Air Quality Control	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	After completion of	N/A	

EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
4.56-4.61	3.21-3.24	Noise Control	Use of quiet PME, movable barriers and acoustic mats	During Construction	√	
4.67	3.25	Noise Control	Good Site Practice: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program. • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program. • Mobile plant, if any, shall be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum. • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	During Construction	√	
4.63	3.28	Noise Control	Use of acoustic louvers for air supply fans/extraction fans of transfer pumping stations and ventilation fans of deodourization unit at Sandy Bay PTW, Cyberport PTW and Wah Fu PTW	During Operation and Design Stage	N/A	
4.64		Noise Control	The maximum allowable sound power level (SWL) of each new transformer at Sandy Bay PTW shall be limited to 89 dB(A).	During Operation and Design Stage	N/A	
6.349 - 6.375		Water Quality Control	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	During Construction	√	
6.376		Water Quality Control	Effluent Discharge There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.	During Construction	√	
6.377		Water Quality Control	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	During Construction	√	
6.378		Water Quality Control	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these	During Construction	N/A	

EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
6.379		Water Quality Control	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	During Construction	√	
6.380		Water Quality Control	Construction Works in Close Proximity of Storm Drains or Seafront To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable. • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	During Construction	√	
6.381		Water Quality Control	Temporary Sewage Bypass It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimize the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimize the impact of temporary	During Construction	✓	
6.344		Water Quality Control	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	During Operation and Design Stage	N/A	
6.344		Water Quality Control	The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed.	During Operation	N/A	
6.345		Water Quality Control	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	During Operation and Design Stage	N/A	

EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
6.346		Water Quality Control	In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent.	During Operation and Design Stage	N/A	
6.347		Water Quality Control	The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021.	During Operation and Design Stage	N/A	
6.348		Water Quality Control	It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidized nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimize the potential TIN exceedances.	Investigation Stage of Stage 2B	N/A	
9.107	7.8	Waste Management	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	During Construction	N/A	
9.109	7.10	Waste Management Implication	All waste materials should be segregated into categories covering: • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill.	During Construction	√	
9.113	7.15	Waste Management Implication	Recommendations to achieve waste reduction include:- • Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force; • Any unused chemicals or those with remaining functional capacity shall be recycled; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	During Construction	√	
9.115	7.14	Waste Management Implication	Recommendations for good site practices during construction activities include:- • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	During Construction	√	

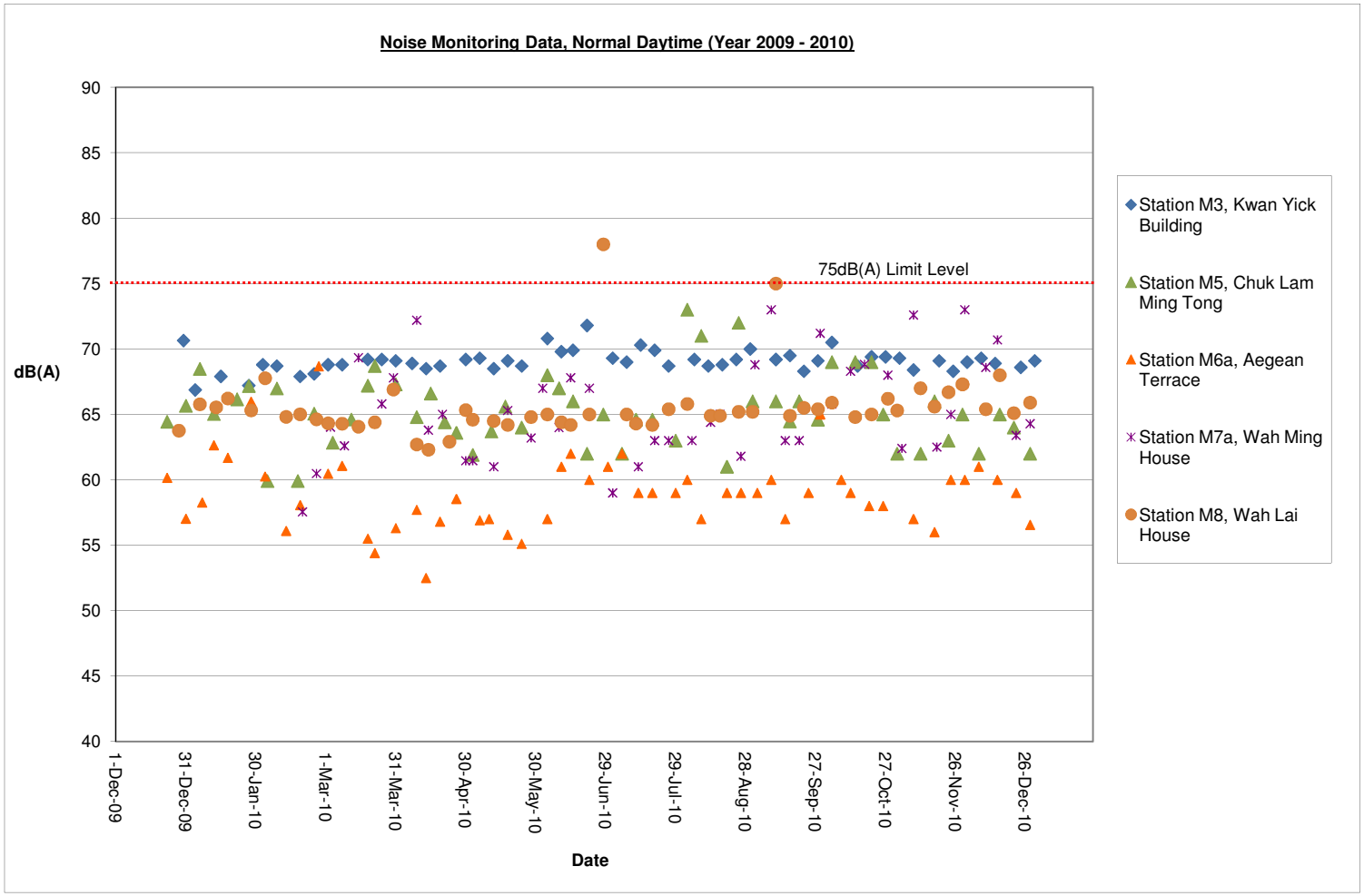
EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
9.125	7.14	Waste Management Implication	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94	During Construction	N/A	
9.131	7.26	Waste Management Implication	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	During Construction	√	
9.133	7.22	Waste Management Implication	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	During Construction	√	
9.135	7.24	Waste Management Implication	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	During Construction	√	
9.137	7.28	Waste Management Implication	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	During Construction	√	
9.142	7.32 ~ 7.33	Waste Management Implication	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	During Construction	N/A	
9.148	7.36	Waste Management Implication	The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading.	During Construction	N/A	
9.150	7.35	Waste Management Implication	Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers.	During Construction	N/A	
10.92		Terrestrial Ecology	All the proposed construction activities would be confined to developed area and wasteland of very low ecological value.	Design stage	N/A	
10.93		Terrestrial Ecology	To implement effective noise mitigation recommended in Section 4.	During Construction	√	
10.94		Terrestrial Ecology	Dust control practices such as regular watering, complete coverage of any aggregate or dusty material storage piles, and re-schedule of dusty activities during high-wind conditions as well as other measures recommended in Section 3, should be implemented.	During Construction	√	
10.95		Terrestrial Ecology	Fences/hoardings should be erected and installed along the boundary of the works areas.	During Construction	√	

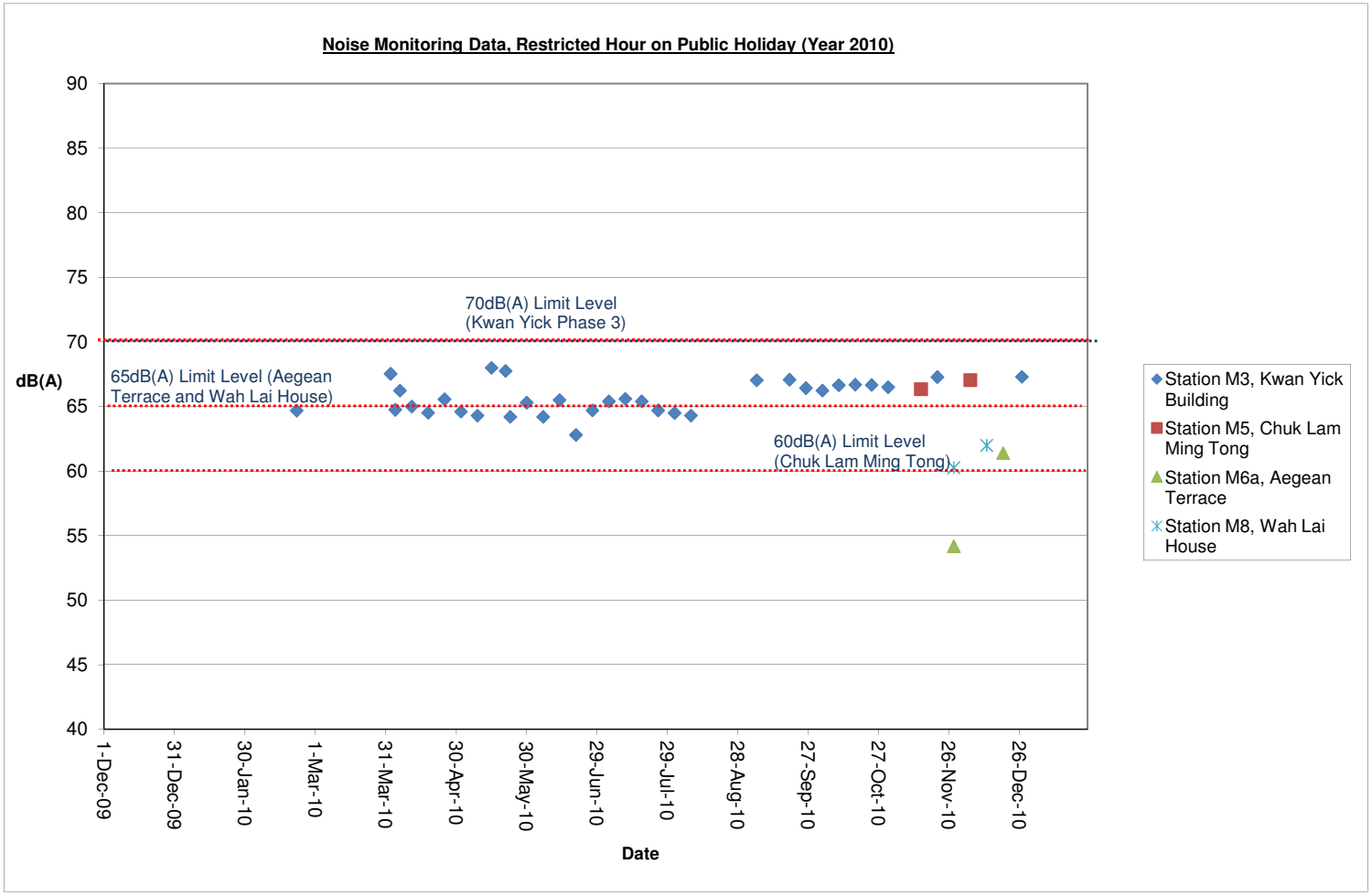
EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
10.96		Terrestrial Ecology	Standard good site practices as suggested in Section 10 should be implemented.	During Construction	√	
10.97		Terrestrial Ecology	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.	During Construction	√	
10.98		Terrestrial Ecology	Provision of compensatory planting of similar native tree species in no less than 1:1 compensatory ratio in terms of quality and quantity.	During Construction	N/A	
11.135		Marine Ecology	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	During Construction	√	
11.136		Marine Ecology	To avoid/minimize the impact to corals, it is proposed that they are translocated to the eastern end of the existing seawall, which has similar hydrographic parameters and supports healthy growth of the same species and is thus considered as a suitable recipient site (Figure 11.13). Coral translocation should be carried out during the winter season (November- March) in order to avoid disturbance to the transplanted colonies during the spawning period (i.e. July to October).	Pre-construction	N/A	
11.137		Marine Ecology	Dredging works will not be carried out and sheet piles or silt curtains will be used to contain filling material used during demolition/re-construction of the seawall. Water quality modelling predicts that no adverse impact on water quality at the proposed recipient (Figure 11.13) site would occur during construction works. Following this, no construction phase monitoring on translocated coral would be required. However, post-translocation monitoring is suggested to be carried out every 3 months for one year. This would be carried out by a marine ecological specialist that is approved by the Director. Translocation plan for corals will be submitted to the Director for approval prior to the commencement of construction works.	Pre-construction	N/A	
11.139		Marine Ecology	It is recommended that temporary sewage bypass should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) in order to minimize the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimize the impact of temporary discharges. Details are provided in the standalone EM&A Manual.	During Construction and Design stage	√	
Table 13.7		Landscape & Visual Impact	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding the surrounding setting.	Pre-construction	N/A	
Table 13.8		Landscape & Visual Impact	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	Pre-construction	N/A	
14A.198 & 14A.203		Hazard to Life	Limiting magnitude of ground settlement associated with shafts & tunnels construction, excavation and seawall demolition to 13mm and subject to requirements from relevant authorities.	During Construction	√	

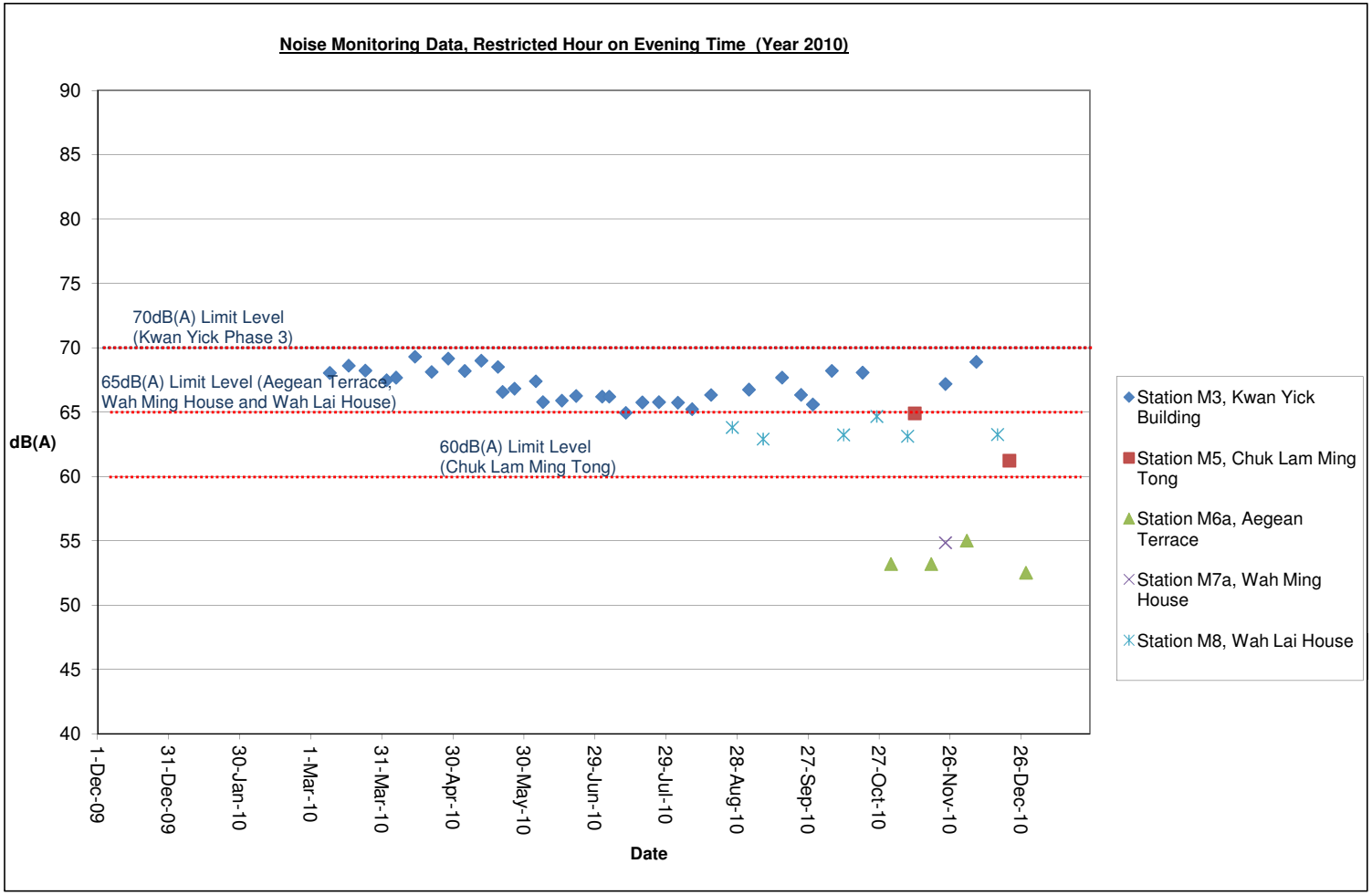
EIA Ref.	Final EM&A Manual Ref.	Environmental Aspect	Mitigation Measures	Timing	Compliance Status: √ = compliant; x = non-compliant; N/A = not applicable	
					Status	Remarks
14A.199 & 14A.204		Hazard to Life	Limiting of the vibration levels associated with the blasting programme for the Tunnel P, shafts and other construction works (including demolition & reconstruction of seawall, excavation for seawater pump house at the Aberdeen PTW) at the PTW sites to a peak particle velocity of 5mm/s and subject to requirements from relevant authorities. Moving array of sensors will be used as the tunnel is advanced.	During Construction	N/A	
14A.201		Hazard to Life	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	During Construction	√	
14A.206		Hazard to Life	Establish emergency plan and procedures	During Construction	√	
14.C78		Hazard to Life	Ensuring Quality of Chemical Supplier • Only appoint chemical suppliers with satisfactory quality system. • Request the chemical supplier to employ an independent checker to audit the quality and safety management system of the supplier • The chemical supplied to SCISTW can only be produced in designated chemical production plants and delivered directly from designated locations. This measure will be included in the chemical supply contract.	During Construction	√	
Tables 15.8 - 15.11		Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed. If vibration levels are found to exceed the limit level, the Contractor shall investigate the cause of the exceedance and take immediate corrective action by reducing the rate of forward progress, as necessary, to bring PPV levels within compliance.	During Blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	N/A	
15.70		Cultural Heritage	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	During Blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	N/A	

