



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group
豐盛創建成員 Member of FSE Holdings

**Proposed Road Improvement Works in
West Kowloon Reclamation Development – Phase 1
Quarterly Environmental Monitoring & Audit Report
06/02/2016 – 30/04/2016**

The Contents of this report have been certified by:

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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 commenced on 6th February 2016. This report documents the finding of EM&A Works conducted from 6th February 2016 to 30th April 2016.

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. Ten exceedances were recorded at NM1, four exceedances were recorded at NM2, ten exceedances were recorded at NM3 and fourteen exceedances were recorded at NM4 for noise.

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.

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 6th 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.

February 2016

- Portion I – Trial Trench Works & UU Diversion Works
- Portion HA – Trial Trench Works, Pre-Drill Works, Man-hole Construction Works & Tree Felling
- Portion J – ELS Works, Modification of Manhole & Tree Felling Works
- Portion Q – Demolition of Central Divider, Construction of CCTV Highmast Footing & Trial Pit Excavation

March 2016

- Portion I – Pre-drilling Works & UU Diversion Works
- Portion HA – Trial Trench Works, Pre-drilling Works, Man-hole Construction Works & Tree Felling
- Portion J – ELS Works, Construction of Retaining Wall & Tree Felling Works
- Portion Q – Construction of CCTV Highmast Footing & Common Trench Excavation

April 2016

- Portion I – UU Diversion Works
- Portion HA – Trial Trench Works, Pre-drilling Works & Drainage Works
- Portion J – ELS Works, Construction of Retaining Wall & Tree Felling Works
- Portion Q – Excavation Works & Common Trench Excavation

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-A	International Commerce Centre (Works Area 4)	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

*Remark:

24-hr TSP monitoring at AM2 was started from April 2016.

24-hr TSP monitoring at AM4-A was started from August 2016.

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 ($\mu\text{g}/\text{m}^3$)
Feb 16	AM1	100	52 – 158	288	500
	AM2	142	107 – 207	299	500
	AM3	108	50 – 154	299	500
	AM4	100	69 – 161	303	500
Mar 16	AM1	72	10 – 114	288	500
	AM2	103	38 – 177	299	500
	AM3	76	12 – 126	299	500
	AM4	59	16 – 109	303	500
Apr 16	AM1	84	38 – 124	288	500
	AM2	61	54 – 70	299	500
	AM3	82	26 – 152	299	500
	AM4	75	56 – 95	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 ($\mu\text{g}/\text{m}^3$)
Feb 16	AM1	60	43 – 82	157	260
	AM3-A	74	36 – 105	177	260
Mar 16	AM1	47	23 – 91	157	260
	AM3-A	80	10 – 142	177	260
Apr 16	AM1	56	25 – 99	157	260
	AM2	57	29 – 88	183	260
	AM3-A	109	92 – 142	177	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 and AM3-A. TSP levels of AM2 and AM4 may be affected by the construction activities from other construction sites near Canton Road. TSP level of AM3-A may be affected by construction activities from other construction sites near Nga Cheung Road.

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	Ground 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

*Remark:

Noise monitoring at NM1 was amended to the podium level started from June 2016.

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	11/02/2016	75.1	76.7	When one documented complaint is received	75 dB(A)	Yes
	16/02/2016		77.4			Yes
	22/02/2016		76.5			Yes
	27/02/2016		75.9			Yes
	4/3/2016		77.3			Yes
	10/3/2016		77.5			Yes
	16/3/2016		74.4			No
	22/3/2016		76.3			Yes
	24/3/2016		76.1			Yes
	30/3/2016		75.3			No
	5/4/2016		75.2			Yes
	11/4/2016		74.8			No
	16/4/2016		74.3			No
	22/4/2016		75.4			No
	28/4/2016		77.5			Yes
NM2	11/02/2016	66.5	68.2	When one documented complaint is received	70 dB(A) * ²	No
	16/02/2016		69.5		70 dB(A) * ²	No
	22/02/2016		68.9		70 dB(A) * ²	No
	27/02/2016		67.3		70 dB(A) * ²	No
	4/3/2016		68.0		65 dB(A) * ³	Yes
	10/3/2016		69.8		70 dB(A) * ²	No
	16/3/2016		71.0		70 dB(A) * ²	Yes
	22/3/2016		70.8		70 dB(A) * ²	Yes
	24/3/2016		68.8		70 dB(A) * ²	No
	30/3/2016		68.9		70 dB(A) * ²	No
	5/4/2016		70.1		70 dB(A) * ²	No
	11/4/2016		68.6		70 dB(A) * ²	No
	16/4/2016		71.5		70 dB(A) * ²	Yes
	22/4/2016		69.7		70 dB(A) * ²	No
	28/4/2016		69.5		70 dB(A) * ²	No
NM3	11/02/2016	74.5	76.9	When one documented	75 dB(A)	Yes
	16/02/2016		75.1			No

	22/02/2016		76.9	complaint is received		Yes
	27/02/2016		76.8			Yes
	4/3/2016		77.4			Yes
	10/3/2016		76.0			Yes
	16/3/2016		76.5			Yes
	22/3/2016		76.6			Yes
	24/3/2016		76.1			Yes
	30/3/2016		75.9			Yes
	5/4/2016		74.7			No
	11/4/2016		72.6			No
	16/4/2016		73.8			No
	22/4/2016		74.5			No
	28/4/2016		77.1			Yes
NM4	11/02/2016	73.3	73.7	When one documented complaint is received	70 dB(A) * ²	Yes
	16/02/2016		74.3		70 dB(A) * ²	Yes
	22/02/2016		73.9		70 dB(A) * ²	Yes
	27/02/2016		74.1		70 dB(A) * ²	Yes
	4/3/2016		74.1		70 dB(A) * ²	Yes
	10/3/2016		73.4		70 dB(A) * ²	Yes
	16/3/2016		73.8		65 dB(A) * ³	Yes
	22/3/2016		73.5		70 dB(A) * ²	Yes
	24/3/2016		73.8		70 dB(A) * ²	Yes
	30/3/2016		73.8		70 dB(A) * ²	Yes
	5/4/2016		73.8		70 dB(A) * ²	Yes
	11/4/2016		73.5		70 dB(A) * ²	Yes
	16/4/2016		73.4		70 dB(A) * ²	Yes
	22/4/2016		67.6		70 dB(A) * ²	No
	28/4/2016		74.0		70 dB(A) * ²	Yes
NM5	11/02/2016	71.8	69.6	When one documented complaint is received	75 dB(A)	No
	16/02/2016		69.7			No
	22/02/2016		70.6			No
	27/02/2016		70.4			No
	4/3/2016		70.5			No
	10/3/2016		71.4			No
	16/3/2016		70.5			No
	22/3/2016		68.1			No
	24/3/2016		70.4			No

	30/3/2016		70.6			No
	5/4/2016		70.1			No
	11/4/2016		75.1			No
	16/4/2016		70.8			No
	22/4/2016		68.5			No
	28/4/2016		69.6			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, ten exceedances were recorded at NM1, four exceedances were recorded at NM2, ten exceedances were recorded at NM3 and fourteen exceedances were recorded at NM4.

The noise source for causing exceedances at NM1 was from the traffic of Nga Cheung Road. The NM1 was directly affected by the noise generated from the traffic. The recorded monitoring results at the NM1 were near the baseline noise level. The exceedances were not caused by this project construction works. In order to avoid the traffic noise effect, the noise monitoring location would be amended from the ground level to podium level of the Sorrento Tower 1 started from June 2016.

The noise source for causing exceedances at NM2 was from other construction site, Design and Construction of West Kowloon Government Offices (DCWKGO), which located at No.11 Hoi Ting Road. The construction site of DCWKGO is located between Portion J and the NM2 and close to the NM2. The NM2 was directly affected by the noise generated from the construction site of DCWKGO. The exceedances were not caused by this project construction works.

The noise source for causing exceedances at NM3 was from the traffic of Nga Cheung Road. The NM3 was directly affected by the noise generated from the traffic. The recorded monitoring results at the NM3 were near the baseline noise level. The exceedances were not caused by this project construction works.

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)
Feb 2016	521.76	38.34	0	0	0	0	0
Mar 2016	1527.37	188.63	0	0	0	0	0
Apr 2016	2676.73	87.72	0	0	0	0	0
Total	4725.86	314.69	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 6th and 20th February 2016, 7th and 21st March 2016, 7th and 21st April 2016. 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 12th, 17th, 23rd and 29th February 2016, 7th, 16th, 21st and 29th March 2016, 5th, 13th, 18th and 25th April 2016. 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.

Ten exceedances were recorded at NM1, four exceedances were recorded at NM2, ten exceedances were recorded at NM3 and fourteen exceedances were recorded at NM4 for noise.

8.2 Summary of Environmental Non-Compliance

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

8.3 Summary of Environmental Complaint

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.

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:

- To conduct frequent waste collection and keep the site areas clean and tidy;
- To cover the exposed area with tarpaulin sheet or conduct frequent water spray for dust suppression;
- To properly store the construction materials and stockpiles in appropriate areas;
- To set up intercepting channels along the edge of pre drilling areas for preventing surface runoff;
- To provide wastewater collection system and properly protect the storm water drainage system;
- To properly maintain the drilling machines for preventing oil leakage and land contamination;
- To maintain the drip tray for preventing any chemical leakage;
- To remove or properly cover the soil materials;
- To maintain the powered mechanical equipment for preventing dark smoke;
- To appropriately set up the treatment facilities and preventing surface runoff;
- To frequently conduct water spraying to the haul road and exposed surface for dust suppression;
- To store the chemical waste in appropriate containers with suitable labelling and put inside the chemical waste storage area;
- To sort the waste with different categories and store in different containers;
- To properly cover the slop and exposed area;
- To enhance the wastewater treatment facilities to avoid muddy water;
- To provide TPZ with robust fence at the dripline of all retained and

- to-be-transplanted trees;
- To provide and maintain the Tree Protection Zone (TPZ) for the retained trees in Scheme HA;
- To lower noise impact for any coming tree felling works:
 - Use low-noise emission saws.
 - Reduce the percentage on-time for noisy powered mechanical equipment.
 - Apply for a CNP and fulfill the requirements and conditions of the CNP.

9.3 Conclusions

This is the quarterly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 6th February 2016 to 30th April 2016 in accordance with the EM&A Manual.

No exceedance of action level and limit level was recorded for TSP. Ten exceedances were recorded at NM1, four exceedances were recorded at NM2, ten exceedances were recorded at NM3 and fourteen exceedances were recorded at NM4 for noise.

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.

