





**Proposed Road Improvement Works in
West Kowloon Reclamation Development – Phase 1
Quarterly Environmental Monitoring & Audit Report
01/08/2017 – 31/10/2017**

Prepared by:	 <u>Andy Tsang</u>
Certificated by:	 <u>Goldie Fung</u> (Environmental Team Leader)

Environmental Pioneers & Solutions Limited
Flat A, 8/F, Chaiwan Industrial Centre,
20 Lee Chung Street, Chai Wan, Hong Kong
Tel: 2556 9172 Fax: 2856 2010

TABLE OF CONTENT

Executive Summary	2
1 Introduction	3
1.1 The Project	3
1.2 Construction Programme and Activities	4
1.3 Project Organization	5
2 EM&A Requirements for Monitoring Parameters	5
3 Air Quality Monitoring	6
3.1 Monitoring Locations	6
3.2 Monitoring Results	7
3.3 Baseline Review	9
4 Noise Monitoring	10
4.1 Monitoring Locations	10
4.2 Monitoring Results	10
5 Solid and Liquid Waste Management Status	14
6 Landscape and Visual Impact	15
7 Environmental Site Inspection	15
8 Environmental Non-Conformance	16
8.1 Summary of Environmental Exceedances	16
8.2 Summary of Environmental Non-Compliance	16
8.3 Summary of Environmental Complaint	16
8.4 Summary of Notification of Summons and Successful Prosecution	16
9 Comment, Recommendations and Conclusions	17
9.1 Comment	17
9.2 Recommendations	17
9.3 Conclusions	19

LIST OF APPENDICES

Appendix A: Construction Programme and Project Layout Plan

Appendix B: Project Organization Chart

Appendix C: Monitoring Locations

Appendix D: TSP Monitoring Data

Appendix E: Noise Monitoring Data

Appendix F: Environmental Mitigation Implementation Schedule

Appendix G: Cumulative Log for Environmental Exceedance, Complaints, Notification of
Summons and Successful Prosecutions

Executive Summary

This is the quarterly Environmental Monitoring and Audit (EM&A) Report for Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1. The project was commenced on 6 February 2016. This report documents the finding of EM&A Works conducted from 1 Aug 2017 to 31 Oct 2017.

Environmental Monitoring and Audit Progress

Air Quality Monitoring

Noise Monitoring

Waste Management

Landscape and Visual Impact

Environmental Site Inspection

Environmental Exceedance / Non-conformance / Compliant / Summons and Successful Prosecution

No exceedance of action level and limit level was recorded for TSP. Sixteen exceedances were recorded at NM4 for noise. No non-compliance environmental complaint, notification of summons and successful prosecution against the Project were received in this reporting period.

Variation in Construction Method

No variation in construction method from the proposed construction programme was made and affected the EM&A.

1 Introduction

1.1 The Project

This is a road improvement project in West Kowloon Reclamation Development (WKRD) for completing the developments and the commissioning of the new transport facilities.

Apart from the additional traffic impacts arising from the major development and transport facilities in WKRD, several major junctions in the area are currently operating with insufficient capacity causing serious congestion to some existing major road corridors such as Jordan Road (JRD), Ferry Street (FST) and Canton Road (CRD).

To enhance the road network of the area, Transport Department commissioned the “West Kowloon Reclamation Development Traffic Study” which identified and recommended Core and Additional Schemes together with the improvement works at the junction of CRD/FST/JRD. Implementation of these schemes would enable most of the key road junctions in the study area to operate with spare capacity, and the traffic queue length would also be reduced avoiding blockage to the upstream junctions

The Environmental Team (ET), Environmental Pioneers & Solutions Limited (EPSL), was appointed by Vibro Construction Co. Ltd. to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1. The project proponent is Highways Department. This is a Designated Project under the Environmental Impact Assessment Ordinance (Cap.499). The No. of Environment Permit is EP-455/2013.

The construction works and EM&A programme of this project was commenced on 6 February 2016. The construction programme and project layout plan are shown in **Appendix A**.

1.2 Construction Programme and Activities

A summary of the major construction activities undertaken in this reporting period is shown as follows.

Aug 2017

- Portion I – Underground Investigation Works
- Portion I – Utilities Diversion Works
- Portion I – Piling Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Site Formation and Road Works
- Portion Q – Road Works (excavation and utilities diversion)
- Portion Q – Construction of Sign Gantry

Sep 2017

- Portion I – Underground Investigation Works
- Portion I – Utilities Diversion Works
- Portion I – Piling Works
- Portion I – Pile Cap, Pier and Bridge Deck Construction Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Site Formation and Road Works
- Portion Q – Road Works (excavation and utilities diversion)
- Portion Q – Construction of Sign Gantry

Oct 2017

- Portion I – Pile Cap, Pier and Bridge Deck Construction Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Site Formation and Road Works
- Portion Q – Road Works (excavation and utilities diversion)
- Portion Q – Construction of Sign Gantry

1.3 Project Organization

The project organization chart and contact details are shown in **Appendix B**.

2 EM&A Requirements for Monitoring Parameters

Air Quality Monitoring

According to the EM&A Manual Section 3.2 & 3.4, the construction air quality impact shall be evaluated by conducting 1-hr and 24-hr Total Suspended Particulates measurements. 1-hr TSP sampling shall be conducted at a frequency of at least 3 times in every 6 days. 24-hr TSP sampling shall be conducted at a frequency of at least once in every 6 days. The wind speed and wind direction shall be recorded in accordance with the EM&A Manual Section 3.4.3.

Noise Monitoring

According to the EM&A Manual Section 4.2 & 4.4, construction noise level shall be measured in terms of the A-weight equivalent continuous sound pressure level (Leq). Leq 30min shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. One set of 30-min measurement shall be carried out at each monitoring location every week.

Waste Management

According to the EM&A Manual Section 6.2, relevant licences/ permits shall be applied for waste disposal and handling. Waste disposal record/ recycling receipts shall be kept for tracking of waste movement.

Landscape and Visual

According to the EM&A Manual Section 7.2, inspection and audit for the implementation of mitigation measures shall be conducted once every two weeks by the Registered Landscape Architect. The adequacy of tree preservation, status of tree planting and removal shall also be monitored.

3 Air Quality Monitoring

3.1 Monitoring Locations

According to the EM&A Manual Section 3.5, four impact monitoring locations have been established for air quality monitoring, which are summarized in Table 3.1.1. The details of monitoring location plan are shown in **Appendix C**.

Table 3.1.1 Air Quality Monitoring Locations

ID No.	Monitoring Location	Description	Parameter
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Ground Floor Face to Hoi Po Road	1-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	1-hr TSP
AM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	1-hr TSP
AM4	Lai Chack Middle School	Ground Floor Face to Canton Road	1-hr TSP
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Rooftop Face to Hoi Po Road	24-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	24-hr TSP
AM3-B	The Cullinan II (W Hong Kong)	Ground Floor Near to International Commerce Centre Roundabout on Nga Cheung Road and	24-hr TSP
AM4-A	Tsim Sha Tsui Fire Station	Ground Floor Face to Canton Road	24-hr TSP

Due to the rejection from the representatives/ property management of the premises, high volume samplers are not feasible to be installed at AM3 and AM4 for the 24-hr TSP monitoring. Alternative locations AM3-B and AM4-A are proposed accordingly. The

monitoring locations are summarized in [Table 2.1.2](#). The details of monitoring location plan are shown in [Appendix C](#).

Alternative monitoring location AM4-A is adjacent to the construction site of Xiqu Centre. Power supply for AM4-A was temporarily provided by the Main Contractor of Xiqu Centre, Hip Hing Engineering Co. Ltd.. Due to the outside surface works and drainage works of Xiqu Centre, the power distribution box under Hip Hing Engineering Co. Ltd. was relocated. The power supply to AM4-A has been cut off from early August 2017. 24hr-TSP monitoring at AM4-A was ceased from August 2017. The Contractor and ET are keeping in search of another alternative location to install the HVS and the power supply for AM4-A. On the other hand, major road works (excavation and utilities diversion) are approximately to be completed in Portion Q (close to AM4-A). The Contractor will review the construction works with ET and ER to deliberate on the possibility of suspending 24-hr TSP monitoring at AM4/AM4-A.

3.2 Monitoring Results

1-hr TSP monitoring was conducted at four monitoring locations. The monitoring results are summarized in Table 3.2.1. 24-hr TSP monitoring was conducted at three monitoring locations. The monitoring results are summarized in Table 3.2.2. Detailed impact monitoring data of 1-hr TSP, 24-hr TSP and meteorological data are shown in [Appendix D](#).

Table 3.2.1 Summary of average 1-hr TSP monitoring data

Month	Monitoring Locations	Average 1-hr TSP ($\mu\text{g}/\text{m}^3$)	Range 1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
Aug 17	AM1	49	17 – 187	288	500
	AM2	62	51 – 71	299	500
	AM3	56	16 – 105	299	500
	AM4	71	55 – 89	303	500
Sep 17	AM1	53	16 – 117	288	500
	AM2	73	36 – 100	299	500
	AM3	107	64 – 149	299	500
	AM4	90	62 – 133	303	500
Oct 17	AM1	63	46 – 85	288	500
	AM2	73	48 – 94	299	500

	AM3	96	71 – 139	299	500
	AM4	82	51 – 108	303	500

Table 3.2.2 Summary of average 24-hr TSP monitoring data

	Monitoring Locations	Average 24-hr TSP ($\mu\text{g}/\text{m}^3$)	Range 24-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
Aug 17	AM1	62	35 – 133	157	260
	AM2	76	26 – 137	183	260
	AM3-B	64	28 – 118	177	260
	AM4-A	-	-	176	260
Sep 17	AM1	46	27 – 56	157	260
	AM2	46	30 – 68	183	260
	AM3-B	57	37 – 75	177	260
	AM4-A	-	-	176	260
Oct 17	AM1	61	43 – 85	157	260
	AM2	69	29 – 90	183	260
	AM3-B	78	54 – 103	177	260
	AM4-A	-	-	176	260

In accordance with the established action and limited levels for impact monitoring, there was no exceedance recorded in the reporting period.

During the monitoring period, vehicle emissions were identified as one of the dust sources for AM1, AM2, AM3, AM4, AM3-B. TSP level of AM2, AM4 may be affected by construction activities from other construction sites near Canton Road.

3.3 Baseline Review

The comparisons of baseline result, measured result and action and limit levels of 1-hr TSP monitoring and 24-hr TSP monitoring are shown in Table 3.3.1 and Table 3.3.2 for reviewing the baseline data.

Table 3.3.1 Comparisons of Baseline, Impact and Action & Limit Levels of 1-hr TSP

Location	Baseline Level ($\mu\text{g}/\text{m}^3$)	Established Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Average Impact Monitoring Level (reporting Quarter) ($\mu\text{g}/\text{m}^3$)
AM1	58	288	500	55
AM2	76	299	500	69
AM3	76	299	500	88
AM4	82	303	500	81

Table 3.3.2 Comparisons of Baseline, Impact and Action & Limit Levels of 24-hr TSP

Location	Baseline Level ($\mu\text{g}/\text{m}^3$)	Established Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Average Impact Monitoring Level (reporting Quarter) ($\mu\text{g}/\text{m}^3$)
AM1	42	157	260	56
AM2	81	183	260	62
AM3-B	72	177	260	66
AM4-A	70	176	260	-

The impact monitoring levels of 1-hr TSP and 24-hr TSP obtained from Aug 2017 to Oct 2017 were much lower than the action levels established by baseline monitoring data for AM1, AM2, AM3/AM3-B and AM4/AM4-A. The impact monitoring results presented that no dust impacts obviously caused by the construction site and affected by the background environmental conditions. The baseline results are still applicable and valid. Need not to repeat the measurement of baseline monitoring, unless the exceedance of action level of TSP is recorded.

4 Noise Monitoring

4.1 Monitoring Locations

According to the EM&A Manual Section 4.5, five impact monitoring locations have been established for noise impact monitoring during the construction phase of the project, which are summarized in Table 4.1.1. The details of monitoring location plan are shown in **Appendix C**.

Table 4.1.1 Noise Monitoring Locations

Identification No.	Noise Monitoring Location	Description	Measurement Type
NM1	Sorrento - Tower 1	Podium Level Face to Nga Cheung Road	Façade
NM2	Yau Ma Ti Catholic Primary School (Hoi Wang Road)	Ground Floor Face to Hoi Ting Road	Façade
NM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	Façade
NM4	Lai Chack Middle School	Ground Floor Face to Canton Road	Façade
NM5	Yue Tak Building	Ground Floor Face to Jordan Road	Façade

4.2 Monitoring Results

Noise impact monitoring was conducted at five monitoring locations. The monitoring results are summarized in Table 4.2.1. Detailed impact monitoring data of noise are shown in **Appendix E**.