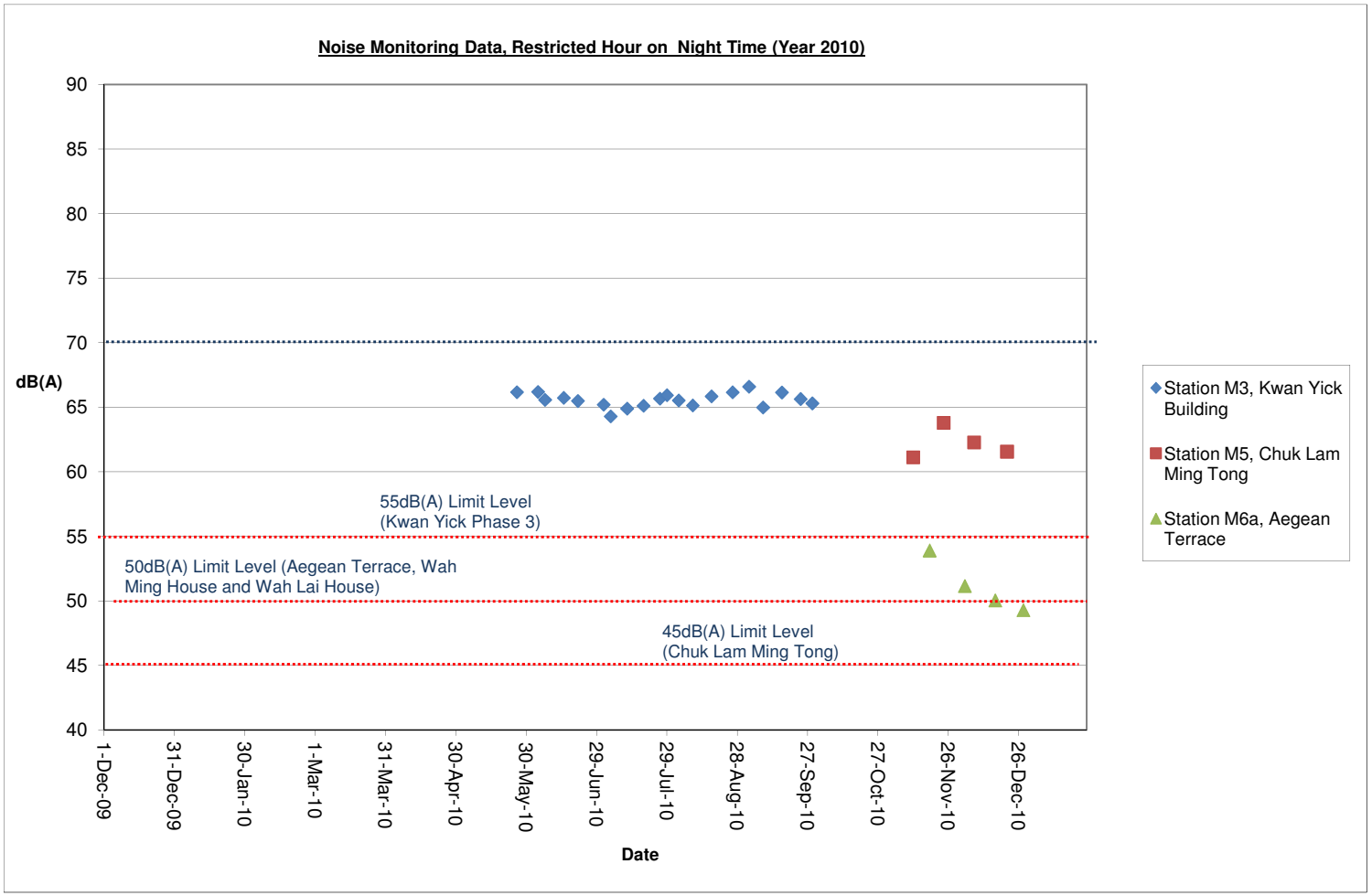
APPENDIX E

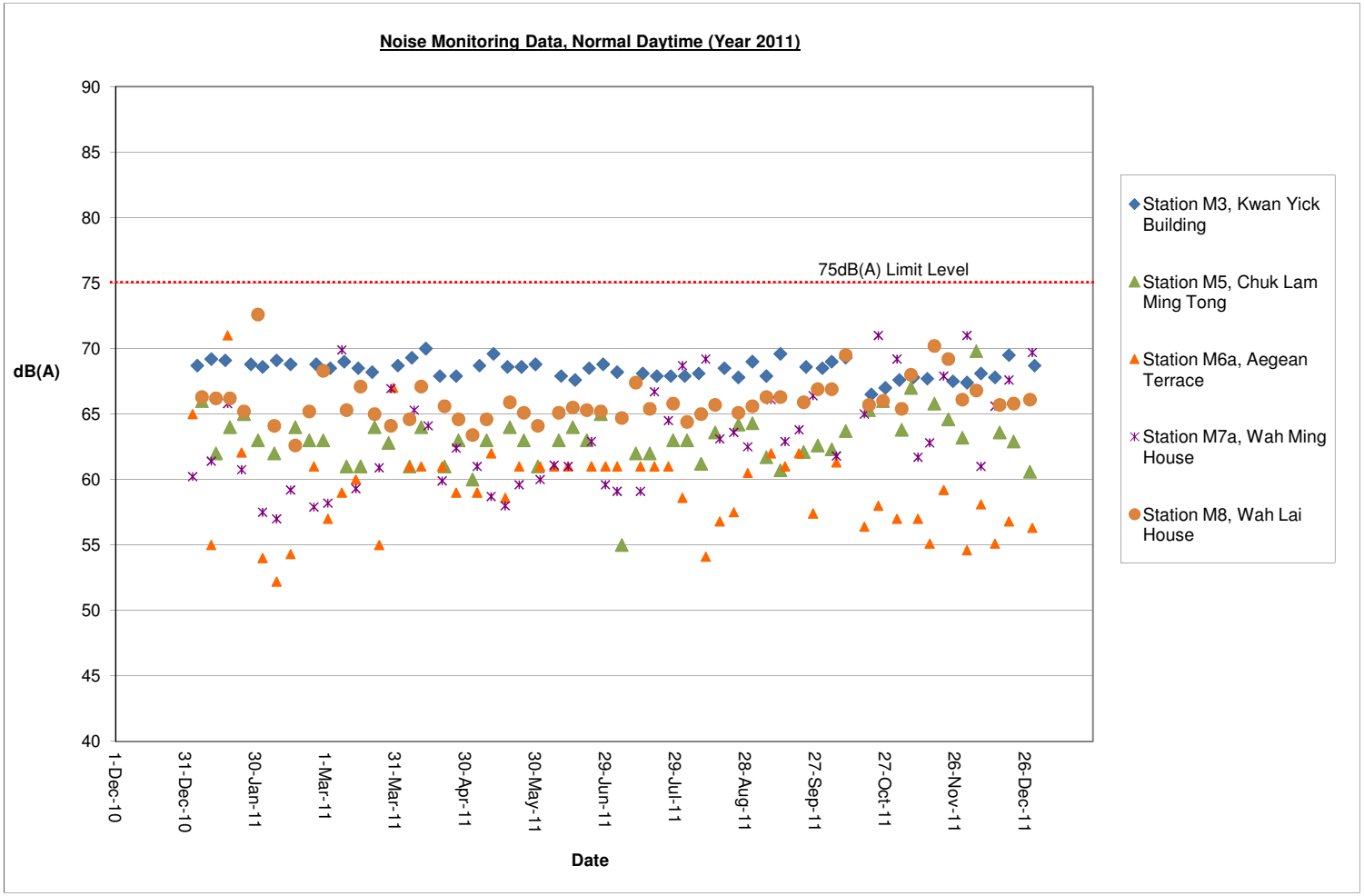
GRAPHICAL PRESENTATION OF NOISE MONITORING DATA

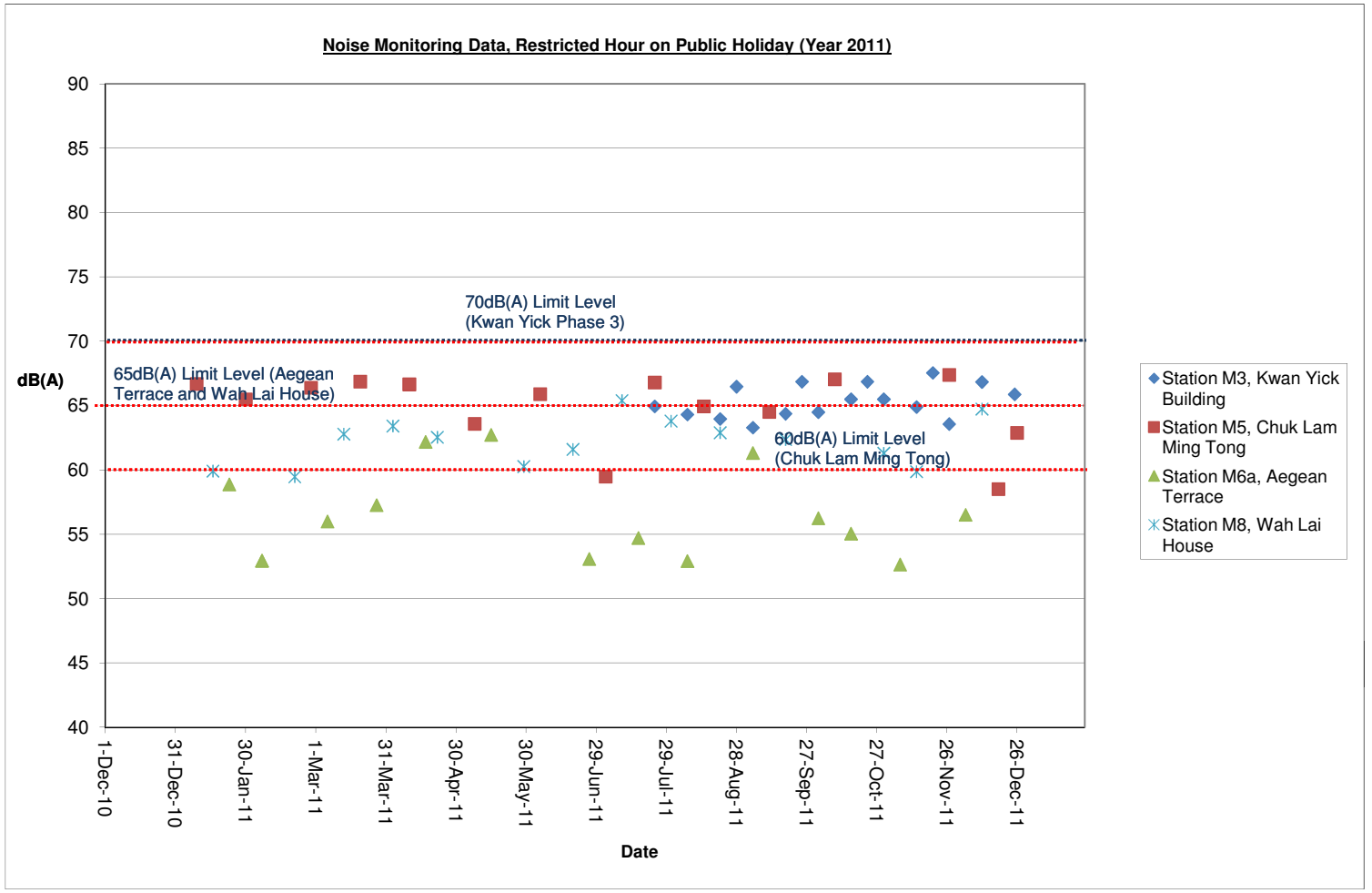

Noise Monitoring Data, Normal Daytime (Year 2009 - 2010)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
75dB(A) Limit Level
1-Dec-09
31-Dec-09
30-Jan-10
1-Mar-10
31-Mar-10
30-Apr-10
30-May-10
29-Jun-10
29-Jul-10
28-Aug-10
27-Sep-10
27-Oct-10
26-Nov-10
26-Dec-10
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

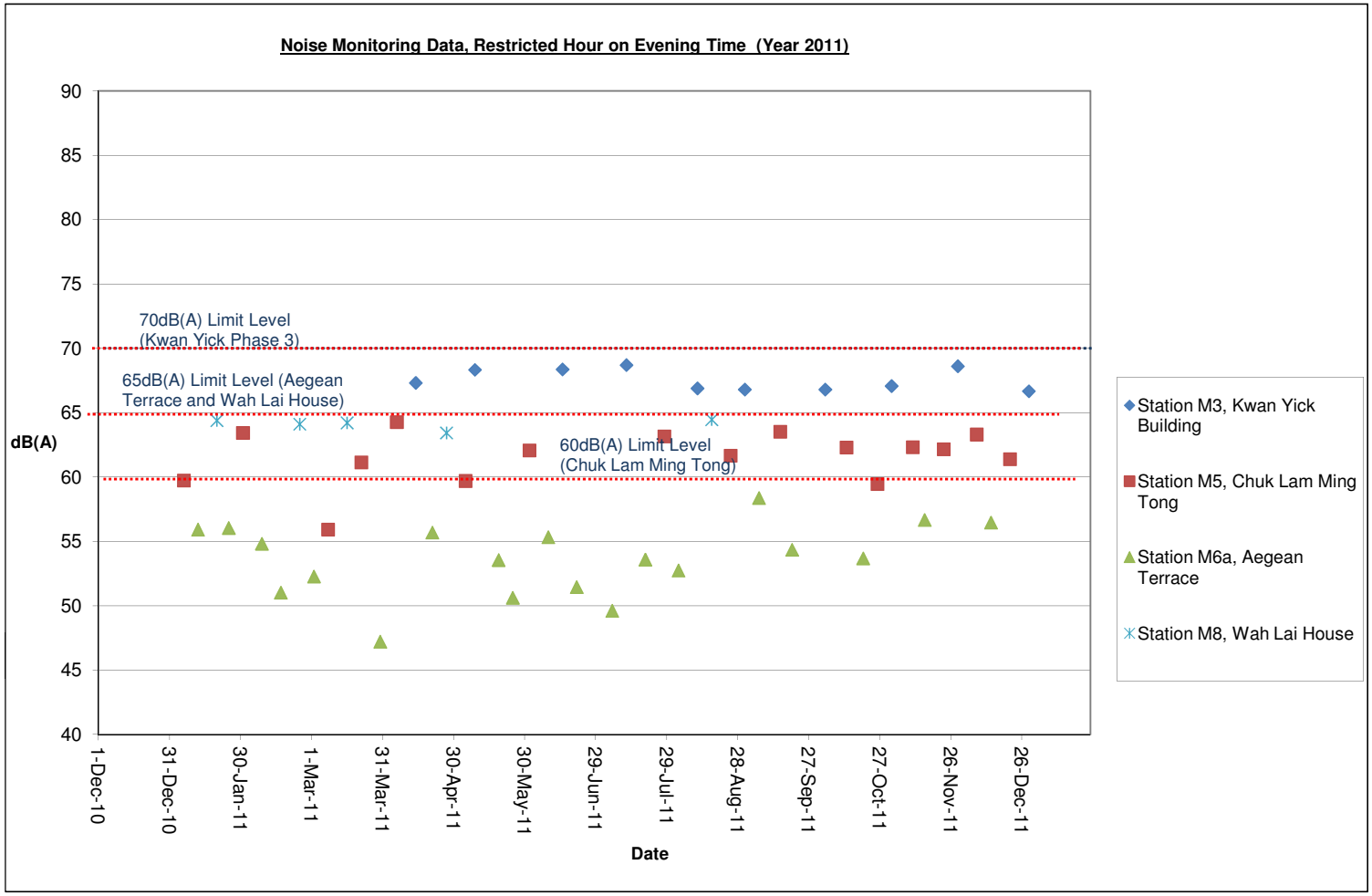

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2010)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
1-Dec-09
31-Dec-09
30-Jan-10
1-Mar-10
31-Mar-10
30-Apr-10
30-May-10
29-Jun-10
29-Jul-10
28-Aug-10
27-Sep-10
27-Oct-10
26-Nov-10
26-Dec-10
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

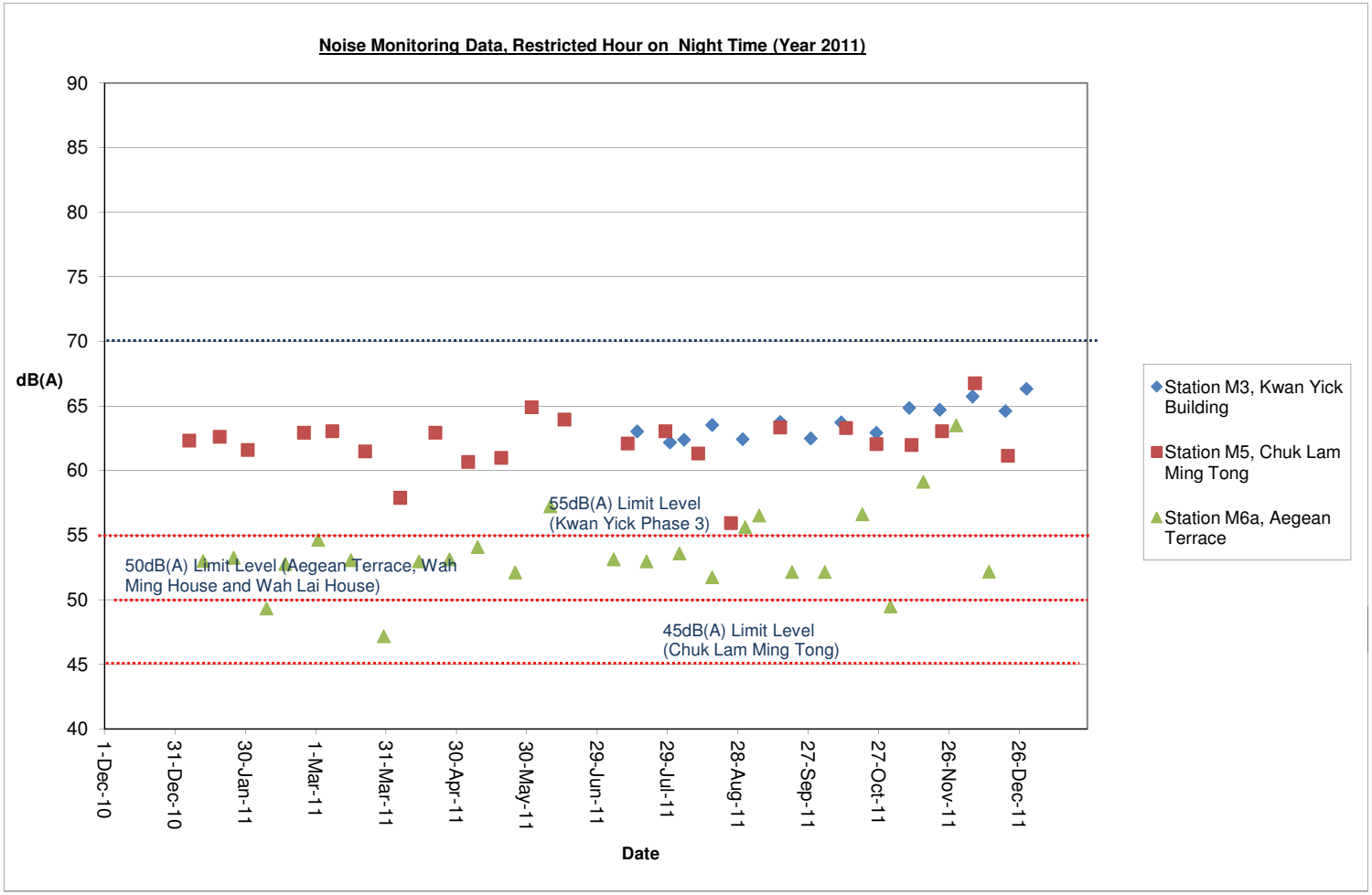

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2010)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean Terrace,
Wah Ming House and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
1-Dec-09
31-Dec-09
30-Jan-10
1-Mar-10
31-Mar-10
30-Apr-10
30-May-10
29-Jun-10
29-Jul-10
28-Aug-10
27-Sep-10
27-Oct-10
26-Nov-10
26-Dec-10
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

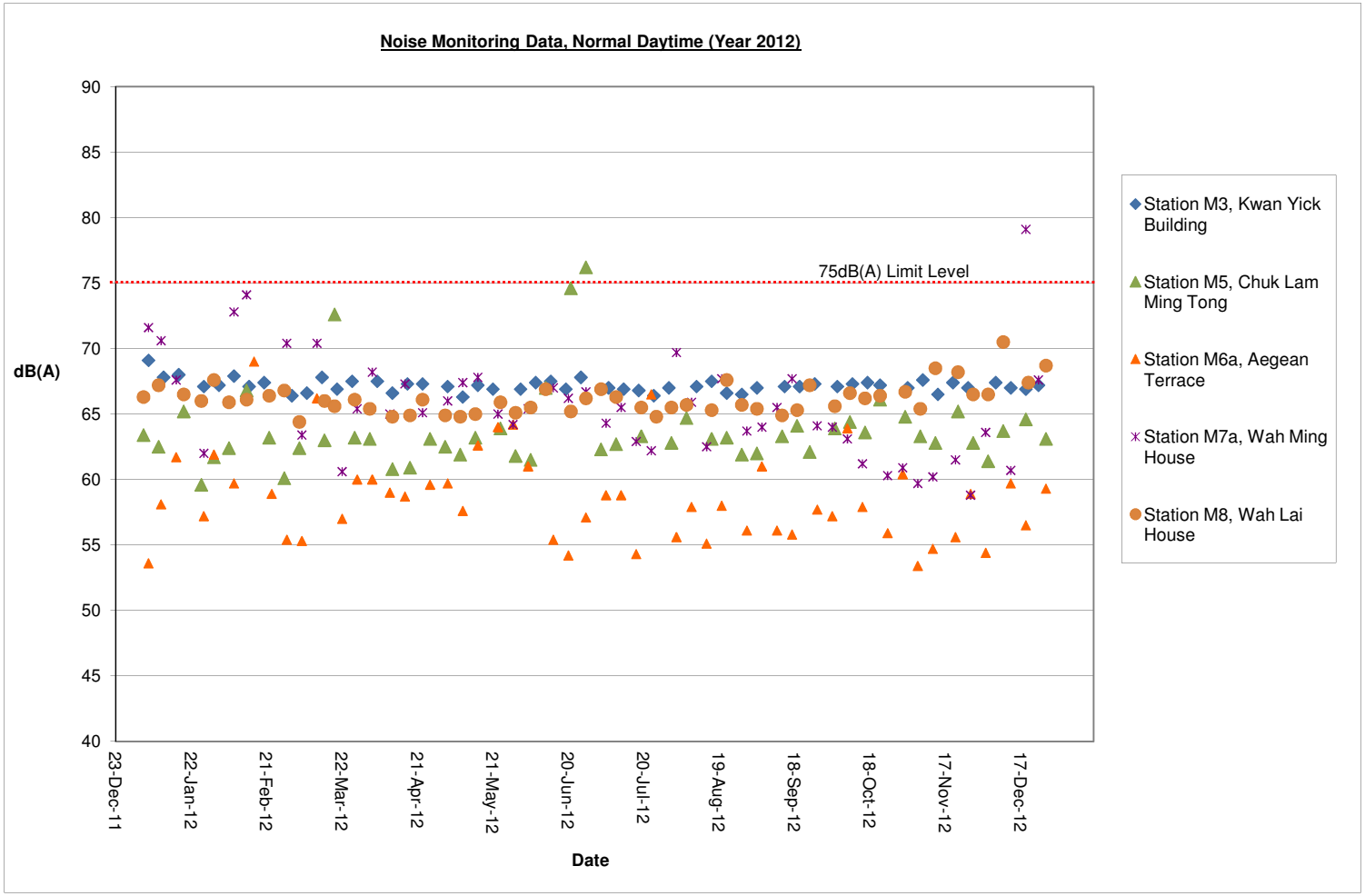

Noise Monitoring Data, Restricted Hour on Night Time (Year 2010)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
55dB(A) Limit Level
(Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace, Wah
Ming House and Wah Lai House)
45dB(A) Limit Level
(Chuk Lam Ming Tong)
1-Dec-09
31-Dec-09
30-Jan-10
1-Mar-10
31-Mar-10
30-Apr-10
30-May-10
29-Jun-10
29-Jul-10
28-Aug-10
27-Sep-10
27-Oct-10
26-Nov-10
26-Dec-10
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace