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

12 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			
					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	956 d	Mon 23/3/15	Thu 2/11/17												
2	West Kowloon Highway South Bound near Western Harbour Tunnel at Portion I	956 d	Mon 23/3/15	Thu 2/11/17												
3	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
4	Underground investigation, utilities diversion and piling construction	250 d	Sat 6/2/16	Wed 12/10/16												
5	Pile cap, Pier and Bridge Deck construction	180 d	Thu 13/10/16	Mon 10/4/17												
6	E&M installation and roadworks	76 d	Tue 11/4/17	Sun 25/6/17												
7	Street furniture installation	130 d	Mon 26/6/17	Thu 2/11/17												
8																
9																
10	Canton road at Portion Q	956 d	Mon 23/3/15	Thu 2/11/17												
11	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
12	Road works at Canton road footpath and utilities diversion	100 d	Sat 6/2/16	Sun 15/5/16												
13	Construction of sign gantry	50 d	Mon 16/5/16	Mon 4/7/16												
14	Road works at Ferry Street and Jordan road	236 d	Tue 5/7/16	Sat 25/2/17												
15	Road works at Wui Cheung road	250 d	Sun 26/2/17	Thu 2/11/17												
16																
17																
18	Lin Cheung Road North Bound at Portion HA	912 d	Mon 23/3/15	Tue 19/9/17												
19	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
20	Underground investigation, utilities diversion and piling construction	250 d	Sat 6/2/16	Wed 12/10/16												
21	Pile cap, Pier and Bridge Deck construction	180 d	Thu 13/10/16	Mon 10/4/17												
22	E&M installation and roadworks	42 d	Tue 11/4/17	Mon 22/5/17												
23	Street furniture installation	120 d	Tue 23/5/17	Tue 19/9/17												
24																
25																
26	Lin Cheung Road South Bound at Portion J	730 d	Mon 23/3/15	Tue 21/3/17												
27	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
28	Construction of retaining walls and utilities diversion	140 d	Sat 6/2/16	Fri 24/6/16												
29	Site formation and roadworks	140 d	Sat 25/6/16	Fri 11/11/16												
30	Street furniture installation	130 d	Sat 12/11/16	Tue 21/3/17												

Task



Critical Task



Progress

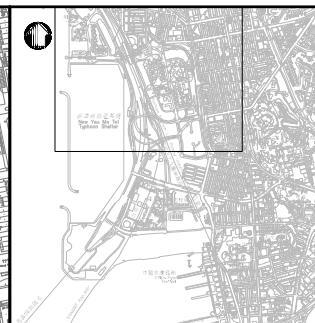


Milestone



Summary





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
Scale	A3 1:5000	Status	PRELIMINARY	Approved	LC

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



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

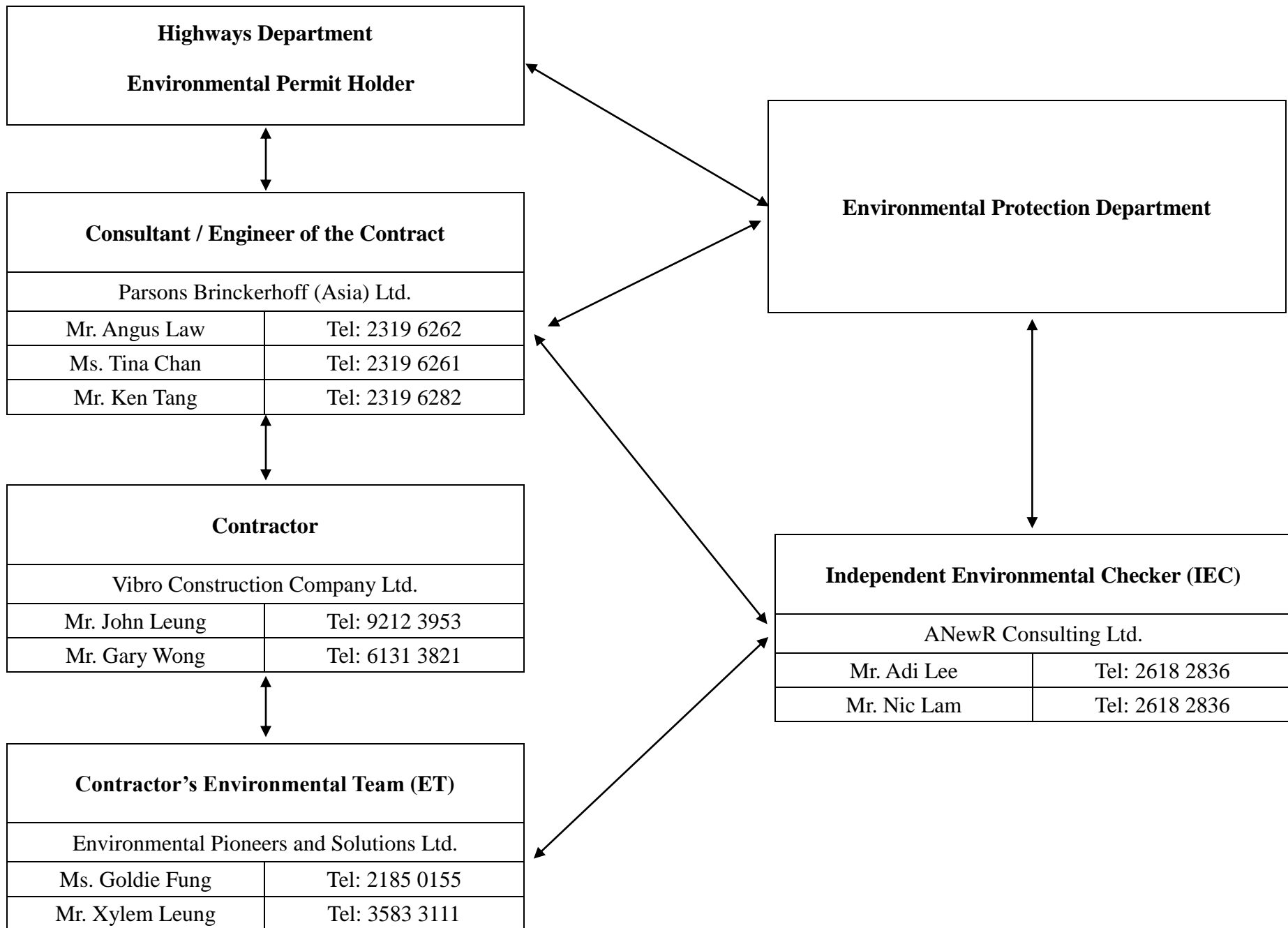
Drawing title
LOCATION OF MONITORING STATIONS (PAGE 2 OF 2)

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

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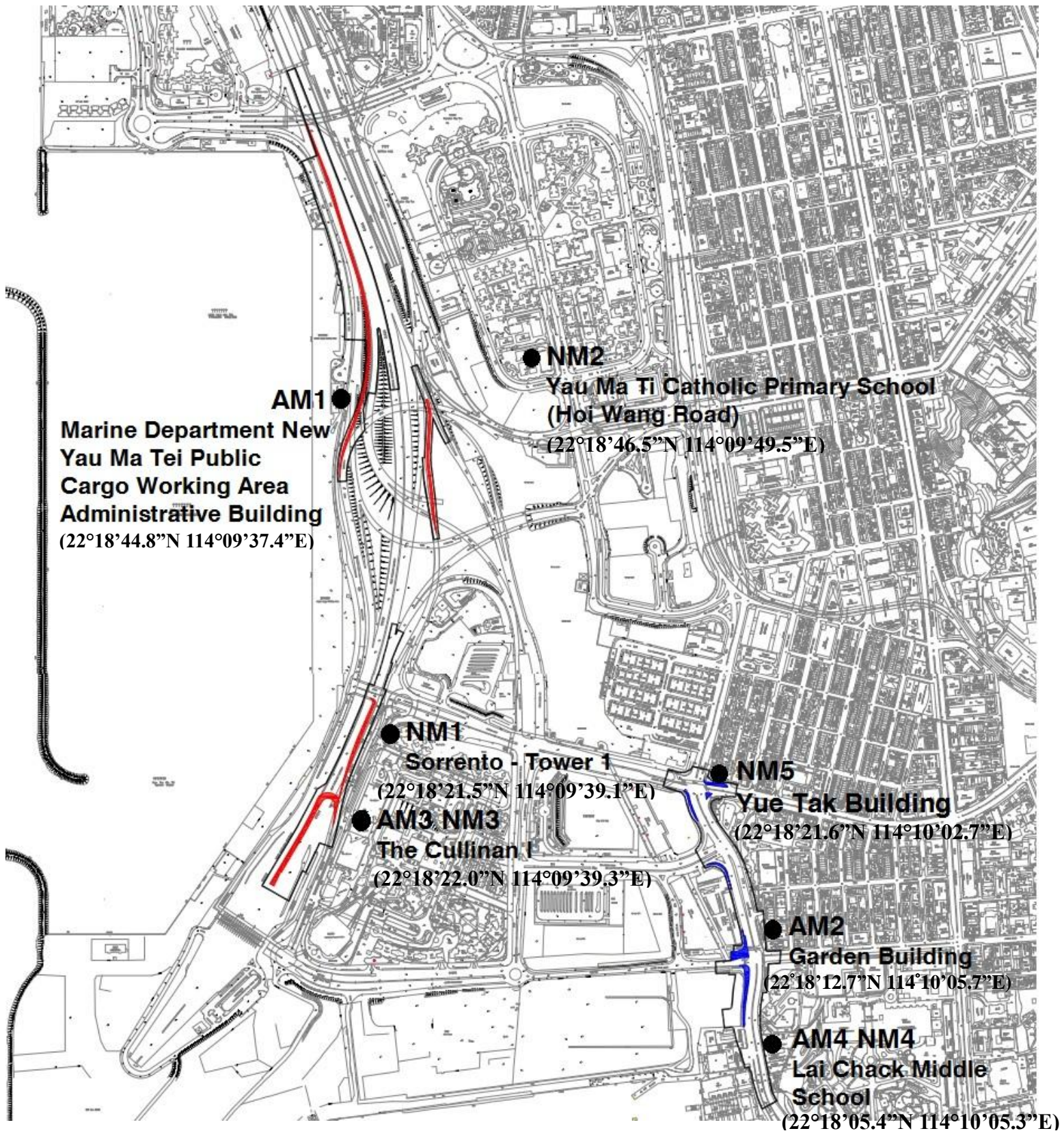
Appendix B: Project Organization Chart