Table 4.2.1 Summary of average noise monitoring data

Monitoring Locations	Monitoring Date	Baseline Level (dB(A))	L _{Aeq} * ¹ (dB(A))	Action Level (dB(A))	Limit Level (dB(A))	Exceedance
NM1	4/8/2017	75.1	66.2	When one documented complaint is received	75 dB(A)	No
	10/8/2017		63.9			No
	16/8/2017		65.4			No
	22/8/2017		72.5			No
	28/8/2017		69.2			No
	2/9/2017		64.5			No
	8/9/2017		66.7			No
	14/9/2017		67.2			No
	20/9/2017		69.0			No
	26/9/2017		65.5			No
	30/9/2017		66.7			No
	6/10/2017		64.7			No
	11/10/2017		64.4			No
	17/10/2017		63.0			No
	23/10/2017		67.6			No
	26/10/2017		62.9			No
NM2	4/8/2017	66.5	68.7	When one documented complaint is received	70 dB(A) * ²	No
	10/8/2017		64.4		70 dB(A) * ²	No
	16/8/2017		68.9		70 dB(A) * ²	No
	22/8/2017		66.8		70 dB(A) * ²	No
	28/8/2017		64.5		70 dB(A) * ²	No
	2/9/2017		68.9		70 dB(A) * ³	No
	8/9/2017		66.7		70 dB(A) * ²	No
	14/9/2017		68.4		70 dB(A) * ²	No
	20/9/2017		66.0		70 dB(A) * ²	No
	26/9/2017		67.1		70 dB(A) * ²	No
	30/9/2017		68.5		70 dB(A) * ²	No
	6/10/2017		64.7		70 dB(A) * ²	No
	11/10/2017		65.7		70 dB(A) * ²	No
	17/10/2017		69.3		70 dB(A) * ²	No
	23/10/2017		65.1		70 dB(A) * ²	No
	26/10/2017		65.8		70 dB(A) * ²	No

NM3	4/8/2017	74.5	74.8	When one documented complaint is received	75 dB(A)	No
	10/8/2017		73.1			No
	16/8/2017		73.0			No
	22/8/2017		73.2			No
	28/8/2017		73.5			No
	2/9/2017		73.9			No
	8/9/2017		74.3			No
	14/9/2017		73.2			No
	20/9/2017		74.2			No
	26/9/2017		74.0			No
	30/9/2017		74.0			No
	6/10/2017		74.9			No
	11/10/2017		74.9			No
	17/10/2017		73.2			No
	23/10/2017		74.8			No
	26/10/2017		74.3			No
NM4	4/8/2017	73.3	74.5	When one documented complaint is received	70 dB(A) * ²	Yes
	10/8/2017		75.1		70 dB(A) * ²	Yes
	16/8/2017		74.2		70 dB(A) * ²	Yes
	22/8/2017		74.6		70 dB(A) * ²	Yes
	28/8/2017		74.1		70 dB(A) * ²	Yes
	2/9/2017		73.8		70 dB(A) * ²	Yes
	8/9/2017		74.0		70 dB(A) * ³	Yes
	14/9/2017		74.5		70 dB(A) * ³	Yes
	20/9/2017		74.1		70 dB(A) * ²	Yes
	26/9/2017		73.8		70 dB(A) * ²	Yes
	30/9/2017		74.2		70 dB(A) * ²	Yes
	6/10/2017		73.9		70 dB(A) * ²	Yes
	11/10/2017		72.6		70 dB(A) * ²	Yes
	17/10/2017		74.4		70 dB(A) * ²	Yes
	23/10/2017		74.1		70 dB(A) * ²	Yes
	26/10/2017		74.6		70 dB(A) * ²	Yes
NM5	4/8/2017	71.8	65.8	When one documented complaint is received	75 dB(A)	No
	10/8/2017		66.1			No
	16/8/2017		66.8			No
	22/8/2017		66.5			No
	28/8/2017		67.0			No

	2/9/2017		70.8			No
	8/9/2017		71.3			No
	14/9/2017		72.9			No
	20/9/2017		71.4			No
	26/9/2017		72.0			No
	30/9/2017		71.8			No
	6/10/2017		71.1			No
	11/10/2017		70.2			No
	17/10/2017		73.1			No
	23/10/2017		71.7			No
	26/10/2017		72.8			No

Remark:

*¹ Measured result would be rounded down before comparison with the limit level

*² 70dB(A) for schools during normal teaching periods

*³ 65dB(A) for schools examination periods

In accordance with the established action and limited levels for impact monitoring, sixteen exceedances were recorded at NM4.

The noise source for causing exceedances at NM4 was from the traffic of Canton Road. The NM4 was directly affected by the noise generated from the traffic. The recorded monitoring results at the NM4 were near the baseline noise level. The exceedances were not caused by this project construction works.

During the monitoring period, traffic noise was identified as one of the noise source for NM1, NM2, NM3, NM4 and NM5. Noise levels of NM1 and NM3 may be influenced by the construction activities from other construction sites near Nga Cheung Road. Noise level of NM2 may be influenced by construction activities from other construction sites near Hoi Ting Road. Noise levels of NM4 and NM5 may be influenced by the construction activities from other construction sites near Canton Road.

5 Solid and Liquid Waste Management Status

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 5.1. During this reporting month, inert C&D materials and general refuse were generated and disposed. No mixed waste was generated. No chemical waste was generated and collected by licensed collector. No paper, plastic and metal was recycled.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity						
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)					
		General Refuse	Mixed Waste	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Aug 2017	1061.18	25.19	0	0	0	0	0
Sep 2017	3410.43	30.62	0	0	0	0	0
Oct 2017	2213.94	30.56	0	0	0	0	0
Total	6685.55	86.37	0	0	0	0	0
Notes:							
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.							
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel metal generated from the Project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.							

Waste materials were generated during this reporting period, such as excavated waste, demolition waste and general refuse. Contractor handled, stored and disposed in accordance with good waste management practice and EPD's regulation and requirements.

6 Landscape and Visual Impact

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented to minimize the landscape and visual impacts during the construction works.

Bi-weekly site inspections were conducted by representatives of the Engineer, Contractor and ET on 11 and 25 Aug 2017, 8 and 22 Sep 2017, 6 and 20 Oct 2017. The observations, reminders and recommendations made during the site inspections are summarized in Section 8.2.

The implementation status of the proposed mitigation measures for landscape and visual impacts is given in **Appendix F**.

7 Environmental Site Inspection

Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Joint weekly inspections were conducted by representatives of the Contract Administrator, Engineer, Contractor and ET on 7, 16, 21 and 28 Aug 2017, 4, 11, 20 and 25 Sep 2017, 3, 9, 18, 23 and 30 Oct 2017. Observations were recorded and summarized in Section 8.2.

During site inspection in the reporting month, no non-compliance was identified.

Updated status summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix F**.

8 Environmental Non-Conformance

8.1 Summary of Environmental Exceedances

No exceedance of action level and limit level was recorded for TSP. Sixteen exceedances were recorded at NM4 for noise.

8.2 Summary of Environmental Non-Compliance

No environmental non-compliance was recorded in the reporting period.

8.3 Summary of Environmental Complaint

No environment project-related complaint was received in the reporting period.

8.4 Summary of Notification of Summons and Successful Prosecution

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The cumulative log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix G**.

9 Comment, Recommendations and Conclusions

9.1 Comment

The recommended mitigation measures accordance with the EM&A Manual had been effectively implemented to minimize the environmental impacts due to the construction. The contractor had implemented the mitigation measures to control the dust and noise impacts. No dust and noise impacts obviously affected to the environment and sensitive receivers. The environmental performance during the reporting period was considered satisfactory.

9.2 Recommendations

According to the environmental audit performed in the reporting month, the following recommendation was made:

Air Quality

- To cover and protect the gully for preventing entering of construction debris and materials.
- To frequently implement water spray for exposed surface (8 times per day for EP's requirement).
- To properly cover the debris and remove the dusty materials as soon as possible.
- To properly cover the soil materials and dusty materials for dust suppression.
- To properly cover the dusty materials and backfill the excavated areas as soon as possible for shortening the storage of fill materials
- To implement water spraying during the breaking activities for dust suppression
- To clean up the cement materials for preventing air pollution.
- To frequently implement water spraying for all the exposed areas, works areas and haul road aims to keep the surface wet for dust suppression.

Water / Wastewater

- To set up a sandbag barrier to isolate the works area for preventing muddy runoff and surface runoff.
- To properly maintain the site drainage system.
- To properly seal the existing drainage system.
- To clean up the sedimentation tank.
- To regularly clean up and maintain the drainage channels for wastewater collection.

- To control the water level for preventing overflow.
- To frequently clean up the site drainage channels
- To review the treatment efficiency and frequently maintain the wastewater treatment facilities
- To replace the broken sandbags for properly sealing the gully
- To provide coverage to the sediment storage tank

Visual and Landscape

- To remove the ties.
- To conduct crown pruning for the existing tree which next to T24.
- To remove the construction materials from the tree protection zone and maintain proper storage.
- To remove the excess soil
- To provide sufficient TPZ and to remove all the construction materials which piled near B38(R), B39(R), WKI850(R) and WKI851(R).

Chemicals / Chemical waste and C&D waste

- To store the construction materials in designated storage areas for preventing any damage or contamination.
- To provide more waste collection points and frequently conduct waste disposal.
- To provide the drip tray as secondary containment for the chemical containers.
- To properly store the construction materials and C&D waste.
- To sort out different types of waste such as inert, non-inert and general refuse.
- To provide designated areas for materials storage and maintain the site housekeeping.
- To maintain proper storage and keep the site areas tidy.
- To sort out the waste with different types and maintain proper waste storage.
- To remove the waste inside the drainage channel.

Equipment, Document, Housekeeping & Others

- To clean up the oil leakage and properly maintain all the equipment.
- To frequently clean and maintain the channels.
- To clean up the oil stain and properly maintain the equipment for preventing any oil leakage.
- To provide coverage and suitable label to the tank.
- To provide suitable labels for chemicals storage areas.

9.3 Conclusions

This is the quarterly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1 Aug 2017 to 31 Oct 2017 in accordance with the EM&A Manual.

No exceedance of action level and limit level was recorded for TSP. Sixteen exceedances were recorded at NM4 for noise.




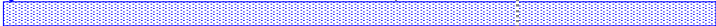




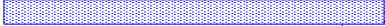
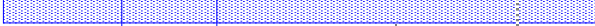















No Non-compliance event, environmental complaint, notification of summons and successful prosecution against the Project were received in this reporting period.

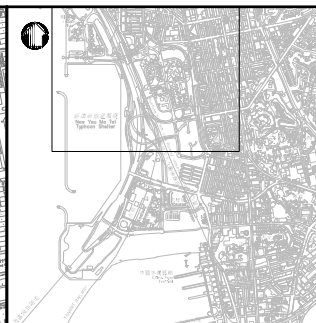
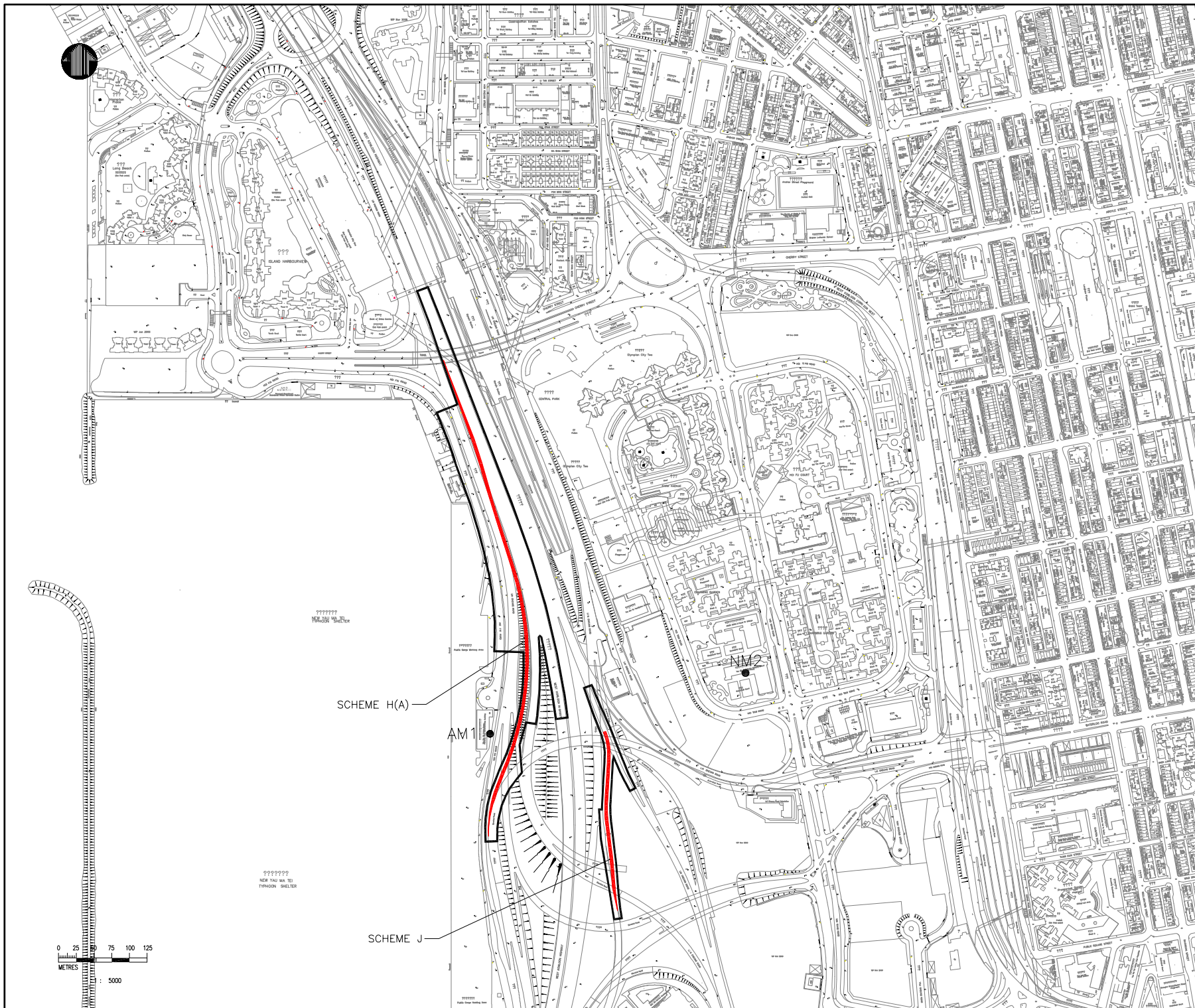
13 nos. of environmental site inspections and 6 nos. of landscape and visual inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