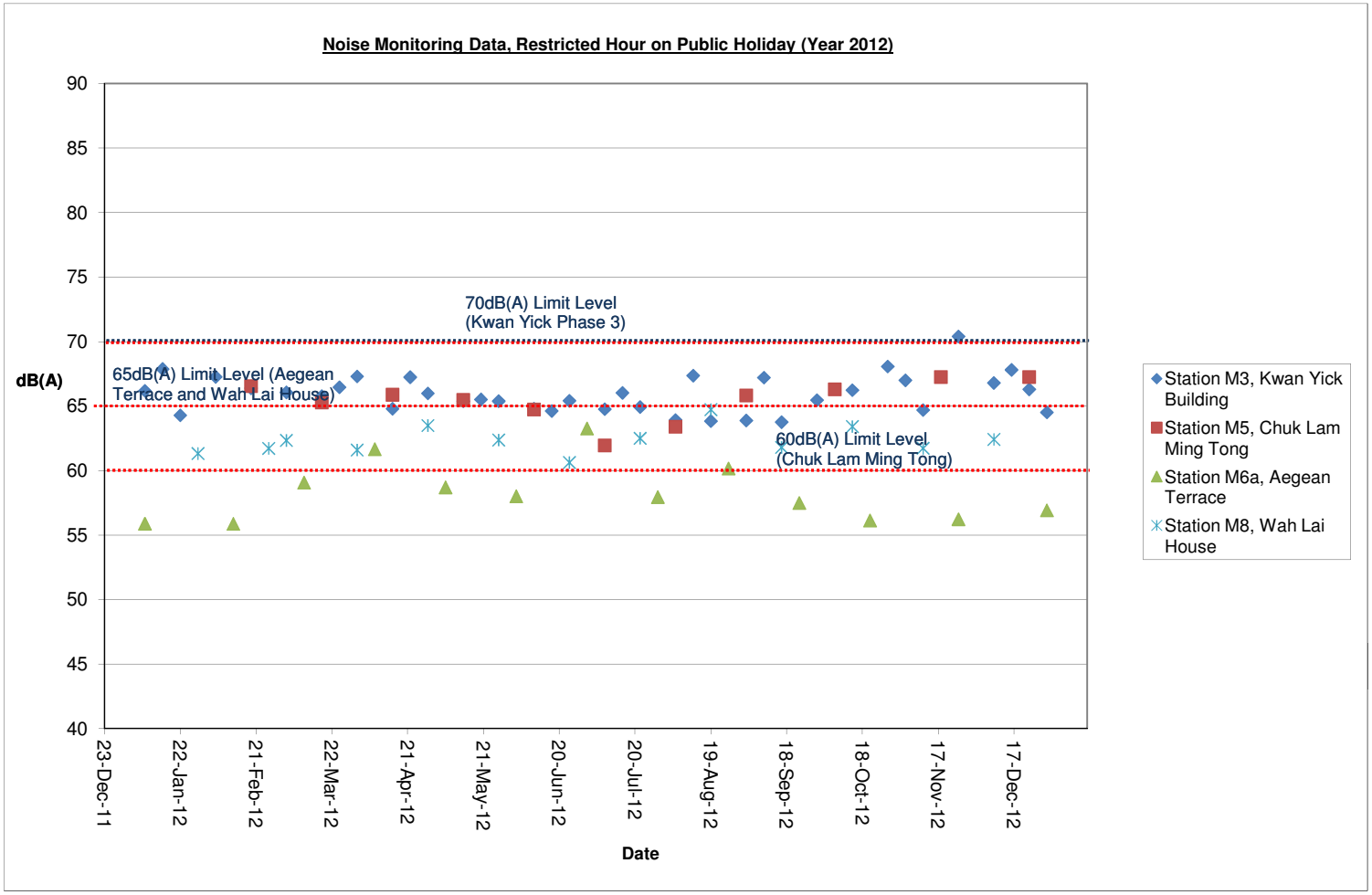

Noise Monitoring Data, Normal Daytime (Year 2011)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
75dB(A) Limit Level
1-Dec-10
31-Dec-10
30-Jan-11
1-Mar-11
31-Mar-11
30-Apr-11
30-May-11
29-Jun-11
29-Jul-11
28-Aug-11
27-Sep-11
27-Oct-11
26-Nov-11
26-Dec-11
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

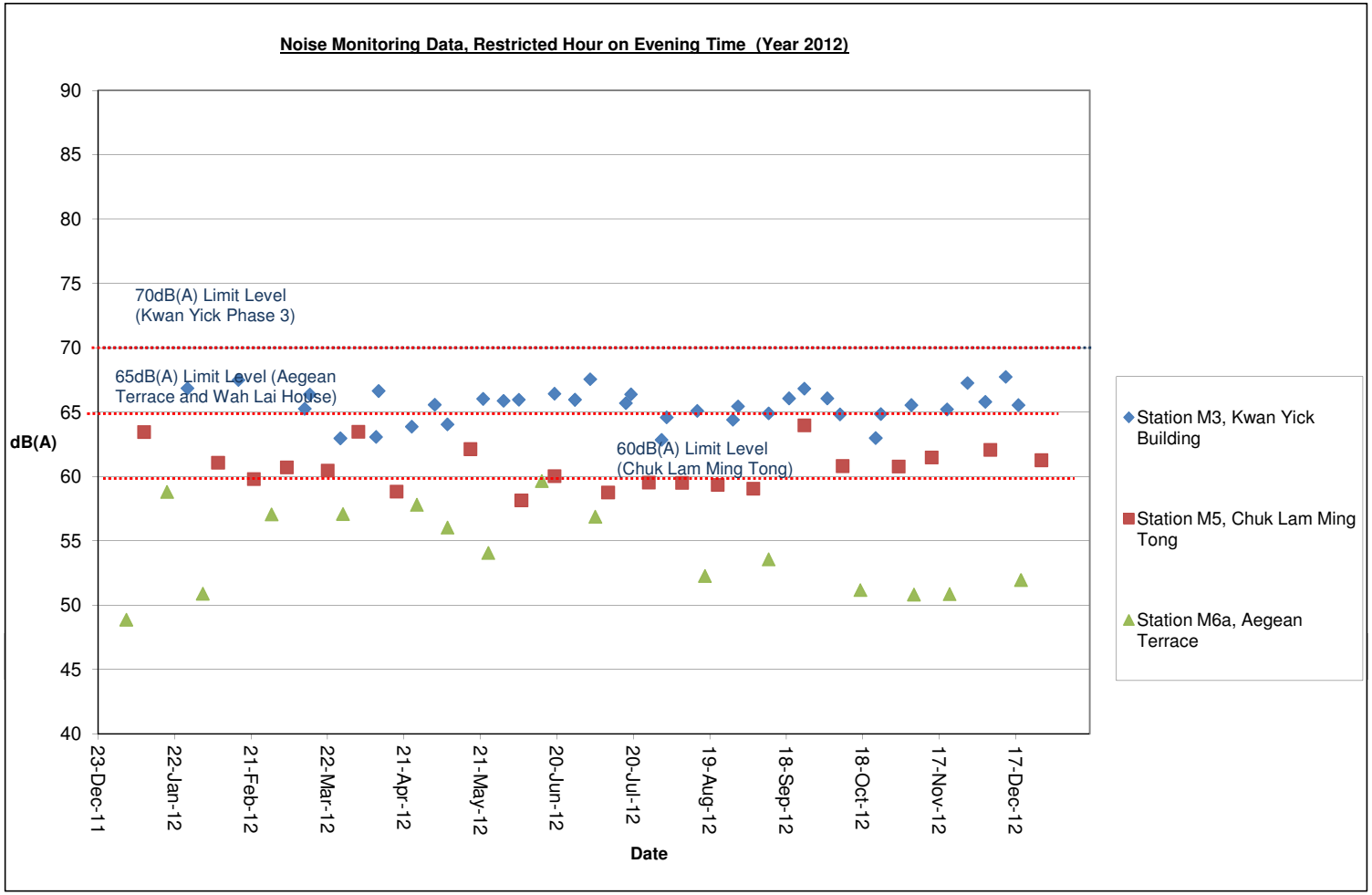

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2011)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
1-Dec-10
31-Dec-10
30-Jan-11
1-Mar-11
31-Mar-11
30-Apr-11
30-May-11
29-Jun-11
29-Jul-11
28-Aug-11
27-Sep-11
27-Oct-11
26-Nov-11
26-Dec-11
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

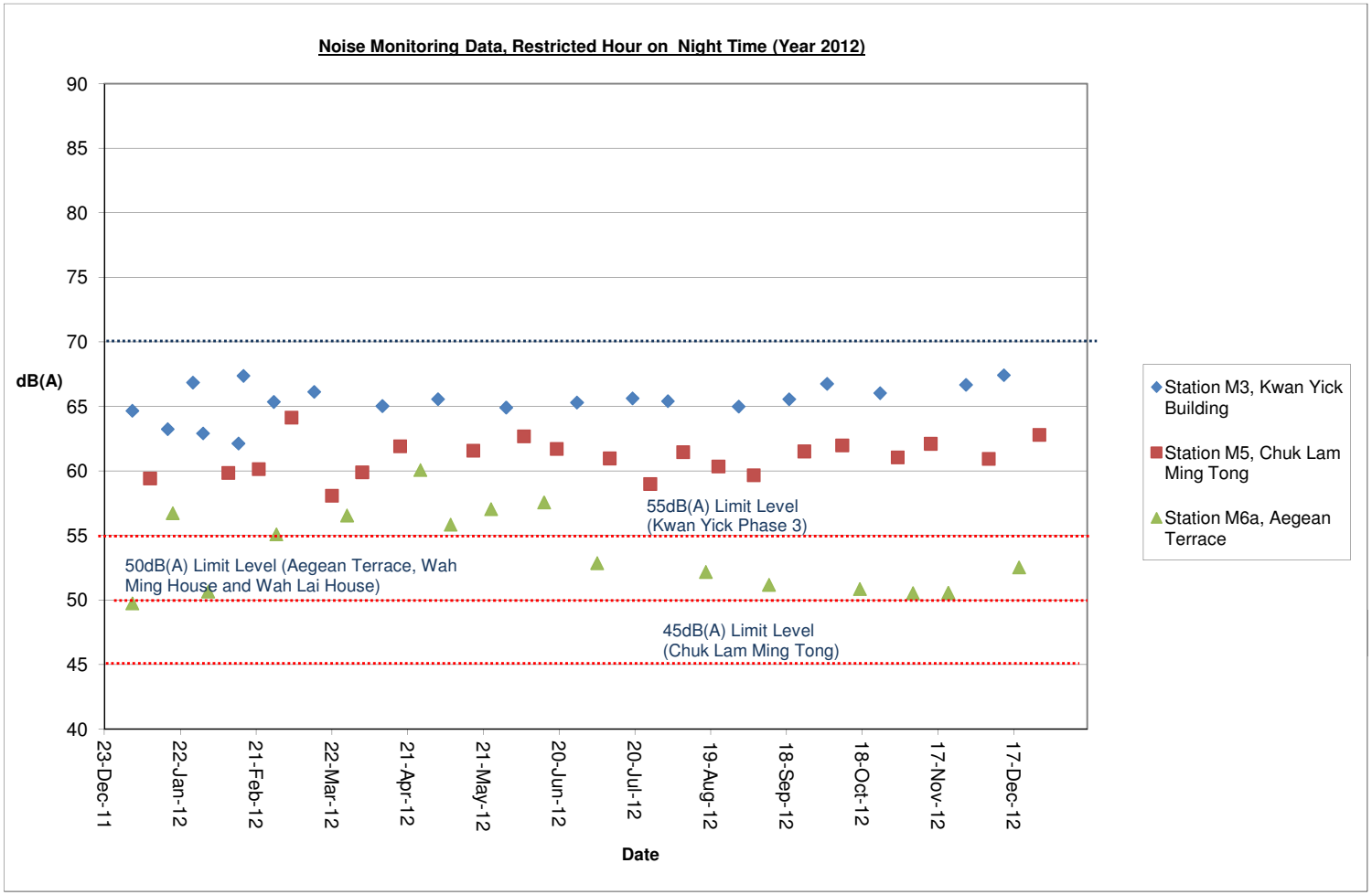

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2011)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level (Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean Terrace and Wah Lai House)
60dB(A) Limit Level (Chuk Lam Ming Tong)
1-Dec-10
31-Dec-10
30-Jan-11
1-Mar-11
31-Mar-11
30-Apr-11
30-May-11
29-Jun-11
29-Jul-11
28-Aug-11
27-Sep-11
27-Oct-11
26-Nov-11
26-Dec-11
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

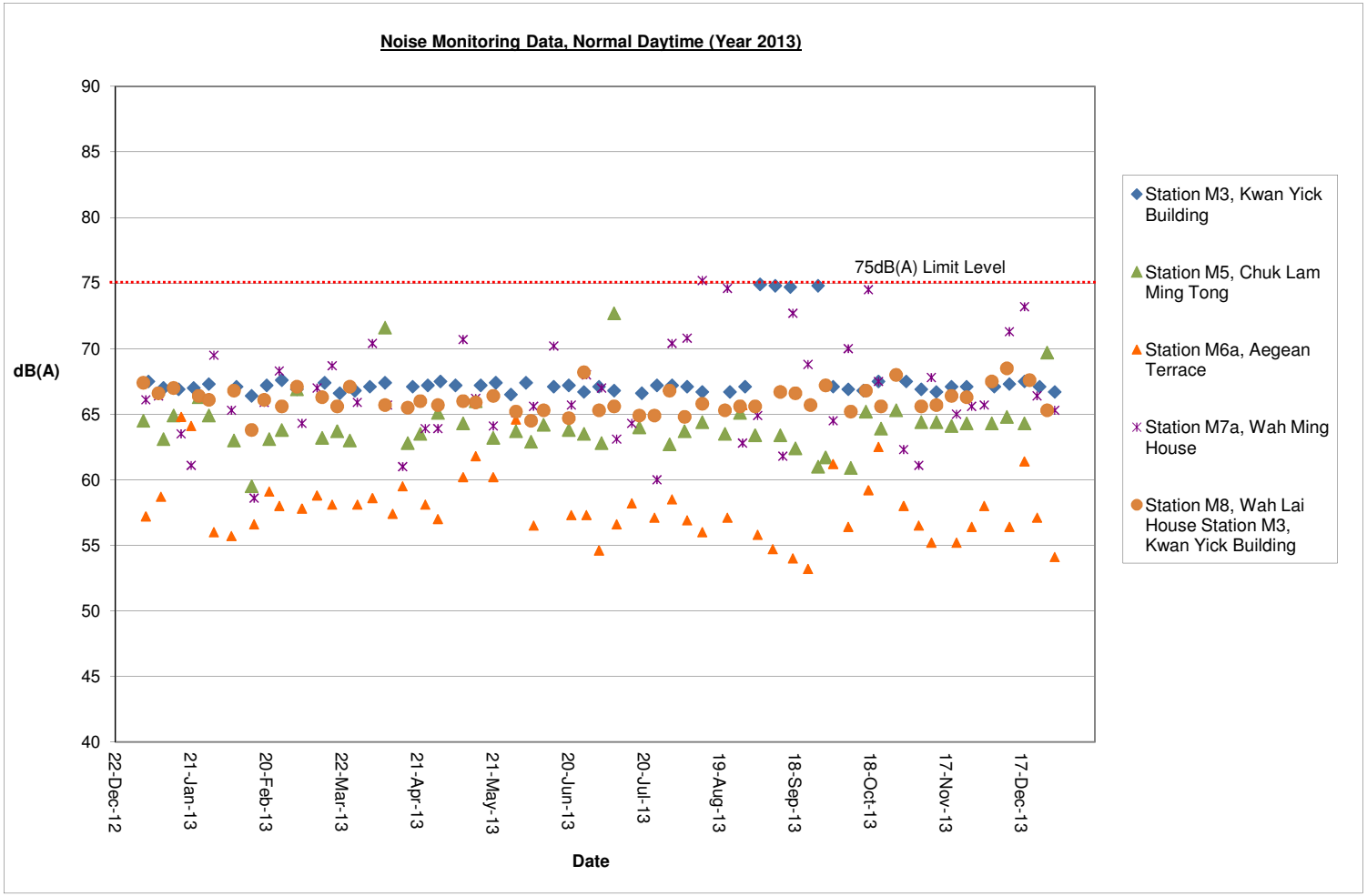

Noise Monitoring Data, Restricted Hour on Night Time (Year 2011)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
55dB(A) Limit Level
(Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace, Wah Ming House and Wah Lai House)
45dB(A) Limit Level
(Chuk Lam Ming Tong)
1-Dec-10
31-Dec-10
30-Jan-11
1-Mar-11
31-Mar-11
30-Apr-11
30-May-11
29-Jun-11
29-Jul-11
28-Aug-11
27-Sep-11
27-Oct-11
26-Nov-11
26-Dec-11
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace

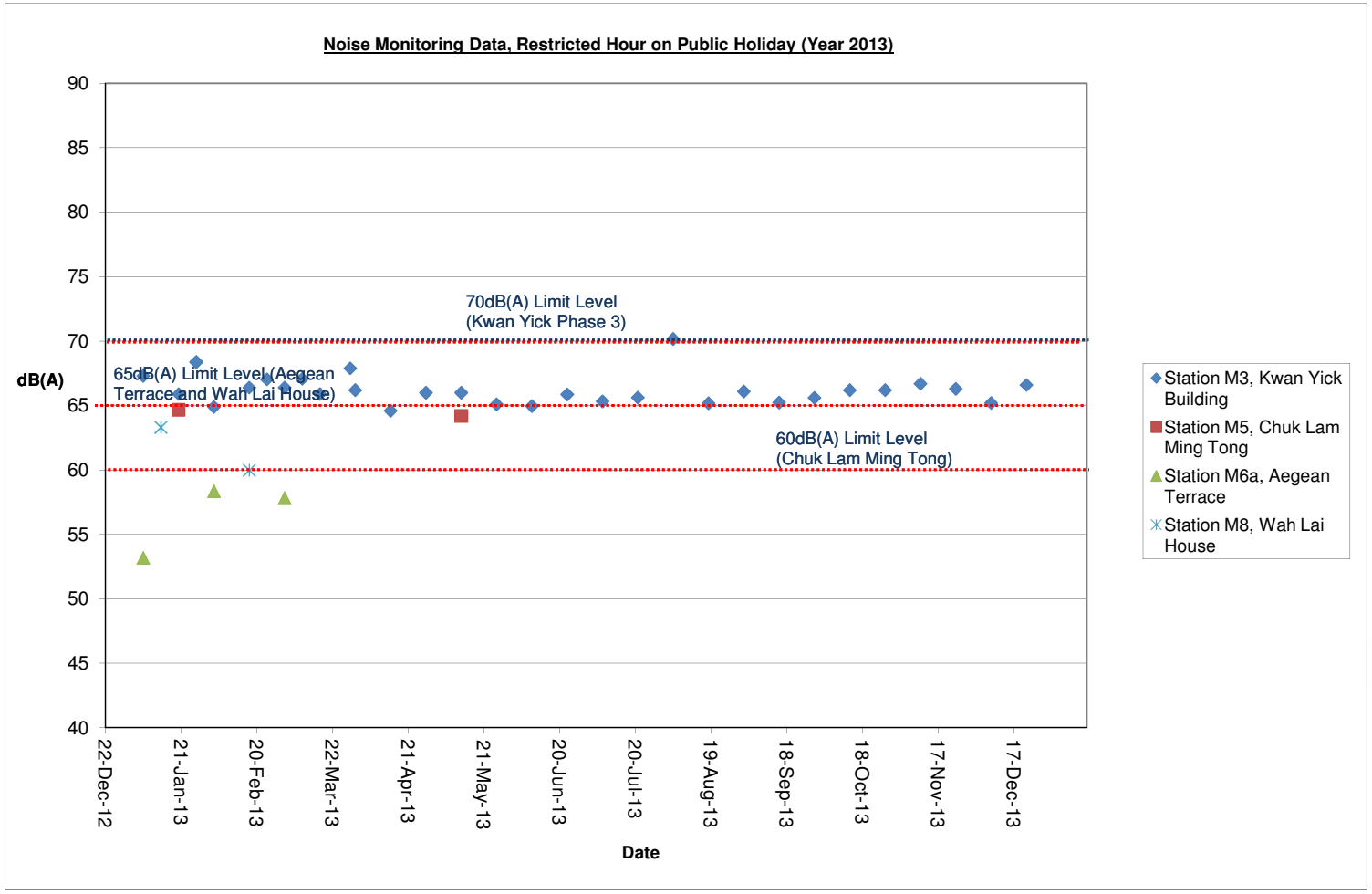

Noise Monitoring Data, Normal Daytime (Year 2012)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
75dB(A) Limit Level
23-Dec-11
22-Jan-12
21-Feb-12
22-Mar-12
21-Apr-12
21-May-12
20-Jun-12
20-Jul-12
19-Aug-12
18-Sep-12
18-Oct-12
17-Nov-12
17-Dec-12
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