↔ Line of communication

Appendix C: Monitoring Locations

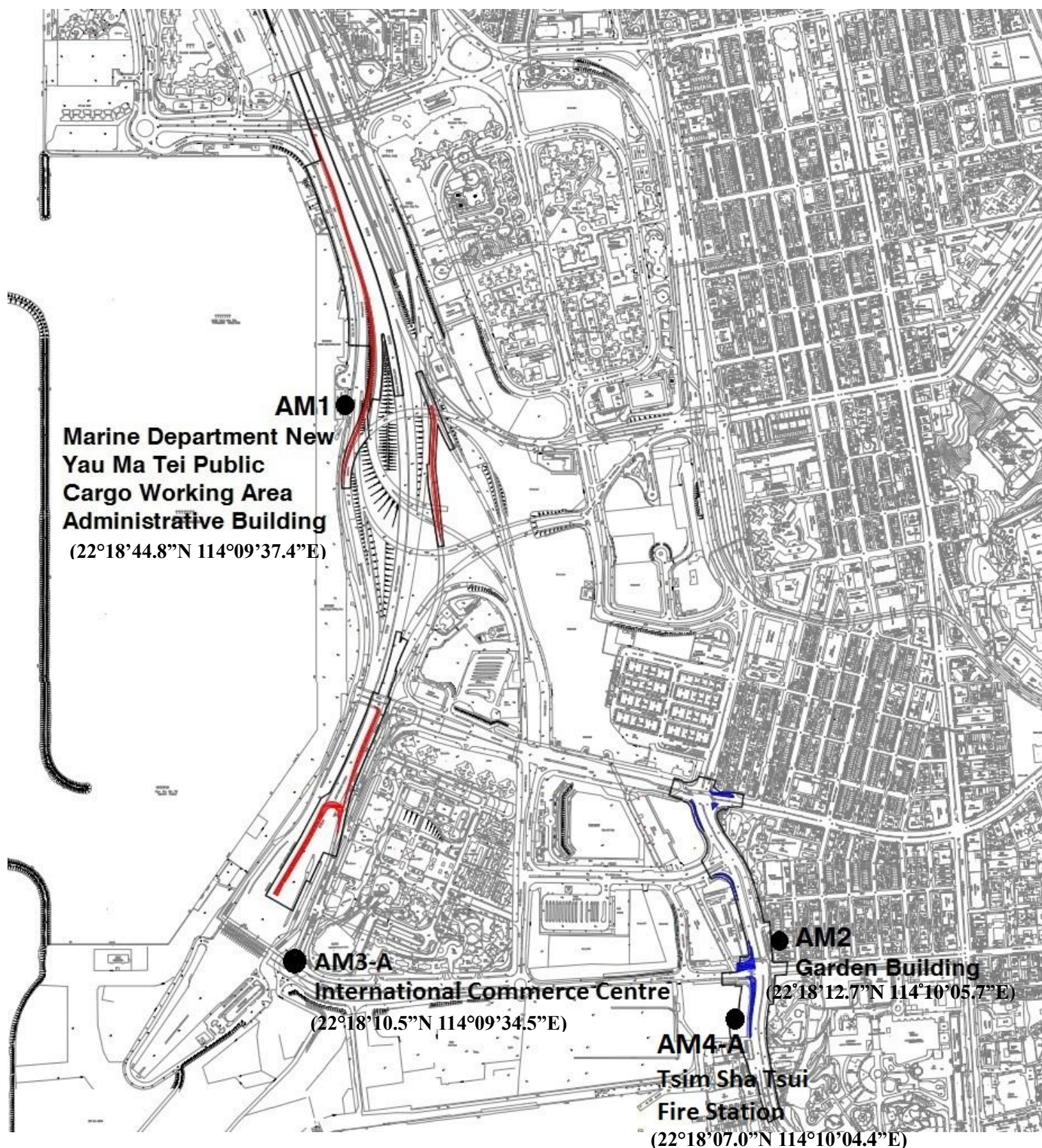
Locations for 1-hr TSP and Noise monitoring



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 Ti 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 of a grey air quality monitoring station (AM1) located on a paved rooftop area. The station is a small, rectangular unit with a white door and a control panel. It is positioned next to a white door of a building. The ground is paved with square tiles. A date stamp '2016/11/07' is visible in the bottom right corner of the photo.</p>
<p>AM2</p> <p>Garden Building</p>	 <p>A photograph of an air quality monitoring station (AM2) located in an outdoor area. The station is a grey unit with a white door and a control panel. It is positioned next to a staircase and a building with a glass facade. The ground is paved with square tiles. A date stamp '2016/05/18' is visible in the bottom right corner of the photo.</p>
<p>AM3-A</p> <p>International Commerce Centre (Contractor Work Area 4)</p>	 <p>A photograph of an air quality monitoring station (AM3-A) located in a construction area. The station is a grey unit with a white door and a control panel. It is positioned next to a red and white striped barrier. The ground is dirt and there are construction materials visible. A date stamp '2015/12/17' is visible in the bottom right corner of the photo.</p>

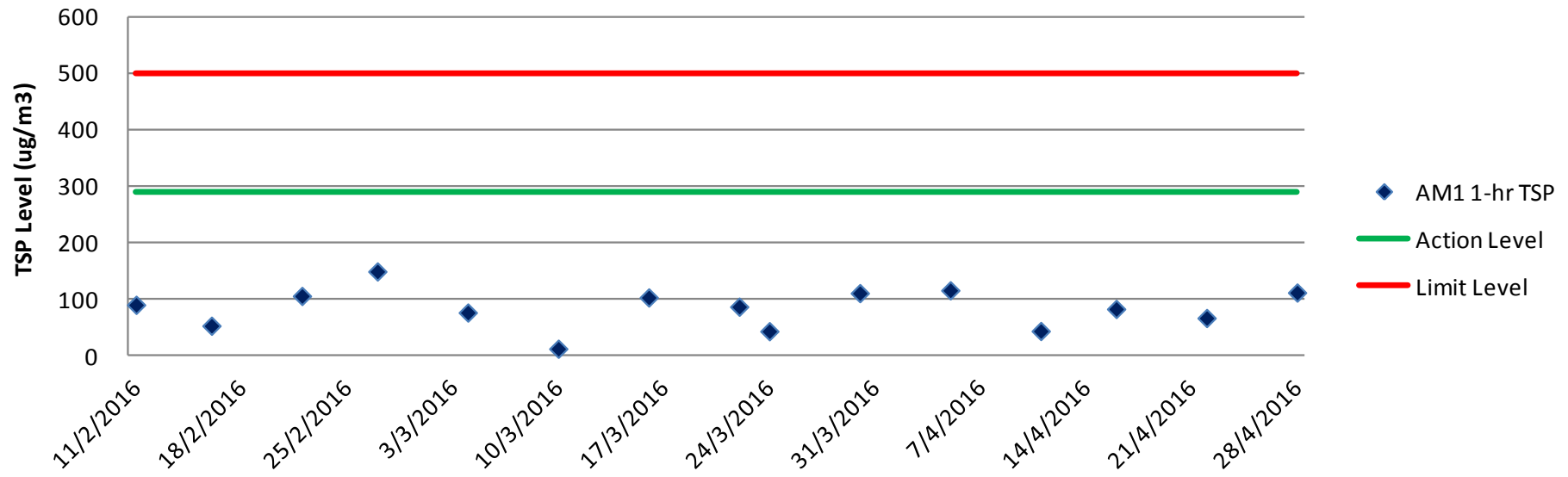
Appendix D: TSP Monitoring Data

1-hr TSP Monitoring Result for AM1

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (μ g/m³)			
					1	2	3	1	2	3	Average
11/2/2016	Overcast	20	NW	1.8	14:57	15:58	16:59	83	92	96	90
16/2/2016	Overcast	13	NW	2.5	14:50	15:51	16:52	55	53	52	53
22/2/2016	Overcast	17	E	3.7	10:22	11:23	12:24	113	102	103	106
27/2/2016	Sunny	16	NW	3.1	15:15	16:16	17:17	158	148	142	149
4/3/2016	Overcast	18 - 25	NW	0.0 - 3.8	9:27	10:28	11:29	80	77	73	77
10/3/2016	Cloudy	10 - 18	NW	0.0 - 7.7	10:16	11:17	12:18	11	17	10	13
16/3/2016	Cloudy	14 - 16	E	1.1 - 6.4	14:23	15:24	16:25	107	103	100	103
22/3/2016	Cloudy	17 - 18	SE	3.1 - 8.1	13:00	14:01	15:02	89	85	87	87
24/3/2016	Cloudy	13 - 19	E	0.0 - 5.2	16:15	17:16	18:17	42	43	46	44
30/3/2016	Overcast	19 - 24	NW	0.0 - 4.2	10:19	11:20	12:21	114	108	111	111
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	12:59	14:00	15:01	124	116	108	116
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	14:40	15:41	16:42	52	42	38	44
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:22	11:23	12:24	85	86	78	83
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	13:51	14:52	15:53	65	62	73	67
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	9:38	10:39	11:40	104	111	121	112