ET has reminded the contractor to provided environmental pollution control measures, waste management measures and good site practice

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

Appendix A: Construction Programme and Project Layout Plan

ID	Task Name	Duration	Start	Finish	2015				2016				2017				2018				
					Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
1	Road Improvement Works in West Kowloon Reclamation Development	1312 d	Mon 23/3/15	Wed 24/10/18																	1312 d
2	West Kowloon Highway South Bound near Western Harbour Tunnel at Portio	1306 d	Mon 23/3/15	Thu 18/10/18																	1306 d
3	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16																	
4	Underground investigation, utilities diversion and piling construction	600 d	Sat 6/2/16	Wed 27/9/17																	
5	Pile cap, Pier and Bridge Deck construction	180 d	Thu 28/9/17	Mon 26/3/18																	
6	E&M installation and roadworks	76 d	Tue 27/3/18	Sun 10/6/18																	
7	Street furniture installation	130 d	Mon 11/6/18	Thu 18/10/18																	
8																					
9	Canton road at Portion Q	1200 d	Mon 23/3/15	Wed 4/7/18																	1200 d
10	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16																	
11	Road works at Canton road footpath and utilities diversion	500 d	Sat 6/2/16	Mon 19/6/17																	
12	Construction of sign gantry	150 d	Tue 20/6/17	Thu 16/11/17																	
13	Road works at Ferry Street and Jordan road	500 d	Mon 16/5/16	Wed 27/9/17																	
14	Road works at Wui Cheung road	450 d	Thu 4/8/16	Fri 27/10/17																	
15	Road Works at Austin Road junction	350 d	Thu 20/7/17	Wed 4/7/18																	
16																					
17	Lin Cheung Road North Bound at Portion HA	1312 d	Mon 23/3/15	Wed 24/10/18																	1312 d
18	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16																	
19	Underground investigation, utilities diversion and piling construction	650 d	Sat 6/2/16	Thu 16/11/17																	
20	Pile cap, Pier and Bridge Deck construction	180 d	Fri 17/11/17	Tue 15/5/18																	
21	E&M installation and roadworks	42 d	Wed 16/5/18	Tue 26/6/18																	
22	Street furniture installation	120 d	Wed 27/6/18	Wed 24/10/18																	
23																					
24																					
25	Lin Cheung Road South Bound at Portion J	1090 d	Mon 23/3/15	Fri 16/3/18																	1090 d
26	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16																	
27	Construction of retaining walls and utilities diversion	500 d	Sat 6/2/16	Mon 19/6/17																	
28	Site formation and roadworks	140 d	Tue 20/6/17	Mon 6/11/17																	
29	Street furniture installation	130 d	Tue 7/11/17	Fri 16/3/18																	



LOCATION PLAN

LEGEND:

- AM1/NM1
(AIR MONITORING STATION/NOISE MONITORING STATION)
- WORKS BOUNDARY

Rev	Description	By	Date

Consultant
**PARSONS
BRINCKERHOFF**

漢
綠 **CINOTECH**

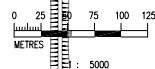
Project title
 AGREEMENT NO. CE 44/2011 (HY)
 PROPOSED ROAD IMPROVEMENT WORKS IN
 WEST KOWLOON RECLAMATION DEVELOPMENT
 – PHASE 1 INVESTIGATION,
 DESIGN AND CONSTRUCTION

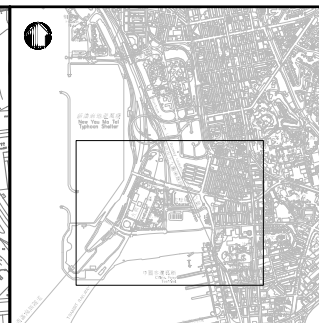
Drawing title
**LOCATION OF MONITORING
STATIONS (PAGE 1 OF 2)**

Drawing no.			CE44/T/ST/EM03		Rev.		2								
Drawn		MC		Date		AUG13		Checked		KS		Approved		LC	
Scale				A3 1:5000				Status		PRELIMINARY					

(C) COPYRIGHT RESERVED

© COPYRIGHT RESERVED





LOCATION PLAN

LEGEND:

- AM1/NM1
(AIR MONITORING STATION/NOISE MONITORING STATION)
- WORKS BOUNDARY

Rev	Description	By	Date

Consultant

**PARSONS
BRINCKERHOFF**

漢
臻 **CINOTECH**

Project title
AGREEMENT NO. CE 44/2011 (HY)
PROPOSED ROAD IMPROVEMENT WORKS IN
WEST KOWLOON RECLAMATION DEVELOPMENT
— PHASE 1 INVESTIGATION,
DESIGN AND CONSTRUCTION

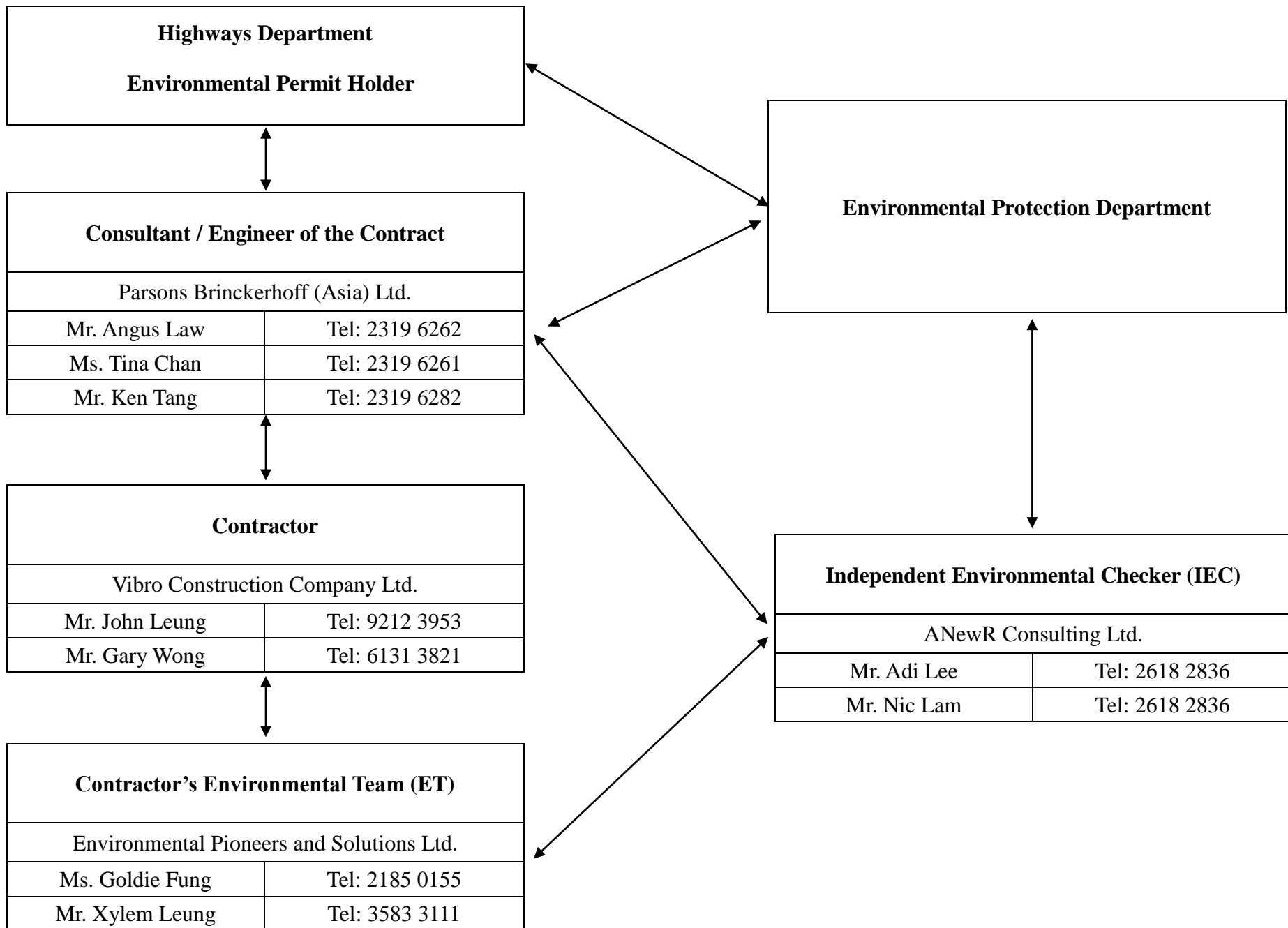
Drawing title
LOCATION OF MONITORING
STATIONS (PAGE 2 OF 2)

Drawing no.	CE44/T/ST/EM04			Rev.	2
Drawn	MC	Date	AUG13	Checked	KS
Scale	A3 1:5000	Status	PRELIMINARY		