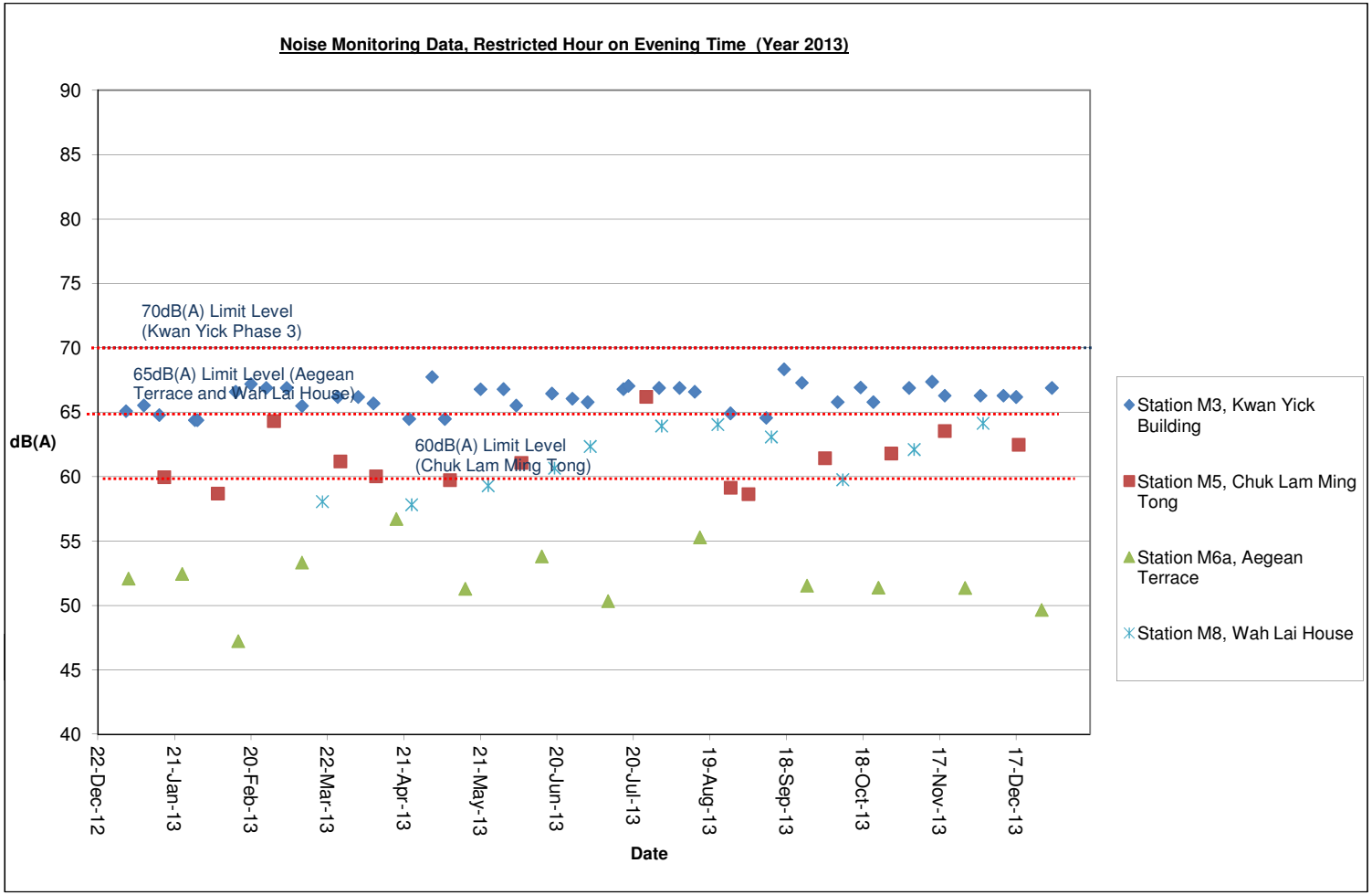

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2012)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
23-Dec-11
22-Jan-12
21-Feb-12
22-Mar-12
21-Apr-12
21-May-12
20-Jun-12
20-Jul-12
19-Aug-12
18-Sep-12
18-Oct-12
17-Nov-12
17-Dec-12
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

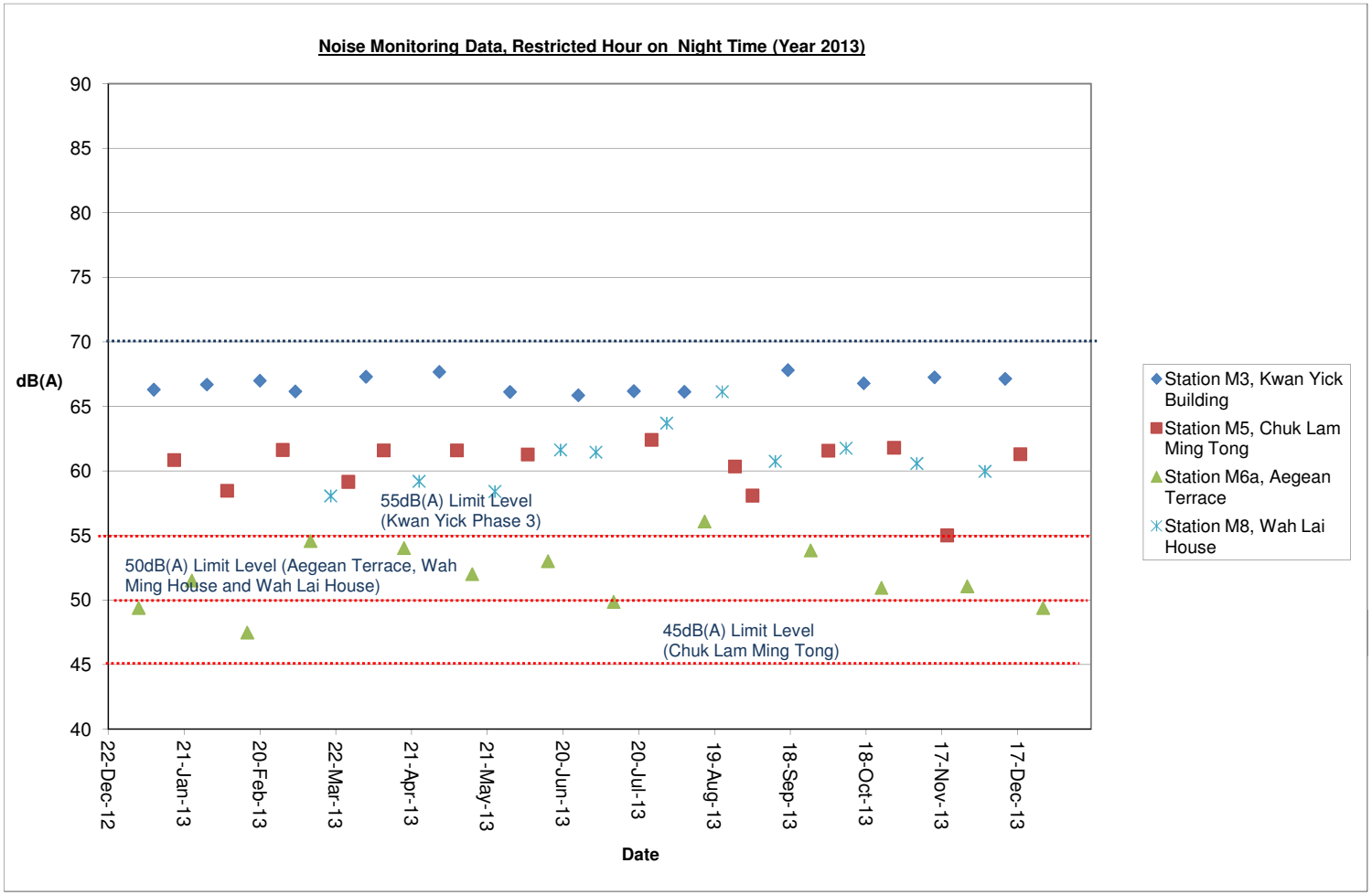

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2012)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
23-Dec-11
22-Jan-12
21-Feb-12
22-Mar-12
21-Apr-12
21-May-12
20-Jun-12
20-Jul-12
19-Aug-12
18-Sep-12
18-Oct-12
17-Nov-12
17-Dec-12
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace

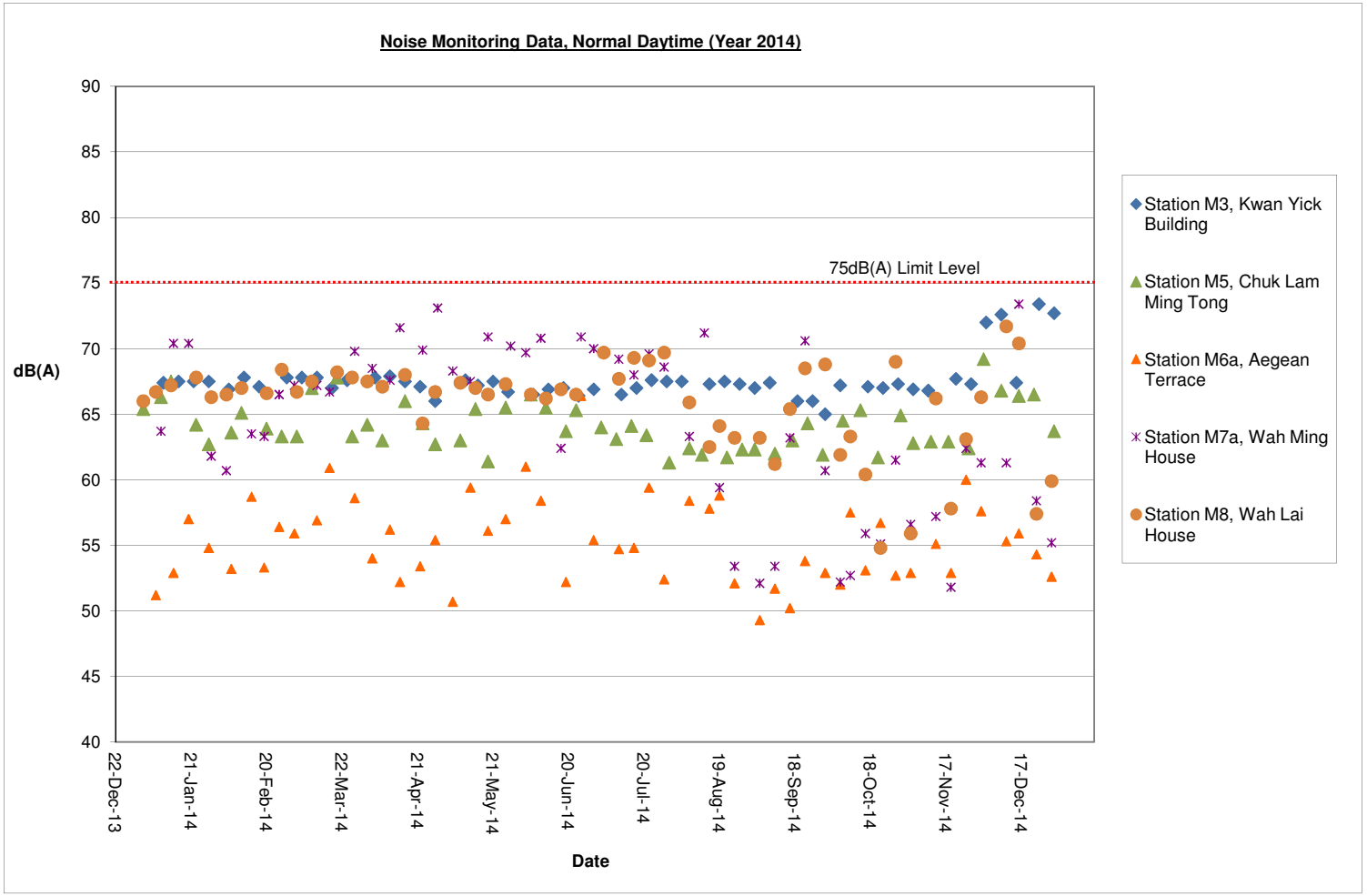

Noise Monitoring Data, Restricted Hour on Night Time (Year 2012)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
55dB(A) Limit Level
(Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace, Wah Ming House and Wah Lai House)
45dB(A) Limit Level
(Chuk Lam Ming Tong)
23-Dec-11
22-Jan-12
21-Feb-12
22-Mar-12
21-Apr-12
21-May-12
20-Jun-12
20-Jul-12
19-Aug-12
18-Sep-12
18-Oct-12
17-Nov-12
17-Dec-12
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace

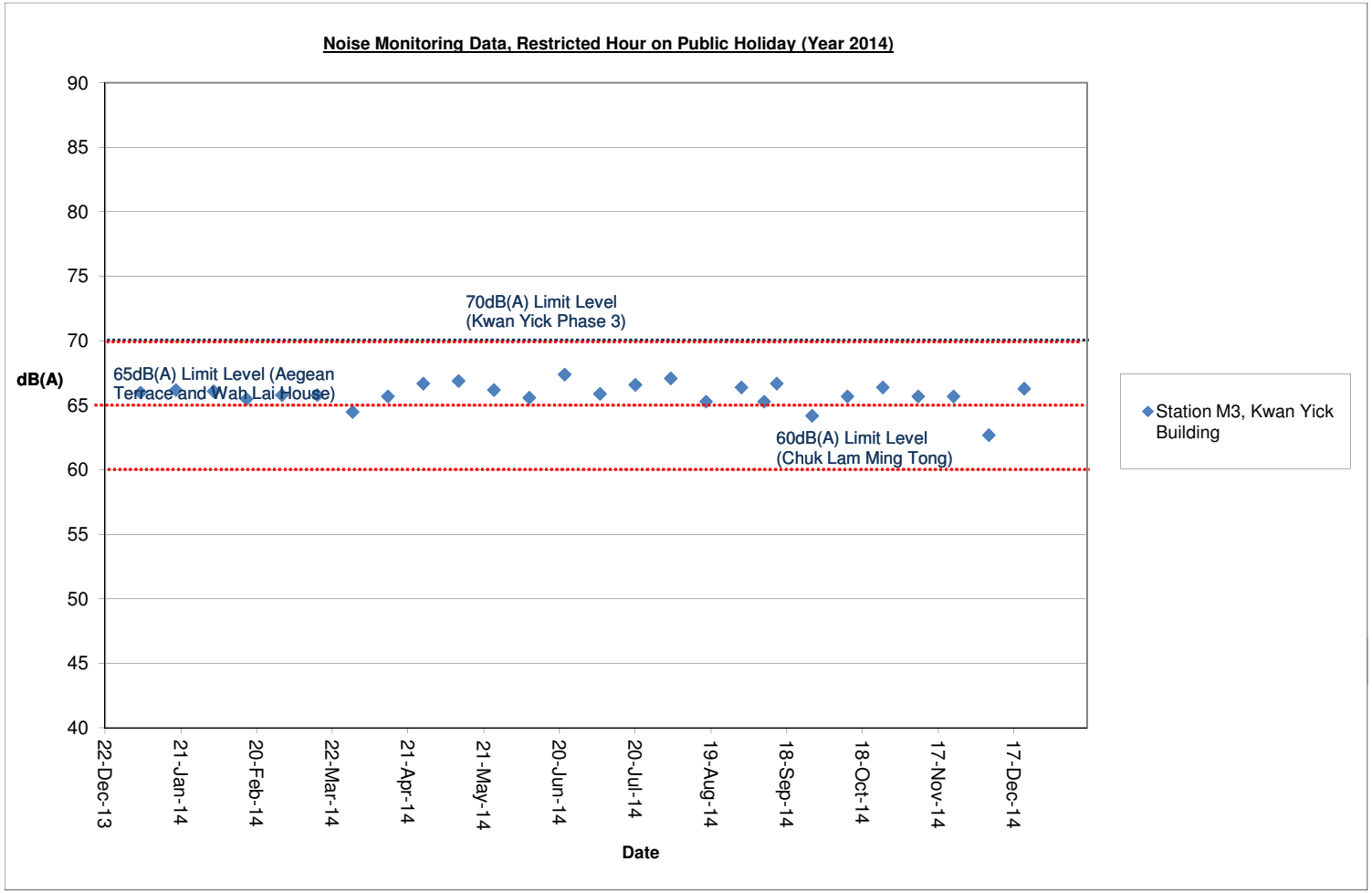

Noise Monitoring Data, Normal Daytime (Year 2013)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
75dB(A) Limit Level
22-Dec-12
21-Jan-13
20-Feb-13
22-Mar-13
21-Apr-13
21-May-13
20-Jun-13
20-Jul-13
19-Aug-13
18-Sep-13
18-Oct-13
17-Nov-13
17-Dec-13
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House Station M3, Kwan Yick Building

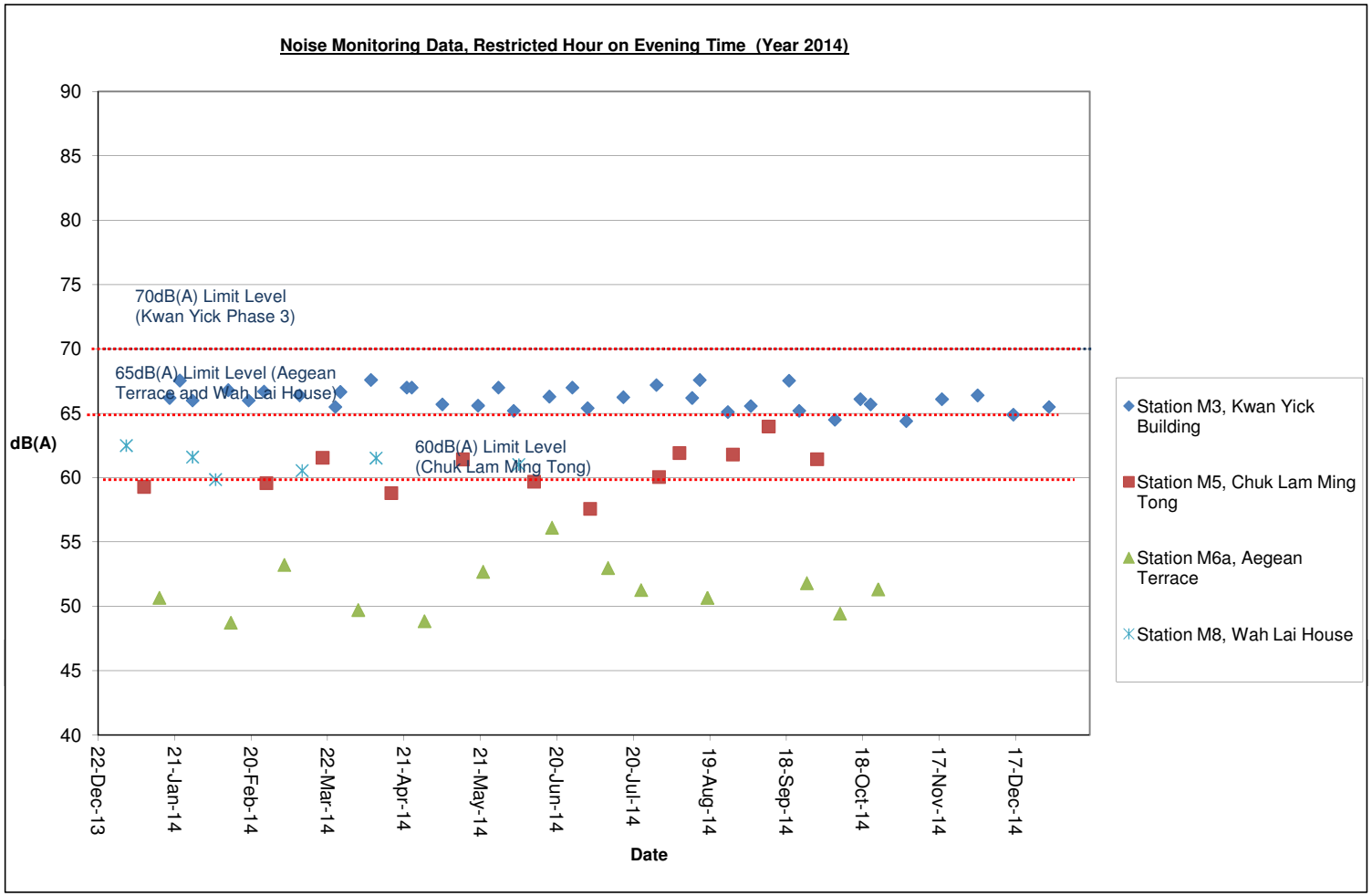

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2013)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
22-Dec-12
21-Jan-13
20-Feb-13
22-Mar-13
21-Apr-13
21-May-13
20-Jun-13
20-Jul-13
19-Aug-13
18-Sep-13
18-Oct-13
17-Nov-13
17-Dec-13
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

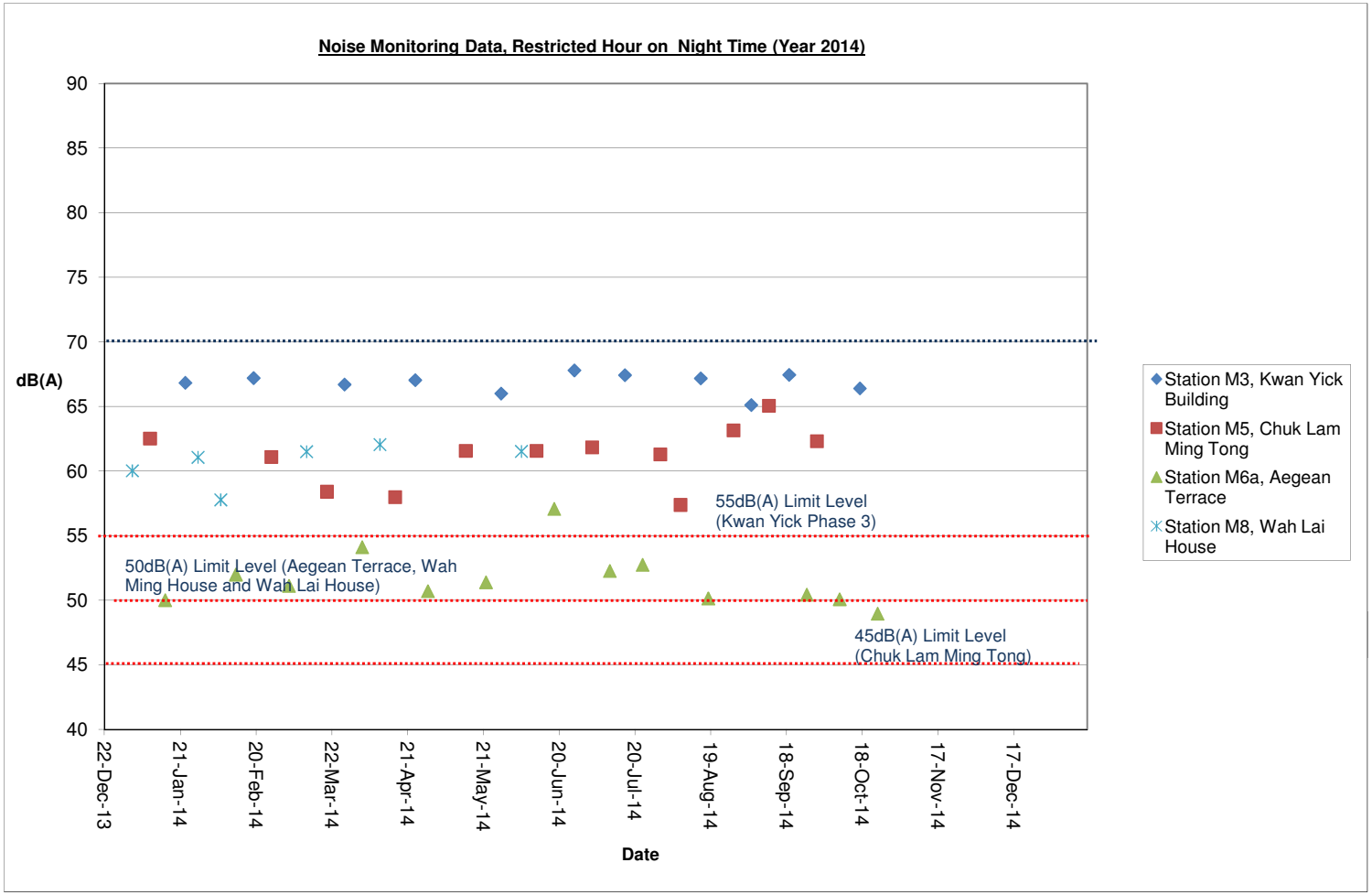

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2013)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
22-Dec-12
21-Jan-13
20-Feb-13
22-Mar-13
21-Apr-13
21-May-13
20-Jun-13
20-Jul-13
19-Aug-13
18-Sep-13
18-Oct-13
17-Nov-13
17-Dec-13
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