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

1hr-TSP AM1

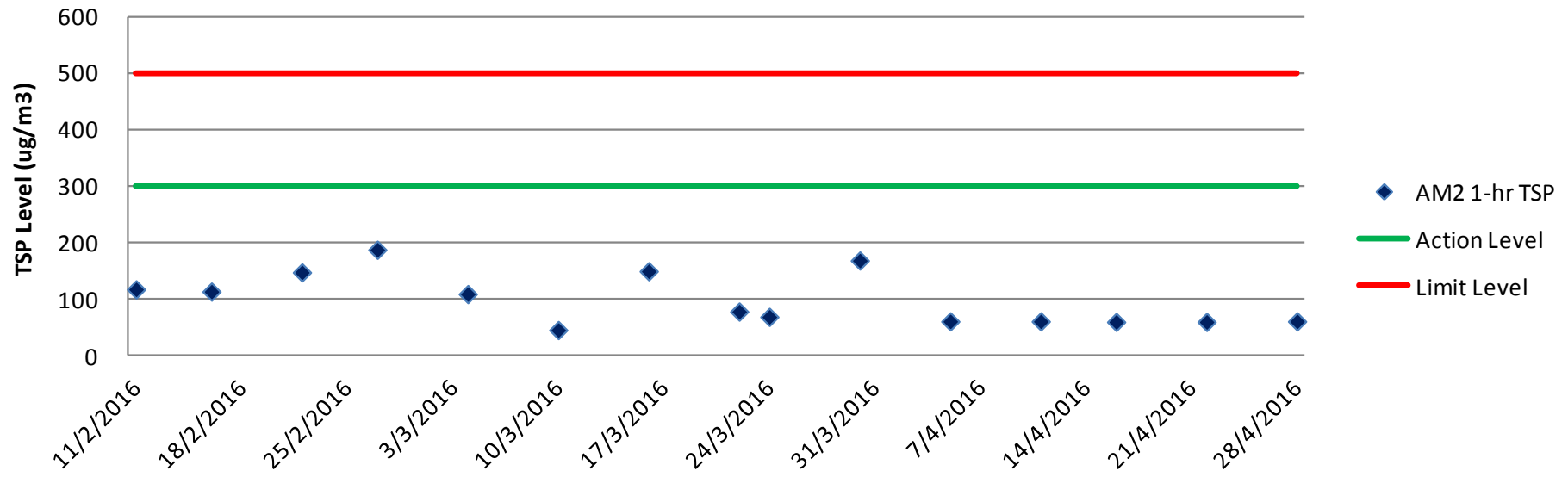


1-hr TSP Monitoring Result for AM2

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading ($\mu\text{g}/\text{m}^3$)			
					1	2	3	1	2	3	Average
11/2/2016	Overcast	20	NW	1.8	13:29	14:30	15:31	113	118	122	118
16/2/2016	Overcast	13	NW	2.5	13:28	14:29	15:30	107	113	121	114
22/2/2016	Overcast	17	E	3.7	13:26	14:27	15:28	141	145	157	148
27/2/2016	Sunny	16	NW	3.1	13:34	14:35	15:36	162	194	207	188
4/3/2016	Overcast	18 - 25	NW	0.0 - 3.8	13:23	14:24	15:25	121	105	102	109
10/3/2016	Cloudy	10 - 18	NW	0.0 - 7.7	12:59	14:00	15:01	38	45	54	46
16/3/2016	Cloudy	14 - 16	E	1.1 - 6.4	13:22	14:23	15:24	151	148	150	150
22/3/2016	Cloudy	17 - 18	SE	3.1 - 8.1	13:30	14:31	15:32	78	82	75	78
24/3/2016	Cloudy	13 - 19	E	0.0 - 5.2	13:08	14:09	15:10	73	66	68	69
30/3/2016	Overcast	19 - 24	NW	0.0 - 4.2	13:25	14:26	15:27	164	165	177	169
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	10:56	11:57	12:58	56	58	70	61
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	10:58	11:59	13:00	54	60	69	61
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:54	11:55	12:56	56	61	62	60
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	10:59	12:00	13:01	58	59	63	60
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:58	11:59	13:00	59	63	62	61

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

1hr-TSP AM2

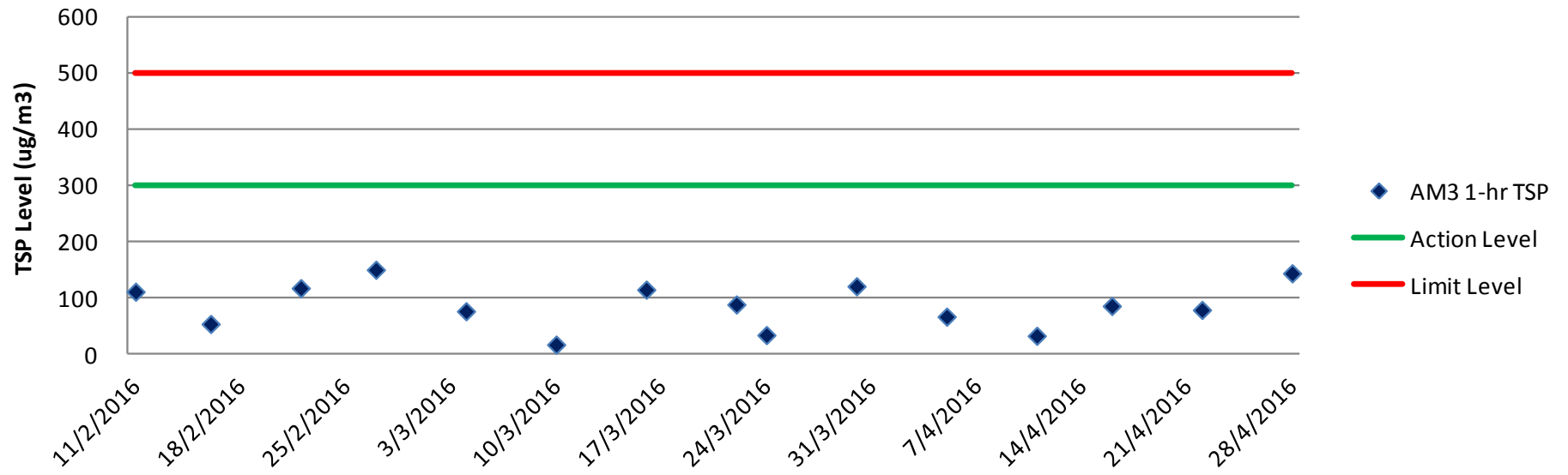


1-hr TSP Monitoring Result for AM3

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (μ g/m³)			
					1	2	3	1	2	3	Average
11/2/2016	Overcast	20	NW	1.8	15:33	16:34	17:35	107	111	116	111
16/2/2016	Overcast	13	NW	2.5	15:22	16:23	17:24	56	56	50	54
22/2/2016	Overcast	17	E	3.7	10:50	11:51	12:52	113	123	117	118
27/2/2016	Sunny	16	NW	3.1	15:51	16:52	17:53	154	146	151	150
4/3/2016	Overcast	18 - 25	NW	0.0 - 3.8	9:58	10:59	12:00	79	78	73	77
10/3/2016	Cloudy	10 - 18	NW	0.0 - 7.7	11:06	12:07	13:08	22	18	12	17
16/3/2016	Cloudy	14 - 16	E	1.1 - 6.4	14:55	15:56	16:57	126	114	105	115
22/3/2016	Cloudy	17 - 18	SE	3.1 - 8.1	13:31	14:32	15:33	90	91	85	89
24/3/2016	Cloudy	13 - 19	E	0.0 - 5.2	15:52	16:53	17:54	33	36	34	34
30/3/2016	Overcast	19 - 24	NW	0.0 - 4.2	10:53	11:54	12:55	123	120	120	121
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	13:34	14:35	15:36	74	67	59	67
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	15:09	16:10	17:11	40	34	26	33
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:57	11:58	12:59	95	82	80	86
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	14:44	15:45	16:46	80	83	75	79
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:17	11:18	12:19	140	140	152	144

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

1hr-TSP AM3

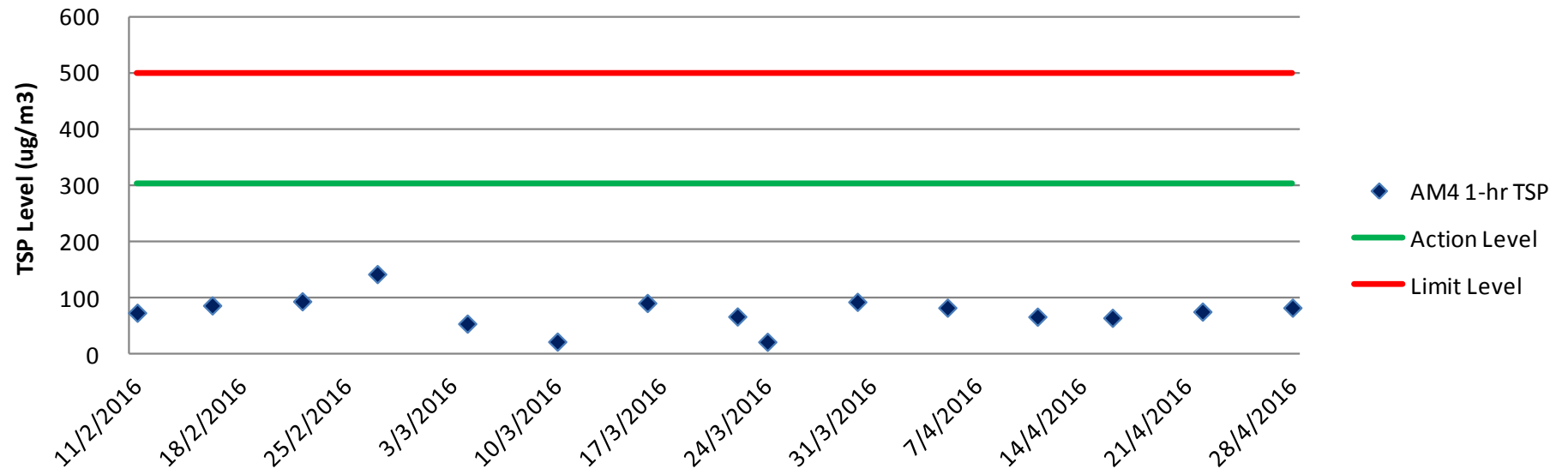


1-hr TSP Monitoring Result for AM4

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (μ g/m³)			
					1	2	3	1	2	3	Average
11/2/2016	Overcast	20	NW	1.8	13:28	14:29	15:30	69	75	78	74
16/2/2016	Overcast	13	NW	2.5	13:26	14:27	15:28	76	91	94	87
22/2/2016	Overcast	17	E	3.7	13:22	14:23	15:24	88	95	100	94
27/2/2016	Sunny	16	NW	3.1	13:30	14:31	15:32	116	151	161	143
4/3/2016	Overcast	18 - 25	NW	0.0 - 3.8	13:19	14:20	15:21	58	55	51	55
10/3/2016	Cloudy	10 - 18	NW	0.0 - 7.7	13:03	14:04	15:05	16	23	29	23
16/3/2016	Cloudy	14 - 16	E	1.1 - 6.4	13:18	14:19	15:20	91	91	92	91
22/3/2016	Cloudy	17 - 18	SE	3.1 - 8.1	13:14	14:15	15:16	77	58	67	67
24/3/2016	Cloudy	13 - 19	E	0.0 - 5.2	13:17	14:18	15:19	22	25	20	22
30/3/2016	Overcast	19 - 24	NW	0.0 - 4.2	13:22	14:23	15:24	96	75	109	93
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	10:52	11:53	12:54	90	80	78	83
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	10:59	12:00	13:01	80	65	57	67
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:56	11:57	12:58	78	60	56	65
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	10:58	11:59	13:00	75	90	62	76
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:56	11:57	12:58	65	89	95	83