© COPYRIGHT RESERVED

**路政署
HIGHWAYS DEPARTMENT**
主要工程管理部
MAJOR WORKS PROJECT MANAGEMENT OFFICE

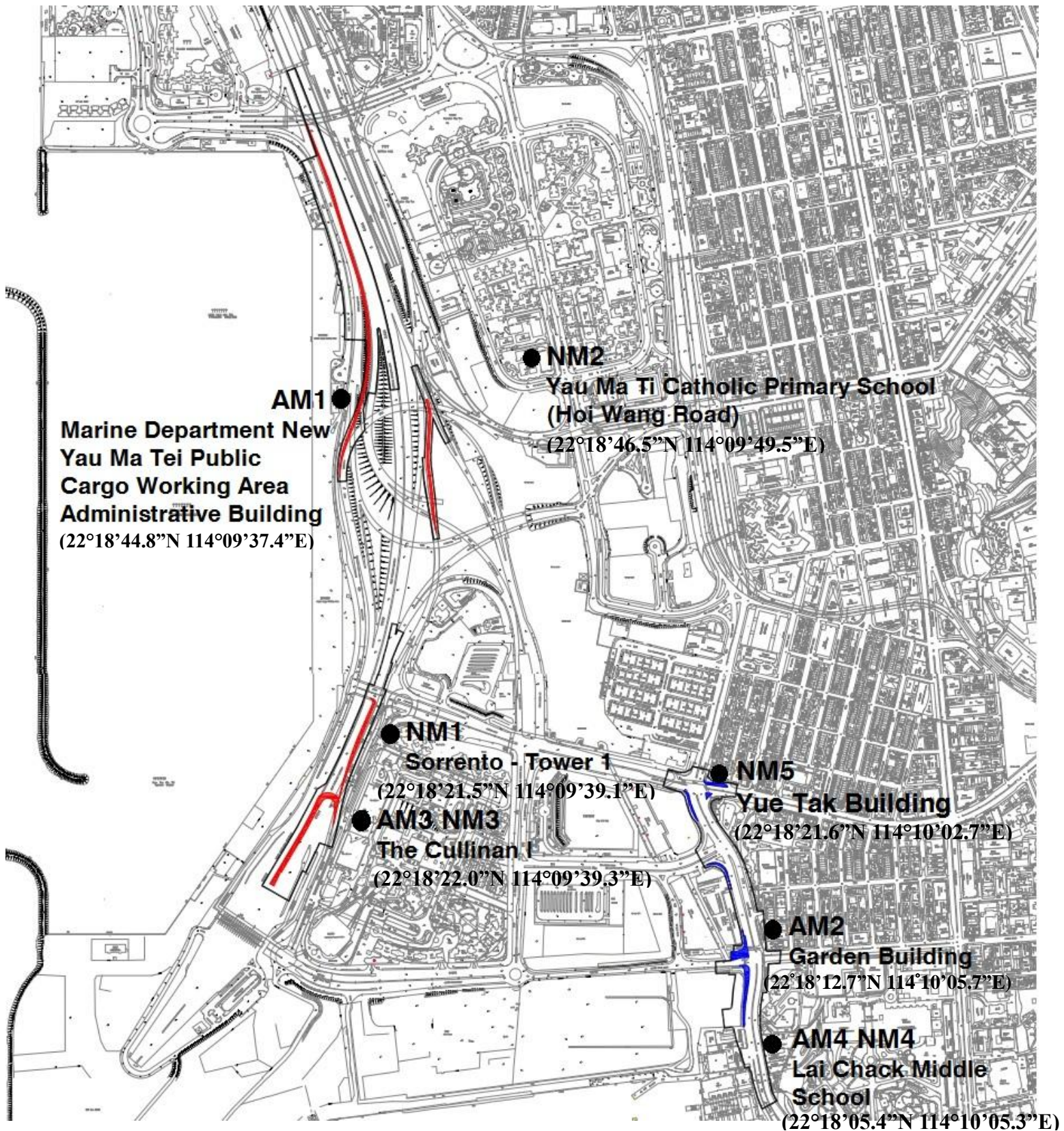
Appendix B: Project Organization Chart












↔ Line of communication

Appendix C: Monitoring Locations

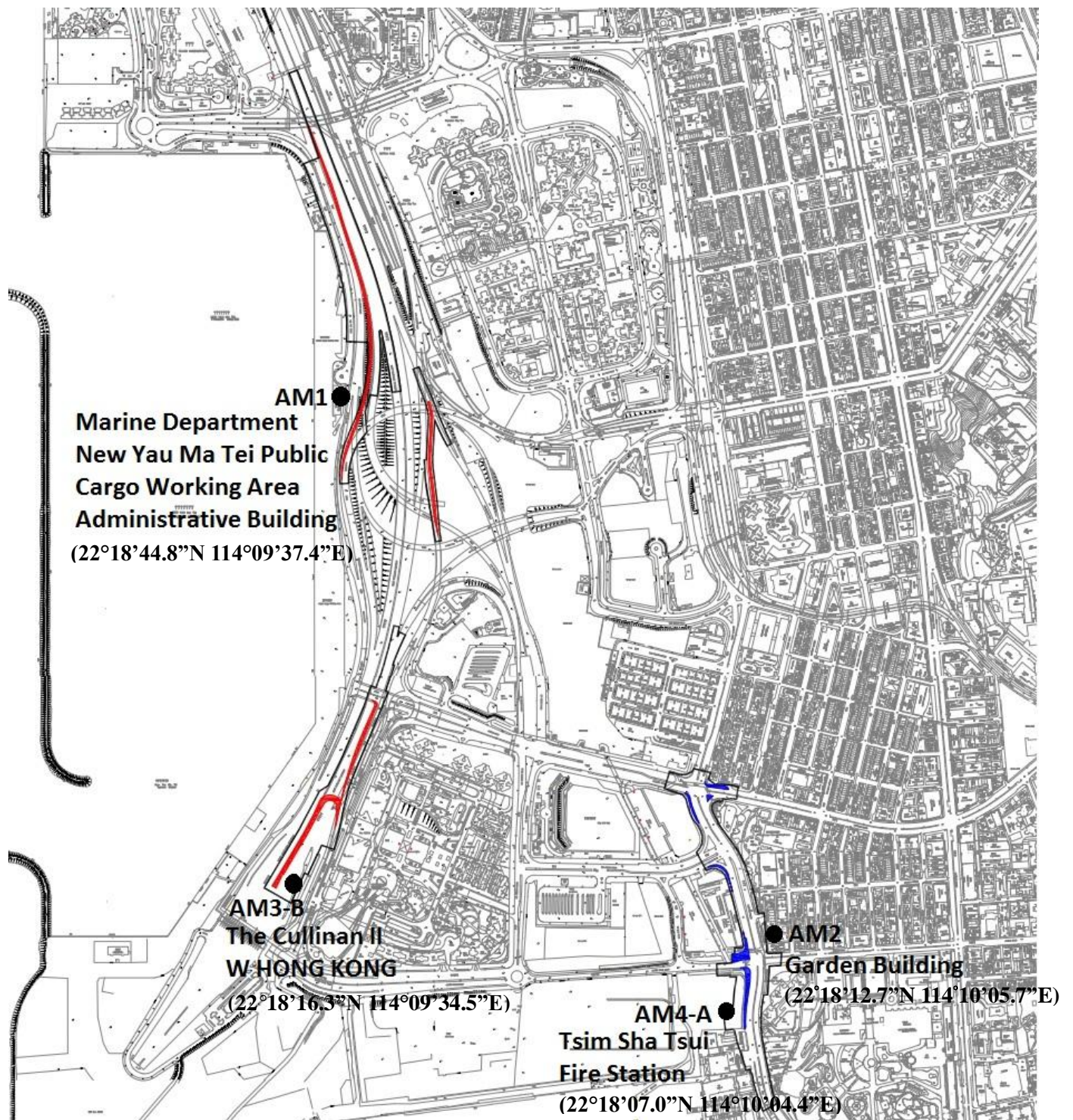
Locations for 1-hr TSP and Noise monitoring



Monitoring Location	Photo Record
<p>AM1</p> <p>Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building</p>	
<p>AM2</p> <p>Garden Building</p>	
<p>AM3</p> <p>The Cullinan I</p>	
<p>AM4</p> <p>Lai Chack Middle School</p>	

Monitoring Location	Photo Record
<p>NM1</p> <p>Sorrento - Tower 1</p>	
<p>NM2</p> <p>Yau Ma Tei Catholic Primary School (Hoi Wang Road)</p>	
<p>NM3</p> <p>The Cullinan I</p>	
<p>NM4</p> <p>Lai Chack Middle School</p>	
<p>NM5</p> <p>Yue Tak Building</p>	

Locations for 24-hr TSP monitoring



Monitoring Location	Photo Record
<p>AM1</p> <p>Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building</p>	 <p>A photograph showing a grey electrical control cabinet with a white door, situated on a paved rooftop area. A white door is visible in the background. The date stamp in the bottom right corner reads 2016/11/07.</p>
<p>AM2</p> <p>Garden Building</p>	 <p>A photograph showing a grey electrical control cabinet with a white door, situated on a paved area. A building entrance with a staircase is visible in the background. The date stamp in the bottom right corner reads 2016/05/18.</p>
<p>AM3-B</p> <p>The Cullinan II (W Hong Kong)</p>	 <p>A photograph showing a blue electrical control cabinet with a white door, situated on a paved area. A building and some greenery are visible in the background. The date stamp in the bottom right corner reads 2016/09/28.</p>
<p>AM4-A</p> <p>Tsim Sha Tsui Fire Station</p>	 <p>A photograph showing a grey electrical control cabinet with a white door, situated on a paved area. A building and some greenery are visible in the background. The date stamp in the bottom right corner reads 2016/09/28.</p>

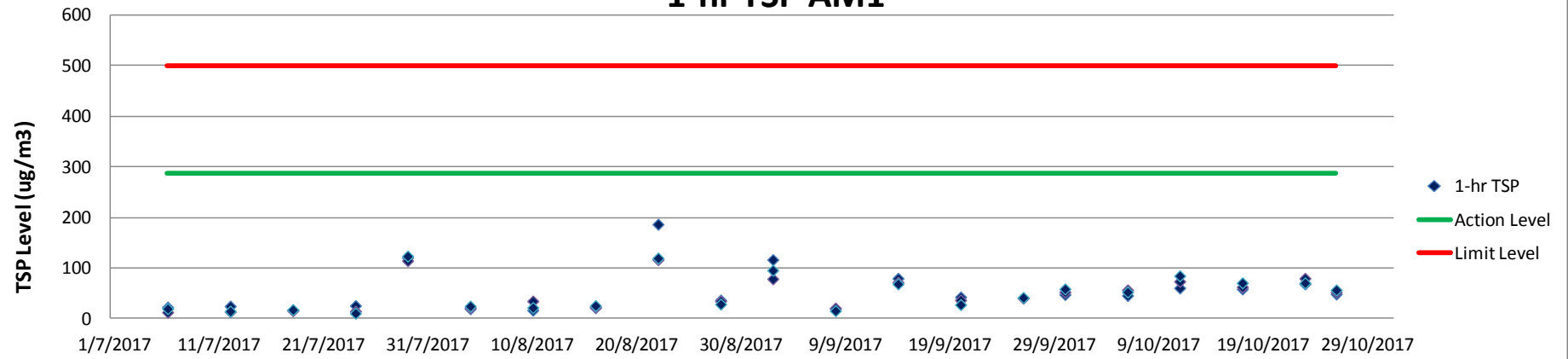
Appendix D: TSP Monitoring Data

1-hr TSP Monitoring Result for AM1

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
4/8/2017	Cloudy	26.3 - 29.0	SE	<5m/s	9:17	10:18	11:19	20	22	25	22
10/8/2017	Sunny	27.3- 31.3	NW	<5m/s	10:57	11:58	12:59	17	35	22	25
16/8/2017	Sunny	28.0 - 31.0	NW	<5m/s	14:12	15:13	16:14	22	23	26	24
22/8/2017	Overcast	27.0 - 36.9	NE	<5m/s	14:02	15:03	16:04	187	117	120	141
28/8/2017	Overcast	24.3 - 26.4	E	<5m/s	11:07	12:08	13:09	37	35	29	34
2/9/2017	Overcast	26.3 - 30.5	W	<5m/s	10:19	11:20	12:21	117	79	96	97
8/9/2017	Sunny	26.4- 31.1	W	<5m/s	14:08	15:09	16:10	20	21	16	19
14/9/2017	Sunny	27.1 - 31.1	SE	<5m/s	13:23	14:24	15:25	80	72	69	74
20/9/2017	Sunny	27.2 - 32.0	SE	<5m/s	12:20	13:21	14:22	43	37	28	36
26/9/2017	Sunny	24.3 - 26.4	SE	<5m/s	14:20	15:21	16:22	41	41	42	41
30/9/2017	Sunny	24.9 - 27.1	SE	<5m/s	13:15	14:16	15:17	48	53	59	53
6/10/2017	Overcast	26.8 - 30.9	SE	<5m/s	15:12	16:13	17:14	46	57	53	52
11/10/2017	Sunny	26.4 - 31.1	SE	<5m/s	15:18	16:19	17:20	61	74	85	73
17/10/2017	Sunny	24.6 - 31.1	E	<5m/s	13:27	14:28	15:29	59	63	71	64
23/10/2017	Sunny	20.8 - 27.0	NE	<5m/s	14:45	15:46	16:47	69	80	71	73
26/10/2017	Sunny	22.0 - 28.1	SE	<5m/s	11:55	12:56	13:57	49	53	57	53

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

1-hr TSP AM1

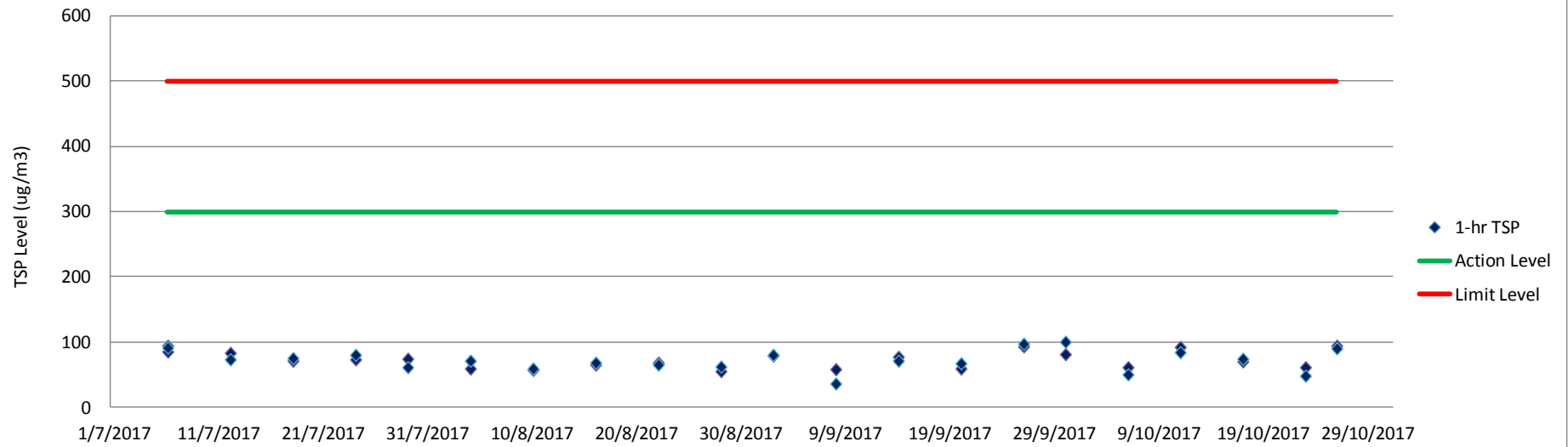


1-hr TSP Monitoring Result for AM2

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
4/8/2017	Cloudy	26.3 - 29.0	SE	<5m/s	9:30	10:31	11:32	51	59	71	60
10/8/2017	Sunny	27.3- 31.3	NW	<5m/s	9:30	10:31	11:32	65	57	59	60
16/8/2017	Sunny	28.0 - 31.0	NW	<5m/s	9:30	10:31	11:32	62	65	68	65
22/8/2017	Overcast	27.0 - 36.9	NE	<5m/s	9:30	10:31	11:32	59	68	65	64
28/8/2017	Overcast	24.3 - 26.4	E	<5m/s	9:30	10:31	11:32	57	55	62	58
2/9/2017	Overcast	26.3 - 30.5	W	<5m/s	9:30	10:31	11:32	76	79	80	78
8/9/2017	Sunny	26.4- 31.1	W	<5m/s	9:30	10:31	11:32	56	58	36	50
14/9/2017	Sunny	27.1 - 31.1	SE	<5m/s	9:30	10:31	11:32	83	77	71	77
20/9/2017	Sunny	27.2 - 32.0	SE	<5m/s	9:30	10:31	11:32	53	59	67	60
26/9/2017	Sunny	24.3 - 26.4	SE	<5m/s	9:30	10:31	11:32	89	93	97	93
30/9/2017	Sunny	24.9 - 27.1	SE	<5m/s	9:30	10:31	11:32	62	81	100	81
6/10/2017	Overcast	26.8 - 30.9	SE	<5m/s	9:30	10:31	11:32	57	61	50	56
11/10/2017	Sunny	26.4 - 31.1	SE	<5m/s	9:30	10:31	11:32	80	92	84	85
17/10/2017	Sunny	24.6 - 31.1	E	<5m/s	9:30	10:31	11:32	77	70	74	74
23/10/2017	Sunny	20.8 - 27.0	NE	<5m/s	9:30	10:31	11:32	59	61	48	56
26/10/2017	Sunny	22.0 - 28.1	SE	<5m/s	9:30	10:31	11:32	94	94	90	93