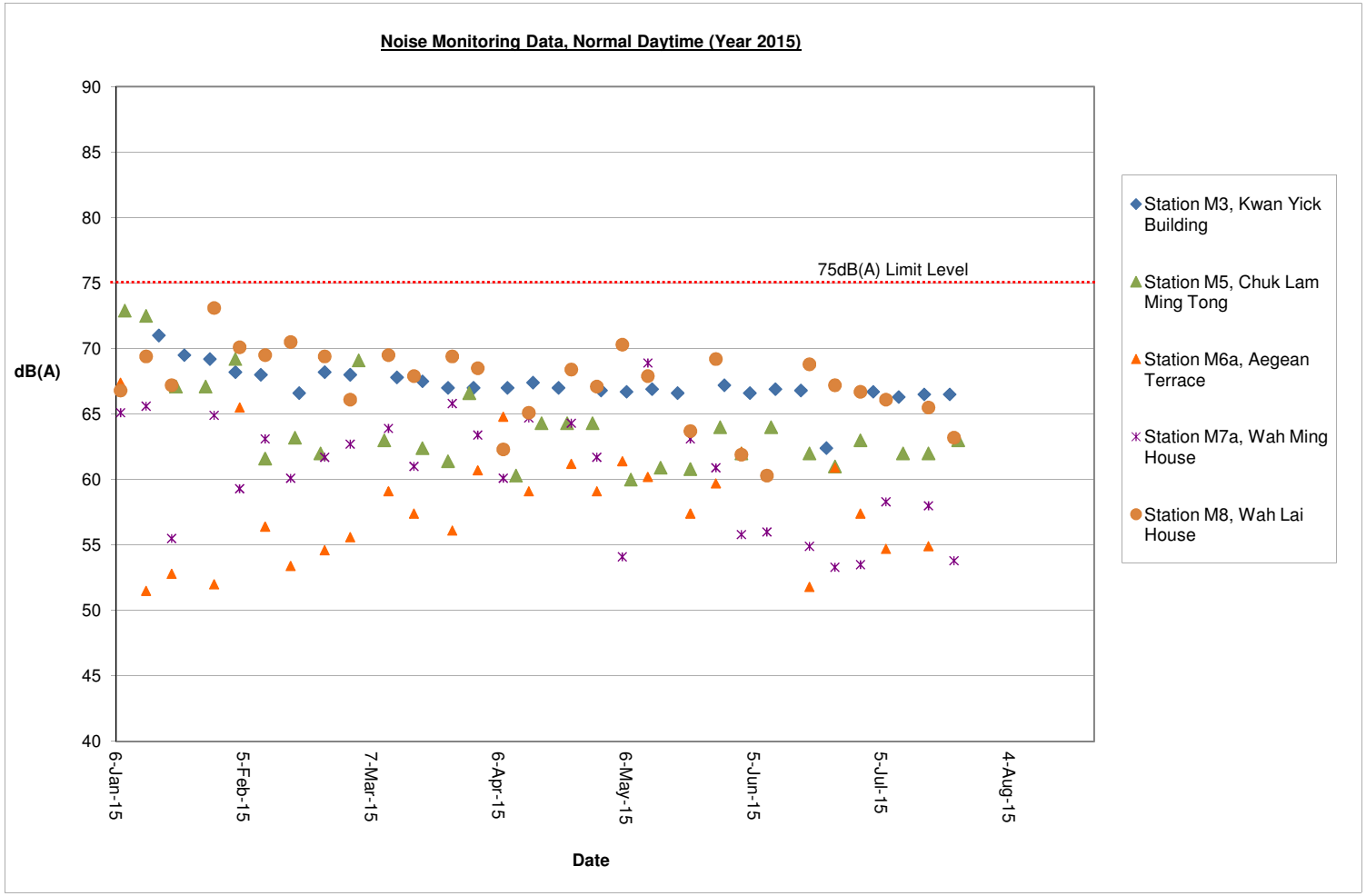

Noise Monitoring Data, Restricted Hour on Night Time (Year 2013)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
55dB(A) Limit Level
(Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace, Wah Ming House and Wah Lai House)
45dB(A) Limit Level
(Chuk Lam Ming Tong)
22-Dec-12
21-Jan-13
20-Feb-13
22-Mar-13
21-Apr-13
21-May-13
20-Jun-13
20-Jul-13
19-Aug-13
18-Sep-13
18-Oct-13
17-Nov-13
17-Dec-13
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House

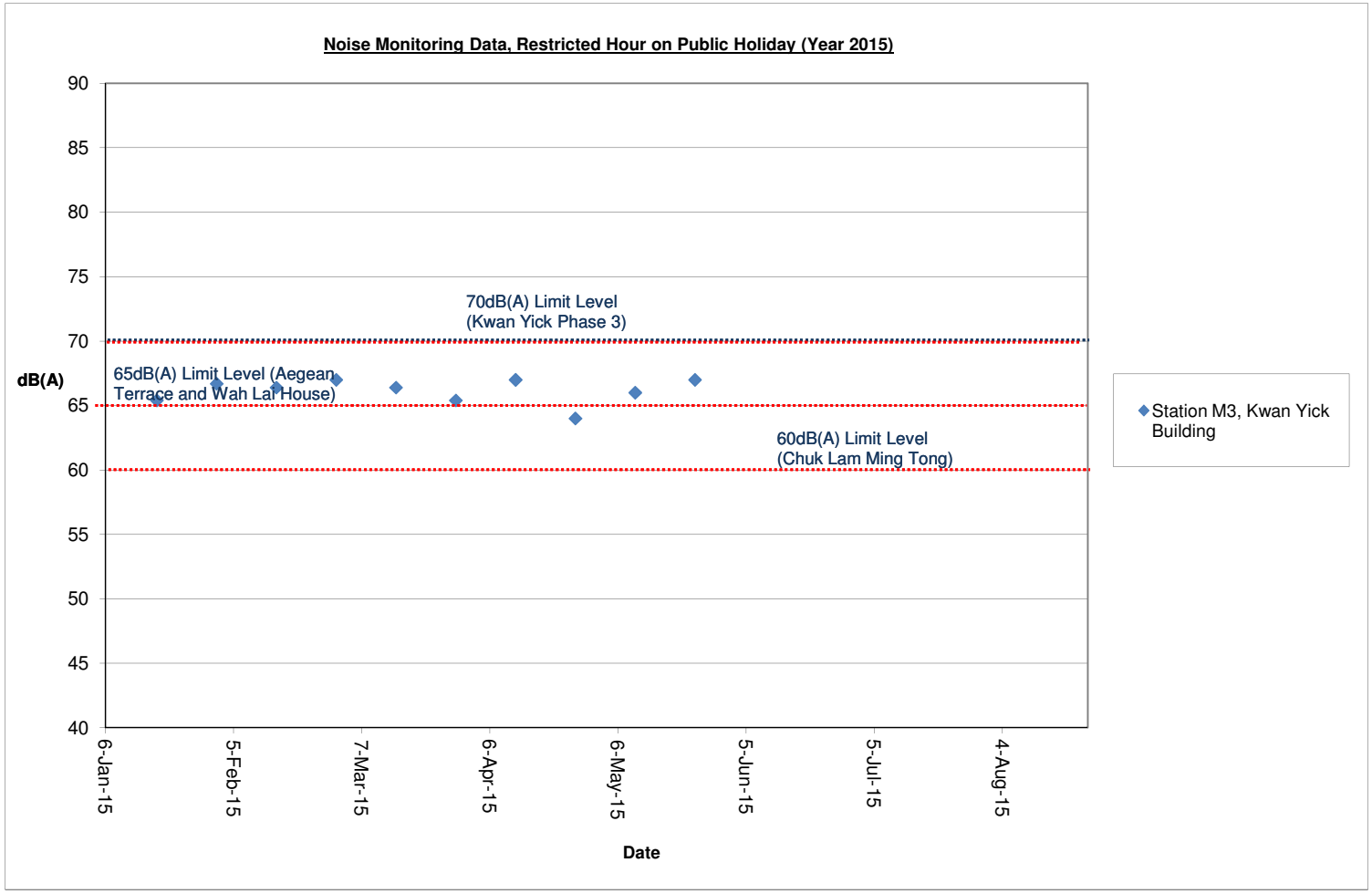

Noise Monitoring Data, Normal Daytime (Year 2014)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
75dB(A) Limit Level
22-Dec-13
21-Jan-14
20-Feb-14
22-Mar-14
21-Apr-14
21-May-14
20-Jun-14
20-Jul-14
19-Aug-14
18-Sep-14
18-Oct-14
17-Nov-14
17-Dec-14
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

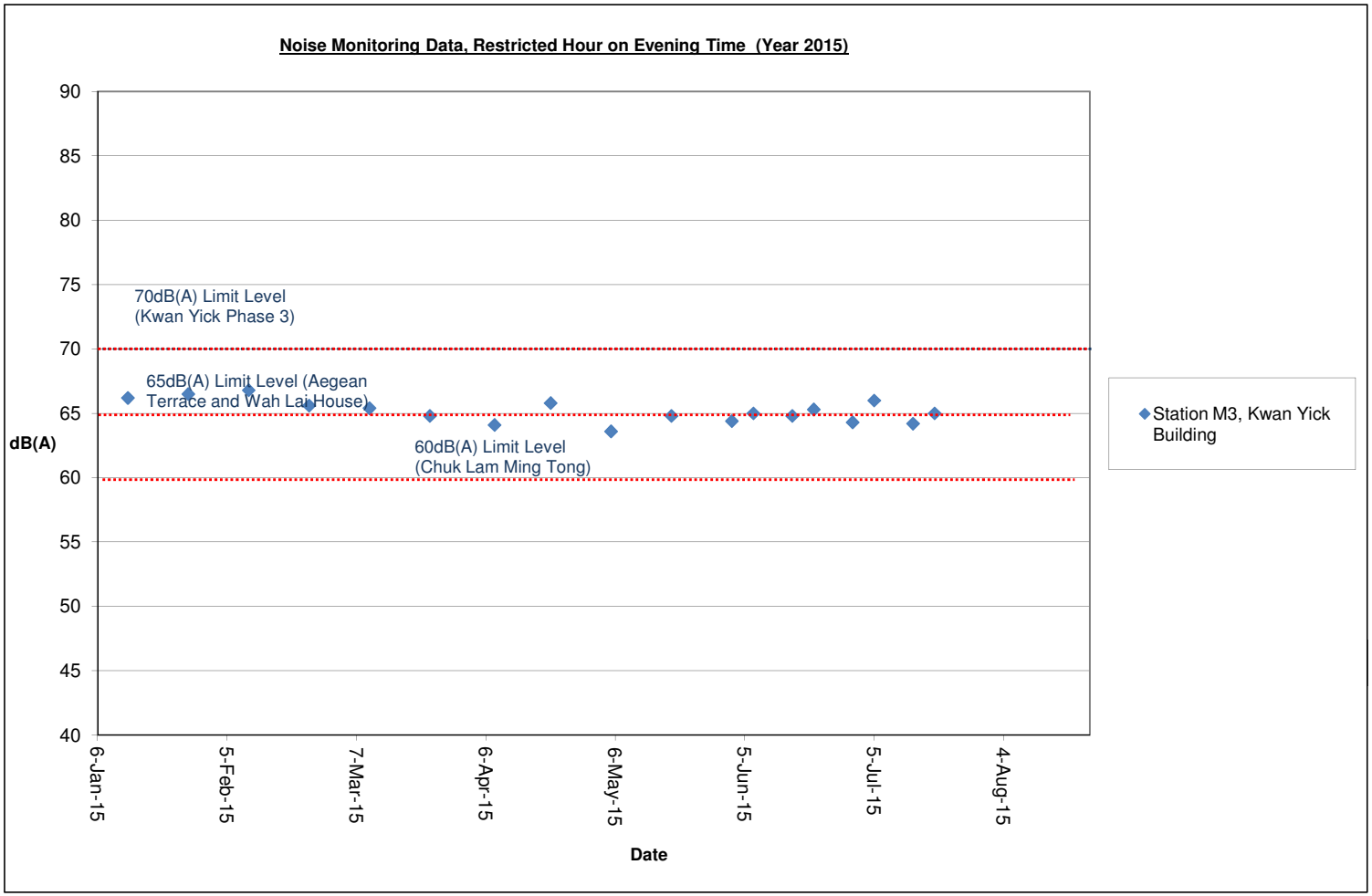

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2014)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
22-Dec-13
21-Jan-14
20-Feb-14
22-Mar-14
21-Apr-14
21-May-14
20-Jun-14
20-Jul-14
19-Aug-14
18-Sep-14
18-Oct-14
17-Nov-14
17-Dec-14
Date
Station M3, Kwan Yick
Building

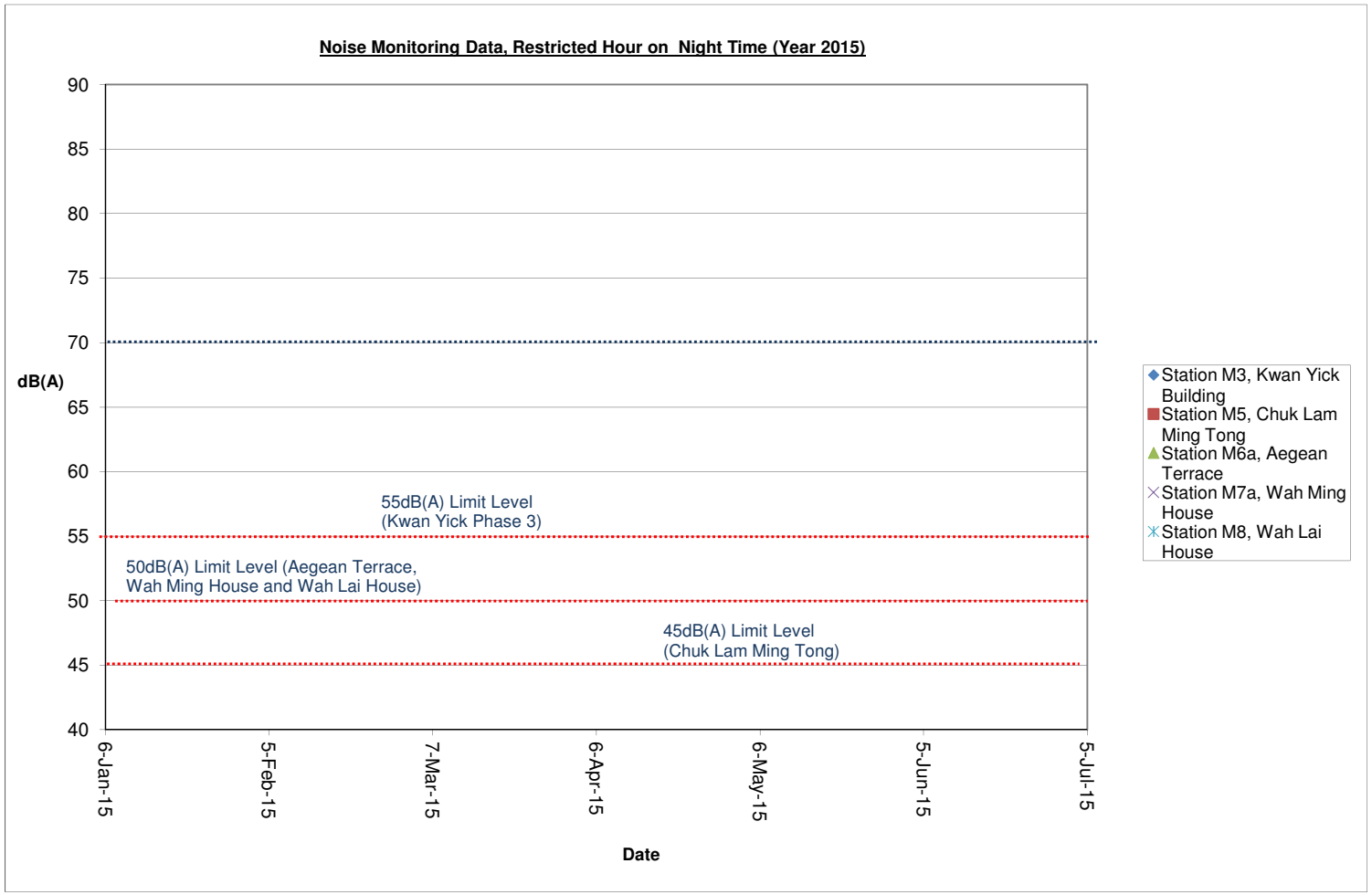

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2014)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
22-Dec-13
21-Jan-14
20-Feb-14
22-Mar-14
21-Apr-14
21-May-14
20-Jun-14
20-Jul-14
19-Aug-14
18-Sep-14
18-Oct-14
17-Nov-14
17-Dec-14
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House


Noise Monitoring Data, Restricted Hour on Night Time (Year 2014)
dB(A)
90
85
80
75
70
65
60
55
50
45
40
22-Dec-13
21-Jan-14
20-Feb-14
22-Mar-14
21-Apr-14
21-May-14
20-Jun-14
20-Jul-14
19-Aug-14
18-Sep-14
18-Oct-14
17-Nov-14
17-Dec-14
Date
55dB(A) Limit Level (Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace, Wah Ming House and Wah Lai House)
45dB(A) Limit Level (Chuk Lam Ming Tong)
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M8, Wah Lai House


Noise Monitoring Data, Normal Daytime (Year 2015)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
75dB(A) Limit Level
6-Jan-15
5-Feb-15
7-Mar-15
6-Apr-15
6-May-15
5-Jun-15
5-Jul-15
4-Aug-15
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

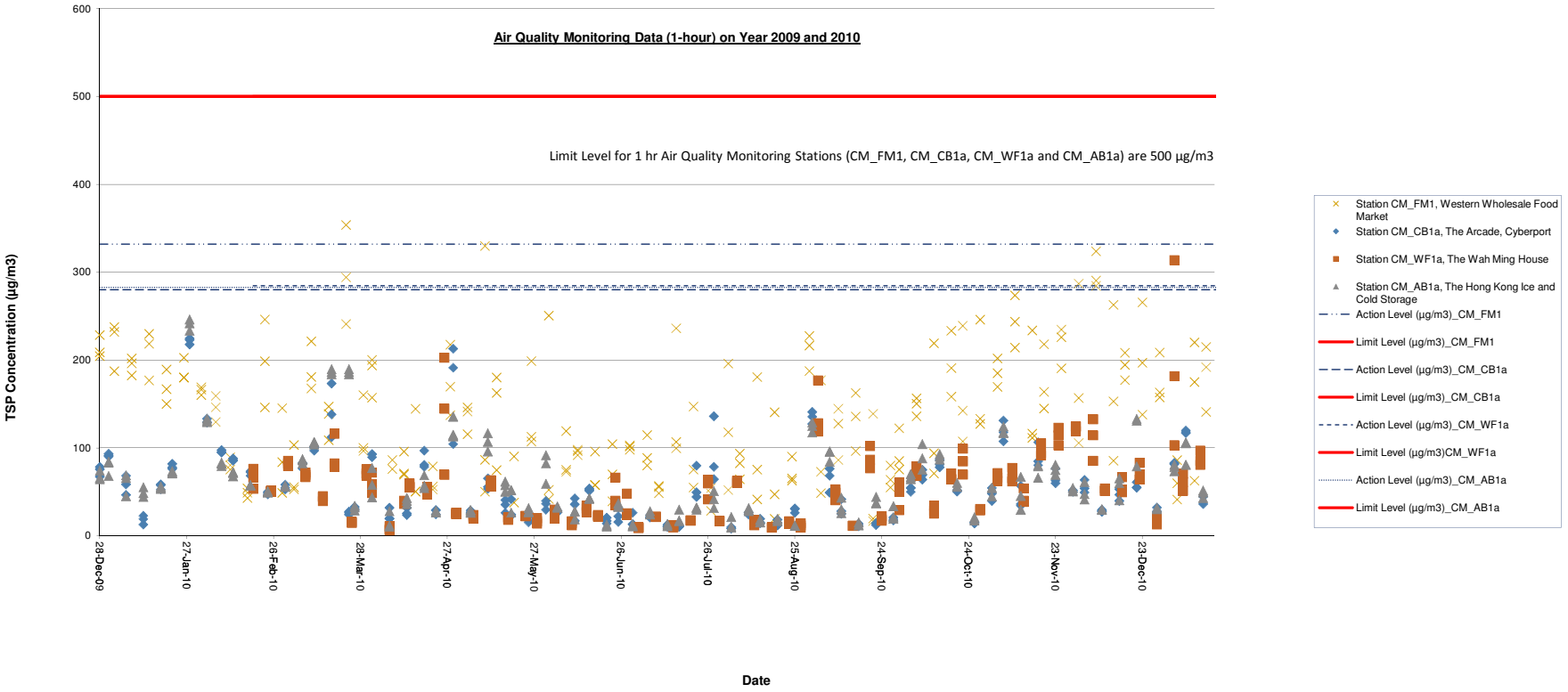

Noise Monitoring Data, Restricted Hour on Public Holiday (Year 2015)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
6-Jan-15
5-Feb-15
7-Mar-15
6-Apr-15
6-May-15
5-Jun-15
5-Jul-15
4-Aug-15
Date
Station M3, Kwan Yick
Building