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

1hr-TSP AM4

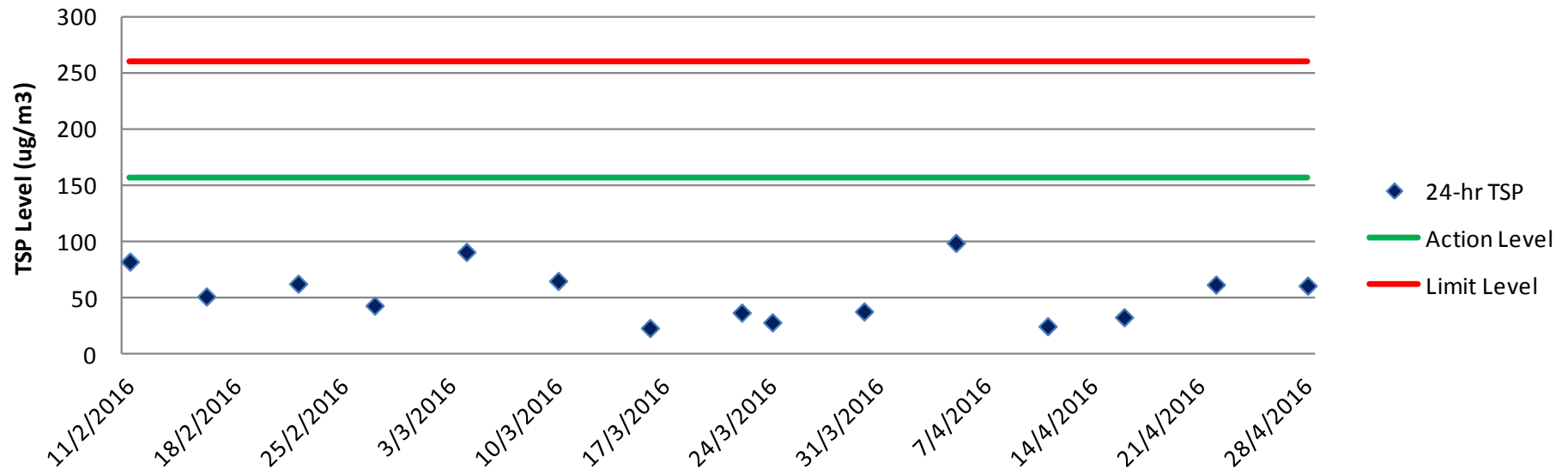


24-hr TSP Monitoring Result for AM1

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	Initial	Final	Avg Flow Rate		
AM10211 200499	19	NW	1.8	11/02/16	2.8173	3.0054	0.1881	56	56	56.0	2283.47	82.3746
AM10216 200552	13	NW	2.5	16/02/16	2.9075	3.0249	0.1174	56	56	56.0	2283.47	51.4130
AM10222 200554	17	E	3.7	22/02/16	2.8956	3.0389	0.1433	56	56	56.0	2283.47	62.7554
AM10227 200569	16	NW	3.1	27/02/16	2.8310	2.9300	0.0990	56	56	56.0	2283.47	43.3551
AM10304 200565	18 - 25	NW	0.0 - 3.8	04/03/16	2.8138	3.0216	0.2078	56	56	56.0	2283.47	91
AM10310 200566	10 - 18	NW	0.0 - 7.7	10/03/16	2.8133	2.9623	0.1490	56	56	56.0	2283.47	65
AM10316 200567	14 - 16	E	1.1 - 6.4	16/03/16	2.8380	2.8915	0.0535	56	56	56.0	2283.47	23
AM10322 200558	17 - 18	SE	3.1 - 8.1	22/03/16	2.8999	2.9846	0.0847	56	56	56.0	2283.47	37
AM10324 200559	13 - 19	E	0.0 - 5.2	24/03/16	2.8866	2.9515	0.0649	56	56	56.0	2283.47	28
AM10330 200573	19 - 24	NW	0.0 - 4.2	30/03/16	2.8224	2.9095	0.0871	56	56	56.0	2283.47	38
AM10405 200574	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.8294	3.0564	0.2270	56	56	56.0	2283.47	99
AM10411 200599	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8422	2.8988	0.0566	56	56	56.0	2283.47	25
AM10416 200575	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.8312	2.9063	0.0751	56	56	56.0	2283.47	33
AM10422 200600	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8521	2.9946	0.1425	56	56	56.0	2283.47	62
AM10428 200578	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8076	2.9479	0.1403	56	56	56.0	2283.47	61

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

24hr-TSP AM1

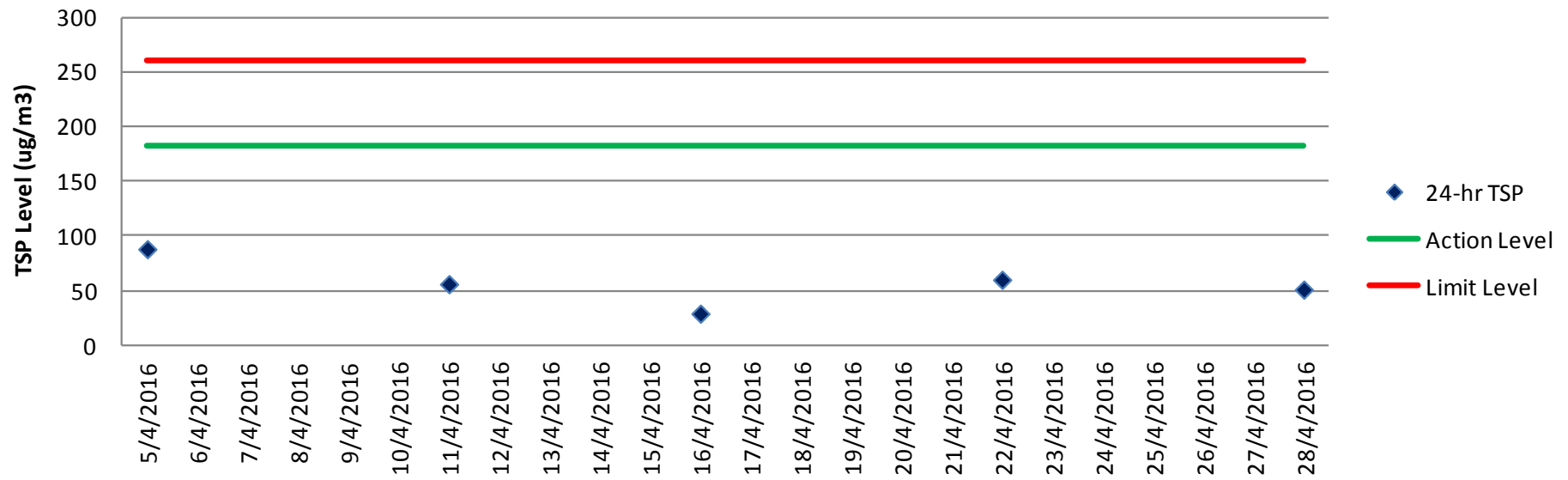


24-hr TSP Monitoring Result for AM2

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	Initial	Final	Avg Flow Rate		
AM20405 200584	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.7944	2.9919	0.1975	55	55	55.0	2242.69	88
AM20411 200579	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8181	2.9440	0.1259	55	55	55.0	2242.69	56
AM20416 200583	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.7740	2.8401	0.0661	55	55	55.0	2242.69	29
AM20422 201031	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8601	2.9940	0.1339	55	55	55.0	2242.69	60
AM20428 200581	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8179	2.9314	0.1135	55	55	55.0	2242.69	51

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

24hr-TSP AM2

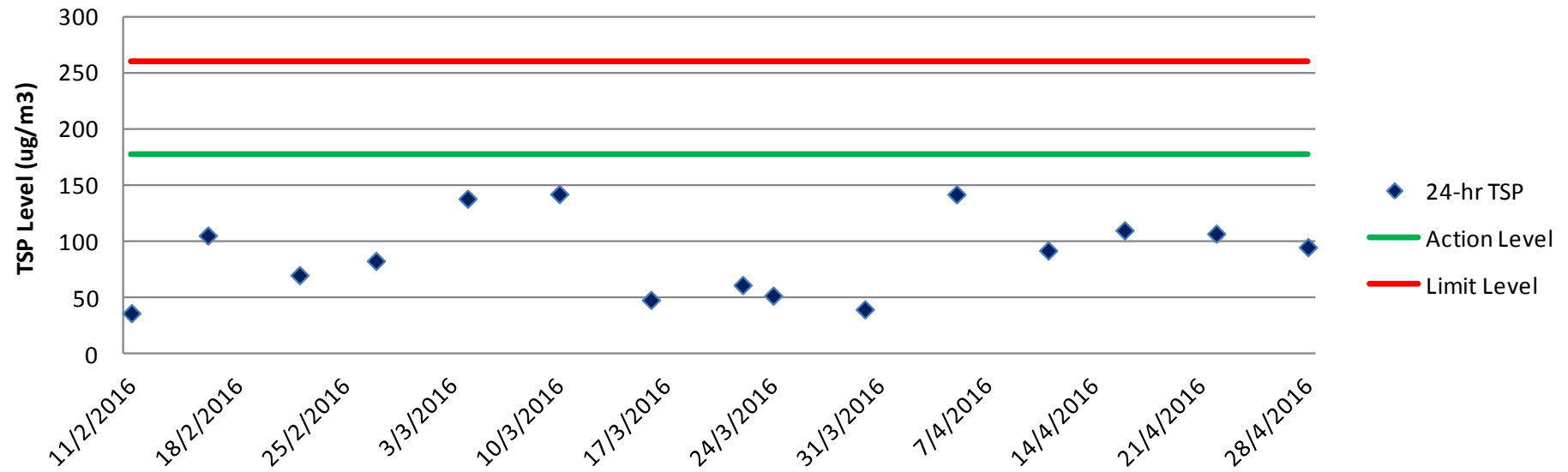


24-hr TSP Monitoring Result for AM3-A

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	Initial	Final	Avg Flow Rate		
AM3-A0211 200510	16 - 25	NW	0-3.6	11/02/16	2.8180	2.8921	0.0741	50	50	50.0	2038.81	36.3447
AM3-A0216 200568	11 - 15	NW	0-5	16/02/16	2.8382	3.0530	0.2148	50	50	50.0	2038.81	105.3554
AM3-A0222 200556	15 - 19	E	0.8-6.6	22/02/16	2.9264	3.0694	0.1430	50	50	50.0	2038.81	70.1389
AM3-A0227 200555	13 - 18	NW	0-6.1	27/02/16	2.9299	3.0987	0.1688	50	50	50.0	2038.81	82.7933
AM3-A0304 200564	18 - 25	NW	0.0 - 3.8	04/03/16	2.8298	3.1395	0.3097	55	55	55.0	2242.69	138
AM3-A0310 200563	10 - 18	NW	0.0 - 7.7	10/03/16	2.8180	3.1369	0.3189	55	55	55.0	2242.69	142
AM3-A0316 200560	14 - 16	E	1.1 - 6.4	16/03/16	2.8922	3.0002	0.1080	55	55	55.0	2242.69	48
AM3-A0322 200561	17 - 18	SE	3.1 - 8.1	22/03/16	2.8427	2.9803	0.1376	55	55	55.0	2242.69	61
AM3-A0324 200570	13 - 19	E	0.0 - 5.2	24/03/16	2.8463	2.9627	0.1164	55	55	55.0	2242.69	52
AM3-A0330 200571	19 - 24	NW	0.0 - 4.2	30/03/16	2.8202	2.9094	0.0892	55	55	55.0	2242.69	40
AM3-A0405 200572	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.8173	3.1352	0.3179	55	55	55.0	2242.69	142
AM3-A0411 200601	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8474	3.0531	0.2057	55	55	55.0	2242.69	92
AM3-A0416 201022	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.7948	3.0414	0.2466	55	55	55.0	2242.69	110
AM3-A0422 201027	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8378	3.0777	0.2399	55	55	55.0	2242.69	107
AM3-A0428 201028	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8185	3.0323	0.2138	55	55	55.0	2242.69	95