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

1-hr TSP AM2

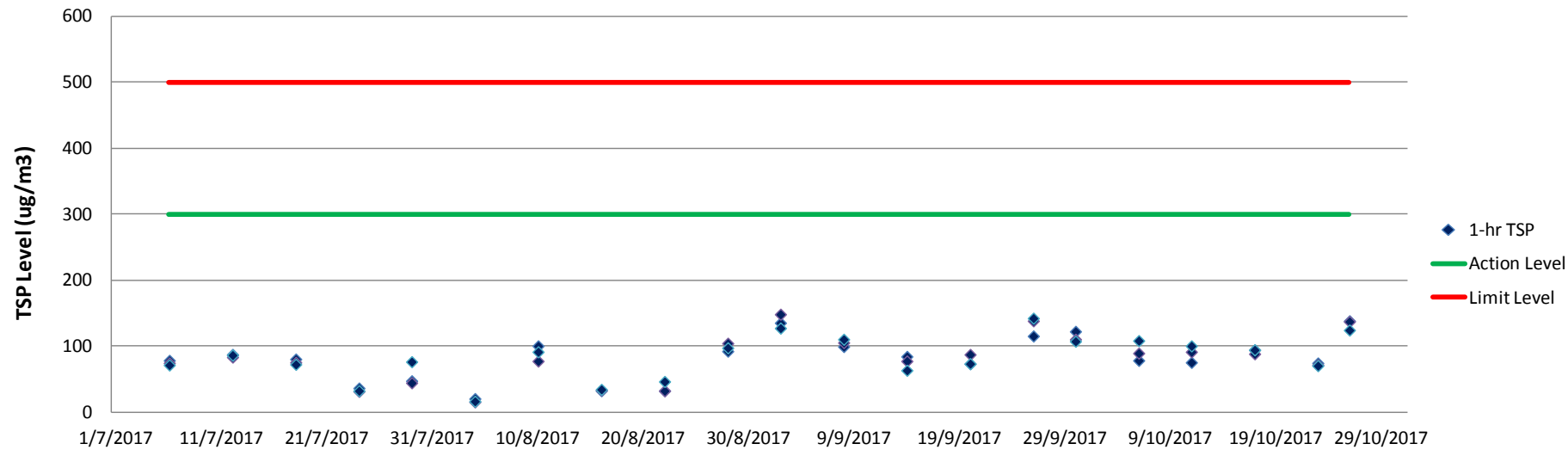


1-hr TSP Monitoring Result for AM3

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
4/8/2017	Cloudy	26.3 - 29.0	SE	<5m/s	9:58	10:59	12:00	21	16	17	18
10/8/2017	Sunny	27.3- 31.3	NW	<5m/s	11:17	12:18	13:19	101	78	92	90
16/8/2017	Sunny	28.0 - 31.0	NW	<5m/s	14:59	16:00	17:01	33	34	35	34
22/8/2017	Overcast	27.0 - 36.9	NE	<5m/s	14:33	15:34	16:35	33	33	47	38
28/8/2017	Overcast	24.3 - 26.4	E	<5m/s	11:27	12:28	13:29	93	105	98	99
2/9/2017	Overcast	26.3 - 30.5	W	<5m/s	10:44	11:45	12:46	136	149	128	138
8/9/2017	Sunny	26.4- 31.1	W	<5m/s	14:21	15:22	16:23	100	106	111	106
14/9/2017	Sunny	27.1 - 31.1	SE	<5m/s	13:28	14:29	15:30	85	78	64	76
20/9/2017	Sunny	27.2 - 32.0	SE	<5m/s	12:57	13:58	14:59	74	88	74	79
26/9/2017	Sunny	24.3 - 26.4	SE	<5m/s	14:47	15:48	16:49	116	139	143	133
30/9/2017	Sunny	24.9 - 27.1	SE	<5m/s	14:00	15:01	16:02	123	111	108	114
6/10/2017	Overcast	26.8 - 30.9	SE	<5m/s	14:47	15:48	16:49	79	90	109	93
11/10/2017	Sunny	26.4 - 31.1	SE	<5m/s	14:58	15:59	17:00	76	92	101	90
17/10/2017	Sunny	24.6 - 31.1	E	<5m/s	14:08	15:09	16:10	95	89	95	93
23/10/2017	Sunny	20.8 - 27.0	NE	<5m/s	14:08	15:09	16:10	75	72	71	73
26/10/2017	Sunny	22.0 - 28.1	SE	<5m/s	12:33	13:34	14:35	139	138	125	134

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

1-hr TSP AM3

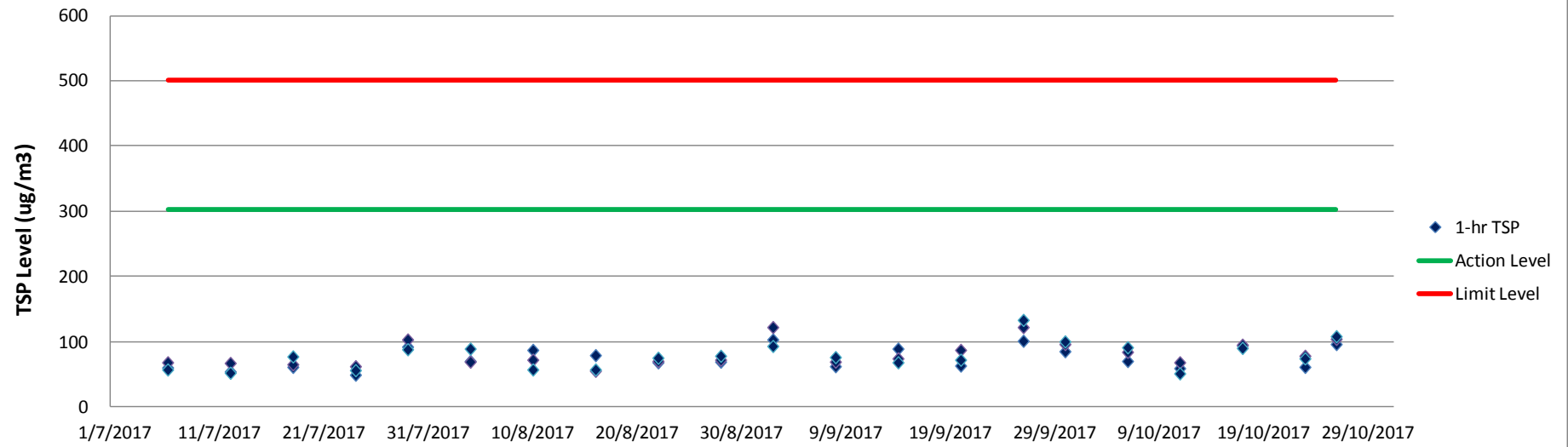


1-hr TSP Monitoring Result for AM4

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
4/8/2017	Cloudy	26.3 - 29.0	SE	<5m/s	13:00	14:01	15:02	70	69	89	76
10/8/2017	Sunny	27.3- 31.3	NW	<5m/s	13:00	14:01	15:02	87	72	57	72
16/8/2017	Sunny	28.0 - 31.0	NW	<5m/s	13:00	14:01	15:02	79	55	57	64
22/8/2017	Overcast	27.0 - 36.9	NE	<5m/s	13:00	14:01	15:02	68	70	75	71
28/8/2017	Overcast	24.3 - 26.4	E	<5m/s	13:00	14:01	15:02	69	72	78	73
2/9/2017	Overcast	26.3 - 30.5	W	<5m/s	13:00	14:01	15:02	103	122	93	106
8/9/2017	Sunny	26.4- 31.1	W	<5m/s	13:00	14:01	15:02	62	69	76	69
14/9/2017	Sunny	27.1 - 31.1	SE	<5m/s	13:00	14:01	15:02	89	74	68	77
20/9/2017	Sunny	27.2 - 32.0	SE	<5m/s	13:00	14:01	15:02	63	87	72	74
26/9/2017	Sunny	24.3 - 26.4	SE	<5m/s	13:00	14:01	15:02	101	122	133	119
30/9/2017	Sunny	24.9 - 27.1	SE	<5m/s	13:00	14:01	15:02	85	96	100	94
6/10/2017	Overcast	26.8 - 30.9	SE	<5m/s	13:00	14:01	15:02	70	84	91	82
11/10/2017	Sunny	26.4 - 31.1	SE	<5m/s	13:00	14:01	15:02	59	68	51	59
17/10/2017	Sunny	24.6 - 31.1	E	<5m/s	13:00	14:01	15:02	94	95	90	93
23/10/2017	Sunny	20.8 - 27.0	NE	<5m/s	13:00	14:01	15:02	61	78	74	71
26/10/2017	Sunny	22.0 - 28.1	SE	<5m/s	13:00	14:01	15:02	96	104	108	103

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

1-hr TSP AM4

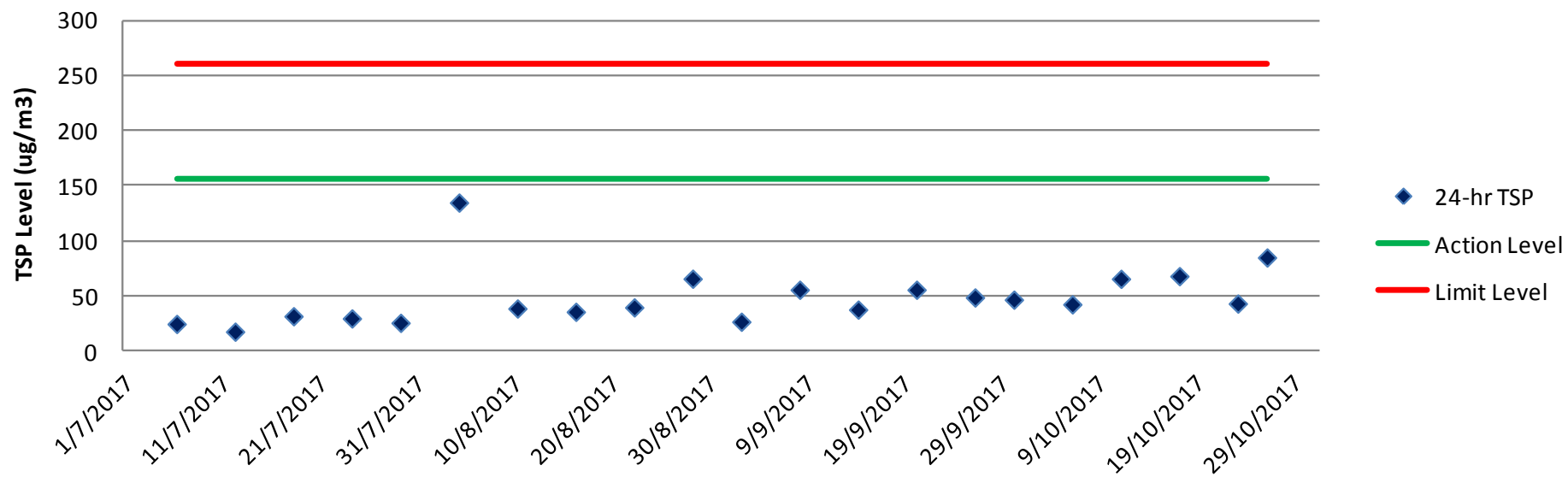


24-hr TSP Monitoring Result for AM1

Sampling ID & Paper No.	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)	Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust			
AM10804 203331	26.3 - 29.0	SE	<5m/s	4/8/2017	2.8445	3.1459	0.3014	55.0	2262.94	133
AM10810 203330	27.3- 31.3	NW	<5m/s	10/8/2017	2.8539	2.9420	0.0881	55.0	2262.94	39
AM10816 203348	28.0 - 31.0	NW	<5m/s	16/8/2017	2.8414	2.9209	0.0795	55.0	2262.94	35
AM10822 203346	27.0 - 36.9	NE	<5m/s	22/8/2017	2.8295	2.9188	0.0893	55.0	2262.94	39
AM10828 203352	24.3 - 26.4	E	<5m/s	28/8/2017	2.8362	2.9837	0.1475	55.0	2262.94	65
AM10902 203347	26.3 - 30.5	W	<5m/s	2/9/2017	2.8270	2.8873	0.0603	55.0	2262.94	27
AM10908 203361	26.4- 31.1	W	<5m/s	8/9/2017	2.7969	2.9245	0.1276	55.0	2262.94	56
AM10914 203360	27.1 - 31.1	SE	<5m/s	14/9/2017	2.7892	2.8742	0.0850	55.0	2262.94	38
AM10920 203359	27.2 - 32.0	SE	<5m/s	20/9/2017	2.7900	2.9170	0.1270	55.0	2262.94	56
AM10926 203362	24.3 - 26.4	SE	<5m/s	26/9/2017	2.8071	2.9188	0.1117	55.0	2262.94	49
AM10930 203371	24.9 - 27.1	SE	<5m/s	30/9/2017	2.8248	2.9318	0.1070	55.0	2262.94	47
AM11006 203372	26.8 - 30.9	SE	<5m/s	6/10/2017	2.8245	2.9143	0.0898	50.0	2099.92	43
AM11011 203373	26.4 - 31.1	SE	<5m/s	11/10/2017	2.8073	2.9457	0.1384	50.0	2099.92	66
AM11017 203377	24.6 - 31.1	E	<5m/s	17/10/2017	2.7969	2.9404	0.1435	50.0	2099.92	68
AM11023 203380	20.8 - 27.0	NE	<5m/s	23/10/2017	2.8122	2.9035	0.0913	50.0	2099.92	43
AM11026 203379	22.0 - 28.1	SE	<5m/s	26/10/2017	2.8050	2.9840	0.1790	50.0	2099.92	85