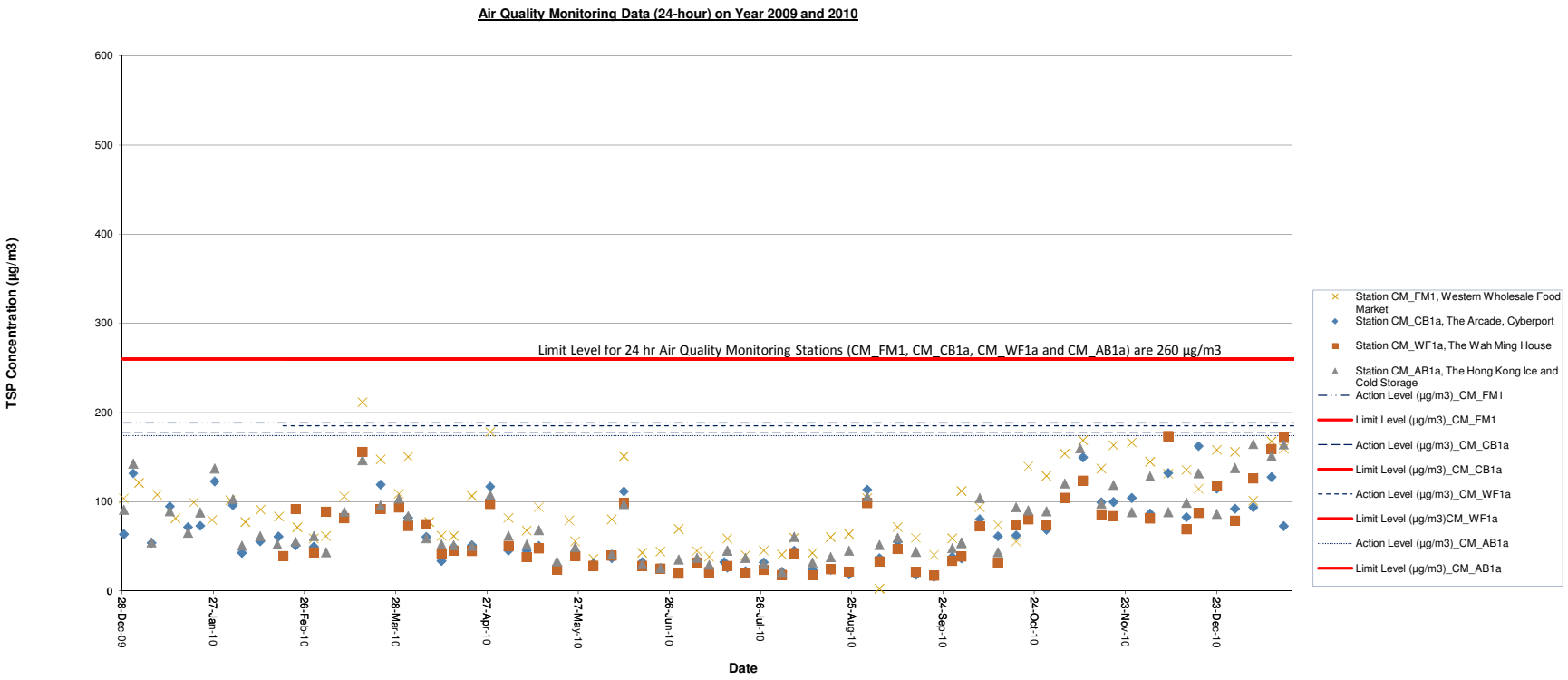

Noise Monitoring Data, Restricted Hour on Evening Time (Year 2015)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
70dB(A) Limit Level
(Kwan Yick Phase 3)
65dB(A) Limit Level (Aegean
Terrace and Wah Lai House)
60dB(A) Limit Level
(Chuk Lam Ming Tong)
6-Jan-15
5-Feb-15
7-Mar-15
6-Apr-15
6-May-15
5-Jun-15
5-Jul-15
4-Aug-15
Date
Station M3, Kwan Yick
Building

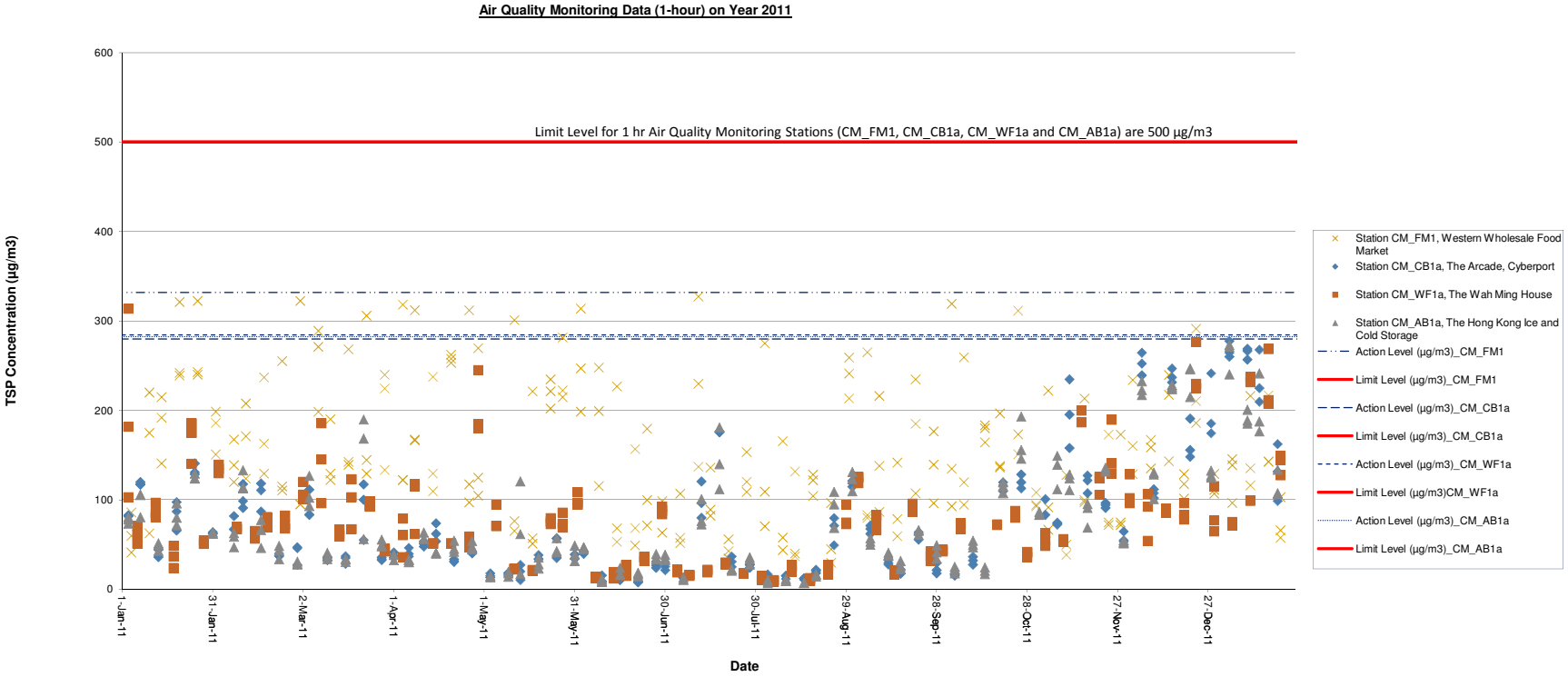

Noise Monitoring Data, Restricted Hour on Night Time (Year 2015)
90
85
80
75
70
65
60
55
50
45
40
dB(A)
55dB(A) Limit Level
(Kwan Yick Phase 3)
50dB(A) Limit Level (Aegean Terrace,
Wah Ming House and Wah Lai House)
45dB(A) Limit Level
(Chuk Lam Ming Tong)
6-Jan-15
5-Feb-15
7-Mar-15
6-Apr-15
6-May-15
5-Jun-15
5-Jul-15
Date
Station M3, Kwan Yick Building
Station M5, Chuk Lam Ming Tong
Station M6a, Aegean Terrace
Station M7a, Wah Ming House
Station M8, Wah Lai House

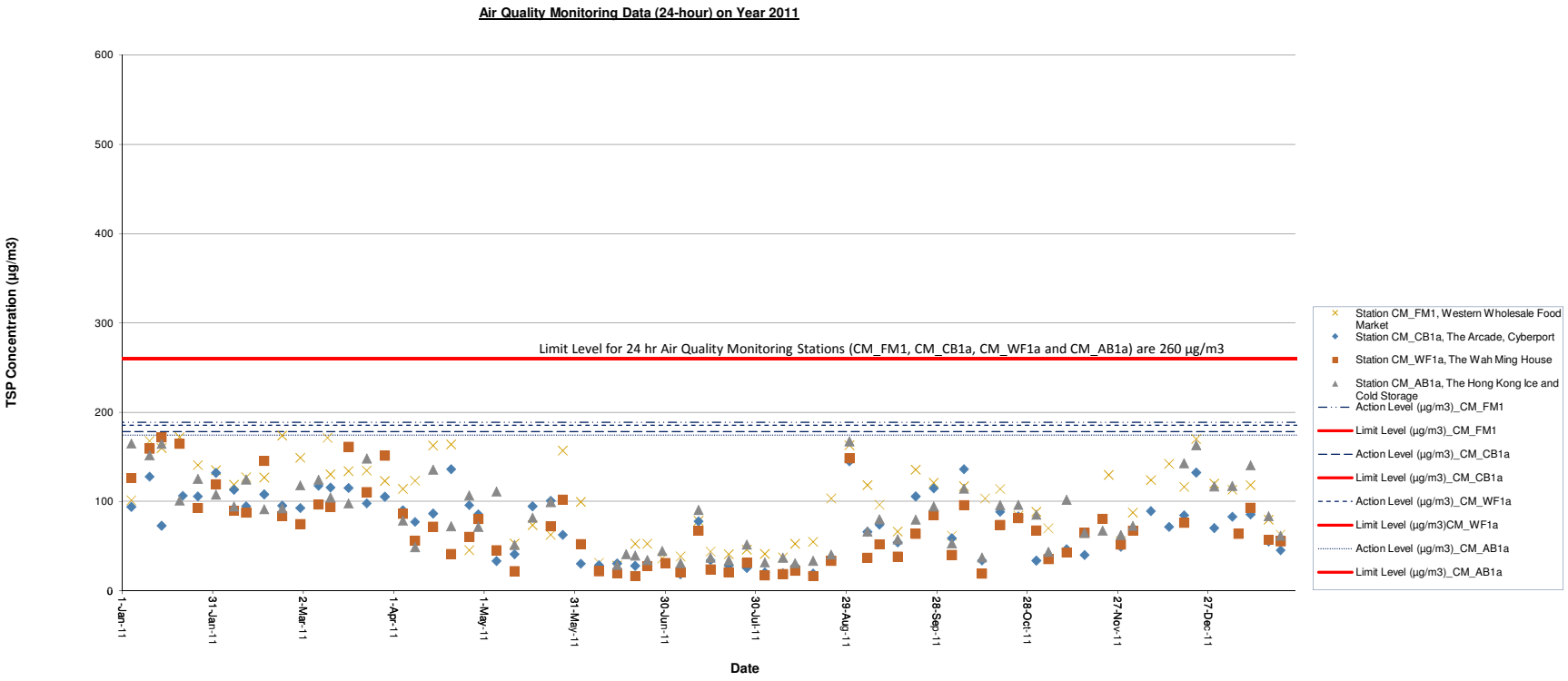
APPENDIX F

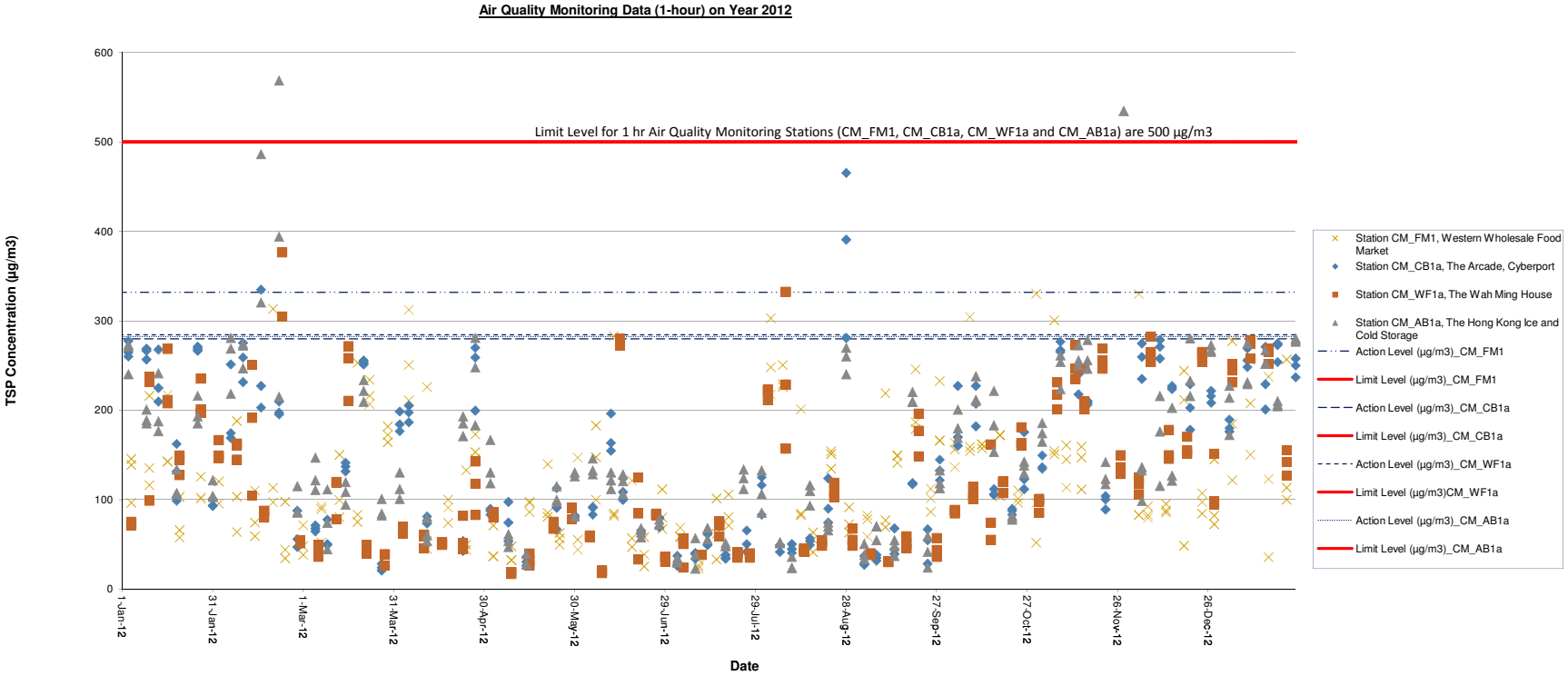
GRAPHICAL PRESENTATION OF AIR QUALITY MONITORING DATA

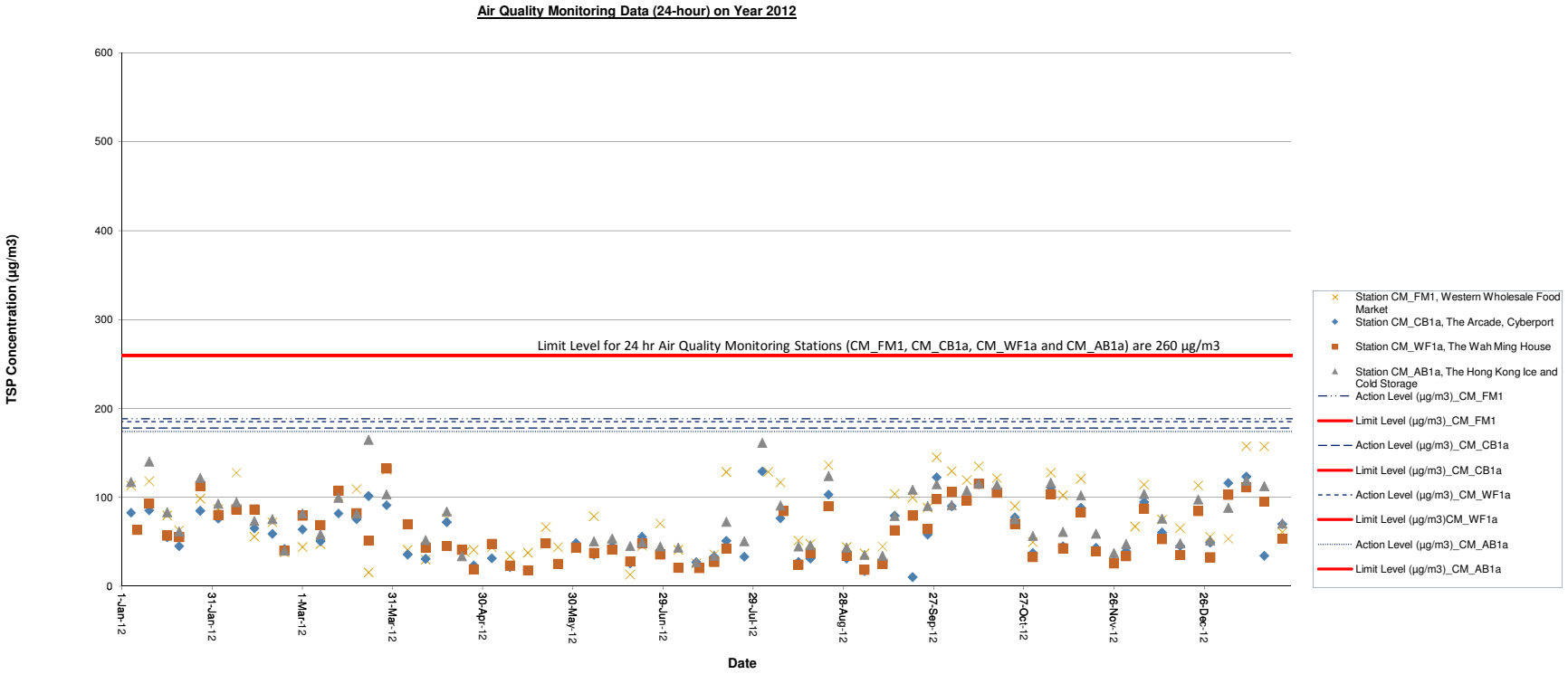

Air Quality Monitoring Data (1-hour) on Year 2009 and 2010
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
28-Dec-09
27-Jan-10
28-Feb-10
28-Mar-10
27-Apr-10
27-May-10
26-Jun-10
26-Jul-10
25-Aug-10
24-Sep-10
24-Oct-10
23-Nov-10
23-Dec-10
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

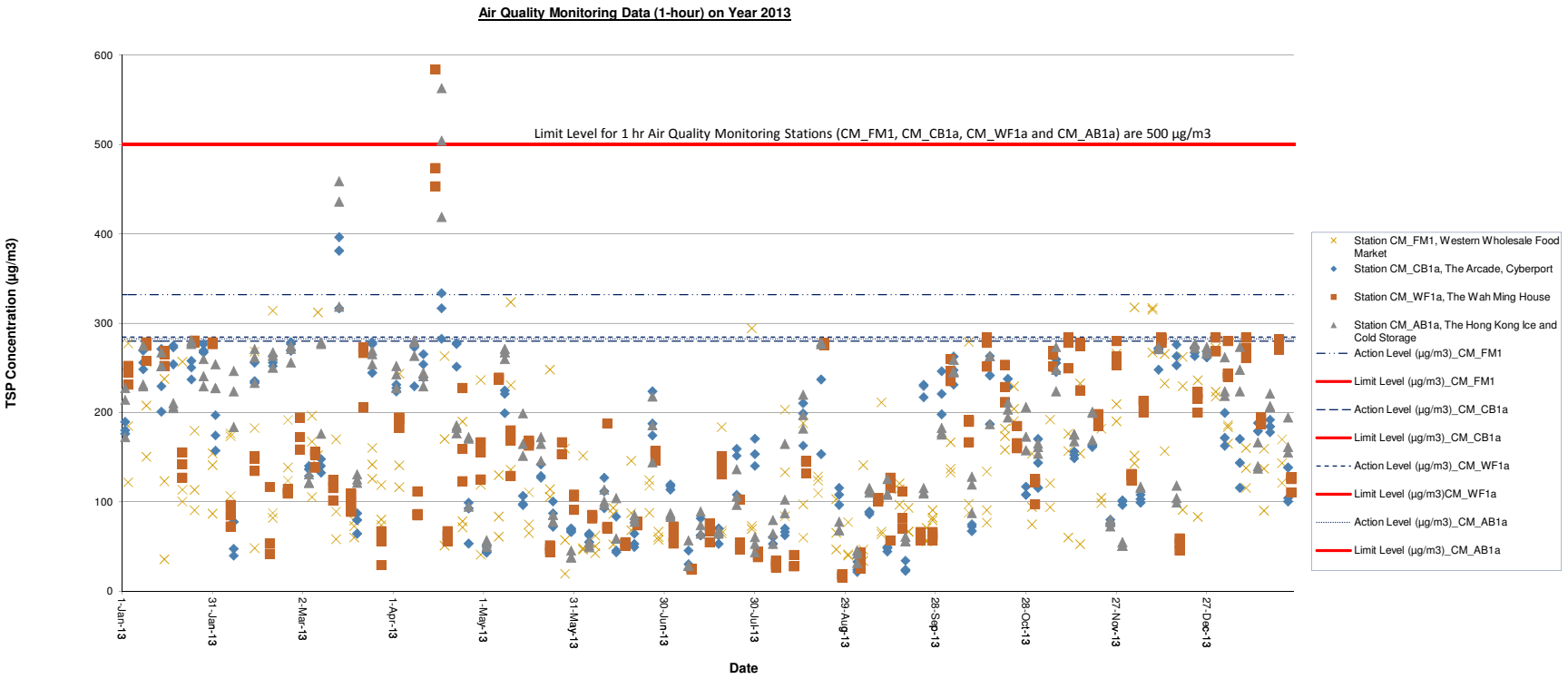

Air Quality Monitoring Data (24-hour) on Year 2009 and 2010
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
28-Dec-09
27-Jan-10
26-Feb-10
28-Mar-10
27-Apr-10
27-May-10
26-Jun-10
26-Jul-10
25-Aug-10
24-Sep-10
24-Oct-10
23-Nov-10
23-Dec-10
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