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

24hr-TSP AM3-A



Appendix E: Noise Monitoring Data

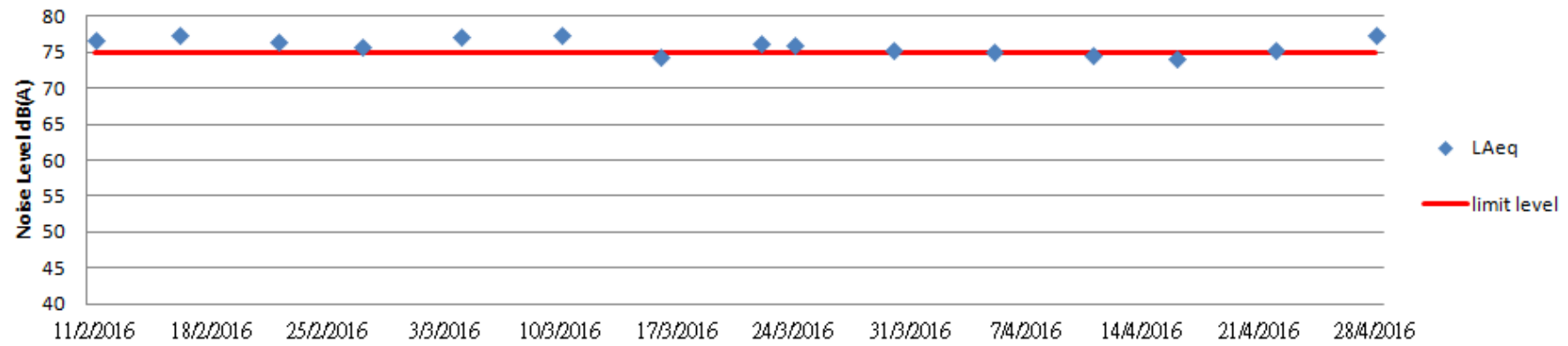
Noise Monitoring Result for NM1

Location	NM1			
Date	11/2/2016	16/2/2016	22/2/2016	27/2/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast
Start Time	16:12	16:10	13:43	16:32
Measurement Period	30min	30min	30min	30min
L _{Aeq}	76.7	77.4	76.5	75.9
L ₁₀	79.3	80.1	79.0	77.8
L ₉₀	72.1	72.8	72.5	70.3

Location	NM1					
Date	4/3/2016	10/3/2016	16/3/2016	22/3/2016	24/3/2016	30/3/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast	Overcast	Sunny
Start Time	10:42	13:07	15:43	14:32	16:37	11:39
Measurement Period	30min	30min	30min	30min	30min	30min
L _{Aeq}	77.3	77.5	74.4	76.3	76.1	75.3
L ₁₀	79.8	80.6	77.1	78.4	78.0	77.9
L ₉₀	73.4	73.4	70.2	71.6	70.8	70.3

Location	NM1				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	14:35	15:20	13:02	15:05	11:02
Measurement Period	30min	30min	30min	30min	30min
L _{Aeq}	75.2	74.8	74.3	75.4	77.5
L ₁₀	78.1	77.7	77.1	78.4	81.1
L ₉₀	69.7	69.8	69.6	70.5	71.4

Noise - NM1



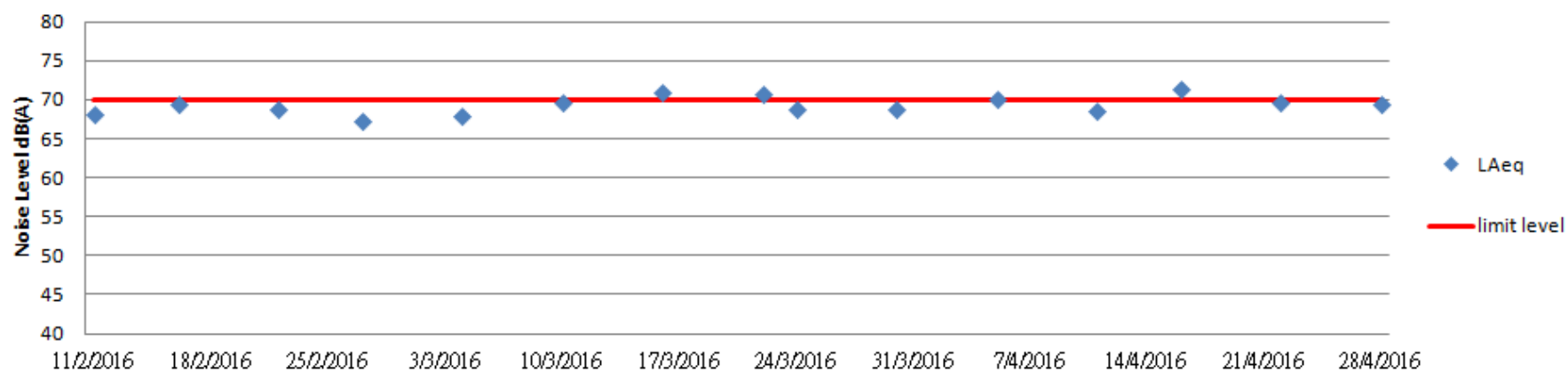
Noise Monitoring Result for NM2

Location	NM2			
Date	11/2/2016	16/2/2016	22/2/2016	27/2/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast
Start Time	9:00	9:00	9:00	9:00
Measurement Period	30min	30min	30min	30min
L _{Aeq}	68.2	69.5	68.9	67.3
L ₁₀	71.3	71.1	70.4	70.1
L ₉₀	65.5	66.3	64.2	62.5

Location	NM2					
Date	4/3/2016	10/3/2016	16/3/2016	22/3/2016	24/3/2016	30/3/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast	Overcast	Sunny
Start Time	9:36	9:00	9:00	9:00	9:00	9:00
Measurement Period	30min	30min	30min	30min	30min	30min
L _{Aeq}	68.0	69.8	71.0	70.8	68.8	68.9
L ₁₀	70.8	73.0	73.4	71.9	72.6	73.7
L ₉₀	68.1	70.2	70.1	69.5	69.2	69.6

Location	NM2				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	9:00	9:00	9:00	9:00	9:00
Measurement Period	30min	30min	30min	30min	30min
L _{Aeq}	70.1	68.6	71.5	69.7	69.5
L ₁₀	71.6	70.1	78.5	72.1	73.4
L ₉₀	68.5	65.3	69.0	63.2	67.8

Noise - NM2



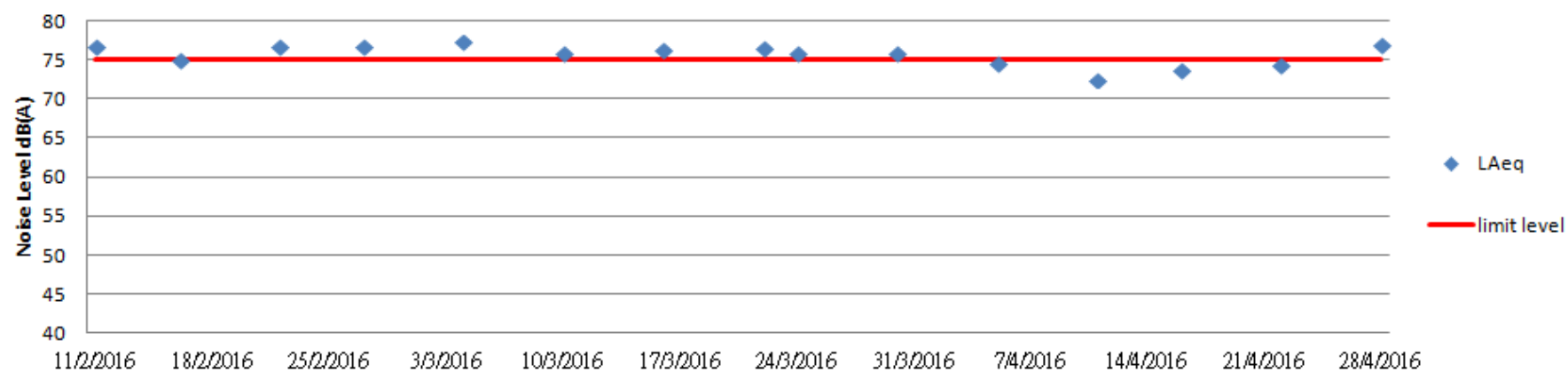
Noise Monitoring Result for NM3

Location	NM3			
Date	11/2/2016	16/2/2016	22/2/2016	27/2/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast
Start Time	15:36	15:33	10:51	15:58
Measurement Period	30min	30min	30min	30min
L _{Aeq}	76.9	75.1	76.9	76.8
L ₁₀	80.0	78.4	79.8	79.6
L ₉₀	71.1	69.5	71.8	72.8

Location	NM3					
Date	4/3/2016	10/3/2016	16/3/2016	22/3/2016	24/3/2016	30/3/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast	Overcast	Sunny
Start Time	10:07	11:11	15:09	13:56	16:02	11:04
Measurement Period	30min	30min	30min	30min	30min	30min
L _{Aeq}	77.4	76.0	76.5	76.6	76.1	75.9
L ₁₀	80.2	78.9	78.1	76.8	78.8	78.0
L ₉₀	72.8	71.5	74.2	74.1	74.2	73.2

Location	NM3				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	15:07	15:20	11:07	14:31	10:26
Measurement Period	30min	30min	30min	30min	30min
L _{Aeq}	74.7	72.6	73.8	74.5	77.1
L ₁₀	77.2	75.7	76.7	74.5	78.8
L ₉₀	70.8	68.2	69.3	69.0	73.6