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

24-hr TSP AM1

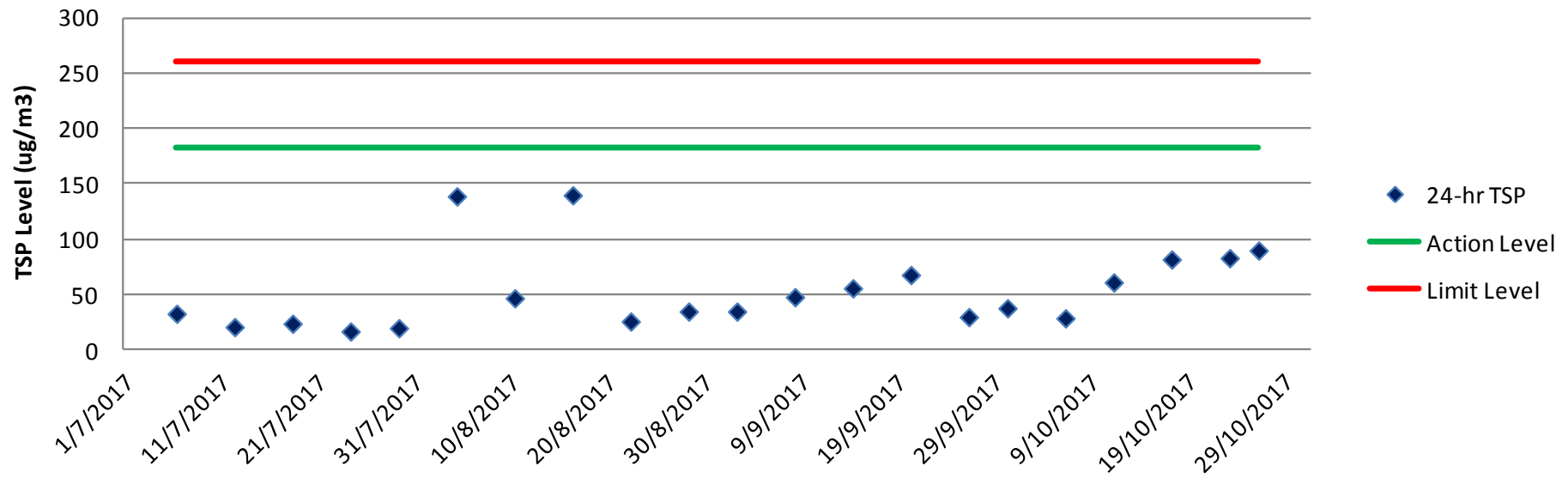


24-hr TSP Monitoring Result for AM2

Sampling ID & Paper No.	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)	Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust			
AM20804 203340	26.3 - 29.0	SE	<5m/s	4/8/2017	2.8434	3.1693	0.3259	52.0	2403.37	136
AM20810 203336	27.3- 31.3	NW	<5m/s	10/8/2017	2.8532	2.9634	0.1102	52.0	2403.37	46
AM20816 203345	28.0 - 31.0	NW	<5m/s	16/8/2017	2.8123	3.1423	0.3300	52.0	2403.37	137
AM20822 203351	27.0 - 36.9	NE	<5m/s	22/8/2017	2.8417	2.9036	0.0619	52.0	2403.37	26
AM20828 203355	24.3 - 26.4	E	<5m/s	28/8/2017	2.8300	2.9115	0.0815	52.0	2403.37	34
AM20902 203369	26.3 - 30.5	W	<5m/s	2/9/2017	2.8035	2.8880	0.0845	52.0	2403.37	35
AM20908 203320	26.4- 31.1	W	<5m/s	8/9/2017	2.8226	2.9377	0.1151	52.0	2403.37	48
AM20914 203370	27.1 - 31.1	SE	<5m/s	14/9/2017	2.7882	2.9238	0.1356	52.0	2403.37	56
AM20920 203364	27.2 - 32.0	SE	<5m/s	20/9/2017	2.8079	2.9723	0.1644	52.0	2403.37	68
AM20926 203302	24.3 - 26.4	SE	<5m/s	26/9/2017	2.8691	2.9420	0.0729	52.0	2403.37	30
AM20930 203328	24.9 - 27.1	SE	<5m/s	30/9/2017	2.8620	2.9524	0.0904	52.0	2403.37	38
AM21006 203368	26.8 - 30.9	SE	<5m/s	6/10/2017	2.8123	2.8770	0.0647	50.0	2237.56	29
AM21011 203337	26.4 - 31.1	SE	<5m/s	11/10/2017	2.8525	2.9896	0.1371	50.0	2237.56	61
AM21017 203367	24.6 - 31.1	E	<5m/s	17/10/2017	2.7935	2.9770	0.1835	50.0	2237.56	82
AM21023 203366	20.8 - 27.0	NE	<5m/s	23/10/2017	2.8008	2.9870	0.1862	50.0	2237.55	83
AM21026 203365	22.0 - 28.1	SE	<5m/s	26/10/2017	2.8034	3.0050	0.2016	50.0	2237.56	90

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

24-hr TSP AM2

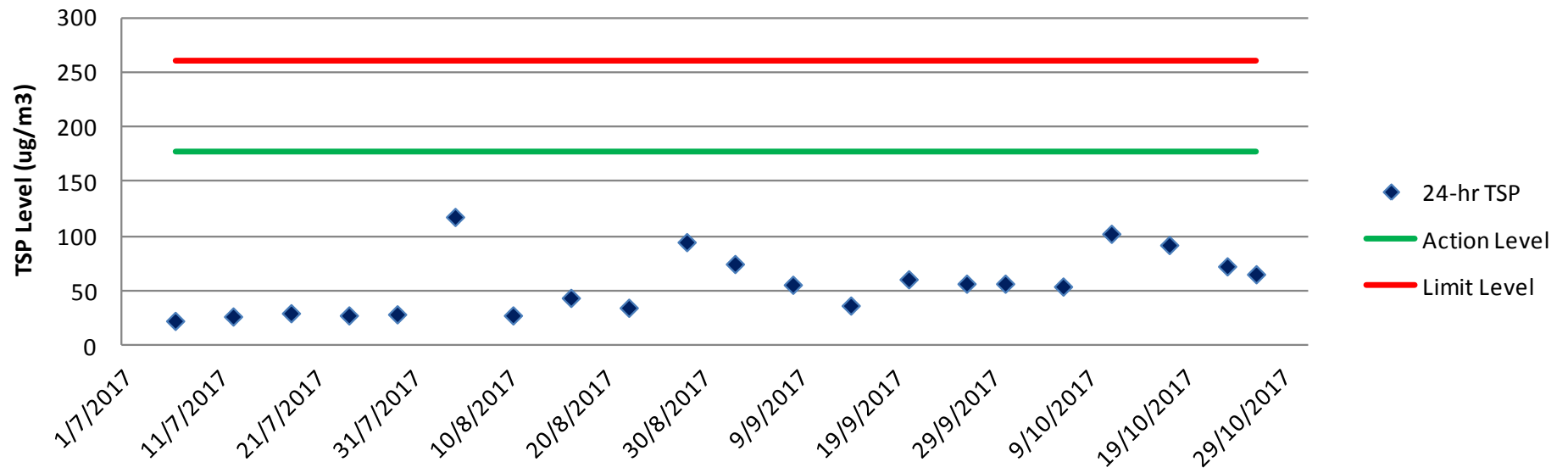


24-hr TSP Monitoring Result for AM3-B

Sampling ID & Paper No.	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)	Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust			
AM3-B0804 203333	26.3 - 29.0	SE	<5m/s	4/8/2017	2.8512	3.1243	0.2731	56.0	2310.55	118
AM3-B0810 203332	27.3- 31.3	NW	<5m/s	10/8/2017	2.8404	2.9061	0.0657	56.0	2310.55	28
AM3-B0816 203353	28.0 - 31.0	NW	<5m/s	16/8/2017	2.8370	2.9396	0.1026	56.0	2310.55	44
AM3-B0822 203350	27.0 - 36.9	NE	<5m/s	22/8/2017	2.8359	2.9172	0.0813	56.0	2310.55	35
AM3-B0828 203349	24.3 - 26.4	E	<5m/s	28/8/2017	2.8544	3.0735	0.2191	56.0	2310.55	95
AM3-B0902 203354	26.3 - 30.5	W	<5m/s	2/9/2017	2.8341	3.0073	0.1732	56.0	2310.55	75
AM3-B0908 203358	26.4- 31.1	W	<5m/s	8/9/2017	2.7949	2.9242	0.1293	56.0	2310.55	56
AM3-B0914 203357	27.1 - 31.1	SE	<5m/s	14/9/2017	2.8288	2.9149	0.0861	56.0	2310.55	37
AM3-B0920 203356	27.2 - 32.0	SE	<5m/s	20/9/2017	2.8492	2.9900	0.1408	56.0	2310.55	61
AM3-B0926 203363	24.3 - 26.4	SE	<5m/s	26/9/2017	2.7828	2.9135	0.1307	56.0	2310.55	57
AM3-B0930 203374	24.9 - 27.1	SE	<5m/s	30/9/2017	2.7987	2.9308	0.1321	56.0	2310.55	57
AM3-B1006 203372	26.8 - 30.9	SE	<5m/s	6/10/2017	2.8010	2.9197	0.1187	50.0	2182.40	54
AM3-B1011 203373	26.4 - 31.1	SE	<5m/s	11/10/2017	2.8114	3.0353	0.2239	50.0	2182.40	103
AM3-B1017 203377	24.6 - 31.1	E	<5m/s	17/10/2017	2.8219	3.0234	0.2015	50.0	2182.40	92
AM3-B1023 203380	20.8 - 27.0	NE	<5m/s	23/10/2017	2.8165	2.9755	0.1590	50.0	2182.40	73
AM3-B1026 203379	22.0 - 28.1	SE	<5m/s	26/10/2017	2.8223	2.9655	0.1432	50.0	2182.40	66

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO

24-hr TSP AM3-B



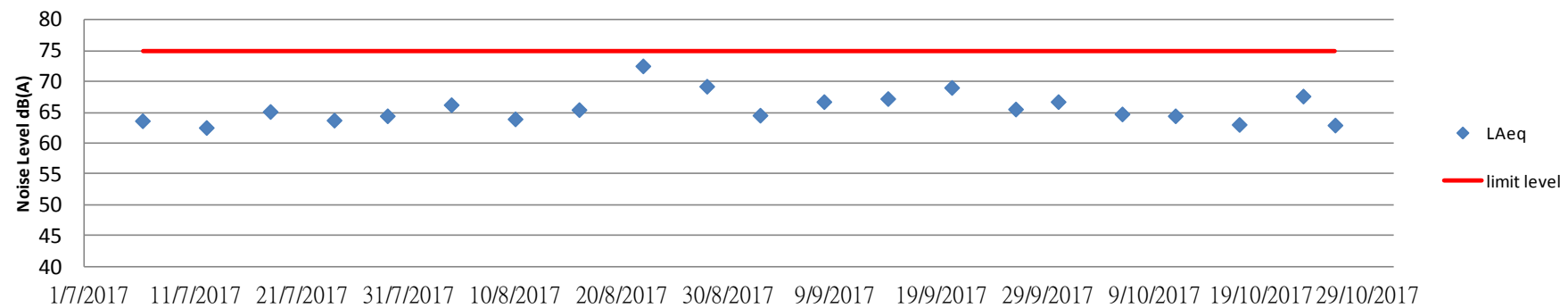
Appendix E: Noise Monitoring Data

Location	NM1				
Date	4/8/2017	10/8/2017	16/8/2017	22/8/2017	28/8/2017
Weather Condition	Cloudy	Sunny	Sunny	Overcast	Overcast
Start Time	10:50	10:22	15:40	15:56	10:50
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	75.1				
L _{Aeq}	66.2	63.9	65.4	72.5	69.2
L ₁₀	67.3	65.5	66.8	74.4	71.2
L ₉₀	65.0	61.3	63.0	61.8	63.0

Location	NM1					
Date	2/9/2017	8/9/2017	14/9/2017	20/9/2017	26/9/2017	30/9/2017
Weather Condition	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	11:33	15:44	14:54	14:48	15:11	11:19
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	75.1					
L _{Aeq}	64.5	66.7	67.2	69.0	65.5	66.7
L ₁₀	65.9	68.5	69.3	71.2	67.1	69.4
L ₉₀	61.5	64.1	61.5	64.5	63.4	62.3

Location	NM1				
Date	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017
Weather Condition	Overcast	Sunny	Sunny	Sunny	Sunny
Start Time	15:47	15:31	16:33	16:01	15:02
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	75.1				
L _{Aeq}	64.7	64.4	63.0	67.6	62.9
L ₁₀	66.5	65.7	63.9	69.3	64.1
L ₉₀	60.3	62.3	60.4	65.1	60.9