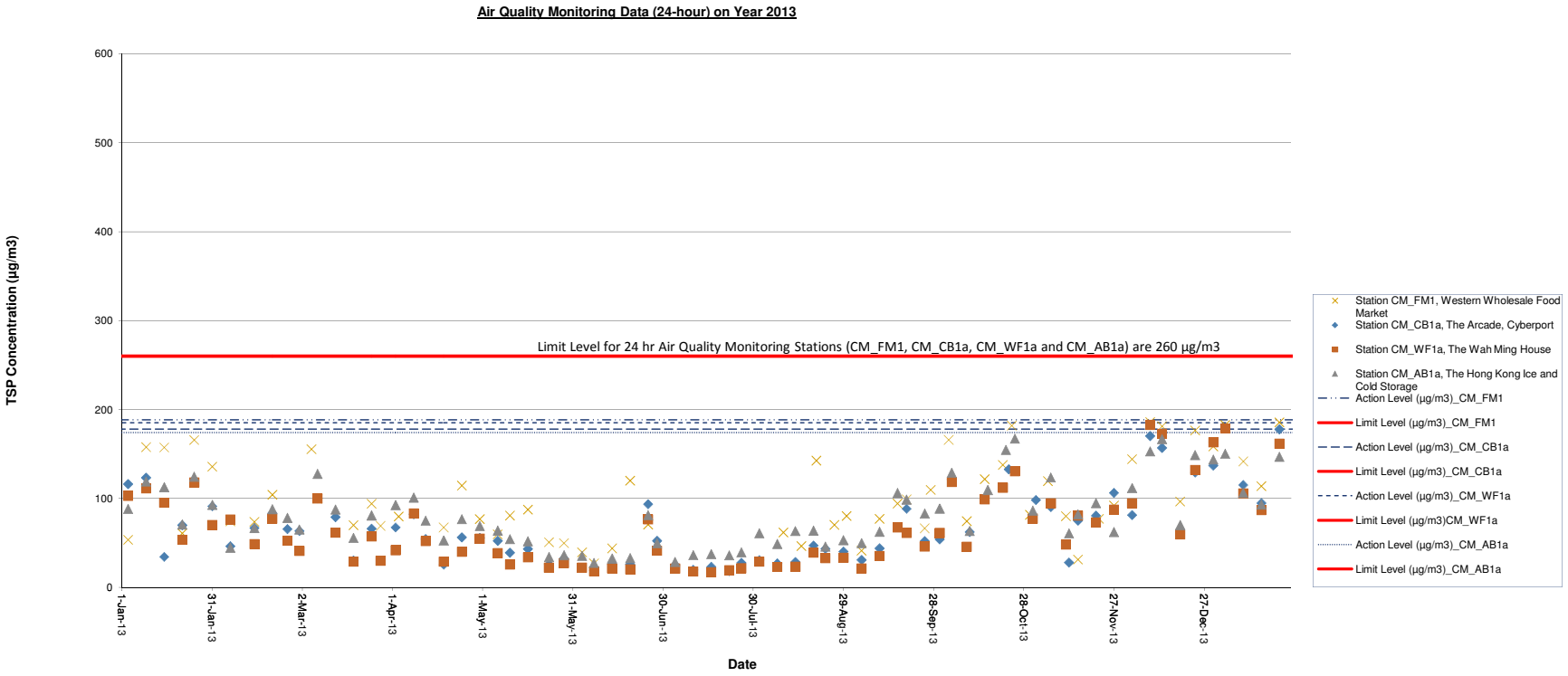

Air Quality Monitoring Data (1-hour) on Year 2011
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
1-Jan-11
31-Jan-11
2-Mar-11
1-Apr-11
1-May-11
31-May-11
30-Jun-11
30-Jul-11
29-Aug-11
28-Sep-11
28-Oct-11
27-Nov-11
27-Dec-11
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

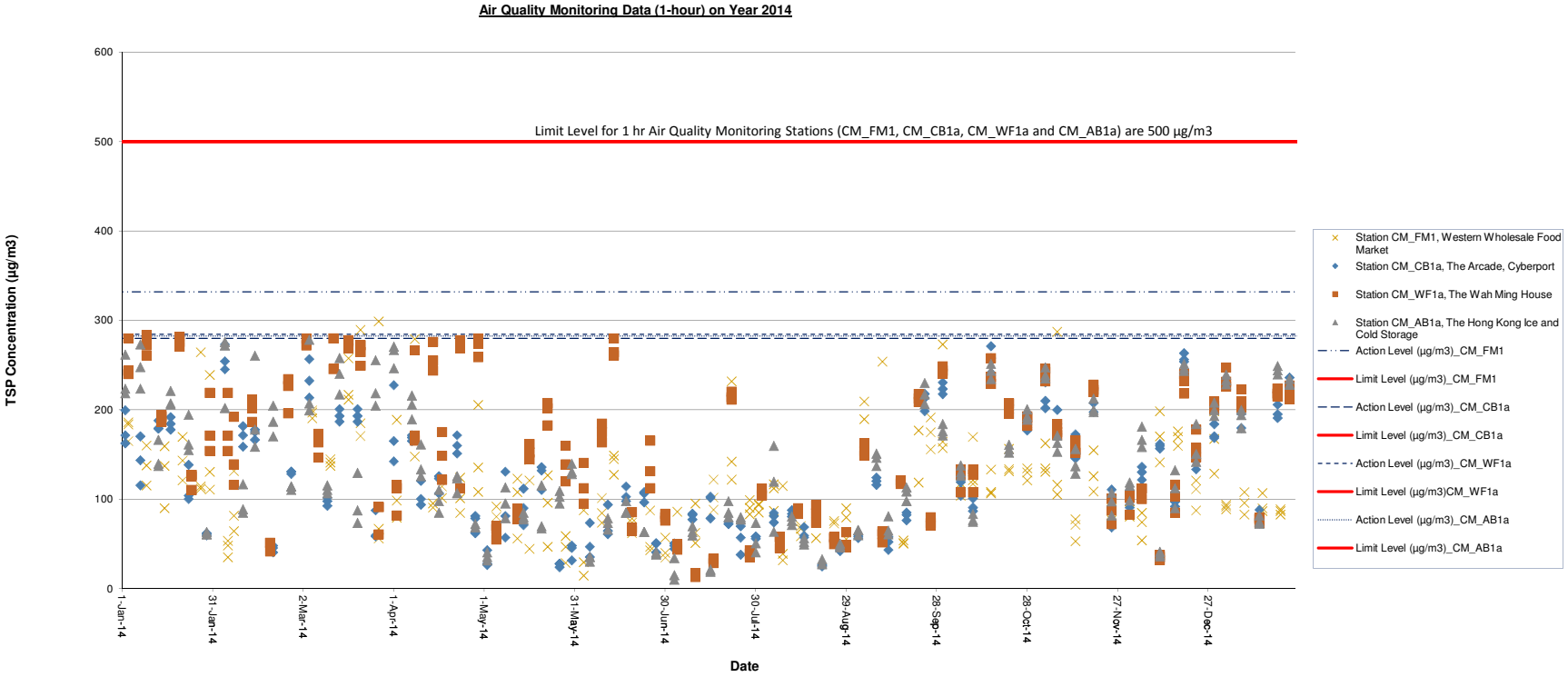

Air Quality Monitoring Data (24-hour) on Year 2011
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
1-Jan-11
31-Jan-11
2-Mar-11
1-Apr-11
1-May-11
31-May-11
30-Jun-11
30-Jul-11
29-Aug-11
28-Sep-11
28-Oct-11
27-Nov-11
27-Dec-11
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

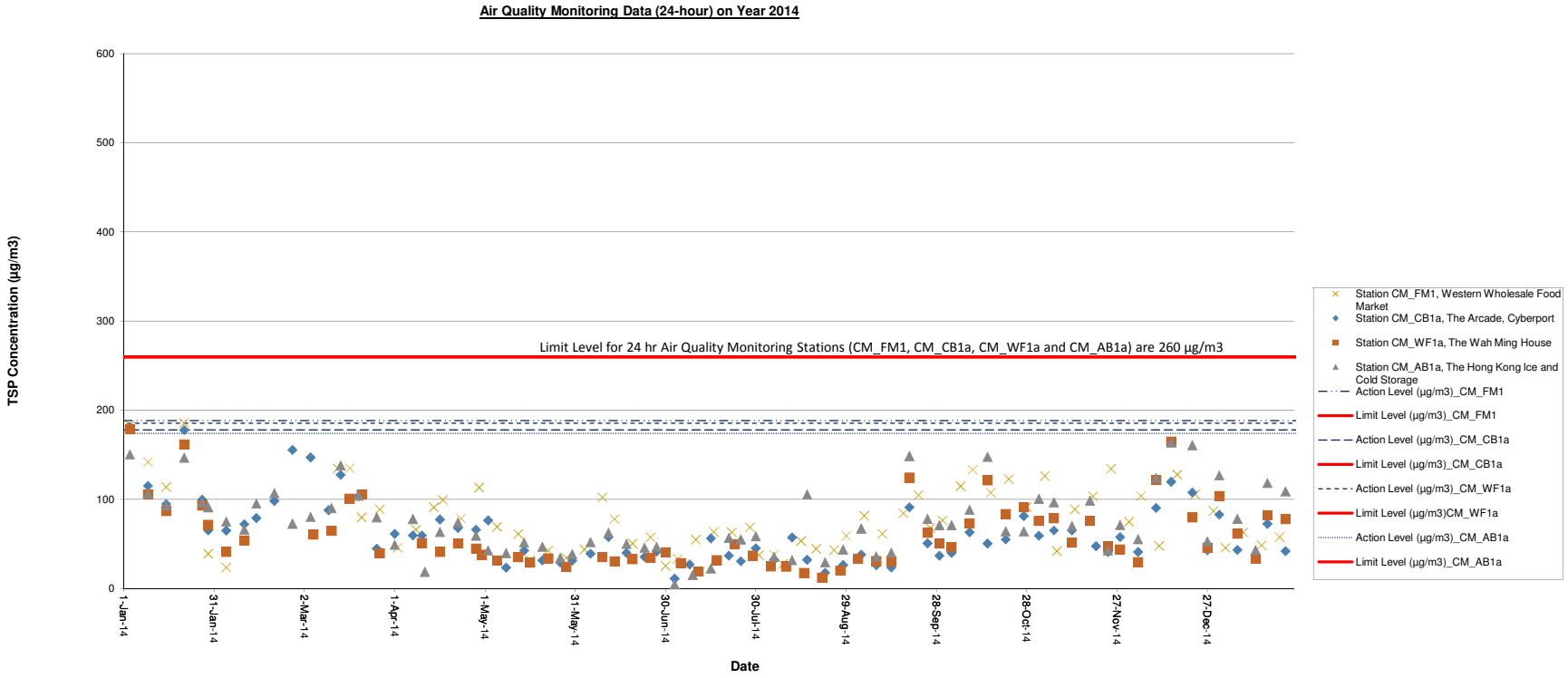

Air Quality Monitoring Data (1-hour) on Year 2012
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
Date
600
500
400
300
200
100
0
1-Jan-12
31-Jan-12
1-Mar-12
31-Mar-12
30-Apr-12
30-May-12
29-Jun-12
29-Jul-12
28-Aug-12
27-Sep-12
27-Oct-12
26-Nov-12
26-Dec-12
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

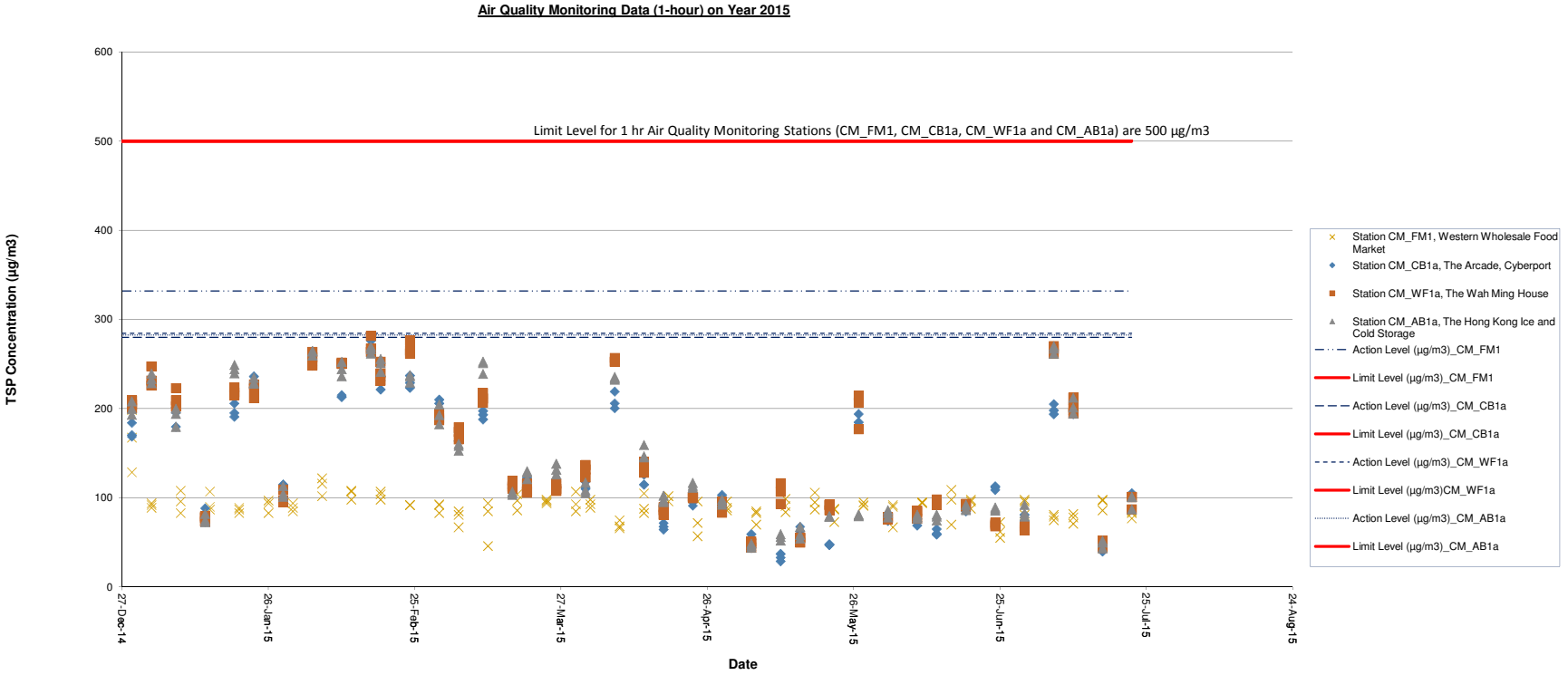

Air Quality Monitoring Data (24-hour) on Year 2012
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
1-Jan-12
31-Jan-12
1-Mar-12
31-Mar-12
30-Apr-12
30-May-12
29-Jun-12
29-Jul-12
28-Aug-12
27-Sep-12
27-Oct-12
26-Nov-12
26-Dec-12
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

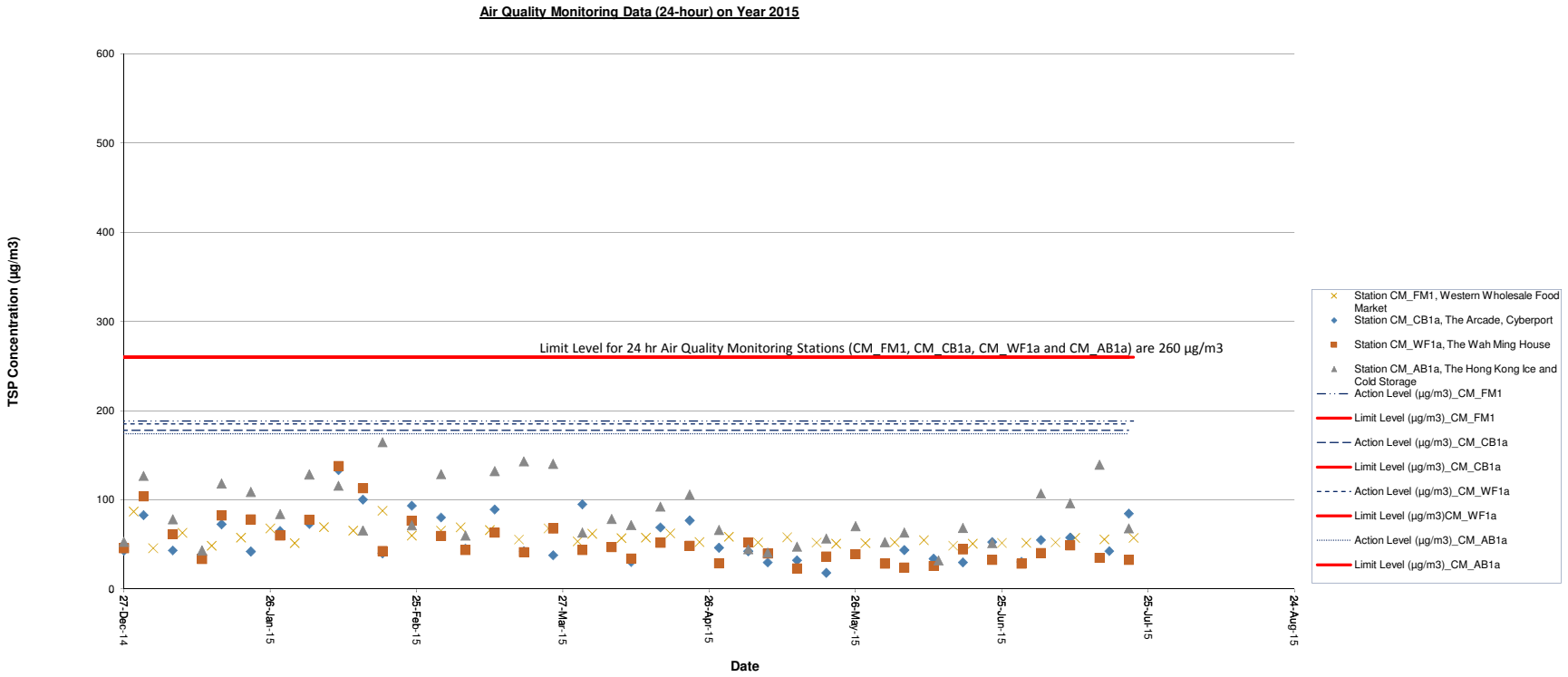

Air Quality Monitoring Data (1-hour) on Year 2013
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
Date
600
500
400
300
200
100
0
1-Jan-13
31-Jan-13
2-Mar-13
1-Apr-13
1-May-13
31-May-13
30-Jun-13
30-Jul-13
29-Aug-13
28-Sep-13
28-Oct-13
27-Nov-13
27-Dec-13
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a


Air Quality Monitoring Data (24-hour) on Year 2013
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
1-Jan-13
31-Jan-13
2-Mar-13
1-Apr-13
1-May-13
31-May-13
30-Jun-13
30-Jul-13
29-Aug-13
28-Sep-13
28-Oct-13
27-Nov-13
27-Dec-13
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a


Air Quality Monitoring Data (1-hour) on Year 2014
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
1-Jan-14
31-Jan-14
2-Mar-14
1-Apr-14
1-May-14
31-May-14
30-Jun-14
30-Jul-14
29-Aug-14
28-Sep-14
28-Oct-14
27-Nov-14
27-Dec-14
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a


Air Quality Monitoring Data (24-hour) on Year 2014
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
1-Jan-14
31-Jan-14
2-Mar-14
1-Apr-14
1-May-14
31-May-14
30-Jun-14
30-Jul-14
29-Aug-14
28-Sep-14
28-Oct-14
27-Nov-14
27-Dec-14
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a


Air Quality Monitoring Data (1-hour) on Year 2015
Limit Level for 1 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 500 µg/m3
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
27-Dec-14
26-Jan-15
25-Feb-15
27-Mar-15
26-Apr-15
26-May-15
25-Jun-15
25-Jul-15
24-Aug-15
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a


Air Quality Monitoring Data (24-hour) on Year 2015
TSP Concentration (µg/m3)
600
500
400
300
200
100
0
Limit Level for 24 hr Air Quality Monitoring Stations (CM_FM1, CM_CB1a, CM_WF1a and CM_AB1a) are 260 µg/m3
27-Dec-14
26-Jan-15
25-Feb-15
27-Mar-15
26-Apr-15
26-May-15
25-Jun-15
25-Jul-15
24-Aug-15
Date
Station CM_FM1, Western Wholesale Food Market
Station CM_CB1a, The Arcade, Cyberport
Station CM_WF1a, The Wah Ming House
Station CM_AB1a, The Hong Kong Ice and Cold Storage
Action Level (µg/m3)_CM_FM1
Limit Level (µg/m3)_CM_FM1
Action Level (µg/m3)_CM_CB1a
Limit Level (µg/m3)_CM_CB1a
Action Level (µg/m3)_CM_WF1a
Limit Level (µg/m3)CM_WF1a
Action Level (µg/m3)_CM_AB1a
Limit Level (µg/m3)_CM_AB1a

APPENDIX G

SUMMARY RECORDS OF COMPLAINTS

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
1	4 May 2010	EPD	Water	A public complaint was received by EPD regarding blockage of gully chambers, causing ponding on road surface at J/O Fung Mat Road and Water Street.	Investigation was carried out on 5 May 2010 to check if the ponding on road surface at J/O Fung Mat Road and Water Street was caused by the Project. Surface water collection route, piping, treatment arrangement and discharge location was inspected. The Contractor confirmed that such arrangement was in place since 10 February 2010. The discharge point was downstream of the location of blocked gully. At the site entrance there is a wheel-washing facility commonly utilized by Contractors of DC/2007/23 and 24 but managed by Contractor of DC/2007/23, which located approximately 20m away from the blocked gully. This wheel-washing facility was well maintained and was unlikely to cause blockage of gully. It was observed on site that Wo Hing Penta Ocean Joint Venture (Contractor of 9/WSD/08) carried out desilting work on 10 and 11 May 2010. During further site inspection on 12 May 2010, no ponding and blockage of gully was observed. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: As the complaint is not due to the project works, no mitigation measures/ actions is considered necessary
2	17 May 2010	EPD	Noise	We received from EPD via e-mail on	As the general construction noise complaints might be attributed to the project works, actions were undertaken in

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				13 May 2010 regarding two (2) general construction noise complaints at Fung Mat Road with incident dated 12 May 2010. Therefore Action Level exceedance was identified. According to the information received by EPD, one of the two complainants said construction noise was heard during evening times on weekdays over the last month. The noise monitoring data at M3 in April and May (carried out by ETs of Contracts DC/2007/23 and 24) shown no exceedance in limit level during evening hours. The Contractor confirms that works	accordance with the Event and Action Plan for Construction Noise of the EM&A Manual. The ET has 1. Identified the possible source for the exceedances 2. Checked that the data were valid 3. Discussed with Contractor's working procedures to determine possible mitigation to be implemented 4. Additional noise monitoring was carried out on 14 May 2010 (evening restricted hours) A review of noise data from 19:36 to 19:51 hrs on 14 May 2010 showed that no further noise exceedance occurred.