Noise - NM3



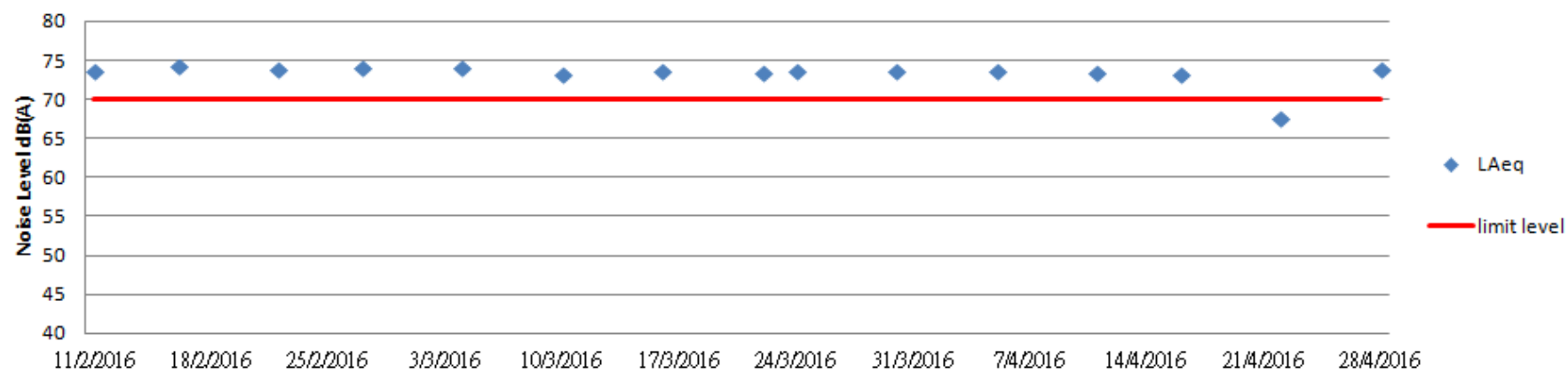
Noise Monitoring Result for NM4

Location	NM4			
Date	11/2/2016	16/2/2016	22/2/2016	27/2/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast
Start Time	13:36	13:37	13:24	13:35
Measurement Period	30min	30min	30min	30min
L _{Aeq}	73.7	74.3	73.9	74.1
L ₁₀	75.9	76.7	76.9	75.5
L ₉₀	64.3	69.0	67.2	66.4

Location	NM4					
Date	4/3/2016	10/3/2016	16/3/2016	22/3/2016	24/3/2016	30/3/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast	Sunny	Sunny
Start Time	13:39	14:34	13:35	13:33	13:33	13:35
Measurement Period	30min	30min	30min	30min	30min	30min
L _{Aeq}	74.1	73.4	73.8	73.5	73.8	73.8
L ₁₀	77.0	75.9	76.6	76.2	76.0	76.7
L ₉₀	67.6	67.1	66.8	66.7	67.2	67.3

Location	NM4				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Sunny
Start Time	9:48	11:45	12:00	13:02	14:03
Measurement Period	30min	30min	30min	30min	30min
L _{Aeq}	73.8	73.5	73.4	67.6	74.0
L ₁₀	75.5	75.7	81.4	69.9	81.6
L ₉₀	71	68.1	65.1	65.6	67.6

Noise - NM4



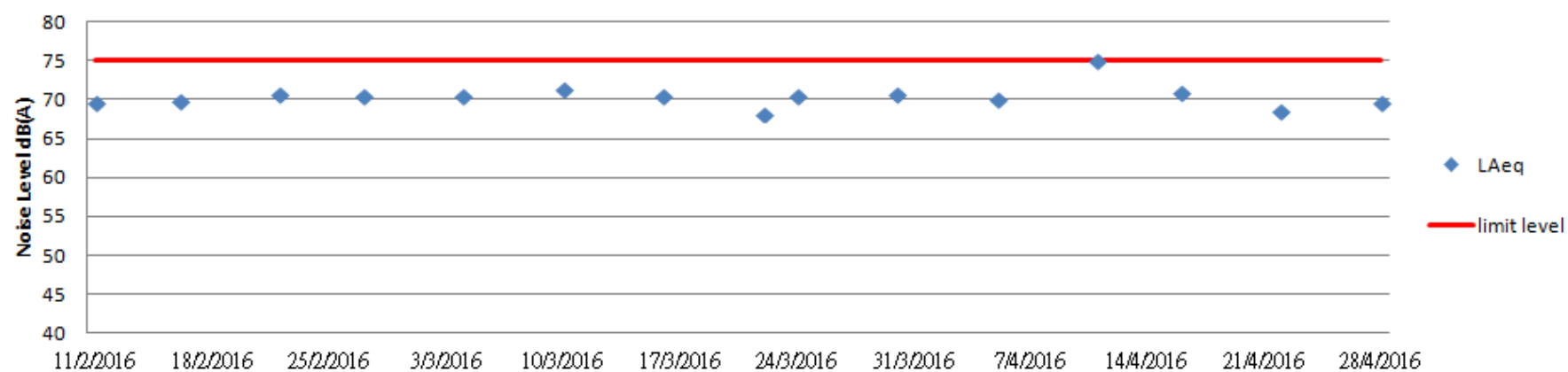
Noise Monitoring Result for NM5

Location	NM5			
Date	11/2/2016	16/2/2016	22/2/2016	27/2/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast
Start Time	15:24	15:28	15:29	15:25
Measurement Period	30min	30min	30min	30min
L _{Aeq}	69.6	69.7	70.6	70.4
L ₁₀	73.5	73.5	73.8	73.8
L ₉₀	62.5	63.4	63.6	63.9

Location	NM5					
Date	4/3/2016	10/3/2016	16/3/2016	22/3/2016	24/3/2016	30/3/2016
Weather Condition	Overcast	Overcast	Sunny	Overcast	Sunny	Sunny
Start Time	15:40	16:23	15:27	15:23	13:20	15:38
Measurement Period	30min	30min	30min	30min	30min	30min
L _{Aeq}	70.5	71.4	70.5	68.1	70.4	70.6
L ₁₀	73.8	73.9	74.1	72.2	73.4	74.1
L ₉₀	64	65.5	64.4	63.3	64.7	64.3

Location	NM5				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Sunny
Start Time	10:45	13:34	13:15	10:51	14:36
Measurement Period	30min	30min	30min	30min	30min
L _{Aeq}	70.1	75.1	70.8	68.5	69.6
L ₁₀	72.5	78.5	78.4	70.2	71.2
L ₉₀	67.2	66.1	64.9	65.6	64.5

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	N/A
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	N/A
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						N/A
		- Carry out adequate surface protection measures well before the arrival of a rainstorm						N/A
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	N/A

		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	N/A

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	N/A

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

		felling within the site. Offsite planting may be required due to land constraint. 410 nos. of compensatory trees have been proposed						
7.9.2.6	OM2	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.	To soften hard landscape	HyD's Contractor	Whole construction site	Construction phase	ETWB TCW 36/2004	N/A
7.9.2.6	OM3	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)	To match with existing landscape character	HyD's Contractor	Whole construction site	Construction phase	ETWB TCW 36/2004	N/A

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, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
February 2016	11	0	0	0
March 2016	19	0	0	0
April 2016	8	2	0	0
Grand Total	38	2	0	0



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group
豐盛創建成員 Member of FSE Holdings

Our ref.: KFMF0165-WKRI-20160407

27th April 2016

Dear Sirs/Madams,

**Contract No. HY/2013/17 –
Road Improvement Works in West Kowloon Reclamation Development**

Complaint Investigation Report and Log

Based on the complaint incident received with details of:

EPD complaint ref.:	(6) in EP3/K03/RE/00007942-2016
PB's letter ref.:	WKRD/(HY/2013/17)/M45/625/17A01854
Date received:	7 th and 8 th April 2016
Incident location:	Lin Cheung Road, Mong Kok
Description:	Two complaints received on 7 th and 8 th April 2016 were referred from EPD on 21 st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25 th April 2016.

Enclosed please find the complaint investigation report and log sheets of the incident as for your record.

Yours faithfully,

Goldie Fung
ET leader

Environmental Pioneers and Solutions Limited

Flat A, 19/F, Chaiwan Industrial Centre, 20 Lee Chung Street, Chai Wan, Hong Kong Tel: (852) 2556 9172 Fax: (852) 2856 2010
香港柴灣利眾街 20 號柴灣中心工業大廈 19 字樓 A 座 電話: (852) 2556 9172 傳真: (852) 2856 2010 <http://www.epsl.com.hk>



Contract No. HY/2013/17 Road Improvement Works in West Kowloon Reclamation Development

Report for Complaint / Concern

EPD complaint ref.: (6) in EP3/K03/RE/00007942-2016

PB's letter ref.: WKRD/(HY/2013/17)/M45/625/17A01854

RECIPIENT

Name: Vibro Construction Company Limited

Details: Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016.

Received Date: 7th and 8th April 2016

Received Time: N/A

COMPLAINANT

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

☒ Noise ☐ Air quality/Dust ☐ Water ☐ Odour ☐ Environment ☐ Traffic/Pedestrian

☐ Safety ☐ Others

Event Date and Time: mid-night and early morning of 7th April 2016 and 8th April 2016

Location: Lin Cheung Road (Scheme HA of the Project)

INVESTIGATION RESULTS, RECOMMENDATIONS & MITIGATION MEASURES

1. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.
2. Findings of the investigation:
 - Under the contract, tree felling works were carried out as per the tree felling proposal approved by Lands Department.
 - Considering the safety of the road user, felling of trees, which are with leaning from and crowns over the carriageway, are required to be carried out at night during implementation of the temporary road closure for a section of Lin Cheung Road Northbound.
 - Prior to tree felling works at night, notification to affected residents (Charming Garden, Park Avenue and Island Harbourview) regarding the night works for tree felling was issued. (Figure.1)
 - Tree felling works were carried out from 5th April 2016 to 8th April 2016. (Figure.2)
 - All the tree felling activities have been carried out in accordance with the requirements of the Construction Noise Permit (CNP) (GW-RE0323-16). (Figure.3)
 - Tree felling works have been completed on 8th April 2016. (Figure.4)
 - The Contractor has requested for cancellation of the CNP to EPD on 8th April 2016. (Figure.5)

3. The Contractor was reminded to implement necessary mitigation measures to lower noise impact for any coming tree felling works.

- Use low-noise emission saws.
- Reduce the percentage on-time for noisy powered mechanical equipment.
- Apply for a CNP and fulfill the requirements and conditions of the CNP.

Signature:



Goldie Fung, ET Leader

Date: 27th April 2016

Figure.1.1 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Charming Garden residents

I am writing to let you know that we will be carrying out tree removal works in the vicinity of Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon during the hours of 11:00 p.m. to 06:00 a.m. from 5 April 2016 to 7 April 2016 and 11 April 2016 to 14 April 2016 respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

RECEIVED
31 MAR 2016

Your truly,
VIBRO CONSTRUCTION CO., LTD.

Leung Kam Fai
Site Agent



c.c.

Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law

Figure.1.2 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Park Avenue residents


I am writing to let you know that we will be carrying out **tree removal works** in the vicinity of **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon** during the hours of **11:00 p.m. to 06:00 a.m.** from **5 April 2016** to **7 April 2016** and **11 April 2016** to **14 April 2016** respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

Your truly,
VIBRO CONSTRUCTION CO., LTD.



Leung Kam Fai
Site Agent



c.c.

Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law

Figure.1.3 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Island Harbourview residents

I am writing to let you know that we will be carrying out **free removal works** in the vicinity of **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon** during the hours of **11:00 p.m. to 06:00 a.m.** from **5 April 2016** to **7 April 2016** and **11 April 2016** to **14 April 2016** respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

Your truly,
VIBRO CONSTRUCTION CO., LTD.