Noise - NM1

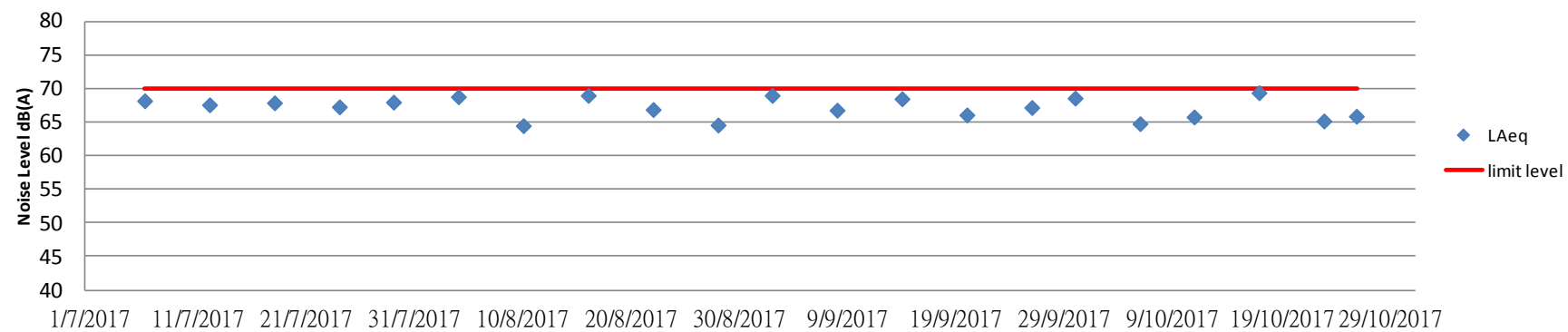


Location	NM2				
Date	4/8/2017	10/8/2017	16/8/2017	22/8/2017	28/8/2017
Weather Condition	Cloudy	Sunny	Sunny	Cloudy	Overcast
Start Time	9:45	9:45	9:45	9:45	9:45
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	66.5				
L _{Aeq}	68.7	64.4	68.9	66.8	64.5
L ₁₀	69.2	66.1	70.1	68.5	66.3
L ₉₀	62.1	61.3	62.7	62.3	61.4

Location	NM2					
Date	2/9/2017	8/9/2017	14/9/2017	20/9/2017	26/9/2017	30/9/2017
Weather Condition	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	9:45	9:45	9:45	9:45	9:45	9:45
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	66.5					
L _{Aeq}	68.9	66.7	68.4	66.0	67.1	68.5
L ₁₀	70.8	68.9	69.9	67.8	69.4	71.3
L ₉₀	63.5	62.2	59.7	64.1	63.6	64.8

Location	NM2				
Date	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017
Weather Condition	Overcast	Sunny	Sunny	Sunny	Sunny
Start Time	9:45	9:45	9:45	9:45	9:45
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	66.5				
L _{Aeq}	64.7	65.7	69.3	65.1	65.8
L ₁₀	67.3	67.5	72.0	67.8	68.2
L ₉₀	59.2	62.2	64.6	60.8	60.9

Noise - NM2

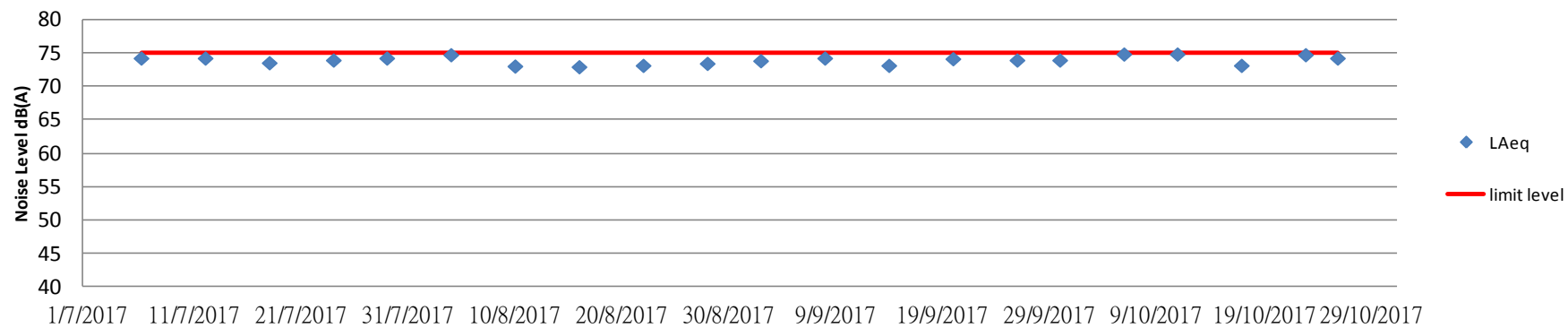


Location	NM3				
Date	4/8/2017	10/8/2017	16/8/2017	22/8/2017	28/8/2017
Weather Condition	Cloudy	Sunny	Sunny	Overcast	Overcast
Start Time	10:10	11:28	15:00	15:20	11:35
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	74.5				
L _{Aeq}	74.8	73.1	73.0	73.2	73.5
L ₁₀	77.0	75.8	75.9	75.9	76.4
L ₉₀	70.7	68.9	68.6	68.3	69.2

Location	NM3					
Date	2/9/2017	8/9/2017	14/9/2017	20/9/2017	26/9/2017	30/9/2017
Weather Condition	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	10:47	15:02	13:59	13:46	14:53	10:39
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	74.5					
L _{Aeq}	73.9	74.3	73.2	74.2	74.0	74.0
L ₁₀	76.6	76.9	76.2	77.0	76.5	76.6
L ₉₀	69.4	70.9	68.5	70.1	70.3	70.2

Location	NM3				
Date	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017
Weather Condition	Overcast	Sunny	Sunny	Sunny	Sunny
Start Time	14:58	14:53	17:12	15:14	15:50
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	74.5				
L _{Aeq}	74.9	74.9	73.2	74.8	74.3
L ₁₀	77.6	77.3	75.7	77.5	76.9
L ₉₀	70.2	71.2	69.5	69.3	71.0

Noise - NM3



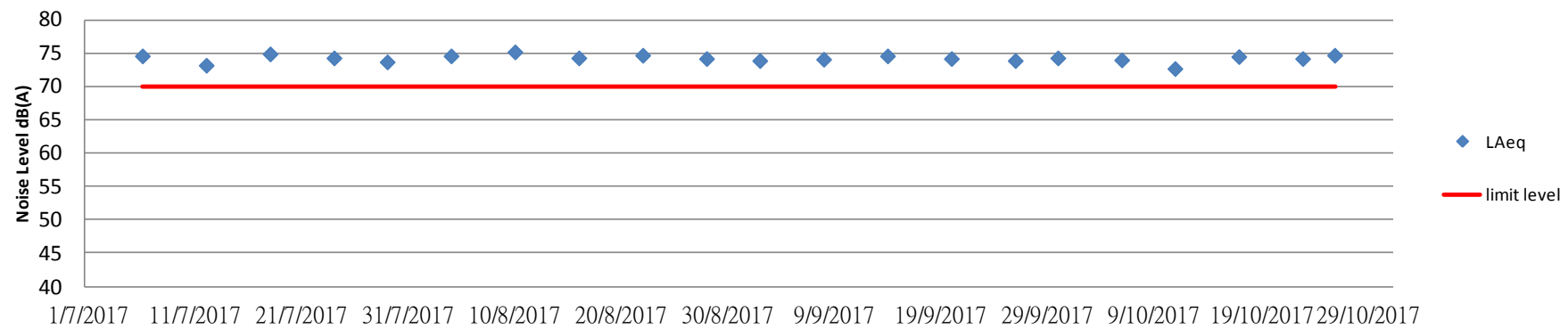
Location	NM4					NM4 (Re-measurement) *				
Date	4/8/2017	10/8/2017	16/8/2017	22/8/2017	28/8/2017	4/8/2017	10/8/2017	16/8/2017	24/7/2017	28/8/2017
Weather Condition	Cloudy	Sunny	Sunny	Overcast	Overcast	Cloudy	Sunny	Sunny	Overcast	Overcast
Start Time	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3					73.3				
L _{Aeq}	74.5	75.1	74.2	74.6	74.1	74.1	74.5	73.9	73.8	74.6
L ₁₀	77.3	78.0	76.9	77.5	76.8	77.0	77.6	76.9	76.5	77.8
L ₉₀	68.2	68.5	67.9	68.3	68.2	68.5	68.9	68.4	67.5	69.0

Location	NM4						NM4 (Re-measurement) *					
Date	2/9/2017	8/9/2017	14/9/2017	20/9/2017	26/9/2017	30/9/2017	2/9/2017	8/9/2017	14/9/2017	24/7/2017	26/9/2017	30/9/2017
Weather Condition	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	13:00	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3						73.3					
L _{Aeq}	73.8	74.0	74.5	74.1	73.8	74.2	73.7	74.3	73.9	74.4	73.6	74.0
L ₁₀	76.5	76.9	77.3	76.0	76.2	77.0	76.2	77.2	76.5	75.8	75.9	76.9
L ₉₀	68.5	68.9	69.1	69.7	69.0	69.2	68.5	68.7	68.7	67.2	68.9	68.8

Location	NM4					NM4 (Re-measurement) *				
Date	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017
Weather Condition	Overcast	Sunny	Sunny	Sunny	Sunny	Overcast	Sunny	Sunny	Sunny	Sunny
Start Time	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3					73.3				
L _{Aeq}	73.9	72.6	74.4	74.1	74.6	74.5	73.7	74.1	74.4	73.9
L ₁₀	76.5	75.5	77.5	77.0	77.8	76.9	76.2	77.9	77.4	75.2
L ₉₀	67.2	65.9	67.5	67.0	67.3	67.4	67.0	67.6	66.2	65.9

* Repeat noise measurement when exceedance is recorded. The result is used to confirm the findings and it would not be showed on the graph plot

Noise - NM4

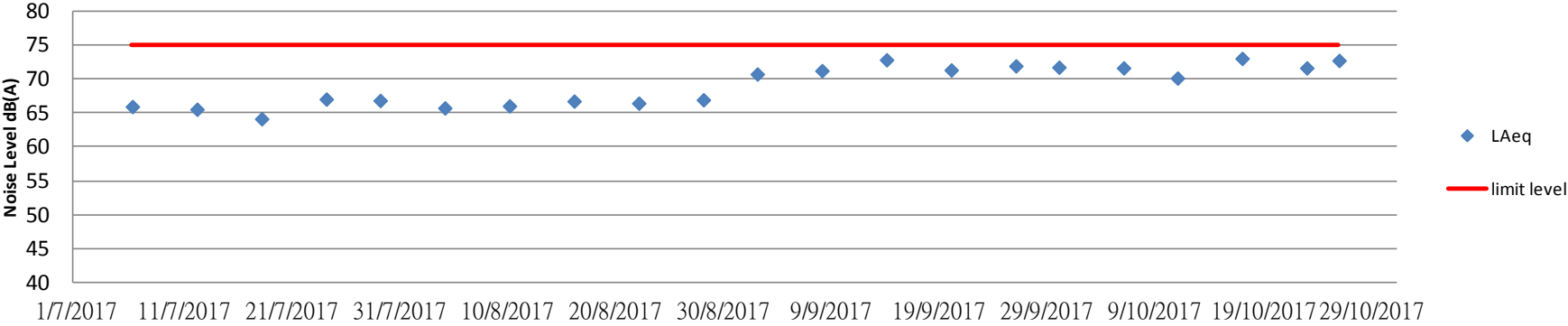


Location	NM5				
Date	4/8/2017	10/8/2017	16/8/2017	22/8/2017	28/8/2017
Weather Condition	Cloudy	Sunny	Sunny	Overcast	Overcast
Start Time	14:45	14:45	14:45	14:45	14:45
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	71.8				
L _{Aeq}	65.8	66.1	66.8	66.5	67.0
L ₁₀	69.0	69.5	70.1	69.5	70.5
L ₉₀	59.1	58.7	58.7	57.9	58.6

Location	NM5					
Date	2/9/2017	8/9/2017	14/9/2017	20/9/2017	26/9/2017	30/9/2017
Weather Condition	Cloudy	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	14:45	14:45	14:45	14:45	14:45	14:45
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	71.8					
L _{Aeq}	70.8	71.3	72.9	71.4	72.0	71.8
L ₁₀	73.2	73.9	74.8	73.8	74.0	73.5
L ₉₀	65.8	65.0	66.1	64.7	65.3	65.4

Location	NM5				
Date	6/10/2017	11/10/2017	17/10/2017	23/10/2017	26/10/2017
Weather Condition	Overcast	Sunny	Sunny	Sunny	Sunny
Start Time	14:45	16:55	14:45	14:45	14:45
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	71.8				
L _{Aeq}	71.1	70.2	73.1	71.7	72.8
L ₁₀	73.9	73.2	75.5	74.1	75.1
L ₉₀	65.0	64.2	67.5	63.1	62.9

Noise - NM5



Appendix F: Environmental Mitigation Implementation Schedule

Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to Implement the measure	Location of the measure	When to implement the measure	What requirements or standard for the measure to achieve	Implementation Status
Air Quality Impact (Construction Phase)								
4.8	A1	housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials	To minimize dust generation	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A2	Adopt dust control measures, such as dust suppression using water spray on exposed soil (at least 8 times per day), in areas with dusty construction activities and during material handling	To minimize dust generation due to erosion	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	#
4.8	A3	Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags	To prevent leakage of cement	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	N/A
4.8	A4	Maintain a reasonable height when dropping excavated materials to limit dust generation	To minimize dust generation during movement of excavated materials	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A5	Limit vehicle speed within site to 10km/hr and confine vehicle movement in haul road	To minimize dust generation due to traffic movement	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓