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				carried out during evening hours was in accordance with Construction Noise Permit issued.	
3	29 July 2010	EPD	Noise	A public complaint was received by EPD regarding night time general construction noise from construction site(s) at Fung Mat Road.	ET enquired the Contractor on 29 July 2010 regarding their plant operating schedule during the nighttime period on 28 and 29 July 2910. The Contractor confirmed that the works being carried out during the night-time hours on 28 July 2010 and 29 July 2010 involved hydraulic extractor, bentonite filtering plant and generator which was in accordance with the equipment schedule stated in the Construction Noise Permit (GW-RS0435-10) issued. Following the Event and Action Plan for Construction Noise of the EM&A Manual, The ET has 1. Identified the possible source for the exceedances 2. Checked that the data were valid 3. Discussed with Contractor's working procedures to determine possible mitigation to be implemented 4. Carried out additional noise monitoring on 29 July 2010 (night-time restricted hours) The additional noise monitoring data on 29 July 2010 night-time restricted hours is provided. The powered mechanical equipment (PME) used in the Fung Mat Road works site during the additional noise monitoring period included hydraulic extractor, bentonite filtering plant and generator as listed in Construction Noise Permit (CNP) No. GW-RS0435-10, which is the same as those on 28 and 29

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					July 2010 night-time period. Based on observations during the noise monitoring period, other noise sources including road traffic noise from Western Harbour Crossing, engine of turbojet and pass-by air-crafts also were present. The additional noise monitoring result was found to be similar to the 5-mins background noise level (66.6dB(A)) measured on 2nd July 2010 from 23:02 – 23:17 hrs. To this end, based on the additional noise monitoring findings, the construction activities at Fung Mat Road site were not considered to be the major noise sources during the nighttime period. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: No specific mitigation measures are necessary. Nevertheless, the contractor was reminded to ensure the construction activities during the restricted hours are in accordance with Construction Noise Permit. Good site practice shall be adopted to minimize the construction noise.
4	28 February 2011	Fion Yan	Noise	A public complaint was received by HKWDT (Hong Kong West Drainage Tunnel) hotline regarding general construction noise	The Contractor was confirmed their plant operations are complied the CNP requirement and the drilling works for pre-grout holes inside shaft at level -40.2mPD by Ranger 500 with the noise enclosure closed during the nighttime period on 25 February 2011. *Note: As the details of the complaint were rendered to the ET

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				from construction site.	on 24 March 2011, the investigation was based on routine noise monitoring data and Contractor's records. The noise monitoring data on 2 March 2011 night-time restricted hours at Aegean Terrace is provided. From the Contractor's record, powered mechanical equipment (PME) used in the Cyberport PTW works site during noise monitoring period included powered mechanical equipments as listed in Construction Noise Permit (CNP) No. GW-RS0157-11. According to the Project Baseline Environmental Monitoring Report (Doc No. GEN/026), the average 5-min baseline noise level was found to be 50.8 dB(A), which already exceeded the Limit Level of 50 dB(A) set out in the Project EM&A Manual. It is also noted that the night-time BGL at M6a ranged from 41.6 dB(A) to 67.0 dB(A). Hence, the above exceedance was considered to be non-project related. Based on observations during the noise monitoring period, the major noise source were the local traffics of Aegean Terrace and from the fog whistles from the nearby cargo ships. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: No specific mitigation measures are necessary. Nevertheless, the contractor was reminded to ensure the construction

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					activities during the restricted hours are in accordance with Construction Noise Permit. Good site practice shall be adopted to minimize the construction noise.
5	9 March 2011	Angela Yan	Noise	A public complaint was received by HKWDT (Hong Kong West Drainage Tunnel) hotline regarding some noise like rolling of rocks emitted from construction site	The Contractor was confirmed their plant operations are complied the CNP requirement and the drilling works for pre-grout holes inside shaft at level -40.2mPD by Ranger 500 with the noise enclosure closed during the nighttime period on 7 March 2011. *Note: As the details of the complaint were rendered to the ET on 24 March 2011, the investigation was based on routine noise monitoring data and Contractor's records. The noise monitoring data on 16 March 2011 night-time restricted hours at Aegean Terrace is provided. From the Contractor's record, powered mechanical equipment (PME) used in the Cyberport PTW works site during noise monitoring period included powered mechanical equipments as listed in Construction Noise Permit (CNP) No. GW-RS0157-11. According to the Project Baseline Environmental Monitoring Report (Doc No. GEN/026), the average 5-min baseline noise level was found to be 50.8 dB(A), which already exceeded the Limit Level of 50 dB(A) set out in the Project EM&A Manual. It is also noted that the night-time BGL at M6a ranged from 41.6 dB(A) to 67.0 dB(A). Hence, the above exceedance was considered to be non-project related. Based on observations during the noise monitoring period, the major noise source were the local

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					traffics of Aegean Terrace. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: No specific mitigation measures are necessary. Nevertheless, the contractor was reminded to ensure the construction activities during the restricted hours are in accordance with Construction Noise Permit. Good site practice shall be adopted to minimize the construction noise.
6	16 Feb 2012	Evan YUNG	Dust	A public complaint was received by EPD email regarding dust pollution during barging operation at Fung Mat Road site area.	The Contractor was confirmed that the barging operation being carried out during the period on 13rd to 15th February 2012. Base on the contractor record, the materials were wet before loading on the barge. Air Monitoring was conducted on 14 February 2012 and the results showed that the dust levels were complied with the required standard. During the site investigation on morning of 17 February 2012 no barging operation was found. The Contractor was confirmed that no barging operation until next Friday. Recommendations/ mitigation measures/ actions if necessary: The Contractor was reminded to pay more attention on dust control and enhance the watering of the whole site when necessary to minimize the dust nuisance. The contractor was proposed to provide properly watering for the materials before loading activities on barge. Air monitoring has been schedule

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					next week to confirm mitigation has been implemented properly.
7	18 October 2012	EPD	Dust	A public complaint was received by EPD email regarding dust pollution during barging operation at Fung Mat Road site area.	The Contractor was confirmed that the barging operation being carried out during the period on 8th, 10th to 11th October 2012, and left the Site before 18 October 2012. Base on the Contractor's record, the materials were wet before loading to the barge. Air Monitoring was conducted on 12 October 2012 and the results showed that the dust levels were complied with the required standard. During the site investigation on 28 October 2012no barging operation was found. The Contractor was confirmed that no barging operation until 29 October 2012. The follow up site investigation was carried out on 30 October 2012. No dust emission was observed from the barge during the unloading activities. Recommendations/ mitigation measures/ actions if necessary: The Contractor was reminded to enhance watering for the materials before loading activities, and well as to provide watering of the loaded materials on barge. Air monitoring has been schedule on 30 October 2012 to confirm mitigation has been implemented properly.
8	18 December 2012	EPD	Noise	A public complaint was received by EPD email regarding noise of ventilation system noise opposite to Block B,	There were no exceedances during November and December 2012. Regarding the potential noise impact during restricted hours (ie 7p.m. – 7a.m. Monday to Saturday and at any time on Sundays and public holidays), the Contractor confirmed that

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				Kwan Yick Building Phase III, Sai Ying Pun, Hong Kong. The complainant suspected that the noise was coming from either HATS construction sites, AFCD Market Office or Western Wholesale Food Market.	their construction activities complied with the CNP requirements. A site investigation was carried out by Environmental Team on 3rd January 2013 (about 2:00 pm). It was found that the major noise source was road traffic noise. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: According to the noise monitoring results, site investigation findings and the information provided by the Contractor, the noise compliant is considered not to be project related. However, the Contractor was reminded to implement good site practice to minimize the noise impact.
9	11 March 2013	EPD	Noise	A public complaint was received by EPD regarding the noise generated from a mobile crane form HATS 2A construction site near Wah Ming House, Waterfall Bay Road, Pokfulam. The complainant said that the crane operates after 7p.m. every day.	According to the information provided by the Contractor, rock excavation activities were carried out during the daytime period (7a.m. to 7 p.m.) of weekdays at the construction site near Wah Ming House recently (also on the complaint date). The construction site is closed at 7p.m. and no construction activities would be undertaken after 7p.m. Complaint due to project works: No Recommendations/ mitigation measures/ actions if necessary: According to information provided by the Contractor, the noise complaint is considered not to be project related. However, the Contractor was reminded to implement good site practice to minimize potential noise impacts.
10	16 April	Malcolm	Dust	A dump truck	The Contractor confirmed that the dump truck mentioned in

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
	2013	Leung		travelled along Sha Wan Drive at 7:55 a.m. with half the load uncovered and particles of excavation waste blowing across the footpath onto pedestrian. The spoil being transported was dry and did not appear to have been damped before it had been loaded into the dump truck.	the complaint left the Cyberport site at 7:50 a,m. of 16 April 2013. Due to the site constraint of Cyberport Site, the driver of dump trucks would close one side of mechanical covers inside the noise enclosure (See photo1) and then close another side of mechanical covers outside the noise enclosure (i.e the common access) before entering Cyberport Road. The Contractor has assigned a worker to check the closing of mechanical covers before entering Cyberport Road and has instructed their workers to pay more attention on the required mitigation measures. In addition, the Contractor will ensure that the spoil transported by trucks is in damp condition in order to minimize fugitive emission. Recommendations/ mitigation measures/ actions if necessary: The Contractor was reminded to ensure that the spoil/excavation materials transported by trucks are in damp condition and mechanical covers for dump trucks are closed before leaving the site.
11	7 May 2013	Malcolm Leung	Dust, Noise, Light	A public complaint was received by DSD regarding the noise, dust and light generated from HATS 2A construction site at Sandy Bay. The	According to the information provided by the Contractor, they did not carry out any surface construction works on 5 May 2013 and there was no heavy duty excavator-hammer and sledgehammer within the construction site. The ET undertook an investigation on 12 May 2013 (Sunday) during daytime (14:29 to 14:44 hours) It was found that no construction works was being carried out outside the noise enclosure and the door of the noise enclosure remained

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				complainant said that "very noisy, dust-generating works are being carried out for more than 2 years – all Saturdays and Sundays! A heavy duty excavator-hammer / sledgehammer was operating for many hours on 5 May 2013 (Sunday) causing major discomfort and disruption to the entire Sandy Bay, Mt. Davis neighborhood!" In addition, the complainant requested that: • The (ventilation exhaust) silencer be replaced or at least fixed / upgraded as to substantially reduce noise and dust levels.	closed (Photo 1). The investigation results were summarized below:- **Dust** The construction site was completely paved with concrete and without any exposed ground. No dusty construction activities and dusty stockpile were observed. Also, no fugitive dust emission was observed. (Remarks: The construction site was completely paved since 2009.) **Noise** Noise measurement was carried out at M5a – Chuk Lam Ming Tong. The major noise source was road traffic noise from San Wan Drive. According to the Project Baseline Environmental Monitoring Report (Doc No. GEN/026), the average LAeq noise level is 65.9 dB(A). The measured noise levels were lower than the average background noise level. It is considered that the construction noise was similar to the baseline noise level. Regarding the noise nuisance from the exhaust fan with silencer, the Contractor switched off exhaust fan since 15 May 2013. Therefore, it is not necessary to consider further mitigation measures, except that the Contractor re-operates of the exhaust fan. **Light** The Contractor lowered down the spotlights towards Mt. Davis direction to minimize the light pollution. (Photo 2). Also, the Contractor confirmed that the 3 fluorescent lights hanged on the hoarding were permanently removed on 15 May 2013.

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				• The silencer be pointed towards the Lamma Channel – not at Victoria – and Mt. Davis Roads. • The noise reflector be improved / enlarged substantially • All security flood lights and large neon pipes on Sandy Bay Road fence along outside parking be pointed downwards directly at the site - not (as currently) towards Mt. Davis slope / Victoria Rd area.	**Conclusions** **Dust** There was no evidence to show that the Contractor has carried out any dusty construction activities outside the noise enclosure and stored dusty stockpile on-site. Moreover, the construction site was completely paved. It is considered that the dust complaint is NOT contract-related. **Noise** The complainant definitely pointed out the noise generated from the exhaust ventilation fan. It is considered that the noise complaint is contract-related. However, according to the investigation, there was no evidence to illustrate that either the measured noise level exceeded the EIA noise limit or the Contractor violated any CNP's terms and conditions. **Light** The complainant definitely pointed out the lights which were hanged on the hoarding / within the construction site. It is considered that the light complaint is contract-related. Recommendations/ mitigation measures/ actions if necessary: **Dust** No further mitigation measure is required. **Noise** As the Contractor switched off the exhaust fan, it is considered that no further mitigation measure is required. **Light** As the Contractor lowered down the spotlights and removed 3

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					fluorescent lights hanging on the hoarding, no further mitigation measure is required.
12	3 July 2013	EPD	Water	A public complaint was received by EPD regarding the waste water after blasting illegal discharged to drainage without pass though the water treatment plants.	ET discussed with the Contactor on 4 July 2013 by phone and sent an email on 11 July 2013 for requesting more information, such as work activities at work site, the status of water treatment facilities and duration of water treatment plants, the lab test result of water sample. The Contractor provided the information according to ET request on 11 July 2013 by phone. ET carried out an site visit on 16 July 2013 to check whether the water after blasting generated from the site discharging through the water treatment plants or not. ET observed that the pump line from the shaft/surface was connected to the sedimentation tank (Photo 1) and the wastewater was further pumped into the Aquased (Photo 2) for enhance treatment before discharge. During the inspection, ET did not observe any unidentified connection to the public drain within the Aberdeen site. ET considered that there was no connection bypassing the water treatment facilities during the inspection. Recommendations/ mitigation measures/ actions if necessary: As the complaint was not due to the contract works, no mitigation measures/ actions is considered necessary.
13	5 July 2013	Malcolm Leung	Water	A public complaint was received by EPD regarding silty	ET discussed with the Contractor on the phone on 9 July 2013 regarding the complaint for preparing complaint enquiry form. The email was sent to the Contractor on 11 July for requesting

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				runoff from a headwall adjacent to the Sandy Bay construction site.	more information, such as work activities in the work site, the status of water treatment facilities and duration of water treatment plants, the lab test result of water sample. The Contractor discussed with ET on 16 July and some measurements had been implemented: 1) The chemical dosage pump had been replaced by the Contractor due to one of the chemical dosage pumps of the Aquased was unstable operated during the checking by the Contractor on 10 July 2013. 2) The Contractor placed one more sedimentation tank on-site on 12 July 2013 to enhance the treatment process. ET carried out a site investigation on 16 July 2013 to check the whether the silty runoff from an outfall adjacent to the Sandy Bay construction site. ET observed that no silty runoff was discharging (Photos 1 and 2) and the extra sedimentation tank had been placed in the work site during the inspection. Recommendations/ mitigation measures/ actions if necessary: The Contractor has carried out the daily inspection to the wastewater treatment facilities since 5-July-2013 to prevent any environmental impact to the environment.
14	3 July 2013	EPD	Noise	A public complaint was received by EPD regarding the construction noise generated from the operation of a tower crane and an excavator in	The Contractor confirmed that they would operate the tower crane and the underground excavator (inside the deep tunnel with acoustic cover) after 7:00pm under the Construction Noise Permit (No.GW-RS0689-13) requirement on 2 July 2013. Moreover, the excavator on the surface level would not be operated after 7:00pm. ET carried out an inspection on 3 July 2013 at 10:45pm and

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
				Aberdeen work site	observed that the tower crane was in standby mode and no excavation works on surface. No penetrated noise from the noise cover was noticed. No construction activities on the surface level were observed during the investigation. ET carried out investigation and noise measurement at M8a (Near security room of Wah Lai House) on 3 July 2013 at 10:45pm. The major noise source was road traffic noise from Shek Pai Wan Road. According to the Contractor information, the acoustic cover for the shaft was closed and the tower crane was in standby mode on 3 July 2013. ET considered that the Contractor fulfilled the requirements of the Construction Noise Permit (GW-RS0689-13) during the investigation. Conclusions According to the investigation and the information provided by the Contractor, there was no evidence to illustrate that either the measured noise level exceeded the EIA noise limit of restricted period (19:00-23:00) or the Contractor violated any CNP's terms and conditions. Recommendations/ mitigation measures/ actions if necessary: The Contractor was reminded that the acoustic cover for the shaft shall be closed if there are any construction activities inside the tunnel to prevent any leakage of noise and to fulfill the requirements of the Construction Noise Permit.

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
15	13 and 26 September 2013	EPD	Water	A public complaint was received by EPD regarding the untreated waste water discharged from Leighton's underground construction site (80m below ground) near DSD's Aberdeen Preliminary Treatment Works to the drainage system between 17:00 to 18:00 hours every day. A follow up complaint for the wastewater discharge at Aberdeen works area was received by EPD on 26 September 2013.	The ET carried out a site visit on 24 September 2013 to check whether the waste water generated from the underground work site was treated properly before discharge. During the site visit, the ET observed that there was no wastewater discharged directly into the drainage system. All waste water generated from the underground work site was pumped into a sediment tank and then to an Aquased (Photo 1) for treatment before discharge. No silty water discharge was observed at the discharge point. The Contractor reported that EPD conducted a site visit at LLNSJV site in the morning of 18 September 2013 and no adverse comment was made. Recommendations/ mitigation measures/ actions if necessary: The complaint investigation found that the wastewater generated from the underground work site was treated properly. No mitigation measures/ actions are considered necessary. A joint inspection was carried by EPD and ET on the 2 October 2013. No untreated waste water was found to be discharged from the Aberdeen works to the drainage system during the inspection. The pipes of the wastewater treatment facilities were found to be connected properly. The EPD carried out a dye-test to check the discharge point in accordance with the requirements provided in the discharge license. An Ad-hoc site inspection for Aberdeen works area was

Complaint Log No.	Date	Complaint Received from	Media	Complaint Descriptions	Investigation, actions and follow-up procedure taken
					carried out by ET on 4 October 2013 (from 4:05p.m to 4:32 p.m) to check the waste water treatment system for the site. During the inspection, the ET observed that the waste water generated from the construction site was treated by a sedimentation tank and an Aqua Sed prior to discharge (Photo 2a to Photo 2c). It was also found that the Contractor had provided a notice on the site area to remind the frontline staff to treat wastewater prior to discharge. Besides, Tool Box Talk about wastewater treatment method was provided by contractor for frontline workers and operation supervisor team on 9 October 2013. The training record of Tool Box Talk is shown in the Annex A of Complaint Enquiry Form.
16	17 February 2015	EPD	Water	A public complaint was received by EPD regarding dark water flowing into the sea from the construction site near Le Meridien Cyberport at INFORMATION CRESCENT.	The ET carried out a site visit on 18 February 2015 to check whether the dark water flowing into sea from construction site was generated from Contract No.DC/2007/24. During the site visit, the ET observed that no wastewater was being discharged into the drainage system and the Contractor did not carry out any construction works near the sea. According to the Contractor, no construction activities were undertaken near the sea on 17 February 2015 and there was no wastewater discharge. Therefore, it is considered that the complaint was not contract related. Recommendations/ mitigation measures/ actions if necessary: The complaint investigation found that no wastewater was discharged from the work site of Contract No. DC/2007/24. No mitigation measures/ actions are considered necessary.