Leung Kam Fai

Site Agent



c.c.
Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law



33 MAR 2016

Figure.2 Tree cutting works in progress



Figure.3 Construction noise permit

本署檔案
OUR REF: (4) in EP631/K03/RE400300-16
來函檔案
YOUR REF: S1609/VC201501-G01/JL/KCL
電話
TEL NO: 2150 8017
圖文傳真
FAX NO: 2402 8275
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon



環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道303號
長沙灣政府合署8樓

Registered Post

29 March 2016

To: VIBRO CONSTRUCTION COMPANY LIMITED
Floor 11, Chevalier Commercial Centre,
8, Wang Hoi Road,
Kowloon Bay, Kowloon

Dear Sirs,

**Notice of Issue of Construction Noise Permit pursuant to
section 8(6) of the Noise Control Ordinance (Cap. 400)**

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 22 March 2016, for the use of powered mechanical equipment for carrying out construction work at **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department Contract No. : HY/2013/17).**

The construction noise permit No. **GW-RE0323-16** is enclosed.

Please note that a special condition concerning advance notification of work has been incorporated into this construction noise permit. Enclosed please find a form which you may use to notify the Authority prior to the commencement of construction work. You are strongly advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and/or the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,


(NG Ping Sum)
for Authority

Encl.

FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

**CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK**

CONSTRUCTION NOISE PERMIT NO. GW-RE0323-16

To : VIBRO CONSTRUCTION COMPANY LIMITED

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

Full address: Road section of Liu Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department

Contract No.: HY2013/17 Lot No.: ---

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. ***PART/WHOLE** of the site falls *** WITHIN/OUTSIDE** a designated area.

3. Powered Mechanical Equipment

- a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
CNP 202	Saw, chain, hand-held	Two

- b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement : 05 April 2016 at 2300 hours

Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.4.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

This part of the permit expires on : 14 April 2016 at 0600 hours

- c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

- d. Other conditions imposed on the use of the powered mechanical equipment:

[The condition(s) imposed for this construction noise permit which is issued as a special case due to constraints on working hours to avoid causing serious interruption to road transport.]

1. The powered mechanical equipment listed above shall only be operated during the hours shown below:

Sunday to Thursday	0000 – 0600 hours <u>and</u> 2300 – 2400 hours
The powered mechanical equipment shall not be used more than <u>5 days</u> during the valid period of this Construction Noise Permit.	

2. All care shall be taken to ensure that the construction work is carried out as quickly as possible with due regard for the potential noise intrusion which may result.

3. The construction work in relation to this Construction Noise Permit shall only be carried out with prior notification of the location, the date and the time of the work to reach the Authority by email (email address: hotline_csw@epd.gov.hk), fax (fax no. 2402 8275) or by post at least 48 hours before commencing the work.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Nil.

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : 05 April 2016 at 2300 hours

Date and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday.

This part of the permit expires on : 14 April 2016 at 0600 hours

c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at both ends of road section on a standing sign board of adequate size for public information.

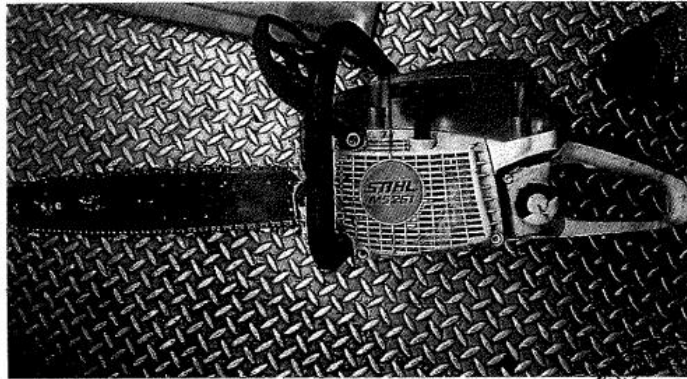
Dated this 29th day of March 2016

Signed :

(NG Ping Sum)
for Authority

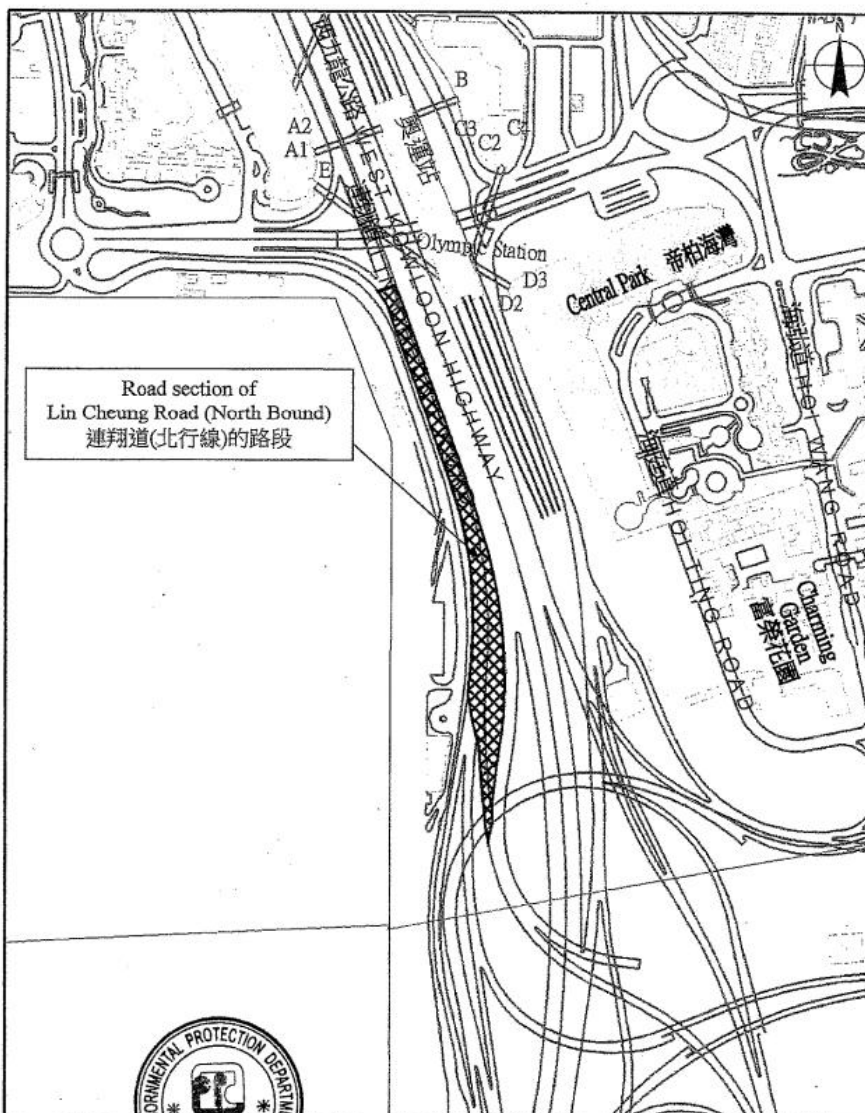
* Delete as necessary

Photograph attached to Construction Noise Permit No. GW-RE0323-16
建築噪音許可證編號 GW-RE0323-16 的照片



CNP 202 Saw, chain, hand-held
鏈鋸，手提型





Road section of
Lin Cheung Road (North Bound)
連翔道(北行線)的路段



環境保護署

Environmental Protection Department Noise Control Authority

噪音管制監督

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0323-16 的附圖

比例 Scale 1:5,000

Plan attached to Construction Noise Permit No. GW-RE0323-16

0 25 50 100 150 米Meters

Figure.4.1 Tree cutting works completed



Figure.4.2 Tree cutting works completed



Figure.5 Cancellation of Construction Noise Permit

本署檔案
OUR REF: (8) in EP631/K03/RE400300-16
來函檔案
YOUR REF:
電話
TEL NO: 2150 8017
圖文傳真
FAX NO: 2402 8275
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon

環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道303號
長沙灣政府合署8樓

Site DMS VC201501
Rec'd on 12 APR 2016

2016B003354



Registered Post

11 April 2016

To: VIBRO CONSTRUCTION COMPANY LIMITED
Floor 11, Chevalier Commercial Centre,
8, Wang Hoi Road,
Kowloon Bay, Kowloon

Dear Sirs,

Cancellation of Construction Noise Permit

I refer to your E-mail dated 08 April 2016 requesting for cancellation of construction noise permit No. GW-RE0323-16 which was issued to you on 29 March 2016 for using powered mechanical equipment for carrying out general construction work at Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department Contract No.: HY/2013/17).

Pursuant to section 8(11)(a) of the Noise Control Ordinance, the Authority confirms that the CNP No. GW-RE0323-16 will be cancelled on **12 April 2016**.

Yours faithfully,


(NG Ping Sum)
for Authority


c.c. Divisional Commander of Police
Mong Kok Division
(Fax No.: 2789 2123)

COMPLAINT / CONCERN LOG

ET's ref.: KFMF0165-WKRI-20160407

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>ET's Ref no.: KFMF0165-WKRI-20160407</p> <p>PB's Ref no.: WKRD/(HY/2013/17)/M45/625/17A01854</p> <p>EPD complaint ref.: (6) in EP3/K03/RE/00007942-2016</p>	Lin Cheung Road (Scheme HA of the Project)	Two complaints received on 7 th and 8 th April 2016.	Two complaints received on 7 th and 8 th April 2016 were referred from EPD on 21 st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25 th April 2016.	<p>1. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.</p> <p>2. Findings of the investigation:</p> <ul style="list-style-type: none"> - Under the contract, tree felling works were carried out as per the tree felling proposal approved by Lands Department. - Considering the safety of the road user, felling of trees, which are with leaning from and crowns over the carriageway, are required to be carried out at night during implementation of the temporary road closure for a section of Lin Cheung Road Northbound. - Prior to tree felling works at night, notification to affected residents (Charming Garden, Park Avenue and Island Harbourview) regarding the night works for tree felling was issued. - Tree felling works were carried out from 5th April 2016 to 8th April 2016. - All the tree felling activities have been carried out in accordance with the requirements of the Construction Noise Permit (CNP) (GW-RE0323-16). - Tree felling works have been completed on 8th April 2016. - The Contractor has requested for cancellation of the CNP to EPD on 8th April 2016. <p>3. The Contractor was reminded to implement necessary mitigation measures to lower noise impact for any coming tree felling works.</p> <ul style="list-style-type: none"> - Use low-noise emission saws. - Reduce the percentage on-time for noisy powered mechanical equipment. - Apply for a CNP and fulfill the requirements and 	Yes

				conditions of the CNP.	
--	--	--	--	------------------------	--

Filed by Environmental Team Leader: _____  _____

Date: 27th April 2016