4.8	A6	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen	To minimize dust generation due to erosion	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A7	Provide wheel washing at site exit to clean the vehicle body and wheel	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A8	Hard pave the area at site exit with concrete, bitumen or hardcores	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A9	Cover materials on trucks before leaving the site to prevent debris from dropping during traffic movement or being blown away by wind	To prevent falling of debris during traffic movement and by wind	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A11	Regular maintenance of plant equipment to prevent black smoke emission	To minimize black smoke emission	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A12	Throttle down or switch off unused machines or machine in intermittent use	To minimize unnecessary emission	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A13	Carry out regular site inspection to audit the implementation of mitigation measures	To check the implementation status and effectiveness of mitigation measures	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓

4.8	A14	Carry out air quality monitoring throughout the construction period	To monitor construction dust level	HyD's Contractor	At representative ASRs	Prior to and throughout construction phase	EIAO-TM	✓
Noise Impact (Construction Phase)								
3.8	N1	Adopt good site practice, such as regular maintenance of plant equipment, throttle down unused machines	To minimize construction noise level	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N2	Use Quality Powered Mechanical Equipment (QPME) which produces lower noise level (e.g. Excavator/Loader (EPD-01431), Asphalt Paver (EPD-01226), Road Roller (EPD-00244) and Mobile Crane (EPD-01477))	To minimize construction noise level	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N3	Erect movable noise barrier at significant noise source(e.g. Concrete Pump, Concrete Lorry Mixer, Excavator/Loader, Road Sweeper, Asphalt Paver, Road Roller, Lorry, Breaker and Poker)	To lower noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N5	Regular maintenance of plant equipment to prevent noise emission due to impair	To prevent noise emission due to impair	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N6	Position mobile noisy equipment in location and direction away from NSR	To minimize noise transmission to NSR	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A

3.8	N7	Use silencer or muffler on plant equipment and should be properly maintained	To minimize noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N8	Throttle down or switch off unused machines or machine in intermittent use between work	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N9	Make good use of stockpiles or other structures for noise screening	To minimize noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A
3.8	N10	Avoid carrying out noisy activities at the same time	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N11	Reduce the percentage on-time for some noisy PMEs	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N12	Carry out noise monitoring	To monitor construction noise level	HyD's Contractor	At representative NSRs	Prior to and throughout construction phase	EIAO-TM	✓
Water Impact (Construction Phase)								
5.8	W1	Recirculate settled water for ground boring and drilling during site investigation or rock/soil anchoring.	To minimize wastewater generation	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W2	Set up sedimentation tank for settling suspended solids in wastewater before discharge into storm drains. Sand/silt	To reduce the amount of suspended solid in wastewater	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	#

		removal facilities such as sand traps, silt traps and sedimentation basin should be provided with adequate capacity.						
5.8	W3	Pave the construction road between the wheel washing bay and the public road with backfall	To prevent soil and site runoff from leaving the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W4	Follow ProPECC PN 1/94 "Construction Site Drainage" as far as practicable	To minimize surface runoff and chance of erosion	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W5	Provide perimeter channels at site boundaries.	To stop offsite storm runoff from entering the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	*
5.8	W6	Construct catchpits and perimeter channels prior to commencement of site formation works and earthworks.	To stop runoff from flowing across the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W7	Maintain silt removal facilities, channels, manholes before and after rainstorm.	To prevent failure that may lead to flooding	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	#
5.8	W8	Remove sediment from silt and grit at regular interval.	To prevent blockage the may lead to flooding	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W9	Consider environmental requirements when diverting or realigning drainage.	To ensure adequate hydraulic capacity of all drains	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓

5.8	W10	Maintain a minimum distance of 100m between discharge point of construction site runoff and the existing saltwater intakes. No effluent will be discharged into typhoon shelter. (for loations of seawater intakes, please refer to Figure 5.1 in EIA Report)	To prevent mixing	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W11	Arrange soil excavation works outside rainy seasons (April to September) as far as possible. If this cannot beachieved, the following measures should be implemented:	To minimize surface runoff and chance of erosion	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	
		-Cover temporary exposed slope surfaces with impermeable materials, e.g. tarpaulin						✓
		- Protect temporary access roads by crushed stone or gravel						N/A
		- Proved intercepting channels along crest/edge of excavation						✓
		- Carry out adequate surface protection measures well before the arrival of a rainstorm						✓
5.8	W12	Compact soil after earthwork. Provide permanent work or surface protection with appropriate drainage channels immediately after forming the final surfaces.	To prevent soil erosion under rainstorm	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W13	Prevent rainwater from entering trenches. Excavation of trenches should be dug and backfilled in short sections during rainy	To prevent soil erosion under rainstorm	HyD's Contractor	Whole Construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	*

		seasons. Remove silt in rainwater collected from the trenches or foundation excavations prior to discharge to storm drains.						
5.8	W14	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	To prevent soil erosion under rainstorm	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	#
5.8	W15	Cover and temporary seal manholes (including newly constructed ones) to prevent silt, construction materials or debris and surface runoff from entering foul sewers.	To prevent overloading of foul sewers	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	*
5.8	W16	Remove waste from the site regularly.	To prevent waste accumulation	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W17	Apply discharge license for effluent discharge. Treat the discharge to comply with the requirement in TM-DSS.	To ensure compliance with effluent discharge requirement	HyD's Contractor	Whole construction site	Throughout construction phase	WPCO,TM-DSS, EIAO-TM	✓
5.8	W18	Reuse treated effluent onsite, e.g. dust suppression, wheel washing and general cleaning.	To minimize wastewater generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
5.8	W19	Monitor effluent water quality.	To ensure compliance with effluent discharge requirement	HyD's Contractor	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
5.8	W20	Register as chemical waste producer if chemical waste will be generated.	To control chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General)	✓

							Regulation, EIAO-TM	
5.8	W21	Perform maintenance of vehicles and equipment that have oil leakage and spillage potential on hard standings within a bunded area with sumps and oil interceptors.	To prevent oil leakage or spillage	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	*
5.8	W22	<p>Dispose chemical waste in accordance to Waste Disposal Ordinance. Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> ,examples as follows:</p> <ul style="list-style-type: none"> - Store chemical wastes with suitable containers to avoid leakage or spillage during storage, handling and transport - Label chemical waste containers according to the CoP to notify and warn the waste handlers - Store chemical wastes at designated safe location with adequate space 	To avoid accident in waste storage and handling	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	*

5.8	W23	Provide sufficient chemical toilets with regular maintenance by licensed chemical waste collector	To proper collection of taskforce waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
Water Impact (Operational Phase)								
5.8	W24	Direct surface runoff for silt removal through silt trap before flowing to public storm water drainage system	To remove silt in surface runoff	HyD	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
5.8	W25	Regularly maintain the silt traps	To prevent blockage	HyD	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
Waste Management (Construction Phase)								
6.5	WM1	Allocate an area for waste sorting and storage of C&D materials into the following categories for reuse, recycle or disposal: - excavated material suitable for reuse - inert C&D material for disposal offsite - non-inert C&D materials for disposal at landfills - chemical waste - general refuse	To minimize waste generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	*
6.5	WM2	Adopt good site practice as follows: - Provide training to workers on site cleanliness, waste management (waste	To proper handling of waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	*

		reduction, reuse and recycle) and chemical handling procedures - Provide sufficient waste collection points and regular removal - Cover waste materials with tarpaulin or in enclosure during transportation - Maintain drainage systems, sumps and oil interceptors - Sort out chemical waste for proper handling and treatment						
6.5	WM3	Adopt waste reduction measures as follows: - Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminium cans) - Allocate area for proper storage of construction materials to prevent contamination - Minimize wastage through careful planning and avoiding over-purchase of construction materials	To minimize waste generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	#
6.5	WM4	Prepare and implement a site specific Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/25. Detail waste management method in the form of avoidance, reuse, recovery,	To provide guidance to waste management	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW No. 19/2005, EIAO-TM	✓

		recycling, storage, collection, treatment and disposal according to the recommendations on the EIA and EM&A Manual. It should be approved by the ER and						
6.5	WM5	Store waste materials properly as follows: - Avoid contamination by proper handling and storing waste - Prevent erosion by covering waste or applying water spray - Maintain and clean storage area regularly - Sort and stockpile different materials at designated location to enhance reuse	To properly store waste	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	#
6.5	WM6	Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28).	To properly dispose waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28), EIAO-TM	✓

6.5	WM7	Hire licensed waste disposal contractors for waste collection and removal. Dispose waste at licensed waste disposal facilities	To properly dispose waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM8	Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes	To monitor movement of waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM9	Provide wheel washing bay at site exit to clean the vehicle body and wheel	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
6.5	WM10	Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities	To minimize load to reception facilities	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM11	Dispose dry waste or waste with less than 70% water content by weight to landfill	To minimize load to reception facilities	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM12	Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</i> as follows: - Store chemical wastes with suitable	To avoid accident in waste storage and handling	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	*

		<p>containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport</p> <ul style="list-style-type: none"> - Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation - The container capacity should be smaller than 450 litres unless agreed by the EPD 						
6.5	WM13	<p>Comply with the requirement of the chemical storage area:</p> <ul style="list-style-type: none"> - Store only chemical waste and label clearly the chemical characters of the waste - Have at least 3 sides enclosed and protected from rainfall with cover - Provide sufficient ventilation - Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger - Adequately spaced incompatible materials 	To ensure proper storage of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	*
6.5	WM14	<p>Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted</p>	To ensure proper disposal of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	N/A

6.5	WM15	Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved CWTC at Tsing Yi or other licensed facility	To ensure proper disposal of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	N/A
6.5	WM16	Hire reputable waste collector to separately collect and dispose general refuse from other wastes. Cover the waste to prevent being blown away	To ensure proper disposal of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	✓
6.5	WM17	Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance.	To ensure proper recycling and disposal of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM18	Organize training and reminders to site staff on waste minimization through avoidance and reduction, reusing and recycling	To ensure proper management of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	✓
6.5	WM19	Carry out testing to verify sediment quantity and quality	To verify the categories of sediment to be disposed in accordance with ETWB TC(W) No. 34/2002	HyD's GI Contractor	Drillholes CB1 to 5 as shown in Sediment Sampling and Testing Plan	Throughout construction phase	ETWB TC(W) No. 34/2002	✓

Landscape and Visual								
7.9.3	CM1	Shorten the construction period	To minimize duration of landscape and visual impact	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	N/A
7.9.3	CM2	Limit work within site area without encroaching into the landscape resources offsite.	To minimize landscape and visual impact	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	✓
7.9.3	CM3	Protect retained trees from damage during construction work according to the recommended in the detailed tree assessment report and the approval of Tree Removal Application under ETWB TCW No. 3/2006 Tree Preservation	To maintain and minimize damage to existing greenery	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW 3/2006, EIAOTM	#
7.9.3	CM4	Transplant unavoidably affected trees wherever possible in accordance with ETWB TCW No. 3/2006 Tree Preservation. Maintain transplanted trees to ensure healthy development during the establishment period	To minimize tree loss and ensure survival of transplanted trees	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW 3/2006, EIAOTM	N/A
7.9.2.6	OM1	Carry out compensatory planting in areas proposed in the Tree Survey and Landscape and Greening Study Report in accordance to ETWB TCW 3/2006, which will be subjected to refinement in detailed design stage. Compensatory planting of a ratio no less than 1:1 in terms of quality and quantity will be provided for any potential tree	To compensate for loss greenery	HyD's Contractor	Whole construction site/Offsite	Construction phase	ETWB TCW 3/2006, EIAOTM	N/A

		<p>felling within the site. Offsite planting may be required due to land constraint. 410 nos. of compensatory trees have been proposed</p>						
7.9.2.6	OM2	<p>Provide vertical greening at piers of elevated roads and shrub planting near amenity planting strips to soften the hard landscape (e.g. climber and shrub for hiding central divider and enclosures). Early comments from the ACABAS and relevant departments, implementation and maintenance agents shall be sought at the earlier stage.</p>	<p>To soften hard landscape</p>	<p>HyD's Contractor</p>	<p>Whole construction site</p>	<p>Construction phase</p>	<p>ETWB TCW 36/2004</p>	<p>N/A</p>
7.9.2.6	OM3	<p>Match the design and materials of road structure with the surrounding environment and with the schematic theme paving of the future West Kowloon Reclamation Development and the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)</p>	<p>To match with existing landscape character</p>	<p>HyD's Contractor</p>	<p>Whole construction site</p>	<p>Construction phase</p>	<p>ETWB TCW 36/2004</p>	<p>N/A</p>

Remarks:

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor
- # Waiting for improving/rectifying by the contractor
- N/A Not Applicable

Appendix G: Cumulative Log for Environmental Exceedance, Complaints,
Notification of Summons and Successful Prosecutions

Cumulative Log for Environmental Exceedance, Non-Compliance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Non-Compliance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
February 2016	0	0	0	0	0
March 2016	0	0	0	0	0
April 2016	0	0	2	0	0
May 2016	7	0	0	0	0
June 2016	11	0	0	0	0
July 2016	6	0	0	0	0
August 2016	6	0	0	0	0
September 2016	5	0	0	0	0
October 2016	6	1	0	0	0
November 2016	5	0	0	0	0
December 2016	5	0	0	0	0
January 2017	5	0	0	0	0
February 2017	5	0	0	0	0
March 2017	6	0	0	0	0
April 2017	6	0	1	0	0
May 2017	5	0	0	0	0
June 2017	6	0	0	0	0
July 2017	5	0	0	0	0
August 2017	5	0	0	0	0
September 2017	6	0	0	0	0

October 2017	5	0	0	0	0
Grand Total	105	1	3	0	0